

**BY ORDER OF THE COMMANDER  
AIR FORCE MATERIEL COMMAND**



**AIR FORCE MATERIEL COMMAND  
INSTRUCTION 21-115**

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Supplement 1**

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**Maintenance**

**DEPOT MAINTENANCE QUALITY  
ASSURANCE (QA)**

**COMPLIANCE WITH THIS PUBLICATION IS MANDATORY**

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This instruction establishes the minimum requirements and standardized criteria for depot maintenance Quality Assurance (QA) Programs at the Air Logistics Centers (ALC). It also applies to Aerospace Maintenance and Regeneration Center (AMARC) industrial operations. (**Note:** Due to size and organizational structure at AMARC, QA falls under the direct control of the Commander as a Center QA and not a Directorate of Maintenance QA). This instruction implements Air Force Materiel Command Policy Directive (AFMCPD) 21-1, *Depot Maintenance Policy*, for establishment of Quality Assurance (QA) offices to provide quality surveillance and analysis of production and production support activities. It implements the requirement of Air Force Materiel Command Instruction (AFMCI) AFMCI 63-501, *AFMC Quality Assurance*, for ensuring that Center MAs maintain a documented Maintenance Quality Manual for all major organic depot maintenance workloads. It applies to all Air Force Materiel Command (AFMC) Depot Maintenance Activity Group (DMAG) organizations, Contract Field Teams (CFT) (when working on AFMC installations unless an equivalent quality program has been verified and approved by the contracting officer), performing depot maintenance or producing depot maintenance products, or services. Deficiency reporting will be done in accordance with TO 00-35D-54, *USAF Deficiency Reporting and Investigation System*.

Exemptions: Active duty and Reserve Combat Logistics Support Squadron (CLSS) will establish a Quality Assurance Program in accordance with AFMCI 10-202, *Combat Logistics Support*. Depot maintenance software development is excluded from the provisions of this instruction. Precision Measurement Equipment Laboratories (PMEL) will comply with TO 00-20-14, *Air Force Metrology and Calibration Program*, for development of Quality Assurance Plans but will meet the minimum requirements for the performance, documentation, correction and reporting of discrepancies identified through Core Inspection Assessments. OO-ALC Operations at OO-ALC/MAK Geographically Separated Unit (GSU) are

exempt from compliance with the requirements of AFMCI 21-115. These GSUs will comply with AFSPCI 21-0114, *Intercontinental Ballistic Missile (ICBM) Maintenance Management*. Exempt GSUs are located at OO-ALC/LM Rivet Minuteman Integrated Life Extension (MILE) operations at Malmstrom AFB, MT; Minot AFB, ND; and F.E. Warren AFB, WY and also DET 41, Vandenberg AFB, CA.

**(ROBINS) AFMCI 21-115, 1 Dec 03, is supplemented as follows:**

**(ROBINS)** This supplement establishes WR-ALC Directorate of Maintenance (MA) policies and procedures for the establishment of depot maintenance Quality Assurance as required by AFMCI 21-115. It implements the applicable portions of Robins Air Force Base Manual (RABFMAN) 63-501, *Warner Robins Air Logistics Center Quality Systems Manual*, for establishing a quality system that aligns to and is comparable with the Americas Aerospace Quality Group (AAQG) “*Quality Management Systems - Aerospace - Requirements*”, AS 9100. It applies to all MA divisions performing depot maintenance or producing depot maintenance products or services.

**SUMMARY OF REVISIONS**

This instruction has been substantially revised to incorporate changes related to the reorganization of the Directorate of Maintenance (MA) within the ALCs and incorporates parts of AFMCI 21-132, which has been rescinded. This instruction should be read in its entirety.

**(ROBINS)** This is a new document, which replaces RABFMAN 21-115, 14 June 2002, and must be read in its entirety. It reflects changes related to the MA reorganization and refocus of the depot quality programs under the Logistics Standardization Evaluation Team (LSET) philosophy. It identifies standardized processes and procedures for quality functions within MA and incorporates parts of AFMCI 21-132, *Depot Maintenance Technical Compliance Review Procedures*, and RABF Supplement thereto, which have been rescinded. The provisions of this publication supplement those of other applicable directives as they apply to depot maintenance production functions and cannot be used alone.

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## Chapter 1

### PROGRAM MANAGEMENT

**1.1. General Information.** This instruction provides procedures and responsibilities for depot maintenance Quality Assurance (QA) Programs. The Center MA Director has overall responsibility for product quality. Directorate employees are responsible for conformance to requirements and standards to ensure quality products and services. Center MA will implement this QA program to the extent necessary to ensure compliance with this instruction.

**1.1. (ROBINS) General Information.** This supplement identifies standardized quality function responsibilities, quality evaluator training requirements, production division Quality Assurance Plan (QAP) requirements, quality assessments data collection and review and reporting requirements. It provides the necessary guidance for the MA Directorate to design and implement effective QAPs. These plans, when implemented, will enable the Director to evaluate and assess the depot maintenance production divisions.

**1.2. Local Instructions.** This instruction provides only minimum requirements and will be expanded as necessary to implement and maintain the QA program. Local instruction(s) will be developed or updated and implemented within 180 days from the date of this instruction.

**1.2. (ROBINS) Local Instructions.** This supplement provides a standardized process with specific requirements for development of a QAP for each division and Quality Assurance Surveillance Plans (QASP) for each Quality Branch. The range and detail of these plans shall be based on the complexity of the work involved, the methods required for implementation and the skills and training of the personnel involved in carrying out these functions.

1.2.1. (Added-ROBINS) Plans. The Aircraft Division (MAB), Avionics and Instruments Division (MAI) and Commodities and Industrial Products Division (MAN) are required to have a QAP. Each Quality Branch is required to have a QASP. The QASP from the MAI and MAN quality branches may be a single plan. The MAB quality branch will develop a QASP for each weapon system (aircraft). Plans will be developed, reviewed, revised or expanded as necessary to implement requirements within 30 days from the publication date of this supplement.

1.2.2. (Added-ROBINS) Relation to Other Requirements. The requirements of this instruction and the division QAPs shall be satisfied, in addition to any or all other detailed requirements contained in the Statement of Work or other parts of a contract. Should any conflict arise between this instruction and an existing contract, the terms and conditions of the contract shall prevail. Consideration will be given to the requirements of this instruction prior to any new or future partnering/contracting initiatives. This publication does not alleviate or replace the applicable portions of RAFBMAN 63-501 and MAOI 63-501, *Quality Program Plan (QPP)*.

1.2.2.1. (Added-ROBINS) Directorate of Maintenance documented procedures, applicable publications correlated with RAFBMAN 63-501 paragraphs, and AS 9100 requirements can be found in the matrix provided in [Attachment 1](#).

1.2.2.1.1. (Added-ROBINS) MA\_Q quality branches will update and revise the Cross Reference Matrix to include division-level instructions when that organization is involved in a contracting or partnering agreement.

1.2.2.2. (Added-ROBINS) The Directorate of Maintenance organizational structure for identifying the Maintenance Quality Focal Point is depicted in **Attachment 2 (Added)**.

1.2.2.3. (Added-ROBINS) The Directorate of Maintenance quality organization structure is depicted in **Attachment 3 (Added)**.

1.2.2.3.1. (Added-ROBINS) MA\_Q quality branches will include in the QAP a production division organizational structure depicting relation of the quality branch to other organizations within the division.

1.2.2.4. (Added-ROBINS) A documentation flow, depicting the relationship between higher-level publications, manuals and plans is provided in **Attachment 4 (Added)**.

**1.3. Quality Concepts.** Quality is defined as conformance to established requirements and standards. Quality Assurance is a process that provides adequate confidence that controls are in place to create products and services that conform to established requirements/standards. QA is an integral part of all depot maintenance activities. The provisions of this instruction supplement those of other applicable directives as they apply to depot maintenance production functions and cannot be used alone. QA efforts will focus, as a minimum, on conformance of products and services to technical and safety requirements/standards, improvement of depot maintenance processes, the prevention of product and service deficiencies, and customer satisfaction. Deficiencies that occur, both internal and external, will be analyzed to identify trends, deficient processes and systemic problems. Analysis and recommendations will be presented to appropriate production management for their review and required action to prevent recurrence.

1.3.1. Process, Product, Service, and Conformance. Quality conformance is defined as a process, product, or service that meets all established requirement/standards. A conforming process is one operating within process specifications, using conforming materials, and performed by qualified/certified personnel in accordance with all technical, safety, and other applicable publications. Incoming non-conforming products/materials identified during depot maintenance processes will be reported in accordance with TO 00-35D-54, *USAF Deficiency Reporting and Investigation System*. QA personnel will assist in identifying and evaluating problems and may recommend corrective or preventive actions, as appropriate, to the level necessary for resolution. Identification of problems must be considered as an opportunity to improve both processes and products. Timely corrective and preventive action on customer complaints and feedback is critical.

1.3.2. Request for Quality Assistance (RQA) AFMC Form 77. Timely and effective responses to deficiencies and needed improvements are critical. A system of identifying deficiencies in maintenance processes and bringing solutions to bear on them is essential and must be developed at each center. Quality assistance can be requested by anyone submitting an AFMC Form 77. Forms and procedures for processing the AFMC Form 77 will be made readily available to the maintenance work force.

1.3.2. (ROBINS) AFMC Form 77, **Request for Quality Assistance (RQA)**. The purpose of this program is to provide all employees with a medium to seek solutions for a known or suspected problem on any product, process, system or procedure that may adversely impact the quality of products or services produced within MA. Procedures for use of the AFMC Form 77 are defined below. Each division QAP will include, if required, any additional responsibilities and processes to support the RQA program within the division.

1.3.2.1. (Added-ROBINS) Quality Assistance. The RQA process is designed to identify deficiencies in maintenance processes and to provide solutions. Each division will ensure that the AFMC Form 77 and the process by which it works are readily available to all employees. Any employee requesting quality assistance can complete an AFMC Form 77. The use of the form can be for assistance needed in developing a new process, seeking solutions for situations that could possibly cause deficiencies in products, or to improve conditions to yield a better quality product.

1.3.2.1.1. (Added-ROBINS) The form will not be used to resolve personal grievances, subjects covered by the Master Labor Agreement, matters under the jurisdiction of 21-series publications or items covered by other programs (component failures-use Deficiency Reporting (DR), tech data errors-use Air Force Technical Order (AFTO) Form 22, **Technical Manual (TM) Change Recommendation and Reply**, etc).

1.3.3. (Added-ROBINS) Quality Assistance Process. MA\_Q quality branches will identify a division representative to monitor the RQA process and act as the single POC. The representative's name will be submitted to the Quality Assurance Branch (MAPQ) for inclusion on the MAPQ quality server.

1.3.3.1. (Added-ROBINS) Individuals requesting quality assistance will complete an AFMC Form 77 when a suspected or known deficiency compromises the quality of a product produced by depot maintenance. The requesting individual will not fill out the form beyond the block addressing the problem/recommendation. The deficient condition must be stated in sufficient detail to aid in an investigation. The form will be forwarded to the applicable quality office responsible for assessing quality for the area, product or service. The form may be handscripted, hand delivered or e-mailed to the appropriate division quality office.

1.3.3.2. (Added-ROBINS) MA\_Q quality branches will input RQA data into the Quality Information Management Standard System (QIMSS) database. QIMSS assigns an RQA control number. A suspense date of not more than 25 workdays from the date the request was received will be established. Corrective actions will be documented on the form and coordinated with all activities having a primary or collateral responsibility. Deviations to meeting this 25 workday suspense must be approved by the branch quality and division production chief.

1.3.3.2.1. (Added-ROBINS) MA\_Q quality branches will review all data collected through RQA efforts and analyze for trends and improvement opportunities or focus areas.

1.3.3.2.2. (Added-ROBINS) The initiator and other applicable personnel will assist the quality branch during the evaluation process and assure corrective actions are taken when a problem is discovered.

1.3.3.2.3. (Added-ROBINS) MAPQ will review QIMSS RQA data monthly and evaluate data for best practice applications to be distributed to the divisions. Requests for information on approved/implemented actions, solutions or recommendations can be addressed to MAPQ.

1.3.3.2.3.1. (Added-ROBINS) MAPQ will review all data collected through RQA efforts and analyze for trends and improvement opportunities or focus areas.

**1.4. Depot Maintenance QA Responsibilities:** Headquarters (HQ) AFMC/LG and each ALC/MA must provide the required resources to ensure effective quality assessments of the products and services. A coordinated effort of all center and command activities and a close relationship with internal and external customers is required. The chain of accountability and responsibility for quality products and services is directly to/through the Commanders, Directors, Division Chiefs, Production Supervisors, and mainte-

nance employees and will not be levied on quality organizations. In order for the overall QA system to work effectively, all AFMC personnel must take responsible actions that will contribute to safety, quality, and productivity.

**1.4. (ROBINS) Depot Maintenance QA Responsibilities.** The WR-ALC overall quality program places responsibility for product quality on the senior managers and conformance to requirements upon each employee. To that end, maintenance process discipline must be held to the highest standards.

1.4.1. Logistics Quality Office, HQ AFMC/LGQ. Provide command level policy, guidance, and staff coordination of all activities required to operate depot maintenance activities for Air Force weapon systems. It is the Office of Primary Responsibility (OPR) for this instruction.

1.4.1.1. Annually review each Center's Maintenance Quality Manual to ensure compliance with this instruction.

1.4.1.1. (ROBINS) MAPQ will provide a copy of this supplement to HQ AFMC/LGQ for review prior to publication. They will also provide a copy to HQ AFMC/LGP for review when any major changes, updates or revisions are made.

1.4.1.2. Manage the technical compliance review program.

1.4.1.3. Develops, reviews, and maintains the AFMC Maintenance Standardization and Evaluation Team (MSET) and Unit Compliance Inspection (UCI) checklists.

1.4.1.4. Review results of AFMC Maintenance Standardization Evaluation Team (MSET) inspections and technical compliance reviews for needed policy actions.

1.4.1.5. Ensure development and maintenance of Quality Assurance Specialist (QAS) training to support this instruction.

1.4.1.6. Ensure development and maintenance of the Quality Information Management Standard System (QIMSS).

1.4.1.6.1. Ensure development and maintenance of an effective and comprehensive QIMSS course that provides training necessary for all levels of users to effectively use the program.

1.4.1.7. Convene and chair the AFMC MA QA working group.

1.4.2. AFMC MA QA Working Group. Members of the working group are the ALC Maintenance Quality Assurance Branches (MAPQs) and AMARC equivalent.

1.4.2.1. Meet twice a year.

1.4.2.2. Act as advisory body to the AFMC/LGQ, Center Process Improvement and Quality Assurance Divisions (MAP), and AMARC equivalent on depot maintenance production quality matters.

1.4.2.3. Act as focal point for issues that impact depot maintenance quality assurance functions.

1.4.3. Center/CC. Provides the necessary resources, support and authority for the MA QA functions to support the requirements of this instruction as well as:

1.4.3.1. Reviews MSET findings and corrective/preventive actions.

1.4.3.1. (ROBINS) WR-ALC/CC will review reports from LSET, staff assistance visits (SAV), other quality-related findings and corrective/preventive actions.

1.4.3.2. Reviews metrics and annual technical compliance results as specified in **Chapter 3**.

1.4.3.2. (ROBINS) MAPQ will brief Depot Maintenance Quality Review (DMQR) data quarterly to the Commander. Other quality data (annual review, special inspections, etc.) will be briefed as required.

