EAST COAST RAILWAY

Sambalpur Division

STATION WORKING RULES OF

JHARMUNDA

SI/WRD-22235

EAST COAST RAILYWAY

SAMBALPUR DIVISION

INDEX OF CORRECTION SLIPS

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EAST COAST RAILWAY

SAMBALPUR DIVISION

STATION WORKING RULES OF JHARMUNDA STATION

BG/MG/NG: Broad Gauge
Date of Issue:
Date brought in force:

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

(1) STATION WORKING RULE:

1.1. STATION WORKING RULE DAIGRAM NO. SI/WRD 22235/ALT-A.

1.2. SIGNAL INTERLOCKING NO. SI-22235 Alt'B'.

The Station Working Rule diagram and Signal Interlocking Plan shows the complete lay out of the yard, siding, normal position of points, the Signaling and Interlocking arrangements and Gradients within the station limits. This must be referred to for giving details of the points number and signals when reporting accidents.

(2) DESCRIPTION OF STATION:

JHARMUNDA is a three-line station situated in Balangir –Khurda Road Jn. section at KM 224.158 from KUR Jn. It is Standard –II interlocked Class 'B' station with EI and having Absolute Block System of Working. LVCD Digital axle counters (HASSDAC) at BOUDH end and at PURUNAPANI end have been provided at the station for last vehicle check.

2.1. GENERAL LOCATION:

2.1.1.	Name of the station	:	JHARMUNDA.
2.1.2.	Class of station	:	'B' class
2.1.3.	Name of the Section	:	Balangir Jn.-Khurda Road Jn, Non-RE, BG section
2.1.4.	Route	:	D
2.1.5.	Location	:	KM. 224.158 from KUR

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

1) Khurda Road end	-	BOUDH inter distance 16.270 K.M.
2) Balangir end	-	PURUNAPANI inter distance 20.40 K.M.
3) Passenger halt:	-	NIL.
4) Flag Station:	-	NIL.
5) Outlying siding:	-	NIL.
6) D.K. station:	-	NIL.
7) IBH:	-	NIL.
8) IBS:	-	NIL.

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

Between stations	The point from which Block section' commences.	The point at which 'Block section' ends.
Between JHARMUNDA-BOUDH	DN Advanced starter signal No.18 of JHARMUNDA.	UP Advanced starter signal of BOUDH.
Between JHARMUNDA-PURUNAPANI	UP Advanced starter signal No.19 of JHARMUNDA.	DN Advanced starter signal no.18 of PURUNAPANI.

2.3.1. STATION SECTION:

The portion between DN Advanced starter no.18 & UP Advance starter no. 19 is the station section of JHARMUNDA station.

2.3.2. STATION LIMIT:

The portion from UP Distant signal to DN Distant signal on is the station limit of the JHARMUNDA Station.

2.4. GRADIENTS:

(a) FROM THE CENTER OF STATION BUILDING TOWARDS BALANGIR:

CHAINAGE IN METER		INTER DISTANCE	GRADIENT
FROM	TO		
0 M	1050.0M	1050.0M	1 in 1200R
1050.0M	1950.0M	900.0M	1 in 155R
1950.0M	2950.0M	1000.0M	1 in 477 F
2950.0M	3350.0M	400.0M	1 in 160 F
3350.0M	Block section	---	1 in 700 R

(b) FROM THE CENTER OF STATION BUILDING TOWARDS KHURDA ROAD JN.:

CHAINAGE IN METER		INTER DISTANCE	GRADIENT
FROM	TO		
0 M	1050.0M	1050.0M	1 in 1200 F
1050.0M	1450.0M	400.0M	LEVEL
1450.0M	2700.0M	1250.0M	1 in 368 R
2700.0M	3700.0M	1000.0M	1 in 175 R
3700.0M	Block section	---	1 in 330 F

2.5. LAY OUT:

i)	No of running lines	:-	03 (Three.)
ii)	No of sidings	:-	02 (Two)
iii)	No of Passenger platform	:-	01 Nos. (One), One High level Pass. Platform (600M X 6.1 M) beside line No-1.

iv)	No of Siding Platform	:-	One working PF of 3m wide for TM siding
v)	No of Goods shed Platform	:-	Nil
vi)	No of Saloon siding Platform	:-	Nil
vii)	FOB	:-	Nil

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

S.No	DESCRITION	Holding Capacity in CSL	ISOLATION PROVIDED	
			Towards KUR end	Towards BLGR end
1.	Line No.1 (Loop Line)	784.0M (STR to STR)	ORL	ORL
2.	Line No.2 (Main Line)	746.0M (STR to STR)	----	----
3.	Line No.3 (Loop Line)	784.0M (STR to STR)	ORL	ORL

DIRECTION OF MOVEMENTS:

a) Trains arriving from BOUDH end are UP trains.
b) Trains arriving from PURUNAPANI end are DN trains.

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

SNo	DESCRIPTION	CAL/CSL	TAKES OFF LINE NO.	EXIT	OPERATION
1.	Hot axle siding on line no.1	75.0M (SH to SS)	Line No.1 at PURUNAPANI end.	One way	Setting DS point No.26 in SM's VDU for Shunting train from line No.1 at PURUNAPANI end.
2.	TM siding on line no.1	275.0M (SH to SS)	Line No.1 at BOUDH end.	One way	Setting DS point No.25 in SM's VDU for Shunting train from line No.1 at BOUDH end.

2.5.3.ANY SPECIAL FEATURES IN THE LAYOUT:

--NIL--

2.6. LEVEL CROSSINGS:

--NIL--

(3) SYSTEM AND MEANS OF WORKING: -

(Rule No: - Chapter XIV of G&SR, Chapter III, Part-I & chapter-V Part-II of Block working Manual)

i. System of working. **:** Absolute Block system.
ii. Type of block **:** TLBI for JHARMUNDA-PURUNAPANI and

	instrument.		JHARMUNDA-BOUDH sections.
iii.	Block Instrument.	**:**	Co-operative type(FM type) for JHARMUNDA-PURUNAPANI and JHARMUNDA-BOUDH sections.
iv.	Block Telephone.	**:**	Provided with respective block instruments of JHARMUNDA-PURUNAPANI and JHARMUNDA-BOUDH sections.
v.	Staff responsible for their operations.	**:**	S.M. on duty.
vi.	Custodian of keys.	**:**	S.M. on duty.

4. **SYSTEM OF SIGNALLING AND INTERLOCKING: -**

4.1.1 **STANDARD OF INTERLOCKING AND TYPE OF SIGNALLING:**

This Station is provided with Standard-II Electronic Interlocking with Multiple Aspect Colour Light signals. The Home Signals and Advanced Starters are interlocked with respective block instruments.

4.1.2 **TYPE OF SIGNALS**:

Multiple Aspect Colour Light Signals. The aspects & indications of the MACLS are governed by GR 3.08 (4) (b).

a) **Minimum equipment of signal**–

Distant, Home, Starter and Advanced starter signals in either direction.

b) The Station is provided with **central Electronic Interlocking (EI)** and having no end cabins. All signals and points are electrically operated from the VDU provided in SM's Office.

c) **Method of operation**:

VDU one as working& the other as standby are provided in the Station Master's office to electrically control all signals and points. (The details of operation from VDU is given under Appendix-'B')

d) **Provision of axle counter and Track circuits**:

I. TRACK CIRCUIT: -

All the lines including point zones between Home and Advanced starter signal on either direction are track circuited. The position of the running lines including point zones i.e. occupied/clear is indicated in the illuminated diagram at the Station Master's office. Normally there will be no indication of track circuits. It shows 'Red' when the line is occupied and 'yellow' when the line is clear provided the route is set.

(Detailed track circuits are given in appendix-B)

II. AXLE COUNTER:

Block sections JHARMUNDA-PURUNAPANI and JHARMUNDA-BOUDH are monitored by axle counter system. High Availability Single Section digital axle counters have been provided for last vehicle check for sections JHARMUNDA-PURUNAPANI and JHARMUNDA-BOUDH.

The position of block section i.e. clear/occupied is reflected on the reset box panel provided in the Station Master's office which shows 'GREEN' when the block section is clear and 'RED when the block section is occupied. The

occupation and clearance of the axle counter section are also indicated on VDU by RED & GREEN light respectively.

A reset box consisting of a counter and one resetting key with a push switch and three indications i.e. 'RED', 'GREEN', 'YELLOW' and miniature GREEN with locking arrangement for each pair of axle counter, kept at the station master's office. 'RED' and 'GREEN' indicates occupation and clearance of Block section respectively, 'YELLOW' indication glows when power is ON and miniature GREEN glows when resetting operation is initiated, after passage of a train the Axle counter will show clear indication. The resetting key of this panel is kept locked and sealed in a separate box. The key of the box is kept under the custody of SM on duty.

Whenever a train enters the block section, block section clear indication 'GREEN' disappears and occupied indication 'RED' appears. If after the complete arrival of the train, 'RED' indication does not change to 'GREEN', it should be assumed as failure of axle counter and subsequently block instrument failure, necessary action as per GR 14.13 to be followed. The axle counter is interlocked with Block instruments of concerned section.

A visual indication is provided in front of SM to enable him to report to ESM/JE signal when one Axle counting system fails.

e) **CALLING-ON SIGNALS:**

Calling-on signals are provided below Home signals(i.e. in both UP& DN directions) as per GR.3.13 (1) (b), (2) (3) (4) & (6) (b).Miniature colour light Calling-on signal is provided below the Home signals in terms of GR.3.13 (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.

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 selecting the desired route and SM on duty shall left click on the same after a train occupies the approach track circuit in rear of the Home signal. The Calling-on signal is cleared after a lapse of 60 seconds i.e. a Yellow light glows at the concerned Calling-on signal on the VDU. For every such operation veeder counter provided for the purpose counts next higher count. Each such operation shall be recorded by the SM on duty along with the reasons to do so. The calling-on signal route cannot be released automatically after complete arrival of the train. To release the route after passage of train SM on duty has to cancel the signal.

NOTE: SM on duty to ensure that no through signals are given while receiving a train on Calling-on signal.

g) **STATION MASTER'S OPERATING VDU: -**

The Station is provided with central Electronic Interlocking (EI). All signals and points are electrically operated from the VDU provided at SM's Office. A stand by VDU is also provided to switch over the system in case of failure of working

VDU. Calling-on signals are provided below Home signals (i.e. in both UP & DN directions). The VDU in Station Master's office electrically controls all signals, points, etc., The VDU is provided with SM's key, user name and password which shall always remain in the personal custody of the Station Master on duty in terms of SR 3.36.03(a).

NOTE: All operations and Indications shall be carried out through VDU only. The details of operation from VDU is given under APPENDIX-'B'.

4.1.3 CRANK HANDLE

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 handle keys 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 para-2.19 and para 20.06 of Appendix - B.

CRANK HANDLE	CONTROL POINTS
CH-1	21A/B.23A/B.
CH-2	22A/B.24A/B.
CH-3	25.
CH-4	26.

These crank handle keys are interlocked with the signaling and interlocking system at this station and normally locked inside the RKT instrument at the respective Crank Handles Locations. Crank handle keys can be taken out only when signals are not taken 'OFF' and the route is not locked for whatever reasons. Crank Handle key can be released by SM by tracking the mouse pointer on to the concerned crank handle button icon. This will enable two options to be displayed on the menu i.e. Crank handle Transmit control and Crank Handle Release control. To release the crank handle key, SM should click the Crank handle 'TRANSMIT' control option. 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. When the keys are taken out no signal can be taken "OFF" over the particular route on the points nominated by that Crank Handle.

SM on duty shall personally ensure the clamping and padlocking of all facing and trailing points. An emergency Crank handle register shall be maintained by the SM on duty at the station as per Para 2.19 of the Operating Manual. Correct setting, clamping and padlocking of the points devolve on the SM on duty. The cases of failure of motor point should be promptly reported to the concerned signal maintainer/SSE (Signal) for immediate rectification.

One Emergency key provided at SM's room to release all crank handles of the station during failure of both the VDUs. To release the crank handle key, SM shall turn the Emergency key. After the completion of 120 sec, the crank handle keys will be released.

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

When both the VDUs (Active & Stand by) provided for operation of signals & points in EI station cease to work at the same time due to power failure or what so ever the reason, the SM on duty shall put the VDU key to middle position (No VDU) and turn the key (ECHR) to right (KEY IN) provided in the ECHR key box fixed on the SM table. By resorting to this, timer is initiated and all the crank handles are released at a time after 120 seconds. This will be indicated by the indicator provided on the ECHR Key box. 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.

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

When both the EI systems fail to operate due to any technical reason/ power failure (complete Shutdown), all the crank handles are released at a time automatically after 120 seconds time delay. 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. This will be indicated by the indicator provided on the ECHR Key box. The signaling staff i.e., JE/SSE/Sig or ESM shall be intimated immediately regarding the failure for rectification of the same.

4.1.4 **SHUNT SIGNALS:**

Independent shunt signals SH-3(A/B/C) at BOUDH end and SH-4(A/B/C) at PURUNAPANI end on main line have been provided for back shunt movement. Shunt signal No.SH-5 has been provided for shunting from TM siding to line no.1. SH-10 below DN starter signal No- 10 has been provided for forward shunting movement towards TM siding. Shunt signal No.SH-6 has been provided for shunting from Hot axle siding to line no.1. SH-15 below UP starter signal No- 15 has been provided for forward shunting movement towards Hot axle siding.

