TM 55-1520-226-CL

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

Operator's and Crewmember's Checklist

ARMY MODEL
TH-13T
HELICOPTER

Pilot's Checklist

HEADQUARTERS, DEPARTMENT OF THE ARMY

OCTOBER 1969

*TM 55-1520-226-CL

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D. C., *3 October 1969*

TM 55-1520-226-CL, is published for the use of all concerned.

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-31 (qty. rqr. block no. 57) requirements for Operator and Crew Maintenance Instructions for OH-13 aircraft.

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*This manual together with TM 55-1520-224-CL, *3 October 1969* , and TM 55-1520-225-CL, *3 October 1969* supersedes TM 55-1520-204-10CL, 12 July 1966.

GENERAL INFORMATION AND SCOPE

SCOPE. This checklist contains the operator's and crewmember's checks to be accomplished during normal and emergency operations. Performance data pertinent to normal operation of the aircraft is provided in the performance data section of this checklist.

GENERAL INFORMATION. The checklist consists of three parts: Normal procedures, emergency procedures, and performance data. Normal procedures consist of the procedures required for normal flight. Emergency procedures are subdivided into 10 classifications as follows: engine, tail rotor, fire, fuel, electrical (Elec), hydraulic (Hyd), landing and ditching (Ldg/Dtch), flight controls (Flt Cont), bailout or ejection (Bailout) (Eject), and armament (Armt), as applicable. The performance data consists of the takeoff and landing data card.

Note

This checklist does not replace the amplified version of the procedures in the operator's manual (TM 55-1520-226-10), but is a condensed version of each procedure.

Normal Procedures Pages. The contents of the normal procedures of this manual are a condensation of the amplified checklist appearing in the normal procedures or crew duties portion of the applicable operator's manual.

Emergency Procedures Pages. The requirements in this section of the condensed checklist manual (CL) are identical to those for the normal procedures, except that the information is drawn from the amplified checks in the emergency procedures portion of the operator's manual. The emergency requirements are subdivided into the 10 classifications listed above.

Performance Data Pages. A takeoff and landing data card is provided. The card covers the four phases listed below as well as all those items which are applicable and change during takeoff and landing.

Takeoff Data
Landing Immediately After Takeoff
Landing Data
Conditions

Symbols Preceding Numbered Steps:

* – Indicates performance of steps is mandatory for all Thru-Flights.

(N) – Means performance of step is mandatory for Night-Flights.

★ – Indicates a detailed procedure for this step is included in the Performance Checks section, located at the back of the checklist.

(I) – Indicates mandatory check for Instrument Flights.

(O) – Indicates if installed.

Reporting of Improvements. Reports of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications), and forwarded direct to Commanding General, U.S. Army Aviation Systems Command, ATTN: AMSAV-R-M, P. O. Box 209, St. Louis, Missouri 63166.

NORMAL

BEFORE EXTERIOR CHECK

*1. Forms and Publications.
*2. Battery Switch — ON (Btry connected).
*3. Fuel Quantity — Check.
(N) 4. All lights — Check.

NOTE

Adjust landing light if necessary. (Set angle of 15°.)

*5. Anticollision Light — Check. All Switches — OFF.
6. Mixture Control — Idle Cut Off.
*7. Cyclic Control — Center/Release Friction.
8. Collective Pitch — Friction OFF/ Full Travel.
9. Ballast Weight — Condition/Security.
10. Cockpit Interior — Fire Extinguisher, First Aid Kit, Instrument Divider Panel, Glide Slope Antenna — Condition/Security.
11. Loose Equipment — Secure.

12. Door Releases — Condition/Safety-ing.
13. Fuel Shutoff Valve — ON.

EXTERIOR CHECK — CABIN LEFT SIDE

*1. Left Door — Condition/Security.
2. Left Navigation Light — Condition/Security.
3. Left Skid, Cross Tubes — Condition/Security.
4. Left Static Port — Condition.
(O) 5. Left Ground Handling Wheel — Condition/Security.

