TECHNICAL MANUAL

Operator's and Crewmember's Checklist

ARMY MODEL U-21G AIRCRAFT

Pilot's Checklist

This manual supersedes TM 55-1510-215-CL, 4 April 1977, including all changes.

HEADQUARTERS
DEPARTMENT OF THE ARMY

29 DECEMBER 1982

By Order of the Secretary of the Army:

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DISTRIBUTION:

To be distributed in accordance with DA Form 12-31, CL Requirements for U-21 aircraft.

CHANGE

NO. 7

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Operator's and Crewmember's Checklist

ARMY MODEL U-21G AIRCRAFT

Pilot's Checklist

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HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 21 June 1991

Operator's and Crewmember's Checklist

ARMY MODEL U-21G AIRCRAFT

Pilot's Checklist

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CHANGE

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Operator's and Crewmember's Checklist

ARMY MODEL U-21G AIRCRAFT

Pilot's Checklist

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CHANGE NO. 4

HEADQUARTERS DEPARTMENT OF THE ARMY WASHINGTON, D.C., 19 October 1988

Operator's and Crewmember's Checklist

ARMY MODEL U-21G AIRCRAFT

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| E-1 through E-12 | E-1 through E-12 |
| E-15 and E-16 | E-15 and E-16 |
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CHANGE

HEADQUARTERS DEPARTMENT OF THE ARMY WASHINGTON, D.C., 21 March 1988

Operator's and Crewmember's Checklist

ARMY MODEL U-21G AIRCRAFT

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CHANGE NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
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Operator's and Crewmember's Checklist

ARMY MODEL U-21G AIRCRAFT

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2. Pages listed above which are preceded by an asterisk (*) are being provided to replace unlaminated pages from previous change.

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HEADQUARTERS DEPARTMENT OF THE ARMY WASHINGTON, D.C., 30 October 1984

Operator's and Crewmember's Checklist

ARMY MODEL U-21G AIRCRAFT

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DISTRIBUTION:

To be distributed in accordance with DA Form 12-31, CL requirements for U-21G/RU-21E and H Fixed Wing Aircraft.

GENERAL INFORMATION AND SCOPE

SCOPE. This checklist contains the operator's and crewmember's checks to be accomplished during normal and emergency operations.

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 and those required for 'Before Landing'. The normal procedures portion will be subdivided to include the before landing checks of Chapter 8 of the Operator's Manual. Emergency procedures are subdivided into 8 classifications as follows: Engine, Propeller, Fire, Fuel, Electrical, Landing, Ditching and Bailout. Performance data consists of performance checks.

NOTE

This checklist does not replace the amplified version of the procedures in the operator's manual (TM 55-1510-215-10), 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 (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 8 classifications listed above. Immediate action items are underlined for your reference and shall be committed to memory.

i

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.
- Indicates mandatory check for "Instrument Flights".
- Indicates if installed.
- 3 Indicates Copilot's Duties

Immediate action emergency items are underlined.

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 procedure, 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 direct to Commander, U.S. Army Aviation and Troop Command, ATTN; AMSAT-I-MTS, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be furnished to you.

BEFORE EXTERIOR CHECK

- Publications Check.
 - 2. Oxygen cylinder pressure valves As required.
- Oxygen system pressure Check.
- 4. Keylock switch OFF.
 - 5. Fuel firewall valves OPEN and safetied.
- 6. Flight controls Unlocked.
- 7. Parking brake Set.
 - 8. Trim tabs Zero.
- Avionics master switch OFF.
 - Gear handle DN.
 - 11. Battery ON (stabilized, 22 volts minimum).
 - 12. Strobe beacons Check illumination.
 - 13. Lighting systems Check as required.
- *★ 14. Pitot, stall warning, fuel vent and battery vent heat system Check.
 - 15. Battery OFF.
 - 16. Safety belts, shoulder harnesses, inertia reels Check condition and operation.
 - 17. Fire extinguishers (2) Check as required.
 - 18. Fire axe Secured.
 - 19. First aid kits (5) Check.

EXTERIOR CHECK

FUEL SAMPLE

fuel sample - Check.

LEFT WING

- 1. Skin condition Check.
- 2. Controls, flaps and trim tab Check.
- 3. Static wicks Check.
- 4. Wing tip and navigation light Check.
- 5. Landing light Check.
- 6. Tiedown Released.
- 7. Fuel vent Check.
- 8. Wing tank fuel and cap Check.
 - 9. Deicer boot Check.
 - 10. Wing ice light Check.
 - 11. Fuel vents (2) Check.
 - 12. Inverter air intake screen and exhaust port Check.

LEFT MAIN LANDING GEAR

- 1. Tire Check.
 - 2. Brake assembly Check.
- * 3. Shock strut Check.

- 4. Torque knee Check.
- 5. Safety switch Check.
- 6. Wheel well general condition Check.
- * 7. Doors and linkage Check.
 - 8. Air bypass and oil cooler (rear) Check.
- *(O) 9. Firewall fuel filter drain (at inertial separator duct) Turn/release.

LEFT ENGINE AND PROPELLER

- 1. Accessory section exhaust vent Check.
- 2. Starter-generator air intake Check.
- Left cowl locks Locked.
- 4. Left exhaust stub Check.
- * 5. Propeller blades and spinner Check.
- * 6. Nacelle air intake Check.
 - 7. Nacelle lip ice boot Check.
- 8. Oil cooler air intake Check.
 - 9. Right cowl locks Locked.
 - 10. Right exhaust stub Check.
- * 11. Engine compartment Check.
- * 12. Nacelle tank fuel and cap Check.
- *(O) 13. Fuel filter drain ring Pull/release.
- * 14. Engine compartment access door Locked. Visually check locking hooks.

FUSELAGE UNDERSIDE

- 1. General condition Check.
- 2. Antennas Check.
- 3. Strobe beacon Check.