1.4.4. ALC Directorate of Maintenance (MA). Provides the necessary resources and authority for the QA functions to implement and sustain the requirements of this instruction as well as:

1.4.4.1. Appoints an MA QA focal point.

1.4.4.1. (ROBINS) The Director of Maintenance has appointed MAPQ as the Maintenance Quality Focal Point.

1.4.4.2. Reviews MSET findings and corrective/preventive actions.

1.4.4.2. (ROBINS) WR-ALC/MA will review LSET, SAV, other quality-related findings and corrective/preventive actions.

1.4.4.3. Reviews metrics and annual technical compliance results as specified in **Chapter 3**.

1.4.4.3. (ROBINS) MAPQ will brief Internal Quality Review (IQR) data monthly to the Director. Other quality data (annual review, special inspections, etc.) will be included in the IQR or briefed separately as required.

1.4.5. Directorate of Maintenance and AMARC QA Focal Point. Provides policy and guidance for the production QA and technical compliance review program as well as:

1.4.5. (ROBINS) MAPQ is appointed by the MA Director as the Maintenance Quality Focal Point. MAPQ will provide quality-related policy and implementation guidance to the division quality branches and internal oversight and guidance to aircraft maintenance, avionics, industrial products, software, plant management and support divisions to ensure technical compliance with quality initiatives.

1.4.5.1. Provides quality information to MA Director.

1.4.5.1. (ROBINS) DMQR data will be briefed at Commander level quarterly. IQR data will be briefed to the Director monthly. Other quality data (annual review, special inspections, etc.) will be included in the IQR or briefed as required.

1.4.5.2. Works with HQ AFMC, Center, and other Directorate quality focal points, as necessary, on all applicable quality issues.

1.4.5.2. (ROBINS) MAPQ serves as the single point of contact (POC) for HQ AFMC quality issues and policies and provides Directorate of Maintenance interpretation of quality issues and policy.

1.4.5.3. Develops the Maintenance Quality Manual. The Maintenance Quality Manual will be supported by Production Division Quality Assurance Plans (QAP) and/or Quality Assurance Surveillance Plans (QASP).

1.4.5.3. (ROBINS) MAPQ will develop, maintain and serve as OPR for this supplement.

1.4.5.4. Annually reviews the Maintenance Quality Manual to ensure currency to new or revised higher headquarter guidance.

1.4.5.4. (ROBINS) MAPQ will perform an annual review of this supplement for currency to ensure compliance to new or revised higher headquarters' guidance and will submit the publication to HQ AFMC/LGQ for review. A Quality Manual Requirements Checklist will be used by MAPQ when reviewing this supplement.

1.4.5.4.1. (Added-ROBINS) MAPQ will develop and maintain accuracy for the Quality Manual Requirements Checklist unless one is available through the LSET Checklist site. It can be found on the MAPQ server.

1.4.5.4.2. (Added-ROBINS) MAPQ will ensure performance of reviews and documentation of amendments, changes, or revisions to this supplement are annotated on the Record of Document Review, **Attachment 5 (Added)**.

1.4.5.5. Reviews Production Division QAPs to ensure they contain all requirements of the Maintenance Quality Manual, annually or when major changes, updates, or revisions are made.

1.4.5.5. (ROBINS) MAPQ will review each QAP/QASP at least annually or when major changes, updates or revisions are made for compliance with requirements and furnish feedback to the applicable division within 10 working days. After accomplishment of the review and feedback information, each division will review, correct and revise the document accordingly and coordinate all changes and revisions through the MAPQ focal point prior to publication.

1.4.5.5.1. (Added-ROBINS) MAPQ will develop, maintain and use a QAP/QASP Requirements Checklist when reviewing the division QAP/QASP unless one is available through the LSET Checklist site. The QAP/QASP Requirements Checklist can be found on the MAPQ server.

1.4.5.5.2. (Added-ROBINS) The MAPQ review of the QAP/QASP for compliance will also include assessments performed by MAPQ personnel to determine if the divisions are in compliance with the requirements of the plans. Assessment data will be input into QIMSS. Review will determine if the quality processes are correctly focused based on customer-reported defects, functional check flight (FCF) and other data.

1.4.5.6. Maintains a copy of the Maintenance Quality Manual signed by the Director.

1.4.5.6. (ROBINS) MAPQ will maintain a copy of this final, signed supplement.

1.4.5.7. Acts as the Directorate focal point for MSET inspections and maintains a list of OPRs for depot maintenance production MSET and UCI checklists as necessary.

1.4.5.7. (ROBINS) MAPQ will serve as the directorate focal point for LSET/SAV inspections and is responsible for LSET/SAV pre-inspection planning, inspection mission support, post-inspection distribution, follow-up and reporting of related findings.

1.4.5.7.1. (Added-ROBINS) MAPQ will maintain a list of division checklist champions for all applicable LSET checklists. The checklist champion POC list will be maintained on the MAPQ server and will be reviewed and updated (if required) on a monthly basis.

1.4.5.8. Consolidates, reviews, prepares, and reports QA metrics to MA and HQ AFMC/LGQ as specified in **Chapter 3**.

1.4.5.8. (ROBINS) MAPQ will consolidate, review, prepare and report QA metrics to WR-ALC/MA, WR-ALC/CC, HQ AFMC/LGQ and command units, as required.

1.4.5.8.1. (Added-ROBINS) MAPQ will act as the single POC for the Directorate Internal Quality Review (IQR) and the Center Depot Maintenance Quality Review (DMQR) Board. MAPQ will consolidate directorate quality data (including metrics), reports and indicators as required for Directorate and Center review.

1.4.5.8.2. (Added-ROBINS) MAPQ will perform analysis as required on quality data collected within any MA organization. Review of quality data will include customer-reported defects, FCF data, internal division quality data, special and management inspection results, etc. These type reviews may be no-notice, based on observation, interviews, checklists or other sources. Results may or may not be entered into QIMSS, depending on the type assessments performed. Analysis will be used to provide the foundation for specific recommendations for target areas for evaluation and for briefings to the MA Director and other senior management.

1.4.5.9. Plans and executes the annual technical compliance review.

1.4.5.9. (ROBINS) MAPQ will act as the focal point for performing the annual technical compliance review using applicable LSET checklists. They will conduct the review, identify and establish a team to perform the review, collect and compile the necessary documentation to report and support the outcome of the review, and schedule any necessary meetings and briefings before, during and after the review.

1.4.5.10. Appoints a QIMSS focal point for the Directorate.

1.4.5.10. (ROBINS) MAPQ will act as the primary QIMSS G015 administrator and focal point for the Directorate.

1.4.5.11. (Added-ROBINS) MAPQ will review, comment on and coordinate waiver requests.

1.4.5.12. (Added-ROBINS) MAPQ will be responsible for development, review and revision of Directorate policy as it applies to AFMCI 21-115, *Depot Maintenance Quality Assurance(QA)*; AFMCI 21-110, *Depot Maintenance Technical Data and Work Control Documents*; AFMCI 21-122, *Foreign Object (FO) and Dropped Object (DO) Prevention Program*; and AFMCI 21-107, *Tool Control and Accountability Program*.

1.4.5.13. (Added-ROBINS) MAPQ will act as focal point for matters related to AFMCI 63-501 and MAOI 63-501, *Quality Program Plan (QPP)*.

1.4.6. Directorate of Maintenance Production Divisions. Provide necessary resources and support for QA functions to implement the requirements of the Maintenance Quality Manual in compliance with this instruction.

1.4.6.1. Review and take appropriate action on MSET/UCI findings.

1.4.6.1. (ROBINS) MA production divisions will review and take appropriate action on LSET/SAV or other external organization findings.

1.4.6.2. Reviews metrics and internal technical compliance results as specified in **Chapter 3**, QAP data, or other production division level quality data.

1.4.6.2. (ROBINS) MA\_Q quality branches will define in the QAP the frequency and level of review for production quality data.

1.4.6.3. Ensure development of the production division QAP and/or QASP. Will maintain a copy signed by the Production Division Chief.

1.4.6.3. (ROBINS) MA\_Q quality branches will maintain a copy of the QAP and (or) QASP signed by the production division chief for the division.

1.4.6.3.1. Review QASP quarterly, update as necessary and document review.

1.4.6.3.1. (ROBINS) MA\_Q quality branches will define and document in the QAP the process for production division quarterly review of the QASP. The process will include how the review will be documented.

1.4.7. Production Division QA Branches. These organizations will be made up of personnel who will conduct quality assurance assessments and other inspections as required by this instruction, other applicable publications, the Maintenance Quality Manual, the QAP, and the QASP.

1.4.7. (ROBINS) MA\_Q quality branches will act as the division quality focal point on all quality matters.

1.4.7.1. Develops the QAP or ensures QAP requirements are included in the Maintenance Quality Manual.

1.4.7.1. (ROBINS) MA\_Q quality branches will assist the production division in development of the division QAP to ensure requirements of this instruction are included.

1.4.7.1.1. (Added-ROBINS) MA\_Q quality branches will ensure the annual QAP review is accomplished by 1 October.

1.4.7.1.1.1. (Added-ROBINS) MA\_Q quality branches will forward a copy of the QAP to MAPQ for review after completion of the required annual review.

1.4.7.1.1.2. (Added-ROBINS) After MAPQ review and feedback information, MA\_Q quality branches will review, correct and revise the document accordingly. Changes and revisions will be coordinated through the MAPQ focal point prior to publication.

1.4.7.1.1.3. (Added-ROBINS) MA\_Q quality branches will ensure all review and revision information is accurately and promptly documented. Documentation of amendments, changes or revisions to the QAP will be annotated on the Record of Document Review, **Attachment 5 (Added)**, which will be included in each QAP.

1.4.7.1.2. (Added-ROBINS) MA\_Q quality branches will coordinate with MAPQ on the development of this supplement to ensure all requirements are included or addressed in the supplement or delegated to the QAP/QASP.

1.4.7.2. Develops the QASP in coordination with production branches. Work quality issues with Directorate of Maintenance and other Division quality focal points as necessary.

1.4.7.2. (ROBINS) MA\_Q quality branches will ensure the QASPs meet all requirements of this instruction. They will work with MA, MAPQ and other division quality focal points as required.

1.4.7.2.1. Ensures all new workload requirements are considered for incorporation into the production division QAP and/or QASP if necessary.

1.4.7.2.1. (ROBINS) MA\_Q quality branches will ensure a quality representative reviews all Statements of Work (SOW), work specifications and quality assurance criteria for new work-

loads, contracts, or partnering agreements. Requirements will be included in the QAP/QASP as required.

1.4.7.3. Acts as focal point for MSET related tasks and maintain a list of Product Division level OPRs for MSET and UCI checklists as necessary.

1.4.7.3. (ROBINS) MA\_Q quality branches will act as focal point for LSET/SAV related tasks. MA\_Q will ensure MAOI 21-5, *LSET Findings Response and Follow-up Process*, is used for LSET/SAV response formats, etc.

1.4.7.3.1. (Added-ROBINS) MA\_Q quality branches will maintain and furnish MAPQ a list of division checklist champions for all applicable LSET checklists. The division checklist champions list will be reviewed and updated (if required) on a monthly basis.

1.4.7.3.1.1. (Added-ROBINS) MAPQ will maintain a master Maintenance Ready monitor list.

1.4.7.4. Consolidates, reviews, prepares, and forwards applicable metrics as required.

1.4.7.4. (ROBINS) MA\_Q quality branches will ensure all quality-related data is provided to MAPQ by the 10<sup>th</sup> of each month for inclusion in the monthly quality metrics reviews. All other data requested will be provided in a timely manner, meeting any established suspenses.

1.4.7.5. Participates in and support the annual technical compliance review.

1.4.7.5. (ROBINS) MA\_Q quality branches will participate in and support the annual technical compliance reviews as necessary or when requested by MAPQ.

1.4.7.6. Performs assessments defined in **Chapter 2** and uses the QIMSS to record assessment results.

1.4.7.6. (ROBINS) MA\_Q quality branches will ensure WR-ALC mandatory entries are included on the AFMC Form 343, Quality Assurance Assessment. Use of any other optional blocks will be coordinated through MAPQ and defined in the QAP.

1.4.7.7. Identifies a QA representative to serve as a member of the Pre-Production Planning Team (new workload).

1.4.7.7.1. Assists in the development of WCDs by identifying quality (Q) inspection codes, if required, and any other quality requirements.

1.4.7.7.2. QA personnel are not required to be members of the Maintenance Review Team (MRT).

1.4.7.8. Ensures a QA representative is present, as required, at any problem review meetings between maintenance personnel and the responsible engineer or equipment specialist developing a solution for validated problems.

1.4.7.9. Participates in verification of any new or revised procedures and inspect any nonstandard repairs and maintenance problems when requested.

1.4.7.10. (Added-ROBINS) MA\_Q quality branches will implement all quality policy/guidance requirements as directed by MAPQ or higher-level authority.

1.4.7.11. (Added-ROBINS) MA\_Q quality branches will work with MA, MAPQ and other division quality focal points. Quality branch focal points will serve as team members (when required) on various quality issues, review and provide quality data when required, and ensure the division QAP/QASPs meet all requirements.

1.4.7.12. (Added-ROBINS) MA\_Q quality branches will maintain a copy of the QAP/QASP signed by the production division chief.

1.4.7.13. (Added-ROBINS) MA\_Q quality branches will ensure the QASP is reviewed at least quarterly, updated as necessary or when required and the reviews are documented.

**1.5. Maintenance Quality Manual.** The Maintenance Quality Manual is the basic implementation guidance for depot maintenance production and production support quality requirements. It provides an organized way of communicating specific types of quality processes/procedures required, defines specific roles and responsibilities, and how those quality processes are implemented. This manual provides basic requirements for preparation of the production division's QAP. A higher-level quality manual can be used at center discretion as long as all requirements contained in this instruction are addressed.

**1.5. (ROBINS) Maintenance Quality Manual.** This supplement satisfies the requirement for a Maintenance Quality Manual for the Directorate of Maintenance to implement depot maintenance production and production support quality requirements. All requirements in this instruction have been addressed.

1.5.1. Content. The Maintenance Quality Manual will be reviewed by HQ AFMC QA focal point for compliance to this instruction, at least annually or when major changes, updates, or revisions are made. This manual meets the requirements of AFMCI 63-501, *AFMC Quality Assurance* for production maintenance QAPs. The Maintenance Quality Manual will:

1.5.1. (ROBINS) MAPQ will provide a copy of this supplement to HQ AFMC/LGQ for review prior to publication. The supplement will also be provided to HQ AFMC/LGP for review when any major changes, updates or revisions are made.

1.5.1.1. Identify the type (i.e., task, specific item, procedure or process) and minimum number of Personnel Evaluations (PE), Quality Verification Inspections (QVI), and Core Inspections (CI) to be conducted monthly or delegate the requirement to be included in the QAP/QASP.

1.5.1.1. (ROBINS) MA\_Q quality branches are responsible for establishing the initial PE schedule for PAC employees. Quality organizations will perform a minimum number of PEs per month, so that the total performed equals the total of the assigned PAC certified maintenance personnel, to ensure all personnel receive a PE within the 24-month evaluation period. Adjustments will be made for new-hire and reassigned personnel. The planned number of PEs to be conducted for the month will be identified in the QAP/QASP.

