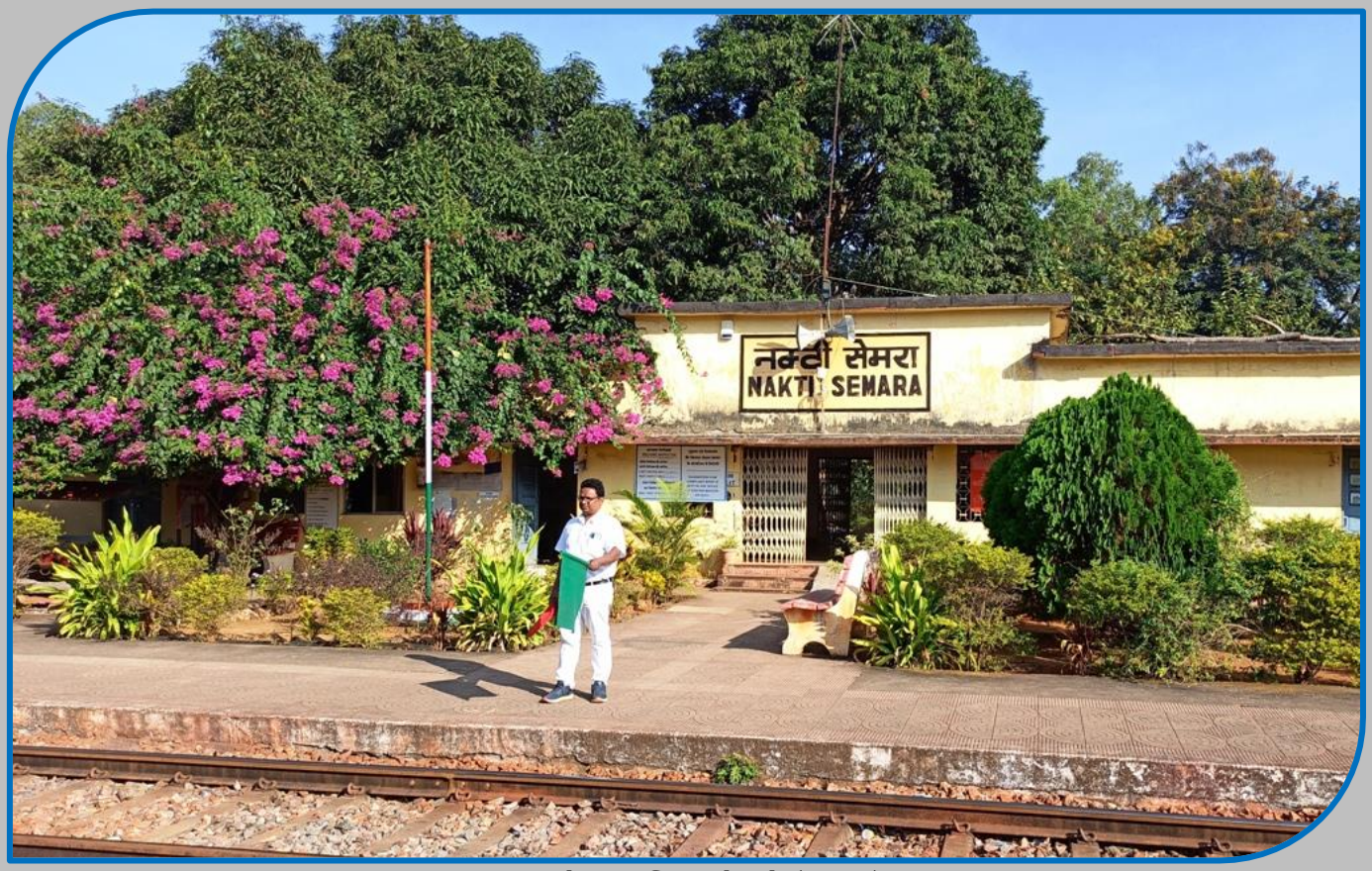
East Coast Railway
Waltair Division
Station Working Rules
Of



NAKTI SEMARA (NKX)

East Coast Railway / Waltair Division

Station Working Rules of
NAKTI SEMARA (NKX)

Index of Correction Slips

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STATION WORKING RULES OF NAKTISEMARA (NKX)

EAST COAST RAILWAY / WALTAIR DIVISION

STATION WORKING RULES OF NAKTI SEMARA [NKX] [BROAD GAUGE]

Date of Issue:-
Date brought in force:-

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

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

1. STATION WORKING RULE DIAGRAM:

The Station Working Rule diagram no: SI/WRD/23166 Alt "B" based on CSTE/ E.Co.Rly Signal Interlocking **Plan No.SI-23166** shows the complete layout of the yard, normal position of points, the Signalling and Interlocking arrangements, Gradients within the station limits. This must be referred to for giving details of the points and Signals when reporting accidents.

2. DESCRIPTION OF STATION:

Naktisemara (code: NKX) is a **Standard-II R** 'B' class station with MACLS on the **KOTTAVALASA-KIRANDUL,** B.G.section of E.Co.Rly on 'D' Special route. It is situated at km 289.330 from KTV and provided with centrally operated by VDU.

2.1. GENERAL LOCATION:

a)	Name of the station	**NAKTISEMARA**
b)	Class of station	'B' class
c)	Section	Kottavalasa-Kirandul
d)	Double line/Single line	Double Line between NKX-JDB & NKX-AGZ
e)	Electrified/Non Electrified	**ELECTRIFIED**
f)	Gauge BG/MG/NG	BG
g)	Railway	East Coast Railway
h)	Route	'D' Special
i)	Situated at	Km **289.330**
j)	Reckoned from	Kottavalasa
k)	Operation	Centrally operated with VDU.

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

S.No	Adjacent BlockStation	Distance	Direction
1.	AMAGURA	**7.901** km	KTV end
2.	JAGDALPUR	**6.454** km	KRDL end
3.	Provision of IBS	Nil	
4.	Automatic signal	Nil	
5.	DK station/Outlaying sidings	Nil	
6.	Passenger halt	Nil	

STATION WORKING RULES OF NAKTISEMARA (NKX)

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

Between Stations	The Point from which the Block section commences	The Point at which the 'Block Section' ends
NKX-JDB DN.	From DN advanced starter signal no. 24 of JDB.	BSLB of NKX.
NKX-JDB UP.	From UP advanced starter signal no. 17 of NKX.	BSLB of JDB.
NKX-AGZ DN.	From DN advanced starter signal no. 18 of NKX.	Point No. 32A of AGZ.
NKX-AGZ UP.	From UP advanced starter signal no. 25 of AGZ.	Point No. 21A of NKX.

2.3.1. STATION SECTION:

DN LINE: From the BSLB of NKX at KRDL end to DN Advanced Starter Signal No.18.

UP LINE: From the outer most point No.21A at KTV end to UP Advanced Starter Signal No. 17.

2.3.2. STATION LIMIT:

UP LINE: From UP Distant Signal to UP Advanced Starter Signal No.17.

DN LINE: From DN Distant Signal to DN Advanced Starter Signal No.18.

2.4. GRADIENTS:

a) From the Centre of the Station Building towards AGZ Up Line:-

Chainage in Mtrs from CSB		Stretch	Gradient
From	To		
0.000 F/CSB	758.00M	758.00M	1 in 410 Falling
758.00M	935.00M	177.00M	Level
935.00M	1295.00M	360.00M	1 in 150 Raising
1295.00M	1595.00M	300.00M	1 in 1000 Raising
1595.00M	1815.00M	220.00M	1 in 394 Falling
1815.00M	2215.00M	400.00M	1 in 150 Falling
2215.00M	2341.40M	126.40M	Level
2341.40M	Into section	--	1 in 800 Raising

b) From the Centre of the Station Building towards AGZ Down Line:-

Chainage in Mtrs from CSB		Stretch	Gradient
From	To		
0.000 F/CSB	650.00M	650.00M	1 in 410 Falling
650.00M	935.00M	285.00M	1 in 1439 Raising
935.00M	1115.00M	180.00M	1 in 157 Raising

1115.00M	1595.00M	480.00M	1 in 1120 Raising
1595.00M	1875.00M	280.00M	1 in 323Falling
1875.00M	2215.00M	340.00M	1 in 159 Falling
2215.00M	2735.00M	520.00M	1 in 845 Raising
2735.00M	Into section	--	1 in 235 Raising

c) From the Centre of the Station Building towards JDB Up Line:-

Chainage in Mtrs from		Stretch	Gradient
From	To		
0.000 F/CSB	120.00M	120.00M	1 in 410 Raising
120.00M	655.00M	535.00M	1 in 600 Raising
655.00M	1660.00M	1005.00M	1 in 113 Falling
1660.00M	2120.00M	460.00M	1 in 104.5 Falling
2120.00M	2380.00M	260.00M	1 in 1106 Raising
2380.00M	2640.00M	260.00M	Level
2640.00M	Into section	---	1 in 605 Falling

d) From the Centre of the Station Building towards JDB Down Line:-

Chainage in Mtrs from		Stretch	Gradient
From	To		
0.000 F/CSB	120.00M	120.00M	1 in 410 Raising
120.00M	655.00M	535.00M	1 in 600 Raising
655.00M	800.00M	145.00M	1 in 122 Falling
800.00M	1560.00M	760.00M	1 in 112 Falling
1560.00M	2100.00M	540.00M	1 in 103 Falling
2100.00M	2360.00M	260.00M	1 in 572 Falling
2360.00M	2580.00M	220.00M	Level
2580.00M	Into section	---	1 in 475 Falling

2.5. A)LAY OUT:

Sl no	Running/Non Running line	Electrified/Non Electrified
1.	Line no-1 (Common Loop Line)	Electrified
2.	Line no-2 (DN Main Line)	Electrified
3.	Line no-3 (UP Main Line)	Electrified
4.	Line no-4 (UP Loop Line)	Electrified
5.		

B) PLATFORMS:

i) One Rail level passenger platform on Line No.1 is provided with measurement of 360.00M x 6.10M.

ii) One Medium Level Passenger Platform between Line No.4 is provided with measurement of 400.00M x 10.00M.

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

Direction of traffic: The trains coming from JDB and, going towards AGZ are DN trains

And the trains coming from AGZ and going towards JDB are UP trains.

Holding Capacities of lines in CSL:

S.No	Running lines	Name of the Line	Clear Standing Room	Whether Electrified/ Non Electrified
1.	Line No 1	Common Loop	766.4 M (From STR to STR)	Electrified
2.	Line No 2	DN Main Line	783.2M (From STR to SH)	Electrified
3.	Line No 3	UP Main Line	797.8 M (From STR to S.S)	Electrified
4.	Line No 4	UP Loop Line	727.8M (From STR to S.S)	Electrified

2.5.2. NON RUNNING LINES AND THEIR CAPACITY IN CSR:

a) Hot Axle Siding:

One Hot Axle Siding takes off from Line No.1 at AGZ end of the yard and terminates towards Station side. The siding is isolated by the derailing switch.

The entrance point and corresponding derailing switch are operated by point machines. Point machines towards AGZ end can be operated by releasing the key 'P' from EKT-1 provided in Siding Point 27A/B Location No.1 through control No.27 from VDU. Point machines towards Station end can be operated by releasing the Key 'Q' from EKT-1 provided in Siding Point 29A/B Location No.2 through Control No.29 from VDU. When control 27 or 29 is transmitted from VDU reception Signals S/C1, S/C2, SH3, and SH4 to Line No.1 and dispatch signals S8 and S11 from Line No.1 will be locked in their normal position.

Crank handle controls CH5 and CH6 are provided for crank handling the points 27A/B and 29A/B respectively in case of failure of electrical operation.The SM on duty shall follow the procedure laid down in Para No.4.8, 19.1 & 19.2 of Appendix-B for operation of Siding points.

Holding Capacities of Siding in CSL/CAL:

S.No	Name of the Line	Clear Standing Room	Whether Electrified/ Non Electrified
1.	Hot Axle Siding	55 M (From GJ to GJ)	Electrified

2.5.3. ANY SPECIAL FEATURES IN THE LAYOUT:

NIL

2.6. LEVEL CROSSINGS:

S No	**LC gate No. Village**	**Location KM**	**Class Eng/Opt**	Type of interlocking	Normal Position	**Section**
1.	**KK-79 Chilkutti**	**286/3-4**	'C' Class Engg.	Non-Interlocked	**Close to Road Traffic**	NKX-AGZ
2.	**KK-80 DongriGuda**	**287/13-14**	'C' Class Engg.	Non-Interlocked	**Closed to Road**	NKX-AGZ

STATION WORKING RULES OF NAKTISEMARA (NKX)

					Traffic	
3.	**KK-81 Adaval**	**290/1-2**	'A' Class Engg.	**Interlocked**	**Open to Road Traffic**	NKX-JDB

3. SYSTEM AND MEANS OF WORKING:-

System of working in force	:	A) Absolute block system. in accordance with provision of GR 7.01 (1) (a), 8.01 (1) (a) & (b) 8.01 (2) (b), 8.03 (1) (a) (b) (c) (ii), 14.01 to 14.07, 14.08 (a), 14.09 to 14.11, 14.13 and Block Working Manual Chapter-V.
Double Line / Single Line	:	Double Line.
Block instruments	:	SGE type Double Line Lock block instruments. a) double line lock and block instruments are provided for NKX-JDB and NKX-AGZ block sections in the Station Master's room vide BWM 5.01 (a) and GR 14.01 (a). The Lock and Block instruments are operated by Station Master on duty as per the provisions of GR Chapter-XIV of G & SR and Block Working Manual Chapter-V.
Co-operative/non-cooperative	:	Non co-operative.
Provision of Block telephone	:	Attached with block instruments.
Custody of keys of Block Instruments.	:	SM is responsible for operation of the Block instruments. The Station Master on duty is the only authorized person to operate the instruments and their keys shall be in the personal custody vide GR 5.08 and 14.12(a). Block instrument is provided with double locking. One key will be with SM and other key will be with S&T maintainer.

4. SYSTEM OF SIGNALLING AND INTERLOCKING:

1.	Standard of Interlocking	Standard II (R) "B" class
2.	Type of Signaling.	Multiple aspect color light signals. MACLS is governed by GR.3.08 (4) (b) & 3.07 (4).
3.	Mode of the operating the signals.	Central Panel & VDU.
4.	Provision of calling-on Signals.	Calling-on signals are provided below Home signal (i.e. in both UP & DN lines) as per GR.3.13 (1) (b), (2) (3) (4) & (6) (b). 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 Panel/VDU. The particular route on which the train is intended to be received shall be set by selecting and setting desired route through Panel by SS/SM on duty. After a lapse of 60 seconds, the Calling-on signal clears i.e. white light glows at the concerned

		Calling-on signal on the Panel. Miniature colour light Calling-on signal is provided below the Home signals in terms of GR.3.13 (6)(b). A Calling-on signal shows no light in the 'ON' position and Yellow light when taken "OFF". A calling-on signal will be taken 'OFF' for reception of a train when the Home signal above it cannot be taken 'OFF' due to failure or any other reason or for admission of train on blocked line. Before taking 'OFF' Calling on signal during failure of track circuit, the track over which the train is going to be admitted must be checked physically by SS/SM on duty. To take "OFF" Calling-on signal the train must come to a stop at the foot of the Home signal, occupying the track circuit (1AT, 2AT as the case may be) in rear of the signal. (The detailed procedure is given in Appendix-B) ***Note:*** SM on duty should ensure that no through train signals are given while receiving a train on Calling-on Signal. Calling-on signals are provided below Home signals (i.e. in both UP & DN lines) as per GR.3.13 (1) (b), (2) (3) (4) & (6) (b). NOTE: SS/SM on duty to ensure that no through signals are given while receiving a train on Calling-on. Before taking off Calling –on signal during failure of track section, the route and the clearance of the track over which train would pass including fouling track showing Red shall also be verified by physically SM on duty
5.	Provision of shunt signals	Shunt back signal SH-3(A/B) is provided towards AGZ end of the yard. SH9 is provided towards JDB end for Line No.2. Shunt back Signal SH-4(A-D) is provided towards JDB end of the yard. .
6.	Emergency cross over	Nil.
7.	Track circuits	**a)** Track circuits are provided in the yard as 1AT, 1T1, 1T2, 18AT, 18T, 21AT, 21BT, 23AT, 23BT, 25T, L1T1, L1T2, L1T3, L2T1, L2T2, L2T3, L3T1, L3T2, L3T3, L4T1, L4T2, L4T3, 26AT, 26BT, 24BT, 22/24AT, 22BT, 17AT, 17T, 2T2, 2T1 and 2AT. Indications for the above track circuits/ Axle counters are available on VDU at SM's office. When a signal is cleared the route indication 'Yellow' strip appears for the particular route set and 'Red' light appears as the train occupies the track circuit.
8.	Axle counters	Entire Block Section between NKX-AGZ & NKX-JDB is provided with High Availability Single Section Digital AxleCounters (HASSDACs).

