SECTION 4

NORMAL PROCEDURES

TABLE OF CONTENTS

4.1 GENERAL

This section provides normal, amplified, and environmental operating procedures for normal operation of the airplane. Refer to Section 9, Supplements, for normal procedures provided by optional equipment manufacturers or other indicated systems.

4.2 AIRSPEEDS FOR NORMAL OPERATION

Airspeeds for normal operations are listed below. Unless otherwise noted, all airspeeds are based on a maximum takeoff weight of 8,000 lb (3628 kg) at sea level under ISA standard day conditions.

Rotate (V_R):
Normal Takeoff – Flaps T/O and UP ..... 90 KIAS

Takeoff at 50 Foot Obstacle (Gear UP):
Normal Climb-Out – Flaps T/O ..... 105 KIAS
Normal Climb-Out – Flaps UP ..... 108 KIAS

Best Angle Climb (V_X):
Best Angle Climb (V_X) ..... 116 KIAS

Climb (Flaps UP):
Best Rate Climb (V_Y) – (S.L.) ..... 150 KIAS
Best Rate Climb (V_Y) – (FL240) ..... 140 KIAS
Enroute Climb ..... 150 - 180 KIAS

Approach to Landing (V_{REF}) – Normal Mode:
(Based on Maximum Landing Weight of 7600 lb (3447 kg))
Approach – Flaps UP ..... 115 KIAS
Approach – Flaps T/O ..... 110 KIAS
Approach – Flaps FULL ..... 95 KIAS

Approach to Landing (V_{REF}) - Pusher Ice Mode:
Approach – Flaps T/O, 5,700 lb ..... 119 KIAS
Approach – Flaps T/O, 6,000 lb ..... 121 KIAS
Approach – Flaps T/O, 6,600 lb ..... 124 KIAS
Approach – Flaps T/O, 7,000 lb ..... 127 KIAS
Approach – Flaps T/O, 7,600 lb ..... 130 KIAS

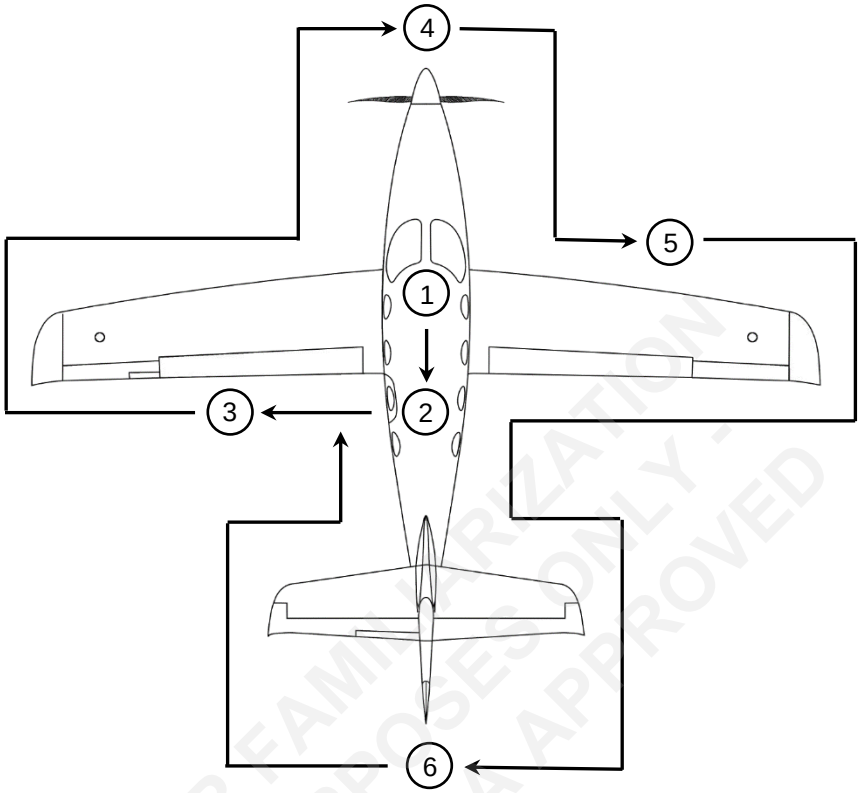
Balked Landing (Go-Around):
Takeoff Power, Gear Up, Flaps T/O: ..... 120 KIAS

Maximum Recommended Turbulent Air Penetration Speed:
All Weights ..... 170 KIAS

Maximum Demonstrated Crosswind for Takeoff and Landing:
Flaps UP ..... 15 KTS
Flaps T/O ..... 15 KTS
Flaps FULL (landing only) ..... 15 KTS

4.3 NORMAL PROCEDURES

4.3.1 PREFLIGHT INSPECTION



Area ①: Cockpit

1. Required Documents ..... ONBOARD
2. Fire Extinguisher ..... PRESSURE & SECURITY
3. Landing Gear Emergency Valve ..... DOWN, DOOR CLOSED
4. MAN OVRD Lever ..... STOWED
5. POWER Lever ..... IDLE

CAUTION

TO PREVENT DAMAGE TO ENGINE CONTROLS, DO NOT MOVE THE POWER LEVER AFT OF THE IDLE GATE WITH ENGINE NOT RUNNING.

