EAST COAST RAILWAY

WALTAIR DIVISION

STATION WORKING RULES OF

BODDAVARA STATION

EAST COAST RAILYWAY

WALTAIR DIVISION

INDEX OF CORRECTION SLIPS

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EAST COAST RAILWAY

WALTAIR DIVISION

STATION WORKING RULES OF BODDAVARA [BDVR][BROAD GAUGE]

No.WTP/5/SWR/BDVRDate of Issue:

Date brought in force:

NOTE: -The Station Working Rules must be read in conjunction with General&Subsidiary rules, Block Working Manual and Operating Manual. These rules do not in any way supersede any rule in the above books.

(1) STATION WORKING RULE DIAGRAM:

a) Station Working Rule Diagram No: - SI/WRD/23259 ALT-A
b) CSTE/E.Co.Rly/DRG No:-SI-23259 ALT-A
c) Date up to which corrected:

(2) DESCRIPTION OF STATION:

2.1. GENERAL LOCATION:

a)	Name of the station	BODDAVARA (BDVR)
b)	Class of station	'B' class
c)	Section	Kottavalasa-Kirandul
d)	Double Line/Single Line / Multiple Line	Double line between SHRUNGAVARAPUKOTA-BODDAVARA and Single line between BODDAVARA-SHIVALINGAPURAM.
e)	Electrified/Non-Electrified	Electrified
f)	Gauge BG/MG/NG	BG
g)	Railway	East Coast Railway
h)	Route	'D'
i)	Situated at	Km 33.254
j)	Reckoned from	Kottavalasa
k)	Operation	Centrally operated with Visual Display Unit (VDU).
l)	Type of Interlocking	Standard II(R)

2.2. BLOCK STATIONS, IBH, IBS ON EITHER SIDE AND THEIR DISTANCE AND OUT LYING SIDINGS:

S.No	Adjacent BlockStation	Distance	Direction
1.	SHIVALINGAPURAM	12.071Km	KRPUend
2.	SHRUNGAVARAPUKOTA	7.295 Km	KTV end
3.	Provision of IBS	Nil	
4.	Automatic signal	Nil	
5.	DK station/Outlaying sidings	Nil	
6.	Passenger halt	Nil	

2.3. BLOCK SECTION LIMITS ON EITHER SIDE OF THE STATION ON DIFFERENT DIRECTIONS:

Between Stations	The Point from which the Block section commences	The Point at which the 'Block Section' ends
BDVR-SUP DN Direction	The advance block section commences at DN advanced starter signal No.14 of BDVR on DN line.	Ends at First facing Point No.32A of SUP station.

SUP-BDVR UP Direction	The rear block section commences at Up advanced starter signal No.25 ofSUP on Up line.	Ends at First facing Point No.25A ofBDVR station.
BDVR-SLPM	The advance block section commences at UP advanced starter signal No.11 of BDVR on UP line.	End at DN advanced starter signal No.11 of SLPM Station.

2.4. GRADIENTS:

Station towards		Chainage		Inter distance	Gradient
		From	To		
BDVR-SLPM		0.000 F/CSB	515.00M	515.00M	1 in 270 Raising
		515.00M	2106.00M	1591.00M	1 in 60 Raising
		2106.00M	2289.00M	183.00M	1 in 70 Raising
		2289.00M	2861.00M	572.00M	1 in 60 Raising
		2861.00M	Into section	--	1 in 70 Raising
BDVR-SUP	UP	Chainage		Inter Distance	Gradient
		From	To		
		0.000 F/CSB	601.00M	601.00M	1 in 270 Falling
		601.00M	1509.00M	908.00M	1 in 61.68 Falling
		1509.00M	1719.00M	210.00M	1 in 100 Falling
		1719.00M	1871.00M	152.00M	LEVEL
		1871.00M	2237.00M	366.00M	1 in 80 Falling
		2237.00M	4071.00M	1834.00M	1 in 70 Falling
		4071.00M	4456.00M	385.00M	1 in 100 Falling
		4456.00M	Into section	--	LEVEL
	DN	Chainage		Inter Distance	Gradient
		From	To		
		0.000 F/CSB	619.00M	619.00M	1 in 270 Falling
		619.00M	1805.00M	1186.00M	1 in 80.41Falling
		1805.00M	3991.00M	2186.00M	1 in 69 Falling
		3991.00M	In to section	--	1 in 96 Falling

2.5. LAY OUT:

A) RUNNING LINES IN THE MAIN YARD:

S No	Name of the Line	Electrified/Non Electrified	Platforms with Length
1.	Line No.1(DN Loop)	Electrified	High Level Passenger Platform (400.00M x 7.00M)
2.	Line No.2 (Common Line)	Electrified	--
3.	Line No.3 (UP Loop)	Electrified	High Level Passenger Platform (400.00M x 6.10M)

B) SIDINGS:

--Nil--

2.5.1. RUNNING LINES, DIRECTION OF MOVEMENT& HOLDING CAPACITY IN CSL:

S.No	Name of the Line	Holding Capacity in CSL	Direction of movements
1.	Line No.1 (DN Loop)	757M (STR to SH)	a) Trains coming from SUP and proceeding

2.	Line No.2(Common Line)	722M (STR to STR)	towards SLPM are UP trains.
3.	Line No.3 (UP Loop)	735M (STR to SS)	b) Trains coming from SLPM and proceeding towards SUP are DN trains.

2.5.2. NON-RUNNING LINES AND THEIR CAPACITY IN CSL:

--NIL--

2.5.3. ANY SPECIAL FEATURES IN THE LAYOUT:

SLIP SIDING:

A Slip Siding is provided at KTV end of the yard in rear of DN Advanced Starter taking off from the DN Main line. The Slip Siding Point is normally set to the Slip Siding and is interlocked with DLBI between BDVR-SUP section. Details of operation of Slip Siding Point is mentioned in the Para No.21.1 of Appendix-'B'.

Due to presence of the Slip siding in between top point and Advanced Starter Signal towards KTV end of the yard, shunting towards KTV end yard and back shall be done by Block forwarding vide BWM 6.15 as Slip Siding is interlocked with DLBI between BDVR-SUP section.

CATCH SIDING:

Catch Siding is provided at KRDL end of the yard between DN Home Signal and UP Advanced Starter Signal taking off from the Main Line. The Catch Siding point is normally set to the catch siding and interlocked with TLBI between BDVR-SLPM section. Details of operation of Slip Siding Point is mentioned in the Para No.21.2 of Appendix-'B'.

2.6. LEVEL CROSSINGS:

SNo	LC Gate No & KM	Class of Gate	Communication with Station	Type of Interlocking	Section
1.	KK-17, Km.28/7-8	'C' Class	Boddavara	Non-Interlocked	BDVR-SUP

(3) SYSTEM AND MEANS OF WORKING: -

System of Working in force	Absolute Block System of Working.
Double Line/Single Line	Double Line between BDVR-SUP section and Single Line between BDVR-SLPM Section.
Block Instruments	a) BDVR-SUP Section: SGE type Double line Lock and Block Instrument. b) BDVR-SLPM section: Single Line Token LessHandle Type Block Instrument.
Co-operative/Non-Co-operative	Non-Co-operative for BDVR-SUP Section and Co-operative for BDVR-SLPM section.
Block Telephones	Attached with Block Instruments.
Staff responsible for custody of key and operations.	SM on duty

(4) SYSTEM OF SIGNALLING AND INTERLOCKING:

1.	*Standard of Interlocking*	Standard-II(R)
2.	*Type of signaling*	MACLS
3.	*Mode of operating the signals*	Electronic Interlocking (Visual Display Unit)
4.	*Provision of Calling-On signals*	Calling-on signals are provided below homesignalson both end(i.e. in both UP & Down directions) and below DN Starter Signals as per GR.3.13 (1)(b), (2)(3)(4) & (6)

		(b).Detailed procedure is available in Para No.4.6.3 of Appendix-'B'.
5.	*Provision of shunt signals*	Shunt back signals SH3(A/B) and SH4(A/B/C) are provided towards SUP end of the yard and towards SLPM end of the yard respectively. Shunt Signal SH9 is provided on Line No.1 towards SLPM end of the yard. Dependent Shunt Signals No. SH6 & SH8 are provided on Line No.1 & 2 towards SUP end of the Yard respectively.
6.	*Emergency Cross-over*	Nil
7.	*Track circuits*	The provision of track circuits is mentioned in Appendix-B Para No.12 of this SWR.
8.	*Axle counters*	Provided High availability Single Section Digital Axle counter (HASSDAC) for last vehicle verification between BDVR-SUPon both UP and DN Lines respectively and provided Single Section Digital Axle counter (SSDAC) for last vehicle verification between BDVR-SLPM Section.
9.	*Crank Handles*	When any point fails to operate normally by the Route Setting operation through VDU, it is inevitable to operate the points with crank handle. The SM on duty shall personally ensure clamping and padlocking of all facing and trailing points on the route. Crank handles are interlocked with signals and interlocking system. When points become defective, the signals controlling these points shall be considered defective and vice-versa and the procedure for use of crank handle for motor operated points shall be followed as per operating manual chapter-2, para-2.18 & 2.19 and Para No. 4.7 of Appendix-B. CH1 : 21 CH2 : 24A/B CH3 : 22 CH4 : 23A/B CH5 : 25A/B CH6 : 26A/B
10.	*Emergency Point operation*	Emergency point operation facility is provided to operate the point from the VDU in case of failure of point controlling track circuit. Each operation of emergency point operation shall be recorded in the TSR, station diary and in the register meant for this purpose. Before resorting to this operation SM on duty shall verify that the point zone is clear of any vehicle occupying the track section and the same is clear of any obstruction.
11.	*Showing of Veeder Counter*	The counters as mentioned in the Para No.11 of Appendix-'B' are provided in this station for record the Emergency operations. The increment in counter number for each and every such action should be recorded by the SM on duty who shall record the details of the operation along with the latest counter number in the register meant for this purpose along with .

12.	*Emergency Route Release operation*	This Electronic interlocking is based on the principle of 'DEAD APPROACH LOCKING'.As such, when a route is set and signal is taken off on the route, the route gets locked. Normally the route is released by the passage of the train over the route. When it becomes necessary to alter the route after the signal has been taken off vide SR 3.36.02 (a), the concerned signal must be put back to danger by click on the signal cancellation option on the menu (Main/Calling on) of the concerned signal, the signal will immediately go to ON aspect. The precondition for route release is, the route should have been set and the signal has been put back to danger. Click the Left mouse button on concerned Signal, the system would display a popup menu with a list of commands.Select the "**Route Release**" from the menu list.A white light will flash (UP or DN) indicating that the timer is working. After 120 seconds, the white light along with the white strip of light will disappear suggesting the route has been released. In case the route illumination (a white strip of lights) does not disappear, it suggests that the route is not released/cancelled. In such case the concerned S&T staff should be advised for rectification of fault. Each operation of emergency cancellation of route is recorded in the emergency route release counter by registering the next higher number. All such operations and the new number should be recorded in the station diary, train signal register& in the register meant for this purpose.
13.	*Emergency Crank Handle Release operation.*	Emergency crank handle release operation facility is provided to operate the point by using the crank handle in case of Route locked condition. For Emergency crank handle operation the procedure laid down in Para No.5.3 of Appendix-'B' shall be followed. Each operation of emergency crank handle operation shall be recorded in the TSR, station diary and in the register meant for this purpose.

4.1. CUSTODY OF RELAY ROOM KEY AND PROCEDURE FOR ITS HANDING OVER AND TAKING OVER BETWEEN STATION MASTER AND S&T MAINTENANCE STAFF:

Custody of Relay room key and procedure for its handover and taking over between SM and S&T staff has to follow the procedure as per JPO issued by COM and CSTE vide No. JPO/02/2012 dated 29.08.2012. Relay room is provided with two independent locks. The key of one lock shall be in the personnel custody of Station Master on duty and the key of other lock shall be in the custody of S&T Maintainer. In the event of necessity such as for attending failure, or regular maintenance, on being requisitioned by S&T maintainer, SM shall hand over the key to the Maintainer. On completion of the work, maintainer shall lock the relay room and shall return the key to SM. The particulars of such transactions shall be entered by the SM in the relay room key register vide OM 2015 Para No.13.16.

4.2. POWER SUPPLY:

The power supply arrangement for this station is described in detailed in the Para No.28& 29of APPENDIX-B.

(5) TELECOMMUNICATIONS:

i) The station is connected to Kottavalasa-Koraput control Circuit.

ii) The station is connected to Kottavalasa-Koraputtraction power control circuit.

iii) Railway Auto Telephone provided at the station is connected to Divisional Exchange at WAT through Exchange at SUP.

iv) Telephone attached to Double line lock and block Instrument for BDVR-SUP Section and to Token Less Block Instrument for BDVR-SLPM are connected to respective adjacent stations.

v) Telephone communication is provided between BDVR-SLPM and BDVR-SUP stations.

vi) Telephone communication is provided between Station Master on duty and UP CH locations, DN CH Locations, Slip SDG. Location & Catch SDG. Location.

vii) 25w VHF set is provided at the station for emergency communication.

viii) CUG Telephone is provided at this station with SM on duty.

5.1. FAILURE OF COMMUNICATION:

a) In the event of total failure of communications between the adjacent block stations SR 6.02.03 shall be observed for double line section and SR 6.02.04 shall be observed for single line section for working the train.

b) In the event of partial interruption/failure of communications between the adjacent block stations SR 6.02.06 shall be observed for working the train.

(6) SYSTEM OF TRAIN WORKING:

6.1. DUTIES OF TRAIN WORKING STAFF:

The duties of Train working operational staff are detailed in Appendix-'D' of this SWR.

6.1.1. TRAIN WORKING STAFF IN EACH SHIFT:

COMPLEMENT OF STAFF	STAFF IN EACH SHIFT
Station Superintendent/Station Master	1
Traffic Points Man	1

The above staff shall work as per roster issued from time to time by DivisionalRailway Manager (P) and these rosters shall be conspicuouslydisplayed in the Station Master's office.

6.1.2. RESPONSIBILITY FOR ASCERTAINING CLEARANCE OF LINES AND ZONES OF RESPONSIBILITY:

The SM on duty is responsible to ascertain the clearance of the nominated line between Home signal and advanced starter signal in each direction.The private number book should be under the custody of SM on duty that is authorized to use it. Sufficient no of PN Books and identification number sheets in sealed cover should always be kept in stock by SM under lock and key by maintaining register for this purpose.

6.1.3. ASSURANCE OF THE STAFF IN THE ASSURANCE REGISTER:

All staff connected to train working before taking up independent charge of their duties at this station shall, make a written declaration in the Assurance Register that they have read the SWR thoroughly and understood the system of working in force at the station and must sign such declaration.

No Railway servant shall be entrusted with any duty involving the safety of the public unless the SM (In-Charge) is satisfied that the concerned staff is competent for the post. No Railway servant unless duly examined and certified shall be allowed to work the points and signals. The SM (In-Charge) is responsible to see that all the staff are well conversant with the Station Working Rules of the Station and their signature obtained in the Assurance Register after he is satisfied that they have thoroughly understood the working Rules of the Station. In case of Class-IV staff, their signature/thumb impression must be obtained after explaining full about their duties and responsibility.

