

**BY ORDER OF THE COMMANDER
433D AIRLIFT WING**

433 AIRLIFT WING INSTRUCTION 21-102

15 FEBRUARY 2012



Maintenance

**C-5 FUNCTIONAL CHECK FLIGHT (FCF),
OPERATIONAL CHECK FLIGHT (OCF)
AND HIGH SPEED TAXI CHECK PROGRAM**

COMPLIANCE WITH THIS PUBLICATION IS MANDATORY

ACCESSIBILITY: Publications and forms are available for downloading or ordering on the e-publishing website at www.e-Publishing.af.mil.

RELEASABILITY: There are no releasability restrictions on this publication

OPR: 433 MXG/MXGQ

Certified by: 433 AW/CC
(Col Kenneth D. Lewis Jr.)

Supersedes: 433AWI21-102,
6 February 2009

Pages: 11

This instruction implements Air Force Policy Directive (AFPD) 21-1, *Air and Space Maintenance*. This instruction extends the guidance of Air Force Instruction (AFI) 21-101, *Aircraft and Equipment Maintenance Management*. The instruction standardizes the procedures for managing effective Functional Check Flight (FCF), Operation Check Flight (OCF) and High Speed Taxi Checks. The 433rd Maintenance Group Commander (MXG/CC) and 433 Operations Group Commander (OG/CC) have joint responsibility for the effective management of these programs. The success of these programs begins with the cooperation between the Operations and Maintenance communities. Quality Assurance and the Operations Group Standardization Evaluation (OGV) will work together in the development of these programs. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the Air Force Form (AF Form) 847, *Recommendation for Change of Publication*; route AF Form 847 from the field through the appropriate functional's chain of command. Ensure that all records credited as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with the Air force Records Disposition Schedule (RDS) located at <https://www.my.af.mil/afrims/afrims/afrims/rimc.cfm>

SUMMARY OF CHANGES

The instruction standardizes the procedures for managing effective Functional Check Flight (FCF), Operation Check Flight (OCF) and High Speed Taxi Checks.

1. General. The 433 Maintenance Group Quality Assurance (433 MXG/MXGQ) and Aircraft Maintenance Squadron (AMXS) and/or Maintenance Squadron (MXS) superintendents will evaluate aircraft maintenance activities to determine if a FCF, OCF or High Speed Taxi Check is required before returning an aircraft to regular service. Aircraft recovering from cannibalization status, isochronal inspections, and/or Contract Field Team (CFT) repair will be evaluated to determine if an FCF, OCF or High Speed Taxi Check is required based on the type and degree of maintenance.

2. Functional Check Flight (FCF).

2.1. FCF's are determined by the requirements outlined in Technical Order (T.O.). 1-1-300, *Acceptance/Functional Check Flights and Maintenance Operational Checks*, T.O. 1C-5A-6, *Scheduled Insp, and Maint Requirements*, or as directed by the 433 MXG/CC.

2.2. The OG/CC (or equivalent) will select a qualified and thoroughly experienced individual to serve as FCF/OCF Officer in Charge (OIC). This OIC serves as a subject matter expert for FCF/OCF matters in the operations community and will interface with the Quality Assurance (QA) FCF Monitor in the scheduling activities of FCF's, OCF's and High Speed Taxi Checks.

2.3. 433 Airlift Wing, Lackland Air Force Base (LAFB) Air Force Reserve Command (AFRC) aircrews are not currently qualified nor authorized to perform FCF's. AFI 11-2C-5V3, *C-5 Operations Procedures*, Chapter 5 outlines the procedures that will be followed in the event an FCF is required. If it becomes necessary to accomplish an FCF at LAFB Texas (TX), the 433 MXG/CC will coordinate with the 339th Flight Test Squadron/Director Operations Validation (FLTS/DOV) at Robins AFB Georgia (GA).

2.4. 433 MXGQ section and the applicable maintenance Flight Chief Superintendent will serve as the Point of Contact (POC) on briefing FCF aircrews on matters concerning the discrepancies and/or conditions prompting the necessity of the FCF. QA will ensure the aircraft Air Force Training Order (AFTO) Form 781, *Arms Aircrew/Mission Flight Data Document* -series forms and the aircraft primary Weight and Balance (W&B) forms are available for review and discussion.

2.5. 433 MXGQ will use Quality Assurance Tracking and Trend Analysis System (QANTTAS) Functional Check Flight (FCF) feature to track Functional Check Flights (FCF's) and Operational Check Flights (OCF's), to provide historical information on all FCF's and OCF's.

3. Operational Check Flights (OCF).

3.1. OCF's are determined by the requirements contained in T.O.1C-5A-6, T.O.1C-5A-1, *FLIGHT MANUAL* and Time Compliance Technical Orders (TCTO). OCF's can be performed by aircrews that are not FCF qualified; however, OCF's will be flown by highly experienced aircrews. All OCF's will be approved and/or directed by the 433 MXG/CC. Under normal circumstances, the MXG point of contact will provide 48-hour notification to 433 Operations Support Squadron/Current Operations (OSS/OSC) to ensure aircrew availability.

