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भारत सरकार - रेल मंत्रालय  
अनुसंधान अभिकल्प और मानक संगठन  
लखनऊ - 226 011  
Government of India-Ministry of Railways  
**Research Designs & Standards Organisation**  
LUCKNOW - 226 011

## **TECHNICAL CIRCULAR NO 11**

No.EL. 3.2.13

Dated 28.01.98

### **Chief Electrical Engineer,**

- Central Railway, Mumbai CST -400 001.
- Eastern Railway, Fairlie Place, Calcutta, 700 001.
- Northern Railway, Baroda House, New Delhi- 110001
- Southern Railway, Park Town, Madras-600 003.
- South Eastern Railway, Garden Reach . Calcutta-700 043.
- Western Railway. Churchgate. Mumbai-400 020.
- Chittaranjan Locomotive Works, Chittaranjan-713 331.

### **Sub. Material for the pins and bushes in the brake rigging of Electric Locomotives.**

From time to time the material of pins and bushes used in the brake rigging of various locomotives have been under discussions. Various committees nominated to study the reliability aspects of locomotive bogies in the past have strongly recommended the use of manganese steel for pins and bushes of brake rigging due to their inherent characteristics of lesser wear and tear. Due to non availability of many sources for the manganese steel pins and bushes. Some Railways have also requested RDSO in the past to suggest alternate material in lieu of manganese steel. The above issue was studied in details and it has been decided that henceforth the material for the pins and bushes of brake rigging in the locomotive should be as follows:

### **Material Specification :**

Steel as per IS: 1875 class I with case hardening of  $58 \pm 2$  RC with minimum case depth of 1 mm.

or

Manganese steel as per Specification IRS: R65-78.

### **Applicable to Locomotives :**

WAM4, WAG5, WAG7, WAP1, WAP4, WCAM2, WCAM3, WCG2,

(O.H. Pandey)  
for Director General Elect.

Encl : NIL