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अनुसंधान अभिकल्प और मानक संगठन  
लखनऊ - 226011  
Government of India - Ministry of  
Railways  
Research, Designs & Standards  
Organization, LUCKNOW - 226011

EL/3.1.3

Date: 23/04/2008

**Chief Electrical Engineers:**

1. Central Railway, Mumbai, CST-400 001.
2. East Central Railway, Hazipur-844101.
3. East Coast Railway, Chandrashekharapur, Bhubaneswar-751016.
4. Eastern Railway, Fairlie Place, Calcutta-700001.
5. North Central Railway, Subedarganj, Allahabad-211033.
6. Northern Railway, Baroda House, New Delhi-110001.
7. South Central Railway, Secunderabad 500 071.
8. South East Central Railway, Bilaspur-495004.
9. South Eastern Railway, Garden Reach, Calcutta-700 043.
10. Southern Railway, Park Town, Chennai-600 003.
11. West Central Railway, Jabalpur-482001.
12. Western Railway, Church gate, Mumbai-400 020.
13. Chittaranjan Locomotive Works, Chittaranjan-713331.

Modification Sheet No: RDSO/2008/EL/MS/0361 (Rev 0)

**1.0 Title:**

Revision of the setting of  $Q_D$  relay in WAG5 and WAG7 locomotives.

**2.0 Object:**

Existing setting of  $Q_D$  relay in WAG5 and WAG7 locomotives is as under;

|          | WAG5     | WAG7     |
|----------|----------|----------|
| Pick up  | 125 amps | 150 amps |
| Drop out | 30 amps  | 80 amps  |

SCR has reported problem of reduction of large number of notches due to actuation of  $Q_D$  relay while hauling heavy loads on steep rising gradients and thus causing stalling. SCR has tried setting of  $Q_D$  relay to 175/140 amps in WAG5 & WAG7 locomotives and results of their trials are reported to be satisfactory and thus they have proposed to adopt 175/140 amps setting.

RDSO has examined the issue. Trials were conducted at ELS/CNB for practically observing the minimum achievable difference in pick up and drop out values of  $Q_D$  relay. It was observed that setting of pick up and drop out values could be achieved with a minimum difference of 20 amps and if difference is reduced further relay started chattering.

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RDSO has considered the option of raising the drop out value as one of the solution to address the problem of reduction of large number of notches and thus CR. WR, ECoR & SER were advised to conduct field trials with setting of 150/120 amps in WAG7 and 125/95 amps in WAG5 locomotives. This issue was further discussed during CELE's conference on 3<sup>rd</sup> & 4<sup>th</sup> April, 2008 at IRIEEN, NKRd and feedback from Railways was taken. It was opined by Railways to adopt 160/130 amps setting for Q<sub>D</sub> relay. Accordingly the setting of Q<sub>D</sub> relay in WAG5 and WAG7 locomotives is revised as under.

**Revised setting of Q<sub>D</sub> relay**

|          | <u>WAG5</u> | <u>WAG7</u> |
|----------|-------------|-------------|
| Pick up  | 160 Amps    | 160 Amps    |
| Drop out | 130 amps    | 130 Amps.   |

**3.0 Work to be carried out:**

Revise the setting of Q<sub>D</sub> relay as above.

**4.0 Application to the class of locomotives:**

WAG5 and WAG7 locomotives.

**5.0 Material required:**

NIL

**6.0 Material render surplus:**

NIL

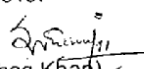
**7.0 Reference:**

- (i) RDSO's modification sheet No: ELRS/MS/0299-2000 (Rev '0') of Oct. 2000
- (ii) S C Rly letter No: E 221/Relays/Vol-IV dated 15/2/06 and 30/6/06.
- (iii) RDSO's letter No EL/3.1.3 dated 24-12-2007
- (iv) Discussion during CELE's conference on 3<sup>rd</sup> & 4<sup>th</sup> April, 2008 at IRIEEN, NKRd.

**8.0 Agency for implementation:**

- i) All Electric Loco Sheds.
- ii) All POH Workshops.
- iii) Chittaranjan Locomotive Works, Chittaranjan-713331.

**9.0 Distribution:** As per standard mailing list number EL/M/0019.

  
(Ishaq Khan)  
For Director General Std/Elect