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AIR FORCE MATERIEL COMMAND (AFMC)

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Maintenance

OBJECTIVE CENTER/TEST WING AIRCRAFT MAINTENANCE MANAGEMENT POLICY

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

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This instruction implements the provisions of AFPD 21-1, *Managing Aerospace Equipment Maintenance,* and AFI 21-101*, Maintenance Management of Aircraft,* AFPD 38-1*, Organization,* and AFI 38-101*, Air Force Organization.* This instruction prescribes policies and procedures governing aircraft maintenance management for AFMC product, test, and specialized centers. It provides a broad management framework for group commanders and directorate directors to adjust procedures to compensate for mission, facility, and geographic differences of the unit. The standard wing organizational concept is the benchmark for USAF field organizations. AFMC commanders agreed to consider the conceptual philosophy of the standard wing and apply it to AFMC to the maximum extent possible. The objective center/test wing is the AFMC approach to satisfy this agreement and this instruction implements maintenance management philosophy developed for the above mentioned centers. Specific procedures for waiver requests and proposed changes to this instruction are provided in **Chapter 1**, **1.2.**. Send comments, questions, and suggested improvements to this publication on AF Form 847, **Recommendation for Change of Publication**, through appropriate channels to HQ AFMC/DOM/XPMO, 4375 Chidlaw Rd, Wright-Patterson AFB OH 45433-5066.

SUMMARY OF REVISIONS

This instruction reflects new and completely revised guidance applicable to the objective center/test wing. This rewrite contains significant changes and restructuring. A thorough review by users, senior leaders, managers, and supervisors must be accomplished to ensure units are operating with current guidance.

Chapter 1— MANAGEMENT PHILOSOPHY AND POLICY **21**

1.1. Purpose of the Maintenance Organization. 21

1.2. Procedures for Waiver Requests and Proposed Changes. 22

1.3. Maintenance Organization. 22

1.4. Maintenance Standardization. 23
1.5. Equipment Readiness. 23
1.6. Reliability and Maintainability (R&M). 23
1.7. Duty Hours. 23
1.8. Maintenance Training. 24
1.9. Command Munitions Policy. 24
1.10. Operating Instructions (OI). 25
1.11. Overprinted Forms Control. 25
1.12. Communications and Transportation. 25
1.13. Maintenance Information Systems (MIS). 25
1.14. Cannibalization (CANN). 25
1.15. Maintenance Repair Priorities. 26
1.16. Individual Mobilization Augmentees (IMA). 26
1.17. Contracted Maintenance Operations. 27
Figure 1.1. Wing Organizations 28
Figure 1.2. Wing Organizations 28
Figure 1.3. Wing Organizations 29
Figure 1.4. Wing Organizations 30
Figure 1.5. Wing Organizations 31
Figure 1.6. Wing Organizations 32
Figure 1.7. Wing Organizations 33
Figure 1.8. Wing Organizations 34
Figure 1.9. Wing Organizations 35
Figure 1.10. Wing Organizations 35
Table 1.1. Maintenance Repair Priorities 36

Chapter 2— GENERAL RESPONSIBILITIES FOR COMMANDERS AND KEY MANAGERS 39

2.1. General. 39
2.2. Wing Commander (WG/CC) Responsibilities. 39
2.3. Group Commander (GP/CC)/Director Responsibilities. 39
2.4. Squadron Commander/Division Chief Responsibilities. 41

2.5. Squadron/Division Maintenance Officer (SMO)/Maintenance Supervisor (MS) Responsibilities. 43
2.6. Flight Commander/Chief (Branch) Responsibilities. 46
2.7. Section Chief Responsibilities. 48

Chapter 3— KEY WING MANAGERS' RESPONSIBILITIES 51

Section 3A Test 51
3.1. General. 51
Section 3B Operations Group Commander (OG/CC) Responsibilities. 51
3.2. General. 51
Section 3C Logistics Group (LG/CC) Responsibilities. 53
3.3. General. 53
Section 3D Director Responsibilities. 56
3.4. General. 56
Section 3E Wing Weapons Manager (WWM). 56
3.5. Responsibilities. 56

Chapter 4— MAINTENANCE SUPPLY SUPPORT 59

Section 4A Test 59
4.1. General. 59
Section 4B Maintenance Supply Responsibilities. 59
4.2. Responsibilities. 59
4.3. General Workcenter Supply Requirements. 60
4.4. Bench Check and Repair Policy. 61
4.5. Repair Cycle Asset Management. 62
4.6. Control of AWP Assets and Cross-Cannibalization. 63
4.7. Removal of Bit and Piece Repair Parts from Condemned Assets. 63
4.8. Local Manufacture. 64
4.9. Critical Item Control. 64
4.10. Supply Request Procedures. 65
4.11. Quick Reference Lists (QRL). 65
4.12. Tail Number Bin (TNB). 65

4.13. Status Boards. 66
4.14. Unsatisfactory Supply Status. 66
4.15. Supply Point and Buildup Items. 66
4.16. Supply Assets Requiring Functional Check, Calibration, or Operational Flight Programming. 67
4.17. Bench Stock. 67
4.18. Operating/Shop and Residual Stock. 69
4.19. Shelf Life. 69
4.20. Economic Order Quantity (EOQ)/XB3 Turn In. 69
4.21. Contract Maintenance. 70
4.22. Equipment Acquisition and Support. 70
4.23. Material Deficiency Exhibit. 70
4.24. Reliability Improvement Warranty (RIW) Program. 70
4.25. Special Purpose Recoverables Authorized to Maintenance (SPRAM). 70
4.26. Adjusted Stock Levels. 71
4.27. Time Compliance Technical Order (TCTO) Kit Procedures. 71
4.28. Preplanned and Time Change Item (TCI) Requirements. 72
4.29. Supply Reports and Listings. 72

Section 4C Decentralized Supply Support Procedures. 74

4.30. Combat Oriented Supply Organization (COSO) Procedures. 74

Chapter 5— OPERATIONS SUPPORT SQUADRON (OSS) 75

Section 5A Test 75

5.1. OSS General Description. 75

Section 5B Current Operations Flight. 75

5.2. OSS Current Operations Flight General Responsibilities. 75
5.3. Current Operations Flight Commander/Chief Responsibilities. 76

Section 5C Plans, Scheduling and Documentation Section (PS&D). 76

5.4. OSS PS&D Section General Responsibilities. 76
5.5. Aerospace Vehicle Distribution Officer (AVDO). 78
5.6. OSS 2R1 Functional Manager. 79
5.7. Job Control and Equipment Identification Numbers 79

5.8. Depot Programs. 80
5.9. Major Maintenance Work Processing. 80
5.10. Documents Review. 80
5.11. Documentation Section. 80
5.12. Management of TCTOs. 81
5.13. Time Change Items (TCI). 86
5.14. Aircraft Configuration Management (ACM). 86
5.15. Operational/Test Planning Cycle. 87
5.16. Maintenance Planning Cycle. 88
5.17. Flying Hour Reporting. 88
5.18. Quarterly Scheduling. 88
5.19. Monthly Scheduling. 88
5.20. Weekly/Daily Scheduling. 89
5.21. Changes to the Weekly/Daily Schedule. 90

Section 5D Maintenance Data Systems Analysis (MDSA) Section. 90

5.22. MDSA and Deficiency Analysis. 90
5.23. Personnel Qualification. 90
5.24. MDSA Team Concept. 90
5.25. MDSA Section Responsibilities. 90
5.26. Maintenance Information Systems (MIS). 91
5.27. Core Automated Maintenance System (CAMS). 92
5.28. Managing the CAMS Database. 92
5.29. CAMS/REMIS System Security. 94
5.30. Responsibilities for Workcenters Using CAMS. 95
5.31. CAMS/REMIS Subsystem Managers. 95
5.32. Tenant Support. 96
5.33. Nonstandard CAMS/REMIS Products. 96
5.34. Documentation Accuracy and Completeness. 97
5.35. Data Integrity Teams (DIT). 97
5.36. CAMS Users Group. 98
5.37. Maintenance Performance. 98
5.38. Equipment/Mission Analysis. 98

5.39. Analytical Process. 99
5.40. Analytical Studies. 99
5.41. Maintenance Analysis Referrals. 100
5.42. Functions of Deficiency Analysis. 100
5.43. Base Repair/IREP Program. 101
5.44. Dedicated OS Analysis. 101
5.45. Unit Maintenance Data Presentations. 102
5.46. Functional Manager. 102

Section 5E Microcomputer Systems Management Section. 102

5.47. Microcomputer Systems Management Section Responsibilities. 102

Section 5F Maintenance Supply Liaison (MSL) Section. 103

5.48. MSL Section Responsibilities. 103

Section 5G Programs Section. 104

5.49. Programs Section Responsibilities. 104
5.50. Financial Management. 104
5.51. Manning Management. 105
5.52. Facilities Management. 106
5.53. Deployment Section. 107
5.54. Inspection/Systems Support Sections. 108

Chapter 6— MAINTENANCE OPERATIONS CENTER (MOC) 110

6.1. General. 110
6.2. MOC Personnel. 111
6.3. MOC Facilities. 112
6.4. Visual Aids. 112
6.5. Maintenance Communications. 113
6.6. Maintenance Repair Priorities. 113
6.7. Specialist Use and Control. 113
6.8. Selected Generation Aircraft. 114
6.9. Transient Aircraft. 114
6.10. Procedural Checksheets. 114

Chapter 7— OPERATIONS SQUADRON (OS)/TEST SQUADRON (TS) 115

Section 7A Test 115

7.1. OS Maintenance. 115

Section 7B Responsibilities. 115

7.2. Squadron Commander Responsibilities. 115

7.3. Squadron Maintenance Officer (SMO)/Maintenance Supervisor (MS) Responsibilities. 115

7.4. In-Process Inspections (IPI). 116

7.5. Deferred Discrepancies. 117

7.6. Discrepancies Deferred for Parts: 118

7.7. Major Maintenance Work Processing. 119

Section 7C OS Plans, Scheduling, and Documentation Section (PS&D)(if assigned). 119

7.8. General. 119

7.9. Document Review and Validation. 120

Section 7D Sortie Generation Flight. 123

7.10. General Responsibilities. 123

7.11. Sortie Generation Flight Commander/Chief Responsibilities. 123

7.12. Production Superintendent. 123

7.13. Expediters. 124

7.14. Aircrew Debriefing. 126

7.15. Debriefing Procedures. 127

7.16. Munitions Expenditures Reporting. 129

7.17. Deployed Debriefing Procedures. 130

7.18. Debriefing Facility. 130

7.19. Debriefing Aids. 130

7.20. Aviation Fuels Management Accounting System. 130

Section 7E Aircraft Section. 131

7.21. Aircraft Section. 131

7.22. Dedicated Crew Chiefs (DCC). 131

7.23. Specialist Section. 132

7.24. Air Force Satellite Communications (AFSATCOM)/Satellite Communications (SATCOM) Checkout. 133
7.25. Weapons Section (WS). 134
7.26. WS Chief. 134
7.27. Weapons Expediter. 136
7.28. Weapons Load Crew Chief. 136
7.29. Weapons Load Crew. 137
7.30. Weapons Task Qualification. 138

Section 7F Sortie Support Flight. 138

7.31. General. 138
7.32. Sortie Support Flight Commander/Chief Responsibilities. 138
7.33. Inspection Section. 138
7.34. Support Section. 140

Chapter 8— WEAPONS STANDARDIZATION SECTON (WSS) 142

8.1. General. 142
8.2. WSS Superintendent/NCOIC Responsibilities. 144
8.3. Loading Standardization Crew (LSC). 146
8.4. Standardization Lead Crews (SLC). 147
8.5. Integrated Combat Turnaround (ICT) Program. 147
8.6. Academic Instructor. 147
8.7. Transient Aircraft. 147
8.8. Training Facilities. 147
8.9. Academic Training. 147
8.10. Practical Training. 148
8.11. Task Assignment List (TAL). 149
8.12. Certification/Qualification. 149
8.13. Minimum Proficiency Requirement Loading (MPRL). 150
8.14. Quarterly Evaluations (QE). 150
8.15. Evaluation Criteria. 150
8.16. Documentation. 151
8.17. Load Crew Composition. 152
8.18. Munitions Load Time Standards. 152

Table 8.1. Fighter Aircraft Munitions Family Group (MFG) and Load Time Standards 153

Table 8.2. Bomber Aircraft Munitions Family Group (MFG) and Load Training Time Standards. 154

Chapter 9— QUALITY ASSURANCE (QA) 156

Section 9A Test 156

9.1. Maintenance Personnel. 156

Section 9B Functions of Quality Assurance. 156

9.2. General. 156

9.3. Organization. 156

9.4. Augmentation. 157

9.5. Training. 157

9.6. QA Supervisor/Superintendent. 158

9.7. LG QA Responsibilities. 160

9.8. OG QA Responsibilities. 161

9.9. Chief Inspector and Inspector Responsibilities. 161

9.10. Dedicated Inspector System. 162

Section 9C Quality Assurance Program (QAP). 162

9.11. General. 162

9.12. Elements of the QAP. 162

Section 9D Evaluations and Inspections. 165

9.13. General. 165

9.14. Personnel Evaluations (PE). 165

9.15. Quality Verification Inspections (QVI). 167

9.16. Safety and Technical Violations (STV). 167

9.17. Special Inspections (SI). 168

9.18. Other Inspections (OI). 168

9.19. Classification of Discrepancies. 170

9.20. Establishing Acceptable Quality Levels (AQL). 171

Section 9E QA Reports. 171

9.21. General. 171

9.22. Report Preparation. 172

9.23. Trend Analysis. 173
9.24. Weekly Summary Reports. 174
9.25. Monthly QA Review Boards. 174
9.26. Monthly Summary Reports. 174
9.27. QAP Summary. 174
9.28. Spot Checks. 175
9.29. Reports and Forms. 175

Section 9F QA Programs. 175

9.30. General. 175
9.31. Product Improvement Program (PIP). 175
9.32. Product Improvement Manager (PIM) Responsibilities. 175
9.33. Monitoring the Configurations Management Process. 176
9.34. Deficiency Reporting. 177
9.35. Deficiency Assessment. 178
9.36. R&M Working Groups Input and Preparation. 178
9.37. Maintenance Related IDEA Program Applications (AF Form 1000). 178
9.38. Technical Order Distribution Office (TODO). 178
9.39. One-Time Inspections (OTI). 179
9.40. Functional Check Flight (FCF). 180
9.41. High-Speed Taxi Checks. 184
9.42. Weight and Balance (W&B). 184
9.43. Chafing Awareness. 185
9.44. Squadron Assessment Program (SAP). 186
9.45. Squadron Self-Inspection Program. 186

Section 9G Gold Savings Through Asset Repair Teams (Gold START) Program. 186

9.46. General. 186

Chapter 10— LOGISTICS SUPPORT SQUADRON (LSS) 187

Section 10A Test 187

10.1. LSS Responsibilities. 187
10.2. Squadron Commander Responsibilities. 187
10.3. Flight Commander/Chief Responsibilities. 187

10.4. Aircraft Maintenance Training Program. 187

Section 10B Logistics Training Flight (LTF) 187

10.5. General. 187

10.6. LTF Responsibilities. 187

10.7. Development and Instructor Section. 188

10.8. Training Management Section. 188

10.9. Core Automated Maintenance System (CAMS) Training Subsystem. 188

10.10. Training Documents. 189

10.11. Scheduling Training Requirements. 189

10.12. Maintenance Instructors. 189

10.13. Maintenance Testing. 189

Section 10C Logistics Operations Flight. 189

10.14. General. 189

10.15. Maintenance Supply Liaison (MSL) Section. 189

10.16. Engine Management (EM) Section. 190

10.17. SRAN Engine Manager (SEM). 192

10.18. Programs Section. 193

Section 10D Logistics Plans Flight. 196

10.19. General. 196

Chapter 11— MAINTENANCE SQUADRON (MXS) 198

11.1. General. 198

11.2. Squadron Commander Responsibilities. 198

11.3. Maintenance Supervisor (MS)/Superintendent Responsibilities. 198

11.4. Production Superintendent. 199

11.5. Specialist Support. 200

11.6. Munitions Accountable Systems Officer (MASO). 200

11.7. Weapons Storage Facilities. 200

11.8. Squadron Deployments. 201

Chapter 12— PROPULSION FLIGHT 202

12.1. General. 202

12.2. Propulsion Flight Chief Responsibilities. 202

12.3. Units Supported by Two-level Maintenance (2LM)/Regional Repair. 205
12.4. Material Support Section. 205
12.5. Jet Engine Intermediate Maintenance (JEIM) Section. 205
12.6. Test Cell and Noise Suppression System (NSS) Section. 209
12.7. Accessory Repair Section. 209
12.8. Small Gas Turbine Engine Section. 210
12.9. Engine Support Equipment (ESE) Section. 210
12.10. Propeller Section. 210
12.11. Scheduling and Control. 210

Chapter 13— TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE) FLIGHT 211

13.1. General. 211
13.2. TMDE Flight Chief. 211
13.3. PMEL Total Quality Program (TQP). 213
13.4. Production Control Section. 213
13.5. TMDE Collection Point. 217

Chapter 14— AVIONICS FLIGHT 218

14.1. General. 218
14.2. Flight Chief Responsibilities. 218
14.3. Avionics Sections. 218
14.4. Communications-Navigation (COMM/NAV) Section. 219
14.5. Guidance and Control Systems Section. 219
14.6. Sensor Section. 219
14.7. Electronic Warfare System (EWS) Section. 220
14.8. Avionics Test Stations (ATS) Section. 220
14.9. F-15 Avionics Intermediate Section (AIS). 220
14.10. Circuit Card Repair (CCR) Section. 220
14.11. Cryptographic Section (or equivalent). 220
14.12. Historical Records. 220
14.13. Organization of Avionics Sections. 221
14.14. Avionics Production. 222
14.15. Two-level Maintenance (2LM). 222

Table 14.1. Actual Conditions 223
Table 14.2. Production Priority File 223

Chapter 15— ACCESSORY FLIGHT 224
15.1. General. 224
15.2. Flight Chief Responsibilities. 224
15.3. Electrical/Environmental Section. 224
15.4. Egress Section. 225
15.5. Fuel Systems Section. 226
15.6. Pneudraulics Section. 227

Chapter 16— AEROSPACE GROUND EQUIPMENT (AGE) FLIGHT 229
16.1. General. 229
16.2. Flight Chief Responsibilities. 229
16.3. Subpools. 230
16.4. Tow Vehicles. 230
16.5. Vehicle Status. 230
16.6. Inspection and Repair Section (I&R). 231
16.7. Servicing, Pick up, and Delivery (SPD) Section. 231
16.8. Non-powered AGE (NPA) Section. 232
16.9. AGE Production Support Section. 232
16.10. AGE Scheduling. 233
16.11. AGE Supply Support. 233
16.12. AGE Production Superintendent. 233

Chapter 17— FABRICATION FLIGHT 235
17.1. General. 235
17.2. Flight Chief Responsibilities. 235
17.3. Aircraft Structural Maintenance Section. 235
17.4. Aircraft Metals Technology Section. 236
17.5. Survival Equipment Section. 238
17.6. Nondestructive Inspection (NDI) Section. 239
17.7. Oil Analysis Program (OAP) Laboratory Responsibilities. 240

Chapter 18— MAINTENANCE FLIGHT **241**
18.1. General. 241
18.2. Maintenance Flight Commander/Chief Responsibilities. 241
18.3. Repair and Reclamation (R&R) Section. 241
18.4. Wheel and Tire Section. 242
18.5. Transient Aircraft (TA) Maintenance Section. 243

Chapter 19— ARMAMENT FLIGHT **245**
19.1. General. 245
19.2. Flight Chief Responsibilities. 245
19.3. Maintenance Section. 246
19.4. Alternate Mission Equipment (AME) Section. 246
19.5. Support Section. 247

Chapter 20— MUNITIONS FLIGHT **249**
20.1. General. 249
20.2. Responsibilities. 249
20.3. Production Section. 249
20.4. Material Section. 249
20.5. Systems Section. 249
20.6. Nuclear Weapons Maintenance Section. 249
20.7. Combined Bomber Missile and Gravity Weapons/Systems Maintenance Section. 250
20.8. Section Elements. 250
Table 20.1. Element Alignment Matrix. 251
20.9. Weapons Maintenance Control Element (or equivalent). 251
20.10. Nuclear Weapons Maintenance Element. 256
20.11. Weapons Support Element. 256
20.12. SWIM/NOCM Accountability Element. 256

Chapter 21— COMPOSITE TOOL KIT (CTK) MANAGEMENT **257**
21.1. General. 257
21.2. Terms Explained. 257
21.3. Guidelines for Program Management. 258
21.4. Marking and Tool Identification. 260

21.5. Tool Accountability and Control. 260
21.6. Forms. 261
21.7. Security Guidelines. 261
21.8. Inventories. 262
21.9. Lost Tool Procedures. 262
21.10. Tool Replacement Procedures. 263
21.11. Rag Control Procedures. 264
21.12. Warranty/Quality Tool Program. 264
21.13. Locally Manufactured Tools. 265

Chapter 22— MAINTENANCE CONTRACT SURVEILLANCE 266

Section 22A Responsibilities and Training. 266

22.1. General. 266
22.2. Responsibilities. 266
22.3. Functional Area Chief (FAC) Responsibilities. 266
22.4. Chief QAE Responsibilities. 267
22.5. QAE Responsibilities. 268
22.6. QAE Training. 269

Section 22B Quality Assurance Evaluation Program (QAEP). 270

22.7. General. 271
22.8. The Quality Assurance Surveillance Plan (QASP). 271
22.9. Surveillance Schedules. 273
22.10. Evaluation Guides. 273
22.11. Technical Areas. 274
22.12. Observation Work Areas. 275
22.13. Discrepancy Categories. 276
22.14. Documentation File Inspections. 277
22.15. Foreign Object (FO) Inspections. 277
22.16. Documentation of Safety and Health Violations. 277
22.17. Training Observations. 277
22.18. Validation of Information. 277
22.19. Compiling Results. 277

22.20. QAE Assessment Program. 278

Section 22C Surveillance Documentation. 278

22.21. General. 278

22.22. Unacceptable Performance. 278

22.23. Surveillance Reviews. 279

Section 22D Contract Logistic Support (CLS) Surveillance. 279

22.24. General. 279

22.25. CLS Contract Management. 279

22.26. FAC, QAE, QAR, TRCO, and PMCO Responsibilities. 279

22.27. QAE, QAR, TRCO, and PMCO Surveillance Requirements. 280

Chapter 23— SPECIAL PROGRAMS 281

Section 23A Impoundment of Aircraft and Equipment 281

23.1. General. 281

23.2. Terms. 281

23.3. Procedures. 283

23.4. Responsibilities. 283

23.5. Rules of Impoundment for Explosive-Related Mishaps. 284

Section 23B End of Runway (EOR) Inspection 284

23.6. General. 284

Section 23C Management of Hangar Queen Aircraft 286

23.7. General. 286

23.8. Definition. 286

23.9. Responsibilities. 287

23.10. Reporting. 287

23.11. Records Management. 287

23.12. Asset Management. 288

Section 23D Hot Refueling Procedures (when applicable) 288

23.13. General. 288

23.14. Prerequisites. 288

23.15. Base Certification. 289

23.16. Hot Refueling Team Members. 290
23.17. Capability. 290
23.18. Training/Certification. 290
Table 23.1. Hot Refueling Training/Certification Requirements. 291
23.19. Personnel Certification/Decertification. 292
Section 23E Transfer of Aircraft and Aerospace Ground Equipment (AGE) 293
23.20. General. 293
23.21. Procedures for Aircraft Transfer. 293
23.22. Status Reporting. 295
23.23. Procedures for AGE Transfer. 295
Section 23F Identification, Friend or Foe (IFF), Mode 4 Reliability 295
23.24. General. 295
Section 23G Radar Warning Receiver (RWR) Testing 296
23.25. General. 296
Section 23H Foreign Object Damage (FOD) Prevention Program 296
23.26. General. 296
23.27. Definition. 296
23.28. FOD Prevention Responsibilities. 297
23.29. FOD Prevention. 298
23.30. FOD Investigation and Reporting. 302
23.31. FOD Prevention Committee Meeting. 304
Section 23I Dropped Object Prevention Program (DOPP) 305
23.32. General. 305
23.33. Responsibilities. 305
23.34. Prevention. 306
23.35. Investigation. 306
23.36. Reporting. 306
Section 23J Aircraft Structural Integrity Program (ASIP) and Related Programs 308
23.37. General. 308
Section 23K Red Ball Maintenance Procedures 309

23.38. General. 309

Section 23L Flexible Borescope Inspection Training and Certification Program 310

23.39. General. 310

23.40. Target Population. 310

23.41. Formal Training. 310

23.42. Certification Criteria. 310

23.43. Documentation. 310

23.44. Proficiency Requirements. 310

23.45. Annual Recertification. 310

Section 23M Intermediate Repair Enhancement Program (IREP) 311

23.46. General. 311

23.47. Subject Matter Review. 311

23.48. IREP Meeting. 312

Section 23N Management of Permanently Assigned Ground Maintenance Trainer (GMT) Aircraft 312

23.49. General. 313

Section 23O Use of Aircraft Chocks 313

23.50. General. 313

23.51. Approved Chocks. 313

23.52. Chock Usage. 314

23.53. Chock Painting. 314

23.54. Chock Markings. 314

Section 23P Oil Analysis Program (OAP) Responsibilities and Requirements 315

23.55. General. 315

Figure 23.1. Sample Quarterly OAP Report. 317

Section 23Q Critical Tasks 321

23.56. General. 321

Section 23R Preflight Safety (Ramp) Inspection Program 322

23.57. General. 322

23.58. Objective. 322

23.59. Terms Defined. 322
23.60. Program Responsibilities. 323
23.61. Ramp Inspectors. 323
23.62. AMC Form 234, AMC Ramp Inspection Checklist. 324
23.63. Applicable Directives and Forms. 324

Section 23S Certified Technician Program (CTP) 324
23.64. General. 324

Section 23T Special Certification Roster (SCR) 324
23.65. General. 324

Section 23U In Process Inspections (IPI) 326
23.66. General. 326

Section 23V Production Inspectors 326
23.67. General. 326

Section 23W Aircraft Battle Damage Repair (ABDR 327
23.68. General. 327

Section 23X War Reserve Materiel (WRM) External Fuel Tank (EFT) Build-up 327
23.69. General. 327

Section 23Y Engine Inlet Inspection Training and Certification Program 327
23.70. General. 327
23.71. Target Population. 327
23.72. Formal Training. 327
23.73. Certification Criteria. 328
23.74. Documentation. 328
23.75. Proficiency Requirements. 328
23.76. Annual Recertification. 328

Section 23Z Engine Blade Blending Training and Certification Program 328
23.77. General. 328
23.78. Target Population. 328
23.79. Formal Training. 328
23.80. Certification Criteria. 328

23.81. Documentation. 328
23.82. Proficiency Requirements. 329
23.83. Annual Recertification. 329

Section 23AA Aircraft Intake Maintenance Training and Certification Program 329

23.84. General. 329
23.85. Target Population. 329
23.86. Formal Training. 329
23.87. Certification Criteria. 329
23.88. Documentation. 329
23.89. Annual Recertification. 329

Section 23AB Flying Crew Chief (FCC) Program 329

23.90. General. 329

Section 23AC Engine Run Training and Certification Program 329

23.91. Engine Run Program. 330
23.92. Aircraft Engine/APU Run Certification Requirements. 331
23.93. Operation of Engines on Test Stands and Cells. 335

Section 23AD Squadron Assessment Program (SAP) 338

23.94. General (GP/CC Option). 338
23.95. Functions of the SAP. 338
23.96. Strategy Meeting. 339
23.97. Identifying Squadron Assessors. 339
23.98. Training Squadron Assessors. 339
23.99. Dedicated QA Inspector's Role. 339
23.100. Conducting Assessments. 340
23.101. Reporting and Trend Analysis. 340
23.102. Monthly Projections. 340

Section 23AE Squadron Self-Inspection Program (GP/CC Option) 340

23.103. General. 340

Attachment 1— GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION 341

Chapter 1

MANAGEMENT PHILOSOPHY AND POLICY

1.1. Purpose of the Maintenance Organization. The aircraft maintenance organization is designed to produce appropriate sortie rates for training, test and evaluation, test support, and contingency operations. This structure meets the needs of AFMC by organizing, training, and equipping AFMC maintenance organizations to support peacetime operations and, when necessary, worldwide contingencies. AFI 38-101, *Air Force Organization*, defines standard organizational structures depicted in this instruction.

1.1.1. The objective wing structure (**Figure 1.1.**) improves mission effectiveness by moving decision-making authority to the lowest appropriate level. To achieve decentralization, maintenance is organized into on-equipment, direct sortie production (operations), and off-equipment, sortie support (logistics) groups. This arrangement facilitates employment of wing, squadron, or detachment sized units capable of conducting independent operations in support of research, development, test, and evaluation missions, as well as maintaining a standardized maintenance organization throughout the Air Force and AFMC. Weapons system technical activities must conform to AFI 63-1201, *Operational Safety, Suitability, and Effectiveness*. The host wing will determine geographically separated unit (GSU) organizational structure in accordance with (IAW) AFI 38-101. Maintenance policy will be IAW this instruction.

NOTE: At the wing commander's (WG/CC) discretion and with major command (MAJCOM) approval, on-equipment maintenance function may be organized under the logistics group (LG); however, it is not recommended nor is it the Air Force standard.

1.1.2. Logistics group commanders (LG/CC), operations group commanders (OG/CC), and directorate directors develop procedures to identify and correct logistics resource limitations and shortfalls that impede mission accomplishment.

1.1.2.1. The LG/CC is the functional manager for all logisticians assigned to the wing. As the functional manager, the LG/CC oversees the career progression of all logistics officers and senior noncommissioned officers (SNCO) by allocating and assigning them to wing positions requiring a logistics Air Force specialty code (AFSC).

1.1.2.2. The LG/CC coordinates on all wing policies affecting maintenance operations.

1.1.3. The deputy operations group commander for maintenance (OG/CM) is responsible to the OG/CC for effective use of all logistics resources (manpower and equipment) assigned to the OG, and their integration with the LG and directorate resources to support operational requirements.

1.1.4. The operations squadrons (OS) and test squadrons (TS) are the direct sortie-producing units within the organization. Each OS or TS includes a semi-autonomous, on-equipment maintenance organization, which is authorized the people, aircraft, and equipment to meet sortie requirements. Within AFMC, the TS and OS have the same function. TSs may be organized under the LG. Throughout the remainder of this instruction, the TS will be referred to as an OS.

1.1.5. The operations support squadron (OSS) is responsible to the OG/CC to perform staff/support related functions required for the efficient accomplishment of the OG mission. The OSS current operations flight manages specific maintenance related programs required by regulatory guidance and as directed by the OG/CC.

1.1.6. Maintenance squadrons (MXS) provide off-equipment and on-equipment maintenance support beyond the capability of the operations squadron.

1.1.6.1. All aircraft maintenance specialties having both on- and off-equipment production capabilities may be divided among on- and off-equipment flights. Exceptions are fuel cell, non-destructive inspection (NDI), metals technology, aircraft structural maintenance (the WG/CC has the option to distribute structural maintenance between OG, LG, or directorate as applicable), egress, survival equipment, and repair and reclamation (R&R), all of which will maintain a dispatch capability to support operations.

1.1.6.2. HQ AFMC and HQ USAF must approve on a case-by-case basis all other squadron separations (i.e., forming a separate munitions squadron from the munitions and armament flights of the MXS).

1.1.6.3. The WG/CC has the option to divide electronic warfare (EW) system specialists between OG, LG, or directorate depending on mission requirements. Refer to **Chapter 7** and **Chapter 14** for further guidance.

1.1.6.4. In squadron size units (see **paragraph 1.3.**) the squadron maintenance officer (SMO) has the option to divide or consolidate on- and off-equipment production support specialties.

1.1.7. The logistics support squadron (LSS) is responsible to the LG/CC for staff/support functions within the LG.

1.2. Procedures for Waiver Requests and Proposed Changes. The LG/CC, OG/CC, and director(s) will coordinate on any waiver request to this instruction that affects both groups and/or directorates. Send waiver requests or proposals to change this instruction to HQ AFMC/DOM for action. Unit requests for waiver must contain justification why the unit cannot comply with the existing guidance, actions taken to achieve compliance, and expected date of compliance. Test or trial programs that deviate from this instruction are not authorized without prior approval from HQ AFMC/DOM and AFMC/XPMO.

1.3. Maintenance Organization. The Air Force directs organizational structures through AFPD 38-1, *Organization*, and AFI 38-101. Air Force organizational structures emphasize wartime tasking, functional grouping, lean organizational structures, skip-echelon structures, and standard levels. Maintenance organizations will generally be structured as shown in **Figure 1.2.** through **Figure 1.10.**

1.3.1. MXSs (**Figure 1.6.**) with 700 or more authorized positions may be reorganized into a separate equipment maintenance squadron (EMS) and component repair squadron (CRS), IAW AFI 38-101, and **Figure 1.7.** and **Figure 1.8.** of this instruction.

1.3.2. Flights and sections are described and authorized as shown in these organization charts or as delineated in specific functional areas of this instruction. Sections within flights may not be realigned to other flights unless approved by HQ AFMC/XPMO and AFMC/DOM.

1.3.2.1. Initiate any organizational change request (OCR) or authorization change request (ACR) with justification through the local manpower office IAW AFI 38-101.

NOTE: Units with approved authorization from HQ USAF to deviate from the objective wing structure will supplement this instruction with specific duties and responsibilities, and submit a copy to HQ AFMC/DOM.

1.4. Maintenance Standardization. The objectives of standardization are to ensure greater interoperability, improve maintenance quality, and ensure maintenance effectiveness. Group commanders (GP/CC) and directors are accountable for standardization. Standardization will be applied in the areas of maintenance discipline, quality, organizational structure, and philosophy to the greatest extent possible.

1.5. Equipment Readiness. Mission success is dependent upon the sustained ability to provide mission ready equipment at the time and place required. Quality maintenance is the responsibility of each maintenance supervisor and technician.

1.6. Reliability and Maintainability (R&M). Maintenance personnel at all levels are responsible for identifying initial and recurring deficiencies of critical parts and support equipment (SE). Proper identification of defective item(s) may initiate engineering action(s) to improve mean time between failure (MTBF), thus increasing mission capability and reducing costs. Established criteria for deficiency reports (DRs) will include, as a minimum, the requirements contained in TOs 00-5-1, *AF Technical Order System*, and 00-35D-54, *USAF Deficiency Reporting and Investigating System*. Additionally, any component, which causes an aircraft to ground abort, air abort, declare an in-flight emergency (IFE), or a suspect in the cause of an accident or incident, should be considered for DR submittal. Refer to TO 00-35D-54 for further information.

1.7. Duty Hours. Schedule personnel for duty based on a two-shift, 8-hour per shift, 40-hour work week standard. Since two-shift maintenance is the standard, limit third-shift maintenance to small servicing crews, essential maintenance personnel, and weapons load training. Squadron commanders/division chiefs will determine when a third shift is required. If standard duty hours are consistently exceeded maintenance supervisors and squadron commanders/division chiefs must evaluate the cause(s) and make adjustments accordingly. For large or special mission aircraft units (i.e., C-130, C-17, C-5, C-135, B-52, B-1, B-2) with extended flying windows, maintenance work shifts will be aligned to give the best mission support, supervision, and training. Successful employment of this concept requires aligning operations and test requirements with maintenance capabilities. Where three-shift operations are required, the standard 40-hour work week will be used to plan duty hours. Supervision will be equitably distributed to cover all required duty periods. The following guidance establishes maximum duty periods and minimum rest periods for all personnel assigned to a maintenance activity. GP/CCs and directors may waive the following provisions during emergencies, advanced defense readiness conditions, and local/higher headquarters (HHQ) inspections/exercises.

1.7.1. Duty time begins when personnel report for duty and ends when all maintenance equipment has been secured or released to another person or crew.

1.7.2. A rest period is a block of time that gives a person the opportunity for at least eight hours of uninterrupted sleep. Factor travel time to and from the duty location into the computation of the rest period.

1.7.3. Personnel duty time limitations are as follows:

1.7.3.1. During normal operations, schedule personnel for eight-hour days. Normally, this is a nine-hour shift including meal break.

1.7.3.2. Do not schedule maintenance personnel for more than 12 consecutive hours of duty time. A rest period must be provided after each shift. If released from duty, individuals may be recalled

to duty provided the initial duty period, time since release, and duty period following recall does not exceed 12 continuous hours.

1.7.3.3. Personnel who work a maintenance shift and are assigned non-maintenance duty, such as charge of quarters, may exceed the 12-hour duty period, provided sleeping is permitted while doing the non-maintenance duties. However, individuals must be given a full rest period prior to returning to maintenance duties.

1.7.3.4. At remote alert locations, the duty time is extended to 16 hours with a 12-hour rest period (as defined above).

1.7.3.5. In alert force or standby duty situations where facilities are available for obtaining rest, these limitations may be exceeded. Adjust rest periods to allow for at least 8 hours of sleep during each 24-hour period when people on alert or standby are required to work.

1.7.3.6. Personnel who handle/load nuclear weapons and/or conventional munitions are limited to a 12-hour continuous duty period followed by a normal rest period. This rest period may not be waived for exercises or inspections.

1.7.3.7. Squadron commanders/division chiefs will develop duty-hour limitations for maintenance recovery teams.

NOTE: Civilian employee work hours are governed by the collective bargaining agreement, state, and federal laws.

1.8. Maintenance Training. Maintenance training provides initial, recurring, and advanced proficiency, qualification, or certification training required by technicians to perform assigned duties. Overall capability of the unit depends on the state of training of both aircrew and support personnel. Maintenance training is essential to improving and sustaining unit capability and is one of the most important responsibilities levied on commanders, directors, and supervisors. Commanders, directors, and supervisors provide priority support to maintenance training. When competing for resources (i.e., aircraft, SE, facilities, tools, funding, personnel, etc.), maintenance training has equal priority with the unit's operations training and test missions. Maintenance training policy is established IAW AFI 21-101, *Maintenance Management of Aircraft*, AFI 36-2201, *Developing, Managing, and Conducting Training,* AFI 36-2232, *Maintenance Training*, and AFMCI 36-201, *Education and Training Process Guide*.

1.9. Command Munitions Policy. HQ AFMC/DRAW shall develop and provide AFMC units with policy and guidance on use of war reserve materiel (WRM) missiles/precision guided munitions (PGM), and other limited or restricted use munitions and management of cumulative service life sensitive munitions (i.e., CBU-87/89). This will ensure WRM munitions remain available and in a reliable condition, and at the same time provide a realistic training environment and support for test and exercise purposes.

1.9.1. Live and inert missiles (or electrical simulators) of the same type are not loaded or flown together on an aircraft for any purpose. Any deviation or request for waiver to this policy will be requested by official message, coordinated and approved by HQ AFMC/DRAW.

1.9.2. A configuration of live and inert bombs will not be loaded in/on the same dispenser or rack or flown on an aircraft load together. Any deviation or request for waiver to this policy will be requested by official message and coordinated and approved by HQ AFMC/DRAW and AFMC/SEW.

1.10. Operating Instructions (OI). Operating instructions pertaining solely to maintenance are published as OIs. The OG/CC, LG/CC, or director may issue separate group/directorate OIs governing functional areas within their area of responsibility. OIs crossing groups/directorates are signed/approved by the OG/CC, LG/CC, or director(s), then published as wing instructions. They are not published to change or supplement TOs. The appropriate safety function reviews any OI that affects munitions operations or safety. OIs are developed and managed IAW AFI 33-360, Vol 1, *Publication Management Program*.

1.11. Overprinted Forms Control. GP/CC or director-approved overprinted forms are initiated and managed IAW AFI 37-160, Vol 8, *The Air Force Publications and Forms Management Program - Developing and Processing Forms*.

1.12. Communications and Transportation. Aircraft and associated SE maintenance requires efficient communications and transportation. Radio-equipped vehicles must be available to expedite personnel, equipment, and materiel throughout the maintenance complex. Select a communication system with the capability to effectively support (as defined by local commanders) the maintenance communication requirements. The radio should be frequency programmable. Radios that are not frequency programmable may hinder communications necessary to meet mission requirements. GP/CCs and directors must develop communication plans IAW AFI 21-101 showing current needs, how they are satisfied, and the maintenance programming for future needs.

1.13. Maintenance Information Systems (MIS). The core automated maintenance system (CAMS) and reliability and maintainability information system (REMIS) are the Air Force-approved automated systems for aircraft maintenance. CAMS will be used when capable of replacing any system previously maintained manually. CAMS and REMIS provide maintenance supervisors at all levels with products to assist in evaluating organizational effectiveness and to improve decision making. All maintenance personnel are required to be trained in system use and have a working knowledge of CAMS and REMIS subsystems used in the performance of their duties. Units may use automated products, forms, or displays instead of manual displays or products provided the intent of this instruction is met.

1.14. Cannibalization (CANN). CANN results in increased expenditure of maintenance resources and may cause damage to equipment. Accordingly, CANNs will be closely controlled by the OG/CC, LG/CC, and directors (if applicable). Personnel permitted to authorize CANN actions must be kept to a minimum. See paragraph **2.3.17.** for additional guidance.

1.14.1. AFI 21-101 directs compliance with CANN policy and sets requirements for unit procedures. GP/CCs and directors ensure local procedures are developed as a supplement to this instruction. CANN is defined as the authorized removal of serviceable assemblies, subassemblies, components or pieces/parts from one weapon system, support system or equipment item for installation on another end item to satisfy an existing supply requisition and meet priority mission requirements. CANN inherently carries an obligation to replace the removed item (TO 00-20-2, *Maintenance Data Documentation*). Although immediate benefits can be realized from CANN, the process results in excess expenditures of maintenance resources, and may degrade readiness by exposing serviceable equipment to extra handling, assembly, disassembly or removal and reinstallation. Accordingly, commanders, managers, and supervisors will closely control CANNs.

1.14.2. Components, assemblies, and subassemblies will not be cannibalized from aircraft battle damage repair (ABDR) training aircraft, ground maintenance trainer, museum, or permanent static display

aircraft for use on operational aircraft. If an Air Force-wide shortage of a particular component is identified, the Item Manager, MAJCOM aircraft functional manager, and USAF ABDR program management office (PMO), in coordination with the appropriate system program manager (SM) and AFMC/LGXC, will determine if a specific component will be removed from non-operational aircraft for operational use. GP/CCs and directors will request CANNs in this instance through HQ AFMC/LGXC.

1.14.3. CANNs will be reconciled in CAMS.

1.14.4. Aircraft recovering from CANN status (often called donor status) will be carefully screened and all maintenance documentation thoroughly reviewed before being scheduled for an operational sortie. CANN/donor aircraft will not be launched on an overseas sortie on the first flight following CANN/donor status without OG/CC approval (LG/CC if the LG/CC is responsible for maintenance).

1.14.5. When authorizing a CANN, the expenditure of man-hours and potential damage to equipment must be weighed against the expected benefit. High risk CANNs should not be performed unless priority aircraft are involved, or lack of ready equipment will impede mission accomplishment. High risk CANNs should be identified in unit supplements.

1.14.6. Supervisors at all levels must ensure that all personnel who perform and document CANN actions are properly trained and that they understand all related policies.

1.15. Maintenance Repair Priorities. Table 1.1. establishes repair priorities for on- and off-equipment maintenance.

1.16. Individual Mobilization Augmentees (IMA). Wartime manpower augmentation is provided to selected aircraft maintenance units with IMA authorizations. As forces are deployed to meet contingency commitments, active duty maintenance personnel are selected from continental United States (CONUS) units and sent on temporary duty (TDY) to support the contingency mission. Reserve personnel assigned to IMA positions generally augment residual forces in the CONUS.

1.16.1. Definitions:

1.16.1.1. Mobilization augmentee (MA). A ready reservist assigned to a unit against an IMA authorization established to support the period immediately following a declaration of war or national emergency (or to respond to any situation the national security requires).

1.16.1.2. Unit of assignment. A unit which has an established requirement for augmentation by reserve members under given situations. This is the unit to which the reserve member would report if mobilized. The assigned unit notifies the unit of attachment (if different from the assigned unit) where the IMA is projected to perform duty. For example, if the assigned unit projects the IMA to perform duty off-equipment, then the unit of attachment trains the IMA for off-equipment duty.

1.16.1.3. Unit of attachment. A military unit (regular or reserve) located reasonably close to the individual reserve member's residence. This is the location where the reserve member performs periodic inactive duty training. If possible, the unit of attachment is also the unit of assignment. When a separate unit of attachment is made, that unit normally has the same weapon systems as the unit of assignment to ensure continuity of training.

1.16.1.4. Annual training (AT). The tour of active duty performed by a reservist to satisfy the AT requirement for each fiscal year. AT is performed at the unit of assignment.

1.16.1.5. Inactive duty for training (IDT). Authorized training performed while not on active duty. Unlike AT, orders are not published for IDT. An IDT training period is normally four hours in length.

1.16.2. Training:

1.16.2.1. MAs are in training category B. This equates to 24 IDT periods per fiscal year with no more than 2 unexcused absences. AT is 12 days, excluding travel time. If valuable training exists on weekends, AT may be 14 days.

1.16.2.2. IDT is accomplished in several ways. The MA trains one day per month, three days consecutively in any one month, or six days consecutively. The training schedule is not solely at the convenience of the MA and does not have to be on weekends. The active duty supervisor and the MA decide on a schedule that is mutually agreeable. The goal is to accomplish meaningful training.

1.16.2.3. The MA's active duty supervisor (from the workcenter where the MA works when mobilized) is also assigned as the MA's training supervisor. The training supervisor maintains a training folder on each MA. An AF Form 623, **On-the-Job Training Record**, is used and includes the minimum requirements shown in AFMAN 36-8001, *Reserve Personnel Participation and Training Procedures*. When the unit of assignment and unit of attachment are different, a training supervisor is assigned in each unit. The MA hand carries the AF Form 623 to the unit of assignment for AT.

1.17. Contracted Maintenance Operations. Contracted maintenance functions are required to implement the organization proposed and accepted by the government during the source selection process. This instruction is applicable to contractor logistics support (CLS) functions only to the extent incorporated into the applicable contract performance work statement (PWS) or statement of work (SOW). For maintenance contracts the functional area chief (FAC) is the commander having overall responsibility for the maintenance function. Units will identify procedures to ensure that there is a contingency plan to provide the contracted maintenance if the contract is terminated abruptly. Additional guidance on contract surveillance is provided in **Chapter 22** of this instruction.

Figure 1.1. Wing Organizations

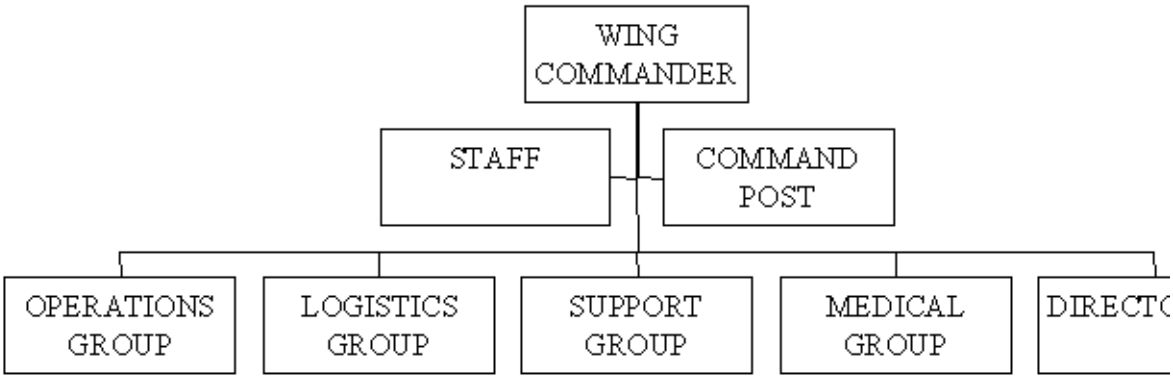

Figure 1.2. Wing Organizations

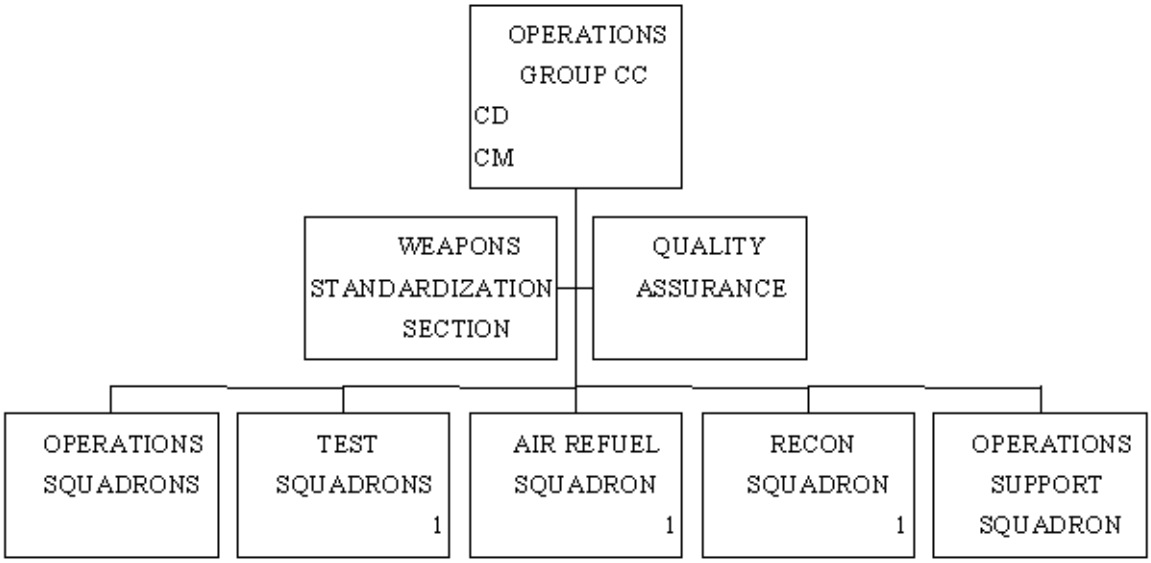

Figure 1.3. Wing Organizations

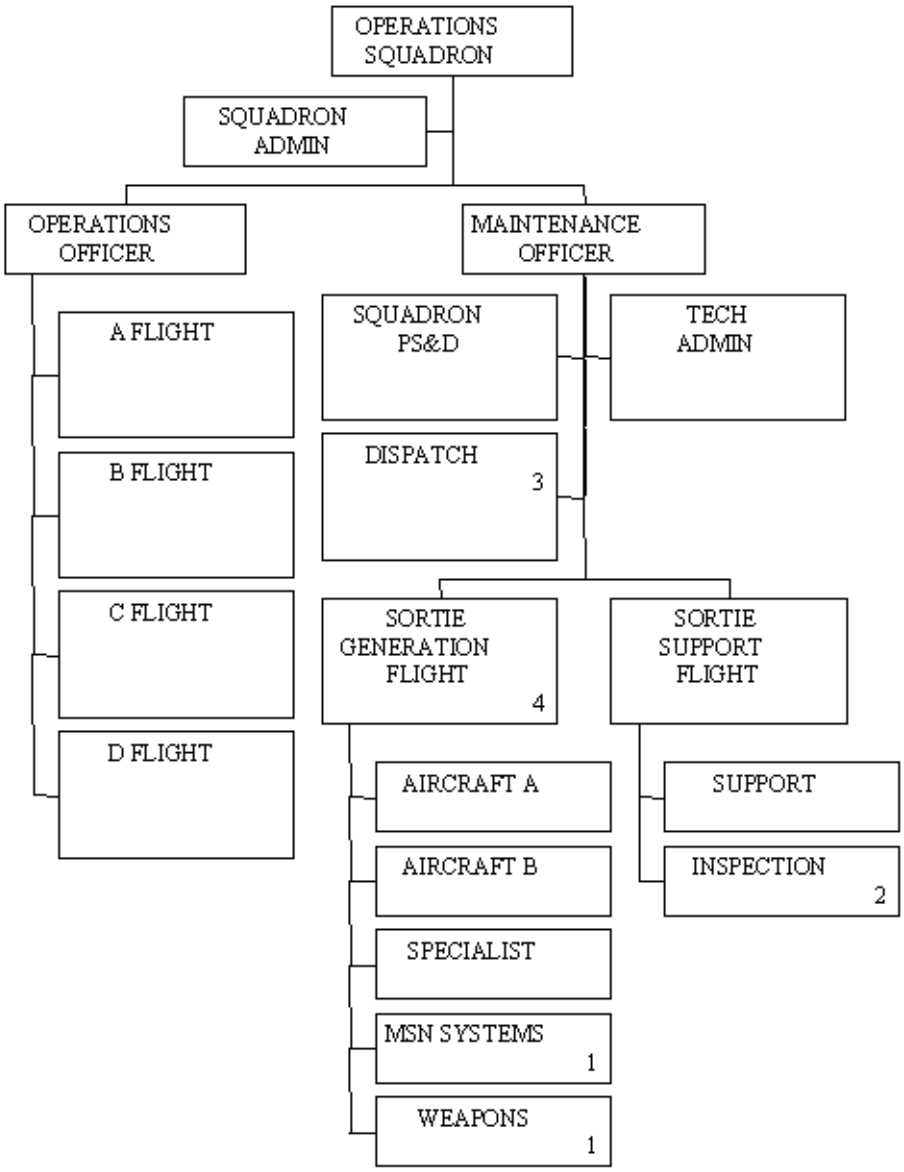

Figure 1.4. Wing Organizations

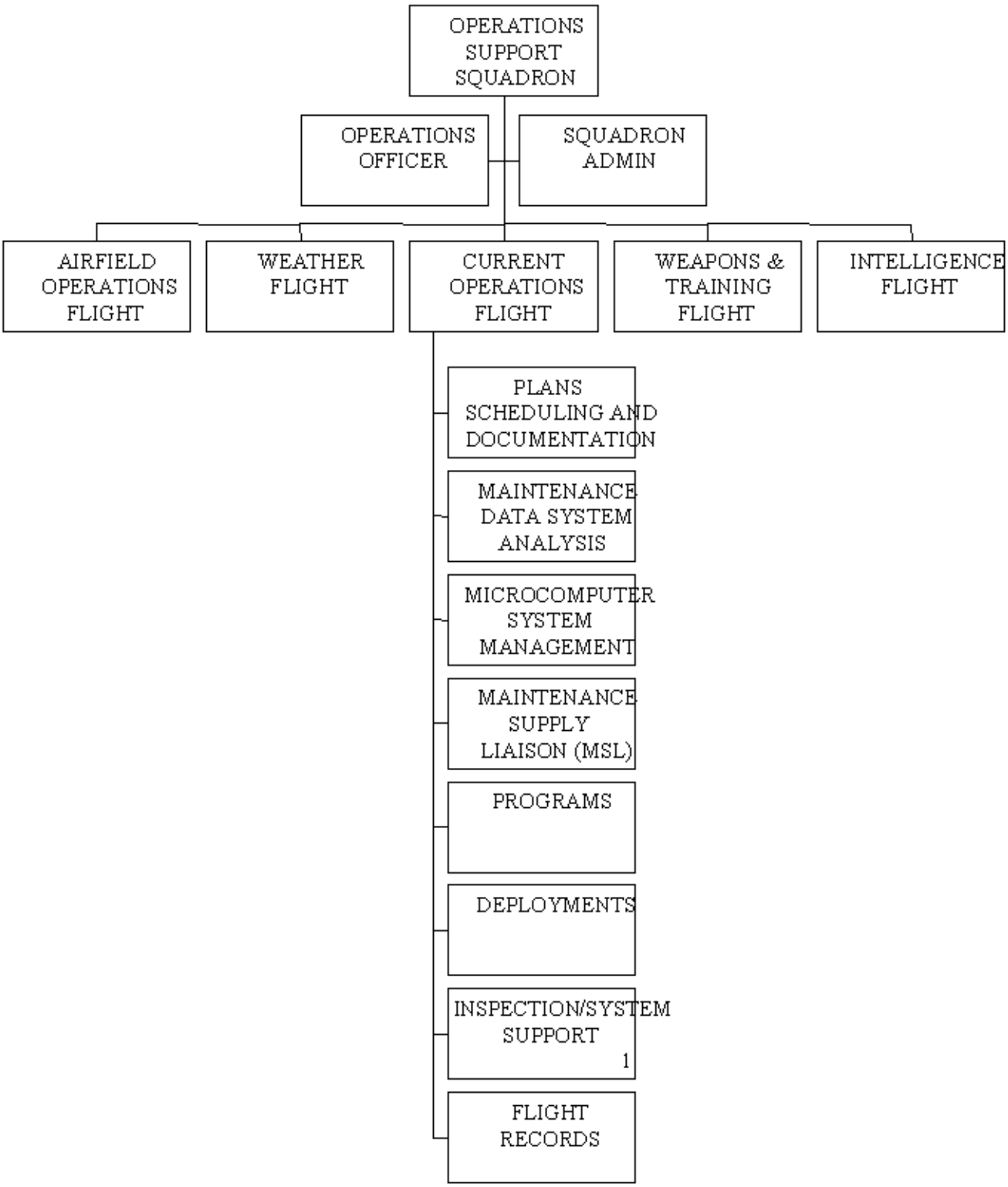

Figure 1.5. Wing Organizations

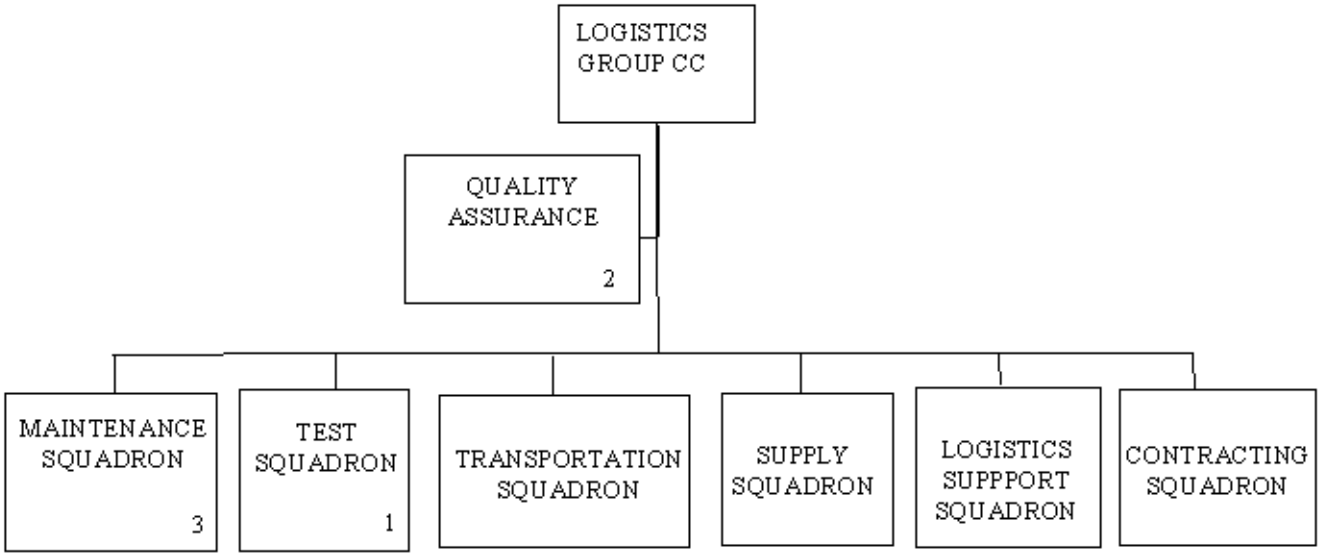

Figure 1.6. Wing Organizations

1. When authorized.
2. Sections authorized depend on mission, design and series supported.
3. Dedicated to operations squadrons.
4. Nuclear capable units.
5. Units associated with bomber weapon systems.

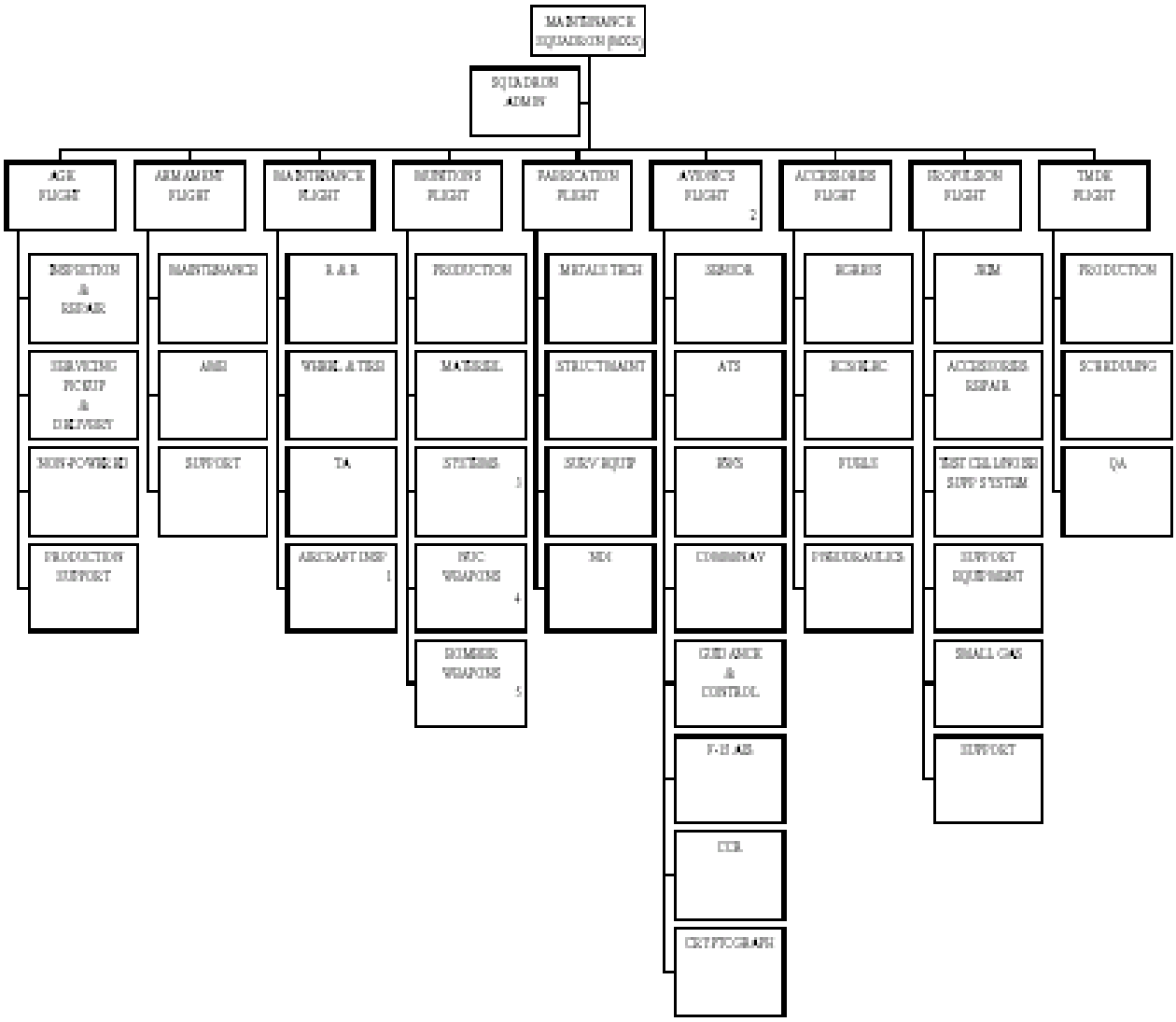

Figure 1.7. Wing Organizations

1. When authorized.
2. Sections authorized depend on mission, design, and series supported.
3. Dedicated to the operations squadron.
4. Nuclear-capable units.
5. Units associated with bomber weapons systems.

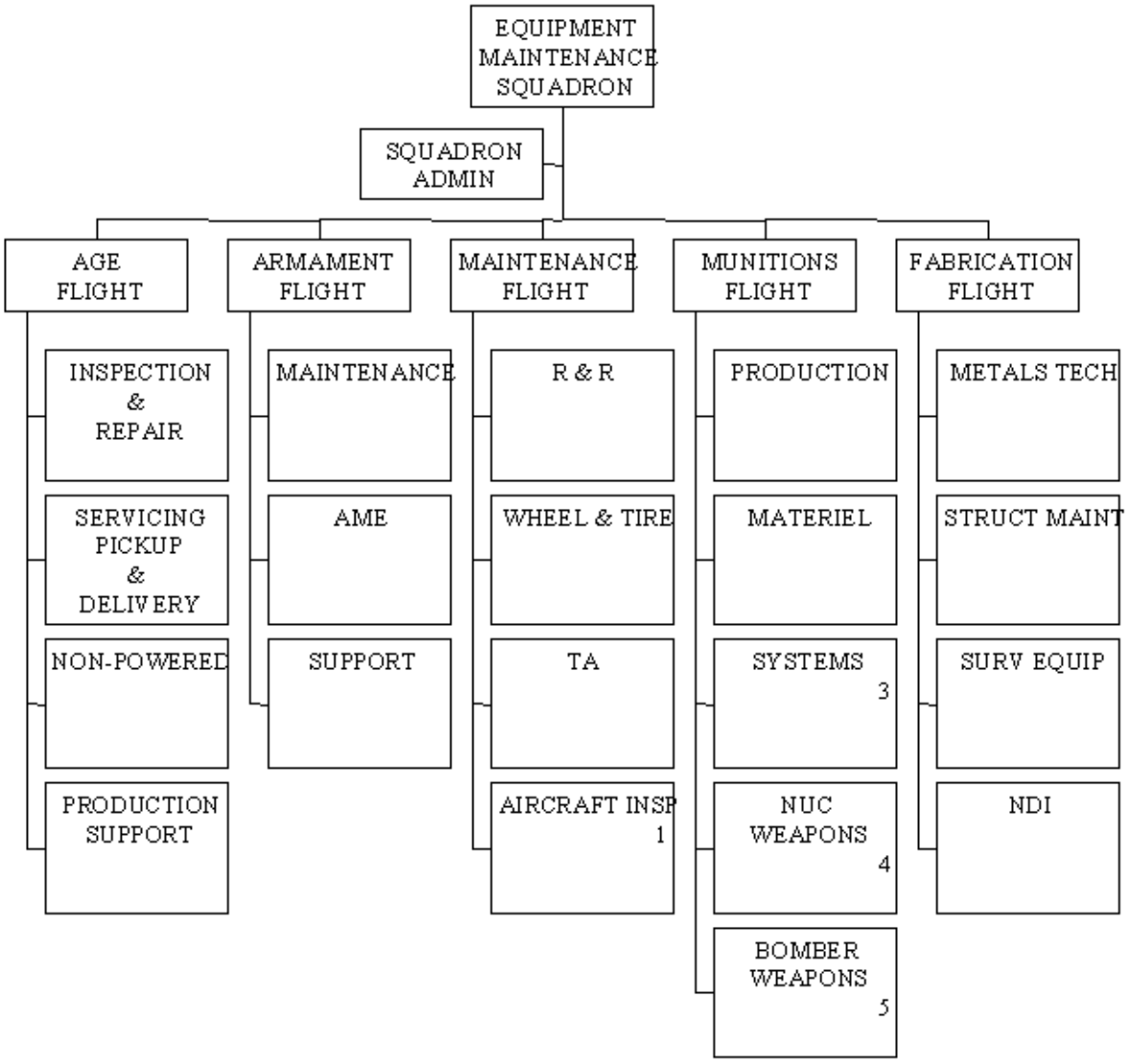

Figure 1.8. Wing Organizations

1. Sections authorized depend on mission, design, and series supported.

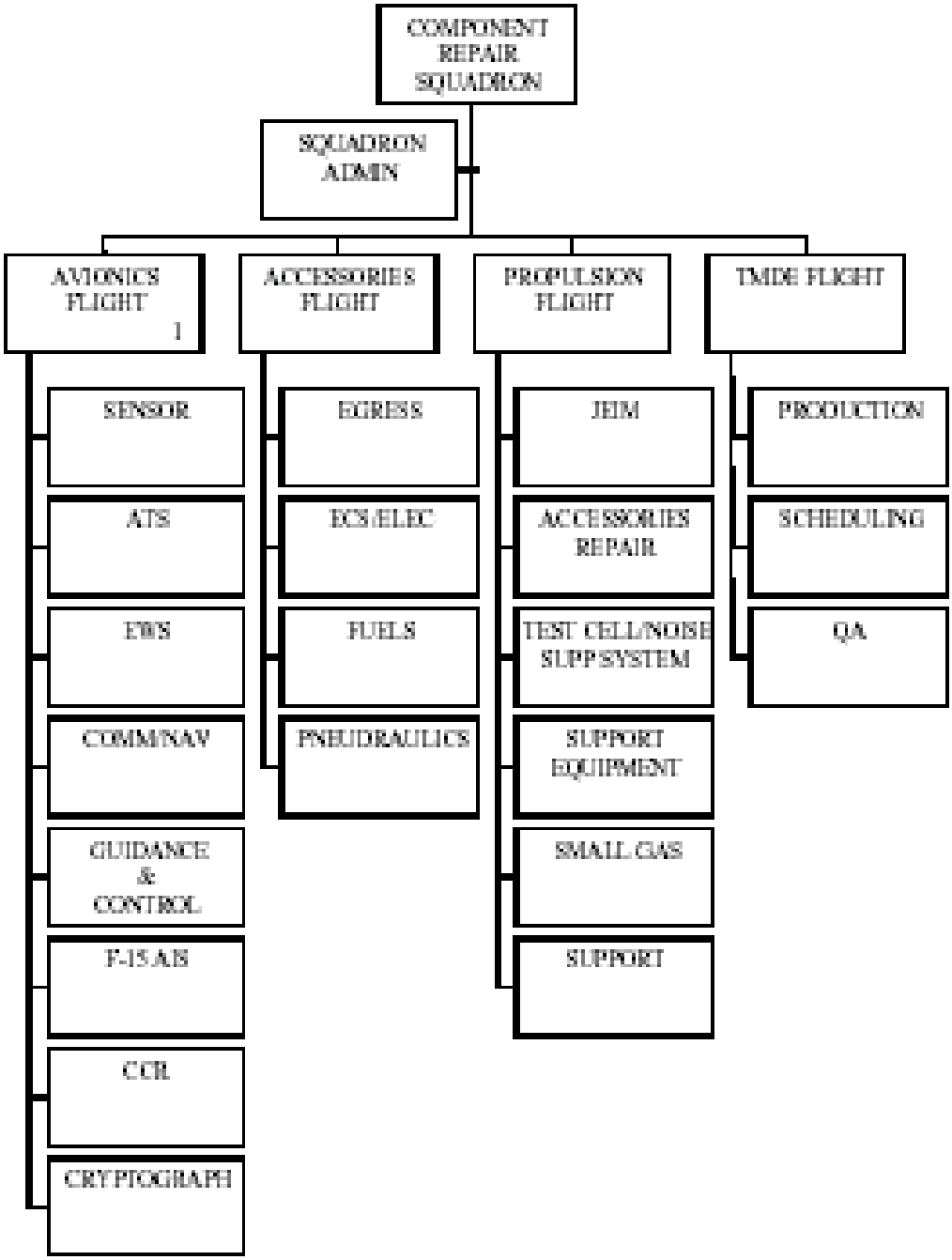

Figure 1.9. Wing Organizations

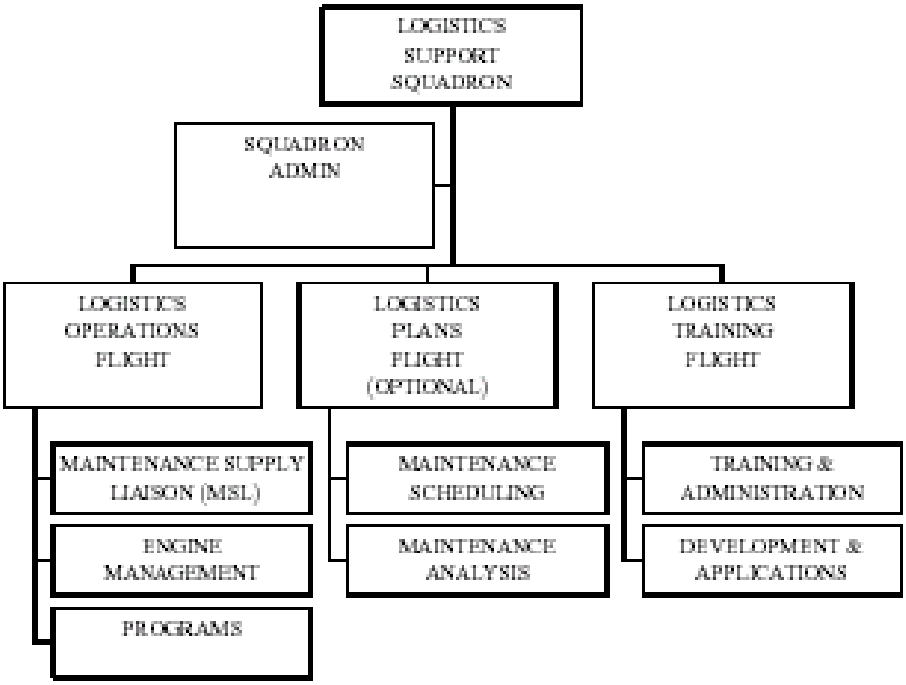

Figure 1.10. Wing Organizations

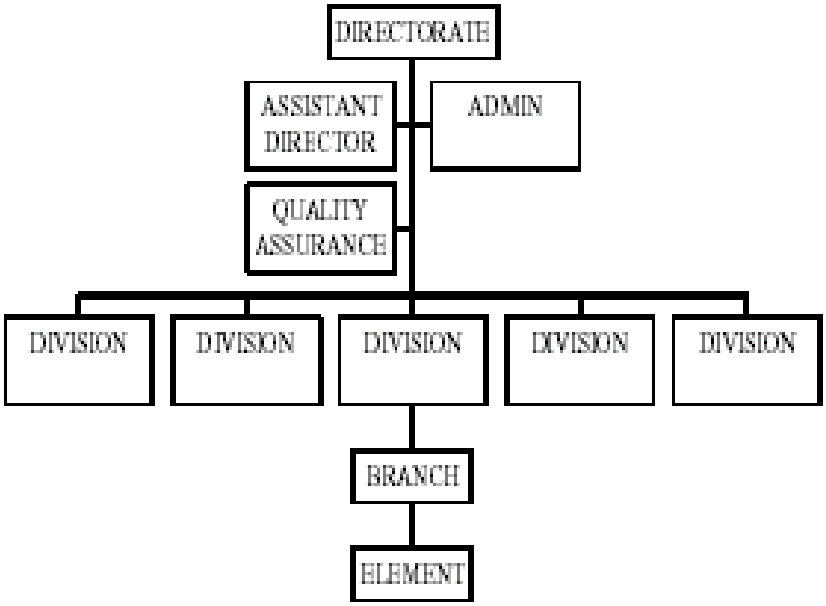

Table 1.1. Maintenance Repair Priorities

PRIORITY	APPLICATION
1	Aircraft on alert status, or scheduled for war plan or national emergency missions. Aerospace ground equipment (AGE), munitions, and munitions support equipment (MSE) in support of these aircraft.
2	Primary mission aircraft and supporting AGE, munitions, and MSE for the first eight work hours after landing, start of recovery, or within six work hours of a scheduled launch, alert or test flight, and during simulated generation/operational readiness inspection (ORI). Air evacuation, rescue, or weather mission aircraft, and related AGE, munitions, and MSE. All transient support, and Federal Aviation Administration (FAA) aircraft. Flight or missile crew training simulator, other training equipment, or related AGE, which requires repair and is impacting the mission by preventing or delaying student training.
3	Primary mission aircraft, engines, air launched missiles, and related AGE, munitions and munitions equipment, and other equipment undergoing scheduled or unscheduled maintenance, which if not performed or repaired will prevent or delay mission accomplishment. Transient air vehicles not otherwise listed. Administrative aircraft within eight hours of scheduled flight or on alert status with standby crews. Time change requirements for nuclear weapons. Spares not available in supply. Critical end items and reparable spares or supply designated priority repair spares. Routine maintenance of aircrew or missile training simulator, other training devices, or related AGE, sites, and aircraft or equipment used for maintenance training. Avionics support equipment (ASE) and avionics test stations (ATS).

4	Routine or extensive repair of primary mission aircraft or related support equipment (SE). Repair cycle assets to satisfy a mission capability (MICAP) condition. Administrative aircraft undergoing scheduled or unscheduled maintenance. Routine maintenance of AGE not otherwise listed above. WRM items due maintenance or inspection. Inspection, maintenance, and time compliance technical order (TCTO) compliance of mission support kit (MSK) or mobility readiness spares package (MRSP) material. Scheduled calibration and unscheduled repairs on test, measurement, and diagnostic equipment (TMDE) not listed above. Extensive repair of aircrew or missile training simulator, other training devices, or related AGE.
5	Non-tactical or non-primary mission aircraft undergoing extensive repair. Repair cycle asset shortages required to fill readiness spares package (RSP) authorizations. Fabrication and repair of aeronautical items not carrying a higher priority. Time change requirements on non-nuclear items.
6	Fabrication and repair of non-aeronautical items. Repair cycle asset shortages required to fill a peacetime operating stock (POS) authorization
7	Spares/repair cycle assets excess to base requirements.

	NOTES 1.	This table is intended as a guide in establishing maintenance repair priorities. It does not prohibit the operations squadron (OS) production superintendent, in coordination with the maintenance operations center (MOC), from changing the maintenance repair priority when warranted. Raising or lowering maintenance repair priorities does not necessarily require a corresponding change in the supply delivery priority. Factors warranting such actions include, but are not limited to: Raising the priority--(1) Expedite repair of an aircraft that is delaying scheduled maintenance (isochronal, phase, etc.) flow time. (2) When known maintenance actions exceed the pre-launch time of six hours. Lowering the priority--(1) Aircraft on the flying schedule that require excessive maintenance and cannot meet subsequent scheduled sorties. (2) Following its last sortie of the day, the aircraft is scheduled for phase, periodic, TCTO, or extensive maintenance.
	2.	During single integrated operational plan (SIOP) or operational exercises, the preplanned maintenance flow determines repair priority.

	3.	The maintenance repair priority and supply delivery priorities are normally identical. However, the MOC supervisor may authorize the use of a less responsive supply delivery priority when the delivery time specified is not justified.	

Chapter 2

GENERAL RESPONSIBILITIES FOR COMMANDERS AND KEY MANAGERS

2.1. General. This chapter outlines common maintenance responsibilities for commanders and key managers. Detailed responsibilities of maintenance functions within groups described are in separate chapters of this instruction.

NOTE: It is important to note that not all civilian duty titles/positions carry the same responsibilities as their military counterpart. Commanders must guard against making assumptions when assigning civilian employees to traditional military positions.

2.2. Wing Commander (WG/CC) Responsibilities. The commander allocates maintenance resources to meet mission requirements. With aircraft maintenance divided between the operations group (OG), logistics group (LG), and test and specialized directorates, the WG/CC is the level of management where these functions merge in the organization. WG/CC responsibilities related to specific programs are identified in the applicable chapters of this instruction. The WG/CC should ensure maintenance units are not overly tasked with base or augmentee details. Where maintenance resources are not available, reductions in mission requirements may be necessary. WG/CCs will organize maintenance functions in accordance with (IAW) AFPD 38-1, *Organization*, AFI 38-101, *Air Force Organization*, AFI 21-101, *Maintenance Management of Aircraft*, and this instruction. The WG/CC must ensure weapons system technical activities conform to policy prescribed in AFI 63-1201, *Operational Safety, Suitability, and Effectiveness*.

2.3. Group Commander (GP/CC)/Director Responsibilities. GP/CCs and directors (when applicable) are responsible for on-/off-equipment maintenance, including contractor maintained aircraft and equipment, required to accomplish sortie production and the wing mission. The total production effort and management of group/directorate maintenance functions are part of GP/CC's and director's responsibilities. To assist GP/CCs and directors in administering their responsibility identified in this instruction, GP/CCs and directors may delegate management of these duties to their deputies. In addition to GP/CC and director responsibilities outlined in AFI 21-101, GP/CCs and directors:

2.3.1. Ensure maintenance performed is of the highest quality and accomplished in a timely manner.

2.3.2. Ensure maintenance training throughout the respective group or directorate is accomplished IAW AFMCI 36-201, *Education and Training Process Guide*, and the published wing plan, and that training backlogs are held to a minimum.

2.3.3. Ensure maintenance capability is considered in the development of the flying/test program. A continuous review ensures a long-term balance between maintenance capability and operational requirements. If the capability is exceeded for too long, maintenance quality and training suffer and the mission may not be met.

2.3.4. Delegate the necessary authority for support and production activities to perform assigned tasks.

2.3.5. Monitor the assignment and use of all maintenance personnel to ensure equitable distribution of skilled personnel among the squadrons and divisions.

2.3.6. Approve all periodic (weekly/monthly) aircraft maintenance, test, and operations plans.

2.3.7. Establish an effective vehicle control program for their respective group/directorate.

2.3.8. Provide for management of the financial program.

2.3.9. Promote unit self-sufficiency through the effective use of maintenance resources IAW TO 00-25-195, *Air Force Technical Order System Source, Maintenance and Recoverability Coding of Air Force Weapons, Systems, and Equipment*.

2.3.10. Ensure the implementation of a viable quality assurance program (QAP).

2.3.11. Develop an impoundment program IAW **Chapter 23** of this instruction. The OG/CC, LG/CC, and directors have authority to impound and release aircraft/equipment.

2.3.12. Ensure procedures are established to properly turn in recoverable and consumable items IAW AFMAN 23-110, *USAF Supply Manual*.

2.3.13. Ensure support equipment (SE) repair cost evaluation procedures are implemented IAW TO 00-20-3, *Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System*, TO 00-25-240, *Uniform Repair/Replacement Criteria for Selected USAF Support Equipment (SE)*, TO 35-1-24, *General Instruction - AF Economic Repair/Replacement for SA-ALC Managed Support Equipment (SE), Part I*, TO 35-1-25, *Tech Manual - Economic Repair Criteria Support Equipment (SE) - Part II*, and TO 35-1-26, *General Instruction - Repair Criteria Support Equipment(SE) - Part II*.

2.3.14. Ensure a records management program is established IAW AFMAN 37-123, *Management of Records*.

2.3.15. Ensure strict adherence to command war reserve materiel (WRM) missile/precision guided munitions (PGM) control policy.

2.3.16. Ensure all personnel assigned to maintenance are used to accomplish critical tasks and primary duties before releasing them for non-critical and non-maintenance duties.

2.3.17. Establish written guidance for aircraft and equipment cannibalization (CANN). Guidance should detail individual responsibilities, approval authority, specific restrictions, procedures, and documentation and data reconciliation requirements. Follow AFI 21-101 and TO 00-20-2, *Maintenance Data Documentation*, guidelines when developing unit procedures. Aircraft in depot maintenance status (regardless of location) will not be cannibalized without approval from HQ AFMC/DOM. Aircraft designated as TX (trainer inactive) coded will not be cannibalized without the approval of the owning GP/CC or director. Parts will not be removed from aircraft battle damage repair (ABDR) training or static display aircraft for use on operational (flying) aircraft. The only exception to this policy is if an Air Force-wide shortage of a particular component is identified, the USAF ABDR program management office (PMO) coordinates with the applicable weapon system program director (SPD) and determines if parts can be removed from ABDR training aircraft.

2.3.18. Ensure effective utilization of the Air Force Engineering and Technical Services/contractor engineering and technical services (AFETS/CETS) specialists IAW AFI 21-110, *Engineering and Technical Services*.

2.3.19. Establish an office of primary responsibility (OPR) and procedures for operational instruction (OI) program management and administration.

2.3.20. Develop logistics officer crossflow procedures and ensure officers are formally trained.

2.3.21. Ensure maintenance inputs (i.e., aircraft turnaround, alternate fuel cell, and explosive load (cargo) areas) are included in the base parking plan.

2.3.22. Ensure effective management of the wing's total maintenance training program IAW AFMCI 36-201, *Education and Training Process Guide*.

2.3.23. Establish a local policy for management and maintenance of assigned ground maintenance trainer (GMT) aircraft (status code TX) to ensure they remain useful and safe within the guidelines stated in **Chapter 23** of this instruction.

2.3.24. Establish procedures to ensure personnel who accomplish time compliance technical orders (TCTO) are trained to perform TCTOs that dictate a change to established maintenance practices. Procedures must also include a method to document the training and a process to validate the training personnel receive on the new maintenance procedure.

2.3.25. Ensure compliance with Air Force occupational and environmental safety, fire protection, and health (AFOSH) program requirements established in the 91 series instructions/directives.

2.3.26. Ensure emergency action (including severe weather) procedures are established and adhered to with regard to movement of aircraft, SE, and evacuation of /in-shop personnel.

2.3.27. Institutionalize operational risk management (ORM) within the workplace. Identify, eliminate, or control, and document hazards to minimize risk. Additional guidance can be found in AFI 90-901, *Operational Risk Management (ORM) Program* and AFPAM 90-902, *Operational Risk Management (ORM) Guidelines and Tools*.

2.3.28. Establish a vehicle management program. Commanders, directors, and supervisors at all levels are responsible for ensuring compliance with the provisions of AFI 24-301, *Vehicle Operations*, AFI 24-302, *Vehicle Maintenance Management*, AFMAN 24-307, *Procedures for Vehicle Maintenance Management*, and AFMC supplements. GP/CCs and directors must establish procedures for:

2.3.28.1. Coordinating between vehicle maintenance and the appropriate workcenter for assistance in repair of vehicular mounted aerospace ground equipment (AGE).

2.3.28.2. Obtaining temporary replacement vehicles through vehicle operations to include short-term leases.

2.3.28.3. Special configuration of vehicles. Procedures in the directive must ensure:

2.3.28.3.1. The transportation squadron approves vehicle modifications and configuration changes to vehicles (including installation of trailer hitches or mirrors) before modification.

2.3.28.3.2. Vehicles authorized to carry explosives, and all vehicles operating within the munitions storage area (MSA), are configured IAW AFMAN 91-201, *Explosive Safety Standards*.

2.3.28.3.3. Avionics and delicate equipment in an unpacked condition are physically protected during transit IAW TO 00-20-14, *AF Metrology and Calibration Program*.

2.4. Squadron Commander/Division Chief Responsibilities. Squadron commanders/division chiefs are responsible to their respective GP/CC/director for overall squadron/division management. In addition, the squadron commander/division chief will:

2.4.1. Control the duty assignment of newly assigned maintenance officers and senior noncommissioned officers (SNCO).

2.4.2. Ensure strict adherence to technical data and management procedures.

2.4.3. Implement and manage self-inspection/assessment, retention and career motivation, security, mobility, and special and personnel reliability programs.

2.4.4. Administer the squadron safety and health program. Coordinate with the squadron/division safety monitor and flights to ensure all personnel obtain the required safety and health training.

2.4.4.1. Ensure safety and health information is available and personnel in hazardous areas know of safety and health implications.

2.4.4.2. Identify requirements to the local medical treatment facility (MTF), ensuring facilities provide safe and healthful working conditions IAW AFI 91-302, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Standards*.

2.4.4.3. Maintain liaison with the base medical services having responsibility for monitoring potentially hazardous industrial and environmental conditions within maintenance areas.

2.4.5. Ensure personnel authorized and assigned are adequate to support the unit mission and tasking plans. If required, start adjustment actions.

2.4.5.1. Ensure unit manpower document (UMD) changes are made through the programs section. Contact wing manpower office representatives for assistance in preparing requests for UMD adjustments.

2.4.6. Monitor additional duties, leaves, training requirements, and details taking manpower from the work force. If required, make adjustments.

2.4.7. Enforce sound maintenance, supply discipline, and financial management practices.

2.4.8. Ensure compliance with all directives pertaining to civil service employees and 36-1 through 36-12 series instructions/directives.

2.4.9. Ensure all requests for modifications or additions to existing facilities are coordinated with the programs section.

2.4.10. Review single integrated operational plan (SIOP) (if applicable), deployment, contingency, and exercise plans affecting the unit, and ensure appropriate measures are taken to meet unit responsibilities.

2.4.11. Monitor new requirements for training, equipment authorizations, special tools, workspace, facilities, and manning.

2.4.12. Establish a squadron vehicle program as required by Air Force publications and appoint (by letter) a vehicle control monitor.

2.4.13. Provide for the health, morale, and welfare of assigned personnel.

2.4.14. Serve as the squadron/division financial responsibility center manager.

2.4.15. Ensure upgrade training and maintenance qualification programs emphasize quality and are not primarily focused on meeting minimum upgrade times.

2.4.16. Ensure all squadron/division maintenance positions are coded with appropriate special experience identifiers (SEI).

2.4.17. Have a working knowledge of automated maintenance information systems (MIS) and ensure their use.

2.4.18. Ensure records required by this instruction and other governing directives are maintained IAW AFMAN 37-123, *Management of Records*.

2.4.19. Ensure functional publication/libraries are established and maintained IAW AFI 33-322, *Records Management Program*, and AFI 37-160, Vol 7, *The Air Force Publications and Forms Management Programs-Publication Library and Sets*.

2.4.20. As required, designate a squadron/division deployment officer/noncommissioned officer (NCO) who is the focal point for all deployments.

2.4.21. Ensure compliance with wing environmental programs and promote the wing pollution prevention program, ensuring hazardous waste compliance IAW AFI 32-7042, *Solid and Hazardous Waste Compliance*.

2.4.22. Ensure turn in of consumable/expendable XB3 materiel and scrap is properly accomplished. As a minimum:

2.4.22.1. Establish and implement effective procedures for collecting, repairing, and disposing of XB3 materiel. Additional procedures can be found in AFMAN 23-110.

2.4.22.2. Establish collection and pick up points for the turn-in of XB3 materiel. Squadrons/divisions are responsible for providing a current list of each point and location to the base supply pick up and delivery section.

2.4.22.3. Establish segregated areas within the collection and pick up point for serviceable-identified materiel, serviceable/repairable-not identified materiel, and unserviceable/scrap materiel.

2.4.22.4. Designate a workcenter or individual responsible for periodically reviewing (recommended weekly) and determining appropriate disposition of the items placed in the serviceable/repairable-not identified area/container. The collection point will be conspicuously marked with the name and telephone number of the workcenter/individual responsible for these actions.

2.5. Squadron/Division Maintenance Officer (SMO)/Maintenance Supervisor (MS) Responsibilities. The SMO/MS is responsible to the squadron commander/division chief for maintenance production and logistics test and evaluation (LT&E). The SMO/MS, assisted by the squadron/division maintenance superintendent, manages resources necessary to accomplish the mission. They provide necessary administration to manage assigned responsibilities. In addition to responsibilities outlined in AFI 21-101, the SMO/MS will:

2.5.1. Monitor work force availability ensuring shift scheduling considers additional duties, leaves, training, and work details to provide maximum capability and minimize work force degradation.

2.5.2. Provide guidance to subordinate supervisors for work force management.

2.5.2.1. Manage the special certification roster (SCR) IAW AFI 21-101 and **Chapter 23** of this instruction. Ensure a current copy of the SCR is taken on all deployments.

2.5.2.2. Select primary Air Force specialty code (AFSC) production inspectors IAW AFI 21-101 and **Chapter 23** of this instruction.

2.5.2.3. Ensure the engineering data service center (EDSC) is used to obtain information/specifications when technical orders (TO) do not provide enough detail.

2.5.3. Ensure timely accomplishment of delayed discrepancies, pilot reported discrepancies (PRD), and aggressive follow-up of back ordered parts. Periodically review on-line products.

2.5.4. Ensure PRDs and scheduled/unscheduled maintenance actions are entered/completed in the core automated maintenance system (CAMS). This includes maintenance performed in support of maintenance squadron (MXS) flights/branches or directorate divisions (e.g., removing and reinstalling components to facilitate other maintenance (FOM)).

2.5.5. Ensure subordinate officers are trained.

2.5.6. Oversee squadron/division maintenance manning and:

2.5.6.1. Ensure the CAMS personnel subsystem is current and accurate. Do not change the database until approved authorization change requests (ACR) or personnel actions are received.

2.5.6.2. Ensure the UMD mirrors the approved organizational structure.

2.5.6.3. Ensure the personnel data system accurately reflects personnel assignments. Maintain an updated current copy of the unit personnel management roster (UPMR). Verify accuracy of duty AFSC and position number on personnel actions. Maintain a suspense file of personnel actions and verify approved actions have been correctly entered into the personnel data subsystem. Discard records as applicable when the UPMR is updated.

2.5.6.4. Coordinate permanent change of assignment (PCA) actions. Ensure required documentation is completed and submitted. Ensure the squadron commander/division chief and squadron/division administrations are briefed on all pending PCA actions.

2.5.6.5. Allocate projected gains against pending or actual vacant slots to the maximum extent possible.

2.5.6.6. Coordinate on changes/additions to the squadron/division in-/out-processing checklist when a group/directorate in-/out-processing checklist has not been developed.

2.5.6.7. Distribute projected gain/loss lists and maintenance manpower rosters (MMR) to all workcenters and establishes a suspense for updates. Ensure approved personnel actions have been received for all updates, then submit consolidated updates to the programs section.

2.5.7. Review plans and coordinate with the appropriate support squadron/division to prepare and execute all plans, including support plans/checklists for contingency taskings involving the squadron/division. Ensure maintenance personnel understand and have the resources and training to execute their part of the plans.

2.5.7.1. Monitor shift manning, distribution of supervision, and equipment requirements and makes necessary adjustments. Inform the squadron commander/division chief of imbalances between authorizations and number of personnel assigned or between authorized and assigned skill levels or grades.

2.5.7.2. Ensure SE enclosed in WRM or mobility kits is inspected IAW 00-20 series TOs.

2.5.7.3. Ensure the squadron aircraft maintenance function is capable of meeting its deployment tasking.

2.5.8. Review and evaluate management, production and quality assurance (QA) reports. Initiate management actions to meet new workloads or correct reported deficiencies.

2.5.9. Ensure reparable parts are promptly processed through repair channels.

2.5.10. Ensure compliance with Defense Logistics Agency (DLA), Air Force, and AFMC supply procedures.

2.5.11. Monitor supply support and identify problems to the squadron commander/division chief.

2.5.12. Monitor requirements for composite tool kits (CTK), special tools, and SE IAW AFMCI 21-107, *Tool Control and Accountability Program*, and **Chapter 21** of this instruction.

2.5.13. Manage the squadron/division CANN program.

2.5.14. Ensure the corrosion control program is implemented and properly managed.

2.5.15. Ensure the squadron/division training program is effective and in compliance with command directives.

2.5.16. Ensure the oil analysis program (OAP) is monitored and administered IAW AFI 21-124, *Air Force Oil Analysis Program*, and **Chapter 23** of this instruction.

2.5.17. Ensure procedures for identifying, recording, and clearing repeat/recurring and cannot duplicate (CND) discrepancies are understood and followed.

2.5.18. Closely monitor aircraft during aircraft/equipment impoundments.

2.5.19. Ensure timely and accurate engine data are provided to the logistics support squadron (LSS) engine management (EM) section.

2.5.20. Ensure aircraft and SE are available to support the wing training effort.

2.5.21. Maintain liaison with base medical services having responsibility for monitoring potentially hazardous environmental conditions within maintenance areas.

2.5.22. In coordination with QA, ensure a viable QAP is implemented as outlined in **Chapter 9** of this instruction.

2.5.23. Establish a technical administration function to provide support to subordinate activities. Units may elect to combine orderly room and technical administration when economy of effort and span of control warrants.

2.5.24. Ensure sortie support flight/branch establishes a program for control of assigned land mobile radios (LMR).

2.5.25. Establish criteria for deficiency reports (DR) to include (as a minimum) the requirements contained in TO 00-5-1, *AF Technical Order System*, and 00-35D-54, *USAF Materiel Deficiency Reporting and Investigating System*, with consideration given to any component which causes a ground abort, air abort, or in-flight emergency (IFE).

2.5.26. Coordinate with the operations support squadron (OSS) and maintenance operations center (MOC) to establish emergency action procedures (including severe weather), and ensure they are adhered to with regard to movement of aircraft, SE, and personnel evacuation.

2.5.27. Appoint personnel as squadron/division assessors, and ensure they complete the required training IAW **Chapter 23** of this instruction (if a squadron assessment program (SAP) is implemented).

2.6. Flight Commander/Chief (Branch) Responsibilities. The flight commander/chief is responsible to the SMO/MS for the management, supervision, and training of assigned personnel. In addition, flight commanders/chiefs will:

2.6.1. Coordinate the work shift schedule with the production superintendent and the SMO/MS to ensure sufficient people are available to support the mission.

2.6.2. Designate section supervisors.

2.6.3. Ensure operator inspections and user servicing requirements are accomplished on assigned non-powered SE IAW 00-20 series TOs.

2.6.4. Ensure the corrosion control program is implemented and properly managed IAW AFI 21-105, *Aerospace Equipment Structural Maintenance*.

2.6.5. Select personnel to perform production inspections and forward names to the SMO/MS for approval.

2.6.6. Manage the in-process inspection (IPI) listing IAW AFI 21-101 and **Chapter 23** of this instruction. Review/update the flight IPI requirements listing semi-annually and route through the SMO/MS for consolidation and submission through the squadron commander to QA for GP/CC approval and inclusion in the wing IPI list.

2.6.7. Review analysis, QA, and other inspection (OI) reports to determine if adequate management actions have been taken to fix discrepancies and identify root causes.

2.6.8. Approve requirements for bench stocks. Provide guidance as to the type, location, and use by one or more sections. Spot check bench stocks to evaluate adequacy, supply discipline, and housekeeping.

2.6.9. Ensure requirements for vehicles and SE have been identified and procedures for operation and maintenance are enforced.

2.6.10. Ensure TO files are current and maintained IAW TO 00-5-2*, Tech Order Distribution System.*

2.6.11. Ensure maintenance is accomplished IAW all approved technical data/directives.

2.6.12. Ensure reparable parts are promptly processed through repair channels.

2.6.13. Monitor shift manning and distribution of supervision and make necessary adjustments. Identify imbalances between authorizations and the number of personnel assigned or between authorized and assigned skill levels or grades to the SMO/MS.

2.6.14. Ensure personnel and equipment are identified and prepared to meet deployment taskings IAW AFI 10-403, *Deployment Planning*, AFI 10-215, *Personnel Support for Contingency Operations (PERSCO)*, and AFMAN 10-401, Volume 1, *Operations Plan & Concept Plan Development and Implementation*.

2.6.15. Ensure flight or section administrative procedures are established to process reports and file documents.

2.6.16. Monitor CTKs, special tool needs, bench stock requirements, and SE use.

2.6.17. Provide inputs to and implement maintenance plans.

2.6.18. Review and evaluate management and production reports. Initiate management actions to meet new workloads or correct deficiencies identified in these reports.

2.6.19. Administer the squadron/division occupational health and safety program in the flight. Ensure all personnel obtain the required occupational health and safety training. Ensure all personnel have access to adequate personal protective equipment (PPE) and wear these devices as required. Ensure occupational health and safety information is available and personnel in hazardous areas are briefed about the dangers. Identify requirements to the MTF, ensuring facilities provide safe and healthful working conditions IAW AFI 91-302.

2.6.20. Ensure sections maintain a record of inspection, lubrication, and maintenance of industrial equipment.

2.6.21. Ensure procedures are followed to identify, record, and clear repeat/recurring and CND discrepancies.

2.6.22. Manage the flight portion of the foreign object damage (FOD) prevention program and dropped object prevention program (DOPP) IAW AFI 21-101 and **Chapter 9** and **Chapter 23** of this instruction.

2.6.23. Formulate, review, and conduct after-the-fact evaluations of monthly, weekly, and daily maintenance plans. Submit inputs through the SMO/MS to OSS plans, scheduling and documentation (PS&D) by the 15th workday of the preceding month.

2.6.24. Ensure tools and equipment are scheduled for calibration IAW TO 00-20-14 and other 00-20 series TOs.

2.6.25. Manage additional duties, leaves, ancillary training, and details to minimize work force degradation.

2.6.26. Enforce the squadron/division security program within the flight.

2.6.27. Ensure effective training programs are instituted.

2.6.28. Monitor SE status and advise maintenance supervision of adverse impacts on support or deployment capabilities.

2.6.29. Comply with TO 33K-1-100-1, *TMDE Calibration Notes Maintenance Data Collection Codes Calibration Measurement Summaries Transportable Field Calibration Unit Configurations and Automatic Calibration System Supportable Equipment*, any applicable calibration measurement summary (CMS), TO 00-20-14, and other applicable technical directives concerning the use, care, handling, transportation, and calibration of test, measurement, and diagnostic equipment (TMDE) owned by the flight.

2.6.30. Consolidate section inputs for items requiring functional check/operational programming or calibration. Submit the listing through maintenance supervision to the base supply inspection element.

2.6.31. Coordinate AGE requisitions through squadron maintenance supervision/AGE flight to ensure support capability and eliminate unnecessary duplication of equipment.

2.6.32. Review new, revised, or changed publications and inform personnel of any significant changes. Decide if new or changed publications affect the qualifications of personnel. Ensure workcenter publications are current and required publications are available to meet workcenter needs.

2.6.33. Actively solicit inputs for and promote the product improvement program (PIP) and reliability and maintainability (R&M) programs.

2.6.34. Maintain good housekeeping practices, safety and health, security, and environmental control standards.

2.6.35. Monitor and ensure occupational health physicals, 91 and 48 series AFOSH standard training, and initial and recurring requirements are accomplished when required for assigned personnel.

2.6.36. Coordinate with dedicated inspectors to receive daily/weekly feedback to evaluate the quality of maintenance and qualifications of personnel through observation and inspections of maintenance actions.

2.6.37. Evaluate skills, aptitudes, and proficiency of assigned people to develop workcenter training requirements. Ensure cross-utilization training (CUT) requirements are identified as required by the unit mission. (Reference AFI 21-101 and **paragraph 1.8.** of this instruction).

