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No. EL/1.2.9.1/

Dated 11.10.2010

Chief Electrical Engineer,

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**TECHNICAL CIRCULAR No. RDSO/2010/EL/TC/0106 (Rev. '0'),**  
**Dated 11.10.2010**

**Sub: Problem of excessive ramp up time of 180kVA SIV.**

**Ref:** 1. Sr. DEE /RS/JHS/NCR letter no JHS/RS/T-26/SS dt.17.06.2010.  
2. WCR letter no. WCR/L/05/2353 dt. 21.09.2010.

**1.0 BACKGROUND**

Railways have reported that there have been few cases of punctuality loss on account of driver's getting confused due to different messages getting generated on the screen of FDOS of locomotive fitted with 180kVA SIV.

**2.0 INVESTIGATION OF PROBLEM**

- i. RDSO has examined the problem and it is noted that the MPDS has provision of logging "SIV not picked up" as a fault message, if SIV does not pick up within 20 sec. of closing of DJ. Hence some times, FDOS display screen shows "SIV not picked up" but actually SIV picks up.

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Due to this spurious message on FDCS screen, loco pilot gets confused and if some other problem also comes in the mean time, the loco pilot gets diverted to "SIV not picking up" message even though this data is spurious.

- ii. To address the above problem, MPCs manufacturers have already been advised vide RDSO letter no EL/4.2.15 dated 12.08.2010 to modify the software logic to increase the "SIV not picking up" message time from 20 sec. to 30 sec. in FDCS software.
- iii. In regard to SIV ramp up time it may be noted that the total ramp up time (from pressing of BLRDJ to LSCHBA lamp off) also includes the on time delay of QSVM in addition to the ramp up time of SIV. It may also be noted that SIV gets ON command only after pick of QSVM relay as per circuit attached as Annexure-1. It is noticed that the time delay of QSVM relay provided in the software of MPCs is 5 sec. as against 2 sec. stipulated in RDSO Modification Sheet no. ELRS/MS/0335, Rev. '0' dated 28.01.2005. Hence after pressing the BLDJ & BLRDJ, the ON command to SIV will pass only after 5 sec. due to 5 sec. ON time delay of QSVM, which is causing delay in the ramp up of SIV.
- iv. The issue has been taken up with the manufacturers of MPCs and all the manufactures of MPCs have been advised vide this office letter no EL/4.2.15 dated 30.09.2010 to modify the software to reduce the time delay from 5 sec. to 2 sec. ON-time delay as stipulated in RDSO Modification Sheet. This will reduce the total ramp up time (from BLRDJ switch on to LSCHBA lamp off) by 3 sec. Trial of modified MPCs software has been jointly conducted at ELS/CNB on 23.09.2010 with M/s Medha, M/s AAL & M/s Siemens. During the trial it was found that the total ramp up time of SIV (from pressing BLRDJ to LSCHBA switch OFF) is around 17 sec. with modified FDCS during initial charging of locomotive (with DC link voltage as 0 volt). During the running of locomotive if DJ trips because of any reason / in the neutral section and loco pilot switches on BLDJ and BLRDJ, in that condition, total ramp- up time will be less than 15 sec. as rectifier section of SIV takes less time due to availability of residual DC link voltage.
- v. In M/s Siemens make SIV, ramp up time has increased by 2 sec. from the original time to address the problem of spurious tripping of cooling fan MCB being faced with BBL make blower motors.

### 3.0 ACTION TO BE TAKEN

In view of above, it is advised to get the software of MPCs modified by the manufactures and also in relay based locomotive, setting of QSVM relay

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is to be ensured as 2 sec. ON-time delay. Loco pilots may also be counseled to take notch only when LSCHBA lamp extinguishes, otherwise first notch tripping will take place.