		For section: NKX-AGZ : A pair of High Availability of Single Section Digital Axle counter (HASSDAC) is provided between NKX-AGZ on Dn Line on 18T track circuit just near to the Advance starter Signal No 18 of NKX and another one at near point No 32-A on trck No 2T2 of AGZ similarly on Up line at 25T tack circuit near Up Advance starter Signal No 25 of AGZ and another one at on 1T2 track near BSLB board of NKX. for proving LVV for section NKX-AGZ For section: NKX-JDB :- A pair of digital axle counter is provided between NKX-JDB on DN line, one just beyond DN advanced starter No.24 on track circuit 24T of JDB and another one on 22BT near BSLB of NKX for proving DN LVV for section JDB-NKX. Another pair of digital axle counter is provided between NKX-JDB on UP line, one just beyond Up advanced starter No.17 on 17T of NKX. and another one on 1T2 near BSLB of JDB proving UP LVV for section NKX-JDB. The position of the block section whether 'clear' or 'occupied' is reflected on the axle counter reset box provided in the Station Master's office which shows 'GREEN' when the block section is clear and 'RED' when block section is occupied. Whenever a train enters into the block section "Block section clear" indication 'GREEN' for the particular block section disappears and 'RED' indication appears. After complete arrival of the train the 'RED' indication disappears and 'GREEN' indication appears. If after complete arrival of the train '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/IB Home Signal cannot be taken off for next train and the concerned instrument shall remain locked in last operated position. A resetting arrangement is provided in the SM office to reset the system to normal position in case of failure of axle counter. The resetting is to be initiated by the SM at the receiving station only after physical verification of complete arrival of train by exchanging private number. The resetting can be accomplished only with the co-operation of SMs at either end of the block section. If a train passes through the station without confirming the last vehicle indicator, the Station Master on duty shall advise the station in advance to stop the train for last vehicle verification and he need not to withhold closing of block section in rear. He shall obtain confirmation under

<table>
<tr><td></td><td></td><td>exchange of private number about the complete arrival of the train with its last vehicle from the station in advance and subsequent trains may be dispatched.
In case of failure of Axle counter the SM on duty shall obtain complete arrival certificate from the TMR 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 GR 4.17 (1) that the train had arrived completely. In case a train passes incomplete, action shall be taken as per SR.4.17.02, the “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 TMR & Loco pilot shall be issued with caution order to proceed cautiously and stop sort 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 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).
NOTE:
Before taking off reception and dispatch signals for UP or DN directions the SM on duty shall ensure that the entire route including overlap and berthing portion is clear of all obstructions by observing the Track indication/Axle counter indication.</td></tr>
<tr><td>9</td><td>Crank Handle</td><td>When any point fails to operate normally by the Route Setting operation through Panel/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. The procedure for use of crank handle for motor operated points shall be followed as per operating manual chapter-2, para-2.18 & 2.19 and Para No. 9 of Appendix-B.

<table>
<tr><th>CRANK HANDEL</th><th>CONTROL POINTS</th></tr>
<tr><td>CH-1</td><td>21 A/B.</td></tr>
<tr><td>CH-2</td><td>23 A/B, 26 A/B.</td></tr>
<tr><td>CH-3</td><td>24 A/B, 25 A/B.</td></tr>
<tr><td>CH-4</td><td>22 A/B.</td></tr>
<tr><td>CH-5</td><td>27 A/B</td></tr>
<tr><td>CH-6</td><td>29 A/B</td></tr>
</table>
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10.	Emergency Point operation	Emergency point operation facility is provided to operate the point from the Panel in case of failure of point controlling track circuit. Each operation of emergency point operation shall be recorded in the station diary and in the register meant for this purpose. (Detailed procedure for operation of emergency point operation is laid down in Para No.3.0 of Appendix-B)
11	Block Instruments	a) SGE type Double line Lock Block Instruments are provided for block section AGZ-NKX and NKX-JDB. b) Telephone attached to Block instruments and Block Panels connecting the adjoining block stations concerned. c) 'ON' aspect of UP/DN Home & UP/DN Adv.str signals towards NKX-JDB & NKX-AGZ are proved with respective block instruments. d) Custody of block instrument keys: One key will be with SM on duty and the other with S&T maintainer.
12	*Emergency Route Release operation*	This panel interlocking is based on the principle of 'DEAD APPROACH LOCKING'. As such, when a route is set and signal is taken off on the route, the route gets locked. Normally the route is released by the passage of the train over the route. When it becomes necessary to alter the route after the signal has been taken off vide SR 3.36.02 (a), the concerned signal must be put back to danger by pressing the Signal cancellation button and the concerned signal button. Then the emergency route release button (white with red dot) positioned in the top of panel is to be pressed by breaking the seal and subsequently the concerned signal button pertaining to the route is to be pressed. A white light will flash (Up or Down) indicating that the timer is working. After 60 seconds, the white light along with the white strip of light will disappear suggesting the route has been released. In case the route illumination (a white strip of lights) does not disappear, it suggests that the route is not released/cancelled. In such case the emergency cancellation of route has to be resorted to. The concerned S&T staff should be advised immediately to get the emergency route release button resealed after rectification of fault if any. Each operation of emergency cancellation of route is recorded in the emergency route release counter by registering the next higher number. All such operations and the new number should be recorded in the TSR, station diary and the register meant for this purpose.
13.	Emergency crank handle release.	Emergency crank handle release operation facility is provided to operate the point by using the crank handle in case of Route locked condition. Each operation of emergency crank handle operation shall be recorded in the TSR, station diary and in the register meant for this purpose.

14.	Emergency Gate Release:	If the LC Gate has locked by any of the signal route, for releasing the gate by the Emergency operation the SM has to cancel the signal by signal cancellation control of the relevant signal, Then he has to click the Emergency Gate Release Control in the Gate pop-up menu. This will take 120sec of time to release the gate. After the time lapsed, the Key can be extracted from the RKT at Gate Lodge and concerned counter provided on the panel board will change to next higher digit number, which should be recorded in the TSR, SM Diary and register provided for this purpose.
15.	Operation of Control Panel/VDU	A two position switch is provided on the control panel through which SM on duty can select the mode of operation (i.e. from Panel or VDU). The position of all points, signals and running lines are available in the Panel/VDU. Remainder Block collars are provided for use on push button which shall be placed on the point button and /or route button to prevent operation of the button in case of concerned line is blocked. The VDU is provided with SM's key user name and password which shall always remain with the personal memory of the Station Master on duty.

4.1 CUSTODY OF RELAY ROOM KEY/RELAY HUBS/GOOMTIES/GATE GOOMTIES/CABIN HOUSING ETC. AND PROCEDURE FOR ITS HANDING OVER AND TAKING OVER BETWEEN STATION MASTER AND S&T MAINTENANCE STAFF:

Custody of Relay room key/relay hubs/goomties/Gate goomties/cabin housing and procedure for its handover and taking over between SM and S&T staff has to follow the procedure as per JPO issued by COM and CSTE vide No. JPO/02/2012 dated 29.08.2012 and JPO issued by AM/Traffic & AM/Signal vide No. 2021/Sig/21/Safety Performance dated 10.06.2023. Relay room/ relay hubs/goomties/Gate goomties/cabin housing are provided with two independent locks. The key of one lock shall be in the personnel custody of Station Master on duty and the key of other lock shall be in the custody of S&T Maintainer. In the event of necessity such as for attending failure, or regular maintenance, on being requisitioned by S&T maintainer, SM shall hand over the key to the Maintainer. On completion of the work, maintainer shall lock the relay room/ relay hubs/goomties/Gate goomties/cabin housing and shall return the key to SM. The particulars of such transactions shall be entered by the SM in the relay room key register vide OM 2015 Para No.13.16 and in case of relay hubs/goomties/Gate goomties/cabin housing in the register meant for this purpose.

(A) POWER SUPPLY:

Normal: UP AT & DN AT.
Stand by: - Andhra Pradesh State Electricity Board.

i) CLS Auto Change Over panel with Auto change over switch is provided in the SM's room with the three power supplies viz UP AT, DN AT and local power supply for changing the switch to the required supply position. Luminous indicator's are provided above the circuit breaker for each supply to indicate the availability of the supplies.

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ii) Normally the rotary switch will be kept towards UP AT or DN AT position. Whenever the power block is to be given on the line, the on duty SM must ascertain the power is available on the other AT e.g if power block is to be given on the UP line, DN AT must be available and vice versa.

iii) During the non-availability of both the AT supplies SM on duty shall keep the rotary change over switch towards the local supply to feed available local supply to the Installation.

iv) In case of failure of one of the AT supply without any power block, on duty SM has to check whether the Miniature Circuit Breaker has tripped. (Three Miniature Circuit Breakers are provided in the changeover switch board, one for each supply and their normal position is UP and when tripped, it goes to DN). In case of failure of both AT supplies, the local supplies shall be utilized by operating the switch. If the Miniature Circuit Breaker is tripping, even after resetting, no attempts shall be made to hold it by any other means and a message shall be given to the AEEE/GEN and CTFO/GEN for prompt rectification.

v) For IPS system that provides power supply /back up to the signaling system of EI. Selection output is taken from CLS Auto change over Panel.

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

(B) <u>REMOTE MONITORING ASM BOX:</u>

Remote monitoring ASM box gives alarm to the SM/SS for the following fault conditions:-

a) 50% DOD (Depth of Discharge) of Battery. In this condition Audio/Visual alarm comes which can be acknowledged with audio cut off.

b) 60% DOD (Depth of Discharge), which warns for emergency. The Alarm for this condition is same as for condition 1.

c) 70% DOD (Depth of Discharge), which signals system, shut down. In this condition Signal feed cut off and all DC-DC converters continue working. Audio alarm will continue till power supply 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 station diary duly initiating action for rectification of failure, if any.

(C) <u>WORKING OF AUTOMATIC FIRE ALARM DETECTION SYSTEM:</u>

I. In case of any alarm in any particular area due to fire or dust-Zone number on the LCD display can be seen.

II. Note down the zone No. and panel display name, by referring display chart.

III. Once you find the zone number rush to that particular area where the detector gives alarm.

IV. The moment the smoke detector detects any smoke particles, the RED LED will blink along with the alarm.

V. Once you reach the area where the detector is giving the alarm, check whether the alarm is due to the fire or for any other reason.

VI. To alert the people in case of emergency press "*" sign of the fire which is present inside the key pad together for few seconds. This will enable you to hear the panel alarm.

VII. To reset the panel press "OFF" button and enter the code 1111 (1 digit four times).

VIII. The control panel will get reset and siren muted.

IX. If the power fails on this will enable us to see the red indicator on the panel.

X. In case of failure in power and if the battery is fully charged, the panel can function effectively as long as the charge in the battery is present.

D. AUTO DIALLING:

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

5. TELECOMMUNICATIONS:

a) Telephone attached to Double line Block Instruments is connected to adjacent Stations on either side.
b) Hot line Telephone is provided between adjacent stations i.e.,AGZ and JDB Stations
c) The station is connected to KK-II control Circuit

d) Telephone communication is provided between Station Master on duty to Up CH location.
e) Telephone communication is provided between Station Master on duty to Dn CH location.
f) Railway Auto Telephone provided at the station is connected to Divisional Exchange at WAT through Exchange at JDB
g) Magneto Telephone communication is provided between NKX-AGZ and NKX-JDB stations.

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

i) Telephone communication is provided between Station Master on duty and C-Class LC Gate No.KK-79 at Km No.286/3-4.

j) Telephone communication is provided between Station Master on duty and C-Class LC Gate No.KK-80 at Km No.287/13-14.

k) Telephone communication is provided between Station Master on duty and C-Class LC Gate No.KK-80 at Km No.287/13-14.

l) Telephone communication is provided between Station Master on duty and A-Class LC Gate No.KK-81 at Km No.290/1-2
m) Telephone communication is provided in between Station Master on duty and Hot Axle Siding Location No.1 & 2
n) 25w VHF set is provided at the station
o) CUG phone is provided at this station with SM on duty

5.1. FAILURE OF COMMUNICATION: -

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

b) In the event of total failure of communications between the adjacent block stations SR.6.02.02 & 6.02.03 shall be observed, for the working of trains.

6. SYSTEM OF TRAIN WORKING:

6.1. DUTIES OF TRAIN WORKING STAFF:

The movement of trains is controlled by section controller on duty whose orders shall be complied with provided they do not contravene any provisions of General Rules, Subsidiary Rules, Station Working Rules, Block working manual and any other safe working instructions issued from time to time.

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

6.1.1. TRAIN WORKING STAFF IN EACH SHIFT:

STAFF IN EACH SHIFT:

SS/SM	1
TPM/TP	1

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

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

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. The private number book should be under the custody of SM on duty who is authorized to use it.

6.1.3. ASSURANCE OF THE STAFF IN THE ASSURANCE REGISTER:

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

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

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

Fresh assurance shall be obtained in the Assurance Register when:

1. He joins at the station as a new member.
2. There is any change in the Station Working Rules.
3. He resumes duty at the station after an absence of 15 consecutive days or more.

6.2. CONDITIONS FOR GRANTING LINE CLEAR:

i). The trains are worked under Absolute block system of working with Double line between NKX-AGZ and NKX-JDB with MACLS signalling vide GR 8.03. (1) (a) (b) (c) (ii) shall be complied with SM on duty before line is considered clear and line clear is granted for double line section.

a) SM ensures the reception signals are in 'ON' position and glowing properly vide GR 3.49 (4).

b) Ensure that the closure of LC Gate No. KK-79 at Km No.286/3-4 and LC Gate No. KK-80 at Km No.287/13-14 against the road traffic from Gateman supported by Private Number

LINE NO.	Dn TRANS		Up TRAINS	
	FROM	TO	FROM	TO
LINE NO. 1 (Common loop)	Starter Signal No. 8	The end of Sand hump OR Advanced starter Signal No 18	Sarter Signal No 11	The end of sand hump OR Up advance starter No 17
LINE NO. 2 (Dn main line)	Starter Signal No. 14	Advanced starter Signal No 18	---	---
LINE NO. 3 (Up main line)	---	---	Starter Signal No. 13	Advanced starter Signal No. 17
LINE NO.4(UpLoop line)	---	---	Starter Signal No. 7	The end of Over run Line or Up advance starter 17

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

NIL

6.2.1.1. SETTING OF POINTS AGAINST BLOCKED LINE:

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

Safety Point Alarm:-

A safety point alarm is provided on the Table of the Duty SM with different indications.

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

If all the lines of a station happen to be blocked, when line clear has been granted to a train, **then the Safety Point Alarm will not work.** Then, the points should be set for the line occupied by a stabled load or a goods train in that order so that, in case of mishap, the chances of causalities are minimized. In case of all the lines are occupied by passenger train, points should be set for a loop line to negotiate which the speed of incoming train would be reduced which in turn, would minimize the consequences / causalities vide SR 3.51.06(b).
These precautions shall be taken in addition to the observance of other precautions as contained in SR 5.04.01 and SR 5.23.01. Block Collars to be placed on the concerned button of blocked line.
To Block / unblock a particular line, displays 'Block' 'Unblock' option on the menu. Select line block option. After selecting the line block option, that particular line will be blocked and Red color indication will be displayed on the line.

6.2.1.2. <u>RECEPTION OF A TRAIN ON BLOCKED LINE:</u>

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

6.2.1.3. <u>RECEPTION OF TRAIN ON NON-SIGNALLED LINE:</u>

Before receiving a train on Non-Signaled line, the SM shall ensure that-

a) The train is brought to a stand at the first stop signal.
b) The line on which it is intended to receive the train is clear up to the trailing points or up to the place at which the train is required to come to a stand.
c) All over which the train has to pass are correctly set, the facing and trailing points are clamped and padlocked and
d) The Loco pilot is authorized to pass the approach stop signals at ON through a written authority [Refer GR 5.10].

6.2.1.4. <u>DESPATCH OF TRAIN FROM NON-SIGNALLED LINE</u>:

Whenever a train is to be dispatched from a Non-Signaled line a starting order on form T-511 shall be given to the driver to start from the Non-Signaled line [Refer SR.5.11.1].

6.2.1.5. <u>DESPATCH OF TRAIN FROM LINE PROVIDED WITH COMMONSTARTER SIGNAL:</u>

NIL

6.2.1.6. ANY SPECIAL CONDITIONS:

a) SPECIAL RESTRICTIONS:

NIL

b) SPECIAL INSTRUCTIONS:

NIL

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

i). Conditions for taking off approach signals are governed by GR 3.40(1) (a), 3.40(2) (a), 3.40(3) (b) for double line section NKX-JDB & NKX-AGZ.

ii). Calling-on signal may be taken off for the admission of train in the event of failure of Home signal in terms of GR 3.69 (3)(c) or for the admission of a train on obstructed line in terms of GR 5.09 and SRs thereto.

