NORTH CENTRAL RAILWAY
AGRA DIVISION

Station Working Rules
No. AGRA/

Date of issue: -
Date brought in force: - 25.05.2023

ACHNERA JN . CABIN ( )

NOTE: - The Station working rules (SWR) must be read in conjunction with General & Subsidiary Rules and Block Working Manual. These rules do not in any way supersede any rule in the above books a copy of which must always be in possession of the SM on duty.

1. **STATION WORKING RULES DIAGRAM:**
SWR Diagram No.D-1108 dated 29.03.2022 based on CSTE/N.C. Railway and Signal Interlocking Plan No.SI-1108 dated 30.08.2021.The track accommodation is shown in the Station Working Rule Diagram.

2. **DESCRIPTION OF STATION:**
It is a 'B' class single line, interlocked standard-II (R) with Multiple aspect colour light signals and provided with VDU solid state interlocking (VDU) in SM's office.

2.1. **GENERAL (LOCATION):**
ACHNERA JN . CABIN is a 'B' class station on the ACHNERA–MATHURA BHARATPUR-MATHURA single line electrified B.G.section of North Central Railway on D route, It is situated at KM 12.145 from Parkham ,8.58 Kms. from Chiksana and 0.992 Kms from Achnera.

2.2 **BLOCK STATION IBH,IBS ON EITHER SIDE AND THEIR DISTANCES AND OUTLYING SIDINGS: -**
ACHNERA JN . CABIN is situated between Achnera and Chiksana on IDH-BTE single line at a distance of 0.992 Km and 8.58 Kms respectively and Parkham on AH-MTJ single line at a distance of 12.145 km.

2.2.1 **D & DK Class station if any between block section –**

KHEDA SADAN is a 'D' class station on ACHNERA JN . CABIN -PRK section at a distance of 5.438 Kms from ACHNERA JN . CABIN

2.3. **BLOCK SECTION LIMITS ON EITHER SIDE AND THEIR DISTANCES:**

Between stations	The point from which the 'Block section commences	The point from which the 'Block section 'ends
ACHNERA JN . CABIN -CIK	UP advanced starter signal No.2 of ACHNERA JN . CABIN	DN advanced starter signal No.S49 of CIK
ACHNERA JN . CABIN -PRK	DN advanced starter signal No.4 of ACHNERA JN . CABIN	UP advanced starter signal No.1 of PRK

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2.4. GRADIENT, IF ANY:

i) Fallling gradient of 1 in 900 from KM-381.748(from PRK side towards AH) upto KM-384.148 further level up to KM-385.148,Falling gradient of 1 in 400 up to KM-385.454 further Falling ~~gradient of 1 in 730~~ towards Achnera .

ii) Falling gradient of 1 in 430 from Km 27.334(from AH side towards Chiksana) upto KM-27.512 further rising 1 in 630 up to KM-28.082,Rising gradient of 1 in 335 up to KM-28.238 further Falling gradient of 1 in 630 upto KM 28.595 further rising gradient of 1 in 490 upto KM 29.279 further rising gradient of 1 in 378 towards Chiksana .

2.5. LAY OUT: The lay out consists of one UP & DN loop line(line no 03) connecting to two main lines, namely UP and DN main line(line no 01) to CIK and UP and DN main line (line no 02) to Parkham are the running lines .

2.5.1 NON-RUNNING LINES AND THEIR CAPACITY IN CSR:

N/A

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

Running Line Number	Clear Standing Length In Meters. (CSL)	Remarks.
Line No.1	645 Meters	UP CSL S20(AH) to S6
	585 Meters	DN CSL LC-20 to S19(AH)
Line No.2	630 Meters	Between S17 to S10
Line No.3	736 Meters	Between S10 to S12

2.5.3 ANY SPECIAL FEATURE IN THE LAY OUT : NIL

2.6 LEVEL CROSSING GATES: - The class and situation of the level crossing gate ahead the station and the staff responsible for operating are indicating below.

Description	20 "A"	21
Classification	"A"(Engg)	"C" (Engg)
Section	ACHNERA JN . CABIN - CIK	ACHNERA JN . CABIN -CIK
MG/BG	BG	BG
Kilometers	385.581	29/5-6
NI / INT	INT	NI
Normal position	Open	Closed
L.B./ Leaves	POLB.Sliding boom	L.B
Telephone with	SM AH JN. Cabin	Secured communication with SM AH JN. Cabin
Operated by	Traffic G. man	Engn. G .man

NOTE:-For detailed instructions for working of level crossing gates. See appendix 'A'

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3 **SYSTEM AND MEANS OF WORKING:**

TRAINS ARE WORKED ON :-

System of working in force-

a) Single line Block proving axle counter panel block instruments along with HASSDAC with station to station telephone are installed in the station master office for working the trains between **ACHNERA JN . CABIN - CIK.**

b) Single line Block proving axle counter panel block instruments along with HASSDAC with station to station telephone are installed In the station master office for working the trains between **ACHNERA JN . CABIN - PRK.**

c) Block working by means of continuous track circuiting, slotting and telephone are provided between **ACHNERA JN . CABIN – AH.**

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

4.1

i) Standard of interlocked is STD-II (R).

ii) **ACHNERA JN . CABIN** is equipped with manually operated multiple aspect colour light signaling. Points and signals are operated by VDU.

iii) Track circuits have been provided at this station as per SWR diagram attached.

iv) Point indicators are provided as per diagram attached.

v) Electronic interlocking is provided at this station VDU is provided in SM's office

vi) Calling 'ON' Signals are provided below UP Home signal No.S3 and DN Home signal No.S1.

vii) Digital Axle counters are provided near UP and DN Advance starter signals for clearance of block section

viii) Crank handle is provided in the SM office for manual operation of motor points. The key of the location box shall be in personal custody of the SM on duty. The details of operation are given in Appendix 'B'. .

The combined control VDU panel and illuminated diagram has been provided in the SM's office. This depicts schematic re-production of track layout, signals and points. Control by VDU. Adjoining track circuits have been shown in different colors. Indication regarding setting of points, routes, occupation of track circuits and the signal aspects are provided on the VDU. The detail procedure of operation of signaling gears through VDU is given in Annexure Appendix-B

TRAPS:-

NIL

4.1.1 **MICROLOCK SYSTEM INDICATOR: -** Please see in Appendix-'B'

4.2 **CUSTODY OF RELAY ROOM KEY AND PROCEDURE FOR ITS HANDING OVER AND TAKING OVER BETWEEN STATION MASTER AND S&T MAINTENANCE STAFF:** - Whenever relay room is required to be opened for maintence/attending failure etc.the following procedure shall be observed:

(1) The relay room shall be kept locked with double lock, i.e. one pad lock of station master and other of an authorized S&T staff. Such key of the SMs padlock must be kept with SM on duty and shall be given to the authorized S&T staff when required.

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(2) During the period when the key of the relay room is with the S&T staff, the station staff concerned should pre-warn the S&T officials regarding the movement of trains.

(3) S&T staff while carrying out maintenance work /inspection etc. in the relay room will be personally responsible to ensure that no unsafe practices are adopted.

(4) When the key of relay room is handed over to the S&T staff at the time of any failure of signal/S&T gear, the Station Master should remain extra vigilant and in case of failure of any S&T gear, the rule prescribed for reception /dispatch of trains at the time of failure of signal/points should be strictly followed.

(5) When the key of relay room is received back from the railway servants of signal department, the SM on duty should ensure personally that the relay room is properly locked.

