Government of India
Ministry of Railways
Research, Designs & Standards Organisation
Manak Nagar, Lucknow - 226 011

No. EL/3.2.30/J-6 Dated : 10.6.1986

DISTRIBUTION
(AS PER THE LIST ATTACHED)

MODIFICATION SHEET NO. RDSO/WAM4/151

SAFETY VALVE OPERATED SIGNALLING AND OIL DUCT SYSTEM OF TAP CHANGER TYPE NO. 32 HBB MAKE

1. OBJECT

In modification Sheet No. RDSO/WAM4/91 dt. 5.2.80, it was proposed to provide ducting over the safety valves of the tap changer to prevent splashing of the oil inside the loco in the event of safety valve operation. It is further proposed to provide a limit switch in ducting arrangement to operate lamp and buzzer in both the cabs to give signal of blowing the safety valve to the driver, so that the driver may not operate tap changer after blowing of the safety valve. Minor improvements in the above for easy fitment of ducting & limit switch arrangement modification have also been incorporated as per drawing No.s SK EL 3885 & 3886. Limit switch is operatable by splashed oil.

2. WORK TO BE CARRIED OUT

Modify the existing ducting arrangement/fabricate new as per drawing No. SK EL 3885 & 3886 . Take a limit switch type 2 NO + 2 NC, Code - PS SIIR-Z of M/s Cuttler Hammer alongwith the lever. Keep the length of lever 110 mm from the centre of the operating part of the switch by cutting extra length. Cut upto slot level, the Coller of base of lever and remove sharp edges and burs as shown in enclosed drawings. Stainless steel cup of the outer dia 54 mm, height 37 mm thickness 0.3 to 0.5 mm is to be spot welded with switch lever. Provide the modified limit switch in the duct as shown. In normal condition the limit switch contact should remain open. Schematic wiring diagram of limit switch, lamp and buzzer is shown in SK EL 3886.

(ii) Open the selector cover part No. 1302.

(iii) Loosen the 4 Nos.. bolts (Pt 11) M10 x 25 and replace them with M 10 x 35/26 bolts Hex bolt alongwith fixing clamp (Pt. 4)

(iv) Replace the 2 bolts at the portion indicated at "B" with M 10 x 36/25 bolts after assembling holding strip (Pt. 2)

(v) After keeping gasket (Pt. 3) in position place the oil duct pipe complete in the respective position. Ensure that the fixing clamps (Pt. 4) rest on flange of oil duct pipe complete. Keep the Hex. screw (Pt. 15) in position alongwith punched washer (Pt. 14) and Belleville spring washer (Pt. 16)

(vi) Ensure the valve disc (1309) moves freely inside the oil ducting by pushing the disc upwards by hand from inside the selector before tightening the bolts (Pt.) of fixing clamp (Pt. 14) . If necessary, use punched washers (Pt. 14) as a packing while tightening the hex. (Pt. 10) of hex. screw (Pt. 15) to ensure proper alignment.

(vii) After tightening again ensure the free movement of guide disc inside the ducting when operated by hand. The force required to operate the valve disc 10±2 Kg.

(viii) Refit the selector cover, assemble the special stud (Pt. 18) and mount the oil storage backet (Pt. 1) with limit switch (Pt. 12).

(ix) Connect drain pipe at the bottom of the oil storage bucket as shown in the drawings.

(x) Ensure that the oil cup of limit switch is not touching the oil guide of oil storage bucket and the limit switch is in the 'normally open' condition.

(xi) Provide indication lamp and buzzer in each cab and connect them with existing loco battery of 110 VDC through limit switch as per drawing.

(xii) The collection of oil in oil cup due to splashing will cause the limit switch to close and the connected bulb and buzzer will be operated.

NOTE : (a) Free movement of guide disc is to be checked during every AOH.

(b) In IOH in addition to (a) change gasket (Pt. 3) and spring and belleville washers.

3. Application to class locomotives

WAM4 locos applicable in principle to other classes of locomotives also provided with NO 32 tap changers with suitable modification to oil bucket dimensions to suit the available space in the locomotive.

4. Material required

As per RDSO drawing No. SK EL 3885 & 3886.

