# TM 55-1520-218-CL

**DEPARTMENT OF THE ARMY TECHNICAL MANUAL**

**Operator's and Crewmember's Checklist**

## ARMY MODEL
## UH-1A
## HELICOPTER

# Pilot's Checklist

**HEADQUARTERS, DEPARTMENT OF THE ARMY**

**JANUARY 1969**

*TM 55-1520-218-CL

HEADQUARTERS
DEPARTMENT OF THE ARMY
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**TM 55-1520-218-CL is published for the use of all concerned.**

**By Order of the Secretary of the Army:**

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**Chief of Staff.**

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*This manual supersedes TM 55-1520-218-10CL, 22 January 1968

## 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 take-off and landing data card.

**Note**

This checklist does not replace the amplified version of the procedures in the operator's manual (TM 55-1520-218-10), 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 take-off 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 take-off and landing.

Take-off Data
Landing Immediately After Take-off
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.

## BEFORE EXTERIOR CHECK

1. Forms and Publications – Check.
2. Battery Switch – OFF.
(N) 3. Lights – Check, OFF.
4. Fuel and Cap Security – Check.

## EXTERIOR CHECK – FUSELAGE FRONT

1. Rotor Blade – Condition.
2. Cabin Top – Condition and Ventilators.
3. Radio Compartment – Security.
(O) 4. FM Antennas – Condition/Security.
5. Pitot Tube – Unobstructed.
6. Cabin Lower Area – Condition.
(O) 7. Cargo Suspension Mirror – As desired.
8. Landing and Searchlight – Stowed.

## FUSELAGE – LEFT SIDE

1. Pitot-Static Port – Unobstructed.
2. Navigation Light – Security.
3. Entrance Doors – Condition/Operation.
4. Landing Gear – Condition.
5. Cargo Suspension Cable – Condition/ Operation.

## FUSELAGE – AFT CABIN LEFT SIDE

1. Engine and Transmission Deck – Check, Cowling Secure.
2. Electrical Compartment – Check.
3. Defueling Valve – Drain.

4. Fuel Filter – Drain and Check.
5. Fuel Tank Sump and Pump – Drain.
6. Governor Control Drain – Drain.
7. Access Doors – Secure.

AFT FUSELAGE – LEFT SIDE

1. Tail Rotor Drive Shaft Coupling – Position and Security.
2. Tail Rotor Cable and Pulley – Condition.
3. Aft Fuselage – Condition.
4. Synchronized Elevator – Condition.
5. Antenna – Condition/Security.
6. Main Rotor Blade – Condition, Rotate 90°.

FUSELAGE – FULL AFT

1. Extension Covers – Secure.
2. Tail Rotor – Condition, Free Movement.
3. Tail Skid – Condition/Security.
4. Navigation Light – Condition/Security.
5. FM Antenna – Condition.

AFT FUSELAGE – RIGHT SIDE

1. Tail Rotor Gearboxes Oil Levels – Check Oil Levels.
2. Antenna – Condition/Security.
3. Synchronized Elevator – Condition.
4. Aft Fuselage – Condition.
5. Tail Rotor Cable and Pulley – Condition.

FUSELAGE – AFT OF CABIN RIGHT SIDE

1. Engine/Transmission Area – Check, Cowling Secure.
2. Oil Cooling Fan Compartment – Check.
(O) 3. Heater Compartment – Check.
4. Oil Reservoir – Check.
5. Engine/Transmission Deck – Check.
6. Transmission Oil – Check.
7. Access Doors – Secure.

FUSELAGE – CABIN RIGHT SIDE

1. Navigation Lights – Condition/Security.
2. Entrance Doors – Condition/Operation.
3. Landing Gear – Condition.
4. Pitot-Static Port – Unobstructed.

CABIN TOP

1. Main Rotor System – Condition, Security; Fluid Levels.
2. Transmission Filler Cap – Secure.
3. Short Shaft – Condition/Security.
4. Engine Air Intake – Unobstructed.
5. Antennas – Condition/Security.
6. Anti-Collision Light – Condition/ Security.
7. Engine and Transmission Cowling – Secured.
8. Cabin Top Ventilators – Unobstructed.

