EAST COAST RAILWAY

WALTAIR DIVISION

STATION WORKING RULES OF BODEARAPUR [BDXX] [BROAD GAUGE]

Date of Issue:
Date brought in force:

Ref: Lr No: 2000/Safety (A&R)/19/36 of Rly. Board dated 27.10.05.

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:

i) The Station Working Rule diagram no: SI/WRD/23163, Alt-'B'
ii) CSTE/E.Co.Rly/DRG.No.SI- 23163, Alt-'B'

2. DESCRIPTION OF STATION:

Boearapur (code: BDXX) is a standard-II-(R) 'B' class station with MACLS on the Kottavalasa-Kirandul line B.G.section of E.Co.Rly on 'D' route. It is situated at KM 318.266 from KTV and provided operated centrally with VDU.

2.1. GENERAL LOCATION:

a)	Name of the station	BODEARAPUR
b)	Class of station	'B' class
c)	Section	Kottavalasa-Kirandul
d)	Double line/Single line	Double line between BDXX-TPQ & BDXX-DMK
e)	Electrified/Non Electrified	Electrified
f)	Gauge BG/MG/NG	BG
g)	Railway	East Coast Railway
h)	Route	'D'
i)	Situated at	Km 318.266
j)	Reckoned from	Kottavalasa
k)	Operation	Centrally operated VDU.
l)	Standard of Interlocking	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.	TOKOPAL	5.312km	KTV end
2.	DILIMILI	11.714km	KRDL 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
BDXX-TPQ UP.	From UP advanced starter signal no. 25 of TPQ	BSLB of BDXX
BDXX-TPQ DN.	From DN advanced starter signal no. 26 of BDXX	BSLB of TPQ
BDXX-DMK UP	From DN advanced starter signal no.25 of BDXX	Point No. 37-A of DMK.
BDXX-DMK DN	From UP advanced starter signal no.26 of DMK	Point No. 32-A of BDXX.

2.4. GRADIENTS:

a) From the Centre of the station building towards TPQ (DN Line):

Chainage in Mtrs from CSB		Stretch	Gradient
From	To		
0.000 F/CSB	1237M	1237M	1 in 440.028 falling(For L1 & L2)
1237M	1351M	114M	1 in 450.593 falling
1351M	1990M	639M	1 in 3758.82 raising
1990M	2415M	425M	1 in 274.90 falling
2415M	2630M	215M	1 in 442.387 falling
2630M	4619M	1989M	1 in 153.318 falling
4619M	Into section	--	1 in 368.678 falling

b) From the Centre of the station building towards TPQ (UP line):

Chainage in Mtrs from		Stretch	Gradient
From	To		
0.000 F/CSB	1237M	1237M	1 in 440.028 falling (For L3, L4 & L5)
1237M	2022M	785M	1 in 3369.099 falling
2022M	2482M	460M	1 in 300 falling
2482M	2620M	138M	Level
2620M	4619M	1999M	1 in 150 falling
4619M	Into section	---	1 in 408 falling

c) From the Centre of the station building towards DMK (DN line):

Chainage in Mtrs from		Stretch	Gradient
From	To		
0.000 F/CSB	667M	667M	1 in 440.028 Raising (For L1 & L2)
667M	876M	209M	1 in 228.416 Raising
876M	2574M	1698M	1 in 72.769 Raising
2574M	3241M	667M	1 in 5379.03 Raising
3241M	4828M	1587M	1 in 82.76 Raising
4828M	Into section	----	1in 224.55 Raising

d) From the Centre of the station building towards DMK (UP line):

Chainage in Mtrs from		Stretch	Gradient
From	To		
0.000 F/CSB	667M	667M	1 in 440.028 Raising (For L3, L4 & L5)
667M	807M	140 M	1 in 471.380 Raising
807M	2831M	2024M	1 in 85 Raising
2831M	3238.4 M	407.4M	Level
3238.4M	4818.4M	1580M	1 in 80 Raising
4818.4M	Into section	----	Level

2.5 (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	Rail Level (237.7 M x 5.5M)
2.	Line No.2 (DN Main)	Electrified	--
3.	Line No.3 (UP Main)	Electrified	--
4.	Line No.4 (UP Loop)	Electrified	Island High Level (400M x 10M) between L/4 & L/5
5.	Line no-5 (common loop for ore handling line)	Electrified	Island High Level (400M x 10M) between L/4 & L/5 and Concrete apron for unloading Iron Ore (650.0 M X 10M)

B) SIDINGS: -Nil

C) SHUNTING NECKS:

S. No.	Name of the Line	Holding Capacity CSL in Meters	Electrified/ Non-Electrified	Description
1	Shunting neck (DMK end)	72 M (DE-SH)	Electrified	It is taken off from L-4 towards DMK end and is isolated by derailing switch no DS-40. Shunt signal SH-6 A/B is provided on shunting neck for shunting on L-4 & L-5. Likewise, shunt signals SH-11, SH-13 are provided on L-5 & L-4 respectively for shunting on shunting neck
2.	Shunting neck (TPQ end)	69 M (DE-SH)	Electrified	It is taken off from L-4 towards TPQ end and is isolated by derailing switch No. DS-39. Shunt signal SH-5A/B is provided on shunting neck for shunting on L4 & L5. Likewise shunt signals SH18, SH20 are provided on L4 & L5 respectively for shunting on shunting neck.

2.5.1 RUNNING LINES, & HOLDING CAPACITY IN CSL:

LINE NO.	DESCRIPTION	CSL	ELECTRIFIED/ NON-ELECTIFIED
1	DN Loop	896 (STR-SB)	Electrified
2	DN Main line	733 (STR-SB)	Electrified
3	UP Main line	1091(STR-SH)	Electrified
4	Common Loop	912(STR-STR)	Electrified
5	Common Loop for ore handling line	812(STR-STR)	Electrified

2.4.1. NON RUNNING LINES AND THEIR CAPACITY IN CSL:

S.NO.	DESCRIPTION	CSL	ELECTRIFIED/ NON-ELECTIFIED
1.	Shunting neck towards DMK end	72 M (SH to DE)	Electrified
2.	Shunting neck towards TPQ end	69 M (SH to DE)	Electrified

2.4.2. ANY SPECIAL FEATURES IN THE LAYOUT:

-Nil-

2.5. LEVEL CROSSINGS:

Sl no	LC gate No. & KM	Class of Gate	Type of interlocking	Section
1.	KK-92, Km no: 315/14-15	'C' Class Engineering.	Interlocked	BDXX-TPQ
2.	KK-93, km no: 319/2-3	'B' Class Traffic.	Interlocked	BDXX-DMK

3. SYSTEM AND MEANS OF WORKING:-

System of Working in force	Absolute Block System of Working.
Double Line/Single Line	Double Line.
Block Instruments	BDXX-TPQ & BDXX-DMK Section, SGE type Lock and Block Instruments.
Co-operative/Non Co-operative	Non Co-operative.
Block Telephone	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
4.	Provision of Calling-On signals	Miniature colour light Calling-on signal is provided below the Home signals and Starter Signals in terms of GR.3.13 (1)(b), (2)(3)(4) & (6) (b). A Calling-on signal shows no light in the 'ON' position and Yellow light when taken "OFF". A calling-on signal, will be taken 'OFF' for reception of a train when the Home signal above it cannot be taken 'OFF' due to failure or any other reason or for admission of train on blocked line. Before taking 'OFF' Calling on signal during failure of track circuit the route and clearance of the track over which the train will be admitted must be checked physically by SM on duty. The calling on Signal is cleared after a lapse of 60 seconds and immediately in case of Starter Signal provided other conditions are fulfilled. (The detailed procedure is given in Para 4.6.3 of Appendix-B)

5.	Provision of shunt signals	Independent shunt signals SH-4 A/B/C, SH-6 A/B and, SH-3(A-E), SH-5(A-B), SH-16 are provided towards DMK end and TPQ end of the yard. Dependent shunt signals SH-11, SH-13 and SH-12, SH-14, SH-18(A-B), SH-20(A-B) are provided towards DMK end and TPQ end of the yard. (The detailed procedure is given in Para 4.6.2 of Appendix-B)
6.	Track circuits	Both UP & DN main lines, DN Loop & Common loop lines and all the point zones are track circuited as L1T1, L1T2, L1T3, L2T1, L2T2, L2T3, L3T1, L3T2, L3T3, L3T4, L4T1, 14T2, L4T3, 38AT, 38BT, 36AT, 36/40T, 34AT, 34BT, 25AT, 32T, 25T, 25T1, 2T2, 2T1, 2AT, 1AT, 1T1, 1T2, 26T, 26AT, 31BT, 31AT, 33AT, 33/39T, 35AT, 35BT, 31AT1, 37AT, 37BT.
7.	Axle counters	Provided High Availability Single Section Digital axle counter (HASSDAC) for last vehicle verification between BDXX-DMK and BDXX-DMK Block sections. Single Section Digital Axle Counter (SSDAC) L5AXT is provided on berthing line No.5 due to iron ore handling line to prove clearance/occupancy of the track. The occupation of the axle counter section is indicated on the VDU by Red. If the Axle counter zone (L5AXT) shows occupation indication (Red) continuously on VDU after passage of train due to failure of the same, then SS/SM on duty shall initiate resetting procedure. Refer Para No. of Appendix-B
8.	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' of this SWR. CH1- 35 A/B, 38A/B; CH2-33 A/B; CH3-32 A/B & 37A/B; CH4-31A/B, CH-5-34 A/B, CH6 -39 DS, CH7-40 DS, CH8-36A/B.
9.	Emergency Point operation	Emergency point operation facility is provided to operate the point from the Panel in case of failure of point controlling track circuit/Axle Counter. Each operation of emergency point operation shall be recorded in the station diary and in the register meant for this purpose.
10.	Block Instruments	a) SGE type Double line Lock & Block Instruments are provided for block section BDXX-DMK & BDXX-TPQ. b) Telephone attached to Block instruments

		c) connecting the adjoining block stations concerned. d) 'ON' aspect of UP/DN Home & UP/DN Adv.str signals are proved in respective block instruments. e) Custody of block instrument keys: One key will be with SM on duty and the other with S&T maintainer.
11.	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 and in the train signal register.
12.	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 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/02/2012. 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:

i. **Normal**: AT Supply-230v, 50Hz.
Stand by: - 1st standby power supply: Chhattisgarh State Electricity Board Supply. Auto changeover is provided in the Station Master's Office with the three power supplies viz., UP & DN AT and Local for changing the switch to the required supply position. A luminous indicator above the circuit breaker for each supply indicates the availability of the supply.
ii. For IPS system selection out-put of auto-change over has been taken.
iii. There is a remote monitoring ASM box provided at the station to monitor the health of IPS.