4.3 POWER SUPPLY:-

a) SOURCES OF POWER SUPPLY FOR SIGNALING ARE AS UNDER:-

i) Local supply (UPPCL).
ii) Auxiliary transformer 'AT' supply.
iii) Integrated power supply

Power supply for signaling system and for VDU of this station is provided through the Local supply (UPPCL) and AT supply main switch provided on a switch board in ASM room .The availability of these two supplies is indicated by two pilot lamps glowing and fitted on the switch board. Whenever UPPCL supply fails signaling load will be switched over to Auxiliary transformer 'AT' supply. 'AT' supply fails signaling load will be switched over to integrated power supply. Whenever both these supplies are not available a indication panel provided in SM's room indicating the health of battery and the action required to be taken by SM.SM must immediately take action and inform ESM/JE/sig. and electrical staff as early as possible.

b) Failure of Power supply: - Please see in Appendix 'B'

5. TELECOMMUNICATION : -

Available telecommunications facilities at ***ACHNERA JN. cabin*** station are:-

i) Block Telephone attached with Block Instrument.
ii) Section Control.
iii) Auto /Dot Telephone –BSNL Telephone/Auto.
iv) Magneto Telephone with the cabin/gate – Telephone provided with gates.
v) IBS Telephone with IBS at Km.- Not available
vi) Telephone with Axle Counter reset boxes - Not available.
vii) Telephone for yard communication - Not available.
viii) VHF set
ix) Mobile Train Radio Communication (MTRC) - Not available
x) Railway Auto Telephone.

When line clear cannot be obtained by any one of the above means stated in order of preference. Trains will be worked in accordance with the procedure as laid down in SR 6.02/4 of G & SR.
(Details of working have been given in Appendix 'B')

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6. SYSTEM OF TRAIN WORKING: -

6.1 DUTIES OF TRAIN WORKING STAFF: -

See Appendix 'D' for the duties of train working staff.

6.1.1 TRAIN WORKING STAFF IN EACH SHIFT:-

i)	SM/ASM (VDU operator)	-1 (As per duty roster)
ii)	Points man	-2 during night and one during day in 12 hrs shift as per roster
III)	Gateman	-1 As per duty roster.

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

a) 'During the course of normal working, the clearance of all the lines and the path to be used by running train prior to its reception/dispatch shall be ascertained by the station master on duty through the track circuit indicators provided on the VDU.

b) SM/ASM is responsible for ascertaining clearance of all lines through VDU panel indication when working otherwise physically.

6.1.3 ASSURANCE OF STAFF IN THE ASSURANCE REGISTER: -

Every train passing staff posted newly at the station or leave reserve staff at the station or regular staff who has resumed his duties after more than 15 days absence must go through station working rules in force and give assurance in the prescribed Assurance Register.

6.2 CONDITION FOR GRANTING LINE CLEAR ON DOUBLE LINE:-

Not applicable.

6.2.1 CONDITION FOR GRANTING LINE CLEAR ON SINGLE LINE:-

1. On single line towards CIK/PRK/AH, The line shall not be considered clear and line clear shall not be granted by the Station Master on duty, unless:

a) The whole of the last preceding train has arrived complete.

b) All necessary signals have been put back to 'on' behind the said train; and

c) The line is clear -

(i) For train coming from CIK side–line must be clear up to the UP advanced starter signal No.2 for DN train (See GR 8.01)(1)(a) and (c) and 8.03(2).

(ii) For train coming from PRK side – line must be clear up to the DN advanced starter signal No.4 for UP train (See GR 8.01)(1)(a) and (c) and 8.03(2).

(iii) For train coming from AH side – line must be clear up to the UP starter signal No.6 and an adequate distance beyond it (for Train going to CIK side) for an UP train or upto DN starter signal No.12 and an adequate distance beyond it (for Train receiving on line no.3) for an DN train as the case may be (See GR 8.01)(1)(a) and (c) and 8.03(2).

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

6.2.2.1 Setting of points against block line;-

When a running line is blocked by a stabled laid wagon, vehicle or by a train which is to closed to crossing or given precedence to other train or immediately after the arrival of a train at the station, the points at either end of single line section should be immediately set against the blocked line except when shunting or any other movement is required to be done immediately in that dissection on that line.

6.2.2.2 Reception of train on blocked /obstructed line: -

1) In case of reception of train on an obstructed line, the Station Master shall-

a) Whenever possible, intimate the Loco Pilot through the stationmaster of the station in rear that the train is to be received on an obstructed line.

b) Ensure that the signal or signals controlling the reception of the train are not taken 'off', and

c) Ensure that the points over which the train has to pass are correctly set and the facing points locked.

2) After the train has been brought to a stand at the relevant stop signal, it may be received on the obstructed line by-

a) Authorizing the Loco Pilot to pass the stop signal at 'on' by taking 'off' the calling - on signal, where provided, or

b) Authorizing the Loco Pilot on signal post telephone, where provided, to pass the stop signal at 'on' in accordance with special instructions, or

c) Authorizing the Loco Pilot to pass relevant signal or signals at 'on' through a written authority to be delivered by competent railway servant who shall pilot the train past such signal or signals.

3. The train shall be brought to a stand at the facing points leading to the reception line until hand-signaled forward by a competent railway servant.

4. A stop hand signal shall be exhibited at distance of not less than 45 meters from the point of obstruction to indicate to the Loco Pilot as to where the train shall be brought to a stand.

5. The Loco Pilot shall keep his train well under his control and be prepared to stop short of any obstruction.

6.2.2.3 Dispatch of train from line provided with common starter signal:-

Not applicable

6.2.2.4 DURING SHUNTING :

If any shunting is being performed in station yard then before authorizing the reception signals to be taken off, the SM must ensure that shunting operation do not obstruct the line on which the reception of train is being done as per GR 8.05.

6.3 CONDITION FOR TAKING OFF APPROACH SIGNAL: -

Before the home signal is to be taken 'Off' by the SM on duty for reception of trains, the following conditions must be complied with: -

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1. All the facing points over which the train will pass are correctly set and locked.

2. All the points on which the train will pass are correctly set.

The SM on duty shall not take signals 'OFF' to admit a train until:-

(1) He has seen by referring to the VDU that the line on which the train is to be received is clear as given below-

(A) FOR RECEPTION OF UP TRAIN :

(i) ON LINE NO.1 towards CIK from AH:

The must be clear up to track circuit no-06T

(ii) ON LINE NO.2 towards AH from PRK:

The must be clear up to track circuit no-C17T(AH), and slot has been taken from AH for 'B'route with point Nos. 202a/b in normal position.

(iii) ON LINE NO.3 towards CIK from PRK:

The line must be clear up to the track circuit no-08T on line no 3 with point Nos. 202a/b in reverse and 201a/b in normal position.

(B) FOR RECEPTION OF DOWN TRAIN:

(I) ON LINE NO.1 towards AH from CIK:

The must be clear up to track circuit no-C19T(AH), and slot has been taken from AH for 'A'route with point Nos. 201a/b in normal position.

(ii) ON LINE NO.3 towards PRK from CIK:

The line must be clear up to the track circuit no-202aT on line no 3 with point Nos. 201a/b in reverse and 202a/b in normal position when overlap set to dead end .If overlap set to main line the line should be clear up to Dn advance starter S-4 with point 202a/b and 201a/b in reverse.

(iii) ON LINE NO.2 towards PRK from AH:

The line must be clear up to the track circuit no-202bT on line no 3 with point 202a/b in normal position .

(1) The level crossing will be worked in accordance with the instructions given in Appendix 'A'.

(2) After ensuring that the reception line is clear and free from obstructions as mentioned above, the SM on duty will take 'OFF' the Home signal for the admission of the train.

6.3.1 Responsibility of station master for restoration of signals to 'ON': -

Immediately after the train passed reception signals completely, the SM on duty will ensure that the signals taken 'OFF' for the train are restored to 'ON' position as per Para No.SR 3.36(2) of G & SR.

6.4. Simultaneous Reception/Dispatch, Crossing and Precedence Of Trains:-

This station is single line. The following simultaneous movements are permitted at ***ACHNERA JN. cabin*** station:-

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(A) While a train(from CIK) is being received on Line No.1 , a train from Line No.3 can be dispatched to PRK & a train from Line No.2 can be dispatched to PRK or AH.

(B) While a train(from CIK) is being received on Line No.3 , a train from Line No.1 can be dispatched to AH & a train from Line No.2 can be dispatched to PRK or AH.

(C) While a train(from PRK) is being received on Line No.3 , a train from Line No.1 can be dispatched to AH or CIK & a train from Line No.2 can be dispatched to AH.

(D) While a train (from PRK) is being received on Line No.2 , a train from Line No.1 can be dispatched to AH or CIK & a train from Line No.3 can be dispatched to CIK.

