TECHNICAL SPECIFICATION FOR

PANEL A COMPLETE

FOR 3-PHASE ELECTRIC LOCOMOTIVES.

Specification No:CLW/ES/3/0239 ALT.E

ISSUE DATE :05.08.1998

ENCLOSURES:-

~~**1 . DRAWINGOFPANEL-A(DRIVERDESK)**~~
~~**2 . INSTRUMENTPANELA**~~
1. Drg. No. CLW/ES/3/SK-2/1/0453
2. Drg. No. CLW/ES/3/SK-2/2/0453
3. Drg. No. CLW/ES/3/SK-2/3/0453

ISSUED BY:

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ALTERATION RECORD SHEET

Sl. No.	Date of Amendment	Page No.	Alteration	Reason	Authority
1.	10.04.1999	10	A	Panel Plate Drawing with Dimension at Sheet10 is included.	Sd/-
2.	16.06.2020	----	B	i) Specification retyped. ii) Due to retype of specification, Panel A layout has been shifted from page no. 9 to page no. 11 and Panel Plate drawing with dimension has been shifted from sheet 10 to sheet 12. iii) Itemmentionedatpageno.07&08 Sl. No. 42 to 58 are added in specification which were not mentioned in last Alt.A. iv) One no. of extra column for specification no.has been added in the item list table against each required item assemble Panel A. v) Note include date page no.8 vi) *marked items are included for push pull operation of WAP-5 & WAP-7. Ref:- a. RDSO MS No. EL/3.1.35/4 dtd. 18.06.2019. b. Dy. CEE/D&D/CLW/CRJ letter no. C-D&D/T/47 dtd. 08.08.2019. vii) Drawing at page no. 11& 12for WAG- 9 only and drawing at Page no. 13 for PushPulloperationinWAP-5and WAP-7 only.	Sd/-
3.	20.06.2022	7	C	i) Quantity of BPPB has been revised vide note no. ELDD/3743 dtd. 04.06.2019 in sheet no. 7. ii) In item list,S.D.Sleeve has been included in sheet no. 7 vide note no. ELDD/3220/Pt. dtd. 16.06.2022.	Sd/-
4	01.02.2023	6,7, 11	D	As per SSE /Testing/ Shop-19 letter no. SSE/Testing/01dated28.07.2022,LSHO and BLHO are not required in WAG-9 loco.	Sd/-

Sl. No.	Date of Amendment	Page No.	Alteration	Reason	Authority
5		7,6,13, 14,15	E	Following changes has been made for implementation of RDSO MS no. 495: i) Separate updated Panel A drawing for WAG-9 , WAP-7 & WAP-5 enclosed by replacing existing one. ii) Similarly updated separate layout drawing has been added at sheet no 13,14 & 15 by replacing existing one iii) Item list no 16A added to reflect additional 02 no of BLDJ req. to implement above RDSO MS at sheet no. 6. iv) '@@' Qty/Loco of ZBAN is 02 nos for WAG-9 locos & Nil for WAP-5 & WAP-7 locos.	S/d-

Note:-Specifications have been digitized and all alterations have been incorporated.

1. SCOPE :

This specification covers the manufacture and supply of Panel A complete with all electrical equipments and fitting including cabling for WAG-9 (CO- CO)/WAP-7(CO-CO)/WAP-5(BO-BO), 3 phase, 25KV 50 HZ AC locomotive.

Scope of work is given as under:
Manufacture, assembly and testing of panel A fitted with all these electrical items.

ITEM LIST

SL. NO.	ITEM	Functional Description	Qty./ Loco	Item description	Nominal value	Loca-tion	Ident. No.	Specn. no.
1	A	PANEL DRIVER'S DESK (MIDDLE)	2	--------	Black anodized Aluminium Plate IS:1868 & 6651	A	3EHP330228P0001	CLW/ES/3/0453/ALT. LATEST
2	74	CATENARY VOLTMETER "U"	2	VOLTMETER	0-30 KV, 1 MA, 0-10V DC	A	3EHP590546R0001	CLW/ES/3/0070/ALT. LATEST
3	79.1	TRACTIVE BRAKING EFFORT METER BOGIE 1	2	EFFORT METER	100/0+100%, 1 MA	A	3EHP590546R0002	CLW/ES/3/0071/ALT. LATEST
4	79.2	TRACTIVE BRAKING EFFORT METER BOGIE 2	2	EFFORT METER	6A-250V-1No	A	HBTB585604R1201	CLW/ES/3/0071/ALT. LATEST
5	81.5	INDICATION LAMP TRAIN PARTING "LSAF"	2	PILOT LIGHT HEAD	RED LED	A	3EHP585818P1014	CLW/ES/3/0072/ALT. LATEST
6	81.5	INDICATION LAMP TRAIN PARTING "LSAF"	2	PILOT LIGHT BODY	380 V AC Standard	A	3EHP585819P1010	CLW/ES/3/0072/ALT. LATEST
7	92	INDICATION LAMP WHEEL SLIPPING"LSP".	2	MULTI-LED BA9S	18 MA, 24V DC-RED	A	3EHP585726P0022	CLW/ES/3/0072/ALT. LATEST
8	92	INDICATION LAMP WHEEL SLIPPING"LSP".	2	PILOT LIGHT HEAD	YELLOW LED	A	3EHP585818P1015	CLW/ES/3/0072/ALT. LATEST
9	92	INDICATION LAMP WHEEL SLIPPING"LSP".	2	PILOT LIGHT BODY	380V AC Standard	A	3EHP585819P1010	CLW/ES/3/0072/ALT. LATEST
10	*Addl BPFA	ILLUM. PUSH BUTTON FAULT INDICATION/ ACKNOWLEDGE"BPFA"	2*	BOOTED PUSH BUTTON HEAD	YELLOW-BLACK BEZEL	A	3EHP585818P2131	CLW/ES/3/0072/ALT. LATEST
11	*Addl	ILLUM. PUSH	2*	BOOTED	1 NO	A	3EHP58581	CLW/ES/3/00