REMOTE MONITORING ASM BOX: Remote monitoring ASM Box gives alarm to the ASM for the following fault conditions:-

a) 50% depth of discharge (DoD) of battery. In this condition audio/visual alarm comes, which can be acknowledged with audio cut-off.

b) 60% DOD, which warns for emergency. The alarm for this condition is same as for condition 1.

c) 70% DOD, which signals system, shut-down. In this condition signal feed is cut-off and all DC-DC converters continue working. Audio alarm continues till power supply is restored.

d) Any of the module fails, which calls for 'call S&T'.

e) Whenever there is a failure of power supply in AT or Local the SM shall take prompt action to inform to all concerned for the rectification. The SM himself, during his daily checks, shall test the availability of power supply AT and Local and make an entry in the Station Diary duly initiating action for rectification of failure, if any.

5. TELECOMMUNICATIONS:

i). Telephones attached to double line block instruments are connected to adjacent stations on either sides.

ii). Hot line communication is provided between BDXX-DMK and BDXX-TPQ stations.

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

iv). The station is connected to KRPU-KRDL control Circuit.

v). The station is connected to KRPU-KRDL traction power control circuit.

vi). Telephone communication is provided between Station Master on duty to UP CH locations and to DN CH Locations.

vii). Telephone communication is provided between Station Master on duty to 'C' Class interlocked engineering manned LC gate at km 315/14-15 between BDXX-TPQ (LC no KK-92).

viii). Telephone communication is provided between Station Master on duty to 'B' Class Traffic interlocked LC gate at km 319/2-3 between BDXX-DMK (LC no KK-93).

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

x). CUG telephone is provided at this station.

5.1. FAILURE OF COMMUNICATION: -

a) In the event of total failure of communications between the adjacent block stations SR 6.02.04 shall be observed for double 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 movement of trains is controlled by section controller on duty whose orders shall be complied with provided they do not contravene any provisions of General Rules, Subsidiary Rules, Station Working Rules, Block working manual and any other safe working instructions issued from time to time.

In the event of suspension of control working the Station Master on duty shall work independently in conjunction with the Station Master of adjoining Block Stations and shall be responsible to ensure that there is no undue delay to train operation in general.

6.1.1. TRAIN WORKING STAFF IN EACH SHIFT:

STAFF IN EACH SHIFT:

Station Master	1
TPM	1
Traffic Gate Man	1

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

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

Station Master is solely responsible to ascertain clearance of line from Home up to Adv. Starter on concerned lines by indication on VDU.

Sufficient Private Number books and identification number sheets in sealed covers shall 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 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 BDXX-TPQ & BDXX-DMK and MACL signaling, Vide G&SR 8.03.

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

Line No.	FOR UP TRAINS		FOR DOWN TRAINS	
	From	To	From	To
Line No.1 (DN Loop)	---	---	Starter Signal No.12	DN advanced starter signal No.26 or Up to the end of the ORL of Line no.1.
Line No.2 (DN Main)	---	---	Starter Signal No.14.	DN advanced starter signal No.26.
Line No.3 (UP Main)	Starter Signal No.15.	UP advanced starter signal No.25	---	---
Line No.4 (Common Loop)	Starter Signal No.13.	UP advanced starter signal No.25 or up to the DS 40.	Starter Signal No.18.	Up to DS Point No. 39.
Line No. 5 (Common Loop)	Starter Signal No.11.	UP advanced starter signal No.25 or up to the end of Over Run line.	Starter Signal No.20.	Up to the end of Over Run line.

6.2.1. ANY SPECIAL CONDITIONS TO BE OBSERVED WHILE RECEIVING OR DESPACTHING 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. In case SM fails to set the required points against the occupied line a fault message will be triggered SMS will be sent to concerned station mobile and all concerned staff. Action will be taken against.

If all the lines of a station happen to be blocked when line clear has been granted to a train the safety point alarm will not work and the point should be set for the line occupied by a stable load or a goods train by SM on duty in that order so that, in case of mishap, the chance of causalities minimized. In case of all the lines are occupied by passenger trains points should be set for a loop line to negotiate which the speed of incoming train would be reduced which in turn would minimize the consequences/causalities vide SR 3.51.06(b). These precautions shall be taken in addition to the observance of other precautions as contained in SR 5.04.01 and SR 5.23.01. Block collars to be placed on the concerned button of blocked line.

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:

Not Applicable

6.2.1.4. DESPATCH OF TRAIN FROM NON-SIGNALLED LINE:

Not Applicable

6.2.1.5. DESPATCH OF TRAIN FROM LINE PROVIDED WITH COMMON STARTER SIGNAL:

NIL

6.2.1.6. ANY SPECIAL CONDITIONS:

a) SPECIAL RESTRICTIONS:

i) Shunting in the face of approaching train is prohibited towards KRDL end due to falling gradient of 1 in 72.769 towards Station Section.

ii) Due to 1:72.769 steep falling gradient near LC gate No. KK-93, LC gate shall be kept closed before granting line clear towards DMK end.

iii) One of the two DN trains (Main or loop) shall be kept vacant before granting line clear to Dilmilli Station due to 1 in 72.769 DN gradient falling towards the Station.

iv) GR 3.38(2) shall be strictly followed and dispatching an UP train, no train shall be admitted on a non-isolated line , till the previous train arrive next station.

b) SPECIAL INSTRUCTIONS:

NIL

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

i. Conditions for taking off approach signals are governed by GR 3.40(1) (a), 3.40(2) (a), 3.40(3) (b) for double line sections: BDXX-TPQ & BDXX-DMK.
ii. Calling-on signal may be taken off for the admission of train in the event of failure of Home signal in terms of SR 3.69.02(a) or for the admission of a train on obstructed line in terms of GR 5.09 and SRs thereto.

6.3.1. RESPONSIBILITY OF STATION MASTER FOR RESTORATION OF SIGNALS 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), 14.01 and SR 4.17.01.

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.4 setting overlap to DS-40 of Line No.4.	AND	Dispatch of another UP train from Line No.3.
2.	Reception of an UP train on Line No.5 setting overlap to overrun line of Line No.5.	AND	Dispatch of another UP train from line No.3 or 4.
3.	Reception of a DN train on line No.1 setting overlap to overrun line.	AND	Dispatch of another DN train from line No. 2 or 4 or 5.
4.	Reception of a DN train on line No.4 setting overlap to overrun line.	AND	Dispatch of another DN train from Line No.1 or Line No.2.
5.	Reception of a DN train on line No.5 setting overlap to overrun line.	AND	Dispatch of another DN train from Line No.1 or Line No.2 or Line No.4.

6.5. COMPLETE ARRIVAL OF TRAINS:

The entire block section between BDXX-TPQ & BDXX-DMK on both UP and DN lines are provided with High Availability Single Section Digital Axle Counter.

For Section BDXX-TPQ:

A Pair of High Availability Single Section Digital axle counter (HASSDAC) is provided between BDXX -TPQ one at just beyond UP advanced starter signal no.25 of TPQ and another on 1T2 track circuit of BDXX and another pair of High Availability Single Section Digital Axle Counter (HASSDAC) is provided between TPQ-BDXX one at just beyond DN Advanced Starter signal No.26 of BDXX and another on 2T2 Track circuit of TPQ for last vehicle verification.

For Section BDXX-DMK:

A Pair of High Availability Single Section Digital axle counter (HASSDAC) is provided between BDXX-DMK one at just beyond UP advanced starter signal no.25 of BDXX and

another on 1T2 track circuit of DMK and another pair of High Availability Single Section Digital Axle Counter (HASSDAC) is provided between BDXX-DMK one at just beyond DN Advanced Starter signal No.26 of DMK and another on 2T2 Track circuit of BDXX for 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. 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 **RESETTING OPERATION FOR L5AXT (DIGITAL AXLE COUNTER)**:

Digital Axle Counter L5AXT is provided on berthing line No.5 due to iron ore handling line to prove clearance/occupancy of the track. The occupation of the axle counter section is indicated on the VDU by Red.

If the Axle counter zone (L5AXT) shows occupation indication (Red) continuously on VDU after passage of train due to failure of the same, then SS/SM on duty shall initiate resetting procedure.

Before initiating resetting, on duty SM at BDXX station shall send an operating staff who in turn, verify that the concerned Axle counter zone is clear of all obstruction then open the respective Line verification box and press the verification button provided in the line verification box.

On obtaining verification indication which is indicated by glow of light on the Reset Box which is provided at SM's office, SM shall inserts the key in the Reset Box, turns right and presses both the key and the Push Button (Red) simultaneously and the same will be reset by this operation and concerned counter in Reset box will change to the next higher number.

Number thus changed due to resetting shall be recorded in the TSR, SM Diary and in the reset register provided for this purpose.

6.6. DESPATCH OF TRAINS:

a) 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 3.07(5)(a), (e), (f) & (g) 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 Kilometers 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, 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 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 & 6.02.06).
Reception of 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(2)(C)(3)(4) (5) and SR 5.09.01.
Reception of a train on non-signaled line	NIL
Defective Signals	Whenever signals become defective, the procedure laid down in GR 3.68 to 3.71, 3.80 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 3.57, 3.69, 3.49 (4), 3.68 to 3.77).
Defective Interlocking	When interlocking becomes defective the SS/SM on duty shall be responsible and personally supervise the setting, clamping and pad locking of all required facing and trailing points for

	admission or dispatch of trains and procedure laid in GR 3.68 to 3.71 and SRs there to shall be followed.
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 considered defective and vice-versa and the procedure for the use of crank handle.
Defective IBS signal	NIL

6.9. PROVISIONS FOR WORKING OF TROLLIES/ MOTOR TROLLIES/ MATERIAL LORRIES ETC":

a) 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 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. 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. [Refer SR 3.36.3(b), GR 5.23 and SR 5.23.01].

A) SECURING OF VEHICLES: -

As far as practicable, loose vehicle shall not be allowed to stand on the running line. However under unavoidable circumstances, if it is necessary to detach vehicle from a train or to stable a train and leave them standing on the running line, the SS on duty shall be responsible to secure the vehicle/stable loads to prevent rolling down of vehicles and arrest obstruction and fouling.

B) REMINDER FOR BLOCKING LINES:

Read Para no. 5.4 of Appendix-'B'.

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 OM 7.01, 7.07, 7.08, 5.15 (1) (B) and 5.1 (2) (B) 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 is face of an approaching train is prohibited towards KRDL end due to falling gradient of 1 in 72.769 towards station section.

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) For shunting in both ends of the yard, engine should be leading towards the falling gradient.

8.4. 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.

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

Not applicable to this station.

