Attachment 6

to Operational Factors / Human Performance Group Chairman's Factual Report

DCA00MA005

TAKEOFF AND LANDING OPERATIONAL LIMITS (CONT)

TIP TANK FUEL
Maximum tip tank fuel for landing is 925 pounds (420 kg) each tip tank.

MINIMUM FUEL
Fuel Load — Minimum 600 pounds (272 kg) in each wing required for takeoff and intentional go-around.

PRESSURIZATION
Do not takeoff or land with the cabin pressurized. Adhere to PRESSURIZATION SYSTEM OPERATION, Section II.

SEAT BELTS
Seat belts and shoulder harnesses must be worn during takeoff and landing.

ENROUTE OPERATIONAL LIMITS

TEMPERATURE LIMITS
Refer to AMBIENT TEMPERATURE LIMITS, Figure 1-6A

MAXIMUM OPERATING ALTITUDE
The maximum operating altitude is 45,000 feet. This is the highest altitude for which acceptable flight characteristics and systems operation have been demonstrated.

FLIGHT LOAD ACCELERATION LIMITS
Flaps Up ..... +3.0 g to -1.0 g
Flaps Down ..... +2.0 g to 0.0 g

NOTE

These acceleration values limit the bank angle in a level coordinated turn to 70° (flaps up) and 60° (flaps down). In addition, pullups and pushovers must be limited to these values.

SYSTEM LIMITS (CONT)

ENGINE SYNCHRONIZER (IF INSTALLED)

Engine sync must be OFF for takeoff, landing, and single-engine operation

EXTERNAL POWER

The maximum amperage from an external power source is limited to 1100 amps.

FREON COOLING SYSTEM

- *Aircraft not incorporating FCN 89-1.* The freon cooling system must be off above FL180.
- *Aircraft incorporating FCN 89-1.* The freon cooling system must be off above FL350.

OXYGEN SYSTEM

The following aircraft certification requirements are in addition to the requirements of applicable operating rules. The most restrictive requirement (certification or operating) must be observed.

On aircraft with Scott ATO crew masks, hats and "ear-muff" type headsets must be removed prior to donning crew oxygen masks.

NOTE

Headsets, eyeglasses, or hats worn by crew members may interfere with quick-donning capabilities.

Crew and passenger oxygen masks are not approved for use above 40 000 feet **cabin** altitude.

WARNING

- Passenger masks are intended for use during an emergency descent to an altitude not requiring supplemental oxygen.
- Passenger masks will not provide sufficient oxygen for prolonged operation above 34,000 feet cabin altitude. Prolonged operation above 25,000 feet cabin altitude with passengers on board is not recommended.

SYSTEM LIMITS (CONT)

Above Flight Level 250 —

- *Aircraft with ZMR 100 Series Crew Masks* — One crew member must wear oxygen mask around his neck
- *Aircraft with 6600214 Series Crew Masks* — Crew masks must be in the quick-donning position which allows donning within 5 seconds

Above Flight Level 410 — Pilot, copilot and passengers must wear oxygen masks.

PRESSURIZATION LIMIT

Maximum Differential Pressure . . . . . 10.0 PSI

WINDSHIELD AND RADOME ANTI-ICE FLUID

Methyl Alcohol (Methanol) per Federal Specification O-M-232, Grade A, is required.

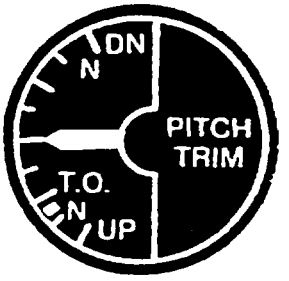
THRUST REVERSERS (IF INSTALLED)

When thrust reversers are installed, refer to the applicable Thrust Reverser Supplement for limitations, normal procedures, emergency procedures, abnormal procedures, and performance data.

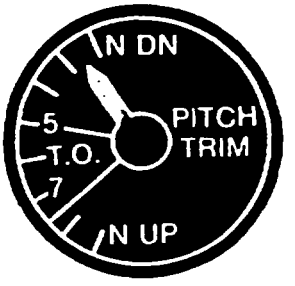
INSTRUMENT MARKINGS (CONT)

TRIM

Aircraft with Standard wing and aircraft with Century III wing and FC-200 Autopilot not incorporating AAK 83-8:

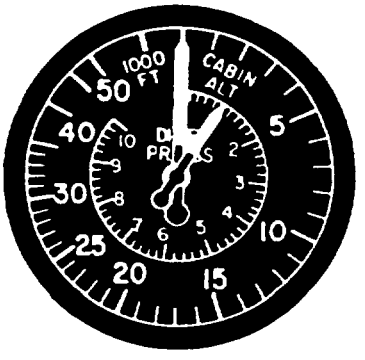


Aircraft with Century III wing and FC-200 Autopilot incorporating AAK 83-8 and aircraft with Century III wing and FC-530 Autopilot:



CABIN ALTIMETER DIFFERENTIAL PRESSURE

Green Arc	0 8.9 PSI
Yellow Arc	8.9-9.2 PSI
Red Arc	9.2-10.0 PSI



INSTRUMENT MARKINGS (CONT)

HYDRAULIC PRESSURE

Yellow Arc ..... 0-500 PSI
Green Arc ..... 1250-1500 PSI
Red Line ..... 1750 PSI

EMERGENCY AIR

Green Arc ..... 1800-3000 PSI
Red Line ..... 3000 PSI

NOTE

If air bottle is serviced near low end of green arc, pressure may drop during flight if system cools; satisfactory gear extension and braking can still be expected.

OR

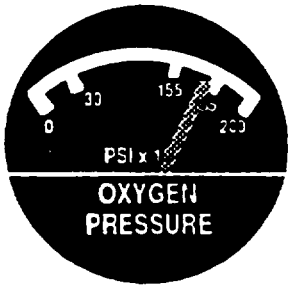
Yellow Arc ..... 0-1800 PSI
Green Arc ..... 1800-3000 PSI
Red Line ..... 3000 PSI

NOTE

If air bottle is serviced near high end of yellow arc (slightly above 1800 psi), pressure may drop during flight if system cools; satisfactory gear extension and braking can still be expected.

OXYGEN PRESSURE

Green Arc ..... 1550-1850 PSI
Yellow Arc ..... 0-300 PSI
Red Line ..... 2000 PSI



INTRODUCTION TO NORMAL PROCEDURES

The procedures in this section of the manual have been developed by Learjet Inc. for certification of this aircraft. This section contains those procedures which may be considered routine in day-to-day operations. The presentation includes, but is not limited to, detailed checklist procedures by flight phase.