The SM (In-Charge) is personally responsible for maintaining the Assurance Register and for obtaining declaration from the staff working under him. The Assurance Register must be maintained in two parts one for Group-'C' staff and other for Group-'D' staff & duplicate copy of the Assurance Register must be maintained and kept in the personal custody by the SM (In-Charge).

Fresh assurance shall be obtained in the Assurance Register when:
1. He joins at the station as a new member.
2. There is any change in the Station Working Rules.
3. He resumes duty at the station after an absence of 15 consecutive days or more.

6.2. CONDITIONS FOR GRANTING LINE CLEAR:

a) The trains are worked under Absolute block system of working with Double line between BDVR-SUP, Single Line between BDVR-SLPM and MACLS signaling vide GR 8.03.

b) Adequate distances for reception of trains in this station as follows.

Line No.	Up Trains		DN trains	
	From	To	From	To
Line No.1 (DN Loop)	----	----	Starter Signal No.6	The end of Sand hump of Slip Siding OR Advanced Starter Signal No.14
Line No.2 (Common Line)	Starter Signal No.7	Advanced Starter Signal No.11	Starter Signal No.8	The end of Overrun Line. OR Advanced Starter Signal No.14
Line No.3 (UPLoop)	Starter Signal No.5	The end of Sand hump OR Advanced Starter Signal No.11	----	----

6.2.1. ANY SPECIAL CONDITIONS TO BE OBSERVED WHILE RECEIVING ORDESPACTHING A TRAIN: -

--NIL--

6.2.1.1. SETTING OF POINTS AGAINST BLOCKED LINE:

When a running line is blocked by stabled load wagon, vehicle or by a train which is to cross or give precedence to another train or immediately after the arrival of a train at the station etc., the points in rear end should immediately be set against the blocked line except when shunting or any other movement is required to be done on that line [Refer SR.3.51.06 (a)].

Safety Point Alarm Unit (SPAU):

A safety Point Alarm is provided on the VDU table with different indications:

1. On complete arrival of a train at the station, the SM has to set the Points immediately against the occupied line.
2. In case the SM forgets to alter the points, after a time lag of 02 minutes, an audible buzzer will be heard from this instrument along with the 'RED' indication of the line on which the train has arrived.
3. The SM shall then press 'ACK' button to mute the buzzer, and immediately set the required points against the line on which the train has arrived.
4. On setting the points against the occupied line, the RED indication will disappear.
5. If the SM fails to set to required points against the occupied line a fault message will be triggered and sent to concerned to Station Master & all concerned staff to take necessary action.

If all the lines of a station happen to be blocked, when line clear has been granted to a train, the points should be set for the line occupied by a stabled load or a goods train in that order so that, in case of mishap, the chance of causalities are minimized [Refer SR.3.51.06 (b)]. In case of all the lines are occupied by Coaching train, points should be set for a loop line to negotiate with the speed of incoming train would be reduced which in turn, would minimize the consequences/causalities.

The above precautions shall be taken in addition to the observance of other precautions [Refer SR 5.04.01 & SR 5.23.01].

6.2.1.2. RECEPTION OF A TRAIN ON BLOCKED LINE:

Trains are to be admitted on a blocked line, by taking off calling-on signal as per GR 5.09(2) (a) or if calling signal cannot be taken off, trains are to be piloted in on a written authority on Form T/509 given by SM on duty and delivered by a competent railway servant to the Loco Pilot of the train as per GR 5.09 (2)(C)(3)(4)(5) and SR 5.09.01.

6.2.1.3. RECEPTION OF TRAIN ON NON-SIGNALLED LINE:

--NIL--

6.2.1.4. DESPATCH OF TRAIN FROM NON-SIGNALLED LINE:

--NIL--

6.2.1.5. DESPATCH OF TRAIN FROM LINE PROVIDED WITH COMMONSTARTER SIGNAL:

--NIL—

6.2.1.6. ANY SPECIAL CONDITIONS:

a) SPECIAL RESTRICTIONS:

1. Slip Siding point No.21 and Catch siding point No.22 are normally set and locked towards siding and these are interlocked with respective Block instruments. Hence there is no individual operation of Slip Siding and Catch Siding.
2. Slip Siding point No.21 can be set to reverse only when the DLBI between BDVR-SUP section is in 'Line Clear Position' and UP Starter Signal of Concerned Line is initiated.
3. Catch Siding point No.22 can be set to reverse only when the TLBI between BDVR-SLPM section is in either 'Train Going To' of 'Trian Coming From' Position and UP Advanced Starter Signal or DN Home Signal is initiated and if it is DN train after time delay of 2 Minutes on sequential occupation of 2DT & 2DT1 track circuit to ensure 15Kmph Speed restriction.
4. Once the train movement on it completed and concerned Signal route is released the Slip Siding and Catch Siding points is automatically operated to normal i.e towards siding.

b) SPECIAL INSTRUCTIONS:

1. Signal No.S5, S/C/SH6, S7, S/C/SH8, SH9& S10are placed 3M from glued joint as per Railway Board Letter No. (i) 2012/SIG/SEM-II/Misc, dated 10.10.2012, and (ii) 2012/Saftey(A&R)/19/5 dated 13.06.2013.
2. No Load Shall be stabled in Non-Isolated Line without live Locomotive attached.Otherwise, vehicles shall be secured as per Railway board letter No.2012/Safety(A&R)/19/1 dated 04.12.2018.

6.3. CONDITIONS FOR TAKING "OFF" APPROACH SIGNALS: -

i) The SM on duty shall nominate a Clear line not only up to the station but also for an adequate distance beyond it for reception of trains. (Refer GR. 3.36, 3.40, 4.17 and SR 3.36.01, 3.36.02, 3.36.04, 3.40.01, 3.40.02, 3.47.01, 4.17.02 and Block Working manual).

ii) Calling on Signal may be taken off for admission of train in the event of failure of Home Signal in terms of SR 3.69.02 (a) or for admission of train on blocked line.

6.3.1. RESPONSIBILITY OF STATION MASTER FOR RESTORATION OFSIGNALS TO "ON":

Station master should ensure that signal is put back to 'ON' after passage of the train as per GR 3.36 (2) (b).

6.4. SIMULTANEOUS RECEPTION/DESPACTH, CROSSING AND PRECEDANCE OF TRAINS:

The following simultaneous reception and dispatch facilities are provided at this station.

1.	Reception of an UP train on Line No.3 setting overlaps toSand Hump(UP Loop Line).	AND	Reception of DN train on Line No.1 or 2. OR Dispatch of another UP train from Line No.2.
2.	Reception of a DN train on Line No.2 setting overlaps to	AND	Dispatch of another DN train from Line No.1.

	Overrun Line (Common Line).		

6.5. COMPLETE ARRIVAL OF TRAINS:

The entire block section between BDVR-SUP on both UP and DN lines are provided with High Availability Single Section Digital Axle Counter and between BDVR-SLPM is provided with Single Section Digital Axle counter.

For Section BDVR-SLPM:

A Pair of Single Section Digital axle counter (SSDAC) is provided between BDVR-SLPM one at just beyond UP advanced starter signal no.11 of BDVR and another on 1T track circuit of SLPMfor last vehicle verification.

For Section BDVR-SUP:

A Pair ofHigh Availability Single SectionDigital axle counter (HASSDAC) is provided between BDVR-SUP one at just beyond DN advanced starter signal no.14 of BDVR and another on 2T1 track circuit of SUPand another pair of High Availability Single Section Digital Axle Counter (HASSDAC) is provided between SUP-BDVR one at just beyond UP Advanced Starter signal No.25 of SUP and another on 1T2Track circuit of BDVRfor last vehicle verification.

The position of the Block section whether cleared or occupied is reflected in the axle counter reset box and VDU provided in the Station Master's office which shows `GREEN' when the Block Section is clear and `RED' when occupied. Whenever a train enters in to the Block Section, "Block Section Clear" indication 'GREEN' for the particular block section disappears and 'RED' indication appears.

After complete arrival of the train the `RED' indication will disappear and 'GREEN' indication will appear. If after the complete arrival of the train the 'RED' indication does not change to 'GREEN' it should be assumed as Block Instrument failure for the particular section and necessary action as per GR.14.13 is to be followed. The axle counters are interlocked with the respective block instruments for that section. If axle counter fails, Advanced Starter signal and IB Home Signals as the case may be, cannot be taken off for next train and the concerned instrument shall remain locked in last operated position.

A resetting arrangement is provided in the SM office to reset the system to normal position in case of failure of both the systems of Axle counter for HASSDAC and failure of SSDAC. The resetting to be initiated by the SM at the receiving station only after physical verification of complete arrival of train by exchanging private number. The resetting can be accomplished only with the co-operation of SMs at either end of the block section. Details of resetting procedure is given in Appendix-'B'

Note:
Before taking off reception and dispatch signals for UP or down directions the SM on duty should ensure that the entire route including overlap and berthing portion is clear of all obstructions by observing the Track indication/Axle counter indication.

6.6. DESPATCH OF TRAINS:

a) **DESPATCH OF TRAINS FROM RUNNING LINES:**

Dispatch of trains is governed by the provisions of GR. 3.42 and SRs 3.36.04(b), 3.42.04; 3.42.01(a) and BWM 2.07(5)(a), (b), (c), (d)& (e) and other relevant provisions of G & SR, BWM and SWR.

b) **DESPATCH OF TRAINS FROM NON-SIGNALLED LINE:**

Dispatch of trains from non-signalled line is governed by the provision of GR 5.11 and SR 5.11.01.

c) **ISSUE OF CAUTION ORDERS:**

Whenever in consequence of the line being under repairs or for any other reasons special precautions are necessary a Caution Order detailing the Kilometres and Speed at which train should run with reasons for taking such precautions shall be handed over to the Train Manager and Loco Pilot in terms of GR 4.09 and SR thereto.

6.7. TRAINS RUNNING THROUGH:

In addition to the procedure detailed in paras ''Reception and Dispatch of trains'' rules laid down in GR 3.40, 3.42, 4.17, 4.42 with relevant SRs 3.42.02 (a) (iii) and other relevant provisions of G&SR, BWM, OM shall be followed. (Refer GR 4.1, 4.11(2)).

6.8. WORKING IN CASE OF FAILURE:

Track Circuits	In case of failure of track circuits, the clearance of the concerned line should be ensured physically including foul track circuits if any by the SM on duty before a train is piloted.
Axle Counters	If the axle counter fails between the block sections, resetting procedure should be adopted as per Para 6.1 of SWR (APP-B). If the axle counter indication does not appear 'GREEN & continues to show 'RED' condition after resetting, the concerned block section shall be suspended & failure intimation to be given to sectional signal Maintainer /JE/SE (signal) for their rectification.
Block Instruments	In the event of failure of block instrument, the concerned block instrument shall be suspended till its rectification and trains shall work as per GR (Refer SR 6.02.03, 6.02.04& 6.02.06) and BWM 5.43 & 6.22.
Receptionof a train on obstructed line	Trains are to be admitted on a blocked line, by taking off calling-on signal as per GR 5.09(2)(a) or if calling signal cannot be taken off, trains are to be piloted as per GR 5.09.01&5.09(2)(C)(3)(4) (5).
Receptionof a train on non-signalled line	NIL
Defective Signals	Whenever signals become defective, the procedure laid down in GR 3.68 to 3.71 and SR 3.68.01 (c) shall be followed. In case of disconnection of signal and interlocking for repairs and maintenance procedure laid down in GR and relevant SRs shall be followed. In the event of signal showing no lights, station master on duty shall before giving line clear initiate action in accordance with the procedure laid down in GR and the relevant SRs (Refer 3.69, 3.49 (4), 3.68, 3.70, 3.71, 3.74 & 3.76.
Defective Interlocking	When interlocking becomes defective the SM on duty

	shall be responsible for correct setting, clamping, padlocking of points for admission of train. [Refer SR 3.69.03 (c) & 3.69.01].
Defective/Damaged Points	When any point fails to operate normally by the route setting operation or individually through VDU it is inevitable to operate the points with crank handle. The SM on duty shall personally ensure clamping and padlocking of all facing and trailing points on the Route. Crank handles are interlocked with signals and interlocking system. When points become defective, the signals controlling these points shall be considereddefective and vice-versa and the procedure for the use of crank handle (GR 3.77).

6.9. PROVISIONSFOR WORKING OF TROLLIES/ MOTOR TROLLIES/MATERIALLORRIES ETC":

a) The section where Axle Counters are provided in Lieu of track Circuits, trolleys, Motor trolleys, Lorries etc., which are not insulated shall not be allowed to run except on Line clear.

b) Motor trolleys shall be worked as per GR 15.25 and SR thereto, BWM 5.39, 5.40, 5.41, 6.11, 6.12, 6.13, 6.14(2) and circulars and orders issued from time to time.

c) Material Lorries shall be worked as per GR 15.27 and SRs thereto and in accordance with the provisions of Block Working Manual.

d) Tower Wagon/OHE cars shall be worked as per GR 17.08 and SR thereto and BWM 6.11.

(7) BLOCKING OF THE LINES:

Whenever a running line is blocked either by loose vehicles or by stabling train or by a train which is to cross or give precedence to another train, the points at either end should immediately be set against the blocked line except during shunting movement. 'Line Block' is to be activated on VDU by SM on duty following procedure laid in para-No.5.4.1 & 5.4.2 of Appendix-B. A clear remark in 'RED' ink shall be made immediately in the train signal register and a record shall be made in the Station Master's diary also. Stable load register is also to be maintained. The stable load or loose vehicles are to be secured to prevent rolling down of vehicles. [GR 5.23 and SR 5.23.01]

(8) SHUNTING:

8.1. GENERAL PRECAUTIONS:

The rules laid down in GR 3.46, 3.52 to 3.56, 5.13,5.14,5.16 to 5.23, 8.05,8.06, 8.14 and 8.15 with relevant SR's and BWM 5.37, 5.38 for single line & 6.15 for Double line shall be followed.

All shunt movements shall be supervised by Train Manager/SM on duty or by a competent Railway servant deputed by SM on duty as the case may be. The authority for shunting shall be the taken off of shunt Signal or on form T/806 whichever is applicable. The limit up to which shunting is permitted and the line involved must write on the shunting authority.

8.2. SHUNTING IN FACE OF AN APPROACHING TRAIN:

Shunting in face of an approaching train is prohibited on both ends vide GR 8.05, 8.06&SR 8.09.02 (b) (ii) (a).

8.3. PROHIBITION OF SHUNTING, SPECIAL FEATURES IF ANY:

i) Hand shunting is prohibited at both ends of the yard vide GR 5.20.
ii) Fly shunting is prohibited at both ends of the yard vide SR 5.21.01 (c).
iii) Engine to be attached towards falling gradient i.e towards block section at SLPMend.
iv) While shunting movement towards UP Advanced Starter Signal No.11 and DN Advanced Starter Signal No.14,an engine to be attached towards the falling side of the gradient vide GR 5.20. SM on duty is to be ensured it.

8.4. SHUNTING ON SINGLE LINE:

i) Within station section: Shunting within station may be carried out within the station section up to Advanced Starter, provided the necessary Reception Signals are kept at 'ON' vide GR 8.10 (1). But this shall be done only when there is no approaching train since shunting in the face of an approaching train is prohibited at this station.

ii) Beyond Station Section: Governed by GR 8.12and BWM 3.15, 5.36 & 5.37.

i) Beyond Opposite first Stop Signal: Unless the line is blocked back, the line outside the first stop signal shall not be obstructed vide GR 8.13and BWM 3.15 & 5.38.

iii) During failure of Block Instrument: Block back messages shall be exchanged between station master at either end of the section with is intended to be obstructed supported by private number. Both the station master shall fix line block collars on respective Block Instruments and shall continue shunting provided the Block section is clear.

