
Expanded Normal Procedures

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Normal Procedures

Before Starting Engines (Power Off)

Preflight Inspection COMPLETE

Cabin Door CLOSE/KEYS

Check green indicators for proper door pin position. Ensure handle is vertical and in the detent position. Ensure aircraft keys are accounted for.

Passenger Briefing COMPLETE

According to Part 91.519 requirements, the pilot-in-command (PIC) or a crewmember briefs passengers on smoking, use of safety belts, location and operation of passenger entry door and emergency exits, location and use of survival equipment, and normal and emergency use of oxygen equipment. For flights over water, the briefing should include ditching procedures and the use of flotation equipment.

An exception to the oral briefing rule is if the pilot-in-command determines passengers are familiar with the briefing content. A printed card with the FAR 91.519 required information should be available to each passenger to supplement the oral briefing

Seats/Seat Belts/Rudder Pedals SECURE/ADJUST

Adjust seat fore and aft; the handle is below the forward center of the seat. Adjust seat vertically; the handle is on the aisle side forward corner. Ensure white ball is in the center of the orange ball on the seat adjustment indicator. Ensure seat belt and shoulder harness are secure and snug. Adjust rudder pedals. Depress the tab on the inboard side of the pedal, move the pedal forward or aft into one of the three positions, and then release the tab.

**Oxygen Masks/Systems CHECK NORMAL/
LEFT/RIGHT**

Oxygen pressure gage should read 1,600 to 1,800 PSI. Oxygen mask connection should be secure. Regulator should be set to 100%. Ensure flow by donning the mask, adjusting the fit, and breathing several times. On **units 002 to 505**, set PASS OXY VALVE and PRIORITY VALVE to normal. On **unit 550 and subsequent and SII**, set OXYGEN CONTROL VALVE to normal.

CBs and Switches CHECK LEFT/RIGHT

- Generator Switches GEN (OFF FOR EPU START)
- Ignition NORM
- Fuel Boost Pump NORM
- Crossfeed OFF
- Gyro Slave Switches LH & RH AUTO
- Anti-Skid (**C0 and C1 [optional]; CII 001 to 436**) . . . OFF
- Anti-Skid (**CII 437 and subsequent; SII**) ON

Turn on anti-skid and complete self-test sequence prior to taxi (anti-skid annunciator extinguished) while the aircraft is stationary because if anti-skid system is turned on during taxi, the anti-skid sequence does not complete successfully and anti-skid may not be operational during takeoff. If anti-skid is off prior to or during taxi, turn it on prior to takeoff.

Control Lock UNLOCK

Rotate the handle clockwise 45° from horizontal and push in to release. Check that the controls and throttles free.

CAUTION: Damage to the throttle may occur if the throttles are forced past the lock position when the control lock is engaged.

Expanded Normal Procedures

Landing Gear Handle DOWN
Throttles/Engine Sync CUTOFF/OFF
Flap Selector/Indicator CHECK/MATCH
Windshield Bleed Air Manual Valves CLOSE
All Remaining Switches OFF/NORMAL

Before Starting Engines (Power On)

Standby Gyro (if Installed) TEST/ON/CAGED

Accomplish the standby gyro check with the battery switch OFF to ensure the gyro receives emergency power.

Standby Gyro Switch TEST/ON

Momentarily place switch in the TEST position. Verify the green light illuminates.

Standby Gyro Caging Knob . . . (15 seconds) UNCAGED

Gyro Horizon NO FLAG

**Battery Switch – EMER CHECK EMERGENCY
BUS ITEMS**

Ensure power to Emergency bus items:

- cockpit flood lights
- COMM 1
- NAV 2
- copilot’s HSI (mechanical or single EFIS)
- copilot’s attitude indicator (**unit 627 and subsequent, single EFIS**)
- directional gyro 2 (single EFIS)
- copilot’s RMI (dual EFIS)
- NAV 2 repeater (dual EFIS)
- directional gyro 1 (dual EFIS)
- audio panel (**unit 627 and subsequent**).

Battery Switch – BATT 24V MIN (28V EPU)

Landing Gear Lights 3 GREEN/NO RED

Parking Brake/Chocks SET/REMOVE

Power brakes should be used to set parking brake. Depress the brake pedals and pull the parking brake handle to trap pressure.

External Power (if Applicable) CONNECT

Cockpit Voice Recorder (if Installed) CHECK

Depress TEST button until green light illuminates (5 to 7 sec.).

Anti-Ice Fluid Quantity (SII) CHECKED

Warning Rotary Test Switch CHECK

(SII) No longer than five seconds and no repeat within 10 minutes in the W/S TEMP/ICE DETECT position

Rotate the TEST switch (**CII; unit 627 and SII, except stick-shaker**) to each of the following positions and verify the proper response:

- OFF – red light above rotary test switch extinguishes and test system is inoperative.
- FIRE WARN – both ENGINE FIRE PUSH annunciators illuminate.
- LDG GEAR – three green safe and red GEAR UNLOCKED annunciators illuminate; the gear horn sounds. Check that the horn silences by pressing the horn silence button on the landing gear panel. The horn can be silenced only if the flap position is 15° or less (20° **SII**).
- BATT TEMP – BATT O’TEMP annunciator flashes and battery temperature gage shows 160° to demonstrate circuit integrity. MASTER WARNING annunciator also illuminates. Cancel MASTER WARNING by pressing annunciator.
- STICK SHAKER (**SII**) – the angle of attack indicator drives to zero and the flag appears. The flag disappears and the indicator moves to 1.0. As the indicator moves, the EADI fast/slow indicator and the AOA indexer (if installed) should correspond to indicator position. At approximately 0.75 the stick shaker activates for a few seconds. This cycle repeats as long as the rotary test switch remains in this position.

- T/REV – the left and right ARM, LOCK, and DEPLOY annunciators illuminate and the MASTER WARNING annunciator flashes. Cancel MASTER WARNING by pressing annunciator.
- W/S TEMP/ICE DETECT (SII) – The W/S AIR O’HEAT annunciator illuminates when LOW or HIGH is selected on the windshield bleed air switch. ICING DETECTED annunciator illuminates for approximately one minute.

CAUTION: (SII) The ice detection system probe may be damaged if the test selector switch remains in the W/S TEMP/ICE DETECT position longer than five seconds and/or repeated tests are performed within a 10-minute time period.

- W/S TEMP – the W/S AIR O’HEAT annunciator illuminates when the windshield bleed air switch is selected to HIGH or LOW
- OVER-SPEED – the audible overspeed warning sounds
- ANTI-SKID – the anti-skid system initiates a self-test. ANTI-SKID INOP annunciator illuminates and remains illuminated for three or four seconds after the test switch is placed in OFF. The annunciator extinguishes if the system checks operational. If the system fails the check, the annunciator remains illuminated.
- ANNU – all annunciators and the MASTER WARNING annunciators illuminate. The turbine speed indicator self tests with its red lights illuminating and the displays flashing all eights (888). When the avionics power switches are on, the altitude alert and autopilot/flight director mode selector panel lights illuminate. EFIS and FMS lights also illuminate. The MASTER WARNING annunciators cannot be reset while the rotary selector switch is in this position.

Expanded Normal Procedures

Windshield Ice Detection Lights (SII) **CHECK**
(Night Only)

Cabin DOOR WARNING LIGHT **OUT**

ENGINE INSTRUMENTS **NO FLAGS**

FUEL QUANTITY **CHECK**

Check that proper fuel quantity is indicated on the fuel gages and tanks are balanced. Maximum imbalance is:

C0; C1 800 LBS

CII 600 LBS

SII 200 LBS (Normal)/600 LBS (Emergency)

Throttles **CUT OFF**

Starting Engines

Rotating Beacon **ON**

Flood/Center Panel Lights **FULL BRIGHT**

AC/Avionics Power/Freon Air Conditioning . . . **ALL OFF/
OFF**

First Engine **START**

START Button **PRESS MOMENTARILY**

Momentarily pressing the START button begins engine rotation by closing the start relay. When the relay closes, the START button illuminates white and the ignition system then arms for actuation. The engine instrument floodlight and the associated FUEL BOOST ON annunciator illuminate. The FUEL LOW PRESS annunciator extinguishes as boost pump pressure increases.

Throttle **IDLE AT 8 TO 10% N₂**

Lift the cutoff latch and advance the throttle to IDLE. Fuel flow initiates and the ignition system activates. The associated ignition light illuminates.

ITT **CHECK**

Abort start if there is no ITT indication within 10 seconds or ITT exceeds 500°C. Maximum start ITT is 700°C.

N₁ Speed **CHECK**

Check for an N₁ indication between 20 and 25% N₂. Abort start if there is no N₁ indication by 25% N₂.

Engine Instruments **CHECK NORMAL**

Monitor the engine instruments during acceleration. Abort start for abnormal indication.

Annunciators CHECK

The engine start cycle terminates at approximately 38% N₂. The START button light, ignition light, instrument floodlights, and FUEL BOOST ON annunciator extinguishes. If the GEN switch is in the GEN position, the GEN OFF annunciator extinguishes when generator output voltage exceeds battery voltage.

If automatic start sequencing does not terminate, the FUEL BOOST ON annunciator and ignition and associated lights remain illuminated. At 38% N₂, the speed sensor discontinues motoring the starter/generator. Depress the STARTER DISENGAGE button to terminate the automatic start sequence.

