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SPECIFICATION **FOR** **SET OF CABLE TRAY & SLIDING NUTS & DIN RAIL** **FOR** **WAG-9 (Co-Co), ELECTRIC LOCOMOTIVES**

Specification No : CLW/ES/3/0132

Issued on 14.08.1997

ANNEXURE

1. Drawing No CLW/ES/3/SK-1/0132
2. Drawing No CLW/ES/3/SK-2/0132
3. Drawing No CLW/ES/3/SK-3/0132
4. Drawing No CLW/ES/3/SK-4/0132

ISSUED BY

**DY. CHIEF ELECTRICAL ENGINEER/D-I
CHITTARANJAN LOCOMOTIVE WORKS**

CHITTARANJAN - 713331

Dist: WEST BURDWAN
WEST BENGAL (INDIA)

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ALTERATION RECORD SHEET

Amendment no	Date of Amendment	Page no	Alteration	Reason	Authority
01	01.04.1998	6	A	In Sl.No. 13 & 14 Qty/ loco added 1 each	-Sd-
01	-do-	9	A	In Drg. No. CLW/ES/3/SK-1/ 0132 Fig. 8 & 9 qty/ loco added as 1 each.	-Sd-
02	13.08.1998	11 & 9	B	Drg No. CLW/ES/3/SK-3/ 0132 added. P1 to P6 of Fig. 1 of Drg. No CLW/ES/3/SK-1/ 0132 deleted.	-Sd-
02	-do-	8	B	Scope of supply Sl. No. 31 to 40 added	-Sd-
03	15.09.1998	8 & 11	C	Fig. No1 Pos-1 -4 added, Fig No. 2, Pos-12 &13 indicated separately in sheet No. 8 and 11. Sl. No. rearranged and extended upto 43.	-Sd-
04	24.10.1998	8,11	D	In SK-3 P-4,5,10,11 added and also added set of sliding nut specification No.../186 which are added in the scope of supply.	-Sd-
05	28.04.1999	11,80 & 5	E	In Fig. 3 Pos 1 of Drg. No CLW/ES/3/SK-3/132, No/Loco has been changed to 6 Nos instead of 4 nos. & In Fig 5 of Sheet No. 5 of the specification CLW/ES/3/132, dimension and material grade has been changed. In the scope of supply type no mentioned as required.	-Sd-
06	23.02.2000		F	Cutting position changed /added in position 1 & 3 of SK-2/Fig-2; in position 1 & SK-2/Fig-3; fig-4/SK-2 in P9, P10 & P12 of SK-1/Fig-1. Dimensions of spacer changed in Fig-6/SK-2. Quantity changed in fig 3A/SK-1, fig 7/SK-1 and Fig.-6 /SK-2.	-Sd-

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07	20.05.2000	9,10 &11	G	Material grade of cold rolled steel & SST added that is IS;513 Gr DD & AISI-240 Gr.321.	-Sd-
08	10.07.2000	8 - 10	H	The item plate Fig. 3B/SK-1 deleted. Cutting position of fig-9/SK-1 changed. Qty of C-S washer increase from 66 to 212 nos, and length increase of fig-6 /SK-2 from 40 to 55 mm. CR-CS screw added in place of Hex head screw & steel sliding nut increase in place of Al sliding nut in specn. 186.	-Sd-
09	10.10.2000	10	I	Qty. Of U-section increase from 14.6 MTS to 27.4MTS.(fig-7/SK-2)	-Sd-
10	10.07.2002	8, 9, 10	J	(a) Width of cable tray position-1/Fig-2, SK-2 increase from 110 to 114. (b) Hole dimension corrected in Fig-2/SK-1 (c) Sliding nut & CS screw's drawing details incorporated in SK-1/0132, from SK-1/186 and specn. CLW/ES/3/186B deleted. (d) All the drawings are re-traced.	-Sd-
11.	22.05.2003		K	(i) Sliding nut increased from 200 to 246 Nos. (ii) CR-CS screw(M6x12) decreased from 152 to 72 Nos. (iii) CR-CS Screw M6x16 increased 60 to 232 Nos. (iv) Washer for CS screw increased from 212 to 304 Nos. (v) Spacer increased from 12 to 24 Nos. (vi) Protective cap for stay plate included (6+28) Nos.	-Sd-
12	25.02.2011	12	L	Inclusion of sketch (SK-4) ref. Fig.11 of sheet No 12 for DIN Rail of set of Cable Tray & sliding nuts, and also this item is included in the scope of supply of sheet no 7 of Sl.No.31 vide CEE/Loco, letter No CEE/Loco/03,dated	-Sd-

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				05.01.2011	
13	02.01.2013	8,9, 10 &11	M	Additional size of perforated sheet with hardware (i.e. Sliding nuts, CS screw & washer polyimide) are included and Qty/Loco is increased & in the DRG/SPECN. No SK-1,2&3 of sheet no 8,9,10,11 for cable laying of AC cab system of 3 phase Loco, vide letter no ELDO/3257 dated 25.12.2012	-Sd-
14	07.08.2014	11	N	Item Sl. No.31,32,33 deleted as required by shop floor vide letter no ELE/T/16, dated 15.7.14 and no VB/MISC 01.2013 dated 15.7.14 note no. ELDD/3221 dated 19.7.14 approved by CEE/Loco on 5.8.14.	-Sd-
15	15.9.15	5,6,7, 8 SK-1 SK-2 SK-3	O	- Qty/loco has been deleted from scope of supply and drawings. "Quantity per loco will be as per category book and the tender schedule" has been included in note of scope of supply.	-Sd-
16	07.03.24	SK-1	P	Height of following items for Set of Cable Tray have been reduced from 65 mm to 58 mm in Drg. No. CLW/ES/3/SK-1/0132: - - Tray Plate, Type-3(Fig-1 Pos.9) - Tray Plate, Type-4(Fig-1 Pos.10) - Tray Plate, Type-5(Fig-1 Pos.11) - Tray Plate, Type-6(Fig-1 Pos.12)	-Sd-
17	.12.24	SK-1, SK-3	Q	Following changes has been incorporated: Drg. No. CLW/ES/3/SK1/0132 (i) Cutting mark for dimension 734.5mm in top view of POS.-9 in FIG.-1 was missing in existing drgs. with Alt.P	

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				Same has incorporated in draft drg. (ii) After reduction of height from 65 to 58mm of Cable Tray POS.-9 to 12 in FIG.-1. in existing drg. with Alt.P, punching details was not incorporated. Same has incorporated in draft drg. (iii) In existing drg. with Alt.P under bill of material table, Cable Tray size of POS.1 of FIG.8 was 2380x80x5 mm and corrected as 2380x80x25 mm in draft drg. <u>Drg. No. CLW/ES/3/SK-3/0132</u> <u>Alt-P</u> In existing drg. with Alt.P, POS.-5 was not mentioned. Same has incorporated in draft drg.	
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Specification has been digitized and all alterations have been incorporated.

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SPECIFICATION FOR SET OF CABLE TRAY

1. SCOPE:

This specification covers the manufacture and supply of SET OF CABLE TRAY FOR WAG-9(Co-Co), 6000 HP, 3-Phase, 25KV, 50Hz, AC locomotive.

2. SERVICE CONDITION: -

2.1 Climatic and Environment condition: -

Maximum atmospheric temperatures	+70°C(In Sun), 50°C (In shade)
Normal Humidity	60%.
Maximum Humidity	100% saturation during rainy season
Altitude	160 m.a.s.l
Rainfall	Very heavy in certain areas. The equipment should be designed in such a way as to withstand its running at 10 Km/hr. in flood water level of 102 mm above rail level.
Atmosphere during hot weather	Extremely dusty and desert terrain in certain areas
Coastal areas	Locomotive and equipment will be design to work in coastal areas in humid and salty laden atmosphere.
Vibration	The equipment, subsystem and their mounting arrangement will be designed to withstand vibrations and shocks encountered in service as specified in corresponding standard unless otherwise prescribed.