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

Station master should ensure that signal is put back to 'ON' after passage of the train as per GR 3.36 (2) (B), 14.01 and SR 4.17.01.

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

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

1.	Reception of an UP train on Line No.4 setting overlaps to Overrun line (UP Loop).	AND	Dispatch of another UP train from Line No.1 or 3.
2.	Receptions of an UP train on Line No.1 setting overlap to Sand hump (Common Loop).	AND	Dispatch of another UP train from line No.3 or 4.
3.	Reception of a DN train on Line No.1 setting overlap to Sand Hump (Common Loop).	AND	Dispatch of another DN train from line No.2. OR Reception of an UP train on Line No.3 or 4.

6.5. COMPLETE ARRIVAL OF TRAINS:

The entire block section between NKX-AGZ and NKX-JDB double line section on both UP and DN Lines are 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 to the sending end station on seeing the section clear indication GREEN on the VDU.

If a train passes through the station without confirming the last vehicle indicator, the Station Master on duty shall advise the station in advance to stop the train for last vehicle verification and he need

not to withhold closing of block section in rear. He shall obtain confirmation under exchange of private number about the complete arrival of the train with its last vehicle from the station in advance and subsequent trains may be dispatched.

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 GR 4.17 (1) that the train had arrived completely. In case a train passes incomplete, action shall be taken as per SR.4.17.02, the "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 & Loco pilot shall be issued with caution order to proceed cautiously and stop sort 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 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:

Dispatch of trains is governed by the provisions of GR. 3.42 and SRs 3.36 .04(b), 3.42.04; 3.42.01(a) and BWM 2.07(5)(a)(e)(f) & (g) and other relevant provisions of G & SR, BWM and SWR.

a) DESPATCH OF TRAINS FROM NON-SIGNALLED LINE:

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

b) ISSUE OF CAUTION ORDERS:

Whenever in consequent of the line being under repairs or for any other reasons special precautions are necessary, a caution order detailing the kilometer and speed at which train should run with reasons for taking such precautions shall be handed over to the TMR and Loco pilot in terms of GR 4.09 and SRs thereto.

6.7. TRAINS RUNNING THROUGH:

In addition to the procedure detailed in paras ''Reception and Dispatch of trains'' rules laid down in GR 3.40, 4.17, 4.42 with relevant SRs 3.42.02 (a) (iii) and other relevant provisions of G&SR, BWM, OM shall be followed. (Refer GR 4.1, 4.11(2)).The Station Master 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, & SR 4.42.02 (b) (i), (ii), (iii), c & (d)]

6.8. WORKING IN CASE OF FAILURE:

PROCEDURE TO BE FOLLOWED FOR WORKING OF TRAINS DURING FAILURE /SUSPENSION OF INTERLOCKING /SIGNALS/ POINTS:

Track Circuits	In case of failure of track circuits, the clearance of the concerned line should be ensured physically before a train is piloted.
Axle Counters	If the axle counter fails between the block sections, resetting procedure should be adopted as per Para 6.1 of SWR (APP-B). If the axle counter indication does not appear 'GREEN & continues to show 'RED' condition

	after resetting, the concerned block section shall be suspended & failure intimation to be given to sectional signal Maintainer /JE/SE (signal) for their rectification.
Block Instruments	SGE type Lock and block instruments are provided for NKX-AGZ & NKX-JDB section. 'ON' aspect of UP/DN Home & UP/DN Adv.str, Custody of block instrument keys: One key will be with SM on duty and the other with S&T maintainer.
Reception of a train on obstructed line	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.
Reception of a train on non-signalled line	NIL
Defective Signals	Whenever signals become defective, the procedure laid down in GR 3.68 to 3.71, 3.80 and SR 3.68.01 (c) shall be followed. In case of disconnection of signal and interlocking for repairs and maintenance procedure laid down in GR and relevant SRs shall be followed. In the event of signal showing no lights, station master on duty shall before giving line clear initiate action in accordance with the procedure laid down in GR and the relevant SRs (Refer 3.57, 3.69, 3.49 (4), 3.68 to 3.77).
Defective Interlocking	When interlocking becomes defective the SS/SM on duty shall be responsible and personally supervise the setting, clamping and pad locking of all required facing and trailing points for admission or dispatch of trains and procedure laid in GR 3.68 to 3.71 and SRs there to shall be followed.
Defective/Damaged Points	When any point fails to operate normally by the route setting operation or individually through VDU it is inevitable to operate the points with crank handle. The SM on duty shall personally ensure clamping and padlocking of all facing and trailing points on the Route. Crank handles are interlocked with signals and interlocking system. When points become defective, the signals controlling these points shall be considered defective and vice-versa and the procedure for the use of crank handle.
Defective IBS signal	NOT APPLICABLE

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

Motor trolleys are to run in accordance with rules laid down in SRs. Material Lorries will work in accordance with SR. [Rules laid down in BWM. Refer SR 15.25.03 to 15.25.07, 5.11(2), 5.12, 5.13 of BWM]

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

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

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

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

Note: Trolleys which are to be run on track circuit area shall be insulated as per SR 15.20.02.

7. BLOCKING OF THE LINES:

Whenever a running line is blocked either by loose vehicles or by stabling train or by a train which is to cross or give precedence to another train, the points at either end should immediately be set against the blocked line except during shunting movement. 'Line Block' is to be activated on VDU by SM on duty following procedure laid in para No.5.4.1 & 5.4.2 of Appendix-B. A clear remark in 'RED' ink shall be made immediately in the train signal register and a record shall be made in the Station Master's diary also. Stable load register is also to be maintained. The stable load or loose vehicles are to be secured to prevent rolling down of vehicles. [Refer SR 3.36.3(b), GR 5.23 and SR 5.23.01].

A) SECURING OF VEHICLES: -

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

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]

B) BLOCKING LINES:

Whenever any running line is blocked or when a train is stopped to cross another train or detained for any other reason, even for a short while or during shunting operations, 'Line Block' is to be activated on VDU by SM on duty following procedure laid down in para No. 5.4.1 & 5.4.2 of Appendix-B. [Refer SR 3.36.03 (b)].

C) ALTERATION OF POINTS TO A CLEAR LINE WHENEVER A RUNNING LINE IS BLOCKED:

When a running line is blocked by stable load, Wagon, vehicles or by a train which is to cross or to give precedence to another train or immediately after the arrival of a train at the station etc. the points at either end should immediately be set against the blocked line except when any shunting or any other movement is required to be done immediately in that direction on that line.

If all the lines at a station happen to be blocked when "Line Clear" has been granted to a train, the points should be set for the line occupied by a stable load or a goods train in that order, so that in case of any mishap the chances of causalities are minimized.

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

D) LOADING AND UNLOADING OF VEHICLES ON RUNNING LINES:

Except small loading and unloading of vehicles on running line is prohibited unless permitted by DOM vide SR 5.19.01.

8. SHUNTING:

8.1. GENERAL PRECAUTIONS:

Shunting will be carried out at the station in accordance with General Rule and relevant Subsidiary Rules and Block working Manual [Refer GR 3.46, 3.52 to 3.56, 5.13, 5.14, 5.16 to 5.23, 8.05, 8.06, 8.14 and 8.15]. The SS/SM on duty is authorized to supervise shunting operation. Normally back shunt, shunt below starters and starter signals shall be used for shunting operations. The official supervising the shunting shall ensure the correct setting, clamping and padlocking of points in case of Non-Signaled movements.

NOTE: For any non-signaled movement physical verification of the clearance of the crossover points shall be ensured by the Guard/SM on duty for supervising shunting operations.

8.2 SHUNTING IN FACE OF AN APPROACHING TRAIN:

Shunting in the face of an approach train is strictly prohibited vide GR 8.09 and SR thereto.

8.3 PROHIBITION OF SHUNTING ANY SPECIAL FEATURES IF ANY:

(i) Hand shunting is prohibited at both ends of the yard vide GR 5.20.
(ii) Fly shunting is prohibited at both ends of the yard vide SR 5.21.01.
(iii) Engine to be attached towards falling gradient while Shunting.

8.4 SHUNTING ON SINGLE LINE:

Not applicable.

8.5 SHUNTING ON DOUBLE LINE:

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

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

While performing shunting in the siding and stabling line it should be authorized by taking-off shunt signal. In case failure of Shunt signals shunting will be performed by issuing shunting

memo in the form of T/806. signaled movements in the yard either of train or of an engine with or without vehicles shall be from one stop signal to next stop signal or stop board and no half way movements are permitted and if such movements are permitted in unavoidable situations it should be considered as non-signaled movement and precautionary measures should be taken such as clamping and pad locking of points enroute both interlocked and non-interlocked points including derailing switches according to SR 5.3.05 and 5.14.03.

9. ABNORMAL CONDITION:-

ABNORMAL CONDITION:

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

(i) During partial interruption of communication between the adjacent block stations, SR 6.02.06 shall be observed.

(ii) In the event of occupation of block section due to accident or obstruction SR 6.02.05 shall be observed.

(iii) In the event of trains delayed in the block section, GR 6.04 and relevant SRs shall be followed.

(iv) Failure/passing of Intermediate block stop signal at 'ON' position:
G&SR 3.75 and As per Para No.4 of Appendix-'F'..

(v) Failure of Axle counter block/BPAC: Procedure to be followed laid in Appendix-B.

(vi) Failure of MTRC: Not applicable.

b) i. **Procedure for emergency operation of points by Crank Handle.-**

The detailed Procedure for emergency operation of points by Crank Handle of motor operated points shall be followed.

Crank handle operation is interlocked with the signaling and interlocking system at this station. Key of crank handles normally locked inside the RKT instrument at the respective Crank Handles Locations. Crank handle keys can be taken out only when all signals leading over the points are in the Normal position and the route is not locked for whatever reasons. Crank Handle can be released by operating common 'TRANS' push button and concerned Crank handle control push button simultaneously. 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.

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

ii. Procedure for emergency operation of points with point zone axle counter/Track circuits failure and emergency route release:

Emergency point operation facility is provided to operate the point from the panel in case of failure of point controlling track circuit. A push button (Black with Red dot) for emergency point operation is provided on the top of the Panel.

If such operation is necessary, the SM on duty, after ensuring that SM's point Key is 'IN' and no vehicle is standing on the concerned point zone shall press the emergency point operation button (by breaking the seal) along with relevant point button simultaneously. Then keeping

point button pressed, emergency point button to be released and the point group normal button or point group reverse button is to be pressed for operating the point to 'NORMAL or REVERSE. Every emergency point operation shall be recorded in the station diary and in the register meant for this purpose. Each such emergency operation of points is registered by next higher number in the counter provided for this purpose. SM shall ensure sealing of Emergency point operation button after completion of each such operation by S&T staff.
Rules regarding locking of points and damaged points vide GR 3.39 and GR 3.77 to be followed.

c) Certification of clearance of track before Calling –On Signal operation 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 SM on duty.

d) Reporting of failure of points, Track circuits/axle counter and interlocking:-

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

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

9.1 TOTAL FAILURE OF COMMUNICATION:

Rules and regulations for working of trains during total interruption of communication on single line section shall be followed vide SR 6.02.03 and instructions laid down in BWM.

9.2 TEMPORARY SINGLE LINE WORKING ON DOUBLE LINE SECTION:

In the event of failure of single line working on a double line section when communication is available, the provision laid down in SR 6.02.01 shall be followed.
Last stop signal of the station shall not be taken off but an authority to pass the last stop signal at 'ON' shall be issued on T/369 (3b) noting the private number & the identification number received from the block station in advance on form T/D/602 vide SR 6.02.01.

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

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

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

10. VISIBILITY TEST OBJECT:

The signals lights of DN Starter Signal No.8 and UP Starter Signal No.11 of Line No.1 are earmarked to serve as visibility test object during day and night vide GR 3.61.02 (b) (iii) & SR's thereto.

11. ESSENTIAL EQUIPMENT AT THE STATION:

(Details are given in Appendix-'E')

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

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 signalmen shall be detailed for duty at stations being recruited partly from the station traffic staff and partly from Engineering Gang man and must not be substitutes or casual labor but regular employees

12.1. STATION DETONATOR REGISTER (OPT/124)

A Register regarding detonator is maintained at the station.

12.2. INSTRUCTIONS:

a) 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 signalmen on duty and details of detonators used.
Part – IV	:	Particulars of issue and testing of fog signals at the station.

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

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

APPENDICES:

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

APPENDIX 'A'
WORKING INSTRUCTION FOR LEVEL CROSSING GATES

Following General Instructions are meant for all types of Manned Level Crossing Gates. Specific Instructions for working of different types of Level Crossing Gates are attached as Annexures.

GENERAL INSTRUCTIONS:-

DUTIES OF GATE MAN:

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

01 Position during Passing of train:: The gateman with whistle slung around his neck from a chord shall stand before the gate Lodge duly holding the Red & Green Hand Signal Flags during day in furled condition in Right and Left Hand respectively, and during night shall hold white light facing the Track

2.Routine Duties of Gateman:

1 Gateman shall ensure that red banner flag is placed across the track whenever the gate is kept in open condition for passage of road vehicles

2 Gateman shall ensure that gate lamps and lamps of all gate signals are lighted and kept burning continuously from sunset to sunrise

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

4 Except where otherwise prescribed under Special Instructions, he shall observe all passing trains and be prepared to take such action as may be necessary to ensure safety of trains

5 Gateman shall watch all passing trains and keep sharp look out for any unusual like hot axle, hanging chains, hanging battery, and vehicle / wagons / train / battery box on fire, shifted load, falling material like brake blocks, brake beams, safety bracket, vacuum cylinder or any other situation endangering safe running of trains

6 Gateman shall also prepare to repeat any signal which Train manager may give to drive on walkie-talkie or in any other way

7 If lifting barriers / leaf gates get damaged or becomes out of order, the gateman shall use the spare chain with disc and padlocks for securing the gate against road traffic

8 Gateman shall report to the nearest Station Master, Gang mate or Permanent Way Inspector any defect in his gate or apparatus pertaining to it, as soon as possible

9 Gateman shall wear badge and prescribed uniform while on duty at level crossing gate

10 Gateman shall ensure that he is having competency certificate in his possession while on duty

11 Gateman shall work the gate as per Gate Working Instructions and remain well conversant with these instructions

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

13 Gateman shall see that the channel for the flange of the wheel is kept clear

14 Gateman shall keep the road surface well watered and rammed in case of un-metalled roads

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

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

17 Gateman shall prevent tress passing by persons or cattle to the maximum extent

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18 Gateman shall note down the registration number of the vehicle which damage the Gate
19 Locking arrangement of gate should be checked daily

3. ACTION IN CASE OF UNUSUAL OCCURANCE ON TRAIN: In case gateman observes anything unusual with a passing train, he shall take following action

1 He shall take prompt action to warn the loco pilot / Train manager of the passing train by showing red flag by day and red light by night
2 He shall simultaneously try to draw the attention of the loco pilot / Train manager by whistling continuously, shouting, gesticulating, throwing ballast on the brake van or by any other means
3 If Loco Pilot / Train manager falls to take notice, gateman shall immediately inform the Station Master, If connected on telephone, to take appropriate action, under exchange of private number
4 In case of train parting, gateman shall not show stop hand signal but shall show prescribed signal for train parting
5 He shall endeavor to attract the attention of the loco pilot / Train manager by whistling continuously, shouting, gesticulating and by raising both hands vertically above, quickly parting them and bringing them together in repeated Up and Down motion as high and as low as possible
6 In case the train does not stop, gateman shall immediately inform the Station Master, if connected on telephone, to take appropriate action, under exchange of Private Number

4. ACTION IN CASE OF OBSTRUCTION AT THE LEVEL CROSSING:

1 He shall try to remove the obstruction, if possible
2 Make one or Two attempts to inform the Station Master
3 If there is no response from the Station Master, the Gate Man shall take steps to protect the Gate as follow

On Double Line

a) Place Banner Flag / Red Light by Day / Night across the Tracks in both directions.
b) Pick up Detonators, Hand Signals and proceed for protection of line on which a train is expected to arrive first, Place one Detonator at 600 Meters from the LC Gate, 3 Detonators 10 Meters apart at 1200 Meters from the LC Gate. While returning, pick up the first Detonator kept at 600 Meters, and proceed to another direction, and place detonators in the same manner as above.
c) In case of the Gate Man observes or hears the Train approaching, he shall place the Detonators on the line at a distance as far away as he can go and make efforts to warn the approaching train Loco Pilot.

