



SYSTEM DESCRIPTIONS
FIRE PROTECTION
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FIRE PROTECTION ENGINE DESCRIPTION

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GENERAL

The engines are each equipped with a fire-detection and a fire-extinguishing system. The systems are controlled from the ENGINE FIRE panel.

Fire and faults will be detected and the relevant alerts presented.

FIRE DETECTION

The fire-detection system consists of dual sensing element loops and a fire-detection unit. Each sensing element forms a closed loop. The system remains serviceable even when an element is broken. The elements are monitored by the fire-detection unit. If a pre-determined temperature is reached, a fire warning is presented. The fire warning remains active as long as the fire condition exists.

FIRE EXTINGUISHING

Two fire-extinguisher bottles are installed. The fire-extinguishing agent can be discharged by one of the two fire handles. Each engine has its own fire handle. Pulling a fire handle will close the respective fire shut-off valves in the fuel

and hydraulic systems and the Over Pressure and Shut-Off Valve (OP/SOV) in the bleed-air system. Rotating the pulled fire handle in direction DISCH 1 discharges AGENT 1; rotating the pulled fire handle in direction DISCH 2 discharges AGENT 2.

A latch is installed in each fire handle to prevent inadvertent operation. In case of fire the latch will unlock automatically and the fire handle can be pulled. Manual override of the latch is possible by depressing the latch override button installed behind the fire handle.

Agent low pressure will be indicated by agent low pressure lights.

FIRE WARNING TEST

A fire-warning system test may be performed by selecting the ENGINE FIRE test switch, located at the TEST panel, to 1 or 2. During test a repetitive triple chime is produced, and the master WARNING lights, the light in the relevant FUEL lever (if not in SHUT position), and the relevant fire handle light come on. Additionally, a fire message is displayed at LH MFDU.



**FIRE PROTECTION
ENGINE
DESCRIPTION**

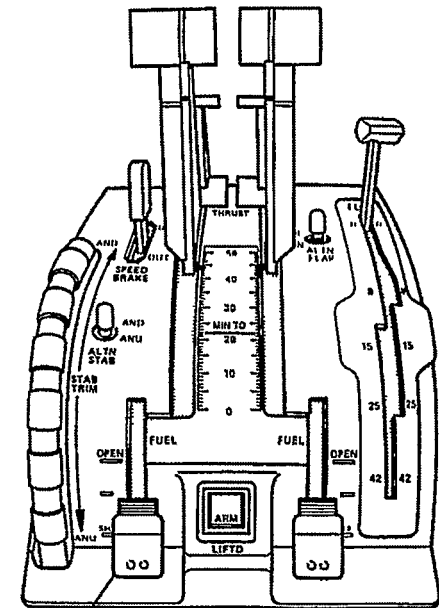
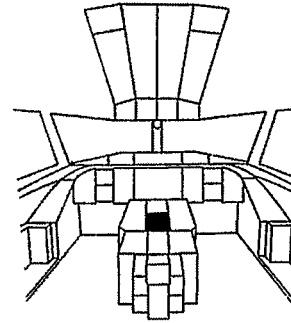
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FUEL LEVER LIGHT

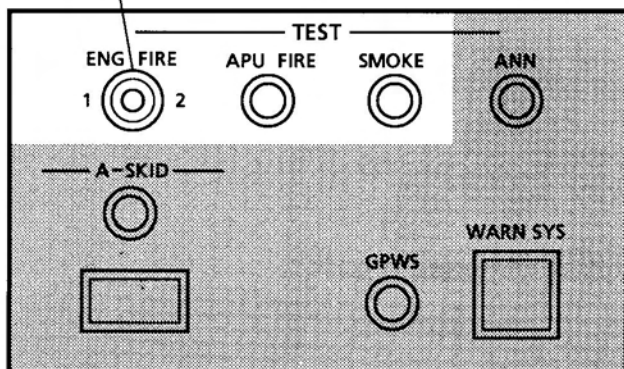
Light (white)
- Engine fire, or
- Fire-warning test in progress.
NOTE: Light can only come on when the FUEL lever is not shut.

TEST PANEL

LOCATION: OVERHEAD PANEL

ENGINE FIRE TEST SWITCH
(springloaded to center position)

1 (2)
- To test the engine 1 (2) fire-
warning system.





