

1. GENERAL.

The fuel is contained in two integral wing tanks. Each tank consists of an inboard and outboard volume connected by vent lines and transfer lines.

A collector tank is located in the inboard end of each tank to retain fuel around the fuel pump inlets.

A water/fuel drain valve is located at the low point of the collector tanks. Each tank is separately vented through an open vent from the outboard volume to an outlet on the lower wing surface. A single point pressure refueling system provides refueling of the tanks. Full refueling can be accomplished in approximately 15 minutes. Overwing filler necks permit gravity fueling. The fuel system is designed to function under negative g for at least 5 seconds.

Fueling.

The 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 from the RH hot bat bus.

The tanks can be filled to any intermediate level either automatically, or manually controlled from the refuel panel. Automatic shut off of the refueling valves is controlled by the fuel measuring system.

Defueling system.

Defueling of the aircraft is accomplished through the single point refueling receptacle. The defuel valve that connects the cross-feed line to the refueling line is controlled by the fueling panel. Defueling can be accomplished manually, or automatically by preselecting the required amount of remaining fuel. Single tank defueling may be accomplished by pump selection.

Engine feed system.

In normal operation, the LH engine is supplied from the LH collector tank. The RH engine is supplied from the RH collector tank. The APU is supplied from the LH crossfeed line.

The engine fuel system consists of:

- FPMU (fuel pump and metering unit) mounted on the engine gearbox.

The FPMU is a single unit incorporating a low pressure centrifugal pump and a high pressure gear pump mounted on the same shaft.

Electrical fuel boost pumps.

A DC powered fuel boost pump is installed in each collector tank to support engine fuel flow requirements.

The pumps are controlled primarily by a microswitch in the control quadrant when moving the condition lever, between FUEL OFF and START position. L/H pump is also activated when APU is running.

Illuminated push buttons on the cockpit overhead panel, L PUMP, R PUMP, enables the pumps to be deactivated irrespective of fuel lever position.

In case of failure of the electrical pump the FPMU draws fuel through a suction bypass inlet in the pump. Failure of the centrifugal or gear pump in the FPMU causes engine shut down.

Fuel unbalance between the fuel tanks can be corrected either by the crossfeed system, allowing both engines to be fed from one wing tank or by the interconnect valve, allowing gravity transfer of fuel between the fuel tanks. Enabling of these systems is done through illuminated push buttons on the cockpit overhead panel (X FEED, CON VLV).

APU feed system.

A separate APU fuel feed system is provided to deliver fuel to the APU.

The APU fuel feed system consists of:

- APU gearbox mounted FCU (Fuel Control Unit)
- APU DC electrical fuel boost pump
- L/H engine DC electrical fuel boost pump.

The starting and stopping of the APU automatically controls the operation of the L/H engine electrical fuel boost pump (if L/H condition lever is in OFF position), the shut off valve and the APU electrical fuel boost pump.

Fuel measuring system.

The aircraft is equipped with a main fuel quantity indication system that consists of a totalizer and separate indications for each wing tank. This is presented on the PED (Primary EICAS Display) and on the Synoptic page on the SED (Secondary EICAS Display). In addition calculated total and fuel used is displayed on the SED Fuel Synoptic page.

