



भारत सरकार  
रेल मंत्रालय  
GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS

**SPECIFICATION FOR  
SET OF HARNESSSED CABLE  
FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC  
LOCOMOTIVES**

**Specification No.: CLW/ES/3/0646  
Issued on: 15.10.2018**

बिद्युत लोको डिज़ाइन कार्यालय  
चितरंजन रेलइंजन कारखाना  
चितरंजन – 713301

**ELECTRIC LOCO DESIGN OFFICE  
CHITTARANJAN LOCOMOTIVE WORKS  
CHITTARANJAN – 713331**

**Specification: No. of pages -11  
Annexure- A1: No. of pages -06  
Annexure- A2: No. of pages -43  
Annexure- A3: No. of pages -48  
Annexure- A4: No. of pages -43**

**Total no. of pages: 151**

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**ALTERATION SHEET**

SL. NO.	DATE	CLAUSE NO.	PAGE NO.	DESCRIPTION	ALT.	APPROVED BY
1.	15.10.18	Annexure-B1 & B2	-	Annexure- B1 & B2 has been revised with approval of competent authority.	A	-sd-
2.	12.01.19	-	-	Specification has been reviewed and revised with earlier alterations and modifications with approval of competent authority.	B	-sd-
3.	27.09.19	Annexure A3	-	Control cables are included/ Modified for Push Pull operation in WAP-7 loco in Annexure-A3 with approval of CA.	C	-sd-
4.	24.08.2020	5.1	-	Correction in STR No. as CLW/(2017)/ELDO/(E)/STR/01, Rev'0' in Clause No. 5.1 with approval of CA on dtd-24.08.2020	D	-sd-
5.	12.04.25	8 & Annexure A2, A3	-	Specification has been completely revised with approval of CA incorporating with following: i) Modified cable length, exact quantity of connectors, cable lux and other accessories with ABB ID incorporated in Annexure –A2 & A3. ii) New cable looms for Kavach, signal exchange lamp, waterless urinal and RTIS added in Annexure- A2 & A3. iii) In loom nos 5A & 5B of roof cable, size of cable changed from 2.5 to 1.5 sq.mm. iv) Acceptance test included in clause no 8 and sampling plan for Acceptance test included in clause no. 8.7.	E	-sd-
6.	19.03.2026	Clause nos. 6.6, 8.5 & 8.6 and Annexure - A2 & A3	-	1.As per RDSO MS No. RDSO/2024/EL/MS/0504(Rev.2) vide L/No. EL/3.1.35/17 dtd.25.11.2025 following changes have been incorporated in Annexure-2 & Annexure-3 (i)Loom Nos. (123A,123B,123C), (125A, 125B, 125C, 125D), 130, 322, 337, 340, HRERT-1, HRERT-2 & HRERT-3 have been deleted. (ii)Length of Loom Nos.	F	

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				<p>126A,126B,124 &amp; 335 modified.</p> <p>2.In loom nos. 317 &amp; 351, comment was mentioned "This loom is supplied with Set of Connector" has been removed from Annexure-A2 &amp; A3 and these looms kept maintain in scope of supply in Annexure-A2&amp;A3 of specification.</p> <p>3.Details under clause no. 6.6 modified from CLW inspector to Inspecting official.</p> <p>4.Details under clause no. 8.5 modified.</p> <p>5.Clause no. 8.6 modified as following:</p> <p>(i)Tests under sr. nos. 6 &amp; 7 merged in one test as Pull out &amp; contact pressure and Tensile Test in sr.no.6.</p> <p>6. Modifications/changes have been done in Annexure-A2 &amp; A3 as following:</p> <p>(i)In loom no. 316, CAB 4 GKW-AX 1.5 1800V BK of length 1x11 m &amp; 11.5 m removed from Annexure-A2 &amp; A3 respectively and length of CAB 2x2x1.0 SCR changed from 1x 11.4 m to 1x11.0 m in Annexure-A2.</p> <p>(ii) In loom no. 355, CAB 4 GKW-AX 1.5 1800V BK of length 1x11.4 m &amp; 11.6 m removed from Annexure-A2 &amp; A3 respectively.</p> <p>(iii) In loom no. 411, length of CAB 4 GKW-AX 2.5 1800V BK changed from 2x0.25 m to 2x0.5 m in Annexure-A2.</p> <p>(iv) In loom nos. 513, 514, 541 &amp; 542, Cable Lug INSUL.4-2.5 changed to CA-LUG 1.5-2.5/M6 in Annex-A2.</p> <p>(v)In loom nos. 228 &amp; 260 open and closed condition for lug interchanged in Annexure-A2.</p> <p>7. As per RDSO MS No. 475, 500, 502 &amp; 41'st MSG issued by RDSO following changes have been incorporated:</p> <p>(i) In loom no.330, 35 pin connector is replaced with 61 pin connector &amp; 12 cables of 1.5 sq.mm added in Annexure-A2.</p> <p>(ii)In loom no. 231, cable size</p>		
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				<p>changed from 25 sq.mm to 35 sq.mm in Annex-A2 and SET OF COMPLETE PLUG/PLUG 4P/40 SOCKET 'N' INDOOR ABB ID: HBTB315176R0112 changed to SET OF COMPLETE PLUG/PLUG 4P/40 SOCKET 'N' INDOOR ABB ID:HBTB315176R0113 in Annex-A2 &amp; A3.</p> <p>(iii) In loom no. Mod-1, cable size changed from 10 sq.mm to 16 sq.mm in Annexure-A2.</p> <p>8. Modifications/changes have been done in Anne-A2 &amp; A3 as following:</p> <p>(i) In loom nos. 132 &amp; 144 cable length changed from 0.8 to 0.91 m in Annex-A2 and 0.5 to 0.91 m in Annex-A3.</p> <p>(ii)Loom nos. 1103&amp;1117 merged in loom no. Mod-4 in Annex-A2 &amp; A3.</p> <p>(iii)In Loom nos. 161, 162, 163 &amp; 164 of Annex-A2 &amp; A3 'close' changed to 'open'.</p> <p>(iv) In Loom no. 220 of Annex-A2 &amp; A3, 01 no. Lug 16/M10 added.</p> <p>(v)In Loom no. 225 of Annex-A3, Qty. of Cable changed from 2x8.8 to 3x8.8 m.</p> <p>(vi) In Loom no. 252 of Annex-A2 &amp; A3, Qty. of cable Lug 1.5-2.5/M6 changed from 02 to 03 nos.</p> <p>(vii) In Loom no. 261 of Annex-A2 &amp; A3, Contact Pin 12/1.5 changed to 12/2.5.</p> <p>(viii)In Loom no. 5A &amp; 5B of Annex-A2 &amp; A3, Contact Pin 12/6 changed to Contact Pin 12/4.</p> <p>9. In loom no. 230 &amp; 241 cable size changed from 6 sq.mm to 2.5 sq.mm in Annex -A2 &amp; A3.</p> <p>10. Kavach cables deleted from Annex -A2 &amp; A3.</p> <p>11. Cable for RTIS deleted from Annex -A2 &amp; A3.</p> <p>12. Annex-A4 added for scope of supply of WAG-9 Twin (EF12K) Loco</p>		
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Specification has been completely revised, digitized and all existing modification/alteration incorporated.

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### 1. Scope:

The scope of this specification covers the manufacturing and supply of Set of Harnessed Cable Looms for 3-Phase Electric Locomotive.

### 2. Service conditions:

Climate and environmental condition:

Maximum atmospheric temperature: + 70 °C (Under sun)  
+ 50 °C (In shade)

Ambient temperature : - 30 °C to + 80 °C

Normal humidity : 60%

Maximum humidity : 100% Saturation during rainy season.

Altitude : Up to 1776 m above mean sea level

Atmosphere during hot weather : Extremely dusty and desert terrain in certain areas.

Coastal areas : Locomotive and equipment is designed to work in coastal areas in humid and salt laden atmosphere.

Rainfall : Very heavy in certain areas. The equipment should be designed in such way as to withstand its running at 10 km/hr in flood water level of 200 mm above rail level.

Vibration : The equipment sub system and their mounting arrangement will be designed to withstand vibration and shock encountered in service as specified in corresponding IEC publication unless otherwise prescribed.

### 3. Standards:

The standards should be as per relevant IEC, DIN, IS and other Indian/ International standards as given in Specifications/Drawings of various items used in Cable Harness.

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#### 4. Scope of Supply:

**4.1** Firm shall supply the complete Set of Harnessed Cable Looms for WAG-9HC/WAP-7/WAG-9 Twin(EF12K) locomotives as specified below

Loco Type	Applicable Annexure
WAG-9HC	A2
WAP-7	A3
WAG-9 Twin(EF12K)	A4

**4.2** Firm shall supply required materials i.e. Connectors, Sockets, Sleeves, Lugs etc for open end of harnessed cable loom specified in Annexure.

#### 5. Submission of Tender/Quotation:

**5.1** The tenderer shall give sufficient information to prove that his factory has adequate facilities and capacity to manufacture and supply the complete Set of Harnessed Cable with quality of materials and workmanship meeting technical requirements of this specification and latest version of STR No. CLW/(2017)/(E)/STR/01 Rev'0'.

**5.2** Offer shall be considered incomplete and liable to be rejected unless all information are furnished.

#### 6.0 Quality Assurance:

**6.1** Material used for manufacturing of harnessed cable looms such as E-beam cables, lugs, connectors, heat shrinkable sleeves etc (given in Annexure-A1) shall only be procured from approved source as per UVAM vendor directory.

**6.2** To ascertain the quality of material, test certificates of material from OEM are to be submitted to Railways. However, if required, Railways reserves the right to inspect material at OEM's premises in the presence of Railway representatives to ensure the quality of material.

**6.3** The firm should submit detailed QAP including work procedure, drawings etc. for approval to Railways before commencement of supply.

**6.4** Successful tenderer may collect any other technical details /drawings, if required as per schedule of item, from CLW design office.

**6.5** Technical documents for harnessed cable looms are enclosed as Annexure-A1,A2,A3 & A4 along with the specification.

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- 6.6 Proper tools shall be used for manufacturing harnessed cable. The healthiness of the same is to be demonstrated to inspecting official during prototype and routine inspection.
- 6.7 List of material requirement for Harnessed Cable Looms for WAG-9HC/WAP-7/WAG-9 Twin(EF12K) Loco given in Annexure-A1 is for general guidance or indicative only. There can be minor variation in requirement of material which should be brought out by firm during execution of work for scrutiny and approval of CLW.
- 6.8 Any additional quantity of items as per schedule of material or any other accessories such as brackets, hardware, insulating items etc. required for completion of harnessed cable looms of loco will be supplied by the firm.
- 6.9 Firm should have traceability up to component level.
- 6.10 All operators should be trained in IPC/WHMA-A-620A by authorized certified agency.

## 7. Approval of Sample:

- 7.1 The first time supplier shall make available one prototype of item for prototype inspection at its premises to CLW/BLW.
- 7.2 The stage inspection of manufacturing process being adopted to be demonstrated by firm to representative of CLW/BLW during prototype Inspection.
- 7.3 During type test or routine test, if it is considered necessary by CLW/BLW's authorized representative to carry out any further tests or trials, the supplier will arrange for the same by quickest means.

## 8. Tests:

Type test and routine test shall be carried out according to relevant Internationals/ Indian standards, ABB ID No. 3EHW610067, IS: 8623/ Part/ 1993, IS: 14547/1998, BS-4579 and BS-1977.

- 8.1 **Type test:** All the type tests, mentioned in clause 8.6 shall be carried out on prototype unit. The firm manufacturing for the first time shall get prototype approved by CLW/BLW.
- 8.2 **Routine test:** Routine test mentioned in clause 8.6 shall be carried out on each by the manufacturer at his works to ensure compliance with the specification and drawings.

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**8.3 Acceptance Test:** Acceptance Test mentioned in clause no. 8.6 will be carried out by authorized representative of Railways at firm's approved premises on sampling basis.

**8.4** Test protocol shall be submitted by firm for approval before proceeding prototype test.

**8.5** A copy of the internal test report, invoice copy of all child components & their test reports conducted by the firm shall be submitted to inspecting authority during type test and acceptance test.

**8.6 Table for Tests:**

Type Test shall be carried out on all types of Cable Looms.

SN	Tests	Standards	Clause No.	Type Test	Routine Test	Acceptance Test
1.	Visual Checking & Dimension Measurement	--	--	Yes	Yes	Yes
2.	General Concerning Testing	BS EN 50343	7.1	Yes	Yes	Yes
3.	Electrical Continuity Test	---	---	Yes	Yes	Yes
4.	Insulation Impedance Test	BS EN 50343	7.2.3	Yes	Yes	Yes
5.	Millivolt Drop (mv) Test	----	--	Yes	Yes <sup>(a)</sup>	Yes <sup>(a)</sup>
6.	Pull out & contact pressure and Tensile Test	BS EN 50343 EN 60512-16-20	G.2	Yes	Yes <sup>(b)</sup>	Yes <sup>(b)</sup>
7.	Micrograph Test	VW 60330	---	Yes	Yes <sup>(b)</sup>	Yes <sup>(b)</sup>
8.	Crimp Height & Width Measurement	---	---	Yes	Yes <sup>(b)</sup>	Yes <sup>(b)</sup>
9.	Voltage Withstand Test	BS EN 50343	7.2.2	Yes	---	---

(a) In Routine Test, Millivolt Drop test shall be carried out on 5% of quantity or minimum 01(One) set.

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(b) Being destructive test, Pull out & contact pressure Test and Tensile Strength Test, Micrograph Test and Crimp Height & Width Measurement Test shall be carried out on prepared samples instead of Harness Cables.

**8.7 Sampling Plan:** Sampling plan for acceptance test to be followed as given below.

Sl. No.	Lot or Batch Size	Sample Size	Acceptance Verdict							
			Accept Conformity than	Lot is Equal	if or	Non Less	Reject Conformity greater than	Lot is equal	if or	Non
1.	2-8	2				0				0
2.	9-15	3				0				0
3.	16-25	5				0				1
4.	26-50	8				0				1
5.	51-90	13				0				1
6.	91-150	20				1				2
7.	151-280	32				2				3
8.	281-500	50				3				4
9.	501-1200	80				5				6
10.	1201-3200	125				7				8
11.	3201-10000	200				10				11

## 9. Identification /marking:

**9.1** The tenderer shall fix a name plate using Printed SD Sleeve (Confirming to latest version of CLW Specification No. CLW/ES/3/0154) of appropriate size on the supply equipment as following:

- i) Manufacturer's name & Monogram/Brand.
- ii) Loom No., Coordination & Connection No.
- iii) Month & year of Mfg. and SL. No.

**9.2** Provision of Transparent Heat Shrinkable Sleeve (HSS) should be done on existing different size yellow colored ferrule without disturbing the identification numbers of cables, so that the cable numbers will last long and remain visible.

## 10. Reference:

This specification is made on the basis of original equipment Manufacturer ABB for Indian Railways.

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**11. Packing:**

- 11.1** Packing of harnesses shall be done as per standard packing practices to the satisfaction of Railways. Harnesses shall be bunched together and shall be supplied as single unit per Loco. Each harness shall be duly bunched individually and legibly marked as per detailed specified at annexure-A2 ,A3 & A4
- 11.2** Following documents shall be submitted along with the supply of material to ascertain sourcing of material from OEM:
- 1.** Certificate of compliance
  - 2.** Guarantee Certificate
- However, during inspection, the inspector may also verify invoice to ascertain the sourcing of material from OEM. Performa invoice of all the major items like Cables, Connectors, Lugs, EIT, Sleeves, crimping sockets etc. shall be supplied along with each supply of material.

**12. Enclosures:**

- ANNEXURE - A1: List of materials used for manufacturing of Set of Harnessed Cable for WAG-9HC/WAP-7/WAG-9Twin(EF12K) Locomotives
- ANNEXURE - A2: Scope of supply for Set of Harnessed Cables for WAG-9HC Locomotive.
- ANNEXURE - A3: Scope of supply for Set of Harnessed Cables for WAP-7 Locomotive.
- ANNEXURE – A4: Scope of supply for Set of Harnessed Cables for WAG-9 Twin(EF12K) Locomotive.

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Materials Used for Manufacturing Harnessed Cable Looms for WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) of Three Phase Electric Locomotives:

Sl. No.	Description of item	ABB Identification	Specification No.
Item-I	Single Core Cable		
1.	CAB 4GKW-AX 1.5 1800V BK	3EHW470015P0015	CLW/ES/3/0458 with Latest Alteration.
2.	CA 4GKW-AX 2.5 1800V BK	3EHW470015P0025	
3.	CA 4GKW-AX 6 1800V BK	3EHW470015P0060	
4.	CA 4GKW-AX 10 1800V BK	3EHW470015P0100	
5.	CA 4GKW-AX 16 1800V BK	3EHW470015P0160	
6.	CA 4GKW-AX 25 1800V BK	3EHW470015P0250	
7.	CA 4GKW-AX 35 1800V BK	3EHW470015P0350	
8.	CA 4GKW-AX 50 1800V BK	3EHW470015P0500	
9.	CA 4GKW-AX 70 1800V BK	3EHW470015P0700	
10.	CA 4GKW-AX 95 1800V BK	3EHW470015P0950	
11.	CA 4GKW-AX 120 1800V BK	3EHW470015P1200	
12.	CA 9GKW-AX 70 4000V BK	3EHW470015P0700	
13.	CA 9GKW-AX 95 4000V BK	3EHW470015P0950	
14.	CA 9GKW-AX 120 4000V BK	3EHW470015P1200	
15.	CA 9GKW-AX 150 4000V BK	3EHW470015P1500	
16.	CAB 3GKW 0.5 FLEX YE-GN	HZN 452926P0301	
17.	CABLE 0.6CU/ETFE GNGE	HZN 452890P0854	
Item-II	Multi Core Cable	ABB Identification	Specification No.
1.	CAB 2 x 2 x 1.0 SCR	3EHP470001 P1004	CLW/ES/3/0459 with Latest Alteration.
2.	CAB 2 x 2 x 0.5 SCR	3EHP470000 P0504	
3.	CAB 3 x 4 x 1.0 SCR	3EHP470001 P1012	
4.	CAB 2 x 1.0 SCR	3EHP470001 P1002	
5.	CAB 2 x 0.5 SCR	3EHP470000 P0502	
6.	CAB 3 x 0.5 SCR	3EHP470000 P0503	
7.	CAB 9 x 0.5 SCR	3EHP470000 P0509	
8.	CAB 9 x 0.5 TWIST	3EHP470002 P0509	
9.	CAB 5 x 0.5 SCR	3EHP470000 P0505	
10.	CAB 25 x 0.5 TWIST	3EHP470000 P0525	
Item-III	Set of Connectors	ABB Identification	Specification No.
1.	PLUG ASSEMBLY (KIT.)	HBT315076 R0011	CLW/ES/3/0124 with Latest
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2.	PLUG 4P/40 SKT 'N' INDOOR	HBTB31517 6R0113	Alteration.
3.	PLUG 4P/40 SKT 'N' INDOOR	HBTB31517 6R0114	
4.	L-PLUG 4P/40 SKT 'N' INDOOR	HBTB31517 6R0213	
5.	PLUG P7/24 SKT 'N' INDOOR	HBTB31511 0R0011	
6.	PLUG 13P/32 SOCKET 'N'	HBTB31511 1R0001	
7.	PLUG 13P/32 SKT 'N' INDOOR	HBTB31511 1R0011	
8.	PLUG 22P / 36 SKT ' N' INDOOR	HBTB31511 2R0011	
9.	PLUG 25P/40 SKT 'N' INDOOR	HBTB31511 3R0011	
10.	PLUG 61P/40 SKT 'N' INDOOR	HBTB31515 7R0011	
11.	PLUG, 5 CRIMP SOCKET S16	HBTB415399P0012	
12.	PLUG 4P BU “N” IR CA SPRT	3EHW470084R0001	
13.	PLUG, SIZE 22/19POLE	3EHP431609R0001	
14.	PLUG, SIZE 28/37POLE	3EHP431609R0002	
15.	PLUG, 9P D-SUB, SIZE 1	HBTB316240R0009	
16.	PLUG 9 POLES	HETT401293P0001	
17.	DUMMY PLUG, SIZE 16 BL	HBTB415399P0005	
18.	“ANDERSON” PLUG PP 120A	*1321BLAU	
19.	“ANDERSON” PLUG PP 120A	*1321G3 ROT	
20.	“ANDERSON” CONTACTS 120A	*1319	
21.	CONTACT SOCKET 12/2.5	HBT415298P 0008	
22.	CONTACT SOCKET 12/1.0	HBT415298P 0004	
23.	CONTACT SOCKET 12/1.5	HBT415298P 0006	
24.	CONTACT SOCKET 16/1.0	HBT415299P 0006	
25.	CONTACT SOCKET 16/0.5	HBT415299P 0002	
26.	CONTACT SOCKET SIZE16	HBTB415399P 0002	
27.	CONTACT SKT SIZE 8 2.5MM2	3EHW470117P002	
28.	CONTACT SKT SIZE 8 6MM2	3EHW470117P004	
29.	CONTACT SOCKET	3EHP430759P0002	
30.	SOCKET 13P/32 PIN 'N' IND	HBTB315159R0011	
31.	SOCKET 35P/40 PIN 'N' IND	HBTB315162R0011	
32.	SOCKET 5P/S18 PIN “N”	HBT315075R0011	
33.	CONTACT PIN S16 0.5-1 MM2	HBTB415399P0001	
34.	CONTACT PIN 12/1.5	HBT415298P 0005	
35.	CONTACT PIN 12/2.5	HBT415298P 0007	
36.	CONTACT PIN 12/1.0	HBT415298P 0003	
37.	CONNECTOR SKT 0.23,0.5	SE408197P0013	
38.	CONTACT SOCKET AWG 24-20	HESG455638P0120	
39.	CONTACT AWG 24-20	HESN455638P0120	
40.	CONNECTOR SEED SENSOR	HBTB415399P0022	

