SPECIFICATION FOR COMPLETE SHELL ASSEMBLY (PIPED AND PAINTED) FOR WAG-9/WAG-9H/WAG-9HC & WAP-7 3-PHASE ELECTRIC LOCOMOTIVES FOR INDIAN RAILWAYS

SPECIFICATION No. CLW/MS/3/152 ALT.13
ISSUE DATE:20.08.2025

FINAL DRAFT

ISSUED BY:

DY. CHIEF ELECTRICAL ENGINEER/D-III

CHITTARANJAN LOCOMOTIVE WORKS

P.O. CHITTARANJAN – 713331

DIST. BARDHAMAN (WEST), WEST BENGAL (INDIA)

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ALTERATION RECORD SHEET-1 OF 2

SPECN FOR COMPLETE SHEEL ASSLY. FOR WAG-9/WAG-9H/WAG-9HC/WAP-7 LOCO

Alt. No.	Date of Alteration	Reason of Alteration	Approved by	Remarks
1		Specification completely revised. This specification supersedes specn. No.CLW/MS/3/152.Alt. nil	SD/-	
2	13.07.2015	MODIFIED 'SCOPE OF SUPPLY' AT PARA 2. ADDED ANNEXURE-A MENTIONING 'SCOPE OF SUPPLY'.	SD/-	APPROVED BY CEE/CLW ON 01.07.15 VIDE FILE NO.ELDD/3610/SHELL- SECN.-WAG9/WAG9H.
3	07.02.2017	ANNEXURE -B ADDED FOR 'SCOPE OF SUPPLY' FOR WAP-7 LOCO	SD/-	APPROVED BY CEE/CLW ON 6.2.17 AT PP-12 OF FILE NO.ELDD/3610/SHELL-SECN.-WAG9/WAG9H.
4	07.04.2017	ALT. NO. CHANGED AT PNEUMATIC SPECN. NO. CLW/MS/3/153 AT ANNEXURE- A, SL. NO. 6 & ANNEXURE-B, SL. NO. 6	SD/-	APPROVED BY CEE/CLW ON 5.4.17 AT PP-14 OF FILE NO.ELDD DTD.01.04.17.
5	13.04.2017	TO INTRODUCE THE H.T. TIGHT LOCK TRANSITION CBC AND DRAFT GEAR WITH ELASTOMER PADS FOR WAP- 7 LOCO IN SPECN. NO. CLW/MS/3/152 AT ANNEXURE- B, SL. NO.3 &4	SD/-	APPROVED BY CEE/L&S/CLW ON 13.4.17 AT PP-16 OF FILE NO.ELDD/3604/WAP-7 SHELL DTD. 11.04.2017.
6	09.08.2017	ADD LOCO TITLE WAG9HC In ALL PAGES, ANNEXURE 'C', PARA 3.3, ALT 4 AT CLW/MS/3/153 AT ANNEXURE A&B, ITEM 10 AT PARA 2.2 OF ANNEXURE A, NOTE AT ITEM 5 OF PARA 24 ANNEXURE A, ITEM 8 AT PARA 2.2 OF ANNEXURE-B. MODIFIED SCOPE OF SUPPLY' AT PARA 2	SD/-	APPROVED BY CEE/D&D ON 8.8.17 AT PP-17 OF FILE NO.ELDD/3610/SHELL-SECN.-WAG9/WAG9H.
7	05.03.2018	ADD 3 DRGS. AT SL. NO.17, 18 & 19 OF ANNEXURE-C	SD/-	APPROVED BY CEE/D&D ON 28.2.18 AT PP-19 OF FILE NO.ELDD/3610/SHELL-SECN.-WAG9/WAG9H.

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ALTERATION RECORD SHEET- 2 of 2

SPECN FOR COMPLETE SHEEL ASSLY. FOR WAG-9/WAG-9H/WAG-9HC/WAP-7 LOCO

Alt. No.	Date of Alteration	Reason of Alteration	Approved by	Remarks
8.	31.08.2018	**1.** This Specification modified. **2.** Included items in Annexure-A- Sl. No. 1, 9, 10, 11 at Para 2.1.2 and added Para 2.1.3 **3.** Items included in Annexure-B- Sl. No. 8, 9, 10, 11,12 at Para 2.3.2 and added Para 2.4. **4.** CB coupler and High Capacity draft gear are deleted from the scope of supply at Annexure A and B. which to be fitted after taking free supply from IR.	SD/- 31.08.2018	Approved by PCEE on 31/08/2018 at PP-22 of file No. ELDD/3610/Shell specification- for WAG9/WAG9H/ WAG9HC /WAP-7. Locomotive shell
9	31.03.2022	1.Para 14-Special Condition is added 2. Tolerance in waviness of side wall changed from ±6 mm to ±3 mm at Para 6.5	SD/- 01.04.2022	1. As advised by CEE/Loco to introduce Para-14 approved by PCEE/CLW on 30.03.2022 at PP-25 of File No ELDD/3610/Superstructure 2. As decided by Competent Authority of CLW to restrict Waviness of Side Wall within ±3 mm. Approved by PCEE/ CLW on 10.02.2022 at PP-1 of File no ELDD/3610/Superstructure/Pt.
10	09.04.2024	Para 2.1.5 of Annexure-A (Sheet 5 of 5), Para 2.3.6 of Annexure-B (Sheet 6 of 6) and last Para 2.2.1 of Annexure-C (Sheet 2 of 2) are modified.	SD/- 09.04.2024	1) As advised by Dy.CEE/D-III on 05.04.2024. 2) Proposal approved by PCEE on 06.04.2024 at PP-2 of File No. ELDD/3610/Superstructure/Shell dated 05.04.2024
11	12.06.2025	Para 1, 2, 5.1, 7.3 &13 modified. Annexure-A (Page-12) modified. Annexure D & E are added.	SD/- 12.06.2025	Approved by CEE/Design on 09.06.2025 at PP-12 of file no. ELDD/3610/ Superstructure/Shell
12	22.07.2025	For deletion of Wiper Assembly from scope of supply Annexure-A, as Electrically operated Wiper Assembly is to be fitted in its place for the year 2026-27 and onwards.	SD/- 22.07.2025	Dy.CEE/D-I's L/No. ELDD/3Ph/267/ Category/Electric Wiper Assly. dt.21.07.25 and approved by CEE/Design on 22.07.2025 at PP-15 of File No. ELDD/3610/Superstructure/Shell
13	06.10.2025	Latest WPS as per ISO 15609-1:2019 are added at Annexure-F. Clause 2.5, 5.1 & 6.1 are modified to remove C&D Book. Clause 7.4 is modified to change sources of paint.		(i) CME/Loco's L/No. Mech/loco/072/(QMS) dt. 12.05.2025 (ii) Dy.CME/Design/PLW's L/No. PLW/E/DRG/Loco/EL-101 (Shell) dt.19.09.25

Specification have been digitized and all alterations have been incorporated

PREPARED BY	REVIEWED BY	APPROVED BY
SSE/DRG&DGN (M)	**AEE/D/CONV**	**DY.CEE/D-III**

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SPECIFICATION FOR COMPLETE SHELL ASSEMBLY (PIPED AND PAINTED) FOR WAG-9/WAG-9H/WAG-9HC & WAP-7 3-PHASE ELECTRIC LOCOMOTIVES OF INDIAN RAILWAYS

1. **SCOPE:**

This technical specification covers the requirement of design, manufacturing, testing and supply conditions of Complete Shell Assembly for WAG-9, WAG-9H, WAG-9HC, WAG-9HC Twin & WAP-7 3-Phase Electric Locomotives for Indian Railways.

2. **SCOPE OF SUPPLY:**

2.1. One No. complete shell assembly for WAG-9/WAG-9H loco consists of the items as per the drawing numbers mentioned at ANNEXURE-A.