LEFT NOSE AVIONICS COMPARTMENT

- (O) 1. Voice security computer Installed/keyed.
- (O) 2. Transponder computer Installed/keyed.
- (O) 3. Transponder Set M-2 code.
 - 4. Left nose avionics compartment access door Secured.

NOSE SECTION

- 1. Wheel well general condition Check.
- 2. Doors and linkage Check.
- 3. Nose gear turning stop Check condition.
- * 4. Tire Check.
 - 5. Torque knee Check.
- 6. Shock strut Check.
 - 7. Shimmy damper and attaching linkage Check.
 - 8. Taxi light Check.
 - 9. Radome Check.
 - 10. Windshield and wipers Check.

- 11. Ram air intake Check.
- 12. Ram air intake lip ice boot Check.
- 13. Right nose avionics compartment access door Secured.
- 14. Battery compartment access panel Secured.

RIGHT ENGINE AND PROPELLER

- 1. Accessory section exhaust vent Check.
- 2. Starter-generator air intake Check.
- 3. Left cowl locks Locked.
- 4. Left exhaust stub Check.
- * 5. Propeller blades and spinner Check.
- Nacelle air intake Check.
 - 7. Nacelle lip ice boot Check.
- * 8. Oil cooler air intake Check.
 - 9. Right cowl locks Locked.
 - 10. Right exhaust stub Check.
 - 11. Engine compartment Check.
- * 12. Nacelle tank fuel and cap Check.
- * 13. Fuel filter drain ring Pull/release.
- * 14. Engine compartment access door Locked.

RIGHT MAIN LANDING GEAR

- Tire Check.
- 2. Brake assembly Check.
- Shock strut Check.
- 4. Torque knee Check.
- 5. Safety switch Check.
- 6. Wheel well general condition Check.
- 7. Doors and linkage Check.
- 8. Air bypass and oil cooler (rear) Check free of obstructions and oil leaks.
- 9. Firewall fuel filter drain (at inertial separator duct) -Turn release. Check for fuel drainage.

RIGHT WING

- 1. Inverter air intake screen and exhaust port Check.
- 2. Fuel vents (2) Check.
- 3. Heated battery vent Check.
- 4. Wing ice light Check.
- Deicer boot Check.
- 6. Wing tank fuel and cap Check.
- 7. Tiedown Released.
- Fuel vent Check.
- 9. Landing light Check.
- 10. Wing tip and navigation light Check.

N-6 C 4

- 11. Static wicks Check.
- 12. Controls, flaps, and trim tabs Check.
- 13. Skin condition Check.

FUSELAGE RIGHT SIDE

- 1. Skin condition Check.
- 2. Cabin air exhaust vents Check.
- * 3. Antennas Check.
 - 4. Static port Check.
- * 5. Tiedown Released.
- *(O) 6. Tail stand Removed.

EMPENNAGE

- 1. Right horizontal stabilizer deicer boot Check.
- 2. Right horizontal stabilizer Check.
- 3. Static wicks Check.
- 4. Right elevator and trim tab Check.
- 5. Navigation and beacon lights Check.
- 6. Rudder and trim tab Check.
- 7. Vertical stabilizer Check.
- Left elevator and trim tab Check.
- 9. Static wicks Check.
- 10. Left horizontal stabilizer Check.

- 11. Left horizontal stabilizer deicer boot Check.
- 12. Vertical stabilizer deicer boot Check.

FUSELAGE LEFT SIDE

- 1. Static port Check.
- 2. Cabin air exhaust vent Check.
- Skin condition Check.
- 4. Main entrance and cargo doors Check.
- 5. Chocks Removed.

INTERIOR CHECK

- 1. Ladder Stowed.
- Cargo/loose equipment Secured.
- * 3. Cargo door LOCK.
- * 4. Main entrance door LOCK.
 - 5. Cabin emergency exit hatch Secured.
- *★ 6. Crew/passenger briefing As required.

BEFORE STARTING ENGINES

- Seats, pedals, belts, harnesses Adjust.
 - 2. Cockpit emergency entrance/exit hatch Secured.
 - 3. Overhead control panel switches Set.
 - 4. Magnetic compass Check.
 - 5. Free air temperature gage Note current reading.
 - 6. Fire detection test switch OFF.
- 7. Power levers IDLE.
- 8. Propeller levers HIGH RPM.
- 9. Condition levers FUEL CUTOFF.
 - 10. Flaps UP.
 - 11. Landing gear emergency clutch disengage lever Stowed.
 - 12. Landing gear emergency extension handle Stowed.
 - 13. Fuel system circuit breakers Check in.
 - 14. Auxiliary fuel pumps OFF.
 - 15. Transfer pumps OFF.
 - 16. Crossfeed CLOSED.
 - 17. (Deleted)
 - 18. Engine instruments Check.
 - 19. (Deleted)

- 20. Emergency static air source NORMAL.
- 21. Copilot's circuit breaker panel -- Check circuit breakers in.
- 22. Right subpanel circuit breakers Check in.
- 23. Heater OFF.
- 24. Gear handle DN.
- 25. Windshield anti-ice switches OFF.
- 26. Inlet air separator OFF.
- 27. Left subpanel light switches (4) OFF.
- 28. Deice cycle switch Centered (off).
- 29. Autofeather switch OFF.
- 30. Heat switches (9) OFF.
- 31. Landing lights OFF.
- 32. Engine ice vanes As required.
- 33. Ignition/start switches (2) OFF.
- 34. Engine autoigniton OFF.
- 35. Inverters OFF.
- 36. DC GPU Connect as required.
- 37. Battery ON.
- 38. Voltage Check (28 VDC maximum).
- 39. Annunciator panel Test.
- *(N) 40. Navigation lights ON.

- 41. Landing gear handle lights (2) Test.
 - 42. Landing gear down indicator lights (3) Illuminated.
- 43. Keylock switch on.
- 44. Fire detector system Test.
 - 45. Master warning button Press.
- 46. Generators OFF.
- *★ 47. Auxiliary fuel pumps and crossfeed Check.