4.1.5	**POINT AND TRAP INDICATORS**	**:-**	NIL
4.1.6	**REPEATING SIGNAL (ELECTRIC/BANNER TYPE)**	**:-**	NIL
4.1.7	**EMERGENCY CROSS OVER**	**:-**	NIL
4.1.8	**L.C. GATE OPERATION / Working**	**:-**	NIL
4.1.9	**ANTI COLLISION DEVICE**	**:-**	NIL
4.1.10	**TRAIN PROTECTION & WARNING SYSTEM**	**:-**	NIL

4.1.11 **EMERGENCY POINT OPERATION: -**

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

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

a. For emergency point operation, a physical key is provided on SM table. The key is to inserted and turned to reverse position for emergency point operation. Key icon on VDU will turn from RED to YELLOW when enabled.
b. On-clicking the concerned point icon pop-up menu is displayed carrying four options :1. Normal 2. Reverse 3. Emergency Normal 4. Emergency Reverse. For emergency operation of concerned point, drag the pointer to either emergency Norma or emergency reverse whichever is desired. A normal or reverse flashing indication will appear and the indication will be steady after the point is set to Normal or reverse, whichever is desired. After the completion of Emergency point operation.
c. The key is to be turned to normal position. This will make icon on VDU turn RED.

All such operations will be registered in the emergency point operation counter register. Each operation of emergency point operation shall be recorded in the station diary and in the register meant for this.

4.1.11 EMERGENCY ROUTE RELEASE INDICATION (WHITE):

The 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.

When the route is set and the signal taken-off, click on the signal. After clicking by the left button on the mouse, a pop-up menu will appear. Click on the cancellation menu (Main/Calling on) of the concerned signal, the signal will immediately go to 'ON' position. 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. The counter number will increase to next higher number for each and every such operation 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 the register and SM's diary.

In case the route is not released, the concerned S&T staff should be advised for rectification of fault, if any.

NOTE: Details of signalling and interlocking are given in Appendix 'B' of the SWR.

4.2 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 & S&T staff has to follow as per para No.13.6 of Operating Manual (2015), JPO/02/2012 dated 29.08.2012, RB JPO issued vide No.2021/Sig/21/Safety Performance, dated.10.06.2023.

The provision of double locks in Realay room includes all relay rooms, relay huts, goomties, LC gate relay huts/goomties within station limits and cabins provided as an extension of relay room for housing signaling gears in station yard.

The relay room & extended relay rooms within the station limits shall have double locking system of operating and S&T Locks. One Godrej Lock shall be provided on the door of Relay Room by the Station Master. This lock is named as operating lock. The key shall be kept in the safe custody in the key- box with the SM on duty. Likewise, one Godrej lock shall be provided on the door of Relay Room by the Signal Maintainer/ Signal Supervisor of the Station /Section.

Names of the S&T staff authorized for opening of Relay Room is to be entered in the first page of Relay Room Key Register and jointly certified by SSE/Signal In-Charge and TI In- Charge of the Section. In emergency, if any S&T staff other than authorized wants to open Relay room, he must inform DSTE through Signal Fault Control. Signal Fault Control shall convey the permission of DSTE to SS/SM by giving Signal Fault Control order number.

Whenever relay room is to be opened either for scheduled maintenance or during failures or for other maintenance activities/construction works. The concerned Maintainer/Signal Supervisor will inform SM on duty for opening of Relay Room with reason.SM on duty will verify his identity from the list of authorized S & T Staff recorded in the first page of Relay Room Key register or as advised by Signal Fault Control in emergency. SM shall give the key of operating lock to S&T staff, after the entry is made in the Relay Room and also with Red Ink in TSR. Relay Room key shall not be handed over by SM on duty to any Group D staff of S&T department. On completion of work, the concerned Signal Maintainer/ Signal Supervisor shall properly close Relay Room door and lock it with both the locks and then return the key of operating lock to the SM on duty making the entry in the relay room register.

When the key of Operating Lock is returned by S& T staff to SM on duty, he shall first verify the Relay Room for proper locking and then keep the key in safe custody and acknowledge it on the Relay-Room key register. If the relay room key is handed over to the Signal staff regarding the interference in safety gears the train shall be piloted in and out.

For attending Failures of S& T gears within relay Rooms, the following steps shall be taken :

Entry to be made in S& T failure register by SM on duty and failure Memo has to be issued to S& T staff. S& T staff shall not take the Relay Room Key for attending failures and open the Relay Room unless the failure is recorded in Signal failure register. If disconnection is required, Disconnection Memo has to be given by S& T staff to SM on duty. Failure Memo should be acknowledged and entry in relay room key register to be made by S& T staff before obtaining Station Master's key. Relay Room key for Schedule maintenance shall be taken once in a calendar Month during monthly inspection by Sectional Supervisor. Relay room can be opened by following above procedure for special maintenance activities like cable insulation testing, block/ disconnection memos, selection/ locking table testing, maintenance work inside relay room by Electrical and Engineering staff, during failures, data logger resetting and inspection by Divisional and Headquarter officials, Track Circuit adjustments & voltage monitoring during monsoon and whenever required during rains. Works required by S& T Construction & open line staff for preparatory works and during commissioning. In each such case, the Construction Staff Shall follow the

detailed guidelines issued regarding working on signaling gears under the charge of open line.

In case of emergencies such as fire, flood, earthquake etc., Open Line Section Engineer (Signal) / Signal Maintainer & SS/SM shall jointly decide the need for opening the Relay Room. Section Engineer Signal HQ at Divisional Control Office and Section controller shall be advised respectively. In case of communication failure during such emergencies, Open Line Signal Maintainers/ Supervisors and SS/SM on duty shall jointly decide the need for opening the Relay Room and communicate later on to respective controls. In case key is lost /misplaced, it shall be reported to S&T control as well as section control for either lock. In normal course the spare key with respective custodians shall be used. In emergency situation, lock may be broken under advice to Section Control as well as S&T control. New lock shall be procured and provided.

In case SM on duty comes to know of relay Room opening by unauthorized means or by unauthorized person or by any Group-D' Staff, the signaling system shall be suspended by him and matter immediately reported to Section Controller for necessary action. Senior section Engineer/ Signal & TI of the respective section will check the station records of relay room opening during their inspections and cross check it with data logger/counter reading if provided. Discrepancy, if any, shall be immediately inquired into and advised to Sr DSTE & Sr DOM by numbered control message from the station immediately for further action.

4.3 [A] **POWER SUPPLY: -**

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

Normally local supply is fed to signaling & Interlocking system fromOdisha State Electricity Board (OSEB) [Single phase 230V 50 Hz]

Two Nos. of DG are provided as stand by sources [Single phase 230V 50 Hz] .

Normal power supply [Single phase 230V 50 Hz] to the Signalling& Interlocking installation at the station is drawn from local power supply. Whenever local power supply fails SS/SM on duty shall operate the rotary change over switch provided in the CLS power panel at SM's office connecting the power supply from the healthy sources to the installation.

The SS/SM on duty however maintain the record of power failures of the local supply and he must promptly report the failure through the section controller and to the concerned Electrical staff and S&T maintenance staff.

1. A changeover switch is provided in the Station Master's Office with the three power supplies viz. Local and DG (Two Nos), 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.

2. Normally the switch will be kept towards Auto position. When automatic switching is not working then switch is to be kept on available power sources, preferably DG position.

3. IPS (Integrated Power Supply) arrangement has been provided at the station to take care of the signaling system as well as to avoid blanking of signals in case of power failure.

In case of Local of OSEB Power failure the IPS takes care of the signaling system approximate for 6 to 8hrs.

One Indication panel for monitoring of IPS voltage has been provided in SM Room. The Indication panel shall display the voltage of IPS as well as health of the IPS provided to operate signaling gears. Audio Visual alarm has been provided in the panel to guide on duty SM to take action in case of low voltage or no voltage or any defect in IPS is shown in the SM panel. Details indications and alarm have been described below:

SM INDICATION PANEL FOR IPS:

- Call S&T - Red indication
- Signal system shut down - Red indication
- Emergency start DG - Red indication
- Start DG - Red indication
- Stop DG - Green indication

To acknowledge the indication on panel two push buttons are provided. Besides this the panel also has digital display of IPS battery voltage. Whenever alarm appears on the SM panel due to any fault in the IPS system or due to low battery voltage SM on duty shall acknowledge the alarm by pressing the push button provided on the panel. Pressing on the push button shall mute the buzzer but relevant indication will continue to show till the fault is rectified by S&T staff. After acknowledgement of the alarm on duty SM shall immediately inform S&T staff at station regarding the alarm.

[B] **REMOTE MONITORING SM BOX:**

There is a Remote monitoring SM box provided at the SM's office to monitor the health of the IPS.

(i) In case voltage drops 105.9v an audible buzzer appears for starting generator.
(ii) In case voltage drops 105.1v an audible buzzer appears for emergency start of generator.
(iii) In case voltage drops 104.3v an audible buzzer appears for system shut down.

The SM now has to start the diesel generator for standby (Auxiliary) power supply. After stable run of the Diesel generator, the SM on duty has to operate the change over switch for connecting the auxiliary supply to the signaling installation. On resumption of power supply, the diesel generator shall be stopped by SM on duty after isolating diesel generator by change over switch. Each time the power supply goes OFF or ON SM on duty shall acknowledge. In case of any audible buzzer in SM's panel, SM on duty should acknowledge the buzzer by pressing 'Buzzer' stop button.

Secondary cell back up through integrated power supply system are provided to prevent possibility of blank signals in case of OSEB power supply failure.

Whenever OSEB power supply fails Secondary cell back up through integrated power supply system will immediately extend power supply to signals thereby preventing blanking of signals.

Based on the indication shown in the SM's Power Panel SM on duty should start DG for avoiding any case of shut down of the power sub system of integrated power supply system.

If there is any indication on SM's power panel regarding deviation in IPS system S&T staff shall be called for rectification.

4.4 EMERGENCY GATE OPERATION: NA

4.5 LINE BLOCK AND UNBLOCK (REMINDER COLLAR):

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

4.5.1 LINE BLOCK:

To set the 'LINE BLOCKED', the SM on duty shall select "L. No._ BLOCK" command using the left mouse button, after selecting the Line Block that particular line will be blocked for all the possible Track circuit section on that particular line. After successful line block operation a thick RED indication will appear on the route button icon on the berthing track section or on the stabling line section or on the route section. When a line is blocked it is not possible to lower any signal engaging that particular route section.

4.5.2 **LINE UNBLOCK:**

To release the set block of any particular line, the SM should select "L. No.___ UNBLOCK" command using the left mouse button. After selecting the "L. No.___ UNBLOCK" that particular line will be available for the train movement leading to all the possible Track circuit section.

5.0 **TELECOMMUNICATION FACILITIES: -**

(i) Telephone attached with Block Instruments for either side Block Section.
(ii) Station to Station fixed telephone (Hot line) is provided
(iii) Station is provided with Auto telephone connected with Railway Exchange
(iv) BSNL telephone is provided.
(v) The station is connected to BALANGIR-SPRD control circuit by a control telephone.
(vi) Station to station 25 Watt VHF communication is provided.
(vii) Telephone is provided between Station and both end crank handle locations.

(viii) Telephone connected with traction power control.

NOTE:

(i) For obtaining line clear, VHF should be used as a last alternative and not as a sole means of communication.

(ii) VHF and Walkie Talkie sets should not be used for unnecessary discussions with Loco Pilots, Guards or any other staff.

5.1 **FAILURE OF COMMUNICATION: -**

The on duty SM shall use the above electrical communication instruments stated in Para-5 from item No. (i) to (vi) strictly in order of preference for obtaining/granting line clear vide SR 14.01.01. In case of partial failure of communication instrument between the adjacent block stations the SM on duty shall work vide SR 6.02.06. In the event of total failure of communications between JHARMUNDA-BOUDH and JHARMUNDA-PURUNAPANI, SR 6.02.04 shall be observed for working the trains.

(Details are mentioned in Appendix 'B' of the SWR.)

6.0 **SYSTEM OF TRAIN WORKING: -**

The movement of trains is controlled by Section Controller on duty whose orders shall be complied with, provided they do not contravene any General Rules, Subsidiary Rules, Station Working Rules, Block Working Manual and 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 station and shall be responsible to ensure that there is no undue delay to train operation in general.

DUTIES OF TRAIN WORKING STAFF: -

Details of duties of operating staff are mentioned in Appendix 'D' of the SWR.

6.1.1 **TRAIN WORKING STAFF: -**

The following are the complement of train working and operating staff provided at the station to work in each shift.

SL. NO.	DESIGNATION	ROSTER	NO. OF STAFF IN EACH SHIFT	HRS. OF DUTY
1.	Station Superintendent (in-charge) ----------	EI	--	13 hrs
2.	SM -----	EI	01	12 hrs.
3.	PM-B/PM-A	EI	01	12 hrs.

The above staff shall work as per the rosters issued by Sr.DPO/SBP from time to time and these rosters shall be conspicuously displayed in the SM office.

6.1.2 **RESPONSIBILITY OF ASCERTAINING CLEARANCE OF THE LINE: -**

The SM on duty is responsible to ascertain the clearance of the nominated line between outer most facing points of concerned line.(GR 14.10)

6.1.3 **ASSURANCE OF STAFF IN 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 and thoroughly understood the system in force and must sign in such declaration.

No Railway servant shall be entrusted with any duty involving safety of the public unless the station 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 SMR is responsible to see that all the staff are conversant with the Station Working Rules and their signatures obtained in the Assurance register after he is satisfied that they have thoroughly understood the working rules of the station. In case of Group 'D' staff, their signature/thumb impression must be obtained after explaining fully about their duties and responsibilities.

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

The declaration shall be renewed in the following cases: -

Whenever there is a change in the Station Working Rules.

For any staff, who have not worked at the station or were away from the station for a period of 15 days or more.

6.2 CONDITIONS FOR GRANTING LINE CLEAR: -

The conditions laid down in GR8.01(1)(a),(c) 8.01(2)(b), (ii),8.03(2)(a),(b),(c)(ii),and BWM 2.07(3) & (4) shall be complied with before the line is considered clear and 'Line Clear' is granted for a train by on duty SM.

