

Chapter Forty-eight

THE LODGE SURFACE DISCHARGE IGNITER PLUGS

The information contained in this chapter has been supplied by Lodge Plugs Limited, Rugby, and all enquiries regarding their products should be made to them.

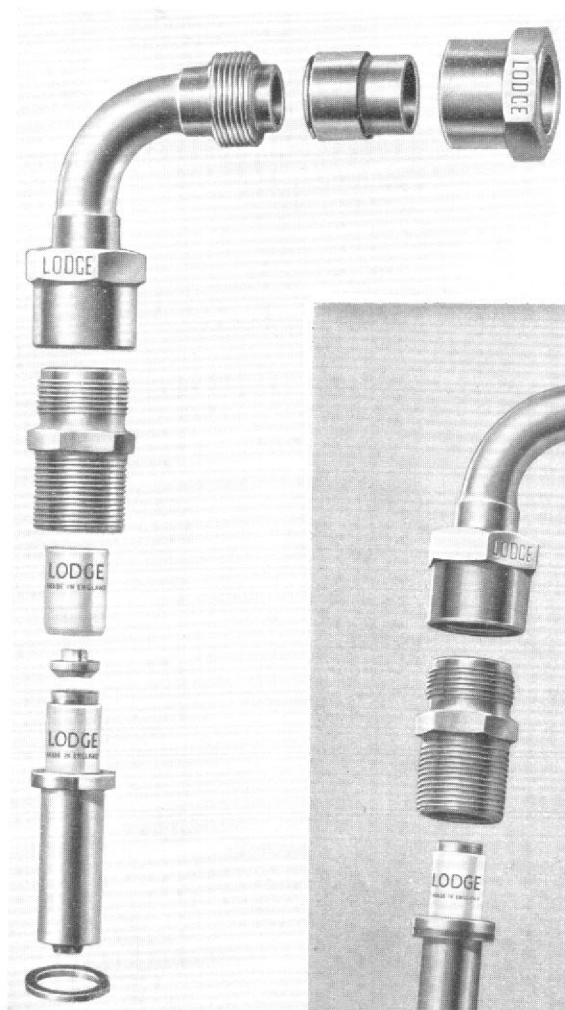


Fig. 1.

The general arrangement of these surface discharge plugs will be obvious from an inspection of the photographs on this page. Each high energy, surface discharge, igniter assembly is made up of a high energy igniter, and a screen tube; the elbow is, normally, part of the ignition cable assembly. These igniters can be operated only with B.T.H. or Rotax high energy units.

WHEN INSTALLING it is important to ensure that the seating washer is in position in the mount-

ing adapter, which is a component part of the engine combustion chamber, and that the screen tube is fitted as shown in these photographs—that is with the longer threaded portion screwing into the mounting adapter. The screen tube should be tightened down to a torque of 240 to 300 lb./in. and the nut on the elbow fitting to a torque of 50 to 60 lb./in.

No SERVICING can be carried out on the high energy igniter (centre) but an attempt has been made, in the paragraphs and photographs (overleaf) which follow, to indicate the extent of 'wear' which may be found after a period of running and to give some guidance in classifying 'serviceability' upon routine examination. It is, of course, only possible to indicate quite broadly the defects likely to be encountered. Each instance