STARTING ENGINES (BATTERY/GPU)

START PROCEDURE

- 1. Strobe beacon switches (2) As required.
- (N)2. Navigation lights ON.
 - 3. Propeller Clear.
 - 4. Ignition/start On (check IGN ON light illuminated)
 - 5. Condition lever LO IDLE (after N1 stabilizes at or above 13% for 5 seconds).
 - 6. ITT Monitor (1090° C for two seconds maximum for engine being started. 750° C maximum for operating engine).
 - 7. Ignition/start switch OFF after ITT has stabilized. IGN ON light extinguished.
 - 8. Condition lever HIGH IDLE.
 - 9. Generator (for battery start) Reset, then ON. GEN OUT light extinguished.
 - 10. Aircraft inverter Check INV 2 light extinguished.
 - Deleted.
 - 12. Oil pressure Check (40 psi minimum).
 - Aircraft inverter OFF.
 - 14. GPU Disconnect.
 - 15. Generator Reset then ON. Check GEN OUT light extinguished.
 - 16. Loadmeter Monitor (0.5 maximum).

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- 17. Second engine Start (4) through (8) above.
- 18. Generator ON. Check GEN OUT light extinguished.
- 19. Aircraft inverter 1. Check INV 1 light extinguished (repeat steps 12 and 13).
- 20. Condition levers LO IDLE.
- 21. Fuel control heat switches ON (LEFT and RIGHT).

ABORT START

- 1. Condition lever FUEL CUTOFF.
- 2. Ignition/start switch STARTER ONLY
- 3. ITT Monitor for drop in temperature.
- 4. Ignition/start switch OFF.

ENGINE CLEARING

- 1. Condition lever FUEL CUTOFF.
- 2. Ignition/start switch OFF (allow 30 seconds delay).
- 3. Ignition/start switch STARTER ONLY (for 30 to 40 seconds).
- 4. Ignition/start switch OFF.

*BEFORE TAXIING

- 1. Avionics master switch ON.
- 2. Radios ON./Set as required.
- ★(I) 3. Windshield anti-ice operation Check.
- ★ 4. Autopilot/electric trim system Check.
- ★ 4A. Ground Proximity Altitude Advisory System Check.
- ★ 5. Oxygen system Check.
 - 6. Radios Check.
 - 7. Taxi clearance Check.
 - 8. Clock Set.
 - 9. Altimeters Set.
 - 10. Parking brake Release.

*TAXIING

- 1. Brakes Check.
- 2. Flight instruments Check.

ENGINE RUNUP

- Nose wheel Center.
- * 2. Parking brake Set.
- 3. Power levers IDLE.
- * 4. Condition levers LO IDLE.
- *★ 5. Fuel transfer pumps Check.
 - 6. Flaps Check.
- ★ 7. Propeller manual feather Check.
- *★ 8. Engine autoignition system Check.
- ★ 9. Propeller autofeather system Check.
- ★ 10. Overspeed governor Check.
 - 11. Engine ice vanes (left and right) Pull to EXT.
- ★ 12. Primary governor Check.
- ★ 13. Secondary idle stop Check.
 - Instrument suction Check.
 - 15. Pneumatic pressure Check.
 - Volt-loadmeters Check.
- (I) 17. Propeller deice system Check.
- (I) 18. Surface deice systems Check.
- ★ 19. Inlet air separator system Check.
 - 20. Condition levers LO IDLE
 - 21. Deleted.

*BEFORE TAKEOFF

- 1. Fuel panel Check.
- 2. Auxiliary fuel pumps ON.
- 3. Annunciator panel Check.
- 4. Engine and flight instruments Check.
- 5. Propeller levers Check HIGH RPM.
- 6. Friction locks Set.
- 7. Flaps UP.
- 8. Autopilot/yaw damp Disengaged.
- 9. Fight director As required.
- 10. Trim Set.
- 11. Engine ice vanes Retracted.
- 12. Fuel control heat Check ON.
- 13. Autofeather switch Check ARM.
- (I) 14. Navigation radios Set.
 - 15. Fight controls Check.
 - 16. Windows and doors Secure.
 - 17. Mirror Retracted.
- (I) 18. Anti-icing/deicing/pitot heat As required.

*LINE UP

- 1. Transponder As required.
- 2. Gyro heading Check.
- 3. Power Stabilized (70-80% N₁).
- 4. Autoignition As required.
- 5. Landing/taxi lights As required.

AFTER TAKEOFF

- 1. Gear UP.
- 2. Flaps UP.
- 3. Climb power Set.
- 4. Auxiliary fuel pumps OFF.
- 5. Autofeather system OFF.
- 6. Flight director/yaw damp As required.
- 7. Wings and nacelles Check.
- 8. Landing/taxi lights As required.

DURING CRUISE

- 1. Power Set.
- 2. Wings and nacelles Check.
- 3. (Deleted)

DESCENT - MAX RATE (CLEAN)

- 1. Power IDLE.
- 2. Propellers HIGH RPM.
- Gear- UP.
- 4. Flaps UP.
- 5. Airspeed 208 KCAS (208 KIAS) (maximum).

DESCENT - MAX ANGLE (LANDING CONFIGURATION)

- 1. Power IDLE.
- 2. Propellers HIGH RPM.
- 3. Flaps APPROACH below 174 KCAS (173 KIAS).
- Gear DN below 156 KCAS (154 KIAS).
- 5. Flaps DOWN (127 KIAS).
- 6. Airspeed 118 KCAS (127 KIAS).

DESCENT-ARRIVAL CHECK

- 1. Seat belts and shoulder harnesses Secure.
- 2. Fuel panel Check.
- 3. Parking brake handle In.
- 4. Inlet air separator As required.
- 5. Engine ice vanes As required.

