

**MAINTENANCE TEST
FLIGHT MANUAL**

**ARMY MODEL
C-12C, C-12D, AND
C-12F AIRCRAFT**

This manual supersedes TM 55-1510-218-MTF,
10 October 1984, including all changes.

**HEADQUARTERS,
DEPARTMENT OF THE ARMY**

19 JUNE 1989

TABLE OF CONTENTS

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of the applicable Aircraft Operator's Manual (when using the 2028-2 from the Operator's Manual, ensure the publication number and title reflect this MTF) direct to Commander, US Army Aviation Systems Command, ATTN: AMSAV - MMD, 4300 Goodfellow Blvd., St. Louis, MO 63120. A reply will be furnished to you.

Section	Page
I Introduction	1-1
II Maintenance Test Flight Checklist	2-1
Prior to Maintenance Test Flight	2-1
Interior Check	2-6
Before Starting Engines	2-8
First Engine Start(Battery Start)	2-18
Second Engine Start (Battery Start)	2-19
First Engine Start (GPU Start)	2-22
Second Engine Start (GPU Start).	2-24
Before Taxiing	2-25
Taxiing	2-36
Engine Runup	2-37
Before Takeoff	2-46
Line Up	2-47
During Takeoff	2-47
After Takeoff	2-48

TABLE OF CONTENTS (CONT)

During Climb	2-49
Cruise	2-52
Low Speed Systems Check	2-57
Descent and Low Level Cruise	2-69
Descent	2-71
Before Landing	2-71
Landing	2-71
Go Around	2-72
After Landing	2-73
Engine Shutdown	2-73
Before Leaving Aircraft	2-75
III Troubleshooting	3-1
Troubleshooting Guide A - Starting	3-1
Troubleshooting Guide B - Instruments	3-4
Troubleshooting Guide C - Electrical	3-6
Troubleshooting Guide D - Caution Panel	3-17
.	
Troubleshooting Guide E - Power Plant	3-18
.	
Troubleshooting Guide F- Propellers	3-24
Troubleshooting Guide G - Hydraulic	3-27
Troubleshooting Guide H - Flights	3-28
Controls	
Troubleshooting Guide I - Not Applicable	3-29
.	
Troubleshooting Guide J - Vibrations	3-30
Troubleshooting Guide K -	3-31
Communications/Navigation Equipment	
.	
IV Special Procedures	4-1
Charts and Forms	5-1

SECTION I. INTRODUCTION

1. Purpose. The purpose of this manual is to provide complete instructions for performing a maintenance test flight of C-12C, C-12D, and C-12F aircraft. For the specific conditions which require a general or limited maintenance test flight, refer to applicable FAR's and manufacturer's maintenance manuals.

2. Definitions.

a. *Maintenance Test FLIGHT.* A functional test flight for which the primary purpose is to determine whether the airframe, powerplant, accessories, and other equipment are functioning in accordance with predetermined requirements while subjected to the intended environment.

b. *Warnings, Cautions, and Notes.* Warnings, Cautions, and Notes are used to emphasize important and critical instructions and are used for the following conditions:

WARNING

An operating procedure, practice, etc., which, if not correctly followed, could result in personal injury or loss of life.

CAUTION

An operating procedure, practice, etc., which, if not strictly observed, will result in damage to or destruction of equipment.

NOTE

An operating procedure, condition, etc., which is essential to highlight.

3 . General Information.

a. This manual covers only maintenance test flight of C-12C, C-12D, and C-12F aircraft and in no way supersedes any information contained in TM 55-1510-218-10 or -CL, but is to be used in conjunction with the -10 or -CL. For the purpose of maintenance test flights only, this manual satisfies all the requirements of the -CL from Interior Check through Engine Shutdown.

b. Crew requirements will be as specified in TM 55-1510-218-10.

4. Special Instructions.

a. *Cargo and Passengers.* Cargo and passengers are prohibited on maintenance test flights.

b. *Forms and Records.* Forms and records will be checked prior to the maintenance test flight to determine what maintenance has been performed and the type of maintenance test flight required (i.e general or limited).

c. *Configuration.* The configuration of the aircraft should be determined prior to each maintenance test flight in order to determine performance parameters.

d. *Post Test Flight Inspection.* A thorough visual inspection will be performed to the extent necessary to ensure that deficiencies or short-comings that may have developed as a result of the maintenance test flight are detected.

e. *Reference.* When a maintenance test flight is required to ensure proper operation of a specific system(s), refer to the applicable maintenance manual for the limits of that system.

f. *Asterisked Checks.* An asterisk (*) prior to a check requires that the test flight check sheet be anno-

tated with a specific reading. Also a check (✓) for satisfactory performance, or a (X) for problem detected will be recorded and a short statement entered in the remarks block of the check sheet.

g. An (O) prior to a check indicates a requirement if the equipment is installed.

h. *Maintenance Test Flight Check Sheet.* The check sheet contained in Section V will be used for all test flights. When a test flight is performed to determine if specific equipment or systems are operating properly, completion of only that portion of the maintenance test flight check sheet applicable to the specific equipment or systems being tested is required. The aircraft test flight check sheets may be locally reproduced. Continuation sheets may be used when necessary. Items that prove to be unsatisfactory during the test flight and require corrective action, shall be listed in the remarks block during flight and transferred to DA Form 2408-13 immediately after termination of the flight. The sheet will be attached to the DA Form 2408-13 upon completion. After accumulation of two or more sheets, the data should be reviewed to determine if trends are developing.

i. *Free Air Temperature (FAT) and Outside Air Temperature (OAT).* For the purposes of this manual, free air temperature (FAT) is to be considered the same as outside air temperature (OAT).