

## Chapter 13

### HELVIN ELECTRICAL CABLE BUNGS

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#### Introduction

1. There are two main types of Helvin electrical cable bungs, one is a pressure bung used as a means of passing electrical cables through pressure bulkheads, and the other is a waterproofing bung designed for fitting to Breeze and Mk. 4 plug and socket connections for preventing moisture from reaching the inside of the connections.

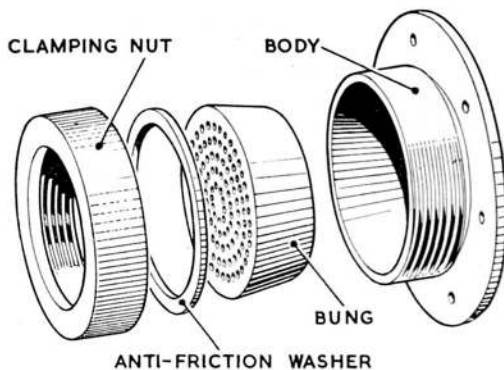


Fig. 1. Exploded view of Helvin pressure bung

#### DESCRIPTION

##### Pressure bung

2. The pressure bung (*fig. 1*) consists of a bung made of plasticised P.V.C., and a housing for holding the bung. The bung has a tapered external diameter which fits in the tapered bore of the housing. Holes in the

bung vary in number and size to suit the thickness of the electrical cable which is to pass through, and each hole is covered by a thin covering of plasticised P.V.C. at the small end of the bung. The holes are a tension fit on the cables, and when fully loaded with cables, the bung compresses tightly into the housing.

3. The housing consists of a threaded flanged body tapered in the bore to receive the bung. A knurled clamping nut holds the bung in the body and an anti-friction washer prevents damage to the face of the bung when the nut is turned. Holes in the flange enable the housing to be secured to the pressure bulkhead, and the number of holes vary according to the particular installation.

4. Piercing tools are provided for piercing the thin covers over the cable holes and the method is described in para. 7 to 10.

##### Waterproofing bungs

5. The waterproofing bungs are made of P.V.C., and two types are available. One type (*fig. 2*) is made for fitting to Breeze plugs and sockets, and this consists of a bung situated at the end of a sleeve. The bung has a number of holes for cables to pass through, and the sizes of the holes are made to be a pressure fit on the cables. The outer ends of the holes are covered by a thin skin of P.V.C. and this has to be pierced as described in

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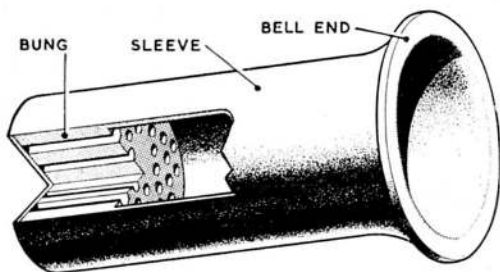


Fig. 2. Helvin waterproofing bung for Breeze plugs and sockets

para. 7 to 10, to allow the cables to pass through. Bungs are available with different size holes to suit the cable in use. The end of the sleeve opposite the bung is bell shaped to suit two ferrules supplied with the Breeze connection.

6. The other type (*fig. 3*) is made to suit the Mk. 4 plugs and sockets. This is similar to the one described in para. 5 except that it has a thick collar at the end of the sleeve, and this fits into a recess in the back of the Mk. 4 connections as shown in *fig. 5*.

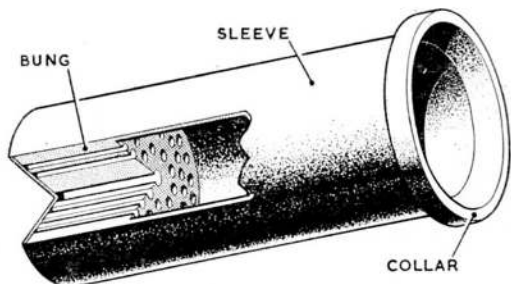


Fig. 3. Helvin waterproofing bung for Mk. 4 plugs and sockets

#### ASSEMBLING PROCEDURE

7. Three piercing tools are supplied for piercing the covers over the cable holes, one for 4 to 6 amp. cable, one for 12 amp. cable, and one for 24 to 37 amp. cable. These tools have a hole through their stem and handle for threading the cable through the bung. When the cover has been pierced, push the tool through the hole until the parallel stem protrudes through the end of the bung. Remove the detachable pierce from the tool stem and thread the cable through the hole in the stem; the tool can then be withdrawn and the cable will have passed through the bung.