BEFORE LANDING

- 1. Auxiliary fuel pumps ON.
- Autofeather ARM.
- 3. Flaps APPROACH below 174 KCAS (173 KIAS).
- 4. Gear DN below 156 KCAS (154 KIAS). Check lights.
- 5. Autopilot/yaw damp Disengage.
- 6. Landing lights As required.

LANDING

- Gear Recheck DOWN.
- 2. Propellers As required.

TOUCH AND GO LANDING

- 1. Flaps As required.
- 2. Trim Set.
- 3. Power Max allowable.

GO-AROUND

- 1. Power As required.
- 2. Gear UP.
- 3. Flaps UP.
- 4. Landing lights OFF.

- 5. Climb power Set.
- 6. Yaw damp As required.

AFTER LANDING (CLEAR OF THE RUNWAY)

- 1. Landing/taxi lights As required.
- 2. Propellers HIGH RPM.
- 3. Flaps UP.
- 4. Auxiliary fuel pumps OFF.
- 5. Autoignition OFF.
- 6. Anti-icing/deicing OFF.
- 7. Inlet air separator OFF.
- 8. Engine ice vanes As required.
- 9. Radar/transponder Standby.
- (O) 10. Voice security Zeroize.

ENGINE SHUTDOWN

- 1. Parking brake Set.
- 2. Landing/taxi lights OFF.
- 3. Heater OFF.
- 4. Vent blower OFF.
- 5. Avionics master switch OFF.
- 6. Autofeather switches OFF.
- 7. Heat switches (9) OFF.
- 8. Inverters OFF.
- 9. Propellers FEATHER.
- 10. Condition levers FUEL CUTOFF.
- 11. Transfer pumps OFF.
- 12. Crossfeed CLOSED.
- 13. Beacon/lighting systems OFF.
- Master switch Down.
- 15. Oxygen regulator control levers NORMAL, 100%, OFF.
- 16. Keylock switch OFF.

BEFORE LEAVING AIRCRAFT

- 1. Wheels Chocked.
- 2. Parking brake As required.
- 3. Flight controls Locked.
- (O) 4. Voice security computer Removed.
- (O) 5. Transponder computer Removed.
- (O) 6. Transponder Check zeroized.
 - 7. Windows and doors Closed.
 - 8. Walk around inspection Completed.
 - 9. DA Form 2408-12 and -13 Completed.
 - 10. Aircraft Secure.

NOTE

The urgency of certain emergencies requires immediate and instinctive action by the pilot. The most important single consideration is aircraft control. All procedures are subordinate to this requirement.

ENGINE MALFUNCTION

ENGINE MALFUNCTION DURING TAKEOFF RUN (ABORT)

- 1. POWER levers IDLE.
- 2. Braking As required.
- 3. CONDITION levers FUEL CUTOFF.
- 4. Firewall Shutoff valves CLOSED.
- 5. MASTER SWITCH Down.

ENGINE MALFUNCTION AFTER LIFTOFF (ABORT)

- 1. POWER levers REDUCE.
- 2. Gear DOWN.
- 3. Complete normal landing.

ENGINE MALFUNCTION AFTER TAKEOFF

1. Power - Maximum allowable.

- 2. Gear UP.
- 3. Flaps UP.
- 4. Engine Clean up Perform.

ENGINE MALFUNCTION DURING FLIGHT

- 1. Autopilot/yaw damp Disengage.
- 2. Power As required.
- 3. Dead engine Identify.
- 4. Power lever (dead engine) IDLE.
- 5. Propeller (dead engine) FEATHER.
- 6. Condition lever (dead engine) FUEL CUTOFF.
- 7. Gear- UP.
- 8. Flaps- UP.
- 9. Power Set.
- 10. Engine clean up Perform.

ENGINE CLEANUP

- 1. Auxiliary fuel pump (dead engine) OFF.
- 2. Crossfeed CLOSED (if no restart is to be attempted).
- 3. Fuel firewall valve (dead engine) CLOSED (if no restart is to be attempted).
- 4. Generator (dead engine) OFF.
- 5. Electrical load Monitor.
- 6. Autoignition (dead engine) OFF.
- 7. Fuel control heat (dead engine) OFF. (if no restart is to be attempted).

ENGINE MALFUNCTION DURING FINAL APPROACH

- 1. Power As required.
- Gear DN.

ENGINE RESTART DURING FLIGHT (USING STARTER)

- 1. Electrical load Reduce to minimum.
- 2. Firewall shutoff valve OPEN.
- Power lever (dead engine) IDLE.
- 4. Propeller (dead engine) FEATHER.
- 5. Condition lever (dead engine) FUEL CUT-OFF.
- 6. Auxiliary fuel pumps (2) ON.
- 7. Crossfeed OPEN.
- 8. Fuel control heat ON.
- Ignition/start switch On (monitor IGN ON light illuminated, N₁ for 13% and stabilized for approximately 5 seconds).
- 10. ITT (live engine) Monitor (750°C maximum).
- 11. Condition lever LO IDLE.
- 12. ITT and N₁ Monitor (1090°C maximum).
- 13. Ignition/start switch OFF, (when N_1 is above 50%, or start attempt is discontinued).
- 14. Engine clean up Perform (if restart is unsuccessful).
- 15. Oil pressure Check.
- 16. Generator RESET, then On.
- 17. Propeller Synchronize.

- 18. Power As required.
- 19. Electrical equipment As required.
- 20. Auxiliary fuel pumps (2) As required.
- 21. Crossfeed As required.

