

GOVERNMENT OF INDIA, MINISTRY OF RAILWAYS
RESEARCH DESIGNS & STANDARDS ORGANISATION

MANAK NAGAR, LUCKNOW-226011

Ref: EL/3.2.40/DA3

Dated: 4.12 March 1980

MODIFICATION SHEET NO. RDSO/MAM/96

PROVISION OF INSULATION BETWEEN SHADE CARRIER
RING AND LAMP HOLDER SLEEVE IN THE EXISTING
SIGNAL LAMP HOLDERS

1. OBJECT OF MODIFICATION

- 1.1 Railways have reported failures of signal lamp holders due to shorting and flashovers between the plungers (5) (see enclosed drawing SK.EL-3258) and the brass barrel (4) of the lamp holder.
- 1.2 Investigations have shown that these failures are due to inadequate clearance between (5) and (4).
- 1.3 It is proposed to modify the existing lamp holders by providing insulation between the shade carrier ring (1) and the barrel (4) and by providing an insulating sleeve (2) inside the barrel (4) as shown.

2. WORK TO BE CARRIED OUT

2.1 Insulation between Shade Carrier Ring (1) & Barrel (4)

- (a) Cut an insulating spacer (3) as per SK.EL-3258 from Phenolic Resin Bonded Laminated Sheet, type P (IS:2036-1974) using layers of cellulose paper with thermo setting synthetic resin as bonding medium of thickness 1.6 mm.
- (b) Increase the bore dia of shade carrier ring (1) by 1 mm (to 19.5 mm).
- (c) Re-assemble holder with spacer (3) and carrier ring (1) as shown. Locate (3) & (1) so as to provide a uniform clearance all round the barrel (4).
- (d) Pour Araldite to fill up the above clearance and form a small fillet as shown.
- (e) Allow the Araldite fillet to harden and cure at room temperature or in an oven for an appropriate period.

-: 2 :-

2.2 Insulating Sleeve (2) inside Barrel (4)

- (a) Coat a smooth steel rod of dia 13 mm and length approximately 200 mm with wax by dipping the rod in molten wax a couple of times. Ensure that about 0.5 mm thick layer of wax is deposited on the rod.
- (b) Prepare a Nomex tube by wrapping Nomex of thickness 0.05 mm (approx) and width 150 mm (approx) on the mandril. Use a film of Silicone Varnish SI400 on the Nomex as adhesive.
- (c) Cure the tube at 150°C for 8 hours and slip it off the mandril while hot.
- (d) Cut sleeves of length 7 mm from the tube.
- (e) Coat the outer surface of the sleeve with Araldite and insert it into place inside the barrel (4).

2.3 Tests

- (a) Check that plungers (5) move freely and without touching the sleeve (2).
- (b) Test at 1000 V, 50 cps, between barrel (4), plungers (5) and carrier ring (1), for 15 seconds each.

2.4 Modify drawings of lamp holders for future procurement.

3. APPLICATION TO CLASS OF LOCOMOTIVES

All electric locomotives fitted with lamp holders of the type shown in SK.EL-3258.

4. MATERIALS REQUIRED

- (a) Phenolic Resin Bonded Laminated Sheet type P (IS:2036-1974) using layers of Cellulose Paper with thermo setting synthetic resin as bonding material of thickness 1.6 mm.
- (b) Nomex paper 0.05 mm thick.
- (c) Silicone Varnish SI400.
- (d) Araldite AY 105 + Hardener HT 972 to be mixed in the ratio of 4: 1 respectively.

5. MATERIAL RENDERED SURPLUS

Brass ring (not shown in SK.EL-3258) originally used to keep carrier ring in position.

6. REFERENCE

- (a) S.E.Rly drawing No. LOCO/L/009 and LOCO/L/055 for the signal lamp holder of WAG1 and WAM4 locomotives respectively and CLW drawing No. CLW/ES/SK2/L5/F for WAM4 locomotives.

- (b) Sample collected by DSE during his visit to S.E.Rly, Tata Elec Loco Shed on 29.1.80.