Cross Generator Start OPERATING ENGINE SET TO 49 TO 50% N₂ (C0; CI: 48 to 50% N₂)

For a cross generator start, wait until turbine RPM reaches 49 to 50% N₂ and the generator is on line. Start the second engine. Both starter buttons illuminate during a cross generator start. A cross generator start reduces battery heat by eliminating a charging cycle.

For an external power start, both generator switches must be off until start is complete. Do not turn on any electrical equipment until both GEN OFF annunciators are extinguished. The **Citation II/SII** has an overcurrent and overvoltage protection system for GPU usage.

CAUTION: Turbine speed greater than 50% N₂ on the operating engine produces a generator output that may damage the generator drive during the second engine start.

Second Engine START

Proceedings for second engine start are the same as for the first engine start.

Engine Instruments/Annunciators CHECK

Verify all engine instruments are within normal range. Check that engine annunciators are extinguished.

External Power (if applicable) DISCONNECT

Verify the ground power unit is off by confirming a lower than 28V reading on the voltmeter.

Generator Switches (GPU Start) GEN

L/R generator annunciators are extinguished and the ammeters show shared load.

DC Volts/Ammeters CHECK

Voltmeter indicates 28.5V DC and ammeters indicate a shared load within 10%.

Left Generator OFF

Right generator powers the main DC buses. Voltmeter shows 28.5V DC under increased load.

Voltmeter Selector LEFT GEN

Voltmeter shows 28.5V DC without load.

Left Generator ON

Generator again share the load.

Right Generator OFF

Left generator powers the main DC buses. Voltmeter shows 28.5V DC under increased load.

Voltmeter Selector RIGHT GEN

Shows 28.5V DC without a load.

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Right GeneratorON

Check for a shared load on ammeters within 10%.

Battery SwitchEMER

Voltmeter drops toward 24V DC, indicating BATT relay open.

Battery SwitchBATT

Battery TemperatureCHECK

Inverter SwitchINVERT 1 OR 2 OR AC

Aircraft equipped with single bus AC system:

Move the inverter switch to INV 1/INV 2. Check that the AC FAIL annunciator is off in both positions. The switch may be left in either position.

C0 001 to 274: Turn on the No. 2 inverter; the RAD AC PWR FAIL annunciator extinguishes. Move the crossover switch to XOVER I F/D AC PWR FAIL annunciator extinguishes and RAD AC PWR FAIL annunciator illuminates. Turn on the No. 1 inverter; RAD AC PWR FAIL annunciator extinguishes. Move XOVER switch back to NORM; both annunciators remain extinguished.

Avionics Power SwitchON

Before Taxi

Anti-Ice/Deice (if Applicable) **CHECK**

CAUTION: Limit ground operation of pitot/static heat to two minutes to prevent damage to the angle-of-attack system.

Night Windshield Ice Detector Lights (SII) . . . **CHECKED**

Anti-Ice/Deice Systems **CHECK/AS REQUIRED**

Engine anti-ice is required when operating in icing conditions. For ground operation in icing conditions, the ENG ANTI-ICE fail annunciators must be extinguished for a minimum of one minute out of four (with the engine anti-ice switches ON).

NOTE: When operating in visible icing conditions with OAT (CII **-30°C (-22°F) to 40°C (40°F)**, SII **-30°C to 10°C**), ensure that pitot/static and engine anti-ice is on and operating.

Engine Anti-Ice:

- Throttles 65% N2
- Ignition Switches ON
- ITT CHECK INCREASE
- RPM (N₂) CHECK INCREASE
(CII, SII ONLY)
- Left/Right Engine Anti-Ice Switches ON
- ITT CHECK INCREASE
- RPM (N₂) CHECK DECREASE
- Amperage (**except SII**) CHECK INCREASE

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Ignition Switches NORM

Ignition and Engine Anti-Ice Annunciators ON

Engine Anti-Ice Annunciators OFF

Extinguish in two minutes or less with 70% N₂ set.

Ignition Switches ON

Left/Right Engine Anti-Ice Switches OFF

ITT CHECK DECREASE

RPM (N₂) CHECK INCREASE

Ignition Switches NORM

Deice System (Boots) (**except SII**)

CAUTION: Do not operate deice boots when the ambient air temperature is below -40°C (-40°F).

Surface Deice Switch ON

Check for two cycles of the SURF DEICE annunciator.
Visually check boots for inflation.

TKS Anti-Ice System (**SII**) . . . CHECK PRIOR TO TAKEOFF

Engine Anti-Ice Switches HI

Surface Anti-Ice Switch ALL

Check TKS anti-ice system prior to takeoff if flight into icing conditions is expected. Observe that fluid exudes from all visible wing panels; associated anti-ice lights extinguish.

Windshield Bleed Air:

W/S BLEED Air Switch LOW

If the temperature is above -18°C, turn the windshield bleed air switch to LO. If temperature is -18°C or below, turn the windshield bleed air switch to HI.

W/S BLEED Air Valves MAX

Check that the windshield bleed air valves are in MAX.
Check for bleed air noise.

W/S BLEED Air Valves CLOSED

W/S BLEED Air Switch OFF

Check that the W/S AIR O'HEAT annunciator illuminates.
Crack open one W/S BLEED air valve to dump trapped bleed air and then close manual valve.

Throttles IDLE (AS REQUIRED)

Coffee/Freon Air Conditioning AS REQUIRED

Overhead/Cabin Fan (if applicable) HI OR LO

Select HI or LO if aft baggage compartment dividers are closed. Not required for **CII-627 and SII**.

ATIS/CLEARANCE/FMS CHECK/SET

Radios/Avionics TEST/CHECK/SET

Altimeters/Altitude Alerter CHECK/SET

Radar STANDBY

Pressurization Source Selector . . . CHECK/LH/RH/NORM

Cabin Pressurization/Rate Control CHECK/SET

Set pressurization controller to cruise altitude plus 1,000 ft and set rate knob in white arc.

C0 001 to 213 – Set 200 ft below airport elevation.

Flaps CHECK/SET FOR TAKEOFF

Extend flaps to LAND then set for takeoff and check indicator movement. **(SII)** – Check that the HYD PRESS ON annunciator illuminates when the flap handle is moved. Verify flap trim interconnect operation between 10 and 25°. Retract flaps to T.O. & APPR (20°) or to T.O. (7°) as appropriate.

Speedbrakes CHECK

Speedbrakes EXTEND

Check that the HYD PRESS ON annunciator illuminates until speedbrakes are extended. The annunciator extinguishes when the SPD BRAKE EXTENDED annunciator illuminates. Observe upper speedbrake panels extension.

Speedbrakes RETRACT

Check that the HYD PRESS ON annunciator illuminates and then extinguishes and the SPD BRAKE EXTENDED annunciator extinguishes. Visually check that the upper speedbrake panel stows properly.

Flight Controls FREE AND CLEAR

Inverters/EFIS Test (SII, CII – 627 and sub.) CHECK

AC TEST Switch INV 1/HOLD

Selecting the INV 1 position turns off the No. 1 inverter and illuminates the INVERTER FAIL NO. 1 annunciator. The AC FAIL and MASTER WARNING annunciators should illuminate. Press the MASTER WARNING annunciator and note that the MASTER WARNING and AC FAIL annunciators extinguish. Confirm EFIS is still operational (AC powered by No. 2 inverter).

AC TEST Switch INV 2/HOLD

Selecting the INV 2 position turns off the No. 2 inverter and illuminates the INVERTER FAIL NO. 2 annunciator. The AC FAIL and MASTER WARNING annunciators should illuminate. Press the MASTER WARNING annunciator and note that the MASTER WARNING and AC FAIL annunciators extinguish. Confirm EFIS (dual EFIS configuration) is still operational (AC powered by No. 1 inverter).

AC TEST Switch RELEASE

EFIS Test Button (**unit 627 and Subsequent**) PRESS

Verify the following:

- radio altimeter test value on pilot display is 50 ft
- all digit readouts replaced with amber dashes (except radio altimeter)
- all flags in view
- command cue, if selected, biased from view
- on **optional dual EFIS** the comparator monitor annunciators illuminate ATT, HDG, and ILS if ILS sources are selected on both sides
- test pass light in upper left corner of EADI illuminates.

Autopilot/Flight Director (Center Yoke with Ailerons Neutral) TEST EACH FLIGHT/SET

Autopilot ENGAGE

TEST EACH FLT Button PRESS/HOLD
FOR 5 SECONDS

The AUTOPILOT OFF annunciator illuminates and the autopilot warning horn sounds for one second. On **CII 163 and subsequent and SII**, the AP TORQUE annunciator illuminates.

Autopilot (Recenter Yoke) ENGAGE

Pitch Wheel ROTATE UP/DOWN

Column must move in direction of pitch wheel movement.

Turn Knob ROTATE LEFT/RIGHT

Control wheel must move in direction of turn knob.

Flight Director HDG Mode SELECT

Move the heading cursor to the left or right of lubber line. Note that the control wheel follows.

Flight Director ALT Mode SELECT

Adjust pilot's altimeter by changing the altimeter setting in the Kollsman window. With a lower altitude selected on the pilot's altimeter, the control column moves aft. After selecting a higher altitude the control column moves forward.

Flight Director ALT Mode DISENGAGE

Altimeter RESET

Control Wheel PULL AFT

Ensure elevator trim wheel, after a short delay, starts trimming nose down.