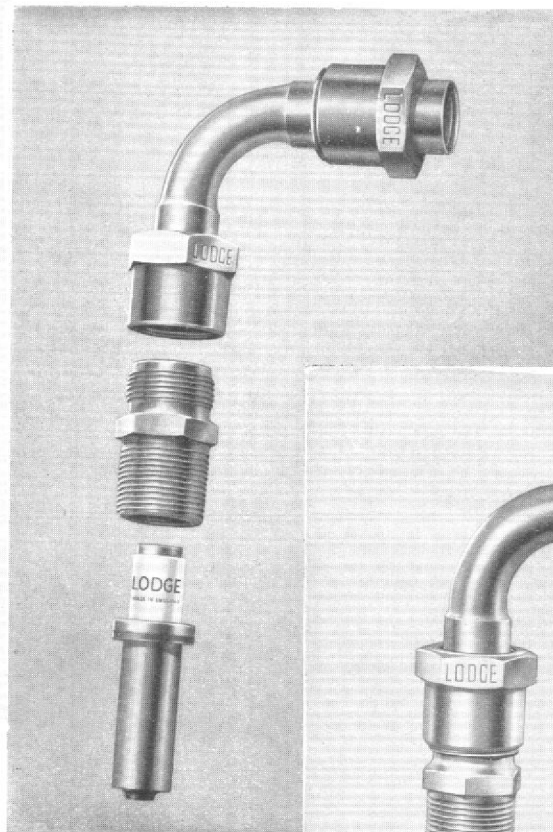


Fig. 2.

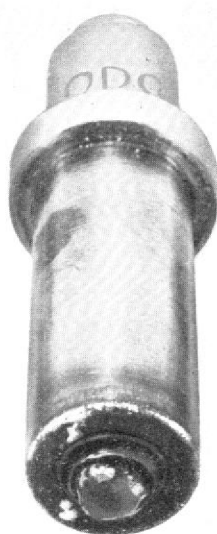
Fig. 3.





6

Fig. 4 (6 left). Centre electrode burnt and R.I pellet flaking—reject.



17

Fig. 5 (17 right). Centre electrode badly burnt and fused, R.I pellet flaking—reject.



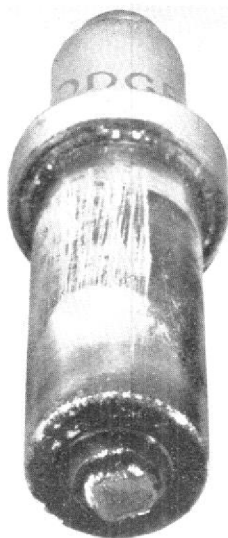
2

Fig. 6 (2 left). R.I pellet satisfactory but centre electrode burnt—reject.



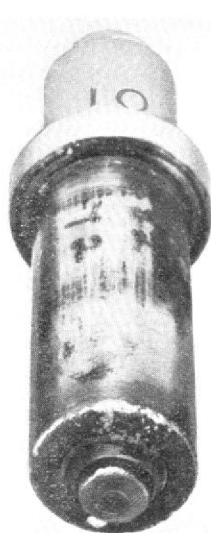
7

Fig. 7 (7 right). Centre electrode burnt but R.I pellet satisfactory—reject.



4

Fig. 8 (4 left). R.I pellet satisfactory but centre electrode burnt—reject.



13

Fig. 9 (13 right). Centre electrode satisfactory but slight flaking of R.I pellet—serviceable.



14

Fig. 10 (14 left). Slight burning of centre electrode and slight flaking of R.I pellet—serviceable.



16

Fig. 11 (16 right). Slight burning of centre electrode and slight flaking of R.I pellet—serviceable.

The numbers in brackets, and on the photographs, are the photographer's reference numbers.

must be considered in the light of the particular circumstances, hours run, etc., and the final decision as to the serviceability of each individual igniter must rest on the individual engineer's experience and knowledge of equipment of this type. Where a background of this experience is missing, frequent reference should be made to an experienced specialist. Although these igniters can be tested by checking their 'sparking' when connected to a high energy unit, this test is not proof of serviceability for a period of operation as *all* the igniters illustrated in Fig. 4 to 17 appeared to 'spark' satisfactorily; the white patches in the dark carbon being where the carbon has 'cleaned off' during this 'spark' testing. These notes are applicable to both the L.H.101 (277-3R/1) and L.H.101/1 (277-17R/1) type igniters.

As recommended in the current Maintenance Schedule, which is contained in chapter 12, all high energy igniters should be removed from the engine and inspected at each check 1, check 2, and check 3 inspection.

Igniter plugs should be rejected if one or more of the following defects are discernible:—

- (a) Centre electrode burnt or eroded to such an extent that the R.1 pellet is left unsupported over more than 15% of the circumference of the electrode tip—Fig. 4 and 5 are examples.
- (b) Radial cracks in the R.1 pellet or severe erosion such as that illustrated in Fig. 6 and 7.
- (c) Any signs of the centre electrode having fused or 'melted' around the periphery of the tip—Fig. 8.
- (d) Any signs of the centre electrode 'lifting' and, therefore, ceasing to maintain pressure on the R.1 pellet.