8.5. SHUNTING ON DOUBLE LINE:

a)	*Block back*	The procedure of Block Back given in BWM 3.21 & 6.15 shall be followed
b)	*Block Forward*	GR 8.05& SRs there to and BWM 3.21 & 6.15 shall be followed.
c)	*During failure of Block Instrument*	Shunting in the block section in advance/in rear shall not be performed unless the section is clear of all obstructions and the block section is Blocked back/Blocked forward as the case may be. SM shall fix the line block collars on respective Block Instrument.

8.6. SHUNTING IN THE SIDING TAKING OFF FROM THE STATION YARD:

--Nil--

(9) ABNORMAL CONDITION: -

a) RULES TO BE OBSERVED IN THE EVENT OF ABNORMAL CONDITIONS:

i) During partial interruption/failure of electrical communication instruments SR 6.02.06 shall be followed.

ii) The authority to proceed in the occupied block section in case of obstruction of line or accident etc is T/A-602 and SR 6.02.05 shall be followed.

iii) Trains delayed in the block section: GR 6.04 and relevant SRs shall be followed.

iv) Failure/ passing of IBS signed in ON position: Not Applicable.

v) Failure of Axle Counter Block/BPAC: As per Appendix-'B'.

vi) Failure of MTRC: Not applicable.

b) PROCEDURE FOR EMERGENCY OPERATION OF POINTS BY CRANK HANDLE: -

(i) The detailed Procedure for emergency operation of points by Crank Handle of motor operated points is mentioned in Para No.5.3, 5.3.1 and 5.3.2 of Appendix-'B' of this SWR.

On account of the doubtful operation of any track circuit by a light vehicle including self-propelled vehicle such as Motor trolley or light Diesel/electricalengine or tower wagon, indicating the occupancy of the track, It is necessary that SM on duty satisfies himself that the said vehicle has cleared point zone track circuits by observing the track indications of the track on either side of the cross over by positively checking the entrance and exit track circuits are showing occupancy and clearance in accordance with the train movement.

(ii) PROCEDURE FOR EMERGENCY OPERATION OF POINTS WITH POINT ZONE TRACK CIRCUIT/AXLE COUNTER FAILURE AND EMERGENCY ROUTE RELEASE:

The detailed Procedure for emergency operation of points in case of failure of Point Zone track section is mentioned in Para No.5.2, 5.2.1 and 5.2.2 of Appendix-'B' of this SWR.

Rules regarding locking of points and damaged points vide GR 3.39 and GR 3.77 to be followed.

c) CERTIFICATION OF CLEARANCE OF TRACK BEFORE CALLING-ON SIGNAL OPERATION IS INITIATED: -

Before taking off Calling –on signal during failure of track circuit/axle Counter, the route and the clearance of the track over which train would pass to be verified by SM on duty.

d) REPORTING OF FAILURE OF POINTS, TRACK CIRCUITS/AXLE COUNTER AND INTERLOCKING: -

(i) Whenever there is a failure of points, Track circuits/axle counter or any interlocking gear at station, the failure should be reported by SM on duty to the concerned Signaling Maintenance Staff on duty responsible for attending to the failure and only after receipt of the written memo from the Signaling Maintainer for rectification of the fault, SM should restore the normal working.

(ii) The entries in failure register to be done with message to the section controller.

9.1. TOTAL FAILURE OF COMMUNICATION:

a) In the event of total failure of communication, trains shall run on the authority to proceed without line clear in terms of SR 6.02.03on double line section and SR 6.02.04 on Single line Section.

b) During partial interruption of communication, the rules laid in SR 6.02.06 shall be followed.

9.2. TEMPORARY SINGLE LINE WORKING ON DOUBLE LINE SECTION:

In the event Single line working on double line section when one line is obstructed the trains shall work as per the provision laid down in SR 6.02.01.

9.3. DESPATCH OF TRAINS UNDER AUTHORITY TO PROCEED WITHOUT LINE CLEAR OR TO ASSIST THE CRIPPLED TRAIN:

i). In the event of total failure of communication, trains shall run on the authority to proceed without line clear in terms of SR 6.02.03.

ii). In the event of necessity to send a train to assist the crippled trains, SR 6.02.05 shall be followed.

(10) VISIBILITY TEST OBJECT:

The signals lights of UPStarter Signal No.7 of Signal No.2and DN Starter Signal No.6of Line No.1 are earmarked to serve as visibility test object during day and night vide GR 3.61 (2) (b) (iii).

(11) ESSENTIAL EQUIPMENT AT THE STATION:

Details are given in Appendix-E.

(12) FOG SIGNAL MEN NOMINATED TO BE CALLED IN CASE OF FOG:

(i) During thick, foggy or tempestuous weather impairing visibility of the Signals the SM on duty shall initiate action to depute Fog signal man with detonators vide GR 3.61 in order to indicate the location of the station approach signals to the Loco pilot of an approaching train.

(ii) The fog signal man shall be proceeding to the 1st stop signal of the station and place one detonator at a distance of 270M from the 1st approaching stop signal towards the approaching train and another detonator at a distance of 10M from the 1st one and he shall stand 45M away from the detonator.

(iii) The fog signal man shall be permanent employee, no temporary or casual labour shall be deployed as fog signal man.

(iv) The assurance of fog signal man available at the station (including engineering branch if available) shall be obtained in the fog signal register every year in the month of "OCTOBER".

(v) Details of supply of detonators available stock, use and testing etc., shall be maintained in the fog signal register of the station as per GR 3.64 and SRs there to.

Note: Names of fog signal man available at the station shall be exhibited in SM's office.

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APPENDIX-A	:	WORKING OF LEVEL CROSSING GATES
APPENDIX-B	:	SYSTEM OF SIGNALLING AND INTERLOCKING AND COMMUNICATION ARRANGEMENTS AT THE STATION.
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APPENDIX 'A'

WORKING OF LEVEL CROSSING GATES AT BODDAVARA STATION

LC GATE No.KK-17

1. GENERAL:

1.1. DESCRIPTION OF THE LEVEL CROSSING GATE:

Following details shall be maintained at all manned level crossing gates:

1.	Number of Level Crossing Gate:	KK-17
2.	Engineering or Traffic Gate:	Engineering gate ('C' class)
3.	Under control of Station Master / Permanent Way Inspector:	SSE [P.Way]/SUP
4.	Location at KM:	28/7-8
5.	At Station:	Boddavara
6.	In between stations:	BDVR-SUP
7.	BG / MG / NG:	BG
8.	Single line / Double line / Multiple line:	Double Line
9.	Normal Position:	Open to Road Traffic.
10.	Interlocked / Non-Interlocked:	Non-Inter locked.
11.	Means of Interlocking	Non-Inter locked.
12.	Provision of Gate signal at Kms.	Not Applicable.
13.	Signaling arrangements:	Not Applicable.
14.	Means of Communication – Telephone / Bell etc	Telephone connection with SM/BDVR.
15.	Width of level crossing gate:	7.5 M.
16.	Type of road (NH / SH / Others):	Others.
17.	Name of Road:	Village Road
18.	Metalled / non-metalled:	CC Block
19.	Approach road:	Metalled.
20.	Width of the road:	7.5 M between Gates
21.	Angle of road crossing (in case of the skew gates):	90^0
22.	Road gradient (if any)	i) North /East side: 1 in 30 ii) South/West side: 1 in 30
23.	Road alignment (straight/curve)	i) North/East side: Curve ii) South/West side: Straight
24.	Provision of height gauges:	Provided
25.	Type of Barriers:	Lifting Barrier.
26.	Length of Check rails:	10.00 M
27.	Road surface in between L-Xing gates:	Level
28.	Length of Rumble strip / speed breakers:	5.0 M
29.	Road signs:	Provided
30.	Speed breaker indication board:	Provided
31.	TVU:	6120 of 12/2021.
32.	Census next due on:	12/2024
33.	Demarcation for placement of Detonators:	Provided
34.	No. of Gatemen working:	2 (Two)
35.	Nearest Railway Medical Assistance	Visakhapatnam
36.	Nearest Private Medical Assistance available (if any):	Shrungavarapukota
37.	List of equipment available Yes / No:	Yes

1.2. EQUIPMENTS:

S N	Items	Quantity / Numbers
1.	LED based Flashing Tri Colour Hand Signal Lamp.	3Nos
2.	Hand Signal Flag Green	1 No with mounted stick
3.	Hand Signal Flag Red	3 Nos
4.	Banner Flag Red	3 Nos
5.	Posts for exhibiting red banner flag	2 Nos
6.	Spare chains with padlocks	2 with stop marker
7.	Detonators	10 in each case
8.	Gate lamps	2Nos
9.	Tommy Bar	1 No
10.	Mortar Pan	1 No
11.	Spade / Fowrah	1 No
12.	Rammer	1 No [in case of asphalted road this may not be provided.]
13.	Pick Axe	1 No [in case of asphalted rod this may not be provided]
14.	Tin case for flags	1No
15.	Can for oil	1No
16.	Water port / Bucket	1No
17.	Canister for Muster Roll	1No
18.	Set of spare spectacles of gateman wearing glasses	1No
19.	Board demarcating protection of level crossing gate diagram in case of obstruction on gate	1No
20.	Basket	1No
21.	Whistle	1No
22.	Wall Clock	1No
23.	A Small size chain for use in case of failure of gate boom lock	2No

1.3. RECORDS TO BE KEPT AT GATE LODGE:

In addition to the above equipment, following records shall also be kept at the gate lodge.

1. Gate Working Instructions in Hindi/English.
2. Gate Working Instructions in Local vernacular language
3. Gateman Rule Book in Local vernacular language.
4. List for tools and books.
5. Duty registers.
6. Certificate of Competency for working as gateman.
7. Bio-data particulars of Gateman, including date of passing vision test, Initial/refresher course, safety camp etc.
8. Accident Register.
9. Records of last census of road traffic at level crossing gate.
10. Public Complaint Book.
11. Inspection Book.

1.4. MODE OF OPERATION:

Gate shall normally be kept Opened to the road traffic. Whenever it is required to open the gate, on duty Gateman shall take permission from the SM on duty

and inform the purpose of opening of LC gate with description of road traffic which intended to clear by opening the LC Gate. Gate keeper shall ensure clearance of road traffic, close and lock the gate. Thereafter shall inform to the Station Master on duty.

1.5. DUTIES OF GATEMEN:

1. **COMPETENCY:** Gateman working at this gate should have competency certificate applicable to perform duty at this gate issued by the sectional JE/SE (P.Way).

2. **ALERTNESS:** The gate man shall be alert and be prepared to take immediate action, should danger be apprehended. Keys of the gate shall be in his personal custody.

3. **POSITION DURING PASSAGE OF TRAINS:**

During passage of trains, gate man will stand in the manner indicated below: -

i) Gate man will stand attentively in front of the gate-lodge facing the approaching train.

ii) In daytime, gateman shall hold red and green flags furled up on separate sticks in right and left hands respectively.

iii) In night time, gateman shall hold lighted hand signal lamp with white light facing the track.

iv) He shall keep the whistle slung around his neck from a cord.

4. **ROUTINE DUTIES OF GATEMAN**:

i) Gateman shall ensure that gate lamps and lamps of all gate signals are lighted and kept burning continuously.

ii) Gateman shall perform his duties strictly according to the duty roster and shall not leave the gate unless reliever arrive and takes charge of it. However, if it is necessary to leave the gate in an emergency, he must close and lock the gates against road traffic, before leaving the gate.

iii) He shall observe all passing trains and be prepared to take such action as may be necessary to ensure safety of trains.

iv) Gateman shall watch all passing trains and keep sharp look out for any unusual like hot axle, hanging chains, hanging battery, brake beams, safety bracket, vacuum cylinder or any other situation endangering safe running of trains.

v) Gateman shall also be prepared to repeat any signal which Train Manager may give to Loco pilot on walkie-talkie or in any other way.

vi) If lifting barriers get damaged or becomes out of order, the gateman shall use the spare chain with disc and padlock for securing the gate against road traffic. Gate man shall report to the station master, gang mate or permanent way inspector any defect in his gate or apparatus pertaining to it, as soon as possible.

vii) Gateman shall wear badge and prescribed uniform while on duty at level Crossing gate.

viii) Gateman shall ensure that he is having competency certificate in his possession while on duty.

ix) Gateman shall work the gate as per gate working instructions and remain well conversant with this instruction.

x) Gateman shall ensure that equipment supplied at the gate is in good order and ready for immediate use.

xi) Gateman shall see that the channel for the flange of the wheel is kept clean.

xii) Gateman shall keep the road surface well-watered and rammed in case of unmetalled roads.

xiii) Gateman must be vigilant to see that inconvenience to road users due to closure of gates should be to the minimum possible extent.

xiv) Gateman on electrified section shall watch that road vehicles/animals passing from gate are within the height loading gauge provided on either side of the level crossing gate.

xv) Gateman shall prevent tress passing by persons or cattle to the maximum extent.

xvi) He should note down the registration number of the vehicle which damage the gate.

xvii) Locking arrangement of gate should be checked daily.

xviii) The Gateman shall ensure that no road vehicle is trapped in between UP & DN line while closing LG gate.

5. ACTION IN CASE OF UNUSUAL OCCURANCE ON TRAIN:

In case gateman observes anything unusual with a passing train, he shall take following action:

i) He shall take prompt action to warn the Loco pilot / Train Manager of the passing train by showing red flag by day and red light by night.

ii) He shall simultaneously try to draw the attention of the Loco pilot / Train Manager by whistling continuously, shouting, gesticulating, throwing ballast on the brake van or by any other means.

iii) If Loco pilot / Train Manager fails to take notice, gateman shall immediately inform the Station Master, if connected on telephone, to take appropriate action, under exchange of private number.

iv) In case of train parting, gateman shall not show stop hand signal but shall show prescribed signal for train parting.

v) He shall endeavour to attract the attention of the Loco pilot / Train Manager by whistling continuously, shouting, gesticulating and by raising both hands vertically above, quickly parting them and bringing them together in repeated Up and Down motion as high and as low as possible.

vi) In case the train does not stop, gateman shall immediately inform the Station Master, if connected on telephone, to take appropriate action, under exchange of private number.

6. ACTION IN AN EMERGENCY AT THE LEVEL CROSSING:

i) In case of an obstruction at the level crossing gate, gateman shall maintain the gate signals, if any, in the 'ON' position.

ii) Thereafter, if he is unable to remove the obstruction, gateman shall immediately advise the Station Master on duty, if connected by telephone, regarding the defects / obstructions at the gate, under exchange of private number.

iii) If there is no response from the Station Master after two or three attempts, he shall first protect the gate and then inform on phone.