2.6.38. Ensure specialists responsible for the removal of line replaceable units (LRUs) and components from aircraft print their last name and employee number in block 14 of the AFTO Form 350**, Repairable Item Processing Tag** (or data system produced equivalent), immediately below the discrepancy.

2.6.39. Ensure only designated personnel are verifying urgency of need designator (UND) I, J, and A requirements.

2.6.40. Review deferred discrepancies using CAMS screens and coordinate with the production superintendent for accomplishment. Ensure accuracy of deferred discrepancy file.

2.6.41. Ensure control and storage of assigned alternate mission equipment (AME) IAW AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*. Local procedures must be developed for control and storage of non-specified configuration items using the guidelines of AFI 21-103.

2.6.42. Become proficient with and review CAMS data records, the D-23, *Repair Cycle Data Listing*, database system and other pertinent products to ensure proper asset management. Aggressively follow-up on asset shortfalls and supply difficulties. Ensure pacing items affecting the mission are effectively monitored and advise supervision on problems requiring resolution.

2.6.43. When applicable, ensure warranty items are loaded to CAMS IAW AFCSM 21-578, Vol. 2, *Product Quality Deficiency Reporting System (PQDR)*, and DRs are accomplished on warranted item failures IAW TO 00-35D-54.

2.6.44. Ensure mock-ups and bench sets, built by the section, are maintained using the commodity TOs for the major components and equipment general TOs for non-stock listed parts or components.

2.6.45. Review the automated records check (ARC) after section chief validation.

2.7. Section Chief Responsibilities. The section chief is responsible to the flight chief for the management, supervision, and training of assigned personnel. The section chief is a first-line supervisor of main-

tenance production and is the technical authority and advisor in that area. In addition, the section chief will:

2.7.1. Perform production and supervisory inspections.

2.7.2. Enforce the use of technical data. Ensure TO files are current and maintained IAW TO 00-5-2.

2.7.3. Review, evaluate, and take corrective action based on QA and OI reports.

2.7.4. Evaluate assigned personnel and determine training needs. Track training requirements and ensure personnel attend required training. Ensure training documentation is accurate. When applicable, ensure Air Force developed training materials are used to supplement qualification training. Ensure personnel are trained and qualified/certified to perform assigned tasks.

2.7.5. Maintain assigned equipment IAW 00-20 series TOs.

2.7.6. Establish adequate bench stocks.

2.7.7. Ensure personnel follow procedures for identifying, recording and clearing CND and repeat/recurring discrepancies.

2.7.8. Identify items that require functional check, calibration, or operational check before installation. Provide a list of these items for distribution to supply and maintenance.

2.7.9. Manage tool storage and replacement, bench stock, and operating stock, if required. Ensure adequate CTKs and special tools are available. **Chapter 21** of this instruction and AFMCI 21-107 prescribes procedures for tool storage and control. AFMAN 23-110 prescribes procedures for bench stock management. Spot-check bench and operating stocks to ensure compliance with all required directives.

2.7.10. Evaluate production and equipment performance to identify deficient areas and initiate corrective action.

2.7.11. Provide required maintenance of WRM assets.

2.7.12. Maintain good housekeeping practices, safety and health, security, and environmental control standards.

2.7.13. Provide planning factors to the flight chief (e.g., existing/projected training requirements/impacts, manpower requirements/changes, equipment requirements/changes/shortages, supply concerns/issues, budget inputs/requirements, deployment/mobility equipment and personnel shortfalls, etc.).

2.7.14. Enforce supply discipline.

2.7.15. Review new, revised, or changed publications and brief personnel of any significant changes. Determine if new or changed publications affect the qualifications of personnel. Ensure section publications are current and required publications are available to meet unit needs.

2.7.16. Actively solicit inputs for and promote the PIP and R&M programs, and review product quality deficiency reports (PQDR) prior to forwarding to QA.

2.7.17. Ensure maintenance is documented as prescribed by 00-20 series TOs and AFCSM 21 series, *Core Automated Maintenance System Manuals*.

2.7.18. If applicable, ensure personnel and equipment are identified and prepared to meet deployment tasking IAW AFI 10-403, AFI 10-215, and AFMAN 10-401.

2.7.19. Manage the repair cycle program. Review the D-23 and other pertinent supply products to ensure proper asset management.

2.7.20. Monitor, track, and ensure AFOSH requirements and respirator training (initial and recurring) are accomplished for assigned personnel (may be tracked in CAMS).

2.7.21. Determine maintenance tasks that require IPIs. Forward an IPI listing, through the flight chief, to the SMO/MS (or equivalent) for consolidation and approval.

2.7.22. Evaluate the quality of maintenance and qualifications of personnel through observation and inspection of maintenance actions.

2.7.23. Evaluate skill, aptitude, and proficiency of assigned people to develop workcenter training requirements. Ensure CUT requirements are identified as required by the unit mission. (Reference AFI 21-101 and **paragraph 1.8.** of this instruction).

2.7.24. In addition to all other information required on the AFTO Form 350, ensure specialists responsible for the removal of LRUs and components from aircraft print their last name and employee number in block 14 of the AFTO Form 350 immediately below the discrepancy.

2.7.25. Establish a workcenter safety and health program designed specifically for mishap prevention and the identification and abatement of hazards IAW AFOSH standards and other applicable safety and health related directives.

2.7.26. Ensure the owning workcenter (OWC) maintenance of TMDE is accomplished. Coordinate with the TMDE flight to ensure calibration requirements are met.

2.7.27. Ensure training is provided on specific CAMS/PMEL automated management system (PAMS) subsystems (as applicable) on the following:

2.7.27.1. Overview of CAMS applicable subsystem.

2.7.27.2. Interpretation of output products, CAMS screens, and reject narratives.

2.7.27.3. How to request background products.

2.7.27.4. Provide job data documentation (JDD) training to section users.

2.7.27.5. Familiarization with AFCSM 21 series directives.

2.7.28. Ensure all maintenance performed by personnel assigned to the workcenter is entered into CAMS on a daily basis.

2.7.29. Review documented discrepancies for the workcenter on a daily basis (CAMS screen 380) to monitor scheduled and deferred events. Ensure all events that show status of scheduled and are beyond their scheduled date and time are closed, rescheduled, or deferred.

2.7.30. Review transcribed 781 series AFTO forms (if applicable) and CAMS data entries from the previous day for job accuracy and completeness (CAMS screen 100). Changes must be made within five calendar days of the job's stop date.

Chapter 3

KEY WING MANAGERS' RESPONSIBILITIES

Section 3A—Test

3.1. General. This chapter is divided into four sections. **Section 3A** - OG/CC Responsibilities; **Section 3B** - LG/CC Responsibilities; **Section 3C** - Director Responsibilities; and **Section 3D** - Wing Weapons Manager.

Section 3B—Operations Group Commander (OG/CC) Responsibilities.

3.2. General. The OG/CM and OG/MS will execute the OG/CC maintenance responsibilities. In addition to accomplishing the common group commander (GP/CC) responsibilities outlined in **Chapter 2** of this instruction, the OG/CM and OG/MS will:

3.2.1. If integrated combat turnarounds (ICT) are performed, work with the wing weapons manager (WWM) to publish local instructions to supplement combat sortie/test production plans and determine the number of weapons load crews and maintenance personnel required to be trained and qualified to support ICT operations.

3.2.2. Coordinate with the LG/CC and (when applicable) the weapons directorate director to establish unit procedures to reconcile training munitions issued for requirements in accordance with (IAW) AFI 36-2217, *Munitions Requirements for Aircrew Training*.

3.2.3. Establish written procedures for clearing repeat/recurring and cannot duplicate (CND) discrepancies.

3.2.4. Establish procedures to ensure coordination occurs between unit/squadron debriefing sections and the maintenance operations center (MOC) for each sortie or abort.

3.2.5. Establish a dedicated crew chief (DCC) program IAW **Chapter 7** of this instruction.

3.2.6. Establish written procedures outlining the unit's flight control maintenance/diagnostics team program.

3.2.7. If hot refueling is performed, coordinate with the LG/CC to designate an office of primary responsibility (OPR) (quality assurance (QA), logistics training flight (LTF), or current operations flight inspection/system support section) for hot refuel training IAW **Chapter 23** of this instruction.

3.2.8. If required, provide the necessary training aircraft and equipment to the LTF to support the maintenance training program.

3.2.9. If required, provide qualified maintenance technicians to the LTF as assigned or attached instructors.

3.2.10. Ensure quality assurance plan (QAP) requirements are implemented IAW **Chapter 9** of this instruction.

3.2.11. Determine aircraft technical order (TO) file requirements.

3.2.12. Establish an effective local aircraft structural integrity program (ASIP), to include publishing, or coordinating on the publication of, a local ASIP directive and appointing an officer or senior non-commissioned officer (SNCO) as the base ASIP project officer.

3.2.13. Chair the daily maintenance scheduling/production meeting and ensure all maintenance requirements are effectively scheduled (e.g., shared resources).

3.2.14. Develop consolidated operations group (OG)/logistics group (LG) local procedures for Red Ball maintenance to include parts delivery, maintenance procedures, documentation methods, and follow-on actions IAW **Chapter 23** of this instruction.

3.2.15. Resolve conflicting maintenance requirements with the operations squadron (OS) squadron maintenance officer (SMO)/Maintenance Supervisor (MS).

3.2.16. Review maintenance and test limiting factors (LIMFAC)/shortfalls and deployment simulation requests.

3.2.17. Review requests for depot-level assistance made IAW TO 00-25-107, *Maintenance Assistance*.

3.2.18. Ensure full compliance with the following IAW **Chapter 23** of this instruction:

3.2.18.1. Identification friend or foe (IFF) Mode 4 reliability.

3.2.18.2. Radar warning receiver (RWR) testing.

3.2.18.3. End-of-runway (EOR) inspection.

3.2.18.4. Oil analysis program (OAP).

3.2.18.5. Hot refueling procedures.

3.2.18.6. Management of hangar queen aircraft.

3.2.19. Ensure effective management of the OG's total maintenance training program IAW AFMCI 36-201, *Education and Training Process Guide*.

3.2.20. Establish a weight and balance (W&B) program IAW AFI 21-101, *Maintenance Management of Aircraft*.

3.2.21. Establish a functional check flight (FCF) program IAW AFI 21-101 and **Chapter 9** of this instruction.

3.2.22. Ensure OSs not possessing 2W1X1 personnel coordinate with HQ AFMC/DRAW to establish a chaff/flare training program. As a minimum, the program will include academic, explosive safety, and load/unload training. The program will be administered using the following guidance:

3.2.22.1. As a minimum, the academic program will include:

3.2.22.1.1. Applicable TOs and publications.

3.2.22.1.2. Applicable safety discipline/practices.

3.2.22.1.3. Security requirements.

3.2.22.1.4. Aircraft familiarization.

3.2.22.1.5. Stray voltage checks (as required)

3.2.22.1.6. Munitions characteristics.

3.2.22.1.7. Local requirements.

3.2.22.2. Training course control documents (CCD) will be coordinated annually through the wing weapons safety office, LTF, and the HQ AFMC/DRAW weapons functional manager.

3.2.23. Ensure mission, design, and series (MDS) specific fire extinguisher, hazardous communication (HAZCOM), and appropriate ancillary training programs are established for OG personnel performing on-/off-equipment maintenance duties.

Section 3C—Logistics Group (LG/CC) Responsibilities.

3.3. General. This section outlines specific functions of the LG/CC. Logistics, maintenance, and support responsibilities assigned to the LG are described in separate chapters of this instruction, AFI 21-101, and AFI 38-101, Air Force Organization. In addition to the common responsibilities outlined in **Chapter 2** of this instruction, the LG/CC will:

3.3.1. Ensure effective management of the wing's QAP.

3.3.2. Co-chair the monthly QA meeting with the OG/CC.

3.3.3. Ensure effective management of the wing's total maintenance training program IAW AFMCI 36-201.

3.3.4. Ensure procedures are established to reconcile training munitions issued for requirements IAW AFI 36-2217.

3.3.5. Ensure procedures to properly turn in recoverable and consumable items are established IAW AFMAN 23-110, *USAF Supply Manual*.

3.3.6. Ensure an orientation program is developed and attended by all personnel newly assigned to wing maintenance activities.

3.3.6.1. Topics may include, but are not limited to, unit mission, tasking plans, supply procedures, foreign object damage (FOD) prevention program, ancillary maintenance programs, general and in-section safety rules, QAP, product improvement (PI), corrosion control, and hazardous material/waste procedures.

3.3.7. Approve all local manufacture requests.

3.3.8. Ensure MDS specific fire extinguisher, HAZCOM, and appropriate ancillary training programs are established for LG personnel performing on-/off-equipment maintenance duties.

3.3.9. Establish the engineering data service center (EDSC) program, if required.

3.3.10. Ensure the W&B and FCF programs are effectively managed for all assigned aircraft IAW **Chapter 9** of this instruction.

3.3.11. Ensure effective use of Air Force engineering and technical services (AFETS)/contractor engineering technical services (CETS) personnel (when assigned) IAW AFI 21-110, *Engineering and Technical Services*.

3.3.12. Approve (in writing) all maintenance instructors.

3.3.13. Function as OPR for the intermediate repair enhancement program (IREP) IAW **Chapter 23** of this instruction.

3.3.14. Ensure full compliance with the following IAW **Chapter 23** of this instruction:

3.3.14.1. IFF Mode 4 reliability.

3.3.14.2. RWR testing.

3.3.14.3. EOR inspection.

3.3.14.4. OAP.

3.3.14.5. Hot refueling procedures.

3.3.14.6. Management of hangar queen aircraft.

3.3.15. Publish a directive covering all specific repair and reclamation (R&R) section tasks, to include responsibilities for the rigging of all primary flight controls.

3.3.16. Ensure pre-task safety briefings are established for critical tasks IAW **Chapter 23** of this instruction.

3.3.17. Establish the ramp inspection program IAW **Chapter 23** of this instruction.

3.3.18. Ensure effective management of the technical engineering program (TEP), when established. Officers and technicians assigned to the F-22, B-lB, and B-2A TEP provide unit engineering expertise to resolve weapon system and associated support equipment (SE) deficiencies outside the scope of normal technical data and technician capabilities. Although assigned by the LG/CC, they also provide a capability to investigate and solve weapon system problems and provide both the LG/CC and OG/CC and their staffs with engineering insight into weapon system design. These personnel perform as a research and advisory group for the wing. Technical engineer (TE) personnel normally will not provide training since that is a function of AFETS/CETS personnel, nor should they be used to perform routine maintenance duties. They are not part of the direct labor force and should not be tasked as inspectors or supervisors of workcenter direct labor personnel.

3.3.18.1. Personnel qualifications. As a minimum, TE officers will possess a bachelor's degree in electrical, mechanical, aeronautical, or computer systems engineering and TE technicians will possess a 7-skill level in a crew chief, avionics, or other aircraft maintenance specialty (or civilian equivalent).

3.3.18.1.1. Personnel normally remain in a TE position for a minimum of three years, but may be curtailed or extended by the LG/CC.

3.3.18.2. The TEP will:

3.3.18.2.1. Collect and analyze failure data, conduct engineering studies to resolve design deficiencies, and develop engineering and procedural changes to improve weapon system reliability, maintainability, and effectiveness.

3.3.18.2.2. Determine effect on the weapon system of real property installed equipment (RPIE) modifications, alterations, or minor construction projects. TE personnel will assist local civil engineering (CE) personnel in correcting RPIE deficiencies affecting weapon system or SE. RPIE may include centralized aircraft support systems and maintenance hangars.

3.3.18.2.3. Participate and fully support weapon system improvement programs.

3.3.18.2.4. Support engineering modification efforts of the F-22, B-lB, and B-2A system program offices (SPO) or system support managers (SSM), air logistics centers (ALC), and labs as the wing OPR for all in-service hardware and software engineering tests.

3.3.18.2.5. Assist product improvement managers (PIM) in verifying engineering disposition requests, service reports (SR), deficiency reports (DR), and TO change requests. TE personnel also evaluate and interpret responses to requests and reports received by the PIM from the SPO, SSM, ALC, or contractors.

3.3.18.2.6. Prepare and evaluate modification proposals and engineering change proposals for need, suitability, and effectiveness. After completing a technical evaluation, TE personnel will advise HQ AFMC/DOM of their results.

3.3.18.2.7. Ensure assigned personnel are properly trained in applicable ground, missile, explosive, and nuclear safety requirements, security requirements, and potential hazardous procedures. The following are minimum TE training requirements:

3.3.18.2.7.1. All weapon system and general TOs.

3.3.18.2.7.2. Contractor data placed in the TO system with TO numbers assigned. This includes all research and development (R&D) technical data.

3.3.18.2.7.3. Instructions provided and authorized for use by the SPO and/or SSM.

3.3.18.2.7.4. Engineering data prepared for or acquired by the Air Force in support of logistics and system support operations.

3.3.18.2.7.5. The F-22, B-lB, and B-2A systems and other databases peculiar to specific weapon systems.

3.3.18.2.7.6. Locally devised procedures (approved by the LG/CC) for troubleshooting problems not covered by technical or other available data.

3.3.18.2.7.6.1. A copy of locally-approved procedures will be submitted to the appropriate contractor, ALC, and HQ AFMC/DOM (for informational purposes only).

3.3.19. Request weapon system training for engineers to include AETC formal courses, contractor courses, commercial short courses, and technical seminars in related fields of expertise.

3.3.20. Maximize the use of digital information transfer for documents and computer aided drawings to reduce coordination delays and duplication of data entry. Maintain historical data, such as engineering reports, or other material that may prove useful in establishing failure trends or past configurations.

3.3.21. Communicate directly with appropriate LG maintenance technicians, CE personnel, contractors, weapons system SPO/SSM, and HQ AFMC weapon system functional managers, as required, to resolve problems.

3.3.21.1. Unique problems requiring activity outside of normal approval channels will be coordinated through the appropriate HQ AFMC weapon systems functional manager.

3.3.22. Develop local procedures, in coordination with the OG/CC, for using open tie-down pads for high-power aircraft engine runs. Local procedures will address, as a minimum:

3.3.22.1. Overall primary responsibility for the tie-down pads

3.3.22.2. Responsibilities for maintaining the tie-down pads

3.3.22.3. Coordination procedures for use of tie-down pads

3.3.22.4. Ensuring open tie-down pads are only used as a secondary system when the Noise Suppression System is inoperative or to help reduce backlogs

Section 3D—Director Responsibilities.

3.4. General. This section outlines the functions of a directorate with respect to aircraft maintenance responsibilities. Specific responsibilities are described in local center or wing instructions and supplements. A directorate is established to manage and oversee major mission areas and key test center programs or support functions. A directorate organizational structure can be found in **Figure 1.10.** This section highlights key functions and responsibilities of the director and the division chief. A directorate is organizationally aligned and commensurate to a group in the objective center organization. The director functions at an equivalent level to a GP/CC.

3.4.1. Director responsibilities. In addition to the common responsibilities outlined in **Chapter 2** of this instruction, and with the exception of those responsibilities obligated by the uniform code of military justice (UCMJ) and public law, directors will:

3.4.1.1. Provide resources and ensure adequate procedures are established to perform assigned functional responsibilities as specified in local center and wing instructions and supplements.

3.4.1.2. Coordinate with other groups and directorates as required to obtain aircraft maintenance support such as training, human resource management, QA, safety, and aircraft operational checks needed to properly perform assigned aircraft maintenance duties.

3.4.1.3. If applicable, operate and maintain facilities and equipment required to accomplish aircraft maintenance tasks and associated aircraft maintenance support functions.

3.4.1.4. As required, manage improvement and modernization programs to acquire and integrate technologies needed to support aircraft maintenance.

3.4.1.5. Establish an organizational structure to efficiently accomplish the organization's assigned mission.

3.4.2. Division chief responsibilities. A division is organizationally aligned and commensurate to a squadron in the objective center organization. A division chief functions at an equivalent level to a squadron commander as specified and established by OIs at the wing and directorate levels.

3.4.2.1. In addition to the common responsibilities outlined in **Chapter 2** of this instruction, and with the exception of those responsibilities obligated by the UCMJ and public law, division chiefs will:

3.4.2.2. Obtain directorate approval to establish recommended branches or flights as required to accomplish assigned functional responsibilities.

Section 3E—Wing Weapons Manager (WWM).

3.5. Responsibilities. The WWM reports directly to the GP/CC based upon organizational structure. The WWM is the senior 2W100 (CMSgt) on base. The WWM serves as the wing focal point/conduit for all

weapons loading and armament systems related matters. The WWM will provide technical and managerial advice to wing senior leaders on matters affecting weapons loading and armament systems. In coordination with group and unit commanders, the WWM will:

3.5.1. Work with the test sortie generation flight (TSGF) weapons sections (WS), the armament systems section standard tanks, racks, adapters, and pylon packages (STRAPP) maintenance function, munitions section, and other unit agencies on weapons related matters.

3.5.2. Be responsible for all 2W1X1 manpower issues within the wing to include coordinating on and approving all manpower, workcenter and organizational changes, Air Force specialty code (AFSC) changes, cross/retraining requests, and waivers for 2W1X1 personnel.

3.5.2.1. Coordinate with HQ AFMC/DRAW on any proposed actions that drive changes in unit manpower requirements.

3.5.2.2. Coordinate and maintain equitable grade and skill-level balance between the TSGF WSs, and the armament systems flight.

3.5.3. Designate (in writing) the loading standardization crew (LSC), standardization lead crews (SLC), and academic instructors and monitor their activities. Specify the SLCs having certification and decertification authority.

3.5.4. In coordination with the flying squadron SMOs, brief the GP/CC's staff at least monthly on items such as load crew status, projected manning, equipment shortages, and other items of local interest.

3.5.5. Monitor overall load crew status.

3.5.6. Resolve scheduling conflicts affecting load crew training programs.

3.5.7. Serve as the wing exercise evaluation team (EET) advisor, providing expertise in the development of local exercises involving weapons loading functions.

3.5.8. Ensure that a wing instruction for launch and recovery of explosives loaded aircraft is developed.

3.5.9. Ensure load crew composite tool kits (CTK) are managed ACCORDING TO AFMCI 21-107, *Tool Control and Accountability Program*, and **Chapter 21** of this instruction, and are standardized by flight.

3.5.10. Ensure sufficient serviceable load crew training munitions are available to support load crew training programs. Review all training munitions forecasts and ensure complete-round codes are used in the forecast to the maximum extent possible.

3.5.11. Ensure introductory training is provided to newly assigned personnel on aircraft weapons maintenance, weapons release, and gun systems.

3.5.11.1. Ensure only the weapons standardization section (WSS) provides training required to load munitions on aircraft.

3.5.12. Coordinate with the GP/CC to designate the number of certified load crews, other than LSC and SLC (based upon unit taskings).

3.5.13. If applicable, work with the flying squadron SMOs, the munitions flight, weapons safety, and operations plans in developing nuclear weapons operations procedures (e.g., convoy, custody transfer, no-lone-zone, etc.).

3.5.14. Ensure compliance with local accountability procedures ACCORDING TO AFI 36-2217 and AFI 21-202, *Combat Ammunition System Procedures*.

3.5.14.1. In conjunction with the WSs and the munitions flight, locally develop a standard format for the AF Form 2434, **Munitions Configuration, and Expenditure Document** (or computer generated product provided it contains all required information).

3.5.15. Ensure sufficient computer systems are assigned to support network/modem interface with the WSS, WS, the armament systems flight, automated training systems, and other agencies.

3.5.16. As a minimum, conduct a quarterly wing weapons meeting with representatives from WSS, wing safety, QA, munitions flight, armament flight, and WS to discuss and resolve any wing weapons issues, concerns, or problems.

3.5.17. Coordinate and establish a documented agreement with procedures (unless procedures are designated in other instructions or manuals) for the control, accountability, maintenance, and storage of unit armament -21 equipment, including ammunition handling equipment, ammunition loading system (ALS), universal ammunition loading System (UALS), and linkless ammunition loading system (LALS).

3.5.17.1. Although the owning workcenter (OWC) is ultimately responsible for accountability, this agreement will assign specific responsibilities and ensure all agencies involved will coordinate equipment status, accountability and maintenance requirements on a daily basis.

3.5.18. Review, approve, and forward all requests and proposals for local manufactured munitions equipment (LMME) to applicable QA and GP/CC for approval.

3.5.18.1. Review local LMME items and requirements annually for applicability and current configuration ACCORDING TO the LMME catalog.

3.5.19. Provide HQ AFMC/DRAW a monthly status on authorized/on-hand quantities of alternate mission equipment (AME), war reserve materiel (WRM), critical armament testers, and SE.

Chapter 4

MAINTENANCE SUPPLY SUPPORT

Section 4A—Test

4.1. General. This chapter supplements requirements in AFI 21-101, *Maintenance Management of Aircraft*, and provides guidance and procedures on supply responsibilities in AFMC aircraft maintenance units. This chapter is divided in to two sections. **Section 4A** - Maintenance Supply Responsibilities; and **Section 4B** - Decentralized Supply Support. In addition to the procedures outlined in this chapter, units supporting reconnaissance aircraft, Compass Call mission systems and sensors will establish the applicable logistics support plan (LSP) regarding specific supply procedures.

Section 4B—Maintenance Supply Responsibilities.

4.2. Responsibilities. This section outlines general supply responsibilities as defined in AFMAN 23-110, USAF Supply Manual.

4.2.1. Supply discipline is the cornerstone for effective material management. Everyone shares in the responsibility for maintaining an effective, efficient, and credible supply system. All maintenance personnel will be properly trained to effectively perform supply duties related to their job. Training is available through the base supply training element. Maintenance personnel will:

4.2.1.1. Promptly process reparable items through the repair cycle.

4.2.1.2. Assign a valid delivery priority to each demand placed on the supply system.

4.2.1.2.1. The delivery priority only affects a part, which is on-hand at the time of request. It does not affect the priority of off-base requisitions or the delivery of the asset when it comes in and due out releases (DOR).

4.2.1.2.2. Delivery priorities are identified in AFMAN 23-110, Vol 2, Pt 2, Chap 11, Atch 11A-10.

4.2.1.3. Immediately cancel erroneous requests and those no longer required.

4.2.1.4. Use the proper urgency justification code (UJC) on parts requests to designate the impact and urgency of need as depicted in AFMAN 23-110, Vol 2, Pt 2, Chap 11, Atch 11A-11.

4.2.1.5. Use the current force activity designator (FAD). A FAD is assigned to each Air Force unit based on its mission and is found in the USAF program document. This code is used with the UND to set the requisition priority when a part is ordered from off base sources.

4.2.1.5.1. When a unit needs an item that is in direct support of a unit with a higher FAD, the requester provides the FAD of the supported unit at the time the demand is placed. FAD override rules are identified in AFMAN 23-110, Vol 2, Pt 2, Chap 11, Atch 11A-12.

4.2.1.6. Verify and monitor back ordered requests. The verification process is the key to preventing unwarranted mission-limiting conditions, cannibalizations (CANN), priority abuses, and wasted money. Thorough research is necessary to ensure only valid and accurate requirements are established. Verification requirements are identified in AFMAN 23-110, Vol 2, Pt 2, Chap 11, Para 11.11.

4.3. General Workcenter Supply Requirements. Maintenance production depends on effective supply support. Maintenance workcenters will:

4.3.1. Maintain AF Forms 2413, **Supply Control Log**, or a locally developed computer log, and AF Forms 2005, **Issue/Turn-in Request**, recording all parts ordered from base supply demand processing, and verify status with the daily document register (D04) and the monthly due-out validation listing (M30).

4.3.1.1. Printouts of requests made via the core automated maintenance system (CAMS)/standard base supply system (SBSS) interface may be used instead of AF Forms 2005/2413.

4.3.1.2. Line through entries on the AF Form 2413, **Supply Control Log,** or CAMS printout until complete page has been received.

4.3.1.3. Disposition of completed pages will be IAW established office file plan or may be retained in a separate inactive "for reference" file.

4.3.2. Perform follow-up action with base supply stock control element to resolve awaiting parts (AWP) problems.

4.3.3. Establish backshop and flightline procedures for controlling cross-cannibalization of reparable assets.

4.3.4. Process supply items requiring buildup through the proper workcenter prior to issue.

4.3.5. Compile a list of items requiring functional check or calibration prior to installation according to AFMAN 23-110, Vol 2, Pt 2, Chap 14, Para 14.40.2.

4.3.5.1. The list will be provided to the base supply inspection section and will be reviewed at least semi-annually ACCORDING TO AFMAN 23-110, Vol 2, Pt 2, Chap 14, Para 14.40.6.

4.3.6. Compile a list of direct Not Reparable This Station (NRTS) items and provide it to the maintenance supply liaison (MSL). MSL will consolidate all inputs and forward them to base supply customer service element for inclusion in the master direct NRTS listing as required by AFMAN 23-110, Vol 2, Pt 2, Chap 24, Para 24-42.

4.3.6.1. Review/update at least semi-annually.

4.3.7. Establish a reusable container program according to AFI 24-202, *Preservation and Packing*, AFMAN (I) 24-206, *Packaging of Material*, and AFMAN 23-110, Vol 1, Part 1, Chapter 10. Local procedures will be established to effectively manage reusable containers.

4.3.7.1. As a minimum, procedures will include:

4.3.7.1.1. Automated or manual programs to manage the program.

4.3.7.1.2. A listing of all base agencies that may utilize reusable containers (logistics, supply, operations, and transportation).

4.3.7.1.3. Consolidation of containers with more than one workcenter.

4.3.7.1.4. Locations of storage areas designated for reusable container storage.

4.3.7.1.4.1. Procedures to periodically review the amount of containers in storage.

4.3.7.2. Workcenters are responsible for funding and procurement of reusable containers when there are no containers available for use.

4.3.8. Schedule and control all repair cycle assets through the repair flights based on priorities established in **Chapter 1**, **Table 1.1.**, of this instruction, vice the oldest document number.

4.3.9. Transport reparable assets from workcenter to workcenter in an expedient manner. Ensure proper documentation and reusable containers accompany the asset through the repair cycle.

4.3.9.1. If a part is removed and no spare asset is available or the part is removed for bench check or repair, the workcenter removing the part is responsible to provide a reusable container (or equivalent) to transport the item/part to the repair shop.

4.3.9.2. The container will remain with the part until it is repaired and returned to the originating workcenter or the part is declared NRTS and shipped off station.

4.3.9.3. Workcenters will move parts from one repair workcenter to the next until the end item is repaired and returned to the owning workcenter (OWC).

4.3.9.4. Supply personnel will deliver all parts that are issued or due-out (DUO) released from supply and will pick up parts that are being turned in to supply from either the flightline or backshop.

4.3.10. Establish local procedures for parts CANN actions taken from donor aircraft to fill deployment-tasked readiness spares package (RSP) and mission support kit (MSK) requirements.

4.4. Bench Check and Repair Policy. Maintenance sections bench check items as part of the on-equipment troubleshooting process. When workload requires, the section chief determines the priority for bench check actions. Specific procedures for bench check and repair policy is provided in TO 00-20-3, *Maintenance Processing of Repairable Property and the Repair Cycle Asset Control System*. The following general guidelines will apply:

4.4.1. The technician orders the required part fill or kill. If the part is killed and a MICAP condition exists:

4.4.1.1. Determine if local repair capability exists prior to off-base requisitioning or seeking lateral support.

4.4.1.2. Units will work with base supply to establish local procedures to determine the waiting period for backshop repair of a part before the requesting unit establishes a MICAP condition for a new part.

4.4.2. The technician removing the suspected item will completely fill out the AFTO Form 350 annotating it as repair and return.

4.4.2.1. The technician will attach the AFTO Form 350 to the asset and place it into the repair cycle.

4.4.2.1.1. The name of the repair section and the maintenance priority code (MPC) will be annotated on the AFTO Form 350.

4.4.2.2. All assets will be properly protected during transportation.

4.4.3. The repair section bench checks, repairs, takes NRTS action, or condemns the item. If the item is repaired or otherwise determined to be serviceable, the repair section informs the support section the item is available for pick up. If the item cannot be repaired, the repair section informs the support

section to firm up backordered requests so off-base requisitioning action may be taken and takes appropriate NRTS/condemnation action on the unserviceable asset.

4.4.3.1. If CAMS capability does not exist or is unavailable, units will establish manual procedures to track parts through the repair cycle process using AFTO Forms 350.

4.4.3.2. If using CAMS to control work, all workorders will be prioritized on CAMS screen 380 by scheduling dates and times. Regardless of the option implemented, supply status will be kept current and accurate. Items with some degree of base level repair but not available through SBSS will be processed as turnaround transactions (TRN).

4.4.3.3. Workcenters performing repair actions will update CAMS and supply data. Refer to AFMAN 23-110, Vol 2, Pt 2, Chap 24, Para 24.10 and 24.11 for TRN procedures.

4.5. Repair Cycle Asset Management. The overall objective of the repair cycle is to prioritize repair of assets based on actual mission needs, to move assets through the repair cycle as quickly as possible, to accomplish quality repair actions, and to maximize repair capability.

4.5.1. The repair section chief establishes a production schedule based on priorities established in **Table 1.1.** of this instruction. Base supply provides the repair cycle asset management listing (D23) to assist each repair section in this effort.

4.5.1.1. The D23 is provided in both maintenance location and national stock number (NSN) sequence. Repair sections use the D23 to manage the flow of due-in from maintenance (DIFM) assets in the repair cycle and to ensure the DIFM status is updated.

4.5.2. Maintenance workcenters may use AFTO Form 350 or CAMS screen 380 to control work.

4.5.2.1. If using AFTO Form 350, establish a file in priority sequence with three sections: in-work (INW), awaiting maintenance (AWM), and awaiting parts (AWP).

4.5.2.2. If using CAMS to control work, all workorders will be prioritized on CAMS screen 380 by scheduling dates and times.

4.5.2.3. Regardless of which option is used, it is important that the supply status be current and accurate.

4.5.2.4. Treat items not having a demand placed on supply as TRNs and update CAMS and the supply system for demand data update.

4.5.2.5. Use AF Form 2520, **Repair Cycle Control Log** or DD Form 1348-1/1348-1A**, Issue Release/Receipt Document** to record all turn ins. Refer to AFMAN 23-110, Vol 2, Pt 2, Chap 24, Para 24.10 and 24.11 for TRN action.

4.5.3. Base supply is responsible to transport reparable assets from the repair shop and flightline for turn in to base supply. Maintenance will notify base supply of the current location of any items requiring turn-in. However, workcenters will transport assets to the next workcenter or supply when multiple workcenters are involved in a repair action.

4.5.4. Process components requiring multiple section actions by tracking on AF Form 2520 the same as other items.

4.5.4.1. The OWC of the equipment and/or repair section(s) identifies multiple section actions in block 15 of the AFTO Form 350 and in CAMS.

4.5.4.1.1. As each section completes work, annotate block 15 and update CAMS to reflect the work was done.

4.5.4.2. Transport assets to the next workcenter/holding area and update the DIFM status code and AF Form 2520.

4.5.5. If a requested part is backordered and the unserviceable DIFM item does not limit or restrict the operational capability of the end item, remove it and send it to the appropriate support section.

4.5.5.1. The support section will either have the part repaired, NRTS, or take condemnation action and subsequent turn in to supply (as a credit DIFM) according to TO 00-20-3.

4.5.6. Classified assets are processed in the same manner as other components, except technicians indicate on the face of the AFTO Form 350 that the item is classified.

4.5.6.1. Use a stamp that states "This item is classified and must be handled according to AFI 31-401, *Information Security Program Management*."

4.5.6.1.1. The section responsible for the bench check or repair ensures that security classification of the component is conspicuous. In addition, each activity maintains a current list of personnel authorized to receive classified components.

4.5.6.2. Additional guidance is found in TO 00-20-3 and AFMAN 23-110, Vol 2, Pt 2, Chap 18, Para 18.21.

4.6. Control of AWP Assets and Cross-Cannibalization. Repair sections are responsible for storing and controlling repairable assets in AWP status, and tracking/monitoring cross-cannibalization of parts. The following general guidance will apply. Repair sections will:

4.6.1. Make every effort not to consolidate storage areas for AWM and AWP assets.

4.6.2. Requisition repair bits and pieces and/or determine if cross-cannibalization action is feasible. To ensure supply database records are adjusted to reflect cross-cannibalization actions, provide the supply AWP manager the DIFM AWP end item document number and the DUO document numbers of all bits and pieces.

4.6.3. The chief of supply (COS) will be responsible for requisitioning, lateral support, follow-up, and monitoring status of repair bits and pieces. Repair section asset managers will be responsible for documenting and providing mission-impact information letters to the base supply AWP manager for requisitions with unacceptable delivery status.

4.6.4. Base supply will be responsible for requesting disposition and turn-in of assets when repair parts are unavailable. Non-availability of parts does not constitute authority to turn in items. Specific NRTS 4 authority criteria is referenced in AFMAN 23-110, Vol 2, Pt 2, Chap 14, Atch 13A-3.

4.7. Removal of Bit and Piece Repair Parts from Condemned Assets. Selected bit and piece repair parts may be removed from condemned XF/XB end items. XD items are normally not condemned at the base/field level. The end-item manager will provide condemnation authority for all XD assets. Do not remove bit and piece repair parts from XD assets being NRTS to the depot without written item manager (IM) approval.

4.7.1. Once an asset is condemned, remove repairable XD items and XB/XF end items not exceeding 75 percent economic repair criteria. Tag all removed items with the appropriate condition tag and retain to fill future supply demands and enhance local repair capability.

4.7.1.1. Store XB bits and pieces as operating stock or turn in to supply or through appropriate supply channels, if no future requirement is anticipated.

4.7.1.2. Process XD/XF items for immediate turn-in to ensure items are properly identified, accounted for, and reported in reparable assets management processing system (RAMPS).

4.7.1.2.1. Assets must be demilitarized, if required, prior to turn-in.

4.8. Local Manufacture. Local manufacturing is a viable part of Air Force maintenance support. Items subject to this method of supply are identified in the end item technical order (TO) specific procedures are found in AFMAN 23-110, Vol 2, Pt 2, Chap 9, Para 9.32. The following general guidance will apply:

4.8.1. Local manufacture of procurable items will be restricted to mission essential items.

4.8.1.1. The LG/CC or OG/CC (or equivalent) and their designated representative will be the authority to approve local manufactures. Local manufacture may also be approved or directed by IMs.

4.8.1.2. Process local manufacturing requests through the squadron maintenance officer (SMO)/ maintenance supervisor (MS) and coordinate with the respective group quality assurance (QA) prior to submitting to the LG/CC, OG/CC, or designated representative for approval authority.

4.8.1.3. A signed AF Form 2005, **Issue/Turn-in Request,** indicates their approval.

4.8.2. The requester will submit an AF Form 2005 for supply items and an AF Form 601, **Equipment Action Request**, for equipment requests to establish an end item document number. The requester will also provide a drawing, sample, technical data and DD Form 1348-6, **DoD Single Line Item Requisition System Document,** as required.

4.8.2.1. The USAF program for control and distribution of engineering data is the micro mechanized engineering data for automated logistics program. This program provides Form I engineering drawings with supporting data in microform to base engineering data service center (EDSC).

4.8.2.2. The local manufacture monitor requests data from the EDSC. Refer to AFI 21-401, *Engineering Data Storage, Distribution, and Control*, for additional procedures.

4.8.3. The requester will coordinate with the appropriate fabricating section to determine local manufacturing feasibility. Once feasibility is determined, the primary fabrication section will order all parts using the end item document number as the mark-for.

4.8.3.1. The supply local manufacturer manager will assist in verifying parts availability.

4.8.4. The requester will coordinate with the prime repair section and identifies all sections needing to take action on the AFTO Form 350 for local manufacture items requiring multiple section processing.

4.9. Critical Item Control. The USAF no longer mandates a critical item control program; however, commanders may establish local procedures if desired.

4.10. Supply Request Procedures. Demands are normally made through CAMS/SBSS terminals or a decentralized supply support function. The technician will:

4.10.1. Provide all required data to properly process the issue request. Refer to AFMAN 23-110, Vol 2, Pt 2, Chap 11, Section 11A for further guidance.

4.10.2. Completely annotate AF Form 2413 or locally developed computer log, to include supply document number and time ordered. Printouts of requests made via CAMS/SBSS interface may be used instead of AF Form 2413 or computer log.

4.10.3. Ensure expenditures are properly documented when ordering parts for transient aircraft. Use demand code N (non-recurring) for transient aircraft requests. Use demand code R (recurring) if the item is applicable to base assigned aircraft or if it is required for regularly scheduled transient flights. Refer to TO 00-20-5, *Aerospace Vehicle Inspection and Documentation*, and AFMAN 23-110, Vol 2, Pt 2, Chap 11, Section 11A for further guidance.

4.11. Quick Reference Lists (QRL). QRLs provide maintenance with a quick way to identify and communicate to supply the need for a part. QRLs should only identify those fast-moving, high-usage assets for primary mission air vehicles. MSL will solicit and consolidate inputs from all squadrons to initiate a QRL. See AFMAN 23-110, Vol 2, Pt 2, Chap 11, Para 11.5.

4.11.1. MSL distributes the QRL to appropriate workcenters including the aircraft parts store.

4.11.2. Maintenance of the QRL is a joint effort between maintenance and supply.

4.11.2.1. Review and validation are accomplished at least semi-annually by MSL and all repair sections provide inputs to the QRL.

4.11.3. Maintenance activities submit proposed additions to the QRL by stock and part number, work unit code (WUC), and TO figure and index number.

4.12. Tail Number Bin (TNB). TNBs are locations established and controlled to store issued parts awaiting installation (AWI) and parts removed to facilitate other maintenance (FOM). TNBs will be set up by tail number, serial number, or ID number. The following general guidance will apply:

4.12.1. Parts are not released from the TNB without proper maintenance data collection (MDC)/ CAMS documentation. Items removed from the TNB, and not installed that duty day, are returned to the TNB.

4.12.2. Place all DOR items in the TNB and inform the maintenance operations center (MOC), production superintendent and expediter that the part has been received.

4.12.3. Decentralized supply personnel will inform the production superintendent/expediter of TNB assets that may prevent/satisfy a mission-limiting condition.

4.12.3.1. If an item marked for a mission capability (MICAP) condition is used to satisfy another MICAP condition, this constitutes a transfer not a CANN. If the item is in a TNB, use it, reorder the asset for the applicable aircraft, and notify the expediter of the new document number to be entered in the aircraft forms.

4.12.3.2. If the MICAP DUO was created in supply prior to doing the transfer, notify base supply to change the "mark-for" field on the DUO detail.

4.12.3.3. Units with automated AFTO Forms 781, *AFFORM Aircrew/Mission Flight Data Document,* series must update the document number according to AFCSM 21-579, Vol 2, *CAMS/SBSS Interface*.

4.12.4. Seal and store partially completed time compliance technical order (TCTO) kits/parts in the tail number bin (TNB) and mark the container/package by attaching an AFTO Form 350 with the tail number, serial number, or equipment identification (ID) number and TCTO number.

4.12.5. Each workcenter maintains security over and control of TNB/FOM assets. A control log will be established and AFTO Form 350 will be attached to each asset containing the following minimum information: tail number, serial number, or equipment ID, number or document number, date received, nomenclature (NOUN), status, remarks and the date, time, signature and employee number as required by AFI 21-101.

4.12.6. Parts removed to FOM, in addition to having the required information contained in paragraph **4.12.5.**, will have the statement "part removed to FOM" in block 14.

4.13. Status Boards. Units may use visual aids to monitor MICAP requests. Visual aids will reflect the weapon system/serial number, national stock number (NSN), nomenclature (NOUN), quantity, document number, requisition number, WUC, depot/status and remarks. List cause codes in the REMARKS field.

4.13.1. Review and update aids with the mission support element daily. Updates may also be obtained by using two different methods. The first is using SBSS inquiry screens 233-transaction identification code (TRIC) INQSN, national stock number Inquiry, 234-TRIC INQPN, part number inquiry and 235-TRIC INQDN, document number inquiry. The second method would be to use SBSS reports DGWE10, MASS-SBSS end-of-day reconciliation report, DGWE20, end-of-day database clean-up, DGWE30, MICAPS selected for resourcing and DGWE40 MICAP asset status report.

4.13.2. Ensure visual aids depicting aircraft or sensor MICAP status comply with program security guidelines.

4.14. Unsatisfactory Supply Status. Workcenters will monitor supply status on all backordered parts. Submit supply-assistance requests and mission-impact statements for unacceptable status for XB3/XF3 and engine assets. Coordinate requests with the appropriate support section/MSL before sending them to base supply.

4.14.1. Use the execution and prioritization of repair support system (EXPRESS) to obtain status for XD assets, including reasons for poor status.

4.14.2. Contact base supply customer service to obtain the EXPRESS Internet web site information.

4.15. Supply Point and Buildup Items. Supply points are forward warehouses located within or near the maintenance workcenter as described in AFMAN 23-110, Vol 2, Pt 2, Chap 24, Para 24.22 and 24.38. Squadron commanders, in conjunction with the COS, may establish supply points within the maintenance complex. Items are limited to those peculiar to the individual workcenter and for which a benefit is gained (i.e., in time, resources required to move, etc.) by having them in the workcenter. The following general guidance will apply:

4.15.1. Storage space for supply points will be provided by the supported workcenter.

4.15.1.1. Management of the supply point will be determined by an agreement between the COS and supported squadron commander.

4.15.2. Supply points are forward storage of COS-owned assets and will be reconciled quarterly and inventoried semi-annually according to AFMAN 23-110, Vol 2, Pt 2, Chap 24, Para 24.31. Workcenter supervisors will assist base supply with reconciliations and inventories.

4.15.3. Items requiring build-up prior to use (i.e., wheels and tires) are prime supply point candidates and may be maintained in a built-up configuration.

4.15.3.1. Items will be forwarded to the appropriate workcenter for buildup and returned to the supply point for later issue.

4.15.3.2. Use AF Form 1297, **Temporary Issue Receipt,** to control assets forwarded for build-up when the supply point is operated by supply. Validate hand receipts daily if over 10 days old as required by AFMAN 23-110, Vol 2, Pt 2, Chap 24, Para 24.3.8.2. Local procedures will be established to control assets when the supply point is maintenance operated and the end item is issued to another organization.

4.16. Supply Assets Requiring Functional Check, Calibration, or Operational Flight Programming. Maintenance sections will identify items requiring functional check, calibration, or operational flight programming prior to use as directed by AFMAN 23-110, Vol 2, Pt 2, Chap 13, Para 14.40.2.

4.16.1. Maintenance sections will prepare a list of items, including the repair section's organization and shop code, and forward the list through the flight chief and MS to the base supply combat operations support flight.

4.16.2. The list is updated/validated as required, but at least semi-annually as per AFMAN 23-110, Vol 2, Pt 2, Chap 13, Para 14.40.6.

4.16.3. Supply sends items identified on the list to repair sections when functional check, calibration, or programming is due or when serviceability is doubtful.

4.16.4. Maintenance sections will install new condition/serviceability tags on items checked/tested and not issued for use.

4.16.5. Retain original serviceable tag from last depot overhaul/repair.

4.17. Bench Stock. Bench stocks are stores of expendability, recoverability, reparability category coded (ERRC) XB3 items kept on hand to reduce delays in maintenance productivity due to parts ordering and supply delivery times. Common bench stock items are items such as nuts, bolts, washers, and resistors. The following general guidance will apply:

4.17.1. Establishing a bench stock is a coordinated effort between maintenance and supply. An initial spares support list (ISSL) or bench stock list from another unit, with a like weapon system, may be used as a guide in establishing a bench stock. Since units use organizational maintenance funds to purchase bench stocks, ensure only required items, in authorized quantities are included and that future demands for these items exist.

4.17.2. Items coded TCTO, unacceptable for Air Force use, critical, classified or sensitive are not included on bench stocks (see AFMAN 23-110, Vol 2, Pt 2, Chap 25, Para 25.4 for exception data).

4.17.3. Workcenter supervisors will develop a list with the NOUN, preferred part number, NSN (if available), and quantity needed. The quantity should be that expected to be used within 60 days.

4.17.3.1. Forward the request for bench stock items to the bench stock support element (BSSE) of base supply (reference AFMAN 23-110, Vol 2, Pt 2, Chap 25, Para 25.7).

4.17.3.2. The maximum allowable amount that may be kept in a bench stock bin is no more than a 60-day supply as directed by AFMAN 23-110, Vol 2, Pt 2, Chap 25, Para 25.7.2.1 and 25.7.2.2.

4.17.4. Items will be added or deleted upon request of the workcenter supervisor. Items are added, deleted, or retained on bench stock based upon the users' experience/desires regardless of consumption data. The bench stock review listing (M04), recommended additions, changes, and deletions are provided to assist in bench stock management and should be reviewed monthly.

4.17.4.1. Base supply will not delete items from a workcenter's bench stock without approval of the workcenter supervisor. Base supply will notify the bench stock monitor in writing if a part becomes obsolete or ineligible for bench stock.

4.17.5. The bench stock monitor will perform a weekly walk through and a monthly inventory for each established bench stock. Anyone can mark bins containing 50 percent or less of the authorized quantity with a red flag. Workcenters will process routine bench stock requests via CAMS/SBSS terminals. If the property issues, supply delivers the full quantity authorized (if available). Remove red flags when the items are received.

4.17.5.1. Quantities in excess of the authorized quantity may be retained, but will not exceed 200 percent of the authorized quantity.

4.17.5.2. Bench stock monitors will work with Base supply to develop local procedures to flag bins that are backordered.

4.17.6. Bench stock assets not on hand and needed immediately to perform a job will be requested via CAMS/SBSS terminal.

4.17.7. Bench stock items should be placed in a suitable container and clearly marked to avoid misidentification and commingling.

4.17.7.1. Bulky items may be sub-located from the bench stock bin location. A tag will be place in the bench stock bin showing the sub-location.

4.17.7.2. Sub-located items will be protected by appropriate means to ensure serviceability.

4.17.7.3. Turn in unidentifiable items as scrap to prevent improper use.

4.17.7.4. Transfer shelf-life information marked on original bulk packages to items that do not have shelf life identified on each individual item.

4.17.8. Highlight shelf-life bin labels and precious metal labels to easily identify them.

4.17.9. Bin size should be proportional to the size of the property being stored to prevent damage to assets.

4.17.10. Every effort will be made to use unserviceable items on shadow boards. Identify any shelf life or precious metal items with the same color code as used for the bin labels.

4.17.10.1. If precious metal items are displayed on the shadow board, they are controlled and secured. Other methods may be used to display bench stock items (i.e., pictures in binders, etc.).

4.17.10.2. Units will develop local procedures and display methods for precious metals used on shadow boards but will ensure security and accountability as required by AFMAN 23-110.

4.17.11. Further guidance on establishing, maintaining, and reviewing bench stocks can be found in AFMAN 23-110, Vol 2, Pt 2, Chap 25, Section 25A.

4.18. Operating/Shop and Residual Stock. Operating or shop stocks are any bits and pieces needed to support the maintenance work schedule but which do not meet bench stock criteria. Residual stock is items left over from a completed job that were not consumed during the completion of that job.

4.18.1. Items include such things as random length bar stock, fabric dust covers, caps, plugs, items left over from workorders/TCTOs, items deleted from bench stock and other reusable items.

4.18.2. These items may be stored in or near bench stock but will not be commingled. Bin labels will include NSN, part number, unit of issue, noun, and shelf life.

4.18.3. Highlight shelf life and precious metal items the same as bench stock. Items are controlled and monitored to avoid ordering assets already on hand.

4.18.4. Partially used bench stock items are retained on bench stock and not placed in operating/shop stock. Identify, tag, and turn in items with no forecasted use according to **paragraph 4.20.** of this chapter.

4.19. Shelf Life. Workcenters will control shelf-life items in bench stock and operating/shop stock according to AFMAN 23-110, Vol 2, Pt 2, Chap 25, Para 25.10. Shelf-life codes are normally on bench stock bin labels when received from supply. Operating/shop stock containing shelf life must have the shelf life code and source (i.e., TO, microfiche, MIL-C number, etc.) annotated on the bin label.

4.19.1. Contact the base supply materiel storage and distribution flight if conflicts exist between the various sources that identify shelf life.

4.19.2. Check expiration dates on issued items and do not accept outdated items from supply.

4.19.3. Do not open shelf-life containers until needed and use the oldest items first.

4.19.4. Determine serviceability of loose shelf-life items with undetermined expiration dates according to AFMAN 23-110, Vol 2, Pt 2, Chap 25, Section 25A and applicable Air Force TOs when required.

4.19.5. Maintenance procedures for shelf-life items are in AFMAN 23-110, Vol 7, Chap 1, Para 1.8.11. For additional guidance the maintenance activity should contact the base supply inspection element.

4.20. Economic Order Quantity (EOQ)/XB3 Turn In. Locate EOQ/XB3 pick up point containers in or near each maintenance workcenter to encourage turn in of unneeded items. The containers should be easily accessible and visible to all personnel. Turn in only XB3 items that have no expected usage by the workcenter through this program. Periodically inspect containers to ensure unauthorized items are not being turned in. Detailed procedures are outlined in AFMAN 23-110, Vol 2, Pt 2, and Chap 13, Para 13.3.3.

4.20.1. Units will jointly develop local procedures with base supply for turn in of serviceable, unserviceable, and unidentified EOQ/XB3 assets.

4.21. Contract Maintenance. Units may ask for contract maintenance support for repair of AF equipment and spares when base repair is authorized but beyond base capability.

4.21.1. Units will jointly develop local procedures with base supply to process contract maintenance repair requests.

4.22. Equipment Acquisition and Support. Equipment custodians request and turn in equipment, tools and bench mock-ups using AF Form 2005 according to AFMAN 23-110, Vol 2, Pt 2, Chap 22. Annotate the end-item or weapon system project code on the equipment requisition when possible.

4.22.1. Supply provides equipment custodians a custodian authorization/custody receipt listing (CA/CRL) (R14) listing all authorized and in-use equipment for each account.

4.22.2. If equipment is not authorized, equipment custodians must submit a table of allowance change request (TACR) screen through the Air Force equipment management system (AFEMS).

4.22.2.1. The AF Form 601 is no longer used in typical allowance change actions.

4.22.3. Equipment custodians may apply for an AFEMS user ID through supply customer service.

4.22.4. Equipment custodians must notify base supply equipment element if they obtain NF1 assets or assets with a dollar value greater than $2,500 to determine if the assets is to be accounted for on their CA/CRL or equipment oversight listing (R15).

4.23. Material Deficiency Exhibit. Material deficiency exhibit issue, turn in, and storage procedures are in TO 00-35D-54, *USAF Materiel Deficiency Reporting and Investigations System* and AFMAN 23-110, Vol 2, Pt 2, Chap 13, Para 13.14.

4.24. Reliability Improvement Warranty (RIW) Program. Special procedures for handling RIW items, (project 390, pacer warranty), are found in the applicable equipment TOs.

4.25. Special Purpose Recoverables Authorized to Maintenance (SPRAM). SPRAM assets are expendable depot level repair items assigned ERRC XD, and XF. Base supply oversees the accountability for SPRAM assets. The maintenance and training activities manage SPRAM assets as in-use supplies within the SBSS. They are accounted for on SPRAM (type K) details and are listed on a SPRAM listing, (R25). SPRAM accounts are inventoried annually by the SPRAM monitor and supply inventory personnel using the R25 listing as directed by AFMAN 23-110, Vol 2, Pt 2, Chap 22, Section 22L.

4.25.1. SPRAM for new support equipment (SE) will be defined during provisioning by the System Program Director (SPD). The SPD will ensure these assets are listed in applicable TOs and that they are in the program objective memorandum (POM) submission.

4.25.2. When funds are approved, the SPD will award a contract to purchase the SE and associated SPRAM for the bases requiring the assets.

4.25.2.1. The assets will be delivered directly to the user to avoid capitalization in the Material support division (MSD), and expensing customer funds.

4.25.3. Supply will obtain the SPRAM custodian's signature on the forced equipment document (FED) receipt document.

4.25.4. SPRAM requirements identified as being needed after the initial lay-in of SE, or new requirements will be identified and processed as follows:

4.25.4.1. The SPRAM custodian will ensure the item is in the applicable TO

4.25.4.2. If not, prepare an AFTO Form 22, **Technical Order Improvement Report and Reply,** to get it added.

4.25.4.3. When the AFTO Form 22 is approved, submit a letter, along with a copy of the approved AFTO Form 22, to base supply equipment section, which will establish or increase the SPRAM detail.

4.25.4.3.1. This will create a project code 428 requisition without affecting local Organization and Maintenance funds.

4.25.4.3.2. Funding will be provided by the SPD through MSD initial spares money (formerly BP 1600).

4.25.5. Replacement/replenishment of SPRAM will be paid for by the using organization utilizing normal DIFM procedures. Replenishment is defined as any asset that does not meet the criteria for initial lay-in or new SPRAM requirement.

4.25.5.1. The customer will pay either the exchange price or the standard price depending on the situation.

4.25.6. Accountability of -21 assets with ERRC XD and XF will be maintained on the SPRAM listing (R25). Since replacement/repair of -21 assets is the responsibility of the user, normal DIFM asset replacement processing procedures will apply.

4.26. Adjusted Stock Levels. Use an AF Form 1996, **Adjusted Stock Level**, to establish supply levels for support of special projects, special operating requirements or, if existing demand data is insufficient to support mission requirements.

4.26.1. A single occurrence of a mission limiting status is not sufficient reason to establish an adjusted stock level but may be an indicator to review demand data for accuracy.

4.26.2. Workcenters, with assistance from MSL, prepare AF Forms 1996 and route them through maintenance supervision for review.

4.26.3. Specific procedures for obtaining adjusted levels are contained in AFMAN 23-110.

4.26.4. Prior to submission to base supply, ensure AF Forms 1996 contain complete justification and are coordinated with the applicable GP/CC (or equivalent).

4.26.5. MSL will maintain a master file of adjusted stock levels and follow-up requests.

4.26.6. MSL and the appropriate workcenter accomplish a validation of adjusted stock levels every two years according to AFMAN 23-110.

4.27. Time Compliance Technical Order (TCTO) Kit Procedures. Ensuring availability of TCTO kits is a joint maintenance and supply responsibility according to TO 00-5-15, *Air Force Time Compliance Technical Order System,* and AFMAN 23-110, Vol 2, Pt 2, Chap 24, Section 24C. Wing plans, scheduling, and documentation (PS&D) has the overall management responsibility for TCTOs and initiates requests for kits, parts, and tool requirements. Munitions control, test, measurement, and diagnostic

equipment (TMDE) flight, aerospace ground equipment (AGE) flight, engine management (EM) section, and supply perform PS&D duties for items that require TCTOs.

4.27.1. Detailed steps for maintenance and supply personnel are in AFMAN 23-110, Vol 2, Pt 2, Chap 24, Section 24C and Chapter 4 of this instruction.

4.27.2. All TCTO kits and parts must be ordered via AF Form 2001, **Notification of TCTO Kit Requirements**.

4.28. Preplanned and Time Change Item (TCI) Requirements. Accurate forecasting of TCI requirements is imperative and accomplished according to TO 00-20-1, *Aerospace Equipment Maintenance General Policies and Procedures*, TO 00-20-9, *Forecasting Replacement Requirements for Selected Calendar and Hourly Time Change Items*, aircraft -6 series TOs, and the applicable commodity TOs.

4.28.1. Forecasting and ordering procedures are found in **Chapter 7** of this instruction.

4.29. Supply Reports and Listings. Various reports and listings are available for managing supply requirements. References for these reports may be found in AFMAN 23-110. Most reports are provided automatically or when transactions with supply are processed; however, other reports may be requested through base supply customer service as needed. The most common/important listings and reports are:

4.29.1. Repair cycle asset management listing (D23). This listing is used to monitor repair cycle assets and as a management product to monitor the stock position and repair cycle status of repairable DIFM assets. It may be produced in several sequences (refer to AFMAN 23-110, Vol 2, Pt 2, Chap 5, Atch 5B-23) and is provided to the customer daily.

4.29.2. AWP validation listing (D19). Provides AWP DUOs and corresponding due-in and status details. This information helps determine the end-item AWP status, their corresponding bits and pieces, and identifies cross-cannibalization candidates. It is a daily listing and is provided to all workcenters involved with AWP management.

4.29.3. MICAP asset status report (DGWE40). This report provides the status of all active MICAP requirements and provides the data in clear text. Use this product to validate serial numbers of and parts required for MICAP end items.

4.29.4. MICAPS selected for resourcing (DGWE30). This report provides updates on MICAPS that have been resourced. Use this report to validate MICAPS.

4.29.5. End-of-day database clean-up (DGWE20). This report provides data on MICAPS cleared from the MICAP asset sourcing system (MASS) and SBSS. Use this report to ensure you have a clean database.

4.29.6. MASS-SBSS end-of-day reconciliation report (DGWE10). This report provides data in the MASS and SBSS database. Use this report to validate the MASS-SBSS database are correct.

4.29.7. Priority monitor report (D18). Use this report to monitor DUOs and their corresponding status. It is provided to organizations having DUOs at a locally determined frequency (i.e., daily for UND A, weekly for UND B).

4.29.8. Due-out validation listing (M30). Provides the user a list of all outstanding DUOs (memo/firm) for their organization as reflected in the supply system. Ensure all DUOs are valid and still

required. If changes are required, annotate the listing and return a copy, signed and dated by workcenter supervisor, to base supply/stock control. The listing will be provided monthly.

4.29.8.1. The local COS will provide written instructions for annotating changes to the M30 listing by attaching a cover letter to the M30 each time the listing is sent out for unit validation and review. Users will review and follow these procedures during each M30 review.

4.29.9. Daily document register (D04). The D04 is run daily and is used to monitor and validate supply transactions that have occurred against a unit's supply account. Review daily for all charges, credits, and other transactions (issues (ISU), turn-ins (TIN), DORs, etc.) affecting your account.

4.29.10. Organizational bench stock listing (S04). This is a listing of all items and quantities authorized on the workcenter bench stock. The listing is provided semi-annually or as requested.

4.29.11. Bench Stock Review Listing (M04). Listing of recommended additions, changes, and deletions to organizational bench stocks based on consumption patterns. Do not automatically make additions/deletions based on this listing but rather on expected future demands. The M04 will be provided monthly.

4.29.12. Repair Cycle Data List (Q04). Provides data applicable to each repair cycle item. Data provided includes history of past repair, NRTS, condemn actions, percent of base repair (PBR), and repair activity. The listing is provided quarterly.

4.29.13. Supply Point Listing (Q13). This listing provides all supply point details, with the quantity authorized, on-hand, and DUO for each detail. It also identifies shortages, excesses, and shelf-life items. Q13 is provided quarterly or as requested.

4.29.14. Special level review listing (R35). Provides information on all items with adjusted stock levels. The materiel management officer or designated representative certifies the adjusted stock level requirements on the listing after review by the affected workcenter supervisors.

4.29.15. Organization effectiveness report (M24). The M24 reflects the level of supply effectiveness in meeting unit requirements. Percentages of effectiveness in issue/support and bench stock support for the past month are provided. Potential/support problems may be indicated by the percentage of support provided in each area. This is a monthly product.

4.29.16. Monthly TCTO reconciliation listing. This listing provides TCTO kit status and is used to identify/reconcile differences between supply computer records and maintenance TCTO documents. (Reference AFMAN 23-110, Vol 2, Pt 2, Chap 24, Para 24-60). Use monthly to perform this reconciliation.

4.29.16.1. AFMC units will develop joint procedures with base supply to perform TCTO reconciliation using the procedures outlined in AFMAN 23-110, Vol 2, Pt 2, Chap 24, Para 24-60 as a minimum.

4.29.17. TCTO status report (TCS). The TCS is a CAMS background product that identifies serial numbers, TCTO status codes, and kit/part/tool requirements for equipment requiring modification, as well as a summary of affected equipment by TCTO status codes.

4.29.18. Document validation report (DVR) and SBSS tail number inquiry, screen #416. These products are used to validate parts requests by end-item serial number (i.e., when performing 14-day document reviews). These products may be used with CAMS screens 233, 234, 235, 380 and 514.

4.29.19. Event list (EVL). This is an on-line CAMS unique inquiry that provides supply document numbers, aircraft discrepancies and equipment ID by event ID.

4.29.20. MICAP (not mission capable-supply (NMCS)/partially mission capable-supply (PMCS)) Supply data inquiry (NSD). An on-line CAMS inquiry that lists MICAP information by equipment ID.

4.29.21. Serial (tail) number record inquiry (Screen 416). This on line SBSS inquiry provides all DUO requirements (MICAPs, deferred discrepancies, etc.) for a particular aircraft or equipment ID. These products may be used with CAMS screens 233, 234, 235, 380 and 514.

Section 4C—Decentralized Supply Support Procedures.

4.30. Combat Oriented Supply Organization (COSO) Procedures. COSO procedures are unique using the decentralized supply support concept. AFI 21-101 provides the organizational delineation and supplemental procedures for a decentralized mode of operation and complements the Air Force policy.

4.30.1. Each unit will utilize these supply concepts and procedures to support their organizational structure needs.

4.30.2. AFMC units having special circumstances that require them to deviate from standard supply organization and procedures must submit waiver requests per **Chapter 1** of this instruction.

4.30.3. Each AFMC unit having unique circumstances not covered by this instruction will develop local procedures and submit them, with full justification, to HQ AFMC/LGSP/DOM for review and approval.

4.30.4. AFMC units supported by contractor manned supply operations will periodically review contractor operations to ensure the contractor complies with the requirements of their contract.

Chapter 5

OPERATIONS SUPPORT SQUADRON (OSS)

Section 5A—Test

5.1. OSS General Description. The OSS is responsible to the operations group commander (OG/CC) to perform all staff functions, maintenance functions, and other programs as required to effectively and efficiently accomplish the operations group (OG) mission. The OSS will be composed of the following five flights: airfield, current operations, weapons and tactics, intelligence, and weather flights. However, this instruction will only address the aircraft maintenance responsibilities associated with current operations. Further guidance on remaining flights within the OSS can be found in AFI 38-101, *Air Force Organization*. This chapter is divided into six distinct sections depicting specific section responsibilities of the current operations flight. The sections are as follows: **Section 5A** - Current Operations flight; **Section 5B** - Plans, Scheduling and Documentation (PS&D); **Section 5C** - Maintenance Data Systems Analysis (MDSA); **Section 5D** - Microcomputer Systems Management; **Section 5E** - Maintenance Supply Liaison (MSL); and **Section 5F** - Programs. The OSS commander performs command responsibilities outlined by public law or directives common to all Air Force squadron commanders and is responsible to the OG/CC for overall squadron management.

5.1.1. The OSS operations officer will:

5.1.1.1. Ensure the operations squadron's (OS) maintenance plans and flying schedules are coordinated and published.

5.1.1.2. Coordinate development of the wing's annual flying program.

5.1.1.3. Participate in the wing quarterly, monthly, and weekly scheduling meetings.

5.1.1.4. Ensure the time compliance technical order (TCTO) program (aircraft, engine, and commodities) is properly administered.

5.1.1.5. Ensure compliance with AFCSM 21-563, Vol 2, *Job Data Documentation,* of on-line scheduling and completion of maintenance actions.

5.1.1.6. When applicable, ensure procedures are established for the use of AF Form 2408**, Generation Maintenance Plan**, and AF Form 2409, **Generation Sequence Action Schedule**. Units may locally develop automated aircraft generation flow plans as long as all pertinent information is included. These flow plans will not contain classified information.

5.1.1.7. Coordinate with the OS and logistics group (LG) maintenance squadron (MXS) in developing local procedures for implementation of Serene Byte/Pacer Ware exercises.

5.1.1.8. Ensure a viable data integrity team (DIT) exists.

5.1.1.9. Ensure core automated maintenance systems (CAMS) user group meetings are held at least quarterly.

Section 5B—Current Operations Flight.

5.2. OSS Current Operations Flight General Responsibilities.

5.2.1. The current operations flight is responsible to the OSS to perform, as a minimum, the following maintenance functions: aircraft inventory, utilization and status reporting, maintenance planning and weapons system configuration management (e.g., contract field team (CFT), programmed depot maintenance (PDM), time change items (TCI), special inspections (SI), and TCTOs).

5.2.2. The current operations flight will consist of PS&D, analysis, flight records, MSL, programs, and inspection/systems support.

5.2.2.1. Inspection /systems support may be decentralized.

5.3. Current Operations Flight Commander/Chief Responsibilities. The current operations flight provides functional management of aircraft maintenance related areas as delineated in Air Force and AFMC instructions, and as designated by the OG/CC. The current operations flight will be responsible for the following maintenance functions when assigned: PS&D; MDSA; flight records; MSL; and programs section. In wing size units, PS&D scheduling functions may be decentralized to the OS; in squadron size units, the squadron maintenance officer (SMO) has the option to decentralize.

5.3.1. The flight commander/chief will be responsible to the operations officer for the management of a specific functional area. In addition to the common responsibilities listed in **Chapter 2** of this instruction, the current operations flight commander/chief will:

5.3.1.1. Set priorities and resolve conflicts on all automated maintenance systems priorities.

5.3.1.2. Monitor manpower, facilities, and financial resources ensuring equitable and effective distribution.

5.3.1.3. Develop planning data and logistics inputs in coordination with wing plans offices of primary responsibility (OPR).

5.3.1.4. Manage and develop procedures for system checkout activities for the wing's Mode 4 and radar warning receiver (RWR) programs according to **Chapter 23** of this instruction.

5.3.1.5. Manage support activities required by the aircraft inspection docks to include tool crib, bench stock, parts ordering, and related functions.

5.3.1.6. Ensure local procedures are developed for maintenance information systems (MIS) management.

5.3.1.7. Manage and develop local end-of-runway (EOR) program procedures incorporating procedures outlined in **Chapter 23** of this instruction.

5.3.1.8. Manage the unit's hot refueling program (when tasked by the OG/CC) utilizing procedures outlined in **Chapter 23** of this instruction as a minimum.

Section 5C—Plans, Scheduling and Documentation Section (PS&D).

5.4. OSS PS&D Section General Responsibilities. The OSS PS&D section reports to the current operations flight commander/chief and is responsible for coordinating aircraft maintenance requirements and utilization scheduling between maintenance, operations, and external agencies. The documentation section serves as an integral part of all PS&D functions and maintains historical maintenance data with CAMS. The accuracy of entries on maintenance documents is a basic responsibility of the initiator and

supervisors. The armament flight and munitions control, manage munitions documentation and scheduling as outlined in **Chapter 19** and **Chapter 20** of this instruction. The PS&D section superintendent will:

5.4.1. Coordinate on and publish maintenance plans as required (i.e., generation flow plans, test schedules, quarterly, monthly, and weekly schedules).

5.4.2. In conjunction with the analysis function, ensure the OSS and OG/CC are informed of aircraft availability, maintenance capability, problem areas, and deviations from maintenance schedules.

5.4.3. Appoint an aerospace vehicle distribution officer (AVDO) and ensure procedures are developed to ensure flying hour accounting accuracy in CAMS according to AFCSM 21-565, Vol 2, *Operations Events*, and AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*.

5.4.4. If directed by the group commander, serve as the OPR for the daily maintenance production meeting, verify the aircraft and equipment utilization and maintenance schedule for the next day, and provide scheduled maintenance requirements.

5.4.4.1. TCIs, TCTOs, modifications, tests, SIs, shared resources/resource deconfliction, depot field team/CFT, deviations from the previous day's flying schedule, the next day's flying requirements, and any uncompleted work that was scheduled or unscheduled will be discussed during the meeting.

5.4.5. Oversee the overall maintenance scheduling effort for the wing.

5.4.5.1. Serve as the functional advisor to other MXSs for all maintenance scheduling issues and rotation of maintenance schedulers.

5.4.5.2. Provide functional expertise for equipment historical documents to quality assurance (QA) during inspection/evaluations.

5.4.6. Ensure aircraft and equipment are scheduled to meet all training needs.

5.4.6.1. Review weekly and monthly training schedules prior to publication to minimize impact on production and facilities.

5.4.7. Ensure aircraft pre-dock and post-dock inspection meetings are conducted and develop specific procedures as needed.

5.4.8. Manage the wing's modification, SI, TCI, and TCTO programs.

5.4.8.1. OSS PS&D section will develop local procedures outlining CAMS TCI responsibilities, including aircraft tracked by the aircraft configuration management (ACM).

5.4.8.1.1. As a minimum, local procedures will address specific responsibilities for each workcenter/agency involved (i.e., egress, survival equipment, life support, and squadron schedulers).

5.4.8.1.2. In units where the authority to process the Suspense Validation Inquiry (CAMS Transaction Identification Code (TRIC) QVR), and the inspection/TCI update (CAMS TRIC ISP) has been delegated to the owning work center (OWC), written procedures must include how the workcenter will notify OS PS&D of current TCI status.

5.4.8.2. OSS PS&D retains overall responsibility for the entire scheduling process.

5.4.9. Perform daily checks to ensure the suspense file is maintained properly.

5.4.10. Manage (load/change/delete) the job standard master listing (JML) (CAMS TRIC JML) for inspections and time changes listed in the applicable aircraft -6/commodity Technical Orders (TO) (i.e., 11/14 series TOs).

5.4.10.1. The logistics support squadron (LSS) engine management (EM) section will maintain JMLs for engine related inspections and time changes.

5.4.10.2. JMLs for off-equipment items may be maintained by the OWC.

5.4.10.3. Work packages for isochronal (ISO)/periodic/phases, engine changes, and other event type inspection requirements (e.g., hard landing inspection) will be loaded by PS&D as a work package in CAMS.

5.4.11. Develop a matrix/chart depicting the total number of time change and inspection requirements to be loaded in CAMS for each assigned aircraft.

5.4.11.1. To ensure CAMS accuracy, this matrix/chart will be reconciled with the CAMS database at least monthly.

5.4.12. Monitor aircraft delayed discrepancies and inform the OG/CC, logistics group commander (LG/CC), or directors (when applicable) when problems arise.

5.4.13. Provide overall management and control of the maintenance deferred code listing.

5.4.13.1. Maintain a current copy in PS&D at all times.

5.4.14. Consolidate all maintenance time change forecasts prior to submission to the supply time change monitor for non-FK items, and FK supply for cartridge actuated device/propellant actuated device (CAD/PAD) items.

5.4.14.1. Establish responsibilities for the preparation of the TCI requirements forecast.

5.4.14.2. TCI forecasting may be performed by either OSS PS&D or OS PS&D; however, coordination between both agencies is required.

5.4.14.3. Instructions for TCI forecasting are outlined in TO 00-20-9, *Forecasting Replacement Requirements for Selected Calendar and Hourly Time Change Items*, AFCSM 21-566, Vol 2, *Inspection and Time Change,* and AFSCM 21-579, Vol 2, *CAMS/SBSS Interface*.

5.4.15. Monitor utilization to ensure wing programs and commitments are met and schedules are deconflicted.

5.5. Aerospace Vehicle Distribution Officer (AVDO). The AVDO is responsible for the inventory portion of the inventory, utilization, and status subsystem in CAMS according to AFCSM 21 series, AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination*, AFI 21-101, and AFI 21-103. The AVDO will:

5.5.1. Develop procedures to ensure flying hour accounting accuracy in CAMS according to AFCSM 21-565, Vol 2 and AFI 21-103.

5.5.1.1. Ensure the CAMS/REMIS, *Status Inventory Reporting System (SIRS*), *Operational Events Subsystem*, and the *Equipment Inventory, Multiple Status, and Utilization Reporting Subsystem (EIMSURS)* is kept current.

5.5.2. Keep PDM and other depot maintenance and modification schedules in support of HQ AFMC plans and requirements.

5.5.2.1. Forward copies to HQ AFMC/DOM each time they are developed and changed.

5.5.2.2. Ensure aircraft directive numbers (ADN) are received prior to aircraft transfer or loan.

5.5.3. Comply with -21 equipment accountability requirements as outlined in AFI 21-103.

5.5.3.1. This may be decentralized to OS PS&D, but OSS PS&D will continue to provide oversight and set policy.

5.6. OSS 2R1 Functional Manager. The senior 2R1XX member assigned to OSS and will serve as the functional manager for all 2R1X1 personnel. The functional manager performs initial evaluations for all incoming 2R1X1 personnel, and coordinates with the gaining squadron to provide assessment of the individual's training needs. In addition to the general responsibilities outlined in **Chapter 2** of this instruction, the senior 2R1XX will:

5.6.1. Coordinate with base manpower personnel on all authorization change requests (ACR) and receive data on all 2R1XX personnel, (inbound, assigned, or outbound), monthly to ensure equal distribution of 2R1XX personnel.

5.6.1.1. In conjunction with the logistics training flight (LTF) and the squadron maintenance officer (SMO)/supervisors, develop and periodically review training programs for all 2R1X1 personnel.

5.6.1.2. Establish a plan for rotating all assigned 2R1X1 personnel, below the rank of master sergeant, throughout the functional areas.

5.6.1.2.1. Personnel rotated into a slot for familiarization training need only remain in a position until familiarization is complete.

5.6.1.2.2. The rotation schedule will be coordinated/approved by affected squadrons and no changes will be made without prior coordination with the squadron affected by the change.

5.6.2. Visit all decentralized scheduling activities semi-annually and provide technical assistance and training where needed.

5.6.2.1. This may be done in conjunction with the semi-annual document review of historical records.

5.6.3. As a minimum, conduct a semi-annual review to ensure squadron maintenance and non-installed engine historical documents are properly maintained.

5.6.4. Inform squadron or maintenance supervision of deficiencies detected during visits and assist with resolutions.

5.6.4.1. Formal written reports of deficiencies and proposed resolutions will be provided to the squadron commander upon completion of the visit.

5.7. Job Control and Equipment Identification Numbers .

5.7.1. Local procedures will be developed to establish, assign, and control manual job control numbers (JCN) for manual data input during CAMS downtime.

5.7.2. OSS PS&D will assist workcenters in assigning identification (ID) numbers and automated tracking of inspection criteria.

5.8. Depot Programs. OSS PS&D will keep a current, serial number listing of projected inputs and outputs of aircraft and equipment into depot repair programs. This listing will also contain HQ AFMC-directed modifications or maintenance programs. OS PS&D will use an AFTO Form 103, **Aircraft/Missile Condition Data,** to record certified maintenance needs and forward it through OSS PS&D according to TO 00-25-4, *Depot Maintenance of Aerospace Vehicles and Training Equipment*.

5.8.1. OSS PS&D will coordinate any changes to the depot program with OS PS&D sections.

5.8.2. All AFTO Form 103 changes will be coordinated through HQ AFMC/DOM.

5.9. Major Maintenance Work Processing. OSS PS&D must coordinate on all TO 00-25-107, *Maintenance Assistance*, requests for AFI 21-103, specifically for making the appropriate possession code changes in CAMS and drafting AFI 21-103 messages.

5.9.1. Depot-level assistance provided by contractor support will be accomplished according to contract specifications.

5.9.2. All TO 00-25-107 requests must be certified at the appropriate Center level and information copies sent to HQ AFMC/DOM.

5.9.3. OSS PS&D, in coordination with MDSA, will establish a dummy depot workcenter for each OS to load deferred depot discrepancies.

5.10. Documents Review. OSS PS&D will develop a local operating instruction (OI) for aircraft document reviews.

5.10.1. As a minimum, the local OI will address the following: who initiates the review, participating/reviewing agencies (including oil analysis program (OAP) laboratory), use of AFTO Form 781, **AFORMS Aircrew/Mission Flight Data Document**, documentation requirements and the agency that signs the AFTO Form 781 upon completion, and configuration management verification procedures.

5.10.2. ARC or on-line CAMS products may be used to perform aircraft documents reviews.

5.11. Documentation Section. Documentation sections will keep historical documents and maintenance data used in the planning and scheduling of maintenance.

5.11.1. The documentation section may be decentralized to the OS.

5.11.2. The documentation activity provides an essential link in the processing of related forms for TCTOs and TCIs.

5.11.2.1. An important part of documentation is the establishment of files and proper disposition of documents.

5.11.3. Aircraft maintenance document files will be set up according to AFMAN 37-123, *Management of Records*, and TO 00-20-1, *Aerospace Maintenance General Policies and Procedures*.

5.11.3.1. Disposition of documents will be according to AFI 51-503, *Aircraft, Missile, Nuclear, and Space Accident Investigations*, and AFMAN 37-139, *Records Disposition Schedule*. Equipment records are decentralized to the section owning the equipment.

5.11.4. Individual documents will be kept for end items, subsystems, and components according to the 00-20 series TOs, this instruction, AFCSM 21 series, AFMAN 37-123, AFMAN 37-139, and the applicable weapons system -6 TOs.

5.11.4.1. The automated history equipment will be used in place of AFTO Form 95, **Significant Historical Data**, to document significant historical events on aircraft and engines.

5.11.4.2. Documents for non-powered aerospace ground equipment (NPA), training equipment, and common equipment items requiring very little maintenance documentation may be grouped together in a single folder or area so that there is no need to keep a record folder on each individual item.

5.11.4.2.1. Documents for similar items should be grouped together and the recorded information be identifiable to particular pieces of equipment.

5.11.5. When aircraft are temporarily moved to operating locations away from the unit of assignment, send only those documents necessary to ensure safety of flight and current aircraft status.

5.11.5.1. Units will develop local procedures for records taken to deployed locations based on duration of temporary duty (TDY), and peculiar operating requirements.

5.11.5.1.1. Accumulated airframe hours, TCTO status, TCI status data on installed engines, and critical components data will be sent from the operating location to the parent unit as specified by HQ AFMC/DOM when pertinent documents are not sent with the aircraft.

5.11.6. The documentation section will develop local procedures for freezing, impounding, and consolidating aircraft and equipment records in case of an incident, accident, or mishap.

5.12. Management of TCTOs. OSS PS&D is responsible for administering and managing the TCTO program, chairing the TCTO meeting, loading the TCTO into the CAMS subsystem, and ordering kit parts/pieces.

5.12.1. TCTOs will be managed according to AFCSM 21-568, Vol 2, *Time Compliance Technical Order (TCTO)*, TO 00-5-15, *Air Force Time Compliance Technical Order System*, and TO 00-20-2, *Maintenance Data Documentation*.

5.12.2. TCTOs and command-directed modifications and inspections will be issued to provide activities with instructions for doing one-time inspections (OTI), time changes, modifications, or installation of new equipment.

5.12.3. Units will use CAMS products to monitor the progress of TCTOs.

5.12.3.1. Depending upon the work hours, skill level, or equipment required, TCTOs will be categorized and designated for compliance at base level or at a depot.

5.12.3.2. Since TCTOs are scheduled maintenance, they will be integrated into the maintenance planning cycle.

5.12.3.2.1. The concurrent accomplishment of TCTO work with other scheduled or unscheduled maintenance should be to the maximum extent possible.

5.12.4. When practical, all peacetime operating stock (POS) and readiness spares package (RSP) assets should be modified before the equipment to prevent unmodified spares being installed.

5.12.5. OSS PS&D/EM section will schedule and control kit distribution for TCTOs requiring kits.

5.12.5.1. Ensure modified components are not replaced with unmodified components.

5.12.5.2. If supply issues an unmodified component, it is identified as unmodified and returned to supply.

5.12.6. OSS PS&D will establish schedules for completion of commodity TCTO requirements not accomplished by OS maintenance personnel.

5.12.6.1. OS PS&D will establish schedules for completing installed commodity TCTOs completed by squadron maintenance personnel.

5.12.6.1.1. OS PS&D will schedule aircraft and on-equipment munitions type TCTOs.

5.12.6.2. The EM section will schedule non-installed engine related TCTOs and will coordinate with OS PS&D on installed engine related TCTOs.

5.12.6.2.1. Each OWC will be responsible for ensuring TCTOs are completed before the grounding/rescission date.

5.12.6.3. The reprogramming of passive/active electronic countermeasure (ECM) equipment will be administered as a commodity TCTO for configuration management purposes.

5.12.7. OSS PS&D will coordinate with the operations electronic combat pilot/electronic warfare officer (EWO) before implementing any operational flight program (OFP) ID number changes.

5.12.8. TCTO monitors (OSS PS&D, OS PS&D, EM section, AGE, munitions, TMDE, etc.) will oversee the day-to-day status of TCTOs.

5.12.8.1. Significant problems or potential delays in TCTO accomplishment detected by SMOs/maintenance supervisors (MS) or TCTO monitors will be brought to the immediate attention of OSS PS&D for resolution, who will then elevate them to the LG/CC, OG/CC, and/or director as required.

5.12.8.2. Workcenter supervisors will keep applicable TCTO monitors informed of TCTO status and problems encountered in TCTO accomplishment.

5.12.8.3. TCTO kit/part/tool status will be monitored by the flight service center (FSC)/decentralized supply support and the applicable TCTO monitor.

5.12.8.3.1. These functions ensure all kits/parts/tools required are available to accomplish the TCTO.

5.12.9. The armament/munitions flight will schedule, control, and direct TCTOs for all stored/loaded munitions assets according to with **Chapter 19** and **Chapter 20** of this instruction.

5.12.10. OSS PS&D, upon receipt of a TCTO from QA, will check individual equipment compliance status.

5.12.10.1. The EM section will determine applicability for engine related TCTOs.

5.12.10.2. Input TCTOs into CAMS according to AFCSM 21-568, Vol 2.

5.12.10.2.1. When CAMS is not available, units will use a manual system according to TO 00-20-2.

5.12.10.3. When kits, parts, or special tools are not required, an on-line work order will be prepared in CAMS for each affected end item, including spares.

5.12.10.4. If a condition/inspection TCTO generates a requirement for parts, the performing workcenter will enter the discrepancy in the AFTO Forms 781A, **Maintenance Discrepancy and Work Document**, or applicable equipment record, and order the required parts as normal wear out and replacement.

5.12.10.4.1. Completion of the inspection constitutes compliance with a condition/inspection TCTO.

5.12.10.5. When kits, parts or special tools are required, prepare and process the requirements according to AFCSM 21-579, Vol 2, *CAMS/SBSS Interface*, and create the on-line work order in CAMS for each affected item, including spares. An AF Form 2001 will be used when CAMS is not available.

5.12.11. QA will forward sufficient copies of all TCTOs to the affected TCTO monitors.

5.12.11.1. The TCTO monitor will forward copies to each OS PS&D.

5.12.12. Command-directed and local OTIs/modifications will be processed and documented according to **Chapter 9** of this instruction.

5.12.13. The OSS PS&D or EM section TCTO monitor will schedule and chair the TCTO planning meeting.

5.12.13.1. The TCTO monitor will determine who attends TCTO meetings.

5.12.13.1.1. The TCTO meeting will determine the following: the implementation strategy for the TCTO(s), when the TCTO(s) will be accomplished, what workcenter(s) will accomplish the work, and what record entries will be made.

5.12.13.2. OSS PS&D or the EM section will initiate an AF Form 2410**, Inspection/TCTO Planning Checklist**, to record the meeting and conditions for accomplishing the TCTO.

5.12.13.2.1. Pertinent discussion items (e.g., TCTO applicability and purpose, number of units to be modified, additional training required for affected personnel, serial or ID number of equipment QA performs initial verification on, disposition of affected components, etc.) will be annotated on the AF Form 2410.

5.12.13.2.2. All attendees will sign this form at the conclusion of the planning meeting indicating they understand the TCTO requirements and agree with the established TCTO conditions.

5.12.14. The OSS PS&D/EM section will:

5.12.14.1. Verify initial load of the TCTO was received from reliability and maintainability information system (REMIS) and the shell record loaded to CAMS.

5.12.14.1.1. Load only applicable items and show current status of each.

5.12.14.2. Establish a TCTO folder for each TCTO upon receipt of the TCTO.

5.12.14.2.1. Include the AF Form 2410, CAMS products TCTO Kit Availability (TKA) inquiry and notification of TCTO kit requirements (TKR) (if required, or AF Form 2001), supply cover letter of affected items in stock (from QA), and the basic TCTO.

5.12.14.2.2. Also, include pertinent documents affecting the TCTO (supplements, messages, notices of kit availability, supply difficulty letters, etc.)

5.12.14.2.3. Include CAMS on-line product TCTO data code inquiry (CAMS TRIC TCI) when used in place of TCTO summary status (TSS) to annotate changes as they occur.

5.12.14.2.4. OS PS&D will also maintain TCTO folders with pertinent documentation.

5.12.14.3. Maintain the TCTO folder and contents until the rescission date.

5.12.14.3.1. TCTO folders will be disposed of according to AFMAN 37-139 and TO 00-20-2.

5.12.15. The responsible scheduling function (EM section for engines, OS PS&D for: aircraft related, test, measurement, and diagnostic equipment (TMDE), aerospace ground equipment (AGE), armament, munitions, etc.) will be responsible for all scheduling, tracking, and day-to-day monitoring of TCTOs.

5.12.16. OSS PS&D will ensure proper documentation of TCTO accomplishment and periodically review the TCTO summary report (TCS), ensuring accurate data entry by other scheduling functions according to the 00-20 series TOs and AFCSM 21-568, Vol 2.

5.12.16.1. OSS PS&D will notify the affected scheduling function regarding any errors and provide assistance in correcting discrepancies.

5.12.17. TCTO status reporting. TCTOs will be recorded in CAMS according to AFCSM 21-568, Vol 2.

5.12.17.1. If CAMS is not available, follow procedures outlined in TO 00-20-2.

5.12.17.2. This includes command-directed assessments, modifications, and modification rescissions that require de-compliance work, as well as organizational, intermediate, and depot TCTOs.

5.12.17.3. Command-directed modifications will be identified by a title, command data code, and rescission date.

5.12.17.4. Depot TCTOs, with the exception of commodities, will be loaded and tracked in CAMS for auditing compliance and applicability.

5.12.17.5. Units will prevent dual reporting of completed depot TCTOs.

5.12.17.6. Load all field-level companion TCTOs for commodity series TCTOs in CAMS.

5.12.18. OSS PS&D will maintain and report status of TCTOs for assigned equipment according to AFCSM 21-568, Vol 2, AFCSM 21-579, Vol 2, TO 00-20-2, and TO 00-5-15 (as applicable).

5.12.18.1. Report status of TCTOs that cannot be reported under how malfunction codes 793, 797, 798, 801, 802, or 911 according to AFCSM 21-568, Vol 2 and 00-20 series TOs.

5.12.18.1.1. Response will include serial numbers of discrepancies found during compliance. The EM section will be responsible for reporting completion of engine-related TCTOs. Units may respond via message, FAX, or E-mail.

5.12.19. The performing workcenter will be responsible for updating CAMS as status changes occur using job data documentation (JDD).

5.12.19.1. The TCTO monitor will review the suspense validation file and TRIC Code QVR to validate entry accuracy.

5.12.19.2. The TSS report will be annotated as changes occur.

5.12.19.2.1. The CAMS on-line report TRIC TCI may be used in place of the TSS.

5.12.19.3. OS PS&D and the EM section will ensure all automated reports are checked according to TO 00-20-2.

5.12.19.4. Each month, OSS PS&D, EM section, and TCTO monitors receive a copy of the TCTO reconciliation listing from the FSC and must annotate this listing with TCTO requirements.

5.12.19.5. Upon receipt of a Class I modification, the TCTO monitor will determine the total quantity of parts required to modify affected equipment, and order them utilizing the standard base supply system (SBSS) module of CAMS.

5.12.19.5.1. OSS PS&D will use the command data code instead of the TCTO number for implementation of modification into CAMS.

5.12.20. Interim TCTO status reporting. HQ AFMC may direct daily or weekly manual status reporting on TCTOs when the normal frequency of mechanized status reporting does not meet HQ AFMC needs for status monitoring.

5.12.21. Control and transfer of TCTO kits. When transferring equipment with outstanding TCTOs, transfer the applicable TCTO kits with the weapon system or equipment.

5.12.21.1. AFMAN 23-110, *USAF Supply Manual*, TO 00-5-15, and TO 00-5-1, *AF Technical Order System*, contain detailed guidance for the transfer of TCTO kits.

5.12.22. Commanders of AFMC organizations may temporarily waive compliance with routine, immediate and urgent action TCTO'S, only when TCTO's are applicable to components of a system or subsystem which are deactivated or removed from the aircraft because of R & D test missions or compliance of the TCTO would adversely effect the test mission.

5.12.22.1. Procedures are outline in T.O. 00-5-1 section 2-7.3.

5.12.22.2. Noncompliance will be recorded on the AFTO Form 95 or the mechanized TCTO status report, as applicable. The entry will indicate the reason and estimated date of compliance.

5.12.22.3. The wing Operations and/or Logistics Group commanders or equivalent will validated by signature the waiver request.

5.12.22.4. The waived TCTO's will be reviewed and validated annually, using the date the Operations and/or the Logistics Group commander signs the validation.

5.12.22.4.1. When the annually revalidation has been accomplished, a list of waived TCTO's will be sent to the single manager to verify the applicability of the TCTO and if required, establish a manual jacket account record according to T.O. 00-5-15, paragraphs 7-2.2 and 7-2.2.1.

5.12.22.4.2. A copy of the annual list of the waived TCTO will be sent to command aircraft managers for their records.

5.12.23. A request for a waiver should be initiated by the owning organization.

5.12.23.1. The request will include the affected TCTO number, T-2 mod number and specifically why the mod interferes with accomplishing the TCTO.

5.12.23.2. The owning organization will contact the single manager, to insure that noncompliance would not result in a safely of flight condition, and to see if there are any steps that should be taken until the TCTO can be complied with. Include the single manager's name and phone number on the waiver request.

5.12.23.3. They will coordinate the waiver request with the wing Operations and/or Logistics Group commanders or equivalent.

5.12.23.4. Once the request has been signed a copy of the request will be forward to the TCTO monitor, command aircraft manager, and the single manager.

5.13. Time Change Items (TCI). OSS PS&D has the responsibility for monitoring and consolidating projected time change needs. Use forecasts to make sure TCIs are available before the forecasted due date.

5.13.1. For CAD/PAD, life sustaining items identified in the aircraft -6 TO and/or applicable commodity TOs, OSS PS&D creates a job standard number (JST#) for both the date of manufacture (DOM) and the date of installation (DOI).

5.13.1.1. Coordinate with egress, survival equipment, and life support on the overall management of their TCIs.

5.13.2. Only the JST# (DOI or DOM) that comes due first will be loaded against a specific part/serial number.

5.13.3. When the DOI and DOM change frequencies are the same, a job standard for DOM will be maintained.

5.13.4. OSS PS&D will ensure proper documentation of accessory time changes according to the 00-20 series TOs.

5.14. Aircraft Configuration Management (ACM). ACM provides unit managers the capability to determine the actual versus approved configuration of an aircraft.

5.14.1. The intent of the configuration management subsystem is to ensure selected serially controlled and/or TCIs are properly loaded to the CAMS database.

5.14.1.1. Of major concern are accurate, approved part numbers, quantity per assembly (QPA) and next higher assembly (NHA) by work unit code (WUC).

5.14.2. OSS PS&D has overall responsibility for the ACM subsystem of CAMS. Specific responsibilities are:

5.14.2.1. If delegated to other workcenters, OSS PS&D will develop and assign written responsibilities and guidelines to those workcenters for updating/correcting the CAMS database (i.e., check suspense validation records in CAMS and coordinate to ensure the appropriate workcenter processes their suspenses daily).

5.14.2.1.1. When assigning these responsibilities, consideration must be given to the agency performing removal and replacement actions for the configured item, (i.e., the egress shop has the responsibility for CAD/PAD items, while flightline avionics has the responsibility for tracked line replaceable units (LRU), etc.).

5.14.2.1.2. Additionally, this guidance establishes procedures to ensure configuration data is maintained during routine maintenance actions.

5.14.3. The weapons systems' system program director (SPD) initializes and modifies aircraft configuration tables. The tables are pushed to each unit from REMIS to CAMS as aircraft configuration changes occur.

5.14.4. Maintenance personnel discovering a tracked part number not on the approved configuration table will send the part number for validation to the configuration manager.

5.14.4.1. This is accomplished through CAMS TRIC PNC (part number change screen 944).

5.14.5. The configuration manager approves or disapproves the new part number in REMIS.

5.14.5.1. If approved, maintenance personnel will load the part number in CAMS.

5.14.5.2. Configuration tables will be changed by the configuration manager as a result of a TCTO modification.

5.14.6. OSS PS&D will perform daily resolution of configuration management notices.

5.14.7. OSS PS&D and OS PS&D will provide generic configuration status and accounting subsystem (GCSAS) assistance to maintenance personnel.

5.15. Operational/Test Planning Cycle. The objective of the operational planning cycle is to enable the orderly execution of the flying program consistent with operational/training/test requirements and maintenance/test capabilities. These procedures enhance operations and maintenance interface.

5.15.1. The operational planning cycle begins with the contracting of flying hours.

5.15.1.1. Maintenance schedulers require knowledge of operational/test needs in order to determine supportability.

5.15.1.1.1. They should have a copy of the proposed annual flying plan as soon as it is completed.

5.15.1.2. Operations scheduling, training, test, and maintenance supervision must work closely together and keep each other informed of taskings that will affect the use of aircrews, aircraft, and other resources.

5.15.1.3. The OG/CC, LG/CC, or appropriate director(s) will chair quarterly, monthly and weekly scheduling meetings. These meetings may be consolidated or held separately.

5.15.2. The number and length of sorties is of prime consideration in planning to meet programmed operational, training, and test requirements.

5.15.3. The principal area of concern is the overall flying/ground test schedule. For mission accomplishment and improved efficiency the following must be considered: maximize crew training on all flights, plan alternate missions when possible, ensure configurations and fuel loads are accurate, and establish launch and recovery patterns and utilize historical attrition data.

5.16. Maintenance Planning Cycle. The maintenance planning cycle ensures proper and effective use of maintenance resources. Long-range planning is needed to support future needs such as quarterly flying hour programs, PDM schedules, TCTO programs, modifications, inspections, and scheduled exercises.

5.16.1. The OS PS&D will perform the long-range planning function.

5.16.1.1. Use the CAMS products, time distribution index (TDI), planning requirements (PRA), and workable TCTO report (WTR) to determine long-range maintenance requirements.

5.16.2. The OS PS&D will forecast and monitor requirements for the current and next two months.

5.16.2.1. Maintenance planning includes predictable maintenance factors based on historical data and other staff inputs (i.e., flow times for maintenance, turnaround times, and parts replacement schedules).

5.16.2.2. Additionally, include all known operational events (e.g., exercises, deployments, and development tests) during maintenance planning to determine the maintenance capability to meet operational needs.

5.16.3. The OS operations officer, SMO, and MS will review the monthly maintenance plan and weekly schedule prior to submission to OSS PS&D.

5.17. Flying Hour Reporting. Refer to AFMCI 21-128, *Aircraft Operations and Maintenance Scheduling*.

5.18. Quarterly Scheduling. Quarterly scheduling starts with refining the test schedule. It must be refined quarterly to ensure the operational/maintenance requirement for flying time, airframe availability, test support, PDM, and other related scheduling data can be supported.

5.18.1. Develop the quarterly schedule according to AFI 21-101, *Maintenance Management of Aircraft*.

5.18.2. Include known special missions, test and test support schedules, depot maintenance schedules, higher headquarters (HHQ) commitments, and lateral command support requirements.

5.18.3. When deviations from the quarterly plan are required to achieve the unit objectives, make necessary adjustments to the monthly and weekly plans while keeping within unit capabilities.

5.18.3.1. If a lack of resources prevents meeting requirements, resources are applied in the following sequence: HHQ-directed missions, test, test support, and training.

5.18.4. The unit's quarterly meeting may be held in conjunction with the weekly scheduling meeting.

5.19. Monthly Scheduling. The monthly schedule refines the quarterly requirements. Develop the monthly schedule according to AFI 21-101.

5.19.1. Operational need, maintenance requirements, and the attrition factor as defined in AFMCI 21-128, *Aircraft Operations and Maintenance Scheduling*, are the basis for developing the monthly flying and maintenance plans.

5.19.2. QA scheduled inspections listed by type and quantities are included in the monthly flying and maintenance plan unless published separately by QA.

5.19.3. The monthly maintenance plan may be published separately or as an annex to the last weekly schedule of the preceding month. If published separately, distribute the plan no later than (NLT) five calendar days before the beginning of the month.

5.20. Weekly/Daily Scheduling. Due to the nature of the test mission, a weekly schedule for publishing according to AFI 21-101 is not conducive to mission requirements; instead, a tentative weekly schedule will be created for planning purposes. As a minimum, the following guidelines will be used:

5.20.1. Unit operations and maintenance schedulers discuss weekly needs and arrive at an acceptable, coordinated tentative weekly schedule.

5.20.1.1. The tentative flying schedule maybe updated daily as long as it doesn't interfere with the published maintenance schedule.

5.20.1.2. The weekly maintenance schedule must be adhered to according to AFMCI 21-128.

5.20.1.3. Each unit will establish local procedures for making modifications to the weekly schedule.

5.20.2. The OG/CC, LG/CC, and appropriate director(s) will agree on a proposed flying schedule. If an agreement cannot be reached before the scheduling meeting, the problem is referred back to the unit commander for the commander's decision.

5.20.3. OSS PS&D ensures distribution (automated methods are acceptable) of the schedule to each appropriate activity and workcenter NLT Friday morning preceding the effective week.

5.20.4. Aircraft or equipment on the weekly maintenance schedule must be made available to meet that schedule.

5.20.5. OS PS&D will record maintenance scheduling deviations and forward the computations to OSS analysis weekly for publication in the monthly maintenance summary.

5.20.6. The maintenance operations center (MOC) reports flying scheduling deviations against the daily flying schedule.

5.20.7. Spare aircraft requirements are based on projected test mission needs. The following factors are used to determine spares and are not hard limits but guidelines, and as such, it is up to the OS to actually schedule what it can support:

5.20.7.1. The spare requirement may be adjusted to compensate for multiple configurations and test or school syllabus constraints.