6. PROP Lever ..... FEATHER
7. COND Lever ..... FUEL CUTOFF
8. Circuit Breakers ..... IN

CAUTION

DO NOT RESET ANY OPEN CIRCUIT BREAKERS WITHOUT CHECKING WITH MAINTENANCE.

9. ELT ..... ARMED
10. Landing Gear ..... DOWN
11. All Electrical Switches ..... OFF

12. BATT 1 & BATT 2 Switches ..... ON
13. BATT 1 & BATT 2 Voltages ..... 24.2 V MIN.

NOTE

If battery voltage is below 24.5 V or oil temperature is below 5°C (+41°F), a GPU assisted start is recommended.

14. Flaps ..... T/O
15. Fuel Quantity ..... NOTE
16. Fuel-On-Board Totalizer ..... FOB SYNC
17. Nitrogen Quantity ..... 1710 PSI MIN
18. Oxygen Quantity ..... AS REQUIRED (1500 PSI AT 21°C)
19. LAMP TEST Switch ..... PRESS, CHECK, RELEASE
20. PITOT STALL HT Switch ..... ON, WAIT 15 SECS, OFF
21. External Lights ..... ON, CHECK
22. Ice Detector ..... CLEAN/BLOCK SENSOR
23. External Lights ..... OFF
24. ICE Caution ..... VERIFY & CLEAR
25. BATT 1 & BATT 2 Switches ..... OFF

Area ②: Cabin

1. Seats and Seat Belts ..... CONDITION & SECURITY
2. Windows ..... CONDITION
3. Emergency Exit ..... LATCHED, LOCK PIN REMOVED

Area ③: Left Wing

1. Flap ..... CONDITION & SECURITY
2. Aileron ..... CONDITION & SECURITY
3. Aileron Trim Tab ..... CONDITION & SECURITY
4. Aileron Turbulators (20) ..... CONDITION & SECURITY
5. Static Wicks (2) ..... CONDITION & SECURITY
6. Fuel Tank Vent ..... CLEAR
7. Wing Tip, Lens, Lights ..... CONDITION
8. Pitot Tube ..... CLEAR
9. Fuel Quantity ..... CHECK VISUALLY
10. Fuel Filler Cap ..... CONDITION & SECURITY
11. De-Ice Boot ..... CONDITION & SECURITY
12. Leading Edge Turbulators (6) ..... CONDITION & SECURITY
13. SPS Lift Transducer ..... CONDITION & MOVEMENT
14. Leading Edge Stall Strips (2) ..... CONDITION & SECURITY
15. Lower Wing Surface ..... CONDITION
16. Lower Wing Vortex Generators (6) ..... CONDITION & SECURITY
17. OAT Probes ..... CONDITION
18. Ice Detector ..... CONDITION & CLEANLINESS
19. Fuel Tank Sump ..... SAMPLE FUEL
20. Main Gear Assembly and Tire ..... CONDITION

Area ④: Forward Fuselage / Nose

1. Left Inertial Separator Exit ..... CLEAR
2. Left Intercooler Inlet ..... CLEAR
3. Engine Oil Level ..... ABOVE MIN.
4. Left Exhaust Stack ..... CONDITION
5. Engine Cowling (Left Side) ..... SECURITY
6. Engine Inlet ..... CLEAR
7. Engine Inlet De-Ice Boot ..... CONDITION & SECURITY
8. Oil Cooler Inlet ..... CLEAR
9. Propeller/Spinner ..... CONDITION
10. Nose Gear Assembly and Tire ..... CONDITION
11. Engine Cowling (Right Side) ..... SECURITY
12. Right Exhaust Stack ..... CONDITION
13. Right Intercooler Inlet ..... CLEAR
14. Right Inertial Separator Exit ..... CLEAR

Area ⑤: Right Wing

1. Main Gear Assembly and Tire ..... CONDITION
2. Hydraulic Fluid Quantity ..... FULL
3. Fuel Tank Sump ..... SAMPLE FUEL
4. Lower Wing Vortex Generators (6) ..... CONDITION & SECURITY
5. Lower Wing Surface ..... CONDITION
6. Leading Edge Stall Strips (2) ..... CONDITION & SECURITY
7. SPS Lift Transducer ..... CONDITION & MOVEMENT
8. Leading Edge Turbulators (6) ..... CONDITION & SECURITY
9. De-Ice Boot ..... CONDITION & SECURITY
10. Fuel Quantity ..... CHECK VISUALLY
11. Fuel Filler Cap ..... CONDITION & SECURITY
12. Pitot Tube ..... CLEAR
13. Wing Tip, Lens, Lights ..... CONDITION
14. Fuel Tank Vent ..... CLEAR
15. Static Wicks (2) ..... CONDITION & SECURITY
16. Aileron Turbulators (20) ..... CONDITION & SECURITY
17. Aileron ..... CONDITION & SECURITY
18. Flap ..... CONDITION & SECURITY