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41.	PROTECTIVE CAP/CABLE CLIP	HETT401293P0032	
42.	SOCKET BODY A IP PA	3EHW470001P0001	
43.	ADAPTER STRAIGHT SIZE 18	HBT415278P0001	
Item- IV	Set of Cable Lugs	ABB Identification	Specification No.
1.	KB-SCH 0.5-1.0/M4 CU VZN	3EHP470026P0004	CLW/ES/3/0130 with Latest Alteration.
2.	CABLE LUG 0.5-1.0/M5	3EHP470026P0005	
3.	CABLE LUG 1.5-2.57M5	3EHP470026P0015	
4.	CABLE LUG 1.5-2.5/M4 CU VZN	3EHP470026P0014	
5.	CABLE LUG 1.5-2.5/M6 CU VZN	3EHP470026P0016	
6.	CABLE LUG 4-6/M5 CU VZN	3EHP470026P0105	
7.	CABLE LUG 4-6/M8 CU VZN	3EHP470026P0108	
8.	CABLE LUG 16.0/M10 CU VZN	3EHP470026P0510	
9.	CABLE LUG 4.0-6.0/M6 CU VZN	3EHP470026P0106	
10.	CABLE LUG 8-2.5	KN 6762210P0208	
11.	CABLE LUG 10.0/M8 CU VZN	3EHP470026P0208	
12.	CABLE LUG 16.0/M8	3EHP470026P0508	
13.	CABLE LUG 10.0/M10 CU VZN	3EHP470026P0210	
14.	CA-LUG 16.0/M10 CU VZN	3EHP470026P0510	
15.	CABLE LUG 35.0/M8 CU VZN	3EHP470026P1008	
16.	CA LUG 35.0/M10 CU VZN	3EHP470026P1010	
17.	CA LUG 70.0/M8 CU VZN	3EHP470026P1908	
18.	CA LUG 70.0/M10 CU VZN	3EHP470026P1910	
19.	CA LUG 70.0/M12 CU VZN	3EHP470026P1912	
20.	CA LUG 95.0/M8 CU VZN	3EHP470026P2408	
21.	CA LUG 95.0/M10 CU VZN	3EHP470026P2410	
22.	CA LUG 120.0/M10 CU VZN	3EHP470026P3010	
23.	CA LUG 120.0/M12 CU VZN	3EHP470026P3012	
24.	CA LUG 150.0/M10 CU VZN	3EHP470026P3710	
25.	CA LUG 150.0/M12 CU VZN	3EHP470026P3712	
26.	CA LUG 2L 120/M10 CU VZN	HBT416074P0010	
27.	CABLE LUG INSUL 3-1.5	HCSN400689P0012	
28.	CABLE LUG INSUL.4-2.5	HCSN400689P0023	
29.	CABLE LUG PIN TYPE 2.5	GMN945210P0002	
30.	SLEEVE 6.3 1.0-2.5 CUSN	3EHW470001P0035	
31.	LUG 6.3X0.8 CUSN	NBT 20023590511	

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Item-V	Set of Copper Sleeves	ABB Identification	Specification No.
1.	SCREEN SLEEVE I.GSB 205	HBTB416489P0020	CLW/ES/3/0205 with Latest Alteration.
2.	SCREEN SLEEVE I.GSB 225	HBTB416489P0022	
3.	SCREEN SLEEVE I.GSB 312	HBTB416489P0031	
4.	SCREEN SLEEVE I.GSB 550	HBTB416489P0035	
5.	SCREEN SLEEVE A.GSC 312	HBTB416489P0118	
6.	SCREEN SLEEVE A.GSC 425	HBTB416489P0125	
7.	SCREEN SLEEVE A.GSC 460	HBTB416489P0126	
8.	SCREEN SLEEVE A.GSC 710	HBTB416489P0129	
9.	SCREEN SLEEVE A10.28/11	HZN 452936P0123	
10.	CABLE SLEEVE 1.5-8	NB 485270P0067	
11.	CABLE SLEEVE 2.5-8.0	NB 485270P0069	
12.	CABLE SLEEVE 2.5-10	NB485270P0029	
13.	CONNECTOR 6.3X0.8 CU/SN	GMN 485104P0155	
14.	END SLEEVE, MAX 15 CABLES	HBTB316239P0004	
Item-VI	Set of Non Metallic S.D. Sleeves	ABB Identification	Specification No.
1.	EXP INSUL TUBE 10/15 PA	HBTB416099P0014	CLW/ES/3/0154 with Latest Alteration.
2.	EXP INSUL TUBE 11/22 PA	HBTB416099P0001	
3.	EXP INSUL TUBE 22/35 PA	HBTB416099P0017	
4.	EXP INSUL TUBE 14/20 PA	HBTB416099P0015	
5.	EXP INSUL TUBE 8/12 PA	HBTB416099P0013	
6.	EXP INSUL TUBE 8/15 PA	HBTB416099P0007	
7.	EXP INSUL TUBE 28/40 PA	HBTB416099P0018	
8.	PLATE:TMS-CM 10-50 YEL	HBTB416099P0014	
9.	RATING PLATE, TMS	3EHP416007P0001	
10.	SHRINKDOWN SLV DTMS 1/8	HBT416006P0003	
11.	SHRINKDOWN SLV DTMS ¼	HBT416008P0003	
12.	SHRINKDOWN SLV DTMS ½	HBT416010P0003	
13.	SHRINKDOWN SLV DTMS 3/8	HBTB416009P0003	
14.	SHRINKDOWN SLV DTMS 3/16	HBTB416007P0003	
15.	SD SLEEVE YEL/GREEN 12/6	HBTB416269P0003	
16.	SD SLEEVE YEL/GREEN 3/1.5	HBTB416269P0001	
17.	SD Sleeve YEL/Green 26/13	HBTB416269P0005	
18.	SPACER, NYLON SIZE 16 BLUE	HBTB415309P0001	
19.	SPACER, NYLON SIZE12 YEL	HBTB415309P0002	
20.	SD SLEEVE 6.4X0.28 PE 5 BK	F 415788P0106	

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21.	SD SLEEVE 12.7X0.28PE5 BK	F 415788P0108	
22.	SD Sleeve 25.4x0.38PE5 BK	F 415788P0110	
23.	SD Sleeve 25.4x0.38PE5 TR	F 415788P0610	
24.	SD SLEEVE 12.7X0, 28PE5 G/YEL	F 415788P0708	
25.	SD SLEEVE, SIZE 24/32	HBTB415391P0012	
26.	SD SLEEVE 2.4X0.22PE5 G/YEL	F415788P0703	
27.	SD SLV 6.4X0.28-PE5 G/YEL	F 415788P0706	
28.	SD SLV 9.5X0.28-PE5 G/YEL	F 415788P0707	
29.	SD SLEEVE, SIZE 18	HBTB415399P011	
30.	ADHESIVE SD SLEEVE 12/3	HBTB416411P0002	
31.	ADHESIVE SD SLEEVE 16/4	HBTB416411P0003	
32.	ADHESIVE SD SLEEVE 24/6	HBTB416411P0004	
33.	ADHESIVE SD SLEEVE 32/8	HBT416411P0005	

Item-VII	Set of Cable Ties	ABB Identification	Specification No.
1.	CABLE TIE 186X4.8 PA	NBT 402938P0003	CLW/ES/3/0131 with Latest Alteration.
2.	CABLE TIE 140X3.6 PA	NBT 402938P0002	
3.	CABLE TIE 338X7.6 PA	NBT 402938P0005	
4.	CABLE TIE 360X4.8 PA	NBT 402938P0004	

Item-VIII	Set of Non Metallic Hose (Neoprene Hose)		
1.	NEOPRENE HOSE 12/16	HBT 415326P003	CLW/ES/3/0094 with Latest Alteration.
2.	NEOPRENE HOSE 22/26	HBT 415326P008	

Item-IX	Set of Metallic Hose (Braided)	ABB Identification	Specification No.
1.	BRAIDED STEEL HOSE, READY	3EHP431532P0010	CLW/ES/3/0309 with Latest Alteration.
2.	BRAIDED HOSE EXP 10/17 ST	HBTB416096P0001	

Item-X	Set of Cable Gland	ABB Identification	Specification No.
1.	GLAND PG21 WITH BELLMOUTH	3EHP431532P0006	CLW/ES/3/0129 with Latest Alteration.
2.	CABLE GLAND PG21 MS NI	HZN451989P005	
3.	CABLE GLAND PG29 MS NI	HZN451989P0016	

Item-X	Set of Faston Lug	ABB Identification	Specification No.
1.	"FASTON" PLUG 7.7*08.8	3EHP431498P0001	CLW/ES/3/0643 with Latest Alteration.

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2.	"FASTON" LUG 6.3*0.8	GMN485104P155	CLW/ES/3/0643 with Latest Alteration.
3.	JOINTING SLEEVE	HZN 452972P0002	
Item-XII	Mounting Assembly		
1.	SOCKET MOUNTING PANNEL	3EHP330233R0001	CLW/ES/3/0317 with Latest Alteration.
2.	SOCKET MOUNTING SHEET	3EHP330234R0001	

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## SCOPE OF SUPPLY OF HARNESSSED CABLES FOR WAG-9HC LOCOMOTIVES

SN	Loom Number	POWER CABLES								
		From			To			Cable Size (Sq.mm)	Cable Length (Meter)	ABB Identification
		Location	Lug Type	End (Open/Close)	Location	Lug Type	End (Open/Close)			
1.	113	Terminal Box Earthing	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Open	Earthing Choke	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	CAB 4 GKW-AX 95 1800 V BK (3EHW470015P095 0)	8	3EHP431528
2.	123A	DELETED								
3.	123B	DELETED								
4.	123C	DELETED								
5.	124	Primary Current Sensor Box	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Open	Earthing Choke	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	4.3	3EHP431528
6.	125A	DELETED								
7.	125B	DELETED								
8.	125C	DELETED								
9.	125D	DELETED								
10.	126A	Primary Current Sensor Box	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	Main TFP	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Open	CAB 9 GKW-AX 70 4000 V BK (3EHW470016P070 0)	4.6	3EHP431528
11.	126B	Primary Current Sensor Box	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	Main TFP	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Open	CAB 9 GKW-AX 70 4000 V BK (3EHW470016P070 0)	4.6	3EHP431528
12.	130	DELETED								
13.	131	Terminal Box Earthing	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Open	Earthing Choke	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	CAB 4 GKW-AX 95 1800 V BK (3EHW470015P095 0)	2.5	3EHP431528
14.	132	Main Converter-1	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	CAB 9 GKW-AX 95 4000 V BK (3EHW470016P095 0)	0.91	3EHP431529

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
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15.	141	Earthing Choke	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	Terminal Box Earthing	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Open	CAB 4 GKW-AX 95 1800 V BK (3EHW470015P095 0)	11	3EHP431528
16.	142	Earthing Choke	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	Terminal Box Earthing	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Open	CAB 4 GKW-AX 95 1800 V BK (3EHW470015P095 0)	14.5	3EHP431528
17.	143	Earthing Choke	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470016P070 0)	0.5	3EHP431529
18.	144	Main Converter-2	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	CAB 9 GKW-AX 95 4000 V BK (3EHW470016P095 0)	0.91	3EHP431529
19.	161	Terminal Box Earthing	-	Open	Bogie 1	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	1.25	3EHP431532
20.	162	Bogie 1	-	Open	Terminal Box Earthing	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	1.25	3EHP431532
21.	163	Terminal Box Earthing	-	Open	Bogie 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	1.25	3EHP431532
22.	164	Bogie 2	-	Open	Terminal Box Earthing	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	1.25	3EHP431532
23.	115A (TM-1)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
24.	115B (TM-1)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
25.	115C (TM-1)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
26.	116A	Disconnect of Motor	CABLE LUG 120.0 /	Close	Main Converter-1	CABLE LUG 2-HOLE	Open	CAB 9 GKW-AX 120		3EHP431531

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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		Cable	M12 CU VZN 3EHP470026P3012 (01 No)			120 / M10 CU VZN HBTB416074P0010 (01 No)		4000 V BK (3EHW470016P120 0)	9.2	
27.	116B	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
28.	116C	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
29.	116D	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
30.	116E	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
31.	116F	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
32.	121A (TM-2)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
33.	121B (TM-2)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
34.	121C (TM-2)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
35.	122A	Bogie 1	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	2	3EHP431530

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
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36.	122B	Bogie 1	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	2	3EHP431530
37.	122C	Bogie 1	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	2	3EHP431530
38.	133A (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
39.	133B (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
40.	133C (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
41.	133D (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
42.	133E (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
43.	133F (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
44.	148A (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
45.	148B (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
46.	148C (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
47.	148D	Disconnect of Motor	CABLE LUG 120.0 /	Close	Main Converter-1	CABLE LUG 2-HOLE	Open	CAB 9 GKW-AX 120	5.5	3EHP431531

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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	(TM-3)	Cable	M12 CU VZN 3EHP470026P3012 (01 No)			120 / M10 CU VZN HBTB416074P0010 (01 No)		4000 V BK (3EHW470016P120 0)		
48.	148E (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
49.	148F (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
50.	166A (TM-3)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
51.	166B (TM-3)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
52.	166C (TM-3)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
53.	149A (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
54.	149B (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
55.	149C (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
56.	149D (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
57.	149E (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
58.	149F (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN	Open	CAB 9 GKW-AX 120 4000 V BK	5.5	3EHP431531

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F			

			3EHP470026P3012 (01 No)			HBTB416074P0010 (01 No)		(3EHW470016P120 0)		
59.	167A (TM-4)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
60.	167B (TM-4)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
61.	167C (TM-4)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
62.	145A (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
63.	145B (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
64.	145C (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
65.	145D (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
66.	145E (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
67.	145F (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
68.	146A	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
69.	146B	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120	1.31	3EHP431530

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

			ALT	F					
<b>JE/Drg./Elect.</b>	<b>SEE/D-I</b>	<b>Dy.CEE/D-I</b>							

			(01 No)			(01 No)		0)		
70.	146C	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
71.	147A (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
72.	147B (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
73.	147C (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
74.	147D (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
75.	147E (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
76.	147F (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
77.	151A	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
78.	151B	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
79.	151C	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
80.	152A	Bogie 2	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	2	3EHP431530

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

			ALT	F					
<b>JE/Drg./Elect.</b>	<b>SEE/D-I</b>	<b>Dy.CEE/D-I</b>							



81.	152B	Bogie 2	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	2	3EHP431530
82.	152C	Bogie 2	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	2	3EHP431530

## AUXILLIARY CABLES

SN	Loom Number	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	217	Cubicle Driver Cab-1	WAGO	Open	Aux. Converter-1	SET OF COMPLETE PLUG / PLUG P7/24 SOCKET 'N' INDOOR HBTB315110R0011 (01 No) CONTACT SOCKET 12/2.5 HBT415298P0008 (07 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	7x12.4	3EHP431533
2.	220	Connector to TM Blower	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Close	HB-1	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos) CABLE LUG 16.0/M10 CU VZN (01 No) 3EHP470026P0510	Open	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	3x6.8 1x0.5	3EHP431533
3.	221	HB-1	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01 No)	Open	Aux. Converter-1	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01 No)	Close	CAB 4 GKW-AX 50 1800 V BK (3EHW470015P050 0)	3x5.5	3EHP431533
4.	223	HB-1	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	Scavenge Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x6	3EHP431533

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVESSpecification No.  
CLW/ES/3/0646

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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5.	224	HB-1	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	Main Compressor- 1	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P010 0)	3x11.5	3EHP431533
6.	225	HB-1	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	Scavenge Blower to MR Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x6	3EHP431534
7.	226	HB-1	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	Connector to MR Blower	2.5/M6 CU VZN 3EHP470026P0016 (04 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x7 1x1.2	3EHP431533
8.	227	HB-1	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 6 MM2 3EHW470321P2060 (04 Nos)	Close	Oil Pump Transformer	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (03 Nos)	Close	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	3x14.5	3EHP431533
9.	228	HB-1	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos) CABLE LUG 16.0/M10 CU VZN (01 No)	Open	Connector to Oil cooling unit-1	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos) CABLE LUG 16.0/M10 CU VZN (01 No)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	3x15.5 1x0.8	3EHP431533
10.	229	NOT IN USE								
11.	230	HB-1	CABLE LUG 8-2.5 KN6762210P0208 (03 Nos)	Open	Oil Pump Converter-1	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x14.5	3EHP431533
12.	231	HB-1	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N'	Open	HB-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0	3x17.5	3EHP431533

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

			INDOOR HBTB315176R0113 (01 No)			HBTB315176R0113 (01 No)		350)		
13.	232	HB-1	SET OF COMPLETE PLUG / PLUG P7/24 SOCKET 'N' INDOOR HBTB315110R0011 (01 No) CONTACT SOCKET 12/6.0 HBT415298P0012 (07 Nos)	Close	HB-2	SET OF COMPLETE PLUG / PLUG P7/24 SOCKET 'N' INDOOR HBTB315110R0011 (01 No) CONTACT SOCKET 12/6.0 HBT415298P0012 (07 Nos)	Close	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	7x18.5	3EHP431533
14.	233	HB-1	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0112 (01 No)	Open	HB-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0112 (01 No)	Close	CAB 4 GKW-AX 25 1800 V BK(3EHW470015P0 250)	3x17.5	3EHP431533
15.	234	HB-1	CABLE LUG 35.0/M8 CU VZN 3EHP470026P1008 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01 No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1x0.4	3EHP431536
16.	235	BUR - 1	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (04 Nos)	Close	Main TFP	CABLE LUG 70.0/ M12 CU VZN 3EHP470026P1912 (04 Nos)	Open	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	4x4.8	3EHP431534
17.	236	BUR - 1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01 No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1x1	3EHP431536
18.	237	BUR - 1	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (02Nos)	Close	BUR - 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (02Nos)	Open	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	1x12 1x12	3EHP431534
19.	241	Oil Pump Converter-2	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)	Open	HB-2	CABLE LUG 8-2.5 KN6762210P0208 (03 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x14.5	3EHP431533
20.	242	Connector to Oil cooling unit-2	CABLE LUG 16.0/M8 3EHP470026P0508 (03Nos)	Close	HB-2	CABLE LUG 16.0/M8 3EHP470026P0508 (04 Nos)	Open	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	3x15.5 1x0.8	3EHP431533

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

			CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01 No)							
21.	244	Oil Pump Transformer	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (03 Nos)	Open	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 6 MM2 3EHW470321P2060 (04 Nos)	Close	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	3x14.5	3EHP431533
22.	245	Main TFP	CABLE LUG 70.0/ M12 CU VZN 3EHP470026P1912 (08Nos)	Open	BUR - 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (08Nos)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	8x5.8	3EHP431534
23.	246	Main TFP	CABLE LUG 70.0/ M12 CU VZN 3EHP470026P1912 (06 Nos)	Close	BUR - 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (06 Nos)	Open	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	6x8	3EHP431534
24.	247	Not in use								
25.	248									
26.	249	Connector to MR Blower	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	HB-2	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (04Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x7.5 1x1.2	3EHP431533
27.	251	Main Compressor- 2	CABLE LUG 10.0/M8 3EHP470026P0208 (03Nos)	Open	HB-2	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P010 0)	3x11.5	3EHP431533
28.	252	Scavenge to MR Blower-2	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03Nos)	Open	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x6	3EHP431533
29.	253	Scavenge Blower to MR Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002	1x0.5	3EHP431536

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

			(01 No)			(01 No)		5)		
30.	254	Scavenge Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)	Open	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x7	3EHP431533
31.	255	Scavenge Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x0.5	3EHP431536
32.	256	BUR - 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (04 Nos)	Open	HB-2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (04 Nos)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	4x5.8	3EHP431534
33.	257	BUR - 2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01No)	Open	HB-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01 No)	Close	CAB 4 GKW-AX 50 1800 V BK (3EHW470015P050 0)	3x6	3EHP431533
34.	258	BUR - 2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01No)	Open	HB-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01No)	Close	CAB 4 GKW-AX 50 1800 V BK (3EHW470015P050 0)	3x6	3EHP431533
35.	259	BUR - 2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01 No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1x1	3EHP431536
36.	260	HB-2	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No) CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Open	Connector to TM Blower	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	3x6.8 1x0.5	3EHP431533
37.	261	HB-2	SET OF COMPLETE PLUG / PLUG P7/24 SOCKET 'N' INDOOR HBTB315110R0011 (01 No) CONTACT PIN	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	7x12	3EHP431533

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

			12/2.5 HBT415298P0007 (07 Nos)							
38.	262	HB-2	CABLE LUG 35.0/M8 CU VZN 3EHP470026P1008 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1x0.4	3EHP431536
39.	273	Main Compressor- 1	CABLE LUG 10.0/M8 3EHP470026P0208 (01No)	Open	Conn. To Earth to Loco	CA-LUG 10.0/M10 CU VZN 3EHP470026P0210 (01No)	Close	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P010 0)	1x4	3EHP431536
40.	274	Oil Pump Transformer	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Open	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	1x2.75	3EHP431536
41.	275	Oil Pump Converter	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Open	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	1x2.7	3EHP431536
42.	276	Oil Pump Converter	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Open	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	1x2.7	3EHP431536
43.	277	Oil Pump Transformer	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Open	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	1x2.75	3EHP431536
44.	278	Main Compressor- 2	CABLE LUG 10.0/M8 3EHP470026P0208 (01No)	Open	Conn. To Earth to Loco	CA-LUG 10.0/M10 CU VZN 3EHP470026P0210 (01No)	Close	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P010 0)	1x4	3EHP431536
45.	211	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02 Nos)	Close	Cubicle Driver Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x7.2	3EHP431535
46.	212	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x2.5	3EHP431536
47.	213	Cubicle Driver Cab-1	WAGO	Open	Rotary Switch Cab Heater	CABLE SLEEVE 2.5- 10 NB485270P0029 (04 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	4x6	3EHP431535
48.	214	Cubicle Driver Cab-1	CABLE LUG 8-2.5 KN6762210P0208	Close	Cab Heater/ Ventilation	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK	4X6	3EHP431533

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			(02Nos) CABLE TERMINAL TYPE 18B,2.5 SQ.MM. (02 Nos)					(3EHW470015P002 5)		
49.	216	Cubicle Driver Cab-1	WAGO	Open	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x7.2	3EHP431535
50.	218	Cubicle Driver Cab-1	CABLE LUG 10.0/M8 3EHP470026P0208 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 10.0/M10 CU VZN 3EHP470026P0210 (01 No)	Close	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P010 0)	1x0.4	3EHP431536
51.	219	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x2.5	3EHP431536
52.	238	Scavenge Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x0.5	3EHP431536
53.	239	Scavenge Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x0.5	3EHP431536
54.	279	Cab Heater/ Ventilation	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x0.8	3EHP431536
55.	263	Cab Heater/ Ventilation	WAGO	Open	Cubicle Driver Cab-2	CABLE LUG 8-2.5 KN6762210P0208 (02 Nos) CABLE TERMINAL TYPE 18B,2.5 SQ.MM. (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	4x6	3EHP431533
56.	266	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x7.2	3EHP431535
57.	267	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x2.5	3EHP431536
58.	268	Rotary Switch Cab	CABLE SLEEVE 2.5-	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5	4x6	3EHP431535