3.2. Coordination between the following agencies is vital to this program:

3.2.1. QA will be the point of contact between maintenance and operations. They will schedule timely briefings to discuss the flight profile and operational checks required.

3.2.2. OGV will coordinate with the 68th Airlift Squadron to provide highly qualified pilots, flight engineers, and all other necessary crew members to accomplish the required checks. As a minimum, the crew should include a highly experienced instructor or evaluator pilot, an instructor engineer, and a first engineer.

3.2.3. AMXS and MXS will evaluate all aircraft and recommend whether or not an OCF is required before returning the aircraft to regular service. AMXS and MXS will provide information on all maintenance/repair actions and provide specialist representatives to discuss any affected systems. If an in-flight operational check of the Ram Air Turbine (RAT) is due, AMXS Production Supervisor and/or MXS Production Supervisor will coordinate with Plans and Scheduling to restrict the aircraft to local flight area pattern to perform this in-flight check.

3.2.4. The MXG/CC shall determine whether an OCF should or will be requested and scheduled. Under circumstances other than those specified in the aircraft -6 inspection manual, the need for an aircraft Check Flight following maintenance or repair work is an engineering decision to be exercised by the commander. Such decisions will be based upon the scope of work accomplished and consideration of the affected components relative to safety of operation.

3.3. All Cannibalization (CANN) and ISOCHRONAL (ISO) status aircraft will require a Safety of Flight evaluation to determine whether a FCF or OCF is appropriate or required before returning the aircraft to regular service. Maintenance supervision will identify to Quality Assurance any maintenance actions that may require an FCF/OCF (also see paragraph 3.2.5).

3.3.1. Length of time in CANN and the extent to which aircraft systems were affected by part cannibalization are key factors when requesting a FCF or OCF.

4. In-Flight Operational Checks.

4.1. In-Flight Operational Checks will be accomplished when test equipment does not exist to perform the operational check on the ground and or at the request of maintenance to validate a maintenance action that cannot be fully verified on the ground.

4.1.1. In-Flight Operation Checks will be documented by maintenance stating the purpose and operational check required by the maintenance technical order.

4.1.2. Maintenance will contact Quality Assurance if it has been determined that an In-Flight Operational Check is required. Quality Assurance will coordinate and follow the *In-Flight Operational Check Sheet* (Attachment 3) process check sheet with the applicable agencies.

5. High Speed Taxi-Checks.

5.1. Only FCF crews shall perform High-Speed Taxi checks.

KENNETH D. LEWIS JR., COL, USAFR
Commander, 433 Airlift Wing

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 11-2C-5V3, *C5 Operations Procedures*, 7 December 2005

AFI 21-101, *Aircraft Equipment Maintenance Management*, 26 July 2010

AFI 21-101AMCSUPCL6, *C-5 Debriefing Checklist*, 14 Feb 2011

AFMAN 33-363, *Management of Records*, 1 March 2008

AFPD 21-1, *Air and Space Maintenance*, 25 February 2003

T.O. 00-20-1, *AEROSPACE EQUIPMENT MAINTENANCE INSPECTION, DOCUMENTATION, POLICY AND PROCEDURES*, 1 September 2010

T.O. 1C-5A-1, *Flight Manual*, 1 July 2007

T.O. 1C-5A-6, *Aircraft Scheduled Inspection and Maintenance Requirements*, 25 September 2007

T.O., 1C-5A-6CL-1, *ACCEPTANCE AND/OR FCTN CHECK FLT CHECKLIST (LOCKHEED-GA)*, 1 July 2007

T.O. 1-1-300, *Acceptance/Functional Check Flights and Maintenance Operational Checks*, 14 November 2007

