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GOVERNMENT OF INDIA
MINISTRY OF RAILWAYS
RESEARCH DESIGNS AND STANDARDS ORGANISATION
Manak Nagar, Lucknow 226011 13th Feb-84

No.EL/3.2.53/2/CG

MODIFICATION SHEET NO.RDSO/WAM4/103A
(Supersedes M.S. No.RDSO/WAM4/103)

REPLACEMENT OF KAYCEE PROGRAMME
SWITCHES BY SIEMENS MAKE FOR HVSI

1. OBJECT:

Kaycee brand programme switches, type RP rated for 440V, 10A(AC/DC) are being used by CLW for HVSI application. Railways have reported several failures. On investigation, the following points were noticed:

a) Flash over occurs over Malemine surface across phase terminals.

b) Some terminals cum contact strips were slack in the packet assembly and tend to come out.

c) Dust enters through the vacant slots in the packets. The rotating contacts gets jammed due to dust settling down into hard mass. These contacts are not accessible for cleaning.

d) The pressure exerted by the rotating contacts over the fixed contacts gets disturbed whenever connecting cable exerts some pull on the fixed terminals.

e) The main spring of the operating mechanism gets broken occassionally.

These problems were discussed with M/s. Kaycee, Bombay. During the discussions, points given below came to notice:

a) The basic switch RP 410 is not designed for motor duty whereas in actual practice it is subjected to AC3 motor duty.

b) Tracking and flashover across phase terminals can be attributed to inadequate track thickness and failure to observe Malemine moulding powder manufacturer's instructions regarding the storing and moulding process.

Since Siemens switches are used extensively for several loco applications, same brand was recommended earlier for HVSI. Since railways have experienced difficulty in getting switches to our actual requirements, in consultation with M/s Siemens (H.O.) Bombay, technical details were finalised to suit loco application. To facilitate correct procurement, full details are furnished in the annexure enclosed. The same may please be attached while forwarding enquiries direct to M/s. Siemens India representing your particular area for prompt action. M/s. Siemens (H.O.) Bombay, vide their letter No.HO/SGR/512/KS/rs dt.8.11.83 has confirmed to meet RDSO requirements.

Cancel the modification sheet No.RDSO/WAM4/103 as the information furnished is inadequate and supersede the same with this M.S.

CLW introduced Jyoti brand switches for several applications in addition to HVSI. Sheds have reported several failures, mostly on account of design defects. So far M/s Jyoti have not even come out with any comments.

2. WORK TO BE DONE:

i) Procure Siemens programme switches conforming to the details given in the annexure. The firm has provided a bakelite bush inserted over the operating shaft from the front. Its presence may please be ensured. If necessary stick the [illegible] with araldite to prevent its seperation.

[illegible] Kaycee/Jyoti switch and drill fixing holes for [illegible] screws as per centre distances given in [illegible] 3580. Mount the Siemens switch in inverted position with contacts facing downwards to prevent dust accummulation. Terminate the cable firmly and check the actual performance before finally mounting the switch with aluminium name plate.

[illegible] It is desirable to fit these switches on panels or brackets of thickness upto 5 mm.

[illegible]

[illegible] silicon rectifier fitted with Kaycee or Jyoti [illegible] switches for HVSI application controlling blower motor and [illegible] interlocks should be replaced.

4. MATERIALS REQUIRED:

a) One programme switch for each silicon rectifier panel.

b) One aluminium name plate for each rectifier panel.

c) Four M.S. screws M5x12 mm(plated) for fixing each switch.

5. MATERIALS RENDERED SURPLUS:

One Kayee/Jyoti brand switch.

6. MODIFICATION DRAWINGS:

Annexure with SKEL 3580.

7. AGENCY FOR IMPLEMENTATION:

- Chittaranjan Locomotive Works for locos under production.
- Electric Loco Sheds and P.O.H. Shops for locos in service.
- Manufacturers of silicon rectifier panels.

8. DISTRIBUTION:

As per mailing list.

T.V.Sastri

(T.V.S.SASTRI)
FOR DIRECTOR GENERAL(ELECT.)

Encl: i) Annexure
ii) SKEL 3580.

