

Rail Coach Factory, Kapurthala

CAI No.: ED/CAI/032 Dated: 20.03.2024

This Coach Alteration Instruction Sheet has been issued for modifications to be carried out in Pump equipment system provided in LHB AC & Non ac Coaches to spec. EDTS186 on the basis of feedback received from Users Railways. It covers modifications in wiring scheme with colour coding as per phase and thus maintaining the Phase sequence to avoid running of the pump motor in opposite direction. The detailed step by step procedure is as under:

a). The general wiring diagram for the Power and Control wiring as per the various Schematics for Switchboard Cabinets is as under

Sno.	Ref. SBC no.	Wiring Diagram No.	Description	Coach Type
1.	RDSO/PE/SPEC/AC/0184, Rev.1	RDSO/PE/SK/AC/0206-2019 REV. 0 (Sheet 21 of 48)	General wiring diagram for Power & Control Circuits, 415V Circuits	LHB AC Coach
2.	EDTS 355	LS70117	WATER PUMP wiring diagram of SBC	LHB Non AC coach
3.	EDTS 333	LS70202	Water Pump and Exhaust fan wiring diagram of SBC	LHB Non AC coach

b). Wiring Scheme and Colour Coding Sequence for Water Pump Circuit:

The wiring scheme and colour coding sequence in LHB AC & NON-AC Coaches from Switch Board Cabinet up to Water Pump Motor terminals shall be followed as under:

Sno.	Cable Size	From	Conn. No.	To	Conn. No.	Wire no	Colour	REMARKS
1.	1.5mm ²	MPCB 3301 S1F21	2	Contactor 33K6 S1K24	1	330801	R	
			4		3	330803	Y	
			6		5	330805	B	
2.	1.5mm ²	Contactor 33K6 S1K24	2	S1X1	298	330802.01	R	
			4		299	330804.01	Y	
			6		300	330806.01	B	
		-	-		301	PE	GNYE	
3.	1.5mm ²	MPCB 3302 S1F22	2	Contactor 33K7 S1K25	1	330812	R	
			4		3	330814	Y	
			6		5	330816	B	
4.	1.5mm ²	Contactor 33K6 S1K24	2	S1X1	302	330813.01	R	
			4		303	330815.01	Y	
			6		304	330817.01	B	
		-	-		305	PE	GNYE	

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5.	4x1.5mm ² Multicore cable	SBC	298	VK8 33X4	01	330802.02	BR	Colour coding scheme at both ends shall be as per Note-2
			299		02	330804.02	BLK	
			300		03	330806.02	WH	
			301		PE	330807.01	GNYE	
6	1.5mm ²	VK8 33X4	1	33M13 S23M1	U	330802.03	R	
			2		V	330804.03	Y	
			3		W	330806.03	B	
			PE		PE	330807.02	GNYE	
7	4x1.5mm ² Multicore cable	SBC	302	VK8 33X4	4	330813.02	BR	Colour coding scheme at both ends shall be as per Note-2
			303		5	330815.02	BLK	
			304		6	330817.02	W	
			305		PE	330818.01	GNYE	
8	1.5mm ²	VK8 33X4	4	33M13 S23M1	U	330813.03	R	
			5		V	330815.03	Y	
			6		W	330817.03	B	
			PE		PE	330818.02	GNYE	
9	1.5mm ²	Controller 33A5 S1A5	TS1.1	MPCB 33Q1 S1F21	97	330810.01	WH	-
10	1.5mm ²	MPCB 33Q1 S1F21	98	SBC S1X1	34	330810.03	WH	-
11	1.5mm ²	Controller 33A5 S1A5	TS1.1	SBC S1X1	35	330811.03	BR	-
12	2X1.5mm ² Multi core cable	SBC S1X1	34	VK8 33X4	7	330810.01	WH	-
			35		8	330811.01	BR	-
13	1.5mm ²	VK8 33X4	7	33S1 S13S1	21	330810.02	WH	-
14	1.5mm ²	33S1 S13S1	22	VK8 33X4	8	330811.02	BR	-
15	1.5mm ²	Controller 33A5 S1A5	TS2.1	MPCB 33Q2 S1F22	97	330819.01	WH	-
16	1.5mm ²	MPCB 33Q2 S1F22	98	SBC S1X1	29	330819.03	WH	-
17	1.5mm ²	Controller 33A5 S1A5	TS2.2	SBC S1X1	30	330820.03	BR	-
18	2X1.5mm ²	SBC	29	VK8	9	330819.01	WH	-