The gateman shall protect the line as under: -

A. <u>On Double line section:</u>

i) If both lines are obstructed the Gateman shall plant a red banner flag by day and a red light by night 5 meters away on posts duly provided for the purpose. He shall first protect the line on which a train is expected to arrive first.

ii) Then he will similarly plant the other red banner flag by day and red light by night on the other line 5 meters away from the site of obstruction.

iii) Gateman shall then proceed to protect the gate along with detonators and red flag by day and red hand signal lamp by night.

iv) Gateman shall proceed exhibiting red flag by day and red hand signal lamp by night on the line on which a train is expected to arrive first, to a point 600 meters and place one detonator on the line. Thereafter he shall proceed to a distance 1200 meters from the level crossing gate and place 3 detonators on the track 10 meters apart. Having thus protected the line he shall return to the level crossing gate picking up the intermediate detonator on his way back.

v) Thereafter, he shall proceed on the other line, showing red hand signal, similarly place detonators as described in para (iv) above and return to the site of obstruction, picking up the intermediate detonator on his way back.

vi) Having returned to the gate, he must then take steps to remove the obstruction mobilizing any assistance locally available and warn the Loco pilot of the approaching train.

vii) In case the gateman observes or hears a train approaching when he is still on his way to protect and before he reaches the stipulated distance to place detonators, he shall place detonators on the line at a distance as far away as he can go.

viii) Thereafter, he shall stop the approaching train by waving his red flag by day red hand signal lamp by night repeatedly.

B. <u>Other action to be taken by Gateman:</u>

i) At night Gateman shall light two hand signal lamps and take action to exhibit red light and protect the lines as described in sub paras (a) and (b) above.

ii) If the gate is broken by a road vehicle which is fouling the track, or if lifting barriers or any other part of the gate foul the track, or if there is any other obstruction at the gate, the gateman shall take immediate action.

iii) He shall note down the particulars of the road vehicle, vehicle number, name of the Driver, owner and relay these details to the nearest Station Master or Permanent Way Inspector regarding the particulars and obstructions at the level crossing gate, through messenger or through means available.

C. Accidental rolling down of trains:

When Gateman sees that a train is rolling down or immediately after receipt of the information about the accidental rolling down of the train/vehicle the Gateman shall

a) First close the gate.
b) Then immediately inform the SM on duty.
c) He shall not open the gate till he ensured that the train has completely cleared the gate.

D. On Electrified Section:

On noticing that, the whole or Part of the OHE or Feeder or cable falling down, the Gateman shall ensure that as far as possible, human beings, animals or vehicles etc. are kept away in order to avoid any contact with live equipment.

As soon as it is noticed that pantograph on electric rolling stock, getting damaged and/or entanglement of the same with the OHE, he shall make every possible effort to stop the train and immediately inform SM on duty and take all necessary measures for the protection of the line.

7. EXCHANGE OF PRIVATE NUMBER:

a) When the gate is connected with the station at the dispatching end:

i) Station Master at the dispatching end shall advise the gateman the number, description, direction and expected time of the passage of the train at the gate under exchange of private number;
ii) Such advice shall be given before taking OFF departure Signals or giving an authority to proceed to the Loco Pilot.
iii) The Gateman on receipt of the advice shall close the gate well in time and confirm the same under exchange of private number;
iv) Station Master will lower the departure signals after getting the private number of the gateman;
v) The gateman shall be authorized to open the level crossing after complete passage of train from the gate by observing tail board/tail lamp. The gateman before opening the gate shall ensure that SM has not advised him to keep the gate closed for any other train from the same direction or from other direction. He shall display a banner flag across the track while the gate is in open condition.

b) When the gate is connected with the station at receiving end

i) Station Master at the dispatching end shall advise the Station Master at the receiving end the number, description, direction and expected time of passage of the train at the gate under exchange of private number;
ii) Such advice shall be given before obtaining the line clear;
iii) Station Master at the receiving end shall in turn convey the same advice to the gateman, under exchange of private number.
iv) Gateman shall close the gate and thereafter give his private number to the Station Master.
v) Only then the Station Master shall at the receiving end grant line clear to the Station Master at dispatching end;
vi) The gateman shall be authorized to open the level crossing after complete passage of train from the gate by observing tail board/tail lamp. The gateman before opening the gate shall ensure that SM has not advised him to keep the gate closed for any other train from the same direction or from other direction. He shall display a banner flag across the track while the gate is in open condition.

8. FAILURE OF TELEPHONIC COMMUNICATION:

When Telephonic Communication fails or it does not get any response from the Gateman despite 2 or 3 attempts, the following procedure should be adopted:

a) Station Master at the dispatching end shall issue a caution order to the Loco pilot before dispatching a train in the block section from his end.

b) The caution order should advise the Loco Pilot to whistle continuously and approach the gate cautiously.

c) The Loco pilot should be instructed to pass the gate cautiously, on being hand signal by the gateman. If hand signal is not seen, Loco pilot should be prepared to stop short of the gate and depute his Assistant Loco pilot to see the condition of the gate. If the gate is closed the Assistant Loco pilot give the all-right signal, if the gate is not closed the Assistant Loco pilot must close the gate and then give the all-right signal. The Loco pilot shall stop clear of the level crossing to pick up the Assistant Loco pilot who will reopen the gate for passage of road traffic. In the absence of the Assistant Loco pilot, the Loco pilot may take the assistance of the Assistant Train Manager / Train Manager.

d) In case of an approaching train, the Station Master shall advise the Station Master at the dispatching end, under exchange of private number that the telephone at the gate has failed.

e) The Station Master at the dispatching end shall then issue a caution order to the Loco Pilot before dispatching a train in the block section from his end.

f) Station Master shall also advise the gateman through gang man / patrolman or Loco pilot of the first train that the telephone has become defective.

g) He should also advise S&T staff responsible for maintenance of the telephone to rectify the defective Telephone at the earliest.

h) Normal working will be resumed only after S&T staff rectify the telephone and issue fit memo for the same.

9. FAILURE OF LIFTING BARRIERS:

a) When the gate cannot be closed due to failure/Damage of lifting barriers, the gateman will immediately inform the Station Master man on duty, under exchange of private number, and ensure that lifting barriers do not foul the track.

b) He shall immediately fix red banner flag by day and red light by night on the post at that end first from which the train is approaching and then at the other end.

c) Gateman shall secure the gate against road traffic by means of safety chains and padlocks.

d) After securing the gate against road traffic, he shall show green hand signal flag by day and green light by night to the Loco Pilot of the approaching train.

e) The Station Master on duty on receipt of the above information, shall issue caution order to the Loco pilot of a departing train.

(i) To whistle frequently,
(ii) To Stop 30m, short of the level crossing, and be guided by the hand signal given by the gateman.

f) TheStation Master shall intimate the fact to the Station Master at the other end of the block section, under exchange of private number, for issue a caution order with the similar instructions as mentioned in Para (e) above, to the Loco pilot before dispatching a train in to the block section from his end.

g) He shall also advise JE/SSE (P.Way) and other officials concerned for immediate rectification and other necessary action.

h) Necessary entries shall be made in the Caution Order Register and Station Diary by the Station Master at either end of the affected section.

i) Normal working will be resumed only after rectification of the lifting barriers and issue fit memo for the same.

10. OBSTRUCTION AT THE GATE:

a) If the gate is broken by a road vehicle which is fouling the track, or if lifting barriers or any other part of the gate foul the track, or if there is any other obstruction at the gate, the gateman shall immediately fix red banner flag by day and red lamp by night on posts provided at both ends of the gate, for this purpose.

b) Immediately after this, the gateman shall advise the Station Master on duty, regarding the defect / obstruction at the gate, under exchange of private number.

c) Station Master on duty shall be advised to put the reception / departure signals back to 'ON' position, if taken 'OFF' for a train.

d) If there is no response from the Station Master after three attempts, he shall first protect the gate and then inform on phone.

e) Gateman shall then rush with detonators and red flag by day and red hand signal lamp by night in the direction of the approaching train and protect the gate as stipulated in General Instruction for duties of gateman under item no.1.5(6).

f) Thereafter he shall protect the gate from the other direction also.

g) He shall note down the particulars of the road vehicle, name of the Driver, owner and relay these details to the Station Master who shall not start the train unless he has been ensured by the gateman that the road vehicle or the lifting barriers are not fouling the track.

h) The Station Master shall also inform the Station Master at the dispatching end, under exchange of private number, asking him not to dispatch any train in the block section from his end, until the track has been cleared of all obstruction.

i) After the track has been cleared of all obstructions the gateman shall inform the Station Master accordingly, under exchange of private number.

j) Station Master shall then issue a caution order to Loco pilot of the gateman, if the gate is broken, but is clear of any obstruction.

k) Gateman shall secure the gate against road traffic by means of safety chains and padlocks and there after exhibit green hand signal if the gate is not obstructed.

l) He shall also advise JE/SSE (P.Way) and other officials concerned for immediate rectification and other necessary action.

m) Necessary entries shall be made in the Caution Order Register and Station Diary by the Station Master at either end of the affected section.

n) Normal working will be resumed only after rectification of the lifting barriers and issue fit memo for the same.

11. OBSTRUCTION ON THE TRACK NEAR LEVEL CROSSING:

If there is a rail fracture or obstruction on the track due to falling of tree, fouling by road vehicle or derailment which is visible to the gateman, the gateman and Station Master will adopt the procedure given under item no.10 above. If the obstruction fouls the Level Crossing Gate, gateman must keep the gates closed against road traffic till the track is cleared of the obstruction.

APPENDIX 'B'
SYSTEM OF SIGNALLING &INTERLOCKING AND COMMUNICATION ARRANGEMENTS AT THE STATION

(Detail description of signaling and interlocking installations, instructions for working them normally and in emergencies etc. including power supply arrangements).

1. BRIEF DESCRIPTION OF THE SIGNALLING AND INTERLOCKING INSTALLATIONS:

BODDAVARA is a Class 'B' station provided with Standard-II (R) Electronic Interlocking of M/s. Siemens Rail Automation Pvt. Ltd., make. The station is provided with Route setting type Electronic Interlockingbetween points, signals, track circuits and other signaling gears. The station is equipped with Multiple Aspect Colour Light Signaling. All points and signals are power operated through a central **Visual Display unit (VDU)** installed in the SM's Office.

2. DESCRIPTION OF OPERATOR CONSOLE CUM VISUAL DISPLAY UNIT (VDU):

The Operator Console cum Visual Display Unit (VDU) in dual configuration is provided for operation of Signals, points, Crank handles and controls etc. A mimic yard diagram based on SI plan No. SI/23259ALT-A shall be displayed on the VDU. The VDU is used for controlling and monitoring the station. Indications on the station mimic diagram of VDU will be dynamically updated.

3. SYSTEM OVERVIEW

The PC-based (**operator VDU**) for the operation of Signals, Points, Crank Handles and Siding Controls, etc. The SM of a station required to be familiar on the specific station's SWR (station working rules).

Operator VDUs consist of CPU with a color monitor, keyboard and pointing device (mouse). Through communication media the exchange of control and indication messages takes place with operator VDU. The Software is installed to display the Station Yard Mimic diagram on the operator VDU and it allows access to all functions by selecting menus with a click of mouse on the corresponding function icon. By selecting the menu, the function (Signal clear and cancellation, Route release, Point operation etc.,) can be executed.

The operator VDU is used for controlling and monitoring the station. However, indications on the Station yard mimic diagram of operator VDU will be dynamically updated.

3.1. DUAL VDUs – MODE OF SELECTION:

The privilege has been given to the operator for controlling the station through VDU-1 or VDU-2. With Dual VDU concept, we can control either from A-VDU or B-VDU. VDU Changeover between two Systems can be done by the following ways.

a) Normal operation: The detailed procedure is mentioned at Para 4.2(a).

b) Emergency operation (Override control): The detailed procedure is mentioned at Para 4.2(b).

The operator VDU is having controls to operate the field gears through the Mimic diagram. A Mimic panel diagram displayed on the operator VDU is an exact replica of yard that suits SI plan.

4. CONTROL(S) & INDICATION(S):

4.1. ICONS AND INDICATIONS PROVIDED ON THE VDU:

In addition to mimic yard diagram including signal, points, track circuit, Axle counters, sidings as indicated in the WRD, various other ICONS and indications have been provided on the VDU. A brief description of the same are described below.

SN	ICONS	INDICATIONS	FUNCTIONS	REMARKS
1.	SM KEY	YellowColour when key is 'IN'	Ensures operation of VDU by authorized person	
2.	PC CONTROL	YellowColour when PC is enabled	Ensures operation of VDU by authorized person	Protected by pass word
3.	---	Emergency Route release – UP & DN	Flashing indication appears when Emergency route release operation is initiated.	For each operation concerned counter shall register one count higher.
4.	Emergency Point operation key	Green light when key is 'IN'. Yellow light indication appears showing request for Emergency point operation is acknowledged.	Ensures emergency point operation by authorized person	Protected by Pass word. For each operation concerned counter shall register one count higher.
5.	Point failure Ack. Button icon	Red	Flashing indication appears when any point fails. SM has to left click on the icon to acknowledge.	Buzzer will sound. On acknowledgement, buzzer stops. After verification at site inform S&T staff immediately if failure persists.
6.	Signal failure Ack. button icon	Red	Flashing indication appears when any signal fails. SM has to left click on the icon to acknowledge.	Buzzer will sound. On acknowledgement, buzzer stops. Inform S&T staff immediately if failure persists.
7.	CH-1, CH-2, CH-3, CH-4, -------, button icons	Yellow lamp indicates 'KEY IN'. Red lamp indicates'CH LOCKED'	In normal condition yellow lamp will be lit. Whenever the crank handle is locked in route or otherwise red indication will glow.	
8.	UP Block Release button	Yellow –for Block release.	On getting indication SM shall left click on the button icon which	After complete arrival of train

SN	ICONS	INDICATIONS	FUNCTIONS	REMARKS
	icon		shall release Block Handle.	this will be activated
9.	DN train Arrival Ack. Button icon	Yellow – for muting the Arrival buzzer of TLBI instrument	On getting indication SM shall left click on the button icon which shall mute the Arrival buzzer of TLBI instrument.	After complete arrival of train this will be activated
10.	Line Block button icon	Red when blocked	SS/SM shall point the curser on the icons provided on the berthing track and right click. One drop menu will appear indicating line blocked and un-blocked, SS/SM has to select the required menu.	When line block is selected the concerned button on the particular line turns to RED.
11.	Power Block Button icon	Red when blocked	SS/SM shall point the curser on Power Block icons and right click. One drop menu will appear indicating line blocked and un-blocked, SS/SM has to select the required menu.	It is only an indication to remind the SM that the Power Block is given for concerned line.

4.2. PC SM KEY:

To prevent the unauthorized operation by other than on-duty SS/SM this facility is provided. On duty SMis to be inserted the**SMKEY** in the separate panel available on SM table; once the key is in, then only the actions for clearing the signal, route release etc will be activated in the VDU.

The station master should insert the **SMKEY** in the panel before performing the control operation. The SM Key indication in the VDU will turn to Yellow Colour as shown below once the KEY is inserted in the Panel.

To make SM Key OUT, the SM key available in the panel shall be taken out. Once the key is taken out, no actions except Signal Cancellation shall be performed through VDU. The SM Key indication in the VDU will turn to Red Colour as shown below once the KEY is removed from the Panel.

4.2.1. *VDU Control Changeover Operation:*

With Dual VDU concept, we can control either from A-VDU or B-VDU. VDU Changeover between Two System can be done by the following ways

a) Normal Operation

Only one system would be online at a given time. In case, the station master wants to make the standby system online, follow the procedure given below.