9. ABNORMAL CONDITION:-

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

i). During partial interruption of communication between the adjacent block stations, SR 6.02.06 shall be observed.
ii). In the event of occupation of block section due to accident or obstruction the authority for the train to work up to obstruction as and when required is T/A 602 & SR 6.02.05 shall be observed.
iii). In the event of trains delayed in the block section, GR 6.04 and relevant SRs shall be followed.
iv). Failure/passing of Intermediate Block stop signal at 'ON' position: Not applicable.
v). Failure of Axle counter Block/BPAC: Procedure to be followed Vide GR 14.13.
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 and 5.3.1 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/electrical

engine 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.

iii) **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.

iv) **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 on double line, trains shall run on the authority to proceed without line clear in terms of SR 6.02.03.

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 signal lights of UP starter signal No.15 of Line no.3 and DN starter signal No.12 of Line No.1 are ear marked to serve as visibility test object during day and night vide GR 3.61.02 (b) (iii) & SR's thereto.

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.

13. APPENDICES:

APPENDIX-A	WORKING OF LEVEL CROSSING GATES
APPENDIX-B	SYSTEM OF SIGNALLING AND INTERLOCKING AND COMMUNICATION ARRANGEMENTS AT THE STATION.
APPENDIX-C	ANTI COLLISION DEVICE (RAKSHA KAVACH)
APPENDIX-D	DUTIES OF TRAIN PASSING STAFF AND STAFF IN EACH SHIFT
APPENDIX-E	LIST OF ESSENTIAL EQUIPMENT PROVIDED AT THE STATION.
APPENDIX-F	RULES FOR WORKING OF DK STATIONS, HALTS, IBH, IBS AND OUTLYING SIDINGS.
APPENDIX-G	RULES FOR WORKING OF TRAINS IN ELECTRIFIED SECTIONS.

APPENDIX-'A'

WORKING OF LEVEL CROSSING GATES AT BODEARPUR STATION

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-92
2.	Engineering or Traffic Gate :	Engineering gate ('C' class)
3.	Under control of Station Master / Permanent Way Inspector:	SSE [P]/JDB
4.	Location at KM:	315/14-15
5.	At Station:	Mid-Section
6.	In between stations:	BDXX-TPQ
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:	Inter locked.
11.	Means of Interlocking	Panel Interlocking
12.	Provision of Gate signal at Kms.	(i) Up Line : 315.644. (ii) Dn Line: 316.014.
13.	Signaling arrangements:	NIL
14.	Means of Communication – Telephone / Bell etc	Telephone connection with SM/BDXX.
15.	Width of level crossing gate:	7.5 M.
16.	Type of road (NH / SH / Others) :	Others.
17.	Name of Road :	Village road
18.	Metaled / non-metaled :	Metalled
19.	Approach road :	BT Road
20.	Width of the road :	5.60 M
21.	Angle of road crossing (in case of the skew gates):	---
22.	Road gradient (if any)	(i) North / East side: Flatter than 1 in 30. (ii) South / West side: Flatter than 1 in 30.
23.	Road alignment (straight/curve)	i) North / East side: Straight. ii) South / West side: Curve.
24.	Provision of height gauges:	Provided
25.	Type of Barriers:	Lifting Barrier/Sliding Booms.
26.	Length of Check rails :	9.5 M
27.	Road surface in between L-Xing gates:	Level.
28.	Length of Rumble strip / speed breakers:	Total width of road berm to berm.
29.	Road signs:	Provided
30.	Speed breaker indication board:	Provided
31.	TVU:	34680 of 02/2022.
32.	Census next due on :	02/2025.
33.	Demarcation for placement of Detonators:	Provided
34.	No. of Gatemen working:	2 Two
35.	Nearest Railway Medical Assistance	Railway Health unit, Jagdalpur.
36.	Nearest Private Medical Assistance available (if any):	Tokopal
37.	List of equipment available Yes / No:	Yes

APPENDIX-'A'

2. EQUIPMENTS:

	Items	Quantity / Numbers
1.	LED type 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

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 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.
12. S&T Register.

APPENDIX-'A'

GENERAL 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.

APPENDIX-'A'

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 number of vehicles which damages the gate barrier.

xvii. Locking arrangement of gate should be checked daily.

xviii. 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.

xix. Gateman shall note down the registration number of the vehicle which damage the Gate.

xx. Gate man shall ensured that no road vehicles shall be trapped in between lines while closing the gate.

5. <u>ACTION IN CASE OF ANY ABNORMALITY IN TRAIN</u>:

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

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

iii. 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.

APPENDIX-'A'

iv. 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.

v. In case of trains parting, gateman shall not show stop hand signal but shall show prescribed signal for trains parting.

vi. He shall endeavor 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 DN motion as high and as low as possible.

vii. In case of trains does not stop, gate man shall immediately inform the station master 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. On double line section:

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 on BG and 400 meters on MG / NG and place one detonator on the line. Thereafter he shall proceed to a distance 1200 meters on BG 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 and warn the locopilot 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 warn the LP and stop the approaching train by waving his red flag by day red hand signal lamp by night repeatedly.

APPENDIX-'A'

B. OTHER ACTION TAKEN BY GATE MAN:

i) At night gate man shall light two hand signal lamps and take action to exhibit red light and protect the lines as per described in sub Para [A] above.

ii) If the gate is broken by the road vehicle which is fouling by track, or if lifting barrier by leaf gates or any other part of the gate found the track, or it there is any other obstruction at the gate, the gate man shall take immediate action.

iii) He shall note down, 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 other means available.

C. **ACCIDENTAL ROLLING DOWN OF TRAINS:**

When the gateman sees that a train is rolling down or immediately after receipt of the information about accidental rolling down of the train the GK shall:

i. First close the gate against the road traffic.
ii. Then immediately inform the SM on duty.
iii. He shall not open the gate till he ensured that the train has completely cleared the LC gate.

D. ON ELECTRIFIED SECTION :

On noticing that, the whole or part of the OHE or feeder or a cable facing down, the GK shall ensure that as far as possible, human beings, animals or vehicles etc. are kept in order to avoid any contact with live equipment.

As soon as it is noticed that, pantograph of an 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 portion of lines as under.

7. ENGINEERING ITEMS:

Please see Para 916, 918, 919 of IRPWM for visibility requirements at level crossings, provision of speed breakers on the approaching roads of level crossings and census of traffic at level crossings.

ANNEXURE
WORKING INSTRUCTIONS FOR ENGINEERING LEVEL CROSSING GATES INTERLOCKED WITH STOP SIGNALS OF THE STATION PROVIDED WITH TELEPHONE, WITH NORMAL POSITION "OPEN TO ROAD TRAFFIC"

1. MODE OF OPERATION APPLICABLE FOR LEVEL CROSSING NO. KK-92:

For closing and opening of LC gate barriers, following sequence of operation to be done :

a) After gate is closed & locked, when switch GS-1 & GS-2 is reversed, will clear UP or DN gate stop signal respectively.
b) For opening of LC gate, after passage of train, Switch GS-1 & GS-2 is put back to normal.
c) In case of emergency, gateman will inform SM/BDXX with PN exchange, then KEY-B (chained with crank handle) is extracted from EKT (electromechanically free), provided at gate lodge (in a locked and sealed red box with glass cover) for manual operation of lifting barriers by crank handling.
d) Extraction of KEY-B shall put back all relevant signal to ON.

e) Dead approach locking of 60 seconds is provided.
f) Sliding boom arrangement is provided as stand by option during failure of normal working of LC gate.

2. Intimation to the Gate keeper:

(i) Immediately after departure of the train from the adjacent station, SS/SM shall advise the gateman through telephone, the number, description, direction and expected time of passage of the train at the gate.
(ii) If the telephone is connected to the station at the receiving end, this advice shall be given by the SS/SM to the gate man, under exchange of private number, as soon as he receives train entering section advice from the dispatching station.
(iii) If the actual running time of the train from either end of the section is less than 10 minutes SS/SM will convey this advice to the gateman before obtaining /granting line clear.
(iv) It should be the duty of the gateman to ensure that the gate is closed in time, so that there is no detention to the train and excessive detention to road traffic.

3. FAILURE OF COMMUNICATION BETWEEN SM AND GATEMAN:

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

i) Station Master on duty shall send written advice to the Gateman through the Porter with full details of number, description and direction of the train. Gateman on receipt of such advice shall close the gate and transmit the key to the Station Master, which will enable him to take 'OFF' reception/departure signals.
ii) When sufficient time is not available because of greater frequency of train service, Station Master issues written authority to the train loco pilot to pass the signal at 'ON' position.
iii) In addition Station Master shall also issue a caution order advising the loco pilot to whistle continuously and approach the gate cautiously.
The train loco pilot shall be instructed to pass the gate cautiously, on being hand use led by the Gateman. If hand signal is not seen, loco pilot should be prepared to stop short of the gate and ensure that gate is closed vide GR 3.73(2)(b).
iv) 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.
v) The Station Master at the dispatching end shall then issue a caution order to the loco pilot before dispatching a train in to the block section from his end.
vi) He should also advise S&T staff responsible for maintenance of the telephone to rectify the defect at the earliest.
vii) Normal working will be resumed only after staff rectifies the telephone and issue reconnection/fit memo for the same.

4. Working of Sliding Boom Barrier in case of Failure/Defectiveness of Lifting Barrier:

In the event of Lifting Barrier is failed to operate by any means or damage of Lifting Barrier the Gate man shall inform the SM on duty and seek the permission to operate the Sliding Barrier. This emergency Sliding boom can be

used as auxiliary gate without signals for a train. This emergency sliding boom cannot be used during normal working condition of main boom. The Gate man shall adopt the following procedure for closing the Sliding Barrier.

a) Key 'S' when extracted from lock free EKT-2, makes road signal danger and activate road hooter key 'S' unlocks the sliding barrier-1.
b) Sliding boom-1 to be rolled across the road up to the lock post. Key (Chained with barrier) Releases the lock plunger and key SB-1. Key SB-1 when extracted lock the Sliding barrier-1.
c) Similarly, Sliding barrier-2 after unlocking the pad lock sliding barrier-2 to be rolled across road up to the lock post, key (chained with barrier) along with key SB-1 inserted releases the lock plunger and key SB-2 when extracted locks the sliding barrier-2 and key SB-1.
d) Finally released key SB-2 is to be inserted in EKT-1 in conjunction with concerned switch reversed, to release the respective signals.

During this period the L.C Gate shall be opened only when necessary and safe to do so. The LC gate shall be so worked as to cause least possible inconvenience to the vehicular traffic consistence with safety as per subsidiary rule 16.03.01 (a)

5. <u>FAILURE OF GATE KEY WITH THE GATE IN CLOSED POSITION WHEN GATE KEY CANNOT BE EXTRACTED FOR OPENING THE GATE:</u>

i) If the gate key cannot be extracted from the winch, the gate lever or the key transmitter, then Gateman must immediately inform the Station Master on duty on telephone, under exchange or private number.
ii) If emergency key is available at the gate lodge, he will take it out from the sealed box by breaking the seal and open the gate for road traffic. Emergency key provision is not available.
iii) The record of the data and time of breaking the sealed cover of Emergency key box shall be recorded and signed with reasons.
iv) Thereafter, the gate must be treated as non-interlocked and procedure for reception/dispatch of trains as prescribed for non-interlocked gates, should be adopted.
v) Station Master on duty shall issue a caution order to the loco pilot of a departing train.
vi) He shall also advise the Station Master at the dispatching end, under exchange of private number, to similarly issue a caution order to the loco pilot before dispatching the train in the block section form his end.
vii) Station Master will advise S&T staff responsible for maintenance of winch/gate levers/key transmitter to rectify the defect at the earliest.
viii) Normal working will resume only after S&T staff repairs the winch/gate lever/key transmitter and issue reconnection/fit memo for the same.
ix) After rectification, the Emergency key shall be replaced in the Emergency Key Box and resealed by the S&T maintainer.