	BPFA	BUTTON FAULT INDICATION/ ACKNOWLEDGE“BPFA”		PUSH BUTTON BODY	Standard		9P2010	72/ ALT. LATEST
12	*Addl. BPFA	ILLUM. PUSH BUTTON FAULT INDICATION/ ACKNOWLEDGE“BPFA”	2*	MULTI-LED BA9S	18 MA, 24V DC YELLOW	A	3EHP585726P0025	CLW/ES/3/0072// ALT. LATEST
13	116	VOLTMETER BATTERY “UBA”	2	VOLT METER	0-150V, 1 MA, 0-10V DC	A	3EPH590545R0001	CLW/ES/3/0073// ALT. LATEST
14	125 *Addl. BL KEY	CAB ACTIVATING KEY SWITCH “BL”	2+2*	KEY SWITCH	16A-500V AC	A	3EHP590522P0001	CLW/ES/3/0074// ALT. LATEST
15	129	SPRING LOADED SWITCH PANTOGRAPH “ZPT”	2	SWITCH	6A-250V-2NO	A	HBTB585604R3001	CLW/ES/3/0075// ALT. LATEST
16	134	SPRING LOADED SWITCH VCB “BLDJ”	2	SWITCH	6A-250V-2NO	A	HBTB585604R3001	CLW/ES/3/0075// ALT. LATEST
16A	AD-BLDJ	SPRING LOADED SWITCH VCB “BLDJ”	2	SWITCH	6A-250V-2NO	A	HBTB585604R3001	CLW/ES/3/0075// ALT. LATEST
17	137.3 *Addl. LSDJ	INDICATION LAMP VCB “LSDJ”	2+2*	PILOT LIGHT HEAD	RED LED	A	3EHP585818P1014	CLW/ES/3/0072// ALT. LATEST
18	137.3 *Addl. LSDJ	INDICATION LAMP VCB “LSDJ”	2+2*	PILOT LIGHT BODY	380V AC Standard	A	3EHP585819P1010	CLW/ES/3/0072// ALT. LATEST
19	137.3 *Addl. LSDJ	INDICATION LAMP VCB “LSDJ”	2+2*	MULTI-LED BA9S	18 MA-24V DC RED	A	3EHP585726P0022	CLW/ES/3/0072// ALT. LATEST
20	151.1	SWITCH MAXIMUM TRACTIVE EFFORT LIMITATION “ZTEL”	2	SWITCH	6A-250V-1 NO	A	HBTB585604R1201	CLW/ES/3/0075// ALT. LATEST
21	151.4	ILLUM. PUSH BUTTON CONSTANT SPEED CONTROL “BPCS”	2	BOOTED PUSH BUTTON HEAD	Green-Black BEZEL	A	3EHP585818P2131	CLW/ES/3/0072// ALT. LATEST
22	151.4	ILLUM. PUSH BUTTON	2	BOOTED PUSH	1 NO Standard	A	3EHP585819P2010	CLW/ES/3/0072// ALT.

		CONSTANT SPEED CONTROL "BPCS"		BUTTON BODY				LATEST
23	151.4	ILLUM. PUSH BUTTON CONSTANT SPEED CONTROL "BPCS"	2	MULTI-LED BA9S	18 MA, 24V DC Green	A	3EHP585726P0025	CLW/ES/3/0072// ALT. LATEST

24	153	SWITCH BANKING OPERATION 'ZBAN'	2 @@	SWITCH	6A-250V-1 NO	A	HBTB585604R1201	CLW/ES/3/0075// ALT. LATEST
25	166	INDICATION LAMP TEMPERATURE OF CONTROL ELECTRONICS "LSCE"	2	PILOT LIGHT HEAD	Yellow LED	A	3EHP585818P1015	CLW/ES/3/0072// ALT. LATEST
26	166	INDICATION LAMP TEMPERATURE OF CONTROL ELECTRONICS "LSCE"	2	PILOT LIGHT BODY	380V AC Standard	A	3EHP585819P1010	CLW/ES/3/0072// ALT. LATEST
27	166	INDICATION LAMP TEMPERATURE OF CONTROL ELECTRONICS "LSCE"	2	MULTI-LED BA9S	18 MA, 24V DC Yellow	A	3EHP585726P0024	CLW/ES/3/0072// ALT. LATEST
28	169.1	SPRING LOADED SWITCH HOTEL LOAD SUPPLY "BLHO"	2@	SWITCH	6AA 250V 2NO	A	HBTB585604R001	CLW/ES/3/0075// ALT. LATEST
29	169.3	INDICATION LAMP HOTEL LOAD SUPPLY "LSHO"	2@	PILOT LIGHT HEAD	Yellow LED	A	3EHP585818P1015	CLW/ES/3/0072/ ALT. LATEST
30	169.3	INDICATION LAMP HOTEL LOAD "LSHO"	2@	PILOT LIGHT BODY	380V AC Standard	A	3EHP585819P1010	CLW/ES/3/0072/ ALT. LATEST
31	169.3	INDICATION LAMP HOTEL LOAD "LSHO"	2@	MULTI-LED BA9S	18 MA, 24 V DC Yellow	A	3EHP585726P0024	CLW/ES/3/0072/ ALT. LATEST
32	237.5	PUSH BUTTON RESET VIGILANCE CONTROL "BPVR"	2	BOOTED PUSH BUTTON HEAD	Yellow, Black, Bezel	A	3EHP585818P0311	CLW/ES/3/0072/ ALT. LATEST
33	237.5	PUSH BUTTON RESET VIGILANCE CONTROL "BPVR"	2	PUSH BUTTON BODY ASEMBLY	1NO Standard	A	3EHP585819P0010	CLW/ES/3/0072/ ALT. LATEST
34	242.1	INDICATION LAMP VIGILANCE	2	PILOT LIGHT	Yellow LED	A	3EHP585818P1015	CLW/ES/3/0072/ ALT.