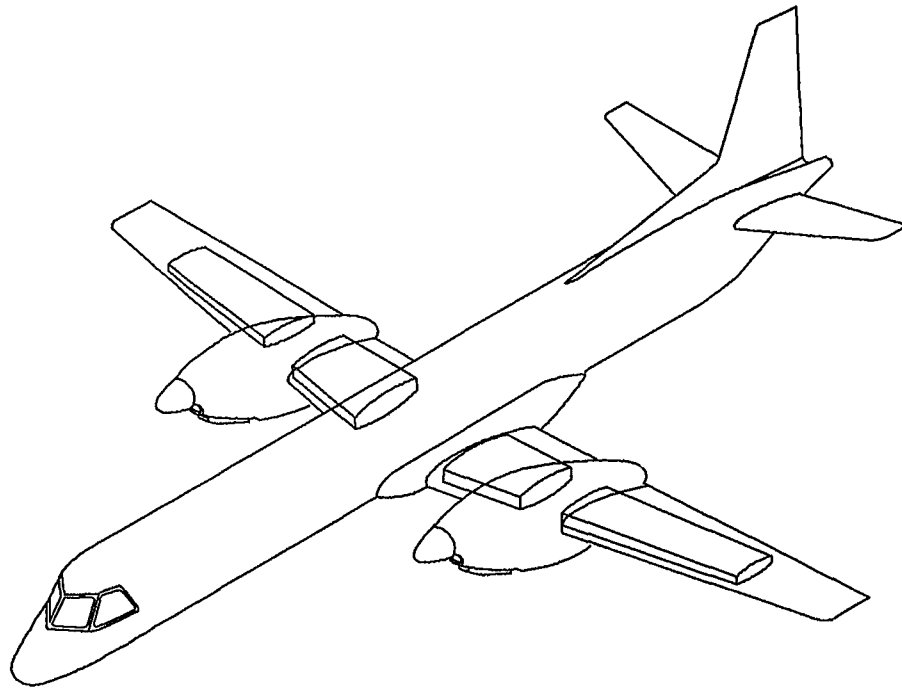
Calculated total figures are reset to match total quantity when moving the power levers to take-off position. Calculated total is then based on fuel flow to the engines and in addition a constant subtraction of 220 lbs/hr (110 kg/hr) when the APU is running. Fuel quantity data is fed to the EICAS via the DCU. Each wing tank is equipped with two magnetic fuel level indicators for quantity checks on the ground.

Inner Dipstick table

DIPSTICK	INDEX	CONVERTED	INTO	QUANTITY
U.S. gallons	pounds	Dipstick index	kilograms	liters
31	207	1	94	118
41	274	2	124	155
54	361	3	164	204
69	462	4	209	261
85	569	5	258	322
104	696	6	316	394
124	830	7	376	469
146	977	8	443	553
169	1131	9	513	640
193	1292	10	586	730
215	1439	11	653	814

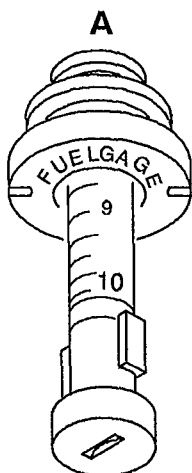
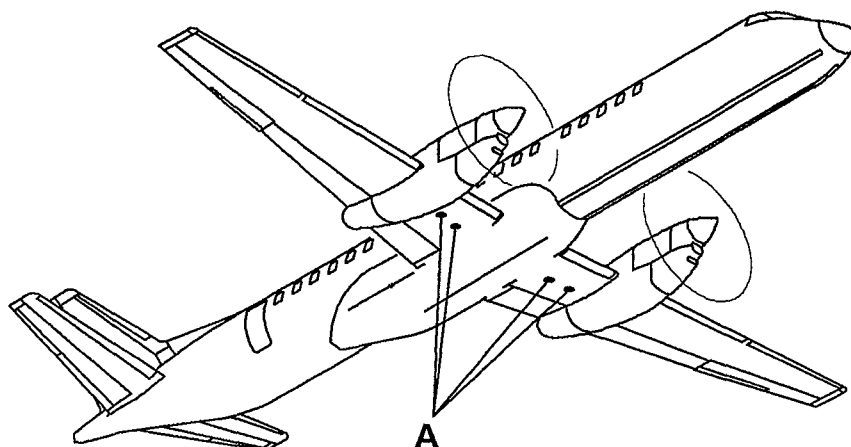
Outer Dipstick table

DIPSTICK	INDEX	CONVERTED	INTO	QUANTITY
U.S. gallons	pounds	Dipstick index	kilograms	liters
196	1312	0	595	742
225	1506	1	683	852
249	1666	2	756	942
273	1827	3	829	1033
295	1975	4	896	1117
314	2101	5	953	1188
331	2215	6	1005	1253
348	2329	7	1056	1317
362	2422	8	1099	1370
374	2503	9	1135	1416
383	2563	10	1163	1450
391	2617	11	1187	1478



