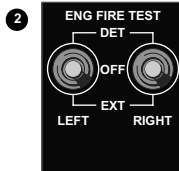
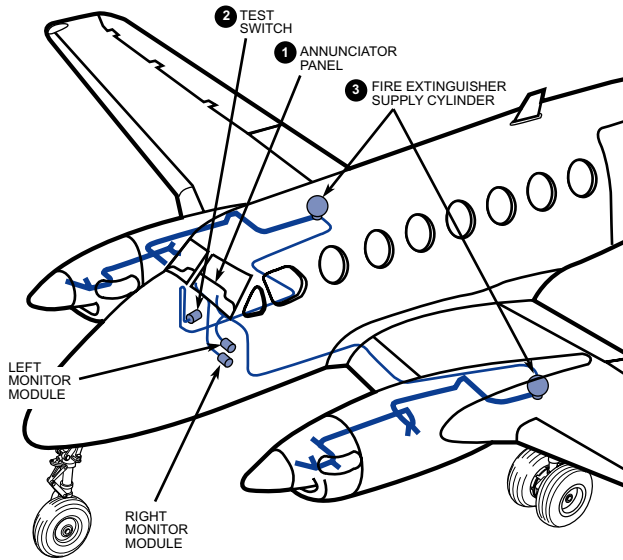
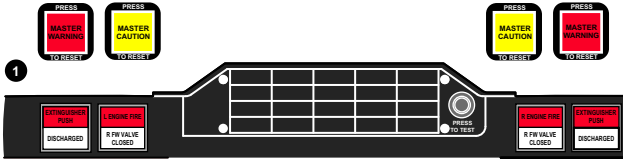
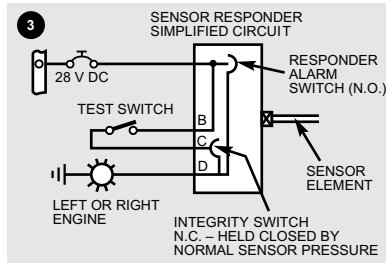
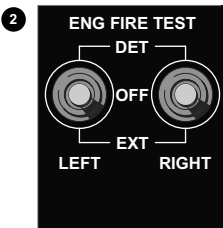
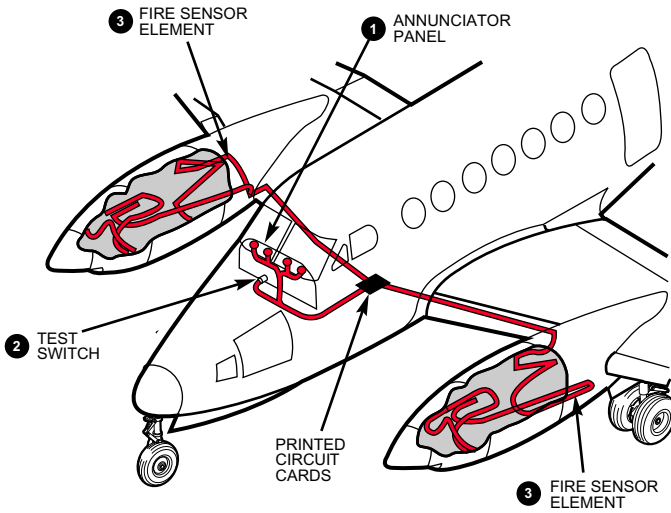