5. ACTION IN CASE OF BOOM DASHING AT THE LEVEL CROSSING:

1 At Night the gate Man shall lit Two hand signal lamps and Take action to exhibit Red Light and protect the lines as described in the above Rules.
2 If the Gate is broken by the Road vehicle which is fouling the Track, or if the Lifting barriers / Leaf gates , or any other parts of the Gate foul the Track, or if there is any other obstruction at the gate, the Gate Man shall take immediate action.
3 He shall note down the particulars of the Road Vehicle, Vehicle Number, Name of the Driver, Name of the Owner, and relay these details to the nearest Station Master / or JE/ SE/ SSE/ PWay, including about the obstruction at the Level Crossing Gate, through messenger or any other means available.

6. ACCIDENTAL ROLLING DOWN OF TRAINS:

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1 When the gateman sees that a train is rolling down or immediately after receipt of the information about accidental rolling down of the train the GK shall:
2 First close the gate against the road traffic.
3 Then immediately inform the SM on duty.
4 He shall not open the gate till he ensured that the train has completely cleared the LC gate.

7.. ACTION IN CASE OF EMERGENCY AT THE LEVEL CROSSING:

1 In case of an obstruction at the level crossing gate, gateman shall maintain the gate signals, if any, in the 'ON' position.
2 Thereafter, if he is unable to remove the obstruction, gateman shall immediately advise the Station Master on duty, if connected by telephone, regarding the defects / obstructions at the gate, under exchange of private number.
3 If there is no response from the Station Master after two or three attempts, he shall first protect the gate and then inform on phone.

7.1 ON ELECTRIFIED SECTION :

1 On noticing that, the whole or part of the OHE or feeder or a cable facing down, the GK shall ensure that as far as possible, human beings, animals or vehicles etc. are kept in order to avoid any contact with live equipment.
2 As soon as it is noticed that, pantograph of an electric rolling stock getting damaged and/or entanglement of the same with the OHE, he shall make every possible effort to stop the train and immediately inform SM on duty and take all necessary measures for the portion of lines as under.

The gateman shall protect the line as under:-

1 If both lines are obstructed the Gateman shall plant a red banner flag by day and a red light by night 5 meters away on posts duly provided for the purpose. He shall first protect the line on which a train is expected to arrive first.
2 Then he will similarly plant the other red banner flag by day and red light by night on the other line 5 meters away from the site of obstruction.
3 Gateman shall then proceed to protect the gate along with detonators and red flag by day and red hand signal lamp by night.
4 Gateman shall proceed exhibiting red flag by day and red hand signal lamp by night on the line on which a train is expected to arrive first, to a point 600 meters and place one detonator on the line. Thereafter he shall proceed to a distance 1200 meters from the level crossing gate and place 3 detonators on the track 10 meters apart. Having thus protected the line he shall return to the level crossing gate picking up the intermediate detonator on his way back.
5 Thereafter, he shall proceed on the other line, showing red hand signal, similarly place detonators as described in Para (iv) above and return to the site of obstruction, picking up the intermediate detonator on his way back.
6 Having returned to the gate, he must then take steps to remove the obstruction and warn the loco pilot of the approaching train.
7 In case the gateman observes or hears a train approaching when he is still on his way to protect and before he reaches the stipulated distance to place detonators, he shall place detonators on the line at a distance as far away as he can go.
8 Thereafter, he shall warn the loco pilot and stop the approaching train by waving his red flag by day red hand signal lamp by night repeatedly.

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STATION WORKING RULES OF NAKTISEMARA (NKX)

A.1. Gate Working instructions for the Engineering LC Gate Interlocked with Stop Signals:

A-1.01. GENERAL INFORMATION

1.	Number and Class of Level Crossing Gate	**KK-81**
2.	Engineering or Traffic Gate	**Traffic gate / 'A' Class**
3.	Under control of Station Master / SSE/PWay	**SM/NKX/ SSE/P.Way/JDB**
4.	Location at KM.	**290/1-2**
5.	At Station	**JDB**
6.	In between stations	**NKX-JDB**
7.	BG / MG / NG	Broad Gauge
8.	Single line / Double line / Multiple line	Double Gauge
9.	Normal Position	**Open to Road Traffic**
10.	Interlocked / Non-Interlocked	**Interlocked**
11.	Means of Interlocking	Panel Operation
12.	Provision of Gate Signal at KMs. (i) UP Line (ii)DN Line	Interlocked with stations
13.	Signaling arrangements	**MACL**
14.	Means of Communication – Telephone / Bell	Magneto phone with SM/NKX
15.	Width of level crossing gate	9.0 Meters
16.	Type of road (NH / SH / Others)	Others
17.	Name of Road	Kachha road
18.	Metalled / non-metalled	Metalled road
19.	Approach road	BT road
20.	Width of the road	6.56 Meters
21.	Angle of road crossing (in case of Skew gates)	90 º
22	Road gradient (if any) (i) North / East side (ii) South / West side	 Flatter than 1 in 30 Flatter than 1 in 30
23.	Road alignment (straight/curve) (i) North / East side (ii) South / West side	 Straight Straight
24.	Provision of height gauges	Provided
25.	Type of Barriers	Coupled Lifting
26.	Length of Check rails	11.0 Meters
27.	Road surface in between L-Xing gates	Level
28.	Length of Rumble strip / speed breakers	5.60 Meters
29.	Road signs	Provided
30.	Speed breaker indication board	Provided
31.	TVU	**8300.4, Feb-2022**
32.	Census next due on	**Feb 2025**
33.	Demarcation for placement of Detonators	Provided

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34.	No. of Gatemen working	2
35.	Nearest Railway Medical Assistance	JDB
36.	Nearest Private Medical Assistance available.	**JagadalpurGovt Hospital**
37.	List of equipment available Yes / No	Yes

1.2 EQUIPMENT:

Sl No	**Items**	Quantity / Numbers
1.	LED based flashing Tri Colour Hand Signal Lamp.	3 (5 on Quadruple / Line or twin single line)
2.	Hand Signal Flag Green	1 No with mounted stick
3.	Hand Signal Flag Red	3 (6 Nos. on Quadruple / Line or Twin Single line and 7 in case Hexaple Section mounted on sticks)
4.	Banner Flag Red	3 (5 on Quadruple / Line or twin single line)
5.	Posts for exhibiting red banner flag	2 (4 on Q / Twin single line and 5 on Hexaple section)
6.	Spare chains with padlocks	2 with stop marker
7.	Detonators	10 in each case
8.	Gate lamps	2 Nos.
9.	Tommy Bar	1 No.
10.	Mortar Pan	1 No.
11.	Spade / Fowrah	1 No.
12.	Rammer	1 No (In case of asphalted road this may not be provided)
13.	Pick Axe	1 No (In case of asphalted road this may not be provided)
14.	Tin case for flags	1 No.
15.	Can for oil	1 No.
16.	Water port / Bucket	1 No.
17.	Canister for Muster Roll	1 No.
18.	Set of spare spectacles of gateman wearing glasses	1 No.
19.	Board demarcating protection of level crossing gate diagram in case of obstruction on gate	1 No.
20.	Basket	1 No.
21.	Whistle	1 No.
22.	Wall Clock	1 No.
23.	Small chain for locking arrangement	2 No.

1.3 RECORDS TO BE KEPT AT GATE LODGE:

1 In addition to the above equipment, following records shall also be kept at the gate lodge.
2 Gate Working Instructions in Hindi / English.
3 Gate Working Instructions in local vernacular language.
4 Gateman Rule Book in local vernacular language
5 List for tools and books.
6 Duty Roster.
7 Certificate for working as gateman.

8 Bio-data particulars of Gatemen, including date of passing vision test, initial / refresher course, safety camp etc.
9 Accident Register.
10 Record of last census of road traffic at level crossing gate.
11 Public Complaint Book.
12 Inspection Book.
13 S & T failure register.

1.4 COMPETENCY: Gateman working at this gate should have competency certificate applicable to perform duty at this gate issued by the concerned supervisor.

8. MODE OF OPERATION:-

For operating of this gate the following procedure to be followed

1 Gate shall normally be kept in Open to the Road Traffic. Whenever it is required to close the gate, the SM / NKX shall inform the Gate Man on duty about the direction and the description of the Train intended to Receive or Dispatch.
2 If the actual running time of the train from the either end of the section is less than 10 minutes, the SM/NKX shall convey the advice to the Gate Man.
3 The gate man should ensure that, the Gate is Closed in time so that there is no detention to the Train or excessive detention to the Road Traffic.
4 Buttons are provided on Panel for Closing and Opening of LC Gate respectively. (Marked as Green G for Closing and Locking, and Yellow Y for Opening respectively)
5 The Push Button G pressed till the Gate is Closed and Locked.
6 Key M thus extracted from the EKT-1, after Gate is Closed and Locked.
7 Key M thus extracted from EKT-1 is inserted in EKT-2 & Transmitted electrically to SM in conjunction with the Switch GS Reversed to Take off concerned Signal.
8 For Opening the Gate, SM transmits Control-30, to extract the Key M from EKT-2 and inserted in EKT-1, The Push Button Y is pressed till the Gate is Opened.
9 Switch GS is Provided in Gate Lodge to Put Back concerned Signals to Danger in case of emergency by on duty Gate Man.
10 EKT-3is provided with Crank Handle for Operation of Barriers in case of Emergency in a Sealed Red Box with Glass Cover.
11 Key 'IN' contact key 'N' of EKT-3 to be proved in concerned signal clearance circuit.
12 During Signal Movement Once the LC gate is Closed and Key-M is transmitted electrically to SM, Gate control 30 can be released after passage of Train through Sequential Occupation and Clearance of Track Circuit and Cancellation of concerned Signal against Signal Route.
    i) S/C-2 for Dn line 2T2 drop and 2t1 pickup.

Emergency Gate Key Operation:-

1 **Normally Crank Handle welded with EKT remains inside the EKT-3 (Provided in the Sealed Red Box)**
2 When the Normal operation (Closing/Opening) Booms fail from the Gate Panel, the Gate Man on duty will inform the SS/SM On Duty regarding Failure and seek his permission to use emergency Key.
3 After obtaining permission from SS/SM on Duty, the Gate Man on duty will break the seal of the Red Box, Open it and take out the EKT key welded with the Crank Handle from the EKT.
4 By using Crank Handle Closing / Opening of the Booms are to be done.

5 After completing the Operation the EKT, the EKT key welded with the Crank Handle is to be inserted in the EKT-3, and the Box is to be Closed and S&T Staff are to be advised to seal the Red Box.

9. Failure of Telephonic Communication:

1 (i) In the event of failure of telephone, if the gate is required to be opened for passage of road traffic, the gateman shall lookout in both directions before opening the gate to ensure that no train is approaching from either end. He shall then plant a banner flag during day and a hand signal lamp with the red light during night, 5 meters away from the gate on the track on either side. He shall thereafter, open the gate for passing the road traffic keeping a red flag/ red hand signal lamp ready in his hand to stop approaching train if any.

2 (ii) Report the fact over telephone or through the loco pilot of a passing train or through a GangMan to the station master/cabin master of the adjacent station and the nearest GangMate

3 The Station Master on duty on receipt of the above information shall arrange to issue caution orders to the loco pilots and Train managers of all trains entering into the section.
(i) To whistle frequently.
(ii) To stop 30mts short of the level crossing and be guided by the hand signal given by the gateman

4 The Station master shall intimate the fact to the Station master at the other end of the block section for issue of caution order with the similar instructions as mentioned in (b) above.

The caution order shall continue to be issued till the defect is rectified. The Station master shall also advise the JE/SE/SSE Signal), JE/SE/SSE(P way) and other officials concerned for immediate rectification and other necessary action

10. working of sliding boom barrier in case of Failure/defectiveness of Lifting Barriers:

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

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

3 Key ‘S’ when extracted from lock free EKT-5, makes road signal danger & activate road hooter Key ‘S’ un-locks the sliding barrier-1.

4 Sliding barrier-1 to be rolled across the road upto lock post. Key (chained with barrier) locks the barrier against the road and releases the lock plunger & key ‘SB1”, key SB1 when extracted lock the sliding barrier -1

5 Similarly after unlocking the padlock sliding barrier-2 to be rolled out across the road upto lock post key (chained with barrier) along with the key ‘SB1’ inserted releases the lock plunger & key ‘SB2’ when extracted lock the sliding barrier-2 & key SB-1.

6 Finally released key ‘SB-2’ is transmitted electrically to SM through EKT-4 in conjunction with slot ‘GS’ reversed for taking OFF concerned signals.

7 Gateman shall secure the gate against road traffic by means of safety chains and padlocks

8 After securing the gate against road traffic, gateman shall show green hand signal flag by day and green light to the driver of the approaching train

9 Station Master on duty shall issue caution order to the driver of a departing train

10 He shall also advise the Station Master at the dispatching end, under exchange of private number; to similarly issue a caution order to the driver before dispatching a train in the block section.

11 Station Master shall advise maintenance staff responsible for maintaining the lifting barrier/leaf gates to rectify the same at the earliest

12 Normal working will be resumed only after maintenance staff repair the lifting barrier/leaf gates and issue reconnection/fit memo for the same

11. Failure of Gate Key with the gate in closed position, when Gate Key cannot be extracted for opening the gate:

1 If the gate key cannot be extracted from the winch, gate signal lever or key transmitter then gateman must immediately inform the Station Master/Switchman/Cabin man on duty on telephone, under exchange of private number
2 If Emergency Key is available at the gate lodge/cabin, Gateman/Switchman Cabin man/Lever man will take it out from the sealed box by breaking the seal and open the gate for road traffic
3 The record of the date and time of breaking the sealed cover of Emergency Key Box shall be recorded and signed with reasons
4 Thereafter, the gate must be treated as non-interlocked and procedure for reception/dispatch of trains as prescribed for non-interlocked gates should be adopted
5 Station Master on duty shall issue caution order to the driver of a departing train
6 He shall also advise the Station Master at the dispatching end, under exchange ofprivate number, to similarly issue a caution order to the driver before dispatching atrain in the block section from his end.
7 Station Master shall advise S&T staff responsible for maintaining the key transmitter to repair the same at the earliest
8 Normal working will be resumed only after S&T staff repairs the key transmitter issue reconnection/fit memo for the same
9 After rectification, the Emergency Key shall be replaced in the Emergency Key Box and resealed by the S&T maintainer

12. Failure of the Gate Key with the gate in open condition:

1 If the gate key cannot be extracted from the winch, gate signal lever or keytransmitter then gateman must immediately inform the StationMaster on duty on telephone, under exchange of private number
2 Thereafter, the gate must be treated as non-interlocked and procedure for reception/dispatch of trains as prescribed for non-interlocked gates should beadopted.
3 The gateman shall secure the gate against road traffic by means of chains and padlocks and pass trains on hand signals
4 Station Master on duty shall issue a caution order to the driver of a departing train
5 He shall also advise the Station Master at the dispatching end, under exchange of private number, to similarly issue a caution order to the driver before dispatching a train in the block section from his end
6 Station Master shall advise S&T staff responsible for maintaining the key transmitter to repair the same at the earliest
7 Normal working will be resumed only after S&T staff repairs the key transmitter and issue reconnection/fit memo for the same
8 After rectification, the Emergency Key shall be replaced in the Emergency Key Box and resealed by the S&T maintainer

13. Defective Gate Signals:

1 The gateman shall treat the gate signal as defective and must not lower them under following circumstances
2 If gate signals can be taken 'OFF' without closing the gate, or
3 The key can be extracted from the operating winch when the gate is in open condition, or

4 The key can be extracted from the leaf gates when the gate is in open condition

5 If the Gate or the Gate Signal or Warner/Distant Signal becomes defective in 'OFF' position, the gateman will make all efforts to put it at 'ON' position even by cutting signals wires, if necessary

6 The gateman will immediately advise the Station Master on duty, under exchange of private number, regarding defective gate signals

7 Thereafter, the gate must be treated as non-interlocked and procedure for reception/dispatch as prescribed for non-interlocked gates should be adopted

8 He shall show green hand signal flag by day and green light by night to the passingtrain after closing the gate

9 Station Master on duty will issue a caution order to the driver of a departing train

10 He shall also advise the Station Master at the dispatching end, under exchange of private number, to similarly issue a caution order to the driver before dispatching a train in the block section from his end

11 Station Master shall advise S&T staff responsible for maintaining the gate signal to repair the same at the earliest

12 Normal working will be resumed only after S&T rectify the defective gate signal and issue reconnection / fit memo for the same.

