SABAK(सबक)

----------A LESSON

FIRST EDITION

2024

ELECTRIC OPERATION

EASTERN RAILWAY,SDAH

2024

दीपक निगम
Deepak Nigam

सत्यमेव जयते

मंडल रेल प्रबंधक
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FOREWORD

I am happy to note that Electric/Operation Department of Sealdah Division is going to publish a Quarterly Magazine namely "SABAK" (1st Edition), a compilation of Good Work Done by Loco Pilots of Sealdah Division, Technical guide on WAG-12 & 3-Phase Locomotive and SPAD analysis and prevention measures.

I am sure that this will be quite useful for the Loco Running Staff and Supervisors.

I also appreciate the hard work rendered by the team of Electric/Operation Wing of my Division.

I wish this endeavour a great success.

17/4/24.

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सत्यमेव जयते

वरिष्ठमंडलविद्युतइंजीनियर परिचालन
सियालदह मंडल
पूर्व रेलवे
Sr.Divisional Electric
Engineer/Operation
Sealdah Division
Eastern Railway

MESSAGE

Safety is paramount in Indian Railways. Running staffs are very vital for ensuring safety of train operation. To upgrade the knowledge and lesson learnt from past incidences, team of Electrical Operation wing decides to publish First Edition of a quarterly magazine "SABAK".

This magazine consisting compilation of Good Work Done by Loco pilots of SDAH Division, Technical guide in WAG-12 & 3 phase locomotive and SPAD analysis and prevention measures.

I sincerely believe that this "SABAK" magazine will immensely benefit the running staff & supervisors and serve its objective.

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Good work done by Loco Pilots of SDAH

1) On 05.02.2024 Sri Rajib Ranjan, LPG/MJT and Sri Swapan Maity, ALP/MJT was working in Train No. E/38135/RMC/BLN, LPG reported that in between D-MGT up line track found in bent condition. LPG stooped the train before the faulty track. Thus saved an untoward incident by their alertness and dedication towards duty. A suitable cash of Rs.2000/- awarded to both of them by Hon'ble DRM/SDAH.

2) On 06.02.2024 Sri SouravPramanick,LPS-II /SDAH was booked for shunting Empty EMU/Rake/NKG Carshedwhile placing the rake at PF. No.-3, he found the track fractured condition near mast no. 0/3C at 07:24 hrs. He immediately stopped the train and informed all concern. Thus saved an untoward incident by their alertness and dedication towards duty. A suitable cash of Rs.2000/- awarded to both of them by Hon'ble DRM/SDAH.

3)**On 23.04.23,Sri Ram Anuj Sharma/SDAH** while working train no- 31927 Up (SDAH-GXD Local), at DDJ Up suburban starter signal S-22 was taken off with route Indicator towards BNJ section instead of Mainline section against his train. Finally signal was put back and again taken off rightly for desired direction. Thus he saved the train from being entered in to wrong direction.

4) On 07.04.23 Sri Brajesh Kumar, LPP & Sri G. Biswas, ALP while working train no 03192 Dn (LGL-SDAH Passenger) train stopped at SDAH Dn Sub Home signal S-87 which was at 'ON 'Condition. Then signal was taken off for PF-4/SDAH where the full length train cannot be accommodated. After some time, the signal was put back and taken off for PF-09.

5) **On 20.05.23, <u>Sri S.J. Majumder, LPM & Sri B. Biswas ,ALP</u>** while working Train No.12260 Ex DHN to SDAH, they were issued T-409 (caution order) for entire route but following two TSRs (cautions) of 30 KMPH speed restriction were either mentioned of line no wrongly or not mentioned at all in the issued caution order, T-409. In both the cases while approaching the above speed restriction zone without proper endorsement in caution order, they noticed the indication board properly and any way managed to control the speed of the train to 30 KMPH in the speed restriction zone by applying brake & observed it properly. Thus they saved an untoward incident/ derailment on line.

6) **On 30.05.23 <u>Sri Ashim Majumder, LPP(M/Man)/North</u>** while working train no E/Rake KrishakSpl, Ex SDAH to RHA, he stopped his train before UP/NH/ Home signal at 'ON' condition. Then 'calling On' signal was taken off, he followed & proceeded accordingly as per rules. While approaching Point no.105, he noticed the point was not set properly for his train. He immediately stopped his train right before the point by applying brake. Thus he saved the train from being involved to a probable incident/ derailment on line.

7) **On 02.06.23, <u>Sri RatanMahajn, LPG</u> while working Train No.EC/BCN/ER, Loco No-28745** passing BDC over bridge, suddenly he noticed some foreign material was entangled & hanging from OHE at Km no-39/8G. He immediately lowered the Pantograph and applied emergency brake to stop the train right before the spot. OHE (TRD) staff attended and removed the foreign material from OHE & then allowed the train to pass the spot. Thus he saved the train from being involved into a probable incident on line as well as saved the Pantograph of the locomotive.

8) **On 21.06.23, <u>Sri AmareshMondal, M/Man</u> while** working train no- 03194 Dn (LGL-KOAA MEMU)& approaching Dn reversible Home signal/NH, he observed that approaching Home signal was taken off for receiving the train in line no 08 i.e. goods line having no platform. He applied brake immediately & was able to stop the train right before the signal. Thus he saved the train from being involved to an untoward incident on line & also saved the hazard of the passenger on impact of wrong receiving in line no-08 without Platform.

9) **On 09.07.23, Sri Jitendra Kumar, M/man while working Train No.33654 & approaching to ASKR HOME SIGNAL NO S-8** with green aspect, suddenly he noticed green signal put back to RED in face of his train. Immediately he applied emergency brake & was able to stop the train right before the signal.

10) **An untoward incident was averted due to alertness of LPG:-On 30.07.23, Sri Surojit Saha, LPG & Sri Suman Saha, ALP** while working TrainNo.E/32616+32683/BTPN/HLZ/SE, after passing LLH starter signal, they found one signal in extreme right at red conditionbefore 600 meter (approx) from the existing LLH/DN/Advance /Str signal S53 and stopped the train before the signal.

11) **Accident was averted owing to alertness of LPP & ALP-On 09.07.23, Sri Tapas Sadhukhan, LPP & Sri S.K.Choudhary, ALP while working Train No. 13162,** passed gate signal no **39 in green condition**& after negotiating curvature, they suddenly **noticed gate no 41 was opened in face of** the train & lot of vehicles were passing through the gate.He applied emergency brake and wereable to stop the train just after passing the gate no-41 without any Casualty & damage to the locomotive. Thus they saved the train from being involved into an untoward incident.

12) **On 31.08.23 Sri Asish Kumar Dey, LPM/KOAA/SDAH** while working train no 13151 and on PF-1, he noticed that one women was lying inside Railway track by placing neck over one rail to commit suicide, he immediately went to the spot and rescued. Thus he saved the **life of a human being showing her humanity and Social commitment**.

13) **On 25.09.23, <u>Sri Rajeev Kumar, LPP/SDAH</u>** was booked to work 34614/34613 ex SDAH-BRP-SDAH. On arrival at BLN PF No- 02, he noticed that **the departure starter signal was taken off with route indicator pointing diversion towards BGB section**. Then **signal was put back by SM/RRI/BLN on realizing the mistake and again taken off for the correct route towards BRP**. Thus he saved the train from being entered into incorrect direction as well as to save the train from an untoward incident.

14) **On 13.09.23, Sri Avijit Banerjee, LPM & P. Bhattacharjee, ALP** while working train no 12314 they noticed that H/Signal of MSAE with Starter & Advance Starter was **in off condition** in face of the train but after passing Home signal, they noticed **starter & advance starter was Put back 'ON'**. Immediately they applied emergency brake and stopped the train at Km/ No-70/24. Later T-369(3b) was issued to pass the signal. Thus they saved the train from being involved to an untoward incident on line.

15) **Averted accident owing to alertness of Loco pilots:-** On 23.09.23 , Sri Jitendra Prasad Singh, LPP & B. Murmu, ALP , while working train no 03190, loco no-23903/WAG-5/BWN and they passed Dn Advance Starter of DEB with green aspect with the speed 105 KMPH, but found that gate no- E/87C (Km no- 134/04-134/02) was in opened condition and one big truck was inside the gate covering both UP &Dn line. Immediately they applied emergency brake & stopped the train right before the spot (20 mts approx.). Thus they saved the train from being involved to a severe accident with casualty.

MR Award on 68th Railway Week Function '2023

- Sri AmanAnand, LPP/SDAH while working Tr No-03190 on 21.06.2023 from-LGL to SDAH at about 11.10 hrs when train left from PLY & proceeding towards DEB suddenly he noticed LC gate no-97/E/C was in open condition. He immediate applied emergency brake &stopped the train just before the LC gate & averted a major untoward incident as there was one ambulance was passing over the non interlocked gate. Finally after passing the ambulance, closed the gate & the train left from the spot at 11.18 hrs. Considering the commendable performance by Sri Anand with high alertness, great sincerity & dedication to his duty he has been awarded by Hon'ble MR on 68th Railway week function'2023.