1.5.1.1.1. (Added-ROBINS) MA\_Q quality branches will identify and document in the QAP/QASP the type (i.e., task, specific item, procedure or process) and minimum number of assessments to be conducted monthly.

1.5.1.2. Identify type and frequency of the reports required.

1.5.1.2. (ROBINS) MA\_Q quality branches will ensure all quality-related data is provided to MAPQ by the 10<sup>th</sup> of each month for inclusion in the monthly quality metrics reviews. All other data requested will be provided in a timely manner, meeting any established suspenses.

1.5.1.3. Identify organizations responsible for quality assurance functions.

1.5.1.3. (ROBINS) The organizational structure for the Directorate of Maintenance depicting the Quality Assurance organization is in **Attachment 3 (Added)**.

1.5.1.3.1. (Added-ROBINS) MAPQ will maintain a current listing of Directorate Quality POCs. The Quality POC list will be maintained on the MAPQ server and will be reviewed and updated, if required, on a monthly basis.

1.5.1.4. Identify quality training requirements and organization responsible for providing that training per paragraph **1.7.** of this instruction.

1.5.1.4. (ROBINS) Quality training requirements are provided in paragraphs **1.8.1.** and **1.8.2.** of this instruction. The Education and Military Training Office (78 MSS/DPE) and the Human Resources Branch (MAWH) are responsible for providing formal classroom training for personnel performing quality assurance functions.

1.5.1.5. The Maintenance Quality Manual will define the process for control, routing, and follow-up of the AFMC Form 77, **Request for Quality Assistance**.

1.5.1.5. (ROBINS) The process for control, routing and follow-up of the AFMC Form 77 is provided in **paragraph 1.3.2.**

1.5.1.6. Local process can be defined for use of the AFMC Form 78, **Deficiency Report**. The AFMC Form 78 can be used to report and correct internal deficiencies. The Maintenance Quality Manual will define the process for control, routing, and follow-up of this form, if used.

1.5.1.6. (ROBINS) MA\_Q quality branches will define the process for control, routing and follow-up of the AFMC Form 78 (if used) in the QAP.

1.5.1.7. Local process can be defined for use of the AFMC Form 79, **Quality Feedback Review** or equivalent. The Maintenance Quality Manual will define the process for control, routing, and follow-up of this form if used.

1.5.1.7. (ROBINS) MA\_Q quality branches will define the process for control, routing and follow-up of the AFMC Form 79 (if used) in the QAP.

1.5.1.8. Identify inspections to be performed based on requirements. This requirement may be delegated to the individual QAPs.

1.5.1.8. (ROBINS) MA\_Q quality branches will ensure any inspections to be performed not specifically addressed in this instruction are included in the QAP.

1.5.1.9. Identify corrective and preventive action process (eliminate causes of potential defects and non-conformances). Care should be taken to determine root causes of deficiencies rather than simply treating symptoms. The process will, as a minimum:

1.5.1.9. (ROBINS) Existing nonconformities, defects or otherwise undesirable situations discovered during the performance of quality assessments will be eliminated using corrective action. The corrective action process involves validation and classification of nonconformities, assignment of root cause analysis (RCA), development and implementation of a corrective action plan, elimination of the root cause, analysis of corrective action data, continuous improvement and timely and effective preventive actions. The focus of corrective action in the MA Directorate is to prevent the

recurrence of nonconformities. MA\_Q quality branches will include in the division QAP supplemental processes/procedures for corrective/preventive action not addressed in this instruction.

1.5.1.9.1. Include analysis of the defects and actions taken.

1.5.1.9.1.1. (Added-ROBINS) Review, evaluation and analysis of adequacy and effectiveness of corrective actions taken will be determined by the quality offices.

1.5.1.9.1.2. (Added-ROBINS) Assessments performed to review and evaluate corrective actions taken will be documented on the AFMC Form 343 and input into the QIMSS database. Analysis data will be documented using the documentation/report format provided in **Attachment 6 (Added)**.

1.5.1.9.2. Include methods used to communicate and cross-feed information.

1.5.1.9.2. (ROBINS) MAPQ will include in the monthly IQR, when applicable, lessons learned, best practices, benchmarking initiatives and relevant corrective/prevention action that would benefit other organizations.

1.5.1.9.3. Include methods used to follow-up on corrective action, preventive action, or process changes made to prevent recurrence or new occurrences of similar non-conformances.

1.5.1.9.3. (ROBINS) QAPs will define the process by which corrective/preventive actions will be monitored to ensure follow-up and process changes are effective in preventing occurrences of similar nonconformances. RCA provides the proactive process to be used to identify and eliminate causes of “root cause” discrepancies or nonconformances. The corrective action process will include but not be limited to, the following:

1.5.1.9.3.1. (Added-ROBINS) An evaluation of the effective handling and investigation of all formally reported and internally initiated complaints and deficiency reports. These are noncompliance deficiencies reported by the receiving organizations and activities via TO 00-35D-54, the customer feedback process or MAOI 21-3, *Processing MA-Initiated Deficiency Reports and Exhibits*.

1.5.1.9.3.2. (Added-ROBINS) Initiated deficiency reports using TO 00-35D-54, identifying defects associated with parts, components, products or material.

1.5.1.9.3.3. (Added-ROBINS) Analysis of deficiency data (historical and current) to identify and determine trends in processes or work performance (will be used by the quality offices).

1.5.1.9.4. (Added-ROBINS) Each responsible organization will investigate the “root cause” of nonconforming products, analyze contributing factors to eliminate the causes, initiate preventive actions, apply controls to be sure corrective actions are taken and incorporate any necessary changes into procedures.

1.5.1.9.4.1. (Added-ROBINS) RCA is a step by step method that leads to the discovery of a fault's first or root cause. Every failure happens for a number of reasons. There is a definite progression of actions and consequences that lead to a failure. An RCA investigation traces the cause and effect trail from the end failure back to the root cause. The basic reason for investigating and reporting the causes of discrepancies is to enable the identification of corrective actions adequate to fix the immediate problem and preventive actions

designed to prevent recurrence of the problem. Every root cause investigation and reporting process includes five separate and distinct phases.

1.5.1.9.4.1.1. (Added-ROBINS) Phase I. Data Collection. It is important to begin the data collection phase of RCA to ensure that data are not lost. The information that should be collected consists of conditions before, during and after the particular discrepancy was identified, personnel involvement (including actions taken), environmental factors and other information having relevance to the occurrence.

1.5.1.9.4.1.2. (Added-ROBINS) Phase II. Assessment. Any RCA method may be used that includes the following steps: Identify the problem. Determine the significance of the problem. Identify the causes (conditions or actions) immediately preceding and surrounding the problem. Identify the reasons why the causes in the preceding step existed, working back to the root cause (the fundamental reason which, if corrected, will prevent recurrence of these and similar occurrences). This root cause is the stopping point in the assessment phase.

1.5.1.9.4.1.3. (Added-ROBINS) Phase III. Corrective Actions. Implementing effective corrective actions for each cause reduces the probability that a problem will recur and improves reliability and safety.

1.5.1.9.4.1.4. (Added-ROBINS) Phase IV. Inform. Documenting the results is part of the informal process. Also included is discussing and explaining the results of the analysis with management and personnel, including those outside of the immediate organization as a method of sharing best practice information.

1.5.1.9.4.1.5. (Added-ROBINS) Phase V. Follow-up. Follow-up includes determining if corrective action has been effective in resolving problems. An effectiveness review is essential to ensure that corrective actions have been implemented and are preventing recurrence. Management involvement and adequate allocation of resources are essential to successful execution of the five root cause investigation and reporting phases.

1.5.1.9.4.2. (Added-ROBINS) The RCA reports will be documented and maintained in the division quality office for a minimum of 1 year. Preventive action processes also can include the use of AFMC Form 77, as well as activation of problem-solving teams as a viable method of producing effective preventive actions.

1.5.1.10. Define requirements for development of QAPs and QASPs.

1.5.1.10. (ROBINS) This supplement provides the necessary requirements for development of division QAPs and supporting QASPs.

1.5.1.11. Establish standards for Quality Assessment Results (QAR) ratings.

1.5.1.11.1. (Added-ROBINS) MA\_Q quality branches will develop and establish standards for QAR ratings in the QAP/QASP.

1.5.1.12. Define local process for documenting deficiencies, corrective/preventive action, and follow-up data into Quality Information Management Standard System (QIMSS), G015.

1.5.1.12. (ROBINS) The process for documenting deficiencies, corrective/preventive action and follow-up data into QIMSS G015 is provided in **paragraph 1.9.1. (Added)**.

1.5.1.13. Define requirements to analyze quality deficiency and acceptance inspection reports and recommend appropriate corrective and preventive action to production divisions.

1.5.1.13. (ROBINS) MA\_Q quality branches will perform analysis as required on quality data collected within the divisions. Review of quality data will include customer-reported defects, FCF data, internal quality data, Special and Management Inspection results, etc. Analysis will be used to provide the foundation for specific target areas for evaluation and briefings to the MA Director and other senior management.

1.5.1.13.1. (Added-ROBINS) MA\_Q quality branches will define requirements to analyze quality deficiency and acceptance inspection reports and recommend appropriate corrective/preventive action in the QAP.

**1.6. Quality Assurance Plan (QAP).** The QAP identifies specific detailed quality processes and procedures relative to a particular organization. QAPs provide documentation of an organization's day-to-day operational QA procedures. If processes are not defined in the Maintenance Quality Manual, the QAP will document these procedures. The QAP includes what shall be accomplished, by whom, when, how, and what documents are used and how they are controlled. QAPs will be reviewed at least annually to ensure currency of existing or new policy requirements, to ensure quality program objectives are being met, and to introduce improvements to the processes. All programmed production workloads will be addressed in the QAP in support of the Maintenance Quality Manual.

1.6.1. Quality Assurance Plan (QAP) Content. As a minimum, the QAP will address the following:

1.6.1.1. Specific QA processes and procedures for individual workloads not contained in the Maintenance Quality Manual.

1.6.1.2. Data collected, type of analysis done, reports to be accomplished, and review level as a minimum if not specifically addressed in the Maintenance Quality Manual.

1.6.1.2. (ROBINS) MA\_Q quality branches will ensure all data collected, type of analysis done, reports to be accomplished and review level not specifically addressed in this instruction are included in the QAP.

1.6.1.3. (Added-ROBINS) MA\_Q quality branches will include in the QAP/QASP the organizational structure for the division depicting the Quality Assurance organization.

**1.7. Quality Assurance Surveillance Plans (QASP).** The QASP identifies the functions and associated actions performed by a particular organization to ensure that requirements are performed in accordance with specified standards and that an appropriate level of quality control activities are in place and operational.

**1.7. (ROBINS) Quality Assurance Surveillance Plans (QASP).** MA\_Q quality branches will develop the QASP for the production divisions. The QASP from the MAI and MAN quality branch may be a single plan. The MAB quality branch will develop a QASP for each weapon system (aircraft). Branches may include the QASP with the QAP or maintain as a separate document.

1.7.1. Quality Assurance Surveillance Plan (QASP) Content. As a minimum, the QASP will address the following:

1.7.1.1. Assessment type (i.e., task specific item, procedure or process), frequency, and minimum number of Personnel Evaluations (PE), Quality Verification Inspections (QVI), Core Inspections (CI), and other assessments to be performed on a recurring basis.

1.7.1.2. Assessment Areas. For the purpose of planning and conducting assessments, major workloads will be broken down into assessment areas and documented in the Maintenance QA Manual, QAP or QASP. Assessment areas are defined as segments or portions of a workload, system, component, process, procedure, or subject matter that is investigated, inspected, evaluated or audited.

1.7.1.2. (ROBINS) Assessment Areas. MA\_Q quality branches will break down major workloads into assessment areas. Assessment areas will be documented in the QAP or QASP. Assessment areas are inspected regularly but not necessarily monthly.

1.7.1.3. Minimum Number of Assessments. The methodology (e.g. ANSI- Z1.4 1993) or rationale used to determine type (i.e., task specific item, procedure or process) and minimum number of PEs, QVIs, and CIs to be performed will be documented in the Maintenance QA Manual, QAP or QASP.

1.7.1.3. (ROBINS) MA\_Q quality branches will determine the number of assessments to be performed monthly. The minimum number to be performed will be documented in the QAP or QASP.

1.7.1.3.1. (Added-ROBINS) MA\_Q quality branches will determine the type assessments to be performed monthly. The type assessments to be performed will be documented in the QAP or QASP.

1.7.1.3.2. (Added-ROBINS) MA\_Q quality branches will identify the methodology or rationale used to determine type and minimum number of assessments performed. The methodology or rationale used will be documented in the QAP or QASP.

1.7.1.4. Acceptable Quality Levels (AQL)/Standards. A standard is the acceptable quality level (number of minor defects) that can be considered satisfactory as a process average or conforming to established criteria.

1.7.1.4.1. An AQL/standard denotes the maximum allowable number of minor findings for any assessment. It must be strict enough that the task, process, or product meets an acceptable level of quality, but is not so strict that a QAR-1 rating is unattainable. The AQL/standard is derived from QA performance-based data. Production divisions will develop procedures for determining minimum AQL/standard levels delineating an “attainable” quality level. These levels will comprise the AQL standards for all assessment types.

1.7.1.4.2. Failure to meet an AQL/standard results in the assessment being rated as QAR 2 or QAR 3 depending on the severity of the deficiencies discovered during the assessment.

**1.8. Quality Assurance Training.** All Quality Assurance Specialists, inspectors, and evaluators (i.e., QA personnel) must be trained to the extent necessary to perform quality assurance functions.

**1.8. (ROBINS) Quality Assurance Training.** All Directorate of Maintenance quality assurance personnel performing assessments of various inspection areas, products, processes or procedures will be trained to the extent necessary (defined as applicable classroom functional training) to perform those functions. As part of the overall quality training program, mandatory reading and understanding of this AFMCI and supplement and the applicable division QAP/QASP is required by all personnel assigned to the quality function.

1.8.1. Specific Training Requirements. All QA personnel must be trained or possess sufficient technical knowledge to effectively perform their duties. The Maintenance Quality Manual or QAP will identify specific technical and weapons system training requirements. QA personnel are not required to be PAC certified on tasks being assessed, but must meet any qualification (mandatory formal training) requirements defined in AFMCI 21-108, Maintenance Training & Production Acceptance Certification (PAC) Program.

1.8.1. (ROBINS) Specific Training Requirements. Specific technical, weapons system and special skills qualification (SSQ) training requirements for quality personnel will be identified in the division QAP. In some cases, SSQ training will be required for quality personnel performing task evaluations (PE) or quality verification inspection (QVI) assessments. Mandatory requirements can be found in AFMCI21-108\_RAFBSUP1, Chapter 4.

1.8.1.1. (Added-ROBINS) Quality personnel must meet any applicable mandatory training requirements related to occupational type training, which is not specifically tied to a maintenance task but is required due to the nature of the maintenance environment. AFMCI 21-108, RAFBSUP1, Chapter 3 identifies the general recurring training requirements for the WR-ALC maintenance environment. As a minimum, quality personnel will be trained in the following, with any other area-specific training identified in the division QAP.