3. STANDARD: -

The relevant IES, BS, DIN standard and Indian standard specification shall apply with respect to all materials used in the manufacture of CABLE TRAY.

4. SUBMISSION OF TENDER QUOTATION: -

- 4.1** All tender documents including the quotation shall be submitted in duplicate including any correspondence till a contract is finalized.
- 4.2** The tenderer shall give sufficient information to prove that his factory has adequate facilities and capacity to manufacture THE CABLE TRAY to meet fully the technical requirements of the specification and quality of materials and workmanship.
- 4.3** Quotation shall not be considered complete unless all information is furnished and are therefore liable to be rejected.
- 4.4** Detailed drawings of the CABLE TRAY should be submitted for approval of purchaser.

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5. **DRAWINGS:**

The following drawings are attached with the specification:

(A) Drg. No. CLW/ES/3/SK-1/0132

Fig. No.	Description	Material
1.	Tray plate	Cold rolled steel sheet as per DIN EN10130 or IS:513 Gr. DD.
2	Joint plate	Stainless steel sheet 6 x CrNiTi 1810 cold rolled as per DIN 17457, DIN 17440 or AISI 240 Gr. 321.
3	Plate	Stainless steel sheet 6 x CrNiTi 1810 cold rolled as per DIN 17457, DIN 17440 or AISI 240 Gr. 321.
4	Connection plate	Stainless steel sheet 6 x CrNiTi 1810 cold rolled as per DIN 17457, DIN 17440 or AISI 240 Gr. 321.
5	Joint plate	Stainless steel sheet 6 x CrNiTi 1810 cold rolled as per DIN 17457, DIN 17440 or AISI 240 Gr. 321.
6	Clip	Stainless steel sheet 6 x CrNiTi 1810 cold rolled as per DIN 17457, DIN 17440 or AISI 240 Gr. 321.
7	Spacer bolt	Hex. bar x6 CrNiTi 1810 hot rolled as per DIN 17457, DIN 17440 or AISI 240 Gr. 321.
8 & 9	Cable Tray	IS:513 Gr. DD, Sheet 1.5-ST 1203 as per DIN EN 10130(10.91) ST 1203 m

(B) Drg. No. CLW/ES/3/SK-2/0132

Fig. No.	Description	Material
1.	Tray plate	Cold rolled steel sheet UST 1203 as per DIN EN10130(10.91) or IS:513 Gr. DD.
2	Tray plate	Cold rolled steel sheet UST 1203 as per DIN EN10130(10.91) or IS:513 Gr. DD.
3	Tray plate	Cold rolled steel sheet UST 1203 as per DIN EN10130(10.91) or IS:513 Gr. DD.
4	Tray plate	Cold rolled steel sheet UST 1203 as per DIN EN10130(10.91) or IS:513 Gr. DD.
5	Washer 6.4/16x4.5	PA BK (POLYAMIDE BLACK)
6	Spacer	Hexagon bar, x6 CrNiTi 1810 hot rolled as per DIN 17457 or AISI 240 Gr. 321.
7	U section	EPDM Hardness 60 +/- 0.5%

6.1 Technical documents and drawings to be furnished by the supplier as part of the contract.

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7. TESTS:

Type test and routine test shall be carried out according to the standard.

8. TECHNICAL DOCUMENTS TO BE SUPPLIED BY THE SUPPLIER :

- | | |
|---|-------------|
| (I) Type test reports | : 10 copies |
| (II) Routine test reports along with each set | : 4 copies |
| (III) Maintenance manual | : 20 copies |
| (IV) Detailed drawings | : 6 copies |

9. SCOPE OF SUPPLY

Sl. no	Description	Identification No.	CLW.DRG.No.
1.	TRAY PLATE, TYPE-1	3EHP130229P0007	CLW/ES/3/SK-1/0132, FIG.1
2.	TRAY PLATE, TYPE-2	3EHP130229P0008	CLW/ES/3/SK-1/0132, FIG.1
3.	TRAY PLATE, TYPE-3	3EHP130229P0009	CLW/ES/3/SK-1/0132, FIG.1
4.	TRAY PLATE, TYPE-4	3EHP130229P0010	CLW/ES/3/SK-1/0132, FIG.1
5.	TRAY PLATE, TYPE-5	3EHP130229P0011	CLW/ES/3/SK-1/0132, FIG.1
6.	TRAY PLATE, TYPE-6	3EHP130229P0012	CLW/ES/3/SK-1/0132, FIG.1
7.	JOINT PLATE, TYPE-7	3EHP431189R0001	CLW/ES/3/SK-1/0132, FIG.2
8.	PLATE, TYPE-8	3EHP431190R0001	CLW/ES/3/SK-1/0132, FIG.3
9.	CONNECTION PLATE, TYPE-9	3EHP431191P0001	CLW/ES/3/SK-1/0132, FIG.4
10.	JOINT PLATE, TYPE-10	3EHP431192P0002	CLW/ES/3/SK-1/0132, FIG.5
11.	CLIP	3EHP431572R0001	CLW/ES/3/SK-1/0132, FIG.6
12.	SPACER BOLT	3EHP431194P0001	CLW/ES/3/SK-1/0132, FIG.7
13.	CABLE TRAY, TYPE-11	3EHP330269P0001	CLW/ES/3/SK-1/0132, FIG.8
14.	CABLE TRAY, TYPE-12	3EHP330269P0002	CLW/ES/3/SK-1/0132, FIG.9
15.	TRAY PLATE, TYPE-13	3EHP330306P0001	CLW/ES/3/SK-2/0132, FIG.1
16.	TRAY PLATE, TYPE-14	3EHP330306P0002	CLW/ES/3/SK-2/0132, FIG.1
17.	TRAY PLATE, TYPE-15	3EHP330306P0003	CLW/ES/3/SK-2/0132, FIG.1
18.	TRAY PLATE, TYPE-16	3EHP330306P0004	CLW/ES/3/SK-2/0132, FIG.1
19.	TRAY PLATE, TYPE-17	3EHP330307P0001	CLW/ES/3/SK-2/0132, FIG.2
20.	TRAY PLATE, TYPE-18	3EHP330307P0002	CLW/ES/3/SK-2/0132, FIG.2
21.	TRAY PLATE, TYPE-19	3EHP330307P0003	CLW/ES/3/SK-2/0132, FIG.2
22.	TRAY PLATE, TYPE-20	3EHP330307P0004	CLW/ES/3/SK-2/0132, FIG.2
23.	TRAY PLATE, TYPE-21	3EHP330307P0005	CLW/ES/3/SK-2/0132, FIG.2
24.	TRAY PLATE, TYPE-22	3EHP330308P0001	CLW/ES/3/SK-2/0132, FIG.3
25.	TRAY PLATE, TYPE-23	3EHP330308P0002	CLW/ES/3/SK-2/0132, FIG.3
26.	TRAY PLATE, TYPE-24	3EHP330308P0003	CLW/ES/3/SK-2/0132, FIG.3
27.	TRAY PLATE, TYPE-25	3EHP330309R0001	CLW/ES/3/SK-2/0132, FIG.4
28.	WASHER/ CS-SCREW	HBTB416196P0033	CLW/ES/3/SK-2/0132, FIG.5
29.	SPACER	3EHP431195P0001	CLW/ES/3/SK-2/0132, FIG.6
30.	U SECTION	HBTB416147P0119	CLW/ES/3/SK-2/0132, FIG.7
31.	DIN RAIL 400mm * -IB082	IB082-00631-005	CLW/ES/3/SK-4/0132, FIG.11
32.	MOUNTING SQUARE BRACKET	IA 102-00168	CLW/ES/3/SK-3/0132, FIG.-1, POS.-4
33.	TRAY PLATE, TYPE-29	3EHP330262 P0006	CLW/ES/3/SK-3/0132, FIG.-2, POS.-6
34.	TRAY PLATE, TYPE-30	3EHP330262 P0007	CLW/ES/3/SK-3/0132, FIG.-2, POS.-7.
35.	TRAY PLATE, TYPE-31	3EHP330262 P0012	CLW/ES/3/SK-3/0132, FIG.-2, POS.-12