"OR"

2.2. One No. complete shell assembly for WAG-9HC loco consists of the items as per Annexure-C which to be followed with the drawings mentioned at Annexure-'A'. [Annexure -C are exceptional for WAG-9HC type loco, as compared to Annexure-A.]

"OR"

2.3. One No. complete shell assembly for WAP-7 loco consists of the items as per the drawing numbers mentioned at ANNEXURE-B.

"OR"

2.4. One No. complete shell assembly for WAG-9HC Twin loco consists of the items as per the drawing numbers mentioned at Annexure-D & Annexure-E.

2.5. For latest version of CLW drawings, Real Time Category Book (https://clw.indianrailways.gov.in/ > Vendor Information > Category Book > Real Time Category Book) ~~and C&D Book~~ is to be followed, which is regularly updated because the design of locomotive is continuously reviewed & upgraded.

3. **GENERAL:**

3.1. Complete shell assembly is a superstructure portion for a locomotive which is a safest mobile home for all other electric & pneumatic components.

3.2. It is completely a fabricated item which is constructed by processing different types and different sizes of raw material like rolled channels, rolled angles, rectangular hollow section, square hollow section, plates, sheets, flats, bars, pipes, hardware &stainless steel items.

3.3. WAP-7 & WAG-9HC - both type loco shells have structure suitable to fit hand brake assembly similar to conventional brake rigging system.

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4. CLIMATIC AND ENVIRONMENTAL CONDITIONS:

The following climatic and environmental conditions shall be considered in the design:

4.1	Max atmospheric temp	: 80^0 C
4.2	Maximum Humidity	: 100%
4.3	Rain Fall	: Very heavy in certain areas
4.4	Coastal Area	: Extremely dusty, Humid and Salt laden atmosphere
4.5	Vibration	: As per IEC:77

5. TECHNICAL REQUIREMENTS:

~~5.1.~~ Steel used in manufacturing complete shell assembly will be as mentioned in drawing or its equivalent Indian standards like IS:2062:2011, IS: 1079 : 2017 Grade- HR-2, IRS M-41 Gr-I, IS:4923 yst 310, ASTM-A240 Gr-304 for stainless steel items. ~~For determination of equivalent Indian Standard, C&D Book shall be taken as reference.~~

5.2. Geometry to be maintained according to drawings and holes are to be done by drilling jigs. Jigs and fixtures to be used for fabrication assemblies and sub-assemblies. Manipulators to be used as per requirement. Cambering to be maintained. Jigs & fixtures should be approved by CLW and is to be duly calibrated.

5.3.1. Welding to be done properly accordingly IS: 813 & IS:812 and proper edge preparation to be done for weld joint wherever necessary as indicated in drawing. ~~Argo-shield-51~~ Sheilding gas to be used as specified in the respective WPS (Annexure-F) to provide effective shielding during welding for better stability of welding joints. Welding shall be performaed only by qualified welder, certified as per AWS welding code D.1.1/ISO 9606/IS-817/IS-7310 for high standard workmanship. Weld joints shall be free from crack, caters, under cuts, overlaps, porosity, inclusions, blow holes etc. Weld joints shall have uniform beading and smooth changeover from weld deposits to parent metal and thorough fusion between adjacent layers of weld metal and between weld metal and parent metal. Proper seal weld to be done to protect leakage of rain water when is moving through while raining. Rain test to be conducted to detect any leakage through joints of roof hatches over cross girder after manufacturing complete shell assembly.

5.3.2. Welding Procedure Specifications (WPS) shall be followed during welding operation as mentioned in Annexure-F.

5.4. After welding is done, it is to be examined and tested by dye penetration test as per IS:3658. Whenever specified and also on sample basis, ultrasonography test is to be carried out as per ASTM A435/IS-4225 to assure permissible design stress. The welding joints shall meet a lowest soundness level of A1 if nothing is specified in the relevant drg. Wherever Radiographic test is to be carried out, the lowest acceptable level shall be grade 2 as per ASTM E 390 or blue as per IIW, if nothing is specified in the relevant drg. Manufacturer to ensure soundness of welding joints accordingly.

5.5. Finished assembly shall be free from cracks, flaws, lamination, rough jogged and imperfect edges and other

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harmful defects. Complete under-frame will be leak proof from air except through the holes, shown in drawings.

5.6. All sharp edges, burrs and slag to be removed.

5.7. Metal shall not be affected/corroded when exposed in 100% relative humidity or Ambient temperature 80 deg C or heavy rainfall (upto next POH-9 years).

5.8. Any gouging, crack or detrimental defects in the products is not acceptable.

5.9. All the hardware items shall be of steel conformed to IS: 1364, S8.8, P10.9, P10, IS: 1367 Part- III, Pt.II, Pt.XI Gr-A, IS:3063, DIN 6924, Chromium plating /Zn-passivation as and when required. Supply to be taken from approved sources of CLW/BLW.

5.10. Dimensional tolerance required as per IS:2102 as and where not mentioned in the drg.

6. MANUFACTURE:

6.1. Steel used in manufacturing COMPLETE SHELL ASSLY shall be as per the latest drawings ~~mentioned in the material specification column of cost & detail book (C&D Book) as reference for modified CLW drawing~~.

6.2. Profiles shall be prepared on CNC Profile cutting Machine.

6.3. Central Under-frame Assly shall be machined on a planomiliar machine.

6.4. Proper and smooth welding to be done to avoid distortion.

6.5. Flatness, parallelity, verticality shall be within limits. Waviness of the side wall panels will not be allowed beyond +/- 3 mm.

6.6. After fabrication remove all grease, grime, oil, dust and surface contamination, weld spatter and slag before painting.

6.7. Surface preparation to be done i.e. abrasion blast clean before protective coating. All surfaces shall be cleaned from surface contamination incurred during the abrasive blasting.

6.8. Jig & fixtures and template to be used to maintain the geometry of the fabricated assly. Special care should be taken while drilling the holes and making the slots so that their positions conforms to thedimensions (with tolerance) as shown in the assly drawing. Pre drilled holes to be done as per the drawing. Jig & Fixture to have a precise dimensions.

6.9. Scratch, dent or any sort of damage is not acceptable on the finished product.

6.10. Work procedure, sequence of work, use of fixtures, quality checking to be followed CLW procedure.

6.11. During installation of Doors/ Windows/ Wind screen / Driver Desk Assly. proper hardware and sealant shall be used as per the following drawings.

(i) Cab Side Window (LHS & RHS) IB081-00345 Alt. 10
(ii) Cab Side Door (LHS) IB091-00010 Alt. 7
(iii) Cab Side Door (RHS) IB091-00009 Alt. 8
(iv) Machine Room door IA091 -00002 Alt. 11
(v) Wind Screen Assly. IB081-00348 Alt. 8
(vi) Protection Grill Assly. IB-081-00348 Alt. 8
(vii) Driver Desk Assly. IB081-00346 Alt. 8

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7. PAINTING:

7.1. Anti corrosion treatment to be done before painting the assly.

7.2. Surface preparation to be done properly before doing protective coating with paint. Follow CLW-work instruction No.- W16.016, W16-017.

7.3. All parts shall be coated with nominated primer and paint as indicated in RDSO specification No. M&C/PCN/100/2018 or latest.

7.4. The paint shall be procured from ~~RDSO approved source~~ approved sources listed on UVAM Vendor Directory (ICF Item ID-2300212).

(i) External portion of the total shell assly to be finally painted with Poly-U400 Gloss Grass green colour of RAL6010 for WAG-9H & WAG-9HC Locos, and Signal white to RAL 9003 for WAP-7 Loco. Yellow border as per painting scheme to be done for WAG-9 /WAG-9H/ WAG-9HC loco. Red border as per painting scheme to be done for WAP-7 loco.

(ii) Internal portion of machine room to be painted by poly U-400 Stone grey colour as per RAL7030.

(iii) Internal portion of 2 Nos. Cab to be painted by poly U-400 Pebble Grey color as per RAL 7032.

