

No. EL/2.2.9/10

Dated: As signed

Principal Chief Electrical Engineer,

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| 1. Central Railway, Mumbai CST-400 001 | 2. North Western Railway, Jaipur-302 006 |
| 3. East Central Railway, Hazipur-844 101 | 4. South Central Railway, Rail Nilayam, Secunderabad-500 071 |
| 5. East Coast Railway, Chandrashekharapur, Bhubaneswar-751 016 | 6. South East Central Railway, Bilaspur- 495 004 |
| 7. Eastern Railway, Fairlie Place, Kolkata-700 001 | 8. South Eastern Railway, Garden Reach, Kolkata-700 043 |
| 9. North Central Railway, Subedarganj, Prayagraj- 211 033 | 10. Southern Railway, Park Town, Chennai-600 003 |
| 11. Northern Railway, Baroda House, New Delhi-110 001 | 12. South Western Railway, Hubli-580 024 |
| 13. North Eastern Railway, Gorakhpur-273001 | 14. West Central Railway, Jabalpur-482 001 |
| 15. North East Frontier Railway, Maligaon, Guwahati-781 011 | 16. Western Railway, Churchgate, Mumbai- 400 020 |
| 17. Banaras Locomotive Works, Varanasi - 221 004 | 18. Chittaranjan Locomotive Works, Chittaranjan- 713 331 |
| 19. Patiala Locomotives Works, Patiala - 147 003 | |

MODIFICATION SHEET NO. RDSO/2023/EL/MS/0492(Rev.0) , Dated 16.06.2023

1.0 TITLE

Provision of Auto Regression Circuit in Tap-changer based Conventional Electric Locomotives for ensuring the shunting mode operations.

2.0 BACKGROUND

In terms of Railway Board letter No.2022/Elect(TRS)/113/Safety Misc. dated 13.04.2023 wherein Railway Board has directed to incorporate the feature of 'Shunting Mode' in Tap-changer based Conventional Electric Locomotives similar to facility available in 3-Phase Electric locomotives to restrict the speed of locomotives to 15 kmph during Shunting Operations. RDSO has examined the requirement & Modification Sheet no. RDSO/2023/EL/MS/0492(Rev. '0') is issued for the purpose accordingly.

3.0 OBJECT

This is to ensure auto-regression on obtaining 15 kmph speed & above in shunting mode operations of Conventional Electric Locomotives by utilizing the spare relay output NO contact of Speedometer.

4.0 WORKS TO BE CARRIED OUT

- (i) The spare relay output contact (NO, Pin no 11 & 42) in ESMON has been used in ensuring the speed of locomotives to 15 kmph during Shunting Operations. OEMs

- modified Speedometer Software to be installed in respective ESMON to change the state of above spare NO contact from 'NO' to 'NC' above 15 kmph.
- (ii) A Rotary switch having two postions '0' & '1' (to be named as HSM) to be provided in TB board panel. This rotary switch has to be kept on '0' postion during shunting operation otherwise to be kept on postion '1' for normal operation of locomotive.
 - (iii) The modification has to be carried out in Master of ESMON
 - (iv) The additional circuit shown in RED rectangle under the enclosed schematic to be implemented & wiring shall be done (shown in RED rectangle) as per scheme given in Annexure –I (for Non-MPFDCS locos) and Annexure-II(for MPFDCS locos)
 - a) Run a new cable from BD board cable no. 810 to HSM (N/O interlock pole no. 2) in TB board.
 - b) Run a new cable from HSM (N/O interlock pole no. 4) in TB board to Cab-2 SB
 - c) Run a new cable from Cab-2 SB to SPM sub-D Pin no.11
 - d) Run a new cable from SPM sub-D Pin no. 42 to Cab -2 SB
 - e) Run a new cable from Cab-2 SB to cable no. 115 in BD
 - (v) Instruction shall be issued to LPs that they should operate the HSM switch while entering into Shunting Operations. The following instructions shall be pasted on rear wall of each cab of Tap-changer based Conventional Electric Locomotives:

INSTRUCTIONS FOR SHUNTING OPERATION

THIS LOCO IS FITTED WITH “SHUNTING MODE OPERATION SWITCH (HSM)” IN TB BOARD TO RESTRICT THE SPEED OF LOCO TO 15KMPH DURING SHUNTING OPERATION.THIS ROTARY SWITCH (HSM) HAS TWO POSTIONS ‘0’ & ‘1’

HSM AT POSITION ‘1’: FOR NORMAL OPERATION
HSM AT POSTION ‘0’ : FOR SHUNTING OPERATION

NOTE:
DURING NORMAL OPERATION, IF AUTO –REGRESSION AT
15 KMPH, ENSURE THE HSM SWITCH POSTION AT ‘1’.

5.0 APPLICATION TO CLASS OF LOCOMOTIVES
 Tap-changer based Conventional Electric Locomotives.

6.0 MATERIAL REQUIRED

- (i) Modified Speedometer Software
- (ii) Rotary Switch with two positions '0' & '1' (similar to ZCPA)
- (iii) 2.5 sq mm cable of suitable length (26m approx.)