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36.	TRAY PLATE, TYPE-32	3EHP330262 P0013	CLW/ES/3/SK-3/0132, FIG.-2,POS.-13
37.	PERFORATED SHEET, TYPE-33	3EHP330297 P0001	CLW/ES/3/SK-3/0132, FIG.-3,POS.-1
38.	TRAY PLATE, TYPE-34	3EHP330297 P0002	CLW/ES/3/SK-3/0132, FIG.-3,POS.-2
39.	TRAY PLATE, TYPE-35	3EHP330297 P0004	CLW/ES/3/SK-3/0132, FIG.-3,POS.-4
40.	TRAY PLATE, TYPE-36	3EHP330297 P0005	CLW/ES/3/SK-3/0132, FIG.-3,POS.-5
41.	TRAY PLATE, TYPE-37	3EHP330297 P0007	CLW/ES/3/SK-3/0132, FIG.-3,POS.-7
42.	TRAY PLATE, TYPE-38	3EHP330297 P0008	CLW/ES/3/SK-3/0132, FIG.-3,POS.-8
43.	TRAY PLATE, TYPE-39	3EHP330297 P0009	CLW/ES/3/SK-3/0132, FIG.-3,POS.-9
44.	TRAY PLATE, TYPE-40	3EHP330297 P0010	CLW/ES/3/SK-3/0132, FIG.-3,POS.-10
45.	TRAY PLATE, TYPE-41	3EHP330297 P0011	CLW/ES/3/SK-3/0132, FIG.-3,POS.-11
46.	SLIDING NUT M6(st.)	HBTB416200P0013	-----
47.	PERFORATED SHEET -42	3EHP330297P0012	CLW/ES/3/SK-3/0132, FIG.-3,POS.-12
48.	PERFORATED SHEET-43	3EHP330297P0013	CLW/ES/3/SK-3/0132, FIG.-3,POS.-13
49.	CR-CS SCREW M6x12	3EHP416004P0612	CLW/ES/3/SK-1/0132, FIG.-10,POS.-612
50.	CR-CS SCREW M6x16	3EHP416004P0616	CLW/ES/3/SK-1/0132, FIG.-10,POS.-616

NOTE: - "Quantity per loco will be as per category book and the tender schedule"

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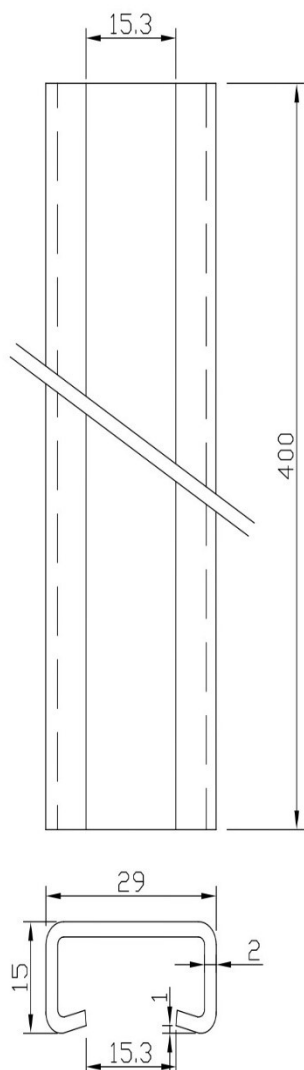
PARALLEL IN TO BE MAINTAINEDDIN RAIL 400 mm LongMaterial : STEEL TO IS: 1079, Gr.DABB Drg. No. IB082-00631-005USED FOR WAG-9 (Co-Co)

Fig- 11	DIN RAIL 400 mm Long	STEEL WITH GALVANIZED	IS: 1079, Gr.D	0.43
Ref.no.	Description	Material	Specn	Wt. each in Kg

CLW/ES/3/SK-4/0132

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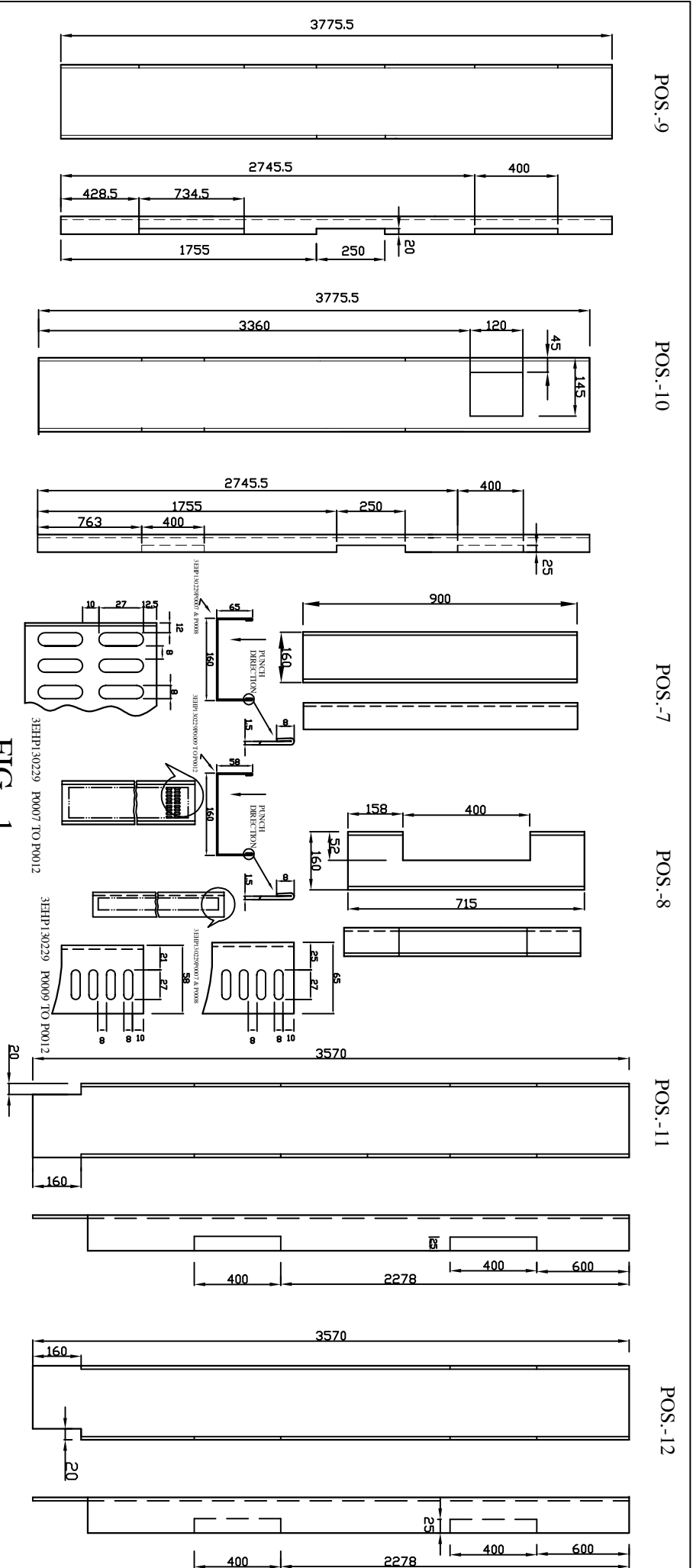