Control Wheel PUSH FORWARD

Ensure elevator trim wheel, after a short delay, starts trimming nose up.

Autopilot DISENGAGE

Re-engage autopilot between each disconnect test.

Check all of the normal autopilot disconnects:

- pilot's and copilot's AP/TRIM DISC switches
- pilot's and copilot's electric trim
- go-around button
- TCS button – press and hold

Verify momentary autopilot disengage.

Flight Director SET FOR TAKEOFF

- Press GA button
- Select HDG
- Select ALT SEL – ARM

Electric Elevator Trim CHECK

Split Trim Switch:

- Pilot's and Copilot's Electric Trim Switch CHECK
- Split Switch (**unit 550 and Subsequent**) CHECK
- Left Half of Switch ACTUATE
 - Engage nose-up then nose-down. Verify that electric trim does not move.
- Right Half of Switch ACTUATE
 - Engage nose-up then nose-down. Verify that electric trim does not move.

All Aircraft:

- Trim Switches OPERATE NOSE UP
 - Manual trim wheel rotates nose-up.
- AP/TRIM DISC Switch PUSH
 - Check that trim stops.
- Trim Switches OPERATE NOSE DOWN
 - Manual trim wheel rotates nose-down.
- AP/TRIM DISC Switch PUSH
 - Check that trim stops.
- Pilot's and Copilot's Electric Trim Switch REPEAT ABOVE TEST
- Pilot's Electric Trim Switch OVERRIDES COPILOT'S SWITCH

- Trim 3 CHECKED/SET**
- Rudder and Aileron Trim SET AT NEUTRAL
- Elevator Trim ENSURE IN TAKEOFF RANGE

Taxi/Before Takeoff

Exterior Lights **ON**

Passenger Advisory **PASS SAFETY**

This position advises the passengers to fasten safety belts and stop smoking for takeoff. It also illuminates cabin exits and baggage area lights.

Brakes **CHECK**

CAUTION: If, during taxiing, a hard brake pedal/no braking condition occurs, turn anti-skid off. If brakes are still not operational, operate the emergency brake system. Maintenance is required before flight.

Flight Instruments **CHECK**

Warning Flags **NONE VISIBLE**

EHSIs/HSIs/RMIs/Compass **AGREE**

Check for correct indications during turns.

Altimeters (both) **SET/AGREE**

Standby Gyro **UNCAGED**

Thrust Reversers (if installed) **CHECK**

CAUTION: Do not attempt to fly the aircraft if the thrust reverser preflight test is unsuccessful.

T/R Levers **IDLE/REVERSE**

Check that the ARM and UNLOCK annunciators illuminate and the DEPLOY annunciator illuminates within 1.5 seconds of the UNLOCK annunciator illuminating.

Emergency Stow Switches EMER

The UNLOCK and DEPLOY annunciators extinguish. The ARM and HYD PRESS ON annunciators remain illuminated.

T/R Levers STOW

The ARM and HYD PRESS ON annunciators remain illuminated.

Emergency Stow Switches NORMAL

The ARM and HYD PRESS ON annunciators extinguish.

Pressurization Source Selector NORM

If the source selector is left in GND, excessive air extraction occurs on the right engine and the engine does not develop full takeoff thrust and ACM OVERPRESS warning light may illuminate

Cabin Temperature Control AUTO

The ACM over-temperature protection circuit operates only in the AUTOMATIC mode.

Anti-Skid (When Stopped) (Units 002 to 436) ON

Takeoff Data/Crew Brief SET/COMPLETE

Review and bug appropriate takeoff speeds.

Refer to Standard Operating Procedures for detailed explanation of items on the takeoff briefing.

Takeoff

Ignition **ON**

Turning the ignition system on for takeoff may prevent a flame-out if an engine problem arises during takeoff.

Pitot and Static Heat **ON**

CAUTION: Limit ground operation of pitot/static heat to two minutes to preclude damage to the angle-of-attack system.

Anti-Ice System **AS REQUIRED**

Turn on pitot/static heat and engine anti-ice (use W/S bleed air anti-ice as required) when operating in visible moisture at the following outside air temperatures:

C0; C1; CII; CII-627 and sub. 4 to -30°C

SII 10 to -30°C

Anti-Ice/Deice **AS REQUIRED**

Exterior/Landing Lights **ON**

For flights 30 minutes before sunset to 30 minutes after sunrise, turn on navigation lights. Do not operate anti-collision lights in fog, clouds, or haze. The light beam reflection can cause disorientation or vertigo.

Radar (Unit 627 and Subsequent) **ON**

Radar switch is in ON but radar remains in standby with aircraft weight-on-wheels (squat switch protection). Simultaneously, pressing both range buttons on the radar control panel overrides squat switch protection.

Transponder **ALT**

Annunciator Panel/Flight Director CHECK/SET

All annunciators extinguish (except ENG ICE FAIL if that system is selected with low power). The ACM EJECTOR ON annunciator (**CII 001 to 484**) may illuminate if the pressurization source selector is in a position other than OFF or EMER. The flight director should be in GO AROUND with Heading Altitude Select functions selected.

Engine Instruments CHECK

F.A.T.S. CHECK

Final checks before application of takeoff power.

Flaps SET

Annunciators CHECK

Trims 3 SET

Speeds TAKEOFF BUGS SET

After Takeoff/Climb

Landing Gear/Lights **UP/OFF**

When a positive rate-of-climb is indicated, pull the gear handle out and move it to the UP position to begin the retraction cycle. Handle movement illuminates the GEAR UNLOCKED and HYD PRESS ON annunciators. Check that both annunciators extinguish to indicate the landing gear is up and locked.

Flaps **UP**

At a comfortable altitude with the wings level and a minimum airspeed of $V_2 + 10$, depress the flap handle to clear the detent then move full forward. Check that the position indicator to the left of the handle moves to the FLAPS UP position. On the **SII**, the HYD PRESS ON annunciator should remain illuminated any time the flaps are in transit and extinguish when they reach the selected position.

Yaw Damper **ENGAGE**

Check that the YAW DAMPER ENGAGE light illuminates.

Ignition **NORMAL**

When clear of any bird hazard and the cockpit workload permits, place IGNITION switches in NORM.

Climb Power **SET**

Use indicated OAT temperature and the climb thrust chart to determine N_1 .

NOTE: N_1 RPM increases with altitude. Throttle adjustments may be necessary to maintain specified thrust setting.

Engine Sync AS DESIRED

With N₁ speeds matched within 1.5% or N₂ speeds matched within 1%, place the engine synchronizer selector in FAN or TURB. Check that the engine instruments remain within normal operating limits. Selecting FAN synchronizes the left and right fan (N₁) speeds resulting in a quieter passenger cabin while selecting TURBINE matches left and right engine turbine (N₂) speeds resulting in a quieter cockpit.

Pressurization/Cabin Temperature CHECK/SET

The controller was programmed before taxi. Adjust the rate knob to achieve a comfortable cabin rate-of-climb (usually between 300 and 500 FPM). Observe differential pressure/cabin altitude and cabin vertical speed indicators.

Anti-Ice/Deice AS REQUIRED

Select anti-ice systems on as required for climb. Use of engine anti-ice reduces allowable fan speed and dictates close monitoring of ITT and RPM limitations.

C0; C1; CII; CII-627 and sub. 4 to -30°C

SII 10 to -30°C

Passenger Advisory AS REQUIRED

Place the passenger advisory switch in SEAT BELT to keep the FASTEN SEAT BELT sign illuminated and extinguish the NO SMOKING and emergency exit lights. If no turbulence is expected, place the switch in OFF to extinguish the FASTEN SEAT BELT sign and emergency exit lights.

Flood Cooling (by 10,000 ft) OFF

Transition Level (By 18,000 Ft)

Altimeters SET

Set altimeters to 29.92 inches Hg and cross-check.

Recognition Lights OFF

Freon Air (by 18,000 Ft) OFF/FAN

Turn Freon air conditioning off to prevent compressor motor and generator brushes arcing.

**Cabin Temperature (by FL 310)
(Units 482, 485 and subsequent; SII) AUTO**

Selecting AUTO above 31,000 ft reduces the possibility of an ACM overheat and normally maintains a comfortable cabin temperature. With low airspeed and high power settings, an ACM overheat is possible with an excessively cold setting in MANUAL.

Cruise

Cruise Power SET

Maintain climb thrust until attaining the desired cruise speed. If engine RPM does not automatically synchronize at the desired cruise setting, turn engine synchronization OFF. This allows the synchronizer actuator to center. Roughly synchronize the engines with throttles and place the engine synchronizer switch in FAN or TURB.

Engine Instruments CHECK

Fuel Quantity/Crossfeed CHECK

Ensure proper consumption rate. Balance fuel as required to remain within the 600 lbs (CII), (800 lbs C0; CI; 200 lbs normal, 600 lbs emergency SII) wing fuel tank imbalance.

Pressurization/Oxygen CHECK/AS REQUIRED

Reset cabin altitude and/or rate as required. Maintain the TEMPERATURE CONTROL knob in the 12 to 2 o'clock position for a comfortable cabin temperature.

Check oxygen system pressure and masks:

- above FL 250 masks must be ready in their “quick-donning” position
- above FL 350 with only one pilot in the cockpit, that pilot must be wearing oxygen mask
- above FL 410 at least pilot must wear an oxygen mask.