		WARNING “LSVW”		HEAD				LATEST
35	242.1	INDICATION LAMP VIGILANCE WARNING “LSVW”	2	PILOT LIGHT BODY	380V AC Standard	A	3EHP585819P1010	CLW/ES/3/0072 / ALT. LATEST
36	242.1	INDICATION LAMP VIGILANCE WARNING “LSVW”	2	MULTI-LED BA9S	18 MA, 24V DC Yellow	A	3EHP585726P0024	CLW/ES/3/0072 / ALT. LATEST
37	244	PUSH BUTTON EMERGENCY STOP	2	MUSHROOM HEAD PUSH BUTTON	6A, 220V AC-3 ELEM	A	3EHP590153R0002	CLW/ES/3/0077 / ALT. LATEST
38	268	ILLUMINATED PUSH BUTTON PARKING BRAKE “BPPB”	2	BOOTED PUSH BUTTON HEAD	RED BLACK BEZEL	A	3EHP585818R0001	CLW/ES/3/0072 / ALT. LATEST
39	268	ILLUMINATED PUSH BUTTON PARKING BRAKE “BPPB”	2	ILLUMINATION PUSH BUTTON BODY	1 NO	A	3EHP585819P2141	CLW/ES/3/0072 / ALT. LATEST
40	268	ILLUMINATED PUSH BUTTON PARKING BRAKE “BPPB”	2	MULTI-LED BA9S	18 MA, 24V DC-RED	A	3EHP585726P0022	CLW/ES/3/0072 / ALT. LATEST
41	172	SPRING LOADED SWITCH FOR MAIN COMPRESSOR ”BLCP”	2	SPRING LOADED SWITCH	6A-250 V 2NO	A	HBTB585604R2001	CLW/ES/3/0075 / ALT. LATEST
42	XK**A	SOCKET 61P / 40 WITH PIN	02 NOS	CONNECTOR		A	HBTB315157R0011	CLW/ES/3/0124 / ALT. LATEST
43		CAB 4 GKW-AX 1.5 1800 V BK	63 MTS.#	CABLE		A	3EHW470015P0015	CLW/ES/3/0458 / ALT. LATEST
44		CAB-2X1.0 SCR	1.5 MTS.#	CABLE		A	3EHP470001P1002	CLW/ES/3/0458 / ALT. LATEST
45		CAB-2X0.5 SCR	2.5 MTS.#	CABLE		A	3EHP470000P0502	CLW/ES/3/0458 / ALT. LATEST
46		FASTON LUG 6.3X0.8 CU/SN	40 NOS.#	LUG		A	GMN485104P0155	CLW/ES/3/0643 / ALT. LATEST
47		JOINTING SLEEVE 6.3X0.8	40 NOS.#	SLEEVE		A	HZN452972P0002	CLW/ES/3/0643 / ALT. LATEST

48		COPPER SLEEVE 1.0-8.0	72 NOS .#	SLEEVE		A	NB485270 P0065	CLW/ES/3/0205 / ALT. LATEST
49		CABLE LUG 1.5-2.5 M5	60 NOS .#	LUG		A	3EHP470026 P0015	CLW/ES/3/0130 / ALT. LATEST
50	XE** *A	SOCKET, 9P D SUB, SIZE -1	04 NOS.	PLUG		A	HBTB316241 R0009	CLW/ES/3/0124 / ALT. LATEST
51		LOOMING BAR (TYPE-6) 176x90 SS TUBE 1818 (X6CrNITI)	02 NOS	LOOMING BAR		A	HBTB410026 P0003	CLW/ES/3/0119 / ALT. LATEST
52		LOOMING BAR (TYPE-2) 375x8 SS TUBE 1818 (X6CrNITI)	02 NOS	LOOMING BAR		A	3EHP431412 P0010	CLW/ES/3/0119 / ALT. LATEST
53		LOOMING BAR (TYPE-7) 247x120 SS TUBE 1818 (X6CrNITI)	02 NOS	LOOMING BAR		A	HBTB410027P0004	CLW/ES/3/0119 / ALT. LATEST
54		BRACKET (TYPE-4) SS SHEET AISI:240,GR.321	02 NOS	BRACKET		A	3EHP431102 P0003	CLW/ES/3/0121 / ALT. LATEST
55		DISTANCE BOLT M12X84 STAINLESS STEEL 304	03 NOS	BOLT		A		CLW/ES/3/0184 / ALT. LATEST
56		CABLE TIE 140X3.6PA 150MM	35 NOS #	CABLE TIE		A	NBT402938 P0002	CLW/ES/3/0131 / ALT. LATEST
57		CABLE TIE 186X4.8PA 200MM	50 NOS#	CABLE TIE		A	NBT402938 P0003	CLW/ES/3/0131 / ALT. LATEST
58		CABLE TIE 360X4.8PA 300 MM	25 NOS#	CABLE TIE		A		CLW/ES/3/0131 / ALT. LATEST

Note:- i) All the components must be procured from CLW/RDSO approved sources only.
ii) #Qty./Loco of the items are approximate.
iii) ##Qty./Loco of BPPB is NIL for WAG-9 & WAP-7and 02 nos. for WAP-5.
iv) @ Qty./Loco of LSHO&BLHO is NIL in WAG-9 Loco and Qty./Loco is 02 nos for WAP-5/WAP-7 locos
v) * marked components are for push pull complied WAP-5 & WAP-7 locos.
vi) StandardfastenersofM/sTVS,M/sLPS,M/sUNBRAKOandspringwasherofM/s FORBES make only to be used.

2. SERVICE CONDITION:

Climatic and Environmental condition:

Maximum atmospheric temperature	: 70°C (in sun) & 50°C (in shade)
Normal humidity	: 60%
Maximum humidity	: 100% saturation during airy season.
Altitude	: 160 m.a.s.l
Rain fall	: 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 102mm above rail level.
Atmosphere during hot weather	: Extremely dusty and desert terrain in certain areas.
Coastal areas	: Locomotive and equipment will be designed to work even in coastal areas in humid and salty laden atmosphere.
Vibration	:The equipment sub-system and their mounting arrangement will be designed to withstand vibration and shocks encountered in service as specified in correspondence unless otherwise prescribed.

3. STANDARD: The relevant IEC, BS, DIN standard & India standard specification shall apply with respect to all materials used in the manufacture of Panel A complete. IS/IEC standard will be accepted internally used BBC/ABB Adtranz-standards if any should be mentioned together with corresponding IEC standard. Only SI Unit will be accepted.