5.20.7.2. Additional spares are authorized to support HHQ taskings and special missions (if required by the tasking).

5.20.7.3. At least one spare aircraft is authorized per MDS for each flying day.

5.20.8. In addition to requirements listed in AFI 21-101, include:

5.20.8.1. Training and test requirements plus aircraft and equipment in support of these requirements in the daily flying and weekly maintenance schedule.

5.20.8.2. Include the following statement in the schedule: "The types and quantities of munitions listed in this schedule, plus previous expenditures, do not exceed AFI 36-2217 authorized allow-

ances." This statement eliminates the need for submitting certificates of authorization when ordering munitions to support the flying schedule.

NOTE: The AF Form 2402, **Weekly Equipment Utilization and Maintenance Schedule,** is used as a summary of the week.

5.21. Changes to the Weekly/Daily Schedule. Input the coordinated schedule and any changes into the CAMS operational events subsystem using the procedures in AFCSM 21-565, Vol 2.

Section 5D—Maintenance Data Systems Analysis (MDSA) Section.

5.22. MDSA and Deficiency Analysis. The MDSA section manages maintenance information and performs analyses to assess and improve unit performance (i.e., effectiveness and efficiency of unit resources and logistical support processes). Maintenance information systems (MIS) are the foundation for data pertaining to utilization and expenditure of unit resources. These systems provide the main source of information used by analysts to assess a unit's performance and capability. CAMS and REMIS are the prime sources of data.

5.23. Personnel Qualification. Analysts will be familiar with the functions and responsibilities of the objective wing organization or Air Force-approved wing organization, especially those of the LG, OG, and, where applicable, the directorate. Analysts must have a basic understanding of the equipment maintained by the unit. The MDSA section chief should request a local familiarization course for 2R0X1 personnel through the logistics training flight (LTF). The course should include weapon system familiarization, shop operations, organizational structure, and roles of each group, directorate, squadron, division, and flight/element. Analysts should attend the course within three months of assignment to the unit.

5.24. MDSA Team Concept. Using MIS, data gathering, and research, MDSA teams identify problem areas for additional study. Deficiency analysis assists by providing technical expertise. The MDSA team should present the group and directorate managers with completed studies that focus on problem areas, including recommendations for courses of action (as appropriate).

5.25. MDSA Section Responsibilities. Analysis personnel must establish sound working relationships with all unit personnel through constant communication and frequent visits to workcenters. MDSA must be customer oriented and provide assistance to all unit personnel in the area of maintenance management information systems, data extraction, and interpretation.

5.25.1. The two major responsibilities of MDSA are:

5.25.1.1. Analyzing and assessing unit and weapon system performance.

5.25.1.2. Managing the MIS.

5.25.2. When analysts are located in the OS, they still work directly for the MDSA section chief who provides their training and monitors the quality and relevancy of their workload. The following is a listing of key analysis responsibilities; it is not intended to be an all-encompassing list:

5.25.2.1. Process and maintain maintenance data.

5.25.2.1.1. This is not intended to mean inputting maintenance data.

5.25.2.2. Review data to identify areas that require further study.

5.25.2.3. Provide presentations, reports, studies, and briefings as requested.

5.25.2.4. Provide information on analysis services and capabilities to unit supervision.

5.25.2.5. Assist units in the application and interpretation of maintenance data.

5.25.2.6. Coordinate with plans, scheduling, and documentation (PS&D) and production managers to provide as required airframe, personnel, and facility capabilities for use in planning the flying and maintenance programs.

5.25.2.7. Provide the maintenance supply liaison (MSL) and any decentralized supply support function with data for input into the intermediate repair enhancement program (IREP).

5.25.2.8. Analyze equipment performance to identify problems affecting unit mission capabilities.

5.25.2.9. Verify accuracy of the job data documentation (JDD) subsystem of CAMS. Section chiefs are still responsible for their workcenter area.

5.25.2.10. Perform periodic audit checks of data entered into CAMS to verify the integrity of maintenance information and inform affected agencies of discrepancies. Individuals initiating the input document are responsible for accuracy and completeness. Key decisions are based on logistics information extracted from CAMS. Maintaining the integrity of this data is paramount.

5.25.2.11. For units with deployment commitments, assist in developing procedures for the deployment of CAMS related hardware and software.

5.25.2.11.1. The MDSA section assists CAMS users in developing procedures for collecting information from deployments and exercises where CAMS is not available. Options available are:

5.25.2.11.1.1. Use a CAMS compatible modem and microcomputer to interface with the home station mainframe computer via commercial telephone lines or the defense data network (DDN).

5.25.2.11.1.2. Accumulate hard copy documentation of CAMS screens (or locally-approved means) for input by workcenters upon return to home station, or mail delivery for extended deployments.

5.25.2.12. Control the assignment of unit workcenter and mnemonic codes.

5.25.2.12.1. Publish written guidance to control these codes.

5.26. Maintenance Information Systems (MIS). MIS consist of REMIS and CAMS. For management of CAMS and REMIS, follow AFCSM 21 series, AFCSM 25-524, *Reliability and Maintainability Information System (REMIS) Users Manual*, and unit OIs. Personal computers and software used as stand alone systems are not considered part of MIS and will not be managed by MDSA, with the exception of desktop systems required by the MDSA section. However, when these systems are connected to MIS via the local area network (LAN) (i.e., using TELNET or INFOCONNECT), they become de facto smart terminals for the MIS they interface with and are subject to any parameters, conventions, policy, and publications affecting the maintenance information system.

5.27. Core Automated Maintenance System (CAMS). CAMS is an integrated production and MIS for maintenance data. It interfaces with the standard base supply system (SBSS) at base level.

5.27.1. The MDSA section has overall responsibility for system database management.

5.27.1.1. Other workcenters throughout the organization manage particular applications and functions applicable to their environment.

5.27.1.2. The integrated application in CAMS requires close coordination between on-equipment and off-equipment workcenters and the staff.

5.27.2. The standard systems group (SSG) at Maxwell AFB, Gunter Annex, Alabama, is the Air Force agency responsible for hardware configuration and software changes in CAMS. AFMC's materiel systems group (MSG) is responsible for REMIS. For issues involving the base LAN or communications lines, the host database manager (DBM) must coordinate with the base communications squadron.

5.27.3. The MDSA section chief ensures trained DBMs have the capability to support the 24-hour processing requirements for CAMS. Training may be obtained through the base communications squadron, AETC specialized courses, HQ AFMC/SSG specialized training, or contractor training.

5.28. Managing the CAMS Database. MDSA provides management control of the CAMS database. DBM responsibilities are as follows:

5.28.1. Manage the CAMS database.

5.28.2. Ensure CAMS, including transaction identification code (TRIC), security is maintained.

5.28.3. Control and monitor the operation of CAMS.

5.28.4. Provide expertise on CAMS for resolution of problems beyond the workcenter's and subsystem monitor's control.

5.28.5. Provide support to tenant users.

5.28.6. Coordinate with the defense mega center (DMC) or base network control center (BNCC) on all matters concerning CAMS. The DBM has sole responsibility for coordinating with the DMC.

5.28.7. Ensure the DMC supports all requirements concerning the operation and maintenance of CAMS.

5.28.8. Coordinate with other users and the DMC to schedule periodic saves of CAMS files to prevent loss of data caused by computer failure. Scheduled saves should cause the least possible interruption to CAMS users.

5.28.9. Develop procedures and act as the prime agency for reporting all suspected CAMS hardware failures.

5.28.9.1. If failures are reported, determine whether or not an operator error or hardware failure has occurred.

5.28.9.1.1. The DBM's responsibility may not be decentralized to the squadrons using CAMS.

5.28.10. Coordinate with other users and the DMC on loading of new releases, special programs, and changes to programs.

5.28.11. Coordinate and/or publishes scheduled CAMS downtime.

5.28.12. Notifie other CAMS users and subsystem managers of unscheduled downtime status as soon as possible.

5.28.12.1. When an extended computer outage occurs, DBMs notify subsystem managers of computer off-line time and determine if manual backup procedures are necessary to input data.

5.28.12.1.1. When CAMS is unavailable, the DBM, subsystem mangers, and squadron personnel will implement manual backup procedures for accumulating CAMS data.

5.28.12.1.2. Manual procedures include documentation on paper copies of CAMS screens, AFTO Forms 349, *Maintenance Data Collection Record*, and sortie maintenance debriefing forms.

5.28.12.1.3. The data will be updated in CAMS when the system becomes available.

5.28.13. Ensure CAMS users are aware of problems relating to their subsystems, including all releases and system advisory notices (SAN).

5.28.14. Maintain the active SAN file according to AFCSM 21 series.

5.28.15. Coordinate with subsystem managers, tenant users, and remote job entry terminal (RJET) sites on monthly maintenance of the CAMS database (i.e., delete history (DLH) and JDD DLH).

5.28.15.1. As a minimum, these utilities are run monthly.

5.28.15.2. A schedule should be produced to allow the least impact on other system users.

5.28.16. Coordinate with other functions to ensure continuity of events taking place in CAMS including procedures for background products. When possible, backgrounds are processed during times of least on-line system use. The DBM recommends options to reduce background products by encouraging users to use on-line capabilities of CAMS.

5.28.17. Control and distributes local unit CAMS products after processing is complete.

5.28.18. Review system response times and takes action if standards are not being met. The HQ AFMC system response time standard is five seconds. System response time exceeding 15 seconds should be reported to the DMC or BNCC.

5.28.19. Notify HQ AFMC/DOM of extended unscheduled computer downtime (over 24 hours) or when experiencing problems beyond the capabilities of the unit's DBM. Units experiencing problems beyond the capabilities of the host DBM will notify the platform manager.

5.28.20. The host DBM must have access to the tools required to manage the CAMS database.

5.28.20.1. DBMs must have a password with access to transaction interface processing (TIP) and demand. This password must have at least the following added to the host DBM user ID index:

5.28.20.1.1. DA1A account for database editor (DBE)/integrated query utility (IQU).

5.28.20.1.2. J51A account for query language processor (QLP) update.

5.28.20.1.3. The database administrator (DBA) at the DMC or BNCC needs to add these to the user's ID system account.

5.28.20.2. The DBM will have access to programs required to manage the CAMS database in the host unit, which will include: ACOPY, SUPUR, DSKUTL, EZLOAD, PSURB, STAR (read only), and UDSMON. Additional tools include:

5.28.20.2.1. Database look (DBL).

5.28.20.2.2. Console monitoring (CONS) with display option.

5.28.20.2.3. QLP report writer.

NOTE: Individual analysts not directly associated with database management receive training in QLP report writer, on-line inquiries, and conversational commands to obtain nonstandard data from the CAMS database in order to perform analysis duties.

5.28.21. Initiate NDA500 or set-verify to identify and isolate database errors and attempt correction through use of DBE, QLP with update, IQU, or interactive processing facility (IPF). These utility programs are run monthly. Coordinate system off-line time to accomplish set-verify with the DMC and subsystem users to minimize off-line time.

5.28.21.1. Notify affected users if errors are found in the CAMS database and take prompt action to correct the errors.

5.28.22. Ensure proper use and control of the database fix keys, which will be provided by HQ AFMC/DOM when required.

5.28.23. Coordinate and control recovery procedures for CAMS.

5.28.24. Control and monitor submissions of CAMS difficulty reports (DIREP) and suggestions for CAMS evaluations.

5.28.25. Coordinate on matters pertaining to the interface of other automated systems with CAMS.

5.28.26. The command DBM provides technical advice to units on problems beyond their expertise and evaluates DIREPs and suggestions for CAMS, REMIS or integrated maintenance data system (IMDS).

5.28.26.1. The command DBM at HQ AFMC/DOM is responsible for all issues relating to CAMS/REMIS or IMDS system operation.

5.29. CAMS/REMIS System Security. The DBM will ensure that system security is maintained by performing the following responsibilities:

5.29.1. Terminal area security officer (TASO). Each workcenter appoints a TASO responsible for ensuring CAMS/REMIS terminals are not compromised by individuals not authorized access to CAMS/REMIS.

5.29.1.1. The TASO acts as the workcenter focal point for control of CAMS/REMIS terminals.

5.29.1.2. The TASO ensures the protection of Privacy Act information notification procedures is displayed on terminals.

5.29.1.3. The TASO is responsible for reporting all hardware-related problems to the CAMS/REMIS equipment custodian or subsystem manager.

5.29.2. Maintaining a current list of subsystem managers and TASOs to contact in case of hardware problems or problems affecting particular subsystems.

5.29.3. Controlling access to specific CAMS programs and subsystems by utilizing TRIC security. Specific TRICs or options within TRICs will be restricted by the DBM on request from the subsystem manager or when the DBM deems it necessary.

5.29.3.1. TRIC security capabilities can be delegated to the subsystem and/or squadron personnel for updates.

5.29.3.2. Ensure CAMS subsystem managers are informed of the status of the applicable TRIC prior to turning the TRIC on or off.

5.29.3.3. In circumstances where a particular TRIC code is turned off for extended periods of time, the DBM notifies their HQ AFMC counterpart to provide the rationale for leaving the TRIC in the off status.

5.29.4. Developing methods preventing unauthorized use of CAMS/REMIS equipment and data within the purview of AFI 33-332, *Air Force Privacy Act Program*, and AFI 33-202, *Computer Security*.

5.29.5. Ensuring proper control of CAMS/REMIS passwords.

5.29.5.1. Specific instructions for REMIS passwords are as follows:

5.29.5.1.1. The unit DBM will monitor password request forms, review, and forward completed forms to HQ AFMC/DOM.

5.29.5.1.2. Provide HQ AFMC/DOM via message, the name, rank, office symbol, and phone number of the focal point as changes occur.

5.29.5.1.3. Maintain a listing of locally assigned REMIS users and provide updates to add, change, or delete users upon reassignment, separation, or retirement.

5.29.6. Ensuring squadron in- and out-processing checklists include granting access to or removal of access to CAMS and/or REMIS.

5.30. Responsibilities for Workcenters Using CAMS. Workcenter responsibilities are listed in **Chapter 2** of this instruction.

5.31. CAMS/REMIS Subsystem Managers. Each CAMS/REMIS subsystem is controlled by a specific subsystem manager who ensures personnel are qualified to use their respective subsystem and are current with applicable AFCSM 21 series for their subsystem. Personnel using CAMS/REMIS should work problems beyond their scope with the subsystem managers first. If the problem still can not be resolved, the subsystem manager should elevate it to the DBM.

5.31.1. Each subsystem manager reports hardware/software problems to the unit DBM. Subsystem managers also:

5.31.1.1. Assist the LTF in developing and conducting familiarization courses for CAMS/REMIS users.

5.31.1.2. Monitor access to their subsystem via TRIC/SCREEN security.

5.31.1.3. Approve/disapprove requests for TRIC/SCREEN access for users and forward to DBM for processing.

5.31.2. The following list assigns functional responsibilities for the various CAMS/REMIS subsystems:

5.31.2.1. Analysis is responsible for the overall management of the JDD subsystem.

5.31.2.2. PS&D is responsible for overall management of aircraft operational events (CAMS corrections), scheduled/unscheduled JDD maintenance events concerning inspections, time changes, TCTOs, aircraft equipment transfer, GCSAS, and aircraft inventory changes (CAMS corrections).

5.31.2.3. The Engine Management (EM) section is responsible for overall management and control of scheduled/unscheduled engine maintenance events concerning engine inspections and time changes, engine TCTOs, engine equipment transfers and engine status.

5.31.2.4. The maintenance operations center (MOC) is responsible for overall management and control of the location subsystem and aircraft status reporting (CAMS/REMIS corrections).

5.31.2.5. The avionics section is responsible for overall management and control of the automatic test reporting system (ATERS) (CAMS/REMIS corrections).

5.31.2.6. The egress section is responsible for overall management and control of the egress configuration management subsystem.

5.31.2.7. The LTF is responsible for overall management and control of the training management subsystem.

5.31.2.8. Programs section is responsible for overall management and control of the personnel management subsystem.

5.31.2.9. Quality assurance (QA) is responsible for overall management and control of the deficiency report (DR) subsystem.

5.31.2.10. MSL is the liaison between CAMS/REMIS and supply. System problems concerning supply transactions (i.e., supply rejects and reports), are brought to attention of the MSL for correction and drafting of DIREPs.

5.31.2.11. Debriefing section is responsible for overall management and control of the automated debriefing subsystem. During debrief, the debriefing section ensures accuracy of aircraft sorties and flying hours, validates pilot reported discrepancies (PRD), validates repeat and recurring maintenance actions and assists OS and OSS PS&D in correction of aircraft utilization errors in CAMS/REMIS.

5.32. Tenant Support. The host base DBM provides CAMS/REMIS technical support to tenant users to assist them in maintaining their unit's database. The DBM ensures all tenant users are supported.

5.33. Nonstandard CAMS/REMIS Products. As well as the standard CAMS and REMIS products available to the user via they CAMS/REMIS terminal or by request from the DBM, the DBM has the ability to create computerized products from the CAMS and REMIS systems using:

5.33.1. QLP and IQU which allow retrieval of information from CAMS database files. These utilities are intended to provide nonstandard data and report formats for specific uses and update or change database information.

5.33.2. REMIS-TALK is another data retrieval system available to analysts for data extraction. This retrieval system is used to extract information from REMIS on EIMSURS and the product performance subsystem (PPS).

5.34. Documentation Accuracy and Completeness. Management information requirements of the unit are generally fulfilled by analyzing data collected through standard Air Force MIS. If documentation is accurate, unit managers and logisticians have the means to improve equipment, program spares, and correctly allocate resources. Data integrity is the responsibility of every member of the unit.

5.34.1. All personnel in the unit are involved to some extent in the documentation, processing, review, retrieval, or application of maintenance data.

5.34.1.1. The data entry made by a technician becomes an element in a database used for management decision making within the wing, MAJCOM, and AF.

5.34.1.2. If that entry is incorrect, incomplete, or entered in error, the database is impaired to that extent. Consequently, decisions made on the basis of that data are less sound.

5.34.2. Unit managers and production personnel must strive for accuracy and completeness. Subsystem managers are responsible for ensuring the accuracy of their subsystem.

5.34.2.1. This can be accomplished by pointing out errors or problems to appropriate workcenter supervisors.

5.34.2.2. DBMs can provide assistance when the problem is beyond the technical expertise of the subsystem manager.

5.35. Data Integrity Teams (DIT). These are teams established to evaluate, isolate, and eliminate documentation problems in CAMS. All units will establish a DIT. The MDSA is the OPR for the team.

5.35.1. It should include at least one representative from each flying and maintenance squadron (MXS) as well as participation from OSS PS&D, EM section, QA, and tenant organizations. Representatives will be at least 5-skill levels and be familiar with the unit's assigned weapon system(s).

5.35.2. As a minimum, the DIT will perform the following functions:

5.35.2.1. Compare AFTO Forms 781A with data recorded in CAMS. Look for mismatch of write-up in forms versus CAMS, signed off in forms but not closed in CAMS, or completed in CAMS but not signed off in forms, no Job Control Number (JCN) in forms or corrective action in CAMS does not match what is in the forms.

5.35.2.2. Compare not reparable this station (NRTS) actions in CAMS with those in the SBSS to verify that all NRTS actions are documented in CAMS.

5.35.2.3. Run maintenance action review background report TRIC (QBRs) for all work accomplished by squadron and by workcenter.

5.35.2.3.1. Audit QBR by squadron for narrative versus coding.

5.35.2.3.2. Identify suspected errors on the QBR by circling or marking on the report and give the report to the appropriate squadron for correction.

5.35.2.4. Develop a system to keep track of the number of errors, including status errors and cannibalization (CANN) errors, by workcenter and squadron.

5.35.2.5. Establish a suspense method to get corrected reports to the DIT. Allow five days maximum.

5.35.2.6. Check workcenter utilization to verify that all required maintenance actions are being documented in CAMS.

5.35.2.7. Maintain a cumulative uncorrected error rate database.

5.35.2.8. Prepare reports of rates and identify where errors are occurring.

5.35.2.9. Provide feedback to users via user's meetings, periodic memorandums, letters, etc.

5.36. CAMS Users Group. Establish a CAMS users group to provide users information relating to changes in CAMS, to identify user problems, to address recommended changes to CAMS, and to discuss other issues relating to operation of the system.

5.36.1. The OSS/CC, LSS/CC, deputy operations group commander for maintenance (OG/CM), or designated representative will chair the working group.

5.36.2. Meetings must be held at least quarterly and will be conducted prior to loading a CAMS release in order to ensure all personnel are aware of the changes in the release.

5.37. Maintenance Performance. The primary concern to maintenance managers is how well the unit is meeting mission requirements, how to improve equipment performance, and how to recognize emerging support problems.

5.37.1. Maintenance performance must be compared with standards, goals, and maintenance plans. The maintenance scheduling effectiveness rates computed by OS PS&D and other performance rates computed by analysis are valuable data sources for making these comparisons.

5.37.2. When the operational requirements are not achieved, perform an investigation to determine the cause. The following are areas that should be considered:

5.37.2.1. Are operational requirements realistically based on availability of equipment?

5.37.2.2. What caused flying schedule deviations (cancellations, aborts, additions, or early/late takeoffs)?

5.37.2.3. Are specific aircraft, equipment, systems, or subsystems contributing to a disproportionate share of deviations/turbulence?

5.37.2.4. Is specific equipment failing to perform as scheduled? Does this equipment require more or less maintenance than others?

5.37.2.5. Are there enough people to meet mission needs?

5.37.2.6. Is there a good balance of skills between the units?

5.37.2.7. Do higher rates for repeat/recurring discrepancies indicate training/experience shortfalls?

5.38. Equipment/Mission Analysis. When negative trends are identified, further investigation may be necessary to gather facts.

5.38.1. QA, unit managers, and workcenter technicians may be contacted for assistance in performing these investigations.

5.38.2. Consolidate the results in the form of briefings or interim reports, depending upon the seriousness of the trend. The product of these reports should be viewed as indications of the unit's success in keeping equipment mission ready.

5.38.3. Consider the following questions when reviewing negative trends:

5.38.3.1. Which systems are creating failures or a high not mission capable (NMC) rates?

5.38.3.1.1. What factors are causing test mission non-availability or delays?

5.38.3.2. What factors are causing an increase or decrease in the NMC hours/failures?

5.38.3.3. Are specific aircraft or equipment causing trend distortions?

5.38.3.4. What systems are having high CND or repeat/recurring malfunctions?

5.38.3.5. What parts or components are causing not mission capable-supply (NMCS) conditions?

5.38.3.6. Are the items repaired on station? Are they two-level maintenance (2LM) components?

5.38.3.7. Is supply support sufficient and responsive?

5.38.3.8. Is a lack of training, technical data, or tools and equipment affecting certain systems or AFSCs?

5.39. Analytical Process. The analytical process consists of identifying contributory factors, manipulating raw data into meaningful formats, computing management indicators, performing statistical measurements, and creating accurate, complete, and easy-to-understand presentations. Analysts should use these tools and other methods to perform analytical studies in order to gain insight into unit performance and to enhance process improvement. The 2R0X1 career development course (CDC) is a good source of statistical and analytical techniques.

5.39.1. The lack of focus regarding use of data, improper arrangement of data for analysis, or unclear presentations of results can obscure meaningful information.

5.39.2. Management contributions to the analytical process. Operations, logistics, and directorate managers should constantly review how information is being organized and presented.

5.39.2.1. Managers should be familiar with how data is developed, interpreted, and presented to ensure accurate presentations of the results for decision making.

5.39.2.2. Special studies and analyses specifically targeted towards areas of concerns to managers are valuable tools in helping units isolate factors surrounding problem areas.

5.39.2.3. Analysts are trained statisticians and investigators and should be used in this capacity.

5.40. Analytical Studies. The most effective study is one that goes beyond superficial conclusions, helps solve a problem relative to mission performance, is logically organized, and is available for all involved parties to read.

5.40.1. The study should state assumptions up front.

5.40.2. The study should be summarized in plain English and should state how the significance is measured.

5.40.3. Specific studies are provided to the requester and a file copy is retained for future reference.

5.40.4. Widespread dissemination is achieved by reproducing the study or including it in the monthly maintenance summary.

5.41. Maintenance Analysis Referrals. Referrals are tools to aid in process improvement. A referral is a procedure that is used to identify, investigate, and propose corrective actions for management problems.

5.41.1. Referral reports are used to start the referral procedure and document the corrective actions for implementation and future reference.

5.41.2. Due to the amount of investigation and research needed to properly process referrals, take care to ensure they are not used for problems that can be resolved more efficiently through verbal or less formal communications.

5.41.3. Referrals are not determined by a quota system. They are used only when necessary to affect a permanent solution to a problem that cannot be solved by other means.

5.41.4. Referral reports must be concise, accurate, and timely to provide operations and logistics managers with decision making information.

5.41.5. Anyone can initiate a referral but MDSA is the OPR and maintains a log of all referrals, assigning a referral number before processing begins.

5.41.5.1. The referral log should reflect the referral number, initiating agency, date, subject, and action taken.

5.41.5.2. Route reports through the affected agencies for comments, with the final addressee as the MDSA section.

5.41.5.3. Retain copies of the report and indicate whether additional monitoring or follow-up action is necessary.

5.41.5.4. Provide a completed study to each group QA and to HQ AFMC/DOM.

5.42. Functions of Deficiency Analysis. Deficiency analysts are technicians with the following skills: aircraft maintenance, on- and off-equipment avionics, or engines. Other skills may be included to effectively analyze specific functions of an aircraft weapon system.

5.42.1. Rotate active duty deficiency analysis technicians back to their maintenance section within 24-36 months to maintain AFSC proficiency.

5.42.2. Deficiency analysts serve a dual role: they provide analytical support to the squadrons and maintenance managers and provide technical expertise for the MDSA section.

5.42.2.1. They use analytical data and their technical knowledge to identify problems, work with the customer, and help find solutions.

5.42.2.2. They should not limit themselves to pointing out general areas for investigation. They should identify deficiencies applicable to a workcenter, particular equipment end-item, maintenance practice or management action.

5.42.3. As a minimum, deficiency analysis:

5.42.3.1. Reviews QA summaries for positive and negative trends.

5.42.3.2. Reviews debriefing data and abort information daily, monthly, quarterly, and annually to assist in the identification of problem aircraft or systems.

5.42.3.3. Performs monthly reviews of deferred discrepancy lists for technical errors or negative trends.

5.42.3.4. Performs monthly reviews of repeat/recurring discrepancy lists for problems.

5.42.3.5. Reviews high CND rates and incidents for inadequate troubleshooting or technical data problems.

5.42.3.6. Assesses aircraft scheduling deviations for negative maintenance practices and trends that impact work force and workload stability.

5.42.3.7. Monitors and evaluates the maintenance portion of the base repair program and IREP.

5.42.3.8. Analyzes the performance of selected systems, subsystems, and components (LRUs) to help determine the source of problems affecting the mission of the unit.

5.42.3.9. Attends the quality assurance program (QAP) and product improvement working group (PIWG) meetings, providing trend data as needed.

5.43. Base Repair/IREP Program. Monitoring and evaluating this program is an important function of the MDSA section. Analysis of the aircraft maintenance portion of the base repair program and IREP may provide supervisors with the data needed to determine workcenter repair capabilities. TO 00-20-3, *Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System*, contains information necessary for computing repair rates.

5.44. Dedicated OS Analysis. The OS analysis function is intended to provide dedicated analytical support for the OS.

5.44.1. The MDSA section chief dedicates an analyst to each OS.

5.44.1.1. When possible, the analyst should be at least a 5-skill level (or civilian equivalent), knowledgeable of management products and reports, and able to present useful data.

5.44.1.2. Accomplishing OS tasks is the dedicated analyst's primary responsibility.

5.44.1.3. The dedicated OS analyst works for the MDSA section chief. However, the analyst must also be responsive to OS managers' needs.

5.44.1.4. The OS analyst spends time in the OS area to ensure all duties are discharged or OS manager needs are fulfilled.

5.44.2. As a minimum, the OS analyst performs the following tasks:

5.44.2.1. Reviews maintenance debriefing data and tracks in-flight discrepancies on each aircraft. Briefs problem aircraft and systems highlighted by this tracking to OS managers daily.

5.44.2.2. Weekly and monthly, briefs comparative OS data as required by the OG/CC or LG/CC.

5.44.2.3. Provides analyses as requested by OS managers or when identified through review of OS performance data.

5.44.2.4. At least monthly, ensures CANN documentation is reviewed and that the SMO and superintendent are informed of its accuracy. If errors exist, a more frequent review may be required to resolve documentation problems. Advise OS managers of recurring problems.

5.44.2.5. Analyzes actual attrition factors.

5.45. Unit Maintenance Data Presentations. Present data by using summaries, charts, graphs, tabular displays, and narratives. These data presentations should show the relationship between and among various factors.

5.45.1. Data presentations should be displayed or presented in time to be useful in plans or reports.

5.45.2. A printed or electronic monthly maintenance summary, tailored to the needs of the unit is an excellent method of presenting data.

5.45.3. Presentations should be well constructed, accurate, and easy to understand.

5.46. Functional Manager. The senior 2R0 member is the unit functional manager and monitors and controls analysis resources for the unit. All issues relating to MDSA, CAMS/REMIS, IMDS database management, and training should be directed to the unit functional manager first.

5.46.1. The unit functional manager will elevate issues beyond the unit control to the command functional manger, HQ AFMC/DOM. This includes allocations of AETC and AFMC/SSG formal school quotas.

Section 5E—Microcomputer Systems Management Section.

5.47. Microcomputer Systems Management Section Responsibilities. This function is the focal point for microcomputer management, system planning, and networking for the OSS/LSS. The microcomputer systems manager controls and manages the wing's aircraft maintenance requirements for microcomputer systems and networks and funding for these systems.

5.47.1. The current operations flight commander has the option to place the responsibilities of microcomputer management in any section within the flight.

5.47.1.1. Personnel assigned to this section should have demonstrated knowledge of microcomputer use.

5.47.1.2. Familiarity of the most widely used software programs in the wing is recommended.

5.47.1.3. Knowledge of local area network (LAN) operation, electronic communications, advanced operating systems (i.e., UNIX, Windows NT, etc.), computer diagnostics and repair, or computer programming is highly desirable.

5.47.1.4. Personnel of any AFSC can be assigned to this section.

5.47.1.4.1. Personnel in upgrade training should not be assigned.

5.47.1.4.2. Personnel should be assigned to this section for no longer than two years.

5.47.1.4.3. Personnel should attend as many computer training courses (i.e., college, base communications squadron, or field training detachment (FTD)) as possible.

5.47.2. The section, in conjunction with a LSS microcomputer manager, develops local procedures on the management of microcomputers within the aircraft maintenance complex.

5.47.2.1. As a minimum, procedures must address acquisition and maintenance of hardware and software, protection and physical security of resources, and control and operation procedures.

5.47.2.2. They should also address documentation for locally developed software programs, contingency operations, and the use of privately owned microcomputers.

5.47.3. The section tasked with microcomputer management will:

5.47.3.1. Control and validate system requirement documents submitted for microcomputer equipment.

5.47.3.1.1. Control and review requisitions for microcomputer hardware or software for strength of justification and accuracy of documentation prior to forwarding for procurement.

5.47.3.1.2. Ensure standardization and expandability is a prime consideration in the review process.

5.47.3.1.3. Coordinate with the OSS and LSS commanders to ensure REMIS, SBSS, or CAMS capabilities are not duplicated.

5.47.3.2. Monitor the procurement of all software packages.

5.47.3.2.1. Maintain the latest documentation and actual software for maintenance unique software distributed to units by HHQ.

5.47.3.2.2. Distribute updated software and documentation throughout the groups and directorates, once changes are received from HHQ.

5.47.3.3. Monitor microcomputer networking plans and detail the LG/CC's or OG/CC's approach to present or future office automation.

5.47.3.4. Consolidate requests for microcomputer training, coordinate requests with the LTF, and obtain training quotas.

5.47.3.5. Monitor personnel qualifications and answer the wing's aircraft maintenance user questions on operation of the computers.

Section 5F—Maintenance Supply Liaison (MSL) Section.

5.48. MSL Section Responsibilities. MSL monitors the overall maintenance and supply interface, resolves supply support problems, and coordinates supply related training needs for the LG and OG.

5.48.1. MSL advises maintenance managers of support problems regarding the maintenance efforts and recommends corrective actions.

5.48.2. When required, MSL provides dedicated supply support to the OS support flight. In addition, the MSL will:

5.48.2.1. Periodically visit all maintenance workcenters. Identify and recommend corrective actions on procedural or compliance problems associated with supply support and provide assistance in their resolution.

5.48.2.2. Identify supply related training needs to maintenance workcenter supervisors.

5.48.2.3. Provide guidance to workcenter supervisors on utilization of supply management products, precious metals recovery program, shelf-life management, and due-in from maintenance (DIFM) management.

5.48.2.4. In conjunction with the LSS, consolidate repair section inputs for the direct NRTS list; publish and distribute the list to the appropriate agencies.

5.48.2.4.1. Review and update the list at least semi-annually.

5.48.2.5. Coordinate with maintenance workcenters to identify components for which there is no base level repair or diagnostic capability.

5.48.2.5.1. Compile a listing of these items and ensure organization section code 009DN is loaded as the repair section on the repair cycle record.

5.48.2.5.1.1. Repair section code 009DN alerts maintenance technicians the component is direct NRTS and is not routed through a repair section.

5.48.2.5.1.2. The last two positions (DN) are base optional, identifying the wing or organization providing the authority for direct NRTS.

5.48.2.6. Conduct annual supply procedural surveillance visits to all workcenters. QA will provide an augmentee to assist MSL with the surveillance.

5.48.2.7. In conjunction with the LSS, solicit and consolidate inputs from all squadrons to initiate a quick reference list (QRL). MSL distributes the QRL to appropriate workcenters including the aircraft parts store.

Section 5G—Programs Section.

5.49. Programs Section Responsibilities. The programs section provides the LG/CC or OG/CC support in developing and maintaining programs in support of the maintenance effort.

5.49.1. This section is responsible for overall vehicle, financial, manning, and facilities management for the LG/CC or OG/CC.

5.49.2. Programs representatives conduct staff assistance visits (SAV) to assist each maintenance function responsible for financial, personnel, facilities, and vehicle management programs.

5.49.2.1. SAVs will be conducted at least once a year.

5.50. Financial Management. Each group is required to have a sound program for financial planning, budget preparation, and expense control. If possible, use microcomputers to eliminate the manual tracking of data. The programs section will:

5.50.1. Prepare and submit financial requirements for inclusion in the base or center financial plan, budget estimates, and operating budget.

5.50.1.1. Coordinate with each cost center to assess financial needs.

5.50.1.2. Consolidate the budgeting requirements of the financial plan and send it to the servicing controller.

5.50.1.3. Coordinate all prepared financial requirements/submissions with the group resource advisor (RA)/manager (when authorized) before forwarding to the LG/CC or OG/CC for approval.

5.50.2. Instructions for building budgets are contained in AFI 65-601, Vol 1, *Budget Guidance and Procedures*, a copy of which must be kept in the section.

5.50.3. Distribute the operating budget within the group. Analyze past expenses, current expenses, and programs to project the financial requirements of the units.

5.50.4. Monitor the status of expenses by cost center and brief the LG/CC or OG/CC of unusual expenditures that may impact the unit's financial goal for the fiscal period.

5.50.5. Continuously review the financial status to ensure each cost center receives equitable and necessary base funded materials and services.

5.50.6. Keep the GP/CC advised of the financial status of the group.

5.51. Manning Management. Monitors manpower authorizations and personnel assignments for the group and acts as the maintenance point of contact for manpower and manning actions, with the exception of 2W1X1 personnel. The programs section will:

5.51.1. Coordinate and approve/disapprove requests before forwarding them to the local manpower office.

5.51.1.1. See that proposed changes comply with AFI 38-201, *Determining Manpower Requirements*, for both standard determinant factors and the establishment of approved variances.

5.51.2. Manage the CAMS personnel subsystem, provide user training on subsystem capabilities and output products, ensure distribution of output products to workcenter managers, and update the system when changes occur.

5.51.3. Initiate and coordinate requests for changes to the unit manpower document (UMD).

5.51.3.1. Ensure the UMD mirrors the authorization structure to include HQ AFMC options and approved waivers.

5.51.3.2. Maintain a current copy of the LG or OG squadrons' unit personnel management roster (UPMR), UMD, and maintenance manpower roster (MMR) (or equivalent). Post-approved changes to the latest copy of these documents.

5.51.4. Initiate/coordinate on all authorization change requests (ACR).

5.51.4.1. When there is an indication a change request may result in an imbalance of manning, or an apparent imbalance already exists, request an analyses of personnel resource utilization from the appropriate automated information systems (i.e., PCIII or CAMS) on affected AFSCs.

5.51.5. Coordinate and monitor permanent change of assignment (PCA) actions and suspenses of involved agencies for appropriate documentation.

5.51.6. Periodically visit all workcenters. Perform SAVs at least once each year. The purpose of these visits is to determine if managers:

5.51.6.1. Understand and are using available computer products.

5.51.6.2. Are effectively distributing personnel resources, particularly critical AFSCs.

5.51.6.3. Ensure assigned personnel are properly loaded in the personnel data subsystem of CAMS.

5.51.7. Ensure projected gains are equitably distributed throughout the group and assign gains against vacant positions or projected losses, with the exception of 2W1X1 personnel.

5.51.7.1. Work with the LG staff to ensure the equitable distribution of newly assigned maintenance personnel to accomplish the unit mission.

5.51.7.2. Establish local procedures with the LG staff to initially allocate and balance manpower requirements across both groups to optimize maintenance manpower and accomplish the unit's mission.

5.51.8. Work with MDSA to assign or change the workcenter mnemonics. The first character of the mnemonics indicates the agency and the flight/section.

5.51.9. Monitor critical AFSCs as designated by the LG/CC or OG/CC.

5.52. Facilities Management. The facilities manager identifies facility needs, develops, and forwards documents for new or additional facilities, and evaluates efficient use of present facilities. The facilities manager:

5.52.1. Is familiar with all facilities in the group.

5.52.2. Accomplishes facility studies to determine if the in-use facilities are suitable for the activities for which they are assigned.

5.52.2.1. A study of facility layouts aids in the effective use of assigned space.

5.52.3. Maintains a facility layout for each site within the group. As a minimum, this layout should include building identity, usable area of the building, the function that occupies the building, number of occupants, area of each section within the building, and peculiar power sources.

5.52.4. Documents and forwards through prescribed channels new facility requirements and large modifications to existing facilities resulting from mission changes, organizational changes, or assignment of new equipment.

5.52.4.1. In conjunction with the affected squadron and civil engineering (CE), develops the project documents for major construction or modification.

5.52.4.2. Coordinates on the AF Form 332, **Base Civil Engineer Work Request**, and retains one copy of each AF Form 332 for his/her files.

5.52.4.3. Briefs the LG/CC or OG/CC on the status and priority of open AF Forms 332 prior to the monthly facilities utilization board meeting.

5.52.5. Provides inputs to the base parking plan.

5.52.5.1. The parking plan is developed and coordinated according to AFI 32-7005, *Environmental Protection Committees*, and applicable AFOSH standards.

5.52.5.2. When applicable, ensures the plan is current and reflects the requirements of maintenance operations and the affected squadrons, including the identification of aircraft parking and aircraft turnaround and hot refueling locations.

5.52.6. Monitors and validates all telephone installation requests.

5.53. Deployment Section. The deployment section is the focal point for mobility operations within the group. A healthy interface with the LSS logistics plans flight (or wing plans, as appropriate) is essential. The deployment section:

5.53.1. Reviews combat related operations plans (OPlan) (i.e., deployment, employment, contingency, operational readiness inspection (ORI) related) requiring support from the OG.

5.53.2. Provides inputs to the LSS logistics plans flight for capability assessments for each related plan.

5.53.3. Provides appropriate inputs to OSS operation plans for inclusion in wing plans.

5.53.4. Forwards new OPlans, unit supplements, changes or revisions affecting current OPlans/supplements to the OG/CC and squadron unit deployment manager(s) (UDM) for review and evaluation.

5.53.4.1. Suspenses OG squadrons to provide inputs and limitations to new, revised, or changed OPlans/supplements based on a review of effective capability assessments.

5.53.5. Establishes a folder for each OG combat related plan. Ensures the appropriate classification is visible on the file label according to AFMAN 37-123, *Management Records*. As a minimum, the folder will contain these sections from front to rear:

5.53.5.1. Capability assessment.

5.53.5.2. Plan implementation checksheets and applicable MXS checksheets.

5.53.5.3. Most recent operational readiness exercise (ORE)/ORI/deployment after-action report, if any.

5.53.5.4. Most recent site survey.

5.53.5.5. Working papers (if any).

5.53.5.6. Operational plan (if required).

5.53.5.7. Unit supplements (If any).

5.53.6. Maintains classified documents according to AFMAN 37-123 and AFI 31-401, *Information Security Program Management*. In addition, develops procedures for sign-out of classified documents removed from the safe and for the end-of-day inventory.

5.53.7. In conjunction with the unit security manager, ensures mobility personnel receive security training in communications security/operations security (COMSEC/OPSEC), classification and marking of classified material, control and accountability of classified material, destruction of classified material, and emergency destruction/evacuation of classified material.

5.53.7.1. Provides documented initial and recurring security training to programs and mobility personnel.

5.53.8. Is the focal point for consolidating inputs from OG initiated limiting factors (LIMFAC). Ensures the operations support squadron (OSS) operations officer verifies all LIMFACs, including those submitted for the status of resources and training system (SORTS) report (when tasked).

5.53.9. Using the squadron UDMs, ensures each tasked activity complies with AFI 10-403, *Deployment Planning*.

5.53.10. Periodically reviews maintenance mobility simulation requests. Ensures deployment simulation requests do not hinder actual deployment movement.

5.53.11. Trains squadron deployment planners to effectively use contingency operations/mobility planning and execution system (COMPES) automated products according to AFI 10-403 and AFMAN 10-401, *Operations Plan & Concept Plan Development and Implementation*.

5.53.11.1. Reviews squadron inputs to the installation deployment guidance.

5.53.11.2. Consolidates reviews for correction and forwards inputs to resource plans for inclusion in the installation deployment guidance.

5.54. Inspection/Systems Support Sections. The inspection support section is an OG/CC or LG/CC option when on-equipment maintenance is assigned under the LG. The inspection/systems support section is organized to support the OSs. Assign key personnel for a minimum of 12 months. Others should not be assigned for less than six months. Units use prescribed tool control and supply procedures.

5.54.1. The inspection support function will:

5.54.1.1. Maintain composite tool kit (CTK) and equipment storage. CTKs and equipment are managed according to AFMAN 23-110, *USAF Supply Manual* and **Chapter 21** of this instruction.

5.54.1.2. Control and maintain Test, Measurement and Diagnostic Equipment (TMDE) according to TO 33-1-27, *Logistics Support of Precision Measurement Equipment*.

5.54.1.2.1. User maintenance for TMDE should be limited to those tasks that are identified in TO 33-1-27 as user responsibility.

5.54.1.2.2. Comply with TO 33K-1-100, *TMDE Calibration Interval, Notes Maintenance Data and Work Unit Code Reference Manual*, any applicable calibration measurement summary (CMS), TO 00-20-14, *AF Metrology and Calibration Program*, and other applicable technical directives concerning the use, care, handling, transportation, and calibration of TMDE owned by the section.

5.54.1.3. Consolidate inputs for items requiring functional check/operational programming or calibration. Submit the listing to the base supply combat operations support flight.

5.54.1.4. Order parts and utilize supply management products. Initiate follow-up action when necessary.

5.54.1.5. Notify the production superintendent/expediter of all back ordered parts.

5.54.1.6. Maintain a Quick Reference List (QRL), if used.

5.54.1.7. Track and process Due-In-From Maintenance (DIFM) assets in a timely manner.

5.54.1.8. Manage reusable containers according to AFJI 24-102, *Logistics Over the Shore Operations in Oversea Areas*.

5.54.1.9. Maintain technical order (TO) files according to TO 00-5-1, *AF Technical Order System*, and TO 00-5-2, *Tech Order Distribution System*.

5.54.1.10. Maintain an adequate bench stock. Bench stock display boards or other visual aids are used to readily identify frequently used expendable items. Additional guidance is outlined in **Chapter 4** of this instruction.

5.54.1.11. Maintain and store alternate mission equipment (AME) and maintenance, safety, and protection equipment (MSPE) -21 equipment according to AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*.

5.54.1.12. Control and manage aircraft tail number bin (TNB)/facilitate other maintenance (FOM) assets stored within the section.

5.54.2. The systems support function also includes:

5.54.2.1. End-of-runway (EOR) activity to include assigned personnel, equipment, and facilities.

5.54.2.1.1. When applicable, supervises radar warning receiver (RWR) and Mode 4 checkouts at designated ramp locations.

5.54.2.1.2. Establishes personnel work schedules to ensure EOR, RWR, and Mode 4 checks are accomplished in a timely manner.

5.54.2.1.3. Maintains assigned equipment and facilities used for EOR activities.

Chapter 6

MAINTENANCE OPERATIONS CENTER (MOC)

6.1. General. The main purpose of the MOC is to monitor the maintenance effort, not control it. The MOC monitors sortie production, maintenance production, and execution of the flying and maintenance schedules. During periods of contingency taskings (simulated or actual), the MOC assumes increased responsibility for coordinating the maintenance effort. The squadrons/divisions will set priorities for their respective production efforts to meet mission requirements. Information exchanges between squadrons/divisions and the MOC must be sufficiently detailed to allow the MOC to comply with reporting requirements and to identify potential problems. Additional guidance is outlined in AFI 10-207, *Command Posts*, and AFMC Sup 1. The following general guidelines apply. The MOC will:

6.1.1. Maintain visual aids showing the status and location of each aircraft on-station, maintained, or supported by the wing.

6.1.2. Coordinate with production superintendents to establish priorities such as fuel or calibration docks, ground test, wash racks, and dispatched specialists from the maintenance squadrons (MXS)/division(s) (e.g., egress).

6.1.3. Manage the aircraft maintenance land mobile radio (LMR) program.

6.1.4. Ensure aircraft status is accurately reported and maintained in accordance with (according to) AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*, and AFCSM 21-564, Vol 2, *Status and Inventory Reporting*. MOC will receive validated status from the aircraft maintenance expediter through the production superintendent.

6.1.5. Coordinate and monitor the progress of aircraft functional check flights (FCF) as established by quality assurance (QA) and the operations support squadron (OSS) plans, scheduling, and documentation (PS&D) section.

6.1.6. Inform affected activities of changes in priorities, plans, tests, and schedules.

6.1.7. Coordinate flying schedule changes with all affected base agencies.

6.1.8. Request support services (i.e., as fire fighting activity standby, aircraft water, snow removal, fueling and defueling service, civil engineering (CE) support, or control tower clearances, etc.) required for maintenance actions and ground movement of aircraft and equipment.

6.1.9. Develop and implement applicable procedural checklists as defined by the operations group (OG)/logistics group (LG).

6.1.10. Advise the logistics group commander (LG/CC) when the status of aerospace ground equipment (AGE) designated as mission essential fall below its critical level. MOC will monitor AGE status through visual aids that show location, minimum levels, and status by type.

6.1.11. Comply with core automated maintenance system (CAMS) requirements as outlined in AFCSM 21 series.

6.1.11.1. Manage and control the status portion of the CAMS status and inventory subsystem.

6.1.12. Maintain aircraft estimated time in commission (ETIC). ETICs will include date and time. The MOC consolidates multi-workcenter ETICs to arrive at an overall ETIC.

6.1.13. Establish procedures to notify base agencies of live munitions-loaded aircraft to include when each aircraft is loaded or unloaded with munitions. Give the aircraft type, tail number, location, type of explosives, and arming status. (Optional)

6.1.14. Ensure daily flying schedule deviations are reviewed and accurately reported according to AFMCI 21-128, *Aircraft Operations and Maintenance Scheduling*.

6.1.15. Notify all appropriate agencies (i.e., production superintendent, expediter, fuel cell, munitions control, etc.) of severe weather warnings.

6.1.16. Notify wing safety office or command post (during other than normal duty hours) of all mishaps involving aircraft foreign object damage (FOD), other aircraft damage, or injuries resulting from aircraft maintenance activities.

6.1.17. Monitor the hangar queen program and ensure aircraft status boards are conspicuously marked, showing hangar queen status to include date of last flight, ETIC, and expected fly date.

6.1.18. When applicable, monitor and report electronic countermeasures (ECM) and sensor pod status.

6.1.18.1. When mission capable (MC) pod availability falls below requirements as stated in designed operational capability (DOC) or operational plan (OPlan), the reported information will include serial number, status (awaiting parts (AWP)/awaiting maintenance (AWM)), national stock number (NSN) causing mission capability (MICAP) condition, off-base requisition numbers, and ETIC. Classification is according to AFI 31-401, *Information Security Program Management*.

6.1.19. Inform the flightline production superintendent and flightline expediter of oil analysis program (OAP) code C and E conditions, and ensure aircraft are not operated until results of OAP sample(s) are known. For additional MOC OAP responsibilities, see **Chapter 23** of this instruction.

6.2. MOC Personnel. Personnel assigned to MOC must be trained in maintenance management system operations and must be qualified by experience and/or formal training on at least one of the major weapons systems maintained. The MOC noncommissioned officer in charge (NCOIC) (or civilian equivalent) will establish a well-defined proficiency training program for weapons system coordinators. Because no weapons system coordinator Air Force specialty code (AFSC) exists, proficiency training programs must familiarize MOC personnel with every aspect of the MOC operation. Production superintendents and expediters will keep weapons system coordinators informed of conditions affecting aircraft capability and apply resources needed to meet the flying and maintenance schedules. The weapons system coordinator will:

6.2.1. Verify and post status information promptly when informed by the production superintendent and/or expediter.

6.2.2. Be familiar with support organizations' operations and capabilities.

6.2.3. Coordinate maintenance schedules, actions, and priority changes.

6.2.4. Resolve conflicts over priorities for refueling vehicles and pits.

6.2.5. Coordinate MXS(s) specialist dispatch requirements with the applicable maintenance supervision as requested or as pre-planned.

6.2.6. Be fully capable of determining and reporting aircraft status from minimum essential subsystems lists (MESL) before assuming unsupervised duties.

6.2.7. Be fully qualified to operate CAMS remote devices before assuming unsupervised duties.

6.3. MOC Facilities. The facilities must meet the minimum standards set forth in this publication; however, facilities may not be fully standardized due to variations in buildings, geography, mission, and organizational site. When deployed, units may establish an alternate maintenance operations facility. When improvements to existing facilities are possible, or when new facilities are being planned, apply the guidance in AFI 32-1024, *Standard Facility Requirements*, and AFI 32-1063, *Electrical Power Systems.* The following standards apply:

6.3.1. The room will be completely enclosed and air conditioned and heated according to AFI 32-1024.

6.3.2. An observation room is permitted. The floor of the observation room will be high enough to permit an unobstructed view of the status boards.

6.3.3. The doors to the MOC and the observation room will be either mechanically or electrically locked. Controlled access to both will be required for security.

6.3.4. MOC electrical power circuits will be isolated and standby power source and emergency lighting provided according to AFI 32-1063.

6.4. Visual Aids. Visual aids will be used to provide a clear portrayal of equipment status and instantaneous access to critical data. Computer terminals may be used in place of visual aids; however, if this option is used, local procedures will be developed to retrieve printed products on a regular basis, providing contingency working documents in case of system failure. A video projection systems may be used to display CAMS data to complement CAMS terminals, providing the equipment authorization has been established according to with Allowance Standard (AS) 007, *Visual Information Support*. The following minimum visual aid requirements apply:

6.4.1. Aircraft status displays will list aircraft by serial number and show location, priority, status, DOC limitations/remarks, ETIC, configuration, OAP status codes, fuel load, and munitions load columns (board displays of munitions loads are optional for test wings).

6.4.1.1. Units having only one standard configuration or fuel load may omit these columns.

6.4.1.2. Units using automated systems need to display the above information, but may use remarks or narrative portions of the screen for items not listed by specific title. Discrepancy narratives in the DOC limitations/remarks column should be clear, concise, accurate, and include all pertinent data (i.e., document numbers, etc.).

6.4.2. Format flying schedule displays to show the individual aircraft scheduled for flight each day. As a minimum, column headings show serial number, scheduled takeoff, actual takeoff, scheduled landing, actual landing, sortie configuration, and remarks.

6.4.3. When required by unit mission, construct generation displays showing operational readiness readiness inspection (ORI) and other special mission requirements. The display shows maintenance actions required to generate aircraft in the time sequence to meet mission requirements. Display formats will be compatible with operational plans and command post displays.

6.5. Maintenance Communications. MOC has overall management responsibility for the non-tactical radio program and will ensure adequate communications are available. Reliable, redundant, and effective communications systems are essential for efficient operation. These systems will provide accurate, timely, secure, programmable frequency and jam-resistant communications to accomplish the maintenance mission in a fully deployed, isolated mode (if needed). Additional non-tactical radio nets are authorized when large numbers or different types of weapon systems are assigned or when host-tenant agreements so specify. The following general guidelines apply:

6.5.1. Allowance for specific radios are shown in AS 660, *Equipment Allowances for Non-Weapon Systems Communications Requirements*, *Repair Cycle Data Listing*. Process requests for specific radio equipment to support maintenance activities according to AFMAN 23-110, *USAF Supply Manual*, and AFI 33-106, *Managing High Frequency Radios, Land Mobile Radios, Cellular Telephones, and the Military Affiliate Radio System*.

6.5.2. MOC will publish procedures for a local call-sign system.

6.5.3. A very high frequency (VHF)/ultra high frequency (UHF) radio is authorized to provide communications between aircraft and maintenance. Aircrews may relay advance status information according to locally developed procedures (time permitting). The following standard maintenance notification codes reflect the status of the aircraft being reported.

6.5.3.1. Code l - Aircraft is flyable with no additional discrepancies.

6.5.3.2. Code 2 - Aircraft or system has minor discrepancies but is capable of further mission assignment within normal turnaround times.

6.5.3.3. Code 3 - Aircraft or system has major discrepancies in mission essential equipment that require repair or replacement before further mission assignment.

6.5.3.4. Code 8 - Aircraft or system has suspected or known radiological, chemical, or biological contamination.

6.5.4. As a minimum, the MOC will establish a hotline on the secondary crash phone net. When required, direct communications lines will be provided to QA, munitions control, explosive ordnance disposal (EOD), operations, base fire station, non-destructive inspection (NDI) section, and the central security control (CSC). When mission requirements justify, a direct line to the control tower will be installed.

6.5.5. MOC will develop and exercise communications-out procedures on a frequent basis as determined by the applicable GP/CC.

6.5.6. All maintenance personnel will receive initial radio operating training before assuming duties involving radio operation according to AFI 33-106.

6.6. Maintenance Repair Priorities. The senior coordinator will coordinate priorities for specialist support from the MXS(s) with the operations squadrons (OS). Disputes between squadrons for specialist support, will be resolved at the daily production meeting or through discussion between the affected production superintendents and maintenance supervisions.

6.7. Specialist Use and Control. When a specialty (AFSC) is not available within OS's resources, and the requirement cannot be satisfied from within the OG, the MOC coordinates with the applicable LG production superintendent/maintenance supervision to provide support.

6.7.1. When a specialist is not available in the OS, the expediter requests the needed support through the MOC. Specialists report to, and are functionally controlled by, the expediter. The expediter releases the specialists when no longer needed for the dispatched task and notifies the MOC.

6.7.2. When an unscheduled maintenance requirement exists in the MXS(s), and the requirement cannot be satisfied within the LG, the MOC coordinates with the applicable OS production superintendent/maintenance supervision to provide support. Dispatched personnel report to, and are functionally controlled by, the workcenter supervisor. The workcenter supervisor releases the dispatched personnel when no longer needed and notifies the MOC.

6.7.3. MOC monitors MXS/division specialists working scheduled aircraft maintenance requirements. MOC coordinates specialist support for phase, periodic, or isochronal (ISO) inspections and sources them from the appropriate organizations as outlined on the AF Form 2406, **Maintenance Pre-pla***n*. When specialists do not report to the requesting workcenter within 15 minutes of their scheduled start time, MOC is informed of the no-show and takes follow-up action.

6.8. Selected Generation Aircraft. In units where aircraft are required to meet contingency commitments, the OSs select the tail numbers of aircraft needed to meet requirements. The MOC aircraft status board will show the order the aircraft should be generated. MOC will constantly monitor aircraft status and revise the pre-selected sequence as changed by the OS.

6.9. Transient Aircraft. The MOC keeps the status and location of all transient aircraft. MOC will post the priority of each transient aircraft on the status board based on the maintenance priorities listed in **Chapter 1**, Table 1-2, of this instruction and coordinate transient aircraft maintenance support with the appropriate support agencies.

6.10. Procedural Checksheets. Emergency action procedural checksheets will be developed and maintained by the MOC for use during actions such as Broken Arrow, major aircraft response (for instance an aircraft crash, explosive mishap, or chemical or fuel spill), hangar or fire, severe weather warning or evacuation, and other emergency situations. Checklists will be approved by and reviewed annually by the OG/CC. Unit OPlans will be used as a guide in developing these checksheets. The MOC maintains checklists according to TO 00-5-1, *AF Technical Order System*.

Chapter 7

OPERATIONS SQUADRON (OS)/TEST SQUADRON (TS)

Section 7A—Test

7.1. OS Maintenance. This chapter has five sections: **Section 7A** - Responsibilities; **Section 7B** - OS Plans, Scheduling, and Documentation Section (PS&D); **Section 7C** - Sortie Generation Flight; **Section 7D** - Aircraft Section; **Section 7E** - Sortie Support Flight. OS maintenance is semi-autonomous and responsible for the launch, servicing, on-equipment repair, inspection, and recovery of primary mission aircraft. Squadron maintenance will be organized into sortie generation and sortie support flights. Due to test center and mission, design, and series (MDS) peculiarities, there are exceptions for the organization of the OS, refer to AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*. OSs normally performs installed engine trim runs/troubleshooting. Supply procedures are located in **Chapter 4** of this instruction.

Section 7B—Responsibilities.

7.2. Squadron Commander Responsibilities. The squadron commander will perform all command functions as outlined by public law, AFI 21-101, Maintenance Management of Aircraft, and directives common to all Air Force squadron commanders. They are responsible to their respective group commander (GP/CC) for overall squadron management. Common responsibilities are outlined in **Chapter 2** of this instruction.

7.3. Squadron Maintenance Officer (SMO)/Maintenance Supervisor (MS) Responsibilities. The SMO/MS is responsible to the squadron commander for maintenance production and logistics test and evaluation (LT&E). The SMO/MS, supported by the squadron maintenance superintendent, manages resources necessary to accomplish the mission. In addition to responsibilities outlined in AFI 21-101, and **Chapter 2** of this instruction, the SMO/MS will:

7.3.1. Designate maintenance flight commanders/chiefs. Selection of supervisors will be based on their ability to manage as well as their technical knowledge of the weapon systems maintained. The most qualified personnel are selected regardless of Air Force specialty code (AFSC), within the constraints of AFI 36-2108, *Airman Classification*.

7.3.2. Review and consolidate squadron inputs to monthly maintenance plans and, through the squadron commander, forward to the operations support squadron (OSS) current operations flight. The SMO/MS implements the approved monthly maintenance plans.

7.3.3. Compile and submit, through the squadron commander to quality assurance (QA) for GP/CC approval, a list of tasks requiring in-process inspections (IPI) to be included in the wing IPI list.

7.3.4. Monitor the dedicated crew chief (DCC) program and appoint each DCC and assistant dedicated crew chief (ADCC) in writing. Ensure DCCs/ADCCs accompany their aircraft during all types of maintenance to the maximum extent possible.

7.3.5. Ensure personnel are qualified to support integrated combat turnaround (ICT) procedures, dual load crew operations, and hot refueling programs (as applicable).

7.3.6. In coordination with QA, establish squadron procedures for the aircraft structural integrity program (ASIP). Ensure compliance with the requirements in AFI 63-1001, *Aircraft Structural Integrity Program*.

7.3.7. Periodically review the core automated maintenance system (CAMS).

7.3.8. Publish procedures covering the storage, control, and handling of starter cartridges to meet daily mission requirements.

7.3.9. Establish procedures for the accounting of central integrated test system (CITS) maintenance recording cartridges (CMR) (B-lB units).

7.3.10. Ensure assigned personnel understand the purpose of the AF Form 2409.

7.3.11. Ensure full and timely utilization of the CITS deployable diagnostics system (CDDS) and on-board test system (OBTS)/OBTS ground processor (OGP) systems to support the production effort (B-1 and B-2 units respectively).

7.3.12. Monitor oil analysis program (OAP) status in accordance with (according to) **Chapter 23** of this instruction.

7.3.13. Ensure squadron personnel are aware of minimum servicing requirements for liquid nitrogen (LN^2) and liquid oxygen (LOX) carts.

7.3.14. Ensure special purpose recoverables authorized to maintenance (SPRAM) accounts are maintained according to AFI 21-103 and **Chapter 3** of this instruction, for alternate mission equipment (AME). Ensure F-16 external fuel tanks (EFT), F-15 conformal fuel tanks (CFT), and B-1B weapons bay fuel tanks (WBT) are stored in a designated storage area.

7.3.15. Organize a dispatch function (optional). The dispatch function may be formed using existing manpower to track the duty location and strength of the unit maintenance work force and maintain a liaison among section chiefs, expediters, and production superintendent. If a dispatch function is formed, the dispatcher will have a radio and a defense switching network (DSN) phone line and will know how to read and interpret the unit maintenance and flying schedules. Maintenance officers and superintendents will define, in writing, the dispatcher's duties, and period of assignment. The dispatcher will remain current and meet all training requirements in their primary Air Force specialty code (AFSC).

7.4. In-Process Inspections (IPI). An IPI is an additional inspection or verification step at a critical point in the assembly or reassembly of a system, subsystem, or component. The listing includes work unit code (WUC), nomenclature (NOUN), task number, task title, and step within the task when the IPI is required. These inspections are either technical order (TO) or locally-directed and are accomplished by production inspectors. The weapon system lead command as defined in AFPD 10-9, *Lead Operating Command Weapon System Management*, will determine minimum IPI requirements and incorporate these requirements into applicable TOs. Units may identify additional local tasks requiring IPIs. The SMO/MS will compile a list of squadron tasks requiring IPIs. A copy of the approved IPI listing must be forwarded to QA. QA will consolidate all wing IPI listings and forward for applicable GP/CC approval and publication as an operating instruction (OI). IPI listings will be reviewed for applicability annually. Personnel authorized to accomplish IPIs will be identified by a course code in the available automated training system and entered onto the special certification roster (SCR). The following procedures will be used to document IPIs:

7.4.1. The person performing the task will:

7.4.1.1. Enter a Red X in the SYMBOL block of the first available discrepancy block of the AFTO Form 781A, **Maintenance Discrepancy and Work Document**.

7.4.1.2. Enter the date you make the entry in the DATE DISCOVERED block of the AFTO Form 781A.

7.4.1.3. Enter the when discovered code (WDC) from the original job creating the need for the IPI in the WDC block.

7.4.1.4. Enter the job control number (JCN) of the original maintenance discrepancy creating the IPI requirement in the JCN block.

7.4.1.5. Enter the following in the AFTO Form 781A DISCREPANCY block: “IPI required at step (number) of task (number)."

7.4.1.6. Notify the IPI inspector/certifier when reaching the applicable task step.

7.4.1.7. Enter the following in the workcenter event (WCE) narrative for the job creating the need for the IPI inspection: “IPI required at step (number) of task (number)."

7.4.2. The person performing the IPI will:

7.4.2.1. Accomplish the IPI according to applicable TOs.

7.4.2.2. Enter the date the IPI was accomplished in the AFTO Form 781A DATE CORRECTED block.

7.4.2.3. Enter the following in the AFTO Form 781A CORRECTIVE ACTION block next to the discrepancy block identifying the need for the IPI: “IPI inspection C/W according to (enter applicable TO).”

7.4.2.4. Sign the INSPECTED BY block, enter their pay grade in the GRADE block, and enter their employee number in the EMPLOYEE NO. block.

7.4.2.5. Initial over the Red X symbol in the SYM block using the first letter of their last name.

7.4.2.6. Sign off the WCE narrative that created the IPI using the same information used in the AFTO Form 781A CORRECTED BY block.

7.4.3. The certifier is responsible for complying with the IPI.

7.4.4. The person accomplishing the IPI enters their signature, employee number, and rank next to the “IPI complied with” statement in the corrective action block of the AFTO Form 781A and clears the IPI in CAMS.

7.5. Deferred Discrepancies. The SMO/MS/flight chief is responsible for the timely accomplishment of deferred discrepancies. Malfunctions or discrepancies which do not create a not mission capable (NMC) or partially mission capable (PMC) status, and which are not immediately corrected are considered deferred discrepancies and will be loaded into CAMS as soon as possible. The following procedures apply:

7.5.1. Discrepancies are considered deferred as soon as they are discovered and the decision is made to defer them. Discrepancies deferred due to non-availability of parts are promptly loaded to CAMS

when backordered through supply. The decentralized supply support/materiel control will enter supply data against deferred discrepancies.

7.5.2. Decentralized supply support section will notify the owning OS PS&D and aircraft flight when parts are received.

7.5.3. Discrepancies remain in an unscheduled status for no longer than one workday from the date of discovery.

7.5.4. Discrepancies with a scheduled start date and time greater than five days after the date of discovery are reportable deferred discrepancies.

7.5.5. Discrepancies scheduled but not accomplished on the date scheduled are counted and reported in the deferred discrepancy rate.

7.5.6. Discrepancies that are awaiting parts (AWP) with a valid off-base requisition are reportable deferred discrepancies. Time compliance technical orders (TCTO), time change items (TCI), special inspections (SI), and one-time inspections (OTI) in deferred status are not reportable deferred discrepancies.

7.5.7. QA evaluates and verifies discrepancies deferred for depot maintenance. Establish a dummy workcenter for each OS to load depot discrepancies. OSS PS&D, in coordination with maintenance data systems analysis (MDSA) will establish a depot workcenter to load depot discrepancies.

7.5.7.1. Equipment discrepancy files for equipment other than aircraft may be decentralized to the proper shop.

7.5.7.2. The deferred discrepancy file, although centralized in the computer, is still considered as two separate and distinct files; one consisting of discrepancies AWP, and the other consisting of discrepancies awaiting maintenance (AWM). The responsibility for maintaining AWM discrepancies in CAMS lies with the technician who makes the inputs. OS PS&D will review the deferred discrepancy file, highlight any problem areas on an automated product, and forward to the SMO/MS for resolution. Constant monitoring of CAMS screen #380 is required to ensure scheduled work is deferred again if not completed. The AWP file is maintained by decentralized supply support/materiel control.

7.5.8. The SMO/MS will work with the maintenance squadron (MXS) fuel shop personnel to develop procedures to track fuel leaks by MDS/serial number in CAMS (large aircraft i.e., bombers, tankers, etc.).

NOTE: Units may use separate AFTO Forms 781K, *Aerospace Vehicle Inspection, Engine Data, Calendar Inspection, and Delayed Discrepancy Document,* specifically for these discrepancies and maintain them in the active aircraft forms binder.

7.6. Discrepancies Deferred for Parts:

7.6.1. Decentralized supply support/materiel control will:

7.6.1.1. Promptly load the discrepancy and supply data into CAMS for aircraft discrepancies that cannot be corrected due to backordered parts. Units using the standard base supply system (SBSS) module of CAMS follow procedures outlined in AFCSM 21-579, Vol 2, *CAMS/SBSS Interface*.

7.6.1.2. Notify the production superintendent, expediter, and maintenance operations center (MOC) when mission capability (MICAP) parts are received.

7.6.1.3. Return items picked up from the tail number bin (TNB) or issued from base supply, but not installed, will be returned to the TNB by the end of the duty day, with a DD Form 1348-1, **Issue Release/Receipt Document.**

7.6.1.4. Develop local procedures to govern control of parts for contract logistics support (CLS) aircraft and reconnaissance aircraft not supported by CAMS.

7.7. Major Maintenance Work Processing. Major maintenance may be required to repair battle or crash damaged aircraft, or to accomplish major TCTOs or rework. The following procedures apply:

7.7.1. When notified of a need for major maintenance support, OS PS&D must ensure the requirement is loaded to CAMS. The production superintendent, together with the affected MS, determines the extent of maintenance and estimated man-hours required to return the item to a serviceable status.

7.7.2. The OS commander coordinates with the operations SMO/MS and designates an overall work project manager responsible for the aircraft or equipment.

7.7.3. The designated work project manager, along with decentralized supply support/materiel control and affected workcenters, determines the parts required to return the item to a serviceable status.

7.7.4. If major maintenance requires depot level assistance for repair, the request will be made according to TO 00-25-107, *Maintenance Assistance*.

Section 7C—OS Plans, Scheduling, and Documentation Section (PS&D)(if assigned).

7.8. General. OS PS&D reports directly to the SMO/MS, and serves as the focal point for all squadron maintenance planning. OS PS&D performs all scheduling duties for assigned and/or possessed aircraft, and maintains liaison between their squadron, OSS PS&D, and the logistics support squadron (LSS) engine management (EM) section. The SMO/MS will identify and ensure augmentees are trained to assist scheduling functions if sufficient 2R1X1 personnel are not available. The planning process, at the squadron level, is a collective task involving all squadron supervisors. Accurate automated products are used in the scheduling process. In addition to the general responsibilities outlined in **Chapter 5** of this instruction, OS PS&D will:

7.8.1. Forecast, schedule, and monitor completion of squadron aircraft hourly inspections, SIs, TCTOs, modifications, and replacement of TCIs. Process CAMS screen 128, as necessary, to ensure TCTOs, modifications, TCIs, and SIs are kept current in the automated AFTO Forms 781.

7.8.1.1. Manage their portion of aircraft TCTOs, modifications, TCIs, and SIs. In CAMS, the individual workcenter accomplishing time changes will be responsible for changing configuration. OS PS&D and the performing workcenter supervisor will jointly conduct supervisory reviews for configuration changes, TCTOs, TCIs, and inspection accomplishments using CAMS on-line capabilities.

7.8.2. Plan and schedule the use of squadron aircraft to meet flying requirements in coordination with the SMO and squadron operations scheduler.

7.8.3. Actively participate in the weekly, monthly, quarterly, and yearly flying scheduling meetings.

7.8.4. Inform the SMO and OSS PS&D of maintenance capabilities or limiting factors (LIMFAC) affecting squadron maintenance production.

7.8.5. Coordinate the scheduled use of shared resources with OSS PS&D.

7.8.6. Conduct unit pre-dock/post-dock meetings and attend daily maintenance meetings.

7.8.6.1. The OS will develop local procedures for pre-dock/post-dock meetings. As a minimum, these procedures will include the following: purpose, attendees, location, responsibilities of attendees, supply requirements, and maintenance support.

7.8.7. Attend wing TCTO and daily maintenance meetings.

7.8.8. Initiate and maintain folders for applicable TCTOs.

7.8.9. When notified of a need for major maintenance support, ensure the requirement is loaded in CAMS.

7.8.10. Maintain historical records for assigned aircraft, and in some cases, for possessed aircraft as well.

7.8.10.1. Review forms sent for filing to ensure no documents are missing and forms are filed in sequential order.

7.8.10.2. Develop procedures to flag missing documents and notify supervision.

7.8.10.3. Decentralize engine records to the EM section. The EM section will complete all engine record inspections.

7.8.10.4. Aircraft historical document files will be located and maintained in the OS PS&D. Documents decentralized to sections that maintain corresponding equipment (i.e., fuel cell records to fuel systems section, landing strut records to pneudraulics section), will be filed by the appropriate maintenance section and are the responsibility of the owning agency. Semi-annual reviews will be documented by the owning OS PS&D on AF Forms 2411, **Inspection Document**. These forms are displayed within each applicable historical records file. The Optional Form 21, **Cross Reference Record**, will be used to cross-reference documents decentralized from the OS PS&D to another section. All historical records, including those decentralized, will be included in the OS PS&D file plan (or office of record).

7.8.10.5. Maintain the current month and most recent three months' 781 series AFTO forms according to AFMAN 37-139, *Records Disposition Schedule*, Table 21-6, and Rule 15.

7.8.11. Generate an AFTO Form 103 for depot input in coordination with OSS PS&D.

7.8.12. Meet at least monthly with the fuel systems section to plan and schedule F-16 EFTs, F-15 CFTs, and B-1B WBTs requiring inspections or TCTOs.

7.8.13. Comply with their responsibilities in the management of hangar queen aircraft as outlined in **Chapter 23** of this instruction.

7.9. Document Review and Validation. The OS PS&D will conduct document reviews and validations every 14 days on assigned and/or possessed fighter aircraft, and every 30 days on cargo or heavy aircraft. The documents are also reviewed before and upon completion of phase, periodic (PE) or isochronal (ISO) inspections, or other major programs such as programmed depot maintenance (PDM), analytical condi-

tion inspections, and special and fatigue tests. The AFTO Forms 781F, *Aerospace Vehicle Flight Report and Maintenance Document*, will also be reviewed for accuracy.

7.9.1. Accomplish a post-dock document review prior to the first flight after phase inspection, modification, or PE.

7.9.2. Modular engine flying hours and manual cycles are verified with the EM section during document reviews.

7.9.3. If the aircraft has been away from home station and it has been more than 14 days since the last document review, check the documents within 7 days after return.

7.9.4. During the aircraft post dock, the DCC, ADCC, and/or the dock chief will be responsible for checking aircraft documents by verifying the supply document numbers and the JCNs for discrepancies deferred due to parts, and verifying the discrepancies deferred for maintenance file. The CAMS on-line capability should be used to the maximum extent possible. The following document validation methods will be used:

7.9.4.1. The DCC, ADCC, and/or the dock chief takes the 781 series AFTO forms and CAMS products to decentralized supply support/materiel control and OS PS&D to accomplish the document review.

7.9.4.2. A validation meeting will be held with representatives from the decentralized supply support/materiel control, OS PS&D, and DCC, ADCC, and/or the dock chief. The decentralized supply support/materiel control and OS PS&D representatives need to have the necessary documents at this meeting.

7.9.4.3. Upon completion of the document review, the crew chief or appropriate section chief reorders those required parts that are not on back order and the decentralized supply support/materiel control cancels those parts identified as no longer required.

7.9.4.4. OS PS&D will ensure discrepancies found during the records check are corrected and updated in the CAMS database prior to completion of the document review. OS PS&D will ensure differences have been annotated on the CAMS automated product and that the product has been signed by the crew chief. The CAMS product will be filed in OS PS&D until replaced by an updated product at the next document review.

7.9.4.5. The OS SMO will develop local procedures to review aircraft forms and CAMS automated products as part of document reviews and/or validations. This process will include a review by the aircraft element/sortie generation flight commander or noncommissioned officer in charge (NCOIC), then the SMO/MS. This process will allow each level of supervision to review and maintain continuity of the process.

7.9.5. Prepare AFTO Forms 223, *Time Change Requirements Forecasts*, for TO 00-20-9, *Forecasting Replacement Requirements for Selected Calendar and Hourly Time Change Items,* and applicable -6 TO requirements. Forward AFTO Forms 223 to the OSS PS&D section. OSS PS&D will review all OS AFTO Forms 223 and will forward a combined list of requirements to the appropriate supply agency. OS PS&D will be responsible for forecasting only those selected items specifically identified in TO 00-20-9, and the aircraft -6 TO. OS PS&D is responsible for the following TCI actions:

7.9.5.1. Sixty days before the required month, order in CAMS all items requiring time change. Additionally, OS PS&D will provide required information to decentralized supply support. Muni-

tions items are forecasted in CAMS no earlier than 60 days but not later than (NLT) 45 days before the beginning of the month in which the item is required. Forward only AF Forms 2005, **Issue/ Turn-in Request**, to Air Force Stock Record Account Number Prefix (FK/FV) supply. The AF Form 2005 includes the forecast date the item is to be changed. Procedures for using the SBSS module of CAMS are outlined in AFCSM 21-579, Vol 2.

7.9.5.1.1. Agencies requesting changes or updates to the need date of any cartridge actuated device/propellant actuated device (CAD/PAD) item must coordinate with OS PS&D, OSS PS&D, and munitions accountable systems officer (MASO) in sufficient time to preclude emergency issue requests. Agencies requesting a change shall provide justification if need dates are changed by more than 30 days. No justification is necessary if changes are within 30 days, regardless of the quarter, or if the change is driven by AFMC/Ogden air logistics center (ALC). Issue requests for unforecasted or improperly forecasted items (except for replacement of inadvertently fired items or items found to be unserviceable) will be supported by a letter of justification signed by the GP/CC or designated representative.

7.9.5.1.2. Decentralized supply support/materiel control/FK/FV supply notifies OS PS&D when parts are available. OS PS&D schedules the TCI in CAMS and incorporates it in the weekly maintenance plan.

7.9.5.1.3. Upon completion of the TCI, OS PS&D reviews the data entered by the performing workcenter and updates the suspense validation in CAMS.

7.9.6. Review the planned aircraft inspection schedule and initiate the AF Form 2410 prior to the pre-inspection meeting. In arranging for scheduled inspections such as PE, ISO, and hourly postflight (HPO) on a 50-hour or greater cycle, OS PS&D will prepare the AF Form 2410 in duplicate. The original will be used as the basic inspection data for planning.

7.9.6.1. OS PS&D will review all known TCTO, TCI, SI, and calendar requirements due against the aircraft or equipment. They will list on the AF Form 2410 all TCTOs, TCIs, SIs, and each major action requiring completion during the inspection. They will also identify requirements for kits or parts when availability has not been confirmed.

7.9.6.2. Prior to the pre-inspection meeting, OS PS&D will incorporate all requirements against the aircraft into a work package. Deferred discrepancies to be fixed during the inspection keep their original JCN. OS PS&D will use the AF Form 2410 as an aid in planning for and conducting the pre-inspection meeting. Use block 14 to list the agencies attending the meeting and any discussion items to be presented. Show specialist support tasks, in addition to normal inspection needs, in block 15.

7.9.6.3. The OSS PS&D local instruction will outline minimum attendance at the pre-inspection meeting. At this meeting, OS PS&D informs the representatives of the inspection schedule, including TCTOs, TCIs, SIs, deferred discrepancies, and special instructions to be accomplished. In addition, representatives inform OS PS&D of any LIMFACs that might affect the schedule. The AF Form 2410 will be used to record additional information on the inspection as discussed during the meeting. The original AF Form 2410 is given to the dock chief for the basic inspection. The duplicate will be maintained by OS PS&D as a suspense copy and will be used as an aid when conducting the post-dock meeting.

7.9.6.4. Configuration will be discussed during all aircraft pre-dock meetings. A list of items identified as out of configuration will be provided to the dock chief in the pre-dock package and

will be verified during the major inspection. The verified data will be corrected in CAMS by the responsible workcenter prior to the post-dock review.

7.9.6.5. Prior to the post-dock review, the dock chief will:

7.9.6.5.1. Defer all discrepancies identified CAMS, but not corrected during the inspection.

7.9.6.5.2. Verify completion of all inspection requirements and transcribe open discrepancies to the appropriate AFTO Forms 781.

7.9.6.5.3. Change delivery destination for all parts ordered but not received during the inspection.

7.9.6.5.4. Complete the automated events and the basic inspection event in CAMS.

7.9.6.6. During the post-dock review, discuss open discrepancies with OS PS&D, the crew chief, and the other attendees, and review any significant factors affecting the inspection. These procedures will also be used to identify any problems that may adversely affect future scheduling. The completed work package will be left with OS PS&D for filing. OS PS&D will file a computer printout of completed on-line work orders.

Section 7D—Sortie Generation Flight.

7.10. General Responsibilities. The sortie generation flight normally consists of aircraft, specialist, and weapons sections. It may also include a mission systems section, such as combat systems and airborne maintenance, when authorized. The flight commander/chief is responsible to the SMO for ensuring sufficient numbers and specialties of personnel are available to support the production effort.

7.11. Sortie Generation Flight Commander/Chief Responsibilities. The flight commander/chief is responsible to the SMO for the management, supervision, and training of assigned personnel. The flight commander/chief is a first-line supervisor qualified in aircraft maintenance and, as such, will be the technical authority and advisor in that area. The flight commander/chief allocates personnel and resources to the production and logistics test and evaluation (LT&E) efforts. In addition to the common responsibilities in **Chapter 2** of this instruction, the flight commander/chief will:

7.11.1. Review pilot reported discrepancies (PRD) daily and ensure proper maintenance actions are taken.

7.11.2. Monitor cannibalization (CANN) actions.

7.11.3. Ensure assigned positions are filled with qualified technicians.

7.11.4. Ensure sufficient number of personnel are engine run qualified according to AFI 11-218, *Aircraft Operation and Movement on the Ground*.

7.11.4.1. Each individual designated as engine run qualified will be task certified on the SCR.

7.11.4.2. Certification will be documented in CAMS by aircraft MDS and engine series.

7.12. Production Superintendent. The production superintendent is responsible for squadron maintenance production and works directly for the SMO. The lead production superintendent schedules production superintendents to cover all shifts. In small units, at OG/CC option (LG/CC option when maintenance responsibility resides with LG/CC), the expediter and production superintendent duties may be combined,

provided all duties of both functions are performed. In addition to the responsibilities outlined in AFI 21-101, the production superintendent will:

7.12.1. Direct the maintenance effort using resources from the sortie generation and sortie support flights.

7.12.2. Aid in developing and implementing the monthly and weekly maintenance plans, and ensure resources are available to meet these plans.

7.12.3. Be the squadron point of contact for all decisions relating to squadron maintenance production.

7.12.4. Authorize CANN actions within squadron resources (except aircraft designated as trainer inactive (TX)).

7.12.4.1. Coordinate with the propulsion flight and EM section for engine-to-aircraft CANN.

7.12.5. Coordinate with other squadron production superintendents for squadron-to-squadron support.

7.12.6. Attend the daily maintenance meeting.

7.12.7. Coordinate with the MXS propulsion flight chief and EM section before performing scheduled/unscheduled engine changes.

7.12.8. Know the status of assigned and/or possessed aircraft. Particular emphasis will be placed on NMC aircraft and actions necessary to return them to fully mission capable (FMC)/PMC status.

7.12.9. When applicable, know the actions required under unit single integrated operational Plan (SIOP)/contingency plans, direct the aircraft generation flow, and coordinate with the MOC for support required outside of their control.

7.12.9.1. Be responsible for developing and keeping aircraft generation line ups current.

7.12.10. Maintain a current copy of the on-base disaster map with cordon overlay and appropriate checksheets outlining duties during disasters.

7.12.10.1. Be familiar with specific disaster control duties, and with the portion of AFI 32-4001, *Disaster Preparedness Planning and Operations*, and unit operations order (OPORD) pertaining to movement of aircraft, support equipment (SE), and evacuation of personnel.

7.12.11. At least weekly, ensure review and reconciliation of CANN actions and aircraft 781 series AFTO forms.

7.12.12. Advise the MOC of existing and/or potential disruptions to the orderly and controlled execution of the maintenance plan.

7.13. Expediters. The expediter ensures maintenance accomplishment and sortie production by managing, controlling, and directing allocated resources. The expediter works directly for the production superintendent. Normally the expediter does not control more than half of the assigned aircraft. Expediters will not perform maintenance duties that are normally the responsibility of the section chief or production inspectors (e.g., perform maintenance actions/tasks, sign off Red Xs, and perform IPIs). In addition to the responsibilities outlined in AFI 21-101, the expediter will:

7.13.1. Determine aircraft status and coordinate all maintenance actions with the production superintendent and MOC.

7.13.1.1. The specialist expediter (if used), weapons expediter, and section chiefs must coordinate any maintenance actions on all assigned and/or possessed aircraft with the expediter.

7.13.2. Be knowledgeable of the primary assigned aircraft systems, and have the ability to supervise personnel and control work.

7.13.3. Operate from a radio-equipped vehicle.

7.13.4. Be on the flightline anytime maintenance is being performed, to the greatest extent possible, and during all aircraft launches and recoveries.

7.13.5. Track all discrepancies identified during Red Ball maintenance and take proper follow-up action.

7.13.6. Track personnel dispatched to assigned/possessed aircraft and coordinate job start and completion with the production superintendent, squadron dispatch, and MOC.

7.13.7. Keep a current copy of the daily and weekly flying schedule, monthly maintenance plan, emergency action checklists, base grid map, wing IPI listings, mission essential subsystems list (MESL), quick reference list (QRL), current WUC manual, and an aircraft status board in the vehicle.

7.13.7.1. As a minimum, the status board should show the serial number, location, priority, status, estimated time in commission (ETIC), configuration, OAP condition codes, fuel load, munitions load, water load, and remarks for each assigned aircraft. In addition, show all limitations against the full system list (FSL) and basic system list (BSL) and additional specific list column as itemized on the MESL in AFI 21-103. Any applicable test information may also be included on the status board.

7.13.8. Direct their dedicated aerospace ground equipment (AGE) driver (if assigned) to position AGE as required and notify the AGE flight/combat AGE team (CAT) leader of AGE requiring maintenance.

7.13.9. Review all deferred jobs and coordinate with responsible agencies for completion.

7.13.10. Order parts for assigned aircraft by radio, or through the SBSS, when possible. The document number will be relayed to the specialist or crew chief and to the MOC. Ensure parts requests are documented.

7.13.11. Monitor OAP status according to **Chapter 23** of this instruction.

7.13.12. Obtain a JCN and notify the support section of all CANN actions.

7.13.13. Relay the following aircraft and SE information to the MOC:

7.13.13.1. Changes to aircraft status according to AFI 21-103 to include discrepancy, WUC, ETIC, and job completion.

7.13.13.2. Confirmation that aircraft are ready for flight (crew ready).

7.13.13.3. Completion of jobs preplanned by squadron PS&D.

7.13.13.4. Changes to aircraft fuel and munition configurations.

7.13.14. Request from the MOC:

7.13.14.1. Specialist support when a specialist is not available in the OS.

7.13.14.2. Additional required support, such as petroleum, oil, and lubricants (POL), fire trucks, ground safety, and etc.

7.14. Aircrew Debriefing. The debriefing section thoroughly debriefs aircrews, clearly documents aircrew reported aircraft discrepancies, and is the focal point for the collection of all in-flight data. An aggressive aircrew/maintenance debriefing program is essential to ensure malfunctions identified by aircrews are properly reported and documented. Maintenance debriefing personnel ensure adequate troubleshooting information and flight data are provided by the aircrew, documented in the AFTO Forms 781A and 781H, **Aerospace Vehicle Flight Status and Maintenance**, and entered into CAMS. Debriefing is normally conducted at the termination of each sortie or abort. When this is not possible due to time constraints, or when the sortie is terminated at other than home station, multiple sorties may be accomplished during one debriefing. Debrief personnel will:

7.14.1. Thoroughly understand and use the MESL contained in AFI 21-103 for assigned aircraft.

7.14.1.1. Weapons system lead command instructions will contain the specific MESL for each weapon system (e.g., the A-10, F-16, F-15, and F-117 MESLs are located in AFI 21-103, ACC Sup 1).

7.14.2. Develop debriefing guides for debriefing personnel to use in identifying and recording all fault related data.

7.14.2.1. Debriefing guides will contain detailed procedures identifying responsibilities for foreign object damage (FOD) and dropped object prevention program (DOPP) reporting, aborts/in-flight emergencies (IFE), flight control malfunctions, and engine malfunctions.

7.14.2.2. QA will review and approve all debriefing guides.

7.14.2.3. Develop local procedures to monitor and submit revisions or changes.

7.14.3. Ensure discrepancies have proper symbols entered in the aircraft forms.

7.14.3.1. Units will develop a Red X criteria checksheet and maintain it at each debriefing location. This checksheet identifies discrepancies requiring mandatory identification as a Red X condition. This checksheet will be reviewed by QA and approved by the applicable GP/CC.

7.14.4. Coordinate with the MOC to accomplish loading of all flying schedule deviations reporting into CAMS, according to AFMCI 21-128, *Aircraft Operations and Maintenance Scheduling*.

7.14.5. Use CAMS operational utilization update screens to input flying time information.

7.14.5.1. Develop local procedures to ensure flying times and event history recorder (EHR) readings (if equipped) for home station and deployed sorties are updated NLT the next duty day after occurrence.

7.14.6. Document aborts/IFEs in CAMS or locally developed computer generated product.

7.14.6.1. Complete and maintain abort/IFE documentation as locally determined to ensure an effective documentation system exists.

7.14.7. Debrief all completed or attempted operational check flights (OCF) and functional check flights (FCF).

7.14.8. Develop and print local forms to gather data for problem systems or bad actor components.

7.15. Debriefing Procedures. Debriefing personnel will:

7.15.1. Debrief aircrews following the procedures outlined in AFI 21-101, and AFCSM 21-574, Vol 2, *Automated Debriefing*, by completing the CAMS automated debriefing subsystem screen. Check AFTO Form 781H, **Aerospace Vehicle Flight Status and Maintenance Document,** block 10 (flight condition data) and 12 (airframe time) for signature of aircraft commander or designated representative. During CAMS downtime periods, units may use blank printouts of CAMS debriefing screens or a locally-approved product to ensure accurate debriefing information is obtained. These printouts will then be used to upload data into CAMS. AFTO Forms 781 will not be sent to Air Force operations resources management section (AFORMS) before CAMS is updated. Bomber training flight maintenance personnel will:

7.15.1.1. Download the CITS data transfer unit cartridge (DTUC) into the CDDS for each sortie and create a CAMS WCE for the CITS Maintenance Codes (CMC) from the new CAMS jobs in the sortie report. Related CMCs may be grouped together in the same WCE.

7.15.1.2. Enter the CAMS WCE into the CDDS. When the CAMS event is closed, debriefing personnel close that event in CDDS using the following codes as appropriate: use R when any repair action is taken; C when the CMC could not be duplicated; X when CDDS data analysis confirms a momentary failure; and P to close an event previously identified (include the previous event number).

7.15.2. Develop record files for each aircraft. Arrange files by aircraft identification (ID) number and include the automated debriefing sortie recap for at least the latest four sorties to aid in properly identifying repeat/recurring discrepancies (software disk back-up copies containing the same information may be filed in lieu of hard copies).

7.15.3. Create a hard copy or disk back-up of the automated debriefing sortie recap for each sortie, including a separate printout for each leg of cross-country missions, and place it in the individual aircraft debriefing record file. During, or immediately upon completion of debriefing cross-country sorties, contact the MOC to obtain the correct sortie sequence number for each sortie when not available through CAMS.

7.15.4. Ensure, with the assistance of technicians, that previously documented discrepancies are reviewed and properly identified as repeat/recurring discrepancies (as applicable).

7.15.4.1. A repeat discrepancy is one which occurs on the next sortie, or attempted sortie, after corrective action has been taken and the system or subsystem indicates the same malfunction when operated.

7.15.4.2. A recurring discrepancy is one that occurs on the second through fourth sortie, or attempted sortie, after corrective action has been taken and the system or subsystem indicates the same malfunction when operated.

7.15.4.3. A corrective action occurs when parts are removed, replaced, repaired, or when adjustment or cleaning of contacts is accomplished.

7.15.4.4. A write-up in the aircraft forms requesting an in-flight operations check does not negate the identification of a repeat/recurring discrepancy if the malfunction returns.

7.15.5. All repeat/recurring discrepancies will be identified on the automated debriefing sortie recaps and aircraft forms by automated method or red stamp/pen/marker, etc.

7.15.6. Use the following codes to indicate aircraft status upon landing:

7.15.6.1. Code 0 - Ground abort.

7.15.6.2. Code 1 - Aircraft is mission capable (MC) with no additional discrepancies.

7.15.6.3. Code 2 - Aircraft or system has minor discrepancies but is capable of further mission assignment within normal turnaround times.

7.15.6.4. Code 3 - Aircraft or system has major discrepancies in mission essential equipment that may require extensive repair or replacement prior to further mission assignment. The discrepancy may not affect safety-of-flight and the aircraft may be NMC flyable.

7.15.6.5. Code 4 - Aircraft or system has suspected or known radiological, chemical, or biological contamination.

7.15.6.6. Code 5 - Aircraft or system has suspected or known battle damage.

NOTE: Debriefers enter code 8 in CAMS for aircraft debriefed as code 4 or 5.

NOTE: MESL requirements determine if the aircraft status is NMC or PMC.

7.15.7. Use the following codes to indicate system or subsystem capability upon sortie completion:

7.15.7.1. Code 0 - System flown with a known discrepancy, no additional discrepancies noted. System can be used.

7.15.7.2. Code 1 - System used and performed satisfactorily. No maintenance required.

7.15.7.3. Code 2 - System used and performed satisfactorily. A minor malfunction exists, but system is capable of further mission assignment.

7.15.7.4. Code 3 - System performance was unsatisfactory. This system did not cause an abort.

7.15.7.5. Code 4 - System performance was unsatisfactory. This system caused or contributed to an abort.

7.15.7.6. Code 5 - System out of commission prior to takeoff.

7.15.7.7. Code 6 - System installed but not used.

7.15.7.8. Code 7 - System not installed.

7.15.7.9. Code 8 - Aircraft or system has suspected or known radiological, chemical, or biological contamination.

7.15.8. Provide the MOC with aircraft ID numbers and system WUCs for each aircraft debriefed code 3 using the MESL and Red X criteria checksheet. The OS, in coordination with the appropriate operations function and MOC makes the final determination on the mission capable (MC) status of aircraft and updates the aircraft status in CAMS.

7.15.9. Units develop local sortie ID codes to identify types of sorties flown and reported in CAMS.

7.15.10. Enter one of the following codes to indicate the reason for a sortie deviation or the agency responsible for a sortie deviation:

7.15.10.1. ATx - Air traffic.

7.15.10.2. GAA - Ground abort, before engine start, maintenance.

7.15.10.3. GAB - Ground abort, after engine start, before taxi, maintenance.

7.15.10.4. GAC - Ground abort, after taxi, maintenance.

7.15.10.5. HQT – Higher Headquarters (HHQ), Major Command (MAJCOM).

7.15.10.6. HQN - HHQ, Numbered Air Force (NAF).

7.15.10.7. HQP - HHQ, other.

7.15.10.8. MTx - Maintenance.

7.15.10.9. OPx - Operations.

7.15.10.10. SUx - Supply.

7.15.10.11. SYx - Sympathy.

7.15.10.12. WXx - Weather.

7.15.10.13. OTx - Other.

7.15.10.14. xxx - Local option.

NOTE: x - reserved for local use character.

7.15.11. Use aircraft fault reporting manuals (if published) during debriefing to identify fault codes and gain access to correct fault-isolation procedures. Include fault codes when documenting discrepancies. Automated debrief tools (i.e., computerized fault reporting system (CFRS) and integrated maintenance information system (IMIS)) will be used as they become available.

7.15.12. Use the following system codes for 2.75 rocket launcher no-fires or SUU-20, TER-9, MER-10, or BRU-3 practice bomb no-releases:

7.15.12.1. Code 2 - Subsequent attempt to fire or release during the same sortie is successful.

7.15.12.2. Code 3 - No additional attempts or subsequent attempt to fire or release during the same sortie was made or was unsuccessful.

7.15.13. Properly complete aircraft structural integrity management information system (ASIMIS) forms on aircraft with ASIP equipment installed (ASIMIS forms not applicable to F-16 units).

7.16. Munitions Expenditures Reporting. Fill out an AF Form 2434 or locally produced form on all aircraft configured and loaded to release or fire munitions. Record by serial number and location or position all armament related Alternate Mission Equipment (AME) or munitions support equipment (MSE) from which munitions items are expended.

7.16.1. A reconciliation of expenditures is accomplished with the weapons/munitions sections at the end of the flying day. After the reconciliation, copies of expenditure documents are distributed to the munitions flight, weapons section (WS), and when required, the armament systems flight. The documentation action block is annotated when entries are made on item historical documents.

7.17. Deployed Debriefing Procedures. During deployments, the senior deployed maintenance representative ensures local procedures are established to document the causes and corrective actions of all aborts/IFEs. These procedures ensure data is reviewed by the performing workcenter supervisor, OS supervision, QA, and maintenance systems analysis. Debriefing documents are completed by deployed maintenance personnel. When maintenance data system analysts are not deployed, deployed commanders designate an individual or activity to perform analysis functions. Units include blank printouts of CAMS debriefing screens in deployment packages for use if CAMS does not become available at the deployed location. Use blank printouts for manual documentation and forward documents to parent unit by the most expeditious means available for data transcription. Retain duplicates at the deployed site to aid in future debriefings. Turn in all documents to debriefing sections upon return to home station. Use automated debrief tools (if available) as the primary debriefing instrument.

7.18. Debriefing Facility. The debriefing facility should provide sufficient area and furnishings for an efficient debriefing. Physical layout is determined by the unit and is dictated by weapon system complexity and unit mission. Minimize noise levels to permit effective communication.

7.19. Debriefing Aids. When used, the following minimum requirements will enhance the debriefing process (optional for B-1, B-52, C-135 series, U2, SR-71, E-3, and E-4 units):

7.19.1. Cockpit mock-up. Display cockpit photographs of each assigned weapon system to permit identification of indicators and switches at the debriefing station. Actual size photographs are recommended. Dash 1 TO illustrations or Computer Aided Design (CAD) engineering drawings may be substituted for photographs.

7.19.2. Scope malfunction photographs. To assist in identifying faulty scope presentations, common scope malfunctions may be identified using processed radar scope camera film. Index and maintain photographs in the debriefing facility. Maintain duplicates in the appropriate avionics shop. When used, the applicable photograph is referenced in the descriptive narrative of the fault. Revise photographs when additional scope malfunctions are identified. Units with weapon systems not equipped with scope cameras are encouraged to provide photographs using base resources.

7.19.3. Airborne video tape recorder (AVTR). To assist maintenance personnel and pilots in determining if a malfunction exists with an AVTR system, a videocassette recorder and monitor are used in each debriefing section.

7.20. Aviation Fuels Management Accounting System. When aircraft are refueled at a non-AF activity, the pilot places the customer copy of the AF Form 15**, United States Air Force Invoice** (issue/defuel document), in the aircraft forms for return to home station. In addition, aircrews document the AFTO Form 781H for in-flight refueling (IFR).

7.20.1. Debriefers must review the AFTO Form 781H, block 17, for non-AF refuels. If so annotated, debriefing personnel will retain the AF Form 15 for later pick up by defense accounting and finance (DAF) personnel. If the AF Form 15 is not available, a copy of the AFTO Form 781H is provided to DAF. If copies cannot be obtained, the debriefer transcribes the information contained in blocks 1, 3, 4, 5, 6, and the refuel/defuel information contained in the applicable line of block 16 to another AFTO Form 781H. The debriefer prints his/her name in block 17 and enters the statement "This is a certified true copy" in red across the top of the form.

7.20.2. During unit deployments, the deployed SMO/MS ensures fuel grade and quantity of non-AF fuel issues/defuels is sent to the home station debrief section via message if aircraft have not returned to base by the sixth day of the following month. Report information from the AFTO Forms 781H, blocks 1, 3, 4, 5, 6, 16, and 17.

7.20.3. During deployments involving small numbers of aircraft with minimal ground maintenance personnel, the aircraft commander transmits fuel servicing information contained in the AFTO Forms 781H, blocks 1, 3, 4, 5, 6, 16, and 17 using the most expeditious method.

7.20.4. Debriefers review and forward these messages to DAF. When aircraft return to home station, debriefing collects and forwards all non-AF refuel/defuel documents to DAF.

Section 7E—Aircraft Section.

7.21. Aircraft Section. This section consists of DCCs, ADCCs, and aircraft technicians. The aircraft sections are the primary workcenters responsible for maintaining assigned/possessed aircraft. Squadrons with more than 18 aircraft assigned have the option to split into two aircraft sections. Common aircraft section tasks are servicing, scheduled and unscheduled maintenance, preflights, basic postflights (BPO), thruflights, home station checks (HSC), special inspections (SI), corrosion control, cleaning, ground handling, launch and recovery of aircraft, troubleshooting and adjustment, on-equipment repair, component removal and replacement, and ensuring documentation of maintenance actions. In addition to the common responsibilities stated in **Chapter 2** of this instruction, aircraft section chiefs will ensure records checks are completed utilizing CAMS and automated aircraft forms.

7.22. Dedicated Crew Chiefs (DCC). DCCs are first-level supervisors in the management structure. DCCs manage and supervise all maintenance on their aircraft. Crew chief is a job description and not an Air Force specialty. DCCs and ADCCs will be qualified according to applicable MDS job qualification standard (JQS) standards. Each assigned aircraft will have an assigned DCC. DCCs are selected on the basis of leadership ability and technical knowledge, regardless of specialty. Before being assigned as a DCC, a technician will have a minimum of six months experience on the MDS and be a 5-skill level staff sergeant or higher (or civilian equivalent). These requirements may be waived by the OG/CC (LG/CC when applicable). The DCC should be the reporting official for ADCCs assigned to their aircraft. DCCs will keep the section chief informed of aircraft status. DCCs/ADCCs will:

7.22.1. Document and identify maintenance and support requirements to the expediter or section chief.

7.22.2. Maintain CAMS and 781 series AFTO forms for their aircraft according to TO 00-20-5, *Aerospace Vehicle Inspection and Documentation*, and AFI 21-101.

7.22.3. Perform towing, servicing, BPO, preflights, thruflights, HSCs, acceptance and transfer inspections, launch and recovery, ground handling, ICTs, and quick turns.

7.22.4. When certified, perform engine run operations for trims, systems checks, and troubleshooting.

7.22.5. Requisition parts and document requisition actions.

7.22.6. Perform engine and hydraulic oil sampling and complete appropriate documentation.

7.22.7. Attend pre- and post-dock meetings for assigned aircraft. Accompany their aircraft through scheduled inspections. Assist the inspection dock chief during aircraft inspections and repairs. During the inspection, DCCs/ACCs will:

7.22.7.1. Monitor the maintenance performed on their aircraft.

7.22.7.2. Ensure documentation of 781 series AFTO forms and CAMS are met during the scheduled inspection.

7.22.7.3. Assist the dock chief with completing the required document review and validation at the end of the inspection.

