

**BY ORDER OF THE COMMANDER
AIR MOBILITY COMMAND**

AFI 21-101AMC1 CL-6

31 JANUARY 2003

Maintenance

**C-5 DEBRIEFING
CHECKLIST**



OPR: HQ AMC/LGMMP
(MSgt Mark A. Wilson)

Certified by: HQ AMC/LGM
(Col James H. Russell)

This checklist complements AFI 21-101AMC Supplement 1, *Aerospace Equipment Maintenance Management*, is formatted so that it may be trimmed to fit aircrew style binders.

This checklist supersedes AMC Form 523, **C-5 Debrief Checksheet**.

C-5 DEBRIEFING CHECKLIST

INTRODUCTION

The Malfunction Analysis and Recording System (MADARS) is installed, to assist the Flight Engineer and maintenance crew in testing airplane subsystems for failure. This testing may be performed either in-flight or on the ground. This debriefing checklist will be used as a guide to assist the maintenance debriefer in ensuring that all pertinent information on a system malfunction is included on the AFTO Form 781A, **Maintenance Discrepancy and Work Document** to include appropriate MADARS Fault Codes. This checklist is considered minimal and is not intended to replace systems knowledge or common sense. The debriefer is charged with the responsibility of questioning the aircrew to make sure that all symptoms of a malfunction are known and recorded on the AFTO Form 781A. Remember this is the only information the technician will have to determine the source of the problem.

Recommended changes to this checklist will be forwarded through channels to HQ AMC/LGM.

I. Instructions: Prior to debriefing:

- A. The debriefing team members will review past debriefing forms, logs, or files to acquaint themselves with any previous repeat/recurring discrepancies.
- B. The appropriate maintenance specialty should be represented at the debriefing to help clarify discrepancies.

I. Debriefing Procedures:

- A. The debriefing team leader will take charge of the debriefing and debrief the aircrew, utilizing this checklist as a guide.
- B. Make special note of repeated or recurring discrepancies. Review all AFTO Forms 781A for the mission(s).
- C. Ensure **ALL** in-flight shutdowns are reported and documented IAW Sec III, item 4b of this checklist. All questions **MUST** be answered and the results entered on AMC Form 97 and in G081, screen 9023.
- D. Using the questions in this checklist, ensure that all open discrepancies are described as completely as possible.
- E. Crosscheck previous discrepancies using Ground Processing System (GPS) Product 67-89-01 (Repeat Discrepancies for Aircraft) or previous three flight histories against current mission for repeat or recurring discrepancies.
- F. Determine if aircraft was flown low level over salt water and act as necessary to comply with T.O. 1-1-691, *Aircraft Weapon System Cleaning and Corrosion Control*.
- G. Ensure **ALL** locations where the aircraft stopped and chemically disinfected for Foot and Mouth Disease, an entry is made in the 781A's. Debriefers will document this information in G081 using screen 9051, with work

unit code 02400 to create the Foot and Mouth Decontamination discrepancy; G081 will automatically enter this information in the aircraft history. Report this information electronically to HQ AMC/LGMJS@scott.af.mil. Accurate tracking is essential. Potentially damaging long-term effects of decontamination on sensitive aircraft parts may occur.

TABLE OF CONTENTS

SECTION I

AIRCRAFT GENERAL DEBRIEFING CHECKLIST

1. Repair and Reclamation	11
a. Airframe and Doors (System 11)	11
(1) Fwd and Aft Ramps, Press Door and Visor	11
(2) Unpress Door Warning Light	11
(3) Side Doors or Center door Inop	11
(4) Visor Will Not Unlock	11
(5) Visor Unlocks but Will Not Open or Close	11
b. Landing Gear (System 13)	11
(1) General	11
(2) Landing Gear Warning	13
c. Flight Controls (System 14)	13
(1) Wing, Nose or tail Heavy condition	13
(2) Aileron, Elevator, Rudder and Spoilers Malf	14
(3) Trim Problems	14
d. Flap and Slat Malfunction (System 14)	14
(1) Slats Will Not retract/Deploy	14
(2) Flaps Will Not fully Extend/Retract	14

2. Engines (System 23)	15
a. Throttles out of Alignment	15
b. High TIT on Start	16
c. Oil System	16
d. Slow acceleration on Start	16
e. Engine Stalls on Acceleration	17
f. Thrust Reverser failed to Operate	17
g. Fails TIT assurance check	17
h. Flameout	17
3. APUs (System 24)	18
a. Will Not Start	18
b. Shutdown by Itself	18
c. Will Not Carry Electrical Load	18
d. EGT Fluctuates	19
e. Excessive EGT Drop with Load Applied	19
4. Environmental (System 41)	19
a. Air Conditioning	19
b. Cabin Pressurization	20
c. Bleed Duct Overheat	20
d. Oxygen	21
5. ATM Operation (System 45)	21
6. FSS (System 49) (In-flight)	21
a. Left/Right Wing Pressure Warning Light On	21
b. ISO Closed Lights On	21
c. ISO Closed Lights Failed To Come “On (Applies to aircraft prior to TCTO 1831)	21
d. Left/Right Vent Light Comes “On”	

