SPECIFICATION FOR 'HARNESS OF UNDER FRAME AND ROOF ARRANGEMENT' FOR LHB EOG GS COACHES WITH CENTRALIZED FDB IN DOORWAY AREA.

1.0 This specification covers manufacturing, assembly and supply of readymade `CABLE HARNESS FOR UNDER FRAME AND ROOF FOR LHB EOG GS COACHES WITH CENTRALIZED FDB IN DOORWAY AREA'. These harnesses shall comprise of thin walled flexible elastomeric cables with copper conductors duly cut to specified lengths and ferruled for cable identification. The free ends of the cables shall be stripped & taped with FRLT cotton insulation tapes of approved makes.

1.1 The harness manufacturer shall quote for supply of the harness without commissioning.

1.2 The firm shall maintain date wise in house quality control system and in-house quality control records etc. for in stage process inspection and testing at harness manufacturer's premises and the same shall be made available to the inspecting official during type testing.

2.0 SCOPE OF SUPPLY:

TYPE	DESCRIPTION
TYPE-1	HARNESS OF 'UNDER FRAME ARRANGEMENT' FOR LHB EOG GS COACHES WITH CENTRALIZED FDB IN DOORWAY AREA.
TYPE-2	HARNESS OF 'ROOF ARRANGEMENT' FOR LHB EOG GS COACHES WITH CENTRALIZED FDB IN DOORWAY AREA.

a. Procurement of the items specified in BOM of the specification shall be procured from RDSO/RCF/ICF approved vendors mentioned in latest version of the vendor directory issued by RDSO/RCF/ICF respectively. However the procurement of e-beam Cables & Cable Management system shall be done by RDSO Approved Vendors for minimum 80% quantity of total quantity and balance quantity up-to 20% from Developmental vendors as mentioned in latest version of the Vendor directory issued by RDSO.

Based on the procurement of various sizes of e-beam Cables & Cable management System from either Approved or Developmental Sources, the Cable harness shall be categorized as under:

- Category-A: Cable harness with approved source of e-beam Cables & Cable Management System (80% min.)
- Category-B: Cable harness with Developmental source of e-beam Cables & Cable Management System (20% min.)

Category –B type of cable harness may be supplied with e-beam cables & cable management system procured from Developmental Sources, however in no case Category-A type shall be supplied with e-beam cables & cable management system procured from Developmental Sources.

Firm shall maintain a record according to the above classification and offer to RITES/ Inspecting official for inspection in format EDF 0001, Ver. 3.0 (or latest) annexed with the specification.

Note: - The above mentioned criteria is not applicable to Cable Management System of size NW10 & NW70 as the approved Sources are less than three or only Developmental sources are there. Therefore, the procurement if size NW10 & NW70 (if applicable) may be done for such sources subject to past performance, capacity, delivery requirements, quality under procurement, nature of item, outstanding order etc. to be treated as bulk orders.

b. SAFETY: All PPE/Safety related gears availability shall be ensured while working in coaches.

2.1 TYPE-1: 'HARNESS OF UNDER FRAME ARRANGEMENT' FOR LHB EOG GS COACHES WITH CENTRALIZED FDB IN DOORWAY AREA:-

2.1 (a) : BILL OF MATERIAL FOR UNDER-FRAME WIRING:

A) THIN WALLED FLEXIBLE ELASTOMERIC CABLES WITH COPPER CONDUCTORS & ACCESSORIES:-

SN	Description	Working voltage	Cable size (in mm^2)	Cable color	Detail drg./ Spec.	QPC	Remarks
1.	Thin walled flexible elastomeric cables with Cu. Conductors	above 750 volts upto 1.8KV/ 3.0KV	150	Red	ELRS/SPEC/ELC /0019, Rev-4	*49 Mtr*	Feeder cables
2.	Thin walled flexible elastomeric cables with Cu. Conductors	above 750 volts upto 1.8KV/ 3.0KV	150	Yellow	ELRS/SPEC/ELC /0019, Rev-4	*49 Mtr*	Feeder cables
3.	Thin walled flexible elastomeric cables with Cu. Conductors	above 750 volts upto 1.8KV/ 3.0KV	150	Blue	ELRS/SPEC/ELC /0019, Rev-4	*49 Mtr*	Feeder cables
4.	Thin walled flexible elastomeric cables with Cu. Conductors	above 750 volts upto 1.8KV/ 3.0KV	95	Black	ELRS/SPEC/ELC /0019, Rev-4	*49 Mtr*	Feeder cables
5.	Thin walled flexible elastomeric cables	above 750 volts upto	70	GNYE	ELRS/SPEC/ELC /0019, Rev-4	*09 Mtr*	For Feeder Earthing

	with Cu. Conductors	1.8KV/ 3.0KV					
6.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	50	GNYE	ELRS/SPEC/ELC /0019, Rev.-4	*0.5 Mtr*	For Earthing
7.	Thin walled flexible elastomeric cables with Cu. Conductors	above 750 volts upto 1.8KV/ 3.0KV	25	Red	ELRS/SPEC/ELC /0019, Rev-4	*29 Mtr*	Feeder junction box to SBC
8.	Thin walled flexible elastomeric cables with Cu. Conductors	above 750 volts upto 1.8KV/ 3.0KV	25	Yellow	ELRS/SPEC/ELC /0019, Rev-4	*29 Mtr*	Feeder junction box to SBC
9.	Thin walled flexible elastomeric cables with Cu. Conductors	above 750 volts upto 1.8KV/ 3.0KV	25	Blue	ELRS/SPEC/ELC /0019, Rev-4	*29 Mtr*	Feeder junction box to SBC
10.	Thin walled flexible elastomeric cables with Cu. Conductors	above 750 volts upto 1.8KV/ 3.0KV	25	Black	ELRS/SPEC/ELC /0019, Rev-4	*29 Mtr*	Feeder junction box to SBC
11.	Thin walled flexible elastomeric cables with Cu. Conductors	above 750 volts upto 1.8KV/ 3.0KV	16	Red	ELRS/SPEC/ELC /0019, Rev-4	*09 Mtr*	9 KVA TXR I/P (750V AC side)
12.	Thin walled flexible elastomeric cables with Cu. Conductors	above 750 volts upto 1.8KV/ 3.0KV	16	Yellow	ELRS/SPEC/ELC /0019, Rev-4	*09 Mtr*	9 KVA TXR I/P (750V AC side)
13.	Thin walled flexible elastomeric cables with Cu. Conductors	above 750 volts upto 1.8KV/ 3.0KV	16	Blue	ELRS/SPEC/ELC /0019, Rev-4	*09 Mtr*	9 KVA TXR I/P (750V AC side)
14.	Thin walled flexible elastomeric cables with Cu. Conductors	above 750 volts upto 1.8KV/ 3.0KV	16	Black	ELRS/SPEC/ELC /0019, Rev-4	*09 Mtr*	9 KVA TXR I/P (750V AC side)
15.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	16	Red	ELRS/SPEC/ELC /0019, Rev-4	*05 Mtr*	9 KVA TXR O/P (415V AC side)
16.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	16	Yellow	ELRS/SPEC/ELC /0019, Rev-4	*05 Mtr*	9 KVA TXR O/P (415V AC side)
17.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	16	Blue	ELRS/SPEC/ELC /0019, Rev-4	*05 Mtr*	9 KVA TXR O/P(415V AC side)
18.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	16	Black	ELRS/SPEC/ELC /0019, Rev-4	*05 Mtr*	9 KVA TXR O/P (415V AC side)

19.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	16	GNYE	ELRS/SPEC/ELC /0019, Rev-4	*3.5 Mtr*	Earthing
20.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	10	Red	ELRS/SPEC/ELC /0019, Rev-4	*15.5 Mtr*	BCT
21.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	10	Blue	ELRS/SPEC/ELC /0019, Rev-4	*12 Mtr*	BCT
22.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	10	White	ELRS/SPEC/ELC /0019, Rev-4	*26.5 Mtr*	-ve fuse box
23.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	10	Choco	ELRS/SPEC/ELC /0019, Rev-4	*27 Mtr*	+ve fuse box
24.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	10	GNYE	ELRS/SPEC/ELC /0019, Rev-4	*4 Mtr*	Earthing
25.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	6	Red	ELRS/SPEC/ELC /0019, Rev-4	*33 Mtr*	9 KVA TXR O/P (190V AC side) & RBC
26.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	6	Yellow	ELRS/SPEC/ELC /0019, Rev-4	*28.5 Mtr*	9 KVA TXR O/P (190V AC side) & RBC
27.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	6	Blue	ELRS/SPEC/ELC /0019, Rev-4	*28.5 Mtr*	9 KVA TXR O/P (190V AC side) & RBC
28.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	6	Black	ELRS/SPEC/ELC /0019, Rev-4	*28.5 Mtr*	9 KVA TXR O/P (190V AC side) & RBC
29.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	6	GNYE	ELRS/SPEC/ELC /0019, Rev-4	*23.5 Mtr*	RBC Input & HV to LV Panel
30.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	2.5	White	ELRS/SPEC/ELC /0019, Rev-4	*5.5 Mtr*	RBC to HV Panel

31.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	2.5	Choco	ELRS/SPEC/ELC /0019, Rev-4	*106.5 Mtr*	Feeder control cables & HV Panel to RBC
32.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	2.5	GNYE	ELRS/SPEC/ELC /0019, Rev-4	*02 Mtr*	Earthing
33.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	1.5	White	ELRS/SPEC/ELC /0019, Rev-4	*10 Mtr*	HV panel to VK11
34.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	1.5	Choco-late	ELRS/SPEC/ELC /0019, Rev-4	*88 Mtr*	HV panel to VK11
35.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	1.5	GNYE	ELRS/SPEC/ELC /0019, Rev-4	*19.5 Mtr*	***RBC to LV Panel***
36.	3x1.0 sqmm multicore cables 600/1000V colour Wh, Br, Blk	-	3x1.0	Wh, Br, Blk	EDTS-132, Rev-'C' AM-3, Corr-1 (DS-4)	*98 Mtr* *	***Speed sensor/ disc brake cables***
			3x1.0	Wh, Br, Blk	EDTS-132, Rev-'C' AM-3, Corr-1 (DS-4)	*60 Mtr (3X20 Mtr)*	***NET-1 & 2 + SPARE***
37.	Cable marking system	-	-	-	EDML-60, Col-V (Latest Revision)	*01 no.*	Heat shrinkable sleeves of M/s TYCO/ Phoenix/ Panduit make
38.	Copper crimping socket for 70 sq.mm cable	-	-	-	EDTS-200 (Latest Revision)	*20 nos.*	ITEM-7 (M12)
39.	Copper crimping socket for 50 sq.mm cable	-	-	-	EDTS-200 (Latest Revision)	*02 nos.*	ITEM-10 (M10)
40.	Copper crimping socket for 25 sq.mm cable	-	-	-	EDTS-200 (Latest Revision)	*06 nos.*	ITEM-23 (M16)
41.	Copper crimping socket for 25 sq.mm cable	-	-	-	EDTS-200 (Latest Revision)	*02 nos.*	ITEM-13 (M10)

42.	Copper crimping socket for 25 sq.mm cable	-	-	-	EDTS-200 (Latest Revision)	*08 nos.*	ITEM-14 (M8)
43.	Copper crimping socket for 16 sq.mm cable	-	-	-	EDTS-200 (Latest Revision)	*27 nos.*	ITEM-15 (M10)
44.	Copper crimping socket for 16 sq.mm cable	-	-	-	EDTS-200 (Latest Revision)	*02 nos.*	ITEM-17 (M6)
45.	Copper crimping socket for 10 sq.mm cable	-	-	-	EDTS-201 (Latest Revision)	*18 nos.*	ITEM-2 (M6)
46.	Copper crimping socket for 10 sq.mm cable	-	-	-	EDTS-201 (Latest Revision)	16 nos.	ITEM-1 (M8)
47.	Copper crimping socket for 10 sq.mm cable	-	-	-	EDTS-201 (Latest Revision)	06 nos.	ITEM-13 (M10)
48.	Copper crimping socket for 6 sq.mm cable	-	-	-	EDTS-201 (Latest Revision)	*04 nos.*	ITEM-5 (M8)
49.	Copper crimping socket for 2.5 sq.mm cable	-	-	-	EDTS-201 (Latest Revision)	*08 nos.*	ITEM-10 (M6)

Note:-

* 3x1.0 sq.mm shield multi-core cables of speed sensors have been shown for reference in BOM as these are being supplied by WSP system suppliers. Only cables for Net-1/Net-2 control are to be supplied along-with Harness.

B) CONDUIT SYSTEM FOR CABLE MANAGEMENT & ACCESSORIES FOR UNDER FRAME WIRING:-

Firms supplying these items shall get these tested as per RDSO specification no. RDSO/PE/SPEC/AC/0138-2009 (Rev-1).

SN	DESCRIPTION	SPEC. NO.	TABLE	ITEM	QPC
1.	Polyamide flexible corrugated conduit, NW-17	RDSO/PE/SPEC/AC/0138-2009, Rev-1 (Annexure-A)	A-1	3	*132.5 Mtr*
2.	Polyamide flexible corrugated conduit, NW-23		A-1	4	*100 Mtr*
3.	Polyamide flexible corrugated conduit, NW-29		A-1	5	*16 Mtr*
4.	Polyamide flexible corrugated conduit, NW-36		A-1	6	*04 Mtr*

5.	Polyamide flexible corrugated conduit, NW-48		A-1	7	*25.5 Mtr*
6.	Straight PG metal thread End fitting PG-16	RDSO/PE/SPEC/AC/0138-2009, Rev-1 (Annexure-A)	A-2	3	*16 nos.*
7.	Straight PG metal thread End fitting PG-21		A-2	5	*36 nos.*
8.	Straight PG metal thread End fitting PG-29		A-2	6	*03 nos.*
9.	Straight PG metal thread End fitting PG-36		A-2	7	*02 nos.*
10.	Straight PG metal thread End fitting PG-48		A-2	8	*02 nos.*
11.	Hex. lock nut with PG thread brass PG-16	RDSO/PE/SPEC/AC/0138-2009, Rev-1 (Annexure-A)	A-10	4	*21 nos.*
12.	Hex. lock nut with PG thread brass PG-21		A-10	5	*36 nos.*
13.	Hex. lock nut with PG thread brass PG-29		A-10	6	*03 nos.*
14.	Hex. lock nut with PG thread brass PG-36		A-10	7	*02 nos.*
15.	Hex. lock nut with PG thread brass PG-48		A-10	8	*02 nos.*
16.	Tube clamp NW-17	RDSO/PE/SPEC/AC/0138-2009, Rev-1 (Annexure-A)	A-8	3	*12 nos.*
17.	Tube clamp NW-23		A-8	4	*45 nos.*
18.	Tube clamp NW-29		A-8	6	*15 nos.*
19.	Tube clamp NW-36		A-8	7	*25 nos.*
20.	Tube clamp NW-48		A-8	8	*15 nos.*
21.	PG thread plug screws PG-16	RDSO/PE/SPEC/AC/0138-2009,Rev.1 (Annexure-A)	A-18	4	*05 nos.*

2.1 (b) PREPARATION / BUNCHING OF HARNESS:-

The preparation / bunching of harness shall be done as per under given for Under Frame wiring.

