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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

No. EL/3.2.19

Dated : 30.11.99

**TECHNICAL CIRCULAR NO. ELRS/TC/0054 REV. '0'**

- Chief Electrical Loco Engineer,**  
-Central Railway, Mumbai CST – 400001.  
-Eastern Railway, Fairlie Place, Calcutta – 700001  
-East Central Railway, Chandrashekharpur, Bhubaneswar- 751 001.  
-Northern Railway, Baroda House, New Delhi – 110001  
-North Central Railway, Hasting Road, Allahabad-211 001.  
-Southern Railway, Park Town, Chennai – 600003  
-South Central Railway, Secunderabad – 71  
-South Eastern Railway, Garden Reach, Calcutta – 700043  
-South Western Railway, Bangalore-560 046  
-Western Railway, Churchgate, Mumbai – 400020  
-West Central Railway, Jabalpur  
-New Zone Railway, Bilaspur  
-Chittaranjan Locomotive Works, Chittaranjan – 713331

**Sub:** Improvement in the performance of Teflon seated non return valve of M/s. Recon make.

**Ref:** Performance feed back received from the Railways.

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Teflon seated non return valve of M/s. Recon make are in service in Electric Locomotives in a large numbers. As per feedback received from the Railways, the spring provided on top of piston in the Recon make of non return valve is weak and develops a permanent set after working for a year or so. Because of both the above problems, non return valve does not close with a snap action when compressor stops delivering air resulting into air leakage in the opposite direction. It had therefore become necessary to improve the design of this spring.

2. M/s. Recon have developed a spring of modified design for their make of non return valves which is fully interchangeable with the existing spring. The salient features of this spring are as follows;

- i) Total coils = 9-1/2
- ii) Active coils = 7-1/2
- iii) Ends are flat and square with axis.
- iv) The outer dia of the spring = 8.9 mm.
- v) Inner dia of the spring = 6.9 mm.
- vi) Gauge of the spring wire SWG-19 (1 mm)
- vii) Material ST-SP steel as per IS:4454-IV Grade I.
- viii) Spring is cadmium plate as per IS:1572.

**The non-return valves of M/s. Recon make duly fitted with above modified springs were got tested in Electric Loco Shed, Kanpur as per RDSO's SMI no. 184 of Jan. '97 and performance was found much better (Discharge time of only 10-15 secs. from 10 kg/cm<sup>2</sup> to 0 kg/cm<sup>2</sup>)**

3. It is, therefore, recommended that Teflon seated non return valves of M/s. Recon make fitted in Electric Locomotives of your respective Railways may be provided with these modified springs which can be separately procured from M/s. Recon.

4. M/s. Recon is being separately directed to use modified springs only in all their future supplies of Teflon seated non return valves against existing future purchase orders of Railways/CLW.



(O.H. Pande)  
for Director General/Elect.

Encl: Nil

Copy to : Executive Director Elect. Engg. (RS),  
Railway Board, Rail Bhawan, New Delhi- 110 001.  
- for kind information please.



(O.H. Pande)  
for Director General/Elect.

Encl: Nil

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