Adopted Forms

AF Form 847, *Recommendation for Change of Publication*

AFTO 781, *Arms Aircrew/Mission Flight Data Document*

AFTO 781A, *Maintenance Discrepancy and Work Document*

DD Form 2131, *Passenger Manifest*

Abbreviations and Acronyms

AF—Air Force

AFB—Air Force Base

AFI—Air Force Instruction

AFMAN—Air Force Manual

AFPD—Air Force Policy Directive

AFRC—Air Force Reserve Command

AFTO—Air Force Technical Order

AMC—Air Mobility Command

AMXS—Aircraft Maintenance Squadron

AW—Airlift Wing
AWI—Airlift Wing Instruction
CANN—Cannibalization
CC—Commander / Combat Coded
CFT—Contract Field Team
DD—Department of Defense
DOV—Director Operations Validation
ETIC—Expected Time in Commission
FCF—Functional Check Flight
GA—Georgia
GO81—Graphical User Interface
IAW—In Accordance With
ISO—ISOCRONAL
LAFB—Lackland Air Force Base
MEGP—Mission Essential Ground Personnel
MOC—Maintenance Operations
MOS/MXOPR—Maintenance Operations Squadron /Programs and Resources
MXG—Maintenance Group
MXGQ—Maintenance Group Quality
MXS—Maintenance Squadron
OCF—Operational Check Flight
OG—Operations Group
OGV—Operations Group Validation
OG/DOV—Operations Group / Director Operations Validation
OIC—Officer in Charge
OI—Operating Instructions
OPR—Office of Primary Responsibility
OPS—Operations Squadron
OSS/OSC—Operations Support Squadron / Current Operations
PS&D—Plans, Scheduling and Documentations
POC—Point of Contact
QANTTAS—Quality Assurance Tracking and Trend Analysis System

RAT—Ram Air Turbine

RDS—Records Disposition Schedule

TCTO—Time Compliance Technical Order

TX—Texas

TO—Technical Order

USAFR—United States Air Force Reserve

W&B—Weight and Balance

Attachment 2**FCF/OCF PROCEDURAL CHECK SHEET**

A2.1. 433rd FCF/OCF Check Sheet: This check sheet will be used whenever a FCF/OCF or High-Speed Taxi check is required or performed at LAFB, TX. It is applicable to all maintenance and operations personnel. Whenever verification of maintenance exists that requires a FCF/OCF as per TO 1C-5A-6 Section I Part C, or directed by the MXG/CC, the appropriate maintenance supervision will contact the Quality Assurance Section. This check sheet will implement guidance of AFI 21-101, TO 1-1-300, AFI 11-2C-5V3, Chapter 5 and 433rd Airlift Wing Instruction (AWI) 21-102 *C-5 FUNCTIONAL CHECK FLIGHT (FCF), OPERATIONAL CHECK FLIGHT (OCF) AND HIGH SPEED TAXI CHECK PROGRAM.*

A2.2. Maintenance Group Quality Assurance:

A2.2.1. Be the point of contact between maintenance and operations.

A2.2.2. Contact Plans, Scheduling and Documentations (PS&D) and provide aircraft tail number and reason for FCF/OCF.

A2.2.3. Prepare, schedule and chair the briefing for maintenance and operations personnel for the FCF/OCF to include any technicians with detailed history of the maintenance action requiring the FCF/OCF. This briefing will be attended by AMXS supervision, MXS supervision (if applicable), Operations Group / Director Operations Validation (OG/DOV), Wing Safety (Flight), The Pilot and Flight Engineer who will be flying the FCF/OCF and will be normally held in the MXG complex. Anticipated take-off time and date will be determined at this brief.

A2.2.4. Ensure a complete maintenance history (781A, *Maintenance Discrepancy and Work document* /Graphical User Interface(GO81) is available for review and discussion as well as Weight & Balance records for recertification or review as necessary.

A2.2.5. Maintain notes from the FCF/OCF brief and names of personnel attending by recording pertinent information on either the OCF or FCF Log Check Sheet (Attachment 3).

A2.2.6. Attend The FCF/OCF debrief with AMXS or MXG as applicable.

A2.2.7. Record all actions of release or non-release and the date documents are forwarded to PS&D for inclusion into the applicable aircraft jacket file. Include FCF flight checklist used during flight as a record of check flight.

A2.3. Aircraft Maintenance Squadron/Maintenance Squadron:

A2.3.1. Notify QA as soon as it is determined a FCF/OCF is required.

A2.3.2. Configure aircraft for FCF/OCF according to technical data, ensuring all maintenance actions are completed and all AFTO Forms 781 are documented In Accordance With (IAW) -6 and 00-20 series TO's.

A2.3.3. Attend the FCF/OCF pre-brief to discuss maintenance history, corrective actions and processes that were used to troubleshoot the malfunction(s).

A2.3.4. Keep QA, and Maintenance Operations (MOC) informed as to the status of the aircraft or of impending status.

A2.3.5. Coordinate through Command Post on fuel load required for flight.

A2.4. MX Operations Flight Plans Scheduling & Documentation:

A2.4.1. Coordinate through QA and OGV for FCF/OCF requirement.

A2.4.2. Coordinate with QA and OGV to ensure crew availability for OCF. If an FCF is required, the 339th Test Flight crew from Robins AFB is required and their arrival will be coordinated through QA, OGV, and PS&D.

A2.4.3. 433rd MOS/MXOP will coordinate the fund site for the FCF crew from the 339th Test Flight.

A2.5. Operations Group (OSS/OGV):

A2.5.1. Will select a “Highly Experienced” crew to fly and perform OCF flights.

A2.5.2. OGV will coordinate with the 339th Test Flight crew for lodging and transportation needs.

