

SERVICING AND RECOVERY MANUAL

SA226 SERIES MERLIN IVA/METRO II AIRCRAFT



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FAIRCHILD
AIRCRAFT

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INTRODUCTION

This booklet was prepared by Fairchild Aircraft in response to numerous requests from airport facilities. It is hoped that the information presented will prove beneficial in the training and indoctrination of aircraft ground handling crews.

The information herein is the most current data available and is to be used for planning and information purposes only. No attempt has been made to establish a specific standard aircraft due to the numerous customer options. It is not to be construed as authority for making changes on aircraft or equipment or as superseding any established maintenance procedure.

Chapter 1 of this booklet provides information relative to handling and servicing of transient Fairchild aircraft. The Flight Manual, referenced in some portions of this booklet, are carried on board each aircraft and should be consulted as noted.

Chapter 2 of this booklet is published for the purpose of supplying crash, rescue and fire fighting teams with specific information regarding Fairchild aircraft. Presented herein is a basic pictorial description of exterior and interior features; heat, propeller blast, fire and explosion danger areas; cockpit and cabin accesses; and procedures affecting specific items that could be critical in an emergency situation.

It is realized that the saving of human life is of prime consideration; however, after that is accomplished, the aircraft should be salvaged in a manner that will minimize additional damage. The airplane and equipment can reflect the cause of the condition to expert investigators. Therefore, a duty exists to prevent damage from careless handling or improper surveillance.

Your comments and suggestions concerning this booklet are solicited and should be forwarded to:

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San Antonio, Texas 78279-0490
Attn: Chief, Aviation Safety

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CHAPTER 1

GROUND HANDLING

AND

SERVICING

**SA226 SERIES
MERLIN/METRO AIRCRAFT**

MERLIN IVA /METRO II AIRCRAFT GENERAL DESCRIPTION

Fairchild aircraft are manufactured by FAIRCHILD AIRCRAFT INCORPORATED, San Antonio, Texas. The FAIRCHILD MERLIN IVA and METRO II are an all metal, pressurized, low wing airplanes with full cantilever wings and tail surfaces and a semimonocoque fuselage. Fully retractable tricycle type landing gear with dual wheels on all three gear, and a steerable nose wheel are utilized. Power is provided by two Garrett Turbo Prop engines coupled to three bladed propellers. Two engine driven hydraulic pumps provide power for extending and retracting the landing gear, wing flaps, and for nose gear steering. The ailerons, elevators and rudder are manually controlled utilizing conventional cables, bellcranks, pulleys and push-pull tubes. A mechanically operated trim tab is located on the left aileron and on the rudder to provide lateral and directional trim. Longitudinal trim is accomplished by changing the incidence of the horizontal stabilizer with an electrically operated jackscrew actuator. An independent fuel system, with crossflow capability, is provided for each engine. Fuel is stored in the integral wing tanks. The aircraft air conditioning and pressurization systems are provided for crew and passenger comfort. The crew, passenger and cargo compartments are pressurized to a maximum differential pressure of 7.1 psi.



FIGURE 1-1

The METRO II is a 21 place airplane (pilot, copilot, 19 passengers) powered by two TPE-331 turboprop engines. The MERLIN IVA is nearly identical to the METRO II but has a modified cabin, interior designed for executive use, cargo hauling, or other missions. Both airplanes have integral (wet wing) fuel tanks with a usable fuel capacity of approximately 648 U.S. gallons (2453 liters). Maximum gross takeoff weight 12,500 lbs. (5670 kg) standard and 13,230 lbs. (6000 kg) optional for the METRO IIA only.

AIRCRAFT DIMENSIONS

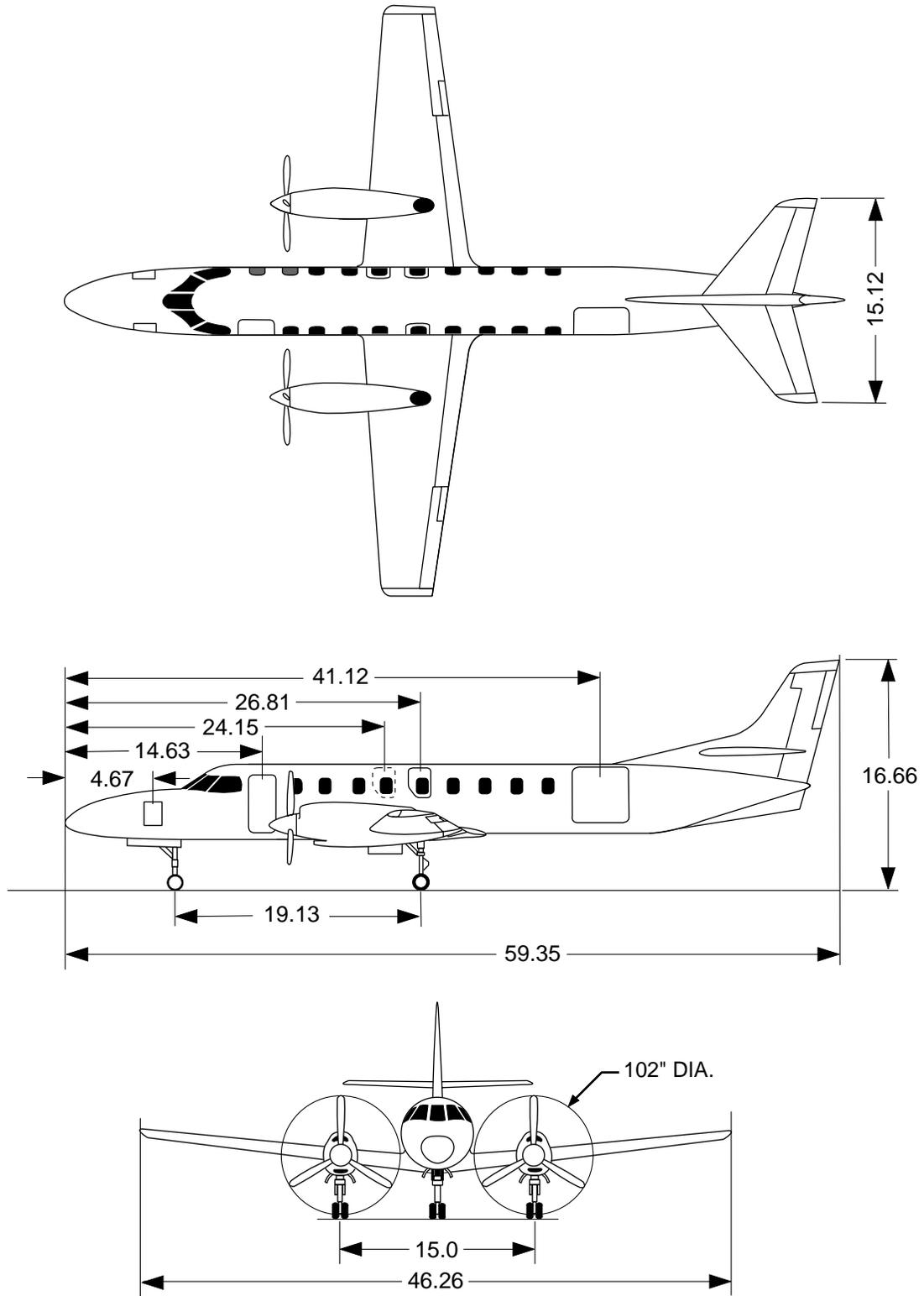
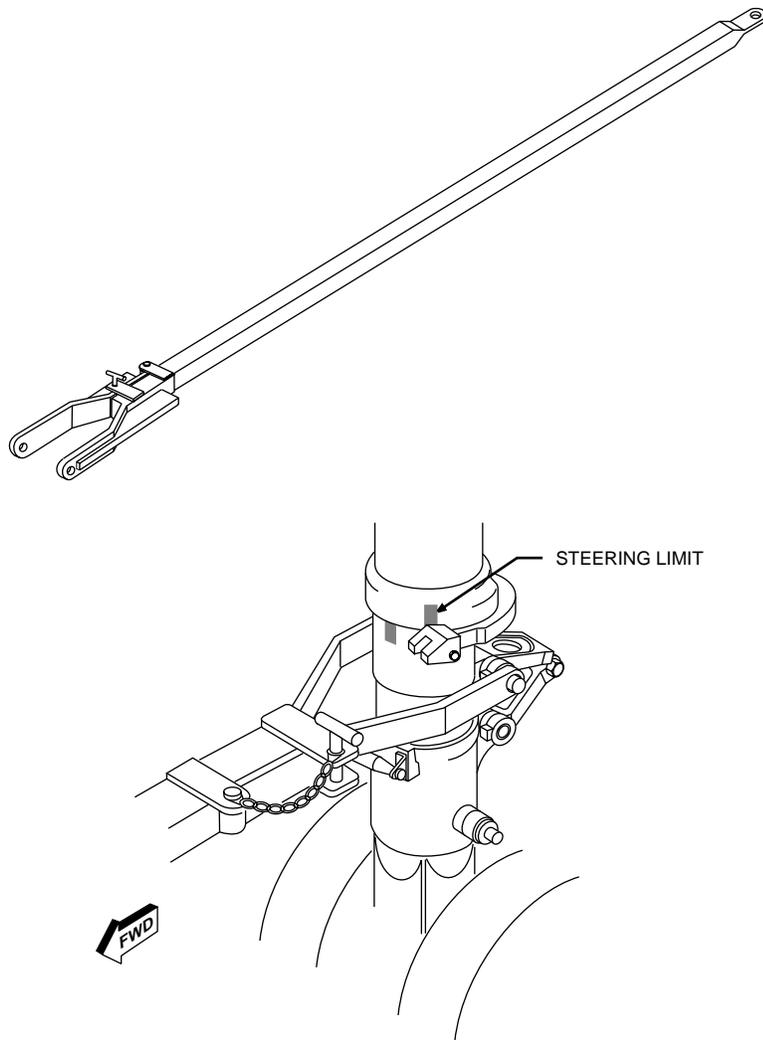


FIGURE 1-2
(All dimensions are in Feet)

GROUND HANDLING**TOWING**

The aircraft is towed by a tow bar connected to the nose gear. Prior to towing, ensure that the parking brake is released. Caution should be used NOT to apply the aircraft brakes while the aircraft is being pushed backward with a towing vehicle or damage to brake components or nose strut may result. All braking during pushing should be performed by the towing vehicle. DO NOT activate the nose steering when towing or damage to the nose steering actuator may result. DO NOT exceed steering limits or damage to the nose steering actuator may result.

TOW BAR**FIGURE 1-3**

GROUND HANDLING (continued)**JACKING**

The aircraft may be raised off the ground by jacks located at three points. The nose or fuselage jack point is located just aft of the nose wheelwell on the left side. The wing jack points are located on the lower wing surface inboard of the nacelles just aft of the main landing gear.

A wheel tire may be changed by running the adjacent wheel up a ramp of suitable material that is six inches high, ten inches wide and 24 inches long. This provides adequate clearance from the ground for a wheel or tire to be changed.

NOTE

A ramp cannot be used if both tires on the same gear are flat.

SERVICING – FUEL SYSTEM**SAFETY PRECAUTIONS**

Observe the following safety precautions prior to, during and after servicing.

Do not smoke within 50 feet of aircraft, hangar, fuel or oil storage areas.

Ground aircraft to ground, truck to ground, truck to aircraft, and fuel line to aircraft.

Handle fuel only in well ventilated areas to prevent toxic fume accumulation and possible explosion. If it becomes necessary to work in a confined area, use approved respiratory equipment, approved safety lights when artificial lighting is required, and station a safety observer near the person working in the confined area.

Keep the refueling area clear of all unnecessary equipment and materials.

Avoid operation of gasoline engines or electric motors in the proximity of the refueling area when possible. If operation of such equipment is essential to the refueling procedure, ensure that proper safety devices are used such as lightning, spark and exhaust flame arrestors, and explosion proof motors.

Remove any spilled fuels and liquids from work stand and servicing area immediately and flush contaminated area with water.

Prevent fuel spillage from coming in contact with the skin. If spillage occurs, wash affected area immediately with soap and water.

Do not use fuel as a cleaning agent for aircraft, components or tools.

SERVICING – FUEL SYSTEM (continued)

SAFETY PRECAUTIONS (continued)

Allow sufficient time after refueling for clothing to air prior to smoking or working near power equipment or open flame.