Har. No.	Nos. & size of cable	Spec. no.	Working voltage	Color code	Length in mm	Ferrules marking	Route	Remarks and Flexible conduit size and length	Group Name

1	3 nos., 150 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Above 750 volts upto 1.8KV/ 3.0KV	R,Y,B	24500	12 01 01 02, 12 01 04 02, 12 01 07 02	10	Feeder-1 From A17X1 to A18X1 (To be supplied loose)	FEEDER CABLES (Feeder-1)
	1 no., 95 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Above 750 volts upto 1.8KV/ 3.0KV	Blk	24500	12 01 10.02	10		
1A	2 nos., 2.5 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	Ch, Ch	*25500*	46 01.01, 46 01.02	14	Control cables **(NW-17, L=24 Mtr)**	
1B	3 nos., 150 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Above 750 volts upto 1.8KV/ 3.0KV	R,Y,B	24500	12 01 15 02, 12 01 18 02, 12 01 21 02	21	Feeder-2 From A16X1 to A19X1 (To be supplied loose)	FEEDER CABLES (Feeder-2)
	1 no., 95 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Above 750 volts upto 1.8KV/ 3.0KV	Blk	24500	12 01 24 02	21		
1C	2 nos., 2.5 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	Ch, Ch	*25000*	46 01 03, 46 01 04	25	Control cables **(NW-17, L=24 Mtrs)**	
2	4 nos., 25 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Above 750 volts upto 1.8KV/ 3.0KV	R,Y,B, Blk	14000	12 01 01 01, 12 01 04 01, 12 01 07 01, 12 01 10 01	13	Loop from Feeder to HV Panel A17X1 to S1 **(NW-48, *L=13 Mtrs)***	FEEDER LOOP CABLES
2A	4 nos., 25 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Above 750 volts upto 1.8KV/ 3.0KV	R,Y,B, Blk	15000	12 01 15 01, 12 01 18 01, 12 01 21 01, 12 01 24 01	23	Loop from Feeder to HV Panel A16X1 to S1 **(NW-48, *L=12.5 Mtrs)***	FEEDER LOOP CABLES
3	4 nos., 16 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Above 750 volts upto 1.8KV/ 3.0KV	R,Y,B, Blk	9000	12 01 12.02, 12 01 13.02, 12 01 14.02, 12 01 11.02	30	Input cables S1 (750V side) to S7 **(NW-29, L=7 Mtrs)**	9 KVA TRANS-FORMER INPUT/ OUTPUT CABLES
3A	4 nos., 16 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	R,Y,B, Blk	5000	12 02 06.01, 12 02 07.01, 12 02 08.01, 12 02 09.01	31	Output cables S7 (415V side) to S1 **(NW-36, L=4 Mtrs)**	
3B	4 nos., 6 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	R,Y,B, Blk	5000	12 02 16.01, 12 02 17.01, 12 02 18.01, 12 02 19.01	31A	Output cables S7 (190V side) to S1 **(To be laid along with harness no.3A)**	

4	1 no., 10 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	Ch	2500	35	35	Battery fuse box +ve (S4) to Battery box (S3) **(NW-17, L=1 Mtr)**	DC CIRCUIT CABLES
4A	1 no., 10 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	W	2500	39	39	Battery fuse box -ve (S5) to Battery (S3) **(NW-17, L=1 Mtr)**	
4B	1 no., 10 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	Ch	18000	36	36	**RBC (+VE) to LV Panel (S1A) (NW-17, L=17 Mtrs)**	
4C	1 no., 10 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	W	18500	40	40	Battery fuse - ve (S5) to LV Panel (S1A) **(NW-23, *L=17 Mtrs)***	
4D	1 no., 10 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	Ch	6500	42	42	Battery fuse box +ve (S4) to RBC (S1B) **(NW-17, L=5 Mtrs)**	
4E	1 no., 10 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	W	5500	43	43	Battery fuse box -ve (S5) to RBC (S1B) **(NW-17, L=4.5 Mtrs)**	
5	3x1.0 mm² + Shielded multi-core	EDTS-132, Rev-C, Am-3, Corr-1 (DS-4)	-	W, Br, Blk	12000 *	23 03 10.02, 23 03 11.02, 23 03 12.02	81	HV Panel (S1) to connection box VK4 **(NW-17, L=10 Mtrs)**	SPEED SENSOR CABLES (MECH.)
5A	3x1.0 mm² + Shielded multi-core	EDTS-132, Rev-C, Am-3, Corr-1 (DS-4)	-	W, Br, Blk	9000 *	23 03 07.02, 23 03 08.02, 23 03 09.02	82	HV Panel (S1) to connection box VK3 **(NW-17, L=7 Mtrs)**	
5B	5 nos., 1.5 mm²	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	Ch,Ch, Ch,Ch, GNYE	19500	32 04 05.21 42 02 04.03 32 04 05.22 42 02 10.03 PE	94	RBC to LV Panel **(NW-17, L= 19 Mtrs)**	RBC TO LV Panel

5C	3x1.0 mm^2 + Shielded multi-core	EDTS-132, Rev-C, Am-3 (DS-4)	-	W, Br, Blk	18000 *	23 03 01.02, 23 03 02.02, 23 03 03.02	76 (89)	HV Panel (S1) to connection box VK1 **(NW-23, L=13 Mtrs) (NW-17, L=5 Mtrs to be supplied loose) Route no. 75 & 76 are to be laid in one flexible conduit, NW-23 and to be marked route no. 89.**	RBC SIGNAL
5D	3x1.0 mm^2 + Shielded multi-core	EDTS-132, Rev-C, Am-3 (DS-4)	-	W, Br, Blk	15000 *	23 03 04.02, 23 03 05.02, 23 03 06.02	75 (89)	HV Panel (S1) to connection box VK2, **(To be laid with harness no. 5B)**	
6	3x1.0 mm^2 + Shielded multi-core	EDTS-132, Rev-C, Am-3 (DS-4)	-	W, Br, Blk	12000 *	23 02 06.01, 23 02 07.01, 23 02 05.06	86	HV PANEL (S1) to through box VK5 (EVS2/EVR2) **(NW-29, L=9 Mtrs)**	DISC BRAKE CABLES (MECH.)
6A	3x1.0 mm^2 + Shielded multi-core	EDTS-132, Rev-C, Am-3 (DS-4)	-	W, Br, Blk	12000 *	23 02 01.01, 23 02 02.01, 23 02 05.04		HV Panel (S1) to through box VK5 (EVS1/EVR1) **(To be laid with harness no. 6)**	
6B	3x1.0 mm^2 + Shielded multi-core	EDTS-132, Rev-C, Am-3 (DS-4)	-	W, Br, Blk	10000 *	23 02 14.01, 23 02 15.01, 23 02 05.10	87	HV Panel (S1) to through box VK7 (EVS4/EVR4) **(NW-23, L=8 Mtrs)**	
6C	3x1.0 mm^2 + Shielded multi-core	EDTS-132, Rev-C, Am-3 (DS-4)	-	W, Br, Blk	10000 *	23 02 10.01, 23 02 11.01, 23 02 05.08		HV Panel (S1) to through box VK7 (EVS3/EVR3) **(To be laid with harness no. 6B)**	
7	2 nos., 1.5 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	Ch, W	**10000**	-	41	Air Brake Mech. Unit **(NW-17, L=8 Mtrs)**	AIR BRAKE CABLE

8	1 no., 2.5 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	Ch	5500	52	52	HV Panel (S1) to RBC (S1B) (NW-17, L=3.5 Mtrs)	RBC
8A	1 no., 2.5 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	W	5500	52A	52A	HV Panel (S1) to RBC (S1B) (NW-17, L=3.5 Mtrs)	
9	6 nos., 6 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	R,R,Y, B, Blk, GNYE	4500	53	53	HV Panel (S1) to RBC (S1B) (NW-23, L=3 Mtrs)	
10	5 nos., 6 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	R,Y,B, Blk, GNYE	19000	55	55	HV Panel (S1) to On board LV Panel (S1A) (NW-23, L=17 Mtrs)	110V AC SUPPLY TO ON-BOARD PANEL
11A	8 nos., 70 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Above 750 volts upto 1.8KV/ 3.0KV	GNYE	500	PE	-	Earthing	EARTHING CABLES
11B	4 nos., 70 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Above 750 volts upto 1.8KV/ 3.0KV	GNYE	1250	PE	-	Earthing	
11C	1 no., 50 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	GNYE	500	PE	-	Earthing	
11D	5 nos., 16 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	GNYE	500	PE	-	Earthing	
11E	2 nos., 16 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	GNYE	300	PE	-	Earthing	
11F	2 nos., 16 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	GNYE	200	PE	-	Earthing	
11G	4 nos., 2.5 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 volts	GNYE	500	PE	-	Earthing	
12	3 nos., 3 X1.0 mm^2	EDTS-132, Rev-C, Am-3 (DS-4)	Upto 750 volts	-	20000	NET	56	Net-1 & 2 Control *(NW-23, L=17 Mtrs)*	*NET-1 & 2 +SPARE*
13	1 no., 10 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 V	Red	3500	BCT +ve	90	BCT-1 to BCT-2 (NW-23, L=3 Mtrs)	BCT-1 & 2
14	1 no., 10 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 V	Blue	3500	BCT -ve	91	BCT-1 to BCT-2 (NW-23, L=3 Mtrs)	

15	1 no., 10 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 V	Red	12000	BCT	92	BCT-1 to Battery Fuse box +ve (NW-23, L=11 Mtrs)	
16	1 no., 10 mm^2	ELRS/SPEC/ ELC/0019, Rev-4	Upto 750 V	Blue	8500	BCT	93	BCT-1 to Battery Fuse box –ve (NW-23, L=8 Mtrs)	

Note:-

1. Harness No. 5, 5A, 5C, 5D, 6, 6A, 6B & 6C are marked (*) above for reference as cable for Speed Sensor & Disc Brake (WSP System) is being supplied by WSP Suppliers. Therefore, Harness supplier shall supply Polyamide Conduit only.
2. Reference for Wiring on under frame & Roof shall be taken as per clause no. 7.0.
3. Bunching for under frame cables shall be done as per clause 2.1(b) duly ferruled, legibly marked and laid in Polyamide Flexible/PVC Rigid conduits as per requirements in the coaches at shop floor.
4. Harnesses shall be prepared from multi-color cables only as specified for under frame and Roof wiring. Zero halogen, fire retardant heat shrinkable sleeves of M/S Tyco/Phoenix/Panduit/Brady makes of appropriate color to be used. The standard length of ferrules should only be used.
5. Multi-core cables shall be as per specification no. EDTS-132, (Latest Revision) to respective data sheets.
6. The marking ferrules for feeder cables shall not be heat shrinked at the time of supply by the harness manufacturer, however to be suitably provided at 750 mm from both ends of the cables such that these ferrules shall not disengage from the cables during laying in the feeder pipes. After laying of the harness in the coach these ferrules shall be heat shrinked in place according to shop requirements.

TYPE-2: 'HARNESS OF ROOF ARRANGEMENT' FOR LHB EOG GS COACHES WITH CENTRALIZED FDB IN DOORWAY AREA.:-

2.2 (a) BILL OF MATERIAL FOR ROOF WIRING:-

A) THIN WALLED FLEXIBLE ELASTOMERIC CABLES WITH COPPER CONDUCTORS & ACCESSORIES:-

Sr. No.	Description	Working voltage	Cable size (in mm^2)	Cable colour	Detail drg./ Spec.	QPC	Remarks/ Location
1.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	1.5	Red	ELRS/SPEC/ELC/ 0019, Rev-4	*389.5 Mtr*	Inside coach
2.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	1.5	Yellow	ELRS/SPEC/ELC/ 0019, Rev-4	*497.5 Mtr*	Inside coach

3.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	1.5	Blue	ELRS/SPEC/ELC/ 0019, Rev-4	*271 Mtr*	Inside coach
4.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	1.5	Black	ELRS/SPEC/ELC/ 0019, Rev-4	*376.5 Mtr*	Inside coach
5.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	1.5	GNYE	ELRS/SPEC/ELC/ 0019, Rev-4	*591.5 Mtr*	Inside coach
6.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	4	Red	ELRS/SPEC/ELC/ 0019, Rev-4	*77.5 Mtr*	Inside coach
7.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	4	Yellow	ELRS/SPEC/ELC/ 0019, Rev-4	*54 Mtr*	Inside coach
8.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	4	Blue	ELRS/SPEC/ELC/ 0019, Rev-4	*70 Mtr*	Inside coach
9.	Thin walled flexible elastomeric cables with Cu. Conductors	Upto 750 volts	4	Black	ELRS/SPEC/ELC/ 0019, Rev-4	*24.5 Mtr*	Inside coach
10.	PVC Spout type circular box fire retardant, 4-way dia 20mm	-	-	-	IS:3419-76,T-9, FIG-E	*100 nos.*	Inside coach
12.	Rigid PVC conduit Dia 20mmx4000mm	-	-	-	IS:9537-83,P3, CL.5.1.2	*20 nos.*	Inside coach
11.	Rigid PVC conduit Dia 20mmx2700mm	-	-	-	IS:9537-83,P3, CL.5.1.2	*02 nos.*	Inside coach
13.	Rigid PVC conduit Dia 20mmx1550mm	-	-	-	IS:9537-83,P3, CL.5.1.2	*16 nos.*	Inside coach
14.	Rigid PVC conduit Dia 20mmx500mm	-	-	-	IS:9537-83,P3, CL.5.1.2	*40 nos.*	Inside coach
15.	Rigid PVC conduit Dia 20mmx480mm	-	-	-	IS:9537-83,P3, CL.5.1.2	*20 nos.*	Inside coach
16.	Rigid PVC conduit Dia 20mmx400mm	-	-	-	IS:9537-83,P3, CL.5.1.2	*20 nos.*	Inside coach
17.	Rigid PVC conduit Dia 20mmx360mm	-	-	-	IS:9537-83,P3, CL.5.1.2	*40 nos.*	Inside coach
18.	Rigid PVC conduit Dia 20mmx400mm (Bell mouth at one end)	-	-	-	IS:9537-83,P3, CL.5.1.2	*20 nos.*	Inside coach

19.	Cable jacket system	-	-	-	EDTS-138 (Latest Revision)	*50 Mtr*	ITEM-5
20.	Cable jacket system	-	-	-	EDTS-138 (Latest Revision)	*50 Mtr*	ITEM-7
21.	Cable jacket system	-	-	-	EDTS-138 (Latest Revision)	*90 Mtr*	ITEM-8
22.	Cable jacket system	-	-	-	EDTS-138 (Latest Revision)	*10 Mtr*	ITEM-9
23.	Cable jacket system	-	-	-	EDTS-138 (Latest Revision)	*20 Mtr*	ITEM-11
24.	FRLT cotton insulation tape, RED	-	-	-	ICF/ELEC/921,Rev.00	*03 nos.*	-
25.	FRLT cotton insulation tape, YELLOW	-	-	-	ICF/ELEC/921,Rev.00	*03 nos.*	-
26.	FRLT cotton insulation tape, BLUE	-	-	-	ICF/ELEC/921,Rev.00	*03 nos.*	-
27.	FRLT cotton insulation tape, BLACK	-	-	-	ICF/ELEC/921,Rev.00	*03 nos.*	-
28.	FRLT cotton insulation tape, GREEN	-	-	-	ICF/ELEC/921,Rev.00	*03 nos.*	-
29.	FRLT cotton insulation tape, CHOCO.	-	-	-	ICF/ELEC/921,Rev.00	*03 nos.*	-
30.	FRLT cotton insulation tape, WHITE	-	-	-	ICF/ELEC/921,Rev.00	*03 nos.*	-
31.	Cable Binder	-	-	-	CC76129,Alt'a' Item-2	*250 nos.*	M/s EVEREST, NOVAFLEX, Panduit & M V Electro – systems
32.	Cable Binder	-	-	-	CC76129,Alt'a' Item-3	*100 nos.*	M/s EVEREST, NOVAFLEX, Panduit & M V Electro – systems
33.	Flexible Flame-retardant high performance polyolefin heat shrinkable tubing	-	-	-	EDML-176, Rev-0	*01 Set*	Loose Supply

B) <u>CONDUIT SYSTEM FOR CABLE MANAGEMENT & ACCESSORIES(ROOF WIRING)</u>:-

Firms supplying these items shall get these tested as per RDSO specification no. RDSO/PE/SPEC/AC/0138-2009, Rev-1.

