# Chapter 45

# THORN PASSENGER NOTICE SIGNS

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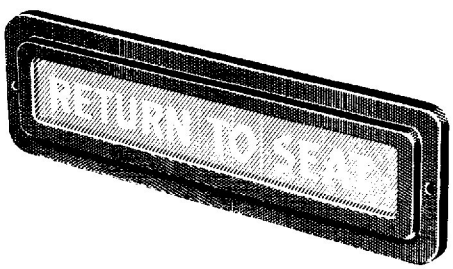


**Fig. 1. Typical notice sign**

### Introduction

**1.** The Thorn passenger notice signs used on transport aircraft are of the electroluminescent type in which the legend appears brightly illuminated against an unlit background when the sign is energized. The sign is, in effect, a capacitor in which particles of a phosphor substance are suspended in the dielectric material, and when the plates of the condenser are charged the phosphor particles are excited to luminescence.

**2.** The signs, due to their construction and principle of operation, are only suitable for use on a.c. supplies and are designed to operate at 345 volts 400 c/s. The light emission of the sign can be raised by increasing the frequency of the supply, but at their normal operating frequency it is adequate against fairly bright natural or artificial light. A Thorn, Type 80/10/0319 transformer is normally used as the power supply to the signs, and details of the transformer are given in A.P.4343B, Vol. 1, Book 3, Sect. 19.

### DESCRIPTION

**3.** The Thorn notice signs, a typical example of which is shown in fig. 1, consist of flat, glass fronted plates, which are normally mounted in a metal frame for ease of installation, and backplates to which electrical connection is made. The backplate incorporates the nuts to which the front plate is secured and the terminal blocks and leaf-spring contacts. The terminal blocks have 6 B.A. terminal studs suitable for ring type tags, and the leaf-spring contacts bear onto the sign-plate contact studs.

**4.** The sign-plate, shown diagrammatically sectioned in fig. 2, consists essentially of a front glass screen coated with a film of stannous oxide which forms one plate of the capacitor, a resin dielectric with the suspended particles of phosphor, and a second plate fronted by a reflector. The rear plate is formed during manufacture into the required legend, and the supply connected to each portion of the legend by connecting links from a bus-bar around the outer periphery of the sign. The conducting layer of the front plate is connected by a further link directly to the appropriate contact stud.

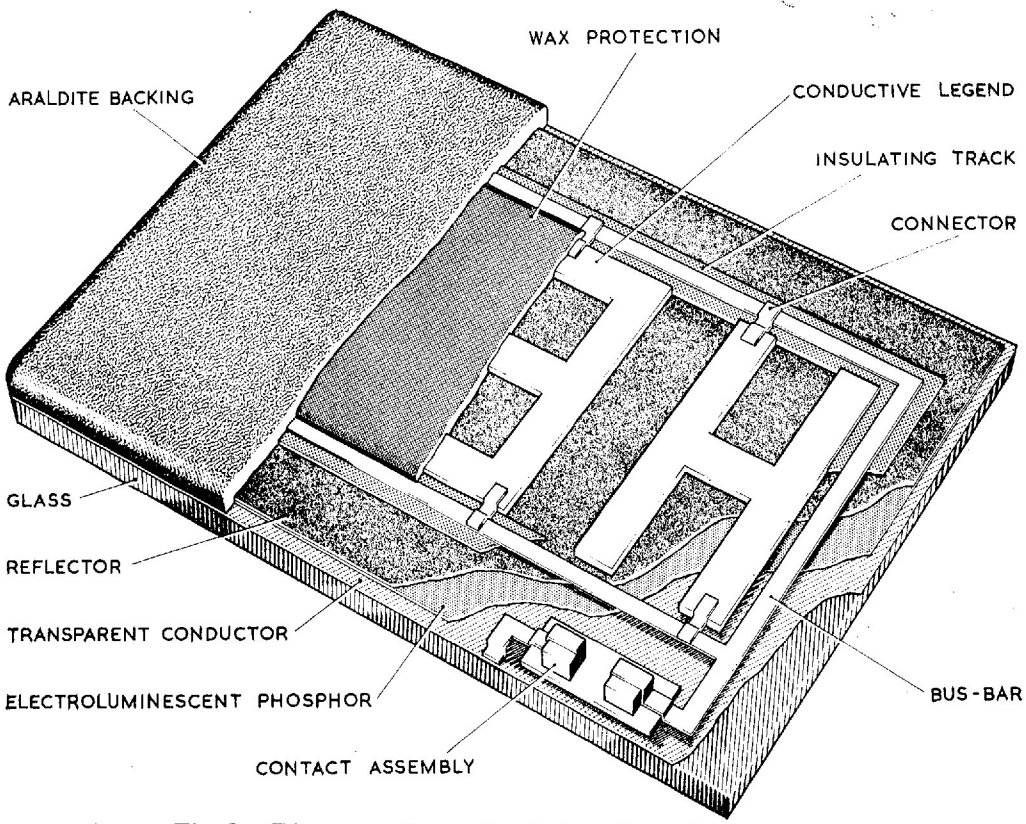


**Fig. 2. Diagrammatic, sectional view of a typical sign-plate**

**5.** The rear of the sign is protected by a coating of wax and sealed by an epoxy resin moulding, the edges have a strip of sealing tape to prevent moisture from bridging or earthing the plates at the edges of the signs. When connected to a suitable a.c. supply the front and rear plates are charged and excite the phosphor to luminescence, as only that portion of the dielectric between the plates is excited, the illuminated area of the sign displays the legend of the rear plate.

## SERVICING

**6.** No servicing of the sign-plate is practicable. The signs should be examined for damage, for corrosion of the contact studs or leaf-springs, and the edge sealing-strip checked for deterioration. Deterioration of the sign-plate will be indicated by bright spots, or black spots, within the legend when the sign is illuminated, and where this is excessive it should be renewed.

## TABLE 1

## LEADING PARTICULARS

| *Ref. No.* | *Legend* | *Thorn Pt. No.* |
|---|---|---|
| 5CX/5984 | Return to seat | 80/10/0326 |
| 5CX/5493 | No smoking | 80/10/0325 |
| 5CX/5587 | Forward toilet engaged | 80/10/1867 |
| 5CX/5588 | Rear toilet engaged | 80/10/1868 |
| 5CX/5615 | Fasten safety belts | 80/10/0322 |
| 5CX/5616 | No smoking | 80/10/0324 |
| 5CX/5617 | Ladies | 80/10/0320 |
| 5CX/5618 | Gentlemen | 80/10/0321 |
| 5CX/5860 | No smoking | 80/10/2344 |



Printed for H.M. Stationery Office by L.P.S., Liverpool.
(82140) Wt.24676-3392. 1875/6/64. Gp.375/1.