Allow only qualified personnel to service the aircraft.

FUELING PROCEDURES

WARNING

DO NOT ATTEMPT TO COMPLETELY FILL ONE TANK BEFORE ADDING FUEL TO THE OPPOSITE TANK AS EXCESSIVE LATERAL UNBALANCE WILL OCCUR. WHEN FUELING, FILL BOTH TANKS SIMULTANEOUSLY OR ALTERNATELY ADD 125 GALLONS OF FUEL TO EACH TANK UNTIL THE DESIRED AMOUNT IS OBTAINED.

Observe safety precautions

Ensure aircraft electrical power is off.

Ground aircraft as follows:

Aircraft to ground
Truck to ground
Truck to aircraft
Fuel line to aircraft

SERVICING – FUEL SYSTEM (continued)**FUELING PROCEDURES (continued)**

Using a small stepladder, bring the refueling hose over your shoulder (as shown in Figure 1-4) and service tank to desired quantity.

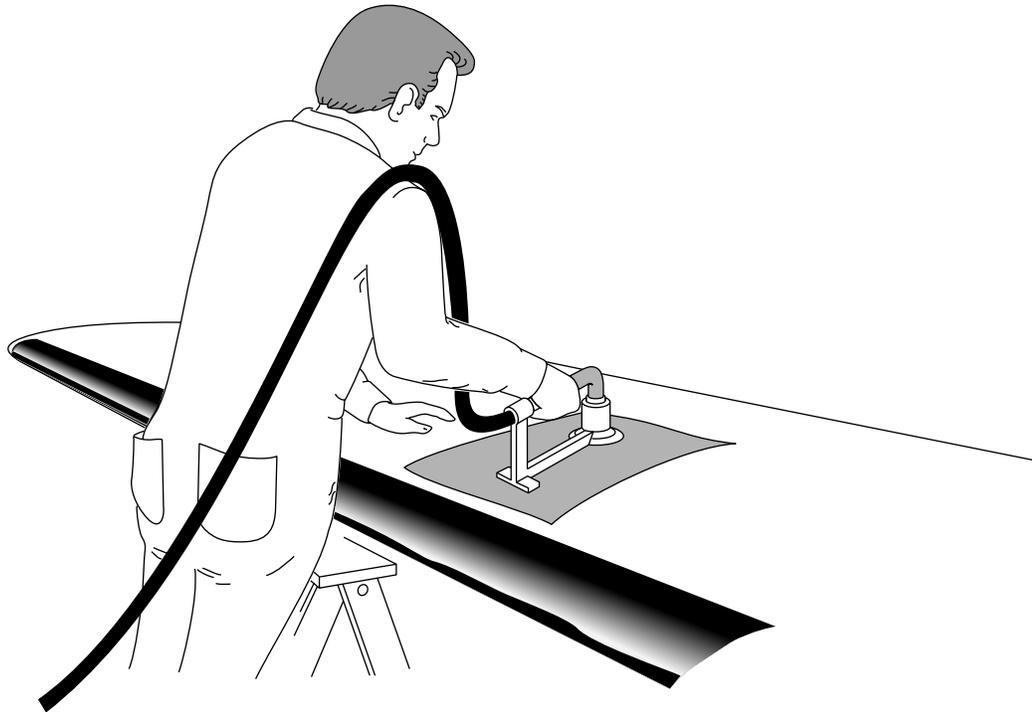


FIGURE 1-4

CAUTION

DO NOT ALLOW AFT PORTION OF FUEL NOZZLE OR HOSE TO REST ON DEICE BOOT. THE DEICE BOOTS ARE MADE OF SOFT, FLEXIBLE, SYNTHETIC RUBBER WHICH MAY BE DAMAGED IF HOSES ARE DRAGGED OVER THE SURFACE OR IF LADDERS AND PLATFORMS ARE RESTED AGAINST THEM.

After fuel tanks are serviced, remove fuel nozzle before disconnecting ground.

Ensure tank caps are securely seated and locked (latch facing aft).

FUEL GRADES AND TYPES

APPROVED FUELS

Use aviation fuel conforming to Garrett Installation Manual IM5117 (Jet A, Jet A-1, Jet B, JP-1, JP-4, and JP-5)

EMERGENCY/ALTERNATE FUELS

Grade 100 LL aviation gasoline is permitted for emergency use, at a rate not to exceed 250 US gallons (946 liters) per 100 hours of operation with total use limited to 7,000 US gallons (26,498 liters) per engine overhaul period.

Jet fuel and aviation gasoline may be mixed in any proportion. If 25% or more aviation gasoline is used, add one US quart (0.95 liter) of MIL-L-6082 specification grade 1065 to 1100 piston engine oil per 100 US gallons (379 liters) of aviation gasoline to provide fuel pump lubrication.

CAUTION

THE USE OF AUTOMOTIVE GASOLINE, DIESEL FUELS, HEATING FUELS OR ANY COMBINATION OF THESE PRODUCTS WITH JET FUELS AS AN ALTERNATE OR EMERGENCY, IS PROHIBITED.

NOTE

The amount of aviation gasoline used must be recorded in the engine log book.

Icing inhibitor MIL-I-27686E fuel additive or equivalent, is approved not to exceed 0.15% by volume.

Usable fuel quantity is 648 US gallons (2453 liters)

For maximum demonstrated fuel imbalance for takeoff and landing. See AFM.

FUEL DRAIN VALVES

Drain valves, one located in each wing tank lower skin between the nacelle and center section, and one on each nacelle outboard side under the wing at the main spar, are used for draining condensation or sediment. A small amount of fuel should be drained from each valve after servicing and prior to the first flight of the day. To operate the valves, depress the center of the valve, allow the desired amount of fuel to drain then release the valve. The valves are spring loaded to the closed position.

DEFUELING AIRCRAFT

AT-001 – 024/TC-201 –211EEEE

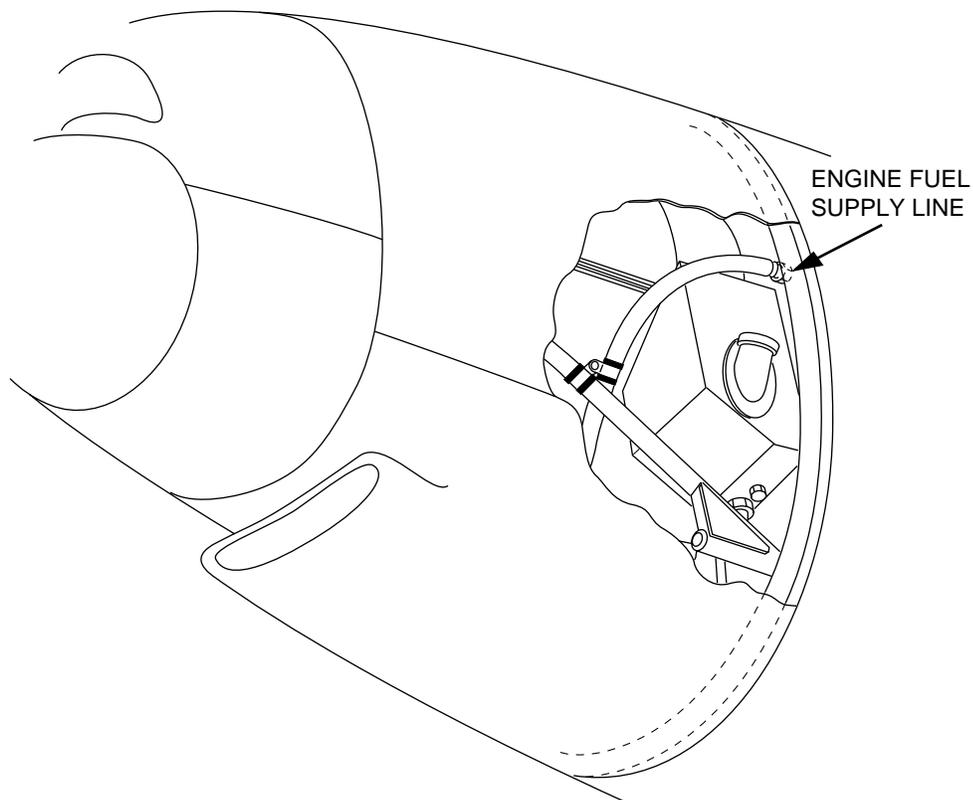


FIGURE 1-5

1. Position aircraft at least 50 feet from any potential source of ignition.
2. Static ground the aircraft.
3. Static ground the defueling equipment to ground and to the aircraft.
4. Remove filler cap from tank being defueled.

DEFUELING AIRCRAFT (continued)

AT-001 – 024/TC-201 –211EEEE (continued)

5. Remove cowling from left hand side of engine nacelle to gain access to engine fuel supply line connection at firewall. (See Figure 1-5)
6. Disconnect supply line and connect suction equipment to firewall fitting.

NOTE

When defueling at engine firewall, disconnect hose at engine side of firewall. When disconnecting hose be sure to secure union which protrudes through the firewall. Should this union turn, fuel lines aft of the firewall may loosen and are difficult to retighten.

7. Turn on aircraft boost pump to prime suction lines.

CAUTION

THE BEARINGS OF THE BOOST PUMPS ARE LUBRICATED BY FUEL, AND DAMAGE TO THE PUMPS WILL RESULT IF PUMPS ARE RUN DRY.

8. Start suction equipment.
9. Shut off aircraft boost pump.
10. Defuel as required.
11. After defueling operation, install fuel filler cap.
12. Disconnect suction line and connect fuel supply line at the firewall fitting.
13. Install cowling.

NOTE

Residual fuel may be drained a sump drains located in each wing tank lower skin between nacelle and center section.

DEFUELING AIRCRAFT (continued)

AT-025/TC-212 & UP

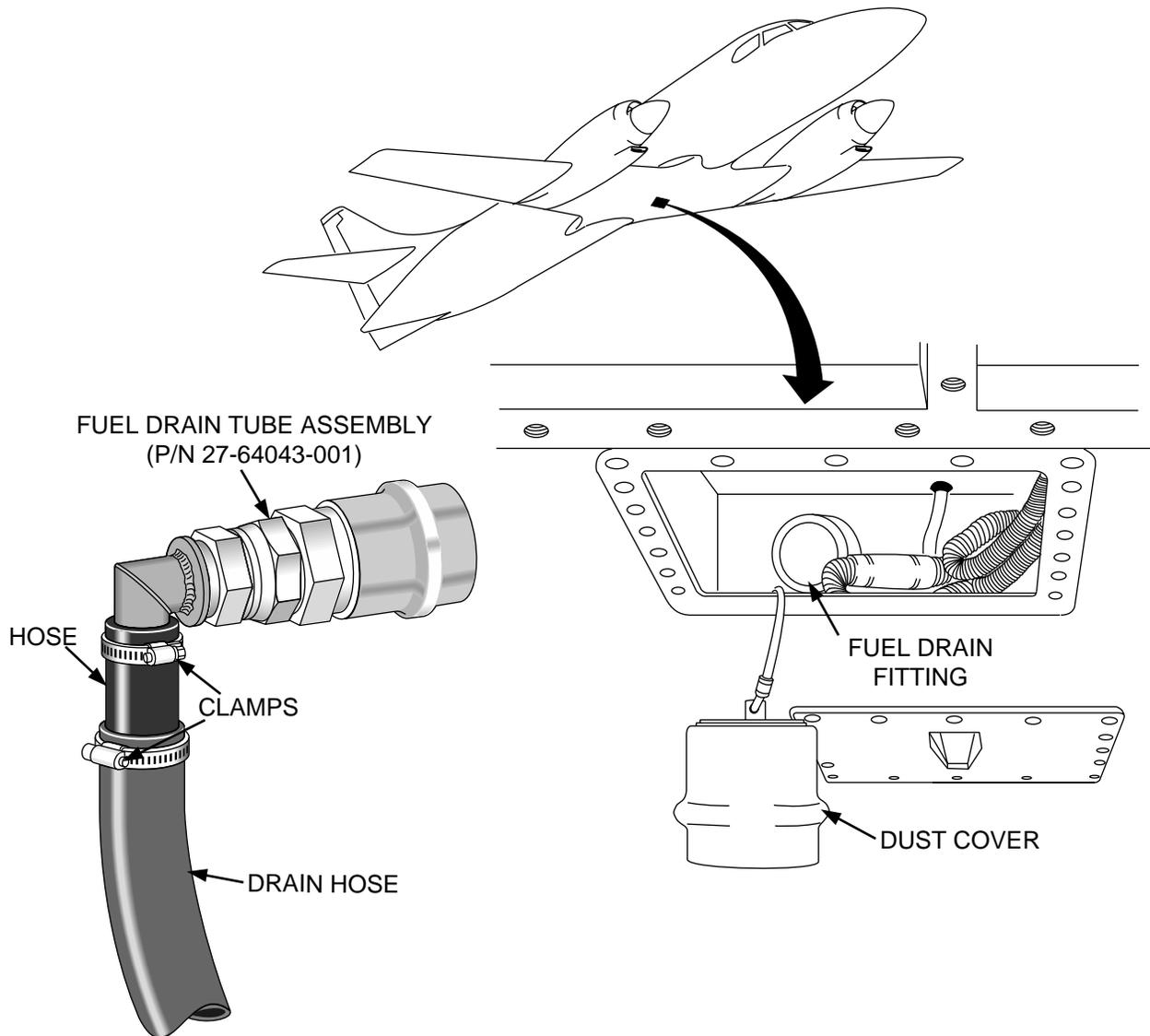


FIGURE 1-6

1. Position aircraft at least 50 feet from any potential source of ignition.
2. Static ground the aircraft.
3. Static ground the defueling equipment to ground and to the aircraft.
4. Open the crossflow valve to drain both wing tanks. With crossflow valve closed, only the right hand tank will drain.