1.8.1.1.1. (Added-ROBINS) Fire Extinguisher Training, reference AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Protection and Health (AFOSH) Program.*

1.8.1.1.2. (Added-ROBINS) Foreign Object Damage (FOD) Prevention and Dropped Object Awareness, reference AFMCI 21-122, *Foreign Object Damage (FOD) Prevention and Dropped Object Awareness.*

1.8.1.1.3. (Added-ROBINS) Maintenance Training and Production Acceptance Certification (PAC) Program, reference AFMCI 21-108, *Maintenance Training and Production Acceptance Certification (PAC) Program.*

1.8.1.1.4. (Added-ROBINS) Technical Data Use and Compliance, reference AFRD 21-3, *Technical Orders*, AFMCI 21-301, *AFMC Technical Order System Implementing Policies*, AFMCI 21-110, *Depot Maintenance Technical Data and Work Control Documents (WCD)*, AFMC Manual 21-1, *AFMC Technical Order Systems Procedures*, TO 00-5-1, *Air Force Technical Order System*, and other 00-5 series technical orders and applicable directives.

1.8.1.1.5. (Added-ROBINS) Tool Control and Accountability, reference AFMCI 21-107, *Tool Control and Accountability Program.*

1.8.1.1.6. (Added-ROBINS) Work Control Documents (WCD) and Aircraft Status Forms, reference TO 00-20-5, *Aerospace Vehicle Inspection and Documentation*, AFMCI 21-110, *Depot Maintenance Technical Data and Work Control Documents*, AFMCI 21-129, *Depot Repair Enhancement Process (DREP)*, AFMCI 21-133, *Depot Maintenance Management for Aircraft Repair (AREP)*, other TOs and applicable directives.

1.8.2. Core Training Requirements. QA personnel who perform assessments will receive formal classroom training or equivalent training in the following areas:

1.8.2. (ROBINS) Core Training Requirements. Core training requirements are mandatory and have been defined by AFMC. The division training manager, based on prior training documentation from civilian or military training records, will approve equivalent training.

1.8.2.1. Depot Maintenance Quality Assurance. Maintenance Standard course number MWPMS0000200 will be used. This course includes QA orientation, the depot maintenance program, quality planning, QA standards, QA human factors, quality data, QA conformance, non-conforming material, and internal compliance reviews/MSET inspections.

1.8.2.2. Quality Statistics. QA personnel are trained in statistics to the extent necessary to perform their QA assigned duties. Training is accomplished organically or obtained through a local commercial source. Standard course chart number MRXMAS0000900 lists the topics that must be addressed. The degree of proficiency/knowledge (knowledge, skills abilities) varies based on job performance requirements contained in the applicable core documents.

1.8.2.2. (ROBINS) Quality Control Statistics. All QA personnel (job series-1910) are required to receive formal classroom training in Quality Control Statistics, while it is optional for others.

1.8.2.3. Quality Auditing. QA personnel are trained in auditing to the extent necessary to perform this function. Training is accomplished organically or obtained through a local commercial source. Standard course chart number MRXMAS0000800 lists the topics that must be addressed. The degree of proficiency/knowledge (knowledge, skills abilities) varies based on job performance requirements contained in the applicable core documents.

1.8.2.4. Quality Information Management Standard System (QIMSS). All QA QIMSS users will complete standard course number MRXMAS0002400, "QIMSS Users Course." QIMSS systems administrators (including work center administrators) will complete standard course number MRXMAS0002300, "QIMSS Administrators Course."

1.8.3. Training Documentation. Employee training will be tracked in the Educational and Training Management System (ETMS) and/or in the Production Acceptance Certification Standard System (PACSS), G015. Other HQ AFMC/LG approved systems may be used to schedule and manage training requirements identified in these systems.

1.8.3. (ROBINS) Training Documentation. ETMS/PACSS input of quality personnel training requirements into the PACSS database for MAPQ personnel will be accomplished by MAWHA, and division PAC monitors will input training requirements for QA personnel assigned to the divisions.

**1.9. Data Collection.** QIMSS will be used as the tool for collecting and compiling QA data collected by QA personnel. This data will be reviewed monthly to analyze results, identify trends, and will be reported to management in the appropriate forum. This information will allow management to make informed and responsible decisions about the quality system. The organization assessed is responsible for ensuring the corrective and preventive action is entered into QIMSS. Personnel using QIMSS must be trained to the extent necessary to effectively use the system.

**1.9. (ROBINS) Data Collection.** Standardized data input. Several fields within the database have mandatory system-driven entry requirements. MAPQ has identified additional fields and specific formats for entry of that data. The completed AFMC Form 343 must leave a clear, standardized, creditable and auditable trail for analysis review.

1.9.1. (Added-ROBINS) QIMSS Data Entry Requirements, provides data format and mandatory entry fields and is available on the MAPQ website. These requirements will be revised by MAPQ as system changes dictate.

1.9.2. (Added-ROBINS) Quality Information Management Standard System (QIMSS) User Guide. The guide is accessible as a document file copied to the resident personal computer when the client-side software is installed. It is provided as a “how-to” reference that will assist the user with specific instructions on viewing, entering, editing and manipulating data in QIMSS.

1.9.3. (Added-ROBINS) Assessment Results. All assessment results (except annual review or MI) will be documented on an AFMC Form 343. Assessment results will be documented as required by the procedures for the type assessment being performed.

1.9.4. (Added-ROBINS) Forms Documentation. Clear, accurate and concise documentation is essential to good quality data collection. All quality inspection, verification, observation and audit results will be documented appropriately and in a timely manner. Quality personnel will record all relevant data as required by the assessment being performed. Defect descriptions must be written so that it is clearly understood what is being identified as a deficiency.

1.9.5. (Added-ROBINS) Corrective/Preventive Action. The production maintenance function is responsible for ensuring corrective action is initiated as soon as possible and input into the QIMSS database. Timely corrective/preventive action is required to ensure problems are identified and corrected. Corrective action taken must be documented on the AFMC Form 343. All AFMC Forms 343 will include the corrective action taken. Preventive action documentation is dependant upon the type of assessment being performed

1.9.6. (Added-ROBINS) Documented, auditable procedures must be developed within each division to ensure corrective actions initiated from accomplishment of a quality assessment which require the performance of any maintenance task are properly documented IAW AFMCI 21-110. The AFMC Form 343 is *not* a WCD and will not be used to direct accomplishment or certification of a maintenance task. All work performed on depot aircraft or products must be accomplished using an approved WCD.

**1.10. Quality Review Board** . A maintenance quality review board will be established at the executive level to include the Director/Deputy of Maintenance, QA Focal Point, Production Divisions and Production Division QA Focal Point chiefs/deputies. The quality review board will be chaired by the MA Director or Deputy.

**1.10. (ROBINS) Quality Review Board.** The DMQR will be established at the executive level to include the WR-ALC/CC Commander. It will be used to summarize various quality-related data and (or) initiatives within the directorate. The MA Director/Deputy will chair the DMQR.

1.10.1. The objective of the quality review board is to ensure all levels of management are informed of quality data collected by the QA functions. This forum provides analysis of data generated from assessments and compliance reviews, cross-feed of information to all production activities, evaluation of program performance, and cross-feed of process improvement efforts. This data is also used to make adjustments to the Maintenance Quality Manual, QAP, or QASPs, as deemed necessary.

1.10.1. (ROBINS) Internal Quality Review (IQR). The Internal Quality Review (IQR) Board is established at the directorate level, and includes the Director/Deputy of Maintenance, QA focal point, production divisions and production division QA focal points, chiefs/deputies. IQR data includes detailed DMQR data, as well as other various internal and special interest quality related data. The MA Director/Deputy will chair the IQR.

1.10.2. The Maintenance Quality Manual and/or QAP will define the meeting frequency of the quality review board.

1.10.2. (ROBINS) DMQR data will be briefed at Commander level quarterly. IQR data will be briefed to the Director monthly.

1.10.2.1. (Added-ROBINS) The division QAP will define the meeting frequency and target audience of division-level quality reviews.

**1.11. Waiver Requests and Proposed Changes.** Waiver requests or proposed changes to the policy requirements of this instruction will be sent to HQ AFMC/LGQ for action. The center MA will staff waiver requests through the ALC/MAP or AMARC/QA for signature. HQ AFMC/LGQ will provide a copy of the waiver request to AFGE Council 214 for information. Requests for waivers will also contain justification as to why the unit cannot comply with existing guidance. Deviations, including “test” or “trial” programs, are NOT authorized without prior HQ AFMC/LG written approval.

**1.11. (ROBINS) Waiver Requests and Proposed Changes.** WR-ALC/MAPQ is the focal point for all waiver requests and proposed policy changes for this instruction as well as new/revised AFMCI 21-107, AFMCI 21-110, AFMCI 21-115 and AFMCI 21-122. Waiver requests or proposed changes to the policy requirements of these instructions will be sent to MAPQ for review and coordination prior to being forwarded to MA for signature. Deviations, including “test” or “trial” programs, are **NOT** authorized without prior MAPQ and HQ AFMC/LG written approval.

1.11.1. (Added-ROBINS) Procedures for Waiver Requests and Proposed Policy Changes. The request for waiver will be addressed to WR-ALC/MAPQ. A waiver request must contain the instruction title, specific paragraph reference and justification for noncompliance. An estimated completion date for meeting compliance requirements will also be included. Proposed change requests must contain the instruction title, specific paragraph reference, recommended change or action and supporting rationale. The waiver and change request must be coordinated by the applicable division chief and quality function prior to submission to MAPQ. When the quality function is a branch or section, the applicable division must coordinate the request. Once received by MAPQ, requests will be evaluated, coordinated and submitted to HQ AFMC/LGQ. If clarification or consensus is required, MAPQ will initiate action until the issue is resolved.

1.11.2. (Added-ROBINS) MAPQ will track the status of any MA waiver or change request applicable to this instruction. Status will be available on the MAPQ server. Waiver requests will be reviewed at least annually or as otherwise required.

**1.12. Deficiency Reporting (DR) and Investigating System .** The deficiency reporting and investigating system has been established to identify, report, and resolve deficiencies on military weapon systems. HQ AFMC/ENP has overall responsibility for TO-00-35D-54, *USAF Deficiency Reporting and Investigating System*, and for matters pertaining to overall DR policy and procedures.

1.12.1. Deficiencies of products meeting the reporting criteria of TO 00-35D-54, Chapter 3 shall be reported on SF 368, **Product Quality Deficiency Report** or through the Deficiency Reporting Entry and Mail System (DREAMS) electronic report or input into G021 directly.

1.12.2. (Added-ROBINS) Nonconforming products/materials identified during depot maintenance processes will be reported IAW TO 00-35D-54.

1.12.2.1. (Added-ROBINS) When nonconforming products/materials are identified and the prime source of repair is WR-ALC, deficiencies and exhibits will be processed IAW MAOI 21-3, *Processing MA-Initiated Deficiency Reports and Exhibits*.

1.12.2.2. (Added-ROBINS) Nonconforming products/materials, which are organically caused and cannot be reworked to meet technical or contract requirements, will be reported on AFMC Form 202, **Nonconforming Technical Assistance Request and Reply**, for engineering disposition for non-conforming technical problems beyond published authority. Procedures are defined in AFMCMAN 21-1, *Air Force Materiel Command Technical Order Procedures*. Nonconforming material produced in-house that cannot be made to conform to the requirements of technical data by normal manufacturing or rework operations will be identified, documented on an AFMC Form 202, removed from the maintenance activity and, when physically practical, placed in a designated holding area.

**1.13.** Forms. AFMC Form 77, **Request for Quality Assistance**, AFMC Form 78, **Deficiency Report**, AFMC Form 79, **Quality Feedback Review**, and AFMC Form 343, **Quality Assurance Assessment**, SF 368, **Product Quality Deficiency Report**.

**1.14. (Added-ROBINS) Records and Documentation.** Data collection also includes quality-generated records and documentation. Clear, accurate and concise documentation is essential to good quality data collection. All quality inspection, verification, observation and audit results will be documented appropriately and in a timely manner. All official hard copies of quality-generated data will be maintained on file and available for review. Quality records will be managed IAW the guidance provided in AFMAN 37-123, *Management of Records*, AFI 37-138, *Records Disposition—Procedures and Responsibilities*, and AFMAN 37-139, *Records Disposition Schedule*.

## Chapter 2

### QUALITY ASSESSMENTS AND RATING CRITERIA

**2.1. Quality Assessments Types.** The following types of evaluations, inspections and observations support the Quality Program: Personnel Evaluations (PE), Quality Verification Inspections (QVI), Core Inspections (CI), Special Inspections (SI), Management Inspections (MI), and Isolated Violations (IV). The Maintenance Quality Manual and/or QAPs will define procedures and responsibilities for performing the types of assessments listed below:

**2.1. (ROBINS) Quality Assessment Types.** Quality assessments are used to evaluate, control and improve depot maintenance products and services. Quality assessments will consist of quality program elements (standards, instructions, contractual requirements, etc.) and product conformance (technical orders, drawings, specifications, etc.). Quality assessments can verify implementation of policies and procedures required to produce a quality product. Quality assessments are performed to ensure compliance with applicable directives and technical data instructions during the depot maintenance repair process. They accomplish this by ensuring personnel are following procedural steps in checklists, job guides and technical orders. Assessment results may require re-inspection/verification of items accepted at various stages of manufacture, repair or assembly; availability and examination of required documentation; determination of certification/qualification of personnel and compliance with process controls and related procedures. Quality assessments are not performed with the intent of initiating disciplinary action. Quality assessments are initiated by the quality organizations or management and are scheduled as deemed necessary. Assessments may be conducted on a scheduled, random or unannounced basis.

2.1.1. Personnel Evaluation (PE). A PE is an over-the-shoulder evaluation of a PAC certified mechanic/technician performing a maintenance task. PEs evaluate/assess a single technician or team of technicians' job proficiency and compliance with technical data requirements during the performance of a specific maintenance task. PEs will be rated pass or fail, and given a QAR rating. QAR ratings will be based on AQL/standards developed and identified in the Maintenance Quality Manual, QAP or QASP as applicable.

2.1.1. (ROBINS) MA\_Q quality branches will include in the division QAP supplemental processes/procedures for performing a PE if not included in this instruction. MA\_Q quality branches will rate PEs based on the AQL/standards developed and identified in the QAP/QASP.

2.1.1.1. The technician/team involved must be informed a PE is about to be performed. QA personnel will explain the evaluation process and rating criteria. The evaluation starts when the individual or team begins the task, or portion of the task to be evaluated, and is completed when the job or previously determined portion of the task is finished. The TO and applicable steps covered in the task evaluation will be included on the AFMC Form 343.

2.1.1.1. (ROBINS) At the start of the PE, the QAS will brief the employee of the rating criteria, that the task itself will be rated pass or fail, and the exact steps where the task will start and end. The evaluator will inform the employee that the evaluation can be stopped or terminated at any time. If a condition is observed that endangers personnel, affects safety-of-flight or jeopardizes equipment reliability the evaluation will be stopped and the condition will be corrected immediately.

