servicing guide
# LOCKHEED-CALIFORNIA COMPANY
## L-1011 SERVICING GUIDE

**CAUTION**

THIS DOCUMENT SHOULD BE USED AS A GUIDE ONLY. WHILE THE INFORMATION CONTAINED HEREIN WAS CORRECT AT THE TIME OF WRITING, IT MAY NOT ALWAYS REPRESENT ACTUAL CONFIGURATION AT ANY POINT IN TIME THEREAFTER. IF A DISAGREEMENT OCCURS BETWEEN THIS GUIDE AND THE MAINTENANCE MANUAL, THE L-1011 MAINTENANCE MANUAL IS THE FINAL AUTHORITY.

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BURBANK, CALIFORNIA

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Prepared by:
Commercial Customer Training Department

This book belongs to: ____________________________

P.S.C. 81-01358
JUNE 1981

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# ILLUSTRATED CONTENTS

**ATA Numbers are in Circles**

![Diagram of aircraft showing various systems and components](image)
ACCESS DOORS AND PANELS

- Fueling Connections Access Panel
- IDG Access Panel
- Starter Access Panel
- Engine Oil Access Panel
- ECS Compartment Access Panel
- Fwd Waste Service Panel Access
- Fwd Electronics Service Center Access Door
- Pre-Conditioned Ground Air Connections
- APU Shutdown and Fire Extinguisher External Controls
- Hydraulic Service Center Access Doors
- Air Turbine Motor
- Keelson Access Pneumatic Ground Connections (3)
- Mid-Electrical Service Center Access
- Fueling and Defuel Control Panel and Connections
- APU Compartment Access Doors (4)
- No. 2 Eng/APU Fire Extinguishers
- Aft Waste Service Panel

NOTE: Shaded areas indicate walkways. All other areas are no step areas.

CAUTION: Use care when working around these areas. Observe all NO STEP areas; panels are very easily damaged.
AIR CYCLE MACHINE

Service with ________________
Gravity fill to the level of the fill port.
Total of 3 units to service.

CAUTION: Never remove oil sump from
the ACM. The oil wick installation is very
critical and if disturbed, may restrict oil to
the bearings.

ACCESS:
ECS COMPARTMENT DOOR
ECS COMPARTMENT DOOR

Lower fuselage, outboard of NLG

SERVICE INTERPHONE LOCATIONS

OUTBOARD OF RIGHT REFUELING PANEL AND CONNECTION
INBOARD AILERON
RIGHT MAIN GEAR DOOR CONTROL
AFT CARGO COMPARTMENT
(IN AFT ELECTRONICS EQUIPMENT AREA)

VERTICAL STABILIZER
AFT END OF APU
LEFT MAIN GEAR DOOR CONTROL
INBOARD AILERON

NO. 3 ENGINE OUTSIDE ACCESS
MID-ELECTRICAL SERVICE CENTER
FWD CARGO COMPARTMENT
RIGHT AIR CONDITIONING COMPARTMENT
FE/SE JACK PANEL
FWD ELECTRONIC SERVICE CENTER
NOSE WHEEL WELL (IS ON FLIGHT INTERPHONE)
GROUND POWER RECEPTACLE
NO. 1 ENGINE OUTSIDE ACCESS
OUTBOARD OF LEFT REFUELING CONNECTION
The **SERVICE INTERPHONE** control switch (A) on the flight engineer's **MIC SELECTOR & JACK PANEL** activates the external jacks. Power for operation of the service interphone system is obtained from the DC ground service bus.

To use the **SERVICE INTERPHONE** system, actuate the following switch:

1. **SERVICE INTERPHONE** (A) — DEPRESS

One **FLIGHT INTERPHONE** jack located inside the LH aft nose wheel door can also be used for ground-to-flight station communication when desired or when the service interphone operation is not available. Power for operation of the **FLIGHT INTERPHONE** is obtained from the DC Ground Service Bus, the ESS DC Bus, or the HOT BATT BUS. To use the **FLIGHT INTERPHONE**, actuate the following switches on the audio selector panel:

1. INT (MIC SEL) (B) — DEPRESS
2. INT (C) — DEPRESS and ROTATE to adjust volume.
ELECTRICAL EXTERNAL POWER RECEPTACLE

When external power source is plugged in and operating, the NOT IN USE light is ON, indicating that the external power relay is de-energized.

CONNECT GROUND POWER CORD RATED AT:
90 KVA, 115/200V
400 Hz

GROUND SERVICE BUS ELECTRICAL POWER CONTROL

Ground service buses can be powered from the APU generator or an external power source. The ground service selector switch on the FE/SO panel permits selection of APU or external power. The switch on the left fwd attendant's panel can only power the ground service buses from external power.

NOTE: The ground service switchlight at the attendant's panel overrides the ground service switch at the FE/SO panel.
See servicing instructions on next page.

**NOTE:** Battery weight 138 lb. BATTERY MUST BE GROUNDED TO AIRCRAFT STRUCTURE.

**CAUTION:** Do not disconnect battery connector unless battery switch has been placed in off position and battery charger circuit breaker (CB-3, A-15) is open.

