



UNITED STATES MARINE CORPS
MARINE CORPS AIR STATION
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StaO 4790.9
3DF3
14 DEC 1998

STATION ORDER 4790.9

From: Commanding Officer
To: Distribution List

Subj: QUALITY ASSURANCE (QA) INSPECTION REQUIREMENTS AND MINIMUM OPERATIONAL CHECKS/CHECK FLIGHT REQUIREMENTS

Ref: (a) OPNAVINST 4790.2G
(b) OPNAVINST 3710.7
(c) NA01-110CHE-1
(d) NA01-110HCE-1F
(e) NA01-1A-24
(f) NAVARINST 1340.2 w/change 1
(g) STAO 4790.2

Encl: (1) Functional Check Flight (FCF)/Ground Turn Requirement Matrix

1. Purpose. To establish the minimum Quality Assurance Representatives (QAR)/Collateral Duty Quality Assurance Representatives (CDQAR) in-process/final inspection requirements and minimum operational checks/check flight requirements for applicable maintenance actions.

2. Background. FCF's are required to determine whether the airframe, powerplant, accessories, or equipment are functioning per predetermined standards while subjected to the intended operating environment. These flights are to be conducted when it is not possible to determine proper operation, by ground check. For example, aerodynamic reaction, air loading, or single propagation. Confusion resulting from an incomplete understanding of QAR/CDQAR in process/final inspection requirements and the minimum operational checks/check flight requirements often lead to excessive man-hours being expended in repeating maintenance actions and operational checks. Safety considerations are of even greater concern.

3. Action

a. FCF's shall be conducted during the daylight hours of operation and under visual flight rules, unless otherwise specified by the Commanding Officer, (if in his opinion the flight can be conducted safely under the existing conditions in accordance with references (a) and (b)).

14 DEC 1998

b. FCF requirements are outlined in enclosure (1) and generalized as follows:

(1) Upon completion of Standard Depot Level Maintenance (SDLM), to be conducted by rework facility.

(2) When a reporting custodian accepts a newly assigned aircraft, and upon receipt of an aircraft returning from SDLM.

(3) When fixed flight surfaces have been installed or reinstalled.

NOTE

Combining a FCF with an operational flight (check and go) is specifically prohibited when a post depot FCF attesting to the airworthiness of the aircraft has not been previously performed.

(4) FCF's are not required upon the completion of Phase Inspections unless the corrective action(s) resulting from a discrepancy discovered during the inspection requires it, or the item inspection requires a removal, disassembly, adjustment, alignment, reinstallation, or reassembly of any of those items. The Maintenance Requirements Cards will indicate the phase packages requiring partial system FCF.

(5) After the installation or reinstallation of an engine, propeller governor, major fuel system component, helicopter engine drive train, transmission, and gearbox; in addition, any other components which cannot be checked during ground operation.

(6) When any condition cited in reference (c) occurs.

(7) When an aircraft that has not flown in 30 or more days is returned to flight status.

(8) When deemed necessary by QA to ensure flight safety.

(9) When ground turns require manipulation of flight controls or throttles, other than normal start procedures.

NOTE

The replacement of attaching/connecting hardware to any item requiring a FCF, providing no adjustment has been made, will not require a FCF if a thorough ground check will ensure the maintenance action does not degrade the affected end item.

14 DEC 1998

c. FCF Procedures

(1) At the discretion of the CO, FCF's required by conditions cited in this instruction, may be flown in combination with operational flight, provided the operational portion is not conducted until the FCF or Functional Ground Turn (FGT) requirements have been completed and entered on reference (d).

(2) Pilots and crewmembers who perform FCF's shall be qualified per references (b) and (c). They should be given a thorough briefing, coordinated by Maintenance Control, through the use of appropriate QA and work center personnel. This briefing shall describe the maintenance performed, the requirements for that particular flight and the expected results.

(3) FCF's will be conducted with the minimum crew necessary to insure proper operation of all required equipment.

(4) FCF's should be of sufficient duration to perform the prescribed checks and to determine any maintenance required.

(5) FCF's shall be conducted IAW the criteria established by references (b) and (c).

(6) Files are to be kept for a minimum of six months, one Phase cycle, or which ever is grater. Retention of checklists/ completed checklist shall be retained in the Aircraft Maintenance Log.

4. Responsibilities

a. Aircraft Maintenance Control

(1) Annotate Visual Information Display System/Maintenance Action Form (VIDS/MAFS) if QAR inspections are required, utilizing enclosure (1).

(2) Inform QA when VIDS/MAFS requiring a QAR inspection are placed in work or completed.

(3) Ensure QA is notified on all flight control malfunctions.

