SPECIFICATION FOR PANEL PLATES FOR THREE PHASE ELECTRIC LOCOMOTIVES

SPECIFICATION NO. CLW/ES/3/0453 ALT.~~H~~ I

ISSUE DATE:.07.02.2000

Enclosures: DRG. No. 1. CLW/ES/3/SK-1/0453 ALT.2
2. CLW/ES/3/SK-2/1/0453 ALT.1
3. CLW/ES/3/SK-2/2/0453 ALT.1
4. CLW/ES/3/SK-2/3/0453 ALT.1

ISSUED BY:
DY. CHIEF ELECTRICAL ENGINEER /D/CONV.
CHITTARANJAN LOCOMOTIVE WORKS
P.O. CHITTARANJAN – 713331
DIST. BARDHAMAN (WEST), WEST BENGAL (INDIA)

PREPARED BY	CHECKED BY	APPROVED BY
Bikash Naik Digitally signed by Bikash Naik Date: 2024.08.09 17:20:11 +05'30'	Abu Naser Digitally signed by Abu Naser Date: 2024.08.09 17:26:54 +05'30'	AMIT AGGARWAL Digitally signed by AMIT AGGARWAL Date: 2024.08.09 17:46:04 +05'30'
SSE/DRG&DGN (M)	SSE/DRG	DY. CEE/D-III

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7. SUBMISSION OF TENDER QUOTATION
8. TECHNICAL DOCUMENTS TO BE SUPPLIED BY SUPPLIER
9. QUALITY ASSURANCE

PREPARED BY	CHECKED BY	APPROVED BY
Bikash Naik Digitally signed by Bikash Naik Date: 2024.08.09 17:20:41 +05'30'	Abu Naser Digitally signed by Abu Naser Date: 2024.08.09 17:27:16 +05'30'	AMIT AGGARWAL Digitally signed by AMIT AGGARWAL Date: 2024.08.09 17:48:01 +05'30'
SSE/DRG&DGN (M)	SSE/DRG	DY. CEE/D-III

ALTERATION RECORD SHEET

ALT. No.	DATE	REASON	AUTHORITY
A	01.07.2016	Sl no.-3 Panel 'C' deleted as the item is being supplied with DDU. This is approval of CEE loco date 25.09.2015	S/d- 01.07.2016
B	23.03.2019	Design modified at CLW/ES/3/SK-1/0453 (BPVG hole deleted) CLW/ES/E/SK-2/0453(BPPB hole to be covered by 1.5 thk alt. Sheet for WAG-9HC & WAP-7 loco)	S/d- 23.03.2019
C	23.2.2021	Sl. No. 1 & 2 – Panel D& panel A are deleted from scope of supply as the items will be supplied with 3-Ph drive propulsion equipment with composite converter.	S/d- 01.03.2021
D	02.05.2022	Panel A & D at SL. No. 02 & 01 are reinstated for production at CLW	S/d- 02.05.2022
E	11.10.2022	For Panel A, drg. No. CLW/ES/3/SK-2/1/0453 for WAG-9HC, drg. No. CLW/ES/3/SK-2/2/0453 for WAP-7 loco & drg. No. CLW/ES/3/SK-2/3/0453 for WAP-5 loco to be used.	S/d- 11.10.2022
F	17.11.2023	2 Nos hole DIA 22.5 are added at Drg No.CLW/ES/3/SK-1/ 0453 for Panel-D, Ident. No. 3EHP330237R0001 for HLC-1 & HLC-2 on command for Passenger locomotive only.	S/d- 25.11.2023
G	15.04.2024	1. Cutout for AD-BLDJ has shown as per RDSO modification sheet No. RDSO/2023/EL/MS/0495 Rev.0 dt. 26.10.2023 in drawings of Panel-A vide ALT.1 for WAG-9HC, WAP-7 & WAP-5 loco. 2. Holes for AD-BL, AD-BPFA & AD-LSDJ added as per RDSO modification sheet No. RDSO/2019/EL/MS/0477 Rev.0 dated 18.06.2019 in drawings of Panel-A vide ALT.1 for WAP-5 & WAP-7 loco only.	S/d- 15.04.2024
H	09.08.2024	Dimensions are corrected in drawing of Panel-D, drawing no. CLW/ES/3/SK-1/0453	
I		PARA 4 MODIFIED. DRAWING OF PANEL PLATE A & D MODIFIED TO SPECIFY GRADES FOR IS 6651 & IS 1868.	

Specification have been digitized and all alterations have been incorporated.

PREPARED BY	CHECKED BY	APPROVED BY
Bikash Naik Digitally signed by Bikash Naik Date: 2024.08.09 17:20:54 +05'30'	Abu Naser Digitally signed by Abu Naser Date: 2024.08.09 17:27:41 +05'30'	AMIT AGGARWAL Digitally signed by AMIT AGGARWAL Date: 2024.08.09 17:50:06 +05'30'
SSE/DRG&DGN (M)	SSE/DRG	DY. CEE/D-III

SPECIFICATION FOR PANEL PLATES

1. **SCOPE** :

This specification covers the manufacture and supply of Panel Plates for WAG-9 (Co-Co), 6000 HP, 3-Phase, 25KV 50 HZ, AC Locomotive.