EXTERIOR CHECK — CABIN FRONT

1. Forward Main Rotor Blade — Condition/Security.
2. Bubble — Condition/Security.
3. Radio Compartment — Condition/Security.
4. Pitot Tube — Remove Cover/Condition/Security.
5. Landing Light — Condition/Security.
6. Cockpit Undersurface — Condition/Security.

7. Marker Beacon, Glide Slope Antennas — Condition/Security.

EXTERIOR CHECK — CABIN RIGHT SIDE

1. Right Static Port — Condition.
*2. Right Door — Condition/Security.
3. Right Navigation Light — Condition/Security.
4. Right Skid — Condition/Security.
(O) 5. Right Ground Handling Wheel-Condition/Security.

EXTERIOR CHECK — ENGINE COMPARTMENT, RIGHT SIDE

*1. Right Fuel Tank — Quantity/Drain.
2. Airframe, Lord Mount and Engine Basket — Condition/Security.
*3. Engine and Accessories — Condition/Security, Oil Leaks.
4. Fan Shroud — Condition/Security.
5. Ignition System — Condition/Security.
6. Sprague Mount and Safety Cables — Condition/Security.
7. Oil Cooler — Condition/Security.

8. Throttle Linkage and Mixture Levers — Safetying/Condition/Security.
9. Carburetor — Condition/Security/Drain.

EXTERIOR CHECK — TAIL BOOM, RIGHT SIDE

1. Forward Short Shaft — Condition/Security, Lubrication, Safetying.
2. Tail Rotor Drive Shaft and Hanger Bearings — Condition/Security.
3. Battery and Cables — Condition/Security.
4. UHF Radio and Antenna — Condition/Security.
5. ADF/VOR Antennas — Condition/Security.
6. Airframe — Condition/Cracks.
7. Synchronized Elevator — Condition/Security.
8. Aft Anticollision Light — Condition/Security.
9. Universal Joint — Condition/Security.
10. Right Rear Navigation Light — Condition/Security.

EXTERIOR CHECK — TAIL ROTOR

1. Stabilizer — Condition/Security.
2. Delta Hinge Bolt — Condition, Movement, Safetying.
3. Boot and Neoprene Washer — Condition/Security.
4. Pitch Change Links — Condition/Security.
5. Tail Rotor Blades — Condition/Security.
6. Tail Rotor Gear Box and Drive Shaft — Condition/Security.
7. Tail Rotor Guard — Condition/Security.
8. Control Cables — Condition/Security.
9. Tail Boom Extension — Condition/Security.
10. FM Antenna — Condition/Security.
11. Left Rear Navigation Light — Condition/Security.

EXTERIOR CHECK — TAIL BOOM, LEFT SIDE

*1. Main Rotor — Untie, Rotate, Check Cooling Fan, Secure Tiedown.

2. Synchronized Elevator — Condition/Security.
3. Tail Section — Condition/Security.
4. Control Cables and Pulleys — Condition/Security.

EXTERIOR CHECK — ENGINE COMPARTMENT, LEFT SIDE

1. Sprague Mounts and Cables — Condition/Security.
*2. Oil Quantity — Check.
3. Fuel Pump — Drain.
*4. Engine and Accessories — Condition/Security.
5. All Push-Pull Tubes — Condition/Security/Freedom of Movement.
6. Hydraulics — Condition/Security.
*7. Hydraulic Reservoir — Quantity.
8. Cooling Fan — Condition/Security.
9. Cooling Fan Shroud — Condition/Security.
10. Lord Mount, Engine Basket and Airframe — Condition/Security.
*11. Left Fuel Tank — Quantity/Drain.
12. Fuel Strainer — Drain.

13. Carburetor Air Filter — Condition/ Security.

EXTERIOR CHECK — TRANSMISSION AND MAIN ROTOR

1. Swashplate — Condition/Security.
2. Scissors, Levers, Push Pull Tubes, Mixing Levers — Condition/ Security.
3. Dampers — Condition/Security.
4. Stabilizer Bar — Condition/Security.
5. Dynamic Stop Cables — Condition/ Security.
6. Main Rotor Hub — Condition/ Security.
7. Dynamic Droop Stops — Condition/ Freedom of Movement.
*8. Main Rotor Blades — Condition/ Security.
9. Mast Locking Nut, Washer — Condition/Security.