ENGINE RESTART DURING FLIGHT (NO STARTER ASSIST, ENGINE AND PROPELLER WINDMILLING)

- 1. Electrical load Reduce to minimum.
- Firewall shutoff valve OPEN.
- 3. Power lever (dead engine) IDLE.
- 4. Propeller (dead engine) HIGH RPM.
- 5. Condition lever (dead engine) FUEL CUT-OFF.
- 6. Auxiliary fuel pumps (2) ON.
- 7. Crossfeed OPEN.
- 8. Generator (dead engine) OFF.
- 9. Fuel control heat ON.
- 10. Airspeed 142 KCAS (140 KIAS) (minimum).
- 11. Altitude Below 20,000 feet.
- 12. Autoignition ARM.
- 13. Condition lever LO IDLE.
- 14. ITT and N₁ Monitor (1090° C maximum).
- 15. Engine clean up Perform (if restart is unsuccessful).
- 16. Oil pressure Check (40 PSI minimum).
- 17. Generator RESET, then ON (when N₁ is above 50%).
- 18. Propeller Synchronize.
- 19. Power As required.

- 20. Autoignition As required.
- 21. Electrical equipment As required.
- 22. Auxiliary fuel pumps (2) As required.
- 23. Crossfeed As required.

SINGLE-ENGINE DESCENT ARRIVAL CHECK

- Seat belts and shoulder harnesses Secure (passengers checked).
- 2. Fuel panel Check.
- 3. Parking brake handle In.
- 4. Inlet air separator As required.
- 5. Engine ice vanes As required.

SINGLE-ENGINE BEFORE LANDING CHECK

- 1. Auxiliary fuel pump (live engine) ON.
- 2. Flaps APPROACH below 174 KCAS (173 KIAS)
- 3. Gear DN below 156 KCAS (154 KIAS). Check lights.
- 4. Landing lights ON.

SINGLE-ENGINE LANDING CHECK

- 1. Gear Recheck DN (check lights).
- 2. Propeller (live engine) HIGH RPM.

SINGLE-ENGINE GO-AROUND

- 1. Power Maximum allowable.
- 2. <u>Gear UP.</u>
- 3. Flaps UP.
- 4. Power As required.
- 5. <u>Landing/Taxi lights OFF.</u>

CHIP DETECTOR WARNING LIGHT ON

- 1. Engine instruments Monitor.
- 2. Land as soon as practical.

PROPELLER

PROPELLER FAILURE

- 1. Power (failed propeller) IDLE.
- 2. Propeller (failed propeller) FEATHER.
- 3. Condition lever As required.
- 4. Engine clean up As required.

PRIMARY PITCH LIGHT ON

- 1. Propeller RPM and engine torque Monitor.
- The action to be taken depends on torque and propeller speed:
 - (1) <u>If propeller RPM increases and engine torque</u> <u>decreases Secure engine as soon as practical.</u>
 - (2) If propeller RPM decreases and engine torque increases Pull PROP GOV IDLE STOP circuit breaker immediately.
 - (3) If propeller RPM and torque remain stable, reset the PROP GOV IDLE STOP circuit breaker.

FIRE

ENGINE/NACELLE FIRE DURING START OR GROUND OPERATION

- 1. Firewall shutoff valves CLOSED.
- 2. Master switch Down.
- 3. <u>Propellers FEATHER.</u>

ENGINE FIRE DURING FLIGHT

- 1. Firewall shutoff valve CLOSED.
- 2. Power IDLE.
- 3. Propeller FEATHER.
- 4. Condition lever FUEL CUTOFF.
- 5. <u>Auxiliary fuel pump OFF.</u>
- 6. Transfer pump OFF.
- 7. Crossfeed CLOSED.

FUSELAGE FIRE

- 1. Fight the fire.
- 2. Land immediately if fire continues.

ELECTRICAL FIRE

- (O) 1. <u>Crew oxygen masks As required.</u>
- (O) 2. <u>Passenger oxygen masks As required.</u>
 - Master switch Down.
 - 4. All electrical switches OFF.
 - 5. Battery ON.
 - 6. Generators RESET, then ON.
 - 7. Essential equipment ON (individually until fire source is isolated).

SMOKE AND FUME ELIMINATION

- (O) 1. <u>Crew oxygen masks ON.</u>
- (O) 2. Passenger masks On. The copilot should confirm that all passengers are receiving supplemental oxygen.
 - 3. Cockpit vent/storm windows Open as required.

FUEL SYSTEM

BOOST PUMP FAILURE

- 1. Auxiliary fuel pump (affected engine) ON.
- 2. Fuel fail light Check extinguished.

FUEL FILLER CAP SYPHONING

- 1. <u>Airspeed 123 KCAS (120 KIAS).</u>
- 2. Land as soon as practicable.

WING/NACELLE FUEL LEAKS

Deleted.

FUEL SYSTEM CROSSFEED

SINGLE-ENGINE OPERATION

- 1. Fuel firewall valve (dead engine) CLOSED.
- 2. Auxiliary fuel pump (dead engine) ON.
- Crossfeed OPEN.
- 4. Fuel crossfeed light Check illuminated.
- 5. Transfer pump (dead engine) ON.
- Auxiliary fuel pump (live engine) Check OFF (side receiving crossfeed).
- 7. Crossfeed and fuel quantity Monitor.

ELECTRICAL SYSTEM

GROUND FAULT - GENERATOR FEEDER CABLE (ONE GEN OUT LIGHT ILLUMINATED, WITH FLASHING MASTER WARNING LIGHT)

- 1. Generator Reset then ON.
- Generator (GEN OUT light remains illuminate) OFF.
- 3. Electrical equipment OFF, as required to reduce generator load to 1.0 or less.

BUS OVERLOAD - GENERATOR BUSES (ONE GEN OUT LIGHT ILLUMINATED, GND FAULT CIRCUIT BREAKER TRIPPED, FLASHING MASTER WARNING LIGHTS)

- 1. Ground fault circuit breaker Reset (one time).
- 2. Affected generator RESET, then ON.

BOTH GEN OUT LIGHTS ILLUMINATED

- 1. Generators RESET, then ON.
- 2. Generators (GEN OUT lights remain illuminated) OFF.
- 3. All nonessential electrical equipment OFF.
- 4. Land as soon as practicable.