Sr. No.	DESCRIPTION	SPEC. NO.	TABLE	ITEM	QPC
1	Polyamide flexible corrugated conduit, NW-17	RDSO/PE/SPEC/AC/0138-2009, Rev-1 (Annexure-A)	A-1	3	*150 Mtr*
2	Polyamide flexible corrugated conduit, NW-23		A-1	4	*10 Mtr*

2.2 (b) PREPARATION / BUNCHING OF HARNESS FOR ROOF WIRING:-

Note: -

1. Reference for Wiring on under frame & Roof shall be taken as per clause no. 7.0.
2. Bunching for Roof cables shall be done as per Annexure-B with duly ferruled legibly marked and laid in polyamide flexible/PVC Rigid conduits as per wiring requirements in the coaches at shop floor. Cable protection system shall be supplied as per BOM of clause 2.2 (B).
3. Identification shall be made with colored, zero halogen fire retardant heat shrinkable sleeves of **M/s TYCO/Phoenix/Panduit /MV make** up-to 100 mm length.

3.0 TECHNICAL REQUIREMENTS:

3.1 While manufacturing of cable harnesses essential safety requirements for voltage grade segregation, crimping etc. shall be strictly followed as per instructions laid down in under given documents:

a) General requirements shall be as per RDSO Spec. no. EL/TL/56-92 (Code of practice for train lighting maintenance on Prevention of Fires on 110V DC).
b) Instructions laid down in Code of practice for wiring End On Generation Train Lighting system working at 750VAC, ELPS/SPEC/EOG-01(MARCH-94) shall be followed.
c) Work instructions for preparation of Harness to RCF document no. EDW0003 Ver.-02 or the Latest version.
d) Work instructions for crimping of cable ends and cable terminations to RCF document no. EDW0006 Ver.-01 or the Latest version.
e) Schedule of Technical Requirements (STR) no. RCF/EL/0015-2020 (Rev-C) shall be strictly followed for preparation of ready-made harness.

3.2 Stripping of the cables at the ends shall be done where crimping sockets are not provided for ease of wiring.

3.3 The complete Roof Wiring Harness shall be made according to the **Annexure-B** of this specification.

3.4 Technical Staff:-

a) The staff with minimum qualification `ITI' with **02** years experience or minimum **05** years experience for non ITI's in manufacturing harness of power-wiring/control wiring in panels or other similar works having intricate design.

b) The Supervisor staff for the skilled worker should be minimum graduate in Electrical/Electronics with 02 years experience in the same field or should be diploma holder in Electrical/Electronics discipline with at least **05** years experience in manufacturing of harness of power wiring control wiring in panels or other similar works. The firm shall deploy supervisors/staff in adequate nos. so as to match the delivery schedules as accepted by them against the contract".

3.5 Proper cutting/crimping tools for various sizes of cables shall be available for the staff for ease of crimping & cutting of cables.

3.6 Marking ferrules shall be of computer generated type for easy identification of the cables with the help of shrinking sleeves (self-extinguishing) of suitable size horizontally printed cable markers of Tyco/Phoenix/Panduit make only.

3.7 Test for thin walled flexible elastomeric cables with copper conductors for its basic properties may be conducted on any sample picked up from the supply. The cost for the testing will be borne by the firm. The specific tests to be done are covered in clause 4.9.

3.8 The firm shall take prompt action or act promptly within a reasonable time upon a short notice to rectify the defects/deficiency/deficiency noticed/reported by RCF in the cable harness supplied by the firm. Failure to do the needful up to the satisfaction of the RCF, Firm's contract may be rescind immediately or terminated without any further notice or may be levied penalty corresponding to the delay caused in the coach turn out for which the decision of the nominated `**Competent Authority' shall be Final and Binding on the firm".**

3.9 The firm's premises may be inspected by representative of PCEE/RCF on any day on a short notice to ensure compliance to the various stipulations of the specifications, laid down standards including work instructions for the cable harness manufacturing practices. If anything is not laid or specified therein this specification, the work shall be completed as per the best-established Engineering Practices/Procedures being followed in the Industry. "The firm shall extend all the necessary help to allow visiting all the infrastructure facilities, M&P, Tools, Testing facilities, examination of related quality records/documents etc. during his visit"

3.10 All the Rigid Conduits, Flexible Conduits, End Fittings shall be in firm's scope of supply. However Clamps & it's hardware's etc. will be in RCF scope of supply.

3.11 Only those firms shall be considered which have adequate infrastructure to make similar nature wiring/ harness at its manufacturing unit and conforming to STR.

3.12 Firm shall fill-up Performa for guaranteed performance as per Annexure-'A' and furnish details along with tender. It is perquisite without which offer shall be considered technically disqualified.

3.13 The Cable & Conduit manufacturer shall submit a certificate along with each lot of supply that the same raw material has been used in manufacturing of the present supply as was used on which the type tests were conducted.

3.14 Every letter from the firm shall have name and designation of the official signing the letter with the signature.

4.0 TESTS:

4.1 Inspecting agency /RITES shall carry out the tests in harness manufacturer's premises as per acceptance and routine tests specified in the tender specification. Check list Proforma consisting of testing details, observations/measurements and acceptability of the measurements should be prepared and testing to be done as per Proforma jointly with the firm's engineer .This should be submitted along with the inspection certificate to RCF.

4.2 Cables prescribed in RDSO/RCF specification of cables received by the harness manufacturer shall be inspected by RITES for acceptance and routine tests at cable manufacturer premises and certificate to this effect should be submitted by cable harness manufacturer to RCF.

4.3 Cable management system prescribed in RDSO specification RDSO/PE/SPEC/AC/0138-2009, (Latest) shall be inspected by RITES (RA Berlin- in case of imported manufacturer) for acceptance and routine tests and certificate to this effect should be submitted by cable harness manufacturer to RCF.

4.4 The format for inspection based upon the tests stipulated in specification shall be as per clause no.-4.10.

4.5 Firm's internal testing to be done by qualified person as per para 3.4 (b) of this specification and submitted to RCF.

4.6 TYPE TEST:

All the type tests mentioned in Clause 4.9 & 4.10 shall be carried out on a prototype unit. The firm manufacturing for the first time shall get the prototype approved from PCEE/RCF.

4.7 ROUTINE TEST:

Routine tests mentioned in clause 4.9 shall be carried out on each unit by the manufacturer at his works to ensure compliance with the specification and the drawings.

4.8 ACCEPTANCE TEST:

a) Acceptance tests for cables will be done at cable manufacturer's premises as per RDSO specification no. ELRS/SPEC/ELC/0019 (Latest Revision).

b) Acceptance tests for conduits etc. for cable management system will be done as per RDSO specification no. RDSO/PE/SPEC/AC/0138-2009, (Latest) for supply for Non-RDSO approved sources but RCF approved sources, clause 7.0 is to be followed.

c) Acceptance test mentioned in clause 4.9 cable harness manufacturer to be witnessed by inspecting agency nominated by the purchaser at the works of the cable harness manufacturer, on the samples picked up by the inspecting authority. All the acceptance tests shall be carried out at firm's premises at the manufacturer's cost. Inspecting officer will witness the tests.
A copy of the internal tests conducted by the firm shall be supplied to inspecting/purchasing authority. Inspecting agency shall maintain record of all the tests conducted for future reference and will check the authenticity and the originality of the bill of material for each item by seeing the invoices invariably to avoid spurious material being safety involved.

4.9 TABLE FOR TESTS:-

Tests for harnesses at firm`s premises:

S.No	Tests	Type Test	Routine Test	Acceptance Test
1.	Visual inspection, including inspection of wiring and electrical operational test. (Visual inspection for proper assembly, compatibility of sub-components & wiring etc.)	YES	YES	YES
2.	Checking of electrical continuity	YES	YES	YES
3.	Checking of cable routing & alignment as per requirements	YES	YES	YES
4.	Test for verification of dielectric properties. (shall withstand (2.0 KV for 1 minute)	YES	YES	-
5.	Test for verification of insulation resistance. (>100 MΩ with 500 V Megger).	YES	YES	-
6.	Compliance to safety related codes of practice as per para 4.0 of this specification.	YES	YES	YES
7.	Originality of the bill of the material with proof of the invoices	YES	YES	YES
8.	Check of crimping joints	YES	YES	-

	a) Mv drop Test. b) Pull out Test.			
9.	Test for thin walled flexible elastomeric cables with copper conductors	YES	YES	YES
10.	Test for cable protection system	YES	YES	YES
11.	Test for marking ferrules	YES	YES	YES
12.	Test for copper crimping sockets	YES	YES	YES
13.	Test for FRLT tape	YES	YES	YES
14.	Test for cable alley/ duct	YES	YES	YES
15.	Test for Rigid PVC Conduits to IS:9537 (Part-3)	YES	YES	YES

4.10 a): Details of testing:

S. No.	Details of testing	Remarks of Rites Inspecting official
1.	Tests for thin walled flexible elastomeric cables with copper conductors to RDSO Specification no. ELRS/SPEC/ELC/0019(Latest)	
a.	Test for thickness of insulation and sheath as per applicable clause of RDSO spec (5% of each cable size to be checked.)	
b.	High voltage test (water immersion test) as per applicable clause of RDSO spec. (on two cable size of cable used)	
c.	Insulation resistance test as per applicable clause of RDSO spec. (on one cable size different from HV test)	
d.	Tracking resistance as per applicable clause of RDSO spec. (on two size not covered in HV test & IR test)	
e.	Strip ability as per applicable clause of RDSO spec. (10 samples in prototype testing and five samples in acceptance/routine test of different size 1mm to 6mm)	
f.	Wind ability of the finished cable as per applicable clause of RDSO spec. (One sample 1-6 sq. mm & one sample more than 6 sq. mm)	
g.	Slippage test as per applicable clause of the RDSO spec. (two samples for size less than 25mm dia and two samples for dia more than 25mm)	
2.	Cable Protection System- Testing as per RDSO Spec. No. RDSO/PE/SPEC/AC/0138(Latest)	
a.	Make	
b.	Type / Series used for	
i.	Conduit	
	Checking of dimensions	
	Compression test (two sample of each size)	
	Impact test (one sample of each sizes)	
	Flexing test (2 samples of each type of fitting.)	
	Di-electric strength (one sample of each size)	

ii.	End fitting – Tensile test (of different five sizes)	
iii.	Tube clamps – Dimensional check as per – two sample of each size	
iv.	Lock nuts – Dimensional check as per – two sample of each size.	
3.	Marking ferrules	
	Computer generated (verification of make/brand)	Tyco / Phoenix / Panduit /MV/____
4.	Copper crimping sockets	
	Visual inspection and checking of dimensions as per cl 5.6 of EDTS200 (five sample of each)	
	Crimping test as per cl 5.7 of EDTS200 (Two sample of size less than 6mm^2 and two sample of 6mm^2)	
	Flattening test as per cl 5.8 of EDTS200	
5.	FRLT tape	
	ISI marked (Resistance to flame propagation as per clause 6.0 of IS:7809 for 2 samples)	
	Electrical strength as per clause 7.1 of IS:7809 for 5 samples IR value	
6.	Cable alley / duct	
	Make/catalogue number used verify make of _____ test certificates.	
7.	Acceptance test for PVC Conduit to IS:9537	
a	Checking of dimensions as clause 7 of IS.	
b	Bending test (at room temperature) as per clause 9.2 of IS spec.	
c	Compression test as per cl. 9.3 of IS spec (5 sample in prototype and 2 samples in acceptance /routine)	
d	Collapse test as per cl. 9.5 of IS spec (One sample)	
e	Resistance to burning as per cl. 11 of IS spec. (2 samples)	
f	Electrical characteristics as per cl. 12 of IS spec.	

4.10 (b): Tests after commissioning of the coach at RCF:

S.No	Tests	Type Test	Routine Test	Acceptance Test	Clause of IS:8623(P-I)-93
1.	Verification of insulation resistance	YES	YES	YES	8.3.4
2.	Checking of electrical continuity of all the circuits.	YES	YES	YES	8.3.3
3.	Verification of dielectric properties	YES	YES	YES	8.2.2

The accuracy of measuring instruments used for both type and routine tests shall be of class 1.5.

5.0 APPROVALS:

5.1 Firms manufacturing for the first time shall get the Prototype Inspection done by the office of the CEDE/RCF.

5.2 Firm supplying the Coach Harness for first time shall supply one set of coach harness for validation on coach before bulk supply.

