

**EAST COAST RAILWAY**  
**WALTAIR DIVISION**

**STATION WORKING RULES OF DAMANJODI STATION (B.G)**

Date of Issue: \_\_\_\_\_.

Date brought into Force: \_\_\_\_\_.

NO:WTF/5/SWR/DMNJ

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

**NOTE:** The Station Working Rules must be read in conjunction with General and subsidiary Rules, Operating Manual and Block Working Manual. These rules do not in any way supersede any rules in the above Rule Books.

**1. STATION WORKING RULES DIAGRAM:**

**1.1**

- i] Station Working Rule diagram No. SI/WRD/23102
- ii] CSTE/E.Co.Rly Drg No: 23102 Alt 'A'
- iii] Date up to which corrected:

**2. DESCRIPTION OF STATION:**

**2.1 GENERAL (LOCATION):**

i]	Name of the Station	DAMANJODI
ii]	Class of Station	'B'
iii]	Section	KRPU-RGDA
iv]	Double/Single	Single line
v]	Electrified/Non Electrified	Electrified
vi]	Gauge B.G/M.G/N.G	B.G
vii]	Railway	East Coast Railway
viii]	Route	'D' Spl
ix]	Situated at KM:	18.900
x]	From	KRPU
xi]	No. of cabin	NIL

**2.2 BLOCK STATIONS, IBH, IBS ON EITHER SIDE AND THEIR DISTANCE AND OUTLYING SIDINGS:**

a]	Adjacent Station	Block	Distance	Direction
	BAIGUDA		14.553 KM	RGDA END
	DUMMURIPUT		8.125 KM	KRPU END
b]	Provision of IBS: NIL			
c]	Automatic signals: NIL			
d]	D.K Station/Outlying siding: NIL			

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

Between Stations	The Point from which the 'Block Section' Commences	The Point at which the Block Section' terminates
DMNJ-BGUA	From DN Advanced starter signal No.11 of DMNJ.	UP Advanced signal of BGUA
DMNJ-DMRT	From UP Advanced starter signal No.12 of DMNJ.	DN Advanced starter signal of DMRT.

**2.4 GRADIENTS WITHIN STATION LIMITS:**

TOWARDS DUMURIPUT END.				
FROM	TO	DISTANCE	GRADIENT	
000.00	750.00M	750M	1 in 400 Raising	
750.00M	950.00M	200M	1 in 200 Raising	
950.00M	1150.0M	200M	Level	
1150.00M	2635M	1485M	1 in 125 Falling	
2635.00M	5759M	3124M	Level	
5759.00M	Into Section	-	1 in 175 Falling	
TOWARDS BAIGUDA END.				
FROM	TO	DISTANCE	GRADIENT	
0.000	50.000M	50.000M	1 in 400 Falling	
50.000M	150.000M	140.000M	Level	
190.000M	825.000M	635.000M	1 in 400 Raising	
825.000M	950.000M	125.000M	Level	
950.000M	1300.000M	350.000M	1 in 400 Falling	
1300.000M	1412.000M	112.000M	Level	
1412.000M	1700.000M	288.000M	1 in 200 Raising	
1700.000M	2150.000M	450.000M	1 in 100 Raising	
2150.000M	2350.000M	200.000M	Level	
2350.000M	3050.000M	700.000M	1 in 100 Falling	
3050.000M	3312.000M	262.000M	Level	
3312.000M	4246.000M	934.000M	1 in 100 Raising	
4246.000M	Into section	--	Level	

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ii) **EXCHANGE YARD:**

<b>TOWARDS KORAPUT END.</b>				
<b>FROM</b>	<b>TO</b>	<b>DISTANCE</b>	<b>GRADIENT</b>	
0.000	50.000	50.000	Level	
50.000	975.000	925.000	1 in 400 Raising	
<b>TOWARDS NALCO END.</b>				
<b>FROM</b>	<b>TO</b>	<b>DISTANCE</b>	<b>GRADIENT</b>	
0.000	150.000	150.000	Level	
150.000	750.000	600.000	1 in 400 Raising	
750.000	975.000	225.000	Level	
975.000	1190.000	215.000	1 in 400 Falling	
1190.000	1300.000	110.000	Level	
1300.000	1900.000	600.000	1 in 290.7 Raising	
1900.000	2000.000	100.000	Level	
2000.000	Into NALCO line	---	1 in 500 Falling	

2.5 **LAYOUT:**(A) **RUNNING LINES IN THE MAIN YARD:**

<b>SI No.</b>	<b>Name of the line</b>	<b>Whether Electrified/Non Electrified</b>	<b>Platform with length</b>
1.	Line No:-1 (First loop)	Top wired	High Level Passenger Platform
2.	Line No:-2 (Main line)	Electrified	
3.	Line No:-3 (Second loop)	Electrified	

**RUNNING LINES IN THE NALCO EXCHANGE YARD:**

<b>SI No.</b>	<b>Name of the line</b>	<b>Whether Electrified/Non Electrified</b>	<b>Platform with length</b>
1.	Line No:-4 (Reception cum despatch line.)	Electrified	--
2.	Line No:-5 (Reception cum despatch line)	Electrified	--
3.	Line No:-6 (Reception cum despatch line)	Top wired at KRPU end.	--
4.	Line No:-7 (Reception cum despatch line)	Electrified	--
5.	Line No:-8 (Reception cum despatch line)	Electrified	--
6.	Line No:-9 (Reception cum despatch line)	Electrified	--

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**(B) DISCRIPTION OF THE GOODS SIDING:**

SI No.	Name of the Siding	Wheather Electrified/Non Electrified	Platforms	Isolation of Running Line
1.	Goods Siding (120 mtrs.)	--	70 M long	Isolated from line No.1 by HP at both ends provided with derailing switches at both ends.
2	Brake van siding (100mtrs.)	--	--	Isolated from line No.4 by HP at both ends provided with derailing switch.

**(C) SIDINGS:****(i) GOODS SIDING:**

A goods siding (120 m CSL DS to DS) takes off from 1<sup>st</sup> loop (line No. 1) at BGUA end of the yard and is isolated by derailing switches at both ends. The entrance points and corresponding derailing switches are coupled and operated by Arc levers provided at site at either end of the siding. Hand plunger locks fitted at entrance points are unlocked by double keys released from RKT instruments provided at Station, when the switch No. 106 is in reverse position on the panel board. When these keys are extracted, the UP and DN receptions signals and DN departure signals of Line No. 1 are held locked in their normal position.

**(ii) B.V SIDING :**

A brake van siding (100 mtrs DS to DS) taken from line No.4 at BGUA end of the yard. The siding is isolated by derailing switches at both ends. The entrance points and corresponding derailing switches are coupled and operated by Arc levers provided at site at either end of the siding. Hand plunger locks fitted at entrance points are unlocked by double keys released from RKT instruments provided at Station, RKT controlled by 87 from VDU.

**(D) DISCRIPTION OF THE EXCHANGE YARD:**

- i) An exchange yard consisting of 6 ( Six) running lines adjacent to main yard takes 'OFF' from 2<sup>nd</sup> loop (Line No. 3) of main yard at KRPU end of the yard. Shunting neck connecting all the six lines of exchange yard is provided at KRPU end and the yard connected to NALCO siding.
- ii) Telecommunication (Magneto Phone) is provided between Station Master and NALCO authorities. (Detailed working procedure of working trains from and to exchange yard to NALCO siding is given in Appendix 'H' of the SWR).

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**2.5.1 RUNNING LINES, DIRECTION OF MOVEMENT AND HOLDING CAPACITY:**

Sl. No.	Name of the lines	Holding capacities on CSR	Direction of movement
1.	Line No:-1 (First loop)	733M ( Str to Str )	Trains coming from Baiguda and going towards Dumriput are UP trains.
2.	Line No:-2 (Main line)	728 M ( Str to Str )	
3.	Line No:-3 (Second loop)	852 M ( Str to Str )	
4.	Line No:-4 (Reception cum despatch line.)	662 M (Str to BJ )	
5.	Line No:-5 (Reception cum despatch line)	707 M( Str to Str )	Trains coming from Dumriput and going towards Baiguda are DN trains.
6.	Line No:-6 (Reception cum despatch line)	786 M( Str to Str )	
7.	Line No:-7 (Reception cum despatch line)	770 M( Str to Str )	
8.	Line No:-8 (Reception cum despatch line)	727 M( Str to Str )	
9.	Line No:-8 (Reception cum despatch line)	760 M( Str to Str )	

**2.5.2 NON RUNNING LINES AND THEIR CAPACITY IN CSR:****2.6 LEVEL CROSSINGS:**

NIL

**3. SYSTEM AND MEANS OF WORKING:**

Trains are worked under absolute block system in accordance with GR 7.01(1) (a), 8.01(1)(a)&(c), 8.01(2) (b), 8.03(2)(a),(b),(c)&(ii), 14.01 to 14.07, 14.08(b)(ii) to (iv) 14.09 to 14.11,14.12, 14.13 and BWM Chapter-IV part II either direction.

Single Line Token Less Block instruments are installed in the SM's Office for Section DMNJ-DMRT and DMRT-BGUA. The instruments are of co-operative type. The Station Master on duty is the only authorised person to operate the block instrument and their keys shall be kept under his personal custody vide GR 14.12(i)(a) & 5.08.

**4. SYSTEM OF SIGNALLING AND INTERLOCKING:****4.1** This Station is provided with Standard-II(R) interlocking with Multiple Aspect Colour Light Signalling having maximum equipment of signals. The aspects and indications of the MACLS is governed by GR.3.08 (4)(b).

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 & Down directions) as per GR.3.13 (1)(b), (2)(3)(4) & (6) (b). Central VDU is provided in the Station Master's office to electrically control 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).

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(a) **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 handles are interlocked with signals and interlocking system. When points become defective, the signals controlling these points shall be considered defective and vice-versa and the procedure for use of crank handle for motor operated points shall be followed as per operating manual para-20.06.

<b><u>CRANK HANDLE</u></b>	<b><u>CONTROL POINTS</u></b>
CH-1 -----	51,55,57.
CH-2 -----	53,77.
CH-3 -----	59.
CH-4 -----	79,81.
CH-5 -----	61, 71, 73.
CH-6 -----	63, 67, 69.
CH-7 -----	52, 56.
CH-8 -----	54
CH—9 -----	62,64,66,68,70,72,74.

These crank handles are interlocked with the signaling and interlocking system at this station and normally locked inside the RKT instrument at the respective Crank Handle's Locations. Crank handle keys can be taken out only when all signals are not taken 'OFF' and the route is not locked for whatever reasons. Crank Handle 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. This key can be electrically transmitted at both ends locations of the yard for manual operation of the defective points.

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 20.06(d) of the Operating Manual. Correct setting, clamping and padlocking of the points devolve on the SM on duty. (Details use of Crank Handle as per Appendix- 'B').

The cases of failure of motor point, it should be promptly reported to the concerned signal maintainer/SSE(Signal) for immediate rectification.

(b) **TAKING OFF CALLING-ON SIGNAL:**

Miniature colour light Calling-on signal is provided below the Home signals in terms of GR.3.13(6)(b) and below UP starter signals. A Calling-on signal shows no light in the 'ON' position and White light when taken "OFF". A calling-on signal, will be taken 'OFF' for reception of a train when the Home signal/UP starter above it cannot be taken 'OFF' due to failure or any other reason or for admission of train on blocked line.

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

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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 Calling-on signal will blink for 120 seconds.

After a lapse of 120 seconds, the Calling-on signal clears i.e., a White light glows 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 can be released after complete arrival of the train or by emergency cancellation.

(c) **SHUNT SIGNALS:**

**Main yard:**

Towards KRPU end Independent Shunt signal SH8 (A-I). and dependent shunt signal SH 35,SH 37 & SH 39 are provided.

Towards RGDA end Independent Shunt signal SH 9 (A-C), SH 42, SH 5 (A-C) and dependent shunt signal SH 18 A/B, SH 20A/B, SH 22A/B are provided..

**Exchange yard:**

Towards KRPU end Independent shunt signal SH10 (A-F) and dependent shunt signal SH33, SH31, SH29, SH27, SH25, SH23 are provided..

Towards RGDA end independent shunt signal SH (A-C),SH139( A- ),SH 38A/B,SH40A/B,SH7(A-E) and provided independent shunt signal SH 26,SH28,SH30,SH32,SH34,SH36 are provided. .

(d) **EMERGENCY CROSS OVER:**

--NIL--

(e) **L.C. GATE OPERATION**

--NIL--

(f) **EMERGENCY POINT OPERATION (BLACK WITH RED DOT):**

Emergency point operation facility is provided to operate the point from the VDU in case of failure of point controlling track circuit/Axle Counter.

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. The user name is ECOR and the password of this station is DMNJ. On clicking the concerned point icon, a 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 normal 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, the key is to be KEY OUT by clicking KEY OUT menu. The user name and password is to be given for KEY OUT also. This action will be recorded in a counter. 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 purpose.

(g) **EMERGENCY ROUTE RELEASE COUNTER:**

This counter is provided to register the number of operations made for emergency cancellation of route. The Station Master must record the last number registered on the counter while taking over/handing over duty.

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**(h) EMERGENCY ROUTE RELEASE INDICATION :**

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), click on the concerned signal. After clicking by the left button on the mouse a pop-up menu will appear as shown above- Click on the cancellation menu (Main/Calling on) of the concerned signal, the signal will immediately go to ON aspect. After doing so click on the route release menu, the route locked indication will start flashing for 120 second. After completion of 120 seconds, the White light along with the White strip of light will disappear suggesting the route has been released. This action will be recorded in a counter. The counter will increment the number for each and every such action. In case the route illumination (white strip lights) does not disappear, it suggests that the route is not released/cancelled. In such case the concerned S&T staff should be advised immediately to release the route and seal the emergency route release button.

Each operation of emergency cancellation of route should be recorded in the emergency route release counter register by registering the next higher number. All such operations and the new number should be recorded in the station diary Veeder counter register and in the train signal register.

**(i) TRACK CIRCUITS:**

All berthing portion of line No.1 to Line No.9 are track circuited. In addition there are short length track circuits in advance of Advanced Starter Signals and Home signals in both the directions are also provided. For Calling-on signals (Five Rail length) track circuits are also provided in rear of the Home signals in both directions. From last trailing point/fouling mark in either side of Yard to Advanced Starter Signals are also track circuited.. Indications for the above track circuits are available on VDU at SM's office. White indication on the VDU indicates track clear and Red light indicates track occupied condition.

**(j) AXLE COUNTER:**

- (i) Entire Block Section between DMNJ-BGUA and DMNJ-DMRT are provided with Digital axle counter.

**FOR SECTION DMNJ-BGUA**

A pair of Digital axle counter is provided between DMNJ-BGUA (LVV DMNJ-BGUA), one just beyond DN Advanced starter signal No. 48 of DMNJ on 1T and another one on 2T1 track circuit beyond DN Home Signal No.2A/B/C of BGUA station. Similarly a pair of Digital axle counter is provided between DMNJ-DMRT ( LVV DMNJ-DMRT) one beyond UP Advanced starter signal No.47 of DMNJ on 2T and another one near UP Home signal No.1A/B/C on 1T1 of DMRT.

**FOR SECTION DMNJ-DMRT**

A pair of Digital axle counter is provided between DMNJ-DMRT ( LVV DMNJ-DMRT) one beyond UP Advanced starter signal No.47 of DMNJ on 2T and another one beyond UP Home signal No.1A/B/C on 1T1

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

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

A resetting arrangement for resumption of the system in case of failure of axle counter has been provided in the SM office of the adjacent Block stations after being assured by both the SM that the last vehicle has arrived complete at the receiving station by exchanging Private Number then resetting to be complied with. (Details of resetting procedure given in this SWR).

**NOTE:**

Before taking off reception and dispatch signals for Up and Down directions the SM on duty should ensure that the entire route including overlap and berthing portion is clear of all obstructions by observing the Track indication/Axle counter indication. The indication of track circuit/Axle counter will exhibit Red Light when track is occupied and White light when track is clear. There will be no track indication when any route is not set.

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

Double locking arrangement for Relay room is provided. Key of one lock remains will Signal maintainer of the section and the key of the other lock remains with the SM on duty. The relay room cannot be opened unless both the keys are used. In the event of necessity such as for attending failure or regular maintenance, on being requisitioned by S&T maintainer, SM shall hand over the key to maintainer. On completion of the work, the maintainer shall lock the relay room and return the key to SM. The transaction shall be recorded in relay room key register by SM on duty vide O.M 1.14 & SR 3.51.05 and shall duly sign by SS/SM and maintainer respectively.

Whenever the key is taken by the maintainer for normal maintenance of work, the S&T staff shall give a remark in the register that they will not interfere with the safe passage of train. The SM on duty shall ensure that this remark is given by the S& T staff , otherwise the installation shall be treated as non-interlocked and the action taken in terms of GR 3.69, 3.70 and SRs there to.

**4.3 POWER SUPPLY:**

(i) A changeover switch is provided in the Station Master's Office with the three power supplies viz., AT, Local and generator, 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.

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(ii) Normally the switch will be kept towards AT position. Whenever power block is to be given on the line, the on duty SM must ascertain that power is available on the local supply.

(iii) In case of failure of one of the AT supply without any power block, the on duty SM. has to check whether the circuit breaker has tripped. (Three circuit breakers are provided in the changeover switch board, one for each supply and their normal position is down and when tripped it goes up.) In case of failure of both AT supplies, the Local supply shall be utilized by operating the switch.

If the circuit breaker is tripping even after resetting, no attempt shall be made to hold it by any other mean and a message shall be given to the AEE and SSE/PSI for prompt rectification.

- (iv) For IPS system that provides to E.I auto-change over has been provided. There is a remote monitoring ASM box provided at the station to monitor the health of IPS.