7. MODIFICATION DRAWING

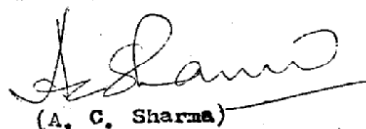
DSDO SK.EL-3258.

8. AGENCY FOR MODIFICATION

Railways for all existing electric locomotives and CLW for future procurement.

9. DISTRIBUTION

As per list attached.


(A. C. Sharma)

Encl: Drg.No.SK.EL-3258.

for Maha Nideshak (Vidyut)

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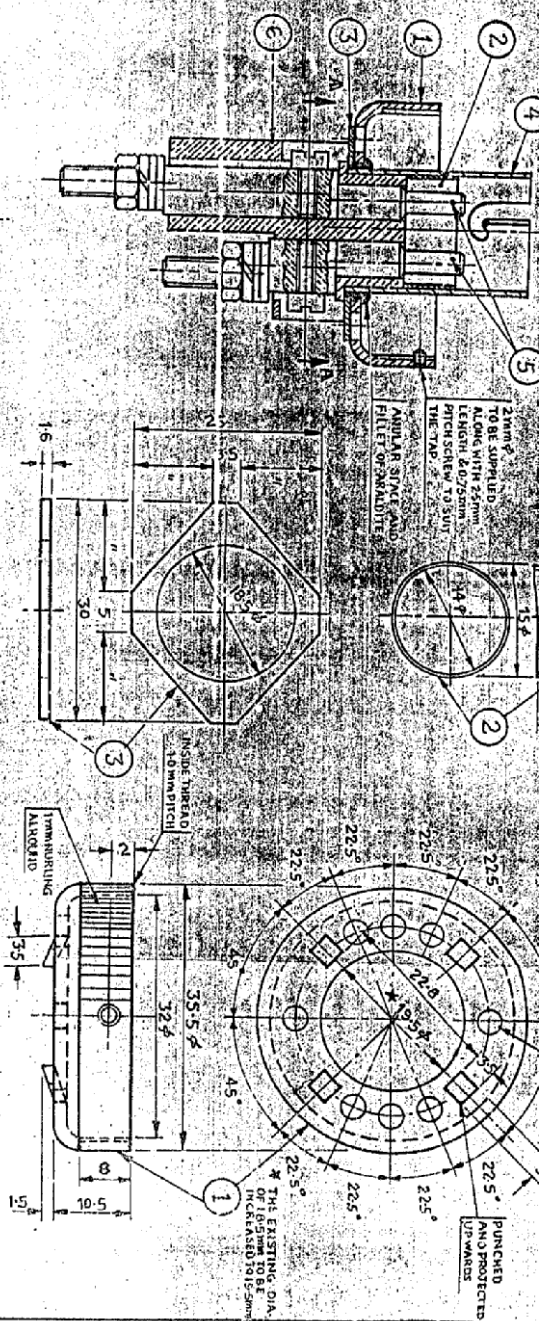
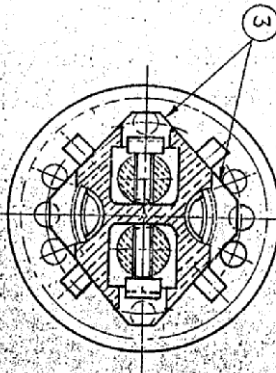
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RNS
26.2.80

SECTION A-A



R.D.S.O. ELEC. DTE. SK.EL. 3258

MODIFICATION TO SIGNAL LAMP HOLDER

PART NO.	DESCRIPTION	QTY.	MATL./SPECN.
6	BASE	1	PHENOLIC MOLD DING
5	PLUNGER	2	BRASS IS-410
4	BARREL	1	BRASS IS-410
3	SUSTAINING SPACER	1	RESIN BONDED IS-1 LAMINATED SHEET 2016
2	INSULATING SLEEVE	1	NOVEX
1	SHADE CARRIER RING	1	ALUMINUM IS-727

REF. SAMPLE FROM SER/MAT SCALE 1:2 APPL BY: *[Signature]* DISE 23/8

