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GENERAL

Bleed-air is used for air conditioning and pressurization, anti-icing, and engine starting, as well as for pressurizing the hydraulic and water tanks. Bleed-air is supplied by the engines. On the ground bleed-air can be supplied by the APU, or the high-pressure ground connection. The bleed-air system is controlled from the AIR CONDITIONING panel. Failures will be detected and the relevant alerts are presented. In case of engine fire the respective bleed-air system is shut off when the fire handle is pulled.

ENGINE BLEED

Pressure Control

Bleed-air is taken from engine compressor tappings referred to as Low Pressure (LP) bleed and High-Pressure (HP) bleed. LP bleed is used in any flight condition except idling. During idling, the HP bleed valve opens fully to supply pressure. When engine pressures become excessive the Pressure Regulating and Shut-Off valve (PR/SO) will limit the downstream pressure. If a failure of the PR/SO valve causes excessive duct pressure, the Over Pressure and Shut Off valve (OP/SO) will limit the downstream duct pressure. The pressure in the common duct is indicated at the AIR CONDITIONING panel.

Temperature Control

Switching any anti-icing system ON will activate the temperature modulating function of the HP bleed valve to admit such HP bleed-air to the LP bleed flow that the required temperature is maintained. The modulating function is inhibited for 60 seconds when TOGA is activated, or continuously while either thrust lever is selected to maximum take-off position.

APU BLEED

APU bleed-air is available when the bleed valve is open during ground operation only; in flight the APU bleed valve is closed. If the valve position is not correct, an alert will be presented. When engine bleed-air is available a check valve will prevent reverse flow through the APU. Reverse flow through the APU due to a failure of the check valve will be detected, the respective HP bleed, PR/SO, and OP/SO valves will close and an alert will be presented.

BLEED FAULTS

Overheat

Overheat switches, when activated, will automatically close the respective HP bleed and PR/SO valves, and an alert will be presented. The OP/SO valve remains open to provide bleed-air from the other engine for engine anti-icing.

Leakage

Bleed-air leakage will be detected in the areas between the engines and the common duct. If detected, the respective HP bleed, PR/SO, and OP/SO valves will close and an alert will be presented.

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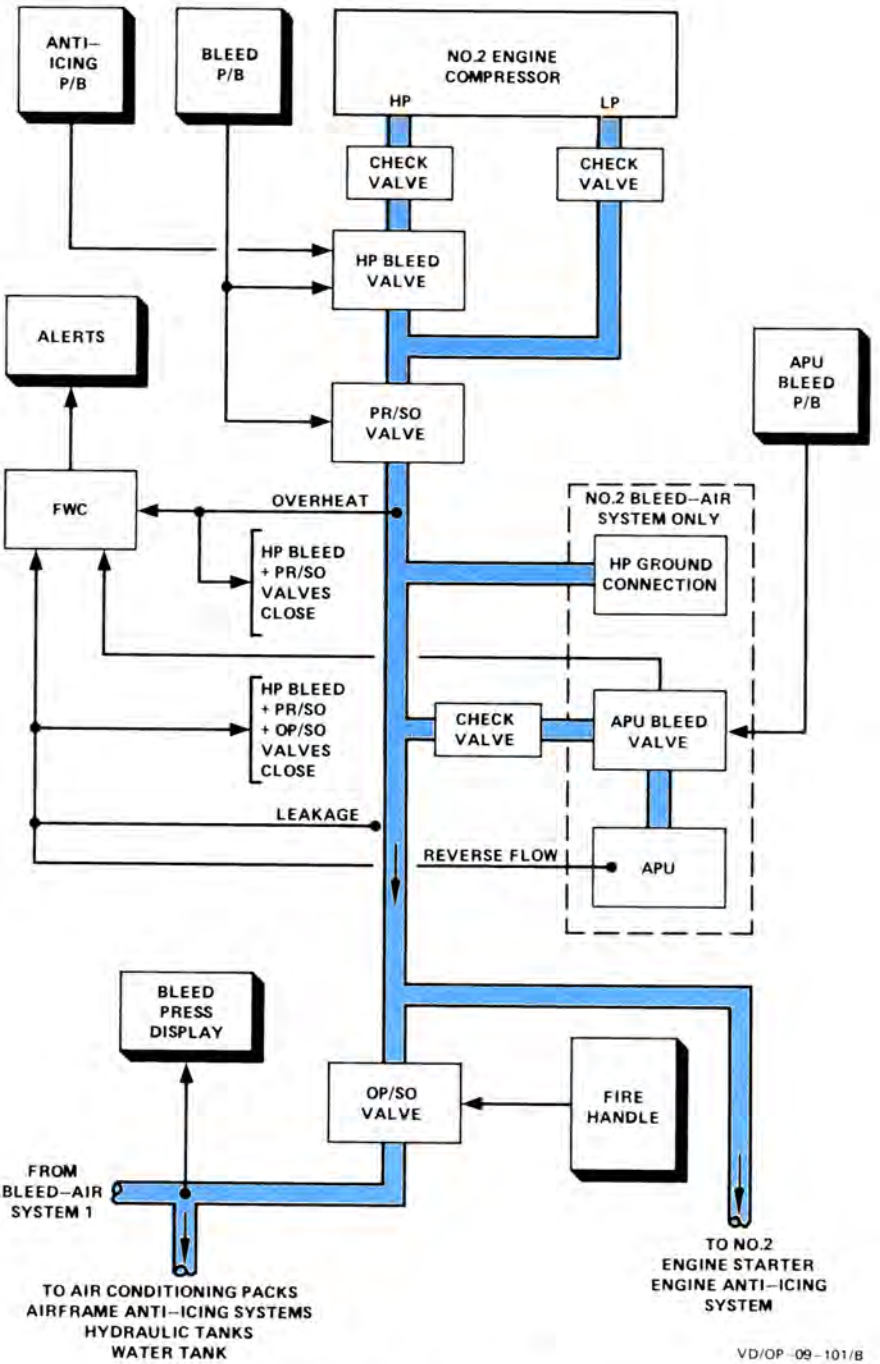
BLEED-AIR SYSTEM