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FIG. 1. Fuel tanks

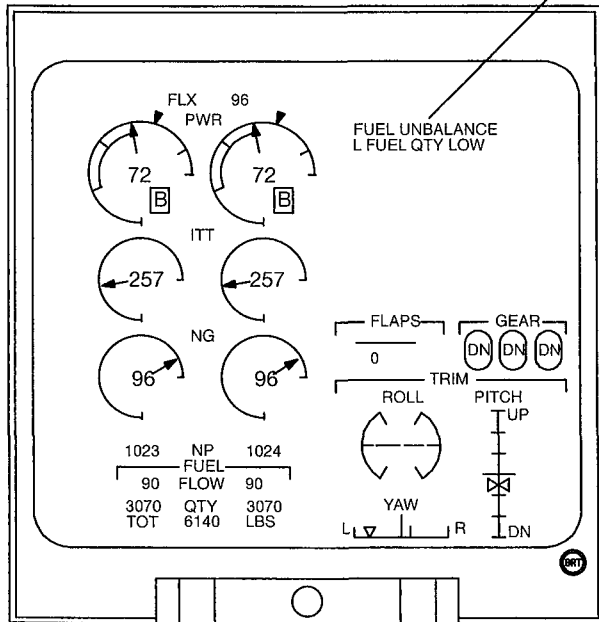
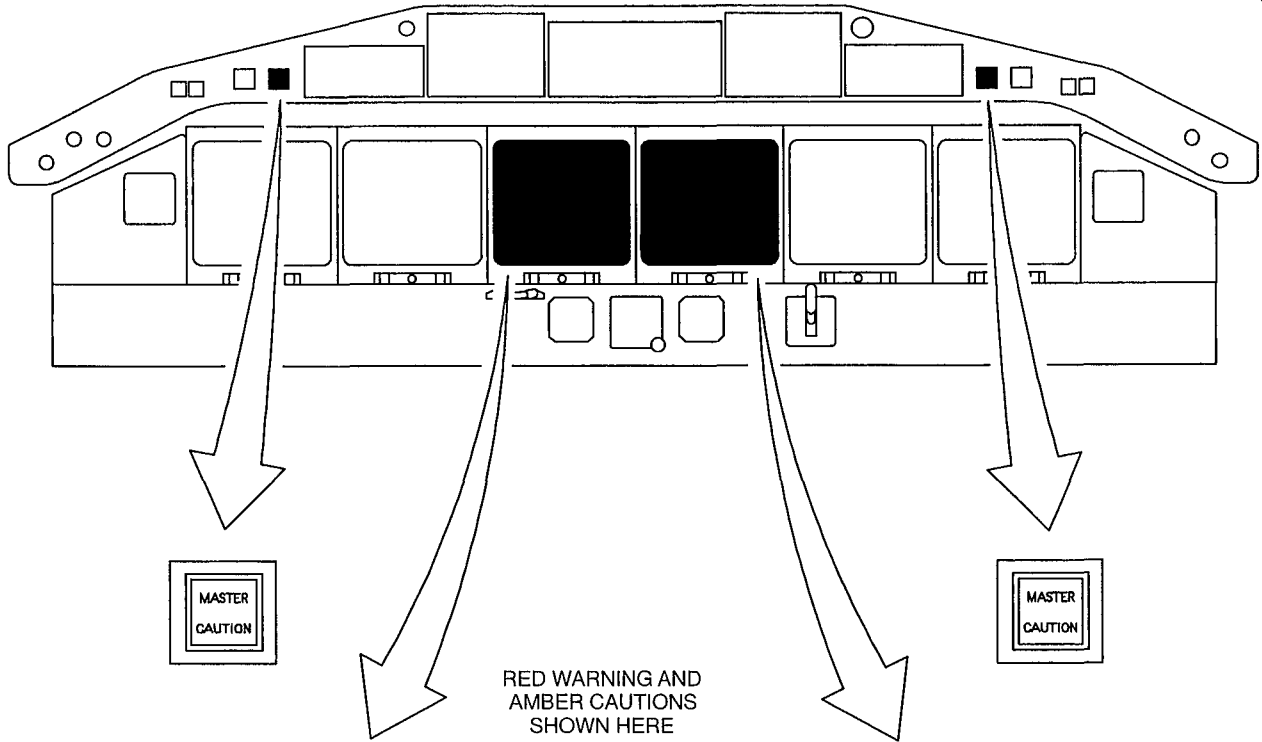