PC Request Control:

i) In the standby system, click on the PC2-ONLINE symbol and the system would display a popup menu with a list of menu commands near the control symbol as shown below. Select the "REQUEST CONTROL" and press on it.

ii) The PC1-ONLINE indication in the online system would be flashing after the successful processing of the command by the interlocking.

Now, click on the "PC1-ONLINE" symbol in the online system and the system would display a popup menu with a list of menu commands near the control symbol as shown in the below figure. Select the command "ACKNOWLEDGE REQUEST" and click on it.

The PC2-ONLINE would be shown in Green colour as shown in the below figure after the successful processing of command by the interlocking.

PC Cancel Request:

In case if you wish to cancel the request before acknowledging it, select the command "CANCEL REQUEST" as shown in the figure in standby system by repeating the above steps described for the standby system.

b) Emergency Operation (Override Control)

In cases such as a monitor failure or a mouse failure, it can so happen that the control still lies in the currently online operating VDU, but the Station Master can no longer perform any operations. In such cases, the Station Master can take control from the currently standby VDU to bring it online by performing the "Over-ride Control" operation.

To perform the Over-Ride control (Emergency changeover) SM on duty has to be right click near the PC2 ONLINE symbol on the standby system as shown in figure and left click on "OVER-RIDE CONTROL" option in the menu list.

PC Override Control:

Now, by clicking on over-ride control option an authentication window will display to activate FORCE-KEY command in interlocking system. As shown in the figure. Asking the SM on duty to enter his/her assigned username and password. User Name and password for this station is ECOR and BDVR respectively.

Enter the assigned username and password and click "OK". The standby PC would validate the user inputs and immediately control will take place to the Standby PC and show the "PC ONLINE" indication as shown in the figure if the validation is successful. If the inputs aren't entered within 25 seconds, the dialog box would disappear from the screen.

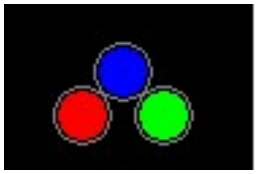
4.3. ELECTRONIC INTERLOCKING (E.I) SYSTEM INDICATIONS:

The health status of Interlocking system such as online and standby would be shown on the display as shown in the figure to indicate which system is online. Only one System would be online at a time. Green indication indicates that the System is in online mode and Red indication indicates that the system is in Standby mode.

4.4. VDU ACTIVE INDICATIONS:

Whenever the VDU is in active condition a RBG sequence will be running in the top right corner of the screen. That is in a flashing sequence in the screen.

The functioning of the VDU is shown by three flashing indications as shown in the figure at the top right corner of the track layout window. The failure of computer Operating System [OS] or the WESTCAD (VDU software) would stop flashing the indications which indicates stop the functioning of the VDU.



4.5. OPERATION AND INDICATION OF POINT:

To Operate the Point the SS/SM needs to track the mouse pointer to concerned Point Button on the VDU, after clicking by the left button of the mouse a popup menu will appear and Track mouse pointer on Normal operation menu and click, a drop-down menu will appear as shown below.

4.5.1. REVERSE TO NORMAL OPERATION:

Track the pointer to **Set PointNORMAL** menu and click, a Normal flashing indication will appear, the indication will be steady after the point is set to Normal.

4.5.2. NORMAL TO REVERSE OPERATION:

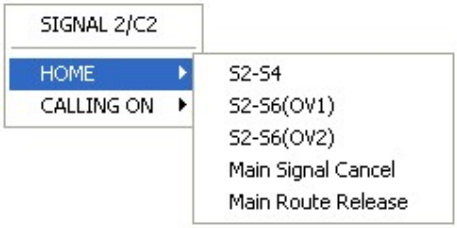
Track the pointer to **Set Point REVERSE** menu and click, a Reverse flashing indication will appear, the indication will be steady after the point is set to Reverse.

4.5.3. POINT INDICATIONS:

When the point is free a steady yellow strip of light will appear either in the normal portion of point zone (In case of cross over at both ends) or in the reverse portion of point zone depending up on the position of point, indicating that the point is set. When the point is operated from the normal to reverse the strip of light in the normal portion is disappears and starts flashing in the reverse portion and becomes steady when the point is set and detected. Similarly, when the point is operated from the reverse to normal the strip of light in the reverse portion disappears and starts flashing in the normal portion and becomes steady when the point is set and detected. When the point is engaged in a route, a yellow indication will appear near the point and red indication appears in the point lock indication showing that the point is locked and cannot be operated.

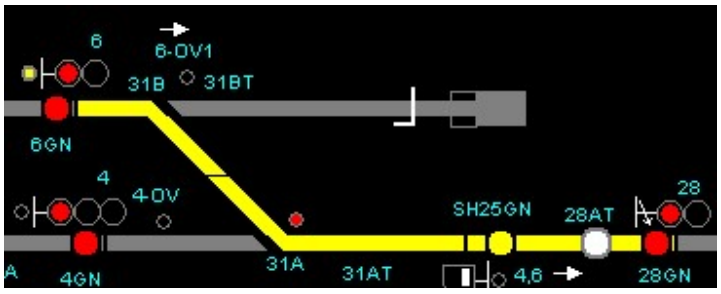
4.6. SIGNAL OPERATION:

To Take-Off a Signal with the desired route the SS/SM needs to track the mouse pointer over the concerned Signal on the VDU, after clicking right mouse button a pop-up menu will appear as shown below. Desired operation can be performed by clicking the left mouse button on the popup menu.



4.6.1. SETTING A ROUTE:

To set a route of a signal, click on a possible route of the signal, after doing, so a RED colour route initiation indication will be flashing and all the Normal/Reverse set indication of the Points in the route will start flashing if it is not available in required position. After setting of points in the route, overlap and isolation in required condition flashing indication will become steady and a complete yellow 'Route set' indication will appear over the route right from replacement track of the signal to the last track of overlap section of the route. Also, the point lock indication will appear through Red indication near the point. Finally, a route locked yellow steady indication will appear immediate to rear of the signal. Now the signal will be taken-off. The yellow route set indication will turn to red when the train occupies the concerned track circuit.



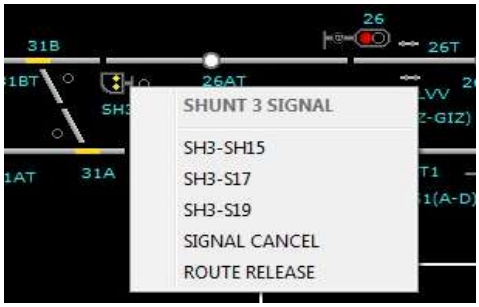
Conditions for setting a route:

The following condition to be ensured before setting the route by the SS/SM.

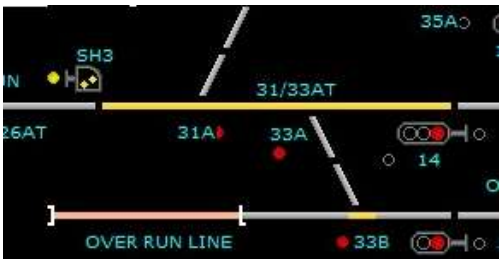
1. All the Crank handles of the required route related points to be in Key-IN condition.
2. All the related Siding control keys to be in Key-In condition.

4.6.2. SHUNT SIGNAL OPERATION:

For setting and cancelling the signal route for the shunt signal the same procedure shall be followed as explained in section for Main signal operation. To Take-Off a Shunt Signal with the desired route the SS/SM needs to track the mouse pointer over the concerned shunt Signal on the VDU, after clicking right mouse button a pop-up menu will appear as shown below.



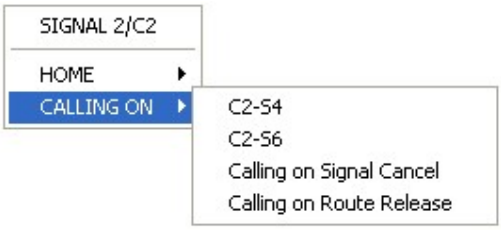
Desired operation can be performed by clicking the left mouse button on the popup menu and the Shunt signal will be taken off.



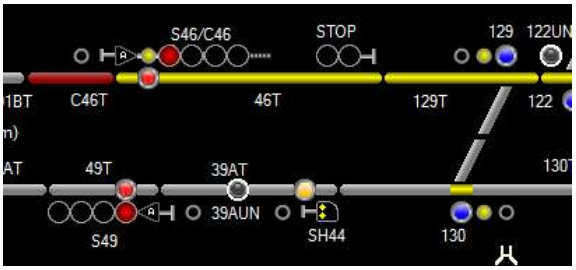
4.6.3. CALLING ON SIGNAL OPERATION:

Calling-on signal route set operation is similar to the same procedure as mentioned for the main signal. For calling-on Signal, route is set after a train occupies the approach track circuit in immediate rear of the stop signal. The calling on Signal is cleared after a lapse of 60 Seconds in case of Calling on Signal provided below Home Signal and whereas in case of calling on Signal provided below Starter Signal, it cleared immediately provided other conditions are fulfilled.

To take “OFF” Calling-on signal the train must come to a stop at the foot of the Home Signal or Starter Signal as the case may be and occupied the track circuit in rear of the signal. When a train occupies the track circuit a RED-light strip will appear on the VDU. The particular route on which train is intended to be received shall be set by tracking the pointer in VDU on to the signal below which the calling on signal is provided. Left click on the calling-on Signal which will appear a pop-up menu as follows.



Then the SM must drag the pointer and click over the required route as a result of which the calling-on signal will blink for 60 seconds in case of Home Signal. After lapse of 60 seconds the Calling-on signal clears i.e. a yellow light glows at the concerned calling-on signal on the VDU. Where as in case of Starter Signal the Calling on Signal clears immediately i.e a yellow light glows at the concerned Calling on Signal on the VDU.



This action will be recorded in a respective counter on Counter Box. Every such operation shall be recorded by the SS/SM on duty along with the reasons to do so. The calling-on signal route can be released after complete arrival of the train by Signal cancellation only.

4.7. CRANK HANDLE CONTROL OPERATION:

Normally a 'KEY IN' (Yellow) indication will appear on the VDU indicting that the Crank Handle is free. To Transmit or Release control of the Crank Handle, right click on the crank handle control button provided like the following button on the VDU.

The appearing pop-up menu gives details of the possible commands on the Crank Handle.

For Transmitting the Crank Handle KEY to the field personnel, SS/SM has to transmit the control by clicking **TRANSMIT** on menu of the Crank Handle Button.After transmission, the KEY IN indication will start flashing; now the KEY

can be extracted from the EKT.After extracting the key from the EKT,the key IN indication will disappear. This action will be recorded in a respective counter of the counter box provided on SM's table. The counter will increment the number for each and every such action and also, this number should be recorded by the SM on duty who shall record the details of the Crank Handle operation along with the latest counter number in a register.

When the Manual point operation is completed, after putting the KEY back in the EKT, corresponding Crank Handle KEY IN flashing indication will appear on the VDU. Now the operator has to Release the control for the steady indication, for that right click on the Crank Handle and select the **RECEIVE** in the menu appeared.

A Crank handle locked indication (Red) will appear, when the particular point is locked through the signal route set over it or engaged on route setting in any other way.

4.8. OVERLAP TIME RELEASE:

A separate indication for each overlap is provided near the starter signal to indicate the free or locked condition of overlap. This indication light will glow when overlap is locked by any Home Signal route and there will be no light when overlap is free. The locked indication starts flashing when the approaching train clears the rear end point zone track and occupies the berthing track. After a time, release of 120 seconds the white flashing light will disappear indicating concerned overlap is free.

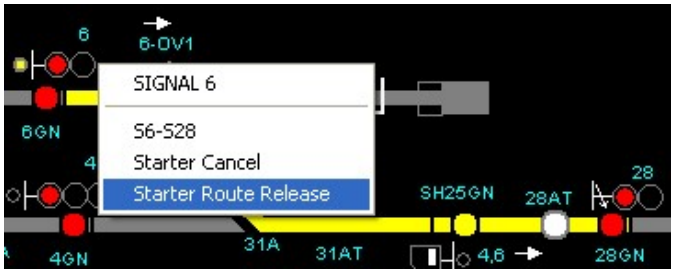
5. EMERGENCY OPERATIONS:

To carry out different emergency operations the following procedures are to be followed.

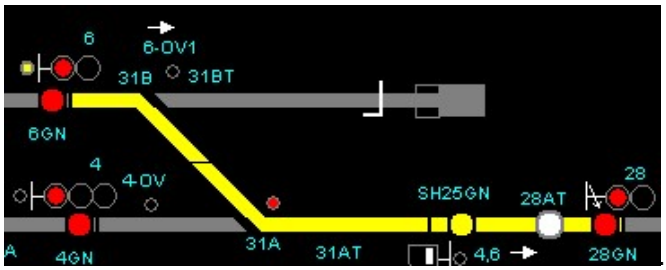
5.1. CANCELLING A ROUTE/ EMERGENCY ROUTE RELEASE:

To cancel a signal route when the route is set and the signal in taken-off, click on the signal cancellation option on the menu (Main/ Calling on) of the concerned signal, the signal will immediately go to ON aspect.

The precondition for route release is, the route should have been set and the signal has been put back to danger. If you wish to cancel the route, select the desired signal and press the right mouse button on it. The system would display a popup menu with a list of commands near the control symbol as shown in the figure below. Select the "**Emergency Route Release**" from the menu list.



A flashing indication would be shown near the control symbol and in the emergency route release indication block UP/DN SIDE indication will appear as shown in the figure below indicating that the route release is in progress. After 120sec the flashing indication stops, UP/DN SIDE indication will disappear and then whole route would be released.



Counter provided in Counter Box on SMs table for the route release will change to next higher digit. This number should be recorded by the SM on duty who shall record the details of the Route cancellation along with the latest counter number in a register.

5.2. EMERGENCY POINT OPERATION:

When the point zone track circuits failed without any point lock condition through respective signal route(s), a point can be operated by the Emergency Point operation.

Note: Before resorting to this operation SM on duty shall verify that the point zone is clear of any vehicle occupying the track section and the same is clear of any obstruction.

Before doing the emergency operation, SM on duty shall enable the Emergency Point Operation Key. To 'KEY IN' the Emergency Point Operation the on-duty SM, by left click on Emergency point operation Icon, the system would display an authentication dialog box as shown in the figure below, asking the stationmaster to enter his/her assigned username and password within time duration 25 seconds.

Enter the assigned username and password and click **"Ok".** The system would validate the user inputs and show the **"KEYIN"** indication as shown in the figure below, if the validation is successful. If the inputs aren't entered within 25 seconds, the dialog box would disappear from the screen.

The user name of this station is **'ECOR'** and password of this station is **'RVDB'**. Then point operation can be done to either normal or reverse as per requirement.

5.2.1. EMERGENCY NORMAL OPERATION:

Track the pointer to the corresponding Point which is intended to operate and then click the mouse button. After doing so, a pop-up menu will appear consisting Normal operation and Emergency operation then Click on the Emergency operation, after doing so possible commands menu appears as shown in below. By left click on set normal, Normal flashing indication will appear, the indication will be steady after the point is set to Normal.

After the Emergency point operation, a specific Soft counter will change to its next higher digit and this number should be recorded in the register provided for this purpose by the SS/SM on duty who shall record the details of the Emergency Point Operation along with the latest counter number in a register.