Symptoms of Hot Axle

During Rolling in Examination and Axle Box filling

While in Slow motion / not in motion

S.N.	Day time	Night time
1	Smell of burning grease	Light smell of burning grease / EM pad
2	Splashing of grease on wheel disc &discoloring of grease.	Axle Box cover becomes Red Hot.
3	Light smoke from Axle Box	Glowing of Axle Box
4	Discoloring of face plate	Hotness of axle box by filling / non contact thermometer.
5	Burning of EM pad over axle box.	
6	Hotness of Axle box by feeling / noncontact thermometer	

While Run Through:

S.N.	Day time	Night time
1	Screening sound	Screening sound
2	Axle may get locked and wheel skidding	Axle Box cover becomes Red Hot
3	Discoloring of Axle Box face plate	Sparks on Rail due to skidding
4	Smell of burning grease	Burning of EM pad and flame over Axle Box
5	Vibration of wagon / trolley.	

File No.RDSO-MW0CD(BMBS)/2/2020-O/o PED/SW/RDSO

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Government of India - Ministry of Railways
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No. MW/APB/BMB/KNORR

Date: 31.12.2022

All General Managers
Zonal Railways

Managing Directors
DFCCIL & KRCL

Sub: Measures for operation of BMBS fitted freight trains.

Ref: i) This office letter no. MW/APB/BMB dated 23.07.2022.
ii) Railway Board's letter no 2022/M (N)/60/3 dated 25.11.2022.
iii) This office letter no. MW/APB/BMB dated 22.12.2022.
iv) Railway Board's letter no 2022/M (N)/60/3 (E-338758) dated 31.12.2022.

1. Vide ref. (ii) above, Railway Board instructed to conduct Brake Efficacy trials of rakes fitted with BMBS and conventional brake systems.
2. Vide ref (iii) above, report of these trials conducted in various railways was submitted to Railway Board.
3. Railway Board vide ref. (iv) above, has advised as following:

3.1 Speed limits for operation of freight trains in loaded condition on IR track consisting of more than 50% wagons with Bogie Mounted Brake System (BMBS) shall be as under:

Sr. No.	Track terrain	Max. Speed limit (Kmph)
1	Level	60
2	Down gradient of 1:200 to <1:150	50
3	Down gradient of 1:150 to ≤ 1:100	40
4	Down gradient of >1:100	30

3.2 Speed limit on DFC to remain same as already advised vide letter u/r (i) above.

3.3 Actively pursue mixing of BOXNHL wagons having Knorr make BMBS with BOXNHL wagons having other make of BMBS/Conventional brake system to the extent possible, depending upon the availability of BOXNHL wagons having other make of BMBS/Conventional brake system, targeting max. 50% wagons with Knorr make BMBS in a freight train. It is a desirable condition, not a mandatory one.

3.4 For other than BOXNHL type of wagons having Knorr make BMBS, efforts to be made for mixing with compatible wagons having other make of BMBS/Conventional brake system to the extent possible, depending upon the availability of compatible wagons having other make of BMBS/Conventional brake system, targeting max. 50% wagons having Knorr make BMBS in a freight train. It is also a desirable condition, not a mandatory one.

4. All other instructions issued vide letter under ref (i) above may be followed.

Digitally Signed by Manish Thaplyal
(Dr. Manish Thaplyal)
ED/Wagon
Date: 31-12-2022 17:45:20
Reason: Approved

Copy to- EDME/Freight RB- For kind information.

COMPARISON BETWEEN WAG-9 & WAG-12

(Ref Centre of Excellence, Rourkela, SE.Rly)

S.N.	WAG9 Loco motive	WAG-12 Locomotive
1	MAXIMUM STARTING TRACTIVE EFFORT – 520 KN	MAXIMUM STARTING TRACTIVE EFFORT a) AT 25 T/AXLE LOAD- 785 KN b) AT 22.5 T/AXLE LOAD -705 KN
2	NO. OF TRACTION MOTORS -6 NOS	NO. OF TRACTION MOTORS -8 NOS (SECTION1+SECTION2)
3	N0. OF BOGIES - 2 Type – CO-CO	MAXIMUM BRAKING EFFORT – 260 KN 3. NO. OF BOGIES - 4 PER LOCO (SECTION 1 + SECTION 2) Type – BO-BO
4	MAXIMUM BRAKING EFFORT – 260 KN	MAXIMUM BRAKING EFFORT – AT 25 T/AXLE LOAD - 514 KN AT 22.5 T/AXLE LOAD -385 KN
5	PANTO – 2	PANTO – 2 NOS (ONE FOR EACH SECTION)
6	VCB - 01	VCB – 2 NOS (ONE FOR EACH SECTION)
7	MAIN TFP -01	MAIN TFP – 2 NOS (ONE FOR EACH SECTION)
8	VCB,SURGE ARRESTER, & PT KEPT ON ROOF.	VCB, SURGE ARRESTER, & PT AVAILBLE IN HVC (HIGH VOLTAGE CUBICLE) ON MACHINE ROOM.
9	SR1 & SR2	E- BLOCK 1, & 2 (OR) TCU 1 & 2 (TRACTION CONTROL UNIT) 4 NOS - TWO FOR EACH SECTION.
10	BURI, BUR2, BUR3	IN SIDE E- BLOCK , 2 NOS OF AUXILIARY CONVERTERS ONE FOR EACH SECTION
11	3 PHASE AUXILARY MOTORS – 13 NOS (INCLUDING CHBA)	3 PHASE AUXILIARY MOTORS – 28 NOS (INCLUDING CHBA'S) (14 NOS MOTORS FOR EACH SECTION)
12	OIL PUMP TFP -2 NOS	OIL PUMP TFP – 4 NOS
13	SR1&2 OIL PUMPS - 2NOS	E- BLOCK WATER PUMPS– 4 NOS (TWO FOR EACH SESCTION)
14	OCB 1 & 2 - 2 NOS	E- BLOCK BLOWER – 4 NOS (TWO FOR EACH SECTION)
15	TMB 1 & 2 – 2 NOS	TACTION MOTOR BLOWERS – 4 NOS (TWO FOR EACH SECTION)
16	MCP1 & MCP2 – 2 NOS 1750 LPM	MASU(MAIN AIR SUPPLY UNIT) – 2 N0S Each 2430 LPM (ONE FOR EACH SECTION)
17	BATTERY CHARGER -01	BATTERY CHARGER – 2 NOS (ONE FOR EACH SECTION)
18	MRB(MACHINE ROOM BLOWER) – 2 NOS	MRB(MACHINE ROOM BLOWER) – 4 NOS (TWO FOR EACH SECTION)
19	TMSB1,2 & MRSB 1,2 (SCAVANGE BLOWER FOR TMB & MACHENE ROOM) – 4 NOS	PUNCTION BLOWER – 04 NOS (TWO FOR EACH SECTION)
20	MCPA (One per Loco)	MCPA – 2NOS (ONE FOR EACH SECTION)
21	HARMONIC FILTER –01	HARMONIC FILTER – 02 NOS (ONE FOR EACH SECTION)
22	PNEUMATIC PANNEL (E-70 OR CCB) – 01 NO	BCM (BRAKE CONTROL MODULE) – 02 NOS (ONE FOR EACH SECTION)
23	MECHANICAL BOGIE 1 & 2 – 02 NOS	MECHANICAL BOGIE 1 & 2 – 04 NOS (TWO FOR EACH

		SECTION)
24	CONTROL ELECTRONICS (MCE)	TCMS (TRAIN CONTROL & MONITORING SYSTEM – 02 NOS (ONE FOR EACH SECTION)
25	BP ISOLATION COCK:- (Not provided) To address the issue of foreign particle entering in PVEM valve of BPCP through train line, mesh strainer has been provided in BPCP valve	BP ISOLATION COCK:- Since WAG-12 loco having 1 BCM/section in order to isolate the affected BCM, provision of BP isolating cock in the train line Brake Pipe before 821 VV has been made to prevent continuous BP exhaust in case of foreign particle entry in PVEM valve of BPCP.

COMPARISON OF LOCO ENERGISATION BETWEEN WAG-9 & WAG-12

1	Turn on MCB 110 / 112.1 (provided on SB-2)	Turn on the battery circuit breaker of both sections – MCB- 100, (provided on Loco Pilot side battery box) , check BA Voltage on volt meter provided on LV cubicle.
2	The cab light burns only after turning on the MCE.	Can glow up to Up to 15 minutes on pressing the push button in the cab / corridor / machine room.
3	The BL key has three positions(C,OFF & D)	Mass-CON (BL) keys have two positions (ON& OFF).
4	Placing the BL key on the panel 'A' and by moving it to 'D' to switch ON the MCE . - Control electronics will turn on. - BA voltage will appear on UBA	Put the Battery connect switch on CCR panel behind the ALP to Start-up position. - The control electronics will turn ON - Then put the Master Controller key (BL) to ON position.
5	Put ZPT switch UP to raise pantograph. - Panto will raise according to the position of switch 85. - 'U' meter will deviate	Operate Pantograph toggle switch to Raise position/UP (central panel) to raise the pantograph. - There is an additional permanent position of the switch i.e. "emergency". On this position both section panto will lower without BP pressure drop. If any one section switch in emergency position, panto will not raise. - Panto will raise according to the position of panto selector switch on CCR panel. - OHE voltage will display on line Indicator.
6	Panto selector Switch 85 Positions a) I - Cab-1 panto will raise b) II - Cab 2 panto will raise. c) Auto - The rear panto will raise.	Position of panto selector switch a) Rear – Rear panto will raise. b) Front - Front panto will raise c) Both- both sections panto raised. Note:- Always keep the switch on REAR position.
7	Close VCB	Close VCB (Same as WAG-9)
8	EVB redundancy to release penalty breaks by placing the auto brake handle on FS, then as per EBV display Keep on RUN BP Pressure will charge to 5 9kg/cm2.	EVB redundancy to release penalty breaks by placing the auto brake handle on FS, after 10 Sec/or as per EBV display Keep on RUN BP Pressure will charge to 5 kg /cm2
9	Set the reverser in the desired direction.	Set the reverser in the desired direction. (Same as WAG-9)
10	Release the loco brake and parking brake. Handling of loco by moving throttle as required Can be done.	Release the loco brake and parking brake. Handling of loco by moving throttle as required Can be done. (Same as WAG-9)