Magnetic dipstick

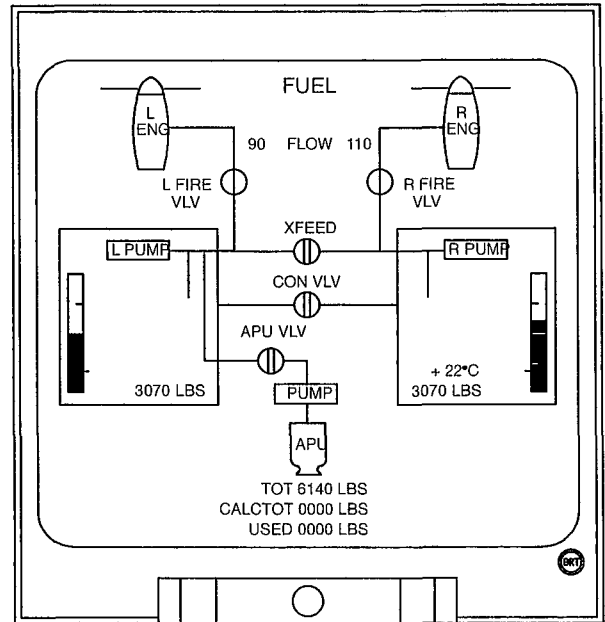
Graduation in inches. Use a coin or a screwdriver to release the dipstick. When lowered slowly the stick will engage magnetically with a float device inside the tank. The protruding length will indicate fuel level by the dipstick conversion scale, found in the QRH (section 36).

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FIG. 2. Magnetic dipstick.

