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MANOHARAN

Date: 2025.10.22

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## South Central Railway

Headquarters office,  
Electrical Branch (Coaching),  
Rail Nilayam, 7<sup>th</sup> Floor,  
Secunderabad  
email: [cesescr@gmail.com](mailto:cesescr@gmail.com)

No.E.227/TL&AC/4/EOG Coaches

Date: 31.01.2023

Sr.DEE/M/SC, HYB, BZA, GNT, GTL & NED,  
DEE/S/LGDS, ADEE/CRS/TPTY,

**Sub:** Issue of RDSO Modification Sheet no. RDSO/PE/MS/TL/0090-2023 (Rev.0) for provision of individual MPCB for water pumps and shifting of its controller to onboard in set of panels for LHB Non-AC EOG/HOG coaches as per RCF specification no. EDTS 355 Rev.1 with Am no. 1-2. -reg

**Ref:** RDSO's Lr.No EL/7.1.108/SBC/355/Non AC Coaches, dated: 24.01.2023

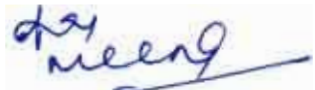
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Vide letter under reference, RDSO has issued modification sheet no. RDSO/PE/MS/TL/0090-2023 (Rev.0) dated 24/01/2023 for provision of individual MPCBs for each water pump and shifting of its controller to onboard panel in set of panels as per RCF specification no. EDS 355 Rev.1 with Am no. 1-2 for LHB Non-AC EOG/HOG coaches (copy enclosed).

This modification will eliminate the enroute problem of resetting of the tripped common MPCB for both the water pumps in case of failure of any single water pump and facilitate uninterrupted operation of water pumps and provide access to pump controller for selection/operation of pumps in Non-AC coaches during train run.

In this regard all divisions are advised to carry out this modification and complete in all Non AC LHB coaches having WRAs within 3 months ie before 30/04/2023. Submit the list of coaches to be modified to this office.

Encl: As above.

  
(Brij Mohan Meena)  
CESE/SCR  
PCME/SCR

Copy to: Secy to PCME/SCR for kind information of PCME/SCR



सत्यमेव जयते

EL/7.1.108/SBC/355/Non AC Coaches

**Principal Chief Mechanical Engineer**

- Eastern Railway, Fairlie Place, Kolkata - 700 001
- Northern Railway, Baroda House, New Delhi 110 001
- Central Railway, Parcel office, CST, Mumbai CST- 400 001
- Northeast Frontier Railway, Maligaon, Guwahati - 781 001
- North Eastern Railway, Gorakhpur 273 001
- South Central Railway, Nilayam, Secunderabad - 500 371
- Southern Railway, Park Town, Chennai -600 003
- South Eastern Railway, Garden Reach, Kolkata - 700 043
- Western Railway, Churchgate, Mumbai - 400 020
- North Central Railway, Subedarganj, Allahabad 211033
- Western Central Railway, Jabalpur 482 001
- East Central Railway, Dighi, Distt Vashali, Hajipur, Bihar-844 101
- North Western Railway, Jaipur 302006
- South Western Railway, New Zonal Head Quarters Office, 1<sup>st</sup> Floor, West Block, Gadag Road, Hubli 580 020 (Karnataka)
- South East Central Railway, Bilaspur 495004
- East Coast Railway, Bhuvneshwar Orissa 751 016

**Chief Electrical Engineer**

- Konkan Railway, Belapur Bhawan, Sector-11, Belapur, Mumbai - 400 614

**Chief Electrical Design Engineer**

- Integral Coach Factory, Chennai, 600038
- Rail Coach Factory, Hussainpur, Kapurthala 144 602
- Rail Coach Factory, Lalgarh, Raibareilly -229120