(E) While a train(from AH) is being received on Line No.1 , a train from Line No.3 can be dispatched to PRK or CIK & a train from Line No.2 can be dispatched to AH or PRK.

(F) While a train(from AH) is being received on Line No.2 , a train from Line No.3 can be dispatched to CIK or PRK a train from Line No.1 can be dispatched to CIK or AH.

6.5. <u>COMPLETE ARRIVAL OF THE TRAINS</u>:

Where in a section, a block proving axle counter or continuous track circuiting between block stations and complete track circuiting of station section excluding non-running lines of the receiving station is installed and is functioning and there is clear indication of clearance of block section as well as complete arrival of the train as per indication given, it would be taken as assurance for complete arrival of the train to the station master. If a block proving axle counter or continuous track circuiting between block stations and complete track circuiting of station section is failed, the following procedure shall be adopted.

Before giving the 'Train out of section' advise to the station in rear on arrival of a train, the SM on duty will satisfy himself that the train has arrived complete or passed with the Tail Lamp/Tail Board, on the last vehicle in the manner as indicated below:-

i) The SM /ASM on duty is responsible for giving 'Train out of section ' by seeing the indication of clearance of block section as well as complete arrival of train provided on the panel. In addition, if the complete arrival of train inside the

fouling mark can not be ascertained by personal observation /clear indicatio on the panel. The SM/ASM must ascertain the complete arrival of train in the manner indicated in SR 4.56/1(C) of G & SR and Para 4.17 of BWM.

ii) In case of DN and Up trains SM/ASM after ensuring personally that the complete train has passed with Tail Lamp/Tail board will advise to SM/ CIK/PRK and SM/AH (as the case may be) supported by a Private No. time wise ,SM CIK/PRK and SM/AH will do it and suitable entry be made in the train register.

NOTE:- Immediately after arrival of a Dn or an Up train at the station, the points should be set against the blocked line, stabled load or less important nature' etc. as per para No. 4.17 of BWM before giving 'Train out of section' Signal to the station in rear.

6.6(A) DESPATCH OF THE TRAIN TOWARDS CHIKSANA/PARKHAM:-

i) After obtaining the Line Clear on the Block Instrument for despatch of the train towards CHIKSANA/PARKHAM. SM/ASM on duty will personally verify that correct route has been set and locked. The line is clear for passage of the train up to Advance starter No.2 OR 4 (as the case may be) including its overlap track circuit

ii) The SM/ASM on duty will then take 'OFF' the departure signals.

iii) After the complete passage of the train, the signals taken 'OFF' will go to 'ON' position automatically and the red indication on VDU will get extinguished.

(B) DESPATCH OF THE TRAIN TOWARDS AH:-

i) After obtaining the Line Clear by Slotting for dispatch of the train towards AH, slot indication is available on the VDU and SM/ASM on duty will personally verify that correct route has been set and locked. The line is clear for passage of the train up to signal No.S17 (AH) or/and S19 (AH) including its overlap track circuit.

ii) The SM/ASM on duty will then take 'OFF' the signal No.1 or/and 3.

iii) After the complete passage of the train, the signals taken 'OFF' will go to 'ON' position automatically and the red indication on VDU will get extinguished.

6.7 TRAINS RUNNING THROUGH:

i) A train is ordinary be allowed to run through the station over the main line only.

ii) If a train passes the station with out Tail lamp/tail board, being visible to the SM, he must not send 'Train out of section' signal to the station in rear but send 'Train passed with out Tail board to the station in advance.

6.8 Working in case of failure:-

a) FAILURE OF SIGNALS:

When any signal becomes defective, the relevant points if in facing direction shall invariably be correctly set clamped and pad locked and the procedure laid down in GR 3.68, 3.69, 3.70, 3.71 3.76 and SRs their under must be followed.

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b) FAILURE OF POINTS:

When any point is defective and indication is not available on the VDU, action as per SR 3.77/1 must be complied with i.e. point should be reported and inspected for any obstruction etc.and S&T staff should be advised. No movement should be permitted over the point unless it is correctly set, clamped & padlocked under personal custody of the SM on duty as per SR 3.68/1(d) of G&SR (SR 3.51/4 should also be followed).

c) FAILURE OF TRACK CIRCUITS: -.

In case of failure of track circuits /axle counters the trains shall be received by taking 'OFF' Calling ON signals and the SM/ASM will personally verify the clearance of lines.

d) WORKING OVER DAMAGED POINTS :-

Whenever points, crossing or guardrails are defective or damaged, the railway servant in charge of operation of points shall protect them and immediately arrange to report the circumstances to the stationmaster. (SR. 3.77/1 & 3.77/2 must be complied with.)

e) Failure to read the occupation of line by trolley or light engine: -

After passing the trolley or light engine from station on duty Station Master is responsible to verify the clearance of line by physical observation.

f) FAILURE OF BLOCK INSTRUMENTS: -

single line block proving axle counter panel block instrument installed for working the train between ***ACHNERA JN. cabin*** **-Parkham** & ***ACHNERA JN. cabin*** **-Chiksana** in case failure of Block instrument trains shall be worked as per procedure laid down in Block working Manual (Single line) and G&SR No.14.13 when Block instrument in out of order . Last stop signal shall be treated as defective SM on duty shall hand over PLC to the driver in such situation .

(Details working to please see in Appendix "B")

g) FAILURE OF AXLE COUNTER:-

1. When at reset box clear (Green) indication is available but block section Including over lap is not clear.
2. When at reset box occupied (RED) indication is available but block section Including over lap is clear.
3. When at reset box no indication is available.

6.9 PROVISIONS FOR WORKING OF TROLLEYS/MOTOR TROLLEYS MATERIAL LORRIES:-

Some of the precautions such as given below –

(i) The section where axle counters are provided in lieu of track circuits, Trolleys, Motor trolley, Lorries etc., which are not insulated, shall not be allowed to run except on the line clear.

(ii) Motor Trolleys/Tower Wagon/Material Lorries are not likely to actuate Axle counter correctly. When they are to run over the section split by axle counters, the whole section to be treated as one and next train to be started after the last train has arrived complete.

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(iii) In all other respects the working of a light Motor trolley shall conform to the rules laid down for ordinary trolleys while running without block protection and to these laid down for motor trolleys while running under block protection or following another light Motor trolley or a Motor trolley.

(iv) Any other restriction on movement of trolleys/motor trolleys/material lorries/tower wagon etc.

Provisions of GR 15.18 to 15.28 and SRs there under be followed for working of Motor Trolleys / Material Lorries etc.

7. **BLOCKING OF LINES** : the running lines shall not be blocked normally except in case of emergency . however, whenever it becomes necessary to stable a load or wagon on track circuited lines , the SM on duty must see that not less than 2 bogies or 4 four wheeler are stabled , if however , such short load becomes absolutely unavailable to be stabled the SM on duty must ensure that "track occupied" indication is obtained on the VDU at its relevant place, In case such indication does not appear on the VDU, the SM on duty shall treat the concerned track circuit as defective. entries shall be made in train signal register showing the time of line blocked/Released , if the line remains blocked till the time of change of duty, the fact shall be mentioned in the station diary and train signal register . the entries shall be initiated by the reliving SM.

Note- concerned line should by also blocked by VDU progress, the SM on duty shall ensure that the points leading to that line are set against the occupied line. clamped/cotter bolted and padlocked retaining the key in his personal custody till the raid line is cleared so that the points would not set for the occupied line even , if inadvertent by operated.

8.0 **SHUNTING:**

8.1 **GENERAL PRECAUTIONS:**

(a) All shunting should be performed under personal supervision of Guard of the train/SM/person in charge of shunting.

(b) T-806 must be issued to the Guard and Driver of the train for all shunting operations prior to commencement of shunting.

(c) Shunt signal must be taken 'OFF' for shunting operation of concerned line whenever possible.

8.2 **SHUNTING IN THE FACE OF APPROACHING TRAIN:**

8.2.1 Shunting in face of an approaching train is permitted up to Advanced Starter signal provided that-

(i) All necessary signals are kept at 'ON' position,

(ii) Weather is clear.

