

## Chapter 3

# CONTINUOUS TYPE FIRE DETECTOR

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### LEADING PARTICULARS

<i>Fire detector (body with lock-nut)</i> ... ..	<i>Stores Ref. 27N/61</i>
<i>Weight</i> ... ..	<i>3 oz.</i>
<i>To be used with—</i>	
<i>Head, with 10 ft. capillary</i> ... ..	<i>Stores Ref. 27N/63</i>
<i>Weight</i> ... ..	<i>3 oz.</i>
or <i>Head, with 15 ft. capillary</i> ... ..	<i>Stores Ref. 27N/62</i>
<i>Weight</i> ... ..	<i>5½ oz.</i>
or <i>Head, with 20 ft. capillary</i> ... ..	<i>Stores Ref. 27N/71</i>
<i>Weight</i> ... ..	<i>7 oz.</i>
<i>Maximum ambient temperature</i> ... ..	<i>110 deg. C.</i>

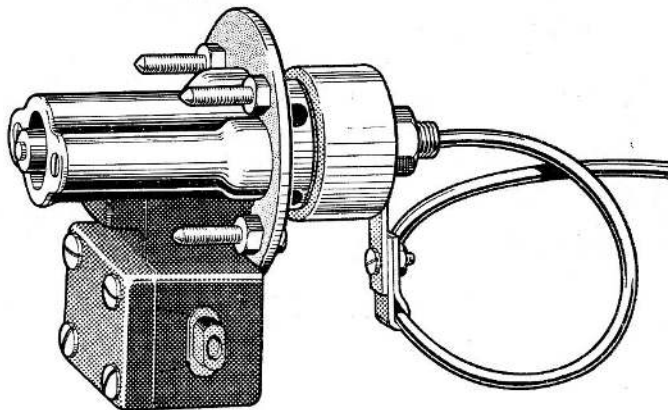


Fig. 1. Fire detector with capillary

## Introduction

1. This detector is used in fire extinguisher circuits for fuel tank protection and has to be fitted with a detector element to render it operative. The detector head is available in three capillary lengths to suit various aircraft installations and may be demanded under its appropriate Stores Ref., details of which are given in the Leading Particulars listed above.

## DESCRIPTION

2. The detector body (*fig. 1*) must be used in conjunction with one of the detector heads referred to in para. 1. It is designed to operate in the event of fire or rapid temperature rise. With the heads referred to, the detector will operate when the temperature exceeds 250 deg. C.

3. The detector body incorporates a make and break switch, a spring loaded plunger of insulating material and a test button by which the switch contacts may be closed for the purpose of checking correct operation of the fire extinguisher circuit. When in the normal or set position the two contacts of the switch are open as the result of the longer of the

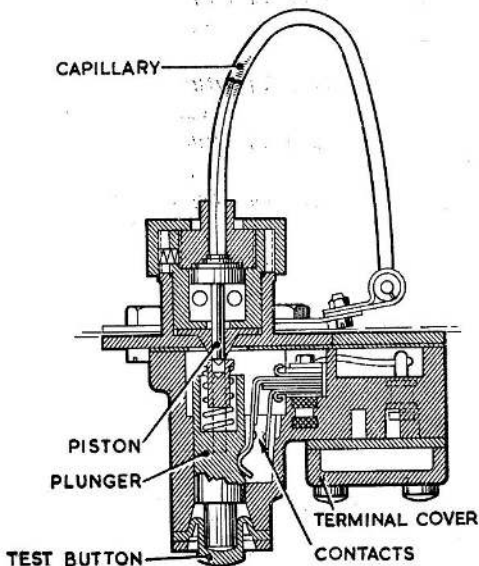


Fig. 2. Sectional view of detector

two switch blades resting in a groove on the plunger.

4. The detector head incorporates a pyrotechnic capillary, in the bore of which is housed a pyrotechnic cord. One end of the capillary is sealed and the other end terminates in a cap to which is screwed a cylinder containing a small piston. This assembly is fitted to the detector body as shown in *fig. 2*.

## OPERATION

5. In the event of a fire or rapid rise in temperature above 250 deg. C., the pyrotechnic cord, within the capillary, will ignite and a high pressure will be set up. This pressure will be exerted on the upper end of the piston in the head, thereby driving the piston past the relief ports in the cylinder to the other end of its stroke. This movement is transmitted to the plunger of the switch assembly. The switch blade resting in the groove of the plunger will therefore be pushed forward, thus closing the switch contacts, and completing the fire extinguisher circuit.

## TESTING

6. When it is desired to test the detector, finger pressure on the test button will cause the plunger to travel towards the piston and the switch blade riding on the plunger will move to close the switch contacts. The electrical fire extinguisher circuit will thus be completed and bring the associated equipment into operation.

## SERVICING

### Detector body

7. Very little servicing of the detector body is necessary, other than periodic inspection to ensure that the switch contacts are operating efficiently and that the spring within the plunger is not broken.

### Capillary

8. The detector head should be inspected to ensure that the capillary is undamaged. In the event of damage, or where any doubt may exist as to whether the capillary has been subjected to conditions which may have ignited the pyrotechnic cord, the head must be removed and a new one fitted.

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