Dated 24.01.2023

**प्रमुख यांत्रिक इंजीनियर**

- पूर्व रेलवे फेयरली प्लेस, कोलकाता 700001
- उत्तर रेलवे, बरौदा हाउस, नई दिल्ली 11000
- मध्य, रेलवे मुंबई सीएसटी 400 001
- पूर्वोत्तर सीमान्त रेलवे, मालीगांव, गुवाहाटी 781001
- पूर्वोत्तर रेलवे, गोरखपुर 273001
- दक्षिण मध्य रेलवे, रेल निलयम, सिकंदराबाद 500371
- दक्षिण रेलवे पार्क टाउन, चेन्नई 600003
- दक्षिण पूर्व रेलवे गार्डन रीच, कोलकाता 700043
- पश्चिम रेलवे बर्नमेट, मुंबई 400020
- उत्तर मध्य रेलवे, सुबेदारगंज, इलाहाबाद 211033
- पश्चिम मध्य रेलवे, जबलपुर 482001
- पूर्व मध्य रेलवे, हाजीपुर 844101
- उत्तर पश्चिम रेलवे, जयपुर 302006
- दक्षिण पश्चिमी रेलवे, न्यू जोनल मुख्यालय कार्यालय, प्रथम तल पश्चिम ब्लॉक गदाग रोड, हुबली- 580 020 कर्नाटक
- दक्षिण पूर्व मध्य रेल, बिलासपुर 495 004
- पूर्वोत्तर रेलवे, भुवनेश्वर उड़ीसा 751 016

**मुख्य विद्युत इंजीनियर**

- कोणकण रेलवे, बेलपुर भवन, रोक्टर 11, बेलपुर मुंबई 400 614

**मुख्य विद्युत अधिकल्प इंजीनियर**

- सवारी डिब्बा कारखाना, चेन्नई 600 038
- रेल डिब्बा कारखाना, हुसैनपुर, कपूरथला 144 602
- रेल डिब्बा कारखाना, लालगंज रायबरेली 229120

**Sub:** Issue of RDSO Modification Sheet no. RDSO/PE/MS/TL/0090-2023 (Rev.0) for provision of individual MPCB for water pumps and shifting of its controller to onboard in set of panels for LHB Non-AC EOG/HOG coaches as per RCF specification no. EDTS 355 Rev.1 with Am no. 1-2.

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At present, the Non-AC LHB coaches, especially LWSCN (Sleeper) type coaches are provided with Primary Water Tanks in the underframe and secondary tanks above the toilets. In order to transfer water from primary tanks to secondary tanks 2 nos. 0.5 HP water pumps are provided. These pumps are protected with single common MPCB and Auto/Manual switching of water pumps is done through the pump controller which are provided in the underslung panel.

In view of the above, RDSO has issued Modification sheet no. RDSO/PE/MS/AC/0085-2022 (Rev.0) which will provide separate MPCBs for each water pumps and relocate the pump controller position from underframe to onboard. This will eliminate the enroute problem of resetting of the tripped common MPCB for both the water pumps in case of failure of any single water pump and facilitate uninterrupted operation of water pumps and provide access to pump controller for selection/ operation of pumps in Non AC coaches during train run.

Above has the approval of Competent Authority

DA: Nil

Copy to:

OSD Electrical Engineering (G), Railway Board, Rail Bhawan, New Delhi-110001

(Manjay Kumar)  
JDSE (TL-AC System Design)  
for Director General/PS&EMU



भारत सरकार  
रेल मंत्रालय

GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS

अनुसंधान अभिकल्प एवं मानक संगठन

RESEARCH DESIGN AND STANDARD ORGANISATION  
MANAK NAGAR LUCKNOW-226011

भारतीय रेल के गॉन एंसीन यांगो के ईन सीन टीन एसन 355 पर आधारित एलन एनबीन कोचों में प्रयुक्त रिवव बोर्ड कैबिनेट में पानी के पम्प के सर्किट में अतिरिक्त एमपीनसीनबीन के प्रावधान के लिए एवं पम्प कंट्रोलर को उसके स्थान से स्थानांतरित करने के लिये संशोधन शीट।

MODIFICATION FOR PROVISION OF INDIVIDUAL MPCB FOR WATER PUMPS AND SHIFTING OF ITS CONTROLLER TO ONBOARD IN SET OF PANELS FOR LHB NON AC EOG/HOG COACHES.

MODIFICATION SHEET NO. RDSO/PE/MS/TL/0090-2023 (Rev 0)

SN	DATE OF AMENDMENT	AMENDMENT NO.	PAGE NO.	REASON FOR AMENDMENT
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अनुमोदित  
APPROVED BY:

*[Signature]*  
24/1/2023  
प्रधान कार्यकारी निदेशक/पीएस एंड ईएमयू  
PED/PS& EMU

Prepared by  
*[Signature]*  
JE/TLAC-I

Checked by  
*[Signature]*  
Dy Director/TL-AC

*[Signature]*  
24/1/23  
JDSE/TL-AC & System Design



**RESEARCH DESIGNS AND STANDARDS ORGANISATION  
MANAK NAGAR, LUCKNOW-226011****Modification sheet no RDSO/PE/MS/TL/0090-2023(Rev-0)****1.0 TITLE:**

- 1.1 Modification Sheet for provision of individual MPCBs for each water pump and shifting of its controller to onboard panel in set of panels as per RCF specification no. EDTS 355 Rev.1 with Am no. 1-2 for LHB Non-AC EOG/HOG coaches.