FIG.-1

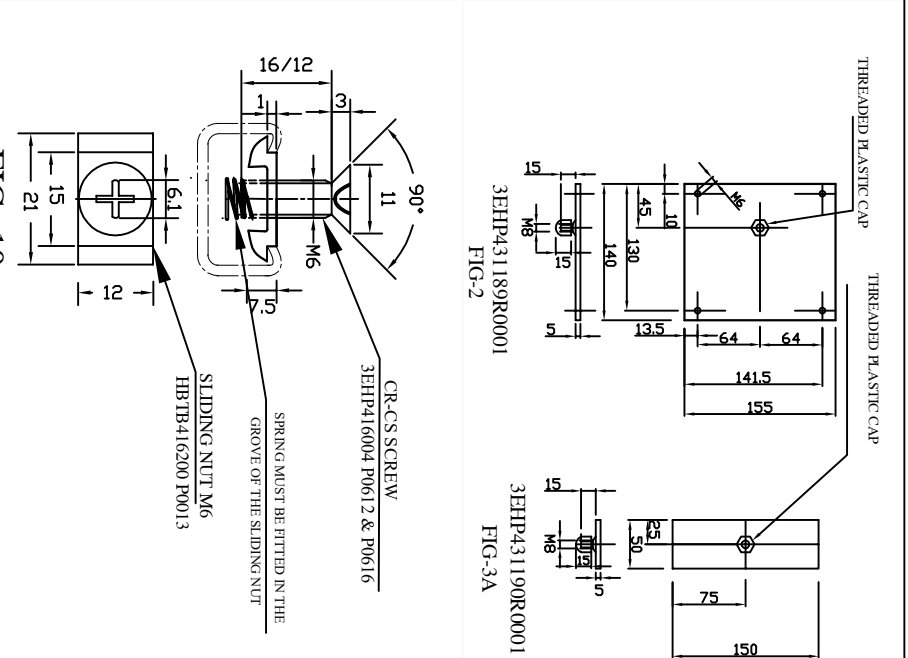
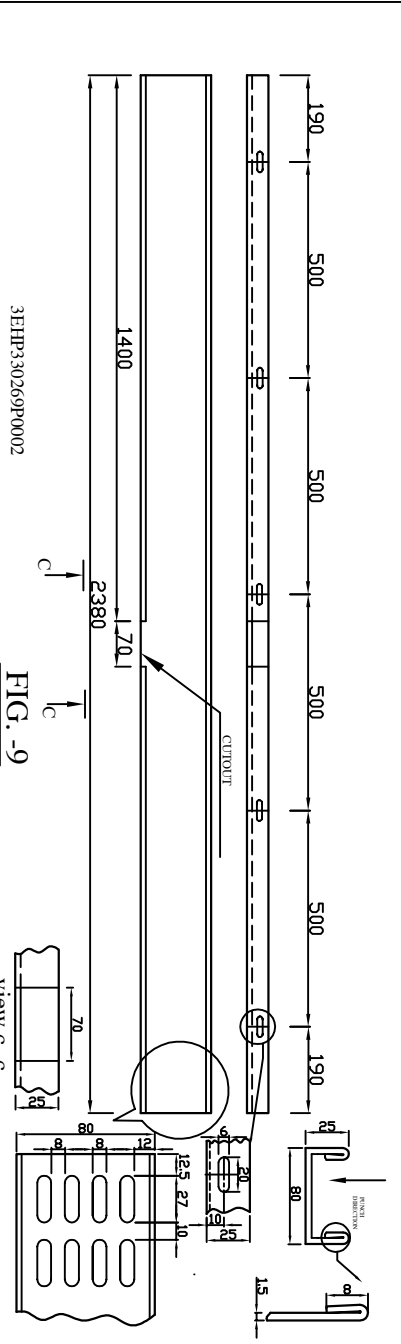
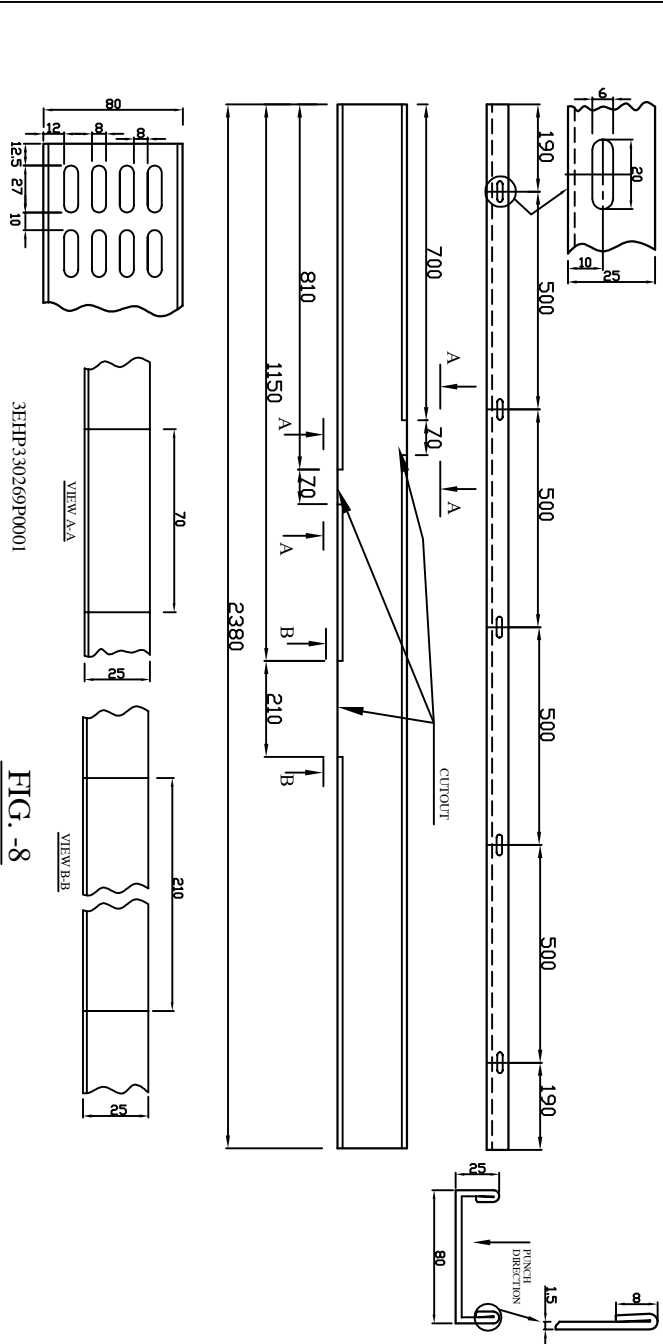
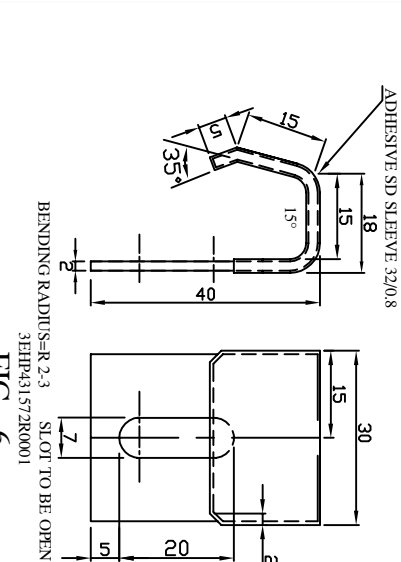
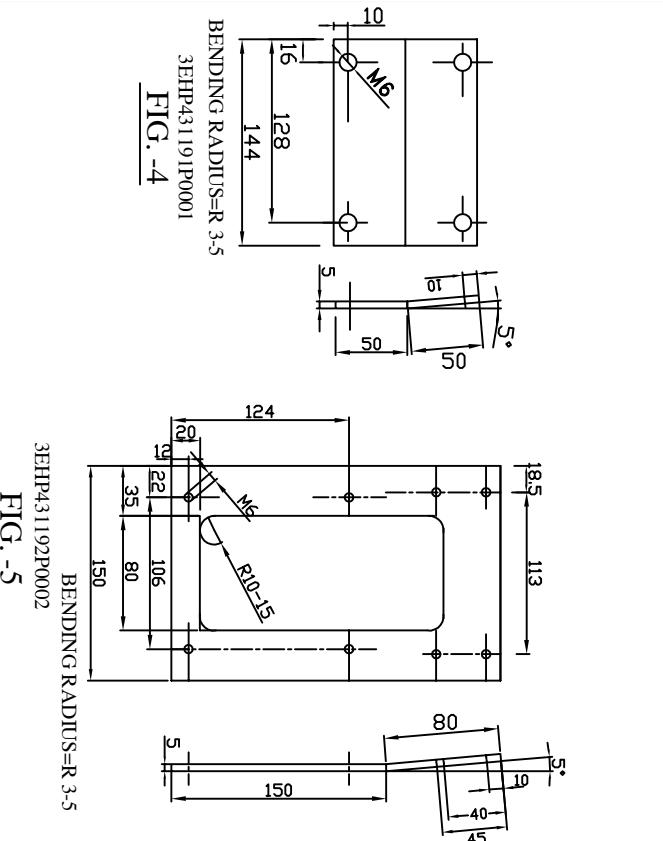
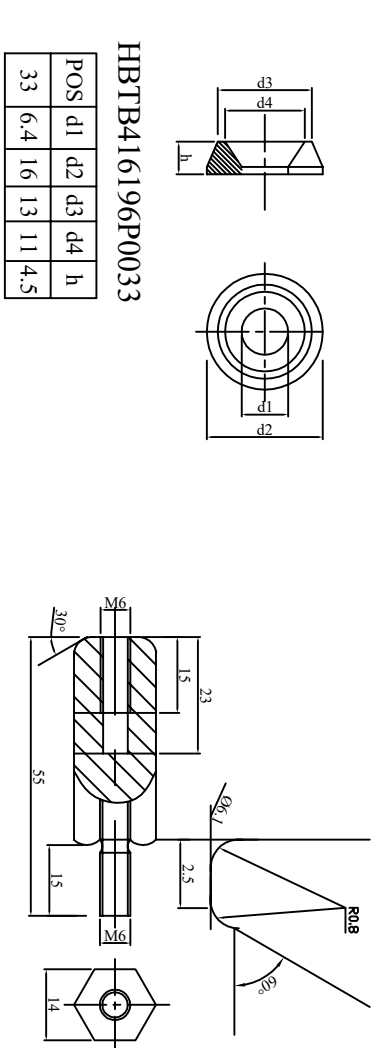