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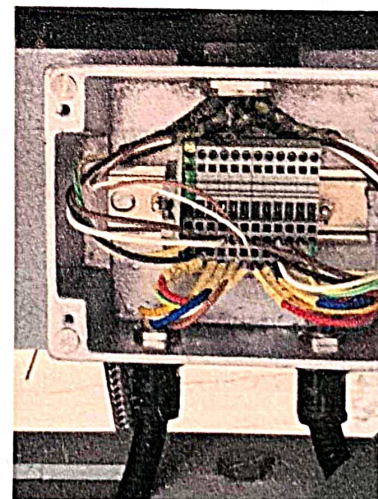
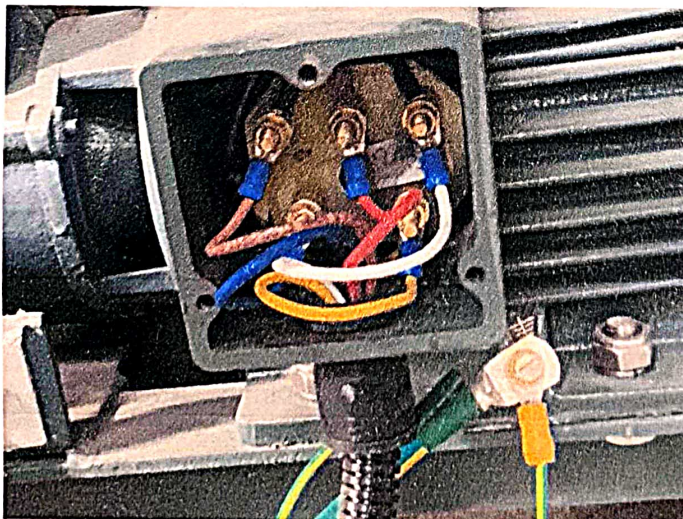
	Multi core cable	S1X1	30	33X4	10	330820.01	BR	-
19	1.5mm ²	VK8 33X4	9	33S2 S13S2	21	330819.02	WH	-
20	1.5mm ²	33S2 S13S2	22	VK8 33X4	10	330820.02	BR	-

Note-1: For maintaining proper colour coding, if required in existing coaches, Colour coded sleeves to RCF Specification EDML-176, Rev-Nil of appropriate colour and size for a min. length of 25 mm after the cable marker may be provided at both ends.

Note-2: As in most of the Coaches, 4x1,5 mm² multi-core cable of Brown-Black-White-Green/yellow Colour scheme has been used from SBC terminal to Water pump Motor Junction box, the colour coding sequence for provision of heat shrinkable sleeves at both ends of the 4x1.5 mm² cable, shall be as under:

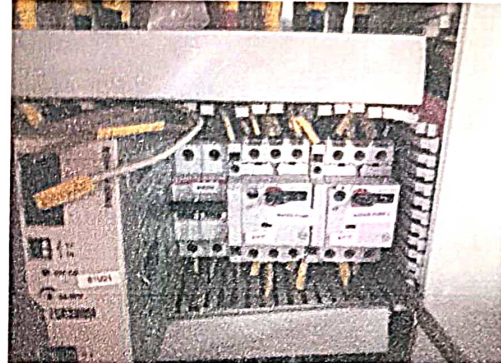
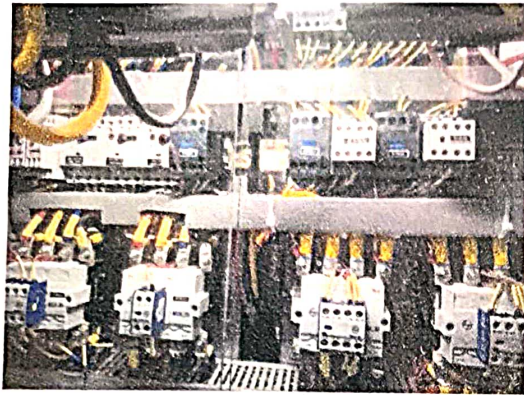
Brown	Red
Black	Yellow
White	Blue
Green Yellow	Green Yellow

Note:3 After reconnections of the wiring with color coded sleeves, Phase sequence shall be checked with Phase Sequence Meter at Switch Board Cabinet as well as at Motor Terminal Box. to ensure proper connections.