7.0 MATERIAL RENDERED SURPLUS

None

8.0 REFERENCES

Railway Board's letter No.2022/Elect(TRS)/113/Sfety Misc. dated 13.04.2023

9.0 MODIFICATION DRAWING

SKEL-5066 & SKEL-5067 (Enclosed)

10.0 AGENCY FOR IMPLEMENTATION

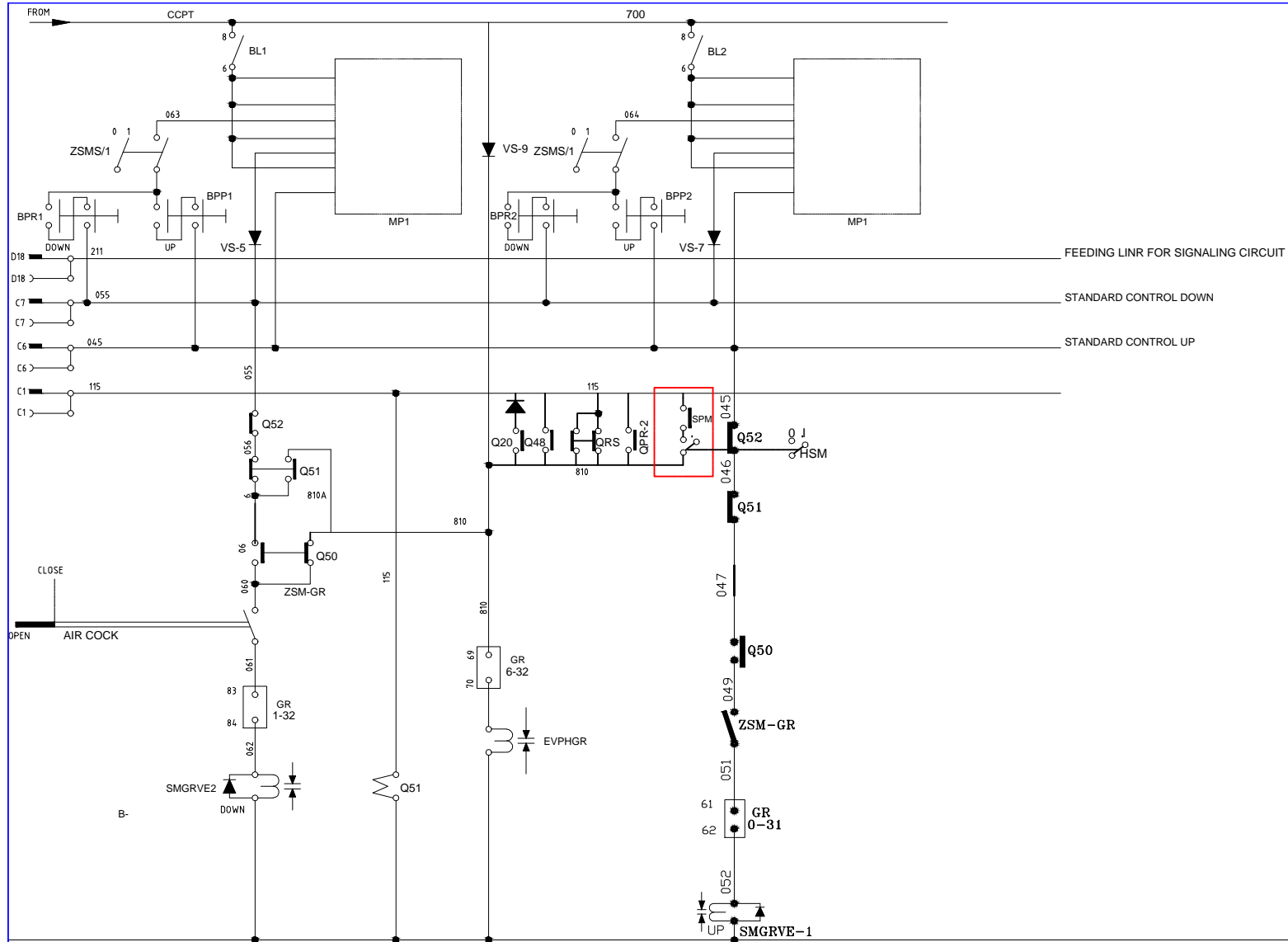
Electric Loco Sheds having Tap-changer based Conventional Electric Locomotives, PUs & POH Workshops.

Encl: As above

(Arvind Pandey)
for Director General Std./Electrical

Copy to:

1. Secretary (Electrical), Railway Board, Rail Bhawan, New Delhi-110 001
2. OEMs of ESMON
3. Sr. Divisional Electrical Engineer, Electric loco shed



NOTE:

1. HSM(Shunting Mode Operation switch) is a Rotary Switch having two positions '0' & 'I' to be provided in TB panel.
2. SPM stands for speedometer whose NO contact is provided in the regression circuit. This NO contact will become NC when the loco speed becomes more than 15 kmph.
3. The circuit shown in Red rectangle is to be provided additionally in existing circuit.

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C	JPS Kutiyal

REF. :	SCALE - 1 : 20	APPD. BY.	(For Dg)
SHUNTING OPERATION OF CONVENTIONAL ELECTRIC LOCOMOTIVES (FOR NON-MPFDCS LOCOS)			FIRST ISSUED
			SUPERSEDES
R.D.S.O. ELECT. DTE.	SKEL - 5066 ALT - 0	SUPERSEDED BY	