Area ⑥: Rear Fuselage / Empennage

1. Emergency Exit ..... SECURITY
2. Right Static Ports ..... CONDITION & CLEAR
3. Air Conditioner Drain ..... CLEAR
4. Air Conditioner Inlet ..... CLEAR
5. Right Horizontal De-Ice Boot ..... CONDITION & SECURITY
6. Right Elevator ..... CONDITION & SECURITY
7. Right Elevator Static Wicks (2) ..... CONDITION & SECURITY
8. Rudder and Trim Tab ..... CONDITION & SECURITY
9. Rudder Static Wicks (2) ..... CONDITION & SECURITY
10. Left Elevator and Trim Tab ..... CONDITION & SECURITY
11. Left Elevator Static Wicks (2) ..... CONDITION & SECURITY
12. Left Horizontal De-Ice Boot ..... CONDITION & SECURITY
13. Air Conditioner Exhaust ..... CLEAR
14. Left Static Ports ..... CONDITION & CLEAR
15. Antennas ..... CONDITION & SECURITY
16. Main Entry Door Seals ..... CONDITION
17. Main Entry, Door, and Latches ..... CONDITION

Amplification

A thorough inspection of the airplane is recommended, especially if it was in long term storage, has recently undergone maintenance, or has been flown from unimproved airfields.

Before carrying out a preflight inspection, ensure that all required maintenance has been accomplished, review your flight plan, and compute weight and balance. Remove pitot tube covers, inlet covers, exhaust stack covers, and propeller tie-downs. Stow them appropriately.

Required documents:

- Pilot's Operating Handbook and FAA Approved Flight Manual
- Garmin G1000 NXi Cockpit Reference Guide
- L3 Avionics ESI-500 Electronic Standby Instrument System Pilot's Guide

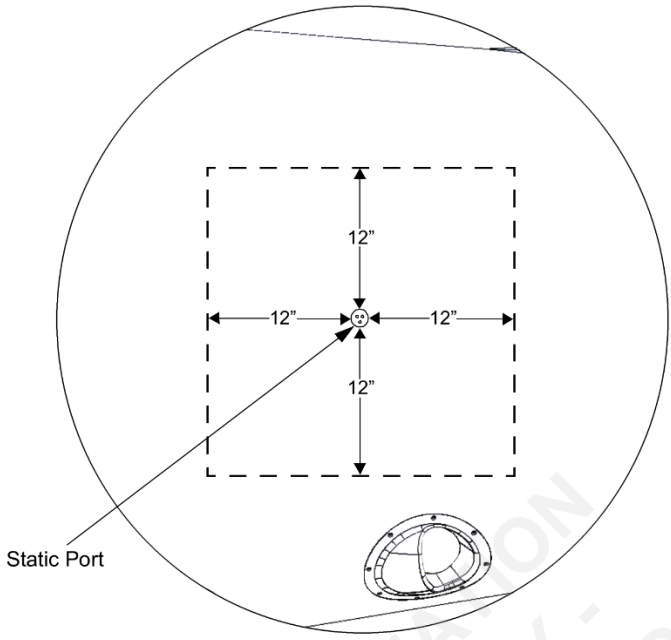
The fuel totalizer derives the current fuel remaining based on fuel flow from the time it is initialized. To increase redundancy between the fuel indicating systems, when possible, initialize the fuel totalizer to the quantity of fuel known to be in the tanks based on visual inspection (e.g., full tanks), or incrementally by the amount of fuel recently added.

CAUTION

REPEATED INCREMENTAL INITIALIZATION OF THE FUEL TOTALIZER MAY ACCUMULATE ERRORS IN THE DISPLAYED AMOUNT OF FUEL REMAINING.

Prior to high-altitude flights, pay particular attention to the condition of oxygen masks and hose connections and the quantity of oxygen. The oxygen system should be checked for functionality and supply prior to flight.

Prior to all flights in RVSM airspace, the airplane skin surface within 12 inches surrounding the static ports (RVSM Critical Region) must be inspected (on both the left and right sides of the airframe) for obvious damage or deformation, perhaps due to foreign objects, service vehicles, etc. The static port surface shall remain free of paint. The static ports must be inspected for abnormal elongation, deformation, and/or obstruction. Ensure that no foreign matter is found within the static pressure orifices.



RVSM Critical Area
Left side shown, right side opposite.

Throughout the external inspection, check all fairings, hinges, hinge pins, nuts, bolts, and cotter pins for security. Check skin for damage, condition, and evidence of delamination. Check all control surfaces for proper movement. Check areas around liquid reservoirs and lines for evidence of leaking. Remove any snow or ice from the wings, stabilizers, movable surfaces, engine inlet, landing gear wells, gear doors, flap hinges, and actuators and their fairings.

CAUTION

TAKE CARE NOT TO DAMAGE THE AIRFLOW MODIFICATION DEVICES WHEN REMOVING SNOW AND ICE FROM THE WINGS.

CAUTION

THE PITOT PROBES AND THE LIFT TRANSDUCERS CAN RAPIDLY BECOME VERY HOT.

Avoid damaging the de-ice boots when fueling the airplane. A protective apron should be used if possible.

The ice detector may be cleaned by wiping the reflective surface of the probe with a clean cloth to remove contaminants. If the aircraft is powered on while cleaning the ice-detector, the ICE caution will be displayed to confirm that the ice detector is functioning. The on-ground ICE caution can be dismissed by pressing the Alert softkey on either PFD.

NOTE

If the ICE caution does not clear there may be a problem with the ice detector. Clean the ice detector with isopropyl alcohol and a clean cloth and attempt to clear the ICE caution again.