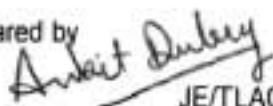
**2.0 OBJECT:**

- 2.1 This Modification Sheet is issued for provision of individual MPCB protection for each pump in underslung cubicle (HV box) itself and Shifting of Water Pump controller location in Set of panels from underslung cubicle (HV box) to onboard cubical (LV box). At present, the Non-AC LHB coaches, especially LWSCN (Sleeper) type coaches are provided with Primary Water Tanks in the underframe and secondary tanks above the toilets. In order to transfer water from primary tanks to secondary tanks 2 nos. 0.5 HP water pumps are provided. These pumps are protected with single common MPCB and Auto/Manual switching of water pumps is done through the pump controller. The tripping of common MPCB leads to stopping of both the pumps. The resetting of MPCB is only possible when the train stops and the panel is positioned on the opposite side of the platform in the underframe. Further, as the water pump controller is provided in the underslung panel, it prohibits the selection/operation of pumps unless the train stops. This modification will eliminate the above enroute problem of resetting of common MPCB of water pumps during train run and facilitate uninterrupted operation of water pumps in Non-AC coaches.


**3.0 BRIEF DESCRIPTION**

- 3.1 Railway Board vide letter no. 2022/Elect(G)/180/2/ Misc. dated 05.08.2022 has instructed to examine the issue raised by N E Railway regarding shifting of pump controller from underframe to on-board and provision of separate MPCBs for each pump in LSCN/LGS coaches. The proposal of NE railway forwarded by Railway board and later the similar proposal given by Northern Railway has also been examined and found to be justified to provide separate MPCB protection for each pump in underslung cubicle (HV box) itself and Shifting of Water Pump controller location in Set of panels from underslung cubicle (HV box) to onboard cubical (LV box).
- 3.2 To implement the modification, one extra MPCB has to be provided and protection for each pump in underslung cubicle (HV box), have to be given on individual MPCBs. In continuation to this modification, shifting of Water Pump controller from its location in Set of panels in underslung cubicle (HV box) to onboard cubical (LV box) also needs to be made. This modification will eliminate the enroute problem of resetting of the tripped common MPCB of water pumps in Non AC coaches during train run and provide uninterrupted operation of water pumps in Non-AC coaches.

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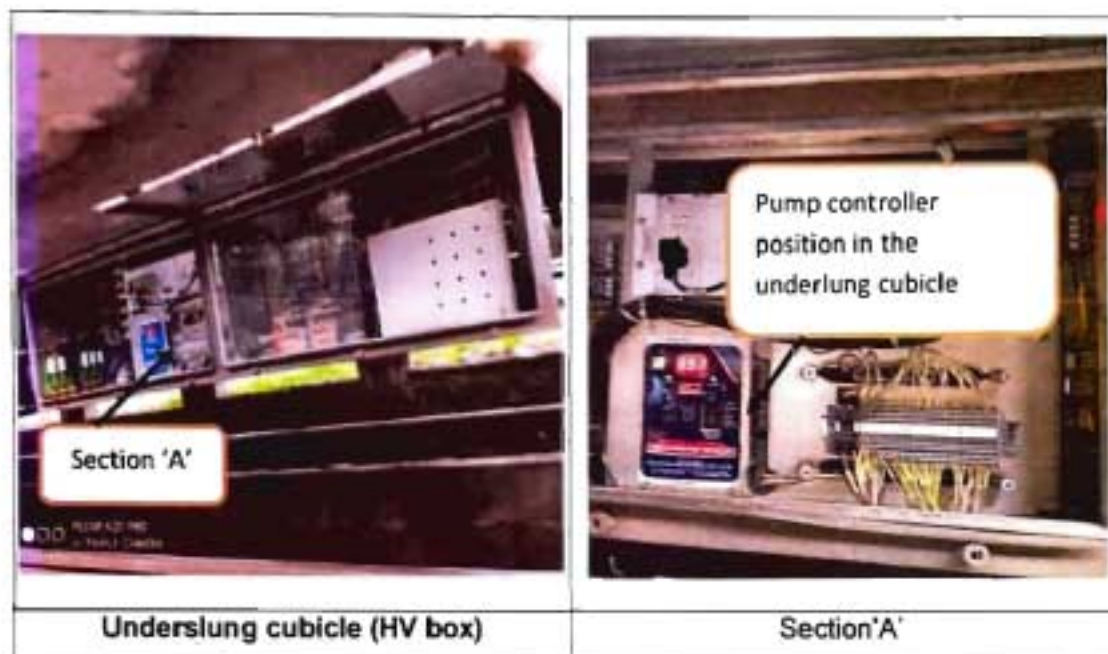
Checked by