7.22.8. Be responsible for on-aircraft -21 equipment and maintenance safety and protection equipment (MSPE), including inventorying equipment on aircraft returning from deployments.

7.22.9. Perform records checks using CAMS and automated aircraft forms.

7.22.10. Ensure due-in from maintenance (DIFM) assets are turned into the support section for processing.

7.22.11. Ensure timely corrective action is taken on all delayed discrepancies.

7.22.12. Ensure aircraft TO G files kept on the aircraft are current and complete for use during any deployment, exercise, or contingency.

7.22.13. Perform vibration analysis in flight (helicopter DCCs only).

7.22.14. Ensure EFTs, CFTs, and, WBTs removed from aircraft for maintenance or storage have appropriate condition tags, protective covers installed, and are stored in the designated storage area. Tanks requiring repair will have discrepancies entered into CAMS and are processed through the fuel system section for repair.

7.23. Specialist Section. Common tasks for this section are aircraft systems troubleshooting and adjustments, on-equipment repairs, component removal/replacement, and aircraft ground handling, servicing, and cleaning. The specialist section will:

7.23.1. Coordinate maintenance priorities with the production superintendent/expediters. A specialist expediter will perform this function, if established.

7.23.2. Actively promote cross-talk with applicable MXS flights to obtain information on system or component repeat/recurring and cannot duplicate (CND) trends.

7.23.3. Ensure AWP low altitude navigation and targeting infrared for night (LANTIRN) pods are transferred to the sensor section for cross-cannibalization in support of wing production.

7.23.4. Perform reprogramming of avionics systems.

7.23.5. Perform B-52 electronic warfare (EW) responsibilities to include:

7.23.5.1. Emergency and routine reprogramming of the following: ALQ-155/sensor integration, ALQ-172, ALQ 153, and ALR-46 systems as directed by HQ AFMC/DOP or wing electronic warfare office (EWO).

7.23.5.2. Chaff magazine loading and maintenance.

7.23.5.3. Supporting phase inspections.

7.23.5.4. Coordinating line replaceable unit (LRU) CANN actions in support of annual USM-464 end-to-end testing with the B-52 electronic warfare system (EWS) section in the avionics flight.

7.23.5.5. Coordinating CND screening with the B-52 EWS section in the avionics flight.

7.23.6. B-52 Bomb/Nav responsibilities include:

7.23.6.1. Maintain AN/ASQ-176 offensive avionics system (OAS), AN/APQ-166 strategic radar (SR), AN/ASQ-136 inertial navigation system (INS), and AN/ASQ-151 electro-optical viewing system (EVS).

7.23.6.2. Extract and analyze in-flight fault data, as required.

7.23.7. Maintain guidance and control systems.

7.23.8. Maintain aircraft communication and navigation systems, including interphone cord repair.

7.23.9. When applicable, ensure pertinent worksheets, historical records, and troubleshooting information regarding engine removals are provided to the MXS propulsion flight.

7.23.10. Maintain LANTIRN systems when installed on aircraft. Maintain other sensor systems as assigned locally.

7.23.11. When applicable, be the focal point for in-depth engine troubleshooting and engine maintenance training within their squadron.

NOTE: Engine manning was established within OSs to provide a pool of expertise for engine related issues. Although engine specialists can assist with engine repairs, they are not manned to perform all engine related tasks.

7.23.12. Perform B-1B EW responsibilities to include:

7.23.12.1. Supporting LRU CANN actions in support of annual ALQ-161 end-to-end testing.

7.23.12.2. Performing end-to-end operational testing, as required, to validate SE and aircraft systems testing.

7.24. Air Force Satellite Communications (AFSATCOM)/Satellite Communications (SATCOM) Checkout. The following procedures will be used to perform AFSATCOM (GIANT STAR) and voice SATCOM checkout:

7.24.1. In the CONUS, base radio maintenance personnel may gain satellite access to verify AFSATCOM/SATCOM system malfunctions only after all possible troubleshooting and built-in test (BIT) test actions are completed.

7.24.2. When satellite access is required to verify an AFSATCOM system malfunction, maintenance personnel will contact the appropriate consolidated ground terminal (CGT) 30 minutes prior to testing. For secure tests, notify the appropriate CGT two hours prior to the test since they must obtain authorization to perform the test. This authorization will be obtained during normal duty hours. When applicable, follow procedures outlined in USSTRATCOM Directive 704-1, *Giant Star Operations*.

7.24.2.1. If operating from a 21st Air Force base, contact the Beale AFB CGT at DSN 368-4074.

7.24.2.1.1. Identify base requesting access.

7.24.2.1.2. Advise time the test will be conducted.

7.24.2.1.3. If a secure test is being performed, request satellite time slot plus the transmit and receive channels. Provide the CGT operator with a telephone number and point of contact that can be notified when authorization is obtained.

7.24.2.2. For secure tests, load the maintenance key list into the crypto.

7.24.2.3. Configure aircraft equipment and COM/EDIT test message in a buffer (use base name instead of call sign, e.g., "1AEDWARDSRAMP MAINT TEST ACKETX"), then transmit the message at the specified time and await a reply from the CGT.

7.24.3. Secure tests performed during non-duty hours require prior coordination.

7.24.4. Voice SATCOM system verification is accomplished by contacting the satellite management center at Norfolk, DSN 565-5279.

7.24.5. Only fully qualified technicians who are totally aware of operational procedures, limitations, and restrictions are authorized to access the satellite. Transmitting from antennas on the maintenance test bench or from aircraft to aircraft is specifically prohibited.

7.25. Weapons Section (WS). This section is responsible for performing weapons loading operations and armament systems maintenance actions. The requirements for load crew certification/qualification are provided in **Chapter 8** of this instruction.

7.26. WS Chief. In addition to the common responsibilities in **Chapter 2** of this instruction, the WS chief will:

7.26.1. Recommend the most qualified personnel in the WS for positions in the weapons standardization section (WSS).

7.26.2. Ensure the required number of load crews are trained and certified to perform the mission. Maintain load crew integrity during training and evaluations to the maximum extent possible.

7.26.3. Ensure safe and reliable loading and maintenance procedures are used. The simultaneous use of more than one load crew to accomplish loading/unloading tasks on one fighter aircraft is not authorized.

7.26.4. Maintain a visual aid or automated product depicting the status of assigned load crews and members. Printed products are formatted so manual updates may easily be made between printed product issues.

7.26.5. Coordinate with the WSS superintendent/NCOIC to ensure load training aircraft requirements and load crew proficiency evaluation schedules are developed. These schedules will be included in the weekly and monthly maintenance plans. Ensure training aircraft are properly configured to support load training requirements prior to scheduled training sessions.

7.26.6. Designate weapons expediters.

7.26.7. Ensure an approved checklist for each munition is on hand.

7.26.8. Route all AFTO Forms 22, *Technical Order Improvement Report and Reply*, and AFTO Forms 27, *Preliminary Technical Order (PTO) Publication Change Request (PRC) TO Verification Record/Approval*, for -16 and -33 series TOs to the WSS for review.

7.26.9. Ensure supervisory postloads and maintenance inspections are performed.

7.26.10. Ensure locally manufactured equipment not included in technical data or test directives (TD) is approved for use. HQ AFMC/DRAW is the approving authority for locally manufactured weapons equipment. Locally manufactured weapons equipment encompasses all equipment that measures, tests, or verifies system, subsystem, component, or item integrity. It also includes equipment such as handling dollies, storage racks (except storage shelves), maintenance stands, or transport adapters. It does not include simple adapter cables and/or plugs constructed as troubleshooting aids to replace pin-to-pin jumper wires specified in TOs. All equipment designed for use with nuclear weapons test and handling equipment will be certified according to AFI 91-103, *Air Force Nuclear Safety Certification Program*. A letter will be submitted to the GP/CC through the SMO and QA requesting evaluation. As a minimum, the following information is required:

7.26.10.1. Description of the test equipment and its use.

7.26.10.2. Material used for construction.

7.26.10.3. Wiring diagram of test equipment and views of the completely assembled unit with wiring visible.

7.26.10.4. Approximate cost including labor and material.

7.26.10.5. Draft local checklist (LCL).

7.26.11. Ensure tool kits are built up for each load crew designated to support unit deployments. Determine the number of loading tool kits required for load crews that support only test, evaluation, or training operations.

7.26.12. Ensure coded lead seal dies for nuclear applications are controlled according to AFI 91-101, *Air Force Nuclear Weapons Surety Program*.

7.26.13. Ensure aircraft -6 armament system inspections (except phase/HPO) are accomplished.

7.26.14. Track all assigned in-use AME by aircraft tail number and position installed. A/OA-10 pylons are not tracked.

7.26.15. Ensure normally installed equipment (NIE) locations are updated in CAMS.

7.26.16. Track F-16 acceleration monitor assemblies by aircraft tail number and position installed according to TO 11G14-4-11, *Assembly and Inspection w/IPB, Field Level Maintenance Accelerator Monitor Assembly (AMA) PN 16S2100-801, 803, 805, (ATOS) F-16*.

7.26.17. Ensure load crew certification records/automated products are sent with load crews to temporary duty (TDY) locations if loading tasks will be performed.

7.26.18. Ensure personnel receive required prerequisite training prior to entering initial load crew training (e.g., cockpit/egress familiarization, fire fighting, AGE, etc.).

7.26.19. Ensure on-equipment functional checks on all AME and normally installed equipment (NIE) are installed as a result of transfer or acceptance inspection actions are performed.

7.26.20. Inspect WS composite tool kits (CTK) and armament test equipment for serviceability according to AFMCI 21-107, *Tool Control and Accountability Program*, and initiate corrective action as required. Inspection results will be documented and used for follow-up action/reference as necessary.

7.26.21. Ensure appropriate follow-up actions are accomplished for all armament system malfunctions. Monitor actions taken by supporting agencies on dispensers, suspension equipment, training munitions, etc, which were involved with specific system malfunctions.

7.26.22. Ensure qualified personnel are used to install/remove empty cruise missile pylons or launchers/modules on bomber aircraft.

7.26.23. Provide the wing weapons manager (WWM) monthly status on authorized/on-hand quantities of AME/war reserve materiel (WRM), critical armament testers, and munitions support equipment (MSE).

7.27. Weapons Expediter. The weapons expediter is responsible to the WS chief for all armament systems maintenance and loading operations. The weapons expediter responds to maintenance priorities established by the expediter and the production superintendent and operates from a vehicle equipped with a portable or land mobile radio (LMR). In addition to the general responsibilities outlined in **Chapter 2** of this instruction, the weapons expediter will:

7.27.1. Supervise/monitor on-equipment armament systems maintenance.

7.27.2. Supervise/monitor loading operations.

7.27.3. Track configuration of aircraft, suspension equipment, and weapons.

7.27.4. Inform the maintenance expediter of all start/stop times, status changes, delays, and extensions.

7.27.5. Track expenditures as follows:

7.27.5.1. Fill out an AF Form 2434 on all aircraft configured and loaded with munitions. Record by serial number and location or position all armament related AME or MSE from which munitions items are expended. A locally developed form may be used with the approval of WWM.

7.27.5.2. A reconciliation of expenditures will be accomplished with the munitions flight at the end of the flying day. After the reconciliation, copies of expenditure documents will be distributed to the munitions flight, and when required, the armament systems flight. The documentation action block is annotated when entries are made on item historical documents.

7.27.6. Initiate CANN documentation when installed equipment with inspection requirements aligned to fighter aircraft phase/flying hours (i.e., pylons, bomb racks, launchers, etc.) is removed and installed on another aircraft. Use caution when installing an item on an aircraft with less phase time accrued than the item itself to avoid overfly of the equipment inspection requirements.

7.27.7. Coordinate with the MOC/munitions control for the delivery and pick up of munitions items.

7.27.8. Coordinate accomplishment of all pre-planned and unscheduled maintenance requirements and inspections with the expediter.

7.27.9. Monitor the safety of weapons operations.

7.28. Weapons Load Crew Chief. The load crew chief will be responsible to the WS chief for armament systems maintenance and loading of assigned aircraft. Load crew chiefs are 2W151 noncommissioned officers (NCO) (or civilian equivalent).

NOTE: Senior airman may perform load crew chief duties when unit manning dictates. The individual must be designated by the SMO in writing and approved by the WWM.

The load crew chief:

7.28.1. May authorize other individuals to work on the aircraft provided they are briefed on emergency procedures and perform no maintenance or inspections which would jeopardize safety, hamper loading operations or violate technical data. Access to the cockpit and application of power to the aircraft by other than the load crew during loading operations is prohibited.

7.28.2. Controls all actions concerning the aircraft during loading and unloading (except ICTs).

7.28.3. Supervises the loading and unloading of only one aircraft at a time.

7.28.4. Controls and ensures the number of personnel in the area during explosives handling operations is kept to a minimum.

7.28.5. Ensures required safety equipment is available, serviceable, and (if applicable) installed.

7.28.6. Ensures compliance with AFI 91-101 when responding to unscheduled maintenance actions on nuclear-loaded aircraft.

7.29. Weapons Load Crew. The weapons load crew is responsible to the weapons load crew chief and ensures safe and reliable weapons-loading operations and armament system maintenance actions are conducted. The weapons load crew will:

7.29.1. Load and unload munitions/weapons in support of daily operations. Certification/qualification requirements for these operations are specified in **Chapter 8** of this instruction.

7.29.2. Install and remove armament related suspension equipment, launchers, adapters, etc., on assigned aircraft to support configuration requirements for daily operations.

7.29.3. Perform functional/stray voltage checks required for loading operations.

7.29.4. Identify explosives-loaded aircraft by filling out Block 11 (at units' option), munitions and/or gun status on the AFTO Form 781H according to TO 00-20-5.

7.29.5. Be certified before loading war reserve nuclear weapons.

7.29.6. Be certified before performing loading of conventional munitions, unless loading under the direct supervision of two or more certifying officials.

7.29.7. Not be certified on more than two types of aircraft, except during munitions/aircraft test programs.

7.29.8. Install/remove all armament AME and NIE to facilitate other maintenance (FOM) or for repair action, to include acceptance/transfer inspections.

7.29.9. Perform aircraft troubleshooting and repair actions on assigned equipment and systems.

7.29.10. Perform aircraft armament systems functional checks and associated -6 inspection requirements on in-use AME and NIE.

7.29.11. Boresight aircraft guns and gun pods.

7.29.12. Perform armament systems preflight, thruflight, and BPO inspections.

7.29.13. Perform on-equipment TCTOs.

7.30. Weapons Task Qualification. A weapons task qualification is a munitions related task not requiring certification. Personnel receive initial and annual recurring training for these operations. Recurring training may be conducted during normal operations. Training will be provided by the WSS and recorded in CAMS. When an automated system is used to track load crew status, these task qualifications may also be included instead of using CAMS.

7.30.1. Two or more 2W1X1 personnel (or civilian equivalent) may perform the following:

7.30.1.1. Install and remove impulse cartridges if the task is not accomplished as part of a loading operation.

7.30.1.2. Install and remove chaff and flare magazines.

7.30.1.3. Load and unload BDU-33, BDU-48, and MK-106 practice bombs.

7.30.1.4. Perform portions of the conventional loading checklist, which pertain to delayed flight or alert, immediately prior to launch and safing procedures (captive AIM-9 requires only one qualified person).

7.30.1.5. Load and unload captive AIM-9 missiles, acceleration monitor assemblies (requires three people).

7.30.1.6. Load and unload ammunition in internal/external gun systems (GAU-8 requires three people).

7.30.1.7. Perform munitions/missile isolation procedures to FOM.

7.30.1.8. Install and remove ALE 50 and ALE 55 towed decoy magazines.

7.30.2. Two or more qualified personnel, other than 2W1X1 (or civilian equivalent) may perform only paragraphs **7.30.1.1.**, **7.30.1.2.**, **7.30.1.4.**, **7.30.1.5.**, **7.30.1.7.**, and **7.30.1.8.** above.

Section 7F—Sortie Support Flight.

7.31. General. The sortie support flight normally consists of support and inspection sections. However, the inspection section may be aligned in the MXS/equipment maintenance squadron (EMS) maintenance flight at units supporting large aircraft. The flight is responsible for ensuring sufficient SE and supply support is available to support the production effort. In addition, when the inspection section is aligned in the flight, it will be responsible for all facets of aircraft inspections (phase, PE, or ISO).

7.32. Sortie Support Flight Commander/Chief Responsibilities. The flight commander/chief will be responsible to the SMO/MS for the management, supervision, and training of assigned personnel. The flight commander/chief is a first-line supervisor of aircraft maintenance and is the technical authority and advisor in that area. The flight commander/chief will allocate personnel to the production effort as necessary to meet mission requirements. Additional common responsibilities are outlined in **Chapter 2** of this instruction.

7.33. Inspection Section. The inspection section performs aircraft (phase, PE, or ISO) inspections. Each OS has a dedicated aircraft inspection dock except for large aircraft (bombers, tankers, etc.). Inspection team integrity and stability are maintained to ensure people are proficient on the aircraft.

NOTE: Units that perform ISO inspections at other than assigned locations will request a waiver from HQ AFMC/DOM.

The inspection section chief appoints dock chiefs, reviews inspection schedules, and ensures dock teams are available to meet inspection needs. Specialists may be assigned to this section. If specialists are not assigned, then inspection section supervisors coordinate laterally with aircraft, specialists, and WSs. The inspection section develops a standardized inspection flow plan to aid in managing the progress of the inspection and to control dock personnel and support specialists. Units may use on-line CAMS data instead of the inspection flow plan and to request specialist support. Dock chiefs will use the following procedures:

7.33.1. The inspection dock supervisor uses on-line CAMS data to aid in managing the progress of the inspection and to control dock personnel and supporting specialists. If CAMS is down, units may use a locally developed and approved form. The inspection flow chart will be maintained by the inspection dock supervisor at the aircraft location. The dock supervisor will develop procedures in conjunction with OSS PS&D to insure CAMS data remains current with -6 TO requirements. All discrepancies discovered during the inspection will be documented in CAMS. Standard, approved discrepancy sheets can be used to identify discrepancies during the inspection and be transferred to CAMS. Discrepancies not complied with during the inspection will be transferred to applicable AFTO Forms 781 prior to the post-dock meeting.

7.33.2. Inspections will be performed in four phases:

7.33.2.1. The pre-inspection phase consists of pre-inspection meetings, aircraft preparation, and inspection area preparation.

7.33.2.1.1. The pre-inspection meeting will be conducted according to locally established procedures.

7.33.2.1.2. Aircraft should be washed before inspection.

7.33.2.2. The look phase consists of inspecting the aircraft according to the applicable -6 TO. All discrepancies are documented and given to the inspection team chief for preplanning.

7.33.2.3. The fix phase may begin before completion of the look phase, providing it does not interfere with the look phase. The fix phase will consist of:

7.33.2.3.1. Correcting discrepancies found during the look phase.

7.33.2.3.2. Accomplishing preplanned maintenance scheduled during the pre-inspection phase.

7.33.2.4. The post-inspection phase normally begins when the above requirements are completed, but may be started earlier. This phase consists of performing operational checks according to the applicable -6 inspection workcards and TOs.

7.33.3. A status board or CAMS display will be used to track inspections in progress and scheduled inputs from the weekly flying and work schedule. The following information will be displayed:

7.33.3.1. Aircraft type (MDS).

7.33.3.2. Aircraft serial number.

7.33.3.3. Inspection due.

7.33.3.4. Scheduled in date and time.

7.33.3.5. Actual start date and time.

7.33.3.6. Scheduled out date and time.

7.33.3.7. Aircraft crew chief's name and duty phone.

7.33.3.8. Remarks (delays, possible MICAP conditions, etc.).

7.33.4. Upon inspection completion, the dock chief complies with pre/post-dock review procedures.

7.34. Support Section. A support section will be organized within each sortie support flight. Key personnel will be assigned for a minimum of 12 months. Units will use prescribed procedures for tool control according to AFMCI 21-107 and **Chapter 21** of this instruction. Supply procedures are addressed in **Chapter 4** this instruction and AFMAN 23-110, *USAF Supply Manual*. The support section will:

7.34.1. Maintain composite tool kits (CTK) and equipment storage according to AFMCI 21-107 and **Chapter 21** of this instruction.

7.34.1.1. Coordinate with the WS on weapons load crew CTKs prior to SMO/superintendent approval of contents.

7.34.2. Control and maintain test, measurement, and diagnostic equipment (TMDE) according to TO 33-1-27, *Logistics Support of Precision Measurement Equipment*. User maintenance for TMDE assigned to the OS should be limited to those tasks within the squadron's capability.

7.34.3. Comply with TO 33K-1-100, *TMDE Calibration Interval Notes Maintenance Data Collection Codes Cal Measurement Summaries Calibration Procedures, Calibration Interval & Work Unit Code Reference Manual (CD Contains Vols 1 and 2)*, any applicable calibration measurement summary (CMS), TO 00-20-14, *AF Metrology and Calibration Program*, and other applicable technical directives concerning the use, care, handling, transportation, and calibration of TMDE owned by the section.

7.34.4. Consolidate section inputs for items requiring functional check/operational programming or calibration. Submit the listing to the base supply operations support flight.

7.34.5. Order parts and use supply applicable management products. Initiate follow-up action when necessary.

7.34.6. Notify the expediter of all back ordered parts.

7.34.7. Maintain a quick reference list (QRL), if used.

7.34.8. Track and process DIFM assets in a timely manner.

7.34.9. Send reusable containers to the MXS in a timely manner.

7.34.10. Maintain TO files according to TO 00-5-1, *AF Technical Order System*, and TO 00-5-2, *Tech Order distribution System*.

7.34.11. Maintain an adequate bench stock. Bench stock display boards or other visual aids may be used to readily identify frequently used expendable items (only unserviceable assets should be used for display boards).

7.34.12. Control and manage aircraft tail number bin (TNB) and FOM assets stored within the support section.

7.34.13. Monitor the squadron CANN program.

7.34.13.1. Initiate and reconcile CANN actions in CAMS.

7.34.13.2. In addition to CAMS documentation requirements, accomplish and record CANN actions according to TO 00-20-2, *Maintenance Data Documentation*.

7.34.13.3. Notify the expediter of "Mark For" changes.

7.34.13.4. Store TNB/FOM assets within the support section. Contract logistics support (CLS) assets may be stored in the CLS facility.

7.34.14. Manage the squadron LMR program.

7.34.15. Appoint equipment functional managers as required.

7.34.16. Maintain and store AME and maintenance safety and protection equipment (MSPE) and -21 equipment according to AFI 21-103.

7.34.16.1. Aerial delivery cargo boxes may be used as an equipment storage container for the B-52G/H. The basic allowance is established in the aircraft -21 TO as one per assigned B-52G/H. In addition, each B–52G/H wing will be authorized four extra boxes.

Chapter 8

WEAPONS STANDARDIZATION SECTON (WSS)

8.1. General. The WSS is formed under the applicable group commander (GP/CC), based upon the organizational structure. The WSS is comprised of a superintendent/noncommissioned officer in charge (NCOIC), loading standardization crews (LSC), academic instructors, and standardization lead crews (SLC). One lead crew is normally assigned from each flying squadron; however, in test organizations, the lead crews are assigned as LSCs and are assigned to the WSS. WSS personnel should not be assigned duties outside of their Air Force specialty code (AFSC). The WSS conducts the unit load crew certification program and is the focal point for all related matters. Applicable procedures in this section will be adapted for use by test and evaluation load crews assigned to the air logistics centers (ALC)/geographically separated units (GSU). Requirements such as time and standards will be locally determined. Procedures will be documented in a local operating instruction (OI). The following terms will apply to the WSS program:

8.1.1. All-up-round (AUR). A munition item which is shipped and stored in a complete, ready-to-use configuration. An AUR munition requires no pre-assembly or checkout prior to use.

8.1.2. All-up-round container (AURC). A container used to ship, store, and handle AUR munitions. Some AURCs are designed to load munitions directly from them onto an aircraft.

8.1.3. Approved checklist. A joint checklist working group (JCWG) checklist signed by the applicable GP/CC or designated representative for use in support of engineering developed test directives (TD).

8.1.4. Certification/qualification. The act of verifying and documenting a person's ability to load a particular type of aircraft and munition or munitions family group (MFG) within established standards.

8.1.5. Certified/qualified load crew member. A load crew member who has been trained and certified/qualified by position in accordance with (according to) this chapter.

8.1.6. Competent familiarity loading (CFL). The loading of a support munition (SM) requiring only that the person have a satisfactory fundamental knowledge of the loading operation.

8.1.6.1. The performance of CFLs sets a basic level of proficiency in order to make future certification easier.

8.1.6.2. Evaluation criteria in this chapter do not apply to CFLs.

8.1.6.2.1. CFLs will be accomplished annually.

8.1.7. Decertification/disqualification. The removal of the certification/qualification status of a person precluding him/her from loading a specific type of munition or MFG.

8.1.8. Draft checklist. A checklist assembled and approved by JCWG from inputs provided by test requesters, engineers, test hazard analysis, safety, and quality assurance (QA).

8.1.9. Dual loading operations (DLO). A conventional munitions loading operation on bomber aircraft accomplished simultaneously by two load crews. DLOs are not authorized on fighter aircraft.

8.1.10. Evaluated load. A loading task which is assessed according to the procedures in this chapter.

8.1.11. Ground mount/initial fit check. A procedure performed by the LSC for developing a local checklist (LCL). The LSC will use technical data that is similar to standard Air Force technical data in the development of the checklist.

8.1.12. Integrated combat turnaround (ICT). An authorized exceptional servicing operation for aircraft during which simultaneous fueling, munitions loading/unloading, general servicing and other specific maintenance actions are performed (refer to -33 series TOs). For fighter aircraft, if one or more aircraft engines are operating during fuel servicing, the operation is considered hot refueling.

8.1.13. Integrated load. The loading of two or more different types of munitions in a single loading operation.

8.1.14. Joint checklist working group (JCWG). The group assigned to verify and recommend approval of checklists for munitions operations. Checklists used by this group must be approved by the GP/CC (or designated representative). The JCWG should consist of the LSC, a safety representative, QA, and the project engineer for the particular TD. The senior member of the LSC is the chairperson.

8.1.15. Lead crew. A load crew certified by the LSC and assigned to the weapons section (WS) to assist in conducting the WSS program. Lead crew members may have certification and decertification authority.

8.1.16. Limited use munition (LM). A munition used by a unit for firepower demonstrations, test, and aircrew training or like operations, but which a unit would normally not use in a war or a contingency. LMs may be designated on the unit committed munitions list (UCML).

8.1.17. Load crew. A crew made up of a minimum of three 2W1X1 (or civilian equivalent) personnel trained and certified/qualified to perform specific munitions loading and unloading tasks. Load crew personnel will be trained and certified/qualified by position on the crew, using established TOs and/or task assignment lists (TAL).

8.1.18. Loading standardization crew (LSC). A load crew designated by the WWM to administer the WSS program. LSC members have certification/qualification and decertification/disqualification authority.

8.1.19. Loading task. The actions required by one crew member in a designated position to accomplish a munitions load.

8.1.20. Local commander. The term local commander as used by loading tech data refers to the applicable GP/CC.

8.1.21. Local checklists (LCL) and TOs. Munitions test checklists locally developed by the JCWG are used for loading and handling all munitions and munitions-related items that are originated when standard Air Force TOs are not published, all inclusive, or when verifying the adequacy of foreign or manufacturer's technical data.

8.1.22. Minimum proficiency requirement loading (MPRL). The recurring loading of a munition on which a person is certified/qualified.

8.1.23. Postload checks. Specific power-on checks/tasks accomplished prior to declaring munitions loaded bomber aircraft mission ready.

8.1.24. Munitions family group (MFG). Munitions that are so similar that training and certification/qualification on one item in the group satisfies the requirements for the others (see **Table 8.1.** and **Table 8.2.**). The LSC/lead crew personnel teach crews the major differences of applicable MFG items. After initial training on applicable individual items within the MFG, treat the MFG as a single item and document certification/qualification by one line entry in block 7 of the AF Form 2435, **Load Training and Certification Document**.

8.1.25. Preload. A complete munition and suspension equipment package ready for loading.

8.1.26. Primary munition (PM). A munition tasked by a war plan and designated on the UCML. The UCML is determined by the WWM and is approved by the GP/CC.

8.1.27. Quarterly, semi-annual, or annual interval. A period based on 3, 6, or 12 calendar months, respectively. For example, a quarterly requirement accomplished any time in February is due the last day in May.

8.1.28. Subcrew. Two or more certified/qualified personnel who may perform specific tasks.

8.1.29. Support munition (SM). A munition which could be used in support of contingency plans or directives and designated on the UCML.

8.1.30. Task assignment list (TAL). A functional grouping of procedural steps by crew position from applicable -16/-33 series TOs to be accomplished in sequence by each crew member during a loading operation. The purpose of the TAL is to standardize and facilitate the training of unit load crews and is not a replacement for TO procedures.

8.1.31. Test directive (TD). A TD is an approved implementation source document and authority to commit Air Force resources in the support of development, test, and evaluation missions. It prescribes the method of test, lists munitions required, and type maintenance support needed.

8.2. WSS Superintendent/NCOIC Responsibilities. The superintendent/NCOIC develops and conducts the WSS program, sets standards, develops local policies and procedures, and interprets all technical data and directives governing the WSS program. The superintendent/NCOIC will:

8.2.1. Coordinate with the WS chiefs to schedule crews for training and evaluations. Document monthly scheduling effectiveness and submit a summary for inclusion in the quality assurance program (QAP). The following items, as a minimum, will be included in QAP summary:

8.2.1.1. Event scheduling.

8.2.1.1.1. List the number of crews scheduled (all events).

8.2.1.1.2. List the number and percentage of crews trained/evaluated (all events).

8.2.1.1.3. Identify the primary problems that detracted from scheduling effectiveness.

8.2.1.2. Training/MPRL period scheduling.

8.2.1.2.1. List the number of training/MPRL periods scheduled.

8.2.1.2.2. List the number of training/MPRL periods used and percentages of personnel trained.

8.2.1.2.3. Identify the primary problems that detracted from scheduling effectiveness.

8.2.2. Submit a summary of load crew evaluations performed for inclusion in the QAP.

8.2.3. Coordinate with the operations squadron (OS) plans, scheduling, and documentation (PS&D)/ munitions flight for training aircraft.

8.2.4. Manage training munitions, components, and accessories.

8.2.4.1. Appoint, in writing, a supply custodian for training munitions.

8.2.4.2. Establish a supply point with the munitions operations unit (FK/FV) for conventional training munitions.

8.2.4.3. Document and schedule repairable discrepancies for corrective action through the appropriate munitions flight inspection section.

8.2.4.4. Forecast annually for training munitions.

8.2.4.4.1. The TDs are used as the allowance documents for establishing requirements for non-nuclear load crew training munitions (except missiles) and other related non-explosive items.

8.2.4.4.2. The basis of issue is determined locally and is sufficient to support uninterrupted training.

8.2.4.4.3. When forecasting, the total requirement must be identified regardless of the items on hand.

8.2.4.5. Order training munitions/items to meet unit needs and ensure training munitions are representative of the parent munitions item in configuration, body color, mechanical function and electrical connections.

8.2.5. Ensure training munitions used for wing exercises are assigned to the munitions flight. However, if sufficient training munitions are not available to support both load crew training and exercises, the items are assigned to the WSS supply point.

8.2.6. Maintain a manual or automated system to depict load crew status. When automated systems are used (unless systems are networked/modem interfaced), printed products must be produced and distributed at least twice each month and distributed to the WS chiefs. Printed products will be formatted so manual updates may easily be made between printed product issues. When automated systems are networked/modem interfaced with all flight/section chiefs, printed products need not be distributed; however, a product must be generated monthly for WSS records. As a minimum, the load crew status system will reflect:

8.2.6.1. Formed crews by number and crew member position.

8.2.6.2. By individual, the next:

8.2.6.2.1. MPRL due date for each munition.

8.2.6.2.2. Quarterly evaluation (QE) due date.

8.2.6.2.3. Preload due date.

8.2.6.2.4. CFL due date for each munition.

8.2.6.2.5. Training due date for each weapons task qualification (items covered by **Table 8.1.** and **Table 8.2.**).

8.2.7. Manage the WWM established incentive program to recognize deserving load crews.

8.2.8. Maintain a copy of all loading tech data, for assigned mission, design, and series (MDS) aircraft. Training and test units need only maintain applicable basic technical data and checklists for munitions undergoing test/evaluation.

8.2.9. Coordinate with OSs to ensure that weapon load training aircraft are properly configured and suitable for use.

8.2.10. Develop local time standards for integrated loads.

8.2.11. Ensure load crews are qualified to:

8.2.11.1. Load and unload ammunition in the internal gun systems of assigned aircraft.

8.2.11.2. Load and unload preloaded chaff/flare magazines in defensive countermeasures systems on assigned aircraft.

8.2.12. Ensure load crews demonstrate proficiency on all capable aircraft racks/stations prior to certification. For conventional munitions capable of multiple carriage, both aircraft parent station and multiple ejection rack/triple ejection rack/bomb release unit (MER/TER/BRU) loading are required. For nuclear weapons, only those aircraft stations that are maintained in nuclear-certified status are loaded.

8.2.13. Inspect assigned composite tool kits (CTK) and equipment according to AFMCI 21-107, *Tool Control and Accountability Program*, and **Chapter 21** of this instruction.

8.3. Loading Standardization Crew (LSC). The LSC works for the WSS superintendent/NCOIC and manages the weapons standardization and evaluation program. The WWM/WSS superintendent/NCOIC evaluates and certifies/qualifies the LSC according to criteria in this section. The LSC team chief will have, as a minimum, a 2W171 AFSC (or civilian equivalent). The LSC trains, evaluates and certifies/qualifies the lead crews and load crews in safe and reliable munitions loading procedures. The LSC will:

8.3.1. Conduct and monitor training to ensure personnel maintain a high degree of proficiency in loading munitions.

8.3.2. Monitor certification/qualification and recurring training documents to ensure all load crew members complete required proficiency and academic training. Take decertification and/or disqualification action if recurring requirements are not met.

8.3.3. Document load crew training according to paragraph **8.16.** of this chapter.

8.3.4. Review AFTO Forms 22, *Technical Order Improvement Report and Reply*, pertaining to loading technical data. An LSC member signs the product improvement manager (PIM) block on approved forms and forwards them to the wing PIM for administrative processing.

8.3.5. Develop and coordinate weekly and monthly load crew training schedules and provide them to the PS&D section.

8.3.6. Monitor lead crews in the performance of their duties.

8.3.7. Provide non-load crew personnel initial and recurring weapons task qualification training, including practical training on:

8.3.7.1. Weapons system safety devices to include proper use, installation, and removal.

8.3.7.2. Safety requirements of munitions items.

8.3.7.3. Location of weapons system explosive items used to jettison and release external stores.

8.3.7.4. Stray voltage checks (as required).

8.3.7.5. Cockpit armament system switches.

8.3.8. Monitor munitions operations.

8.3.9. Perform QEs on all certified/qualified load crews. A lead crew member having certification/qualification and decertification/disqualification authority may assist; however, at least one member of the LSC must be present during all QEs.

8.4. Standardization Lead Crews (SLC). SLCs work for the WSS superintendent/NCOIC and assist the LSC in training, evaluating, and certifying unit load crews in safe and reliable munitions loading procedures. Assignment of lead crews not having certification/qualification or decertification/disqualification authority to the WS is optional. Lead crews will:

8.4.1. Initiate AF Forms 2435, **Load Training and Certification Document**, on certified/qualified crew members.

8.4.2. Monitor certification and recurring training documents to ensure all load crew members complete required proficiency and academic training. Take decertification/disqualification action when recurring requirements are not met.

8.5. Integrated Combat Turnaround (ICT) Program. If applicable, the WSS will be the focal point for units tasked to perform ICTs and will work with the deputy operations group commander for maintenance (OG/CM) and operations group maintenance superintendent (OG/MS) to establish ICT procedures and training requirements.

8.6. Academic Instructor. A highly qualified individual possessing a 2W171 AFSC will be assigned to administer the weapons academic training program. The instructor will conduct required initial and recurring weapons academic training for all unit load crew members, loading supervisors, and other personnel who maintain specific weapons task qualifications. The academic instructor may assist in conducting practical training. The instructor may be a member of the LSC.

8.7. Transient Aircraft. Arming, dearming, and munitions unloading operations on transient aircraft may be performed by any weapons load crew certified/qualified on the munition and aircraft. The applicable GP/CC may direct the LSC (or a lead crew) to arm, dearm, and unload an aircraft on which they are not certified/qualified, if appropriate technical data is available. In such cases, the aircrew should be available for consultation on aircraft peculiarities. Local procedures will be developed to control impulse cartridges removed from transient aircraft.

8.8. Training Facilities. Practical training will be conducted in a facility dedicated to load crew training. The facility will be of sufficient size to accommodate fighter/bomber aircraft, required training munitions, and associated munitions support equipment (MSE). It is recommended that bomber aircraft have dedicated load training facilities; however, where not practical, inside facilities should be provided to the maximum extent possible during periods of extreme inclement weather. Adequate office space and an academic classroom with appropriate heating and cooling will be required in the practical training area.

8.9. Academic Training. Initial academic training will be completed before the start of practical training. Recurring academic training will be administered annually. It may also be part of training and recer-

tification for failed loading tasks. Training requirements and course control documents (CCD) are coordinated with the logistics training flight (LTF).

8.9.1. CCDs are tailored to unit needs. The following items will be covered as a minimum:

8.9.1.1. Publications.

8.9.1.2. Safety.

8.9.1.3. Security.

8.9.1.4. Aircraft familiarization.

8.9.1.5. Munitions.

8.9.1.6. Aerospace ground equipment (AGE), MSE, and munitions trailer familiarization.

8.9.1.7. Test equipment.

8.9.1.8. Special tools.

8.9.1.9. Munitions materiel handling equipment (MMHE).

8.9.1.10. Weapons storage and security system vaults (tasked units).

8.9.1.11. Nuclear weapons systems fault isolation and troubleshooting procedures (nuclear tasked units).

8.9.2. Load crew academic training may fulfill the requirements for explosive safety and nuclear surety training, if, and only if, the requirements of AFI 91-101, *Air Force Nuclear Weapons Surety Program*, AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection, And Health (AFOSH) Program*, and AFI 91-302, *Air Force Occupational and Environmental Safety, Fire Protection, And Health (AFOSH) Standards*, are included.

8.9.3. All load crew members, loading supervisors (including weapons expediters) and other personnel who maintain specific weapons task qualification will complete initial and recurring academic training.

8.10. Practical Training. Practical training will start when academic training is complete.

8.10.1. The LSC or lead crews will administer practical training to each load crew member on required munitions and aircraft. They will ensure practical training duplicates operational conditions to the maximum extent possible and stress requirements such as two-person concept, no-lone zones, safety wiring and sealing, controlled access, and weapon custody receipt and transfer procedures. Load crew members will be trained on both loading and unloading procedures prior to qualification/certification on each respective munition item.

8.10.2. If a specific type or model of munition has been requisitioned but not received, any type or model of the basic item may be used for load crew training until receipt of the munition. The differences will be briefed to the load crews.

8.10.3. Load crews must be familiar with munitions serviceability criteria. Blanket rejection of training munitions during load training is not authorized. Munitions may not be rejected solely because they are inert.

8.10.4. Load crew members will be familiarized with the operation of all available AGE and MSE that may be used during loading operations, even if the items are not used on a routine basis. Training on items such as the MHU-194/E manually operated lift truck (if available) will be conducted during initial training/certification/qualification and annually thereafter. Training to load the AIM-120 missile directly from the AURC using the ADU–537A/E missile/munition-loading adapter will be conducted on the same basis.

8.11. Task Assignment List (TAL). The WSS develops unit TALs. TALs will be used during training for all loading operations except those for which job-oriented procedures have been published. MPRLs and QEs are not considered training operations. The following guidelines establish minimum responsibilities of individual crew members:

8.11.1. Three-member load crews.

8.11.1.1. Crew member number one is the load crew chief and is in charge of the loading operation and positions cockpit switches during functional checks.

8.11.1.2. Crew member number two performs the pylon/rack preparation and operates test equipment during functional checks.

8.11.1.3. Crew member number three performs munitions preparation and operates the bomblift truck during loading operations.

8.11.2. Four-member load crews.

8.11.2.1. Crew member number one is the load crew chief and is in charge of the loading operation, positions the cockpit switches, and attaches stores to the pylon/rack.

8.11.2.2. Crew member number two performs the pylon/rack preparation, operates test equipment during functional checks, and assists in loading of stores. Crew member number two performs the crew member number one procedures during -16 operations.

8.11.2.3. Crew member number three performs munitions preparation. Crew member number three performs the crew member number two procedures during -16 operations.

8.11.2.4. Crew member number four performs rack/pylon preparation, operates test equipment during functional checks, and operates the bomb lift truck. Crew member number four performs the crew member number three procedures during -16 operations.

8.11.3. Four-member B-2 rotary launcher conventional munitions, and B-52H conventional air launched cruise missile (CALCM) loading/unloading is accomplished procedurally parallel to the -16 procedures.

8.12. Certification/Qualification. The following guidelines will be used to establish the loading standardization and evaluation program:

8.12.1. Certification/qualification and training requirements for load crews are based on the following:

8.12.1.1. Internal and external conventional munitions configurations on bomber aircraft are considered separate certification/qualification tasks.

8.12.1.2. Load crews must be certified prior to loading live munitions.

8.12.2. Load crews certified to load nuclear PMs are required to load drop shapes. Certified load crews may be evaluated by using war reserve weapons if the weapons are scheduled for loading or movement. During initial training, and annually thereafter, each load crew accomplishes a qualification load on practice bombs.

8.12.3. A minimum of two certifying officials are required to evaluate three and four-member load crews.

8.12.4. Individuals will be decertified/disqualified if they:

8.12.4.1. Fail an evaluation as outlined in paragraph **8.15.** below.

8.12.4.2. Fail to complete a required evaluation (QE, MPRL, etc.). If an individual is TDY, on emergency leave, incapacitated, or involved in an unannounced local or higher headquarters (HHQ) exercise, that person (and load crew, if applicable) need not be decertified/disqualified if the current month's MPRL/evaluation requirements and all past due evaluations are completed within 30 days of the member's return to duty.

8.12.4.3. Fail to accomplish required recurring academic training. Individuals will be administratively decertified/disqualified on all munitions until academic training is completed.

8.12.5. Units which have the AGM-65 as a PMs/secondary munitions (SMs) and are authorized both the LAU-88 and LAU-117 launchers, will accomplish quarterly loading requirements by alternating launchers.

8.13. Minimum Proficiency Requirement Loading (MPRL).

8.13.1. All certified/qualified load crews perform proficiency loads, which are monitored by a lead crew or LSC. Proficiency loads performed by the LSC need not be monitored. Postload inspections of unmonitored weapon loadings do not meet these proficiency requirements.

8.13.2. Intervals for MPRL are as follows:

8.13.2.1. Load crews load all primary conventional MFGs for which they are certified/qualified at least quarterly, and all secondary conventional MFGs semi-annually. Loads should be rotated through all munitions in the MFG. Realistic integrated configurations, compatible with unit tasking and the aircraft flight manual, are used during the proficiency loads.

8.13.2.2. Nuclear PMs must be loaded monthly. Only one type of munition within a MFG requires loading each month. Nuclear SMs (certified crews), clip-in, single missile, single bomb, payload exchange, and postload checks are loaded/accomplished at least quarterly. A quarterly nuclear SM loading may satisfy the respective month's PM loading requirement.

8.14. Quarterly Evaluations (QE). The LSC will evaluate each load crew once a quarter on one of the unit PMs (all unit PMs are used on a rotating basis). Load crew integrity must be maintained for these evaluations. Load crews failing to accomplish QEs are decertified on all munitions unless exempted according to paragraph **8.12.4.2.** QEs are not required for lead crews.

8.15. Evaluation Criteria. The following criteria will apply to initial certification/qualification, MPRLs, and QEs:

8.15.1. Exceeded time standard results in a failed rating for the load crew chief.

8.15.2. More than four errors per crew member results in a failed rating for the individual.

8.15.3. A safety or reliability error results in a failed rating for the individual. A failure in this category due to a single subtask error need not result in complete retraining/recertification for the loading task. At the discretion of the evaluator, subtask retraining or thorough critique may be used to satisfy retraining/recertification requirements. When subtask retraining/critique is used, the initial rating of "Failed" is lined through on the AF Form 2419, **Routing and Review of Quality Control Reports**, and "Passed" is entered along with the certifying official's initials.

8.15.4. The lack of technical proficiency results in a failed rating for the individual.

8.15.5. For integrated loads, the evaluator may elect decertification/disqualification on any one or all munitions loaded. When the same rating is not applied to all munitions loaded during an integrated load, separate AF Forms 2419 are filled out.

8.16. Documentation. When the standardized weapons load crew management software program is used, imbedded documentation may be used instead of these corresponding requirements.

8.16.1. Load crew certification/qualification, decertification/disqualification, QEs, MPRLs and CFLs are documented on AF Forms 2435. Separate forms are prepared for each person by crew position and MDS aircraft. This form will be completed as follows:

8.16.1.1. Blocks 1 through 6 - Self-explanatory.

8.16.1.2. Block 7 - Each applicable munition is listed on a separate line. MFGs are listed as a single entry using the primary tasked item of the group in the title (e.g., MK-82 MFG is entered when the MK-82 is the primary tasked item from its group). If applicable, separate entries are made for postload checks.

8.16.1.3. Block 8 - Dates will not be entered for CFLs.

8.16.1.4. Blocks 9 and 10 - Self-explanatory.

8.16.1.5. Block 11 - Signatures of certifying officials will be entered only upon certification/qualification after completion of blocks 7 and 8. Signatures will not be entered for CFLs.

8.16.1.6. Block 12:

8.16.1.6.1. List each individual munition separately, MFGs are not used.

8.16.1.6.2. Enter the date the MPRL, CFL, or QE was accomplished in the applicable month column.

8.16.1.6.3. Enter one of the following codes in the month column if the required loads are not completed and paragraph **8.12.4.2.** applies: temporary duty (TD), leave (LV), excused from duty (ED), or exercises (EX). The letter E will be placed after the date for the QE regardless of rating.

8.16.1.6.4. If the AF Form 2435 is reaccomplished, only the most current information and dates are entered. If the latest date is from a previous calendar year, it is entered on the appropriate line immediately to the left of the Jan column. The top of the front page will be annotated with the statement "record reaccomplished" and the date.

8.16.2. QEs will be documented on AF Form 2419. Completed forms will be routed to:

8.16.2.1. WS chief.

8.16.2.2. WWM.

8.16.2.3. A representative sample of passed and failed evaluations is routed to the maintenance officer/NCOIC.

8.16.2.4. LSC (for file).

8.16.3. Load crew records will be kept by the LSC and will include only the following documents:

8.16.3.1. AF Form 2435 for each crew member.

8.16.3.2. AF Form 2419 recording the most current QE.

8.16.4. Load crew certification records will be sent with the crew to temporary duty (TDY) locations if loading tasks are to be performed. Reproductions of the actual records are used to fulfill this requirement. If automated products are used to depict load crew status, copies of this product may be used instead of the certification records if the following statement is added after the last entry on each product: "AF Form(s) 2435 has/have been reviewed, the member(s) is/are certified/qualified on the items listed on this product." The signature of a certifying official and the date must follow this statement.

8.16.5. Academic and qualification training are documented in CAMS or automated systems developed.

8.17. Load Crew Composition. Load crews normally consist of a crew of three or four persons as follows:

8.17.1. Three-member crews - A/OA–10, F–15, F–16, F-22, and F–117.

8.17.2. Four-member crews - B–1, B–2, and B–52.

8.18. Munitions Load Time Standards. All munitions listed in a single block comprise a family group for the respective aircraft type. The load time standards will be the minimum proficiency requirements for weapons load crews. Units may establish more restrictive standards for local use. Units will coordinate with HQ AFMC/DRAW for establishment of local time standards for munitions used in test projects and time standards for munitions/aircraft not listed.

8.18.1. Load time standards are listed in **Table 8.1.** and **Table 8.2.** The standard load times are for the respective single store, an applicable aircraft station functional check, and installation of impulse cartridges (if required). An additional 10 minutes is allowed for each aircraft station (except missile stations) on fighter aircraft. An additional 7 minutes is allowed for each like store added to fighter aircraft loads. Load times are additive when more than one type of munition is loaded on fighter aircraft. For example, if an F-16 is to be loaded with two AIM-9s and a BDU-38, the load crew is allowed 25 minutes for the first AIM-9, 7 minutes for the second AIM-9, and 60 minutes for the BDU-38, for a total of 1 hour and 32 minutes. Units should develop optimum time standards for integrated loads.

Table 8.1. Fighter Aircraft Munitions Family Group (MFG) and Load Time Standards

FAMILY GROUP	A/OA-10	F–15	F–16	F-22	F–117	REMARKS
AIM-4		45				**Note 1**
AIM-7/120		50	45			**Note 1**
AIM–9/9X AIM-132 (ASRAAM)	25	25	25			**Note 1**
AGM-154 JSOW JASSM		45 45	45 45			
AGM–65	45	50	45			**Note 1, 2,3**
AGM-88		45	45			
AGM-130/GBU-15		55	55			**Note 16**
B–61/BDU-38		60	60			**Note 4**
BLU–107		45	45			
CTU-2		35				**Note 2**
CBU–24/49/52/58/71/72	45	45	45		45	
CBU–87/89/97/102/103/ 104/105WCMD/MK-20	45	45	45		45	
GBU–10/12/24/27 AUP	45	45	45		45	**Note 2**
GBU–28		55				**Note 2**
BSU-49/50, MK-81/82/ 83/84, BLU-109/ GBU-31/32	45	45	45		45	**Note 6**
M117/M118/M129		45	45			**Note 6**
CHAFF/FLARES	20	10	10			**Note 7**
2.75" ROCKETS	35		35			**Note 5**
20MM/30MM	35	30	30			**Note 5**
BDU-33/MK-106	20	20	20			**Note 5**

Table 8.2. Bomber Aircraft Munitions Family Group (MFG) and Load Training Time Standards.

FAMILY GROUP	B–52		B–1	B–2	REMARKS
	INT	EXT	INT	INT	
MHU-20A/C	70				
CONV BOMB MODULE			45		*NOTE 12*
CSRL/RLA/LAU-144A	60		45	60	*NOTE 12, 14*
AGM-86B/C PYLON AGM-129A PYLON		70			*NOTE 12, 14*
AGM-86 SINGLE MISSILE	70	70			
AGM-129 SINGLE MISSILE		60			
AGM-86B PAYLOAD	60	60			
AGM-129A PAYLOAD		70			
SINGLE BOMBS B-61/B-83	70		40	60	
AGM-84A		45			*NOTE 14*
AGM-142		60			*NOTE 15*
MK-82/M117/MK-62/MK-63	25	35	40	40	*NOTE 8*
MK-84/BLU-109/GBU-36/ GBU-37 JDAM/JSOW	40	40	40	40	*NOTE 9, 13*
MK-52/ CBU-87/89/97/103/ 104/105	40	40	40	40	*NOTE 9, 10*
MK-55/MK-56/MK-60/MK-65		40			*NOTE 11*
GBU-10/12/28		40			*NOTE 11*

Notes:

1. No time is allowed for the functional check of additional missile launchers.

2. Add 15 minutes for each additional store or LAU-117.

3. Time is for one LAU-117 (any method). The time for loading one preloaded LAU-88 is 45 minutes; two LAU-88s, 60 minutes; single missile out of container, 35 minutes; for a single missile that must be transferred out of the container, 50 minutes; for three missiles out of the container, 60 minutes; for three missiles in their containers, 90 minutes.

4. Includes a short flight circuit test (FCT) such as an F-16 75060/W-11 or F-15E A/E24T-199 check. When a long FCT is to be included in a loading operation, add the time standard listed in the applicable -6 TO order to the time standard.

5. Add 5 minutes for AGM-130 (-9 & -10).

6. Add 5 minutes for each fuse extender used.

7. Time is for one module, magazine, or ejector channel. Add 5 minutes per each additional module, magazine, or ejector channel.

8. Add 3 minutes for each store.

9. Add 5 minutes for each store.

10. Heavy stores adapter beam (HSAB) units may add MK-52 to mine family group.

11. Add 10 minutes for each store.

12. Pre-load.

13. Add 15 minutes for each additional store on B-2 Rotary launcher adapter (RLA).

14. Add 40 minutes for post-load checks if accomplished as part of the load.

15. Add 60 minutes for post-load checks if accomplished as part of the load.

16. Add 15 minutes when Infa-red (IR) check is accomplished.

Chapter 9

QUALITY ASSURANCE (QA)

Section 9A—Test

9.1. Maintenance Personnel. All maintenance personnel share responsibility for safety of flight, safety of equipment operation, quality of work accomplished and full participation in the product improvement (PI) effort. QA determines weapon system and equipment condition, personnel proficiency (including the quality of training) and increases reliability and maintainability (R&M). The quality assurance program (QAP) is an assessment program designed to improve the quality of maintenance and determine the effectiveness of maintenance training. The test, measurement, and diagnostic equipment (TMDE) flight is exempt from the QAP requirements of this chapter. The TMDE flight's total quality program (TQP) fulfills the QAP requirements. The TMDE flight must comply with the requirements of TO 00-20-14, *AF Metrology and Calibration Program*, and **Chapter 13** of this instruction. This chapter is divided into seven sections: **Section 9A** - Functions of Quality Assurance; **Section 9B** - Quality Assurance Program (QAP); **Section 9C** - Evaluations and Inspections; **Section 9D** - QA Reports; **Section 9E** - QA Programs; **Section 9F** - Squadron Assessment Program (SAP); and **Section 9G** - Gold START Program.

Section 9B—Functions of Quality Assurance.

9.2. General. QA authorizations are based on tasks described in the Air Force manpower standard (AFMS). The group commander (GP/CC) may assign QA additional duties such as exercise evaluation team (EET) augmentation, and the responsibility to manage group programs (i.e. safety, environmental, etc.). While centralized control of programs such as these may be desirable and at times necessary, management of too many programs diminishes QA's ability to administer its primary functions as outlined in this chapter. Commanders should consider augmenting unit manpower document (UMD) authorized QA personnel to fulfill obligations of locally imposed programs, or assigning responsibility for these programs to other agencies.

9.3. Organization. QA will be organized and implemented in both the operations group (OG) and logistics group (LG). Each QA will be administratively assigned to the support squadron (logistics support squadron (LSS) for LG and operations support squadron (OSS) for OG) within its group, but will report to the respective GP/CC. Units with approved authorization from HQ USAF, coordinated through HQ AFMC, to deviate from the objective wing structure will substitute the term operations group commander (OG/CC) where applicable with logistics group commander (LG/CC), or applicable commander. QA is the primary technical advisory agency in the group assisting workcenter supervisors and the GP/CC. QA will coordinate on all technical assistance requests involving agencies outside the wing. Many responsibilities are the same in both groups and some programs are split between OG QA and LG QA along functional lines. In order to avoid duplication of effort, and to ensure standardization between the groups, the two QAs will be closely linked, with the LG QA taking the lead for mutual functions. The key to a successful QA program is coordination between both groups in all facets of aircraft maintenance. To ensure this, both QAs should be collocated in the same facility. In general, QA personnel should rotate back to their primary Air Force specialty code (AFSC) workcenter after two years in QA.

9.4. Augmentation. If a functional area does not warrant a full time position in QA, qualified technicians, recommended by the squadron maintenance officer (SMO)/maintenance supervisor (MS), may be appointed as augmentees in selected functional areas. The QA supervisor, in conjunction with the SMO/MS, establishes the duties performed by QA augmentees.

9.5. Training. The QA training program ensures personnel are weapon system qualified, trained on overall QA responsibilities, and maintain proficiency in their AFSC or area of responsibility. The chief inspector will develop an expanded job qualification standard (JQS) broken down by functional areas and programs that cover all areas of responsibility. Additionally, the chief inspector will:

9.5.1. Document each newly assigned individual's training before he/she performs unsupervised evaluations or inspections. Document all newly assigned personnel and augmentee, when tasked, training on the AF Form 797, **Job Qualification Standard Continuation/Command JQS**. QA personnel and augmentees will be qualified on all tasks they evaluate. The QA chief will determine the level of qualification training required for his/her personnel to become qualified on aircraft which they have never been previously qualified on. The QA chief will ensure personnel are fully qualified to perform evaluations on tasks that have been identified as requiring third party certification. For example, a QA inspector performing an evaluation on a technician performing a preflight inspection must be trained and certified to perform the F-15 preflight inspection by an authorized F-15 trainer.

9.5.2. Ensure an evaluator proficiency evaluation (EPE) is conducted over-the-shoulder (OTS) while the inspector is doing, as a minimum, one evaluation and one inspection in their primary AFSC or area of responsibility. All EPE documentation must remain on file with the chief inspector for as long as individuals are assigned to QA either as inspectors or as augmentees. QA augmentees require a semi-annual EPE on a personnel evaluation (PE) and either a quality verification inspection (QVI) or technical inspection. EPEs will be tracked on the special certification roster (SCR).

9.5.3. In units performing integrated combat turnarounds (ICT), QA ICT inspectors must attend ICT academic training provided by the weapons standardization section (WSS). The senior WSS evaluator has the final authority on the overall ICT rating and will initiate any documentation. Specific program guidelines are in **Chapter 8** of this instruction.

9.5.4. Ensure inspectors are cross-utilization training (CUT) trained and certified so they can perform evaluations and inspections throughout their assigned/dedicated squadron or flight.

9.5.5. Ensure QA inspectors complete AFI 21-112, *Aircraft Egress and Escape Systems,* certification requirements before inspecting or evaluating egress actions; requirements of TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding,* and any AFMC supplements to AFI 21-105, *Aerospace Equipment Structural Maintenance* before inspecting or evaluating aircraft welding operations; and requirements of TO 00-25-172 and **Chapter 23** of this instruction before evaluating hot-pit refueling (when applicable). Inspectors must meet certification, qualification, or proficiency requirements established to perform other tasks prior to inspecting or evaluating those tasks.

9.5.6. Ensure inspectors are trained on and understand inspection techniques and the QAP.

9.5.7. Ensure the product improvement mangers (PIM) and technical order distribution office (TODO) manager (if assigned) are trained by the OSS plans, scheduling, and documentation (PS&D) on TCTO requirements.

9.5.8. Ensure QA evaluators who run aircraft engines maintain all engine run proficiency requirements according to **Chapter 23** of this instruction.

9.6. QA Supervisor/Superintendent. The QA supervisor/superintendent is responsible for the effective management and operation of the QAP in support of the unit mission. They establish policy and procedures, and provide resources to support the QAP. The QA supervisor/superintendent will also:

9.6.1. Make recommendations to the GP/CC to enhance the quality of maintenance.

9.6.2. Establish the QAP.

9.6.3. Coordinate with the GP/CC and SMOs on which areas to augment during exercises, generations, or contingencies.

9.6.4. Ensure appropriate actions are taken through the GP/CC to notify higher headquarters (HHQ) when deficiencies are found in Air Force or AFMC directives.

9.6.5. Provide input to product improvement program (PIP) working groups (or equivalent forums where R&M issues are evaluated).

9.6.6. Evaluate maintenance management procedures (i.e., forms, pre-prints, publications, and operating instructions (OI), etc.) for currency, accuracy, intent, and necessity.

9.6.6.1. Approved AFTO Form 781A preprints will be reviewed at least annually for currency and completeness.

9.6.6.2. Approved AFTO Form 781A preprints will be numbered to maintain accountability. The format for numbering preprints will include a local group designator overprint number, date approved, and supercede notice (if applicable) (e.g., 46 OG Overprint 1, 21 Aug 99).

9.6.6.3. A list of approved preprints will be published at least annually, but may be published more frequently if needed. This list will be signed by the QA supervisor/superintendent.

9.6.7. Designate individuals in writing to fill the following key positions:

9.6.7.1. Chief inspector.

9.6.7.2. Weight and balance (W&B) manager.

9.6.7.3. Functional check flight (FCF) noncommissioned officer (NCO).

9.6.7.4. PIP manager.

9.6.7.5. TODO manager (when a TODO is established in the group).

9.6.7.6. Foreign object damage (FOD) prevention program monitor.

9.6.7.7. Impoundment officials.

9.6.7.8. Dropped object prevention program (DOPP) monitor.

9.6.8. Ensure only technically qualified personnel who have the necessary communicative and interpersonal skills are assigned to QA.

9.6.9. Maintain an active oversight of the unit configuration management/retrofit and modification control program for all assigned aircraft and equipment as outlined in AFI 21-101, *Maintenance Management of Aircraft*, and paragraph **9.33.** of this chapter.

9.6.10. Select, in conjunction with the SMOs and MSs, qualified technicians to augment QA. Augmentees must be kept to a minimum.

9.6.11. With the concurrence of the GP/CC, and at the request of unit commanders/directors, initiate and assist with the units' management inspections.

9.6.12. Foster close coordination between OG and LG QA personnel and functions.

9.6.13. Participate in formal periodic management reviews of repeat/recurring/cannot duplicate (CND) malfunctions and potential trends according to local OIs or wing instructions.

9.6.14. Ensure the group portion of the FOD prevention program is conducted according to AFI 21-101, AFMCI 21-122, *Foreign Object Damage (FOD) Prevention Program*, and **Chapter 23** of this instruction.

9.6.15. Oversee and implement the group impoundment program according to **Chapter 23** of this instruction.

9.6.16. Manage and oversee the DOPP according to **Chapter 23** of this instruction.

9.6.17. Ensure group maintenance actions relating to hot-pit refueling are according to TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding (ATOS)*, **Chapter 23** of this instruction, and any applicable technical data.

9.6.18. Provide support as requested to the life support system QA program.

9.6.19. Coordinate on all requests for approval and use of locally designed tools or equipment. Maintain records of such requests, including a picture, drawing, or description of each item and an explanation of the method of use.

9.6.20. Monitor and annually review the aircraft structural integrity program (ASIP) according to **Chapter 23** of this instruction.

9.6.21. Review and publish group or wing in-process inspections (IPI) listings. Ensure standardization between groups.

9.6.22. Establish a QA training and qualification program.

9.6.23. At the request of the GP/CC, take action to evaluate group maintenance staff functions as well as technical activities (i.e., scheduling, training management, etc.). Ensure these areas are periodically (recommended semi-annually) evaluated.

9.6.24. Coordinate with the logistics training flight (LTF) to establish QA review of training course graduates.

9.6.25. Ensure those units with aircraft having provisions for on-board maintenance technical orders (TO) establish written procedures governing those TO files (referred to as G files). QA will maintain a master TO file.

9.6.26. Monitor, and assist as necessary, flight control maintenance as outlined in the unit's flight control maintenance program.

9.6.27. Work with the deputy operations group commander for maintenance (OG/CM) to develop a wing depot-level assistance program according to TO 00-25-107, *Maintenance Assistance*.

9.6.28. Develop the wing's 100 percent key task list (KTL) and routine assessment task list (RTL).

9.6.28.1. Provide a copy of OG/CC and LG/CC-approved lists to all affected organizations.

9.6.28.2. Both lists should be reviewed at least quarterly for applicability.

9.6.28.3. Ensure standardized acceptable quality levels (AQLs) are developed for all tasks on the 100 percent KTL and RTL.

9.6.29. Ensure pre-task safety briefings are developed for all generic and mission, design, and series (MDS) specific critical tasks as outlined in **Chapter 23** of this instruction.

9.6.30. Ensure an agenda and presentation is compiled for the monthly OG/LG QA review.

9.6.31. Ensure the QA munitions inspectors are in the munitions storage area (MSA)/weapons storage area (WSA) during exercises, generations, or contingencies.

9.6.32. Ensure the QA munitions inspectors perform all inspections required by AFI 21-201, *Inspection, Storage, and Maintenance of Non-Nuclear Munitions*.

9.6.33. Maintain, and update quarterly, a master personnel listing of Red X downgrade, all systems Red X, and all systems IPI qualified individuals.

9.6.33.1. Forward the updated listing quarterly to the GP/CC for review.

9.6.34. In conjunction with maintenance operations center (MOC), operations squadron (OS) supervisors, maintenance squadron (MXS) supervisors, base supply, and the OG/CM, develop procedures for support of Red Ball maintenance as outlined in **Chapter 23** of this instruction.

NOTE: Units will not develop local supplements to existing aircraft technical data beyond those authorized in TO 00-5-1, *AF Technical Order System*.

9.6.35. Monitor the oil analysis program (OAP) according to AFI 21-124, *Air Force Oil Analysis Program*, and **Chapter 23** of this instruction.

9.7. LG QA Responsibilities. LG QA is responsible for all general responsibilities and requirements in **Section 9A** and is also the office of primary responsibility (OPR) for the programs listed below. The organization and function of each program can be found in **Section 9E** of this chapter.

9.7.1. Product Improvement Program (PIP).

9.7.1.1. Configuration management program.

9.7.1.1.1. Time compliance technical order (TCTO) management.

9.7.1.1.2. Modification management.

9.7.1.2. Deficiency reporting.

9.7.1.3. Deficiency assessment.

9.7.1.4. R&M working groups.

9.7.1.5. Innovation development through employee awareness (IDEA) program.

9.7.2. Gold savings through asset repair team (Gold START) (when applicable).

9.7.3. Technical order distribution office (TODO) (with OG QA).

9.7.4. One-time inspections (OTI) (with OG QA).

9.8. OG QA Responsibilities. In addition to those general responsibilities outlined in **Section 9A** of this Chapter, the OG QA superintendent will also manage the programs listed below. The organization and function of each program can be found in **Section 9B** of this chapter.

9.8.1. Functional check flight (FCF).

9.8.2. Weight & balance (W&B).

9.8.3. Technical order distribution office (TODO) (with LG QA).

9.8.4. One-time inspections (OTI) (with LG QA).

9.8.5. Hot refuel program. QA monitors the program for the unit according to TO 00-25-172 and **Chapter 23** of this instruction.

9.8.6. ICT Evaluations (when tasked). At the request of the WSS and wing weapons manager (WWM), QA may be tasked to assist in evaluating a specified number or percentage of ICTs performed by the unit. Only one evaluation report, which the WSS initiates, is required. QA will use these evaluations as part of the QAP under PE. The senior WSS evaluator has the final authority on the overall ICT rating and will initiate any documentation.

9.8.7. Ensuring FOD prevention, DOPP, flight control maintenance, impoundment, and other programs assigned by the GP/CC are managed according to applicable directives and **Chapter 23** of this instruction.

9.8.8. Ensuring implementation of the PIP through close coordination with the LG PIP manager on all aspects of aircraft maintenance. These aspects include configuration management, deficiency reporting and assessment, R&M, and the IDEA program.

9.8.9. Implementing a chafing awareness program.

9.8.10. Weapons loading inspections/evaluations are the responsibility of WSS evaluators. QA inspectors may, at the request of the WWM augment the WSS in these evaluations. Additional information can be found in **Chapter 8** of this instruction.

9.8.11. Configuration management program (with LG QA).

9.9. Chief Inspector and Inspector Responsibilities.

9.9.1. Each group will designate a chief inspector that manages the group's programs and assessments. Each QA chief inspector is responsible to the QA superintendent for the applicable section chief duties in **Chapter 2** of this instruction. If required, the QA superintendent and the chief inspector can be the same person. The chief inspector will, either directly or through the QA inspectors:

9.9.1.1. Evaluate the quality of maintenance training according to AFI 36-2201, *Developing, Managing, and Conducting Training*, AFMCI 36-201, *Education and Training Process Guide*, AFMCPD 36-2, *Education and Training DPFO*, and all applicable TOs.

9.9.1.2. Spot check TOs, workcards, checklists and code manuals during evaluations and inspections for currency and serviceability.

9.9.1.3. Evaluate backshop 2W1 weapons maintenance tasks and inspections. Weapons loading tasks will only be evaluated at the request of the WWM.

9.9.1.4. Review aircraft and equipment performance data to determine trends and potential problems, and coordinate with OSS/LSS and involved workcenters to investigate deficiencies.

9.9.1.5. Perform the QA review of deficiency reports (DR) and serviceability reports (SR) for assigned workcenters.

9.9.1.6. Evaluate forms documentation and input appropriate data to the core automated maintenance system (CAMS).

9.9.1.7. When necessary, perform war reserve materiel (WRM) tank build-up (TBU) evaluations or inspections.

9.9.1.8. If applicable, periodically evaluate non-2W1XX actions performed during ICTs.

9.9.1.9. Perform inspections and evaluations called for in evaluation and inspection plans.

9.9.1.10. Provide brief summaries of significant findings each week for inclusion in the weekly summary.

9.10. Dedicated Inspector System. In an effort to enhance continuity and communication between QA and the groups, utilization of the dedicated inspector system to the maximum extent possible is recommended. Inspectors from QA are specifically aligned with individual squadrons and maintenance functions. The chief inspector determines the duties and responsibilities of the dedicated inspectors. Dedicated inspectors may continue to perform other QA duties; however, their inspection activities focus on their assigned squadron.

Section 9C—Quality Assurance Program (QAP).

9.11. General. The QAP is designed to be a flexible feedback system for maintenance leaders, supervisors, and workers. It provides methods to detect negative trends and problem areas; inform supervisors of these problems, likely causes, and possible corrective actions; and increase attention to areas when required. This also includes the identification of best practices, benchmark processes, superior performers, and items of interest to wing leadership. The QA supervisor/superintendent takes action necessary to ensure the QAP is understood by all maintenance activities at all levels within the group. QA identifies negative trends and problem areas, as well as superior performance. Working with maintenance supervisors, QA attempts to determine the likely cause of negative trends through evaluations and inspections. If unit factors are eliminated and the problem continues, QA reports the deficiency to the appropriate agency. QA must not be committed to percentage quotas in each inspection category or report type. Likewise, inspection volume or depth and scope of deficiency research are not to be determined solely by numbers of assigned personnel or equipment. Enhancement of mission performance is the prime factor in applying available manpower and resources.

9.12. Elements of the QAP. The QAP encompasses all inspection/evaluation activities for the wing and ensures that all equipment and processes are adequately inspected and evaluated. The QAP will consist of:

9.12.1. Locally developed evaluation and inspection plans to focus QA efforts.

9.12.2. Methods for inspecting, evaluating, and rating technical proficiency, equipment condition, etc.

9.12.3. Methods to inform supervisors of QA findings and observations.

9.12.4. Key task list (KTL). The QAP will include a 100 percent KTL coordinated by the groups and published by the wing (LG is OPR). All maintenance actions/functions listed on the KTL will require a mandatory call in to QA each time that the maintenance action/function is accomplished. QA inspectors will normally respond and perform an inspection but (on a limited basis) QA may waiver the inspection. The list will cover those tasks that are complex and impact safety of flight. As a minimum, the following tasks will be included on the KTL:

9.12.4.1. Major aircraft maintenance inspections (phase, periodic, transfer, acceptance, and isochronal (ISO)).

9.12.4.2. Engine final inspection (jet engine intermediate maintenance (JEIM)).

9.12.4.3. Engine, after installation to aircraft (mounts).

9.12.4.4. Engine controls (throttle) at time of installation.

9.12.4.5. Engine rigging at time of installation (when required).

9.12.4.6. Anytime maintenance is performed on the variable stator vane system on General Electric (GE) F110-100/-129 engines (JEIM).

9.12.4.7. Final aircraft gun system installation prior to panel installation.

9.12.4.8. Final gun system inspection (in-shop).

9.12.4.9. Engine blade blending (all engine types).

9.12.4.10. HQ AFMC aircraft functional managers and/or QA may add additional tasks that they feel should receive mandatory inspections to the list. QA will not remove any mandatory tasks as listed above unless properly coordinated with HQ AFMC/DOM. QA will consolidate wing inputs for the 100 percent KTL and it will be approved by both the OG/CC and LG/CC in writing. Standardized AQLs will be developed by QA for all tasks on the 100 percent KTL. QA will review the list at least quarterly to ensure it encompasses those maintenance actions/functions that directly affect maintenance quality. Each affected organization will be provided a copy of the list by QA. QA will ensure units maintain this list and ensure its accuracy and compliance.

9.12.4.10.1. As a minimum in B-52 units, 2W1X1 inspector(s) will inspect 50 percent of all weapons system (aircraft armament) carded items following each aircraft periodic inspection.

9.12.4.10.2. As a minimum, 2W1X1 inspector(s) will inspect five percent of all completed maintenance inspections in aircraft weapons/armament systems each month.

9.12.4.10.3. QA will maintain and ensure compliance with the F-16 technical assistance organization (TAO) program and distribute the major command (MAJCOM) memorandum of agreement (MOA) and associated checklists to all F-16 units.

9.12.5. Routine task list (RTL). The QAP will also include a list of maintenance actions/functions that require evaluation on a routine basis. Wing QA will develop a list of those actions/functions quarterly. The following maintenance actions/functions should be reviewed for possible inclusion in the RTL and, if applicable, will be evaluated at least quarterly.

9.12.5.1. Aircraft launch/recovery procedures.

9.12.5.2. Preflight/thruflight/basic postflight (BPO) inspections.

9.12.5.3. Aircraft engine intake and exhaust inspections.

9.12.5.4. Active aircraft forms.

9.12.5.5. Aircraft status reporting.

9.12.5.6. Weapons and in-shop maintenance.

9.12.5.7. Munitions build-up.

9.12.5.8. Aircraft servicing.

9.12.5.9. Technical data usage.

9.12.5.10. TO management.

9.12.5.11. Composite tool kit (CTK) and tail number bin (TNB)/facilitate other maintenance (FOM) management.

9.12.5.12. Test, measurement, and diagnostic equipment (TMDE).

9.12.5.13. Aerospace ground equipment (AGE).

9.12.5.14. Housekeeping.

9.12.5.15. Vehicles.

9.12.5.16. OAP procedures (to include sampling procedures, documentation, etc.).

9.12.5.17. End-of-runway (EOR) procedures and Mode 4/radar warning receiver (RWR) checks.

9.12.5.18. CAMS documentation.

9.12.5.19. Egress maintenance (exception for egress tasks that require mandatory follow-up).

9.12.5.20. Aircraft wash and cleaning procedures.

9.12.5.21. Paint/corrosion control maintenance.

9.12.5.22. Survival equipment.

9.12.5.23. Borescope procedures.

9.12.5.24. Flight control rigging procedures and primary flight control rigging tasks as designated in aircraft MDS specific technical data.

9.12.5.25. Environmental compliance.

9.12.5.26. TCTO accomplishment.

9.12.5.27. Munitions support equipment (MSE) condition.

9.12.5.28. Cannibalization (CANN) of components from aircraft.

9.12.5.29. Aircraft weapons systems reconfiguration activities (installation/removal of racks, adapters, launchers, pylons, etc.).

9.12.5.30. Aircraft external tank reconfiguration procedures.

9.12.5.31. Boresight procedures.

9.12.5.32. Aircraft modification program compliance and conformity.

9.12.5.33. Standardized tool control and lost tool procedures.

9.12.5.34. Aircraft phase inspection and home station checks (HSC).

9.12.5.35. Engine removed, engine bay inspections.

9.12.5.36. QA will consolidate maintenance supervisors' inputs and suggested changes and seek joint signature approval of the GP/CC. Standardized AQLs will be developed by QA for all tasks on the RTL and it will be reviewed quarterly. Tasks will not be removed from the RTL without approval from both the OG/CC and LG/CC.

9.12.6. QA will coordinate with munitions plans and scheduling to ensure all inspections required by AFI 21-201 and any supplements are performed.

9.12.7. Evaluation and inspection plan. The QA superintendent/chief inspector will develop a quarterly group evaluation and inspection plan showing areas, types, and numbers of inspections and evaluations which will be conducted in the upcoming quarter. When developing the plan, the QA superintendent/chief inspector will:

9.12.7.1. Consult with the GP/CC, WWM, and other group/director maintenance leaders to determine their areas of concern and inspection and evaluation priorities.

9.12.7.2. Tailor the plan for each squadron, flight, or maintenance activity.

9.12.7.3. Consider historical PEs, QVIs, and other inspections (OI) data (especially any items having a pass rate of less that 80 percent); not mission capable (NMC) causes; aborts and trends; ion-flight emergencies (IFE) and trends; high component or system failure rates; repeat/recurring/CND discrepancies trends; DR/SR trends; suspected training deficiencies; technical data violations (TDVs), detected safety violations (DSVs), and tasks outlined in aircraft -6 TOs.

9.12.7.4. Distribute the plan to all maintenance organizations.

9.12.7.5. Review and update the plan during the quarter.

9.12.7.6. Use appropriate quantitative and qualitative statistical tools and methods to assist in determining standards.

9.12.7.7. Forward the plan to the GP/CC for approval.

Section 9D—Evaluations and Inspections.

9.13. General. The following evaluations, inspections and observations support the QAP: PEs, QVIs, safety and technical violations (STV), DSVs, TDVs, unsatisfactory condition reports (UCR), special inspections (SI) and (when directed) OIs.

9.14. Personnel Evaluations (PE). A PE is an OTS evaluation of a maintenance action or inspection by a technician or supervisor performed on weapon systems, components, or equipment. PEs evaluate the technician's or supervisor's job proficiency, degree of training and compliance with technical data. Individuals performing, supervising or evaluating maintenance tasks are subject to a PE. Document the PE on AF Form 2419 or quality assessment tracking (QAT) printout form. The PEs are broken down into two types:

9.14.1. Personnel evaluation (PE). A QA OTS evaluation of maintenance technicians or supervisors during actual job performance. PEs may be performed on individuals working alone or while working as part of a team. The evaluator may start/stop the task evaluation at any distinctive step; however, each evaluation will be thorough enough to accurately assess the proficiency of each individual under evaluation. During team evaluations, errors committed by the team member(s) and not detected by the team chief may also be attributed to the team chief.

9.14.1.1. Team evaluations are an OTS evaluation of maintenance supervisors and technicians completing a team task. A team task is a task that requires more than one person to accomplish as stated in the technical data (e.g., refueling, ECM POD up/down loading, bomb/munitions build-up, towing, weapons maintenance, and pylon installation).

9.14.1.2. The team task is rated as an overall pass or fail. Team evaluations will be scored the same as PEs.

9.14.2. Evaluator proficiency evaluation (EPE). An OTS evaluation of a QA inspector performing a PE/QVI.

9.14.3. Conducting PEs. When performing a PE, the QA inspector briefs the individual on the evaluation and the rating criteria prior to the start of the evaluation. The evaluation starts when the individual begins the task or portion of the task to be evaluated and is complete when the job or previously determined portion of the task is finished according to appropriate technical data. Limit the PE to the use of the same inspection card deck or technical data required for the job. Critique the individual upon completion. When performing an evaluation, the inspector determines if the technician or supervisor performed the job as prescribed by the published technical data and in compliance with directives.

9.14.4. Rating PEs. QA rates each evaluation based on standards in this chapter. A failed PE rating means the specific task was not performed within the standard. The rating applies only to the specific task evaluated and not to other tasks a technician is qualified to perform. Upon completion of a failed evaluation, the evaluator will provide on-the-spot training. If the supervisor determines the individual should be restricted from unsupervised performance of the task, or decertified on certifiable tasks, the supervisor annotates the technician's JQS or career field education and training plan (CFETP) according to AFI 36-2201, *Developing, Managing, and Conducting Training*, and annotates the AF Form 2435. Determine ratings as follows:

9.14.4.1. Excellent - Number of discrepancies detected does not exceed 25 percent of the AQL.

9.14.4.2. Satisfactory - Number of discrepancies detected is over 25 percent but not over the AQL.

9.14.4.3. Unsatisfactory - Number of discrepancies detected exceeds the AQL or:

9.14.4.3.1. A technician fails to comply with a step, steps, or portion of prescribed technical data that affects the performance of the equipment involved.

9.14.4.3.2. A technician or supervisor fails to detect a major discrepancy while complying with an inspection or workcard requirement.

9.14.4.3.3. A technician or supervisor demonstrates a lack of technical proficiency or system knowledge.

9.14.4.3.4. A technician or supervisor commits a safety or technical violation.

9.14.4.3.5. A technician fails to document maintenance actions in appropriate equipment records.

9.14.4.3.6. For nuclear weapons maintenance, an unsatisfactory rating shall be given when any of the applicable unsatisfactory conditions listed in TO 11N-25-1, *Nuclear Weapon Technical Inspections* or AFI 21-204, *Nuclear Weapon Procedures (FOUO)*, exist.

9.15. Quality Verification Inspections (QVI). A QVI is an inspection of equipment following a maintenance inspection or repair action and verifies a technician or supervisor properly completed the inspection or repair action. Do QVIs before equipment operation or use, if the operation of the equipment could invalidate indications of proper job accomplishment. Limit QVIs to the use of the same inspection card deck or technical data required for the job. Normally, this inspection does not require disassembling parts, removing stress panels, and like actions. The QVI for required -6 TO inspections may be accomplished by checking a portion of the required card or area. The QVI report reflects deficiencies by the individual who accomplished the task, identifies specific weaknesses in the maintenance effort, and may point out where improvements are needed. Report the condition of the equipment determined through the QVI to the owning and using workcenters. Review available documents and forms including workcards, work unit code (WUC) manuals and checklists. The review determines accuracy, currency, and compliance with applicable TOs and directives. Document discrepancies in active equipment forms (i.e., AFTO Forms 781A, **Maintenance Discrepancy and Work Document,** AFTO Form 244**, Industrial/Support Equipment Recor***d*, or AF Form 2420, **Quality Assurance Inspection Summary**).

9.15.1. Rating QVIs. Rate QVIs by comparing the number of discrepancies with the established AQL in this chapter.

NOTE: Units have the option to establish a standard for inspections requiring a large number of tasks (i.e., aircraft phase inspections or ISO inspections).

9.15.2. Document the QVI on the AF Form 2419 or printout of the QAT input screen. Each QVI is chargeable to the technician or supervisor who clears the CORRECTED BY block or INSPECTED BY block of the appropriate maintenance forms. When evaluating the INSPECTED BY technician, only the items normally verified by signing off the Red X will be evaluated. Only one evaluation will be scored for each inspection.

9.16. Safety and Technical Violations (STV). An observed event or condition with safety implications or technical violations not related to an inspection/assessment, which may be considered unsafe, not according to established procedures, and/or unfit to operate. A DSV, TDV, or any condition not in compliance with established standards, other than a DSV, are all types of STVs. STVs receive their own discrepancy category in the QAP. They may be reported by anyone assigned to the LG/OG QA and are corrected on the spot. QA notes and records any of the following conditions:

9.16.1. A DSV is an unsafe act committed by an individual and observed by QA. The inspector will stop the unsafe act immediately. Do not document a separate DSV on an individual undergoing a PE since the unsafe act automatically results in a fail rating on the PE. Use the word "safety" when a safety violation is committed during a PE.

9.16.2. A TDV is a QA observation of an individual performing maintenance without or not in compliance with technical data. Do not document a separate TDV on an individual undergoing a PE, since failure to use technical data automatically results in a fail rating on the PE.

9.16.3. A UCR is an unsafe condition other than a DSV. Charge the UCR to the workcenter supervisor. All UCRs are non-rated.

9.17. Special Inspections (SI). SIs are those inspections not covered by QVIs, PEs, or activity inspections and are GP/CC-directed. They may include, but are not limited to, CTKs, TO files, housekeeping, safety practices, FOD, etc.

9.17.1. The AF Form 2419 or QAT entry screen may be used to document SIs.

9.18. Other Inspections (OI). QA conducts the following inspections:

9.18.1. Activity inspections (group option). At the direction of the GP/CC, QA conducts activity inspections on all maintenance activities (e.g., component repair squadron (CRS), equipment maintenance squadron (EMS), OS, or MXS) and staff functions (e.g., OSS current operations flight, MOC, etc.). Activity inspections are designed to give managers a comprehensive, objective evaluation of mission capabilities and compliance with technical data and management directives for each function. They are management and compliance oriented.

9.18.1.1. The GP/CC ensures the depth and detail of the inspection is sufficient to evaluate the management capability of the maintenance organization.

9.18.1.2. QA recommends adjustments to the requirements based on trends and problem areas identified by QA reports, HHQ, inspector general (IG) inspections, and audit reports. Activity inspections are scheduled and included in the monthly maintenance plan. QA coordinates the inspection schedule with commanders to minimize disruptions. QA inbriefs and outbriefs unit commanders and key unit personnel during each inspection.

9.18.1.3. The inspection is conducted expeditiously and is consistent with the depth and detail desired by the GP/CC. Inspectors will provide specific references to support each finding. When unfavorable trends are identified, a recommended solution is given. If recommendations are the opinion of the inspector, they are identified as such as anecdotal information. Inspectors will record both favorable and unfavorable findings.

9.18.1.4. As a minimum, the following areas will be addressed during each activity inspection: configuration management (TCTOs, time compliance inspections (TCI), modifications, and OTIs), maintenance documentation (CAMS and aircraft 781 series AFTO forms), TO compliance and management, maintenance training, scheduled and unscheduled maintenance, tool and equipment accountability and serviceability, dedicated crew chief (DCC) program, safety, IPIs, clearing Red X discrepancies, FCF inspections, and impoundment procedures. Other evaluation areas should include deficiencies identified during previous HHQ inspections and those areas recommended by QA and commanders.

9.18.1.5. Activity inspections are rated as outstanding, excellent, satisfactory, marginal, or unsatisfactory.

9.18.1.5.1. In determining an overall rating and preparing the report, the following guidelines apply:

9.18.1.5.1.1. The report will be objective and factual with specific definition of problem areas, to include applicable references and recommended corrective actions for major problem areas.

9.18.1.5.1.2. The number of major and minor discrepancies and their seriousness will be taken into account.

9.18.1.6. As a minimum, activity inspection reports should be prepared in three parts. However, the activity report may be altered or tailored as desired by the GP/CC to meet local needs. Part 1 is a synopsis of inspection findings, Part 2 is a listing of major discrepancies, and Part 3 is a listing of minor discrepancies.

9.18.1.6.1. Major discrepancies require corrective action endorsements.

9.18.1.6.2. A discrepancy which affects the capability of the unit to effectively support the unit mission, a repeat discrepancy, or a discrepancy involving safety problems or hazards which could result in personnel injury or damage to equipment is identified as a major discrepancy.

9.18.1.7. Reports and the corrective actions to the discrepancies will be routed through the unit commanders to the GP/CC and finally to the wing commander (WG/CC) (if requested).

9.18.2. Document file inspections. When conducting a document file inspection, review aircraft and equipment status and historical documents for at least the previous 90 days.

9.18.2.1. The inspection of munitions historical documents includes combat ammunition system (CAS) generated documents and/or AFTO Form 15**, Air Munitions Serviceability and Location Record**, for location, lot number and condition entries.

9.18.2.2. Report discrepancies found in historical documents to the appropriate supervisor. Do not correct discrepancies unless they are of historical nature and can be verified from other available documents.

9.18.2.2.1. Highlight discrepancies on the form and identify the discrepancy with the inspector stamp.

9.18.2.3. Rate the inspections pass or fail based on the findings.

9.18.2.4. Annotate AFTO Forms 244, *Industrial/Support Equipment Record*, and AFTO Forms 245, *Industrial/Support Equipment Record Continuation Sheet*, in section IV, supervisory review.

9.18.3. Acceptance inspections. Owning workcenters (OWC) perform acceptance inspections to determine equipment condition and adequacy of depot or contractor maintenance as prescribed by TO 00-20-1, *Aerospace Equipment Maintenance General Policies and Procedures*. QA must perform these inspections when directed by the GP/CC. QA will write a wing OI specifying procedures for doing aircraft acceptance inspections on aircraft returning from programmed depot maintenance (PDM), depot field team, or contract field team (CFT) maintenance. As a minimum, include procedures for:

9.18.3.1. Reviewing the depot/contractor maintenance contract requirements and list, by contract paragraph number, performance work statement (PWS), and any applicable MOAs or memorandums of understanding (MOU), for the areas that will be inspected.

9.18.3.1.1. QA will ensure all unit added acceptance inspection requirements not listed in the depot/contractor maintenance contract or PWS and criteria are identified prior to reporting discrepancies according to paragraph **9.18.3.2.** below.

9.18.3.2. Monitoring corrective action on discrepancies found during the inspections and reporting these discrepancies according to TO 00-35D-54, *USAF Materiel Deficiency Reporting and Investigating System*. DRs are sent to the appropriate air logistics center (ALC), and appropriate AFMC functional manager.

9.18.3.3. Personnel performing acceptance inspections. Personnel must not only be qualified for inspecting, but familiar with contract specifications as well.

9.18.4. Each group QA will conduct a locally determined number of PEs and QVIs of engine blade blending. These inspections will be managed in the QE and inspection plan.

9.18.5. Graduate assessment. Inspectors, working in conjunction with the LTF, perform PEs on graduates to provide feedback to the LTF on the effectiveness of training courses and inspectors as required by AFMCI 36-201, *Determining Manpower Requirements*.

9.18.6. Aero club assessment. The host unit QA may perform an annual assessment of the base aero club according to AFI 34-132, *Aero Club Operations*, and AFI 34-117, *Air Force Aero Club Program*. These assessments are not limited to the information contained in AFI 34-132 and AFI 34-117. This assessment determines the effectiveness of maintenance management within the aero club and ensures aircraft are being maintained safely according to applicable technical data. The QA inspector/assessor is not required to possess an Federal Aviation Administration (FAA) airframe and powerplant (A&P) license or an inspection authorization (IA) to perform the assessment; however, possessing such credentials would prove to be helpful. The QA chief inspector will prepare a checklist that includes items from AFI 34-132 and AFI 34-117.

9.18.6.1. QA inspectors/assessors may conduct a 30-day follow-up assessment on all discrepancies identified during the annual aero club assessment. In addition, spot checks may be performed throughout the year to ensure safe and quality maintenance is being performed.

9.19. Classification of Discrepancies.

9.19.1. Class I - Improperly completed inspection or maintenance action. A required inspection TO procedural item missed or improperly completed on the last inspection or maintenance action. This category must be a specific workcard item or TO step for a specific condition or action. Use subclassifications of major or minor to indicate relative severity of discrepancy as determined by functional area inspector(s).

9.19.1.1. A minor finding is defined as an unsatisfactory condition that requires repair or correction, but does not endanger personnel, affect safety of flight, jeopardize equipment reliability, or warrant discontinuing a process or equipment operation.

9.19.1.2. A major finding is defined as a condition that would endanger personnel, jeopardize equipment reliability, affect safety of flight, or warrant discontinuing process or equipment operation.

9.19.2. Class II - Readily detectable items/other discrepancies. An obvious defect, which could have been readily detected by a technician or supervisor, or other discrepancies found during normal accomplishment of maintenance but not part of the inspection or maintenance TO action. Use subclassification of major or minor to indicate relative severity of a discrepancy as determined by functional area inspector(s). Class II major discrepancies are chargeable as Class I minors. Class II minor discrepancies are non-chargeable.

9.19.2.1. QA reviews Class II major discrepancies quarterly to determine if frequency of items identified warrants inclusion in the TO. If they do, QA submits an AFTO Form 22 or develops a local workcard (LWC) or local checklist (LCL).

9.19.2.2. High-missed carded items. Include high-missed carded items from PEs and QVIs in the QAP summary. A high-missed carded item is defined as any workcard item missed at least three times during a one-month period. Units should use the high-missed carded items to enhance the maintenance training program, detect trends, and basically improve the quality of maintenance.

9.20. Establishing Acceptable Quality Levels (AQL). AQLs are developed by QA for each assessment category.

9.20.1. An AQL denotes the maximum allowable number of Class I minor findings a task (or process or product) is charged for the task to be deemed acceptable/meets standards and rated QVR-1.

9.20.2. Exceeding the maximum number of Class I minor findings results in the task being rated QVR-2, unacceptable/doesn't meet standards. However, assign a QVR-3 rating when:

9.20.2.1. A TO warning is overlooked or a safety error (one which could result in personal injury) is detected.

9.20.2.2. A TO caution is overlooked or an equipment reliability error (one which could result in equipment/system unreliability or damage) is detected.

9.20.2.3. The person(s) being evaluated demonstrates a significant lack of technical proficiency.

9.20.3. When establishing the AQL consider at least six months of data on Class I and Class II major discrepancies, evaluations performed, and other pertinent data. Consider combining items of equipment within a general equipment type having nearly identical standards.

9.20.4. The LG/CC and OG/CC will approve the AQLs and adjust those that are unrealistic.

9.20.5. AQLs for nuclear maintenance, cruise missile maintenance, and nuclear weapons handling tasks are defined in AFI 21-202, *Combat Ammunition System Procedures*, as four minor errors for weapons maintenance tasks and two minor errors for weapons handling tasks, and will not be adjusted.

Section 9E—QA Reports.

9.21. General. Every unit will capture and catalog the minimum data elements depicted in paragraph **9.22.** of this section into their database for trending, crosstell, lessons learned, and benchmarking purposes. Capture assessment and trend data using a database that makes information easily exportable for crosstell and benchmarking purposes. The listed fields, inspection, and discrepancy categories must be used regardless of the tracking program used. Due to widespread availability of Microsoft™ Access™ software, it is recommended as the preferred software for cataloging assessment data.

NOTE: This does not constitute endorsement of Access™ or any other Microsoft™ Corporation product by the Department of Defense (DoD), the USAF, or MAJCOMs.

9.21.1. Trend analysis information and, in particular, recommendations or results, which have the potential to enhance maintenance quality or readiness, should be shared with other units. Units are also encouraged to expand on these minimum data fields and submit recommendations to HQ AFMC/

DOM at any time, for possible inclusion in revisions to this instruction. Every effort should be made to fully utilize local area networks (LAN) and provide all supervisors with real-time access to the database.

9.22. Report Preparation. Units are authorized to design local worksheets to assist them in gathering data for inputting into the QAT program. The QAT input screen is acceptable if it contains the following mandatory information:

9.22.1. Workcenter - Input the shop code whose process was inspected.

9.22.2. Inspector/evaluator - Enter the employee number of the inspector/evaluator.

9.22.3. Inspectee - Enter the employee number of the person evaluated.

9.22.4. Date - Enter the date the inspection/assessment/evaluation was completed.

9.22.5. Time - Enter the time of day when the assessment took place (24-hour clock).

9.22.6. Shift - Enter the shift when the actual work was performed.

9.22.7. Inspection/evaluation category - This code reflects the shop and inspection/assessment performed. The assessment subcategory is adjusted to each different airframe, but the main categories will remain the same throughout the command. Those categories are:

A - Ground handling.

B - On-aircraft inspection.

C - Off-aircraft inspection.

D - On-equipment maintenance.

E - Off-equipment maintenance.

F - MSE.

G - AGE.

H - Munitions.

I - Management inspection.

J - Environmental compliance.

K - Training.

L - Technical order distribution account (TODA).

M - OI/observation.

9.22.8. AQL - The number of discrepancies allowed for a particular item or process (task).

9.22.9. QVR - Quality verification result (1,2 or 3).

9.22.10. Input PEs as excellent, satisfactory, and unsatisfactory.

9.22.11. Equipment - Enter the type of equipment assessed (e.g., F-16, C-130, B-1, A-10, -60 AGE, avionics, phase, and advanced cruise missile (ACM) pylon).

9.22.12. Equipment ID - Enter the equipment ID (e.g., aircraft serial number 91-0387, SG01, etc.).

9.22.13. Discrepancy Category - Correlates with the how malfunction codes in the -06 TO, but is more general in nature since it is not used to report maintenance actions in CAMS. Identify discrepancies as a major or minor (Class I or Class II).

9.22.13.1. These categories are:

1 - Safety

2 - Foreign object (FO)

3 - Leak

4 - Loose or missing hardware

5 - Broken or damaged

6 - Chafed or worn

7 - Out of tolerance

8 - Incorrect servicing

9 - Incorrect installation or application

10 - Corroded

11 - Cut or punctured

12 - Dirty or contaminated

13 - Binding, stuck, or jammed

14 - Overdue

15 - Documentation error

16 - Failed to operate

17 - Unsafe or unfit to operate

18 - No defect

19 - Lack of technical proficiency/system knowledge

20 - Failed to comply with TO steps/instructions

21 - Failed to detect a major discrepancy

9.22.14. Remarks - The narrative of inspector/assessor findings and additional comments.

9.23. Trend Analysis. Production personnel, as well as squadron supervision, should have unlimited access to the QAT computer. Data from evaluations can be extracted to fit the needs of the process owner and to help in determining acceptable levels of performance. For purposes of illustration, say the AQL for an aircraft preflight is set at five. QA compiles assessment data and analyzes it to determine if preflight QVR ratings exceed, meet, or fall below a desired performance goal. If evaluated preflights consistently received QVR-1 ratings, QA will propose adjusting the AQL to allow fewer minor findings in order to receive the same QVR-1 rating, or reduce the number of assessments performed in that category. QA should also crosstell with other units to determine if this is a success story to share or if assessments are not as in-depth as those of other units. If the percentage of preflights receiving QVR-1 ratings falls near

the performance goal, then QA may elect to leave the preflight AQL at five and continue to monitor the task or category for trends. However, if the percentage of preflight evaluations receiving QVR-1 ratings is lower than the performance goal, then an improvement opportunity exists and QA should work with the squadron to develop an action plan for improvement. Courses of action for this plan could include assessing quality of training provided, looking for process problems (i.e., inadequately stocked bench stocks, outdated/improper tech data, etc), or allowing more minor findings because the established standard is too strict. Allowing more minor findings and making a QVR-1 standard less stringent will be done only when it is determined that the AQL is too strict for the process being evaluated. The LG/CC and OG/CC must approve any adjustments to the AQL.

9.24. Weekly Summary Reports. (GP/CC option) The chief inspector publishes a weekly summary of the past week's findings and observations, to give maintenance supervisors timely feedback on negative trends.

9.24.1. The weekly summary should be brief, informal, timely, and useful to managers. It should be a quick description of important findings by squadron, flight, or section, with each dedicated inspector commenting on his or her area.

9.24.2. The chief inspector should not include isolated incidents or the names of individuals receiving unsatisfactory ratings in the report.

9.24.3. QA distributes copies of the weekly summary report to squadron commanders, SMO/MS, squadron analyst/database manager (DBM), and LTF. SMO/MS distribute the report within their squadron.

9.25. Monthly QA Review Boards. A monthly QA meeting will be held to review the previous month's performance with regard to QA evaluations. Attendance will include the squadron commanders, squadron SMOs/MSs and superintendents, inspectors, and supervision from support squadrons. The meeting will be co-chaired by the OG/LG commanders or their designated representatives. The objectives of the meeting are to provide crossfeed/feedback to all maintenance activities in the wing, review QA evaluations from the previous month, and adjust the QAP as deemed necessary. The agenda should include, but is not limited to, the 100 percent KTL and RTL, scoring standards (AQLs), QVI, PE, DSV/TDV/UCR, OI activity review, and trend analysis. QA will forward a hard copy of the review board briefings/minutes to the WG/CC. Additionally, the WG/CC will be briefed at least quarterly on the previous quarter's inspection activities, to include the metrics required in AFI 21-101.

9.26. Monthly Summary Reports. The squadron dedicated inspector or augmentee will write and publish a monthly summary based on evaluations and inspections conducted during the month. It is a word picture of inspections and evaluation results, not just a listing of inspections and ratings. Review previous monthly summary reports to determine trends. Any viable and comprehensive computer program may be used to publish the monthly summary. Route the summary to the GP/CC and squadrons.

9.27. QAP Summary. The LG and OG QA will jointly publish a quarterly wing QAP summary. QA compiles the QAP summary from QAT data, load crew evaluation statistics provided by the WSS, and weekly summaries. The QAP summary may also include graphs, narrative analysis, discussion of common problem areas, descriptions of successful programs or initiatives, and an honor roll of individuals consistently earning excellent ratings. OG QA includes FCF trend analysis and WSS evaluation data. LG/QA will forward a copy of the combined QAP summary to HQ AFMC/DOM quarterly.

9.28. Spot Checks. QA spot checks reparable items being turned in not repairable this station (NRTS) or condemned. QA determines if all possible authorized repair was done.

9.29. Reports and Forms. File and dispose of reports and forms according to AFI 37-138, *Records Disposition-Procedures and Responsibilities*.

Section 9F—QA Programs.

9.30. General. This section identifies program responsibilities for operations and LG QA.

9.31. Product Improvement Program (PIP). The PIM promotes deficiency reporting and provides a sound PIP based on user inputs. Together with day-to-day maintenance data reporting, the PIP provides an effective method of improving the R&M of equipment.

9.32. Product Improvement Manager (PIM) Responsibilities. The PIM is assigned to QA and is the wing focal point for all aircraft maintenance deficiency reporting and technical data and PI programs. Responsibilities include:

9.32.1. Emphasizing and promoting the PIP.

9.32.2. Monitoring the TODO and its subfunctions including the central TO file, LCL, LWC, and local job guide (LJG) program, computer program identification numbering (CPIN), pack-up data according to TO 00-5-2, *Tech Order Distribution System*, automated TO management system, and timely notification of priority technical data to the appropriate group or squadron supervisors.

9.32.3. Deficiency reporting to include quality, materiel, software, warranty and service reports (SR), exhibit processing, TO deficiencies, and inputs for R&M working groups.

9.32.4. Monitoring the configuration management process including the TCTO program, OTIs, modification proposals, and local maintenance requirements. Consult AFI 21-101 for program guidance.

9.32.5. Controlling the maintenance TO improvement program as outlined in TO 00-5-1.

9.32.5.1. Units will establish local procedures for processing weapons loading related AFTO Forms 22. As a minimum, the WSS will review and approve all AFTO Forms 22 before they are submitted to QA.

9.32.6. Assign control numbers, and forward and track all AFTO Forms 22.

9.32.7. Process and manage AFTO Forms 135, **Source, Maintenance, and Recoverability Code Change Request**, according to TO 00-25-195. Use a log or an automated product to maintain the status of AFTO Forms 135.

9.32.7.1. Conduct a critical review of AFTO Forms 135 returned with an unsatisfactory answer to determine whether to submit additional information.