[A] For Single line Section:-(JHARMUNDA-BOUDH and JHRMUNDA-PURUNAPANI)

i) The whole of the last preceding train has arrived complete;

ii) All necessary signals have been put back to 'ON' behind the said train.

iii) The line is clear up to the DN Advanced Starter for UP trains.

iv) The line is clear up to the UP Advanced Starter for DN trains.

NOTE-If the light of the reception signal is found not burning, line clear shall not be granted for train till such time it is ensured that concerned driver is notified of the fact in writing by the SM of the station to which such line clear is to be granted.[Ref GR:3.49(4), 8.01(1)(a),(c),8.01(2)(b),8.03(2),(a),(b),(c)(ii).

iv). **OUTLYING SIDING: -** NIL.

6.2.1 **ANY SPECIAL CONDITION TO BE OBSERVED WHILE RECEIVING OR DESPATCHING A TRAIN: -** NIL

6.2.1.1 **SETTING OF POINTS AGAINST BLOCKED LINE: -** SR 3.51.06

All Points shall normally be set for the straight except when authorized by special instruction. When a running line is blocked by stable load, wagon, vehicle or by train which is to cross or give precedence to another train or immediately after arrival of a train at the station, the points in rear should immediately be set against the blocked line except when shunting or for any other movement towards the blocked line is required to be done vide 3.51.06 (a). if all the lines at the station happen to be blocked then SR.3.51.06 (b) will be followed.

Safety Point Alarm Unit (SPAU):

A safety point alarm unit is provided on the SM table with different indications: On complete arrival of a train at the station, the SM has to set the points immediately against the occupied line as per SR 3.51.06. 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. 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. On setting the points against the occupied line, the RED indication will disappear. 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. 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 any 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.

6.2.1.2 **RECEPTION OF TRAIN ON BLOCKED LINE: -** GR 5.09

Whenever trains are to be admitted on an obstructed line the SM on duty shall take off calling on signal. But during failure of calling on signal he shall authorize the on duty loco pilot with form T/509 indicating the reason for such admission the line number and the nature of obstruction on that line.

Before handing over the authority the SM on duty shall ensure the correct setting clamping and padlocking of both facing and trailing end of the points of concerned route vide SR 3.69.03.

A stop hand signal shall be exhibited by the SM on duty at a distance of not less 45mts. from the point of obstruction to indicate to the Loco pilot as to where the train shall be brought to a stand.

6.2.1.2.1 **RECEPTION OF TRAIN ON NON-SIGNALLED LINE:-** Not Applicable

6.2.1.2.2 **DESPATCH OF TRAINS FROM NON-SIGNALLED LINE :-** Not Applicable

6.2.1.2.3 **DESPATCH OF TRAINS FROM LINE PROVIDED WITH COMMON STARTER SIGNAL: -** Not Applicable

6.2.1.2.4 **SPECIAL RESTRICTIONS**:

1. No load shall be stabled in non-isolated line without a live locomotive is attached. Otherwise vehicle shall be secured as per Railway Board letter no. 2012/Safety (S&R)/19/1 dtd 04.12.2018.

6.2.1.2.5. **SPECIAL INSTRUCTIONS**

NIL

6.3 **CONDITIONS FOR TAKING 'OFF' APPROACH SIGNAL: -**

Reception of trains is governed by General Rule 3.36, 3.38, 3.40, Subsidiary Rule 3.42.02 (a) (iv), 3.42.03, 3.36.04 and other relevant provisions of General and Subsidiary Rules, Block Working Manual and Station Working Rules of the station to be followed.

Adequate distances to be kept clear vide General Rule 3.40(3) (b) for reception of trains.

A. **CLEARANCE OF ADEQUATE DISTANCE**:-

To take off the Home signal for admission of a train the adequate distance (signal overlap) as mentioned below shall be kept clear: -

Sr. No.	Line No.	UP TRAIN		DN TRAIN	
		FROM	TO	FROM	TO

1.	Line No.1 (Loop line)	Starter signal No.15	Up to Adv. starter signal No.19 or up to End of the ORL.(DS-26)	Starter signal No.10.	Up to Adv. starter signal No.18 or up to End of the ORL.(DS-25)
2.	Line No. 2 (Main line)	Starter signal No.13	Adv. starter signal No.19.	Starter signal No.12	Adv. Starter signal No.18.
3.	Line No.3 (Loop line)	Starter signal No.11.	Up to Adv. starter signal No.19 or up to End of the ORL.	Starter signal No.11.	Up to Adv. starter signal No.18 or up to End of the ORL.

Before admitting a train on any line, it must be ensured that the track indication for the respective line indicates 'Clear' indication in the VDU. To receive a train, for which line clear is granted, the SM on duty shall nominate a clear line in consultation with the Section Controller on duty. SM shall personally satisfy himself that the nominated line is clear and free from all obstructions by seeing the track circuit indication on VDU or by physical verification of the nominated route in case of failure of track circuit. He shall suspend all non-isolated shunting and thereafter set the points of the nominated route through VDU. He shall then verify from the visual indication available in the VDU that points are set to the desired route.

In case any of the track circuit on the concerned route shows occupied by RED indication even though the other conditions are satisfied, the operation through VDU by the SM on duty will not permit the concerned signal to be taken off. However, reception of train will be possible in such cases with the "Calling On" signal fixed below Home signal at either end. Calling-on signal can be taken off if Calling-On track circuit is occupied for the concerned home signal(1AT for UP and 2AT for DN Home signal).

Miniature Colour light calling on signal is provided below the Home signals in terms of GR 3.13(6)(b). A calling-on signal shows no light in the 'ON' position. The calling on signal is taken off for reception of a train when the Home signal above it cannot be taken off due to failure of track circuit or any other reason or for admission of a train on blocked line.

B. TAKING OFF CALLING-ON SIGNAL

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. Various options in terms of the total routes over which the signal will lead to will appear on the menu. Then the SM must drag the pointer and click over the particular Calling-on route amongst the various options displayed in the menu by the left button of the mouse as a result of which the signal lock indication below the signal will start flashing for 60 seconds. Calling-on signal below Home signal will then clear. i.e., a yellow light will glow at the concerned calling-on signal on the VDU. Every such operation has to be recorded by the on duty SM along with the reasons to do so. The calling-on signal route cannot be released automatically after complete arrival of the train. To release the route after passage of train SM on duty has to cancel the signal.

NOTE:
SM on duty to ensure that, no through signals are given while receiving a train on Calling-on.

6.3.1 **RESPONSIBILITY OF STATION MASTER FOR RESTORATION OF SIGNALS TO 'ON': -**
If for any reason after taking off signals, it is required to put back the signal and alter the route, in terms of Subsidiary Rules 3.36.02(b) (ii), a time delay of 2 minutes shall be observed before the points can be altered.

6.4 **SIMULTANEOUS RECEPTION, DESPATCH, CROSSING & PRECEDENCE OF TRAINS:**
According to the existing interlocking at this station, the simultaneous reception and dispatch of trains are permitted as stipulated below. SM shall work the trains vide SR 3.47.01 & 3.47.02 simultaneously in compliance to GR 3.40.

(i)	While receiving an UP train on Line No.1 setting overlap to ORL	Reception of a DN train on Line No.L3 setting overlaps to ORL or Dispatch of an UP train from Line No.L2/L3.
(ii)	While receiving an UP train on Line No.3 setting overlap to ORL.	Reception of a DN train on Line No.L1 setting overlaps to ORL or Dispatch of an UP train from Line No.L1/L2.
(iii)	While receiving a DN train on Line No.1 setting overlap to ORL.	Reception of an UP train on Line No.L3 setting overlaps to ORL or dispatch of a DN train from Line No. L2/L3.
(iv)	While receiving a DN train on Line No.3 setting overlap to ORL.	Reception of an UP train on Line No.L1 setting overlap to ORL or Dispatch of a DN train from Line No.L1/L2.

6.5 **COMPLETE ARRIVAL OF TRAIN: -**
(Rule no. GR 4.16, SR 4.17.01, 4.17.02, GR 14.10)

a**) STAFF RESPONSIBLE TO VERIFY COMPLETE ARRIVAL: -** SM on duty.

b) MODE OF VERIFICATION: Through AXLE COUNTER.

6.5.1 **L.V. VERIFICATION THROUGH AXLE COUNTER**: -
Entire block section at both sides of the station is monitored by axle counter system and the position of block section whether clear or occupied is indicated in the VDU and resetting box. As soon as a train enters in to the block section, the 'RED' indication appears in the axle counter indication panel as well as on the VDU. After the whole train clears the block section, 'GREEN' indication appears on the axle counter indication panel as well as on the VDU. This confirms the complete arrival of train and the SM on duty shall give train out of section report on seeing the section clear (GREEN) indication in the panel/VDU. GR 14.10.

6.5.2 **L.V. VERIFICATION WHEN AXLE COUNTER FAILS:-**
In case of failure of axle counter, the Station Master on duty shall obtain complete arrival certificate from the Guard of the train in the complete arrival register (T/1410) maintained at the station for stopping train. For through passing train the station master on duty shall satisfy himself about complete arrival of train by verification of the last vehicle indicator vide Subsidiary Rule 4.16.05 that the train is complete. In case a train arrives/passes incomplete, action shall be taken as per Subsidiary Rules 4.17.02. 'The train out of block

section signal' shall be withheld to the station in rear until complete arrival certificate is received from the station in advance supported by a Private Number.

Train passing on adjacent line shall be stopped and Guard and Loco pilot shall be issued with caution order to proceed cautiously and stop short of any obstruction as per SR. 4.17.03.

6.5.3 **L.V. VERIFICATION WHEN MOTOR TROLLEY FOLLOWING:-**

On occasions when motor trolley follows a train, the points shall not be altered until the following motor trolley is admitted on the same line. In the event of motor trolley is delayed in the section the Station Master on duty shall take action in terms of Subsidiary Rule 15.25.03 (b)(vi).

6.6 **DESPATCHING OF TRAINS: -**

Dispatch of trains are governed by General Rules 3.36, 3.38, 3.42 &14.08Subsidiary Rule 3.36.04(b), 3.42.04 and Block Working Manual 2.07(5)(a)(b) and other provisions of General Rules, Subsidiary Rules, Block Working Manual and Station Working Rules of the station.

To dispatch a train, the Station master on duty having obtained line clear for that train, shall set the route for the outgoing train correctly and satisfy himself by observing the visual indication on the VDU, he shall ensure the closure of level crossing gates if any in the section. Then he shall take "OFF" the concerned Advance Starter signal and starter signal. The 'OFF' aspect of the route Starter and is the authority to proceed into the block section.

The Station Master on duty shall watch the safe passage of the train with its last vehicle indicator. After the train passes the Advance starter complete, he shall send the train entering block section signal to the station in advance. If a train worked without Guard or Brake Van the instruction laid down in Subsidiary Rule & safety circulars shall be followed.

If a train worked without Guard or Brake Van the instructions laid down in Subsidiary Rules 4.23.02 and 4.25.02 shall be followed.

6.6.1 **PUTTING BACK SIGNALS TO 'ON' IN CASE OF EMERGENCY: -**

If a signal once taken 'Off' for reception/dispatch of a train has to be, in an emergency, put back to 'ON', the procedure laid down in Subsidiary Rules 3.36.02 shall be followed. In case of reception of train, route shall not be altered until the train has come to a stand outside Home signal. In case of departure signal before changing route, the SM shall take action as per SR 3.36.02(b)(i)& (ii).

6.6 **TRAINS RUNNING THROUGH**: -

a) The provision of GR 3.40, 4.17, 4.42 with relevant SRs and SR 3.42.02 (a)(iv) and other relevant provision of BWM shall be observed.
b) The sequence for taking 'OFF' signals for run through trains is governed by SR3.42.02 (a)(iv)
c) In every case in which trains are permitted to run through on a non isolated line, all shunting shall be stopped and no vehicle unattached to an engine or not properly secured in accordance with rule 5.23 may be kept standing on a connected line which is not isolated from through line vide SR 4.11 (2).
d) The SM on duty is responsible to see that a train passes complete with its last vehicle indicator. If a train passes without last vehicle indicator or its authorized

substitute, action shall be taken as per General and Subsidiary Rule. [Ref. GR 3.42,4.17,4.42 and SR 4.42.02 (b) (i),(ii).

e) The SM is responsible to observe/watch the condition of the vehicles on a train and shall wave green hand signal horizontally as per Subsidiary Rule 4.42.02. (b) until anything wrong is noticed on train. For this purpose the SM on duty shall stand in such a position that a clear view of the passing train is seen by him and that his hand signals can clearly be seen by the Loco Pilot and Guard of the train. He shall depute his points man with hand signal to the other side of the passing train who shall exhibit hand danger signal to draw the attention of the guard/ Loco Pilot of the train in case of observing any unsafe condition/abnormalities of the train. He shall also report to the SM on duty for taking further suitable action in terms of SR 4.42.02(d).

6.8 WORKING IN CASE OF FAILURE OF POINTS AND SIGNAL: -

In case of failure of S&T equipments on duty Station Master shall work in accordance to GR 3.68, 3.69 and 3.70 and SRs thereto.

6.8.1 PROCEDURE TO BE FOLLOWED INCASE OF FAILURE OF A SIGNAL & INTERLOCKING INSTALLATION: -

Whenever there is a failure of points, signals, track circuits or any other interlocking gear at the station that includes level crossing gate (s), if any etc. the SM on duty shall follow the procedure detailed in GR 3.68,3.69, 3.74 and SR thereto. In case of defective approach signals, the trains will be piloted in vide SR 3.69. In case of defective departure signals, trains will be piloted out vide GR 3.70 & SR 3.70.01, 3.70.02 & 3.70.03.