4. WIRING AND CABLING:

a. The cables for wiring in the locomotive and equipment use high grade electrolytic copper stranded conductors tinned as used in WAG-9 Loco.
b. Cable will be fire retarding type. In location where high temperature are likely to be met, special cables may be employed. Grade of insulation and sheath should be as per requirement.
c. Plugs, sockets and connectors will be used to connect pre assembled units and to facilitate maintenance and ensure better layout.
d. No cable having size of less than 2.5 sqmm ordinarily be used.
e. Smaller size cables for internal wiring panels control cubicles, signal wiring, consistent with the mechanical and electrical requirements may be adopted.
f. The layout of the cables should be such that contamination by oil is avoided.
g. Loading capacity of power cables should be as per relevant standard.
h. Cables for terminal connections should have crimped joints/Lug as per requirement.
i. The documents related to cabling of subject item should be submitted to this office in due course of time.

5. TEST CONDITIONS

5.1 TYPE TESTING:

a) Material test report has to be produced during inspection. Material test report may be obtained from approved test house/supplier.
b) Complete Panel should be electrically tested as per relevant standards.
C) All electrical equipments procured shall be tested at assembly stage. Test certificates shall be produced for OEM components. Any change in design is required approval of Design Office and will involve complete type test.

5.2 ROUTINE TESTING:

The PANEL will be tested for the following routine tests:

a. Integrity and completeness.
b. Testing of inter connections and functionality of the complete panel.
c. Suitable checking fixtures are to be made for checking the dimensions of the complete assembled panels. Certificates for raw materials and fasteners to be provided.
a. Complete PANEL and electrical items to be tested as per relevant Standard.

6. INSPECTION

a. Type test should out by authorized representative of DY.CEE/D.
b. The complete testing to be carried out as per requirement.

7. SUPPLY OF DOCUMENTS (To be produced at least before prototype inspection)

i) Technical details composition and characteristics of the material including fasteners to be used for manufacture of Panel A.
ii) Source(s) of raw materials and hardwares.
iii) Manufacturing process
iv) Type test plan inducing checks for vibration and welding
v) Routine test plan
vi) Source of the components being offered including cables.

8. SUBMISSION OF TENDER QUOTATION:

The conditions are not technical, it is related to purchase of the item which is done by stores department.

9. TECHNICAL DOCUMENTS TO BE SUPPLIED BY THE SUPPLIER:

These are not technical points. These are related to vendor development of subject item.

10. NAME PLATE

The tenderer shall fix nameplate on the equipment indicating (1) manufacturer's name, (2) Sl. No. of equipment, (3) month and year of manufacture

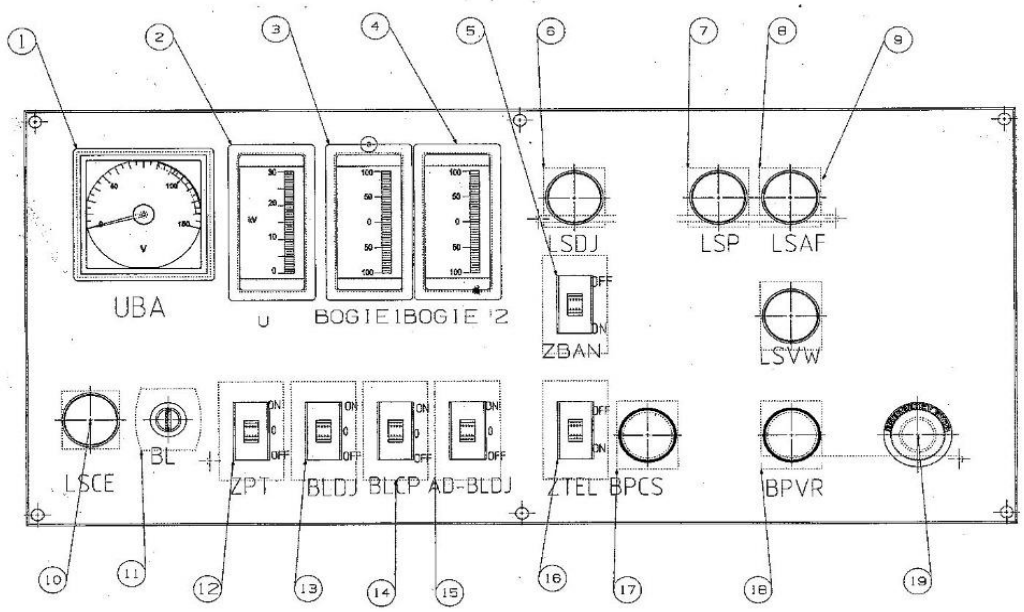


FIG. 1 Panel A

For WAG-9 Locomotive only

116	1	UBA	Voltmeter	Battery Voltage
74	2	U	Voltmeter	Catenary Voltage
79.1	3	BOGIE 1	TE/BE meter	Traction/braking effort , bogie 1
79.2	4	BOGIE 2	TE/BE meter	Traction/braking effort , bogie 2
153	5	ZBAN	Spring-loaded switch	Banking operation "ON"/"OFF"
137.3	6	LSDJ	Indication Lamp,red	Main Circuit breaker "OFF"
92	7	LSP	Indication lamp,yellow	Wheel sleeping
81.5	8	LSAF	Indication Lamp, red	Train parting
242.1	9	LSVW	Indication lamp,yellow	Vigilance warning
166	10	LSCE	Lamp, amber	Over temperature CEL
125	11	BL	Key Switch	Activation of Driver's Cab
129	12	ZPT	Spring loaded-switch	Raise/Lower pantograph
134	13	BLDJ	Spring loaded-switch	Main Circuit Breaker "ON"/"OFF"
172	14	BLCP	Spring loaded-switch	Main Compressors
	15	AD-BLDJ	Spring loaded-switch	Main Circuit Breaker "ON"/"OFF"
151.1	16	ZTEL	Switch	Max. Traction Limit
151.4	17	BPCS	Illuminated Push Button ,green	Constant speed control
237.5	18	BPVB	Push Button Yellow	Acknowedge vigilance
244	19	Emergency Stop	Emergency stop Button,Red	Emergency stop