11	Voice recording and smoke sensors not available in the cab.	The cab features have voice recording and smoke sensors.
12	BL is not interlocked with Reverser Key	BL is interlocked with Reverser Key

COMPARISON OF CAB CHANGING BETWEEN WAG-9 & WAG-12

S.N.	WAG9 Loco motive	WAG-12 Locomotive
1	PARKING BRAKE will apply automatically when BL key put to "OFF" position.	PARKING BRAKE will not apply after putting MASCON (BL) key to "OFF" position. Hence LP have to operate parking brake switch to apply position before putting BL "OFF"
	LOCO SHUTDOWN	
1	PARKING BRAKE will apply automatically when BL key "OFF"	PARKING BRAKE will not apply after (BL) key on "OFF" position. Hence LP have to operate parking brake switch to apply position before putting BL "OFF"
2	MCE can OFF by BL key.	For MCE to Off, after BL key OFF "either select Shut- Down mode on DDU or By putting Battery connected switch on CCR panel behind ALP to STOP"
3	Put OFF MCB 110 & 112.1 provided on SB-2	Put OFF MCB-100 of both section provided on BA BOX (LP side)
	PTDC OPERATION	
1	Put OFF MCE and open MCB 127.7	There is no need to turn off control electronics, only trip/open Circuit breaker 62 Q06(on LV cubicle) in both sections.
2	After MCE ON keep PERCOS switch CUT-IN (vertical) position.	After CB OFF on LV cubical keep PERCOS switch CUT-IN (vertical) position in active section only.
3	Make sure MCB127.15 is ON	Make sure that the VCD bypass switch is normal.
	DEAD LOCO MOVEMENT	
1	Keep both cabs EVB mode switches on Trail and A-9 handle has to be placed on FS	Keep both cabs EVB mode switches on Trail and A-9 handle has to be placed on FS.
2	Release Parking brake manually by pulling manual release spindle provide on wheel no 2 , 6 , 7 and 11 (4 wheels total).	Release Parking brake manually by pulling manual release spindle provide on wheel no- 1 , 4 , 5 and 8 of both section (8 wheels total)
	PARKING BRAKE	
1	Parking brake will apply automatically after putting BL key to OFF position.	PARKING BRAKE will not apply after putting MASCON (BL) key on "OFF" position. Hence LP have to operate parking brake switch to apply position before putting BL "OFF" .
2	Illuminated push Button (BPPB) provided for apply / release of PB.	The parking brake is a spring loaded switch for apply/ release and Separate indication lamp will glow when PB is applied.
3	By pressing the plunger of Solonide-30 valve (Left for apply & Right for release)	By operation of Solonide-30 valve (Right for apply & Left for release) in both section.
4	PB gauge will show '0' when applied with loco brake.	PB gauge will show 4kg/cm2 when applied with loco brake
	LIMITATION OF TRACTIVE EFFORT	
1	Put 'ON' ZTEL after throttle at "0". The maximum TE of 300 KN can be	Put the throttle on "0" and select on the home page on DDU for maximum 300 KN or 529 KN to achieve the max

	achieved.	tractive effort.
VCB OPEN/CLOSE SWITCH(BLDJ) FAILURE		
1	No other option, try from other cab	VCB can be Close/Open from DDU.
PILOT LAMP		
1	Indication pilot lamps LSDJ, LSAF, LSP, LSVW and LSCE provided .	Pilot lamps are replaced by indication lamps and three additional indication lamp also provided on panel.
2	For parking brake BPPB is self-illuminated.	a) On applying emergency brake b) Unintentional braking c) When the fire detects, these lamps will glow to inform LP
AUTO A-9 OPERATION		
1	Normally while applying train brake by A-9, paddle switch PVEF pressed to avoid application of loco brake.	Blending brake works normally when braking with A- 9 and electrical braking takes place on loco, pneumatic brake will not apply on loco.
ENTERING LP ID & TRAIN DETAILS		
1	It is required to enter the details in SPM	The details to be entered in the DDU. If accurate train load not entered, then BPCS will not properly.
ED BRAKE LOSS DUE TO ANY REASON		
1	Due to OHE no tension or for any other reason If the regenerative brake will cut-off, then the Loco brake will apply in proportion to the braking force. but BP will not drop in E-70 loco. But for CCB loco same as WAG-12 loco	Due to OHE NO tension or for any other reason If the regenerative brake is cut, a) If throttle 90% is in the maximum breaking position There will be a penalty brake in the loco and train. CONSTANT SPEED CONTROL
CONSTANT SPEED CONTROLLER (CSC)		
1	After a speed of 5 kmph only BPCS can be used to drive the vehicle at the prescribed speed	After a speed of 10 kmph only BPCS can be used to drive the vehicle at the prescribed speed
1	No any facility to set the constant speed in advance in the loco.	To determine the speed in advance, at the standing position, reverser to be kept neutral and on DDU after driving mode screen, by the sub menu (constant speed) the speed can be set by LP on - 30 , 40 , 50 , 60, 70 , 80 , 90 , 100. The loco will run as the selected speed.
VCD WORKING & FAILURE		
1	Activated after 1.5Kmph speed.	Activated after 5 Kmph speed.
2	After 60 seconds, the warning light is activated. And after 8 seconds the buzzer rings again after 8 sec Emergency brake will apply by VCD(CCB-2.0) .	After 60 seconds, the warning light is activated and buzzer rings. Then after 16 sec, Emergency brake will apply by VCD .
3	If VCD malfunctioning, keep the switch 237.1 on “0”.	Put VCD switch present in CCR to Bypass position.
THROTTLE FAILURE		
1	3 step control by Throttle, after operating 152 switch on SB-1 from ‘0’ to position ‘1’.	By operating the TBC bypass switch provided on CCR then by (VIRTUAL THROTTLE UP/DN) available on DDU can be controlled by fine control.
SHUNTING MODE		
1	During SHUNTTING, after stopping the loco put Throttle Neutral & Reverser neutral, keep switch 160 on ‘0’. TE for Speed 15 Kmph will be restricted.	During SHUNTTING, after stopping the loco put Throttle Neutral & Reverser ‘0’. Now on DDU open Driving screen then select the Yard shunting mode. Speed 15 Kmph will be restricted.
TRACTION CONVERTER ISOLATION		
1	As per TSD either by switch 154 or after MCE	As per TSD can be isolated from DDU or by

	OFF by tripping the concern MCB provided on (SB-1 / SB-2) .	tripping the MCB provided on concern. E-BLOCK
AUTOMATIC OPENING OF VCB		
1	VCB will open with fault message.	i) VCD applied ii) Emergency brake applied on run at above 3 kmph speed by ebb(A-9handle) iii) BPEMS applied iv) BP dropped by Asst loco pilot emergency valve on standing v) If rate flow of air leakage more than 1200lpm on engine (train parting),
MCB RESETTING PROCEDURE		
1	To reset MCB provided on ”HB” panel open VCB only.	To reset the 415 volt MCB : a) Open VCB . b) Lower the panto. c) Reset MCB . d) Again tripping, inform TLC
2	To reset MCB provided on “SB” panel put OFF MCE.	To reset the 110 volt MCB : a) Reset the MCB once. b) Again tripping, inform TLC.
OPERATION FROM DDU SCREEN		
1	Handling of locos from DDU screen is not available.	In this loco, from DDU screen the operations such as Panto raise/ Lower , VCB Close/ open , Throttle operation, Auxiliary and Traction Converter Isolation , Head Light / Maker Light / Flasher Light Switch ON/OFF, Electrically bogie isolation , Working of auxiliary, MCB status check and CE OFF can be done.
BPEMS OPERATION		
1	By the operation of BPEMS, VCB open, Panto lower and BP pressure will drop.	i)If speed is more than 3 kmph& BPEMS operated, VCB open, Panto lower and BP will drop. ii) If speed is less than 3 kmph& BPEMS operated, only VCB open.
TRACTION WITH LOCO BRAKE		
1	TE will come to ‘0’ during traction if the speed above 10 Kmph with loco brake application Above 0.6kg/cm2.	TE will come to ‘0’ during traction if the speed above 03 Kmph with loco brake application.
BATTERY CHARGER (CHBA)		
1	If CHBA fail, train can be worked for a limited period only by the BA voltage.	If one section’s CHBA failed, the other section CHBA will maintain the both section load, but the BA of defective section will not charge. ii) If both section CHBA fail, train can be worked for a limited period only by the BA voltage.
FAILURE OF BRAKE ELECTRONICS		
1	Train can be worked by Back-Up brake (PTDC)	i) If BCM of one section has failed, then trip MCB 62Q06 and work normally. ii) If Both sections BCM has failed then work the train by PTDC.
DDU FAILURE		
1	No any MCB, try by switching ON/OFF Main Control Electronics	If trip Reset CB 72Q21 locate in LVC .