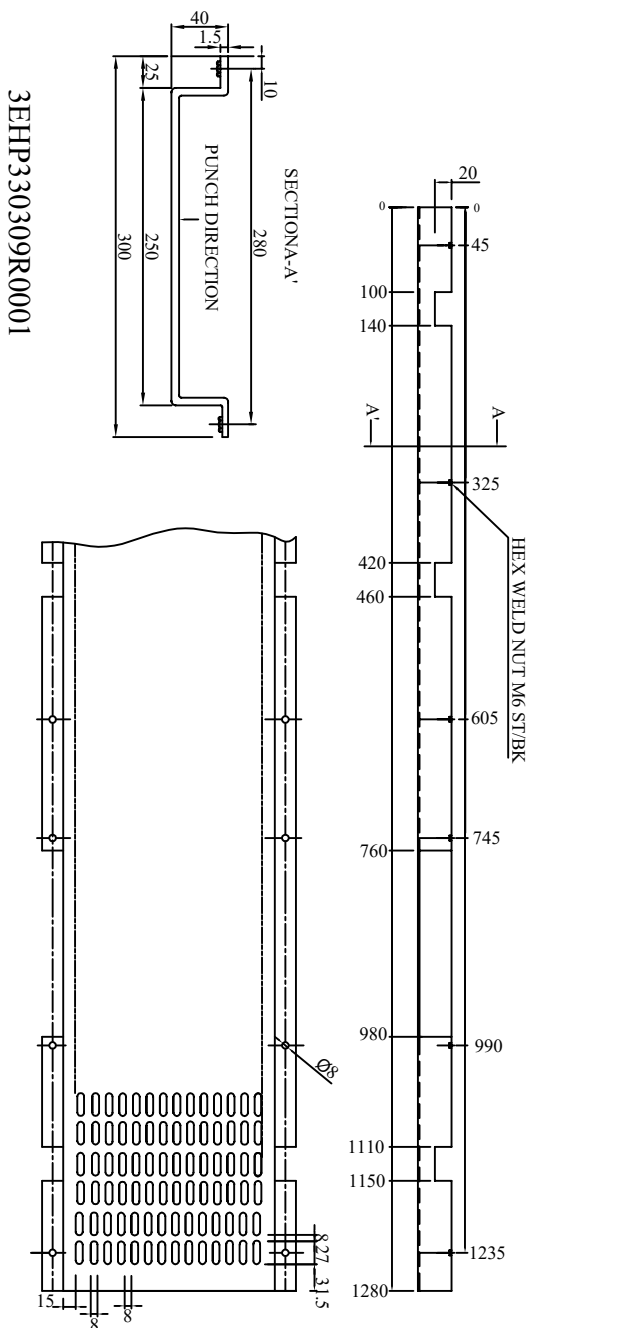
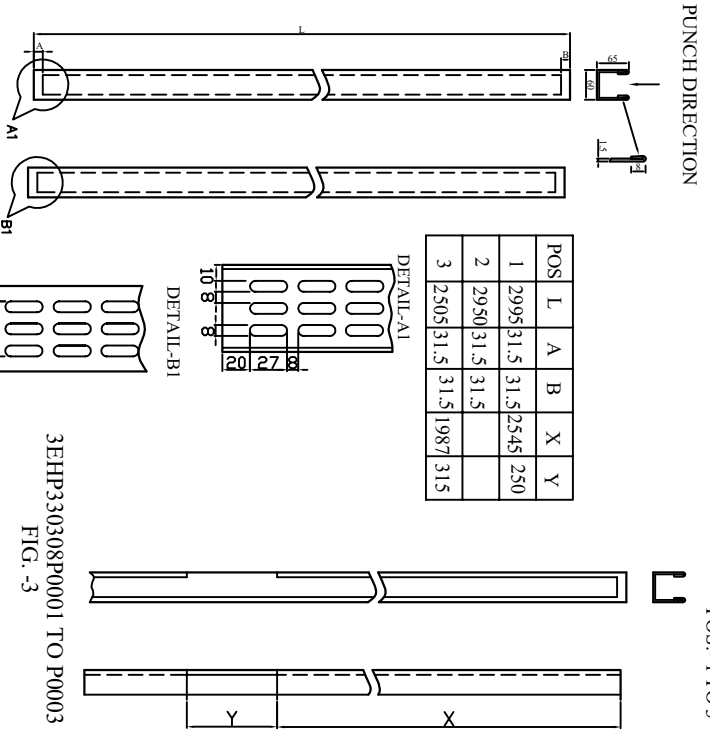
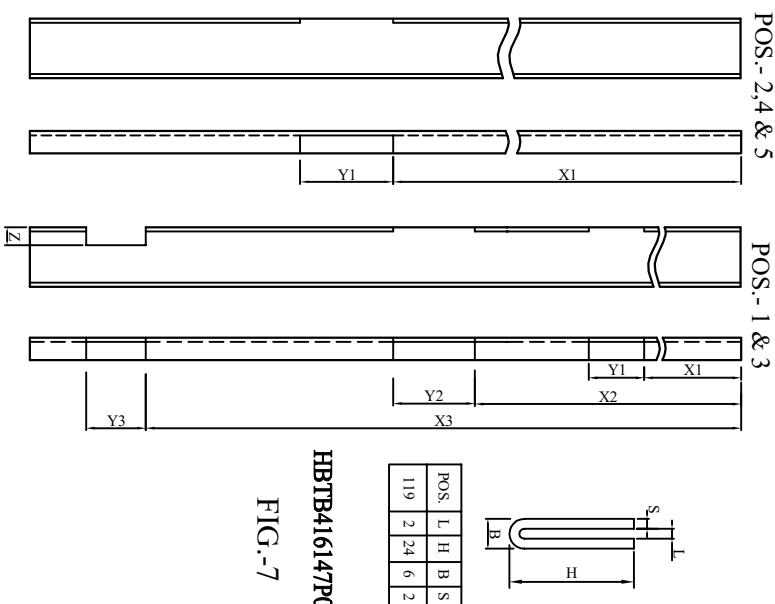
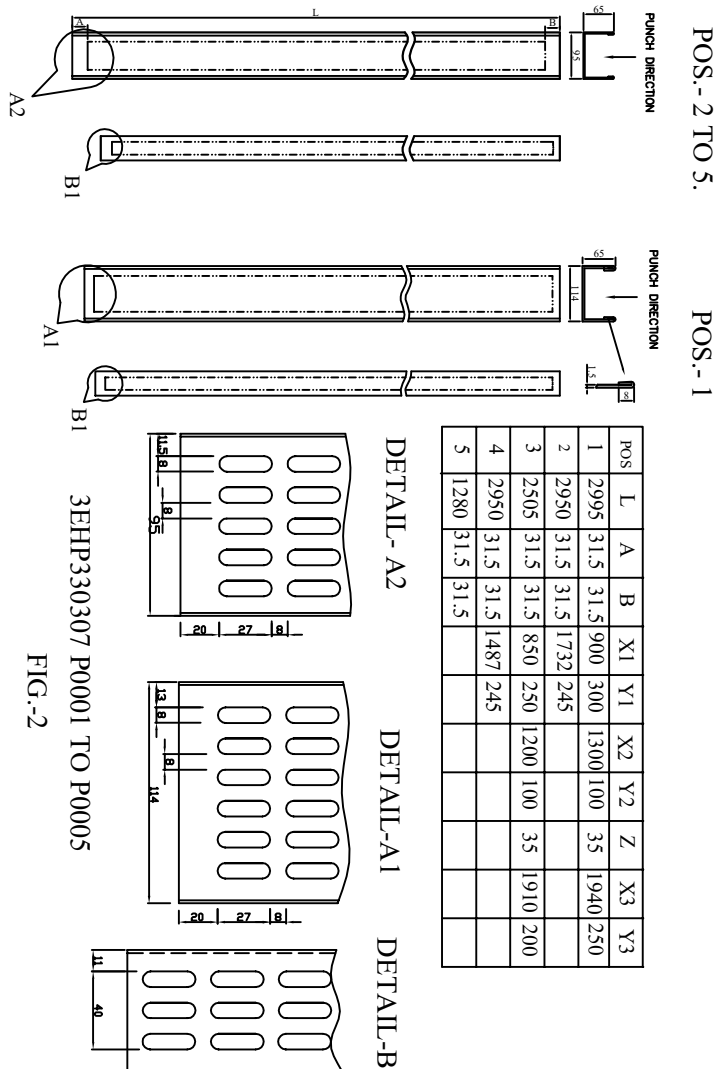
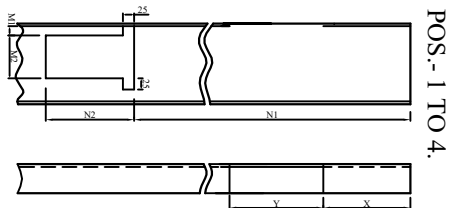
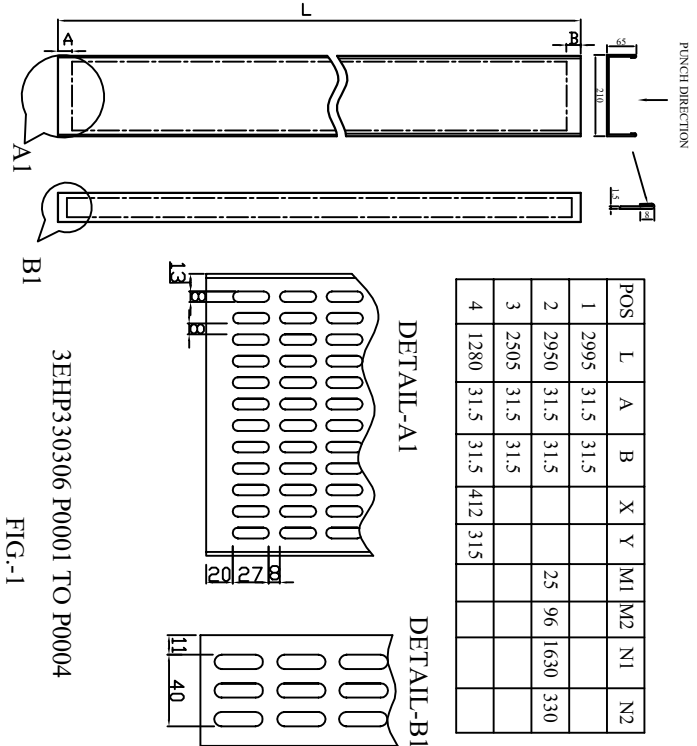