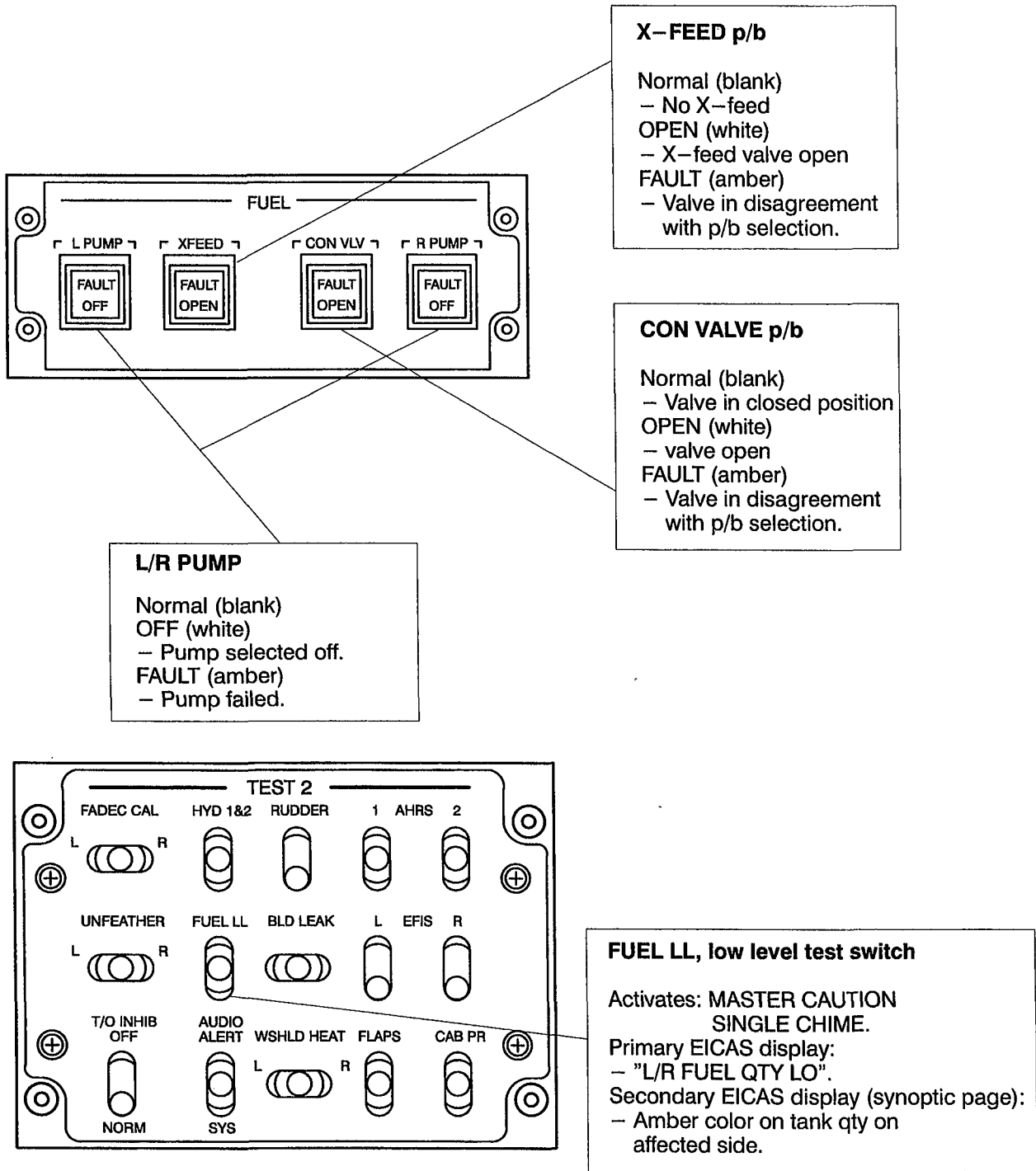


B8221 PRIMARY DISPLAY OF THE EICAS