**CAUTION:** Use extreme care when installing the small electrical connector (J2). The pins can be contacted and bent while rotating the connector to align the guide.

**ACCESS:** Mid Electrical Service Center, on floor, right side.

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## BATTERY SERVICING PROCEDURE

2. Remove battery cover, clean vent caps and tops of cells as necessary using a non-metallic brush, clean cloth, and clean water.
3. Remove filler caps and shine a flashlight beam down into each filler well. If ANY magic eye glow indicator glows, remove ALL cell filler caps.
   
   **NOTE:** ELECTROLYTE LEVEL CHECK SHOULD BE MADE AFTER A CHARGING PERIOD, IF POSSIBLE.

4. Add distilled water as required to each cell to bring level up to but not higher than the step in the baffle visible through the open filler port. Do NOT remove any liquid from cells whose level may be above the step before filling.
   
   **CAUTION:** Do not overfill battery. Avoid contact with electrolyte.

   Do not contaminate electrolyte in nickel-cadmium battery by using electrolyte adjustment equipment such as a dirty syringe or one that has been used to fill lead-acid batteries. Contamination from acid or impurity can seriously shorten battery life and decrease capacity. When servicing battery or handling electrolyte keep all metallic objects such as tools, wire brushes, watch bands, and rings away from uncovered battery cells.

5. If any cell requires an excessive amount of water, as compared to other cells, or there is any evidence of cell distortion, intercell connector looseness, or overheating, battery should be replaced.
6. Replace all filler caps, install battery cover and secure hold down clamps.
7. Remove tag and close circuit breaker opened in step 1.
Emergency Escape Slide/Rafts are installed in containers mounted on the inboard side of each of the cabin doors.

If cylinder pressure is below minimum dispatch pressure, replace entire escape slide assembly with a serviceable unit. See pressure chart on following page.

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<th>CYLINDER TEMPERATURE (°F)</th>
<th>PRESSURE (psi)</th>
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<tbody>
<tr>
<td>-20</td>
<td>2025</td>
</tr>
<tr>
<td>0</td>
<td>2250</td>
</tr>
<tr>
<td>+20</td>
<td>2450</td>
</tr>
<tr>
<td>40</td>
<td>2675</td>
</tr>
<tr>
<td>60</td>
<td>2875</td>
</tr>
<tr>
<td>+70°F</td>
<td>3000</td>
</tr>
<tr>
<td>80</td>
<td>3100</td>
</tr>
<tr>
<td>100</td>
<td>3300</td>
</tr>
<tr>
<td>120</td>
<td>3500</td>
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AIRCRAFT GROUNDING SEQUENCE

Ground Sequence Procedure
First – Attach one leg of fueling truck/hydrant cart "Y" ground cable to an approved ground terminal. (B)
Second – Attach second leg of "Y" ground cable to the static ground lug on the MLG truck positioner cylinder. (A) or fuselage static ground lug.

FUEL TANK LAYOUT

<table>
<thead>
<tr>
<th>CAPACITIES</th>
<th>2L OUTBD</th>
<th>2L INBD</th>
<th>1A</th>
<th>3A</th>
<th>2R INBD</th>
<th>2R OUTBD</th>
<th>213,240 LBS</th>
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<tr>
<td>2L OUTBD</td>
<td>8,670 LBS</td>
<td>53,070 LBS</td>
<td>27,000 LBS</td>
<td>16,980 LBS</td>
<td>8,670 LBS</td>
<td>96,724 KGS</td>
<td></td>
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<tr>
<td>2L INBD</td>
<td>16,980 LBS</td>
<td>24,480 KGS</td>
<td>12,247 KGS</td>
<td>12,247 KGS</td>
<td>7,702 KGS</td>
<td>3,933 KGS</td>
<td></td>
</tr>
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<td>1A</td>
<td>53,070 LBS</td>
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<td>7,702 KGS</td>
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<td>2R INBD</td>
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<td>2R OUTBD</td>
<td>8,670 LBS</td>
<td>3,933 KGS</td>
<td></td>
<td></td>
<td></td>
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**CAUTION:** Fueling facility pressure should not exceed 50 psi.

**NOTE:** If fueling facility pressure is low — valve closed lights may blink prior to valve closing. In some cases truck pressure may start surging — this can be corrected by momentarily closing a fueling valve.

**CAUTION:** To avoid boost pump cavitation — follow boost pump defueling instructions in referenced procedure.

**WARNING:** DO NOT operate the fuel jettison master (or tank dump valve) guarded switchlight on the FE/SE panel. Operation of the fuel jettison master switchlight, to open, will open the jettison shutoff valves CAUSING A FUEL SPILL.
FUEL TRANSFER

A. At right and left wing fueling points verify that fueling adapter caps are securely installed.

B. Perform ALL steps of defueling procedure. Be sure to connect static ground wires.

C. At wing fueling control panel —
   1. Place ISOLATION VALVE switch in OPEN position for cross-aircraft (ONLY) fuel transfer.
   2. Place DEFUEL VALVE switch of tank being defueled to OPEN position. See WARNING below.
   3. Place fuel shutoff valve (FUELING VALVE) switch of tank receiving fuel to OPEN position.