After major maintenance, the flight controls and trim tabs should have free and correct movement and be securely attached. Following any maintenance, the security of all inspection plates on the wings, fuselage, and tail surfaces should be checked for dents and scratches, as well as external lights and antennas checked for damage. In windy or gusty areas, or when stored next to taxiing airplanes, control surface stops, hinges, and brackets should be checked to detect wind damage.

Verify the fuel tank filler caps are tightly sealed after any fueling or inspection. Fuel vents should also be verified clear of obstructions, ice or water, especially after exposure to wet weather.

If there is water in fuel system, drain it carefully using the two drain valves until every trace of water or contamination has been removed.

Long term storage of the airplane causes water accumulation in fuel. The accumulated water absorbs fuel additives decreasing their effectiveness. Refer to Section 8 for servicing procedures relative to fuel additives.

Improperly serviced or worn struts and dampers may result in excessive load transmission to the airplane structure during ground operations.

Propeller damage may reduce blade life and degrade performance. Any propeller damage should be referred to maintenance personnel. Visually inspect the deice boot for knicks or heating element delamination. Inspect heater wiring for condition at the root of the blade.

4.3.2 BEFORE STARTING ENGINE

1. Preflight Inspection ..... COMPLETE
2. Baggage ..... STOWED & SECURE
3. Passenger Briefing ..... COMPLETE
4. Main Entry Door ..... CLOSED & LATCHED
5. Seats ..... AS REQUIRED
6. All Occupants ..... SEATED WITH SEATBELTS SECURE
7. Glare Shield ..... STOWED
8. MAN OVRD Lever ..... STOWED
9. POWER Lever ..... IDLE

CAUTION

TO PREVENT DAMAGE TO ENGINE CONTROLS, DO NOT MOVE THE POWER LEVER AFT OF THE IDLE GATE WITH ENGINE NOT RUNNING.

10. PROP Lever ..... FEATHER
11. COND Lever ..... FUEL CUTOFF
12. Climate Controls ..... AS REQUIRED
13. LIGHTS and ICE Switches ..... MIN. REQUIRED
14. BATT 1 & BATT 2 Switches ..... ON
15. BATT 1 & BATT 2 Voltages ..... 24.2 V MINIMUM

16. *If using GPU:*
    a. GPU ..... CONNECT, ON
    b. BATT 1 Switch ..... OFF, THEN ON
    c. BATT 1 & BATT 2 Voltages ..... VERIFY INCREASE

17. Fuel-On-Board Totalizer ..... FOB SYNC

Amplification

It is the responsibility of the pilot in command to make sure that the airplane is correctly loaded within the weight and center of gravity limits prior to takeoff.

The required seat positions for taxi, takeoff, and landing are:

- All seatbacks in the upright position,
- Crew seat height set according to 7.3.6.2 CREW EYE REFERENCE HEIGHT, and
- Copilot seat in the full forward position if unoccupied.

WARNING

FAILURE TO CORRECTLY USE SEAT BELTS AND SHOULDER HARNESSES COULD RESULT IN SERIOUS OR FATAL INJURY IN THE EVENT OF AN ACCIDENT.

CAUTION

ENSURE THE MAN OVRD LEVER IS STOWED TO AVOID THE RISK OF OVER TEMPERATURE AT START.

When setting electrical switches prior to engine start, common practice is for the interior lights to be sufficient to illuminate the cockpit controls and switches, the navigation lights to be on with power (battery or GPU) and the anti-collision lights (strobes) to be turned on just before starting the engine. All other switches, including anti-ice, de-ice, ventilation fans, and air conditioning, should be turned off.

All PRE-TAXI and SYSTEMS switches, including PRESS AIR and STBY ALTN should be off during engine start.

CAUTION

LEAVING THE PRESS AIR SWITCH IN THE “ON” POSITION CAN RESULT IN A HOT START OR ABNORMAL ACCELERATION TO IDLE.

The use of a GPU is recommended when:

- The battery voltage is lower than 24.5V.
- Oil temperature below 5°C (+41°F).
- In cold weather when the airplane has been parked for more than 3 hours at a temperature below -10°C (+14°F).

If using a GPU, ensure it provides a 28-volt regulated voltage with negative on ground as well as supplying 800 amperes minimum and 1,000 amperes maximum. Refer to the placard near the ground power receptacle door.

CAUTION

VOLTAGE OF APPROXIMATELY 24.5V AFTER CONNECTING THE GPU MAY INDICATE THAT ONLY THE BATTERY IS POWERING THE AIRPLANE AND NOT THE GPU AND BATTERY TOGETHER. ENSURE A GPU IS CONNECTED AND POWERING THE AIRPLANE.

4.3.3 STARTING ENGINE

1. Exterior Lights ..... AS REQUIRED
2. Propeller Area ..... CLEAR
3. FUEL TANK SELECTOR Knob ..... LEFT
4. L FUEL PUMP Switch ..... ON
5. R FUEL PUMP Switch ..... ON
6. IGNITER Switch ..... ON
7. STARTER GEN Switch ..... ON
8. START Switch ..... PRESS & RELEASE
   a. Oil Pressure ..... VERIFY RISE
   b. N_G ..... 12% MINIMUM

9. *If oil pressure does not rise or N_G does not reach minimum speed:*
   a. DISCONTINUE ENGINE START (3.4.1).

