



भारत सरकार - रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ - 226 011
EPBX (0522) 2451200
Fax : 0522 - 2452581

Government of India-Ministry of Railways
Research Designs & Standards Organisation
Lucknow - 226 011
DID (0522) 2450115
DID (0522) 2465310



No.EL/2.2.13

Date: 16.10.2017

मुख्य विद्युत अभियंता,	Chief Electrical Engineers,
<ol style="list-style-type: none"> 1. मध्य रेलवे, मुम्बईसीएसटी-400 001 2. पूर्व मध्य रेलवे, हाजीपुर-844 101 3. पूर्वतटीय रेलवे, चन्द्रषेखरपुर, भुवनेश्वर-751 023 4. पूर्वरेलवे, फेयर्लीप्लेस, कोलकाता-700 001 5. उत्तर मध्य रेलवे, ब्लाक ए-2, सुबेदारगंजइलाहाबाद- 211 033 6. उत्तररेलवे, बडौदाहाऊस, नई दिल्ली-110 001 7. उत्तरपश्चिमरेलवेजयपुर- 302006 8. उत्तरपूर्वरेलवेगोरखपुर- 273001 9. उत्तरपूर्वफ्रेन्टीयररेलवेमालीगॉव गुवाहाटी-781011 10. दक्षिण मध्य रेलवे, रेलनिलायम, सिकंदराबाद-500 371 11. दक्षिणपूर्व मध्य रेलवे, बिलासपुर- 495 004 12. दक्षिणपूर्वरेलवे, गार्डनरीच, कोलकाता-700 043 13. दक्षिणरेलवे, पार्कटाउन, चेन्नई-600 003 14. दक्षिणपश्चिमरेलवे हुबली-580020 15. पश्चिम मध्य रेलवे, जबलपुर-482 001 16. पश्चिमरेलवे, चर्चगेट, मुम्बई- 400 020 17. चित्तरंजनरेलइंजनकारखाना, चित्तरंजन- 713 331 18. डीजलरेलइंजनकारखाना, वाराणसी-221004 19. इंटीग्रल कोच कारखाना, चेन्नई-600038 20. रेल कोच कारखाना, कपूरथला (पंजाब) 21. मेट्रो रेलवे, मेट्रो भवन, 33/1, जे.एल. नेहरू मार्ग, कोलकाता-700 071 	<ol style="list-style-type: none"> 1. Central Railway, Mumbai, CST-400 001. 2. East Central Railway, Hazipur-844 101. 3. East Coast Railway, Chandrashekharpur, Bhubaneswar-751 016. 4. Eastern Railway, Fairlie Place, Calcutta-700 001. 5. North Central Railway, Block-A, Subedarganj, Allahabad- 211 033. 6. Northern Railway, Baroda House, New Delhi-110 001. 7. North Western Railway, Jaipur- 302 006 8. North Eastern Railway, Gorakhpur-273001 9. North East Frontier Railway, Maligaon, Guwahati- 781011 10. South Central Railway, Secunderabad-500 071. 11. South East Central Railway, Bilaspur-495 004. 12. South Eastern Railway, Garden Reach, Kolkata-700 043. 13. Southern Railway, Park Town, Chennai-600 003. 14. South Western Railway, Hubli- 580020 15. West Central Railway, Jabalpur-482 001. 16. Western Railway, Churchgate, Mumbai-400 020 17. Chittaranjan Locomotive Works, Chittaranjan-713 331 18. Diesel Locomotive Works, Varanasi-221 004. 19. Integral Coach Factory, Chennai- 600 038 20. Rail Coach Factory, Kapurthala, Punjab 21. Metro Railway, Metro Bhawan, 33/1, J.L. Nehru Road, Kolkata-700 071

SPECIAL MAINTENANCE INSTRUCTION NO. RDSO/2017/EL/SMI/0318 (Rev '0')

Dated 16.10.2017

1. Title:

Use of Bore Gauge for measurement of internal diameters of End Shield/ Racer during bearing fitment in traction motors for Electric Locomotives.

2. Brief History:

2.1 For improving the reliability of traction motor bearings, RDSO had carried out technical audits of various sheds, workshops & CLW. It is observed that various sheds/workshops are using simple two point internal micrometers with 10 microns least count for measurement of internal diameters for bearing fitment which is not in order.