D. At the FE/SE fuel system panel, turn BOOST PUMPS ("Tank-Pumps") ON in tank being defueled.
   1. To defuel Tanks 1A and/or 3A, the Tank 1A and/or 3A XFR switchlight must be latched-in.

E. At wing fueling control panel —
   1. Monitor gauges. "SET BUGs" may be used to automatically terminate fuel flow into receiving tanks at desired quantity. NOTE: FUELING VALVE switches and DEFUEL VALVE switches may also be used (Steps E-2 and E-3) to manually terminate fuel transfer at desired quantity.

CAUTION: If tank is to be completely defueled, follow boost pump defueling instructions in referenced procedure — to avoid boost pump cavitation.

After fuel transfer operation is completed:

2. Place FUELING VALVE switch of tank receiving fuel to CLOSE position.

3. Place DEFUEL VALVE switch of tank being defueled to CLOSE position. See WARNING.

4. Place ISOLATION VALVE switch to CLOSE position (if opened in Step C-1).

5. Place SYSTEM POWER switch to OFF position, disconnect static ground wires, and close access panel.

F. At the FE/SE fuel system panel, turn BOOST PUMPS OFF, and unlatch Tank 1A and/or 3A XFR switchlight.

WARNING: DO NOT operate the fuel jettison master (or tank dump valve) guarded switchlight on the FE/SE panel.

Operation of the fuel jettison master switchlight, to open, will open the jettison shutoff valves CAUSING A FUEL SPILL.

MAGNETIC FUEL LEVEL SIGHT GAUGE

Fuel level sight gauges are used to read fuel quantity from under the wing. A calibrated stick and float magnetically latch when the end of the stick and the float are at the same level.

To measure fuel level, insert tool into end of calibrated stick, push and turn counterclockwise to unlock bayonet lock. Stick may not extend by gravity. Slowly pull stick down until it magnetically latches to the float. The stick will now follow the float up or down as fuel level changes.

The stick is calibrated in kilos. Read stick calibrations flush with sight gauge collar.

When measurement is complete, push stick back in and turn to lock. As the stick is pushed back in, the magnetic latch will disengage.
**FUEL SIGHT GAUGES**

**NOTE:**
1. Use stick 6 to read tank 1 and 3 fuel quantities less than 45,000 lbs. Use stick 5 if tank contains more than 45,000 lbs of fuel.
2. Use stick 1 to read fuel quantity in outboard section of tank 2L/2R. Use fuel panel gauges to read fuel quantities lower than 7500 lbs that are not readable on stick 1.
   - If stick 1 reads between 7500 lbs and 8250 lbs, record stick 1 reading as amount of fuel in outboard section.
   - If stick 1 reading is higher than 8250 lbs, record 8270 lbs as amount of fuel in outboard section.
3. Read stick 2, 3 or 4 (as noted below) to determine quantity of fuel in tank 2L/2R inboard section.
   - Use stick 4 to read fuel quantities between 1750 and 8250 lbs. Use panel gauges to record fuel quantities below 1750 lbs that are not readable on stick 4.
   - Use stick 3 to read fuel quantities between 8250 and 12,000 lbs.
   - Use stick 2 to read fuel quantities greater than 12,000 lbs.
4. Use fuel sight gauge correction tables to correct stick readings for aircraft pitch and roll attitude.
5. Fuel will automatically transfer from the outboard section of tank 2L/2R to the inboard section until fuel in the inboard section rises above approximately 1000 lbs at which time transfer of fuel ceases. Fuel transfer will resume again when the outboard section is full.
6. Read stick 7 to determine quantity of fuel in tank 1A/3A. Use fuel panel gauges to record fuel quantities below 281 lbs that are not readable on stick 7.

**NOTE:** If aircraft is not level, refer to ATA 12-11-03 Fuel Gauge Correction Tables.

---

**FUEL AND CONDENSATION DRAIN VALVES**

**WING TANK FUEL/CONDENSATE DRAIN VALVE (TYPICAL 10 PLACES)**

**TURN 30° CW AND PUSH TO DRAIN**

**RELEASE PRESSURE AND TURN 30° CW TO STOP DRAINING**

**POPPET HEAD IS IN LOCKED POSITION WHEN FOURS TANGS ALIGN WITH INDEX MARKS (AS SHOWN)**

**TANK 1A/3A FUEL CONDENSATE DRAIN VALVE (TYPICAL 2 PLACES)**

**TURN PROBE 90 DEGREES AND PUSH IN TO DRAIN**

**RELEASE PRESSURE AND TURN 90° TO LOCKED POSITION TO STOP DRAINING**

**VALVE IS LOCKED CLOSED WHEN SLOT AND INDEX MARKS LINE UP (AS SHOWN)**
HYDRAULIC RESERVOIR SERVICING

Service with:
Check and service fluid quantity per placards located in hydraulic service center. See pages 29-2 and 29-3.