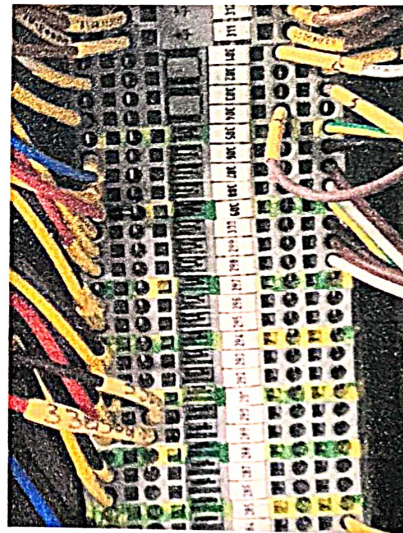
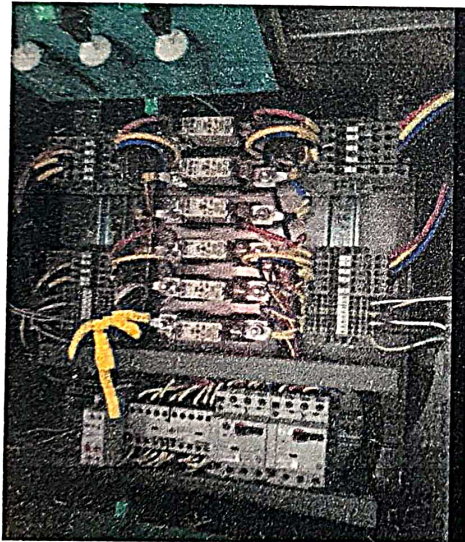


Connections in Motor Connection box and Motor terminal Box as per existing wiring scheme

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SBC FOR LHB AC COACHES



SBC FOR LHB NON AC COACHES

TERMINAL BOARD LHB AC COACHES

c. Enclosures:

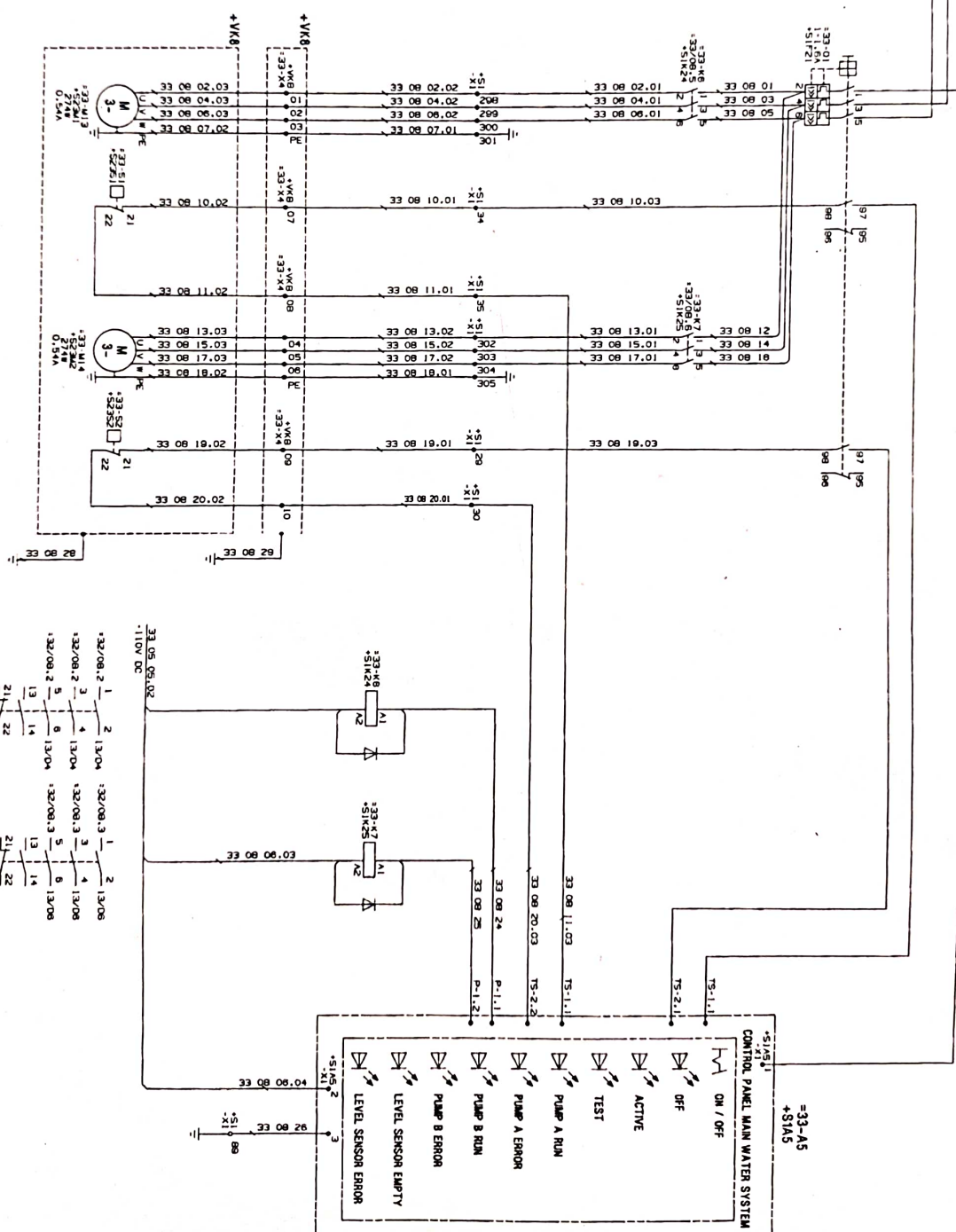
Sno.	Ref. Specification/Drawing no	Description
1	RDSO/PE/SK/AC/0206-2019 REV. 0 (Sheet 21 of 48)	General wiring diagram for Power & Control Circuits, 415V Circuits for LHB AC Coaches
2	LS70117 (Sheet 3 of 5)	Water Pump wiring diagram of SBC, LHB Non AC (EDTS-355)
3	LS70202 (Sheet 3 of 13)	Water Pump and Exhaust fan wiring diagram of SBC, LHB Non AC (EDTS-333)
4	EDML 176	Material List for flexible flame retardant, High Performance, polyolefin heat Shrinkable Tubing