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- 2.2 It is observed that, tolerance for internal diameter measurements is of the order of 10 to 40 microns only. Hence measurements with internal micrometer of 10 micron least count is not desirable.
- 2.3 It is recommended to use bore gauge with least count of 1 micron for internal diameter measurements to improve reliability of bearings.
- 2.4 Bore Gauge is better in terms of repeatability & reproducibility as compared to two point micrometer.
3. **Object:** Use of Bore Gauge for measurement of internal diameters of End Shield/ Racer during bearing fitment in traction motors for Electric Locomotives.
4. **Modified Instructions to replace existing instructions:**
- 4.1. Bore Gauge of 1 micron least count of suitable range shall be used for internal diameter measurements.
- 4.2. Internal diameter of various types of traction motor are given below for guidance in selection of suitable range of bore gauges:-

TM type	Inner Diameter of bearing housing of End Frame (in mm)		Inner Diameter of Inner Racer (in mm)	
	DE	NDE	DE	NDE
6FRA6068	320 ^{-0.010} / _{-0.050}	215 ^{-0.040} / _{-0.052}	180 ⁺⁰ / _{-0.025}	100 ⁺⁰ / _{-0.020}
6FXA7059	215 ^{-0.00} / _{-0.046}	170 ^{-0.020} / _{-0.045}	120 ⁺⁰ / _{-0.020}	95 ⁺⁰ / _{-0.020}
HS15250A	320 ^{-0.038} / _{-0.056}	260 ^{-0.035} / _{-0.051}	150 ⁺⁰ / _{-0.018}	120 ⁺⁰ / _{-0.015}
TAO-659	300 ^{-0.00} / _{-0.035}	190 ^{+0.00} / _{+0.030}	140 ⁺⁰ / _{-0.025}	90 ⁺⁰ / _{-0.020}

Note: Above table is for guidance in selection of range of bore gauge. For exact values of various dimensions/tolerances, kindly refer to latest versions of respective drawings.

- 4.3. Bore gauges of 1 micron least count with digital indicator can also be used if available.

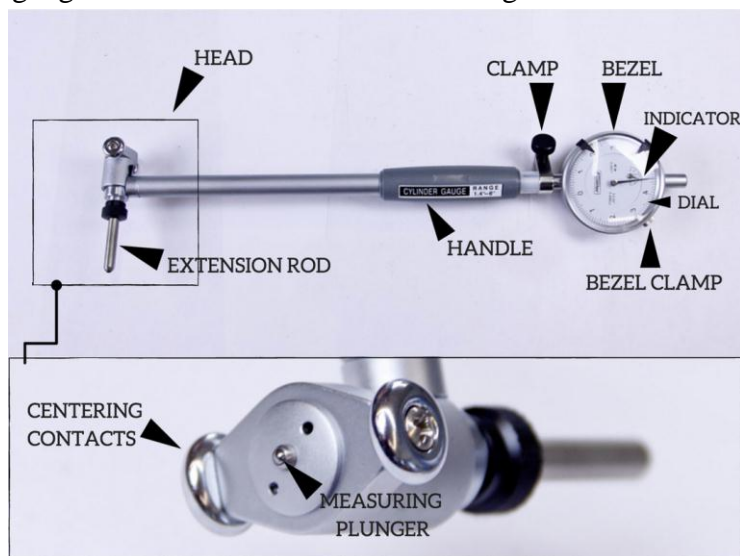


Photo 1: Bore Gauge

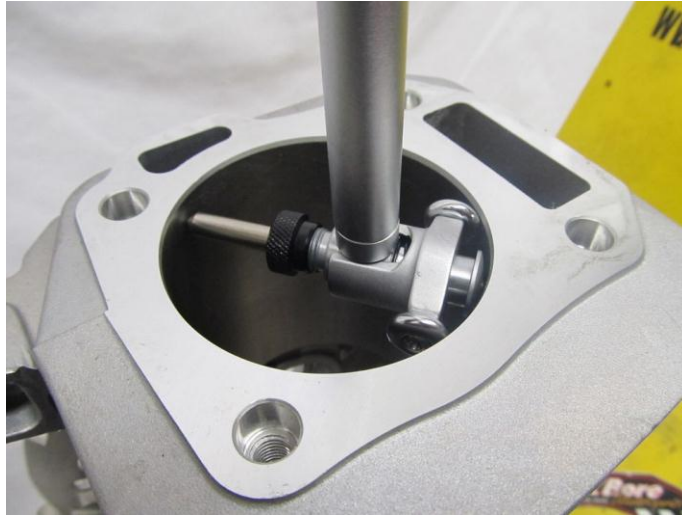


Photo 2: Measurement with Bore Gauge

5. **Application to class of Locomotives:**
All types of Electric locomotives.
6. **Agency of Implementation:-**
All Electric Loco sheds/ Workshops, Production Units and Traction Motor Manufacturers.
7. **Periodicity of Implementation:**
During fitment of traction motor bearings.

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16.10.17

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

Encl: Nil

Distribution: As per standard mailing list.