

NOTE

Single-engine taxi operations have not been demonstrated to provide adequate directional control under all conditions without the optional power steering installed.

Care must be exercised when taxiing on unimproved surfaces. Never taxi with a flat tire or flat shock strut. If possible, conduct runup on a hard surface free of sand and gravel to preclude pitting of the propeller blades and airplane surfaces.

BEFORE TAKEOFF (RUNUP)

Items marked with an "*" an may be omitted at pilot's discretion after the first flight of each day.

1. Compass System CONFIRM SLAVED
2. Avionics CHECK
- * 3. Flight Director (if installed) CHECK
4. Autopilot (if installed) CHECK
- * 5. Yaw Damp (no autopilot installed) CHECK
 - a. Yaw Damp ON
 - b. AP/Trim Disconnect PRESS TO FIRST LEVEL AND
CHECK THAT YAW DAMP DISENGAGES
 - c. Yaw Damp ON
 - d. YD ENG Annunciator PRESS AND CHECK THAT
YAW DAMP DISENGAGES

NOTE

If Yaw Damp fails to disengage during test, place YAW DAMP switch to OFF position and do not engage during flight.

- * 6. Radar (if installed) CHECK
7. Cockpit Voice Recorder (if installed) CHECK
 - * a. Headset PLUG INTO CVR JACK
 - b. CVR TEST Button PRESS AND HOLD
(5 seconds minimum)
 - Observe meter needle in green band.
 - Listen for test tone in headset.
 - * c. Speak into area mic on glareshield. Voice should play back into headset after approximately 1/2 second delay.
 - d. ERASE Button PRESS AND HOLD
(2 seconds minimum)

8. Pressurization CHECK AND SET
- * a. Cabin Altitude ADJUST SO THAT CABIN ALT DIAL INDICATES AN ALTITUDE 1,000 FEET BELOW FIELD PRESSURE ALTITUDE.
 - b. Rate Control SET INDEX AT 12-O'CLOCK POSITION.
 - * c. Cabin Pressure Switch HOLD IN TEST
 - * d. Cabin Altitude Indicator CHECK FOR DESCENT INDICATION (may take up to 45 seconds)
 - * e. Cabin Pressure Switch (when pressurizing is confirmed) RELEASE TO PRESS
 - f. Cabin Controller ADJUST SO THAT INNER SCALE (ACFT ALT) IS SET AT PLANNED CRUISE ALTITUDE PLUS 1,000 FEET (If this setting does not result in an outer scale (CABIN ALT) indication of at least 500 feet above take-off field pressure altitude, adjust as required.)
- * 9. Environmental System CHECK
- a. Environmental Mode Control "T" Test (L and R ENVIR FAIL, L and R ENVIR OFF Annunciators - ILLUMINATED)
 - b. Environmental Mode Control AUTO
 - c. Bleed Air Valves ENVIR OFF (L and R ENVIR FAIL Annunciators - EXTINGUISHED)
 - d. Bleed Air Valves OPEN (L and R ENVIR OFF Annunciators - EXTINGUISHED)
 - e. Vent Blowers AS DESIRED
 - f. Auto Temp AS DESIRED

NOTE

If the ENVIR OFF annunciator remains illuminated after cycling the BLEED AIR VALVES to ENVIR OFF and back to OPEN, perform the following:

- 1) Bleed Air Valve (side opposite to illuminated ENVIR OFF annunciator) ENVIR OFF
- 2) ENVIR OFF Annunciator (non-selected Bleed Air Valve side) EXTINGUISHED
- 3) Bleed Air Valve OPEN

10. Electric TrimCHECK
 - a. Electric Trim ON
 - b. Pilot's and Copilot's Trim SwitchesCHECK
 - 1) Pilot's trim will override copilot's trim.
 - 2) Movement of only half of switch will not activate trim.
 - c. AP/Trim Disconnect. PRESS TO 2ND LEVEL AND RELEASE
 - 1) ELEC TRIM OFF Annunciator ILLUMINATED
 - 2) Electric Trim DEACTIVATED
 - d. Electric Trim OFF, THEN ON
(ELEC TRIM OFF Annunciator - EXTINGUISHED)

WARNING

Operation of the electric trim system should occur only by movement of pairs of switches. Any movement of the elevator trim wheel while depressing only one switch denotes a system malfunction. The elevator trim switch must then be turned OFF and flight conducted only by manual operation of the trim wheel.