THROUGH-FLIGHT PROCEDURES (BOTH ENGINES SHUT DOWN)

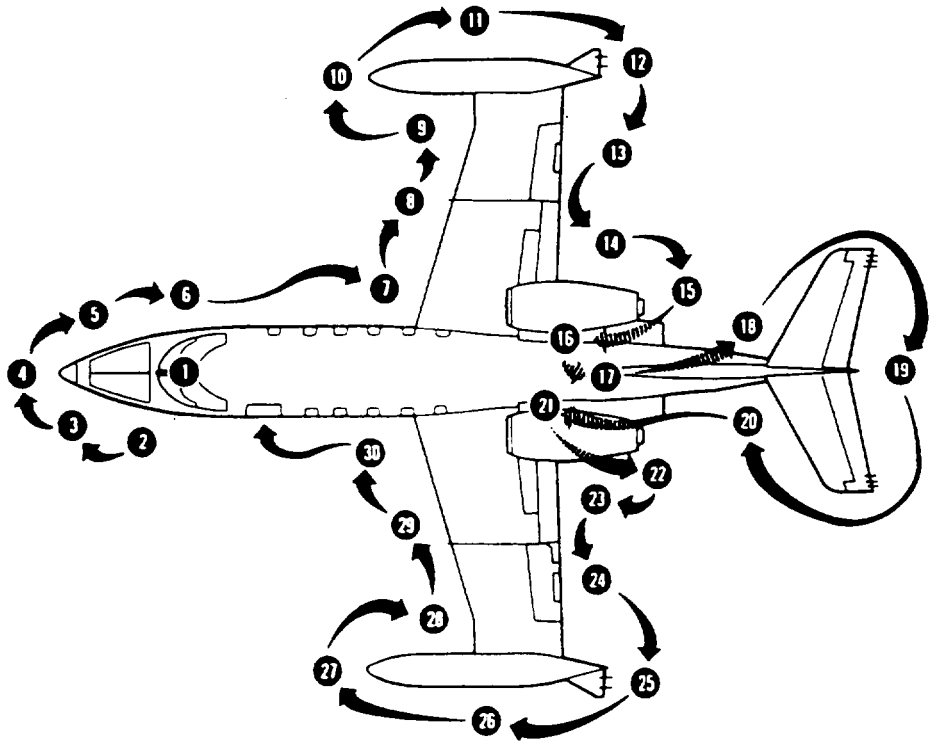
Normal preflight procedures (all checklist line items) must be accomplished prior to takeoff at the original departure point of a flight. At each intermediate stop of flight where both engines are shutdown, the Through-Flight Checklist may be used for preflight provided certain criteria are met during a stop. In the following section, procedures marked with this symbol (◆) denote Through-Flight Checklist items. When permitted, accomplishment of all Through-Flight Checklist items fulfills a minimum preflight requirement.

The Through-Flight Checklist may be used following an intermediate stop with both engines shutdown provided the following criteria have been satisfied during that stop:

- There has been no change in flight crew personnel.
- No maintenance has been performed on the aircraft. Routine line servicing is not considered maintenance.
- No more than three (3) hours have elapsed between engine shutdown and engine start.
- Extreme weather conditions (heavy precipitation, ice, snow, extreme cold, etc.) have not occurred which would change the preflight status of the aircraft.

For intermediate stops with one or no engine shut down, completion of the QUICK TURNAROUND procedure in this section provides the minimum preflight requirements.

EXTERIOR PREFLIGHT



Walk-Around Inspection
Figure 2-1

EXTERIOR PREFLIGHT (CONT)

POWER OFF CHECKS

- During exterior inspection, check all vents clear, access doors for security, and all aircraft surfaces for condition.

1 ◆ a. Controls Lock — Remove and stow.

2 a. Pilot's Windshield Alcohol Discharge Outlets and Pilot's Defog Outlet — Clear of obstructions.

3 ◆ a. Left Pitot Head or Pitot-Static Probe — Cover removed, clear of obstructions.

◆ b. Left Stall Warning Vane — Freedom of movement, leave in down position.

◆ c. *Aircraft with FC-200 Autopilot,* Left Static Ports (2) and Shoulder Static Port (1) — Clear of obstructions.

d. Left Pitot-Static Drain Valves — Drain. Required only if moisture in the pitot-static system is known or suspected.

NOTE

If pitot-static drain valves are opened, ensure that valve stem returns to the closed position.

e. Nose Gear and Wheel Well — Hydraulic leakage and condition.

◆ f. Nose Wheel and Tire — Condition and nose gear uplock forward.

NOTE

Chine on nose tire must be a minimum of 3/4 inch (19 mm) from ground to operate safely with an accumulation of 3/4 inch (19 mm) water on runway surface.

4 a. Radome Alcohol Discharge Port — Clear of obstructions.

b. Radome and Radome Erosion Shoe — Condition.

5 a. Oxygen Bottle Supply Valve (if applicable) — Open (On).

◆ b. Right Pitot Head or Pitot-Static Probe — Cover removed, clear of obstructions.

◆ c. Total Temperature Probe (if installed) — Clear of obstructions.

◆ d. Right Stall Warning Vane — Freedom of movement, leave in down position.

◆ e. *Aircraft with FC-200 Autopilot,* Right Static Ports (2) and Shoulder Static Port (1) — Clear of obstructions.

CABIN PREFLIGHT

◆ 1. Baggage — Secure.
2. Cabin Air Damper Control Knob or Cabin Blower Switch (on blower duct in aft cabin) — As required.

NOTE

- *On aircraft with cabin air damper control knob,* the auxiliary cabin heater will not operate unless damper control knob is in the closed position.
- *On aircraft with cabin blower switch,* when cabin blower switch (on blower duct in aft cabin) is in the OFF position, airflow is diverted above the headliner at all times except during auxiliary heater operation.

◆ 3. Emergency Exit — Aisle clear and handle unobstructed.
◆ 4. Brief passengers. Briefing to include seat belt operation, oxygen system operation, life vest location and operation, emergency evacuation, and fire extinguisher location.

NOTE

- Inform passengers that smoking in the lavatory area when the privacy curtains are closed is prohibited.
- Passengers should be advised not to use portable electronic equipment during takeoff, approach and landing.

BEFORE STARTING ENGINES

◆ 1. Controls Lock — Stowed.
◆ 2. Safety Belts, Shoulder Harnesses, and Seats — Secure and adjust.

NOTE

Ensure that seat is adjusted so that full travel can be obtained on all controls.

◆ 3. Flight Controls — Check. Full travel on all controls.

NOTE

Ensure that, during full rudder pedal movement, foot wear does not hinder movement of rudder pedals.