Anti-Ice/Deice AS REQUIRED

Turn on pitot/static heat and engine anti-ice (use W/S bleed air anti-ice as required) when operating in visible moisture at the following outside air temperatures:

C0; C1; CII; CII-627 and sub. 4 to -30°C

SII 10 to -30°C

C0; C1; CII; CII-627 and sub.: Check deice system for proper operation prior to entering possible icing environment.

CAUTION: Do not operate deice boots when indicated OAT is below -40°C (-40°F).

WARNING: SII – The surface fluid anti-ice system is not a deice system and does not remove significant accumulations of ice. Turn on the system immediately upon detecting ice. If more than 1/8 inch of ice accumulates prior to turning the system on, leave the icing environment.

Descent (15 Minutes Prior)

Defog Fan HI

Turn on the DEFOG fan and close the foot warmers approximately 15 minutes before descent to reduce condensation on the windshield and cockpit side windows.

Foot Warmers CLOSE LEFT/RIGHT

Closing foot warmers increases the flow of air available for windshield defogging and isolates dry conditioned air between the cockpit side windows to inhibit condensation formation.

Airflow Distribution COCKPIT

Bias the FLOW DISTR selector toward CKPT for maximum defog capability.

Pressurization/Temperature CHECK/SET

After beginning descent, set destination field pressure altitude +200 ft on the controller CABIN dial. Monitor differential pressure/cabin altitude and cabin vertical speed indicators.

Windshield Bleed Air Switch/Manual Valves . . . LOW/MAX

Windshield bleed air can be used to externally warm the windshield in extreme conditions. Normally, the W/S BLEED switch LOW position provides adequate temperature.

Anti-Ice/Deice AS REQUIRED

A minimum of 65% N₂ is required to keep the engine anti-ice system operating properly. When operating in visible moisture with indicated OAT (-30°C (-22°F) to 10°C (40°F); **SII** -30°C to 10°C), ensure pitot/static and engine anti-ice is on and operating. Use windshield bleed air as required.

(Recommended when the temperature/dewpoint spread is less than 5°C.)

Transition Level

Altimeters CHECK/SET

When cleared below or passing through the transition altitude, set the reported or landing field barometric pressure on both altimeters. Cross-check settings.

Recognition Lights ON

Freon Air AS REQUIRED

Turning on the Freon air conditioning system can aid windshield defogging.

Approach/In Range

Seats/Seat Belts/

Shoulder Harnesses SECURE LEFT/RIGHT

Check that the seats are locked in the desired position. Ensure seat belts and shoulder harnesses are secure and snug.

Passenger Seats UPRIGHT/OUTBOARD

Cabin and Emergency Exits CLEAR

Avionics/Flight Instruments CHECK/SET

Tune navigation equipment and identify. Set courses and program the flight director as required.

Fuel Crossfeed OFF

Check that the CROSSFEED knob is in OFF and the INTRANSIT and FUEL BOOST ON annunciators are extinguished.

Passenger Advisory PASS SAFETY

Anti-Skid Switch ON

Engine Sync OFF

Altimeters/Radar Altimeter CHECK/SET

Landing Data/Bugs CHECK/SET

Complete the approach side of TOLD card. Set airspeed bugs to V_{REF} .

Crew Brief COMPLETE

Check standard operating procedure for a list of items that should be included in the approach briefing.

Ignition **ON**

Flaps **T.O. & APPR**

Flaps may be extended to T.O. & APPR below 202 KIAS (200 KIAS **SII**). Check indicator to verify position.

Pressurization **SET FOR LANDING**

Check that cabin differential pressure is near zero. If still excessive, adjust rate so the cabin ascends. If landing above 12,000 ft pressure altitude, turn the OXYGEN CONTROL VALVE to CREW ONLY and the PRESS SOURCE selector to OFF to prevent passenger oxygen mask deployment.

Before Landing/Landing

Landing Gear/Lights DOWN/3 GREEN/NO RED/ON

Pull the landing gear handle out then move to DOWN. While the gear is extending, the HYD PRESS ON and GEAR UNLOCKED annunciators illuminate. When the landing gear reaches the down and locked position, the three green gear lights illuminate and the HYD PRESS ON and the red GEAR UNLOCKED light extinguishes.

Annunciator Panel/Flight Director CLEAR/SET

Ensure the annunciator panel is clear and flight director is appropriately set.

Pressurization CHECK ZERO DIFFERENTIAL

Approximately 500 ft above ground level, check that the cabin differential pressure is near zero. If it is in excess of 0.5 PSID, select a higher cabin altitude and adjust RATE so the cabin ascends. Differential pressure should be at zero for landing; at touchdown, any existing pressure is dumped.

If landing above 12,000 ft pressure altitude, turn the OXYGEN CONTROL VALVE to CREW ONLY and bleed air to OFF to preclude passenger mask deployment.

Flaps LAND

Flaps may be extended to LAND below 176 KIAS (172 KIAS SII). Depress the flap handle then move it to the LAND position. Ensure flap indicator moves to correspond with handle position. The HYD PRESS ON annunciator should illuminate whenever the flaps are moving.

Airspeed V_{AP}

Autopilot/Yaw Damper OFF

Depress the AP/TRIM DISC switch on either control wheel. With the yaw damper off, the pilot has complete rudder authority and nosewheel steering for landing.

Speedbrakes RETRACT PRIOR TO 50 FT

The aircraft is not certified to land with speedbrakes extended.

Landing With Thrust Reversers

Throttles IDLE

Suggested crosswind technique involves flying a crab down final approach and aligning the longitudinal axis of the aircraft to runway centerline with the rudder just before touchdown. The wide expanse of cockpit visibility makes small crab angles difficult to detect; therefore, devote particular attention to this area to achieve smooth crosswind landings.

Brakes (After Touchdown) AS REQUIRED

Brakes (With Anti-Skid) MAXIMUM CONTINUOUS APPLIED

To obtain maximum braking performance from the anti-skid system, apply continuous maximum effort (no modulation) to brake pedals.

CAUTION: Anti-skid protection is not available below 12 kts groundspeed.

CAUTION: If, during taxiing, a hard brake pedal/no braking condition occurs, turn anti-skid off, operate the emergency brake system. Maintenance is required before flight.

Speedbrakes (After Touchdown) EXTEND

Touchdown, preceded by a slight flare, should occur on the main wheels. Check thrust at idle and extend speedbrakes while lowering the nose wheel.

**Thrust Reversers
(After Nose Wheel On Ground) DEPLOY**

Apply wheel brakes and deploy the thrust reversers. The aircraft pitches slightly upward during deployment; therefore, use slight nosedown elevator pressure during thrust reverser deployment, especially at high speeds such as a refused take-off or no-flap landing.

The nose wheel must be on the ground before actuation of the thrust reversers to reduce the possibility of pitch-up and lift-off and to improve directional control. Do not exceed approximately 15 lbs of force on the thrust reverser levers during deployment to prevent jamming of the throttle lockout cams.

CAUTION: Do not use the thrust reversers for touch and go landings; a full stop landing must be made once the reversers are selected.

Reverser Indicator CHECK ILLUMINATION

The ARM, UNLOCK, and DEPLOY annunciators illuminate.

Reverser Power AS REQUIRED

Do not exceed 79% N_1 when OAT is below -18°C or 86% N_1 at or above -18°C . Once the thrust reversers are deployed, move the levers aft to maximum reverse thrust. Stops on the levers provide 86% N_1 on a -18°C day at sea level so the pilot can keep his attention on the landing rollout. The factory setting results in lower than 86% N_1 at warmer temperatures and may be reset for higher N_1 if temperatures are predominantly warmer. Do not exceed 86% N_1 .

At 60 KIAS:

Thrust Reverser Levers IDLE REVERSE

With the thrust reverser levers in the IDLE REVERSE detent, leave the reversers deployed for aerodynamic drag. Commence thrust reversing and braking according to runway length. With excess runway, normally begin braking after thrust reverser deceleration is below 60 knots.

Use caution on runways with small loose gravel that may be ingested in the engine at idle reverse at low taxi speed.

CAUTION: Do not advance throttles until the reverser UNLOCK annunciators extinguish. There is danger of the throttle being rapidly returned to idle position, which could cause injury.

CAUTION: Do not use the thrust reverser for more than 15 minutes out of each hour.

After Landing

Accomplish this checklist after the aircraft is clear of the runway.

Thrust Reversers (if Installed) STOW

Flaps/Trim UP/SET

On the **SII**, check that the **HYD PRESS ON** annunciator extinguishes after the flaps are up. Taxiing with flaps extended on a snow- or slush-covered taxiway could result in obstruction of the flaps.

Speedbrakes RETRACT

Check that the **SPD BRAKE EXTENDED** and **HYD PRESS ON** annunciators extinguish.

Ignition NORM

Pitot Heat/Anti-Ice OFF

CAUTION: Operation of the PITOT & STATIC heat on the ground for over two minutes may result in damage to the angle-of-attack system.

W/S BLEED AIR may be used as required in falling precipitation. Turn engine anti-ice ON and operate the engines at or above 65% N₂ for a minimum of one minute out of every four minutes if taxiing in visible moisture with temperatures between +10 and -30°C. Ensure the PITOT & STATIC switch is off.

Exterior Lights AS REQUIRED

Recognition light life is shortened considerably if used during ground operations.