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F			

		Heater	10 NB485270P0029 (04 Nos)					1800 V BK (3EHW470015P002 5)		
59.	269	Cubicle Driver Cab-2	WAGO	Open	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x7.2	3EHP431535
60.	270	Cubicle Driver Cab-2	CABLE LUG 10.0/M8 3EHP470026P0208 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 10.0/M10 CU VZN 3EHP470026P0210 (01 No)	Close	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P010 0)	1x0.4	3EHP431536
61.	271	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x2.5	3EHP431536
62.	280	Cab Heater/ Ventilation	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01 No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x1.1	3EHP431536
63.	MOD-1	HB-1	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Open	HB-2	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Open	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	3x19.3	-
64.	MOD-2	HB-1	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	HB-2	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P010 0)	3x19.3	-
65.	MOD-3	HB-1	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	HB-2	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P010 0)	3x19.3	-
66.	MOD-4	Baby TFP in HB-1	-	Open	HB-2 High lamp Sheet	-	Open	CAB 4 GKW-AX 6 1800 V BK 3EHW470015P0060	2x17.5	
67.	AC-1	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	AC-1	-	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x22.1	-
68.	AC-2	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001	Close	AC-1	-	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x11.1	-

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			(01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)					5)		
69.	1103	Merged in Loom no. MOD-4								
70.	1117									
CONTROL CABLES										
SN	Loom Number	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	311	UIC Socket	-	Open	SB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (13Nos)	Close	CAB 3 x 4 x 1.0 SCR(3EHP470001P1 012)	1x10.45	3EHP431543
2.	312	Panel A1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	SB-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	CAB 2 x 0.5 SCR 3EHP470000P0502	1x13	3EHP431544
3.	313	Panel A1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	SB-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	CAB 2 x 0.5 SCR 3EHP470000P0502	1x13	3EHP431544
4.	314	Cubicle Driver Cab-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0	Close	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x11	3EHP431539
SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.		SEE/D-I		Dy.CEE/D-I		ALT	F			

			HBT415298P0004 (05Nos)			HBT415298P0004 (05Nos)				
5.	315	Cubicle Driver Cab-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	SB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	35x11	3EHP431538
6.	316	Cubicle Driver Cab-1	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (56Nos) CONTACT SOCKET 16/1.0 HBT415299P0006 (05Nos)	Close	SB-1	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (56Nos) CONTACT SOCKET 16/1.0 HBT415299P0006 (05Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5) CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	50x11  1x11	3EHP431538
7.	318	Panel A/1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 (04Nos)	Close	SB-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONT. PIN 0.24- 0.62/24-20 *1.8076.005/01 (05Nos)	Close	CAB 2 x 2 x 0.5 SCR 3EHP470000P0504  CAB - 3GKW- 0.5 FLEX RED HZN452926P0201	1x13.15 1X0.1	3EHP431544
Not in the Scope of Supply of Harnessed Cable										
8.	320	SB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	HB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	35x4.3	3EHP431538

SPECIFICATION FOR SET OF HARNESSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

9.	321	SB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (13Nos)	Close	Roof-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (13Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	13x6.2	3EHP431538
10.	322	DELETED								
11.	323	SB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	SR-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	35x8.2	3EHP431538
12.	324	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	SR-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x7.3	3EHP431539
13.	325	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	Roof-2	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x6.5	3EHP431539
14.	327	SB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No)	Close	Roof-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	25x6.9	3EHP431538

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

			CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)			CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)				
15.	328	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	SR-2	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x16.5	3EHP431539
16.	329	SB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (13Nos)	Close	Roof-3	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (13Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	13x10.7	3EHP431538
17.	330	SB-1	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (42Nos) CONTACT SOCKET 16/1.5 HBT415299P0008 (19Nos)	Close	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (42Nos) CONTACT SOCKET 16/1.5 HBT415299P0008 (19Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)  CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	35x20.5  12x20.5	3EHP431538
18.	331	SB-1	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET	Close	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)  CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001	53x20.5  2x20.5	3EHP431538

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

			16/2/AWG14 HBT415299P0010 (61Nos)			16/2/AWG14 HBT415299P0010 (61Nos)		5)		
19.	332	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	Cubicle Driver Cab-2	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x20	3EHP431539
20.	333	SB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (13Nos)	Close	UIC Socket	-	Open	CAB 3 x 4 x 1.0 SCR 3EHP470001P1012	1x19.8	3EHP431543
21.	334	HB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 (13Nos)	Close	BUR-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 (13Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	13x5	3EHP431538
22.	335	Primary Current Sensor Box	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (09Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120( 09Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 9 x 0.5 SCR 3EHP470000P0509  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x10.7  2x0.25	3EHP431540
23.	337	DELETED								

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

24.	338	Primary Current Sensor Box	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (09Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120(09Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 9 x 0.5 SCR 3EHP470000P0509  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x6.6  2x0.5	3EHP431540
25.	340	DELETED								
26.	341	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (04Nos)	Close	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120(04Nos)	Close	CAB 2 x 2 x 0.5 SCR 3EHP470000P0504	1x21.2	3EHP431541
27.	342	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (05Nos)	Close	HB-2	PLUG 9 POLES HETT401293P0001 (01No) PROTECTIVE CAP / CABLE CLIP HETT401293P0032 (01No) CONNECTOR SKT 0.23, 0.5 SE408197P0013 (06Nos)	Close	CAB 5 x 0.5 SCR 3EHP470000P0505	1x18.5	3EHP431541
28.	343	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (05Nos)	Close	HB-2	PLUG 9 POLES HETT401293P0001 (01No) PROTECTIVE CAP / CABLE CLIP HETT401293P0032 (01No) CONNECTOR SKT 0.23, 0.5	Close	CAB 5 x 0.5 SCR 3EHP470000P0505	1x11.5	3EHP431541

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

						SE408197P0013 (06Nos)				
29.	344	SR-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 (35Nos)	Close	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 (35Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	35x8.5	3EHP431538
30.	345	Pneumatic Panel	PLUG, SIZE 22/19POLE 3EHP431609R0001 (01No) CONTACT SOCKET 16/0.5 HBT415299P0002 (7Nos) CONTACT SOCKET 16/1.0 HBT415299P0006 (12Nos)	Close	SB-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (5Nos)	Close	CAB 2 x 2 x 0.5 SCR 3EHP470000P0504	1x13.5	3EHP431538
				Close	CONNECTOR Brake Handle Out	-	Open	CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	1x20	
				Close	CONNECTOR Brake Handle Out	-	Open	CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	1x11.5	
31.	346	Pneumatic Panel	PLUG, SIZE 28/37POLE 3EHP431609R0002 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (37Nos)	Close	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (61Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	37x11.4	3EHP431538
32.	347	Pneumatic Panel	PLUG, SIZE 22/19POLE 3EHP431609R0001 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (19 Nos)	Close	SB-2	SET OF COMPLETE PLUG / PLUG 22P / 36 SKT ' N ' INDOOR HBTB315112R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (22Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	19x11.8	3EHP431538
33.	351	Panel C/1	PLUG 9P D-	Close	SB-1	PLUG 9P D-	Close	CAB 9 x 0.5 SCR	1x13	3EHP431544

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F			

			SUB,SIZE-1 (01 No) CONTACT SOCKET AWG24-20 (09Nos)			SUB,SIZE-1 (01 No) CONTACT SOCKET AWG24-20 (09Nos)		3EHP470000P0509		
34.	348	BUR-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (10Nos) CONTACT SOCKET 12/2.5 HBT415298P0008 (25Nos)	Close	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (10Nos) CONTACT SOCKET 12/2.5 HBT415298P0008 (25Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)  CAB 2 x 1.0 SCR 3EHP470001P1002  CAB - 3GKW- 0.5 FLEX RED HZN452926P0201	20x5.1  2x5.1  2x5.1	3EHP431538
		Close		Insulator Battery Box-1	0.5 –1.0/M4 (02 Nos)	Open	CAB 2 x 1.0 SCR 3EHP470001P1002	2x16.5		
		Close		Insulator Battery Box-2	0.5 –1.0/M4 (02 Nos)	Open	CAB 2 x 1.0 SCR 3EHP470001P1002	2x10.5		
35.	349	HB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	27x4	3EHP431538
36.	352	SB-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (04Nos)	Close	Panel C/2	PLUG , 9P D-SUB , S1 . PINS HBTB316240R0091 (01No) CONT. PIN 0.24- 0.62/24-20 *1.8076.005/01 (05Nos)	Close	CAB 2 x 2 x 0.5 SCR 3EHP470000P0504  CAB - 3GKW- 0.5 FLEX RED HZN452926P0201	1x13.15  1X0.1	3EHP431544
		Not in the Scope of Supply of Harnessed Cable								
37.	353	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG	Close	*Connector Speedometer	*In the scope of propulsion system	Open	CAB 25 x 0.5 TWIST 3EHP470002P0525	1x9.2	3EHP431542

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F			



		SB-2	61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/0.5 HBT415299P0002 (61Nos)	Close	*Connector Speedometer		Open	CAB 9 x 0.5 TWIST 3EHP470002P0509	1x19.25	
		*Connector Speedometer	-	Open	*Connector Speedometer		Open	CAB 2 x 0.5 SCR 3EHP470000P0502	1x25.1	
38.	354	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	Cubicle Driver Cab-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	35x10.5	3EHP431538
39.	355	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (56Nos) CONTACT SOCKET 16/1.0 HBT415299P0006 (05Nos)	Close	Cubicle Driver Cab-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (56Nos) CONTACT SOCKET 16/1.0 HBT415299P0006 (05Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5) CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	50x11.4  1x11.4	3EHP431538
40.	356	SB-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	Panel A/2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	CAB 2 x 0.5 SCR(3EHP470000P0 502)	1x13	3EHP431544
41.	357	SB-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009	Close	Panel A/2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009	Close	CAB 2 x 0.5 SCR(3EHP470000P0 502)	1x13	3EHP431544

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F			

			(01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)			(01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)				
42.	358	Connector Air Dryer	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (02Nos)	Open	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x23.5 2x15.9 11x11.25	3EHP431538
		Pneumatic Panel								
		Pressure Switch Main Compressor								
		Pressure Switch Reservoir								
		Pressure Switch Main Compressor								
		Pressure Switch Brake Cylinder								
		Pressure Switch Brake Cylinder								
43.	359	SB-1	SET OF COMPLETE PLUG / PLUG 22P / 36 SKT ' N ' INDOOR HBTB315112R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (22 Nos)	Close	SB-2	SET OF COMPLETE PLUG / PLUG 22P / 36 SKT ' N ' INDOOR HBTB315112R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (22 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)  CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	17x20.5  1x21	3EHP431538
44.	371	Master Controller-1	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x1.6	3EHP431545
45.	372	Connector Speedometer	CABLE LUG 1.5- 2.57 /M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x1.3	3EHP431545
46.	373	Not in use								3EHP431545
47.	374	SB-1	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No)	Close	CAB 4 GKW-AX 16 1800 V BK(3EHW470015P0 160)	1x0.6	3EHP431545
48.	375	Pneumatic Panel	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106	Close	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006	1x3	3EHP431545

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F			

			(01No)			(01No)		0)		
49.	376	SB-2	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	1x0.6	3EHP431545
50.	377	Master Controller-2	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x1.62	3EHP431545
51.	378	Connector Speedometer	CABLE LUG 1.5- 2.57/M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x1.3	3EHP431545
52.	379	Not in use								3EHP431545
53.	380	Connector Brake Handle out	CABLE LUG 1.5- 2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x2.3	3EHP431545
54.	381	Connector Brake Handle out	CABLE LUG 1.5- 2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x2.3	3EHP431545
55.	350	Bogie-2	PLUG 9P D- SUB,SIZE-1	Close	Connector Speedometer	PLUG 9P D- SUB,SIZE-1	Close	CAB 9 x 0.5 SCR(3EHP470000P0 509)	1x13.5	3EHP330342
This cable Loom is being supplied along with Speedometer. 02 Nos.ADAPTOR NW17/SIZE18 (ABB ID HBT415393P0437) are in scope of supply of harnessed cable										
56.	317	SB-2	PLUG 9P D- SUB,SIZE-1 (01 No) CONTACT SOCKET AWG24-20 (09Nos)	Close	Panel C/2	PLUG 9P D- SUB,SIZE-1 (01 No) CONTACT SOCKET AWG24-20 (09Nos)	Close	CAB 9 x 0.5 SCR(3EHP470000P0 509)	1x13	3EHP431544
57.	Flasher Unit (Cab1) 3551-1A, 2050-A1 3551-3A, 2050-A2	-	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (04Nos)	Close	-	-	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	4X7.45	-
58.	Flasher Unit (Cab2)	-	-	Close	-	-	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0	4X7.3	-

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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	3551-1B, 2050-B1 3551-3B, - 2050-B2							025)		
59.	3533	-	CONTACT PIN 12/1.5 HBT415298P0005 (01No)	Close	-	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	1X2.5	-
60.	2050	-	CONTACT PIN 12/1.5 HBT415298P0005 (01No)	Close	-	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	1X2.5	-

## SENSOR CABLES

SN	Loom Number	From			To			Cable Size (Sq.mm)	No. of Cables x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	411	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 0.5 SCR (3EHP470000P0502 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x14  2x0.5	3EHP431537
2.	412	Bogie-1	5 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x2x 0.5 SCR (3EHP470000P0504 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x14  2x0.5	3EHP431537
3.	413	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR	Close	CAB 9 x 0.5 SCR (3EHP470000P0509)	1x14	3EHP431537

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVESSpecification No.  
CLW/ES/3/0646

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			(1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)			HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)		)		
4.	414	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 0.5 SCR (3EHP470000P0502 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x12.5  2x0.5	3EHP431537
5.	415	Bogie-1	5 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 2 x 0.5 SCR (3EHP470000P0504 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x12.5  2x0.5	3EHP431537
6.	416	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509 )	1x12.5	3EHP431537
7.	417	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120	Close	CAB 2 x 0.5 SCR (3EHP470000P0502 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002	1x11.5  2x0.5	3EHP431537

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

						(2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)		5)		
8.	418	Bogie-1	5 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x2x 0.5 SCR (3EHP470000P0504 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x11.5  2x0.5	3EHP431537
9.	419	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509 )	1x11.5	3EHP431537
10.	420	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Open	CAB 2 x 0.5 SCR (3EHP470000P0502 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x11.5  2x0.5	3EHP431537
11.	421	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos)	Close	Bogie-1	5 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 2 x 0.5 SCR (3EHP470000P0504 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x11.5  2x0.5	3EHP431537

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

			CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)							
12.	422	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509 )	1x11.5	3EHP431537
13.	450	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 0.5 SCR (3EHP470000P0502 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x12.5  2x0.5	3EHP431537
14.	451	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	5Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x2x 0.5 SCR(3EHP470000PO 504)  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x12.5  2x0.5	3EHP431537
15.	452	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509 )	1x12.5	3EHP431537
16.	453	SR-2	ST. 9P D-SUB GR1 /	Close	Bogie-1	3Pin Connector	Close	CAB 2 x 0.5 SCR	1x14	3EHP431537

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F			

			CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)			(Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)		(3EHP470000P0502 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x0.5	
17.	454	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	5Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 2 x 0.5 SCR (3EHP470000P0504 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x14  2x0.5	3EHP431537
18.	455	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509 )	1x14	3EHP431537
19.	425	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (5Nos)	Close	Amplifier Sensor Oil Transformer	SOCKET / PLUG , 5 CRIMP SOCKET S16 HBTB415399P0012 (1 No) CONTACT FEMALE GR16 / CONTACT SOCKET SIZE 16 HBTB415399P0002 (5Nos)	Close	CAB 3 x 0.5 SCR(3EHP470000P0 503)	1x9	3EHP431548
20.	426	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET	Close	Connector Temperature Sensor Oil	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2	Close	CAB 2 x 2x0.5 SCR(3EHP470000P0 504)	1x 9	3EHP431548

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				



			AWG24-20 HESG455638P0120 (5Nos)			HBTB415399P0001 (5Nos)				
21.	427	Connector Temperature Sensor Oil	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5Nos)	Close	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (5Nos)	Close	CAB 2 x2x 0.5 SCR(3EHP470000P0 504)	1x 9	3EHP431548
22.	428	Amplifier Sensor Oil Transformer	SOCKET / PLUG , 5 CRIMP SOCKET S16 HBTB415399P0012 (1 No) CONTACT FEMALE GR16 / CONTACT SOCKET SIZE 16 HBTB415399P0002 (5 Nos)	Close	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (3Nos)	Close	CAB 3 x 0.5 SCR (3EHP470000P0503 )	1x 9	3EHP431548
23.	441	NOT IN USE								3EHP431549
24.	442	NOT IN USE								3EHP431549

## DRIVER CABLES

SN	Loom Number	From			To			Cable Size (Sq.mm)	No. of Cables x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	511	Front Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x5	3EHP431546
2.	512	Tail Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x5	3EHP431546
3.	513	Head Light	CA-LUG 1.5- 2.5/M6 CU VZN 3EHP470026P0016 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x4	3EHP431546
4.	514	Head Light	CA-LUG 1.5- 2.5/M6 CU VZN 3EHP470026P0016 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x4	3EHP431546
5.	515	Front Marker Light	CA-LUG 1.5-2.5/M4 CU VZN	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V	2x5	3EHP431546

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVESSpecification No.  
CLW/ES/3/0646

JE/Drg./Elect.

SEE/D-I

Dy.CEE/D-I

ALT

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			3EHP470026P0014 (02 Nos)					BK(3EHW470015P0 025)		
6.	516	Tail Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
7.	517	Foot Switch Release of Ind	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
8.	518	Panel-B1	CABLE SLEEVE 1.5 - 8.0 NB485270P0067 (02 Nos) CABLE LUG INSUL 3-1.5 HCSN400689P0012 (01No)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 1.5 1800 V BK(3EHW470015P0 015)	3x6	3EHP431546
9.	519	Spring Loaded Switch Pneumatic	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
10.	520	Lamp Driver Desk Illumination	CABLE SLEEVE 2.5- 10 NB485270P0029 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5.5	3EHP431546
11.	521	Spring Loaded Foot Switch	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
12.	522	Cubicle Driver's Cab-1	WAGO	Open	Lamp Driver's Cab Lighting	LUG 6, 3 X 0.8 CUSN NBT200235P0511 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x6	3EHP431546
13.	522/1	Cubicle Driver's Cab-2	WAGO	Open	Lamp Driver's Cab Lighting	LUG 6, 3 X 0.8 CUSN NBT200235P0511 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x8.5	3EHP431546
14.	523	Cubicle Driver's Cab-1	WAGO	Open	Emergency Flash Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x6	3EHP431546
15.	524	Cubicle Driver's Cab-1	WAGO	Open	Lamp assistant desk illumination	CABLE SLEEVE 2.5- 10 NB485270P0029	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0	2x5.5	3EHP431546

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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						(02 Nos)		025)		
16.	551	Lamp Driver Desk Illumination	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01 No)	Close	Conn. To Earth to Loco	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x1.5	3EHP431546
17.	552	Lamp Driver's Cab Lighting	LUG 6, 3 X 0.8 CUSN NBT200235P0511 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x2.5	3EHP431546
18.	552/1	Lamp Driver's Cab Lighting	LUG 6, 3 X 0.8 CUSN NBT200235P0511 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x3	3EHP431546
19.	553	Emergency Flash Light	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x1.8	3EHP431546
20.	554	Lamp assistant desk illumination	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01 No)	Close	Conn. To Earth to Loco	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x1.5	3EHP431546
21.	531	Lamp assistant desk illumination	CABLE SLEEVE 2.5-10 NB485270P0029 (02 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5.5	3EHP431546
22.	532	Lamp Driver's Cab Lighting	LUG 6, 3 X 0.8 CUSN NBT200235P0511 (02 Nos)	Close	Cubicle Driver Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x6	3EHP431546
23.	532/2	Lamp Driver's Cab Lighting	LUG 6, 3 X 0.8 CUSN NBT200235P0511 (02 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x8.5	3EHP431546
24.	533	Emergency Flash Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x6	3EHP431546
25.	534	Spring Loaded Foot Switch	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
26.	535	Cubicle Driver Cab-2	WAGO	Open	Spring Loaded Switch Pneumatic	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

						ALT	F				
JE/Drg./Elect.	SEE/D-I			Dy.CEE/D-I							

27.	536	Cubicle Driver Cab-2	WAGO	Open	Lamp Driver Desk Illumination	CABLE SLEEVE 2.5-10 NB485270P0029 (02 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5.5	3EHP431546
28.	537	Cubicle Driver Cab-2	WAGO	Open	Foot Switch Release of Ind	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
29.	538	Cubicle Driver Cab-2	WAGO	Open	Panel B/2	CABLE SLEEVE 1.5 - 8.0 NB485270P0067 (02 Nos) CABLE LUG INSUL 3-1.5 HCSN400689P0012 (01No)	Close	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	3x6	3EHP431546
30.	539	Cubicle Driver Cab-2	WAGO	Open	Front Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
31.	540	Cubicle Driver Cab-2	WAGO	Open	Tail Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
32.	541	Cubicle Driver Cab-2	WAGO	Open	Head Light	CA-LUG 1.5- 2.5/M6 CU VZN 3EHP470026P0016 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x4	3EHP431546
33.	542	Cubicle Driver Cab-2	WAGO	Open	Head Light	CA-LUG 1.5- 2.5/M6 CU VZN 3EHP470026P0016 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x4	3EHP431546
34.	543	Cubicle Driver Cab-2	WAGO	Open	Front Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
35.	544	Cubicle Driver Cab-2	WAGO	Open	Tail Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
36.	561	Lamp assistant desk illumination	CABLE LUG 1.5- 2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x1.5	3EHP431546
37.	562	Lamp Driver's Cab	CA-LUG 1.5-2.5/M6	Close	Conn. To Earth to Loco	LUG 6.3 X 0.8 CUSN	Close	CAB 4 GKW-AX 2.5	1x2.5	

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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		Lighting	CU VZN 3EHP470026P0016 (01No)			NBT200235P0511 (01No)		1800 V BK(3EHW470015P0 025)		
38.	562/2	Lamp Driver's Cab Lighting	LUG 6.3 X 0.8 CUSN NBT200235P0511 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x3	3EHP431546
39.	563	Emergency Flash Light	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x1.8	3EHP431546
40.	564	Lamp Driver Desk Illumination	CABLE LUG 1.5- 2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x1.5	3EHP431546

## BATTERY CABLES

SN	Loom Number	From			To			Cable Size (Sq.mm)	No. of Cables x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	611	BUR-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0113 (01No)	Open	HB-2	SET OF COMPLETE PLUG /L- PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0213 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	3x5	3EHP431547
2.	612	Power Connection to Battery-1	ANDERSON PLUG PP 120A *1321G3ROT (01No)	Close	Battery-1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1.3	3EHP431547
3.	613	Power Connection to Battery-1	ANDERSON PLUG PP 120A *1321BLAU (01No)	Close	Battery-1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010\ (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1.3	3EHP431547
4.	614	Insulator Battery Box-1	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Close	Circuit Breaker Battery	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	1x0.4	3EHP431547
5.	615	Insulator Battery Box-1	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Close	Insulator Battery Box-2	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	1x11	3EHP431547
6.	616	Circuit Breaker Battery	CABLE LUG 16.0/M8	Open	SB-2	SET OF COMPLETE PLUG / L-PLUG	Close	CAB 4 GKW-AX 16 1800 V BK	1x16.5	3EHP431547