(iii) Shunting is supervised by a competent railway servant,

When shunting as above is permitted under GR. 8.09, the Station Master on duty acknowledgement of Guard and Driver of the train: -

(a) Limits of the Shunting.

(b) Details of work to be done.

(c) Running and other lines involved in the movement,

(d) Approximate time up to which shunting is permitted.

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8.3 PROHIBITION OF SHUNTING, SPECIAL FEATURES IF ANY:
Nil

8.4 SHUNTING ON SINGLE LINE:

8.4.1 WITHIN STATION SECTION:
If the necessary signals are kept at ON, shunting may be carried on within station section even after granting line clear to an approaching train as per GR.8.10 of G&S Rules.
Shunting within the Station Section shall not be permitted if line clear has been granted in thick foggy or tempestuous weather and impaired visibility.

8.4.2 SHUNTING OUTSIDE STATION SECTION:

8.4.2.1 Shunting in face of an approaching train beyond station section is not permitted.

8.4.2.2 Shunting in the Block section in rear shall only be permitted when it is clear and the section has been blocked back vide GR. 8.01 (c) and 8.01 (2).
In case of shunting in Block Section between AH JN-CIK the Level Crossing Gate No. 20A & 21 shall be ensured through the last entry in the log book of the Station Master in respect of L-Xing that it is not lying open to road traffic.

8.4.3 All the signals shall be kept in 'ON' Position except Shunt signals, which shall be taken 'OFF' for shunting purpose. The occupation key for the concerned Section shall be taken out and handed over to the Driver. When shunting is completed shunting key shall be taken back from him. The Driver shall be authorized to pass the relevant Advanced Starter signal in 'ON' position by an endorsement on Shunting order (T-806). Suitable entries to this effect shall be made in Train Signal Register and log register of Station Master.

8.4.4 DURING FAILURE OF BLOCK INSTRUMENT ON SINGLE LINE:
In case of failure or suspension of Block instrument, the use of Shunting Key for shunting purpose shall remain prohibited until normal Block working is resumed.
In such case, before permitting any shunting in the block section, the line shall be blocked back as given in the Block Working Manual and relevant entries shall be made in the train signal register in red ink. Thereafter the Driver shall be given a
specific written authority on Shunting Order i.e. T-806, duly endorsed 'Block instrument failed/suspended. Line between ..... and ..... stations has been blocked back & Private Number ..... received from..... Station'.
The SM on duty will withdraw the written authority before giving 'Line Clear' for a train to approach from the direction referred to thereon.

8.5 SHUNTING ON DOUBLE LINE:
Not applicable.

8.6 SHUNTING IN THE SIDING TAKING 'OFF' FROM STATION YARD/GOODS SHED:
Not applicable.

9. ABNORMAL CONDITIONS:-

(a) **The Rules to be observed in the Event of abnormal Conditions.**
(The Procedure to be followed for working trains during abnormal working).

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i. During partial interruption/failure of Electrical communication instrument; SR.6.02/3 of G&SR must be followed.

ii. The authority to proceed in the occupied Block section in case of obstruction of line or accident; GR.6.05 and SR 6.05/1 & SR 6.05/2 must be followed.

iii. Trains delayed in Block section SR.6.04/1 must be followed.

iv. Failure/passing of intermediate block stop signal at 'ON' -Nil.

v. Failure of Axle Counter Block/BPAC as per Para 7.29 of BWM. (Details working to please see in Appendix 'B'.

vi. **Failure of MTRC**: - Nil

(b) **PROCEDURE FOR EMERGENCY OPERATION OF POINTS BY CRANCK HANDLE.**

MANUAL OPERATION OF MOTOR POINT & CUSTODY AND USE OF CRANK HANDLE:-

i) Crank Handle has been provided at this station for manual setting of Motor operated points during failures or maintenance. This Crank Handle shall be kept in SM office specially provided for the purpose. This case will be locked and the keys kept in the personal custody of the SM/ASM on duty. The crank handle box will be sealed by the ESM of the section in addition to the locking by SM.(Detailed working please see in Appendix 'B').

ii) **Procedure for Emergency operation of point with point zone Axle counter /Track circuit failure and emergency route release:-**

Procedure laid down in GR 3.37, GR 3.39 and SR these under should be complied with).

c) **Certification of Clearance of Track Before Calling on signal operation is initiated:-**

Before taking off Calling-on signal during failure of track circuits/Axle counter, the route and the clearance of the track over which train would pass to be verified by SM/ASM physically. The SM on duty after verifying the clearance of the defective track circuit set and locked the correct required points and requisite route and the issue T/369(3b) to the loco pilot.

d) **Reporting Failure of points, Track Circuit/Axle counter and Interlocking** :-

Whenever there is failure of signals, calling 'on' signals, points, track circuits/Axle counter or any other Interlocking gear at the station, the failure should be reported by SM/ASM 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/ASM should restore the normal working.

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

NOTE: - In the case of disconnection /defective points, the setting of the other end or ends where the work is/are not carried out, will be done by the SM on duty.

9.1 TOTAL FAILURE OF COMMUNICATIONS:-

In the event of total interruption of communications occurring between CIK/PRK/AH & AH JN Cabin i.e. when line clear can not be obtained by any of the following means namely:-

i) Telephone attached to Axle Counter/ single line Block proving axle counter panel block instruments.

ii) Station to station fixed telephone, wherever available.

iii) Fixed telephone such as railway, Auto phone and BSNL phones

iv) Control telephones.

v) VHF set.

The train shall be worked as under:

a) All trains are to be stopped at the station, Guard and Loco Pilot of the train should be advised of the circumstances.

b) The station master shall give following authorities to Loco Pilot of each train for working of trains during total interruption of communication on T/B602 on single line section.

i) An authority to proceed without line clear.

ii) A caution order, specifying the speed up to, which the engine or self propelled vehicle or other vehicle may be seen to the affected block station.

iii) An Authority to pass last stop signal in the ON position in case the last stop signal is the starter in additional to written authority , green hand signal shall also be shown at the foot of this signal .

iv) A line clear enquiry message addressed to the SM of the block station at the other end of the affected block section asking for line clear for the trains waiting to be dispatched to the station.

v) A condition line clear message to the SM of the block section at the other end of the affected block section permitting him.
a) to return the right engine /train engine , either light or attached to a train waiting to be dispatched from his station, or attached with another engine ,
or
b) to return Tower wagon / Diesel car/Rail mortar car / EMU rake/RRV running by itself
or
C) to return mortar trolley /Cycle trolley/moped trolley either running by itself or loaded in a train waiting to be dispatched from his station.
iv) Provision of SR-6.02/4 must be complied with

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NOTE: -

(1) Fixed telephone (Rly Auto phone and BSNL telephones should be alternative) In case of failure of block instrument as well as block telephones is not working than VHF set should be used for obtained / granting line clear.

(2) The system of establishing the identity of the station Master on duty by cross checking private number given for line clear to preceding three trains.

(3) Provision of SR -6.02/3 and 6.02/4 must be complied with and the train should follow with an interval of 30 minutes.

9.2 TEMPORARY SINGLE LINE WORKING ON A DOUBLE LINE SECTION:

Not Applicable

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

Whenever it is necessary to send a train to assist the crippled train into the block section on 'Authority to proceed without line clear', the station master will:

i) Inform the SM at the other end of the affected section.
ii) Advise Guard and Loco Pilot of the assisting train of the circumstances.
iii) Handover the following authority (T/A 602) to the Loco Pilot of assisting train.
iv) Provision of SR 6.05/2 of G & SR must be complied with.

10. VISIBILITY TEST OBJECT:

a) Starting Signals No-S-06 & S-10 have been nominated as visibility test objects for UP & DN directions at this station.

b) **WORKING OF TRAIN IN THICK AND FOGGY WEATHER**

When ever on account of fog, dust storm or rains, the UP and DN Main Line Starting Signal are not visible from opposite the SM's office the SM on duty will immediately arrange for detonators to be placed in accordance with the provisions of SR.3.61/1 of the G & SR.

11 ESSENTIAL EQUIPMENTS AT THE STATION:

See Appendix 'E' for essential equipments at the station.