11. Elevator Trim SET FOR TAKEOFF
12. Engine Control Friction Locks SET
13. Flaps SET
14. Flight Controls CHECK FOR FREEDOM OF MOVEMENT
AND PROPER DIRECTION OF TRAVEL
15. Systems For Icing Flight, if required.CHECK
- * 16. Overspeed Governors TEST
 - a. Propeller Levers FULL FORWARD
 - b. Prop Test Switch HOLD TO OVERSPEED
 - c. Power Levers INCREASE UNTIL PROPS ARE
STABILIZED AT 1520 TO 1610 RPM
 - d. Power Levers RETARD TO IDLE
 - e. Prop Test Switch RELEASE
- * 17. Low Pitch Solenoid. TEST
 - a. Power Levers IDLE (NOTE PROP RPM)
 - b. Prop Test Switch HOLD TO LOW PITCH
 - c. PROP RPM STABILIZED APPROX 200 RPM
BELOW VALUE IN STEP a.
 - d. Prop Test Switch RELEASE
 - e. PROP RPM VERIFY RETURNS TO VALUE IN STEP a.

- * 18. Primary Governors EXERCISE AT 1500 RPM
- * 19. Gyro Suction/Pneumatic Pressure CHECK AT 1500 RPM
 - a. Left Bleed Air Valve INST & ENVIR OFF
 - Suction in wide green arc, pressure at 17.5 - 18.5 psi.
 - b. Right Bleed Air Valve INST & ENVIR OFF
 - 1) Suction and Pressure ZERO
 - 2) L and R BL AIR FAIL Annunciators ILLUMINATED
 - c. Left Bleed Air Valve OPEN
 - 1) Suction in wide green arc, pressure at 17.5 - 18.5 psi.
 - 2) L and R BL AIR FAIL Annunciators EXTINGUISHED
 - d. Right Bleed Air Valve OPEN
- * 20. Autofeather CHECK
 - a. Power Levers SET APPROXIMATELY 700 FT-LBS TORQUE
 - b. Autofeather Switch HOLD IN TEST
(Both AUTOFEATHER Annunciators - ILLUMINATED)
 - c. Power Levers RETARD INDIVIDUALLY
 - 1) At Approximately 550 ft-lbs -
Opposite Annunciator EXTINGUISHED
 - 2) At Approximately 320 ft-lbs -
Both Annunciators EXTINGUISHED
(propeller starts to feather)

NOTE

Autofeather annunciator will cycle on and off with each fluctuation of torque as the propeller moves in and out of feather.

- d. Power Levers IDLE
(Both AUTOFEATHER Annunciators - EXTINGUISHED)
(neither propeller feathers)
- 21. Autofeather ARM
- 22. Manual Propeller Feathering CHECK
- 23. Fuel Quantity, Flight and Engine Instruments CHECK

BEFORE TAKEOFF (FINAL ITEMS)

- 1. Flaps CONFIRM SET
- 2. Trim CONFIRM SET
- 3. Stall Warning Heat CONFIRM ON
- 4. Pitot Heat ON
- 5. Brake Deice (if installed) OFF
- 6. Transponder ALT