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVESSpecification No.  
CLW/ES/3/0646

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			3EHP470026P0508 (01No)			4P/40 SOCKET 'N' INDOOR		(3EHW470015P016 0)		
		Insulator Battery Box-2	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Open	SB-2	HBTB315176R0211 (01No)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	1x9	3EHP431547
7.	617	Power Connection to Battery-2	ANDERSON PLUG PP 120A *1321BLAU (01No)	Close	Battery-2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1.3	3EHP431547
8.	618	Power Connection to Battery-2	ANDERSON PLUG PP 120A *1321G3ROT (01No)	Close	Battery-2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1.3	3EHP431547
9.	621	Power Connection to Battery-1	ANDERSON PLUG PP 120A *1321G3ROT (01No)	Close	Insulator Battery Box-1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1	3EHP431547
10.	622	Power Connection to Battery-1	ANDERSON PLUG PP 120A *1321BLAU (01No)	Close	Insulator Battery Box-1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1	3EHP431547
11.	623	Power Connection to Battery-2	ANDERSON PLUG PP 120A *1321BLAU (01No)	Close	Insulator Battery Box-2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1	3EHP431547
12.	624	Power Connection to Battery-2	ANDERSON PLUG PP 120A *1321G3ROT (01No)	Close	Insulator Battery Box-2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1	3EHP431547

ROOF CABLES

SN	Loom Number	From			To			Cable Size (Sq.mm)	No. of Cables x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	5A	Roof-1	SET OF COMPLETE SOCKET / SOCKET 13P/32 PIN 'N' INDOOR	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	3X6.1	3EHP431341
		Roof-1	HBTB315159R0011 (01No) CONTACT PIN 12/1.5	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	3X6.2	3EHP431341
		Roof-1	HBT415298P0005	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5	3X6.2	3EHP431341

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			(11Nos) CONTACT PIN 12/4.0 HBT415298P0009 (02Nos)					1800 V BK (3EHW470015P001 5)		
2.	5B	Roof-1	SET OF COMPLETE SOCKET / SOCKET 13P/32 PIN 'N' INDOOR HBTB315159R0011 (01No) CONTACT PIN 12/1.5 HBT415298P0005 (11Nos) CONTACT PIN 12/4.0 HBT415298P0009 (02Nos)	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	3X5.9	3EHP431341
		Roof-1		Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	3X6.3	3EHP431341
		Roof-1		Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	3X6.3	3EHP431341
3.	6	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	4X3.5	3EHP431341
4.	7	Roof-1	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	2X0.5	3EHP431341
5.	8	Roof-2	SOCKET 35P/40 PIN 'N' IND. HBTB315162R0011 (01No) CONTACT PIN 12/1.5 HBT415298P0005 (31Nos) CONTACT PIN 12/4.0 HBT415298P0009 (2Nos) CONTACT PIN 12/2.5 HBT415298P0007 (2Nos)	Close	Roof-2	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	2x2.5	3EHP431341
		Roof-2		Close	Roof-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/1.5 HBT415298P0006 (35Nos)	Close	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	12X3.6	3EHP431341
		Roof-2		Close	Roof-2	CABLE LUG 1.5-2.57	Open	CAB 4 GKW-AX 2.5	2X6.5	3EHP431341

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

						M5 3EHP470026P0015 (02Nos)		1800 V BK (3EHW470015P002 5)		
6.	9	Roof-2	SET OF COMPLETE SOCKET / SOCKET 5P / S18 PIN 'N' STR HBT315075R0031 (01No) CONTACT PIN 12/1.0 HBT415298P0003 (05Nos)	Close	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02Nos)	Open	CAB 2 x 1.0 SCR (3EHP470001P1002 ) CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1X2.5 1x0.5	3EHP431341
						CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	1X0.5	3EHP431341
7.	10	Roof-2	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (01No)	Open	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1X0.5	3EHP431341
8.	11	Roof-2	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02Nos)	Open	Roof-2	0.5-1.0/M5 (02Nos)	Open	CAB 2 x 1.0 SCR (3EHP470001P1002 )	1X1.2	3EHP431341
			CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open		-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5) CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1X0.5 1x0.5	3EHP431341
9.	12	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	4x2	3EHP431341
10.	13	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	4x2	3EHP431341
11.	14	Roof-1	CABLE LUG PIN TYPE 2.5 GMN945210P0002 (02Nos)	Open	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2 x 0.5	3EHP431341
12.	15	Roof-2	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014	Open	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002	1X0.7	3EHP431341

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				



			(01No)			(01No)		5)		
13.	16	Roof-2	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02Nos)	Open	Roof-2	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	2 x 0.5	3EHP431341
14.	17	Roof-2	8-2.5	Open	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1X1	3EHP431341
15.	18	Roof-2	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (01No)	Open	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	1X1.25	3EHP431341

## EARTHING CABLES

SN	Loom Number	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	BERT-1	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X0.8	-
2.	BERT-2	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.8	-
3.	BERT-3	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.8	-
4.	BERT-4	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.8	-
5.	BERT-5	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
6.	BERT-6	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
7.	BERT-7	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1	1X 0.65	-

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVESSpecification No.  
CLW/ES/3/0646

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			(1No)			(1No)		200)		
8.	BERT-8	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
9.	BERT-9	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
10.	BERT-10	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
11.	BERT-11	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
12.	BERT-12	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
13.	BERT-13	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1x 0.95	-
14.	BERT-14	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1x 0.95	-
15.	BERT-15	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1X 0.4	-
16.	BERT-16	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1X 0.4	-
17.	BERT-17	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1X 0.4	-
18.	MRERT-1	NOT IN USE								-
19.	MRERT-2									-
20.	MRERT-3									-
21.	MRERT-4									-

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

22.	MRERT-5								-	
23.	MRERT-6								-	
24.	MRERT-7								-	
25.	MRERT-8								-	
26.	MRERT-9								-	
27.	MRERT-10								-	
28.	MRERT-11								-	
29.	HRERT-1	DELETED								
30.	HRERT-2	DELETED								
31.	HRERT-3	DELETED								
KAVACH CABLES										
SN	Loom Number	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	K1	DELETED								
2.	K2									
3.	K3									
4.	K4									

CABLE FOR SIGNAL EXCHANGE LAMP										
SN	Loom No.	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	SEL-1	F1 Panel	-	Open	Cab-1 Driver Desk	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P00 15)	2x2.5	-
2.	SEL-2	F1 Panel	-	Open	Cab-1 Assist. Driver Desk	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P00 15)	2x2.5	-

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES					Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

3.	SEL-3	F2 Panel	-	Open	Cab-2 Driver Desk	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P00 15)	2X2.5	-
4.	SEL-4	F2 Panel	-	Open	Cab-2 Assist. Driver Desk	-	Open	CAB 4 GKW-AX1.5 1800 V BK (3EHW470015P00 15)	2x2.5	-
CABLE FOR WATERLESS URINAL										
SN	Loom No.	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	WATERLESS URINAL	SB-1	-	Open	Cab-1	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P00 15)	4x11	-

CABLE FOR RTIS										
SN	Loom No.	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/Close)			
1.	RTIS	DELETED								

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC, WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES					Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

**SCOPE OF SUPPLY OF HARNESSSED CABLES FOR WAP-7 LOCOMOTIVES**

SN	Loom Number	POWER CABLES								
		From			To			Cable Size (Sq.mm)	Cable Length (Meter)	ABB Identification
		Location	Lug Type	End (Open/Close)	Location	Lug Type	End (Open/Close)			
1.	113	Terminal Box Earthing	CABLE LUG 95.0 / M8 CU VZN 3EHP470026P2408 (01 No)	Open	Earthing Choke	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	CAB 4 GWK-AX 95 1800 V BK (3EHW470015P0950)	8.5	3EHP431528
2.	123A	DELETED								
3.	123B	DELETED								
4.	123C	DELETED								
5.	124	Primary Current Sensor Box	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Open	Earthing Choke	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	CAB 9 GWK-AX 120 4000 V BK (3EHW470016P1200)	4.3	3EHP431528
6.	125A	DELETED								
7.	125B	DELETED								
8.	125C	DELETED								
9.	125D	DELETED								
10.	126A	Primary Current Sensor Box	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	Main TFP	CABLE LUG 70.0 / M12 CU VZN 3EHP470026P1912 (01 No)	Open	CAB 9 GWK-AX 70 4000 V BK (3EHW470016P0700)	4.6	3EHP431528
11.	126B	Primary Current Sensor Box	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	Main TFP	CABLE LUG 70.0 / M12 CU VZN 3EHP470026P1912 (01 No)	Open	CAB 9 GWK-AX 70 4000 V BK (3EHW470016P0700)	4.6	3EHP431528
12.	130	DELETED								
13.	131	Terminal Box Earthing	CABLE LUG 95.0 / M8 CU VZN 3EHP470026P2408 (01 No)	Open	Earthing Choke	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	CAB 4 GWK-AX 95 1800 V BK (3EHW470015P0950)	2.5	3EHP431528
14.	132	Main Converter-1	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	CAB 9 GWK-AX 95 4000 V BK (3EHW470016P0950)	0.91	3EHP431529
15.	141	Earthing Choke	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	Terminal Box Earthing	CABLE LUG 95.0 / M8 CU VZN 3EHP470026P2408 (01 No)	Open	CAB 4 GWK-AX 95 1800 V BK (3EHW470015P0950)	12	3EHP431528
16.	142	Earthing Choke	CABLE LUG 95.0 /	Close	Terminal Box Earthing	CABLE LUG 95.0 / M8	Open	CAB 4 GWK-AX 95	15	3EHP431528

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES****Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.

SEE/D-I

Dy.CEE/D-I

ALT

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			M10 CU VZN 3EHP470026P2410 (01 No)			CU VZN 3EHP470026P2408 (01 No)		1800 V BK (3EHW470015P0950)		
17.	143	Earthing Choke	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	CAB 4 GWK-AX 70 1800 V BK (3EHW470016P0700)	0.5	3EHP431529
18.	144	Main Converter-2	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	CAB 9 GWK-AX 95 4000 V BK (3EHW470016P0950)	0.91	3EHP431529
19.	161	Terminal Box Earthing	-	Open	Bogie 1	CABLE LUG 70.0 / M8 CU VZN 3EHP470026P1908 (01 No)	Close	CAB 4 GWK-AX 70 1800 V BK (3EHW470015P0700)	1.25	3EHP431532
20.	162	Bogie 1	-	Open	Terminal Box Earthing	CABLE LUG 70.0 / M8 CU VZN 3EHP470026P1908 (01 No)	Close	CAB 4 GWK-AX 70 1800 V BK (3EHW470015P0700)	1.25	3EHP431532
21.	163	Terminal Box Earthing	-	Open	Bogie 2	CABLE LUG 70.0 / M8 CU VZN 3EHP470026P1908 (01 No)	Close	CAB 4 GWK-AX 70 1800 V BK (3EHW470015P0700)	1.25	3EHP431532
22.	164	Bogie 2	-	Open	Terminal Box Earthing	CABLE LUG 70.0 / M8 CU VZN 3EHP470026P1908 (01 No)	Close	CAB 4 GWK-AX 70 1800 V BK (3EHW470015P0700)	1.25	3EHP431532
23.	115A (TM-1)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GWK-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
24.	115B (TM-1)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GWK-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
25.	115C (TM-1)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GWK-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
26.	116A	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GWK-AX 120 4000 V BK (3EHW470016P1200)	9.2	3EHP431531
27.	116B	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN	Open	CAB 9 GWK-AX 120 4000 V BK	9.2	3EHP431531

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			3EHP470026P3012 (01 No)			HBTB416074P0010 (01 No)		(3EHW470016P1200)		
28.	116C	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	9.2	3EHP431531
29.	116D	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	9.2	3EHP431531
30.	116E	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	9.2	3EHP431531
31.	116F	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	9.2	3EHP431531
32.	121A (TM-2)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
33.	121B (TM-2)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
34.	121C (TM-2)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
35.	122A	Bogie 1	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	2	3EHP431530
36.	122B	Bogie 1	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	2	3EHP431530
37.	122C	Bogie 1	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	2	3EHP431530

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

38.	133A (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	7.2	3EHP431531
39.	133B (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	7.2	3EHP431531
40.	133C (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	7.2	3EHP431531
41.	133D (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	7.2	3EHP431531
42.	133E (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	7.2	3EHP431531
43.	133F (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	7.2	3EHP431531
44.	148A (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	5.5	3EHP431531
45.	148B (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	5.5	3EHP431531
46.	148C (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	5.5	3EHP431531
47.	148D (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	5.5	3EHP431531
48.	148E (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	5.5	3EHP431531

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			(01 No)			(01 No)				
49.	148F (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	5.5	3EHP431531
50.	166A (TM-3)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
51.	166B (TM-3)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
52.	166C (TM-3)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
53.	149A (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	5.5	3EHP431531
54.	149B (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	5.5	3EHP431531
55.	149C (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	5.5	3EHP431531
56.	149D (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	5.5	3EHP431531
57.	149E (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	5.5	3EHP431531
58.	149F (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	5.5	3EHP431531
59.	167A (TM-4)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

			ALT	F					
<b>JE/Drg./Elect.</b>	<b>SEE/D-I</b>	<b>Dy.CEE/D-I</b>							

60.	167B (TM-4)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
61.	167C (TM-4)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
62.	145A (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	7.2	3EHP431531
63.	145B (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	7.2	3EHP431531
64.	145C (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	7.2	3EHP431531
65.	145D (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	7.2	3EHP431531
66.	145E (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	7.2	3EHP431531
67.	145F (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	7.2	3EHP431531
68.	146A	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
69.	146B	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
70.	146C	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
71.	147A	Main Converter-2	CABLE LUG 120.0 /	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE	Close	CAB 9 GKW-AX 120	9.2	3EHP431531

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F			

	(TM-6)		M12 CU VZN 3EHP470026P3012 (01 No)			120 / M10 CU VZN HBTB416074P0010 (01 No)		4000 V BK (3EHW470016P1200)		
72.	147B (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	9.2	3EHP431531
73.	147C (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	9.2	3EHP431531
74.	147D (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	9.2	3EHP431531
75.	147E (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	9.2	3EHP431531
76.	147F (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Open	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	9.2	3EHP431531
77.	151A	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
78.	151B	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
79.	151C	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	1.35	3EHP431530
80.	152A	Bogie 2	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	2	3EHP431530
81.	152B	Bogie 2	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P1200)	2	3EHP431530
82.	152C	Bogie 2	CABLE LUG 120.0 / M10 CU VZN	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN	Close	CAB 9 GKW-AX 120 4000 V BK	2	3EHP431530

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F			

			3EHP470026P3010 (01 No)			3EHP470026P3012 (01 No)		(3EHW470016P1200)		
83.	91-1	Main TFP	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	FB	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	9.5	
84.	91-2	Main TFP	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	FB	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	9.5	
85.	91A-1	Main TFP	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	FB	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	9.5	
86.	91A-2	Main TFP	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	FB	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	9.5	
87.	94-1	Main TFP	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	FB	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	9.5	
88.	94-2	Main TFP	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	FB	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	9.5	
89.	94A-1	Main TFP	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	FB	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	9	
90.	94A-2	Main TFP	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	FB	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	9	
91.	HL-15-1	HLC-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	O/P HLC-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	6.0	
92.	HL-15-2	HLC-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	O/P HLC-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	6.0	
93.	HL-15-3	HLC-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712	Open	O/P HLC-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	6.0	

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			(01 No)			(01 No)				
94.	HL-18-1	O/P HLC-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	Cab-1 Disconnecter-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	5.5	
95.	HL-18-2	O/P HLC-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	Cab-1 Disconnecter-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	5.5	
96.	HL-18-3	O/P HLC-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	Cab-1 Disconnecter-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	5.5	
97.	HL-18-4	O/P HLC-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	Cab-1 Disconnecter-3	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	19	
98.	HL-18-5	O/P HLC-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	Cab-1 Disconnecter-3	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	19	
99.	HL-18-6	O/P HLC-1	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	Cab-1 Disconnecter-3	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	19	
100.	HL-25-1	HLC-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	O/P HLC-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	6.0	
101.	HL-25-2	HLC-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	O/P HLC-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	6.0	
102.	HL-25-3	HLC-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	O/P HLC-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	6.0	
103.	HL-28-4	O/P HLC-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	Cab-2 Disconnecter-4	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	5.5	
104.	HL-28-5	O/P HLC-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	Cab-2 Disconnecter-4	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	5.5	

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

			ALT	F					
<b>JE/Drg./Elect.</b>	<b>SEE/D-I</b>	<b>Dy.CEE/D-I</b>							

105.	HL-28-6	O/P HLC-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	Cab-2 Disconnecter-4	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	5.5	
106.	HL-28-1	O/P HLC-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	Cab-1 Disconnecter-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	19	
107.	HL-28-2	O/P HLC-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	Cab-1 Disconnecter-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	19	
108.	HL-28-3	O/P HLC-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	Cab-1 Disconnecter-2	CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Open	CAB 9 GKW-AX 150 4000 V BK (3EHW470016P1500)	19	

## AUXILLIARY CABLES

SN	Loom Number	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identificatio n
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	217	Cubicle Driver Cab-1	WAGO	Open	Aux. Converter-1	SET OF COMPLETE PLUG / PLUG P7/24 SOCKET 'N' INDOOR HBTB315110R0011 (01 No) CONTACT SOCKET 12/2.5 HBT415298P0008 (07 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	7X12	3EHP431533
2.	220	Connector to TM Blower	CABLE LUG 16.0/M8 3EHP470026P0508 (04 Nos)	Close	HB-1	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos) CABLE LUG 16.0/M10 CU VZN (01 No) 3EHP470026P0510	Open	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P0160)	3x5.2 1x1.5	3EHP431533
3.	221	HB-1	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01 No)	Open	Aux. Converter-1	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01 No)	Close	CAB 4 GKW-AX 50 1800 V BK (3EHW470015P0500)	3x6.5	3EHP431533

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVESSpecification No.  
CLW/ES/3/0646

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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4.	223	HB-1	PLUG 4P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	Scavenge Blower	CA-LUG 2.5/M6 CU VZN 3EHP470026P0016  (03 Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)	3x3.7	3EHP431533
5.	224	HB-1	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Close	Main Compressor- 1	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Close	CAB 4 GWK-AX 10 1800 V BK (3EHW470015P0100)	3x11	3EHP431533
6.	225	HB-1	PLUG 4P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	Scavenge Blower to MR Blower	CA-LUG 2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)	3x8.8	3EHP431534
7.	226	HB-1	PLUG 4P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	Connector to MR Blower	2.5/M6 CU VZN 3EHP470026P0016 (04 Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)	3x7.4 1x1.75	3EHP431533
8.	227	HB-1	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 6 MM2 3EHW470321P2060 (04 Nos)	Close	Oil Pump Transformer	CA-LUG 4.0-/M8 CU VZN 3EHP470026P0106 (03 Nos)	Close	CAB 4 GWK-AX 6 1800 V BK (3EHW470015P0060)	3x13.5	3EHP431533
9.	228	HB-1	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos) CABLE LUG 16.0/M10 CU VZN (01 No) 3EHP470026P0510	Close	Connector to Oil cooling unit-1	CABLE LUG 16.0/M8 3EHP470026P0508 (04 Nos) CABLE LUG 16.0/M10 CU VZN (01 No)	Close	CAB 4 GWK-AX 16 1800 V BK (3EHW470015P0160)	3x15 1X1.5	3EHP431533

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

10.	229	Not in use								
11.	230	HB-1	CABLE LUG 8-2.5 KN6762210P0208 (03Nos)	Close	Oil Pump Converter-1	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	3x14	3EHP431533
12.	231	HB-1	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0113 (01 No)	Open	HB-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0113 (01 No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0350)	3x17.5	3EHP431533
13.	232	HB-1	SET OF COMPLETE PLUG / PLUG P7/24 SOCKET 'N' INDOOR HBTB315110R0011 (01 No) CONTACT SOCKET 12/6.0 HBT415298P0012 (07 Nos)	Close	HB-2	SET OF COMPLETE PLUG / PLUG P7/24 SOCKET 'N' INDOOR HBTB315110R0011 (01 No) CONTACT SOCKET 12/6.0 HBT415298P0012 (07 Nos)	Close	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P0060)	7x18	3EHP431533
14.	233	HB-1	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0112 (01 No)	Open	HB-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0112 (01 No)	Close	CAB 4 GKW-AX 25 1800 V BK(3EHW470015P0250)	3x18	3EHP431533
15.	234	HB-1	CABLE LUG 35.0/M8 CU VZN 3EHP470026P1008 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01 No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0350)	1x0.4	3EHP431536
16.	235	BUR - 1	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (04 Nos)	Close	Main TFP	CABLE LUG 70.0/ M12 CU VZN 3EHP470026P1912 (04 Nos)	Open	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P0700)	4x6	3EHP431534
17.	236	BUR - 1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01 No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0350)	1x1	3EHP431536
18.	237	BUR - 1	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (02Nos)	Close	BUR - 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (02Nos)	Open	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P0700)	2x12	3EHP431534

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				



19.	241	Oil Pump Converter-2	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03Nos)	Open	HB-2	CA-LUG 8-2.5 KN6762210P0208 (03 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	3x14	3EHP431533
20.	242	Connector to Oil cooling unit-2	CABLE LUG 16.0/M8 3EHP470026P0508 (03Nos) CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01 No)	Close	HB-2	CABLE LUG 16.0/M10 3EHP470026P0508 (04 Nos)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P0160)	3x16 1X1.5	3EHP431533
21.	244	Oil Pump Transformer	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (03 Nos)	Close	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 6 MM2 3EHW470321P2060 (04 Nos)	Close	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P0060)	3x14	3EHP431533
22.	245	Main TFP	CABLE LUG 70.0/ M12 CU VZN 3EHP470026P1912 (08Nos)	Open	BUR - 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (08Nos)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P0700)	8x6	3EHP431534
23.	246	Main TFP	CABLE LUG 70.0/ M12 CU VZN 3EHP470026P1912 (06 Nos)	Open	BUR - 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (06 Nos)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P0700)	6x9	3EHP431534
24.	247	Not in use								3EHP431535
25.	248	Not in use								3EHP431535
26.	249	Connector to MR Blower	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	HB-2	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (04Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	3x6.8 1x1.5	3EHP431533
27.	251	Main Compressor- 2	CABLE LUG 10.0/M8 3EHP470026P0208 (03Nos)	Close	HB-2	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Close	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P0100)	3x11.5	3EHP431533
28.	252	Scavenge Blower to MR Blower-2	CA-LUG 1.5-2.5/M6 CU VZN	Close	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR	Close	CAB 4 GKW-AX 2.5 1800 V BK	3x8.8	3EHP431533