9.32.7.2. Coordinate repair evaluation meetings as necessary when AFTO Form 135 repair changes affect several agencies.

9.32.8. Evaluate and screen maintenance IDEAs and suggestions.

9.32.9. Monitor warranty item deficiency reporting process to ensure items are properly loaded to the CAMS database and deficiency reporting is accomplished according to TO 00-35D-54. Units support-

ing reconnaissance aircraft comply with warranty deficiency report requirements according to the applicable weapons system logistics support plan (LSP).

9.32.10. Serves as focal point for base self-sufficiency. Interfaces with maintenance, supply, and Gold START to support self-sufficiency actions.

9.33. Monitoring the Configurations Management Process. Configuration management includes formulating and submitting modification proposals, tracking unit concerns being worked by depots and/or contractors, and ensuring proper implementation of modification instructions or TCTOs.

9.33.1. A modification proposal is a recommendation to change the operation, use, or appearance of Air Force equipment (also known as form, fit, and function). Submit all modification proposals on an AF Form 1067, **Modification Proposal**. After approval by GP/CC, mail or fax the proposal to the HQ AFMC/DOM functional manager for information purposes. Specific modification configuration control authority unique to AFMC test centers will be defined in a supplement to this instruction.

9.33.2. Command-directed temporary (T-1 and T-2) modifications are similar to TCTOs; however, they are temporary, and there is no corresponding change to approved weapon system technical data. The approved modification instruction is the authority for both modification and maintenance as long as the modification is installed. To maintain configuration control, command-directed modifications are documented in the same manner as TCTOs. QA must maintain a copy of the command T-1 and T-2 modification instructions on file until they are formally rescinded. Follow additional AFMC guidance in AFMCI 21-126, *Temporary (T-2) Modification of Aerospace Vehicles*, and information found in AFI 21-101.

9.33.3. In coordination with wing and group maintenance schedulers, the PIM reviews TCTOs, OTIs, and command modifications to determine their applicability to unit maintained equipment and notifies the appropriate maintenance operations functions, and monitors expended work hours during the initial unit TCTO completion and the quality of unit compliance actions. Munitions and special weapons TCTOs are reviewed by the respective flight and returned to QA for date stamping. PMEL TCTOs are reviewed by the TMDE flight. PIM responsibilities include:

9.33.3.1. Evaluating the overall unit configuration management program by reviewing technical, managerial, and documentation aspects of the program and reporting any deficiencies to the appropriate local manager or as directed in TO 00-5-15, *Air Force Time Compliance Technical Order System*, and AFMC instructions. Immediate action, urgent action, and safety TCTOs require particular attention and emphasis.

9.33.3.2. Date stamping all TCTOs with the date received to establish the start of the TCTO compliance period. The compliance period for urgent and emergency action TCTOs begins at the time the message arrives on base.

9.33.3.2.1. Send two copies to the base supply materiel storage and distribution flight inspection section with a cover letter requesting the number of TCTO affected items in supply. Base supply endorses the cover letter back to the PIM and provides a copy to OSS and/or LSS PS&D. The PIM will provide copies of each TCTO received to the wing PS&D function. Send a copy of MSE TCTOs to the munitions flight. The PIM sets up a suspense for each cover letter.

9.33.3.2.2. Send a copy of TCTOs for munitions or missiles to the munitions flight and munitions supply (AFK) upon receipt. If parts are required from base supply or components stocked

by base supply are affected, send one copy to base supply and one copy to materiel control, maintenance supply liaison (MSL), or sortie support flight support section. Do not furnish the 11N series TCTOs to base supply, materiel control, or MSL.

9.33.4. Monitor and document initial compliance on TCTOs and determine depth and frequency of inspection coverage. Coverage is directly related to the complexity of the TCTO as well as to how critical the system or the component is to be modified.

9.33.5. Support verification, validation and TCTO kit proofing, OTIs and command-directed modifications.

9.33.6. The PIM and the TCTO monitor will attend all TCTO planning and reconciliation meetings.

9.33.7. The PIM will ensure all test aircraft that do not meet TCTO applicability criteria due to installed modifications are identified and tracked in a comprehensive database system. This non-applicability list will reference the waiver of compliance signed by the GP/CC.

9.33.7.1. In coordination with the wing PS&D and (when necessary) the combined flight test (CFT) modification manager, the PIM will ensure all aircraft that are de-modified have a conformity check (de-mod reconciliation) complied with to ensure aircraft TCTOs are reinstated (as applicable).

9.34. Deficiency Reporting. Deficiency reporting is the processing and controlling of reports prescribed by TO 00-35D-54 and TO 00-5-1. With MAJCOM concurrence, units will publish local instructions outlining additional specific procedures for DR completion. The DR monitor ensures the following:

9.34.1. Compliance with TO 00-35D-54 acceptance inspection report requirements for aircraft returning from depot or contract overhaul.

9.34.2. Criteria is followed for submission of DRs. Ensure the deficiency is adequately defined, meets the criteria of the governing instruction, and is investigated when necessary.

9.34.3. Background information and definitive information on suspected deficiencies is submitted.

9.34.4. Each report is verified against pertinent publications and assigned the proper precedence and classification.

9.34.5. Unit factors contributing to TO deficiencies are screened. Take actions locally on unsatisfactory conditions resulting from local procedures or a lack of technical capability to ensure these deficiencies are corrected.

9.34.6. A critical review is conducted of the DRs returned with an unsatisfactory answer. Determine whether to submit additional information.

9.34.7. A file is maintained for all R&M deficiencies (non-quality) reported by the maintenance units, but not meeting the criteria for submission to the ALC. These deficiencies are tracked on a PI worksheet, according to AFI 21-118, *Improving Aerospace Equipment Reliability and Maintainability,* for future product improvement working group (PIWG) action.

9.34.8. Exhibit processing oversight, by coordinating with appropriate ALC item and equipment managers, base supply, and transportation to ensure proper exhibit control and handling. Provide DRs for reconnaissance equipment according to the applicable LSP.

9.34.9. DR review prior to releasing to the ALC according to TO 00-35D-54.

9.35. Deficiency Assessment. Assessing unit R&M concerns is twofold. First, review all unit reported R&M deficiencies and determine those caused by unit factors and local conditions versus those beyond the unit's control. Second, review available maintenance and supply trends and high work hour consuming repairs. Maintenance data systems analysis (MDSA) and base supply provide the majority of this information. The PIM also:

9.35.1. Reports unit factors contributing to a deficiency to the appropriate local agency or supervisor for resolution.

9.35.2. Identifies potential PIWG items by the letter P on the DR logs.

9.36. R&M Working Groups Input and Preparation. At the heart of the R&M effort are many improvement programs such as PIP, IDEA, saving through value enhancement (SAVE), productivity, reliability, availability, maintainability (PRAM) program, and PIWGs. The PIM is an integral part of the information gathering and education process of PIWGs. This is accomplished by emphasizing and promoting the PIP through to maintenance technicians and supervisors during visits to workcenters. To enhance R&M, the PIM will:

9.36.1. Develop PIWG input report for each system (e.g., AGE, weapons, TMDE, avionics, engines, commodities, and the primary weapon system). Submit your ranked items for that particular system. Rank items according to weighed factors in AFI 21-118, *Improving Aerospace Equipment and Maintainability*, and for the component improvement program (CIP) as directed by AFMC functional managers.

9.36.2. Conduct R&M working group meetings with supervisors and technicians to ensure quality and meaningful inputs to PIWGs, or to solicit ideas to enhance PI. The R&M working group screens and discusses all issues affecting R&M of assigned weapon systems, associate MSE, and AGE, and component reliability. Meetings should be chaired by the LG/CC or designated representative.

9.36.3. Attend PIWGs, or provide adequate background on PIWG issues, to AFMC functional managers to allow for quality representation. Distribute PIWG minutes and ALC corrective actions to the appropriate unit agencies.

9.37. Maintenance Related IDEA Program Applications (AF Form 1000). The PIM processes and monitors the AF Forms 1000 for maintenance related suggestions according to AFI 38-401, *The Air Force Innovative Development Through Employee Awareness (IDEA) Program*. When required by the base IDEA office, the PIM determines the appropriate OPR for maintenance related IDEAs. All maintenance related IDEAs will be routed through the PIM for final screening prior to leaving the base. The PIM will ensure maintenance related IDEAs are thoroughly evaluated, and AF Forms 1000-1, **Suggestion Evaluation and Transmittal**, are accurately completed per AFI 38-401 and AFI 38-402, *Suggesters and Evaluators Handbook*, before forwarding for subsequent headquarters or depot evaluation.

9.38. Technical Order Distribution Office (TODO). TO 00-5-2 provides criteria for establishing levels of TO distribution activities. The special weapons TODO (SW-TODO) is under the control or review of a munitions activity. The TODO ensures TOs are maintained according to TOs 00-5-1 and 00-5-2. The TMDE TODO is established under the control of the TMDE flight. At non-nuclear bases, the special weapons TO account should be maintained by QA/TODO.

9.38.1. QA central TO File. At a minimum, the QA file contains methods and procedures TOs and a copy of all TCTOs pertaining to the equipment owned, operated, or maintained by the wing. This includes specific TOs identified by the OG/CC and LG/CC and the QA superintendent. This file is kept to meet QA requirements, not to duplicate TOs held within maintenance functions. Include current inspection workcards, WUC manuals, and maintenance checklists for each type and model of equipment maintained by the aircraft maintenance functions.

EXCEPTION: This should not include those TOs used in support of one-of-a-kind equipment, transient maintenance, one-of-a-kind base support aircraft, and TMDE. Type IV PMEL TODA may be serviced by the QA central TODO.

9.38.2. Automated technical order management system (ATOMS). In addition to its designed purpose as established in TO 00-5-2, ATOMS (automated) serves as a locator for maintenance TOs. Updates are based on information from requisitions from TODAs in the operations and MXSs.

9.38.3. LCLs, LWCs, LJG, and local page supplements (LPS). Use of LCLs, LWCs, LJGs, or LPSs to accomplish maintenance on Air Force equipment places a considerable responsibility on the TODO for the safety of operations, the adequacy of procedures, and the quality of maintenance performed. A QA inspector qualified on the system requiring local changes will thoroughly research procedures contained in the local technical instructions before publication and validate them for currency according to TO 00-5-1. Ensure LCLs, LWCs, and LJGs are reviewed for currency when source reference data changes. Local guidance will be documented in the base supplement to TO 00-5-1.

9.38.4. Address indicating group (AIG) maintenance. To ensure effective distribution, TODOs are responsible for placement on appropriate AIG distribution to receive interim TCTOs. The TODO will establish AIG requirements with the AIG owner as well as the local base distribution center per requirements in TO 00-5-2 and AFMAN 33-326, *Preparing Official Communications*.

9.38.5. TO notification. TODO prepares a list of all changes and revisions to indexes, TOs, inspection workcards, and checklists applicable to maintenance. This list includes TO number and date of receipt. Include the list in the weekly maintenance plan. Supervisors review the list of changes and ensure all personnel are aware a change or revision has been received. Additionally, bring immediate action and urgent action TCTOs, safety supplements, and interim supplements to the attention of key supervisors within 24 hours of receipt.

9.38.6. TO file inspections. The QA TODO conducts annual and periodic spot inspections on other maintenance and operations TODO and TODA files within the aircraft maintenance community, to include SW-TODO and special weapons TODA (SW-TODA) files. As a minimum, the QA TODO will use the checklist provided in TO 00-5-2.

9.39. One-Time Inspections (OTI). OTIs are a look only or minor maintenance action to verify the existence of suspected equipment conditions or malfunctions. HHQ, lead command headquarters, the weapon system manager or support manager, or GP/CC can initiate OTIs. OTIs may be equipment condition or procedural compliance oriented. OTIs may be continued over a period of time until problems are resolved. QA or the OWC will perform OTIs. OTIs will be issued with a data code consisting of a unique alpha prefix (e.g., B = AFMC, C = ASC, and L/O = LG/CC or OG/CC-directed) and six numbers (last digit in year issued, month issued, and the sequential number of the inspection). An example of an AFMC OTI data code is B902010 (tenth HQ AFMC OTI of 1999, issued in February). This data code is used to report and control inspection compliance according to AFCSM 21-568, Vol 2, *Time Compliance Techni-*

cal Order. Each inspection contains the estimated work hours to accomplish the inspection, a required completion date, and reporting instructions. The issuing authority in TO 00-5-15 determines command and local OTI rescission dates. All command OTIs will be coordinated through HQ AFMC/DOM for administration purposes prior to release. All local OTIs must be coordinated through appropriate GP/CC prior to release.

9.39.1. OTI distribution. Official copies of OTIs can be sent by electronic means, to include message, facsimile transmission, and computer e-mail to applicable organizations. Messages should be faxed or e-mailed to units experiencing messaging problems or requiring immediate copies of OTIs. Faxed copies constitute official messages as long as they are copies of the official OTI and not a draft of the OTI. When OTIs are faxed, sending and receiving personnel must verify that all information from the original copy has been received.

9.39.2. OTI files. Each affected organization receiving a OTI files a copy until the rescission date.

9.40. Functional Check Flight (FCF). An FCF is a flight necessary to ensure an aircraft is airworthy and capable of accomplishing its mission. The requirement for an aircraft FCF is a decision exercised by commanders at all levels, through their SMO. Refer to the following sources for additional guidance: AFI 11-401, *Flight Management*; AFI 13-201, *US Air Force Aerospace Management*; MCR 57-1, *Operation and Management of Aircrew Training Devices*; TO 1-1-300, *Acceptance/Functional Check Flight and Maintenance OPR Checks*; TO 00-20-5; and applicable -6 and -1 TOs.

EXCEPTION: When a large aircraft requires an FCF, the OG/CC issues temporary written certification designating the most highly qualified crew available. The OG/CC and OG QA (or LG QA when applicable) ensure crews are thoroughly briefed on specific FCF requirements and procedures. File certification letters with the FCF program manager.

9.40.1. The OG/CC (LG/CC when delegated by the WG/CC) is responsible for the management and administration of the wing FCF program. GP/CCs, FCF officers in charge (OIC) and crew members certified to perform FCFs are responsible for ensuring compliance with these procedures. In addition, OG or LG/CCs will:

9.40.1.1. Review qualifications of all assigned crews and select highly qualified individuals as FCF crews.

9.40.1.2. Establish local FCF procedures according to applicable directives and ensure these procedures are implemented on all FCFs. Units must publish these procedures as supplements to this instruction.

9.40.1.3. Appoint the wing FCF OIC and noncommissioned officer in charge (NCOIC) (or civilian equivalent).

9.40.2. The FCF OIC:

9.40.2.1. Must be FCF qualified in a unit mission aircraft, have previous FCF experience acceptable to the GP/CC, have attended the aircraft maintenance officers course (AMOC) (accelerated), and be able to serve as checkout pilot in mission aircraft.

9.40.2.1.1. This duty may be assigned by the OG/CC to an aircrew member assigned to standardization/evaluation.

9.40.2.2. Ensures a standard FCF profile and associated procedures are established for each type of assigned aircraft. In addition, when a full FCF profile is not required, a tailored profile is developed by eliminating procedures from the standard profile not required to verify functional ability of the system causing the FCF.

9.40.2.3. Is responsible for implementing and managing an effective FCF program. The OIC also:

9.40.2.3.1. Develops appropriate FCF checklists and procedures.

9.40.2.3.2. Establishes an FCF checkout and continuation training program.

9.40.2.3.3. Analyzes FCF/operational check results on a continuing basis and submits recommendations to QA for improving FCF criteria and procedures.

9.40.2.3.4. Serves as a liaison between maintenance and operations in areas of flying safety, standardization, and operational maintenance priorities with respect to the FCF program.

9.40.3. Crew requirements. GP/CCs ensure FCF crews are briefed on the provisions of TO 1-1-300, *Acceptance/Functional Check Flight and Maintenance OPR Checks*, and are completely familiar with and in compliance with all local FCF procedures.

9.40.4. Operational check flight (OCF). Units will establish and publish local procedures. The FCF NCOIC will review all OCFs before the flight. Fly OCFs with qualified aircrews when an operational check is not listed as a weapon system -6 FCF requirement and when either of the following conditions exists:

9.40.4.1. Test equipment does not exist to perform the operational check on the ground.

9.40.4.2. An in-flight operational check is required by -l and -2 technical data.

9.40.5. Flight Requirements:

9.40.5.1. The mandatory requirements for an FCF are outlined in TO 1-1-300 and the -6 TO. The FCF profile is normally determined by the maintenance requirement causing the FCF. A full profile FCF is normally flown each time an FCF is required (except helicopters). However, at the discretion of the FCF OIC, based on the LG/CC's or OG/CC's recommendation, the FCF profile may be tailored for the maintenance requirement causing the FCF.

9.40.5.2. Do not fly FCFs in conjunction with other missions or training requirements unless waived by provisions in TO 1-1-300.

9.40.5.3. Follow weather conditions contained in TO 1-1-300 at all times unless aircraft are urgently required for operational commitments. Waiver provisions are outlined in TO 1-1-300 for the type and model of aircraft involved. During temporary duty (TDY) operations, this authority is the prerogative of the detachment/squadron or mission commander.

9.40.5.4. Conduct FCFs during daylight hours only, except for aircraft with four or more engines unless waived by provisions specified in TO 1-1-300.

9.40.5.5. Fly and report supersonic flights according to AFI 13-201.

9.40.5.6. Fly FCFs using radar control to the maximum extent possible.

9.40.5.7. Follow aircraft -6 TO warnings and cautions restricting FCF profile at particular phases of the FCF. Local procedures for FCF profiles will include the applicable -6 TO restrictions.

9.40.5.8. The aircraft -6 TO does not normally require an FCF for a single engine change on a two engine aircraft. However, such FCFs are required for an extended over-the-water flight (i.e., overseas deployment). This requirement applies to engines received from the propulsion flight or depot with no aircraft operating time since major maintenance. This does not apply to engines obtained from donor aircraft (i.e., CANN) with established aircraft operating time.

9.40.6. Unit Procedures. As a minimum, units will establish and publish local procedures in a supplement to this instruction to include:

9.40.6.1. Configuration. Normally a clean configuration is required whenever FCFs are accomplished for flight controls, fuel controls, or engine changes. Fixed wing pylons, fixed wing tip tanks, and fixed external stores may remain installed unless they interfere with fuel scheduling, aerodynamic reaction, air loading, signaling propagation, etc.

9.40.6.2. Fuel load.

9.40.6.3. Except for currency requirements listed in this section, FCF crew currency requirements are based on the complexity of the weapon system.

9.40.6.4. Expanded preflight check by the aircrew.

9.40.6.5. Ground procedures (compass swing, taxi check).

9.40.6.6. Radio procedures.

9.40.6.7. Radar control procedures.

9.40.6.8. Procedures to enter test area.

9.40.6.9. Control bailout area.

9.40.6.10. Control jettison area.

9.40.6.11. Emergency landing base.

9.40.6.12. Debriefing procedures.

9.40.6.13. Procedures to adequately prepare, perform, and debrief aircrew training device (ATD) FCFs.

9.40.7. If applicable, the FCF NCOIC and OG/QA superintendent will:

9.40.7.1. Ensure a standard FCF profile and associated procedures are established for each type of assigned aircraft. In addition, when a full FCF profile is not required, a tailored profile will be developed by eliminating procedures from the standard profile not required to verify functional ability of the system causing the FCF.

9.40.7.2. Monitor all FCFs according to the appropriate -6 TO, TO 1-1-300, and other applicable directives.

9.40.7.3. Notify OSs as soon as possible when requesting FCF crews.

9.40.7.4. Ensure local procedures for overall management and use of FCF crews has been developed and published.

9.40.7.5. Ensure that each FCF crew is briefed on the following prior to flight:

9.40.7.5.1. Purpose of the flight.

9.40.7.5.2. Previous maintenance problems and discrepancies recorded on the aircraft and the system/equipment relating to the FCF.

9.40.7.5.3. Documentation requirements for the 781 series AFTO forms and the -6 TO FCF checklists, when applicable.

9.40.7.6. Review aircraft W&B documents.

9.40.7.7. Ensure an information file for briefing FCF flight crews is maintained. As a minimum, the file will contain the following items:

9.40.7.7.1. Mission profile for each type of assigned aircraft, consisting of checks to be accomplished, presented in consecutive order.

9.40.7.7.2. Unit and command directives concerning FCF procedures.

9.40.7.7.3. An FCF checklist for each type of assigned aircraft.

9.40.7.7.4. TO 1-1-300, *Acceptance/Functional Check Flight and Maintenance OPR Checks*.

9.40.7.7.5. Map of local FCF area or route of flight.

9.40.7.7.6. List of authorized FCF crew members signed by the appropriate squadron commander. Retain certification letters on file for a minimum of one year.

9.40.7.8. Use an FCF checklist during each FCF performed. Review the FCF checklist and the aircraft forms with the FCF crew during debriefing to determine all requirements were accomplished. Recording devices may be used to provide detailed accounting of in-flight discrepancies, assist troubleshooting and aid in debriefing. Forward the completed FCF checklist to the appropriate PS&D for filing in the document file of the aircraft. Document each discrepancy discovered during the FCF in AFTO Forms 781A. After corrective action is complete, review AFTO Forms 781A for adequacy of the corrective action.

9.40.7.9. Maintain an AF Form 2400, **Functional Check Flight Log**, or similar automated product which includes the date and time of the FCF, aircraft serial number, reason for FCF, name of debriefer and name of aircrew commander. It will also show if the aircraft was released for flight, reasons for any non-release, action taken and date the completed maintenance documents were forwarded to the centralized logistics or OS PS&D.

9.40.7.9.1. Review the log monthly for trends indicating problems requiring further analysis or corrective actions.

9.40.7.9.1.1. Identify deficient areas and forward to the OG/CC and OS commander required review or action.

9.40.7.9.2. If an automated product is used, all information currently tracked on the AF Form 2400 is tracked in the computer.

9.40.7.10. Serve as the focal point and ensure all FCF requirements are completed when an FCF is required on transient aircraft. QA at the transient base will:

9.40.7.10.1. Establish clear lines of communication between the transient alert section, host base FCF function, and the owning organization.

9.40.7.10.2. Units will develop local written procedures to cover any maintenance actions performed on transient aircraft, to include step by step guidance for accomplishment of FCFs.

9.40.8. FCF Aborts. An air abort due to a condition other than the one that generated the FCF is counted as an FCF release. If a malfunction occurs during an FCF and is not related to the condition generating the FCF and the original condition operationally checks good, the aircraft can be released for flight. Aircrews normally make the release decision.

9.40.8.1. All ground aborts result in a non-release.

9.40.9. Waivers. OG/CCs may authorize temporary waivers to this instruction for aircrew qualification when operational requirements dictate. Permanent waivers, not otherwise granted in this instruction, require HQ AFMC/DO approval.

9.41. High-Speed Taxi Checks.

9.41.1. When a maintenance ground operational check requires aircraft movement at higher than normal taxi speeds, the aircraft is normally flown. FCFs or OCFs are normally used to accomplish these checks. However, OG/CCs have the option to authorize high-speed taxi checks. If this option is exercised, process aircraft forms through OG/QA using FCF procedures.

9.41.2. Perform high-speed taxi checks with qualified FCF aircrews according to applicable aircraft -1 and maintenance TOs.

9.41.2.1. To minimize brake and tire wear, aircraft will be configured with the minimum fuel practical to accomplish high-speed taxi checks. However, enough fuel will be on-board to execute a takeoff, normal pattern, and landing with applicable reserves should unexpected circumstances dictate getting the aircraft airborne.

9.41.3. OSs and QA jointly develop an aircrew briefing checklist specifically for high-speed taxi checks, to include the required FCF briefing items and pertinent notes, warning, and cautions (e.g., allow sufficient cooling time for aircraft brakes prior to additional taxi checks).

9.41.3.1. Aircrews performing high-speed taxi checks fill out a takeoff data card to indicate the highest speed expected to ensure sufficient stopping distance is available for existing runway conditions without exceeding normal brake energy limits.

9.41.3.2. For aircraft equipped with tail hooks, taxi check speeds of 100 knots or above require the tail hook to be lowered once the pilot begins to initiate braking action. For taxi checks below 100 knots, the pilot lowers the tail hook if there is any doubt about stopping the aircraft within the remaining runway.

9.42. Weight and Balance (W&B). Strict accounting of aircraft W&B will be maintained for safe flight operations. The W&B manager must ensure compliance with appropriate TO procedures for weighing aircraft and must maintain accurate inventories and documentation of aircraft weight. Specialist support can be requested and should be provided as necessary to assist in the inventory, removal, or installation of equipment. The W&B technician verifies scale readings and does actual computations on the W&B documents. A qualified W&B technician must supervise the preparation, leveling and weighing of the aircraft. OG QA superintendent will ensure:

9.42.1. QA W&B program managers are qualified according to TO 1-1B-50, *Basic Technical Order for USAF Aircraft Weight and Balance*. Personnel will be considered W&B qualified if they have successfully completed:

9.42.1.1. An AETC-approved W&B course.

9.42.1.2. A Computer based training (CBT) course and maintained proficiency according to USAF W&B directives.

9.42.1.3. An AETC-approved hands-on course.

NOTE: In order to maintain W&B qualification and proficiency, individuals must perform an actual aircraft weighing at least annually and demonstrate proficiency.

9.42.2. Complete W&B inventories as required in applicable directives and upon return to home station from any ALC or contractor facility where extensive maintenance was performed. Complete W&B inventories prior to first flight.

9.42.3. Weigh all assigned aircraft according to applicable directives. QA maintains W&B documents required by TO 1-1B-50 for each assigned aircraft. Contract logistics support (CLS), when specified in the contract, will maintain these documents. Contractor performance will be verified by the unit quality assurance representative (QAR), who will be W&B qualified. A USAF (ASC/EN) or DoD-approved, automated W&B system may be used.

9.42.4. Establish procedures in the group for routing completed TCTO and modification information for W&B changes.

9.42.5. Inspect W&B documents before flight when locally accomplished modifications affect the basic aircraft weight and moment. Review computations for accuracy and proper documentation of applicable W&B forms.

9.42.6. Provide essential W&B data and changes to the basic weight and moment to the local flying operations point of contact for appropriate mission planning.

9.42.7. Maintain W&B manuals for Class I and II aircraft in a central file. Class I and Class II aircraft W&B handbooks shall be maintained and stored according to TO 1-1B-50, Section IV. Supplemental handbook storage is at unit discretion.

9.42.8. When aircraft center of gravity (CG) is affected by removal of components due to CANN or other maintenance actions, the aircraft should be moored as directed by local or TO procedures and when mooring is not possible, ballast should be considered to prevent tipping. The aircraft will be placarded with highly visible identification as to the unsafe condition.

9.43. Chafing Awareness. On units with F-15A/B/C/D/E, A/OA-10 and F-16A/B/C/D aircraft, OG QA superintendent will:

9.43.1. Ensure a randomly selected 10 percent of assigned aircraft are inspected when applicable (involving like model or block aircraft or common to all models) when maintenance crosstells, DRs, or SRs concerning chafing are received.

9.43.2. Initiate a local OTI if the majority of the sample exhibits chafing or detected chafing are an operational safety hazard. Otherwise, the OG/CM (or designated representative) will determine the appropriate action to be taken. MAJCOM functional managers will be notified when local OTIs are implemented.

9.43.3. Submit maintenance crosstells, DRs, or SRs as applicable whenever chafing is identified.

9.43.4. Develop local chafing workcards for periodic, preflight, thruflight, and BPO inspections for areas accessible during these inspections (applies only to items or areas not incorporated in applicable -6 TOs).

9.43.4.1. Ensure inspectors inspect at least 50 percent of accessible areas, focusing on known chafing areas and workcards dealing with chafing.

9.43.5. Consider developing a database for tracking wire harness chaffing by part number or harness number. This could preclude duplication of effort or reinspection.

9.44. Squadron Assessment Program (SAP). See **Chapter 23**, **Section 23AD**.

9.45. Squadron Self-Inspection Program. See **Chapter 23**, **Section 23AE**.

Section 9G—Gold Savings Through Asset Repair Teams (Gold START) Program.

9.46. General. Gold START is a wing-level program designed to keep local aircraft flying when the supply system is unable to deliver required parts. The complete instructions for managing the Gold START program are located in AFI 21-123, Air Force Gold Program, and AFMC Sup 1.

9.46.1. Gold START manager. The unit Gold START manager reports to the LG/CC and will be an officer, senior noncommissioned officer (SNCO) (or civilian equivalent) having a strong maintenance background. The Gold START manager is the central focal point for all Gold START initiatives through the Gold START process.

Chapter 10

LOGISTICS SUPPORT SQUADRON (LSS)

Section 10A—Test

10.1. LSS Responsibilities. This chapter describes LSS responsibilities and is divided into the following three sections: **Section 10A** - Logistics Training Flight, **Section 10B** - Logistics Operations Flight, and **Section 10C** - Logistics Plans Flight. The LSS is responsible to the logistics group commander (LG/CC) for aircraft maintenance staff related functions and logistics test and evaluation (LT&E) management required for the efficient operation of the logistics group (LG).

10.2. Squadron Commander Responsibilities. The LSS commander performs command functions outlined by public law or directives common to all Air Force squadron commanders. He/she is responsible to the LG/CC for overall squadron management. Additional responsibilities are outlined in AFI 21-101, *Maintenance Management of Aircraft*, and **Chapter 2** of this instruction.

10.3. Flight Commander/Chief Responsibilities. The flight commander/chief is responsible to the LSS commander for the management of a specific functional area. Common management and technical responsibilities are specified in **Chapter 2** of this instruction. Additional specific areas of responsibility are further defined in this chapter.

10.4. Aircraft Maintenance Training Program. The objectives of the aircraft maintenance training program are to accurately determine all of the wing's aircraft maintenance training requirements, obtain the resources necessary to accomplish required training, and manage the wing program. Accomplish maintenance training away from the production/test environment (whenever possible) to eliminate/minimize distractions.

Section 10B—Logistics Training Flight (LTF)

10.5. General. The logistics training flight (LTF) will establish well planned education and training, and aircraft maintenance qualification programs (AMQP) for aircraft maintenance personnel in both the LG and operations group (OG). The LTF will also assist squadron commanders and training managers in coordinating and scheduling training requirements. The LTF consists of the development and instructor section and training management section.

10.6. LTF Responsibilities. The LTF will:

10.6.1. Serve as liaison between maintenance units and the base training office, ensuring upgrade training (UGT) and qualification training (QT) programs are conducted in accordance with (according to) AFI 36-2201, *Developing, Managing, and Conducting Training*.

10.6.2. Ensure education and training managers (3S2X1) assigned to the LTF are designated as unit education and training managers (UETM) for each squadron.

10.6.2.1. This does not relieve commanders or supervisors of their responsibilities as outlined in AFI 36-2201.

10.6.2.2. The LG/CC has the discretion of assigning UETMs to the squadrons or LTF.

10.6.3. Perform duties specified in applicable 36 series directives.

10.6.4. Serve as the single point of contact for all training matters affecting maintenance, including outside agencies such as disaster preparedness and the field training detachment (FTD).

10.6.5. Establish procedures for controlling and maintaining visual information programs and associated equipment.

10.6.6. Notify the LG/OG commanders/directors and squadron commanders/division chiefs of deviations to the published weekly training schedule (i.e., no-shows, class cancellations, etc.).

10.6.7. Coordinate training requests conducted by Air Force engineering and technical services (AFETS)/contractor engineering and technical services (CETS) as listed in AFI 21-110, *Engineering and Technical Services*.

10.6.8. Provide a monthly status of training (SOT) briefing to the wing, LG, OG, and squadron commanders, and directors.

10.6.9. Monitor progress of temporarily assigned students under the security assistance training program according to AFI 31-401, *Information Security Program Management*.

10.6.10. Ensure newly assigned maintenance personnel are scheduled for maintenance orientation.

10.6.11. Ensure training plans are developed for LTF personnel.

10.6.12. Ensure workcenter training requirements are established for LTF personnel.

10.7. Development and Instructor Section.

10.7.1. The development element develops and manages course control documents (CCD) along with associated training materials to support the aircraft maintenance training program.

10.7.2. The instructor element provides training to meet the requirements specified in aircraft maintenance training CCDs. The primary responsibility of this element is to provide selective task oriented training (TOT).

10.8. Training Management Section. If not assigned, squadron UETMs are responsible for these duties.

10.8.1. The training administration element is responsible for assisting supervisors with upgrade, qualification and maintenance training programs within the maintenance community according to AFI 36-2201.

10.8.2. The scheduling element is responsible for scheduling all AFMC formal courses, maintenance, ancillary, special qualification training (SQT), maintenance qualification training (MQT), and FTD training for aircraft maintenance personnel. The scheduling element also manages the core automated maintenance system (CAMS) training subsystem according to AFCSM 21-570, Vol 2, *Training Management*, and this instruction.

10.9. Core Automated Maintenance System (CAMS) Training Subsystem. The CAMS training subsystem extends the capability of training management personnel by absorbing much of their manual administrative burden. The CAMS database will be used to determine and validate training needs. Procedures for operating and maintaining the system are contained in AFCSM 21-570, Vol 2.

10.10. Training Documents. Specific requirements and responsibilities on the use of training documents are identified in AFI 36-2201, AFCSM 21-570, Vol 2, and other Air Force directives.

10.11. Scheduling Training Requirements. The LTF will identify and group personnel with similar requirements and tailor the training to meet specific needs. Training requests may be identified through a supervisor's initial evaluation, maintenance analysis studies, cross-utilization training (CUT), designated training manager inputs, CAMS training products, etc. LTFs designated as scheduling management centers will coordinate the scheduling process between regional training detachments (TD) and units that utilize them.

10.12. Maintenance Instructors. When training requirements dictate, the following maintenance instructor (MI) positions will be identified to support MQT courses: 2A3X3 (tactical aircraft maintenance specialist), 2A5X1 (strategic/airlift aircraft maintenance specialist), 2A5X2 (helicopter maintenance specialist), and 2W1X1 (armament systems specialist) (or civilian equivalents). These personnel support MQT courses and are assigned to the LTF against authorized manpower positions. Units not authorized these Air Force specialty codes (AFSC) do not have to submit a waiver request.

10.12.1. When the student-instructor ratio for FTD courses exceeds the capability of the FTD to evaluate on-equipment training, provide instructor augmentees from assigned or attached MIs.

10.12.2. Select only the best-qualified personnel to be MIs. Individuals appointed as MIs will have a minimum of one year experience on the assigned mission, design, and series (MDS) and be a highly qualified 5-skill level senior airman or above (or civilian equivalent).

10.12.3. The LG/CC approves (in writing) the selection of MIs. Maintain this letter on file in the LTF. If an FTD is assigned, send an information copy to the FTD commander.

10.13. Maintenance Testing. Written tests will be used to evaluate an individual's knowledge and understanding of information taught during the course of instruction. Tests may be open or closed book; however, closed book is the recommended choice. Assign each written test a control number and secure all tests in a locked cabinet. Control access to test materials and monitor test accountability through a sign-out/sign-in log.

Section 10C—Logistics Operations Flight.

10.14. General. The logistics operations flight is responsible for handling financial, personnel, and facility management, for the LG. The flight is the responsible LG agency for the following functions, if assigned by the LG/CC: tracking engine status (time changes, special inspections (SI), etc.) for all possessed engines, coordinating LG inputs to the flying schedule, performing maintenance analysis, accomplishing production control and maintenance supply liaison (MSL) functions, managing logistics plans and test plan support duties, accomplishing contingency planning and support, and providing vehicle and environmental management.

10.15. Maintenance Supply Liaison (MSL) Section. This section monitors the overall maintenance and supply interface. MSL resolves supply support problems, coordinates supply related training needs for the LG, advises maintenance managers of support problems regarding the maintenance efforts and recommends corrective actions, and provides dedicated supply support when warranted to the propulsion, aerospace ground equipment (AGE), avionics, and test, measurement, and diagnostic equipment (TMDE)

flights. If the workload does not warrant dedicated supply support, workcenter personnel will be properly trained in supply procedures. However, MSL will still be responsible for the overall maintenance and supply interface. If MSL is not assigned, the LG/CC will assign a point of contact for these functions. In addition to the guidelines provided in **Chapter 4** of this instruction, the MSL will:

10.15.1. Periodically visit all maintenance workcenters within the maintenance squadron (MXS). Identify and recommend corrective actions on procedural or compliance problems associated with supply support and provide assistance to resolve these problems.

10.15.2. Identify supply related training needs to maintenance workcenter supervisors.

10.15.3. Provide guidance to workcenter supervisors on utilization of supply management products, precious metals recovery program, shelf-life management, and due-in from maintenance (DIFM) management.

10.15.4. In conjunction with the operations support squadron (OSS) current operations flight, consolidate repair section inputs for the direct not repairable this station (NRTS) list. Publish and distribute the list to the appropriate agencies.

10.15.4.1. Review and update the list at least semi-annually.

10.15.5. Coordinate with maintenance workcenters to identify components for which there is no base-level repair or diagnostic capability.

10.15.5.1. Compile a listing of these items and ensure organization section code 009DN is loaded as the repair section on the repair cycle record. Repair section code 009DN alerts maintenance technicians that the component is direct NRTS and is not routed through a repair section. The last two positions (DN) are base optional and identify the wing or organization providing the authority for direct NRTS.

10.15.6. Conduct annual supply staff assistance visits (SAV) to all LG/OG workcenters.

10.15.7. Assist the resource advisor (RA) in identifying and accurately accounting for stock fund assets and expenditures.

10.16. Engine Management (EM) Section. The EM section monitors engine removals and replacements, parts tracking, engine time compliance technical orders (TCTO) and time change items (TCI), and engine records and performs engine manager duties. The EM section is established to more effectively manage the unit's efforts to maintain adequate engine support to meet mission requirements. This section combines those sections that support engine management from separate areas within the wing. This section will not be aligned under the propulsion flight. The stock record account number (SRAN) engine manager (SEM) works with, and is collocated in, the EM section. The EM section will:

10.16.1. Coordinate with operations squadron (OS) maintenance sections, OSS plans, scheduling, and documentation (PS&D), and the propulsion flight on the repair/replacement of engines/components, TCTOs, TCIs, and SIs.

10.16.1.1. Ensure TCTOs and TCIs are provided to the propulsion flight supply activity for requisition.

10.16.2. Provide time change information (cycles remaining, engine operating time (EOT), etc.) on serially controlled items to the propulsion flight and OS for engine and engine component cannibalization (CANN) actions.

10.16.3. Ensure all engine flying hour inspections are loaded against the engine, not the aircraft.

10.16.4. Manage TCTOs on all assigned engines and components (both installed and uninstalled/removed).

10.16.4.1. Comply with TCTO duties and responsibilities assigned to the documentation section for engine items as outlined in **Chapter 5** of this instruction.

10.16.4.2. Initiate AF Forms 2410, **Inspection/TCTO Planning Checklist,** and AF Form 2001 for TCTO kits/parts/tools and forward the AF Form 2001 to the propulsion flight (or applicable agency).

10.16.4.3. Maintain TCTO folders for engine related TCTOs according to **Chapter 5** of this instruction.

10.16.4.4. Keep records on TCTO kits and status on all engines installed in aircraft sent to depot.

10.16.4.5. Units utilizing the standard base supply system (SBSS) module of CAMS will follow the procedures outlined in AFCSM 21-558, *Comprehensive Engine Management System (CEMS)*.

10.16.5. Manage time changes on all engines and ensure forecasted parts requests are submitted to the propulsion flight supply activity 45 days prior to the scheduled time change or jet engine intermediate maintenance (JEIM)/engine regional repair center (ERRC) induction.

10.16.6. Manage the comprehensive engine management system (CEMS) according to AFI 21-104, *Selective Management of Selected Gas Turbine Engines*, TO 00-25-254-1/-2, *System Manual-Comprehensive Engine Management System (CEMS)*, TO 00-20-5-1, *Engine Historical Record Series*, and AFCSM 21-558.

10.16.7. Maintain and update historical documents for all assigned engines.

10.16.8. Provide automated management products upon request.

10.16.9. Upon engine removal (scheduled or unscheduled), check life-limited components forecast for additional component changes, TCTOs, and SIs.

10.16.10. Accomplish unit engine manager duties as prescribed according to AFI 21-104, and TOs 00-25-254-1/-2. Serve as liaison with the SEM when the EM section is part of a tenant unit and the host unit provides the base engine manager (BEM) function.

10.16.10.1. Provide the primary SEM all quarterly reporting information to be submitted to higher headquarters (HHQ).

10.16.10.2. Perform engine manager duties for shipment and receipt of all assigned engines, modules, related equipment, and shipping devices.

10.16.10.3. Coordinate with the propulsion flight to ensure a copy of the latest work folder accompanies permanent and transferred engines.

10.16.11. With the assistance of the propulsion flight chief, use CAMS or CEMS products to develop a detailed six-month engine/module removal forecast to maintain a steady engine maintenance workload. The forecast will factor in unscheduled removals based on a calculated monthly flying hour/total accumulated cycles (TAC) per month. This forecast will be accomplished monthly and be provided to maintenance managers and each OS PS&D. Provide six-month and annual requirements to HQ AFMC/DOM for depot negotiations as requested.

10.16.12. Verify engine flying hours and manual cycles with OS PS&D during document reviews.

10.16.13. Maintain (load/delete/change) the job standard master listing (JML) for all engine inspections and time changes when CAMS is used to track engine inspections and time changes.

10.16.14. Develop local engine tracking procedures and documentation methods to be used at deployed locations based on duration of temporary duty (TDY) and peculiar operating requirements to ensure data is input into the base-level CAMS not later than (NLT) close of business of the day following the as of time of occurrence of the event (i.e., part removal, installation, time update, TCTO status change, etc.) that prompted the report.

10.16.15. Upon notification that a new BEM has been assigned, the current BEM will request and accomplish a physical inventory according to AFMAN 23-110, *USAF Supply Manual*, and TO 00-25-254-1.

10.16.15.1. The old and new BEM must sign the inventory report. Forward the report to OC-ALC/TILC and notify the command engine manager (CEM) upon completion.

10.17. SRAN Engine Manager (SEM). The LG/CC will appoint (in writing) a SEM (if the host), or unit engine manager (UEM) (if a tenant), to accomplish the duties outlined in this instruction, AFI 21-104, and applicable directives. The SEM/UEM will possess a seven or nine skill-level in a 2R1X1, 2A6X1A/B, or 2S0X1 AFSC (or civilian equivalent). As a minimum, the assistant will possess a five skill-level from one the above AFSCs. The SEM and assistant will be assigned to the LSS logistics operations flight, and located in EM section. The SEM will:

10.17.1. Advise the LG/CC on engine logistic concepts, principles, policies, procedures, and techniques to assist in administering the base engine management program.

10.17.1.1. Serve as single point of contact between the unit and AFMC/DOM for engine management questions.

10.17.2. Establish local written procedures to support engine management responsibilities. Develop local engine management supplements to AFI 21-104 and TOs 00-25-254-1/-2 designating local policies, procedures, and responsibilities to ensure accurate and timely reporting in CEMS to include TCTO, time change, and documentation requirements.

10.17.2.1. The supplement will also establish local procedures to detect and resolve missing sequence numbers; handling of engines, afterburners, and quick engine change (QEC) kits. Include tenant transportation, maintenance, aircraft distribution, supply, and support personnel requirements as required. Ensure local supplements and base publications support these procedures and are coordinated with the CEM prior to publication.

10.17.3. Develop a memorandum of Agreement (MOA) according to AFI 25-201, *Support Agreements Procedures,* with SRANs at pre-positioned sites to manage engines, and manage tenant spare engines.

10.17.4. Ensure deployed engine monitors are assigned and trained to perform deployed engine manager/monitor duties.

10.17.4.1. Ensure all deployed engines have a copy of historical records included in the deployment package.

10.17.4.1.1. Maintain original copies of historical records at home station unless directed to transfer the engine to a gaining SRAN.

10.17.5. Ensure all engine data is reported NLT the close of business of the next business day after the transaction occurred.

10.17.6. Perform periodic quality audits to monitor accuracy and timeliness of reporting.

10.17.7. Obtain CEM approval prior to returning engines to depot or two-level maintenance (2LM).

10.17.8. Perform duties/requirements for engine shipments according to AFPD 24-2, *Preparation and Movement of Air Force Materiel*, AFI 21-104, TOs 00-85-20, *Engine Shipping Instructions*, 2J-1-18, *Preparation for Shipment and Storage of Gas Turbine Engines*, 2R-1-11, *Corrosion Control of Reciprocating Aircraft Engines*, and 2-1-18, *Aircraft Engine Operating Limits and Factors Operating Limits and Pipeline Times*. The SEM is accountable for a shipped engine until the receiver acknowledges receipt in CEMS.

10.17.9. Report in CEMS, receipt transaction of engines as of the date/time engines/modules are delivered from the transportation hold area and accepted at the JEIM facility.

10.17.9.1. Prepare DD Form 1348-1A, **Issue Release/Receipt Document**, for all engine shipments and transfers.

10.17.9.2. Prepare DD Form 1149, **Requisition and Inventory Shipping Document**.

10.17.9.3. Report in CEMS, the shipment transaction as of the date/time the engines are accepted by the traffic management office (TMO) as recorded on the DD Form 1348-1/1A.

10.17.9.4. Initiate tracer action to locate assets shipped or transferred to another SRAN when not received within the required 20 calendar days for a shipment or 10 calendar days for a transfer.

10.17.9.4.1. Consider assets lost if not receipted within these time frames and initiate a report-of-survey within five calendar days.

10.17.10. Report all engine, gearbox, and tracked item removals for any reason. Verify all engine status transaction removals, installations, gains, engine not mission capable-supply (ENMCS), work completed, test cell rejects, work stopped, work started, change in level of maintenance, awaiting disposition, intra-Air Force receipt and intra-Air Force shipments, transfer, and how malfunction according to AFI 21-104.

10.17.10.1. Ensure engines removed for depot or 2LM are reported in CEMS with transaction condition code LL. Process a code ML transaction once the final determination is made to ship the engine to depot or 2LM repair.

10.17.11. Verify all time/cycle updates have been processed prior to processing engine removal in CAMS/CEMS.

10.17.12. Ensure parts requirements for ENMCS are accurately reported and promptly requisitioned.

10.17.13. Ensure maintenance personnel protect engines from corrosion, shock, and vibration damage during transportation handling and storage according to AFI 21-104, TO 2J-1-18, and TO 00-85-20.

10.18. Programs Section. The Programs section will provide the LG/CC support in developing and maintaining programs in support of the maintenance effort. The programs section will serve as the overall

manager for the following areas, if assigned by the LG/CC: manning, financial management, facilities, contingency planning, mobility support, support agreements, environmental support, and vehicle control.

10.18.1. Financial Management. The LG/CC will implement a sound program for financial planning, budget preparation and expense control. The programs section will:

10.18.1.1. Prepare and submit financial requirements for inclusion in the base cost per flying hour program, financial plan, budget estimates, and operating budget. Coordinate with each cost center to assess financial needs. Programs will consolidate the budgeting requirements of the financial plan and send it to the servicing controller. Instructions for building budgets are contained in AFI 65-601 Vol 1, *Budget Guidance and Procedures*, a copy of which is kept in the section.

10.18.1.2. Distribute the operating budget within the LG. Analyze past expenses, current expenses, and programs to project the financial requirements of the units.

10.18.1.3. Monitor the status of expenses by cost center and brief the LG/CC of unusual expenditures that may impact the unit's financial goal for the fiscal period. Continuously review financial status to ensure each cost center receives equitable and necessary base-funded materials and services.

10.18.1.4. Advise the LG/CC on the financial status of the group.

10.18.1.5. Work with all applicable agencies to identify and account for all operations and maintenance (O&M) expenditures.

10.18.2. Manning Management. The Programs section will monitor manpower authorizations and personnel assignments for the LG/CC and serve as the maintenance point of contact for manpower/manning actions. Additionally, the programs section will:

10.18.2.1. Manage the CAMS personnel subsystem, provide user training on subsystem capabilities and output products, ensure distribution of output products to workcenter managers, and update the system when changes occur.

10.18.2.2. Ensure the unit manpower document (UMD) reflects the authorization structure to include AFMC options and approved waivers.

10.18.2.3. Maintain a current copy of the LG squadrons' unit personnel manpower roster (UPMR), UMD, and maintenance manpower roster (MMR) (or equivalent).

10.18.2.4. Initiate/coordinate on all authorization change requests (ACR). Request analyses of personnel resource utilization from the OSS or LSS (when applicable) maintenance documentation, scheduling and analysis (MDSA) section on affected AFSCs when there is an indication that a change request results in an imbalance of manning or when an apparent imbalance already exists.

10.18.2.5. Coordinate and monitor permanent change of assignment (PCA) actions and suspense of involved agencies for appropriate documentation.

10.18.2.6. Perform staff assistance visits (SAV) at least once each year. The programs section personnel will periodically visit all workcenters to determine if managers:

10.18.2.6.1. Understand and are using available computer products.

10.18.2.6.2. Are effectively distributing personnel resources, particularly, critical AFSCs.

10.18.2.6.3. Ensure assigned personnel are properly loaded in the personnel data subsystem of CAMS.

10.18.2.7. With the exception of 2W1X1 personnel, ensure projected gains are equitably distributed throughout maintenance and assign gains against vacant positions or projected losses to the maximum extent possible.

10.18.2.8. Work with OSS/LSS or wing maintenance system analysis section to assign or change the workcenter mnemonics. The first character of the mnemonics indicates the agency and the flight/section. For example, the mnemonics for all QA functions could have Q as the first character. The third and subsequent letters of office symbols may be used as mnemonics.

10.18.2.9. Monitor critical AFSCs as designated by the LG/CC.

10.18.2.10. Initiate and coordinate requests for changes to the UMD. The LG/CC (or designated representative) will approve all requests before forwarding to the local manpower office. Proposed changes will comply with AFI 38-201, *Determining Manpower Requirements*, for both standard determinant factors and the establishment of additive factors.

10.18.3. Manage LG facilities. Identify facility needs, develop and forward documents for new or additional facilities, and evaluate efficient use of present facilities. Additionally, the programs section will:

10.18.3.1. Be familiar with all facilities in the LG and will accomplish facility studies to determine if the in-use facilities are suitable for the activities to which they are assigned. Evaluating facility layouts aids in the effective use of assigned space.

10.18.3.1.1. Maintain a facility layout for each site within the LG which includes, but is not limited to, building identity, usable area of the building, the function that occupies the building and number of occupants for each area within the building, and peculiar power sources.

10.18.3.2. New facility requirements and large modifications to existing facilities resulting from mission changes, organizational changes, or assignment of new equipment are documented and forwarded through prescribed channels. The programs section, in conjunction with the affected maintenance activity and civil engineering (CE), will develop the project documents for major construction or modifications. Additionally, the programs section will:

10.18.3.2.1. Coordinate on AF Forms 332, **Base Civil Engineer Request**, and retain one copy of each AF Form 332 for their files. Brief the LG/CC on the status and priority of open AF Forms 332 prior to the quarterly facilities utilization board meeting.

10.18.3.3. Monitor and validate all telephone installation requests within the LG, as outlined in AFI 33-111, *Telephone Systems Management*.

10.18.4. The programs section will also serve as the focal point for maintenance inputs to host-tenant agreements according to AFI 25-201.

10.18.4.1. Reviews proposed workloads, determines the LG capability to perform work, and recommends acceptance or rejection of proposed work.

10.18.4.2. Assures that the transfer of required manpower is negotiated concurrent with workload acceptance. Quantifies manpower additives for acquired workload.

10.18.4.3. Provides input to site activation task forces in assessing logistical support that is available.

Section 10D—Logistics Plans Flight.

10.19. General. The logistics plans flight is authorized to be aligned in the wing plans flight. In addition to the general responsibilities outlined in AFI 36-2129, Logistics Plans Management, the Logistics plans (flight/section) will:

10.19.1. Assist the installation deployment officer (frequently the senior logistics plans officer in the logistics plans flight) in managing the installation deployment program according to AFI 10-403, *Deployment Planning*.

10.19.1.1. Ensure logistical support is obtained and available for all peacetime and contingency deployments.

10.19.1.2. Publish installation deployment guidance.

10.19.1.3. Manage the wing's contingency operations/mobility planning and execution system (COMPES) logistics module base level (LOGMOD) program.

10.19.1.4. Operate a deployment control center (DCC) to support deployments of wing or tenant units from or through the host base.

10.19.1.5. Monitor the wing deployment training program.

10.19.2. Serve as the focal point for all logistics planning.

10.19.3. Manage the base support planning program according to AFI 10-404, *Base Support Planning*.

10.19.3.1. Serve as base OPR for force reception and integration of incoming forces.

10.19.4. Administer the wing support agreement program (logistics plans) according to AFI 25-201.

10.19.4.1. Serve as the focal point for any host nation or third country requests for logistical support.

10.19.5. Manage the war reserve materiel (WRM) program according to AFI 25-101, *War Reserve Materiel (WRM) Program Guidance and Procedures*.

10.19.5.1. Ensure all main operating base WRM assets are properly stored and maintained, and any peacetime use properly documented.

10.19.6. Provides recommendations for inclusion into wing/base plans. Reviews a variety of technical and contractual documents to ensure compliance with established logistics policy.

10.19.7. Support unit type code (UTC) deployment taskings along with individual theater augmentation taskings. This includes manning control centers, supporting deployment resource augmentation duty (READY) program requirements, and coordination of deployment orders.

10.19.8. If applicable, manage the wing's logistics test and evaluation mission according to AFI 99-101, *Developmental Test and Evaluation*. In those units directly supporting LT&E of weapons systems, a LT&E element is authorized. If assigned, the LT&E element will:

10.19.8.1. Establish LT&E policy and oversee the LT&E process.

10.19.8.2. Manage development and usage of LT&E training courses.

10.19.8.3. Identify opportunities for LT&E, initiate the test process, and assign management responsibilities.

10.19.8.4. Provide test manager support to LT&E.

10.19.8.5. Manage the LT&E plan and report writing process.

10.19.8.6. Manage creation, modification, and usage of data collection tools.

10.19.8.7. Manage test data software development, installation and training.

10.19.8.8. Identify test support needed in training, facilities, SE, funding, and other logistics areas as required.

10.19.8.9. Provide long range and intermediate logistical planning and support for tests and programs.

10.19.8.10. Be responsible for ongoing test facility support to include renovations and major facility modifications.

10.19.8.11. Work with program engineers, test designers, developmental engineers, and program managers regarding plans for the test and evaluation workload.

10.19.8.12. Provide test plan annex writing. Develops planning data in coordination with the LG squadrons and other activities to include weapon system beddown and operations plans review.

10.19.8.13. Provide guidance for statement of capability, contracts, and TDs in developing plans, task directives, and supporting mission tests.

Chapter 11

MAINTENANCE SQUADRON (MXS)

11.1. General. The MXS consists of personnel from various Air Force specialty codes (AFSC) organized into the following flights: propulsion, avionics, test measurement and diagnostic equipment (TMDE), accessory, aerospace ground equipment (AGE), fabrication, armament systems, maintenance, and munitions. The MXS maintains AGE, munitions, and off-equipment aircraft and support equipment (SE) components. Personnel assigned to the MXS perform on-equipment maintenance of aircraft, fabrication of parts, and provide repair and calibration of TMDE. When an equipment maintenance squadron (EMS) and component repair squadron (CRS) are established in accordance with (according to) procedures in AFI 38-101, *Air Force Organization*, applicable squadron-level duties will be according to this chapter and flight responsibilities are governed by their respective chapter of this instruction.

11.2. Squadron Commander Responsibilities. The squadron commander will perform command functions outlined by public law, AFI 21-101, *Maintenance Management of Aircraft*, and directives common to all Air Force squadron commanders. They are responsible to the logistics group commander (LG/CC) for overall squadron management. Additional common responsibilities are outlined in **Chapter 2** of this instruction.

11.3. Maintenance Supervisor (MS)/Superintendent Responsibilities. The MXS MS is responsible to the squadron commander for maintenance production. The MS, assisted by the maintenance superintendent, manages the resources to accomplish the workload. They provide the necessary levels of administration to manage assigned responsibilities. In addition to the responsibilities in AFI 21-101, and common responsibilities in **Chapter 2** of this instruction, the MS/superintendent will:

11.3.1. Designate flight chiefs. The best qualified people will be selected regardless of AFSC within the constraints of AFI 36-2108, *Airman Classification*.

11.3.1.1. The TMDE flight chief should be a 2P0X1.

11.3.2. Coordinate with LG/OG supervision to ensure an equitable balance of grades, skill levels, and experience of shared AFSC personnel between the flightline and in-shop. Personnel should be rotated between the two periodically to ensure career broadening.

11.3.3. Compile and submit to quality assurance (QA), through the squadron commander, for group commander (GP/CC) approval, a list of tasks requiring in-process inspections (IPI) to be included in the wing IPI list.

11.3.3.1. The listing will include work unit code (WUC), nomenclature (NOUN) (or description of task), and step within the task requiring the IPI.

11.3.3.2. Document IPIs according to instructions outlined in **Chapter 7** of this instruction.

11.3.4. Ensure monthly maintenance plan inputs from the flights are forwarded to operations support squadron (OSS) plans, scheduling, and documentation (PS&D) flight.

11.3.5. Participate in the review of base-level repair capability according to TO 00-20-3, *Maintenance Processing of Reparable Property and the Repair Cycle Asset Control System*, and AFI 21-123, *Air Force Gold Program*.

11.3.6. In conjunction with QA, select QA augmentees (as required).

11.3.7. In conjunction with the current operations flight commander, ensure end-of-runway (EOR) procedures for transient aircraft are developed according to TO 00-20-5, *Aerospace Vehicle Inspection and Documentation* (if the transient aircraft maintenance section (TA) is assigned to the MXS).

11.3.8. Manage the crash recovery program. When crash recovery duties are accomplished by the host base for another major command's (MAJCOM) bases/units, crash recovery responsibilities will be clearly defined in the host-tenant support agreement.

11.3.9. Provide local manufacture capability and ensure control of parts fabrication.

11.3.10. When applicable, ensure MXS maintenance personnel use Engineering Data Service Center (EDSC) and engineering technical service personnel to get information and specifications when the information in technical orders (TO) does not provide enough detail.

11.3.11. Ensure cannot duplicate (CND) and bad actor programs are established and implemented.

11.3.11.1. CND and bad actor programs will include procedures for communicating information to each operations squadron (OS).

11.3.12. Establish a radiation protection program according to AFOSH STD 48-9, *Radio Frequency Radiation (RFR) Safety Program* (when applicable).

11.3.13. Establish procedures for safe gear handle movement for all aircraft mission, design, and series (MDS) assigned or possessed (B-52, B-1, B-2, RC/TC/OC/EC/NC/NKC/KC-135, E/C-18, E-8, E-3, C-17, and C-5).

11.3.13.1. Ensure all personnel authorized and qualified to perform landing gear handle movement are listed on the special certification roster (SCR), by aircraft type and personnel duties; gear retraction supervisor, 7-level team supervisor, gear handle operator.

11.3.13.1.1. The SCR will include aircraft MDS and personnel duties identified in the applicable TO.

11.3.13.2. The 7-skill level gear retraction supervisor will:

11.3.13.2.1. Verify the maintenance task requirement and approve all gear movements prior to moving the gear handle from the full-down position.

NOTE: Task **11.3.13.2.1.** can not be delegated.

11.3.13.2.2. Ensure all gear pins are installed.

11.3.14. Appoint MXS production superintendents.

11.3.15. Monitor the oil analysis program (OAP) according to **Chapter 23** of this instruction.

11.3.16. Appoint a squadron land mobile radio (LMR) manager.

11.4. Production Superintendent. If appointed, the MXS production superintendent will:

11.4.1. Ensure scheduled maintenance is accomplished in support of operations.

11.4.2. Monitor operations and coordinate support and priority with other squadron production superintendents and the maintenance operations center (MOC).

11.4.3. Identify production requirements and shortfalls to the MS/superintendent.

11.4.4. Attend and actively participate in daily maintenance planning meetings.

11.4.5. Serve as the maintenance production liaison between the OS, MOC, and MXS production flights.

11.5. Specialist Support.

11.5.1. Section chiefs will:

11.5.1.1. Coordinate with the MXS production superintendent, if assigned, or MOC, if not assigned, on maintenance priorities before dispatching personnel.

11.5.1.2. Provide specialist availability to the MXS production superintendent, if assigned, or MOC, if not assigned, at the beginning of each shift and as changes occur for those specialists routinely dispatched.

11.5.1.3. Ensure technicians are task qualified. This may include three-level technicians who have tasks signed off in their training record.

11.5.1.4. Ensure TMDE, tools, and technical data are available to the technician, either through the section or supported activity resources.

11.5.1.5. Ensure specialists order parts via the core automated maintenance system (CAMS)/standard base supply system (SBSS).

11.5.1.5.1. Parts will be received through the support flight, expediter, or dock chief (as appropriate).

11.5.2. Dispatched technicians will:

11.5.2.1. Be responsible to the expediter, section chief, or dock chief (as applicable).

11.5.2.2. Report in before beginning the job/task.

11.5.2.3. Review aircraft forms prior to performing maintenance on an aircraft.

11.5.2.4. Report job completions, stop times, work slippage, and significant problems.

11.5.2.5. Provide all document numbers for back-ordered parts.

11.5.2.6. Verify the status of the aircraft or equipment.

11.6. Munitions Accountable Systems Officer (MASO). The MASO is responsible for the accountability of munitions. The MASO will report all transactions affecting accountable records of items in the munitions account. MASO responsibilities are outlined in AFI 21-202, *Combat Ammunition System Procedures*. Organizations with special weapons information management (SWIM) or manual accounts for nuclear ordnance commodity management (NOCM) items may appoint separate accountable officers for conventional and nuclear accounts, provided separate stock record account numbers (SRAN) (FK and FV) are established.

11.7. Weapons Storage Facilities. Munitions assets (including inert components) will be stored in approved storage structures for security and protection. If secured storage is limited, priority will be assigned by the risk category and classification as outlined in AFMAN 23-110, *USAF Supply Manual*.

11.8. Squadron Deployments. The squadron deployment function will serve as the focal point for deployment planning and execution, and accomplish unit duties and responsibilities in AFI 10-403, *Deployment Planning*. The unit deployment manager (UDM) will:

11.8.1. Ensure the unit maintains deployment readiness posture to meet wing taskings.

11.8.2. Initiate squadron deployment planning and provide inputs to plans.

11.8.2.1. Work with logistics plans and unit supervisors to prepare for the execution of plans.

11.8.2.1.1. When evaluating taskings, the UDM will consider other plans tasking the unit, personnel and equipment requirements, and limiting factors (LIMFAC).

Chapter 12

PROPULSION FLIGHT

12.1. General. The propulsion flight maintains aircraft engines, engine components, propellers, and engine support equipment (ESE) unique to jet engines, including engine trailers, test cells and noise suppression systems (NSS). The flight performs engine/module inspection tear down, build-up, test, and repair of components, modules, and propellers. The flight will assist the operations squadrons (OS) with troubleshooting, engine replacement, and component replacement to maximize production efficiency and wing repair capability. A typical propulsion flight consists of sections responsible for jet engine intermediate maintenance (JEIM), engine testing, accessory/quick engine change (QEC) repair, small gas turbine engines, material support, ESE, and turboprop/turboshaft repair (as required). Sections may be combined and/or functions may be transferred from one section to another (within the flight) to maximize production capability.

12.2. Propulsion Flight Chief Responsibilities. In addition to common responsibilities in **Chapter 2** of this instruction, the flight chief will:

12.2.1. Serve as the primary focal point for the wing's propulsion maintenance program, focusing on continuity, compliance, and standardization.

12.2.1.1. Provide technical and managerial advice on propulsion issues.

12.2.2. Monitor all aspects of the wing propulsion maintenance program.

12.2.3. Provide technical guidance as required to successfully achieve and maintain quality propulsion systems required for the wing's mission.

12.2.4. Review production data to ensure engines, modules, and components processed through the flight are repaired and functionally checked in the most complete QEC configuration possible.

12.2.5. Work with the base engine manager (BEM) to ensure accurate engine and equipment reporting including engine not mission capable-supply (ENMCS) status.

12.2.6. When directed by HQ AFMC/DOM, provide engine regional repair center (ERRC) support to other organizations.

12.2.7. Develop guidelines to comply with the oil analysis program (OAP) for aircraft engines and components in accordance with (according to) **Chapter 23** of this instruction.

12.2.8. Determine part-kits requirements for recurring maintenance actions are required.

12.2.8.1. If needed, kits may be pre-assembled from bench stock in minimum quantities as necessary to support the workload.

12.2.8.2. Repair cycle assets will not be included in part-kits.

12.2.8.3. When applicable, unused portions of kits will be returned to bench stocks.

12.2.9. Review and analyze all unscheduled engine removals and test cell rejects for adverse trends.

12.2.10. Coordinate with production superintendents and engine management (EM) section on all scheduled/unscheduled engine changes and engine-to-aircraft cannibalizations (CANN).

12.2.11. Ensure personnel prepare engines and components for shipment according to applicable technical data.

12.2.12. Jointly develop local CANN procedures with the EM section according to TO 00-20-2, *Maintenance Data Documentation*.

12.2.12.1. Ensure components have sufficient time remaining on time change items (TCI) before cannibalizing any component.

12.2.13. Ensure the AFTO Form 244 and AFTO Form 245, **Industrial/Support Equipment Record (Continuation Sheet)** (or equivalent automated system) is used to document maintenance actions on engine test stands, test cells, and/or NSSs, and ESE, including cranes and hoists, according to TO 00-20-7, *Inspection System, Documentation, and Status Reporting for Support and Training Equipment*.

12.2.14. Ensure NSSs and test cells are maintained serviceable.

12.2.15. Screen the qualifications of personnel selected to conduct test cell engine test runs and ensure they are properly trained and certified to operate the engine type, make, series modification (TMSM) on the test cell according to **Chapter 23** of this instruction.

12.2.16. Ensure specialized and long life shipping devices and containers are accounted for and maintained in serviceable condition according to AFM 23-110, *USAF Supply Manual,* AFI 21-104, *Selective Management of Selected Gas Turbine Engines*, AFMC Supplement 1 to AFI 21-104, and TO 00-85-20, *Engine Shipping Instructions*.

12.2.17. Follow proper reclamation and disposal procedures for engines and components removed from crashed aerospace vehicles according to AFMAN 23-110 series.

12.2.18. Ensure pre-maintenance test cell runs on scheduled/unscheduled engine removals are accomplished to identify additional maintenance requirements when the engine condition, workload, and/or experience indicate a pre-run would be beneficial.

12.2.19. Consider the following factors in the decision to perform minor engine repair versus major engine maintenance:

12.2.19.1. Availability of additional parts required for reconditioning or periodic inspection (PE).

12.2.19.2. Projected workdays required to return the engine to serviceable status.

12.2.19.3. Serviceable engine availability (current and projected).

12.2.19.4. Work hours required for major maintenance versus limited repair.

12.2.19.5. Time compliance technical order (TCTO) kit availability, time changes and special inspections (SI) required.

12.2.20. Develop and implement a comprehensive propulsion flight foreign object damage (FOD) program according to **Chapter 23** of this instruction.

12.2.20.1. Ensure units participate in the engine trending and diagnostic (ET&D) program.

12.2.20.1.1. Follow established guidelines in AFI 21-104, AFMC Supplement 1 to AFI 21-104, and TO 00-25-257, *Users Manual - Engine Trending and Diagnostics USAF Engines (All USAF Engines)*.

12.2.21. Develop a comprehensive career progression training plan for assigned personnel.

12.2.21.1. The propulsion flight chief should periodically rotate personnel to maximize depth and provide personal growth to the maximum extent possible,

12.2.22. Establish a comprehensive borescope certification program for each engine TMSM possessed according to **Chapter 23** of this instruction.

12.2.23. Establish a comprehensive blade blending certification program for each engine TMSM possessed according to **Chapter 23** of this instruction.

12.2.24. Jointly develop local in-process inspections (IPI) for each engine TMSM with quality assurance (QA).

12.2.25. Serve as the primary advisor for determining the utilization of 2A6X1 personnel.

12.2.26. Establish applicable support memorandums of agreement (MOA) with external customers and coordinate the MOAs through HQ AFMC/DOM.

12.2.27. Ensure propulsion maintenance waivers are coordinated through QA and HQ AFMC/DOM.

12.2.28. Develop and implement a viable process to track ready spare engines, small gas turbines, and modules. As a minimum, the process will identify the following information:

12.2.28.1. Serial number.

12.2.28.2. Configuration - TMSM, mission, design, and series (MDS), and position number, if applicable.

12.2.28.3. Time remaining - To periodic, reconditioning, or overhaul.

12.2.28.4. Preservation - Date accomplished, type, and due date.

12.2.28.5. Remarks - Add any pertinent information about the engine.

12.2.29. Enforce Air Force occupational and environmental, safety, fire protection, and health (AFOSH) standards according to applicable 91 series directives.

12.2.30. Enforce environmental policies according to applicable directives.

12.2.30.1. Establish an effective hazardous waste management program according to local, state, and federal guidelines.

12.2.31. Coordinate with the EM section and the applicable maintenance superintendent(s) to program engine removals and incorporate them into the weekly and monthly maintenance plans.

12.2.32. Develop a six-month engine removal plan (or equivalent) with the EM section, using the engine management forecast as a baseline, to manage the engine maintenance workload.

12.2.32.1. This plan will be developed using automated computer products and will, as a minimum, include the following:

12.2.32.1.1. Scheduled engine removals for time change.

12.2.32.1.2. PEs.

12.2.32.1.3. TCTOs and historical data to project unscheduled removals.

12.2.32.2. Production workload peaks and valleys should be aggressively managed to optimize production capability to the maximum extent possible.

12.2.33. Develop a local OI to identify responsibilities for all agencies using the NSS for aircraft operation, trim, and troubleshooting.

12.3. Units Supported by Two-level Maintenance (2LM)/Regional Repair. Propulsion flights supported by a 2LM/regional repair concept will ship unserviceable engines to the applicable repair facility when the required maintenance exceeds the base's repair capability.

12.3.1. Units will develop MOAs with appropriate repair facilities to support three-level maintenance engines when an intermediate repair capability does not exist.

12.3.1.1. Coordinate all MOAs through HQ AFMC/DOM.

12.3.2. Units utilizing the 2LM concept, including three-level maintenance engines with MOAs, are only authorized to perform approved retained tasks. Waivers must be submitted to HQ AFMC/DOM for consideration on a case-by-case basis.

12.3.2.1. Maintain a current listing of approved retained tasks on file.

12.4. Material Support Section. This section processes and monitors all supply requests, tracks mission capability (MICAP) due-outs (DUO), monitors bench stock, conducts bench stock and adjusted level reviews, and operates tool storage areas. When the workload does not warrant the assignment of a supply specialist, the propulsion flight chief will designate an individual to perform these duties. Additional guidance is contained in **Chapter 4** of this instruction. In addition to common responsibilities outlined in **Chapter 2** of this instruction, the section chief will:

12.4.1. Ensure supply related functions are accomplished according to applicable AFMAN 23-110 series.

12.4.2. Ensure flight DUO release point and holding bins are established and urgency of need designator (UND) A and urgency justification code (UJC) BQ requirements are verified according to **Chapter 4** of this instruction.

12.4.3. Implement composite tool kit (CTK) and tool accountability programs according to AFMCI 21-107, *Tool Control and Accountability Program*, and **Chapter 21** of this instruction.

12.5. Jet Engine Intermediate Maintenance (JEIM) Section. The JEIM section stores, builds up, tears down, inspects, modifies, and repairs engines, QEC kits, and test equipment according to applicable TOs. The section may be organized using the dock or crew concept. In addition to common responsibilities in **Chapter 2** of this instruction, the section chief will:

12.5.1. Plan and monitor the progress of propulsion system maintenance to ensure maintenance schedules are met by anticipating material requirements and managing production delays to prevent schedule disruption.

12.5.2. Prepare propulsion units and components for shipment and ensure units being returned to depot are properly identified.

12.5.2.1. Attach core automated maintenance system (CAMS)/comprehensive engine management system (CEMS) products to life-limited tracked components according to 00-20 series TOs

and ensure automated ground engine test system (AGETS)/engine trim/test automated system (ETTAS) rejected components are shipped with AGETS/ETTAS printouts and deficiency reports (DR).

12.5.3. Ensure work folders are established for each engine in PE, reconditioning, or any other maintenance.

12.5.3.1. Propulsion flights will permanently maintain all work folders established at that flight.

12.5.3.2. A copy of the latest work folder will be sent with the engine upon permanent transfer.

12.5.3.3. Gaining activities may request copies of additional work packages.

12.5.3.4. ERRCs will maintain copies of engine work folders for engines under their control.

12.5.3.5. Work folders/sheets may be supplemented to fit unit needs.

12.5.3.6. Flights with computer capabilities may use computer-generated products provided they include all the required information. As a minimum, work folders will contain the following:

12.5.3.6.1. Engine information worksheet. As a minimum, this form will show the engine serial number, type, position (if applicable), engine operating time, date started work, date turned serviceable, job control number (JCN), maintenance required, reason for removal, and a list of time change/time compliance technical order (TCTO) requirements. The form will also contain a block to summarize the maintenance performed and coordination blocks allowing the crew chief, material support section, and EM section to ensure all requirements have been satisfied in their respective areas prior to engine shipment or return to spare status.

12.5.3.6.1.1. Ensure the original JCN directing engine removal, and any additional workcenter event (WCE), is used to process the engine for repair. WCEs and CAMS profile packages will be scheduled against the generated WCE to ensure all maintenance data is documented against one JCN and engine failure information is connected to the in-shop action. Upon completion of maintenance, the supervisor will review the signature blocks on the form and the JEIM section chief will verify all repair requirements have been accomplished and documented in the work folder.

12.5.3.6.2. Receiving inspection worksheet. This worksheet identifies a list of items to be accomplished by JEIM prior to engine repair. As a minimum, the worksheet will contain the following items:

12.5.3.6.2.1. Foreign object damage (FOD) check of engine inlet and exhaust.

12.5.3.6.2.2. Inspection of engine for general condition and fluid leakage.

12.5.3.6.2.3. Event history recorder (EHR)/turbine engine monitoring system (TEMS) data (if applicable).

12.5.3.6.2.4. Borescope inspection.

12.5.3.6.2.5. Review of oil analysis program (OAP) laboratory records for possible problems.

12.5.3.6.2.6. List of unique or problem areas to be checked prior to engine tear down or maintenance.

12.5.3.6.2.6.1. CAMS and the AFTO 781K, *Aerospace Vehicle Inspection, Engine Data, Calendar Inspection and Delayed Discrepancy Document*, will be reviewed for maintenance history and delayed discrepancies.

12.5.3.6.3. Serially tracked component replacement record. This sheet will show a list of components/modules replaced by nomenclature (NOUN), part number, serial number and total operating time of old and new components/modules.

12.5.3.6.4. Daily maintenance summary sheet. As a minimum, this sheet will be used to record all maintenance performed during each shift.

12.5.3.6.4.1. The described maintenance actions should be of sufficient detail to clearly ascertain what maintenance actions were performed.

12.5.3.6.4.2. Technical order (TO) work packages used to perform a task will be annotated.

12.5.3.6.4.3. All employee numbers and dates will be included.

12.5.3.6.4.4. Units may use a general purpose or locally generated form.

12.5.3.6.5. Propulsion flight IPI list.

12.5.3.6.6. Parts requisitions record. This sheet will list all parts (including TCIs) on order. It has columns for stock numbers, NOUN, part number, document number, quantity, and status.

12.5.3.6.7. Test cell preparation worksheet. This worksheet will contain a list of items to be accomplished by JEIM prior to sending an engine to the test cell. As a minimum, document the following:

12.5.3.6.7.1. Engine inlet and exhaust inspection.

12.5.3.6.7.2. Pre-run servicing requirements.

12.5.3.6.7.3. Capping of open lines and cannon plugs.

12.5.3.6.7.4. CTK inventory

12.5.3.6.7.5. Inspection for loose hardware.

12.5.3.6.7.6. Section supervisor review of the work folder.

12.5.3.6.7.6.1. The section supervisor must ensure all maintenance performed or any required actions have been documented.

12.5.3.6.8. Test cell pre-run worksheet. Test cell personnel will document this worksheet prior to each engine run. As a minimum, it will include:

12.5.3.6.8.1. FOD inspection of the inlet, exhaust, and external engine.

12.5.3.6.8.2. Check of the engine for general condition.

12.5.3.6.8.3. Foreign object (FO) inspection of the test stand, thrust bed, and test cell equipment.

12.5.3.6.8.4. CTK inventory.

12.5.3.6.8.5. Engine servicing check.

12.5.3.6.8.6. Ensuring all prior to engine run checks and installation requirements are completed according to with applicable TOs.

12.5.3.6.8.7. Ensuring availability and serviceability of fire extinguishing equipment.

12.5.3.6.8.8. A statement that personnel have been briefed on engine run emergency procedures prior to the engine run.

12.5.3.6.9. Test cell post-run worksheet. This worksheet will list items accomplished and documented by test cell personnel after the engine run. As a minimum, it will include:

12.5.3.6.9.1. Securing the engine throttle to the off position and tagging accordingly using the AFTO Form 350 (or locally devised tag including the appropriate identification information).

12.5.3.6.9.2. Intake and exhaust inspection.

12.5.3.6.9.3. OAP sampling.

12.5.3.6.9.3.1. Engines will not be removed from the test stand until OAP samples have been analyzed and results are known.

12.5.3.6.9.4. Engine discrepancies identified during test cell engine run.

12.5.3.6.9.5. Amount of fluid serviced.

12.5.3.6.9.6. CTK inventory. The inventory will be performed after the engine test, but prior to the engine leaving the test facility.

12.5.3.6.9.7. Date and type of engine preservation.

12.5.3.6.9.8. A complete 7-skill level inspection of components replaced or disconnected at the test cell.

12.5.3.6.9.9. Attachment of an AFTO Form 350 (or locally devised tag) to lines, fittings or plugs requiring a leak check when the engine is installed in an aircraft.

12.5.3.6.9.9.1. Engine items not accessible after engine installation in aircraft must be leak checked prior to leaving the test cell.

12.5.3.6.9.10. Capping fittings and lines.

12.5.3.6.10. Final inspection worksheet. This worksheet will document items accomplished by JEIM personnel after repair and/or testing has been completed. As a minimum, it will include:

12.5.3.6.10.1. Ensuring the throttle is secured to off position and tagged accordingly.

12.5.3.6.10.2. FOD inspection of intake, exhaust, and external engine.

12.5.3.6.10.3. Engine borescope (if applicable).

12.5.3.6.10.4. Capping fittings and lines.

12.5.3.6.10.5. Ensuring an AFTO Form 350 (or locally devised tag) is attached to lines, fittings, or plugs that require a leak check when installed in aircraft.

12.5.3.6.10.6. Attaching an AFTO Form 350 and/or serviceable tag to the engine.

12.5.3.6.10.7. Ensuring supply accounts and CAMS have been cleared.

12.5.3.6.11. Borescope inspection worksheets. Units will develop MDS specific borescope inspection worksheets. HQ AFMC/DOM will approve these worksheets prior to their use.

12.5.4. Ensure TCTO compliance is documented according to 00-20 series TOs.

12.5.5. Establish procedures to ensure all parts and serial numbers are inventoried when engines are received or released by the section.

12.5.5.1. Use CAMS/CEMS products obtained from the EM section. These products list all the parts and serial numbers installed on the engine. Notify the EM section when a different serial numbered part is installed or changed so the automated record can be updated.

12.6. Test Cell and Noise Suppression System (NSS) Section. This section tests engines to evaluate the quality of maintenance and engine performance. The section also accomplishes engine preservation. In addition to the common responsibilities outlined in **Chapter 2** of this instruction, the section chief will:

12.6.1. Ensure test cell personnel are properly trained and qualified to perform maintenance and adjustments to installed/uninstalled engines according to applicable TO procedures.

12.6.2. Ensure engine and/or aircraft run personnel are properly certified in the applicable TMSM and/or MDS according to **Chapter 23** of this instruction.

12.6.3. Ensure the test cell is calibrated according to TO 33K-1-100-2, *TMDE Calibration Interval, Technical Order and Work Unit Code Reference Guide*.

12.6.3.1. Only test, measurement, and diagnostic equipment (TMDE) personnel will perform test cell system/component calibrations.

12.6.3.2. Ensure test cell configurations not specified in the 33K series TOs are submitted to Air Force Metrology and Calibration (AFMETCAL) Detachment 1 for calibration determination.

12.6.4. Ensure qualified NSS personnel are present anytime the NSS is operated.

12.6.4.1. OS maintenance personnel will position their aircraft on the NSS and assist with engine runs, trims, and troubleshooting.

12.6.5. Ensure NSS personnel assist in training selected OS maintenance technicians to perform engine trim procedures.

12.6.6. Report Halon 1301 releases according to AFI 91-204, *Safety Investigations and Reports.*

12.7. Accessory Repair Section. This section maintains fuel nozzles, fuel manifolds, oil pumps, accessory housings, afterburners, thrust reversers, engine components, and modules. The section also operates and maintains the bearing room according to TO 44B-1-15, *General Instructions - Jet Engine Antifriction Bearing Handling, Removal, Cleaning, Inspecting, and Installation at Jet Engine Base Maintenance Facilities*. In addition to common responsibilities outlined in **Chapter 2** of this instruction, the section chief will:

12.7.1. Establish local training procedures to ensure only qualified personnel are authorized to clean and inspect bearings.

12.7.1.1. Personnel must possess a 7-skill level or higher (or civilian equivalent) to be authorized to inspect bearings.

NOTE: Highly skilled 5-levels may be authorized with approved waivers submitted according to **Chapter 2** of this instruction.

12.7.1.2. Personnel authorized to clean and inspect bearings will be placed on the special certification roster (SCR).

12.7.2. Establish local procedures to track bearings through the cleaning, inspection, and storage process.

12.7.2.1. Procedures must provide an accurate means to track the location of bearings throughout the entire process.

12.8. Small Gas Turbine Engine Section. This section repairs and maintains small gas turbines used in aircraft. In addition to common responsibilities outlined in **Chapter 2** of this instruction, the section chief will:

12.8.1. Ensure small gas turbine run personnel are properly certified on the applicable TMSM according to **Chapter 23** of this instruction.

12.8.2. Ensure engine technicians are properly trained and qualified to perform maintenance and adjustments to small gas turbines according to the applicable TO procedures.

12.9. Engine Support Equipment (ESE) Section. This section repairs and maintains ESE, including engine stands and trailers, according to with applicable technical data. The propulsion flight chief will assign the responsibility for maintaining ESE to the JEIM or material support section if the workload and manning do not warrant establishing a separate ESE section.

12.9.1. Units may negotiate with contractor operated aerospace ground equipment (AGE) maintenance to perform ESE maintenance.

12.10. Propeller Section. This section repairs, builds up, tears down, and modifies propellers, valve housings, pump housings, and associated components according to applicable TOs.

12.11. Scheduling and Control. Effective scheduling and control of maintenance is essential for the timely production of serviceable engines. Production scheduling is the responsibility of the JEIM section chief. If the workload warrants, a production scheduler (2R1X1) will be assigned. As a minimum, scheduling will include:

12.11.1. Informing the flight chief of significant problems and production delays.

12.11.2. Immediately informing the BEM of engine status changes.

12.11.3. Maintaining and reviewing production records to update flow times and identify problem areas.

Chapter 13

TEST, MEASUREMENT, AND DIAGNOSTIC EQUIPMENT (TMDE) FLIGHT

13.1. General. The TMDE flight maintains, calibrates, and certifies TMDE, traceable to the National Institute of Standards and Technology. It consists of a precision measurement equipment laboratory (PMEL), a Total Quality Program (TQP) section, production control section, and a technical order distribution office (TODO). A field assistance support team for calibration (FASTCAL) may also be assigned. The PMEL normally includes work areas such as voltage, impedance, time/frequency, microwave, temperature, mechanical/dimensional, optics, and radiation. The PMEL performs in-laboratory and on-site calibration and repair using in-laboratory equipment and calibration standards, a transportable field calibration unit (TFCU), a portable automatic test equipment calibrator (PATEC), a jet engine test cell/stand calibrator (JETCC), an electrical standards set (ESS), or a FASTCAL. The TMDE flight will provide base-level support of aircraft, missiles, ground systems, and/or other equipment on base or in a geographic area in accordance with (according to) TO 00-20-14, *AF Metrology and Calibration Program*.

13.1.1. When a Type II PMEL and Type IV PMEL(s) are located on the same base and in the same organizational group, the Type IV PMEL will be aligned under the TMDE flight. Consolidation of Type II and IV PMEL resources to increase efficiencies and reduce costs will occur whenever facility size and operational requirements permit. Flight management ensures the unique support capability of each PMEL (i.e., Type II, Type IV, FASTCAL) is maintained for day-to-day operations, deployment, and when required, for evaluation purposes.

13.1.2. The Type IV PMEL calibrates, certifies, and maintains TMDE according to the supported calibration and measurement summaries (CMS).

13.1.3. When a FASTCAL mobile facility is assigned to the base, the TMDE flight maintains the facility, associated calibration standards, computers, environmental control units (ECU), power transformers, etc., for immediate peacetime or wartime deployment. The TMDE flight uses base resources (e.g., civil engineering (CE), aerospace ground equipment (AGE) flight, etc.) to the maximum extent possible to maintain FASTCAL facilities, ECUs, and power transformers. A core of journeymen/craftsmen must be job qualification standard (JQS) qualified to maintain, complex, and decomplex the FASTCAL structure.

13.2. TMDE Flight Chief. The TMDE flight chief is responsible for the common flight supervisor duties in **Chapter 2** of this instruction. When the Type IV PMEL is aligned under the avionics flight, the Type IV PMEL element chief will accomplish all responsibilities outlined in this chapter. Additionally, the TMDE flight chief will:

13.2.1. Ensure technicians operate and maintain base-reference and working-measurement standards assigned to the laboratory.

13.2.2. Ensure calibration and repair support of TMDE that is designated as a PMEL responsibility in TO 33K-1-100, *TMDE Calibration Interval Notes Maintenance Data Collection Codes Cal Measurement Summaries Calibration Procedures, Calibration Interval & Work Unit Code Reference Manual (CD contains Vols 1 and 2)*, or applicable CMS for the host, tenant, and off-base supported activities.

13.2.3. Establish and maintain a priority maintenance support plan for mission essential support equipment (SE) as defined in paragraph **13.4.2.11.2.** As a minimum, the plan must ensure PMEL personnel are readily available to support essential maintenance requirements.

13.2.4. Develop and implement a customer-relations program to provide technical assistance and advice and to obtain customer-service feedback on TMDE matters.

13.2.4.1. The customer relations program will include periodic visits to, telecommunications contact with, or locally developed customer survey letters sent to, all on- and off-base owning work center (OWC) customers.

13.2.4.2. All customers should be contacted yearly and records documenting these visits, contacts, or surveys, will be maintained for historical purposes.

13.2.4.3. The supported activities' representatives are also encouraged to visit the TMDE flight.

13.2.5. Establish a program to control and issue K stamps.

13.2.5.1. The flight chief may delegate, in writing, this authority to the total quality element.

13.2.6. Use this instruction, TOs 00-20-14, 33K-1-100, CMSs, AFI 21-113, *Air Force Metrology and Calibration (AFMETCAL) Program*, and AFMAN 32-1094, *Criteria for Air Force Precision Measurement Equipment Laboratory Design and Construction*, to maintain PMEL certification.

13.2.7. Establish the flight total quality program (TQP) according to paragraph **13.3.** below.

13.2.8. Prepare PMEL report control symbol (RCS) (HAF-LG (SA) 7808) according to TO 00-20-14 and MAJCOM instructions.

13.2.8.1. Provide a copy to the command functional area manager at HQ AFMC/DOM.

13.2.9. Ensure the PMEL automated management system (PAMS) is administered, maintained, and operated according to AFCSM 21-303, *Precision Measurement Equipment Laboratory (PMEL) Automated Management System Q011/CJ (PA) Software User Manual*, and command instructions.

13.2.10. Ensure PMEL management responsibilities outlined in TO 00-20-14, Section 3 are fulfilled.

13.2.11. Ensure the ESS, JETCC, PATEC, and TFCU are maintained as complete sets and available for immediate peacetime or wartime deployment.

13.2.12. Approve priority calibration or repair requests. The PMEL/avionics flight chief may delegate this authority.

13.2.12.1. When designating the individuals who may approve priority calibration, the PMEL/avionics flight chief will delegate approval authority in writing.

13.2.13. Ensure separate performing workcenter codes are used for Type II and Type IV PMELs.

13.2.13.1. When the PMELs are consolidated, separate performing workcenter codes must be maintained for inventory analysis and manpower standard evaluation purposes.

13.2.14. Establish and manage a TO account to meet in-place and deployment requirements.

13.2.15. Maintain separate equipment accounts for the purpose of identifying mobilization equipment.

13.2.16. Develop and administer a flight/section training program including advanced training requirements.

13.2.17. Ensure a system is established to review deferred and open maintenance.

13.2.18. Establish a preventative maintenance program to track inspection requirements for laboratory-owned equipment.

13.2.18.1. The program may include other recurring events such as swipe tests, TO reviews, safety inspections, etc.

13.2.19. The TMDE and avionics flight chiefs will ensure sufficient calibration, repair, and storage space is assigned adjacent to the avionics intermediate section (AIS) test stations when operationally required.

13.3. PMEL Total Quality Program (TQP). The PMEL TQP replaces the old PMEL quality assurance program (QAP). The TQP is established by the TMDE flight chief or, if in the avionics flight, the Type IV PMEL section chief. The PMEL TQP outlined in TO 00-20-14, Section 9, and this chapter will be used to implement the program.

13.3.1. The TMDE flight chief will:

13.3.1.1. Appoint highly qualified 2P0X1 PMEL personnel, 7-skill level (or civilian equivalent), when possible, as quality process evaluators (QPE).

13.3.1.2. Publish a monthly TQP summary report and route it through squadron supervision at least to the squadron commander. Local instructions will be developed to define the requirements.

13.3.2. QPEs will:

13.3.2.1. Perform technical evaluations and reviews of PMEL production processes, products, and services to assess equipment condition, process compliance, calibration traceability, personnel proficiency, and quality of training; and inform the TMDE flight/PMEL section chief of findings.

13.3.2.2. Give on-the-spot follow-up assistance and remedial instruction if required in correcting nonconformity.

13.3.2.3. Evaluate nonconformity and problem areas to find root cause(s).

13.3.2.3.1. Log nonconformity, root causes, and corrective actions in PAMS.

13.3.2.3.2. Review and track technical order (TO) improvement reports and deficiency reports (DR) for compliance with TO 00-5-1, *USAF Technical Order System,* and TO 00-35D-54, *USAF Material Deficiency Report and Investigation System*, respectively.

13.3.2.3.3. Verify requests for calibration responsibility determinations (AFTO Form 45**, Request for Calibration Responsibility Determination**) and maintain a suspense file until changes are incorporated into work unit code (WUC) manuals.

13.4. Production Control Section. The production control section consists of customer service, production scheduling, and materiel control. 2R1X1 schedulers should be assigned. Additionally, a 2S0X1 inventory management journeyman should be assigned. Production control section will use PAMS to maintain an accurate master identification listing, process equipment, and provide current status of all TMDE.

13.4.1. Customer service function will:

13.4.1.1. Establish local procedures for turn-in and pick up of TMDE.

13.4.1.1.1. Emergency and mission essential equipment is accepted at any time.

13.4.1.1.2. During non-duty hours contact the maintenance operations Center (MOC).

13.4.1.2. Process incoming TMDE using PAMS equipment schedules, PAMS directives, and other applicable instructions and TOs.

13.4.1.2.1. Inspect each item of incoming TMDE to determine exterior condition and, for unscheduled TMDE malfunctions, adequacy of discrepancy documentation on AFTO Forms 350, *Repairable Item Processing Tag*.

13.4.1.2.2. Bring inadequately documented, excessively dirty, or incomplete items to the attention of the OWC. These items will be returned for correction of discrepancies prior to processing into PMEL.

13.4.1.3. Produce monthly TMDE schedules and quarterly master identification (ID) lists not later than (NLT) five workdays before the first day of the month and distribute it to OWCs for correction and verification.

13.4.1.3.1. Schedules need not be produced for OWCs with no TMDE due or overdue calibration.

13.4.1.3.2. Establish a tracking and a suspense system for return of corrected listings.

13.4.1.4. Notify customers who fail to deliver TMDE to the PMEL as scheduled.

13.4.1.4.1. Advise customers to remove overdue TMDE from service unless a calibration extension was previously authorized according to TO 00-20-14.

13.4.1.4.2. Customer contact should be by telephone NLT the next workday. Maintain a log of all contacts concerning overdue TMDE. A new delivery date for the TMDE shall be established at this time.

13.4.1.4.3. Submit a notice to OWC unit commanders (or equivalent) when TMDE is not delivered to the PMEL on the new delivery date.

13.4.1.5. Train OWC TMDE monitors. Maintain a database or log of coordinator training (dates, names, organizations, etc.)

13.4.2. Production scheduling function will:

13.4.2.1. Balance incoming workload by coordinating with OWCs.

13.4.2.1.1. Advise the flight or section chief of significant increases in workload or deviations from the schedule.

13.4.2.2. Establish a hold area for TMDE requiring technical data or accessories, awaiting instructions from item managers (IM), etc.

13.4.2.2.1. Maintain a separate hold area database or file for this equipment and review it at least weekly.

13.4.2.2.2. Notify OWCs of the change to a deferred status.

13.4.2.2.3. Return items awaiting technical data or accessories from the OWC, after a reasonable period.

13.4.2.3. Establish an awaiting shipment area for TMDE sent to another support activity or to an OWC and maintain a database or file with associated documents.

13.4.2.4. Process all TMDE items shipped to an off-base support facility according to AFI 24-201, *Cargo Movement*.

13.4.2.5. Maintain source documents for all incoming and outgoing shipments.

13.4.2.6. Mail or electronically transmit advance and receipt notices to TMDE destination and origination organizations respectively.

13.4.2.6.1. Perform written or electronic follow-up when the addressee has not acknowledged receipt of TMDE within 30 days of the shipping date.

13.4.2.7. Use PAMS to control TMDE processed for maintenance.

13.4.2.7.1. Ensure the current status of all TMDE processed into the PMEL for repair/calibration is reflected in the PAMS database.

13.4.2.8. Correct the PAMS master ID database NLT three workdays after receipt of customer corrections.

13.4.2.9. Notify customers of completed TMDE and take action to resolve problems with customers who fail to pick up completed TMDE within five duty days after being notified the equipment is ready for pick up.

13.4.2.9.1. If unique circumstances prevent the user from picking up their equipment in the prescribed time, they will coordinate with the PMEL/avionics flight chief for approval of a mutually agreed upon pick up time.

13.4.2.9.1.1. This agreement will be drafted by the user and approved by the PMEL/avionics flight chief.

13.4.2.10. Manage and schedule TMDE time compliance technical orders (TCTO) as per instructions in **Chapter 5** of this instruction.

13.4.2.11. Schedule TMDE based on category and first-in, first-out within each category. The following TMDE calibration or repair categories will apply:

13.4.2.11.1. Emergency - One-of-a-kind TMDE that is inoperable or due calibration and for which a critical job is at a work stoppage. A letter of justification signed by the OWC flight chief (or equivalent) will accompany the equipment. The letter may be handwritten to prevent delay, and telephone verification between the OWC and PMEL is encouraged. PMEL must accept emergency equipment any time and immediately place it into work with calibration or repair action continuous until repair or calibration is completed or status of the item changes (i.e., awaiting parts (AWP), deferred for lack of standards or technical data, etc.). The TMDE flight or section chief should require an OWC technician familiar with the equipment to accompany the equipment to and remain at the PMEL to provide technical assistance until the equipment is completed or placed in an interim complete status. The owning/using organization picks up the items immediately upon notification of completion.

13.4.2.11.2. Mission essential - One-of-a-kind or one-deep TMDE that is part of a unit's deployment package or is critical to daily peacetime operations, and any TMDE for which a critical quantity has become unavailable for use. A letter of justification signed by the OWC flight chief (or equivalent) will accompany the equipment. The OWC flight chief (or equivalent) should pre-identify by letter TMDE that meets the mission essential definition as approved by the TMDE flight chief or delegated approval authority. PMEL must accept mission essential equipment any time during duty hours and schedule it as the next item into work with the equipment worked by all shifts until calibration or repair is completed or status of the item changes. The owning/using organization picks up the item immediately upon notification of completion.

13.4.2.11.3. Routine - TMDE not categorized as emergency or mission essential. PMEL must accept routine equipment during normal turn-in/pick up hours.

13.4.2.11.4. The PMEL/avionics flight chief may add other priority categories if needed.

13.4.3. Material control will:

13.4.3.1. Maintain records of demands on supply on AF Form 2413 or computer generated facsimile.

13.4.3.1.1. Verify mission capable (MICAP) reportables and perform follow-up action on all demands to resolve parts shortages.

13.4.3.2. Recommend cannibalization (CANN) actions according to TO 00-20-2, *Maintenance Data Documentation*.

13.4.3.3. Coordinate with OWCs to obtain mission impact statements to support supply assistance requests and submit these letters according to AFMAN 23-110, *USAF Supply Manual*, to the base supply customer service section.

13.4.3.3.1. Institute a system of suspense and follow-up to ensure correspondence is received and acted on.

13.4.3.4. Notify the OWC of TMDE status change to AWP and backorder/delivery status of parts on order.

13.4.3.5. Monitor and control AWP TMDE using supply generated and internally generated reports.

13.4.3.5.1. Store parts received for AWP items with the end item.

13.4.3.5.2. Attach a copy of source document of outstanding requisitions with AWP TMDE.

13.4.3.6. Transfer all items that come out of AWP to awaiting maintenance (AWM) when all parts are received.

13.4.3.7. Perform validation of supply generated reports at the specified frequency.

13.4.3.8. Manage bench stocks to include, ensuring current listings are available and the contents of the bench stocks are limited to frequently used parts, and establishing fill quantities.

13.4.3.9. Ensure that supply requisition priorities are commensurate with mission requirements.

13.4.3.10. Monitor due-in from maintenance (DIFM) listings and assets to ensure control and timely processing.

13.4.3.11. Maintain records and source documents for repair parts used in equipment belonging to reimbursable workcenters.

13.4.3.11.1. Submit a monthly report to the TMDE flight chief to facilitate processing of requests for reimbursement.

13.4.3.11.2. Records are not necessary if the reimbursable unit's supply account is used for purchasing their own repair parts.

13.5. TMDE Collection Point. Units serviced by a PMEL not located on the same base may establish a TMDE collection point. The TMDE collection point coordinator is the single point of contact between the OWCs and the servicing PMEL. The TMDE collection point coordinator is trained by the servicing PMEL.

13.5.1. The TMDE coordinator will develop local management and processing procedures for collection point operations.

13.5.1.1. These procedures will be coordinated with and approved by the host PMEL flight chief and all OWC.

Chapter 14

AVIONICS FLIGHT

14.1. General. The avionics flight primarily performs off-equipment maintenance of avionics components, electronic warfare (EW) systems and sensor pods, airborne video tape recorder (AVTR) systems, airborne photographic systems, and on-equipment maintenance of assigned avionics support equipment (ASE). The sections assigned to this flight are dependent on the weapons systems supported and the scope of maintenance responsibilities. Examples of organizational structures are shown in **Figure 1.6.** and **Figure 1.8.** of this instruction. In addition to duties specified within this chapter, the flight will conform to guidelines established in **Chapter 7** of this instruction when performing on-equipment maintenance. Supply procedural guidance is contained in **Chapter 4** of this instruction.

14.2. Flight Chief Responsibilities. In addition to the common responsibilities listed in **Chapter 2** of this instruction, the flight chief will:

14.2.1. Develop maintenance procedures, in conjunction with the operations group (OG), to accomplish programming of EW systems.

14.2.2. Ensure control and storage of alternate mission equipment (AME) according to AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*. Local procedures are developed for control and storage of non-specified configuration items using the guidelines of AFI 21-103 and AFMCI 21-123, *Storage of Aircraft and Equipment*.

14.2.3. Ensure EW equipment is controlled.

14.2.4. Ensure personnel do not make unauthorized or false transmissions on international distress frequencies according to TO 31R2-1-251, *General Instructions - Transmission of False Distress Signals on Emergency Frequencies*.

14.2.5. Ensure cryptographic components are controlled and maintained according to National Security Agency and Air Force Intelligence Command directives.

14.2.6. When applicable, determine maintenance responsibilities for missile-adapter group equipment.

14.2.7. Ensure central integrated test system (CITS) ground processors (CGP) are maintained.

14.2.7.1. B-2 units will be responsible for maintaining on-board test systems (OBTS).

14.2.8. If applicable, ensure sufficient storage and workspace is assigned adjacent to avionics test stations (ATS) for Type IV precision measurement equipment laboratory (PMEL).

14.2.9. Establish local procedures to implement a bad actor program.

14.3. Avionics Sections. Flights supporting two-level maintenance (2LM) and/or multiple weapon systems are authorized to form applicable sections below flight level to maintain effective span of control. Sections may also be consolidated for more effective utilization of resources. Common section chief responsibilities are listed in **Chapter 2** of this instruction. In addition to unique test and instrumentation sections that may be functionally and geographically necessary, the following sections may be authorized according to weapon system and mission:

14.3.1. Communications-navigation (COMM/NAV) section.

14.3.2. Guidance and control systems section.

14.3.3. F-15 avionics intermediate section (AIS).

14.3.4. Sensors section.

14.3.5. Electronic warfare systems (EWS) section.

14.3.6. ATS section.

14.3.7. Circuit card repair (CCR) section.

14.3.8. Cryptographic section.

14.4. Communications-Navigation (COMM/NAV) Section. This section performs off-equipment maintenance on communication and navigation components and systems, including assigned ASE not maintained by PMEL. Responsibilities also include, but are not limited to maintenance of: ultra high frequency (UHF) systems, very high frequency (VHF) systems, high frequency (HF) systems, interphone systems, tactical air navigation (TACAN) systems, distance measurement equipment (DME), automatic direction finder (ADF) systems, radio altimeters systems, identification friend or foe (IFF) systems, air-to-air interrogation (AAI) systems, VHF omnirange (VOR) instrument landing system (ILS), search and weather radar systems, emergency locator transmitter (ELT) systems, cockpit voice recorder (CVR) systems, and global positioning system (GPS).