Anti-Skid Switch (Units 002 to 436) OFF

Radar OFF/STANDBY

Transponder OFF/STANDBY

Shutdown

Parking Brake SET

Do not set the parking brake if brakes are very hot. This can increase heat transfer from the brakes to the wheel, causing the fusible plug to melt and deflate the tire.

Master Avionics Power/Inverter Switches OFF

C0: The avionics equipment must be individually turned off.

Exterior Lights OFF

Standby Gyro CAGED/OFF

Pull out the standby attitude indicator caging knob and rotate it clockwise to cage then turn switch off.

Overhead/Defog Fans OFF

Freon Air Conditioning OFF

Flaps (Except SII) T.O. & APPR

Throttles OFF

Allow ITT to stabilize for at least one minute at minimum value. Lifting the latch and placing the throttle full aft terminates fuel flow to the engine combustion section. A canister collects manifold fuel on shutdown. During the next engine start, this fuel returns to the fuel cell. Repeated starts for ground operations cause the canister to overflow through the lower nacelle after the third shutdown.

C0 001 to 213 without SB71-2: A canister collects manifold fuel on shutdown and vents it into the atmosphere during the next flight.

C0 001 to 213 with SB71-2: The crew drains the canister through a manual valve. Repeated starts for ground operation cause the canister to overflow through the lower nacelle after the third shutdown.

Rotating Beacon OFF

- Passenger Advisory OFF**
- Control Lock AS REQUIRED**
- Parking Brake/Chocks AS REQUIRED**
- Battery Switch OFF**

Exercise care not to place it in EMER. Emergency bus items will drain the battery over an extended period.

For deplaning at night, leave the battery switch in BATT for cabin lighting until passengers and cabin baggage are deplaned. Turn the EXTERIOR WING INSP LIGHTS switch to ON to provide additional illumination in front of the cabin door. An illuminated courtesy light switch on the forward door post is wired to the Hot Battery bus to turn on the emergency exit lights and one aft cabin baggage compartment light.

Parking

Park the aircraft facing a direction that facilitates servicing. Under normal circumstances, the prevailing wind can be disregarded.

Aircraft PARK ON HARD, LEVEL SURFACE

Flaps UP

Parking Brake and Control Lock SET

Setting the parking brake is optional. The aircraft can be relocated without anyone entering the aircraft if the parking brake is not set.

Main Gear CHOCK

Static Ground Cable CONNECT AS REQUIRED

Protective Covers INSTALL AS REQUIRED

**Foul Weather Window
and Door CLOSE AS NECESSARY**

Mooring

CAUTION: Ensure ropes do not contact sharp edges and do not damage equipment.

If extended parking plans or impending weather necessitates mooring the aircraft, attach 3/4-inch ropes (or equivalent substitute) to the nose and main gear struts; this procedure requires tie-down eyelets set into the apron. There is no procedure for mooring at unprepared facilities.

- Aircraft PARK ON HARD, LEVEL SURFACE
AND HEAD INTO THE WIND**
- Flaps UP**
- Parking Brake SET**
- Control Lock ENGAGE**
- Main Gear Wheels CHOCK**
- Static Ground Cable CONNECT**
- Protective Covers INSTALL**
- Ropes ATTACH TO NOSE GEAR
AND MAIN GEAR/SECURE
TO PARKING APRON**
- Foul Weather Window
and Door CLOSE AS NECESSARY**

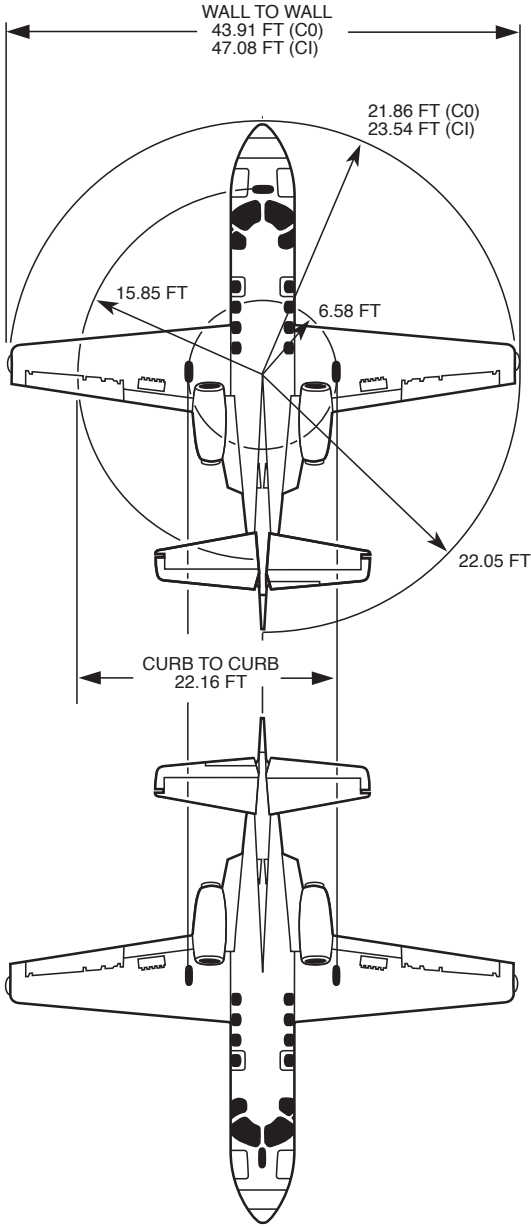
Towing/Taxiing

The aircraft taxis on hard, gravel, or sod surfaces. On hard surfaces, tow with a yoke-type tow bar attached to the nose gear. When not on hard surface (such as sand, soft ground, or mud), attach cables or ropes to each main gear for towing and steer the aircraft with rudder pedals.

Towing or taxiing aircraft with a flat tire is not recommended. However, if a situation requires it, tow or taxi the aircraft forward just enough to clear the immediate area (**Figures 2B-1, 2B-2, 2B-3, and 2B-4**, following pages). If towing, avoid sharp turns. Observe aircraft turning distances.

Towing Distances

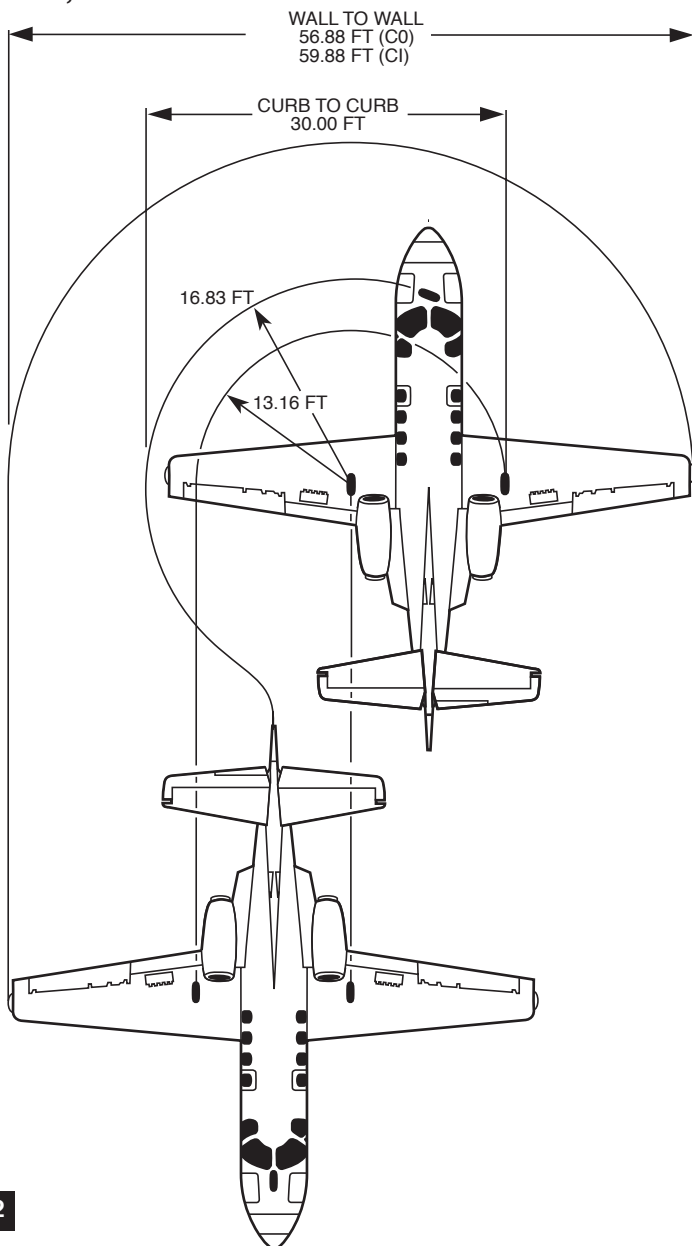
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2B-1