  
Dy. Director/TL-AC  
JDSE/TL-AC & System Design

#### 4.0 MODIFICATION TO BE CARRIED OUT:

#### 4.1 Shifting of the Pump Controller from underslung cubical to on-board cubicle:

##### 4.1.1 Status of Pump Controller: At present, status of Pump controller in underslung HV cubicle is as under

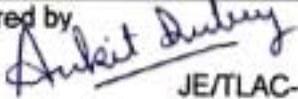
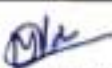


##### 4.1.2 Shifted Position of the Pump controller:

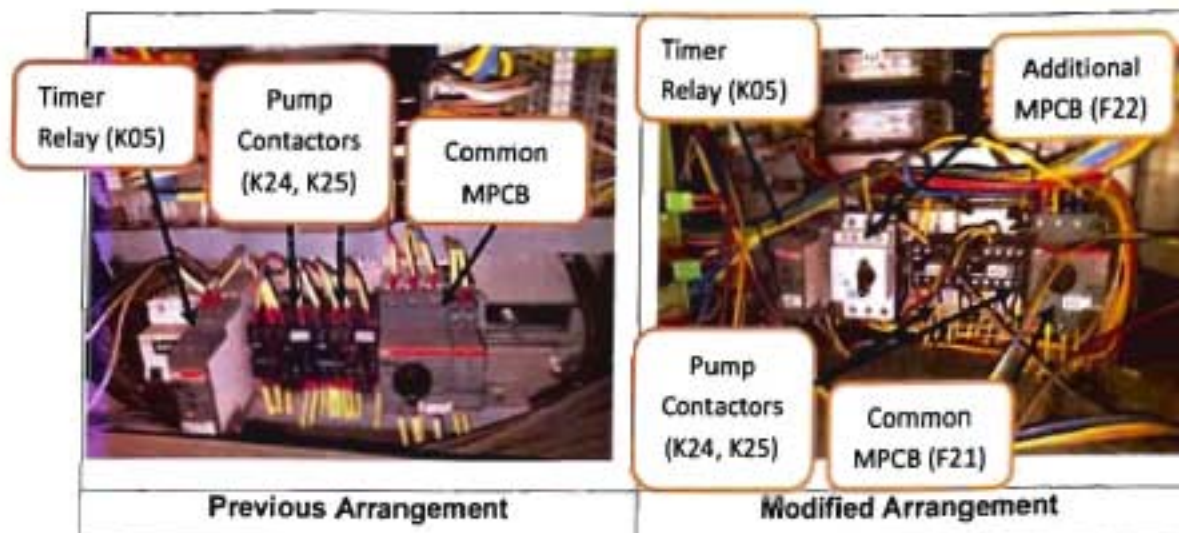
- The shifted position of the pump controller in the onboard panel shall be as per the location shown in drawing no. RCF drawing no. CC72081 marked in red ink (Annexure A).
- The input of the pump controller i.e. 110 V DC shall be taken from the onboard panel from the main positive/negative fuses.
- The output of the pump controller shall be routed through the onboard panel end-fittings, secured with sleeves/conduits and grommets. These wires shall be guided to the underslung panel and the connection to respective switchgears shall be as per RDSO drawing no. RDSO/PE/SK/TL/0241-2023 (Rev.0) (Annexure B).