DEFUELING AIRCRAFT (continued)

AT-025/TC-212 & UP (continued)

5. Remove the access panel located at the center section just forward of the aft spar. Locate the fuel drain fitting with the dust cover (red nipple) attached. (See Figure 1-6)
6. Remove the dust cover by depressing the end cap and pulling straight out.
7. Remove the fuel filler caps.
8. Install fuel drain tube assembly (P/N 27-64043-001) or comparable drain hose assembly by pressing straight on. Fuel will begin to flow when tube is connected.
9. Defuel as required.
10. When defueling operation is complete, install fuel filler caps.
11. Disconnect the drain hose assembly and replace dust cover by pressing straight on.
12. Install the access panel.

NOTE

Residual fuel may be drained at sump drains (2) located in each wing tank lower skin between nacelle and center section, and one on each nacelle outboard side, under the wing at the main spar.

SERVICING – LUBRICATION SYSTEM

Service the engine lubrication system only with oils listed in the recommended oils paragraph below.

CAUTION

DO NOT MIX DIFFERENT BRANDS OR TYPES OF OIL SINCE THEIR DIFFERENT CHEMICAL STRUCTURES MAY MAKE THEM INCOMPATIBLE. IF DIFFERENT TYPES OF OIL BECOME MIXED, DRAIN AND FLUSH SYSTEM AND REFILL WITH NEW OIL.

RECOMMENDED OILS

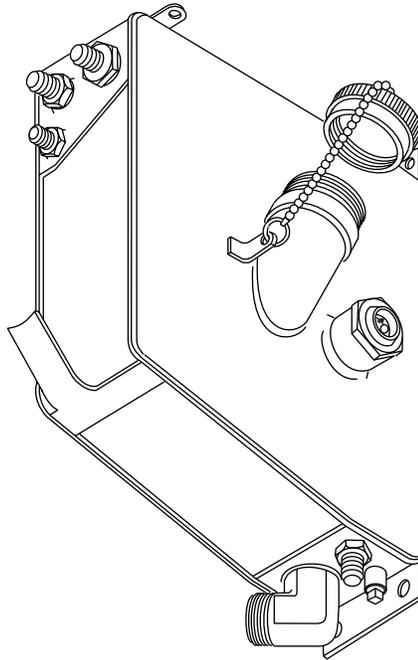
The following oils are approved for use:

Product Name

1. Mobil Jet Oil II
2. Exxon (Enco/Esso) Turbo Oil 2380*
3. Castrol 5000
4. Aeroshell/Royco Turbine Oil 500
5. Aeroshell/Royco Turbine Oil 560
6. Mobil 254

NOTE*

“Exxon and Enco/Esso” are interchangeable trade names dependent solely upon marketing regions. The brands are identical and may be intermixed. For other FAA Approved oils, refer to Garrett Maintenance Manual, TPE/TSE 331-3.

SERVICING – LUBRICATION SYSTEM (continued)**OIL LEVEL AND CHECK****FIGURE 1-7**

The engine oil servicing doors are located on the upper left side of each engine nacelle and are opened by releasing the lever locks.

A sight gauge mounted on the left side of the engine oil tank contains a steel ball which floats in the oil when the oil level is at the correct level. Verify correct oil level. (See Figure 1-7)

NOTE

- To obtain the most accurate reading, engine oil level should be checked within the first ten minutes after engine shut down with propellers rotated against start locks.
- If the propeller are not on start lock, motor the engine 10 to 15%. Sufficient oil will scavenge to the tank to allow an accurate reading. Pulling the propeller through by hand will not provide sufficient scavenge pressure for an accurate reading.

ADDING OIL

Adding oil is accomplished by pouring oil directly into the tank. A clean funnel may be used to prevent spillage.

EXTERNAL POWER RECEPTACLE

A standard AN power receptacle is located on the outboard side of the right nacelle or in the left wing root. The receptacle, connected to the battery buss, (in some installations through the GPU control relay), makes provisions for connecting a 28 volt DC external power unit.

CAUTION

- USE ONLY NEGATIVELY GROUNDED TYPE POWER SOURCES.
- DUE TO THE POSSIBILITY OF EXCESSIVELY HIGH CURRENT SURGE DURING ENGINE START, IT IS RECOMMENDED THAT THE MAXIMUM STARTING CURRENT FROM A GROUND POWER SOURCE BE LIMITED TO 1,000 AMPERES.

GPU RECEPTACLE

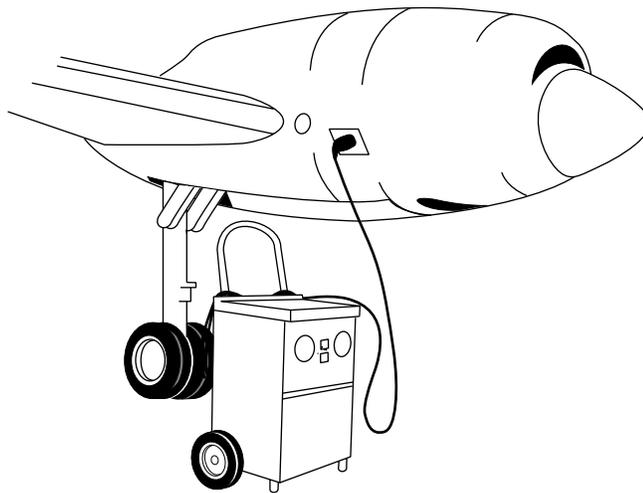


FIGURE 1-8

BATTERIES

Battery power is supplied by two nickel-cadmium batteries located in the inboard wings. One battery is installed in each wing inboard of the nacelle. Access is gained by removing the battery access panel on the wing upper surface. The batteries are of sufficient capacity to accommodate the normal electrical requirements of the airplane, including starting. Normally, the batteries should not be removed in transient maintenance; however, if this should be required, adhere to the following:

CAUTION

DO NOT ALLOW ANY ITEM USED ON OR WITH LEAD ACID BATTERIES TO COME IN CONTACT WITH NICKEL-CADMIUM BATTERIES. EVEN ACID FUMES CAN DAMAGE A NICKEL-CADMIUM BATTERY.

BATTERY ACCESS PANEL

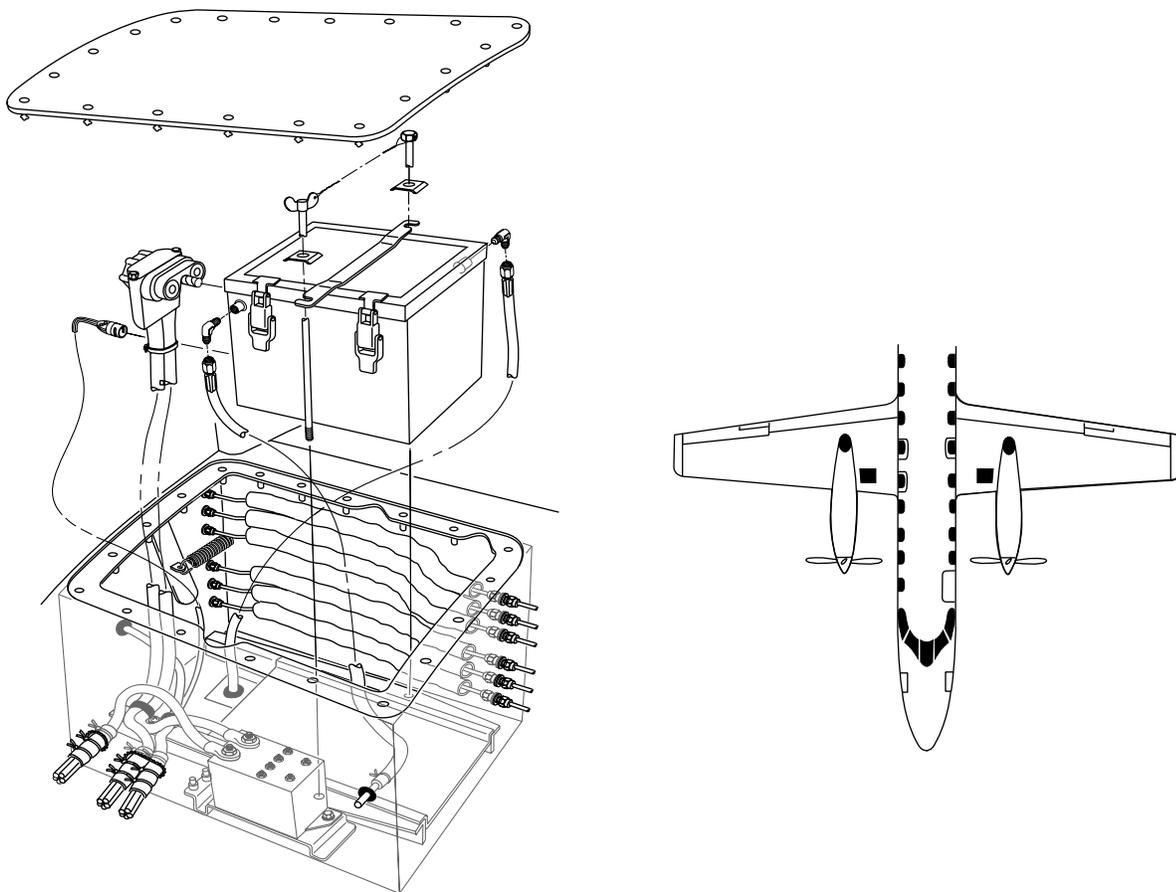


FIGURE 1-9

BATTERIES (continued)**BATTERY REMOVAL**

1. Remove battery access panel by unlocking the 1/4 turn fasteners.
2. Disconnect the battery electrical quick-disconnects.
3. Disconnect battery temperature indicator system plug located directly below the battery quick-disconnect.
4. Loosen clamps and remove vent hoses.
5. Remove battery retaining bolts. The battery lid bar is slotted to allow retaining bolt removal..
6. Remove battery from aircraft.
7. Clean battery area as required.

INSTALL BATTERIES

1. Inspect batteries to assure no damage has occurred during shipment. If new batteries are being put into service, refer to Chapter 24 of the Maintenance Manual for servicing procedures.
2. Check all electrical connections for tightness.

CAUTION

POOR ELECTRICAL CONTACT COULD RESULT IN DAMAGE
TO THE BATTERY.

3. Set the battery into the battery well.
4. Install battery retaining bolts. The battery lid bar is slotted to aid in bolt installation.
5. Connect the vent hoses. Secure the hose clamps.
6. Connect the battery temperature indicator system plug.
7. Connect the battery electrical quick-disconnect and safety wire.
8. Install battery access panel.

SERVICING TIRES

TIRE SIZES AND AIR PRESSURE

NOTE

Main tires other than 18 x 5.5 and nose tires other than 16 x 4.4 are not compatible with standard installation. Aircraft structure must be modified per 226 SB 32-007 before other tires may be used.

