

Fax : (0522)-2452581
Telephone: (0522)-2465715
Telegram : 'RAILMANAK', Lucknow
Email : dell7@rdso.railnet.gov.in



भारत सरकार – रेल मंत्रालय
अनुसंधान अभिकल्प और मानक संगठन
लखनऊ – 226011
Government of India - Ministry of Railways
Research, Designs & Standards

Organization, LUCKNOW - 226011

No. EL/11.5.5/1

Dated. 21.01.09

Chief Electrical Engineer,

1. Northern Railway, Baroda House, New Delhi-110 001
2. East Central Railway, Hajipur (Bihar)-844 101
3. Central Railway, HQs Office, 2nd floor, Parcel Office Bldg., Mumbai-400 001
4. South Central Railway, HQs Office, Rail Nilayam, Secunderabad-500 071
5. West Central Railway, HQs Office, Opp. Indira Market, Jabalpur-482 001
6. South East Central Railway, Bilaspur-495 004
7. Chittaranjan Locomotive Works, Chittaranjan-713 331

MODIFICATION SHEET NO.RDSO/2008/EL/MS/0371(REV.0),
DATED 20.01.09

1. Title

Provision of change over switch in Traction Converter for speed sensor of Traction Motor.

2. Object

The 3-phase locomotives are equipped with speed sensors, which have a speed ring, mounted on the rotor shaft and dual sensor assembly fitted on the end shield of the traction motor. A gap of 0.5-1 mm is kept between sensor assembly and speed ring. Depending on the speed of the traction motor, the pulses are generated in the sensor assembly and this output is sent to the ASC peripheral card of the Converter Control unit through a cable. In ASC peripheral card, slot exists for connecting only one cable and hence output of only one sensor is connected to the card. The benefit of second sensor for redundancy purpose is not utilised.

Whenever working sensor becomes defective "Error Tacho Generator 1/2/3" (message no. ASC1/ASC2 0052/0053/0054) is generated and further loco speed does not rise more than 1 Km/h and then bogie is required to be isolated by the driver. As it is not possible for driver of the locomotive to remove the faulty sensor and provide a healthy sensor on line, locomotive has to be attended at the nearest shed for changing the speed sensor. In order to avoid line failure, it is considered necessary to provide changeover switches so that in the event of problem in one sensor the other standby sensor can be utilised.

3. Existing Arrangement

The out-put signal of speed sensor is sent to ASC peripheral card of Converter Control unit through a cable. In ASC card, one sensor is connected in slot and other remains free. It is therefore not possible to utilise standby sensor in the event of problem in connected sensor.

4. Modified Arrangement

The speed sensor cables are to be connected to ASC peripheral card through changeover switches as per drawing no. SKEL-4755 ALT'0'. These switches are housed in a box mounted on top of the Traction Converter rake.

5. Application

WAG9, WAP5, WAP7 and WAG9H

6. Material required

1. MS box of 200mmx100mmx100mm and 2 mm thick - 2 no./loco
2. DPST toggle switches of rating 6Amp/250Volt
Type: TS 620&code no.0620.2111.make IEC - 6 no./loco.

7. Material rendered surplus

Nil.

8. Reference

South Central Railways letter no.E.221/3 phase/Mod/Vol-1 dated 04.09.08 after they have successfully implemented in loco no. 31173 in Aug-08.

9. Modification drawing

- i. Attached drawing no. SKEL-4755 ALT'0'.
- ii. Photograph showing location of changeover switch box.

10. Agency of implementation

CLW and Loco sheds holding 3-phase locomotives.

11. Instruction to driver

If driver experiences "Speed not increasing more than 1 Kmph" and "Loco moving with heavy jerk above 50% of TE", driver should check for "Error Tacho Generator 1/2/3" message in DDS. In this case driver has to switch over to the standby speed sensor indicated by the

message with the help of toggle switch provided on changeover switch box at the top of traction converter to normalise the loco operation.

40/21/01/09
(Sandeep Srivastava)
For Director General /Electrical

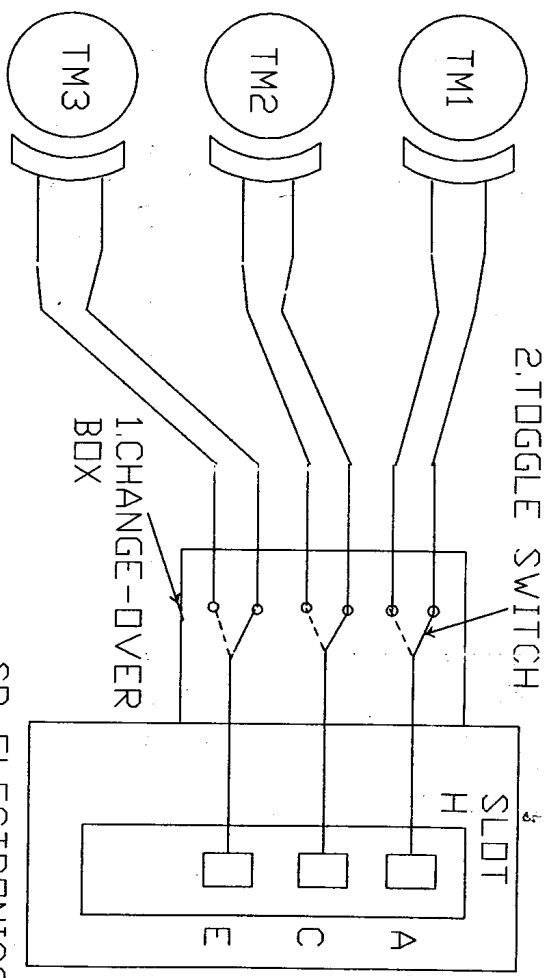
Encl: Drawings and Photograph.

Copy to:-

1. **Secretary** (Elec. Engg./RS), Railway Board, Rail Bhawan, New Delhi-110 001 : For kind inf. Please
2. **Sr. DEE (TRS)** : For inf. & necessary action please
 - Electric Loco Shed, East Central Railway, Gomoh-828 401
 - Electric Loco Shed, Northern Railway, Ghaziabad-201 001
 - Electric Loco Shed, Central Railway, Ajni, Nagpur-440 008
 - Electric Loco Shed, South Central Rly., Lallaguda, Secunderabad-500071
 - Electric Loco Shed, West Central Railway, Tuglakabad, New Delhi-110044
 - Electric Loco Shed, South East Central Rly. Bhilai, Durg-490 025

40/21/01/09
(Sandeep Srivastava)
For Director General /Electrical

OLE Shukla



SPEED
SENSORS

SR ELECTRONICS

DT	0020109
D	0020109
C	0020109
T	

STATUS	ALT.	REF. NO.	DESCRIPTION	APPD BY	DATE

2	DPST 6A/250VOLT	6			
1	BOX200X100X100mm	2	M.S.		
REF. NO.	PART NO.	DESCRIPTION	DETAIL DRG. NO.	LOCC	MATL. SPEC.
REF.			SCALE	APPD BY	FOR DG.
TM speed sensor circuit(modified)					
FIRST ISSUED					
SUPERSEDES					
RDSO ELECT. DTE ALTO'					
SKEL-4755					
SUPERSEDED BY					

**LOCATION OF SPEED SENSOR CHANGE OVER SWITCH IN LOCO
NO.31173/LGD.**



Location of Speed change over switch mounted on SR-1



Speed change over switch