- 2.1.1.1.1. (Added-ROBINS) The evaluator will consider the task being evaluated, the location of the aircraft during the PE (if applicable), the number of personnel involved and actions taken to correct a discrepancy as well as the criticality of the discrepancy, when determining whether to continue or terminate the PE.
- 2.1.1.1.2. (Added-ROBINS) The evaluator will identify governing and relevant technical data sources. TO references to include specific paragraphs for the steps evaluated will be included on the AFMC Form 343.
- 2.1.1.1.3. (Added-ROBINS) Quality personnel will validate other types of technical data (test software, drawings, etc.) through the applicable source for currency.
- 2.1.1.2. General maintenance practices that relate directly to the task being performed (e.g., safety, material handling, use of tools and equipment, Foreign Object Damage prevention, Electrostatic Discharge prevention, and workmanship) will be examined during the PE. Other maintenance practices may also be examined as locally determined.
- 2.1.1.2. (ROBINS) Employees must meet qualification requirements, perform work IAW approved WCDs appropriate to the task, and have current and accurate technical data available and in use (if required). Also, the area must be safe to perform maintenance. Evaluation of these areas may be documented as a CI when a CI checklist has been developed and is used in conjunction with the PE.
- 2.1.1.2.1. (Added-ROBINS) Evaluation of core areas will not be grounds for a failed PE if the discrepancy identified is outside the control of the individual or team being evaluated and the discrepancy would not affect the technical reliability of the task being performed. As a minimum, the following support evaluation areas will be incorporated as part of the PE process:
- 2.1.1.2.1.1. (Added-ROBINS) Verification of the employees' PAC records to determine if the certification and qualification is appropriate for the task to be evaluated.
- 2.1.1.2.1.2. (Added-ROBINS) Validation through TO Library or other reliable source the latest change date to the TO to be used during the performance of PE, and that the most current version is available to the workforce.
- 2.1.1.2.1.3. (Added-ROBINS) Verification that the WCD reflects the current technical data requirements for the task being evaluated. Only those WCDs authorized by AFMCI 21-110 will be used for certification of work performed.
- 2.1.1.2.1.4. (Added-ROBINS) Verification that support equipment and tools are serviceable and required inspections are current.
- 2.1.1.2.1.5. (Added-ROBINS) Verification of the employee's AF Form 55, Employee Safety and Health Record, to determine if their personal protective equipment and safety qualifications are adequate for the task to be performed.
- 2.1.1.2.1.6. (Added-ROBINS) Verification of the area to determine if there are any safety concerns that must be corrected prior to beginning the PE.
- 2.1.1.3. When performing a PE, QA personnel will assess if the technician performed the task as prescribed by applicable technical data.

2.1.1.3. (ROBINS) Assessments will verify as a minimum that the correct technical data was used for the task to be accomplished. Proper use of technical data will be assessed, i.e. the technical data is open and followed step by step for “In Accordance With” (IAW) tasks. For “Reference TO” (REF) tasks, the TO must be readily available. Performance of the task as required by the technical data, adherence to warnings, cautions, following the proper sequence of events, etc. will be assessed.

2.1.1.3.1. (Added-ROBINS) Determination of whether task or portion of a task is major or minor in nature.

2.1.1.3.2. (Added-ROBINS) The evaluator will identify the task being performed (by work control document operation or control number). The related PAC task number (Section III) will be included on the AFMC Form 343.

2.1.1.3.3. (Added-ROBINS) The evaluator will verify proper use and correctness of the tools/equipment for task to be accomplished.

2.1.1.4. QA personnel will provide the technician or team a critique of the PE at its completion. The technician or team’s supervisor or designated representative will also be briefed of assessment results.

2.1.1.5. As a minimum, each PAC certified technician will pass a personnel evaluation every 24 months. (Note: Personnel evaluations for industrial services and non-critical support personnel is optional at local discretion.)

2.1.1.5. (ROBINS) MA\_Q quality branches will develop a method to document and track employee PEs. The tracking process will include performing reassessment of mechanics for a failed PE. The PE tracking process will be identified in the division QAP. Production supervisors will ensure ample opportunity is provided for all employees to receive their scheduled PE. New employees or employees transferred from another maintenance area will have a PE performed within 6 months after receiving PAC certification in the newly-assigned division.

2.1.1.5.1. Individuals or team members will be decertified (on the evaluated task) by their supervisor for a failed PE rating. Decertification and recertification procedures are defined in AFMCI 21-108, *Maintenance Training and Production Acceptance Certification (PAC) Program*. The supervisor will notify QA when requalification/recertification of the individual or team has been accomplished.

2.1.1.5.1. (ROBINS) When a PE is performed on a team, each person involved will be identified on a separate AFMC Form 343 and evaluated to the AQL/standard applicable for that task. Each person will be given an individual QAR and pass/fail rating.

2.1.2. Quality Verification Inspections (QVI). An assessment/evaluation of a maintenance procedure, process, product, or portion thereof, while it is being accomplished, or after it has been completed and the task/WCD stamped. QVIs will not be conducted after equipment operation when such operation could invalidate indications of proper job accomplishment. This type inspection does not require disassembling parts, removal of stress panels, or like actions.

2.1.2. (ROBINS) Quality Verification Inspections (QVI). An assessment/evaluation of a completed end item/product performed after completion of the maintenance procedure, process, product or portion thereof, and certification of the task/subtask or operation on the WCD has been stamped/dated as certified.

2.1.2.1. (Added-ROBINS) Each division quality office will establish and document in their QAP procedures, methods, or rationale for QVI selection and processing. This will include QAS quality inspection code “Q” clearance, corrective/preventative action, review, AQL standards, follow-up and the minimum number and frequency for each assessment area. Frequency of QVI performance will be documented in the QASP. A QVI can be performed in conjunction with a WCD CI if the WCD inspection code is “Q”.

2.1.3. Core Inspection (CI). CIs are assessments of common depot production maintenance programs and processes that require continuous evaluation. They may be evaluated independently or may be performed in conjunction with any other type of assessment such as PE and QVI. Observed deficiencies beyond the CI checklist questions (i.e., stumble on) will be recorded in QIMSS under the inspection category of Isolated Violations. The HQ AFMC/LGQ website will contain checklists that identify the mandatory core inspection items. Mandatory questions, when applicable to the organization, must be evaluated for the assessment to qualify as a core inspection. The following are the only designated core inspection areas:

2.1.3.1. Material Control.

2.1.3.1. (ROBINS) Material Control. Applicable reference: AFMCI 21-130, *Equipment Maintenance Material Control*.

2.1.3.2. Foreign Object (FO)

2.1.3.2. (ROBINS) Foreign Object (FO). Applicable reference: AFMCI 21-122, *Foreign Object Damage (FOD)/Dropped Object (DO) Prevention Program*.

2.1.3.3. Tool Control.

2.1.3.3. (ROBINS) Tool Control. The AFMC Form 343 will identify the Tool Kit Identification Number. Applicable references: AFMCI 21-107, *Tool Control and Accountability*; TO 31-1-101, *Use and Care of Hand Tools and Measuring Tools*; AFI 23-111, *Management of Government Property in Possession of the Air Force*.

2.1.3.4. Work Control Documents.

2.1.3.4. (ROBINS) Work Control Documents. The ITS or AFMC Form 173 work control document operation and (or) control numbers will be identified on the AFMC Form 343. Applicable reference: AFMCI 21-110, *Depot Maintenance Technical Data and Work Control Documents (WCD)*.

2.1.3.5. Production Acceptance Certification (PAC)/Special Skills Qualification (SSQ)/Training.

2.1.3.5. (ROBINS) Production Acceptance Certification (PAC)/Special Skills Qualification (SSQ)/Training. Applicable reference: AFMCI 21-108, *Maintenance Training and Production Acceptance Certification (PAC) Program*.

2.1.3.6. Equipment.

2.1.3.6. (ROBINS) Equipment. The WR-ALC/preventive maintenance number and serial number will be included on the AFMC Form 343 for each piece of equipment evaluated during the assessment. Applicable references: TO 00-20-1, *Aerospace Equipment Maintenance General Policies and Procedures*, and AFMCI 21-127, *Depot Maintenance Plant Management*.

2.1.3.7. Safety (Flight Line/Industrial).

2.1.3.7. (ROBINS) Safety (Flight Line/Industrial). Applicable References: AFOSH Standard 91-66, *General Industrial Operations*; AFOSH Standard 91-100, *Aircraft Flight Line-Ground Operations and Activities*; and AFOSH Standard 91-501, *Air Force Occupational and Environmental Safety, Fire Protection, and Health (AFOSH) Program*.

2.1.3.8. Technical Data. (Engineering Drawings, AFMC Form 202, **Nonconforming Technical Assistance Request**, and Process Orders).

2.1.3.8. (ROBINS) Technical Data. (Engineering Drawings, AFMC Form 202, Nonconforming Technical Assistance Request, and Process Orders). The document or drawing control number will be included on the AFMC Form 343 for each piece of technical data evaluated during the assessment. Applicable references: AFMCI 21-110; AFMCMAN 21-1; AFI 21-401, *Engineering Data Storage, Distribution, and Control*; and AFI 21-403, *Acquiring Engineering Data*.

2.1.3.9. Technical Orders. (Formal Technical Order system as defined in TO 00-5-1, *AF Technical Order System*).

2.1.3.9. (ROBINS) Technical Orders (formal TOs). The TO File, TO and copy numbers (if applicable) will be included on the AFMC Form 343 for each TO evaluated during the assessment. Applicable references: AFMCI 21-301, *Air Force Technical Order System Implementing Policies*; TO 00-5-1; and TO 00-5-2, *Technical Order Distribution System*.

2.1.4. Special Inspections (SI). SIs are inspections not covered by CI checklists, Management Inspections, PEs, QVIs, or checklists accomplished as a part of the Annual Technical Compliance Review. SIs can include, but are not limited to, applicable HQ AFMC/LG inspection checklists. Special Inspections are conducted at the discretion of the local QA and are based upon analysis of assessment data. SIs are designed to provide a flexible tool to complement other quality assessment types. The Maintenance Quality Manual or QAP should clearly describe how SIs are conducted as part of an overall QA program.

2.1.4. (ROBINS) The SI process is a comprehensive, well-defined, repeatable process utilizing proper data collection techniques accomplished over a 30-120 day assessment period with monthly reporting points. The SI will last a minimum of 30 days with any extended duration determined by the quality chief. Any SI accomplished will be documented as to purpose, scope, team members and methodology to include development of specialized checklists, analysis, recommendations and summary of results. **Attachment 6 (Added)**, Record of Document Review, provides the format to be used and any documentation requirements.

2.1.4.1. (Added-ROBINS) Assessment results will be documented on the AFMC Form 343 and the data input into QIMSS for any SI conducted.

2.1.4.2. (Added-ROBINS) MA\_Q will include in the QAP (if required) division processes or procedures for performing SI assessments, follow-up and reporting not included in this instruction.

2.1.5. Management Inspections (MI). MIs cover a broad category. Perform these inspections to follow up on trends, conduct investigations, or conduct research to get to the root cause of problems. Any level of management may request MIs. MIs may encompass PE/QVI trends and other inspection data, aborts and trends, in-flight emergency trends, high component or system failure rates, suspected training deficiencies, and tasks outlined in aircraft dash-6 technical orders. Report MI results to the requester, and allow him or her latitude in exploring options prior to implementing corrective actions. At local discretion, MIs can be non-rated and may be counted in QA trends.

2.1.5. (ROBINS) Any MI accomplished will be documented as to purpose, scope, team members and methodology to include development of specialized checklists, analysis, recommendations and summary of results. **Attachment 6 (Added)** provides the format to be used and any documentation requirements.

2.1.5.1. (Added-ROBINS) An MI may be non-rated and data may be counted in QA trends, but does not require AFMC Form 343 documentation of finding results.

2.1.5.2. (Added-ROBINS) . As a minimum the MI will be led by MAPQ or MA\_Q quality focal points, and a written plan will include team charter, make-up and detailed process. This includes assigning a cross-functional team of subject matter experts from local quality and other related organizations, analyzing existing quality data from previous 12 to 24 months, a comprehensive trend analysis and root cause determination, mandated comprehensive corrective and preventive actions and initiation of an SI to determine effectiveness of corrective and preventive actions.

2.1.5.3. (Added-ROBINS) MA\_Q will include in the QAP (if required) division processes or procedures for performing MI assessments, follow-up and reporting not included in this instruction.

2.1.6. Isolated Violation (IV). This category represents observed events or conditions with safety implications, or technical violations not related to an inspection or evaluation, which may be considered unsafe, not in accordance with established procedures, or, in the case of equipment, unfit to operate. Isolated violations will be documented as one of the following:

2.1.6.1. Detected Safety Violation (DSV). An unsafe act by an individual. The inspector will stop the unsafe act immediately. Do not document a separate DSV on an individual undergoing a personnel evaluation 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. A DSV will automatically result in a QAR 3 rating.

2.1.6.2. Technical Data Violation (TDV). An observation of any person performing maintenance without the proper technical data available and in use. The technician will have knowledge of all general directives associated with the job prior to performing the task. However, those directives need not be present at the job site. Do not document a separate TDV on an individual undergoing a PE, since failure to use technical data automatically results in a "Fail" rating. A TDV will automatically result in a QAR 3 rating if the WCD specifies "in accordance with" and the technical data is not open and in use.

2.1.6.2. (ROBINS) A TDV will automatically result in a QAR 3 rating if the technical data is not being followed.

2.1.6.3. Unsatisfactory Condition Report (UCR). A UCR is considered a condition other than a DSV or TDV, chargeable to the work center supervisor. Document discrepancies as a UCR when it is not possible to determine who created the condition.

2.1.7. Annual Technical Compliance Review. Technical compliance reviews will be conducted yearly and all applicable checklists used during the review process. The annual review, essentially a process/system audit, is intended to facilitate a center wide evaluation of program implementation and effectiveness. Evidence of compliance with regulatory references and all applicable HQ AFMC checklists gathered via sample inspections, PAC, SSQ, training reviews, metrics, and other related data collected throughout the year will form the basis of the assessment. Subject matter experts may be used while

conducting the Technical Compliance Review. The reviews are planned, coordinated, and executed by the ALC/AMARC Maintenance QA Focal Point.

2.1.7. (ROBINS) Annual Technical Compliance Review. Annual Technical Compliance Reviews will be planned, coordinated and executed by MAPQ.

2.1.7.1. General Information. Maintenance Quality assurance function must inspect maintenance activities and applicable staff functions annually. This inspection may be accomplished as a phased inspection divided into increments throughout the specified inspection cycle. The annual review is designed to give managers a comprehensive, objective evaluation of mission capabilities and compliance with technical and management directives for each function.

2.1.7.2. The MA Director and AMARC equivalent ensure the depth and detail of the annual review is sufficient to evaluate the management capability of the maintenance organization. This is done by expanding the minimum requirements outlined herein or by adding special subject items. The Maintenance Quality Focal Point and AMARC equivalent recommend adjustments to the requirements based on trends and problem areas identified by QA data, MAJCOMs, AFMC IG/LG inspections, or audit reports.

2.1.7.3. Following a detailed compliance inspection by Higher Headquarters (HHQ), the Maintenance Quality Focal Point and AMARC equivalent may postpone a portion of the annual review schedule to allow activities an opportunity to clear discrepancies recorded. Request for postponement will be made to HQ AFMC/LG. If the annual review schedule is postponed, the Maintenance Quality Focal Point and AMARC equivalent must ensure all activities are rescheduled for inspection within 12 months following the HHQ compliance inspection.