Aircraft originally equipped with low pressure tires may use high pressure tires, except for the METRO IIA.

CAUTION

- DO NOT MIX PLY RATINGS BETWEEN TIRES ON NOSE GEAR OR BETWEEN TIRES ON THE MAIN GEAR.
- ALUMINUM AND MAGNESIUM WHEELS MAY BE INTERMIXED ON AN AIRCRAFT. TUBE AND TUBELESS TIRES MAY NOT BE INTERMIXED.

The following chart depicts the recommended tire sizes and inflation air pressures for high pressure tires at an assumed base temperature of 70°F.

SA226 SERIES AIRCRAFT FACTORY STANDARD TIRES

HIGH PRESSURE TIRES –TABLE 1

TIRE SIZE	PLY RATING	GEAR	PRESS PSI	AT	TC
18 x 5.5	8 Ply	Main	105	001 – 397	201 – 397
18 x 5.5	10 Ply	Main	140	Customer Option	
16 x 4.4	6 Ply	Nose	70	001 – 397	210 – 397

SERVICING TIRES (continued)

TIRE SIZES AND AIR PRESSURE (continued)

The following chart depicts the recommended tire sizes and inflation air pressures for low pressure tires at an assumed base temperature of 70°F.

LOW PRESSURE TIRES – TABLE 2

TIRE SIZE	PLY RATING	GEAR	PRESS	AT	TC
			PSI		
19 x 6.75-8	10 Ply	Main	70	001 – 397	201 – 397
		Main	75	—	398 – 419
18 x 4.4	6 Ply	Nose	46	001 – 397	201 – 397
		Nose	50	—	398 – 419
18 x 4.4 (Chine)	10 Ply	Nose	50	001 – 397	201 – 397
		Nose	54	—	398 – 419

NOTE

Always deflate a tire before removing it from an aircraft.

CAUTION

PLACE THE TIRE IN A SAFETY CAGE BEFORE INFLATING.

SERVICING LANDING GEAR STRUTS

NOTE

Varying aircraft weights and air temperatures will change the strut height, which will affect the relative stiffness of the strut action.

A properly serviced strut feels and works best in a range of approximately 2 inches extended from the fully compressed position with the weight of the aircraft on the strut. Suggested weight is maximum landing weight minus 1000 pounds.

With the aircraft weight on the gear, apply dry air or nitrogen to the air valve and inflate the strut until a 2 inch extension is attained.

NOTE

Approximately 1 1/2 inches of piston will be visible on a fully compressed nose strut. Therefore, add 1 1/2 inches to the 2 inch extension for the nose strut servicing.

SERVICING BRAKE RESERVOIR

Check the brake reservoir level by removing the filler cap located on the left side of the aircraft, in the nose baggage compartment, aft of the nose baggage door. Fluid should be level with the bottom of the filler cap port. Add fluid as necessary to maintain this level. Use MIL-H-83282 hydraulic fluid.

NOTE

The power brake system, if installed uses fluid from the aircraft hydraulic reservoir.

SERVICING – ALCOHOL-WATER INJECTION FLUID

1. Locate alcohol-water tank filler:
 - a. On earlier models the cap is located under the right aft wing/fuselage fairing.
 - b. On some models the cap is located just inside the right nose baggage door.
 - c. On later models with 16 gallon tanks, the cap is located on the right side of the nose section just forward of the right nose baggage door.
2. On early models, open the fairing access door and remove the cap slowly. Ensure that the filler screen inside the tank, is in place. Fill the tank to overflowing. Service with a mixture of $70 \pm 2\%$ distilled or deionized water and $30 \pm 2\%$ methanol. (See AFM)
3. On those aircraft equipped with 14 or 16 gallon tanks, fill the tank to the desired level using the sight gauge to determine quantity. If desired, the tank maybe filled to overflowing. Service with a mixture of $70 \pm 2\%$ distilled or deionized water and $30 \pm 2\%$ methanol. (See AFM)
4. Replace filler cap and, as appropriate, close the fairing or right baggage door.

SERVICING – HYDRAULIC SYSTEM

HYDRAULIC FLUID REPLENISHMENT

The entire hydraulic system may be replenished by adding fluid to the hydraulic reservoir through the use of a hydraulic servicing cart.

HYDRAULIC FLUID CAPACITY

The system fluid capacity, including lines, actuators, valves and reservoirs, is two US Gallons (7.57 liters). Aircraft must be serviced with approved hydraulic fluid (MIL-H-83282) only.

A sight gauge is located on the outboard side of the left nacelle which displays the reservoir fluid level. Add more fluid whenever the fluid level drops to the "ADD" mark on the sight gauge.

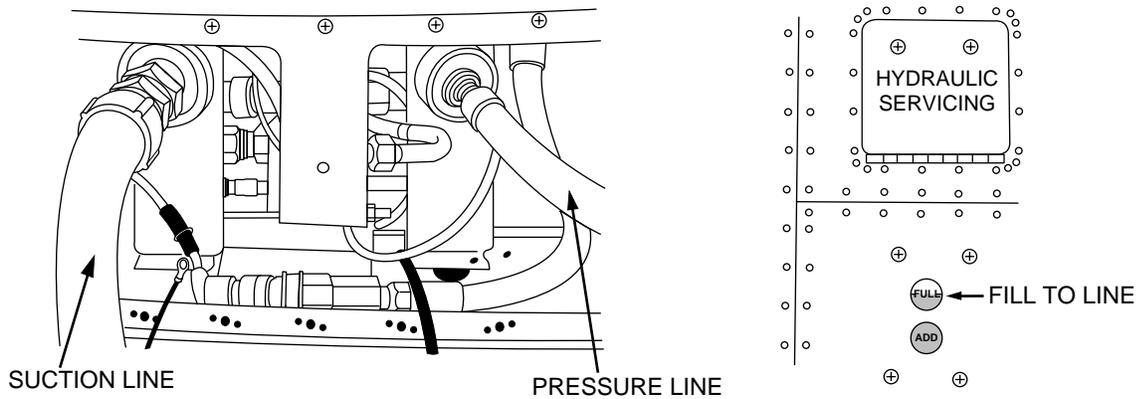


FIGURE 1-10

SERVICING – HYDRAULIC SYSTEM (continued)

SERVICING WITH HYDRAULIC CART

1. Rotate the emergency gear release handle fully aft and secure.
2. Turn aircraft electrical power on.
3. Bleed off any hydraulic pressure in the accumulator by moving the flap handle up and down several times until hydraulic pressure indicator reads zero.
4. Bleed off any air pressure on top of hydraulic reservoir as follows:
 - a. Locate and open hydraulic reservoir access door on outboard side of left nacelle.
 - b. Remove spring lock and loosen filler cap. SLOWLY remove the cap.
5. Replace and lock filler cap and close access door.
6. Open the lower hydraulic access panel immediately aft of the lower left engine cowling.
7. Ensure that the hydraulic cart and aircraft lines and connectors are clean. Connect the hydraulic cart pressure and return lines.
8. If flaps are extended, reposition to full up position.
9. Move hydraulic cart controls to "FILL" position. Watch the hydraulic fluid sight gauge on the outboard side of the left nacelle. The reservoir is full when the fluid reaches half way up the top window.

NOTE

Overfilling of the hydraulic reservoir may result in hydraulic fluid spilling overboard during landing gear or flap operation.

10. Neutralize hydraulic cart controls. Disconnect hoses from pressure and return ports and close the access panel,
11. When servicing is complete, remove the hydraulic cart and return the emergency gear release handle to the normal position.

SERVICING – HYDRAULIC SYSTEM (continued)

SERVICING WITHOUT A HYDRAULIC CART

1. Position wing flaps full up.
2. Open access door on outboard side of left nacelle.
3. Unlock and remove filler cap. Remove SLOWLY to allow air pressure to escape. Ensure that filler screen is in place before servicing.
4. Observe the sight gauge. Add fluid until upper window is half full.

NOTE

Overfilling the hydraulic reservoir may result in hydraulic fluid spilling overboard during landing gear or flap operation.

5. Install and lock filler cap.

NOTE

If fluid level is below bottom window check system for leaks or empty hydraulic lines. It may be necessary to service system with a hydraulic cart.

6. Close hydraulic reservoir access door.

SERVICING OXYGEN SYSTEM

WARNING

PRIOR TO SERVICING OXYGEN SYSTEM, PERSONNEL SHOULD FAMILIARIZE THEMSELVES WITH AND STRICTLY ADHERE TO MAINTENANCE PRECAUTIONS AND PROCEDURES.

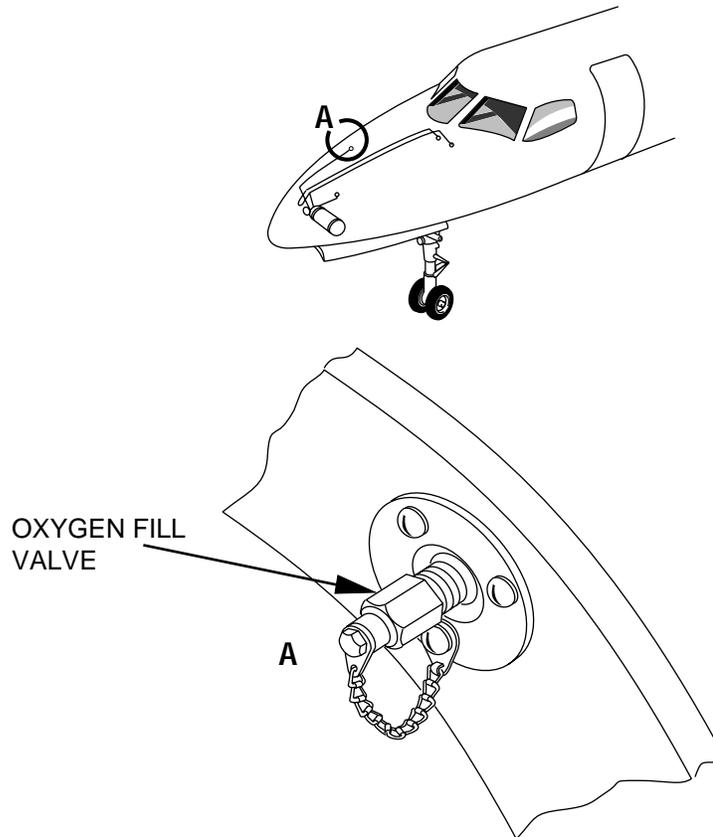


FIGURE 1-11

WARNING

DO NOT PERMIT SMOKING OR OPEN FLAME IN OR NEAR AIRCRAFT WHILE MAINTENANCE IS BEING PERFORMED ON THE OXYGEN SYSTEM.

SERVICING OXYGEN SYSTEM (continued)

FILLING OXYGEN SYSTEM

CAUTION

IF OXYGEN IS ALLOWED TO FLOW INTO THE CYLINDER TOO FAST, EXCESSIVE HEATING OF THE CYLINDER WILL OCCUR, RESULTING IN EXPANSION OF THE OXYGEN IN THE CYLINDER. THIS WILL INDICATE A HIGHER PRESSURE THAN ACTUALLY EXISTS.

NOTE

When an oxygen cylinder has been completely depressurized, condensation may form in the cylinder. The cylinder should be purged of any condensation prior to servicing.

1. Open the right nose baggage door and locate the filler valve on the forward upper corner of the door frame (See Figure 1-11).
2. Remove the dust cover from the oxygen filler fitting, and place the service cylinder fitting on the filler and tighten enough to prevent leakage.

NOTE

Use only dry breathing oxygen, Federal Specification MIL-O-2710, Type 1, from a green colored cylinder.

3. Open the servicing cylinder valve slowly until oxygen is heard going into the aircraft cylinder.
4. When the aircraft cylinder reaches full pressure (1850 PSI) as indicated on the cockpit pressure gauge, close the servicing cylinder valve.
5. Remove the servicing cylinder from the filler fitting, replace the fitting dust cover and secure the right nose baggage door.

SERVICING OXYGEN SYSTEM (continued)**BLEEDING OXYGEN FROM THE CYLINDER****NOTE**

Oils, grease and solvent may burn or explode spontaneously when contacted by oxygen under pressure. Be sure hands and clothing are free of grease and oil.