6.8.2 TRACK CIRCUIT

In the event of failure of track circuit in the yard trains shall be admitted in to yard after piloting 'IN'. Before piloting a train in to the yard the clearance of the track must be ensured by physical verification.

6.8.3 AXLE COUNTER

High Availability Single Section Digital Axle Counters have been provided on JHARMUNDA-PURUNAPANI and JHARMUNDA-BOUDH sections. The occupation and clearance of all the axle counter section are indicated on VDU as well as on the reset box by RED & GREEN indications respectively**.** When a train occupies the axle counter section it shows 'RED' and after the passage of train it shows 'GREEN'. After the passage of a train if the axle counter section does not show 'clear' indication and the 'section occupied' indication continues to glow SM on duty shall initiate resetting procedure for the axle Counter concerned, monitoring the Block section. Before initiating Resetting procedure SM on duty shall ensure that the train which has left arrived completely at receiving station and block section is clear of trains under the exchange of private number. Details of resetting procedure are mentioned in Appendix-B for JHARMUNDA-PURUNAPANI and JHARMUNDA-BOUDH sections.

6.8.4 DEFECTIVE SIGNALS

When signals become defective, the procedure laid down in GR & SR shall be followed. A signal in the OFF position is the final indication that the points are correctly set for the route for which it applies and if it is found impossible to take OFF a signal, the setting of points on the route to which it applies shall be inspected by the Station Master on duty before the signal is declared as defective irrespective of what is indicated by the position of the route.

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 prescribed in GR and the relevant SRs. [Refer GR 3.68, 3.69, 3.70, 3.71, 3.72, 3.74, 3.75, 3.76, 3.77, 3.49 and 3.52].

6.8.5 BLOCK INSTRUMENT

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. 14.13 & SR 6.02.06. During this period in the single line section i.e. JHARMUNDA-PURUNAPANI and JHARMUNDA-BOUDH trains shall be worked on "Paper line clear ticket", T/C 1425 & T/D 1425 for UP and DN directions respectively vide GR 14.25 & Chapter-III Part-I of BWM.

6.8.6 DEFFECTIVE INTERLOCKING

In the event of interlocking becoming defective, the points will be treated as defective. The SM on duty on receipt of this information will immediately introduce non-interlocking system of working at the station. Trains will be Piloted In or out as the case may be. The SM on duty shall be responsible for correct setting, clamping and padlocking of both facing & trailing points for admission of train.

6.8.7 DEFFECTIVE/DAMAGED POINTS

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 para-20.06 of Appendix- 'B' and 2.19 of Operating manual.

The responsibility of correct setting of points, clamping and padlocking the points for reception and dispatch of trains at the station, rests with SM on duty himself.

6.8.8 RECEPTION OF A TRAIN ON BLOCKED LINE: - GR 5.09

Whenever trains are to be admitted on an obstructed line the Calling-on signal may be taken –off. If calling-on signal failed then the SM on duty shall authorize the loco pilot with form T/509 indicating the reason for such admission the line number and the nature of obstruction on that line. Before handing over the authority the SM on duty shall ensure the correct setting, clamping and padlocking of both facing ad trailing end of the concerned route vide SR 3.69.03.A stop hand signal shall be exhibited by the SM on duty at a distance of not less 45mts. from the point of obstruction to indicate to the Loco Pilot as to where the train shall be brought to a stand.

6.8.9 INSPECTION OF POINTS BEFORE DECLARING THEM DEFECTIVE:

However, before declaring a signal is defective, the setting of the point on the route to which it applies shall be inspected by the Station Superintendent/Station Master. [Refer GR 3.68, 3.70 & SR 3.77.01(b)]. Initiate

action in accordance with the procedure prescribed in GR and relevant Subsidiary Rules there to. [Refer GR 3.49(4) and 3.68, 3.77]

6.8.10. **ISSUE OF CAUTION ORDER: -**

Whenever in consequence of the line being under repair or for any other reason special precautions are necessary, a caution order detailing the kilometers and speed at which a train shall travel and the reasons for taking such precautions shall be handed over to the driver in terms of GR 4.09 and SR thereto.

6.9 **WORKING OF MOTOR TROLLEY, MATERIAL LORRIES ETC: -**

(a) Motor Trolleys are run in accordance with Subsidiary Rules 15.25.03 to 15.25.07.
(b) Material Trolleys will work in accordance with Subsidiary Rules 15.27.05 to 15.27.08.
(c) Rail Dolleys will work in accordance with Subsidiary Rules 15.27.10.

The following precautions must be taken:

i) The section where axle counters are provided in lieu of track circuits, trolleys, motor trolleys, Lorries etc which are not insulated, shall not be allowed to run except on line clear.
ii) Motor trolleys/tower wagons/material Lorries are not likely to actuate the axle counter correctly. When they are to run over the sections split by axle counters, the whole section to be treated as one and next train to be started after the first train has arrived complete.
iii) In all other respects, the working of a light Motor trolley shall conform to the rules laid down for ordinary trolleys while running without block protection and to those laid down for motor trolleys while running under block protection or following another light motor trolley or a motor trolley.

7. BLOCKING OF LINES: -

Whenever a running line is blocked either by loose vehicles or by stabling train or by a train which is to cross or give precedence to another train, the points at either end should immediately be set against the blocked line except during shunting movement. 'Line Block' is to be activated on VDU by SM on duty following procedures as laid down in para No. 6.2.1.1. 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)]

7.1 **LINE BLOCK FEATURE IN VDU** –

Line block feature identical to conventional panel is incorporated in VDU panel for blocking of a running line which is blocked either by loose vehicles or by stabling of a train or by a train which is to cross or give precedence to another train. For blocking/unblocking of line, SM on duty has to click the mouse near the route button provided on running line and a popup menu Blocking & Unblocking will appear. By selecting the blocking option the said line is blocked and reception signal pertaining to that line cannot be taken off. For unblocking the line SM on duty has to select the unblocking option from popup menu. Similarly Blocking/Unblocking feature is provided near the advanced starter signals of both end of the station for Blocking/Unblocking the block section. By selecting the blocking option no train can be dispatched to the block section.

7.2 **SECURING OF VEHICLES:**-

As far as practicable, loose vehicles shall not be allowed to stand on the running line. However, under unavoidable circumstances, if it is necessary to detach vehicles from a train or to stable a train and leave them standing on running line, SM on duty shall be responsible to secure vehicles/stable loads in accordance with GR 5.23 and SR 5.23.01 to prevent rolling down of vehicles and arrest obstruction & fouling of line.

NOTE: Special care shall be taken to secure special type vehicles fitted with roller bearings while standing in siding or on running lines.

7.3 **ALTERING OF POINTS TO A CLEAR LINE WHEN RUNNING LINE IS BLOCKED:-**SR 3.51.06

a) When a running line is blocked by stable load e.g, wagons, vehicles or by a train which is to cross or give precedence to another train or immediately after arrival of a train at the station etc. the points in rear should immediately be set against the blocked line except when shunting or another movement is required to be performed in that direction on the same line.

b) If all the lines at a station happens to be blocked when line clear has been granted to a train, the points should be set for the line occupied by a stable load or a goods train in that order so that in a case of mishap, the chances of casualties are minimized.

c) In case all the lines are occupied by passenger carrying trains points should be set for a loop line, to negotiate which the speed of the incoming train would be reduced, which in turn would minimize the consequences of casualties. While doing so, points shall be set for a loop, occupied by a train if any, whose engine is facing the direction of approach of the incoming train rather than a loop line, occupied by a train whose passenger coach will, in case of collision, receive the impact.

d) These precautions shall be taken in addition to the observance of other precautions as contained in SR 5.04.01 & 5.23.01.

7.4.1 **LOADING AND UNLOADING OF VEHICLES ON RUNNING LINE**:-

Loading and unloading from vehicles on running line is prohibited unless permitted by Sr. DOM / SBP vide SR 5.19.01.

At stations where loading and unloading of goods is permitted whether full rake or part thereof, the station master shall ensure that no goods are left fouling any line before and after clearance of the rake from the line. The railway servant supervising loading and unloading shall also ensure that consignment does not foul any line vide SR 5.19.01

If the stations are on gradients, the rake should be properly secured as detailed in SR 5.23.01.
During the time of loading / unloading, the station master shall ensure isolation of the lines(s) as detailed in SR 3.51.06.

8.0 SHUNTING: -

8.1 **GENERAL PRECAUTIONS: -**

(i)The rules laid down in GR 3.46, 3.52 to 3.56, 5.13 to 5.23, 8.09,8.10,8.12,8.13 and 8.14, 8.15 (c) with relevant SRs. All shunt moment shall be supervised by SS/SM/Guard/TPM on duty vide SR 5.13& 5.14 of G&SR as the case may be.

In the event of any non-signaled movement has taken place, the SM on duty shall ensure physical verification of the clearance of the crossover points.
The staff supervising shunting shall ensure correct setting of points, clamping and pad locking of points, if necessary.

8.2 **SHUNTING IN FACE OF AN APPROACHING TRAIN:**
When line clear has been given no obstruction shall be permitted outside station section.

8.3 PROHIBITION OF SHUNTING ANY SPECIAL FEATURES IF ANY:
a. Hand shunting /Fly shunting/ Loose shunting is prohibited.

8.4 SHUNTING IN THE SIDING TAKING OFF FROM THE STATION YARD:
Shunt signal No.SH-5 has been provided for shunting from TM siding to line no.1. SH-10 below DN starter signal No- 10 has been provided for forward shunting movement towards TM siding. Shunt signal No.SH-6 has been provided for shunting from Hot axle siding to line no.1. SH-15 below UP starter signal No- 15 has been provided for forward shunting movement towards Hot axle siding.

8.4.1 SHUNTING ON SINGLE LINE

i. Within station section : Governed by GR 8.10
ii. Between last stop signal and opposite first stop signal governed by GR 8.12
iii. Beyond opposite first stop signal: Unless the line is blocked back the line outside the first stop signal shall not be obstructed vide GR 8.13

SR.5.16.01:
When reception signals have been taken 'off' for a train on to a line which is not isolated, no shunting movement shall be carried out towards the points over which the incoming train is to pass.

(a) Shunting shall be supervised by authorized staff viz. Yard Master/Assistant Yard Master/ Shunting Master Shunting Jamadar/ Points man,SM & Guard etc. and all other laid down requirements of shunting needs to be complied.
(b) No shunting shall be carried out during foggy or tempestuous weather impairing visibility.

(v) **DURING FAILURE OF BLOCK INSTRUMENT:**-
the SM on duty shall ensure that there is no train in the block section and the last train has arrived complete clearing the fouling mark while conducting shunting at that end of the block section of which block instrument has been suspended and all necessary precautions have been taken as per rules laid down in GR.

9.0 ABNORMAL CONDITIONS: -

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

[I] **PARTIAL FAILURE OF COMMUNICATION: -**

In the event of suspension of Block Instrument and during partial failure of other available means of communications, trains will be worked in terms of Subsidiary Rule 6.02.06 and Chapter-III Part-I of Block Working Manual.

[II] **TRAINS DELAYED IN BLOCK SECTION**: -

If a train carrying passenger does not arrive within 10 minutes or if a goods train does not arrive within 20 minutes after allowing for its normal running time from the station in rear, the SM at the station in advance shall immediately advise the station in rear and the control of this fact. There after SMs at either end of the Block section shall send one Railway servant into block section to collect the whereabouts of train, condition of train and nature of assistance, if any, required. SM on duty shall collect the full particulars from railway servant so deputed and intimate the same to SM at other of block section and to the section control simultaneously for taking action according to circumstances of the case. [Refer GR 6.04 & SRs thereto].

[III] **FAILURE OF LV AXLE COUNTER: -**

Details of the operation are given in Appendix 'B' of SWR.

[IV] **FAILURE OF MTRC**- Not Applicable.

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

Details of the operation are given in Appendix 'B' of SWR.

(c) CERTIFICATION OF CLEARANCE OF TRACK BEFORE CALLING-ON SIGNAL IS OPERATED

To take 'OFF' a calling on signal during failure of track circuit on the route, the clearance of the track over which the train would pass must be physically checked by the SM on duty. After satisfying himself SM on duty shall initiate the calling-on signal operation. The procedure shall be strictly followed.

(d) **REPORTING FAILURE OF POINTS, TRACK CIRCUIT/AXLE COUNTER AND INTERLOCKING:-**

In case of failure of any interlocking gear at the station, the failure report should be communicated by the SM on duty to the sectional Maintainer, the JE/SE/SSE (SIG) of the Section and others through a memo as per SR 3.68.04 and document all such transactions. In case of failure of any one of the systems in dual detection system an occupied (Red) indication will appear against the display of failed system on the reset box.

9.1 (A) <u>TOTAL FAILURE OF COMMUNICATION ON SINGLE LINE</u>: -

In the event of total interruption of all communications occurring between JHARMUNDA-PURUNAPANI and JHARMUNDA-BOUDH sections, i.e when 'Line Clear' cannot be obtained by one of the following means stated in order of preference viz,

a. Block Instruments, Track Circuits or Axle Counters
b. Telephone attached to the Block Instruments
c. Station to Station fixed telephones whenever available
d. Fixed telephone such as Railway auto telephone & BSNL phone
e. Control telephone
f. VHF sets

Action shall be taken as per SR 6.02.04. The train which is to be despatched to the affected section will be stopped and the Loco Pilot and Guard of the train shall be informed about the fact. Before dispatching the light engine /main engine/motor trolley /Tower wagon/Trolley /Cycle trolley/Moped trolley/Diesel car/rail motor car/EMU rake, the SM on duty shall hand over an authority i.e. T/B 602 for opening of communication during total failure interruption of

communication on Single Line Section to the Loco Pilot /motorman/Guard/SM who is being sent to open communication, which includes.