(Applies to aircraft prior to TCTO 1831)	22
e. Either Vent Light Fails to Come “On”	22
f. Manifold Pressure Light Came “On”	22
g. Discharge Light Came “On”	22
h. LN2 Zone Light “On”	22
7. FSS AFTER FLIGHT	23
a. Either Secondary cycle Light “On”	23
b. Left/Right air admitted on	23
c. Any Fuel Flow Light Not “On”	23
d. Nitrogen Flow Light Not “On”	23
e. LN2 quantity “0”	23
8. Hydraulic (System 45)	24
a. Loss of Hyd Fluid or Low Reservoir	24
b. Engine Hyd Pump Depressurization Valve Inop	24
9. Fuel System (System 46)	24
a. Where is problem	25
b. Which component is Malfunctioning	25
c. What type of problem	25
10. Electrical (System 42)	25
a. AC Generator	25
b. Overheat and Fire Warning	26
c. Brakes and Anti Skid	26

SECTION II
AVIONICS

1. Computer (System 71)	27
a. INS	27
b. MADAR	28
c. Engine Vibrations	29
2. Navigation (System 72 and 59)	29
a. Color Weather Radar	30
b. TACAN	30
c. VHF Nav	31
d. Marker Beacon	31
e. CARA (Combined Altitude RADAR Altimeter)	31
f. IFF	31
g. ADF	32
3. AFSC (System 52)	32
a. Autopilot	32
b. Augmentation Systems	33
c. ALDCS	34
d. PACS	34
4. Instruments (System 51)	35
a. Airspeed	35
b. Altimeter	35
c. Vertical Velocity	35
d. Mach Meter	35
e. CADC (Central Air Data Computer)	36

f. Caster Powerback System	36
g. Flight Director	36
h. Fuel Quantity Indicating	37
5. Radio (System 61, 62, and 63)	37
a. VHF, UHF, HF (Secure Voice)	37
b. Interphone/Public Address (PA)	38
c. CVR (Cockpit Voice Recorder)	38
d. Digital Flight Data Recorder/ Flight Incident Recorder (FDR/FIR)	38
e. Emergency Locator Transmitter (ELT)	38
6. Aircraft Defense	38
a. Missile Warning	38
b. Countermeasures Dispensing System/Flares (If Installed) (CMDS) (System 76)	39
c. ALE-40/47	39
d. ALR-69	40
7. FMS/GPS (System 59)	40
8. TCAS (Traffic Collision Avoidance System) (System 51)	41

SECTION III
POSSIBLE OPERATING CONDITIONS

1. Weather	42
a. Severe Turbulence	42
b. Lightning Strike	42
2. Flight	42
a. Violent Maneuver	42
b. Low Level Flight over Salt Water	42
c. Bird Strike	43
3. Ground	43
a. Operating Limits Exceeded	43
b. Hard Landing	43
c. Hard Braking	43
d. Tires Subjected to Excessive Heat	43
e. Hazardous Material	43
f. Radiological Contamination	43
4. Special Interest	43
a. DOPP (Dropped Object Prevention Program)	44
b. Engines Shutdown by flight crew	44
c. Over-G Printout	44
d. Volcanic Ash	44
e. Foot and Mouth Decontamination	45

SECTION I
AIRCRAFT GENERAL DEBRIEFING
CHECKLIST

1. Repair and Reclamation.

a. Airframe and Doors (System 11)

- (1) Forward and aft ramps, pressure door and visor.
 - (a) What light(s) and panel showed indications?
 1. If visor roller fault light illuminated, was it raining at the time of the fault?
 - (b) Were overrides used?
 - (c) At what point in cycle was override required?
 - (d) If visor roller fault light illuminated, was it raining at the time of the fault?
- (2) Unpress door warning light.
 - (a) Was the door identified?
 - (b) What phase of flight did malfunction occur?
 - (c) What was cabin pressure?
 - (d) Were any lights placed in “by-pass”?
 - (e) What was acft altitude?
- (3) Side doors or center door inoperative.
 - (a) Were any not locked lights on? Which ones?
 - (b) Were manual overrides used?
 1. What was reaction?
- (4) Visor will not unlock.

- (a) Any not locked lights not on? Which ones?
- (b) Were manual overrides used?
 - 1. What was reaction?
- (5) Visor unlocks but will not open or close.
 - (a) Were manual overrides used?
 - 1. What was reaction?

b. Landing Gear (System 13)

- (1) General
 - (a) Which landing gear failed?
 - (b) Which cycle did malfunction occur?
 - 1. What was actual landing gear position?
 - (c) What was indicator reading?
 - 1. Co-pilot's bogie indicator?
 - 2. Landing gear handle indicator?
 - 3. MLG downlock visual indicator?
 - 4. NLG downlock visual flag indicator?
 - (d) Were any lights on the sequence panel pressed to test?
 - (e) Were any logic cards swapped out?
 - (f) Were any relays swapped out?
 - (g) What happened when logic cards or relays were swapped?
 - (h) Were manual overrides used?
 - 1. Which ones?
 - (i) What was indicated air speed?
 - (j) Did any landing gear circuit breaker pop?
 - (k) Any hydraulic system malfunction at same time?
 - (l) Was landing gear sequence panel lights noted or recorded

on AMC Form 4101, **Relay Logic Landing Gear Malfunction (LRA)?**

- (m) Any unusual noises or excessive vibration?
- (n) Was MADAR check out complied with?
 - 1. What was fault code on all systems?
- (o) What method was used to move landing gear?
- (p) How long did landing gear take for cycle?
 - 1. Length of time in “red wheels”?
 - 2. Length of time in “in-transit”?
 - 3. Was either NLG door opened/closed?
 - 4. Was retraction/extension smooth or jerky?
- (2) Landing Gear Warning.
 - (a) Was warning pitch high or low?
 - (b) If horn inop, did gear handle light come on?
 - (c) How many inches were throttles from idle?
 - (d) Did any indicators show barber pole?
 - (e) At what airspeed did horn sound?
 - (f) What position were flaps in?
- c. Flight Controls (System 14)**
 - (1) Wing, nose or tail heavy condition.
 - (a) What was load and CG?
 - 1. Was it recalculated?
 - (b) What was fuel load and distribution?
 - (c) Any fuel quantity indicating problems?
 - (d) Was autopilot on/off?
 - 1. Any malfunctions?
 - (e) Any engine malfunctions that could contribute?