1. Turn shutoff valve off.
2. Bleed trapped pressure from supply line by inserting an oxygen mask fitting into an outlet and breathing through the mask.
3. Disconnect the supply line from regulator.
4. Connect a clean length of hose long enough to reach approximately five feet outside the cargo compartment, to the supply line port on the regulator.
5. Hold the end and have a helper slowly turn the shutoff valve on.

WARNING

WHEN OXYGEN IS BEING REMOVED FROM THE CYLINDER, DO NOT ALLOW THE OPEN END OF THE BLEED HOSE TO BE DIRECTED TOWARD ANY PERSON OR ANY AREA CONTAINING OIL OR GREASE, FIRE, FLAME, OR ENGINE EXHAUST.

6. After the cylinder is empty, remove the bleed hose.
7. Connect supply line to regulator.

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CHAPTER 2

**EMERGENCY
INFORMATION**

**SA226 SERIES
MERLIN/METRO AIRCRAFT**

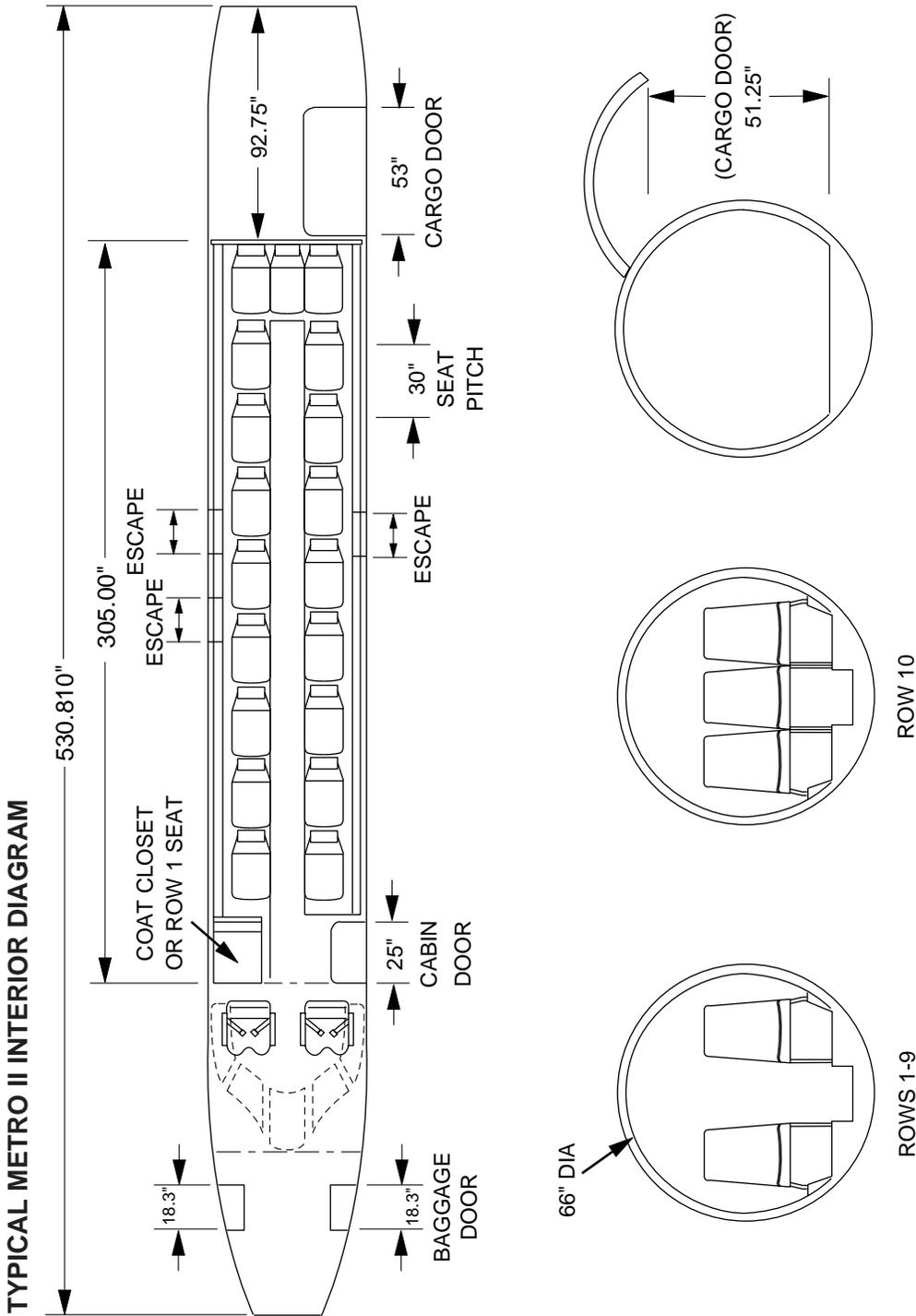


FIGURE 2-1

NOTE

Refer to appropriate Airplane Flight Manual for other cabin interior arrangements.

FLAMMABLE FLUIDS/MATERIAL

1. Fuel

Fuel is carried in the integral wing tanks. The fuel crossflow line extends from inboard wing to inboard wing through the wing center section.

2. Engine Oil

Engine oil is carried in an oil tank located on the left side of each engine.

3. Hydraulic Fluid

Hydraulic fluid is stored in a hydraulic reservoir located forward of the left main landing gear wheelwell.

4. Alcohol Water Injection (AWI) Fluid (If Emergency/Continuous Alcohol Water Injection System is installed)

AWI fluid (16 gallons maximum) is stored in a tank located in the nose baggage compartment.

5. Landing Gear

WARNING

WHEELS MAY BE MANUFACTURED FROM EITHER ALUMINUM OR MAGNESIUM ALLOY. OBSERVE ALL SAFETY PRECAUTIONS RELATING TO MAGNESIUM FIRES.

EXPLOSION

1. Oxygen Supply

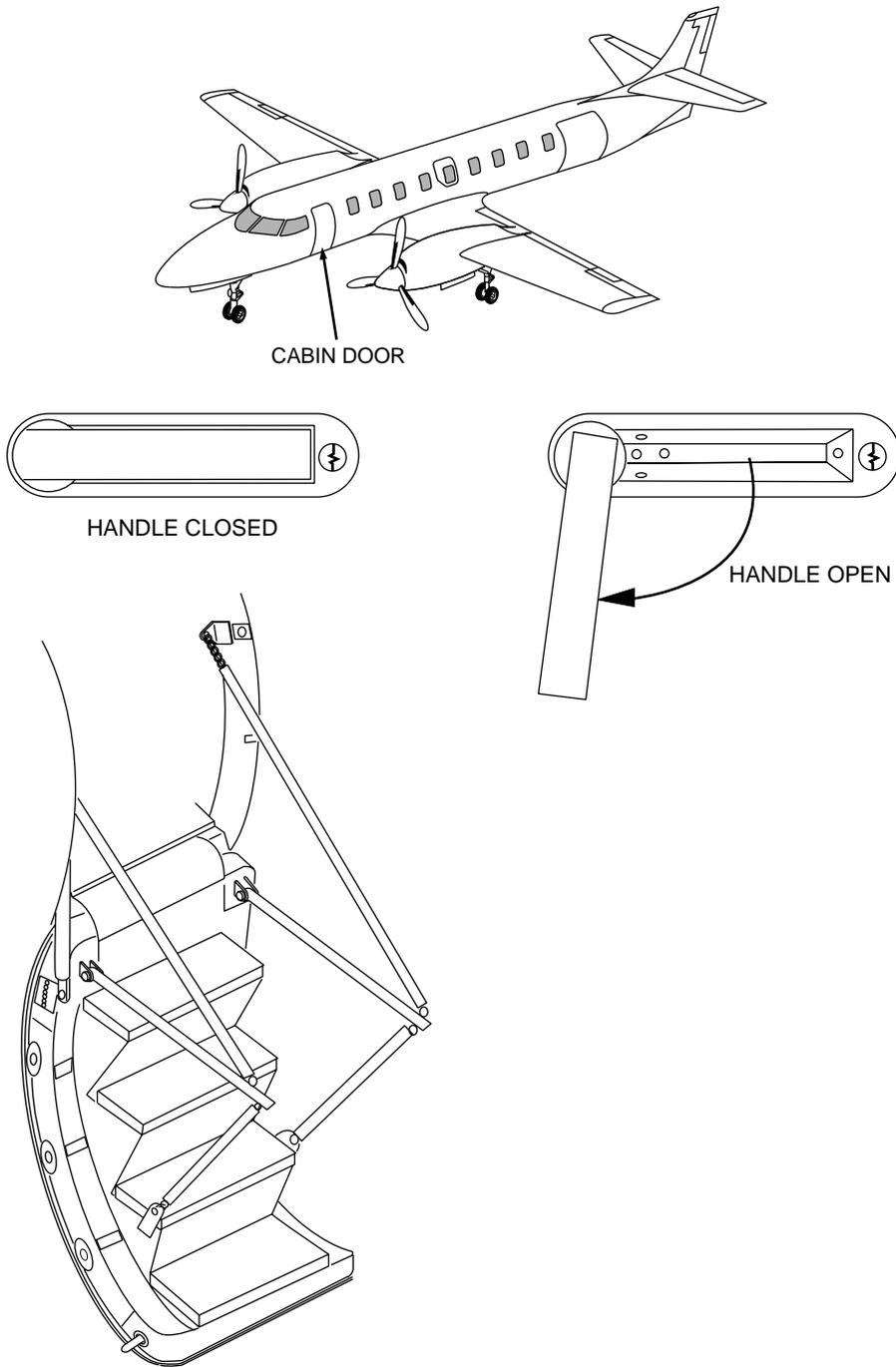
The oxygen supply (1850 PSI) is stored in one bottle located beneath the avionics equipment rack aft in the nose baggage compartment. Oxygen lines are routed to the pilot and copilot through the forward pressure bulkhead and along the right side of the fuselage to the passengers. A shutoff valve is located on each regulator. See Figure 2-8.

2. Fire Extinguisher Containers

On some aircraft there are two fire extinguisher containers, one located on the right side of each engine nacelle aft of the firewall. These containers, charged with Freon FE1301 are provided in case of inflight engine fire. They are electrically actuated by the pilot. A thermal discharge outlet releases pressure on the containers should container temperature reach a preset limit.

AIRCRAFT ACCESS

CABIN DOOR



Rotate handle clockwise to open. Pull out to allow cabin door to open outward.
(Hinge is at the bottom of door)

FIGURE 2-2

AIRCRAFT ACCESS (continued)

EMERGENCY EXITS

NOTE

Emergency exits are not operable from outside the aircraft except in rare cases.

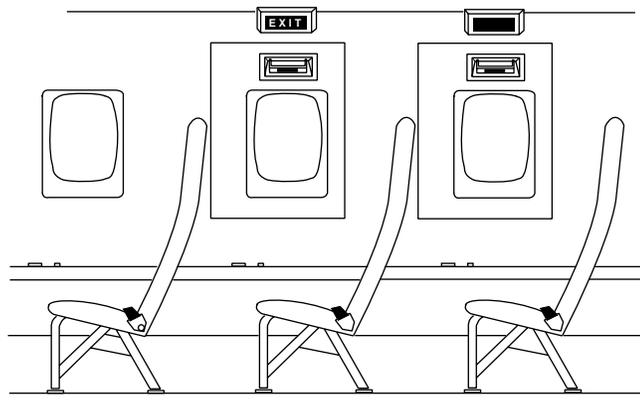


FIGURE 2-3

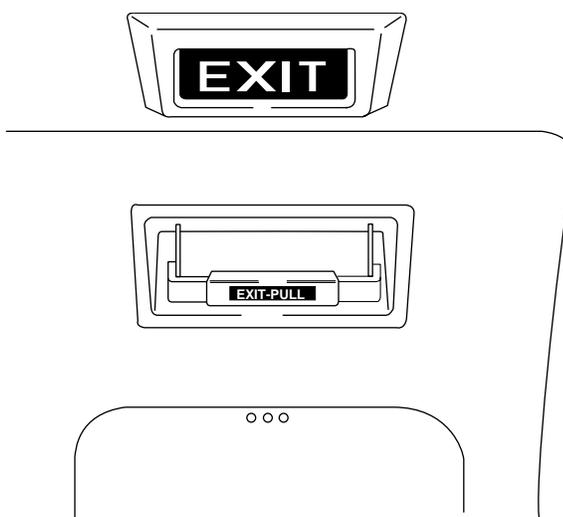
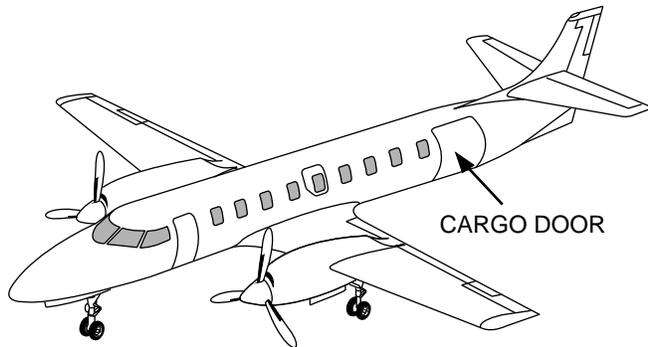


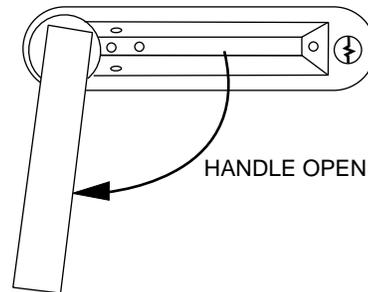
FIGURE 2-4

AIRCRAFT ACCESS (continued)

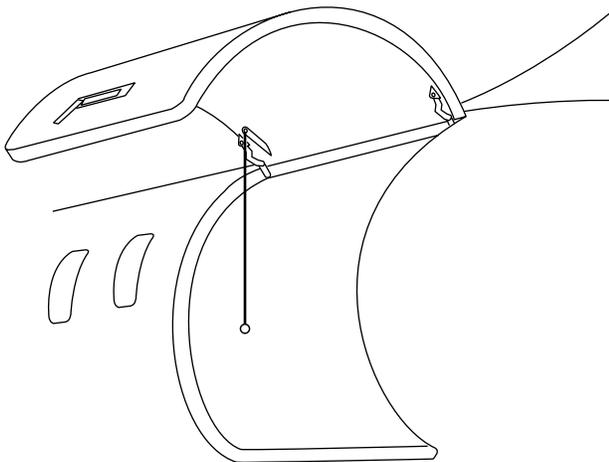
CARGO COMPARTMENT



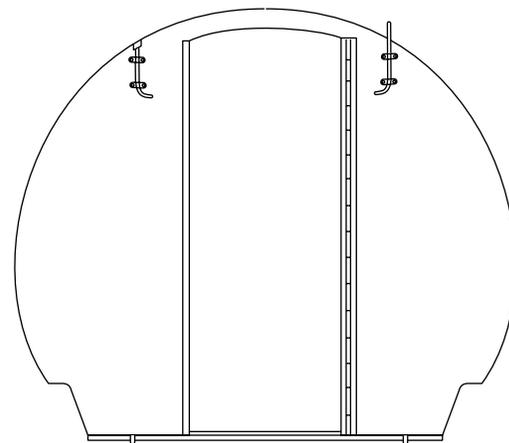
HANDLE CLOSED



HANDLE OPEN



Rotate handle clockwise to open. Pull out on door handle and push door upward. (Hinge is at top of the door.)



TO REMOVE AFT STRUCTURAL BULKHEAD

1. Gain access to aft structural bulkhead through cargo compartment.
2. Locate latch handles at top left and right sides of bulkhead and turn handles out of retaining clips.
3. Grip handles firmly and pull down to release latches. Use handles to pull top of door towards you, and lift bulkhead up and out of track fittings at base.

FIGURE 2-5

CUT FOR EMERGENCY ENTRY

CHOP AREA

There are no chop marks painted on the aircraft. If forced entry must be made, the areas shown will offer the least resistance.

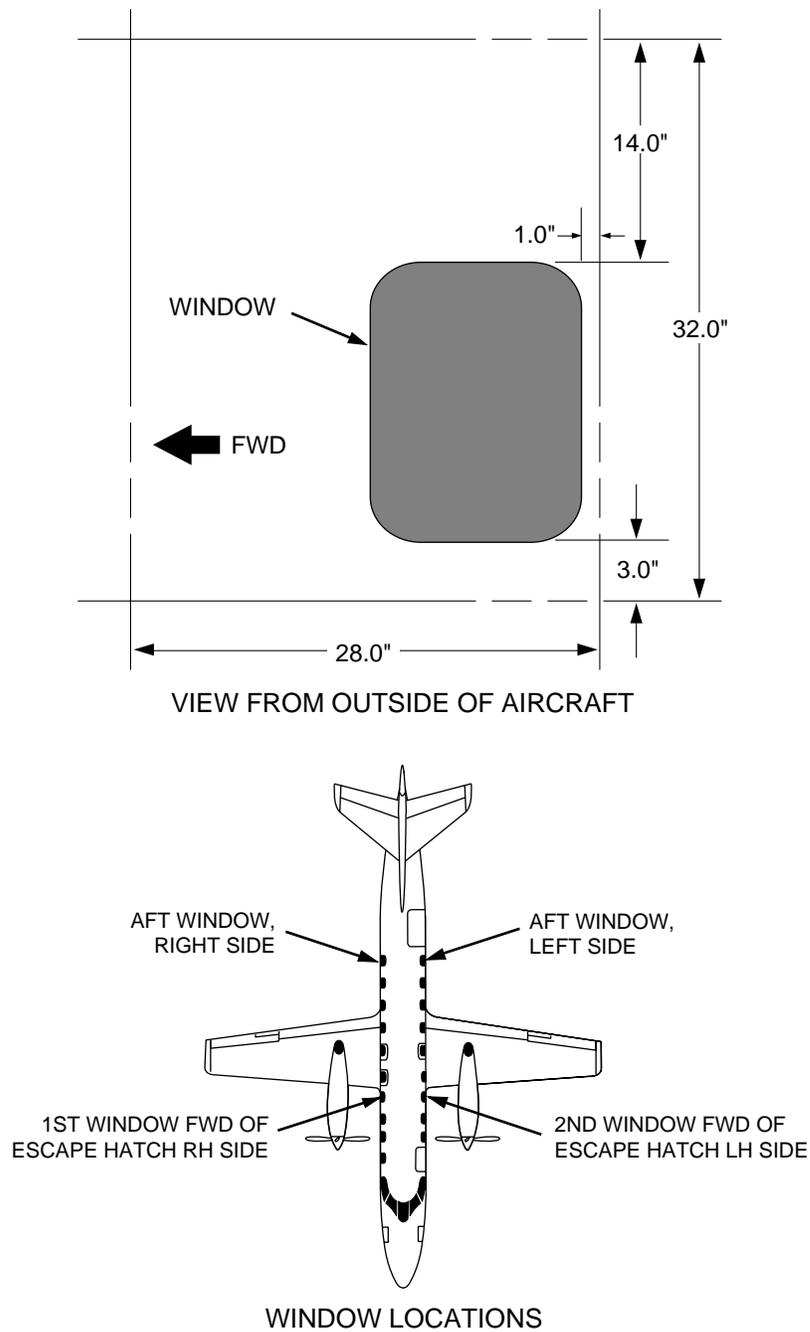


FIGURE 2-6

PERSONNEL EGRESS

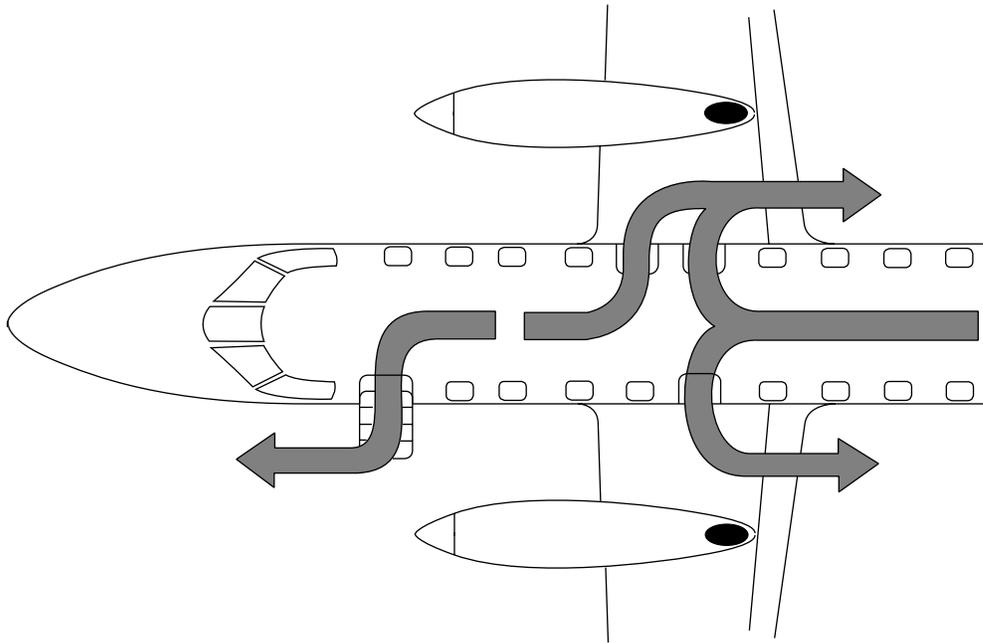


FIGURE 2-7

OXYGEN BOTTLE LOCATION

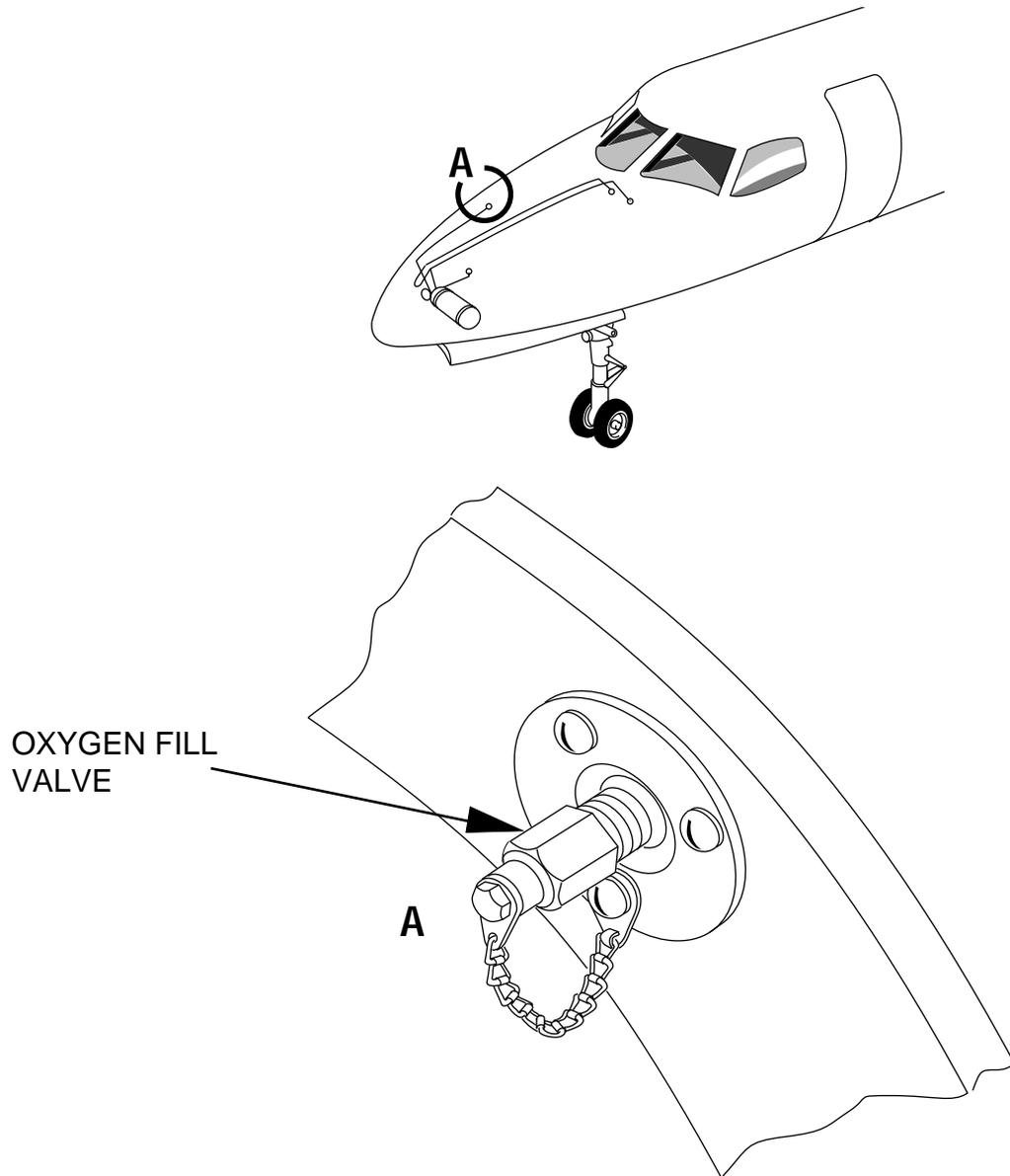


FIGURE 2-8

BATTERY DISCONNECT

1. Remove battery access panels from upper surface of left and right inboard wing.
2. Remove safety wire and disconnect battery quick disconnects by turning counterclockwise.

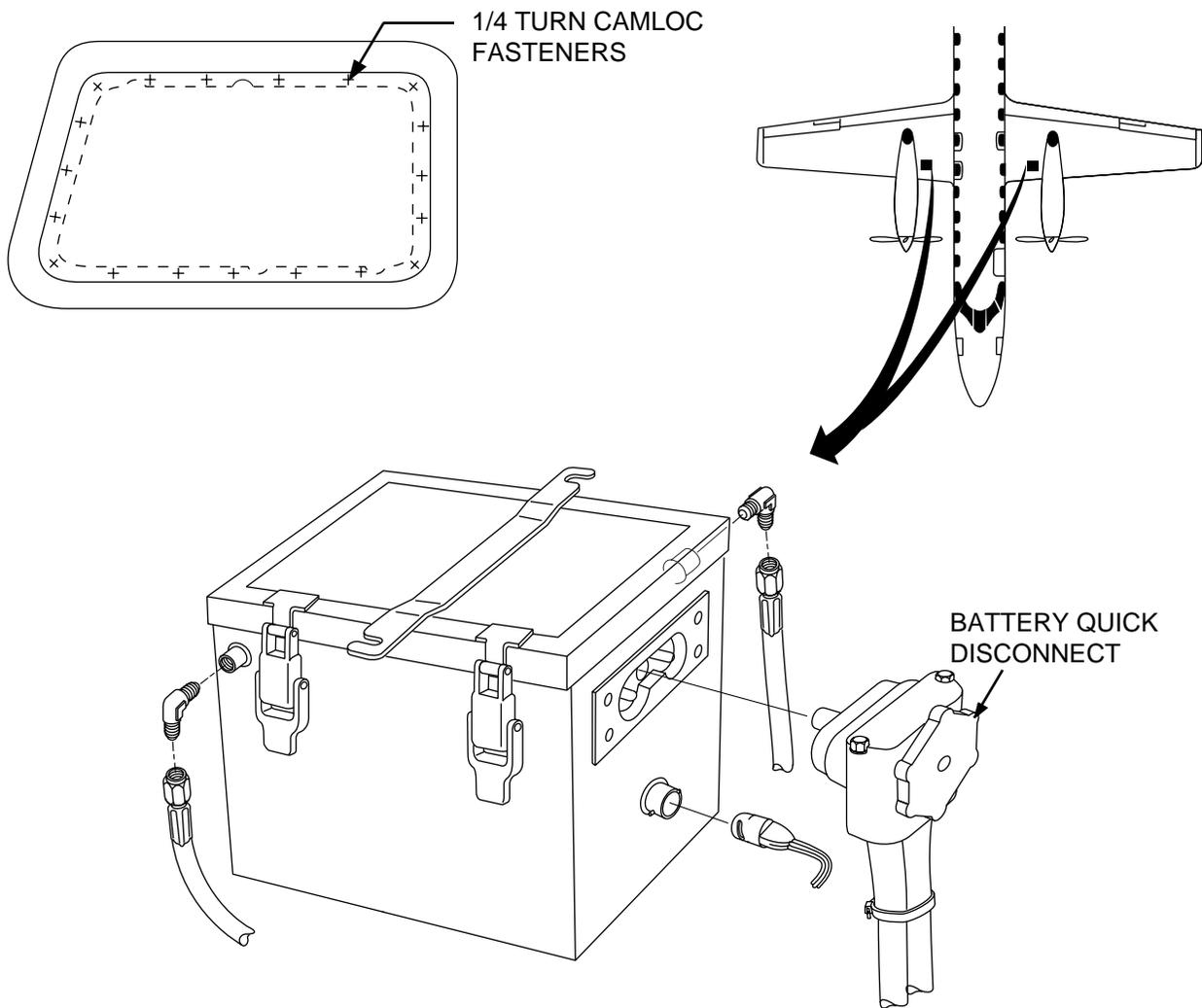


FIGURE 2-9

FIRE FIGHTING

Occurrence of an engine nacelle fire requires a qualified operator in the cockpit to use the engine fire extinguishing system, if installed. In case of a tail pipe fire, the operator is directed to motor the engine. Attempt to extinguish internal engine fires by engine motoring before applying corrosive fire extinguishing chemical or CO². If fire continues, proceed as follows:

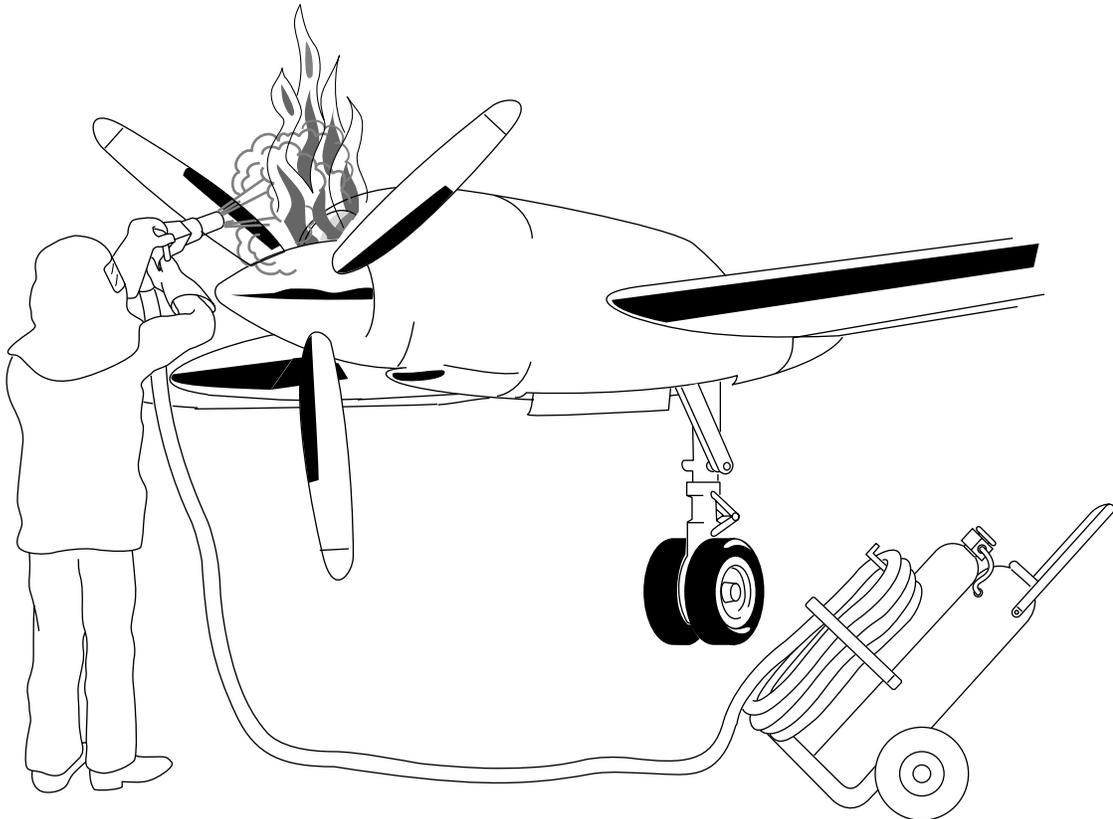
ENGINE INLET

FIGURE 2-10

In case of an engine inlet fire, direct extinguishing agent into engine inlet as shown. **DO NOT STAND DIRECTLY IN FRONT OF INTAKE.**

FIRE FIGHTING (continued)

TAIL PIPE



FIGURE 2-11

In case of tail pipe fire, use extinguishing agent as shown. DO NOT STAND DIRECTLY BEHIND TAIL PIPE.

NOSE BAGGAGE COMPARTMENT

In case of nose avionics compartment fire, open access doors as far as possible and direct extinguishing agent into compartment. Fire may be of an electrical nature.

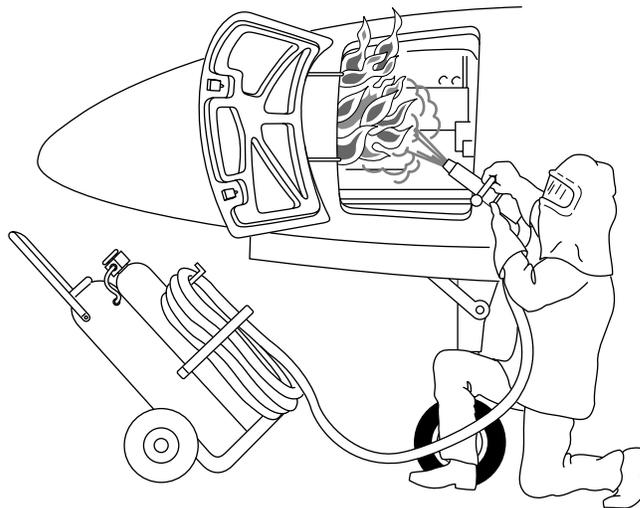


FIGURE 2-12

FIRE FIGHTING (continued)

CARGO COMPARTMENT

In case of a cargo compartment fire, open cargo compartment door and direct extinguishing agent into the compartment.