7.5. For application of primer, putty, finish paint follow CLW Work Instruction-W16-018, 019, 020, 021,022, 023, 024 & 026.

7.6. During supply of painted loco, lettering to be done at front & side of Loco at the positions shown in Drg. No.IB171 -00008 ALT.9 or latest for WAG-9HC loco.

8. PIPING:

Piping shall be as per CLW spec No. CLW/MS/3/153 ALT.5 or latest alteration.

9. INSPECTION:

9.1.1. Nominated representative of CLW will be deputed at manufacturer's/ firm premises for stage inspection as and when required during manufacturing.

9.1.2. Nominated representative of CLW will carry out the inspection at manufacturer's work premises. Any defect noticed during inspection should be rectified / replaced immediately. Checking fixtures and gauges to be provided during inspection.

9.2. Tensile test, bend test to be conducted and test certificate by the prime manufacturer to be submitted during inspection. The entire test to be conducted and borne by the supplier. Railway reserves the right to carry out testing of sample at their own lab or National accredited lab, at Railways cost.

9.3. Leakage test of machine room roof, cab roofs and under frame floor ventilation ducting to be conducted to avoid leakage of water, air, dust etc.

9.4. Radiographic test/ Ultrasonography test for weld joint to be done as and where tensile load and compressive load effected viz. traction pillar post of central under frame, side sill and centre sill joint with headstocks, CBC coupler pocket etc.

9.5. Stage inspection plan WAG-9/ Superstructure/ Inspection/Stage/Version 0.0 to be followed for both prototype and bulk inspection.

10. TEST PROCEDURE:

10.1. For physical and chemical test of raw material, it is to be borne in mind by the manufacturer that if the raw material is supplied by the manufacturer, then physical & chemical test of raw material is to be done only at any RDSO approved test lab or test lab at CLW/CRJ under Dy.CC&M or NABL approved lab.

10.2. When raw material supplied by CLW, physical & chemical test may also be done by test lab at CLW.

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11. SUPPLY OF DOCUMENTS:

11.1. ISO Certificate (with tender)

11.2. Quality assurance plan for approval (on placement of order)

11.3. Internal inspection report (with every inspection call letter)

11.4. Calibration certificates of measuring instruments (at the time of each inspection)

12. LABELLING/MARKINGS:

Manufacturer shall provide a label or emboss with following particulars:

(i) Material Specification with Grade.

(ii) Date, month & year of manufacturing, manufacturer's name, Batch No. and code No. with trade mark at visible place at outside of loco which may be easily visualized for 25 years after commissioning of loco.

13. PACKING & DELIVERY:

13.1. Suitable and protective arrangement for the transport to be done by the firm. Any deformation occurred during transport and unloading should be rectified by the firm at CLW premises by their own cost. No loose parts viz. couplers, buffers etc. to be placed inside cell during transport.

13.2. It is to be noted that details drawing to be supplied to successful tenderers only. Tenderer can contact Electric Loco Drawing Office/CLW for all updated drawings and technical suggestions.

13.3. Shell suppliers shall arrange for a rectification team at CLW to visit with tools, portable welding machines and cutting arrangement during assembly of the shell.

13.4. All open cutouts for TM Vent & MR Vent must be securely closed using 12mm thick plywood and 3mm thick EPE foam sheets.

13.5. The roof of the shell must be covered using a 3mm thick EPE foam sheet.

13.6. After placing the shell on transportation vehicle, it must be covered using tarpaulin and lashed securely for transportation.

14. SPECIAL CONDITIONS:

14.1. All floor ventilation ducts opening to be covered with suitable cover made of 3mm thick Mild Steel sheets as deemed fit.

14.2. Additional Set of Safety selling (04 Nos for each compressor)to be provided on addition to the existing brackets for under slung Main Compressor for fitment of safety selling in Vertical position. Mounting locations drawings are required to approve before manufacturing.

14.3. BP-FP angle cock Protection Bracket Assly to be provided at both ends of Loco as per Drg. No. 1209-00.340-215 ALT.1 or latest.

14.4. Lifting Hooks for complete shell assembly to be removed before dispatch of the Shell.

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ANNEXURE-A (Sht. 1 of 5)

SCOPE OF SUPPLY FOR WAG-9 / 9H / WAG-9HC LOCO

2.1 **Alteration No. of all drgs. to be followed as per latest Real Time Category ~~and C&D~~ Book**

2.1.1

SL. NO.	DESCRIPTION	DRAWING No. & SPECN. No.	C&D No.	QTY/ LOCO	CATEGORY No. &
1.	SHELL ASSEMBLY	IB031-00273 ALT.9	T312/226	1	R/9/0130
2.	ROOF ASSEMBLY COMPLETE	IB101-00124 IB101-00125 ALT.21 IA101-00122ALT.19 CLW/MS/3/154 ALT-2	T315/000 T315/001 T315/073	1 2 1	R/9/0081
3.	SIDE WALL ASSLY (FOR WAG-9H/ WAG-9HC LOCO ONLY) MOUNTING ARRGT. OF RAIN GUTTER ON SIDE WALL	1209-03.035-187 Alt.3 1209-03.035-046 Alt.9 1209-03.035.006 Alt.7 1209-03.235-004 1210-03.335-045 Alt.1 1210-03.335-046 Alt.1	T312/(208 to 216) T312/000 T312/051 T312/203 T312/197 T312/198	1 LH 1 RH 2 2 2	R/9/099A T/9/0005
4.	PNEUMATIC PIPE LAYOUT	CLW/MS/3/153 Alt. 5		-	
5.	PAINTING & LETTERING	IB171-00008 ALT.9 RDSO SPECN No. M&C/PCN/100/2018 CLW WORK INSTRUCTION No. W16.016TO W16.026			T/9/0034
6.	MOUNTING ARRGT. OF SPRING POCKET CAST BALLAST	1209-02.126-249 ALT.4 (Excluding Ref. No. 1, 2, 3, 8, 9& 10).	T302/356 T302/357 T302/358	9 7 4	
7.	MACHINE ROOM FLOOR INSTALLATION	IB121-00046 ALT.6 (For item No. 8 to 18)	T326/011 T326/012 T326/014 T326/017 T326/018 T326/019 T326/020 T326/021 T326/022	79 79 2 2 4 2 2 4 2	
8.	CENTRE SILL COMPLETE	1209-02.126-012 Alt.3. CLW/MS/3/154 Alt.1	T/302/188	1	R/9/0100

ANNEXURE-A (Sht. 2 of 5)

SCOPE OF SUPPLY FOR WAG-9 / 9H / WAG-9HC LOCO

2.1.2 Items to be supplied in fitted condition along with Complete Shell Assembly by vendor.

SL. NO.	DESCRIPTION	DRAWING No. & SPECN. No.	C&D No.	QTY/ LOCO	CATEGORY No. & REMARKS
1.	STEEL CHEQUERED PLATE FOR WAG- 9HC	CLW/MS/3/077 ALT.6 1209-12.246-005 ALT.5 1209-12.246-006 ALT.4 1209-12.246-007 ALT.3 1209-12.246-008 ALT.2 1209-12.246-009 ALT.3 1209-12.346-010 ALT.2 1209-12.346-011 ALT.3	 T326/001 T326/002 T326/003 T326/004 T326/005 T326/006 T326/007	 12 2 1 1 1 1 1	T/9/0022
2.	DRIVER DESK FRAME ASSLY	CLW/MS/3/117 ALT.8 1209-08.130-017 ALT.6 (SHT.1 of 2 & 2 of 2) 1209-08.130-018 ALT.5 (SHT.1 of 2 & 2 of 2) 1209-08.130-016 ALT.5	 T307/002 T307/048 T307/001	 2 2 2	R/9/0055
3.	CAB SIDE WINDOWS	CLW/MS/3/014 ALT.6 1209-09.133-006 ALT.5 1209-09.133-005 ALT.5	 T310/083 T310/090	 2 2	R/9/0017
4.	CAB SIDE DOOR	CLW/MS/3/013 ALT.4 1209-09.133-003 ALT.10 1209-09.133-004 ALT.10	 T310/050 T310/024	 2 2	R/9/0089
5.	DOOR LATCH ASSLY	1209-09.233-018 ALT.6 1209-09.133-005 ALT.5	T310/091	4	S/9/0022
6.	LOCKER HOUSE OPERATOR'S CAB	1209-08.134-006 ALT.6 CLW/MS/3/072 ALT.5	T311/017	2	T/9/0017 NOT REQUIRED FOR WAG- 9HC TYPE LOCO