6.0 ENCLOSURES:

S.No	Drawing/Spec. no.	Description
1.	RDSO Spec. no. EL/TL/56-92	Code of practice for Train Lighting maintenance on Prevention of Fires on 110V D.C
2.	RDSO Spec. no. EL/TL/001	Code of practice for End On Generation for Train Lighting system working at 750VAC
3.	RCF/EL/0015-2011 (Latest Rev.)	Schedule of technical requirements (STR) for ready-made harness.
4.	EDW0003 (Latest Ver.)	Work instructions for preparation of Harness
5.	EDW0006 (Latest Ver.)	Work instructions for crimping of cable ends and cable terminations
6.	Annexure-A	Performa for Performance Guarantee
7.	Annexure-B	Preparation / Bunching of harness for Jumper & Branch wiring for roof
8.	SKED-1005, Latest	Drawing of Jumper & Branch wiring of roof for LHB EOG GS coaches with centralized FDB in doorway area

ANNEXURE `A' TO SPEC. NO. EDTS-451, Rev-Nil

PERFORMA FOR PERFORMANCE GUARANTEE

S. No.	ITEMS DESCRIPTION	COMPLIANCE (YES/NO)
1.	Compliance of STR (if Yes, enclose clause by clause comments)	
2.	Compliance of qualified technical staff (if Yes, enclose the details)	
3.	Compliance of adequate space and condition for manufacturing, assembly (if yes, enclose the details)	
4.	Compliance of in-house testing facilities (if Yes, enclose the details)	
5.	Compliance of other details to improve the quality (if Yes, enclose the details)	

Annexure-B to EDTS-451, Rev-Nil

Har. No.	Location From	Location To	Ferrule no. From		Ferrule no. To		Cable size (in mm²)	Color code	Length in mm	Remarks
JUMPER WIRING (+VE) CUBICLE TO CENTRALISED FDB IN PP END DOORWAY AREA										
1	CUBICLE	CFDB-3	CFDB-3	LI+	LI+	CUBICLE	4	Y	6000	BUNCHING
			CFDB-3	LII+	LII+	CUBICLE	4	Y	6000	
			CFDB-3	F+	F+	CUBICLE	4	R	6000	
			CFDB-3	LSI+	LSI+	CUBICLE	1.5	Y	6000	
			CFDB-3	LSII+	LSII+	CUBICLE	1.5	Y	6000	
JUMPER WIRING (+VE) PP END TO MID DOORWAY AREA										
2	CFDB-3	CFDB-2	CFDB-2	LI+	LI+	CFDB-3	4	Y	10500	BUNCHING
			CFDB-2	LII+	LII+	CFDB-3	4	Y	10500	
			CFDB-2	F+	F+	CFDB-3	4	R	10500	
			CFDB-2	LSI+	LSI+	CFDB-3	1.5	Y	10500	
			CFDB-2	LSII+	LSII+	CFDB-3	1.5	Y	10500	
JUMPER WIRING (+VE) MID DOORWAY AREA TO NPP END										
3	CFDB-2	CFDB-1	CFDB-1	LI+	LI+	CFDB-2	4	Y	10500	BUNCHING
			CFDB-1	LII+	LII+	CFDB-2	4	Y	10500	
			CFDB-1	F+	F+	CFDB-2	4	R	10500	
			CFDB-1	LSI+	LSI+	CFDB-2	1.5	Y	10500	
			CFDB-1	LSII+	LSII+	CFDB-2	1.5	Y	10500	
JUMPER WIRING (-VE) CUBICLE TO CENTRALISED FDB IN PP END DOORWAY AREA										
4	CUBICLE	CFDB-6	CFDB-6	L-	L-	CUBICLE	4	B	3500	BUNCHING
			CFDB-6	F-	F-	CUBICLE	4	BLK	3500	
			CFDB-6	LS-	LS-	CUBICLE	1.5	BLK	3500	
			CFDB-6	PE	PE	CUBICLE	1.5	GNYE	3500	
JUMPER WIRING (-VE) PP END TO MID DOORWAY AREA										
5	CFDB-6	CFDB-5	CFDB-5	L-	L-	CFDB-6	4	B	10500	BUNCHING
			CFDB-5	F-	F-	CFDB-6	4	BLK	10500	
			CFDB-5	LS-	LS-	CFDB-6	1.5	BLK	10500	
			CFDB-5	PE	PE	CFDB-6	1.5	GNYE	10500	
JUMPER WIRING (-VE) MID DOORWAY AREA TO NPP END										
6	CFDB-5	CFDB-4	CFDB-4	L-	L-	CFDB-5	4	B	10500	BUNCHING
			CFDB-4	F-	F-	CFDB-5	4	BLK	10500	
			CFDB-4	LS-	LS-	CFDB-5	1.5	BLK	10500	
			CFDB-4	PE	PE	CFDB-5	1.5	GNYE	10500	
CABIN-1 BRANCH WIRING (+VE) TO COMPARTMENT LIGHTING & FAN										
7A	CFDB-1	LED-1	LED-1	LI+	LED-1,(LI+)	CFDB-1	1.5	Y	3000	BUNCHING
7B	CFDB-1	LED-2	LED-2	LII+	LED-2,(LII+)	CFDB-1	1.5	Y	5000	
7C	CFDB-1	FSW-1	FSW-1	F+	F+,FSW-1	CFDB-1	1.5	R	3500	
7D	CFDB-1	FSW-2	FSW-2	F+	F+,FSW-2	CFDB-1	1.5	R	3500	
7E	CFDB-1	FSW-3	FSW-3	F+	F+,FSW-3	CFDB-1	1.5	R	6500	
7F	FSW-1	FAN-1	FAN-1	F+	F+	FSW-1	1.5	R	3000	
7G	FSW-2	FAN-2	FAN-2	F+	F+	FSW-2	1.5	R	3500	
7H	FSW-3	FAN-3	FAN-3	F+	F+	FSW-3	1.5	R	3000	
7I	CFDB-1	LS-1	LS-1	LS-I+	LS-I+	LS-1	1.5	Y	1550	
7J	CFDB-1	LS-1	LS-1	LS-II+	LS-II+	LS-1	1.5	Y	1550	
CABIN-2 BRANCH WIRING (+VE) TO COMPARTMENT LIGHTING & FAN										
8A	CFDB-1	LED-3	LED-3	LII+	LED-3,(LII+)	CFDB-1	1.5	Y	5000	BUNCHING
8B	CFDB-1	LED-4	LED-4	LI+	LED-4,(LI+)	CFDB-1	1.5	Y	7000	
8C	CFDB-1	FSW-4	FSW-4	F+	F+,FSW-4	CFDB-1	1.5	R	5000	
8D	CFDB-1	FSW-5	FSW-5	F+	F+,FSW-5	CFDB-1	1.5	R	5000	
8E	CFDB-1	FSW-6	FSW-6	F+	F+,FSW-6	CFDB-1	1.5	R	8000	
8F	FSW-4	FAN-4	FAN-4	F+	F+	FSW-4	1.5	R	3000	
8G	FSW-5	FAN-5	FAN-5	F+	F+	FSW-5	1.5	R	3500	

30/09/2025 SSE/C&D SEE/VD DY.CEE/D

Annexure-B to EDTS-451, Rev.-Nil

Preparation/Bunching of Harness for Jumper wiring for Roof of LGS Coach with centralized FDB in Doorway area

Har. No.	Location		Ferrule no.		Cable size (in mm²)	Color code	Length in mm	Remarks
	From	To	From	To				
8H	FSW-6	FAN-6	FAN-6 F+	F+ FSW-6	1.5	R	3000	
8I	CFDB-1	LS-2	LS-2 LS-I+	LS-I+ LS-2	1.5	Y	3300	
8J	CFDB-1	LS-2	LS-2 LS-II+	LS-II+ LS-2	1.5	Y	3300	
CABIN-3 BRANCH WIRING (+VE) TO COMPARTMENT LIGHTING & FAN								
9A	CFDB-1	LED-5	LED-5 LI+	LED-5,(LI+) CFDB-1	1.5	Y	6500	BUNCHING
9B	CFDB-1	LED-6	LED-6 LII+	LED-6,(LII+) CFDB-1	1.5	Y	9000	
9C	CFDB-1	FSW-7	FSW-7 F+	F+,FSW-7 CFDB-1	1.5	R	6500	
9D	CFDB-1	FSW-8	FSW-8 F+	F+,FSW-8 CFDB-1	1.5	R	6500	
9E	CFDB-1	FSW-9	FSW-9 F+	F+,FSW-9 CFDB-1	1.5	R	10000	
9F	FSW-7	FAN-7	FAN-7 F+	F+ FSW-7	1.5	R	3000	
9G	FSW-8	FAN-8	FAN-8 F+	F+ FSW-8	1.5	R	3500	
9H	FSW-9	FAN-9	FAN-9 F+	F+ FSW-9	1.5	R	3000	
9I	CFDB-1	LS-3	LS-3 LS-I+	LS-I+ LS-3	1.5	Y	5000	
9J	CFDB-1	LS-3	LS-3 LS-II+	LS-II+ LS-3	1.5	Y	5000	
CABIN-4 BRANCH WIRING (+VE) TO COMPARTMENT LIGHTING & FAN								
10A	CFDB-2	LED-7	LED-7 LII+	LED-7,(LII+) CFDB-2	1.5	Y	4500	BUNCHING
10B	CFDB-2	LED-8	LED-8 LI+	LED-8,(LI+) CFDB-2	1.5	Y	7000	
10C	CFDB-2	FSW-10	FSW-10 F+	F+,FSW-10 CFDB-2	1.5	R	5000	
10D	CFDB-2	FSW-11	FSW-11 F+	F+,FSW-11 CFDB-2	1.5	R	5000	
10E	CFDB-2	FSW-12	FSW-12 F+	F+,FSW-12 CFDB-2	1.5	R	8000	
10F	FSW-10	FAN-10	FAN-10 F+	F+ FSW-10	1.5	R	3000	
10G	FSW-11	FAN-11	FAN-11 F+	F+ FSW-11	1.5	R	3500	
10H	FSW-12	FAN-12	FAN-12 F+	F+ FSW-12	1.5	R	3000	
10I	CFDB-2	LS-4	LS-4 LS-I+	LS-I+ LS-4	1.5	Y	3300	
10J	CFDB-2	LS-4	LS-4 LS-II+	LS-II+ LS-4	1.5	Y	3300	
CABIN-5 BRANCH WIRING (+VE) TO COMPARTMENT LIGHTING & FAN								
11A	CFDB-2	LED-9	LED-9 LI+	LED-9,(LI+) CFDB-2	1.5	Y	3000	BUNCHING
11B	CFDB-2	LED-10	LED-10 LII+	LED-10,(LII+) CFDB-2	1.5	Y	5000	
11C	CFDB-2	FSW-13	FSW-13 F+	F+,FSW-13 CFDB-2	1.5	R	3400	
11D	CFDB-2	FSW-14	FSW-14 F+	F+,FSW-14 CFDB-2	1.5	R	3400	
11E	CFDB-2	FSW-15	FSW-15 F+	F+,FSW-15 CFDB-2	1.5	R	6500	
11F	FSW-13	FAN-13	FAN-13 F+	F+ FSW-13	1.5	R	3000	
11G	FSW-14	FAN-14	FAN-14 F+	F+ FSW-14	1.5	R	3500	
11H	FSW-15	FAN-15	FAN-15 F+	F+ FSW-15	1.5	R	3000	
11I	CFDB-2	LS-5	LS-5 LS-I+	LS-I+ LS-5	1.5	Y	1600	
11J	CFDB-2	LS-5	LS-5 LS-II+	LS-II+ LS-5	1.5	Y	1600	
CABIN-6 BRANCH WIRING (+VE) TO COMPARTMENT LIGHTING & FAN								
12A	CFDB-2	LED-11	LED-11 LII+	LED-11,(LII+) CFDB-2	1.5	Y	3300	BUNCHING
12B	CFDB-2	LED-12	LED-12 LI+	LED-12,(LI+) CFDB-2	1.5	Y	5200	
12C	CFDB-2	FSW-16	FSW-16 F+	F+,FSW-16 CFDB-2	1.5	R	3500	
12D	CFDB-2	FSW-17	FSW-17 F+	F+,FSW-17 CFDB-2	1.5	R	6900	
12E	CFDB-2	FSW-18	FSW-18 F+	F+,FSW-18 CFDB-2	1.5	R	6900	
12F	FSW-16	FAN-16	FAN-16 F+	F+ FSW-16	1.5	R	3000	
12G	FSW-17	FAN-17	FAN-17 F+	F+ FSW-17	1.5	R	3500	
12H	FSW-18	FAN-18	FAN-18 F+	F+ FSW-18	1.5	R	3000	
12I	CFDB-2	LS-6	LS-6 LS-I+	LS-I+ LS-6	1.5	Y	5500	
12J	CFDB-2	LS-6	LS-6 LS-II+	LS-II+ LS-6	1.5	Y	5500	
CABIN-7 BRANCH WIRING (+VE) TO COMPARTMENT LIGHTING & FAN								
13A	CFDB-2	LED-13	LED-13 LI+	LED-13,(LI+) CFDB-2	1.5	Y	5000	BUNCHING
13B	CFDB-2	LED-14	LED-14 LII+	LED-14,(LII+) CFDB-2	1.5	Y	7000	
13C	CFDB-2	FSW-19	FSW-19 F+	F+,FSW-19 CFDB-2	1.5	R	5300	
13D	CFDB-2	FSW-20	FSW-20 F+	F+,FSW-20 CFDB-2	1.5	R	8000	
13E	CFDB-2	FSW-21	FSW-21 F+	F+,FSW-21 CFDB-2	1.5	R	8000	
13F	FSW-19	FAN-19	FAN-19 F+	F+ FSW-19	1.5	R	3000	
13G	FSW-20	FAN-20	FAN-20 F+	F+ FSW-20	1.5	R	3500	

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Annexure-B to EDTS-451, Rev.-Nil

Preparation/Bunching of Harness for Jumper wiring for Roof of LGS Coach with centralized FDB in Doorway area