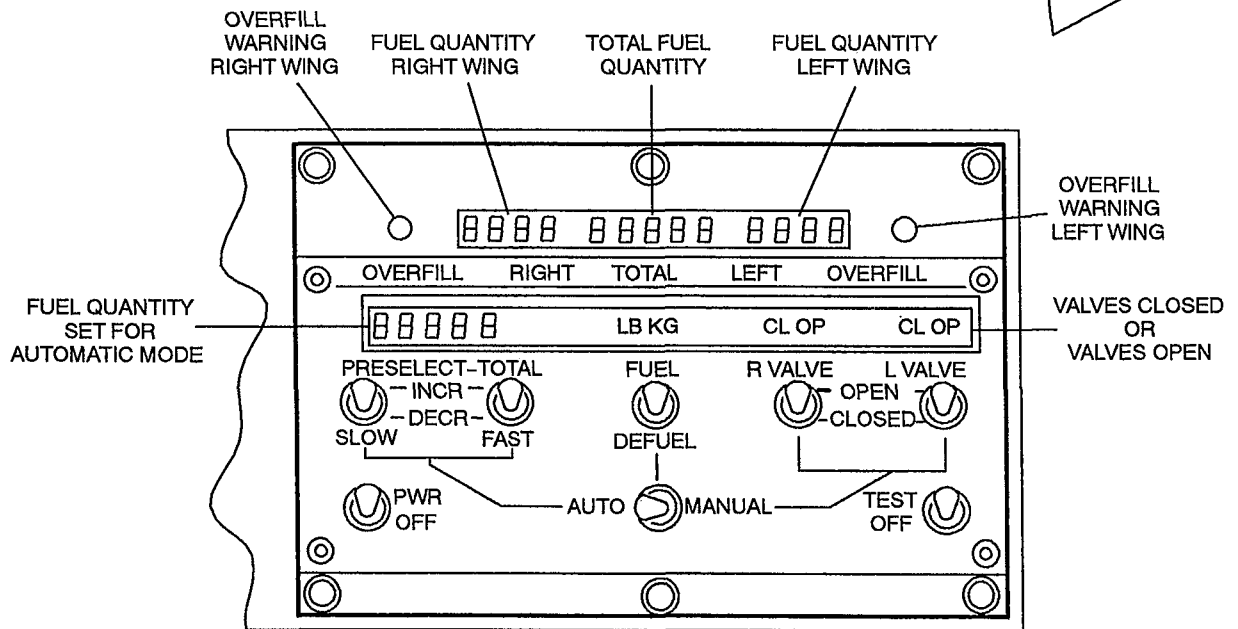
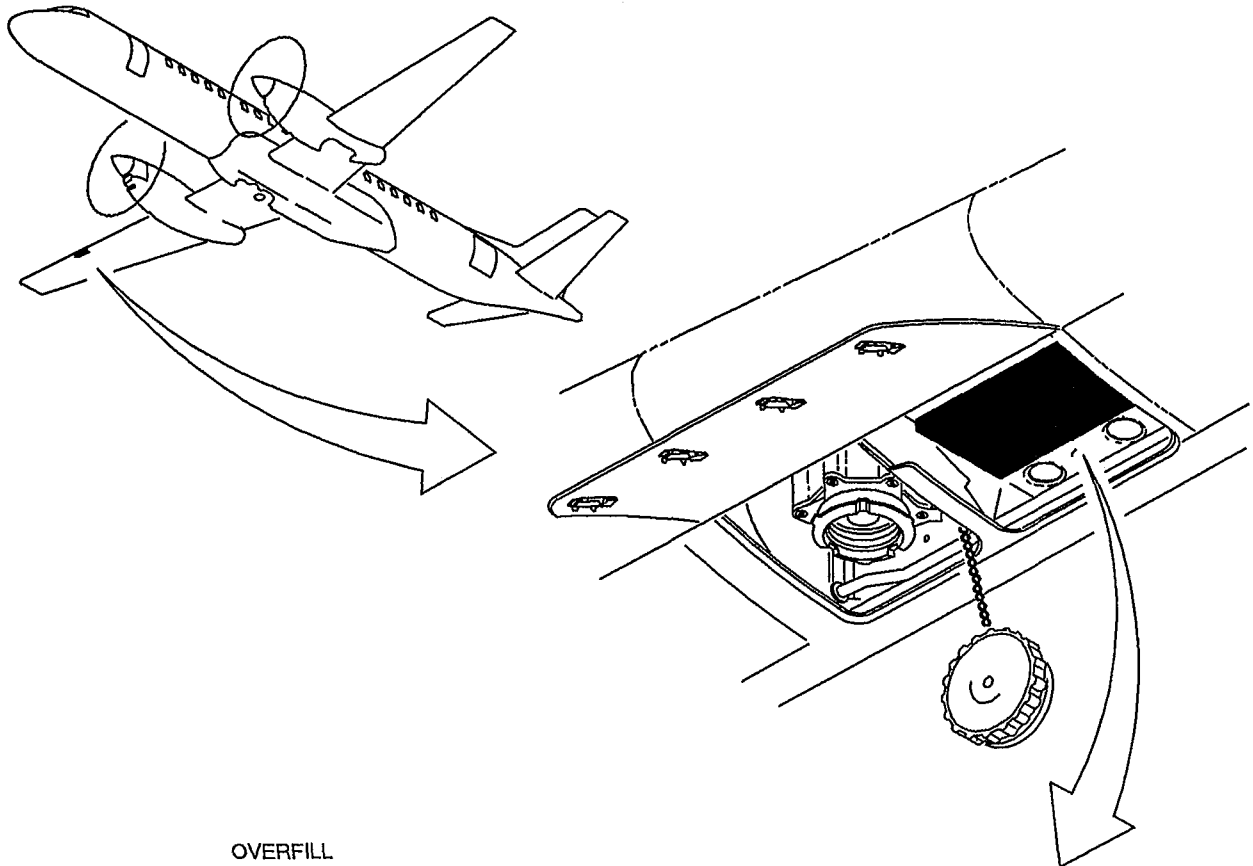
SECONDARY DISPLAY OF THE EICAS