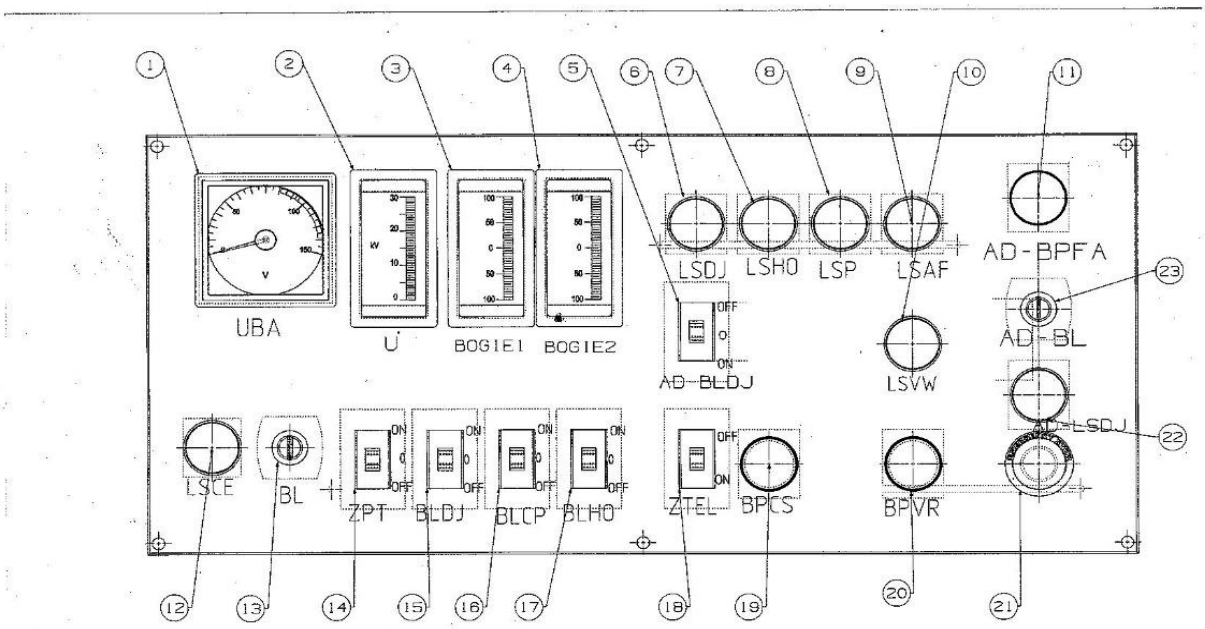


Fig. 2 Panel A
For WAP-7 Locomotive only

116	1	UBA	Voltmeter	Battery Voltage
74	2	U	Voltmeter	Catenary Voltage
79.1	3	BOGIE 1	TE/BE meter	Traction/braking effort , bogie 1
79.2	4	BOGIE 2	TE/BE meter	Traction/braking effort , bogie 2
	5	AD-BLDJ	Spring loaded-switch	Main Circuit Breaker "ON"/"OFF"
137.3	6	LSDJ	Indication Lamp,red	Main Circuit breaker "OFF"
169.3	7	LSHO	Indication Lamp, Yellow	Hotel Load "ON"
92	8	LSP	Indication lamp,yellow	Wheel sleeping
81.5	9	LSAF	Indication Lamp, red	Train parting
242.1	10	LSVW	Indication lamp,yellow	Vigilance warning
	11	AD-BL	Key Switch	Activation of Driver's Cab
168	12	LSCE	Lamp, amber	Over temperature CEL
125	13	BL	Key Switch	Activation of Driver's Cab
128	14	ZPT	Spring loaded-switch	Raise/Lower pantograph
134	15	BLDJ	Spring loaded-switch	Main Circuit Breaker "ON"/"OFF"
172	16	BLCP	Spring loaded-switch	Main Compressors
	17	BLHO	Spring loaded-switch	Auto mode "ON/OFF"
151.1	18	ZTEL	Switch	Max. Traction Limit
151.4	19	BPCS	Illuminated Push Button ,green	Constant speed control
237.5	20	BPVB	Push Button Yellow	Acknowedge Vigilance
244	21	Emergency Stop	Emergency stop Button,Red	Emergency stop
	22	AD-BPFA	Illuminated Push Button, Fault Indication /Acknowedge	Fault Indication/Acknowedge
	23	AD-LSDJ	Indication Lamp,red	Main Circuit breaker "OFF"