6. <u>OBSTRUCTION AT THE GATE:</u>

In case of an obstruction on the line at the level crossing not protected by station signals, the gateman shall maintain the signals, if provided , in the 'ON' position,
If unable to remove the obstruction forthwith, he shall protect the line in the following manner.

<u>ON DOUBLE LINE</u>:

APPENDIX-'A'

(i) In case both the lines are obstructed, he shall during day light hours, first plant a banner flag across the track in the direction from which a train is expected to arrive and then plant the second banner flag across the other track, against any train in the opposite direction. The banner flag shall be planted clear of the level crossing and at a distance of about 5 meters from the edge of the road /obstruction.

(ii) He shall, thereafter, close and lock the gates.

(iii) At level crossings provided with telephones, the gateman shall, if time permits, inform the Station master about the obstruction and ascertain the position of trains, after he has taken action as per clauses (i) and (ii) above.

(iv) The gateman shall proceed in haste, exhibiting a red hand signal flag, towards the direction from which a train is expected first and place one detonator on the track at a distance of 600meters on BG and three detonators 10meters apart at a distance of 1200meters on BG from the level crossing. Having thus protected one line, he shall immediately return to the level crossing, picking up the intermediate detonator on the way and then proceed with the same haste in the opposite direction and protect the other line also in an identical manner. Having duly protected both the lines, the gateman shall return to the level crossing and Endeavour to clear the obstruction, mobilizing any assistance locally available. He shall, however, not leave the level crossing, but shall remain in position to warn the loco pilot of any approaching train.

(v) In case of any one line is obstructed the aforesaid protection need be done only for the obstructed line.

7. <u>OBSTRUCTION ON THE TRACK NEAR LEVEL CROSSING:</u>

If there is a rail fracture or obstruction on the track due to falling of a 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.6 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-'A'

WORKING OF LEVEL CROSSING GATES AT BODEARPUR STATION

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-93
2.	Engineering or Traffic Gate :	Traffic gate ('B' class)
3.	Under control of Station Master / Permanent Way Inspector:	SS/BDXX
4.	Location at KM:	319/2-3
5.	At Station:	Mid-Section
6.	In between stations:	BDXX-DMK
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:	Interlocked.
11.	Means of Interlocking	Interlocked with Signals
12.	Provision of Gate signal at Kms.	Interlocked with Station Signals
13.	Signaling arrangements:	MACLS
14.	Means of Communication – Telephone / Bell etc	Telephone connection with SM/BDXX.
15.	Width of level crossing gate:	9.0 M.
16.	Type of road (NH / SH / Others) :	Others.
17.	Name of Road :	Panchayat Road.
18.	Metaled / non-metaled :	Metalled
19.	Approach road :	Katcha Road.
20.	Width of the road :	7.0 M
21.	Angle of road crossing (in case of the skew gates):	90 Degree.
22.	Road gradient (if any)	(i) North / East side : Level (ii) South / West side: Level.
23.	Road alignment (straight/curve)	i) North / East side: Straight. ii) South / West side: Curve
24.	Provision of height gauges:	Provided
25.	Type of Barriers:	Electric Lifting Barrier/Sliding Barriers.
26.	Length of Check rails :	11.0 M
27.	Road surface in between L-Xing gates:	Level.
28.	Length of Rumble strip / speed breakers:	Total width of the Road berm to berm
29.	Road signs:	Provided
30.	Speed breaker indication board:	Provided
31.	TVU:	43384 as on 02/2022.
32.	Census next due on :	02/2025.
33.	Demarcation for placement of Detonators:	Provided
34.	No. of Gatemen working:	three

APPENDIX-'A'

35.	Nearest Railway Medical Assistance	Railway Health unit, Jagdalpur.
36.	Nearest Private Medical Assistance available (if any):	Bodearpur
37.	List of equipment available Yes / No:	Yes

2. <u>EQUIPMENTS:</u>

ITEMS	QUANTITY/NUMBERS
1. LED type flashing Tri Colour Hand Signal Lamp	2Nos.
2. Hand Signal Flag Green.	1 No mounted on stick
3. Hand Signal Flag Red.	2 Nos mounted on sticks
4. Banner Flag Red.	3 Nos.
5. Spare chains with padlocks	2 chains with 2 padlocks.
6. Stop Boards	2 retro reflective stop boards with stands
7. Padlock	1 No
8. Detonators	Ten (10) in a tin case
9. Tommy Bar	1 No
10. Bucket	1 No
11. Whistle	1 No
12. Wall Clock	1 No
13. One small size chain for use in case of failure of boom/lock.	2 No

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 for working as gateman.
7. Bio-data particulars of Gateman, including date of passing vision test,
8. Initial/refresher course, safety camp etc.
9. Accident Register.
10. Records of last census of road traffic at level crossing gate.
11. Public Complaint Book.
12. Inspection Book.

GENERAL DUTIES OF GATEMEN:

1. **<u>COMPETENCY</u>:** Gateman working at this gate should have competency certificate applicable to perform duty at this gate issued by the sectional Transportation Divisional Inspector or SS(I/C)/BDXX.
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.

APPENDIX-'A'

3. <u>POSITION DURING PASSAGE OF TRAINS</u>:

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. <u>ROUTINE DUTIES OF GATEMAN</u>:

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 number of vehicles which damages the gate barrier.

xvii. Locking arrangement of gate should be checked daily.

xviii. 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.

xix. Gateman shall note down the registration number of the vehicle which damage the Gate.

xx. Gate man shall ensure that no road vehicles shall be trapped in between lines while closing the gate.

5. <u>ACTION IN CASE OF ANY ABNORMALITY IN TRAIN</u>:

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 flags 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 stationmaster if connected on telephone, to take appropriate action under exchange of private number.

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

v. He shall endeavor 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 DN motion as high and as low as possible.

vi. In case of trains does not stop, gate man shall immediately inform the station master to take appropriate action under exchange of private number.

6. <u>ACTION IN AN EMERGENCY AT THE LEVEL CROSSING:</u>

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 a 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 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.

i) Thereafter, he shall to warn the Loco Pilot and 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.

APPENDIX-'A'

c) **ACCIDENTAL ROLLING DOWN OF TRAINS:**

When the gateman sees that a train is rolling down or immediately after receipt of the information about accidental rolling down of the train the GK shall:

i. First close the gate against the road traffic.
ii. Then immediately inform the SM on duty.
iii. He shall not open the gate till he ensured that the train has completely cleared the LC gate.

d) **ON ELECTRIFIED SECTION :**

On noticing that, the whole or part of the OHE or feeder or a cable facing down, the GK shall ensure that as far as possible, human beings, animals or vehicles etc. are kept in order to avoid any contact with live equipment.

As soon as it is noticed that, pantograph of an 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 portion of lines as under.

7. **ENGINEERING ITEMS:**

Please see Para 916, 918, 919 of IRPWM for visibility requirements at level crossings, provision of speed breakers on the approaching roads of level crossings and census of traffic at level crossings.

ANNEXURE

WORKING INSTRUCTIONS FOR ENGNEERING LEVEL CROSSING GATE INTERLOCKED WITH YARD SIGNALS, PROVIDED WITH TELEPHONE WITH NORMAL POSITION"OPEN TO ROAD TRAFFIC" FOR L.C. GATE AT KM 319/2-3, LC NO. KK-93, BETWEEN BDXX-DMK.

(General instructions are common for all type of Manned Level Crossing)

a. **Mode of operation:**

Gate shall normally be kept open to road traffic, whenever it is required to close Gateman on duty shall ensure clearance of road traffic, operate the Electrical lifting barrier as per the following procedure.

i. Barrier-1 & Barriert-2 switches are provided for individual operation of barriers if required.
ii. Red and Green buttons are provided on gate panel for closing and opening of L.C. gate respectively.
iii. The push button 'RED' is pressed till the gate is closed and locked.
iv. After the gate is closed and locked, Key 'Y' is extracted from EKT-1 inserted in EKT-2 and transmitted to SM in conjunction with GS (Gate slot) reversed releases Concerned UP and DN signals.
v. For opening the gate, SM transmits control 44, key 'Y' from EKT-2 is extracted and inserted in EKT-1, the push button 'GREEN' is pressed till the gate is opened.
vi. Emergency key provided for emergency operation.
vii. Switch GS is provided in gate lodge to put back concerned signal to danger in case of emergency.

APPENDIX-'A'

A. OPERATION OF ELECTRIC LIFTING BARRIER DURING POWER FAILURE:
(Hand Generator Mode-During Power Failure)

In case of power failure, the barriers cannot be operated from the panel. But the barriers can be operated simultaneously by use of hand generator as mentioned below.

Put the Mode selector switch on the panel to MANUAL position.

i) To ***close*** the barriers, rotate the lever on the main control panel in ***clockwise direction*** till both the barriers reach the horizontal and locking takes place.

ii) To ***open*** the barriers, rotate the lever on the main control panel in ***anti-clockwise direction***. Both the Locks will open first, and the barriers will start rising. Keep cranking till the required position is achieved.

B. <u>WORKING OF EMERGENCY KEY FOR 'B' CLASS LC GATE AT KM 319/2-3 F/KTV (KM.319.098 F/KTV), LC. No KK-93 (FOR ELECTRICALLY OPERATED)</u>

i) Normally crank handle welded with EKT key remains inside the EKT-3 (provided in the sealed Red Box)
ii) When the normal operation (closing/opening) of booms fail from the gate panel, the gate man on duty will inform the SM/SS on duty regarding the failure and seek his permission to use emergency key.
iii) After obtaining permission from SM/SS on duty the gate man on duty will break the seal of the box, open it and take out the EKT key welded with crank handle from the EXT 3.
iv) Using crank handle closing/opening of the booms are to be done.
v) After completing the operation the EKT key welded with crank handle is to be inserted in EKT-3 the box is to be closed and s&t staffs are to be advised to seal the red box.

C. ***<u>OPERATION OF ELECTRIC LIFTING BARRIER WHEN POWER SUPPLY AS WELL AS HAND GENERATOR FAILS</u>*****:** (During Power Failure and failure of hand generator)

In case of failure of power supply as well as fault in the hand generator system a provision of hand cranking of each barrier has been provided.