FIG. 3. EICAS fuel indications.



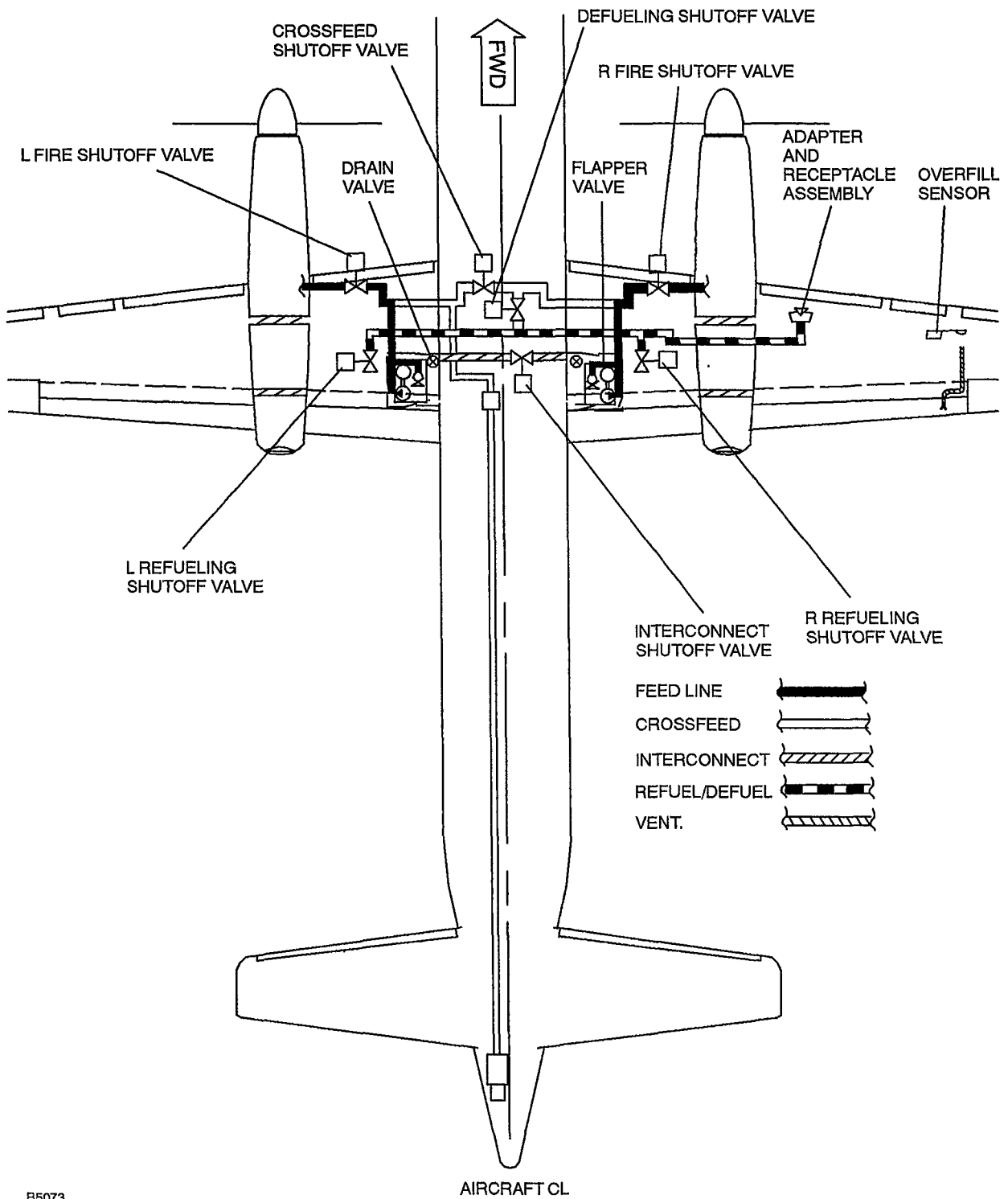
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FIG. 4. Fuel pump controls and test.