## INTERIOR CHECK -- CARGO COMPARTMENT

(N) 1. Battery Switch – ON.
(N) 2. DOME LT – As required.
3. Fire Extinguisher – Check.
4. Cargo – Secure.
5. Passenger Seats – Secure.
6. First Aid Kits – Condition/Security.
7. Hydraulic Fluid – Condition.
8. Electrical Outlets – Condition.
9. Crew Member Radio Panel – Check.
10. Loose Equipment – Secure.
(N) 11. DOME LT – OFF.
(N) 12. Battery Switch – OFF.

## BEFORE STARTING ENGINE

1. Entrance Doors – Secured.
2. Seat and Pedals – Adjust.
3. Seat Belt and Shoulder Harness – Fastened/Adjust.
4. Shoulder Harness Lock – Check.
5. Collective and Throttle Friction – OFF.
6. Pedals – Check.
7. Landing/Searchlight – OFF.
8. A C Circuit Breakers – IN.
9. Radios – OFF/Set.
10. Governor – AUTO.
(O) 11. DE-ICE/HOT AIR – OFF.
12. TRANS PUMP – OFF.
(O) 13. BOOST PUMP – OFF.
(O) 14. LOW RPM AUDIO – OFF.

15. FUEL VALVE – CLOSED.
(O) 16. OIL VALVE – OPEN.
17. Hydraulic Control Switch – ON.
18. FORCE TRIM – ON.
19. Compass Slaving – IN.
20. Instruments – Static Indications/ Markings.
21. Turn and Slip Indicator – Check.
22. Marker Beacon – OFF.
23. Clock – Wound/Running.
24. Magnetic Compass, Deviation Card – Check.
25. VSI's – Note Indication.
26. Heading Indicators – ADF Position/ Calibration Card Posted.
27. Altimeters – Set.
28. Airspeed Indicators – Note Indication.
29. Free-Air Temp Gage – Note Indication.
30. STARTER GEN Switch – START.
31. NONESS BUS – NORMAL ON.
32. VM Selector Switch – BAT (MAIN GEN if APU Start).
33. MAIN Generator Switch – ON.
34. A C PHASE Selector – A C.
35. INVTR Switch – OFF.
36. Instrument Lights – As required.
37. D C Circuit Breakers – IN.
38. PITOT HTR – OFF.
39. DOME LT – OFF (As required).
40. EXT LTS – As required.
41. ANTI-COLL Light – OFF.
42. WIPERS – OFF.
43. CARGO REL Switch – SAFE.
44. CABIN HEATING Switches – OFF.

## STARTING ENGINE

1. Battery Switch – OFF (ON for battery start).
2. Copilot's Attitude Indicator – Cage (APU Start Only).
3. INVTR Switch – SPARE (OFF for Battery Start).
4. FIRE DETECTOR LIGHT – TEST.
5. RPM Warning Light – ON.

(O) 6. Cargo Release Light – Test.

7. Fuel Gage Test Switch – Test (APU Start).
8. Caution Panel Warning Lights – TEST/RESET.
9. FUEL VALVE – OPEN (Check Fuel Pressure for APU Start).
10. BOOST PUMP – ON.
11. Governor RPM INC-DEC Switch – DEC for 10 seconds.
12. Throttle – Check Full Travel/Flight Idle Stop.

(N) 13. DOME LT – OFF.

14. Fireguard – Posted.
15. Rotor Blades – Clear.
16. Starter Switch – Press (40 second maximum).
17. Starter Switch – Release at 40% rpm.
18. Copilot's Attitude Indicator (Battery Start) – Cage.
19. INVTR Switch (Battery Start) – SPARE.
20. Throttle – Flight Idle.

21. Gas Producer – 58 - 62%.
22. Engine Oil Pressure – Normal.
23. Transmission Oil Pressure – Normal.
(N) 24. Interior Lights – As desired.
25. APU – Disconnect.
26. Battery Switch (APU Start) – ON.
27. Fuel Gage Test Switch (Battery Start) – TEST.