Har. No.	Location From	Location To	Ferrule no. From		Ferrule no. To		Cable size (in mm²)	Color code	Length in mm	Remarks
13H	FSW-21	FAN-21	FAN-21	F+	F+	FSW-21	1.5	R	3000	
13I	CFDB-2	LS-7	LS-7	LS-I+	LS-I+	LS-7	1.5	Y	7500	
13J	CFDB-2	LS-7	LS-7	LS-II+	LS-II+	LS-7	1.5	Y	7500	
CABIN-8 BRANCH WIRING (+VE) TO COMPARTMENT LIGHTING & FAN										
14A	CFDB-3	LED-15	LED-15	LII+	LED-15,(LII+)	CFDB-3	1.5	Y	6500	
14B	CFDB-3	LED-16	LED-16	LI+	LED-16,(LI+)	CFDB-3	1.5	Y	8500	
14C	CFDB-3	FSW-22	FSW-22	F+	F+,FSW-22	CFDB-3	1.5	R	6800	
14D	CFDB-3	FSW-23	FSW-23	F+	F+,FSW-23	CFDB-3	1.5	R	9500	
14E	CFDB-3	FSW-24	FSW-24	F+	F+,FSW-24	CFDB-3	1.5	R	9500	
14F	FSW-22	FAN-22	FAN-22	F+	F+	FSW-22	1.5	R	3000	BUNCHING
14G	FSW-23	FAN-23	FAN-23	F+	F+	FSW-23	1.5	R	3500	
14H	FSW-24	FAN-24	FAN-24	F+	F+	FSW-24	1.5	R	3000	
14I	CFDB-3	LS-8	LS-8	LS-I+	LS-I+	LS-8	1.5	Y	8000	
14J	CFDB-3	LS-8	LS-8	LS-II+	LS-II+	LS-8	1.5	Y	8000	
CABIN-9 BRANCH WIRING (+VE) TO COMPARTMENT LIGHTING & FAN										
15A	CFDB-3	LED-17	LED-17	LI+	LED-17,(LI+)	CFDB-3	1.5	Y	5000	
15B	CFDB-3	LED-18	LED-18	LII+	LED-18,(LII+)	CFDB-3	1.5	Y	7000	
15C	CFDB-3	FSW-25	FSW-25	F+	F+,FSW-25	CFDB-3	1.5	R	5000	
15D	CFDB-3	FSW-26	FSW-26	F+	F+,FSW-26	CFDB-3	1.5	R	8000	
15E	CFDB-3	FSW-27	FSW-27	F+	F+,FSW-27	CFDB-3	1.5	R	8000	
15F	FSW-25	FAN-25	FAN-25	F+	F+	FSW-25	1.5	R	3000	BUNCHING
15G	FSW-26	FAN-26	FAN-26	F+	F+	FSW-26	1.5	R	3500	
15H	FSW-27	FAN-27	FAN-27	F+	F+	FSW-27	1.5	R	3000	
15I	CFDB-3	LS-9	LS-9	LS-I+	LS-I+	LS-9	1.5	Y	7200	
15J	CFDB-3	LS-9	LS-9	LS-II+	LS-II+	LS-9	1.5	Y	7200	
CABIN-10 BRANCH WIRING (+VE) TO COMPARTMENT LIGHTING & FAN										
16A	CFDB-3	LED-19	LED-19	LII+	LED-19,(LII+)	CFDB-3	1.5	Y	3200	
16B	CFDB-3	LED-20	LED-20	LI+	LED-20,(LI+)	CFDB-3	1.5	Y	5200	
16C	CFDB-3	FSW-28	FSW-28	F+	F+,FSW-28	CFDB-3	1.5	R	3300	
16D	CFDB-3	FSW-29	FSW-29	F+	F+,FSW-29	CFDB-3	1.5	R	6200	
16E	CFDB-3	FSW-30	FSW-30	F+	F+,FSW-30	CFDB-3	1.5	R	6200	
16F	FSW-28	FAN-28	FAN-28	F+	F+	FSW-28	1.5	R	3000	BUNCHING
16G	FSW-29	FAN-29	FAN-29	F+	F+	FSW-29	1.5	R	3500	
16H	FSW-30	FAN-30	FAN-30	F+	F+	FSW-30	1.5	R	3000	
16I	CFDB-3	LS-10	LS-10	LS-I+	LS-I+	LS-10	1.5	Y	5500	
16J	CFDB-3	LS-10	LS-10	LS-II+	LS-II+	LS-10	1.5	Y	5500	
BRANCH WIRING (+VE) TO NPP END DOORWAY AREA										
17	CFDB-1	DL-1	DL-1	LI+	DL-1(LI+)	CFDB-1	1.5	Y	2000	
18	CFDB-1	DL-2	DL-2	LI+	DL-2(LI+)	CFDB-1	1.5	Y	4000	
19	CFDB-1	GL-1	GL-1	LI+	GL-1(LI+)	CFDB-1	1.5	Y	5500	BUNCHING
20	CFDB-1	LL-1	LL-1	LI+	LL-1(LI+)	CFDB-1	1.5	Y	3500	
21	CFDB-1	LL-2	LL-2	LI+	LL-2(LI+)	CFDB-1	1.5	Y	6500	
ALL LAVATORY LIGHTS IN A LAVATORY MODULE SHALL BE LOOPED										
BRANCH WIRING (+VE) TO MID-DOORWAY AREA										
22	CFDB-2	DL-3	DL-3	LI+	DL-3(LI+)	CFDB-2	1.5	Y	2000	BUNCHING
23	CFDB-2	DL-4	DL-4	LI+	DL-4(LI+)	CFDB-2	1.5	Y	4000	
BRANCH WIRING (+VE) TO PP END DOORWAY AREA										
24	CFDB-3	DL-5	DL-5	LI+	DL-5(LI+)	CFDB-3	1.5	Y	2000	
25	CFDB-3	DL-6	DL-6	LI+	DL-6(LI+)	CFDB-3	1.5	Y	4000	
26	CFDB-3	GL-2	GL-2	LI+	GL-2(LI+)	CFDB-3	1.5	Y	5000	BUNCHING
27	CFDB-3	LL-3	LL-3	LI+	LL-3(LI+)	CFDB-3	1.5	Y	3500	
28	CFDB-3	LL-4	LL-4	LI+	LL-4(LI+)	CFDB-3	1.5	Y	6500	
ALL LAVATORY LIGHTS IN A LAVATORY MODULE SHALL BE LOOPED										

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Annexure-B to EDTS-451, Rev.-Nil

Preparation/Bunching of Harness for Jumper wiring for Roof of LGS Coach with centralized FDB in Doorway area

Har. No.	Location		Ferrule no.				Cable size (in mm²)	Color code	**Length in mm**	Remarks
	From	To	From		To					
CABIN-1 BRANCH WIRING (-VE) TO COMPARTMENT LIGHTING & FAN										
29	CFDB-4	LED-1	LED-1	L-	LED-1(L-)	CFDB-4	1.5	B	5000	BUNCHING
	CFDB-4	LED-1	LED-1	PE	LED-1(PE)	CFDB-4	1.5	GNYE	5000	
30	CFDB-4	LED-2	LED-2	L-	LED-2(L-)	CFDB-4	1.5	B	3000	
	CFDB-4	LED-2	LED-2	PE	LED-2(PE)	CFDB-4	1.5	GNYE	3000	
31	CFDB-4	FAN-1	FAN-1	F-	F-1(L-)	CFDB-4	1.5	BLK	4500	
	CFDB-4	FAN-1	FAN-1	PE	F-1(PE)	CFDB-4	1.5	GNYE	4500	
32	CFDB-4	FAN-2	FAN-2	F-	F-2(L-)	CFDB-4	1.5	BLK	4000	
	CFDB-4	FAN-2	FAN-2	PE	F-2(PE)	CFDB-4	1.5	GNYE	4000	
33	CFDB-4	FAN-3	FAN-3	F-	F-3(L-)	CFDB-4	1.5	BLK	3500	
	CFDB-4	FAN-3	FAN-3	PE	F-3(PE)	CFDB-4	1.5	GNYE	3500	
34	CFDB-4	LS-1	LS-1	LS(N)	LS-1(N)	CFDB-4	1.5	BLK	6000	
	CFDB-4	LS-1	LS-1	LS(PE)	LS-1(PE)	CFDB-4	1.5	GNYE	6000	
CABIN-2 BRANCH WIRING (-VE) TO COMPARTMENT LIGHTING & FAN										
35	CFDB-4	LED-3	LED-3	L-	LED-3(L-)	CFDB-4	1.5	B	6700	BUNCHING
	CFDB-4	LED-3	LED-3	PE	LED-3(PE)	CFDB-4	1.5	GNYE	6700	
36	CFDB-4	LED-4	LED-4	L-	LED-4(L-)	CFDB-4	1.5	B	5200	
	CFDB-4	LED-4	LED-4	PE	LED-4(PE)	CFDB-4	1.5	GNYE	5200	
37	CFDB-4	FAN-4	FAN-4	F-	F-4(L-)	CFDB-4	1.5	BLK	6200	
	CFDB-4	FAN-4	FAN-4	PE	F-4(PE)	CFDB-4	1.5	GNYE	6200	
38	CFDB-4	FAN-5	FAN-5	F-	F-5(L-)	CFDB-4	1.5	BLK	5700	
	CFDB-4	FAN-5	FAN-5	PE	F-5(PE)	CFDB-4	1.5	GNYE	5700	
39	CFDB-4	FAN-6	FAN-6	F-	F-6(L-)	CFDB-4	1.5	BLK	5200	
	CFDB-4	FAN-6	FAN-6	PE	F-6(PE)	CFDB-4	1.5	GNYE	5200	
40	CFDB-4	LS-2	LS-2	LS(N)	LS-2(N)	CFDB-4	1.5	BLK	7700	
	CFDB-4	LS-2	LS-2	LS(PE)	LS-2(PE)	CFDB-4	1.5	GNYE	7700	
CABIN-3 BRANCH WIRING (-VE) TO COMPARTMENT LIGHTING & FAN										
41	CFDB-4	LED-5	LED-5	L-	LED-5(L-)	CFDB-4	1.5	B	8800	BUNCHING
	CFDB-4	LED-5	LED-5	PE	LED-5(PE)	CFDB-4	1.5	GNYE	8800	
42	CFDB-4	LED-6	LED-6	L-	LED-6(L-)	CFDB-4	1.5	B	7200	
	CFDB-4	LED-6	LED-6	PE	LED-6(PE)	CFDB-4	1.5	GNYE	7200	
43	CFDB-4	FAN-7	FAN-7	F-	F-7(L-)	CFDB-4	1.5	BLK	7900	
	CFDB-4	FAN-7	FAN-7	PE	F-7(PE)	CFDB-4	1.5	GNYE	7900	
44	CFDB-4	FAN-8	FAN-8	F-	F-8(L-)	CFDB-4	1.5	BLK	7400	
	CFDB-4	FAN-8	FAN-8	PE	F-8(PE)	CFDB-4	1.5	GNYE	7400	
45	CFDB-4	FAN-9	FAN-9	F-	F-9(L-)	CFDB-4	1.5	BLK	6900	
	CFDB-4	FAN-9	FAN-9	PE	F-9(PE)	CFDB-4	1.5	GNYE	6900	
46	CFDB-4	LS-3	LS-3	LS(N)	LS-3(N)	CFDB-4	1.5	BLK	9400	
	CFDB-4	LS-3	LS-3	LS(PE)	LS-3(PE)	CFDB-4	1.5	GNYE	9400	
CABIN-4 BRANCH WIRING (-VE) TO COMPARTMENT LIGHTING & FAN										
47	CFDB-5	LED-7	LED-7	L-	LED-7(L-)	CFDB-5	1.5	B	6600	BUNCHING
	CFDB-5	LED-7	LED-7	PE	LED-7(PE)	CFDB-5	1.5	GNYE	6600	
48	CFDB-5	LED-8	LED-8	L-	LED-8(L-)	CFDB-5	1.5	B	4600	
	CFDB-5	LED-8	LED-8	PE	LED-8(PE)	CFDB-5	1.5	GNYE	4600	
49	CFDB-5	FAN-10	FAN-10	F-	F-10(L-)	CFDB-5	1.5	BLK	6100	
	CFDB-5	FAN-10	FAN-10	PE	F-10(PE)	CFDB-5	1.5	GNYE	6100	
50	CFDB-5	FAN-11	FAN-11	F-	F-11(L-)	CFDB-5	1.5	BLK	6000	
	CFDB-5	FAN-11	FAN-11	PE	F-11(PE)	CFDB-5	1.5	GNYE	6000	
51	CFDB-5	FAN-12	FAN-12	F-	F-12(L-)	CFDB-5	1.5	BLK	5500	
	CFDB-5	FAN-12	FAN-12	PE	F-12(PE)	CFDB-5	1.5	GNYE	5500	
52	CFDB-5	LS-4	LS-4	LS(N)	LS-4(N)	CFDB-5	1.5	BLK	7600	
	CFDB-5	LS-4	LS-4	LS(PE)	LS-4(PE)	CFDB-5	1.5	GNYE	7600	

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SSE/CAD

SEE/VD

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Annexure-B to EDTS-451, Rev.-Nil

Preparation/Bunching of Harness for Jumper wiring for Roof of LGS Coach with centralized FDB in Doorway area

Har. No.	Location		Ferrule no.		Cable size (in mm²)	Color code	**Length in mm**	Remarks
	From	To	From	To				
	CABIN-5 BRANCH WIRING (-VE) TO COMPARTMENT LIGHTING & FAN							
53	CFDB-5	LED-9	LED-9 L-	LED-9(L-) CFDB-5	1.5	B	4900	BUNCHING
	CFDB-5	LED-9	LED-9 PE	LED-9(PE) CFDB-5	1.5	GNYE	4900	
54	CFDB-5	LED-10	LED-10 L-	LED-10(L-) CFDB-5	1.5	B	3500	
	CFDB-5	LED-10	LED-10 PE	LED-10(PE) CFDB-5	1.5	GNYE	3500	
55	CFDB-5	FAN-13	FAN-13 F-	F-13(L-) CFDB-5	1.5	BLK	4500	
	CFDB-5	FAN-13	FAN-13 PE	F-13(PE) CFDB-5	1.5	GNYE	4500	
56	CFDB-5	FAN-14	FAN-14 F-	F-14(L-) CFDB-5	1.5	BLK	4000	
	CFDB-5	FAN-14	FAN-14 PE	F-14(PE) CFDB-5	1.5	GNYE	4000	
57	CFDB-5	FAN-15	FAN-15 F-	F-15(L-) CFDB-5	1.5	BLK	3500	
	CFDB-5	FAN-15	FAN-15 PE	F-15(PE) CFDB-5	1.5	GNYE	3500	
58	CFDB-5	LS-5	LS-5 LS(N)	LS-5(N) CFDB-5	1.5	BLK	5900	
	CFDB-5	LS-5	LS-5 LS(PE)	LS-5(PE) CFDB-5	1.5	GNYE	5900	
	CABIN-6 BRANCH WIRING (-VE) TO COMPARTMENT LIGHTING & FAN							
59	CFDB-5	LED-11	LED-11 L-	LED-11(L-) CFDB-5	1.5	B	5200	BUNCHING
	CFDB-5	LED-11	LED-11 PE	LED-11(PE) CFDB-5	1.5	GNYE	5200	
60	CFDB-5	LED-12	LED-12 L-	LED-12(L-) CFDB-5	1.5	B	3400	
	CFDB-5	LED-12	LED-12 PE	LED-12(PE) CFDB-5	1.5	GNYE	3400	
61	CFDB-5	FAN-16	FAN-16 F-	F-16(L-) CFDB-5	1.5	BLK	4900	
	CFDB-5	FAN-16	FAN-16 PE	F-16(PE) CFDB-5	1.5	GNYE	4900	
62	CFDB-5	FAN-17	FAN-17 F-	F-17(L-) CFDB-5	1.5	BLK	4400	
	CFDB-5	FAN-17	FAN-17 PE	F-17(PE) CFDB-5	1.5	GNYE	4400	
63	CFDB-5	FAN-18	FAN-18 F-	F-18(L-) CFDB-5	1.5	BLK	3900	
	CFDB-5	FAN-18	FAN-18 PE	F-18(PE) CFDB-5	1.5	GNYE	3900	
64	CFDB-5	LS-6	LS-6 LS(N)	LS-6(N) CFDB-5	1.5	BLK	2000	LOOSE
	CFDB-5	LS-6	LS-6 LS(PE)	LS-6(PE) CFDB-5	1.5	GNYE	2000	
	CABIN-7 BRANCH WIRING (-VE) TO COMPARTMENT LIGHTING & FAN							
65	CFDB-5	LED-13	LED-13 L-	LED-13(L-) CFDB-5	1.5	B	7000	BUNCHING
	CFDB-5	LED-13	LED-13 PE	LED-13(PE) CFDB-5	1.5	GNYE	7000	
66	CFDB-5	LED-14	LED-14 L-	LED-14(L-) CFDB-5	1.5	B	5000	
	CFDB-5	LED-14	LED-14 PE	LED-14(PE) CFDB-5	1.5	GNYE	5000	
67	CFDB-5	FAN-19	FAN-19 F-	F-19(L-) CFDB-5	1.5	BLK	6500	
	CFDB-5	FAN-19	FAN-19 PE	F-19(PE) CFDB-5	1.5	GNYE	6500	
68	CFDB-5	FAN-20	FAN-20 F-	F-20(L-) CFDB-5	1.5	BLK	6000	
	CFDB-5	FAN-20	FAN-20 PE	F-20(PE) CFDB-5	1.5	GNYE	6000	
69	CFDB-5	FAN-21	FAN-21 F-	F-21(L-) CFDB-5	1.5	BLK	5500	
	CFDB-5	FAN-21	FAN-21 PE	F-21(PE) CFDB-5	1.5	GNYE	5500	
70	CFDB-5	LS-7	LS-7 LS(N)	LS-7(N) CFDB-5	1.5	BLK	3500	LOOSE
	CFDB-5	LS-7	LS-7 LS(PE)	LS-7(PE) CFDB-5	1.5	GNYE	3500	
	CABIN-8 BRANCH WIRING (-VE) TO COMPARTMENT LIGHTING & FAN							
71	CFDB-6	LED-15	LED-15 L-	LED-15(L-) CFDB-6	1.5	B	8300	BUNCHING
	CFDB-6	LED-15	LED-15 PE	LED-15(PE) CFDB-6	1.5	GNYE	8300	
72	CFDB-6	LED-16	LED-16 L-	LED-16(L-) CFDB-6	1.5	B	6500	
	CFDB-6	LED-16	LED-16 PE	LED-16(PE) CFDB-6	1.5	GNYE	6500	
73	CFDB-6	FAN-22	FAN-22 F-	F-22(L-) CFDB-6	1.5	BLK	7800	
	CFDB-6	FAN-22	FAN-22 PE	F-22(PE) CFDB-6	1.5	GNYE	7800	
74	CFDB-6	FAN-23	FAN-23 F-	F-23(L-) CFDB-6	1.5	BLK	7300	
	CFDB-6	FAN-23	FAN-23 PE	F-23(PE) CFDB-6	1.5	GNYE	7300	
75	CFDB-6	FAN-24	FAN-24 F-	F-24(L-) CFDB-6	1.5	BLK	6800	
	CFDB-6	FAN-24	FAN-24 PE	F-24(PE) CFDB-6	1.5	GNYE	6800	
76	CFDB-6	LS-8	LS-8 LS(N)	LS-8(N) CFDB-6	1.5	BLK	4800	LOOSE
	CFDB-6	LS-8	LS-8 LS(PE)	LS-8(PE) CFDB-6	1.5	GNYE	4800	