(i) An authority to proceed without "Line Clear".
(ii) A Caution Order restricting speed of the train to 15 Kmph by day when the view ahead is clear and 10 Kmph during night or when view ahead is obstructed in addition to other speed restrictions in force.
(iii) An authority to pass the Last Stop Signal at 'ON' position.
(iv) A "Line Clear" enquiry message (T/E 602) asking "Line Clear" for the awaiting train.
(v) A conditional "Line Clear" message (T/F 602) for the light engine to return with or without a train attached, supported by a Private Number.

On arrival of the engine at the next station the conditional line clear message and enquiry message shall be collected by the Station Master on duty who shall prepare a conditional line clear ticket for engine to return either light or with train attached and conditional line clear reply message for the enquiry message giving line clear for the train waiting at other station shall be handed over to the Loco Pilot of light engine. On return trip the Loco Pilot will come on booked speed subject to speed and other restrictions in force.

If there be an even flow of trains in both directions, Enquiry and Conditional line clear message for each succeeding train may be sent through the Guard of the preceding train.

If the Station Master at one end has more than one train to despatch in the same direction he may ask line clear not only for one train but also for the following trains. It must be stated that these later trains will be despatched after the first train at an interval of 30 minutes.

When despatching the second and subsequent train particulars of last preceding train along with its departure time will be endorsed and a caution order restricting the speed to 25 Kmph. over straight when view ahead is clear and 10 Kmph. when the view ahead is not clear is to be issued. While adopting this procedure the Guard and Loco Pilot should be instructed to keep a 'Sharp' lookout and be prepared to stop short of any obstruction. Trains must continue to work on this system until any one of the means of communication is restored.

As soon as any one of the means of communication has been restored, the conditional line clear working of trains shall be cancelled when there is no train in the affected block section and message shall be exchanged supported by Private Number keeping Section Controller informed.

9.2 THE AUTHORITY TO PROCEED IN OCCUPIED BLOCK SECTION IN CASE OF OBSTRUCTION ON LINE OR ACCIDENT:

Rules and Regulations for working of trains on an obstructed line in case of obstruction or accident on the authority of Block Ticket (T/A-602) when communications are available shall be followed in accordance with the provisions which is summarized as follows [Refer SR 6.02.05]

After sending a train on block ticket, a following train shall not be dispatched in the same direction unless:

a) The previous Block Ticket is collected and Cancelled or
b) Necessary endorsement is given on the previous block ticket with the advise to wait at the site for a next train to follow or
c) The previous train has met with an accident or has been disabled or
d) The Block ticket has been cancelled from the Loco Pilot of the previous train by the official in-charge at the site and kept in the personal custody & shall be kept until the arrival of the next train and such assurance is given over the telephone installed at the site quoting the serial number of the Block Ticket so collected.
e) SM will suspend the Absolute Block System of Working and both SMs concerned should arrange for running of trains on the authority of Block Ticket
f) SM at the dispatching end will hand over to the Loco Pilot the block Ticket as the authority which shall include:
   i. Caution Order: Existing Speed Restriction/s shall be indicated in the Caution Order portion. The Speed Restriction to 15 KMPH during clear visibility and 10 KMPH when visibility is obstructed shall be clearly indicated.
   ii. An authority to pass the Stop Signal at "ON" position.
g) Before resumption of normal working a message between the SMs of the concerned stations shall be exchanged with private number.[Ref SR 6.02.05(d)(vi)]
   The Block Ticket so issued must be collected by SM of either end with a certificate about the complete arrival of the train with its time and the section is clear of all obstructions from Loco Pilot /Guard of the train and cancelled.

10. **VISIBILITY TEST OBJECT**: -

i) V.T.O. post/Authorized substitutes earmarked to work as V.T.O. Post. – The lights of Line No.1 starters on both ends are earmarked to serve as VISIBILITY TEST OBJECTS vide GR 3.61 (2) (b) (ii).
ii) Distance between CSB and V. T. O. post: - 180 Mts.
iii) Station Master on duty will test the visibility during thick and foggy weather and if visibility is impaired, he will work as per GR 3.61 and SRs thereto.

11**.** **ESSENTIAL EQUIPMENTS AT THE STATION**: -

This is mentioned in the Appendix 'E' of the SWR. Essential equipments shall be kept ready on hand in good condition with necessary relief stock.

12. **FOG SIGNAL MEN NOMINATED TO BE CALLED IN CASE OF FOG: -**

In order to indicate to the Loco Pilots of approaching trains the location of signal during thick, foggy and tempestuous weather or during dust storm, the SM on duty shall arrange for fog signalling in terms of General Rule 3.61 and Subsidiary Rules thereto. Assurance of the staff shall be taken in the Fog Signal Register in the month of October every year as token of their having knowledge of Fog Signalling Rules and their use.
Fog signalmen shall be detailed for duty at stations being recruited partly from the station traffic staff and partly from Engineering Gang man and must not be substitutes or casual labour but regular employees of the railway.

STATION DETONATOR REGISTER (OPT/124)
A Register regarding detonator is maintained at the station.

INSTRUCTIONS:

(a) This register contains the following parts.
Part. - I: Particulars of fog signalmen posted at the station from time to time.

Part – II: Particulars of receipt and stock of detonating (fog) signals at the station to be filled in whenever detonators are used or received.

Part – III: Periods of fogs, fog signalmen on duty and details of detonators used.

Part – IV: Particulars of issue and testing of fog signals at the station.

(b) In charge of the station shall ensure that the information maintained in the register is kept up to date and is accurate in all respects.

(c) Transportation inspectors shall check the registers and also the stock of detonators on hand each time they visit the station and initial with date as an indication having done so.

CERTIFICATE:-

NOTHING IN THESE RULES SHALL BE READ AS CANCELLING, AMENDING AND MODIFYING ANY OF THE GENERAL RULES, SUBSIDIARY RULES, BLOCK WORKING MANUAL AND OPERATING MANUAL.THESE RULES HENCEFORTH CANCELL ALL PREVIOUS STATION WORKING RULES OF **JHARMUNDA** STATION.

APPENDICES

APPENDIX 'A' -- WORKING OF L.C. GATE. ---------- NIL

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

APPENDIX 'C' -- ANTI COLLOISION DEVICE (RAKSHA KAVACH).

APPENDIX 'D' -- DUTIES OF TRAIN PASSING STAFF AND STAFF IN EACH SHIFT.

APPENDIX 'E' -- ESSENTIAL EQUIPMENTS OF STATION.

APPENDIX 'F' -- RULES FOR WORKING OF DK STATIONS, PASSENGER HALTS, IBH, IBS AND OUTLYING SIDINGS.

APPENDIX 'G' -- WORKING OF TRAINS IN ELECTRIFIED SECTIONS.

APPENDIX – 'B'

DETAILS OF SIGNALLING AND INTERLOCKING INSTALLATIONS, INSTRUCTIONS FOR WORKING THEM NORMALLY AND EMERGENCIES ETC., INCLUDING THE POWER SUPPLY ARRANGEMENTS.

1.0 **BRIEF DESCRIPTION OF THE SIGNALLING & INTERLOCKING INSTALLATIONS**:

This is a 'B' class station provided with Standard –II interlocking. The station is provided with Route setting type Electronic Interlocking system having points, signals, track circuits and other signaling gears. The Station is equipped with Multiple Aspect Colour Light Signaling. All points and Signals etc. are power operated through a central Visual Display Unit (VDU)with a standby installed in the SM's Office.

2.0 **DESCRIPTION OF OPERATOR CONSOLE CUM VISUAL DISPLAY UNIT:**

The Operator Console cum Visual Display Unit (VDU) is provided for operation of Signals, Points, Crank Handles, Siding & other controls etc. A mimic yard diagram based on approved SI plan will be displayed on the VDU. The VDU is used for controlling and monitoring the station. Indications on the Station yard mimic diagram of VDU will be dynamically updated.

2.1 **SYSTEM OVERVIEW:**

An Operator Console consisting of a VDU (colour monitor), with keyboard and pointing device (mouse) connected with a computer (CPU) is provided. The CPU is connected to the Electronic Interlocking (E.I) equipment to exchange control and indication messages. The system is programmed to display the Station Yard mimic diagram on the VDU and that it allows access to all functions through pop-up menus. When a particular function is selected, an appropriate Menu will appear on the screen. A function (clearance of signal or cancellation, Route release, Point operation, etc.) can be executed through selecting the required operation by clicking the Left button of the pointing device (mouse) on the desired function.

2.2 An additional VDU connected with a computer is provided as standby arrangement in case of failure of the working operator console. In case of failure of the working operator console the system shall switch over to the stand by VDU automatically.

2.3. ICONS AND INDICATIONS PROVIDED ON THE VDU

In addition to mimic yard diagram including signal, points, track circuit, Axle counters, L.C. gate, siding 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.

SL. NO	ICONS	INDICATIONS	FUNCTIONS	REMARKS
1	SM's Key	Yellow light when key is'IN'	Ensures operation of VDU by authorized person	Protected by pass word
2.	---	Emergen	Flashing indication appears when	For each

		cy Route release - UP & DN	Emergency route release operation is initiated.	operation concerned counter shall register one count higher.
3.	Emergency key	Yellow light when key is 'IN'	Ensures emergency point operation and super Emergency route release by authorized person	For each operation concerned counter shall register one count higher.
4.	---	System indication On/Off	Indicates System 'A' or 'B' is in working mode	---
5.	Point failure Ack. Button	Yellow	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.
6.	Signal failure Ack. Button	Yellow	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.
7.	CH-1 to CH-6	Yellow lamp indicates 'KEY IN'. Red lamp indicates ' CH LOCKED'	When CH is IN yellow lamp will be lit. Whenever the crank handle is transmitted red indication is flashing. No light will glow when CH is OUT.	--
8.	UP Block release	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
9.	DN Block release	Yellow – Prepared for Block release.		
10	Line Block	Red when blocked	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, SM has to select the required menu.	When line block is selected the concerned icon of track will appear as

				thick Red.
11	Power Block	Red when blocked	SM shall point the curser on the icons provided on the berthing track and right click. One drop menu will appear indicating power blocked and un-blocked, SM has to select the required menu. By selecting ON menu RED indication will appear and selecting OFF menu BLUE indication will appear.	When power block is selected the concerned icon of track will appear as thick Red.
12	Point Block	Red when blocked	SM shall track the mouse pointer to concerned point's Normal/Reverse indications on the VDU, after clicking by the right button on the mouse a pop-up menu will appear. By selecting Point Block RED indication will appear at concerned point and selecting Point Un Block yellow indication will appear.	When Point Block is selected for a point, it cannot be operated until it Unblocked.
13	Signal Block	Red when blocked	For Blocking a signal, place the mouse pointer on the concerned signal and right click. A pop-up menu will appear. From the pop-up menu BLOCK to be selected by clicking left mouse button and now the concerned signal is blocked.	When signal block is selected for a signal, it cannot be taken off until is unblocked.

3.0. OPERATIONAL PROCEDURE THROUGH VDU AND INDICATIONS:

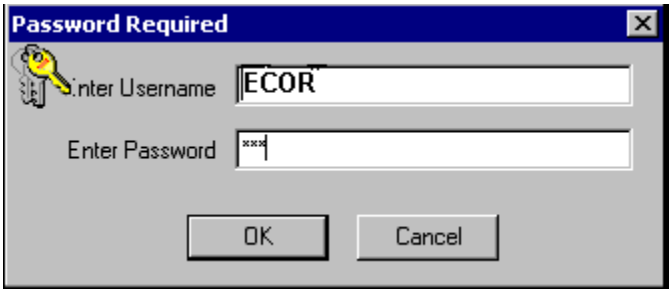
In addition to the mimic yard diagram various other indications will be available on the VDU. The implications of different indications provided and the operational procedure for different functions shall be strictly followed as per the following description.

3.1 ELECTRONIC INTERLOCKING (E.I) SYSTEM INDICATIONS:

Electronic Interlocking Equipment (E.I) at the center can work in either of the two modes i.e, System-'A' or System-'B'. On the VDU (Computer), there are two system indications in which Green indication mentioning the On-line system and the Red indication showing that the system is in power off condition.

3.2 OPERATION PROCEDURE OF SS/SM's KEY :

To prevent the unauthorized operation by any person other than SM on duty this facility is provided on VDU. On duty SM needs to track the pointer to the "SM KEY" icon and click the 'KEY IN' menu by the clicking left button of the mouse, by this a Password window will appear. SM on duty needs to enter the password and press the 'OK' Button provided on the Password window. This will allow operation of all the controls e.g., Signals, Points, L.C. gates and Crank handles, etc. through VDU. In case of SM's key is out, other than signal cancellation operation all other operation cannot be done through VDU. In case incorrect password or user name is entered, no operation can be done. In such cases the same procedure is to be repeated till correct password is entered.



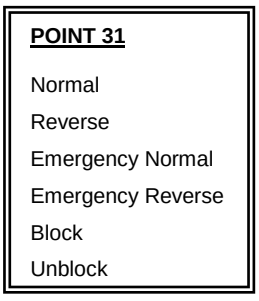
Enter the USER NAME and PASSWORD and click the OK button.
Now the Operating VDU is ready for use & the entire yard can be controlled from the VDU. Similarly, Station Master is to select the KEY OUT to prevent the unauthorized operation.

3.3 DESCRIPTION OF CROSS OVERS/DS POINTS :-

Srl No	Point No.	Description
1	21A/B	Crossover point between Main line and LOOP line No.1 at BOUDH end.
2.	22A/B	Crossover point between Main line and loop line No.3 at PURUNAPANI end.
3.	23A/B	Crossover point between Main line and LOOP line No.3 at BOUDH end.
4.	24 A/B	Crossover point between Main line and loop line No.1 at PURUNAPANI end.
5.	25	DS Point on overrun line of line no.1 at PURUNAPANI end.
6.	26	DS Point on overrun line of line no.1 at BOUDH end.

3.3.1 **OPERATION AND INDICATION OF POINT:**

To Operate the Point the SM needs to track the mouse pointer to concerned point's Normal/Reverse indications on the VDU, after clicking by the right button on the mouse a pop-up menu will appear as below:



3.3.2 **REVERSE TO NORMAL OPERATION**:

Track the pointer to NORMAL menu and left click. A Normal flashing indication will appear and the indication will be steady after the point is set to Normal.

3.3.3 **NORMAL TO REVERSE OPERATION**:

Track the pointer to REVERSE menu and left click. A Reverse flashing indication will appear and the indication will be steady after the point is set to reverse.

3.3.4 BLOCK AND UNBLOCK OF POINT

Blocking and unblocking features of concerned point is available so that On duty SM Can block the concerned point in required position.

To Block the Point the SM needs to track the mouse pointer to concerned point's Normal/Reverse indications on the VDU and right click. A pop-up menu will appear. From the pop-up menu Block to be selected by clicking left mouse button and now the concerned point is blocked.

Same procedure for Unblocking the concerned point.

When a point is blocked either in Normal or reverse, point is locked in that position till it is unblocked by SM .

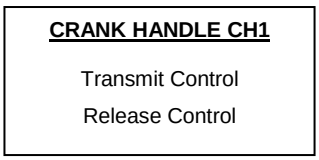
3.3.5 POINT INDICATIONS-

When the point is free, a steady strip of light will appear in the point zone (In case of cross-over at both ends) indicating the point is in normal/reverse condition. When the point is operated the same strip of light starts flashing till the point is set and becomes steady when the point is set and detected. When the point is engaged in a route RED light will appear near the point indicating that the point is locked and cannot be operated now.

3.3.6 CRANK HANDLE CONTROL OPERATION:

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

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



To Transmit the Crank Handle KEY to the field personnel, SM on duty has to left click on transmit control menu. After transmission the 'KEY IN' indication will start flashing, now the KEY can be extracted from the RKT at site. After extracting the key from the RKT, the 'KEY IN' indication will disappear. When the Manual point operation is over and after putting CH key in the RKT, 'KEY IN' steady indication will appear on the VDU.

3.4 PROCEDURE FOR SETTING OF ROUTES AND TAKING OFF SIGNALS WITH BLOCKING AND UNBLOCKING FEATURE :

To Take-Off a Signal on the desired route the SM on duty needs to track the mouse pointer over the concerned Signal on the VDU, after clicking by the right button of the mouse a pop-up menu will appear as below:

SIGNAL S1
S1 – S11(loop line)
S1 – S11(MAIN)
S1 – S13(MAIN)
S1 – S15(LOOP LINE)
S1-15(MAIN LINE)
Signal Cancel
Emergency route release
Super Emergency Route release
BLOCK
UN Block

SM on duty will select the route as per the requirement by moving the mouse pointer on the appropriate menu & left clicking on the menu. It will set the route and clear the signal provided all the conditions required to clear the signal are satisfied. Likewise, by following the similar procedure operation of other signals can be done.

For Blocking a signal, place the mouse pointer on the concerned signal and right click. A pop-up menu will appear. From the pop-up menu BLOCK to be selected by clicking left mouse button and now the concerned signal is blocked.
Same procedure to be followed for unblocking the concerned signal.
When signal block is selected for a signal, it cannot be taken off until is unblocked.

3.4.1 **SETTING A ROUTE AND ITS INDICATIONS**:

To set a route of a signal, click on a possible route of the signal, after doing so the route gets initiated & Red-flashing indication will appear on the replacement track of the signal. Point operation is initiated as per the requirement of the desired route and Normal/ Reverse set indications will start flashing if favorable point detection is not available. After setting of points in the route, overlap & isolation flashing indication will be replaced by steady indication and a complete yellow 'Route set' indication will appear from the replacement track of the signal to the last track of overlap section of the route. Also the point's lock indication will appear. A Point locked can be ensured from the Red Steady indication appeared near the point. Finally a Route locked Yellow Steady indication will appear. Now the signal will be taken-off. The yellow route set indication will turn to red when the track circuit portion within the route is occupied during passage of a train.

3.4.2 SHUNT SIGNAL OPERATION:

The same procedure as main signal has to be followed as explained above. To set the signal route for shunt signals SM on duty shall put the pointing device on the Shunt signal icon and right click on the same. A drop down menu will appear indicating different actions that can be selected. After selecting the desired route SM on duty shall left click on it. Desired route will be initiated and the Shunt signal will be taken off.

3.4.3 CALLING ON SIGNAL OPERATION:

The same procedure as main signal has to be followed as explained above. To set the signal route for Calling-on signal SM on duty shall put the pointing device on the Calling-on signal icon and right click on the same after a train occupies the approach track circuit in immediate rear of the stop signal. A drop down menu will appear indicating different actions that can be selected. After selecting the desired route SM on duty shall left click on it. Desired route will be initiated and the Calling-on signal will be taken off after a lapse of 60 seconds provided other conditions are fulfilled.

3.4.4 **UN BLCOK BUTTONS**

In VDU UN BLOCK BUTTON ICONS is provided for unblocking of all signal, route and point buttons. When ON duty SM Click on GN/UN/WN buttons all are unblocked at a time.(During Start up)

3.5 **LEVEL CROSSING GATE OPERATION:NA**

3.6 **OVERLAP TIME RELEASE (WHITE LIGHT):**

Separate indications (White Light) for each i.e. UP overleap or DN 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 lapse of 120 seconds the white flashing light will disappear indicating concerned overlap is free.

4.0 **EMERGENCY OPERATIONS:**

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

4.1.1 **CANCELING 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 right button on the mouse, a pop-up menu will appear as shown in Para 3.4 above. Right click on the signal cancel menu (Main/Calling-on) of the concerned signal, the signal will immediately fly back to 'ON' aspect. After doing so, click on the Route release menu the route locked indication will start flashing for 120 sec & the Emergency Route Release Indication (UP/DN as the case may be) will flash for the entire time interval of 120 seconds. After the completion of 120 sec, the locked route will be released. This action will be recorded in a counter. The counter number will increase to next higher number for each such operation. This number shall be recorded by the SM on duty mentioning the details of route cancellation along with the last counter no. in a register provided for the purpose.

4.1.2 **SUPER EMERGENCY ROUTE RELEASE-**

In addition to Emergency route release Super emergency route release facility is available for release of route. After passage of train if route is not release due to drop of track circuit. SM on duty shall apply Super Emergency Route release to clear the route. For this operation On duty SM will insert Emergency key and after insertion of key, Yellow indication will appear in Emergency KEY icon. On seeing yellow indication on Emergency KEY Icon, SM will apply Super Emergency Route release. Route locked indication will start flashing for 120 sec. Emergency key to be removed by SM for releasing of route. After such operation the Super

Emergency Key to be normalize and on completion of 120 sec, the locked route will be released. This action will be recorded in a counter. The counter number will increase to next higher number for each such operation. This number shall be recorded by the SM on duty mentioning the details of route cancellation along with the last counter no. in a register provided for the purpose. While applying Super Emergency SM on duty to ensure complete arrival /dispatch of vehicle and route is clear from all obstructions.

4.2 **EMERGENCY OPERATION OF POINTS**:

When the Point Zone Track circuit has failed without any point lock condition by any signal routes, a point can be operated by the Emergency Point operation.
Note: Before resorting to this operation SM on duty shall verify that the point zone is clear of any vehicle occupying the track circuit and the same is clear of any obstructions.

4.2.1 **EMERGENCY NORMAL OPERATION**

Before doing the emergency operation the Emergency Point Operation Key is to be made "KEY IN" by clicking the 'KEY IN' menu. The user name and password is to be logged in. Track the pointer to 'EMERGENCY NORMAL' menu and left click. A Normal flashing indication will appear and the indication will be steady after the point is set to Normal. This action will be recorded in a counter. The counter number will increase by next number for each such operation, this number shall be recorded by the SM on duty mentioning the details of Emergency Point Operation along with the last counter no. in a register provided for the purpose and SM's diary.

After the completion of the Emergency point operation, the Key to be made 'KEY OUT' by clicking 'KEY OUT' menu.

4.2.2EMERGENCY REVERSE OPERATION OF POINTS:

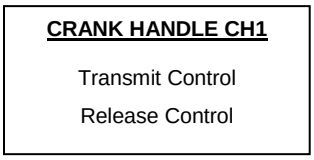
Before doing the emergency operation, Emergency Point Operation Key is to be made 'KEY IN' by clicking the 'KEY IN' menu. The user name and password is to be logged in. Track the pointer to 'EMERGENCY REVERSE' menu and left click. A reverse flashing indication will appear and the indication will be steady after the point is set to Reverse. The counter number will increase by next number for each such operation, this number shall be recorded by the SM on duty mentioning the details of Emergency Point Operation along with the last counter no. in a register provided for the purpose and SM's diary.

After the completion of the Emergency point operation, the Key to be made 'KEY OUT' by clicking 'KEY OUT' menu.

4.2.3 **EMERGENCY CRANK HANDLE RELEASE OPERATION:**

When a crank handle is locked due to route set earlier or 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 right clicking, 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 SM on duty has to left click on transmit control menu. After transmission the 'KEY LOCKED' (Red) indication will start flashing& 'KEY IN' remains steady. After a lapse of 120 seconds the 'KEY LOCKED' indication will disappear& 'KEY IN' indication will start to flash indicating crank handle can now be extracted from the location box. After extracting the key from the RKT, the 'KEY IN' indication will disappear. After the manual point operation is over and the crank handle key inserted in the RKT and turned right, flashing 'KEY IN' indication will appear on the VDU, SM on duty shall Release the control for the steady indication by left clicking 'RELEASE CONTROL' menu.

The counter number will increase by next number for each and every such operation, this number shall be recorded by the SM on duty mentioning the details of the Emergency Crank Handle Operation along with the last counter number in the counter register provided for the purpose.

In case both the VDUs fail there is a facility to extract keys from the crank handle locations. A key is provided in the SM's office, on duty SM shall turn the key to right, after a lapse of 120 seconds keys from all the crank handle locations can be extracted for crank handling and setting of points for train operations.

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

When both the VDUs (Active & Stand by) provided for operation of signals & points in EI station cease to work at the same time due to power failure or what so ever the reason, the SM on duty shall put the VDU key to middle position (No VDU) and turn the key (ECHR) to right (KEY IN) provided in the ECHR key box fixed on the SM table. By resorting to this, timer is initiated and all the crank handles are released at a time after 120 seconds. This will be indicated by the indicator provided on the ECHR Key box. 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.

4.2.3.2EMERGENCY CRANK HANDLE RELEASE DURING FAILURE OF BOTH EI (ACTIVE & STAND BY) SYSTEMS:

When both the EI systems fail to operate due to any technical reason/ power failure (complete Shutdown), all the crank handles are released at a time

automatically after 120 seconds time delay. 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. This will be indicated by the indicator provided on the ECHR Key box. The signaling staff i.e., JE/SSE/Sig or ESM shall be intimated immediately regarding the failure for rectification of the same.

4.3 EMERGENCY GATE OPERATION: NA

4.4 LINE BLOCK AND UNBLOCK (REMINDER COLLAR):

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

4.4.1 LINE BLOCK:

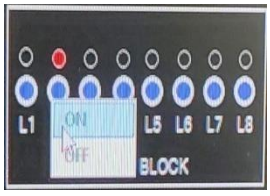
To set the 'LINE BLOCKED', the SM on duty shall select "L. No._ BLOCK" command using the left mouse click on Button of particular line. Then the particular line will be blocked. After successful line block operation a RED indication will appear on that particular line button. When a line is blocked it is not possible to lower any signal engaging that particular line.

4.4.2 LINE UNBLOCK:

To release the set block of any particular line, the SM should select "L. No.___ UNBLOCK" command using the left mouse click on Button of particular line. After selecting the "L. No.___ UNBLOCK" that particular line will be available for the train movement leading to all the possible Track circuit section.

4.5 POWER BLOCK:

Power block indication through drop down menu for all three lines are provided in power block icon on the VDU



On right clicking for respective line, the ON/OFF pop-up menu appears . By selecting ON menu RED indication will appear and selecting OFF menu BLUE indication will appear.

5.0 PROCEDURE FOR RESETTING OPERATION OF LVCD (HASSDAC)DIGITAL AXLE COUNTER IN SECTION JHARMUNDA-BOUDH AND JHARMUNDA-PURUNAPANI.

5.1 High Availability Single Section Digital Axle Counters have been provided on JHARMUNDA-PURUNAPANI and JHARMUNDA-BOUDH Block sections. The occupation and clearance of all the axle counter section are indicated on VDU as

well as on the reset box by RED & GREEN indications respectively**.** When a train occupies the axle counter section it shows 'RED' and after the passage of train it shows 'GREEN'. After the passage of a train if the axle counter section does not show 'clear' indication and the 'section occupied' indication continues to glow SM on duty shall initiate resetting procedure for the LVCD axle Counter concerned, monitoring the Block section. Before initiating Resetting procedure SM on duty shall ensure that the train which has left the ending station arrived completely at receiving station and block section is clear [FREE] of trains under the exchange of private number.

The receiving station shall conform the sending station as to whether the last train that entered into the section has arrived complete, if so intimate, authenticated by exchanging private number with the sending station before resorting to resetting operation.

As HASSDACs are provided as LVCD in block sections, resetting is to be done by both of sending end and receiving end individually. For HASSDACs the status of the section LVCD i.e. Clear (GREEN), occupied (RED), preparatory reset (miniature GREEN) and power on indications (YELLOW) are provided on the reset box panel.

The procedure to be followed for re-setting by both of sending end and receiving end individually is as follows: -

a. Insert the SM's LV reset key, turn right and keep pressed.
b. Press LV reset button provided on the panel.
c. Release SM's LV reset key and reset button.
d. Turn left the SM's reset key and removes it.
e. The system obtains preparatory reset state and preparatory reset indication (Miniature Green) glows on the panel.
f. The counter reading increases by one count after a gap of 5 seconds approximately.
g. The counter reading should be recorded.
h. First train is to be piloted to the section to make the system normal.

The SM on duty shall record in his Train Register the resetting operation giving details of train number, time, Private Number exchanged with SM in rear, giving reasons for the resetting operation. If the axle counters functioning properly now, then Block Section cleared indication 'GREEN' will appear on the panel and the concerned Block working will be normalized.

If the axle counter section indication does not appear 'GREEN' and continues to show 'RED' indication, the concerned Block instrument shall remain suspended and failure intimation to be given to sectional signal Maintainer/JE/SE(Signal) for early rectification.

6.0 MAIN SIGNAL LAMP FAILURE INDICATION AND BUZZER ACKNOWLEDGMENT:

LED signal lamps are provided for main signals at this station. In case failure of LED signals will be indicated by the appearance of 'RED' light on VDU along with audible buzzer, which can be acknowledged and muted by pressing the 'SIGNAL FAILURE ACKNOWLEDGEMENT' button icon. However, the RED light will continue to glow until the LED lamp is replaced by a new one. For rectification of failure SM on duty should inform the concerned S&T staff.

6.1 POINT FAILURE INDICATION (RED), POINT FAILURE BUZZER AND POINT FAILURE ACKNOWLEDGEMENT:

Whenever there is failure of point due to non-setting, point failure indication flashing light appears near the point button acknowledge button icon along with point failure Buzzer.
The buzzer stops when the point failure acknowledgement button icon is pressed, but the flashing light above the ACK button shall continue to glow. The flashing light on the concerned point can identify the defective point. After the failure is rectified, the flashing light above the 'POINT FAILUR ACK' button will disappear.

6.2 SHOWING OF COUNTERS:

Separate Counter box has been provided with electromechanical counters in the SM's office which shows the number of operations that has taken place for following operations.

1. Emergency Route Release counter.
2. Emergency Point Operation counter.
3. Emergency Crank handle release counter.
4 Super Emergency Route release counter
5. UP/DN Calling On counter.

7.0 TRACK CIRCUITS:

All lines are track circuited from Home signal to Advanced starter signals at either direction of the yard. Approach Track Circuit (5 Rail lengths) for Calling-on signal are also provided in rear of the Home signals for both the directions. Indications for the above track circuits are available on VDU at SM's office. Yellow strip on VDU indicates 'ROUTE IS SET AND TRACK CLEAR' and Red strip indicates 'TRACK OCCUPIED CONDITION'.

7.1 On account of the doubtful operation of any track circuit by a light vehicle including self-propelled vehicle such as motor trolley 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.

8.0 TAKING OFF CALLING-ON SIGNAL:

Miniature color light Calling-on signal is provided below the Home signals in terms of GR.3.13 (6) (b). A Calling-on signal shows no light in the 'ON' position. A Calling-on signal is taken 'OFF' for reception of a train when the Home signal above it cannot be taken 'OFF' or for admission of train on blocked line or due to failure of track circuit or due to any other reasons.
To take off Calling-on signal the train must come to stop at the foot of the home signal occupying the track circuit (1AT, 2ATetc. as the case may be) in rear of the Home signal, a RED light strip on the concerned track circuit will appear on the VDU. The particular route on which the train is intended to be received shall be set by selecting and setting desired route through VDU by SM on duty. After a lapse of 60 seconds, the Calling-on signal clears. A yellow light will glow on the VDU on the concerned Calling-on signal below Home signal. The calling on signal will put back immediately after clearing of 1AT or 2AT as the case may be. In case of failure Super Emergency Route release to be done.

9.1 RELEASE/CANCELLATION OF ROUTE:

Normally when a train is received on any route or despatched, 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 SM on duty intends to cancel the route set by him shall follow procedure for cancellation of route described in described in para 4.1.1 & 4.1.2 of APPENDIX-B above.
para 4.1 of APPENDIX-B above.

NOTE:

UP and DN Calling-on signals are to be manually cancelled after the passage of the train to release the route.

9.2 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 shall follow para No. 3.4 of APPENDIX-B.

9.3 INTERLOCKING OF SIGNALS:

UP Advanced Starter Signal is interlocked with Block Instrument of section JHARMUNDA-PURUNAPANI and DN Advanced Starter Signal is interlocked with Block Instrument of section JHARMUNDA-BOUDH.

The Block Instrument cannot be made normal unless the respective Home signal is put back to 'ON' and the respective Block Section monitored by Axle Counter is clear of trains. Signals once taken 'OFF' can be put back to danger in case of emergency by following para No. 3.4 of APPENDIX-B even when the SM's Key is withdrawn from VDU.

9.4 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].

The SM on duty shall nominate a clear line and shall advise the TPM on duty at station to set the nominated route with the help of crank handle if the points cannot be set from the VDU. Then the TPM shall set the facing and trailing points and clamp and padlock the same under the supervision of SM on duty.

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

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

NOTE:

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

(ii) 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 personal 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.

9.5 PILOTING OF TRAINS - OUT OF STATION YARD:

When the starter signal has become defective, the Station Master on duty shall advise on duty TPM to set all points correctly for the outgoing trains. Then he shall clamp and padlock the same under the supervision of SM on duty. Then the SM on duty shall hand over the pilot memo T/369(3b) along with the other authority if necessary to the on duty TPM. The TPM on duty shall hand over the authority to the Loco pilot of the train and display proceed hand signal at the foot of the starter vide SR. [Refer SR 3.70.03].
In case the advanced starter signal has become defective for section JHARMUNDA-BOUDH and JHARMUNDA-PURUNAPANI, such signal shall be passed on the written authority on paper line clear ticket(TC/1425 or TD/1425) [Refer SR 3.70.02]

9.6 SHUNTING:

Caution aspect of Starter signals can be used for forward shunting up to Advanced Starter signal. For back shunting individual shunt signals No. SH-3 and SH-4 provided at both ends of the yard shall be used. For taking OFF Shunt signals refer Para no. 3.4.2 of APPENDIX-B.

10 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 of entrance, berthing and dispatch portion of the yard shall be kept clear of any obstruction for the passage 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.

11 CRANK HANDLING/EMERGENCY OPERATION OF POINTS:

Crank handle operation is interlocked with the signaling and interlocking system at this station. Key for Crank handle are normally locked inside the RKT instrument inside location boxes in the yard and can be taken out only when all the signals leading are at 'ON' position and the route is not locked for whatever reasons. Crank handle key can be transmitted or released by following procedure as laid down in Para No.3.5 of Appendix-'B'. When this key is taken out, no signal on the concerned point can be taken 'OFF' in the yard. This key can be electrically transmitted to both ends of the yard.

12 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 maintainer/SSE(Signal) to be informed for rectification of the failure.

13 LOCKING OF RELAY ROOM:

Refer Para No.-4.2 of main SWR.

14 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.

15 PROCEDURE TO BE FOLLOWED INCASE OF FAILURE OF AN INTERLOCKING GEAR:

In case of failure of any interlocking gear at the station, the failure report should be communicated by the Station Master to the sectional maintainer, the JE/SSE(Signal) of the section and others through a memo as per GR and SR 3.51.04 and 3.68.04 and document all such transactions.

16 INSPECTION OF POINTS BEFORE DECLARING THEM DEFECTIVE:

Before declaring a point as defective, the setting of the point on the route to which it applies shall be inspected by the Station Master on duty.

17 RECTIFICATION AND CHECK BEFORE RESUMING NORMAL WORKING:

After receipt of the failure memo, the sectional maintainer shall attend to the failure after giving a 'Disconnection Memo' if required. 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).

18 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 GR and SR.15.08.01.

19 EMERGENCIES:

Notwithstanding, anything contained in the aforesaid paras, as 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 G&SR3.77.

20 PROCEDURE TO BE FOLLOWED IN CASE OF FAILURE OF SIGNAL POINTS AND USE OF EMERGENCY CRANK HANDLE:

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

20.2 In case of failure of Signal or a Point and in case the Point cannot be operated from the VDU, the emergency Crank Handle which is interlocked with the system has to be extracted and the following procedure has to be observed.

20.3 One common emergency Crank Handle is provided for all the Motor operated Points of a group. This is mechanically riveted to the Key of EKT. This Key along with Crank Handle can be released from the EKT by following procedure vide 3.5 of appendix-B. The Station Master on duty in case of Point Motor failure will take out the Crank Handle key set the Point manually by inserting Crank Handle on the Motor.

20.4 When the Crank Handle is removed from EKT for operation of the defective Motor Operated Points, the responsibility for its safe custody rests with the SM on duty till it is replaced back in EKT and sealed by JE/Signal Maintainer.

20.5 The case of failure of Motor Operated Points should be promptly reported to the concerned SE (Signal)/ESM for immediate rectification.

20.6 Whenever an emergency Crank Handle is required to be used by a Signal Official for maintenance of work attending to failure, the Signal Official will give a disconnection memo to the Station Master on duty and after making necessary entries in the emergency Crank Handle register, the Station Master on duty will obtain acknowledgement of the Signal Official in the emergency Crank Handle Register and then handover to him the emergency Crank Handle for the Points concerned. All the Points will be treated as defective till the Emergency Crank Handle is returned back to Station Master on duty.

20.7 Before parting with the Emergency 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.

21 The Emergency Crank Handle Register is to be maintained by the Station Master on duty wherein the particulars of usage of the Emergency Crank Handle must be recorded as per operating manual.

22.0 INTERLOCKING OF SIGNALS WITH BLOCK INSTRUMENTS:

22.1 INTERLCOKING WITH HOME SIGNALS:

The UP & DN Home Signal are interlocked with respective TLBI instrument, so that before the handle of the Block Instrument can be turned to LINE CLOSED position, concerned Home signals must be in their 'ON' position.

22.2 The UP Advanced starter signal is controlled and interlocked with Block Instrument of section between JHARMUNDA-PURUNAPANI & DN Advanced starter signal is interlocked with Block Instrument of section JHARMUNDA-BOUDH so that this signal cannot be taken OFF until the handle of the concerned Block Instrument is in 'LINE CLEAR(TGT)' position.

22.2 SUSPENSION OF LAST STOP SIGNALS:-

When the block instrument of section JHARMUNDA-BOUDH or JHARMUNDA-PURUNAPANI is suspended with its handle in any position for whatever reasons the concerned Last Stop Signal controlled by the Block Instrument must be treated as suspended and trains shall be worked on PLCT.

23.0 NORMALISATION OF THE BLOCK AXLE COUNTER AND OF BLOCK WORKING BY RESETTING FEATURE:

23.1 Digital Axle Counters (HASSDAC) have been provided on the Block Sections JHARMUNDA-BOUDH or JHARMUNDA-PURUNAPANI sections.

23.2 The occupation and clearance of the axle counter section are indicated on the VDU by 'RED' and 'GREEN' light.

23.3 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.

23.5. No train shall be allowed on signal to leave a station in any particular direction unless track clear indication is available for the relevant Axle Counter track portion and Last Stop Signal is taken OFF. [Refer Para No. 5 of Appendix 'B' for procedure of resetting of LVCD Axle counter].

24.0 TELECOMMUNICATIONS:

(i) Telephone attached with Token less Block Instrument of JHARMUNDA-BOUDH or JHARMUNDA-PURUNAPANI sections.

(ii) Station to Station fixed telephone (hot line) is provided

(iii) Station is provided with Auto telephone connected with Railway Exchange

(iv) BSNL telephone is provided.

(v) The station is connected to Balangir-SPRD control circuit by a control telephone.

(vi) Station to station 25 Watt VHF communication is provided.

(vii) Telephone is provided between Station and both end crank handle locations.

(viii) Telephone connected with traction power control.

NOTE:

(i) For obtaining line clear, VHF should be used as a last alternative and not as a sole means of communication.

(ii) VHF and Walkie Talkie sets should not be used for unnecessary discussions with Loco Pilots, Guards or any other staff.

(iii) The on duty SM shall use the above electrical communication instruments stated in Para-24.0 from item no. (i) to (vi) strictly in order of preference for obtaining/granting line clear vide SR 14.01.01. In case of failure of any of the above means of communication the SM on duty shall work vide SR 6.02.06.

25.0 FAILURE OF COMMUNICATION / FAILURE OF BLOCK INSTRUMENTS:

1) In the event of failure/suspension of block instrument, Track circuit & Axle Counter 'Line Clear' shall be obtained over telephone attached to the block instrument or station to station telephone by exchanging identification number and supported by private number as per SR 6.02.06(1)(a) and Chapter–III Part–I of Block Working Manual.

2) In the event of failure/suspension of block instrument and block telephone attached to the block instrument, or the Station to station fix telephone 'Line Clear' shall be obtained on Railway auto phone or BSNL phone, by exchanging identification number supported by private number vide SR 6.02.06(1)(b) and Chapter-III Part-I of Block Working Manual.

3) In the event of failure/suspension of block instrument, block telephone and station to station fixed telephone or Railway auto phone or BSNL phone, Line Clear shall be obtained over the control phone exchanging identification number and supported by 'Private Number' vide SR 6.02.06(1)(c) and Chapter-III Part-I of Block Working Manual.

4) In the event of failure/suspension of block instrument or block telephone attached to the block instrument, or station to station fixed telephone or Railway auto telephone or BSNL phone or control telephone line clear shall be obtained on the VHF sets exchanging ID number supported by PN provided that the instructions contained in SR14.01.02 are followed vide SR6.02.06(1)(d) Chapter-III Part-I of Block Working Manual.