4. Oxygen System:
   a. PASS MASK Valve — AUTO.
   b. PASS OXY Valve — NORM.
◆ c. OXYGEN PRESSURE Gage — Check.
   d. Crew Masks:
      (1) Check oxygen flow available. Select 100% oxygen.
      (2) *On Scott ATO masks,* check harness inflation.
◆ 5. Circuit Breaker Panels — Breakers depressed.
6. LANDING GEAR Switch — DN.
7. Emergency Power System Check:
   • *Aircraft with Single Emergency Battery System.*
   a. EMER BAT Switch — STBY. Check attitude gyro for starting and erection, and amber EMER PWR light illuminated.
   b. EMER BAT Switch — On. Check attitude gyro operation and amber EMER PWR light illuminated and green gear LOCKED DN lights illuminated.
◆ *For thru flight,* EMER BAT Switch — On. Check attitude gyro for starting and erection.
   • *Aircraft with Dual Emergency Battery System.*
   a. EMER PWR BAT 1 Switch — STBY. Check attitude gyro for starting and erection.
   b. EMER PWR BAT 2 Switch — On. Check both amber EMER PWR lights illuminated, and equipment powered by second emergency battery for operation.
   c. EMER PWR BAT 1 Switch — On. Check attitude gyro for operation, and both amber EMER PWR lights illuminated, and green gear LOCKED DN lights illuminated.
◆ *For thru flight,* both EMER PWR Switches — On. Check attitude gyro for starting and erection.
◆ 8. Panel Switches and Avionics — Off or set:
   a. FUEL CMPTR Switches — ON.
   b. ANTI-SKID Switch — ON.
   c. *Aircraft with FC-200 Autopilot,* Pilot's Altimeter — NORM.

BEFORE STARTING ENGINES (CONT)

NOTE

It is recommended that one engine be started after Step c if external power is not being used. Refer to STARTING ENGINES this section.

d. Cabin Altitude Warning — Check.
   (1) TEST Selector Switch — Rotate to CABIN ALT, then depress and hold TEST button. Cabin altitude warning horn shall sound.
   (2) HORN SILENCE Switch — Momentarily engage. Cabin altitude warning shall cease.
   (3) TEST Button — Release.

e. Stick Puller/Mach Warning Check:
   (1) PRI or SEC INVERTER Switch — PRI or SEC.
   (2) Set Pitch Trim within T.O. segment on PITCH TRIM indicator.
   (3) L STALL WARNING Switch — On.
   (4) TEST Selector Switch — Rotate to MACH.
   (5) Depress and hold TEST button. Control Column shall move aft with approximately 18 pounds force and the aural overspeed warning shall sound. *Aircraft with FC-530 Autopilot*, after approximately 1/2 second, the puller and overspeed warning shall cease. After approximately 1-2 additional second, the puller and overspeed warning shall activate again and then cease. After approximately 1-2 additional second, the overspeed warning shall sound again.
   (6) TEST Button — Release.

f. Mach Trim Check:
   (1) TEST Selector Switch — Rotate to MACH TRIM.
   (2) Depress and hold TEST Button. The stabilizer should trim slowly in the nose up direction for 1 to 3 seconds and then stop. *Aircraft with FC-530 Autopilot*, the trim-in-motion audio clicker may or may not sound. The MACH TRIM warning light shall illuminate and the overspeed warning horn shall sound.
   (3) TEST Button — Release. MACH TRIM warning light shall go out and overspeed warning horn shall cease.

g. Stall Warning System Check:

NOTE

During heavy wind conditions, it may be necessary to head aircraft into the wind to prevent wind from blowing stall warning vanes up.

BEFORE STARTING ENGINES (CONT)

(b) As the needle advances to the red segment, the pusher will actuate briefly, then stop. L STALL warning light will illuminate steady just prior to or at pusher actuation. After pusher stops, the needle shall sweep back and remain in the yellow or green segment.

(4) TEST Button — Release.

(5) Rotate TEST Selector Switch to R STALL. Depress and hold TEST button. The test operation will be identical to Step (3) above except needle will sweep the copilot's angle-of-attack indicator and the red R STALL warning light will flash.

(6) TEST Button — Release.

NOTE

With STALL WARNING switches On, steady illumination of the L or R STALL warning light indicates a malfunction except during pusher actuation or system test.

(7) Repeat Steps (5) and (6) with either control wheel master switch (MSW) depressed. Verify that, as the angle-of-attack indicator needle moves through the band, the nudger and pusher do not actuate. The nudger monitor horn will sound if the needle stays in the yellow segment.

(8) [illegible] (2). Check that both angle-of-attack indicator [illegible] at least one significant shift in position as the flaps are lowered.

(9) STALL WARNING Switches — OFF.

◆ (10) [illegible] Gyro — Uncage.

(11) Pressurization and Temperature Controls — Check and set as follows:

a. Pressurization Controls

NOTE

For manual mode pressurization, refer to PRESSURIZATION SYSTEM OPERATION, this section.

(1) L and R BLEED AIR Switches — Check, On.

(2) CABIN AIR Switch — OFF.

(3) PRESSURIZATION AUTO-MAN Switch — AUTO.

◆ (4) AIRCRAFT ALT Selector Knob — Rotate to cruise altitude.

(5) Cabin RATE Selector — Position as desired.

(6) IN NORMAL-OUT DEFOG Knob — Push in.

BEFORE TAXI

NOTE

After start do not [illegible] air conditioner or auxiliary heater until [illegible] of the following conditions are met

1. Each ammeter [illegible] below 250 amps with both engines operating
2. One ammeter [illegible] below 200 amps with one engine operating

- ◆ 1. Avionics — Set as desired
- ◆ 2. Radar — Standby
- ◆ 3. Circuit Breakers -- Check, in
- ◆ 4. Coffee/Oven Switches (if installed) — As required
- 5. Fuel Control Governor Check
  - a. [illegible] Thrust Lever — IDLE

CAUTION

If the engine accelerates uncontrolled during the following step, set FUEL CMPTR switch On until engine stabilizes at idle. Shut down engine and determine and correct cause prior to flight

  - b. L FUEL CMPTR Switch — OFF. Note L FUEL CMPTR light illuminated (engine RPM may increase or decrease slightly)

CAUTION

If turbine speed does not respond during the following steps, [illegible] engine and determine and correct [illegible]

  - [illegible] advance thrust lever [illegible] [illegible] observed
  - [illegible] thrust lever [illegible] increase in Turbine Speed (N2 [illegible]
  - [illegible] Speed [illegible] thrust lever changes. L FUEL CMPTR switch On and note that L FUEL CMPTR light is out
  - [illegible] Repeat steps a thru [illegible] using R FUEL CMPTR switch and right thrust lever
- ◆ 6. [illegible] Windshield Heat system of possible moisture accumulation [illegible] of day and if exposed to moisture)
  - a. IN NORMAL OUT DEFOG Knob — Pull out
  - b. WSHLD HEAT-MAN-AUTO Switch — AUTO until water has cleared
  - c. WSHLD OV HT Light — Monitor
  - d. WSHLD HEAT AUTO MAN Switch — MAN.
  - e. WSHLD HEAT ON-OFF Switch — OFF until airflow stops
  - f. IN NORMAL OUT DEFOG Knob — Push in.