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ENGINE
CONTROLS AND INDICATORS**

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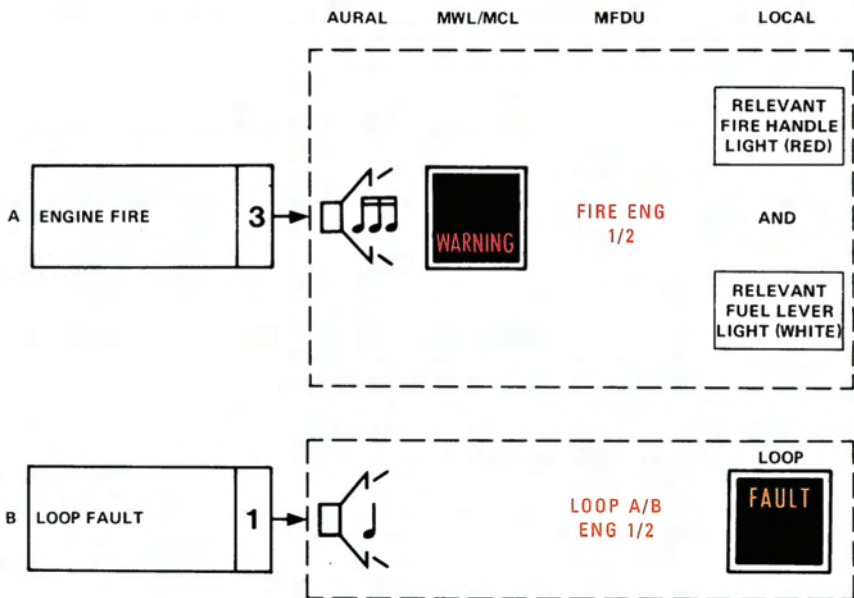


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CONDITION(S)/LEVEL

ALERTS



ALERT INHIBITION

	ELEC PWR ON	FIRST ENG ON	TO PWR	80 KT	LIFT OFF	400 FT	1000 FT	1000 FT	400 FT	TOUCHDOWN	80 KT	LAST ENG OFF	5 MIN LATER
	ENG OUT	TAXI	INIT TO	TO	TO	CLB	CRZ	DES	APPR	LAND	TAXI	ENG OUT	
A													
B													

VD/OP-08-104/B



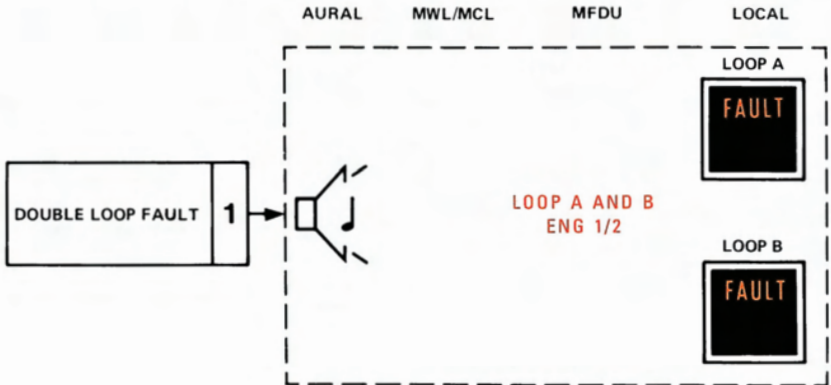
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ENGINE ALERTS

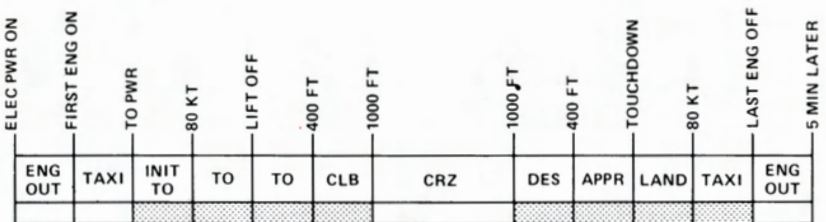
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ALERTS



ALERT INHIBITION



VD/OP-08-114/A



FIRE PROTECTION APU DESCRIPTION

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GENERAL

The APU is equipped with a fire-detection and a fire-extinguishing system. The systems are controlled from the APU FIRE panel.

Fire and faults will be detected and the relevant alerts presented.