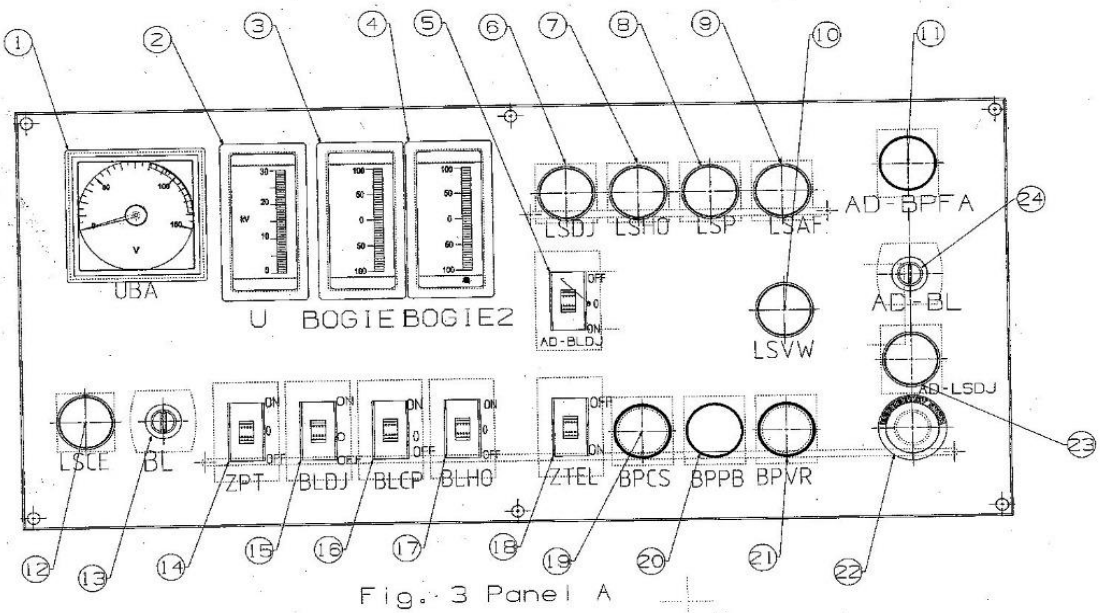


Fig. 3 Panel A

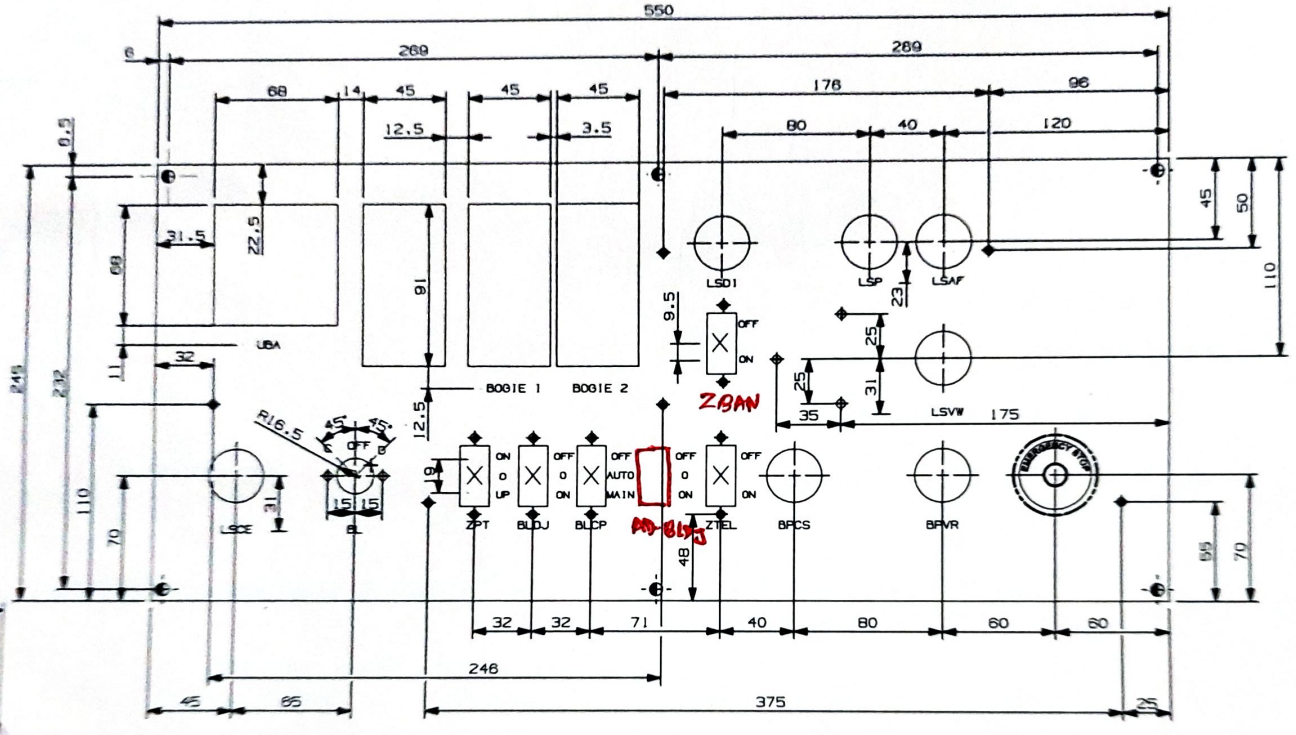
For WAP- 5 Locomotive only.

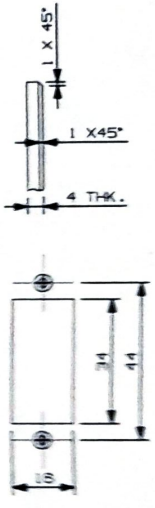
116	1	UBA	Voltmeter	Battery Voltage
74	2	U	Voltmeter	Catenary Voltage
79.1	3	BOGIE 1	TE/BE meter	Traction/braking effort , bogie 1
79.2	4	BOGIE 2	TE/BE meter	Traction/braking effort , bogie 2
	5	AD-BLDJ	Spring loaded-switch	Main Circuit Breaker "ON"/"OFF"
137.3	6	LSDJ	Indication Lamp,red	Main Circuit breaker "OFF"
169.3	7	LSHO	Indication Lamp, Yellow	Hotel Load "ON"
92	8	LSP	Indication lamp,yellow	Wheel sleeping
81.5	9	LSAF	Indication Lamp, red	Train parting
242.1	10	LSVW	Indication lamp,yellow	Vigilance warning
	11	AD-BL	Key Switch	Activation of Driver's Cab
166	12	LSCE	Lamp, amber	Over temperature CEL
125	13	BL	Key Switch	Activation of Driver's Cab
129	14	ZPT	Spring loaded-switch	Raise/Lower pantograph
134	15	BLDJ	Spring loaded-switch	Main Circuit Breaker "ON"/"OFF"
172	16	BLCP	Spring loaded-switch	Main Compressors
	17	BLHO	Spring loaded-switch	Auto mode "ON/OFF"
151.1	18	ZTEL	Switch	Max. Traction Limit
151.4	19	BPCS	Illuminated Push Button ,green	Constant speed control
268	20	BPPB	Illuminated Push Button, Red push-button, yellow	Parking Brake
237.5	21	BPVB	Push Button Yellow	Acknowedge vigilance
244	22	Emergency Stop	Emergency stop Button,Red	Emergency stop
	23	AD-BPFA	Illuminated Push Button, Fault Indication /Acknowedge	Fault Indication/Acknowedge
	24	AD-LSDJ	Indication Lamp,red	Main Circuit breaker "OFF"