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			3EHP470026P0016 (03Nos)			3EHW470084R0001 (01No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04Nos)		(3EHW470015P0025)		
29.	253	Scavenge Blower to MR Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x1	3EHP431536
30.	254	Scavenge Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)	Close	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	3x3.7	3EHP431533
31.	255	Scavenge Blower	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x1	3EHP431536
32.	256	BUR - 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (04 Nos)	Open	HB-2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (04 Nos)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P0700)	4x5	3EHP431534
33.	257	BUR - 2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01No)	Open	HB-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01 No)	Close	CAB 4 GKW-AX 50 1800 V BK (3EHW470015P0500)	3x7	3EHP431533
34.	258	BUR - 2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01No)	Open	HB-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01No)	Close	CAB 4 GKW-AX 50 1800 V BK (3EHW470015P0500)	3x7	3EHP431533
35.	259	BUR - 2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01 No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0350)	1x1	3EHP431536
36.	260	HB-2	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Close	Connector to TM Blower	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos) CABLE LUG 16.0/M10 3EHP470026P0510	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P0160)	3x5.2 1x1.5	3EHP431533

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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						(01 No)				
37.	261	HB-2	SET OF COMPLETE PLUG / PLUG P7/24 SOCKET 'N' INDOOR HBTB315110R0011 (01 No) CONTACT PIN 12/2.5 HBT415298P0007 (07 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	7x12	3EHP431533
38.	262	HB-2	CABLE LUG 35.0/M8 CU VZN 3EHP470026P1008 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0350)	1x0.4	3EHP431536
39.	273	Main Compressor- 1	CABLE LUG 10.0/M8 3EHP470026P0208 (01No)	Close	Conn. To Earth to Loco	CA-LUG 10.0/M10 CU VZN 3EHP470026P0210 (01No)	Close	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P0100)	1x4	3EHP431536
40.	274	Oil Pump Transformer	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Open	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P0060)	1x2.4	3EHP431536
41.	275	Oil Pump Converter	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Open	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P0060)	1x1.6	3EHP431536
42.	276	Oil Pump Converter	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Open	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P0060)	1x1.6	3EHP431536
43.	277	Oil Pump Transformer	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Open	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P0060)	1x2.4	3EHP431536
44.	278	Main Compressor- 2	CABLE LUG 10.0/M8 3EHP470026P0208 (01No)	Open	Conn. To Earth to Loco	CA-LUG 10.0/M10 CU VZN 3EHP470026P0210 (01No)	Close	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P0100)	1x4	3EHP431536
45.	211	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02 Nos)	Close	Cubicle Driver Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	2x6	3EHP431535
46.	212	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x2.5	3EHP431536

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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47.	213	Cubicle Driver Cab-1	WAGO	Open	Rotary Switch Cab Heater	CABLE LUG PIN TYPE 2.5 GMN945210P0002 (04Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	4x6	3EHP431535
48.	214	Cubicle Driver Cab-1	WAGO	Open	Cab Heater/ Ventilation	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02 Nos) CABLE LUG 8-2.5 KN6762210P0208 (02Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	4x6	3EHP431533
49.	216	Cubicle Driver Cab-1	WAGO	Open	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	2x6	3EHP431535
50.	218	Cubicle Driver Cab-1	CABLE LUG 10.0/M8 3EHP470026P0208 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 10.0/M10 CU VZN 3EHP470026P0210 (01 No)	Close	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P0100)	1x0.8	3EHP431536
51.	219	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x2.5	3EHP431536
52.	238	Scavenge Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x1	3EHP431536
53.	239	Scavenge Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x1	3EHP431536
54.	279	Cab Heater/ Ventilation	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x0.8	3EHP431536
55.	263	Cab Heater/ Ventilation	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02 Nos) CABLE LUG 8-2.5 KN6762210P0208 (02Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	4x6	3EHP431533
56.	266	Crew Fan	CABLE LUG 1.5-2.57	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5	2x6	3EHP431535

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			M5 3EHP470026P0015 (02 Nos)					1800 V BK (3EHW470015P0025)		
57.	267	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x2.5	3EHP431536
58.	268	Rotary Switch Cab Heater	CABLE LUG PIN TYPE 2.5 GMN945210P0002 (04Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	4x6	3EHP431535
59.	269	Cubicle Driver Cab-2	WAGO	Open	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	2x6	3EHP431535
60.	270	Cubicle Driver Cab-2	CABLE LUG 10.0/M8 3EHP470026P0208 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 10.0/M10 CU VZN 3EHP470026P0210 (01 No)	Close	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P0100)	1x0.8	3EHP431536
61.	271	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x2.5	3EHP431536
62.	280	Cab Heater/ Ventilation	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01 No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x0.8	3EHP431536
63.	MOD-1	HB-1	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Open	HB-2	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Open	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P0160)	3x19.3	
64.	MOD-2	HB-1	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Open	HB-2	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Open	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P0160)	3x19.3	
65.	MOD-3	HB-1	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	HB-2	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P0100)	3x19.3	-
66.	MOD-4	Baby TFP in HB-1	-	Open	HB-2 High lamp Sheet	-	Open	CAB 4 GKW-AX 6 1800 V BK 3EHW470015P0060	2x19.3	
67.	AC-1	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2	Close	AC-1	CABLE LUG PIN TYPE 2.5 GMN945210P0002 (04Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	3x21.5	-

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			3EHW470321P2025 (04 Nos)							
68.	AC-2	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	AC-1	CABLE LUG PIN TYPE 2.5 GMN945210P0002 (04Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)	3x11	-
69.	1103	Merged in Loom no. MOD-4								
70.	1117									

CONTROL CABLES										
SN	Loom Number	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identificatio n
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	311	UIC Socket	-	Open	SB-1	SET OF COMPLETE PLUG / PLUG 22P / 36 SKT 'N' INDOOR HBTB315112R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (22Nos)	Close	UIC CABLE 5X4X1+2CORE SCR	1x10.5	3EHP431543
2.	311A	UIC Socket	-	Open	SB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (11Nos)	Close	CAB 3 x 4 x 1.0 SCR(3EHP470001P1012)	1x10.5	3EHP431543
3.	311B	UIC Socket	-	Open	SB-2	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (13Nos)	Close	CAB 3 x 4 x 1.0 SCR(3EHP470001P1012)	1x10. 5	3EHP431543
4.	312	Panel A1	ST. 9P D-SUB GR1 /	Close	SB-1	ST. 9P D-SUB GR1 /	Close	CAB 2 x 0.5 SCR	1x13	3EHP431544

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

			CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)			CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)		3EHP470000P0502		
5.	313	Panel A1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	SB-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	CAB 2 x 0.5 SCR 3EHP470000P0502	1x13	3EHP431544
6.	314	Cubicle Driver Cab-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x11	3EHP431539
7.	315	Cubicle Driver Cab-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	SB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)	35x11.5	3EHP431538
8.	316	Cubicle Driver Cab-1	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (56Nos) CONTACT SOCKET	Close	SB-1	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (56Nos) CONTACT SOCKET	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)  CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	56x11.5  1x11.5	3EHP431538

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

			16/1.0 HBT415299P0006 (05Nos)			16/1.0 HBT415299P0006 (05Nos)				
9.	318	Panel A/1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 (04Nos)	Close	SB-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONT. PIN 0.24- 0.62/24-20 *1.8076.005/01 (05Nos)	Close	CAB 2 x 2 x 0.5 SCR 3EHP470000P0504  CAB - 3GKW- 0.5 FLEX RED HZN452926P0201	1x13  1X0.1	3EHP431544
Not in the Scope of Supply of Harnessed Cable										
10.	320	SB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	HB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	35x11	3EHP431538
11.	321	SB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (13Nos)	Close	Roof-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (13Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	13x6.8	3EHP431538
12.	322	DELETED								
13.	323	SB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	SR-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	35x7.5	3EHP431538
14.	324	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.)	Close	SR-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x7.5	3EHP431539

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						



			HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)			HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)				
15.	325	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	Roof-2	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x6.5	3EHP431539
16.	327	SB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (25Nos)	Close	Roof-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (25Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	25x6.5	3EHP431538
17.	328	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	SR-2	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1X17	3EHP431539
18.	329	SB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (13Nos)	Close	Roof-3	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (13Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	13x10	3EHP431538
19.	330	SB-1	ST.61P/40 BU"N"IR KABELH./ PLUG	Close	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG	Close	CAB 4 GKW-AX 2.5 1800 V BK	50X21	3EHP431538

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

			61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No)			61P/40 SKT 'N' INDOOR HBTB315113R0011 (01No)		(3EHW470015P0025)		
20.	331	SB-1	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (61Nos)	Close	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (61Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)  CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	59x21  2x21	3EHP431538
21.	332	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	Cubicle Driver Cab-2	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x20	3EHP431539
22.	333	SB-1	SET OF COMPLETE PLUG / PLUG 22P / 36 SKT ' N' INDOOR HBTB315112R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (22Nos)	Close	UIC Socket	-	Open	UIC CABLE 5X4X1+2CORE SCR	1x19.5	3EHP431543
23.	334	HB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 (13Nos)	Close	BUR-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 (13Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	13x13.5	3EHP431538
24.	335	Primary Current Sensor Box	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No)	Close	CAB 9 x 0.5 SCR 3EHP470000P0509  CAB 4 GKW-AX 2.5	1x10.7  2x0.25	3EHP431540

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

			CONTACT SOCKET AWG24-20 HESG455638P0120(0 9Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)			CONTACT SOCKET AWG24-20 HESG455638P0120(0 9Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)		1800 V BK (3EHW470015P0025)		
25.	336	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120(0 4Nos)	Close	HLC-1	PLUG 9 POLES HETT401293P0001 (01No) PROTECTIVE CAP / CABLE CLIP HETT401293P0032 (01No) CONNECTOR SKT 0.23, 0.5 SE408197P0013 (06Nos)	Close	CAB 5 x 0.5 SCR 3EHP470000P0505	1x11.2	3EHP431541
26.	337	DELETED								
27.	338	Primary Current Sensor Box	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120(0 9Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120(0 9Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 9 x 0.5 SCR 3EHP470000P0509  CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)	1x7.5  2x0.4	3EHP431540
28.	339	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120(0 4Nos)	Close	HLC-2	PLUG 9 POLES HETT401293P0001 (01No) PROTECTIVE CAP / CABLE CLIP HETT401293P0032 (01No) CONNECTOR SKT 0.23, 0.5 SE408197P0013 (06Nos)	Close	CAB 5 x 0.5 SCR 3EHP470000P0505	1x11	-
29.	340	DELETED								
30.	341	SR-1	ST. 9P D-SUB GR1 /	Close	SR-2	ST. 9P D-SUB GR1 /	Close	CAB 2 x 2 x 0.5 SCR	1x21	3EHP431541

SPECIFICATION FOR SET OF HARNESSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F			

			CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120(0 4Nos)			CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120(0 4Nos)		3EHP470000P0504		
31.	342	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120(0 5Nos)	Close	HB-2	PLUG 9 POLES HETT401293P0001 (01No) PROTECTIVE CAP / CABLE CLIP HETT401293P0032 (01No) CONNECTOR SKT 0.23, 0.5 SE408197P0013 (06Nos)	Close	CAB 5 x 0.5 SCR 3EHP470000P0505	1x19	3EHP431541
32.	343	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120(0 5Nos)	Close	HB-2	PLUG 9 POLES HETT401293P0001 (01No) PROTECTIVE CAP / CABLE CLIP HETT401293P0032 (01No) CONNECTOR SKT 0.23, 0.5 SE408197P0013 (06Nos)	Close	CAB 5 x 0.5 SCR 3EHP470000P0505	1x11	3EHP431541
33.	344	SR-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 (35Nos)	Close	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 (35 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	35x8	3EHP431538
34.	345	Pneumatic Panel	PLUG, SIZE 22/19POLE 3EHP431609R0001 (01 No) CONTACT SOCKET 16/0.5	Close	SB-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01 No) CONTACT SOCKET AWG24-20	Close	CAB 2 x 2 x 0.5 SCR 3EHP470000P0504	1x13.5	3EHP431538

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

			HBT415299P0002 (5 Nos) CONTACT SOCKET 16/1.0 HBT415299P0006 (10 Nos)			HESG455638P0120 (04 Nos)				
				Close	Connector Brake Handle Out	-	Open	CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	1x20	
				Close	Connector Brake Handle Out	-	Open	CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	1X11.3	
35.	346	Pneumatic Panel	PLUG, SIZE 28/37POLE 3EHP431609R0002 (01 No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (37 Nos)	Close	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (61Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	37x11	3EHP431538
36.	347	Pneumatic Panel	PLUG, SIZE 22/19POLE 3EHP431609R0001 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (19 Nos)	Close	SB-2	SET OF COMPLETE PLUG / PLUG 22P / 36 SKT ' N' INDOOR HBTB315112R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (22Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	19x11.2	3EHP431538
37.	351	Panel C/1	SOCKET 9P D-SUB SIZE-1 (01No) CONTACT SOCKET AWG24-20 (09Nos)	Close	SB-1	SOCKET 9P D-SUB SIZE-1 (01No) CONTACT SOCKET AWG24-20 (09Nos)	Close	CAB 9 x 0.5 SCR 3EHP470000P0509	1x13	3EHP431544
38.	348	BUR-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (15 Nos) CONTACT SOCKET 12/2.5	Close	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (15 Nos) CONTACT SOCKET 12/2.5	Close	CAB 2 x 1.0 SCR 3EHP470001P1002  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)  CAB -3GKW-0.5 FLEX RED	2X5.25  20x5.25  2X5.25	3EHP431538

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

			HBT415298P0008 (20 Nos)			HBT415298P0008 (20 Nos)		HZN452926P0201			
		BUR-2		Close	Insulator Battery Box-1		Open		CAB 2 x 1.0 SCR 3EHP470001P1002		2x12
		BUR-2		Close	Insulator Battery Box-2		Open		CAB 2 x 1.0 SCR 3EHP470001P1002		2x17.5
39.	349	HB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	27x11.2	3EHP431538	
40.	352	SB-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (04Nos)	Close	Panel C/2	PLUG , 9P D-SUB , S1 , PINS HBTB316240R0091 (01No) CONT. PIN 0.24- 0.62/24-20 *1.8076.005/01 (05Nos)	Close	CAB 2 x 2 x 0.5 SCR 3EHP470000P0504  CAB - 3GKW- 0.5 FLEX RED HZN452926P0201	1x13  1X0.1	3EHP431544	
		Not in the Scope of Supply of Harnessed Cable									
41.	353	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/0.5 HBT415299P0002 (61Nos)	Close	*Connector Speedometer	*In the scope of propulsion system	Open	CAB 25 x 0.5 TWIST 3EHP470002P0525	1x9.5	3EHP431542	
		SB-2		Close	*Connector Speedometer		Open	CAB 9 x 0.5 TWIST 3EHP470002P0509	1x19		
		*Connector Speedometer	-	Open	*Connector Speedometer		Open	CAB 2 x 0.5 SCR 3EHP470000P0502	1x25		
42.	354	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR	Close	Cubicle Driver Cab-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	35x10.6	3EHP431538	

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					

			HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)			HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)				
43.	355	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (56Nos) CONTACT SOCKET 16/1.0 HBT415299P0006 (05Nos)	Close	Cubicle Driver Cab-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (56Nos) CONTACT SOCKET 16/1.0 HBT415299P0006 (05Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)  CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	56X 11.6  1x11.6	3EHP431538
44.	356	SB-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	Panel A/2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	CAB 2 x 0.5 SCR(3EHP470000P0502)	1x13	3EHP431544
45.	357	SB-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	Panel A/2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	CAB 2 x 0.5 SCR(3EHP470000P0502)	1x13	3EHP431544
46.	358	Connector Air Dryer  Pneumatic Panel  Pressure Switch Main Compressor	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (02Nos)	Open	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)	3x25.6 2x16.4 11x19.4	3EHP431538

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

		Pressure Switch Reservoir				HBT415298P0008 (35 Nos)				
		Pressure Switch Main Compressor								
		Pressure Switch Brake Cylinder								
		Pressure Switch Brake Cylinder								
47.	359	SB-1	SET OF COMPLETE PLUG / PLUG 22P / 36 SKT ' N ' INDOOR HBTB315112R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (22 Nos)	Close	SB-2	SET OF COMPLETE PLUG / PLUG 22P / 36 SKT ' N ' INDOOR HBTB315112R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (22 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)  CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	17x21.2  1x21.2	3EHP431538
48.	371	Master Controller-1	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x1.6	3EHP431545
49.	372	Connector Speedometer	CABLE LUG 1.5-2.57 /M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x1.3	3EHP431545
50.	373	Not in use								
51.	374	SB-1	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No)	Close	CAB 4 GKW-AX 16 1800 V BK(3EHW470015P0160)	1x0.4	3EHP431545
52.	375	Pneumatic Panel	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P0060)	1x4	3EHP431545
53.	376	SB-2	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P0160)	1x0.4	3EHP431545
54.	377	Master Controller-2	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x1.6	3EHP431545

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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55.	378	Connector Speedometer	CABLE LUG 1.5-2.5/M4 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x1.3	3EHP431545
56.	379	Not in use								
57.	380	Connector Brake Handle out	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x2.3	3EHP431545
58.	381	Connector Brake Handle out	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x2.3	3EHP431545
59.	350	Bogie-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120(0 9Nos)	Close	Connector Speedometer	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120(0 9Nos)	Close	CAB 9 x 0.5 SCR(3EHP470000P0509)	1x11.2	3EHP330342
		This cable Loom is being supplied along with Speedometer. 02 Nos. ADAPTOR NW17/SIZE18 (ABB ID HBT415393P0437) are in scope of supply of harnessed cable								
60.	317	SB-2	SOCKET 9P D-SUB SIZE-1 (01No) CONTACT SOCKET AWG24-20 (09Nos)	Close	Panel C/2	SOCKET 9P D-SUB SIZE-1 (01No) CONTACT SOCKET AWG24-20 (09Nos)	Close	CAB 9 x 0.5 SCR(3EHP470000P0509)	1x13	3EHP431544
61.	319/1	Panel A-1	--	--	Panel F-1	-	-	CAB 4 GKW-AX1.5 1800 V BK (3EHW470015P0015)	2x4	
62.	319/2	Panel A-2			Panel F-2	WAGO	--	CAB 4 GKW-AX1.5 1800 V BK (3EHW470015P0015)	2x4	
63.	SB-1-HLC-1	SB-1	-	Open	HLC-1	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	10X8	-
64.	SB-2-HLC-2	SB-2	-	Open	HLC-2	-	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	10X8	-
65.	SB-1- CAB - 1	SB-1		Open	CAB-1		Open	CAB 4 GKW-AX 2.5 1800 V BK	2X12.5	-

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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								(3EHW470015P0025)		
66.	SB-2- CAB - 2	SB-2		Open	CAB-2		Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	2x12.5	-
67.	Flasher Unit (Cab1) 3551-1A, 2050-A1 3551-3A, 2050-A2	-	--	Open	-	-	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	4X7	-
68.	Flasher Unit (Cab2) 3551-1B, 2050-B1 3551-3B, - 2050-B2	-	-	Open	-	-	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	4X7	-
69.	3533	-	CONTACT PIN 12/1.5 HBTB415298P0005 (01No)	Open	-	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	2X3.5	-
70.	2050	-	CONTACT PIN 12/1.5 HBTB415298P0005 (01No)	Open	-	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	2X3.5	-
71.	NEW1	Panel F-1		Open	Cab-1	IV Coupler CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (02 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	2X3	
72.	NEW2	Panel F-2		Open	Cab-2	IV Coupler CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (02 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	2X3	

## SENSOR CABLES

SN	Loom Number	From			To			Cable Size (Sq.mm)	No. of Cables x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	411	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6	Open	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No)	Close	CAB 2 x 0.5 SCR (3EHP470000P0502)  CAB 4 GKW-AX 2.5	1x20  2x0.25	3EHP431537

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVESSpecification No.  
CLW/ES/3/0646

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			CU VZN 3EHP470026P0016 (1 No)			CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)		1800 V BK (3EHW470015P0025)		
2.	412	Bogie-1	5 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Open	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x2x 0.5 SCR (3EHP470000P0504)  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x20  2x0.5	3EHP431537
3.	413	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509)	1x20	3EHP431537
4.	414	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Open	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 0.5 SCR (3EHP470000P0502)  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x12.5  2x0.5	3EHP431537
5.	415	Bogie-1	5 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN	Open	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET	Close	CAB 2 x 2 x 0.5 SCR (3EHP470000P0504)  CAB 4 GKW-AX 2.5 1800 V BK	1x12.5  2x0.25	3EHP431537

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

			3EHP470026P0016 (1 No)			AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)		(3EHW470015P0025)		
6.	416	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509)	1x12.5	3EHP431537
7.	417	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Open	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 0.5 SCR (3EHP470000P0502)  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x11.5  2x0.25	3EHP431537
8.	418	Bogie-1	5 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Open	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x2x 0.5 SCR (3EHP470000P0504)  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x11.5  2x0.25	3EHP431537
9.	419	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20	Close	CAB 9 x 0.5 SCR (3EHP470000P0509)	1x11.5	3EHP431537

SPECIFICATION FOR SET OF HARNESSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

			(5 Nos)			HESG455638P0120 (9 Nos)				
10.	420	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Open	CAB 2 x 0.5 SCR (3EHP470000P0502)  CAB 4 GWK-AX 2.5 1800 V BK (3EHP470015P0025)	1x11.5  2x0.5	3EHP431537
11.	421	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	5 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 2 x 0.5 SCR (3EHP470000P0504)  CAB 4 GWK-AX 2.5 1800 V BK (3EHP470015P0025)	1x11.5  2x0.5	3EHP431537
12.	422	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509)	1x11.5	3EHP431537
13.	450	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016	Close	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 0.5 SCR (3EHP470000P0502)  CAB 4 GWK-AX 2.5 1800 V BK (3EHP470015P0025)	1x12.5  2x0.5	3EHP431537

SPECIFICATION FOR SET OF HARNESSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

			(1 No)							
14.	451	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	5Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x2x 0.5 SCR(3EHP470000P0504)  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x12.5  2x0.5	3EHP431537
15.	452	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509)	1x12.5	3EHP431537
16.	453	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	3Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 0.5 SCR (3EHP470000P0502)  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x20  2x0.5	3EHP431537
17.	454	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	5Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 2 x 0.5 SCR (3EHP470000P0504)  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x20  2x0.5	3EHP431537