12 NAMES OF THE SIGNALMAN NOMINATED TO BE CALLED IN CASE OF FOG:

(To be filled by the Station Master)

Sr. No	Names of the Fog Signalmen	Designation	Department	Remarks

NOTE:- Only permanent staff to be nominated as fog signalmen.

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LIST OF APPENDIX

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APPENDIX `A-1' TO STATION WORKING RULES OF ACHNERA JN CABIN STATION

WORKING INSTRUCTIONS FOR INTERLOCKED TRAFFIC LEVEL CROSSING **GATE NO 20A CLASS "A"**, PROVIDED WITH TELEPHONE, WITH NORMAL POSITION "OPEN TO ROAD TRAFFIC"

These Instructions should be read together with provisions in General & Subsidiary Rules.

1. **GENERAL:**

1.1 **DESCRIPTION OF THE LEVEL CROSSING GATE:**

No.	DESCRIPTION	REMARKS
1.	Number of level crossing gate.	20A ',Class 'A'
2.	Engineering or traffic gate.	Traffic
3.	Under control of Station Master/section Engineer (P-way)	SM / ACHNEREA JN CABIN
4.	Location of KM.	CH:366.00
5.	At Station.	ACHNEREA JN CABIN
6.	In between station.	ACHNEREA JN CABIN - CIK
7.	BG/MG/NG.	BG
8.	Single/Double/Mixed line.	Single line.
9.	Normal position.	Open to road traffic
10.	Interlocked/non interlocked.	Interlocked
11.	Means interlocking.	MACLS
12.	Provision of gate signals at KM.	NIL
13.	Signaling arrangement/system of signaling (i) Up line (ii) Dn line	Interlocked with stop signals of station.
14.	Means of communication-telephone/bell etc.	Telephone with SM ACHNEREA JN CABIN
15.	Width of level crossing gate.	6.0 meters.
16.	Type of Road.(NH/SH/Others).	Others.
17.	Name of Road.	AH-MTJ
18.	Metalled/Non Metalled.	Paccka
19.	Approach Road.	Paccka
20.	Width of Road.	6.0 meters.
21.	Angle of Road Crossing (In case of skew gate).	Straight
22.	Road gradient (If any).	
	i) Toward N/E.	Level upto 8 m after that 1:20
	ii)Toward S/W	Level upto 8 m after that 1:20
23.	Road Alignment (Straight/Curve).	
	i) Toward N/E.	Straight
	ii)Toward S/W	Straight
24.	Provision of height gauge.	Yes.

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

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25.	Type of barrier.	Power operated LB with Sliding Boom
26.	Length of check rail.	8.0 Meters
27.	Road surface in between LC Gates.	Packka
28.	Length of rumble strip/speed barker.	Provided.
29.	Road Sign.	Provided.
30.	Speed braker indication board.	Provided.
31.	T.V.U.	106077,Sep--19
32.	Census next due on.	Sep--22
33.	Demarcation for placement of detonators.	Provided.
34.	No. of gateman working.	Three(08 hrs shift)
35.	Nearest Railway Medical Assistance.	AH
36.	Nearest Private Medical Assistance.	AH
37.	List of equipment available. Yes/No	Yes

1.2 EQUIPMENT

S.N.	Items	Quantity/Numbers
1	Hand Signal Lamp Tri Colour	3
2	Hand Signal Flag Green	2 Mounted on sticks.
3	Hand Signal Flag Red	3 Mounted on sticks.
4	Banner Flag Red	3
5	Posts for exhibiting red banner flag	2
6	Spare chains with padlocks	2 with stop mark.
7	Detonators	10 in plastic case.
8	LED flashing lamp (with red and green)	1
9	Gate lamps	-
10	Tommy Bar	1
11	Mortar Pan	1
12	Spade/Fowrah	1
13	Hammer (in case of Asphalted Road this may not be provided)	1
14	Pick Axe(in case of Asphalted Road this may not be provided)	1
15	Tin case for flags	-
16	Can for oil	-
17	Water pot/Bucket	1
18	Canister for Muster Roll	-
19	Set of spare spectacles of gateman wearing glasses	1
20	Board demarcating protection of level crossing gate diagram in case of obstruction on gate.	1
21	Basket	1
22	Whistle	Each Gateman separately
23	Wall Clock	1
24	Small Chain	2

Note :- Item No. 11, 12, 13, 14, 16, 18, 20 & 21 shall be dispensed with the level crossing Gate operated by Cabin Master/Cabin Man/Lever Man.

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1.3. RECORDS TO BE KEPT AT GATE LODGE :

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

1 Gate Working Instructions in Hindi/English.
2 Gateman Rule Book in Hindi / English.
3 List for tools and books.
4 Duty Roster.
5 Certificate for working as gateman.
6 Bio-data particulars of Gatemen, including date of passing vision test, initial/refresher course, safety clamp, etc.
7 Accident Register.
8 Record of last census of road traffic at level crossing gate.
9 Public Complaint Book.
10 Inspection Book.
11 S&T register in case of interlocked engineering gate.

1.4 MODE OF OPERATION:

Booms of level crossing gate are opened simultaneously by Motor operated switch.

1.5 DUTIES OF GATEMAN:

1 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.

2 POSITION DURING PASSAGE OF TRAINS:

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

i. Gateman will stand attentively in front of the gate-lodge facing the approaching train.
ii. In day time, gateman shall hold red and green flags furled up on separate sticks in right and left hands respectively
iii. In night time, gateman shall hold lighted hand signal lamp with while light facing the track.
iv. He shall keep the whistle slung around his neck from a cord.

3 ROUTINE DUTIES OF GATEMAN:

i. Gateman shall ensure that red banner flag/ red light is placed across the track whenever the gate is kept in open condition at non-interlocked level crossing and during emergencies or obstruction on track at there type of gate.
ii. Gateman shall ensure the gate lamps and lamps of all gate signals are lighted and kept burning continuously from sunset to sunrise.
iii. 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, if it is necessary to leave the gate in an emergency, he must closed lock the gates against rod traffic, before leaving the gate.
iv. 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.

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v Gateman shall watch all passing trains and keep sharp look out for any unusual like hot axle, hanging chains, hanging battery, any vehicle/wagons/trains/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.

vi Gate man shall also be prepared to repeat any signal while guard may give to loco pilot on walkie-talkie or in any other way.

vii. If Electrical lifting barriers get damaged or becomes out of order, the gateman shall use the sliding Boom barriers. If both the Electrical Lifting Barriers & Sliding Boom barriers 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.

viii. Gateman shall report to the nearest Station Master, Gang mat or SE (P.Way) any defect in his gate or apparatus pertaining to it, as soon as possible.

ix. In the event of gate signal becoming defective the gateman shall maintain the signal in the 'ON' position even by disconnecting the signal or the wire if necessary.

x. At the gate whose signal have become defective, the gateman shall close and lock the lifting barriers on sighting a train and hand signal or pilot the train past the defective signal. In such case he should inform the loco pilot to report the defect at the next station.

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

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

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

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

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

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

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

xviii. Gate man on electrified section shall watch that road vehicle/animals passing from gate are within the height loading gauge provided on either side of the level crossing gate

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

4 **ACTION IN CASE OF UNUSUAL OCCURRENCE ON TRAIN:**

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

i. He shall take prompt action to warn the loco pilot/Guard of the passing train by showing red flag by day and red light by night.

ii. But in case of train parting, gateman shall not show stop hand signal but shall show prescribed signal for train parting i.e. green hand signal during day and white light during night weaving UP & DN vertically.

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iii. He shall simultaneously try to draw the attention of the loco pilot/guard by whistling continuously, shouting gesticulating, and throwing ballast on the brake van or by any other means.

iv If loco pilot /Guard fail to take notice, gateman shall immediately inform the Station Master/ Cabin Master. If connected on telephone, to take appropriate action, under exchange of private number.

5 **ACTION IN AN EMERGENCY AT THE LEVEL CROSSING:**

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

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

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

iv In which gate, emergency switch has been provided which helps to raised up the gate signal during any unusual occurrence at the gate . At this condition the gatemen must be switch off the gate emergency switch .