14. Obstruction at the Gate:

1 If the gate is broken by a road vehicle which is fouling the track, or if lifting barriers/ leaf gates or any other part of the gate foul the track, or if there is any other obstruction at the gate, the gateman shall immediately put back gate signals to 'ON' position

2 He shall fix red banner flag by day and red lamp by night on posts provided at both ends of the gate for this purpose

3 Immediately after this, the gateman shall advise the Station Master/Switchman/Cabin man on duty regarding the defects/obstructions at the gate, under exchange of private number

4 If there is no response from the Station Master/Switchman/Cabin man after two or three attempts, he shall first protect the gate and then inform on phone

5 Gateman shall then rush with detonators, fuse and red flag by day and red hand signallamp by night in the direction of the approaching train and protect the gate asstipulated in General Instruction for duties of gateman

6 Thereafter, he shall protect the gate from the other direction also

7 He shall note down the particulars of the road vehicle, name of the driver, owner and relay these details to the Station Master who shall not start the train unless he has been assured by the gatemen that the road vehicle or the lifting barriers/leaf gates are not fouling the track

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

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

10 Station Master shall then issue a caution order to drivers of all train to proceedcautiously, and pass the gate signal at 'ON' position on green hand signal of thegateman, if the gate is broken, but is clear of any obstruction

11 Gateman shall secure the gate against road traffic by means of safety chains andpadlocks and there after exhibit green hand signal, if the gate is not obstructed

12 Station Master shall advise maintenance staff responsible for maintaining the lifting barriers/leaf gates to repair the same t the earliest

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13 Normal working will be resumed only after maintenance staff rectify the defectivelifting barriers/leaf gats and issue reconnection/fit memo for the same

15 <u>Obstruction On The Track Near Level Crossing Gate</u>:

If there is a rail fracture or obstruction on the track due to falling of a tree, fouling by road vehicle or derailment which is visible to the gateman, the gateman and station master will adopt the procedure given under item no. 5 above, if the obstruction fouls the level crossing gate, gateman must keep the gates closed against road traffic till the track is cleared of the obstruction.

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A.2. Gate Working instructions for the Non-Interlocked Level Crossing Gate with Normal Position "Open to the Road Traffic".

A-2.01. GENERAL INFORMATION Date of issue**:-**

1.	Number and Class of Level Crossing Gate	**KK-79**
2.	Engineering or Traffic Gate	**Engineering / 'C' Class**
3.	Under control of Station Master / SSE/PWay	**SM/NKX, SSE/P.Way/JDB**
4.	Location at KM.	**286/3-4**
5.	At Station	**Mid - Section**
6.	In between stations	**AGZ - NKX**
7.	BG / MG / NG	Broad Gauge
8.	Single line / Double line / Multiple line	Double Line
9.	Normal Position	**Close to Road Traffic**
10.	Interlocked / Non-Interlocked	**Non-interlocked**
11.	Means of Interlocking	Not Applicable
12.	Provision of Gate signal at Kms. (i) UP Line (ii)DN Line	Not Applicable
13.	Signaling arrangements	Not Applicable
14.	Means of Communication – Telephone / Bell	Magneto phone with SM/NKX
15.	Width of level crossing gate	7.5 Meters
16.	Type of road (NH / SH / Others)	Others
17.	Name of Road	Village Road
18.	Metalled / non-metalled	Non-Metalled
19.	Approach road	Non-Metalled
20.	Width of the road	5.50 Meters
21.	Angle of road crossing (in case of Skew gates)	71 º
22	Road gradient (if any) (i) North / East side (ii) South / West side	 1 in 30 1 in 30
23.	Road alignment (straight/curve) (i) North / East side (ii) South / West side	 Straight Straight
24.	Provision of height gauges	Provided
25.	Type of Barriers	Lifting Barrier
26.	Length of Check rails	9.50 Meters
27.	Road surface in between L-Xing gates	CC Block
28.	Length of Rumble strip / speed breakers	4.0m
29.	Road signs	Provided
30.	Speed breaker indication board	Provided
31.	TVU	**18793.5 / Feb-2022**
32.	Census next due on	**Feb 2025**
33.	Demarcation for placement of Detonators	Provided

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34.	No. of Gatemen working	2
35.	Nearest Railway Medical Assistance	JDB
36.	Nearest Private Medical Assistance available.	**JDB, Govt Hospital**
37.	List of equipment available Yes / No	Yes

(Refer page No **28-30** and **38-41** for common Working instructions for all LC gates)

1.2 EQUIPMENT:

Sl No	Items	Quantity / Numbers
1.	LED based flashing Tri Colour Hand Signal Lamp.	3 (5 on Quadruple / Line or twin single line)
2.	Hand Signal Flag Green	1 No with mounted stick
3.	Hand Signal Flag Red	3 (6 Nos. on Quadruple / Line or Twin Single line and 7 in case Hexaple Section mounted on sticks)
4.	Banner Flag Red	3 (5 on Quadruple / Line or twin single line)
5.	Posts for exhibiting red banner flag	2 (4 on Q / Twin single line and 5 on Hexaple section)
6.	Spare chains with padlocks	2 with stop marker
7.	Detonators	10 in each case
8.	Gate lamps	2 Nos.
9.	Tommy Bar	1 No.
10.	Mortar Pan	1 No.
11.	Spade / Fowrah	1 No.
12.	Rammer	1 No (In case of asphalted road this may not be provided)
13.	Pick Axe	1 No (In case of asphalted road this may not be provided)
14.	Tin case for flags	1 No.
15.	Can for oil	1 No.
16.	Water port / Bucket	1 No.
17.	Canister for Muster Roll	1 No.
18.	Set of spare spectacles of gateman wearing glasses	1 No.
19.	Board demarcating protection of level crossing gate diagram in case of obstruction on gate	1 No.
20.	Basket	1 No.
21.	Whistle	1 No.
22.	Wall Clock	1 No.
23.	Small chain for locking arrangement	2 No.

1.3 RECORDS TO BE KEPT AT GATE LODGE:

1 In addition to the above equipment, following records shall also be kept at the gate lodge.
2 Gate Working Instructions in Hindi / English.
3 Gate Working Instructions in local vernacular language.
4 Gateman Rule Book in local vernacular language
5 List for tools and books.
6 Duty Roster.

STATION WORKING RULES OF NAKTISEMARA (NKX)

7 Certificate for working as gateman.
8 Bio-data particulars of Gatemen, including date of passing vision test, initial / refresher course, safety camp etc.
9 Accident Register.
10 Record of last census of road traffic at level crossing gate.
11 Public Complaint Book.
12 Inspection Book.
13 S & T failure register.

1.4 COMPETENCY: Gateman working at this gate should have competency certificate applicable to perform duty at this gate issued by the concerned supervisor.

1.5 MODE OF OPERATION:-

For operating of this gate the following procedure to be followed

For dispatching Trains from NKX-AGZ :

1 SS/SM NKX shall advise the Gate Man the Train Number, Description, Direction, and expected time of the passage of the Train at the Gate, under exchange of Private Number.
2 Such advice shall be given by the SM/NKX to the Gate Keeper, before taking Off the Departure Signals, or before giving an Authority to Proceed to the Loco Pilot.
3 The Gate Man on receiving such advice from the SM/ NKX, shall close the gate well in time and confirm the same, under exchange of Private Number.
4 Station Master / NKX shall take Off the Departure Signals only after getting the Private Number from the Gate Man that the gate is closed and locked.
5 Gate once Closed against Road Traffic for Train, shall not be opened, unless that is authorized by the Duty SM/NKX under exchange of a Private Number.

For Receiving Trains from AGZ to NKX :

1 Station Master AGZ shall advise the SM/NKX, the Train Number, Description, Direction, and expected time of the passage of the Train at the Gate, under exchange of Private Number.
2 Such advice shall be given by the SS/ SM/AGZ to the SS/SM/DNV, before obtaining Line Clear.
3 Station Master / NKX shall advise the Gate Man the Train Number, Description, Direction, and expected time of the passage of the Train at the Gate, under exchange of Private Number.
4 The Gate Man on receiving such advice from the SM/ NKX, shall close the gate well in time and confirm the same, under exchange of Private Number.
5 Station Master / NKX shall Give Line Clear to the SM/AGZ, only after getting the Private Number from the Gate Man.
6 Gate once Closed against Road Traffic for Train, shall not be opened, unless that is authorized by the Duty SM/NKZ under exchange of a Private Number.

1.6. Failure of Telephonic Communication:

1 (i) In the event of failure of telephone, if the gate is required to be opened for passage of road traffic, the gateman shall lookout in both directions before opening the gate to ensure that no train is approaching from either end. He shall then plant a banner flag during day and a hand signal lamp with the red light during night, 5 meters away from the gate on the track on either side. He shall thereafter, open the gate for passing the road traffic keeping a red flag/ red hand signal lamp ready in his hand to stop approaching train if any.
2 (ii) Report the fact over telephone or through the loco pilot of a passing train or through a GangMan to the station master/cabin master of the adjacent station and the nearest GangMate

3 The Station Master on duty on receipt of the above information shall arrange to issue caution orders to the loco pilots and Train managers of all trains entering into the section.
(i) To whistle frequently.
(ii) To stop 30mts short of the level crossing and be guided by the hand signal given by the gateman

4 The Station master shall intimate the fact to the Station master at the other end of the block section for issue of caution order with the similar instructions as mentioned in (b) above.

The caution order shall continue to be issued till the defect is rectified. The Station master shall also advise the JE/SE/SSE Signal), JE/SE/SSE(P way) and other officials concerned for immediate rectification and other necessary action

1.6. Failure of Lifting Barriers:

1 When the gate cannot be closed due to failure of Lifting Barriers of Leaf Gates, the Gateman will immediately inform the Station Master/Switchman/Cabin man on duty. under exchange of Private Number, and ensure that Lifting Barriers or leaf gates do not foul the track

2 He shall immediately fix Red Banner Flag by day and Red Light by Night on the post at that end first from which the rain is approaching and then at the other end

3 Gateman shall secure the gate against road traffic by means of safety chains and padlocks

4 After securing the gate against Road Traffic, he shall show Green Hand Signal Flag by day and Green Light by night to the driver of the approaching train

5 Station Master on duty shall issue caution order to the driver of a departing train

6 He shall also advise the Station Master at the dispatching end, under exchange of Private Number, to similarly issue a Caution Order to the driver before dispatching a train in the Block Section from his end

7 He should also advise maintenance staff responsible for maintenance of the Lifting Barriers/leaf gates to rectify the defect at the earliest

8 Normal working will be resumed only after maintenance staff rectify the Lifting Barriers/leaf gates and issue reconnection/fit memo for the same

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

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

2 He shall, thereafter, close and lock the gates

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

4 The gateman shall proceed in haste, exhibiting a red hand signal flag, towards the direction from which a train is expected first and place one detonator on the track at a distance of 600meters on BG and three detonators 10meters apart at a distance of 1200 meters on BG from the level crossing. Having thus protected one line, he shall immediately return to the level crossing, picking up the intermediate detonator on the way and then proceed with the same haste in the opposite direction and protect the other line also in an identical manner. Having duly protected both In case of any one line is obstructed the aforesaid protection need

be done only for the obstructed line

1.8 <u>Obstruction On The Track Near Level Crossing Gate</u>:

If there is a rail fracture or obstruction on the track due to falling of a tree, fouling by road vehicle or derailment which is visible to the gateman, the gateman and station master will adopt the procedure given under item no. 5 above, if the obstruction fouls the level crossing gate, gateman must keep the gates closed against road traffic till the track is cleared of the obstruction.

STATION WORKING RULES OF NAKTISEMARA (NKX)

Gate Working instructions for the Non-Interlocked Level Crossing Gates with Normal Position "Closed to the Road Traffic".

1) GENERAL INFORMATION:

1.	Number and Class of Level Crossing Gate	**KK-80**
2.	Engineering or Traffic Gate	**Engineering / 'C' Class**
3.	Under control of Station Master / SSE/PWay	**SM/NKX, SSE/P.Way/JDB**
4.	Location at KM.	**287/13-14**
5.	At Station	**Mid-Section**
6.	In between stations	**AGZ - NKX**
7.	BG / MG / NG	Broad Gauge
8.	Single line / Double line / Multiple line	Double Line
9.	Normal Position	**Close to Road Traffic**
10.	Interlocked / Non-Interlocked	**Non-interlocked**
11.	Means of Interlocking	Not Applicable
12.	Provision of Gate signal at Kms. (i) UP Line (ii)DN Line	Not Applicable
13.	Signaling arrangements	Not Applicable
14.	Means of Communication – Telephone / Bell	Magneto phone with SM/NKX
15.	Width of level crossing gate	7.50 Meters
16.	Type of road (NH / SH / Others)	Others
17.	Name of Road	Kurundi-Naktisemra Road
18.	Metalled / non-metalled	Non-Metalled
19.	Approach road	Non-Metalled
20.	Width of the road	5.50m
21.	Angle of road crossing (in case of Skew gates)	85 º
22	Road gradient (if any) (i) North / East side (ii) South / West side	 1 in 30 1 in 30
23.	Road alignment (straight/curve) (i) North / East side (ii) South / West side	 Straight Straight
24.	Provision of height gauges	Provided
25.	Type of Barriers	Lifting Barrier
26.	Length of Check rails	9.50m
27.	Road surface in between L-Xing gates	CC blocks
28.	Length of Rumble strip / speed breakers	4.0m
29.	Road signs	Provided
30.	Speed breaker indication board	Provided
31.	TVU	**19674.95 / Feb-2022**
32.	Census next due on	**Feb 2025**

STATION WORKING RULES OF NAKTISEMARA (NKX)

33.	Demarcation for placement of Detonators	Provided
34.	No. of Gatemen working	2
35.	Nearest Railway Medical Assistance	JDB
36.	Nearest Private Medical Assistance available.	JDB
37.	List of equipment available Yes / No	Yes

(Refer page No 20-22 and 30-31 for common Working instructions for all LC gates)

1.1 EQUIPMENT:

Sl No	Items	Quantity / Numbers
1.	LED based flashing Tri Colour Hand Signal Lamp.	3 (5 on Quadruple / Line or twin single line)
2.	Hand Signal Flag Green	1 No with mounted stick
3.	Hand Signal Flag Red	3 (6 Nos. on Quadruple / Line or Twin Single line and 7 in case Hexaple Section mounted on sticks)
4.	Banner Flag Red	3 (5 on Quadruple / Line or twin single line)
5.	Posts for exhibiting red banner flag	2 (4 on Q / Twin single line and 5 on Hexaple section)
6.	Spare chains with padlocks	2 with stop marker
7.	Detonators	10 in each case
8.	Gate lamps	2 Nos.
9.	Tommy Bar	1 No.
10.	Mortar Pan	1 No.
11.	Spade / Fowrah	1 No.
12.	Rammer	1 No (In case of asphalted road this may not be provided)
13.	Pick Axe	1 No (In case of asphalted road this may not be provided)
14.	Tin case for flags	1 No.
15.	Can for oil	1 No.
16.	Water port / Bucket	1 No.
17.	Canister for Muster Roll	1 No.
18.	Set of spare spectacles of gateman wearing glasses	1 No.
19.	Board demarcating protection of level crossing gate diagram in case of obstruction on gate	1 No.
20.	Basket	1 No.
21.	Whistle	1 No.
22.	Wall Clock	1 No.
23.	Small chain for locking arrangement	2 No.

1.2 RECORDS TO BE KEPT AT GATE LODGE:

1 In addition to the above equipment, following records shall also be kept at the gate lodge.
2 Gate Working Instructions in Hindi / English.
3 Gate Working Instructions in local vernacular language.
4 Gateman Rule Book in local vernacular language
5 List for tools and books.
6 Duty Roster.

7 Certificate for working as gateman.
8 Bio-data particulars of Gatemen, including date of passing vision test, initial / refresher course, safety camp etc.
9 Accident Register.
10 Record of last census of road traffic at level crossing gate.
11 Public Complaint Book.
12 Inspection Book.
13 S & T failure register.

1.3 COMPETENCY: Gateman working at this gate should have competency certificate applicable to perform duty at this gate issued by the concerned supervisor.

1.4 MODE OF OPERATION:-

For opening of this gate the following procedure to be followed

1 When level crossing gate is required to be opened for passage of Road Traffic, the Gateman should place Banner flags across the track on either side of the tracks at a distance of 5 meters away from the gate, since the gate is non-interlocked and normal position is open to road traffic. The Gateman closes and opens the lifting barriers of Gate manually by opening the winch. Telephone connection is provided between the LC gate lodge and SM office at SM/NKX. The SM/ NKX shall not permit any train to enter the block section, unless he is assured the Closure and Locking of the gate by the gateman supported by exchange of Private Number. When Gate man desires to open the gate for passage of road traffic, GK should ensure that no private Number has been exchanged with the SM/ NKX for the passage of train or whole of the train with last vehicle indicator has passed over the level crossing gate for which the gateman exchanged private number with the SM/ NKX.