7. Ice ProtectionAS REQUIRED
 - a. Engine Auto Ignition, if required ARM
 - b. Engine Anti-ice CONFIRM ON (If Required), or OFF
 - c. Windshield Anti-ice, if required NORMAL/HI
 - d. Prop Deice, if required. AUTO
 - e. Fuel Vent Heat, if required ON
 - f. Alternate Static Heat, if required ON
8. Bleed Air Valves. ENVIR OFF
9. Vent Blowers HI OR LOW
10. Environmental Mode Control OFF
11. Generator LoadCHECK
12. AnnunciatorsEXTINGUISHED OR CONSIDERED
 - Takeoff with the BATTERY CHARGE annunciator illuminated is permitted if a decreasing battery charge current is confirmed. Refer to the NICKEL-CADMIUM BATTERY CHECK procedure in this section.
13. Interior/Exterior LightsAS REQUIRED
14. V₁, V₂, Minimum Take-off PowerCONFIRM

CAUTION

Do not take off without sufficient fuel in the main tanks to successfully recover the airplane at a suitable airport in case Auxiliary Fuel Transfer renders the fuel in those tanks unusable.

TAKEOFF

When In Take-off Position:

1. Power Steering (if installed) OFF
2. Brakes HOLD
3. Power Levers SET TAKE-OFF TORQUE
4. AUTOFEATHER Annunciators. ILLUMINATED
5. BrakesRELEASE
6. Power Levers ADJUST AS REQUIRED TO MAINTAIN
TORQUE AND ITT WITHIN LIMITS

NOTE

Increasing airspeed will cause torque and ITT to increase.

7. V_R SpeedROTATE
8. Landing Gear (when safely airborne) UP
9. V₂ Speed MAINTAIN UNTIL CLEAR OF OBSTACLES
10. Flaps (if extended) UP

All airspeeds quoted in this section are *indicated airspeeds (IAS)* and assume zero instrument error.

AIRSPEDS FOR SAFE OPERATION (16,600 POUNDS)

Maximum Demonstrated Crosswind Component 25 Knots

Takeoff Speeds:**Flaps Up:**

Rotation (V_1) 112 Knots

50-ft Speed (V_2) 120 Knots

Flaps Takeoff:

Rotation (V_1) 108 Knots

50-ft Speed (V_2) 115 Knots

Flaps Approach:

Rotation (V_1) 105 Knots

50-ft Speed (V_2) 114 Knots

Two-Engine Best Angle-of-Climb (V_X) 120 Knots

Two-Engine Best Rate-of-Climb (V_Y) 135 Knots

Cruise Climb:

Sea Level to 10,000 feet 160 Knots

10,000 to 15,000 feet 150 Knots

15,000 to 20,000 feet 140 Knots

20,000 to 25,000 feet 130 Knots

Maneuvering Speed (V_A) 188 Knots

Turbulent Air Penetration 170 Knots

CAUTION

For turbulent air penetration, use an airspeed of 170 knots. Avoid over-action on the power levers. Turn off autopilot altitude hold. Keep wings level, maintain attitude and avoid use of trim. Do not chase airspeed and altitude. Penetration should be at an altitude which provides adequate maneuvering margins when severe turbulence is encountered.

Maximum Airspeed for Effective Windshield Anti-Icing 223 Knots

Normal Landing (16,100 Pounds) 113 Knots

Balked Landing Climb 113 Knots

Intentional One-Engine-Inoperative Speed (V_{SSE}) 105 Knots

Air Minimum Control Speed (V_{MCA}):

Flaps Up 96 Knots

Flaps Takeoff 91 Knots

Flaps Approach 89 Knots

6. Autofeather OFF
7. Propeller Sync OFF
8. Generator OFF
9. Electrical Load ENSURE WITHIN LIMITS
10. Bleed Air Valve INST & ENVIR OFF

ENGINE FIRE ON GROUND

Affected Engine:

1. Condition Lever FUEL CUTOFF
2. Firewall Fuel Valve PULL CLOSED
3. Ignition and Engine Start STARTER ONLY
4. Fire Extinguisher, if required ACTUATE

ENGINE FAILURE DURING TAKEOFF (AT or BELOW V_1) - TAKEOFF ABORTED

1. Power Levers GROUND FINE, THEN REVERSE IF DESIRED

WARNING

Extreme care must be exercised when using single-engine reverse on surfaces with reduced traction.