MR PRESSURE NOT BUILDING UP		
1	Check the wkg of Compressor	Check the wkg of Compressor
2	- If not working Check MCB, if found tripped, reset once. - If again trip, Isolate BUR-3	If leakage from Auto drain valve put the auto drain cock (B60.02) in close position of respective section.
3	Ensure no leakage in pipe line & all drain cocks are closed.	Ensure Drain cock A-10 of both section are Closed.
4	Check the Air drier for any leakage & isolate.	Check the Drainage Cock A11/1,A11/2,A11/3 located in BCM of both section
5	Close both VEUL cock provided above BA box-1 & one cock on Pneumatic panel.	Check the leakage from MASU (i.e. safety valve, air dryer etc.) if leakage Cut out the MR tank cock (A13) of the respective section.
6	On E-70 loco uncouple EP- 26	
ALP EMERGENCY OPERATION		
1	By the operation of ALP emergency valve, BP pressure will drop.	By the operation of ALP emergency valve – a) If speed is less than 3Kmph, then only BP pressure will drop. b) If speed is above 3Kmph along with BP pressure drop, VCB will open & panto will lower.
SPEEDOMETER		
1	Analog speedometer.	A digital speedometer provided
2	Speed according to G&SR on speedometer defective	When speedometer defective, train can be worked by observing the SPM on DDU
BOGIE CUT OUT COCK		
1	Provided on under frame of the locomotive.	Provided on BCM (brake control module) i.e. Pneumatic panel.
LOCO GROUNDING PROCEDURE		
1	IG-38 (BlueKaba Key) mounted on Pneumatic panel to isolate.	IG-38 (BlueKaba-Key) provided with Z-Sec key mounted on LV cubical.
2	Grounding done by placing IG-38 key on BV box and then operating the HOM handle.	Grounding can be done, by putting the IG-38 key mounted with Z-sec key on HV cubicle
FIRE EXTINGUISHER		
1	Mechanically operated by LP	Electrically operated by putting the MCB ON
CORRIDOR DOOR OPEN		
1	No any indication	IOS (Fault) messages on DDU at every 60 seconds interval

BRIEF ABOUT FOG SAFE DEVICE:

Technical counseling on use of FOG-PASS Device.

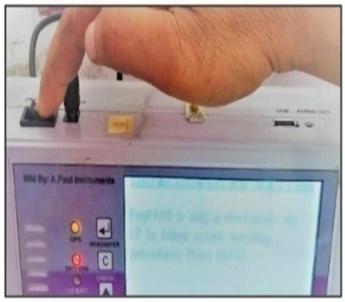
Following steps should be followed by the crew to make the FOG-PASS device ready for by them while working trains during foggy weather: -

HOW TO USE FOG– SAFE-DEVICE

STEP-1

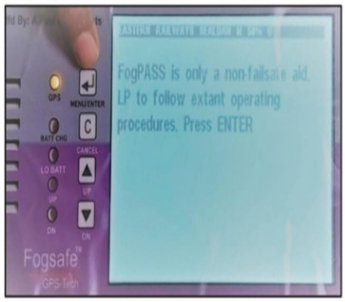
INSERT THE GPS ANTENNA PIN GENTLY, PLACE ANOTHER END OFGPSCABLEAS MUCHASOUTER SIDE OF LOCO.

STEP-2



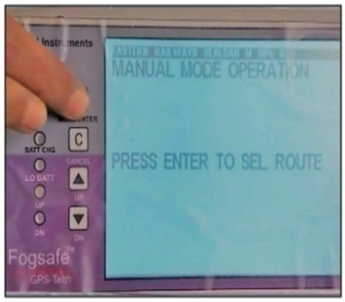
SWITCH ON THE DEVICE.

STEP-3



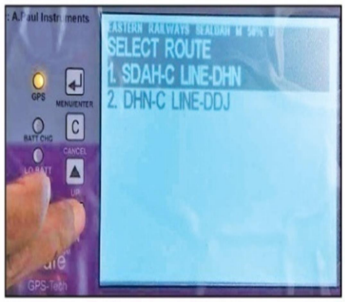
AFTER ANNOUNCEMENT PRESS ENTER

STEP-4



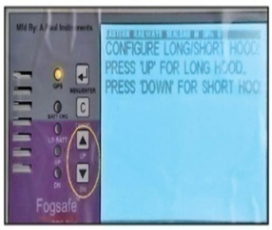
AFTER ANNOUNEMENT, PRESS ENTER TO SELECT ROUTES

STEP-5



USE UP & DN KEYSTOSELECT ROUTE, THEN PRESS ENTER

STEP-6



AFTER GPS CONNECTS, USE UP & DN KEYS TO SELECT LONG HOOD OR SHORT HOOD

NOW THE DEVICE READY FOR USE.

NOTE:- ALL THE PROCESS TO BE DONE AS QUICKLY AS POSSIBLE OTHER WISE IT WILL TIME OUT. THEN PRESS "C" BUTTON AND REPEATATION OF THE PROCESS WILL HAPPEN.

EASTERN RAILWAY

EASTERN RAILWAY

Technical counseling on use of FOG-PASS Device.

Quick Trouble Shooting Guidelines for three phase locomotive

(Ref: Electric Loco Shed, Lallaguda, South Central Railway)

1	Manual isolation of bogie can be done using switch no 154 without switching off CE. However, to bring back isolated bogie into service, switch off CE, normalize 154 and switch once.
2	The procedure of bogie isolation: If the loco is running: Bring the throttle to "0"position, Open the VCB. Ensure Node No.550, Keeping switch No. 154 in required position, required bogie will be isolated after 10 seconds. If the loco is stand still: Bring the throttle to "0" position, Open the VCB. Ensure Node No.590, Keeping switch No. 154 in required position, required bogie will be isolated after 10 seconds.
3	To change the position of switch 160 for carrying shunting and for reverting to normal operation: Ensure throttle on '0' loco/trains stopped and reverser is on '0'.
4	To change the position of switch152 during "Angle Transmitter Failed" Message: Ensure TE/BE handling in „0"position.
5	For resetting of MCB sin HB -1 & HB-2 : Trip VCB reset MCB and close VCB.
6	For resetting of MCBs in SB-1 & SB-2(Except 127.92 for Speedo Meter, 310.1/1 & 2 for headlights, 310.7/1 for marker lights)Switch off CE reset MCB, switch on CE.
7	For MCBs 127.92 for Speedo Meter, 310.1/1 & 2 for head lights, 310.7/1 for marker lights Trip VCB, reset MCB, close VCB.
8	In case of angle transmitter going defective, immediately switch over to manual mode using switch 152 in running condition, there is no need to stop.
9	In case of Harmonic Filter isolation speed will be restricted to 40 kmph, in case of light load, isolated bogie-1 by 154, To bring harmonic filter into service, CE should be switched off & on. If harmonic filter comes into service, work with normal speed.
10	While on run, if bogie meter suddenly not respond LP should trip DJ and reclose DJ.
11	While on run, if reduction in traction effort with LSP without any proper reason, isolate bogie-2 and work up to convenient place. Switch off CE, normalize switch154and switch on CE, tobring back isolated bogie into service.
12	While on run, if bogie isolated without message, at convenient place, switch off CE and switch on CE, to bring isolated bogie into service.
13	While on run, after two to three attempts of reclosing of VCB while attending any fault, bogie may get isolated. At convenient place, switch off CE and switch on CE, to bring back isolated bogie into service for momentary faults.
14	A.WhileworkingwithMU,iftrailinglocomotivefailsduetoF1901P1,thenswitchOFF CE in leading loco and carry CE Off and On in trailing loco and again try working from Leading loco. If not successful then trailing locomotive is to be made dead.
15	In IGBT locos, TM will be isolated individually by the system, in case of Short circuit or single phasing in TM etc., instead of truck Isolation.
16	In IGBT locos:a. In M/s BHEL locos due to space constraint the message for isolation of TM will be displayed in F04 & F05 subsystem fault messages. b. In M/s Medha locos, due to space constraint the message for isolation of TM will be displayed in F02 & F03 subsystem fault messages.
17	In IGBT locos, for traction converters (SRs) Electromagnetic Contactors are provided in place of electro pneumatic contactors. Pneumatic COCs for SR1 and SR2will be in closed position in Pneumatic panel.
18	In IGBT locos, SRs are cooled by water coolant instead of oil, Water level Sensors are provided insome locos, if water level decrease below Sensor level, concerned SR will be isolated with message number F0206P1/F0306P1. In IGBT locos, ensure 3 way COC in proper position if provided for SR.
19	In some of the IGBT locos, water coolant pump is provided inside SR.
20	In TPWS locos, ensure Battery control switch in OFFposition,7th MCB from left is in OFF