- (f) Verify direction and amount of trim applied to counteract?
- (g) Was condition apparent during all flight conditions?
 - 1. Describe, if not.
- (2) Aileron, elevator, rudder and spoilers malfunction
 - (a) What was altitude?
 - (b) What was indicated airspeed?
 - (c) Was autopilot on or off?
 - (d) Were (aileron, elevator, rudder or spoiler) switches in proper position?
 - (e) Were any (aileron, elevator, rudder or spoiler) hydraulic system inop lights on?
 - 1. What was the PACS switch position?
 - 2. What was the VFU switch position?
- (3) Trim Problems.
 - (a) Any autopilot problems?
 - (b) Any CADC problems?

d. Flap and Slat Malfunction (System 14)

- (1) Slats will not retract/extend
 - (a) Was applicable hydraulic system normal?
 - (b) Any circuit breakers popped? Reset attempted?
 - (c) Was preflight control check normal?
 - (d) Any unusual noises or vibrations?
 - (e) Any binding felt?
 - (f) Did asymmetry or slat brake lights come on?
 - (g) Was slat disconnect switch in normal?
 - (h) What did the slat indicator read?
- (2) Flaps will not fully extend/retract.

- (a) Was applicable hydraulic system normal?
- (b) Any unusual noises or vibrations?
- (c) Any circuit breakers popped? Reset attempted?
- (d) Was preflight control check normal?
- (e) Any binding felt?
- (f) Did asymmetry or flap brake lights come on?
- (g) Did the brakes fire?
 - 1. If so, would they reset?
- (h) Were flap and drive components scanned?
- (i) What was flap handle position?
- (j) Did actual flap position equal indicated position?
- (k) Was flap handle moved after the malfunction occurred?
 - 1. What was the result?

2. Engines (System 23)

a. Throttles out of alignment.

- (1) Throttle positions.
 - (a) Give drawing of positions at same N1 reading (flight crew)
 - (b) Were they fully aligned at TRT?
 - (c) Did alignment problem worsen as the throttles were moved forward?
 - (d) For each engine what was indicated?

	#1 Engine	#2 Engine	#3 Engine	#4 Engine
N1				
N2				
F/F				
TIT				

b. High TIT on Start.

- (1) What was TIT indication?
- (2) What was fuel flow during start?
- (3) Does fuel flow and TIT coincide?
- (4) What was bleed air manifold pressure during engine start?

c. Oil System Malfunction.

- (1) What was power setting?
- (2) Was oil pressure high, low or fluctuating?
 - (a) Low oil pressure warning light on?
 1. What was fluctuating range?
- (3) Does oil pressure follow throttles?
- (4) What was oil temperature?
- (5) Did all other engine instruments read normal?
- (6) Did pressure drop 5 psi or more from a stabilized setting?

d. Engine starts but is slow to accelerate.

- (1) Was fuel flow normal?
- (2) Was TIT normal?
- (3) How long did bleed manifold pressure drop after engaging starter?
- (4) How long did it take to reach military power from idle?

(5) Was engine checked for core vibration?

e. Engine stalls on acceleration.

(1) At what RPM?

(2) Was TIT normal?

(3) Was F/F normal?

(4) At what attitude did stall, occur?

(5) Did engine recover when throttles were retarded to idle?

(a) If yes, did it stall again at the same power setting?

f. Thrust reverser failed to operate.

(1) Did “not locked” light come on?

(2) Did “pressure” light come on?

(3) Was malfunction in-flight only?

g. Engine fails TIT assurance check.

(1) What was TIT target?

(2) For each engine, what was indicated?

(3) What was OAT and barometric pressure at the time of failure?

(4) Was TIT higher at other power settings?

	#1 Engine	#2 Engine	#3 Engine	#4 Engine
N1				
N2				
F/F				
TIT				

h. Flameout

(1) Did N2 and/or fuel flow drop to “0” zero immediately?

- (2) Was there a corresponding drop in TIT and N1?
- (3) When did flameout occur?
 - (a) Taxi- IN or OUT?
 - (b) Was aircraft in a turn?
 - (c) Take Off?
 - (d) In-flight?
- (4) What was the throttle movement at the time of flameout?
 - (a) Acceleration?
 - (b) Deceleration?
- (5) Were the boost pumps on or off?
- (6) Was continuous ignition on or off?
- (7) What was the idle setting?
- (8) Was there fuel in the tank?

3. APU (Auxiliary Power Unit) (System 24)

a. APU will not start

- (1) Did unit motor over?
- (2) Did EGT rise?
 - (a) How much?
- (3) Any unusual noises?

b. APU shut down by itself?

- (1) What was last noticed EGT?
- (2) What was last noticed generator frequency?
- (3) How long did unit operate?
- (4) Was restart attempted?
 - (a) What happened?

c. APU will not carry electrical load

- (1) What was EGT prior to frequency lost?
- (2) What additional load was on APU?
 - (a) Hyd?
 - (b) Air system?

d. APU EGT fluctuates

- (1) How large a fluctuation?
- (2) Any load on APU?
 - (a) What kind?

e. APU has excessive drop when loaded

- (1) How far did EGT drop?
- (2) Did EGT recover to original setting?
 - a. How long did it take?