10. COND Lever ..... LOW
11. FUEL FLOW Indicator ..... CHECK POSITIVE
12. ITT ..... MONITOR
    (870–1,000°C limited to 5 sec. 850–870°C limited to 20 sec.)

13. *If no light-off in 10 seconds or a rapid increase of ITT towards 1,000°C:*
    a. DISCONTINUE ENGINE START (3.4.1).

14. N_G ..... VERIFY STABLE ABOVE 51%

15. *If N_G stabilizes below 51% or ITT at idle approaches 750°C:*
    a. COND Lever ..... HIGH
    b. ITT ..... MONITOR

16. Engine Instruments ..... NORMAL
17. GEN AMP Indicator ..... VERIFY POSITIVE

18. *If GEN AMP indicator is not positive:*
    a. DISCONTINUE ENGINE START (3.4.1).

19. GPU (if applicable) ..... OFF, DISCONNECT
20. BATT 1 & BATT 2 Voltages ..... 26 V MINIMUM

Amplification

The engine start cycle occurs in three phases: spool-up, light-off, and accelerate-to-idle. Normally, a balance of air and fuel is maintained throughout the process to keep temperatures under control.

NOTE

Use of the starter is governed by the limitations defined in Section 2.4.1 STARTER.

During spool-up, the gas generator starts spinning and moving air through the combustion chamber. The voltage at the starter/generator should remain at or above 18V, and the starter/generator should accelerate N_G a minimum of 1 percent per second. If the voltage-drop or turbine acceleration during spool-up begin to approach these numbers, check the capacity of the batteries.

Once the oil pressure has been verified and the gas generator (N_G) has achieved a sufficient speed (12%), light-off is achieved by setting the COND lever to LOW or HIGH which introduces fuel to the combustion chambers to be lit by the igniters.

CAUTION

TURNING ON THE IGNITERS AFTER INTRODUCING FUEL IS LIKELY TO CAUSE A TEMPERATURE EXCEEDANCE AND DAMAGE THE ENGINE.

NOTE

COLD START (oil temp below 5°C) - Set COND Lever to HIGH as soon as N_G is above 12%. Set COND Lever to LOW when N_G is above 51%.

WARM START (ITT above 130°C) - After N_G has stabilized, wait until ITT approaches 130° C before COND Lever is set to LOW.

Initial light-off occurs with fuel flowing through the primary nozzles. As the engine accelerates through approximately 35% N_G, secondary nozzles open to provide more fuel to the engine. Expect an increase in ITT as the secondary nozzles open. Rapid acceleration through 35% N_G suggests a start with the secondary nozzles already open, in which case, anticipate a hot start.

During the final phase of starting, the engine accelerates to the selected idle speed. The starter disengages at approximately 48% N_G. The generator will shortly thereafter come online once it can produce a voltage higher than the output of the batteries.

CAUTION

IF THE FRICTION IS NOT SET TIGHT ENOUGH, THE PROPELLER LEVER MAY INADVERTENTLY CREEP FORWARD OUT OF FEATHER ON ENGINE START AND CAUSE THE AIRCRAFT TO MOVE FORWARD IF THE BRAKES ARE NOT HELD FIRM.

4.3.4 AFTER START/BEFORE TAXI

1. IGNITER Switch ..... AUTO
2. PRE-TAXI Switches ..... ALL ON
3. Climate Controls ..... AS REQUIRED
4. Crew Oxygen Masks ..... PRESSURIZED
5. Autopilot ..... TEST
   a. AFCS Preflight Test ..... COMPLETE
   b. Flight Controls ..... FREE & CORRECT
   c. AP Switch ..... PRESS
   d. Flight Controls ..... RESTRICTED & OVERRIDABLE
   e. AP/TRIM DISC Switch ..... PRESS & RELEASE
   f. Warning Tone ..... VERIFY
6. Stall Prevention System ..... TEST
   a. STALL TEST Switch ..... PRESS & HOLD
   b. Flight Controls ..... VERIFY SHAKE & PUSH
   c. AP/TRIM DISC Switch ..... PRESS TO OVERRIDE
   d. STALL TEST Switch ..... RELEASE
   e. [TRIM DISC] Caution ..... CHECK ON
   f. TRIM RESET Switch ..... PRESS & RELEASE
   g. [TRIM DISC] Caution ..... CHECK CLEAR
7. Flight Controls ..... FREE & CORRECT
8. Avionics/Navigation ..... SET
9. Altimeters ..... SET
10. Transponder ..... AS REQUIRED
11. Landing Field Elevation ..... VERIFY/SET

Amplification

After turning on the standby alternator, the [ALTERNATOR ON] Caution may appear, depending on the charge level of the batteries. This is considered normal whenever the COND lever is set to LOW.

During warm weather operations, it is acceptable to defer turning on PRESS AIR until the BEFORE TAKEOFF procedure to maintain a cooler cabin temperature.

Oxygen pressure and flow to the crew quick-don oxygen masks can be confirmed while turning on the oxygen bottle by listening for an audible whooshing sound and observing the in-line oxygen flow indicators.