#### 4.2 Provision of separate MPCB for each water pump:

- The power terminals of 415V, 3 phase supply of pump 2 shall be shifted from outgoing of existing MPCB. This connection shall be connected to the outgoing terminal of additional MPCB. Further, the incoming of both the MPCBs to be looped and connected to main 3 phase supply of 415 V.
- The photographs of previous and modified status of MPCBs and interconnection are as below:

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4.2.3 The interconnection of the MPCBs, contactors and pump controller shall be as per RDSO drawing no. RDSO/PE/SK/TL/0241-2023 (Rev.0) (Annexure B).

#### 5.0 APPLICATION:

The Set of electrical panels for LHB EOG Non-AC coaches as per RCF specification no. EDTS 355 Rev.1 with Am no. 1-2.

#### 6.0 MATERIALS REQUIRED:

The materials required to be purchased from RDSO approved sources as given below:

S.N	Gr	Item Code	Description	Qty	Drawing/Catalogue no.	Make	Place of Installation
a)	33	Q2	MPCB for water pump 1 & 2 with aux. contact (1NO+1NC) and terminal block db, Rated Current: 1 - 1.6 A Thermal release range: 1- 1.6 A Rated Voltage: 690 V Class: 10 Breaking Capacity: 50kA Pole: 3 P	1	MS116-1.6, HK1-11	ABB	S1F22
					GV2-ME06+GV-AE11	Schneider	
					3RV20111AA10+3RV 2901-1E	Siemens	
					ST418940000 + ST419450000	L&T	
b)			E beam cables for control and Power	L O T	As per RDSO Specification no. ELRS/SPEC/ELC/001 9, Rev.4 or latest	RDSO approved sources	
c)			Computer generated ferrules Class R22/R23 in EN 45545-2 HL 3 Category (self-fire extinguishing low smoke & low toxicity) Test report from EN	L O T		Tyco	
						Phoenix	
						MV Electro systems	
						Brady	

Prepared by

*Ankit Dubey*  
JE/TLAC-I

Checked by

*MKS*  
Dy. Director/TL-AC

*JDSE/TL-AC & System Design*

		certified lab for EN45545-2 HL-3 shall be furnished by the firm with supplied model no. and company name at the time of prototype and acceptance test.				
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**Note:** In the above list addition/deletion of materials will only be after prior approval of RDSO.

#### 7.0 DRAWING/ REFERENCE:

RDSO drawing no. RDSO/PE/SK/TL/0241-2023 (Rev.0)

#### 8.0 AGENCY FOR IMPLEMENTATION

All Zonal Railways and Workshops of Indian Railways.

#### 9.0 DISTRIBUTION LIST

As per list enclosed

#### 10.0 ENCLOSURES

S. No.	Annexure	Description
a)	Annexure A	RCF drawing no. CC72081 with location of the pump controller marked in red ink.
b)	Annexure B	RDSO drawing no. RDSO/PE/SK/TL/0241-2023 (Rev.0)

Prepared by

*Ankit Dubey*  
JE/TLAC-I

Checked by

*[Signature]*  
Dy. Director/TL-AC

*[Signature]*  
JDSE/TL-AC & System Design

## DISTRIBUTION LIST

## CHIEF ELECTRICAL ENGINEER

1	Northern Railway, Baroda House, New Delhi - 110 001
2	Central Railway, II Floor, Parcel office, CST Mumbai - 400 001
3	Eastern Railway, Fairlie Place, Kolkata - 700 001
4	South Eastern Railway, Garden Reach, Kolkata - 700 043
5	Southern Railway, Park Town, Chennai - 600 003
6	Western Railway, Church gate, Mumbai - 400 020
7	South Central Railway, Rail Nilayam, Secunderabad - 500 371
8	East Central Railway, Dighi Distt- Vaishali, Hajipur Bihar - 844 101
9	North Central Railway, North Central Railway, Block A, Subedarganj, Allahabad-211033
10	South Western Railway, I <sup>st</sup> Floor, DRM Office, Hubli 580 020
11	South East Central Railway, Bilaspur 495004
12	North East Frontier Railway, Maligaon, Guwahati - 781001
13	North Eastern Railway, Gorakhpur - 273001
14	North Western Railway, Jaipur - 302005
15	West Central Railway, Jabalpur - 482001
16	East Coast Railway, Bhuvneshwar, Orissa - 751016
17	Konkan Railway, Belapur Bhavan, Sector 11, Belapur, Mumbai - 400614
18	Metro Railway, 33 /1 J.L. Nehru road, Kolkata - 700071
19	Integral coach factory, Perambur, Chennai - 600038
20	Rail Coach Factory, Kapurthala (Punjab) - 144 602
21	Modern Rail Coach Factory, Lalgarh, Raebareli(U.P.) 229120