FIRE DETECTION

The fire-detection system consists of a single sensing element loop and a fire-detection unit. The sensing element forms a closed loop. The system remains serviceable even when the element is broken. The element is monitored by the fire-detection unit. If a pre-determined temperature is reached, a fire warning is presented and the APU fire shut-off valve in the fuel system closes automatically, and the APU shuts down. The fire warning remains active as long as the fire condition exists.

NOTE: If the aircraft is on the ground a warning horn, located in the nose wheel well, sounds also.

FIRE EXTINGUISHING

One fire-extinguisher bottle is installed. The fire warning signal discharges the agent a few seconds after automatic APU shutdown. This time delay is necessary to close the ventilation system of the APU.

A discharge switch, located at the APU FIRE panel, is provided to discharge the agent manually. In this case the APU fire shut-off valve in the fuel system closes and the agent will be discharged immediately.

Agent low pressure will be indicated by an agent low pressure light.

FIRE WARNING TEST

A fire-warning system test may be performed by depressing the APU FIRE test button located at the TEST panel. During test a repetitive triple chime is produced, and the master WARNING lights and APU FIRE light come on. Additionally, a fire message is displayed at LH MFDU.

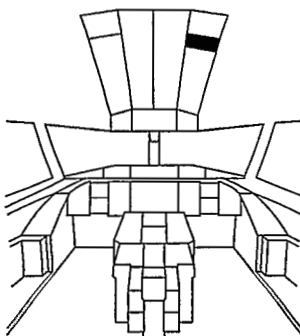
NOTE: During test the fire-extinguishing system and warning horn are inhibited.



**FIRE PROTECTION
APU
DESCRIPTION**

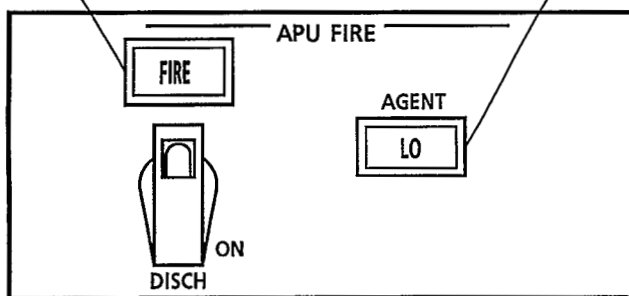
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APU FIRE LIGHT
FIRE (red)
– APU fire, or
– Fire-warning test in progress.

AGENT LOW PRESSURE LIGHT
LO (white)
– Agent low pressure.

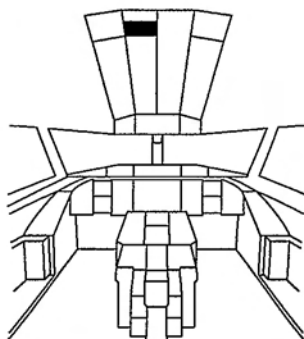


DISCHARGE SWITCH (guarded and wired)
Normal position
– Agent automatically discharged in case of APU fire.
ON
– Agent manually discharged.



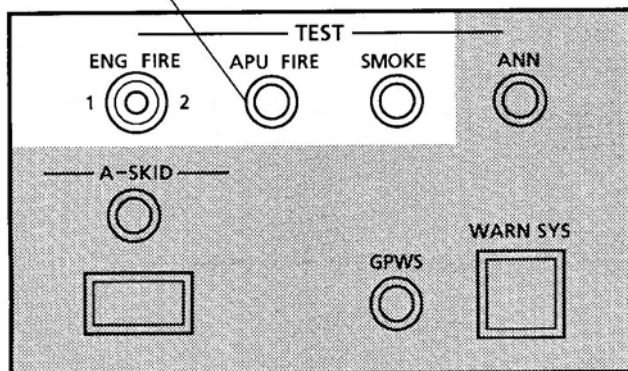
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APU FIRE TEST BUTTON

Depress to test the APU fire-warning system.