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

18.	455	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509)	1x20	3EHP431537
19.	425	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (5Nos)	Close	Amplifier Sensor Oil Transformer	SOCKET / PLUG , 5 CRIMP SOCKET S16 HBTB415399P0012 (1 No) CONTACT FEMALE GR16 / CONTACT SOCKET SIZE 16 HBTB415399P0002 (5Nos)	Close	CAB 3 x 0.5 SCR(3EHP470000P0503)	1x9	3EHP431548
20.	426	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (5Nos)	Close	Connector Temperature Sensor Oil	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5Nos)	Close	CAB 2 x 2x0.5 SCR(3EHP470000P0504)	1x 9	3EHP431548
21.	427	Connector Temperature Sensor Oil	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5Nos)	Close	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (5Nos)	Close	CAB 2 x2x 0.5 SCR(3EHP470000P0504)	1x 9	3EHP431548
22.	428	Amplifier Sensor Oil Transformer	SOCKET / PLUG , 5 CRIMP SOCKET S16 HBTB415399P0012 (1 No) CONTACT FEMALE GR16 / CONTACT SOCKET SIZE 16 HBTB415399P0002 (5 Nos)	Close	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (3Nos)	Close	CAB 3 x 0.5 SCR (3EHP470000P0503)	1x 9	3EHP431548
23.	441	Not in use								
24.	442	Not in use								
DRIVER CABLES										

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

SN	Loom Number	From			To			Cable Size (Sq.mm)	No. of Cables x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/Close)	Location	Connector Type & Lug Type	End (Open/Close)			
1.	511	Front Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	2x6	3EHP431546
2.	512	Tail Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	2x6	3EHP431546
3.	513	Head Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	2x4	3EHP431546
4.	514	Head Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	2x4	3EHP431546
5.	515	Front Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
6.	516	Tail Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
7.	517	Foot Switch Release of Ind	CABLE LUG INSUL.4- 2.5 HCSN400689P0023 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
8.	518	Panel-B1	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 No)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 1.5 1800 V BK(3EHW470015P0015)	3x6	3EHP431546
9.	519	Spring Loaded Switch Pneumatic	CABLE LUG INSUL.4- 2.5 HCSN400689P0023 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
10.	520	Lamp Driver Desk Illumination	CABLE LUG PIN TYPE 2.5 GMN945210P0002 (02Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
11.	521	Spring Loaded Foot	CABLE LUG INSUL.4-	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5	2x6	3EHP431546

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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		Switch	2.5 HCSN400689P0023 (02 Nos)					1800 V BK(3EHW470015P0025)		
12	522/1	Cubicle Driver's Cab-1	WAGO	Open	Lamp Driver's Cab Lighting	FASTON LUG 6, 3 X 0.8 CUSN NBT200235P0511 (02 Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
13.	522/2	Cubicle Driver's Cab-2	WAGO	Open	Lamp Driver's Cab Lighting	FASTON LUG 6.3 X 0.8 CUSN NBT200235P0511 (02 Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
14.	523	Cubicle Driver's Cab-1	WAGO	Open	Emergency Flash Light	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
15.	524	Cubicle Driver's Cab-1	WAGO	Open	Lamp assistant desk illumination	CABLE LUG PIN TYPE 2.5 GMN945210P0002 (02Nos)	Open	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
16.	551	Lamp Driver Desk Illumination	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01 No)	Close	Conn. To Earth to Loco	WAGO	Open	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	1x3.5	3EHP431546
17.	552/1	Lamp Driver's Cab Lighting	FASTON LUG 6.3 X 0.8 CUSN NBT200235P0511 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	1X3	3EHP431546
18.	552/2	Lamp Driver's Cab Lighting	FASTON LUG 6.3 X 0.8 CUSN NBT200235P0511 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	1X3	
19.	553	Emergency Flash Light	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	1x3.5	3EHP431546
20.	554	Lamp assistant desk illumination	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01 No)	Close	Conn. To Earth to Loco	WAGO	Open	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	1x3.5	3EHP431546
21.	531	Lamp assistant desk illumination	CABLE LUG PIN TYPE 2.5 GMN945210P0002 (02Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
22.	532/1	Lamp Driver's Cab Lighting	FASTON LUG 6. 3 X 0.8 CUSN	Close Close	Cubicle Driver Cab-1	WAGO	Open Open	CAB 4 GWK-AX 2.5 1800 V	2x6	3EHP431546

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

			ALT	F					
<b>JE/Drg./Elect.</b>	<b>SEE/D-I</b>	<b>Dy.CEE/D-I</b>							

			NBT200235P0511 (02 Nos)					BK(3EHW470015P0025)		
23	532/2	Lamp Driver's Cab Lighting	FASTON LUG 6, 3 X 0.8 CUSN NBT200235P0511 (02 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	
24.	533	Emergency Flash Light	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01 No)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
25.	534	Spring Loaded Foot Switch	CABLE LUG INSUL.4- 2.5 HCSN400689P0023 (02 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
26.	535	Cubicle Driver Cab-2	WAGO	Open	Spring Loaded Switch Pneumatic	CABLE LUG INSUL.4- 2.5 HCSN400689P0023 (02 Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
27.	536	Cubicle Driver Cab-2	WAGO	Open	Lamp Driver Desk Illumination	CABLE LUG PIN TYPE 2.5 GMN945210P0002 (02Nos)	Open	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
28.	537	Cubicle Driver Cab-2	WAGO	Open	Foot Switch Release of Ind	CABLE LUG INSUL.4- 2.5 HCSN400689P0023 (02 Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
29.	538	Cubicle Driver Cab-2	WAGO	Open	Panel B/2	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos.)	Close	CAB 4 GWK-AX 1.5 1800 V BK (3EHW470015P0015)	3X6	3EHP431546
30.	539	Cubicle Driver Cab-2	WAGO	Open	Front Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
31.	540	Cubicle Driver Cab-2	WAGO	Open	Tail Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
32.	541	Cubicle Driver Cab-2	WAGO	Open	Head Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2X4	3EHP431546
33.	542	Cubicle Driver Cab-2	WAGO	Open	Head Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014	Close	CAB 4 GWK-AX 2.5 1800 V BK(3EHW470015P0025)	2X4	3EHP431546

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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						(02 Nos)				
34.	543	Cubicle Driver Cab-2	WAGO	Open	Front Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
35.	544	Cubicle Driver Cab-2	WAGO	Open	Tail Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	2x6	3EHP431546
36.	561	Lamp assistant desk illumination	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	1x3.5	3EHP431546
37.	562/1	Lamp Driver's Cab Lighting	FASTON LUG 6.3 X 0.8 CUSN NBT200235P0511 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	1X3	3EHP431546
38.	562/2	Lamp Driver's Cab Lighting	FASTON LUG 6.3 X 0.8 CUSN NBT200235P0511 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	1x3	
39.	563	Emergency Flash Light	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	1x3.5	3EHP431546
40.	564	Lamp Driver Desk Illumination	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	1x3.5	3EHP431546
41.	NEW-1	--	--	--	--	--	-	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	2x4	
42.	NEW-2	--	--	--	--	--	-	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	2x4	

## BATTERY CABLES

SN	Loom Number	From			To			Cable Size (Sq.mm)	No. of Cables x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/Close)	Location	Connector Type & Lug Type	End (Open/Close)			

## SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC &amp; WAP-7 &amp; WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES

Specification No.  
CLW/ES/3/0646

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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1.	611	BUR-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0113 (01No)	Open	HB-2	SET OF COMPLETE PLUG /L- PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0213 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P0350)	3x5.5	3EHP431547
2.	612	Power Connection to Battery-1	ANDERSON PLUG PP 120A *1321G3ROT (01No)	Close	Battery-1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P0350)	1x1.29	3EHP431547
3.	613	Power Connection to Battery-1	ANDERSON PLUG PP 120A *1321BLAU (01No)	Close	Battery-1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010\ (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P0350)	1x1.29	3EHP431547
4.	614	Insulator Battery Box-1	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Close	Circuit Breaker Battery	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P0160)	1x0.45	3EHP431547
5.	615	Insulator Battery Box-1	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Close	Insulator Battery Box-2	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P0160)	1x10	3EHP431547
6.	616	Circuit Breaker Battery	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Open	SB-2	SET OF COMPLETE PLUG / L-PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0211 (01No)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P0160)	1x16.5	3EHP431547
		Insulator Battery Box-2	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Open	SB-2		Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P0160)	1x9	3EHP431547
7.	617	Power Connection to Battery-2	ANDERSON PLUG PP 120A *1321BLAU (01No)	Close	Battery-2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P0350)	1x1.29	3EHP431547
8.	618	Power Connection to Battery-2	ANDERSON PLUG PP 120A *1321G3ROT (01No)	Close	Battery-2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P0350)	1x1.29	3EHP431547
9.	621	Power Connection to Battery-1	ANDERSON PLUG PP 120A *1321G3ROT (01No)	Close	Insulator Battery Box-1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P0350)	1x1	3EHP431547
10.	622	Power Connection to Battery-1	ANDERSON PLUG PP 120A *1321BLAU (01No)	Close	Insulator Battery Box-1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P0350)	1x1	3EHP431547
11.	623	Power Connection to Battery-2	ANDERSON PLUG PP 120A *1321BLAU	Close	Insulator Battery Box-2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P0350)	1x1	3EHP431547

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			(01No)			(01No)				
12.	624	Power Connection to Battery-2	ANDERSON PLUG PP 120A *1321G3ROT (01No)	Close	Insulator Battery Box-2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P0350)	1x1	3EHP431547
ROOF CABLES										
SN	Loom Number	From			To			Cable Size (Sq.mm)	No. of Cables x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/Close)	Location	Connector Type & Lug Type	End (Open/Close)			
1.	5A	Roof-1	SET OF COMPLETE SOCKET / SOCKET 13P/32 PIN 'N' INDOOR	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	3X6.1	3EHP431341
		Roof-1	HBTB315159R0011 (01No)	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	3X6.1	3EHP431341
		Roof-1	CONTACT PIN 12/1.5 HBT415298P0005 (11Nos) CONTACT PIN 12/4.0 HBT415298P0009 (02Nos)	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	3X6.1	3EHP431341
2.	5B	Roof-1	SET OF COMPLETE SOCKET / SOCKET 13P/32 PIN 'N' INDOOR	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	3X6.1	3EHP431341
		Roof-1	HBTB315159R0011 (01No)	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	3X6.1	3EHP431341
		Roof-1	CONTACT PIN 12/1.5 HBT415298P0005 (11Nos) CONTACT PIN 12/4.0 HBT415298P0009 (02Nos)	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	3X6.1	3EHP431341
3.	6A	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	2X3.5	3EHP431341
4.	6B	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	2X3.5	3EHP431341

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F			

5.	7	Roof-1	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open	CAB 4 GWK-AX 1.5 1800 V BK (3EHW470015P0015)	2X0.8	3EHP431341
6.	8	Roof-2	SOCKET 35P/40 PIN 'N' IND. HBTB315162R0011 (01No) CONTACT PIN 12/1.5 HBT415298P0005 (10Nos) CONTACT PIN 12/4.0 HBT415298P0009 (2Nos) CONTACT PIN 12/2.5 HBT415298P0007 (2Nos)	Close	Roof-2	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	CAB 4 GWK-AX 1.5 1800 V BK (3EHW470015P0015)	2X2.7	3EHP431341
		Roof-2		Close	Roof-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/1.5 HBT415298P0006 (12Nos)	Close	CAB 4 GWK-AX 1.5 1800 V BK (3EHW470015P0015)	12X3.6	3EHP431341
		Roof-2		Close	Roof-2	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (02Nos.)	Open	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)	2X5.8	3EHP431341
7.	9	Roof-2	SET OF COMPLETE SOCKET / SOCKET 5P / S18 PIN 'N' STR HBT315075R0031 (01No) CONTACT PIN 12/1.0 HBT415298P0003 (05Nos)	Close	Conn. To Earth to Loco	0.5-1.0/M5 (03 Nos) 3EHP470026P0015	Open	CAB 2 x 1.0 SCR (3EHP470001P1002)	2X2.9	3EHP431341
						CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Open	CAB 4 GWK-AX 1.5 1800 V BK (3EHW470015P0015)	2X0.4	3EHP431341
8.	10	Roof-2	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (01No)	Open	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)	1X0.8	3EHP431341
9.	11	Roof-2	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02Nos)	Open	Roof-2	0.5-1.0/M5 (02Nos)	Open	CAB 2 x 1.0 SCR (3EHP470001P1002)	1X1.3	3EHP431341
			CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open		-	Open	CAB 4 GWK-AX 1.5 1800 V BK (3EHW470015P0015)	2X0.4	3EHP431341
10.	12	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN	Open	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5	Open	CAB 4 GWK-AX 1.5 1800 V BK	2X2.5	3EHP431341

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

			GMN485104P0155 (02Nos)			3EHP470026P0015 (02Nos)		(3EHW470015P0015)		
11.	13	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	2X2.5	3EHP431341
12.	14	Roof-1	CABLE LUG PIN TYPE 2.5 GMN945210P0002 (02Nos)	Open	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	2X0.8	3EHP431341
13.	15	Roof-2	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1X0.8	3EHP431341
14.	16	Roof-2	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02Nos)	Open	Roof-2	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	2X0.8	3EHP431341
15.	17	Roof-2	8-2.5	Open	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	1X1.5	3EHP431341
16.	18	Roof-2	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (01No)	Open	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	1X1	3EHP431341

EARTHING CABLES										
SN	Loom Number	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	BERT-1	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1200)	1X0.8	-
2.	BERT-2	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1200)	1X0.8	-
3.	BERT-3	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1200)	1X 0.8	-
4.	BERT-4	-	CABLE LUG 120.0 / M12 CU VZN	Close	-	CABLE LUG 120.0 / M12 CU VZN	Close	CAB 9 GKW-AX 120 4000 V	1X 0.8	-

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.		SEE/D-I		Dy.CEE/D-I		ALT	F				

			3EHP470026P3012 (1No)			3EHP470026P3012 (1No)		BK(3EHW470016P1200)		
5.	BERT-5	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1200)	1X 0.8	-
6.	BERT-6	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1200)	1X 0.8	-
7.	BERT-7	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1200)	1X 0.6	-
8.	BERT-8	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1200)	1X 0.6	-
9.	BERT-9	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1200)	1X 0.6	-
10.	BERT-10	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1200)	1X 0.6	-
11.	BERT-11	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1200)	1X 0.6	-
12.	BERT-12	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1200)	1X 0.6	-
13.	BERT-13	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0350)	1X0.5	-
14.	BERT-14	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0350)	1X0.5	-
15.	BERT-15	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0350)	1X 0.5	-

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

			ALT	F					
<b>JE/Drg./Elect.</b>	<b>SEE/D-I</b>	<b>Dy.CEE/D-I</b>							



			(1No)			(1No)				
16.	BERT-16	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0350)	1X 0.76	-
17.	BERT-17	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0350)	1X 0.76	-
18.	MRERT-1		CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close		CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0350)	1X 0.4	-
19.	MRERT-2		CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close		CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0350)	1X 1	-
20.	MRERT-3		CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (03 Nos)			CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)		CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	1X1.1	-
21.	MRERT-4		CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (03 Nos)			CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)		CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	1X1.1	-
22.	MRERT-5		CABLE LUG 35.0/M8 CU VZN 3EHP470026P1008 (1No)			CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)		CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0350)	1X0.6	-
23.	MRERT-6		CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (1No)			CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (1No)		CAB 4 GKW-AX 6 1800 V BK (3EHW470015P0060)	1X2.7	-
24.	MRERT-7		CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (1No)			CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (1No)		CAB 4 GKW-AX 6 1800 V BK (3EHW470015P0060)	1X1.8	-
25.	MRERT-8		CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (1No)			CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (1No)		CAB 4 GKW-AX 6 1800 V BK (3EHW470015P0060)	1X1.8	-
26.	MRERT-9		CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (1No)			CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (1No)		CAB 4 GKW-AX 6 1800 V BK (3EHW470015P0060)	1X2.7	-

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

			ALT	F					
<b>JE/Drg./Elect.</b>	<b>SEE/D-I</b>	<b>Dy.CEE/D-I</b>							

27.	MRERT-10		CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (03 Nos)			CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (04 Nos)		CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	1X1.1	-
28.	MRERT-11		CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (03 Nos)			CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (02 Nos)		CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	1X1.1	-
29.	HRERT-1	DELETED								
30.	HRERT-2	DELETED								
31.	HRERT-3	DELETED								
32.	HLERT-1		CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Close		CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Close	CAB 9 GKW - AX 150 4000V BK (3EHW470016P1500	1X1	-
33.	HLERT-2		CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Close		CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Close	CAB 9 GKW - AX 150 4000V BK (3EHW470016P1500	1X1	-
34.	HLERT-3		CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Close		CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Close	CAB 9 GKW - AX 150 4000V BK (3EHW470016P1500	1X1	-
35.	HLERT-4		CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Close		CABLE LUG 150.0 / M12 CU VZN 3EHP470026P3712 (01 No)	Close	CAB 9 GKW - AX 150 4000V BK (3EHW470016P1500	1X1	-

## KAVACH CABLES

SN	Loom Number	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identificatio n
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	K1	DELETED								
2.	K2									
3.	K3									

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVESSpecification No.  
CLW/ES/3/0646

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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4.	K4	
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CABLE FOR SIGNAL EXCHANGE LAMP										
SN	Loom No.	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	SEL-1	F1 Panel	-	Open	Cab-1 Driver Desk	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	2x2.5	-
2.	SEL-2	F1 Panel	-	Open	Cab-1 Assist. Driver Desk	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	2x2.5	-
3.	SEL-3	F2 Panel	-	Open	Cab-2 Driver Desk	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	2X2.5	-
4.	SEL-4	F2 Panel	-	Open	Cab-2 Assist. Driver Desk	-	Open	CAB 4 GKW-AX1.5 1800 V BK (3EHW470015P0015)	2x2.5	-

CABLE FOR WATERLESS URINAL										
SN	Loom No.	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	WATERLESS URINAL	SB-1	-	Open	Cab-1	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P00 15)	4x11	-

SPECIFICATION FOR SET OF HARNESED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES					Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

CABLE FOR RTIS										ABB Identification
SN	Loom No.	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/Clos e)			
1.	RTIS	DELETED								

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

## SCOPE OF SUPPLY OF HARNESSED CABLES FOR WAG-9 TWIN (EF12K) LOCOMOTIVES

SN	Loom Number	POWER CABLES								
		From			To			Cable Size (Sq.mm)	Cable Length (Meter)	ABB Identification
		Location	Lug Type	End (Open/Close)	Location	Lug Type	End (Open/Close)			
1.	113	Terminal Box Earthing	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Open	Earthing Choke	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	CAB 4 GKW-AX 95 1800 V BK (3EHW470015P095 0)	8	3EHP431528
2.	124	Primary Current Sensor Box	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Open	Earthing Choke	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	4.3	3EHP431528
3.	126A	Primary Current Sensor Box	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	Main TFP	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Open	CAB 9 GKW-AX 70 4000 V BK (3EHW470016P070 0)	4.6	3EHP431528
4.	126B	Primary Current Sensor Box	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	Main TFP	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Open	CAB 9 GKW-AX 70 4000 V BK (3EHW470016P070 0)	4.6	3EHP431528
5.	131	Terminal Box Earthing	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Open	Earthing Choke	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	CAB 4 GKW-AX 95 1800 V BK (3EHW470015P095 0)	2.5	3EHP431528
6.	132	Main Converter-1	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	CAB 9 GKW-AX 95 4000 V BK (3EHW470016P095 0)	0.91	3EHP431529
7.	141	Earthing Choke	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	Terminal Box Earthing	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Open	CAB 4 GKW-AX 95 1800 V BK (3EHW470015P095 0)	11	3EHP431528
8.	142	Earthing Choke	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	Terminal Box Earthing	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Open	CAB 4 GKW-AX 95 1800 V BK (3EHW470015P095 0)	14.5	3EHP431528
9.	143	Earthing Choke	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470016P070 0)	0.5	3EHP431529

SPECIFICATION FOR SET OF HARNESSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

10.	144	Main Converter-2	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 95.0 / M10 CU VZN 3EHP470026P2410 (01 No)	Close	CAB 9 GKW-AX 95 4000 V BK (3EHW470016P095 0)	0.91	3EHP431529
11.	161	Terminal Box Earthing	-	Open	Bogie 1	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	1.25	3EHP431532
12.	162	Bogie 1	-	Open	Terminal Box Earthing	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	1.25	3EHP431532
13.	163	Terminal Box Earthing	-	Open	Bogie 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	1.25	3EHP431532
14.	164	Bogie 2	-	Open	Terminal Box Earthing	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (01 No)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	1.25	3EHP431532
15.	115A (TM-1)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
16.	115B (TM-1)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
17.	115C (TM-1)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
18.	116A	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
19.	116B	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
20.	116C	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010	Open	CAB 9 GKW-AX 120 4000 V BK	9.2	3EHP431531

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

			(01 No)			(01 No)		(3EHW470016P120 0)		
21.	116D	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
22.	116E	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
23.	116F	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
24.	121A (TM-2)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
25.	121B (TM-2)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
26.	121C (TM-2)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
27.	122A	Bogie 1	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	2	3EHP431530
28.	122B	Bogie 1	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	2	3EHP431530
29.	122C	Bogie 1	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	2	3EHP431530
30.	133A (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

31.	133B (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
32.	133C (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
33.	133D (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
34.	133E (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
35.	133F (TM-2)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
36.	148A (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
37.	148B (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
38.	148C (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
39.	148D (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
40.	148E (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
41.	148F (TM-3)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Main Converter-1	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							



42.	166A (TM-3)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
43.	166B (TM-3)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
44.	166C (TM-3)	Bogie 1	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
45.	149A (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
46.	149B (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
47.	149C (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
48.	149D (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
49.	149E (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
50.	149F (TM-4)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	5.5	3EHP431531
51.	167A (TM-4)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
52.	167B (TM-4)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

53.	167C (TM-4)	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
54.	145A (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
55.	145B (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
56.	145C (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
57.	145D (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
58.	145E (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
59.	145F (TM-5)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	7.2	3EHP431531
60.	146A	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
61.	146B	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
62.	146C	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
63.	147A (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

64.	147B (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
65.	147C (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
66.	147D (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
67.	147E (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
68.	147F (TM-6)	Main Converter-2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 2-HOLE 120 / M10 CU VZN HBTB416074P0010 (01 No)	Open	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	9.2	3EHP431531
69.	151A	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
70.	151B	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
71.	151C	Bogie 2	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	Disconnect of Motor Cable	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	1.31	3EHP431530
72.	152A	Bogie 2	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	2	3EHP431530
73.	152B	Bogie 2	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	2	3EHP431530
74.	152C	Bogie 2	CABLE LUG 120.0 / M10 CU VZN 3EHP470026P3010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (01 No)	Close	CAB 9 GKW-AX 120 4000 V BK (3EHW470016P120 0)	2	3EHP431530