INVERTER OUT LIGHT ILLUMINATED

- Inverter Select other inverter.
- Inverter control circuit breakers Reset.
- 3. Inverter lights remain illuminated Return to original inverter.
- 4. Inverter lights still remain illuminated Inverter OFF.
- 5. TACAN OFF.
- 6. Land as soon as practicable.

BATTERY MONITOR LIGHT ILLUMINATED

- 1. Battery switch OFF.
- Loadmeter Check.
- 3. Battery condition good Battery switch ON.
- 4. Battery condition unsatisfactory Battery ON for flap and landing gear extension only.
- 5. Battery OFF.

FLIGHT CONTROLS MALFUNCTION

(Unscheduled Electric Elevator Trim)

- 1. AP DISC/INTER switch Depress and hold.
- 2. ELEV TRIM circuit breaker Pulled.

DOOR OPEN LIGHT ILLUMINATED

- Do not attempt to close door.
- 2. Land as soon as practicable.

SPLIT FLAP CONDITION

- 1. Aileron/rudder As required.
- 2. Power Asymmetric power as required to maintain aircraft control.
- 3. Flaps Extend/retract to symmetric configuration, if possible.

EMERGENCY DESCENT

- 1. Power-IDLE.
- 2. Propellers HIGH RPM.
- 3. <u>Gear DN.</u>
- 4. Flaps Approach.
- 5. Airspeed 156 KCAS (154 KIAS) (maximum).

LANDING EMERGENCIES

LANDING GEAR SYSTEM FAILURE

- 1. Gear control circuit breaker Check.
- 2. Gear indicator circuit breaker Check.
- Gear power circuit breaker Check.
- Gear indicators Check.
- 5. Gear handle UP, then DN.
- 6. Gear position Check (use air-to-air or air-to-ground fly-by method for visual landing gear position verification).

LANDING GEAR EMERGENCY EXTENSION

- 1. Airspeed Below 156 KCAS (154 KIAS).
- 2. Gear power circuit breaker Out (pulled).
- Gear handle DN.
- 4. Gear emergency clutch disengage lever Pull up and turn clockwise.
- 5. Gear emergency extension handle Pump the handle up and down until the three GEAR DOWN green lights illuminate. In the event of complete electrical failure, pump until resistance is felt.

GEAR-UP LANDING

- 1. Crew/passenger emergency briefing Complete.
- 2. Loose equipment Stow.
- 3. Seat belts and harnesses Secure.
- 4. Gear emergency clutch disengage lever Disengage.
- 5. Gear emergency extension handle Stow.
- 6. Gear control breaker In.
- 7. Gear handle UP.
- 8. Flaps As required.
- 9. Non-essential electrical equipment OFF.
- 10. Condition levers FUEL CUTOFF (on ground, when able).
- Master switch Down.

LANDING WITH MAIN GEAR DOWN, NOSE GEAR UP OR UNLOCKED

- 1. Crew/passenger emergency briefing Complete.
- 2. Loose equipment Stow.
- Seat belts and harnesses Secured.
- 4. Non-essential electrical equipment OFF.
- 5. Condition levers FUEL CUTOFF (on ground, when able).
- 6. Master switch Down.

LANDING WITH ONE MAIN GEAR UP OR UNLOCKED

- 1. Crew/passenger emergency briefing Complete.
- 2. Loose equipment Stow.
- 3. Seat belts and harnesses Secured.
- 4. Non-essential electrical equipment OFF.
- 5. Condition levers FUEL CUTOFF (aircraft on ground when able).
- 6. Master switch Down.

LANDING WITH FLAT TIRE

- 1. Land on side of runway favoring good tire.
- 2. Brake On good wheel only.
- 3. Flat nose tire Use light braking.

DITCHING

DITCHING PROCEDURE WITH POWER

- 1. Announce intention to ditch and time to impact.
- 2. Distress message Transmit.
- 3. Transponder Emergency.
- 4. Life vest Put on and adjust (do not inflate).
- 5. Seat belts/harnesses Secure (passengers in braced position).
- 6. Gear UP.
- 7. Flaps Down.
- 8. Airspeed 97 KCAS (100 KIAS).

DITCHING PROCEDURE WITHOUT POWER

- 1. Announce intention to ditch and time to impact.
- 2. Distress message Transmit
- Transponder Emergency.
- 4. Life vest Put on and adjust (do not inflate).
- 5. Seat belts/harnesses Secure (passengers in braced position).
- 6. Gear- Up.
- 7. Flaps APPROACH.
- 8. Airspeed 100 KIAS.

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BAILOUT

- 1. Radio Distress procedure (if time permits)
- 2. Voice security and transponder ZEROIZE.
- 3. Airspeed Reduce.
- 4. Flaps DOWN.
- 5. Trim As required.
- 6. Main entrance door OPEN.
- 7. Abandon the aircraft.

PERFORMANCE CHECKS

PITOT, STALL WARNING, FUEL VENTS AND BATTERY VENT HEAT SYSTEMS.

- 1. Pitot heat switch ON (check cover removed).
- 2. Stall warning heat switch ON.
- Fuel vent heat switches (2) ON.
- 4. Pitot tube Check by feel for heat and free of obstruction.
- 5. Stall warning vane Check by feel for heat, condition and operation.
- 6. Fuel vents (2) Check by feel for heat and obstructions.
- 7. Battery vents Check by feel for heat and obstructions.
- Pitot heat switch OFF.
- 9. Stall warning heat switch OFF.
- 10. Fuel vent heat switches (2) OFF.

AUXILIARY FUEL PUMPS AND CROSSFEED

- 1. Fuel fail lights Illuminated.
- Crossfeed CLOSED.
- 3. Auxiliary fuel pump ON. Check FUEL FAIL light extinguishes.
- 4. Crossfeed OPEN. Check that FUEL CROSSFEED light illuminates and the other FUEL FAIL light extinguishes.
- 5. Auxiliary fuel pump OFF.