PANEL A IDENT NO. 3EHP 330228P0001

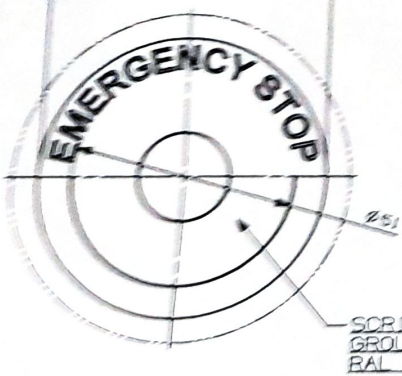
WAG-9 LOCO

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





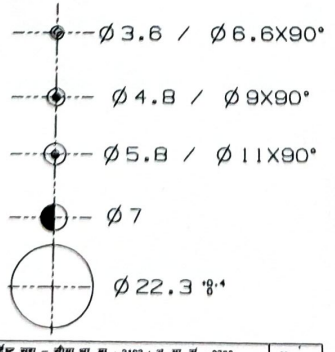
DETAIL X
SCALE 1 : 1



SCRIPT : BLACK
GROUND : YELLOW
RAL 1023

LOCATION - PRE ASSLY D/CAB PANEL A

QTY/LOCO-2

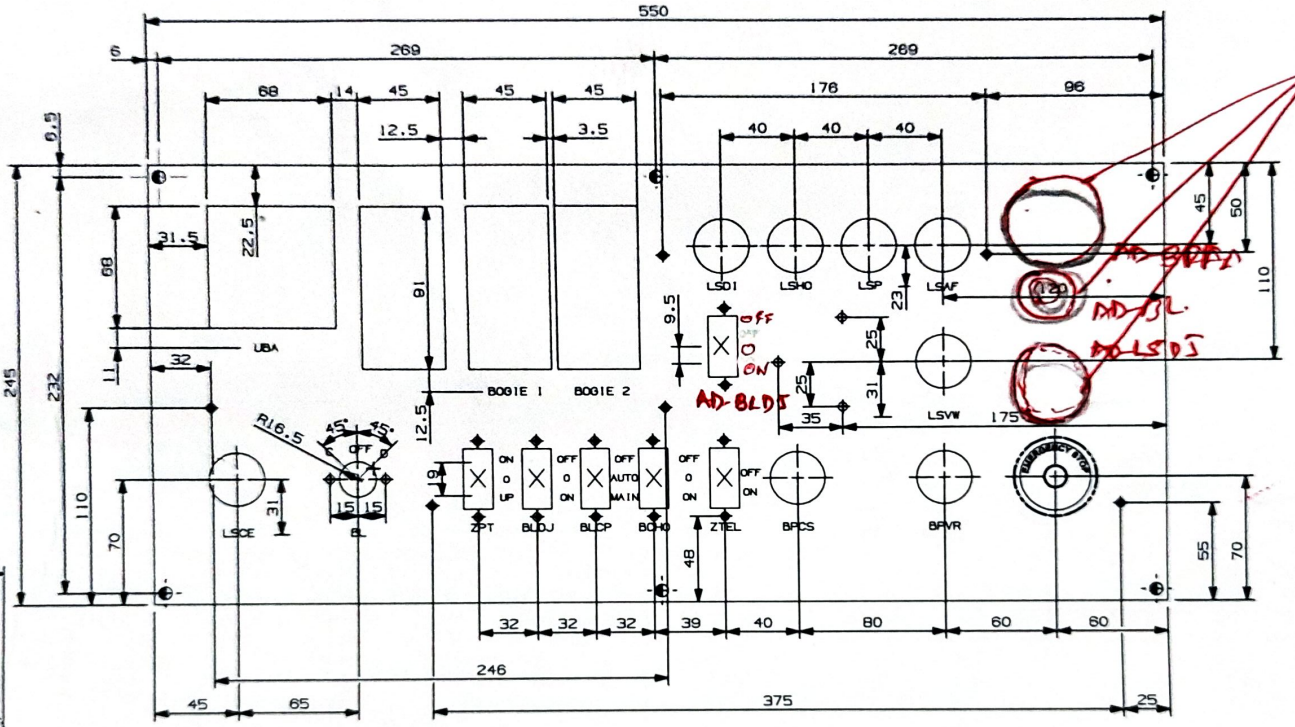


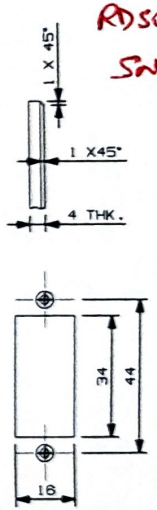
| | | |

PANEL A
FOR WAP-7

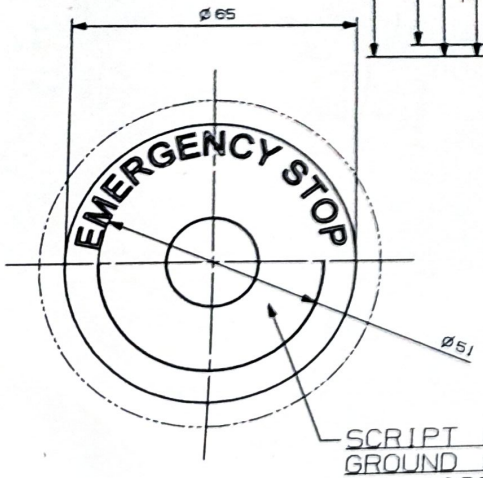
IDENT NO. 3EHP 330228P0001

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

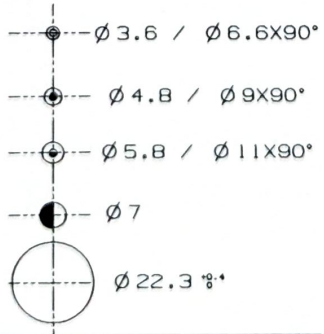




DETAIL X
SCALE 1:1



SCRIPT : BLACK
GROUND : YELLOW
RAL 1023



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

चित्तरंजन रेलइंजन कारखाना
CHITTARANJAN LOCOMOTIVE WORKS, INDIA

AS PER NOTE	
AS PER NOTE	
DESCRIPTION	PANEL 'A' FOR WAP-7 LOCOMOTIVES OF SET OF PANEL PLATES, SPECIFICATION NO.CLW/ES/3/0453
11-10-22	
NTS	CLWES/3/SK-2/2/0453
ALT-	1 OF 1
	A2