14.5. Guidance and Control Systems Section. This section performs off-equipment maintenance on guidance and control systems including: automatic flight control systems (AFCS), all-weather landing systems, attitude reference heading systems, instruments systems, attitude reference and bombing systems, flight director systems, auxiliary flight reference systems, barometric pressure altimeters/encoders, engine test cell aircraft instrumentation, inertial navigation systems (INS), and navigation computers. The section also maintains compass and stability augmentation systems, flight data recorders, and assigned ASE not maintained by PMEL.

14.6. Sensor Section. This section maintains sensors systems and associated ASE; maintains liaison with operations squadrons (OS) and specialist flights to identify and correct sensor system problems; performs off-equipment maintenance as indicated below; provides equipment status and specialist availability to the maintenance operations center (MOC) as required; dispatches for on-equipment maintenance unless responsibility is otherwise defined locally; and maintains one or more of the following systems within the scope of unit maintenance capability:

14.6.1. AN/AAS-35 pave penny target identification set laser (TISL).

14.6.1.1. Simulated laser target (SLT) in direct support of aircrew training.

14.6.2. AVTR systems.

14.6.3. Cockpit television sensor (CTVS).

14.6.4. AN/AAQ-13 and AN/AAQ-14 low altitude navigation and targeting infrared for night (LANTIRN) system.

14.7. Electronic Warfare System (EWS) Section. This section normally performs off-equipment maintenance on aircraft EW systems and components including assigned ASE when not maintained by PMEL. In addition, the EWS section will:

14.7.1. Maintain pod status, pod histories according to TO 00-20-5, *Aerospace Vehicle Inspection and Documentation*, on AFTO Form 95 and scheduling records.

14.7.2. Establish a cannibalization (CANN) program to manage pods and return them to a serviceable status at least every 180 days.

14.7.3. When assigned on-equipment maintenance, upload, download, and operationally check pods according to aircraft directives.

14.7.4. Load proper contingency and training configuration settings in electronic counter measures (ECM) pods, infrared counter measures systems, and radar warning receivers (RWR) unless equipment is assigned to another repair section.

14.7.5. Store, control, transport, install and remove ECM pods according to directives.

14.7.6. When assigned on-equipment maintenance responsibilities, develop a program to verify operation of the installed RWR.

14.8. Avionics Test Stations (ATS) Section. This section will maintain, program and reprogram avionics components supported on assigned test stations and ASE. There are sometimes overlaps between capabilities of an ATS section and other sections. When a maintenance capability exists in another section, manual test equipment for an ATS section will not be procured in addition to that in the other section. In addition, this section will maintain, calibrate, certify, and accomplish time compliance technical orders (TCTO) on assigned ASE not maintained by PMEL.

14.9. F-15 Avionics Intermediate Section (AIS). Performs off-equipment maintenance on line replaceable units (LRU) associated with the F-15 aircraft utilizing manual and automatic test stations and test sets to include TCTOs and software reprograms. Maintains assigned test and ASE not otherwise sustained by PMEL. In addition, the AIS:

14.9.1. Performs on/off-equipment maintenance of datalink pods if assigned.

14.9.2. Locally manage the repair process of non-multi stage improvement program (MSIP) LRUs and associated ASE (when authorized by depot). These units will establish and maintain a serviceable asset quota of non-MSIP parts based on current and expected flightline utilization.

14.10. Circuit Card Repair (CCR) Section. Performs maintenance according to AFI 21-123, *Air Force Gold Program*, and AFMC Sup 1.

14.11. Cryptographic Section (or equivalent). This section performs on- and off-equipment maintenance on RC/EC-135 and E-4B aircraft cryptographic systems and associated equipment.

14.12. Historical Records. Section chiefs will maintain AFTO Form 95 according to TO 00-20-5 on selected, significantly repairable, serialized components for which historical failure data would enhance repair. Historical records are mandatory for special purpose recoverables authorized to maintenance (SPRAM) LRUs, and -6 TO asterisked items. A local form, core automated maintenance system (CAMS) maintenance history printouts, and/or AFTO Forms 95 must be used. The section chief will:

14.12.1. Ensure records remain with the component anytime it is undergoing maintenance.

14.12.2. File the forms by work unit code (WUC) or nomenclature (NOUN), and in serial number sequence.

14.12.3. Provide data from these records upon request to the analysis function to aid in defining avionics maintenance problems and recommended solutions.

14.13. Organization of Avionics Sections. Avionics sections are organized with a section chief, production superintendent, repair monitors, team leaders, and repair team members. These positions and duties may be duplicated or combined to achieve effective asset management and span of control. The section chiefs have overall responsibility for the effective management of their assigned resources.

14.13.1. Production superintendent. The production superintendent is responsible to the section chief for maintenance production on their shift. The production superintendent will:

14.13.1.1. Direct and control the repair effort by managing all repair assets and monitoring the actions of repair team leaders.

14.13.1.2. Evaluate production skills, aptitude, and proficiency of team leaders and team members.

14.13.1.3. Perform and document production and supervisory inspections.

14.13.1.4. Ensure all assigned equipment is inspected, calibrated, and repaired as required.

14.13.1.5. Assume repair monitor and/or team leader duties, if required.

14.13.2. Repair monitor. The repair monitor tracks the status of items processed into the section for repair. Each shift must have a repair monitor assigned. Records used by the repair monitor are maintained according to AFMAN 37-123, *Management of Records*. The repair monitor will:

14.13.2.1. Process items into and out of the section.

14.13.2.2. Advise the section chief, production superintendent, and team leaders on the status of items.

14.13.2.3. Assist the section chief in management of the due-in from maintenance (DIFM) program by being familiar and complying with current directives to ensure ordered/received parts are documented; uses, maintains, and files management computer records.

14.13.2.3.1. Maintain and update a working copy of the D-23 sorted by location and detail number.

14.13.2.3.2. Maintain awaiting parts (AWP) section, ensure accurate documentation, and submit supply assistance requests as required.

14.13.2.4. Track and monitor mission capability (MICAP) status for all assigned DIFM and parts affecting section repair capabilities using automated standard base supply system (SBSS) reports.

14.13.2.5. Ensure CAMS is updated with current supply data, location changes, and DIFM status changes.

14.13.2.6. When parts are procured through quick reaction/response capability (QRC), track and monitor parts status listings using the QRC on-line requisition program and parts status log.

14.13.3. Team leader. The team leader is the first level working supervisor in the management structure. As the resource manager and lead technician on the repair team, the team leader is responsible for the work done by the team. In coordination with the production superintendent, the team leader is responsible for all repair actions performed by their team. The team leader will:

14.13.3.1. Ensure repair team members are qualified to perform tasks assigned.

14.13.3.2. Manage and direct the work effort of the repair team and be responsible for the quality of maintenance performed.

14.13.3.3. Ensure assigned equipment is properly maintained, repaired, and calibrated.

14.13.3.4. In conjunction with the production superintendent and section chief, schedule and prioritize work for the repair team.

14.13.3.5. Ensure CAMS data accurately reflects current repair capabilities, repairable item status, and histories of repair events.

14.13.3.5.1. Advise the repair monitor of status and estimated time in commission (ETIC) changes.

14.13.3.6. Monitor and update the D-23 for their repair area. This portion of the D-23 is sorted by repair area (repair section code) and stock number.

14.13.3.7. When certified, perform production and supervisory inspections.

14.14. Avionics Production. Production efforts are geared toward actual mission needs rather than temporarily high DIFM or awaiting maintenance (AWM) rates. Production priority files (Figure 14.1) are used to track and control assets within the repair center(s). Priorities are determined by asset managers using the D-23, CAMS reports, and real time status of repair resources. Managers prioritize work to meet current and projected mission needs. MICAP parts receive priority repair and readiness spares package (RSP) requirements are considered next, prioritized by their demand rates and stock levels. Peacetime operating stock (POS) restock items are normally worked as priority three, and prioritized by the demand rate and stock level of the item.

14.15. Two-level Maintenance (2LM). 2LM restricts the level of repair authorized for avionics LRUs. The following guidelines apply to organizations operating under 2LM.

14.15.1. Avionics sections are only authorized to perform maintenance actions according to TO 00-25-195, *AF Technical Order System Source, Maintenance and Recoverability Coding of Air Force Weapons, Systems, and Equipment*, and AFI 21-129, *Two-Level Maintenance and Regional Repair of Air Force Weapon Systems and Equipment*.

14.15.1.1. Repairs above and beyond those listed require approval from the appropriate approval authority (i.e. major command (MAJCOM), air logistics center (ALC)/depot, etc).

14.15.2. High priority TCTOs or other circumstances may result in more workload than can be accommodated under 2LM. In the event the section cannot accomplish the special workload as well as normal cannot duplicate (CND) and bench check serviceable (BCS) screening, the following formula should be used to identify those 2LM LRUs that could be temporarily direct not repairable this station (NRTS) without screening. The formula should also help determine LRU priorities in order to adjust the workload to meet production.

14.15.2.1. LRUs with higher index numbers have a higher priority for repair than those with lower numbers.

NOTE: The following example contains fictitious data for illustrative purposes only: in the example below, the primary supply point (PSP) would have the highest priority, followed by DMT. DFLCC may be a candidate to temporarily direct NRTS until the workload permits CND and BCS screening.

14.15.2.2. Update NOUN, PBR, exchange price (EXCHNG PRICE), and daily demand rate (DDR) quarterly to ensure the index reflects actual conditions.

Table 14.1. Actual Conditions

NOUN	PBR	EXCHG PRICE	DDR	INDEX
PSP	63	$33352.00	21	4412
DMT	13	$16521.00	21	451
DFLCC	82	$6000.00	03	148

14.15.2.3. The index should be used as a guideline to assist production superintendents in prioritization of workload. Consider local conditions, such as MICAPs, when determining actual production priorities.

PRODUCTION PRIORITY FILES (AFTO FORM 350 PART 11)

Table 14.2. Production Priority File

	AWM INW		AWP
P1	MICAP (MISSION NEED, DDR)		
P2	RSP/MSK (DDR)		
P3	POS (BALANCE)		
P4	DDR/AFMC CRITICAL ITEMS, ALL OTHERS		

Chapter 15

ACCESSORY FLIGHT

15.1. General. The accessory flight repairs, maintains, modifies, locally manufactures, and inspects aircraft and associated equipment. The flight is organized into the following sections: pneudraulics, electrical/environmental, fuels systems, and egress. Guidance on supply procedures is contained in **Chapter 4** of this instruction.

15.2. Flight Chief Responsibilities. In addition to the common responsibilities in **Chapter 2** of this instruction, the flight chief will:

15.2.1. Establish local manufacture capability.

15.2.1.1. Monitor assigned local manufacture work orders.

15.2.2. Control and correctly dispose of recoverable materials.

15.2.3. Ensure a comprehensive egress training program is established and monitor program effectiveness.

15.2.4. Ensure explosives are controlled and stored in approved storage areas.

15.2.5. Coordinate with the maintenance supervisor (MS) and maintenance operations center (MOC) to obtain support from the base civil engineer, medical facility, and fire department.

15.2.5.1. Establish procedures to notify all required base agencies (e.g., the base fire department when open fuel tank repairs are in progress).

15.3. Electrical/Environmental Section. This section maintains aircraft electrical system and cryogenic system components, and locally manufactures, repairs, overhauls, tests, modifies, and inspects electrical components, cryogenic system components and aircraft batteries.

NOTE: The squadron commander may assign the lead-acid battery section to another flight. When this option is chosen, electrical/environmental personnel will train gaining flight personnel on all required tasks, ensuring lead-acid battery disposal procedures meet environmental standards and are effectively controlled for battery accountability purposes.

In addition to the common responsibilities outlined in **Chapter 2**, the section chief will:

15.3.1. Ensure the maintenance of aircraft environmental control, bleed air, vacuum, pneumatic, installed fire extinguishing, and oxygen components is scheduled and completed.

15.3.1.1. Ensure personnel service, repair, modify, and test components of these systems as required.

15.3.1.2. Ensure personnel maintain, repair, order parts, and keep historical records on the gaseous and cryogenic portion of aircraft oxygen/nitrogen gaseous and cryogenic servicing carts.

15.3.1.2.1. Procedures for monitoring and reporting the status of these servicing carts will be locally determined.

15.3.2. Schedule all inspections for liquid and gaseous aircraft servicing carts.

15.3.2.1. Coordinate chassis maintenance with the aerospace ground equipment (AGE) flight.

15.3.2.2. Using organizations are responsible to inspect gaseous and cryogenic servicing carts prior to use.

15.3.2.3. Users are responsible for ensuring the quantity of the liquid oxygen (LOX) or liquid nitrogen (LN^2) in the aircraft servicing cart is not, and does not, fall below minimum levels in accordance with (according to) applicable equipment TOs prior to and during servicing.

15.3.2.4. Perform hot purge and pump down on aircraft LOX and LN^2 servicing carts.

15.3.3. Ensure off-equipment maintenance is performed on life raft inflation carbon dioxide (CO^2) cylinders according to applicable directives.

NOTE: This function may be assigned to either the aircraft electrical/environmental section or the survival equipment section as locally determined.

15.4. Egress Section. The Egress section maintains aircraft egress systems, components, and trainers. In addition to the common section chief responsibilities outlined in **Chapter 2** of this instruction, the section chief will:

15.4.1. Establish the capability to maintain aircraft ejection seats, extraction and escape systems, egress components of jettisonable canopies, explosive components of escape hatches and doors, and egress trainers.

15.4.2. Request explosive ordnance disposal (EOD) help when egress explosive devices are damaged or suspected of being unsafe.

15.4.3. Provide storage for egress explosive items removed during maintenance.

15.4.4. Establish and implement the egress training program, to include a master training plan, explosive safety, life support certification, and core automated maintenance system (CAMS) time change documentation qualification as required by AFI 21-112, *Aircraft Egress and Escape Systems*.

15.4.4.1. This program will be reviewed semi-annually.

15.4.4.2. Ensure quality upgrade/qualification egress systems training is conducted using all available unit resources.

15.4.5. Actively promote the accuracy of the egress time change item (TCI) database.

15.4.5.1. Ensure applicable data products are updated anytime an egress item is replaced to ensure the annual time change component forecast is correct.

15.4.5.1.1. Egress makes all time change data entries in the CAMS database, to include clearing suspenses against the workcenter event (WCE) when delegated in writing by the OSS PS&D.

15.4.5.1.1.1. If egress clears suspenses against a WCE, a snapshot (CAMS screen 122) of the completed job must be forwarded to the appropriate operations squadron (OS) plans, scheduling, and documentation (PS&D) personnel.

15.4.5.1.2. Ensure internal controls are in place to screen all time change data.

15.4.5.1.3. Egress will provide component background information to OS PS&D personnel to include a list of all components having multiple part numbers with different service lives.

15.4.5.1.4. Egress supervisors will validate and verify all CAMS egress data for each aircraft, and meet with PS&D at least annually to review each aircraft's data.

15.4.5.2. The egress section will not maintain a separate database intended to manage the egress time change program at units where CAMS is the primary database.

15.4.6. Coordinate with analysis to establish a monthly requirement for CAMS products to aid in management of egress TCIs.

15.4.6.1. These products may be downloaded into computer media format.

15.5. Fuel Systems Section. The fuel systems section performs aircraft on- and off-equipment maintenance of fuel and hydrazine systems and components to include, but not limited to, troubleshooting, repair, functional checks and tests, removal and replacement of components, operational tests, checks, and inspections. The section also inspects, functional tests, stores, and maintains alternate mission equipment (AME), external fuel tanks (EFT), weapons bay tanks (WBT), and conformal fuel tanks (CFT); maintains war reserve materiel (WRM) AME as required; maintains a cadre of personnel qualified in WRM tank build-up (TBU), if required; establishes local procedures to manage and document grounding/non-grounding fuel leaks; and inspects aircraft fuel and hydrazine system components, except engine installed components. In addition to the common responsibilities outlined in **Chapter 2**, the section chief will:

15.5.1. Ensure assigned personnel receive periodic physical examinations as established by the base medical service.

15.5.1.1. Occupational physicals should be tracked in CAMS.

15.5.2. Set up controls to prevent unauthorized entry into fuel cell and hydrazine repair areas.

15.5.3. Provide safety and health training for hydrazine and fuel system specialists. Provide safety training to other specialists/personnel who enter aircraft fuel tanks or open fuel tank areas to perform or assist in completing fuel system maintenance.

15.5.3.1. When required, ensure hydrazine response teams are formed and integrated into crash recovery operations and local in-flight emergency (IFE) procedural checklists. Additional information on hydrazine hazards and management is found in TO 00-25-172, *Ground Servicing of Aircraft and Static Grounding/Bonding (ATOS)*, and aircraft technical orders (TO).

15.5.4. Ensure fuel system repair facilities, open-tank-repair areas, and equipment used for open fuel tank and hydrazine maintenance meet applicable TO requirements and AFOSH STD 48-8, *Controlling Exposure to Hazardous Materials*.

15.5.4.1. Perform safety and health inspections on facilities, open tank areas, and equipment and take immediate action to correct discrepancies.

15.5.5. Manage and document non-grounding fuel leaks according to TO 1-1-3, *Inspection and Repair of Aircraft Integral Tanks and Fuel Cells*, and applicable aircraft TOs.

15.5.5.1. Coordinate with OSs to schedule aircraft with non-grounding fuel leaks for repair to prevent further deterioration of aircraft condition.

15.5.6. For EFTs, CFTs, and WBTs (as applicable):

15.5.6.1. Maintain a local storage area for A-10, F-15, F-16 EFTs. Store F-15 CFTs and B-1B WBTs, requiring fuel system maintenance. After maintenance, notify the OS that tanks are serviceable and ready for pick up.

15.5.6.2. Ensure fuel system maintenance personnel perform all maintenance and inspections on AME fuel tanks associated with the fuel system.

15.5.6.2.1. Released systems components shall be maintained by the appropriate system specialist.

15.5.6.3. Ensure all maintenance actions are recorded in CAMS and the significant history data (SHD) for each tank.

15.5.6.4. Ensure fuel system maintenance personnel perform tank purges and preserve tanks requiring ground shipment.

15.5.7. If tasked to maintain WRM EFTs:

15.5.7.1. Ensure fuel system maintenance personnel perform all maintenance and inspections on WRM fuel tanks.

15.5.7.1.1. The appropriate system specialist shall complete release systems components requiring repair.

15.5.7.1.2. After maintenance, notify supply that the tank is ready for pick up.

15.5.7.2. Ensure that all maintenance actions are recorded in CAMS.

15.5.7.3. Ensure fuel system maintenance personnel perform tank purges and preserve tanks for storage and shipment (storage, delivery, and shipment is the responsibility of base supply).

15.5.7.4. Provide equipment, tools, and bench stock for WRM TBU training.

15.5.7.5. Meet quarterly with the logistics group (LG) WRM officer/noncommissioned officer (NCO) (WRMO/WRMNCO) and logistics training flight (LTF) to identify personnel for WRM TBU teams, establish TBU training classes for initial and refresher training, and review the WRM TBU mission capability (MISCAP) statement for the wing.

15.5.7.6. Meet quarterly with LG WRMO/WRMNCO and base supply representatives to review inspection criteria for stored WRM tanks, schedule tank inspections and maintenance, and report on monthly walk-throughs.

15.6. Pneudraulics Section. This section maintains pneudraulic systems (except environmental and egress), provides maintenance support for support and test equipment, and maintains components of non-portable hydraulic test stands and pumping units. Fluid quality of hydraulic test stands and pumping units must meet the same standards as that of the weapon system to be serviced. In addition to the common responsibilities outlined in **Chapter 2**, the section chief will:

15.6.1. Provide for local manufacture and testing of flexible hose assemblies and testing of rigid tubing.

15.6.2. Provide pneudraulic maintenance on munitions maintenance loading equipment beyond the munitions flight's capabilities.

15.6.3. Provide maintenance on and inspections of KC-135 refueling drogues and booms.

NOTE: Pneudraluics specialists assigned to the flightline may accomplish maintenance/inspections.

15.6.4. Provide repair, overhaul, and bench check of flight control, landing gear, and pneudraulic power system components such as brakes, struts, accumulators, reservoirs, and actuators.

15.6.5. Provide needed safety and health inspections and ensure facilities and equipment used for repair, cleaning, and testing of aircraft parts meet TO requirements and Air Force occupational and environmental, safety, fire protection, and health (AFOSH) standards.

Chapter 16

AEROSPACE GROUND EQUIPMENT (AGE) FLIGHT

16.1. General. The AGE flight provides powered and non-powered (NPA) to support the wing's mission. Powered and NPA are those items and/or types of equipment as defined in TO 00-20-7, *Inspection System, Documentation, and Status Reporting for Support and Training Equipment*. The AGE flight picks up, delivers, repairs, modifies, and inspects all AGE. The range of equipment supported by the AGE flight will vary locally as agreed to by maintenance supervision. A local Operating Instruction (OI) will be established to clearly define responsibilities for movement and maintenance of non-powered SE, MMHE, ESE, and gaseous/cryogenic carts. The AGE flight service all powered SE; mobile self-generating nitrogen units are considered powered AGE. Core Automated Maintenance System (CAMS) will be used to schedule SE to the maximum extent possible. The documentation function, if decentralized to the AGE flight, will be performed by a 2R1X1 scheduler. The AGE flight consists of a production support section, inspection and repair (I&R) section, servicing, pick up, and delivery (SPD) section, and NPA section. The NPA section may be aligned under the I&R section. All AGE owned by the AGE flight will be maintained on an equipment account.

16.2. Flight Chief Responsibilities. In addition to the common flight chief responsibilities outlined in **Chapter 2** of this instruction, the flight chief will:

16.2.1. Ensure AGE maintenance is performed in a timely manner and according to applicable directives.

16.2.2. In coordination with using activities, annually reevaluate the quantity of all equipment on hand, and ensure equipment in excess of actual needs is forwarded to base supply equipment custodian for disposition.

16.2.3. Coordinate annually with the OG/LG aircraft maintenance units to establish types and minimum quantities of mission essential powered and NPA.

16.2.3.1. Changes in the minimum quantity of AGE required normally occur when the force structure and/or mission changes.

16.2.3.2. Mission essential AGE will be tracked and the daily status must be reported to the Maintenance Operations Center (MOC).

16.2.3.2.1. CAMS or AF Form 2431, **Aerospace Ground Equipment Status**, will be used to report AGE status. Locally developed electronic forms can be used to report AGE status to the MOC, providing they include all the information contained on the AF Form 2431.

16.2.4. In conjunction with the logistics training flight (LTF), establish, monitor, and conduct the AGE operator training program when special training is required.

16.2.4.1. Training must be documented in the appropriate automated training product.

16.2.5. Place seasonal usage AGE in storage, when required.

16.2.6. Comply with procedures for the maintenance of equipment records and historical documents according to 00-20 series TOs.

16.2.7. Approve and control AGE cannibalizations (CANN). For units with CAMS capability, the flight chief will set up procedures for the AGE production support section to initiate CANN work orders and provide updated status on requisitions for deferred discrepancies. In addition to CAMS documentation requirements, CANN actions will be accomplished according to TO 00-20-2.

16.2.8. Establish a field numbering system and distinctly mark equipment to identify owning organization.

16.2.9. Establish an inspection program on assigned AGE.

16.2.10. Control fuel dispensed from issue tanks according to AFMAN 23-110, *USAF Supply Manual* and AFI 23-204, *Organizational Fuel Tanks*.

16.2.10.1. Normally, the flight chief will designate the fuels management responsibility to the production support section.

16.2.11. Perform spot checks of AGE ready lines/subpools.

16.2.12. Establish a training program for each section.

16.2.13. Monitor personnel skills, rank, and retainability to balance management and technical proficiency in each section.

16.2.14. Comply with the uniform repair and replacement criteria for AGE according to TO 00-25-240 and implemented by TOs 35-1-24, 35-1-25, and 35-1-26, *Economic Repair/Replacement Criteria Series*.

16.2.15. Review all dull sword reports concerning MMHE maintained by the AGE flight.

16.2.16. Coordinate welding requirements with the fabrication flight chief. For AGE welding requirements not covered by end item TOs, both flight chiefs will determine the economy of repair action.

16.2.16.1. Safety determination is made by the fabrication flight chief.

16.2.16.2. The fabrication flight chief will ensure the material of AGE requiring repair meets the general welding guidelines in TO 00-25-252, *Certification of USAF Aircraft and Missile Welders*.

16.2.16.3. The determination of equipment/component integrity is made by the AGE flight chief.

16.3. Subpools. A subpool is a site, other than the central AGE parking area (ready line), where AGE is positioned for future dispatch. Subpools are set up based on mission needs, facilities, or base layout. The AGE flight chief will coordinate subpool location(s) in writing with airfield management and using organizations.

16.4. Tow Vehicles. AGE tow vehicles are under the control of the pick up and delivery supervisor and respond to the needs of using organizations.

16.4.1. AGE tow vehicles will be radio equipped to expedite the delivery of AGE.

16.4.1.1. Initial radio operator familiarization training must be given to vehicle drivers and formally tracked in the unit training plan.

16.5. Vehicle Status. The flight's vehicle status will be monitored. Minimum status information will consist of the vehicle type, registration number, and vehicle radio status. The production support section normally accomplishes this.

16.6. Inspection and Repair Section (I&R). The I&R section performs periodic inspections (PE) and major maintenance on AGE and section shop equipment. When combined, NPA responsibilities are performed by the I&R section. In addition to the common section chief responsibilities outlined in **Chapter 2** of this instruction, the section chief will:

16.6.1. Ensure personnel can perform maintenance beyond the capability of the servicing function.

16.6.2. Assign people to do work based on priorities established by the AGE production superintendent.

16.6.2.1. Inform the AGE production scheduler of all equipment status changes and ETICs as they occur.

16.6.3. Ensure personnel correct deferred discrepancies and discrepancies discovered during inspections.

16.6.4. Ensure personnel perform TCTOs as required.

16.6.5. Validate all AGE not mission capable - supply (NMCS) and review other parts requests before placing a demand on the supply system.

16.6.6. Ensure personnel properly prepare AGE and section equipment for storage or shipment. This includes helping the servicing pick-up and delivery (SPD) section prepare equipment for mobility, if required.

16.6.7. Ensure personnel perform corrosion inspections of AGE and treat all corrosion before assembly when work permits access to the interior of the equipment.

16.6.8. Ensure personnel clean, tag, and prepare components before routing through the repair cycle.

16.6.9. Ensure personnel perform document reviews on equipment before releasing it from the I&R section.

16.6.10. Ensure personnel perform operational checks before returning AGE to the SPD section.

16.6.11. Ensure MA-1A equipment enclosures are installed and maintained on deicer trucks.

16.6.12. For consolidated aircraft support system (CASS) units, ensure personnel repair, inspect, and service flexible conditioned air ducts, liquid coolant hoses, start (bleed) air ducts, power cables, couplings, and associated equipment.

16.7. Servicing, Pick up, and Delivery (SPD) Section. The SPD section services, inspects, and dispatches AGE. It manages and supervises the AGE tow vehicle operation. More than one SPD function may be set up based on mission requirements, facilities, and/or base layout. In addition to the common section chief responsibilities outlined in **Chapter 2** of this instruction, the SPD section chief will:

16.7.1. Ensure personnel perform and document service inspections on powered AGE according to equipment workcards prior to placement on the ready line, after servicing or after maintenance has been completed.

16.7.1.1. When moving AGE from one dispatched location to the subpool, or another location, ensure personnel check fuel/oil levels and forms for discrepancies.

16.7.1.2. Ensure personnel process equipment requiring repairs to the appropriate maintenance function.

16.7.2. Ensure personnel perform maintenance within their capability.

16.7.3. Ensure assigned AGE is cleaned and washed as appropriate.

16.7.4. Ensure personnel properly prepare AGE for mobility commitments.

16.7.5. Ensure personnel deliver AFTO Forms 244 and 245 to the AGE scheduler for equipment being sent to the I&R section.

16.7.6. Ensure personnel pick up and deliver all AGE as locally determined.

16.7.7. Supervise AGE tow vehicle drivers and ensure response times meet customer's needs.

16.7.8. Ensure vehicle status is maintained current and reported as directed.

16.7.9. Ensure personnel utilize the AF Form 864, **Daily Requirement and Dispatch Report**, (or equivalent) to annotate/record all pick up and delivery of AGE. Ensure the completed forms are maintained for three months.

16.8. Non-powered AGE (NPA) Section. The NPA section is normally located in the using organization, unless maintenance or inspection needs dictate return to the AGE flight. Normally, the equipment users are responsible for transporting NPA within the using organization. Using organizations are responsible to perform prior-to-use inspections on NPA. Defects are annotated in the equipment forms and reported to the AGE flight by the equipment operators. Scheduled and unscheduled maintenance on NPA is the responsibility of the AGE flight. In addition to the common section chief responsibilities outlined in **Chapter 2** of this instruction, when a separate NPA section is utilized, the section chief will:

16.8.1. Provide for the maintenance and storage of NPA in excess of user needs.

16.8.2. Ensure personnel perform all maintenance, modifications, or TCTOs on assigned equipment according to established guidance.

16.8.3. Prioritize maintenance based on the priorities established by and coordinated with the AGE production superintendent.

16.8.4. Inform the AGE scheduler of any changes in equipment status and ETICs.

16.9. AGE Production Support Section. The AGE production support section provides administration and ancillary services for TO files maintenance, supply support, fuels management, and scheduling support for the AGE flight. In addition, this section is the flight’s focal point for the hazardous waste and Gold START programs. If the workload warrants, full-time schedulers (2R1X1) and supply specialists (2S0X1) are assigned. In addition to the common section chief responsibilities outlined in **Chapter 2** of this instruction, the section chief will:

16.9.1. Train and supervise section personnel, to include the AGE scheduler and supply specialist.

16.9.2. Ensure the flight's TO files are maintained according to TO 00-5-1 and 00-5-2.

16.9.3. Manage the flight's repair cycle program. Check the status of repair cycle assets daily.

16.9.4. Manage the flight's tool storage and issue area(s).

16.9.5. Manage the flight's TMDE program.

16.9.6. Manage the flight's supply function. Ensure parts, bench stock, and supplies are maintained.

16.9.7. Manage the flight's scheduling function.

16.9.8. Manage the flight's fuels management program.

16.10. AGE Scheduling. The AGE scheduler, when assigned, works for the production support section chief and is responsible for maintaining the AGE historical records. In addition, the AGE scheduler will:

16.10.1. Plan and schedule all AGE scheduled maintenance.

16.10.1.1. Prepare an AGE maintenance plan (unless AFCSM 21-573, Vol 2, *Automated Scheduling Module (ASM)*, scheduling procedures are used) and maintain a current equipment scheduling report for all assigned equipment according to AFCSM 21-573, Vol 2.

16.10.1.2. Schedule six-month periodic and annual inspections to come due six months apart and retain the six-month PE integrity without opening an additional job during the annual inspection.

16.10.2. Control off-equipment work.

16.10.2.1. Check the status of DIFM assets daily.

16.10.3. Maintain the AGE flight's delayed-due-to-maintenance and delayed-due-to-parts files (automated files may be used).

16.10.3.1. Control the assets located in the awaiting installation (AWI) holding bins.

16.10.3.2. Items placed in holding bins are identified by the appropriate attached documentation (DD Form 1348-1, AFTO Form 350, etc.).

16.10.3.3. Establish a control method for these assets according to **Chapter 4** of this instruction. This duty may be performed by the AGE supply function, if assigned.

16.10.4. Schedule, control, and document TCTOs/OTIs according to 00-5 and 00-20 series TOs and applicable directives.

16.10.5. Monitor and report mission essential AGE levels to the flight chief and the maintenance operations center (MOC).

16.10.6. Monitor and track AGE components sent to other sections for repair when repair capability does not exist within the flight.

16.10.7. Recommend CANN action, when required, to the AGE production superintendent.

16.11. AGE Supply Support. Supply responsibilities are outlined in **Chapter 4** of this instruction.

16.12. AGE Production Superintendent. The AGE production superintendent is responsible to the AGE flight chief for the maintenance production of all assigned sections. The production superintendent will:

16.12.1. Monitor adherence to the flight's safety, training, and CTK programs.

16.12.2. Frequently conduct spot checks on equipment for serviceability.

16.12.3. Approve all CANN actions.

16.12.4. Ensure CANN actions on powered/NPA are properly documented in CAMS.

16.12.5. In conjunction with the LTF, develop course control documents (CCD) for AGE familiarization training as required.

16.12.6. Assist the flight chief with management/supervision of the flight's assigned resources.

Chapter 17

FABRICATION FLIGHT

17.1. General. The fabrication flight repairs, maintains, modifies, and inspects aircraft, aircraft systems, subsystems, and equipment components, and local manufactures aircraft and equipment components, as required. The flight consists of aircraft structural maintenance, corrosion control, aircraft metals technology, survival equipment, and non-destructive (NDI) sections.

17.2. Flight Chief Responsibilities. In addition to the common flight chief responsibilities listed in **Chapter 2** of this instruction, the flight chief will:

17.2.1. Provide sufficient local manufacture capability to meet mission requirements and monitor all local manufacture work order requests.

17.2.2. Ensure strict compliance with applicable directives for control and disposal of recoverable materials and hazardous waste.

17.2.3. Coordinate welding requirements with the aerospace ground equipment (AGE) flight chief. For AGE welding requirements not covered by end item technical orders (TO), both flight chiefs will determine the economy of repair action.

17.2.3.1. The fabrication flight chief makes safety determination.

17.2.3.2. Ensure the material of AGE requiring repair meets the general welding guidelines in TO 00-25-252, *Certification of USAF Aircraft and Missile Welders*.

17.2.3.3. The AGE flight chief makes the determination of equipment/component integrity.

17.3. Aircraft Structural Maintenance Section. This section modifies, repairs, and inspects aircraft and support equipment (SE); manufactures sheet metal, composite, fiberglass and plastic components, and related hardware; maintains jigs, fixtures, and master production templates for AGE and aircraft; may perform special modifications in support of research and development (R&D) and specific engineer design changes; manages the wash rack and corrosion control/structural repair facilities; detects and treats aircraft and equipment corrosion; and removes/applies decals and protective coatings, radar absorbtion materials (RAM), insignia and markings. In addition to common section chief responsibilities in **Chapter 2** of this instruction, the section chief will:

17.3.1. Determine which structural parts or sections must be removed from damaged AGE and aircraft for repair.

17.3.2. Supervise the design and construction of special forming jigs and dies.

17.3.2.1. Ensure special jigs, dies, and forming tools are protected to prevent damage.

17.3.3. Supervise the repair of honeycomb panels, skin panels, dome antennas, radomes, and metal bonded and composite materials.

17.3.4. Ensure personnel properly manufacture metal tubing, conduits, and cables in accordance with (according to) drawings and specifications.

17.3.5. Ensure supplies and equipment are stocked to appropriate levels to support aircraft and equipment washing, inspection, and treatment.

17.3.6. Ensure facilities, equipment, and materials are available to provide the capability to chemically or mechanically inspect, remove, and treat corrosion on aircraft, engines, AGE, and components.

17.3.7. Monitor the washing and corrosion inspection schedule in the weekly and monthly maintenance plans.

17.3.8. Ensure protective coatings applied to aircraft, AGE, and components are compliant with applicable TOs and local, state, and federal environmental directives.

17.3.9. Train and assist sections performing their own corrosion programs to include cleaning operations, corrosion prevention, inspection, removal, and treatment techniques.

17.3.10. Ensure section personnel are scheduled for annual industrial physicals according to TO 42A-1-1, *Safety, Fire Precaution and Health Promotion Aspects of Painting, Doping, and Paint*, and as specified in industrial hygiene/bioenvironmental surveys and other applicable directives.

17.3.11. Ensure corrosion control and wash rack procedures and requirements are accomplished according to AFMCI 21-117, *Corrosion Control and Prevention Program and Marking of Aerospace Vehicles/Equipment*, and other applicable directives.

17.3.12. Ensure personnel are rotated to maintain currency in all aspects of the career field (i.e., coating application/removal, RAM application/removal, insignia/markings, and structural repair competency).

17.3.13. Develop procedures to ensure newly assigned structural maintenance technicians are trained and certified on engine intake maintenance according to **Chapter 23** of this instruction.

17.3.14. Ensure all markings and/or identification data is applied to repainted aircraft, including jettisonable aircraft components (i.e., canopies, pylons, external tanks, and seats) according to TO 1-1-4, *Exterior Finishes, Insignia and Markings, Applicable to USAF Aircraft*.

17.3.15. Ensure a respiratory protection program (RPP) has been established according to AFOSH STD 48-137, *Respiratory Protection Program*.

17.3.16. Ensure spray painting facility requirements are being met according to AFOSH STD 91-17, *Interior Spray Finishing*, and TO 42A-1-1.

17.3.17. Ensure metalworking machines are properly secured to the floor or other suitable foundation to eliminate moving or walking and that there is sufficient space between and around machines so movement of one operator will not interfere with the movement of another according to AFOSH STD 91-12, *Machinery*.

17.3.18. Ensure personnel are trained in the proper operation/safety procedures, hazard recognition, and emergency shutdown procedures for each piece of industrial equipment according to AFOSH STD 91-12.

17.3.19. Ensure personal protective equipment (PPE) is available, serviceable, and used as prescribed by AFOSH STD 91-31, *Personal Protective Equipment*.

17.4. Aircraft Metals Technology Section. This section inspects, repairs, fabricates, heat treats, plates, cleans, welds, manufactures, and tests aircraft and equipment components, and tools; also performs special modifications in support of R&D and specific engineer design changes. In addition to common section chief responsibilities in **Chapter 2** of this instruction, the section chief will:

17.4.1. Ensure assigned welders are certified and maintain proficiency according to TO 00-25-252.

17.4.2. Provide and enforce the use of required safety devices and PPE.

17.4.2.1. Give safety briefings stressing the hazards of arc radiation.

17.4.3. Ensure proper materials are selected for local manufacture.

17.4.4. Observe machine-tool set up procedures, machine cutting operations, operations performed by hand, and general machine section operations, such as bench assembly, fitting, and adjusting machine parts, to ensure technicians follow required procedures.

17.4.5. Ensure special tools, jigs, and fixtures are designed, fabricated, protected, and properly stored.

17.4.6. Ensure metalworking machines are properly secured to the floor or other suitable foundation to eliminate moving or walking and that there is sufficient space between and around machines so movement of one operator will not interfere with the movement of another according to AFOSH STD 91-12.

17.4.7. Ensure personnel are trained in the proper operation/safety procedures, hazard recognition, and emergency shutdown procedures for each piece of industrial equipment according to AFOSH STD, 91-12.

17.4.8. Ensure PPE is available, serviceable, and used as prescribed by AFOSH STD 91-31.

17.4.9. Ensure an AF Form 592, **USAF Welding, Cutting and Brazing Permi***t*, is obtained prior to starting welding and cutting activities outside approved shops or other areas approved by the base fire department according to AFOSH STD 91-5, *Welding, Cutting, And Brazing*.

17.4.10. Ensure an AF Form 592 is obtained prior to each on-aircraft welding operation.

17.4.11. Ensure a welding fire safety checklist is prepared for use in each welding task covering the specific hazards associated with the task according to AFOSH STD 91-5.

17.4.12. Ensure welding torch hoses are visually inspected for damage at the beginning of each shift. Hoses showing leaks, cuts, burns, worn spots, or other evidence of deterioration repaired or will be replaced prior to use according to AFOSH STD 91-5.

17.4.13. Ensure screens, non-rigid heat and spark barriers, and/or fire resistance curtains are used during welding operations to limit reflecting and protect bystanders from sparks and other hazards according to AFOSH STD 91-5.

17.4.14. Ensure metals technology personnel are welding certified according to TO 00-25-252.

17.4.14.1. At a minimum, certification is required at the Level II, 6G position in the following metal groups:

17.4.14.1.1. Group II - Stainless steels.

17.4.14.1.2. Group III - Precipitation hardening nickel-base alloys (inconel).

17.4.14.1.3. Group IV - Aluminum-base alloys.

17.4.14.1.4. Group VI - Titanium-base alloys.

17.4.14.1.5. Group VII - Cobalt-base alloys.

NOTE: Units will determine if additional metal groups are required to support mission requirements.

17.4.14.2. Certification may be accomplished locally, providing the NDI laboratory has the appropriate equipment and trained personnel to examine and evaluate weld specimens according to TO 00-25-252.

17.4.14.3. At a minimum, the fabrication flight chief will serve as the certifying official and ensure the requirements of TO 00-25-252 and this instruction have been satisfied.

NOTE: The Squadron commander may appoint the maintenance supervisor (MS) as the certifying official.

17.4.14.4. These requirements are applicable to all metals technology personnel, including civilians with a position description that includes welding on aviation equipment. The only exception is for personnel who have recently been awarded a 5-skill level. A temporary extension of six months may be granted to complete certification with the squadron commander's concurrence. A memo from the commander granting the extension must be filed with the individual's career field education and training plan (CFETP).

17.5. Survival Equipment Section. This section supports aircraft maintenance, aircrew members, combat controllers, pararescue, and tactical air controllers through the inspection, repair, and packing of integrated personnel recovery and drogue parachute systems, personnel and deceleration parachutes, flotation equipment, protective equipment, emergency evacuation systems, and associated subsystems. In addition to common section chief responsibilities in **Chapter 2** of this instruction, the section chief will:

17.5.1. Evaluate the extent of damage/wear to material and equipment and decide whether to repair or replace it.

17.5.2. Ensure personnel inspect, repair, clean, and test safety belts and harnesses.

17.5.3. Ensure personnel manufacture and repair aircraft soundproofing materials.

17.5.4. Maintain close liaison with aircrew life support sections to determine support/workload requirements.

17.5.5. Develop in-process inspections (IPI) for critical tasks that could result in parachute systems and flotation equipment malfunctions.

17.5.6. Inspect, repair, and modify protective clothing/equipment according to technical directives.

NOTE: Sewing of velcro/patches and rank insignia is an owner/user responsibility.

17.5.7. Validate accuracy of AFTO Forms 391, **Parachute Log**, AFTO Forms 392**, Parachute Repack/Inspection and Components Record**, and all applicable flotation equipment forms.

17.5.8. Ensure maintenance, inspection, and repair capability exists for personnel/recovery parachutes, flotation equipment, and protective clothing through procurement of expendable repair parts.

17.5.8.1. Establish special stock levels, when necessary, to support the repair and replacement of parts for anti-exposure suits.

17.5.9. Ensure preventative and minor/major maintenance on sewing machines is scheduled and accomplished.

17.5.10. Ensure only qualified and certified personnel supervise/perform the servicing of personnel parachutes, ACES II recovery and drogue assemblies, and flotation equipment.

17.5.11. Ensure access to the parachute section is restricted to only those personnel directly involved in parachute packing operations.

17.5.12. Ensure parachute packing tables, flotation equipment inspection/test areas, and tools are smooth and free of slivers, burrs, rough areas, and other defects that can cause damage to equipment.

17.5.13. Ensure parachutes are maintained in a dry, well-ventilated area free of dust and other contaminants.

17.5.14. Ensure a moisture and oil-free air source is used to inflate life rafts and life preservers.

17.5.15. Coordinate with aircrew life support and parachutist sections to obtain a monthly schedule of equipment requiring inspections.

17.5.16. Ensure time changes are accomplished during inspection/repack, and that it is documented and updated in CAMS for equipment identified in the aircraft -6.

17.5.17. Ensure the capability exists to inspect, clean, repair, and package aircraft thermal curtains and thermal radiation barriers, if required.

17.5.18. Ensure only qualified repairs and modifications are performed on flight clothing and equipment according to applicable TOs.

17.5.19. Ensure general safety precautions are adhered to when servicing or adjusting automatic rip-cord releases (pyrotechnics) and explosive items.

17.5.20. Develop and coordinate a workcenter specific explosive safety program through wing safety and ensure personnel receive initial and annual explosive safety training.

17.6. Nondestructive Inspection (NDI) Section. This section determines the structural integrity of aircraft, engines, specified components, and AGE. The section is organized into the NDI function and oal analysis program (OAP) laboratory. In addition to the common section chief responsibilities in **Chapter 2** of this instruction, the section chief will:

17.6.1. Ensure the capability to perform optical, penetrant, magnetic particle, ultrasonic, eddy current, and radiographic inspections to determine if component integrity exists and is operable and available.

17.6.2. Maintain liaison with the base medical service. The base medical service provides occupational physicals, emergency treatments, film badge services, and acts as radiographic advisors according to 48 series directives.

17.6.3. Ensure personnel control and dispose of radiographic silver-bearing material according to 400 series directives.

17.6.3.1. Coordinate with the base medical and photo facilities to prevent duplication of disposal effort.

17.6.4. Ensure personnel are trained and qualified to perform NDI of aircraft, engines, AGE, and other equipment.

17.6.4.1. Inspection findings are normally limited to a description of the size, location and type of any defect discovered. NDI personnel do not make serviceability determinations, except for inspect only time compliance technical orders (TCTO) and when NDI actions constitute a completed maintenance action.

17.6.5. Set up technique files using AFTO Forms 242, *Nondestructive Inspection Data*, according to TO 33B-1-1, *Nondestructive Inspection Methods*.

17.6.6. Enforce safety and health requirements in 48 series, 91 series, and all other applicable directives.

17.6.7. Set up process control procedures according to TO 33B-1-1 and other applicable directives.

17.6.8. Ensure the Air Force general purpose eddy current standard, NSN 6635-01-092-5129, P/N 7947479-10, is available and being used for eddy current inspections on aluminum components, unless stipulated otherwise by the cognizant weapon system engineering authority according to TO 33B-1-1.

17.6.9. Ensure unexposed film is stored properly, film that has exceeded its shelf life is tested, and an AF Form 2032, **Inspection Extension**, is attached to extend its shelf life in six month intervals according to TO 33B-1-1.

17.6.10. Ensure all radiation installations/areas meet requirements in TO 33B-1-1.

17.6.11. Ensure thermoluminescent dosimeters (TLD) and digital alarm dosimeters are available and being worn by all radiographers during radiographic inspections according to TO 33B-1-1.

17.6.12. Ensure that at least two calibrated, operable radiation survey instruments are available for use when performing radiographic operations in an unshielded installation according to TO 33B-1-1.

17.6.13. Ensure PPE is available, serviceable, and used during penetrant and magnetic particle inspections according to TO 33B-1-1 and AFOSH STD 91-110, *Nondestructive Inspection and Oil Analysis Program*.

17.6.14. Ensure an adequate, fully functional eyewash facility is available in the work area for immediate emergency use according to AFOSH STD 91-110.

17.6.15. Ensure all NDI equipment has a three wire grounded power cable or is of double insulated design according to AFOSH STD 91-110.

17.6.16. Ensure rubber-insulating matting is being used in front of the magnetic particle and penetrant units according to AFOSH STD 91-110.

17.7. Oil Analysis Program (OAP) Laboratory Responsibilities. The OAP will be implemented according to **Chapter 23** of this instruction.

Chapter 18

MAINTENANCE FLIGHT

18.1. General. The maintenance flight maintains and inspects aircraft and equipment. The flight consists of the repair and reclamation (R&R), wheel and tire, and transient aircraft (TA) sections.

18.2. Maintenance Flight Commander/Chief Responsibilities. In addition to the responsibilities outlined in **Chapter 2** of this instruction, flight commander/chief will:

18.2.1. Monitor the inspection, repair, and storage of crash recovery equipment.

18.2.1.1. Approve procedures for the crash recovery program as required by wing mission plans, memorandums of agreement (MOA), memorandums of understanding (MOU), or local host-tenant support agreements.

18.2.1.1.1. In units without an R&R section, crash recovery responsibilities described in paragraph **18.3.2.** may be assigned to either the TA or wheel and tire section.

18.2.2. Ensure sufficient R&R personnel are trained and available to operate specialized equipment.

18.2.3. Ensure TA personnel are knowledgeable of oil analysis requirements specified in AFI 21-124, *Air Force Oil Analysis Program*, TO 33-1-37, *Joint Oil Analysis Program Laboratory Manual*, respective -6 TOs for transient aircraft, and **Chapter 23** of this instruction.

18.2.4. Ensure the base transient maintenance capabilities are accurately reflected in the notice to airmen (NOTAM) system in accordance with (according to) AFJMAN 11-208, *Department of Defense Notice to Airmen System*.

18.3. Repair and Reclamation (R&R) Section. The R&R section maintains flight controls, landing gear, doors, canopies/transparencies, and associated equipment requiring structural or component maintenance beyond the capability of other activities. Field units will publish directives that specify these tasks. This section also provides recovery and reclamation of equipment and damaged/crashed aircraft as required by mission plans and local host-tenant support agreements. In addition to the responsibilities outlined in **Chapter 2** of this instruction, the section chief will:

18.3.1. Ensure the section has the capability to remove and replace flight control surfaces and rig flight control systems on primary assigned aircraft.

18.3.2. Establish the required level of capability for crash recovery and hot brake operations, to include, as a minimum:

18.3.2.1. Coordinating with the base fire department, safety, medical personnel, disaster preparedness, operations, air traffic control, and quality assurance (QA) to develop and publish unit procedures detailing specific responsibilities for hot brakes and crash recovery of assigned and frequently transiting aircraft.

18.3.2.2. Ensuring personnel accomplish and document inspections of crash recovery equipment at least quarterly and perform operational checks according to applicable directives.

18.3.2.2.1. Inspections must be documented on the AFTO Form 244.

18.3.2.3. Establishing a crash recovery training program for each assigned mission, design, and series (MDS) aircraft.

18.3.2.4. Annually demonstrating the capability to recover crash damaged small and large aircraft when assigned multiple MDS.

18.3.2.4.1. Exercises must be coordinated with QA and all applicable wing agencies.

18.3.2.4.1.1. Exercises will consist of lifting device positioning, sling hookup, and simulating hoisting or lifting as follows:

18.3.2.4.1.1.1. Accomplish hoisting or lifting according to applicable aircraft technical orders (TO). During hoisting or lifting exercises, observe surface wind limitations.

NOTE: When using a crash crane, the unit will accomplish removal procedures up through attaching the lifting sling to the aircraft and applying tension to the cables. When the ground maintenance trainer (GMT)/aircraft battle damage repair (ABDR) aircraft is used, the aircraft should be lifted.

18.3.2.4.2. Use tethering lines during all hoist operations.

18.3.2.5. Carrying out custodial and storage responsibilities for special purpose equipment specifically assigned to the crash recovery mission.

18.3.2.6. Ensuring requirements for special purpose and crash recovery vehicles are identified, and training and certification on the vehicles are accomplished, as required.

18.3.2.7. Coordinating recovery actions with the appropriate contractor(s) and weapons system expert(s) as needed.

18.3.2.8. Following aircraft specific TOs and TO 4B-1-1, *Use of Landing Gear Wheel Brakes and Wheels During Ground Operations*, for handling of aircraft with suspected hot brakes.

18.3.2.9. Ensuring reclamation and disposition responsibilities are accomplished as directed in applicable TOs and supply manuals.

18.3.2.10. Coordinating the requirements for personal protective equipment (PPE) prior to performing recovery on aircraft containing composite/hazardous materials as determined by weapon systems specific TOs and the hazardous material section of TO 00-105E-9, *Aircraft Emergency Rescue Information (Fire Protection)*.

18.3.2.11. Coordinating the development of crash recovery course control documents (CCD) with the logistics training flight (LTF) for crash recovery training.

18.3.2.12. If required, ensuring personnel remove, install, and repair aerial-tow targets and reels.

18.4. Wheel and Tire Section. The wheel and tire section maintains aircraft wheels and tires, and (when assigned) performs crash recovery responsibilities as described in paragraph **18.3.2.** In addition to the responsibilities outlined in **Chapter 2** of this instruction, the section chief will:

18.4.1. Ensure build-up, repair, test, and storage of wheel and tire components.

18.4.2. Provide the capability to disassemble and degrease wheel components for NDI inspection according to TO 4W-1-61, *Maintenance, and Overhaul Instructions - All Type Aircraft Wheels*, prior to processing through the corrosion control section and NDI laboratory.

18.4.3. Ensure personnel clean, inspect, and store wheel bearings.

18.4.3.1. Ensure procedures are in place to prevent commingling of dissimilar bearings.

18.4.4. Maintain safety equipment in serviceable condition (i.e., wheel cages, and bead breakers).

18.4.5. When a supply point is established in the section, ensure due-in from maintenance (DIFM) processing procedures are observed according to **Chapter 4** of this instruction.

18.4.5.1. Ensure the supervisor sends issue and turn-in documents to the flight service center (FSC).

18.5. Transient Aircraft (TA) Maintenance Section. Transient aircraft are those aircraft not assigned to a base that have landed for emergency, modification, servicing, or temporary duty (TDY) purposes. TA maintains transient aircraft and provides crash recovery if assigned and directed by the wing. The maintenance operations center (MOC) coordinates specialist support for transient aircraft through appropriate squadrons. The primary source of specialist support for transient aircraft should be the operations squadron (OS). General requirements for transient aircraft maintenance and documentation are in TO 00-20-5, *Aerospace Vehicle Inspection and Documentation*. In addition to the responsibilities outlined in **Chapter 2** of this instruction, the section chief will:

18.5.1. Supervise all maintenance performed by assigned personnel on transient aircraft.

18.5.2. Ensure assigned personnel pick up and deliver deceleration chutes from assigned, transient, and tenant aircraft to the survival equipment section.

18.5.3. Ensure personnel perform maintenance and complete reimbursement documentation.

18.5.3.1. Optional use of the AF Form 726, **Transient Aircraft Service Record**, is authorized for the documentation of maintenance servicing requirements and necessary billing information.

18.5.4. Ensure assigned personnel use the AF Form 861, **Base/Transient Job Control Number Register**, to record arrivals and departures of transient aircraft.

18.5.4.1. As a minimum, in the job description/remarks block enter P for park, I for inspect, S for service, L for launch, and E for end-of-runway (EOR) checks.

18.5.4.2. Each transient aircraft will be assigned a single job control number (JCN) for support general work.

18.5.4.3. Route AF Forms 861 to the maintenance flight chief for review.

18.5.4.3.1. After the maintenance flight chief review, the AF Forms 861 are returned to TA and filed for a minimum of one year.

18.5.5. Maintain all technical data required to support TA.

18.5.6. Ensure personnel are trained and strictly adhere to oil analysis program (OAP) requirements according to aircraft specific technical data, job guides, TO 33-1-37-1/2/3, *Joint Oil Analysis Program Laboratory Manual*, AFI 21-124, and **Chapter 23** of this instruction.

18.5.7. Ensure personnel authorized to run engines are certified according to AFI 11-218 and **Chapter 23** of this instruction. Request an aircrew member to run engine(s) or taxi check if maintenance personnel are not authorized. If qualified aircrew members are not available, the MOC senior controller requests assistance from the aircraft's home station. Ensure personnel are trained on and strictly adhere to oil consumption identification requirements according to aircraft specific technical data and job guides.

18.5.8. Ensure changes in transient aircraft status are reported to the MOC. The MOC must notify the home station and arrange for support.

18.5.9. In conjunction with the current operations flight commander or logistics group (LG) management authority, ensure EOR procedures for transient aircraft are developed and implemented according to TO 00-20-5.

18.5.10. Ensure procedures exist for required weapons loading actions, storage of impulse cartridges, and requisition and maintenance of weapons safing equipment for frequently transiting aircraft.

Chapter 19

ARMAMENT FLIGHT

19.1. General. The Armament flight performs off-equipment maintenance for assigned aircraft armament systems, guns, pylons, racks, general purpose bomb modules, launchers, and adapters. It performs weapons system on-equipment periodic inspections (PE) in B-52 units. A 2R1X1 scheduler, 2S0X1 supply specialist, and 3A0X1information management specialist should be assigned. The armament flight normally consists of three sections: maintenance, alternate mission equipment (AME), and support. The scheduling function may be aligned under the AME section at unit option. Armament systems personnel do not perform load crew duties or related certifiable tasks.

19.1.1. Armament flights are not normally formed in F-117 units.

19.1.2. Due to unique manning and equipment requirements, the bomber Logistics Training Flight (LTF) may utilize integrated maintenance facility (IMF) personnel to perform some armament flight functions (i.e., conventional bomb module and heavy store adapter beam off-equipment inspections).

19.2. Flight Chief Responsibilities. In addition to the common responsibilities in **Chapter 2** of this instruction, the flight chief will:

19.2.1. Assist the wing weapons manager (WWM) in recommending distribution of wing 2W1X1 personnel to satisfy on- and off-equipment weapons release and gun system needs.

19.2.2. Advise the squadron maintenance officer (SMO) and the WWM regarding factors affecting armament systems and gun maintenance and other related programs.

19.2.3. Establish and monitor gun room security and explosive licenses if required.

19.2.4. Ensure AME and special purpose recoverables authorized to maintenance (SPRAM) accountability and control requirements are met.

19.2.5. If applicable, support war reserve materiel (WRM) rack, adapter, pylon, launcher, and gun maintenance requirements.

19.2.5.1. Ensure all WRM racks, adapters, launchers, and guns are serviceable to meet operational plan (Oplan) taskings.

19.2.6. Identify to base supply, by national stock number (NSN), all aircraft armament system components requiring acceptance inspections.

19.2.7. Provide the WWM a monthly status on authorized/on-hand quantities of AME/WRM, critical armament testers, and support equipment (SE).

19.2.8. Establish a munitions account to track F-16 ruggedized nuclear remote interface units (RNRIU), F-15 encoder/decoder, and applicable munitions items.

19.2.9. Ensure compliance with hazardous waste management directives and policies in accordance with (according to) local, state, and federal guidelines.

19.2.10. Ensure sufficient computer systems are assigned to support network/modem interface with the WWM, weapons standardization section (WSS), weapons section (WS), automated training systems, and other agencies.

19.3. Maintenance Section. This section maintains weapons release/gun system components and associated equipment. The maintenance section chief is responsible to the armament flight chief for applicable section chief duties in **Chapter 2** of this instruction. An assistant and a scheduler should be assigned for overall management purposes. The section chief will:

19.3.1. Ensure personnel schedule and perform all inspections, time compliance technical orders (TCTO), time changes, and maintenance and repair actions for aircraft armament systems components and AME, including AME items preloaded with munitions for contingencies.

19.3.1.1. Ensure personnel perform the off- and on-equipment portion of aircraft phase inspections pertaining to the armament system.

19.3.2. Advise the flight chief of any factors limiting maintenance capability.

19.3.3. If applicable, ensure WRM assets are adequately maintained.

19.3.4. Maintain equipment historical records using AFTO Forms 95, *Significant Historical Data*, for AME, aircraft guns, and weapons systems normally installed equipment (NIE) (if decentralized).

19.3.4.1. Historical records should be automated.

19.3.4.2. Hard copy files need not be maintained for automated portions of historical records.

19.3.5. Coordinate with the operations support squadron (OSS) plans, scheduling, and documentation (PS&D) or wing scheduling for equipment requiring in-shop inspections.

NOTE: When possible, calendar NIE inspections are scheduled in conjunction with the nearest aircraft hourly inspection within the calendar interval; however, NIE scheduled inspections should not be allowed to go overdue.

19.3.5.1. Include NIE schedules in both the monthly and weekly maintenance plans.

19.3.6. Ensure personnel perform off-equipment acceptance/transfer inspections on aircraft, to include NIE and AME. These inspections must include:

19.3.6.1. A parts integrity inspection.

19.3.6.2. A complete electrical and mechanical check to include associated cables.

19.3.6.3. Updating the historical records for each item.

19.3.7. Ensure personnel maintain and inspect ammunition loading assemblies ALA)/systems according to SE guidelines.

19.3.7.1. The munitions flight maintains the chassis portion.

19.3.8. In coordination with the OSS PS&D or wing scheduling, requisition parts to satisfy time change requirements for aircraft armament or gun system components not identified in the applicable aircraft -6 TO.

19.3.9. Maintain the core automated maintenance system (CAMS) database for installed guns, gun systems, and gun components time change or inspection databased on gun rounds listed in the applicable -6 series TO, including updating rounds from the AF Form 2434.

19.4. Alternate Mission Equipment (AME) Section. This section accounts for weapons and stores and controls AME according to AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*, in sup-

port of the operations squadrons (OS). The AME section chief is responsible to the Armament flight chief for applicable section chief duties in **Chapter 2** of this instruction. For units in which no AME section is formed, the armament flight will abide by the responsibilities in this paragraph. The section chief will:

19.4.1. Develop and publish an instruction, in coordination with the WS chiefs and WWM, governing accountability and control of AME.

19.4.1.1. The local operating instruction (OI) will be properly coordinated and approved through the appropriate wing channels.

19.4.2. Maintain the armament flight's F-2 type trailers according to SE guidelines. Trailers will be placed into in-use, receive, and pre/post-use serviceability inspections.

19.4.2.1. Develop PE requirements (maximum interval of 18 months) for trailers in storage to include:

19.4.2.1.1. Corrosion inspection/preservation treatment.

19.4.2.1.2. Tire inflation check.

19.4.2.1.3. Wheel bearing and chassis lubrication.

19.4.3. Ensure personnel unpack/pack assigned AME in storage and deliver it to the maintenance section for inspection.

19.4.4. Develop and implement a program for documenting issue and receipt of in-use AME.

19.4.5. List assets as SPRAM (if required). If SPRAM is not used, develop a system of accountability (i.e. CAMS, reliability and maintainability information system (REMIS) or other approved databases) for NIE/AME and -21 equipment items in test organizations. Armament systems flights will track AME/NIE using CAMS.

19.5. Support Section. This section stores and maintains required tools and equipment and manages the supply/bench stock functions for the flight. The support section chief is responsible to the Armament systems flight chief for applicable section chief duties in **Chapter 2** of this instruction. Additional responsibilities are outlined in **Chapter 3** of this instruction. The section chief will:

19.5.1. Ensure personnel perform user calibration and maintenance on flight test, measurement, and diagnostic equipment (TMDE) when calibration is identified as user in TO 33K-1-100-2, *Tech Manual - TMDE Calibration Interval Tech Order & Work Unit Code Reference Guide*.

19.5.2. Coordinate with the TMDE flight to ensure calibration requirements are met.

19.5.3. Maintain supply management documents (e.g., D04, D18, D19, and Q13).

19.5.4. Maintain the master identification (ID) listing.

19.5.5. Manage consumables.

19.5.6. Manage residual and bench stock.

19.5.7. Maintain composite tool kits (CTK), a tool storage area, and test equipment.

19.5.8. Ensure local manufactured munitions equipment (LMME) not included in tech data or equipment contained in the munitions materiel handling equipment (MMHE) pamphlet is approved for use. Weapons LMME encompasses all equipment that measures, tests, or verifies system, subsystem, com-

ponent, or item integrity. Ensure LMME that measures, tests, or verifies has a calibration determination completed by the TMDE flight. It also includes equipment such as handling dollies, storage racks (except storage shelves), maintenance stands, or transport adapters. LMME does not include simple adapter cables and/or plugs constructed as troubleshooting aids to replace pin-to-pin jumper wires specified in TOs. HQ AFMC/DRRW is the approving authority for weapons LMME. All equipment designed for use with nuclear weapons test and handling equipment is certified according to AFI 91-103, *Air Force Nuclear Safety Certification Program*. A letter is submitted through quality assurance (QA) to HQ AFMC/DRRW requesting evaluation. As a minimum, the following information is required:

19.5.8.1. Description of the test equipment and its intended use.

19.5.8.2. Material used for construction.

19.5.8.3. Wiring diagram of test equipment and views of the completely assembled unit with wiring visible.

19.5.8.4. Approximate cost including labor and material.

19.5.8.5. Draft local checklist (LCL), if required and technical data does not exist.

19.5.9. Maintain the flight technical order (TO) and publication files as required.

Chapter 20

MUNITIONS FLIGHT

20.1. General. The munitions flight is responsible for the control, accountability, storage, shipping and receiving, inspection, maintenance, build-up, and delivery of conventional, precision guided, and nuclear munitions. The flight manages and maintains all assigned tools, test, and munitions materiel handling equipment (MMHE). It also administers, operates, and maintains the combat ammunition system-base (CAS-B) computer system. Munitions flights are typically composed of three sections: production, materiel, and systems. However, nuclear-capable units also have a nuclear weapons maintenance section, and units associated with bomber weapon systems may also have a bomber weapons maintenance section. A typical munitions flight organizational chart is in **Figure 1.6.** and **Figure 1.7.**

20.2. Responsibilities. In addition to the common responsibilities in **Chapter 2** of this instruction, specific flight commander, flight chief, section superintendent, and element supervisor responsibilities are outlined in AFI 21-201, *Inspection, Storage, and Maintenance of Non-Nuclear Munitions*, and AFMC supplements.

20.2.1. Munitions Accountable Systems Officer (MASO). The MASO is appointed in accordance with (according to) AFI 23-111, *Management of Government Property in Possession of the Air Force*, for conventional accounts, and AFI 21-204, *Nuclear Weapons Procedures (FOUO)*, for accounts that have nuclear weapons assigned.

20.3. Production Section. This section assembles, disassembles, and maintains conventional munitions, missiles, containers, dispensers, assigned MMHE, naval mine clips, and training items, both nuclear and conventional. If a nuclear maintenance section is formed, they maintain all nuclear weapons trainers except for BDU-38s. Specific responsibilities for the nuclear maintenance element are found in AFI 21-204.

20.4. Material Section. The materiel section stores, handles, inspects, ships, receives, and accounts for, conventional munitions, containers, dispensers, and training items and coordinates transportation.

20.5. Systems Section. Plans, schedules, controls, and directs all munitions activities, administers CAS systems, and manages mobility and training programs.

20.6. Nuclear Weapons Maintenance Section. Performs on- and off-equipment maintenance on assigned nuclear weapons, reentry vehicles (RV), and associated equipment. The section is organized into the following elements (as appropriate): nuclear weapons maintenance, special weapons information management (SWIM)/nuclear ordnance commodity management (NOCM) accountability, RV maintenance, and weapons support. Specific responsibilities of these elements are described later in this chapter. The section chief may assign a specified responsibility of one element to another element to offset local constraints that would otherwise impede mission accomplishment. The section chief will:

20.6.1. Ensure sufficient munitions training items are available and are inspected/maintained according to approved technical orders (TO).

20.6.2. Provide covered storage for assigned training items.

20.6.3. Ensure specific responsibilities of AFI 21-204 are complied with.

20.7. Combined Bomber Missile and Gravity Weapons/Systems Maintenance Section. This combined section performs all duties normally associated with several independent missile maintenance, support, or checkout equipment elements including on-/off-equipment maintenance on assigned missile and gravity weapon systems, B-1, B-2, and B-52 pylon/launcher, interface electronics, and associated munitions support equipment (MSE); all supply functions, including ordering and receiving equipment, maintenance of equipment custody accounts, inventory, bench stock monitoring, etc; maintaining the consolidated TO library; monitoring training; and test, measurement, and diagnostic equipment (TMDE) monitoring and pick up and delivery. The flight chief may reassign specific responsibilities of the section to offset local constraints that may otherwise impede mission accomplishment. The section will:

20.7.1. Inspect, service, isolate faults, disassemble, replace components and wiring, modify, repair, airframe and surfaces, reassemble, and perform testing of conventional and nuclear air launched cruise missiles (CALCM, ALCM, ACM) and associated equipment.

20.7.2. Perform periodic and unscheduled maintenance, isolate faults, disassemble, replace components and wiring, modify, repair airframe and surfaces, reassemble, and perform testing on aircraft missile and bomb rotary launchers, aircraft missile pylons, subcomponents, and associated equipment.

20.7.3. Perform periodic and unscheduled maintenance on launcher and pylon ejector racks (if not performed by armament systems personnel).

20.7.4. Perform special record keeping and reporting functions applicable to missile systems and nuclear weapons.

20.7.5. Maintain applicable TMDE.

20.7.6. Provide field level authorized general application electrical or electronics maintenance support as required.

20.7.7. Inspect, service, isolate faults, disassemble, replace components or subcomponents and wiring, modify, reassemble, test, and calibrate electronic systems test sets (ESTS) and related console equipment, portable automated and semi-automated test equipment, interconnect and test adapter group components, and equipment for conventional and nuclear munitions.

20.7.8. Perform additional ESTS checkout and repair of rotary launcher electrical systems/line replaceable units (LRU) and aircraft stores management systems panels.

20.8. Section Elements. Depending on size and mission requirements, align elements under sections according to **Table 20.1.** Conventional munitions elements include, but are not limited to, storage, operations, inspection, shipping and receiving, maintenance, precision guided munitions, line-delivery, MSE maintenance, munitions control, plans and scheduling, CAS-B, munitions training, and munitions mobility. Flights with nuclear sections include nuclear maintenance, SWIM/NOCM accountability, RV maintenance, and weapons support elements. AFMC supplements to AFI 21-201 and AFI 21-204 direct specific organizational element structure and alignment to satisfy command unique requirements. Functions of each element can be found in AFI 21-201, AFI 21-204, and AFMC supplements.

Table 20.1. Element Alignment Matrix.

Element	Production	Materiel	Systems	Nuclear	Bomber
PGM Maintenance	X	X			
Conventional Maintenance	X	X			
Equipment Maintenance	X			X	X
Line-Delivery	X	X	X		
Inspection	X	X			
Storage and Handling		X			
Operations		X	X	X	
Control			X	X	
CAS-B			X		
Combat Plans/Mobility			X		
Training			X	X	X
Plans and Scheduling			X	X	
Tools, Test, and Handling Equipment Maintenance				X	X
Nuclear Weapons Maintenance				X	
SWIM/NOCM Accountability				X	
Air Launched Missile Maintenance					X
Reentry Vehicle/System Maintenance				X	
Verification and Checkout Equipment					X
Analysis					X
Weapons Support				X	X

20.9. Weapons Maintenance Control Element (or equivalent). When not consolidated with other flight dispatch and production functions, weapons maintenance control is the central function for planning, scheduling, directing, coordinating, and controlling munitions support of nuclear mission requirements. Close coordination with other maintenance activities is required for effective scheduling and use of available resources.

20.9.1. Maintenance planning cycle. The monthly and weekly maintenance plans outline the workload of the flight. Adequate planning/scheduling of all munitions functions is the only way the workload can be effectively accomplished. The basic planning cycle starts with a review of all core automated maintenance system (CAMS) time distributions (TDI), planning requirements (PRA), time compliance technical order (TCTO) reports, and the delayed discrepancy list by munitions schedulers for scheduled maintenance. Element supervisors provide their known requirements for actions not controlled by CAMS. The shop supervisors, in conjunction with munitions schedulers, consolidate the requirements into a maintenance plan input that includes the date when the scheduled events are done.

A reserve capability is maintained for unscheduled work. The flight chief has a meeting of shop supervisors to review requirements, limitations, and production schedules. Unless otherwise specified by the applicable TO, the following determines periodic maintenance requirements:

20.9.1.1. Inspection or maintenance intervals specified in equipment technical manuals are the maximum intervals that the affected equipment may remain in service without the required inspection or maintenance. Regardless of how stated (months, quarterly, semi-annual, etc.), the inspection or maintenance will be performed on or before the end of the appropriate anniversary month for the interval specified.

20.9.1.2. Inspections inadvertently overlooked are accomplished expeditiously once the omission is discovered, unless prohibited by specific technical manuals. Late inspection findings should be recorded as acceptable when complying with the original requirement, provided the findings are satisfactory.

20.9.1.3. Nuclear-certified MSE overdue periodic inspection (PE), maintenance, or calibration is placed on a Red X according to procedures in TO 00-20-7, *Inspection System, Documentation, and Status Reporting for Support and Training Equipment*.

20.9.2. The weapons maintenance control element will:

20.9.2.1. Implement nuclear plans and schedules by directing, coordinating, and controlling munitions maintenance, inspection, and processing of repair cycle assets.

20.9.2.2. Assign priorities, initiate, issue, and control work orders.

20.9.2.3. If assigned as lead, assign identification (ID) numbers for end items which are inspected, repaired, or handled at frequent intervals, and provide inputs to documentation for updating the master ID listing.

20.9.2.4. Maintain documentation of lightning protection and static grounding systems according to AFI 32-1065, *Grounding Systems*. Maintain records of required inspections and tests of real property installed equipment (RPIE) hoists.

20.9.2.5. Update CAMS information on all assigned equipment and missile transfers/losses/terminations.

20.9.2.6. Prior to convoy operations, make sure all appropriate control and emergency response activities are advised of the convoy route, start time, and destination.

20.9.2.7. Notify the base fire department of any munitions movement or rewarehousing that affects fire fighting procedures or changes fire symbols, line numbers, or hazard placards.

20.9.2.8. Implement and manage actions relating to contingency and exercise plans.

20.9.2.9. Prepare and maintain emergency action checklists/checksheets.

20.9.2.10. Consolidate the nuclear section requirements to be put in the maintenance plan.

20.9.2.11. Make sure supporting activities are notified when conducting hazardous operations or training exercises such as chemical operations, demolition operations, fire drills, evacuation drills, or emergency destruction exercises.

20.9.2.12. Verify urgency of need designator (UND) A and B maintenance requirements for munitions supply items requested by munitions flight sections.

20.9.2.13. Report changes by message for all inventory gains, losses, and terminations as prescribed by AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*, for assigned missiles and equipment. Forward an information copy to the wing aerospace vehicle distribution officer (AVDO).

20.9.2.14. Manage the configuration management system according to TO 00-20-2, *Maintenance Data Documentation*.

20.9.2.15. Initiate nuclear weapon custody transfer documents required by AFPD 21-2, *Non-nuclear and Nuclear Munitions*, and AFI 21-204.

20.9.2.16. Maintain a copy of the location inventory list (LIL) used in the limited life component (LLC) scheduling process. Review the LIL monthly with the special weapons maintenance and SWIM/NOCM accountability elements and resolve differences between the LIL and other unit records in a timely manner.

20.9.2.17. Ensure necessary notifications to AMC activities as required by AMC nuclear airlift mission setup and itinerary messages.

20.9.2.18. Schedule, control, and direct TCTOs for weapons, weapons systems, MSE, NOCM items, and RVs.

20.9.2.19. Be located, equipped, and arranged to facilitate collecting, recording, and disseminating of information essential to management direction and control.

20.9.2.20. Maintain visual aids (may vary from a wall-mounted display to a loose leaf notebook containing CAMS products) to show the following information in a clear, understandable, and concise manner:

20.9.2.20.1. Personnel availability.

20.9.2.20.2. Munitions trailer status.

20.9.2.20.3. Vehicle status.

20.9.2.20.4. Facility status.

20.9.2.20.5. Assembled nuclear munitions to include numbers, status, and location.

20.9.2.20.6. Major components of nuclear munitions not assembled to the parent munition (i.e., LLCs and parachutes, to include status and location).

20.9.2.20.7. Type and status (associated/unassociated) of warhead containers and bolsters.

20.9.2.20.8. TCTO status.

20.9.2.20.9. Applicable inert/dummy training item status.

20.9.2.20.10. Jobs in progress in all elements.

20.9.2.21. Have adequate communication equipment to carry out its function.

20.9.2.21.1. Communications requirements are tailored to satisfy the scope of the unit mission.

20.9.2.21.2. Vehicles used for delivery of munitions maintain radio contact with weapons maintenance control.

20.9.2.21.3. Maintenance telephone communications are reliable to ensure efficient control of the maintenance effort security and emergency notification. Weapons maintenance control will establish direct communications to the following:

20.9.2.21.3.1. Central Security Control (CSC) and the munitions area entry control point (ECP).

20.9.2.21.3.2. Explosive ordnance disposal (EOD) (when assigned).

20.9.2.21.3.3. Base fire department.

20.9.2.21.3.4. Wing command post.

20.9.2.21.3.5. Maintenance operations center (MOC).

20.9.2.22. Direct communications lines should also be required from weapons maintenance control to other munitions sections depending on local requirements, size of the operation, and distance.

20.9.2.23. Be the central historical documentation activity for all equipment. Records should be retained at the shop level and filed in the maintenance workcenter as required for mission accomplishment. Historical documents and all automated products kept in weapons maintenance control are sent with the equipment when transferred. B-1B and B-2A units which possess/maintain aircraft launchers and ESTS are responsible for performing applicable analysis functions for these items as listed in the air launched missile analysis section responsibilities. These functions should be performed by weapons maintenance control or delegated to the maintenance workcenter.

20.9.2.24. Schedule known requirements for the nuclear section. The priority for scheduling is as follows: periodic maintenance requirements, TCTOs, training, delayed discrepancies, and workcenter inputs.

20.9.2.25. Assign maintenance repair priorities for munitions items, assigned missiles, and munitions equipment.

20.9.2.26. Authorize the performance of a job by assigning a job control number (JCN) and initiating an AFTO Form 349, **Maintenance Data Collection Record** (or CAMS equivalent), or an AFMC Form 182, **Munitions Workorder**, for each scheduled maintenance task, storage inspection, modification, nuclear movement, and handling operation. Issue JCNs for all unscheduled tasks.

20.9.2.27. Plan, schedule, and control the accomplishment of all TCTOs on NOCM items, air launched missiles, and associated MSE. The following actions are required:

20.9.2.27.1. Review each incoming TCTO for applicability to assigned equipment. Determine the number of kits required (if applicable).

20.9.2.27.2. Conduct a TCTO meeting with representatives from quality assurance (QA), munitions operations, and prime and assisting sections. Use an AF Form 2410 as an aid in planning and conducting the TCTO meeting. Develop a written long-range plan.

20.9.2.27.3. Input TCTO data into CAMS (where applicable) according to AFCSM 21-568, Vol 2, *Time Compliance Technical Order*. Inform the base TCTO monitor when this action is complete.

20.9.2.27.4. Prepare an AF Form 2001 and retain one copy in suspense until the TCTO is complete. Requisition the kits and/or parts as required to meet scheduled maintenance.

20.9.2.27.5. Schedule the applicable equipment for TCTO completion when kits and/or parts are available. Use CAMS TCTO status summary (TSS) (or other suitable CAMS product) to monitor the progress of TCTOs.

20.9.2.27.6. The performing workcenter completes the AFTO Form 349, CAMS workcenter event (WCE), or AFMC Form 182, and notifies munitions plans and scheduling of the current status. Any TCTO partially complied with is coded appropriately with an explanation as to why the TCTO was not completed. When the reason for not completing the TCTO is corrected (i.e., part received, etc.), that piece of equipment is again scheduled for maintenance.

20.9.2.27.7. After TCTO completion, munitions scheduling updates CAMS (where applicable), or verifies CAMS using the procedures outlined in AFCSM 21-579, Vol 2, *CAMS/SBSS Interface*.

20.9.2.27.8. Annually or until all equipment is modified/inspected, a review is accomplished using the TSS or suitable product to ensure the history was updated. The individual completing the review signs the TSS and maintains it according to AFMAN 37-139, *Records Disposition Schedule*.

20.9.2.27.9. Notify the item manager (IM) by message or letter when all equipment at the base is modified. Kits are disposed of according to the IM's directions. Notify the base TCTO monitor of the TCTO completion.

20.9.2.27.10. Units manage nuclear weapon/warhead TCTOs using the manual system. Ensure the requirements of 00-20 series TOs are accomplished.

20.9.2.28. Schedule and maintain a delayed discrepancy file on munitions items and equipment. CAMS (where applicable) is used to control delayed discrepancies for all branches which have repair responsibility.

20.9.2.28.1. The nuclear section awaiting maintenance (AWM) file is reviewed by weapons maintenance control and the responsible workcenter supervisor prior to finalizing the maintenance plan inputs.

20.9.2.28.2. Monitor work awaiting parts (AWP) and follow-up to ensure work is scheduled for completion. Mission capability (MICAP) items are followed-up on daily and all other priority back orders at least weekly.

20.9.2.29. Ensure only authorized cannibalizations (CANN) of munitions items, assigned missiles, and MSE are done. CANN or interchanging of nuclear weapon components is not authorized. The procedures outlined in TO 00-20-2 are followed for CANN actions with the following exceptions:

20.9.2.30. Develop and maintain checksheets for emergencies which apply to the unit mission, such as emergency war order notification, crash, fire, severe weather, explosive or nuclear accidents, convoy emergency, loss of communications, evacuation, Safe Haven, stockpile emergency verification (SEV), and hung ordnance. Unit operations plans (Oplans) are used as a guide in writing these checksheets. Each person in weapons maintenance control will be familiar with these checksheets and how to use them.

20.9.2.31. Prepare nuclear flow plans that depict required munitions actions for those contingency missions that require coordinated actions. Those actions requiring interaction between the flight activity and other wing activities are included in the wing flow plan.

20.10. Nuclear Weapons Maintenance Element. This element receives, assembles, tests, mates, demates, and performs all maintenance on nuclear gravity weapon systems, RVs, air launched missile warheads, and associated MSE. The element will:

20.10.1. Inspect, maintain, isolate faults, assemble and disassemble, replace components, modify, and perform testing of gravity nuclear weapons, missile nuclear warheads, and associated equipment.

20.10.2. Perform special record keeping and reporting functions applicable to nuclear weapons and associated equipment.

20.10.3. Maintain joint use maintenance/EOD weapon trainers. When used by EOD personnel for rendering-safe-procedures training, EOD personnel reassemble the trainer to a point where critical nuclear weapon design information is not divulged. Assistance should be requested from 2W2X1 personnel.

20.10.4. Perform required TCTO action and documentation on joint use and EOD weapon trainers.

20.10.5. Provide assistance to EOD personnel during training and evaluations. Assistance is limited to use of specialized handling gear.

20.11. Weapons Support Element. This element performs all supply functions (i.e., ordering and receiving equipment, maintenance of equipment custody accounts, inventory, bench stock monitoring, etc.), maintains the consolidated TO library, monitors training, and performs TMDE monitoring and pick up and delivery.

20.12. SWIM/NOCM Accountability Element. Regardless of where aligned, the SWIM/NOCM accountability noncommissioned officer in charge (NCOIC) must report directly to the MASO for the nuclear accounts according to AFI 21-204.

Chapter 21

COMPOSITE TOOL KIT (CTK) MANAGEMENT

21.1. General. This chapter outlines and expands the requirements of AFMCI 21-107, *Tool Control and Accountability Program*. The objectives of the CTK program are elimination of foreign object damage (FOD) to aircraft, engines, aircrew training devices, support equipment (SE), and reduction of tool cost through effective control of assets. Unit programs must promote an environment that encourages reporting of lost tools by de-emphasizing the disciplinary aspects of reporting lost tools. Group commanders (GP/CC) and directors have the overall responsibility for management of the CTK program. Additional unit procedures or methods of tool control must be published in a supplement to this instruction. In addition to the requirements in this instruction and AFMCI 21-107, unit supplements must address the following:

21.1.1. Procedures for warranted tool management.

21.1.2. Procedures for aircrew life support personnel that dispatch to the flightline.

21.1.3. Procedures for strict control and management of replacement and consumable hand tools and other consumable items contained in CTKs.

21.1.4. Post aircraft taxi/takeoff procedures for lost tools.

21.1.5. Procedures for transfer of CTKs at the job site.

21.1.6. Procedures for lost tools.

21.1.7. The series/blocks of CTK identification (ID) numbers.

21.1.8. Procedures for control of issued personal equipment (i.e., ear protection, headsets, coveralls, etc.).

21.1.9. Tool control procedures for depot teams, factory representatives, and contract field teams (CFT) when working on equipment within the unit.

21.1.10. Procedures and responsibilities for when two or more workcenters operate a single tool room/support section, or when workcenters elect to distribute CTKs or peculiar support/test equipment to decentralized locations.

21.1.11. In/out procedures for tool control in instances where only one person is assigned to a shift/workcenter.

21.1.12. Rag control procedures.

21.1.13. Units will develop local procedures for lost tools on the aircraft during maintenance.

21.1.14. Units will develop local procedures for aircraft that have already taxied or are flying when tools, equipment, technical orders (TO), or any object is lost and was used on the aircraft.

21.2. Terms Explained. For the purpose of standardization, the following terms will be defined:

21.2.1. Composite tool kit (CTK). Tools or equipment stored in a controlled area in order to maintain positive control and ease of inventory. Each tool in the CTK will have an assigned location; either inlays cut in the shape of the tool or a shadowed layout.

21.2.1.1. All equipment items issued individually will be silhouetted or shadowed. Individual equipment and tool items (interphone headsets, communications cords, testers, etc.) will be stored on boards, shelves, or a system of drawers (Stanley Vidmar, Lista, etc.).

21.2.2. Dispatchable CTKs. Tool kits/boxes designed for check out by individuals or crews to take to a job site or to be worked from during the duty day, with one individual responsible for the CTK's contents.

21.2.2.1. Individual tools will not be issued from dispatchable CTKs; always issue the entire kit.

21.2.2.2. When a recurring need exists for individual common tools (e.g., hammers, screwdrivers, pliers, drills, wrenches, etc.) add the tools to a shop CTK.

21.2.3. Special purpose CTK. Small individually issued tool kits that, because of the nature of contents, preclude shadowing or silhouetting (e.g., launch kits, recovery kits, cartridge cleaning kits, oxygen servicing kits, etc.).

21.2.3.1. Tools will normally be limited to 10 items per kit.

21.2.4. Tool room/support section. Area authorized for storage and issue of tools and equipment.

21.2.4.1. Tool rooms/support sections are limited to one per workcenter or workcenter complex when feasible. See paragraph **21.1.10.** for geographically separated units (GSU).

21.2.5. CTK custodian. Individuals (primary/alternate) designated in writing by the flight commander/chief to manage and control CTKs for the unit.

21.3. Guidelines for Program Management. The squadron maintenance officer (SMO)/maintenance supervisor (MS) is responsible for the overall management of the CTK program within the squadron. They monitor CTK requirements, limit the number of individuals authorized to procure tools, and ensure CTKs and designated storage areas are properly maintained.

21.3.1. Flight/section chiefs, in conjunction with SMO/MS, determine the type, size, and number of CTKs needed in workcenters.

21.3.1.1. Consider deployment taskings and temporary duty (TDY) requirements when making CTK determinations.

21.3.2. Flight/section chiefs are the approving authority of the CTK contents by signing the CTK contents list. For weapons load crew CTKs, the wing weapons manager (WWM) will approve the contents and sign the master equipment contents inventory.

21.3.2.1. A copy of the CTK contents list remains in each CTK at all times for inventory purposes.

21.3.2.2. The CTK custodian will file the master copy.

21.3.2.3. Content lists will be broken down by drawer/section indicating the total number of items in each drawer/section of the CTK.

21.3.2.4. The CTK custodian has the authority to interchange like items (e.g., torque wrenches) that are listed by ID number on the content lists.

21.3.2.4.1. All changes will be annotated in ink on the CTK contents lists, and initialed and dated.

21.3.3. CTKs will be arranged to ensure contents are visible and easy to inventory. CTK contents will be standardized to the maximum extent possible within functional elements of a squadron that have similar missions (e.g., aircraft flights/sections, combat armament support teams, and aerospace ground equipment (AGE) workcenters).

21.3.4. Equipment not dispatched from a workcenter, support section, or tool room, need not be included in a CTK; however, this equipment must have designated storage locations established.

21.3.4.1. Establish designated locations for common accessories (waveguides, attenuators, fittings, cables, adapters, etc.) that are not part of a CTK. Designated locations may be work areas or stations as found in test, measurement, and diagnostic equipment (TMDE) or avionics flights

21.3.5. Industrial shop machinery accessories/attachments (blades, arbors, chucks, gears, etc.) need not be assigned to a CTK; however, these items are considered tools and will be maintained in designated storage location(s) for accountability.

21.3.5.1. These items will also be identified with tool ID numbers according to AFMCI 21-107.

21.3.6. Remove clips from tools with removable pocket clips attached (flashlights, continuity testers, small screwdrivers, etc.) prior to placement in CTKs. If chits/dog tags are attached to tools/equipment, they will be secured in a manner that will preclude any possibility of FOD.

21.3.7. Expendable hand tools (blades, apexes, files, file cleaners, etc.) consumed during use may be placed on bench stock; however, strict accountability and control procedures must be included in a unit supplement to this instruction.

21.3.7.1. If items are not placed on bench stock, the replacement tool procedures in paragraph **21.10.** of this instruction apply.

21.3.8. Consumables (safety wire, adhesive, chalk, etc.) may be placed in CTKs and will be added to CTK contents listings. Ensure strict control of these items is enforced and procedures are included in a unit supplement to this instruction.

21.3.9. Use approved intrinsically safe, explosion-proof flashlights when there are specific TO requirements for authorized equipment or work procedures.

21.3.9.1. Flashlights used in open fuel tank repair areas shall be approved by a nationally recognized testing laboratory, and classified for used in a Class I Division 1 hazardous environment.

NOTE: The locations and classifications of hazardous areas within aircraft hangars can be found in Article 513 of the National Electrical Code.

21.3.10. Flashlights that are six volts or less, or have been certified explosion proof or intrinsically safe by a nationally recognized testing laboratory, are permitted for all aircraft maintenance activities.

21.3.10.1. If they are more than six volts, their use is approved only in areas that are not classified as a Class I Division 1 hazardous environment.

21.3.10.2. Class I Division 1 areas outside of aircraft hangars are those areas within 10 feet of aircraft fuel vent outlets and engine compartments.

21.3.11. Tools/expendable items used for titanium engine blade blending will be kept in a special purpose kit separate from other tools. In addition to normal CTK identification, these kits will be marked "CONTROLLED ITEMS" "FOR TITANIUM ENGINE BLADE BLENDING ONLY".

21.3.12. Personal tools will not be used.

21.4. Marking and Tool Identification. Marking of tools provides an effective means of identifying tool ownership and serves as a deterrent to pilferage. The following procedures will apply:

21.4.1. Each CTK will be individually numbered with ID numbers beginning with the base unique alphanumeric code as specified by AFMCI 21-107.

21.4.1.1. Units with multiple cabinets may elect to identify all cabinets as one CTK.

21.4.1.2. Tools contained in a CTK must be marked with the assigned CTK number.

21.4.1.3. Fiberglass handled hammers will be etched on the metal head only (not on handle) in a non-impact area.

21.4.1.4. Small tools or items, which cannot be marked (drill, bits, allen wrench sets, apexes, etc.), will be maintained in a container marked with the CTK ID number and the number of tools contained.

21.4.1.5. Items that are assembled require only one etching (e.g., a scribe, normally three pieces prior to assembly).

21.4.2. Identical tools or equipment issued individually from a single CTK will be marked with a CTK position designator to identify tool ownership and aid in CTK inventories.

21.4.2.1. Each item displayed is marked with the position designator (e.g., B-2-3 may indicate cabinet B, drawer 2, position). The above example is just one method units may use. Position designators are especially important in identifying multiple like tools that are issued individually from a CTK.

21.4.3. When included in CTKs, serialize ID numbered equipment, special tools, meters, and items listed on a custodian authorization/custody receipt listing (CA/CRL) will be etched with a CTK ID number or CA/CRL detail number.

21.4.3.1. If not etched, the serial number, item ID number or CA/CRL detail number must be annotated on the CTK contents list.

NOTE: Equipment items requiring calibration require additional attention to ensure CTK lists are maintained current.

21.4.4. Grease guns will be marked with the type of grease contained in the gun.

21.4.4.1. The military specification of the grease contents is marked/etched on the barrel, the handle and hose or fitting of each gun.

21.4.4.2. Fittings/hoses will be purged of all grease prior to use when different type grease is required.

21.4.5. SE containing hand tools as part of the equipment inventory requires an inventory list and all hand tools must be marked with the SE ID number.

21.5. Tool Accountability and Control. Accountability and control for all tools and equipment is defined as knowing where the items are and who has responsibility for them. This program is designed to eliminate the proliferation of duplicate, excess, or infrequently used tools. The objective of the program is to prevent FOD caused by lost tools and to realize long term cost benefits associated with improved

inventory control and accountability. The responsibility of tool control and accountability resides with the individual tool or equipment user. Specific accountability and control program guidance can be found in AFMCI 21-107. Flight chiefs/section chiefs, through their CTK custodians, are responsible for effectively implementing tool and equipment accountability control.

21.5.1. CTK custodians are responsible for tool/equipment accountability and control in their respective areas.

21.5.2. Use AF Forms 1297, **Temporary Issue Receipt**, or a chit system for CTK/equipment accountability. Automated systems (i.e., bar code or equivalent system) should be used.

21.5.3. All removed/missing tools and equipment (i.e., broken, TMDE, lost, etc.) will be documented on an AF Form 2519, **All Purpose Checklist,** (or equivalent local form) regardless of the accountability system used.

21.5.4. When a chit system is used, chits will be controlled as tools, to include a beginning and end of shift inventory.

21.5.4.1. Chits will not be issued directly to individuals or removed from support flights/sections or tool rooms.

21.5.4.2. Chit control boards will be located only in secure, controlled locations (i.e., support sections, tool rooms, workcenter offices, etc.).

21.5.5. CTKs used in an off-equipment environment that are not dispatched may be left open for all personnel to use during a shift.

21.5.5.1. Whenever the CTK is opened/closed, it must be inventoried.

21.5.5.2. Units will develop local instructions for this CTK usage procedure.

21.6. Forms.

21.6.1. A bar code system printout (or AF Form 1297) will be used for accountability and control of CTKs and tools. The form or system will remain in the tool room, support section, or workcenter within an acceptable working distance from the point of issue, according to the local instruction.

21.7. Security Guidelines. A secure area will be designated to store CTKs when not in use. The area must be capable of being locked and provide protective measures (i.e., monitoring or controlled key access) to preclude access by unauthorized personnel.

21.7.1. Locks on CTKs provide a physical restraint against opening the container lid/door and prevent unauthorized removal of tools or CTKs.

21.7.1.1. Locks should not be required on individually issued tools and equipment located within support flights/sections, tool rooms, or workcenters.

21.7.2. Dispatched CTKs must be locked and secured to an immobile object when left unattended.

21.7.2.1. The only exception is CTKs locked and located within the restricted access area on the aircraft parking ramp, unless local conditions/situations prohibit this exception.

21.7.3. Modifications to tool containers to meet security requirements are authorized unless the modification voids the manufacturer's warranty.

21.8. Inventories. A count of all dispatchable CTKs and equipment must be performed at the beginning and end of each shift. The contents of these CTKs are not inventoried until CTKs are signed out. Contents of non-dispatchable CTKs (cabinets) that are opened must be inventoried at the beginning and end of each shift. The individual performing the inventory ensures all CTKs and individually issued equipment is on hand or accounted for.

21.8.1. Inventory contents of CTKs prior to dispatch, upon each return, and at the completion of each task/job.

21.8.2. CTKs are not normally passed from one individual to another at the job site; however, mission needs occasionally require this action to occur.

21.8.2.1. Units must develop procedures to ensure tool accountability and control is maintained when transfer occurs. Procedures will be included in a unit supplement to this instruction

21.8.2.2. Supervisors will authorize the transfer of accountability under special circumstances only.

21.8.3. An inventory is conducted of all CTKs at least every six months or when the CTK custodian changes (permanent change of station (PCS), permanent change of assignment (PCA), or other personnel action).

21.8.3.1. The purpose of this inventory is to perform an extensive inspection of all tools and equipment in CTKs and is more extensive than the daily beginning and end-of-shift inventory.

21.8.3.2. The CTK custodian/alternate performs the inventory.

21.8.3.3. When CTK custodians change, the outgoing and incoming CTK custodian perform the inventory together.

21.8.3.3.1. Inventories will be documented by letter through the section chief to the flight commander/chief identifying discrepancies and corrective actions taken.

21.9. Lost Tool Procedures. The primary objective of the CTK program is FOD prevention through strict tool control. Supervisors ensure all assigned personnel are familiar with lost tool procedures. The person issued a CTK, tool, or equipment item is responsible until the turn-in inventory is accomplished and documented. If an item/tool or a portion of a broken tool is discovered missing, the following procedures apply:

21.9.1. The person issued the item/tool must search the immediate work area for the item/tool.

21.9.1.1. If not found, the person issued the item/tool must immediately notify the workcenter supervisor/flight commander, section chief, CTK custodian, and SMO/MS.

21.9.2. If an item/tool is missing after aircraft maintenance, the person identifying the missing item/tool must also inform the maintenance operations center (MOC) and quality assurance (QA).

21.9.2.1. The MOC must notify the applicable GP/CC of the missing item/tool.

21.9.2.2. The aircraft will be grounded immediately.

21.9.2.3. A Red X is entered in the AFTO Forms 781A, **Maintenance Discrepancy and Work Document**, for all affected aircraft.

21.9.2.3.1. The entry will include a description of the item/tool and the suspected area(s) where it was lost.

21.9.2.4. If the item/tool is not found, the Red X symbol will be cleared/signed off by the appropriate group commander, or designated representative.

21.9.2.5. Units will determine the exact period of time allowed before initiating the lost tool report.

21.9.2.5.1. As a general rule, one hour should not be exceeded.

21.9.3. When it is suspected that the item/tool has fallen into an inaccessible or unobservable aircraft area, perform an non-destructive inspection (NDI) or use borescope equipment to locate the lost tool.

21.9.3.1. If the item/tool is in an inaccessible area that poses no FOD threat, can only be retrieved by major disassembly, and higher headquarters (HHQ) assistance is required, the operations group commander (OG/CC) notifies HQ AFMC/DOM, providing all pertinent information.

21.9.3.1.1. HQ AFMC/DOM confers with the responsible air logistics center (ALC) and/or the appropriate system program office (SPO) on the appropriate action.

21.9.3.1.2. HQ AFMC/DOM notifies the unit on the action to take.

21.9.3.1.2.1. If action is to leave the item/tool in place, the x-ray with identification of the exact tool location and copies of all messages concerning the lost tool are maintained in the aircraft historical file until the item/tool is recovered.

21.9.3.2. Other possible actions are to have the unit or a depot field team disassemble the aircraft to remove the item/tool.

21.9.3.2.1. If the aircraft mission, design, and series (MDS) is one that has a programmed depot maintenance (PDM) or is scheduled for depot modification, the lost item/tool and location is listed in the AFTO Form 345**, Aerospace Vehicle Transfer Inspection Checklist and Certification**, for removal by the depot.

21.9.4. Local procedures must be developed to notify the pilot and recall the aircraft when an item/tool is discovered missing after an aircraft has taxied.

21.9.4.1. The procedures will cover taxi and post-takeoff, be developed jointly by the OG/CC and logistics group commander (LG/CC), and be included in the base/unit supplement to this instruction.

21.9.5. If at any time during the investigation the item/tool is found, notify the MOC and the owning organization. The SMO/MS or the squadron superintendent will clear the Red X entry.

21.10. Tool Replacement Procedures. If desired, a stock of spare tools is authorized. These tools are used to replace broken, worn, or missing tools to prevent unnecessary work delays. Spare and consumable tools are highly pilferable and pose an increased fraud, waste, and abuse potential. Consequently, SMOs/MSs will ensure strict controls are established.

21.10.1. To obtain necessary replacement tools, commanders submit a written request to the chief of supply (COS) for customer identiplates to use at the tool issue center or a government purchase card for commercial use.

21.10.1.1. Only CTK custodians or designated representatives are authorized cards.

21.10.1.2. The request includes the organization code, organization/functional title, and the number of cards required.

21.10.2. Limited quantities of replacement tools are authorized to be maintained in tool rooms, support flights/sections, or workcenters.

21.10.2.1. CTK custodians authorize the tools and quantities maintained.

21.10.2.2. An inventory of all replacement tools is accomplished at least quarterly.

21.10.3. Expendable hand tools (saw blades, apexes, files, file cleaners, etc.) consumed during use may be placed on bench stock. However, if expendable tools are placed on bench stock, strict accountability and control procedures must be established and enforced.

21.10.4. Replacement tools will not be issued without receipt of the unserviceable tool or documentation indicating the tool is lost and reported according to the lost tool procedures outlined in this instruction.

21.10.4.1. Replacement tools must be marked with the CTK number prior to issue.

21.10.4.2. If previously issued serviceable tools are to be used as replacement tools, completely de-etch any prior CTK assigned markings.

21.11. Rag Control Procedures. Rag control procedures apply to organizations and personnel performing on-equipment aircraft maintenance, jet engine maintenance, and other areas as designated by GP/CCs. Each unit will develop local procedures for accountability of rags. While marking or identifying each shop rag with a CTK number is not necessary, issue and receipt procedures are established to ensure positive control. Rags of uniform size and colors, such as those available through the General Services Administration (GSA) and commercial contract suppliers may be used to facilitate control procedures. Some recommended methods of shop rag control include:

21.11.1. Issuing rags on a one-for-one swap.

21.11.2. Issuing a predetermined number of rags with CTKs and including them on the CTK contents listing.

21.11.3. Issuing rags in pre-packaged containers with the number of rags marked on each container.

21.11.4. Other locally devised accountability methods may be used as long as the intent of this instruction is maintained.

21.11.4.1. Ensure deployment taskings and TDY requirements are considered when local rag control procedures are developed.

21.11.4.2. Unit rag control procedures will be included in the unit supplement to this instruction.

21.12. Warranty/Quality Tool Program. The purpose of the warranty/quality tool program is to ensure high quality, industrial-strength warranted tools are available for use in aircraft maintenance activities. Warranty tools will be obtained from the base supply tool issue center or through local contracts with a warranty tool vendor. Units desiring to establish a warranty tool program must coordinate their program through both the supply and contracting squadrons. Detailed management procedures are contained in AFMAN 23-110, *USAF Supply Manual*. The following general guidelines apply:

21.12.1. When preparing background information for base contracting, provide as much information as possible on desired strength, finish (chrome or industrial), insulation, physical dimensions, magnetic properties, laser etching, and size of letters.