AUTOPILOT SYSTEM CHECK

- 1. Verify that all autopilot modes are disengaged.
- Preflight TEST button (autopilot mode control panel) Press and hold.
- Autopilot mode annunciator panel displays Check all illuminated. TRIM display should flash at least four times, but no more than six times.
- 4. Aural trim alert Listen for sound.
- Yaw damp indicator light (autopilot mode control panel) -Check illuminated.
- 6. ARM and ALERT display (altitude selector panel) Check displayed.
- Computer flag (pilot's flight director indicator) Check in view.
- Preflight TEST button (autopilot mode control panel) -Release.
- 9. Manual electric trim system Check as follows:
 - (1) PITCH TRIM switch (pilot's control wheel) Move the left side of the trim switch to the forward and aft position, while moving the pitch-trim control wheel. The pitch-trim solenoid should engage making it more difficult to move the pitch-trim control wheel, but the electric trim motor should not run. Move the right side of the trim switch to the forward and aft positions. The pitch-trim solenoid should not engage and the electric trim motor should not run.

- (2) Overpower capability Check by moving the pilot's PITCH TRIM switch to the forward and aft positions while holding the manual pitch-trim control wheel.
- (3) TRIM TEST switch (pedestal extension) Depress and hold while operating the electric trim up and down using the pilot's PITCH TRIM switch (control wheel).
- (4) TRIM annunciator display (autopilot annunciator panel) Check displayed.
- (5) Aural trim alert Listen for sound.
- (6) TRIM TEST switch (pedestal extension) Release.
- (7) Autopilot AP DISC/TRIM INTER switch (control wheel) Depress and hold. Attempt to run the electric trim up and down using the pilot's PITCH TRIM switch (control wheel). The trim system should not run either UP or DOWN.
- (8) Repeat steps 1 through 6 using the copilot's PITCH TRIM switch.
- (9) Pilot's and copilot's PITCH TRIM switches Simultaneously move the pilot's switch forward and the copilot's switch aft. The electric trim should run up.
- Flight director switch (FD) (autopilot mode control panel) -Press on.
- 11. Autopilot switch (AP) (autopilot mode control panel) ON.

- 12. Control wheel steering switch (CWS) (control wheel) Depress and hold.
- 13. Control wheel Manually move to neutral position.
- 14. Control wheel steering switch (CWS) Release.
- 15. Control wheel Apply force to all axes. Determine that autopilot can be overpowered.
- 16. Autopilot AP DISC/TRIM INTER (control wheel) Depress to disconnect autopilot.
- 17. Manual trim Set for takeoff.
- 18. Autopilot switch (AP) (autopilot mode control panel) ON.
- ROLL TEST switch (control pedestal) Hold to LT position for approximately two seconds. Autopilot should disconnect and the aural alert should sound.
- 20. Autopilot switch (AP) (autopilot mode control panel) ON.
- ROLL TEST switch (control pedestal) Hold to RT position for approximately two seconds. Autopilot should disconnect and the aural alert should sound.
- 22. Autopilot switch (AP) (autopilot mode control panel) ON.
- PITCH TEST switch (control pedestal) Hold to UP position for approximately two seconds. Autopilot should disconnect and the aural alert should sound.

- 24. Autopilot switch (AP) (autopilot mode control panel) ON.
- 25. PITCH TEST switch (control pedestal) Hold to DN position for approximately two seconds. Autopilot should disconnect and the aural alert should sound.
- 26. Autopilot switch (AP) (autopilot mode control panel) ON.
- 27. Vertical trim control (autopilot mode control panel) Move to insert a pitch-up command.
- 28. Control wheel Hold to keep from moving and observe that the trim wheel moves in the nose up direction after a three second delay.
- Control wheel steering switch (CWS) (control wheel) -Depress momentarily.
- 30. Vertical trim control (autopilot mode control panel) Move to insert a pitch-down command.
- 31. Control wheel Hold to keep from moving and observe that the trim wheel moves in the nose down direction after a three second delay.
- 32. Control wheel steering switch (CWS) (control wheel) Depress and center the control wheel about the roll axis, then release.
- Heading switch (HDG) (autopilot mode control panel) Press on.
- Heading select bug (horizontal situation indicator) Set bug to command a right turn. The control wheel should rotate clockwise.

- 35. Heading select bug (horizontal situation indicator) Set bug to command a left turn. The control wheel should rotate counterclockwise.
- 36. Autopilot switch (AP) (autopilot mode control panel) OFF.
- Flight director switch (FD) (autopilot mode control panel) -Disengage.
- 38. PITCH TRIM switch (control wheel) Move aft until a full nose-up trim position has been attained, then move switch forward and simultaneously begin timing. When the full nose-down trim position has been attained release switch and note time. The time required for trim system to run from full nose up to full nose down should be 45 ± 9 seconds.
- 39. If the autopilot fails the preflight test, the AUTOPILOT circuit breaker must be pulled. However, manual electric trim may still be used. If the electric trim system fails the preflight test the ELEC TRIM circuit breaker must be pulled and neither the electric trim nor the autopilot may be used.

GROUND PROXIMITY ALTITUDE ADVISORY SYSTEM

- GPAAS voice advisory VOL control Full clockwise.
- 2. VOICE OFF switch-indicator Extinguished.
- 3. Audio control panel Set listening audio level.
- 4. VA FAIL annunciator light Extinguished.
- Radio altimeter DH SET control Set 200 feet.
- 6. Radio altimeter TEST switch Press and hold. "Minimum, minimum" will be announced once followed by the illumination of the VA FAIL light.