2. **CLIMATIC AND ENVIRONMENTAL CONDITION:-**

Maximum atmospheric temperature : +70˚C (in sun) & +50˚C (in shade)
Humidity : 100% saturation during rainy season.

Reference site condition:

i) Ambient Temperature : Max 55˚C min. 0˚C
ii) Humidity : 60%
iii) Altitude : 160 m above mean sea level.
iv) Rain Fall : Very heavy in certain areas. The Locomotive will be designed to permit its running at 10 km/hr in flood water level of 102mm 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 sub-system and their mounting arrangement will be designed to withstand vibrations and shocks encountered in service as specified in corresponding IEC publications unless otherwise prescribed

3. **STANDARD:** As per relevant IS/IEC

4. **SCOPE OF SUPPLY:**

SL. No.	Description	Ident. No.	Qty./ Loco	Fig. No.	Material
01	Panel D	3EHP 330237 R0001	02	SK-1	Black anodized aluminum plate as per ~~IS 1863 and 6651~~
02	Panel A	3EHP 330228 P0001	02	SK-2/1 (WAG-9HC) SK-2/2 (WAP-7) SK-2/3 (WAP-5)	Black anodized aluminum plate as per ~~IS 1863 and 6651~~

IS 6651-1972 GR-19000(1 C) & IS 1868:1996 GR-A110

NOTE : - Type no. of each items is required to be engraved.

PREPARED BY	CHECKED BY	APPROVED BY
Bikash Naik Digitally signed by Bikash Naik Date: 2024.08.09 17:21:07 +05'30'	Abu Naser Digitally signed by Abu Naser Date: 2024.08.09 17:28:10 +05'30'	AMIT AGGARWAL Digitally signed by AMIT AGGARWAL Date: 2024.08.09 17:50:32 +05'30'
SSE/DRG&DGN (M)	SSE/DRG	DY. CEE/D-III

5. DRAWINGS:

The following drawings are attached with the specification:

Drawing No:
1. CLW/ES/3/SK-1/0453 ALT.2
2. CLW/ES/3/SK-2/1/0453 ALT.1
3. CLW/ES/3/SK-2/2/0453 ALT.1
4. CLW/ES/3/SK-2/3/0453 ALT.1

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

6. Test:

Type test and routine test, shall be carried out according to the relevant IS/IEC standard.

7. SUBMISSION OF TENDER QUOTATION:

7.1 All tender documents including the quotation shall be submitted in triplicate including any correspondence till a contact is finalised.

7.2 The tenderer shall give sufficient information to prove that his factory has adequate facilities and capacity to manufacture the clip to meet fully the technical requirements of the specification and quality of materials and workmanship.

7.3 Quotation shall not be considered complete unless all information is furnished and are therefore liable to be rejected.

7.4 Detailed drawings of the above material should be submitted for approval of purchaser.

7.5 Past test reports (if any).

8. TECHNICAL DOCUMENTS TO BE SUPPLIED BY THE SUPPLIER:

i)	Type test reports	: 10 copies
ii)	Routine test report along with each set	: 4 copies
iii)	Detailed drawings	: 6 copies

9 QUALITY ASSURANCE:

Quality assurance should be be as per ISO 9000.

PREPARED BY	CHECKED BY	APPROVED BY
Bikash Naik Digitally signed by Bikash Naik Date: 2024.08.09 17:21:26 +05'30'	Abu Naser Digitally signed by Abu Naser Date: 2024.08.09 17:28:25 +05'30'	AMIT AGGARWAL Digitally signed by AMIT AGGARWAL Date: 2024.08.09 17:50:59 +05'30'
SSE/DRG&DGN (M)	SSE/DRG	DY. CEE/D-III

NOTE :- The tenderer must Indicate the price of each item of the set separately.

Set of Plates Specn. No. CLW/ES/3/0150 Alt-C Break up into Four Specn.