2.1.7.4. Annual Technical Compliance Review Scheduling. Annual Reviews must be scheduled and included in monthly planning. Maintenance Quality Focal Point and AMARC equivalent coordinates the inspection schedule with the MA divisions to ensure minimum disruption of other schedules. To facilitate preparation of the schedule, Maintenance Quality Focal Point and AMARC equivalent must maintain a record that shows all activities to be inspected, date of last inspection, and the month the next inspection is due.

2.1.7.4. (ROBINS) Annual Technical Compliance Review Scheduling. MAPQ will maintain a record that shows all activities to be inspected, date of last inspection and the month the next inspection is due.

2.1.7.5. Review Preparation. The quality of the review is largely dependent upon thorough preparation for the assessment of each organization/process. Review preparation will include a review of the mission, the organizational structure, current projects and programs, and the past performance of the unit or activity to be assessed. Sources of information for this review include previous inspection and staff visit reports, manning authorization listing, equipment authorization and inventory documents, standards, deficiency analysis files, in-depth analysis of available automated reports or listing from the management information systems and current directives applicable to the function.

2.1.7.6. Review Requirements. When conducting an annual review, quality assurance personnel must address internal problems of the unit and problems caused by other activities outside the jurisdiction of the inspected unit. The review is primarily management oriented; however, portions of the review include a determination of technical compliance. Ensure deficiencies discovered

during the review, which are beyond the unit's capability to correct, are recorded in the review report and are referred to the ALC/AMARC/CC for action.

2.1.7.7. Annual Review Report. The report constitutes the record of the review and recommendations to the MA in the areas of Maintenance Management, Technical Data/Process, Tools/Equipment and Qualification and Training. All annual review reports are prepared in the following two-part format: part I – Executive Summary of review findings; part II - major and minor discrepancies. Discrepancies are grouped and identified as major and minor for a particular division, branch or category with major discrepancies listed first. Supervisors are responsible for correction of all items, as well as for developing effective corrective action that eliminates/mitigates the root cause in order to prevent recurrence. Corrective action must be specific and must be aimed at correcting both the cause and the specifically reported item or condition.

2.1.7.7. (ROBINS) MAPQ will prepare the Annual Review results in the report format provided in [Attachment 6 \(Added\)](#).

**2.2. Quality Assessment Type Ratings.** A value reflecting the results of quality assessments.

**2.2. (ROBINS) Quality Assessment Type Ratings.** HQ AFMC has established three Quality Assurance Results (QAR) ratings for assignment to each assessment. The QAR rating and AQL standards provide a standardized method of determining the value of any quality assessment.

2.2.1. Ratings. These ratings will be input into QIMSS. Only PEs will be rated pass or fail in addition to the QAR. Deficiencies will be classified as major or minor findings. 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. A **major finding** is defined as a condition that would endanger personnel, jeopardize equipment reliability, or warrant discontinuing process or equipment operation.

2.2.1. (ROBINS) Ratings. Individual deficiencies identified must be classified as major or minor based on the nature and severity of the task and of the finding; PDMSS and the applicable TO can assist in classifying the deficiencies as major and minor. Accurate classification of defects assists in assigning a QAR rating when required. Major/minor distinction will assist in determining the AQL for various assessments and processes.

2.2.1.1. QAR-1. This rating indicates the evaluated process/product met the established standard. This rating is considered a pass rating.

2.2.1.2. QAR-2. This rating indicates the evaluated process/product did not meet the established standard because of too many minor findings. This rating is considered a failed rating.

2.2.1.3. QAR-3. This rating indicates an evaluated process/product did not meet the established standard because one or more major findings were detected, the number of minor findings exceed QAR-2 criteria, or where systemic minor deficiencies are evident. This rating is considered a failed rating.

2.2.1.3.1. When a QAR-3 condition is observed, QA personnel will notify production supervision immediately. Under no circumstances will a safety error or equipment reliability error go uncorrected. If an assessment is being performed, QA personnel will consider the seriousness of the error committed when deciding whether or not the assessment should be allowed to continue.

2.2.1.3.2. When QAR-3 rating that is directly attributable to a certified technician(s) proficiency, that individual, team, or team member will be decertified. Decertification and recertification procedures are defined in AFMCI 21-108, *Maintenance Training and Production Acceptance Certification (PAC) Program*.

2.2.1.3.3. QA personnel must assign a QAR-3 rating if:

2.2.1.3.3.1. A TO "warning" is overlooked or a safety error that could result in personal injury is detected.

2.2.1.3.3.2. A TO "caution" is overlooked or an equipment reliability error that could result in equipment or system unreliability or damage is detected.

2.2.1.3.3.3. The person or team accomplishing the task being evaluated demonstrates a lack of technical proficiency.

2.2.1.3.4. QA personnel may assign a QAR-3 to a process/program where systemic deficiencies are evident.

2.2.1.3.5. Rating Personnel Evaluations. QA personnel will rate each evaluation based on AQLs/standards. A failed PE rating means the specific task was not performed within the established AQL/standards. The rating applies only to the specific task evaluated and not to other tasks that a technician or supervisor is qualified to perform.

2.2.1.3.5.1. Pass: Number of discrepancies does not exceed AQL/standards.

2.2.1.3.5.2. Fail: An evaluation that results in any of the following:

2.2.1.3.5.2.1. Number of discrepancies exceeds the established AQL/standards.

2.2.1.3.5.2.2. Technician fails to detect a major discrepancy while complying with an inspection or work card requirement.

2.2.1.3.5.2.3. Technician fails to comply with a step of prescribed technical data that could affect the performance of the equipment involved or cause injury to personnel.

2.2.1.3.5.2.4. Technician demonstrates a lack of technical proficiency or system knowledge, training is not documented.

2.2.1.3.5.2.5. Technician commits a safety violation.

2.2.1.3.5.2.6. Technician fails to document maintenance actions in appropriate equipment records.

**2.3. AFMC Form 343 Control and Processing.** Quality assessment data will be documented on the computer generated AFMC Form 343 and recorded in QIMSS. The QIMSS database collects, indexes, files, stores and maintains applicable AFMC Forms 343 data.

**2.3. (ROBINS) AFMC Form 343 Control and Processing.** The QIMSS database collects, indexes, files, stores and maintains applicable AFMC Forms 343 and Request for Quality Assistance (RQA) data.

2.3.1. Processing. Timely corrective/preventive action is required to ensure problems are identified and corrected. QA must input the assessment into QIMSS within one work day (24 hrs). The suspense date for corrective/preventive action is 10 work days, beginning with date the defect is input into QIMSS and ending with acceptance of corrective/preventive action by QA. The production mainte-

nance function is responsible for ensuring corrective/preventive action is initiated as soon as possible and input into the QIMSS database.

2.3.1. (ROBINS) Processing. The quality branch conducting the assessment will be responsible for documenting and entering the assessment results into the quality database, following up on responses, entering follow-up information and maintaining any supporting or relevant documentation.

2.3.1.1. Extension of Suspense Date. Local policies and procedures will be developed and documented in the Maintenance QA Manual for extension of suspense dates. Extensions will be recorded and tracked in QIMSS.

2.3.1.1. (ROBINS) Extension of Suspense Date. MA\_Q quality branches will identify and document in the QAP any requirements for extension of suspense dates.

2.3.2. Follow-up Assessments. Depending on the severity of the discrepancies the QAS, QA supervisor, or management may direct specific follow-up actions. Results of follow-up assessments will be recorded in QIMSS. Follow-up assessment procedures will be documented in the Maintenance QA Manual or QAP.

2.3.2. (ROBINS) Follow-up Assessments. Follow-up inspections shall be conducted on documented discrepancies to ensure corrective actions were effectively implemented. Follow-up activities are completed following implementation of the corrective action and expiration of planned completion date. Results of follow-up assessments will be recorded in QIMSS.

## Chapter 3

### METERICS AND REPORTING

**3.1. Purpose.** The purpose of Quality Metrics is to measure the efficiency and effectiveness; and provide regular feedback to management on the health of the processes evaluated. Mandatory metrics, criteria, level/frequency of reporting and other pertinent information are identified below.

**3.2. Quality Metrics.** The formula for all metrics is, the number of QAR-1 rated assessments divided by the total number of that type assessment conducted in an organization for a given time period (e.g. total QAR-1 Core Tool assessments divided by the total number of Core Tool assessments performed in a division per month or at the center per quarter). Data for the metrics will be extracted from the QIMSS database in the following types of assessments:

3.2.1. Personnel Evaluation.

3.2.2. Quality Verification Inspection.

3.2.3. Each Core Inspection (identified in **paragraph 2.1.3.**).

### 3.3. Reporting.

3.3.1. Metrics (paragraph **3.2.**) will be reported to Division/Directorate monthly; and to Center CC and AFMC/LGQ quarterly.

3.3.1. (ROBINS) MAPQ will provide required metric data to HQ AFMC/LGQ quarterly.

3.3.2. The Annual Technical Compliance Review as defined in paragraph **2.1.7.** Annual review data is due to HQ AFMC/LGQ no later than 15 February of each year for the previous calendar year and will include:

3.3.2. (ROBINS) MAPQ will furnish annual review data to HQ AFMC/LG no later than 15 Feb of each year for the previous calendar year.

3.3.2.1. An executive summary, which includes the review and ratings of the four MSET Inspection Checklist Categories as found on the HQ AFMC/LGQ website: Maintenance Management, Technical Data/Process, Tools/Equipment and Qualification and Training.

3.3.2.2. Recommendations for policy changes or additions.

3.3.2.3. A current copy of the Maintenance Quality Manual.

3.3.2.4. Identify and provide top five areas causing QAR 2s and QAR 3s.

DEBRA K. WALKER, SES, Deputy Director  
Directorate of Logistics

**Attachment 1****GLOSSARY OF REFERANCES AND SUPPORTING INFORMATION*****Abbreviations and Acronyms***

**Acceptable Quality Level (AQL)/Standards**—A standard is the acceptable quality level (number of minor defects) that can be considered satisfactory as a process average or conforming to established criteria.

**Assessment**—The evaluation of a system, component, process, procedure or person.

**Core Inspection**—Assessments of common depot production maintenance programs and processes that require continuous evaluation using directed checklists and the mandatory questions as a minimum.

**Corrective Action**—The action to eliminate the cause of a detected defect or other undesirable condition.

**Detected Safety Violation (DSV)**—An unsafe act by an individual.

**Education Training Management System (ETMS)**—A web based training management tool used to establish training requirements, track and document training completion, and project future requirements.

**Isolated Violation (IV)**—This category represents observed events or conditions with safety implications, or technical violations not related to an inspection or evaluation, which may be considered unsafe, not in accordance with established procedures, or, in the case of equipment, unfit to operate.

**Maintenance Quality Manual**—A quality assurance manual provides an organized way of communicating how quality is managed; defines specific roles and responsibilities and defines how the organizations quality program is implemented. It provides the basic implementation guide required at each ALC to ensure all requirements of AFMCI 21-115 are standardized within each Production Division's QAP.

**Major Finding**—Defined as a condition that would endanger personnel, jeopardize equipment reliability, or warrant discontinuing process or equipment operation.

**Management Inspections (MI)**—MIs cover a broad category. These inspections are performed to follow up on trends, conduct investigations, or conduct research to get to the root cause of problems. Any level of management may request MIs. MIs may encompass PE/QVI trends and other inspection data, aborts and trends, in-flight emergency trends, high component or system failure rates, suspected training deficiencies, and tasks outlined in aircraft dash-6 technical orders.

**Minor Finding**—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.

**Personnel Evaluation (PE)**—A PE is an over-the-shoulder evaluation of a PAC certified mechanic/technician or team performing a maintenance task.

**Preventive Action**—The action to eliminate the cause of a potential defect or other undesirable condition.

**Production Acceptance Certification (PAC)**—Is a task-related program which ensures employees are certified to perform and accept completion of assigned work. PAC does this through systematic training, qualification and certification of individuals.

**(Added-ROBINS) Quality Assessment**—A quality assessment is a methodical examination of a product, process, procedure or personnel performance that may include an inspection or evaluation of tooling, equipment, training, safety, certification, technical data, facilities, documentation and any other factors that may influence the quality of the product.

**Quality Assessment Results (QAR) Rating**—A numerical value reflecting the results of a quality assessment. There are three QAR values (1,2,3) each based on the number and severity of defect in a rated area.

**Quality Assurance Personnel**—Persons designated by the quality organization to accomplish quality assurance functions.

**Quality Assurance Plan (QAP)**—The QAP identifies specific detailed quality processes and procedures relative to a particular organization. QAPs provide documentation of an organization's day-to-day operational procedures.

**Quality Assurance Surveillance Plans (QASP)**—The QASP identifies the functions and associated actions performed by a particular organization to ensure that requirements are performed in accordance with specified standards and that an appropriate level of quality control activities are in place and operational.

**Quality Information Management Standard System (QIMSS)**—A data collection system used to collect and analyze QA data.

**Quality Review Board.**—An assembly of personnel established to review QAP findings and metrics on maintenance quality programs.

**Quality Verification Inspection (QVI)**—An assessment/evaluation of a maintenance procedure, process, product, or portion thereof, while it is being accomplished, or after it has been completed and the task/WCD stamped.

**Special Inspections (SI)**—SIs are inspections not covered by CI checklists, Management Inspections, PEs, QVIs, or checklists accomplished as a part of the Annual Technical Compliance Review. SIs can include, but are not limited to, applicable HQ AFMC/LG inspection checklists. Special Inspections are conducted at the discretion of the local QA and are based upon analysis of assessment data.

**Special Skills Qualification (SSQ)**—Required for individuals that perform functions for which highly developed skills are required to perform certain tasks.

**Technical Data.**—Approved instructions relating to the management, repair, and/or use of a weapon system or component.

**Technical Data Violation (TDV)**—An observation of any person performing maintenance without the proper technical data available and in use.

**Tool Control and Accountability**—A program by which replaceable and consumable tools are controlled to detect/prevent loss within the workplace.

**Unsatisfactory Condition Report (UCR)**—A UCR is considered a condition other than a DSV or TDV, chargeable to the work center supervisor.

**Work Control Document (WCD)**—Information to control required work tasks, including identifying the task, skill, sequence, duration, project, finding, and inspection level of the work being performed.

## Attachment 2 (Added-ROBINS)

## CROSS REFERENCE MATRIX

Table A2.1. (Added-ROBINS) Cross Reference Matrix.