5) In the event of total failure of all communications between JHARMUNDA-BOUDH or JHARMUNDA-PURUNAPANI, trains shall be worked vide SR 6.02.04.

26.0

[A]POWER SUPPLY ARRANGEMENTS FOR SIGNALLING INSTALLATIONS:

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

Normally local supply is fed to signaling & Interlocking system fromOdisha State Electricity Board (OSEB) [Single phase 230V 50 Hz]

Two Nos. of DG are provided as stand by sources [Single phase 230V 50 Hz] .

Normal power supply [Single phase 230V 50 Hz] to the Signalling& Interlocking installation at the station is drawn from local power supply. Whenever local power supply fails SS/SM on duty shall operate the rotary change over switch provided in the CLS power panel at SM's office connecting the power supply from the healthy sources to the installation.

The SS/SM on duty however maintain the record of power failures of the local supply and he must promptly report the failure through the section controller and to the concerned Electrical staff and S&T maintenance staff.

1. A changeover switch is provided in the Station Master's Office with the three power supplies viz. Local and DG (Two Nos), 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.

2. Normally the switch will be kept towards Auto position. When automatic switching is not working then switch is to be kept on available power sources, preferably DG position.

4. IPS (Integrated Power Supply) arrangement has been provided at the station to take care of the signaling system as well as to avoid blanking of signals in case of power failure.

In case of Local of OSEB Power failure the IPS takes care of the signaling system approximate for 6 to 8hrs.

One Indication panel for monitoring of IPS voltage has been provided in SM Room. The Indication panel shall display the voltage of IPS as well as health of the IPS provided to operate signaling gears. Audio Visual alarm has been provided in the panel to guide on duty SM to take action in case of low voltage or no voltage or any defect in IPS is shown in the SM panel. Details indications and alarm have been described below:

SM INDICATION PANEL FOR IPS:

- Call S&T - Red indication
- Signal system shut down - Red indication
- Emergency start DG - Red indication
- Start DG - Red indication
- Stop DG - Green indication

To acknowledge the indication on panel two push buttons are provided. Besides this the panel also has digital display of IPS battery voltage.

Whenever alarm appears on the SM panel due to any fault in the IPS system or due to low battery voltage on duty shall acknowledge the alarm by pressing the push button provided on the panel. Pressing on the push button shall mute the buzzer but relevant indication will continue to show till the fault is rectified by S&T staff. After acknowledgement of the alarm on duty SM shall immediately inform S&T staff at station regarding the alarm.

[B] WORKING OF INTEGRATED POWER SUPPLY (IPS), INDICATIONS & ACTION TO BE TAKEN BY SS/SM ON DUTY.

Power supply to the signaling installation is fed through IPS installed in the S&T power supply room. The IPS is normally fed through OSEB local supply selected by SS/SM. On duty, Standby power supply is through DG supply. One changeover switch is provided in the SM's room for selection of output of either OSEB local supply or DG power supply. The available OSEB local supply/DG supply is fed to the IPS through auto- change over switch provided in IPS.

The IPS system is connected with Battery as a back-up power source for safe working during transition of power and in case when there is no 230V AC supply available due to any reason.

In the event of the failure of all the sources of 230V 50Hz AC supply, the signalling system shall be fed by power generated by back-up battery bank connected to IPS for a limited time of 06 to 08 hours. The health of battery bank is monitored through one IPS monitoring panel provided in the SM's room which shall be display the voltage 110V DC [Battery Bank provided as back-up source of power supply]. Depending upon the health of the Battery Bank and the system, the following indication/alarm will appear on the IPS monitoring Panel, their implications and action to be taken by SS/SM on duty is tabulated below.

Sl. No.	Instruction	Health of Battery Bank/ Equipment.	Visual Indication	Audio Indication	Action to be taken by SS/SM on duty
A	-	50%DOD (depth of discharge)	Red	Alarm	Alarm shall be acknowledged by SS/SM on duty
B	-	60% DOD	Red	Alarm	-do-
C	System Shut down	70% DOD	Red	Alarm	Feed to signals gets cut off however all DC-DC converters continue to work. Audio alarm will continue till power supply is restored.
D	Call S&T Staff	Equipment fault	Red	Alarm	If any of the modules of IPS fails this alarm will appear on the SM's panel. Alarm shall be acknowledged by on duty for audio cut-off.

On duty SS/SM in each shift shall check and record the readings, indications, etc in the station dairy duly initiating rectification of failures of IPS system, if any.

In the event of failure of IPS monitoring ASM console due to any reason and when both traction power and local power failed the SS/SM on duty shall inform concerned Electrical staff immediately. In case 'Call S&T staff ' or 'System shut down' indication appear on the IPS monitoring panel of IPS and/or mal-functioning of the IPS monitoring panel SS/SM on duty shall inform the same to concerned S&T staff immediately.

NOTE: In case of failure of all AC supply sources IPS Battery Bank can provide power supply maximum up to 06 to 08 hours before system shut down indication of IPS.

27. WORKING OF AUTOMATIC FIRE DETECTION AND ALARM 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 of the fire 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.

APPENDIX - 'C'

ANTI COLLISION DEVICE (RAKSHA KAVACH)

NIL

APPENDIX - 'D'

1.0 **STATION MANAGER (INCHARGE)**:

He is the over all In-charge of the station; He is responsible for the efficient discharge of duties devolving upon all the Staff employed at the station whether permanent or temporary according to Station Working Rules, Manuals & safe working Instructions. He shall get himself well conversant with the detailed working of Station and VDU, points, Crank handle and signals etc.

He is responsible for maintaining the Assurance Register up-to-date. He shall conduct surprise night inspection and safety meetings/fire drills etc. as per instructions issued from time to time. He shall see that all the staff under his control working safely according to the rules in force.

He shall see that all signals, points, level crossing gates and the whole machinery at the station are in proper working order. He shall report all the defects to the concerned officials.

He shall satisfy himself that the staff employed under him are well conversant with Station Working Rules and perform their duties correctly. He is responsible for maintaining SWR, other Rule books and Assurance Register up to date.

He shall see that all safety records are maintained properly and all rules prescribed in G & SR, Block Working Manual, Operating Manual and other relevant directions issued from time to time by competent authorities are followed rigidly by all concerned and any irregularities if noticed are reported promptly to the authorities concerned.

He shall see that all accidents are promptly reported, attended to and GA-3 along with accident message is submitted to the concerned officers in time. He shall see that the staff is civil and helpful to all users of railway.

He shall frequently visit the platform, Station etc. in order to maintain an effective supervision over the said staff and their working. He shall see that station premises are kept neat and clean.

He is responsible for booking all staffs working under him for PME and Refresher Course / Safety camp in their due time. His Special attention is drawn out to chapter II of General and Subsidiary Rules and GR 5.01 to 5.08 with relevant Subsidiary Rules, Chapter – 2 of Operating Manual.

He shall see that all equipment, apparatus and instruments including signal and interlocking gears are in proper working order and all failures are promptly reported to officials concerned for repairs/rectifications.

He shall pay special attention towards passenger amenities & coaching trains punctuality and yard feasibility. He shall endeavor for minimizing detention to freight trains by judicious planning of trains staff. He shall pay attention to smooth functioning of goods train to eliminate detentions. He shall attend to all compliance by traveling/trading public.

He shall see that the law and order in the station area is taken care of with the help of G.R.P. and R.P.F and civil authorities as per need.

He shall ensure compliances of all Operating, Safety and Commercial records maintained at the station. He is responsible for overall supervision of the station.

His special attention is drawn to chapter No.II of G & SR (Amendment) 2012 and GR 5.01 to 5.08 with relevant SRs. He shall follow the instruction laid down in SR 3.68.01© & (d) and SR 14.07.01 and BWM 2.09 (e). He shall conduct surprise night inspection, safety meetings and fire drills. He shall maintain good

public relation as well as look after passenger's amenities and be helpful to travelling public.

1.1 **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 and thoroughly understood the system in force and must sign such declaration.

No Railway servant shall be entrusted with any duty involving safety of the public unless the station 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 SS is responsible to see that all the staff are conversant with the Station Working Rules 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 Group 'D' staff, their signature/thumb impression must be obtained after explaining fully about their duties and responsibilities.

The station superintendent is responsible personally for maintaining the Assurance Register and for obtaining declaration of the staff working under him. The Assurance Register must be maintained in two parts, one for Group 'C' and the other for Group 'D' staff. A duplicate copy of the Assurance Register must be maintained and kept in personal custody of the Station Superintendent.

The declaration shall be renewed in the following cases: -

(i) Whenever there is a change in the Station Working Rules.

(ii) For any staff who have not worked at the station or were away from the station for a period of 15 days or more.

2.0 **USE OF PRIVATE NUMBER BLOCKS IDENTIFICATION NUMBER SHEET**:-

Sufficient Private Number books and I.D number sheets in sealed covers shall be kept always in the stock by Station Superintendent under lock and key. He shall maintain a register for this purpose.

3.0 **ACCIDENTS**:

Accidents shall be reported and immediate action shall be taken by the Station Superintendent in charge in accordance with the instruction laid down in the Accident Manual. Whenever the Station Superintendent received report of an accident, he shall take all necessary precautionary measures to protect the traffic and shall arrange earliest possible assistance as required at the site of accident. He shall frame the accident message/reports and follow up all safety principles without delay.

4.0 **TESTING OF POINTS AND SIGNALS**:

The Station Superintendent shall test the working of the reception signals daily during the day when there is no train due to arrive/leave the station. He shall also test the working of points, crossings, Crank handle, etc. and record the result in the Station Master's diary.

5.0 **Dy SS/STATION MASTER/ASSISTANT STATION MASTER**:

He shall work in 8 hrs. shift for train passing and booking of traffic, coaching returns and other statements shall be prepared and submitted by him in time under the direction of the Station Superintendent in charge. He shall assist the Station Superintendent in charge for the up keep of the station in all aspects.

Station Master on duty who makes an entry in the train signal register must continue on duty till all the entries pertaining to the trains are completed vide Subsidiary Rule 14.07.01.

He is responsible for working beyond this period when called upon to do so in the exigencies of services. He will follow SR 3.68.01© & (d), SR 14.07.01. Their special attention is drawn to Chapter II of G & SR (Amendment) 2012 and GR

5.01 to 5.08 with relevant SRs. As an Assistant to the SS, he shall follow the instructions given to him by the Station Superintendent.

6.0 **HANDING OVER AND TAKING OVER CHARGE**:

The Station Superintendent in charge/Station Master/Assistant Station Master on duty shall record in the diary the condition of all the running lines, the caution orders in force at the time of handing over charge. These entries must be counter signed by Station Master/Assistant Station Master coming on duty while taking over charge. This will not, however, relieve any one of the SS/SM of his responsibility to ensure by physical check that the nominated line is clear of all obstructions before admission of any train on it.

7.0 **TRAFFIC POINTSMAN:**

He shall work under the instructions of SM on duty and follow the GR 02.05 to 2.11 and other relevant rules laid down in GR and SR. He shall remain responsible for:

(i) Delivery of authority to proceed and caution order etc. to the Loco Pilot of train.
(ii) Correct setting and locking and crank handling of points for reception/dispatch and shunting operation under the supervision of Station Master.
(iii) To couple and uncouple vehicles under the supervision of Station Master/Guard when shunting operation is in progress.
(iv) Piloting and hand signalling of trains when necessary.
(v) Knowledge of hand signals, detonators and their use.
(vi) Protection of line in emergency and fog signalling.
(vii) Exchange of signals with the Loco Pilot and Guard of passing trains as directed by the Station Master.
(viii) Cleaning, Oiling and lighting of lamps.
(ix) Loading/unloading of parcels, luggage and packages to and from the train and watching the packages and other materials by properly stacking in the station premises.
(x) Dusting of station office, filling up the fire buckets with sand/water and getting train interact arrival register (T/1410) signed by the Guard as and when required.
(xi) Serving messages and any other duties entrusted to them by the SS/SM from time to time.
(xii) Uses of emergency crank handle for setting of points.
(xiii) To supervise shunting as per SR 5.13.03.
(xiv) They must be thoroughly conversant with the GR 3.38, 3.46, 3.77(I), 5.09, 3.52 to 3.60, 3.62, 5.13, 5.15, 5.16, 5.21, 5.23 & SRs there to and their special attention is drawn to chapter No.II of G & SR (Amendment) 2000 also.
(xv) When necessary, they will work in the Goomties for observing and reporting the complete/incomplete arrival/departure of trains as per the order of the SM on duty in case of failure of Axle Counter/Track Circuit.

GENERAL

All staff should be in uniform while on duty and follow the rosters issued by DPO/SBP from time to time.

A set of Red and Green flags and Tricolor hand signal lamps will be part of the essential equipments of staff while on duty. They shall not leave the station except when required by the SM on duty or with his permission. They shall comply with SR 4.42.02 (b) & (c).

APPENDIX - 'E'

ESSENTIAL EQUIPMENTS OF THE STATION

Below is the list of essential safety equipments, which shall be readily available in good working order with necessary relief stock.

Srl No.	Description	Quantity
1.	Detonators	10 in tin case
2.	Battery operated LED based flashing Hand Signal lamps.	04 Nos.
3.	Hand signal flags	04 sets.
4.	Safety chains with pad locks	08 Nos.
5.	Wedges	10 Nos.
6.	Fire buckets (with sand and water)	06 Nos.
7.	Clamps with padlocks	08 Nos.
8.	First aid Box	01 No.
9.	Fire extinguisher	02 No.
10.	Stretcher	01No.
11.	Blanket	01 No.
12.	Block suspension Board	02 Nos
13.	"Motor Trolley on Line" boards	02 Nos.

APPENDIX - 'F'

IBS:RULES FOR WORKING INTERMEDIATE BLOCK SIGNALLING

NA