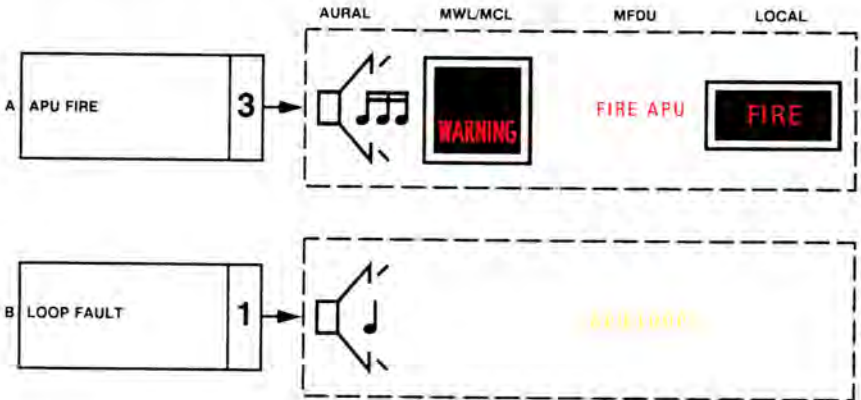
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CONDITION(S)/LEVEL

ALERTS



ALERT INHIBITION

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	ENG OUT	TAXI	INIT TO	TO	TO	CLB	CRZ	DES	APPR	LAND	TAXI	ENG OUT	
A													
B													

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FIRE PROTECTION
CARGO AND TOILET COMPARTMENTS
DESCRIPTION

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GENERAL

The cargo and toilet compartments are each equipped with a smoke detection and a fire-extinguishing system. The systems for the cargo compartments are controlled from the CARGO SMOKE panel. For the toilet compartments there are no system controls at the flight deck. Smoke and faults will be detected and the relevant alerts presented.

SMOKE DETECTION

The forward and aft cargo compartments each have dual smoke detectors. The toilet compartments each have a single smoke detector. If smoke is detected, a smoke warning is presented. The smoke warning remains active as long as the smoke condition exists.

FIRE EXTINGUISHING

Cargo Compartments

Two fire-extinguisher bottles are installed for the forward and aft cargo compartment. The bottles are divided in one high rate discharge bottle (agent 1) and one low rate discharge bottle (agent 2). Agent 1 and agent 2 can be discharged manually via the discharge selectors, located at the CARGO SMOKE panel. Each cargo compartment has its own discharge selector.

Selecting DISCH 1 causes immediate total discharge of agent 1 into the selected compartment. Simultaneously agent 2 is discharged into the selected compartment at a reduced flow rate to maintain a minimum extinguishing agent concentration.

Selecting DISCH 2 will discharge the same agent 1 and agent 2, however the power supplies for discharging are interchanged for redundancy.

The agent 1 low pressure light (LO1) comes on within seconds after selecting DISCH 1 or DISCH 2 and the agent 2 low pressure light (LO2) remains off for approx 60 min due to the reduced flow rate.

Toilet Compartments

One fire-extinguisher bottle is installed in the waste container area in each toilet compartment. If there is a fire in the waste container, the agent will discharge automatically into the waste container.

SMOKE WARNING TEST

A smoke-warning test may be performed by depressing the SMOKE test button at the TEST panel. If no LOOP FAULT exists, a repetitive triple chime is produced and the master WARNING lights and cargo SMOKE lights come on. Additionally, a smoke message is displayed at LH MFDU.



**FIRE PROTECTION
CARGO AND TOILET COMPARTMENTS
DESCRIPTION**

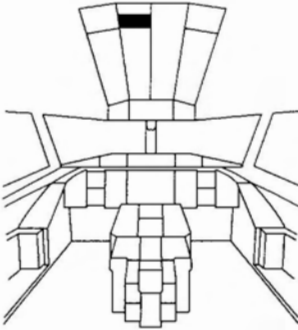
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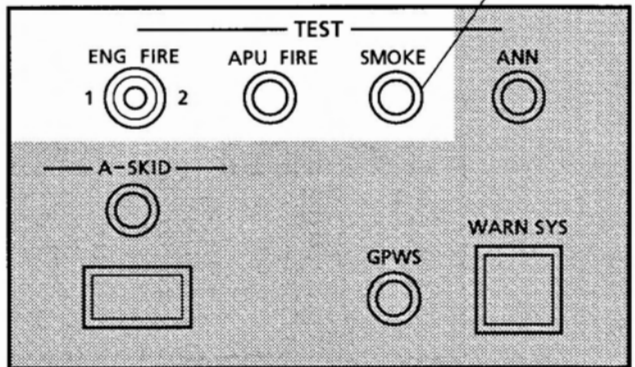
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CARGO AND TOILET COMPARTMENTS
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SMOKE TEST BUTTON

Depress to test the smoke-warning system.

