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**SPECIFICATION FOR
MOTOR SUSPENSION UNIT FOR
3-PHASE ELECTRIC LOCOMOTIVES
OF INDIAN RAILWAY**

**SPECIFICATION NO.: CLW/MS/3/201 ALT. 2
ISSUE DATE: 10.09.2007**

**ISSUED BY:
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DETAILS OF ALTERATIONS

Sl. No.	Date of Amendment	Alt. No.	Description	Remarks	Authority
1.	30.08.2007	1	Alteration Sheet & Annexure-1 added for Scope of Supply.		Sd/-
2.	06.09.2007	2	Annexure-1 deleted & inserted under Sl. No. 2 (Scope of Supply).		Sd/- 10.09.2007

Specification has been digitized and all alterations have been incorporated.

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TECHNICAL SPECIFICATION FOR MOTOR SUSPENSION UNIT FOR USE IN 3-PHASE ELECTRIC LOCOMOTIVES.

1. FOREWARD:

This specification covers manufacturing, testing and supply of Motor Suspension Unit (MSU) for use in 3-Phase Electric Locomotives. The Motor Suspension Unit comprises of Suspension Tube Complete and Nose Suspended Drive components.

2. SCOPE OF SUPPLY:

Quality per loco : Six (06) sets of Motor Suspension Unit will be required for each Loco. Motor Suspension Unit should be supplied in complete set. Each set comprises of the following items:-

3. LIST OF ITEMS TO BE SUPPLIED WITH MSU FOR USE IN 3-PHASE ELECTRIC LOCOMOTIVES.

SL. NO.	ITEM DESCRIPTION	C&D NO.	QTY./SET	REFERENCE ASSLY. DRG. NO.	REF. NO.
1.	Suspension Tube	T201/003	01	1209-01.011-018	2
2.	Roll pin dia 8 x 20	T201/075	01	1209-01.011-018	3
3.	Cylinder pin Dia 10 h8 x 40	T201/076	01	1209-01.011-018	4
4.	Cylinder pin Dia 20 h8 x 50	T201/077	01	1209-01.011-018	5
5.	Hex. Head sealing plug M10 x 1	T201/078	02	1209-01.011-018	6
6.	Loctite 638	T201/079	50 ml (per loco)	1209-01.011-018	7
7.	Cover Plate	T201/021	02	1209-01.011-018	8
8.	Indication Label	T201/023	01	1209-01.011-018	9
9.	Type Label	T201/024	01	1209-01.011-018	10
10.	Self-tapping screw Type-B (Slotted Head) M4	Steel DIN- 7513 (Galv.)	12	1209-01.011-018	11
11.	Loctite 262 or 271 or 603	T201/080	As reqd.	1209-01.011-018	12
12.	Supporting Ring	T201/004	01	1209-01.111-004	2
13.	Labyrinth Ring	T201/010	01	1209-01.111-004	9
14.	Labyrinth Ring	T201/011	01	1209-01.111-004	10

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15.	Labyrinth Ring	T201/012	01	1209-01.111-004	11
16.	Labyrinth Ring	T201/013	01	1209-01.111-004	12
17.	Labyrinth Ring	T201/014	01	1209-01.111-004	13
18.	Labyrinth Ring	T201/015	01	1209-01.111-004	14
19.	Labyrinth Ring	T201/016	01	1209-01.111-004	15
20.	Labyrinth Ring	T201/017	01	1209-01.111-004	16
21.	Labyrinth Ring	T201/018	01	1209-01.111-004	17
22.	O-Ring I/D 480 x 8	T201/025	02	1209-01.111-004	30
23.	O-Ring I/D 382 x 8	T201/026	01	1209-01.111-004	31
24.	Plug Screw	T201/031	02	1209-01.111-004	36
25.	Hex. Hd. Screw M12x30 -10.9 (Rolled thd.) (Zinc plated)	T201/034	12	1209-01.111-004	40
26.	Hex. Hd. Screw M12x40 -8.8 (Zinc plated)	T201/035	16	1209-01.111-004	41
27.	Hex. Hd. Screw M12x70 -8.8 (Zinc plated)	T201/036	14	1209-01.111-004	42
28.	Hex. Hd. Screw M16x200x44 thd. (Rolled thd.) (Zinc Plated)-10.9	T201/037	04	1209-01.111-004	45
29.	Hex. Hd. Screw M30x140x72 thd (Zinc plated)-8.8	T201/038	08	1209-01.111-004	46
30.	Socket Hd. Screw M12x30-8.8	T201/039	32	1209-01.111-004	50
31.	Socket Head Cap Screw M6x20x18 thd.-12.9 (Zinc Plated)	T201/040	02	1209-01.111-004	55
32.	Safety Washer VS6	T201/043	02	1209-01.111-004	60
33.	Safety Washer VS12	T201/045	74	1209-01.111-004	62
34.	Safety Washer VS16	T201/046	04	1209-01.111-004	63
35.	Safety Washer VS30	T201/047	08	1209-01.111-004	64

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4. INSPECTION :

Inspection at firm's premises shall cover the following tests and values to be recorded.

		Type test	Routine Test
(i)	Dimension (finished)	100% of the offered quantity	Minimum 20% of the offered quantity (Supplier should check themselves 100%).
(ii)	Chemical Analysis	-Do-	Minimum 5-samples or 10% of offered quantity, whichever is more.
(iii)	Tensile, Yield, Elongation and Impact Test	-Do-	-Do-
(iv)	Hardness (As annealed)	-Do-	-Do-
(v)	0.2% Proof Stress	-Do-	-Do-
(vi)	Bend Test	-Do-	-Do-
(vii)	Cleanliness of the Steel	-Do-	-Do-
(viii)	Magnaflux/ Die-penetration Test	-Do-	Minimum 20% of the offered quantity (Supplier should check themselves 100%).
(ix)	Ultrasonography Test	-Do-	-Do-

In addition to above, all other tests mentioned in Specification No. CLW/MS/3/052 for Suspension Tube Complete & CLW/MS/3/049 for Nose-suspended Drive-components are to be carried out.

The material should be strictly as specified in CLW's Drawings and Specifications under reference. Metallurgical test shall be done by Dy.CC&M/CLW/CRJ prior to prototype/routine/bulk inspection.

5. GUARANTEE:

The manufacturer/supplier shall guarantee for all the items for the period of five years from putting into revenue service or six years from supply whichever is earlier. All aspects of workmanship and material will be covered by this guarantee.

6. PACKING AND DELIVERY :

Packing and delivery for all the items of Motor Suspension Unit should be as per the latest alteration of Tender Specification No. CLW/MS/3/052 and No. CLW/MS/3/049.

7. REFERENCE:

Drawing/ Specification Nos. (Latest Alteration):-

- 1) 1209-01.011-018 for Suspension Tube Complete.
- 2) 1209-01.111-004 for Nose-suspended Drive Assly.
- 3) CLW/MS/3/052 for Suspension Tube Complete.
- 4) CLW/MS/3/049 for Nose-suspended Drive-components.

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