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T.O. 1U-10A-6CF-1

TECHNICAL MANUAL

**ACCEPTANCE  
AND/OR  
FUNCTIONAL CHECK FLIGHT PROCEDURES**

USAF SERIES  
**U-10A, U-10B AND U-10D**  
AIRCRAFT

PUBLISHED UNDER AUTHORITY OF THE SECRETARY OF THE AIR FORCE

## LIST OF EFFECTIVE PAGES

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NOTE: On a changed page, the portion of the text affected by the latest change is indicated by a vertical line in the outer margin of the page.

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INTRODUCTION

1. The purpose of these procedures is to:

- a. Assist the flight crew in accomplishing acceptance or Functional Check Flight (FCF) in accordance with T.O. 1-1-300.
- b. Assure compliance of the prescribed FCF by providing the flight crew with equipment operating procedures, limits, pressure readings, and conditions to be noted and recorded during the course of the functional check flight.
- c. Provide the flight crew with definitive procedures emphasizing how a system/ component will be checked when applying predetermined criteria.
- d. Provide the flight crew with normal and emergency operating procedures and conditions to be noted for those systems and items having an emergency system.

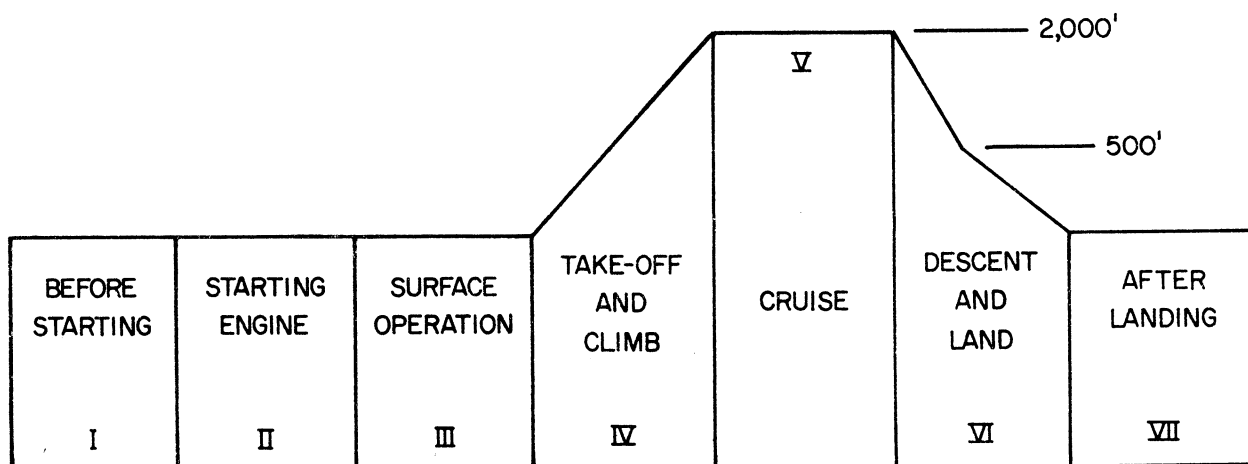
2. Functional Check Flight Procedures will be used when as directed in T.O. 1-1-300. When Functional Check Flights are accomplished to test specific equipment or systems, only applicable portions will be used. Description of check flights are:

- a. Acceptance Check Flight: Includes flight test for performance and operation to verify contractual conformance. This is applicable to all aircraft on production, maintenance, or modification contracts. Completion of all procedures contained in this manual is mandatory.

b. **Functional Check Flight:** Includes flight test to establish if airframe or equipment are operating in accordance with predetermined parameters while subjected to intended environment. Areas to be check are selective for only that equipment or system(s) that require flight verification.

3. Each crew member will complete the portion of the check list applicable to his position, using the symbols specified in the section heading or by recording the actual instrument readings in the spaces when required. Upon completion of the check flight, responsible crew member for each check will sign provided space, to indicate certification that he has completed checks, applicable to his station and equipment. Discrepancies discovered during the course of an FCF will be recorded directly on the applicable AFTO Form 781A as prescribed by T.O. 00-20-5.