1. Insert the crank handle, which can be obtained from the emergency key box RKT 'Y1', on the slot provided in with the barrier pedestal.
2. Now crank in the ***anticlockwise*** direction to ***open*** the barrier, first the lock will open and then the barrier will start rising.
3. Crank in the ***clockwise*** direction till the barriers are fully ***closed***. Keep cranking till the locking takes place.

D. ***<u>INDICATIONS PROVIDED ON CONTROL PANEL FOR OPERATION OF ELECTRICAL LIFTING BARRIER:</u>***

1. RED colour emergency push button which is to be pushed in case any or both of the booms do not get locked (GREEN indicators do not light up). It will be used only after physical verification of locking at both the lock posts.

2. LED INDICATOR (AMBER) LAMP (At the Top) which glows when power supply is available. NO GLOW will indicate that hand generator has to be used. It glows continuously.

3. SELECTOR SWITCH which allows you to choose operation on Manual or Auto mode.
4. LED INDICATOR (AMBER) LAMP (2No's) - Glows when the plunger of the barriers has been detected. Meaning thereby that the barrier has reached its Horizontal position.
5. AMBER COLOUR push button which has to be kept pressed till the barriers reach the horizontal position.
6. LED INDICATOR LAMP (GREEN) (2 No.s) glows when the barrier has been securely LOCKED. The lamp will turn off as soon as the lock has been opened.
7. GREEN COLOUR push button which has to be kept pressed till the barriers reach the fully open position.
8. Mode Selector Switch provided in Operating panel to be kept either in Auto position or Manual position as per requirement. It is only to be kept in Manual position for using hand generator when power supply fails or else it is to be kept in AUTO position.
9. 'Power' indicator LED will glow continuously if power supply is available.

E. ***EMERGENCY GATE RELEASE OPERATION FOR VDU:***

Gate is locked when a signal is taken off. Locking of the gate is released only when the train movement for which signals are taken off is completed. For emergency opening of the LC Gate before completion of train movement or if the route given for a train has not been released, then emergency gate release operation has to be initiated by on duty SM following the procedure mentioned in the Para No.5.5 of Appendix-'B'.

b. Intimation to the Gate keeper:

i) Before taking off reception/departure signals, Station Master shall inform the gate man, the number, description and direction of train.
ii) The gate man shall close the gate and transfer the key to the Station Master.
iii) The reception/departure signals will then be taken OFF.
iv) In order to ensure that road traffic is not held up for a long time, the Station Master must ensure that train is ready for departure in all aspects before he advices to the gate man for closing the gate.

v) If the gate is operated from the Cabin itself, Station Master shall ensure that the gate is closed against road traffic, before taking OFF reception/departure signals.
vi) When a train has to be piloted to and from the station yard, or any shunting movement is to be done, the staff deputed to pilot the train or to perform the shunting across the gate shall be personally responsible to ensure that the gate is closed against road traffic before allowing any movement across the gate.

WORKING OF SLIDING BOOM BARRIER IN CASE OF FAILURE/DEFECTIVE OF LIFTING BARRIER (LC NO.KK-93) AT KM:513/2-3

1. Key 'R', when extracted from lock free EKT-5; makes road signal danger & actuates road hooter. Key 'R' unlocks the sliding barrier-1.

APPENDIX-'A'

2. Sliding barrier-1 to be rolled across the road up to lock post. Key (chained with barrier) locks the barrier against the road and releases the lock plunger key 'SB1', key SB1, when extracted locks the sliding barrier-1.

3. Similarly after unlocking the padlock sliding barrier 2 to be rolled across the road upto lock post, key (chained with barrier) along with key 'SB-1' inserted releases the lock plunger & key 'SB-2' when extracted lock the sliding barrier-2 & key SB-1.
4. Finally released key SB-2, is transmitted electrically to SM/SS through EKT-4 in conjunction with slot 'GS' reversed for taking off concerned signals.

c. <u>Failure of Telephonic Communication</u>:

i). 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:

ii). Station Master on duty shall send written advice to the gateman through the porter with full details of number, description and direction of the train.

iii). Gateman on receipt of such advice shall close the gate and transmit the key to the Station Master which will enable them to take 'OFF' reception / departure signals.

iv). When sufficient time is not available because of greater frequency of train service Station Master will issue Pilot In/Out authority to the train Loco Pilot to pass the signal at 'ON' position.

v). In addition Station Master shall also issue a caution order advising the Loco Pilot to whistle continuously and approach the gate cautiously.

vi). The train Loco Pilot shall be instructed to pass the gate cautiously, on being hand signalled by the gateman. If hand signal is not seen, Loco Pilot should be prepared to stop short of the gate and ensure that gate is closed following GR 3.73(2)(b).

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

viii). The Station Master at the despatching end shall then issue a caution order to the drive before despatching a train in the block section from his end.

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

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

d. <u>Failure of Gate Key with the Gate in closed position when Gate key cannot be extracted for opening the Gate:</u>

a) If the gate key cannot be extracted from the RKT, the gate lever or the key transmitter, then Gateman must immediately inform the Station Master on duty on telephone, under exchange or private number.

b) Then the emergency key 'Y1' (in the Sealed Red Box with glass cover) which is available at the gate lodge, will take it out from the sealed box by breaking the seal and open the gate for road traffic.

c) The record of the data and time of breaking the sealed cover of Emergency key box shall be recorded and signed with reasons.

d) Thereafter, the gate must be treated as non-interlocked and procedure for reception/dispatch of trains as prescribed for non-interlocked gates, should be adopted.

e) Station Master on duty shall issue a caution order to the loco pilot of a departing train.

f) He shall also advise the Station Master at the dispatching end, under exchange of private number, to similarly issue a caution order to the loco pilot before dispatching the train in the block section form his end.

g) Station Master will advise S&T staff responsible for maintenance of winch/gate levers/key transmitter to rectify the defect at the earliest.

h) Normal working will resume only after S&T staff repairs the winch/gate lever/key transmitter and issue reconnection/fit memo for the same.

i) After rectification, the Emergency key shall be replaced in the Emergency Key Box and resealed by the S&T maintainer.

e. <u>Failure of the Gate Key with the gate in open condition:</u>

i). If the gate key cannot be extracted from EKT-2, then gateman must immediately inform the SS/SM on duty on telephone, under exchange of private number.

ii). Thereafter, the gate must be treated as non-interlocked and procedure for reception /dispatch of train as prescribed for non-interlocked gates should be adopted.

iii). The gateman shall secure the gate against road traffic by means of chains and padlocks and pass trains on hand signals.

iv). SS/SM on duty shall issue a caution order to loco pilot of a departing train.

v). He shall also advise the SS/SM at the dispatching end, under exchange of private number, to issue a caution order to the loco pilot before dispatching a train in the block section from his end.

vi). SS/SM shall advise S&T staff responsible for maintaining the key transmitter to repair the same at the earliest.

vii). Normal working will be resumed only after S&T staff repair the key transmitter and issue re-connection / fit memo for the same.

viii). After rectification, the Emergency Key shall be replaced in the emergency key box and released by the S&T maintainer.

f. <u>Obstruction at the Gate</u>:

i). In case of an obstruction at a level crossing protected by station stop signals, the gateman shall at once close the gates across the road and ensure that the stop signals controlling the passage of trains over the obstructed lines are maintained at 'ON'. However, if in the meantime he notices any train coming from either side, he shall be prepared to stop the same by the usage of hand signals and detonators.

ii). In case both lines are obstructed, he shall, first plant a banner flag/red light across the track/metal staff in the direction from which a train is expected to arrive first and then plant the second banner flag/red light across the other track/metal staff, against any train in the opposite direction. The banner flag shall be planted clear of the level crossing and at a distance of about 5 meters from the edge of the road/ obstruction.

iii). He shall thereafter close and lock the gates. Gateman must keep the gates closed against road traffic till the track is cleared of the obstruction.

iv). The gateman shall, if time permits, inform the Station Master about the obstruction and ascertain the position of trains, after he has taken action as per clauses (i) and (ii) above.

v). The gateman shall then proceed in haste, exhibiting a red hand signal, towards the direction from which a train is expected first and place one detonator on the track at a distance of 600m on BG line and three detonators 10m apart at distance of 1200m on BG from the level crossing. Having thus protected one line, he shall immediately return the level crossing, picking up the intermediate detonator on the way and then proceed with the same haste in the opposite direction and protect the other line also in an identical manner. Having duly protected both the lines, the gateman shall return to the level crossing and endeavour to clear the obstruction, mobilizing any assistance locally available. He shall, however, not leave the level crossing, but shall remain in position to warm the Loco Pilot of any approaching train.

vi). In case only one line is obstructed the aforesaid protection need be done only for the obstructed line.

vii). If there is a rail fracture or obstruction on the track due to falling of a tree, fouling by road vehicle or derailment which is visible to the gateman, the gateman and station master will adopt the procedure given as above.

g. <u>OBSTRUCTION ON THE TRACK NEAR LEVEL CROSSING:</u>

If there is a rail fracture or obstruction on the track due to falling of a 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.g 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'

APPENDIX 'B' TO STATION WORKING RULES OF BODEARPUR STATION 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:

BODEARPUR station is a Class 'B' station provided with Standard-II (R) Electronic Interlocking of MEDHA make. The station is provided with Route setting type Electronic Interlocking between 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/23163 ALT-'B'** 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. The detailed procedure for VDU Changeover between two Systems is given in Para No.4.2 in this Appendix.

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):

APPENDIX-'B'

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.	PC SM KEY	Green Colour when key is 'IN'	Ensures operation of VDU by authorized person	Protected by password
2.	---	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.
3.	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 Password. For each operation concerned counter shall register one count higher.
4.	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.
5.	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.
6.	CH-1, CH-2, CH-3, CH-4 and CH-5 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.	
7.	'DN Train Entering Section' muting button icon	Yellow acknowledged	On getting alarm/buzzer SM shall left click on the button icon to acknowledge it.	
8.	'UP Train Entering Section' muting button icon	Yellow acknowledged	On getting alarm/buzzer SM shall left click on the button icon to acknowledge it.	
9.	UP Block Release button icon	Yellow Prepared for Block release.	On getting indication SM shall left click on the button icon which shall release Block Handle.	After complete arrival of train this will be activated

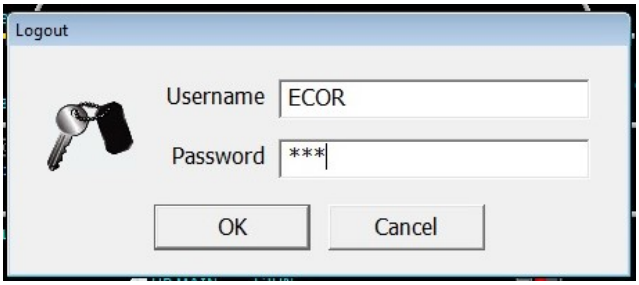
APPENDIX-'B'

SN	ICONS	INDICATIONS	FUNCTIONS	REMARKS
10.	DN Block Release button icon	Yellow Prepared for Block release.	On getting indication SM shall left click on the button icon which shall release Block Handle.	After complete arrival of train this will be activated
11.	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 icon on the particular line turns to RED.
12.	LC Gate CNT-44 button icon	Yellow lamp indicates 'KEY IN'. Red lamp indicates 'Gate Locked'	When LC Gate is closed and Key transmitted to SM yellow lamp will be lit. Whenever the LC Gate is locked in route or otherwise red indication will glow.	SM shall Right click on the button icon to select menu to Transmit/Receive/Emergency operation of gate as required.
13.	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 SM this facility is provided on VDU. On duty SM need to track the pointer to the "PC SMKEY" icon and by clicking the icon a drop-down menu having the **KEY IN & KEY OUT** will appear.