The Gateman shall protect the line/ Gate as under-

b) **On single line section:**

i. 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 direction from which a train is expected to arrive first.

ii. Then he will similarly protect the other side.

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

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

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

vi. Having returned to the level crossing gate, he must then take steps to remove the obstruction and warn the Loco Pilot of the approaching train.

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

viii. Thereafter, he shall light up and fix the fusee to warn the Loco Pilot and stop the approaching train by waving his red flag by day and red hand signal lamp by night repeatedly.

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Note The Level crossing gates, which are located between outermost stop signals of the station, are exempted for placing the detonators as described in para (iv) above.

c) **Other action to be taken by Gateman:**

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

ii. 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 take immediate action.

iii. He shall note down the particulars of the road vehicles, vehicle number, name of the loco pilot and owner and relay these details to the nearest Station Master or JE/SE/SSE/P.Way regarding the particulars and obstructions at the level crossing gate, through messenger or other means available.

1.6 ENGINEERING ITEMS:

For visibility requirements at level crossings, provision of speed breakers on the approach roads of level crossings and census of traffic at level crossings are described in Para 916, 918, 919 of IRPWM.

1.7 WORKING OF 'A' CLASS Traffic LEVEL CROSSING GATE NO.20A AT AH JN. CABIN.

Working of Level Crossing:-

(i) This level crossing is provided with lifting barriers, which remains in UP position i.e. open to road traffic.

(ii) The gateman manning the level crossing is responsible to operate the lifting barriers against road traffic for the reception/ departure of the trains and for shunting operations near the level crossing gate.

(iii) The level crossing is controlled by button numbers 20 XN and XXN provided on the operating VDU panel. The normal position of the level crossing is open to road traffic, which is indicated on the indication VDU panel by a circular yellow flashing light, provided above the gate position.

(iv) The level crossing is interlocked and protected by all up and down trains in that direction in such a way that the signals for the movement in these directions can not be taken 'OFF' unless the level crossing is closed and locked against road traffic and the control has been transferred to the VDU Panel.

(v) When it is necessary to close and lock the lifting barriers against road traffic the VDU Panel SM on duty will inform the gateman under exchange of private number on telephone to close the barriers against the road traffic for the movement of trains.

The gateman on receipt of instructions from VDU Panel SM will press the red button till the Close indication will appear on the gate panel. This indication shows the gate is closed and locked against road traffic.

(vi) After closing, locking the gate, gateman will press ACK button after ensuring there is no vehicle or any obstruction on track or between barriers

(vii) On receipt of the above advice from the gateman and after observing the gate close indication (circular white flashing light) on the VDU , the ASM on duty will withdraw the control through the VDU panel, this will cause steady white light to appear on the VDU panel to take 'OFF' the required signals.

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(viii) After arrival/passage of the train, the panel SM on duty will release his control through the VDU panel by clicking of mouse and instruct the gate man to open the gate for passage of road traffic.

(ix) On receipt of the above instructions from VDU panel ASM on duty & after seeing FREE indication to open the gate, the gate man will press the green button on gate panel till the gate open for road traffic and indication will appear on gate panel.

(x) **METHOD OF STOPING/CLOSING,WHEN GATE IS IN HALF OPEN POSITION**:-
While gateman closing the gate and is partially closed, mean while gateman required to stop the closing of gate, then he will release the button and barrier will stop in that position. If he again to close the gate, he will press the same button again.

(xi) **OPERATION OF GATE IN CASE OF FAILURE OF POWER OPERATION OF GATE (USE OF EMERGENCY CRANK HANDLE):-** In case of failure of power operation due to supply failure or any other reason & when gate cannot be operated by button then gate man will take out crank handle and key after breaking the seal from the sealed glass box. The boom, then he will operate crank handle to open/close the gate as required, after use of crank handle information to be given to S&T staff to reseal the crank handle box.

2. **INTIMATION TO GATEMAN**:-

(i) Before taking off reception/departure signals Station Master /cabin master/cabin man shall inform the Gateman, the number, description and direction of the train under exchange of Private Number.

(ii) The Gateman shall close the gate and he will ensure that there is no any vehicle or any obstruction on track or between barriers then He will transfer control to the Station Master by pressing the acknowledge button on the gate operating panel (in case of EOLB).

(iii) The reception/departure signals will then be taken 'OFF'.

(iv) In order to ensure that road traffic is not held up for a long time, the Station Master must ensure that the train is ready for departure in all respects before he advises the Gateman of closing the gate.

(v) When a train has to be piloted to and from the station yard or any shunting movement is to be done, the staff deputed to pilot the train or to perform shunting across the gate shall be personally responsible to ensure that the gate is closed against the road traffic before allowing any movement across the gate.

3. **FAILURE OF TELEPHONIC COMMUNICATION:-**
When Telephonic Communication fails or it does not get any response from the Gateman despite 2 or 3 attempts, the following procedure should be adopted:

(i) Station Master on duty shall send written advice to the gate man through the points man with full details of number, description and direction of the train.

(ii) The Gateman on receipt of such advice shall close the gate and transmit the key to the station master, which will enable them to take 'Off' reception/departure signals.

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(iii) When sufficient time is not available because of greater frequency of train service, station master will issue written authority to the loco pilot to pass the signal at 'ON' position.

(iv) In addition, station master shall also issue a caution order advising the loco pilot to whistle continuously and approach the gate cautiously.

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

(vi) In case of approaching train, the station master shall advise the station master at the dispatching end, under exchange of private number that the telephone at the gate has failed.

(vii) The station master at the dispatching end shall then issue a caution order to the Loco Pilot before dispatching a train in the block section from his end.

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

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

4. FAILURE OF ELECTRICAL OPERATION OF LIFTING BARRIER:-

In case the barriers are inoperative due to Power failure or due to any other reason, the gate can be operated by using crank handle. The crank handle is kept in a sealed and locked glass front box at the gate. For operation by the crank handle, the gate man will break the seal of the box and after unlocking the box, will take out the crank handle. First of all barriers will be unlocked by 'L' type key than the crank handle will be inserted in the crank handle hole provided on the Boom Padstle and will operate the barriers. After breaking the seal of crank handle box the gateman must inform to the station Master, which will inform to S&T staff to rectify the defect and to Re-Seal the box.

When the gate cannot be closed /opened due to failure of power operation of lifting barriers or the failure of gate opening command from the station master, the gateman will immediately inform the SM on duty, under exchange of private number.

The record of the date and time of usage of crank handle shall be recorded and signed with reasons.

In case of gateman fails to close gate by using crack handle , will operate sliding boom (if provided) as per prescribed manner.

In case gateman fails to close the gate in spite of the above operation, he shall secure the gate against road traffic by means of chains and padlocks and pass the train on hand signals and gate must be treated as non-interlocked and procedure for reception & dispatch of trains as prescribed for non-interlocked gates should be adopted.

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

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

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

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(iv) SM shall advise S & T staff responsible for maintaining the gate to repair the same at the earliest.

(v) Normal working will be resumed only after S &T staff repair the gate and issue reconnection/fit memo for the same.

WORKING OF SLIDING BOOM: -

i. **Mode of operation for closing gate by sliding Boom:**

The gate is provided with one additional sliding boom on each side of power operated lifting barrier/Lifting barrier. Each sliding Boom will be parallel to the existing power operated lifting barrier/ Lifting barrier of its side and would normally so positioned that the complete body of the boom is lying away from the road i.e. no part of the sliding Boom shall normally project on to the road leading to the L.C. gate. The Sliding booms installed are meant to be used in case of emergency when the power operated lifting barrier/Lifting barrier are damaged or close indication not found due to any reason. These are normally locked on its post, with padlock. The keys inside the locks provided on the boom stands. Stop boards are fixed on each sliding boom.

There can be the following conditions necessitating the use of Sliding Boom barriers:

a. When the gate barriers are damaged during Opening/Closing of the gate or the gate is in open condition.

b. Whenever the gate is broken during closing, opening or in open condition the gateman will inform the SM on duty who in turn will inform the S&T staff for rectification/replacement of the damaged lifting gate/barriers.

c. When the close indication failed due to any reason.