Exchange of Private Numbers:

1 The normal position of the level crossing gate being "Closed to Road Traffic" it should always be in closed condition against road traffic over the level crossing, subject to conditions prescribed below
2 The Station Master before permitting each train to enter into the block section shall ask gateman on the telephone by giving a private number whether; gate is closed against road traffic for the passage of train. The gateman only after ensuring that the gate is actually closed and locked against road traffic shall give a private number to the station master in assurance of gate being closed & locked against road traffic
3 The Station Master shall not permit any train to enter the Block Section, unless he is assured of the closure and locking of the gate by the gateman supported by exchange of Private Number
4 When the gateman desires to open the gate for passage of Road Traffic he should ensure that:

a) He has not exchanged any Private Number with the station. or
b) If he has exchanged Private Number with the station master, the whole of the train with last vehicle indicator has passed over the level crossing gate and the station master has not exchanged Private Number with him for any other movement immediately in rear of that train or on the adjacent Line(s)
c) Before opening the gate for Road Traffic, he shall place banner flag/danger signal on both the direction of the track at a distance of 5 meters away from the gate. Then he shall open the gate for passing the Road Traffic, keeping a red flag/red hand signal lamp ready in his hand to stop approaching train if any

5 In case the gateman is not responding on the telephone or in case the telephone becomes defective or Private Number is not received from the gateman, the Station Master shall adhere

to the procedure prescribed in SR 16.03.04

1.5 Failure of Telephonic Communication:

1 (i) In the event of failure of telephone, if the gate is required to be opened for passage of road traffic, the gateman shall lookout in both directions before opening the gate to ensure that no train is approaching from either end. He shall then plant a banner flag during day and a hand signal lamp with the red light during night, 5 meters away from the gate on the track on either side. He shall thereafter, open the gate for passing the road traffic keeping a red flag/ red hand signal lamp ready in his hand to stop approaching train if any.

2 (ii) Report the fact over telephone or through the loco pilot of a passing train or through a GangMan to the station master/cabin master of the adjacent station and the nearest GangMate

3 The Station Master on duty on receipt of the above information shall arrange to issue caution orders to the loco pilots and Train managers of all trains entering into the section.
(i) To whistle frequently.
(ii) To stop 30mts short of the level crossing and be guided by the hand signal given by the gateman

4 The Station master shall intimate the fact to the Station master at the other end of the block section for issue of caution order with the similar instructions as mentioned in (b) above.

The caution order shall continue to be issued till the defect is rectified. The Station master shall also advise the JE/SE/SSE Signal), JE/SE/SSE(P way) and other officials concerned for immediate rectification and other necessary action

1.6. Failure of Lifting Barriers:

1 When the gate cannot be closed due to failure of Lifting Barriers of Leaf Gates, the Gateman will immediately inform the Station Master/Switchman/Cabin man on duty. under exchange of Private Number, and ensure that Lifting Barriers or leaf gates do not foul the track

2 He shall immediately fix Red Banner Flag by day and Red Light by Night on the post at that end first from which the rain is approaching and then at the other end

3 Gateman shall secure the gate against road traffic by means of safety chains and padlocks

4 After securing the gate against Road Traffic, he shall show Green Hand Signal Flag by day and Green Light by night to the driver of the approaching train

5 Station Master on duty shall issue caution order to the driver of a departing train

6 He shall also advise the Station Master at the dispatching end, under exchange of Private Number, to similarly issue a Caution Order to the driver before dispatching a train in the Block Section from his end

7 He should also advise maintenance staff responsible for maintenance of the Lifting Barriers/leaf gates to rectify the defect at the earliest

8 Normal working will be resumed only after maintenance staff rectify the Lifting Barriers/leaf gates and issue reconnection/fit memo for the same

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

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

from the edge of the road/obstruction

2 He shall, thereafter, close and lock the gates

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

4 The gateman shall proceed in haste, exhibiting a red hand signal flag, towards the direction from which a train is expected first and place one detonator on the track at a distance of 600meters on BG and three detonators 10meters apart at a distance of 1200 meters on BG from the level crossing. Having thus protected one line, he shall immediately return to the level crossing, picking up the intermediate detonator on the way and then proceed with the same haste in the opposite direction and protect the other line also in an identical manner. Having duly protected both In case of any one line is obstructed the aforesaid protection need be done only for the obstructed line

1.8 <u>Obstruction On The Track Near Level Crossing Gate</u>:

If there is a rail fracture or obstruction on the track due to falling of a tree, fouling by road vehicle or derailment which is visible to the gateman, the gateman and station master will adopt the procedure given under item no. 5 above, if the obstruction fouls the level crossing gate, gateman must keep the gates closed against road traffic till the track is cleared of the obstruction.

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APPENDIX 'B' TO STATION WORKING RULES OF NAKTISEMARA STATION

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

1. BRIEF DESCRIPTION OF THE SIGNALLING AND INTERLOCKING INSTALLATIONS:

NAKTISEMARA is a Class 'B' station provided with Standard-II (R) Interlocking. The station is provided with Route setting type Electronic Interlocking between points, signals, track circuits and other signaling gears. The station is equipped with Multiple Aspect Color Light Signaling. All points and signals are power operated through a central **Visual Display unit (VDU)** installed in the SM's Office.

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

The Operator Console cum Visual Display Unit (VDU) in dual configuration is provided for operation of Signals, points, Crank handles and controls etc. A mimic yard diagram based on SI plan No. SI/23166 Alt "B" will be displayed on the VDU. The VDU is used for controlling and monitoring the station. Indications on the station mimic diagram of VDU will be dynamically updated.

3. SYSTEM OVERVIEW

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

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

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

3.1. DUAL VDUs – MODE OF SELECTION:

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

1. When the A VDU is act as ONLINE, the SMKEY Status of B VDU will be in KEYOUT Condition with Red Color

2. Whenever SM wants to change the control from A VDU to B VDU, he shall apply SMKEY IN at B VDU. During this time A VDU SMKEY will get KEYOUT and the Color will turn to Red. Vice versa, the same operation will be applicable to change the Control from B VDU to A VDU.

3. If ON LINE VDU had failed, SM shall be applied SMKEY IN at Standby VDU. Then the Standby VDU will come to ON LINE.

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

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

4.1. ICONS AND INDICATIONS PROVIDED ON THE VDU:

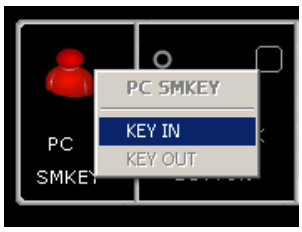
In addition to mimic yard diagram including signal, points, track circuit, Axle counters, L.C. gates, sidings as indicated in the WRD, various other ICONS and indications have been provided on the VDU. A brief description of the same are described below.

Sl No	Icons	Indication	Function	Remarks
1	PC SM KEY	Green Colour 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.	For each operation concerned counter shall register one count higher.
3	Emergency Point operation key	Green light when key is 'IN'. Yellow light indication appears showing request for Emergency point operation is acknowledged.	Ensures emergency point operation by authorized person	Protected by Pass word. For each operation concerned counter shall register one count higher.
4	Point failure Ack. button	Red	Flashing indication appears when any point fails. SM has to left click on the icon to acknowledge.	Buzzer will sound. On acknowledgement, buzzer stops. After verification at site inform S&T staff immediately if failure persists.
5	Signal failure Ack. Button	Red	Flashing indication appears when any signal fails. SM has to left click on the icon to acknowledge.	Buzzer will sound. On acknowledgement, buzzer stops. Inform S&T staff immediately.
6	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.	
7	SDG CNT-27, SDG CNT-29 button	Yellow lamp indicates 'KEY IN'. Red lamp indicates ' SDG KEY LOCKED'	In normal condition yellow lamp will be lit. Whenever the Siding Control key is locked in route or otherwise red indication will glow.	

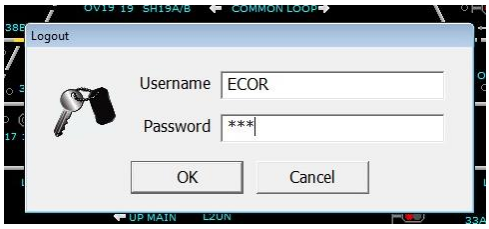
8	'DN Train Entering Section' muting button	Yellow - acknowledged	On getting alarm/buzzer SM shall left click on the button icon to acknowledge it.	
9	'UP Train Entering Section' muting button	Yellow - acknowledged	On getting alarm/buzzer SM shall left click on the button icon to acknowledge it.	
10	UP Train arrival Ack button	Yellow – indicates complete train arrived.	On getting indication SM shall left click on the button icon which shall mute the arrival buzzer coming from TLBI.	After complete arrival of train this will be activated
11	DN Block release button	Yellow – Prepared for Block release.	On getting indication SM shall left click on the button icon which shall release Block Handle.	
12	L.C. Gate control-30 button	Yellow lamp indicates 'Gate Closed'. Red lamp indicates 'Gate LOCKED'.	SM shall right click on the button icon to select menu to Transmit / Receive/ emergency operation of gate as required.	In case of emergency operation 'Emergency gate release' indication will appear. For each operation concerned counter shall register one count higher.
13	Line Block button	Magentacolor when blocked	SS/Dy. SS shall point the curser on the icons provided on the berthing track and right click. One drop menu will appear indicating line blocked and un-blocked, SS/Dy. SS has to select the required menu.	When line block is selected the concerned button on the particular line turns to RED.

4.2. <u>PC SM KEY:</u>

To prevent the unauthorized operation by other than on duty SS/SM in VDU this facility is provided on VDU. On duty SS/SM need to track the pointer to the "PC SMKEY" icon and by clicking the icon a drop down menu having the **KEY IN & KEY OUT** will appear.



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



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



VDU Control Changeover Operation:

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

1. When the A VDU is act as ONLINE, the SMKEY Status of B VDU will be in KEYOUT Condition with Red Color

2. Whenever SM wants to change the control from A VDU to B VDU, he shall apply SMKEY IN at B VDU. During this time A VDU SMKEY will get KEYOUT and the Color will turn to Red. Vice versa, the same operation will be applicable to change the Control from B VDU to A VDU.

3. If ONLINE VDU had failed, SM shall be applied SMKEY IN at Standby VDU. Then the Standby VDU will come to ONLINE.

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

4.3.1. K5BMC System Failure Indications:

In PC there are two system failure indications such as ET FL & EI FL. During the failure a Red colour indication will start flashing as shown in the below figure.

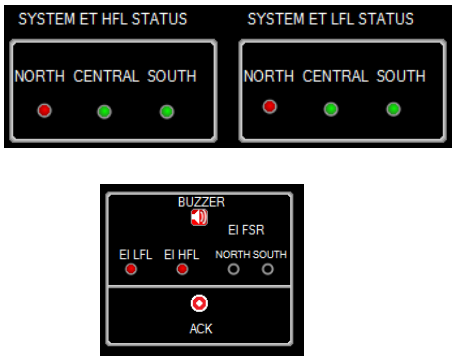
a) <u>ET LFL (Electronic Terminal Low Failure):</u>
When any one of the ETPIO2 board fails, a red colour flashing indication appears on ET LFL.

b) <u>ET HFL (Electronic Terminal High Failure):</u>
Similarly when all the ETPIO2 boards of the K5BMC system fail, it will be shown by the red flashing indication on ET HFL.

c) <u>EI LFL (EI System Low Failure):</u>
ET LINE2B status for two systems, Logic system Power Supply status, I/O Board & LINE2B Board Power Supply, OPC Converter Status & OPC Communication status for both the systems is monitored through EI LFL. When any one of the above function fail list will be displayed in EI LFL by a flashing red indication.

d) <u>EI HFL (EI System High Failure):</u>
ET LINE2B status for two systems, I/O Board & LINE2B Board Power Supply, OPC Communication status for both the systems & MTC Commutation status are monitored through EI HFL. When any one of the above function fails it will be displayed in EI HFL by a flashing red indication.

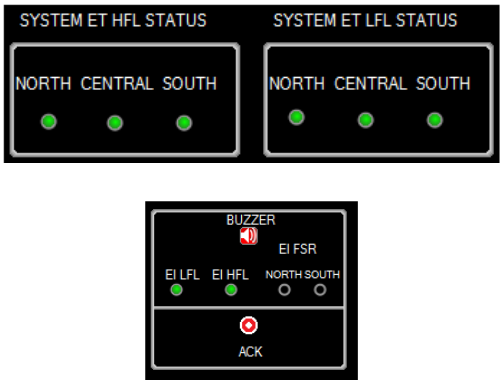
OPC Communication Failure & ET LINE2B status failure indication will be displayed in EI HFL only when the healthy status is not available from both systems.



e) System failure Acknowledgement:
In the PC there is a Red colour button for acknowledging the system failure. Once the button is acknowledged, the buzzer will go off. The indication remains till the problem is rectified.

f) K5BMC System Healthy Indications:

When all the functions of K5BMC system is working properly without any failure, the System Healthy indication will be displayed by a steady green indication as shown in the below figure.

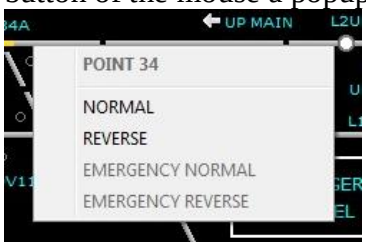


4.4. <u>VDU ACTIVE INDICATIONS</u>:

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

4.5. <u>OPERATION AND INDICATION OF POINT:</u>

To Operate the Point the SS/SM needs to track the mouse pointer to concerned Point Button on the VDU, after clicking by the left button of the mouse a popup menu will appear as below:



4.5.1. <u>REVERSE TO NORMAL OPERATION</u>:

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

4.5.2. <u>NORMAL TO REVERSE OPERATION</u>:

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

4.5.3. <u>POINT INDICATIONS:</u>

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

4.6. <u>SIGNAL OPERATION:</u>

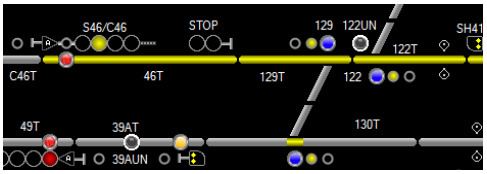
To Take-Off a Signal with the desired route the SS/SM needs to track the mouse pointer over the concerned Signal on the VDU, after clicking by the left button on the mouse a popup menu will appear as below:



4.6.1. <u>SETTING A ROUTE</u>:

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

rear of the signal. Now the signal will be taken-off. The yellow route set indication will turn to red when the train occupies the concerned track circuit.



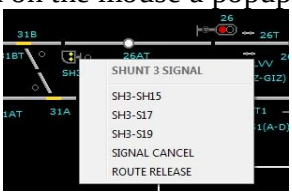
<u>Conditions for setting a route:</u>

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

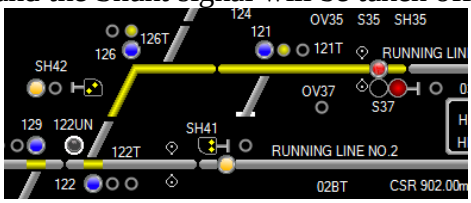
1. All the Crank handles of the required route related points to be in Key IN condition.
2. All the related Siding control keys to be in Key in condition.
3. If any Level Crossing gates are falling under the route that should be locked (KEY IN).

4.6.2. <u>SHUNT SIGNAL OPERATION:</u>

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



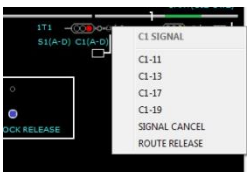
Then click the left button of mouse on the required route on pop-up menu. After doing so, desired route will be initiated and the Shunt signal will be taken off.



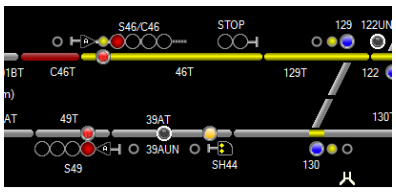
4.6.3. <u>CALLING ON SIGNAL OPERATION:</u>

Calling on signal route set operation follows the same procedure as mentioned for the main signal. For calling on Signal, route is set after a train occupies the approach track circuit in immediate rear of the stop signal. The calling on Signal is cleared after a lapse of 60 Seconds provided other conditions are fulfilled.

To take "OFF" Calling-on signal the train must come to a stop at the foot of the Home signal, occupying the track circuit (1AT & 2AT as the case may be) in rear of the signal. When a train occupies the track circuit a RED light strip will appear on the VDU. The particular route on which train is intended to be received shall be set by tracking the pointer in VDU on to the signal below which the calling on signal is provided. Left click on the calling on Signal which will appear a pop-up menu as follows.



Then the SM must drag the pointer and click over the required route as a result of which the calling–on signal will blink for 60 seconds. For all home signals the time delay is 60 seconds, the Calling on signal clears i.e. a yellow light glows at the concerned calling-on signal on the VDU.



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

4.7. CRANK HANDLE CONTROL OPERATION:

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



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



For Transmitting the Crank Handle KEY to the field personnel SS /SM has to transmit the control by clicking **TRANSMIT** menu of the Crank Handle Button.After transmission, the KEY IN indication will start flashing; now the KEY can be extracted from the EKT. After extracting the key from the EKT, the key IN indication will disappear. This action will be recorded in a respective counter of the counter box provided on SM's table. The counter will increment the number for each and every such action and also, this number should be recorded by the SM on duty who shall record the details of the Crank Handle operation along with the latest counter number in a register.