5.2.2. EMERGENCY REVERSE OPERATION:

Track the pointer to the corresponding Point which is intended to operate and then click the mouse button. After doing so, a pop-up menu will appear consisting Normal operation and Emergency operation then Click on the Emergency operation, after doing so possible commands menu appears as shown in below. By left click on set normal, Normal flashing indication will appear, the indication will be steady after the point is set to Normal.

After the Emergency point operation, a specific Soft counter will change to its next higher digit and this number should be recorded in the register provided for this purpose by the SS/SM on duty who shall record the details of the Emergency Point Operation along with the latest counter number in a register.

After the completion of the Emergency point operation, the Key to be switched over to 'KEY OUT'. Same procedure as mentioned for KEY IN shall be followed

for KEY OUT also. To make EWNKEY **OUT**, Right click on the "**EWNKEY**" symbol; the system would display a menu as shown in figure below. Select the command "**Remove**" and the EWNKEY would be **OUT**.

Note: *The Emergency Point Normal and Emergency Point Reverse options are normally in disabled mode. These are enabled only when the Emergency Key is in KEY-IN position.*

5.3. EMERGENCY CRANK HANDLE RELEASE OPERATION:

When a crank handle is locked due to earlier set route is not released or otherwise. To Transmit or Release control of the Crank Handle, SM on duty shall cancel the relevant signal first and then click on the crank handle control button icon provided like the following on the VDU. On clicking, the pop-up menu gives details of the possible commands on the Crank Handle.

For Transmitting the Crank Handle KEY to the field personnel SM on duty has to click on '**TRANSMIT'** menu. After transmission the 'KEY LOCKED' (Red) indication will start to flash for 120 seconds & 'KEY IN' remains steady. After this the 'KEY LOCKED' indication will vanish & 'KEY IN' indication will start to flash. After extracting the key from the RKT, the 'KEY IN' indication will disappear. When the Manual point operation is over, after putting the crank handle key in the RKT, flashing 'KEY IN' indication will appear on the VDU, now the SS/SM on duty shall Release the control for the Steady indication by clicking **'RECEIVE'** menu.

This action will be recorded in a respective counter of the counter box provided on SM's table. The counter will increment the number for each and every such action and also, this number should be recorded by the SM on duty who shall record the details of the Emergency Crank Handle Operation along with the latest counter number in a register.

5.3.1. EMERGENCY CRANK HANDLE RELEASE DURING FAILURE OF BOTH THE VDUs (ACTIVE & STAND BY):

When both the VDUs (Active & Stand by) provided for operation of signals & points in EI station cease to work at the same time due to power failure or what so ever the reason, the SM on duty shall turn the key (ECH) to right along with Push the Button provided in the key box fixed on the SM table. By resorting to this, timer is initiated and flashing indication will appear on the key box fixed on the SM table. After 120 seconds the flashing indication will be steady which results that all the crank handles are released at a time. The SM on duty can set the required point/points through crank handles manually by extracting the key/keys from EKTs provided in the location boxes.

CRANK HANDLE CONTROLS FOR EMERGENCY OPERATION OF POINTS			
S No	CRANK HANDLE	CONTROL POINTS	PROVIDED IN
1.	CH1	21	UP CH LOC-1, SUP End
2.	CH2	24A/B	DN CH LOC-1, SLPM End
3.	CH3	22	CATCH SDG LOC, SLPM End
4.	CH4	23A/B	UP CH LOC-1, SUP End
5.	CH5	25A/B	UP CH LOC-1, SUP End
6.	CH6	26A/B	DN CH LOC-1, SLPM End

5.3.2. EMERGENCY CRANK HANDLE RELEASE DURING FAILURE OF BOTH EI (ACTIVE & STAND BY) SYSTEMS:

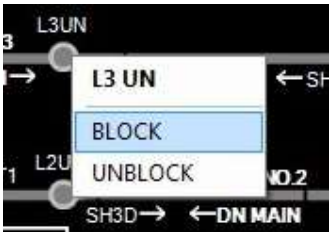
When both the EI systems fails to operate due to power failure or whatever the reason, the SM on duty shall turn the key (ECH) to right along with Push the button provided in the key box fixed on the top of the SM table. By resorting to this, timer is initiated and flashing indication will appear on the key box fixed on the SM table. After 120 seconds the flashing indication will be steady which results that all the crank handles are released at a time. The SM on duty can set the required point/ points through crank handles manually by extracting the key/keys from EKTs provided in the location boxes. The signaling staff i.e., JE/SSE/Sig or ESM shall be intimated immediately regarding the failure for rectification of the same.

5.4. BLOCK AND UNBLOCK (REMINDER COLLAR) OPERATION:

Block option is used to block the particular line on which SM on-duty is intended not to receive any train for certain period of time for some reason or the other.

5.4.1. BLOCK OPERATION:

To block/unblock a particular line, right clicking on the route button on concerned line displays 'BLOCK' and 'UNBLOCK' options on the menu as shown below.



Then select the Line block option. After selecting the Line block option that particular line will be blocked for berthing portion on that particular line. The Line block 'RED' colour indication will be displayed after the successful application of such a blocking process on the VDU, during which no signal will be taken off for that line.

5.4.2. UNBLOCK OPERATION:

To unblock a line, place the mouse pointer over the blocked route button and press the left mouse button. A popup menu with block and unblock options will be displayed near that route button as shown above. Select the "UNBLOCK" menu item from the list and press the left mouse button. After selecting the line unblock option that particular line will be available for the train movement leading to the all-possible track circuit section.

6. DIGITAL AXLE COUNTER:

High Availability Single Section Digital Axle Counters are provided as a Last Vehicle Checking Device (LVCD) for Both UP and DN block sections between

BDVR-SUP and Single Section Digital Axle Counters are provided as a Last Vehicle Checking Device (LVCD) between BDVR-SLPM section.

For high reliability, High Availability Digital Axle Counters (HASSDAC) with dual detections are installed in BDVR-SUPsection to ensure the working of at least on system at a time.

High Availability Single Section Digital Axle Counter (HASSDAC) consists of two Single Section Digital Axle Counters (SSDACs) are connected in parallel so that even anyone of the SSDAC fails which will not affect the system. These two Axle counters are named as SSDAC-1 and SSDAC-2. The status of each SSDAC is provided on the Reset box which is provided on the SM table.

S.No	Indication	Automatic action taken by Equipment	Action by SM
1.	Only SSDAC-1 fails after arrival of the train	System resets automatically	NIL
2.	Only SSDAC-2 fails after arrival of the train	System resets automatically	NIL
3.	Both SSDAC-1 & 2 Fails after arrival of the train (or)for any reason	No automatic action	SM to reset the system as procedure laid down in the Para No.6.1 and make an entry in the axle counter register.
4.	Both SSDAC-1 & 2 Fails even after reset by SMs of both the end	No automatic action	Enter in Signal Failure Register issue failure memo to signal technician. Procedure to be adopted is same as laid down.
5.	Either SSDAC-1 or SSDAC-2 fails continuously for long time	--------	Report to signal staff without entering in signal failure

The position of the Block section whether cleared or occupied are reflected in the VDU provided in the Station Master's office which shows 'GREEN' when the Block Section is clear and 'RED' when occupied. Whenever a train enters into the Block Section, "Block Section Clear" indication 'GREEN' for the particular block section disappears and 'RED' indication appears.

After complete arrival of the train the 'RED' indication will disappear and 'GREEN' indication will appear. If after the complete arrival of a train the 'RED' indication does not change to 'GREEN' it should be assumed as Block Instrument failure for the particular section and necessary action as per GR.14.13 is to be followed. The axle counters are interlocked with the respective block instruments for that section. If Axle Counter fails, Advanced Starter signal shall not come to 'OFF' and the concerned instrument shall remain locked in last operated position for that section.

In case of failure of both the Digital Axle Counters, the SM on duty should resort to resetting of the same along with the SM on duty of adjacent station after confirming that the whole of the train sent by sending station has been arrived at the receiving station. The resetting of the LVCD shall be initiated as mentioned below at both the stations after exchanging the Private Number vide G&SR 4.17, 4.17.01.

A Reset Box is provided on SM's table for each block section to reset the Axle Counter in case of failure of both the systems i.e HASSDAC, in case of failure of Axle counter system (SSDAC). Reset Box gives the status of the block section i.e. Clear (GREEN), occupied (RED), preparatory reset (Miniature GREEN) and power on indications (WHITE). It also having the Reset Key, push button for resetting the LVCD and a counter is provided to record the operation.

6.1. RESETTING OPERATION FOR LVCD (DIGITAL AXLE COUNTER):

After complete arrival of train, if the LVCD of the section does not clear and Block section clear indication (Green) does not appear in the VDU, the receiving station SM shall apprise the sending station SM through telephone for resetting the Axle Counter giving the details of last train that has arrived complete at his station and the block section is clear.

The receiving station shall inform the sending station as to whether the last train that entered into the section has arrived or not. And, if arrived fully shall so intimate the SM of sending station authenticated by exchanging Private number.

Then the SM on duty shall adopt the following resetting procedure at both the sending and receiving stations individually.

a) On being advised by SM of BODDAVARA Station, SM of SLPM/SUP should perform the following step by step procedure from (b) to (i) for resetting the Digital Axle Counter (HASSDAC).

b) SM of BODDAVARA Station and SLPM/SUP Station shall then Insert SM's reset key and turn right.

c) Press simultaneously both the Push button and the Reset Key which are provided on the Reset Box for at least 5 seconds continuously at BDVR and SLPM/SUP station.

d) Release SM's Reset Key and Push button.

e) Turn the SM's Reset Key to left and remove it.

f) The system goes to preparatory reset state and preparatory reset miniature indication (Green) glows on the Reset box. The counter reading incremented after a gap of 5 seconds approximately.

g) The counter reading should be recorded in the concerned register by SM on duty.

h) One train is to be piloted out in the section to make the system normal.

i) The SM on duty shall record it in the Train Signal Register indicating the resetting operations in detail i.e. train number, time, Private Number exchanged with SM of sending station and giving reasons for the resetting operation.

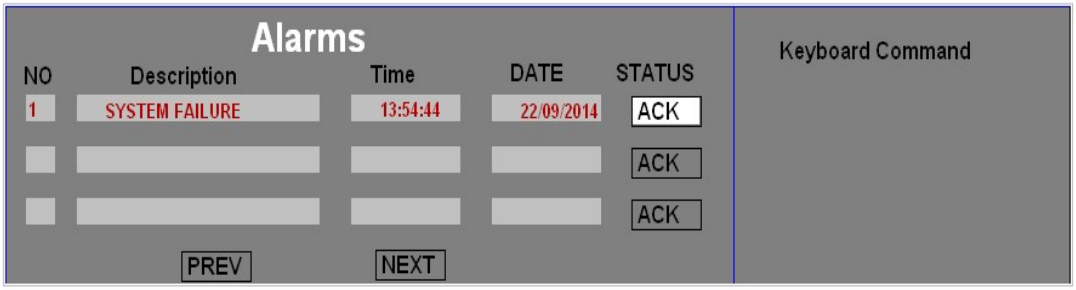
j) If the axle counter works properly, then Block Section cleared indication 'Green' will appear on the Reset box and the concerned Block working will be normalized after arrival of train which is piloted out.

k) If the LVCD section indication does not appear 'Green' and continues to show 'RED' indication, failure intimation is to be given to sectional signal Maintainer/JE/SE (Signal) for early rectification till such tome of rectification the SM on duty may ask the concerned SM/JE/SSE to isolate the defective Axle Counter from the Block instrument and make the Block Instrument to work independently as per JPO No.03.2014.

7. ALARAMS:

The VDU system would also display various visual as well as audio alarms whenever failures/abnormal conditions arise during the operation in a separate window at the bottom of the track layout window as shown in the figure. The following failure indications would be shown in the alarm window:

- Signal Failures
- Point Failures
- System Failures



8. SIGNAL LAMP FAILURE INDICATION AND BUZZER ACKNOWLEDGMENT:

LED signal lamps have been used for all signals at this station. In case of failure of any LED signal, trigger the RED Colour letters as shown in the above diagram along with audible buzzer, which can be acknowledged and muted by pressing the 'ACK' button. However, the RED colour letter will continue to glow until the defective LED is replaced by a new LED. For rectification of failure SM on duty should inform the concerned S&T staff.

9. POINT FAILURE INDICATION (RED), POINT FAILURE BUZZER AND POINT FAILURE ACKNOWLEDGEMENT:

Whenever there is a failure of point due to non-setting, trigger the RED colour letter of point failure as shown in the diagram above along with point failure Buzzer. The buzzer stops when acknowledge the respective 'ACK' button, but the RED colour letter shall continue to glow until the Point failure is rectified and disappear when point failure is rectified.

10. KEY BOARD OPERATIONS:

Essentially, "Keyboard Backup operation" is an alternative to the mouse operation. In the event of mouse absence or failure of mouse, the user is still able to operate the VDU application using the Keyboard shortcut keys.

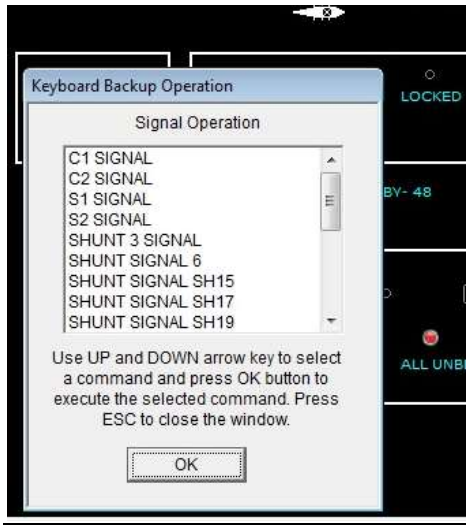
The "Keyboard backup" group has three buttons on the toolbar: -

1. Signal KB (Keyboard) operation.
2. Point KB operation.
3. Misc KB operation.

10.1. SIGNAL KEY BOARD OPERATION:

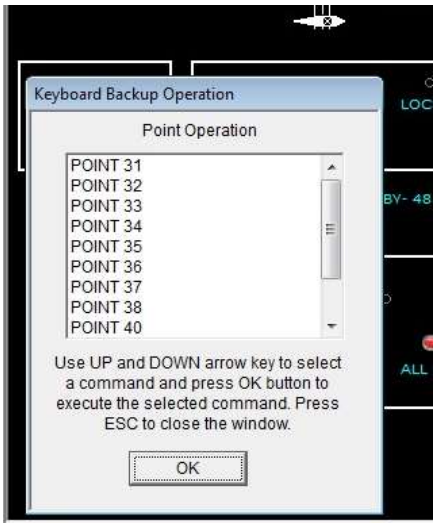
Alternatively, signal commands can be accessed using the shortcut "Ctrl+S" from the keyboard. When the shortcut is pressed, a dialog box with all signal menus will appear as shown in below at the bottom left corner of the window. Using Up (↑) and Down (↓) arrow keys of the keyboard select the desired item and press "Enter" key on the keyboard. A popup menu with all possible control menu items will appear near to the control and the dialog box will be closed. Again, using arrow keys select the desired command to be issued and press

"Enter" key on the keyboard. After the command is selected, it will be sent to EI system and the popup menu will be disappeared.