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Annexure-B to EDTS-451, Rev.-Nil

Preparation/Bunching of Harness for Jumper wiring for Roof of LGS Coach with centralized FDB in Doorway area

Har. No.	Location		Ferrule no.		Cable size (in mm²)	Color code	**Length in mm**	Remarks
	From	To	From	To				
CABIN-9 BRANCH WIRING (-VE) TO COMPARTMENT LIGHTING & FAN								
77	CFDB-6	LED-17	LED-17 L-	LED-17(L-) CFDB-6	1.5	B	6600	BUNCHING
	CFDB-6	LED-17	LED-17 PE	LED-17(PE) CFDB-6	1.5	GNYE	6600	
78	CFDB-6	LED-18	LED-18 L-	LED-18(L-) CFDB-6	1.5	B	5000	
	CFDB-6	LED-18	LED-18 PE	LED-18(PE) CFDB-6	1.5	GNYE	5000	
79	CFDB-6	FAN-25	FAN-25 F-	F-25(L-) CFDB-6	1.5	BLK	6100	
	CFDB-6	FAN-25	FAN-25 PE	F-25(PE) CFDB-6	1.5	GNYE	6100	
80	CFDB-6	FAN-26	FAN-26 F-	F-26(L-) CFDB-6	1.5	BLK	5600	
	CFDB-6	FAN-26	FAN-26 PE	F-26(PE) CFDB-6	1.5	GNYE	5600	
81	CFDB-6	FAN-27	FAN-27 F-	F-27(L-) CFDB-6	1.5	BLK	5100	
	CFDB-6	FAN-27	FAN-27 PE	F-27(PE) CFDB-6	1.5	GNYE	5100	
82	CFDB-6	LS-9	LS-9 LS(N)	LS-8(N) CFDB-6	1.5	BLK	3100	LOOSE
	CFDB-6	LS-9	LS-9 LS(PE)	LS-8(PE) CFDB-6	1.5	GNYE	3100	
CABIN-10 BRANCH WIRING (-VE) TO COMPARTMENT LIGHTING & FAN								
83	CFDB-6	LED-19	LED-19 L-	LED-19(L-) CFDB-6	1.5	B	4900	BUNCHING
	CFDB-6	LED-19	LED-19 PE	LED-19(PE) CFDB-6	1.5	GNYE	4900	
84	CFDB-6	LED-20	LED-20 L-	LED-20(L-) CFDB-6	1.5	B	3200	
	CFDB-6	LED-20	LED-20 PE	LED-20(PE) CFDB-6	1.5	GNYE	3200	
85	CFDB-6	FAN-28	FAN-28 F-	F-28(L-) CFDB-6	1.5	BLK	4400	
	CFDB-6	FAN-28	FAN-28 PE	F-28(PE) CFDB-6	1.5	GNYE	4400	
86	CFDB-6	FAN-29	FAN-29 F-	F-29(L-) CFDB-6	1.5	BLK	3900	
	CFDB-6	FAN-29	FAN-29 PE	F-29(PE) CFDB-6	1.5	GNYE	3900	
87	CFDB-6	FAN-30	FAN-30 F-	F-30(L-) CFDB-6	1.5	BLK	3400	
	CFDB-6	FAN-30	FAN-30 PE	F-30(PE) CFDB-6	1.5	GNYE	3400	
88	CFDB-6	LS-10	LS-10 LS(N)	LS-10(N) CFDB-6	1.5	BLK	1450	LOOSE
	CFDB-6	LS-10	LS-10 LS(PE)	LS-10(PE) CFDB-6	1.5	GNYE	1450	
BRANCH WIRING (-VE) TO NPP END DOORWAY AREA								
89	CFDB-4	DL-1	DL-1 L-	DL-1(L-) CFDB-4	1.5	B	4000	BUNCHING
	CFDB-4	DL-1	DL-1 PE	DL-1(PE) CFDB-4	1.5	GNYE	4000	
90	CFDB-4	DL-2	DL-2 L-	DL-2(L-) CFDB-4	1.5	B	2000	
	CFDB-4	DL-2	DL-2 PE	DL-2(PE) CFDB-4	1.5	GNYE	2000	
91	CFDB-4	GL-1	GL-1 L-	GL-1(L-) CFDB-4	1.5	B	5000	
	CFDB-4	GL-1	GL-1 PE	GL-1(PE) CFDB-4	1.5	GNYE	5000	
92	CFDB-4	LL-1	LL-1 L-	LL-1(L-) CFDB-4	1.5	B	6500	
	CFDB-4	LL-1	LL-1 PE	LL-1(PE) CFDB-4	1.5	GNYE	6500	
93	CFDB-4	LL-2	LL-2 L-	LL-2(L-) CFDB-4	1.5	B	3500	
	CFDB-4	LL-2	LL-2 PE	LL-2(PE) CFDB-4	1.5	GNYE	3500	
ALL LAVATORY LIGHTS IN A LAVATORY MODULE SHALL BE LOOPED								
BRANCH WIRING (-VE) TO MID-DOORWAY AREA								
94	CFDB-5	DL-3	DL-3 L-	DL-3(L-) CFDB-5	1.5	B	4000	BUNCHING
	CFDB-5	DL-3	DL-3 PE	DL-3(PE) CFDB-5	1.5	GNYE	4000	
95	CFDB-5	DL-4	DL-4 L-	DL-4(L-) CFDB-5	1.5	B	2000	
	CFDB-5	DL-4	DL-4 PE	DL-4(PE) CFDB-5	1.5	GNYE	2000	
BRANCH WIRING (-VE) TO PP END DOORWAY AREA								
96	CFDB-6	DL-5	DL-5 L-	DL-5(L-) CFDB-6	1.5	B	4000	BUNCHING
	CFDB-6	DL-5	DL-5 PE	DL-5(PE) CFDB-6	1.5	GNYE	4000	
97	CFDB-6	DL-6	DL-6 L-	DL-6(L-) CFDB-6	1.5	B	2000	
	CFDB-6	DL-6	DL-6 PE	DL-6(PE) CFDB-6	1.5	GNYE	2000	
98	CFDB-6	GL-2	GL-2 L-	GL-2(L-) CFDB-6	1.5	B	5000	
	CFDB-6	GL-2	GL-2 PE	GL-2(PE) CFDB-6	1.5	GNYE	5000	
99	CFDB-6	LL-3	LL-3 L-	LL-3(L-) CFDB-6	1.5	B	6500	
	CFDB-6	LL-3	LL-3 PE	LL-3(PE) CFDB-6	1.5	GNYE	6500	
100	CFDB-6	LL-4	LL-4 L-	LL-4(L-) CFDB-6	1.5	B	3500	
	CFDB-6	LL-4	LL-4 PE	LL-4(PE) CFDB-6	1.5	GNYE	3500	

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Preparation/Bunching of Harness for Jumper wiring for Roof of LGS Coach with centralized FDB in Doorway area

Har. No.	Location From	Location To	Ferrule no. From	Ferrule no. To	Cable size (in mm²)	Color code	**Length in mm**	Remarks
ALL LAVATORY LIGHTS IN A LAVATORY MODULE SHALL BE LOOPED								
EXHAUST FAN-1 CIRCUIT (NPP END LAVATORY)								
101	CUBICLE	EX.FAN-1	EX.FAN-1	EX. FAN-1 CUBICLE	1.5	R	27000	BUNCHING
	CUBICLE	EX.FAN-1	EX.FAN-1	EX. FAN-1 CUBICLE	1.5	Y	27000	
	CUBICLE	EX.FAN-1	EX.FAN-1	EX. FAN-1 CUBICLE	1.5	B	27000	
	CUBICLE	EX.FAN-1	EX.FAN-1	EX. FAN-1 CUBICLE	1.5	GNYE	27000	
EXHAUST FAN-2 CIRCUIT (PP END LAVATORY)								
102	CUBICLE	EX.FAN-2	EX.FAN-2	EX. FAN-2 CUBICLE	1.5	R	6000	BUNCHING
	CUBICLE	EX.FAN-2	EX.FAN-2	EX. FAN-2 CUBICLE	1.5	Y	6000	
	CUBICLE	EX.FAN-2	EX.FAN-2	EX. FAN-2 CUBICLE	1.5	B	6000	
	CUBICLE	EX.FAN-2	EX.FAN-2	EX. FAN-2 CUBICLE	1.5	GNYE	6000	
PACIL CIRCUIT								
103	CUBICLE	PACIL-2	PACIL-2 (-VE)	`-VE CUBICLE	1.5	BLK	3500	LOOSE
	CUBICLE	PACIL-2	PACIL-2 (PE)	`PE CUBICLE	1.5	GNYE	3500	
104	PACIL-1	PACIL-2	PACIL-2 (+VE)	`+VE PACIL-2	1.5	Y	4000	
105	PACIL-2	PACIL-1	PACIL-1 (-VE)	`-VE PACIL-2	1.5	BLK	4000	
	PACIL-2	PACIL-1	PACIL-1 (PE)	`PE PACIL-2	1.5	GNYE	4000	
106	CFDB-3	PACIL-1	PACIL-1 (+VE)	`+VE PACIL-1	1.5	Y	2500	
AEL CIRCUIT								
107	CUBICLE	AEL-4	AEL-4 (+VE)	AEL-4 (+VE) CUBICLE	1.5	Y	8500	LOOSE
108	CUBICLE	AEL-4	AEL-4 (-VE)	AEL-4 (-VE) CUBICLE	1.5	BLK	5000	LOOSE
	CUBICLE	AEL-4	AEL-4 (PE)	AEL-4 (PE) CUBICLE	1.5	GNYE	5000	
109	AEL-4	AEL-3	AEL-3 (+VE)	AEL-3 (+VE) AEL-4	1.5	Y	10000	LOOSE
110	AEL-4	AEL-3	AEL-3 (-VE)	AEL-3 (-VE) AEL-4	1.5	BLK	11000	LOOSE
	AEL-4	AEL-3	AEL-3 (PE)	AEL-3 (PE) AEL-4	1.5	GNYE	11000	
111	AEL-3	AEL-2	AEL-2 (+VE)	AEL-2 (+VE) AEL-3	1.5	Y	11000	LOOSE
112	AEL-3	AEL-2	AEL-2 (-VE)	AEL-2 (-VE) AEL-3	1.5	BLK	11000	LOOSE
	AEL-3	AEL-2	AEL-2 (PE)	AEL-2 (PE) AEL-3	1.5	GNYE	11000	
113	AEL-2	AEL-1	AEL-1 (+VE)	AEL-1 (+VE) AEL-2	1.5	Y	11000	LOOSE
114	AEL-2	AEL-1	AEL-1 (-VE)	AEL-1 (-VE) AEL-2	1.5	BLK	9500	LOOSE
	AEL-2	AEL-1	AEL-1 (PE)	AEL-1 (PE) AEL-2	1.5	GNYE	9500	
ELECTRO PNEUMATIC PRESSURISED FLUSHING SYSTEM CIRCUIT								
115	CFDB-1	FLUSH-1	EPPFS-1 (+VE)	EPPFS-1(+VE) CFDB-1	1.5	Y	5500	LOOSE
116	CFDB-4	FLUSH-1	EPPFS-1 (-VE)	EPPFS-1(-VE) CFDB-4	1.5	B	4000	
	CFDB-4	FLUSH-1	EPPFS-1 (PE)	EPPFS-1(PE) CFDB-4	1.5	GNYE	4000	
117	CFDB-1	FLUSH-2	EPPFS-2 (+VE)	EPPFS-2(+VE) CFDB-1	1.5	Y	4000	
118	CFDB-4	FLUSH-2	EPPFS-2 (-VE)	EPPFS-2(-VE) CFDB-4	1.5	B	5500	
	CFDB-4	FLUSH-2	EPPFS-2 (PE)	EPPFS-2(PE) CFDB-4	1.5	GNYE	5500	
119	CFDB-3	FLUSH-3	EPPFS-3 (+VE)	EPPFS-3(+VE) CFDB-3	1.5	Y	5500	
120	CFDB-6	FLUSH-3	EPPFS-3 (-VE)	EPPFS-3(-VE) CFDB-6	1.5	B	4000	
	CFDB-6	FLUSH-3	EPPFS-3 (PE)	EPPFS-3(PE) CFDB-6	1.5	GNYE	4000	
121	CFDB-3	FLUSH-4	EPPFS-4 (+VE)	EPPFS-4(+VE) CFDB-3	1.5	Y	4000	
122	CFDB-6	FLUSH-4	EPPFS-4 (-VE)	EPPFS-4(-VE) CFDB-6	1.5	B	5500	
	CFDB-6	FLUSH-4	EPPFS-4 (PE)	EPPFS-4(PE) CFDB-6	1.5	GNYE	5500	
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-10) : LV PANEL SIDE								
123	CUBICLE	MCS-20	MCS-20 R	R CUBICLE	1.5	R	8500	LOOSE
	CUBICLE	MCS-20	MCS-20 BLK	BLK CUBICLE	1.5	BLK	8500	
	CUBICLE	MCS-20	MCS-20 GNYE	GNYE CUBICLE	1.5	GNYE	8500	
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-9) : LV PANEL SIDE								
124	MCS-20	MCS-19	MCS-19 R	R MCS-20	1.5	R	4500	BUNCHING
	MCS-20	MCS-19	MCS-19 BLK	BLK MCS-20	1.5	BLK	4500	
	MCS-20	MCS-19	MCS-19 GNYE	GNYE MCS-20	1.5	GNYE	4500	