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

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

4.8. SIDING CONTROL OPERATION:

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



The appearing pop-up menu gives details of the possible commands on the Siding point control.



For Transmitting the Siding control KEY to the field personnel, click on the Siding control and select the **TRANSMIT** in the menu appeared. After transmission, the KEY IN indication will start flashing; now the KEY can be extracted from the EKT. After extracting the key from the EKT, the key IN indication will disappear. This action will be recorded in a respective counter of the counter box provided on SM's table.

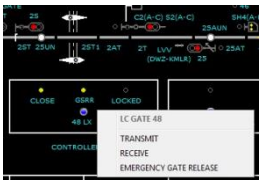
The counter will increment the number for each and every such action and also, this number should be recorded by the SM on duty who shall record the details of the Crank Handle operation along with the latest counter number in a register.

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

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

4.9. LC GATE OPERATION:

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



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

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

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

When the gate has been closed, locked & slot lever is in reverse position, After putting the key in the RKT, A KEY IN flashing indication will appear on the VDU. Now the SS/ SM have to release the control for the steady indication.

The locked indication will appear when the LC Gate has locked by initiation of any of the possible signal routes.

EMERGENCY GATE OPERATION:

L.C. Gate control can be released and the gate can be opened by this operation when LC gate control remains in locked condition due to setting of any of the signal routes over it or otherwise. For releasing the gate by the Emergency operation the SM on duty has to cancel the signal by signal cancellation control of the relevant signal. Then he has to click the Emergency Gate release control in the Gate pop-up menu. Now the 'LOCKED' (Red) indication will flash for 120 seconds & after the time has elapsed the 'LOCKED' (Red) indication will vanish. Now the SM on duty shall transmit the 'GATE CONTROL' in this condition and 'KEY IN' indication starts flashing. Now the KEY can be extracted from the RKT at Gate Lodge and gate can be opened. 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 manually in a register.

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

4.10. OVERLAP TIME RELEASE:

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

5. EMERGENCY OPERATIONS:

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

5.1. CANCELLING A ROUTE/ EMERGENCY ROUTE RELEASE:

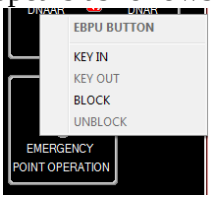
To cancel a signal route when the route is set and the signal in taken-off, click on the signal cancellation menu (Main/ Calling on) of the concerned signal, the signal will immediately go to ON aspect, after doing so click on the Route release menu. Since all the Signals are having Dead approach, both the route locked indication near the signal start flashing. After the completion of 120 Seconds, route nomination and route locked flashing indication disappears and counters provided for the route release will change to next higher digit. This number should be recorded by the SM on duty who shall record the details of the Route cancellation along with the latest counter number in a register.

5.2. EMERGENCY POINT OPERATION:

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

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

Before doing the emergency operation, SM on duty shall make the Emergency Point Operation Key is to be 'KEY IN'. To 'KEY IN' the Emergency Point Operation key click on the SM's Emergency point operation key a pop-up menu will be appears as follows.



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



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

5.2.1. EMERGENCY NORMAL OPERATION:

Track the pointer to EMERGENCY NORMAL/REVERSE menu of the corresponding Point and click. A Password window appears. After providing the password a Normal flashing indication will appear, the indication will be steady after the point is set to Normal.

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

5.2.2. EMERGENCY REVERSE OPERATION:

Track the pointer to EMERGENCY NORMAL/REVERSE menu of the corresponding Point and click. A Password window appears. After providing the password a Normal flashing indication will appear, the indication will be steady after the point is set to Normal.

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

After the completion of the Emergency point operation, the Key to be 'KEY OUT'. Same procedure as mentioned for KEY IN shall be followed for KEY OUT. To 'KEY OUT' the Emergency Point Operation key right click on the SM's Emergency point operation key a pop-up menu will be appears as shown in the Para No.5.2 above.

Click on the KEY OUT in the menu appeared and shall provide User name and password. The user name of this station is 'ECOR' and password of this station is NKX.

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

5.3. 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, SM on duty shall cancel the relevant signal first and then click on the crank handle control button icon provided like the following on the VDU. On clicking, the pop-up menu gives details of the possible commands on the Crank Handle.

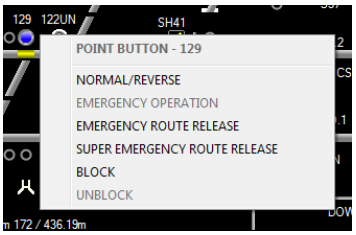


For Transmitting the Crank Handle KEY to the field personnel SM on duty has to click on '**TRANSMIT'** menu. After transmission the 'KEY LOCKED' (Red) indication will start to flash for 120 seconds & 'KEY IN' remains steady. After this the 'KEY LOCKED' indication will vanish & 'KEY IN' indication will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

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

5.4. BLOCK AND UNBLOCK (REMINDER COLLAR) OPERATION:

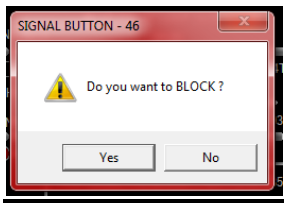
Block option is used to block the Signal button, Point button and Route Button. Block Operation prohibits the setting of routes, releasing the route, Operation of points by the user. A typical Block & Unblock menu is shown below.



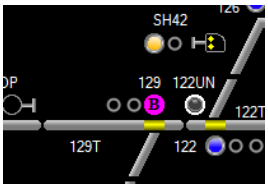
5.4.1. BLOCK OPERATION:

By placing the mouse pointer over any button and pressing the left mouse button, a popup menu with a list of available menu items will be displayed near the control symbol as shown above.

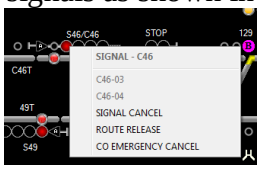
Select the "BLOCK" menu item from the list and press left mouse button or Enter key in the keyboard. A confirmation box appears as shown in below.



Now click YES option of the confirmation window and a Magenta Colour Block indication will be displayed as shown in below.

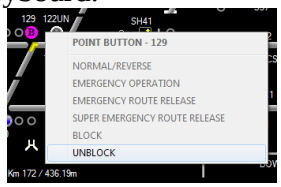


Once Block command is applied, all routes across the track in both directions are prohibited by disabling menu items of the respective signals as shown in below.

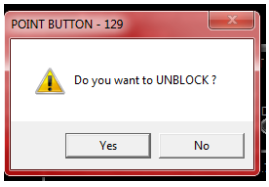


5.4.2. UNBLOCK OPERATION:

To unblock a button, place the mouse pointer over the blocked button and press the left mouse button. A popup menu with a list of available menu items will be displayed near to the control symbol as shown in below. Select the "UNBLOCK" menu item from the list and press the left mouse button or Enter key in the keyboard.



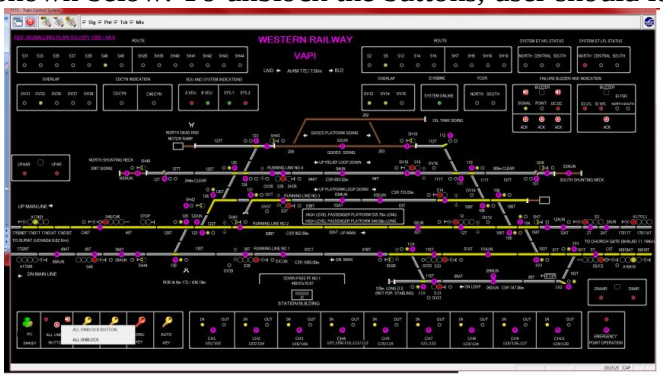
A confirmation message box as shown in below will be displayed to get the confirmation from the user. UNBLOCK command will be sent to EI system to unblock the button, when “Yes” buttons is clicked.



The Magenta Block indication will be removed after the button is unblocked by the EI system. If "No" is selected from the message box, then the unblocking will be cancelled. Once the button is unblocked, setting of all routes across the track is possible in both directions.

5.4.3. All UNBLOCK OPERATION:

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



By placing the mouse pointer over the ALL UNBLOCK button, and pressing the left mouse button, a popup menu appears as shown in above.

Now click the unblock menu, a confirmation window appears. By clicking the YES option of the confirmation window All buttons will be unblocked.

6. DIGITAL AXLE COUNTER (HASSDAC):

A High Availability Single Section Digital Axle Counters (**HASSDAC**) are provided as a Last Vehicle Checking Device (LVCD) for Both UP and DN block section between NKX-AGZ and NKX-JDB.

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

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

In case of failure of High Availability Single Section Digital Axle Counter (**HASSDAC)**, the SM on duty should resort to resetting of the same along with the SM on duty of adjacent station after confirming that the whole of the train sent by sending station has been arrived at the receiving station. The resetting of the LVCD shall be initiated as mentioned below at both the stations after exchanging the Private Number vide G&SR 4.17 (3).
A Reset Box is provided on SM's table for each LVCD section to reset the Axle Counter in case of failure of LVCD. Reset Box gives the status of the block section i.e. Clear (GREEN), occupied (RED), preparatory reset (Miniature GREEN) and power on indications (WHITE). It also having the Reset Key, push button for resetting the LVCD and a counter is provided to record the operation.

6.1. RESETTING OPERATION FOR LVCD (HASSDAC) COUNTER):

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

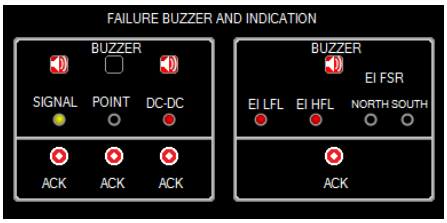
The receiving station shall inform the sending station as to whether the last train that entered into the section has arrived or not. And, if arrived fully shall so intimate the SM of sending station authenticated by exchanging Private number.

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

a) On being advised by SM of NAKTISEMARA Station, SM of AGZ/JDB should perform the following step by step procedure from (b) to (i) for resetting the Digital Axle Counter.
b) SM of NAKTISEMARA Station and AGZ/JDB Station shall then Insert SM's reset key, and turn right.
c) Press simultaneously both the Push button and the Reset Key which are provided on the Reset Box for at least 5 seconds continuously at NKX and AGZ/JDB station.
d) Release SM's Reset Key and Push button.
e) Turn the SM's Reset Key to left and remove it.
f) The system goes to preparatory reset state and preparatory reset miniature indication (Green) glows on the Reset box. The counter reading incremented after a gap of 5 seconds approximately.
g) The counter reading should be recorded in the concerned register by SM on duty.
h) One train is to be piloted out in the section to make the system normal.
i) The SM on duty shall record it in the Train Signal Register indicating the resetting operations in detail i.e. train number, time, Private Number exchanged with SM of sending station and giving reasons for the resetting operation.
j) If the axle counter works properly, then Block Section cleared indication 'Green' will appear on the Reset box and the concerned Block working will be normalized after arrival of train which is piloted out.
k) If the LVCD section indication does not appear 'Green' and continues to show 'RED' indication, the concerned Block instrument shall be suspended and failure intimation is to be given to sectional signal Maintainer/JE/SE (Signal) for early rectification.

7. SIGNAL LAMP FAILURE INDICATION AND BUZZER ACKNOWLEDGMENT:

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



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

Whenever there is a 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 shows the defective

point. After the failure is rectified, the flashing light above the 'POINT FAILUR ACK' button will disappear.

9. POWER FAILURE INDICATION AND BUZZER ACKNOWLEDGEMENT:

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

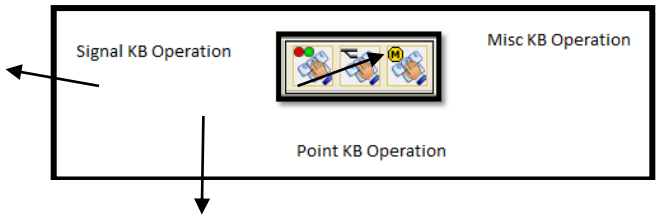
The power failure buzzer will be muted once the relevant acknowledgement button has pressed and the flashing indication is continued in the VDU till the problem is rectified.

10. KEY BOARD OPERATIONS:

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

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

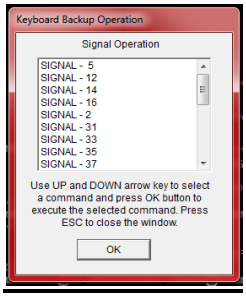
1. Signal KB (Keyboard) operation.
2. Point KB operation.
3. Misc KB operation.



10.1. SIGNAL KEY BOARD OPERATION:

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

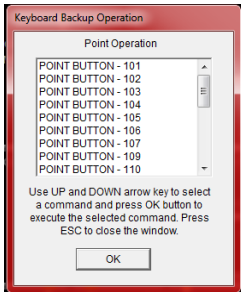
"Enter" key on the keyboard. After the command is selected, it will be sent to EI system and the popup menu will be disappeared.



10.2. POINT KEY BOARD OPERATION:

Alternatively, the point commands can be accessed using the shortcut "Ctrl+P". When the shortcut is pressed in the keyboard, a dialog box with a list of point commands will appear at the

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



10.3. MISCLLENEOUS KEY BOARD OPERATION:

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



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

11. COUNTERS:

The following counters are provided for recording the actions such as emergency point operation, emergency route release etc.

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

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

12. TRACK CIRCUITS:

Both UP & DN main lines, UP Loop & Common loop lines and all the point zones are track circuited as L1T1, L1T2, L1T3, L2T1, L2T2, L2T3, L3T1, L3T2, L3T3, L4T1, L4T2, L4T3, 21AT, 21BT, 25T, 23AT, 23BT, 26BT, 26AT, 24BT, 22BT, 22/24AT.

Approach track circuits 1AT & 2AT of 5 Rail length for Calling on Signal are provided in rear of the Up and DN Home signals respectively. In addition there are short length track circuits 2T1 & 2T2 in advance of DN Home Signal and 1T1 & 1T2 in advance of UP Home Signal are also provided. Similarly there are 5 Rail length track circuits 18T beyond DN Advanced Starter Signal and 17T beyond UP Advanced starter signal for replacement of Last Stop Signal. From the last trailing point/fouling mark in either side of yard to Advanced Starter Signals are also track Circuited i.e 18AT and 17AT in DN and UP directions respectively.

Indications for the above track circuits are available on VDU. Yellow Strip on VDU indicates Route is set and track is clear and Red strip indicates Track is in occupied condition.On account of the doubtful operation of any track circuit by a light vehicle including self-propelled vehicle such as motor trolley or light engine or tower wagon etc., indicating the occupancy/clearance of track, it is necessary that the Station Master on duty satisfies himself that,The said vehicle has cleared the point zone track circuits by observing the track indications of the track on either side of the cross overs by positively checking the entrance and exit track circuits are showing occupancy and clearance in accordance with the train movement.

13. RELEASE/CANCELLATION OF ROUTE:

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

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

14. REPLACEMENT OF SIGNALS TO 'ON':

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

15. PILOTING OF TRAINS IN TO STATION YARD:

Whenever Home signal becomes defective, trains can be admitted by taking off Calling-on signal. Whenever both Home signal and Calling-on signal failed, all trains will be piloted in vide SR. [Refer SR 3.69.03(a) & (c)].

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

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

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

NOTE:

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

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

16. PILOTING OF TRAINS - OUT OF STATION YARD:

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

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].

17. SHUNTING:

Caution aspect of starter signals are used for shunting up to Advanced Starter. For back shunting individual shunt signal No.3 and 4 are provided at East and West side of the yard respectively for shunting back to the station yard in desired direction. For taking OFF Shunt signals please refer Para No. 4.6.2 of APPENDIX-B.

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

In the Station yard, a route on the running line comprises entrance, berthing and dispatch portion of the yard shall be kept clear of any obstruction for the passages of any train or for any other movements. The clearance of the route including overlap must be ensured by the 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.