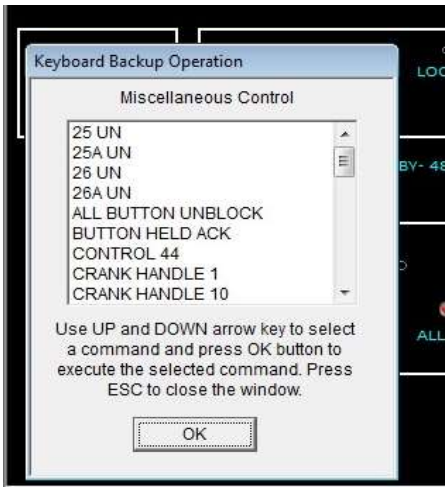
10.2. POINT KEY BOARD OPERATION:

Alternatively, the point commands can be accessed using the shortcut "Ctrl+P". When the shortcut is pressed in the keyboard, a dialog box with a list of point commands will appear at the bottom left corner of the window as shown in below. Using Up (↑) and Down (↓) arrow keys of the keyboard, select the desired point command and press "Enter" key on the keyboard. A popup window with all possible menu items will appear near to the control and the dialog box will be disappeared. User by using "Up" and "Down" arrow keys select the desired command and press "Enter" key on the keyboard. After the command is selected, it will be sent to EI system and the popup menu will be disappeared.



10.3. MISCELLANEOUS KEY BOARD OPERATION:

Alternatively, the miscellaneous menus can be accessed by using the shortcut "Ctrl+M". When the shortcut is pressed on the keyboard, a dialog box with a list of miscellaneous commands will appear at the bottom left corner of the window as shown in below.



Using Up (↑) and Down (↓) arrow keys of the keyboard, select the desired miscellaneous command and press "Enter" key on the keyboard. A popup window with all possible menu items will appear near to the control and the dialog box will be disappeared. User by using "Up" and "Down" arrow keys select the desired command and press "Enter" key on the keyboard. After the command is selected, the command will be sent to EI system and the popup menu be disappeared.

11. COUNTERS:

The following counters are provided for recording the actions such as emergency point operation, emergency route release etc. as shown in figure below would be displayed in rectangular boxes on the track layout window.

1. Emergency Route Release Counter.
2. Emergency Point Operation Counter.
3. Crank Handle Release Counter.
4. Up Calling on Counter.
5. DN Calling on Counter.

In addition to the above counters, counters are provided for S1 & S2 operations of TLBI and a counter is provided on the Reset Box of each Block section LVCD. The increment in counter number for each and every such action should be recorded by the SS/SM on duty who shall record the details of the operation along with the latest counter number in a register.

12. TRACK CIRCUITS:

Both UP & DN main lines, UP Loop, Common Loop Lines and all the point zones are track circuited as L1T1, L1T2, L1T3, L2T1, L2T2, L2T3, L3T1, L3T2, L3T3,23AT, 23/25BT,25AT, 24BT, 24AT.

Approach track circuit 1AT& 2DT3 of 5 Rail length for Calling on Signal is provided in rear of the Up& DN Home signals. In addition, there are short length track circuits 2T in advance of DN Home Signal and 1T1& 1T2 in advance of UP Home Signal are also provided. Similarly, From the last trailing point/fouling mark in either side of yard to Advanced Starter Signals are also track Circuited i.e.14AT and 11AT in DN and UP directions respectively. Due to presence of Slip Siding Point No.21 towards SUP end, 21T is provided for the Slip Siding Point Zone and Similarly due to presence of Catch Siding point No.22 towards SLPM end, 22T is provided for Catch Siding point Zone and 11T, 11T1, 11T2 are provided beyond the UP Advanced Starter Signal & up to fouling mark of catch Siding Point.To ensure 15KMPH speed restriction and for operation of Catch

Siding Point track circuits 2DT, 2DT1 & 2DT2 are provided beyond the 2DT3 track circuit.

Indications for the above track circuits are available on VDU. Yellow Strip on VDU indicates Route is set and track is clear and red strip indicates Track is in occupied condition.

On account of the doubtful operation of any track circuit by a light vehicle including self-propelled vehicle such as motor trolley or light engine or tower wagon etc., indicating the occupancy/clearance of track, it is necessary that the Station Master on duty satisfies himself that the said vehicle has cleared the point zone track circuits by observing the track indications of the track on either side of the cross overs by positively checking the entrance and exit track circuits are showing occupancy and clearance in accordance with the train movement.

13. RELEASE/CANCELLATION OF ROUTE:

Normally when a train is received on or dispatch from any route, the route illumination will disappear automatically after passage of the train suggesting that the route is released. When the route is not released automatically after passage of train over it or when on SM on duty intends to cancel the route set by him shall follow the procedure for cancellation of route described in Para No.5.1 of Appendix-B above. If the route is not released even after resorting to cancellation the SM on duty should inform the Signal Maintainer/JE/SSE for its rectification.

Note: *UP & DN Calling on Signals and UP & DN Advanced Starter Signals are to be manually cancelled after the passage of the train to release the route. In both the cases after passage of train, cancel the signal to release the route.*

14. REPLACEMENT OF SIGNALS TO 'ON':

Signals are replaced to 'ON' automatically by the passage of a train beyond the signal. It will not be possible to re-clear the signal again unless the due process for clearing the signal is repeated again. For replacement of any signal to 'ON' position manually, the SM on duty shall follow the Para No.5.1 of Appendix-B.

15. PILOTING OF TRAINS IN TO STATION YARD:

Whenever Home signal becomes defective, trains can be admitted by taking off Calling-on signal. Whenever both Home signal and Calling-on signal failed, all trains will be piloted in vide SR. [Refer SR 3.69.06].

If after the operation from the VDU, the approach stop signal fails to take 'off' the SM shall personally ensure from the indications displayed in the VDU that the route is clear, the points indications (including isolation point), crank handle 'IN' indication for the entire route and overlap portion (if any) are lit and remains steady and thereby fulfilling all the requirements of taking off signal. SM's key provided in VDU is to be taken out and after that only reception of trains on defective signal may be arranged without clamping and padlocking of points of concerned route. The loco pilot shall be issued form T/369(3b) or T/369(1) in accordance with GR.3.69. No route cancellation operations of the concerned route are to be initiated till the total completion of the train movement.

Where the point, lock and route indications are fails to appear in the VDU, the SM on duty shall ensure the clearance of the nominated route, proper setting of

all points through crank handle operation and get all the points whether facing or trailing clamped and padlocked with the help of TPM.

The SM on duty shall then hand over the written authority (T/369(3b) to the TPM for piloting the train. While going towards Home signal the TPM shall check the points and satisfy himself that the route is correctly set.

After the train has brought to a dead stop at the Home signal the TPM shall hand over the pilot memo to the Loco pilot, board the engine and display proceed hand signal to pass the Home signal.

NOTE:

a) The Station Master on duty shall personally supervise the correct setting, clamping and padlocking of the facing points, if any and ensure clearance on the nominated route vide SR [Ref. SR 3.69.03(c)].

b) The keys of padlock of the clamps put on to the points on the route for piloting In or piloting OUT shall be in the personally custody of the SM on duty or any other authorized operating officials till such time the train / engine / vehicle has utilized the route or alternatively such movement is cancelled.

16. PILOTING OF TRAINS – OUT OF STATION YARD:

When the starter signal has become defective, the Station Master on duty shall follow the procedure laid down in the SR.3.70.03. Then the SM on duty shall hand over the pilot memo T/369(3b) (along with the other authority if necessary) to the on duty TPM. The TPM on duty shall hand over the authority to the Loco pilot of the train and display proceed hand signal at the foot of the starter vide SR. [Refer SR 3.70.01].

In case the advanced starter signal has become defective, such signal shall be passed on the written authority on the form T/369(3b) with PN & ID no for double line and with PLCT (T/C1425), PN & ID no for Single line. The TPM shall hand over the written authority to the Loco pilot after the train stopped. [Refer SR 3.70.02].

17. SHUNTING:

Shunt back signals SH3 (A/B) and SH4 (A/B/C) are provided towards SUP end of the yard and towards SLPM end of the yard respectively. Shunt Signal SH9 is provided on Line No.1 towards SLPM end of the yard. Dependent Shunt Signals No. SH6 & SH8 are provided on Line No.1 & 2 towards SUP end of the Yard respectively.For taking OFF Shunt signals please refer Para No. 4.6.2 of APPENDIX-B.

18. VERIFICATION OF LINE CLEARANCE BY STATION MASTER ON DUTY FOR RECEPTION OF TRAIN INTO STATION YARD:

In the Station yard, a route on the running line comprises entrance, berthing and dispatch portion of the yard shall be kept clear of any obstruction for the passages of any train or for any other movements. The clearance of the route including overlap must be ensured by the SM on duty personally through VDU indications and/or physical verification of track including fouling track (if any) before any movement of trains are permitted on the concerned route subject to the other conditions such as locking of the point's etc.

19. OBSERVATION OF TRACK CIRCUIT AFTER STABLING OF TRAINS ON RUNNING LINES:

When a train is stabled on a running line for a duration exceeding ten hours, the use of the said running line for passing the trains 'IN' 'THROUGH' or 'OUT' at the station shall be done with a lot of care and diligence. Station Master on duty shall meticulously observe the proper functioning of the relevant track circuits (occupancy/clearance) while admitting a train. Such observance should continue for a minimum of four to five trains thereafter. If the Station Master on duty is not satisfied with the proper functioning of the track circuits on which the train was earlier stabled, the signals leading on the line shall be suspended and the S & T maintenance staff be informed to attend.

20. MAINTENANCE OF S & T INSTALLATION AND ADHERENCE TO MAINTENANCE SCHEDULES:

Regular maintenance of the S&T installations, adherence to schedules of maintenance testing of points, track circuits, level crossing gates, associated interlocking apparatus cables and the interlocking functional tests is must for safe and satisfactory working of these installations at this station.

The tests, checks and replacements etc., shall confirm to the schedules of maintenance as indicated in the Signal Engineering Manual as also as per the current and extant instructions/circulars on the subject.

21. SIDINGS:

21.1. SLIPSIDING:

a) Due to presence of steep falling gradient towards block section on SUP endSlip Siding Point No.21 is provided at KTV end of the yard in rear of DN Advanced Starter Signal to protect the Block Section.

b) Slip Siding Point No.21 is normally set and locked towards Siding and it is interlocked with DLBI between BDVR-SUP section.

c) The Slip Siding Point No.21 will be set to reverse only when the DLBI between BDVR-SUP is in 'Line Clear Position' and DN Starter Signal of concerned line is initiated.

d) Once the train movement on it is completed and the concerned Signal route is released, the Slip siding point No.21 is automatically operated to normal i.e towards siding.

e) In case of failure of automatic operation of point No.21 is set to normal after completion of signal movement, a buzzer with an indication on VDU.

f) The buzzer stops once SM on duty, acknowledges, but the Point auto normal failure indication shall continue to glow until the Slip Siding point is set to normal and disappears when Slip Siding point is set to normal.

21.2. CATCH SIDING:

a) Due to presence of steep falling gradient towards Station Section on SLPM end Catch Siding Point No.22is provided at KRDL end the yard between the Down Home Signal and UP Advanced Starter Signal to protect the Station Section.

b) Catch Siding Point No.22 is normally set and locked towards Siding and it is interlocked with TLBI between BDVR-SLPM section.

c) To Despatch the UP train,the Catch Siding Point No.22 will be set to reverse only when the TLBI between BDVR-SLPM is in 'Train Going To' Position and Concerned UP Advanced Starter Signal is initiated.

d) For the reception of DN train, the Catch Siding Point No.22 will be set to reverse only when the TLBI between BDVR-SLPM is in 'Train Coming From' Position and

Concerned DN Home Signal is initiated and after the time delay of 2 Minutes on sequential occupation of 2DT & 2DT1 track circuit, to ensure 15 Kmph speed restriction.

e) Once the train movement on it is completed and the concerned Signal route is released, the Catch Siding point No.22 is automatically operated to normal i.e towards siding.

f) In case of failure of automatic operation of point No.22 is set to normal after completion of signal movement, a buzzer with an indication on VDU.

g) The buzzer stops once SM on duty, acknowledges, but the Point auto normal failure indication shall continue to glow until the Catch Siding point is set to normal and disappears when Catch Siding point is set to normal.

h) If the DN train Loco Pilot passes the 15 Kmph speed restriction with an excess speed, over shoots the DN Home Signal and enter into the catch siding point an 'over shooting indication' appears on VDU with audible buzzer.

i) The buzzer stops once SM on duty, acknowledges, but the 'over shooting indication' shall continue to glow until the Catch Siding point is set to reverse through crank handle and the train has to be piloted 'IN' vide SR.3.69.03.

22. RECTIFICATION AND CHECK BEFORE RESUMING NORMAL WORKING:

After receipt of the failure information, the sectional Maintainer shall attend to the failure after giving a 'Disconnection Memo'. After rectification of the fault, the Sectional Maintainer shall give 'Reconnection Memo' detailing the rectification. Thereafter the Station Master on duty shall personally check this defective apparatus. After satisfying himself that the gear is in good and proper working order, he shall resume the normal working of the said defective apparatus in terms of SR.3.68.04 (C) and (D).

23. PROCEDURE FOR CARRYING OUT PLANNED MAINTENANCE WORK:

Whenever any normal maintenance or special works for major renewals etc., are involved, the Signal and Telecom department should pre-plan these works. Field staff and the Inspector of the section should give to the Station master in writing 'Advance Intimation' about this work in terms of G and SR.15.08.01.

24. EMERGENCIES:

Notwithstanding, anything contained in the aforesaid paras when equipment is found defective and unsafe for passage of trains, the Signal and Telecom staff must at once suspend the working of the equipment and associated installations and issue 'Suspension Memo' explaining the seriousness of the defect or damage to the interlocking installation to the Station master and take the Station Master's acknowledgement. After this, the usual practice of exchange of disconnection memo and reconnection memo can follow. The Station Master must act promptly on such messages and take adequate precaution treating the S&T installation as defective and pass trains over the affected interlocking equipment's according to extant instructions as contained in GR and SR.3.77.

25. PROCEDURE TO BE FOLLOWED IN CASE OF FAILURE OF SIGNAL OR POINTS AND USE OF CRANK HANDLE:

1. Whenever a Signal or a Point becomes defective any movements over the Points on the running lines should be made after clamping and padlocking both the facing and trailing Points by Station Master on duty personally for all trains at the Station.