4. Environmental (System 41)

a. Air Conditioning.

- (1) What was position of air conditioning master switch?
- (2) Which system failed?
 - (a) Flight Station
 - (b) Relief crew and courier compartment
 - (c) Troop compartment
 - (d) Cargo compartment
- (3) Was system inoperative in automatic, manual or both?
- (4) Was circuit breaker popped?
- (5) Did overheat light come on or flicker?
- (6) Were any fumes or smoke detected?
- (7) Did system go full hot or cold?
- (8) Did MADAR print out LRU failure?

(a) What was failure?

b. Cabin Pressurization

- (1) What altitude did problem occur?
- (2) Was problem in auto, manual or both modes?
- (3) Were both packs and floor heat operating at time of problem?
- (4) Was aircraft checked for leaks?
 - (a) If leaks were found, were any plugged? What was result?
- (5) What was cabin pressure maintained at during problem?
- (6) Was outflow valve physically checked?
 - (a) What was position?
 - (b) What was operating condition? (Steady, hunting, etc.)

c. Bleed duct overheat

- (1) Which bleed duct overheated? (Right, center or left?)
- (2) When did the bleed duct overheat occur?
- (3) Did system isolate?
- (4) Was system reset?
 - (a) Did problem reoccur?
- (5) Did isolation of engine or system have effect on condition?
- (6) Was manifold bled down within limits?
- (7) Was MADAR troubleshooting procedures used?
 - (a) What was LRU failure?
 - (b) Any other information?

d. Oxygen (System 47)

- (1) What was quantity indicated prior to malfunction?
- (2) Was pressure steady or fluctuating during malfunction?
 - (a) What was fluctuation?
- (3) Were any regulators in use?

- (4) Any quantity indicator circuit breakers popped?
 - (a) Was it reset?
 - (b) What was effect?
- (5) Any walk around bottles serviced prior to malfunction?

5. ATM Operation (System 45)

- (1) Did hydraulic pressure surge or fluctuate?
- (2) Both ATMs operating at the same time?
- (3) Was ATM checked for proper oil service?

6. FSS (In-flight) (System 49)

a. Left/Right wing pressure warning light on

- (1) Was aircraft ascending or descending?
- (2) Was light bright and constant?
- (3) Which air admit light was on after landing?
- (4) What was pressure and quantity before and after flight?
- (5) Were aircraft wings depressurized in flight?
 - (a) Did this affect warning light?

b. ISO closed lights on

- (1) How long were lights on?
- (2) Did either vent fill light blink?
- (3) Was manifold pressure light on?
- (4) Did light come on during turbulence or rough maneuvering?

c. ISO closed lights failed to come “on” when either (applies to aircraft prior to TCTO 1831 only) vent switch is actuated.

- (1) Did vent open light come on?
- (2) After flight, will ISO closed light come on with shutoff switch

in test?

(3) What was pressure and quantity before and after flight?

d. Left/Right vent light comes “on”. (Applies to aircraft prior to TCTO 1831 only).

(1) Were ISO closed lights on?

(2) Were repeated attempts made to actuate vent switch?

(3) How many?

(4) What was pressure and quantity before and after flight?

(5) With light on after landing with 30 psi, was an audible or visible nitrogen exhaust from vent box.

e. Either vent light fails to come on when appropriate switch is actuated?

(1) Was #1 system hydraulic pressure okay?

(2) Did ISO closed lights come on?

(3) Was applicable secondary valve cycled light on after landing?

f. Manifold pressure light came on

(1) Would light go out by placing switch on LN2 panel to detector discharge and pressing a zone switch?

g. Discharge light came on.

(1) Did light stay on?

(2) Any zone switch latched in?

(3) Was manifold pressure light on?

h. LN2 zone light on.

(1) Which zone?

(2) Was fire or smoke visible?

(3) Did manifold pressure and discharge lights come on with zone switch depressed?

(4) Did discharge light stay on for more than 30 seconds?

- (5) Did zone warning light go out prior to discharge light or were additional shots needed?
- (6) Area protected by bleed duct sensors; was bleed air overheat light on?
- (7) Area with bleed air flow; was it manually isolated if no overheat light on?
- (8) Did isolation keep zone light off?
- (9) What was aircraft attitude when light came off?

7. FSS (After flight) (System 49)

a. Either secondary cycled light on.

- (1) Were lights reset prior to flight?
- (2) Was applicable wing vented prior to checking panel?
- (3) No nitrogen on board; was a high rate of descent experienced?

b. Left/Right air admitted on.

- (1) Was light reset prior to flight?
- (2) What was pressure and quantity before and after flight?
- (3) Are pressure limiters in normal position?
- (4) DEWAR test switches in normal position?
- (5) Will pressure rise to “0” on venting?

c. Any fuel flow light not on.

- (1) Is each boost pump pressure good on affected tank?

d. Nitrogen flow light not on.

- (1) What was pressure and quantity before and after flight?
- (2) Shutoff switches in normal?
- (3) Are pressure limiters in normal?
- (4) Are ISO closed lights on?
- (5) Will flow light operate from service panel flow test switch?

e. LN2 quantity reads “0”, left or right.

(1) What is the pressure?