**REMOTE MONITORING ASM BOX:**

Remote monitoring SM Box gives alarm to the SM for the following fault conditions:-

- (a) 50% depth of discharge (DOD) of battery. In this condition audio/visual alarm comes, which can be acknowledged with audio cut-off.
- (b) 60% DOD, which warns for emergency. The alarm for this condition is same as for condition 1
- (c) 70% DOD, which signals system, shut-down. In this condition signal feed is cut-off and all DC-DC converters continue working. Audio alarm continues till power supply is restored.
- (d) Any of the module fails, which calls for 'call S&T'.
- (e) Whenever there is a failure of power supply in one AT the SM shall take prompt action to inform to all concerned for the rectification. The SM himself, during his daily checks, shall test the availability of power supply on both AT's and make an entry in the Station Diary duly initiating action for rectification of failure, if any.

**5. TELECOMMUNICATIONS:**

- a) The Station is connected to KRPU – RGDA and OEC-KRPU Control Circuit.
- b) Telephone attached to Single line token less block Instruments connected to adjacent block station on either side.
- c) Station to Station telephone (Magneto telephone) is connected to adjacent block station on either side.
- d) Telephone communication is provided between Station Master and Up CH locations and to Dn CH Locations.
- e) The station is connected to OEC-KRPU traction power control circuit.
- f) VHF set is provided at the station.
- g) The station is connected to NALCO siding by means of Magneto telephone.
- h) Telephone communication are provided between Station Master and goods siding location, Cripple line siding location and BV location.

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**6. SYSTEM OF TRAIN WORKING:****6.1 DUTIES OF TRAIN WORKING STAFF:**

The duties of the train working operational staff in detail are described in Appendix 'D' of this SWR.

**6.1.1 TRAIN WORKING STAFF IN EACH SHIFT:**

<b>COMPLEMENT OF STAFF</b>		<b>STAFF IN EACH SHIFT</b>	
SMR	1	SMR	1(Supervisor)
SS	1	SS/Dy.SS/SM	1
Dy.SS	2	LMA/Sr.TP/TGK/TP	3
SM	1	SCLM	1( General Shift )
LMA	4	--	--
Sr.TP/TGK	7	--	--
TP	2	--	--
SCLM	1	--	--

The above staff shall work as per roster issued from time to time by Divisional Railway Manager (P) and these rosters shall be conspicuously displayed in the Station Supdt's office (details duties are given in APPENDIX-'D').

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

The SS/SM on duty is responsible to ascertain the clearance of the nominated line between first facing point and advanced starter signal in each direction.

**6.1.3. ASSURANCE OF THE STAFF IN THE ASSURANCE REGISTER:**

Any staff before taking of independent charge of duties connected to train working or any staff who is away from his duty for a period of 15 days or more shall sign in the assurance register as token of having understood the contents. However in the event of any corrections or modification in the SWR is involved the assurance of all staff who ever is entrusted the work of train passing duty shall be obtained a fresh in the assurance register by the in charge of the station before they are allowed to work vide SR-5.01.02.

**6.2 CONDITION FOR GRANTING LINE CLEAR:**

The train are worked under Absolute Block system with single line working and MACL signalling.

**6.2.1 ANY SPECIAL CONDITIONS TO BE OBSERVED WHILE RECEIVING OR DESPATCHING A TRAIN:****6.2.1.1 SETTING OF POINTS AGAINST BLOCK LINE:**

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

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If all the lines at a station happen to be blocked, when line clear has been granted to a train, the point should be set for the line occupied by a stabled load or a Goods train. [Refer GR 3.36.03(b) 5.04.01 & SR. 3.51.06 (b)].  
 The above precautions shall be taken in addition to the observance of other precautions. [Refer SR 5.04.01 & SR 5.23.01].

**6.2.1.2 RECEPTION OF A TRAIN ON BLOCKED LINE:**

Whenever trains are to be admitted on an obstructed line it is necessary that the train are piloted IN on a written authority T/509 given by the SM on duty and delivered by a competent Railway servant to the Loco pilot of the train. [Refer GR 5.09 & SRs there to]. Calling on signal where provided may be taken OFF.

**6.2.1.3 RECEPTION OF TRAIN ON NON-SIGNALLED LINE:**

-NIL-

**6.2.1.4 DESPATCH OF TRAIN FROM NON-SIGNALLED LINE.**

-NIL-

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

-NIL-.

**6.2.1.6. ANY OTHER SPECIAL CONDITIONS:**

-NIL-

**6.3 CONDITIONS FOR TAKING “OFF” APPROACH SIGNALS:-**

The SM on duty shall nominate a clear line not only up to the starter but also for an adequate distance beyond it for reception of trains. [Refer GR 3.36, 3.38, 3.40, 4.17 and SR 3.36. 01, 3.36.02, 3.36.04, 3.40.01, 3.40.02, 3.47.01, 4.17.02, and Block Working Manual].

**6.3.1 RESPONSIBILITY OF STATION MASTER FOR RESTORATION OF SIGNALS TO “ON”:**

Station Master should ensure that the signal is put back to ‘ON’ after passage of train as per GR 3.36 and SRs there to.

**6.4 SIMULTANEOUS RECEPTION/DESPATCH, CROSSING AND PRECEDENCE OF TRAINS:**

- A. According to the existing inter locking at this station the simultaneous reception and dispatch of trains are permitted as stipulated below.

a) Reception of a DN train on line No. 1 (1 <sup>st</sup> loop).	AND	Reception of an up train on line No.3 (2 <sup>nd</sup> loop) or L-4 or L-5 or L-6 or L-7 or L-8 or L-9. OR Dispatch of another DN train from Main Line or line No.3 (2 <sup>nd</sup> loop) or L-4 or L-5 or L-6 or L-7 or L-8 or L-9.
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b) Reception of an UP train on line No. 3 (2nd loop).	AND	Reception of DN train on 1 <sup>st</sup> loop Or Dispatch of another UP train Main line or 1 <sup>st</sup> loop.
c) Reception of a down train on line-4 to 9 in the Exchange yard.	AND	Dispatch of another down train from line No. 1 or 2 or 3 towards BGUA.
d) Reception of a UP train on line-4 to 9 in the Exchange yard.	AND	Despatch of an UP train from L-1 or L- or L-3. OR Reception of an DN train on L-1 or L-3.

**ADEQUATE DISTANCE:**

To take off the Home signals for admission of a train ,the adequate distance (overlap) as mentioned below shall be kept clear [ Refer GR 3.40 and SR thereto].

<b>CLEARING OF ADEQUATE DISTANCE</b>				
<b>LINE NO.</b>	<b>UP TRAINS</b>		<b>DOWN TRAINS</b>	
	<b>FROM</b>	<b>TO</b>	<b>FROM</b>	<b>TO</b>
Line No. 1 (1 <sup>st</sup> Loop)	UP Starter signal No.39.	UP Advanced starter Signal No. 47.	DN Starter Signal No. 18.	DN Advanced starter Signal No. 48 OR Upto the end of Over run line.
Line No. 2 (Main Line)	UP Starter Signal No. 37.	UP Advanced starter Signal No. 47	DN Starter Signal No. 20.	DN Advanced starter Signal No.48.
Line No. 3 (2 <sup>nd</sup> Loop)	UP Starter signal No.35.	UP Advanced starter signal No. 47 OR UP to the end of sand hump.	DN 2 <sup>nd</sup> loop Starter Signal No.22.	DS Point No 59B OR DN Advanced starter Signal No.48 OR DS Point No 59B
<b>Exchange Yard all lines</b>				
Line No.4	UP Starter signal No.33.	Up to DS 62 OR Up to Advanced starter No.47	DN Starter signal No.26	Up to DS 61 OR Up to Advanced starter No.48
Line No.5	UP Starter signal No.31.	Up to DS 62 OR Up to Advanced starter No.47	DN Starter signal No.28.	Up to DS 61 OR Up to Advanced starter No.48
Line No.6	UP Starter signal No.29.	Up to DS 61 OR Up to Advanced starter No.47	DN Starter signal No.30.	Up to DS 61 OR Up to Advanced starter No.48
Line No.7	UP Starter signal No.27	Up to DS 61 OR Up to Advanced starter No.47	DN Starter signal No.32.	Up to DS 63 OR Up to Advanced starter No.48

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Line No.8	UP Starter signal No.25	Up to DS 61 OR Up to Advanced starter No.47	DN Starter signal No.34.	Up to DS 63  OR Up to Advanced starter No.48
Line No.9	UP Starter signal No.23	Up to DS 64 OR Up to Advanced starter No.47	DN Starter signal No.36.	Up to DS 63 OR Up to Advanced starter No.48

#### 6.5 **COMPLETE ARRIVAL OF TRAINS:**

The entire block section between DMNJ-BGUA and DMNJ-DMRT is monitored by axle counter system and the position of the block section whether 'Occupied' or 'Clear' is indicated on VDU at SM's office. As soon as train enters in to that block section the RED indication appears on VDU. After whole train clears the block section GREEN indication appears on the VDU. This confirms the complete arrival of train and the SM on duty shall give 'Train Out of Block Section' report on seeing the section clear indication GREEN on the VDU.

In case of failure of Axle counter the SM 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 SM on duty shall satisfy himself the complete arrival of the train by verification of the Last Vehicle Indicator vide SR 4.16.05 that the train arrived complete.

In case a train passes incomplete, action shall be taken as per SR.4.17.02, he "Train out of Block Section" report 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. On occasions when motor trolley follows a train the points shall not be operated until the following motor trolley is admitted on the same line. In the event of motor trolley is delayed in the section the SM on duty shall take action in terms of SR.15.25.03(b)(vi).

#### 6.6 **DESPATCH OF TRAINS:**

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 berving the visual indication on the VDU. He shall suspend all non-isolated shunting and the Station Master will ensure that the Level crossing Gate is closed against road traffic and then shall take "OFF" the concerned route starter and advanced starter signal. The 'OFF' aspect of the route starter and advanced starter is the authority to proceed into the block section. [Refer GR 3.38, 3.42, SR 3.36.04(b), 3.42.01(a) ,3.42.04 and BWM 2.07.5(a)]

The Station Master on duty shall watch the safe passage of the train with its last vehicle indicator. After the train passes the advanced 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 shall be followed.[Refer SR.4.23.02 & 4.25.02].

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**6.7 TRAINS RUNNING THROUGH:**

- a) The provision of GR 3.4, 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 SR 3.42.02 (a).
- 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 SS/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).

**6.8 WORKING IN CASE OF FAILURE:****PROCEDURE TO BE FOLLOWED FOR WORKING OF TRAINS DURING FAILURE /SUSPENSION OF INTERLOCKING /SIGNALS/ POINTS:****A TRACK CIRCUITS:**

In case of failure of track circuits, the clearance of the concerned line should be ensured physically before a train is piloted.

**B. AXLE COUNTER:**

In case of failure of axle counter in the station yard, the clearance of the concerned line should be ensured physically before a train is piloted.

If the axle counter fails between the block sections, resetting procedure will be adopted as per Para 5.0 of SWR (APP-B). if the axle counter indication does not appear 'Green & continues to show 'RED' condition after resetting, the concerned block section shall be suspended & failure intimation to be given to sectional signal Maintainer /JE/SE (signal ) for rectification.

**C. BLOCK INSTRUMENTS**

In the event of partial/total failure of block instrument the concerned block instrument shall be suspended till its rectification and trains shall work as per GR. [Refer SR 6.02.03 & 6.02.06)

During this period of time the authority will be T/369(3b) with identification number and Private Number issued from the station in advance written both in figure and words.

**D RECEPTION OF TRAIN ON OBSTRUCTED LINE:**

Whenever trains are to be admitted on an obstructed line it is necessary that the trains are piloted IN on a written authority given by the SM on duty and delivered by a competent Railway servant to the Loco pilot of the train. [Refer GR 5.09 & SRs there to].

**E. RECEPTION OF A TRAIN ON NON-SIGNALLED LINE:**

-NIL-

**F. 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

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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, [Refer GR 3.68 to 3.71, 3.80, 3.81 and SR 3.68.01 (c)].

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 3.51, 3.69, 3.49 (4), 3.68 to 3.77]

G. **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 Master irrespective of the position of the switches point laid down in GR with relevant SRs shall be followed. [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]

H. **DEFECTIVE INTERLOCKING**

When interlocking becomes defective the SM on duty shall be responsible for correct setting, clamping and padlocking of points for admission of train. [Refer SR 3.69.03(b) (i)].

I. **DEFECTIVE/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 operating manual para-20.06.

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

Motor trolleys shall be worked as per GR 15.25 and SRs there to and BWM 5.11(2), 5.12, 5.13 and 5.14(2)(b). Material Lorries shall be worked in accordance with GR.15.27 and SRs there to and BWM 5.11(2), 5.13 and 5.13(2)(b) .Trolleys, Motor Trolleys, Lorries which are not insulated shall not be allowed to run except on Line clear.

- i) Motor Trolleys/Tower Wagon/material Lorries are not likely to actuate the Axle Counter correctly.
- ii) 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.

**7.0 BLOCKING OF THE LINES:**

Whenever a running line is blocked either by loose vehicles or by stabling train or by a train which is to cross or give precedence to another train, the points at either end should immediately be set against the blocked line except during shunting movement. 'Line

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Block' is to be activated on VDU by SS/SM on duty following procedures as laid down in para no. 6.2.2. 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 ,SR5.04.01(a) and SR 5.23.01(a)]

**A. SECURING OF VEHICLES: -**

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

**NOTE**

Special care should be taken to secure special type vehicles fitted with roller bearing while standing in siding or in running lines. [Refer GR 5.23 & SR 5.23.01]

**8. SHUNTING**

**8.1 GENERAL PRECAUTION:-**

(i)The rules laid down in GR 3.46, 3.52 to 3.56, 5.13 to 5.23, 8.05(2) (3), 8.06 and 8.14, 8.15 (c) with relevant SRs and OM 7.01, 7.07 and 7.08 shall be observed. All shunt moment shall be supervised by Guard/SS/SM, point man on duty vide SR 5.13.03 as the case may be. In the event of any non-signaled movement has taken place, the SS/SM on duty shall ensure physical verification of the clearance of the crossover points.

**8.2 SHUNTING IN FACE OF AN APPROACHING TRAIN:-**

Shunting in face of an approaching train is governed by GR8.09 and relevant SR,s thereto.

**8.3 PROHIBITION OF SHUNTING ANY SPECIAL FEATURES IF ANY:**

[a] Hand shunting /Fly shunting is prohibited at both ends of the yard.

**8.4 SHUNTING ON SINGLE LINE:**

- a) Within station section governed by GR 8.10.
- b) Within last stop signal and opposite first stop signal: Governed by GR 8.12
- c) 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.
- d) During failure of block instrument: Block back message shall be exchanged between station Master at either end of such section which is intended to obstruct supported by private number. Both the station masters shall fix line block labels on block instruments and shall continue shunting.

**8.5 SHUNTING ON DOUBLE LINE:**

Not applicable.

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

While performing shunting in the sidings it should be authorized by issuing T/806 clearly mentioning the limits up to which shunting is permitted as also the lines, occupied in shunting. The relevant provisions of GR 5.14 and SR thereto shall be meticulously followed.

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**9.0 ABNORMAL CONDITION:****(a) THE RULES TO BE OBSERVED IN THE EVENT OF ABNORMAL CONDITIONS: -****(i) PARTIAL FAILURE: -**

In the event of suspension of Token less block Instrument and during partial failure of other available means of communication, the procedures shall be followed for working of trains in different situations. (Refer BWM 5.16,5.23 and SR 6.02.06)

**ii) THE AUTHORITY TO PROCEED IN OCCUPIED BLOCK SECTION IN CASE OF OBSTRUCTION OF LINE OR ACCIDENT ETC:**

Rules and regulations for working 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 provision. [Refer SR 6.02.05]

**iii) TRAINS DELAYED IN BLOCK SECTIONS**

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 this fact. There after SMs at either end of the Block section shall immediately stop all trains proceeding in to the block section on adjacent line in either direction and warn the Loco pilots and Guards of such trains by issue of suitable Caution Orders. [Refer GR 6.04 & SRs thereto]

**iv) FAILURE OF AXLE COUNTER BLOCK/BPAC – Procedure to be followed as detailed in para No.4.1(j).****b) PROCEDURE FOR EMERGENCY OPERATION OF POINTS BY CRANK HANDLE:-**

(i) The detailed Procedure for emergency operation of points by Crank Handle of motor operated points are given in Para No.4.1 (a) (Main body).

(ii) Procedure for emergency operation of points with point zone axle counter/Track circuits failure and emergency route release.[GR 3.39 and GR 3.77]

**(c) CERTIFICATION OF CLEARANCE OF TRACK BEFORE CALLING –ON SIGNAL OPERATION IN INITIATED**

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

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

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

The entries in failure registers to be done with message to the section controller.

**9.1 TOTAL FAILURE OF COMMUNICATION: -**

a) In the event of total failure of communications train shall be worked in accordance with provision of SR 6.02.05.

b) During partial interruption of communication the rules laid down in SR 6.02.03 shall be followed.

**9.2 TEMPORARY SINGLE LINE WORKING ON DOUBLE LINE SECTION:**

Not applicable

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

Rules and regulations for working 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 of and SR 6.02.05.

**10. VISIBILITY TEST OBJECT:**

The signal lights of line No.1 signal No.18 and 39 during day and night are the visibility test object vide GR 3.61.2(b)(iii)

**11. ESSENTIAL EQUIPMENT AT THE STATION:**

(Details are given in Appendix- 'E')

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

**FOG SIGNALLING:-**

In case of thick, foggy or tempestuous weather impairing visibility, whenever it is necessary to indicate to the Loco pilot of an approaching train the locality of a signal, the SM on duty at station shall arrange for signaling in terms of General Rules 3.61 and Subsidiary Rules thereto. The assurance of the staff shall be obtained in the month of OCTOBER every year in the Fog Signal Register vide SR.3.61 as a token of their acknowledgement in fog signaling Rules.

Fog signal men 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.

**12.1 STATION DETONATOR REGISTER (OPT/124):**

A Register regarding detonator is maintained at the station.

**12.2 INSTRUCTIONS:**

This register contains the following parts.

Part. - I: Particulars of fog signal men 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 signal man on duty and details of detonators used.

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

- a. 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.
- b. 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.