FIG.-10



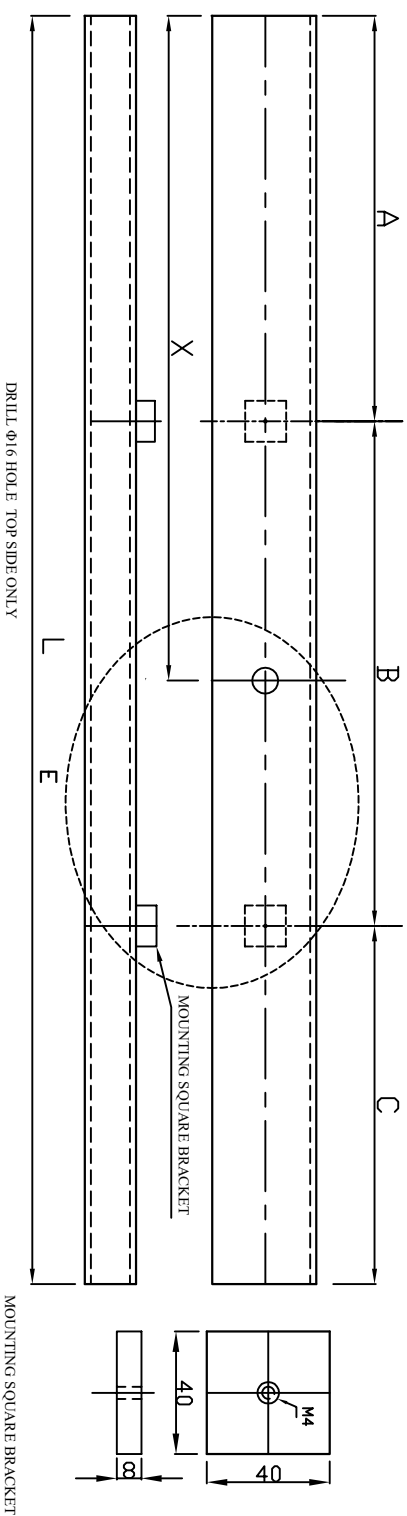
NOTE:-
1. ALL DIMENSIONS ARE IN MM.
2. SUPPLIER SHOULD EMBROSS THE FIRM'S IDENTIFICATION MARK, YEAR OF MFG. & TYPE NO. IN EACH OF THE ITEM.