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Preparation/Bunching of Harness for Jumper wiring for Roof of LGS Coach with centralized FDB in Doorway area

Har. No.	Location		Ferrule no.				Cable size (in mm²)	Color code	**Length in mm**	Remarks
	From	To	From		To					
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-8) : LV PANEL SIDE										
125	MCS-19	MCS-18	MCS-18	R	R	MCS-19	1.5	R	4500	BUNCHING
	MCS-19	MCS-18	MCS-18	BLK	BLK	MCS-19	1.5	BLK	4500	
	MCS-19	MCS-18	MCS-18	GNYE	GNYE	MCS-19	1.5	GNYE	4500	
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-7) : LV PANEL SIDE										
126	MCS-18	MCS-17	MCS-17	R	R	MCS-18	1.5	R	4500	BUNCHING
	MCS-18	MCS-17	MCS-17	BLK	BLK	MCS-18	1.5	BLK	4500	
	MCS-18	MCS-17	MCS-17	GNYE	GNYE	MCS-18	1.5	GNYE	4500	
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-6) : LV PANEL SIDE										
127	MCS-17	MCS-16	MCS-16	R	R	MCS-17	1.5	R	4500	BUNCHING
	MCS-17	MCS-16	MCS-16	BLK	BLK	MCS-17	1.5	BLK	4500	
	MCS-17	MCS-16	MCS-16	GNYE	GNYE	MCS-17	1.5	GNYE	4500	
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-5) : LV PANEL SIDE										
128	MCS-16	MCS-13	MCS-13	R	R	MCS-16	1.5	R	5600	BUNCHING
	MCS-16	MCS-13	MCS-13	BLK	BLK	MCS-16	1.5	BLK	5600	
	MCS-16	MCS-13	MCS-13	GNYE	GNYE	MCS-16	1.5	GNYE	5600	
	CUBICLE	MCS-14	MCS-14	Y	Y	CUBICLE	1.5	Y	17500	
	CUBICLE	MCS-15	MCS-15	B	B	CUBICLE	1.5	B	17500	
MCS N & PE TO BE LOOPED FROM MCS 13 TO MCS-14 TO MCS-15										
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-4) : LV PANEL SIDE										
129	MCS-14	MCS-10	MCS-10	Y	Y	MCS-14	1.5	Y	4500	BUNCHING
	MCS-13	MCS-10	MCS-10	BLK	BLK	MCS-13	1.5	BLK	4500	
	MCS-13	MCS-10	MCS-10	GNYE	GNYE	MCS-13	1.5	GNYE	4500	
	MCS-13	MCS-11	MCS-14	R	R	MCS-13	1.5	R	4500	
	MCS-15	MCS-12	MCS-15	B	B	MCS-15	1.5	B	4500	
MCS N & PE TO BE LOOPED FROM MCS 10 TO MCS-11 TO MCS-12										
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-3) : LV PANEL SIDE										
130	MCS-11	MCS-7	MCS-7	R	R	MCS-11	1.5	R	4500	BUNCHING
	MCS-10	MCS-7	MCS-7	BLK	BLK	MCS-10	1.5	BLK	4500	
	MCS-10	MCS-7	MCS-7	GNYE	GNYE	MCS-10	1.5	GNYE	4500	
	MCS-10	MCS-8	MCS-8	Y	Y	MCS-10	1.5	Y	4500	
	MCS-12	MCS-9	MCS-9	B	B	MCS-12	1.5	B	4500	
MCS N & PE TO BE LOOPED FROM MCS 7 TO MCS-8 TO MCS-9										
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-2) : LV PANEL SIDE										
131	MCS-8	MCS-4	MCS-4	Y	Y	MCS-8	1.5	Y	4500	BUNCHING
	MCS-7	MCS-4	MCS-4	BLK	BLK	MCS-7	1.5	BLK	4500	
	MCS-7	MCS-4	MCS-4	GNYE	GNYE	MCS-7	1.5	GNYE	4500	
	MCS-7	MCS-5	MCS-5	R	R	MCS-7	1.5	R	4500	
	MCS-9	MCS-6	MCS-6	B	B	MCS-9	1.5	B	4500	
MCS N & PE TO BE LOOPED FROM MCS 4 TO MCS-5 TO MCS-6										
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-1) : LV PANEL SIDE										
132	MCS-5	MCS-1	MCS-1	R	R	MCS-5	1.5	R	4500	BUNCHING
	MCS-4	MCS-1	MCS-1	BLK	BLK	MCS-4	1.5	BLK	4500	
	MCS-4	MCS-1	MCS-1	GNYE	GNYE	MCS-4	1.5	GNYE	4500	
	MCS-4	MCS-2	MCS-2	Y	Y	MCS-4	1.5	Y	4500	
	MCS-6	MCS-3	MCS-3	B	B	MCS-6	1.5	B	4500	
MCS N & PE TO BE LOOPED FROM MCS 1 TO MCS-2 TO MCS-3										
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-10) : NON-LV PANEL SIDE										
133	CUBICLE	MCS-38	MCS-38	Y	Y	CUBICLE	1.5	Y	6500	LOOSE
	CUBICLE	MCS-38	MCS-38	BLK	BLK	CUBICLE	1.5	BLK	6500	
	CUBICLE	MCS-38	MCS-38	GNYE	GNYE	CUBICLE	1.5	GNYE	6500	
	CUBICLE	MCS-39	MCS-39	R	R	CUBICLE	1.5	R	6500	
	CUBICLE	MCS-40	MCS-40	B	B	CUBICLE	1.5	B	6500	
MCS N & PE TO BE LOOPED FROM MCS 38 TO MCS-39 TO MCS-40										
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-9) : NON-LV PANEL SIDE										
134	MCS-39	MCS-35	MCS-35	R	R	MCS-39	1.5	R	4500	BUNCHING
	MCS-38	MCS-35	MCS-35	BLK	BLK	MCS-38	1.5	BLK	4500	
	MCS-38	MCS-35	MCS-35	GNYE	GNYE	MCS-38	1.5	GNYE	4500	
	MCS-38	MCS-36	MCS-36	Y	Y	MCS-38	1.5	Y	4500	
	MCS-40	MCS-37	MCS-37	B	B	MCS-40	1.5	B	4500	
MCS N & PE TO BE LOOPED FROM MCS 35 TO MCS-36 TO MCS-37										

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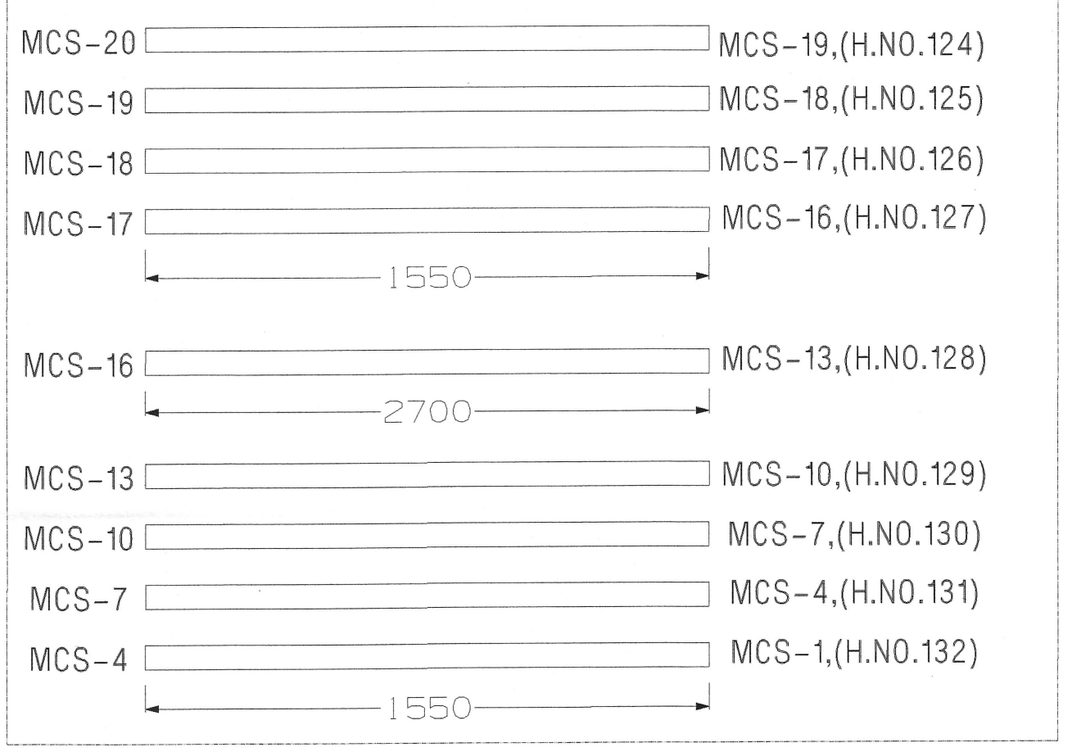
Preparation/Bunching of Harness for Jumper wiring for Roof of LGS Coach with centralized FDB in Doorway area

Har. No.	Location From	Location To	Ferrule no. From		Ferrule no. To		Cable size (in mm²)	Color code	Length in mm	Remarks
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-8) : NON-LV PANEL SIDE										
135	MCS-36	MCS-32	MCS-32	Y	Y	MCS-36	1.5	Y	4500	BUNCHING
	MCS-35	MCS-32	MCS-32	BLK	BLK	MCS-35	1.5	BLK	4500	
	MCS-35	MCS-32	MCS-32	GNYE	GNYE	MCS-35	1.5	GNYE	4500	
	MCS-35	MCS-33	MCS-33	R	R	MCS-35	1.5	R	4500	
	MCS-37	MCS-34	MCS-34	B	B	MCS-37	1.5	B	4500	
MCS N & PE TO BE LOOPED FROM MCS 32 TO MCS-33 TO MCS-34										
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-7) : NON-LV PANEL SIDE										
136	MCS-33	MCS-29	MCS-29	R	R	MCS-33	1.5	R	4500	BUNCHING
	MCS-32	MCS-29	MCS-29	BLK	BLK	MCS-32	1.5	Y	4500	
	MCS-32	MCS-29	MCS-29	GNYE	GNYE	MCS-32	1.5	GNYE	4500	
	MCS-32	MCS-30	MCS-30	Y	Y	MCS-32	1.5	Y	4500	
	MCS-34	MCS-31	MCS-31	B	B	MCS-34	1.5	B	4500	
MCS N & PE TO BE LOOPED FROM MCS 29 TO MCS-30 TO MCS-31										
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-6) : NON-LV PANEL SIDE										
137	MCS-30	MCS-26	MCS-26	Y	Y	MCS-30	1.5	Y	4500	BUNCHING
	MCS-29	MCS-26	MCS-26	BLK	BLK	MCS-29	1.5	BLK	4500	
	MCS-29	MCS-26	MCS-26	GNYE	GNYE	MCS-29	1.5	GNYE	4500	
	MCS-29	MCS-27	MCS-27	R	R	MCS-29	1.5	R	4500	
	MCS-31	MCS-28	MCS-28	B	B	MCS-31	1.5	B	4500	
MCS N & PE TO BE LOOPED FROM MCS 26 TO MCS-27 TO MCS-28										
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-5) : NON-LV PANEL SIDE										
138	MCS-26	MCS-25	MCS-25	Y	Y	MCS-26	1.5	Y	5600	BUNCHING
	MCS-26	MCS-25	MCS-25	BLK	BLK	MCS-26	1.5	BLK	5600	
	MCS-26	MCS-25	MCS-25	GNYE	GNYE	MCS-26	1.5	GNYE	5600	
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-4) : NON-LV PANEL SIDE										
139	MCS-25	MCS-24	MCS-24	Y	Y	MCS-25	1.5	Y	4500	BUNCHING
	MCS-25	MCS-24	MCS-24	BLK	BLK	MCS-25	1.5	BLK	4500	
	MCS-25	MCS-24	MCS-24	GNYE	GNYE	MCS-25	1.5	GNYE	4500	
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-3) : NON-LV PANEL SIDE										
140	MCS-24	MCS-23	MCS-23	Y	Y	MCS-24	1.5	Y	4500	BUNCHING
	MCS-24	MCS-23	MCS-23	BLK	BLK	MCS-24	1.5	BLK	4500	
	MCS-24	MCS-23	MCS-23	GNYE	GNYE	MCS-24	1.5	GNYE	4500	
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-2) : NON-LV PANEL SIDE										
141	MCS-23	MCS-22	MCS-22	Y	Y	MCS-23	1.5	Y	4500	BUNCHING
	MCS-23	MCS-22	MCS-22	BLK	BLK	MCS-23	1.5	BLK	4500	
	MCS-23	MCS-22	MCS-22	GNYE	GNYE	MCS-23	1.5	GNYE	4500	
3-PIN MOBILE CHARGING SOCKET CIRCUIT (CABIN-1) : NON-LV PANEL SIDE										
142	MCS-22	MCS-21	MCS-21	Y	Y	MCS-22	1.5	Y	4500	BUNCHING
	MCS-22	MCS-21	MCS-21	BLK	BLK	MCS-22	1.5	BLK	4500	
	MCS-22	MCS-21	MCS-21	GNYE	GNYE	MCS-22	1.5	GNYE	4500	
FOR EMERGENCY FEED TERMINAL (EFT) IN THE ROOF HARNESS										
143	CUB. SPM-I	EFT-1	EFT-1(+VE)	CUB. SPM-I	CUB.SPM-I	EFT-1(+VE)	4	R	29000	LOOSE
144	CUB. SN-I	EFT-2	EFT-2(-VE)	CUB. SN-I	CUB.SN-I	EFT-2(-VE)	4	B	26000	LOOSE
145	CUB. SPM-II	EFT-3	EFT-3(+VE)	CUB. SPM-II	CUB.SPM-II	EFT-3(+VE)	4	R	8500	LOOSE
146	CUB. SN-II	EFT-4	EFT-4(-VE)	CUB. SN-II	CUB.SN-II	EFT-4(-VE)	4	B	6500	LOOSE
147	EFT-1	EFT-2	EFT-2(+VE)	R	R	EFT-1	4	R	6500	LOOSE
148	EFT-2	EFT-1	EFT-1(-VE)	B	B	EFT-2	4	B	6500	LOOSE
149	EFT-3	EFT-4	EFT-4(+VE)	R	R	EFT-3	4	R	6500	LOOSE
150	EFT-4	EFT-3	EFT-4(-VE)	B	B	EFT-4	4	B	6500	LOOSE