FUNCTIONAL DIAGRAM



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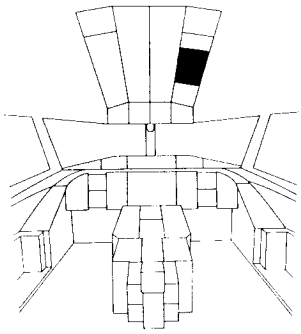

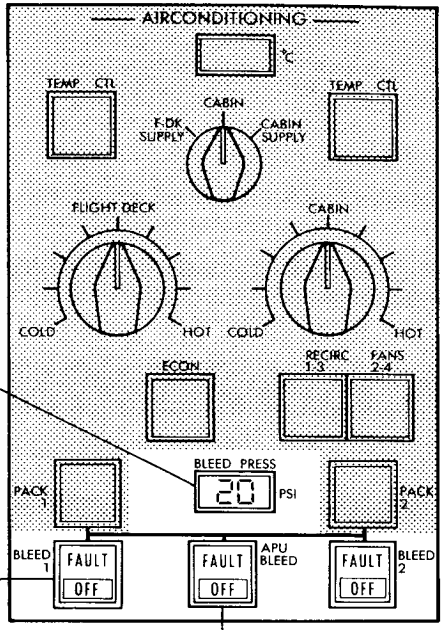

BLEED PRESSURE DISPLAY

Bleed–air pressure in common duct.

BLEED P/B

Normal (blank)
– System operating normally.
FAULT (amber)
– System failure.
OFF (white)
– System manually switched off.

APU BLEED P/B

Normal (blank)
– System operating normally.
FAULT (amber)
– APU bleed-air failure.
OFF (white)
– System manually switched off.