Taxiing Distances

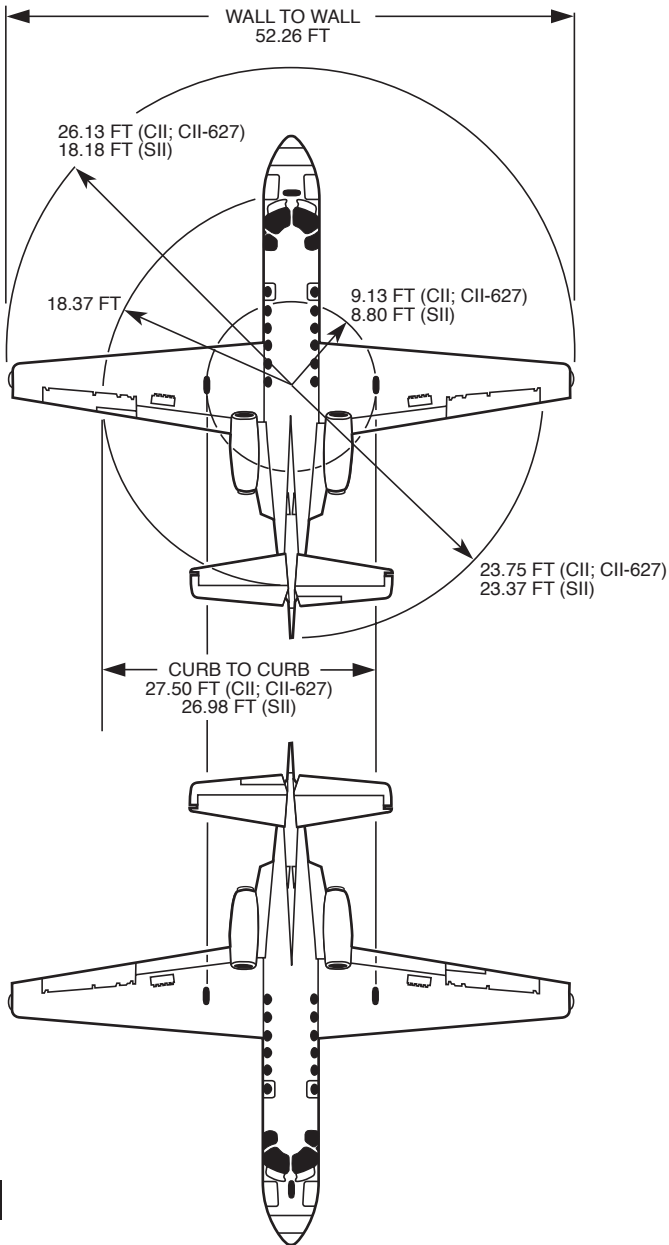
Citation; Citation I



2B-2

Towing Distances

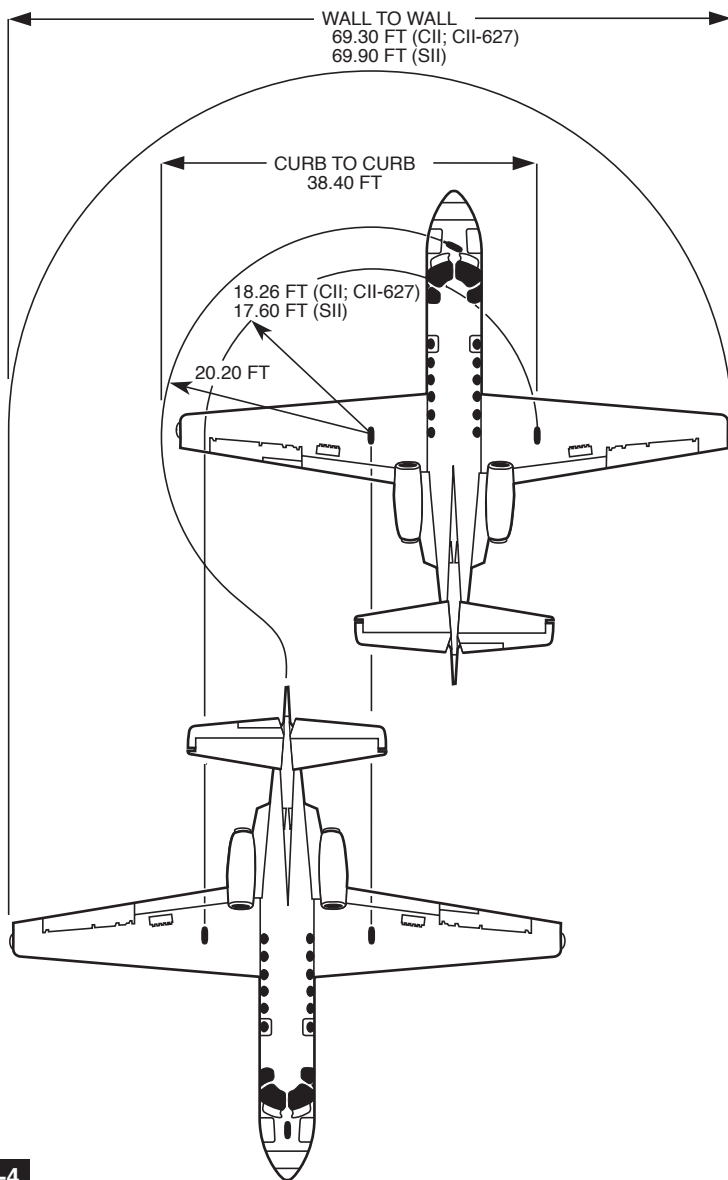
Citation II; Citation II-627; Citation SII



2B-3

Taxiing Distances

Citation II; Citation II-627; Citation SII



2B-4

Nose Gear Towing

Execute all turns during nose gear towing through the tow bar.

Tow Bar PLACE AT NOSE WHEEL

Insert the tow bar into the nosewheel axle and secure the tow bar locking handle.

CAUTION: Do not move the aircraft within 15 minutes after gyros have been shut down or damage to the gyros may occur.

TOWING LIMITATION: Maximum nose gear towing turning angle limit is 95° either side of center. Forcing the nose gear beyond the towing stop (95° limit) shears the bolts attaching the steering gear assembly to the cylinder.

Tow Bar CONNECT TO TOWING VEHICLE

Pilot's Seat OCCUPIED (OPTIONAL)

A person may be stationed in the aircraft during towing operations to control the aircraft if the tow bar breaks or detaches from the towing vehicle.

Control Lock RELEASE (RECOMMENDED)

Towing the aircraft with the controls locked may place excessive force on the control lock mechanism and the rudder control cables. Avoid towing the aircraft with the control lock engaged. If the aircraft is towed with control lock engaged, limit the nosewheel turning angle to approximately 60° to prevent unnecessary loads on the control system. When extreme turning angles are required, release the control lock system.

Parking Brake RELEASE

If the parking brake is not set, the aircraft can be towed without entering the aircraft.

Cabin Door CLOSE AND LATCH

Chocks/Static Ground Cable/

Mooring Ropes REMOVE

Wing/Tail Walkers STATION (RECOMMENDED)

In congested areas, wing/tail walkers ensure adequate clearance between the aircraft and adjacent equipment or structures.

Aircraft TOW

Use smooth starts and stops.

When Towing Operation is Complete:

Nosewheel CENTER

Parking Brake ENGAGE (OPTIONAL)

Control Lock ENGAGE

Main Gear Wheels CHOCK

Static Ground Cable CONNECT

Tow Bar REMOVE

Main Gear Towing

Pilot's Seat OCCUPIED

Main Gear Towing Adapters INSTALL

Cables ATTACH

Attach cables to towing adapters and towing vehicle. Use care to prevent crushing wiring or linkage rods in the wheel well area. Verify that the cable length clears the aircraft and that the towing vehicle is on a hard surface.

Chocks/Static Ground Cable/

Mooring Ropes REMOVE

Parking Brake DISENGAGE

Control Lock DISENGAGE

Rudder Pedals STEERING/BRAKING

With smooth, even pressure, apply aircraft brakes as required.

Battery Switch (Power Brakes only) ON

NOTE: Aircraft equipped with power brakes/anti-skid must use power brakes with battery on.

When Towing Operation Is Complete:

Nosewheel CENTER

Parking Brake ENGAGE (OPTIONAL)

Control Lock ENGAGE

Main Gear Wheels CHOCK

Static Ground Cable CONNECT

Tow Cables and Towing Adapters REMOVE

Taxiing (Ground Movement)

During taxi, control the aircraft via selected engine thrust, rudder pedal steering, and brakes. Taxiing can be performed with one or both engines operating.

Immediate Area CLEAR

Main Wheels CHECK

Static Ground Cable REMOVE

Wing Fuel ENSURE BALANCE

Pilot Stations BOTH OCCUPIED

The pilot in left seat maneuvers the aircraft. The pilot in right seat observes and assists as necessary.

Parking Brake ENGAGE

Engine(s) START

Refer to expanded normal procedure for details.

WARNING: Ensure personnel and equipment are clear of engine inlet and exhaust when starting engine(s).

Wheel Chocks REMOVE

Parking Brake RELEASE

Thrust . . . SUFFICIENT APPLICATION TO START ROLL

Aircraft Brakes APPLY AS NECESSARY

Use brakes intermittently rather than continuously. Allow the aircraft to accelerate, then brake to an acceptable taxi speed.

Aircraft STEER WITH RUDDER PEDALS

Accomplish nosewheel steering through the rudder pedals.

Wing Walkers STATION

Taxi ACCOMPLISH

Parking Brake ENGAGE

Engine(s) SHUT DOWN

Refer to Shutdown procedure on page 3B-28.

Main Gear Wheels CHOCK

Hot Weather Operations

Ground Cooling

ACM Operating:

Use GPU if available for maximum ground cabin cooling with freon air conditioner.

Without Freon A/C:

- Right Engine START
- Temperature Control FULL COLD
- Pressurization Source (**units 002 to 626**) . GND/BOTH HI
- Pressurization Source
(**C0; C1; CII-627 and sub.; SII**) GND
- Overhead Fan HI
- Defog Fan HI

With Freon A/C:

GPU should be used for electrical power source for operation of freon air conditioner unit.