BEFORE STARTING ENGINE

*1. Rotor Tiedown — Secured.
*2. Pedals — Adjust.

*3. Shoulder Harness and Inertia Reel — Adjust, Check Operation.
*4. Flight Controls — Full Travel.
*5. Cyclic — Neutral, Friction.
*6. Collective — DOWN.
*7. Throttle Friction — Adjust.
8. Landing Light — OFF.
9. Firewall Heater Shutoff Switch — DOWN.
10. All Switches (Except Hyd.) — OFF.
11. Circuit Breakers — IN.
12. Radios — Set.
13. Turn and Slip Indicator — Needle, Ball centered.
*14. Oil Temperature Switch — ENGINE.
15. Instruments — Static Position and Slippage Marks.
*16. Mixture — RICH.
17. Carburetor Heat — COLD.
18. Magnetic Compass — Check.
*19. Altimeter — Set.
20. Vertical Speed — Reading.
21. RMI — ADF Position.
22. Clock — Wound, Running.
23. Marker Beacon — OFF.
24. Compass Slaving Switch — IN.
*25. Magneto Switch — OFF.

*26. Inverters — OFF.
*27. Non Ess. Bus — Manual.
*28. Hydraulics — ON.
*29. Battery and Generator Switch — ON. (OFF for APU start).
*30. Fuel Boost Failure Light — OUT.

STARTING ENGINE

*1. Helicopter and Rotors — Clear.
*2. Throttle — Prime.
*3. Fuel Pressure — 4 to 5 psi.
*4. Throttle — Detent Position.
*5. Rotors — Clear.
*6. Starter — Depress.
*7. Magneto Switch — BOTH.
*8. Starter — Engine Fires; Release.
*9. Oil Pressure — Check.
*10. Engine RPM — 1700, 1800 for Clutch Engagement. Battery Switch — ON (APU Start).
*11. Increase RPM — 2300.
*12. Radios — ON. (One at a time, check load meter.
13. Inverters — MAIN.
*14. Helmet and Gloves — ON.
15. Cyclic — Release Friction.

*16. Warning Lights — Test.
17. Manifold — Drain.

ENGINE RUN-UP

1. Hydraulics — OFF, Check Tip Path, ON.
2. Fuel Boost Circuit Breaker — Check (Out 10 sec.)
3. Fuel Boost Circuit Breaker — IN.
4. Pitot Heat — Check.
*5. Engine RPM — 3200.(After 40°C oil temp and 100°C cyl head temp)
6. Carburetor Heat — Check.
*7. Magnetos — Check.
8. Throttle — Close, Check Free-wheeling, Magnetos.
9. Collective Pitch Control — Check Override.
*10. RPM — 3200.
*11. Oil Temperature Switch — Transmission.
*12. Engine Instruments — Reading.

BEFORE HOVER CHECK

(I) *1. Radios — ON.

(I) *2. Magnetic Compass — Condition.
(I) *3. Attitude Indicator — SET.
(I) *4. Heading Indicator — Check.
(I) *5. Hover Instructions — Call Tower.
(I) *6. Clock — SET.
(I) 7. K Factor — Compute.
*8. Anticollision Light — ON.

DURING HOVER CHECK

(I) *1. Flight Instruments — Check.
(I) *2. Engine Instruments — Check.
(I) *3. Power — Compute.

BEFORE TAKEOFF

(I) *1. Attitude Indicator — Recheck.
(I) *2. Heading Indicator — SET.
*3. Engine Instruments — Check.
(I) *4. Pitot Heat — As Desired.

BEFORE LANDING — On downwind or prior to landing if no downwind is established.

*1. RPM — 3200.
*2. Carburetor Heat — Check.
*3. Mixture — RICH.

*4. Fuel Quantity — Note.
*5. Caution Lights — Check.
*6. Engine Instruments — Check.