ANNEXURE-A (Sht. 3 of 5)

SCOPE OF SUPPLY FOR WAG-9/WAG-9H/WAG-9HC LOCO

7.	MACHINE ROOM DOOR	CLW/MS/3/013 ALT.4 1209-09.133-044 ALT.6	T310/001	2	R/9/0090
8.	RESERVOIR	CLW/MS/3/110 ALT.3 1209-07.132-010 ALT 4 1209-07.132-011 ALT.5	T327/075 T327/038	2 1	V/9/0012
9.	WIND SCREEN ASSY.	CLW/MS/3/027ALT.6 1209-08.130-263 ALT.3	T307/195	4	R/9/0027
10.	GRILL ASSY. (Protection grill for Wind screen)	03/1/38/99 ALT.1	T307/326	2L.H 2R.H	R/9/0125
11.	MODIFIED COW CATCHER ASSLY.	1209-02.140-032 ALT.9 CLW/MS/3/107 ALT.8	T319/104	2	R/9/0072

2.1.3 Items to be issued to vendor by Railways for fitment in complete shell assembly at firm's premises: (To be collected by the manufacturers)

SL. No.	DESCRIPTION	DRAWING No. & SPECN. No.	C&D No.	QTY/LOCO	CATEGORY No. & REMARKS
01.	HIGH TENSILE TRANSITION C.B. COUPLER (TOP OPERATED) WITHOUT DRAFT GEAR	RDSO's SPECN. NO.56-BD- 07 M.A. No.1 OR LATEST SK-DL-4809, ALT.Nil or latest SK62724ALT.23 or latest SKDL-2496 ALT.6 or latest SK-69508ALT.4 or latest SKDL-2494 ALT.17 or latest SKDL-2495 ALT.12 or latest	T320/078	2	R/9/0159
02.	HIGH CAPACITY DRAFT GEAR	RDSO's SPECN. No. 49-BD-08	T320/057	2	R/9/0121

ANNEXURE-A (Sht. 4 of 5)

SCOPE OF SUPPLY FOR WAG-9/WAG-9H/WAG-9HC LOCO

2.1.3 **Items to be issued to vendor by Railways for fitment in complete shell assembly at firm' premises: (To be collected by the manufacturers)**

03.	MODIFIED STRIKER CASTING	05/3/57/31.ALT.8	T320/035	2	R/9/0074
04.	**SET-2 ITEMS** OF "BRAKE CONTROL SYSTEM INCLUDING DRIVERS VIGILANCE CONTROL DEVICE FOR WAG-9HC & WAP-7 CLASS OF LOCOMOTIVE"	CLW/MS/3/001 ALT.17 CLW/AMC/MS/001 REV.1	T327/000	01 set	V/9/0008 (SET-2 ITEMS)
05.	SS PIPE FITTINGS	CLW/MS/3/053 ALT.21	T304/001 T304/175	01 set 01 set	S/9/0008 S/9/0048
06.	BRASS PIPE FITTINGS	CLW/TS/99/CF/5 ALT. 8	T327/136 T327/209	01 set 01 set	S/9/0025 S/9/0049
07.	CU. PIPE FITTINGS	CLW/MS/3/067 ALT.4	T309/019	01 set	S/9/0026
08.	STEEL PIPE FITTINGS	CLW/MS/3/068 ALT.15	T304/018 T304/210	01 set 01 set	S/9/0027 S/9/0050

ANNEXURE-A (Sht. 5 of 5)

SCOPE OF SUPPLY FOR WAG-9/WAG-9H/WAG-9HC LOCO

2.1.4 To manufacture Complete Shell Assembly with AC Cabs CLW Drgs. (TCS made Unigraphics) to be followed instead of ABB Drgs. as mentioned below

SL. NO.	DESCRIPTION	CLW DRG. No. (TCS MADE)	ABB DRG No.	C&D No.	QTY/ LOCO	CAT. No.
1.	CAB STRUCTURE	1209-08.130-511 ALT.2	IB081-00313	T306/000	2	R/9/0082
2.	CAB ROOF SECONDARY MEMBERS	1209-08.030-530 ALT.1	IB081-00479	T306/344	2	
3.	CAB BODY SIDE SECONDARY MEMBERS	1209-08.031-220 ALT.1	IB081-00467	T306/324	2	
4.	CAB FRONT INTERNAL SECONDARY MEMBERS	1209-08.030-430	IB081-00473	T306/306	2	

2.1.5 The manufacturer of shell assembly may fit the category items manufactured by themselves if the firm is an approved source as per UVAM vendor directory for the item, otherwise the firm has to procure from approved source as per UVAM vendor directory for the item. Material is to be taken against TC/GC of the manufacturer. However, respective inspection agencies may verify dimensions, raw material specification, any other tests etc. as per respective drawings & technical parameters as mentioned in tender specification during stage inspection.

FINAL

ANNEXURE-B (Sht. 1 of 6)

SCOPE OF SUPPLY FOR WAP-7 LOCO

2.3 ALTERATION NO. OF ALL DRGS. TO BE FOLLOWED AS PER LATEST.

2.3.1

SL. NO.	DESCRIPTION	DRAWING No. & SPECN. No.	C&D No.	QTY/ LOCO	CATEGORY No. & REMARKS
1.	SHELL ASSEMBLY	IB031-00273 ALT.9		1	FOLLOW PARA 2.3 FOR WAP-7
2.	ROOF ASSEMBLY COMPLETE	IB101-00124 IB101-00125 ALT.21 IA101-00122 ALT. 19 CLW/MS/3/154 ALT-1	T315/000 T315/001 T315/073	1 2 1	R/9/0081
3.	SIDE WALL ASSLY (FOR WAP-7 LOCO ONLY) MOUNTING ARRGT. OF RAIN GUTTER ON SIDE WALL	IB031-00276 Alt.9 IB031-00275 Alt.8 1209-03.235-004 1210-03.335-045 Alt.1 1210-03.335-046 Alt 1 CDD-HL-P71-003 Alt.4 CDD-HL-P71-005 Alt.1	H312/401 H312/402 T312/203 H312/420 H312/421	1 LH 1 RH 2 2 2	R/9/099 T/11/0005
4.	PNEUMATIC PIPE LAYOUT	CLW/MS/3/153 Alt.5	—	-	
5.	PAINTING & LETTERING	1209-17.148-036 RDSO SPECN No. M&C/PCN/100/2009 CLW WORK INSTRUCTION No. W16.016 TO W16.026			T/11/00034

2.3.2 Items to be supplied in fitted condition along with Complete Shell Assembly by vendor.

1.	MODIFIED COW CATCHER ASSLY.	1209-02.140-032 ALT.8 CLW/MS/3/107 ALT.6	T319/104	2	R/9/0072
2.	DRIVER DESK FRAME ASSLY	CLW/MS/3/117 ALT.6 1209-08.130-017 ALT.3 (SHT.1 of 2 &2 of 2) 1209-08.130-018 ALT.3 (SHT.1 of 2 &2 of 2) 1209-08.130-016 ALT.4	T307/002 T307/048 T307/001	2 2 2	R/9/0055
3.	CAB SIDE WINDOWS	CLW/MS/3/014 ALT.5 1209-09.133-006 ALT.5 1209-09.133-005 ALT.5	T310/083 T310/090	2 2	R/9/0017