- Freon Air Conditioner ON

Performance Computations – Takeoff

Compute takeoff performance in accordance with the AFM.

Securing Overnight or for Extended Period

- Wheel Chocks CHECK IN PLACE**
- Flaps UP**
- Parking Brake OFF**
- Protective Covers INSTALL**
- Cabin Shades DOWN**
- Cockpit Sunscreens (if available) INSTALL**
- Doors CLOSE AND LOCK**

Cold Weather Operations

NOTE: Flight crews should refamiliarize themselves seasonally with Cessna Maintenance Manual Chapter 12 and FAA Advisory Circular AC120-58, dated September 9, 1992 or later, for expanded deice and anti-ice procedures.

Ground Deice/Anti-Ice Operations

During cold weather operations, flight crews are responsible for ensuring the aircraft is free of ice contaminants.

Ground icing may occur at temperatures of +10°C or colder with high humidity. To comply with FAA regulations (clean wing concept) requiring critical component airframe deicing and anti-icing, Type I deice fluids and Type II anti-ice fluids can be used sequentially.

CAUTION: Type I and Type II fluids are not compatible and may not be mixed. Additionally, most manufacturers prohibit mixing of brands within type.

The pilot-in-command (PIC) or second-in-command (SIC) should supervise line personnel to ensure proper application of either fluid.

Deicing Supplemental Information

This section provides supplementary information on aircraft deicing, anti-icing/deicing fluids, deicing procedures, and aircraft operating procedures. Consult the AFM, Maintenance Manual Chapter 12 – Servicing, and FAA Advisory Circulars for deicing procedures, holdover times, fluid specifications, recommendations, and hazards.

Federal Aviation Regulations (FARs) prohibit takeoff with snow, ice, or frost adhering to the wings and control surfaces of the aircraft.

Federal Aviation Regulations (FARs) prohibit takeoff with snow, ice, or frost adhering to the wings and control surfaces of the aircraft.

It is the responsibility of the pilot-in-command to ensure the aircraft is free of snow, ice, or frost before takeoff.

Failure to adequately deice the aircraft can result in seriously degraded aircraft performance, loss of lift, and erratic engine and flight instrument indications.

Following extended high-altitude flight, frost can form at ambient temperatures above freezing on the wing's underside in the fuel tank areas. Refueling the aircraft with warmer fuel usually melts the frost.

Deicing

When necessary, use the following methods to deice the aircraft:

- placing the aircraft in a warm hangar until the ice melts
- mechanically brushing the snow or ice off with brooms, brushes, or other means
- applying a heated water/glycol solution (one-step procedure)
- applying heated water followed by an undiluted glycol-based fluid (two-step procedure).

Deicing Fluids

Two types of anti-icing/deicing fluids are in commercial use: SAE/ISO Types I and II. Type I fluids are used generally in North America. Type II fluids, also referred to as AEA Type II, are used generally in Europe.

Type I fluids are unthickened glycol-based fluids that are usually diluted with water and applied hot; they provide limited holdover time.

Type II fluids are thickened glycol-based fluids that are usually applied cold on a deiced aircraft; they provide longer holdover times than Type I fluids.

Holdover Times

Holdover timetables are only estimates and vary depending on many factors, which include:

- temperature
- precipitation type
- wind
- aircraft skin temperature.

Holdover times are based on mixture ratio. Times start when the last application has begun. Guidelines for holdover times anticipated by SAE Type I or Type II and ISO Type I or Type II fluid mixtures are a function of weather conditions and outside air temperature (OAT).

The freezing point of either type of fluid mixture must be at least 10°C (18°F) below OAT.

NOTE: Holdover time is the estimated time that an anti-icing/deicing fluid protects a treated surface from ice or frost formation.

Many factors influence snow, ice, and frost accumulation and the effectiveness of deicing fluids. These factors include:

- ambient temperature and aircraft surface temperature
- relative humidity, precipitation type, and rate
- wind velocity and direction
- operation on snow, slush, or wet surfaces
- operation near other aircraft, equipment, and buildings
- presence of deicing fluid and its type, dilution strength, and application method.

CAUTION: Type II FPD generally should not be applied forward of the wing leading edges. If used for deicing, do not apply forward of cockpit windows. Ensure that radome and cockpit windows are clean.

Deicing Procedures

One-step deicing involves spraying the aircraft with a heated, diluted deicing/anti-icing fluid to remove ice, snow, or frost. The fluid coating then provides limited protection from further accumulation.

Two-step deicing involves spraying the aircraft with hot water or a hot water/deicing fluid mixture to remove any ice, snow, or frost accumulation followed immediately by treatment with anti-icing fluid (usually Type II FPD fluid).

Deice the aircraft from top to bottom. Avoid flushing snow, ice, or frost onto treated areas. Start the deicing process by treating the horizontal stabilizer followed by the vertical stabilizer. Continue by treating the fuselage top and sides. Finally, apply deicing fluid to the wings.

CAUTION: If engines are running when spraying of deicing fluids is in progress, turn bleed air and air conditioning packs off.

Deicing fluid should not be applied to:

- pitot/static tubes, static ports, temperature probes, AOA vanes, or TAT probe
- gaps between control surfaces and airfoil
- cockpit windows
- passenger windows
- air and engine inlets and exhausts
- vents and drains
- wing and control surface trailing edges
- brakes.

CAUTION: Do not use deicing fluid to deice engines. Mechanically remove snow and ice from the engine inlet. Check the first stage fan blades for freedom of movement. If engine does not rotate freely, deice engine with hot air.

Spraying Technique – Type I

Spray Type I fluid on the aircraft (with engines off) in a manner that minimizes heat loss to the air. If possible, spray fluid in a solid cone pattern of large coarse droplets at a temperature of 160 to 180°F (**Figure 2B-3**, following page). Spray the fluid as close as possible to the aircraft surfaces, but no closer than 10 ft if using a high pressure nozzle.

Spraying Technique – Type II

Apply Type II fluid cold to a “clean” aircraft. It may also be heated and sprayed as a deicing fluid; if so, consider it a Type I fluid because heat may change the characteristics of the thickening agents in the fluid. When applied in this manner, Type II fluid is not as effective as if it were applied cold.

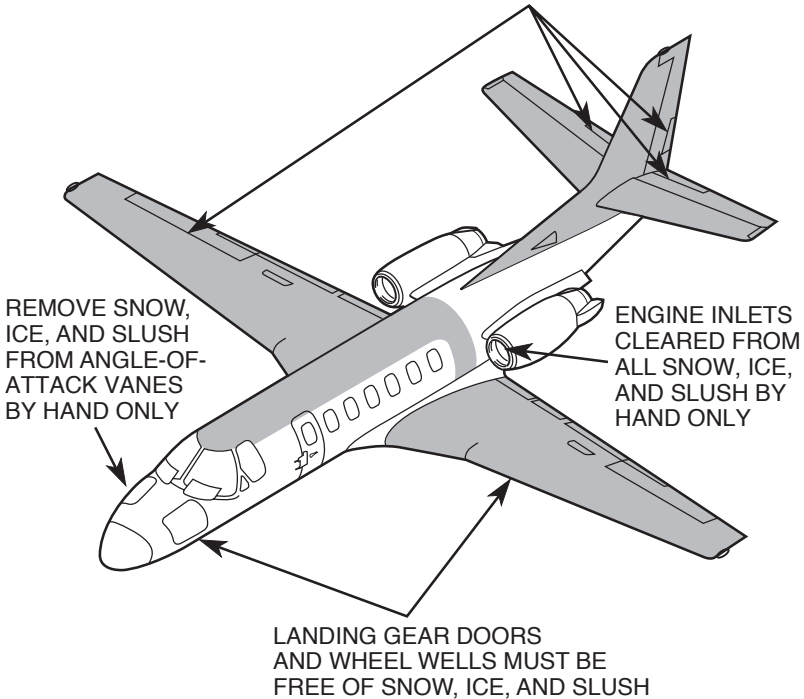
Type II fluid application techniques are the same as for Type I, except that, because the aircraft is already clean, the application should last only long enough to properly coat aircraft surfaces (**Figure 2B-4**, page 2B-53).

Pre-Takeoff Contamination Check

In ground icing conditions, the PIC/SIC conducts a pre-takeoff contamination check within five minutes of takeoff, preferably just prior to taxiing onto the active runway. Critical areas of the aircraft (e.g., empennage, wing, windshield, control surfaces) must be checked to ensure they are free of ice, slush, and snow or that the deice/anti-ice fluids are still protecting the aircraft.