The gateman, after getting specific instruction form SM on duty will turn the road switch provided at gate to reverse position to through the road signal to danger and start closing the Sliding Boom during this process he will slide the sliding boom of side "A" by pulling the handle to close position up to stand provided for the purpose. He will insert the chained key marked "X" in the boom stand lock and lock it, a key marked "Y" will be released, thereafter he will go to the other side "B" and by pulling the handle to close position of the sliding Boom up to its boom stand will insert the chained key marked "X" in the boom stand lock and lock it. Also insert the "Y" key in the lock marked "Y" and turn clockwise in boom stand of side "B". After locking both keys in "B" side a 3rd key "Z" will be released. The gateman will take the key, apply it to the T-2 lock/KLCR fitted in the gate lodge and turn it after doing that he will now turn barrier switch to reverse position to activate the gate control relays to energies.

ii. **Mode of opening the sliding Boom:**

For opening of the sliding boom after passage of the train, gateman will get specific permission from ASM on duty for opening the sliding boom to clear the road traffic. After getting permission from ASM, gateman will turn the barrier. Switch to normal position to through the gate signal to danger and take out 'Z' key. He will insert 'Z' key at B side lock post and turn. He will turn 'X' & 'Y' key to open B side sliding boom and release X key. He will turn 'X key to open A side sliding boom. And pad lock both side sliding booms on open condition for road traffic. After above, the gateman will operate the road signal switch for yellow aspect.

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5. OBSTRUCTION AT THE LEVEL CROSSING GATE:-

(i) 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 obstructions at the gate, the gateman shall immediately fix Red Banner flag by day and Red Lamp by night on posts provided at both ends of the gate, for this purpose.

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

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

(iv) 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.

(v) Gateman shall then rush with detonators, fusee, and red flag by day and red hand signal lamp by night in the direction of the approaching train and protect the gate as stipulated in general Instruction for duties of gateman under item No.1.5(5).

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

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

(viii) 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.

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

(x) Station Master shall then issue a Caution order to Loco Pilots of all trains to proceed cautiously, and pass the reception/departure signal at 'ON' position on green hand signal of the Gateman, if the gate is broken, but is clear of any obstruction.

(xi) If sliding boom also defective than Gateman shall secure the gate against road traffic by means of safety chains and padlocks and there after exhibit green hand signal, if the gate is not obstructed

(xii) Station Master shall advice maintenance staff responsible for maintaining the lifting barriers to rectify the same at the earliest.

(xiii) Normal working will be resumed only after maintenance staff rectify the defective lifting barriers and issue reconnection / fit memo for the same.

6. OBSTRUCTION ON THE TRACK NEAR LEVEL CROSSING GATE:-

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, then the Gate man and Station Master will adopt the procedure given under item no.5. 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 `A-2' TO STATION WORKING RULES OF AH JN CABIN STATION

WORKING INSTRUCTIONS FOR NON- INTERLOCKED ENGINEERING LEVEL CROSSING **GATE NO 21 CLASS "C"**, PROVIDED WITH TELEPHONE, WITH NORMAL POSITION "OPEN TO ROAD TRAFFIC"

1 GENERAL:

1.1 DESCRIPTION OF THE LEVEL CROSSING GATES:

01	No. of LC gate	21
02	Classification	"C"
03	Engg/Traffic	Engg
04	With SS/ SE -P.Way	SE P.Way/AH
05	Kilometers	29/5-6
06	Station	AH JN. CABIN
07	Between Station	AH JN. CABIN -CIK
08	BG/MG/NG	BG
09	Single/Double/Mixed line	Single
10	INT / NI	NI
11	Type of Interlocking	-
12	Provision of Gate Signals at Kms.	-
13	Telephone/ Bell	Secured communication
14	Normal Position	OPEN
15	No. of Staff	3
16	Width of L.C. gate	5.75m
17	Type of Road (NH/SH/others)	Others
18	Name of Road	Village road
19	Paccka / Kachha	Pakka
20	Paccka Road	Kachha
21	Width of Road	5.75m
22	Crossing angle of Road (for Esq. gate)	Straight
23	Slope of the Road	
	i)Towards N / E	Level upto 8 m after that 1:20
	ii)TowardsS/ W	Level upto 8 m after that 1:20
24	Width of Road.	
	i)Towards N / E	5.75 m
	ii)TowardsS/ W	5.75 m
25	Provision of Height Gauge	YES
26	Type of Barrier	L.B.
27	Length of Check rail	7.75 m
28	Surface at the centre of LC gate	Level
29	Length of Road strip/ Speed barker	5.75 m
30	Road sign	Yes
31	Speed breaker board.	Yes

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32	T.V.U.	100373 Sep-19
33	Census next due on	Sep-22
34	Place of keeping detonators	Standard place
35	Nearest Railway Medical Assistance	AH
36	Nearest Privately Medical Assistance	AH
37	List of equipment available	Yes

1.2 EQUIPMENT

S.N	Items	Quantity/Numbers
1	Hand Signal Lamp Tri Colour	3
2	Hand Signal Flag Green	2 Mounted on sticks.
3	Hand Signal Flag Red	3 Mounted on sticks.
4	Banner Flag Red	3
5	Posts for exhibiting red banner flag	2
6	Spare chains with padlocks	2 with stop mark.
7	Detonators	10 in plastic case.
8	LED flashing lamp (with red and green)	1
9	Tommy Bar	1
10	Mortar Pan	1
11	Fowrah (in case of asphalted road this may not be provided)	1
12	Hammer (in case of asphalted road this may not be provided)	1
13	Pick Axe	1
14	Water pot/Bucket	1
15	Set of spare spectacles of gateman wearing glasses	1
16	Board demarcating protection of level crossing gate diagram in case of obstruction on gate.	1
17	Basket	1
18	Whistle	1
19	Wall Clock	1
20	Chain small	2

Note: Item no. 11, 12, 13, 14, 16, 18, 20 and 21 shall be dispensed with at L-Xing gates operated by cabin master, cabin man/ Lever man.

1.3. RECORDS TO BE KEPT AT GATE LODGE :

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

1. Gate Working Instructions in Hindi/English.
2. Gateman Rule Book in Hindi / English.
3. List for tools and books.
4. Duty Roster.

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

1.4 MODE OF OPERATION:

Lifting barriers are available on level crossing gate both lifting barriers operate together

1.5 DUTIES OF GATEMAN:

ALERTNESS:

1- 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.

2- **POSITION DURING PASSAGE OF TRAINS:**

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

i. Gateman will stand attentively in front of the gate-lodge facing the approaching train.
ii. In day time, gateman shall hold red and green flags furled up on separate sticks in right and left hands respectively
iii. In night time, gateman shall hold lighted hand signal lamp with while light facing the track.
iv. He shall keep the whistle slung around his neck from a cord.

3- **ROUTINE DUTIES OF GATEMAN:**

i. Gateman shall ensure that red banner flag/ red light is placed across the track whenever the gate is kept in open condition at non-interlocked level crossing and during emergencies or obstruction on track at their type of gate.
ii. Gateman shall ensure the gate lamps and lamps of all gate signals are lighted and kept burning continuously from sunset to sunrise.
iii. 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, if it is necessary to leave the gate in an emergency, he must closed lock the gates against road traffic, before leaving the gate.
iv. 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.
v. Gateman shall watch all passing trains and keep sharp look out for any unusual like hot axle, hanging chains, hanging battery, any vehicle/wagons/trains/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.
vi. Gate man shall also be prepared to repeat any signal while guard may give to loco pilot on walkie-talkie or in any other way.
vii. If lifting barriers 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.
viii. Gateman shall report to the nearest Station Master, Gang mat or SSE (P.Way) any defect in his gate or apparatus pertaining to it, as soon as possible.

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ix. In the event of gate signal becoming defective the gateman shall maintain the signal in the 'ON' position even by disconnecting the signal or the wire if necessary.

x. At the gate whose signal have become defective, the gateman shall close and lock the lifting barriers on sighting a train and hand signal or pilot the train past the defective signal. In such case he should inform the loco pilot to report the defect at the next station.

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

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

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

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

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

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

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

xviii. Gate man on electrified section shall watch that road vehicle/animals passing from gate are within the height-loading gauge provided on either side of the level crossing gate.