5. Material rendered surplus

Nil

6. **References**

(i) Modification Sheet No. RDSO/WAM4/91, dt. 5.2.80

(ii) Sr. DEE (TRS)/BRC letter No. EL/TRS/90/10/6/8 dt. 3.12.82 and enclosed Drg. No. WR/BRCY/EL/3 TDD-042

(iii) M/s HBB Sheet No. TC-100 (Mod.B) & TC 64 (Mod. C)

(iv) Item 10 (page 7) of the minutes of the meeting held between Railway & M/s HBB in Jan., 1986 circulated vide RDSO letter No. EL/3.2.30/J-6 dated 14.2.86.

7. **Modification drawing**

RDSO SK EL 3885 & 3886

8. **Agency of implementation**

(i) M/s HBB from tap changer No. IB 30186411

(ii) CLW for locos under production.

(iii) Railways for existing locomotives

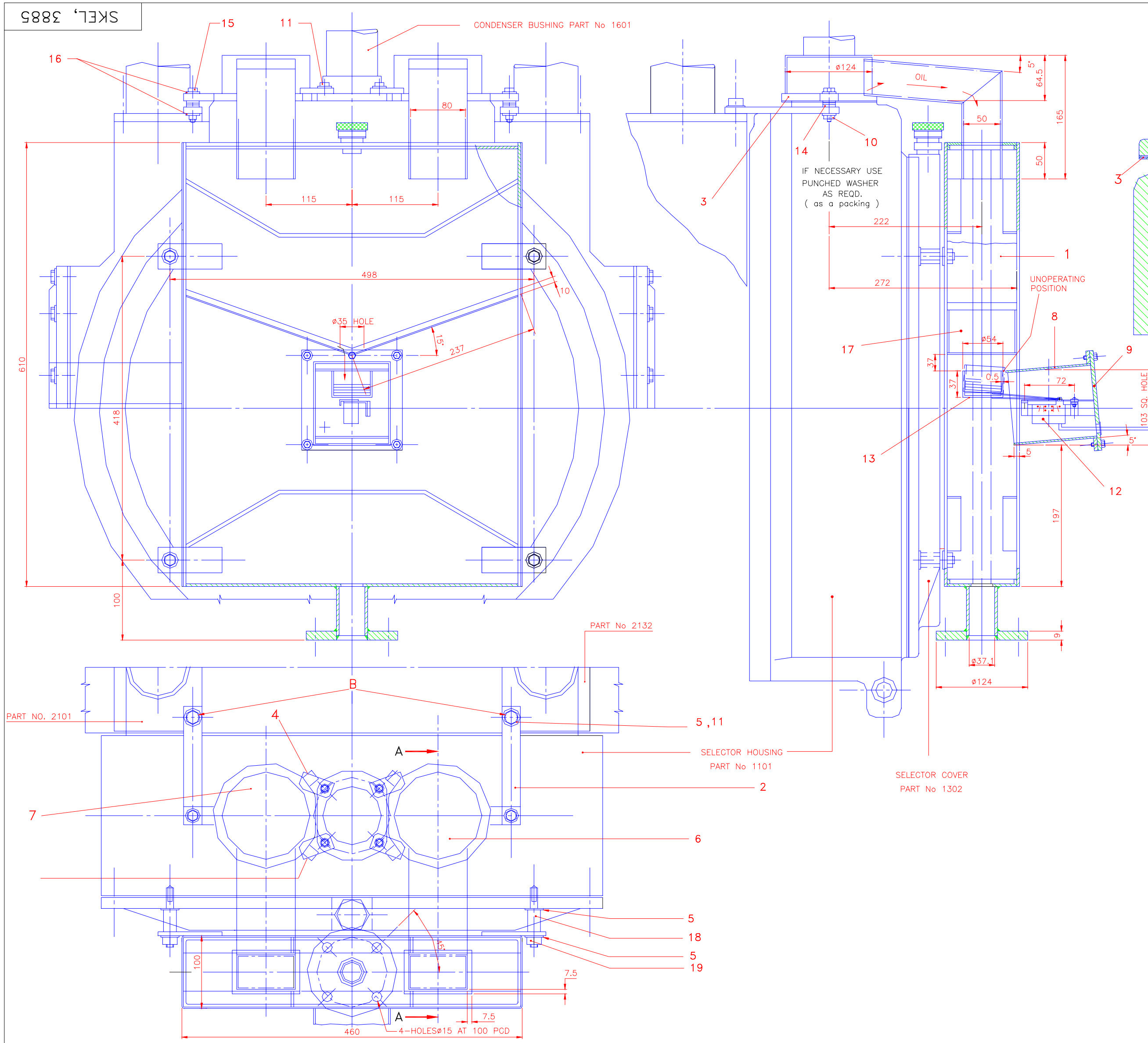
9. **DISTRIBUTION**

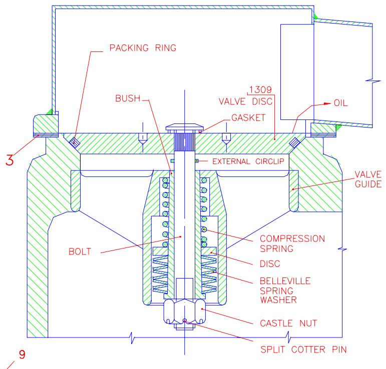
As per the list attached.

Encl : SK EL No. 3885 & 3886

(S.S. Khurana)
for Director General/Elect.

SKEL, 3885





SECTION A–A

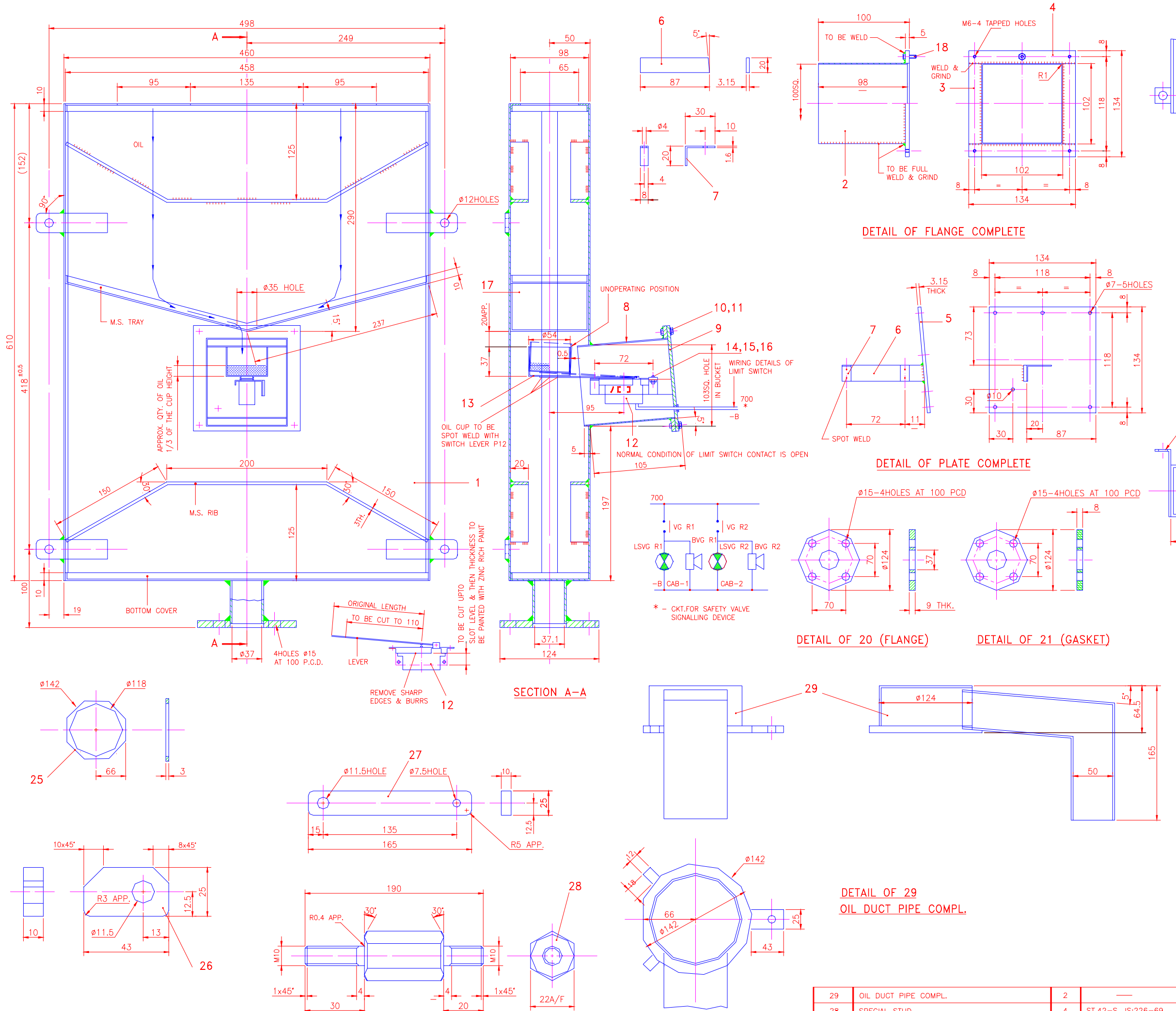
PART NO.	DESCRIPTION	NO. OFF	MATL. & SPEC.
19	HEX. NUT 0.8 d x M10	4	St.6, (40f) 15 μ,IS:1364
18	SPECIAL STUD	4	St.42–S, IS:1364
17	TRAY	1	COLD ROLLED CARBON ST.SH.TYPED IS:513–63
16	BELLEVILLE SPRING WASHER ø7.5 / 14	4	En.42–F (53p) + OIL
15	HEX. SCREW M6 x 35	2	St.4,8 (40f) 15 μ,IS:1364
14	PUNCHED WASHER ø6.6 / 12 x 1.6	5	St.34, (40f) 15 μ,IS:2016
13	OIL CUP	1	STAINLESS STEEL
12	LIMIT SWITCH 2 NO + 2 NC	1	M\S CUTTLER HAMMER MAKE CODE–PSSILR–2
11	HEX. BOLT M10 x 35 / 26	6	St.8,8 (40b) 70 ± 30 μ IS: 1364
10	HEX. NUT 0.8d x M6	2	St.6 (40f) 15 μ, IS: 1364
9	PLATE COMPLETE	1	——
8	FLANGE COMPLETE	1	——
7	OIL DOCT PIPE COMPL. (L.H.)	1	——
6	OIL DUCT PIPE COMPL. (R.H.)	1	——
5	BELLEVILLE SPRING WASHER ø11/22	14	En.42–F (53p) + OIL
4	FIXING CLAMP	4	St.42–S,IS: 226–69
3	GASKET	2	RUBBERISED CORK SHEET MATL. SHOULD CONFORM TO IS:4253(PART II) 1968 TYPE–B.GR.RC. 70–B
2	HOLDING STRIP	2	St.42–S, IS: 226–69
1	OIL STORAGE BUCKET COMPL.	1	SKEL. – 3886

