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## SCHEDULE OF TECHNICAL REQUIREMENTS FOR MANUFACTURE AND SUPPLY OF WIPER ASSEMBLY WITH MOTOR AND WITH WATER SPRAY ARRANGEMENT FOR THREE PHASE AND CONVENTIONAL ELECTRIC LOCOMOTIVES AS PER SPECIFICATION No. CLW/MS/3/050

### ISSUED BY

Dy.Chief Electrical Engineer/D-II  
Electric Loco Design Department  
Chittaranjan Locomotive Works  
Chittaranjan – 713331  
West Bengal

Approved By	Signature
PCEE	<div style="display: flex; align-items: center;"> <div style="font-size: 2em; margin-right: 10px;">R YADAV</div> <div>             Digitally signed by R YADAV Date: 2023.04.25 12:39:44 +05'30'           </div> </div>

Recommended By	Signature
CEE/D&D	<div style="display: flex; align-items: center;"> <div style="font-size: 2em; margin-right: 10px;">AVIJIT CHAKRA BORTY</div> <div>             Digitally signed by AVIJIT CHAKRABORTY Date: 2023.04.21 11:28:34 +05'30'           </div> </div>

Prepared By	Checked By	Reviewed By
SSE/Design	AEE/Design	Dy.CEE//D-II
<div style="display: flex; align-items: center;"> <div style="font-size: 2em; margin-right: 10px;">ANIRBAN BASU</div> <div>             Digitally signed by ANIRBAN BASU Date: 2023.04.19 11:14:27 +05'30'           </div> </div>	<div style="display: flex; align-items: center;"> <div style="font-size: 2em; margin-right: 10px;">CHANDAN KUMAR</div> <div>             Digitally signed by CHANDAN KUMAR Date: 2023.04.19 17:04:28 +05'30'           </div> </div>	<div style="display: flex; align-items: center;"> <div style="font-size: 2em; margin-right: 10px;">ANSHU KUMAR VERMA</div> <div>             Digitally signed by ANSHU KUMAR VERMA Date: 2023.04.20 17:51:42 +05'30'           </div> </div>

Signature Not  
Verified  
Digitally signed by  
ROHIT KUMAR  
Date: 2023.04.26  
10:38:32 +05'30'  
Reason: IIRPS-CRIS  
Location: New Delhi

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## SCHEDULE OF TECHNICAL REQUIREMENTS FOR MANUFACTURE AND SUPPLY OF WIPER ASSEMBLY WITH MOTOR AND WITH WATER SPRAY ARRANGEMENT FOR THREE PHASE AND CONVENTIONAL ELECTRIC LOCOMOTIVES:-

### 1.0 NAME OF EQUIPMENT

**WIPER ASSEMBLY WITH MOTOR AND WITH WATER SPRAY ARRANGEMENT.**

### 2.0 APPLICATION

Used in Three Phase and Conventional Electric Locomotives in Indian Railways. The equipments are to be manufactured as per relevant drawings and specifications.

### 3.0 SCOPE

The Schedule of Technical Requirements (STR) is issued to serve as a guide to manufactures (called the “firm” here after) and should be read in conjunction with the relevant drawings and specifications with latest Revisions / Alterations. The technical requirements are meant to serve as guidelines only and are not exhaustive The firm should satisfy themselves having complied with the requirements of drawings and STR. List of relevant Drawings / Specifications is listed as Annexure – I.

Wherever lacking, existing CLW/BLW approved sources must also upgrade their facilities to fulfill the requirements of this STR within a period of One year from date of issue of this STR.

### 4.0 TERMINOLOGY/ABBREVIATIONS

Abbreviations	Full form/Description
ASE	Automotive Service Excellence
BS	British Standard
CLW	Chittaranjan Locomotive Works
DIN	Deutsches Institut Normung
BLW	Banaras Locomotive Works

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IS	Indian Standard
IEC	International Electro Technical Commission
ISO	International Standard Organization
NABL	National Accreditation Board for Testing and Calibration Laboratories
RDSO	Research Design & standard Organization
VDE	Verband Deutcher Elecktrotechniker
IP	Ingress Protection

## 5.0 GENERAL REQUIREMENTS

- 5.1 The firm should have currently valid ISO-9000 certification issued by an approved agency of the International Accreditation Forum (IAF) with the activity desired clearly mentioned in the scope of certification.
- 5.2 A system of regular submission of rejection details of material giving rejection rate, cause of rejection, corrective action taken etc. on quarterly basis should be followed by firm.
- 5.3 The firm must have system of documentation in respect of rejection at customer end, warranty replacement and failure of item supplied by them during service.
- 5.4 The firm shall have all latest relevant Standards like IS, DIN, BS etc. pertaining to product specification.
- 5.5 The firm shall have system of recording the plant, machinery and control equipments remaining out of service, nature of repairs done etc.
- 5.6 The testing & measuring equipments shall be duly calibrated and the validity of calibration should be current and verified by physically checking the calibration certificate issued by Calibration Agency from whom it was calibrated. Calibration shall be done by NABL accredited labs whose accreditation is valid on the date of calibration.

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## 6.0 QUALITY ASSURANCE PLAN (QAP)

The firm shall prepare a Quality Assurance Plan (QAP) before approval is sought and submit the same as part of compliance of this STR. The QAP shall be a comprehensive document covering the following aspects as advised in format available at <http://clw.rcil.gov.in/> → instruction for vendor approval → QAP format.

### 6.1 Whenever there is any change with respect to approved QAP, the same shall be promptly submitted to CLW/ BLW for approval.

## 7.0 Machinery and Plant (M&P)

- 7.1 Machining process should be such that all critical dimensions are final. Vague language available or installed is not acceptable.
- 7.2 Details of jigs and fixtures used during manufacture should be furnished along with the manufacturing process wherever used.
- 7.3 List of typical Machinery & Plant, required to manufacture the product are mentioned in Annexure – II. The list is for general guidance only and manufacturing operation shall be submitted and got approved by the firm as a part of QAP.
- 7.4 In case any structural work is involved, the welders shall be qualified in accordance with AWS Structural Welding Code D.1.1 or IS 817 with radiographic test. They should have undergone refresher course from reputed agencies as per IS: 817 & IS: 7310 and proper record should be maintained.

## 8.0 Testing & Plant

- 8.1 Testing setup should be available in the firm's own premises capable of testing the equipments as specified in the relevant technical specification.
- 8.2 The accuracy and capacity of the testing and measuring equipments shall be adequate to meet the requirements of the specification and drawing.
- 8.3 Stage inspection detailing inspection procedure, inspection parameters and method of testing / test procedure including sample sizes for destructive and non-destructive testing. Record of test results of stage inspection should be available and furnished.

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8.4 List of typical Testing and measuring instruments required for manufacture is mentioned in Annexure – III. The list is for general guidance only. However, the specific Testing & measuring instruments, gauges used by the firm will also form part of QAP and shall be submitted.

## 9.0 REQUIREMENTS FOR FOUNDRY FACILITIES

Wherever required, it is preferable if the firm has its own RDSO Class 'A' approved captive foundry. In cases where the firms do not have their RDSO Class 'A' approved captive foundry, they should fulfill the following conditions:

- Firm should use castings from RDSO Class 'A' approved foundry.
- Firm should furnish undertaking from casting manufacturer showing long term commitment to supply castings to the firm.

## 10.0 REQUIREMENTS OF ELECTRICAL AND ELECTRONICS LAB

Wherever applicable, Firms shall have electrical and electronics labs which should have Dust free, clean and non - humid environment preferably air conditioned. The lab shall have minimum following equipments in addition to equipments mentioned at Annexure –III :

- Vernier Caliper - 300 mm
- Micrometer - 0-150 mm
- Steel Rule-1000 mm
- Counter Meter (0-999999 Operating cycles)
- Stop Watch

## 11.0 STORAGE FACILITY

- Adequate Dust free, clean and non - humid environment for storage of raw material and finished product separately.
- Adequate Dust free, clean and non-humid environment for product assembly area.
- Adequate Stacking / Handling tables and racks in above storage area.

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**ANNEXURE – I****LIST OF DRAWINGS, SPECIFICATIONS AND STANDARDS**

- Specification No. CLW/MS/3/050 & Drawing No.1209-08.032-023.
- Standards: IRSM 41  
IS:319  
IS:2062 Gr.C  
IS:3063  
IS:13463  
IS:2269  
AISI:304  
IS: 28 Gr.V  
IS:734 Gr.22588 (HF 18)

**Note:** Firm must have all the relevant latest Standards.

**ANNEXURE – II****LIST OF MACHINERY AND PLANT**

Sl. No.	Name of Machinery & Plant	Capacity / Rating	Remarks	Essential/ Optional Facility
1.	CNC Lathe Machine	300mm x 800mm	For preparation of metal shaft.	** Optional
2.	CNC Milling Machine	500mm x 600 mm Height.600 mm	For all turned parts.	** Optional
3.	Shearing Machine	Upto 5 mm	For cutting purpose.	Essential
4.	Mechanical Press Machine	100 Ton	For bending purpose.	Essential
5.	Drilling Machine	25 mm	For making holes.	Essential
6.	Grinding Machine	300 mm	For providing smoothness.	Essential

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7.	Horning Machine	100 mm	For providing final smoothness.	** Optional
8.	Foundry	Standard	For foundry job.	** Optional
9.	Plastic Moulding Facility	Standard	For making polyethylene water tank / reservoir.	** Optional

\*\* Optional activity means the facility is actually required but may be carried out from ISO certified outside firm with quality control by main firm and documentary evidence of same should be produced.

### ANNEXURE – III

#### LIST OF MEASURING AND TESTING EQUIPMENTS

Sl. No.	Name of Measuring & Testing Equipments	Capacity/ Rating	Remarks	Essential / Optional Facility
1.	Thread Plug Gauge	M8, M10, M22	For checking of thread.	Essential
2.	Thread Ring Gauge	M10	For checking of thread.	Essential
3.	Pneumatic Pressure Testing Facilities	11.5 Kg/cm <sup>2</sup> max. 3 Kg/ cm <sup>2</sup> min.	For Air Pressure test.	Essential
4.	Spring Tension Gauge	Min 1 kg	For checking the pressure of wiper blade of wind screen assly.	Essential
5.	Test equipment including test rack with wind screen arrangement as indicated in drg	Standard	For operation of wiper as in loco.	Essential
6.	Angle Protector	65 degree min.	For measuring of the wipering.	Essential
7.	Endurance test set up	0-999999	For endurance test.	Essential

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## ANNEXURE - IV

**FORMATS TO BE SUBMITTED WITH QAP****1. Organization Specific to the Product**

Description	Name of person with contact no.	Qualification	Experience	
			Field	Year
(a)	(b)	(c)	(d)	(f)
Design in – charge				
Production in – charge				
Quality Inspection in–charge				

**2. Incoming Material Control**

Subject / Product / Process	Sample size & its frequency of Inspection	Parameter for inspection	Mode of Inspection / Equipments used	Acceptance Limit/criteria/specified value as per Drg/Spec.
(a)	(b)	(c)	(d)	(e)

Document Reference	Record Format No.	Action in case of rejection
(f)	(g)	(h)

**3. Process Control****(i) Proposed M&P**

Sl. No.	Process/ Activity	Work Instruction Ref.	Machine Details					In– house / Out source
			Lead parameter	Make	Model	Comm. Dt.	Accuracy	
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)

**(ii) Proposed Jig & Fixture**

Sl.No.	Process/ Activity	Work Ref.	Instruction	Jig & Fixture Drg. Ref	In-house/ outsource
(a)	(b)	(c)		(d)	(e)

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#### 4. Stage Inspection / Test Plan

Subject / Product / Process	Instrument / Jig & Fixture test bench used	Inspection Stage	Parameter for inspection	Sample size & its frequency of Inspection	Document Reference
(a)	(b)	(c)	(d)	(e)	(f)

Acceptance Limit/criteria/specified value as per Drg./Spec.	Inspection Agency	Record Format No.	Action in case of rejection
(g)	(h)	(i)	(j)

#### 5. Product Control

Subject / Product / Process	Instrument / Jig & Fixture test bench used	Parameter for inspection	Sample size & its frequency of Inspection	Document Reference	Acceptance Limit/criteria/specified value as per Drg./Spec.
(a)	(b)	(c)	(d)	(e)	(f)

Inspection Agency	Record Format No.	Action in case of rejection
(g)	(h)	(i)

#### 6. Calibration Plan

Part I(A): In house testing facilities available for calibration with the firm

SN	Name of Master	Make	Range	Frequency of Calibration	Traceability to national standard

Part I(B): Personnel trained for in-house calibration

SN	Name	Qualification	Experience

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**Part II: Details of Equipments & Calibration Plan**

Instrument Description	Serial No.	Make	Model	Year of procurement	Capacity / Range	Accuracy	Periodicity of Calibration
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)

Calibration Agency	Record Format No.
(i)	(j)

**7. Details of Sub-Assemblies/Components/Raw material manufactured in house and out-sourced****Part-I: Details of in-house manufactured components:**

SN	Item Name	Drawing No

**Part-II: Approved Sources for Raw Materials /Sub-Assembly/Consumables**

Sub-Assembly /Raw Material / Consumable	Specification / Drawing No./Standard	Source with Address	Whether Source is controlled by CLW / RDSO / DLW/Others	Frequency of review of the performance of sublet source
(a)	(b)	(c)	(d)	(e)

**Note:-** For Firm's guidance , firm may follow the detailed QAP format as given below:  
[ <http://clw.rcil.gov.in/>→ instruction for vendor approval → QAP format ].

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SL No.	Category No. & Description	ABB Drg./CLW Drg./ Specn. No.	C&D NO.	QTY./C&D			UNIT	QTY./LOCO			Stock No.	U.L./P.L No.	User shop	REMARKS	Recent amendment after Feb 2026	
				G/9HC	P/7	P/5		G/9HC	P/7	P/5						
15	V/9/0014 Wiper Assy. Compl.	CLW/MS/3/050 Alt.6					03		1 Set		T309/339	29162026		Note:Procurement quantity will be as per production target of locos for ELAAU/Dankuni and CLW/CRJ for the year 2026-27 and onwards as per modification advice no. ELDD/QF/3Ph/ 267/ Electric wiper Assly dated 06.06.26 with immediate effect.	<a href="#">M.A No 1282 dated 06.06.26.pdf</a>	
	Wiper Assly. Compl. With motor with water spraying arrgt.	1209-08.032-023	T309/339 B309/134	4	4	4	01	4	4	4						
A. Stage Inspection Required(Yes/No) :- NO																
B.No. of stages with description of each stage(NA/1/2/3) :- NA																
C.Warranty period(in months) from date of delivery :- 36 months																
16	V/9/0015 Set of isolating cocks.						03	1 Set	1 Set	1 Set		29180089		Procurable Qty for WAG-9HC, WAP-7 & WAP-5 should be equal to in-house production planning for complete shell as per modification advice letter no. ELDD/3606 /Part-III dated 09.11.2022 with immediate effect.	<a href="#">M.A No 1281 dated 05.06.26.pdf</a>	