The GFC™ 700 autopilot pre-flight test is conducted automatically, and during the test a [PFT] advisory will be displayed on the PFD. Upon successful completion of the preflight test, the white [PFT] advisory will disappear. Failure of the pre-flight test will be indicated with an [AFCS] Warning.

Avionics and Navigation set up includes tuning COM and NAV radios, programming the route of flight into the FMS flight plan, and selecting the appropriate navigation source on the PFD CDI.

4.3.5 TAXI

1. PROP Lever ..... MAX RPM
2. COND Lever ..... HIGH
3. ALTN AMP Indicator ..... ZERO
4. Control Lever Friction ..... ADJUSTED
5. TAXI Light ..... ON
6. POWER Lever ..... AS REQUIRED
7. Brakes ..... CHECK
8. Nose Wheel Steering ..... CHECK
9. Flight Instruments ..... CHECK
10. Standby Instrument ..... AGREES WITH PFD

Amplification

POWER lever BETA range can be used during taxi to control taxi speed and improve brake life. When stopped, the POWER lever should be returned to the IDLE position (just forward of the gate) to improve air flow over the oil cooler and to reduce propeller blade erosion.

WARNING

STABILIZED GROUND OPERATION WITHIN THE PROPELLER RESTRICTED RPM RANGE (400-900 RPM) CAN GENERATE HIGH PROPELLER STRESSES AND RESULT IN PROPELLER FAILURE, AND LOSS OF CONTROL OF THE AIRPLANE.

CAUTION

THE USE OF REVERSE THRUST SHOULD BE MINIMIZED, ESPECIALLY ON UNPREPARED SURFACES, TO MINIMIZE PROPELLER BLADE EROSION AND POSSIBLE DAMAGE.

NOTE

During low-speed taxi with a strong tailwind, or when stopped with a strong tailwind, a moderate vibration can occur as a result of reverse airflow through the propeller disk with the blades at a positive pitch angle. This vibration can be significantly reduced by placing the POWER lever in the BETA range, or it can be eliminated by turning the airplane into the wind.

NOTE

Strong quartering tail winds require caution. Avoid excessive use of power and sharp braking when the airplane is in this condition. Use the steerable nose wheel and rudder to maintain direction.

During ground turns, verify operation of attitude, slip-skid, heading, and rate-of-turn indicators on PFD1, PFD2, and the Standby Instrument.

4.3.6 BEFORE TAKEOFF

1. De-Ice Boot System ..... TEST
   (prior to flight into icing conditions)
   a. POWER Lever ..... 1500 RPM
   b. DE-ICE BOOTS Switch ..... ON
   c. De-Ice Boots ..... OBSERVE INFLATION & DEFLATION
   d. DE-ICE BOOTS Switch ..... OFF
2. Propeller Overspeed Governor ..... TEST
   (first flight of day)
   a. POWER Lever ..... 1700 RPM
   b. PROP GOV TEST Switch ..... PRESS & HOLD
   c. N_P ..... VERIFY RPM DROP & STABLE
   d. POWER Lever ..... IDLE
   e. PROP GOV TEST Switch ..... RELEASE
3. Inertial Separator System ..... TEST
   (prior to flight into icing conditions)
   a. INERT SEP Switch ..... ON
   b. INERET SEP ON Advisory ..... CHECK ON
   c. INERT SEP Switch ..... OFF
4. Flight Controls ..... FREE & CORRECT
5. Trims ..... SET FOR TAKEOFF
6. Flaps ..... T/O
7. Engine Instruments ..... NORMAL
8. Fuel Quantity, Balance ..... CHECK
9. Avionics / Navigation ..... SET
10. PRE-TAXI Switches ..... CHECK ON
11. SYSTEMS Switches ..... CHECK OFF
12. PROP Lever ..... MAX RPM
13. TO/GA Takeoff Check ..... COMPLETE
    a. TO/GA Switch ..... PRESS & HOLD
    b. TAKEOFF Annunciators ..... VERIFY ALL GREEN
    c. TO/GA Switch ..... RELEASE
14. Autopilot and Yaw Damper ..... OFF

Before taking runway:

15. IGNITER Switch ..... ON
16. PITOT STALL HT Switch ..... ON
17. External Lights ..... AS REQUIRED
18. CAS Messages ..... NO RED OR AMBER MSGS

Amplification

Normal trim position for takeoff is as follows

Pitch Trim ..... CENTER
Roll Trim ..... CENTER
Rudder Trim ..... FULL RIGHT

The FUEL AUTO SEL switch is normally ON for all flight operations. However, it can be turned OFF as required to manually balance the fuel load. As soon as the fuel load is balanced, FUEL AUTO SEL switch should be turned ON again.

CAUTION

DO NOT EXCEED 20 GALLONS FUEL IMBALANCE IN FLIGHT.

NOTE

To obtain accurate fuel quantity indicator readings, verify the airplane is parked in a laterally level condition, or, if in flight, make sure the airplane is in a coordinated and stabilized condition.

The PITOT STALL HT system should be on for all normal operations in flight.