1) Set of Metallic Plates – CLW/ES/3/0450

2) Set of Non-metallic Plates – CLW/ES/3/0451

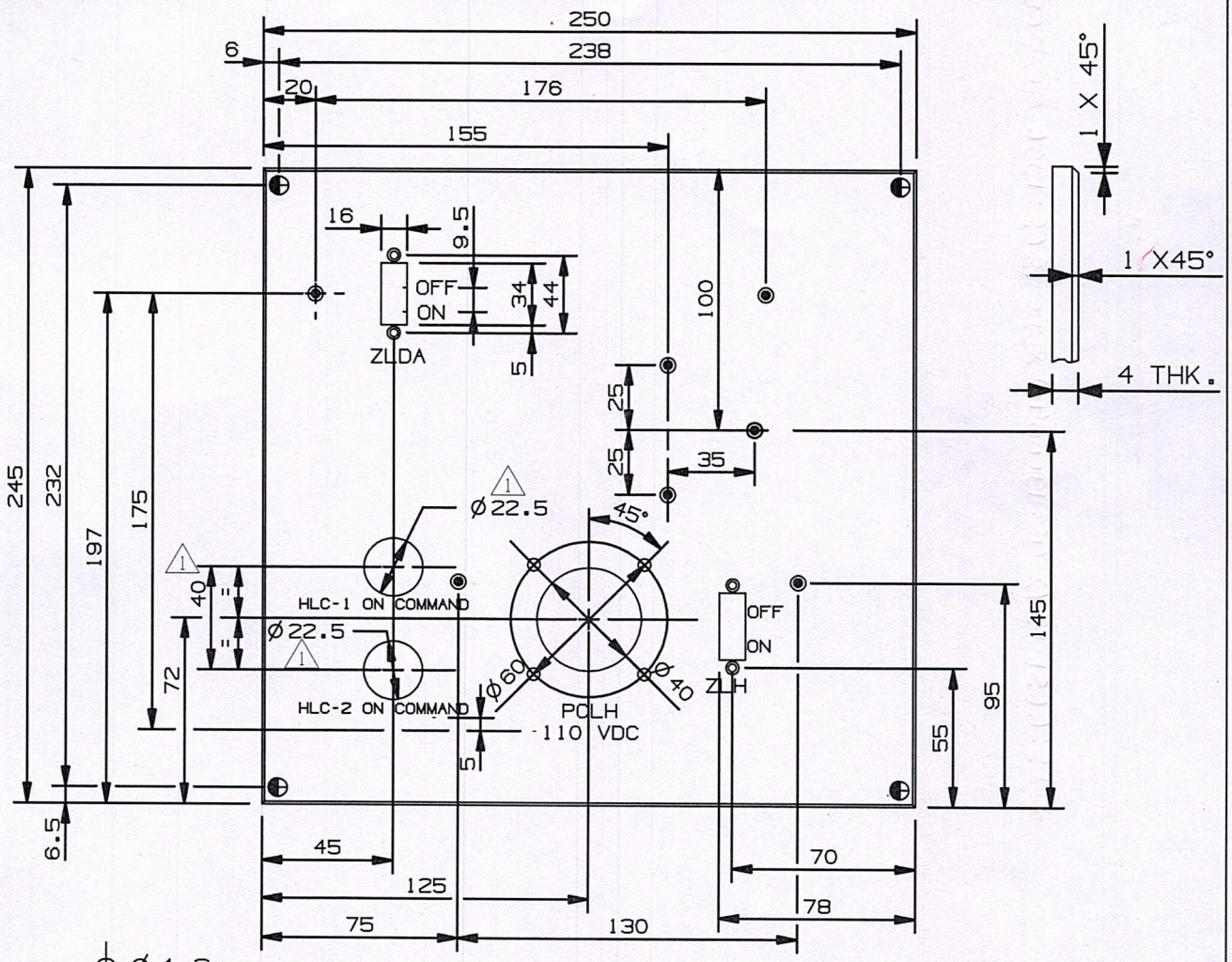
3) Set of Copper Plates - CLW/ES/3/0452

4) Set of Panel Plates – CLW/ES/3/0453

PREPARED BY	CHECKED BY	APPROVED BY
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SSE/DRG&DGN (M)	SSE/DRG	DY. CEE/D-III

PANEL D

IDENT NO. 3EHP 330237R0001



Ø 4.8

Ø 4.8/Ø 9X90°

Ø 5.8/Ø 11X90°

Ø 7

EXECUTION
MATERIAL : BLACK ANODISED ALUMINIUM PLATE AS PER ~~IS:1868 & 6651~~ *
SCRIPT : WHITE MO70
FONT : ENGLISH
GROUND : BLACK DIM

NOTE:-
1. 2 NOS HOLES Ø22.5 ARE FOR WAP-7 / WAP-5 LOCO.

* IS6651-1972 GR-19000(1C) & IS1868:1996 GR-ACID

2	DY.CEE/D-III	DIMENSION 40 & 60 DELETED.	
1	DY.CEE/D-III	2 HOLES Ø 22.5 & CORRESPONDING DIMENSION ADDED. NOTE ADDED.	
परिवर्तन संख्या ALT.NO	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्यक्षर DATED INITIAL

सतह – रुक्षता का मान भा. मा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS:3073 / ISO:1302

अनिर्दिष्ट सद्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS : 2102 / ISO : 2768

धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS:813 / ISO:2553

TOL. CLS.

पदांक GRADE NO	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं8 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12
Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	160-250
Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
चिन्ह SYMBOL												

अभिकल्पित DGN	-	चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
जाँचा द.अ.अ. CHD SSE	Abu Naser	पदार्थ MATL	AS PER NOTE
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	BHARAT CHAND RA BAL	प्रति भार कि. ग्रा. WT. EACH IN KG	
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	AMIT AGGA RWAL	विशिष्टि SPECN	AS PER NOTE
दिनांक DATE		वर्णन DESCRIPTION	PANEL 'D' FOR WAG-9 (COCO) LOCOMOTIVES OF SET OF PANEL PLATES, SPECN. NO. CLWES/3/0453
		आरेखण संख्या DRAWING NO.	CLW/ES/3/SK-1/0453
संदर्भ / REF. IA081-00169	SCALE 1:1 ALT.-0	परिवर्तन संख्या ALTERATION. NO. 2	पर्ण SHEET 1 OF 1 A4