HYDRAULIC FILL QR COUPLING

HYDRAULIC RESERVOIR SERVICE ADAPTER

HYDRAULIC SYSTEMS SERVICING PANEL

FROM CONTAINER

TO PUMP

RESERVOIR SERVICING INSTRUCTIONS

HANDPUMP

HYDRAULIC SERVICE CENTER FORWARD ACCESS DOOR

FWD

HYDRAULIC SERVICE CENTER AFT ACCESS DOOR

ACCESS: Hydraulic servicing center, access door 147AB, between MLG wheelwells

HYDRAULIC RESERVOIR SERVICING

INSTRUCTIONS

SYS PRESSURIZATION
PRESSURIZE EACH SYS AS FOLLOWS:
SYS A: SYS AC MOTOR/UP PUMP; OIL TO A.P.T.U. START
SYS B: SYS AC MOTOR/UP PUMP; OIL TO A.P.T.U. START
SYS C: SYS AC MOTOR/UP PUMP; OIL TO A.P.T.U. START
SYS D: SYS AC MOTOR/UP PUMP; OIL TO A.P.T.U. START

RESERVOIR QUANTITY CHECK
CHECK FOR FOLLOWING:
MLG DOOR CLOSED - SPOLE DE - RETRACTED SYS PRESSURIZED
SYS A, B, C: 2500 PSI MIN; SYS D, 2050 PSI MIN
SELECT RESERVOIR QUANTITY INDICATION
RED RANGE: UNSAFE SERVICE PER PLACARD AT RESERVOIR + USE LOCK-HEID SPEC C-M 329N FLUID
RESERVOIR SERVICE INSTRUCTIONS

NOTICE: RESERVOIR GAGE WILL SHOW TRUE QUANTITY OF FLUID ONLY WHEN SYSTEM IS PRESSURIZED & DIAL SET AT FLUID TEMPERATURE.

FLUID QUANTITY CHECK
• PRESSURIZE HYDRAULIC SYSTEM PER SERVICE PANEL INSTRUCTIONS
• OBSERVE SYSTEM FLUID TEMPERATURE ON SERVICE PANEL GAGE
• TURN RESERVOIR DIAL TO FLUID TEMPERATURE WHICH WAS OBSERVED
• IF DIAL NEEDLE IS IN RED ZONE, PERFORM FILL AS NOTED BELOW
• IF DIAL NEEDLE IS IN GREEN ZONE, PERFORM AIR CHECK
• IN YELLOW ZONE, PERFORM OVERFILL DRAIN

FILL
• CONNECT GROUND SERVICE CART TO SERVICE PANEL COUPLING
• PRESSURIZE HYDRAULIC SYSTEM PER SERVICE PANEL INSTRUCTIONS
• TURN RESERVOIR DIAL TO FLUID TEMPERATURE
• FILL AT ABOUT 1.0 CPW UNTIL RESERVOIR DIAL NEEDLE IS AT FULL

AIR CHECK
• PRESSURIZE HYDRAULIC SYSTEM PER SERVICE PANEL INSTRUCTIONS
• TURN RESERVOIR DIAL TO ALIGN LEFT DOT IN GREEN ZONE WITH NEEDLE
• WHILE OBSERVING DIAL OPERATE DEPRESSURIZATION VALVE AT BASE
• IF ROTARY VALVE, TURN RAPIDLY 90 DEGREES TO STOP AND RELEASE
• IF PUSH BUTTON VALVE, DEPRESS FULLY AND RELEASE
• IF NEEDLE SWEEPS PAST ANOTHER DOT, PERFORM AIR BLEED BELOW

AIR BLEED
• CONNECT TRANSPARENT HOSE TO AIR BLEED VALVE NIPPLE
• PRESSURIZE HYDRAULIC SYSTEM PER SERVICE PANEL INSTRUCTIONS
• DEPRESS AIR BLEED VALVE BUTTON UNTIL FLUID IN HOSE RUNS CLEAR
• PERFORM AIR QUANTITY AND FLUID QUANTITY CHECKS

OVERFILL DRAIN
• SET RESERVOIR DIAL AT FLUID TEMPERATURE, PERFORM AIR BLEED
• DEPRESS BUTTON UNTIL DIAL NEEDLE IS AT FULL MARK

(Placards located on each wall between reservoirs)

WARNING: Do not confuse the RAT ground test switch (guarded and safetied with 0.032 in. steel wire) located directly BELOW the hydraulic service compartment light switch located ON the hydraulic service panel.

PRESSURIZING HYDRAULIC SYSTEMS WARNINGS:
Verify the following before pressurizing any hydraulic system:
A. Landing gear downlock safety pins and door safety devices are installed.
B. Travel areas of all flight control surfaces and main gear doors are clear of personnel and ground equipment.
C. The affected hydraulic systems can accept hydraulic pressure without injury to personnel or damage to components.

CAUTION: RESERVOIR FILL
A. If ground service cart does not have a fill hose check valve — disconnect hose prior to pressurizing reservoir — otherwise reservoir pressure will force all reservoir fluid into ground cart with fluid quantity check.
SYSTEM RESERVOIR ACCUMULATOR SERVICING

SERVICING PROCEDURE

1. Determine that hydraulic system is DEPRESSURIZED by turning PUMPS OFF AND verify that SYSTEM PRESSURE gauge on hydraulic system servicing panel READS ZERO.