8. Hydraulic (System 45)

a. Loss of HYD fluid or low reservoir

- (1) Were any leaks observed?
- (2) Was reservoir re-serviced in flight?
 - (a) How much fluid was serviced?
 - (b) How long prior to servicing?
 - (c) Did it remain full?
- (3) Was isolation of unit attempted?
 - (a) Describe procedures.
 - (b) Describe results.
- (4) Any system have a fluid gain?
 - (a) Which system?
 - (b) How much fluid gained?
 - (c) How long a time period?
- (5) Was there a total system loss?
 - (a) Was system depressurized?

b. Engine Driven Hydraulic Pump Depressurization Inop

- (1) Was system pressure normal?
 - (a) What was the reading?
- (2) With the top pump switch off, is low pressure light on?
- (3) With the bottom pump switch off, is low pressure light on?
- (4) With both pump switches off, does pressure go to zero?
- (5) With both pump switches off, are both low-pressure lights on?

9. Fuel System (System 46)

- a. Where is problem?**
- b. Which component is malfunctioning?**
 - (1) Tanks
 - (2) Pumps
 - (3) Valves
 - (4) Lines
 - (5) Wing pressurization system
 - (6) Low lights
 - (7) SPR
 - (8) IFR system
- c. What type of problem?**
 - (1) Inoperative
 - (2) Stuck open or closed
 - (3) Intermittent
 - (4) Erratic
 - (5) Leaks

10. Electrical (System 42)

- a. AC Generator**
 - (1) How long after engine start did malfunction occur?
 - (2) Did generator fail light come on?
 - (3) Did generator out light come on?
 - (a) Did it stay on?
 - (b) With switch off, did light stay on?
 - (4) Was voltage high, low or fluctuating?
 - (5) Was frequency high, low or fluctuating?
 - (6) Was load steady or fluctuating?

- (7) With generator isolated, did malfunction continue?
- (8) Did CSD overheat light come on or blink?
- (9) What was CSD oil temperature?
- (10) Was CSD disconnected?

b. Overheat and Fire Warning

- (1) Did malfunction light burn steady or blink?
- (2) Any other indications of overheat or fire?

c. Brakes and Anti-Skid

- (1) What was selector switch position?
- (2) Was a skid condition encountered?
- (3) What was approximate speed when detector “out” light came on?
- (4) How long after detection light came “On” did system inoperative light come “On”?

SECTION II
AVIONICS

1. Computer (System 71)

a. INS (Inertial Navigation System)

- (1) Did any annunciator lights on center console or INS/FMS status indicators come on?
 - (a) Which one?
- (2) Were any malfunction codes displayed?
 - (a) Which one?
 - (b) Which INS?
- (3) Did the following perform properly?
 - (a) BDHI
 - (b) HSI
 - (c) ADI
- (4) Was radial error excessive?
 - (a) How much?
 - (b) How many legs?
- (5) Did INS properly interface with :
 - (a) Auto pilot?
 - (b) CADC?
 - (c) TACAN?
- (6) If answer to (5) is "NO":
 - (a) Was INS #3 used?
 - (b) Was malfunction eliminated?
- (7) Did any INS circuit breakers pop?

(a) Which one(s)?

**b. MADAR (Malfunction/Detection
Analysis/Recording/Equipment) (System 55)**

(1) Did any 55 fault codes appear?

(2) Controller

(a) Were all keys functional?

(b) Were all commands functional?

(c) Was there a communication problem?

(d) Was BIT check test pattern satisfactory?

(3) DU (Display Unit)

(a) Was screen readable?

(b) Did the screen blank out?

1. How many times?

2. Was BIT check test pattern satisfactory?

(4) POU (Printout unit)

(a) Was there a good paper supply?

(b) Was Controller in printer backup?

(c) Was BIT check test pattern satisfactory?

(5) Mux/Proc (Multiplexer/ Processor)

(a) Any fault codes?

(b) Was there a communication problem?

(6) SAR Power Supply

(a) Any circuit breakers open?

1. Which ones?

2. Could they be reset?

(7) MDR (Maintenance Data Recorder)

(a) Was circuit breaker on?

- (b) Was MDR Tape serviceable?
- (8) SAR's (Signal Acquisition Remote)
 - (a) Which SAR's failed?
 - (b) Number of failures?

c. Engine Vibrations (System 55)

- (1) Did automatic vibration printouts occur?
- (2) Which system failed?
 - (a) Engine(s)? 1 2 3 4
 - (b) Which channel(s)? 8 9
- (3) Was a vibration routine followed?
 - (a) Is POU paper available?
- (4) What was setting for?
 - (a) N1
 - (b) N2
 - (c) Did N1 and N2 indications compare to MADAR N1 and N2?
- (5) Was the In-flight Fan Balance Routine Ran?
 - (a) Is POU paper available
- (6) When did malfunction occur?
 - (a) During level flight?
 - (b) During climb or dive?

2. RADAR (NAV) (System 72)

a. Color Weather Radar

- (1) How long did it take the system to warm up when initially turned on?
- (2) Problem on one or more scopes?

- (3) Was problem intermittent?
- (4) No-Go light on?
- (5) Was INS operating normally?
- (6) What modes were bad? (WX, MAP, BCN).
- (7) Was malfunction same when operated up front by pilot or co-pilot?
- (8) Did problem only occur at certain altitudes?
- (9) Were targets consistently on one side of display, no matter what the conditions?

b. TACAN

- (1) Which function failed (Azimuth, DME, Audio or CDI)?
- (2) Was more than one ground station tried?
- (3) Malfunction on one or all indicators?
- (4) Did problem occur only on distant stations?
- (5) Did the system work good with INS on/off?
- (6) What buttons were selected on the BDHI selector panels at the time of malfunction?
- (7) Was IFF working properly?

c. VHF NAV. (System 71)

- (1) VOR.
 - (a) Was bearing needle, CDI or audio faulty?
 - (b) Was more than one ground station tried?
 - (c) Malfunction on one or all indicators?
 - (d) Did opposite system operate normally?
 - (e) Did system self-test properly?
 - (f) Did the BDHI select panels seem to work properly? If not, which one was malfunctioning?
 - (g) Did system work properly with INS on/off?