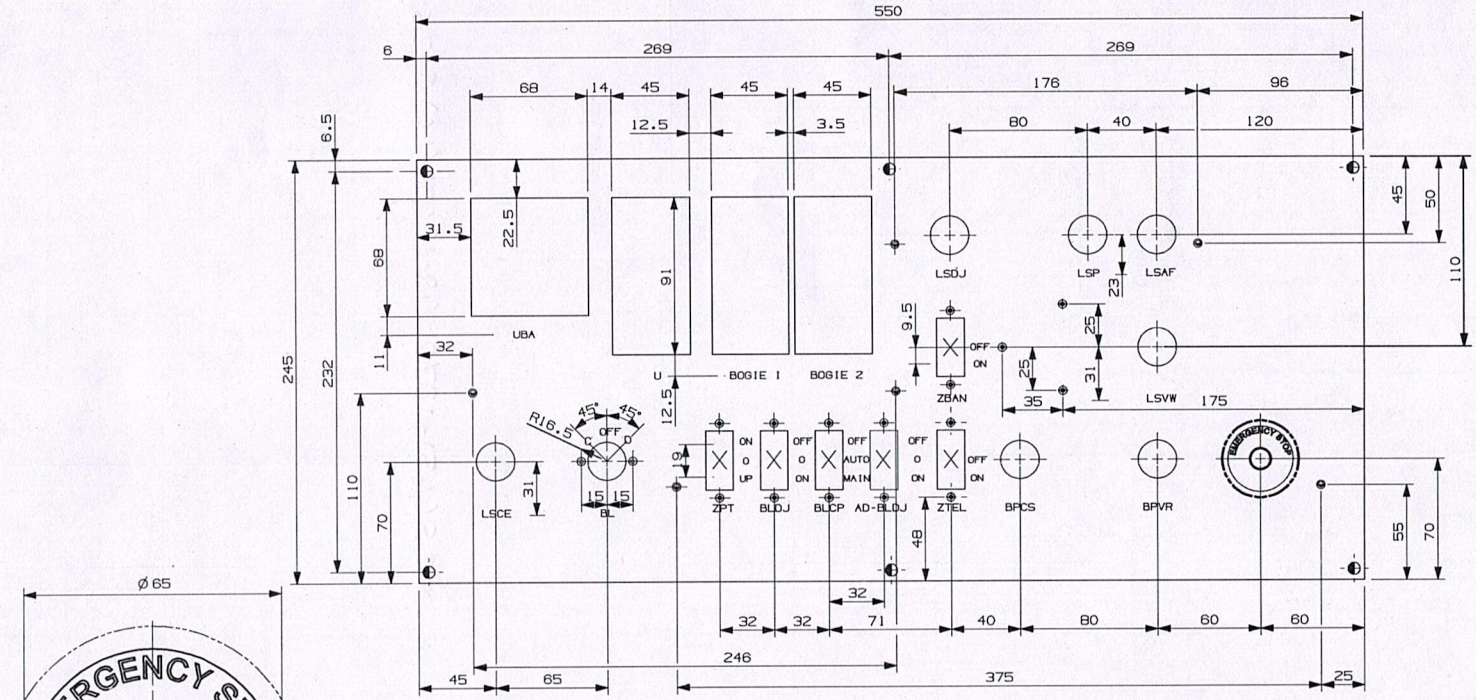
REDRAWN BY COE

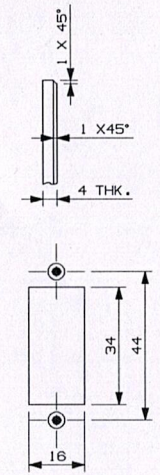
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PANEL A IDENT NO. 3EHP 330228P0001

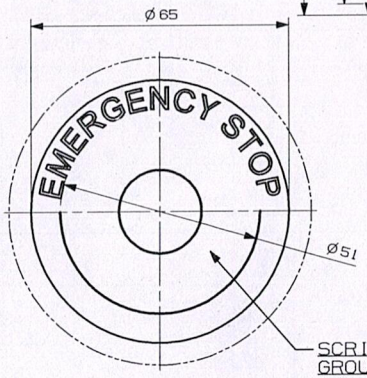
EXECUTION
MATERIAL : BLACK ANODISED ALUMINIUM
PLATE AS PER ~~IS:1868 & 6651~~ *
SCRIPT : WHITE MO70
FONT : ENGLISH
GROUND : BLACK DIM

* IS:6651-1972 GR-19000(C) & IS 1868:1996 GR-AC1D



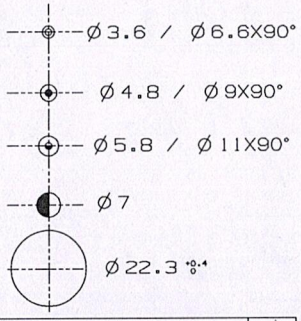


DETAIL X
SCALE 1:1



LOCATION - PRE ASSLY D/CAB PANEL A

QTY/LOCO-2



धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS 813 / ISO 2553	अनिर्दिष्ट सप्र – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS 2102 / ISO 2768											TOL CLS
सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS 3073 / ISO 1302	ग्रेड GRADE NO.	श्रे1 W1	श्रे2 W2	श्रे3 W3	श्रे4 W4	श्रे5 W5	श्रे6 W6	श्रे7 W7	श्रे8 W8	श्रे9 W9	श्रे10 W10	श्रे11 W11	श्रे12 W12
	Rz	0.8-0.3	1.5-0.3	3.9-1.1	15-3.8	25-3.8	58-6.3	90-12	16-25	30-4.0	58-6.3	75-100	160-250
	Ra µm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
	चिन्ह SYMBOL												