4. All unsatisfactory conditions will be corrected by the mechanic or crew chief. Corrective action for discrepancies will be indicated on the AFTO Form 781A in accordance with T.O. 00-20-5. All discrepancies for which corrective action may be delayed, will be transcribed to the AFTO Form 781B in accordance with T.O. 00-20-5.



FLIGHT PROFILE CHART

**NOTE**

Local conditions and terrain will prevail in determining suitable flight profile.

I. BEFORE STARTING.

A. BRIEFING: In accordance with AFM 66-1 or Command policy by Quality Control.

B. PREFLIGHT.

1. AFTO Forms 781 (Ref. T.O. 00-20-5)

a. AFTO 781 Part I: Current

b. AFTO 781 Part II: Current Status and Servicing

c. AFTO 781A: Open discrepancies and their effect on the planned FCF, all red cross entries properly cleared. FCF requirement properly documented.

d. AFTO 781B: Open discrepancies and their effect on the planned FCF current inspection status and operating times.

2. AFTO Form 189 (Ref. T.O. 00-20-5) check for currency and condition of engine, operating time and serial number match AFTO 781B.

3. DD Forms 365 (Ref. T.O. 1-1B-40) complete, neat, legible and current.

C. PREFLIGHT INSPECTION.

1. Preparation for Flight - Perform in accordance with T.O. 1U-10A-1, Section II.

2. Exterior Inspection - Perform in accordance with T.O. 1U-10A-1, Section II.

NOTE

Thorough and complete to include open cowling inspection after each phase and/or engine change.

3. Interior Inspection - Perform in accordance with T.O. 1U-10A-1, Section II, except delete item 3.

NOTE

Discrepancies corrected on the spot (ref. 2 and 3) will be recorded for rating and record purposes.

4. Before Starting Engine - Perform in accordance with T.O. 1U-10A-1, Section II.

II. STARTING ENGINE.

A. Perform Starting Engine Check in accordance with T.O. 1U-10A-1, Section II.

III. GROUND OPERATIONS.

A. BEFORE TAXIING.

1. Perform before taxiing check in accordance with 1U-10A-1, Section III.
2. Lights will be checked on all FCFs.

B. TAXIING.

1. Perform taxiing check in accordance with 1U-10A-1, Section II.
2. Check for positive lock after the castoring landing gear control handle is pulled aft (out) and then released in accordance with 1U-10A-1, Section II.

NOTE

On some models the cross-wind landing gear lock is a control with a serrated shaft and affords positive lock by turning handle 1/4 turn to the right to engage teeth.

3. Primary flight instruments will be checked during taxi.

C. ENGINE RUN-UP.

1. Perform engine run-up in accordance with T.O. 1U-10A-1, Section II.
2. Actual numerical values of instrument readings will be recorded.
3. Note minor discrepancies which will not effect safety of flight.
4. Perform engine idle check, 700-800 RPM. Engine should run smooth with throttle retarded.
5. Power check. RPM 3000 - Manifold Pressure  $18.5 \pm 1$ " Hg. at standard day Sea Level (atmospheric variations are determined from figure 2-8A, T. O. 1U-10A-2).

NOTE

Approximately 3 seconds is required to accelerate the engine smoothly from idle to maximum power. Reference T.O. 1U-10A-1, Appendix 1 for engine power schedule variations.

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D. BEFORE TAKE-OFF.

1. Perform before take-off checks in accordance with T. O. 1U-10A-1, Section II, except delete the word passenger from item 1.

NOTE

Any malfunction or discrepancy not expected from study of the forms or not fully understood by all crew members must be cause for abort and investigation. Even if investigation is only through analysis of problem while taxiing back for another take-off.