FIG.-10	POS.-13	SLIDING NUT (M6)	IS: M 41 STEEL, Anticorrosion & Cu. heavy Zn PLATED
FIG.-10	POS.-612	CR-CS SCREW M6 X 12	SST, A4-70, DIN 965 A
FIG.-10	POS.-616	- DO - M6 X 16	-DO-
FIG.-9	POS.-2	CABLE TRAY 2380 X 80 X 25	COLD ROLLED STEEL SHEET 1.5b, S1320 AS PER DIN EN 10130 (0.91) GALVANISED TREATMENT.
FIG.-8	POS.-1	CABLE TRAY 2380 X 80 X 25	SST, 6 X CR-N-Ti 1810 CR ASPER DIN-17457 & 17440 OR
FIG.-6	---	CLIP	ASTM 240 Gg-321.
FIG.-5	---	JOINT PLATE	---
FIG.-4	---	CONNECTION PLATE	---
FIG.-3A	---	PLATE WITH CAP	---
FIG.-2	---	JOINT PLATE WITH CAP	---
FIG.-1	POS.-12	CABLE TRAY 160 X 58 X 3570	COLD ROLLED STEEL SHEET 1.5 Tbc, AS PER DIN EN-1013091
FIG.-1	POS.-11	CABLE TRAY 160 X 58 X 3570	Fe P01 An, OR DIN-EN-101304 (0.91)
FIG.-1	POS.-10	CABLE TRAY 160 X 58 X 3775.5	S1320b OR ASTM A619/A619M 82
FIG.-1	POS.-9	CABLE TRAY 160 X 58 X 3775.5	OR BS1440/783 CR4 GP, OR BS: 513Gg, DD WITH GALVANISED TREATMENT.
FIG.-1	POS.-8	CABLE TRAY 160 X 65 X 715	---
FIG.-1	POS.-7	CABLE TRAY 160 X 65 X 900	---
REF. PART DRG NO.	---	DESCRIPTION	MATERIAL
DRN	Tamshree	CHITTARANJAN LOCOMOTIVE WORKS, INDIA	---
CHD SSE	---	---	---
REVIEWED	---	SET OF CABLE TRAY (SIDE WALL)	---
APP/SEB	---	---	---
APPROVED	---	---	---
DY CEE	---	---	---
DATE	14.08.97	---	---
SCALE	NTS	---	---
ALTERNATION NO.	1	0	---

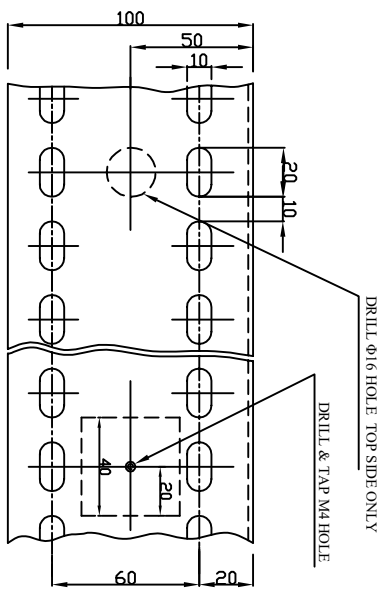
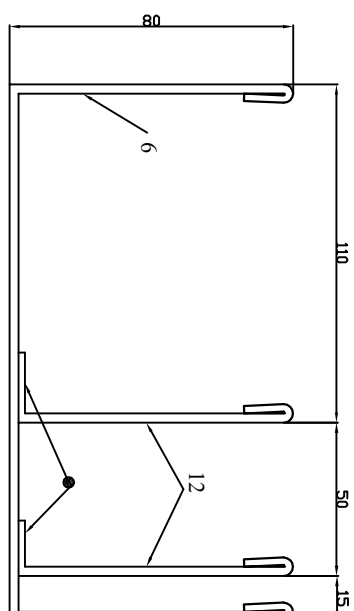
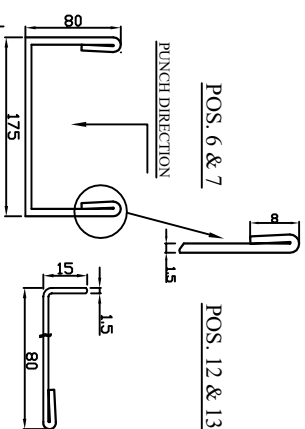


- Note:-
1. ALL DIMENSIONS ARE IN mm.
 2. THE U-SECTION SHOULD BE TIGHTLY FIXED WITH THE GOOD QUALITY ADHESIVE IN THE CUTTING POSITIONS AND THE SIDE END POSITIONS OF THE CABLE TRAY FOR EDGE PROTECTION.
 3. HARDWARES ARE TO BE USED SHOULD BE ANY FOLLOWING MAKES,-
 - A) 1. M/S. UN-BRAKO 2. M/S. PRECISION FASTENERS.
 3. M/S. LAXMI PRECISION (LPS)
 4. M/S. SUNDARAM FASTENERS (TVS).
 - B) AND ALL THE SPRING WASHERS OF M/s. FORBES GOKAK LIMITED / MUMBAI MAKE.

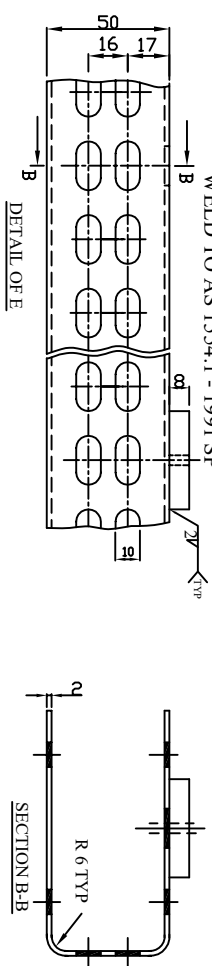
FIG.-7	POS.-119	U - SECTION-224/6	SPACER	SPACER	SPACER
FIG.-6	POS.-33	WASHERS-SCREW M6	WASHERS-SCREW M6	WASHERS-SCREW M6	WASHERS-SCREW M6
FIG.-5	POS.-33	CABLE TRAY 1280 X 40 X 300	CABLE TRAY 1280 X 40 X 300	CABLE TRAY 1280 X 40 X 300	CABLE TRAY 1280 X 40 X 300
FIG.-4	POS.-3	CABLE TRAY 60 X 65 X 2505	CABLE TRAY 60 X 65 X 2505	CABLE TRAY 60 X 65 X 2505	CABLE TRAY 60 X 65 X 2505
FIG.-3	POS.-2	CABLE TRAY 60 X 65 X 2950	CABLE TRAY 60 X 65 X 2950	CABLE TRAY 60 X 65 X 2950	CABLE TRAY 60 X 65 X 2950
FIG.-3	POS.-1	CABLE TRAY 95 X 65 X 1280	CABLE TRAY 95 X 65 X 1280	CABLE TRAY 95 X 65 X 1280	CABLE TRAY 95 X 65 X 1280
FIG.-2	POS.-4	CABLE TRAY 95 X 65 X 2950	CABLE TRAY 95 X 65 X 2950	CABLE TRAY 95 X 65 X 2950	CABLE TRAY 95 X 65 X 2950
FIG.-2	POS.-3	CABLE TRAY 95 X 65 X 2505	CABLE TRAY 95 X 65 X 2505	CABLE TRAY 95 X 65 X 2505	CABLE TRAY 95 X 65 X 2505
FIG.-2	POS.-2	CABLE TRAY 95 X 65 X 2950	CABLE TRAY 95 X 65 X 2950	CABLE TRAY 95 X 65 X 2950	CABLE TRAY 95 X 65 X 2950
FIG.-2	POS.-1	CABLE TRAY 114 X 65 X 2995	CABLE TRAY 114 X 65 X 2995	CABLE TRAY 114 X 65 X 2995	CABLE TRAY 114 X 65 X 2995
FIG.-1	POS.-4	CABLE TRAY 210 X 65 X 1280	CABLE TRAY 210 X 65 X 1280	CABLE TRAY 210 X 65 X 1280	CABLE TRAY 210 X 65 X 1280
FIG.-1	POS.-3	CABLE TRAY 210 X 65 X 2505	CABLE TRAY 210 X 65 X 2505	CABLE TRAY 210 X 65 X 2505	CABLE TRAY 210 X 65 X 2505
FIG.-1	POS.-2	CABLE TRAY 210 X 65 X 2950	CABLE TRAY 210 X 65 X 2950	CABLE TRAY 210 X 65 X 2950	CABLE TRAY 210 X 65 X 2950
FIG.-1	POS.-1	CABLE TRAY 210 X 65 X 2950	CABLE TRAY 210 X 65 X 2950	CABLE TRAY 210 X 65 X 2950	CABLE TRAY 210 X 65 X 2950