परिवर्तन संख्या ALT. NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्याक्षर - DATED INITIAL
1	DY.CEE/D-III	CUT OUT FOR ADDITIONAL BLDJ HAS SHOWN AS PER RDSO MOD SHT NO RDSO/2021/EL/MS/0495 REVIOI DT 26-10-2023	

अधिकृतिता DGN		चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
जाँचा व.अ.अ. CHD SSE	Abu Naser	पदार्थ MATL AS PER NOTE	प्रति भार कि. ग्रा. wt EACH IN KG
समीक्षित स.टि.अ. / व.टि.अ. REVIEWED AEE / SEE	SUBRAT CHAND GARAI	विशिष्टि SPEN AS PER NOTE	
अनुमोदित व.मु.टि.अ. APPROVED DYCEE	AMIT RAJA ROYAL	वर्णन DESCRIPTION PANEL 'A' FOR WAG-9 HC-LOCOMOTIVES OF SET OF PANEL PLATES, SPECIFICATION NO.CLW/ES/3/0453	
दिनांक DATE	10-11-22		
रेखिक अनुपात SCALE	NTS	आरेखण संख्या DRAWING NO. CLW/ES/3/SK-2/1/0453	
संदर्भ / REF.	ALT-	परिवर्तन संख्या ALTERATION NO. 1	पृष्ठ SHEET 1 OF 1 A2