## CHIEF WORKS MANAGER

1	Matunga Workshop, Central Railway, Mumbai - 400 019
2	Liluah Workshop, Eastern Railway, Howrah
3	C&W Workshop, Northern Railway, Alambagh, Lucknow-226 05
4	C & W Workshop, N. Rly, Jagdhan - 135 002
5	Mechanical Workshop, NER, Gorakhpur - 273 012
6	Carriage Workshop, Southern Railway, Perambur, Ayanavaram, Chennai - 600023
7	SCR, I allagudda Workshop, I allagudda, Secunderabad - 500017
8	Carriage Workshop, Western Railway, Lower Parel, Mumbai-400013
9	CRWS, W. C. Railway, Nishatpura, Bhopal-462010
10	Carriage Workshop, NW Rly, Ajmer - 305001
11	Carriage Repair Workshop, Gadag Road, SWR, Hubli - 580 020
12	Carriage Workshop, S.W. Railway, Mysore Vishwanath
13	Carriage Workshop, SE Rly, Kharagpur - 721301
14	New Bongaigaon Railway Workshop Dangtal Distt Bongaigaon Assam 783380
15	Carriage and Wagon Workshop, N. C. Rly, Jhansi - 248003
16	Carriage and Wagon Workshop, WC Rly, Kota - 324002
17	Carriage and Wagon Workshop, Eastern Rly, Durgam - 711204
18	Carriage and Wagon Workshop, W Rly, Pratap Nagar, Vadodara - 390004
19	Carriage and Wagon Workshop, N Rly, Amritsar - 143001
20	Central Workshop, Golden rock, S Rly, Indhi - 620004
1	Director IIRI I N, Nasik Road (Maharashtra) - 422101
2	Senior Professor (I ICI) Railway Staff College, Lalbaug, Vadodara - 390004
3	Director IIRI/AMTI CI, Maharajpur, Gwalior - 474 020