Type I Fluid Spray Pattern

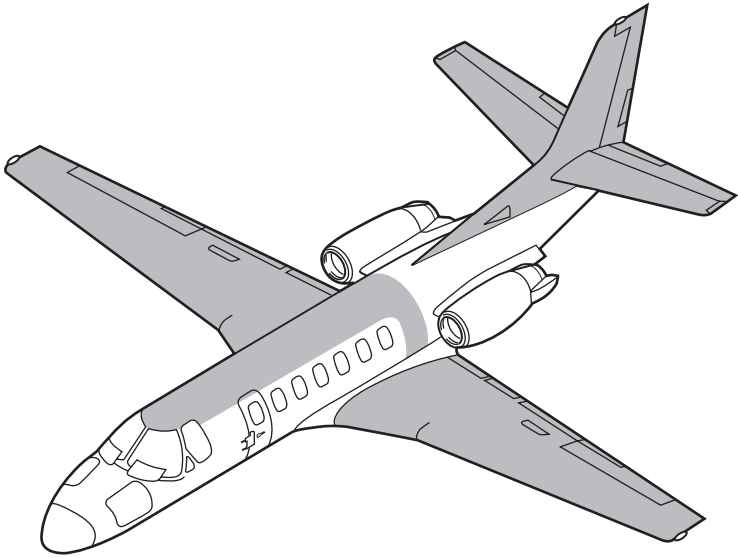
PAY SPECIAL ATTENTION TO THE GAPS BETWEEN THE FLIGHT CONTROLS. ALL SNOW, ICE AND SLUSH MUST BE REMOVED FROM THESE GAPS



NOTE: SHADED AREAS INDICATE ESSENTIAL AREAS TO BE DEICED.

NOTE: MINIMUM DIRECT SPRAY AREAS INCLUDE ENGINE INLETS, ENGINE EXHAUST, RAM AIR INLETS, BRAKES, PITOT HEADS, STATIC PORTS, WINDSHIELD, CABIN WINDOWS, AND AOA VANES

Type II Fluid Spray Pattern



NOTE: SHADED AREAS INDICATE ESSENTIAL AREAS TO BE ANTI-ICED.

NOTE: MINIMUM DIRECT SPRAY AREAS INCLUDE ENGINE INLETS, ENGINE EXHAUST, RAM AIR INLETS, BRAKES, PITOT HEADS, STATIC PORTS, WINDSHIELD, CABIN WINDOWS, AND AOA VANES

Preflight

During preflight preparation, inspect areas where surface snow or frost can change or affect normal system operations. Supplemental preflight checks include the following.

All Engine/Protective CoversREMOVED

SurfaceCHECKED

The wing leading edges, all control surfaces, tab surfaces, and control cavities must be free of frost, ice, or snow. Check control cavities for drainage after snow removal because water puddles may re-freeze in flight.

**Generator/Engine InletsCLEARED OF
INTERNAL ICE/SNOW**

Check that the inlet cowling, generator inlets, and tailcone air inlet are free of ice or snow and that the engine fan is free to rotate.

Fuel Tank VentsCHECKED

Check the fuel tank vents; remove all traces of ice or snow.

Fuel DrainsALL WATER DRAINED

Pitot Heads And Static PortsCLEARED OF ICE

Water rundown resulting from snow removal may re-freeze immediately forward of the static ports. This causes an ice buildup that results in disturbed airflow over the static ports. The disturbed airflow can cause erroneous static readings even though the static ports themselves are clear.

Landing Gear DoorsCHECKED

Make sure the landing gear doors are unobstructed and free of impacted ice or snow.

Air Conditioning Inlets and ExitsCLEARED

Verify that the air inlets and exits are clear of ice or snow.

Aircraft DeicingCOMPLETED

For different deicing fluids, protection (holdover) time varies considerably. Furthermore, this time depends on meteorological conditions.

Preliminary Cockpit PreparationsCOMPLETED

BatteryINSTALLED/PREHEATED/24V DC

EnginePREHEATED

Engine preheating is best accomplished by installing the engine covers and directing hot air through the oil filler access door.

GPU Start

If aircraft is cold-soaked below -10°C, use a GPU and/or pre-heat procedure for starting.

Engine Start

During cold weather starts, initial oil pressure may be slow in rising; the OIL PRESS WARN annunciator may remain illuminated longer than normal.

After Engine Start

NOTE: With temperature -15°C or below, the windshield heat rotary test may not function. The EFIS system may require as long as 20 minutes to align.

**InstrumentsOBSERVED FOR
NORMAL OPERATION**

The engine instruments display approximately normal indications within a short time after reaching idle.

Engine Oil PressureCHECKED

During cold weather starts, the oil pressure may temporarily exceed maximum pressure limits until the oil temperature rises. At low ambient temperatures, tolerate a temporary high pressure above maximum limits, but delay takeoff until the pressure drops into normal limits.

Anti-IceAS REQUIRED

During operation from snow-covered runways, turn on engine anti-ice during taxi and takeoff. Precede takeoff by a static engine run-up to as high a power level as practical to ensure observation of stable engine operation prior to brake release.

If severe icing conditions are present, turn on engine anti-ice immediately after engine start. During prolonged ground operation, perform periodic engine run-up to reduce the possibility of ice buildup. For sustained ground operation, operate the engines at a power setting high enough to extinguish the engine anti-ice annunciators for one out of every four minutes.

Flight ControlsCHECKED

Check for freedom of movement when the aircraft has been exposed for an extended period of time to snow, freezing rain, or other conditions that can restrict flight control movement. Increased control forces can be expected at low temperatures because of the increased resistance in cables and the congealed oil in snubbers and bearings. It may be desirable to accomplish an additional control check prior to taxi.

Wing FlapsCHECKED

CAUTION: When operating the wing flaps during low temperatures, closely observe the flap position indicator for positive movement. Be ready to match the control lever with the indicator if the flaps stop moving.

A/C SwitchesSET MAXIMUM CABIN HEAT

Temperature ControlFULL HOT

Overhead FanHIGH

Pressurization Source (Units 002 to 626)BOTH HI

**Pressurization Source
(C0; C1; C11-627 and sub.; S11)GND**

Temperature ControlREDUCE

Reduce prior to takeoff.

Windshield Bleed AirLOW OR HI

Use windshield bleed air and defog fan to clear the windshield.

Taxi and Before Takeoff

Flaps TAKEOFF

Extend flaps to the takeoff setting at this time if they have been held because of slush or wet snow.

CAUTION: If flaps are left up during taxi to avoid slush and ice, complete the Before Taxi checklist after the flaps are in takeoff configuration.

CAUTION: Use extreme caution when taxiing on ice-covered taxiways or runways because excessive speed or high crosswinds may start a skid. Make all turns at reduced speed.

Before Takeoff Checklist COMPLETE

To ensure the aircraft is configured for takeoff, recheck the flap position indicator.

Takeoff

If Engine Anti-Ice is Used for Takeoff:

Thrust USE ENGINE ANTI-ICE ON SETTINGS

**V₁ and Takeoff Field Length ADJUST IN
ACCORDANCE WITH AFM**

If Aircraft Slides on Ice or Snow During Engine Power Check:

Brakes RELEASE

Takeoff Roll BEGUN

Continue engine checks during the early part of the takeoff roll. On icy runways, expect a lag in nosewheel steering and anticipate corrections. A light forward pressure on the control column increases nosewheel steering effectiveness.

Rejected Takeoff on Slick Runway

Maximum Braking APPLY

Speedbrakes DEPLOY

Reverse Thrust (if applicable) MAXIMUM

Rudder APPLY

Use rudder for primary directional control.

If a Skid Develops:

Reverse Thrust (if applicable) REDUCE

Reduce to idle reverse. If necessary, return the engine to forward thrust to return to runway centerline.

Rudder Pedal Steering AS REQUIRED

Use rudder and differential braking as necessary for directional control. Reduce brake pressure if excessive anti-skid cycling creates directional control problems.

In Flight

CAUTION: If wing ice buildup is noticed, do not turn engine anti-ice on until wing ice erodes. Engine damage may result.

CAUTION: Do not operate the surface deice boots with OAT below -40°C (-40°F) after long exposure to low temperatures unless absolutely necessary. Boot separation may result.

Pitot Heat ON FOR DURATION OF FLIGHT

Windshield Bleed Air LOW OR HI

Use HI at -18°C (0°F) or below. For additional bleed air, increase the power setting with speedbrakes extended.

Windshield Alcohol ON

Use only if windshield bleed air fails. The alcohol, which flows to the pilot's windshield only, lasts approximately 10 minutes.

Engine Anti-Ice ON

Use when operating in visible moisture with the following outside air temperatures.

CO; CI; CII-627 and sub.

All Aircraft 10°C AND BELOW

Surface Deice (CII) AS REQUIRED

Use when wing ice buildup is estimated between ¼ and ½ inch.

Surface Anti-Ice (SII) ON

Taxi-in and Park

Engine Anti-Ice AS REQUIRED

During icing conditions, turn on engine anti-icing. During prolonged ground operation, perform periodic engine run-ups to reduce the possibility of ice buildup. For ground operation, turn on the system one minute out of four with N₂ set at 65%.

If icing conditions are present, leave engine anti-ice on for taxi-in. During prolonged ground operation, perform periodic engine run-up to reduce the possibility of ice buildup. For sustained ground operation, operate the engines at a power setting high enough to extinguish the engine anti-ice annunciators for a minimum of one out of every four minutes.

Windshield Bleed Air LOW OR HI

Use windshield bleed air and the defog fan to clear the windshield.

Securing Overnight or for Extended Period (Aircraft Unattended)

Wheel Chocks CHECKED IN PLACE

Parking Brake OFF

This eliminates the possibility of the brakes freezing.

Engine/Protective Covers INSTALLED

Water Storage Containers DRAINED

Toilets DRAINED

Battery REMOVED

If the ni-cad battery will be exposed to temperatures below -18°C (0°F), remove the battery and store in an area warmer than -18°C (0°F) but below 40°C (104°F). Subsequent re-installation of the warm battery enhances starting capability.

Doors CLOSED AND LOCKED