ANNEXURE-B (Sht. 2 of 6)

SCOPE OF SUPPLY FOR WAP-7 LOCO

2.3.2 Items to be supplied in fitted condition along with Complete Shell Assembly by vendor.

4.	CAB SIDE DOOR	CLW/MS/3/013 Rev. 1 Dec.'06 ALT.3 1209-09.133-003 ALT.9 1209-09.133-004 ALT.9	T310/050 T310/024	2 2	R/9/0089
5.	DOOR LATCH ASSLY	1209-09.233-018 ALT.6	T310/091	4	S/9/0022
6.	MACHINE ROOM DOOR	CLW/MS/3/013 Rev. 1 Dec.'08 ALT.3 1209-09.133-044 ALT.5	T310/001	2	R/9/0090
7.	RESERVOIR	CLW/MS/3/110 ALT.3 1209-07.132-010 ALT.4 1209-07.132-011 ALT.5	T327/075 H327/504	2 1	V/9/0012
8.	WIND SCREEN ASSLY	CLW/MS/3/027 ALT.6 1209-08.130-263 ALT-3	T307/195	4	R/9/0027
9.	GRILL ASSLY (Protection grill for wind screen)	03/1/38/99 ALT.1	T307/126	2 L.H 2 R.H	R/9/0125
10.	WIPER ASSLY	CLW/MS/3/050 ALT.6 1209-08.032-023	T309/339	4	V/9/0014
11.	STEEL CHEQUERED PLATE for WAP-7	CLW/MS/3/077 ALT.5 1209-12.246-005 ALT.2 1209-12.246-007 ALT.1 1209-12.246-008	T326/001 T326/003 T326/004	12 1 1	T/11/0022
12.	MODIFIED HAND BRAKE ASSLY.	RDSO Drg No. SKEL-4993 Alt.0 or latest		1	R/9/0144

ANNEXURE-B (Sht. 3 of 6)

SCOPE OF SUPPLY FOR WAP-7 LOCO

2.3.3 Items to be issued to vendor by Railways for fitment in complete shell assembly at firm's premises: (To be collected by the manufacturers)

SL. NO.	DESCRIPTION	DRAWING No. & SPECN. No.	C & D No.	QTY/ LOCO	CATEGORY No. & REMARKS
01.	High Tensile Tight Lock Transition Centre Buffer Coupler.	RDSO Spec. No. MP.0.41.00.05 (Rev.00) July 04 & RDSO approved latest detailed drgs.	H320/201	2	R/9/0123
02.	Draft Gear with Elastomer Pads for passenger locomotives fitted with H- type tight lock coupler.	RDSO Spec. No. MP.0.41.00.06 (Rev.0)Dec 2008 & RDSO approved latest detailed drgs.	H320/202	2	R/9/0124
03.	**SET-2 ITEMS** OF "BRAKE CONTROL SYSTEM INCLUDING DRIVERS VIGILANCE CONTROL DEVICE FOR WAG-9HC & WAP-7 CLASS OF LOCOMOTIVE"	CLW/MS/3/001 Alt.-16 CLW/AMC/MS/001 Rev.1	T327/000	1 Set	V/9/0008 **(Set-2 Items)**
04.	SS Pipe fittings (for WAP-7)	CLW/MS/3/053 Alt.20	H242/501 H242/509	1 Set 1 Set	S/11/0008(E-70) S/11/0048 (CCB)
05.	Brass Pipe fitting	CLW/TS/99/CF/5 Alt.-8	T327/136 T327/209	1 Set 1 Set	S/11/0025 (E-70) S/11/0049 (CCB)
06.	Copper Pipe fitting	CLW/MS/3/067 Alt.-4	T309/019	1 Set	S/9/0026
07.	Steel Pipe fitting	CLW/MS/3/068 Alt-15	T304/018 T304/210	1 Set 1 Set	S/11/0027 (E-70) S/11/0050 (CCB)

ANNEXURE-B (Sht. 4 of 6)

SCOPE OF SUPPLY FOR WAP-7 LOCO

2.3.4 **The exceptional items used in Shell Assembly (IB031- 00273) for WAP-7 locomotive (Due to Installation Hotel Load Converter) which are uncommon to WAG-9H as mentioned below for reference**

SL. NO.	DESCRIPTION	DRAWING No. & SPECN. No.	C&D No.	QTY/ LOCO	CAT. No. & REMARKS
1.	a. BOTTOM PLATE ASSLY FOR HEAD STOCK b. CHANNEL STIFFNER c. WEB REAR LH (LONGITUDINAL) d. WEB REAR RH (LONGITUDINAL) e. REAR PLATE f. TOP PLATE	1209-02.126-263 1209-02.326-265 1209-02.326-260 1209-02.326-316 1209-02.326-317 1209-02.326-318 Alt. 1	H 302/510 H302/511 H302/512 H 303/514 H302/515 H 302/516	2 2 4 2 2 2	FOLLOW PARA 2.3 FOR WAP-7
2.	a. BOLSTER ASSLY (No.-1 END) b. BOLSTER ASSLY (No.-2 END)	IB021-00390 ALT-13 IB021-00350 ALT-13	T302/519 T302/520	1 1	R/11/0104 bolster assly of under frame assly for WAP-7
3.	CENTRE SILL COMPLETE	1209-02.126-012 Alt.3 CDD-HL-P71-015 Alt.1 CDD-HL-P71-016 Alt.1	T302/188	1	R/11/0100 Centre sill complete of under frame assly for WAP-7
4.	TRANSOM L.H.	IB026-00865 Alt. 1	T302/244	2	Item No. 15 of IB021-00380 Under Frame Assly

ANNEXURE-B (Sht. 5 of 6)

SCOPE OF SUPPLY FOR WAP-7 LOCO

2.3.4 The exceptional items used in Shell Assembly (IB031- 00273) for WAP-7 locomotive (Due to Installation Hotel Load Converter) which are uncommon to WAG-9H as mentioned below for reference.

SL. NO.	DESCRIPTION	DRAWING No. & SPECN. No.	C&D No.	QTY/ LOCO	CAT. No. & REMARKS
5.	a. MOUNTING ARRGT. OF HOTEL LOAD CONVERTER, CONTACTOR PANEL, AUTO TRANSFORMER, AUX. & MAIN RESERVOIR, HB (UPPER & LOWER PART) & FIRE ENTINGUISHER	CDD-HL-P71-002 REF. 1,2,3,5, 6, 7,8, 9, 10, 11, 12, 13, 14, 15, 16, 17,18	H303/945, 946, 849, 857, 825, 826, 851, 850, 844, 854, 852, 947, 948, 870,949, 872,950.	As per ~~C&D BOOK~~ Drawing	R/11/0007 & IB031-00277
	b. MOUNTING ARRGT. OF HOTEL LOAD FIRE EXTINGUISHER	CDD-HL-P72-009 REF. 1 & 8	H303/878, 885		
	c. MOUNTING ARRGT. OF BOX ASSLY. FOR HAND BRAKE	CDD-HL-P71-022 Alt.3 REF. 1, 3&5	H 303/887. 893, 894. 899		
	d. MOUNTING ARRGT. OF BRACKET FOR PULLEY ASSLY 1&2.	CDD-HL-P72-025 Alt.1 REF. 1 &2	H303/901, 909		
	e. BRACKET ASSLY	IA086-00505 Alt.1	H307/502		
6.	a. POSITION OF DIN RAIL FOR AUTO TRANSFORMER, CONTACTOR PANNEL, HOTEL LOAD CONVERTER &H.B. LOWER	CDD-HL-P71-006 Alt.4			S/11/0012 & IB051-00235 T/11/0005
	b. POSITION OF CHANNEL UNISTRUT FOR AUTO DRAIN PIPE	CDD-HL-P72-026 Alt.2			T/11/0015
7.	FRONT SHEET ASSLY OF CAB	1209-08.130-011 Alt.1 CDD-HL-P73-017 Alt.1	T306/064 T306/069	2 2	R/9/0082
8.	MODIFIED REAR WALL SHEET & SECONDARY MEMBER INSTALLATION	CDD-HL-P71-018 Alt.2	H306/610	1	IB081-00410 IB081-00356 IB081-00357
	END-1				
	END-2	CDD-HL-P71-004 Alt.2	H306/603	1	