Prepared by

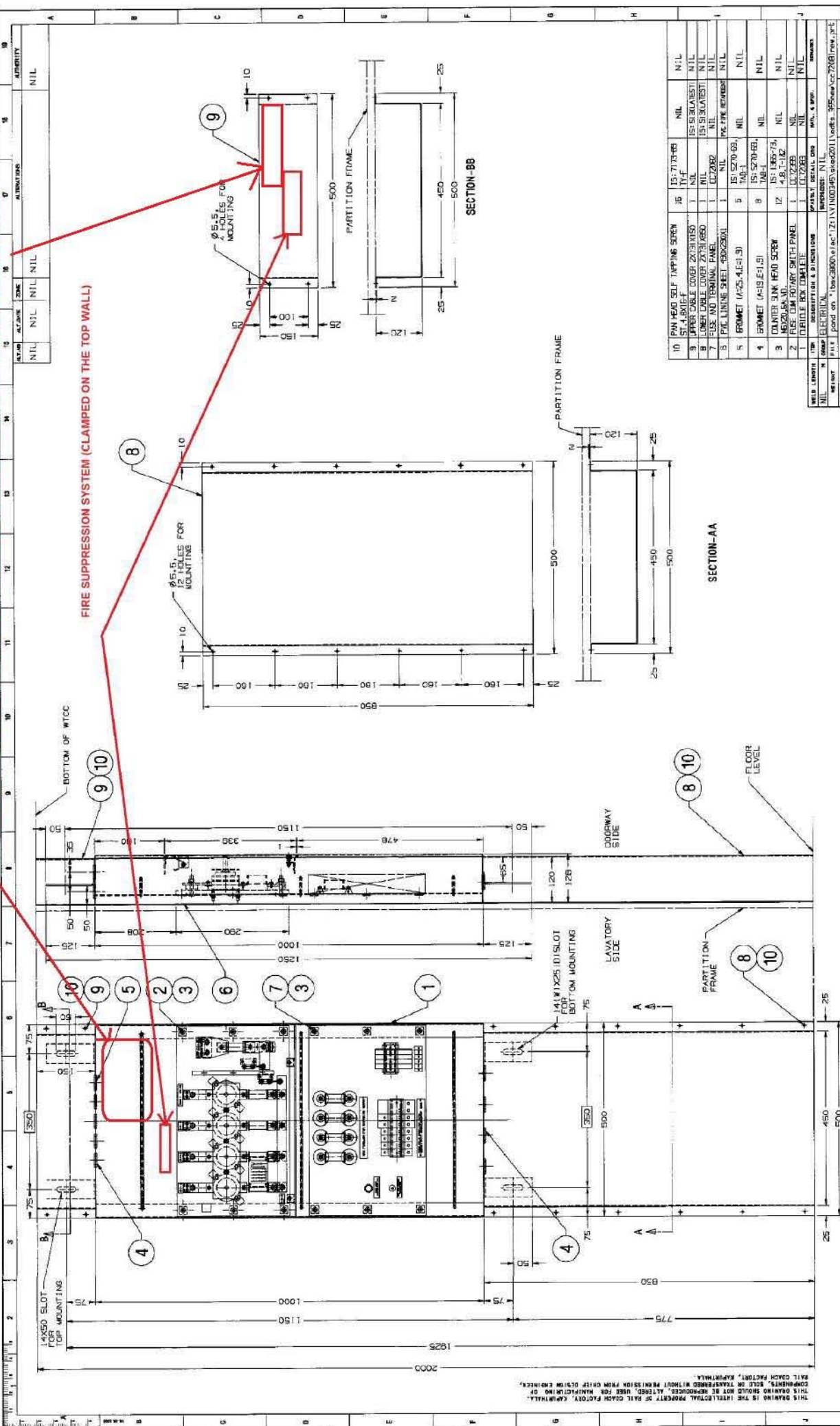
Anshu Dubey  
JE/TLAC-I

Checked by

Dy. Director/TL-AC JDSE/TL-AC &amp; System Design



MODIFIED POSITION OF THE PUMP CONTROLLER (SCREWED ON THE BACK PLATE OF ONBOARD PANEL)



10	PIN HEAD SELF TAPPING SCREW	15	IS: 7173-68	NIL	NIL
9	1/4" DIA. COIL COIL 20x1.6x10	1	IS: 5181-68	NIL	NIL
8	1/4" DIA. COIL COIL 20x1.6x10	1	IS: 5181-68	NIL	NIL
7	1/4" DIA. COIL COIL 20x1.6x10	1	IS: 5181-68	NIL	NIL
6	1/4" DIA. COIL COIL 20x1.6x10	1	IS: 5181-68	NIL	NIL
5	1/4" DIA. COIL COIL 20x1.6x10	1	IS: 5181-68	NIL	NIL
4	1/4" DIA. COIL COIL 20x1.6x10	1	IS: 5181-68	NIL	NIL
3	1/4" DIA. COIL COIL 20x1.6x10	1	IS: 5181-68	NIL	NIL
2	1/4" DIA. COIL COIL 20x1.6x10	1	IS: 5181-68	NIL	NIL
1	1/4" DIA. COIL COIL 20x1.6x10	1	IS: 5181-68	NIL	NIL

10	LOW VOLTAGE PANEL TO EDTS-355	1	IS: 5181-68	NIL	NIL
9	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
8	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
7	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
6	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
5	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
4	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
3	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
2	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
1	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL

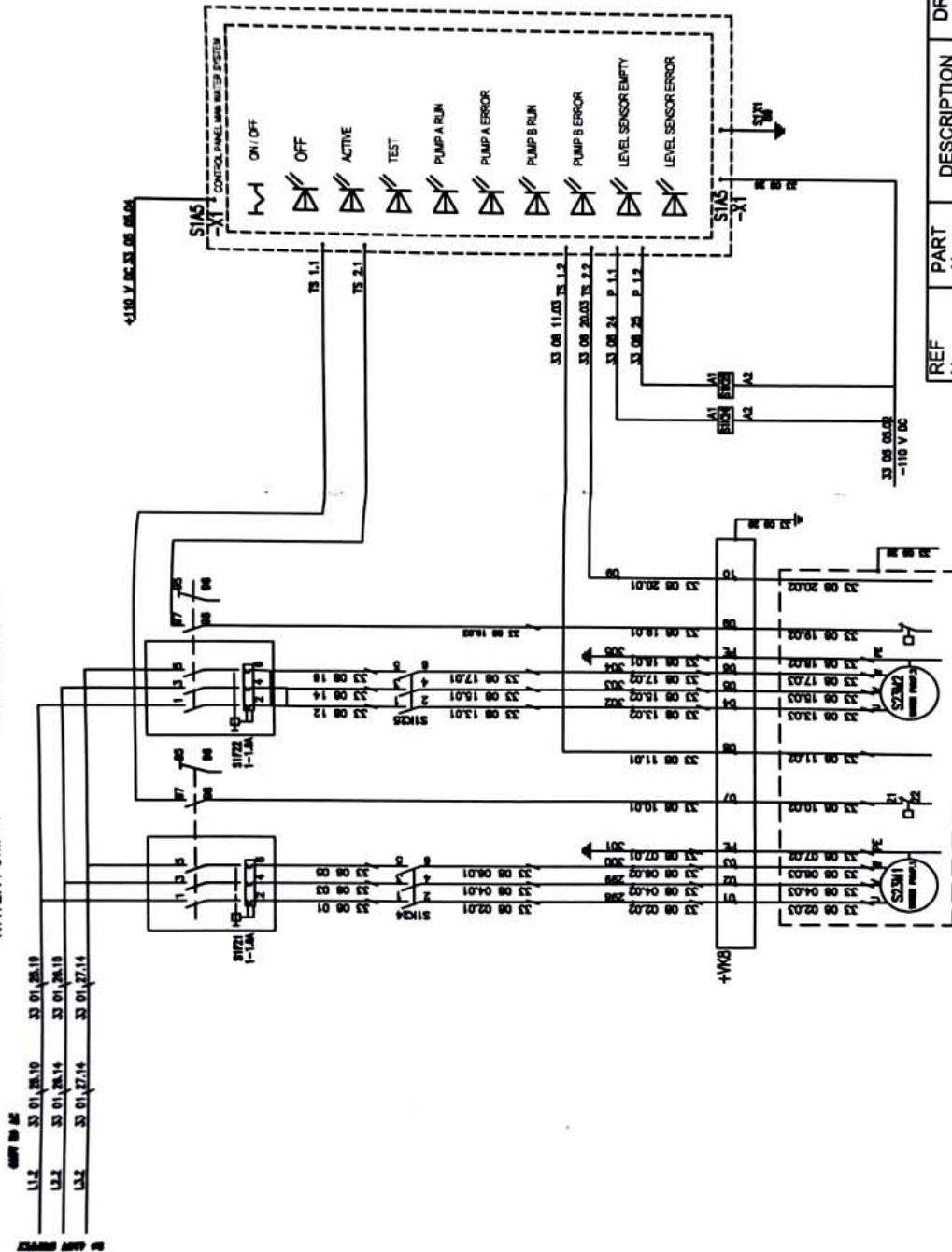
10	LOW VOLTAGE PANEL TO EDTS-355	1	IS: 5181-68	NIL	NIL
9	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
8	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
7	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
6	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
5	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
4	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
3	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
2	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
1	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL

10	LOW VOLTAGE PANEL TO EDTS-355	1	IS: 5181-68	NIL	NIL
9	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
8	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
7	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
6	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
5	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
4	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
3	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
2	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL
1	REV-0 FOR LHB EOG NON-AC COACHES	1	IS: 5181-68	NIL	NIL

3. ITEM-8, 9 & 10 ARE TO BE SUPPLIED LOOSE AND BE FITTED ON COACH.  
2. FRAMED DIMENSIONS ARE TO BE STRICTLY ADHERED TO.  
1. ALL DIMENSIONS ARE IN MM.  
NOTE:-  
ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID.  
FOR UNTOLEERANCE DIMENSIONS REFER NO.08008

WATER PUMP -1

WATER PUMP -2



NOTE:  
1. ALL DIMENSIONS IN MM  
2. FOR UNTOLERANCED DIMENSIONS REFER MDG0008

REF No	PART No	DESCRIPTION	DRG.NO. DETAIL	NO. OFF	MATL	SPEC.
REF :- EL7.1.108/ SBC/SS/NON AC						
SCALE :- 1:1 APPROVED BY :-						
FOR D. 24/11/23						
WIRING DIAGRAM FOR PUMP CONTROL WITH SEPARATE MPCB FOR EACH PUMP						
SUPERSEDES						
SUPERSEDED BY						
PS & EMU DIRECTORATE, RDSO LUCKNOW						
DRG NO. RDSO/PE/SK/TL/J0241-2023(REV-0)						

STATUS	REV/ALT.	REF. NO.	DESCRIPTION	APPD. BY	DATE

DT.	23.01.2023
D	410
C	410