Pos.	Pos.	L	A	B
6	12	700	20	23
7	13	900	20	13



WELD TO AS 1554.1 - 1991 SP



CABLE TRAY (BOTTOM OF ROOF)

FIG.-1

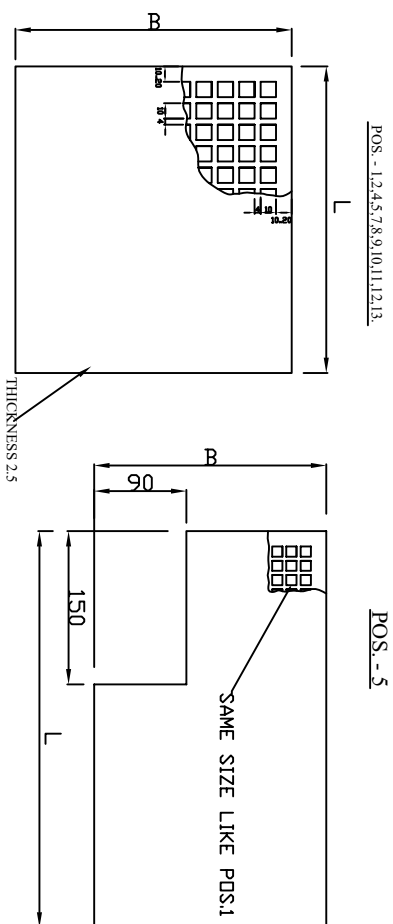
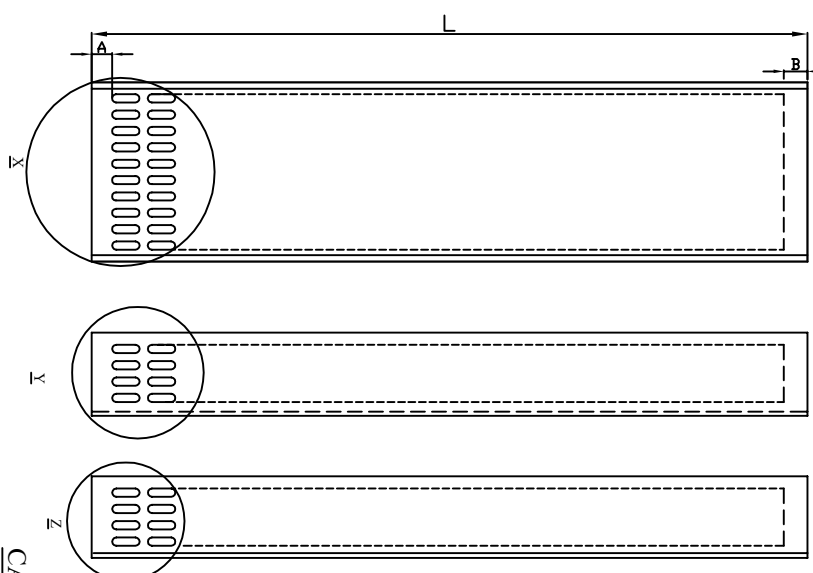


FIG. -3 (PERFORATED SHEET)

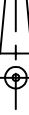
POS NO	B	L	POS	B	L
1	270	400	4	160	500
2	300	500	5	300	530
7	100	1500	10	200	500
8	150	1500	11	200	300
9	150	1700	12	100	960
			13	100	530



CABLE TRAY (DRIVERS)

FIG. -2

FIG.-3	POS.-13	PERFORATED SHEET 100X350X2.5 THICK	COLD ROLLED STEEL SHEET SHEET WEIGHT 45.0 N/T, 11.8 KGS PER SQ. FT. (400) 07/01/00 10/01/00 06/01/00 21/
FIG.-3	POS.-11	PERFORATED SHEET 100X360X2.5 THICK	
FIG.-3	POS.-12	PERFORATED SHEET 200X300X2.5 THICK	
FIG.-3	POS.-10	PERFORATED SHEET 200X300X2.5 THICK	
FIG.-3	POS.-5	PERFORATED SHEET 300X350X2.5 THICK	COLD ROLLED STEEL SHEET SHEET WEIGHT 45.0 N/T, 11.8 KGS PER SQ. FT. (400) 07/01/00 10/01/00 06/01/00 21/
FIG.-3	POS.-4	PERFORATED SHEET 160X300X2.5 THICK	
FIG.-3	POS.-9	PERFORATED SHEET 150X1700X2.5 THICK	
FIG.-3	POS.-8	PERFORATED SHEET 150X1500X2.5 THICK	
FIG.-3	POS.-7	PERFORATED SHEET 100X1500X2.5 THICK	COLD ROLLED STEEL SHEET SHEET WEIGHT 45.0 N/T, 11.8 KGS PER SQ. FT. (400) 07/01/00 10/01/00 06/01/00 21/
FIG.-3	POS.-2	PERFORATED SHEET 300X500X2.5 THICK	
FIG.-3	POS.-1	PERFORATED SHEET 270X400X2.5 THICK	
FIG.-2	POS.-13	CABLE TRAY 80 X 15 X 900-1.5 THICK	
FIG.-2	POS.-12	CABLE TRAY 80 X 15 X 700-1.5 THICK	COLD ROLLED STEEL SHEET SHEET WEIGHT 45.0 N/T, 11.8 KGS PER SQ. FT. (400) 07/01/00 10/01/00 06/01/00 21/
FIG.-2	POS.-7	CABLE TRAY 175 X 80 X900-1.5 THICK	
FIG.-2	POS.-6	CABLE TRAY 175 X 80 X700-1.5 THICK	
FIG.-1	POS.-4	MOUNTING SQUARE BRACKET 40X40X8	
REF.NO	PART/DWG NO	DESCRIPTION	MATERIAL

D/RN		 CHITTARANJAN LOCOMOTIVE WORKS, INDIA									
CHD SSE		SET OF CABLE TRAY WITH PERFORATED SHEET									
REVIEWED AEE/SSE		DRAWING NO CLW/ES/3/SK-3/0132									
APPROVED DY CEE		 USED FOR LOCOS WAG-9 (CO-CO)									
DATE	14-09-98	AI									
SCALE	NTS	ALTERATION NO.	1	2	3	4	5	6	7	8	9

NOTE:- ALL DIMENSIONS ARE IN MM.