ENGINE RUNUP

1. FORCE TRIM – Check.
2. Hydraulic System – Check.
3. ICS and Radios – ON (EXCEPT VOR).
4. Helmet – ON.
(O) 5. DE-ICE/HOT AIR – Check.
6. FUEL BOOST PUMP – Check.
(I) 7. PITOT HTR Switch – Check.
8. A C PHASE Selector – Check (Leave in BC Phase).
9. INVTR Switch – OFF then MAIN.
10. AC PHASE Selector – Check (Leave in AC Phase).
11. Voltmeter Selector Switch – Check (Leave in NONESS BUS Position).
12. MAIN GEN – OFF.
13. STARTER GEN – STBY GEN.
14. NONESS BUS – Check.
15. VM (Selector Switch) – Check remaining positions (Leave in MAIN GEN position).
16. MAIN GENERATOR – ON.
17. Throttle – Slowly increase to full open 5800 ± 100 rpm.

18. Engine/Transmission Instruments – Normal.
(O) 19. LOW RPM Switch – AUDIO.
20. Governor RPM INC-DEC Switch – Slowly actuate to FULL INC – 6700 ±50 rpm, Set rpm at 6400.
21. Communication and Navigation Radios – VOR ON, Check as desired.
22. Weather and Hover-Taxi Instruction – Contact Tower or Ground Control as applicable.
23. Clock – Set.
24. Heading Indicator – Check.
25. MAG Compass – Check.
26. Altimeter – K-factor.
(I) 27. Attitude Indicator – Set.
28. ANTI-COLL Light – As desired.
29. FORCE TRIM – As desired.
30. Collective Pitch Friction – Check; Set as desired.

HOVER TO TAKE-OFF

(I) 1. Turn Needle, Heading Indicator, and Magnetic Compass – Indicates a Turn to Right-Left.
(I) 2. VSI, Altimeter – Indicates Climb, Descent.
(I) 3. Attitude Indicator – Indicates Nose High, Nose Low, Bank Left-Right.
(I) 4. Airspeed Indicator – Note Indication.
(I) 5. Slip Indicator – Ball Free in Race.
(I) 6. Engine and Transmission Instruments – Normal.

(I) 7. Engine RPM – As desired.
(I) 8. Torque – Note psi for hover.

PRIOR TO TAKE-OFF (INSTRUMENT)

(I) 1. Attitude Indicators – Recheck.
(I) 2. Index Over Take-off Heading – Set Heading.
(I) 3. Outside Air Temp – Recheck.
(I) 4. PITOT HEAT – As required.

BEFORE TAKE-OFF/LANDING

1. RPM – 6400.
2. Fuel Quantity – Check.
3. Instruments – Normal.
4. Caution Lights – Check.
(O) 5. Low RPM Audio Warning Switch – AUDIO.

ENGINE SHUTDOWN

1. Collective Pitch – FULL DOWN.
2. Governor RPM – DEC.
3. Throttle – Flight Idle.
(O) 4. Low RPM Audio – OFF.
5. FORCE TRIM – ON.
6. STARTER-GEN Switch – START.
7. ANTI-COLL Light – OFF.
(N) 8. External LTS – FLASH.
9. Exhaust Gas Temp – Stabilize minimum of 1 minute.
10. Throttle – OFF.
(O) 11. BOOST PUMP – OFF.
12. FUEL VALVE – CLOSED.

13. Radios and ICS – OFF.
14. Electrical Switches – OFF Except main generator and battery.

(N) 15. External LTS – OFF after Rotor Stops.

16. Battery – OFF.
17. Main Rotor Blades – Secure.
18. Walk-Around Inspection – Complete.
19. DA Forms 2408 – Complete.

# ENGINE FAILURE

## ENGINE FAILURE DURING TAKE-OFF AND WHILE HOVERING BELOW 10 FEET

1. Collective – Maintain position.
2. Cyclic – Apply as required to maintain position over ground.
3. Directional Control – Maintain.
4. Collective Pitch – Apply to cushion landing.
5. Battery Switch – OFF.
6. FUEL VALVE – CLOSED.

## ENGINE FAILURE LOW ALTITUDE

1. Collective – Reduce to maintain rotor rpm.
2. Directional Control – Maintain.
3. Select landing area.
4. If altitude permits – Obtain forward airspeed, turn off switches and fuel.
5. Cyclic – Decelerate.
6. Collective – Cushion landing.
7. Battery Switch – OFF.
8. FUEL VALVE – CLOSED.