IV. TAKE-OFF AND CLIMB.

A. INSTRUMENTS.

1. Perform take-off and climb check in accordance with T. O. 1U-10A-1, Section II,
2. Engine for specified:
  - a. Maximum RPM. 3400 RPM. METO 3000.
  - b. Manifold Pressure 15 in. -29.1 in. Normal Range.
  - c. Cylinder Head Temp. 250<sup>o</sup>F - 475<sup>o</sup>F Normal Range.
  - d. Oil Pressure 65-85 psi Normal Range.
  - e. Fuel Pressure 9-15 psi Normal Range.
  - f. Vacuum -4.5 to 5.2 inches Hg. Normal Range .  
Vacuum -3.75 to 4.25 inches Hg. Normal Range.  
(With G-14A gyro installed) (for predicated MAP refer to engine operating limits charts in T. O. 1U-10A-1, Appendix 1).
  - g. Generator for proper functioning.
  - h. Carburetor temperature 55<sup>o</sup>C - 74<sup>o</sup>C.
  - i. Oil temperature 100<sup>o</sup>F - 225<sup>o</sup>F.
3. All take-off and climb readings which are questionable or out of limits will be recorded.

B. CONTROLS.

1. Check aircraft for control and stability and proper response to control forces.

V. CRUISE.

A. CRUISE.

1. Cruise configuration will be 2,500 RPM, 23" Hq. cowl flaps closed.
2. Cruise will be maintained for 5 minutes minimum prior to recording engine instrument readings.
3. Note aileron and rudder trim for future correction if necessary.
4. Compare compass and slave gyro with each 45° compass point. If directional gyro is installed, check for smoothness of operation and precision.
5. Complete check of CD-4 system will be accomplished.
6. Engine for operation on each fuel tank.
7. Propeller for proper response to pitch control.
8. Engine for proper response to throttle control.
9. Communication and navigational equipment for proper operation.
10. Check flight instruments for proper operation.

B. SLOW FLIGHT STALLS.

1. Note that all slats operate at approximately the same airspeed in landing configuration.
2. Note any unusual handling or flight characteristics.

C. PROPELLER OPERATION.

1. Power off-full decrease and full increase.
2. With propeller set, change attitude rapidly (nose up or down approximately 10 degrees) and note any fluctuations or inability to hold RPM at desired setting (this check is made to simulate turbulence and check governor sensitivity).



VI. DESCENT AND BEFORE LANDING.

A. FLAPS - NORMAL APPROACH.

1. Wing flap crank - 1/2 (20°) to full down. Rotate wing flap crank to desired flap setting.

B. AIRSPEED - NORMAL APPROACH.

1. Airspeed - 50 to 60 KTS IAS.
2. Throttle control knob - as required.

NOTE

Increase airspeed as required to allow for turbulence and possible wind shear. Do not exceed flap limit speed.

C. CORRIDOR PROCEDURE.

1. Corridor procedures will be in accordance with local current policies and instructions.

D. TRAFFIC PATTERN.

1. Traffic patterns will conform to procedures approved locally.
2. Contact tower at earliest opportunity.
3. Aircraft experiencing known or suspected difficulties will inform the tower and adhere to proper procedures.

E. BRAKING.

1. Plan touch down to require minimum braking prior to turning or stopping.
2. Final landing will be from a normal traffic pattern.
3. Note any item of an unusual nature.
4. Perform touch down in accordance with T.O. 1U-10A-1, Section II.

VII. AFTER LANDING.

A. CONTROLS

1. Controls as required.
2. Engine and adjacent areas for evidence of fuel and oil leaks.
3. Perform after landing check in accordance with T.O. 1U-10A-1, Section II.

B. NAVIGATION AIDS.

1. Navigation Aids - off. This will help prevent drain on battery.

C. FORMS.

1. All forms will be completed at the aircraft.

D. DEBRIEFING.

1. Debriefing with Quality Control will be accomplished immediately and/or in accordance with AFM 66-1 or command policy.