TAXI AND BEFORE TAKEOFF (CONT)

- One START GEN Switch — OFF. Check ammeter reading on opposite generator increases (approximately doubles), then switch back to GEN.
- Opposite START GEN Switch — OFF. Check ammeter reading on opposite generator increases (approximately doubles), then switch back to GEN.
- MAIN BUS TIE Circuit Breakers (both) — Reset.

• *Aircraft incorporating AMK 80-17 or AAK 81-1*

L CUR LIMITER and R CUR LIMITER Lights — Check extinguished.

Engine Control Governor Check (if second engine is started during taxi) — Perform. Refer to BEFORE TAXI this section.

◆ Altimeters and Ammeters — Check.
◆ Navigation Equipment — Set for takeoff.
◆ Transponder — On.
◆ Radar — As required.
◆ Spoilers — Retracted and SPOILER light out.
◆ Flaps — Set 20° or 8°, check indicator.
◆ Trim — Set for takeoff. Check PITCH TRIM switch in PRI and TO TRIM light out.
◆ Pressurization System — Set.
◆ CABIN AIR Switch — NORM.
◆ CABIN CLIMATE CONTROL Switches — Set.
◆ Anti-ice Systems.

WARNING The wings, vertical stabilizer, horizontal stabilizers, flight control surfaces, and engine inlets must be free of frost, snow, and ice.

NOTE

- Anti-ice systems should be turned on prior to flight into visible moisture and Outside Air Temperature of 40°F (4.4°C) or below.
- If anti-ice systems are required during takeoff, they should be turned On prior to setting takeoff power.

◆ a Windshield Heat — As required.

NOTE Maintain minimum RPM required to keep windshield clear.

b NAC HEAT Switches — ON one at a time. Check amber ENG ICE lights extinguish by 60% Fan Speed (N1).

◆ c NAC HEAT Switches — As required.

d STAB WING HEAT Switch — On. Check for slight up rate on Cabin Climb Indicator.

AFTER TAKEOFF (CONT)

6 Pressurization System:

NOTE For manual mode pressurization, refer to PRESSURIZATION SYSTEM OPERATION, this section.

a. Cabin Altitude and Cabin Climb Indicators — Monitor.
b. Cabin RATE Selector — As desired.

7 LDG LT TAXI Switches — OFF.

8 HYDRAULIC PRESSURE — Check, normal.

9 ANGLE-OF-ATTACK Indicators — Cross-check pilot's and copilot's instruments for relative agreement.

CLIMB

10,000 Ft Checks:

1 NO SMOKING FASTEN SEAT BELT Switch — As required.

18,000 Ft (or Transition Altitude) Checks:

1 Altimeter — Set to 29.92" Hg (1013 mb) at transition altitude.
2 RECOG LT Switch — OFF.
3 COOL-FAN Switch — FAN or OFF at or before FL 180 (if applicable). Refer to FREON COOLING SYSTEM, Section I.
4 Crew Masks — Positioned to quick donning position at or before FL 250. Refer to OXYGEN SYSTEM, Section I. On aircraft with ZMR 100 series diluter-demand crew masks, check 100% OXY selected.

FL 350 Checks:

1 COOL-FAN Switch — FAN or OFF. Refer to FREON COOLING SYSTEM, Section I.

FL 410 Checks:

1 Crew and Passenger Oxygen Masks — Don above Flight Level 410. Ensure lanyards have been pulled.

PRESSURIZATION SYSTEM OPERATION

NOTE

For Automatic Mode operation, refer to BEFORE STARTING ENGINES, AFTER TAKEOFF and DESCENT procedures in this section.

MANUAL MODE OPERATION

1. AUTO-MAN Switch — MAN.
2. UP-DN Manual Control (red) — As required to maintain satisfactory pressurization.
3. To return to automatic operation, proceed as follows:

NOTE

If cabin altitude should increase to 10,000 (±500) feet or above, the automatic mode is deactivated until the cabin altitude is decreased to 7500 feet or below.

a. CABIN ALT Controller — Set at or below 7500 feet.
b. RATE Knob — Turn to full INCR.
c. UP-DN Manual Control (red) — Control to altitude selected on CABIN ALT Controller.
d. CABIN CLIMB Speed Indicator — Stabilize at zero.
e. RATE Knob — Reset to nominal position.
f. AUTO-MAN Switch — AUTO.
g. CABIN ALT Controller — Reset (if required) to appropriate cabin altitude for flight altitude.

OXYGEN SYSTEM

WARNING Smoking is prohibited while oxygen system is in use.

OXYGEN DURATION

The oxygen duration charts in Section IV show oxygen supply duration of a fully charged system as a function of cabin altitude and number of occupants using the system.

- Figure 4-1 is provided for Aircraft with ZMR 100 Series Diluter Demand Crew Masks.
- Figure 4-2 is provided for Aircraft with 6600214 Series Demand Crew Masks.
- Figure 4-3 is provided for Aircraft with Scott ATO Crew Masks.

PASSENGER OXYGEN

WARNING

- Passenger masks are intended for use during an emergency descent to an altitude not requiring supplemental oxygen.
- Passenger masks will not provide sufficient oxygen for prolonged operation above 34,000 feet cabin altitude. Prolonged operation above 25,000 feet cabin altitude with passengers on board is not recommended.

With the PASS OXY Valve in the NORM position, oxygen is available to the passenger oxygen distribution system. With the PASS OXY Valve in the NORM position and the PASS MASK Valve in AUTO, the passenger oxygen masks will drop from their storage compartments if the cabin altitude reaches 14,000 feet. Whenever the oxygen masks deploy, the upper center panel lights will illuminate to provide maximum visibility for donning masks.

NOTE If Generator and Battery switches are Off, automatic presentation of masks will not occur. In this event, turn PASS MASK Valve to MAN to deploy masks if passenger oxygen is required.

2. Use oxygen if pressurization irregularities are encountered above 10,000 feet.
3. If oxygen is required below 14,000 feet cabin altitude
   a. PASS OXY Valve — NORM
   b. PASS MASK Valve — MAN (masks will deploy)

OXYGEN SYSTEM (CONT)

4 When masks fall from their storage compartments, passengers must
   a Don mask.
   b Pull lanyard (releases oxygen to the masks).

NOTE The rebreather bag will inflate at a seemingly slow rate when oxygen is flowing. This is normal.