## ENGINE FAILURE DURING FLIGHT

1. Collective – Maintain rotor rpm within limits.
2. Autorotational Glide – Establish.
3. Select forced landing area.
4. If time permits – Make radio call, turn battery switch and FUEL VALVE – OFF.
5. Shoulder Harness – Lock.
6. Cyclic – Decelerating attitude.
7. Collective – Cushion landing.

## ENGINE RESTART DURING FLIGHT

1. Establish autorotational glide.
2. Select forced landing area.
3. GOV Switch – EMERGENCY.
4. Attempt start.
5. Throttle – As necessary to maintain operating rpm.

## EMERGENCY STARTING PROCEDURE

1. Throttle – CLOSED.
2. Engine Fuel Control/Governor Switch – Emergency.
3. Energize starter, start clock (start-fuel flow and ignition occur simultaneously).
4. When nl speed passes through 8%, open throttle slowly and advance to FLIGHT IDLE position as start progresses.
5. Release starter switch at 40% nl.
6. When nl speed is stabilized with the throttle in FLIGHT IDLE position, advance throttle if necessary to obtain a minimum nl speed of 50%.
7. Engine Fuel Control/Governor Switch – Automatic.

## LOSS OF TRANSMISSION/ENGINE OIL PRESSURE – HIGH OIL TEMP

Accomplish a normal landing at the nearest available safe landing area (open field, etc.).

## COMPRESSOR STALL

1. Collective – Reduce.
2. De-Ice Switch – OFF.
3. Land – Normal landing at the nearest available safe landing area (open field, etc.).

## TAIL ROTOR FAILURE

DURING TAKE-OFF OR HOVERING

1. Throttle – Close immediately.
2. Autorotational landing – Accomplish.

DURING FLIGHT OR LANDING

1. If altitude permits – Adjust collective pitch and/or roll off throttle to regain control. (Maintain 50-knot airspeed minimum.)
2. Establish Autorotational Glide.
3. If altitude and terrain are adverse for immediate landing, consider further powered flight to an area for an autorotational running landing.

## FIRE

### ENGINE FIRE DURING STARTING – INTERNAL

1. Starter Switch – Continue to press.
2. Throttle – Close.
3. FUEL VALVE – CLOSED.
4. As EGT decreases to normal – Complete shutdown and record limit and duration of hot start on DA Form 2408-13.

### ENGINE FIRE DURING STARTING – EXTERNAL

1. Close throttle.
2. Complete shutdown.
3. Exit the aircraft.
4. Use fire extinguisher.

### ENGINE FIRE DURING FLIGHT

1. Throttle – Close.
2. Autorotational Glide – Establish.
3. FUEL VALVE – CLOSED.
4. Battery Switch – OFF.
5. Generator Switch – OFF, except when power is required to operate lights or avionic equipment.
6. Shoulder Harness – Lock.
7. Autorotational Landing – Accomplish.

## FUSELAGE FIRE

1. Airspeed – Reduce to minimum.
2. Battery Switch – OFF.
3. Generator Switch – OFF (ON if lighting or avionic equipment is to be used).
4. Landing – Accomplish at the nearest available safe landing area (open field, etc.).

## ELECTRICAL FIRE

1. Instruments – Check.
2. Battery and Generator Switch – OFF.
3. Circuit Breakers – OUT.
4. Landing – Accomplish at nearest available safe landing area.

## SMOKE AND FUME ELIMINATION

1. Pilot's and Copilot's Windows – Open.
2. Cabin Ventilators – Open.
3. Cargo Doors – Open.
4. Aircraft Controls – Side-slip, if practical.

## FUEL SYSTEM FAILURE

### FUEL BOOST PUMP FAILURE

1. Descend – Descend below 4600 feet if possible.
2. FUEL VALVE – OPEN.
3. FUEL VALVE and BOOST PUMP Circuit Breakers – IN.

### FAILURE OF ENGINE FUEL PUMP

Land at the nearest available safe landing area (open field, etc.).