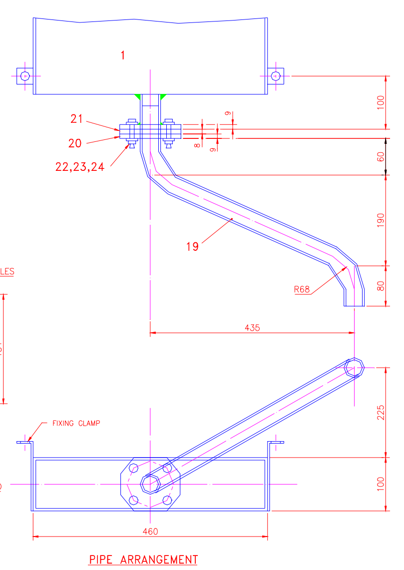
REF: HBB SKETCH NO.IC–64 (MODC) & TC–100 (MODB) | SCALE: 1:2.5 | APPROVED Sd. FOR D.G.

OIL DUCT COMPLETE WITH LIMIT SWITCH FOR GR NO32

RDSO. ELEC. DTE. | SK.EL: 3885

DT	18.3.86
D	
T	
C	


SECTION A–A
DETAIL OF FLANGE COMPLETE
DETAIL OF PLATE COMPLETE
DETAIL OF 20 (FLANGE)
DETAIL OF 21 (GASKET)
DETAIL OF 29
OIL DUCT PIPE COMPL.
ø12HOLES
ø35 HOLE
M.S. TRAY
M.S. RIB
OIL
BOTTOM COVER
APPROX. QTY. OF OIL 1/3 OF THE CUP HEIGHT
OIL CUP TO BE SPOT WELD WITH SWITCH LEVER P12
UNOPERATING POSITION
WIRING DETAILS OF LIMIT SWITCH
100SQ. HOLE IN BUCKET
NORMAL CONDITION OF LIMIT SWITCH CONTACT IS OPEN
* – CKT.FOR SAFETY VALVE SIGNALLING DEVICE
TO BE CUT UPTO SLOT LEVEL & THEN THICKNESS TO BE PAINTED WITH ZINC RICH PAINT
ORIGINAL LENGTH
TO BE CUT TO 110
LEVER
REMOVE SHARP EDGES & BURRS
4HOLES ø15 AT 100 P.C.D.
M6-4 TAPPED HOLES
TO BE WELD
WELD & GRIND
TO BE FULL WELD & GRIND
ø7-5HOLES
SPOT WELD
ø15-4HOLES AT 100 PCD
ø11.5HOLE
ø7.5HOLE
R5 APP.
R3 APP.
R0.4 APP.
22A/F



PART NO.	DESCRIPTION	QTY.	MATL.& SPEC.
24	PLAIN WASHER 13 I/D 25 O/D 2.5 THICK	4	IS:2016
23	NUT M10x50 LONG	2	M.S., IS:1364
22	BOLT M10x50 LONG	2	M.S., IS:1364
21	GASKET	1	GRANULAR CORK WITH SYNTHETIC RUBBER IS:4253(Pt.II)-1968
20	FLANGE	2	M.ST. IS:6932-1971
19	G.I. PIPE ø32	1	IS:1239 1968 Pt.I LIGHT GRADE
18	HEX. SCREW M6x10	1	ST.4.8, IS:1364
17	TRAY 1mm THICK	1	COLD ROLLED CARBON ST.SH. TYPE-D, IS:513-63
16	SPRING WASHER B3	2	SPR'ST. (53p)+OIL IS:3063
15	HEX. NUT	2	ST.6 (40f) 15 μ IS:1364
14	SLOTTED CH.HD.SCREW M3x8	2	ST.56 (40f) 15 μ IS:1366
13	OIL CUP O.D.ø54xHEIGHT 37x0.3 TO 0.5 THK.	1	STAINLESS STEEL
12	LIMIT SWITCH 2NO+2NC	1	M/S CUTLER HAMMER MAKE CODE-PSSILR (BULLETIN RFT.E-64-PS)
11	HEX. SCREW M6x15	4	ST.4.8 (40f) 15 μ IS:1364
10	BELLEVILLE SPR. WASHER ø6.4/14	4	SPR.ST. (53P) OIL
9	PLATE COMPLETE	1	——
8	FLANGE COMPLETE	1	——
7	ANGLE 1.6mm THICK	2	ST.34 IS:1079-63
6	SUPPORT 3.15mm THICK	1	ST.34 IS:1079-63
5	PLATE 3.15mm THICK	1	ST.34 IS:1079-63
4	SUPPORT	2	ST.42-S, IS:226-69
3	SUPPORT	2	ST.42-S, IS:226-69
2	COVER SHEET 1mm THICK	1	COLD ROLLED CARBON ST.SH. TYPE D IS:513-63
1	OIL STORAGE BUCKET COMPL.	1	IS: 226

PART NO.	DESCRIPTION	QTY.	MATL.& SPEC.
29	OIL DUCT PIPE COMPL.	2	——
28	SPECIAL STUD	4	ST.42-S, IS:226-69
27	HOLDING STRIP	2	ST.42-S, IS:226-69
26	FIXING CLAMP	4	ST.42-S, IS:226-69
25	GASKET	2	RUBBRISED CORK SHEET MATL. IS:4253(PART-II)1968 TYPE B.G, RC 70-B

REF:– HBB SKETCH NO.TC-100(MOD B) & TC-64(MOD C)BRG DRG NO. 3-TOD-042

SCALE:– 1:1,1:2,1:4,1:2.5

APPROVED:– Sd. FOR D.G.

DETAIL OF OIL DUCT FOR GR NO 32

RDSO. ELEC. DTE. | SK.EL. 3886

DT	15.5.86
D	--
T	--
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