Igniter plugs where there is normal slight erosion of both the centre electrode tip and of the R.1 pellet, or slight *surface* flaking of the R.1 pellet, such as those illustrated in Fig. 9, 10 and 11 can be regarded as serviceable.

SCREEN TUBES. The screen tube should be cleaned with a soft rag and 'flushed' at 12 K.V. Do not wash mica-lined screen tubes in kerosene as this can cause the mica lining to become loose; ceramic-lined screen tubes are not affected in this way.

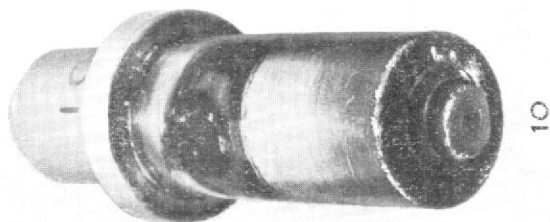


Fig. 12 (10). Both R.1 pellet and centre electrode satisfactory—serviceable.

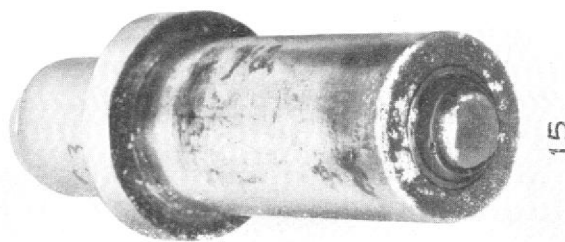


Fig. 13 (15). Slight burning of centre electrode but R.1 pellet satisfactory—serviceable.

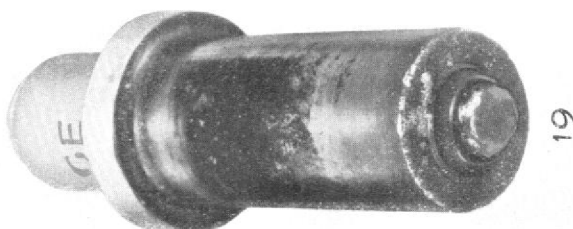


Fig. 14 (19). Slight burning of centre electrode but R.1 pellet satisfactory—serviceable.

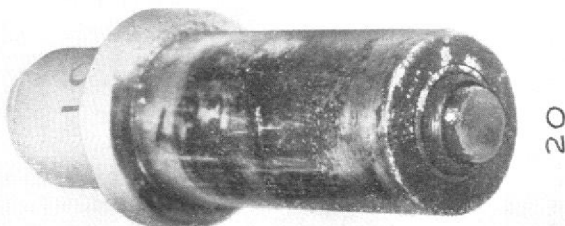


Fig. 15 (20). Slight burning of centre electrode and slight flaking of R.1 pellet serviceable.

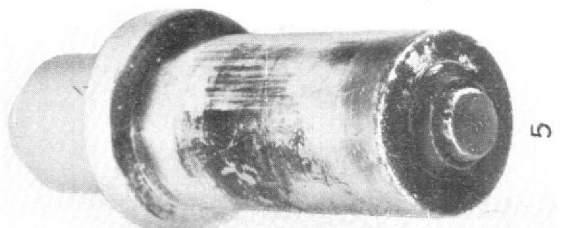


Fig. 16 (5). Very slight flaking of R.1 pellet and slight burning of centre electrode—almost a borderline case, serviceable subject to inspection every 50 hours.

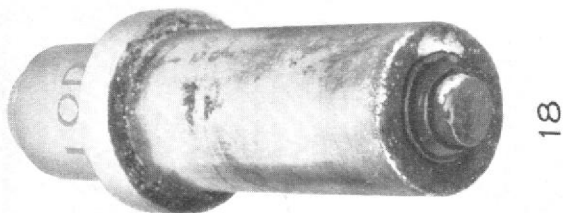


Fig. 17 (18). Centre electrode burnt and R.1 pellet flaking—reject.



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