CREW OXYGEN

1 If oxygen is required by the crew only: PASS OXY Valve — OFF
2 When oxygen masks are worn by the crew, OXY-MIC Switch(es) — ON. Communication between crew members can be accomplished by using the INPH function of the audio control panel and increasing the MASTER VOL level.
3 Crew Oxygen Masks

- **Operate ZMR 100 series diluter-demand crew masks as follows:**
   a With 100% OXY position (control lever down) selected on the mask regulator, the mask will provide 100% oxygen at all cabin altitudes. Maintain the 100% OXY position on undonned masks to reduce crew member action in the event of pressurization system failure or smoke in the cabin. 100% OXY must be selected for cabin altitudes above 20,000 feet.
   b With NORMAL position (control lever up) selected on the mask regulator, the mask will deliver diluted oxygen. When using oxygen at cabin altitudes below 20,000 feet, the NORMAL position should be selected to conserve oxygen and provide greater oxygen duration times.

- **Operate 6600214 series masks with Robertshaw regulators as follows:**
   a With NORMAL selected on the Pressure Regulator Control and "normal" (100% lever locked up) selected on the Diluter Control, the crew mask will deliver automatic oxygen dilution from S.L. to 30,000 feet cabin altitude. Above 30,000 feet cabin altitude, the mask will provide 100% oxygen and maintain a slight positive pressure.
   b To obtain 100% oxygen at any time, depress 100% lever.
   c For emergency operation, select EMERGENCY on the Pressure Regulator Control and depress 100% lever on the Diluter Control. With the regulator controls in this position, the crew mask will deliver 100% oxygen and maintain a slight positive pressure for respiratory protection from smoke and fumes.

OXYGEN SYSTEM (CONT)

- Operate 6600214 series crew masks with Puritan-Bennett regulators as follows:
  a. With NORM selected on the Pressure Regulator Control, the crew mask will deliver automatic oxygen dilution from S.L. to 33,000 feet cabin altitude and 100% oxygen above 33,000 feet cabin altitude. Automatic positive pressure breathing is provided above 39,000 feet cabin altitude.
  b. To obtain 100% oxygen at any time, select 100% on the Pressure Regulator Control.
  c. For emergency operation, select EMER on the Pressure Regulator Control. With the regulator control in this position, the crew mask will deliver 100% oxygen, maintain a slight positive pressure in the mask cup at all times for respiratory protection from smoke or fumes, and automatic positive pressure breathing above 39,000 feet cabin altitude.

- Operate Scott ATO masks as follows:
  a. To check for oxygen availability to the mask while stowed, depress the PRESS TO TEST button/knob on the bottom of mask pressure regulator — oxygen will flow while button is held.
  b. To don crew oxygen masks:
     1. Remove hats and "ear muff" type headsets.

NOTE

Headsets and eyeglasses worn by crew members may interfere with quick-donning capabilities.

     2. Squeeze and hold the red handles on the mask pressure regulator together to inflate the pneumatic harness for donning.
     3. Position harness over the head, position mask as desired, then release red handles.
     4. Ensure that mask is properly sealed. Reposition mask if required.

NOTE

Beards worn by crew members may make proper seating of the mask more difficult.

With the 100% lever extended and the PRESS TO TEST button/knob rotated to the ▬ position, the mask will deliver automatic oxygen dilution from S.L. to 30,000 feet cabin altitude, 100% oxygen above 30,000 feet cabin altitude, and automatic pressure breathing above approximately 37,000 feet cabin altitude.

OXYGEN SYSTEM (CONT)

d. To obtain 100% oxygen at any time, depress 100% lever on mask pressure regulator.

e. For emergency operation, select EMERGENCY (rotate PRESS TO TEST button/knob to ●). With the mask pressure regulator controls in this position the crew mask will deliver 100% oxygen at all cabin altitudes and maintain a positive pressure in the mask cup at all times for respiratory protection from smoke or fumes.

BRAKE SYSTEMS

The primary brake system utilizes hydraulic system pressure for power boost and incorporates an anti-skid system to prevent tire skid and/or tire blow-out during landing or aborted takeoff. The brakes are operated by depressing the upper portion of the rudder pedals.

NOTE

Large temperature differences between wheels after landing may indicate improper brake operation.

A parking brake is installed. The parking brake is operated by depressing and holding the toe brakes (hydraulic system pressurized) and then pulling the PARKING BRAKE handle to set the brakes. Some aircraft have a PARK BRAKE light installed on the instrument panel which illuminates whenever the PARKING BRAKE handle is not fully in.

An emergency air braking system is installed to provide emergency braking in the event of a hydraulic system failure. Refer to EMERGENCY PROCEDURES (Section III) for emergency braking procedures.

NORMAL BRAKING

Anti-skid On Operation:

1. ANTI-SKID Switch — On. Check ANTI-SKID GEN lights extinguished.
2. Apply brakes as required. Maximum braking pressures can be maintained when anti-skid is operative.

NOTE

The takeoff and landing distances with anti-skid On, presented in Section V of this manual, are based on full anti-skid braking from first brake application to complete stop.

ANNUNCIATOR PANEL

The annunciator panel lights may be tested by pressing the test switch under the glareshield which causes the lights to illuminate. Photoelectric cells, outboard of each FIRE PULL or ENG FIRE PULL T-Handle, automatically dim the lights to a level corresponding to existing light in the cockpit or to a minimum preset level for a totally dark cockpit. If an annunciator light illuminates and the condition is corrected, the light will extinguish. If the condition recurs, the light will again illuminate. Any time a red annunciator light illuminates, the MSTR WARN lights on the pilot's and copilot's instrument panel will also illuminate and flash. Depressing the MSTR WARN light will extinguish the MSTR WARN light, however, the annunciator light will remain on as long as the condition exists.

NOTE

The MSTR WARN light may not be resettable if:

1. SPOILER light is flashing
2. Either FIRE PULL or ENG FIRE PULL T-Handle light is flashing
3. L or R STALL light is flashing

EMERGENCY DESCENT

1. Oxygen Masks — Don. Select 100% oxygen.
2. Thrust Levers — IDLE.
3. Autopilot — Disengage.
4. SPOILER Switch — EXT.
5. LANDING GEAR Switch — DN below MMO or VLE as appropriate for altitude. Keep sideslip angles to a minimum (ball centered) when extending gear.
6. Descend at MMO or VLE as appropriate for altitude. Descent from 45,000 feet to 15,000 feet requires approximately 2 minutes 45 seconds.

WARNING If pressurization loss is due to structural failure, limit speeds and maneuvering loads as much as possible in descent.

If Time and Conditions Permit:

7. Transponder — Emergency 7700.
8. Pilot and Copilot OXY-MIC Switches — ON.

NOTE Communication between crew members can be accomplished by using the INPH function of the AUDIO CONTROL PANEL and increasing the MASTER VOL level.

9. Notify [illegible] agency.
10. Check condition of passengers and provide assistance if conditions permit.

NOTE Communication with passengers can be accomplished by using PASS SPKR function of the AUDIO CONTROL Panel and adjusting the PASS SPKR VOL level.