## AUXILLIARY CABLES

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

SN	Loom Number	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/Close)	Location	Connector Type & Lug Type	End (Open/Close)			
1.	217	Cubicle Driver Cab-1	WAGO	Open	Aux. Converter-1	SET OF COMPLETE PLUG / PLUG P7/24 SOCKET 'N' INDOOR HBTB315110R0011 (01 No) CONTACT SOCKET 12/2.5 HBT415298P0008 (07 Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)	7x12.4	3EHP431533
2.	220	Connector to TM Blower	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Close	HB-1	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos) CABLE LUG 16.0/M10 CU VZN (01 No) 3EHP470026P0510	Open	CAB 4 GWK-AX 16 1800 V BK (3EHW470015P0160)	3x6.8 1x0.5	3EHP431533
3.	221	HB-1	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01 No)	Open	Aux. Converter-1	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01 No)	Close	CAB 4 GWK-AX 50 1800 V BK (3EHW470015P0500)	3x5.5	3EHP431533
4.	223	HB-1	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	Scavenge Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)	Open	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)	3x6	3EHP431533
5.	224	HB-1	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	Main Compressor- 1	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	CAB 4 GWK-AX 10 1800 V BK (3EHW470015P0100)	3x11.5	3EHP431533
6.	225	HB-1	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No)	Close	Scavenge Blower to MR Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)	Open	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P0025)	3x6	3EHP431534

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

			CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)							
7.	226	HB-1	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	Connector to MR Blower	2.5/M6 CU VZN 3EHP470026P0016 (04 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x7 1x1.2	3EHP431533
8.	227	HB-1	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 6 MM2 3EHW470321P2060 (04 Nos)	Close	Oil Pump Transformer	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (03 Nos)	Close	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	3x14.5	3EHP431533
9.	228	HB-1	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos) CABLE LUG 16.0/M10 CU VZN (01 No)	Open	Connector to Oil cooling unit-1	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos) CABLE LUG 16.0/M10 CU VZN (01 No)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	3x15.5 1x0.8	3EHP431533
10.	229	NOT IN USE								
11.	230	HB-1	CABLE LUG 8-2.5 KN6762210P0208 (03 Nos)	Open	Oil Pump Converter-1	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x14.5	3EHP431533
12.	231	HB-1	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0113 (01 No)	Open	HB-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0113 (01 No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	3x17.5	3EHP431533
13.	232	HB-1	SET OF COMPLETE PLUG / PLUG P7/24 SOCKET 'N' INDOOR HBTB315110R0011 (01 No)	Close	HB-2	SET OF COMPLETE PLUG / PLUG P7/24 SOCKET 'N' INDOOR HBTB315110R0011 (01 No)	Close	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	7x18.5	3EHP431533

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

			CONTACT SOCKET 12/6.0 HBT415298P0012 (07 Nos)			CONTACT SOCKET 12/6.0 HBT415298P0012 (07 Nos)				
14.	233	HB-1	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0112 (01 No)	Open	HB-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0112 (01 No)	Close	CAB 4 GKW-AX 25 1800 V BK(3EHW470015P0 250)	3x17.5	3EHP431533
15.	234	HB-1	CABLE LUG 35.0/M8 CU VZN 3EHP470026P1008 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01 No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1x0.4	3EHP431536
16.	235	BUR - 1	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (04 Nos)	Close	Main TFP	CABLE LUG 70.0/ M12 CU VZN 3EHP470026P1912 (04 Nos)	Open	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	4x4.8	3EHP431534
17.	236	BUR - 1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01 No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1x1	3EHP431536
18.	237	BUR - 1	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (02Nos)	Close	BUR - 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (02Nos)	Open	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	1x12 1x12	3EHP431534
19.	241	Oil Pump Converter-2	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)	Open	HB-2	CABLE LUG 8-2.5 KN6762210P0208 (03 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	3x14.5	3EHP431533
20.	242	Connector to Oil cooling unit-2	CABLE LUG 16.0/M8 3EHP470026P0508 (03Nos) CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01 No)	Close	HB-2	CABLE LUG 16.0/M8 3EHP470026P0508 (04 Nos)	Open	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	3x15.5 1x0.8	3EHP431533
21.	244	Oil Pump Transformer	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (03 Nos)	Open	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 6 MM2 3EHW470321P2060	Close	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	3x14.5	3EHP431533

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

						(04 Nos)				
22.	245	Main TFP	CABLE LUG 70.0/ M12 CU VZN 3EHP470026P1912 (08Nos)	Open	BUR - 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (08Nos)	Close	CAB 4 GWK-AX 70 1800 V BK (3EHW470015P070 0)	8x5.8	3EHP431534
23.	246	Main TFP	CABLE LUG 70.0/ M12 CU VZN 3EHP470026P1912 (06 Nos)	Close	BUR - 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (06 Nos)	Open	CAB 4 GWK-AX 70 1800 V BK (3EHW470015P070 0)	6x8	3EHP431534
24.	247	Not in use								
25.	248									
26.	249	Connector to MR Blower	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	HB-2	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (04Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	3x7.5 1x1.2	3EHP431533
27.	251	Main Compressor- 2	CABLE LUG 10.0/M8 3EHP470026P0208 (03Nos)	Open	HB-2	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	CAB 4 GWK-AX 10 1800 V BK (3EHW470015P010 0)	3x11.5	3EHP431533
28.	252	Scavenge to MR Blower-2	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03Nos)	Open	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	3x6	3EHP431533
29.	253	Scavenge Blower to MR Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	1x0.5	3EHP431536
30.	254	Scavenge Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (03 Nos)	Open	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	3x7	3EHP431533
31.	255	Scavenge Blower	CA-LUG 1.5-2.5/M6 CU VZN	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN	Close	CAB 4 GWK-AX 2.5	1x0.5	3EHP431536

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

			3EHP470026P0016 (01No)			3EHP470026P0016 (01No)		1800 V BK (3EHW470015P002 5)		
32.	256	BUR - 2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (04 Nos)	Open	HB-2	CABLE LUG 70.0 / M10 CU VZN 3EHP470026P1910 (04 Nos)	Close	CAB 4 GKW-AX 70 1800 V BK (3EHW470015P070 0)	4x5.8	3EHP431534
33.	257	BUR - 2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01No)	Open	HB-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01 No)	Close	CAB 4 GKW-AX 50 1800 V BK (3EHW470015P050 0)	3x6	3EHP431533
34.	258	BUR - 2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01No)	Open	HB-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0114 (01No)	Close	CAB 4 GKW-AX 50 1800 V BK (3EHW470015P050 0)	3x6	3EHP431533
35.	259	BUR - 2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01 No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1x1	3EHP431536
36.	260	HB-2	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No) CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Open	Connector to TM Blower	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	3x6.8 1x0.5	3EHP431533
37.	261	HB-2	SET OF COMPLETE PLUG / PLUG P7/24 SOCKET 'N' INDOOR HBTB315110R0011 (01 No) CONTACT PIN 12/2.5 HBT415298P0007 (07 Nos))	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	7x12	3EHP431533
38.	262	HB-2	CABLE LUG 35.0/M8 CU VZN 3EHP470026P1008 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1x0.4	3EHP431536
39.	273	Main Compressor- 1	CABLE LUG 10.0/M8 3EHP470026P0208 (01No)	Open	Conn. To Earth to Loco	CA-LUG 10.0/M10 CU VZN 3EHP470026P0210 (01No)	Close	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P010 0)	1x4	3EHP431536

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				



40.	274	Oil Pump Transformer	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Open	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	1x2.75	3EHP431536
41.	275	Oil Pump Converter	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Open	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	1x2.7	3EHP431536
42.	276	Oil Pump Converter	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Open	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	1x2.7	3EHP431536
43.	277	Oil Pump Transformer	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Open	CAB 4 GKW-AX 6 1800 V BK (3EHW470015P006 0)	1x2.75	3EHP431536
44.	278	Main Compressor- 2	CABLE LUG 10.0/M8 3EHP470026P0208 (01No)	Open	Conn. To Earth to Loco	CA-LUG 10.0/M10 CU VZN 3EHP470026P0210 (01No)	Close	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P010 0)	1x4	3EHP431536
45.	211	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02 Nos)	Close	Cubicle Driver Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x7.2	3EHP431535
46.	212	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x2.5	3EHP431536
47.	213	Cubicle Driver Cab-1	WAGO	Open	Rotary Switch Cab Heater	CABLE SLEEVE 2.5- 10 NB485270P0029 (04 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	4x6	3EHP431535
48.	214	Cubicle Driver Cab-1	CABLE LUG 8-2.5 KN6762210P0208 (02Nos) CABLE TERMINAL TYPE 18B,2.5 SQ.MM. (02 Nos)	Close	Cab Heater/ Ventilation	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	4X6	3EHP431533
49.	216	Cubicle Driver Cab-1	WAGO	Open	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x7.2	3EHP431535
50.	218	Cubicle Driver Cab-1	CABLE LUG 10.0/M8 3EHP470026P0208	Close	Conn. To Earth to Loco	CA-LUG 10.0/M10 CU VZN	Close	CAB 4 GKW-AX 10	1x0.4	3EHP431536

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

			(01 No)			3EHP470026P0210 (01 No)		1800 V BK (3EHW470015P010 0)		
51.	219	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x2.5	3EHP431536
52.	238	Scavenge Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x0.5	3EHP431536
53.	239	Scavenge Blower	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x0.5	3EHP431536
54.	279	Cab Heater/ Ventilation	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x0.8	3EHP431536
55.	263	Cab Heater/ Ventilation	WAGO	Open	Cubicle Driver Cab-2	CABLE LUG 8-2.5 KN6762210P0208 (02 Nos) CABLE TERMINAL TYPE 18B,2.5 SQ.MM. (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	4x6	3EHP431533
56.	266	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x12	3EHP431535
57.	267	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x2.5	3EHP431536
58.	268	Rotary Switch Cab Heater	CABLE SLEEVE 2.5- 10 NB485270P0029 (04 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	4x6	3EHP431535
59.	269	Cubicle Driver Cab-2	WAGO	Open	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x8.5	3EHP431535
60.	270	Cubicle Driver Cab-2	CABLE LUG 10.0/M8 3EHP470026P0208 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 10.0/M10 CU VZN 3EHP470026P0210	Close	CAB 4 GKW-AX 10	1x0.4	3EHP431536

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

						(01 No)		1800 V BK (3EHW470015P0100)		
61.	271	Crew Fan	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x2.5	3EHP431536
62.	280	Cab Heater/ Ventilation	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01 No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x1.1	3EHP431536
63.	MOD-1	HB-1	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Open	HB-2	CABLE LUG 16.0/M8 3EHP470026P0508 (03 Nos)	Open	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P0160)	3x19.3	-
64.	MOD-2	HB-1	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	HB-2	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P0100)	3x19.3	-
65.	MOD-3	HB-1	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	HB-2	CABLE LUG 10.0/M8 3EHP470026P0208 (03 Nos)	Open	CAB 4 GKW-AX 10 1800 V BK (3EHW470015P0100)	3x19.3	-
66.	MOD-4	Baby TFP in HB-1	-	Open	HB-2 High lamp Sheet		Open	CAB 4 GKW-AX 6 1800 V BK 3EHW470015P0060	2x17.5	
67.	AC-1	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	AC-1	-	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	3x22.1	-
68.	AC-2	HB-2	PLUG 4 P BU "N" IR CA / CONNECTOR 3EHW470084R0001 (01 No) CONTACT SOCKET SIZE 8 / 2.5 MM2 3EHW470321P2025 (04 Nos)	Close	AC-1	-	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	3x11.1	-

## CONTROL CABLES

SN	From	To	Cable Size	
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SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

	Loom Number	Location	Connector Type & Lug Type	End (Open/Close)	Location	Connector Type & Lug Type	End (Open/Close)	(Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
1.	311	UIC Socket	-	Open	SB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (13Nos)	Close	CAB 3 x 4 x 1.0 SCR(3EHP470001P1 012)	1x22	3EHP431543
2.	312	Panel A1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	SB-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	CAB 2 x 0.5 SCR 3EHP470000P0502	1x13	3EHP431544
3.	313	Panel A1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	SB-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	CAB 2 x 0.5 SCR 3EHP470000P0502	1x13	3EHP431544
4.	314	Cubicle Driver Cab-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x11	3EHP431539
5.	315	Cubicle Driver Cab-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No)	Close	SB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	35x11	3EHP431538

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

			CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)			CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)				
6.	316	Cubicle Driver Cab-1	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (56Nos) CONTACT SOCKET 16/1.0 HBT415299P0006 (05Nos)	Close	SB-1	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (56Nos) CONTACT SOCKET 16/1.0 HBT415299P0006 (05Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5) CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	50x11  1x11	3EHP431538
7.	318	Panel A/1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 (04Nos)	Close	SB-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONT. PIN 0.24- 0.62/24-20 *1.8076.005/01 (05Nos)	Close	CAB 2 x 2 x 0.5 SCR 3EHP470000P0504  CAB - 3GKW- 0.5 FLEX RED HZN452926P0201	1x13.15 1X0.1	3EHP431544
Not in the Scope of Supply of Harnessed Cable										
8.	320	SB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	HB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	35x4.3	3EHP431538
9.	321	SB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5	Close	Roof-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	13x6.2	3EHP431538

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

			HB T415298P0008 (13Nos)			HB T415298P0008 (13Nos)				
10.	323	SB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HB TB315113R0011 (01No) CONTACT SOCKET 12/2.5 HB T415298P0008 (35Nos)	Close	SR-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HB TB315113R0011 (01No) CONTACT SOCKET 12/2.5 HB T415298P0008 (35Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	35x8.2	3EHP431538
11.	324	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HB T315076R0011 (01No) CONTACT SOCKET 12/1.0 HB T415298P0004 (05Nos)	Close	SR-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HB T315076R0011 (01No) CONTACT SOCKET 12/1.0 HB T415298P0004 (05Nos)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x7.3	3EHP431539
12.	325	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HB T315076R0011 (01No) CONTACT SOCKET 12/1.0 HB T415298P0004 (05Nos)	Close	Roof-2	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HB T315076R0011 (01No) CONTACT SOCKET 12/1.0 HB T415298P0004 (05Nos)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x6.5	3EHP431539
13.	327	SB-1	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HB TB315113R0011 (01No) CONTACT SOCKET 12/2.5 HB T415298P0008 (35Nos)	Close	Roof-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HB TB315113R0011 (01No) CONTACT SOCKET 12/2.5 HB T415298P0008 (35Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	25x6.9	3EHP431538
14.	328	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HB T315076R0011 (01No)	Close	SR-2	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HB T315076R0011 (01No)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x16.5	3EHP431539

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

			CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)			CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)				
15.	329	SB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (13Nos)	Close	Roof-3	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (13Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	13x10.7	3EHP431538
16.	330	SB-1	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (42Nos) CONTACT SOCKET 16/1.5 HBT415299P0008 (19Nos)	Close	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (42Nos) CONTACT SOCKET 16/1.5 HBT415299P0008 (19Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)  CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	35x20.5  12x20.5	3EHP431538
17.	331	SB-1	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (61Nos)	Close	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (61Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)  CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	53x20.5  2x20.5	3EHP431538
18.	332	SB-1	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No)	Close	Cubicle Driver Cab-2	SET OF COMPLETE PLUG / PLUG ASSEMBLY (KIT.) HBT315076R0011 (01No)	Close	CAB 2 x 1.0 SCR 3EHP470001P1002	1x20	3EHP431539

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

			CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)			CONTACT SOCKET 12/1.0 HBT415298P0004 (05Nos)				
19.	333	SB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (13Nos)	Close	UIC Socket	-	Open	CAB 3 x 4 x 1.0 SCR 3EHP470001P1012	1x22	3EHP431543
20.	334	HB-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 (13Nos)	Close	BUR-1	SET OF COMPLETE PLUG / PLUG 13P/32 SKT 'N' INDOOR HBTB315111R0011 (01No) CONTACT SOCKET 12/2.5 (13Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	13x5	3EHP431538
21.	335	Primary Current Sensor Box	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120( 09Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120( 09Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 9 x 0.5 SCR 3EHP470000P0509  CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	1x10.7  2x0.25	3EHP431540
22.	338	Primary Current Sensor Box	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120( 09Nos) CA-LUG 1.5-2.5/M6 CU VZN	Close	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120( 09Nos) CA-LUG 1.5-2.5/M6 CU VZN	Close	CAB 9 x 0.5 SCR 3EHP470000P0509  CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	1x6.6  2x0.5	3EHP431540

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						



			3EHP470026P0016 (01No)			3EHP470026P0016 (01No)				
23.	341	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120( 04Nos)	Close	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120( 04Nos)	Close	CAB 2 x 2 x 0.5 SCR 3EHP470000P0504	1x21.2	3EHP431541
24.	342	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120( 05Nos)	Close	HB-2	PLUG 9 POLES HETT401293P0001 (01No) PROTECTIVE CAP / CABLE CLIP HETT401293P0032 (01No) CONNECTOR SKT 0.23, 0.5 SE408197P0013 (06Nos)	Close	CAB 5 x 0.5 SCR 3EHP470000P0505	1x18.5	3EHP431541
25.	343	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120( 05Nos)	Close	HB-2	PLUG 9 POLES HETT401293P0001 (01No) PROTECTIVE CAP / CABLE CLIP HETT401293P0032 (01No) CONNECTOR SKT 0.23, 0.5 SE408197P0013 (06Nos)	Close	CAB 5 x 0.5 SCR 3EHP470000P0505	1x11.5	3EHP431541
26.	344	SR-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 (35Nos)	Close	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 (35Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	35x8.5	3EHP431538

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

27.	345	Pneumatic Panel	PLUG, SIZE 22/19POLE 3EHP431609R0001 (01No) CONTACT SOCKET 16/0.5 HBT415299P0002 (7Nos) CONTACT SOCKET 16/1.0 HBT415299P0006 (12Nos)	Close	SB-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (5Nos)	Close	CAB 2 x 2 x 0.5 SCR 3EHP470000P0504	1x13.5	3EHP431538
				Close	CONNECTOR Brake Handle Out	-	Open	CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	1x21	
				Close	CONNECTOR Brake Handle Out	-	Open	CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	1x12	
28.	346	Pneumatic Panel	PLUG, SIZE 28/37POLE 3EHP431609R0002 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (37Nos)	Close	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (61Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	37x11.4	3EHP431538
29.	347	Pneumatic Panel	PLUG, SIZE 22/19POLE 3EHP431609R0001 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (19 Nos)	Close	SB-2	SET OF COMPLETE PLUG / PLUG 22P / 36 SKT ' N' INDOOR HBTB315112R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (22Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	19x11.8	3EHP431538
30.	351	Panel C/1	PLUG 9P D- SUB,SIZE-1 (01 No) CONTACT SOCKET AWG24-20 (09Nos)	Close	SB-1	PLUG 9P D- SUB,SIZE-1 (01 No) CONTACT SOCKET AWG24-20 (09Nos)	Close	CAB 9 x 0.5 SCR 3EHP470000P0509	1x13	3EHP431544
31.	348	BUR-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011	Close	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	20x5.1	3EHP431538

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

			(01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (10Nos) CONTACT SOCKET 12/2.5 HBT415298P0008 (25Nos)			(01No) CONTACT SOCKET 12/1.0 HBT415298P0004 (10Nos) CONTACT SOCKET 12/2.5 HBT415298P0008 (25Nos)		CAB 2 x 1.0 SCR 3EHP470001P1002  CAB - 3GKW- 0.5 FLEX RED HZN452926P0201	2x5.1  2x5.1	
		BUR-2		Close	Insulator Battery Box-1		Open	CAB 2 x 1.0 SCR 3EHP470001P1002	2x16.5	
		BUR-2		Close	Insulator Battery Box-2		Open	CAB 2 x 1.0 SCR 3EHP470001P1002	2x10.5	
32.	349	HB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	27x4	3EHP431538
33.	352	SB-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (04Nos)	Close	Panel C/2	PLUG , 9P D-SUB , S1 . PINS HBTB316240R0091 (01No) CONT. PIN 0.24- 0.62/24-20 *1.8076.005/01 (05Nos)	Close	CAB 2 x 2 x 0.5 SCR 3EHP470000P0504  CAB - 3GKW- 0.5 FLEX RED HZN452926P0201	1x13.15  1X0.1	3EHP431544
		Not in the Scope of Supply of Harnessed Cable								
34.	353	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/0.5 HBT415299P0002 (61Nos)	Close	*Connector Speedometer	*In the scope of propulsion system	Open	CAB 25 x 0.5 TWIST 3EHP470002P0525	1x11	3EHP431542
		SB-2	CONTACT SOCKET 16/0.5 HBT415299P0002 (61Nos)	Close	*Connector Speedometer		Open	CAB 9 x 0.5 TWIST 3EHP470002P0509	1x23.5	
		*Connector Speedometer		Open	*Connector Speedometer		Open	CAB 2 x 0.5 SCR 3EHP470000P0502	1x28.5	

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

35.	354	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	Cubicle Driver Cab-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	35x10.5	3EHP431538
36.	355	SB-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (56Nos) CONTACT SOCKET 16/1.0 HBT415299P0006 (05Nos)	Close	Cubicle Driver Cab-2	ST.61P/40 BU"N"IR KABELH./ PLUG 61P/40 SKT 'N' INDOOR HBTB315157R0011 (01No) CONTACT SOCKET 16/2/AWG14 HBT415299P0010 (56Nos) CONTACT SOCKET 16/1.0 HBT415299P0006 (05Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5) CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	50x11.4  1x11.4	3EHP431538
37.	356	SB-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	Panel A/2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	CAB 2 x 0.5 SCR(3EHP470000P0 502)	1x13	3EHP431544
38.	357	SB-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	Panel A/2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (01No) CONTACT SOCKET AWG24-20 HESG455638P0120 (02Nos)	Close	CAB 2 x 0.5 SCR(3EHP470000P0 502)	1x13	3EHP431544
39.	358	Connector Air Dryer Pneumatic Panel Pressure Switch Main Compressor	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (02Nos)	Open	SB-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	3x23.5 2x15.9 11x11.25	3EHP431538

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

		Pressure Switch Reservoir				HBTB315113R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (35 Nos)				
		Pressure Switch Main Compressor								
		Pressure Switch Brake Cylinder								
		Pressure Switch Brake Cylinder								
40.	359	SB-1	SET OF COMPLETE PLUG / PLUG 22P / 36 SKT ' N ' INDOOR HBTB315112R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (22 Nos)	Close	SB-2	SET OF COMPLETE PLUG / PLUG 22P / 36 SKT ' N ' INDOOR HBTB315112R0011 (01No) CONTACT SOCKET 12/2.5 HBT415298P0008 (22 Nos)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)  CAB 2 x 2 x 1.0 SCR 3EHP470001P1004	17x20.5  1x21	3EHP431538
41.	371	Master Controller-1	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	1x1.6	3EHP431545
42.	372	Connector Speedometer	CABLE LUG 1.5-2.57 /M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	1x1.3	3EHP431545
43.	373	Not in use								3EHP431545
44.	374	SB-1	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No)	Close	CAB 4 GWK-AX 16 1800 V BK(3EHW470015P0 160)	1x0.6	3EHP431545
45.	375	Pneumatic Panel	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	Conn. To Earth to Loco	CA-LUG 4.0-6.0/M6 CU VZN 3EHP470026P0106 (01No)	Close	CAB 4 GWK-AX 6 1800 V BK (3EHW470015P006 0)	1x3	3EHP431545
46.	376	SB-2	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 16.0/M10 CU VZN 3EHP470026P0510 (01No)	Close	CAB 4 GWK-AX 16 1800 V BK (3EHW470015P016 0)	1x0.6	3EHP431545
47.	377	Master Controller-2	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GWK-AX 2.5 1800 V BK	1x1.62	3EHP431545