ANNEXURE

INSTRUCTIONS FOR ORDERING SIEMENS PROGRAM SWITCH

1.	APPLICATION:	"HVSI" IN ELECTRIC LOCOMOTIVES.
2.	BASIC SWITCH:	SIEMENS TYP3 X 138x24 TO IS:4064 PT.I & II, OPEN EXECUTION WITH FOUR PACKETS.
3.	CONTACT RATING (SINGLE BREAK):	AC3 MOTOR DUTY 415, 16A, 10 H.P. & AC21 DUTY 500V, 25A.
4.	DRIVE:	NORMAL WITH DOUBLE RING RED KNOB.
5.	MOUNTING:	FRONT PANEL 6.35 MM THICK (MAXIMUM)
6.	ASSEMBLY:	AS PER SIEMENS WSGR DRAWING NO.3A-0001-0100314-001 WITH M.S. FRONT PLATE 82x71x2 [redacted] MM (P2) AND BAKELITE BUSH (P8). STAMP 'HVSI' ON BEARING PLATE (P13).
7.	NAME PLATE:	COMMERCIAL GRADE ALUMINIUM PLATE WITHOUT ANY SHARP EDGES, ANODIZED WITH LETTERS/ NUMBERS/BORDERS WITH BLACK BACKGROUND AS PER SKEL 3580.
8.	PROGRAMME:	DETAILS AS PER SCHEME GIVEN IN SKEL 3580.

NOTE:

1. LOCO CIRCUIT DETAILS ARE FOR GUIDANCE ONLY.
2. MOUNT THE SWITCH IN INVERTED POSITION.
3. MENTION CLEARLY IN CASE NAME PLATES ARE NOT REQUIRED.
4. TO THE EXTENT POSSIBLE, QUANTITY COVERED SHALL BE FOR A MINIMUM OF 25 SWITCHES AS REQUESTED BY THE FIRM.

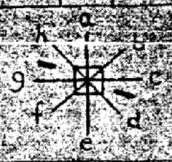
ENC: SKEL 3580

(REF:M.S.NO:RDSO/MA:4/103.1)

HVSS

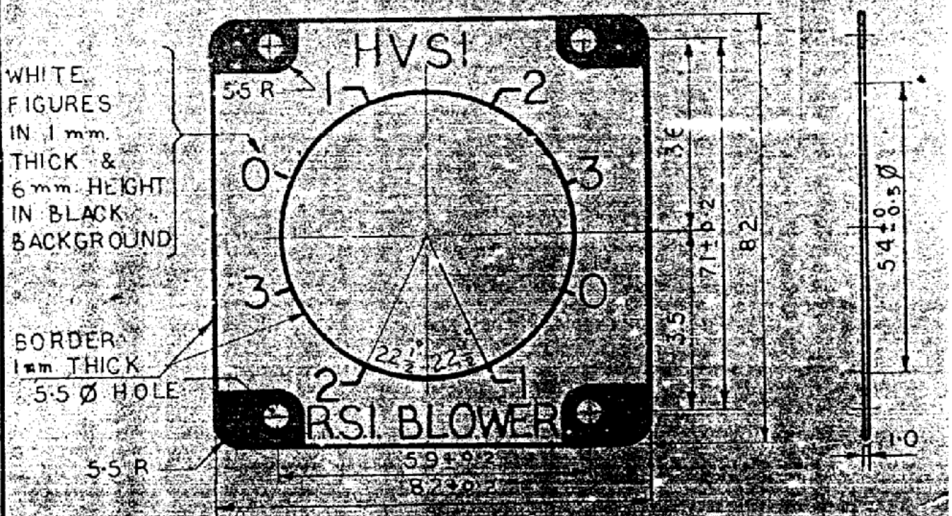
PROGRAMME DETAILS

PACKET No.	SIDE	LOCO CIRCUIT	TERMINALS	CONTACTS							
4	R	P8	14 — 16						X		
	L	P6	13 — 15			X			X		
3	R	P7	10 — 12			X					
	L	P5	9 — 11			X		X			
2	R	P4	6 — 8				X		X		
	L	P3	5 — 7				X		X		
1	R	P2	2 — 4				X		X		
	L	P1	1 — 3				X		X		
			R	β	γ	[illegible]	[illegible]	ω	ψ	ø	£
			L	ω	ψ	ø	[illegible]	β	γ	ø	ε
			POSITION	f	g	h	a	b	c	d	e
			STOPPER			I				I	
			DIAL MARK			△					



CONTACTS CLOSED ☒	CONTACTS L.H.S. L
CONTACTS OPEN ☐	CONTACTS R.H.S. R
TERMINALS LINKED 10-14	SWITCHING ANGLE 45°

NAME PLATE



NOTE: 1. PERTAINS TO M.S.No. RDSO/WAM4/10 A
2. SUPERSEDES M.S.No. RDSO/WAM4/10 AND SKEL 3 82

REF. EL/6.2.53/2/66	SCALE NTS	APPROVED [illegible]

HVSI PROGRAMME SWITCH

RDSO ELEC. DTE. SKEL 3580