



सत्यमेव जयते

Government of India  
Ministry of Railways

**Functional Requirement Specification (FRS) for Suspension Tube  
Bearings for WAG9/WAP7 locomotive (NU1964 & NH 1044)**

No. RDSO/EL/FRS/BEARING/0013-2015 Rev. '0'

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Approved by	Signature
EDSE(Co-ord)	 08/10/15

ELECTRICAL DIRECTORATE  
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## Functional Requirement Specification (FRS) for suspension Tube Bearings for WAG9/WAP7 locomotive (NU1964 & NH 1044)

### 1. Foreword

At present, NU1964 & NH1044 Suspension Tube bearings are used in WAG9/WAP7 locomotive. With this Functional Requirement Specification, it is intended to develop additional sources for procurement of these bearings

### 2. Scope

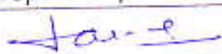

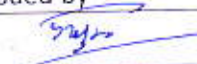
This Functional Requirement Specification (FRS) covers design, development and manufacturing for Suspension Tube bearings (NU 1964 & NH 1044) for WAG9/WAP7 locomotive and shall be used for developing additional sources for these bearings.

### 3. Methodology of development

- I. Development of bearings will be as per Functional Requirement Specification (FRS).
- II. Bidder shall offer the broad design parameters and dimensional drawings of bearings
- III. Proto type unit of subject bearings shall be type tested and got approved by RDSO before dispatch.
- IV. After successful prototype testing by RDSO & routine testing by consignee, bearings shall be cleared for fitment on traction motors for field trial as per RDSO guideline.
- V. Before registration in master list of approved vendors, the complete formalities shall be fulfilled as per Work Instruction no.EL-WI-7.1-1 (or latest) for fresh registration case.

### 4. Basic details of Bearings:

Parameters	DE side (NU 1964)	NDE side (NH 1044)
Basic dynamic load rating (C)	671 KN	510 KN
Basic static load rating (C <sub>0</sub> )	1160 KN	765 KN
ID (nominal) mm	Φ320	Φ220
OD (nominal) mm	Φ440	Φ340
Over all width mm	56	56 (Excluding angle ring) 70 (Including angle ring)
Radial clearance mm	0.305-0.385	0.220-0.280
Maximum operating temperature	100 °C	100 °C
L-10 life (Minimum)	6 million KM	6 million KM
Lubrication	Servosyn 460RR (IOC)	Servoplex SHC-120 (IOC)

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**5. Details of proposed bearings to be submitted to RDSO:-**

- i. Two sets of signed dimensional drawings of proposed bearings with Significance of each suffix/ prefix, accuracy class, Suitability of application are to be submitted.
- ii. Details of bearings i.e. number of roller and size, type of cage guide, Cage material (brass/steel/bronze), riveted or rivets less, gap between cage and rollers, radial & axial clearance etc. to be submitted.
- iii. Details mentioned in paragraph 4, for the proposed bearings to be submitted
- iv. Material specification and surface finish level for inner and outer rings, cage, racer and roller.
- v. Detailed calculation of L-10 life as well as dynamic & static load capacity of proposed bearing.
- vi. Any other relevant information

**6. Field Trial:**

After completion of all formalities laid down in Work Instruction No. EL-WI-7.1-1 (or latest), the field trial shall be carried out as per prevalent ISO instructions and latest bearing policy guideline.

**7. Application:**

Suspension Tube bearings NU 1964 & NH 1044 for WAG9/WAP7 locomotives

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