2. Rotate DEPRESSURIZATION VALVE to accumulator dump position to completely deplete the charge in the reservoir accumulator.

3. Determine that the SYSTEM RESERVOIR PRESSURE gauge on the hydraulic system servicing panel READS ZERO psi.

4. Determine the correct accumulator servicing pressure from the SERVICING CHART attached to the accumulator. Servicing pressure is 500 psi at 80°F.

5. Remove the valve cap and attach a high pressure hose to the servicing valve at the lower end of the system reservoir accumulator. Loosen swivel nut 3/4 of a turn – do not loosen valve body.

6. Rotate DEPRESSURIZATION VALVE to accumulator dump position while adding nitrogen charge, to expel all fluid from accumulator while pre-charging.

7. Add nitrogen until RESERVOIR ACCUMULATOR PRESSURE GAUGE reading agrees with servicing chart value.

8. Tighten swivel nut 50-70 in. lbs, remove servicing hose and reinstall valve cap.
AIR TURBINE MOTOR SERVICING

WARNING: Recent operation of ATM will require precautions against dangerously high air duct and lube oil temperatures. Protective gloves should be used when required.

Remove fill port plug on gearbox.

NOTE: Remove outer fill plug only; second plug contains oil screen.

Fill until the lube oil level is within the top 1/2 inch of the green area on the sight glass scale. If oil level is above green band, excess oil must be drained out.

In tailing aft of MLG wheelwell, left and right.

RAIN REPELLENT

Service with RAINBOE III or equivalent.
If the pressure gauge indication is in the red area, or if the REFILL float is completely visible, replace the repellent container.
Release clamp and unscrew container for removal and replacement. (Self-closing valves prevent loss of fluid.)

CAUTION: Do not spray repellent on DRY window or allow to DRY on aircraft skin. WET windshield with water and maintain in a THOROUGHLY WET condition for the duration of operational test. If cleaning is required use more rain repellent as a solvent, followed by normal windshield cleaning procedures. Do not use any abrasive compounds — windshield anti-static coating may be damaged.

ACCESS: Flight station, lower left sidewall.
WINDSHIELD WASHER RESERVOIR

Service with ________________
See Maintenance Manual for alternate fluids.
Requires servicing when ball is not floating in sight gauge.
Fill to base of filler opening (1 U.S. gallon tank capacity)

ACCESS: Forward Electronic Service Center, forward of access door, right side.

LANDING GEAR GROUND LOCK PINS

GROUND LOCK SAFETY PIN

NOTE: All landing gear ground lock pins are identical. Pins stowed in box on R/H aft NLG door.

STANDING CONTROL VALVE

GROUND OPERATION LEVER

NOSE STEERING VALVE LOCKOUT PIN

NOSE GEAR

FWD

MAIN GEAR

FWD
**MAIN LANDING GEAR STRUT**

Service with and pressure regulated dry nitrogen.
Service per placard on inside of MLG fixed door.

**NOTE:** Add oil and/or nitrogen SLOWLY.

**ACCESS:** Servicing valve at top center of each MLG shock strut.

---

**NOSE LANDING GEAR STRUT**

Service with and pressure regulated dry nitrogen.
Service per placard on inside of left aft NLG door.

**NOTE:** Add oil and/or nitrogen SLOWLY.

**ACCESS:** Servicing valve at top center of shock strut.

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**CAUTION:** Strut pressure should never exceed 2036 psi.

---

**CAUTION:** Strut pressure should never exceed 1845 psi.
TIRE PRESSURES

Tire pressures should be checked daily and adjusted to the following pressures:

<table>
<thead>
<tr>
<th>Component</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Gear Tires</td>
<td></td>
</tr>
<tr>
<td>Nose Gear Tires</td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** It is recommended that:

- If tire pressure is less than 30 psi low, inflate to proper pressure.
- If tire pressure is 30 psi to 50 psi low, change tire.
- If tire pressure is over 50 psi low, change both tires on that axle.

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BRAKE ACCUMULATORS

**CAUTION:** Chock wheel before releasing brakes.

Service with pressure regulated dry nitrogen. Cycle brakes until brake pressure is 0 PSI. Compare accumulator pressure gauge reading to temperature/pressure chart on accumulator. Add nitrogen as required.

**ACCESS:** Hydraulic service center, forward right and left walls.
Lavatory lighting is illuminated dim by latching on the MASTER LAV switchlights on the forward and aft attendants panels. The lights will be on bright when the lavatory doors are closed and locked, or when the maintenance override switch is selected on. The switch for the two forward lavatories is in the LH lavatory. The switch for the aft lavatories is in the LH lavatory.
CAUTION: Oxygen cylinders must be removed from the aircraft for servicing. Keep away from oil or grease.

To remove the fixed oxygen cylinder:
- Close the on/off valve.
- Disconnect the vent line from the cylinder.
- Disconnect the supply line from the cylinder.
- Cap open lines and connections.
- Remove the lock pin and open the quick release fitting at the retaining strap.