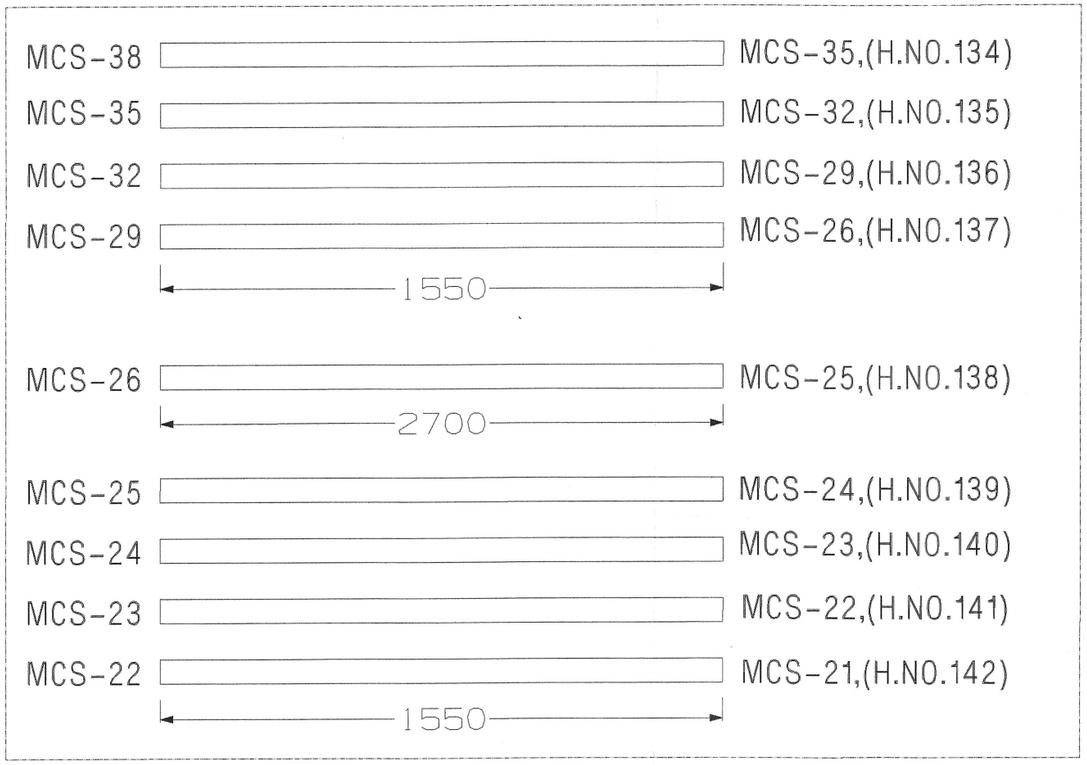
30/09/2025 SSE/CAD SEE/VD DY.CEE/D

ANNEXURE-B (EDTS-451)

MCS CHARGING SOCKET (PHASE, NEUTRAL & PE SIDE JUMPERS)



MCS CHARGING SOCKET (PHASE NEUTRAL & PE SIDE JUMPERS)



NOTE:- 1. ALL DIMENSIONS IN MM.

DETAIL DRGS STARTING WITH "LI" ARE INTERNAL REFERENCE LISTS ONLY AND ARE NOT FOR ISSUE

ANY MANUAL ALTERATION SHALL AUTOMATICALLY RENDER THIS DRAWING INVALID.

FOR UNTOLERANCED DIMENSIONS REFER MDG0008 | DATE OF FIRST ISSUE 30/09/2025

WELD LENGTH	ITEM	DESCRIPTION & DIMENSIONS	QPASSLY	DETAIL DRG	MATL. & SPEC.	REMARKS
NIL M	GROUP	ELECTRICAL	SUPERSEDES:			
WEIGHT	FILE	\\D\elec\abhi\SKED-1005.sl.prt				
NIL KG						
S.AREA						
NIL M^2						
~~LENGTH / DIA~~						
NIL M						
~~WIDTH / THICK~~						
NIL M						
HEIGHT						
NIL M						

JUMPER & BRANCH WIRING OF ROOF WITH CENTRALISED FDB IN DOORWAY AREA FOR LGS COACH

RAIL COACH FACTORY, KAPURTHALA

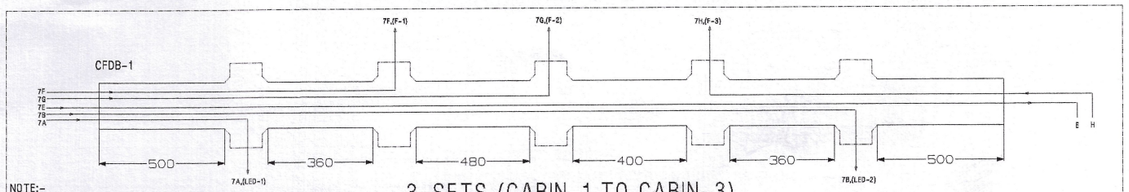
रेल कोच फैक्टरी कपूरथला IRS

SEE/VD DY.CEE/D

SCALE	SSE/ED	
	CHD	
	DRN	
REF.DRG.No.		
PL NO.		
DRG.NO.	SKED-1005	
ALT. Nil	SIZE A2	SHEET 1/2

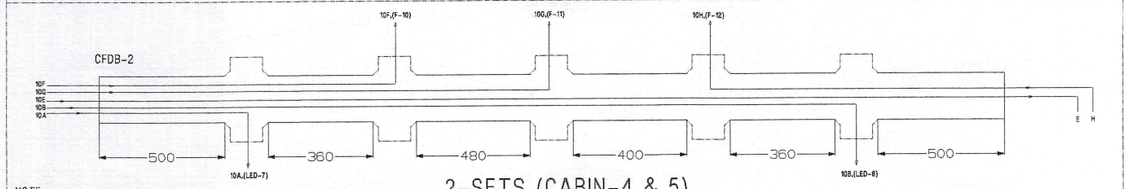
ANNEXURE-B (EDTS-451)

BRANCH WIRING FOR LIGHT & FAN CIRCUIT (+VE)



NOTE:-
1-SET,H.NO 7A,7B,7E,7F,7G & 7H (H.NO.7C,7D,7I & 7J-LOOSE SUPPLY).
1-SET,H.NO 8A,8B,8E,8F,8G & 8H (H.NO.8C,8D,8I & 8J-LOOSE SUPPLY).
1-SET,H.NO 9A,9B,9E,9F,9G & 9H (H.NO.9C,9D,9I & 9J-LOOSE SUPPLY).

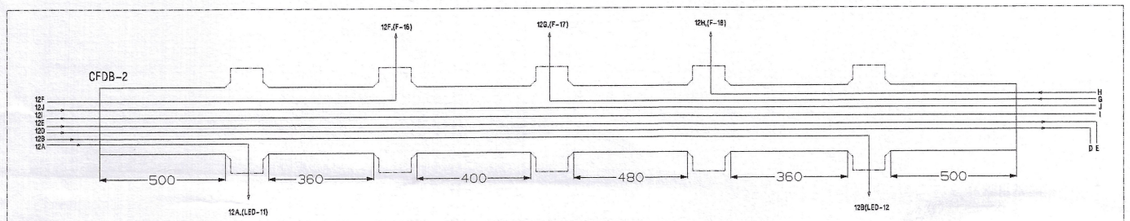
3-SETS (CABIN-1 TO CABIN-3)



NOTE:-
1-SET,H.NO 10A,10B,10E,10F,10G & 10H (H.NO.10C,10D,10I & 10J-LOOSE SUPPLY).
1-SET,H.NO 11A,11B,11E,11F,11G & 11H (H.NO.11C,11D,11I & 11J-LOOSE SUPPLY).

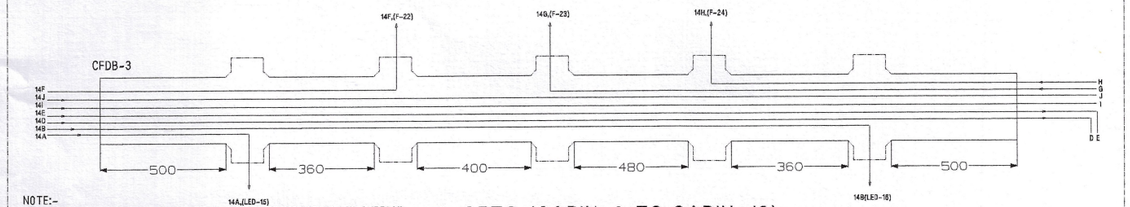
2-SETS (CABIN-4 & 5)

BRANCH WIRING FOR LIGHT & FAN CIRCUIT (+VE)



NOTE:-
1-SET,H.NO 12A,12B,12D,12E,12F,12G,12H,12I & 12J(H.NO.12C-LOOSE SUPPLY).
1-SET,H.NO 13A,13B,13D,13E,13F,13G,13H,13I & 13J(H.NO.13C-LOOSE SUPPLY).

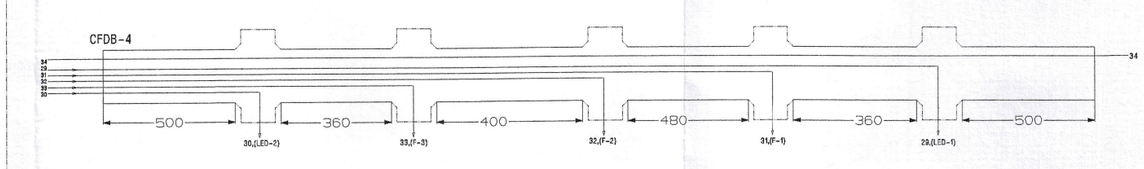
2-SETS (CABIN-6 & 7)



NOTE:-
1-SET,H.NO 14A,14B,14D,14E,14F,14G,14H,14I & 14J(H.NO.14C-LOOSE SUPPLY).
1-SET,H.NO 15A,15B,15D,15E,15F,15G,15H,15I & 15J(H.NO.15C-LOOSE SUPPLY).
1-SET,H.NO 16A,16B,16D,16E,16F,16G,16H,16I & 16J(H.NO.16C-LOOSE SUPPLY).

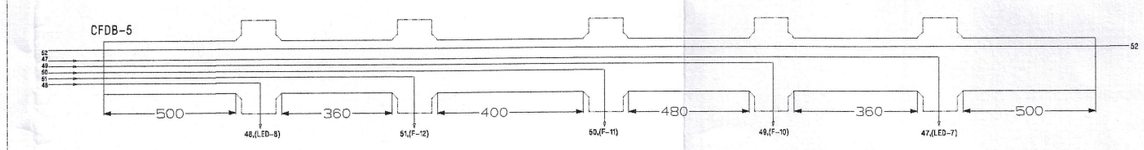
3-SETS (CABIN-8 TO CABIN-10)

BRANCH WIRING FOR LIGHT & FAN CIRCUIT (-VE & PE)



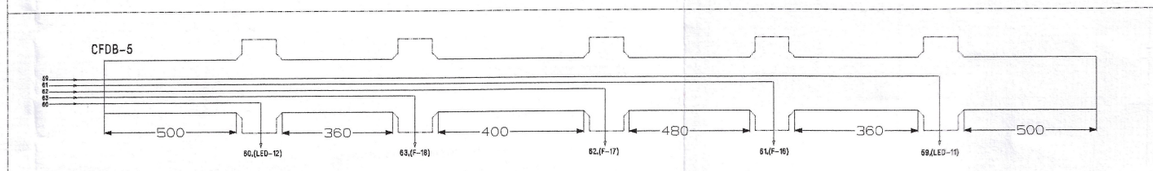
NOTE:-1-SET,H.NO-29 TO 34.
1-SET,H.NO-35 TO 40.
1-SET,H.NO-41 TO 46.

3-SETS (CABIN-1 TO CABIN-3)



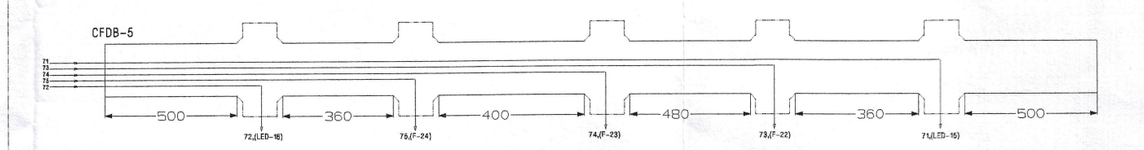
NOTE:-1-SET,H.NO-47 TO 52.
1-SET,H.NO-53 TO 58.

2-SETS (CABIN-4 & 5)



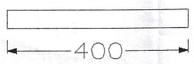
NOTE:-1-SET,H.NO-59 TO 63.(H.NO. 64-LOOSE SUPPLY)
1-SET,H.NO-65 TO 69.(H.NO. 70-LOOSE SUPPLY)

2-SETS (CABIN-6 & 7)



NOTE:-1-SET,H.NO-71 TO 75.(H.NO. 76-LOOSE SUPPLY)
1-SET,H.NO-77 TO 81.(H.NO. 82-LOOSE SUPPLY)
1-SET,H.NO-83 TO 87.(H.NO. 88-LOOSE SUPPLY)

3 SETS (CABIN-8 TO CABIN-10)



20 NOS. FOR SWITCH DROPS
(BELL MOUTH AT ONE END)

NOTE-
1.Ø20 MM RIGID PVC CONDUIT SHALL ONLY BE USED.
2.H.NO.17 TO 28 AND 94 TO 100 TO BE SUPPLIED LOOSE.
3.H.NO.1 TO 6 TO BE SUPPLIED LOOSE.

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FOR UNTOLERANCED DIMENSIONS REFER MDG0008 | DATE OF FIRST ISSUE 30/09/2025

WELD LENGTH	ITEM	DESCRIPTION & DIMENSIONS	OPASSLY	DETAIL DRG	MATL. & SPEC.	REMARKS
NIL M	GROUP	ELECTRICAL	SUPERSEDES:			
WEIGHT	FILE	\\D\elec\vinod\SKED-1005s2.prt				
NIL KG						
S.AREA						
NIL M^2						
~~LENGTH / DIA~~						
NIL M						
~~WIDTH / THICK~~						
NIL M						
HEIGHT						
NIL M						

JUMPER & BRANCH WIRING OF ROOF WITH CENTRALISED FDB IN DOORWAY AREA FOR LGS COACH

RAIL COACH FACTORY, KAPURTHALA

रेल कोच फैक्टरी कपूरथला IRS

SEE/VD DY.CEE/D

SCALE	SSE/ED	
	CHD	
	DRN	LOGIN
REF.DRG.No.		
PL NO.		
DRG.NO.	SKED-1005	
ALT. Nil	SIZE A2	SHEET 2/2