	position, TPWS isolation switch should be in ON position in TPWS unit, pneumatic isolation COCs in closed condition in both CABs, provided under driver brake controller(A9) on FTIL interface unit (One windows provided for opening and closing of this coc).
21	In Doppler Radar provided locos, if any sudden dropping of TE/BE, on bridges experienced, isolate concerned Doppler radar breaker in SB1.
22	In case of any transformer pump not working, work with 70%ofmaximum TE/BE.
23	Automaticswitching“OFF”ofcorridorlightsafter10Minoflocoshutdown,to avoid battery discharge. If corridor lights are required, BL key should be kept in “C” mode.
24	In case of “OHE failure”for short time in unmanned locos, leads to battery discharge through continuous working of MCPA.
25	Any fault message should not be acknowledged without reading and noting down the message.
26	MCB127.7 in SB2 to be checked first during brake electronics failure.
27	Continuous using of sanders leads to MR pressure dropping.
28	TimelyactiontoP2message, avoid failure of loco with P1 message.
29	Pressure drop in MR may be due to VCD activated ensuring VCD has not acted.
30	Pressure drop in MR may be due to AIR DRIER defective, isolate AIR DRIER and try.
31	Pressure drop in MR maybe due to ULVs or ADVs air leaking, in such case: Close ULV and ADV COC near battery box if provided. Disconnect cable no 26 near C3W valve in pneumatic panel. c).In case **KNORR CCB**–CloseVEUL COC inpneumaticpanel.
32	Pressure drop in MR, ensure there is no leakage in AFI indicator glass.
33	Ensure “ZBAN” switch is in normal position after cab changing. Whenever BP drops with fault Message “F1004P1”, check the ZBAN switch.
34	Check “ZTEL” if TE is not getting more than 300 KN(WAG-9).
35	For switching off of CE, Keep A-9 to be emergency, to avoid MR dropping.
36	For resetting of VCD, keep A-9 to full service, to avoid MR dropping.
37	In case of speed not increasing more than 1 kmph/creeping, isolate bogie-1or bogie – 2 as per DDS message. (In IGBT locos the system will isolate defective TM).
38	In case of speed not increasing more than 10kmph due to F1009P1, tap269.1&269.2 pressure switches near pneumatic panel. If not successful, try removing any one cable of the pressure switch one after the other and secure the cables properly.
39	In case of speed not increasing more than 15 kmph, ensure160 switch in proper position.
40	If loco brakes not releasing, close and open 94coc and try, in Knorr-CCB2 brake locos press and release test switches 16 and20 in pneumatic panel.
41	In case of VCB not closed, try to trouble shoot by isolating bogie one by one.
42	In case of OHE voltage out of limit message, check PT fuse or try by isolating one bogie as per DDS message.
43	For changing of PT fuse, lower panto and change the PT fuse.
44	In case BL key giving trouble, try by pulling key up slightly.
45	BPCS switch should not be pressed for more than 5 Sec. It shall give switch stuck up message and become non-functional.
46	VCUs modified locos, in case of messages likeF1301P1, F1302P1, F1401P1 and F1402P1. CAB will not isolate with precautions can work from same CAB. Do not carry out CE OFF and ON.
47	Isolate SR-1andSR-2,by127.1/1or127.1/2,incaseoffaultslikeF0104P1,F0107P1,andF0107P2.
48	In cooling mode, if VCB trip, check OCR and TFP oil splashing.
49	If OCR acts second time Main power gets OFF automatically.

50	If regenerative brake fail on run, press PVEF and applyA-9forapplicationofbrakesandto avoid wheel skidding.
51	OCR is provided with Mechanical Locking Type.
52	In case of fault message with F0201P1, F0301P1,if CE needs to be switched off, Switch on CE after 5 minutes only.
53	A.Resetting of VCD, press BPVR after 160 sec for WAG9/WAP-7,120 sec for WAP-5,for Knorr locos 120sec, for Knorr CCB-2 locos–32sec. B. If signaling lamps are not glowing in any CAB, then isolate VCD through 237.1.
54	A. If any repeated tripping of MCB in HB-1 or HB-2, like both OCB breaker tripped, try by isolating concerned auxiliary converter. B. In case of sequential isolation of BURs, like BUR1 followed by BUR2 or BUR2 followed by BUR3 etc., isolate the concerned auxiliary motor by tripping concerned MCBs as per TSD.
55	Before moving the loco(Dead/Working)ensure lock brakes and parking brakes are fully released.
56	If CE is not getting ON,CE can be switched ON by pressing 126 and 218 contactor's knobs in SB-1panel.
57	If MCPA is not getting ON, MCPA can be started by pressing48.2 contractor's knob in SB2 panel.
58	If PANTO is not getting raised, PANTO can be raised by pressing 130.1 relay knob in SB2 panel.
59	If VCB is not getting close, VCB can be closed by pressing 136.4 relay knob SB1 panel.
60	If HEAD LIGHT not working, ensure 310.1/1 or 310.1/2, not in tripped condition.
61	If HEAD LIGHT not getting ON,H/L can be put ON by pressing 338.1 or 338.2 contactors knob in SB1 or SB2 panel respectively.
62	If CE is not getting OFF, open 112.1 breakers.
63	If any trouble unable to rectify, before asking relief loco, try from rear cab, try by changing panto , try by isolating one bogie, if not successful then ask for relief engine.
64	In case of F1002P1: S/R Interlock due to low MR and MR gauge showing more than 6.4kg/cm2 thenshort both the cables of pressure switch 269.4.If not successful, then trip MCB 127.9/4 in SB2 duly isolating VCD, working of CPs in manual mode and parking brake to be isolated manually and change to CAB1 if driving from CAB2.
65	In case of CPs working continuously, trip DJ and isolate CPs one by one using MCBs 47.1/1 and 47.1/2. At convenient location MCB shall be reset duly tripping DJ.
66	In WAP7 locos, Bogie-II isolated on run and further DJ not holding with F0104P1 (OHE voltage outof range), trip MCB127.1/2inSB2 panel to close the DJ.
67	In the event of locking of SR in M/s BHELIGBT locos, system will generate repeated fault message with BPFA glowing Keep on acknowledging the same up to isolation of bogie and till node 504 is reached.(Or)Alternatively in case of problem F0201P1 with bogie1, isolate bogie1 duly tripping MCBs127.1/1&127.11/1 respectively and acknowledge BPFA. In case of problem F0301P1 with bogie2, isolate bogie 2 duly tripping MCBs 127.1/2& 127.11/2 respectively and acknowledge BPFA.
68	In case of FLG1 detecting all processors life sign missing and main power is getting Off, then trip127.9/1(CentralElectronics1)MCBinSB1panel.IfdrivingfromCAB1,changetoCAB2forclearing the sectionandifdrivingfromCAB2sectioncanbeclearedwithoutchangingtheCAB.
69	In case of "Equipment temp. High" message, there is no need to isolate bogie. Drive cautiously with reduced traction to enable system to restore TE/BE.
70	In case of LSCE lamp glows, CE should not switch off. In case of emergency to carry out CE OFFandON,218 contact or to be packed in SB1 panel.
71	In case of Disturbance in Converter-1/2(ASC/NSC Error MVB), followed by isolation of other converter and main power off, based on background message isolate the converter from which error MVB appeared first through MCBs 127.1/1 or 127.1/2.

SIMS REPORTED SPAD CASES IN INDIAN RAILWAYS DURING PERIOD JANUARY'2023 TO DECEMBER'2023.

S. N.	Incidence Date & Time	Rly	Train no.	Loco/EMU no.	Prima facie	Reason
1	17-01-2023 07:01	ECR	19038 (BJU-BDTS Awadh Exp.)	Elect. Loco 30589	Train no. 19038 (BJU-BDTS Awadh Exp.) of IBH Signal between Teghra (TGA)-Bachhwara (BCA) at 'ON' Position by engine & front 1 coach (About 42 meters).	Late application of brake & over confidence.
2	17-01-2023 07:01	SWR	06278 (DPJ-SBC)	MEMU 1 50020/21/22/23	While approaching DN Home Signal of CRLM Station, LP of Train No 06278 passed at ON. (Thick foggy weather 20 to 30 meter visibility).	Not followed rules GR 3.61& SR 3.78 properly.
3	22-01-2023 19:01	WCR	SIC,	Elect. Loco 31560/TKD	Loco Pilot of train no. down SIC/N passed Down Home Signal (S-2) of SawaiMadhopur (SWM) station at "ON" position approx 25 meters	Late application of brake & over confidence.
4	29-01-2023 05:01	ECR	BOXN/E/HL (Load-58 BOX N /E+BV).	Elect. Loco 33589/AQ	LP of Train No. Dn goods-BRWD/HL/33589 paased DN Reversible line STR Signal S-6 in ON position Engine with 11 wagons	Lack of concentration and alertness & non application of RS valve in time.
5	16-02-2023 05:02	NR	UP MTSS and Dn MT Boxn	Elect. Loco 60038/SRE+70159+12218/SPJ	At 05:45 SM/SLN reported that DN E/BOXN derailed at X-over point no-108 & 109 after departure from line no-04. Due to UP MTSS/Engine no-60038 UP home signal over shooted.	Ineffective LRD and Hastiness.
6	16-02-2023 16:02	WCR	20104	Elect. Loco 37488/KYN	Train no 20104 GKP-LTT express LPM of 20104 loco no. 37488 WAP7 KYN started from pf no. 3 at 16.44 hrs from Itarsi station and passed intermediate starter signal S- 18 (KM 743/21) in RED (ON) condition at 16.50 hrs..Distance travel after SPAD is approx 506 mtrs.	Lack of concentration and alertness & non application of RS valve in time.
7	19-04-2023 06:04	SECR	N/NPSB,	Elect. Loco 43256+33888/BSP+dead loco 32723	UP Train no. N/NPSB passed UP Home Signal at danger of SNGP station and dashed in rear of UP train no. BOBRN/BRS which was standing on line no. 03.	Lack of alertness and crew were not vigilant.
8	22-04-2023 10:04	ECoR	JNP/BCN, Load 3850-T	Elect. Loco 32614/LDH	DN Train no. JNP/BCN while admitting in line no.1 at BAM station over shoot starter signal by one engine and one bogie and stopped.	Late application of brake & over confidence.
9	06-05-2023 13:05	NCR	18201 DN DURG-NTV Express	Elect. Loco 30310/KYN	Train started from DN Home signal MJA on Yellow aspect and LP failed to control his train on DN Main starter signal Red aspect and stopped at KM no. 786/14-12.	Due to over confidence and lack of alertness.

