

Part I

Chapter 14—Fire Warning and Protection Systems

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1 General

Visual warning of fire in the engine bays, fuselage plenum chamber and fuel tank areas is given by 10 warning lights and four combined extinguisher pushbutton/warning lights, all on panel AW. Six independent extinguishing installations are fitted comprising a total of 13 electrically-discharged methyl-bromide extinguishers, which are discharged simultaneously by the action of inertia switches if a crash landing is made (see para. 6). They are located as follows:

Wing tank group, port	One
Wing tank group, starboard	One
Fuselage tank group, front	Two
Fuselage tank group, rear	Two
Plenum chamber	Two
Engine bays	Four
AAPP bay	One

2 Engines fire protection systems

(a) Engine bays

◀ A triple FD system is in each engine bay. A combined extinguisher button and warning light for each engine is on panel AW. When the operating temperature of any sensing element is reached, the

associated warning light comes on. If the button is then pressed the alternator cooling shutter closes, the LP fuel cock closes and the fire bottle discharges. ▶

(b) Internal engine fire system

Part of the engine air is tapped off the main flow to cool certain internal components. A fire detector is fitted in this cooling air outlet duct and if the air temperature rises abnormally the detector operates to illuminate an amber warning light on panel AW.

3 AAPP bay system

◀ (a) A triple FD system is in the AAPP. If the fire occurs the system causes a warning light integral with the extinguisher pushbutton, on panel BF to come on. ▶

(b) Operation of the pushbutton causes

- (i) The extinguisher to discharge
- (ii) The AAPP bay cooling shutter to close
- (iii) The AAPP fuel valves to close
- (iv) The AAPP booster pump in tank 10 to stop running.

4 Fuel tanks fire protection system

(a) Five separate continuous Firewire detector installations are fitted, one for each wing tank installation, one for the rear fuselage fuel tanks, one for the tanks over the bomb-bay and, one for the front fuselage tanks. A warning light for each system is provided on panel AW.

(b) Four extinguishing systems are provided, one for each set of wing tanks and one for the rear and front fuselage fuel tanks. There is no extinguishing system for the tanks above the bomb-bay.

(c) Each mainplane system has one extinguisher bottle and each fuselage system has two bottles.

(d) If the operating temperature of any sensing element is reached the associated warning light comes on and the extinguisher(s) is discharged automatically. When the temperature reverts to normal the circuit is de-energised and the warning light goes out.

5 Plenum chamber fire protection system

(a) A Firewire detector installation is fitted in the plenum chamber. A warning light for the system is on panel AW.

(b) If the warning light comes on two extinguisher bottles discharge their contents automatically. When the temperature in the chamber returns to normal, the warning light goes out.

6 Inertia switches

(a) Four inertia switches are fitted, two port and two starboard, which automatically bring the fire extinguisher installations into

operation if the aircraft decelerates at a rate exceeding 3G. A warning light for each inertia switch is located on the AEO's side panel BB and comes on when its inertia switch is tripped. A circuit breaker is fitted adjacent.

(b) Operation of any one inertia switch does not affect any extinguisher circuit. Both switches on one side must operate before the extinguisher circuits are energised.

(c) The port inertia switches cause the following extinguisher systems to discharge:

Port mainplane extinguisher
Nos. 1 and 2 engines extinguishers

(d) The starboard inertia switches cause the following extinguisher systems to discharge:

Starboard mainplane extinguisher
Nos. 3 and 4 engines extinguishers
Fuselage fuel tanks extinguishers
Plenum chamber extinguishers
AAPP bay extinguisher.

7 Hand fire extinguishers

Three hand fire extinguishers ($\frac{2}{3}$ distilled water, $\frac{1}{3}$ glycol) are provided in the cockpit. Mod. 3125 replaces these with ones filled with bromochlorodifluoromethane. These are more suitable for use against all classes of fire.



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