ENGINE SHUTDOWN

1. Magnetos — Check.
2. Cyclic/Collective — Friction.
3. Oil Temperature Switch — Engine.
4. Inverters — OFF.
5. Non-Essential Bus — Manual.
6. Anticollision Light — OFF.
7. Radios — OFF.
8. Throttle — Close.
9. Magnetos — Check.
10. Mixture — Idle Cut Off.
11. Switches — OFF (Except Hydraulic)
(N) 12. Battery and Navigation Light ON
13. Rotor — Allow to Stop.
(N) 14. Navigation Lights — OFF.
(N) 15. Battery Switch — OFF.
16. Inspection — Walk Around.
17. DA Form 2408 — Complete.

EMERGENCY

ENGINE FAILURE

ENGINE FAILURE DURING TAKEOFF OR HOVER BELOW 10 FEET

1. Collective Pitch — Maintain.
2. Cyclic — Vertical Descent.
3. Tail Rotor Control Pedals — Directional Control.
4. Collective Pitch — Increase to Cushion Landing (approx. one foot above the ground).
5. Battery Switch — OFF.
6. Mixture Lever — Idle Cut Off.
7. Fuel Shutoff Valve — OFF.

ENGINE FAILURE BETWEEN 10 AND 400 FEET

1. Collective Pitch — Reduce, Maintain Rotor Rpm.
2. Cyclic Control, Tail Rotor Control Pedals — Maintain Desired Reading and Directional Control. Select Best Available Area.
3. If Altitude Permits — Obtain Forward Airspeed, Switches and Fuel OFF.
4. Battery Switch — OFF.

5. Mixture Lever — Idle Cut Off.
6. Shoulder Harness — Lock.
7. Collective Pitch — Initial Application at 10 - 15 Feet.
8. Collective Pitch — Cushion Landing.
9. Magneto Switch — OFF.
10. Fuel Shutoff Valve — OFF.

ENGINE FAILURE DURING FLIGHT

1. Select forced landing area.
2. Autorotative Glide — Establish 60 Knots or as required to make forced landing area.
3. If Time Permits — Radio call, Btry Switches and FUEL VALVE — OFF.
4. Shoulder Harness — Lock.
5. Cyclic — Decelerating attitude as necessary.
6. Collective Pitch — Cushion Landing.

ENGINE RESTART DURING FLIGHT

1. Establish autorotative glide, select forced landing area.
2. Throttle — CLOSED.
3. Fuel Shutoff Valve — ON.
4. Mixture — RICH.
5. Battery and Generator Switches — ON.
6. Magneto Switch — BOTH.
7. Starter — Depress.
8. Throttle — Operating RPM.
9. Collective Pitch — Apply as required.

MINIMUM RATE OF DESCENT — 42 Knots (48 mph) IAS.

MAXIMUM GLIDE — 61 Knots (71 mph) IAS.

TURBOCHARGER MALFUNCTION

1. High Compressor Reading — Reduce Throttle, Complete Flight.
2. Low Compressor — Increase Throttle, Complete Flight.

PROP

TAIL ROTOR FAILURE

DURING TAKEOFF OR HOVER BELOW 10 FEET

1. Throttle — CLOSE.
2. Collective Pitch — Cushion Landing.

DURING FLIGHT

1. Throttle — CLOSE.
2. Collective Pitch — Reduce, maintain rotor rpm. Establish autorotative glide.
3. Shoulder Harness — Lock.
4. Airspeed — Establish 40 Knots minimum. If time permits, radio call.
5. Decelerating Attitude — As required.
6. Collective Pitch — Slow rate of descent.
7. Collective Pitch — Cushion, Landing at 13 - 17 Knots (15 - 20 mph) conditions permitting.

FIRE

FIRE

ENGINE FIRE DURING START

1. Starter — Depress.
2. Mixture — Idle Cut Off.
3. Fuel Shutoff Valve — OFF.
4. Battery Switch — OFF.

ENGINE FIRE DURING FLIGHT

1. Select forced landing area.
2. Enter Autorotation.
3. Fuel Shutoff Valve — OFF.
4. Mixture Lever — Idle Cut Off.
5. Battery Switch — OFF.
6. Shoulder Harness — Lock.