CAUTION: The fixed oxygen cylinder is of thin-wall construction. Take care not to cause scratches or dents.

### OXYGEN CYLINDER PRESSURE CHECK

#### MINIMUM DISPATCH PRESSURE FOR ALL FLIGHT SEGMENTS

<table>
<thead>
<tr>
<th>CYLINDER TEMPERATURE</th>
<th>FIXED CYLINDER (PSIG)</th>
<th>PORTABLE CYLINDER (PSIG)</th>
</tr>
</thead>
<tbody>
<tr>
<td>°F</td>
<td>°C</td>
<td></td>
</tr>
<tr>
<td>-10 -23.3</td>
<td>1050</td>
<td>1490</td>
</tr>
<tr>
<td>0 -17.8</td>
<td>1075</td>
<td>1515</td>
</tr>
<tr>
<td>+10 -12.2</td>
<td>1100</td>
<td>1545</td>
</tr>
<tr>
<td>20 -6.7</td>
<td>1125</td>
<td>1580</td>
</tr>
<tr>
<td>30 -1.1</td>
<td>1150</td>
<td>1615</td>
</tr>
<tr>
<td>40 4.4</td>
<td>1175</td>
<td>1650</td>
</tr>
<tr>
<td>50 10</td>
<td>1200</td>
<td>1680</td>
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<tr>
<td>60 16</td>
<td>1225</td>
<td>1715</td>
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<tr>
<td>80 27</td>
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<tr>
<td>100 38</td>
<td>1325</td>
<td>1850</td>
</tr>
<tr>
<td>110 43</td>
<td>1350</td>
<td>1880</td>
</tr>
<tr>
<td>120 49</td>
<td>1375</td>
<td>1915</td>
</tr>
</tbody>
</table>
POTABLE WATER

TANK OVERFLOW SELECTOR VALVE

POSITION 1 ➔ OVERFLOW 200 GALLON
POSITION 2 ➔ OVERFLOW 150 GALLON
POSITION 3 ➔ OVERFLOW 100 GALLON

ACCESS: Service Panel: Lower fuselage, forward of MESC access door.
Overflow Selector Valve: Aft LH corner of aft cargo compartment.

Remove fill fitting cap assembly and fill overflow valve control handle guard.
Connect fill and drain lines to service panel fittings. Select overflow level with
the overflow selector valve. Pull fill/overflow valve control handle; fill tank to
overflow. Shut off water supply; push in fill handle. Disconnect service lines.
Place handle guard over fill/overflow valve control handle and cap assembly
over fill fitting. Close panel access door.

FWD WASTE SYSTEM

Switch the service panel light ON to
deactivate the tank vent system and
activate the contents indicating
system.
Open drain cap and attach drain hose.
Attach fill/flush line from service truck.
Actuate drain valve, allow waste to drain.
Flush with 25 gallons of water. Close
drain valve.
Precharge tank with 15 gallons of dye-
deodorant disinfectant liquid chemical.
Verify PRECHARGE light is illuminated.
Remove hoses; secure drain cap.
Switch the service light OFF.

ACCESS: Bottom of fuselage — forward of nose —
landing gear.

WASTE TANK
QUANTITY
INDICATOR
LIGHTS

FORWARD WASTE TANK

FORWARD WASTE SERVICE PANEL

DRAIN VALVE CONTROL HANDLE
DRAIN CAP

FILL AND FLUSH FITTING

LAMP
TEST SWITCH

SERVICE LIGHT

FWD
MID CABIN WASTE SYSTEMS

Select service light ON to activate the precharge level indicating system.
Open drain cap.
Attach drain line to drain nipple.
Attach fill/flush line to fill fitting.
Pull drain valve control handle; allow waste liquid to drain.
Flush system with 11 gallons of water.
Close drain valve (stow drain valve handle).
Precharge tank with 4 gallons of dye-deodorant-disinfectant liquid chemical.
Discontinue filling when precharge light illuminates (at 4 gallon level).
Remove hoses; secure drain cap.
Switch the service light OFF.

ACCESS: Thru access door in RH underwing fairing, forward of the wing leading edge.

MID/AFT WASTE SERVICE PANEL

Select service light ON to activate the precharge level indicating system.
Open drain cap.
Attach drain line to drain nipple.
Repeat the following instructions for each of the FWD and AFT mid/aft lavatory installations.
Attach fill/flush line to fill fitting.
Pull drain valve control handle; allow waste liquid to drain.
Flush system with 25 gallons of water.
Close drain valve (stow drain valve handle).
Precharge tank with 9 gallons of dye-deodorant-disinfectant liquid chemical.
Discontinue filling when precharge light illuminates (at 9 gallon level).
Remove hoses; secure drain cap.
Switch the service light OFF.

ACCESS: On aircraft centerline at the aft end of the hydraulic service center.
Service with oil.
Check engine oil level 5 to 30 minutes after APU shutdown.

NOTE: Reading with hot oil is between MAX and FULL. If below FULL, pressure fill to FULL mark on sight glass.

Maintain starter clutch oil level at approximately 1/8 inch above hole in dipstick.