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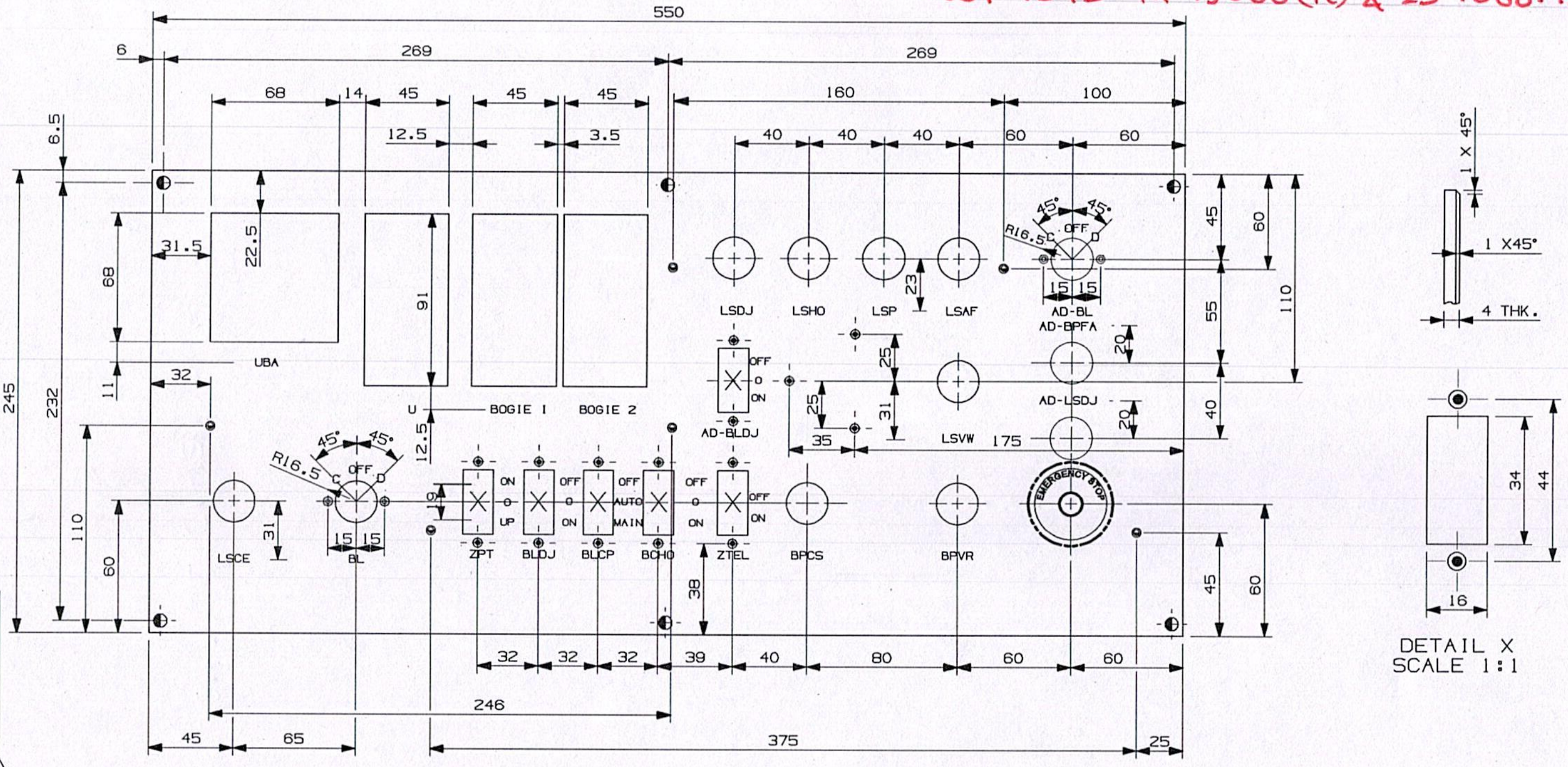
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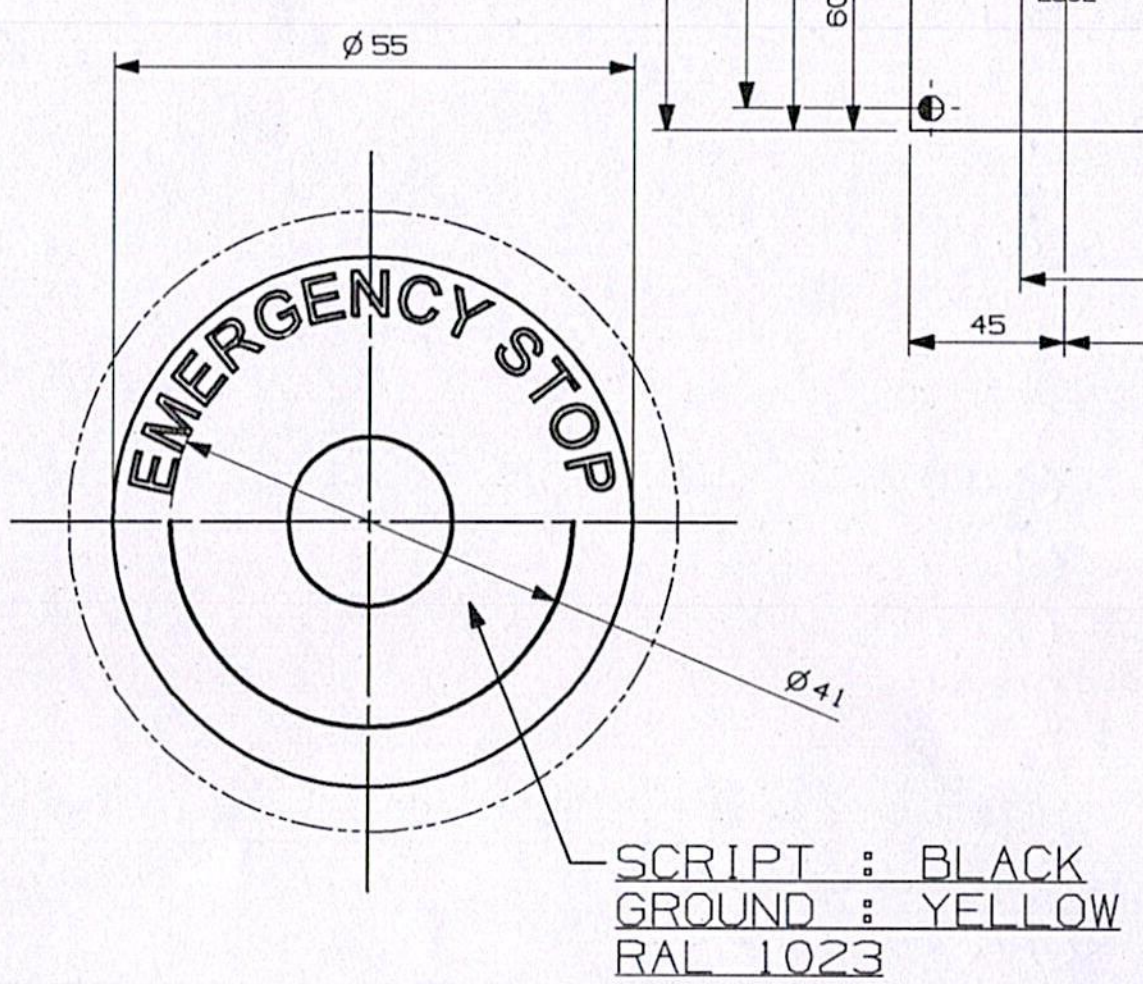
PANEL A
FOR WAP-7

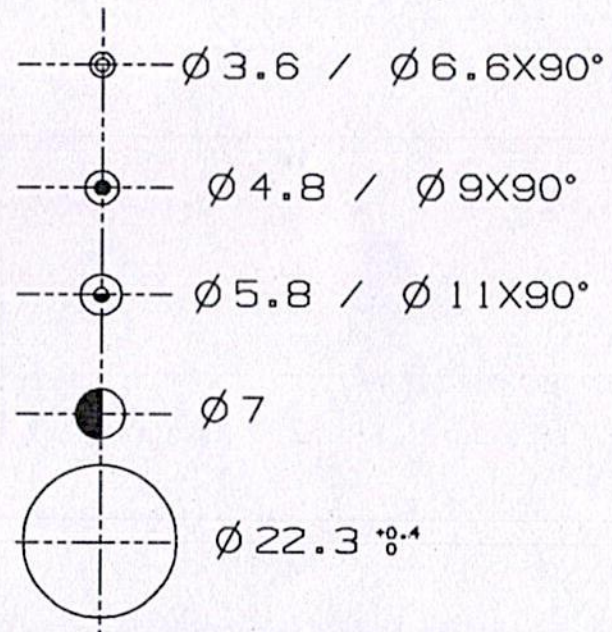
IDENT NO. 3EHP 330228P0001

EXECUTION
MATERIAL : BLACK ANODISED ALUMINIUM
PLATE AS PER ~~IS:1868 & 6651~~ *
SCRIPT : WHITE M070
FONT : ENGLISH
GROUND : BLACK DIM