- (2) Localizer.
 - (a) What faulty indications were present?
 - (b) Was more than one ground station tried?
 - (c) Were ADI presentations correct with opposite system selected on NSP?
- (3) Glidescope.
 - (a) What faulty indications were present?
 - (b) Were indications correct with opposite systems selected?
- d. Marker Beacon (System 71)**
 - (1) Which function failed (audio or light)/
 - (2) At both pilot and co-pilot position?
 - (3) Sensitivity in high or low position?
 - (4) Did inner, outer or airway fail?
- e. CARA (Combined Altitude Radar Altimeter) (System 71)**
 - (1) Did system operate okay at any altitude?
 - (2) Self-test okay?
 - (3) Was system recycled with opposite system shutdown?
 - (4) Was malfunction intermittent?
 - (5) Did the word FAIL appear on the indicator at any time?
 - (6) Did the R/T light on the indicator come on at any time?
 - (7) If malfunction was prior to takeoff, was aircraft in a kneeled position at the time of malfunction?
- f. IFF (Identification Friend or Foe) (System 65)**
 - (1) What modes or codes failed?
 - (2) Self-test okay?
 - (3) Failure reported by more than one ground station?
 - (4) If mode C problem:

- (a) Was altitude reported incorrect or was no altitude reported?
- (b) Was #1 CADC operating normally?
- (5) Mode 4
 - (a) Was there a “No Go” indication on the CDU?
 - (b) Did ground control verify no replies?
 - (c) Were any problems encountered when loading Mode 4 codes?
- (6) If TCAS equipped, did Mode S (Sierra) work properly?
- (7) Was TACAN operating properly?

g. ADF (Automated Directional Finder) (System 71)

- (1) Was problem with audio or bearing pointer?
- (2) All indicators?
- (3) Did system tune properly?
- (4) Self-test okay?
- (5) How long did system warm up prior to testing?

3. AFCS (Automatic Flight Control System J) (System 52).

a. Autopilot.

- (1) Pitch.
 - (a) Was aircraft trimmed prior to engage?
 - (b) Did pitch off annunciator light come on?
 - (c) Could pitch aug be engaged?
 - (d) Did pitch auto trim fault light come on?
 - (e) Did aircraft respond to pitch thumb wheel on AFCS control panel?
 - (f) Did ADI indicate valid pitch attitude information?
 - (g) Did problem disappear when autopilot was disconnected?

(2) Altitude Hold.

- (a) Was aircraft trimmed prior to engage?
- (b) Was altitude hold disengaged?
- (c) Were other altitudes and airspeeds tried?
- (d) Did porpoise stop when:
 - 1. Altitude hold was disengaged?
 - 2. VER/NAV mode was selected?
 - 3. Pitch autopilot was disengaged?
- (e) Did porpoise start small and keep getting larger?
- (f) Were any CADC problems noted?
- (g) Did altitude loss occur only in turns?

(3) Roll

- (a) Was aircraft trimmed prior to engage?
- (b) Could LAT and YAW AUG be engaged?
- (c) Did A/P roll off annunciator light come on?
- (d) Did aircraft respond to turn knob on AFCS control panel?
- (e) Would aircraft maintain attitude?
- (f) Did aircraft overshoot headings?
 - 1. How much?
- (f) Did ADI indicate valid roll attitude information?
- (g) Did error exist in heading information?

b. Augmentation Systems

(1) Pitch Aug

- (a) Did fault/inoperative light come on?
- (b) Could fault/inoperative light be reset?
- (c) Were there any hydraulic problems?
- (d) Did malfunction occur while maneuvering or straight and

level flight?

(e) Were any pitch augmentation MPO's noted?

(2) YAW/LAT Aug

(a) Did fault/ inoperative light come on?

(b) Were both YAW and LAT fault lights on?

(d) Could fault/inoperative light be reset?

(e) Did lateral Aug fault light come on in turns?

(f) Were all three (3) INS systems aligned?

(g) Were any CADC problems noted?

(h) Were there any hydraulic problems?

(i) Did Yaw Aug fault light come on in turns?

(j) Did both Lateral and Yaw Aug fault lights come on in turns?

(k) Were any lateral augmentation MPO's noted?

(l) Were any Yaw augmentation MPO's noted?

c. ALDCS (Active Lift Distribution Control System)

(1) Did ALDCS "off" light come on?

(2) Could ALDCS be reset?

(3) At what airspeed and altitude did "off" light come on?

(4) Were there any augmentation problems?

(5) Were any of the comparator lights, on the front of the ALDCS computer, "on".

(6) Did aileron six-degree uprig light come "on".

d. PACS (Pilot Assist Cable System)

(1) Did PACS "Pitch Off" and/or PACS "Roll Off" annunciator light come "on".

(2) Did Autopilot C/W/S operate correctly?

(3) Did either control wheel provide assistance?