# Fire Extinguishing System



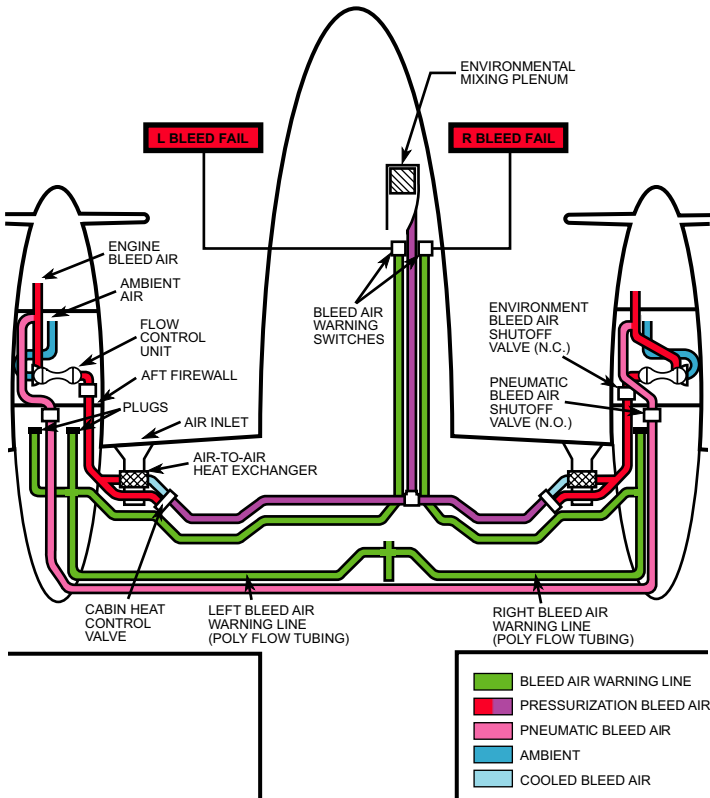
B3CRH-FR0011

## Fire Detection System



B3CRH-FR002I

# Bleed Air Warning System



B3CRH-FR003i



# Fire Protection Systems

Fire protection systems include:

- engine fire detection
- engine fire extinguishing
- testing (fire detection and extinguishing)
- bleed air warning.

## Engine Fire Detection

Engine fire detection consists of temperature sensing cables, two red warning annunciators (ENG FIRE), and two test switches. When an engine fire occurs, the ENG FIRE light and the MASTER WARNING annunciator on the glareshield panel illuminate.

Each engine's temperature sensing element consists of a sealed stainless steel tube. Within this tube is an inert gas and an inner core with an active gas. The sensing element connects to a responder that contains an alarm switch for detection and an integrity switch for testing.

Exposing a sensing element to temperatures of 360°F (182°C) along its entire length or 800°F (426°C) along a one-foot section expands the element's core gases. This closes the responder alarm switch to illuminate the respective ENG FIRE light and trigger the MASTER WARNING flashing lights. Once the sensing element cools below its trigger temperature, the ENG FIRE light extinguishes. The MASTER WARNING lights, however, do not extinguish until they are reset.

## **Engine Fire Extinguishing**

The engine fire extinguishing system consists of a fire extinguisher bottle in each main wheel well. Spray nozzles connected to each bottle direct fire extinguishing agent to the engine accessory section and power sections. Each bottle contains approximately 2.5 lb of Bromotrifluoromethane (CBrF<sub>3</sub>) pressurized with dry nitrogen to 450-475 PSI at 72°F (pressurization is directly proportional to OAT).

The fire detection system illuminates the ENG FIRE annunciator. Pressing the switch will activate the fire extinguishing system and close the fuel firewall shutoff valve. Once the system has been armed, the EXTINGUISHER PUSH annunciator will come on. Pressing that light supplies DC power to the extinguisher bottle's explosive squib. The squib's detonation dislodges a sealing disc so that bottle contents flow to the spray nozzles. Once the squib integrity has been compromised, the respective DISCHARGE annunciator illuminates.

## **Testing (Fire Detection and Extinguishing)**

The testing system consists of two independent switches labelled "ENG FIRE TEST/LEFT/RIGHT" with DET, OFF and EXT positions. When either switch is selected to DET, the corresponding ENG FIRE and MASTER WARNING lights will illuminate. Selecting either switch to EXT will illuminate the corresponding EXTINGUISHER PUSH and DISCHARGE annunciator.

## **Engine Bleed Air Warning**

EVA tubing that parallels the bleed air lines from the engine firewalls into the cabin provides a warning system for a bleed air leak. These parallel tubing lines are pressurized with instrument bleed air.

If a bleed air line ruptures, excessive heat melts the adjacent EVA tubing to release pressure. When pressure is reduced, a switch in the line under the copilot floor closes to illuminate the respective L/R BLEED FAIL annunciator.

## Fire Protection System

<b>Power Source</b>	Dual-fed bus (fire extinguisher) Triple-fed bus (fire detection)
<b>Distribution</b>	Extinguisher bottle to corresponding engine (no crossfiring) Portable hand fire extinguishers
<b>Control</b>	Left and right F/W VALVE PUSH CLOSED Switches Left and right DISCHARGED switches Left and right TEST switches
<b>Monitor</b>	Annunciators ENG FIRE EXTINGUISHER-PUSH DISCHARGED MASTER WARNING flashers Circuit card assembly fire extinguisher
<b>Protection</b>	Circuit breakers