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F				

								(3EHW470015P0025)		
48.	378	Connector Speedometer	CABLE LUG 1.5-2.57/M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x1.3	3EHP431545
49.	379	Not in use								3EHP431545
50.	380	Connector Brake Handle out	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x2.3	3EHP431545
51.	381	Connector Brake Handle out	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	CABLE LUG 8-2.5 KN6762210P0208 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1x2.3	3EHP431545
52.	350	Bogie-2	PLUG 9P D-SUB,SIZE-1	Close	Connector Speedometer	PLUG 9P D-SUB,SIZE-1	Close	CAB 9 x 0.5 SCR(3EHP470000P0509)	1x13.5	3EHP330342
		This cable Loom is being supplied along with Speedometer. 02 Nos.ADAPTOR NW17/SIZE18 (ABB ID HBT415393P0437) are in scope of supply of harnessed cable								
53.	317	SB-2	PLUG 9P D-SUB,SIZE-1 (01 No) CONTACT SOCKET AWG24-20 (09Nos)	Close	Panel C/2	PLUG 9P D-SUB,SIZE-1 (01 No) CONTACT SOCKET AWG24-20 (09Nos)	Close	CAB 9 x 0.5 SCR(3EHP470000P0509)	1x13	3EHP431544
54.	Flasher Unit (Cab1) 3551-1A, 2050-A1 3551-3A, 2050-A2	-	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (04Nos)	Close	-	-	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	4X6.5	-
55.	Flasher Unit (Cab2) 3551-1B, 2050-B1 3551-3B, - 2050-B2	-	-	Close	-	-	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0025)	4X12	-
56.	3533	-	CONTACT PIN 12/1.5 HBT415298P0005 (01No)	Close	-	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	1X2.5	-

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I		Dy.CEE/D-I			ALT	F			

57.	2050	-	CONTACT PIN 12/1.5 HBT415298P0005 (01No)	Close	-	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	1X2.5	-
<b>SENSOR CABLES</b>										
SN	Loom Number	From			To			Cable Size (Sq.mm)	No. of Cables x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	411	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 0.5 SCR (3EHP470000P0502 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x14  2x0.5	3EHP431537
2.	412	Bogie-1	5 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x2x 0.5 SCR (3EHP470000P0504 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x14  2x0.5	3EHP431537
3.	413	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509 )	1x14	3EHP431537
4.	414	Bogie-1	3 Pin Connector (Supplied with propulsion System)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009	Close	CAB 2 x 0.5 SCR (3EHP470000P0502 )	1x12.5	3EHP431537
<b>SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC &amp; WAP-7 &amp; WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES</b>							<b>Specification No. CLW/ES/3/0646</b>			
JE/Drg./Elect.		SEE/D-I		Dy.CEE/D-I		ALT	F			

			CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)			(1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)		CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x0.5	
5.	415	Bogie-1	5 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 2 x 0.5 SCR (3EHP470000P0504 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x12.5  2x0.5	3EHP431537
6.	416	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509 )	1x12.5	3EHP431537
7.	417	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 0.5 SCR (3EHP470000P0502 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x11.5  2x0.5	3EHP431537
8.	418	Bogie-1	5 Pin Connector (Supplied with propulsion System)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No)	Close	CAB 2 x2x 0.5 SCR (3EHP470000P0504 )	1x11.5  2x0.5	3EHP431537

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							



			CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)			CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)		CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)		
9.	419	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509 )	1x11.5	3EHP431537
10.	420	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Open	CAB 2 x 0.5 SCR (3EHP470000P0502 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x11.5  2x0.5	3EHP431537
11.	421	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	5 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 2 x 0.5 SCR (3EHP470000P0504 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x11.5  2x0.5	3EHP431537
12.	422	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No)	Close	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2	Close	CAB 9 x 0.5 SCR (3EHP470000P0509 )	1x11.5	3EHP431537

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

			CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)			HBTB415399P0001 (5 Nos)				
13.	450	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	3 Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 0.5 SCR (3EHP470000P0502 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x12.5  2x0.5	3EHP431537
14.	451	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	5Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x2x 0.5 SCR(3EHP470000P0 504)  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x12.5  2x0.5	3EHP431537
15.	452	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509 )	1x12.5	3EHP431537
16.	453	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (2 Nos)	Close	Bogie-1	3Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 0.5 SCR (3EHP470000P0502 )  CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	1x14  2x0.5	3EHP431537

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

			CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)							
17.	454	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (4 Nos) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	Bogie-1	5Pin Connector (Supplied with propulsion System) CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (1 No)	Close	CAB 2 x 2 x 0.5 SCR (3EHP470000P0504 )  CAB 4 GWK-AX 2.5 1800 V BK (3EHW470015P002 5)	1x14  2x0.5	3EHP431537
18.	455	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (9 Nos)	Close	Bogie-1	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5 Nos)	Close	CAB 9 x 0.5 SCR (3EHP470000P0509 )	1x14	3EHP431537
19.	425	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (5Nos)	Close	Amplifier Sensor Oil Transformer	SOCKET / PLUG , 5 CRIMP SOCKET S16 HBTB415399P0012 (1 No) CONTACT FEMALE GR16 / CONTACT SOCKET SIZE 16 HBTB415399P0002 (5Nos)	Close	CAB 3 x 0.5 SCR(3EHP470000P0 503)	1x9	3EHP431548
20.	426	SR-1	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (5Nos)	Close	Connector Temperature Sensor Oil	PLUG DO 5P/ 14 HBTB415399P0022 (1 No) CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5Nos)	Close	CAB 2 x 2x0.5 SCR(3EHP470000P0 504)	1x 9	3EHP431548
21.	427	Connector Temperature Sensor Oil	PLUG DO 5P/ 14 HBTB415399P0022 (1 No)	Close	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No)	Close	CAB 2 x2x 0.5 SCR(3EHP470000P0 504)	1x 9	3EHP431548

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

			CONTACT PIN MALE GR16 0,5-1,0 mm2 HBTB415399P0001 (5Nos)			CONTACT SOCKET AWG24-20 HESG455638P0120 (5Nos)				
22.	428	Amplifier Sensor Oil Transformer	SOCKET / PLUG , 5 CRIMP SOCKET S16 HBTB415399P0012 (1 No) CONTACT FEMALE GR16 / CONTACT SOCKET SIZE 16 HBTB415399P0002 (5 Nos)	Close	SR-2	ST. 9P D-SUB GR1 / CONNECTOR HBTB316240R0009 (1 No) CONTACT SOCKET AWG24-20 HESG455638P0120 (3Nos)	Close	CAB 3 x 0.5 SCR (3EHP470000P0503 )	1x 9	3EHP431548
23.	441	NOT IN USE								3EHP431549
24.	442	NOT IN USE								3EHP431549
DRIVER CABLES										
SN	Loom Number	From			To			Cable Size (Sq.mm)	No. of Cables x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	511	Front Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x5	3EHP431546
2.	512	Tail Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P002 5)	2x5	3EHP431546
3.	513	Head Light	CA-LUG 1.5- 2.5/M6 CU VZN 3EHP470026P0016 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x4	3EHP431546
4.	514	Head Light	CA-LUG 1.5- 2.5/M6 CU VZN 3EHP470026P0016 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x4	3EHP431546
5.	515	Front Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
6.	516	Tail Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

7.	517	Foot Switch Release of Ind	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
8.	518	Panel-B1	CABLE SLEEVE 1.5 - 8.0 NB485270P0067 (02 Nos) CABLE LUG INSUL 3- 1.5 HCSN400689P0012 (01No)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 1.5 1800 V BK(3EHW470015P0 015)	3x6.5	3EHP431546
9.	519	Spring Loaded Switch Pneumatic	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
10.	520	Lamp Driver Desk Illumination	CABLE SLEEVE 2.5- 10 NB485270P0029 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x6.5	3EHP431546
11.	521	Spring Loaded Foot Switch	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver's Cab-1	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5	3EHP431546
12.	522	Cubicle Driver's Cab-1	WAGO	Open	Lamp Driver's Cab Lighting	LUG 6, 3 X 0.8 CUSN NBT200235P0511 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x6	3EHP431546
13.	522/1	Cubicle Driver's Cab-2	WAGO	Open	Lamp Driver's Cab Lighting	LUG 6, 3 X 0.8 CUSN NBT200235P0511 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x7.5	3EHP431546
14.	523	Cubicle Driver's Cab-1	WAGO	Open	Emergency Flash Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x6	3EHP431546
15.	524	Cubicle Driver's Cab-1	WAGO	Open	Lamp assistant desk illumination	CABLE SLEEVE 2.5- 10 NB485270P0029 (02 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x6.5	3EHP431546
16.	551	Lamp Driver Desk Illumination	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01 No)	Close	Conn. To Earth to Loco	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x1.5	3EHP431546

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

17.	552	Lamp Driver's Cab Lighting	LUG 6, 3 X 0.8 CUSN NBT200235P0511 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x2.5	3EHP431546
18.	552/1	Lamp Driver's Cab Lighting	LUG 6, 3 X 0.8 CUSN NBT200235P0511 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x3	3EHP431546
19.	553	Emergency Flash Light	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01 No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x1.8	3EHP431546
20.	554	Lamp assistant desk illumination	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01 No)	Close	Conn. To Earth to Loco	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x1.5	3EHP431546
21.	531	Lamp assistant desk illumination	CABLE SLEEVE 2.5- 10 NB485270P0029 (02 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5.5	3EHP431546
22.	532	Lamp Driver's Cab Lighting	LUG 6, 3 X 0.8 CUSN NBT200235P0511 (02 Nos)	Close	Cubicle Driver Cab-1	WAGO	Open Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x14	3EHP431546
23.	532/2	Lamp Driver's Cab Lighting	LUG 6, 3 X 0.8 CUSN NBT200235P0511 (02 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x14	3EHP431546
24.	533	Emergency Flash Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x15	3EHP431546
25.	534	Spring Loaded Foot Switch	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	Cubicle Driver Cab-2	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x6	3EHP431546
26.	535	Cubicle Driver Cab-2	WAGO	Open	Spring Loaded Switch Pneumatic	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x6	3EHP431546
27.	536	Cubicle Driver Cab-2	WAGO	Open	Lamp Driver Desk Illumination	CABLE SLEEVE 2.5- 10 NB485270P0029 (02 Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x5.5	3EHP431546

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

28.	537	Cubicle Driver Cab-2	WAGO	Open	Foot Switch Release of Ind	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x6	3EHP431546
29.	538	Cubicle Driver Cab-2	WAGO	Open	Panel B/2	CABLE SLEEVE 1.5 - 8.0 NB485270P0067 (02 Nos) CABLE LUG INSUL 3-1.5 HCSN400689P0012 (01No)	Close	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	3x6.5	3EHP431546
30.	539	Cubicle Driver Cab-2	WAGO	Open	Front Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x12	3EHP431546
31.	540	Cubicle Driver Cab-2	WAGO	Open	Tail Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x12	3EHP431546
32.	541	Cubicle Driver Cab-2	WAGO	Open	Head Light	CA-LUG 1.5- 2.5/M6 CU VZN 3EHP470026P0016 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x14	3EHP431546
33.	542	Cubicle Driver Cab-2	WAGO	Open	Head Light	CA-LUG 1.5- 2.5/M6 CU VZN 3EHP470026P0016 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x14	3EHP431546
34.	543	Cubicle Driver Cab-2	WAGO	Open	Front Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x7	3EHP431546
35.	544	Cubicle Driver Cab-2	WAGO	Open	Tail Marker Light	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02 Nos)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	2x7	3EHP431546
36.	561	Lamp assistant desk illumination	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x1.5	3EHP431546
37.	562	Lamp Driver's Cab Lighting	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	LUG 6.3 X 0.8 CUSN NBT200235P0511 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x2.5	

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

38.	562/2	Lamp Driver's Cab Lighting	LUG 6.3 X 0.8 CUSN NBT200235P0511 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x3	3EHP431546
39.	563	Emergency Flash Light	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Close	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x1.8	3EHP431546
40.	564	Lamp Driver Desk Illumination	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Close	Conn. To Earth to Loco	WAGO	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1x1.5	3EHP431546

**BATTERY CABLES**

SN	Loom Number	From			To			Cable Size (Sq.mm)	No. of Cables x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/Close)	Location	Connector Type & Lug Type	End (Open/Close)			
1.	611	BUR-2	SET OF COMPLETE PLUG / PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0113 (01No)	Open	HB-2	SET OF COMPLETE PLUG /L- PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0213 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	3x5	3EHP431547
2.	612	Power Connection to Battery-1	ANDERSON PLUG PP 120A *1321G3ROT (01No)	Close	Battery-1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1.3	3EHP431547
3.	613	Power Connection to Battery-1	ANDERSON PLUG PP 120A *1321BLAU (01No)	Close	Battery-1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010\ (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1.3	3EHP431547
4.	614	Insulator Battery Box-1	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Close	Circuit Breaker Battery	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	1x0.4	3EHP431547
5.	615	Insulator Battery Box-1	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Close	Insulator Battery Box-2	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	1x11	3EHP431547
6.	616	Circuit Breaker Battery	CABLE LUG 16.0/M8 3EHP470026P0508 (01No)	Open	SB-2	SET OF COMPLETE PLUG / L-PLUG 4P/40 SOCKET 'N' INDOOR HBTB315176R0211	Close	CAB 4 GKW-AX 16 1800 V BK (3EHW470015P016 0)	1x16.5	3EHP431547
		Insulator Battery Box-2	CABLE LUG 16.0/M8	Open	SB-2		Close	CAB 4 GKW-AX 16	1x9	3EHP431547

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			3EHP470026P0508 (01No)			(01No)		1800 V BK (3EHW470015P016 0)		
7.	617	Power Connection to Battery-2	ANDERSON PLUG PP 120A *1321BLAU (01No)	Close	Battery-2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1.3	3EHP431547
8.	618	Power Connection to Battery-2	ANDERSON PLUG PP 120A *1321G3ROT (01No)	Close	Battery-2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1.3	3EHP431547
9.	621	Power Connection to Battery-1	ANDERSON PLUG PP 120A *1321G3ROT (01No)	Close	Insulator Battery Box-1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1	3EHP431547
10.	622	Power Connection to Battery-1	ANDERSON PLUG PP 120A *1321BLAU (01No)	Close	Insulator Battery Box-1	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1	3EHP431547
11.	623	Power Connection to Battery-2	ANDERSON PLUG PP 120A *1321BLAU (01No)	Close	Insulator Battery Box-2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1	3EHP431547
12.	624	Power Connection to Battery-2	ANDERSON PLUG PP 120A *1321G3ROT (01No)	Close	Insulator Battery Box-2	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (01No)	Close	CAB 4 GKW-A X 35 1800 V BK (3EHW470015P035 0)	1x1	3EHP431547

## ROOF CABLES

SN	Loom Number	From			To			Cable Size (Sq.mm)	No. of Cables x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	5A	Roof-1	SET OF COMPLETE SOCKET / SOCKET 13P/32 PIN 'N' INDOOR	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	3X6.1	3EHP431341
		Roof-1	HBTB315159R0011 (01No) CONTACT PIN 12/1.5	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	3X6.2	3EHP431341
		Roof-1	HBT415298P0005 (11Nos) CONTACT PIN 12/4.0	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	3X6.2	3EHP431341

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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			HBT415298P0009 (02Nos)							
2.	5B	Roof-1	SET OF COMPLETE SOCKET / SOCKET 13P/32 PIN 'N' INDOOR	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	3X5.9	3EHP431341
		Roof-1	HBTB315159R0011 (01No) CONTACT PIN 12/1.5	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	3X6.3	3EHP431341
		Roof-1	HBT415298P0005 (11Nos) CONTACT PIN 12/4.0 HBT415298P0009 (02Nos)	Close	Roof-1	--	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	3X6.3	3EHP431341
3.	6	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	4X3.5	3EHP431341
4.	7	Roof-1	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	2X0.5	3EHP431341
5.	8	Roof-2	SOCKET 35P/40 PIN 'N' IND. HBTB315162R0011 (01No) CONTACT PIN 12/1.5	Close	Roof-2	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	2x2.5	3EHP431341
		Roof-2	HBT415298P0005 (31Nos) CONTACT PIN 12/4.0 HBT415298P0009 (2Nos) CONTACT PIN 12/2.5 HBT415298P0007 (2Nos)	Close	Roof-2	ST.35P/40 BU"N"IR KABELH./ PLUG 25P/40 SKT 'N' INDOOR HBTB315113R0011 (01No) CONTACT SOCKET 12/1.5 HBT415298P0006 (35Nos)	Close	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	12X3.6	3EHP431341
		Roof-2		Close	Roof-2	CABLE LUG 1.5-2.57 M5 3EHP470026P0015	Open	CAB 4 GKW-AX 2.5 1800 V BK	2X6.5	3EHP431341

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

						(02Nos)		(3EHW470015P0025)		
6.	9	Roof-2	SET OF COMPLETE SOCKET / SOCKET 5P / S18 PIN 'N' STR HBT315075R0031 (01No) CONTACT PIN 12/1.0 HBT415298P0003 (05Nos)	Close	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02Nos)	Open	CAB 2 x 1.0 SCR (3EHP470001P1002) CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1X2.5 1x0.5	3EHP431341
						CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	1X0.5	3EHP431341
7.	10	Roof-2	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (01No)	Open	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1X0.5	3EHP431341
8.	11	Roof-2	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02Nos)	Open	Roof-2	0.5-1.0/M5 (02Nos)	Open	CAB 2 x 1.0 SCR (3EHP470001P1002)	1X1.2	3EHP431341
			CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open		-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015) CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1X0.5 1x0.5	3EHP431341
9.	12	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	4x2	3EHP431341
10.	13	Roof-1	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (02Nos)	Open	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P0015)	4x2	3EHP431341
11.	14	Roof-1	CABLE LUG PIN TYPE 2.5 GMN945210P0002 (02Nos)	Open	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02Nos)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	2 x 0.5	3EHP431341
12.	15	Roof-2	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (01No)	Open	Conn. To Earth to Loco	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (01No)	Open	CAB 4 GKW-AX 2.5 1800 V BK (3EHW470015P0025)	1X0.7	3EHP431341

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						

13.	16	Roof-2	CA-LUG 1.5-2.5/M4 CU VZN 3EHP470026P0014 (02Nos)	Open	Roof-2	CA-LUG 1.5-2.5/M6 CU VZN 3EHP470026P0016 (02Nos)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	2 x 0.5	3EHP431341
14.	17	Roof-2	8-2.5	Open	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Open	CAB 4 GKW-AX 2.5 1800 V BK(3EHW470015P0 025)	1X1	3EHP431341
15.	18	Roof-2	FASTON LUG 6.3 X 0.8 CU/SN GMN485104P0155 (01No)	Open	Conn. To Earth to Loco	CABLE LUG 1.5-2.57 M5 3EHP470026P0015 (01No)	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P001 5)	1X1.25	3EHP431341

## EARTHING CABLES

SN	Loom Number	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	BERT-1	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X0.8	-
2.	BERT-2	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.8	-
3.	BERT-3	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.8	-
4.	BERT-4	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.8	-
5.	BERT-5	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
6.	BERT-6	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
7.	BERT-7	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-

**SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN  
(EF12K) THREE PHASE ELECTRIC LOCOMOTIVES**

**Specification No.  
CLW/ES/3/0646**

JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					
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8.	BERT-8	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
9.	BERT-9	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
10.	BERT-10	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
11.	BERT-11	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
12.	BERT-12	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	-	CABLE LUG 120.0 / M12 CU VZN 3EHP470026P3012 (1No)	Close	CAB 9 GKW-AX 120 4000 V BK(3EHW470016P1 200)	1X 0.65	-
13.	BERT-13	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1x 0.95	-
14.	BERT-14	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1x 0.95	-
15.	BERT-15	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1X 0.4	-
16.	BERT-16	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1X 0.4	-
17.	BERT-17	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	-	CABLE LUG 35.0/M10 CU VZN 3EHP470026P1010 (1No)	Close	CAB 4 GKW-A X 35 1800 V BK(3EHW470015P0 350)	1X 0.4	-
18.	MRERT-1	NOT IN USE								-
19.	MRERT-2									-
20.	MRERT-3									-
21.	MRERT-4									-
22.	MRERT-5									-

SPECIFICATION FOR SET OF HARNESSSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646					
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F							

23.	MRERT-6		-
24.	MRERT-7		-
25.	MRERT-8		-
26.	MRERT-9		-
27.	MRERT-10		-
28.	MRERT-11		-

CABLE FOR SIGNAL EXCHANGE LAMP										
SN	Loom No.	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			
1.	SEL-1	F1 Panel	-	Open	Cab-1 Driver Desk	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P00 15)	2x2.5	-
2.	SEL-2	F1 Panel	-	Open	Cab-1 Assist. Driver Desk	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P00 15)	2x2.5	-
3.	SEL-3	F2 Panel	-	Open	Cab-2 Driver Desk	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P00 15)	2X2.5	-
4.	SEL-4	F2 Panel	-	Open	Cab-2 Assist. Driver Desk	-	Open	CAB 4 GKW-AX1.5 1800 V BK (3EHW470015P00 15)	2x2.5	-

CABLE FOR WATERLESS URINAL										
SN	Loom No.	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/ Close)			

SPECIFICATION FOR SET OF HARNESSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES					Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F					

1.	WATERLESS URINAL	SB-1	-	Open	Cab-1	-	Open	CAB 4 GKW-AX 1.5 1800 V BK (3EHW470015P00 15)	4x11	-
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CABLE FOR UIC JUMPER										
SN	Loom No.	From			To			Cable Size (Sq.mm)	No of Cable x Cable Length (Meter)	ABB Identification
		Location	Connector Type & Lug Type	End (Open/ Close)	Location	Connector Type & Lug Type	End (Open/Clos e)			
1.	UIC JUMPER		-	Open	-	-	Open	CAB 3 x 4 x 1.0 SCR 3EHP470001P101 2	1x1.5	-

SPECIFICATION FOR SET OF HARNESSED CABLES FOR WAG-9HC & WAP-7 & WAG-9 TWIN (EF12K) THREE PHASE ELECTRIC LOCOMOTIVES						Specification No. CLW/ES/3/0646				
JE/Drg./Elect.	SEE/D-I	Dy.CEE/D-I	ALT	F						