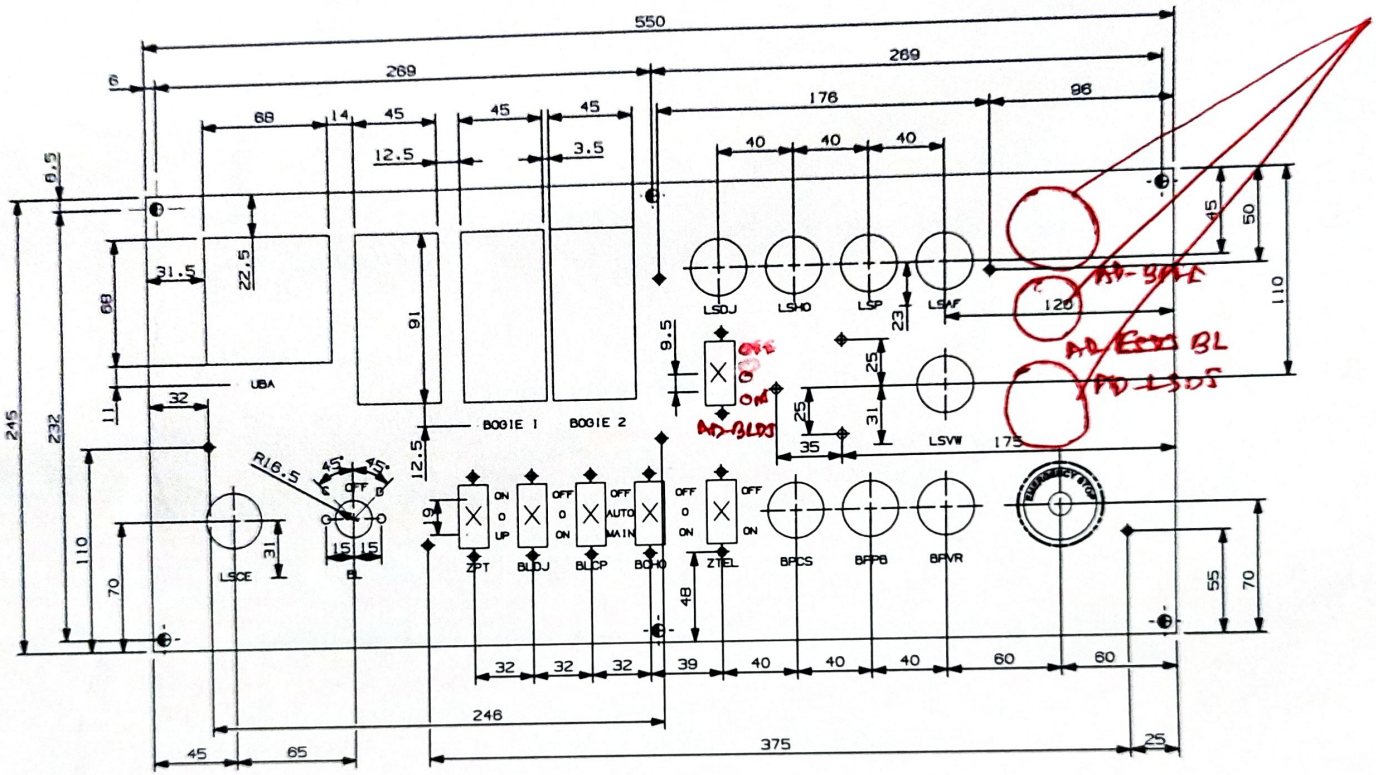
REDRAWN BY CDE

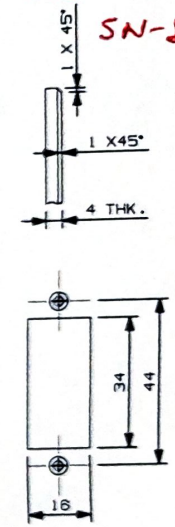
PANEL A
FOR WAP-5
LOCO

IDENT NO. 3EHP 330228P0001

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

There need to made in WAP5/7 loco Panel A, RDSO MS 477 SN-JA





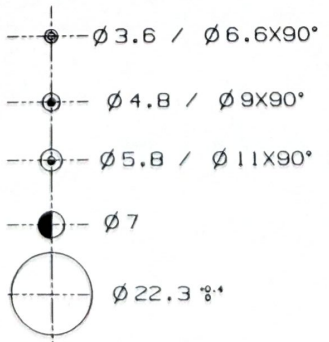
DETAIL X
SCALE 1:1



SCRIPT : BLACK
GROUND : YELLOW
RAL 1023

LOCATION - PRE ASSLY D/CAB PANEL A

QTY/LOCO-2



अभिरेखित DRN		चित्तरंजन रेलइंजन कारखाना CHITTARANJAN LOCOMOTIVE WORKS, INDIA	
जीच एस.एस. CHD SSE		पदार्थ MAT. AS PER NOTE	प्रति भाग कि. ग्रा. WT EACH IN KG
समीक्षित ए.ई.ई. / एस.ई. REVIEWED AE / SE		विशिष्टि SPEC. AS PER NOTE	
अनुमोदित ए.ई.एम. APPROVED DYEE		वर्णन DESCRIPTION PANEL 'A' FOR WAP-5 LOCOMOTIVES OF SET OF PANEL PLATES, SPECIFICATION NO.CLW/ES/3/0453	
दिनांक DATE	11-10-22	आरेखण संख्या DRAWING NO. CLWES/3/SK-2/3/0453	
रेखिक अनुपात SCALE	NTS	परिवर्तन संख्या ALTERATION NO.	पृष्ठ SHEET 1 OF 1 A2
प्रथम / दा. ALT.			

REDRAWN BY CDE