4.3.7 TAKEOFF

1. Nose Wheel.....CENTERED & COUPLED
2. Brakes ..... HOLD
3. POWER Lever.....MAXIMUM TAKEOFF POWER
4. Engine Instruments.....NORMAL
5. Brakes .....RELEASE
6. Rotate..... 90 KIAS
7. Initial Pitch Attitude .....12.5° UP
8. Vertical Speed Indicator .....POSITIVE
9. Brakes ..... APPLY BRIEFLY
10. Landing Gear ..... UP
11. Flaps..... UP

Amplification

Refer to the Maximum Engine Torque for Takeoff chart in Section 5 to determine the torque corresponding to the surface altitude and OAT conditions. This torque should be obtainable without exceeding 850°C ITT or 104% Ng.

Ensure that the nose steering is centered and coupled as you line up for takeoff. Initiating a takeoff roll without the nose steering coupled will make it difficult to maintain runway centerline.

As engine power is brought up to MAXIMUM TAKEOFF POWER, if any amber or red CAS messages appear, abort the takeoff.

Landing gear is retracted when there is a positive rate of climb and no more runway is available for an immediate landing. Recommended minimum speed for flaps UP is 120 KIAS.

CROSSWIND TAKEOFF

Takeoff in strong crosswinds are performed using normal takeoff configuration and procedures.

4.3.8 CLIMB

1. Yaw Damper ..... AS REQUIRED
2. Best Rate of Climb Speed (V_Y, S.L. to FL240) ..... 150 KIAS
3. Best Rate of Climb Speed (V_Y, above FL240) ..... 140 KIAS
4. Cruise Climb Speed ..... 150 – 180 KIAS
5. POWER Lever ..... MAXIMUM CLIMB POWER
6. Engine Instruments ..... MONITOR
7. Pressurization ..... CHECK
8. IGNITER Switch ..... AUTO
9. External lights ..... AS REQUIRED
10. ICE Switches ..... AS REQUIRED

Amplification

Frequent trim changes may be required as the airplane accelerates to climb speed. The yaw damper (YD) may be engaged to assist with rudder trim changes.

Normally, maximum climb power is maintained during the climb to cruise altitude. Adjust the POWER lever as required to prevent exceeding Maximum Climb Torque found in Section 5, maximum climb ITT of 840°C, or maximum climb Ng of 104%, whichever occurs first.

As torque is reduced below 83.3% at high altitude according to the torque tables, ITT will remain approximately constant during the final climb, establishing a typical climb ITT value for the particular engine being operated. This typical climb ITT for a particular engine will increase over the life of the engine, reducing the margin between this indicated ITT and the maximum climb ITT limit of 840°C.

For simplified engine operation during climb, power may be set first by torque, using 83.3%, then to maintain ITT at or below the typical climb ITT value for the particular engine being operated.

The PROP Lever should remain full forward (1700 RPM) for climb.

CAUTION

5 MINUTES AFTER TAKEOFF, MAXIMUM CLIMB POWER RATING IS 1000 SHP (83.3% TQ @ 1700 RPM). MONITOR ENGINE PARAMETERS DURING CLIMB AND REDUCE POWER AS NECESSARY TO REMAIN WITHIN LIMITATIONS.

CAUTION

SET IGNITER AND INERT SEP SWITCHES TO “ON” IF THERE IS VISIBLE MOISTURE (CLOUDS, RAIN, ETC.) WITH AN OAT OF 5°C (41°F) OR LESS.

When operating near the ITT limit, advance POWER lever slowly to allow the current ITT to be indicated. The rate of power and temperature increase of the engine is faster than the response rate of the ITT indicating system; therefore, a rapid POWER lever advance could cause a momentary over-temperature condition in the engine before the over-temperature would be indicated.

For a maximum performance climb, Best Rate of Climb Speed is recommended during instrument departures.

The following cruise climb speeds provide improved visibility over the nose and increased passenger comfort:

Below 10,000 ft MSL	180 KIAS
10,000 ft to FL200 MSL	170 KIAS
FL200 to FL300 MSL	160 KIAS
Above FL300 MSL	150 KIAS

Pressurization should be monitored throughout the climb.

4.3.9 CRUISE

1. POWER Lever ..... MAXIMUM CRUISE POWER OR LESS
2. Engine Instruments ..... MONITOR
3. Pressurization ..... MONITOR
4. Fuel Quantity, Balance ..... MONITOR
5. ICE Switches ..... AS REQUIRED

Amplification

Cruise is performed using any desired power setting up to the maximum cruise power (observe ITT, torque, and N_G cruise limits). Refer to cruise torque values in the cruise performance tables.

NOTE

Normal Cruise is recommended for engine longevity.

Do not exceed the maximum cruise torque or 840°C ITT shown in Cruise Performance charts in Section 5 for the particular altitude and temperature.

Propeller RPM may be reduced in order to provide for passenger comfort. Minimum recommended N_P in cruise is 1500 RPM.

CAUTION

SWITCH “IGNITER” AND “INERT SEP” TO “ON” IF THERE IS HEAVY PRECIPITATION.

4.3.10 DESCENT

1. POWER Lever ..... AS REQUIRED
2. Altimeters ..... SET
3. External Lights ..... AS REQUIRED
4. ICE Switches ..... AS REQUIRED
5. CLIMATE Controls ..... AS REQUIRED
6. Landing Field Elevation ..... SET

Amplification

Without pilot input, engine power will increase in the descent. Periodic reductions in the POWER Lever may be necessary to prevent exceeding torque, ITT, N_G and/or airspeed limitations.