By clicking the **KEY IN** menu using the left button of the mouse, a Password window will appear. SM need to enter the password and press the OK Button provided on the Password window. User Name and password for this station is ECOR and **'BDXX'** respectively.



Then PC SMKEY icon will turn to Green color. This will enable all the controls in VDU.

VDU Control Change over Operations:

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.

1. When the A-VDU is active ONLINE, the SMKEY Status of B-VDU will be in KEYOUT Condition with Red Color
2. Whenever SM wants to change the control from A-VDU to B-VDU, he shall apply SMKEY IN at B-VDU. During this time A-VDU SMKEY will get KEYOUT and the Color will turn to Red. Vice-versa, the same operation will be applicable to change the Control from B-VDU to A-VDU.
3. If ON-LINE VDU is failed, SM shall apply SMKEY IN at Standby VDU. Then the Standby VDU will come to ON-LINE.

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.

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

a) Vital Interlocking Computer Status:

In EI, two Vital Interlocking Computer cards are available normally. The status of each of the VIC is provided on VDU as following.

VIC – A Indications

VIC-A is Active

VIC-A is Stand By

VIC–A is Not Available

VIC –B Indications

VIC-B is Active VIC-B is Stand by VIC-B is Not Available

If there is any change in VIC's status, its current status will be displayed along with OK button and a buzzer is turned on to alert the operator. The Buzzer stops and the indication message disappear when the OK button is pressed by the Operator.

Action by SM: If at least one VIC is available and is in Active State, then EI shall continue to function. On observing this fault, SM shall acknowledge the fault and immediately inform Signal Maintainer for further action.

b) Link Status Indication:

The EI VDU receives the data from EI Equipment through two OFC channels. The Link Status Indication of the same is provided on the VDU.

When Channel – A or Channel – B link is healthy, corresponding Yellow indication will be glowing steadily. When Channel – A or Channel – B link is faulty, corresponding red indication will be shown steady.

Channel –A Link Status is Healthy

Channel – A Link Status is Faulty

Channel – B Link Status is Healthy

Channel – B Link Status is Faulty

Buzzer and Acknowledgment:

When Channel A link or Channel B Link fails, a Buzzer is turned on automatically to alert the operator. To acknowledge the fault, right click on this control, a pop- up menu is displayed and then click on the Ack menu option. The Buzzer stops when the fault is acknowledged by the Operator.

When any of the channels link fail, an indication is shown in red color.

When any of the links is recovered, the indication is shown in yellow color along with one OK button. The indication message disappears if OK button is pressed.

Action by SM: If at least one of the Communication Channels is Healthy, EI VDU shall continue to function as usual emanating all indications. On observing any communication channel faulty indication, SM shall acknowledge the fault and immediately inform the Signal Maintainer.

c) EI Equipment Critical Fault:

If EI is shut down due to any critical fault, a message is displayed in red color along with OK button and a buzzer is turned on to alert the operator. The Buzzer stops and the indication message disappear when the Operator presses the OK button.

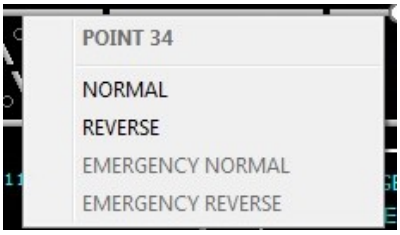
Action by SM: SM shall acknowledge the fault, inform the Signal Maintainer

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.

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 as shown below.



4.5.1. REVERSE TO NORMAL OPERATION:

Track the pointer to **NORMAL** 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:

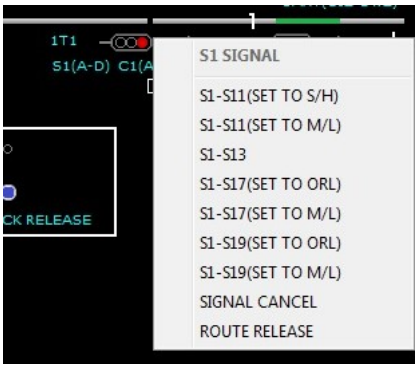
Track the pointer to **REVERSE** menu and click, a Reverse flashing indication will appear, the indication will be steady after the point is set to Reverse.

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:

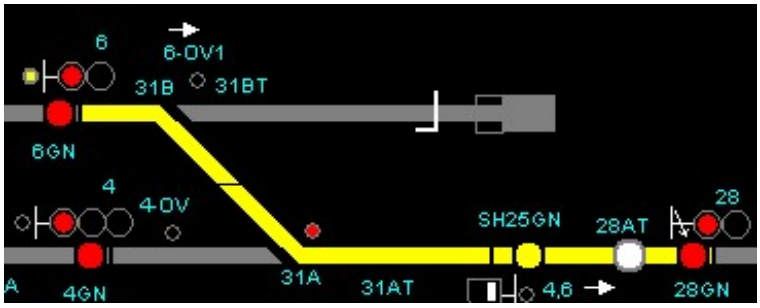
To Take-Off a Signal with the desired route the SS/SM needs to track the mouse pointer over the concerned Signal on the VDU, after clicking left mouse button a pop-up menu will appear as shown below. Desired operation can be performed by clicking the left mouse button on the popup menu.



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.

APPENDIX-'B'



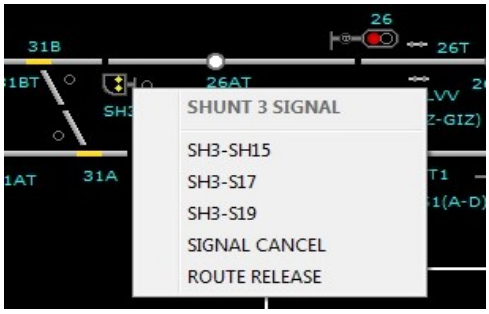
Conditions for setting a route:

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

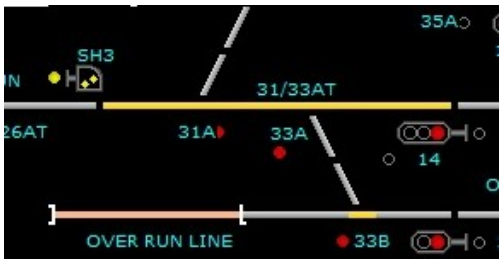
1. All the Crank handles of the required route related points to be in Key-IN condition.
2. All the related Siding control keys to be in Key-In condition.
3. If any Level Crossing gates are falling under the route that should be closed and locked (KEY IN).

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 left 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.

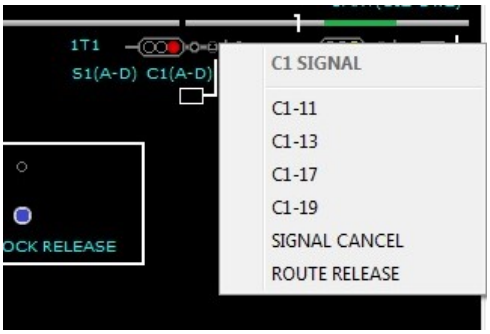


APPENDIX-'B'

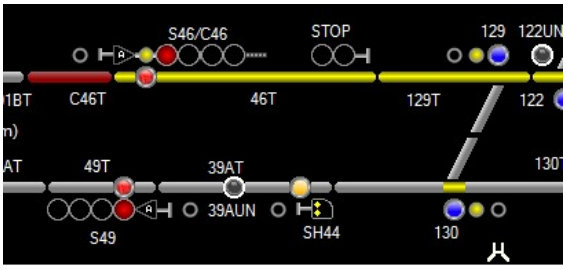
4.6.3. CALLING ON SIGNAL OPERATION:

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 below Home Signals but immediately for Starter Signals 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, occupying 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 for home Signals and immediately below starter signals. For all home signals the time delay is 60 seconds and zero time lapse for Starter Signals, the Calling-on signal clears i.e. a yellow light glows at the concerned calling-on signal on the VDU.



This action will be recorded in a respective counter of the counter box provided on SM's table. 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, click on the crank handle control button icon provided like the following button icon on the VDU.

APPENDIX-'B'

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

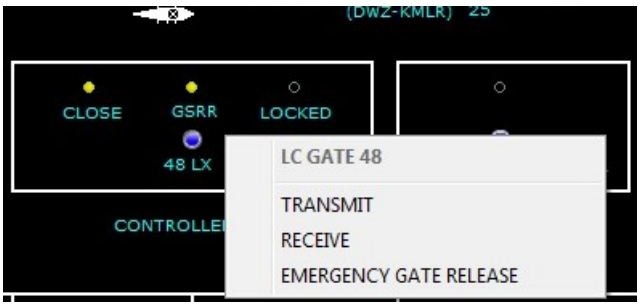
For Transmitting the Crank Handle KEY to the field personnel, SS/SM has to transmit the control by clicking **TRANSMIT** on menu of the Crank Handle Button. After transmission, the KEY IN indication will start flashing; now the KEY can be extracted from the EKT. After extracting the key from the EKT, 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. GATE CONTROL OPERATION:

To Transmit or Release control of the LC gate control, right click on the concerned LC gate control button provided like the following button on VDU.



The appearing pop-up menu gives details of the possible commands on the LC gate control.

Normally no indication will be available on the VDU indicating that the gate control key is out and gate is open. When it is required to close the gate, SM on duty shall intimate the gate man to close the gate supported by exchanging PN. Upon instructed by the SM on duty the gate man shall close and lock the gate and after reversing the concerned slot switch (GS) he shall transmit the gate control key to station by inserting and transmitting the key in the RKT. A flashing yellow indication on close indication and steady indication on GSRR indication will appear on the VDU seeing which SM on duty receive the control by clicking on the L.C. Gate control button icon and select 'Receive'. The close flashing indication shall become steady.

When the key is required to be transmitted to the Gate man, SM on duty has to transmit the control by clicking, after transmission the KEY IN indication will starts flashing, now the KEY can be extracted from the RKT.