ACCESS: Forward right APU access door.

WARNING
DO NOT OVERFILL
DO NOT OPERATE IF OVER MAX
SEE MAINT MANUAL FOR INSTRUCTIONS
OPERATION:

NORMAL MODE — OPEN
1. Place the ENGAGE/DETACH lever in the DETACH position; the door will not open electrically with the selector handle in the ENGAGE position.
2. Push DOOR OPEN switch and hold until door stops in the open position.

NORMAL MODE — CLOSE
1. Place the ENGAGE/DETACH lever in the ENGAGE position; door will not close with the selector in the DETACH position.
2. Push DOOR CLOSE switch and hold until door stops in the closed position; girt bar will engage the floor fittings as door closes.

MECHANICAL MODE — OPEN
1. Place ENGAGE/DETACH lever in the DETACH position, which will prevent slide deployment.
2. Remove transparent plastic cover over T-handle.
3. Pull T-handle down all the way (first detent releases the track lock, second detent releases the clutch in the actuator), allowing counterbalance to drive the door completely open.
4. Re-stow the T-handle to the full-up position and re-install the plastic cover.

EMERGENCY MODE — OPEN
1. Place ENGAGE/DETACH lever in the ENGAGE position.
2. Remove the transparent plastic cover over the T-handle.
3. Pull the T-handle down all the way and the counterbalance will drive door open and the slide will deploy.
OPERATION:

NORMAL MODE — OPEN
1. Pull T-handle down to the first position, which moves the evacuation slide mode selector to the DETACHED position; the door will not open electrically with the selector in the ENGAGE position.
2. Move the door control toggle switch to the UP position and hold until door stops in the open position.
3. Re-stow outer T-handle to the full-up position.

NORMAL MODE — CLOSE
1. Place evacuation slide mode selector lever in the ENGAGE position (door will not close electrically if the selector handle is in the DETACH position).
2. Move the door control toggle switch down and hold until door stops in the closed position (the girt bar will engage floor fittings as door closes).

MANUAL MODE — OPEN
1. Pull the T-handle all the way down to the third position. The counterbalance will drive the door completely open.
2. Re-stow outer and inner T-handles to their full-up position, and reinstall the inside transparent plastic cover.

NOTE: The slide cannot be deployed through external door operation.
C-1A CARGO DOOR OPERATION

WARNING: CLEAR THE PATH OF THE DOOR BEFORE OPERATING

A. ELECTRICAL OPEN —
   1. Push on bottom of manual handle to release handle.
   2. To unlock door pull down on the handle until resistance is met from spring tension. From inside the handle is pushed to obtain the same results.
   3. Unlatch and unhook the door by pulling handle to overcome spring tension; hold handle until door electrically unlatches and unhooks. Then the door should open approximately three inches and power will cut off.
   4. Push in at the top of the door on the OPEN/CLOSE switch box and hold the internal switch to the OPEN position until the cargo door stops in the fully open position.

B. ELECTRICAL CLOSE —
   1. Push in at the top of the door on the OPEN/CLOSE door switch box and hold the internal switch to the CLOSE position until the door reaches the fully closed and latched position.
   2. Stow manual handle to lock door and extinguish the DOOR OPEN light in the flight station.
   3. Verify that lock sector green dots are visible in eight lock position view ports.

NOTE: Electrical operation from inside is only in the open mode, through use of a toggle switch located in the cargo compartment overhead adjacent to the door.

C. OPEN DOOR, MANUAL —
   1. At the Cabin Overhead Circuit Breaker panel, pull circuit breakers 4B2 and 4B19.
   2. Pull manual handle to unlock door.

NOTE: To perform the remaining steps in this procedure, a 1/2-inch drive crank is needed.

3. Turn the latch manual release by cranking approximately 90 turns counterclockwise.
4. Then turn the hook manual release approximately 90 turns counterclockwise.
C-1A CARGO DOOR OPERATION (CONTINUED)

C. OPEN DOOR, MANUAL — (continued)
   5. Turn the door manual drive counterclockwise until door is open (approximately 100 turns) enough to allow entry into the cargo compartment.
   6. Inside the cargo compartment, turn the door manual drive fitting, located on the bottom of the lift actuator clockwise until the door is fully up.

D. CLOSE DOOR, MANUAL —
   1. Manually operate the safety unlock release knob on the lift actuator, to the unlock position.
   2. Reverse the manual opening procedures.

NOTE: The position of the lock sectors and the latches may be inspected through the eight available view ports.

The pressure relief door is opened by mechanical linkage to equalize any differential pressure when the manual handle is moved to the unlock position.

CAUTION: Allow an actuator cooling period of thirty seconds between door opening and closing operation. After four complete open/close cycles, lift actuator should be allowed to cool for twenty minutes before recycling the door.

C-2 AND C-3 CARGO DOOR OPERATION

[Diagram showing various components and labels such as safety stop view port, lock actuator manual drive access, safety stop view port, cargo door lift actuator manual drive, latch actuator manual drive, access door, lever locking latch view port, unlock handle and lock light, and fairing door.]
C-2 AND C-3 CARGO DOOR OPERATION

WARNING: CLEAR PATH OF THE OPENING DOOR WHEN OPERATING.