Manual/AS9100 Paragraph	Governing Publications
4. Quality Management System	AFI 21-102, <i>Depot Maintenance Management</i> AFI 63-501, <i>Air Force Acquisition Quality Program</i> AFMCI 63-501, <i>AFMC Quality Assurance</i> AFPD 63-5, <i>Quality Assurance</i> MAOI 63-501, <i>Quality Program Plan (QPP)</i>
4.1. General Requirements	AFI 21-102, <i>Depot Maintenance Management</i> AFI 63-501, <i>Air Force Acquisition Quality Program</i> AFMCI 63-501, <i>AFMC Quality Assurance</i> AFPD 63-5, <i>Quality Assurance</i> MAOI 63-501, <i>Quality Program Plan (QPP)</i>
4.2. Documentation Requirements	AFI 21-102, <i>Depot Maintenance Management</i> AFI 63-501, <i>Air Force Acquisition Quality Program</i> AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i> AFMCI 63-501, <i>AFMC Quality Assurance</i> AFPD 63-5, <i>Quality Assurance</i> RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i> MAOI 63-501, <i>Quality Program Plan (QPP)</i>
4.2.2. Quality Manual	AFMCI 63-501, <i>AFMC Quality Assurance</i> RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i> MAOI 63-501, <i>Quality Program Plan (QPP)</i>

Manual/AS9100 Paragraph	Governing Publications
4.2.3. Control of Documents	<p>AFI 21-102, <i>Depot Maintenance Management</i></p> <p>AFI 21-110, <i>Engineering and Technical Services, Management and Control</i></p> <p>AFI 21-401, <i>Engineering Data Storage, Distribution, and Control</i></p> <p>AFI 21-403, <i>Acquiring Engineering Data</i></p> <p>AFI 33-360, <i>Volume 1, Air Force Content Management Program - Publications</i></p> <p>AFI 33-360, <i>Volume 2, Content Management Program –Information Management Tool (CMP-IMT)</i></p> <p>AFMCI 21-301, <i>Air Force Materiel Command Technical Order System Implementing Policies</i></p> <p>AFMCI 21-303, <i>Technical Orders</i></p> <p>AFMCMANI 21-1, <i>Air Force Materiel Command Technical Order Procedures</i></p> <p>MAOI 63-501, <i>Quality Program Plan (QPP)</i></p> <p>TO 00-5-1, <i>Air Force (AF) Technical Order System</i></p>
4.2.4. Control of Records	<p>AFI 37-138, <i>Records Disposition Procedures and Responsibilities</i></p> <p>AFMAN 37-139, <i>Records Disposition Schedule</i></p>
4.3. Configuration Management	<p>AFI 21-102, <i>Depot Maintenance Management</i></p> <p>AFMCI 21-303, <i>Technical Orders</i></p> <p>AFMCI 21-301, <i>Air Force Materiel Command Technical Order System Implementing Policies</i></p> <p>AFMCI 21-303, <i>Technical Orders</i></p> <p>TO 00-5-1, <i>Air Force Technical Order System</i></p> <p>AFMCMANI 21-1, <i>Air Force Materiel Command Technical Order System Procedures</i></p>
4.3.1. Distribution Control	<p>AFI 37-138, <i>Records Disposition Procedures and Responsibilities</i></p> <p>AFMAN 37-139, <i>Records Disposition Schedule</i></p>
4.3.2. Manual Review	<p>RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i></p>

Manual/AS9100 Paragraph	Governing Publications
5. MANAGEMENT RESPONSIBILITY	AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i> AFMCI 63-501, <i>AFMC Quality Assurance</i> MAOI 63-501, <i>Quality Program Plan (QPP)</i> RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i>
5.4.1. Quality Objectives	AFMCPD 21-1, <i>Depot Maintenance Policy</i>
6. RESOURCE MANAGEMENT	AFMCI 21-105, <i>Depot Maintenance Work Measurement</i> AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i> AFMCI 63-501, <i>AFMC Quality Assurance</i> MAOI 63-501, <i>Quality Program Plan (QPP)</i> RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i>
6.1. Provision of Resources	RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i>
6.2. Human Resources	AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i> AFMCI 63-501, <i>AFMC Quality Assurance</i> RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i>
6.2.2. Competence, Awareness and Training	AFMCI 21-108, <i>Maintenance Training and Production Acceptance Certification (PAC) Program</i> AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i>

Manual/AS9100 Paragraph	Governing Publications
6.4. Work Environment	<p>AFI 91-301, <i>Air Force Occupational and Environmental, Safety, Fire Protection and Health (AFOSH) Program</i></p> <p>AFI 91-202, <i>The US Air Force Mishap Prevention Program</i></p> <p>AFOSH Standard 91-501, <i>Air Force Consolidated Occupational Safety Standard</i></p> <p>AFOSH Standard 91-100, <i>Aircraft Flightline – Ground Operations and Activities</i></p> <p>AFOSH Standard 91-66, <i>General Industrial Operation</i></p> <p>AFPD 36-4, <i>Air Force Civilian Training, Education and Development</i></p> <p>AFMCPD 36-2, <i>Education and Training</i></p> <p>AFI 36-2201, VI, <i>Training, Development, Delivery, and Evaluation</i></p> <p>AFI 36-401, <i>Employee Training and Development</i></p>
7.1. Planning of Product Realization	<p>AFMCI 21-101, <i>Depot Maintenance Activation Planning (DMAP)</i></p> <p>AFI 21-102, <i>Depot Maintenance Management</i></p> <p>AFMCI 21-110, <i>Depot Maintenance Technical Data and Work Control Documents (WCD)</i></p> <p>AFMCI 21-125, <i>Management of Depot Maintenance Programs</i></p> <p>AFMCI 21-133, <i>Depot Maintenance Management for Aircraft Repair</i></p> <p>AFMCI 21-129, <i>Depot Maintenance Management, Depot Repair Enhancement Process (DREP)</i></p> <p>TO 00-20-1, <i>Aerospace Equipment Maintenance General Policies and Procedures</i></p>
7.2. Customer-Related Processes	<p>AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>AFMCI 63-501, <i>AFMC Quality Assurance</i></p> <p>MAOI 63-501, <i>Quality Program Plan (QPP)</i></p> <p>RAFB Sup 1 to AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i></p>

Manual/AS9100 Paragraph	Governing Publications
7.2.1. Determination of Requirements Related to the Product	TO 00-25-4, <i>Depot Maintenance of Aerospace Vehicles and Training Equipment</i>
7.2.2. Review of Requirements Related to the Product	TO 00-35D-54, <i>USAF Material Deficiency Reporting and Investigation System</i>
7.2.3. Customer Communication	AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i> AFMCI 63-501, <i>AFMC Quality Assurance</i> MAOI 63-501, <i>Quality Program Plan (QPP)</i> RAFB Sup 1 to AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i> RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i>
7.3. Design and Development	DoD Directive 5000.1, <i>The Defense Acquisition System</i> AFPD 63-1, <i>Capability Based Acquisition System</i> AFI 63-101, <i>Acquisition System</i> TO 00-5-1, <i>Air Force Technical Order System</i> TO 00-5-3, <i>Technical Manual Acquisition Procedures</i> AFI 21-402, <i>Engineering Drawing System</i> AFI 21-401, <i>Engineering Data Storage, Distribution, and Control</i> AFMCI 21-401, <i>Engineering Data Storage, Distribution and Control</i>
7.3.5. Design and Development Verification	AFMCI 64-110, <i>First Article Management</i>
7.3.6. Design and Development Validation	AFPD 99-1, <i>Test And Evaluation Process</i> AFI 99-101, <i>Developmental Test and Evaluation</i> AFI 99-102, <i>Operational Test and Evaluation</i> AFMCPD 99-1 <i>Test and Evaluation (T&amp;E) Risk Management</i>

<b>Manual/AS9100 Paragraph</b>	<b>Governing Publications</b>
7.4. Purchasing	AFMAN 23-110, <i>USAF Supply Manual</i> FAR Part 7, <i>Acquisition Planning</i> FAR Part 9, <i>Contractor Qualifications</i> FAR Part 42, <i>Contract Administration</i> FAR Part 13, <i>Simplified Acquisition Procedures</i> FAR Part 34, <i>Major System Acquisition</i> FAR Part 37, <i>Service Contracting</i> FAR Part 38, <i>Federal Supply Schedule Contracting</i> FAR Part 39, <i>Acquisition of Information Resources</i> FAR Part 46, <i>Quality Assurance</i>

Manual/AS9100 Paragraph	Governing Publications
7.5. Production and Service Provision	<p>AFI 21-402, <i>Engineering Drawing System</i></p> <p>AFI 23-111, <i>Management of Government Property in Possession of the Air Force</i></p> <p>AFMCMAN 21-1, <i>Air Force Materiel Command Technical Order System Procedures</i></p> <p>AFMCI 21-107, <i>Tool Control and Accountability Program</i></p> <p>AFMCI 21-108, <i>Maintenance Training and Production Acceptance Certification (PAC) Program</i></p> <p>AFMCI 21-110, <i>Depot Maintenance Technical Data and Work Control Documents</i></p> <p>AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>AFMCI 21-120, <i>Organic Depot Field Teams</i></p> <p>AFMCI 21-127, <i>Depot Maintenance Plant Management</i></p> <p>AFMCI 63-501, <i>AFMC Quality Assurance</i></p> <p>MAOI 63-501, <i>Quality Program Plan (QPP)</i></p> <p>RAFB Sup 1 to AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>MAOI 21-1, <i>Maintenance Standardization Evaluation Program (MSEP) Ready Program</i></p> <p>MAOI 21-2, <i>Training Program</i></p> <p>MAOI 21-3, <i>Processing MA Initiated Deficiency Reports and Exhibits</i></p> <p>MAOI 21-4, <i>Qualification of Nondestructive Inspection Personnel</i></p> <p>RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i></p> <p>TO 00-25-107, <i>Maintenance Assistance</i></p> <p>TO 00-20-1, <i>Aerospace Equipment Maintenance General Policies and Procedures</i></p> <p>TO 00-20-14, <i>AF Metrology and Calibration Program</i></p> <p>TO 00-25-245, <i>Operations Instructions Testing and Inspection Procedures for Personnel Safety and Rescue Equipment</i></p> <p>TO 00-5-1, <i>Air Force Technical Order System</i></p> <p>TO 1-1A-15, <i>General Maintenance Instructions for Support Equipment</i></p> <p>TO 34-1-3, <i>Inspection and Maintenance of Machinery and Shop Equipment</i></p>

Manual/AS9100 Paragraph	Governing Publications
7.5.4. Customer Property	<p>AFI 21-115, <i>Product Quality Deficiency Reporting Program</i></p> <p>TO 00-35D-54, <i>USAF Material Deficiency Reporting and Investigating System</i></p> <p>AFMAN 23-220, <i>Reports of Survey for Air Force Property</i></p> <p>AFI 91-202, <i>The US Air Force Mishap Prevention Program</i></p> <p>AFI 91-204, <i>Safety Investigations and Reports</i></p>
7.5.5. Preservation of Product	<p>AFJI 24-210, <i>Packaging of Hazardous Material</i></p> <p>AFMANI 23-110, Volume 7, Part 3, <i>The Air Force Shelf Life Program</i></p> <p>AFMAN 91-201, <i>Explosives Safety Standards</i></p> <p>AFMCI 21-117, <i>Corrosion Control and Prevention Program and Marking of Aerospace Equipment</i></p> <p>AFMCI 21-122, <i>Foreign Object Damage (FOD) and Dropped Object (DO) Awareness and Prevention Program</i></p> <p>AFMCI 21-130, <i>Equipment Maintenance Material Control</i></p> <p>AFMCI 24-201, <i>AFMC Packaging and Materials Handling Policies and Procedures</i></p> <p>AFOSH Standard 48-8, <i>Controlling Exposures to Hazardous Materials</i></p> <p>AFOSH Standard 91-17, <i>Interior Spray Finishing</i></p> <p>AFOSH Standard 91-46, <i>Materials Handling and Storage Equipment</i></p> <p>TO 00-20-3, <i>Maintenance Processing of Repairable Property and Repair Cycle Asset Control System</i></p> <p>TO 00-25-234, <i>General Shop Practice Requirements for the Repair, Maintenance, and Test of Electrical Equipment (ATOS)</i></p> <p>TO 00-85A-23-1, <i>Packaging, Packing and Storage - Aluminum Alloy Sheet and Plate</i></p> <p>TO 1-1-691C, <i>Aircraft Weapon Systems Cleaning and Corrosion Control</i></p> <p>TO 1-1-8, <i>Application and Removal of Organic Coatings, Aerospace and Non-Aerospace Equipment</i></p>

Manual/AS9100 Paragraph	Governing Publications
7.6. Control of Monitoring and Measuring Devices	<p>AFI 21-113, <i>Air Force Metrology and Calibration (AFMETCAL) Program</i></p> <p>AFMCI 21-108, <i>Maintenance Training and Production Acceptance Certification (PAC) Program</i></p> <p>TO 00-20-14, <i>AF MMetrology and Calibration Program</i></p>
8. MEASUREMENT, ANALYSIS, AND IMPROVEMENT	<p>AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>AFMCI 63-501, <i>AFMC Quality Assurance</i></p> <p>MAOI 63-501, <i>Quality Program Plan (QPP)</i></p> <p>RAFB Sup 1 to AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i></p>
8.2. Monitoring and Measurement	<p>AFI 21-115, <i>Product Quality Deficiency Report Program</i></p> <p>AFI 21-118, <i>Improving Air and Space Equipment Reliability and Maintainability</i></p> <p>AFMCI 21-110, <i>Depot Maintenance Technical Data and Work Control Documents</i></p> <p>AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>AFMCI 64-110, <i>First Article Management</i></p> <p>Division Quality Assurance Plans (QAP)</p> <p>RAFB Sup 1 to AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>Section-level Quality Assurance Surveillance Plans (QASP)</p> <p>TO-00-35D-54, <i>USAF Material Deficiency Reporting and Investigating System</i></p> <p>MAOI 21-3, <i>Processing MA Initiated Deficiency Reports and Exhibits</i></p>
8.2.1. Customer Satisfaction	<p>AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>AFMCI 63-501, <i>AFMC Quality Assurance</i></p> <p>MAOI 63-501, <i>Quality Program Plan (QPP)</i></p> <p>RAFB Sup 1 to AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i></p>

Manual/AS9100 Paragraph	Governing Publications
8.2.2. Internal Audit	<p>AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>AFMCI 63-501, <i>AFMC Quality Assurance</i></p> <p>MAOI 63-501, <i>Quality Program Plan (QPP)</i></p> <p>RAFB Sup 1 to AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i></p>
8.2.3. Monitoring and Measurement of Processes	<p>AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>AFMCI 63-501, <i>AFMC Quality Assurance</i></p> <p>MAOI 63-501, <i>Quality Program Plan (QPP)</i></p> <p>RAFB Sup 1 to AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i></p>
8.2.4. Monitoring and Measurement of Product	<p>AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>AFMCI 63-501, <i>AFMC Quality Assurance</i></p> <p>MAOI 63-501, <i>Quality Program Plan (QPP)</i></p> <p>RAFB Sup 1 to AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i></p>
8.3. Control of Nonconforming Product	<p>AFI 21-115, <i>Product Quality Deficiency Report Program</i></p> <p>AFMCMANI 21-1, <i>Air Force Materiel Command Technical Order System Procedures</i></p> <p>TO 00-35D-54, <i>USAF Material Deficiency Reporting and Investigating System</i></p> <p>MAOI 21-3, <i>Processing MA Initiated Deficiency Reports and Exhibits</i></p> <p>TO 00-5-1, <i>Air Force Technical Order System</i></p>