4.9. 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 is taken-off, click on the signal. After clicking by the left button on the mouse, a pop-up menu will appear as shown in Para 4.6 above. Click on the cancellation menu (Main/ Calling on) of the concerned signal, the signal will immediately go to 'ON aspect, after doing so click on the Route release menu the route locked indication will starts flashing for 120 sec & the Emergency Route Release Indication (UP/DN as the case may be) will flash for the entire time interval. After the completion of 120 sec, the locked route will be released. This action will be recorded in a counter provided on Counter box at 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 Route cancellation along with the latest counter number in a register.

5.2. EMERGENCY POINT OPERATION:

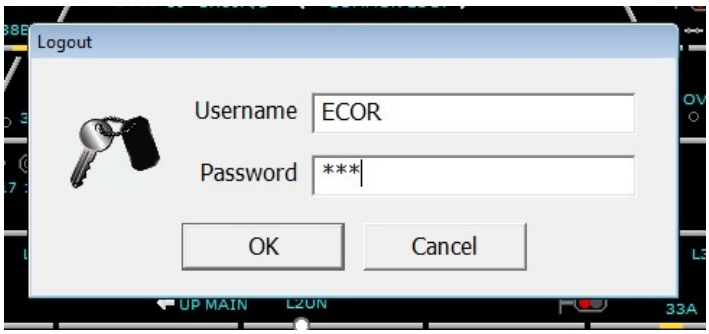
When the point zone track circuits failed without any point lock condition through respective signal route(s), a point can be operated by the Emergency Point operation.

Note: Before resorting to this operation SM on duty shall verify by conducting physical verification 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 Key Icon, a popup menu will appears as follows.

Click on the KEY IN in the menu appeared and shall provide User Name and Password for the same as follows.

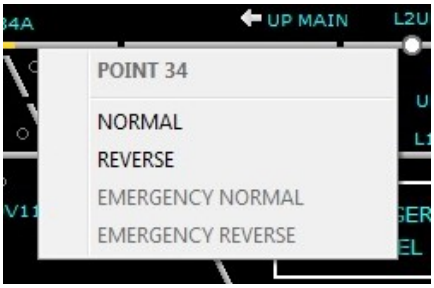


Enter the assigned username and password and click **"Ok".** The system would validate the user inputs and show the **"KEY IN"** indication as shown in the figure below, if the validation is successful.

The username of this station is 'ECOR' and password of this station is 'BDXX'. 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 as shown below.



Then Click on the '**EMERGENCY NORMAL'**, after doing so point gets operated and Normal flashing indication will appear, the indication will be steady after the point is set to Normal.

After the Emergency point operation, a specific 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 as shown above. Then Click on the '**EMERGENCY REVERSE'**, after doing so point gets operated and Reverse flashing indication will appear, the indication will be steady after the point is set to Reverse.

After the Emergency point operation, a specific 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 Emergency Point KEY **OUT**, click on the "**Emergency Point Operation KEY**" symbol; the system would display a pop menu as shown in figure in the Para No.5.2 above. Click on the KEY OUT in the menu appeared and shall provide User name and password. The username of this station is 'ECOR' and password of this Station is 'BDXX'.

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 EI (ACTIVE & STAND BY) SYSTEMS:

When both the EI systems fails to operate due to power failure or whatever the reason, timer is initiated automatically. After 120 seconds, 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.

CRANK HANDLE CONTROLS FOR EMERGENCY OPERATION OF POINTS			
S No	**CRANK HANDLE**	**CONTROL POINTS**	**PROVIDED IN**
1.	CH1	35 A/B, 38A/B	UP LOC-2, DN LOC-3
2.	CH2	33 A/B	UP LOC-2
3.	CH3	32 A/B & 37A/B	DN LOC-1
4.	CH4	31A/B	UP LOC-1
5.	CH5	34 A/B	DN LOC-2
6.	CH6	39 DS	UP LOC-1
7.	CH7	40 DS	DN LOC-2
8.	CH8	36A/B	DN LOC-3

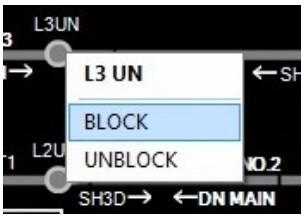
5.4. LINE BLOCK AND UNBLOCK (REMINDER COLLAR) OPERATION:

When SS/SM on duty requires demarcating a berthing/stabling line as BLOCKED/FREE line he shall adopt the following procedure:

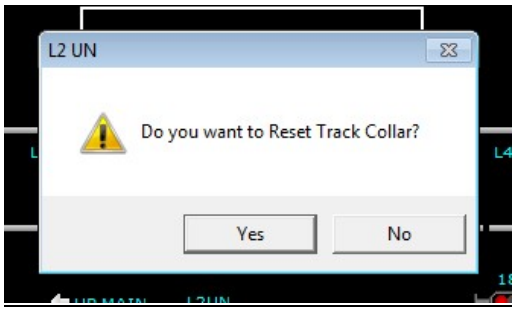
APPENDIX-'B'

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.



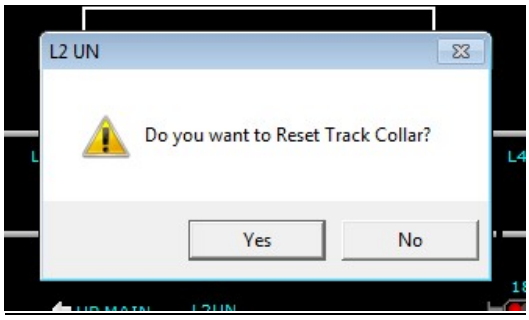
Then select the Line block option. After selecting the Line block option, a conformation box appears as shown in below.



Now click on the **'Yes'** option of the confirmation window and then the 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:

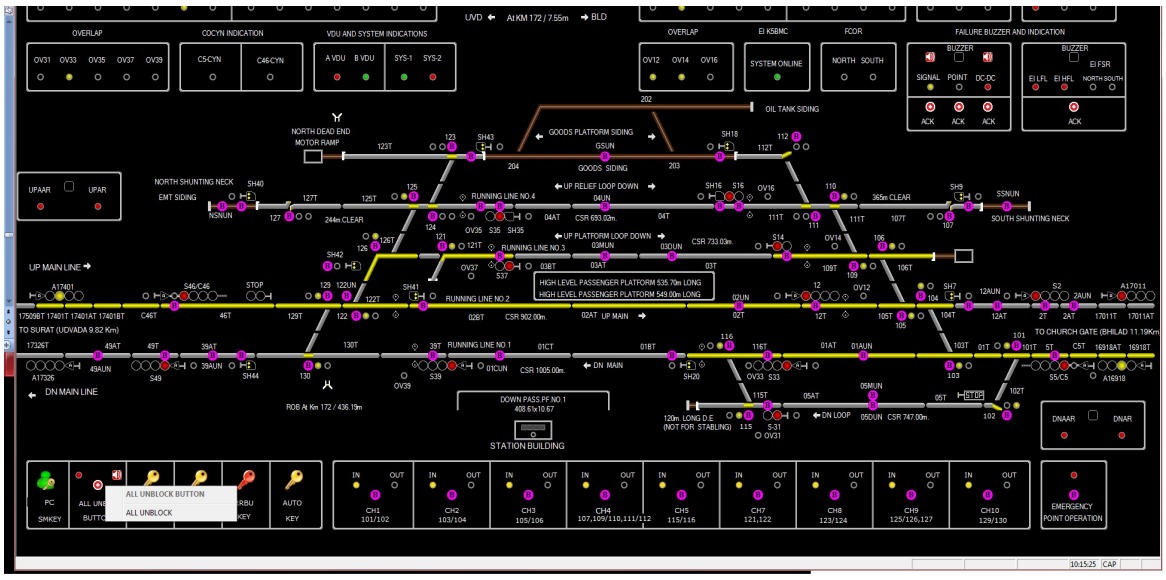
To unblock a line, place the mouse pointer over the blocked route button and press the left mouse button. A popup menu with block and unblock options will be displayed near that route button icon as shown above. Select the "UNBLOCK" menu item from the list and press the left mouse button. After selecting the line unblock option, a conformation box appears as shown in below.



Now click on the **'Yes'** option of the confirmation window and that particular line will be available for the train movement leading to the all-possible track circuit section.

5.4.3. ALL UNBLOCK OPERATION:

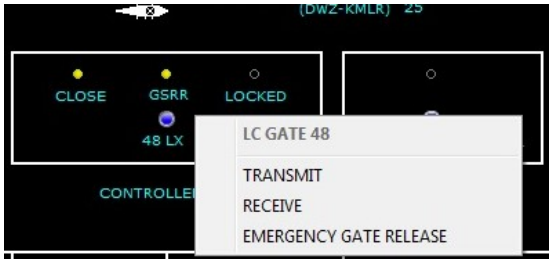
This operation allows user to unblock all block buttons in track layout. When all buttons get block, it displays as shown below. To unblock the buttons, user should login/key in first.



5.5. EMERGENCY GATE RELEASE OPERATION:

In the event of gate locked (Red) indication persists on VDU even after train movement is completed or when it is required to open the gate due to emergency in gate locked condition on VDU the following procedure shall be adopted by both, station master on duty and gate man.

1. Station Master on duty shall first cancel the signal by signal cancellation control of the relevant signal.
2. Station Master on duty then shall click on the 'Emergency gate release control' in the gate popup menu.



3. The 'Emergency Gate release' indication will flash for 120 seconds and after the time has lapsed the Emergency Gate release indication along with Gate locked 'Red' indication will disappear.
4. Station Master on duty then shall transmit 'Gate Control' by clicking Transmit control' (as the case may be). The 'Key In' indication (white) starts flashing suggesting the key is transmitted to Gate man.

APPENDIX-'B'

5. At gate lodge an indication will appear near RKT suggesting that the key can be released from the RKT for opening of the LC gate.
6. Seeing the indication gate man on duty shall extract the key from RKT and operate the gate.
7. On release of key from RKT flashing indication will disappear.

Any failure regarding transmission / extraction of gate key shall be intimated to the S&T officials for proper rectification. Till such time the failure is rectified the Station Master on duty shall pass the trains by P/IN or by P/OUT as the case may be.

6. <u>DIGITAL AXLE COUNTER (HASSDAC):</u>

High Availability Digital Axle Counters are provided as a Last Vehicle Checking Device (LVCD) for Both UP and DN block sections between BDXX-DMK and BDXX-TPQ.

For high reliability, High Availability Digital Axle Counters (HASSDAC) with dual detections are installed in BDXX-DMK and BDXX-TPQ section 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
S.No	**Indication**	**Automatic action taken by Equipment**	**Action by SM**
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

APPENDIX-'B'

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. 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 BODEARPUR Station, SM of DMK/TPQ should perform the following step by step procedure from (b) to (i) for resetting the Digital Axle Counter (HASSDAC).

b) SM of BODEARPUR Station and DMK/TPQ 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 BDXX and DMK/TPQ station.