Encl: As above

(A.K.Goswami)  
for Director General/Elect

Copy to: As per Standard Mailing List No. EL/M/0019, Ver. '2'

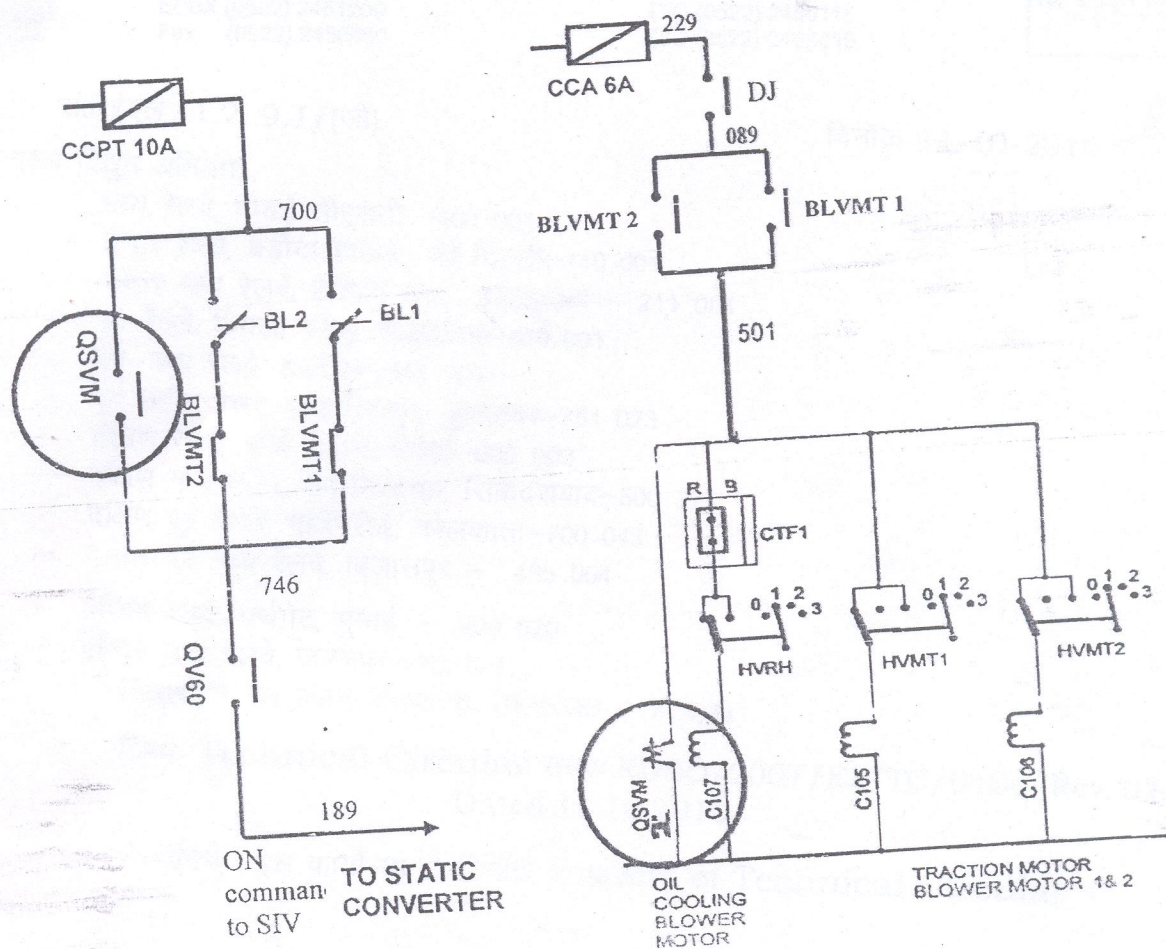
DD/Doc/Electrical Directorate

RDSO

Encl: As above

(A.K.Goswami)  
for Director General/Elect

## Annexure-1



After switching on the BLVMT, ON command at SIV will pass only when QSVM relay picks up & NO interlock of QSVM relay change it's position to close interlock.