

TECHNICAL MANUAL

**MAINTENANCE TEST FLIGHT
MANUAL**

**ARMY MODELS
RC-12P
NSN 1510-01-370-0805
AND
RC-12Q
NSN 1510-01-417-0137
AIRCRAFT**

**DISTRIBUTION STATEMENT A: Approved
for public release; distribution is unlimited.**

**HEADQUARTERS
DEPARTMENT OF THE ARMY
16 MAY 1997**

TECHNICAL MANUAL

No. 1-1510-224-MTF

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC, 16 MAY 1997

MAINTENANCE TEST
FLIGHT MANUAL

ARMY MODELS
RC-12P
NSN 1510-01-147-0137
AND
RC-12Q
NSN 1510-01-147-0137

REPORTING OF ERRORS AND RECOMMENDING
IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of any way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms) direct to: Commander, U.S. Army Aviation and Missile Command, ATTN: AM-SAM-MMC-LS-LP, Redstone Arsenal, AL 35898-5230. A reply will be furnished to you.

You may also send in your comments electronically to our e-mail address: ls-lp@redstone.army.mil or by fax 256-842-6546/DSN 788-6546.

Chapter	Page
Chapter 1.	Introduction 1-1
Chapter 2.	Maintenance Test Flight Checklist 2-1
	Prior to Maintenance Test Flight..... 2-1
	Interior Check..... 2-27
	Before Starting Engines..... 2-29
	First Engine Start (Battery Start) 2-34
	Second Engine Start (Battery Start)..... 2-36
	Abort Start..... 2-37
	Engine Clearing..... 2-37

First Engine Start (GPU Start).....	2-38
Second Engine Start (GPU Start).....	2-40
Before Taxiing	2-42
Taxiing	2-44
Engine Runup.....	2-45
Before Takeoff	2-55
Line Up	2-56
Climb	2-58
Cruise.....	2-64
Low Speed Systems Check.....	2-67
Descent and Low Level Cruise.....	2-82
Descent-Arrival	2-83
Before Landing	2-84
Landing	2-85
Go Around.....	2-86
After Landing	2-86
Engine Shutdown.....	2-87
Before Leaving Aircraft	2-89

Chapter 3.	Troubleshooting.....	3-1
	Troubleshooting Guide A - Starting.....	3-1
	Troubleshooting Guide B - Instruments	3-3
	Troubleshooting Guide C - Electrical	3-5
	Troubleshooting Guide D - Caution Panel.....	3-15
	Troubleshooting Guide E - Power Plant	3-16
	Troubleshooting Guide F - Propellers	3-22
	Troubleshooting Guide G - Hydraulics.....	3-24
	Troubleshooting Guide H - Flight Controls	3-25
	Troubleshooting Guide I - Not Applicable.....	3-25
	Troubleshooting Guide J - Vibrations.....	3-25

	Troubleshooting Guide K - Communications/ Navigation Equipment	3-26
	Troubleshooting Guide L - Stability and Control Systems - Not Applicable.....	3-29
Chapter 4.	Special Procedures	4-1
	Pressurization.....	4-1
	Trim and Rigging	4-3
	Maximum TGT/N ₁ Availability	4-3
	Speed Performance at Maximum Cruise Power.....	4-4
	Engine Performance at Maximum Continuous Power	4-5
	Engine Performance at Maximum Cruise Power	4-6
	Avionics Flight Checks	4-7
Chapter 5.	Charts and Forms	5-1

CHAPTER 1. INTRODUCTION

NOTE

A maintenance test flight is an exceptionally demanding operation and requires a thorough flight readiness inspection (PREFLIGHT). The flight readiness inspection is prescribed in TM 1-1510-224-10 (operator's manual) and must be completed prior to each maintenance test flight. Emergency procedures are found in the applicable operator's manual (-10) or checklist (-CL) and are not duplicated in this publication. Prior to each maintenance test flight, the pilot will contact maintenance/quality control personnel to determine the maintenance that has been performed. This manual should be used only by qualified maintenance test flight pilots as required in AR 95-1.

1-1. PURPOSE. The purpose of this manual is to provide complete instructions for performing a maintenance test flight of RC-12P and RC-12Q aircraft. For the specific conditions which require a general or limited maintenance test flight, refer to TM 1-1500-328-23, the applicable maintenance manual, and the aircraft support contract.

1-2. DEFINITIONS.

a. Maintenance Test Flight. A flight for which the primary mission is to determine airworthiness, i.e., that the airframe, powerplant, accessories, and items of equipment are functioning in accordance with predetermined requirements in the intended operational 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 or maintenance procedure, practice, condition, or statement which, if not strictly observed, could result in injury or death of the person who performs the action which follows the warning.

CAUTION

An operating or maintenance procedure, practice, condition, or statement which, if not strictly observed, could result in damage to or destruction of equipment or loss of mission effectiveness or long term health hazard to personnel who perform the action which follows.

NOTE

An essential operating or maintenance procedure, condition, or statement which must be highlighted.

1-3. GENERAL INFORMATION.

a. This manual covers only maintenance test flight or RC-12P and RC-12Q aircraft and in no way supersedes any information contained in TM 1-1510-224-10 or -CL, but is to be used in conjunction with the -10 or -CL. Normal preflight and test procedures which are contained in the -10 or -CL may not be included. For the purpose of maintenance test flights only, this manual satisfies all the requirements of the -CL from Interior Check through Engine Shutdown.

b. Effectivity code **P** is used to designate text or material that is peculiar to the RC-12P aircraft. Effectivity code **Q** is used to designate text or material that is peculiar to the

RC-12Q aircraft. Material that is common to both models will have no effectivity code.

c. Crew requirements are as specified in TM 1-1500-328-23 and TM 1-1510-224-10.

d. The duration of a general or limited test flight shall be in accordance with the requirements of TM 1-1500-328-23.

1-4. 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 assure that deficiencies or short-comings that may have developed as a result of the maintenance test flight are detected.

e. **References.** When a maintenance test flight is required to assure 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 annotated with a specific reading. Also, a check (✓) for satisfactory performance, or an (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. A check sheet similar to the one contained in Chapter 5 shall 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. 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 2401-13-1 immediately after termination of the flight. The sheet shall be attached to the DA Form 2408-13-1 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 considered to be same as outside air temperature (OAT).