4. Instruments (System 51)

a. Airspeed

- (1) How do the pilot's positions Indicated Airspeed VSFIs compare to Navigator's and Standby ADI?
- (2) What was airspeed?
- (3) Was the Navigator's airspeed indicator in error?
- (4) Was pitot heat operative and used?
- (5) If warning flags were in view, were other indications normal?
- (6) Was the CADC annunciator light on? Were any CADC lights "on"?

b. Altimeter

- (1) How do the pilot's positions altitude VSFIs compare to Navigator's altimeter and Standby ADI?
 - (a) Was same barometric pressure set in?
- (2) What was altitude?
 - (a) What was malfunction?
- (3) Was pitot heat operative and in use?
- (4) If warning flags were in view, were other indications normal?
- (5) Was the CADC annunciator light on?

c. Vertical Velocity

- (1) Where was malfunction noted?
 - (a) Climb or dive?
 - (b) Did pointer center properly in straight and level flight?
- (2) Was malfunction limited to one VSFI or both?
- (3) Was the navigator's VVI correct?
- (4) Was the #2 CADC annunciator light on?

d. Mach Meter

- (1) Was malfunction limited to one instrument or both?
- (2) If flags were in view, were other indications normal?
- (3) Any malfunctions in airspeed or altitude?
- (4) Was the CADC TAS not valid light on?
 - (a) Was navigator's true airspeed indicating a difference between CADC #1 and #2?

e. CADC (Central Air Data Computer)

- (1) Which CADC (1 or 2)?
- (2) Did annunciator panel light come "on"?
- (3) Were any malfunctions noted in airspeed, altitude, vertical velocity or mach?
- (4) Was the CADC fault annunciator tripped on face of unit?
 - (a) Was navigator's true airspeed malfunction light "on"?
 1. Did navigator's true airspeed differ between CADC #1 and #2?
- (5) Were any CADC error codes present after flight? (Self test 0)

f. Caster/ Powerback System

- (1) Did BITE check pass?
- (2) Did both free light come on when switch was placed in "Caster"?
- (3) Did both aft MLG's power back when switch was placed in "Center"?
- (4) Was emergency-positioning control used?
 - (a) Was it operative?

g. Flight Director

- (1) Was malfunction in all modes?
 - (a) Which mode?
 - (b) What occurred?

(2) Were self-test presentations correct?

h. Fuel Quantity Indicating System

(1) What was aircraft fuel configuration?

(2) Was there any fault/error codes?

(3) Did engineer use press-to-test or self-test prior to starting in-flight troubleshooting?

(a) What was reading?

(b) Were any error codes noted?

(4) Did the totalizer read sum of all fuel tanks?

5 Radio (System 62, 63, and 61)

a. VHF, UHF, HF

(1) Which system malfunctioned, #1 or #2?

(2) When and IF system displayed a fault, did you recycle power and try again?

(3) Was malfunction intermittent?

(4) Did system appear to come on?

(5) Was transmitter weak or inoperative?

(6) Was receiver weak, garbled, inoperative, or off frequency?

(7) Was it on one particular frequency?

a. Which one?

(8) What were the weather conditions and time of day when malfunction occurred?

(9) What was selected on the Plain/Text/Cipher switch on KY58 (UHF or VHF)?

(10) On UHF, which antenna was in use, upper or lower?

(11) HF

(a) Was tone heard when keyed?

- (b) Was bypass selected on ANDVT control panel (for HF)?
- (c) Did transmit tune up in 1.5 seconds?
- (d) Did transmit retune when keyed?
- (e) Did transmit retune during voice modulation?
- (f) Was system allowed to warm-up?
- (g) Did system malfunction in-flight and on ground?
- (h) Were automatic call processors (ACP) being used at the time of malfunction?

(12) Secure Voice

- (a) Was switch in Cipher or Plain?
- (b) Were correct codes loaded?

b. Interphone/Public Address (PA) (System 64)

- (1) Which position or control malfunctioned?
- (2) Transmission failure, weak, garbled or other?
- (3) Was headset or cord checked?

c. Cockpit Voice Recorder (CVR)

- (1) How long did the system operate?
- (2) Was playback heard in the headsets?

d. Digital Flight Recorder/Flight Incident Recorder

e. Emergency Locator Transmitter (ELT)

- (1) Were you able to reset the system?

6. Aircraft Defense (System 76)

a. Missile Warning System

- (1) If system faulted, was fault continuous or intermittent?
- (2) Was system power recycled?
- (3) If system recovered, did it recover without intervention or when power was recycled?

b. Countermeasures Dispensing System/Flares (CMDS) (If Installed)

- (1) What fault message displayed on the control display unit?
- (2) Was system fault continuous or intermittent?
- (3) Was system power recycled?
- (4) If system recovered, did it recover without intervention or when power was recycled?
- (5) Was system operated entire flight?
- (6) How long after system turn on did fault occur?
- (7) What were the CMDS switch settings?

c. ALE-40/47

- (1) Does not operate.
 - (a) Was EW SYS and NAV PNL circuit breakers popped?
- (2) Fault/Failure
 - (a) What was the error displayed on the Control Display Unit?
- (3) Did not dispense chaff and/or flare.
 - (a) Were safety pins removed from EMI filter or safety switch?
 - (b) What mode was the system in? Auto, Semi, or Manual?
 - (c) Was auto program select switch in proper position?
 - (d) In auto mode, was the MWS on? If so, was missile warning detected by the MWS?
 - (e) In manual mode, what aircraft station was dispense attempted from? Was dispense attempted from another aircraft station?
 - (f) How many chaff/flare remaining?
- (4) Inadvertent dispense
 - (a) What mode was the system in? Auto, Semi, or Manual?