FAILURE TO DEPRESSURIZE ON THE GROUND

1 CABIN AIR Switch — OFF
2 Both BLEED AIR Switches — OFF

OVERPRESSURIZATION (Differential pressure exceeds red arc)

1 AUTO MAN Switch — MAN
2 UP DN Manual Control (red) — UP as required to maintain satisfactory pressurization.

If unable to regulate the overpressurization in manual mode:

3 One BLEED AIR Switch — OFF
4 Adjust power on opposite engine to control cabin pressurization

PRESSURIZATION LOSS AT ALTITUDE

UP TO 10,000 (±500) FEET CABIN ALTITUDE

1 Oxygen Masks — Don. Refer to Section II for oxygen system operation.
2 Engine RPM — Maintain
3 IN NORMAL OUT DEFOG Knob — Push in
4 WSHLD HEAT Switch — AUTO
5 CABIN AIR Switch — OFF
6 AUTO MAN Switch — MAN
7 UP DN Manual Control (red) — As required to maintain satisfactory pressurization

AT 10,000 (±500) FEET CABIN ALTITUDE

1 Cabin altitude aural warning horn will sound

NOTE

At 10,000 (±500) feet cabin altitude, control pressure to the outflow valve is trapped. This deactivates the Automatic Mode and stops cabin altitude from rising higher if the failure is in the automatic control system.

2 If cabin pressurization cannot be maintained, execute EMERGENCY DESCENT as follows:

a. Oxygen Masks — Don. Select 100% oxygen.
b. Thrust Levers — IDLE.
c. Autopilot — Disengage.

PRESSURIZATION LOSS AT ALTITUDE (CONT)

d. SPOILER Switch — EXT.
e. LANDING GEAR Switch — DN below MMO or VLE as appropriate for altitude. Keep sideslip angles to a minimum (ball centered) when extending landing gear.
f. Descend at MMO or VLE as appropriate for altitude. Descent from 45,000 feet to 15,000 feet requires approximately 2 minutes, 45 seconds.

WARNING If pressurization loss is due to structural failure, limit speeds and maneuvering loads as much as possible during descent.

IF CONDITIONS PERMIT

1. Squawk — 7700
2. Transponder OXY MIC Switches — ON

NOTE Communication between cockpit members may be established by using the INPH function of the Audio Control System Panel and increasing the MASTER volume level.

3. Notify controlling agency
4. Monitor condition of passengers and provide assistance if necessary

NOTE Communication with passengers can be accomplished by using PASS SPKR function of the AUDIO CONTROL panel and adjusting the PASS SPKR VOL level.

IF 15,000 FEET CABIN ALTITUDE

1. The passenger oxygen masks will automatically fall from their storage compartments if the PASS MASK Valve is in AUTO and the PASS OXY Valve is in NORM.
2. The upper center panel lights will illuminate to provide maximum visibility for donning masks.
3. Passengers don oxygen masks
4. Passengers pull attaching lanyards to release oxygen to the masks

NOTE The rebreather bag will inflate at a seemingly slow rate when oxygen is flowing. This is normal.

OXYGEN DURATION — MINUTES

Aircraft with ZMR 100 Series Crew Masks

FULLY CHARGED SYSTEM

Final Stabilized Cabin Altitude — 1000 Feet	2 Crew —	2 Crew 2 Pass	2 Crew 4 Pass	2 Crew 6 Pass	2 Crew 8 Pass	2 Crew 9 Pass	2 Crew 11 Pass
40	251	80	48	35	28	25	22
35	182	71	45	33	26	24	20
30	135	63	42	32	26	23	20
25	105	56	39	30	25	23	20
20	175	73	47	35	29	25	23
	84	51	37	29	25	23	20
15	124	63	44	34	28	25	23
	67	45	34	28	24	23	20
10	91						
	54						
8	82	PASSENGER OXYGEN NOT REQUIRED					
	50						
	68						
	48						

- Bold face numbers (xxx) indicate 100% oxygen (100 [illegible] regulator)
- Light face numbers (xxx) indicate Diluter Demand (NORMAL [illegible] regulator)
- Crew and passenger oxygen masks are not approved for use above 30,000 feet cabin altitude. **Passenger durations above 30,000 feet cabin altitude are provided for information only. Passenger masks will not provide sufficient oxygen for prolonged operation above 34,000 feet cabin altitude. Prolonged operation above 25,000 feet cabin altitude with passengers on board is not recommended.**
- Prior to overwater flights, plan oxygen requirements to provide sufficient oxygen for all occupants in the event of a pressurization failure. Additional oxygen may be required to assure that both oxygen duration and range (fuel) requirements are satisfied.
- For cabin altitudes of 10,000 feet and above, the oxygen duration times include cabin altitude ascent time from 8000 feet to final stabilized cabin altitude.
- To calculate oxygen duration for a less than fully charged system the following formula may be used:

Duration = Duration from chart x (system pressure - 1850)

Figure 4-1

OXYGEN DURATION — MINUTES

Aircraft with 6600214 Series Crew Masks

FULLY CHARGED SYSTEM

Final Stabilized Cabin Altitude - 1000 Feet	2 Crew —	2 Crew 2 Pass	2 Crew 4 Pass	2 Crew 6 Pass	2 Crew 8 Pass	2 Crew 9 Pass	2 Crew 11 Pass
	[illegible]	84	51	36	29	25	22
	251	79	47	34	27	24	21
	[illegible]	76	48	35	28	26	22
35	162	71	45	33	26	24	21
	[illegible]	79	49	36	29	25	22
30	135	64	42	32	26	23	20
	252	83	50	37	29	25	22
25	105	56	39	30	25	23	20
	228	81	51	37	30	27	24
20	84	50	37	29	25	23	20
	192	77	50	37	31	28	24
15	67	45	34	28	24	23	20
	163						
10	54						
	153						
8	50	PASSENGER OXYGEN NOT REQUIRED					
	149						
	48						

- Bold [illegible] "XXX" indicate 100% oxygen.
- [illegible] "XXX" indicate Diluter Demand.
- [illegible] oxygen masks are not approved [illegible]
- [illegible] Passenger durations above 30,000 feet cabin altitude are provided for information only. Passenger masks will not provide sufficient oxygen for prolonged operation above 31,000 feet cabin altitude. Prolonged operation above 25,000 feet cabin altitude with passengers on board is not recommended.
- [illegible] extended flights, plan oxygen requirements to provide sufficient oxygen for all occupants in the event of a pressurization failure. Additional oxygen may be required to assure that both oxygen duration and range shell requirements are satisfied.
- For cabin altitudes of 10,000 feet and above, the oxygen duration times include cabin altitude ascent time from 8000 feet to final stabilized cabin altitude.
- To calculate oxygen duration for a less than fully charged system the following formula may be used:

Duration = Duration from chart x (system pressure - 1850)

Figure 4-2

OXYGEN DURATION — MINUTES
Aircraft with Scott ATO Crew Masks
FULLY CHARGED SYSTEM

Final Stabilized Cabin Altitude — 1000 Feet	2 Crew —	2 Crew 2 Pass	2 Crew 4 Pass	2 Crew 6 Pass	2 Crew 8 Pass	2 Crew 9 Pass	2 Crew 11 Pass
40	**261**	**82**	**50**	**36**	**28**	**26**	**22**
	251	79	48	35	27	25	21
35	**192**	**75**	**47**	**35**	**28**	**25**	**22**
	182	71	45	33	26	24	20
30	**145**	**68**	**45**	**34**	**27**	**25**	**22**
	135	64	42	32	26	24	20
25	**153**	**70**	**46**	**34**	**28**	**25**	**22**
	105	56	39	30	25	24	20
20	**203**	**78**	**49**	**37**	**29**	**27**	**23**
	84	50	36	29	24	23	20
15	**261**	**86**	**53**	**39**	**30**	**29**	**25**
	67	45	34	28	24	23	20
10	**253**	PASSENGER OXYGEN NOT REQUIRED					
	54						
8	**153**						
	50						
7	**148**						
	48						

- Bold face numbers (xxx) indicate 100% oxygen
- Light face numbers (xxx) indicate Diluter Demand
- Crew and passenger oxygen masks are not approved for use above 40,000 feet cabin altitude. **Passenger durations above 30,000 feet cabin altitude are provided for information only. Passenger masks will not provide sufficient oxygen for prolonged operation above 34,000 feet cabin altitude. Prolonged operation above 25,000 feet cabin altitude with passengers on board is not recommended.**
- Prior to overwater flights, plan oxygen requirements to provide sufficient oxygen for all occupants in the event of a pressurization failure. Additional oxygen may be required to assure that both oxygen duration and range (fuel) requirements are satisfied.
- For cabin altitudes of 10,000 feet and above, the oxygen duration times include cabin altitude ascent time from 8000 feet to final stabilized cabin altitude.
- To calculate oxygen duration for a less than fully charged system the following formula may be used:

Duration = Duration from chart x (system pressure ÷ 1850)

Figure 4-3

PRESSURIZATION SYSTEM FAILURE

BLEED AIR WARNING LIGHTS — *Aircraft Incorporating AMK 76-7*

If both the BLEED AIR L and BLEED AIR R warning lights illuminate, the secondary pressure regulator of one of the air modulating valves has failed.

1. R BLEED AIR Switch — OFF.
   - If both lights go out, continue flight in this configuration.
   - If both lights do not go out, proceed to step 2.
2. R BLEED AIR Switch — On, and L BLEED AIR Switch — OFF.
   - If both lights go out, continue flight in this configuration.
   - If both lights do not go out, proceed to step 3.
3. Reduce power alternately on each engine until both lights go out. Continue flight with the appropriate engine at reduced power.

If either the BLEED AIR L or BLEED AIR R warning light illuminates, an overheat sensor has tripped the light.

1. Corresponding BLEED AIR Switch — OFF.

FAILURE TO DEPRESSURIZE ON THE GROUND

1. CABIN AIR Switch — OFF

OVERPRESSURIZATION (Differential pressure exceeds red arc)

1. AUTO MAN Switch — MAN.
2. UP DN Manual Control (red) — UP as required to maintain satisfactory pressurization.

If unable to regulate the overpressurization in manual mode:

3. One BLEED AIR Switch — OFF.
4. Adjust power on opposite engine to control cabin pressurization.

PRESSURIZATION SYSTEM FAILURE (CONT)

PRESSURIZATION LOSS AT ALTITUDE

UP TO 10,000 (± 500) FEET CABIN ALTITUDE

1. Oxygen Masks — Don. Refer to Section II for oxygen system operation
2. Engine RPM — Maintain
3. IN NORMAL OUT DEFOG Knob — Push in
4. WSHLD HEAT Switch — AUTO
5. CABIN AIR Switch — OFF.
6. AUTO MAN Switch — MAN.
7. UP DN Manual Control (red) — As required to maintain satisfactory pressurization.

AT 10,000 (± 500) FEET CABIN ALTITUDE

1. Cabin altitude aural warning horn will sound

NOTE

At 10,000 (± 500) feet cabin altitude, control pressure to the outflow valve is trapped. This deactivates the Automatic Mode and stops cabin altitude from rising higher if the failure is in the automatic control system

2. If cabin pressurization cannot be maintained, execute EMERGENCY DESCENT as follows

   a. Oxygen Masks — Don. Select 100% oxygen
   b. Thrust Levers — IDLE
   c. Autopilot — Disengage.
   d. SPOILER Switch — EXT
   e. LANDING GEAR Switch — DN below M_{MO} or V_{LE} as appropriate for altitude. Keep sideslip angles to a minimum (ball centered) when extending landing gear.
   f. Descend at M_{MO} or V_{LE} as appropriate for altitude. Descent from 45,000 feet to 15,000 feet requires approximately 2 minutes, 45 seconds.

WARNING

If pressurization loss is due to structural failure, limit speeds and maneuvering loads as much as possible during descent.

PRESSURIZATION SYSTEM FAILURE (CONT)

PRESSURIZATION LOSS AT ALTITUDE (CONT)

IF TIME AND CONDITIONS PERMIT:

g. Transponder — 7700.
h. Pilot and Copilot OXY MIC Switches — ON.

NOTE

Communications between crew members can be accomplished by using the INPH function of the Audio Control System Panel and increasing the MASTER VOL level.

i. Notify controlling agency.
j. Check condition of passengers and provide assistance if conditions permit.

NOTE

Communication with passengers can be accomplished by using PASS SPKR function of the AUDIO CONTROL panel and adjusting the PASS SPKR VOL level.

AT 14,000 (±750) FEET CABIN ALTITUDE:

1. The passenger oxygen masks will automatically fall from their storage compartments if the PASS MASK Valve is in AUTO and the PASS OXY Valve is in NORM.
2. The upper center panel lights will illuminate to provide maximum visibility for donning masks.
3. Passengers don oxygen masks.
4. Passengers pull attaching lanyards to release oxygen to the masks.

NOTE

The rebreather bag will inflate at a seemingly slow rate when oxygen is flowing. This is normal.

PRESSURIZATION SYSTEM FAILURE (CONT)

PRESSURIZATION LOSS AT ALTITUDE (CONT)

TO RETURN TO AUTOMATIC PRESSURIZATION MODE:
If cabin pressurization control is regained in the manual mode, and it is desired to return to automatic mode of operation, proceed as follows:

NOTE

Whenever cabin altitude increases to 10,000 (±500) feet or above, the automatic mode is deactivated until the cabin altitude is decreased to 7500 feet or below.