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GENERAL WIRING DIAGRAM FOR POWER & CONTROL CIRCUITS (FOR SBC ST FOR USE
AC EOG / HOG AND GARIB RATH COACHES) 415V CIRCUIT

WATER PUMP-2



0	10/02/2012	ALL	1. REFER TO SHEET NO -5	DIC NO. ED120001
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Material List for Flexible Flame-Retardant, High Performance, Polyolefin Heat-Shrinkable Tubing

This material list covers the supply of Flexible flame-retardant, high performance, polyolefin heat-shrinkable tubing for LHB EOG AC Coaches and LHB EOG Non AC Coaches.

SN	Suitable cable size in sq.mm	Suitable crimping socket for cable size	Description	Sleeve Size	Sleeve length	Colour	QPC		
							LHB AC Coaches	LHB Non-AC Coaches except LSLRD	LHB Non-AC LSLRD Coaches
1	150	150	Flexible flame-retardant, high performance, polyolefin heat-shrinkable tubing to Cat. no. RNF-100, Type-1, of M/s Tyco Electronics or Equivalent of M/s Panduit or MV Electro-systems or M/s Phoenix or M/s Novo-flex make.	31.7	2"	Red	8	8	12
2	150	150		31.7	2"	Yellow	8	8	12
3	150	150		31.7	2"	Blue	8	8	12
4	95	95		25.4	2"	Black	8	8	12
5	70	70		19.1	2"	Green	4	4	4
6	50	50		19.1	2"	Red	6	-	-
7	50	50		19.1	2"	Yellow	6	-	-
8	50	50		19.1	2"	Blue	6	-	-
9	50	50		19.1	2"	Black	6	-	-
10	25	25		12.7	2"	Red	2	4	4
11	25	25		12.7	2"	Yellow	2	4	4
12	25	25		12.7	2"	Blue	2	4	4
13	25	25		12.7	2"	Black	2	4	4
14	16	16		9.5	2"	Red	-	4	4
15	16	16		9.5	2"	Yellow	-	4	4
16	16	16		9.5	2"	Blue	-	4	4
17	16	16		9.5	2"	Black	-	4	4
18	6	6		6.4	2"	Red	-	2	2
19	6	6		6.4	2"	Yellow	-	2	2
20	6	6		6.4	2"	Blue	-	2	2
21	6	6		6.4	2"	Black	-	2	2
22	4	4		6.4	2"	Red	2	-	-
23	4	4		6.4	2"	Yellow	2	-	-
24	4	4		6.4	2"	Blue	2	-	-
25	4	4		6.4	2"	Black	2	-	-
26	2.5	2.5		6.4	2"	Red	2	-	-
27	2.5	2.5		6.4	2"	Yellow	2	-	-
28	2.5	2.5		6.4	2"	Blue	2	-	-

EDML-176	Nil	27.03.21	<i>JS</i>	<i>Blind</i>	<i>Subbar</i>	1 of 1
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