7. Radio altimeter TEST switch - Release.

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OXYGEN SYSTEM

- Cockpit oxygen supply valve (left cockpit sidewall) As required.
- Cabin oxygen supply valve (left cockpit sidewall) As required.
- 3. Oxygen supply pressure gage (left cockpit sidewall) Check.
- Oxygen supply pressure gage (regulator control panel) 300 to 400 PSI.
- 5. Supply control lever (green) ON.
- 6. Diluter control lever (white) 100% OXYGEN.
- 7. Emergency pressure control lever (red) NORMAL.
- 8. Oxygen mask hose Connect to mask hose connection.
- Emergency pressure control lever (red) Set to TEST MASK position while holding mask directly away from your face, then return lever to NORMAL.
- 10. Oxygen mask Put on and adjust to face.
- Emergency pressure control lever (red) Set to TEST MASK position and check mask for leaks, then return lever to NORMAL.
- Flow indicator Check (during inhalation blinker appears, during exhalation blinker disappears). Repeat a minimum of 3 times.

FUEL TRANSFER PUMPS

- 1. Transfer test switch Hold to "R".
- 2. Right transfer pump switch (while watching annunciator panel) ON.
- 3. Monitor R FUEL XFR light Check for momentary flash.
- 4. Repeat check procedure for left transfer pump system.

ENGINE AUTOIGNITION

- 1. Power levers Advance to above 450 ft-lb torque.
- 2. Autoignition ARM (check green IGNITION ARM lights illuminated).
- Power levers Retard to less than 350 ft-lb torque (annunciator L and R IGN ON lights illuminated, green IGNITION ARM lights extinguished).
- 4. Autoignition OFF.
- Power levers IDLE.

PROPELLER MANUAL FEATHERING CHECK

Propeller manual feathering - Check by pulling propeller levers aft through detent to FEATHER. Check that propeller will feather, then advance to HIGH RPM.

PROPELLER AUTOFEATHER SYSTEM

- 1. Power levers IDLE.
- Autofeather test switch TEST. Check AUTOFEATHER lights do not illuminate. If switch is held in TEST position, propellers will gradually feather.
- 3. Power levers Advance to 500 ft-lb torque.
- 4. Autofeather test switch TEST. Hold to test position and check both AUTOFEATHER lights illuminated; retard one power lever. At 350 to 450 ft-lb torque, check opposite AUTOFEATHER light extinguished. At 160 to 290 ft-lb torque, check both AUTOFEATHER lights extinguished; check propeller starts to feather.
- 5. Power lever Return to 500 ft-lb torque.
- 6. Repeat steps 4 and 5 using the other power lever.
- 7. Propeller autofeather test switch ARM.
- 8. Both power levers Advance to 88% to 92% N₁ (observe ITT and torque limits). Check both AUTOFEATHER lights illuminated. Retard each power lever individually below 88% to 92% N₁. Check both AUTOFEATHER lights extinguished.

OVERSPEED GOVERNOR

Check by setting RPM to 2100. Hold PROP GOV TEST switches UP. RPM should decrease TO 1980 to 2060. Release test switches. RPM should return to 2100.

PRIMARY GOVERNOR

Set 1900 RPM with power levers. Retard propeller levers to detent position. Check for 1725 to 1775 RPM then advance propeller levers to HIGH RPM.

SECONDARY IDLE STOP

Check with condition levers in HIGH IDLE and power levers at IDLE, then while holding the secondary idle stop test switches down, move power levers slowly toward REVERSE in one continuous movement, while observing that the SECONDARY LOW PITCH STOP lights illuminate and an RPM rise of 170 to 250 is obtained. Release the test switch and RPM should increase. Return power levers to normal idle position and cancel lights in annunciator panel by actuating secondary flight idle test switch if they remain illuminated.

INLET AIR SEPARATOR

- 1. Inlet air separator switch AUTO. Observe the following:
 - (1) Torque should decrease on both engines.
 - (2) ITT should increase on both engines.
 - (3) MASTER CAUTION lights will flash, and the PARTICLE SEPARATOR light will illuminate.
- Inlet air separator switch OFF. Monitor for deactivation of both left and right systems. The torque and ITT should return to initial values, the PARTICLE SEPARATOR light should extinguish, and the MASTER CAUTION lights should stop flashing after reset.

HEALTH INDICATOR TEST (HIT)

Deleted.

CREW/PASSENGER BRIEFING

CREW INTRODUCTION

EQUIPMENT

- 1. Personal to include ID tags.
- Professional.
- 3. Survival.

FLIGHT DATA

- 1. Route.
- 2. Altitude.
- 3. Time en route.
- 4. Weather.

NORMAL PROCEDURES

- 1. Entry and exit of aircraft.
- 2. Seating.
- Seat belts.
- 4. Movement in aircraft.
- 5. Internal communications.
- 6. Security of equipment.
- 7. Smoking.
- 8. Oxygen.
- 9. Refueling.
- 10. Weapons.

- 11. Protective masks.
- 12. Parachutes.

EMERGENCY PROCEDURES

- 1. Emergency exits
- 2. Emergency equipment.
- 3. Emergency landing/ditching procedures.
- 4. Bail out.

The Metric System and Equivalents

Linear Measure

- 1 centimeter = 10 millimeters = .39 inch
- 1 decimeter = 10 centimeters = 3.94 inches
- 1 meter = 10 decimeters = 39.37 inches
- 1 dekameter = 10 meters = 32.8 feet
- 1 hectometer = 10 dekameters = 328.08 feet
- 1 kilometer = 10 hectometers = 3,280.8 feet

Weights

- 1 centigram = 10 milligrams = .15 grain
- 1 decigram = 10 centigrams = 1.54 grains
- 1 gram = 10 decigrams = .035 ounce
- 1 dekagram = 10 grams = .35 ounce
- 1 hectogram = 10 dekagrams = 3.52 ounces
- 1 kilogram = 10 hectograms = 2.2 pounds
- 1 quintal = 100 kilograms = 220.46 pounds
- 1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

- 1 centiliter = 10 milliliters = .34 fl. ounce
- 1 deciliter = 10 centiliters = 3.38 fl. ounces
- 1 liter = 10 deciliters = 33.81 fl. ounces
- 1 dekaliter = 10 liters = 2.64 gallons
- 1 hectoliter = 10 dekaliters = 26.42 gallons
- 1 kiloliter = 10 hectoliters = 264.18 gallons

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