21.12.2. Specify desired replacement tool requirements, such as:

21.12.2.1. Replacement tool delivery time.

21.12.2.2. Etching of replacement tools.

21.12.2.3. Office responsible for maintaining replacement tools (if maintained), where replacement tools are maintained, and number of tools stocked.

21.12.2.4. Direct contact with vendor to replace tools.

21.12.3. The contract should include procedures for replacement of lost tools. All lost tool procedures are accomplished according to this instruction and unit supplement to this instruction.

21.13. Locally Manufactured Tools. QA is responsible for reviewing the paperwork for locally manufactured tools. GP/CCs and directors (or their designated representative) have approval authority. Users will review items and requirements annually for applicability and current configuration of the in-use tool.

Chapter 22

MAINTENANCE CONTRACT SURVEILLANCE

Section 22A—Responsibilities and Training.

22.1. General. This chapter implements AFPD 21-1, *Managing Aerospace Equipment Maintenance*, and establishes procedures for surveilling service contracts in support of AFMC aircraft, trainer, and systems maintenance using a statement of work (SOW) or performance work statement (PWS). It applies to all aircraft maintenance and trainer maintenance contract surveillance activities, including transient aircraft support, and aircraft supported by full or partial contract logistics support (CLS) activities (as defined in Section D). It does not apply to aircrew training devices covered by AFI 36-2248, *Operation and Management of Aircrew Training Devices*.

22.2. Responsibilities. The functional area chief (FAC) of a contractor operated functional area implements the installation commander's quality assurance evaluation program (QAEP) as outlined in this instruction. The functional area includes all government program and logistics management responsibilities for contracted aircraft maintenance activities as defined in the SOW and PWS.

22.2.1. Program manager or deputy program manager/assistant FAC. Program manager duties are basically synonymous with FAC duties. When the position is applicable, the deputy program manager and/or assistant FAC are located in the field and assist the program manager and FAC in accomplishing these same duties and responsibilities.

22.2.2. For the purposes of this instruction, the term quality assurance evaluator (QAE) is used to describe all government personnel appointed to surveil aircraft maintenance contracts and is synonymous with any other terms used in specific weapons system contracts (e.g., quality assurance representative (QAR)).

22.2.3. The QAE function is responsible for a wide range of requirements related to the surveillance of aircraft maintenance contracts. Observations are reported to the FAC, principle contracting officer (PCO)/administrative contracting officer (ACO), and major command (MAJCOM). The QAE also acts as an adviser to the PCO/ACO and FAC for contract technical issues. In addition, the QAE evaluates and recommends contract modification, contract re-competition, and award fee criteria.

22.2.4. Specific guidance applicable to surveillance of CLS contracts is detailed in **Section 22D** of this instruction.

22.3. Functional Area Chief (FAC) Responsibilities. The commander or the logistics functional director of the organization is designated as the FAC (e.g., in the maintenance squadron (MXS), the squadron commander is the FAC). When contract requirements from multiple bases or wings are combined, the senior logistics director will designate the FAC. The FAC must keep up-to-date on mission changes that could affect the contractor's ability to perform. Specifically, the FAC will:

22.3.1. Implement a QAEP that effectively measures and evaluates contractor performance throughout the life of the contract. The QAEP will implement the requirements of this instruction and, as a minimum, include the quality assurance surveillance plan (QASP) (**22.8.**.) and the QAE assessment program (**paragraph 22.20.**).

22.3.1.1. The ability of QAEs to determine services received on behalf of the government is directly related to how well the QAEP is developed.

22.3.2. Appoint qualified QAEs.

22.3.2.1. Authorizations will be, as a minimum, at the 7-skill level and will be filled at 100 percent.

22.3.2.2. QAEs are selected based on experience in the career field, weapon system experience, quality force issues, and supervisor's recommendations.

22.3.2.2.1. Before any assignment action is finalized, the FAC and commander will approve the QAE appointee.

22.3.2.2.2. A QAE letter of appointment (including QAE duties and responsibilities) is provided to the owning MAJCOM and local contracting office, and, if applicable, the defense contract management area office and cognizant air logistics center (ALC).

22.3.2.2.3. FACs must notify their local QAEP coordinator (QAEPC) within 30 days whenever a QAE vacates the position. QAE appointments must be sent to the local contracting office not later than (NLT) 90 days before contract start.

22.3.3. Review problem areas identified by the QAE and coordinate with the PCO/ACO to resolve the problem(s). Provide recommended actions as needed, including inputs to the contractor performance assessment report.

22.3.3.1. If the problem cannot be resolved, request assistance through the PCO/ACO and the MAJCOM.

22.3.4. Approve requests for increase of allowance standards on non-weapons items (budget code 9 and Z).

22.3.5. Receive FAC training from the QAEPC.

22.3.6. Verify that the contractor submits required reports in accordance with (according to) the contract requirements.

22.3.7. If applicable, participate as a member of the award fee board.

22.3.8. Establish a QAE assessment program (paragraph **22.20.**).

22.3.9. Select QAEs to serve on source selection teams.

22.3.10. Where practical, select and appoint a chief QAE.

22.3.11. Ensure QAEs are not assigned additional duties that interfere with their ability to fully meet the time requirements of contract surveillance and other QAE duties.

22.4. Chief QAE Responsibilities. The purpose of the chief QAE is to ensure surveillance of contractor performance and report non-compliance or abnormalities to the FAC and PCO/ACO. In smaller units where it is not practical to designate a chief QAE, the FAC will ensure the responsibilities in this paragraph are met. Specifically, the chief QAE will:

22.4.1. Verify that the contractor meets contract obligations specified in the SOW or PWS.

22.4.2. Ensure a QASP is developed prior to contract award and annually review it for adequacy.

22.4.3. Review the contractor's quality control (QC) plan for compliance with the applicable quality standard cited in the SOW or PWS and ensure the plan is comprehensive, covering all aspects of the contracted services.

22.4.3.1. Recommend acceptability of the QC plan to the PCO/ACO through the FAC.

22.4.4. Ensure each QAE is initially evaluated to determine past qualifications, experience, and ability to accomplish technical inspections and contract surveillance functions, as defined by the contract requirements.

22.4.5. Ensure a joint inventory of all government provided equipment and material is conducted by the contractor and a government representative: prior to assuming responsibility of a functional area, during option years (or at least annually), and prior to completion of the existing contract as outlined in the SOW, PWS, and federal acquisition regulation.

22.4.5.1. The contractor is responsible for providing accurate inventories. The quality assurance (QA) surveillance schedule should include activity to randomly sample these inventories to ensure accuracy and completeness.

22.4.6. Develop a monthly summary of QAE surveillance activities and forward a copy of the summary to the PCO/ACO, the FAC, and MAJCOM NLT the 10th workday of the month. Maintain copies of all summaries on file for the life of the contract.

22.4.7. Assist MAJCOM, the FAC, and/or the ACO in determining contract cost, if requested.

22.4.8. Calculate award fee data at the end of each award fee period, using monthly cumulative figures versus monthly percentages, if applicable.

22.4.9. Assume QAE responsibilities when circumstances warrant.

22.4.10. Ensure development and maintenance of the QASP in coordination with the FAC, ACO, and HQ AFMC, as applicable,. If requested, provide an information copy to HQ AFMC.

22.4.11. Ensure monthly surveillance schedules are developed as required in **paragraph 22.9.**

22.5. QAE Responsibilities. QAEs will monitor the actual application of the contract for the FAC and ACO; however, they are not a QC function. QAEs will not direct work or re-accomplishment of work, change the contract, or formally interpret the contract. The ACO will resolve these types of issues. Specifically, the QAE will:

22.5.1. Know the specifications and requirements of the contract.

22.5.2. Know and maintain proficiency in contract surveillance procedures and requirements.

22.5.3. Know and apply the procedures for documenting surveillance.

22.5.4. Know the QAEP and perform surveillance according to the QASP.

22.5.5. Maintain technical competency in his/her assigned surveillance area.

22.5.6. Attain qualification in the appropriate areas before performing evaluations, inspections, or surveillance duties unsupervised.

22.5.7. Review incoming and outgoing official government and contractor correspondence (as applicable).

22.5.8. Review the deficiency, time compliance technical order (TCTO), and mishap contractor reports for accuracy, adverse trends, and mission accomplishment. Additionally, review for accuracy and sign contractor logistics reports and forward them to the appropriate MAJCOM for possible indicators of performance trends.

22.5.9. Review all contractor technical order (TO) requirements for waste or abuse. Validate contractor TO requirements in TO 00-5-2, *Tech Order Distribution System*.

22.5.10. Evaluate effectiveness of the contractor's involvement in mishap investigations (reference AFI 91-204, *Safety Investigations and Reports)*.

22.5.11. When selected, serve as a member of the source selection team.

22.5.12. Develop monthly surveillance schedules as required in **22.9.**.

22.5.13. Perform munitions accountable systems officer (MASO) duties (if required).

22.6. QAE Training. The FAC and chief QAE are responsible for ensuring QAEs receive required training.

22.6.1. The following training requirements apply to all QAEs:

22.6.1.1. A QAE orientation and training program consisting of formal classroom instruction conducted at the base contracting office in two phases as identified below. QAEs will complete this training prior to performing surveillance duties. Additionally, formal refresher training is required annually.

NOTE: Completion of course 393ATC0066-002, *QAE Maintenance Management Course,* will be used to fulfill the Phase I requirement for all QAEs/QARs.

22.6.1.1.1. Phase I - General QAE training. Conducted by mobile AETC instructors or by QAEPCs using AETC training materials. QAEs must complete this training before performing surveillance duties on contracts in which surveillance procedures apply.

22.6.1.1.2. Phase II - Contract specific training. Conducted by the ACO or PCO, and must be completed for each contract that the QAE is assigned to surveil. Training will include a detailed review and discussion of the PWS or SOW and will ensure QAEs have a proper understanding of necessary surveillance requirements for respective contracts.

22.6.1.1.3. Formal refresher training. The QAEPC will conduct annual refresher training for all QAEs. As a minimum, the training must include policy and procedural changes, a discussion of potential problem trends, QAE surveillance and documentation requirements, DoD Directive 5500.7-R, *Joint Ethics Regulation (JER)*, and other topics as suggested by the ACO/PCO, FAC, or QAE.

22.6.2. The FAC and/or chief QAE are responsible for ensuring refresher training, specialty training, and cross-utilization training (CUT) requirements are met.

22.6.2.1. There are two types of refresher training, formal and informal. Formal refresher training must be conducted annually. Informal refresher training will be considered an on-the-job continuing process and provided as needed.

22.6.2.2. Specialty training will be received through formal schools and is commonly referred to as Air Force specialty code (AFSC) training.

22.6.2.3. CUT is training received outside the AFSC that is needed to accomplish the QAE surveillance requirements.

22.6.3. The FAC and/or chief QAE will ensure:

22.6.3.1. Cross-familiarization and utilization of QAE personnel in related AFSCs. CUT may consist of practical training in a formal training environment.

NOTE: There are AFSCs in which personnel must be task certified before they are qualified to evaluate these tasks (e.g., an 2AXXX inspector or evaluator cannot inspect or perform an evaluation on egress components unless they are task certified).

22.6.3.2. Initial orientations and evaluations are accomplished.

22.6.3.3. Each area surveilled has a primary and alternate QAE assigned to ensure contract surveillance is accomplished.

NOTE: Alternate QAEs must possess a maintenance related AFSC.

22.6.3.3.1. QAEs must be familiar with surveillance and documentation methods and procedures and surveillance schedules.

22.6.3.3.2. QAEs must be familiar with emergency procedures to be implemented if contractor performance is interrupted by default or strike.

22.6.3.3.3. QAEs will maintain training records if required by AFI 36-2201, *Developing, Managing, and Conducting Training*, and/or the career field education and training plan (CFETP) applicable to their AFSC. As a minimum, all QAEs must maintain an AF Form 797 regardless of grade or skill level that identifies specific responsibilities required by this instruction or other applicable directives.

22.6.3.3.3.1. The AF Form 797 will be filed and maintained in the QAE workcenter.

22.6.3.3.3.2. Units may elect to use a locally developed automated product in place of the AF Form 797.

22.6.3.3.3.2.1. If this option is used, the product must contain, as a minimum, all the same data elements as the AF Form 797.

22.6.3.4. All QAEs are knowledgeable of the tasks they surveil.

22.6.3.4.1. QAEs will be duty position qualified to inspect, surveil, and observe according to the requirements in this instruction and other applicable directives.

NOTE: Special emphasis will be placed on knowledge and surveillance requirements for tasks requiring special certification according to AFI 21-101, *Maintenance Management of Aircraft,* this instruction, or other applicable directives.

22.6.3.5. QAEs requiring production inspection or special certification authority (Red X, etc.) are authorized and designated in writing by memorandum (signed by the FAC or unit commander). Regardless of the method used, file a copy of the certification with the individual's AF Form 797.

22.6.3.6. QAE sections obtain needed formal training quotas by coordinating with the QAEPC.

Section 22B—Quality Assurance Evaluation Program (QAEP).

22.7. General. The QAEP consists of the plans and procedures developed to implement and administer QA requirements for functional areas. The QAEP is established as a unit-level Operating Instruction (OI) that implements the requirements of this instruction. It includes the QASP and the QAE assessment program.

NOTE: The QAEP may not incorporate all contractor responsibilities and requirements listed and referenced in the contract.

22.7.1. Development of a QAEP is mandatory for all units with contractor-operated maintenance activities that use a SOW or PWS.

22.7.2. An effective QAEP will ensure:

22.7.2.1. The contractor fulfills the requirements of the PWS/SOW program.

22.7.2.2. Evaluations are performed according to the QASP (**paragraph 22.8.**).

22.7.2.3. Lines of communication are open between the functional areas, QAEs, ACO/PCO, commanders, and contractors.

22.7.2.4. An effective method to obtain customer feedback on contractor performance is developed and implemented.

22.7.2.5. Unacceptable contractor performance is documented and acceptable corrective action taken.

22.7.2.6. QAEs are assessed at least annually to determine the overall quality and effectiveness of their performance (paragraph **22.20.**).

22.7.2.7. QAEs are appointed according to this instruction.

22.7.2.8. QAEs are trained according to this instruction and other applicable directives.

22.8. The Quality Assurance Surveillance Plan (QASP). The QASP implements the QAEP. The purpose of a QASP is to provide a planned process for surveilling the contractor's actual performance and comparing that performance against the contractual requirements to determine conformity with the technical requirements of the contract. It is not intended to supplement or replace the contractor's QC program. The QASP provides the QAE with information with which they can identify acceptable performance and potential reasons for any non-conforming performance. QASPs incorporate guidance contained in the contract, including the contractor's QC program, contractor directives, required publications listed in the contract, applicable portions of advisory publications (Air Force, AFMC, and local), and applicable TOs. The QASP is FOR OFFICIAL USE ONLY and will not be shown to the contractor. The contracting officer (CO)/PCO/ACO must approve the QASP prior to contract performance. All hours of contractor performance are vulnerable to QAE surveillance, to include all shifts, weekends, nights, and holidays, if applicable.

22.8.1. Successful long-term contract administration is dependent upon adequate communication between the QAE, CO/PCO/ACO, FAC, and contractor and upon how well the QASP is written and understood.

22.8.2. Surveillance should be performed during the completion of contractor QC inspections or independently.

22.8.3. Regardless of the method used, the actual surveillance is accomplished according to the monthly QAE surveillance schedule (**paragraph 22.9.**).

22.8.4. Surveillance requirements are identified in the QASP. They are categorized as either technical area or observation work area inspections. Guides (in checklist format) are used to perform periodic surveillance and evaluation of observation work areas (**paragraph 22.12.**).

22.8.4.1. Technical area inspection requirements. Minimum technical area surveillance and inspection requirements and frequencies will be jointly determined by the CO/PCO/ACO, chief QAE, and FAC using the SOW or PWS as a guide.

22.8.4.1.1. CLS contracts follow the applicable technical surveillance guidance identified in **Section 22D** of this chapter.

22.8.4.2. Observation work area inspection requirements. The CO/PCO/ACO, chief QAE, and the FAC will jointly determine minimum observation work area surveillance requirements using the SOW or PWS as a guide.

22.8.4.2.1. CLS contracts follow the applicable observation work area surveillance guidance identified in **Section 22D**.

22.8.4.3. Missed surveillance or inspection frequencies. If minimum monthly surveillance requirements cannot be met due to equipment non-availability or special circumstances, include an explanation on the summary for each missed area and/or inspection category. In such cases, a statement of FAC and ACO approval for the variance is required. When individual surveillance or inspection frequencies are missed for more than one prescribed period, notify the MAJCOM in writing.

22.8.5. In addition to the requirements in the preceding paragraphs, the QASP will:

22.8.5.1. Clearly identify QAEs responsibilities.

22.8.5.2. Identify surveillance techniques and their application, and explain how to document and report unacceptable performance.

22.8.5.2.1. The four methods of surveillance available to the QAE include random sampling, periodic surveillance, 100 percent inspection, and customer complaints.

22.8.5.2.1.1. Periodic surveillance and customer complaints are the least preferred methods of surveillance because they cannot be used as a basis for deduction from payment. However, use of customer complaints may be necessary for certain types of tasks that do not lend themselves to random sampling or 100 percent inspection.

22.8.5.2.2. The sources of surveillance activity include contractor management information systems, observation of task attributes, and observation of contractor performance.

22.8.5.3. List procedures for acquisition, transfer, and control of government-furnished equipment (GFE).

NOTE: Prior to the end of the basic year and option years (or at least annually), contract and government representatives will conduct a complete inventory of GFE.

22.8.5.4. Establish and assign responsibilities for verifying costs of reimbursable items (i.e., tools provided by the contractor).

22.8.5.5. Include procedures for developing and coordinating monthly surveillance schedules.

22.8.5.6. Ensure all hours of contractor performance are surveyed, to include all shifts, weekends, nights, and holidays (if applicable).

22.8.5.7. Include a program to regularly, yet randomly, review supply management aids (i.e., D04, M30, D23, R49, D18, D19, R35, M04, S04, and Q13 databases) for signs of waste, abuse, or poor supply discipline.

22.8.5.8. Establish surveillance requirements to sample foreign object (FO) inspections on aircraft, engines, and support equipment (SE).

22.8.5.9. Establish procedures to effectively monitor the contractor's compliance with federal, state, and local laws, Department of Defense and Air Force directives, and the installation's applicable environmental plans and programs.

22.8.5.10. Establish a surveillance program to effectively monitor compliance with the contractor's training plan prescribed in the contract to ensure that the training provided is consistent with the contractor's training plan and conforms to their training lesson plans.

22.8.5.10.1. Surveillance will include random sampling of task qualification and certification training, to include training associated with special certification tasks.

22.8.5.10.2. Additionally, surveillance will include random quarterly observance of recurring maintenance training requirements.

22.8.5.10.3. In addition to actually observing the training as it takes place, the surveillance will include a review of training documentation, individual training records, and plans of instruction, if applicable.

22.9. Surveillance Schedules. The QAE is responsible for developing a monthly schedule of surveillance activities based on QASP requirements. The schedule must be completed NLT seven calendar days prior to the beginning of the period it covers.

22.9.1. The FAC must review and return the schedule to the QAE NLT the last day of the month proceeding the scheduled month.

22.9.2. The QAE must provide a copy of the schedule to the ACO or PCO before the start of the surveillance period.

22.9.3. The surveillance schedule is FOR OFFICIAL USE ONLY and must not be disclosed to the contractor.

22.9.4. Changes to scheduled observations are posted weekly and copies sent to the ACO/PCO and FAC as requested.

22.10. Evaluation Guides. Develop a separate evaluation guide for each observation work area (paragraph **22.12.**). Identify each guide by a number that corresponds to the number of the area observed. If sub-categories are needed, identify them by using a decimal number (e.g., 1.1, 1.2, etc.). All evaluation guides, unless classified, are collated into single packages with an index. Identify locally determined evaluation guides by alpha characters. The chief QAE reviews evaluation guides annually and documents this review for each package.

NOTE: Do not include evaluation guides as a portion of any OI. Evaluation guides may be disclosed to the contractor upon ACO/PCO or Freedom of Information Act request.

22.10.1. When guides are changed, the contractor must request the updated versions. Evaluation guides will be used for the inspection of a particular area; however, contractor evaluation is not limited to the guide content only. Annotate evaluation guides with the statement "Area inspection is not limited to the content of evaluation guide."

22.11. Technical Areas. Technical requirements are surveilled by performing the quality verification inspection (QVI) and technical validation inspections (TVI). The QVI is performed only after-the-fact (ATF), while the TVI is an inspection that is accomplished while maintenance is being performed (or soon after completion).

22.11.1. Quality verification inspection (QVI). A technical inspection of an item of equipment accomplished by a QAE following a maintenance inspection or repair action. The purpose of a QVI is to determine whether the maintenance action was properly accomplished and to measure the overall condition of the equipment.

22.11.1.1. The QVI is limited to the same inspection workcard or TO required for the job. Normally, disassembly of a part, removal of a stress panel, and similar actions are not necessary to accomplish a QVI. The QVI for required -6 TO inspections should be accomplished by checking a minimum of 50 percent of the required inspection items. The quality of equipment determined through the QVI must be reported to the owning workcenter (OWC) and other activities contributing to the condition of the equipment.

22.11.1.2. During QVIs, the QAE reviews appropriate documents and equipment forms (to include the inspection workcards), work unit code (WUC) manuals, and maintenance checklists for accuracy and currency. Use of the core automated maintenance system (CAMS) (or other automated maintenance management systems) deferred discrepancy listings is encouraged. The documented maintenance list, supply requisition inquiry, and event list (EVL) are three suitable products.

22.11.1.3. QVIs are assigned ratings of either acceptable or unacceptable.

22.11.1.3.1. An unacceptable rating is assigned when a major or Red X chargeable discrepancy is detected or the number of chargeable minor discrepancies exceeds the baseline contained in the SOW.

22.11.1.3.2. An acceptable rating is assigned when the total number of minor chargeable discrepancies does not exceed the applicable baseline contained in the SOW or PWS.

22.11.2. Technical validation inspection (TVI). Used to determine the quality of maintenance during (or soon after) performance of any on- or off-equipment maintenance task. TVIs are not used to determine proficiency of contractor personnel.

22.11.2.1. There are two types of TVIs, over-the-shoulder (OTS) and ATF.

22.11.2.1.1. OTS inspections are performed while an individual or group is actually performing a task.

22.11.2.1.2. ATF inspections are performed after a task is completed and documented.

22.11.2.1.2.1. ATF inspections are not performed after equipment has been operated when such operation can invalidate conditions present when the task was accomplished.

22.11.2.1.3. OTS and ATF inspections may be limited to a portion of a task.

22.11.2.2. All TVI surveillance requirements identified in unit QASPs will include a percentage of both OTS and ATF inspections. Units will determine these percentages locally and identify them in the QASP.

22.11.2.3. All units will perform surveillance of the contractor's QC evaluation program. This surveillance may be performed in conjunction with other surveillance requirements. If this option is used, document each surveillance action independently. All units, to include CLS contracts, will identify select surveillance actions contained in their applicable QASP for surveillance of the contractor's QC evaluation program. Include these requirements in the QASP and the monthly surveillance schedule.

22.11.2.4. TVIs (ATF and OTS) are assigned ratings of acceptable or unacceptable.

22.11.2.4.1. An unacceptable rating is assigned when a safety violation is detected (reference paragraph **22.16.**), a step serious enough to adversely affect the performance of the equipment involved is omitted or improperly completed, or a major or Red X discrepancy is identified.

22.11.2.4.2. An acceptable rating is assigned when the total number of minor discrepancies does not exceed the applicable baseline contained in the SOW or PWS.

22.12. Observation Work Areas. Observation work areas are surveyed by performing inspections in specific work areas utilizing inspection criteria in the QASP and reflected in the PWS.

22.12.1. As a minimum, each work area inspection will include the following critical items (if applicable):

22.12.1.1. Composite tool kits (CTK), flightline, hangar, shop areas, and jet engine operating areas for FO and proper housekeeping.

22.12.1.2. Supply procedures, TO maintenance, AFTO forms documentation, and recording of information in automated systems (i.e., CAMS (including all subsystems), precision equipment laboratory (PMEL) automated management system (PAMS), automated oil analysis, and any other automated system that includes aircraft or equipment information).

22.12.1.3. Additionally, observation areas are inspected for physical security, conservation of utilities, safety, fire prevention, environmental protection, and facilities management.

22.12.1.4. Chief QAEs should consider placing these minimum requirements into a single general guide. Shop evaluation guides should contain minimum inspection areas/items and not include overwhelming requirements which may cause an over inspection of a particular shop.

22.12.2. Observation inspections may be either scheduled or unscheduled; however, only observations scheduled in the QASP should be used to determine or apply a rating for acceptable performance according to contract standards.

22.12.3. Scheduled observation work area inspections are normally scheduled inspections performed by using observation area evaluation guides. They are rated either acceptable or unacceptable.

22.12.3.1. An unacceptable rating is assigned when a major discrepancy is identified, or seven or more minor discrepancies are identified.

22.12.3.2. An acceptable rating is assigned when no major discrepancies are identified and the number of minor discrepancies found is less than seven.

22.12.4. Unscheduled observations are "as observed" inspections of areas where maintenance or maintenance related tasks are being performed. They occur when deficiencies are discovered that are not directly associated with another type of inspection being evaluated or observed. "As observed" deficiencies must be reported.

22.13. Discrepancy Categories. To ensure consistency when determining severity of discrepancies, the following definitions and criteria apply to technical and observation work area inspections. These definitions also need to be included in the QASP:

22.13.1. Major discrepancy. A discrepancy that judgment and experience indicate is likely to result in a hazardous or unsafe condition or is likely to result in failure or reduce materially the usability of aircraft or equipment to include any major part thereof. Discovery of any of the following conditions will be categorized as a major discrepancy:

22.13.1.1. Improper or untimely documentation of Red X discrepancies in aircraft, trainer, or equipment AFTO forms (to include automated system entries).

22.13.1.2. FO within 50 feet of an aircraft parking or engine operating area.

22.13.1.3. Test, Measurement and Diagnostic Equipment (TMDE) overdue calibration or when calibration status cannot be verified.

22.13.1.4. Violation of occupational safety and health administration (OSHA) and/or Air Force occupational and environmental, safety, fire protection, and health (AFOSH) standards.

NOTE: Discrepancies that do not present a safety or health hazard or create unsafe or potentially unsafe conditions are not considered major. QAEs will use experience and judgment in determining the severity of such discrepancies.

22.13.1.5. Violation of federal, state, or local environmental protection laws and/or Department of Defense or Air Force policies and directives.

22.13.1.6. Overdue time change and inspection items (-6 TO asterisk items) and unauthorized engine over flies.

22.13.1.7. Any errors in cartridge actuated device/propellant actuated device (CAD/PAD) verification documents.

22.13.1.8. Any long term inspections not loaded, due-time errors, or improperly loaded low cycle fatigue cycle items.

22.13.1.9. TO violations or violations of mandatory directives, as supplemented, and improper use of tools or use of out-of-date technical data (reference TO 00-5-1, *AF Technical Order System*).

22.13.2. Minor discrepancy. A discrepancy when such will cause damage to government property or injury to government personnel that is not likely to materially reduce the usability of aircraft, trainers, or equipment or is a departure from established requirements having little impact.

NOTE: If the QAE determines it appropriate, minor discrepancies that consist of a grouping of like deficiencies (e.g., a bench stock with 6 commingled bins, 10 bins not flagged, and 4 bins with torn labels) may be documented as one discrepancy against the observation guide.

22.14. Documentation File Inspections. Documentation file inspections for aircraft, support equipment (SE), and engines are rated. The inspections include review of the status and historical documents (including automated documents) for the previous 60 days. Discrepancies found in the historical document file are sent to the contractor for corrective action. Actual discrepancies are not corrected except for items of a historical nature, including automated documents that can be verified from other sources. Specifically:

22.14.1. Each incorrect clearing of a Red X symbol, erasures of symbols, overdue time change items (TCI), and overdue inspections caused by improper documentation are considered major discrepancies. The correct use and clearance of Red X symbols must be items of special attention during documentation file inspections. QAEs must ensure unsafe or unfit for operation conditions were represented by Red X entries and these entries were properly cleared.

22.14.2. Documentation errors on forms initiated at other than the home station or generated by non-maintenance personnel are not chargeable against the contractor but must be corrected if the deficiency affects historical or automated information.

22.14.3. A major discrepancy or more than three minor discrepancies will result in an unacceptable rating. All other conditions will be rated acceptable.

22.15. Foreign Object (FO) Inspections. Establish a monthly schedule of FO inspections within the QASP to sample aircraft, engines, and SE. Route a copy of FO inspection reports to the unit foreign object damage (FOD) prevention program manager as required to meet the requirements of AFI 21-101.

22.16. Documentation of Safety and Health Violations. If QAEs identify violations of OSHA or AFOSH standards, they document the violations and forward the report to the ACO for action.

22.16.1. The QAE observing any act that could cause immediate injury to personnel or damage to property will take immediate action to stop the unsafe act.

22.16.2. Except as specified for TVIs and observation work area surveillance, do not use "as observed" safety violations to determine contractor compliance with QASP requirements.

22.17. Training Observations. QAEs will assign a pass or fail rating to contractor training observations based on whether or not the training observed meets the standards and intent of the contractor's training plan as well as the objectives of the training being provided.

22.18. Validation of Information. The chief QAE will verify statistical information provided by the contractor that concerns the standards specified in the applicable contract to ensure accuracy, completeness, and adequacy, and coordinate this information with supply and operations prior to final validation (when applicable). For award fee contracts, the chief QAE forwards the applicable information to the FAC.

22.19. Compiling Results. Compute individual inspections, technical area, observation work area, and overall results as follows: total number of inspections rated satisfactory divided by the total number of inspections multiplied by the 100 percent rate.

22.20. QAE Assessment Program. This program provides the FAC with a means to assess the overall quality and effectiveness of the unit's QAE performance in surveillance of the contract requirements. As a minimum, the FAC will use the program assessment metrics to administer the program. Specifically, the FAC will:

22.20.1. Establish a QAE assessment program based on the individual unit size, needs, and mission requirements. Include this program in the QAEP OI.

22.20.2. Select a third party (maintenance or contract surveillance background, if possible) to annually assess the QAE program. The results will be coordinated with the installation QAEPC. Use the following quality assessment metrics as a minimum:

22.20.2.1. Does the QASP cover all flightline and shop locations during all shifts, including weekends?

22.20.2.2. Is there a QAE training program available and are QAEs adequately trained?

22.20.2.3. Does the QAEP include all areas of the contract?

22.20.2.4. Is the QAE unit effectively implementing a QAEP?

22.20.2.5. Do evaluation guides adequately cover all areas of the contract?

22.20.2.6. Is the QAE unit effectively identifying contract problems and concerns and forwarding these to the FAC and ACO/PCO, as well as following up on these areas?

NOTE: The requirements listed above are minimum requirements and should be expanded upon to reflect each unit's program. Each metric will be assessed as "does not meet", "meets", or "exceeds" requirements. All metrics assessed as does not meet or as exceeds requirements will include an explanation.

Section 22C—Surveillance Documentation.

22.21. General. Use the AF Form 799, **Surveillance Activity Checklist**, AF Form 372, **Contract Monitoring and Surveillance Report**, or a locally devised form to document discrepancies discovered during scheduled observations. When a discrepancy is discovered, the contractor is notified as soon as the surveillance is completed and asked to initial the document on which the observation is recorded. If the contractor representative refuses to initial, it is so noted by the QAE. A date and time the discrepancy is discovered will be annotated and the contract representative will be asked to correct the problem. Errors found in services not scheduled for observation should be documented and brought to the attention of the contractor but not used to determine performance acceptability.

22.22. Unacceptable Performance. If at any time during the surveillance period, the results of surveillance show that the number of acceptable observations do not meet standards or performance requirements, and the QAE determines it is not government caused, the QAE initiates an AF Form 370, **Contract Performance Evaluation Report.**

22.22.1. The report is forwarded to the CO/PCO/ACO for evaluation. If the CO/PCO/ACO determines it is appropriate, the report is sent to the contractor, with return receipt requested. The contractor has 15 calendar days from date of receipt to return the report to the CO/PCO/ACO with a response as to cause, corrective action, and actions taken to prevent recurrence.

22.22.1.1. The CO/PCO/ACO, in consultation with the QAE, evaluates the contractor's response and takes appropriate action.

22.22.2. To document customer complaints, use the AF Form 714, **Customer Complaint Record**.

22.23. Surveillance Reviews. All surveillance documentation recorded on AF Forms 799, AF Forms 372, or locally devised forms, will be forwarded to the ACO/PCO for review within five workdays after the end of each month.

Section 22D—Contract Logistic Support (CLS) Surveillance.

22.24. General. This section describes the additional and/or particular duties, responsibilities, and specific surveillance requirements of FACs, QAEs, QARs, technical representatives of the contracting officer (TRCO), and project monitors for the contracting officer (PMCO) appointed to surveil CLS contracts. The terms QAE, QAR, TRCO, PMCO, and any other terms, used to describe government personnel appointed to surveil contracts are synonymous and are distinguished only by the CLS contract written for a specific weapon system. AFMC has a variety of contracts associated with aircraft and systems support. The weapon system program director (SPD), their staffs, and PCO are located at the AFMC centers. The ACO resides at a regional defense contracting management area office and interfaces routinely with the FAC, PCO, and the QAE, QAR, TRCO, and PMCOs who monitor the contracts.

22.25. CLS Contract Management. CLS contracts outline QAE, QAR, TRCO, and PMCO duties and responsibilities that are in addition to the requirements contained in this instruction. These duties and responsibilities are further defined by the individual contract PCO and ACO and are delegated to senior Air Force representatives at each main operating base that utilizes the weapon system.

22.25.1. The logistics group commander (LG/CC), operations group commander (OG/CC), or directors are normally designated the FAC for CLS contracts.

NOTE: For units without an OG/CC, the commander of the unit to which the QAE function is assigned is designated as the FAC. For units with directorates, the director of the unit to which the QAE function is assigned is designated as the FAC. The FAC can delegate all or part of these responsibilities to the QAE function. These delegations must be in writing and the names forwarded to the ACO, PCO, and HQ AFMC/DOO.

22.25.2. Aircraft CLS contracts vary slightly between weapon systems, depending on the supplies and services provided by the CLS contractor. For the purposes of this instruction, CLS contracts are identified as full or partial CLS.

22.25.2.1. A full CLS is one where a single contractor provides both on- and off-equipment maintenance support.

22.25.2.2. A partial CLS contract provides only off-equipment maintenance support through a contractor operated and maintained base supply.

22.26. FAC, QAE, QAR, TRCO, and PMCO Responsibilities. These individuals must have a thorough understanding of the CLS concept to fulfill their duties. As a minimum, they must have a copy of the contract and the applicable SOW. They must also understand the differences between site service mainte-

nance contracts and CLS contracts and the interface of the two when they support one weapon system at one location.

22.27. QAE, QAR, TRCO, and PMCO Surveillance Requirements. This paragraph identifies specific surveillance requirements particular to CLS contracts. The QAE, QAR, TRCO, and/or PMCO surveilling these CLS contracts will:

22.27.1. Be thoroughly familiar with the CLS concept and the applicable CLS SOW.

22.27.2. Review CLS contract amendments and airworthiness directives, service bulletins, and service instructions received for the weapons system. The SPD, in coordination with HQ AFMC, determines the implementation of technical directives.

22.27.3. Attempt to resolve technical problems at the lowest level possible. If problem resolution is beyond local capability or has contractual implications, the problems should be elevated through the applicable HQ AFMC/DOO functional manager to the PCO/ACO for the contract. The FAC, QAE, QAR, TRCO, or PMCO is not empowered to make contractual decisions.

22.27.4. Attend program management review and technical interchange meetings as scheduled by the PCO/ACO or SPD, as applicable.

22.27.5. Work closely with the contracting ALC or PCO/ACO in developing a QASP that provides a planned process for surveilling the contractor's actual performance and comparing that performance against the contractual requirements to determine conformity with the technical requirements of the contract. The QASP provides the QAE with information that they can use to identify acceptable performance and potential reasons for any non-conforming performance.

22.27.6. Serve as a member of the recompetition source selection board (when directed).

Chapter 23

SPECIAL PROGRAMS

Section 23A—Impoundment of Aircraft and Equipment

23.1. General. Aircraft and equipment are impounded when intensified aircraft management is warranted due to system or component malfunction or system failure of a serious or chronic nature. AFI 91-204, *Safety Investigations and Reports*, defines aircraft mishaps and establishes procedures for reporting such occurrences. Frequently, investigative efforts and repair actions are hampered or pertinent evidence destroyed by allowing unrestricted access to the aircraft or equipment involved. Impounding aircraft and equipment allows investigative efforts to systematically proceed with minimal risk relative to intentional/unintentional actions and subsequent loss of evidence.

23.1.1. Aircraft may be impounded for many reasons, so only personnel with an extensive maintenance background should evaluate the problem and recommend impounding the aircraft to the respective commander. There are particular conditions that require the aircraft to be impounded when they occur. Aircraft will be impounded when:

23.1.1.1. The aircraft is involved in a ground- or flight-related mishap as defined in AFI 91-204.

23.1.1.2. The aircraft experiences an uncommanded flight control movement/malfunction, single engine aircraft uncommanded engine anomaly, or any degradation of aircraft airworthiness anomaly that is locally determined to be sufficient justification for impoundment.

23.1.1.3. The aircraft is involved in an incident, accident, or inadvertent release or explosive mishap.

23.1.1.4. When the respective group commander (GP/CC) determines extraordinary measures are required to ensure the safe operating condition of a specific aircraft or piece of equipment following unusual operating performance or system malfunction.

23.1.1.5. When aircraft landing gear fail to operate properly for any unexplainable and/or unexpected reason.

23.1.2. In units where the on-equipment maintenance responsibility resides in the logistics group (LG), the logistics group commander (LG/CC) will have impoundment and release from impoundment authority for the aircraft.

23.2. Terms.

23.2.1. Impoundment/release authority. The LG/CC and operations group commander (OG/CC), director, or their designated representative(s) have the authority to impound and/or release aircraft/equipment. Designated representatives will be identified in writing to quality assurance (QA).

23.2.2. Impoundment. Intensified aircraft management due to system or component malfunction or failure of a serious or chronic nature. Immediate aircraft isolation and controlled personnel access is required.

23.2.3. Impoundment officer/senior noncommissioned officer (SNCO). Individual appointed by the GP/CC or director, who is responsible for controlling and monitoring the investigation of impounded aircraft/equipment.

23.2.4. Investigating officer/SNCO. Individual appointed by the GP/CC or director to investigate an inadvertent release or explosive mishap.

23.2.5. Authorized Personnel. Individuals directly involved in the management, safing, troubleshooting, or repair of impounded aircraft/equipment.

23.2.6. Isolation area. Area designated by the GP/CC or director to locate impounded aircraft/equipment. Select an area that allows for uninterrupted repair/troubleshooting of the aircraft/equipment. Aircraft and equipment impounded on the flightline or in a hangar will be highlighted using cones, ropes, or placards, indicating the impoundment condition.

23.2.7. Limited access. The impoundment officer/SNCO or civilian equivalent will establish an access log and an entry control point (ECP) for the impounded aircraft/equipment.

23.2.7.1. Security forces or maintenance personnel will initially man the ECP as determined by the on-scene commander.

23.2.7.2. If the aircraft/equipment is located on the flightline, the applicable GP/CC will determine whether or not to maintain a manned ECP.

23.2.7.3. If the aircraft/equipment is secured inside a lockable facility, a manned ECP is not required, but access to the facility will be restricted to personnel required to work on the aircraft as determined by the impoundment officer/SNCO.

23.2.8. Access control log. The impoundment officer/SNCO will establish an access control log (manual or electronic media product) which will be maintained at the ECP of the impounded aircraft/equipment or storage facility to track personnel entering and leaving the area for the duration of the impoundment.

23.2.8.1. The log will maintain the following information as a minimum: individual's name, rank, and employee number, date arrived/departed, and reason for entry.

23.2.8.2. The log will be reviewed daily by the impoundment officer/SNCO.

23.2.8.3. The log will be maintained on a daily basis until the aircraft is released by the applicable impoundment release authority and will be disposed of only after the aircraft is successfully repaired.

23.2.9. Securing aircraft/equipment records. Each unit will develop local procedures that provide specific actions to be taken in securing aircraft/equipment historical records during impoundment including, as a minimum, that the impoundment officer/SNCO will:

23.2.9.1. Obtain and secure the current aircraft forms and the aircraft jacket file for aircraft, and the AFTO Forms 244, **Industrial/Support Equipment Record**, for equipment.

23.2.9.2. Notify the squadron owning the impounded aircraft/equipment to secure the aircraft jacket file and other applicable historical records and provide them to the impoundment officer/SNCO as soon as possible after the aircraft/equipment is impounded.

23.2.9.3. Notify the core automated maintenance system (CAMS) database manager (DBM) to isolate the aircraft/equipment serial number in CAMS in order to prevent any changes and maintain the integrity of the historical data until the aircraft/equipment is released.

23.2.9.4. Request from the squadron owning the aircraft/equipment any personnel records required to complete the impoundment investigation.

23.2.9.4.1. These records may include, but are not limited to, individual training records (AF Form 623).

23.3. Procedures.

23.3.1. Impound aircraft/equipment using the following procedures:

23.3.1.1. Following an aircraft/equipment ground or aircraft flight related mishap as defined in AFI 91-204.

23.3.1.2. When the GP/CC or director determines extraordinary measures are required to ensure the safe operating condition of a specific aircraft/equipment, following unusual operating performance or system malfunction.

23.3.1.3. Impound an aircraft/equipment by entering a Red X symbol and stating the reason for impoundment in the AFTO Form 781A or by entering a Red X symbol and stating the reason for impoundment in the AFTO Form 244.

23.3.1.4. Control and limit access to impounded aircraft/equipment and historical records.

23.3.1.5. The impounding authority will limit maintenance on impounded aircraft/equipment until the system, item, or cause is located. Once the system, item, or cause has been isolated, the impoundment authority or designated representative will determine what maintenance can be performed in conjunction with the maintenance required to release the aircraft/equipment from impoundment. Document authorized actions in the AFTO Form 781A or AFTO Form 244.

23.3.1.6. The GP/CC or director appoints an impoundment officer/SNCO or civilian equivalent to manage the impounded aircraft/equipment. Enter the impoundment official's name, rank, and squadron in the AFTO Form 781A or AFTO Form 244.

23.3.1.7. The impoundment officer/SNCO determines if maintenance analysis support is required.

23.3.1.8. If necessary, the impoundment officer/SNCO determines the need for a one-time flight according to TO 00-20-1, *Aerospace Equipment Maintenance General Policies and Procedures*, and requests authorization from the appropriate GP/CC or director.

23.4. Responsibilities. GP/CCs and directors jointly develop procedures for aircraft/equipment impoundments as outlined in AFI 21-101, *Maintenance Management of Aircraft*. In addition:

23.4.1. Designate the impoundment officer/SNCO as the single point of contact for impounded aircraft/equipment. The impoundment officer/SNCO ensures only authorized personnel have access to the impounded aircraft/equipment.

23.4.2. QA acts as the office of primary responsibility (OPR) for local impoundment directives, which at minimum, address impoundment situations, decision process, home station notification, and clearing officials. Local directives should also include procedures for segregating impounded items (e.g., roping off or placarding), forms entries, appointment and responsibilities of impoundment investigating officials, special handling or tagging of parts from impounded items sent through the repair cycle, conducting impoundment investigations across group/directorate lines, etc.

23.5. Rules of Impoundment for Explosive-Related Mishaps. When an inadvertent release or an explosive mishap is reported, the following procedures apply:

23.5.1. In-flight:

23.5.1.1. The -1 series TOs list the rules for aircrew personnel.

23.5.1.2. When the involved aircraft returns to the dearm area or parking area, the aircraft is impounded. Limit maintenance actions to those required to make the aircraft safe (e.g., complete the power-off look phase basic postflight (BPO) inspection, service fuel, take engine oil samples, and service the oil system unless the impoundment investigation requires fluid samples). Inform the appropriate GP/CC or director and the wing/base safety office of the impoundment action. If the aircraft is returning to a non-AFMC base, the pilot will comply with the intent of this instruction.

23.5.1.3. Investigate and report the incident in accordance with (according to) AFI 91-204.

23.5.1.4. Park impounded aircraft/equipment in an isolated area.

23.5.1.5. Do not change the position of any switches except as needed for safety. Limit actions to those actions required to safe the aircraft/equipment.

23.5.2. Ground:

23.5.2.1. The senior ground crew member is in charge of the aircraft/equipment until relieved. Ensure involved persons remain at the scene.

23.5.2.2. Injured persons receive attention first.

23.5.2.3. Protect other aircraft or equipment located near the incident if an explosives hazard exists.

23.5.2.4. Do not change the position of any switches except as needed for safety. Limit maintenance actions to those actions required to safe the aircraft/equipment. If applicable, perform the power-off look phase BPO, engine oil sampling, and fuel/oil servicing unless the impoundment investigation requires fluid samples.

23.5.2.5. Investigate and report the incident according to AFI 91-204.

23.5.3. The investigating officer begins recovery actions for equipment lost in flight and prevents removal of equipment released or fired on the ground. Keep items in place until the investigating officer/SNCO releases them. Photograph items prior to removal.

23.5.4. When investigating unit personnel cannot identify the cause of the failure/malfunction, request AFMC contractor technical assistance according to AFI 91-204. When assistance is requested, additional teardown of aircraft equipment by unit personnel is prohibited until authorized by higher headquarters (HHQ). If assistance is not provided in three days, HHQ may release the aircraft for further base investigation.

Section 23B—End of Runway (EOR) Inspection

23.6. General. This inspection is general in nature and is designed to detect discrepancies that occur while taxiing to the EOR by providing a last chance visual check prior to takeoff. The appropriate GP/CC will assign the functional OPR for this program. Airlift aircraft, tankers, bombers, U-2, special mission

C-135, E-3, E-4, and E-8 aircraft, and helicopters are exempt from EOR requirements. An EOR inspection may not be required on T-37 and T-38 aircraft when not loaded with munitions.

NOTE: Safing, arming, and de-arming of live munitions will be accomplished by personnel qualified according to **Chapter 8** of this instruction.

23.6.1. EOR team composition. Teams consist of a team chief and other members designated as inspectors. Units determine exact team composition in local operating instructions (OI). All inspection team members will be qualified and current in accordance with their career field education and training plan (CFETP) or AF Form 623.

23.6.2. Equipment. Units establish procedures to manage the following minimum equipment:

23.6.2.1. Team equipment:

23.6.2.1.1. Reflective vest (team chief).

23.6.2.1.2. Set of marshaling wands.

23.6.2.1.3. Wheel chocks.

23.6.2.1.4. Communications headset and ground cord (if aircraft is equipped for intercom).

23.6.2.1.5. Set of down locks/safety pins.

23.6.2.1.6. EOR checklist.

23.6.2.1.7. Fire extinguisher (according to EOR checklist).

23.6.2.1.8. Ground control talker cards/placards (optional).

23.6.2.2. Individual equipment:

23.6.2.2.1. Ear protection (single/double as appropriate).

23.6.2.2.2. Flashlight.

23.6.2.2.3. Reflective vest or belt for after sunset operations.

23.6.3. EOR inspection procedures:

23.6.3.1. Inspect in a designated area with the appropriate taxiway markings.

23.6.3.2. Inspect all items listed in applicable technical data or local checklists (LCL).

23.6.3.3. The team chief (identified by a reflective vest) carries an EOR checklist and ensures each item is inspected as required. The team chief maintains visual/verbal contact with the aircrew during the inspection. If the aircraft is equipped with a ground intercom system, the team chief will maintain verbal contact with the aircrew throughout the EOR inspection. If the aircraft is not equipped with a ground intercom system, ground control talker cards will be used when communication with the aircrew becomes necessary. Aircrew members are instructed to keep their hands in a position visible to the team chief, except when performing required checks.

23.6.3.3.1. During arm/de-arm operations, maintain verbal contact with the aircrew (if the aircraft is equipped with a ground intercom system) or use ground talker cards as necessary.

23.6.3.4. Marshaling signals will be according to AFI 11-218, *Aircraft Operation and Movement on the Ground*, and AFMC Sup 1.

23.6.4. Discrepancies discovered during the EOR will be debriefed and entered in the AFTO Forms 781A. If discrepancies are corrected without an abort (e.g., securing a loose panel), technicians account for actions in CAMS according to AFCSM 21-563, Vol 2, *Job Data Documentation*.

23.6.5. Units publish a LCL using the AFTO Form 26**, Aircraft Inspection Workcard,** for assigned and predominant aircraft when an aircraft specific EOR checklist is not published by AFMC. Publish LCLs according to AFI 21-101, TO 00-5-1, *AF Technical Order system*, TO 00-20-1, *Aerospace Equipment Maintenance General Policies and Procedures*, TO 00-20-2, *Maintenance Data Documentation*, and TO 00-20-5, *Aerospace Vehicle Inspection and Documentation*.

Section 23C—Management of Hangar Queen Aircraft

23.7. General. The purpose of this section is to encourage aggressive management of the maintenance actions required to prevent aircraft from becoming hangar queens. Managers at all levels will intensify management efforts to alleviate hangar queen conditions as soon as possible. Reporting procedures are intended to provide higher level assistance to field units. Units will supplement this section in order to cover specific local unit responsibilities.

23.8. Definition.

23.8.1. A hangar queen is an aircraft that has not flown for extended period of time. Time and possession codes are computed differently for each major command.

23.8.1.1. A hanger queen is any aircraft that has not flown for more than 90 consecutive days.

23.8.1.2. Aircraft in possession codes which indicate a status beyond local repair capability (i.e., BJ, BR, BQ, etc.) are excluded from hangar queen reporting but are not excluded from local hangar queen management procedures.

NOTE: Aircraft in BJ, BR, BQ, etc., are unit possessed. Possession is not transferred until depot accepts the TO 00-25-107, *Maintenance Assistance,* request or the aircraft is accepted by depot field team/contract field team (CFT) (i.e., speedline, time compliance technical orders (TCTO), etc). Units are exempt from hangar queen reporting for the initial 10 days after regaining possession of the aircraft upon completion of depot field team/CFT work, or depot authorized local repairs. Aircraft regained from depot possession which have not flown for 90 consecutive days and fall within the 10 day grace period are still locally managed as hangar queens. Aircraft are removed from hangar queen status when they become airborne on any type of flight.

23.8.1.3. Aircraft in possession code BT are in non-fly days and counted toward hangar queen status. For example: an aircraft arrives on station from depot 1 June and is placed in code BT for five days according to AFI 21-103. The aircraft is fully mission capable (FMC) on 6 June after completion of all acceptance inspections. If not flown by 29 August, the aircraft becomes a hangar queen.

23.8.1.4. Aircraft permanently assigned and possessed in trainer inactive code (TX) (aircraft with a G prefix) are exempt from hangar queen reporting.

23.8.1.5. Aircraft in temporary modification (T-2) and in possession code BK are exempt from hanger queen status.

23.8.2. Helicopters undergoing a 500-hour periodic inspection (PE) will not accumulate time toward hangar queen reporting during the inspection. Upon completion and sign off of the PE, the unit has 10 working days to fly the aircraft. If the helicopter has not flown by day 11, all no-fly time will count toward hangar queen reporting. If the helicopter is sent directly into refurbishment after the PE is signed off, the 10-day window will start when the refurbishment is signed off.

23.9. Responsibilities. Operations squadrons will:

23.9.1. Establish a hangar queen aircraft recovery plan. Units should form a temporary dedicated recovery team, with the dedicated crew chief (DCC) as manager.

23.9.2. Ensure in-depth QA involvement.

23.9.3. Perform a final review of all AFTO Forms 781 initiated since the last flight and prior to the first flight or functional check flight (FCF).

23.9.4. Ensure proper supervision, security, and safety for accomplishment of all maintenance actions. Expediters closely monitor all aircraft maintenance and track parts requirements.

23.9.5. Ensure strict management, control, and documentation of all cannibalizations (CANN). Authorization for CANN of parts from aircraft on hangar queen status is not delegated below the OG/CC, LG/CC, or director level.

23.9.6. Ensure applicable -6 and 00-20 series TO requirements and TCTOs are accomplished when practical.

23.9.7. In coordination with quality assurance (QA), determine the need for an FCF (if not otherwise required by the aircraft specific TO).

23.9.8. Inform the maintenance operations center (MOC) of any change in aircraft status.

23.10. Reporting. Hangar queen reporting will be as follows:

23.10.1. Maintenance operations provides the report control symbol (RCS); send hangar queen reports via message to AFMC/DOM NLT the day following the occurrence of a hangar queen condition. The message should also info HQ AFMC/LGS if aircraft parts are an issue.

23.10.2. The unit message will include:

23.10.2.1. Aircraft mission, design, and series (MDS) and tail number.

23.10.2.2. Owning squadron, date last flown, reason for hangar queen status, pacing action, parts requirements, and estimated fly date.

23.10.2.3. Total not mission capable-supply (TNMCS) information, including estimated delivery date, WUC, NSN, and off-base requisition(s).

23.10.2.4. The emergency status and precedence code C2. Continue normal reporting under emergency conditions and during MINIMIZE.

23.10.2.5. A point of contact with telephone number.

23.11. Records Management. Once an aircraft is designated as a hangar queen, freeze all aircraft, engine, and historical record files including decentralized records according to AFMAN 37-139, *Records Disposition Schedule*. The affected OS plans, scheduling and documentation (PS&D) notifies the engine man-

agement (EM) section and sections with decentralized records when an aircraft enters and releases from hangar queen status.

23.11.1. OS PS&D, the EM section, and each section with decentralized records conspicuously marks the appropriate historical records, by identifying the aircraft, engine(s), and components as a hangar queen, and freezes the disposition of records.

23.11.1.1. Additions, changes, and corrections to the records continue as normal; however, records are not destroyed and remain frozen until 30 days after the aircraft has flown.

23.11.2. Accomplish a records check of each hangar queen aircraft to ensure accurate documentation of maintenance requirements, parts requirements, and CANN actions reflect the status of the aircraft. All 781 series AFTO forms initiated since the last flight are reviewed with QA as the final review. As a minimum, accomplish records checks:

23.11.2.1. When the aircraft is initially designated a hangar queen.

23.11.2.2. Every 14 days.

23.11.2.3. Before the first flight or FCF.

23.12. Asset Management. Control removed parts to prevent unauthorized use, damage, or pilferage.

Section 23D—Hot Refueling Procedures (when applicable)

23.13. General. Hot refueling is the transfer of fuel into an aircraft having one or more engines running. The purpose of hot refueling is to reduce aircraft ground time and personnel and equipment support requirements, and increase system reliability by eliminating system shut down and subsequent restart. Refer to the following sources for additional guidance: TO 00-25-172, Ground Servicing of Aircraft and Static Grounding/Bonding (ATOS), TO 00-25-172CL-4, Checklist-Aircraft Servicing with USAF R-5, R-9, and R-11 Servicing Vehicles, and AFOSH STD 91-100, Aircraft Flightline - Ground Operations and Activities. This requirement also applies to units with training funded (TF) coded aircraft that have specific contingency taskings. Unit commanders ensure compliance with this instruction. Units will submit waiver requests to:

HQ AFMC/DOM

4375 Chidlaw Rd

Wright-Patterson AFB, OH 45433-5006

23.14. Prerequisites.

23.14.1. Hot refueling is not accomplished until the location, equipment requirements, and personnel qualifications are initially certified by an AFMC certification team according to TO 00-25-172. Units forward requests for AFMC certification to the above addresses. The following documents are required prior to hot refueling site certification:

23.14.1.1. Each proposed site will be identified by coordinates on a base map. Each facility within the distance identified in TO 00-25-172, Table 4-2, will be identified as to its use/contents and its distance in feet from the refueling site/operation. Other refueling sites, aircraft parking areas, etc., also need to be identified. All distances will be shown even if a violation exists. If there are no vio-

lations, state so in the cover letter of the site certification request. Procedures such as aircraft taxi routes should also be shown. Use arrows or dotted lines to show both entry and exit taxi directions. State any restrictions needed to comply with the TO.

23.14.1.2. State the type of equipment used for hot refueling (i.e., hose cart, truck, etc). Show the location of any fixed fuel pits and usual location of the cart or truck if used.

23.14.1.3. State whether or not all hot refueling areas comply with the quantity-distance separation requirements of AFMAN 91-201, *Explosive Safety Standards*, in relation to surrounding exposed sites/potential explosion sites.

23.14.2. Hot refueling requires detailed procedures published in appropriate TOs and LCLs.

23.14.2.1. LCLs will include, as a minimum, detailed procedures (normal and emergency) to meet requirements of the local environment.

23.14.2.2. Forward unit checklists to HQ AFMC/DOM for approval.

23.14.3. Units will publish a supplement to this section and outline local procedures and additional precautions required for hot refueling, including hot refueling with ordnance, when authorized in TO 00-25-172. Forward a copy of approved unit supplement to HQ AFMC/DOM.

23.15. Base Certification. Prior to initial implementation of hot refueling, units will be certified according to TO 00-25-172.

23.15.1. Base certification team. After initial AFMC certification, unit commanders document by position, a unit certification team to recertify existing hot refueling sites and to approve additional on-base and deployment location hot refueling sites. The base certification team consists of the following:

23.15.1.1. Field grade maintenance officer as the certifying official.

23.15.1.2. Representative from the airfield manager's office knowledgeable of the aircraft taxiways, parking ramps, and hot refuel safe distance requirements for assigned and frequently transiting aircraft.

23.15.1.3. Maintenance Air Force specialty code (AFSC) member from QA office knowledgeable of hot refueling procedures.

23.15.1.4. Safety member, 1S071 staff sergeant or above (or civilian equivalent), task qualified in site certification and knowledgeable of hot refueling operations.

23.15.1.5. Fuels management flight member, 21S3/4, or 2F071/91/00.

23.15.1.6. Civil engineering (CE) member, 3E271 (or civilian equivalent), familiar with aircraft ramp requirements for hot refueling

23.15.1.7. Fire Protection member, 3E771 (or civilian equivalent), familiar with fire protection standby requirements in TO 00-25-172 for hot refueling.

23.15.2. Identify unit-approved sites on the aircraft-parking plan. CE, QA, and the operations support squadron (OSS) maintain copies of hot refueling sites on file.

23.15.3. Each hot refueling site will be recertified by the unit recertification team and approved by AFMC/DOM when one of the following occurs:

23.15.3.1. Change in the unit MDS, or an additional MDS.

23.15.3.2. Construction of new hot refueling site(s).

23.15.3.3. Change in refueling equipment.

23.15.3.4. Change in current certified site(s).

23.16. Hot Refueling Team Members.

23.16.1. Hot refuel supervisor. Responsible for overall supervision of hot refueling operations when two or more aircraft are simultaneously hot refueled (multiple hot refueling). Possesses a 5-skill level or higher in an aircraft maintenance AFSC (or civilian equivalent) and is hot refueling supervisor A member qualified or a qualified flight engineer for the UH/HH-60G aircraft.

23.16.2. Hot refuel supervisor A member. Hot refuel task qualified capable of supervising a hot refuel crew. Possesses a 5-skill level or higher in an aircraft maintenance AFSC (or civilian equivalent) and 1 year of flightline aircraft maintenance experience or is a qualified flight engineer for the UH/HH-60G aircraft.

23.16.3. Hot refuel crew B member. Hot refuel task qualified and possesses a 3-skill level or higher in an aircraft maintenance AFSC (or civilian equivalent) and 1 year of flightline aircraft maintenance experience or is a qualified flight engineer for the UH/HH-60G aircraft.

23.16.4. Fuels specialist C member. Hot refuel task qualified and possesses a 3-skill level or higher qualification (or civilian equivalent).

23.16.5. Additional hot refuel crew D member. Hot refuel task qualified and possesses a 3-skill level or higher in an aircraft maintenance AFSC (or civilian equivalent). Use D members as required in applicable aircraft technical data.

23.16.6. Hot refueling team members and QA certifiers/evaluators may be multi-MDS qualified when more than one weapons system is permanently assigned to a unit. After initial certification on each MDS, personnel must update their hot refueling currency by performing hot refueling on any weapon system. Section chiefs ensure personnel maintain proficiency on each assigned MDS.

23.17. Capability. OSs with combat coded aircraft will form a minimum of three qualified hot refueling crews. Maintenance squadron (MXS), equipment maintenance squadron (EMS), or component repair squadron (CRS) maintenance personnel may be used. OSs with TF coded aircraft maintain a minimum of two qualified crews. Units will ensure sufficient crews are trained to meet contingency requirements.

23.17.1. Each base fuels management flight maintains a minimum of three hot refueling certified fuels specialists for each OS authorized to conduct hot refueling.

23.18. Training/Certification.

23.18.1. Conduct qualification training of hot refueling personnel in three distinct phases. Stress safety requirements, emergency procedures, and equipment inspection in all three phases of training. Procedures in TO 00-25-172CL-4 are taught to hot pad supervisors, refuel supervisors (A member), and fuels specialists (C member). Conduct all phases of training in joint sessions including 2F0X1 personnel and all maintenance AFSCs. Jointly teach training sessions using both fuels (2F0X1) and

maintenance AFSC instructors. The logistics training flight (LTF), QA, or OSS inspection/systems support section should act as training OPR for the program.

23.18.1.1. Phase I – Familiarization phase. Designated instructors familiarize trainees with applicable technical data, procedures, and guidance for hot refueling. Place special emphasis on procedures for hot refueling with ordnance loaded, when authorized.

23.18.1.2. Phase II - Hands-on phase. Apply information learned in Phase I to develop in-depth knowledge and proficiency in all facets of hot refueling. Include proper operation, preventive maintenance, use of hand signals, and emergency procedures. Training simulates hot refueling by performing all hot refueling tasks without aircraft engine(s) running. Designated instructors demonstrate tasks, then require trainees to perform tasks and practice emergency procedures. Instructors then critique performance and provide additional training as required.

23.18.1.3. Phase III - Demonstration/certification phase. Actual demonstration of hot refueling under the supervision of designated certifiers with aircraft engine(s) running. Trainer/evaluator/certifier (T/E/C) or QA augmentee certifies individuals upon successful demonstration of hot refueling.

23.18.2. In coordination with LG and OG QA, identify personnel as QA augmentees to train, evaluate, and certify OS hot refueling team members. Limit augmentees to two primary and an alternate per OS. QA will ensure augmentees conduct evaluations using procedures outlined in this section, applicable aircraft TOs, and local procedures. Augmentees will be certified by a T/E/C or AFMC site certification team.

23.18.3. H-60 aircrew members will trained/certified according to formal school courseware.

Table 23.1. Hot Refueling Training/Certification Requirements.

Hot Refueling Refuel personnel Certification/Recertification Requirements					
Position	**Required Training**	**Conducted by Whom**	**Do What**	**Proficiency Requirements**	**Special Requirements**
T/E/C	I, II ,III	Wing	Perform	2 Hot Refuels Semi-annually, AFRES/ANG Annually	Annual Evaluation by QA OIC/ NCOIC
QA Augmentee	I, II, III	QA T/E/C	Perform	2 Multiple Hot Refuels Semi-annually, AFRES/ANG Annually	Annual Evaluation by QA T/E/C EPE Required
Hot Pad Supervisor	I, II, III	T/E/C OR QA Augmentee	Supervisor or Perform as "A" Member	2 Multiple Hot Refuels Semi-annually, AFRES/ANG Annually	Annual Evaluation by T/E/C or Augmentee
Hot Refuel A, B, C, D Member	I, II, III	T/E/C or QA Augmentee	Perform in any Qualified Position	2 Hot Refuels Semi-annually, "C" Annually, AFRES/ ANG Semi-annually	Annual Evaluation by T/E/C or Augmentee

Hot Refueling Refuel personnel Certification/Recertification Requirements					
Position	**Required Training**	**Conducted by Whom**	**Do What**	**Proficiency Requirements**	**Special Requirements**
Decertified Augmentee or Hot Pad Supervisor	Repeat II, III	QA T/E/C	Perform, Supervise, and Certify	2 Multiple Hot Refuels Within 30 Days of Decertification, AFRES/ANG Semi-annually	EPE Required for Augmentee
Decertified A,B,C,D	Repeat II, III	T/E/C or QA Augmentee	Perform	2 Hot Refuels within 30 Days of Decertification, AFRES/ANG Semi-annually	None
Decertified QA T/E/C	Repeat II, III	QA T/E/C	Perform, Instruct, and Certify	2 Hot Refuels Within 30 Days of Decertification, AFRES: 60 Days, ANG: 90 Days	EPE Required
All Personnel Decertified	Repeat I, II, III	MAJCOM	Perform	N/A	Determined case by case MAJCOM
Legend: EPE - Evaluator Proficiency Evaluation T/E/C - Trainer/Evaluator/Certifier					

23.19. Personnel Certification/Decertification.

23.19.1. Decertified personnel will obtain recertification within 30 days of the decertification date or repeat hot refuel training Phases I, II, and III.

23.19.2. Additional training/certification requirements for hot refuel team members, supervisors, trainers, evaluators, and certifiers are outlined in **Figure 23.1.**

23.19.3. Document training/proficiency for personnel performing, evaluating, supervising, or instructing hot refuel operations as follows:

23.19.3.1. Document all aircraft maintenance and 2F0X1 personnel Phase I, II, and III initial training in the job qualification standard (JQS). For AFSCs where refuel aircraft with engines operating is not contained in the JQS, use the AF Form 797 to document initial hot refuel training. Track recurring hot refuel certification in CAMS.

23.19.3.2. 2F0X1 personnel use the AF Form 1098, **Special Task Certification and Recurring Training**, to document Phase I, II, and III initial and recurring hot refuel training. Indicate multiple practical performances by placing a number before the letter in Column F. Only two performances per day require documentation. For example, a 2/P for an A team member indicates an individual performed two hot refuels as the supervisor. For technical sergeant and below, file the AF Form 1098 in the individual's AF Form 623 or CFETP.

23.19.3.3. Enter, by position, all personnel qualified to perform hot refueling on the special certification roster (SCR) (e.g., hot pad supervisor, hot refuel supervisor (A position), team member (B or D position).

Section 23E—Transfer of Aircraft and Aerospace Ground Equipment (AGE)

23.20. General. Commanders/directors are responsible for ensuring compliance with this instruction. The following references are used to complete transfer of aircraft and equipment: TO 00-20-1, TO 00-20-5, TO 00-20-7, Inspection System, Documentation, and Status Reporting for Support and Training Equipment, TO 2-1-18, Aircraft Engine Operating Limits and Factors Operating Limits and Pipeline Times, AFI 21-103, Equipment Inventory, Status, and Utilization Reporting, and applicable -6 and -21 TOs. OSS PS&D, and analysis sections from affected units will coordinate CAMS transfer requirements according to AFCSM 21-567 Vol 2, Equipment/Personnel Transfer and Rehome Procedures. Any deviations from the prescribed procedures in this chapter will be documented in a memorandum of agreement (MOA) between the affected units and approved by HQ AFMC/DOM.

23.21. Procedures for Aircraft Transfer.

23.21.1. As a minimum, transfer inspections will be accomplished according to TO 00-20-1 and the procedures described in this section. The losing unit will:

23.21.1.1. Accomplish a complete aircraft -21 equipment inventory.

23.21.1.2. Fill out the applicable forms according to AFI 21-103.

23.21.1.3. Ensure a minimum of 50 percent of time (hours/days) to next inspection is remaining at time of transfer. For example, an aircraft with a 100-hour phase cycle requires a minimum of 50 hours remaining until the next due phase/PE/hourly postflight (HPO) inspection at the time of the transfer.

23.21.1.4. Ensure a minimum of 10 percent of engine time, cycles, or sorties are remaining before periodic inspection of time change items (TCI) at time of transfer. For example, an aircraft with a 1,200-hour engine time change requires a minimum of 120 hours remaining until the next due engine change. F-100 core and high pressure turbine modules require a minimum of 200 cycles remaining.

23.21.1.5. Ensure engines with maximum operating time limits meet transfer requirements established in TO 2-1-18, Tables 2.1, 2.2, and 2.3, column 4.

23.21.1.5.1. Ensure engines with no maximum operating time limit have at least three additional months of useful life remaining. For example, F-100 modules require a minimum of 150 cycles remaining and components require 50 hours remaining at time of transfer.

23.21.1.6. Ensure all engines have a complete borescope inspection accomplished unless a borescope was accomplished within the last 10 aircraft flying hours.

23.21.1.7. Verify that TCIs have a minimum of 60 days or 50 hours remaining at time of transfer.

23.21.1.8. Verify all special inspections (SI) have at least 25 percent of the usable time remaining at time of transfer.

23.21.1.9. Correct all discrepancies, excluding those requiring depot maintenance, when parts are available or not required.

23.21.1.10. Comply with all outstanding organizational and intermediate-level TCTOs when kits are available or not required.

23.21.1.10.1. De-modify any T-2 or local modification unless previously coordinated with the gaining unit.

23.21.1.11. Complete a thorough foreign object (FO) inspection prior to transfer of aircraft.

23.21.1.12. Include two copies of the CAMS pilot reported discrepancy (PRD) report (NFS1SO screen 179) for the previous 90-day period in the aircraft records file.

23.21.1.13. Wing PS&D will generate two copies of the following products and forward one copy of each to the gaining unit not later than (NLT) 30 days before the aircraft is scheduled to be transferred. Annotate changes in red on the remaining copy and include it with the aircraft record jacket file at time of transfer.

23.21.1.13.1. Automated records check (ARC).

23.21.1.13.2. Transfer of equipment (TRE) for aircraft and engine(s).

23.21.1.13.3. Significant history data (SHD) for aircraft and engine(s) conformal fuel tanks (CFT), weapons bay tanks (WBT), and external fuel tanks (EFT).

23.21.1.13.4. AFTO Form 427, **Aircraft Integral Fuel Tank Repair Historical Record**, or AFTO Form 428, **B-1B Aircraft Integral Fuel Tank Repair History Record**.

23.21.1.14. Publish a LCL with procedures for aircraft transfer inspections. LCLs will use the procedures stated in this chapter as a minimum.

23.21.1.15. Paragraphs **23.21.1.2.-23.21.1.4.** and **23.21.2.7.** may be waived with prior agreement between gaining and losing units.

23.21.1.15.1. The losing and gaining unit's LG/CC, OG/CC, or director will determine which areas will be waived.

23.21.1.15.2. A coordinated LG/OG message stating what requirements are waived will be sent to the gaining unit a minimum of 30 days before the aircraft is to be transferred.

23.21.1.15.3. A copy of all waiver requests of transfer inspection requirements, or those requirements not specifically adhered to according to with this instruction, will be forwarded to HQ AFMC/DOM for approval.

23.21.2. Accomplish the following according to AFI 21-103 and applicable aircraft -6 TOs. Unless previously coordinated and approved by the appropriate unit senior leadership from both losing and gaining units, and losing and gaining MAJCOM aircraft maintenance functional managers, the gaining unit will:

23.21.2.1. Complete an aircraft -21 series TO equipment inventory.

23.21.2.2. Perform a BPO (phase/periodic concept), thruflight (isochronal (ISO)), 10 Hour, 14 day (For H-60), or home station check (HSC).

23.21.2.2.1. Use the HSC for the C-130.

23.21.2.3. Complete a 100 percent egress system cartridge actuated device/propellant actuated device (CAD/PAD) inspection, with the exception of B-1 and B-2 aircraft.

23.21.2.3.1. For these aircraft, all visible components will be inspected.

23.21.2.4. Load the automated history event for aircraft and engine(s). Load modules and components if sufficient space remains in the base level computer.

23.21.2.5. Publish a LCL with procedures for aircraft acceptance inspections.

23.21.2.5.1. As a minimum, local procedures will include the procedures identified in paragraph **23.21.2.**

23.21.2.5.2. Ensure comprehensive inspection criteria include depot and contractor maintenance requirements.

23.21.2.6. Establish transfer/acceptance inspection teams, including QA. This requirement may be waived with prior agreement between gaining and losing units.

23.21.2.7. Perform an acceptance inspection to determine equipment condition and adequacy of depot or contractor maintenance as prescribed in TO 00-20-1 and TO 00-35D-54, *USAF Materiel Deficiency Reporting and Investigating System*. The LG/CC, OG/CC, or director will determine the level of QA involvement in this inspection.

23.22. Status Reporting. Accomplish status reporting according to AFI 21-103.

23.23. Procedures for AGE Transfer. In addition to the inspection requirements in TO 00-20-7 and TO 35-1-4, *Processing and Inspection of Support Equipment for Storage and Shipment*, QA may perform an assessment on each AGE item. The inspection includes a complete records check. When the capability exists, ensure all discrepancies are corrected prior to equipment transfer. Annotate in the equipment forms any discrepancy not corrected due to lack of parts.

Section 23F—Identification, Friend or Foe (IFF), Mode 4 Reliability

23.24. General. An operable Mode 4 is required for every equipped fixed and rotary wing aircraft sortie, with the sole exception of missions where this requirement would preclude the accomplishment of essential training or special tests. The OG or LG (depending on the organizational assignment of this function) Mode 4 manager will establish a program to ensure accomplishment of Mode 4 testing. The program:

23.24.1. Includes local record keeping procedures.

23.24.2. Includes procedures to notify aircrew members of check results and effect repairs on aircraft having discrepancies.

23.24.3. Will require operational Mode 4 checks to be performed before and during the flight on at least 70 percent of possessed aircraft monthly (resources permitting).

23.24.4. Requires standardization documentation of code insertion in aircraft forms.

23.24.5. Includes procedures for performing pre-launch Mode 4 checks.

23.24.6. Should be combined with radar warning receiver (RWR) systems program at OG/CC or LG/CC option.

23.24.7. Will maintain testing data on hand for a minimum of 180 days.

23.24.8. Deviations are authorized as follows:

23.24.8.1. E-3 aircraft front to back Mode 4 testing is adequate for the preflight when the back end crew is present. Local flights performed without back end crew will perform external preflight Mode 4 tests prior to the sortie.

Section 23G—Radar Warning Receiver (RWR) Testing

23.25. General. The OG/CC will assign the functional OPR for this program. A minimum of 70 percent of possessed aircraft will be checked monthly. RWR systems evaluated by an EW range should be included as part of the requirement. If aircraft availability is a limiting factor (LIMFAC) in meeting this requirement, it will be documented as such. Discrepancies detected during pre-launch checks will be documented in the aircraft forms and CAMS. If discrepancies are flyable and not mission degraded this should be accomplished at time of postflight debriefing. Develop LCLs to provide step-by-step procedures. The checklist will be coordinated with the wing electronics combat officer and the MXS (if applicable). As a minimum, the LCLs will include:

23.25.1. Procedures for coordinating with the electronics combat officer for the selection and checking of a minimum of one signal for all three bands and constant wave (if equipped).

23.25.2. Procedures for sign or voice communication between a pre-launch team member and the aircrew to validate system operation and system failures.

23.25.3. Procedures for record keeping and performance follow-up checks of aircraft failing pre-launch RWR checks.

NOTE: B-1, B-52 and C-130 aircraft are exempt during non-combat operations. However, flight crews of these aircraft are responsible for ensuring RWR systems are operationally checked while airborne and any discrepancies will be debriefed and entered in the aircraft forms.

Section 23H—Foreign Object Damage (FOD) Prevention Program

23.26. General. The vice wing commander (WG/CV) is responsible for ensuring an effective FOD prevention program is established. The purpose of the FOD prevention program is to reduce the FOD hazard to aerospace equipment and aircraft. All personnel, to include military, civilian, and contractors working in, on, around, or traveling through areas near aircraft, munitions, AGE, engines, or components thereof will comply with this section. This section augments AFI 21-101 and AFMCI 21-122, Foreign Object Damage (FOD) Prevention Program. This section establishes minimum requirements for an effective and meaningful FOD prevention program.

23.27. Definition.

23.27.1. Foreign object damage (FOD). Any damage to an aircraft engine, system, or tire caused by an external FO that may or may not degrade the required safety and/or operational characteristic of the engine/aircraft systems or tires.

23.27.2. FOD prevention program manager. The wing/base single point of contact for all FOD issues who administers the program on a daily, full time basis. It is synonymous with the term wing FOD monitor in AFI 21-101 and FOD awareness and prevention officer in AFMCI 21-122.

23.28. FOD Prevention Responsibilities.

23.28.1. The WG/CV is the chairperson of the wing FOD prevention committee. The intent of placing the FOD prevention program oversight at the wing level is to emphasize that FOD prevention is a team effort requiring support from all base units. The chairperson will:

23.28.1.1. Ensure an effective FOD prevention program is established.

23.28.1.2. Chair the quarterly wing FOD prevention committee meeting.

23.28.1.3. Appoint a wing FOD prevention program manager who will be assigned on a full time basis, reporting directly to the chairperson. The individual assigned will be in the grade of master sergeant or above possessing a 7 or 9-skill level in the 2A6X1A/B AFSC (or civilian equivalent). The individual assigned will attend the Jet Engine Mishap Investigation course.

23.28.1.4. Assign duties and responsibilities to the FOD prevention program manager to ensure all personnel having access to the maintenance areas enforce an effective FOD prevention program.

23.28.1.5. Approve additional duties for the FOD prevention program manager.

23.28.1.6. Ensure tenant units appoint a unit FOD prevention program manager for their units and are actively involved on the host wing's FOD prevention program/committee.

23.28.1.7. Ensure wing detachments establish a FOD prevention program and provide FOD reports to the parent wing's FOD prevention program manager.

23.28.1.8. Ensure group and squadron commanders, directors, division chiefs, maintenance officers, superintendents, and supervisors give full support to the FOD prevention program.

23.28.1.8.1. Ensure the OG/CC and LG/CC establish periodic FOD briefings for all assigned aircrew members by the wing FOD monitor or QA. These briefings should be included in aircrew meetings to maximize aircrew awareness.

23.28.1.9. Ensure the wing submits maintenance crosstell reports by message to AFMC/DOM and to all units with like MDSs for incidents that have a FOD potential for the fleet.

23.28.2. The wing FOD prevention program manager is the wing/base single point of contact for all FOD issues. To effectively manage the program, the wing FOD prevention program manager will:

23.28.2.1. Ensure wing compliance of the FOD section of AFI 21-101, AFMCI 21-122, and this instruction.

23.28.2.2. Provide local guidance to ensure that each FOD mishap is investigated and action taken to solve any underlying problems.

23.28.2.3. Review all unit FOD mishap reports and analyze the reports and other data for trends that identify areas requiring management action.

23.28.2.4. Coordinate FOD prevention needs with the airfield manager and other agencies when construction is in progress on or near the flightline or other areas where FOD incidents could occur.

23.28.2.5. Ensure engine inlet run-up screens and antipersonnel guards are used according to applicable technical data and/or OIs.

23.28.2.6. Ensure QA inspection checklists/evaluations include FOD prevention.

23.28.2.7. Inform all unit agencies of FOD hazards.

23.28.2.8. Develop procedures to document and perform spot checks of selected areas each week.

23.28.2.9. Be a member of each FOD investigation and ensure that corrective actions are sound.

23.28.2.10. Monitor and recommend changes (as required) to FOD prevention training.

23.28.2.10.1. Units possessing multiple MDS aircraft will develop a single FOD prevention training program encompassing MDS specific requirements.

23.28.2.10.2. Training will be provided to all personnel identified in paragraph **23.28.3.1.**

23.28.2.10.3. FOD awareness training should also be incorporated into driving authorization procedures.

23.28.2.11. Ensure evaluated or repaired FOD is documented in the AFTO Form 95 and according to TO 00-20-5.

23.28.2.12. Report damaged pavement, flightline construction, or other hazards in or near aircraft parking ramps or taxiways to the airfield manager and the ground/flight safety representative. Monitor status to ensure timely repairs.

23.28.2.13. Provide copies of FOD reports and FOD meeting minutes to HQ AFMC/DOM.

23.28.2.14. Attend the jet engine mishap investigation course.

23.28.3. Unit commanders and division chiefs will:

23.28.3.1. Ensure all maintenance, operations, base support, and contractor personnel who work in, around, or drive through maintenance and/or operational areas are familiar with local FO hazards and FOD prevention procedures.

23.28.3.2. Ensure FOD training is conducted according to AFMCI 21-122.

23.28.3.3. Appoint a qualified noncommissioned officer (NCO) or above, (or civilian equivalent) with at least eight or more years experience in the aircraft maintenance field to the position of FOD monitor and ensure her/his name is be posted in a prominent place within the unit. FOD monitors should attend the jet engine mishap investigation course.

23.28.3.4. Ensure an initial FOD awareness and responsibilities briefing is given to all newly assigned personnel.

23.29. FOD Prevention.

23.29.1. FOD prevention is everyone's responsibility. As such, all personnel will, as a minimum, comply with the following FOD prevention procedures in addition to those listed in AFI 21-101 and AFMCI 21-122:

23.29.2. While maintenance is being performed on aircraft, uninstalled engines, and AGE, openings, ports, lines, hoses, electrical connections, and ducts will be properly plugged or capped to prevent FOs from entering these systems.

23.29.3. At no time will items (e.g. aircraft forms binders, video tape recorder (VTR) tapes, checklists, etc.) be placed in or on engine intakes.

23.29.4. Prior to performing structural maintenance in the engine intake, the engine inlet will be sealed off using barrier paper and masking tape (or equivalents).

23.29.5. Prior to engine start and after engine shut down, maintenance ground or test cell runs, and any engine intake maintenance, each engine intake and exhaust will receive a FOD inspection.

23.29.5.1. Installed: The FOD inspection will be documented with a Red X symbol in the AFTO Form 781A.

23.29.5.2. Uninstalled: The FOD Inspection will be documented as a separate inspection on the test cell worksheet.

23.29.5.3. Intake covers will be installed at all times except for engine operation or intake inspection maintenance.

23.29.5.4. Engine, aircraft pitot, and seat pitot covers should remain installed on aircraft until as close to crew show as possible based on MDS and local conditions.

23.29.6. Use extreme care during engine ground runs. Pilot and aircrew awareness during ground operations (i.e., taxiing and turning) is required.

23.29.6.1. Jet blast and helicopter hover power check areas will be free of debris that could cause FOD.

23.29.7. Layout dye will be controlled in the duty section.

23.29.7.1. Only qualified 7-skill level production inspector personnel will be allowed to obtain the dye for marking damaged fan/compressor blades or marking dented tubing.

23.29.7.2. Sections utilizing layout dye will maintain a current list of personnel who are authorized to sign it out.

23.29.8. Units will develop local procedures to ensure newly assigned structural maintenance technicians are trained and certified on engine intake maintenance.

23.29.8.1. The maintenance superintendent (MS) will appoint certifying officials.

23.29.9. Units will develop a local OI outlining procedures for rivet replacement in engine intakes/inlets.

23.29.9.1. Include these procedures as part of the FOD orientation/familiarization for personnel working in these areas.

23.29.9.2. Include workorder residue control procedures for all maintenance performed in and around intake areas.

23.29.10. Use a light source of sufficient illumination to inspect the aircraft intakes and exhaust for FOs/damage.

23.29.10.1. In addition, a pocketless, zipperless, and buttonless bunnysuit, footcovers, and booties will be worn whenever physical entry into an aircraft intake or exhaust is required.

23.29.10.2. Suits are not required to be worn on large multi-engine aircraft during engine inlet/exhaust inspections if personnel do not physically enter these areas.

23.29.10.3. When performing intake inspections while wearing a chemical ensemble, ensure all pockets are emptied, accessories removed, and when personnel are available, another technician visibly confirms all loose objects have been removed.

23.29.11. Flashlights with clips will have the clips removed prior to use on or around aircraft, uninstalled engines, and AGE.

23.29.12. All maintenance production areas will have approved FO containers readily accessible to workers.

23.29.12.1. Support shops (i.e., metals processing, propulsion, and AGE) may locally manufacture small FO collection cans that can be used when an area collection can is not feasible.

23.29.12.1.1. Support shop containers will also be marked with the "FOD" identification letters.

23.29.12.1.2. All support shop containers will be emptied when full, or once a day, whichever comes first.

23.29.13. Special emphasis is required for items such as remove before flight streamer attachment, safing pin condition, hinge pin security, dust and FO prevention cover condition/security and aircraft forms binder condition.

23.29.14. Pilots and aircrew members will account for all equipment and personnel items after each flight and ensure that any items lost during flight are documented in the AFTO Form 781A.

23.29.14.1. Maintenance personnel will enter a Red X in the AFTO Form 781A grounding the weapon system.

23.29.14.2. The aircraft will remain impounded until every effort has been made to retrieve the lost item. When possible, units should use FO preventative cables, or similar items, in lieu of snap rings.

23.29.15. When an item is lost or suspected lost within the immediate vicinity in or around an aircraft, the aircraft will be immediately grounded and lost tool checklist procedures will be initiated according to this instruction.

23.29.15.1. If the lost item is not found, the aircraft will be impounded, reference **21.9.2.4.**

23.29.16. Units will develop local procedures for rag control/accountability according to **Chapter 21** of this instruction for personnel performing on-equipment aircraft maintenance, jet engine maintenance, and other areas as designated by GP/CCs and directors.

23.29.17. Grounding clips/points:

23.29.17.1. Two allen head screws (or equivalent) will be utilized to secure the cable to a grounding clip. Unused screws will be removed.

23.29.17.2. Aircraft parking ramp grounding points will be kept clean of debris at all times and should be a high interest area for FO walks.

23.29.18. Vehicles:

23.29.18.1. Use of magnetic bars on the flightline is highly recommended. The magnetic bars will be towed by, or attached to, selected vehicles primarily used on the flightline.

23.29.18.1.1. During inclement weather these bars should be removed if considered a hazard; however, they will be reinstalled when weather conditions improve.

23.29.18.1.1.1. During this period, increased vigilance and FOD walks should be used until bars are reinstalled.

23.29.18.1.2. Magnetic bars will be inspected and made FOD free prior to the beginning of each shift.

23.29.18.2. Vehicle operators will perform a visual FOD inspection on all equipment and tires prior to entering flightline areas.

23.29.18.2.1. A locally manufactured tool for removing debris from tire treads is authorized for use. The tool will have the vehicle identification (ID) number on it and be attached to the vehicle key ring.

23.29.18.3. All vehicles normally driven on the flightline will be equipped with lidded FO containers with "FOD" stenciled in contrasting colored letters not smaller than two inches.

NOTE: Coordinate with transportation squadron prior to modifying vehicles.

23.29.18.3.1. All vehicle containers will be emptied when full, or once a day, whichever comes first.

23.29.19. Each base will develop a local policy governing the proper wear of the uniform and clothing articles on the flightline and display/security of line badges. Climate and safety will be considered.

23.29.19.1. Hats will not be worn within the danger area of an operating jet engine.

23.29.19.2. All personnel will remove the AF Form 1199, **USAF Restricted Area Badge**, when performing intake/exhaust inspections or within 25 feet of an operating jet engine.

23.29.19.2.1. Restricted area badges will be secured to the uniform with a subdued nylon/cotton cord (to prevent the loss of an attached metal clip pass the cord through the clip eyelet).

23.29.19.2.2. The restraining cord is NOT optional for aircrew members.

23.29.19.2.3. A plastic armband should be used in place of the nylon/cotton cord.

23.29.19.3. Metal insignias/badges will not be worn with the battle dress uniform or outerwear on the flightline or in aircraft maintenance areas.

23.29.19.3.1. Escorts of visiting personnel will ensure that FOD prevention measures are taken.

23.29.19.4. Security forces, while performing official duties, may wear the beret with insignia attached; however, when they are within 50 feet of an operating aircraft, their berets will be removed and secured.

23.29.19.5. Wigs, hairpieces, metal hair fasteners, necklaces, and earrings will not be worn on the flightline.

23.29.20. When FOD is discovered on a transient aircraft or a queen bee/engine regional repair center (ERRC) engine, the host FOD monitor will notify the owning organization within 24 hours.

23.29.20.1. An informational copy of the FOD incident will be provided to the owning organization's safety office to ensure compliance with AFI 91-204. Aircrews will ensure proper documentation in the AFTO 781A has been completed prior to engine start.

23.29.20.2. If an intake inspection cannot be performed, an entry will be made in the AFTO 781A stating "No intake inspection completed prior to engine start."

23.29.20.3. Entry will be entered on a Red Dash.

23.29.21. Remove metal bands from tubing (except aircraft installed egress system components), cables on the aircraft, and cargo tie down chains/devices prior to use around aircraft.

23.29.21.1. Hydraulic lines will be marked according to TO 42E-l-l-l, *Identifying and Marking Tubing.*

23.29.22. Personal tools (e.g., mini-mag flashlights, leathermans, buck knives, etc.) are not authorized for use on the flightline or in any maintenance area.

23.29.22.1. Government tools permanently assigned to individuals will be marked according to AFMCI 21-107, *Tool Control and Accountability Program*, and **Chapter 21** of this instruction.

23.30. FOD Investigation and Reporting.

23.30.1. When suspected or confirmed FOD incidents are discovered, personnel will immediately notify the MOC. The MOC will in turn notify QA. All aircraft/equipment sustaining FOD damage will be impounded by the appropriate OG/CC, LG/CC, or director according to the impoundment procedures in paragraph **23.3.** of this chapter. Nicked blades within acceptable TO repairable limits may not require impoundment.

23.30.2. FOD accountability will be according to the following guidance:

23.30.2.1. When transient/deployed aircraft incur FOD, the host unit will conduct the investigation and notify the owning organization within 72 hours.

23.30.2.2. The owning organization is responsible for FOD incidents and investigations on transient aircraft/engines when one of the following conditions applies:

23.30.2.2.1. FOD is discovered upon arrival at a transient base with no intermediate stops or prior to any engine run.

23.30.2.2.2. FOD is found during initial tear down on queen bee/ERRC engines.

23.30.2.2.3. When the owning organization's maintainers are deployed with the aircraft and the FOD is a direct result of transient/deployed unit negligence.

23.30.2.3. FOD discovered by transient alert facilities or by depot and contractor facilities during acceptance inspections will be charged to the base from which the aircraft last departed if a FOD inspection was not accomplished/documented and there were no intermediate stops.

23.30.3. HQ AFMC/DOM will assign accountability in instances where conflict/peculiar circumstances occur.

23.30.4. The following actions will be performed on F-15 aircraft sustaining engine FOD caused by an unknown source:

23.30.4.1. Extend the variramps, thoroughly inspect all accessible components and areas within the variramp cavity, close the variramps, X-ray the variramps and lower louver areas according to the applicable TO, then compare these X-rays with previous X-rays of the aircraft to determine movement or missing items.

23.30.5. When FOD is suspected on an aircraft engine, a borescope inspection will be accomplished according to TO procedures. Additionally, a borescope inspection will be accomplished when any of the following occur:

23.30.5.1. When engines are determined to have FOD damage requiring blending per applicable technical data.

23.30.5.1.1. If blades are blended, or determined not to require blending, mark inspected/repaired areas with blue dye and document the AFTO Form 95 indicating the area and work accomplished.

23.30.5.2. When hardware/material forward of the engine inlet is found missing.

23.30.5.3. When a birdstrike has occurred forward of or near the aircraft engine intake.

23.30.6. For Class A and other mishaps, investigation personnel will coordinate with the wing or base safety office to ensure AFI 91-204 requirements are met.

23.30.7. FOD incidents are classified as preventable and non-preventable. Only preventable FODs over $5K (parts and labor) are chargeable. FODs are considered preventable except those identified in AFI 21-101 as listed below:

23.30.7.1. Caused by natural environment or wildlife. This includes hail, ice, animals, insects, and birds. Report this type of damage according to AFI 91-204. Do not include it in FOD rates.

23.30.7.2. From internal engine material failure, as long as damage is confined to that engine.

23.30.7.3. Caused by materiel failure of an aircraft component if the component failure is reported as a DR using the combined mishap DR reporting procedures of AFI 91-204 and TO 00-35D-54.

23.30.7.4. Found during depot overhaul for maximum operating time.

23.30.8. Additionally, the following concerning FOD incidents apply:

23.30.8.1. Engine damage caused by improper anti-ice/de-ice procedures by either flight or ground crews are considered preventable.

23.30.8.2. Engine damage caused by gunnery or rocket mission ricochets is considered non-preventable provided mission parameters were not exceeded and range cleaning was sufficient.

23.30.8.3. Helicopter engine damage caused by rocks, stones, wood, or other objects ingested during low hover operations are considered non-preventable, provided mission parameters were not exceeded.

23.30.8.4. Preventable FOD incurred at the test cell or trim pad will be chargeable against the unit's rate.

23.30.8.5. HQ AFMC/DOM will assist in resolving any FODs that are questionable (i.e., preventable or non-preventable).

23.30.8.6. The wing FOD monitor will report preventable and non-preventable (over $5K) FOD incidents to HQ AFMC/DOM and AFMC/LGPP FOD manager initially by telephone followed by fax or e-mail as soon as the damage is known, but NLT 24 hours after the occurrence.

23.30.8.6.1. Each unit will establish their own FOD control numbers as follows: unit designator, fiscal year, and a three-digit number (e.g., for example, 30G95001).

23.30.8.7. The preventable FOD standard for AFMC is 3.0.

23.30.8.8. FOD rates are computed as follows: number of preventable FODs (damage exceeding $5,000) divided by aircraft flying hours times 10,000 equals the FOD rate.

23.30.8.9. Each wing FOD monitor will submit FOD quarterly reports to HQ AFMC/DOM by message, e-mail, or fax. Reports will be in the following format:

NOTE: Units will also submit a copy of this report to AFMC/SEG NLT the 15th day of a new quarter. The report will include monthly cumulative FOD data.

23.30.8.9.1. Number of preventable and non-preventable FODs (damage exceeding $5K).

23.30.8.9.2. Causes of preventable and non-preventable FODs.

23.30.8.9.3. Cumulative cost of preventable and non-preventable FODs.

23.30.8.9.4. MDS flying hours.

23.30.8.9.5. Calculated unit FOD rate by MDS and current cumulative fiscal year FOD rate.

23.30.8.10. Locally developed FOD mishap investigation checklists should be used to enhance FOD investigations.

23.30.8.11. The wing safety office, in coordination with the wing FOD monitor, will submit mishap reports according to AFI 91-204.

23.31. FOD Prevention Committee Meeting.

23.31.1. Wing FOD prevention committee meetings ensure the FOD prevention program is sound and meeting unit needs. Meetings will be conducted monthly when the unit exceeds the established standard, and quarterly if the unit FOD rate is less than the established standard. The meeting will identify negative trends and develop action plans to resolve them. The meeting should also be used to recognize personnel making significant contributions to FOD prevention, (i.e., golden bolt program, FOD poster contests, or other FOD recognition programs locally developed at each unit). The WG/CV is the committee chairperson at all wings. The OG/CC will chair the meeting in the absence of the WG/CV. Minimum attendee representation is OG/CC, LG/CC, director(s), safety, CE, and security forces. The chairperson should designate additional attendees (agencies, detachments, etc.) as required. The host base FOD prevention committee chairperson will direct/incorporate tenant units in the host unit program. Tenant units should establish their own unit FOD committee, but will still participate in the host program and comply with host program requirements.

23.31.2. In addition to the agenda items listed in AFMCI 21-122, the minutes will include as a minimum:

23.31.2.1. List of attendees and absentees. Attendees' list will identify the wing FOD prevention program manager and provide functional address symbol and duty phone number for all personnel.

23.31.2.2. Total number of airframe, engine, and tire FOD incidents during the reporting period. Indicate quantity and cause. Current status of all other pending incidents will be discussed.

23.31.2.3. Mechanical/vacuum sweeper status.

23.31.2.4. Review and refinement of the existing FOD prevention program.

23.31.2.5. New operational directives/actions established to minimize FOD.

23.31.2.6. Status and condition of applicable engine run-up screens.

23.31.2.7. Results of X-rays for FOs during engine bay inspections, acceptance inspections, and phase inspections.

23.31.2.8. Identification of potential FOD sources.

23.31.2.9. Lost tools/items.

23.31.2.10. Increased potential for FOD within the next 30-60 days.

23.31.2.11. Dropped objects. Pay particular attention to those that result in downstream FOD.

23.31.2.12. Breakdown of FOD inspections/assessments.

23.31.2.13. Cockpit FO incidents.

23.31.2.14. Commanders comments.

23.31.3. A junior FOD committee will be established along the guidelines similar to the FOD committee. It will be chaired by the FOD prevention program manager and oriented toward squadron/flight personnel. Minutes will be recorded and distributed similar to the FOD committee meeting minutes.

Section 23I—Dropped Object Prevention Program (DOPP)

23.32. General. A dropped object is any item, including munitions, inadvertently released which falls from an aircraft during flight when not directed by the aircrew. Munitions released in excess of the quantity selected by the aircrew, or a multiple release, are not considered dropped objects. Furthermore, any object dislodged by a FO (e.g., an in-flight refueling (IFR) boom or a bird) is not considered a dropped object. Preventable dropped objects are defined as any item which was lost due to negligence during inspection or improper installation.

23.33. Responsibilities. All units that fly, service, or maintain aircraft will develop a DOPP program. As a minimum, the program will include the following provisions:

23.33.1. HQ AFMC/DOM will act as OPR for all dropped object field inquiries. The WG/CV will serve as the DOPP prevention program manager. The wing FOD prevention program manager will be designated as wing DOPP monitor under the WG/CV. Each squadron and division will assign monitors to assist the wing DOPP monitor. The OG/CC will ensure all flight crews and assigned maintenance personnel are briefed on the DOPP on a recurring basis. Aircrew members should receive these briefings as part of regular aircrew meetings to maximize aircrew awareness. Maintenance personnel should receive these briefings as part of squadron commanders' calls, unit roll calls, or other appropriate formations to maximize personnel awareness. Civilian and contractor personnel will also attend

these briefings whenever possible. The LG/CC and directors will also brief assigned personnel on the DOPP.

23.33.2. Training. The wing DOPP monitor, in coordination with the OS monitors, will identify and develop training standards. Commanders, directors, and division chiefs will ensure all maintenance personnel involved in on-equipment maintenance receive adequate DOPP training. Annotate DOPP training in the appropriate training records or in CAMS. Training should include, but is not limited to, inspection, installation, removal, and repair procedures for aircraft panels, doors, access covers, cowlings, etc. Also, include training on the care of panel latches, fasteners, nut plates, and other locking devices. Security of hardware, particularly those causing a high incidence of dropped objects, will be high interest items on aircrew walk-arounds.

23.34. Prevention. Effective prevention of dropped objects starts when an aircraft door, panel, or cowling is opened for maintenance and during munitions build-up, loading, and arming. Maintenance personnel will ensure the serviceability of fasteners and the proper fit of doors, panels, connectors, etc. Place special attention on the correct length of fasteners and condition of nut plates and other securing devices. Supervisors will place special emphasis on these areas during the inspection of completed maintenance actions:

23.34.1. Install/adjust access panels, doors, cowling, and components using applicable technical data.

23.34.1.1. Fastener torquing requirements will be completed with tools or gauges as specified in applicable TOs.

23.34.2. Aircraft form entries for panel and door removal and installation will be according to TO 00-20-5 and local directives. Local directives will comply with the intent of this instruction.

23.34.3. Aircrews will ensure the security of all hardware during aircraft preflight and postflight walk-arounds.

23.34.3.1. Discrepancies will be immediately brought to the attention of the crew chief.

23.34.3.2. In-flight dropped object incidents will be immediately brought to the attention of the wing DOPP monitor.

23.35. Investigation. QA will investigate each dropped object incident. Every effort will be made to determine the precise cause to ensure positive corrective action is accomplished. Anytime a materiel or design deficiency is the cause, or suspected cause, a deficiency report (DR) will be submitted according to TO 00-35D-54, even when an exhibit is not available. Investigation results will be distributed to each appropriate workcenter for inclusion in personnel training and education programs.

23.36. Reporting. Reporting procedures are as follows:

23.36.1. Initial. Dropped object reporting will be according to AFMAN 10-206, *Operational Reporting,* by the local command post for all dropped objects. The wing DOPP monitor notifies the base/wing safety office of all dropped objects. All DOPP reports will be forwarded to HQ AFMC/DOM/SEF/SEG. Units will maintain reports for a minimum of 24 months.

23.36.2. Quarterly. The wing DOPP monitor will report to the maintenance data systems analysis (MDSA) section all dropped objects, to include MDS, date of incident, nomenclature (NOUN), national stock number (NSN), cost, specific cause, and action taken to prevent reoccurrence. This

information will be reported the third month of each quarter (i.e., Oct, Nov, and Dec data will be reported in the Jan report) using the monthly aircraft logistics indicators report. A summary of this data will be briefed in conjunction with the quarterly FOD meeting.

23.36.3. Transient aircraft. The local wing DOPP monitor will be responsible to investigate dropped objects from transient aircraft. The wing DOPP monitor will provide the home station DOPP monitor with sufficient data to generate a report for home station trending and tracking purposes.

23.36.4. C-130 and C-135 aircraft units will use the following to report dropped objects to HQ AMC. The purpose is to consolidate lead command fleet-wide data for identification of problems and cross-feed information for all users.

23.36.4.1. Home station. The OG/CC will report all dropped objects for C-130 and C-135 aircraft through the wing DOPP monitor to HQ AMC/LGF/LGQ within 72 hours, regardless if the loss is reportable under AFI 91-204. Send information copies to HQ AFMC/DOM.