(4) Ensure only those discrepancies which require ground turns to troubleshoot, are allowed to be placed in Equipment Operational Capability Code "A" status, provided no maintenance action has been taken and QA has been consulted.

14 DEC 1998

(5) Ensure receiving inspections are performed prior to issue of repairable components.

(6) Ensure that all aircraft not in an up status are waived prior the accomplishment of a FCF or FGT.

(7) Ensure all aircraft requiring a FCF or FGT, have a valid daily and turnaround inspection signed off.

(8) Ensure a brief is conducted prior to the performance of all FCF or FGT, given by QA representative with the presence of a Maintenance Controller, a representative from the applicable work center and the Functional Check Pilot (FCP) for FCF's or Pilot Qualified in Model (PQM) for FGT's involved.

(9) Ensure that upon completion of the FCF or FGT that a QA representative, Maintenance Controller, and the applicable work center representatives receive a debrief by the FCP or PQM to ensure all discrepancies were performed and what the results were.

c. Quality Assurance shall:

(1) In-process inspections will be conducted by a QAR/CDAR whenever the maintenance action being performed will be caused for a FCF. The minimum in-process inspection is required whenever QA or underlined procedures appear in the applicable MIMs or MRCs.

(2) Receiving inspections will be conducted to verify configuration of components, equipment and accuracy of associated logs and records that require FCF or FGT.

(3) A QAR is required to check all flight controls "A - 799" discrepancies, per reference (f).

(4) Comply with reference (f), on all jammed and other flight control malfunctions.

(5) Ensure that all aircraft not in an up status are waived prior to the accomplishment of the brief.

(6) Screen the appropriate Aircraft Discrepancy Book (ADB) on the aircraft to be tested and ensure all completed VIDS/MAFS are properly stamped for FCF or FGT.

(7) Ensure a FCF test card is initiated in accordance with reference (c) or (d), or a FGT card is initiated ensuring that the required items be tested/checked are highlighted.

14 DEC 1998

(8) Brief the FCP or PQM, Maintenance Controller (MC) and the applicable work center as to the requirements of the FCF or FGT.

(9) Receive a debrief from the FCP or PQM along with MC and applicable work center.

(10) Ensure the FCF or FGT test card is filled out completely by the FCP or PQM prior to receiving the test card.

(11) Ensure upon completion of the FCF or FGT, that the appropriate ADB is screened and the appropriate VIDS/MAFS are stamped as being completed and are initialed by a QA representative.

(12) Retain all completed test cards in the historical files for each aircraft, for a minimum of six months, one calendar interval or complete Phase cycle, or whichever is greater.

d. Functional Check Pilot/Pilot Qualified in Model

(1) Ensure each FCF or FGT is thoroughly debriefed prior to securing.

(2) Ensure that brief/debrief sheet is signed after its accomplishment to prevent the FCF or FGT becoming invalid.

(3) Ensure that all items briefed, as required, as requiring a shutdown of an aircraft are accomplished prior to the skids breaking the ground.

e. Collateral Duty Inspector (CDI)

(1) In addition to receiving and in-process inspections, CDI's are authorized to witness torque values of maintenance actions not requiring a FCF. All maintenance actions requiring a FCF will have in-process and final inspections performed by a CDQAR/QAR.

(2) If only one CDI is involved on a maintenance action, the name of the CDI annotated on the VIDS/MAF indicates "ALL" torque values pertaining to that maintenance actions were "witnessed" by that CDI.

StaO 4790.9

14 DEC 1998

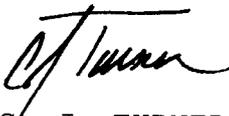
(3) If more than one CDI is involved on a maintenance action, and each of them "Witness" different torque values involved in the maintenance actions, the CDI who is not signing the VIDS/MAF in or above the "inspected by" block will annotate the green copy of the VIDS/MAF (in the "corrective action" block or on back), with the torque value, nomenclature of the item, and his signature. The CDI signing in or above the "inspected by" block indicates that all other torque value were "witnessed" by that CDI.

(4) Ensure that all repair maintenance actions (i.e., Removed & Replaced of components, tightening of lines, replacing packing, ect.) which can not be functionally checked with support equipment are signed off in the "corrective action" block of the VIDS/MAF stating "Ground Turn Required."

f. Applicable Work Center

(1) Attend the brief/debrief in maintenance control to ensure that all areas are checked as required.

(2) Ensure that personnel are available to perform system troubleshooting and make adjustments as required.