ELECTRICAL FIRE

1. Battery and Generator Switches — OFF.
2. Normal Landing — At nearest available safe landing area.

SMOKE AND FUME ELIMINATION

1. Airspeed — Reduce to minimum.
2. Cabin Door — OPEN.
3. Normal Landing — At nearest available safe landing area.

FUEL

FUEL SYSTEM FAILURE— See engine failure.

ELECT

ELECTRICAL SYSTEM FAILURE

ELECTRICAL POWER FAILURE

1. Battery and Generator — ON.
2. Inverter — ON.
3. Normal Landing — At nearest available safe landing area.

INVERTER FAILURE

1. Main Inverter — ON.
2. Circuit Breaker — IN.
3. If not restored, switch inverter to spare.

HYD

HYDRAULIC FAILURE

HYDRAULIC SYSTEM FAILURE

1. Hydraulic Circuit Breaker — IN.
2. Hydraulic Boost Valve Switch — ON (Off if boost not restored).
3. Airspeed — Adjust to obtain minimum control feedback.
4. Cyclic Control — Reduce to minimum required.
5. Landing — Accomplish as soon as possbile.

CYCLIC CONTROL MALFUNCTION

Follow Steps Outlined Under HYDRAULIC SYSTEM FAILURE.

LANDING AND DITCHING

LANDING IN TREES

1. Enter Autorotation.
2. Select forced landing area.
3. If time permits, lock shoulder harness, turn switches and fuel OFF.
4. Deceleration — Attain zero ground speed, descend vertical.
5. Collective Pitch — Apply prior to contact to minimize rate of descent.
6. Collective Pitch — Increase to maximum when settling in trees.

DITCHING, POWER ON

1. Passenger — Alert.
2. Radio Call — Complete.
3. Doors — Jettison, hover few feet above water.
4. Passenger — Depart helicopter.
5. Hover clear of passenger.
6. Battery Switch — OFF.
7. Close Throttle.

8. Allow helicopter to settle into water, apply full collective pitch.
9. Cyclic — Apply in direction acft tends to roll.
10. Exit helicopter when blades have stopped.

DITCHING, POWER OFF

1. Establish Autorotative Glide.
2. Collective Pitch — Adjust.
3. Passenger — Alert.
4. Helicopter Position — Radio Call.
5. Battery Switch and Fuel Shutoff Valve — OFF.
6. Doors — Jettison.
7. Shoulder Harness — Lock.
8. Decelerate — Attain zero ground speed.
9. As helicopter settles into water, apply full collective. Apply cyclic control in direction aircraft tend to roll.
10. Exit helicopter when blades have stopped.

FLT CONT

FLIGHT CONTROL SYSTEM FAILURE

TAIL ROTOR CONTROL SYSTEM FAILURE — See tail rotor failure.

CYCLIC CONTROLS MALFUNCTION — See hydraulic failure.

TAKEOFF DATA CARD

CONDITIONS

Gross Weight _____ Lbs

Field Length _____ Ft

Density Altitude _____ Ft

Effective Wind _____ Kts

TAKEOFF

Takeoff Over 50 ft
Obstacle _____ Ft

Obstacle Clearance Speed _____ Kts IAS

LANDING IMMEDIATELY AFTER TAKEOFF WITH POWER OFF CONDITION

Approach Speed _____ Kts IAS

Landing Distance Over 50 ft
Obstacle _____ Ft

LANDING DATA CARD

LANDING

Landing Distance Over 50 ft Obstacle _____ Ft

Approach Speed Over 50 ft Obstacle _____ Kts IAS

CONDITIONS

Field Length _____ Ft

Gross Weight _____ Lbs

Density Altitude _____ Ft

Effective Wind _____ Kts

* U. S. GOVERNMENT PRINTING OFFICE : 1969 O - 366-183