VD/OP–09–102

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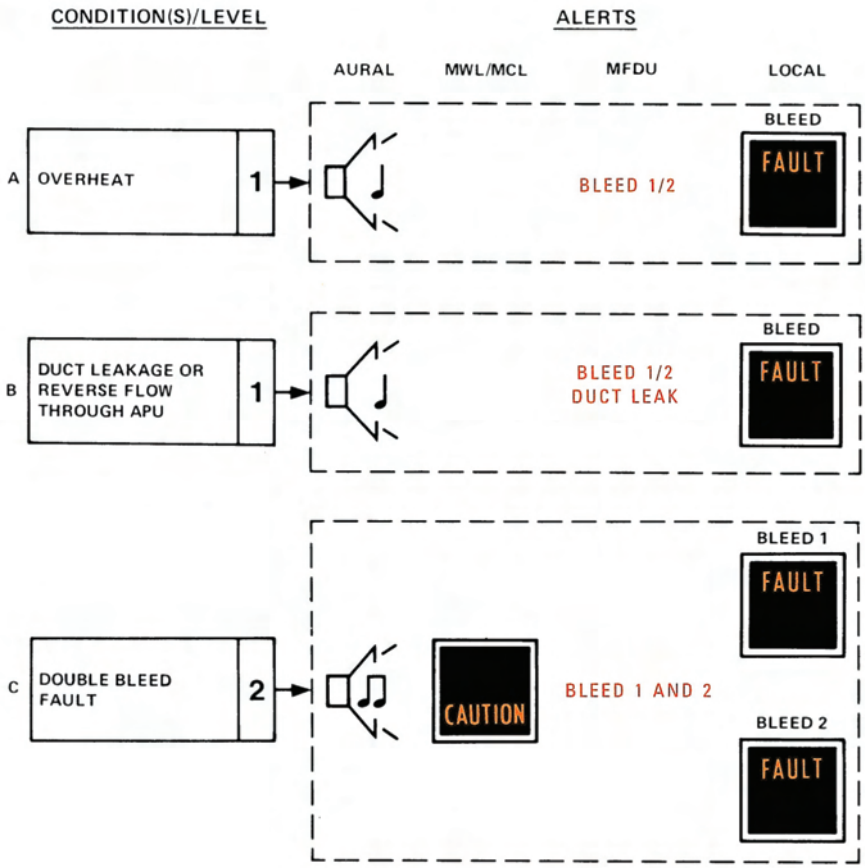
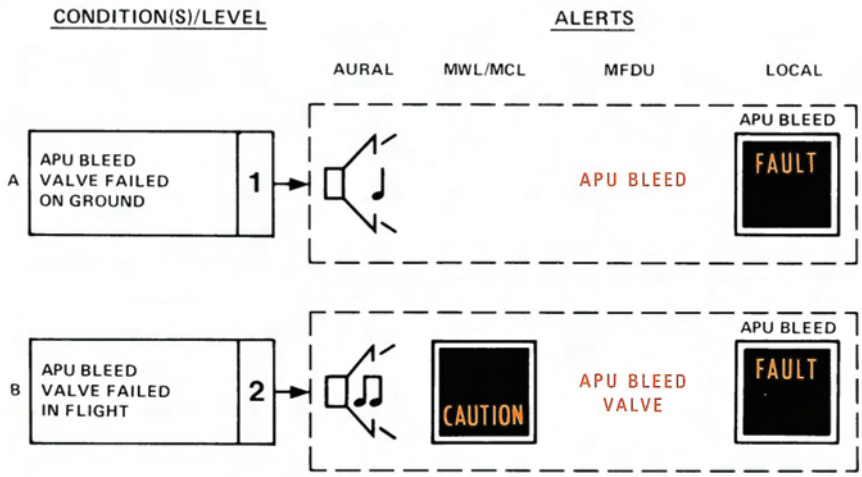
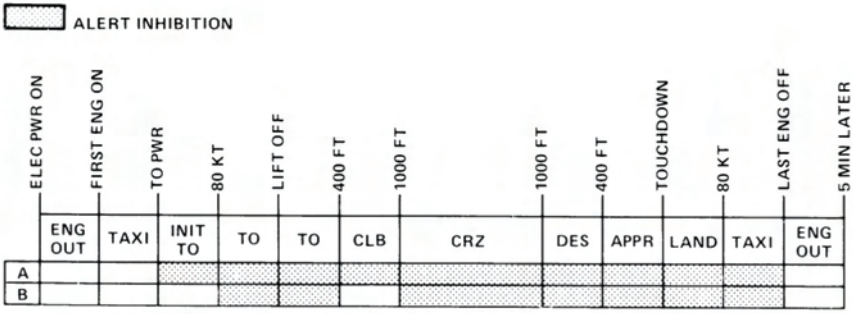


ALERT INHIBITION

	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													
C													

VD/OP-09-103/C





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