8. The correct size of piercing tool must be used to suit the size of cable. Use of a tool

bigger than the correct size may result in the bung splitting. If the tools are not available or the cable is heavier than 37 amp., a hole may be made by any suitable round tool or by the cable itself.

9. Holes that have been made and not used must be plugged by suitable plastic plugs made for that purpose. These are supplied in thicknesses to suit the cable sizes of the holes in the bung as shown in the following table:—

Stores Ref.	Plug No.	Cable (Unipren)
5X/6658	HV3433	4, 6 and 12 amp.
5X/6659	HV3435	24 amp.
5X/6660	HV3436	35 amp.
5X/6661	HV3437	60 amp.

#### Pressure bung

10. It is possible for pressure bungs to split if cables are loaded to them whilst the bung is not fitted in its housing. This is due to the combined pressure of the tight-fitting cables in the holes, and to prevent splitting, it is imperative that a bung is in its housing before cables are passed through. Even if a bung is to fit in a housing which is permanently fixed in a bulkhead, the bung must be temporarily fitted in a housing before cables are loaded on it, and the temporary housing must be removed only immediately prior to assembling the bung in the fixed housing. Bungs attached to cable looms which are to be stored must also be fitted in a housing.

11. Cables must be loaded to bungs starting with the holes in the middle and working outwards. This will leave any unused holes accessible on the outer edge, whereas, if the unused holes were in the middle of the bung, the surrounding cables would make the middle holes inaccessible when the plug is in position on an aircraft.

#### Waterproofing bungs

12. When a waterproofing bung is being fitted to a plug or socket connection, the covers over the cable holes should be pierced from the inside of the bung sleeve, using the cable holes as a guide for the tool.

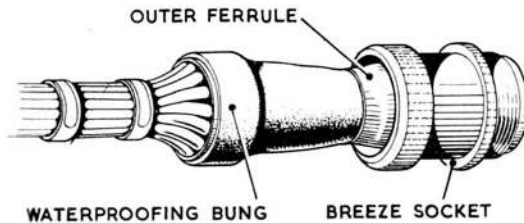
#### Breeze connections

13. Bungs for Breeze connections have their outer end lettered and numbered to suit the markings on the connections, and the cables should be passed through the holes the

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markings of which correspond with the terminal connections to be made.

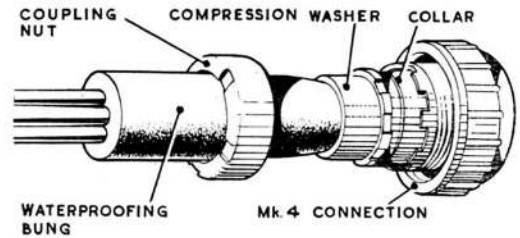
**14.** When a bung is being fitted to a connection (fig. 4), two ferrules supplied with the connection must be fitted over the bell-shaped end of the bung sleeve, one ferrule fitting inside and the other fitting outside the sleeve. A flat sealing washer provided with the connection is then placed flat on the ferruled end of the sleeve and this end is then fitted inside and secured to the connection by the clamping nut.



**Fig. 4.** Helvin waterproofing bung on a Breeze socket

#### Mk. 4 connections

**15.** When a bung is being fitted to a Mk. 4 connection (fig. 5), a castellated pressure washer is specially supplied which is not a normal fitting on the connection. The collar of the bung fits into a recess in the back of the connection, and the castellated washer fits over the bung sleeve and presses the collar into the recess when the clamping nut is screwed onto the end of the connection. When the nut is being screwed into position, ensure that the castellations on the washer fit into the slots on the end of the connection.



**Fig. 5.** Helvin waterproofing bung on a Mk. 4 connection

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