1. CABIN ALT Controller — Set at or below 7500 feet.
2. RATE Knob — Turn to full INCR.
3. UP DN Manual Control (red) — Control to altitude selected on CABIN ALT Controller.
4. CABIN CLIMB Indicator — Stabilize at Zero.
5. RATE Knob — Reset to nominal position.
6. AUTO MAN Switch — AUTO.
7. CABIN ALT Controller — Reset (if required) to appropriate cabin altitude for flight altitude.

OXYGEN DURATION — MINUTES
Aircraft with ZMR 100 Series Crew Masks
FULLY CHARGED SYSTEM

Final Stabilized Cabin Altitude — 1000 Feet	2 Crew —	2 Crew 2 Pass	2 Crew 4 Pass	2 Crew 6 Pass	2 Crew 8 Pass	2 Crew 9 Pass	2 Crew 11 Pass
40	251	80	48	35	28	25	22
35	182	171	85	53	36	30	26
30	135	63	42	32	26	24	21
25	105	56	39	30	25	23	20
20	175	73	47	35	29	26	23
	84	51	37	29	25	23	20
15	124	63	44	34	28	26	23
	67	45	34	28	24	23	20
10	91	PASSENGER OXYGEN NOT REQUIRED					
	54						
8	82						
	50						
7	78						
	48						

- **Bold** face numbers (xxx) indicate 100% oxygen (100% OXY position on regulator).
- Light face numbers (xxx) indicate Diluter Demand (NORMAL position on regulator).
- Crew and passenger oxygen masks are not approved for use above 40,000 feet cabin altitude. **Passenger durations above 30,000 feet cabin altitude are provided for information only. Passenger masks will not provide sufficient oxygen for prolonged use above 34,000 feet cabin altitude. Prolonged operation above 25,000 feet cabin altitude with passengers on board is not recommended.**
- Prior to overwater flights, plan oxygen requirements to provide sufficient oxygen for all occupants in the event of a pressurization failure. Additional oxygen may be required to assure that both oxygen duration and range (fuel) requirements are satisfied.
- For cabin altitudes of 10,000 feet and above, the oxygen duration times include cabin altitude ascent time from 8000 feet to final stabilized cabin altitude.
- To calculate oxygen duration for a less than fully charged system the following formula may be used:

Duration = Duration from chart x (system pressure ÷ 1850)

Figure 4-1

OXYGEN DURATION — MINUTES

Aircraft with 6600214 Series Crew Masks

FULLY CHARGED SYSTEM

Final Stabilized Cabin Altitude — 1000 Feet	2 Crew —	2 Crew 2 Pass	2 Crew 4 Pass	2 Crew 6 Pass	2 Crew 8 Pass	2 Crew 9 Pass	2 Crew 11 Pass
40	267	84	51	36	29	26	22
	251	**79**	**47**	**34**	**27**	**24**	**21**
35	195	76	48	35	28	26	22
	182	**71**	**45**	**33**	**26**	**24**	**21**
30	219	79	49	36	29	26	22
	135	**64**	**42**	**32**	**26**	**23**	**20**
25	252	83	50	37	29	26	22
	105	**56**	**39**	**30**	**25**	**23**	**20**
20	228	81	51	37	30	27	24
	84	**50**	**37**	**29**	**25**	**23**	**20**
15	192	77	50	37	31	28	24
	67	**45**	**34**	**28**	**24**	**23**	**20**
10	163	PASSENGER OXYGEN NOT REQUIRED					
	54						
8	153						
	50						
7	148						
	48						

- **Bold** face numbers (xxx) indicate 100% oxygen.
- Light face numbers (xxx) indicate Diluter Demand.
- Crew and passenger oxygen masks are not approved for use above 40,000 feet cabin altitude. **Passenger durations above 30,000 feet cabin altitude are provided for information only. Passenger masks will not provide sufficient oxygen for prolonged use above 34,000 feet cabin altitude. Prolonged operation above 25,000 feet cabin altitude with passengers on board is not recommended.**
- Prior to overwater flights, plan oxygen requirements to provide sufficient oxygen for all occupants in the event of a pressurization failure. Additional oxygen may be required to assure that both oxygen duration and range (fuel) requirements are satisfied.
- For cabin altitudes of 10,000 feet and above, the oxygen duration times include cabin altitude ascent time from 8000 feet to final stabilized cabin altitude.
- To calculate oxygen duration for a less than fully charged system the following formula may be used:

Duration = Duration from chart x (system pressure + 1850)

Figure 4-2

OXYGEN DURATION — MINUTES

Aircraft with Scott ATO Crew Masks

FULLY CHARGED SYSTEM

Final Stabilized Cabin Altitude — 1000 Feet	2 Crew —	2 Crew 2 Pass	2 Crew 4 Pass	2 Crew 6 Pass	2 Crew 8 Pass	2 Crew 9 Pass	2 Crew 11 Pass
40	261	**82**	**50**	**36**	**28**	**26**	**22**
	251	**79**	**48**	**35**	**27**	**25**	**21**
35	192	**75**	**47**	**35**	**28**	**25**	**22**
	182	**71**	**45**	**33**	**26**	**24**	**20**
30	145	**68**	**45**	**34**	**27**	**25**	**22**
	135	**64**	**42**	**32**	**26**	**24**	**20**
25	153	70	46	34	28	25	22
	105	56	**39**	**30**	**25**	**24**	**20**
20	203	78	49	37	29	27	23
	84	50	**36**	**29**	**24**	**23**	**20**
15	261	86	53	39	32	29	25
	67	45	**34**	**28**	**24**	**23**	**20**
10	253	**PASSENGER OXYGEN NOT REQUIRED**					
	54						
8	153						
	50						
7	148						
	48						

- **Bold** face numbers (**xxx**) indicate 100% oxygen.
- Light face numbers (xxx) indicate Diluter Demand.
- Crew and passenger oxygen masks are not approved for use above 40,000 feet cabin altitude. **Passenger durations above 30,000 feet cabin altitude are provided for information only. Passenger masks will not provide sufficient oxygen for prolonged use above 34,000 feet cabin altitude. Prolonged operation above 25,000 feet cabin altitude with passengers on board is not recommended.**
- Prior to overwater flights, plan oxygen requirements to provide sufficient oxygen for all occupants in the event of a pressurization failure. Additional oxygen may be required to assure that both oxygen duration and range (fuel) requirements are satisfied.
- For cabin altitudes of 10,000 feet and above, the oxygen duration times include cabin altitude ascent time from 8000 feet to final stabilized cabin altitude.
- To calculate oxygen duration for a less than fully charged system the following formula may be used:

Duration = Duration from chart x (system pressure ÷ 1850)

Figure 4-3