

ASSOCIATION OF AMERICAN RAILROADS
Mechanical Inspection Department
Guide for Certification & Recertification of Roller Bearing Mounting Facilities
Minimum Equipment for Roller Bearing Mounting

	Description	Maj	Mod	Min
1.	Steel Wheel Gage & Wheel Back-to-Back Service Limit Gage. Fig. 5.1 and 5.6			
2.	Method of checking axles for bent condition (if applicable). Fig. 4.10			
3.	Bearing Press equipped with dial pressure gauge and relief valve. (Pressure gauge must be tested bi-annually). Rule 1.8.2.11			
4.	Torque wrench (click type) and tester. Check at least weekly. Rule 1.8.3.3			
5.	Thermo comp or Dial/Digital Snap Gage (with 0.0001" scale) & Master (at least Class X tolerance) for checking journal diameter. (If digital snap gage is used, must have a method to compensate for temperature differences between the standard and journal being measured). Rule 1.2.4.3			
6.	Dial Indicator Gauge (with 0.0001" graduations) to measure the seal wear ring groove depth (if applicable). Rule 1.2.8.2			
7.	Journal fillet gage (1 ½" radius -.005) & 0.005" feeler gage. Fig. 5.18			
8.	Journal Length Gage. Fig. 5.26 through 5.31			
9.	"U" Dimension Gage. Fig. 5.24			
10.	Outside Micrometer or suitable method of measuring dust guards for fitted application of bearings. Rule 1.2.9			
11.	Gages to check Fillet Undercuts. Rule 1.2.10.2			
12.	Surface Roughness Gage. Rules 1.1.6, 1.1.12.1 and 1.1.12.3			
13.	Magnetic base dial indicator to check mounted lateral. Fig. 4.74			
14.	Rib joint pliers or suitable tool for bending locking tabs. Fig. 4.73			
15.	New locking plates (marked with shop reporting marks). Rule 1.8.3.1			
16.	Approved journal mounting lubricant (free of contaminants). Rule 1.8.2.8			
17.	Approved rust preventative as listed in MSRP Section G-II, Appendix A.			
18.	Equipment inspection reports (weekly, 2 years on file). Rule 1.7.1			
19.	Is Wet Magnetic Particle Equipment calibrated and are procedures approved by a Level 3 per E-1444-16EL			
20.	Is Radial Ultrasonic Testing Equipment calibrated per MSRP Section GII S-659 Rule 1.1.15			
21.	Other than above.			

PREPARATION AND PROPER MOUNTING FACILITIES AND PRACTICES

	Description	Maj	Mod	Min
A.	Check wheel back-to back measurement for service limits and check wheel flange & rim measurements for service defects. Rules 1.5.1 and 1.5.3			
B.	Wheels checked for design, manufacturer and date to determine if acceptable in interchange. Rules 1.5.1, 1.7.4 and Field Manual Rule 41 Group G			
C.	Clean journal, journal fillet & dust guard seat free of rust & paint, then check for bent condition and journal to dust guard run out. Rules 1.2.3, 1.2.2 and Figure 4.3			
D.	Check Radial error of wheels with wheel set suspended by rollers on journals or mounted bearings (.030" Max Radial error) Rule 1.5.1			
E.	Inspect axle: • Journal Diameter, Upset End, Gouges in journal. Rule 1.2.4 and Fig. 4.4 • Fillet Radius (.005" feeler gage must not be inserted 3/8" from the top of the fillet and free from fretting or pitting). Repair as necessary. Fig. 4.6 • Fillet Undercuts. Rule 1.2.10 • Dust Guard Diameter (for fitted or UBR bearing application) Rule 1.2.9 • "U" dimension. Fig. 4.3 • Journal Length. Fig. 4.3 • Seal Wear Ring Groove. Rule 1.2.8 and Fig. 4.4 • "V" notches in the dust Guard area. Rule 1.1.12.4 • Nicks or dings in the axle body, (Must be blended to a minimum of 2" radius and check surface roughness requirements). Rule 1.1.12.1 • Magnetic Particle inspection. Rule 1.1.9 through 1.1.9.3 • Radial Ultrasonic Testing inspection. Rule 1.1.15			
	The following steps F through N must be completed without interruption.			
F.	Journal must be clean and free of any dust or debris. Rule 1.8.2.8			
G.	Coat journal with mounting lubricant. Rule 1.8.2.8			
H.	Apply rust preventative to journal radius & dust guard seat. Rule 1.8.2.9			
I.	Apply appropriate bearing (Pair must be of same manufacturer)(Fitted or UBR,) & seat to required seating tonnage using proper pressure relief valve adjustment. Pressure gauge must read in tons & be checked at least bi-annually. Rules 1.8.2.1 and 1.8.2.11			
J.	Apply end caps, cap screws and run up to less than prescribed values. Rule 1.8.3.2			
K.	Properly torque cap screws with click type torque wrench. Rule 1.8.3.2			
L.	Rotate Bearing 360° before checking lateral. Rule 1.8.5.1			
M.	Check mounted lateral (0.001" to 0.015" and rotates freely). Dial indicator must be zeroed prior to checking lateral movement. Tolerances posted. Rule 1.8.5.1			
N.	Properly bend locking plate tabs. Rule 1.8.5.3			
O.	Paint stencil or sticker (1 ½" or larger letters) outer ring must be present. N=New bearing, R=Reconditioned bearing. Rule 1.8.6.1			
P.	Stencil "H" on each wheel of Heat treated – Curved plate configuration if "H" is missing or becomes illegible. Rule 1.5.6			
Q.	Current roller bearing mounting instructions posted. Rules 1.8.2.11, 1.8.3.3 and 1.8.5.1			
R.	Handling & storage of roller bearing in service stock.(must be covered) Rule 1.8.8.1			
S.	Identification data stamped or etched on new locking plate. Rule 1.8.6.2			
T.	Are the journal, fillet, and body repaired areas Magnetic Particle tested by the wet method by at least a NDT Level 1? Rule 1.1.9			
U.	Are all personnel performing Radial Ultrasonic Testing prequalified to NDT Level 1, at a minimum? Rule 1.1.15.4.1			
V.	Other than above.			
W.	EXCEPTION STATUS			