9.	PANNEL FRONT VERTICAL ASSLY	IB081-00327 ALT.3	T306/299	2	

ANNEXURE-B (Sht. 6 of 6)

SCOPE OF SUPPLY FOR WAP-7 LOCO

2.3.5 To manufacture complete shell assly with A.C. Cabs CLW - drgs (TCS-made Unigraphics) to be followed instead of ABB-drgs as mentioned below:

SL. NO.	DESCRIPTION	CLW DRG. No. (TCS MADE)	ABB DRG No.	C&D No.	QTY/ LOCO	CAT. No.
1.	CAB STRUCTURE	1209-08.130-511	IB081-00313	T306/000	2	R/9/0082
2.	CAB ROOF SECONDARY MEMBERS	1209-08.030-530	IB081-00479	T306/344	2	
3.	CAB BODY SIDE SECONDARY MEMBERS	1209-08.031-220	IB081-00467	T306/324	2	
4.	CAB FRONT INTERNAL SECONDARY MEMBERS	1209-08.030-430	IB081-00473	T306/306	2	

2.3.6 The manufacturer of shell assembly may fit the category items manufactured by themselves if the firm is an approved source as per UVAM vendor directory for the item, otherwise the firm has to procure from approved source as per UVAM vendor directory for the item. Material is to be taken against TC/GC of the manufacturer. However, respective inspection agencies may verify dimensions, raw material specification, any other tests etc. as per respective drawings & technical parameters as mentioned in tender specification during stage inspection.

FINAL DRAFT

ANNEXURE-C (Sht. 1 of 2)

SCOPE OF SUPPLY FOR WAG-9HC LOCO

2.2 ALTERATION NO. OF ALL DRGS. TO BE FOLLOWED AS PER LATEST.

2.2.1 These Superstructure drawings are exceptional, as compared to Annexure-A, and to be followed with drawings as ANNEXURE-A for manufacturing shell Assly for WAG-9HC type loco with conventional brake rigging system.

SL. NO.	DESCRIPTION	DRAWING No. & SPECN. No.	C&D No.	QTY/ LOCO	CATEGORY No. & REMARKS
1.	BOLSTER ASSEMBLY (END-1)	1209-02.126-003 Alt.1	T302/101	1	R/9/0104
2.	BOLSTER ASSLY. (END-2)	1209-02.126-006 Alt.1	T302/067	1	R/9/0104
3.	BRACKET ASSLY. INVERTED UNDERFRAME	1209-02.027-125 ALT.2 (5 Nos. Sheets)	T303/000	1	R/9/0139
4.	PITCH STOP	1209-02.426-321	H302/518	8	R/11/0139
5.	BRACKET ASSLY FIRE EXTINGUISHER	CDD-HL-P73-014 ALT.1	H303/857	2	R/11/0007
6.	MOUNTING ARRGT. OF FIRE EXTINGUISHER	CDD-HL-P72-009 ALT.2	H303/878 H303/885	8 8	
7.	EQUIPMENT LAYOUT FOR FIRE EXTINGUISHER & HAND BRAKE BOX	CDD-HL-P71-001 ALT.3			
8.	MOUNTING ARRGT. OF HAND BRAKE BOX ASSLY.	CDD-HL-P71-022 ALT.4	H319/416 H303/893	3 1	R/11/0005 R/11/0007
9.	BOX ASSLY.	CDD-HL-P71-024 ALT.2	H303/887	1	
10.	MOUNTING ARRGT. OF BRACKET FOR PULLEY ASSLY. 1 & 2 AT END-1	CDD-HL-P72-025 ALT.2 CDD-HL-P73-021 ALT.4 CDD-HL-P73-020 ALT.2	H303/901 H303/909	1 1	
11.	MODIFIED REAR WALL SHEET AND SECONDARY MEMBER INSTALLATION FOR LOCKER SIDE (CAB-1)	CDD-HL-P71-018 ALT.3	H306/601 to 619	1	

ANNEXURE-C (Sht. 2 of 2)

SCOPE OF SUPPLY FOR WAG-9HC LOCO

2.2.1 These Superstructure drawings are exceptional to be followed with drawings as ANNEXURE-A for manufacturing shell Assly for WAG-9HC type loco with conventional brake rigging system.

SL. NO.	DESCRIPTION	DRAWING No. & SPEC. No.	C&D No.	QTY/ LOCO	CATEGORY No. & REMARKS
14	MODIFIED REAR WALL SHEET & SECONDARY MEMBERS INSTALLATION FOR LOCKER SIDE (CAB-2 END)	CDD-HL-P71-004 ALT.3	H306/603 to 609	1	
15	UNDERFRAME CONDUIT	IB051-00228 ALT. 2	T303/441	1 LH 1 RH	
16	MODIFIED HAND BRAKE ASSLY.	RDSO Drg No. SKEL-4993 Alt.0 or latest		1	R/9/0144
17	REAR WALL SECONDARY MEMBERS INSTALLATION FOR NO.1 END CAB	1209-08.031-076 ALT.2	T306/255	1	
18	REAR WALL SECONDARY MEMBERS INSTALLATION FOR NO.2 END CAB	1209-08.031-100 ALT.1	T306/278	1	
19	REAR WALL SHEETS & PILLAR STIFFENERS SUB- ASSLY.	1209-08.030-305	T306/315	2	

The manufacturer of shell assembly may fit the category items manufactured by themselves if the firm is an approved source as per UVAM vendor directory for the item, otherwise the firm has to procure from approved source as per UVAM vendor directory for the item. Material is to be taken against TC/GC of the manufacturer. However, respective inspection agencies may verify dimensions, raw material specification, any other tests etc. as per respective drawings & technical parameters as mentioned in tender specification during stage inspection.

ANNEXURE-D (1 of 4)
SCOPE OF SUPPLY FOR WAG-9HC TWIN LOCO

SL. NO.	DESCRIPTION	DRAWING No. & SPECN.No.	QTY/ LOCO
1.	SHELL ASSEMBLY	1212-02.025-001	1
2.	ROOF ASSEMBLY COMPLETE	CLW/MS/3/154 ALT-2	
		1209-10.037-001	1
		1209-10.037-004(SHEET 1 OF 3, SHEET2 OF 3 & SHEET 3 OF 3)	2
		1209-10.037-006 (SHEET 1 OF 2 & SHEET 2 OF 2)	1
3.	SIDE WALL ASSLY (FOR WAG-9H/ WAG-9HC LOCO ONLY) MOUNTING ARRGT. OF RAIN GUTTER ON SIDE WALL	1209-03.035-187 Alt.3	As per BOM of drawing
		1209-03.035-046	1 LH
		1209-03.035-006	1 RH
		1211-03.235-004	2
		1212-03.335-045 Alt.1	2
		1210-03.335-046 Alt.1	2
4.	PNEUMATIC PIPE LAYOUT HORN & WIPER PIPE LAYOUT FOR FLAT CAB	CLW/MS/3/153 Alt. 5 RED WORK DRAWINGS	-
5.	PAINTING & LETTERING	1212-17.048-001 RDSO SPECN No. M&C/PCN/100/2018 Rev.2 or latest CLW WORK INSTRUCTION No. W16.016TO W16.026	
6.	MOUNTING ARRGT. OF SPRING POCKET CAST BALLAST	1209-02.126-249 ALT.4 (Excluding Ref. No. 1, 2, 3, 8, 9 & 10).	As per BOM of drawing
7.	MACHINE ROOM FLOOR INSTALLATION	IB121-00046 ALT.6 (For item No. 8 to 18)	As per BOM of drawing
8.	CENTRE SILL COMPLETE	1209-02.126-012 Alt.3. CLW/MS/3/154 Alt.2	1

Note: Alteration no. of all drgs. to be followed as per latest

PREPARED BY	REVIEWED BY	APPROVED BY
SSE/DRG&DGN (M)	AEE/D/CONV	DY.CEE/D-III

FINAL DRAFT

ANNEXURE-D (2 of 4)

Items to be supplied in fitted condition along with Complete Shell Assembly by vendor

SL.NO.	DESCRIPTION	DRAWING No. & SPECN.No.	QTY/ LOCO
1.	STEEL CHEQUERED PLATE FOR WAG- 9HC	CLW/MS/3/077 ALT.6	
		1209-12.246-005 ALT.5	12
		1209-12.246-006 ALT.4	2
		1209-12.246-007 ALT.3	1
		1209-12.246-008 ALT.2	1
		1209-12.246-009 ALT.3	1
		1209-12.346-010 ALT.2	1
		1209-12.346-011 ALT.3	1
2.	DRIVER DESK FRAME ASSLY	CLW/MS/3/117 ALT.8	
		1209-08.130-017 ALT.6 (SHT.1 of 2 & 2 of 2)	1
		1209-08.130-018 ALT.5 (SHT.1 of 2 & 2 of 2)	1
		1209-08.130-016 ALT.5	1
		1212-08.030-001	1
		1212-08.030-002	1
		1212-08.030-003 (SHEET 1 & 2)	1
3.	CAB SIDE WINDOWS	CLW/MS/3/014 ALT.6	
		1209-09.133-006 ALT.5	2
		1209-09.133-005 ALT.5	2
4.	CAB SIDE DOOR	CLW/MS/3/013 ALT.4	
		1209-09.133-003 ALT.10	1
		1209-09.133-004 ALT.10	1
5.	DOOR LATCH ASSLY	1209-09.233-018 ALT.6 1209-09.133-005 ALT.5	2
6.	MACHINE ROOM DOOR	CLW/MS/3/013 ALT.4 1209-09.133-044 ALT.6	2
7.	RESERVOIR	CLW/MS/3/110 ALT.3	
		1209-07.132-010 ALTA	2
		1209-07.132-011 ALT.5	1
8.	WIND SCREEN ASSY.	CLW/MS/3/027ALT.6	
		1209-08.130-263 ALT.3	2
		1212-02.130-231	2

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SL.NO.	DESCRIPTION	DRAWING No. & SPECN.No.	QTY/ LOCO
9.	GRILL ASSY. (Protection grill for Wind screen)	03/1/38/99 ALT.1	1L.H 1R.H
10.	MODIFIED COW CATCHER ASSLY.	CLW/MS/3/107 ALT.8 1209-02.140-032 ALT.9	2
11.	VESTIBULE SIDE DOOR	1212-02.133-001	1
12.	GANGWAY BRIDGE ASSEMBLY	1212-02.130-094	1
13.	VESTIBULE UIC ELASTOMER	1212-02.030-113 RDSO SPECN NO. RDSO/2007/CG-05 (Rev. 1)	1
14.	ARRANGEMENT OF TOP OPERATED CBC HANDLES	RDSO Specn.No. 56-BD-07 MA No.2 or Latest & RDSO Drg No. SK.DL-4809 Alt. Nil or Latest ITEM NO. 15 TO 24, 30 TO 34, 41, 43 TO 44	1 SET (Not required for Flat Cab side)
15.	ARRANGEMENT OF BOTTOM OPERATED CBC HANDLES FOR FLAT CAB SIDE	1209-02.141-001 ALT-7 or Latest ITEM NO. 3,4, 6,7 & 17	1 SET (Required for only Flat Cab Side)
16.	SAFETY GUARD ASSLY FOR ANGLE COCK (BP & FP)	1209-00.340-215 ALT.1	2

Note: Alteration no. of all drgs. to be followed as per latest

ANNEXURE-D (3 of 4)

SL.NO.	TYPE OF CAB	DESCRIPTION	DRAWING No. & SPECN.No.	QTY/ LOCO
1.	CAB	CAB STRUCTURE	1209-08.130-511 ALT.2	1
		CAB ROOF SECONDARY MEMBERS	1209-08.030-530 ALT.1	1
		CAB BODY SIDE SECONDARY MEMBERS	1209-08.031-220 ALT.1	1
		CAB FRONT INTERNAL SECONDARY MEMBERS	1209-08.030-430	1
2.	FLAT CAB	CAB STRUCTURE	1212-02.030-001	1
		CAB ROOF SECONDARY MEMBERS	1212-02.030-002	1
		CAB BODY SIDE SECONDARY MEMBERS	1212-02.031-013	1

Note: Alteration no. of all drgs. to be followed as per latest

PREPARED BY	REVIEWED BY	APPROVED BY
SSE/DRG&DGN (M)	AEE/D/CONV	DY.CEE/D-III

FINAL DRAFT

ANNEXURE-D (4 of 4)

Items to be issued to vendor by Railways for fitment in complete shell assembly at firm's premises: (To be collected by the manufacturers)

SL.NO.	DESCRIPTION	DRAWING No. & SPECN. No.	QTY/ LOCO
1.	HIGH TENSILE TRANSITION C.B. COUPLER WITHOUT DRAFT GEAR (TO BE FITTED IN FLAT CAB SIDE)	RDSO's Specn No. 56-BD-07 M.A No. 2 or Latest SK-DL-3430 ALT.8 or latest except Item nos.18 to 20,24 to 47 along with part Drg. Nos. SK62724 ALT.28 or latest SKDL-2496 ALT.6 or latest SK-69508 ALT.4 or latest SKDL-2494 ALT.17 or latest SKDL-2495 ALT.12 or latest	1
2.	HIGH TENSILE TRANSITION CB COUPLER (TOP OPERATED)WITH TOP LIFTING HOOK,TOP LIFTING ASSEMBLY & LINK FOR TOP OPERATION IN FITTED CONDITION BUT WITHOUT HIGH CAPACITY DRAFT GEAR, STRIKER BLOCK 7 SUSPENSION HOOK (FOR TR SCREW COUPLING) AS PER RDSO DRG.NO.-SK-DL-4809, ALT.- NIL OR LATEST (ITEM NO.1 TO 8, 12 TO 14,35 TO 40 & 42. EXCEPT ITEM NO.- 9 TO 11, 15 TO 34, 41,43 TO 45 For WAG-9HC Twin Loco)	RDSO Specn.No. 56-BD-07 MA No.2 or Latest & RDSO Drg No. SK.DL-4809 Alt. Nil or Latest. Part Drawing No. SK- 62724 Alt-28 or latest, SKDL-2496 Alt-6 or latest, SK-69508 Alt-4 or latest, SKDL-2494 Alt.17 or latest & SKDL-2495 Alt.12 or latest. CLW Drawing No. 1209-02.441-120 Alt. Nil or latest, 1209-02.441-121 Alt. 1 or latest, 1209-02.441-122 Alt. 1 or latest, 1209-18.406-358-009 Alt. 1 or latest, 1209-18.406-382-008 Alt. Nil or latest, 1209-18.406-488-011 Alt. Nil or latest & 1209-18.406-231 Alt. Nil or latest.	1
3.	HIGH CAPACITY DRAFT GEAR	RDSO's SPECN. No. 49-BD-08	2
4.	MODIFIED STRIKER CASTING	05/3/57/31 ALT.8 or latest	2
5.	**SET-2 ITEMS** OF "BRAKE CONTROL SYSTEM INCLUDING DRIVERS VIGILANCE CONTROL DEVICE FOR WAG-9HC & WAP-7 CLASS OF LOCOMOTIVE"	CLW/MS/3/001 ALT.17 or latest	01 set
6.	SS PIPE FITTINGS	CLW/MS/3/053 ALT.21 or latest	01 set
7.	BRASS PIPE FITTINGS	CLW/TS/99/CF/5 ALT. 8 or latest	01 set
8.	CU. PIPE FITTINGS	CLW/MS/3/067 ALT.4 or latest	01 set
9.	STEEL PIPE FITTINGS	CLW/MS/3/068 ALT.15 or latest	01 set

FINAL DRAFT

ANNEXURE-E

These Superstructure drawings are exceptional, as compared to Annexure-D, and to be followed with drawings as ANNEXURE-D for manufacturing shell Assly for WAG-9HC TWIN loco with conventional brake rigging system.