### ENGINE FUEL CONTROL SYSTEM MALFUNCTIONS

### OVERSPEEDING nII GOVERNOR (HIGH RPM).

1. Simultaneously increase collective, rolling off twist grip throttle.
2. Land at nearest available safe landing area.

### LOSS OF ENGINE (nII) RPM.

1. Collective – Down to maintain rotor rpm.
2. Throttle – Retard.
3. Governor Switch – Emergency position.
4. Throttle – Advance slowly and firmly to obtain engine operating rpm.

## ELECTRICAL SYSTEM FAILURE

NOT APPLICABLE

## HYDRAULIC FAILURE

### HYDRAULIC SYSTEM FAILURE

1. Airspeed – Adjust to comfortable level.
2. Hydraulic Control Circuit Breaker – OUT, check for electrical failure of hydraulic control switch.
3. Hydraulic Control Circuit Breaker – IN, if electric failure of hydraulic control switch has been eliminated and actual hydraulic failure has been confirmed.
4. Landing – Accomplish landing at nearest available safe landing area (open field, etc.).

# LANDING AND DITCHING

## LANDING IN TREES

1. Enter normal autorotation (from altitude or low level).
2. Decelerate – Sufficient to attain zero ground speed at tree-top level.
3. Prior to main blade contact – Apply collective pitch sufficient to attain minimum rate of descent.
4. As helicopter settles – Increase collective pitch to maximum.

DITCHING – POWER ON

1. Descent and Pre-landing – Execute.
2. Passengers – Alerted.
3. Helicopter Position – RADIO position.
4. Pilot's and Copilot's Doors – Jettison while hovering a few feet above water; both cargo doors full open; slide cargo doors full open.
5. Instruct passengers to exit helicopter.
6. Fly a Safe Distance – Avoid passenger injury.
7. Battery Switch – OFF.
8. FUEL VALVE – CLOSED. Close throttle – Allow aircraft to settle in a level attitude, apply full collective. When aircraft begins to roll, apply full cyclic in the same direction.
9. Shoulder Harness and Safety Belt – Release and clear helicopter when main rotor has stopped.

DITCHING – POWER OFF

1. Collective Pitch – Adjust as required to maintain rotor rpm within limits.
2. Autorotational Glide – Establish into the wind.
3. Passengers – Alerted.
4. Helicopter Position – RADIO position.
5. Pilot and Copilot's Doors – Jettison at low altitude, both cargo doors full open.
6. Battery Switch – OFF.
7. FUEL VALVE – CLOSED.
8. Shoulder Harness – Lock.
9. Deceleration – Execute near water surface to attain zero ground speed.
10. Apply Collective Pitch – Sufficient to attain minimum rate of descent.
11. Allow aircraft to settle in a level attitude – Apply full collective; when aircraft begins to roll, apply full cyclic in the direction of roll.
12. Shoulder Harness and Safety Belts – Release and clear helicopter when main rotor has stopped.

## FLIGHT CONTROL SYSTEM FAILURE

NOT APPLICABLE

## BAIL-OUT/EJECTION

### BAIL-OUT

1. Passengers – Alerted.
2. Helicopter Position – RADIO position.
3. Doors – Open cargo doors as required.
4. Controls – Set to establish CRUISE forward speed with flight attitude slightly nose down.
5. When Ready – Bail out through nearest exit.

## ARMAMENT

NOT APPLICABLE

## TAKE-OFF DATA CARD

### CONDITIONS

Gross Weight _____ Lbs

Field Length _____ Ft

Density Altitude _____ Ft

Effective Wind _____ Kts

### TAKE-OFF

Take-Off Over 50 ft
Obstacle _____ Ft

Obstacle Clearance Speed _____ Kts IAS

### LANDING IMMEDIATELY AFTER TAKE-OFF WITH POWER OFF CONDITION.

Approach Speed _____ Kts IAS

Landing Distance Over 50 ft
Obstacle _____ Ft

## LANDING DATA CARD

### CONDITIONS

Field Length _____ Ft

Gross Weight _____ Lbs

Density Altitude _____ Ft

Effective Wind _____ Kts

### LANDING

Landing Distance Over 50 ft Obstacle _____ Ft

Approach Speed Over 50 ft Obstacle _____ Kts IAS



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