19. HOT AXLE SIDING:

19.1. WORKING OF HOT AXLE SIDING POINT NO.27A/B:

Electrical operation of siding control point No.27 is carried out at site from the Hot Axle Wagon siding location No.1. In Hot Axle siding location there are two EKT's namely EKT-1 & EKT-2, three buttons for normal and reverse operation. Point indications for normal & reverse and point Free indications are provided. Working of Electrical operation of Siding Points is as follows:

1. To operate Siding point Key 'P' is required to be inserted in EKT-2.
2. Key 'P' can be extracted from EKT-1 only when SM extends permission from SM's panel Extraction of Key 'P' from the EKT-1 will block all signaled movement on Line No.1.
3. Key 'P' when inserted in EKT-2, point free indication appears on the board. Point button and normal or reverse buttons are simultaneously pressed to set the point to normal or reverse as the case may be.
4. After setting of point to reverse key 'P' should be extracted from EKT-2 and kept in the custody of the shunting porter. Removal of key will lock the point.
5. After completion of the movement key 'P' is to be inserted in EKT-2 & siding point 27A/B is to be operated to normal. After ensuring both end of 27A/B in normal setting, Key 'P' is extracted from EKT-2 & inserted in EKT-1 to enable SM to release the control 27. Key 'P' in EKT-1 resume signaling movement over 27A/B in normal position.
6. Crank handle control CH-5 is to be taken out for crank handling the point 27A/B in case of failure of electrical operation.
7. 110 V feed of point No. 27 A/B shall be extended when concerned control key No 27 is transmitted.

19.2. WORKING OF HOT AXLE SIDING POINT NO.29A/B:

Electrical operation of siding control point No.29 is carried out at site from the Hot Axle Wagon siding location No.2. In Hot Axle siding location No.2 there are two EKT's namely EKT-1 & EKT-2, three buttons for normal and reverse operation. Point indications for normal & reverse and point lock indications are provided. Working of Electrical operation of Siding Points is as follows:

1. To operate Siding point Key 'Q' is required to be inserted in EKT-2.
2. Key 'Q' can be extracted from EKT-1 only when SM extends permission from SM's Panel . Extraction of Key 'Q' from the EKT-1 will block all signaling movement on Line No.1.
3. Key 'Q' when inserted in EKT-2, point free indication appears on the board. Point button and normal or reverse buttons are simultaneously pressed to set the point to normal or reverse as the case may be.
4. After setting of point to reverse key 'Q' should be extracted from EKT-2, and kept in the custody of the shunting porter. Removal of key will lock the point.
5. After completion of the movement, key 'Q' is to be inserted in EKT-2 & siding point 29A/B is to be operated to normal. After ensuring both end of 29A/B in normal setting, Key 'Q' is extracted from EKT-2 & inserted in EKT-1 to enable SM to release the control 29. Key 'Q' in EKT-1 resume signaling movement over 29A/B in normal position.
6. Crank handle control CH-6 is to be taken out for crank handling the point 29A/B in case of failure of electrical operation.
7. 110 v FEED OF POINT No. 29 A/B shall be extended when concerned central key No -29 is transimited.

20. <u>OBSERVATION OF TRACK CIRCUIT AFTER STABLING OF TRAINS ON RUNNING LINES</u>:

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.

21. <u>MAINTENANCE OF S & T INSTALLATION AND ADHERENCE TO MAINTENANCE SCHEDULES</u>:

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.

22. <u>RECTIFICATION AND CHECK BEFORE RESUMING NORMAL WORKING:</u>

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

23. PROCEDURE FOR CARRYING OUT PLANNED MAINTENANCE WORK:

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

24. EMERGENCIES:

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

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

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

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

3. One common emergency Crank Handle key is provided for certain group of Motor operated Points. This is mechanically riveted to the Key of RKT. This Key along with Crank Handle can be released from the RKT by pressing the RKT Push Button provided near the RKT. In case of failure of Point Motor the SM on duty will take out the Crank Handle, set the Point manually by inserting Crank Handle in the Motor.

4. When the Crank Handle key is removed from RKT for operation of the defective Motor Operated Points, the responsibility for its safe custody rests with the SS/SM on duty till it is replaced back in RKT.

5. The failure of Motor Operated Points should be promptly reported to the concerned Signal Inspector/ESM for immediate rectification.

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

7. Before parting with the Crank Handle either for attending failure or for Maintenance work by Signal Maintenance Officials, the Station Master on duty will ensure that the reception and departure Signals are put back to on position. The Points of all the lines should be treated as Non-interlocked and the Station Master on duty is responsible for introduction of Non-interlocked working and the trains will piloted IN and OUT duly clamping and Padlocking the Points, both in facing and trailing directions over which the train is to pass, as per GR 3.69 and 3.70 with relevant SR's. The Station Master on duty will be personally responsible for setting and locking of Points, for reception and dispatch of all trains.

8. The Crank Handle Register is to be maintained in the following pro-forma by the Station Master on duty wherein the particulars of usage of the Crank Handle must be recorded:

   a. Date:
   b. Point Number which failed or required to be tested:
   c. Time failure:
   d. Disconnection memo number received from S&T Staff:
   e. Signature of SM/Signal Official to whom the Emergency Crank Handle is handed over:
   f. Time Emergency Crank Handle is sent out:
   g. Individual Point numbers, and Line number nominated for admission of dispatch for which Points are set, Clamped and Padlocked:
   h. Train number to be admitted or dispatched:
   i. Signature of the Station Master on duty to ensure correct setting, Clamping and Padlocking of the Points:
   j. Date and Time fault rectified.
   k. Time of Emergency Crank Handle received back by SM on duty:
   l. Signature and Designation of the Signal Official who rectified the fault:

26. INTERLOCKING OF SIGNALS WITH BLOCK INSTRUMENTS:

26.1. INTERLCOKING WITH HOME SIGNALS:

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

26.2. INTERLCOKING WITH ADVANCED STARTER SIGNALS:

The UP Advanced Starter Signals No.17 is electrically interlocked with respective DLBI of section NKX-JDB so that this Signal cannot be taken OFF until the Handle of the concerned Block Instrument is in' LINE CLEAR' position.

The DN advanced starter signal No.18 is interlocked with DLBI of section NKX- AGZ so that this Signal cannot be taken OFF until the Handle of the concerned Block Instrument is in' LINE CLEAR' position.

26.3. SUSPENSION OF LAST STOP SIGNALS:

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

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

1. Digital Axle Counters are provided on Up and Down Block Sections between NKX-AGZ & NKX-JDB.
2. The occupation and clearance of the axle counter section are indicated on the VDU by 'RED' and 'GREEN' light.

3. If any Block proving Axle Counter [LVCD] section fails, the Last Stop Signal at the rear station cannot be taken 'OFF' and Block instrument at Advance Station cannot be turned to 'Line Closed' position after arrival of a train and in such case, resetting of last Vehicle Checking Device is to be resorted to in either Section.

4. No train shall be allowed on signal to leave a station in any particular direction unless:

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

28. POWER SUPPLY ARRANGEMENT FOR SIGNALLING INSTALLATIONS:

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

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

ii). Stand by supply – (a) 1st standby power supply: Chattishgarh State Electricity Board Supply. (b) 2nd stand by power supply: DG set.

Normal power supply [Single-phase 230V-50 HZ] to the signalling and interlocking installation at the station is drawn from the traction power sources through ATs. Whenever traction power supply fails the SM on duty shall operate the changeover switch provided in the SM's office connecting the power supply from the healthy sources to the installation in case the knob is not in Auto mode.
The SM on duty however maintain the record of power failures either of the traction supply or local supply and he must promptly report the failure of any one or both the power sources immediately through the section controller and to the concerned Elect. Staff and S&T maintenance staff.

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

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

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

iii). In case of failure of one of the AT supply without any power block the on duty SM has to check whether the circuit breaker has tripped [Three circuit breakers are provided in the changeover switch board, one for each supply and their normal position is down and when tripped it goes UP].
In case of failure of both AT supplies without any power block the local supply shall be utilized by operating the changeover switch. If the circuit breaker is tripping even after resetting, no attempt shall be made to hold it by any means and a message shall be given to concerned SSE [Elect.] and SSE/PSI [OHE] for prompt rectification.

iv). Whenever there is failure of power supply in one AT the SM on duty shall take prompt action to inform to all concerned for rectification.
The on duty SM himself during each shift shall check & test the availability of power supply on both ATs and make an entry in the station dairy duly initiating for rectification of failure if any.

v). For IPS system that provides supply to EI, a manual changeover switch is provided at SM's Office with the two power supply viz., selected supply from CLS panel and DG supply for changing the switch to required supply position manually.

vi). Normally manual changeover switch is kept in selected supply from CLS panel position, if in case any emergency changeover switch is changed to DG supply position.

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

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

Power supply to the signaling installation is fed through Integrated Power Supply System [IPS] installed in the S&T power supply room. For IPS system, a manual changeover switch is provided at SM's Office with the two power supply viz., selected supply from CLS panel and DG supply for changing the switch to required supply position. Normally manual changeover switch is kept in selected supply from CLS panel position, if in case any emergency changeover switch is changed to DG supply position. There is a remote monitoring ASM box provided at the station to monitor the health of IPS.

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

In the event of failures of all the sources of 230V 50HZ AC supply, the signaling system shall be fed by backup battery bank connected to IPS for a limited power of 8 to 10 hours. The health of the battery bank is monitored through one IPS Monitoring Panel provided in the SM's room which shall display the voltage of 110V DC battery bank provided as backup source of power supply.

Depending up on the health of the battery bank and the system the following indications/alarm will appear on the remote monitoring panel. The indications/alarm, their implications and action to be taken by SM on duty is tabulated below:

SN	Instruction	Health of Battery Bank/Equipment	Visual Indication	Audio Indication	Action to be taken by SM on duty
A	-	50% DOD	Red	Alarm	Alarm shall be acknowledged by SM on duty.
B	-	60% DOD	Red	Alarm	-do-
C	System shutdown	70% DOD	Red	Alarm	Signal feed cut off and all DC-DC converters to Work. Audio alarm will continue till power

SN	Instruction	Health of Battery Bank/Equipment	Visual Indication	Audio Indication	Action to be taken by SM on duty
					Supply is restored.
D	Call S&T staff.	Equipment fault.	Red	Alarm	Failure of any module will give the alarm in ASM's panel. Alarm shall be acknowledged by SM on duty for audio cut off.

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

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

30. Working of Automatic Fire detection and Alarm System:-

- In case of any Alarm Zone Number on the LCD Display chart can be seen
- Note down the Zone number and Panel Display name by referring display chart
- Then open the keypad and press the 'Off' button and enter the code 1111 (1 digit Four times)
- Automatically it will get reset
- Once you find the Zone number rush to the particular area where the detector gives alarm
- The moment the detection detects any smoke particles, the RED Led will blink along with the Alarm.
- Once you reach the area where the detector gives the Alarm, Check whether the alarm is due to the Fire or for any other reason.
- To alert the people in case of emergency, press * sign which is present inside the keypad together for few seconds. This will enable you to hear the panel alarm.
- To rest the panel, press 'Off' button and enter the code 1111 (1 digit Four times)
- If the power fails on this will enable us to see the Red indicator on the panel.
- In case of failure in power and if the battery is fully charged, the panel can function effectively as long as the charge in the battery is present.

Auto Dialing:-

If you here any alarm from the panel, this system will dial to the telephone/mobile numbers that you fed. The pre recorded messages will be heard on the phone, if you want to make a two way communication for 50 Seconds or you want to talk more , press again "6" before 50 Seconds for another 50 Seconds Or you can acknowledge the receipt of call by pressing "2" on SSW/Signal mobile, in case number "2" is not pressed the system will dial again the same telephone number as per the programmed dial attempts and still if acknowledgement not came from 1st number then panel will dial 2nd number till the time acknowledgement comes it will keep on dialing.

APPENDIX 'C'

ANTI COLLISION DEVICE [[RAKSHA KAVACH]:

-NIL-

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APPENDIX 'D'
DUTIES TO BE PERFORMED BY THE STAFF AT NAKTI SEMARA STATION:

STATION MASTER (IN CHARGE):

The duties prescribed in OM 2015, Para no. 2.02 (a) to be followed in addition to the duties prescribed below.

i) He shall come on duty after taking complete rest and shall not perform his duty under the influence of liquor, drugs or intoxicants.
ii) He shall handle the block instrument himself when on duty and shall not permit any unauthorized person to manipulate or handle the block panel/block instrument and block telephone.
iii) He shall keep the station master's control keys of block instruments in his personal custody whenever, he is required to leave his office even for a short duration.
iv) He shall maintain TSR and other connected record/documents in good Shape and ensure that all entries are completed and are up to date.
v) He shall attend the control and given arrival departure of trains promptly and shall carry out instruction given by superiors provided these do not Violate safety rules & procedures.
vi) He shall inform the Technician/JE/SE(Sig) through a written message, any failure of signal or block working etc. and invariably enter these failures in Signal Failure Register.
vii) In case of any accident, he shall inform the Section Controller & Station Manager/Station Superintendent immediately. He shall give all the information available with him in regard to the nature, places, cause and assistance etc. in respect of the accident.
viii) He shall communicate reasons for late start of outgoing trains and late arrival of incoming trains to control.
ix) He shall keep his reference books (trains working manuals) up to date,Posted with latest correction slips and shall keep himself fully conversant with the extant rules. He shall keep his books readily available for Inspection when asked to do so.
x) He shall not absent himself from duty without prior permission of his superiors. He shall not leave his duty unless properly relieved by his reliever and shall not exchange his duty without prior permission of his superiors.
xi) He shall not consider himself relieved of duty unless, he has completed transactions of trains for which he has given /obtained line clear till the complete arrival of such trains.
xii) He shall always obey the lawful orders of his superiors so long as they do not contravene any of the extant rules in force.
xiii) In case of any abnormal working, he shall also perform the duties assigned to VDU ASM/SM.

STATION SUPERINTENDENT /STATION MASTER:

He is responsible for trains passing during his shift as per OM 2015 Para No.2.02 b) and 2.02 c).

i) He shall come on duty after taking complete rest and shall not perform his duty under the influence of drugs or intoxicants.
ii) When on duty or when called upon to do so, in case of emergency, he shall be responsible for obtaining and granting line clear to trains as per SWR &G&SR.
iii) He shall handle the control panel himself when on duty and shall not permit any unauthorized person to manipulate panel.
iv) He shall keep the SM's control panel in his personal custody whenever, he is required to leave his office even for a short duration.

v) While coming on duty, he shall ensure that all points and signals are in good working order and all the registers, records, pertaining to train passage are completed in all respect before taking over the charge.
vi) He shall personally ensure that conditions for taking 'off' the reception signals are fulfilled and the clearance of line is verified as per SWR before actually pressing the relevant button for taking off the signals.
vii) He shall ensure from indications available in the panel that the signals are burning brightly and are giving correct indications.
viii) He shall ensure that proper indications of points, signals, track circuits crank handle, level crossing gate etc., are displayed at their proper places.
ix) He shall ensure that all Shunting operations are carried out as per extant orders and GR 5.19 and SRs thereof.
x) He shall inform the Technician/JE/SE (Sig) in writing or through a written message, any failure of track/signals/points/keys or panels etc. and shall invariably enter these failures in Signals Failure Register.

TRAFFIC POINTSMAN/TOKEN PORTERS:

He shall work under the orders of SS/SM on duty as per OM 2015 para No.2.02 f).

i) He shall obey all lawful orders of the SS/SM on duty or official in- charge supervising the shunting during the course of shunting operations including coupling or uncoupling of vehicles, wagons, fixing rubber washers, closing wagon doors, displaying hand signals etc.
ii) He shall exhibit danger signal to the official supervising the shunting if vehicles are fouled during the shunting operation.
iii) He shall pilot the trains in case of abnormal working and when ordered bythe SS on duty.
iv) He shall be in proper neat and clean uniform while on duty.
v) He shall come on duty after taking complete rest and shall not perform duty under the influence of liquor, drugs, or intoxicants.
vi) Neither shall he absent himself from duty nor shall he exchange his duty without prior permission of his superiors.
vii) He shall not leave his duty unless properly relieved or authorized by his superiors.
viii) He shall set the points properly in non-interlocked yard and man them for all shunting movements and shall not interfere with the points while the vehicles are standing and or passing over them.
ix) He shall be responsible to see that fouling marks are kept clear after completion of shunting.
x) He shall always commence his duty equipped with hand signal lamps during night and flags during day.
xi) He shall verify the correct setting of route before delivering required papers to the Loco Pilot either though taking 'OFF' the relevant shunt signal or by personal observation.
xii) In case of track failure he shall assist the SM to ascertain the clearance of line.
xiii) He shall be responsible for lighting up of the indicators in the evening and putting out in the morning time fixed by DRM office and ensures that these are burning brightly at night.

APPENDIX 'E'

ESSENTIAL EQUIPMENT:

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

Sl. No	Description	Station
1	Detonators	20
2	Battery operated LED Based Flashing Hand Signal lamps	3(1 spare)
3	Hand Signal Flags	3(1spare)sets
4	Safety chains with Pad locks	6
5	Clamps with Padlocks	8
6	Fire Extinguishers DCPT	2
7	Fire & Sand buckets	5
8	First Aid Box	1
9	Stretcher	1
10	Blanket	1
11	Iron skids	8

APPENDIX 'F'

WORKIG OF D.K.STATIONS, HALTS, IBS

AND

OUTLYING SIDINGS: