0. MODIFICATION STANDARD.

The system described in this chapter assumes a certain modification standard of the aircraft. If a modification is not installed, the following apply as a complement to what is stated in this chapter.

DESCRIPTION/OPERATION.

0.1 FUEL test switch.

Without Mod No 2091 embodied, the fuel quantity indicators will show 950 $\pm$ 50 lb or 431 $\pm$ 23 kg when tested.

1. GENERAL

Fuel is stored in two tanks, referred to as the left and the right tank. Maximum usable fuel capacity of each tank is 2845 lb ± 200 lb (1290 kg ± 90 kg) approximately 425 US gallons (1610 l).

A single point pressure fueling system makes it possible to fill the tanks automatically to full or to mid-level in approximately 15 min., or 8 min. respectively. The tanks can also be filled to any intermediate level by setting the fueling control switches to OFF when the desired level is reached. Overwing filler necks permit gravity fueling.

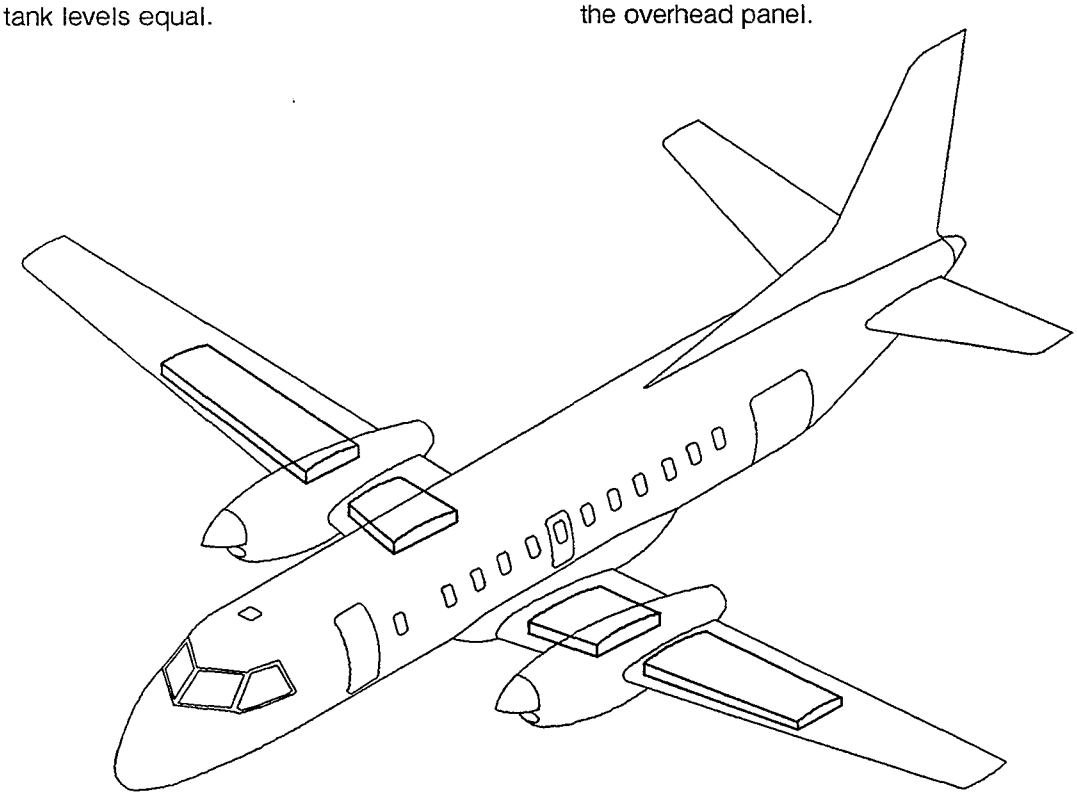
The pressure fueling system can also be used for defueling.

Normally, the left engine is supplied by the left tank and the right engine by the right tank, but it is also possible to crossfeed both engines from either tank. An interconnect line between the tanks makes it possible to keep the tank levels equal.

There is one engine-driven main fuel boost pump on each engine and an electrically driven standby pump in each tank. The standby pump starts automatically by a pressure switch in case of a main pump failure. The standby pumps are also used for supplying the engine with fuel during engine start until the main pump can provide sufficient pressure. The standby pumps are controlled by pilot operated switches on the overhead panel and automatic switches on the condition levers.

Fuel quantity is indicated by two gauges on the center instrument panel and there is a low level warning for each tank. On ground, the fuel quantity can be measured by magnetic dipsticks in the undersurface of the wing. The magnetic dipsticks only measure fuel quantities below 1100 lb (500 kg). Fuel quantity is also indicated by two gauges on the fueling panel.

Fuel temperature is indicated on a digital display on the overhead panel.



A11629

FIG. 1. Fuel tanks - location.

2. MAIN COMPONENTS AND SUBSYSTEMS. (Fig. 2.)

2. 1. Fuel storage.

Each fuel tank consists of two cells, integral with the wing, one inboard and one outboard of the engine nacelle. Baffling is provided inside the fuel cells to prevent rapid displacements of fuel within the cell during aircraft maneuvering. The two cells are interconnected by a fuel hose and a vent line. A flapper valve in the fuel line permits fuel flow from the outboard to the inboard cell only. Each outboard cell has a filler neck for gravity fueling.

The lower end of the inboard cell has a hopper tank with a capacity of 200 lb (90 kg). Four flapper valves permit fuel to flow into, but not out of the hopper tank to provide fuel for the engine feed system at all times. A negative "G" suction feed inlet canister is attached to the wing structure within the hopper tank and surrounds the suction feed inlet check valve. The canister insures continuous fuel feed during limited uncoordinated or negative "G" aircraft maneuvering. A drain valve is incorporated in the lowest part of the hopper tank.

The inboard cell is vented to the outboard cell. The outboard cell is then vented overboard through a vent line at the underside of the wing. The vent system maintains a slight overpressure in the tanks during flight. A baffle in the outboard cell prevents fuel from sloshing out through the vent. The vent will also provide for overflow in case of overfilling when fueling, e.g. due to a failure in the shutoff system.

2. 2. Fuel distribution.

Pressure fueling system.

A single point receptacle and refuel/defuel control panel is located in the right wing leading edge, outboard of the engine nacelle. The control panel is supplied direct from the batteries and does not require any power to be on in the cockpit. A refueling/defueling line connects the receptacle with a refueling shutoff valve in each tank and with a defueling valve on the crossfeed line.

The refueling shutoff valves are solenoid controlled and actuated by the fueling pressure. They are located inside the inboard tank cells. The outboard cells are replenished by overflow through the vent line from the inboard cells.

Optical sensors are used to determine mid-level and full level. When activated, the selected sensor interrupts electrical power to the affected refueling shutoff valve solenoid and the valve closes.

If the full level detection fails, an overfill float switch in each cell will interrupt the power and turn on the corresponding OVERFULL light on the refuel/defuel panel.

The defueling valve is operated by a DC electric motor and is of the same type as the interconnect, crossfeed and fire shutoff valves

Engine feed system.

A fuel feed line connects each tank with the engine on the same side. A crossfeed line with a shutoff valve interconnects the two feed lines. A suction inlet and a standby pump with inlet for the feed line are located in each hopper tank. Check valves in the inlets prevent return flow into the tank.

An engine-driven main pump on each engine draws fuel from the tank. A main pump differential pressure switch, sensing the differential pressure across the pump, actuates the corresponding standby pump if the main pump fails, provided that the L/R STBY pump switch is set in the guarded AUTO position. The main pump differential pressure switch also actuates the MAIN PUMP warning light on the overhead fuel panel. In case of engine shutdown, a condition lever actuated switch will inhibit the standby pump auto starting.

Another pressure switch senses the pressure in the feed line upstream of the main pump and activates the STBY PRESS light on the fuel panel to indicate standby pump operation. In case of standby pump failure, the standby pump on the opposite side can be switched on to supply fuel through the crossfeed. The capacity of each standby pump is sufficient to supply both engines at all power settings.

A fuel heater and a fuel filter are incorporated in the engine installation. See AOM 17.1 for description.

An electrical shutoff valve at each engine nacelle will shut off the fuel supply to the engine if the fire handle is pulled. The L/R VALVE CLOSED light on the overhead fuel panel indicates the condition. Pressure relief valves in the shutoff valve and the suction check valves protect the feed line from excessive pressure due to thermal expansion when the shutoff valve is closed.

2. 3. Indicating systems.

Electrical quantity indication.

The quantity indication system is of the capacitance type and consists of six probes and two indicators for each tank plus a signal conditioner. The signal conditioner converts the capacitance values of the probes to indicator readings. Since the capacitance depends on fuel level and density, the indicators will show the weight of the fuel on board.

A fuel low level caution is provided for each tank. When the fuel level is below 300lb ± 70lb (135 kg ± 30 kg) in a tank, a float switch in each inboard cell will activate the master caution, L/R LOW LEVEL light on the overhead panel and FUEL (CWP) light.

Mechanical quantity indication.

There is a magnetic dipstick in each inboard tank cell. The stick is accessible from the underside of the wing. When lowered, the stick will engage magnetically with a float device inside the tank. The protruding length will indicate fuel level by the dipstick scale indexed in inches. The fuel quantity can then be calculated from the dipstick index. See the table below. The fuel quantities are calculated with a fuel density of 6.7 lb/US gallon or 0.802 kg/l for a levelled aircraft. The dipstick scale is ranging from 0 to 10.0 inches corresponding to 114 – 1038 lb or 52 – 472 kg.

Temperature indication.

The fuel temperature indicator is provided to indicate the temperature of the fuel being delivered to the engines.

A temperature sensor is installed in the fuel system upstream the engine fuel inlet. The temperature signal is transmitted to an indicator on the overhead panel. The indicator is shared with the battery temperature indicator by means of a selector.

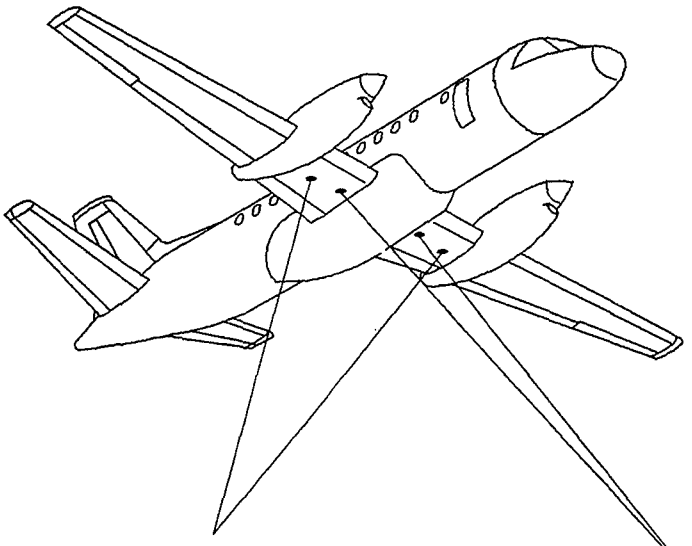
DIPSTICK INDEX CONVERTED INTO QUANTITY (0.802 kg/L)

U.S gallons	pounds	Dipstick index	kilograms	liters
0–17	0–114		0–52	0–64
24	161	1	72	90
34	228	2	103	128
46	308	3	140	174
60	402	4	182	226
75	502	5	228	284
90	603	6	273	340
106	710	7	320	400
121	810	8	367	457
138	925	9	420	522
155	1038	10	472	586

A11582

FIG. 2. Dipstick index.

3. CONTROLS AND INDICATORS.



DIPSTICK INDEX CONVERTED INTO QUANTITY (0.802 kg/L)				
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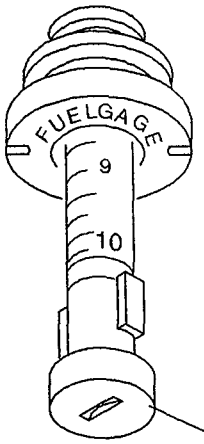
75	502	5	228	284
90	603	6	273	340
106	710	7	320	400
121	810	8	367	457
138	925	9	420	522
155	1038	10	472	586

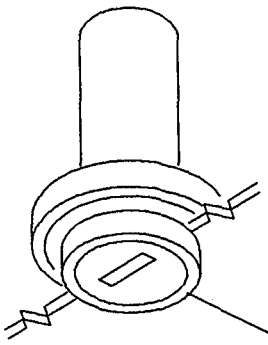
Quantity placard (option).

Located adjacent to the magnetic dipstick.



Magnetic dipstick.

Graduation in inches. Use a coin or a screwdriver to release the dipstick. When lowered slowly the stick will engage magnetically with a float device inside the tank. The protruding length will indicate fuel level by the dipstick scale.



Fuel tank drain valve.

To open:

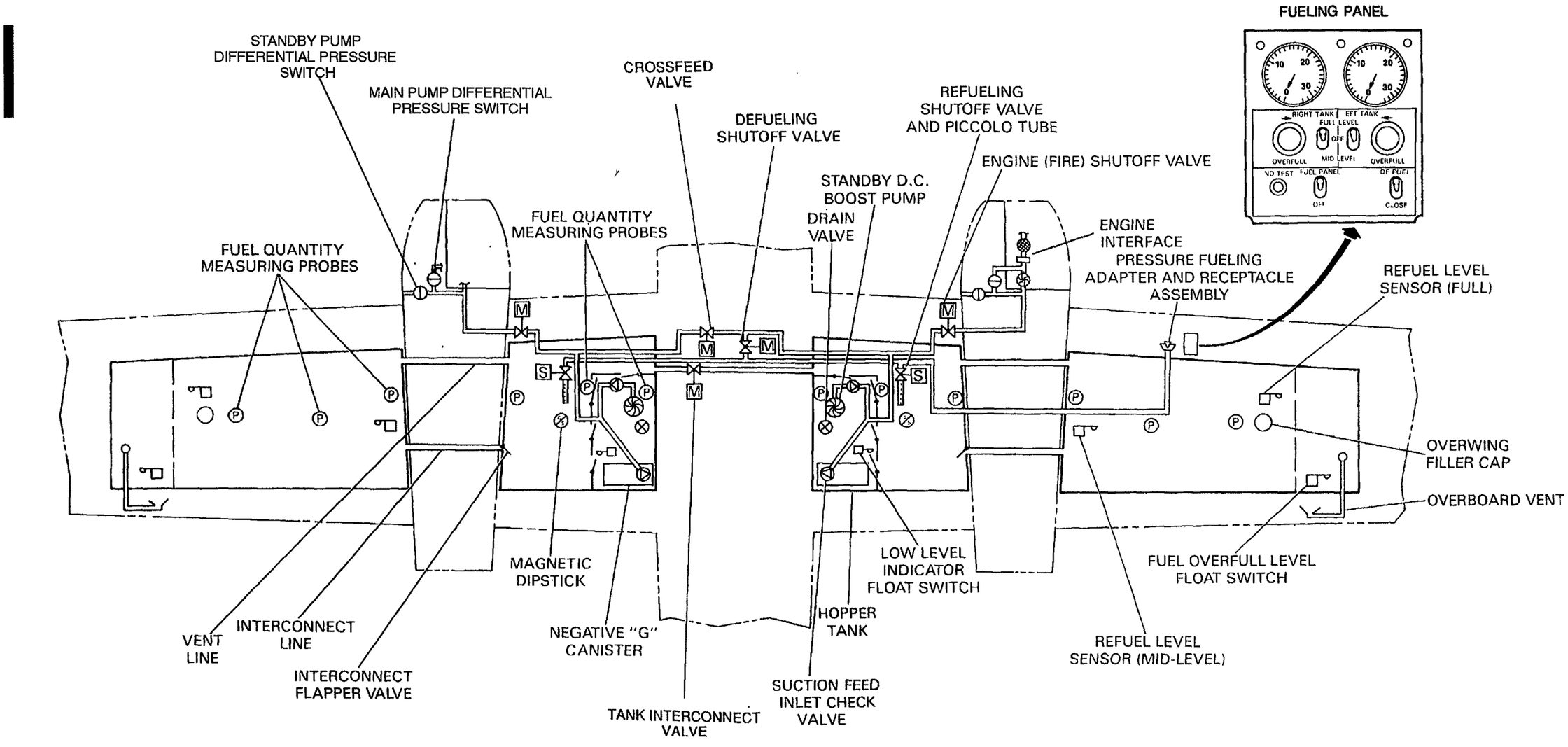
Use a fuel drain tool, turn fuel drain valve counterclockwise to unlock the valve. A spring action will make the valve extend and the fuel will drain.

To close:

Push the valve up into detent and turn it clockwise until it stops. Valve should now stay in closed position. Check drain for leakage.

A11581

FIG. 3. Fuel system – magnetic dipstick and fuel tank drain valve.



A11644

FIG. 2. Fuel system – schematic.

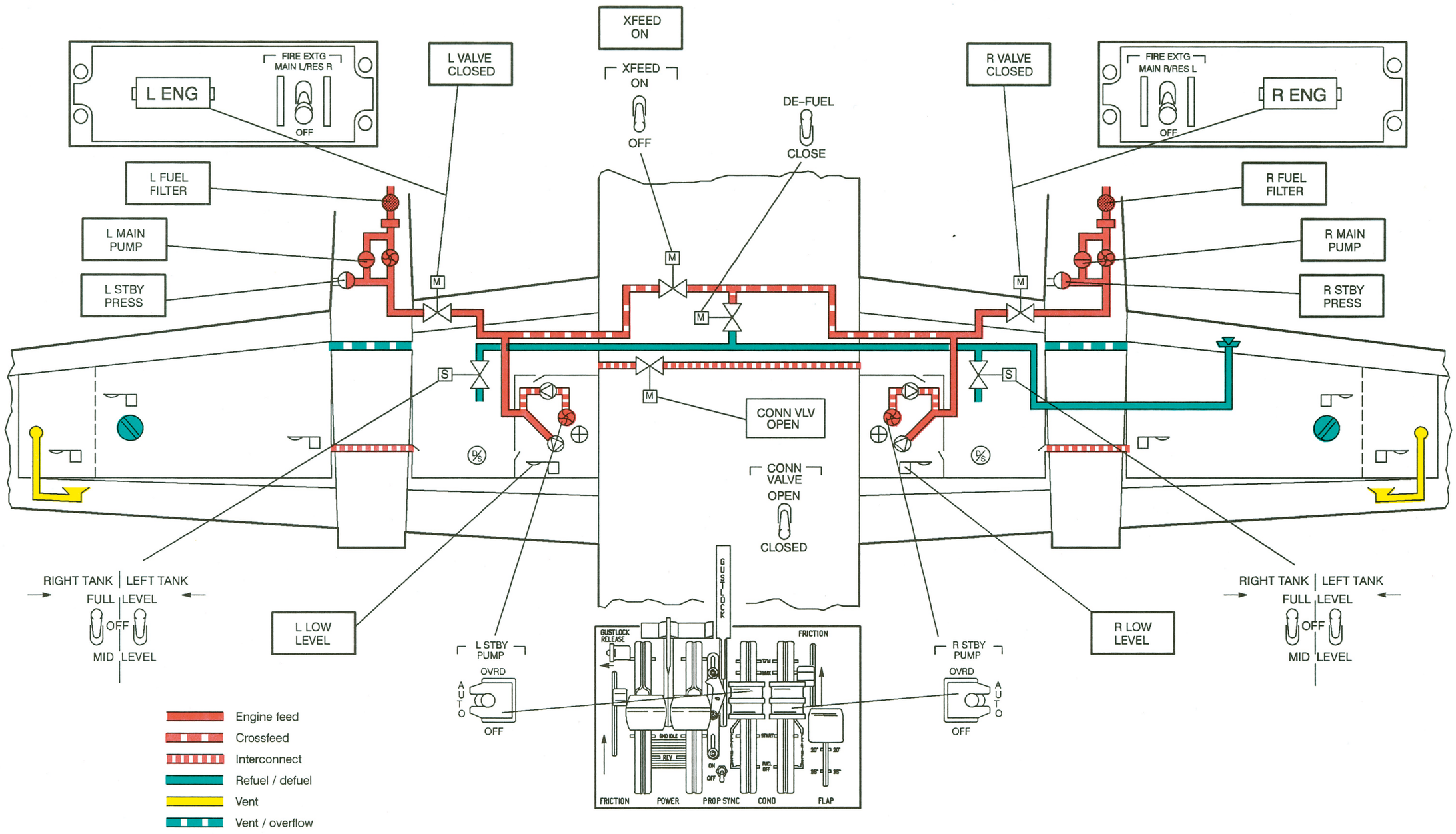
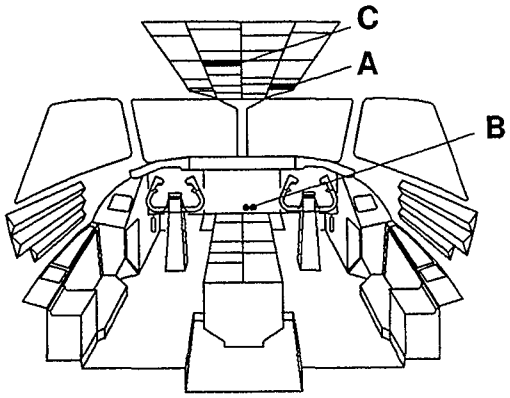
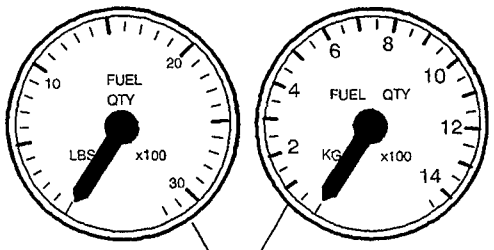


FIG. 3. Fuel system – flow schematic, caution lights and controls.

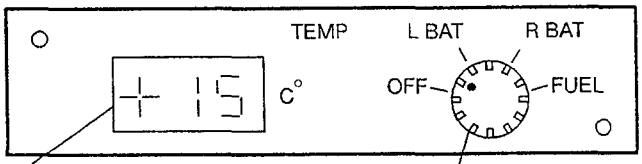


B FUEL QUANTITY INDICATORS



Fuel flow and fuel quantity indication either in lb or kg (option).

C BAT FUEL TEMP PANEL

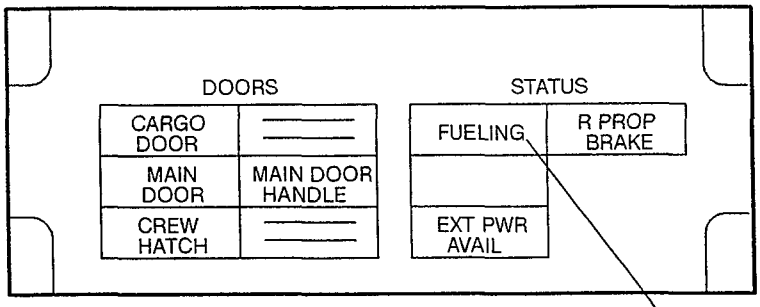


Temperature display.

Indicates FUEL TEMP as selected by the switch At UPR lamp test, the digital display will show +88.

OFF / L BAT / R BAT / FUEL TEMP selector switch.

A GROUND STATUS PANEL



Fueling light (blue).

Indicates that the fueling panel is operated for fueling or defueling.

The light comes on either when the FUEL PANEL switch is on FUEL PANEL position or the defuel valve is open.

A11641

FIG. 4. Fuel system - indicators.

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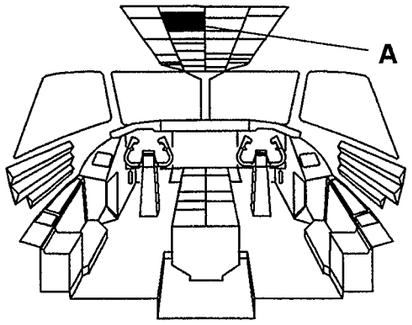


L/R VALVE CLOSED light (amber).
Comes on when the fire shutoff valve is closed.

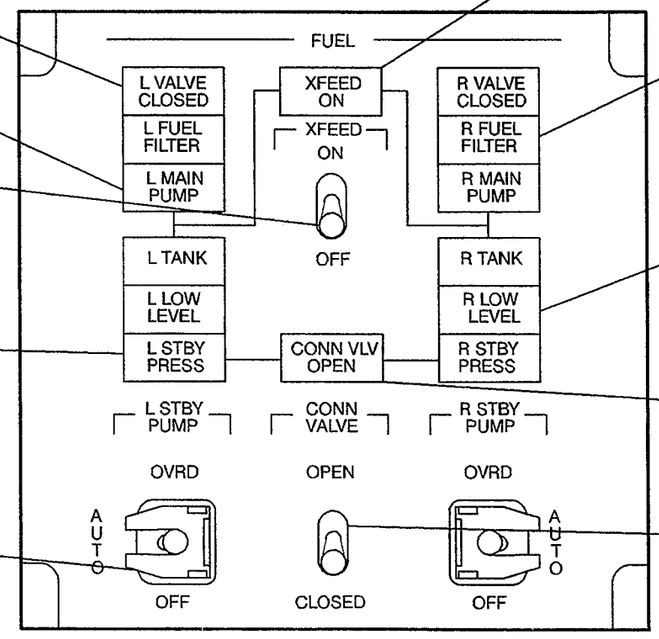
L/R MAIN PUMP light (amber).
Comes on if main pump pressure is low.

XFEED valve switch.
When set to ON the crossfeed valve will open and the XFEED ON light will come on indicating valve is open.

L/R STBY PRESS light (green).
Comes on if a standby pump pressurizes the engine feed line, direct or through crossfeed.

L/R STBY PUMP switch.
OFF – Pump is off.
AUTO – Pump starts automatically if corresponding main pump pressure is low and condition lever out of FUEL OFF position.
OVRD – Override, pump is on.

A FUEL CONTROL PANEL



XFEED ON light (amber).
Comes on when the crossfeed is open.

L/R FUEL FILTER light (amber).
Comes on if the fuel filter becomes clogged and the fuel is bypassing the filter.

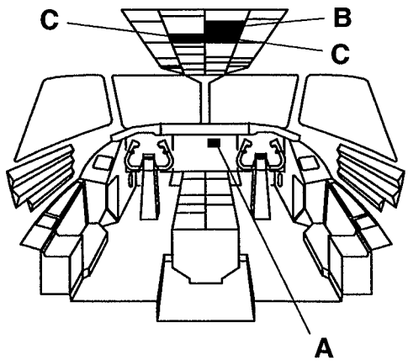
L/R LOW LEVEL light (amber).
Comes on if the fuel quantity in corresponding tank is below 300 ± 70lb or 135 ± 30kg.

CONN VALVE OPEN light (amber).
Comes on when the interconnect valve is open.

CONN VALVE switch.
When set to OPEN the interconnect valve will open and the CONN VLV OPEN light will come on, indicating valve is open.

A11396

FIG. 5. Fuel system – fuel control panel.



A CENTRAL WARNING PANEL

	A	B	C	D	
1	L ENG FIRE	AVIONIC SMOKE	LAV SMOKE	R ENG FIRE	1
2	L ENG OIL PRESS	CARGO SMOKE	CABIN PRESS ↓	R ENG OIL PRESS	2
3	L TAIL P HOT	═══	PROP BRAKE	R TAIL P HOT	3
4	═══	AUTO TRIM	CONFIG	═══	4
5	AUTO COARSEN	═══	PITCH TRIM	RUDDER LIMIT	5
6	L FIRE DET FAIL	FUEL ↑	ELEC ↑	R FIRE DET FAIL	6
7	ICE PROT ↑	ENGINE ↑	FLAPS	AIRCOND ↑	7
8	PARK BRK ON	HYDR ↓	EMER LTS UNARMED	OXYGEN	8
9	A-SKID INOP ↓	AVIONICS	AVIONICS VENT	DOORS ↑	9
10	L STALL FAIL	GUST LOCK	PUSHER SYSTEM	R STALL FAIL	10

A11646

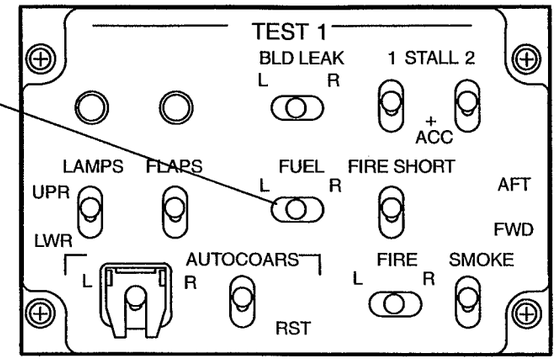
FUEL test switch.

L – Left fuel quantity indicators shows ;
without mod. 2091: 950 ± 50 lb (432 ± 23 kg)
with mod. 2091: 1000 ± 50 lb (455 ± 23 kg)
Left fuel flow indicator shows 760 ± 35 lb/h or 345 ± 16 kg/h

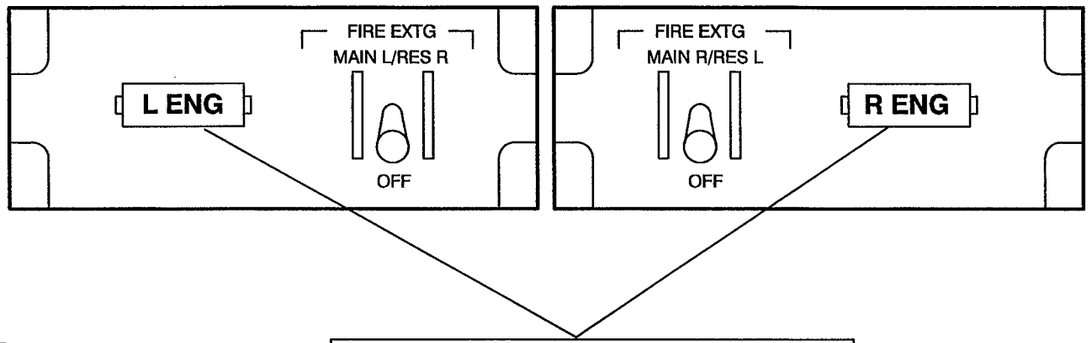
R – same values as above for right instrument.

NOTE: This test determines that the fuel quantity signal conditioner and indicators perform accurately to a pre–set capacitance (to give the simulated fuel quantity shown above). This test does not check the integrity of the fuel probes or ensure full and empty calibration nor does it check that the actual fuel level is measured correctly.

B TEST 1 PANEL



C FIRE PROTECTION PANEL



FUEL light (amber).

Comes on flashing whenever a caution light associated with the fuel system comes on, except for XFEED ON and CONN VLV OPEN.

L/R ENG fire handle.

L/R engine fire handle, when pulled the fire shut-off valve will close off the fuel supply to the engine.

FIG. 6. Fuel system – fuel caution light, fuel test and fire shut off.

4. ELECTRICAL POWER SUPPLY.

Standby pumps and control.

Left standby pump power	L BAT BUS	J-16	L STBY PUMP PWR
Left standby pump control	L BAT BUS	J-15	L STBY PUMP CONTROL
Left fuel press norm	L BAT BUS	J-17	L MAIN PRESS
Right standby pump power	R BAT BUS	R-13	R STBY PUMP PWR
Right standby pump control	R BAT BUS	R-14	R STBY PUMP CONTROL
Right fuel press norm	R BAT BUS	R-15	R MAIN PRESS

Valves.

Interconnect valve	L ESS BUS	J-14	CONN VALVE
Crossfeed valve	R ESS BUS	R-16	X FEED
Left fuel shutoff valve	L BAT BUS	J-18	L FUEL VALVE
Right fuel shutoff valve	R BAT BUS	R-17	R FUEL VALVE

Indication.

Left fuel quantity	L ESS BUS	J-13	L QTY
Right fuel quantity	R ESS BUS	R-12	R QTY
Temperature indication	R ESS BUS	S-12	BAT FUEL IND

Fueling control.

Refueling/defueling power	R HOT BAT BUS	R WING FAIRING

1. LIMITATIONS.

	Unit	Min	Normal	Max
1. 1. OPERATING LIMITS.				
– Minimum fuel for takeoff, each tank	lb	300	–	–
	kg	135	–	–
– Maximum unbalance between tanks	lb	–	–	200
	kg	–	–	90
– Maximum flight level:				
° Kerosene fuel Jet–A, Jet–A1,JP5, JP8, JET TH	FL	–	–	310
° Wide cut fuel Jet–B, JP4	FL	–	–	250
– Fuel temperature for above specified fuel types:			–	
° Kerosene fuel Jet–A, Jet–A1,JP5, JP8, JET TH	°C	–40	–	+43
	°F	–40	–	+110
° Wide cut fuel Jet–B, JP4	°C	–40	–	+18
	°F	–40	–	+64
1. 2. SYSTEM LIMITS.				
– LOW LEVEL light	lb	230	300	370
	kg	105	135	165
– Tank capacities, each tank:				
° Total quantity of usable fuel	lb	2645	2845	3045
(Fuel density 0.802 kg/l)	kg	1202	1292	1382

1. 3. FUEL QUANTITY INDICATION.

Fuel remaining in the tanks when the fuel quantity indicators read zero in level flight can not be safely used in all flight conditions.

2. NORMAL OPERATION.

CONDITIONS	NORMAL PROCEDURES
2. 1. CROSS FEED VALVE AND INTERCONNECT VALVE TEST.	**Crossfeed valve test.** 1. XFEED switch ..... ON – Check XFEED ON light to come on. – After about 10 seconds, set switch to OFF and check light to go out, indicating that the valve is fully closed. **Interconnect valve test.** 1. CONN VALVE switch ..... OPEN – Check CONN VLV OPEN light to come on. – After about 10 seconds, set switch to CLOSED and check light to go out, indicating that the valve is fully closed.
2. 2. FUEL QUANTITY INDICATOR AND FUEL FLOW INDICATOR TEST.	1. FUEL test switch ..... HOLD IN L – Check left fuel quantity indicator to show: without mod. 2091: 950 ± 50 lb (432 ± 23 kg) with mod. 2091: 1000 ± 50 lb (455 ± 23 kg). – Check left fuel flow indicator to show 760 ± 35 lb/h or 345 ± 16 kg/h. 2. FUEL test switch ..... HOLD IN R – Check fuel quantity indicator and fuel flow indicator for same values as above.
2. 3. NORMAL OPERATION OF FUEL SYSTEM.	**Before engine start.** 1. XFEED switch ..... OFF 2. CONN VALVE switch ..... CLOSED 3. L and R STBY PUMP switches ..... AUTO 4. L and R MAIN PUMP lights shall be on.

CONDITIONS	NORMAL PROCEDURES
2. 4. CROSSFEED OPERATION.	1. STBY PUMP ..... OVRD – Set the standby pump on the feeding tank side to OVRD. – Check corresponding STBY PRESS light to come on. 2. XFEED switch ..... ON – Check XFEED light to come on. – Check STBY PRESS light on other side to come on. 3. STBY PUMP on other side. ..... AUTO **CAUTION** The XFEED light is not connected to the warning annunciator system and is only indicated on the Fuel control panel, it will subsequently not produce any master caution single chime nor any caution Light on the CWP. **NOTE** XFEED switch must be OFF during takeoff and landing in normal operation.
2. 5. INTERCONNECT VALVE OPERATION. (EQUALIZING FUEL LOAD). (Cont'd)	This procedure can be used to balance the fuel load in the tanks, both on ground and during cruise. 1. CONN VALVE switch ..... OPEN – Check CONN VLV OPEN light to come on. **When fuel quantities in both tanks are equal.** 2. CONN VALVE switch ..... CLOSED – Check CONN VLV OPEN light to go off, indicating that the valve is fully closed. **WARNING** The CONN VLV OPEN light is not connected to the Warning annunciator system and is only indicated on the Fuel control panel, it will subsequently not produce any master caution single chime nor any caution light on the CWP.

CONDITIONS	NORMAL PROCEDURES
(Cont'd)	**CAUTION** On ground, operation of the interconnect valve must be carefully monitored. If the aircraft is not leveled properly the fuel unbalance can increase instead of equalize. **NOTE** CONN VALVE switch must be in CLOSED during takeoff and landing in normal operation.

3. NORMAL OPERATION.

For Abnormal Operation, see section 23, ABNORMAL PROCEDURES.

0. MODIFICATION STANDARD.

The system described in this chapter assumes a certain modification standard of the aircraft. If a modification is not installed,the following apply as a complement to what is stated in this chapter.

DESCRIPTION/OPERATION

0. 1. IND TEST button.

Without Mod No 2091 embodied, the fuel quantity indicators will show 950 $\pm$ 50 lb or 431 $\pm$ 23 kg when tested.

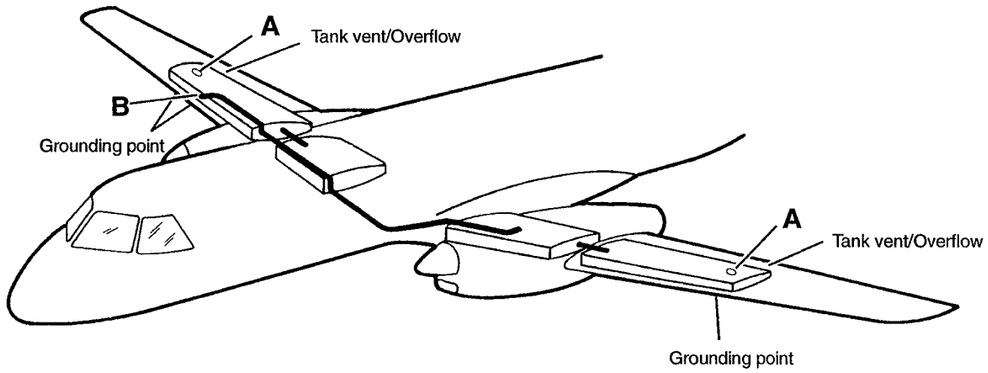
1. GENERAL.

For system description see FUEL 9/1.1

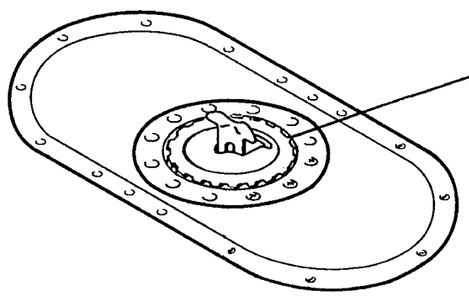
2. MAIN COMPONENTS AND SUBSYSTEMS.

Not applicable.

3. CONTROLS AND INDICATORS.



A FILLER CAP



Filler cap.
For gravity fueling.

Fuel quantity indicators.
Shows fuel quantities in pounds or kilograms.

OVERFULL light (red).
Light on indicates that the level in the corresponding tank is above full and that overflow is imminent.
The electrical power to the refueling shutoff valve is interrupted and the valve is closed preventing any further refuel attempts. To test light, press light cap.

Fueling control switch.

OFF	– Refueling valves are closed.
MID LEVEL	– Refueling valves will close when tanks are filled to mid level.
FULL LEVEL	– Refueling valves will close at maximum tank capacity.

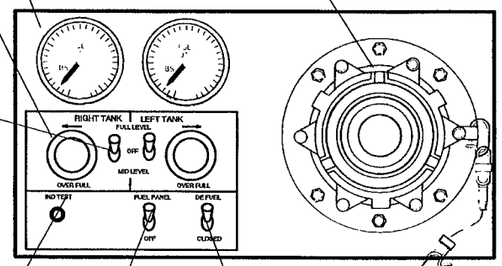
IND TEST button.
When depressed, the fuel quantity indicators will show:
950 ± 50 lb or 432 ± 23 kg without Mod . 2091.
1000 ± 50 lb or 455 ± 23 kg with Mod . 2091.
The fuel quantity and fuel flow indicators in cockpit will also go to test.
NOTE: This test determines that the fuel quantity signal conditioner and indicators perform accurately to a pre–set capacitance (to give the simulated fuel quantity shown above). This test does not check the integrity of the fuel probes or ensure full and empty calibration nor does it check that the actual fuel level is measured correctly.

FUEL PANEL switch.

OFF	– Power to the refuel/defuel panel is off.
FUEL PANEL	– The refuel/defuel system is powered and ready for fueling.
	– Both fuel quantity indicators on the FUELING PANEL and in the cockpit will indicate the fuel quantity.
	– The FUELING light on the GROUND STATUS PANEL in cockpit is on indicating fueling in progress.

Pressure fueling receptacle.

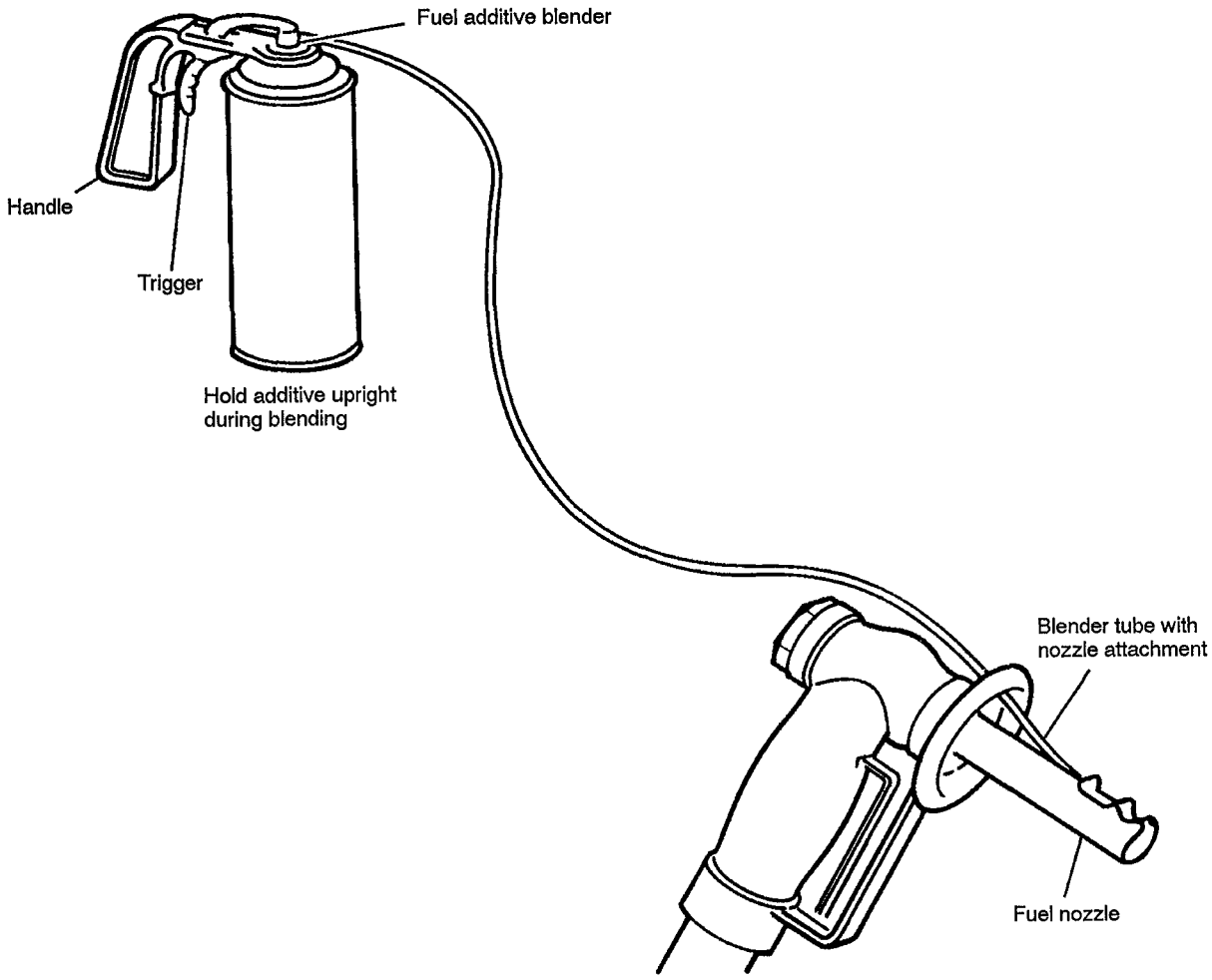
B FUELING PANEL



DE–FUEL valve switch.
CLOSE– Defuel valve closed.
DEFUEL– Defuel valve open.

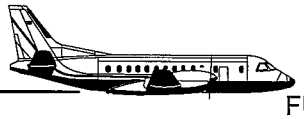
A12400

FIG.1. Refueling connections.



A12401

FIG. 2. Fuel additive blender.



1. LIMITATIONS.

	Unit	Min	Normal	Max
1. 1. FUELING LIMITS.				
Tank capacities, each tank:				
– Total quantity of usable fuel	lb	2645	2845	3045
	kg	1201	1292	1382
– Mid–level quantity	lb	–	1675	–
	kg	–	760	–
– Full level quantity	lb	–	2948	–
	kg	–	1338	–
– Overfull light comes on	lb	–	3015	–
	kg	–	1369	–
– Overflow	lb	–	3069	–
	kg	–	1393	–
– Fueling pressure	psi	–	–	50
– Defueling suction	psi	–	–	–15

1. 2. FUEL SPECIFICATION.

Approved fuel types.

Kerosene fuels JET–A, JET–A1, JP5, JP8, JET TH.

Wide cut distillate fuels JET–B, JP4.

In addition to the fuel types listed above, all aviation gas turbine fuels not listed above but conforming to the General Electric's Specification No. D50TF2 are approved for use in all General Electric CT7 engines and in the Saab 340 aircraft. It is the operators responsibility to determine if their fuel meets the specification.

Kerosene fuels.

– JET–A freezing point – 40°F or –40°C.

– JET–A1, JP5 freezing point – 53°F or –47°C.

– JP8, JET TH, freezing point –58°F or –50°C.

Specification: IATA Guidance Material for Aviation Turbine Fuels, Addendum 76–1.

Equivalent specifications: Canada CAN 2–3.23 (3–GP–24)

France AIR 3405

United kingdom DERD 2494 (DERD 2498)

United States ASTM D1655
MIL–T–5624 (JP5), MIL–T–83133D (JP8)

Romania STAS 5639–88 (JET TH)

Wide cut fuels.

– JET–B freezing point – 58°F or –50°C.

– JP4 freezing point – 72°F or –58°C.

Specification: IATA Guidance Material for Aviation Turbine Fuels, Addendum 76–1.

(Cont'd)

(Cont'd)

Equivalent specifications: Canada CAN 2–3.22
France AIR 3407
United kingdom DERD 2486
United States ASTM D1655
MIL–T–5624 (JP4)

Mixing of different fuel types of the same category (kerosine or wide cut) is permitted, provided that the most restrictive operational limit of the types is used.

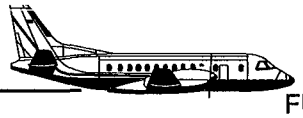
Additives.

Fuel anti–ice additives meeting specification MIL 27686E or MIL 85470B are authorized for use. Concentration shall be minimum 0.06% to maximum 0.15% by volume.

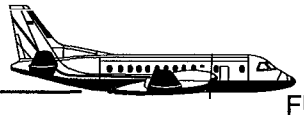
If low fuel lubricity is being used in aircraft equipped with certain Woodward HMUs, a change in fuel or adding a fuel lubricity additive is recommended. For approved fuel lubricity additives and concentrations see GE SB A73–43.

2. NORMAL OPERATION.

CONDITIONS	NORMAL PROCEDURES
2. 1. GENERAL.	For general fueling safety regulations, refer to the appropriate national regulations. Smoking, use of open fire or any activity that can cause sparks are not permitted in the fueling area. A fire extinguisher shall be at hand during the fueling. Do not connect or disconnect electrical power to the aircraft during fueling. Do not operate the weather radar during fueling or when other aircraft are being refueled within an area of 180 ft or 60 m. Do not start or stop combustion engines or heaters within the fueling area during the fueling, unless in an emergency.
2. 2. PRESSURE FUELING. (Cont'd)	1. Check with flight crew or in Aircraft Log for complaints on the fuel system. **In cockpit:** 2. Overhead fuel panel ..... CHECK – Switches to be in normal position, i.e. AUTO/ CLOSED/OFF. 3. Condition levers ..... CHECK FUEL OFF **Outside aircraft:** 4. Overboard vents ..... CHECK – Check to be free of obstructions. 5. Clearance aircraft/ground equipment ..... CHECK – The increasing fuel load will compress the landing gear shock struts.



CONDITIONS	NORMAL PROCEDURES
(Cont'd)	6. Ground connection bonding cable ..... CONNECT – Bonding cable from fuel truck connected to the grounding point beside the fueling panel. 7. Fueling access door ..... OPEN – Check all switches to be OFF/CLOSE. – Remove cap on receptacle. – Connect fuel nozzle. 8. FUEL PANEL switch ..... FUEL PANEL 9. IND TEST button ..... DEPRESS – Check quantity indicators to show: without mod. 2091: 950 ± 50 lb (432 ± 23 kg) with mod. 2091: 1000 ± 50 lb (455 ± 23 kg). 10. OVERFULL lights ..... DEPRESS – Check light function. 11. Fueling control switches ..... SET – Select MID LEVEL or FULL LEVEL as required. The fueling will stop automatically when selected level is reached. – If an intermediate level is required, select FULL LEVEL and then switches to OFF when the required quantity is reached. 12. Order fueling to start. 13. Monitor the fueling. – If an OVERFULL light comes on, set the fueling control switches to OFF and stop the fueling. Investigate. **When correct fuel quantity is reached:** 14. Fueling control switches ..... OFF 15. Order fueling to stop. 16. FUEL PANEL switch ..... OFF 17. Disconnect fuel nozzle. – Check receptacle for leaks. – Install cap on receptacle. 18. Fuel panel access door ..... CLOSE 19. Ground connection bounding cable ..... REMOVE



CONDITIONS	NORMAL PROCEDURES
2. 3. GRAVITY FUELING.	1. Check with flight crew or in Aircraft Log for complaints on the fuel systems. **In cockpit:** 2. Overhead fuel panel ..... CHECK – Switches to be in normal position, i.e., AUTO/ CLOSED/OFF. 3. Condition levers ..... CHECK FUEL OFF **Outside aircraft:** 4. Overboard vents ..... CHECK – Check to be free of obstructions. 5. Clearance aircraft/ground equipment ..... CHECK – The increasing fuel load will compress the landing gear shock struts. 6. Ground connection bonding cable ..... CONNECT – Bonding cable from fuel truck connected to the grounding point beside the fueling panel. 7. Fueling access door ..... OPEN – Check all switches to be OFF/CLOSE. 8. FUEL PANEL switch ..... FUEL PANEL 9. IND TEST button ..... DEPRESS – Check quantity indicators to show: without mod. 2091: 950 ± 50 lb (432 ± 23 kg) with mod. 2091: 1000 ± 50 lb (455 ± 23 kg). 10. Fuel nozzle bonding cable ..... CONNECT – Connect bonding cable from fuel nozzle to aircraft before opening the tank filler cap. 11. Filler cap ..... OPEN – Fill each tank as required. – Check fuel tank quantity on the fueling panel. **When fueling completed:** 12. Close filler cap before disconnecting nozzle bonding cable. 13. FUEL PANEL switch ..... OFF 14. Fueling access door ..... CLOSE 15. Ground connection bonding cable ..... REMOVE

CONDITIONS	NORMAL PROCEDURES
2. 4. DEFUELING.	Pressure defueling is the quickest and most common way to defuel. The tanks can be defueled either simultaneously or independently. The stand-by pumps are used for pressure defueling. If a large quantity of fuel must be defueled use GPU power supply, otherwise the standby pumps will drain the batteries. If standby pumps not available for defuel, suction defueling by the fuel truck can be used. However, it's not so effective and takes longer time. At suction, the tanks can be defueled simultaneously but only the right tank independently, due to the fuel system design. **Outside the aircraft:** 1. Overhead vents ..... CHECK – Check to be free of obstructions. 2. Clearance aircraft/ground equipment ..... CHECK – The change in fuel load may change the landing gear shock strut extension. 3. Ground connection bonding cable ..... CONNECT – Bonding cable from fuel truck connected to the grounding point beside the fueling panel. 4. Fueling access door ..... OPEN – Check all switches to be OFF/CLOSE. – Remove cap on receptacle. – Connect fuel nozzle. 5. FUEL PANEL switch ..... FUEL PANEL 6. IND TEST button ..... DEPRESS – Check quantity indicators to show: without mod. 2091: 950 ± 50 lb (432 ± 23 kg) with mod. 2091: 1000 ± 50 lb (455 ± 23 kg). 7. DE–FUEL switch ..... DE–FUEL **In cockpit:** 8. Condition levers ..... CHECK FUEL OFF **Pressure defueling.** 9. XFEED switch ..... ON – Check XFEED ON light to come on. 10. CONN VALVE switch ..... CHECK CLOSED
(Cont'd)	

CONDITIONS	NORMAL PROCEDURES
(Cont'd)	11. L/R STBY PUMP switch ..... OVRD – For both tanks set both switches to OVRD. – For one tank set associated switch to OVRD. **Outside the aircraft:** 12. Order defuel to start. 13. Monitor defueling on the fueling panel. **When correct fuel quantity is reached:** 14. Order defuel to stop. 15. DE–FUEL switch ..... CLOSE **In cockpit:** 16. L/R STBY PUMP switch ..... AUTO 17. XFEED switch ..... OFF – Check XFEED ON light to go out, indicating crossfeed valve is fully closed. 18. Continue with item 16 below. **- Suction defueling.** 9. XFEED switch ..... ON – If defueling only bright tank, leave switch in OFF. – Check XFEED ON light to come on. 10. CONN VALVE switch ..... CHECK CLOSED **Outside the aircraft:** 11. Order suction defuel to start. 12. Monitor defueling on the fueling panel. **When correct fuel quantity is reached:** 13. Order suction defuel to stop. 14. DE–FUEL switch ..... CLOSE **In cockpit:** 15. XFEED switch ..... OFF **Outside the aircraft:** 16. FUEL PANEL switch ..... OFF
(Cont'd)	

CONDITIONS	NORMAL PROCEDURES
(Cont'd)	17. Disconnect fuel nozzle. – Check receptacle for leaks. – Install cap on receptacle. 18. Fuel panel access door ..... CLOSE 19. Ground connection bounding cable ..... REMOVE
2. 5. BLENDING WITH ANTI-ICING ADDITIVE.	This procedure can only be used in conjunction with procedure 2.3, GRAVITY FUELING, when anti-icing additive is required and pre-blended fuel is not available. The procedure is applicable to Hi-Flo Prist blender model PHF.204, using Hi-Flo Prist additive manufactured by PPF Industries Inc., Pittsburg PA, USA. WARNING Hi-Flo Prist may be harmful if inhaled or swallowed. Use adequate ventilation. Avoid contact with skin and eyes. If sprayed into eyes, flush with large amounts of water and contact a physician immediately. 1. Perform items 1 to 10 of procedure 2.3. GRAVITY FUELING. 2. Connect the additive can to the blender and connect the blender tube to the fuel nozzle. See Fig. 2. – Additive concentration shall be: ° Minimum 0.06% by volume. ° Maximum 0.15% by volume. – This is equal to: ° Minimum 20 fluid oz. (1 can) to 270 US gal of fuel. ° Maximum 20 fluid oz. (1 can) to 105 US gal of fuel. – or, with the blender trigger depressed a fuel flow of: ° Minimum 30 US gal/min. ° Maximum 60 US gal/min. 3. Continue with item 11 of procedure 2.3. starting fuel flow and then depress trigger of blender, maintaining a fuel flow of 30 to 60 US gal/min. Slip the retaining ring over the trigger to hold and hold the can upright. When discontinuing fueling, stop additive first, then fuel flow immediately afterwards. 4. Perform remaining items of procedure 2.3.