10	10-05-2023 21:05	ER	37784 DN BWN-BDC EMU	EMU 13191+13190+13189+13188/HWH	The Goods train diverted from DN-M/L to DN HBC at SKG Home signal. As per motorman 37784 diverted from DN HBC to DN/ML at SKG home signal but he could not follow home signal properly due to obstruction of the goods train. As a result EMU local derailed at the crossing point and side collided with the goods train.	Lack of concentration and alertness & ineffective LRD and hastiness. .
11	17-05-2023 11:05	NWR	Down goods LFSG/AGS	DSL Loco 49403/GIM	LP of Down goods LFSG/AGS DP No. 49403 WDG4G / GIM Load 1/21/21 load 2455 T, overshoot starter signal of Down main line S-39 by 13 wagon plus engine at 11.18 hrs.	Lack of concentration and alertness & non application of RS valve in time.
12	17-05-2023 14:05	NCR	12505	Elect. Loco 37331/GZB	While train no. 12505 North East Express was entering Birohi station on UP Main line its Loco Pilot failed to stop the train at UP Home Signal and overshot the UP Home Signal in Red position by engine and 02 coaches. Crew changed at BEO..	Due to over confidence and lack of alertness.
13	19-05-2023 02:05	SECR	LE,	Elect. Loco 33177/BKSC	UP Starter Signal of line No.1 was given for train No. BCN/KEQ at 02:30 hrs but, Electric Light Engine No. 33177 of line No. 2 started and passed Starter Signal at danger at 02:35 hrs and burst the point no. 43B.	Lack of alertness and ineffective LRD..
14	10-06-2023 09:06	WCR	Tower Wagon	Tower Wagon	On 10.06.2023 at 09:40 hours, LP of 8 wheeler Tower Wagon passed Up Advance Starter signal (km 1027/23-25) of Sihora Road station at "ON" position and stopped at km 1026/17-19.	Lack of concentration and alertness & over speeding.
15	21-06-2023 01:06	SECR	20843 (BSP-BGKT) SF Exp	Elect. Loco 37479/AQ	Train no. 20843, through passed GJ at 00:45 hrs. Train was planned to stop at KWN station at Starter Signal for detraining the pilot crew. Home signal of KWN UP line given on Approach. Crew found Advance starter as Green, proceeded and passed Starter signal at Danger.	Lack of concentration and alertness.
16	25-06-2023 04:06	SER	BCN JSJB	Elect. Loco 31798/TKD	Dn. BCN E JSJB left BQA at 03:45 hrs on line clear. It passed down home signal no. S2 of Ondagram at ON position and dashed in rear of BRN empty rake stabled on Dn loop line at 04:02 hrs.	Lack of concentration and alertness & ineffective LRD.
17	05-07-2023 05:07	ECoR	Lotus MP-114	Elect. Loco 41184/WAG9	While admitting Train no.Lotus/MP-114 on R/6 of CBT station LP over shoot the starter signal no.S-27 and stopped at about 05.20 hrs.	Lack of concentration and alertness and over confidence.
18	06-07-2023 14:07	NR	14618	Elect. Loco 30590/TKD	Train no. 14618 left at CNK (Chandok) at 14.22hrs, passed Home signal of MZM (Muazzampur Narayan Jn.) at ON position at 14.26hrs by one Engine+ half coach.	Late application of brake & over confidence.

19	14-07-2023 01:07	SER	12834 (HWH-ADI) 24 Coach	Elect. Loco 37558/AQ	Train No. 12834 train passed PKU UP Middle Line starter signal at Red and stopped after passing Engine plus11 LHB coaches and bursting Point No. 125B at about 01:42 hrs. Officer on Footplate - Sri. Rajiv Ranjan/ADFM/KGP	Lack of concentration and alertness & non application of RS valve in time.
20	23-07-2023 08:07	ER	XXXXXXX	Elect. Loco 43376	Over Shooting of Signal No. S-53 DN Advance Starter at LLH Goods Yard Dn avoiding Line by train no. XXXX on 23.07.2023 and stopped at the UP Home signal no S-29 of TPKR EI cabin of SER.	Ineffective LRD and Hastiness
21	25-07-2023 09:07	NR	14204 (LKO-BSB)	Elect. Loco 30395/TKD	At 09.55 SM/PBH informed that train no. 14204 passed Dn Home signal (S-80) in OFF position but overshootedDn Routing Home S-78 as in ON position & reached line no. 3 PF 02 at 09.52 hrs.	Lack of concentration and alertness & non application of RS valve in time.
22	30-07-2023 07:07	ECR	13152 (JAT-HWH)	Elect. Loco 30742/HWH	Loco Pilot of 13152Dn passed BBU DN Rev H/Signal S-18 in ON Condition.	Lack of concentration and alertness &ineffective LRD.
23	03-08-2023 18:08	WCR	19490 (GKP-ADI)	Elect. Loco 30823/P7/BRC	On 03.08.2023 at 18:44 hours, Loco Pilot of train no. 19490 (GKP-ADI Exp.) passed Inner Home Signal no. S-88 of Bina station at "ON" position and stopped on PF-1.	Lack of concentration and alertness.
24	08-08-2023 11:08	WCR	19820 (KOTA-BRC)	Elect. Loco 22672/BL	Loco Pilot of train no. 19820 (Kota-BRC Express) passed the Advance Starter S2 of ALANIYA station in ON position. After scheduled halt at Alaniya, the train passed loop line no 4 Starter while it was one yellow aspect.	Lack of concentration and alertness & non application of RS valve in time.
25	08-08-2023 18:08	ER	13031 (HWH-JYG)	Elect. Loco 22309/HWH	Train no 13031up HWH- Jaynagar Exp. SPAD the intermediate starter signal no S-413 A/B /613 of RPH station's UP M/L.	Lack of concentration and alertness & non application of RS valve in time.
26	12-08-2023 00:08	ER	BHRB, 41 BCNL	Elect. Loco 24681/BL	TRAIN NO. BHRB/RICE, LOCO NO. 24681/WAG-7/VTA, LOABCN/MT PASSED HOME SIGNAL OFF CONDITION AT PRDG STATION WHICH WAS ONE YELLOW ASPECT AND OVERSHOOT PRDG LINE NO. 01 STARTER SIGNAL S-5 AT ON CONDITION AND GOT DERAILED.	Lack of concentration and alertness &ineffective LRD.
27	21-08-2023 21:08	ECR	12178 (MTJ-HWH)	Elect. Loco 37432/HWH	Train no. 12178DN MTJ-HWH CHAMBAL EXPRESS PASSED BBU DN MAIN LINE HOME SIGNAL S-20 IN ON POSITION AT 21:47HRS.	Ineffective LRD and overconfidence of Loco Pilot.
28	26-08-2023 12:08	ER	XXXX (BLGT-KOAA)	Elect. Loco 22616/SPJ (D)	Train no. XXXX Dn ABCD Exp passed Somrabazar IBP Signal no. S-22 in between GPAE-JIT at about 12/46 hrs at ON condition.	Overconfidence and non-application of RS valve in time by ALP.