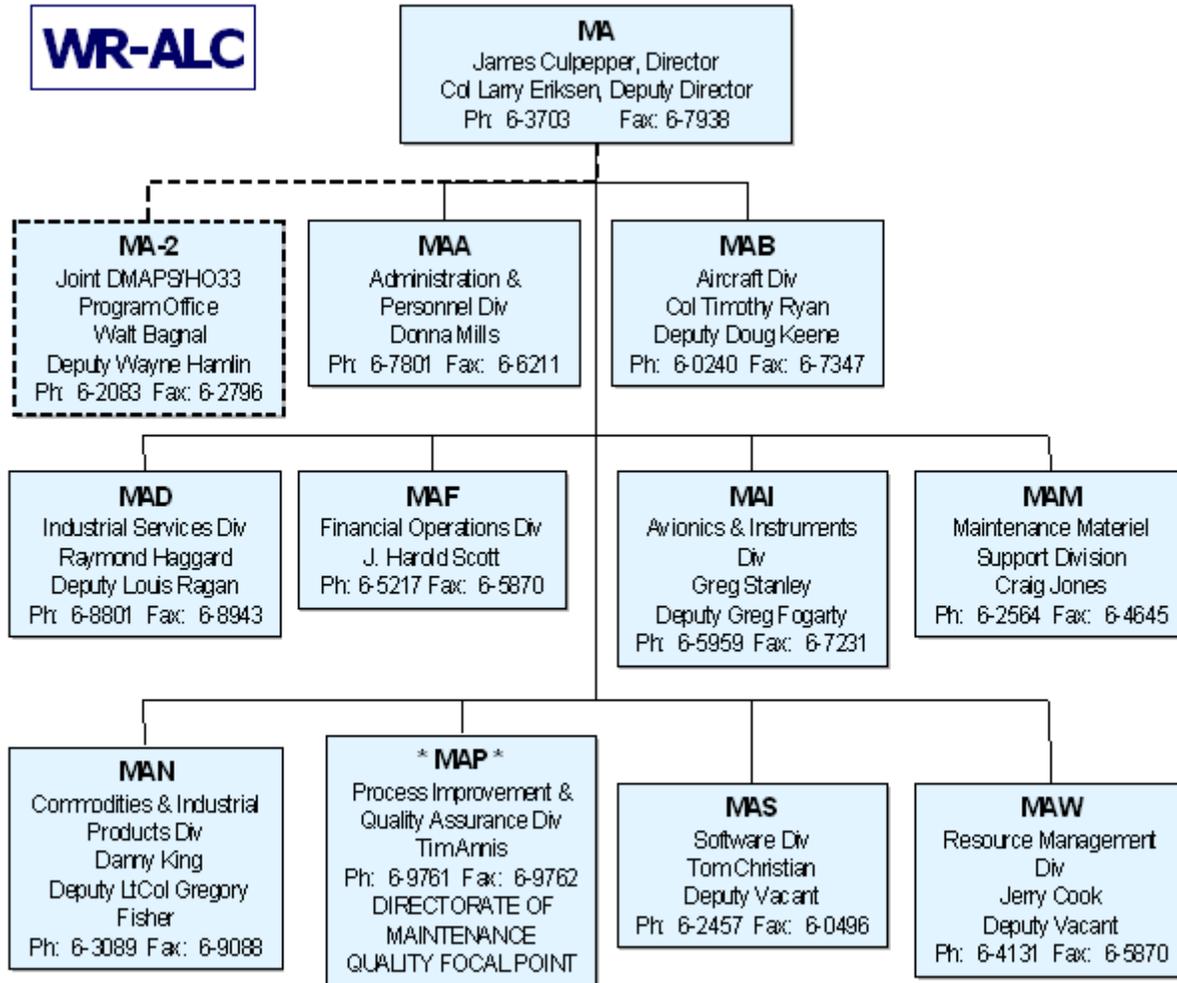
Manual/AS9100 Paragraph	Governing Publications
8.4. Analysis of Data	<p>AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>AFMCI 63-501, <i>AFMC Quality Assurance</i></p> <p>MAOI 63-501, <i>Quality Program Plan (QPP)</i></p> <p>RAFB Sup 1 to AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i></p>
8.5. Improvement	<p>AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>AFMCI 21-137, <i>Depot Maintenance Process Improvement</i></p> <p>AFMCI 63-501, <i>AFMC Quality Assurance</i></p> <p>MAOI 63-501, <i>Quality Program Plan (QPP)</i></p> <p>RAFB Sup 1 to AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i></p>
8.5.1. Continual Improvement	<p>AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>AFMCI 21-137, <i>Depot Maintenance Process Improvement</i></p> <p>AFMCI 63-501, <i>AFMC Quality Assurance</i></p> <p>MAOI 63-501, <i>Quality Program Plan (QPP)</i></p> <p>RAFB Sup 1 to AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i></p>
8.5.2. Corrective Action	<p>AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>AFMCI 63-501, <i>AFMC Quality Assurance</i></p> <p>MAOI 63-501, <i>Quality Program Plan (QPP)</i></p> <p>RAFB Sup 1 to AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i></p> <p>RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i></p>

<b>Manual/AS9100 Paragraph</b>	<b>Governing Publications</b>
8.5.3. Preventive Action	AFMCI 21-115, <i>Depot Maintenance Quality Assurance (QA)</i> AFMCI 63-501, <i>AFMC Quality Assurance</i> MAOI 63-501, <i>Quality Program Plan (QPP)</i> RAFB Sup 1 to AFMCI 21-115, <i>Directorate of Maintenance Quality Assurance Manual</i> RAFBMAN 63-501, <i>Warner Robins Air Logistics Center Quality Systems Manual</i>

Attachment 3 (Added-ROBINS)

DIRECTORATE OF MAINTENANCE ORGANIZATION FLOW

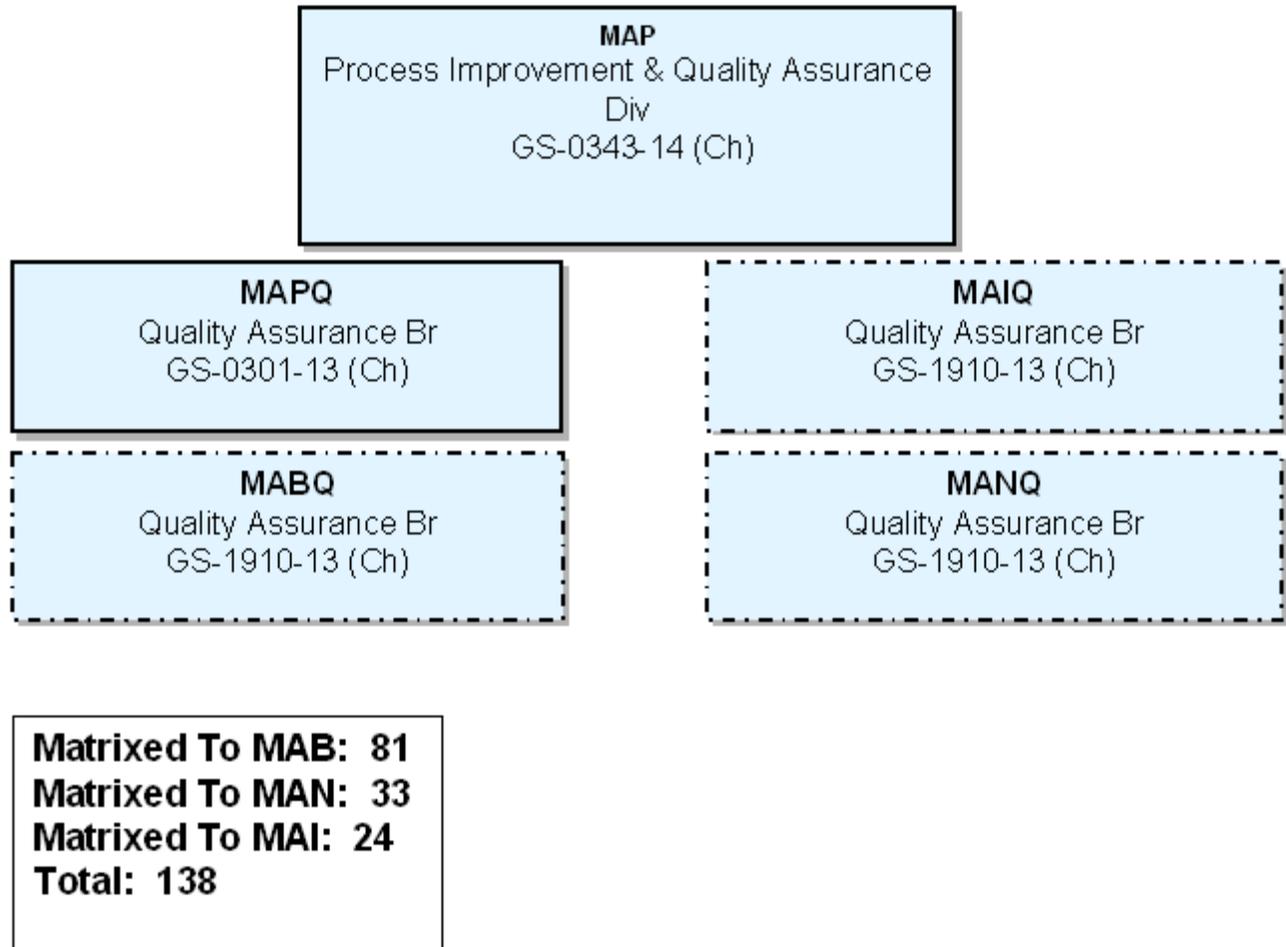
Figure A3.1. (Added-ROBINS) Directorate of Maintenance Organization Flow.



Attachment 4 (Added-ROBINS)

MA QUALITY ORGANIZATION FLOW

Figure A4.1. (Added-ROBINS) MA Quality Organization Flow.



## Attachment 5 (Added-ROBINS)

### QUALITY PROGRAM DOCUMENTATION FLOW

**AFPD 63-5, *Quality Assurance*.** This directive mandates the Air Force to establish essential quality standards and controls during all phases of a weapon system life cycle to assure Operational Safety, Suitability and Effectiveness (OSS&E) and affordability. Quality weapon systems, end items, supplies and services are those that are affordable and work as intended and at the time they are needed. Such items are essential to successful Air Force operations. This directive assigns responsibilities for defining and overseeing the standards, objectives and controls for each life cycle phase. This directive instituted the Air Force transition from MIL-Q-9858A and MIL-I-45208A quality systems to a quality management system comparable to private industry standards.

**AFMCI 63-501, *AFMC Quality Assurance*.** This instruction provides Quality Assurance (QA) policy and assigns QA responsibilities for all AFMC centers, units and headquarters (HQ) functions. AFMC is committed to providing superior quality weapon systems, end-items, supplies and services. AFMC program offices, buying offices, Air Force Research Laboratory and all centers must maintain acquisition and (or) sustainment quality assurance processes that:

- Align the quality management system with strategic planning and AFMC's management commitment.
- Provide essential quality policy and objectives for quality planning.
- Ensure the overall effectiveness of these efforts throughout the life-cycle of weapon system management including operational support and disposal.
- Document the quality management system and how it will contribute to minimizing cost, schedule and performance risks throughout the product life cycle. All acquisition and sustainment personnel are responsible for performing quality functions involved in their assigned duties.
- Ensure the quality management systems is **compatible** with the provisions of ISO 9001 in order to allow expansion to achieve ISO 9000 registration if required by customers or desired in the future.

**RAFBMAN 63-501, *Warner Robins Air Logistics Center Quality Systems Manual*.** This manual fulfills the requirements of AFMCI 63-501 by identifying and documenting a Quality Management System that defines the WR-ALC organizational structure, responsibilities, procedures, processes and resources for implementing quality management. The WR-ALC Quality Systems Manual contains a description of the quality system and makes reference to quality policy; the responsibilities, authorities and interrelationships of personnel who manage, perform, verify or review work affecting quality; and basic quality system procedures. This manual aligns to the AS9100 paragraph format and can be followed in the same sequence. It provides an organized way of communicating how quality is managed, defines specific roles and responsibilities and defines how the organization's quality program is implemented. It requires individual organizations to develop and implement a Quality Program Plan to carry out required portions of the manual.

**Quality Program Plan (QPP) (MAOI 63-501).** The directorate QPP defines the individual organization's quality policy and management philosophy on how and what that organization's approach is to quality. It defines the management structure and identifies who is responsible for the quality of products and services produced by that organization. The QPP identifies to the individual organization those applicable portions or makes reference to all or parts of the Quality Systems Manual that apply as well as the processes that impact the quality of products and services produced.

**AFMCI 21-115, *Depot Maintenance Quality Assurance (QA)*.** This instruction provides procedures and responsibilities for depot maintenance Quality Assurance (QA) programs and applies to the center MA directorates. The overall quality program places responsibility for product quality on senior management and conformance to requirements for products and services upon each employee. It mandates that QA efforts focus on, as a minimum, the soundness of design and improvement of depot maintenance processes, conformance of products and services to technical requirement, and the prevention of product and service deficiencies.

**AFMCI 21-115\_RobinsAFBSup1, *Depot Maintenance Quality Assurance (QA)*.** This supplement establishes and implements the Quality Assurance requirements defined in AFMCI 21-115. It establishes standardized quality procedures and training criteria. It provides basic requirements for preparation of the production division's QAP. It standardizes documentation requirements, provides an organized way of communicating specific types of quality processes/procedures required and defines specific roles and responsibilities and how those quality processes are implemented. It satisfies the requirements of RAFB 63-501 for production maintenance quality assurance. It ensures the objectives of the quality management system and directorate quality program are being met.

**WR-ALC/MA Division, *Quality Assurance Plan (QAP)*.** The QAP is used to identify and implement the requirements of AFMCI 21-115 and RAFB Supplement 1 and provides a detailed, documented plan that identifies quality-related processes and procedures that are unique or specific to the divisions by identifying what shall be accomplished, by whom, when, where, and how; what materials, equipment and documents shall be used; and how data will be controlled and recorded. It identifies the types of surveillance that will be accomplished, when they will be accomplished and what will happen to the information that is gathered. The quality function is responsible for product surveillance, data collection and analysis.

**WR-ALC/MA Production Section, *Quality Assurance Surveillance Plan (QASP)*.** The QASP is a living document that details the type, number and frequency of inspections, assessments, etc. to be performed during a specified period. The QASP is reviewed monthly to determine level of frequency of assessments based on review and analysis of data collected.



**Attachment 7 (Added-ROBINS)****RECORD OF DOCUMENT REVIEW**

Annual Review, SI and MI reports and Root Cause Analysis (RCA) reports will be documented using the following format.

- 1. Executive Summary.** Restate conclusion(s) for each audit objective and summarize significant findings and recommendations.
- 2. Purpose.** Provide background information about the purpose/mission of the area audited. Indicate whether or not this is a follow-up on a previous audit.
- 3. Objective.** List objectives.
- 4. Scope And Methodology.** Identify activities/organizations to be evaluated, time period/duration of the evaluation period and nature and extent of compliance areas and checklists. Include the following if applicable to the assessment being performed:
  - 4.1. Team Structure/Make up**
  - 4.2. Timeline/Schedule of Events**
  - 4.3. Inspection/Assessment Process**
  - 4.4. Data collected/reviewed**
  - 4.5. Inspection Areas and Team Assignments**
  - 4.6. Checklists used/developed**
- 5. Inspection Results.** This section should be restricted to documented factual statements, which can be substantiated. Statements of opinion, assumption and conclusion, such as: "violation of regulations," "management is ineffective," and "internal control is poor," should be avoided. Each discussion of a finding area will be followed by a recommendation.
- 6. Summary/Conclusions**
  - 6.1. Proposed Recommendations for Immediate Corrective Action**
  - 6.2. Proposed Long-Term Preventive Action Recommendations**
  - 6.3. Follow-up Requirements**
- 7. Supporting Documentation (As Applicable)**
  - 7.1. Inspection Findings**
  - 7.2. Root Cause Analysis Results**
  - 7.3. Long-Term Preventive Action Plan**