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SAR (10)

Functional Check Flight/Ground Turn Requirements

StaO. 4790, 9

14 DEC 1998

Maintenance Action

QA

CDI

FCF Req

FGT Req

G/T Req

VIB

30 Day No-Fly			X			
90 Dgree Quill			X			
Acceptance Check		x	X			
Actuator, Tail Rotor (R&R)	X		X			
Aircraft panel (note 5)		X			X	
ASPA Insp	X		X			
Attitude Gyro & System Components	X		X			
Auto Turns Adjustment	X		X			
A" "799" Flight Control (note 3)	X			X		
Beep Adjustment	X			X		
Bellcrank Adjustable	X		X			
Bellcrank Non-Adjustable		X		X		
Collective Balance Sprig & Clips	X		X			
Collective Levers (R&R, Shim)	X		X			
Collective Stick Fiction Pull	X		X			
Collective Stick (R&R)	X		X			
Compressor Bleed Valve (note 4)	X			X		
Control Tubes Adjustable (R&R)	X		X			
Control Tubes Non-Adjustable	X			X		
Cyclic Stick (R&R)	X		X			
Drive Link	X			X		
Droop Cam (R&R)	X		X			
Elevator Assy Pull (GT ifno Adjustment)	X		X			
Elevator Horn Assy (R&R, Shim)	X		X			
Elevator, Synchronized (R&R)	X		X			
Engine / C-Box (R&R)	X		X			
Flight Idles (R&R, Adj)	X			X		
Force Gradient	X		X			
Force trim						
Fuel Controls (Manual, Automatic)(R&R)	X		X			
Fuel pump, Engine driven						
Fuel flow divider						
Fuel boost pump (note 5)		X		X		
Generator/starter	X				X	
Gearbox 42Degree (R&R)		X		X		
Gearbox 90 Degree (R&R)	X		X			
Governor NF (Adjustment)	X			X		
Governor, NF (R&R)	X		X			
Hanger Bearing Assy (R&R) (note 6)		X		X		
Hydraulic Pump (R&R) (note 7)		X		X		
Interconnect Link (R&R)	X		X			
Linear Actuator (R&R, ADJ)	X			X		
Main Driveshaft (R&R)		X	X			
Main Rotor Hub/Blade (R&R) (note 8)	X		X			
Main Rotor Long Tube	X			X		
Main Rotor Mast (R&R)	X		X			
Maintenance Action	QA	CDI	FCF Req	FGT Req	G/T Req	VIB
Main Rotor Pitch Change Link (R&R, Adj)(note 8)	X		X			
Main Transmision (R&R)	X		X			

ENCLOSURE (1)

Mixing Levers (R&R, Adj)	X		X		
Part Power Check/adj	X			X	
Penalty Run chip light (note2)	X			X	
Power Assurance Check	X			X	
Power lever controls	X		X		
Pylon Mounts/Dampner	X		X		
Quills (All Other)		X		X	
Reported Flight Control Malfunctions	X		X		
RMP Warning Adjustment	X			X	
Rotary Acuator/Mag Brake	X		X		
Scissor & Sleeve Assy (R&R)	X		X		
Scissors & Sleeve Assy (Adj/Shim)	X		X		
SDLM Completion	X		X		
Servo Cylinders (All) (R&R)	X		X		
Stabilizer Bar Assy	X		X		
Swashplate Support Assy (R&R)	X		X		
T-5 Bias (Check/Adj)	X			X	
Tail Rotor Blade/Hub (R&R) (note 8)	X		X		
Tail Rotor Counterweight Link	X			X	
Tail Rotor Crosshead Assy (R&R, Adj)	X		X		
Tail Rotor Driveshafts (R&R)		X		X	
Tail Rotor Excluder Assy (R&R)	X			X	
Tail Rotor Pitch Change Link (R&R) (Adj)(Note 8)	X		X		
Topping	X		X		
Torque Control Unit (R&R, Adj)	X		X		
Torque Pressure Transmitter (R&R) (Adj)	X			X	
Trunnion Bearings (R&R)	X			X	
Universal Assy (R&R)	X			X	
Vibration Analysis/Discrepancy (Note 1)	X		X		
Vibrex (Check/Adj)	X		X		
Voltage Regulator (R&R, Adj)		X		X	

NOTES

1. PQM may perform vibration check when not in conjunction with an FCF or FGT
2. 15 minute ground turn required
3. All A - 799 flight control discrepancies require an Aircraft Log Book entry and CO or XO signature/approval prior to release for flight
4. Ground Power Assurance require
5. QA will inspect area prior to installation
6. 15 minutes @ 100%, shut down and check
7. 15 minute ground turn with controls check
8. Track and balance required when items are removed and replaced

ENCLOSURE (1)