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**No. EL/1.3.10/3**

**Date: 17.04.2017**

**Chief Electrical Engineers,**

1. Central Railway, Mumbai CST-400001
2. Eastern Railway, Fairlie Place, Kolkata- 700 001
3. East Coast Railway, Chandrashekharapur, Bhubaneswar-751 016
4. Northern Railway, Baroda House, New Delhi-110 001
5. North Central Railway, Hasting Road, Allahabad-211 001
6. Southern Railway, Park Town, Chennai-600 003
7. South Central Railway, Rail Nilayam, Secunderabad-500 071
8. South Eastern Railway, Garden Reach, Kolkata-700 043
9. South East Central Railway, Bilaspur-495004
10. Western Railway, Churchgate, Mumbai-400 020
11. West Central Railway, Jabalpur-482001
12. East Central Railway, Hazipur-844101 (Bihar)
13. Chittaranjan Locomotive Works, Chittaranjan- 713 331

**SPECIAL MAINTENANCE INSTRUCTION NO. RDSO/2016/EL/SMI/ 0306 (Rev '0')**

**Dated 17.04.2017**

**1. Title:**

Use of Induction Heater for heating of Bearing seating area of Suspension tube instead of flame heating for fitment of MSU Bearings in WAG-9/WAP-7 locomotives.

**2. Brief History:**

- 2.1 ABB TOT document No. AEB 452 511 (Drive 15 AN 21 R1 Instruction for Assembly and Disassembly) prescribes induction heating of MSU for bearing fitment.
- 2.2 LPG flame heating is also permitted in document no. AEB050483, 'Wheel Set assembly procedure'. Use of Oxy-acetylene flame is prohibited as it can cause distortion in MSU tube.
- 2.3 It is observed that Workshops are using flame heating of Bearing seating area of Suspension tube for fitment of MSU Bearings. It is also observed that due to non-uniform heating by flame, hammering is required for bearing fitment which is not desirable.

**3. Object:**

Use of Induction Heater for heating of Bearing seating area of Suspension tube instead of flame heating for fitment of MSU Bearings in WAG-9/WAP-7 locomotives.

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#### 4. **Modified Instructions :-**

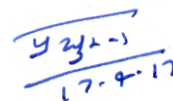
- 4.1 Induction Heater of suitable capacity to be used for heating of bearing seating area of Suspension tube for fitment of MSU Bearings in WAP7/WAG9/WAG9H locomotives.
- 4.2 Induction Heater must have the features of temperature display, temperature setting, auto cut-off and de-magnetization.
- 4.3 Induction heating should always be done in temperature mode as same/similar components of different manufacturers may have different properties.
- 4.4 Temperature setting should not be more than 120°C for bearing assembly components.
- 4.5 Induction heating will also help in reducing the cycle time for bearing fitment and will be energy efficient compared to flame heating.
- 4.6 It is proposed to use the induction heater coil on outside of MSU tube on Drive End (DE) side, which can be used during assembly and disassembly of DE bearings. It is not possible to use Induction heater coil on outside of Non-Drive End (NDE) side of MSU tube due to presence of ribs. Hence, NDE side Induction heating will be done from inside of MSU tube and can be used only during the assembly. Disassembly of the NDE bearing will continue to be carried out as per existing procedure defined in ABB TOT document No. AEB 452 511 (Drive 15 AN 21 R1 Instruction for Assembly and Disassembly).
- 4.7 The Induction Heater for heating of bearing seating area of Suspension tube should be suitable for following dimensions as per drawing Number 1209-01-011-018 of Suspension Tube complete:

Position	Drive End	Non-Drive End
Outer Diameter	495 mm	400 mm
Inner Diameter	440 mm	340 mm
Width	48 mm	56 mm
Bearing type	NU 1964	NJ 1044
Placement of Induction Heater coil	On Outside diameter	On Inside Diameter

Material of Suspension Tube: SGCI as per DIN 1693 grade GGG-40

5. **Application to class of Locomotives:**  
All locomotives of class WAP7/WAG9/WAG9H.
6. **Agency of Implementation:-**  
CLW/ workshops carrying out assembly and disassembly of MSU and wheel set.
7. **Periodicity of Implementation:**  
During assembly & disassembly of MSU and wheel set.

Encl: nil



(P. K. Saraswat)  
for Director General/Electrical

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