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

No.EL/3.2.10/11

Dated: 20.3.2006

***SPECIAL MAINTENANCE INSTRUCTION NO.
RDSO/ELRS/SMI/0238 (Rev '0')***

1.0 Title:

Setting of QLM Relays for WAG5/WAM4 and locos fitted with 3900 KVA Transformer.

2.0 Brief History:

- 2.1 Railways have reported spurious tripping through QLM relay on WAG5/WAM4 locomotives fitted with 3900 KVA transformers. The QLM setting fitted on these locomotives is 6 Amps (300 Amps).
- 2.2 QLM setting fitted on WAG5/WAM4 locomotives have been checked/tested at ELS/CNB, LGD, BRCY, JHS & MGS and found little deviation from its set value.
- 2.3 This SMI lays down the revised setting of QLM relay on WAG5/WAM4 and locos fitted with 3900 KVA Transformer.

3.0 Object:

- 3.1 On study of the problem, it is noted that the present QLM setting at 6 Amps (300 Amps) is close to short time current rating i.e. 296.5 Amps of transformer. Further, considering the tolerance of QLM relay i.e. $\pm 7.5\%$, the pick up value of the relay ranges from 5.55 to 6.45 Amps (277.5A-322.5A).
- 3.2 Southern Railway monitored the loco current equipped with microprocessor based speed-cum-energy recorders and observed 3 readings with current more than or equal to 300 Amps (305 Amps in one case) and 12 readings in which current ranges from 277-299 Amps. Under these circumstances, QLM relay may cause tripping without any actual fault. This, therefore, requires revision in existing setting of QLM relays for the locomotives fitted with 3900 KVA transformers.

- 3.3 In order to ensure that the QRSI relay acts before the QLM as QRSI forms the first line of protection, the setting of QLM in WAG5/WAM4 and locos fitted with 3900 KVA transformer may be increased to 325 Amp.

4.0 Modified Instructions:

- 4.1 Change the present setting of QLM relay from 6 Amps to 6.5 Amps corresponding to 325 Amps of catenary current which will avoid spurious tripping and at the same time ensure sufficient safe working.

5.0 Application to:

QLM relays meant for fitment on WAG5/WAM4 and locomotives fitted with 3900 KVA transformers.

6.0 Agency of Implementation:

All AC electric Locos Sheds and Shops.

7.0 Periodicity:

To be completed at the earliest during different maintenance schedules including POH.

8.0 Distribution:

As per mailing list.

Encl: Nil.

(Hari Narayan)
For Director General/Elect.