* IS: 6651-1972 GR-19000(IL) & IS 1868: 1996 GR-AA10







LOCATION - PRE ASSLY D/CAB PANEL A
QTY/LOCO-2

धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS 813 / ISO 2553	अनिर्दिष्ट सह्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLEARANCE TO IS 2102 / ISO 2768												TOL CLS.
सतह – रुक्षता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS 3073 / ISO 1302	पदांक GRADE NO	सं1 N1	सं2 N2	सं3 N3	सं4 N4	सं5 N5	सं6 N6	सं7 N7	सं8 N8	सं9 N9	सं10 N10	सं11 N11	सं12 N12
	Rz	0.16-0.3	0.5-0.7	0.9-1.1	1.5-2.0	2.5-3.8	5.0-6.3	9.0-12	16-25	30-40	50-63	75-100	160-250
	Ra μm	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
	चिन्ह SYMBOL												

परिवर्तन संख्या ALT NO.	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित आद्याक्षर DATED INITIAL
1	DY.CEE/D-III	1. CUT OUT FOR ADDITIONAL BLDJ HAS SHOWN AS PER RDSO MOD. SHT. NO. RDSO/2023/EL/MS/0495 REV(0) DT. 26-10-23 2. HOLES FOR AD-BL, AD-BPFA & AD-LSDJ ARE ADDED AS PER RDSO MOD SHT NO. RDSO/2019/EL/MS/0477 REV(0)	

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

अभिकल्पित DGN	
जाँचा व.ख.अ. CHD SSE	Abu Naser
समीक्षित स.वि.अ. / व.वि.अ. REVIEWED AEE / SEE	BHARAT CHANDRA BAL
अनुमोदित उ.मु.वि.अ. APPROVED DYCEE	AMIT AGGARWAL
दिनांक DATE	11-10-22
रैखिक अनुपात SCALE	NTS
संदर्भ / REF.	ALT-

पदार्थ MATL: AS PER NOTE
प्रति भार कि. ग्रा. WT. EACH IN KG:
विशिष्ट SPECN: AS PER NOTE
वर्णन DESCRIPTION: PANEL 'A' FOR WAP-7 LOCOMOTIVES OF SET OF PANEL PLATES, SPECIFICATION NO.CLW/ES/3/0453
आरेखण संख्या DRAWING NO.: CLW/ES/3/SK-2/2/0453
परिवर्तन संख्या ALTERATION NO. 1
पर्ण SHEET 1 OF 1
A2

REDRAWN BY COE

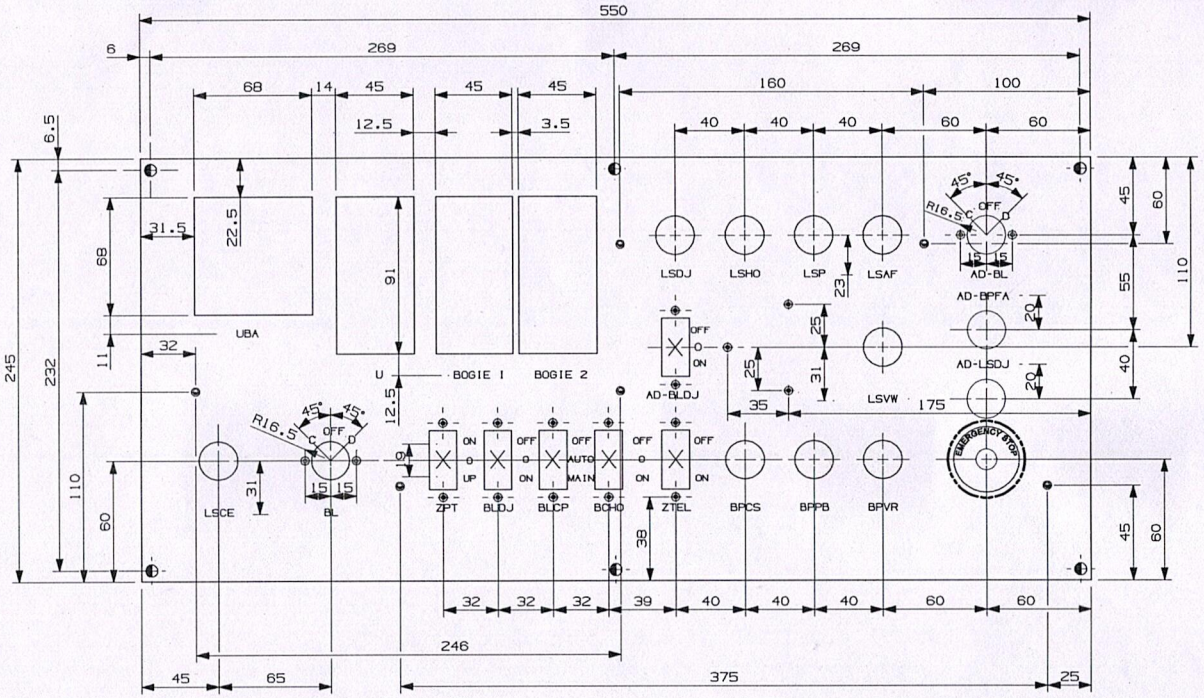
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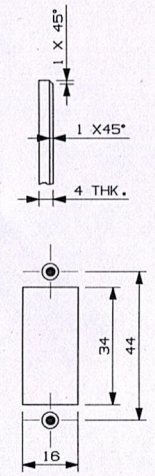
PANEL A
FOR WAP-5
LOCO

