# BHARAT HEAVY ELECTRICALS LIMITED, JHANSI Locomotive Manufacturing Deptt.

TENDER DOCUMENT

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20/08/2024



# TENDER DOCUMENT For Works Contract

For Tender Enquiry No: LMM/TW/24-25/001

For

# Works contract for Manufacturing Activities of DESL at LMM shop, BHEL Jhansi

#### **Contact Person:**

Name: Monika

Designation :Sr.Mgr (MM-3) Email : monikav@bhel.in PH : 0510 – 2770001 – 2414

> Tender Due Date : 27/08/2024 at 13 :15 Hrs Tender Opening Date : 27/08/2024 at 14 :00 Hrs

Material Management Department BHEL, PO: BHEL, Jhansi 284120 (UP)

# **Locomotive Manufacturing Deptt.**

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# Detail of Bidder and Documents to be submitted along with Technical Bid

Please number your documents in continuation with tender documents at bottom (footer) of page.

S.No.	Particular	Detail
1.	Name of the firm	
2.	Name of the Proprietor/Partners	
3.	Address	
4.	Mobile No.	
5.	E-mail ID	
	De	ocuments
	Particular	Detail Page No
6.	Acceptance of Terms & conditions Signature on all pages without conditions of contractor	Submitted/ Not submitted
7.	Blank price bid format duly signed by the contractor.	Submitted/ Not submitted
8.	Copy of ESI Registration	ESI No-
9.	Copy of PAN card	PAN No-
10.	Copy of GST registration	GST No-
11.	Self decleration as per annexure V on letter head.	Submitted/ Not submitted
12.	Copy of ownership of firm	Submitted/ Not submitted
13.	Reciept of tender fees deposition	Amount
14.	Reciept of EMD deposition	Amount
15.	Copy of turn over and income tax return for last three year  i. 2021-22  ii. 2022-23  iii. 2023-24	Submitted/ Not submitted

## **Locomotive Manufacturing Deptt.**

TENDE	R ENQUIRY NO. : LMM/TW/24-25/001		DATE:- 2	0/08/2024	
	Documentary proof (Completion				!
	Certificate and WO/PO / LOI) & TDS				l
	certificate issued from traces (Form16A)				!
16.	for the experience performance report	Submitted/ Not submitted			!
10.	issued by Customer for successful	Submitted/ Not Submitted			l
	execution of the requisite value is to be				l
	submitted. In case experience is				l
	submitted for work done in BHEL, TDS				l
	certificate is not required				!
<b>17</b> .	Copy of PF registration	PF No-			!
					ı

17.	Copy of PF registration	PF No-	
We wi	_	ractor and abide by the terms & Conditi	ions mentioned ir
Date :-		Signature With	Name & Seal

### **Locomotive Manufacturing Deptt.**

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#### Part II:

#### **PRICE BID**

#### (Separate envelope)

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# BHARAT HEAVY ELECTRICALS LIMITED, JHANSI Locomotive Manufacturing Deptt.

**TENDER DOCUMENT** 

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# **NOTICE INVITING TENDER**



#### **Locomotive Manufacturing Deptt.**

#### **TENDER DOCUMENT**

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20/08/2024

#### 1- NOTICE INVITING TENDER

S. No.	Particulars	Details
1.	Name of work	Works contract for Manufacturing Activities in following
		DESLs.3 nos. 700 HP TPP DESL,2 nos. 700 HP Dual Cab DESL2 no.
		1400 HP DESL DESL Bogies,GE bogies and Wheel Axle Sets at
		LMM shop, BHEL Jhansi
2.	Tender Evaluation Criteria	As per GTC issued by "Central Contracting Cell" and Tender
		Documents.
3.	Duration of the Contract	7 Months from the date of award of work order
4.	Last date of receipt of the	(As on page # 1)
	Tender	
5.	Date of opening Tender	(As on page # 1)
6.	Address for submitting the	(As on page # 7)
	tender	
7.	Earnest Money Deposit (EMD)	Rs 19,976 for Non -MSME
		Rs. 0 for MSME
8.	Cost of tender	Nil
	(Non refundable)	
9.	Validity of Offer	120 days
10.	Defect liability period	One year from the date of work order completion
11.	MSME Benefit	As per attached PQR
12.	Start-up scheme Benefit	Not Applicable

**Note:** The EMD may be accepted only in the following forms:

(i) Electronic Fund Transfer credited in BHEL account (before tender opening)

BHEL account details: Bank Name: - SBI; A/c No.:- 10670828866; IFSC Code:- SBIN0003807 A/c Holder Name:- BHARAT HEAVY ELECTRICALS LIMITED

(ii) At BHEL cash office through POS machine No Demand Drafts shall be accepted.

The contractors may physically visit the work place before quoting their rates. For relevant details, please visit our website "www.bhel.com" & "www.eprocure.gov.in"

Note: BHEL takes no responsibility for any delay / loss of documents or correspondence sent by courier or post. Late tenders shall be rejected outright.

The techno-commercial bid comprising (i) all its sections, (ii) all enclosures in support of various clauses and requirements and (iii) EMD, shall be duly signed and sent in a sealed envelope boldly super-scribing "PART-I TECHNO COMMERCIAL BID FOR " Works contract for Manufacturing Activities of DESL at LMM shop, BHEL Jhansi". Similarly, the Price-bid must be duly signed and sent in a sealed envelope boldly super-scribing "PART-II PRICE "Works contract for Manufacturing Activities of DESL at LMM shop, BHEL Jhansi." Both these envelopes shall be placed inside 3<sup>rd</sup> sealed envelope super-scribing" duly signed and sent in a sealed envelope boldly super-scribing "Works contract for Manufacturing Activities of DESL at LMM shop, BHEL Jhansi."

### **Locomotive Manufacturing Deptt.**

#### TENDER DOCUMENT

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20/08/2024

#### The tender shall be addressed to as follows:

Name: Monika

Designation: Sr.Mgr (MM-3)

Email: monikav@bhel.in

PH: 0510 - 2770001 - 2414

Sealed Tenders can be submitted (i) personally, (ii) by Courier/Post

#### If submitted personally

Tender Box
Security Control Room/Office
Administrative Building
Bharat Heavy Electricals Limited
Jhansi-284120 (U P)

#### Or if sent through Courier / Post

Office of

Name : Monika

Designation :Sr.Mgr (MM-3)

Email : kevre@bhel.in

PH: 0510 - 277001 - 2414

Or if sent through email

Email Id: tenderbox.jhs@bhel.in

(Kindly do not send on any other email id of any official of BHEL)

#### Part-I Techno Commercial bid:

Part I of the sealed tenders alone will be opened by BHEL in the presence of tenderers who are present at the time & place of opening. A signed blank price-bid copy should be enclosed with this bid. The spaces for prices should be crossed (x).

**Part-II Price bid:** The price bid should contain prices only. Price bid will be opened only for the parties who qualify in techno commercial bid.

#### TO BE SIGNED BY THE TENDERER

Certified that all Sections of the Tender have been read / complied & agreed to, and each page of the tender offer has been signed & stamped.

(Signature of Authorized person(s))

### **Locomotive Manufacturing Deptt.**

#### **TENDER DOCUMENT**

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#### **Brief Description of Work / Scope of work**

#### 1. SCOPE OF WORK OF THE CONTRACTOR SHALL BE AS FOLLOWING:

S.No.	Locos	Locos	Sections	Description of Work	иом	Qty	Outsourced Man Hours /Job	Total Outsourced Man-Hours
		(A)	(B)	( C)	(D)	( E)	(F)=( E)x(D)	
1	700 HP	Loco Assy	Manufacturing activities of 700 HP DESL	Hrs	3	819.29	2457.86	
1	TPP	Bogie Assy	Manufacturing activities of 700 HP DESL	Hrs	3	486.89	1460.66	
2	700 HP Dual Cab	700 HP	Loco Assy	Manufacturing activities of 700 HP DESL Dual cab	Hrs	2	1587.20	3174.40
2		Bogie Assy	Manufacturing activities of 700 HP DESL Dual cab	Hrs	2	454.98	909.95	
3	1400 HP	Loco Assy	Manufacturing activities of 1400 HP DESL	Hrs	2	1050.71	2101.42	
3	DESL	DESL Bogie Manufacturing activities of 1400 HP DESL	Hrs	2	884.38	1768.76		
4	GE Bogie set	Bogie Assy	Manufacturing activities of GE Bogies	Hrs	2	366.52	733.03	
5	Wheel Axle Set	Bogie Assy	Manufacturing activities of Wheel Axle Set (DESL)	Hrs	19	8.86	168.41	
							12774.50	

NOTE: The Total work will be limited to 12774.50 technology hours only. BHEL Shall reserve rights to allot any of the Module activities of DESL to the Contractor limited to the maximum manhours mentioned in Column-F of the given table.

- a. The details of tentative work involved is given in Annex-B
- b. The Contractor shall be responsible for complying with all the applicable statutory acts & laws.

  The Contractor has to depute at least 14 nos manpower (including at least 3 welders,2 for A-shift and 1 for B-shift mandatorily), one supervisor to organize and supervise the work being done by contractor.
- c. The work shall conform to dimensions and tolerances given in various drawings and documents that will be provided during assembly. If any portion of works is found to be defective in workmanship and not conforming to drawings / documents, the contractor shall dismantle and re-do the work duly replacing the defective materials at their own cost, failing which recoveries, as determined by BHEL, shall be deducted from contractor's bills.

## **Locomotive Manufacturing Deptt.**

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- **d.** The above work shall be normally done in 1<sup>st</sup> and 2<sup>nd</sup> shift mandatorily. Work shall also be done on Sundays/Holidays as and when required. Contractor shall maintain proper record of attendance and same should be made available to BHEL on monthly basis.
- **e.** Welding machine /electrode, Paint gun, Grinder, buffing wheel, EOT cranes, Compressed air and other special tools and Fixtures shall be provided by BHEL free of cost. **PPEs shall be provided by contractor.**
- **f.** Maintaining proper documentation of all the activities undertaken by the Contractor as per the proforma provided by BHEL mentioning activities with manhours.
- g. BHEL, Jhansi is certified for ISO 9001-2015. Quality of work to customer's satisfaction and fulfilment of system requirements are the essence of ISO 9001 certification. BHEL, Jhansi has HSE certification (ISO 14001 & OHSAS 18001) and therefore Contractor also shall organize/plan/perform all their activities to meet with the applicable requirements of these standards.
- **h.** Measurement Book (MB) to be prepared Loco wise and Module wise by the contractor. Contractor should also get the MB verified by shop & CQX representative.
- i. The house keeping of the work area and maintaining work discipline shall be the contactor's responsibility.
- j. Contractor is advised to visit the work place to know the work content before submission of quotation. The required documents/ drawing, area of work can be seen at our works.

**Note:** The above work should meet the technical requirement of the BHEL and customer. Work should be carried out as per drawings, specification, standards, procedures, laid down by BHEL, which may get revised as per requirement from time to time. Party will be liable to follow drawings, standards, procedures that are in use at that time without any change in rates and terms and conditions of contract.

## **Locomotive Manufacturing Deptt.**

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# Annexure-B Detailed scope of Tentative work with Manhours is given below: Loco Assembly Shop

Loco		700 HP TPP DESL Loco	
Area		Loco Assy Shop	
S.No.	Module Nos	Activities	Manhours
1	6023	SAFETY GAURD FOR BLOWER & COMP V BELT MT	3.68
2	6024	SAFETY GAURD FOR BLOWER & COMP VBELTPP2	3.68
3	6026	S.STRUCTURE TACKING & WELDING PP-1	25.00
4	6027	S.STRUCTURE TACKING & WELDING PP-2	25.00
5	6028	CABIN TACKING & WELDING	20.00
6	6029	CHEQ. PLT. PREP.TACKING & WELD. PP-1	34.17
7	6030	CHEQ. PLT. PREP.LAYING TACKING AND WELD.PP-2	34.17
8	6031	WALKWAY PREP.MTG. TACKING WELDING	15.00
9	6032	WALKWAY PREP. MTG. TACKING	15.00
10	6033	AIRFILTER MTG & AIR INLET PIPING PP1	12.92
11	6034	AIRFILTER MTG & AIR INLET PIPING PP2	12.92
12	6039	PARTITON PANEL PREP & FITTING PP1	22.92
13	6040	PARTITION PANEL PREP & FITTING PP2	22.92
14	6041	RADIATOR GUARD FITTING PP1	2.50
15	6042	RADIATOR GAURD FITTING PP2	2.50
16	6045	OIL TRAY & DRAIN FILLING PP-1	3.33
17	6053	FLOOR PLT PRE &MTG IN CABIN	12.50
18	6078	AIRDUCT BELLOW FT WITH MOTOR	13.33
19	6079	CHEQ.PLT.COVER PLATE DISMENT. PP-1&2	6.67
20	Misc	Matl. Handling by Lifter within Shop / openning of packing	60.00
21	Misc	Inner panneling with glass wool	120.00
22	Misc	Bricks filling and cover fixing	24.00
23	Misc	Dressing of all welding and cutting area (Hood, Hand rail, chequered plate, rail guard, fuel tank, Cab, walkway, Toe Guard, control cabinet)	64.00
24	Misc	Glass and Window fixing in cabin	40.00
25	Misc	Loco Cleaning	64.00
26	Misc	Crane-Slinger Operation	100.00
27	Misc	Coolant & Oil filling, Water filling	40.00
28	Misc	Battery handling from charging room to shop, cleaning and acid/water filling.	20.00
		Total	820.19

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	Loco	700 HP Dual cab DESL	
	Area	Loco Assy Shop	
	Module		
S.No.	No.	Acitivities	Manhours
1	07001	CHEQUERED PLATE DISMENTLING OF CAB 1&2	13.33
2	07009	FUEL TANK MOUNTING	16.67
3	07011	BOTTOM FLANG & INTET MTG ON FUEL TANK	6.67
4	07017	AIR DRYER MOUTNING ON PLATE WITH DRILLING	8.33
5	07025	WALKWAY CHEQUER PLATE MTG	33.33
6	07026	WALKWAY HAND RAIL MTG.	20.00
7	07035	SAFETY GUARD FOR COMP & BLOWER V-BELT	5.00
8	07036	SAFETY GUARD FOR BLOWER & AUX GENERATOR	5.00
9	07037	AIR INTAKE PREP & FITTING	21.67
10	07042	AIR FILTER MTG. (COR BODY)	20.00
11	07048	BELLOWS MTG UNDERFAME	13.33
12	07050	HOOD DOOR RUBBER SEALING	25.00
13	07051	CAB-1 PANEL DOOR RUBBER SEALING	3.33
14	07052	CAB-2 PANEL DOOR RUBBER SEALING	5.00
15	07053	DRIVER DESK MOUNTING CAB-1 2NOS	10.00
16	07054	DRIVER DESK MOUNTING CAB-2 2NOS	11.67
17	07057	FLOOR PLATE FIXING CAB -1	16.67
18	07058	FLOOR PLATE FIXING CAB -2	16.67
19	07070	BELLOW MOUTNING ON TRACTION MOTOR WITH JAALI	20.00
20	07080	BOTH OIL FILLING CAP HINGE COVER FIXING	10.00
21	07081	SILENCER HOOD FITUP	1.67
22	07084	CHEQURED PLATE AND HAND RAIL MODIFICATIO WORK	13.33
23	07086	AIR INLET FILTER MTG BRKT PREP&FITT	16.67
24	07109	Leakage Arresting Below U/F	33.33
25	07110	Leakage Arresting Above U/F	33.33
26	07114	Wiper Motor Preparation and Mounting Both Cab	26.67
27	07146	All Pipe Clamping Below U/F	16.67
28	07147	All Pipe Clamping Above U/F	16.67
29	07150	Water Tank mounting Both Cabs	13.33
30	07151	Bogie Piping Leakage Arresting	16.67
31	07217	BATTERY PLACING & PACKING CAB 1 SIDE	10.00
32	07218	BATTERY PLACING & PACKING CAB2 SIDE	10.00
33	07303	BLOWER 2 DUCT & FLANGE WELDING	10.00
34	07304	COMPRESSOR BKT WELDING	6.67

## **Locomotive Manufacturing Deptt.**

35   07305	TEND	ER ENQUIRY	NO.: LMM/TW/24-25/001 DATE	:- 20/08/2024
3.33   3.30	35	07305	FUEL TANK BRACKET WELDING	10.00
38	36	07306	SILENCER HOOD WELDING	3.33
39	37	07307	SILENCER BKT WELDING	3.33
40	38	07308	AIR INTEK BKT WELDING	2.50
1	39	07309	OIL TREY WELDING	0.83
13.33   13.3	40	07310	AG PAD WELDING	4.17
43         07313         BLOWER DUCT WELDING E-2         5.00           44         07314         HAND BRAKE PREP & ASSY WELDING         10.00           45         07315         AIR INTAKE PIPE SUPPORT WELDING         2.50           46         07316         HOOD FINAL WELDING WITH GUSSET AND SUPPORT         20.00           47         07317         CAB-1 FINAL WELDING WITH GUSSET AND SUPPORT         20.00           48         07318         CAB-2 FINAL WELDING WITH GUSSET AND SUPPORT         20.00           50         07329         POWER PACK PADS FINAL WELDING         20.00           50         07320         HANDRAIL PAD WELDING         33.33           51         07321         CHEQRD PLT. FINAL WELDING         66.67           52         07322         LIFTING BKT. CUTTING U/F.         6.67           53         07323         CABIN LIFTING BKT. CUTTING         3.33           54         07324         BALLAST BOX PLT. WELDING AND OIL LEVEL SCALE WELDING         3.33           55         07325         CHEQRDPLT.PREP         5.00           57         07327         BOTH BATTERY STOOL WELDING         1.67           58         07328         All Pneumatic pipe support welding B/U/F         66.67           60	41	07311	AUX DRIVE PAD WELDING	6.67
44         07314         HAND BRAKE PREP & ASSY WELDING         10.00           45         07315         AIR INTAKE PIPE SUPPORT WELDING         2.50           46         07316         HOOD FINAL WELDING WITH GUSSET AND SUPPORT         20.00           47         07317         CAB-1 FINAL WELDING WITH GUSSET AND SUPPORT         20.00           48         07318         CAB-2 FINAL WELDING WITH GUSSET AND SUPPORT         20.00           50         07320         HANDRAIL PAD WELDING         20.00           50         07321         CHEQRD PLT. FINAL WELDING         33.33           51         07322         LIFTING BKT. CUTTING U/F.         6.67           52         07323         CABIN LIFTING BKT. CUTTING         3.33           54         07324         BALLAST BOX PLT. WELDING AND OIL LEVEL SCALE WELDING         3.33           55         07325         CHEQRDPLT.PREP         5.00           56         07326         EXHAUST PIPE THERMAL INSULATION         1.67           57         07327         BOTH BATTERY STOOL WELDING         3.33           58         07328         All Pneumatic pipe support welding B/U/F         46.67           59         07329         All Pneumatic pipe SUPPORT WELDING         6.67           60 </td <td>42</td> <td>07312</td> <td>BLOWER DUCT MODIFICATIO &amp; WELDING E-1</td> <td>13.33</td>	42	07312	BLOWER DUCT MODIFICATIO & WELDING E-1	13.33
45         07315         AIR INTAKE PIPE SUPPORT WELDING         2.50           46         07316         HOOD FINAL WELDING         40.00           47         07317         CAB-1 FINAL WELDING WITH GUSSET AND SUPPORT         20.00           48         07318         CAB-2 FINAL WELDING WITH GUSSET AND SUPPORT         20.00           49         07319         POWER PACK PADS FINAL WELDING         20.00           50         07320         HANDRAIL PAD WELDING         33.33           51         07321         CHEQRD PLT. FINAL WELDING         66.67           52         07322         LIFTING BKT. CUTTING U/F.         6.67           53         07323         CABIN LIFTING BKT. CUTTING         3.33           54         07324         BALLAST BOX PLT. WELDING AND OIL LEVEL SCALE WELDING         3.33           55         07325         CHEQRDPLT.PREP         5.00           56         07326         EXHAUST PIPE THERMAL INSULATION         1.67           57         07327         BOTH BATTERY STOOL WELDING         3.33           58         07328         All Pneumatic pipe support welding B/U/F         66.67           60         07329         All Pneumatic pipe support welding A/U/F         41.67           60         07	43	07313	BLOWER DUCT WELDING E-2	5.00
46         07316         HOOD FINAL WELDING         40.00           47         07317         CAB-I FINAL WELDING WITH GUSSET AND SUPPORT         20.00           48         07318         CAB-2 FINAL WELDING WITH GUSSET AND SUPPORT         20.00           49         07319         POWER PACK PADS FINAL WELDING         20.00           50         07320         HANDRAIL PAD WELDING         33.33           51         07321         CHEQRD PLT. FINAL WELDING         66.67           52         07322         LIFTING BKT. CUTTING U/F.         6.67           53         07323         CABIN LIFTING BKT. CUTTING         3.33           54         07324         BALLAST BOX PLT. WELDING AND OIL LEVEL SCALE WELDING         3.33           55         07325         CHEQRDPLT.PREP         5.00           56         07326         EXHAUST PIPE THERMAL INSULATION         1.67           57         07327         BOTH BATTERY STOOL WELDING         3.33           58         07328         All Pneumatic pipe support welding B/U/F         66.67           60         07330         POWER CABLE LAYING PREP WELDING         6.67           61         07331         CONTROL CABLE LAYING PREP WELDING AND HOOD BKT MTG         10.00           62	44	07314	HAND BRAKE PREP & ASSY WELDING	10.00
47         07317         CAB-1 FINAL WELDING WITH GUSSET AND SUPPORT         20.00           48         07318         CAB-2 FINAL WELDING WITH GUSSET AND SUPPORT         20.00           49         07319         POWER PACK PADS FINAL WELDING         20.00           50         07320         HANDRAIL PAD WELDING         33.33           51         07321         CHEQRD PLT. FINAL WELDING         66.67           52         07322         LIFTING BKT. CUTTING U.F.         6.67           53         07323         CABIN LIFTING BKT. CUTTING         3.33           54         07324         BALLAST BOX PLT. WELDING AND OIL LEVEL SCALE WELDING         3.33           55         07325         CHEQRDPLT.PREP         5.00           56         07326         EXHAUST PIPE THERMAL INSULATION         1.67           57         07327         BOTH BATTERY STOOL WELDING         3.33           58         07328         All Pneumatic pipe support welding B/U/F         66.67           60         07330         POWER CABLE LAYING PREP WELDING         6.67           61         07331         CONTROL CABLE LAYING PREP WELDING         6.67           62         Misc         Rain Test         64.00           63         Misc <t< td=""><td>45</td><td>07315</td><td>AIR INTAKE PIPE SUPPORT WELDING</td><td>2.50</td></t<>	45	07315	AIR INTAKE PIPE SUPPORT WELDING	2.50
48         07318         CAB- 2 FINAL WELDING WITH GUSSET AND SUPPORT         20.00           49         07319         POWER PACK PADS FINAL WELDING         20.00           50         07320         HANDRAIL PAD WELDING         33.33           51         07321         CHEQRD PLT. FINAL WELDING         66.67           52         07322         LIFTING BKT. CUTTING U.F.         6.67           53         07323         CABIN LIFTING BKT. CUTTING         3.33           54         07324         BALLAST BOX PLT. WELDING AND OIL LEVEL SCALE WELDING         3.33           55         07325         CHEQRDPLT.PREP         5.00           56         07326         EXHAUST PIPE THERMAL INSULATION         1.67           57         07327         BOTH BATTERY STOOL WELDING         3.33           58         07328         All Pneumatic pipe support welding B/U/F         66.67           60         07330         POWER CABLE LAYING PREP WELDING         6.67           61         07331         CONTROL CABLE LAYING PREP WELDING         6.67           62         07332         HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG         WELDING           63         Misc         Rain Test         64.00           64         Misc	46	07316	HOOD FINAL WELDING	40.00
49         07319         POWER PACK PADS FINAL WELDING         20.00           50         07320         HANDRAIL PAD WELDING         33.33           51         07321         CHEQRD PLT. FINAL WELDING         66.67           52         07322         LIFTING BKT. CUTTING U/F.         6.67           53         07323         CABIN LIFTING BKT.CUTTING         3.33           54         07324         BALLAST BOX PLT. WELDING AND OIL LEVEL SCALE WELDING         3.33           55         07325         CHEQRDPLT.PREP         5.00           56         07326         EXHAUST PIPE THERMAL INSULATION         1.67           57         07327         BOTH BATTERY STOOL WELDING         3.33           58         07328         All Pneumatic pipe support welding B/U/F         66.67           59         07329         All Pneumatic pipe support welding A/U/F         41.67           60         07330         POWER CABLE LAYING PREP WELDING         6.67           61         07331         CONTROL CABLE LAYING PREP WELDING AND HOOD BKT MTG WELDING         10.00           62         Misc         Rain Test         64.00           64         Misc         S-Curve Test         16.00           65         Misc         Long Run	47	07317	CAB-1 FINAL WELDING WITH GUSSET AND SUPPORT	20.00
50         07320         HANDRAIL PAD WELDING         33.33           51         07321         CHEQRD PLT. FINAL WELDING         66.67           52         07322         LIFTING BKT. CUTTING U/ F.         6.67           53         07323         CABIN LIFTING BKT.CUTTING         3.33           54         07324         BALLAST BOX PLT. WELDING AND OIL LEVEL SCALE WELDING         3.33           55         07325         CHEQRDPLT.PREP         5.00           56         07326         EXHAUST PIPE THERMAL INSULATION         1.67           57         07327         BOTH BATTERY STOOL WELDING         3.33           58         07328         All Pneumatic pipe support welding B/U/F         66.67           59         07329         All Pneumatic pipe support welding A/U/F         41.67           60         07330         POWER CABLE LAYING PREP WELDING         6.67           61         07331         CONTROL CABLE LAYING PREP WELDING AND HOOD BKT MTG WELDING         10.00           62         07332         HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG WELDING         6.67           63         Misc         Customer Inspection (Electrical/Mech/Pneumatic)         75           65         Misc         Long Run         36.00	48	07318	CAB- 2 FINAL WELDING WITH GUSSET AND SUPPORT	20.00
51         07321         CHEQRD PLT. FINAL WELDING         66.67           52         07322         LIFTING BKT. CUTTING U/ F.         6.67           53         07323         CABIN LIFTING BKT.CUTTING         3.33           54         07324         BALLAST BOX PLT. WELDING AND OIL LEVEL SCALE WELDING         3.33           55         07325         CHEQRDPLT.PREP         5.00           56         07326         EXHAUST PIPE THERMAL INSULATION         1.67           57         07327         BOTH BATTERY STOOL WELDING         3.33           58         07328         All Pneumatic pipe support welding B/U/F         66.67           59         07329         All Pneumatic pipe support welding A/U/F         41.67           60         07330         POWER CABLE LAYING PREP WELDING         6.67           61         07331         CONTROL CABLE LAYING PREP WELDING         6.67           62         07332         HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG WELDING         10.00           63         Misc         Rain Test         64.00           64         Misc         S-Curve Test         16.00           65         Misc         Long Run         36.00           66         Misc         Testing Booking a	49	07319	POWER PACK PADS FINAL WELDING	20.00
52         07322         LIFTING BKT. CUTTING U/ F.         6.67           53         07323         CABIN LIFTING BKT.CUTTING         3.33           54         07324         BALLAST BOX PLT. WELDING AND OIL LEVEL SCALE WELDING         3.33           55         07325         CHEQRDPLT.PREP         5.00           56         07326         EXHAUST PIPE THERMAL INSULATION         1.67           57         07327         BOTH BATTERY STOOL WELDING         3.33           58         07328         All Pneumatic pipe support welding B/U/F         66.67           59         07329         All Pneumatic pipe support welding A/U/F         41.67           60         07330         POWER CABLE LAYING PREP WELDING         6.67           61         07331         CONTROL CABLE LAYING PREP WELDING AND HOOD BKT MTG WELDING         10.00           62         07332         HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG WELDING         10.00           63         Misc         Rain Test         64.00           64         Misc         S-Curve Test         16.00           65         Misc         Long Run         36.00           66         Misc         Customer Inspection (Electrical/Mech/Pneumatic)         75           67	50	07320	HANDRAIL PAD WELDING	33.33
53         07323         CABIN LIFTING BKT.CUTTING         3.33           54         07324         BALLAST BOX PLT. WELDING AND OIL LEVEL SCALE WELDING         3.33           55         07325         CHEQRDPLT.PREP         5.00           56         07326         EXHAUST PIPE THERMAL INSULATION         1.67           57         07327         BOTH BATTERY STOOL WELDING         3.33           58         07328         All Pneumatic pipe support welding B/U/F         66.67           59         07329         All Pneumatic pipe support welding A/U/F         41.67           60         07330         POWER CABLE LAYING PREP WELDING         6.67           61         07331         CONTROL CABLE LAYING PREP WELDING         6.67           62         07332         HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG         10.00           63         Misc         Rain Test         64.00           64         Misc         S-Curve Test         16.00           65         Misc         Customer Inspection (Electrical/Mech/Pneumatic)         75           67         Misc         Testing Booking and final cover fixing         64           68         Misc         Shop QC stage Inspection (GI electrical/mech/piping/Undergear)         100	51	07321	CHEQRD PLT. FINAL WELDING	66.67
54         07324         BALLAST BOX PLT. WELDING AND OIL LEVEL SCALE WELDING         3.33           55         07325         CHEQRDPLT.PREP         5.00           56         07326         EXHAUST PIPE THERMAL INSULATION         1.67           57         07327         BOTH BATTERY STOOL WELDING         3.33           58         07328         All Pneumatic pipe support welding B/U/F         66.67           59         07329         All Pneumatic pipe support welding A/U/F         41.67           60         07330         POWER CABLE LAYING PREP WELDING         6.67           61         07331         CONTROL CABLE LAYING PREP WELDING         6.67           62         07332         HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG         10.00           63         Misc         Rain Test         64.00           64         Misc         S-Curve Test         16.00           65         Misc         Long Run         36.00           66         Misc         Customer Inspection (Electrical/Mech/Pneumatic)         75           67         Misc         Testing Booking and final cover fixing         64           68         Misc         Items replacement failed during testing         24           69         Misc	52	07322	LIFTING BKT. CUTTING U/ F.	6.67
55 07325 CHEQRDPLT.PREP 5.00  56 07326 EXHAUST PIPE THERMAL INSULATION 1.67  57 07327 BOTH BATTERY STOOL WELDING 3.33  58 07328 All Pneumatic pipe support welding B/U/F 66.67  59 07329 All Pneumatic pipe support welding A/U/F 41.67  60 07330 POWER CABLE LAYING PREP WELDING 6.67  61 07331 CONTROL CABLE LAYING PREP WELDING 6.67  62 07332 HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG WELDING WELDING 10.00  63 Misc Rain Test 64.00  64 Misc S-Curve Test 16.00  65 Misc Long Run 36.00  66 Misc Customer Inspection (Electrical/Mech/Pneumatic) 75  67 Misc Testing Booking and final cover fixing 64  68 Misc Items replacement failed during testing 24  69 Misc Shop QC stage Inspection (GI electrical/mech/piping/Undergear) 100  70 Misc Shunting ,Loading of Loco 60  71 Misc Pipe Threading 64  72 Misc Packing filling in both cabins and hood 60  73 Misc Platform Assy preparation and fixing 100	53	07323	CABIN LIFTING BKT.CUTTING	3.33
56 07326 EXHAUST PIPE THERMAL INSULATION 1.67 57 07327 BOTH BATTERY STOOL WELDING 3.33 58 07328 All Pneumatic pipe support welding B/U/F 66.67 59 07329 All Pneumatic pipe support welding A/U/F 41.67 60 07330 POWER CABLE LAYING PREP WELDING 6.67 61 07331 CONTROL CABLE LAYING PREP WELDING 6.67 62 07332 HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG WELDING 63 Misc Rain Test 64.00 64 Misc S-Curve Test 16.00 65 Misc Long Run 36.00 66 Misc Customer Inspection (Electrical/Mech/Pneumatic) 75 67 Misc Testing Booking and final cover fixing 64 68 Misc Items replacement failed during testing 24 69 Misc Shop QC stage Inspection (GI electrical/mech/piping/Undergear) 100 70 Misc Shunting ,Loading of Loco 60 71 Misc Pipe Threading 64 72 Misc Packing filling in both cabins and hood 60 73 Misc Platform Assy preparation and fixing 100	54	07324	BALLAST BOX PLT. WELDING AND OIL LEVEL SCALE WELDING	3.33
57 07327 BOTH BATTERY STOOL WELDING  58 07328 All Pneumatic pipe support welding B/U/F  59 07329 All Pneumatic pipe support welding A/U/F  60 07330 POWER CABLE LAYING PREP WELDING  61 07331 CONTROL CABLE LAYING PREP WELDING  62 07332 HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG WELDING  63 Misc Rain Test  64 Misc S-Curve Test  65 Misc Long Run  66 Misc Customer Inspection (Electrical/Mech/Pneumatic)  67 Misc Testing Booking and final cover fixing  68 Misc Items replacement failed during testing  69 Misc Shop QC stage Inspection (GI electrical/mech/piping/Undergear)  70 Misc Shunting ,Loading of Loco  71 Misc Pipe Threading  72 Misc Packing filling in both cabins and hood  73 Misc Platform Assy preparation and fixing  10.00	55	07325	CHEQRDPLT.PREP	5.00
58 07328 All Pneumatic pipe support welding B/U/F 59 07329 All Pneumatic pipe support welding A/U/F 60 07330 POWER CABLE LAYING PREP WELDING 61 07331 CONTROL CABLE LAYING PREP WELDING 62 07332 HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG WELDING 63 Misc Rain Test 64.00 64 Misc S-Curve Test 16.00 65 Misc Long Run 66 Misc Customer Inspection (Electrical/Mech/Pneumatic) 75 67 Misc Testing Booking and final cover fixing 68 Misc Items replacement failed during testing 69 Misc Shop QC stage Inspection (GI electrical/mech/piping/Undergear) 70 Misc Shunting ,Loading of Loco 71 Misc Pipe Threading 72 Misc Packing filling in both cabins and hood 73 Misc Platform Assy preparation and fixing 100	56	07326	EXHAUST PIPE THERMAL INSULATION	1.67
59 07329 All Pneumatic pipe support welding A/U/F 60 07330 POWER CABLE LAYING PREP WELDING 61 07331 CONTROL CABLE LAYING PREP WELDING 62 07332 HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG WELDING 63 Misc Rain Test 64.00 64 Misc S-Curve Test 65 Misc Long Run 66 Misc Customer Inspection (Electrical/Mech/Pneumatic) 67 Misc Testing Booking and final cover fixing 68 Misc Items replacement failed during testing 69 Misc Shop QC stage Inspection (GI electrical/mech/piping/Undergear) 70 Misc Shunting ,Loading of Loco 60 71 Misc Pipe Threading 72 Misc Packing filling in both cabins and hood 73 Misc Platform Assy preparation and fixing 100	57	07327	BOTH BATTERY STOOL WELDING	3.33
60 07330 POWER CABLE LAYING PREP WELDING 6.67 61 07331 CONTROL CABLE LAYING PREP WELDING 6.67  62 07332 HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG WELDING 63 Misc Rain Test 64.00 64 Misc S-Curve Test 16.00 65 Misc Long Run 36.00 66 Misc Customer Inspection (Electrical/Mech/Pneumatic) 75 67 Misc Testing Booking and final cover fixing 64 68 Misc Items replacement failed during testing 24 69 Misc Shop QC stage Inspection (GI electrical/mech/piping/Undergear) 100 70 Misc Shunting ,Loading of Loco 60 71 Misc Pipe Threading 64 72 Misc Packing filling in both cabins and hood 60 73 Misc Platform Assy preparation and fixing 100	58	07328	All Pneumatic pipe support welding B/U/F	66.67
61 07331 CONTROL CABLE LAYING PREP WELDING 6.67  62 07332 HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG WELDING 63 Misc Rain Test 64.00  64 Misc S-Curve Test 16.00  65 Misc Long Run 36.00  66 Misc Customer Inspection (Electrical/Mech/Pneumatic) 75  67 Misc Testing Booking and final cover fixing 64  68 Misc Items replacement failed during testing 24  69 Misc Shop QC stage Inspection (GI electrical/mech/piping/Undergear) 100  70 Misc Shunting ,Loading of Loco 60  71 Misc Pipe Threading 64  72 Misc Packing filling in both cabins and hood 60  73 Misc Platform Assy preparation and fixing 100	59	07329	All Pneumatic pipe support welding A/U/F	41.67
6207332HOOD WIRING PREP STIFFNER WELDING AND HOOD BKT MTG WELDING10.0063MiscRain Test64.0064MiscS-Curve Test16.0065MiscLong Run36.0066MiscCustomer Inspection (Electrical/Mech/Pneumatic)7567MiscTesting Booking and final cover fixing6468MiscItems replacement failed during testing2469MiscShop QC stage Inspection (GI electrical/mech/piping/Undergear)10070MiscShunting ,Loading of Loco6071MiscPipe Threading6472MiscPacking filling in both cabins and hood6073MiscPlatform Assy preparation and fixing100	60	07330	POWER CABLE LAYING PREP WELDING	6.67
6207332WELDING10.0063MiscRain Test64.0064MiscS-Curve Test16.0065MiscLong Run36.0066MiscCustomer Inspection (Electrical/Mech/Pneumatic)7567MiscTesting Booking and final cover fixing6468MiscItems replacement failed during testing2469MiscShop QC stage Inspection (GI electrical/mech/piping/Undergear)10070MiscShunting ,Loading of Loco6071MiscPipe Threading6472MiscPacking filling in both cabins and hood6073MiscPlatform Assy preparation and fixing100	61	07331	CONTROL CABLE LAYING PREP WELDING	6.67
64MiscS-Curve Test16.0065MiscLong Run36.0066MiscCustomer Inspection (Electrical/Mech/Pneumatic)7567MiscTesting Booking and final cover fixing6468MiscItems replacement failed during testing2469MiscShop QC stage Inspection (GI electrical/mech/piping/Undergear)10070MiscShunting ,Loading of Loco6071MiscPipe Threading6472MiscPacking filling in both cabins and hood6073MiscPlatform Assy preparation and fixing100	62	07332		10.00
65 Misc Long Run 36.00  66 Misc Customer Inspection (Electrical/Mech/Pneumatic) 75  67 Misc Testing Booking and final cover fixing 64  68 Misc Items replacement failed during testing 24  69 Misc Shop QC stage Inspection (GI electrical/mech/piping/Undergear) 100  70 Misc Shunting ,Loading of Loco 60  71 Misc Pipe Threading 64  72 Misc Packing filling in both cabins and hood 60  73 Misc Platform Assy preparation and fixing 100	63	Misc	Rain Test	64.00
66 Misc Customer Inspection (Electrical/Mech/Pneumatic) 75  67 Misc Testing Booking and final cover fixing 64  68 Misc Items replacement failed during testing 24  69 Misc Shop QC stage Inspection (GI electrical/mech/piping/Undergear) 100  70 Misc Shunting ,Loading of Loco 60  71 Misc Pipe Threading 64  72 Misc Packing filling in both cabins and hood 60  73 Misc Platform Assy preparation and fixing 100	64	Misc	S-Curve Test	16.00
67MiscTesting Booking and final cover fixing6468MiscItems replacement failed during testing2469MiscShop QC stage Inspection (GI electrical/mech/piping/Undergear)10070MiscShunting ,Loading of Loco6071MiscPipe Threading6472MiscPacking filling in both cabins and hood6073MiscPlatform Assy preparation and fixing100	65	Misc	Long Run	36.00
68 Misc Items replacement failed during testing 24 69 Misc Shop QC stage Inspection (GI electrical/mech/piping/Undergear) 100 70 Misc Shunting ,Loading of Loco 60 71 Misc Pipe Threading 64 72 Misc Packing filling in both cabins and hood 60 73 Misc Platform Assy preparation and fixing 100	66	Misc	Customer Inspection (Electrical/Mech/Pneumatic)	75
69MiscShop QC stage Inspection (GI electrical/mech/piping/Undergear)10070MiscShunting ,Loading of Loco6071MiscPipe Threading6472MiscPacking filling in both cabins and hood6073MiscPlatform Assy preparation and fixing100	67	Misc	Testing Booking and final cover fixing	64
70MiscShunting ,Loading of Loco6071MiscPipe Threading6472MiscPacking filling in both cabins and hood6073MiscPlatform Assy preparation and fixing100	68	Misc	Items replacement failed during testing	24
71MiscPipe Threading6472MiscPacking filling in both cabins and hood6073MiscPlatform Assy preparation and fixing100	69	Misc	Shop QC stage Inspection (GI electrical/mech/piping/Undergear)	100
72MiscPacking filling in both cabins and hood6073MiscPlatform Assy preparation and fixing100	70	Misc	Shunting ,Loading of Loco	60
73 Misc Platform Assy preparation and fixing 100	71	Misc	Pipe Threading	64
	72	Misc	Packing filling in both cabins and hood	60
<b>Total</b> 1586.33	73	Misc	Platform Assy preparation and fixing	100
			Total	1586.33

# **Locomotive Manufacturing Deptt.**

## TENDER DOCUMENT

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20/08/2024

Loco		1400 HP DESL	
Area		Loco Assy Shop	
S.No	Module	Activities	Manhours
1	14080	Air Dryer mounting plate Preparation and mounting	13.33
2	14081	RESERVOIR SUB-ASSY	13.33
3	14085	FUEL LEVEL INDICATOR MTG	3.33
4	14089	SUPER STRUCTURE TRIAL MTG & DISMENTLING	16.67
5	14094	ENGINE OIL TRAY MTG & DRAINING	6.67
6	14095	CHEQUER PLATE ASSY AT WALK WAY	31.67
7	14096	HAND RAIL MTG	15.00
8	14100	HYDRAULIC TANK MTG.	8.33
9	14103	SUPER STRUCTURE MTG	20.00
10	14106	Air Inlet Filter MNTG ,EXHAUST & AIR INLET PIPE ASSY with Silencer MNTG	30.00
11	14107	DYNAMIC AIR FILTER and DUST BLOWER MTG	13.33
12	14115	CHEQUERED PLATE ASSY IN CAB	16.67
13	14116	DRIVERS`S SEAT MTG	6.67
14	14118	HYDRAULIC COOLER (OIL)MTG	13.33
15	14120	HAND BRAKE ASSY	20.00
16	14124	RADIATOR MTG STOOL PREPRATION	26.67
17	14125	RADIATOR MTG ON STOOL	8.33
18	14126	RADAITOR MTG ON U/F	10.00
19	14127	RADIATOR AND ENGINE PIPING	66.67
20	14130	SUPER STRUCTURE FINAL MTG	26.67
21	14131	SUPERSTRUCTURE DOOR RUBBER SEALING	20.00
22	14132	CABIN DOOR RUBER SEALING	13.33
23	14134	BELLOW CONNECTION ON TRACTION MOTOR	15.00
24	14137	HAND BRAKE CONECTION	6.67
25	14141	DRIVER DESK MOUNTING 1 &2	20.00
26	14142	Welding of super structure	41.67
27	14143	Welding of engine pads	20.00
28	14144	Welding of Radiator pads	13.33
29	14145	Welding of Alternator pads	13.33
30	14146	Welding of chequered plates	80.00
31	14147	Welding of pipes and supports AUB, BUF and Cabin	40.00
32	14148	Welding of Loading pads	13.33
33	14149	Welding of handrails pads	26.67
34	Misc	Rain Test	64
35	Misc	S-Curve Test	16
36	Misc	Long Run	36
37	Misc	Final cover Fixing in all panels and loco	32
38	Misc	Items replacement failed during testing	24
39	Misc	Shunting	60

## **Locomotive Manufacturing Deptt.**

## TENDER DOCUMENT

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20					
40	Misc	Pipe Threading	64		
41	Misc	Shed Inspection	64		
		Total	1050.00		

## **Bogie Assembly Shop**

State	Loco	700 HP TPP DESL Bogie				
NO.         MODULE         Activities         Mahnrs           1         55025         CROSS TIE&WIRE ROPE MTG B-1         12           2         55026         CROSS TIE&WIRE ROPE MTG B-2         12           3         55031         HANGER BKT SHIFTING & FINAL WELDING B-1         16           4         55032         HANGER BKT SHIFTING & FINAL WELDING B-1         12           6         55033         BOGIE FINAL LOWER B-1         12           6         55034         BOGIE FINAL LOWER B-2         12           7         55035         BC REPLACEMENT B-1         8           8         55036         BC REPLACEMENT B-2         8           9         55065         TM WIRE LOCK B-1         2           10         55066         TM WIRE LOCK B-2         2           11         55071         GEAR CASE MTG B-1         12           12         55072         GEAR CASE MTG B-2         12           13         55077         AXLE BOX BIDDING B-1         4           14         55078         AXLE BOX BIDDING B-2         4           15         55083         BEARING STOPPER MTG & WIRE LOCK B-2         4           16         55084         BEARING STOPPER MTG & WIRE LO	Area	Bogie Assy Shop				
2       \$5026       CROSS TIE&WIRE ROPE MTG B-2       12         3       \$5031       HANGER BKT SHIFTING & FINAL WELDING B-1       16         4       \$5032       HANGER BKT SHIFTING & FINAL WELDING B-1       16         5       \$5033       BOGIE FINAL LOWER B-1       12         6       \$5034       BOGIE FINAL LOWER B-2       12         7       \$5035       BC REPLACEMENT B-1       8         8       \$5036       BC REPLACEMENT B-2       8         9       \$5065       TM WIRE LOCK B-1       2         10       \$5066       TM WIRE LOCK B-2       2         11       \$5071       GEAR CASE MTG B-1       12         12       \$5072       GEAR CASE MTG B-1       12         13       \$5077       AXLE BOX BIDDING B-1       4         14       \$5078       AXLE BOX BIDDING B-1       4         14       \$5078       AXLE BOX BIDDING B-1       4         15       \$5083       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       \$5085       PULL ROD PREPARATION B-1       8         18       \$5086       PULL ROD PREPARATION B-2       8         20       \$5087       PULL ROD MTG B-1       4		MODULE	Activities	Manhrs		
3       55031       HANGER BKT SHIFTING & FINAL WELDING B-1       16         4       55032       HANGER BKT SHIFTING & FINAL WELDING B-2       16         5       55033       BOGIE FINAL LOWER B-1       12         6       55034       BOGIE FINAL LOWER B-2       12         7       55035       BC REPLACEMENT B-1       8         8       55036       BC REPLACEMENT B-2       8         9       55065       TM WIRE LOCK B-1       2         10       55066       TM WIRE LOCK B-1       12         12       55071       GEAR CASE MTG B-1       12         12       55072       GEAR CASE MTG B-1       12         12       55073       AXLE BOX BIDDING B-1       4         14       55074       AXLE BOX BIDDING B-1       4         14       55075       AXLE BOX BIDDING B-1       4         15       55083       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       55085       PULL ROD PREPARATION B-1       8         18       55086       PULL ROD PREPARATION B-2       8         19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       4	1	55025	CROSS TIE&WIRE ROPE MTG B-1	12		
4       55032       HANGER BKT SHIFTING & Final welding B-2       16         5       55033       BOGIE FINAL LOWER B-1       12         6       55034       BOGIE FINAL LOWER B-2       12         7       55035       BC REPLACEMENT B-1       8         8       55036       BC REPLACEMENT B-2       8         9       55036       TM WIRE LOCK B-1       2         10       55066       TM WIRE LOCK B-1       2         11       55071       GEAR CASE MTG B-1       12         12       55072       GEAR CASE MTG B-2       12         13       55077       AXLE BOX BIDDING B-1       4         14       55078       AXLE BOX BIDDING B-2       4         15       55083       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       55084       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       55085       PULL ROD PREPARATION B-1       8         18       55086       PULL ROD PREPARATION B-1       8         19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-2       4 <tr< td=""><td>2</td><td>55026</td><td>CROSS TIE&amp;WIRE ROPE MTG B-2</td><td>12</td></tr<>	2	55026	CROSS TIE&WIRE ROPE MTG B-2	12		
5         55033         BOGIE FINAL LOWER B-1         12           6         55034         BOGIE FINAL LOWER B-2         12           7         55035         BC REPLACEMENT B-1         8           8         55036         BC REPLACEMENT B-2         8           9         55065         TM WIRE LOCK B-1         2           10         55066         TM WIRE LOCK B-2         2           11         55071         GEAR CASE MTG B-1         12           12         55072         GEAR CASE MTG B-2         12           13         55077         AXLE BOX BIDDING B-1         4           14         55078         AXLE BOX BIDDING B-1         4           15         55083         BEARING STOPPER MTG & WIRE LOCK B-1         4           16         55084         BEARING STOPPER MTG & WIRE LOCK B-2         4           17         55085         PULL ROD PREPARATION B-1         8           18         55086         PULL ROD PREPARATION B-2         8           19         55087         PULL ROD MTG B-1         6           20         55088         PULL ROD MTG B-1         4           22         55091         SANDWITCH MTG B-2         4	3	55031	HANGER BKT SHIFTING & FINAL WELDING B-1	16		
6       55034       BOGIE FINAL LOWER B-2       12         7       55035       BC REPLACEMENT B-1       8         8       55036       BC REPLACEMENT B-2       8         9       55065       TM WIRE LOCK B-1       2         10       55066       TM WIRE LOCK B-2       2         11       55071       GEAR CASE MTG B-1       12         12       55072       GEAR CASE MTG B-2       12         13       55077       AXLE BOX BIDDING B-1       4         14       55078       AXLE BOX BIDDING B-2       4         15       55083       BEARING STOPPER MTG & WIRE LOCK B-1       4         16       55084       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       55085       PULL ROD PREPARATION B-1       8         18       55086       PULL ROD PREPARATION B-2       8         19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-2       4         23       55092       SANDWITCH MTG B-2       4         24       55096       SHIM MTG AFTER WEIGHMENT B-1       4         26<	4	55032	HANGER BKT SHIFTING & Final welding B-2	16		
7       55035       BC REPLACEMENT B-1       8         8       55036       BC REPLACEMENT B-2       8         9       55065       TM WIRE LOCK B-1       2         10       55066       TM WIRE LOCK B-2       2         11       55071       GEAR CASE MTG B-1       12         12       55072       GEAR CASE MTG B-2       12         13       55077       AXLE BOX BIDDING B-1       4         14       55078       AXLE BOX BIDDING B-2       4         15       55083       BEARING STOPPER MTG & WIRE LOCK B-1       4         16       55084       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       55085       PULL ROD PREPARATION B-1       8         18       55086       PULL ROD PREPARATION B-2       8         19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-1       4         22       55092       SANDWITCH MTG B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-1       4         25       55097       SAFETY STRAP MTG B-2       6         26 </td <td>5</td> <td>55033</td> <td>BOGIE FINAL LOWER B-1</td> <td>12</td>	5	55033	BOGIE FINAL LOWER B-1	12		
8       55036       BC REPLACEMENT B-2       8         9       55065       TM WIRE LOCK B-1       2         10       55066       TM WIRE LOCK B-2       2         11       55071       GEAR CASE MTG B-1       12         12       55072       GEAR CASE MTG B-2       12         13       55077       AXLE BOX BIDDING B-1       4         14       55078       AXLE BOX BIDDING B-2       4         15       55083       BEARING STOPPER MTG & WIRE LOCK B-1       4         16       55084       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       55085       PULL ROD PREPARATION B-1       8         18       55086       PULL ROD PREPARATION B-2       8         19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-1       4         22       55092       SANDWITCH MTG B-1       4         24       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-2       6	6	55034	BOGIE FINAL LOWER B-2	12		
9       \$5065       TM WIRE LOCK B-1       2         10       \$5066       TM WIRE LOCK B-2       2         11       \$5071       GEAR CASE MTG B-1       12         12       \$5072       GEAR CASE MTG B-2       12         13       \$5077       AXLE BOX BIDDING B-1       4         14       \$5078       AXLE BOX BIDDING B-2       4         15       \$5083       BEARING STOPPER MTG & WIRE LOCK B-1       4         16       \$5084       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       \$5085       PULL ROD PREPARATION B-1       8         18       \$5086       PULL ROD PREPARATION B-1       8         19       \$5087       PULL ROD MTG B-1       6         20       \$5088       PULL ROD MTG B-2       6         21       \$5091       SANDWITCH MTG B-1       4         22       \$5092       SANDWITCH MTG B-2       4         23       \$5095       SHIM MTG AFTER WEIGHMENT B-1       4         24       \$5096       SHIM MTG AFTER WEIGHMENT B-2       4         25       \$5097       \$AFETY STRAP MTG B-2       6         27       \$5101       PISTON ADJUST       16	7	55035	BC REPLACEMENT B-1	8		
10       \$5066       TM WIRE LOCK B-2       2         11       \$5071       GEAR CASE MTG B-1       12         12       \$5072       GEAR CASE MTG B-2       12         13       \$5077       AXLE BOX BIDDING B-1       4         14       \$5078       AXLE BOX BIDDING B-2       4         15       \$5083       BEARING STOPPER MTG & WIRE LOCK B-1       4         16       \$5084       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       \$5085       PULL ROD PREPARATION B-1       8         18       \$5086       PULL ROD PREPARATION B-2       8         19       \$5087       PULL ROD MTG B-1       6         20       \$5088       PULL ROD MTG B-2       6         21       \$5091       SANDWITCH MTG B-2       4         22       \$5092       SANDWITCH MTG B-2       4         23       \$5095       SHIM MTG AFTER WEIGHMENT B-1       4         24       \$5096       SHIM MTG AFTER WEIGHMENT B-2       4         25       \$5097       SAFETY STRAP MTG B-2       6         27       \$5101       PISTON ADJUST       16         28       \$5102       U/G MECH INT/QC       12	8	55036	BC REPLACEMENT B-2	8		
11       55071       GEAR CASE MTG B-1       12         12       55072       GEAR CASE MTG B-2       12         13       55077       AXLE BOX BIDDING B-1       4         14       55078       AXLE BOX BIDDING B-2       4         15       55083       BEARING STOPPER MTG & WIRE LOCK B-1       4         16       55084       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       55085       PULL ROD PREPARATION B-1       8         18       55086       PULL ROD PREPARATION B-2       8         19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-1       4         22       55092       SANDWITCH MTG B-2       4         23       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12	9	55065	TM WIRE LOCK B-1	2		
12       55072       GEAR CASE MTG B-2       12         13       55077       AXLE BOX BIDDING B-1       4         14       55078       AXLE BOX BIDDING B-2       4         15       55083       BEARING STOPPER MTG & WIRE LOCK B-1       4         16       55084       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       55085       PULL ROD PREPARATION B-1       8         18       55086       PULL ROD PREPARATION B-2       8         19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-1       4         22       55092       SANDWITCH MTG B-2       4         23       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-2       16	10	55066	TM WIRE LOCK B-2	2		
13       55077       AXLE BOX BIDDING B-1       4         14       55078       AXLE BOX BIDDING B-2       4         15       55083       BEARING STOPPER MTG & WIRE LOCK B-1       4         16       55084       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       55085       PULL ROD PREPARATION B-1       8         18       55086       PULL ROD PREPARATION B-2       8         19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-1       4         22       55092       SANDWITCH MTG B-2       4         23       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16	11	55071	GEAR CASE MTG B-1	12		
14       55078       AXLE BOX BIDDING B-2       4         15       55083       BEARING STOPPER MTG & WIRE LOCK B-1       4         16       55084       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       55085       PULL ROD PREPARATION B-1       8         18       55086       PULL ROD PREPARATION B-2       8         19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-1       4         22       55092       SANDWITCH MTG B-2       4         23       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1	12	55072	GEAR CASE MTG B-2	12		
15       55083       BEARING STOPPER MTG & WIRE LOCK B-1       4         16       55084       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       55085       PULL ROD PREPARATION B-1       8         18       55086       PULL ROD PREPARATION B-2       8         19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-1       4         22       55092       SANDWITCH MTG B-2       4         23       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2	13	55077	AXLE BOX BIDDING B-1	4		
16       55084       BEARING STOPPER MTG & WIRE LOCK B-2       4         17       55085       PULL ROD PREPARATION B-1       8         18       55086       PULL ROD PREPARATION B-2       8         19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-1       4         22       55092       SANDWITCH MTG B-2       4         23       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	14	55078	AXLE BOX BIDDING B-2	4		
17       55085       PULL ROD PREPARATION B-1       8         18       55086       PULL ROD PREPARATION B-2       8         19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-1       4         22       55092       SANDWITCH MTG B-2       4         23       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	15	55083	BEARING STOPPER MTG & WIRE LOCK B-1	4		
18       55086       PULL ROD PREPARATION B-2       8         19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-1       4         22       55092       SANDWITCH MTG B-2       4         23       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	16	55084	BEARING STOPPER MTG & WIRE LOCK B-2	4		
19       55087       PULL ROD MTG B-1       6         20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-1       4         22       55092       SANDWITCH MTG B-2       4         23       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	17	55085	PULL ROD PREPARATION B-1	8		
20       55088       PULL ROD MTG B-2       6         21       55091       SANDWITCH MTG B-1       4         22       55092       SANDWITCH MTG B-2       4         23       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	18	55086	PULL ROD PREPARATION B-2	8		
21       55091       SANDWITCH MTG B-1       4         22       55092       SANDWITCH MTG B-2       4         23       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	19	55087	PULL ROD MTG B-1	6		
22       55092       SANDWITCH MTG B-2       4         23       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	20	55088	PULL ROD MTG B-2	6		
23       55095       SHIM MTG AFTER WEIGHMENT B-1       4         24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	21	55091	SANDWITCH MTG B-1	4		
24       55096       SHIM MTG AFTER WEIGHMENT B-2       4         25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	22	55092	SANDWITCH MTG B-2	4		
25       55097       SAFETY STRAP MTG B-1       6         26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	23	55095	SHIM MTG AFTER WEIGHMENT B-1	4		
26       55098       SAFETY STRAP MTG B-2       6         27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	24	55096	SHIM MTG AFTER WEIGHMENT B-2	4		
27       55101       PISTON ADJUST       16         28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	25	55097	SAFETY STRAP MTG B-1	6		
28       55102       U/G MECH INT/QC       12         29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	26	55098	SAFETY STRAP MTG B-2	6		
29       55103       PULL ROD SLEEVE SETTING B-1       16         30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	27	55101	PISTON ADJUST	16		
30       55104       PULL ROD SLEEVE SETTING B-2       16         31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	28	55102	U/G MECH INT/QC	12		
31       55119       HORN STAY SPLIT PIN MTG B-1       5.28         32       55120       HORN STAY SPLIT PIN MTG B-2       5.28	29	55103	PULL ROD SLEEVE SETTING B-1	16		
32 55120 HORN STAY SPLIT PIN MTG B-2 5.28	30	55104	PULL ROD SLEEVE SETTING B-2	16		
	31	55119	HORN STAY SPLIT PIN MTG B-1	5.28		
33 55141 BOGIE INTERLOCK AFTER LOWER 8	32	55120	HORN STAY SPLIT PIN MTG B-2	5.28		
	33	55141	BOGIE INTERLOCK AFTER LOWER	8		

## **Locomotive Manufacturing Deptt.**

34 55142 BRAKE SHOE OVERRIDE/LOCO 35 55145 LOCO U/G CLEARANCE 36 55121 PEDESTAL LINER T/F WELD B-1 37 55122 PEDESTAL LINER T/F WELD B-2 38 55123 HORN LINER T/F WELD B-1 39 55124 HORN LINER T/F WELD B-2 40 55125 SAND BOX T/F WELD B-1 41 55126 SAND BOX T/F WELD B-2 42 55127 CROSS TIE HOOK WELD B-1 43 55128 CROSS TIE HOOK WELD B-2 44 55129 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-1 45 55130 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-2 46 55131 PULL ROD SLEEVE T/F WELD B-1 47 55132 PULL ROD SLEEVE T/F WELD B-1 48 55133 SAFETY STRAP T/F WELD B-1 49 55134 SAFETY STRAP T/F WELD B-1 50 55135 TOP SEAT GUIDE BUSH T/F WELD B-1 51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2 52 55099 SPEED SENSOR BKT T/F WELDING B-1	16 8
36       55121       PEDESTAL LINER T/F WELD B-1         37       55122       PEDESTAL LINER T/F WELD B-2         38       55123       HORN LINER T/F WELD B-1         39       55124       HORN LINER T/F WELD B-2         40       55125       SAND BOX T/F WELD B-1         41       55126       SAND BOX T/F WELD B-1         42       55127       CROSS TIE HOOK WELD B-1         43       55128       CROSS TIE HOOK WELD B-2         44       55129       AXLE BOX HORN&PEDESTAL LINER T/F WELD B-1         45       55130       AXLE BOX HORN&PEDESTAL LINER T/F WELD B-2         46       55131       PULL ROD SLEEVE T/F WELD B-1         47       55132       PULL ROD SLEEVE T/F WELD B-2         48       55133       SAFETY STRAP T/F WELD B-1         49       55134       SAFETY STRAP T/F WELD B-2         50       55135       TOP SEAT GUIDE BUSH T/F WELD B-1         51       55136       TOP SEAT GUIDE BUSH T/F WELD B-2         52       55099       SPEED SENSOR BKT T/F welding         53       55079       AXLE BOX HORN TO HORN GAP T/F WELDING B-1	Q
37 55122 PEDESTAL LINER T/F WELD B-2  38 55123 HORN LINER T/F WELD B-1  39 55124 HORN LINER T/F WELD B-2  40 55125 SAND BOX T/F WELD B-1  41 55126 SAND BOX T/F WELD B-2  42 55127 CROSS TIE HOOK WELD B-1  43 55128 CROSS TIE HOOK WELD B-2  44 55129 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-1  45 55130 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-2  46 55131 PULL ROD SLEEVE T/F WELD B-1  47 55132 PULL ROD SLEEVE T/F WELD B-2  48 55133 SAFETY STRAP T/F WELD B-1  49 55134 SAFETY STRAP T/F WELD B-1  50 55135 TOP SEAT GUIDE BUSH T/F WELD B-1  51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2  52 55099 SPEED SENSOR BKT T/F WELDING B-1	O
38 55123 HORN LINER T/F WELD B-1 39 55124 HORN LINER T/F WELD B-2 40 55125 SAND BOX T/F WELD B-1 41 55126 SAND BOX T/F WELD B-2 42 55127 CROSS TIE HOOK WELD B-1 43 55128 CROSS TIE HOOK WELD B-2 44 55129 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-1 45 55130 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-2 46 55131 PULL ROD SLEEVE T/F WELD B-1 47 55132 PULL ROD SLEEVE T/F WELD B-2 48 55133 SAFETY STRAP T/F WELD B-1 49 55134 SAFETY STRAP T/F WELD B-2 50 55135 TOP SEAT GUIDE BUSH T/F WELD B-1 51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2 52 55099 SPEED SENSOR BKT T/F welding 53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	8
39 55124 HORN LINER T/F WELD B-2 40 55125 SAND BOX T/F WELD B-1 41 55126 SAND BOX T/F WELD B-2 42 55127 CROSS TIE HOOK WELD B-1 43 55128 CROSS TIE HOOK WELD B-2 44 55129 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-1 45 55130 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-2 46 55131 PULL ROD SLEEVE T/F WELD B-1 47 55132 PULL ROD SLEEVE T/F WELD B-2 48 55133 SAFETY STRAP T/F WELD B-1 49 55134 SAFETY STRAP T/F WELD B-2 50 55135 TOP SEAT GUIDE BUSH T/F WELD B-1 51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2 52 55099 SPEED SENSOR BKT T/F welding 53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	8
40 55125 SAND BOX T/F WELD B-1 41 55126 SAND BOX T/F WELD B-2 42 55127 CROSS TIE HOOK WELD B-1 43 55128 CROSS TIE HOOK WELD B-2 44 55129 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-1 45 55130 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-2 46 55131 PULL ROD SLEEVE T/F WELD B-1 47 55132 PULL ROD SLEEVE T/F WELD B-2 48 55133 SAFETY STRAP T/F WELD B-1 49 55134 SAFETY STRAP T/F WELD B-1 50 55135 TOP SEAT GUIDE BUSH T/F WELD B-1 51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2 52 55099 SPEED SENSOR BKT T/F welding 53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	6
41 55126 SAND BOX T/F WELD B-2 42 55127 CROSS TIE HOOK WELD B-1 43 55128 CROSS TIE HOOK WELD B-2 44 55129 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-1 45 55130 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-2 46 55131 PULL ROD SLEEVE T/F WELD B-1 47 55132 PULL ROD SLEEVE T/F WELD B-2 48 55133 SAFETY STRAP T/F WELD B-1 49 55134 SAFETY STRAP T/F WELD B-2 50 55135 TOP SEAT GUIDE BUSH T/F WELD B-1 51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2 52 55099 SPEED SENSOR BKT T/F welding 53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	6
42 55127 CROSS TIE HOOK WELD B-1 43 55128 CROSS TIE HOOK WELD B-2 44 55129 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-1 45 55130 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-2 46 55131 PULL ROD SLEEVE T/F WELD B-1 47 55132 PULL ROD SLEEVE T/F WELD B-2 48 55133 SAFETY STRAP T/F WELD B-1 49 55134 SAFETY STRAP T/F WELD B-2 50 55135 TOP SEAT GUIDE BUSH T/F WELD B-1 51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2 52 55099 SPEED SENSOR BKT T/F welding 53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	8
43 55128 CROSS TIE HOOK WELD B-2  44 55129 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-1  45 55130 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-2  46 55131 PULL ROD SLEEVE T/F WELD B-1  47 55132 PULL ROD SLEEVE T/F WELD B-2  48 55133 SAFETY STRAP T/F WELD B-1  49 55134 SAFETY STRAP T/F WELD B-2  50 55135 TOP SEAT GUIDE BUSH T/F WELD B-1  51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2  52 55099 SPEED SENSOR BKT T/F welding  53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	8
44       55129       AXLE BOX HORN&PEDESTAL LINER T/F WELD B-1         45       55130       AXLE BOX HORN&PEDESTAL LINER T/F WELD B-2         46       55131       PULL ROD SLEEVE T/F WELD B-1         47       55132       PULL ROD SLEEVE T/F WELD B-2         48       55133       SAFETY STRAP T/F WELD B-1         49       55134       SAFETY STRAP T/F WELD B-2         50       55135       TOP SEAT GUIDE BUSH T/F WELD B-1         51       55136       TOP SEAT GUIDE BUSH T/F WELD B-2         52       55099       SPEED SENSOR BKT T/F welding         53       55079       AXLE BOX HORN TO HORN GAP T/F WELDING B-1	4
45 55130 AXLE BOX HORN&PEDESTAL LINER T/F WELD B-2 46 55131 PULL ROD SLEEVE T/F WELD B-1 47 55132 PULL ROD SLEEVE T/F WELD B-2 48 55133 SAFETY STRAP T/F WELD B-1 49 55134 SAFETY STRAP T/F WELD B-2 50 55135 TOP SEAT GUIDE BUSH T/F WELD B-1 51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2 52 55099 SPEED SENSOR BKT T/F welding 53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	4
46 55131 PULL ROD SLEEVE T/F WELD B-1 47 55132 PULL ROD SLEEVE T/F WELD B-2 48 55133 SAFETY STRAP T/F WELD B-1 49 55134 SAFETY STRAP T/F WELD B-2 50 55135 TOP SEAT GUIDE BUSH T/F WELD B-1 51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2 52 55099 SPEED SENSOR BKT T/F welding 53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	8
47 55132 PULL ROD SLEEVE T/F WELD B-2  48 55133 SAFETY STRAP T/F WELD B-1  49 55134 SAFETY STRAP T/F WELD B-2  50 55135 TOP SEAT GUIDE BUSH T/F WELD B-1  51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2  52 55099 SPEED SENSOR BKT T/F welding  53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	8
48 55133 SAFETY STRAP T/F WELD B-1 49 55134 SAFETY STRAP T/F WELD B-2 50 55135 TOP SEAT GUIDE BUSH T/F WELD B-1 51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2 52 55099 SPEED SENSOR BKT T/F welding 53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	4
49       55134       SAFETY STRAP T/F WELD B-2         50       55135       TOP SEAT GUIDE BUSH T/F WELD B-1         51       55136       TOP SEAT GUIDE BUSH T/F WELD B-2         52       55099       SPEED SENSOR BKT T/F welding         53       55079       AXLE BOX HORN TO HORN GAP T/F WELDING B-1	4
50 55135 TOP SEAT GUIDE BUSH T/F WELD B-1 51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2 52 55099 SPEED SENSOR BKT T/F welding 53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	4
51 55136 TOP SEAT GUIDE BUSH T/F WELD B-2 52 55099 SPEED SENSOR BKT T/F welding 53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	4
52 55099 SPEED SENSOR BKT T/F welding 53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	6
53 55079 AXLE BOX HORN TO HORN GAP T/F WELDING B-1	6
	1
FA FFORD AVERDOV HODDITO HODDI CART /F WELDING R 2	4
54   55080   AXLE BOX HORN TO HORN GAP T/F WELDING B-2	4
55 55113 INTERLOCK BKT PREP. &T/F WELDING B-1	4
56 55114 INTERLOCK BKT PREP. & T/F WELDING B-2	4
Preparation work for wheel axle assembly items like Wheel, Gear Wheel  57 Misc , Axle, axle box assembly & Gear Case (Removal of Anti Rust agent, Oil, Grease, Rusting, assistance in pressing operation Etc)	16
58 Misc Preparation work of bogie frame assembly ( deburring, dressing etc.)	8
Grinding & Dressing work of fittment items in bogie frame & CARDIUM & OIL FILLING	24
60 Misc Unpacking of items, housekeeping of shop, machine cleaning, Chip removal & assitance for crane operationetc.	24
Total	483.56

## **Locomotive Manufacturing Deptt.**

#### **TENDER DOCUMENT**

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20/08/2024

Loco	700 HP Dual cab DESL Bogie				
Area	Bogie Assy Shop				
SL NO.	MODULE	Activities	Manhrs		
1	55025	CROSS TIE&WIRE ROPE MTG B-1	12		
2	55026	CROSS TIE&WIRE ROPE MTG B-2	12		
3	55031	HANGER BKT SHIFTING & FINAL WELDING B-1	16		
4	55032	HANGER BKT SHIFTING & Final welding B-2	16		
5	55033	BOGIE FINAL LOWER B-1	12		
6	55034	BOGIE FINAL LOWER B-2	12		
7	55035	BC REPLACEMENT B-1	8		
8	55036	BC REPLACEMENT B-2	8		
9	55065	TM WIRE LOCK B-1	2		
10	55066	TM WIRE LOCK B-2	2		
11	55069	DUST GUARD MTG B-1	4		
12	55070	DUST GUARD MTG B-2	4		
13	55071	GEAR CASE MTG B-1	12		
14	55072	GEAR CASE MTG B-2	12		
15	55077	AXLE BOX BIDDING B-1	4		
16	55078	AXLE BOX BIDDING B-2	4		
17	55083	BEARING STOPPER MTG & WIRE LOCK B-1	4		
18	55084	BEARING STOPPER MTG & WIRE LOCK B-2	4		
19	55085	PULL ROD PREPARATION B-1	8		
20	55086	PULL ROD PREPARATION B-2	8		
21	55087	PULL ROD MTG B-1	6		
22	55088	PULL ROD MTG B-2	6		
23	55091	SANDWITCH MTG B-1	4		
24	55092	SANDWITCH MTG B-2	4		
25	55095	SHIM MTG AFTER WEIGHMENT B-1	4		
26	55096	SHIM MTG AFTER WEIGHMENT B-2	4		
27	55097	SAFETY STRAP MTG B-1	6		
28	55098	SAFETY STRAP MTG B-2	6		
29	55099	SPEED SENSOR BKT PREP.	4		
30	55101	PISTON ADJUST	16		
31	55102	U/G MECH INT/QC	12		
32	55103	PULL ROD SLEEVE SETTING B-1	16		
33	55104	PULL ROD SLEEVE SETTING B-2	16		
34	55108	INNER HANGER PREPARATION/LOCO	16		
35	55117	HORN STAY MTG B-1	6		
36	55118	HORN STAY MTG B-2	6		
37	55119	HORN STAY SPLIT PIN MTG B-1	5.28		
38	55120	HORN STAY SPLIT PIN MTG B-2	5.28		
39	55141	BOGIE INTERLOCK AFTER LOWER	8		

## **Locomotive Manufacturing Deptt.**

TENDER	ENQUIRY	NO.: LMM/TW/24-25/001 DATE:-	20/08/2024
40	55142	BRAKE SHOE OVERRIDE/LOCO	16
41	55145	LOCO U/G CLEARANCE	8
42	55121	PEDESTAL LINER T/F WELD B-1	8
43	55122	PEDESTAL LINER T/F WELD B-2	8
44	55123	HORN LINER T/F WELD B-1	6
45	55124	HORN LINER T/F WELD B-2	6
46	55125	SAND BOX T/F WELD B-1	8
47	55126	SAND BOX T/F WELD B-2	8
48	55127	CROSS TIE HOOK WELD B-1	4
49	55128	CROSS TIE HOOK WELD B-2	4
50	55129	AXLE BOX HORN&PEDESTAL LINER T/F WELD B-1	8
51	55130	AXLE BOX HORN&PEDESTAL LINER T/F WELD B-2	8
52	55131	PULL ROD SLEEVE T/F WELD B-1	4
53	55132	PULL ROD SLEEVE T/F WELD B-2	4
54	55133	SAFETY STRAP T/F WELD B-1	4
55	55134	SAFETY STRAP T/F WELD B-2	4
56	55135	TOP SEAT GUIDE BUSH T/F WELD B-1	6
57	55136	TOP SEAT GUIDE BUSH T/F WELD B-2	6
58	55099	SPEED SENSOR BKT T/F welding	1
59	55079	AXLE BOX HORN TO HORN GAP T/F WELDING B-1	4
60	55080	AXLE BOX HORN TO HORN GAP T/F WELDING B-2	4
61	55113	INTERLOCK BKT PREP. &T/F WELDING B-1	4
62	55114	INTERLOCK BKT PREP. & T/F WELDING B-2	4
		Total	451.56

Loco		1400 HP DESL Bogie		
Area		Bogie Assy Shop		
SL NO.	MODULE	Activities	Manhrs	
1	2023	BRIDGE PAD BUSH MTG B-1	3	
2	2024	BRIDGE PAD BUSH MTG B-2	3	
3	2031	BC MTG 1ST SETUP B-1	8	
4	2032	BC MTG 1ST SETUP B-2	8	
5	2049	CROSS TIE PREP&WIRE ROPE MTG B-1	8	
6	2050	CROSS TIE PREP&WIRE ROPE MTG B-2	8	
7	2073	TM MTG B-1	12	
8	2074	TM MTG B-2	12	
9	2077	GEAR CASE MTG B-1	18	
10	2078	GEAR CASE MTG B-2	18	
11	2079	TM WIRE LOCK B-1	6	
12	2080	TM WIRE LOCK B-2	6	
13	2091	BOGIE TRIAL LOWER B-1	12	
14	2092	BOGIE TRIAL LOWER B-2	12	
15	2095	HNGR BKT SHIFTING B-1	4	

## **Locomotive Manufacturing Deptt.**

TENDER I	NQUIRY	NO. : LMM/TW/24-25/001	DATE:- 20/08/2024
16	2096	HNGR BKT SHIFTING B-2	4
17	2097	HORN PEDESTAL CLEARANCE MAINT B-1	8
18	2098	HORN PEDESTAL CLEARANCE MAINT B-2	8
19	2099	HANGER SIDE STOPPER GAP MAIN B-1	2.5
20	2100	HANGER SIDE STOPPER GAP MAIN B-2	2.5
21	2101	BOGIE FINAL LOWER B-1	12
22	2102	BOGIE FINAL LOWER B-2	12
23	2105	SANDWITCH MTG B-1	7.5
24	2106	SANDWITCH MTG B-2	7.5
25	2109	VERTICAL DAMPER MTG B-1	8
26	2110	VERTICAL DAMPER MTG B-2	8
27	2111	LATERAL DAMPER MTG B-1	4
28	2112	LATERAL DAMPER MTG B-2	4
29	2113	HORN STAY MTG&LOCK B-1	18
30	2114	HORN STAY MTG&LOCK B-2	18
31	2115	BOTTOM SLACK ADJUSTER MTG B-1	12
32	2116	BOTTOM SLACK ADJUSTER MTG B-2	12
33	2117	SAFETY STRAP GAP MAIN. B-1	16
34	2118	SAFETY STRAP GAP MAIN. B-2	16
35	2119	FRICTION ARM GAP MAIN. B-1	8
36	2120	FRICTION ARM GAP MAIN. B-2	8
37	2121	GEAR CASE WIRE LOCK B-1	6
38	2122	GEAR CASE WIRE LOCK B-2	6
39	2123	TM TORQUE INTERNAL B-1	9
40	2124	TM TORQUE INTERNAL B-2	9
41	2129	SANDWITCH BOLT REMOVE B-1	6
42	2130	SANDWITCH BOLT REMOVE B-2	6
43	2131	AXLE BOX WIRE&PLATE LOCK B-1	6
44	2132	AXLE BOX WIRE&PLATE LOCK B-2	6
45	2135	SAFETY STRAP MTG B-1	12
46	2136	SAFETY STRAP MTG B-2	12
47	2137	CABLE CLEAT PREP.& MTG B-1	4
48	2138	CABLE CLEAT PREP.& MTG B-2	4
49	2140	GREASE NIPPLE MTG IN S TUBE B-1	6
50	2141	GREASE NIPPLE MTG IN S TUBE B-2	6
51	2142	GREASE NIPPLE MTG IN EQ. BEAM B-1	14
52	2143	GREASE NIPPLE MTG IN EQ. BEAM B-2	14
53	2301	CARDIUM COMPOUND HEAT&FILL	12
54	2302	LOCO TRIAL LOWER	4
55	2303	LATERAL DAMPER BKT SHIFT	4
56	2306	LOCO FINAL LOWER	4
57	2307	LATERAL DAMPER MTG	4
58	2308	D'SHACKLE MTG&LOCK	10
59	2309	BOTTOM SLACK ADJUST	8

## **Locomotive Manufacturing Deptt.**

TENDER E	ENQUIRY	NO. : LMM/TW/24-25/001	DATE:- 20/08/2024
60	2310	PISTON ADJUST(INT/QC/SHED)	16
61	2311	U/G CLEARANCE INTERNAL	12
62	2312	U/G CLEARANCE QC	12
63	2314	S' CURVE & MMD QC	16
64	2320	U/G MECHANICAL QC	16
65	2323	LONG RUN SHED	8
66	2324	SHED BOOKING	16
67	2326	BC REPLACEMENT	3
68	2327	ALL BEAM LINK PIN GREASING WITH GUN	4
69	2160	HORN LINER FINAL WELD B-1	8
70	2161	HORN LINER FINAL WELD B-2	8
71	2162	PIVOT SUPPORT RIB T/F WELD B-1	2
72	2163	PIVOT SUPPORT RIB T/F WELD B-2	2
73	2166	PEDESTAL LINER FINAL WELD B-1	12
74	2167	PEDESTAL LINER FINAL WELD B-2	12
75	2168	SAFETY STRAP HEATING B-1	8
76	2169	SAFETY STRAP HEATING B-2	8
77	2170	CLEAT BKT WELD B-1	3
78	2171	CLEAT BKT WELD B-2	3
79	2176	HANGER PIN/LOCKPLATE WELD B-1	8
80	2177	HANGER PIN/LOCKPLATE WELD B-2	8
81	2180	HANGER BKT T/F WELD B-1	12
82	2181	HANGER BKT T/F WELD B-2	12
83	2182	FRICTION ARM HEAT B-1	2.64
84	2183	FRICTION ARM HEAT B-2	2.64
85	2186	LATERAL DAMPER BKT T/F WELD B-1	6
86	2187	LATERAL DAMPER BKT T/F WELD B-2	6
87	2188	HANGER SIDE STOPPER PAD T/F WELD B-1	10
88	2189	HANGER SIDE STOPPER PAD T/F WELD B-2	10
89	2190	PIVOT LINER FINAL WELD B-1	3.5
90	2191	PIVOT LINER FINAL WELD B-2	3.5
91	2192	SAND BOX T/F WELD B-1	12
92	2193	SAND BOX T/F WELD B-2	12
93	2196	SANDWITCH LINER FINAL WELD B-1	4.98
94	2197	SANDWITCH LINER FINAL WELD B-2	4.98
95	2198	WIRE ROPE BKT T/F WELD B-1	4
96	2199	WIRE ROPE BKT T/F WELD B-2	4
97	2200	AXLE BOX STOPPER T/F WELD B-1	6
98	2201	AXLE BOX STOPPER T/F WELD B-2	6
99	2204	PEDESTAL LINER TACK WELD B-1	6
100	2205	PEDESTAL LINER TACK WELD B-2	6
101	2206	HORN LINER TACK WELD B-1	8
102	2207	HORN LINER TACK WELD B-2	8
103	2208	SANDWITCH LINER TOP TACK WELD B-1	1.98

## **Locomotive Manufacturing Deptt.**

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 2					
104	2209	SANDWITCH LINER TOP TACK WELD B-2	1.98		
105	2210	SANDWITCH LINER BOTTOM TACK WELD B-1	1.98		
106	2211	SANDWITCH LINER BOTTOM TACK WELD B-2	1.98		
107	2212	PIVOT LINER TACK WELD B-1	2.5		
108	2213	PIVOT LINER TACK WELD B-2	2.5		
109	2214	HANGER BKT TACK WELD B-1	8		
110	2215	HANGER BKT TACK WELD B-2	8		
111	2304	H DAMPER T/F WELD	4		
		Total	874.16		

Loco	GE Bogie		
Area		Bogie Assy Shop	
SL NO.	MODULE	Activities	Manhrs
1	55015	BC MTG B-1	8
2	55016	BC MTG B-2	8
3	55021	OUTER HANGER ASSLY B-1	8
4	55022	OUTER HANGER ASSLY B-2	8
5	55023	INNER HANGER ASSLY B-1	8
6	55024	INNER HANGER ASSLY B-2	8
7	55033	BOGIE SPRING SEAT ,SPRING MOUNTING &FINAL LOWER B-1	12
8	55034	BOGIE SPRING SEAT ,SPRING MOUNTING &FINAL LOWER B-2	12
9	55063	TM MTG B-1	16
10	55064	TM MTG B-2	16
11	55065	TM WIRE LOCK B-1	2
12	55066	TM WIRE LOCK B-2	2
13	55069	DUST GUARD MTG B-1	4
14	55070	DUST GUARD MTG B-2	4
15	55071	GEAR CASE MTG B-1	12
16	55072	GEAR CASE MTG B-2	12
17	55085	PULL ROD PREPARATION B-1	8
18	55086	PULL ROD PREPARATION B-2	8
19	55087	PULL ROD MTG B-1	6
20	55088	PULL ROD MTG B-2	6
21	55089	SANDWITCH PREPARATION B-1	4
22	55090	SANDWITCH PREPARATION B-2	4
23	55091	SANDWITCH MTG B-1	4
24	55092	SANDWITCH MTG B-2	4
25	55093	SANDWITCH BOLT REMOVED B-1	4
26	55094	SANDWITCH BOLT REMOVED B-2	4
27	55107	OUTER HANGER PREPARATION/LOCO	16
28	55108	INNER HANGER PREPARATION/LOCO	16
29	55121	PEDESTAL LINER T/F WELD B-1	8
30	55122	PEDESTAL LINER T/F WELD B-2	8

#### **Locomotive Manufacturing Deptt.**

#### **TENDER DOCUMENT**

TENDER E	ENQUIRY I	NO.: LMM/TW/24-25/001 DATE:-	20/08/2024
31	55123	HORN LINER T/F WELD B-1	6
32	55124	HORN LINER T/F WELD B-2	6
33	55129	AXLE BOX HORN&PEDESTAL LINER T/F WELD B-1	8
34	55130	AXLE BOX HORN&PEDESTAL LINER T/F WELD B-2	8
35	55135	TOP SEAT HANGER GUIDE BKT T/F WELD B-1	6
36	55136	TOP SEAT HANGER GUIDE BKT T/F WELD B-2	6
37	Misc	Preparation work for wheel axle assembly items like Wheel , Gear Wheel , Axle, axle box assembly & Gear Case (Removal of Anti Rust agent, Oil, Grease, Rusting, assistance in pressing operation Etc)	16
38	Misc	Preparation work of bogie frame assembly ( deburring, dressing etc.)	8
39	Misc	Grinding & Dressing work of fittment items in bogie frame & CARDIUM & OIL FILLING work	24
40	Misc	Unpacking of items, housekeeping of shop, machine cleaning, Chip removal & assitance for crane operationetc.	24
		Total	352

#### 2. LD CLAUSE, MEASUREMENT OF WORK & PAYMENT TERMS:

- <u>2.1 Penalty Clause:</u> Any delay in execution as per measurement book attributed to contractor shall attract penalty @0.5% per week for delayed job maximum upto 10% of respective job value.
- **2.2** Measurement of Work and Payment Terms: Work Shall be measured in terms of Technology Hours given against each activity Module and payment shall be made activity wise based on technology hours of that particular activity. Manufacturing activities of DESLs with Technology Manhours is given in Annexure-B.
- **2.3** The contractor shall submit his monthly RA (running account) bills with all the details required by BHEL on specified date monthly (by 1st week of the month) covering completion of work in all respects and works completed for the bill period. All the payments will be subject to deduction of tax at source applicable as per law.
- **3.** <u>Estimated Quantum of Works</u>: Manufacturing activities as per technology hours and Miscellaneous works in 3 nos. 700 HP DESL TPP, 2nos. 700 HP Dual Cab DESL, 2nos. 700 HP DESL Dual Cab ,Related Bogie work,GE Bogies ,Wheel and Axle sets at LMM shop,

Note: In case any work against given manhours is done by BHEL personnel due to urgency then contractor has to complete any other module of equivalent manhours in any of the 1400 HP/700 HP Dual cab/700 HP TPP/Bogies at the same manhour rate.

Contractor has to deliver the work allotted to him within 10 days for each locomotive and 8 days for bogie work. However, if any delay occurs on account of BHEL in providing material or other work front, that period shall be added in the delivery period i.e. 10 days /8 days.

## **Locomotive Manufacturing Deptt.**

#### **TENDER DOCUMENT**

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20/08/2024

- 4. LD Clause: Any delay in execution of work will attract penalty. Contractor has to deploy adequate number of workers to execute the quantum of work. The quantum of work will be monthly production plan which shall be reviewed/monitored on weekly basis. Delay if attributable to firm; penalty shall be imposed @0.5% per week for delayed work (no. of Locomotives) and maximum up to the ceiling of 10 % of the contract value for the delayed work. If any defect is noticed in the work at later stage, the firm shall repair the same, in short time free of cost. Cost of rework / rejection will be recovered from the contractor, if the same is found to be occurred due to negligence/lack of skill of the worker. Executive in charge shall keep proper records for above purpose. The Penalty shall be recovered from the EMD, Security Deposit, Contract amount and running bills etc.
- **5.** All required input materials for assembly will be provided to contractors within 3 working days from the contractor's requisition date.

#### **6.** <u>Drawing and Documents:</u>

The detailed drawings, specifications available with BHEL engineers will be made available to the contractor during execution of work in shop. The contractor will also ensure availability of all drawings / documents at work place.

# Locomotive Manufacturing Deptt.

TENDER DOCUMENT

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20/08/2024

# **Pre-Qualifying Requirement (PQR)**

Annexure - 'C'

S. No	NIT Terms	Activities			
1	Works contract for Manufacturing Activities in following DESLs.3 nos. 700 HP TP Name of Work  Work  Axle Set at LMM shop, BHEL Jhansi				
2	Annual Turno	over			
2a	Average annual financial turnover in the past 3 years, ending 31 <sup>st</sup> March 2024, should be at least <i>X</i> (Refer 2b for respective column for value of 'X') Contract), wherein the bidder(s) has to attach audited balance sheet and Profit & Loss Account of last three financial years, ending 31st March 2024, or Certificate of CA as proof of financial T/o for respective years.If T/o details of 3 years are not available, then available years T/o shall be evaluated by dividing it by 3.				
2b	Annual Turno	over (Refer 2a above) for Non MSME	Rs 3.0	Lakhs	
20	Annual Turno	over (Refer 2a above) for MSME	Rs. 0.7	5 Lakhs	
3	Experience of having successfully completed including partial completed similar works* (defined below) in past 7 years, ending last day of the month previous to the one in which tender are invisionally should be either of the following:  For Non MSME for MSME			th tender are invited	
3a	Three simila costing not le	r completed/partial completed works each	Rs 4.0 Lakhs	Rs 1.0 Lakhs	
3b	Two similar costing not le	completed/partial completed works each	Rs 4.99 Lakhs	Rs.1.25 Lakhs	
3c	One similar completed/partial completed works, each costing not less than  Rs 7.99 Lakhs  Rs.2.0 Lakh			Rs.2.0 Lakh	
	must be atta		Semi- Government, f	ollowing documents	
3d	<ul><li>i) Copy of Work order/ Purchase Order.</li><li>ii) Copy of Work Completion Certificate.</li></ul>				
	iii) TDS Certificate -16 A (For works other than BHEL)				
	In case of experience in Private Sector, following documents must be attached:				

#### **Locomotive Manufacturing Deptt.**

#### **TENDER DOCUMENT**

TEN	DER EN	IQUIRY NO. : LMM/TW/24-25/001	DATE:- 20/08/2024	
	i)	Copy of Work order/ Purchase Order.		
	ii)	Copy of Work Completion Certificate.		
	iii)	TDS Certificate -16A (For works other than BHEL)		
	*Similar Work: Means bidder has experience of any service or works contract involving Fi Welding, Fabrication, Mechanical assembly work in Locomotive or Transformer (in any PSU / Cl State govt. / Central Govt. / Private sector).			
4	Earne	est Money Deposit (EMD)	Rs 19,976 for Non -MSME	
•			Rs. 0 for MSME	

- 5) Other required documents:
  - a) Contractor Should have PAN number.

- b) Contractor Should have GST (PAN based)
- c) Self-Declaration undertaking duly signed with stamp of the bidder on letter Pad of contractor to be submitted.
- d)Copy of independent ESI Registration.
- e) Signed copy of Blank Price Bid.
- f) The bidder should submit the required documents for the proof of their firm as legal entity under whose name and style Contractor has participated in the tender as given below:
  - I. Partnership Firm: Partnership Deed registered at the office of Registrar of Firms.
  - II. Company: Certified copy of Memorandum of Association, Article of Association and Incorporation Certificate.
  - **III.** Society: Registration certificate issued by Registrar of societies.
  - IV. Sole Proprietor-ship Firm: Undertaking on oath (Rs. 100 stamp paper) that Proprietor is solely responsible for all rights and liabilities while working under the name and style of Sole Proprietorship firm namely ( )
- 6) Benefits under Start Up Scheme: Considering critical quality aspects and technical specification implications for the work, no relaxation shall be given to Start-up bidders on account of turnover criteria & prior experience.
- 7)Bidders are required to submit a self-declaration to avoid cartel formation on their letter head as per the Format enclosed in Annexure E.

# BHARAT HEAVY ELECTRICALS LIMITED, JHANSI Locomotive Manufacturing Deptt.

TENDER DOCUMENT

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20/08/2024

# GENERAL TERMS AND CONDITIONS OF ENQUIRY FOR WORKS CONTRACTS (JHS 2055C R02)

<u>UPLOADED IN SEPERATE FILE - PAGE NO 01 TO 14</u>

(To be signed by contractor and submitted along with bid)

### **Locomotive Manufacturing Deptt.**

#### TENDER DOCUMENT

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20/08/2024

	Blank Price Bid Sheet JS-472					
Tender Enquiry No. LMM/TW/24- 25/001		% Allocation	Unit of	Quantum of	Rate per Manhour	
SI. No.	Description of Work	(Item-wise)	Measurement	Work	(in Rs.)	
(A)	( B)	( C)	(D)	(E)	(F)	
1	Manufacturing activities of 700 HP DESL at Loco Assy Shop	19.24	Manhours	2457.86		
2	Manufacturing activities of 700 HP DESL at Bogie Assy Shop	11.43	Manhours	1460.66		
3	Manufacturing activities of 700 HP DESL Dual cab at Loco Assy Shop	24.85	Manhours	3174.40		
4	Manufacturing activities of 700 HP DESL Dual cab at Bogie Assy Shop	7.12	Manhours	909.95		
5	Manufacturing activities of 1400 HP DESL at Loco Assy Shop	16.45	Manhours	2101.42		
6	Manufacturing activities of 1400 HP DESL at Bogie Assy Shop	13.85	Manhours	1768.76		
7	Manufacturing activities of GE Bogie Set at Bogie Assy Shop	5.74	Manhours	733.03		
8	Manufacturing activities of Wheel Axle Set (DESL) at Bogie Assy Shop	1.32	Manhours	168.41		
	GROSS TOTAL	100.00%		12774.50		To be quot by the bidd
	Gross Total Amount (Rs.)			-		

#### Note:

- 1. Bidder has to quote Manhour Rate in above unlocked cell only. Gross Total amount for execution of contract and all other purposes shall be calculated automatically.
- 2. Quoted Rate hould be considered only if quoted in this excel sheet and print out of this should only be considered for evaluation. If Price is quoted in any other format other than the Excel Sheet enclosed to the NIT, the offer of the bidder will be rejected
- 3. GST @ 18% Shall be extra

( Signature and Seal of the Contractor )

#### Do not fill rates in this sheets

# BHARAT HEAVY ELECTRICALS LIMITED, JHANSI Locomotive Manufacturing Deptt.

TENDER DOCUMENT

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20/08/2024

# **Annexures (I-XII)**

Attached below

(To be signed by contractor and submitted along with bid)

## **Locomotive Manufacturing Deptt.**

#### TENDER DOCUMENT

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20/08/2024

#### **ANNEXURE -A**

### **DECLARATION BY BIDDER (on letter pad)**

•	,
We declare that the following family firms or sister concern participating in the tender	affiliates / subsidiary firms are
1	
I, M/s concern affiliates / subsidiary firms listed above that we are for tender <b>No</b> -	and the family firms or siste
	Name & signature of the bidder (Seal)

# BHARAT HEAVY ELECTRICALS LIMITED, JHANSI Locomotive Manufacturing Deptt.

**TENDER DOCUMENT** 

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20/08/2024

# SOP For Implementation of Risk and Cost (TOTAL 10 PAGES)

<u>UPLOADED IN SEPARATE FILE</u>

(To be signed by contractor and submitted along with bid)

# BHARAT HEAVY ELECTRICALS LIMITED, JHANSI Locomotive Manufacturing Deptt.

TENDER DOCUMENT

TENDER ENQUIRY NO.: LMM/TW/24-25/001 DATE:- 20/08/2024

Format JS 146 - Price Bid Sheet (in a separate envelope)

**UPLOADED IN SEPARATE FILE** 

#### Regarding conflict of interest of bidders-

"A bidder shall not have conflict of interest with other bidders. Such conflict of interest can lead to anti-competitive practices to the detriment of Procuring Entity's interests. The bidder found to have a conflict of interest shall be disqualified. A bidder may be considered to have a conflict of interest with one or more parties in this bidding process, if:

- a) they have controlling partner (s) in common; or
- b) they receive or have received any direct or indirect subsidy/ financial stake from any of them; or
- c) they have the same legal representative/agent for purposes of this bid; or
- d) they have relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the bid of another Bidder; or
- e) Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all bids in which the parties are involved. However, this does not limit the inclusion of the components/ sub-assembly/ Assemblies from one bidding manufacturer in more than one bid; or

- f) In cases of agents quoting in offshore procurements, on behalf of their principal manufacturers, one agent cannot represent two manufacturers or quote on their behalf in a particular tender enquiry. One manufacturer can also authorise only one agent/dealer. There can be only one bid from the following:
  - 1. The principal manufacturer directly or through one Indian agent on his behalf; and
  - 2. Indian/foreign agent on behalf of only one principal;

or

- g) A Bidder or any of its affiliates participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid; or
- h) In case of a holding company having more than one independently manufacturing units, or more than one unit having common business ownership/management, only one unit should quote. Similar restrictions would apply to closely related sister companies. Bidders must proactively declare such sister/ common business/ management units in same/ similar line of business."