2. In case of failure of Signal or a Point and in case the Point cannot be operated from the VDU, the Crank Handle which is interlocked with the system has to be extracted and the following procedure has to be observed.
3. One common emergency Crank Handle key is provided for certain group of Motor operated Points. This is mechanically riveted to the Key of RKT. This Key along with Crank Handle can be released from the RKT by pressing the RKT Push Button provided near the RKT. In case of failure of Point Motor, the SM on duty will take out the Crank Handle, set the Point manually by inserting Crank Handle in the Motor.
4. When the Crank Handle key is removed from RKT for operation of the defective Motor Operated Points, the responsibility for its safe custody rests with the ASM/SM on duty till it is replaced back in RKT.
5. The failure of Motor Operated Points should be promptly reported to the concerned Signal Inspector/ESM for immediate rectification.
6. Whenever a Crank Handle key is required to be used by a Signal Official for maintenance/attending to failure, the Signal Official will give a disconnection memo to the Station Master on duty and after making necessary entries in the Crank Handle register, the Station Master on duty will obtain acknowledgement of the Signal Official in the Crank Handle Register and then handover to him the Crank Handle key for the Points concerned. All the Points will be treated as defective till the Crank Handle key is returned back to Station Master on duty.
7. Before parting with the Crank Handle either for attending failure or for Maintenance work by Signal Maintenance Officials, the Station Master on duty will ensure that the reception and departure Signals are put back to on position. The Points of all the lines should be treated as Non-interlocked and the Station Master on duty is responsible for introduction of Non-interlocked working and the trains will piloted IN and OUT duly clamping and Padlocking the Points, both in facing and trailing directions over which the train is to pass, as per GR 3.69 and 3.70 with relevant SR's. The Station Master on duty will be personally responsible for setting and locking of Points, for reception and dispatch of all trains.
8. The Crank Handle Register is to be maintained in the following pro-forma by the Station Master on duty wherein the particulars of usage of the Crank Handle must be recorded:
    a. Date:
    b. Point Number which failed or required to be tested:
    c. Time failure:
    d. Disconnection memo number received from S&T Staff:
    e. Signature of SM/Signal Official to whom the Emergency Crank Handle is handed over:
    f. Time Emergency Crank Handle is sent out:
    g. Individual Point numbers, and Line number nominated for admission of dispatch for which Points are set, Clamped and Padlocked:
    h. Train number to be admitted or dispatched:
    i. Signature of the Station Master on duty to ensure correct setting, Clamping and Padlocking of the Points:
    j. Date and Time fault rectified.
    k. Time of Emergency Crank Handle received back by SM on duty:
    l. Signature and Designation of the Signal Official who rectified the fault:

26. INTERLOCKING OF SIGNALS WITH BLOCK INSTRUMENTS:

26.1. INTERLCOKING OF BLOCK INSTRUMENTS WITH HOME SIGNALS:

TheDLBI is Electrically interlocked with the respective UP HOME Signal so that the handle of the DLBI Instrument cannot be turned from TRAIN ON LINE

position to LINE CLOSED position unless the respective Home Signals is put back to NORMAL position and the respective Block Section monitored by Axle Counter is clear of trains.

TheTLBI is Electrically interlocked with the respective DN HOME Signal so that the handle of the TLBI Instrument cannot be turned from TRAIN COMING FROM position to LINE CLOSED position unless the respective Home Signals is put back to NORMAL position and the respective Block Section monitored by Axle Counter is clear of trains.

26.2. INTERLCOKING ADVANCED STARTER SIGNALSWITH BLOCK INSTRUMENTS:

The UP Advanced Starter Signals No.25 is electrically interlocked with respective TLBI of section BDVR-SLPM so that this Signal cannot be taken OFF until the Handle of the concerned Block Instrument is in 'TRAIN GOING TO' position.

The DN advanced starter signal No.26 is interlocked with DLBI of section BDVR-SUP so that this Signal cannot be taken OFF until the Handle of the concerned Block Instrument is in 'LINE CLEAR' position.

26.3. SUSPENSION OF LAST STOP SIGNALS:

When the Token Less block instrument for section BDVR-SLPMis suspended with its handle in any position for whatever reason the concerned Last Stop Signals controlled by the TLBI must be treated as suspended and trains shall be Piloted Out.

When the Double line block instrument for section BDVR-SUPis suspended with its handle in any position for whatever reason the concerned Last Stop Signals controlled by the DLBI must be treated as suspended and trains shall be Piloted Out.

27. NORMALISATION OF THE BLOCK SECTION AXLE COUNTER AND OF BLOCK WORKING BY RESETTING FEATURE:

1. High availability Digital Axle Counters (HASSDAC) are provided on Up and Down Block Sections between BDVR-SUP and Single Section Digital Axle Counter (SSDAC) is provided on UP/DN Block Section between BDVR-SLPM.
2. The occupation and clearance of the axle counter section are indicated on the VDU by 'RED' and 'GREEN' light.
3. If any Block proving Axle Counter [LVCD] section fails, the Last Stop Signal at the rear station cannot be taken 'OFF' and Block instrument at Advance Station cannot be turned to 'Line Closed' position after arrival of a train and in such case, resetting of last Vehicle Checking Device is to be resorted to in either Section.
4. No train shall be allowed on signal to leave a station in any direction unless:

   Block Section clear indication is available for the relevant Axle Counter section portion and Last Stop Signal is taken OFF. [Refer Para No: 6.1 of appendix 'B' for procedure of resetting of LVCD Axle counter].

28. POWER SUPPLY ARRANGEMENT FOR SIGNALLING INSTALLATIONS:

Power signaling and interlocking installations and the ancillary field units are fed from the following sources of power supply.

a) Normal supply from UP AT/ DN AT connected to OHE traction distribution [230V 50HZ].

b) Stand by supply: Andhra Pradesh State Electricity Board Supply.

Normal power supply [Single-phase 230V-50 HZ] to the signalling and interlocking installation at the station is drawn from the traction power sources through ATs. Whenever traction power supply fails the SM on duty shall operate the changeover switch provided in the SM's office connecting the power supply from the healthy sources to the installation in case the knob is not in Auto mode.

The SM on duty however maintain the record of power failures either of the traction supply or local supply and he must promptly report the failure of any one or both the power sources immediately through the section controller and to the concerned Elect. Staff and S&T maintenance staff.

i). An Auto change over switch is provided in the SM's office with the three power supplies viz., UP AT, DN AT and local for the changing the switch automatically to the available supply. The availability of the supply is indicated by luminous indicator above the circuit breaker for each supply.

ii). Normally the switch will be kept in Auto Mode. If the Switch kept towards UP AT/DN AT position, whenever power block is to be given on the line the on-duty SM on duty must ascertain that power is available on the other AT and change over the switch to the desired position.

NOTE: If power block is to be given on the UP line DN AT must be available and vice versa.

iii). In case of failure of one of the AT supply without any power block the on-duty SM has to check whether the circuit breaker has tripped [Three circuit breakers are provided in the changeover switch board, one for each supply and their normal position is down and when tripped it goes UP].

In case of failure of both AT supplies without any power block the local supply shall be utilized by operating the changeover switch. If the circuit breaker is tripping even after resetting, no attempt shall be made to hold it by any means and a message shall be given to concerned SSE [Elect.] and SSE/PSI [OHE] for prompt rectification.

iv). Whenever there is failure of power supply in one AT the SM on duty shall take prompt action to inform to all concerned for rectification.

The on-duty SM himself during each shift shall check & test the availability of power supply on both ATs and make an entry in the station dairy duly initiating for rectification of failure if any.

29. WORKING OF INTEGRATED POWER SUPPLY [IPS, INDICATIONS & ACTION TO BE TAKEN BY SM ON DUTY:

Power supply to the signalling installation is fed through Integrated Power Supply System [IPS] installed in the S&T power supply room. For IPS system which provides supply to EI, a manual changeover switch is provided at SM's Office with the power supply viz., selected supply from CLS panel.Normally manual changeover switch is kept in selected supply from CLS panel position, if in case any emergency, changeover switch is changed to middle position by on duty SM to cut off the power supply to IPS.There is a remote monitoring ASM box provided at the station to monitor the health of IPS.

The IPS system is connected with battery as a backup power source for safe working during transition of power and in case no 230 AC supply is available due to any reason.

In the event of failures of all the sources of 230V 50HZ AC supply, the signalling system shall be fed by backup battery bank connected to IPS for a

limited power of 8 to 10 hours. The health of the battery bank is monitored through one IPS Monitoring Panel provided in the SM's room which shall display the voltage of 110V DC battery bank provided as backup source of power supply. Depending up on the health of the battery bank and the system the following indications/alarm will appear on the remote monitoring panel. The indications/alarm, their implications and action to be taken by SM on duty is tabulated below:

SN	Instruction	Health of Battery Bank/Equipment.	Visual Indication	Audio Indication	Action to be taken by SM on duty
A	-	50% DOD	Red	Alarm	Alarm shall be acknowledged by SM on duty.
B	-	60% DOD	Red	Alarm	-do-
C	System shutdown	70% DOD	Red	Alarm	Signal feed cut off and all DC-DC converters to Work. Audio alarm will continue till power Supply is restored.
D	Call S&T staff.	Equipment fault.	Red	Alarm	Failure of any module will give the alarm in ASM's panel. Alarm shall be acknowledged by SM on duty for audio cut off.

On duty SM in each shift shall check and record the readings, indications, etc. in the station dairy duly initiating rectification of failures of IPS System, if any. In the event of failure of Remote monitoring ASM console due to any reason when both traction power and local power failed the SM on duty shall inform concerned Electrical staff immediately. In case 'call S&T staff 'or 'system shut down 'indication appear on the remote monitoring panel of IPS and/ or mal functioning of the remote monitoring panel SM on duty shall inform the same to concerned S&T staff immediately.

NOTE: [i] DOD indicates depth of discharge of battery bank of IPS [ii] In case of failure of all AC supply sources, IPS battery bank can provide power supply maximum up to 3 to 4 hours before system shut down indication of APS.

30. WORKING OF AUTOMATIC FIRE ALARM DETECTION SYSTEM:

- In case of any alarm in any particular area due to fire or dust-Zone number on the LCD display can be seen.
- Note down the zone No. and panel display name, by referring display chart.
- Once you find the zone number rush to that particular area where the detector gives alarm.

- The moment the smoke detector detects any smoke particles, the RED LED will blink along with the alarm.
- Once you reach the area where the detector is giving the alarm, check whether the alarm is due to the fire or for any other reason.
- To alert the people in case of emergency press "*" sign which is present inside the key pad together for few seconds. This will enable you to hear the panel alarm.
- To reset the panel press "OFF" button and enter the code 1111 (1 digit four times).
- The control panel will get reset and siren muted.
- If the power fails on this will enable us to see the red indicator on the panel.
- In case of failure in power and if the battery is fully charged, the panel can function effectively as long as the charge in the battery is present.

AUTO DIALLING:

If you hear alarm from the panel, this system will dial the telephone/mobile number you fed. The pre recorded messages will be heard on the phone. If you want to make two way communications, press "6" on your mobile. You can have this communication for 50 seconds. If you want to talk more, press again "6" before completion of 50 seconds for another 50 seconds or you can acknowledge the receipt of call by pressing "2" on SSE/Signal mobile, in case number "2" is not pressed the system will dial again the same telephone number as per the programmed dial attempt and still if acknowledgement not come from 1st number then panel will dial 2nd number till the time acknowledgement comes it will keep on dialing.

APPENDIX 'C'

ANTI COLLISION DEVICE [RAKSHA KAVACH]:

-NIL-

APPENDIX 'D'

DUTIES OF TRAIN PASSING STAFF AND STAFF IN EACH SHIFT

The following staffs are concerned with the movement of the trains whose duties are given below:

COMPLEMENT OF STAFF	STAFF IN EACH SHIFT
SS/SM	01
TRAFFIC POINT MAN	01

a) STATION MASTER (IN CHARGE):

i) He is responsible for trains passing during his shift.

ii) He is responsible for the general and satisfactory working of the station and for the efficient discharge of duties by staff working under him.

iii) He shall keep all Rule books, Registers, Files and documents neat and up to date.

iv) He shall ensure that all equipment, apparatus, and instruments including signaling and interlocking gears and fittings are kept clean and oiled by S&T officials.

v) His special attention is drawn to Chapter-II of G&SR and GR 5.01 to 5.08 with relevant SRs and O.M. Chapter-2.

vi) He shall follow the instructions laid down in SR.3.68.01 (c) and (d) and SR 14.07.01 and B.W.M.2.09 (e).

vii) He shall promptly attend to accidents and report them.

viii) He shall ensure that firefighting equipment at the station such as fire extinguisher, fire buckets etc. are in good fettle and ready for use.

ix) He must ensure that the essential safety equipment at his station is the same complete and in good condition. If there is any deficiency it should be made good without delay.

x) He shall see that TSR, SM's Diary, Inspection Note Book, Reference Books and other station record is properly maintained and preserved for a minimum period as prescribed in the Operating Manual.

xi) He shall ensure that all correction slips of Manuals and SWR are posted and changes are made in respective pages.

xii) He shall supervise the work of safe working staff and conduct night inspections and report lapses of staff working under him.

b) STATION MASTER:

a) He is responsible for trains passing during his shift.

b) He shall promptly bring to the notice of SM in-charge all irregularities and accidents in course of his shift duties.

c) During the absence of SM, I/C, the duties of the Station Master will devolve on him.

d) He shall follow SR 3.68.01(c) and (d) SR 14.07.l and OM Chapter-2.

e) His special attention is drawn to Chapter-2 of G&SR 1976 and GR 5.01 to 5.08 with relevant SRs.

f) He shall not consider himself relieved of duty unless he has completed transactions of trains for which he has given/obtained line clear till the complete arrival of such trains.

g) He shall always obey the lawful orders of his superiors so long as they do not contravene any of the extant rules in force.

h) He shall keep the Station Master's control keys of Block Instruments/Control Panel in his personal custody whenever, he is required to leave his office even for a short duration.

i) He shall be responsible for correct issuance of caution order, whenever required.

j) As an assistant to SM, I/C, he shall carry out the instructions given from time to time.

c) <u>TRAFFIC POINTSMAN:</u>

i) He shall work under the orders SM on duty.

ii) He shall be in proper neat and clean uniform while on duty.

iii) He shall always commence his duty equipped with hand signal lamps during night and flags during day.

iv) He shall couple and uncouple vehicles under the supervision of SM.

v) He shall watch and Train Manager the packages and other Railway property lying in the Station premises.

vi) He shall report any irregularities coming to his notice.

vii) He shall do loading and unloading of parcels, smalls and Train Manager's boxes. He shall do piloting IN and OUT.

viii) He shall deliver any official message to the proper person/office. He shall carry out any other duties entrusted to him by the SM on duty.

ix) He shall not leave his duty unless properly relieved or authorized by his superiors.

x) He shall follow OM Chapter-2.

<u>Note:</u> All staff should be in uniform while on duty and follow their rosters issued by Sr.DPO/WAT from time to time.

APPENDIX 'E'

LIST OF ESSENTIAL EQUIPMENT PROVIDED AT THE STATION:

A list of essential equipment's is given below which shall be maintained in good Working order.

Sl. No	Description	Quantity
(i)	Detonators	10
(ii)	LED based Tri Colour flashing torch.	3(1 Spare)
(iii)	Hand Signal Flags	3(1 Spare)
(iv)	Safety chains with Pad locks	6
(v)	Clamps with Padlocks	12
(vi)	Skids	6
(vii)	Wedges	4
(viii)	Fire & Sand buckets	6
(ix)	(DCPT) Fire Extinguishers	2
(x)	Motor trolley on line board	2
(xi)	Block suspension board	2
(xii)	Stretcher	1
(xiii)	Blanket	1
(xiv)	Power block boards	2

APPENDIX 'F'

RULES FOR WORKING OF DK STATIONS, HALTS, IBH, IBS AND OUTLYING SIDINGS

--NIL--

APPENDIX- 'G'

RULES FOR WORKING OF TRAINS IN ELECTRIFIED SECTIONS:

DETAILS OF WORKING RULES OF 25KV AC TRACTION.