4.3.11 BEFORE LANDING

Approach Check:

1. Seats ..... AS REQUIRED
2. All Occupants ..... SEATED WITH SEATBELTS SECURE
3. Glare Shield ..... STOWED
4. PROP Lever ..... MAX RPM
5. COND Lever ..... HIGH
6. IGNITER Switch ..... ON
7. Flaps ..... FULL (OR AS REQUIRED)
8. Landing Gear ..... DOWN

CAUTION

EXTENDING OR RETRACTING THE LANDING GEAR AT BANK ANGLES IN EXCESS OF 45 DEGREES IS PROHIBITED.

9. Brakes ..... CHECK PEDAL PRESSURE

Landing Check:

10. Cabin ..... DEPRESSURIZED
11. Autopilot and Yaw Damper ..... OFF
12. Rudder Trim ..... CENTERED
13. Pusher Ice Mode Alert ..... CHECK IF ACTIVE
14. Approach Speeds:

		SPS/PUSHER	
		NORMAL MODE	ICE MODE
Flaps	UP	115 KIAS	-
	T/O	110 KIAS	122 - 133 KIAS
	FULL	95 KIAS	-

Amplification

The required seat positions for taxi, takeoff, and landing are:

- All seatbacks in the upright position,
- Crew seat height set according to 7.3.6.2 CREW EYE REFERENCE HEIGHT, and
- Copilot seat in the full forward position if unoccupied.

Normal landings are accomplished with FLAPS in the FULL position to minimize touchdown speed and subsequent need for braking.

Landing with FLAPS in the T/O position may be performed to maintain a stabilized approach during low instrument meteorological conditions.

Landing with FLAPS in the UP position should be reserved for abnormal situations or training purposes.

During landing gear extension, the *HYD PRESS* Caution illuminates if the pump is in the pressurizing mode (versus the re-circulation mode) for more than 20 seconds. This CAS Caution extinguishes when the pressure switch setting is reached (the system is then pressurized and the pump enters circulation mode).

After extending the landing gear, pump the brake pedals to ensure they remain firm. Any softness, fade, or collapse indicates a hydraulic failure of the brakes.

To ensure positive and rapid engine response to throttle movement a minimum of 10% torque on final approach is recommended until landing is assured.

4.3.12 LANDING

1. POWER Lever ..... IDLE

After touchdown:
2. POWER Lever ..... GROUND FINE, REVERSE AS DESIRED
3. Brakes ..... AS REQUIRED

Amplification

Touchdown should be made with idle power and on the main wheels first. The nose wheel is then gently lowered to the runway, and the POWER lever repositioned to ground fine (just aft of the lift gate), and then reverse, with brakes applied as required.

CAUTION

USE OF REVERSE BELOW 40 KIAS IS NOT RECOMMENDED ON A SNOWY OR CONTAMINATED RUNWAY.

Clearing the runway, reposition the POWER lever to the ground fine position (just aft of the lift gate for zero-thrust or slightly forward-thrust) position in the BETA range. This will reduce braking requirements during taxi.

Short field landings are performed by applying maximum reverse and braking after touchdown. Exercise caution to avoid skidding the tires with heavy braking.

CROSSWIND LANDING

Just before the round out (flare) is started, transition to a wing-low (sideslip) attitude to keep the airplane's ground track and longitudinal axis aligned with the runway centerline throughout the round out, touchdown, and after-landing roll.

If you cannot align the airplane with the runway with full rudder in the sideslip, the wind is too strong to safely land the airplane on that particular runway with those wind conditions.

Touch down with zero sideward motion and on the upwind main wheel to avoid imposing damaging side loads on the landing gear. Center the rudder pedals just before the nose wheel touches down.

As the airplane decelerates in the after-landing roll, maintain directional control with rudder and nose-wheel steering, and apply full aileron into the wind to prevent the upwind wing from rising.

PUSHER ICE MODE LANDING

If a landing must be made in Pusher Ice Mode due to icing conditions or ice accumulation remaining on the airframe, reference Section 4.2 AIRSPEEDS FOR NORMAL OPERATION to find the applicable Pusher Ice Mode approach speed based on landing weight.

CAUTION

WHEN LANDING IN PUSHER ICE MODE INCREASE LANDING DISTANCE BY 20%.

4.3.13 BALKED LANDING/GO-AROUND

1. AP/TRIM DISC Switch ..... PRESS & RELEASE
2. TO/GA Switch ..... PRESS & RELEASE
3. POWER Lever ..... MAXIMUM TAKEOFF POWER
4. Pitch Attitude ..... 7.5°
5. Vertical Speed Indicator ..... POSITIVE
6. Flaps ..... T/O
7. Landing Gear ..... UP
8. Flaps ..... AS REQUIRED

CAUTION

A RAPID INCREASE IN POWER MAY CAUSE SIGNIFICANT PITCHING AND YAWING MOMENTS. APPLY POWER SMOOTHLY WHILE MAINTAINING POSITIVE CONTROL OF THE AIRPLANE.

NOTE

When performing a balked landing/go-around with ice observed on the airplane, flaps must not be retracted to the UP position until the airframe is clear of ice.

Amplification

Landing gear is retracted when there is a positive rate of climb. Recommended minimum speed for flaps UP when not in icing conditions is 120 KIAS.