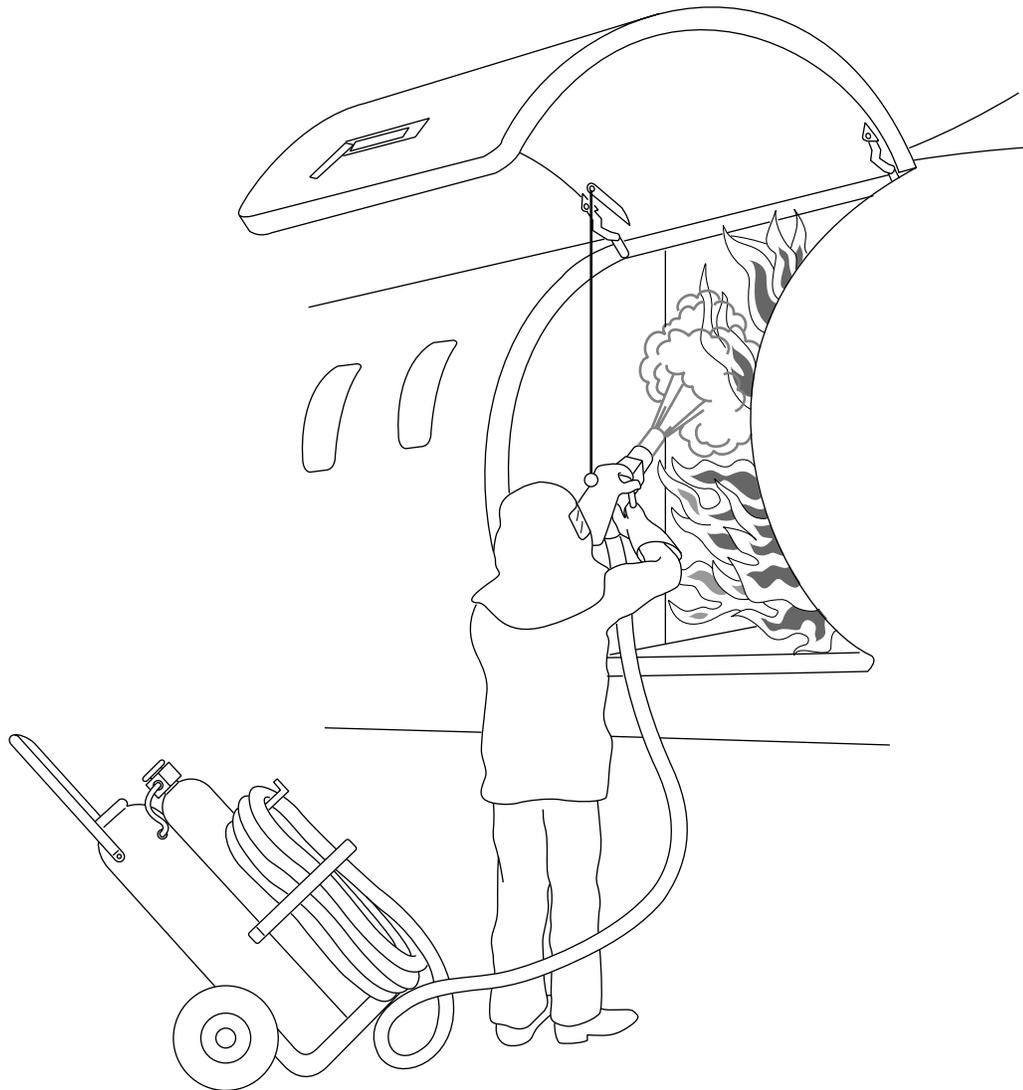


FIGURE 2-13

FIRE FIGHTING (continued)**BRAKE FIRES**

1. Approach airplane from front or rear, along plane of wheel rotation.

WARNING

ON SOME AIRCRAFT, THE WHEELS MAY BE MANUFACTURED FROM MAGNESIUM ALLOYS. OBSERVE ALL SAFETY PRECAUTIONS RELATING TO MAGNESIUM FIRES.

2. If brake only is on fire, apply water as a spray or as a dispersed pattern in short periodic applications until fire is out. Apply water to brake assembly, not directly to the wheel.
3. If a magnesium wheel is also on fire, extinguish using dry chemicals.

EMERGENCY LIFTING

An aircraft that has belly-landed can be lifted using two slings and either a spreader bar or two cranes or by use of pneumatic bags.

LIFTING USING SLINGS (See Figure 2-14)

1. Using a type 66 web sling 6" or greater in width, locate one sling at the forward pressure bulkhead (F.S. 66.310) (the bulkhead even with the bottom of the windshield).
2. Place a second sling at the forward cargo door frame (F.S. 435.030).
3. Attach the two slings to a spreader bar capable of maintaining a 366 inch spread.
4. Attach a crane (minimum capacity 20,000 lbs) at the approximate mid point of the spreader.
5. Slowly lift the airplane to a sufficient height to place jacks beneath the nose and wing jack points.

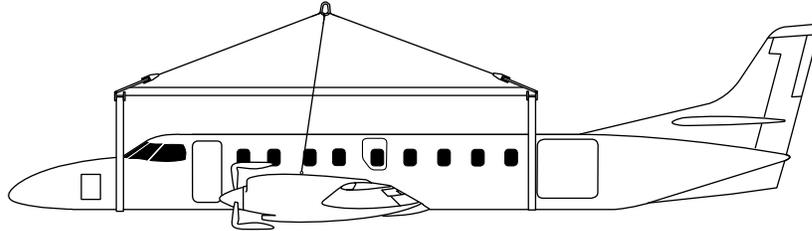
EMERGENCY LIFTING (continued)**LIFTING USING SLINGS (continued)**

FIGURE 2-14

NOTE

If a spreader bar is not available, two cranes – one attached to each sling will be required.

LIFTING USING PNEUMATIC BAGS

1. Place a pneumatic bag beneath the nose section, if possible, forward of the nose jack point.
2. Place a pneumatic bag beneath each wing outboard of, and adjacent to the nacelle.
3. Inflate the bags slowly, maintaining the aircraft as level as possible until sufficient height is attained to allow placement of jacks.

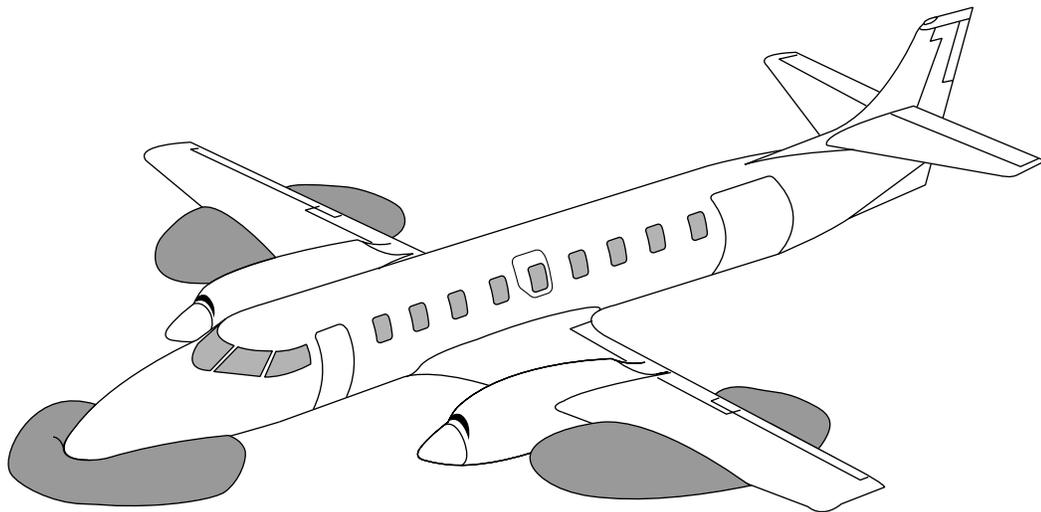


FIGURE 2-15

CAUTION

ENSURE PNEUMATIC BAG WILL NOT EXERT PRESSURE ON ANY CONTROL SURFACE.

RESCUE**SPECIAL TOOLS/EQUIPMENT**

Power Rescue Saw
6 foot Ladder

NORMAL/EMERGENCY ENTRY

1. Push in on forward end of cabin door handle.
2. Rotate door handle down (clockwise).
3. Pull out on door handle to allow cabin door to fall out (hinge is at bottom of door).

NOTE

- Escape hatches are not operable from outside of aircraft.
- Cargo door handle operates same as cabin door handle; however, cargo door must be lifted upward to open.
- Optional bulkhead separates passenger compartment and cargo compartment. May be removable through the cargo compartment and may contain a door.

CUT-IN

Cut along window lines as last resort

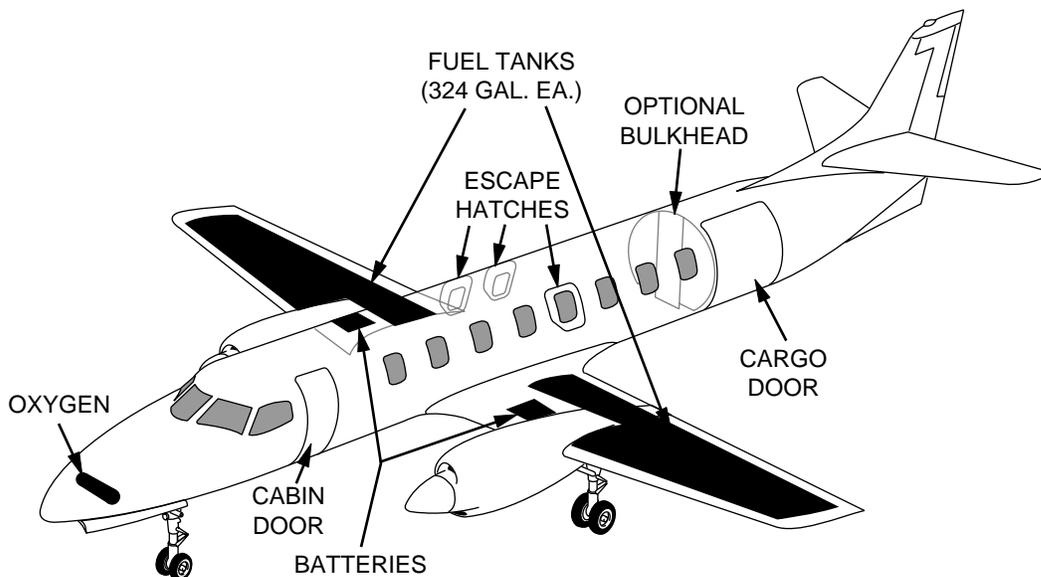


FIGURE 2-16

ENGINE SHUTDOWN AND AIRCREW EXTRACTION**ENGINE SHUTDOWN**

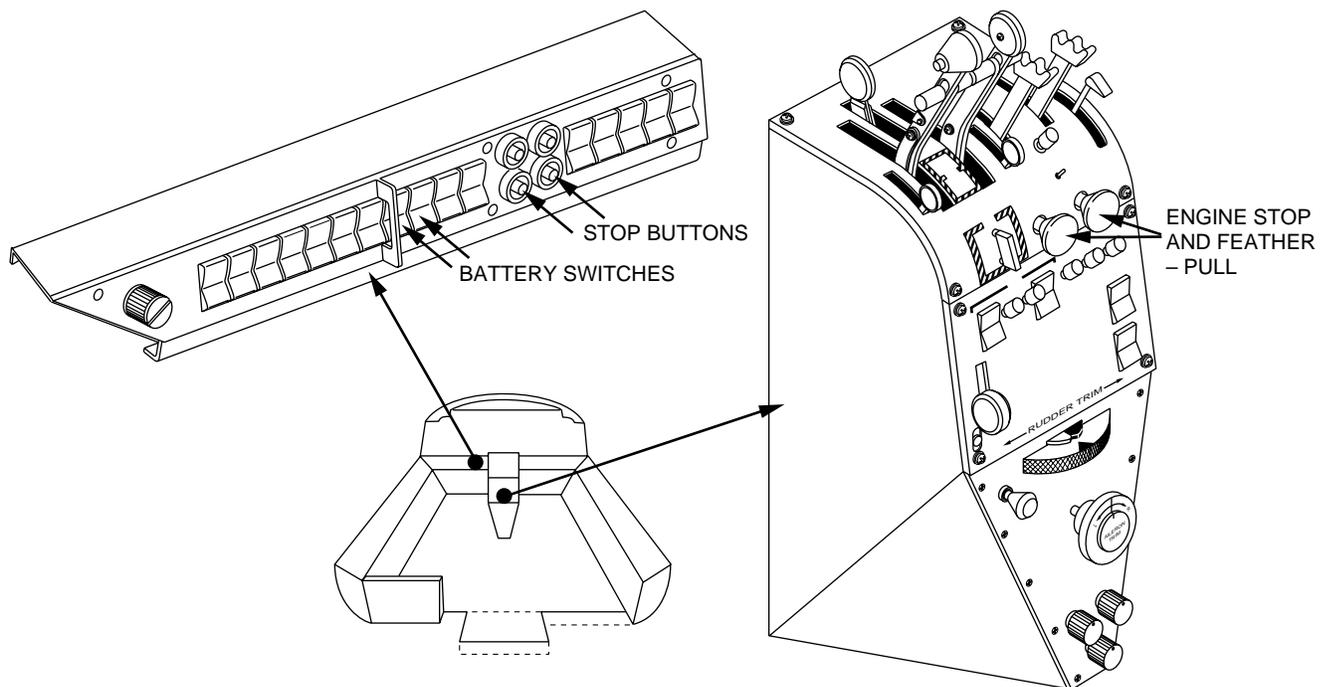
1. Ensure that at least one battery switch is ON (Forward position). Battery switches are straight forward of pilot's control column.
2. Push both stop buttons (Stop buttons are approximately five inches to the right of battery switches).
3. Turn both battery switches OFF (Center position)
4. Pull both Stop and Feather knobs full aft (Stop and Feather knobs are red and on the center pedestal just below Engine Controls).

AIRCREW EXTRACTION

Unlatch lap and shoulder harness(es).

NOTE

- If seat tracks are not damaged due to crash, seat track adjustment lever(s), inboard of each seat at cockpit floor level, can be used to retract seat to full aft position.
- Passenger seats may or may not be equipped with shoulder straps.

**FIGURE 2-17**

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