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

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

APPENDIX-'B'

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, the concerned Block instrument shall be suspended, and failure intimation is to be given to sectional signal Maintainer/JE/SE (Signal) for early rectification.

6.2 RESETTING OPERATION FOR L5AXT (DIGITAL AXLE COUNTER):

Digital Axle Counter L5AXT is provided on berthing line No.5 due to iron ore handling line to prove clearance/occupancy of the track. The occupation of the axle counter section is indicated on the VDU by Red.

If the Axle counter zone (L5AXT) shows occupation indication (Red) continuously on VDU after passage of train due to failure of the same, then SS/SM on duty shall initiate resetting procedure.

Before initiating resetting, on duty SM at BDXX station shall send an operating staff who in turn, verify that the concerned Axle counter zone is clear of all obstruction then open the respective Line verification box and press the verification button provided in the line verification box.

On obtaining verification indication which is indicated by glow of light on the Reset Box which is provided at SM's office, SM shall inserts the key in the Reset Box, turns right and presses both the key and the Push Button (Red) simultaneously and the same will be reset by this operation and concerned counter in Reset box will change to the next higher number.

Number thus changed due to resetting shall be recorded in the TSR, SM Diary and in the reset register provided for this purpose.

7. 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, will be indicated by showing 'RED' flashing light on VDU along with audible buzzer, which can be acknowledged and muted by pressing the 'ACK' button. However, the RED flashing light 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.

APPENDIX-'B'

8. <u>POINT FAILURE INDICATION (RED), POINT FAILURE BUZZER AND POINT FAILURE ACKNOWLEDGEMENT:</u>

Whenever there is a failure of a point due to non-setting, flashing of concerned point indication and flashing of point failure indication (red) appears along with point failure Buzzer. The buzzer stops when acknowledge the respective 'ACK' button, but the flashing of concerned point indication and point failure indication shall continue to glow until the Point failure is rectified and disappear when point failure is rectified.

9. <u>POWER FAILURE INDICATION AND BUZZER ACKNOWLEDGEMENT:</u>

The DC-DC Converter failure indication will flash & relevant buzzer sounds whenever a power failure is noticed.

The power failure buzzer will be muted once the relevant acknowledgement button has pressed, and the flashing indication is continued in the VDU till the problem is rectified.

10. <u>KEY BOARD OPERATIONS:</u>

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.

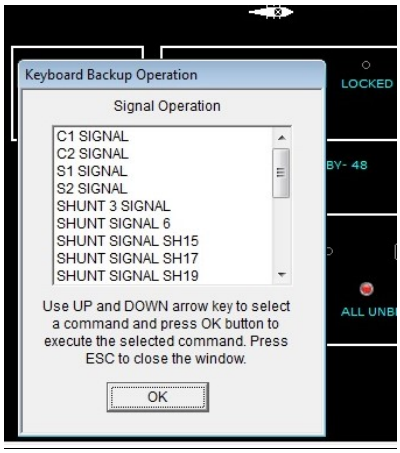
The "Keyboard backup" group has three button icons on the toolbar: -

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

APPENDIX-'B'

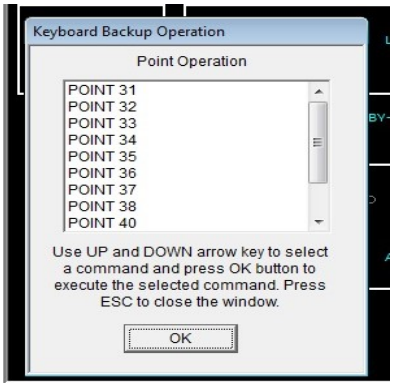
10.1. SIGNAL KEY BOARD OPERATION:

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.



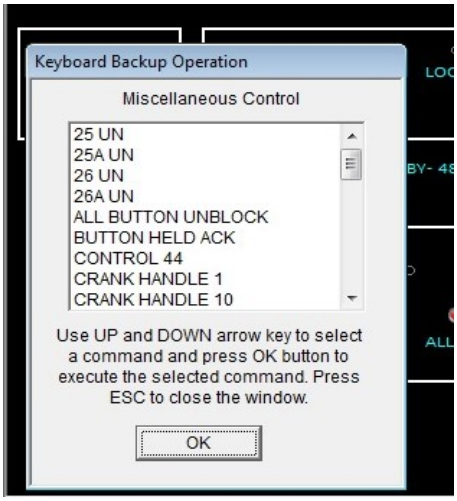
10.2. POINT KEY BOARD OPERATION:

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. MISCLLENEOUS 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.
6. Emergency gate operation Counter.

In addition to the above counters, 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, DN Loop & Common loop lines and all the point zones are track circuited as L1T1, L1T2, L1T3, L2T1, L2T2, L2T3, L3T1, L3T2, L3T3,

APPENDIX-'B'

L3T4, L4T1, 14T2, L4T3, 38AT, 38BT, 36AT, 36/40T, 34AT, 34BT, 25AT, 32T, 25T, 25T1, 2T2, 2T1, 2AT, 1AT, 1T1, 1T2, 26T, 26AT, 31BT, 31AT, 33AT, 33/39T, 35AT, 35BT, 31AT1, 37AT, 37BT.

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 crossovers 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 panel/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 PM **(Points Man)**.

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

After the train has brought to a dead stop at the Home signal the PM 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 PM. The PM 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). The PM shall hand over the pilot memo in form T/369(3b) to the Loco pilot after the train stopped. [Refer SR 3.70.02].

17. SHUNTING:

Caution aspect of UP Starter signals are used for shunting up to Advanced Starter Shunt Signals SH12, SH14, SH16, SH18 & SH20 are provided on Line No.1, 2 & 3 for Shunting from respective line and up to DN Advanced starter. Shunt Signal SH18 is provided on Line No.4 for Shunting from Line No.4 and up to Advanced Starter toward TPQ end & up to Shunting neck. Shunt Signal SH20 is provided on Line No.5 for Shunting from Line No.5 and up to Advanced Starter toward TPQ end & up to Shunting neck. Shunt Signal SH11 is provided on Line No.5 for Shunting from Line No.5 and up to Advanced Starter toward DMK end & up to Shunting neck. Shunt Signal SH13 is provided on Line No.4 for Shunting from Line No.4 and up to Advanced Starter toward DMK end & up to Shunting neck. For back shunting individual shunt signal SH3 and SH4 are at East and West side of the yard respectively for shunting back to the Station yard in desired direction. For taking OFF Shunt signals please refer Para No. 4.6.2 of APPENDIX-B.

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 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 to 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. 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).

22. 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.

23. 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.

24. <u>PROCEDURE TO BE FOLLOWED IN CASE OF FAILURE OF SIGNAL OR POINTS AND USE OF CRANK HANDLE:</u>

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:

APPENDIX-'B'

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:

25. INTERLOCKING OF SIGNALS WITH BLOCK INSTRUMENTS:

a. INTERLCOKING WITH HOME SIGNALS:

All the UP and DN HOME Signals are Electrically interlocked with the respective DLBI so that the handle of the DLBI Instrument cannot be turned from TRAIN ON LINE position to LINE CLOSED position of UP or DN direction as the case may be unless the respective Home Signals is put back to NORMAL position and the respective Block Section monitored by Axle Counter is clear of train

b. INTERLCOKING WITH ADVANCED STARTER SIGNALS:

The UP Advanced Starter Signals No.25 is electrically interlocked with respective DLBI of section BDXX-DMK so that this Signal cannot be taken OFF until the Handle of the concerned Block Instrument is in' LINE CLEAR' position.

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

c. SUSPENSION OF LAST STOP SIGNALS:

When the Double line block instrument for section TPQ-KMEZ is 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.

When the Double line block instrument for section TPQ-BDXX is 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.

26. 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 BDXX-DMK and BDXX-TPQ.
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 particular 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].

27. <u>POWER SUPPLY ARRANGEMENT FOR SIGNALLING INSTALLATIONS:</u>

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: Chhattisgarh 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.

APPENDIX-'B'

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.

v). 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.

vi). 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.

vii). There is a remote monitoring ASM box provided at the station to monitor the health of IPS.

28. <u>WORKING OF INTEGRATED POWER SUPPLY [IPS, INDICATIONS & ACTION TO BE TAKEN BY SM ON DUTY:</u>

Power supply to the signaling installation is fed through Integrated Power Supply System [IPS] installed in the S&T power supply room. For IPS system, the selection output of the CLS panel at SM's office is taken.

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 signaling 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.

APPENDIX-'B'

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.

29. 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 prerecorded 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'

WORKING RULES OF BODEARPUR STATION
ANTI COLLISION DEVICE [[RAKSHA KAVACH]:

-NIL-

APPENDIX 'D'

DUTIES TO BE PERFORMED BY THE STAFF AT BODEARPUR STATION:

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
TRAFFIC GATE KEEPER	01

1. 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.

2. 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.

3. <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.

4. <u>TRAFFIC GATE MAN:</u>

i) He shall be responsible for proper operation of the gate as per SWRs for the passage of trains.

ii) He shall ensure that no train suffers any detention on account of late closing of the gate.

iii) He shall keep the channels of check-rails clean and shall clean the road within the railway limits and water the area regularly.

iv) He shall clean the gate lamps and hand signal lamps daily. He shall ensure that the wicks of the burners are trimmed so that these are lighted properly and kept burning continuously from sun set to sunrise.

v) He shall keep the surroundings of his gate lodge clean tidy and neatly planted with shrubs, plants etc.

vi) He shall remain alert on duty till properly relieved. If he is required to leave the gate in an emergency he shall close and lock the gate booms against the road traffic before leaving the gate.

vii) He shall ensure that the equipment at L-xing are complete and in working orders.

viii) He shall produce the public complaint book when required by public for lodging complaint and to the railway officials for inspection.

ix) He shall ensure that road traffic is not unnecessarily held up at the gate.

x) He shall stand in attention near the gate lodge facing the track and be prepared to repeat any signal which the Train Manager may intend to convey to the loco pilot or show caution or danger signal should anything appear to be wrong with the train itself asit passes.

Note: 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	20
(ii)	LED based Tri Colour flashing torch.	3(1 Spare)
(iii)	Hand Signal Flags	3(1 Spare)
(iv)	Safety chains with Pad locks	9
(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'

APPENDIX 'F' TO STATION WORKING RULES OF BODEARPUR

WORKIG OF D.K.STATIONS, HALTS, IBS AND OUTLYING SIDINGS:

---NIL----

APPENDIX- 'G'

BODEARPUR STATION

RULES FOR WORKING OF TRAINS IN ELECTRIFIED SECTIONS:

DETAILS OF WORKING RULES OF 25KV AC TRACTION.