2. Brakes MAXIMUM
(or as required to achieve stopping distance)

NOTE

Normal taxi operations are not possible without the power steering option.

ENGINE FAILURE DURING TAKEOFF (AT or ABOVE V_1) - TAKEOFF CONTINUED

1. V_1 Speed ROTATE
2. Landing Gear (when positive climb established) UP
3. Airspeed MAINTAIN V_2 TO 400 FEET AGL
4. Propeller (Inoperative engine) VERIFY FEATHERED

NOTE

Do not retard the failed engine power lever until the autofeather system has completely stopped propeller rotation.

5. Airspeed (at 400 feet AGL minimum) INCREASE TO FLAPS UP V_{YSE}

6. Flaps UP
7. Climb To 1000 feet AGL and Accomplish the Following Cleanup Procedures (inoperative engine):
 - a. Condition Lever FUEL CUTOFF
 - b. Propeller Lever FEATHER
 - c. Firewall Fuel Valve PULL CLOSED
 - d. Engine Auto Ignition OFF
 - e. Autofeather OFF
 - f. Propeller Sync OFF
 - g. Generator OFF
8. Electrical Load ENSURE WITHIN LIMITS

ENGINE FAILURE IN FLIGHT BELOW AIR MINIMUM CONTROL SPEED (V_{MCA})

1. Reduce power on operative engine as required to maintain control.
2. Lower nose to accelerate above V_{MCA} .
3. Adjust power as required.
4. Secure affected engine as in ENGINE FIRE OR ENGINE FAILURE IN FLIGHT procedure.

OIL PRESSURE LOW (L or R OIL PRESS Annunciator)

1. Oil Pressure Gage CONFIRM BELOW 60 PSI
2. If Confirmed SECURE ENGINE OR LAND
AT THE NEAREST SUITABLE AIRPORT USING THE
MINIMUM POWER REQUIRED TO SUSTAIN FLIGHT

PROPELLER COLLISIONS DURING GROUND OPERATIONS

WARNING

During collisions, the higher the propeller RPM, the greater the risk of propeller blades, or portions of blades, separating from the propeller hub causing damage to the fuselage and physical harm to the passengers.

If maximum braking and maximum reverse are insufficient and a collision is imminent:

1. Power Levers GROUND FINE OR IDLE
2. Condition Levers FUEL CUTOFF

All airspeeds quoted in this section are *indicated airspeeds (IAS)* and assume zero instrument error.

NOTE

Immediate action procedures are delineated by bold type with the remaining procedures following. Emergency procedures have been formulated based on single pilot operation of the airplane.

EMERGENCY AIRSPEEDS (16,600 POUNDS)

One-Engine-Inoperative Best Angle-of-Climb (V_{XSE})	120 Knots
One-Engine-Inoperative Best Rate-of-Climb (V_{YSE})	125 Knots
Air Minimum Control Speeds (V_{MCA}):	
Flaps Up	96 Knots
Flaps Takeoff	91 Knots
Flaps Approach	89 Knots
One-Engine-Inoperative Enroute Climb	125 Knots
Emergency Descent	180 Knots
Maximum Range Glide	125 Knots

ENGINE FAILURE

NOTE

Although required one-engine-inoperative performance can be achieved with wings level, best performance will be obtained with the aircraft banked 3° to 5° into the operating engine while maintaining a constant heading.

ENGINE FIRE OR ENGINE FAILURE IN FLIGHT

NOTE

When operating on the ITT limit, placing the Bleed Air Valves to ENVIR OFF will decrease ITT, thereby allowing the pilot to select a higher power setting on the operating engine. The cabin will depressurize anytime the Bleed Air Valves are moved to the ENVIR OFF position.

Affected Engine:

- 1. Condition Lever** **FUEL CUTOFF**
- 2. Propeller Lever** **FEATHER**
- 3. Firewall Fuel Valve** **PULL CLOSED**
- 4. Fire Extinguisher, If required** **ACTUATE**
- 5. Engine Auto Ignition** **OFF**