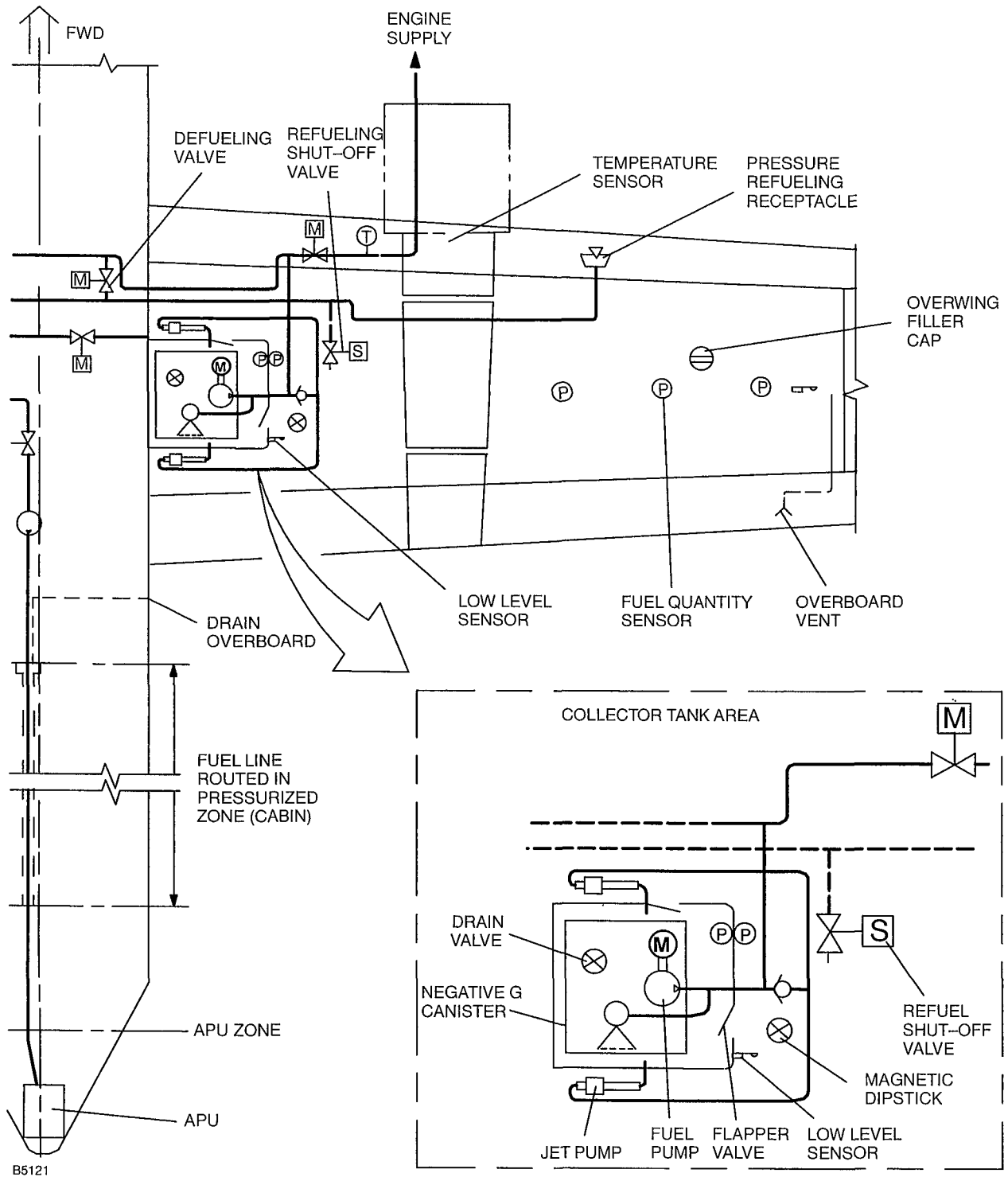
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FIG. 5. Refueling panel.



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FIG. 6. Fuel system – schematic.



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FIG. 7. Fuel system – details.

2. ELECTRICAL POWER SUPPLY.

Pumps and control.

Left support boost pump power	L MAIN BAT BUS	J-21	FUEL L PUMP
Left support boost pump control	L BAT BUS	J-20	FUEL L COND LVR OFF
Right support boost pump power	R MAIN BAT BUS	R-18	FUEL R PUMP
Right support boost pump control	R BAT BUS	R-19	FUEL R COND LVR OFF
APU Fuel pump power	L BAT BUS	K-32	APU F-PUMP PWR
APU Fuel pump control	L BAT BUS	K-33	APU FUEL & INTK CTL

Valves.

Interconnect valve	L BAT BUS	J-19	FUEL CON VLV	■
Cross-feed valve	R BAT BUS	R-17	FUEL XFEED	
Left fuel shut off valve	R HOT BAT BUS	J-22	FUEL L FIRE VLV	
Right fuel shut off valve	R HOT BAT BUS	R-20	FUEL R FIRE VLV	
APU fuel valve power	L BAT BUS	K-31	APU F-VLV PWR	
APU fuel valve control	L BAT BUS	K-33	APU FUEL & INTK CTL	

Indication.

Left fuel quantity	L BAT BUS	J-18	FUEL L QTY	■
Right fuel quantity	R BAT BUS	R-15	FUEL R QTY	
Low fuel level warning	R BAT BUS	R-16	FUEL LO LEVEL	

Fueling control.

Refuel/defuel power (control panel right wing)	R BAT BUS	R-21	FUEL CTL PNL WING
Refuel/defuel power (control panel right wing)	R HOT BAT BUS	R-21	FUEL CTL PNL WING (A/C 010-up)