SL.NO.	DESCRIPTION	DRAWING No. & SPECN. No.	QTY/ LOCO
1.	BOLSTER ASSEMBLY (END-1)	1209-02.126-003 ALT-1	1
2.	BRACKET ASSLY FOR SHEAVE	1209-00.340-203 ALT.1	1
3.	SHEAVE	01/4/59/71 ALT.9	1
4.	BOLSTER ASSEMBLY (END-2)	1209-02.126-006 ALT-2	1
5.	BRACKET ASSLY. INVERTED UNDERFRAME	1209-02.027-125 ALT-2 Or 1212-02.027-001	1
6.	PITCH STOP	1209-02.426-321	8
7.	BRACKET ASSLY FIRE EXTINGUISHER	CDD-HL-P73-014 ALT.1	2
8.	MOUNTING ARRGT. OF FIRE EXTINGUISHER	CDD-HL-P72-009 ALT.2	4
9.	EQUIPMENT LAYOUT FOR FIRE EXTINGUISHER & HAND BRAKE BOX	CDD-HL-P71-001 ALT.1	
10.	MOUNTING ARRGT. OF HAND BRAKE BOX ASSLY.	CDD-HL-P71-022 ALT.4	3 1
11.	BOX ASSLY.	CDD-HL-P71-024 ALT.2	1
12.	MOUNTING ARRGT. OF BRACKET FOR PULLEY ASSLY. 1 & 2 AT END-1	CDD-HL-P72-025 ALT.2 CDD-HL-P73-021 ALT.4 CDD-HL-P73-020 ALT.2	1 1
13.	MODIFIED REAR WALL SHEET & SECONDARY MEMBER INSTALLATION FOR LOCKER SIDE (CAB-1)	CDD-HL-P71-018 ALT.3	1
14.	MODIFIED REAR WALL SHEET & SECONDARY MEMBERS INSTALLATION FOR LOCKER SIDE (CAB-2 END)	CDD-HL-P71-004 ALT.3	1
15.	UNDERFRAME CONDUIT	1209-05.027-245	1
16.	MODIFIED HAND BRAKE ASSLY.	RDSO Drg No. SKEL-4993 Alt.0 or latest	1
17.	REAR WALL SECONDARY MEMBERS INSTALLATION FOR NO.1 END CAB ALONG WITH TOOL BOX ASSEMBLY	1209-08.031-076 ALT-1 1209-08.331-351	1 1
18.	REAR WALL SECONDARY MEMBERS INSTALLATION FOR NO.2 END CAB	1209-08.031-100	1
19.	REAR WALL SHEETS & PILLAR STIFFENERS SUB- ASSLY.	1209-08.030-305	2

Note: Alteration no. of all drgs. to be followed as per latest

PREPARED BY	REVIEWED BY	APPROVED BY
SSE/DRG&DGN (M)	AEE/D/CONV	DY.CEE/D-III

FINAL DRAFT

ANNEXURE-F
FOR WPS

Sl. No.	WPS No.	Material Specification	Thickness in mm	Joint Type and Weld Type
1.	WPS/CLW/BD/135/BW/PA/01 DT.25/03/2025	E250C as per IS:2062	1.5 to 6	Square Butt Weld
2.	WPS/CLW/BD/135/BW/PA/02 DT.25/03/2025	E250C as per IS:2062	3 to 24	Single 'V' Butt Weld
3.	WPS/CLW/BD/135/BW/PA/03 DT.25/03/2025	E250C as per IS:2062	22.5 to 90	Double 'V' Butt Weld
4.	WPS/CLW/BD/135/BW/PA/04 DT.25/03/2025	IRMS M41 Gr.I (Hot rolled)	1 to 4	Square Butt Weld
5.	WPS/CLW/BD/135/BW/PA/05 DT.25/03/2025	IRMS M41 Gr.I (Hot rolled)	3 to 12	Single 'V' Butt Weld
6.	WPS/CLW/BD/135/BW/PC/06 DT.25/03/2025	E250C as per IS:2062	3 to 24	Single 'V' Butt Weld
7.	WPS/CLW/BD/135/BW/PA/07 DT.25/03/2025	E410C as per IS:2062	3 to 24	Single 'V' Butt Weld
8.	WPS/CLW/BD/135/BW/PA/08 DT.25/03/2025	E410C as per IS:2062	20 to 80	Double 'V' Butt Weld
9.	WPS/CLW/BD/135/FW/PA/09 DT.25/03/2025	E410C as per IS:2062	≥5	T Fillet (Full Penetration)
10.	WPS/CLW/BD/111/FW/PB/10 DT.25/03/2025	E250C as per IS:2062 # AISI 304	3 to 32 # 3 to 40	Tee Filtted Weld
11.	WPS/CLW/BD/135/BW/PC/11 DT.25/03/2025	E250C as per IS:2062	22.5 to 90	Double 'V' Butt Weld
12.	WPS/CLW/BD/135/BW/PC/12 DT.25/03/2025	IRMS M41 Gr.I (Hot rolled)	1 to 4	Square Butt Weld
13.	WPS/CLW/BD/135/BW/PC/13 DT.25/03/2025	IRMS M41 Gr.I (Hot rolled)	3 to 12	Single 'V' Butt Weld
14.	WPS/CLW/BD/135/BW/PC/14 DT.25/03/2025	E410C as per IS:2062	3 to 24	Single 'V' Butt Weld
15.	WPS/CLW/BD/135/BW/PC/15 DT.25/03/2025	E410C as per IS:2062	20 to 80	Double 'V' Butt Weld
16.	WPS/CLW/BD/135/FW/PC/16 DT.25/03/2025	E410C as per IS:2062	≥5	Tee Fillet (Full Penetration)
17.	WPS/CLW/BD/135/BW/PF/33 DT.29/03/2025	E250C as per IS:2062	1.5 to 6	Square Butt Weld
18.	WPS/CLW/BD/135/BW/PF/34 DT.29/03/2025	E250C as per IS:2062	3 to 24	Single 'V' Butt Weld
19.	WPS/CLW/BD/135/BW/PF/35 DT.29/03/2025	E410C as per IS:2062	3 to 24	Single 'V' Butt Weld
20.	WPS/CLW/BD/135/BW/PF/36 DT.29/03/2025	E410C as per IS:2062	20 to 80	Double 'V' Butt Weld
21.	WPS/CLW/BD/135/FW/PB/37 DT.29/03/2025	E410C as per IS:2062	≥5	Tee Fillet (Full Penetration)
22.	WPS/CLW/BD/135/FW/PF/38 DT.29/03/2025	E410C as per IS:2062	≥5	Tee Fillet (Full Penetration)
23.	WPS/CLW/BD/135/BW/PA/39 DT.29/03/2025	AISI/SAE 304 # AISI/SAE 304	1.5 to 6	Square Butt Weld

FINAL DRAFT

PREPARED BY	REVIEWED BY	APPROVED BY
SSE/DRG&DGN (M)	AEE/D/CONV	DY.CEE/D-III