IDENT NO. 3EHP 330228P0001

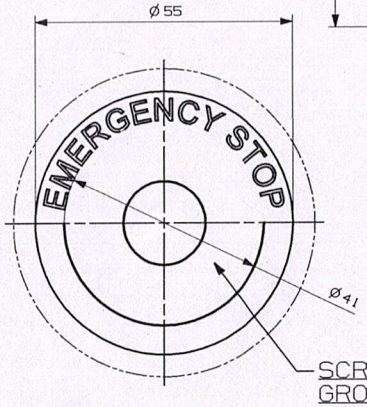
EXECUTION
MATERIAL : BLACK ANODISED ALUMINIUM
PLATE AS PER ~~IS:1868 & 6651~~ *
SCRIPT : WHITE MO70
FONT : ENGLISH
GROUND : BLACK DIM

*IS: 6651-1972 GR-19000(1c) & IS 1868:1996 GR-AC1D

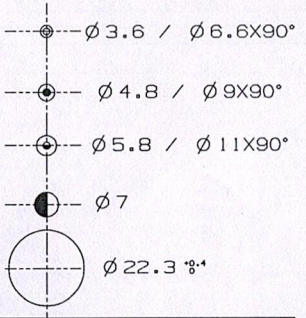




DETAIL X
SCALE 1:1



SCRIPT : BLACK
GROUND : YELLOW
RAL 1023



LOCATION - PRE ASSLY D/CAB PANEL A

QTY/LOCO-2

धातु–वेल्डन चिन्ह भा. मा. : 813 / अ. मा. सं. :2553 WELDING SYMBOLS TO IS 813 / ISO 2553	अनिर्दिष्ट सख्य – सीमा भा. मा. : 2102 / अ. मा. सं. : 2768 UNSPECIFIED TOLERANCE TO IS 2102 / ISO 2768
सतह – खत्ता का मान भा. मा. 3073 / अ. मा. सं. 1302 SURFACE ROUGHNESS VALUE TO IS 3073 / ISO 1302	

ग्रेड GRADE NO	रें1 M1	रें2 M2	रें3 M3	रें4 M4	रें5 M5	रें6 M6	रें7 M7	रें8 M8	रें9 M9	रें10 M10	रें11 M11	रें12 M12
Rz	4.5-6.3	9.5-12.5	17.5-21	15-21	21-30	30-43	43-62	62-75	75-90	90-125	125-180	180-250
Ra μm	0.8/0.5	0.8/0.5	1.6/1	3.2/2	3.2/4	6.3/8	12.5/16	25/32	50/63	100/125	200/250	400/500
चिन्ह SYMBOL	▽▽▽	▽▽▽	▽▽▽	▽▽▽	▽▽▽	▽▽▽	▽▽▽	▽▽▽	▽▽▽	▽▽▽	▽▽▽	▽▽▽

TOL CLS: f H

परिवर्तन संख्या AUT NO	प्राधिकार AUTHY	वर्णन DESCRIPTION	दिनांकित हस्ताक्षर DATED INITIAL
1	DY.CEE(D)-III	CUT OUT FOR ADDITIONAL BLDJ HAS SHOWN AS PER RDSO MOD. SHT. NO. RDSO/2021/ELM/SK/0495 REVISED DT. 26-10-23. 2. HOLES FOR AD-BL, AD-BPFA & AD-LSDJ ARE ADDED AS PER RDSO MOD. SHT. NO. RDSO/2019/ELM/SK/0477 REVISED	

अधिकृत DGN	
जाँच C.D.E. CHD SSE	Abu Nawaz
समीक्षित C.E.(D) / C.E.(C) REVIEWED AEE / SEE	BHARAT PAL SINGH RAJPAL
अनुमोदित C.W.E. APPROVED DYCEE	AMIT PALIWAL
दिनांक DATE	11-10-22
रेखांक अनुपात SCALE	NTS
संदर्भ / REF.	ALT-

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

प्रतिमान MOD.	AS PER NOTE
प्रति भाग कि. ग्रा. WT. EACH IN KG	
विशिष्टि SPECN	AS PER NOTE
वर्णन DESCRIPTION	PANEL 'A' FOR WAP-5 LOCOMOTIVES OF SET OF PANEL PLATES, SPECIFICATION NO.CLW/ES/3/0453
आरेखण संख्या DRAWING NO.	CLW/ES/3/SK-2/3/0453
परिवर्तन संख्या ALTERATION NO.	1
पृष्ठ SHEET	1 OF 1
	A2

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