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**APPENDICES**

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

**14. CERTIFICATE :**

**NOTHING IN THESE RULES SHALL BE READ AS CANCELLING AMENDING OR MODIFYING ANY GENERAL RULES AND SUBSIDIARY RULES. BLOCK WORKING MANUAL AND OPERATING MANUAL. THESE RULES CANCEL ALL PREVIOUS STATION WORKING RULES OF DAMANJODI STATION.**

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**EAST COAST RAILWAY**  
**WALTAIR DIVISION**

**APPENDIX 'A'**

**WORKING OF LEVEL CROSSING GATES**  
**DAMANJODI STATION**

-----NIL-----

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**APPENDIX 'B'****APPENDIX 'B' TO STATION WORKING RULES OF DAMANJODI STATION**

DETAIL DESCRIPTION OF SIGNALLING AND INTERLOCKING INSTALLATIONS, INSTRUCTIONS FOR WORKING THEM NORMALLY AND IN EMERGENCIES ETC. INCLUDING POWER SUPPLY ARRANGEMENTS.

**1. BRIEF DESCRIPTION OF THE SIGNALLING AND INTERLOCKING INSTALLATIONS:**

This is a 'B' class station provided with Standard –II(R) interlocking. The station is provided with Route setting type Electronic Interlocking between points, signals, track circuits and other signalling 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 SS/SM's Office.

**2.0 DESCRIPTION OF OPERATOR CONSOLE CUM VISUAL DISPLAY UNIT (VDU):**

The Operator Console cum Visual Display Unit (VDU) is provided for operation of Signals, Points, L.C Gates, Crank Handles, Siding & other controls etc. A Mimic yard diagram based on SI plan no. SI/23102 ALT. 'A' 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 , 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 VDU 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, Gate release 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 stand by 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.gates, sidings as indicated in the WRD, various other ICONS and indications have been provided on the VDU. A brief description of the same are described below.

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SL. NO.	ICONS	INDICATIONS	FUNCTIONS	REMARKS
1	SS/SM's Key	Yellow light when key is 'IN'	Ensures operation of VDU by authorized person	Protected by pass word
2.	---	Emergency Route release - UP & DN	Flashing indication appears when Emergency route release operation is initiated.	
3.	---	Emergency Gate release	Flashing indication appears when Emergency gate release operation is initiated.	
4.	Emergency Point operation key	Yellow light when key is 'IN'	Ensures emergency point operation by authorized person	For each operation concerned counter shall register one count higher.
5.	---	System indication Central – On/Off	Indicates System 'A' or 'B' is in working mode	
6.	---	System indication End – On/Off	Indicates End system is in working mode or not	
7.	Point failure Ack. button	Yellow	Flashing indication appears when any point fails. SS/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.
8.	Signal failure Ack. button	Yellow	Flashing indication appears when any signal fails. SS/SM has to left click on the icon to acknowledge.	Buzzer will sound. On acknowledgement buzzer stops. Inform S&T staff Immediately.
9.	CH-1, CH-2, CH-3, CH-4---- buttons	Yellow lamp indicates 'KEY IN'. Red lamp indicates ' CH LOCKED'	In normal condition yellow lamp will be lit. Whenever the crank handle is locked in route or otherwise red indication will glow.	--

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SL. NO.	ICONS	INDICATIONS	FUNCTIONS	REMARKS
10.	DN Reset key and button (BGUA end)	Yellow-Power on Green-prep reset	SS/SM has to follow 'Key In' procedure followed by left click on the button icon to reset LVCD Axle counter.	This operation is required for Resetting of LVCD Axle Counter of Concerned Section.  For each operation concerned counter shall register one count higher.
11.	UP Reset key and button (ALM end)	Yellow-Power on Green-prep reset		
12.	DN Reset key and button (DMRT end)	Yellow-Power on Green-prep reset		
13.	UP Reset key and button (DMRT end)	Yellow-Power on Green-prep reset		
14.	UP Block release button	Yellow –Prepared for Block release.	On getting indication SS/SM shall left click on the button icon which shall release Block Handle.	After complete arrival of train this will be activated
15.	DN Block release button	Yellow –Prepared for Block release.		
16.	Goods Sdg. Control - 89	Yellow lamp indicates 'KEY IN'. Red lamp indicates 'SDG. LOCKED'	SS/SM shall right click on the button icon to select menu to Transmit / Receive of gate control as required.	
17	Counter	-	As and when required SS/SM shall point the cursor on the counter icon and right click on it. A drop down menu will appear indicating all the counters available in the system. SS/SM shall select the required counter on the menu and can read the latest counter	-

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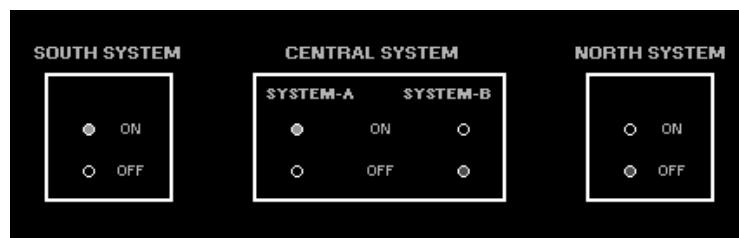
			reading.	
18	Line Block button	Red when blocked	SS/SM shall point the cursor on the icons provided on the berthing track and right click . One drop menu will appear indicating line blocked and un-blocked, SS/SM has to select the required menu.	When line block is selected the concerned berthing portion of track will appear as thick Red line.
19	BV Sdg Control-87	Yellow lamp indicates 'KEY IN'. Red lamp indicates 'SDG. LOCKED'	SS/SM shall right click on the button icon to select menu to Transmit/Receive of control as required.	
20	Cripple line Sdg Control-88	Yellow lamp indicates 'KEY IN'. Red lamp indicates 'SDG. LOCKED'	SS/SM shall right click on the button icon to select menu to Transmit/Receive of control as required.	

**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 mentioning that the system is in power off condition. Similarly 'ON' and 'OFF' indications have been provided for the end E.I equipments.

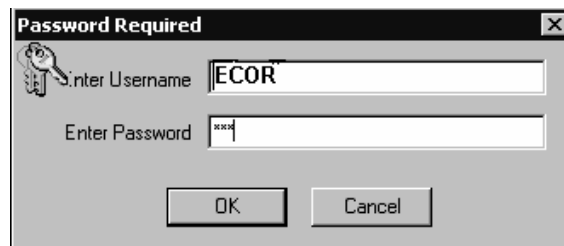


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**3.2 OPERATION PROCEDURE OF SS/SM's KEY :**

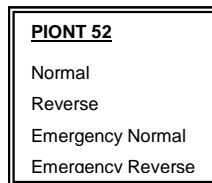
To prevent the unauthorized operation by any person other than SS/SM on duty this facility is provided on VDU. On duty SS/SM needs to track the pointer to the "SS/SM KEY" icon and click the 'KEY IN' menu by the clicking left button of the mouse, by this a Password window will appear. SS/SM on duty needs to enter the password and press the 'OK' Button provided on the Password window. This will allow operating all the controls e.g., Signals, Points, and Crank handles Etc. through VDU. In case incorrect password or user name is entered, no operation can be made. 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 OP VDU is ready for use & the entire yard can be controlled from the VDU.  
Similarly select the KEY OUT when the Station Master to Prevent the Unauthorized Operation with User name and password.

**3.3 OPERATION AND INDICATION OF POINT:**

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

**3.3.1 REVERSE TO NORMAL OPERATION:**

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

**3.3.2 NORMAL TO REVERSE OPERATION:**

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

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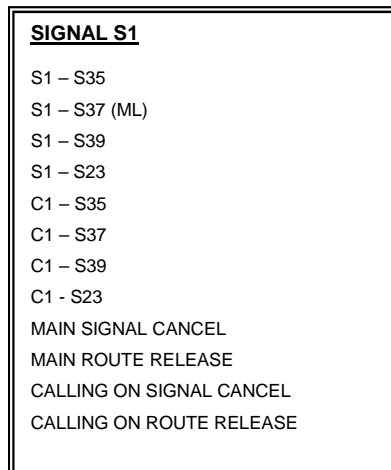
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**3.3.3 POINT INDICATIONS**

When the point is free a SS/SM all 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 a SS/SM all yellow light will appear near the point indicating that the point is locked and cannot be operated now.

**3.4 PROCEDURE FOR SETTING OF ROUTES AND TAKING OFF SIGNALS:**

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



SS/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 is satisfied. Similarly by following the similar procedure operation of other signals can be done.

**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 favourable 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 points lock indication will appear. A Point locked can be ensured from the Red Steady indication will appear near the point. Finally a Route locked Yellow Steady indication will appear on the immediate rear of the signal. Now the signal will be Taken-off. The yellow route set indication will turn to red when different 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 SS/SM on duty shall put the pointing device on the Shunt signal icon and left click on the same. A drop down menu will appear indicating different actions that can

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be selected. After selecting the desired route SS/SM on duty shall left click on it. Desired 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 signals SS/SM on duty shall select the desired route and left click on the same after a train occupies the approach track circuit in immediate rear of the stop signal. The signal is cleared after a lapse of 120 seconds provided other conditions are fulfilled.

### 3.5 **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, 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 SS/SM on duty has to click transmit control menu. After transmission the 'KEY IN' indication will starts 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, after putting the Siding control key in the RKT, 'KEY IN' flashing indication will appear on the VDU, Now the SS/SM on duty has to Release the control for the Steady indication by clicking release control menu.

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

### 3.6 **SIDING CONTROL OPERATION:**

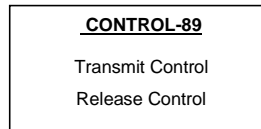
Normally a 'KEY IN' (Yellow) indication will appear on the VDU indicating that the siding point is free. To Transmit or Receive of the Siding Control, click on the Siding control button icon provided like the following button on the VDU.

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The appearing pop-up menu gives details of the possible commands on the Siding Control



For Transmitting the Siding Control KEY to the field personnel SS/SM on duty has to click transmit control menu. After transmission the KEY IN indication will starts flashing, now the KEY can be extracted from the RKT. After extracting the key from the RKT, the key IN indication will disappear. When the Siding point operation is over, after putting the KEY in the RKT, A KEY IN flashing indication will appear on the VDU, Now the SS/SM/ ASS/SM has to Release the control for the Steady indication by clicking release control menu

A Siding Control locked indication (Red) will appear when a route is set over the particular Siding point or in some manner it is involved in route setting procedure.

### 3.7 **OVERLAP TIME RELEASE (WHITE LIGHT):**

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

### 4.0 **EMERGENCY OPERATIONS:**

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

#### 4.1 **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 left button on the mouse a pop-up menu will appear as shown in Para 3.4 above. Click on the cancellation menu (Main/ Calling on) of the concerned signal, the signal will immediately go to 'ON' aspect, after doing so click on the Route release menu the route locked indication will starts flashing for 120 sec & the Emergency Route Release Indication (UP / DN as the case may be) will flash for the entire time interval. After the completion of 120 sec, the locked route will be released. This action will be recorded in a counter. The counter will increment the number for each and every such action and also, this number should be recorded by the SS/SM on duty who shall record the details of the Route cancellation along with the latest counter no. in a register.

#### 4.2 **EMERGENCY NORMAL OPERATION OF POINTS:**

When the Point zone Track circuits/ Axle counters failed without any Point lock condition by any signal routes, a point can be operated by the Emergency Point operation.

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

#### 4.2.1 **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. The user name of this station is 'ECOR' and password of this station is KPL. Track the pointer to 'EMERGENCY NORMAL' menu and 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 will increment the number for each and every such action and also, this number should be recorded by the SS/SM on duty who shall record the details of the Emergency Point Operation along with the latest counter no. in a register.

After the completion of the Emergency point operation, the Key to be 'KEY OUT' by clicking 'KEY OUT' menu. The user name and password is to be given for "KEY OUT" also.

#### 4.2.2 **EMERGENCY 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. The user name of this station is 'ECOR' and password of this station is KPL. Emergency reverse menu to be clicked. Track the pointer to 'EMERGENCY REVERSE' menu and click. A Reverse flashing indication will appear and the indication will be steady after the point is set to Reverse. The counter will increment the number for each and every such action and also, this number should be recorded by the SS/SM on duty who shall record the details of the Emergency Point Operation along with the latest counter no. in a register.

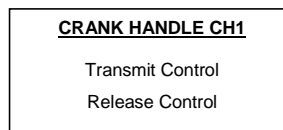
After the completion of the Emergency point operation, the Key to be 'KEY OUT' by clicking 'KEY OUT' menu. The user name and password is to be given for 'KEY OUT' also.

#### 4.2.3 **EMERGENCY CRANK HANDLE RELEASE OPERATION :**

When a crank handle is locked due to route set earlier is not released or otherwise to Transmit or Release control of the Crank Handle, SS/SM on duty shall cancel the relevant signal first and then click on the crank handle control button icon provided like the following on the VDU.



On clicking, the appearing pop-up menu gives details of the possible commands on the Crank Handle



For Transmitting the Crank Handle KEY to the field personnel SS/SM on duty has to click transmit control menu. After transmission the 'KEY LOCKED' (Red) indication will start to flash for 120 seconds & 'KEY IN' remains steady. After a lapse of 120 seconds the 'KEY LOCKED' indication will vanish & 'KEY IN' indication will start to FLASH. After

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extracting the key from the RKT, the 'KEY IN' indication will disappear. When the Manual point operation is over, after putting the emergency crank handle key in the RKT, flashing 'KEY IN' indication will appear on the VDU, Now the SS/SM on duty shall Release the control for the Steady indication by clicking 'RELEASE CONTROL' menu.

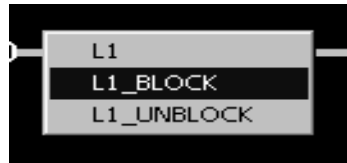
The counter will increment the number for each and every such action and also, this number should be recorded by the SS/SM on duty who shall record the details of the Emergency Crank Handle Operation along with the latest counter no. in a register.

#### **4.4 LINE BLOCK AND UNBLOCK (REMINDER COLLAR):**

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

##### **4.4.1 LINE BLOCK:**

To set the 'LINE BLOCKED', the SS/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. The 'TRACK BLOCK' yellow colour indication will be displayed after the successful application of such a blocking process on the VDU.



##### **4.4.2 LINE UNBLOCK:**

To release the set block of any particular line, the SS/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 L1 Track circuit section.

#### **5.0 PROCEDURE FOR RESETTING OPERATION OF LVCD (DIGITAL) AXLE COUNTER IN SECTION DMNJ-DMRT AND DMNJ-BGUA.**

**5.1.** Digital Axle Counters are provided on Block sections between DMNJ-DMRT and DMNJ-BGUA. The occupation and clearance of the axle counter section are indicated on VDU by RED & GREEN light respectively. When after arrival of a train the LVCD Axle counter does not show clear indication and the 'Section Occupied' indication continues to glow SS/SM on duty shall initiate resetting procedure for the LVCD Axle Counter, monitoring the Block section. Before initiating Resetting procedure SS/SM on duty shall ensure that the train which has left arrived completely at receiving station and block section is clear [free] of trains. If the track indication of that particular block section is showing 'Red' then the following actions are to be performed by the SS/SM on duty.

The SS/SM on duty at DAMANJODI Station shall verify with on duty SS/SM at receiving station over phone, to ensure the complete arrival of the train in his station.

Resetting of Digital Axle Counter Cooperation is necessary from adjacent station.

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On duty SS/SM shall track the pointer to the “ Axle Counter Reset key ” icon and click left button of the mouse and select “KEY IN” option.



Move the Curser pointer near to the Axle Counter Reset push button icon, and click left button of the mouse and select “Reset”. In VDU VDU ‘Power on’ indication will appear above the reset push button and it will remain for 10 sec. This action will be recorded in a counter. The counter will increment the number for each and every such action and also, this number should be recorded by the SS/SM/ASS/SM manually in a register.



The on duty SS/SM shall inform the SS/SM on duty at adjacent to carryout aforesaid resetting procedure. After completing reset operation in both side “PREP RESET “indication will appear above the reset push button icon.



The Piloting In or out is mandatory for completion of Axle counter reset operation.

Number changed for resetting, shall be recorded in the TSR and in the register provided for this purpose.

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**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 lamp. For rectification of failure SS/SM on duty should inform the concerned S&T staff about the group which has failed. For the purpose of giving main filament failure indication the following groups are formed on either side.

**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 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 at the concerned point zone can identify the defective point. After the failure is rectified, the flashing light above the 'POINT FAILURE ACK' button will disappear.

**6.2 SHOWING OF COUNTERS:**

One counter icon has been provided on the VDU. When selected a drop down menu will appear indicating the following counters.

1. Emergency Route Release.
2. Emergency Point Operation.
3. Emergency Crank handle release.
4. LVCD axle counter resetting for section DMNJ-BGUA.
5. LVCD axle counter resetting for section DMNJ- DMRT.

When the pointing device is placed any one of the menu the latest counter number will pop-up on VDU.

**7.0 TRACK CIRCUITS:**

All berthing 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 in both directions. In addition there are (5 Rail length) track circuits beyond Advanced starter Signals in both the directions for replacement of Last Stop Signal. Indications for the above track circuits are available on VDU at SS/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 light engine or tower wagon etc., indicating the occupancy/clearance of track, it is necessary that the Station Master on duty satisfies himself that the said vehicle has cleared the point zone track circuits by observing the track indications of the track on either side of the crossovers by positively checking the 'entrance' and 'exit' track circuits are showing occupancy and clearance in accordance with the train movement.

**8.0 AXLE COUNTER:**

- (i) Entire Block Section between DMNJ-BGUA and DMNJ-DMRT are provided with Digital Axle Counters.

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**FOR SECTION DMNJ-BGUA**

A pair of Digital axle counter is provided between DMNJ-BGUA (LVV DMNJ-BGUA), one just beyond DN Advanced starter signal No. 48 of DMNJ on 1T and another one on 2T1 track circuit beyond DN Home Signal No.2A/B/C of BGUA station. Similarly a pair of Digital axle counter is provided between DMNJ-DMRT ( LVV DMNJ-DMRT) one beyond UP Advanced starter signal No.47 of DMNJ on 2T and another one on UP Home signal No.--- B of DMRT.

**FOR SECTION DMNJ-DMRT**

A pair of Digital axle counter is provided between DMNJ-DMRT ( LVV DMNJ-DMRT) one beyond UP Advanced starter signal No.47 of DMNJ on 2T and another one beyond UP Home signal No.1A/B/C on 1T1

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

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

A resetting arrangement for resumption of the system, in case of failure of Axle Counter, has been provided in the SS/SM office of the adjacent Block stations. After being assured by both the SS/SM that the last vehicle has arrived completely at the receiving station, the resetting procedure shall be initiated after exchanging Private Number vide G&SR 4.17, 4.17.01.

**NOTE:**

Before taking off reception and dispatch signals for UP and DN directions the SS/SM on duty should ensure that the entire route including overlap and berthing portion is clear of all obstructions by observing the Track indication/Axle counter indication. The indication of track circuit / Axle counter shall exhibit Red Light when track is occupied and Yellow light when track is clear and route is set. There will be no track indication when any route is not set.

**9.0 TAKING OFF CALLING-ON SIGNAL:**

Miniature colour light Calling-on signal is provided below the Home signals and below UP starters 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' for admission of train on blocked line or due to failure of main signal due to any other reason.

- 9.1** To take off Calling-on signal the train must come to stop at the foot of the home signal, occupying the track circuit (1AT, 2AT as the case may be) in rear of the Home signal. When a train occupies the track circuit, a RED light strip 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 SS/SM on duty. After a lapse of 120 seconds, the Calling-on signal clears i.e. white light glows at the concerned Calling-on signal on the VDU.

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**9.2 RELEASE/CANCELLATION OF ROUTE:**

Normally when a train is received on any route or dispatched, 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 para 4.1 of APPENDIX-B above.

**9.3 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 SS/SM shall follow para no. 3.4 of APPENDIX-B.

**9.4 INTERLOCKING OF SIGNALS:**

DN Advanced starter is interlocked with TLBI of section DMNJ – BGUA and Up advanced starter signal is interlocked with TLBI of section DMNJ-DMRT in Line Clear position.

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.

**9.5 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 3.69.03(a) & (c)].

The SS/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 SS/SM on duty.

The SS/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 him self that the route is correctly set.

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

**NOTE:**

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

**9.6 PILOTING OF TRAINS - OUT OF STATION YARD:**

When the starter signal has become defective, the Station Master on duty shall advise the on duty TPM to set all points correctly for the outgoing trains. Then he shall clamp and padlock the same under the supervision of SS/SM on duty. Then the SS/SM on duty shall hand over

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the pilot memo T/369(3b) (along with the other authority if necessary) to the on duty TPM. The TPM on duty shall hand over the authority to the Loco pilot of the train and display proceed hand signal at the foot of the starter vide SR. [Refer SR 3.70.01].

In case the advanced starter signal has become defective, such signal shall be passed on the written authority on the form T/369(3b). The TPM shall hand over the pilot memo in form T/369(3b) to the Loco pilot after the train stopped. [Refer SR 3.70.02]

**9.7 SHUNTING:**

For taking OFF Shunt signals please 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 passages of any train or for any other movements. The clearance of the route including overlap must be ensured by the SS/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 Signalling and interlocking system at this station. Key for Crank handles 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 in the 'normal' position and the route is not locked for whatever reasons. Crank handle 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 to the concerned point can be taken 'OFF' in the yard. This key can be electrically transmitted at 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 maintenance staff be informed to attend.

**13. LOCKING OF RELAY ROOM:**

The Relay Room at the station is provided with double locks ( two independent locks ) as necessary vide Optg. Manual - 1.14. One key shall be kept with the signal maintainer of the station and the other key shall be with SS/SM on duty. The Relay room cannot be opened unless both keys are used.

SS/SM on duty shall ensure that the Relay room key is given to S&T maintenance staff under clear signature as and when required for normal maintenance and for special works and that the key should be returned by the S&T staff immediately after completion of the work and documentation shall be made in the Relay Room key register maintained at the station according to SR 3.51.05 and OM 1.14.

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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 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 irrespective of the position of the buttons.

17. **RECTIFICATION AND CHECK BEFORE RESUMING NORMAL WORKING:**

After receipt of the failure information, the sectional Maintainer shall attend to the failure after giving a 'Disconnection Memo'. After rectification of the fault, the Sectional Maintainer shall give 'Reconnection Memo' detailing the rectification. Thereafter the Station Master on duty shall personally check this defective apparatus. After satisfying him self 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 preplan these works. Field staff and the Inspector of the section should give to the Station master in writing 'Advance Intimation' about this work in terms of G and SR.15.08.01.

19. **EMERGENCIES:**

Notwithstanding, anything contained in the aforesaid para 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 GR and SR.3.77.

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

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

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- 21.2** In case of failure of Signal or a Point and in case the Point can not be operated from the Panel, the emergency Crank Handle which is Interlocked with the system has to be extracted and the following procedure has to be observed.
- 21.3** One common emergency Crank Handle is provided for all the Motor operated Points. This is mechanically riveted to the Key of RKT. This Key along with Crank Handle can be released from the RKT by pressing the Common RKT Push Button after cutting the seal between RKT and the Crank Handle. The Station Master on duty in case of Point Motor failure will take out the Crank Handle set the Point manually by inserting Crank Handle on the Motor.
- 21.4** When the Crank Handle is removed from RKT for operation of the defective Motor Operated Points, the responsibility for its safe custody re-sets with the ASM/SM on duty till it is replaced back in RKT and sealed by Signal Maintainer.
- 21.5** The case of failure of Motor Operated Points should be promptly reported to the concerned SSE(Signal)/ESM for immediate rectification.
- 21.6** 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 than 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.
- 21.7** 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.
- 21.7.1** The Emergency Crank Handle Register is to be maintained in the following proforma by the Station Master on duty wherein the particulars of usage of the Emergency Crank Handle must be recorded:
1. Date:
  2. Point Number which failed or required to be tested:
  3. Time failure:
  4. Disconnection memo number received from S&T Staff:
  5. Signature of SM/Signal Official to whom the Emergency Crank Handle is handed over:
  6. Time Emergency Crank Handle is sent out:
  7. Individual Point numbers, and Line number nominated for admission of dispatch for which Points are set, Clamped and Padlocked:
  8. Train number to be admitted or dispatched:
  9. Signature of the Station Master on duty to ensure correct setting, Clamping and Padlocking of the Points:
  10. Date and Time fault rectified.
  11. Time of Emergency Crank Handle received back by SM on duty:
  12. Signature and Designation of the Signal Official who rectified the fault:

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**IMPORTANT NOTE:**

When performing shunting operations in the sidings it must be clearly noted that the siding Points are interlocked with the system in the NORMAL position of the Points and in REVERSED position they are not interlocked. The Official responsible for shunting operation must clamp the Points at the both ends before permitting any movement.

**22.0 INTERLOCKING OF SIGNALS WITH BLOCK INSTRUMENTS:****22.1 INTERLOCKING WITH HOME SIGNALS:**

All the UP and DN Home Signals are Electrically interlocked with the respective TLBI so that before the handle of the TLBI Instrument can be turned from TRAIN COMING FROM position to LINE CLOSED position of UP or DOWN direction as the case may be must be in their NORMAL position.

**22.2** The DN Advanced Starter Signal is Electrically interlocked with TLBI of section DMNJ-BGUA so that this Signal can not be taken OFF until the Handle of the concerned Block Instrument is in 'LINE CLEAR' position.

**22.3** The UP advanced starter signal is controlled and interlocked with TLBI of section between DMNJ-DMRT & Down Advanced starter signal is interlocked with TLBI of section DMNJ-BGUA so that this Signal can not be taken OFF until the Handle of the concerned Block Instrument is in 'LINE CLEAR' position.

**22.4 SUSPENSION OF LAST STOP SIGNALS :-**

When the Tokenless block instrument for section DMNJ-BGUA is suspended with its handle in any position for whatever reason the concerned Last Stop Signal controlled by the TLBI must be treated as suspended and trains shall be Piloted Out.

When the Tokenless block instrument for section DMNJ-DMRT is suspended with its handle in any position for whatever reason the concerned Last stop Signal controlled by the TLBI must be treated as suspended and trains shall be Piloted Out.

**23. NORMALISATION OF THE BLOCK AXLE COUNTER AND OF BLOCK WORKING BY RESETTING FEATURE:**

**23.1** Digital Axle Counters are provided on Block Sections between DMNJ-BGUA and DMNJ-DMRT.

**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 either Section.

**23.4** 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 circuited 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:**

a) The Station is connected to KRPU – RGDA and OEC-KRPU Control Circuit.

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- b) Telephone attached to Single line token less block Instruments connected to adjacent block station on either side.
- c) Railway Auto telephone is provided at the station.
- d) Station to Station telephone (Magneto telephone) is connected to adjacent block station on either side.
- e) Telephone communication is provided between Station Master and Up CH locations and to Dn CH Locations.
- f) The station is connected to OEC-KRPU traction power control circuit.
- g) VHF set is provided at the station.
- h) The station is connected to NALCO siding by means of Magneto telephone.
- i) Telephone communication is provided between Station Master and goods siding location, Cripple line siding location and BV location.

## **25.0 POWER SUPPLY ARRANGEMENT FOR SIGNALLING INSTALLATIONS**

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

- i) Normal supply from AT connected to OHE traction distribution [230V 50HZ].
- ii) Stand by supply – From OSEB [Single-phase 230V-50 HZ] and generator supply.

Normal power supply [Single-phase 230V-50 HZ]. to the signalling and interlocking installation at the station is drawn from the traction power sources. Whenever traction power supply fails the SS/SM on duty shall operate the change over switch provided in the 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 either of the traction supply or local supply and he must promptly report the failure of any one or both the power sources immediately through the section controller and to the concerned Elect. Staff and S&T maintenance staff.

[i] A change over switch is provided in the SM's office with the three power supplies viz., AT, local for the changing the switch to the required supply position. The availability of the supply is indicated by luminous indicator above the circuit breaker for each supply.

[ii] Normally the switch will be kept towards AT position. Whenever power block is to be given on the line the on duty SS/SM on duty must ascertain that power is available on the OSEB supply and generator is working order and change over the switch to the desired position.

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

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

[iv] When ever there is failure of power supply in one AT the SS/SM on duty shall take prompt action to inform to all concerned for rectification.

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

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**26.0 WORKING OF INTEGRATED POWER SUPPLY (IPS, INDICATIONS & ACTION TO BE TAKEN BY SS/SM ON DUTY:**

Power supply to the signalling installation is fed through Integrated Power Supply System [IPS] installed in the S&T power supply room. The IPS is normally fed through AT traction power selected SS/SM on duty. Standby power supply is through OSEB local supply. One change over switch is provided in the SM's room for selection of out put of either traction power supply or local power supply. The available traction/local supply/Generator supply is fed to the IPS through auto-change over switch provided in IPS.

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

In the event of failures all the sources of 230V 50HZ AC supply, the signalling system shall be fed by power generated by backup battery bank connected to IPS for a limited power of 8 to 10 hours. The health of the battery bank is monitored through one IPS Monitoring Panel provided in the SM's room which shall display the voltage of 110 V.DV battery bank provided as backup source of power supply. Depending up on the health of the battery bank and the system the following indications/alarm will appear on the remote monitoring panel. The indications/alarm, their implications and action to be taken by SS/SM on duty is tabulated below:

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

On duty 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 Remote monitoring ASM console due to any reason when both traction power and local power failed the SM on duty shall inform concerned Electrical staff immediately. In case ' call S&T staff ' or 'system shut down' indication appear on the remote monitoring panel of IPS and/ or mal functioning of the remote monitoring panel SM on duty shall inform the same to concerned S&T staff immediately.

NOTE: [I] DOD indicates depth of discharge of battery bank of IPS [ii] In case of failure of all AC supply sources IPS battery bank can provide power supply maximum up to 8 to 10 hours before system shut down indication of IPS.

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**APPENDIX 'C'**

**DAMANJODI STATION**

**ANTI COLLISION DEVICE (RAKSHA KAVACH)**

NOT APPLICABLE TO THIS STATION.

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**APPENDIX 'D'**  
**DUTIES OF OPERATING STAFF IN EACH SHIFT.**  
**DAMANJODI STATION**

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

**1. STATION MANAGER (SMR):**

The SMR is the Chief Supervisor of the station having supervisory duties and is responsible for the general satisfactory working of the station and the efficient discharge of the duties by all the staff under him. His special attention is drawn to General Rule Chapter-II. He is responsible for ensuring that:

- a.) The staff employed under him carryout their respective duties as prescribed to them and report irregularities to the competent authority.
- b.) The staff are civic and helpful to all users of the Railway.
- c.) All accidents are promptly reported, attended to and a comprehensive report with details i.e., sketch, statements of staff involved, fixing responsibility is sent within 48 hrs. of the occurrence to the Divisional Railway Manager through the Sectional DTI.
- d.) All rules prescribed in General and Subsidiary Rules, Train Signalling Rules, Operating Manual and other directives issued from time to time by competent authorities are followed by all concerned and that any irregularities in respect thereof are reported.
- e.) All transportation records are checked daily in Dy.SS office as well as cabins.
- f.) The BWM 2.09(e) complied with daily.
- g.) The proper utilization of wagons placed in goods shed registration of indents and supply of wagon as per allotment is done.
- h.) All equipment, apparatus, instruments including signal and interlocking gears and fittings are kept clean and all failures there of are promptly reported to officers concerned for repairs, notice and action.
- i.) All station earnings, periodical returns and statements etc., are sent in time by the staff responsible for them.
- j.) Station premises are kept clean & tidy.
- h.) In case of emergency he must prepared to take up line clear duties.

**2. Dy. SS/STATION MASTER.**

He is responsible for train passing duties during his shift.. He shall promptly bring to the notice of Dy.SS, all irregularities and accidents in course of his shift duties. During the absence of Dy.SS, the duties of the Dy.SS will lie on him. He shall follow SR 3.68.01(c)(d), SR 14.07.01. His Special attention is drawn to Chapter-II of G&SR and GR 5.01 to 5.08 WITH RELEVANT SRs and OM chapter-XII. As on assistant to SMR he is also responsible to submit all periodical and monthly returns as per Schedule and for the correspondence with Office in time.

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3. **TRAFFIC POINTS MAN/TOKEN PORTERS:**  
He shall work under the orders of Dy.SS/SM on duty. He shall couple and un-couple vehicles under the supervision of Dy.SS/SM/Guard. He shall operate ground lever/levers and clamp and padlock the necessary points for shunting operations and during piloting of trains. He shall watch and guard the packages and other Rly. / property lying in the Station premises. He shall be thorough with the correct usage of displaying hand signals. He shall report to SM on duty any irregularities coming to his notice. He shall do loading and unloading of parcels, smalls and guard boxes. He shall carry out any other duties entrusted to him.
4. **SAFAIWALA-CUM-LAMPMAN:**  
He shall attend to the sanitation of Railway premises including SM's Office, platforms, staff quarters, and latrines and cleaning of drainages etc. He shall carry out any work instructed to him by Dy.SS/SM on duty.

**NOTE: All staff should be in uniform while on duty and follow the rosters issued by Sr. DPO/WAT from time to time.**

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**APPENDIX 'E'**  
**DAMANJODI STATION**

**ESSENTIAL EQUIPMENT**

List of essential equipment is given below vide OM 20.04(ii) which shall be maintained in good working order.

<b>Sl. No.</b>	<b>Equipment</b>	<b>Station</b>
1.	Detonators	20
2	Tri Colour Lamps	4 (2 Spare)
3	Hand Signal flags	4 (2 Spare) Sets
4	Clamps with Padlocks	10
5	Safety chains with Padlocks	6
6	Fire and Sand Buckets	5
7	First Aid-Box	1
8	Stretcher	1
9	Blanket Woollen	1
10	Minimax fire extinguishers DCPT	1
11	Skids	4
12	Reminder collars	6
13	Lever collars	--

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**APPENDIX 'F'**  
**DAMANJODI STATION**

**WORKING OF D.K. STATIONS, HALTS, IBH, IBS AND OUTLAYING SIDINGS:**

**NIL**

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**APPENDIX 'G'**  
**DAMANJODI STATION**

**RULES FOR WORKING OF TRAINS IN ELECTRIFIED SECTIONS:**

Details of the working for 25 KV A.C. Traction of "DAMANJODI" station, which are in force STANDS GOOD.

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**APPENDIX 'H'**  
**DAMANJODI STATION**

**WORKING OF DAMANJODI EXCHANGE YARD**

1. The exchange yard of Damanjodi Station shall be utilised for NALCO Trains.
2. The exchange yard consists of Six (6) running lines with the following CSL (Starter to Starter) for line no.5, 6, 7, 8 & 9 and Starter to B/J for line No.4.
  - a. Line No. 4 662 Meters
  - b. Line No. 5 707 Meters
  - c. Line No. 6 786 Meters
  - d. Line No. 7 770 Meters
  - e. Line No. 8 727 Meters
  - f. Line No. 9 760 Meters.
3. The line No. 4, 5, 7, 8 and 9 are provided with OHE 25 KV AC Traction supply, Line no.6 is top wired towards KRPU end.
4. A siding line leading to NALCO factory premises takes off from line No. 4 at Rayagada end of the exchange yard. The siding is isolated by provision of a Sand Hump.
5. Trains between exchange yard and factory premises are worked by NALCO owned powers.
6. Shunt signal is provided away from point No. 51 of exchange yard NALCO trains arriving from factory premises to stop train at the Shunt signal No.SH-3 till Shunt signal taken 'off'.
7. The NALCO staff and loco pilot shall obey the orders in respect to train movements issued by the Station Master on duty/Damanjodi.
8. NALCO staff is responsible to ensure that sufficient brake power is available before starting a train to and from the factory premises.
9. "Point to Point" communication facility is provided by M/S. NALCO authorities between NALCO Private Siding at the factory premises and the Station Master Damanjodi and the same is maintained by M/s. NALCO.
10. **PROCEDURE FOR RECEPTION OF A TRAIN FROM NALCO FACTORY PREMISES:**
  - a. When a train is ready in all aspects at NALCO Factory premises, the NALCO representative shall intimate the description of the train viz., train number, load/empty, destination, commodity, departure time and last vehicle number to the station Master on duty at Damanjodi under exchange of private number.
  - b. The NALCO officials shall intimate about the departure of the train to SS on duty over Magneto phone.
  - c. The loco pilot of the train coming from the siding shall bring his train to a stop at shunt signal No. SH-3.
  - d. The SM on duty, if able to admit the train, shall nominate a clear line in exchange yard. He shall suspend all non isolated movements and take 'OFF' concerned shunt signals for the nominated line.
  - e. After the train has arrived complete into the exchange yard, the NALCO representative accompanying the train or in his absence the loco pilot of the train shall satisfy himself that the train has arrived complete and confirm the same duly signing the complete arrival register.
  - f. After the train has arrived complete, the SM shall normalise the route.

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**11. PROCEDURE FOR DESPATCH OF A TRAIN FROM EXCHANGE YARD TO NALCO FACTORY PREMISES:**

- a. To dispatch a train, the SM on duty shall ensure that the line between Shunt signal in the exchange yard to NALCO Factory premises is clear of all obstructions duly exchanging Private Number.
- b. The SM shall set the outgoing route in favour of NALCO siding. He shall handover T/511 memo to TPM/TP to hand over to the loco pilot of outgoing train of the exchange yard.
- c. Lowering of concerned shunt signals and written document (T/511) will be the authority to proceed for the loco pilot.
- d. The SM on duty will inform the NALCO siding in charge about the despatch of train over magneto telephone.
- e. After the train has arrived complete at the NALCO factory siding with its last vehicle the factory siding in-charge shall confirm the same to the SM on duty supported by a Private Number.
- f. For this purpose Private Number book shall be given to factory siding in-charge (One at a time) and brief them regarding the procedure for using the book and the importance to keep the book under personal custody of the siding in-charge of each shift.

**12. SECURING OF VEHICLES IN INDUSTRIAL SIDING, COLLIERY SIDINGS ETC (OPERATING MANUAL RULE NO. 7.10):**

- i) Users of assisted and Private sidings and outlying Railway sidings are responsible for the safety of the vehicles placed at such sidings intended for them (for loading or unloading) and the derailment or damage.
- ii) The responsibility of the user begins from the time the Railway locomotive leaves the siding after placing the vehicles. The user's representative will thereafter take necessary precautions as required.

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**EAST COAST RAILWAY**  
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**APPENDIX 'B'**  
**SYSTEM OF SIGNALLING AND INTERLOCKING AND TELECOMMUNICATIONS**

**DAMANJODI STATION**

Details of Signalling and Interlocking installations, Telecommunication instructions for working them normally and in emergencies etc., including the power supply arrangements.

**1. BRIEF DESCRIPTION OF THE SIGNALLING AND INTERLOCKING INSTALATION:**

**MAIN YARD:**

This is a 'B' Class Station with Standard-III interlocking (with isolation). The points and signals are power operated from a composite miniature 'DOMINO TYPE' full-fledged panel installed in the station master's office. This Station is equipped with manually operated Multi Aspect Colour Light Signalling.

**EXCHANGE YARD:**

The exchange yard is provided with Standard-I interlocking. The points and signals operated from a 30 levers IRS Catch Handle type lever frame provided at "A" cabin. These levers shall operate, points, point locks, slots, siding key controls and signals etc. The yard is provided with manually operated Multi Aspect Colour Light Signals.

**1.1. DISCRPTION OF PANEL:**

The yard layout is depicted on the panel board in a miniature form and is fixed parallel to the track, so that when the Station Master on duty faces this panel, the yard drawing on the panel corresponds to the actual field lay out in either direction.

**1.2. POINT BUTTONS:**

Push buttons are provided on this panel over all points. These points are Black in colour. Point group buttons are also provided for 'Normal' and 'Reverse' operation. These are **BLACK WITH RED DOT** in colour. Points can be set either individually or during route setting. For individual setting of point to normal [N] position, individual point button with Point Group 'Normal' button are to be pressed. For individual setting of point to reverse [R] position, individual point button with Point Group 'Reverse' button are to be pressed. During route settings points will be set in 'Normal' or 'Reverse' as per the requirement. Different indication are shown on the panel below each point as follows.

- 1.3. When a point is set and locked correctly in normal [N] position, a White indication on normal point zone appears suggesting that the point is in normal position.
- 1.4. When a point is set and locked correctly in reverse [R] position, a Green indication on reverse point zone appears suggesting that the point is in reverse position.
- 1.5. When the points of any route have been correctly set and relevant signals taken 'OFF' a 'RED' indication appears indicating that the concerned points are locked either in NORMAL or REVERSE position as the case may be. With the RED indication over point, the point cannot be altered unless a special recourse is taken.
- 1.6. When the point are not set and locked whether in NORMAL or in REVERSE correctly the normal or reverse indication will not be there, but the RED lock indication will start flashing till such time the point is housed properly in one of the position. This RED lock indication will flash during operation of point also.

**APPENDIX 'B'**

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**1.7. OPERATION OF POINTS:**

Points are operated to normal or reverse by pressing individual point button in conjunction with the point group button. There by the white strip indication on normal point zone or reverse point zone as the case may be start flashing till the points are set to normal or reverse position and locked. Then the white indication will appear for normal setting of points and Green indication will appear for reverse setting of points. Points can be set to NORMAL or REVERSE position during route setting also.

1.8. All running line points are operated by Electric point machine.

2. In the event of the point could not be set in the desired position, the said points are to be checked by the Station Master on duty according to G&SR 3.68.01(c) and if there is a defect other than obstruction the point has to be considered as defective and action shall be taken for clamping and pad locking these points in the desired position by the Station master on duty himself for all trains according to SR 3.69.03(c).

**2.1 DESCRIPTION OF POINTS:**

SL. NO.	POINT BUTTON NO.	COLOUR	DESCRIPTION
1	100	Black	Cross over point No. 28 of exchange yard.
2	101	Black	Take of point from main line to Exchange yard.
3	102	Black	Control over point No. 27 of Exchange yard.
4	103	Black	Cross over point between (Main Line) Line No. 2 & Line No. 2 towards NALCO siding.
5	104	Black with Red dot	Cross over point between Main Line and 1 <sup>st</sup> loop at KKG end with over run line.
6	105	Black with Red dot	Cross over point between Main Line and 2 <sup>nd</sup> loop at KKG end.
7	107	Black	Cross over point between Main Line and 1 <sup>st</sup> loop at KRPU end with DS.
8	108	Black	Take off Point connecting to Exchange Yard.
9	109	Black	Cross over point between Main Line and 2 <sup>nd</sup> Loop KRPU end with Sand Hump.
10	Point Group button (Normal)	Black with Red dot	Common button for normal operation of points
11	Point Group button (Reverse)	Black with Red dot	Common button for reverse operation of points

**3. SIGNAL BUTTONS:**

SL. NO.	BUTTON NO.	COLOUR	DESCRIPTION
1	C1	Red with white dot	DN calling 'ON' signal for Line no. 1, 2, 3 & Exchange yard.
2	C2	Red with white dot	UP calling 'ON' signal for Line no. 1, 2 & 3.
3	S1	Red	DN Home signal for Line no. 1, 2, 3 & Exchange yard.
4	S2	Red	UP Home signal for Line no. 1, 2 & 3.
5	S3	Red	DN starter for line no. 2
6	S4	Red	UP starter signal for line no. 2
7	S5	Red	DN starter for line no. 1.

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8	S6	Red	UP starter for line no. 1.
9	S7	Red	DN starter for line no. 3.
10	S8	Red	UP starter for line no. 3.
11	S11	Red	DN Advanced starter
12	S12	Red	UP Advanced starter
13	SH15	Yellow	DN Shunt signal for line no 1,2 & 3 and exchange yard
14	SH16	Yellow	UP Shunt signal for line no 1,2 & 3
15	S17	Red	Starter signal for Exchange Yard towards KKG end.
16	S30	Red	Home signal for Line 1,2 & 3 from Exchange Yard.
17	S14	Red	Starter signal from Exchange Yard towards KRPU end.

### 3.1 **SIGNAL INDICATION:**

The aspect of signal as obtained at any time is shown on the panel on the Signal indication (along side of the track)

### 4. **ROUTE BUTTONS:**

Route buttons are provided separately on each running line on the panel for indication of route (Viz. L1-UN, L1-UN1, L2-UN, L3-UN, L3-UN1). Common route buttons are also provided for taking off starter (Viz. 12ATUN, 2T1 UN). An individual route button is provided for taking off advance starter (Viz. 11UN, 12 UN). For clearing the signal, it is necessary to operate the signal button and the concerned route button concurrently.

#### 4.1 **DESCRIPTIONS OF ROUTE BUTTONS:**

SL. NO.	BUTTON NO.	COLOUR	DESCRIPTION
1	L-1 UN	White	Common route button for UP and DN Home signal and Calling-On signal for line no. 1 setting overlap on main line.
2	L-1 UN 1	White with Red dot	Common route button for UP and DN Home signal and Calling-On signal for line no. 1 setting overlap on over run line and common route button for shunt signals (UP & DN) for Line No. 1.
3	L-2 UN	White	Common route button for UP and DN Home signal and Calling-On signal for line no. 2.
4	L-3 UN	White	Common route button for UP and DN Home signal and Calling-On signal for line no. 3 setting overlap on main line.
5	L-3 UN 1	White with Red dot	Common route button for UP and DN Home signal and Calling-On signal for line no. 3 setting overlap to Sand Hump and common route button for shunt signals (UP & DN) for Line No. 3.
6	1T1 UN	White	Common route button for UP starters 4, 6, & 8.
7	2T1 UN	White	Common route button for DN starters 3, 5 and 7.
8	11 UN	White	Route button for DN advanced starter No. 11.
9	12 UN	White	Route button for UP advanced starter. No. 12.
10	Group (Trans)	White with black dot	Common Trans button for crank handle and siding control..
11	Group (Released)	White with black dot	Common released button for crank handle and siding control.

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#### 4.2 **DESCRIPTIONS OF OTHER BUTTONS:**

SL.	BUTTON NO.	COLOUR	DESCRIPTION
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NO.			
1	Power Acknowledgement	Red	To stop the power failure Buzzer.
2	Emergency Point Operation.	Black with Red Dot	For operation of points in case of emergency.
3	Emergency Route Release	White with Red Dot	For release of Route in case of emergency.
4	Signal Cancellation	Red	For conciliation of any signal in case of emergency.
5	Button Held Ack.	White with Red Dot	To stop the button failure Buzzer.
6	Single Lamp failure.	Red with White Dot	To stop the signal lamp failure Buzzer.
7	CH1, CH2, CH3 & CH4.	Blue	For Operation of Crank Handle.
8	Slot Button No. 21.	Black	Slot Control for Line No. 4 of Exchange Yard.
9	Slot Button No. 23.	Black	Slot Control for Line No. 5 of Exchange Yard.
10	Slot Button No. 25.	Black	Slot Control for Line No. 6 of Exchange Yard.
11	Slot Button No. 27.	Black	Slot Control for Line No. 7 of Exchange Yard.

**5.0 POWER FAILURE INDICATION/BUZZER AND POWER ACKNOWLEDGEMENT:**

Normally Auxiliary transformer is connected to OHE traction distribution, if power supply fails a RED indication appears on the panel along with an audible Buzzer. The SM on duty shall press the "Power Ack" button to stop the buzzer. However, the "RED" indication lamp continues till the power supply is restored or alternative supply is connected by means of operation of changeover switch to local supply and restore the power supply.

When the normal Auxiliary power supply is restored an audible Buzzer again rings and the RED light on the panel extinguishes. The SM on duty shall operate the changeover switch and press the acknowledgement button to stop the audible Buzzer.

**5.1 SIGNAL LAMP FAILURE INDICATION (RED SIGNAL LAMP MUTTING BUTTON RED WITH WHITE DOT):**

Whenever main filament of a signal lamp is fused, a miniature flashing Red light indication appears along with an audible buzzer indicates Signal lamp failure. The Station Master on duty shall press the signal lamp/point failure Ack. Button thereby the buzzer stops but the Red indication lamp becomes steady which continues till either the signal lamp is replaced or signal assumes other aspect.

Whenever auxiliary filament also fuses, the Red indication lamp flashed and sounds buzzer. Station Master on duty shall resort the similar operation of signal lamp/point failure Ack button as explaining above. Whenever main filament is fused, Station Master on duty shall immediately send message to JE/ESM for rectification.

**5.2. BUTTON FAILURE INDICATION WHITE/BUTTON HELD BUZZER (WHITE WITH RED DOT):**

Whenever any button remains held up in pressed condition 'Button Held' white. Indication starts flashing along with an audible buzzer. The Station Master on duty then acknowledge it by pressing the "Button Held" push button (white with red dot) the buzzer stops but the white indication continues to flash till the same is rectified.

**6. TRACK CIRCUITS:**

The Station Main yard and point portion are provided with full-fledged track circuits. LVT and FVT track circuits are provided for automatic replacement of signals of Main yard.

The clearance of the running line on the Main Yard for the reception of the train is to be verified by the SM on duty personally by verifying luminous indications provided on the panel

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board. Normally no indication is shown on the panel. Whenever a clear line is nominated for admission and concerned signals are taken "OFF" as per procedure prescribed herein after a "WHITE" strip of light appears on the panel on the entire route from stop signal to stop signal and a "RED" indication appears when the track is occupied. When the train clears the track circuit the "RED" light disappears and the "WHITE" strip glows. The White light will remain illuminated till the route is released or cancelled.

**FAILURE OF TRACK CIRCUITS:**

The failure of track circuits over the point zone shall make the power operation of the points through the panel inoperative. In such case the SM on duty has to restore to emergency operation of these points by 'CRANK HANDLE', only after ensuring the point zone track circuits are cleared of any obstruction.

- 6.1. When a train is to be dispatched from the station yard on signals, the Station Master on Duty must ensure that the route between the starter signal and the Advance Starter is clear of any obstruction (which includes point zones track circuits) before he takes off departure signals.

6.2. **CRANK HANDLE FOR EMERGENCY OPERATION OF POINTS:**

Crank handle is inter locked with the signalling and interlocking system at this station and the crank handle which is normally locked up in the RKT instrument at the station can be taken out when the signals are in the normal position and the route is not locked, for any reason. Even when the route is locked the crank handle can be extracted from the RKT through emergency operation by pressing crank handle button along with "Group Trans" button. The release can be affected by pressing the push button for its release, and when this key is taken out the signals leading over the particular point in either direction cannot be taken off. Four crank handles i.e., CH1 cross over points 104 A&B, 107 A/B, 105 A&B, 109 A&B, CH2 for point No. 108A, CH3 for point NO. 101, & CH4 for point No. 103A&B are provided. Crank handles are housed in a locations either end of the yard. (Further details are explained in item No. 21.0 of Appendix-B)

- 6.3. Whenever a light vehicle/ vehicles including self propelled vehicles such as motor trolley or a four wheeled Tower wagon passer over track circuit zones, SM shall satisfy himself that the indications whether occupation or clearance are indicated in-conjunction with the movement of the vehicle/vehicles. If such indications are not appearing on the panel as above SM on duty shall physically verify the clearance of the Track Circuits zones, and shall not permit any other movement over the said lines unless the clearance is confirmed by Station Master himself personally.

6.4. **GOODS SIDING:**

A goods siding is provided at KKG end of the yard connected to Line No. 1. The siding is isolated from Line No.1 by provision of derailing switches at both ends. The entrance points and corresponding derailing switches are operated by arc levers provided at site by the double keys released (X and Y) from RKT in the SM's Office. Two RKT's with the siding key "X" and "Y" normally "IN" are provided in the SM's office are controlled by a push button switch NO. 106 on the panel, which has three indications. A "WHITE" light appears when the keys are "IN" RKT, a "GREEN" light when the switch is pressed to "OUT" indicating that these keys are free to be extracted. When the keys are extracted from RKT a "RED" light grows suggesting that the keys are "OUT", When the keys are "OUT" from RKT the reception and departure signals for Line No. 1 are held locked in their normal position.

To extract the keys from RKT, the SM on duty must press the Switch NO. 106 to "OUT" position whereby a "GREEN" light appears. The SM must press the push button provided on the RKT and extract the keys "X" and "Y". "X" releases the HPL of entrance point at Koraput end and "Y" releases the HPL of the entrance point at Kakiriguma end. The siding keys are carried manually to site for operation for Goods Siding, after the work is completed the keys must be restored to their respective RKTs and switch No. 106 turned to "IN" position, there by the "RED" light disappears and "WHITE" light glows suggesting the keys are "IN". When the

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keys “X” and “Y” are out the UP and DN reception signal and DN departure signals for Line No. 1 shall be held locked in their normal position.

### 6.5 FUNCTION OF LEVERS IN “A” CABIN:

Lever No	Function of Lever
1.	Spare
2.	Down Intermediate Home Signal for exchange yard.
3.	Shunt Signal for exchange yard.
4.	Control key for DS point towards shunting neck.
5.	Spare
6.	Spare
7.	Shunting neck point control key
8.	Lock bar for point No. 9 KRPU end.
9.	Crossover point leading to Line No. 7 (Exchange yard).
10.	Lock bar for point No. 12.
11.	Point leading to L No. 5 in Exchange Yard.
12.	Point leading to L No. 6 in Exchange Yard.
13.	Spare
14.	Lock bar for Point No. 9 Exchange yard.
15.	Exchange yard point leading to Main line.
16.	Slot control to Down Main Home Signal of Main Yard.
17.	Control key for cripple/sick line.
18.	UP starter for L No. 4 from Exchange Yard.
19.	Spare
20.	UP starter for L No. 5 from Exchange Yard.
21.	Spare
22.	UP starter for L No. 6 from Exchange Yard.
23.	Spare
24.	UP starter for L No. 7 from Exchange Yard.
25.	BV siding control key.
26.	Control over point No. 108 of Main Yard at KKG end.
27.	Control key over point leading to Main Yard at KKG end.
28.	Control key over point from NALCO leading to Main line.
29.	Control key over Sand Hump point from NALCO.
30.	Spare.

#### 6.5.1 “A” CABIN LEVER PULL CHART:

Line No.	Levers to be pulled for Reception of DN trains
4.	26, 15, 10, 8, 2 OR 26, 15, 10, 8, 3
5.	26, 15, 11, 8, 2 OR 26, 15, 11, 8, 3
6.	26, 15, 11, 12, 10, 8, 2 OR 26, 15, 11, 12, 10, 8, 2
7.	26, 15, 9, 8, 2 OR 26, 15, 9, 8, 3

### 6.6 POINTS AND LOCKS AND INTERLOCKING BETWEEN SIGNALS:

Exchange yard facing points are fitted with plunger type locks with lock bars and electrically detected by relevant signals. The motor operated crossover point No. 108 is controlled by Lever No. 26 of “A” Cabin.

### 6.7 RECEIVING/DISPATCHING OF TRAINS FROM NALCO TO MAIN YARD:

Whenever a train from NALCO to be admitted on Main Yard, the SM shall authorise the cabin man at “A” cabin to set the route by releasing the control keys of Lever No. 29 & 27 by pressing the push button No. 102 in conjunction with “Group Trans” button. The control key released at “A” Cabin shall be transmitted by Cabin Man through RKT to location at NALCO

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end of Exchange yard and shall instruct TPM/ Optg. Staff over telephone to set and lock the route in favour of said train supported by a Private Number. The operating staff at location after extracting key for point No. 27 & 29 shall set the route as instructed by the Cabin Man at "A" Cabin, clamp and pad lock the facing points and shall inform the Cabin Man in token of compliance of instruction supported by Private Number. Cabin Man at "A" cabin shall inform the Station Master as an assurance of compliance of route setting, clamping and padlocking supported by private number. SM shall then set the nominated clear line and shall take "OFF" the NALCO Home signal No. 30 through panel board. The TPM/ Optg. Staff who pilot the train from NALCO to Main Yard shall confirm the signal before he pilots the train past the point No. 29. The train which are intended to be admitted on Main Yard of Exchange yard to stop at stop board.

Whenever a train is intended to be dispatched to NALCO from Main Yard, after ensuring the entire line is set and facing points clamped and padlocked TPM shall pilot the train till last vehicle passes point No. 29 (where motor points are involved both facing and trailing points shall be clamped and pad locked).

#### 6.7.1 RECEIVING/DISPATCHING OF TRAINS (PROCEDURE OF PANEL OPERATION):

Sl. No.	Direction of Reception	To Line No.	BUTTONS TO BE PRESSED	
			Reception	Dispatch
1.	From KKGm (UP trains)	1	L1 UN, [S-2 OR C-2] OR L1 UN1, [S-2 OR C-2]	12UN,S12, 1T1UN, S-6
2.	From KKGm (UP trains)	2	L2 UN, [S-2 OR C-2]	12UN, S12, 1T1UN, S-4
3.	From KKGm (UP trains)	3	L3 UN, [S-2 OR C-2] OR L3 UN1, [S-2 OR C-2]	12UN, S12, ITIUN, S-8
4.	From KRPU "B" Cabin (DN trains)	1	L1 UN, [S-1 OR C-1] OR L1 UN1, [S-1 OR C-1]	11UN,S11, 2T1UN, S-5
5.	From KRPU "B" Cabin (DN trains)	2	L2 UN, [S-1 OR C-1]	11UN, S11, 2T1UN, S-3
6.	From KRPU "B" Cabin (DN trains)	3	L3 UN, [S-1 OR C-1] OR L3 UN1, [S-1 OR C-1]	11UN, S11, 2T1UN, S-7
7.	From Exchange Yard	Exchange Yard	ENU [S-1 OR C-1]	
8.	From Exchange Yard	To KKGm	-----	12UN,S-12, 1T1UN, S-17
9.	From Exchange Yard	1	L1UN, S-30 OR L1UN1, S-30	12UN, S-12, 1T1UN, S-6
10.	From Exchange Yard	2	L2UN, S-30	12UN, S-12, ITIUN, S-4
11.	From Exchange Yard	3	L3UN, S-30 OR L3UN1, S-30	12UN, S-12, 1T1UN, S-8
12.	From Exchange Yard	To KRPU	-----	12UN, S-12, EUN, S-14

#### APPENDIX 'B'

#### 7. STATION MASTER'S KEY:

The panel is also fitted with Station Master's lock up key to prevent unauthorized operation of this panel but with the arrangement to put back the signal to the ON position in the case of emergency without altering the route when the panel is in locked position.

#### 8. EMERGENCY OPERATIONS:

The following are the instructions for Emergency operations.

#### 8.1 CANCELLATION BUTTON OR VEEDER COUNTER:

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For the purpose of the emergencies operations there is an emergency Route cancellation and also there is a veeder counter for counting emergency operations involving the concurrent operation of the emergency route cancellation button. The station master on duty must press the emergency route button along with concerned signal button for which emergency route releases is required. A yellow indication will appear below the signal indicating that the timer has started operation and after lapse of 120 seconds. The desired route will be released provided all other conditions are favourable for the route release.

- 8.2 The numbers on the veeder counter register the number of operations performed for such emergency cancellation and the station master on duty should specify the cause for such usage giving the particulars of cause and the time of operation as related to a particular train etc. in the train signal register. The detailed operation instructions are as follows:

8.3 **CANCELLATION OF UNINTENDED LOCKING OF POINTS:**

Whenever there is an intended locking of any points (indicated by RED indication lamp near the concerned point) such a locking has to be released (after the concerned signal are in the normal position) by concurrently pressing the Emergency Group cancellation button (provided at the counter of the panel) and the concerned signal button provided the track circuits are clear and are in working condition. This operation is counted on the veeder counter/counter as already pointer out.

8.4 **CANCELLATION OF LOCKING OF ROUTE AND POINTS AFTER THE SINGAL HAS BEEN PUT BACK TO 'ON':**

OR

**THE SINGAL HAS GONE BACK TO ON EITHER AFTER THE MOVEMENT OF THE TRAIN IS CANCELLED:**

OR

**THE TRAIN HAS COME TO A STOP OUT SIDE THE STOP SIGNAL:**

In case the route is set and the signal is taken off and if it is warranted that the signal has to be put back to ON and cancel the route.

- a). Firstly the signal has to be put back to the ON position
- b). Emergency route cancellation operation must be initiated as detailed in para 8.1.

9. **EMERGENCY OPERATIONS:**

Cancellation of the locking of points not released after the passage of the train for any reason. If the locking of the route does not get released for any reason on the other after passage of the train, it is necessary to take recourse to the following emergency operations.

- a). Firstly, it must be ensured that the signal and signal buttons are in normal position
- b). Operation as detailed in para 8.1 to be followed..

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10. **EMERGENCY OPERATIONS OF POINT (IN CASE OF POINT ZONE TRACK CIRCUIT FAILURE):**

The Station Master on duty can operate points form panel in case of point zone track circuits fails. The Station Master on duty after physical verification insert the SM's emergency point key and turn into get the key. 'N' position keeping Emergency point key in that position the Station Master on duty must press the individual point button along with emergency point operation button (Black with Red dot). He shall then release the emergency point operation button only and press the point group Normal or Reverse button as per requirement keeping the individual point button is pressed condition. Points will be set to Normal or Reverse position as per operation. During the initiation on RED indication will appear ;;above the emergency

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;operation button. This operation will be registered in and emergency point operation counter placed above the emergency point operation button.

**11. INTERLOCKING OF SIGNALS:**

- 11.1 All running line points are fitted with point machine and are electrically detected by the relevant Home signals and starters.
- 11.2 Advanced starters are interlocked with respective Single line token less block instrument in LINE CLEAR position.
- 11.3 Home signals are interlocked with respective Single line token less block instrument. The Block instruments cannot be made to normal unless the respective Home signals are in Normal position.
- 11.4 Signals once taken OFF can be put back to ON in case of emergency by pressing the concerned signal button in conjunction with signal cancellation button even when the panel is locked up with Station Master's key.

**12. LOCKING OF RELAY ROOM:**

- 12.1 Relay room at this station is provided with double locks (Two independent locks) as necessary vide OM 1.14, one key shall be kept with the Signal Maintainer of the section and the other with Station Master on duty. The relay room cannot be opened unless both keys are used.
- 12.2 The Station Master shall ensure that the Relay Room key is given to maintenance staff under clear signature as and when required for their normal maintenance and special works and that the key should be returned by the staff immediately after completion of their work and the documentation should be made in the Relay Room Key register maintained at the Station according to SR 3.51.05 and OM 1.14.

**13. MAINTANANCE OF S&T INSTALLATION AND ADHERENCE TO MAINTENANCE SCHEDULES:**

- 13.1 The regular maintenance of S&T installations and adherence to the schedules of maintenance is also the mandatory schedules of testing of points, track circuits, signal lever machines, level crossing gates, the associated interlocking apparatus i.e., cables and finally the interlocking functional tests is a must for the safe and satisfactory working of those installations at the Station.
- 13.2 The tests, checks and replacements etc. including overhauling shall conform to the schedule of maintenance as indicated in the signal engineering manual as also in the current and extent instruction / circulars on the subject.

**14. PROCEDURE TO BE FOLLOWED IN CASE OF FAILURE OF A SIGNAL AND INTERLOCKING INSTALLATIONS:**

Whenever there is a failure of points, track circuits, signals, Axle counters or any other interlocking gears at the station, the failure report should be communicated by the Station Master on duty through a memo to the Sectional Maintainer and the Signal Engineer of the Section along with others as per G& SR 3.51.04 and 3.68.04 and document all such transactions.

**14.1 INSPECTION OF POINTS BEFORE DECLARING THEM DEFECTIVE:**

However, before declaring a Signal as defective the setting of point on the route to which it applies shall be inspected by the Station Master on duty irrespective of the position of the switches on he Panel in term of SR 3.68.01(c).

**14.2 RECTIFICATION AND CHECK BEFORE RESUMING NORMAL WORKING:**

It is only after receipt of this information the sectional maintainer (Electrical or Mechanical) shall attend to the failure after giving a disconnection memo. After rectification of the fault the sectional maintainer shall give a reconnection memo detailing rectification and it is only after the Station Master of duty has personally checked this defective gear and is satisfied that it is in good and proper working order, he shall resume the normal working of the said defective gear in terms of SR 3.64.04 (c) and (d).

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**15. PROCEDURE FOR CARRYING OUR PLANNED MAINTANANCE WORK:**

However any normal maintenance or special works for heavy renewals etc., are involved. These works should be pre-planned by the signal & Telecommunication field staff and the Inspector of the section should give to the Station Master in writing "Advance Intimation" about this planned work in terms of GR 15.08.01.

**16. EMERGENCIES:**

Notwithstanding anything contained in above said Para Nos. 14 and 14.1 and 14.2, when a gear is found to be defective and unsafe for passage of trains, the Signal and Telecom. Staff shall at once suspend the working of such gear and the associated installation and issue a "Suspension Memo" explaining the seriousness of the defect or damage to the interlocking installation to the Station Master and obtain SM's acknowledgement. After this, the usual practice of issuing disconnection memo and reconnection memo can follow and the Station Master must promptly act on such messages and take adequate precautions treating the S&T installations as defective and pass trains over the affected interlocking gears according to extant instructions as contain in GR 3.77 AND SR thereto.

**17. LIGHTING OF SIGNAL LAMPS AND THEIR MAINTENANCE:**

The Station Master on duty at every shift must also ensure from the Panel Board that all the signals lights are burning properly and brightly. This fact must also be recorded in the diary under a separate entry and confirm to the section controller on duty as per instruction contained in Divisional Safety Circular No. 82/82, Dated 2.5.82 and GR 3.49(3) and SR thereto.

**18. CORRECTING TIME IN STATION CLOCK:**

The Station Master shall set the time on his clock according to the time signal given by the Section Controller on duty at 16.00 Hours. Every day according to SR 4.01.01 and 4.01.02.

**19. NORMAL POWER SUPPLY AND STAND BY POWER SUPPLY:**

The Station works on 230 Volts single-phase power supply from Auxiliary transformer connected to OHE Traction Distribution. Stand by Power Supply is fed through OSEB.

**19.1 NORMAL POWER SUPPLY-MAINTANACNE OF POWER SUPPLY, POWER FAILURE AND REPORTING SUCH FAILURES:**

Normal power supply to the Signalling and interlocking installations at this station is drawn from the State electricity sources [at 230V-50Hz]. The Station Master must however, maintain the record of the power failure of the local supply and he must promptly report the failure to the Section controller and the concerned Electrical and S&T maintenance staff.

**20. WORKING OF POINTS – POSITION OF POINTS:**

The normal position of all points shown in the Station Working Rule Diagram No. SI/WRD 10888 and also in the mimic indication panel provided in the Station Masters office.

**20.1** All crossover points and independent points on the running lines are worked by Electric Point Machines. The point machines have in-built locking and detection arrangements. These points are remotely controlled from the panel situated in the Station Master's office.

**20.2** The operation and indication of the points and their route locking over them is already explained in earlier paras of Appendix-B.

**20.3** All siding entrance points [on running lines] and the corresponding derailing switches on the sidings are coupled and locally operated by hand levers provided at site. The entrance points are provided with Hand Plunger locks with key locking arrangements, the key being released

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from the RKT instruments. The siding entrance points controlling key is interlocked with the interlocking and signalling system through RKT as explained in earlier paras of Appendix-B.

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

- 21.1** Whenever a Signal or a Point become defective, any movements over the Points on the running lines should be made after clamping and padlocking both the facing and trailing Points by Station Master on duty personally for all trains at Station.
- 21.2** In case of failure of Signal or a Point and in case the Point can not be operated from the Panel, the emergency Crank Handle which is interlocked with the system has to be extracted and the following procedure has to be observed.
- 21.3** One common emergency Crank Handle is provided for all the Motor operated points. This is mechanically riveted to the Key of RKT. This key along with Crank Handle can be released from, the RKT by pressing the crank handle push button in conjunction with 'Group Trans' button. All signals will be locked in the "Normal" position as soon as this Crank Handle is released from the RKT. The SM on duty in case of point motor failure, will take out the Crank Handle set the point manually by inserting Crank Handle on the Motor.
- 21.4** When the crank handle is removed from RKT for operation of the defective Motor operated points the responsibility for its safe custody rests with the ASM/SM on duty till it is replaced back in RKT and sealed by Signal Maintainer and padlocked by SM/ASM on duty.
- 21.5** The case of failure of Motor operated points should be promptly reported to the concerned SSE/SE/(sig)/ESM for immediate rectification.
- 21.6** 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 concerned Points will be treated as defective till the Emergency Crank Handle is returned back to the Station Master on duty.
- 21.7** 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

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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.

- 21.7.1** The Emergency Crank Handle Register is to be maintained in the following Performa by the Station Master on duty wherein the particulars of usage of the Emergency Crank Handle must be recorded.

1. Date
2. Point Number, which failed or required to be tested.
3. Time of failure:
4. Disconnection memo number received from S&T staff:
5. Signature of SM/Signal official to whom the Emergency Crank Handle is handed over.
6. Time Emergency Crank Handle is sent out.

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7. Individual Point numbers, and Line number nominated for admission or dispatch for which Points are set, Clamped and Padlocked.
8. Train number to be admitted or dispatched
9. Signature of the SM on duty to ensure correct setting, Clamping and Padlocking of the points,
10. Date & Time fault rectified.
11. Time of Emergency Crank Handle is received back by SM on duty.
12. Signature and Designation of the Signal Official who rectified the fault.
13. Remarks.

**IMPORTANT NOTE:**

When performing shunting operation in the sidings it must be clearly noted that the siding points are interlocked with the system in NORMAL position of the Points and in REVERSED position they are not in interlocked. The official responsible for shunting operation must clamp the points at the both ends before permitting any movement.

**22. INTERLOCKING OF SIGNALS WITH BLOCK INSTRUMENTS:**

**22.1 INTERLOCKING WITH HOME SIGNALS:**

All the UP and DOWN Home signals are Electrically interlocked with the respective Single Line token less Block Instrument so that before the handle of the instrument can be turned from TRAIN COMING FROM position to LINE CLOSED position, all the switches controlling the Home Signals of UP or DOWN direction as the case may be must be in their NORMAL position.

- 22.2** The UP and DOWN Advanced Starter Signals are Electrically interlocked with the respective Single Line token less Block Instrument so that these signals can not be taken OFF until the Handle of the concerned Block Instrument is in TRAIN GOING TO position.

**22.3 SUSPENSION OF LAST STOP SIGNALS:**

When the Block Instrument is suspended with its handle in TRAIN GOING TO position for whatever reason the concerned Last Stop Signals controlled by the Single Line token less Block Instrument must be treated as suspended and trains shall be Piloted Out.

**23. BURNING OF SIGNAL LIGHTS:**

The Station Master of duty shall not grant LINE CLEAR unless he has ensured that the lamps of fixed signals that apply to the train are burning brightly. If the Signal Lights cannot be kept burning the Station Master on duty shall before giving LINE CLEAR initiate action in accordance with the procedure prescribed in GR 3.68 to 3.71 and relevant SR's vide GR 3.49(4).

**24. TELECOMMUNICATIONS:**

1. Telephone attached to token less block instrument connected to adjacent stations on either side.
2. The station is connected to KRPU-RGDA control circuit and OEC-KRPU control circuit.
3. The station is connected to OEC-KRPU Traction Power Control Circuit.
4. Station to Station telephone (Magneto phone) is connected to adjacent block station on either side.
5. Portable telephone is provided in SM's office for connecting to socket at location on either side.
6. Telephone communication is provided between the station and "A" Cabin.
7. The station is connected to NALCO Siding by means of Magneto phone.
8. Telephone between "A" Cabin and Location at NALCO end of Exchange Yard.
9. BSNL Telephone.
10. VHF Set.

**25. FAILURE OF COMMUNICATIONS – FAILURE OF BLOCK INSTRUMENTS:**

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- 1). In the event of suspension/failure of Single Line Token Less Block instrument line clear transaction shall be made on block telephone attached to Single Line Token Less Block instrument exchanging identification number and supported by a Private number vide SR 6.02.06(1)(a), Chapter-III part-I of Block Working Manual.
- 2). In the event of. suspension/failure of Single Line Token Less Block instrument and Block telephone attached to Single Line Token Less Block instrument line clear transaction shall be made on Railway auto phone or BSNL phone exchanging identification number and supported by a Private number vide SR 6.02.03(1)(b), Chapter-III part-I of Block Working Manual.
- 3). In the event of. suspension / failure of Single Line Token Less Block instrument, telephone attached to Single Line Token Less Block instrument and Railway auto phone and BSNL phone, line clear transaction shall be made on control telephone exchanging identification number and supported by a Private number vide SR 6.02.06(1)(a)(c).
- 4). In the event of. Suspension/failure of Single Line Token Less Block instrument, telephone attached to Single Line Token Less Block instrument and Railway auto phone and BSNL phone, line clear shall be obtained on VHF set exchanging identification number and supported by a Private number vide SR 6.02.06(1)(a)(d).

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**EAST COAST RAILWAY**  
**WALTAIR DIVISION**

**APPENDIX 'B'**  
**SYSTEM OF SIGNALLING AND INTERLOCKING AND TELECOMMUNICATIONS**

**DAMANJODI STATION**

Details of Signalling and Interlocking installations, Telecommunication instructions for working them normally and in emergencies etc., including the power supply arrangements.

**1. BRIEF DESCRIPTION OF THE SIGNALLING AND INTERLOCKING INSTALATION:**

**MAIN YARD:**

This is a 'B' Class Station with Standard-III interlocking (with isolation). The points and signals are power operated from a composite miniature 'DOMINO TYPE' full-fledged panel installed in the station master's office. This Station is equipped with manually operated Multi Aspect Colour Light Signalling.

**EXCHANGE YARD:**

The exchange yard is provided with Standard-I interlocking. The points and signals operated from a 30 levers IRS Catch Handle type lever frame provided at "A" cabin. These levers shall operate, points, point locks, slots, siding key controls and signals etc. The yard is provided with manually operated Multi Aspect Colour Light Signals.

**1.1. DISCRPTION OF PANEL:**

The yard layout is depicted on the panel board in a miniature form and is fixed parallel to the track, so that when the Station Master on duty faces this panel, the yard drawing on the panel corresponds to the actual field lay out in either direction.

**1.2. POINT BUTTONS:**

Push buttons are provided on this panel over all points. These points are Black in colour. Point group buttons are also provided for 'Normal' and 'Reverse' operation. These are **BLACK WITH RED DOT** in colour. Points can be set either individually or during route setting. For individual setting of point to normal [N] position, individual point button with Point Group 'Normal' button are to be pressed. For individual setting of point to reverse [R] position, individual point button with Point Group 'Reverse' button are to be pressed. During route settings points will be set in 'Normal' or 'Reverse' as per the requirement. Different indication are shown on the panel below each point as follows.

- 1.3. When a point is set and locked correctly in normal [N] position, a White indication on normal point zone appears suggesting that the point is in normal position.
- 1.4. When a point is set and locked correctly in reverse [R] position, a Green indication on reverse point zone appears suggesting that the point is in reverse position.
- 1.5. When the points of any route have been correctly set and relevant signals taken 'OFF' a 'RED' indication appears indicating that the concerned points are locked either in NORMAL or REVERSE position as the case may be. With the RED indication over point, the point cannot be altered unless a special recourse is taken.
- 1.6. When the point are not set and locked whether in NORMAL or in REVERSE correctly the normal or reverse indication will not be there, but the RED lock indication will start flashing till such time the point is housed properly in one of the position. This RED lock indication will flash during operation of point also.

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**1.7. OPERATION OF POINTS:**

Points are operated to normal or reverse by pressing individual point button in conjunction with the point group button. There by the white strip indication on normal point zone or reverse point zone as the case may be start flashing till the points are set to normal or reverse position and locked. Then the white indication will appear for normal setting of points and Green indication will appear for reverse setting of points. Points can be set to NORMAL or REVERSE position during route setting also.

1.8. All running line points are operated by Electric point machine.

2. In the event of the point could not be set in the desired position, the said points are to be checked by the Station Master on duty according to G&SR 3.68.01(c) and if there is a defect other than obstruction the point has to be considered as defective and action shall be taken for clamping and pad locking these points in the desired position by the Station master on duty himself for all trains according to SR 3.69.03(c).

**2.2 DESCRIPTION OF POINTS:**

SL. NO.	POINT BUTTON NO.	COLOUR	DESCRIPTION
1	100	Black	Cross over point No. 28 of exchange yard.
2	101	Black	Take of point from main line to Exchange yard.
3	102	Black	Control over point No. 27 of Exchange yard.
4	103	Black	Cross over point between (Main Line) Line No. 2 & Line No. 2 towards NALCO siding.
5	104	Black with Red dot	Cross over point between Main Line and 1 <sup>st</sup> loop at KKG end with over run line.
6	105	Black with Red dot	Cross over point between Main Line and 2 <sup>nd</sup> loop at KKG end.
7	107	Black	Cross over point between Main Line and 1 <sup>st</sup> loop at KRPU end with DS.
8	108	Black	Take off Point connecting to Exchange Yard.
9	109	Black	Cross over point between Main Line and 2 <sup>nd</sup> Loop KRPU end with Sand Hump.
10	Point Group button (Normal)	Black with Red dot	Common button for normal operation of points
11	Point Group button (Reverse)	Black with Red dot	Common button for reverse operation of points

**3. SIGNAL BUTTONS:**

SL. NO.	BUTTON NO.	COLOUR	DESCRIPTION
1	C1	Red with white dot	DN calling 'ON' signal for Line no. 1, 2, 3 & Exchange yard.
2	C2	Red with white dot	UP calling 'ON' signal for Line no. 1, 2 & 3.
3	S1	Red	DN Home signal for Line no. 1, 2, 3 & Exchange yard.
4	S2	Red	UP Home signal for Line no. 1, 2 & 3.
5	S3	Red	DN starter for line no. 2
6	S4	Red	UP starter signal for line no. 2
7	S5	Red	DN starter for line no. 1.

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8	S6	Red	UP starter for line no. 1.
9	S7	Red	DN starter for line no. 3.
10	S8	Red	UP starter for line no. 3.
11	S11	Red	DN Advanced starter
12	S12	Red	UP Advanced starter
13	SH15	Yellow	DN Shunt signal for line no 1,2 & 3 and exchange yard
14	SH16	Yellow	UP Shunt signal for line no 1,2 & 3
15	S17	Red	Starter signal for Exchange Yard towards KKG end.
16	S30	Red	Home signal for Line 1,2 & 3 from Exchange Yard.
17	S14	Red	Starter signal from Exchange Yard towards KRPU end.

### 3.1 **SIGNAL INDICATION:**

The aspect of signal as obtained at any time is shown on the panel on the Signal indication (along side of the track)

### 4. **ROUTE BUTTONS:**

Route buttons are provided separately on each running line on the panel for indication of route (Viz. L1-UN, L1-UN1, L2-UN, L3-UN, L3-UN1). Common route buttons are also provided for taking off starter (Viz. 12ATUN, 2T1 UN). An individual route button is provided for taking off advance starter (Viz. 11UN, 12 UN). For clearing the signal, it is necessary to operate the signal button and the concerned route button concurrently.

### 4.3 **DESCRIPTIONS OF ROUTE BUTTONS:**

SL. NO.	BUTTON NO.	COLOUR	DESCRIPTION
1	L-1 UN	White	Common route button for UP and DN Home signal and Calling-On signal for line no. 1 setting overlap on main line.
2	L-1 UN 1	White with Red dot	Common route button for UP and DN Home signal and Calling-On signal for line no. 1 setting overlap on over run line and common route button for shunt signals (UP & DN) for Line No. 1.
3	L-2 UN	White	Common route button for UP and DN Home signal and Calling-On signal for line no. 2.
4	L-3 UN	White	Common route button for UP and DN Home signal and Calling-On signal for line no. 3 setting overlap on main line.
5	L-3 UN 1	White with Red dot	Common route button for UP and DN Home signal and Calling-On signal for line no. 3 setting overlap to Sand Hump and common route button for shunt signals (UP & DN) for Line No. 3.
6	1T1 UN	White	Common route button for UP starters 4, 6, & 8.
7	2T1 UN	White	Common route button for DN starters 3, 5 and 7.
8	11 UN	White	Route button for DN advanced starter No. 11.
9	12 UN	White	Route button for UP advanced starter. No. 12.
10	Group (Trans)	White with black dot	Common Trans button for crank handle and siding control..
11	Group (Released)	White with black dot	Common released button for crank handle and siding control.

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### 4.4 **DESCRIPTIONS OF OTHER BUTTONS:**

SL.	BUTTON NO.	COLOUR	DESCRIPTION
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NO.			
1	Power Acknowledgement	Red	To stop the power failure Buzzer.
2	Emergency Point Operation.	Black with Red Dot	For operation of points in case of emergency.
3	Emergency Route Release	White with Red Dot	For release of Route in case of emergency.
4	Signal Cancellation	Red	For conciliation of any signal in case of emergency.
5	Button Held Ack.	White with Red Dot	To stop the button failure Buzzer.
6	Single Lamp failure.	Red with White Dot	To stop the signal lamp failure Buzzer.
7	CH1, CH2, CH3 & CH4.	Blue	For Operation of Crank Handle.
8	Slot Button No. 21.	Black	Slot Control for Line No. 4 of Exchange Yard.
9	Slot Button No. 23.	Black	Slot Control for Line No. 5 of Exchange Yard.
10	Slot Button No. 25.	Black	Slot Control for Line No. 6 of Exchange Yard.
11	Slot Button No. 27.	Black	Slot Control for Line No. 7 of Exchange Yard.

**5.0 POWER FAILURE INDICATION/BUZZER AND POWER ACKNOWLEDGEMENT:**

Normally Auxiliary transformer is connected to OHE traction distribution, if power supply fails a RED indication appears on the panel along with an audible Buzzer. The SM on duty shall press the "Power Ack" button to stop the buzzer. However, the "RED" indication lamp continues till the power supply is restored or alternative supply is connected by means of operation of changeover switch to local supply and restore the power supply.

When the normal Auxiliary power supply is restored an audible Buzzer again rings and the RED light on the panel extinguishes. The SM on duty shall operate the changeover switch and press the acknowledgement button to stop the audible Buzzer.

**5.1 SIGNAL LAMP FAILURE INDICATION (RED SIGNAL LAMP MUTTING BUTTON RED WITH WHITE DOT):**

Whenever main filament of a signal lamp is fused, a miniature flashing Red light indication appears along with an audible buzzer indicates Signal lamp failure. The Station Master on duty shall press the signal lamp/point failure Ack. Button thereby the buzzer stops but the Red indication lamp becomes steady which continues till either the signal lamp is replaced or signal assumes other aspect.

Whenever auxiliary filament also fuses, the Red indication lamp flashed and sounds buzzer. Station Master on duty shall resort the similar operation of signal lamp/point failure Ack button as explaining above. Whenever main filament is fused, Station Master on duty shall immediately send message to JE/ESM for rectification.

**5.2. BUTTON FAILURE INDICATION WHITE/BUTTON HELD BUZZER (WHITE WITH RED DOT):**

Whenever any button remains held up in pressed condition 'Button Held' white. Indication starts flashing along with an audible buzzer. The Station Master on duty then acknowledge it by pressing the "Button Held" push button (white with red dot) the buzzer stops but the white indication continues to flash till the same is rectified.

**6. TRACK CIRCUITS:**

The Station Main yard and point portion are provided with full-fledged track circuits. LVT and FVT track circuits are provided for automatic replacement of signals of Main yard.

The clearance of the running line on the Main Yard for the reception of the train is to be verified by the SM on duty personally by verifying luminous indications provided on the panel

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board. Normally no indication is shown on the panel. Whenever a clear line is nominated for admission and concerned signals are taken "OFF" as per procedure prescribed herein after a "WHITE" strip of light appears on the panel on the entire route from stop signal to stop signal and a "RED" indication appears when the track is occupied. When the train clears the track circuit the "RED" light disappears and the "WHITE" strip glows. The White light will remain illuminated till the route is released or cancelled.

**FAILURE OF TRACK CIRCUITS:**

The failure of track circuits over the point zone shall make the power operation of the points through the panel inoperative. In such case the SM on duty has to restore to emergency operation of these points by 'CRANK HANDLE', only after ensuring the point zone track circuits are cleared of any obstruction.

- 6.1. When a train is to be dispatched from the station yard on signals, the Station Master on Duty must ensure that the route between the starter signal and the Advance Starter is clear of any obstruction (which includes point zones track circuits) before he takes off departure signals.

6.2. **CRANK HANDLE FOR EMERGENCY OPERATION OF POINTS:**

Crank handle is inter locked with the signalling and interlocking system at this station and the crank handle which is normally locked up in the RKT instrument at the station can be taken out when the signals are in the normal position and the route is not locked, for any reason. Even when the route is locked the crank handle can be extracted from the RKT through emergency operation by pressing crank handle button along with "Group Trans" button. The release can be affected by pressing the push button for its release, and when this key is taken out the signals leading over the particular point in either direction cannot be taken off. Four crank handles i.e., CH1 cross over points 104 A&B, 107 A/B, 105 A&B, 109 A&B, CH2 for point No. 108A, CH3 for point NO. 101, & CH4 for point No. 103A&B are provided. Crank handles are housed in a locations either end of the yard. (Further details are explained in item No. 21.0 of Appendix-B)

- 6.3. Whenever a light vehicle/ vehicles including self propelled vehicles such as motor trolley or a four wheeled Tower wagon passer over track circuit zones, SM shall satisfy himself that the indications whether occupation or clearance are indicated in-conjunction with the movement of the vehicle/vehicles. If such indications are not appearing on the panel as above SM on duty shall physically verify the clearance of the Track Circuits zones, and shall not permit any other movement over the said lines unless the clearance is confirmed by Station Master himself personally.

6.4. **GOODS SIDING:**

A goods siding is provided at KKG end of the yard connected to Line No. 1. The siding is isolated from Line No.1 by provision of derailing switches at both ends. The entrance points and corresponding derailing switches are operated by arc levers provided at site by the double keys released (X and Y) from RKT in the SM's Office. Two RKT's with the siding key "X" and "Y" normally "IN" are provided in the SM's office are controlled by a push button switch NO. 106 on the panel, which has three indications. A "WHITE" light appears when the keys are "IN" RKT, a "GREEN" light when the switch is pressed to "OUT" indicating that these keys are free to be extracted. When the keys are extracted from RKT a "RED" light grows suggesting that the keys are "OUT", When the keys are "OUT" from RKT the reception and departure signals for Line No. 1 are held locked in their normal position.

To extract the keys from RKT, the SM on duty must press the Switch NO. 106 to "OUT" position whereby a "GREEN" light appears. The SM must press the push button provided on the RKT and extract the keys "X" and "Y". "X" releases the HPL of entrance point at Koraput end and "Y" releases the HPL of the entrance point at Kakiriguma end. The siding keys are carried manually to site for operation for Goods Siding, after the work is completed the keys must be restored to their respective RKTs and switch No. 106 turned to "IN" position, there by the "RED" light disappears and "WHITE" light glows suggesting the keys are "IN". When the

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keys “X” and “Y” are out the UP and DN reception signal and DN departure signals for Line No. 1 shall be held locked in their normal position.

### 6.5 FUNCTION OF LEVERS IN “A” CABIN:

Lever No	Function of Lever
1.	Spare
2.	Down Intermediate Home Signal for exchange yard.
3.	Shunt Signal for exchange yard.
4.	Control key for DS point towards shunting neck.
5.	Spare
6.	Spare
7.	Shunting neck point control key
8.	Lock bar for point No. 9 KRPU end.
9.	Crossover point leading to Line No. 7 (Exchange yard).
10.	Lock bar for point No. 12.
11.	Point leading to L No. 5 in Exchange Yard.
12.	Point leading to L No. 6 in Exchange Yard.
13.	Spare
14.	Lock bar for Point No. 9 Exchange yard.
15.	Exchange yard point leading to Main line.
16.	Slot control to Down Main Home Signal of Main Yard.
17.	Control key for cripple/sick line.
18.	UP starter for L No. 4 from Exchange Yard.
19.	Spare
20.	UP starter for L No. 5 from Exchange Yard.
21.	Spare
22.	UP starter for L No. 6 from Exchange Yard.
23.	Spare
24.	UP starter for L No. 7 from Exchange Yard.
25.	BV siding control key.
26.	Control over point No. 108 of Main Yard at KKG end.
27.	Control key over point leading to Main Yard at KKG end.
28.	Control key over point from NALCO leading to Main line.
29.	Control key over Sand Hump point from NALCO.
30.	Spare.

#### 6.5.1 “A” CABIN LEVER PULL CHART:

Line No.	Levers to be pulled for Reception of DN trains
4.	26, 15, 10, 8, 2 OR 26, 15, 10, 8, 3
5.	26, 15, 11, 8, 2 OR 26, 15, 11, 8, 3
6.	26, 15, 11, 12, 10, 8, 2 OR 26, 15, 11, 12, 10, 8, 2
7.	26, 15, 9, 8, 2 OR 26, 15, 9, 8, 3

### 6.6 POINTS AND LOCKS AND INTERLOCKING BETWEEN SIGNALS:

Exchange yard facing points are fitted with plunger type locks with lock bars and electrically detected by relevant signals. The motor operated crossover point No. 108 is controlled by Lever No. 26 of “A” Cabin.

### 6.7 RECEIVING/DISPATCHING OF TRAINS FROM NALCO TO MAIN YARD:

Whenever a train from NALCO to be admitted on Main Yard, the SM shall authorise the cabin man at “A” cabin to set the route by releasing the control keys of Lever No. 29 & 27 by pressing the push button No. 102 in conjunction with “Group Trans” button. The control key released at “A” Cabin shall be transmitted by Cabin Man through RKT to location at NALCO

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end of Exchange yard and shall instruct TPM/ Optg. Staff over telephone to set and lock the route in favour of said train supported by a Private Number. The operating staff at location after extracting key for point No. 27 & 29 shall set the route as instructed by the Cabin Man at "A" Cabin, clamp and pad lock the facing points and shall inform the Cabin Man in token of compliance of instruction supported by Private Number. Cabin Man at "A" cabin shall inform the Station Master as an assurance of compliance of route setting, clamping and padlocking supported by private number. SM shall then set the nominated clear line and shall take "OFF" the NALCO Home signal No. 30 through panel board. The TPM/ Optg. Staff who pilot the train from NALCO to Main Yard shall confirm the signal before he pilots the train past the point No. 29. The train which are intended to be admitted on Main Yard of Exchange yard to stop at stop board.

Whenever a train is intended to be dispatched to NALCO from Main Yard, after ensuring the entire line is set and facing points clamped and padlocked TPM shall pilot the train till last vehicle passes point No. 29 (where motor points are involved both facing and trailing points shall be clamped and pad locked).

#### 6.7.1 RECEIVING/DISPATCHING OF TRAINS (PROCEDURE OF PANEL OPERATION):

Sl. No	Direction of Reception	To Line No.	BUTTONS TO BE PRESSED	
			Reception	Dispatch
1.	From KKGm (UP trains)	1	L1 UN, [S-2 OR C-2] OR L1 UN1, [S-2 OR C-2]	12UN,S12, 1T1UN, S-6
2.	From KKGm (UP trains)	2	L2 UN, [S-2 OR C-2]	12UN, S12, 1T1UN, S-4
3.	From KKGm (UP trains)	3	L3 UN, [S-2 OR C-2] OR L3 UN1, [S-2 OR C-2]	12UN, S12, ITIUN, S-8
4.	From KRPU "B" Cabin (DN trains)	1	L1 UN, [S-1 OR C-1] OR L1 UN1, [S-1 OR C-1]	11UN,S11, 2T1UN, S-5
5.	From KRPU "B" Cabin (DN trains)	2	L2 UN, [S-1 OR C-1]	11UN, S11, 2T1UN, S-3
6.	From KRPU "B" Cabin (DN trains)	3	L3 UN, [S-1 OR C-1] OR L3 UN1, [S-1 OR C-1]	11UN, S11, 2T1UN, S-7
7.	From Exchange Yard	Exchange Yard	ENU [S-1 OR C-1]	
8.	From Exchange Yard	To KKGm	-----	12UN,S-12, 1T1UN, S-17
9.	From Exchange Yard	1	L1UN, S-30 OR L1UN1, S-30	12UN, S-12, 1T1UN, S-6
10.	From Exchange Yard	2	L2UN, S-30	12UN, S-12, ITIUN, S-4
11.	From Exchange Yard	3	L3UN, S-30 OR L3UN1, S-30	12UN, S-12, 1T1UN, S-8
12.	From Exchange Yard	To KRPU	-----	12UN, S-12, EUN, S-14

#### APPENDIX 'B'

#### 7. STATION MASTER'S KEY:

The panel is also fitted with Station Master's lock up key to prevent unauthorized operation of this panel but with the arrangement to put back the signal to the ON position in the case of emergency without altering the route when the panel is in locked position.

#### 8. EMERGENCY OPERATIONS:

The following are the instructions for Emergency operations.

#### 8.1 CANCELLATION BUTTON OR VEEDER COUNTER:

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For the purpose of the emergencies operations there is an emergency Route cancellation and also there is a veeder counter for counting emergency operations involving the concurrent operation of the emergency route cancellation button. The station master on duty must press the emergency route button along with concerned signal button for which emergency route releases is required. A yellow indication will appear below the signal indicating that the timer has started operation and after lapse of 120 seconds. The desired route will be released provided all other conditions are favourable for the route release.

- 8.2 The numbers on the veeder counter register the number of operations performed for such emergency cancellation and the station master on duty should specify the cause for such usage giving the particulars of cause and the time of operation as related to a particular train etc. in the train signal register. The detailed operation instructions are as follows:

8.3 **CANCELLATION OF UNINTENDED LOCKING OF POINTS:**

Whenever there is an intended locking of any points (indicated by RED indication lamp near the concerned point) such a locking has to be released (after the concerned signal are in the normal position) by concurrently pressing the Emergency Group cancellation button (provided at the counter of the panel) and the concerned signal button provided the track circuits are clear and are in working condition. This operation is counted on the veeder counter/counter as already pointer out.

8.4 **CANCELLATION OF LOCKING OF ROUTE AND POINTS AFTER THE SINGAL HAS BEEN PUT BACK TO 'ON':**

OR

**THE SINGAL HAS GONE BACK TO ON EITHER AFTER THE MOVEMENT OF THE TRAIN IS CANCELLED:**

OR

**THE TRAIN HAS COME TO A STOP OUT SIDE THE STOP SIGNAL:**

In case the route is set and the signal is taken off and if it is warranted that the signal has to be put back to ON and cancel the route.

- a). Firstly the signal has to be put back to the ON position
- b). Emergency route cancellation operation must be initiated as detailed in para 8.1.

9. **EMERGENCY OPERATIONS:**

Cancellation of the locking of points not released after the passage of the train for any reason. If the locking of the route does not get released for any reason on the other after passage of the train, it is necessary to take recourse to the following emergency operations.

- a). Firstly, it must be ensured that the signal and signal buttons are in normal position
- b). Operation as detailed in para 8.1 to be followed..

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10. **EMERGENCY OPERATIONS OF POINT (IN CASE OF POINT ZONE TRACK CIRCUIT FAILURE):**

The Station Master on duty can operate points form panel in case of point zone track circuits fails. The Station Master on duty after physical verification insert the SM's emergency point key and turn into get the key. 'N' position keeping Emergency point key in that position the Station Master on duty must press the individual point button along with emergency point operation button (Black with Red dot). He shall then release the emergency point operation button only and press the point group Normal or Reverse button as per requirement keeping the individual point button is pressed condition. Points will be set to Normal or Reverse position as

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per operation. During the initiation on RED indication will appear ;above the emergency ;operation button. This operation will be registered in and emergency point operation counter placed above the emergency point operation button.

**11. INTERLOCKING OF SIGNALS:**

- 11.1 All running line points are fitted with point machine and are electrically detected by the relevant Home signals and starters.
- 11.2 Advanced starters are interlocked with respective Single line token less block instrument in LINE CLEAR position.
- 11.3 Home signals are interlocked with respective Single line token less block instrument. The Block instruments cannot be made to normal unless the respective Home signals are in Normal position.
- 11.4 Signals once taken OFF can be put back to ON in case of emergency by pressing the concerned signal button in conjunction with signal cancellation button even when the panel is locked up with Station Master's key.

**12. LOCKING OF RELAY ROOM:**

- 12.1 Relay room at this station is provided with double locks (Two independent locks) as necessary vide OM 1.14, one key shall be kept with the Signal Maintainer of the section and the other with Station Master on duty. The relay room cannot be opened unless both keys are used.
- 12.2 The Station Master shall ensure that the Relay Room key is given to maintenance staff under clear signature as and when required for their normal maintenance and special works and that the key should be returned by the staff immediately after completion of their work and the documentation should be made in the Relay Room Key register maintained at the Station according to SR 3.51.05 and OM 1.14.

**13. MAINTANANCE OF S&T INSTALLATION AND ADHERENCE TO MAINTENANCE SCHEDULES:**

- 13.1 The regular maintenance of S&T installations and adherence to the schedules of maintenance is also the mandatory schedules of testing of points, track circuits, signal lever machines, level crossing gates, the associated interlocking apparatus i.e., cables and finally the interlocking functional tests is a must for the safe and satisfactory working of those installations at the Station.
- 13.3 The tests, checks and replacements etc. including overhauling shall confirm to the schedule of maintenance as indicated in the signal engineering manual as also in the current and extent instruction / circulars on the subject.

**14. PROCEDURE TO BE FOLLOWED IN CASE OF FAILURE OF A SIGNAL AND INTERLOCKING INSTALLATIONS:**

Whenever there is a failure of points, track circuits, signals, Axle counters or any other interlocking gears at the station, the failure report should be communicated by the Station Master on duty through a memo to the Sectional Maintainer and the Signal Engineer of the Section along with others as per G& SR 3.51.04 and 3.68.04 and document all such transactions.

**14.1 INSPECTION OF POINTS BEFORE DECLARING THEM DEFECTIVE:**

However, before declaring a Signal as defective the setting of point on the route to which it applies shall be inspected by the Station Master on duty irrespective of the position of the switches on he Panel in term of SR 3.68.01(c).

**14.2 RECTIFICATION AND CHECK BEFORE RESUMING NORMAL WORKING:**

It is only after receipt of this information the sectional maintainer (Electrical or Mechanical) shall attend to the failure after giving a disconnection memo. After rectification of the fault the sectional maintainer shall give a reconnection memo detailing rectification and it is only after the Station Master of duty has personally checked this defective gear and is satisfied that it is in

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good and proper working order, he shall resume the normal working of the said defective gear in terms of SR 3.64.04 (c) and (d).

- 15. PROCEDURE FOR CARRYING OUR PLANNED MAINTANANCE WORK:**  
However any normal maintenance or special works for heavy renewals etc., are involved. These works should be pre-planned by the signal & Telecommunication field staff and the Inspector of the section should give to the Station Master in writing "Advance Intimation" about this planned work in terms of GR 15.08.01.
- 16. EMERGENCIES:**  
Notwithstanding anything contained in above said Para Nos. 14 and 14.1 and 14.2, when a gear is found to be defective and unsafe for passage of trains, the Signal and Telecom. Staff shall at once suspend the working of such gear and the associated installation and issue a "Suspension Memo" explaining the seriousness of the defect or damage to the interlocking installation to the Station Master and obtain SM's acknowledgement. After this, the usual practice of issuing disconnection memo and reconnection memo can follow and the Station Master must promptly act on such messages and take adequate precautions treating the S&T installations as defective and pass trains over the affected interlocking gears according to extant instructions as contain in GR 3.77 AND SR thereto.
- 17. LIGHTING OF SIGNAL LAMPS AND THEIR MAINTENANCE:**  
The Station Master on duty at every shift must also ensure from the Panel Board that all the signals lights are burning properly and brightly. This fact must also be recorded in the diary under a separate entry and confirm to the section controller on duty as per instruction contained in Divisional Safety Circular No. 82/82, Dated 2.5.82 and GR 3.49(3) and SR thereto.
- 18. CORRECTING TIME IN STATION CLOCK:**  
The Station Master shall set the time on his clock according to the time signal given by the Section Controller on duty at 16.00 Hours. Every day according to SR 4.01.01 and 4.01.02.
- 19. NORMAL POWER SUPPLY AND STAND BY POWER SUPPLY:**  
The Station works on 230 Volts single-phase power supply from Auxiliary transformer connected to OHE Traction Distribution.  
Stand by Power Supply is fed through OSEB.
- 19.1 NORMAL POWER SUPPLY-MAINTANACNE OF POWER SUPPLY, POWER FAILURE AND REPORTING SUCH FAILURES:**  
Normal power supply to the Signalling and interlocking installations at this station is drawn from the State electricity sources [at 230V-50Hz]. The Station Master must however, maintain the record of the power failure of the local supply and he must promptly report the failure to the Section controller and the concerned Electrical and S&T maintenance staff.
- 20. WORKING OF POINTS – POSITION OF POINTS:**  
The normal position of all points shown in the Station Working Rule Diagram No. SI/WRD 10888 and also in the mimic indication panel provided in the Station Masters office.
- 20.1** All crossover points and independent points on the running lines are worked by Electric Point Machines. The point machines have in-built locking and detection arrangements. These points are remotely controlled from the panel situated in the Station Master's office.
- 20.2** The operation and indication of the points and their route locking over them is already explained in earlier paras of Appendix-B.

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- 20.3** All siding entrance points [on running lines] and the corresponding derailing switches on the sidings are coupled and locally operated by hand levers provided at site. The entrance points are provided with Hand Plunger locks with key locking arrangements, the key being released from the RKT instruments. The siding entrance points controlling key is interlocked with the interlocking and signalling system through RKT as explained in earlier paras of Appendix-B.
- 21. PROCEDURE TO BE FOLLOWED IN CASE OF FAILURE OF SIGNAL POINTS AND USE OF EMERGENCY CRANK HANDLE:**
- 21.1** Whenever a Signal or a Point become defective, any movements over the Points on the running lines should be made after clamping and padlocking both the facing and trailing Points by Station Master on duty personally for all trains at Station.
- 21.2** In case of failure of Signal or a Point and in case the Point can not be operated from the Panel, the emergency Crank Handle which is interlocked with the system has to be extracted and the following procedure has to be observed.
- 21.8** One common emergency Crank Handle is provided for all the Motor operated points. This is mechanically riveted to the Key of RKT. This key along with Crank Handle can be released from, the RKT by pressing the crank handle push button in conjunction with 'Group Trans' button. All signals will be locked in the "Normal" position as soon as this Crank Handle is released from the RKT. The SM on duty in case of point motor failure, will take out the Crank Handle set the point manually by inserting Crank Handle on the Motor.
- 21.9** When the crank handle is removed from RKT for operation of the defective Motor operated points the responsibility for its safe custody rests with the ASM/SM on duty till it is replaced back in RKT and sealed by Signal Maintainer and padlocked by SM/ASM on duty.
- 21.10** The case of failure of Motor operated points should be promptly reported to the concerned SSE/SE/(sig)/ESM for immediate rectification.
- 21.11** 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 concerned Points will be treated as defective till the Emergency Crank Handle is returned back to the Station Master on duty.
- 21.12** 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 **APPENDIX 'B'** 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.

**21.12.1** The Emergency Crank Handle Register is to be maintained in the following Performa by the Station Master on duty wherein the particulars of usage of the Emergency Crank Handle must be recorded.

14. Date
15. Point Number, which failed or required to be tested.
16. Time of failure:

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17. Disconnection memo number received from S&T staff:
18. Signature of SM/Signal official to whom the Emergency Crank Handle is handed over.
19. Time Emergency Crank Handle is sent out.
20. Individual Point numbers, and Line number nominated for admission or dispatch for which Points are set, Clamped and Padlocked.
21. Train number to be admitted or dispatched
22. Signature of the SM on duty to ensure correct setting, Clamping and Padlocking of the points,
23. Date & Time fault rectified.
24. Time of Emergency Crank Handle is received back by SM on duty.
25. Signature and Designation of the Signal Official who rectified the fault.
26. Remarks.

**IMPORTANT NOTE:**

When performing shunting operation in the sidings it must be clearly noted that the siding points are interlocked with the system in NORMAL position of the Points and in REVERSED position they are not in interlocked. The official responsible for shunting operation must clamp the points at the both ends before permitting any movement.

**22. INTERLOCKING OF SIGNALS WITH BLOCK INSTRUMENTS:**

**22.1 INTERLOCKING WITH HOME SIGNALS:**

All the UP and DOWN Home signals are Electrically interlocked with the respective Single Line token less Block Instrument so that before the handle of the instrument can be turned from TRAIN COMING FROM position to LINE CLOSED position, all the switches controlling the Home Signals of UP or DOWN direction as the case may be must be in their NORMAL position.

- 22.2** The UP and DOWN Advanced Starter Signals are Electrically interlocked with the respective Single Line token less Block Instrument so that these signals can not be taken OFF until the Handle of the concerned Block Instrument is in TRAIN GOING TO position.

**22.3 SUSPENSION OF LAST STOP SIGNALS:**

When the Block Instrument is suspended with its handle in TRAIN GOING TO position for whatever reason the concerned Last Stop Signals controlled by the Single Line token less Block Instrument must be treated as suspended and trains shall be Piloted Out.

**23. BURNING OF SIGNAL LIGHTS:**

The Station Master of duty shall not grant LINE CLEAR unless he has ensured that the lamps of fixed signals that apply to the train are burning brightly. If the Signal Lights cannot be kept burning the Station Master on duty shall before giving LINE CLEAR initiate action in accordance with the procedure prescribed in GR 3.68 to 3.71 and relevant SR's vide GR 3.49(4).

**24. TELECOMMUNICATIONS:**

11. Telephone attached to token less block instrument connected to adjacent stations on either side.
12. The station is connected to KRPU-RGDA control circuit and OEC-KRPU control circuit.
13. The station is connected to OEC-KRPU Traction Power Control Circuit.
14. Station to Station telephone (Magneto phone) is connected to adjacent block station on either side.
15. Portable telephone is provided in SM's office for connecting to socket at location on either side.
16. Telephone communication is provided between the station and "A" Cabin.
17. The station is connected to NALCO Siding by means of Magneto phone.
18. Telephone between "A" Cabin and Location at NALCO end of Exchange Yard.
19. BSNL Telephone.
20. VHF Set.

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25. **FAILURE OF COMMUNICATIONS – FAILURE OF BLOCK INSTRUMENTS:**
- 1). In the event of suspension/failure of Single Line Token Less Block instrument line clear transaction shall be made on block telephone attached to Single Line Token Less Block instrument exchanging identification number and supported by a Private number vide SR 6.02.06(1)(a), Chapter-III part-I of Block Working Manual.
  - 2). In the event of. suspension/failure of Single Line Token Less Block instrument and Block telephone attached to Single Line Token Less Block instrument line clear transaction shall be made on Railway auto phone or BSNL phone exchanging identification number and supported by a Private number vide SR 6.02.03(1)(b), Chapter-III part-I of Block Working Manual.
  - 3). In the event of. suspension / failure of Single Line Token Less Block instrument, telephone attached to Single Line Token Less Block instrument and Railway auto phone and BSNL phone, line clear transaction shall be made on control telephone exchanging identification number and supported by a Private number vide SR 6.02.06(1)(a)(c).
  - 4). In the event of. Suspension/failure of Single Line Token Less Block instrument, telephone attached to Single Line Token Less Block instrument and Railway auto phone and BSNL phone, line clear shall be obtained on VHF set exchanging identification number and supported by a Private number vide SR 6.02.06(1)(a)(d).

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