29	31-08-2023 15:08	CR	97072	EMU 5404 C	Motornman of Train no K-64 UP slow local from Kalyan to CSMT passed CSMT S-26 signal between Masjid-CSMT section and stopped at KM CSMT/0425, approximately 80 meters ahead of signal S-26.	Late application of brake &Lack of concentration and alertness.
30	13-09-2023 01:09	WCR	22352	Elect. Loco 3018 6/BRC	On date 13.09.2023 at 01:04 Hrs, Train no. 22352, Loco no. 30186 WAP 5/BRC stopped at IBH between Niwar – Katni South station due to IBH (S-13) at 'ON' position. There after 11 second train rolled and passed Dn. IBH No. 347, Signal no. S-13 at 'ON' position.	Lack of concentration and alertness & non application of RS valve in time.
31	27-09-2023 11:09	NWR	4434		Train no.-04434 started from RE on calling 'ON' signal of S-101 and passed intermediate starter signal no.-S 115 in danger position at 11.39 hrs and trail through point no.-278, then, entre in up main line/wrong line towards KIP and stopped before up home signal no.-S 146	Lack of concentration and alertness &inadequacy of LRD.
32	01-10-2023 01:10	ECR	L/Engine-27563	Elect. Loco 2756 3/JHS	LP of Electric light Engine and Brake van passed DN H/Signal S-12 in ON position and stopped after 250meter from DN HOME Signal Chirala	Lack of concentration and alertness and late application of brake.
33	24-10-2023 05:10	SR	Empty rake of 43606 (9 Car EMU rake)	EMU 1218 6+12187+1 2102	While receiving Ey.EMU rake on Rd-4 at 5.32 hrs, Motorman over shoot stop board and derailed at the trap point.	Lack of concentration, alertness and over confidence.
34	29-10-2023 03:10	KR	16595	DSL Loco 4043 8 WDP4D KJM	Train was restarted by issuing Restarting memo after clamping the points and with Relief Crew. Train restarted at 05:12 hrs, arrived Surathkal at 05:18 hrs. On arrival at SL , train was examined by TXR for Brake power checking and train left SL at 05:55 hrs.	Lack of concentration and alertness & non application of RS valve in time.
35	29-10-2023 19:10	ECoR	08532 & 08504	Elect. Loco 2384 2/G5/WAT	Tr.No. 08532 (VSKP-PSA Passenger) was rear collided by Tr.No. 08504 (VSKP-RGDA Passenger) on middle line of KPL-ALM section at KM No. 840/20-24. Front train last 3 coaches derailed & capsized in which 12th coach on middle line, 13th & 14th coaches infringed with upline and collided with front engine of UP Tr.No. RWF/BOST.	Lack of alertness and vigilant.
36	02-11-2023 03:11	WCR	22221	Elect. Loco 3059 2/KYN	Dy.SS reported LP of Train no. 22221 Rajdhani CSMT- NZM Exp. Loco no. 30592 WAP-7 (KYN) passed Down Main Line Starter Signal (S-14) of BAQ station in ON condition. Train stoped just after Starter signal.	Late application of brake & over confidence.
37	02-11-2023 12:11	CR	PSNH/WANI/GGS	Elect. Loco 4149 3+43027	Train No.PSNH passed S-92 inner Home signal at ON position.	Lack of concentration and alertness & non application of RS valve in time.

38	22-11-2023 06:11	SCR	17254 (SC-GNT)	Elect. Loco 39261 LGD	At Balanagar station, while DN T. No.17254 SC - GNT Passenger train entering in to DN Loop line for schedule stop, LP passed DN Loop line starter No. S4 at ON and stopped after passing about 15m.	Late application of brake & over confidence.
39	26-12-2023 04:12	NCR	12565	Elect. Loco 37468/WAP7/CNB	Overshooting of UP Home Signal, S-1 Phaphund Station by crew of train No. 12565 UP Bihar SamparkKranti Express.	Lack of concentration and alertness & non application of RS valve in time by ALP.

ANALYSIS OF 39 SPAD CASES:

AGE GROUP WISE

AGE	No of cases
32 to 40 years	09
40 to 50 years	08
50 to 60 years	22

INCIDENT TIME WISE ANALYSIS

TIME	No of cases
0:00 TO 08:00 HRS	18
08:00 TO 16:00 HRS	13
16:00TO 24:00 HRS	08

CATEGORY OF CREW

Crew	No of cases(Elect)	No of cases(Dual)	No of cases(DSL)
LPM	07	06	00
LPP	04	03	01
Motorman	03	00	00
LPG	07	08	00

QUALIFICATION ANALYSIS

OUALIFICATION	No of cases
10^{TH}	03
12^{TH}	02
Diploma	15
BE/B.TECH	02
GRADUATE	06
ITI	11

GRADATION WISE ANALYSIS

GRADATION	No of cases
A	28
B	08
C	03

DUTY HOURS WISE ANALYSIS

ON DUTY TO SPAD	No of cases
00 TO 06 HRS	27
06 TO 08 HRS	08
08 TO 10 HRS	04

TYPE OF POWER

TYPE OF POWER	No of cases
WAG12	01
WAG9	09
WAG7	01
WAG5	01
WAP7	14
WAP5	02
WAP4	03
EMU	04
DSL/LOCO	03
TOWER WAGON	01

SIGNALLING SYSTEM ANALYSIS

SIGNALLING SYSTEM	No of cases
ABSOLUTE	33
AUTOMATIC	06

TYPE OF SERVICE

TYPE OF SERVICE	No of cases
Mail Exp	13
PASSENGER	08
EMU/MEMU	03
FREIGHT	15

MODE OF ENTRY ANALYSIS

MODE OF ENTRY	No of cases
RRB	33
DEPARTMENTAL	06

SEASONAL ANALYSIS

SEASON	NO OF CASES	NO. OF CASES
SUMMER	MAR-JUNE	11
RAINY	JULY-AUG	15
PRE WINTER	OCT-NOV	07
WINTER	DEC-FEB	06

TYPE OF SIGNAL

TYPE OF SIGNAL	NO OF CASES
IBP	03
APPROACHING SIGNAL	20
DEPARTING SIGNAL	14
SHUNT SIGNAL	02

BASED ON THE ABOVE ANALYSIS IT HAS BEEN CONCLUDED THAT:-

1. Maximum no. of SPAD cases occurred in the age group of 50-60 years
2. Maximum no of SPAD took place at either approaching or departing signal.
3. Maximum no of Incident of SPAD happened during the time of 00 to 08 hrs.
4. “A” grade Loco Pilot have committed maximum number of SPAD.
5. The working crew of loco hauled Mail Exp & freight train have involved maximum no of SPAD cases.
6. Three phase locomotives are mostly involved in SPAD cases.
7. Maximum no of SPAD cases took places before the completion of 06 hrs duty of crew.
8. Maximum case of SPAD occurred in absolute signaling territory.
9. Most cases of SPAD occurred at summer & rainy season.

Last 07 years SPAD cases on account of SDAH Division crew :

S.N.	Incident	Remarks
1	LPM passed OYR Starter signal at ON condition. &Tr. No. 13152 Dn stopped after passing OYR Starter about 300m at 21:25 hrs.	Loss of concentration/ focus.
2	LPP passed Train No. 63105 Up, DDJ Home Signal No. S-4 at 'ON' condition on Up Main line at about 21:12 hrs.	Loss of concentration/ focus.
3	Train No. 13118 Dn stopped at BP PF. No.4 at 11:08 hrs and started at 11:11 hrs but LPM passed BP Str Sig No. S-2 at ON condition.	Lack of alertness.
4	Train No. 63105 Up started from SDAH PF. No.5 at 21:12 hrs on Calling ON signal taken OFF. Train stopped before S-12 at ON position but started on at ON position.	Lack of alertness.
5	Train No. 34858 Dn at 23:43 hrs. train departed from PF -13 and passed Sig No. S-4 at ON condition.	Hastiness.
6	LPP while working train no. 33522 Dn, passed Dn H/S No. S-8 of LBTL at ON condition about 20 m at 12:21 hrs.	Loss of concentration/ focus.
7	LPG while working train no. Empty/Rake BP Dn H/S No. S-12 at ON condition. Train passed BP H/S about 256 m.	Loss of concentration/ focus.
8	LPM/SDAH while working train no. 02287 Up disregarded and passed BRPA Up Home Signal No. HBC-1 (S-3) at ON condition at 17:36 hrs.	Loss of concentration/ focus.
9	Tr. No. 31623 Up passed KNR H/Sig No.S-3 at ON condition.	Loss of concentration/ focus.
10	E/Goods/33496Passed GangpurStr& A/Str signal at ON condition and stopped his train after passing about a length of engine +2 wagons.	Loss of concentration/ focus.
11	While Empty rake was shunting from SDAH PF. No. 4 to NKG Car shed passed Shunt Signal No. S-25 at ON condition resulted dashing with the train No. 31621 Up.	Lack of alertness.
12	Train left from the spot at 08:25 hrs and passed LLH A/Str and travelled up to the TPKR Home Signal No. S-29 at 08:34 hrs due to ON condition	Lack of alertness & hastiness.
13	Train no. 13162 dn passed IBH Signal No. S-22 in between SOAE-BGAE at ON condition at 12:43 hrs and passed the signal at ON condition about a distance Engine length + 1 /2 coach length.	Loss of concentration/ focus.
14	LPP while working Train No.31335 Up passed H/Sig No. S-1 of NH at ON condition.	Loss of concentration & hastiness.
15	LPP while working Train No. 34819 Up passed BRP H/Sig (No. S-33) at ON condition.	Loss of concentration/ focus.

Duration	Total no. of SPAD cases	HOME SIG PASSED	STR SIG PASSED	SHUNT SIG	IBH PASSED
Last 07 Years SPAD cases	15	7	6	1	1

ROOT CAUSES OF SPAD :

1	In effective sectional Road Learning.
2	Over confidence of LP and over speeding.
3	Non application of RS valve in time by ALP.
4	Lack of concentration /Alertness.
5	Hastiness of Loco Pilot.
6	Pre assumption of signal aspect.
7	Lack of adequate knowledge on the part of CLIs.

Instructions issued for prevention ofSPAD :

(Ref : Issued on 04.04.2024)

DO'S :

1	Proper uniform and right time reporting at lobby.
2	Read properly caution, notices/circulars and schedule stoppages as per WTT of your train.
3	Continuity test before commencing of your journey and others checking.
4	Ensure ABCDE formula before starting of your train –
a	Authority to proceed.
b	BPC of your train.
c	Caution order.
d	Departure signal of your line is taken off.
e	Exchange Alright signal with guard and by ALP with LP for loco hauled trains. .
5	Brake feel test after attaining speed 15 kmph.
6	Brake power test after attaining speed 40 kmph.
7	Ensure FSD is working or not.
8	Whistling habits.
9	Habits of proper braking and powering technique.
10	Activation of VCD on run.
11	ALP not to hesitate to apply emergency brake in case he/she finds any unusual or LP is not alert while on run.
12	Minimum Calling out of signal (loud and clear) should be in 1,2,3,4 formula according to aspect of signal with hand gesture.
13	LP shall control of his/her train according to aspect of signal.
14	ALP shall put his hand on RS COC/Valve while train approaches towards DANGER (RED) signal aspect.
15	LP should stop his /her train at least 30 m before the DANGER signal and then proceed further up to the RED signal very cautiously.
16	Calling out of signal should be loudly & clearly in each and every aspect with signal number and

	hand gesture to be done by ALP at first and then after ensuring LP shall acknowledge the same.
17	Be alert from micro sleeping tendency.
18	At last moment during stopping the train due to RED aspect and RED aspect is changed to Yellow, LP shall stop his/her train for 15-30 secs and after ensuring signal aspect is taken off in favor of his/her train , train will start.
19	Observation while negotiating curvature and signal is not able to seen from adequate distance, ALP & LP call out the signal as 'signal not visible to me'.
20	For galloping train, ALP shall remind repeatedly after passing just rear station, train will stop (as per WTT) at the next station (by name) and ALP shall watch the speed will be reduced accordingly.

DON'T :

1	Don't high speed tendency during driving.
2	Not to be over confidence.
3	Don't loss the concentration by both ALP & LP while on duty.
4	Don't give any attention on packing / unpacking of their personal belongings while approaching the terminal point or while on run.
5	ALP shall not carry out the corridor inspection when the train approaching station /signal /Gate etc.
6	Inspection of machine room / HT compartment after every neutral section by ALP / Co-ALP not to be done on run. Checking to be done at schedule / unscheduled stoppages.
7	Don't concentrate to write any in LP book by ALP while approaching any signal / entering a platform of a schedule stoppage.

Based on analysis following reason/s of platform overshooting cases have been identified: (Issued on 08.03.2024)

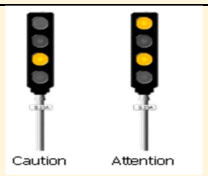
1	Loss of concentration/ focus.
2	Not exercise the stoppages as per WTT of galloping trains before commencing journey.
3	Galloping trains chart not followed.
4	LP did not exchange the call out of next stoppage repeatedly with the LP.
5	ALPs also failed to apply emergency brake well in time before approaching of schedule stoppages with high speed.
6	Involved in other activities.

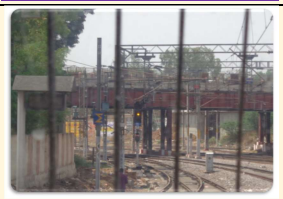
Guidelines to be followed while on run to avoid Platform overshooting:

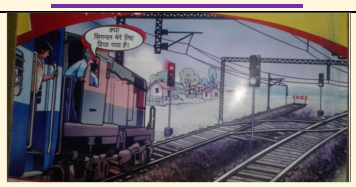
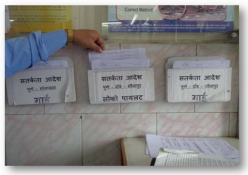
1	Motorman, LPand ALP should be more vigilant while on duty in every respect.
2	All must exercise the exercise the schedule stoppages as per WTT respective of his/her nominated train before starting of journey
3	Galloping train chart must be kept in opened condition on driving desk.
4	ALP must remind repeatedly the next stoppage for a galloping train after departure / passing of just previous station.
5	ALP must be alert to apply emergency brake well before approaching of schedule stoppage station to stop the train, if he /she finds, LP not controlling the speed of the train or approaching speed is more.
6	Don't involve in other activities while on run.

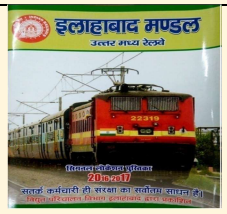
PRECAUTION TO AVOID SIGNAL PASSING AT DANGER

(Ref : Centre for Advanced Maintenance Technology, RDSO)

S.N.	Precautions to be taken	Indication
1	Assistant Loco Pilot should call out the correct aspect of signals with hand gesture along with signal name/ number and train speed loudly and Loco Pilot should acknowledge the same.	
2	Assistant Loco Pilot should apply emergency brakes by opening of D-1 pilot/ RS valve in case Loco Pilot is not vigilant or not reacting according to signal aspect	
3	Always keep your train under perfectcontrol. Keep sharp looks out for correct signals pertaining to your line.	**Avoid over speeding & over confidence.**
4	Reduce speed proportionately in case signal aspect is restrictive. ***Do not presume the aspect of next signal***	
5	Loco pilot should stop the train at adequatedistance before the foot of signal when it is at "ON", so as to have clear view of signal from cab, subject to clearing of fouling mark. **DO NOT USE ELECTRICAL BRAKES FOR STOPPING AT SIGNALS.**	
6	Don't use walkie-talkie to get informationabout signal aspect or other operationalinstructions from station staff duringtrain operation. ***Authority to proceed on walkie-talkie is not permitted.***	

7	BE VIGILANT AND FOCUS ONLY ON SAFE TRAIN OPERATION. ***Do not discuss personal problems/ un-necessary talk during train operation.***	
8	Crew to ensure that proper signal(s) for their train is taken OFF/ authority received, before starting the train. ***OBSERVE THE ASPECT TILL PASSING THE SIGNAL***	
9	Breath analyzer tests shall be conducted as prescribed. (GR 2.09). ***Keep away from alcohol drink, narcotic, stimulant drugs.***	 
10	Loco Pilots should not use mobile phones while on run. Foot plating officers/ Supervisors should also not use mobile phone as this will distract the loco crew.	 
11	During fog, when Loco Pilot feels that visibility is restricted due to fog, he shall run at a speed at which he can control the train so as to be prepared to stop short of any obstruction.	
12	Safety devices like VCD, AWS etc. should not be isolated on line by crew, which are otherwise in working condition.	
13	Loco Pilot should bring MP to '0' (zero) notch before applying of A9 & SA9 in case of any unusual incidence like train parting etc.	
14	Railway should give proper Learning Road (LR) to running staff. ***Extend the LR period until staff is well conversant with the sections and confident to work independently***	  Foot to Foot LR

15	CLIs should be interacting with family member of crew for bringing about an awareness of the need for quality rest at the home station.	**Personal problems of CREW may be given due attention**
16	Continuous night duty for running staff should be limited to 2 nights. Crew who report after long leave/ sickness/ absent/ training should be booked after 6AM in the morning next day. accompanied by LI. They should be counseled at lobby on all instructions etc. issued during the period of his absence. Crew should be preferably booked for day duty hours, after availing short leave/ long rest.	
17	SPAD cases on the Zonal Railways should be discussed in the training centers for awareness. Ensure that each and every crew is imparted adequate training to prevent SPAD. Aptitude tests as prescribed shall be conducted for crew.	
18	Pairing of newly promoted crew should be avoided. One crew should have sufficient learning road.	
19	SPAD cases usually occur when loco pilot stops for prolonged periods en-route and starts. Therefore crew should be continuously updated and informed about their likely departure time by control/ station staff. Before starting, loco pilot should confirm that signal given is for his train.	
20	Loco pilot should exchange alright hand signal with guard/ station staff after confirming the correct signal aspect before starting the train.	
21	Observe all permanent & temporary speed restrictions rigidly. ***Assistant Loco Pilot shall inform Loco Pilot about each speed restriction.***	
22	Appear right time on duty and read all latest circulars, caution order and notifications before signing ON.	
23	Keep in mind the load of your train for controlling the speed and making appropriate halt.	

S.N.	Precautions to be taken	Indication
24	Use front cab driving during shunting. Do not leave locomotive un-manned after taking charge. To be more careful while driving Light Engines since the brake power of Light Engines may not be as good as train brakes.	
25	Ensure the train is not in fully released condition while approaching engine halt board, but always keep your train in braked condition with the help of brake controller LAP position.	
26	If signal are located at right side or at any other critical location, Railways shall prepare printed pocket sized signal location books/ cards and distribute the same amongst the running staff.	
27	Railways should ensure that signal sighting committees go on line regularly and ensure that there is no obstruction to the visibility of signal during day or night.	
28	Loco pilot of tower car shall be given PILOT DRIVER (loco pilot having LR) while movement in other divisions.	
29	Loco pilot should conduct brake continuity, brake feel and brake power test of the train as prescribed.	
30	Close monitoring of duty hours and periodical rest must be ensured. Ensure that all loco running staff booked to work trains have availed full rest as prescribed at home station and out station. ***No under rest crew shall be booked for working trains except in emergency conditions.***	
31	Running staff should avoid the tendency of packing of their personal belongings while approaching the terminating station/ completion of journey.	

Disclaimer

This magazine is a compendium of technical & safety related items sourced from Railway Board, Zonal Railways HQ & Divisional HQ for up gradation of knowledge to the Loco Pilots and nominated supervisors.

However, any suggestions / corrections if required are welcome though email for betterment and effectiveness to all the running supervisors and staff of electric operation department.

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