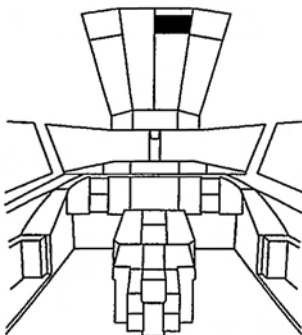


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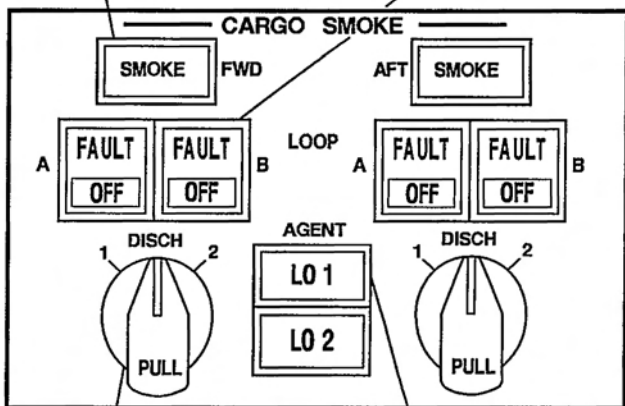
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CARGO AND TOILET COMPARTMENTS
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CARGO SMOKE LIGHT
SMOKE (red)
– Smoke in forward cargo compartment, or
– Smoke-warning test in progress

LOOP P/B
Normal during test (blank)
– Smoke detector serviceable
FAULT (amber)
– Smoke-detector fault
NOTE: The smoke-detection system is not armed if either LOOP FAULT A or LOOP FAULT B is on
OFF (white)
– Smoke-detector manually switched off



DISCHARGE SELECTOR
DISCH 1 (springloaded to center position)
– Agent 1 and agent 2 manually discharged.
DISCH 2 (springloaded to center position)
– Agent 1 and agent 2 manually discharged.
NOTE: Pull before selecting DISCH 1 or DISCH 2

AGENT LOW PRESSURE LIGHT
LO 1 (white)
– Agent 1 low pressure.

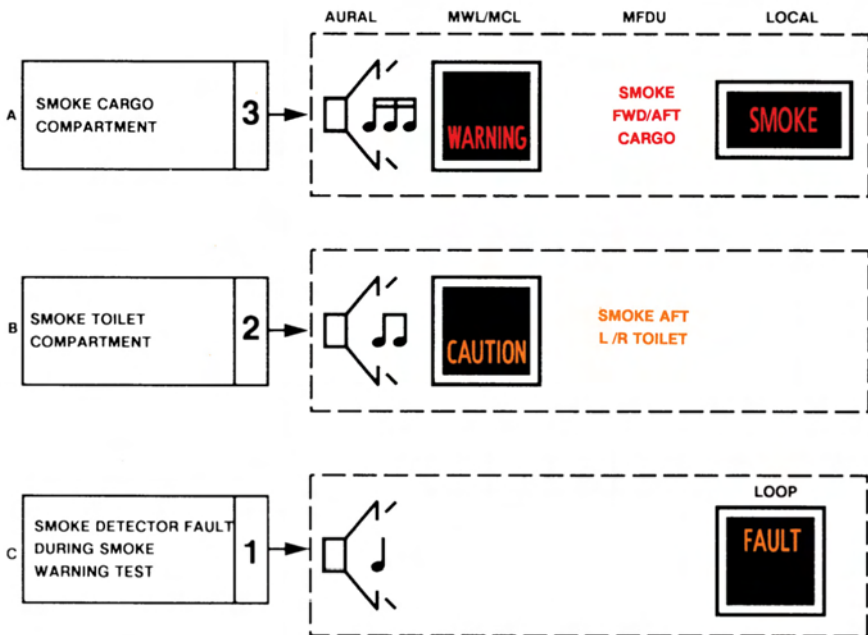


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CONDITION(S)/LEVEL

ALERTS



ALERT INHIBITION

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	ENG OUT	TAXI	INIT TO	TO	TO	CLB	CRZ	DES	APPR	LAND	TAXI	ENG OUT	
A													
B													
C													

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