- (b) How many chaff/flare inadvertently dispensed?
- (c) Was there a missile threat indication from the MWS?

d. ALR-69 (if applicable)

- (1) "F" displayed on scope.
 - (a) When did it occur and for how long?
 - (b) Did you recycle power?
 - (c) Did you run extended bit (using SEARCH button)?
 - (d) If yes, did DF, FSRS, INIT, or MEMORY check bad?
- (2) Audio Malfunction
 - (a) Did you check all audio controls on the ALR-69?
 - (b) Did you check all audio controls on the interphone control box?
 - (c) Was audio present at other stations?
- (3) Error symbol displayed
 - (a) What was the symbol?
 - (b) How long did it remain on?
 - (c) Was it on while flying in formation with other aircraft?
 - (d) If no, was it on during the entire flight?
 - (e) If so, was it only on when your radar was operating?

7. FMS/GPS

- (1) Was the system recycled?
- (2) Which system in FMS is/was showing NO-GO?
 - (a) Did the indicated system test properly?
- (3) Does the STATUS page display NO-GO?
- (4) Has an Initial BIT (I-BIT) check been performed?
- (5) Is there a Continuous BIT (C-BIT) set?

- (6) Did MADAR report a malfunction?
- (7) Did GPS battery indicate NO-GO?

8. TCAS (Traffic Collision Avoidance System)

- (1) Did malfunction occur on both indicators?
- (2) How long was the system operated?
- (3) Was the malfunction intermittent?
- (4) Was the IFF mode "S" enabled?
- (5) Did integrated systems operate properly?
 - (a) CADC systems?
 - (b) CARA systems?
 - (c) GPWS system?

SECTION III
POSSIBLE OPERATING CONDITIONS

1. Weather

a. Severe turbulence encountered

- (1) What was altitude?
- (2) What was duration?
- (3) Any discrepancies noted?

b. Lightning strike encountered

- (1) What was altitude?
- (2) What was affected area?
- (3) Any discrepancies noted?
- (4) Approximate location of lightning strike? Entry/exit?

2. Flight

a. Violent maneuver incurred

- (1) Was it an uncommanded flight control maneuver? (Did the acft actually change attitude in flight or did the control column move only?)
- (2) What was altitude?
- (3) Why was maneuver made?
- (4) Any discrepancies noted?

b. Low level flight over salt water (except for landing and takeoff)

- (1) Was altitude under 3,000ft?
- (2) Were flaps and slats extended?
- (3) Were landing gears extended?

(4) What was duration?

c. Bird Strike

(1) Approximately, where did the bird(s) hit?

(2) Any noticeable engine flux, vibrations, system failures etc...?

3. Ground

a. Were operating limitations exceeded?

(1) Why? (Substandard runway).

(2) What was duration?

(3) Any discrepancies noted?

b. Hard landing encountered

(1) Any discrepancies noted?

c. Hard braking encountered

(1) Any discrepancies noted?

d. Were tires subjected to excessive heat?

(1) Any discoloration?

(2) Any discrepancies noted?

e. Was an incident incurred with dangerous materials?

(1) What occurred?

(2) What was the material?

(3) What was corrective action?

f. Is radiological contamination suspected?

(1) When and where did it happen?

(2) What decontamination procedures were taken?

4. Special Interest

a. DOPP (Dropped Object Prevention Program)

- (1) Was any hardware lost during flight?
- (2) When was it discovered missing?
- (3) Was any additional damage incurred?
- (4) Notify appropriate personnel.
- (5) If DOPP occurred at a non-AMC facility, has homestation been notified to accomplish DOPP report?

b. Were any engines shutdown by flight crew due to malfunctions or emergencies?

- (1) Which engine?
- (2) How many hours into flight?
- (3) Engine S/N.
- (4) Why was engine shutdown?
- (5) At what base location?
- (6) What was date?
- (7) Notify appropriate personnel and update required historic documents?

c. Were there any MADAR printouts for G-limit exceeded?

- (1) Did it occur in-flight or during landing?
- (2) Type, positive/negative?
- (3) What was airspeed?
- (4) What was altitude?
- (5) What was center of gravity, cargo weight and location?
- (6) What was aircraft weight?
- (7) "G" meter reading?
- (8) What was the total fuel weight?
- (9) What was aircraft configuration, flaps, slats?

d. Volcanic Ash

- (1) Was volcanic ash encountered during flight?
- (2) What was altitude?
- (3) How far from volcano?
- (4) How long subjected to ash ingestion?

e. Foot and Mouth Disease Contamination

- (1) Did the aircraft land at a base disinfecting for Foot and Mouth Disease (FMD)? (As of May 2002, Spain and Italy require aircraft to be disinfected if they come from England). If so:
 - (a) Was the aircraft disinfected? If so:
 - (b) Was an entry made in the 781 using WUC 02400?
 - (c) What was the chemical and concentration used?
 - (d) What area(s) where sprayed?
 - (e) How long did chemical solution remain on the aircraft?
 - (f) How was chemical solution cleaned off?
 - (g) What are the landing gear serial numbers (if sprayed)?
- (2) Make the following entries in the 781A:
 - (a) Wash and lube due within 72 hours for the following areas chemically decontaminated for Foot and Mouth Disease: (list areas, use WUC 02400).
 - (b) If landing gear were sprayed/disinfected, make the following entry, “visually identify the landing gear serial numbers and verify this information is accurately reflected in G081.
- (3) Report the following information electronically to HQ AMC/LGMJS@scott.af.mil.
 - (a) MDS and complete tail number.

(b) Information from Section III, 4e, (1) (a)-(g).