A. OPERATION: NORMAL MODE, ELECTRICAL OPEN —
1. To operate the C2 door electrically, from outside the aircraft, the FAIRING DOOR must first be manually opened by pulling downward on the fairing door handle.
2. Turn door unlock switch handle CCW and hold until the cargo door is in the full unlatched position.
3. Push in at the top of the door on the OPEN/CLOSE switch box and hold the internal switch to the OPEN position until the cargo door stops in the full open position.
4. Reclose the OPEN/CLOSE switch box.

To electrically open the cargo door from inside of compartment:
1. Lift center soft liner flap to gain access to lock actuator (small upper actuator).
2. Rotate manual drive knob of lock actuator 12 turns clockwise or until actuator output shaft stops moving.

CAUTION: Check clearance for outward swing of door.

3. Push cargo door control toggle switch, located in recess in ceiling panel inboard of cargo door, to open position.

B. NORMAL MODE, ELECTRICAL CLOSE —
1. To operate the C2 door electrically, from outside the aircraft, the FAIRING DOOR must first be manually closed by storing the fairing door handle.
2. Push in at the top of the door on the OPEN/CLOSE door switch box and hold the internal switch to the CLOSE position until the cargo door locks in the closed position, and the “DOOR LOCKED” green light comes on.
3. Reclose the OPEN/CLOSE switch box.

NOTE: When the OPEN/CLOSE switch box door is pushed in, a flex cable attached to the switch box door assembly, releases a mechanical uplock in the lifting actuator. This allows the door to be driven to the closed position.
The green LOCKED indicator light is illuminated any time the aircraft is on the ground, if electrical power is available, and the cargo door is closed and locked.

C. MANUAL MODE, OPEN DOOR —
1. Pull the circuit breakers located on the Cabin Overhead Circuit Breaker panel 4B5 and 4B20 for C2, 4C2 and 4B21 for C3.
2. Remove the LOCK MANUAL RELEASE access panel on door and rotate the manual knob on the lock actuator CW approximately 12 turns.
3. Remove LATCH MANUAL RELEASE access panel, insert a 1/2-inch drive hand crank in the latch manual release drive fitting on the door, and rotate 130 turns CW.
4. Remove the access plate covering the door manual angle drive socket, insert the 1/2-inch drive crank, and rotate 200 turns CCW until the lifting actuator manual drive clutch slips.
5. Replace all access panels,

D. MANUAL MODE, CLOSE DOOR —
1. Pull the door circuit breakers. (See Manual Open.)
2. DEPRESS THE DOOR ON THE OPEN/CLOSE SWITCH BOX TO RELEASE THE MECHANICAL UPLOCK IN THE LIFTING ACTUATOR.
3. Remove door manual angle drive access panel, insert the 1/2-inch drive hand crank into the door manual angle drive socket and rotate 200 turns CW until the lifting actuator manual drive clutch slips.
4. Remove latch manual drive access panel, insert the 1/2-inch drive hand crank in the latch manual drive socket on the door, and rotate 130 turns CCW.
D. MANUAL MODE, CLOSE DOOR — (Continued)

5. Remove the LOCK MANUAL RELEASE access panel, and rotate manual knob on lock actuator approximately 12 turns CCW.

6. Reclose the switch box door.

7. Replace all access panels.

NOTE: If an attempt has been made to manually crank the door to the closed position, prior to releasing the mechanical unlock in the lifting actuator, the door must be cranked towards the open position until the lock can be released.

The position of the lever locking latch relative to the latch torque tube can be inspected through the view port. The engagement of the safety stop can be visually checked through the view port at the top of the door.

THRUSt REVERSER AIR MOTOR

Service with__________________________
Gravity fill to full mark on dipstick according to engine position.

NOTE: When reading oil level, do not re-engage dipstick bayonet.

OIL DIPSTICK

OIL FILLER NECK

NOTE: Fill to full line as marked, for engine being checked. Full 1 is level line for engine No. 1; full 2 is for engine No. 2; and full 3 is for engine No. 3.
CAUTION: The thrust reverser must be deactivated when performing maintenance in the coldstream collector area. Installation of the pip pin in the deactivating valve prevents thrust reverser operation by deactivating the high pressure shut-off valve.

INSTALLATION:
To install pip pin depress lock pin and insert pip pin fully into the deactivating valve.

WARNING PENNANT

FORWARD

THRUST REVERSER LOCK INDICATORS

Thrust reverser lock indicators are located on all THREE engines.

The coldstream reverser lock indicator pins show that the reverser is locked when the pins are recessed or flush in the firewall indicating ports.
ENGINE OIL

Service with ____________
Check oil quantity as soon as possible after shutdown.
Fill to the bottom of screen in filler neck.

OIL FILLER ACCESS DOOR
GRAVITY FILLER
OIL TANK

ENGINE STARTER

Service with ____________
Pressure fill to level indicated on placard according to engine position.

STARTER OIL FILLER
ACCESS DOOR