A2.5.3. Be responsible for any sensitive FCF procedures acquired from the 339th Test Flight.

A2.5.4. Notify PS&D and QA of the date and time of the aircrew brief and the FCF/OCF flight.

A2.6. Maintenance Operations Center:

A2.6.1. Notify Operations Squadron of FCF/OCF aircraft release for flight and maintenance status. MOC will notify Operations Squadron (OPS) of any changes in aircraft status that will affect or delay take-off time. If status changes and the scheduled take-off will be delayed, the FCF/OCF flight will be re-scheduled 24 hours later based on maintenance Expected Time in Commission (ETIC's).

A2.7. Debrief Section:

A2.7.1. Assemble maintenance specialist and aircrew and conduct full aircraft debrief immediately after each FCF/OCF. AFI 21-101, AMC SUP CL-6, *C-5 Debriefing Checklist* will be utilized as part of the crew debrief.

Attachment 3

FCF/OCF/HIGH SPEED TAXI CHECK BRIEFING CHECK SHEET

PRE-FCF/OCF/High Speed Taxi Check BRIEFING CHECK SHEET (AIR CREW, MAINTENANCE & MXQ)	YES	NO	N/A
1. Have the aircraft forms been reviewed by Pro-Super, QA & Aircrew?			
2. Are the aircrew members qualified as Functional (FCF/OCF) crewmembers? If OCF is required, are "Highly Experienced" crewmembers tasked?			
3. Aircraft fuel load for FCF/OCF discussed and decided			
4. Has Plans and Scheduling (P&S) Loaded jobs showing QA weight and balance checks for FCF/OCF aircraft?			
5. Has the aircrew and QA reviewed Aircraft Weight & Balance documents, with appropriate 781A entry and had it signed off by a QA weight & balance manager? (Ref: AFI 21-101)			
6. Has the purpose and extent of the flight, previous maintenance problems and discrepancies been briefed to the crew? (Ref: AFI 21-101)			
7. Has the Crew Chief and Pro Super insured that the aircraft is correctly configured for FCF/OCF according to technical data, ensuring all maintenance actions are documented properly IAW -6 and 00-20 series TO's to include maintenance operational checks.			
Items marked NO need an explanation and should be addressed.			

Attachment 4

IN-FLIGHT OPERATIONAL CHECK PROCESS CHECK SHEET

FCF/OCF: Program Mgr. _____ Date: _____

C-5A Serial #: _____

Aircraft system/sub-system requiring check: _____

1	Was the AMXS/MXG and applicable work center personnel present for the brief/debrief?	Y	N	N/A
2	Was a GO81 (8070) history captured for the affected system/sub-system requiring the In-Flight Op's Check?	Y	N	N/A
3	Was aircrew thoroughly briefed on the nature of discrepancy and its repair requiring the In-Flight Op's Check?	Y	N	N/A
4	Was a discrepancy requiring a In-Flight Op's Check documented and cleared in the applicable aircraft AFTO Form 781A, <i>Maintenance Discrepancy and Work Document</i> IAW TO 00-20-1, <i>AEROSPACE EQUIPMENT MAINTENANCE INSPECTION, DOCUMENTATION, POLICY AND PROCEDURES</i> ?	Y	N	N/A
5	Are Mission Essential Ground Personal (MEGP)(s) required for In-Flight Op's Check?	Y	N	N/A
6	Does Command Post have official orders or personal information of MEGP(s) for Department of Defense (DD) Form 2131, <i>Passenger Manifest</i> 24 hours prior to flight?	Y	N	N/A
7	Did PS&D schedule mission as a Maintenance flight?	Y	N	N/A
8	Has QA reviewed Aircraft Weight & Balance documents?	Y	N	N/A
9	Has QA, Pro Super and aircrew reviewed the aircraft forms?	Y	N	N/A
10	Has QA coordinated with MOC on obtaining aircraft status prior to crew brief?	Y	N	N/A

Note: Questions marked in No column require explanation and should be addressed.

Attachment 5

IN-FLIGHT OPERATIONAL CHECK PREPLAN MEETING PARTICIPANTS

Date: _____

Time: _____

ACTIVITY	NAME	TOPICS
Quality Assurance		Discuss purpose and reason of In-Flight Operational Check, Provide maintenance data (GO81 and/or 781A) documents for review and discussion. Take off date and time.
OGV/Stan Eval		Review maintenance request and discuss crew requirements.
OSS		Crew requirements and anticipated take off date and time.
P&S		Coordinate Take off date and time and name(s) of MEGP(s) if required.
AMXS/MXS PRO SUPER		Maintenance performed and corrective actions that warrant In-flight op's check. Status of aircraft.
Technicians/ Specialist		Maintenance brief of Discrepancy and Corrective Action and nature of operational check required.
<p><i>Notes:</i></p> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>		