23.36.4.2. DOPP Report for C-130 and C-135 aircraft units. Submit by message. Report numbers should be the discovery location organization, year and month, followed by unit sequence number (i.e., 46 TW 9412 1 or 412 TW 9501 1) in the subject line. Use the following message format:

23.36.4.2.1. DOPP report number.

23.36.4.2.2. MDS.

23.36.4.2.3. Aircraft tail number.

23.36.4.2.4. Owning organization and base.

23.36.4.2.5. Origin of sortie.

23.36.4.2.6. Date of incident and discovery location (if different than origin of sortie).

23.36.4.2.7. Item, noun, and description (use information from the applicable aircraft -4 series TOs).

23.36.4.2.8. TO, figure, and index.

23.36.4.2.9. Part number.

23.36.4.2.10. Correct work unit code (WUC) (full five-digit).

23.36.4.2.11. Date of last HSC and ISO inspection.

23.36.4.2.12. Last maintenance performed in the area and date.

23.36.4.2.13. Investigation findings (cause).

23.36.4.2.14. Costs in dollars to repair or replace as appropriate and cost in man-hours to repair.

23.36.4.2.15. Actions to prevent recurrence.

23.36.4.2.16. Other pertinent information.

23.36.4.3. Monthly DOPP summary for C-130 and C-135 aircraft units. The home station wing DOPP monitor submits a summary (previous month) listing each dropped object and sequence number to HQ AFMC/DOM by the fifth duty day of each month. Negative reports are required. Continue reporting during emergency conditions, delayed precedence. Submit data requirements

as prescribed, but they may be delayed to allow the submission of higher precedence reports. Submit by non-electronic means, if possible. Continue reporting during MINIMIZE

23.36.4.4. Feedback. HQ AMC/LG analyzes DOPP reports and provides feedback in the HQ AMC/LG quarterly maintenance summary highlighting process improvement opportunities and PI actions. AFMC and ACC should also have copies of this report available to units that do not receive it.

Section 23J—Aircraft Structural Integrity Program (ASIP) and Related Programs

23.37. General. The aircraft structural integrity and flight loads data recording/individual aircraft tracking programs are established by applicable -38 series TOs, AFI 21-101, and AFI 63-1001, Aircraft Structural Integrity Program, and require coordinated action by a number of base level maintenance activities.

23.37.1. The base ASIP project officer will:

23.37.1.1. Act as OPR for a local ASIP directive. As a minimum, the directive will address the following:

23.37.1.1.1. Identification of maintenance activities responsible for changing and submitting records, tapes, or cartridges.

23.37.1.1.2. Requirements for appointment of flight or section ASIP monitors.

23.37.1.1.3. Procedures to be followed for deployed aircraft to ensure required tapes are available at the deployed location.

23.37.1.1.4. ASIP training requirements, method of documentation, and responsibility for providing training to technicians responsible for maintaining ASIP systems, changing tapes, and to debrief personnel.

23.37.1.2. Review ASIP correspondence and ensure requests for action receive prompt attention.

23.37.1.3. Coordinate supply support of the ASIP program. Monitor ASIP parts on order, validate document numbers, submit supply assistance letters (when necessary), and ensure adequate stocks of records, tapes, or cartridges are available.

23.37.1.4. Ensure maintenance activities are changing and submitting tapes in a timely manner and ASIP data is being properly recorded during aircraft debriefing.

23.37.2. Maintenance activities responsible for maintaining ASIP systems/changing tapes will:

23.37.2.1. Change and submit tapes as required.

23.37.2.1.1. Maintain records of tape changes and submissions by aircraft tail number showing the recorder serial number, tape installation date, tape removal date, and date the tape was shipped.

23.37.2.2. Coordinate with appropriate production supervisors to cannibalize ASIP related parts.

23.37.2.3. Inform the base ASIP project officer of backordered parts with unacceptable delivery dates, difficulties in acquiring tapes, etc.

23.37.3. OS PS&D sections will ensure ASIP equipped aircraft are identified as such in weekly schedules and that the jacket files for these aircraft are clearly marked to show ASIP equipment is installed.

23.37.4. Maintenance debriefers will ensure that appropriate ASIP documents are available at the debriefing location and that ASIP data is gathered for each sortie flown by ASIP equipped aircraft.

23.37.5. The appropriate QA will review ASIP program status at least annually and provide feedback to the LG/CC, OG/CC, directors, OS commanders, and MSs on negative trends and recommended corrective actions.

Section 23K—Red Ball Maintenance Procedures

23.38. General. The Red Ball maintenance concept is intended to prevent late takeoffs and aborts by having qualified maintenance personnel available during launch operations to troubleshoot, isolate, and repair system malfunctions with the aircrew in the cockpit. It is an intensified team effort to expeditiously repair aircraft discrepancies occurring during launch operations. Each unit will develop local Red Ball maintenance procedures, reviewed by the OG/CC, LG/CC, and/or directors. Local procedures will in no way authorize technicians to take shortcuts or deviate from technical data and personnel safety requirements, or fail to properly document the aircraft forms for completed repair actions. As a minimum, local procedures will include the following:

23.38.1. An appropriately configured vehicle should be available for the purpose of carrying tools and personnel used during flightline repair actions and should be configured with an UHF radio and appropriate land mobile radios (LMR); it should also contain a forward supply point for appropriate line replaceable units (LRU).

23.38.2. Appropriate TOs and checklists will be available and strictly adhered to during all Red Ball maintenance and accounted for before the aircraft is allowed to taxi/takeoff.

23.38.2.1. Supervisory emphasis should be placed on FOD awareness/prevention during this critical maintenance operation.

23.38.3. The Red Ball maintenance team should consist of an appropriate number of knowledgeable individuals who are trained and skilled in troubleshooting and system repair.

23.38.4. If aircraft engines are operating, a safety observer will maintain interphone communications in full view of the flight crew and be positioned to maintain overall surveillance of the aircraft and personnel performing maintenance.

23.38.5. Weapons loaded aircraft will be safed according to applicable MDS and/or weapons specific technical data.

23.38.6. All maintenance actions will be properly annotated on the AFTO Form 781A by the respective technician/supervisor. The technician and/or supervisor will:

23.38.6.1. Ensure that all form entries are completed.

23.38.6.2. Ensure Red X and IPI entries are cleared by a certified production inspector.

23.38.6.3. Ensure an exceptional release (ER) is reaccomplished by a certified individual upon completion of maintenance and before the aircraft is released for flight.

23.38.6.4. Ensure all tools, TOs, rags, parts, and unused supplies are accounted for and the tool/FOD check is signed off in the AFTO Form 781A.

Section 23L—Flexible Borescope Inspection Training and Certification Program

23.39. General. This program requires all units using flexible borescopes, including those that do not have a TO requirement to use one but do so to enhance their inspections (e.g. egress, crew chiefs, QA, etc.), to have a comprehensive training program. The training program will provide clear guidance to ensure proper care of equipment, minimum standards are met, and proficiency is maintained. The following requirements apply to all units required to use the flexible borescope.

23.40. Target Population. Only certified 7 and 9-skill level aerospace propulsion specialists (2A6X1X or civil service equivalent) will perform engine flexible borescope inspections. Certify 5-skill level aerospace propulsion specialists and highly qualified technicians in 2A373X to perform engine flexible borescope inspections only when absolutely necessary and by waiver. The applicable GP/CC or director is the approval authority for these waivers.

23.41. Formal Training. The LTF/training detachments (TD) will develop and manage maintenance training. As a minimum, courses will include care and handling of the equipment, port location, all applicable tech data, fault isolation/damage assessment, and performance of an actual engine flexible borescope inspection. Each unit will determine the number of personnel required to be certified. Certification will be tracked on the SCR.

23.42. Certification Criteria. Certifying officials will be the most qualified 7- or 9-skill level aerospace propulsion technicians (2A6X1A/B), or civilian equivalent, designated by the LG/CC, OG/CC, or director. When engine Air Force Engineering and Technical Services (AFETS) are assigned, they can be one of the certifiers if they are the best qualified and have completed the necessary training requirements. Units will limit the number of certifiers to two per squadron to ensure standardized training and certification. Certifying officials will maintain proficiency in the same manner as other technicians; certifying officials will recertify each other. Upon completion of the formal training, individuals will be task evaluated by the certifying official (an individual other than the instructor who administered the course) and placed on the SCR. Initial certification will take place within 30 days of completion of training.

23.43. Documentation. After completing formal training, the instructor will sign off the individual's AF Form 623 or CFETP. Upon certification, personnel are placed and tracked on the SCR. The 120-day proficiency requirement will be tracked through CAMS.

23.44. Proficiency Requirements. As a minimum, engine inspection certified technicians will perform one flexible borescope inspection every 120 days to maintain proficiency. Workcenter supervisors ensure personnel who do not meet this requirement are decertified. Ensure all borescope inspections are loaded against the engine and not the aircraft.

23.45. Annual Recertification. Each borescope-certified technician is required to be recertified yearly by a certifying official. This is accomplished by having technicians demonstrate that they can perform the inspection(s). A QA personnel evaluation (PE) may be used to satisfy this requirement if the QA evalua-

tor is a certifying official. Personnel decertified for cause will attend the flexible borescope training course and be recertified by a certifying official.

Section 23M—Intermediate Repair Enhancement Program (IREP)

23.46. General. The purpose of the IREP is to provide wing senior leadership a forum to evaluate current aircraft weapons systems resource status, highlight specific problem areas, focus on local repair initiatives, and discuss ways to improve the repair cycle process. The LG/CC is the OPR for the IREP program. This forum should include people who can resolve problems within the base repair process. The meeting will be chaired by the WG/CV (or designated representative). Participants should include, but are not limited to, OG, LG, supply, and MXS (EMS/CRS, if applicable) commanders, and representatives from the flight service center (FSC), MXS, OSs, directorates, combined test force (CTF) maintenance activity, operations & maintenance (O&M) resource advisors (RA), and others as determined locally. The key ingredient to a successful IREP program is the active involvement of all individuals and organizations associated with the repair cycle process. At the IREP meeting the appropriate asset manager should be the focal point to lead the discussion of the key data about a specific part. IREP meetings should be conducted on a recurring basis (at least quarterly) to ensure the repair cycle process is on track, seek methods of improvements, and apply necessary resources to get the job done. The first order of business should be a review of action items from the previous meeting.

23.47. Subject Matter Review. One of the objectives of the IREP meeting is to increase overall base self-sufficiency for repairs and reduce the overall cost of doing business. Topics discussed vary based on local requirements but should include key elements of asset management and cost associated with each of the maintenance stock fund divisions. The number of items reviewed in each category is determined locally. Units determine the specific format and visual aids used for presentation of following information:

23.47.1. Asset profile. An asset profile is an in-depth review of an asset identified as critical to mission accomplishment. Data in an asset profile should include the number authorized/on-hand, number repaired, number not repaired, number mission capability (MICAP), average repair cycle days, average awaiting parts (AWP) days, monthly demand, item cost, and financial value of assets in the repair cycle.

23.47.2. Test station equipment profile. Test station in-commission time is critical to efficient repair cycle output. Test, measurement, and diagnostic equipment (TMDE) and other shop deficiencies may have a negative effect on the base repair cycle process. The wing should focus on actions that maximize test station capability.

23.47.2.1. Units locally determine information to be shown on test station status; however, as a minimum, will show the number of test stations, by type, that are on hand and serviceable.

23.47.2.1.1. Test stations that will be out of service for an extended period of time will be identified along with the reason for being out of service, status of parts on order, and any specific data that requires increased involvement to return the station to operational status.

23.47.3. Wing self-sufficiency initiatives. Initiatives include discussion of new wing, group, directorate, division, and squadron gold savings through asset repair teams (Gold START) initiatives and other local self-sufficiency repair processes.

23.47.4. Top/projected MICAPs situations. Significant shortages of assets (repairable and consumable) causing frequent MICAP situations or ones taking an excessive amount of time to resolve. Review LRUs that are accumulating an excessive amount of due-out (DUO) time. Information presented should center on reasons for MICAP situations and solutions to resolve them.

23.47.5. High cost maintenance. Unit funded TCTOs/modifications, high cost workcenters, special purpose recoverables authorized to maintenance (SPRAM) back orders, and financial value of parts in the repair cycle, etc. (Use this forum to review the data accumulated in AFMC programs 200 and 211).

23.47.6. Top CANN items. Items with significant CANN histories. Review information which includes the number of times items were cannibalized the last 30 days, average CANN occurrences over the last six months, projected get well date, and the time required to CANN the item.

23.47.7. Unit aircraft engine status review. A status review summary should include number of spare engines authorized/available, number in work, projected production date, and reasons for non-productivity.

23.47.7.1. The engine status will be broken out by engine type (i.e., F-101, F100-110, F-100-229, etc).

23.47.7.2. Also identify specific engine parts with high consumption or extended requisition lead-time that prevent engine production.

23.47.8. Critical AGE review. Includes review of any AGE shortages that affect the single integrated operational plan (SIOP), unit type code (UTC), or test mission accomplishment.

23.47.9. Repair cycle bottlenecks. Review any area that impedes the repair cycle process (i.e., frozen supply records, supply rejects, test station backlogs, personnel deficiencies, etc.).

23.47.10. AWP program. Analyze DUO delay causes and back order priorities to determine if supply action is required to correct any deficiencies/problems.

23.47.11. Repair cycle throughput. Throughput is the average time it takes to move individual items through the repair cycle. Review/compare the 12-month average versus the current month repair cycle time (RCT) to determine if progress is being made. RCT is defined as the complete cycle from issue to repair/condemn and turn-in or shipping of a reparable asset (program 203).

23.47.11.1. Owning units will be available to discuss the status of parts that have not been turned in for repair, are lost, or have extended repair times.

23.47.12. Part store issue effectiveness. Percentage of aircraft parts issued from the part store versus the main warehouse (program 214 provides this data).

23.48. IREP Meeting. The LG/CC or director will develop local procedures to formalize and conduct the IREP Meeting. As a minimum, the procedures will include the areas identified in this chapter. In addition, the LG/CC will include a tentative schedule for the IREP meetings, have a pre IREP meeting to review the data before formal presentation, formalize the presentation and minutes of the meeting, and make the minutes available to the attendees, either in hard copy or through electronic media.

Section 23N—Management of Permanently Assigned Ground Maintenance Trainer (GMT) Aircraft

23.49. General. Permanently assigned GMT aircraft are those aircraft that not maintained in airworthy condition but are maintained in system/subsystem operational condition for purposes of maintenance training. These aircraft are designated as TX coded and will not be confused with permanently assigned inventory or back-up assigned inventory aircraft used for maintenance training. Maintenance of assigned GMT aircraft requires close supervision and management. All personnel associated with maintaining unit assigned trainers will be familiar with and enforce established procedures.

23.49.1. GP/CCs or directors (if applicable) will:

23.49.1.1. Jointly determine which group will manage, requisition required parts for, and maintain each training aircraft. In general, the OG should be responsible for weapons load training aircraft and LG for those dedicated to LTF use.

23.49.1.2. Establish minimum operational systems guidelines and general maintenance requirements (wash interval, paint interval, inspection interval, etc.) for GMT aircraft, and ensure each is assigned an additional duty DCC and assistant DCC (ADCC). Guidelines, instructions, and local procedures will be included in a supplement to this instruction. CANN actions will not be authorized on GMT aircraft unless properly coordinated and authorized by HQ AFMC/DOM.

23.49.2. The applicable QA will monitor assigned GMTs for safety and serviceability.

23.49.3. GMT aircraft DCCs/ADCCs will:

23.49.3.1. Ensure their aircraft has a current set of 781 series AFTO forms maintained according to TOs 00-20-1, 00-20-5, and AFMC supplements.

23.49.3.2. Perform an aircraft records review a minimum of every 30 days.

23.49.3.3. Ensure their aircraft is scheduled for and undergoes preventive maintenance requirements established by the GP/CC or director.

23.49.3.4. Monitor the status of removed parts and parts on order.

23.49.3.5. Maintain all required -21 equipment.

23.49.3.6. Periodically inform the GP/CC or director (if applicable) of aircraft status.

23.49.4. Personnel conducting training or performing maintenance on GMT aircraft will accomplish and document their actions according to applicable technical data.

Section 23O—Use of Aircraft Chocks

23.50. General. The requirements established in this instruction supplement those contained in individual aircraft TOs. They are applicable to all aircraft standing static while no maintenance activities are being performed. During maintenance operations, the applicable aircraft TO prevails.

23.51. Approved Chocks. Applicable aircraft TOs specify appropriate size and part number. Some common use chock part number, size (HxWxL), and stock number correlations are as follows:

42D6594-1 -- 6" x 8" x 20" -- 1730-00-294-3694.

42D6594-2 -- 4" x 6" x 14" -- 1730-00-294-3695.

42D6594-3 -- 6" x 8" x 56" -- 1730-00-294-3696.

42D6594-4 -- 6" x 8" x 30" -- 1730-00-063-4095.

42D6594-10 -- 4" x 6" x 24" -- 1730-00-163-8317.

RG95-2 (Lockheed) -- 1560-ND-0144-86W.

NOTE: Width and height measurements are rough (unplaned) wood and may be smaller when finished. One-half inch (1/2") tolerance is allowed.

23.52. Chock Usage. The following is a partial list of aircraft and the chocks used on each:

42D6594-1: A/OA-10, C-9, C-130, F-15, F/EF-111, and F-117.

42D6594-2: A-7, OA/T-37, C- 12, C-21, F- 16, E-9, F-106, T-33, and T-38.

42D6594-3: B-l, B-2, B-52, C-5, C-135, C-141, and E-3.

42D6594-4: KC-10, B-747.

RG95-2: U-2.

F-22 qualification is underway.

23.52.1. Transient aircraft (TA) maintenance section. For transient aircraft that frequent the base but are not listed, the TA supervisor will categorize the aircraft into one of the above groups according to tire size.

23.52.1.1. TA will maintain a list indicating the correct part number chock to be used on the type of aircraft that frequent the base.

23.52.1.2. When the correct size chock cannot be obtained, a larger chock (preferably the next size larger) will be used until the proper chock is obtained. Smaller chocks will not be used.

23.53. Chock Painting. Chocks will be painted yellow. However, to increase friction between the chock and ramp surface, the bottom of the chock will not be painted but may have a coating of anti-skid compound applied. Silica sand or glass beads may be added to the paint to maximize reflectivity during night-time operations.

23.54. Chock Markings. Lettering will be black and at least two inches in size. TA activities will stencil "TA" or "Trans Alert" and the appropriate dash number of the chock part number on the side of the chock.

23.54.1. Optional markings for aircraft chocks are as follows:

23.54.1.1. Chock may be reflectorized. See TO 35-1-3, *Corrosion Preventive, Painting and Marking of USAF Support Equipment (SE)*, for procedures.

23.54.1.2. The applicable aircraft MDS (e.g., F-15, B-52, C-130, etc.) or wing or unit ID number should be stenciled on the chock (not applicable to TA activities).

23.54.1.3. The squadron colors may be painted on the ends of the chocks. However, the body of the chocks will remain yellow with black lettering.

23.54.1.4. TA chocks for distinguished visitors may be painted as desired. However, they will be stenciled according to this section for identification purposes.

23.54.1.5. Static display aircraft may use show chocks with no restrictions on color or lettering. Show chocks will be stored in the OS support section when not in use on a static display aircraft.

Section 23P—Oil Analysis Program (OAP) Responsibilities and Requirements

23.55. General. Accurate oil sampling determines the internal condition of engines and accessories. Coordination with the OAP laboratory is required to obtain maximum benefits from OAP data when abnormal wear metal trends are indicated. It is imperative that an aggressive unit OAP be established and specific responsibilities and requirements are adhered to. Specific responsibilities, procedures, and requirements will be locally developed and formalized as a supplement to this instruction or local OI.

NOTE: Aircraft which do not have a TO oil analysis requirement are exempt from this program.

23.55.1. HQ AFMC/DOM responsibilities:

23.55.1.1. Manage the command OAP program.

23.55.1.2. Appoint a qualified SNCO to manage the OAP and serve as a point of contact for OAP activities.

23.55.2. WG/CC responsibilities:

23.55.2.1. Ensure all units maintain an effective wing OAP.

23.55.2.2. Appoint the OG/CM as the wing OAP manager with the deputy LG as the alternate.

NOTE: For wings operating under an approved organizational concept other than the objective wing, and when the LG/CC has on-equipment maintenance responsibility, the deputy LG will act as the wing OAP manager with an alternate designated by the LG/CC.

23.55.3. Wing OAP manager responsibilities:

23.55.3.1. Manage the OAP according to TO 33-1-37-1/2/3, *Joint Oil Analysis Program Laboratory Manual*, AFI 21-124, *Air Force Oil Analysis Program*, and other applicable directives.

23.55.3.2. Ensure a wing OAP instruction and training plan is published to establish policy and procedures for the wing OAP. Include a standardized method to ensure the total oil serviced since the last OAP sample can be tracked and accurately entered on the DD Form 2026, **Oil Analysis Request.**

23.55.3.3. Ensure the non-destructive inspection (NDI)/OAP facility is on a priority repair list for CE.

23.55.3.3.1. Ensure procedures are developed for continued operation of the OAP lab in case of a power outage.

23.55.3.4. Ensure the NDI/OAP facility has a Class A telephone and a direct line to the MOC to expedite the reporting of abnormal wear metal trends.

23.55.3.5. Ensure all organizations requiring OAP support appoint an OAP manager and alternate in writing.

23.55.3.5.1. A current approved copy of the appointment letter will be kept on file by the requesting organization and a copy sent to the OAP laboratory and the wing OAP manager.

23.55.3.6. Ensure all personnel involved in the OAP are trained according to the wing's OAP training plan. Personnel requiring this training include, but are not limited to, crew chiefs, expediters, production superintendents, aircraft section flight chiefs, propulsion managers and supervisors, squadron maintenance officers (SMO)/superintendents, and squadron OAP managers.

23.55.3.7. Conducts quarterly OAP meetings with the OG/CC, LG/CC, director(s), OS SMO/superintendent, propulsion flight chief, organizational OAP managers or alternates, and NDI section NCOIC/designated representative.

23.55.3.8. Ensure quarterly OAP report, is forwarded to HQ AFMC/DOM via e-mail, message, or FAX NLT the end of the second week of the month following each quarter (i.e., second week of April, or second week of July). The quarterly OAP reports will include the following numbers and percentages, where applicable:

NOTE: Organizations with OAP labs that perform oil analysis on transient AFMC aircraft will report DD Form 2026 discrepancies to HQ AFMC/DOM as part of their quarterly OAP report statistics as outlined below.

23.55.3.8.1. Number of OAP samples processed.

23.55.3.8.2. Number and percentage of DD Form 2026 errors.

NOTE: Count each DD Form 2026 that has any errors as one error, then divide the number of discrepant DD Form 2026's by the total number of OAP samples processed for the error percentage.

23.55.3.8.3. Average OAP sample response time (SRT).

NOTE: Enter SRT to the nearest tenth of an hour and do not include the time when the OAP lab is not manned.

23.55.3.8.4. Number and percentage of OAP samples that exceeded required SRTs. Obtain the percentage by dividing the number of OAP samples exceeding the required SRT by the number of OAP samples processed.

23.55.3.8.5. Number and percentage of aircraft engines not sampled as required by the applicable TO. Accomplish this by dividing the number of aircraft engines not sampled as required by the number of OAP samples processed.

23.55.3.8.6. Number of OAP lab maintenance recommendations confirmed by physical finding of abnormal wear or potential for catastrophic failure - hits.

23.55.3.8.7. The OAP report will be prepared as in Figure 23Q.1.

NOTE: This report is designated emergency status code C3. Continue reporting during emergency conditions, delayed precedence. Submit data requirements as prescribed, but they may be delayed to allow the submission of higher precedence reports. Submit by non-electronic means, if possible. Continue reporting during MINIMIZE.

Figure 23.1. Sample Quarterly OAP Report.

UNCLAS

SUBJECT: QUARTERLY OIL ANALYSIS PROGRAM (OAP) REPORT - RCS: AFMC/DOM 9601

AS OF: 30 AUG 99

SECTION I - Required OAP Indicators, Item No., Item Quantity/Percentage

1. OAP Samples Processed (QUANTITY)

2. DD FORM 2026 Errors (QUANTITY AND PERCENTAGE)

3. Average OAP Sample Response Time (ENTER TIME TO THE NEAREST TENTH OF AN HOUR)

4. OAP Samples Exceeding Sample Response Time (QUANTITY AND PERCENTAGE)

5. Aircraft Not Sampled as Required (QUANTITY AND PERCENTAGE)

6. Hits (QUANTITY)

SECTION II - NARRATIVE: Comments required for:

Item no. 2., DD Form 2026 errors (categorize by types of errors and give corrective action)

Item no. 5., aircraft not sampled as required by applicable -6 or other AFMC requirements (provide details and corrective action)

23.55.3.9. Ensure, through the respective squadron commanders, that the SMO/MS comply with the OAP according to TO 33-1-37-1/2/3, AFI 21-124, and other applicable directives.

23.55.4. SMO/superintendent responsibilities will:

23.55.4.1. Ensure all assigned aircraft engines are sampled according to the applicable -6 TO.

NOTE: The only exception to this is when aircraft are hot refueled (aircraft land and takeoff with no engine shutdown). When this occurs: A-10 aircraft will be sampled immediately after the second hot refuel and go sortie with OAP sample results known prior to the next sortie (only two sorties flown due to hot refuel before an OAP sample is taken and analyzed); F-16 aircraft with Pratt and Whitney (P&W) engines will be sampled immediately after the first hot refuel and go sortie with OAP sample results known prior to the next sortie (only one OAP sample interval can be missed due to hot refuel); and F-15 aircraft, regardless of installed engine type, and F-16 aircraft with General Electric (GE) engines will be sampled at the first return to parking with OAP sample results known prior to the next sortie.

23.55.4.2. Ensure aircraft that fail to meet the required OAP SRT or are not sampled as required by applicable -6 are not flown until the OAP sample results are known.

23.55.4.3. Ensure OAP samples not taken within the required time period by the applicable -6 have a 15 minute ground run accomplished prior to the engine being sampled. This ensures a true homogenous sample is obtained for an accurate analysis.

23.55.4.4. Ensure OAP samples are delivered to the OAP lab with a locally overprinted DD Form 2026 filled out according to TO 33-1-37-1, *Joint Oil Analysis Program Laboratory Manual, Vol 1, NSN 0917-LP-305-8000 (TM38-301-1) (NAVAIR 17-15-50-1)*. Qualified technicians will fill out the DD Forms 2026 immediately prior to the flight requiring an oil sample, completing the oil added, hours since overhaul, hours since oil change, and time sample taken blocks when the oil sample is taken.

23.55.4.4.1. In the DD Form 2026 hours/miles since overhaul block use engine flight time.

EXCEPTION: F100 series engine wear metal trends are based on engine operating time. This time will be downloaded at the end of the flying day for F100-220/229 engines requiring aircraft and NDI/OAP lab records to be adjusted accordingly.

23.55.4.5. Ensure flightline personnel verify with the OAP lab that the information entered in the OAP records on the DD Form 2027, **Oil Analysis Record**, or automated OAP records matches the aircraft records during the 14-day records check. As a minimum, the information that will be verified is engine operating hours, time since oil change, oil serviced since last records check OAP sample, engine serial number(s), and aircraft serial number.

NOTE: OG/CC (or equivalent) may waive verification of OAP records against aircraft records when aircraft are deployed and the 14-day records check is due.

23.55.4.6. Identify OS OAP managers and alternates in writing and forward a copy of the appointment letter to the wing OAP manager and the OAP lab. Appointment letters should include grade, name, duty phone, AFSC, organization, and office symbol.

23.55.4.6.1. The squadron OAP manager will be a SNCO with the experience necessary to manage the squadron's program. They serve as the primary liaison between their squadron and the OAP lab for all OAP issues and will attend all OAP meetings involving their squadron.

23.55.4.7. Ensure OAP managers are properly trained as required in TO 33-1-37-1.

23.55.4.8. Ensure all aircraft engines under special OAP codes C and E are not flown until results of the OAP sample(s) are known.

23.55.4.9. Ensure DD Forms 2026, with an equipment and/or end item serial number error, hours since overhaul error, or oil added since last sample error are corrected immediately.

23.55.4.10. Ensure flightline expediters maintain a OAP status on each assigned aircraft engine showing all lab recommendation codes that are not routine (code A) next to the aircraft serial number.

23.55.4.11. Ensure all maintenance actions that affect oil-wetted engine components are provided to the OAP lab. This should be done by using the remarks section of the DD Form 2026 (or a suitable local form).

23.55.4.12. Ensure assigned OAP managers or alternates attend all OAP meetings.

23.55.5. Propulsion flight chief responsibilities. In addition to the responsibilities outlined in **Chapter 2** of this instruction, the flight chief will:

23.55.5.1. Ensure accurate and timely deficiency reports (DR) are submitted through the unit product improvement manager (PIM) to the applicable air logistics center (ALC) engine program offices on all engines requiring tear down or overhaul due to an OAP laboratory maintenance recommendation and on all oil-wetted component failures where no OAP laboratory maintenance recommendation was made.

23.55.5.2. Ensure a copy of the DD Form 2027 (or suitable automated form) is provided to the depot for each engine undergoing scheduled maintenance or overhaul at the depot.

23.55.5.3. Make the final decision regarding all OAP engine maintenance action recommendations.

23.55.5.4. Ensure all maintenance actions, which affect oil-wetted engine components, are provided to the OAP laboratory. This should be done by using the remarks section of the DD Form 2026 (or a suitable local form).

23.55.5.5. Appoint OAP managers in writing and forward a copy of the appointment letter to the wing OAP manager and the OAP lab. Appointment letters should include grade, name, duty phone, AFSC, organization, and office symbol.

23.55.5.6. Ensure OAP managers are trained properly as required in TO 33-1-37-1.

23.55.5.7. Ensure assigned OAP managers or alternates attend all OAP meetings.

23.55.5.8. Ensure personnel are properly trained on wear metal limits for specific engines and sampling procedures according to TO 33-1-37-1/2/3, *Joint Oil Analysis Program Laboratory Manual*.

23.55.5.9. Ensure oil samples taken at the test cell are promptly delivered to the OAP laboratory. Red cap samples will be delivered immediately for analysis.

23.55.5.9.1. Engines will not be removed from the test stand until the sample results have been analyzed.

23.55.5.10. Serve as the primary point of contact for all abnormal laboratory results.

23.55.5.11. Forward all information relative to any maintenance actions taken as a result of OAP recommendations to the OAP laboratory.

23.55.6. Maintenance Operations Center (MOC) noncommissioned officer (NCOIC) responsibilities. The MOC NCOIC will:

23.55.6.1. Maintain an OAP status on each assigned aircraft engine showing all lab recommendation codes that are not routine (Code A) next to the aircraft serial number.

23.55.6.2. Serve as primary communications link for the transfer of OAP information between the OAP lab and its customers.

23.55.6.3. Relay to the OAP lab, information regarding engine changes on- and off-station as they occur, but NLT 0800 the next duty day.

23.55.7. NDI/OAP laboratory NCOIC responsibilities.

23.55.7.1. Has the primary OAP responsibilities outlined in TO 33-1-37-1/2/3 whether or not the laboratory providing OAP support is located on the same base. If the unit does not have NDI personnel assigned, the OAP responsibilities outlined in TO 33-1-37-1/2/3 are assigned to the propulsion flight. The OAP OPR forwards samples in a timely manner to the laboratory providing OAP support.

23.55.7.2. Sets up collection points and procedures to receive and forward OAP samples to the supporting laboratory, monitors sample collection, assigns control numbers and provides blocks of sample control numbers for use in other squadrons.

23.55.7.3. Advises squadron maintenance supervision, MOC, and the owning workcenter (OWC) of abnormal OAP trends. Local procedures will be established to ensure proper notification of abnormal OAP trends.

23.55.7.4. Reviews elapsed times, from sampling to receipt at the laboratory, and the time it takes for results to return to the unit to ensure processing of samples meets mission needs.

23.55.7.5. Operates the OAP laboratory and maintains environmental controls according to TO 33-1-37-1/2/3, AFI 21-124, and other applicable directives.

23.55.7.6. Documents the 14-day record check on the affected engine's OAP record with the date the check was accomplished and OAP lab person's initials.

23.55.7.7. Ensures a copy of the DD Form 2027 (or suitable automated form) is provided to the propulsion flight for each engine undergoing scheduled maintenance or overhaul at the depot.

23.55.7.8. Immediately notifies MOC and the propulsion flight chief when an installed engine is restricted from operation or is placed on special sampling.

23.55.7.9. Ensures analysis results on all installed engines are provided to MOC after analysis of the OAP sample is complete.

23.55.7.10. Immediately notifies test cell and the propulsion flight chief when abnormal OAP results are discovered on test cell engines.

23.55.7.11. Ensures DD Forms 2026, with an equipment and/or end item serial number error, hours since overhaul error, or oil added since last sample error are corrected immediately.

23.55.7.12. Tracks aircraft OAP SRTs for all assigned aircraft to ensure the response time requirements are being complied with.

23.55.7.13. Maintains a current appointment letter of all customer OAP managers.

23.55.8. OAP SRT requirements for routine OAP samples.

NOTE: The OAP SRT time begins at the time the OAP sample is taken and ends at the time the oil analysis results are reported to the MOC.

23.55.8.1. Two and one half-hours for one and two engine aircraft.

23.55.8.2. Six hours for all other aircraft. When the OAP lab is not manned, they will provide results to the MOC NLT two hours after the beginning of the next shift.

23.55.8.3. Processes special Red Cap samples (OAP lab recommendation codes B, C, E, F, G, P, and Q) immediately.

23.55.8.4. Four hours for engine ground/trim and test cell runs.

23.55.9. OAP requirements for cross-country flights/deployments.

23.55.9.1. Personnel place an oil analysis record (automated record or a copy of the DD Form 2027) in the aircraft records jacket/forms binder. Establish locally where the record will be located and transported.

23.55.9.2. OAP lab personnel ensure the oil analysis record contains at least the last 10 analyses.

23.55.9.3. Personnel sign for the oil analysis record at the OAP lab and return it to the lab the day the aircraft returns to home station.

23.55.9.4. MOC notifies the OAP lab when the cross-country/deployed aircraft return.

23.55.9.5. The OAP lab notifies MOC if the oil analysis record is not returned.

23.55.9.6. MOC initiates follow-up action when the oil analysis record is not returned to the OAP lab.

23.55.9.7. The OAP lab reviews the returned oil analysis record for adverse trends and takes necessary action.

23.55.9.8. Flying squadrons will continue to follow the maintenance practices of this instruction and local policy at the deployment site.

23.55.9.9. Deployed OAP personnel will have either telephone or radio communication with MOC and the flying squadrons to expedite reporting of abnormal OAP trends.

23.55.10. OAP requirements for transient aircraft.

23.55.10.1. TA personnel sample aircraft as required by this section and the applicable -6 TO.

23.55.10.2. TA personnel draw/perform the OAP sample and make a Red Dash entry on the AFTO Form 781A stating "Engine oil analysis results due."

23.55.10.3. When OAP capability exists at a transient location and an OAP sample is required, the OAP sample results will be known prior to aircraft departure unless otherwise authorized by the OG/CC at the transient location.

23.55.10.3.1. If OAP sample results are not provided before aircraft departure, the results will be forwarded via FAX by the local MOC or TA to the aircrew's next destination (either MOC, TA, or base operations).

23.55.10.4. Transient bases without OAP capability will take required OAP samples. The OAP samples will be analyzed at the next base along with the next OAP sample.

Section 23Q—Critical Tasks

23.56. General. A critical task is one that, if not accomplished in strict accordance with applicable technical data, could result in fatal or serious injury to personnel and/or extensive damage or destruction of valuable property. When a critical task requires more than one person, a pre-task safety briefing will be accomplished to ensure all personnel involved understand their function and are aware of all cautions and warnings associated with the task. The supervisor of the maintenance operation is responsible for ensuring that the pre-task safety briefing is given to all applicable personnel involved with the task. If the pre-task safety briefing is not already available in technical data, QA is responsible for adding a local page supplement (LPS) according to TO 00-5-1 prior to the first step of the critical task. This LPS will state that a pre task safety briefing is required. QA will ensure that briefings are established in all applicable technical data for each specific critical task. This will apply to all MDSs.

23.56.1. As a minimum, the pre-task safety briefing will address the following areas:

23.56.1.1. Required technical data for the critical task.

23.56.1.2. Required equipment for the critical task.

23.56.1.3. Number of personnel required to perform the critical task.

23.56.1.4. Individual duties and responsibilities.

23.56.1.5. A review of all TO cautions, warnings, and notes associated with the critical task and any obvious safety concerns that might surface.

23.56.2. The following is a list of generic critical tasks that require a pre-task safety briefing prior to start. It is not an inclusive list and other tasks, locally determined to be critical, must be added by each unit in the form of a local supplement to this instruction:

23.56.2.1. Repair/replacement of primary and secondary flight control components, to include surface movement during operational checks.

23.56.2.2. Aircraft jacking.

23.56.2.3. Aircraft towing.

23.56.2.4. Landing gear retraction.

23.56.2.5. Removal/installation of aircraft engines.

23.56.2.6. Engine throttle disconnect/reconnect (if performed by more than one person).

23.56.2.7. Engine run-up checks.

23.56.2.8. Aircraft propeller removal/installation.

23.56.2.9. Conventional munitions loading tasks. Pre-task safety briefings consist of emergency procedures and applicable specific briefing requirements contained in the applicable loading checklists only.

23.56.3. The functional manager for each MDS will develop a list of specific critical tasks for each MDS. The MDS specific list of critical tasks will be forwarded to each wing's QA to ensure accomplishment of the requirements.

Section 23R—Preflight Safety (Ramp) Inspection Program

23.57. General. When tasked, units will comply with Public Law (PL) 99-661, Section 1204 (codified at 10 USC section 2640) *1987 Defense Authorization Act*. As quoted, the law requires:

23.57.1. A preflight safety inspection of each aircraft conducted at anytime during the operation of, but not more than 72 hours before, each internationally scheduled charter mission (for the air transportation of members of the Armed Forces) departing the United States.

23.57.2. A preflight safety inspection of each aircraft used for domestic charter missions conducted to the greatest extent practical.

23.58. Objective. Units will assist AMC in complying with the ramp inspection program objectives as stated in AMCI 21-111, *Ramp Inspection Program*, and PL 99-661. AFMC responsibilities will be determined through intercommand agreements between AMC and AFMC.

23.59. Terms Defined. The following terminology is defined as it applies to the AFMC ramp inspection program.

23.59.1. Preflight safety inspection (synonymous with ramp inspection). A ramp inspection is a visual inspection of a civilian aircraft for obvious mechanical defects that may cause the aircraft to become unsafe. This inspection does not in anyway overrule or duplicate the FAA airworthiness certification or the civilian aircraft technical manual. This inspection is not an airworthiness inspection.

23.59.2. Ramp inspector. As a minimum, a highly qualified 7-skill level NCO in an aircraft maintenance AFSC (or civilian equivalent). This individual will be selected and certified by the OG/CC or LG/CC (or equivalent). No special Federal Aviation Administration (FAA) certification training is required, although it is beneficial for the individual to hold a FAA Airframe and Powerplant (A&P) license and Inspection Authorizations (IA) certifications.

23.59.3. Inspection certification. Documentation signed by the OG/CC or LG/CC (or equivalent) certifying that the selected individuals meet minimum qualifications of a ramp inspector.

23.60. Program Responsibilities.

23.60.1. HQ AFMC/DOM will:

23.60.1.1. Provide guidance for administering the ramp inspection program to ensure compliance of Public Law 99-661.

23.60.1.2. Coordinate with HQ AMC and unit program managers to resolve problems in meeting program objectives.

23.60.2. The LG/CC will:

23.60.2.1. Establish the AFMC ramp inspection program (when tasked).

23.60.2.2. Designate, as an additional duty, an AFMC ramp inspection unit program manager.

23.60.2.3. Certify an adequate number of ramp inspectors to meet inspection requirements.

23.60.2.4. Ensure personnel receive inspection training and orientation in the AFMC ramp inspection program.

23.60.3. The unit program manager will develop local procedures to:

23.60.3.1. Ensure timely assignment of inspections to qualified inspectors.

23.60.3.2. Ensure problems encountered by the inspectors are elevated through the appropriate chain of command for resolution.

23.60.3.3. Provide training for inspectors.

23.60.3.4. Maintain close coordination with their established gateway quality assurance evaluator (QAE) in order to obtain mission changes in a timely manner. Extract those missions applicable to the unit inspection and develop a unit ramp inspection schedule.

23.60.3.5. Ensure the sequence of events message for missed ramp inspections is forwarded to HQ AMC/DOBA by the following duty day.

23.60.3.6. Ensure HQ AMC/DOBA receives a listing of inspections completed within two working days (include man-hours/cost of inspection).

23.60.3.7. Ensure points of contact at civilian airports are established far enough in advance to gain access to aircraft to be inspected.

23.61. Ramp Inspectors.

23.61.1. Conduct ramp inspections of assigned missions.

23.61.2. Provide timely information regarding inspections to the AMC tanker airlift coordination center prior to aircraft departure according to procedures in this instruction, AMCI 21-111, and/or unit guidance.

23.62. AMC Form 234, AMC Ramp Inspection Checklist.

23.62.1. Inspectors will provide the ramp inspection program manager with completed AMC Forms 234 as soon as possible for filing and distribution. The unit program manager will immediately forward a legible copy of the AMC Form 234 to HQ AMC/DOBA on the first day of receipt. AMC Forms 234 distribution will be expedited when ramp inspectors discover an unsatisfactory discrepancy that required FAA involvement or the withholding of passengers to force the carrier to correct the discrepancy. Ensure the inspectors annotate this information in the remarks section of the AMC Form 234. To expedite distribution of AMC Form 234 to HQ AMC/DOBA, use FAX number DSN 576-5937 or send by first class mail.

23.62.2. Unit program managers will provide a listing of inspections completed during each month to arrive at HQ AMC/DOBA NLT the 10th of the following month. The listing will show the date inspected, location, mission number, and total hours (travel and inspection time).

23.62.2.1. Provide HQ AFMC/DOM the above listing on a semi-annual basis.

23.62.3. AMC Forms 234 will be retained for a period of one year and disposed of according to AFI 37-138.

23.63. Applicable Directives and Forms.

23.63.1. The following instructions and forms are applicable to AFMC units for the purpose of meeting the ramp inspection program objectives. Any conflicts with present or future AFMC policies should be brought to the attention of HQ AFMC/DOM for resolution.

23.63.1.1. AMCI 21-111, *Ramp Inspection Program*.

Section 23S—Certified Technician Program (CTP)

23.64. General. The certified technician program will not be implemented within AFMC. Due to the complex nature of the aircraft assigned to AFMC bases, training technicians to be fully qualified on all MDSs and variations/modifications does not make this program feasible and realistic.

Section 23T—Special Certification Roster (SCR)

23.65. General. The SCR is a management tool used to identify and control authorized production inspectors who perform, evaluate, verify, and inspect critical work or tasks, and technicians authorized to perform specific tasks, e.g., hot refueling, engine blade blending, etc. AFI 21-101 defines the requirement for an SCR and outlines procedures. Additional procedures:

23.65.1. Include the following minimum tasks (separately or in combination) on the unit SCR:

23.65.1.1. Clear Red X primary AFSC.

23.65.1.2. Perform in-process inspection (IPI) primary AFSC.

23.65.1.3. Clear Red X cross-utilization training (CUT) AFSC.

23.65.1.4. Perform IPI in CUT AFSC, (for CUT, list each AFSC in which the individual is authorized to clear Red X or perform IPI, e.g., clear Red X avionics.

23.65.1.5. Sign condition tags (identify specific tags).

23.65.1.6. Authorize not repairable this station (NRTS) (identify which repair code).

23.65.1.7. Sign exceptional release (ER) (identify MDS).

23.65.1.8. Authorized ground engine run (specify by MDS, type, make, series modification (TMSM), and authorized power setting).

23.65.1.9. Hot refueling team member (by position).

23.65.1.10. Test cell/noise suppression system (NSS) operator.

23.65.1.11. Engine fan blade blending.

23.65.1.12. Engine inlet/exhaust inspections

23.65.1.13. Flexible borescope inspections.

23.65.1.14. All systems Red X and IPI authorizations according to AFI 21-101.

23.65.1.15. Clear repeat/recurring discrepancies. Only 7-skill level or higher and/or civilian equivalent personnel can sign the INSPECTED BY block for discrepancies identified as repeat or recurring.

23.65.1.16. Clear cannot duplicate (CND) discrepancies.

23.65.2. For tankers, airlift, bomber, and passenger aircraft, include on the SCR:

23.65.2.1. KC-135 rapid defuel.

23.65.2.2. Aircraft brake rider.

23.65.2.3. Aircraft tow vehicle driver.

23.65.2.4. Aircraft tow supervisor.

23.65.2.5. Jacking supervisor.

23.65.2.6. Gear retraction team member, by position.

23.65.2.7. Concurrent servicing operations supervisor/team member.

23.65.3. Identify each task on the SCR using a distinct course code. Civilian personnel may be approved as production inspectors based on their experience and technical expertise regardless of their assigned duty skill level position.

23.65.4. Units will develop local procedures for workcenter supervisor to add an individual to the SCR. The workcenter supervisor will ensure individuals are qualified to perform selected production inspector tasks by reviewing appropriate training documentation and experience on the assigned MDS. The SMO/MS will approve individuals for addition to the SCR. The LTF or squadron training manager loads the SCR data to CAMS.

23.65.5. The workcenter supervisor will recommend removal of production inspectors from the SCR.

23.65.6. When maintenance services are contracted, the contract functional area chief's (FAC) appointed government technical representative will review the SCR qualification criteria, and the

administrative contract officer (ACO) will be the government's approval authority for addition to the SCR.

Section 23U—In Process Inspections (IPI)

23.66. General. TO 00-20-1 specifies the requirement for an IPI. AFI 21-101 further defines the requirement and provides general guidelines. This section expands on those directives and defines command policy.

23.66.1. An IPI is an additional supervisory inspection or verification step at a critical point in the installation, assembly, or re-assembly of a system, subsystem, or component. Each squadron/division will develop a list of maintenance tasks requiring an IPI. The IPI list, approved by the SMO/MS or division chief, will include the WUC, NOUN, and step number within the TO task where the IPI is required. When developing the IPI list, consult with QA on trends or problem areas that continually warrant extra supervisory attention. Forward the squadron/division IPI listing to the appropriate group QA for consolidation into a wing IPI list. Additions or deletions to the IPI list will be approved by the GP/CC or director. The wing IPI list will be reviewed annually and approved by GP/CC or director.

23.66.2. Documenting the IPI. All tasks requiring an IPI will be entered on a Red X in the AFTO Form 781A, AFTO Form 244, or appropriate work document. Document engine off-equipment IPIs in the engine work folder.

23.66.2.1. Enter the statement "IPI required at step (number)" in the discrepancy block of the 781A, AFTO Form 244, or work document and the workcenter event (WCE) narrative in CAMS.

23.66.2.2. The person accomplishing the task is responsible for notifying the IPI certifier at the appropriate step.

23.66.2.3. The certifier will comply with the IPI and document their work by entering the statement "IPI complied with," and their signature, employee number and rank next to that statement in the corrective action block of the AFTO Form 781A, AFTO Form 244, or work document and in the WCE narrative in CAMS.

23.66.2.4. The production inspector who clears the Red X will ensure the IPI was completed and documented.

Section 23V—Production Inspectors

23.67. General. AFI 21-101 defines the requirement for production inspectors. Production inspectors are individuals authorized to verify the condition of equipment or the proper accomplishment of the maintenance. For example, individuals authorized to sign off Red X conditions, perform IPIs, and sign condition tags or NRTS conditions are all considered production inspectors. A production inspector may be authorized to perform any, or all, of the above tasks or other tasks when required. Production inspectors are documented in CAMS and on the unit SCR with each production or functional area task the person is authorized to verify separately identified.

EXCEPTION: 2W0X1 personnel are exempt from these requirements. Personnel in 2W0X1 will be CFETP qualified and appointed by the munitions flight chief/commander (as appropriate).

23.67.1. SMOs/MSs, superintendents, and division equivalents will select primary AFSC production inspectors based on their experience and technical expertise.

23.67.1.1. Authorize NCOs with a 7-skill level or higher (or civilian equivalent) as production inspectors. Seven-level personnel may be authorized as production inspectors outside their primary AFSC when the specific CUT task qualification is documented on an AF Form 797.

23.67.1.2. The applicable GP/CCs, by exception only, may waiver selected 5-skill level personnel, in the rank of senior airman or higher to perform production inspector duties in their primary AFSC when recommended by the squadron commander/division chief. Waived 5-skill level personnel should be closely monitored and kept to a minimum required to accomplish the maintenance mission.

Section 23W—Aircraft Battle Damage Repair (ABDR

23.68. General. Units are no longer required to maintain an ABDR training program. Combat logistics support squadron (CLSS) teams are chartered by the time phased force deployment document (TPFDD) to deploy and provide manpower to perform ABDR.

23.68.1. In the event that a unit's CLSS ABDR support team is unavailable, units will perform repairs within their repair capabilities. If repairs exceed the unit's capability, request CLSS support by accomplishing the following:

23.68.1.1. During peacetime operations, units will perform repairs within their repair capabilities and submit a request for CLSS assistance when repairs exceed the units' capability according to TO 00-25-107.

23.68.2. The CLSS team chief will report to the LG/CC upon arrival.

Section 23X—War Reserve Materiel (WRM) External Fuel Tank (EFT) Build-up

23.69. General. External EFT build-up is a wing program that provides a critical wartime skill that compensates for the consumption of aircraft EFTs. Any personnel within the wing not assigned to a wartime UTC can be used to augment this wartime skill. Refer to AFI 25-101, *War Reserve Materiel (WRM) Program Guidance and Procedures*, for additional information concerning WRM EFT build-up.

Section 23Y—Engine Inlet Inspection Training and Certification Program

23.70. General. This program requires all units to have a comprehensive training program that will ensure minimum standards are met and proficiency is maintained.

23.71. Target Population. Engine inlet inspections will only be performed by certified 5-, 7-, and 9-skill level aircraft maintenance specialists (2A3X3X, 2A5X1X, and 2A5X2 AFSCs or civilian equivalents) or aerospace propulsion specialists (2A6X1X or civilian equivalent).

23.72. Formal Training. The LTF/TD will develop and manage engine inlet inspection training. Instructors will be certified to perform these inspections. The LTF/TD will develop a course code for the formal training. As a minimum, courses will include care and handling of equipment, FOD prevention, inspection criteria, and familiarization with applicable technical data for all assigned aircraft/engine types.

23.73. Certification Criteria. Certifying officials will be the most qualified 7- or 9-skill level aircraft maintenance specialists (2A3X3X, 2A5X1X, and 2A5X2 AFSCs or civilian equivalents) or aerospace propulsion specialists (2A6X1X or civilian equivalent). AFETS may be certifiers, if qualified. The LG/CC designates certifying officials in writing. Units will limit the number of certifying officials to two per squadron to ensure standardized training and certification. Upon completion of the formal training, individuals are task evaluated by a certifying official (someone other than the instructor who administered the course). This initial certification will take place within 30 days of completion of formal training.

23.74. Documentation. After completing formal training, the instructor signs off the individual's AF Form 623 or CFETP. Upon certification, personnel are placed and tracked on the SCR.

23.75. Proficiency Requirements. There is no proficiency requirement for engine inlet inspections.

23.76. Annual Recertification. Each certified technician is required to be recertified annually by a certifying official. This is accomplished by having the technician demonstrate that they can perform the task(s). A QA PE may be used to satisfy this requirement if the QA evaluator is a certifying official. Personnel decertified for cause will attend the engine inlet inspection course and be recertified by a certifying official.

Section 23Z—Engine Blade Blending Training and Certification Program

23.77. General. This program requires all units to have a comprehensive training program that will ensure minimum standards are met, and proficiency is maintained.

23.78. Target Population. Only certified 5-, 7-, and 9-skill level aerospace propulsion specialists (2A6X1X or civil service equivalent) will perform engine blade blending. Certify 7- and 9-skill level aircraft maintenance specialists (2A3X3X or civilian equivalent) only when absolutely necessary, by waiver. The applicable GP/CC or director will be the approval authority for these waivers.

23.79. Formal Training. The LTF/TD will develop and manage engine blade blending training. As a minimum, courses will include care and handling of equipment, FOD prevention, repair criteria, and familiarization with all applicable technical data for assigned engine types. Instructors will be certified to perform these repairs. The LTF/TD will develop a course code for the formal training.

23.80. Certification Criteria. Certifying officials will be the most qualified 7- or 9-skill level 2A6X1X technicians (or civilian equivalent). Engine AFETS may be certifiers, if qualified. The LG/CC designates certifying officials in writing. Units will limit the number of certifying officials to two per squadron to ensure standardized training and certification. Upon completion of the formal training, individuals are task evaluated by a certifying official (other than the instructor who administered the course). Initial certification will take place within 30 days of completion of training.

23.81. Documentation. After completing formal training, the instructor signs off the individual's AF Form 623 or CFETP. Upon initial certification, personnel are placed on the SCR. The 120-day proficiency requirement will be tracked through CAMS.

23.82. Proficiency Requirements. As a minimum, personnel will perform one blend repair every 120 days to maintain proficiency. Workcenter supervisors will ensure personnel who do not meet this requirement are decertified.

23.83. Annual Recertification. Each qualified technician is required to be recertified annually by a certifying official. This is accomplished by having the technician demonstrate that they can perform the task(s). A QA PE may be used to satisfy this requirement if the QA evaluator is a certifying official. Personnel exceeding the 120-day proficiency requirement, or decertified for cause, will attend the blade blending course and be recertified by a certifying official.

Section 23AA—Aircraft Intake Maintenance Training and Certification Program

23.84. General. This program requires all units to have a comprehensive training program to ensure minimum training standards are met.

23.85. Target Population. All aircraft maintenance personnel whose duties require them to enter an aircraft intake will be certified under this program.

23.86. Formal Training. The LTF/TD will develop and manage training. As a minimum, the course will include care and handling of equipment, FOD prevention, tool and hardware accountability, and familiarization with applicable technical data for all assigned aircraft types. The LTF/TD will develop a course code for the formal training.

23.87. Certification Criteria. Certifying officials will be a highly qualified 7- or 9-skill level (or civilian equivalent) designated by the LG/CC and OG/CC. When AFETS are assigned, they can be one of the certifiers, if fully qualified. Units will limit the number of certifiers to two per squadron to ensure standardized training and certification. Upon completion of the formal training, individuals are task evaluated by the certifying official (an individual other than the instructor who administered the course), and placed on the SCR. Initial certification will take place within 30 days of completion of training.

NOTE: Structural maintenance personnel (2A7X3 or civilian equivalent) will be certified by a qualified 7- or 9-skill level 2A7X3 technician in the grade of master sergeant or higher (or civilian equivalent).

23.88. Documentation. After completing formal training, the instructor signs off the individual's AF Form 623 or CFETP. Upon initial certification, personnel are placed on the SCR.

23.89. Annual Recertification. There is no recertification requirement for aircraft intake maintenance.

Section 23AB—Flying Crew Chief (FCC) Program

23.90. General. Units will maintain the FCC program according to AFI 21-101. Unit FCC program managers will monitor and report status to AFMC/DOM. Annual program status will be reported by quarter with data due to HQ AFMC/DOM NLT 15 July. HQ AFMC/DOM will forward the annual reports to HQ USAF/ILMM by 15 August per AFI 21-101.

Section 23AC—Engine Run Training and Certification Program

23.91. Engine Run Program. AFMC units possess and maintain a diverse fleet of highly modified aircraft and engines; therefore, a comprehensive engine run certification program will be developed and strictly enforced to prevent safety mishaps and potential loss of life. All maintenance personnel authorized to start and operate fixed-wing aircraft engines, auxiliary power units (APUs), and uninstalled engines will be trained and certified to operate engines at locally determined power settings. The LG/CC is responsible for ensuring the LTF develops and manages an effective engine run certification program. Units will certify only the minimum number of personnel necessary to meet mission requirements. The following minimum requirements will be used to certify engine run personnel:

23.91.1. The LTF will serve as the OPR and focal point for the management and development of the engine run certification program, engine run certification test question bank, and written tests for their respective weapon system.

23.91.2. The logistics support squadron (LSS) commander will appoint an engine run training program manager, preferably a maintainer with previous engine run qualifications.

23.91.3. AFI 11-218, AFMC Sup 1, AFMCI 36-201, *Education and Training Process Guide*, applicable aircraft and engine TOs, applicable commercial aircraft/engine operating procedures, and special test project engineering procedures (if applicable) will be used to develop engine run certification training programs.

23.91.4. The engine run certification program will consist of formal classroom training, simulator training (not required for uninstalled engine operation), and practical demonstration.

23.91.4.1. Each phase will be successfully completed before progressing to the next phase.

23.91.5. The LTF will review approved engine run certification procedures annually for accuracy.

23.91.5.1. The LTF will coordinate all engine run certification procedures through HQ AFMC/DOM for approval.

23.91.6. Maintenance personnel are not authorized to run helicopter installed engines. Aircrew members will perform maintenance runs when required.

23.91.7. Only certified/qualified engine run personnel will perform aircraft engine motoring.

23.91.8. Maintenance personnel are not authorized to taxi aircraft.

23.91.9. Engine run certification tests are controlled items and will be handled according to AFI 36-2201, *Developing, Managing, and Conducting Training*, and administered only by LTF personnel.

23.91.9.1. Multiple tests will be developed for operating procedures and parameters.

23.91.9.2. according to AFMCI 36-201, in-house tests do not meet the engine run certification test requirements and are prohibited.

23.91.9.3. For all written tests, emergency procedures require a minimum passing score of 100 percent and normal operating procedures and limitations require a minimum passing score of 90 percent, corrected to 100 percent.

23.91.10. Qualifications of engine/APU run certifiers and engine/APU run certified personnel will be documented in CAMS/integrated maintenance data system (IMDS) and entered in the SCR.

23.91.10.1. Units will develop local procedures to track run proficiency requirements in CAMS/IMDS.

23.91.10.2. Supervisors will promptly decertify any personnel who exceed the maximum time allowed between runs.

23.91.10.3. Personnel decertified for cause will be recertified according to the specified guidance listed in this section.

23.91.11. Units will develop local procedures clearly depicting authorized run locations for aircraft engine operation above 85 percent.

23.91.12. Units will establish aircraft specific procedures for seat belt and shoulder harness requirements for engine maintenance ground runs.

23.91.13. Upon certification, personnel will be placed and tracked on the SCR by MDS, Type, Make, Series, Modification (TMSM), and authorized power settings.

23.92. Aircraft Engine/APU Run Certification Requirements. All personnel identified for engine/APU run qualification training will complete an engine/APU run training program on each MDS/engine series prior to certification as engine run certified. The following minimum requirements will be met prior to receiving aircraft engine run certification:

23.92.1. Military/civilian:

23.92.1.1. Be at least a staff sergeant (or civilian equivalent).

23.92.1.2. Possess a 2A671A/B, 2A571, or 2A373 AFSC (or civilian equivalent).

23.92.1.3. Be authorized to clear Red X inspections for engine intakes and engine exhausts.

23.92.1.4. Have a minimum of one year current experience on each applicable MDS.

NOTE: During manpower shortages, the LG/CC or OG/CC may waiver highly qualified senior airmen possessing a 5-skill level and a minimum of two years of experience in the applicable MDS until required manning levels improve.

23.92.2. Contractor:

23.92.2.1. Contractor personnel may be authorized to run installed/uninstalled engines, APUs, and/or small gas turbine engines when designated in writing by the respective GP/CC.

23.92.3. Individual certification will be required for each MDS. For example, when A-10s, F-15s, and F-16s are possessed on the same base, A-10 run-certified personnel cannot run F-15s or F-16s without completing F-15 and F-16 run certification requirements.

23.92.4. On multi-engine aircraft, maintenance personnel will be authorized to perform high power runs (over 85 percent power) on no more than two engines simultaneously.

23.92.4.1. High power engine runs requiring more than two engines will only be performed by qualified aircrew members.

23.92.5. Qualifications will be valid for six months unless disqualified for cause.

23.92.6. Certifiers. Aircraft engine-run certifying officials will be a master sergeant or above with a 2A671A/B, 2A571, 2A373 (or civilian equivalent) or be a fully qualified/certified AFETS representative. They will also have a minimum of two years current experience on the applicable MDS. Instructor pilots (IP) and FCF pilots can also be used as certifiers during the practical engine run demonstration.

23.92.7. Training. The aircraft engine/APU run program will consist of three phases successfully completed in sequence as follows: classroom instruction, simulator training, and demonstration of engine run proficiency.

23.92.7.1. Individuals selected as instructors will be staff sergeant or above, possess a 7-skill level in 2A6X1A/B, 2A5X1, or 2A3X3 AFSCs (or civilian equivalent) or a qualified AFETS representative, be engine run certified on each MDS being taught, and have a minimum of two years of experience on the applicable MDS.

23.92.7.2. Units can contact HQ AFMC/DOM for assistance in obtaining information for training and certification.

23.92.7.3. Classroom instruction will include:

23.92.7.3.1. General aircraft familiarization to include, as a minimum, basic MDS airframe characteristics, aircraft safe-for-maintenance procedures, cockpit configuration and systems, and aircraft system/subsystems operation.

23.92.7.3.2. A thorough review of applicable TO procedures with emphasis on notes, cautions, and warnings.

23.92.7.3.3. Engine/APU operation, to include normal operational parameters and limitations.

23.92.7.3.4. Ensuring aircraft, engine, and APU emergency procedures are committed to memory.

23.92.7.3.5. Local tower communication procedures.

23.92.7.3.6. A two part closed book examination consisting of the following:

23.92.7.3.6.1. Part I - Students will be given a written examination on bold face emergency procedures (test length will depend upon the bold face procedures identified in the applicable tech data) requiring a minimum passing score of 100 percent.

23.92.7.3.6.1.1. Students will successfully complete part I before taking part II.

23.92.7.3.6.2. Part II - Students will be given a 25 question written examination covering normal engine run procedures and limitations requiring a minimum passing score of 90 percent, corrected to 100 percent.

23.92.7.3.6.2.1. Personnel failing either part of this examination will not be retested for a period of 5 duty days after the first failure and 14 duty days after the second failure.

23.92.7.3.6.2.2. Students will not be given the same Part II test during retesting efforts.

23.92.7.3.6.2.3. After a second failure, the LG/CC (or equivalent) must authorize personnel to retest and continue in the program.

23.92.7.4. Simulator training. All maintenance personnel requiring engine run certification will receive simulator training on each specific aircraft MDS and APU.

23.92.7.4.1. Units not possessing local simulators will coordinate with HQ AFMC/DOM to locate simulators for training within the command or through other major commands.

23.92.7.4.2. Units will budget annual temporary duty (TDY) funding requirements accordingly.

23.92.7.4.3. Use of flight simulators to train maintenance personnel will be published in the monthly maintenance plan/training schedule.

23.92.7.4.4. As a minimum, students will demonstrate sufficient knowledge and proficiency to the unit engine run certifier in the following areas:

23.92.7.4.4.1. Proper run clearance procedures.

23.92.7.4.4.2. Ultra high frequency (UHF) radio operation, discipline, air traffic control (ATC) tower procedures, and emergency radio transmissions.

23.92.7.4.4.3. Normal APU/engine start, run, and shutdown procedures.

23.92.7.4.4.4. Normal augmentor operation, when applicable.

23.92.7.4.4.5. Aircraft systems/subsystems normal operating parameters.

23.92.7.4.4.6. Proper emergency procedure corrective actions during all bold face aircraft, APU, and engine emergency conditions.

23.92.7.5. Practical evaluation. Each individual will receive a practical engine run evaluation after successful completion of classroom and simulator training from an IP, FCF pilot, or certified AFETS representative prior to certification. As a minimum, the student will demonstrate successful completion of the following areas without any discrepancies based on a go/no-go standard:

23.92.7.5.1. Proper run clearance procedures.

23.92.7.5.2. UHF radio operation, discipline, ATC tower procedures, and emergency radio transmissions.

23.92.7.5.3. Normal APU/engine start, run, and shutdown procedures, including notes, cautions, and warnings.

23.92.7.5.4. Normal augmentor operation when applicable, including notes, cautions, and warnings.

23.92.7.5.5. Aircraft systems/subsystems normal operating parameters, including notes, cautions, and warnings.

23.92.7.5.6. Proper emergency procedure corrective actions during all bold face aircraft, APU, and engine emergency conditions.

23.92.8. Recertification. All engine/APU run certified personnel, engine/APU run instructors, and engine/APU run certifiers will complete semi-annual recertification using the following minimum requirements:

23.92.9. Semi-annual Recertification. Consists of classroom training, a cockpit emergency procedure evaluation (power off), and a practical engine/APU run evaluation from an authorized certifying official qualified in the applicable MDS successfully completed in sequence. Classroom instruction will include the following:

23.92.9.1. General aircraft familiarization to include, as a minimum, basic MDS airframe characteristics, aircraft safe-for-maintenance procedures, cockpit systems, and aircraft systems/subsystems.

23.92.9.2. A thorough review of applicable TO procedures emphasizing notes, cautions, and warnings.

23.92.9.3. Engine/APU operation to include normal operational parameters and limitations.

23.92.9.4. Ensuring students commit aircraft, engine, and APU emergency procedures to memory.

23.92.9.5. Local tower communication procedures.

23.92.9.6. Part I written examination with bold face emergency procedures requiring a minimum passing score of 100 percent.

23.92.9.6.1. Personnel failing the part I of the examination will not be retested for a period of 5 duty days after the first failure and 14 duty days after the second failure.

23.92.9.6.2. After a second failure, the LG/CC (or equivalent) must authorize personnel to retest and continue in the program.

23.92.9.7. The cockpit emergency procedure evaluation will consist of the student demonstrating proper bold face emergency procedures evaluation using a flight simulator, cockpit trainer, or a verbal evaluation in an aircraft (power off) to an authorized certifying official. Certifiers will use a go/no-go standard during this evaluation.

23.92.9.7.1. Students failing to demonstrate bold face emergency procedures will be decertified and will only be recertified using the initial certification requirements.

23.92.9.8. Each individual will receive a practical engine/APU run evaluation after successful completion of classroom training and emergency bold face procedures from an authorized certifying official. As a minimum, the student will demonstrate successful completion of the following areas without any discrepancies based on a go/no-go standard:

23.92.9.8.1. Proper run clearance procedures.

23.92.9.8.2. UHF radio operation, discipline, and emergency radio transmissions.

23.92.9.8.3. Normal APU/engine start, run, and shutdown procedures, including notes, cautions, and warnings.

23.92.9.8.4. Normal augmentor operation (when applicable), including notes, cautions, and warnings.

23.92.9.8.5. Aircraft systems normal operating parameters, including notes, cautions, and warnings.

23.92.9.8.6. Proper emergency procedure corrective actions during all bold face aircraft, APU, and engine emergency conditions.

23.92.10. Proficiency. To maintain proficiency, maintenance personnel authorized to operate engines and APUs will perform at least one engine/APU run every 90 days.

23.92.10.1. Units will develop local procedures for tracking proficiency due dates to ensure personnel do not go overdue.

23.92.10.2. Supervisors will ensure individuals who fail to maintain current proficiency are promptly decertified.

23.92.10.2.1. Individuals decertified for cause must be recertified, without exception.

23.93. Operation of Engines on Test Stands and Cells. All personnel identified for uninstalled engine and/or small gas turbine engine run qualification will complete an uninstalled engine and/or small gas turbine engine run training program prior to certification. The following minimum requirements will be met prior to receiving uninstalled and/or small gas turbine engine run certification:

23.93.1. Certification Requirements. Individuals will be certified for each specific engine TMSM authorized to run. For example, when F110-100s, F110-129, F100-100, F100-200, F100-220 engines are possessed on the same base, F110-100 engine run certified personnel cannot run F110-129 or F100-200s without completing F110-129 and F100-200 engine run certification requirements.

23.93.1.1. Military/civilian:

23.93.1.1.1. Be at least a staff sergeant (or civilian equivalent).

23.93.1.1.2. Possess a 2A671A/B AFSC (or civilian equivalent).

23.93.1.1.3. Be authorized to clear Red X inspections for intakes and exhaust.

23.93.1.1.4. Have a minimum of one year current experience on each applicable TMSM.

NOTE: During manpower shortages, the LG/CC or OG/CC may waiver highly qualified senior airman possessing a 5-skill level and a minimum of two years of experience in the applicable MDS only until required manning levels improve.

23.93.1.2. Contractor.

23.93.1.2.1. Contractor personnel may be authorized to run uninstalled engines and/or small gas turbine engines when designated in writing by the respective GP/CC.

23.93.1.3. Qualifications will be valid for 12 months unless disqualified for cause.

23.93.1.4. Certifiers. Uninstalled engine run certifying officials will be a master sergeant or above with a 2A671A/B AFSC (or civilian equivalent) and have a minimum of two years current experience on the applicable MDS.

23.93.1.4.1. Contractor personnel may be authorized to serve as certifying officials for uninstalled engines and small gas turbine engines when designated in writing by the respective GP/CC.

23.93.1.4.2. The LG/CC may authorize LTF instructors as certifying officials for uninstalled engine and small gas turbine engine run, if assigned.

23.93.1.5. Training. Uninstalled engine/small gas turbine engine run training will consist of three phases performed sequentially, meeting the objectives of all three, without exception, to the fully qualified level as follows: classroom instruction, control cab (power off) training, and demonstration of engine run proficiency.

23.93.1.5.1. Individuals selected as instructors will be a staff sergeant or above with a 2A671A/B AFSC (or civilian equivalent) be run certified on each TMSM being taught, and have a minimum of two years of experience on the applicable TMSM.

23.93.1.5.2. Contractor personnel may be authorized to serve as certifying officials for uninstalled engines and small gas turbine engines when designated in writing by the respective GP/CC.

23.93.1.5.3. Units can contact HQ AFMC/DOM for assistance in obtaining training and certification.

23.93.1.5.4. Training will include, as a minimum, the following areas:

23.93.1.5.4.1. General engine familiarization to include, as a minimum, basic engine description, component location, and functions.

23.93.1.5.4.2. Thorough familiarization of control cabs, test stands, hush houses, and T-9 fire suppression control panels.

23.93.1.5.4.3. Thorough review of applicable TO procedures with emphasis on notes, cautions, and warnings.

23.93.1.5.4.4. Uninstalled engine and/or small gas turbine engine operation to include normal operational parameters and limitations.

23.93.1.5.4.5. Ensuring uninstalled engine/small gas turbine engine emergency procedures are committed to memory.

23.93.1.5.4.6. Local communication procedures.

23.93.1.5.4.7. A two-part closed book examination consisting of the following:

23.93.1.5.4.7.1. Part I - Students will be given a written examination with bold face emergency procedures requiring a minimum passing score of 100 percent.

23.93.1.5.4.7.1.1. Students will successfully complete part I before taking part II.

23.93.1.5.4.7.2. Part II - Students will be given a 25 question written examination covering normal engine run procedures and limitations requiring a minimum passing score of 90 percent, corrected to 100 percent.

23.93.1.5.4.7.3. Personnel failing either part of this examination will not be retested for a period of 5 duty days after the first failure and 14 duty days after the second failure.

23.93.1.5.4.7.3.1. Students will not be given the same Part II test during retesting efforts.

23.93.1.5.4.7.3.2. After a second failure, the LG/CC (or equivalent) must authorize personnel to retest and continue in the program.

23.93.1.6. Control cab evaluation. After successful completion of classroom training, students will properly demonstrate the following minimum requirements to an authorized certifying official without discrepancies using the go/no-go standard:

23.93.1.6.1. Proper uninstalled engine/small gas turbine engine start, run, and shutdown procedures, including notes, cautions, and warnings (power off).

23.93.1.6.2. Proper uninstalled engine/small gas turbine engine bold face emergency procedures, including notes, cautions, and warnings (power off).

23.93.1.6.3. Knowledge of normal uninstalled engine/small gas turbine engine operating limits, including notes, cautions, and warnings.

23.93.1.6.4. Augmentor operation, when applicable, including notes, cautions, warnings and emergency procedures.

23.93.1.6.5. Practical evaluation. Each individual will receive a practical uninstalled engine/small gas turbine run evaluation after successful completion of classroom training and control cab evaluation from an authorized certifier. As a minimum, the student will demonstrate successful completion of the following areas without discrepancies based on a go/no-go standard:

23.93.1.6.5.1. Proper run clearance procedures.

23.93.1.6.5.2. Proper emergency communication procedures.

23.93.1.6.5.3. Normal uninstalled engine/small gas turbine engine start, run, and shutdown procedures, including notes, cautions, and warnings.

23.93.1.6.5.4. Normal augmentor operation (when applicable), including notes, cautions, and warnings.

23.93.1.6.5.5. Proper emergency procedure corrective actions during all bold face uninstalled engine/small gas turbine engine emergency conditions.

23.93.1.6.6. Recertification. All uninstalled engine and small gas turbine engine run certified individuals and certifier require semi-annual and annual recertification.

23.93.1.6.7. Semi-annual Recertification. Consists of classroom training, control cab evaluation, and a practical engine run evaluation from an authorized certifying official.

23.93.1.6.8. Annual Recertification. Includes the same requirements as the initial certification.

23.93.1.6.9. Proficiency. All uninstalled engine/small gas turbine engine run certified individuals and certifiers will run at least one engine every 90 days for each TMSM certified.

23.93.1.6.10. Maintenance personnel certified to run single TMSM applications not feasible to run every 90 days will complete part I and part II tests every 90 days to maintain proficiency.

23.93.1.7. Special test projects. Some AFMC units will participate in special testing of uninstalled engines and/or small gas turbine engines that do not fall within the scope of the normal certification processes outlined in this chapter. Under these circumstances, the affected unit will apply the following guidelines to ensure test project engines are operated to the safest extent possible:

23.93.1.7.1. Ensure test projects requiring engine operation that do not have approved Air Force TO procedures will be approved by the LG/CC and appropriate safety agencies.

23.93.1.7.2. When engine operating procedures do not exist in Air Force TOs, test project plans will specify use of commercial engine operating manuals (if they exist) and appoint a contractor or USAF test engineer for duration of engine testing.

23.93.1.7.3. The most qualified/experienced USAF personnel will operate engines when there are no run procedures established in AF TOs.

23.93.1.8. Hush house and T-9 sound suppressor fire control panel. To ensure only qualified personnel are certified to use the hush house and T-9 sound suppressor fire control panel, the following certification requirements apply:

23.93.1.8.1. Only 2A671A/B personnel (or civilian equivalent) will be certified.

23.93.1.8.2. Training will consist of formal training using TOs and hands on familiarization and will include the following minimum requirements:

23.93.1.8.2.1. Hush house and T-9 sound suppressor fire control panel familiarization and operation.

23.93.1.8.2.2. Emergency procedures, including local notification procedures.

23.93.1.8.2.3. Notification of inadvertent Halon discharge.

23.93.1.8.3. Hush house and T-9 sound suppressor NCOIC or designated individual will serve as the certifying official.

23.93.1.8.4. Contractor personnel may be authorized to serve as certifying officials for hush house and T-9 sound suppressor fire control panel when designated in writing by the respective GP/CC.

23.93.1.8.5. Certification is only valid for 12 months.

23.93.1.8.6. Hush house and T-9 sound suppressor fire control panel certified personnel require annual recertification.

23.93.1.8.7. Initial certification requirements will be used for the annual recertification.

23.93.1.8.8. Certification will be tracked in CAMS and on the SCR.

Section 23AD—Squadron Assessment Program (SAP)

23.94. General (GP/CC Option). The SAP is established to allow squadrons to assess themselves and analyze their strengths and weaknesses within their own squadrons. The intent is to open a participative partnership between QA and the squadrons to thoroughly analyze data and evaluate the quality of maintenance being performed and provide corrective actions as necessary.

23.95. Functions of the SAP. Squadrons develop their individual SAP based on the wing's routine task list (RTL). Using the wing's RTL as a starting point and focusing on the tasks that are applicable, squadrons formulate a strategy that includes a target number of assessments they will perform for the month using criteria in **Section 9C**. Squadrons have the flexibility in adding tasks that are not listed on the wing's RTL. For example, the wing's RTL provides the basic assessment categories that need quarterly assessment and the squadron will determine the actual number of assessments they plan to perform. Depending on the operation and problem areas, flexibility exists to focus on those maintenance actions/functions that

the squadron feels are necessary. This in-depth analysis and identification allows supervision the flexibility to take corrective action on any process problems. The strength of a squadron owned program is the capability of maintenance supervision to identify areas requiring assessment on a weekly basis. After the previous weeks' results are interpreted and strengths and weaknesses identified, the squadron can instantly focus on processes requiring improvement. When a squadron requests assistance, QA can be tasked through the SI program. SIs allow QA to provide an interested, yet impartial, viewpoint of the process.

23.96. Strategy Meeting. The squadron performs a detailed analysis of the previous week's assessments highlighting positive and negative trends and squadron strengths and weaknesses. Besides reviewing the previous week's assessments, the strategy meeting should focus on the squadron's future assessment strategy. Strategy meetings are encouraged to be held weekly but must be at least every two weeks. The frequency allows real time response to surfacing problems. Strategy meetings are chaired by squadron supervision. This meeting is essential for review of the week's quality verification inspection (QVI) results for each assessment category, analysis of trends, and review of special inspection activity (if applicable). The SMO/MS may adjust the next week's strategy, review the acceptable quality level (AQL) for inputs to QA, and request SIs during this meeting. QA dedicated inspector input and mentoring at this meeting helps squadron management focus their assessment activity into suspected problem areas and ensures the squadron's plans are kept on track.

23.97. Identifying Squadron Assessors. SMOs/MSs appoint a limited number of assessors, normally production personnel with a 7-skill level or above. Personnel below the 7-skill level should be selected based upon their AFSC, technical and communicative skills, duty experience, and quality awareness. The SMO/MS ensures a sufficient numbers of assessors are appointed to provide adequate coverage of all squadron processes both at home station and deployed locations. SMOs/MSs will publish a complete listing of squadron assessors to include name, rank, AFSC, employee number, and date the EPE was conducted.

23.98. Training Squadron Assessors. Personnel appointed as squadron quality assessors must receive quality awareness training (quality class, supervisor provided, or as part of the assessor training course) and squadron assessor training. Squadron assessor training should be conducted at the LTF in a classroom environment conducive for quality instruction utilizing QA inspectors as subject matter experts according to AFI 36-2201. Training will be documented CAMS. Before an assessor is authorized to conduct assessments, an EPE will be conducted by a QA inspector and documented in CAMS as a special certification item. Squadrons are encouraged to provide as much additional quality training to assessors as personnel and mission demands will permit.

23.99. Dedicated QA Inspector's Role. The QA inspector holds a key role in the SAP. Inspectors are appointed by the group QA chief inspector and aligned with the squadron. Large squadrons may have more than one dedicated inspector to ensure adequate coverage of all processes. The inspector serves as the primary advisor and mentor to the squadron on the SAP. While in the squadron, the inspector assists supervision to perform technical data gathering, conduct on-the-job-training for assessors, prepare accident/incident reports, other tasks necessary to ensure a quality product, and seek continuous improvement. Inspectors attend the squadron strategy meeting and provide inputs on the level of quality observed during the week.

23.100. Conducting Assessments. For the purposes of this paragraph, assessment refers to evaluations performed by squadron assessors. Often assessments are conducted on equipment following a maintenance inspection or repair action. The assessments verify a technician or supervisor properly completed the inspection or repair action. Do assessments before equipment operation or use if equipment operation or use could invalidate indications or proper job accomplishment. Normally, the assessment does not require disassembling parts, removing of stress panels, and like actions. The assessment may be accomplished by checking a portion of the required workcards or area. Sampling a portion of the workcards/job guide will normally provide an indication of the maintenance performed.

23.101. Reporting and Trend Analysis. Squadron assessors input data to the quality assessment tracking (QAT) computer program utilizing instructions given in **Section 9D**. Production personnel as well as squadron supervisors should have unlimited access to the QAT computer program. Local area network (LAN) capabilities should be used to its fullest. Data from assessments can be extracted to fit the needs of the process owner. Data should be used in the squadron strategy meetings to identify trends.

23.102. Monthly Projections. The SMO/MS will compile and submit to QA a list of projected assessments to be accomplished by their unit for the upcoming month. QAT program data, together with areas of concern to the squadron, should be used in projection development.

Section 23AE—Squadron Self-Inspection Program (GP/CC Option)

23.103. General. The squadron self-inspection program must be tailored to the organization's structure and mission. It should provide adequate coverage of the mission, resources, training, and people programs. Problems identified should be categorized by mission impact and compliance with policies and efforts needed to fix problems. A feedback mechanism must be developed so identified problems can be tracked until resolved, waiver or outside assistance is obtained, or limiting factors (LIMFAC) are reported formally. Detailed guidance must be developed in local Ois.

WILBERT D. PEARSON JR, Brig Gen, USAF
Director of Operations

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

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AF Form 2410, **Inspection/TCTO Planning Checklist**

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Optional Form 21, **Cross Reference Record**

Abbreviations and Acronyms

AAI—Air-to-Air Interrogation

ABDR—Aircraft Battle Damage Repair

ACC—Air Combat Command

ACM—Aircraft Configuration Management

ACM—Advanced Cruise Missile

ACO—Administrative Contracting Officer

ACR—Authorization Change Requests

ADCC—Assistant Dedicated Crew Chief

ADF—Automatic Direction Finder

A&P—Airframe and Powerplant

ADN—Aircraft Directive Number

AETC—Air Education and Training Command

AF—Air Force

AFB—Air Force Base

AFCS—Automatic Flight Control System

AFCSM—Air Force Computer System Manual

AFEMS—Air Force Equipment Management System

AFETS—Air Force Engineering and Technical Services

AFI—Air Force Instruction

AFK—Munitions Supply

AFMAN—Air Force Manual

AFMC—Air Force Materiel Command

AFMCI—Air Force Materiel Command Instruction

AFMETCAL—Air Force Metrology and Calibration

AFMS—Air Force Manpower Standard

AFORMS—Air Force Operations Resources Management Section

AFOSH—Air Force Occupational and Environmental, Safety, Fire Protection, and Health

AFPD—Air Force Policy Directive

AFSATCOM—Air Force Satellite Communications

AFSC—Air Force Specialty Code

AFTO—Air Force Technical Order

AGE—Aerospace Ground Equipment

AGETS—Automated Ground Engine Test System

AGM—Air Surface Attack Guided Missile

AIG—Address Indicating Group

AIS—Avionics Intermediate Section

AL—Agile Logistics

ALA—Ammunition Loading Assemblies

ALC—Air Logistics Center

ALCM—Air Launched Cruise Missile

ALS—Ammunition Loading System

AMC—Air Mobility Command

AMCI—Air Mobility Command Instruction

AME—Alternate Mission Equipment

AMOC—Aircraft Maintenance Officers Course

AMQP—Aircraft Maintenance Qualification Program

APA—Assessor Proficiency Assessment

APU—Auxiliary Power Unit

AQL—Acceptable Quality Level

ARC—Automated Records Check

AS—Allowance Standard

ASC—Aeronautical Systems Center

ASE—Avionics Support Equipment

ASIP—Aircraft Structural Integrity Program

ASIMIS—Aircraft Structural Integrity Management Information System (ASIMIS)

AT—Air Traffic

AT—Annual Training

ATC—Air Traffic Control

ATD—Aircrew Training Devices

ATERS—Automatic Test Reporting System

ATF—After-the-Fact

ATOMS—Automated Technical Order Management System

ATS—Avionics Test Stations

AUR—All-up Round

AURC—All-up Round Container

AVDO—Aerospace Vehicle Distribution Officer

AVTR—Airborne Video Tape Recorder

AWI—Awaiting Installation

AWM—Awaiting Maintenance

AWP—Awaiting Parts

BCS—Bench Check Serviceable

BEM—Base Engine Manager

BFD—Battery Firing Device

BIT—Built-in Test

BNCC—Base Network Control Center

BPO—Basic Postflight

BRU—Bomb Rack Unit

BSL—Basic Systems List

BSSE—Bench Stock Support Element (BSSE)

CA/CRL—Custodian Authorization/Custody Receipt Listing

CAD—Computer Aided Design

CAD/PAD—Cartridge Actuated Device/Propellant Actuated Device

CALCM—Conventional Air Launched Cruise Missile

CAMS—Core Automated Maintenance System

CANN—Cannibalization

CAS—Combat Ammunition System

CASB—Combat Ammunition System-Base

CASS—Consolidated Aircraft Support System

CAT—Combat AGE Team

CBT—Computer Based Training

CC—Commander

CCD—Course Control Document

CCR—Circuit Card Repair

CDC—Career Development Course

CDDS—CITS Deployable Diagnostics System

CE—Civil Engineering

CEM—Command Engine Manager

CEMS—Comprehensive Engine Management System

CETS—Contractor Engineering and Technical Services

CFETP—Career Field Education and Training Plan

CFL—Competent Familiarity Loading

CFRS—Computerized Fault Reporting System

CFT—Contract Field Team

CFT—Combined Flight Test

CFT—Conformal Fuel Tank

CG—Center of Gravity

CGP—CITS Ground Processor

CGT—Consolidated Ground Terminal

CIP—Component Improvement Program

CITS—Central Integrated Test System

CLS—Contract Logistics Support

CLSS—Combat Logistics Support Squadron

CMC—CITS Maintenance Code

CMR—CITS Maintenance Recording Cartridges

CMS—Calibration Measurement Summary

CND—Cannot Duplicate

CO2—Carbon Dioxide

CO—Contracting Officer

COMM/NAV—Communcications/Navigation

COMPES—Contingency Operations/Mobility Planning and Execution System

COMSEC—Communications Security

CONS—Console Monitoring

CONUS—Continental United States

COS—Chief of Supply

COSO—Combat Oriented Supply Organization

CPIN—Computer Program Identification Numbering

CRS—Component Repair Squadron

CSC—Central Security Control

CTF—Combined Test Force

CTK—Composite Tool Kit

CTP—Certified Technician Program

CTVS—Cockpit Television System

CUT—Cross-Utilization Training

CV—Vice Commander

CVR—Cockpit Voice Recorder

C/W—Complied With

DAF—Defense Accounting and Finance

DBA—Database Administrator

DBE—Database Editor

DBL—Database Look

DBM—Database Manager

DCC—Dedicated Crew Chief

DCC—Deployment Control Center

DD Form—Department of Defense Form

DDN—Defense Data Network

DDR—Daily Demand Rate

DIFM—Due-in From Maintenance

DIREP—Difficulty Report

DIT—Data Integrity Team

DLA—Defense Logistics Agency

DLH—Delete History

DLO—Dual Loading Operation

DMC—Defense Mega Center

DME—Distance Measurement Equipment

DOC—Designed Operational Capability

DoD—Department of Defense

DOI—Date of Installation

DOM—Date of Manufacture

DOM—Directorate of Operations Maintenance Division (HQ AFMC)

DOP—Directorate of Operations Test Policy and Training Division (HQ AFMC)

DOPP—Dropped Object Prevention Program

DOR—Due-out Release

DR—Deficiency Report

DRAW—Director of Requirements, Armament, Weapons Division (HQ AFMC)

DSN—Defense Switching Network

DSV—Detected Safety Violations

DTUC—Data Transfer Unit Cartridge

DUO—Due-out

DVR—Document Validation Report

ECM—Electronic Countermeasures

ECP—Entry Control Point

ECU—Environmental Control Unit

ED—Excused From Duty

EDSC—Engineering Data Service Center

EET—Exercise Evaluation Team

EFT—External Fuel Tank

EHR—Event History Recorder

EIMSURS—Equipment Inventory, Multiple Status and Utilization Reporting Subsystem

ELT—Emergency Locator Transmitter

EM—Engine Management

EMS—Equipment Maintenance Squadron

EN—Directorate of Engineering and Technical Management (HQ AFMC)

ENMCS—Engine Not Mission Capable-Supply

EOD—Explosive Ordnance Disposal

EOR—End-of-Runway

EOQ—Economic Order Quantity

EOT—Engine Operating Time

EPE—Evaluator Proficiency Evaluation

ER—Exceptional Release

ERRC—Expendability, Recoverability, Reparability Category (code)

ERRC—Engine Regional Repair Center

ESE—Engine Support Equipment

ESS—Electrical Standards Set

ESTS—Electronic Systems Test Set

ET&D—Engine Trending and Diagnostic

ETTAS—Engine Trim/Test Automated System

ETIC—Estimated Time in Commission

ETS—Engineering and Technical Service

EVL—Event List

EVS—Electro-optical Viewing System

EW—Electronic Warfare

EWO—Electronic Warfare Officer

EWS—Electronic Warfare System

EX—Exercise

EXPRESS—Execution and Prioritization of Repair Support System

FAA—Federal Aviation Administration

FAC—Functional Area Chief

FAD—Force Activity Designator

FASTCAL—Field Assistance Support Team for Calibration

FCC—Flying Crew Chief

FCF—Functional Check Flight

FCT—Flight Circuit Test

FED—Forced Equipment Document

FK—Air Force Stock Record Account Number Prefix (munitions) (See AFK)

FMC—Fully Mission Capable

FO—Foreign Object

FOD—Foreign Object Damage

FOM—Facilitate Other Maintenance

FOUO—For Official Use Only

FSC—Flight Service Center

FSL—Full Systems List

FTD—Field Training Detachment

GCSAS—Generic Configuration Status and Accounting Subsystem

GE—General Electric

GFE – G—overnment-Furnished Equipment

GMT—Ground Maintenance Trainer

Gold START—Gold Savings Through Asset Repair Teams

GP/CC—Group Commander

GPS—Global Positioning System

GSA—General Services Administration

GSU—Geographically Separated Unit

HAZCOM—Hazardous Communication

HF—High Frequency

HQ—Headquarters

HHQ—Higher Headquarters

HPO—Hourly Postflight

HSAB—Heavy Stores Adapter Beam

HSC—Home Station Check

IA—Inspection Authorization

according to—In Accordance With

ICT—Integrated Combat Turnaround

ID—Identification

IDT—Inactive Duty for Training

IDEA—Innovation Development Through Employee Awareness

IFE—In-flight Emergency

IFF—Identification Friend or Foe

IFR—In-flight Refueling

IG—Inspector General

ILS—Instrument Landing System

IM—Item Manager

IMA—Individual Mobilization Augmentee

IMDS—Integrated Maintenance Data System

IMF—Integrated Maintenance Facility

IMIS—Integrated Maintenance Information System

INS—Inertial Navigation System

INW—In-Work

IP—Instructor Pilot

IPF—Interactive Processing Facility

IPI—In-Process Inspection

IQU—Integrated Query Utility

IR—Infra-red

I&R—Inspection and Repair

IREP—Intermediate Repair Enhancement Program

ISO—Isochronal

ISSL—Initial Spares Support List

ISU—Issue

JCN—Job Control Number

JDD—Job Data Documentation

JEIM—Jet Engine Intermediate Maintenance

JER—Joint Ethics Regulation

JETCC—Jet Engine Test Cell/Stand Calibrator

JML—Job Standard Master Listing

JCWG—Joint Checklist Working Group

JQS—Job Qualification Standard

JST#—Job Standard Number

KTL—Key Task List

LALS—Linkless Ammunition Loading System

LAN—Local Area Network

LANTIRN—Low Altitude Navigation and Targeting Infrared for Night

LCL—Local Checklists

LG—Logistics Group

LG/CC—Logistics Group Commander

LOGMOD—Logistics Module

LGXC—Directorate of Logistics Combat Logistics Support Squadron (HQ AFMC)

LIL—Location Inventory List

LIMFAC—Limiting Factor

LJG—Local Job Guide

LLC—Limited Life Component

LM—Limited Use Munition

2LM—Two-level Maintenance

LMME—Local Manufactured Munitions Equipment

LMR—Land Mobile Radio

LN2—Liquid Nitrogen

LOX—Liquid Oxygen

LPS—Local Page Supplement

LRU—Line Replaceable Unit

LSC—Loading Standardization Crew

LSP—Logistics Support Plan

LSS—Logistics Support Squadron

LTF—Logistics Training Flight

LV—Leave

LWC—Local Workcards

MA—Mobilization Augmentee

MAJCOM—Major Command

MASO—Munitions Accountable Systems Officer

MASS—MICAP Asset Sourcing System

MC—Mission Capable

MDC—Maintenance Data Collection

MDS—Mission, Design, and Series

MDSA—Maintenance Data Systems Analysis

MER—Multiple Ejection Rack

MESL—Mission Essential Subsystems List

MFG—Munitions Family Group

MICAP—Mission Capability

MISCAP—Mission Capability

MIS—Maintenance Information Systems

MMHE—Munitions Materiel Handling Equipment

MMR—Maintenance Manpower Roster

MOA—Memorandum of Agreement

MOC—Maintenance Operations Center

MOU—Memorandum of Understanding

MPC—Maintenance Priority Code

MPL—Maintenance Personnel Listing

MPRL—Minimum Proficiency Requirement Loading

MQT—Maintenance Qualification Training

MRSP—Mobility Readiness Spares Package

MS—Maintenance Supervisor

MSA—Munitions Storage Area

MSD—Material Support Division

MSE—Munitions Support Equipment

MSG—Materiel Systems Group

MSIP—Multi Stage Improvement Program

MSK—Mission Support Kit

MSL—Maintenance Supply Liaison

MSPE—Maintenance Safety and Protection Equipment

MTBF—Mean Time Between Failure

MTF—Medical Treatment Facility

MXS—Maintenance Squadron

NAF—Numbered Air Force

NCO—Noncommissioned Officer

NCOIC—Noncommissioned Officer in Charge

NDI—Non-Destructive Inspection

NHA—Next Higher Assembly

NIE—Normally Installed Equipment

NLT—No Later Than

NMC—Not Mission Capable

NMCS—Not Mission Capable-Supply

NOCM—Nuclear Ordnance Commodity Management

NOTAM—Notice to Airmen

NOUN—Nomenclature

NPA—Non-Powered AGE

NRTS—Not Repairable This Station

NSD—National Stock Designator

NSN—National Stock Number

NSS—Noise Suppression System

O&M—Operations and Maintenance

OAP—Oil Analysis Program

OAS—Offensive Avionics System

OBTS—On-Board Test System

OCF—Operational Check Flight

OCR—Organizational Change Request

OFP—Operational Flight Program

OG—Operations Group

OG/CM—Deputy Operations Group Commander for Maintenance

OG/MS—Operations Group Maintenance Superintendent

OGP—OBTS Ground Processor

OH—Ohio

OI—Operating Instruction

OI—Other Inspection

OIC—Officer in Charge

OPlan—Operational Plan

OPORD—Operations Order

OPR—Office of Primary Responsibility

OPSEC—Operations Security

ORE—Operational Readiness Exercise

ORI—Operational Readiness Inspection

ORM—Operational Risk Management

OS—Operations Squadron

OSHA—Occupational Safety and Health Administration

OSS—Operations Support Squadron

OSS&E—Operational Safety, Suitability, and Effectiveness

OTI—One-Time Inspection

OTS—Over-the-Shoulder

OWC—Owning Workcenter

PAMS—PMEL Automated Management System

PATEC—Portable Automatic Test Equipment Calibrator

PBR—Percent of Base Repair

PCA—Permanent Change of Assignment

PCO—Principle Contracting Officer

PCS—Permanent Change of Station

PDM—Programmed Depot Maintenance

PE—Personnel Evaluations

PE—Periodic Inspection

PERSCO—Personnel Support for Contingency Operations

PI—Product Improvement

PIM—Product Improvement Manager

PIP—Product Improvement Program

PIWG—Product Improvement Working Group

PGM—Precision Guided Munitions

PM—Primary Munition

PMC—Partially Mission Capable

PMCO—Project Monitor for the Contracting Officer

PMCS—Partially Mission Capable-Supply

PMEL—Precision Measurement Equipment Laboratory

PMO—Program Management Office

POL—Petroleum, Oil, and Lubricants

POM—Program Objective Memorandum

POS—Peacetime Operating Stock

PPE—Personal Protective Equipment

PPS—Product Performance Subsystem

PQDR—Product Quality Deficiency Reporting System

PRA—Planning Requirements

PRAM—Productivity, Reliability, Availability and Maintainability

PRC—Publications Change Request

PRD—Pilot Reported Discrepancy

PS&D—Plans, Scheduling, and Documentation

PSP—Primary Supply Point

PTO—Preliminary Technical Order

P&W—Pratt and Whitney

PWC—Performing Workcenter

PWS—Performance Work Statement

QA—Quality Assurance

QAE—Quality Assurance Evaluator

QAEP—Quality Assurance Evaluation Program

QAEPC—Quality Assurance Evaluator Program Coordinator

QAP—Quality Assurance Program

QAR—Quality Assurance Representative

QASP—Quality Assurance Surveillance Plan

QAT—Quality Assessment Tracking

QC—Quality Control

QE—Quarterly Evaluation

QEC—Quick Engine Change

QLP—Query Language Processor

QPA—Quantity Per Assembly

QPE—Quality Process Evaluator

QRC—Quick Reaction/Response Capability

QRL—Quick Reference List

QT—Qualification Training

QVI—Quality Verification Inspection

QVR—Quality Verification Result

RA—Resource Advisor

RAM—Radar Absorption Material

RAMPS—Reparable Assets Management Processing System

RCS—Report Control Symbol

RCT—Repair Cycle Time

R&D—Research and Development

READY—Resource Augmentation Duty

REMIS—Reliability and Maintainability Information System

RFR—Radio Frequency Radiation

RIW—Reliability Improvement Warranty

RJET—Remote Job Entry Terminal

RLA—Rotary Launcher Adapter

R&M—Reliability and Maintainability

RNRIU—Ruggedized Nuclear Remote Interface Units

RPIE—Real Property Installed Equipment

RPP—Respiratory Protection Program

R&R—Repair and Reclamation

RSP—Readiness Spares Package

RTL—Routine Task List

RV—Reentry Vehicle

RWR—Radar Warning Receiver

SA—Special Assessment

SAN—System Advisory Notice

SAP—Squadron Assessment Program

SATCOM—Satellite Communications

SAV—Staff Assistance Visit

SAVE—Saving Through Value Enhancement

SBSS—Standard Base Supply System

SCL—Standard Conventional Load

SCR—Special Certification Roster

SE—Support Equipment

SEF—Flight Safety

SEG—Ground Safety

SEI—Special Experience Identifier

SEM—SRAN Engine Manager

SEV—Stockpile Emergency Verification

SEW—Weapons Safety

SHD—Significant History Data

SI—Special Inspection

SIOP—Single Integrated Operational Plan

SLC—Standardization Lead Crew

SLT—Simulated Laser Target

SM—Support Munition

SM—Secondary Munition

SMO—Squadron Maintenance Officer

SNCO—Senior Noncommissioned Officer

SORTS—Status of Resources and Training System

SOT—Status of Training

SOW—Statement of Work

SPD—System Program Director

SPO—System Program Office

SPRAM—Special Purpose Recoverables Authorized to Maintenance

SQT—Special Qualification Training

SR—Service Report

SR—Serviceability Report (reference: QAP)

SR—Strategic Radar

SRAN—Stock Record Account Number

SRT—Sample Response Time

SSG—Standard Systems Group

SSM—System Support Manager

STRAPP—Standard Tanks, Racks, Adapters and Pylon Packages

STV—Safety and Technical Violations

SW-TODA—Special Weapons Technical Order Distribution Activity

SW-TODO—Special Weapons Technical Order Distribution Office

SWIM—Special Weapons Information Management

T-2—Temporary Modification

TA—Transient aircraft Maintenance Section

TAC—Total Accumulated Cycles

TACAN—Tactical Air Navigation

TAL—Task Assignment List

TACR—Table of Allowance Change Request

TAO—Technical Assistance Organization

TASO—Terminal Area Security Officer

TBU—Tank Build-up

TCI—Time Change Item

TCS—TCTO Status Report

TCTO—Time Compliance Technical Order

TD—Temporary Duty

TD—Training Detachment

TD—Test Directive

TDI—Time Distribution Index

TDV—Technical Data Violations

TDY—Temporary Duty

TE—Technical Engineer

T/E/C—Trainer Evaluator Certifier

TEMS—Turbine Engine Monitoring System

TEP—Technical Engineering Program

TER—Triple Ejection Rack

TF—Training Funded

TFCU—Transportable Field Calibration Unit

TIN—Turn In

TIP—Transaction Interface Processing

TISL—Target Identification Set Laser

TLD—Thermoluminescent Dosimeters

TMDE—Test Measurement and Diagnostic Equipment

TMO—Traffic Management Office

TMSM—Type, Make, Series Modification

TNB—Tail Number Bin

TNMCS—Total Not Mission Capable-Supply

TO—Technical Order

TODA—Technical Order Distribution Activity

TODO—Technical Order Distribution Officer

TOT—Task Oriented Training

TPFDD—Time Phased Force Deployment Document

TQP—Total Quality Program

TRCO—Technical Representative of the Contracting Officer

TRE—Transfer of Equipment

TRIC—Transaction Identification Code

TRN—Turnaround Transaction

TSGF—Test Sortie Generation Flight

TS—Test Squadron

TSS—TCTO Status Summary

TVI—Technical Validation Inspection

TW—Test Wing

TX—Trainer Inactive

UALS—Universal Ammunition Loading System

UCMJ—Uniform Code of Military Justice

UCML—Unit Committed Munitions List

UCR—Unsatisfactory Condition Reports

UDM—Unit Deployment Manager

UEM—Unit Engine Manger

UGT—Upgrade Training

UHF—Ultra High Frequency

UJC—Urgency Justification Code

UMD—Unit Manpower Document

UND—Urgency of Need Designator

UPMR—Unit Personnel Management Roster

USAF—United States Air Force

UTC—Unit Type Code

VHF—Very High Frequency

VOR—VHF Omnirange

VTR—Video Tape Recorder

WG/CC—Wing Commander

W&B—Weight and Balance

WBT—Weapons Bay Tank

WCE—Work Center Event

WDC—When Discovered Code

WPAFB—Wright-Patterson Air Force Base

WRCS—Weapons Release Computer System

WRM—War Reserve Materiel

WRMO—War Reserve Materiel Officer

WRMNCO—War Reserve Materiel Noncommissioned Officer

WS—Weapons Section

WSS—Weapons Standardization Section

WSA—Weapons Storage Area

WTR—Workable TCTO Report

WUC—Work Unit Code

WWM—Wing Weapons Manager

WX—Weather