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

4- ACTION IN CASE OF UNUSUAL OCCURRENCE ON TRAIN:

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

i. He shall take prompt action to warn the loco pilot/Guard of the passing train by showing red flag by day and red light by night.

ii. But in case of train parting, gateman shall not show stop hand signal but shall show prescribed signal for train parting i.e. green hand signal during day and white light during night weaving UP & DN vertically.

iii. He shall simultaneously try to draw the attention of the loco pilot/guard by whistling continuously, shouting gesticulating, and throwing ballast on the brake van or by any other means.

iv. If loco pilot /Guard fail to take notice, gateman shall immediately inform the Station Master/Cabin Master. If connected on telephone, to take appropriate action, under exchange of private number.

5. ACTION IN AN EMERGENCY AT THE LEVEL CROSSING:

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

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

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

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The Gateman shall protect the line/ Gate as under-

a. ON SINGLE LINE SECTION:

i. 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 direction from which a train is expected to arrive first.

ii. Then he will similarly protect the other side.

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

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

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

vi. Having returned to the level crossing gate, he must then take steps to remove the obstruction and warn the Loco Pilot of the approaching train.

vii. On those Meter Gauge sections where train run at more than 75 kmph, detonators shall be placed at distance to be specified under Special Instructions by the Administration

viii. 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.

ix. Thereafter, he shall light up and fix the fusee to warn the Loco Pilot and stop the approaching train by waving his red flag by day and red hand signal lamp by night repeatedly.

c) OTHER ACTION TO BE TAKEN BY GATEMAN:

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

ii. 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 take immediate action.

iii. He shall note down the particulars of the road vehicles, vehicle number, name of the driver and owner and relay these details to the nearest Station Master or JE/SSE/P. Way regarding the particulars and obstructions at the level crossing gate, through messenger or other means available

1.6 ENGINEERING ITEMS:

For visibility requirements at level crossings, provision of speed breakers on the approach roads of level crossings and census of traffic at level crossings are described in Para 916, 918, 919 of IRPWM

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ENGINEERING LEVEL CROSSING GATE NO. 21 CLASS 'C' NON INTERLOCKED, PROVIDED WITH TELEPHONE, WITH NORMAL POSITION "OPEN TO ROAD TRAFFIC"

1. **EXCHANGE OF PRIVATE NUMBERS:**

(a) **When Gate is connected with the Station at the Dispatching End:**

(i) Station Master at the dispatching end shall advise the Gateman, no. description, direction and expected time of passage of train at the gate with private number.

(ii) Such advise shall be given before taking 'Off' departure signals or giving an authority to proceed to the Loco Pilot.

(iii) The Gateman on receipt of the advice shall close the gate well in time and confirm the same, with Private Number.

(iv) Station Master will 'take off' the departure signals after getting the private number of the gateman.

(v) Gate once closed can be opened by the gateman, gate once closed can be opened by the gateman, if there is change in planning of train movement etc, with the permission of station master as the need of opening is know to gateman according to road traffic to be cleared Obviously it can be done after exchanging private number with the controlling station master who will ensure that there is no train movement towards the level crossing gate except above condition "ON" a single line the gatemen shall be authorize to open the level crossing gate after complete passage of train from the gate by observing Tail board/ Tail lamp.

(b) **When Gate is connected with the Station at the Receiving End :-**

(i) Station Master at the dispatching end shall advise the Station Master at the other end, the number, description, direction and expected time of passage of the train at the gate under exchange of private number.

(ii) Such advice shall be given before obtaining Line Clear.

(iii) The Station Master at the Receiving End shall in turn convey the same advice to the gateman under exchange of private number.

(iv) The gateman shall close the gate and thereafter give his private number to the Station Master.

(v) Only then the Station Master at the receiving end shall grant Line Clear to the Station Master/Cabin Master at the dispatching end.

(vi) Gate once closed can be opened by the gateman, gate once closed can be opened by the gateman, if there is change in planning of train movement etc, with the permission of station master as the need of opening is know to gateman according to road traffic to be cleared Obviously it can be done after exchanging private number with the controlling station master who will ensure that there is no train movement towards the level crossing gate except above condition "ON" a single line the gatemen shall be authorize to open the level crossing gate after complete passage of train from the gate by observing Tail board/ Tail lamp.

2. **FAILURE OF TELEPHONIC COMMUNICATION :-**

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

(i) Station Master at the dispatching end hall issue a caution order to the Loco Pilot before dispatching a train in the block section from his end.

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(ii) The Caution Order should advise the loco Pilot to whistle continuously and approach the gate cautiously.

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

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

(v) The Station Master at the dispatching end shall then issue a Caution Order to the Loco Pilot before dispatching a train in the block section from his end.

(vi) Station Master shall also advise the gateman through Gang man/ Points man or Loco Pilot of the first train that the telephone has become defective.

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

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

3. FAILURE OF LIFTING BARIERS OR LEAF GATES:

(i) When the gate cannot be closed due to failure of lifting or leaf gates, the gateman will immediately inform the Station Master on duty, under exchange of private number, and ensure that lifting barriers or leaf gates do not foul the track.

(ii) The gateman 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 order end.

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

(iv) After securing the gate against road traffic, gateman show green hand signal flag by day and green light by night to the loco pilot of the approaching train.

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

(vi) The Station Master shall also advise the Station Master at the dispatching end, under exchange of private number, to similarly issue a Caution Order to the loco pilot before dispatching a train in the block section from his end.

(vii) The Station Master shall also advise maintenance staff responsible for maintenance of lifting barriers to rectify the defect at the earliest.

(viii) Normal working will be resumed only after maintenance staff rectify the lifting barriers/leaf gates and issue reconnection/fit memo for the same.

4. OBSTRUCTION AT THE LEVEL CROSSING GATE :-

(i) 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 fouled the track, or if there is any other obstruction at the gate, the gateman shall immediate fix Red Banner flag by day and Red Signal Lamp by night on posts provided at both ends of the gate, for this purpose.

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(ii) Immediately after this, the gateman shall advise the Station Master/Cabin man on duty, regarding the defeat/obstruction at the gate, under exchange of private number.

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

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

(v) Gateman shall then rush with detonators, and red, flag by day and red hand signal lamp by night in the direction of the approaching train and protect the gate as stipulated in General Instruction for duties of gateman under item no. 1.5 (5).

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

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

(viii) The Station master shall also inform the station master at the dispatching end, until the track has been cleared of all obstructions.

(ix) After the track has been cleared of all obstructions the gateman shall inform the station master accordingly, under exchange of private number.

(x) Station Master shall then issue a Caution Order to Loco Pilot of all trains to proceed cautiously, and pass on green hand signal of the gateman, if the gate is broken, but is clear of any obstruction.

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

(xii) Station Master shall advise maintenance staff responsible for maintaining the lifting barriers/leaf gates to repair the same at the earliest.

(xiii) Normal working will be resumed only after maintenance staff rectify the defective lifting barriers/leaf gates and issue reconnection/fit memo for the same.

5. **OBSTRUCTION ON THE TRACK NEAR LEVEL CROSSING GATE :**
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. Then gateman and station master will adopt the procedure given under item no. 4 above. If the obstruction fouled the level crossing gates, gateman must keep the gates closed against Road Traffic till the track is cleared of the obstruction.

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APPENDIX 'B'

1. STATION WORKING RULE DIAGRAM

Station working rule diagram No.D-1108 dated .29.03.2022 showing the layout of the yard, location and normal position of points and signals, extent of track circuiting, gradients and holding capacity of all individual lines names and distances of adjacent stations.

2.0 BLOCK WORKING SYSTEM

The system of working trains with the adjacent block section is as follows:-

i) Single line Block proving axle counter panel block instrument along with HASSDAC with Station to Station telephones are installed in the station master office for working the train between Achnera Jn. Cabin – PRK.

ii) Single line Block proving axle counter panel block instrument along with HASSDAC with Station to Station telephones are installed in the station master office for working the train between Achnera Jn. Cabin – CIK.

iii) Block working by means of continuous track circuiting are provided between Achnera Jn. Cabin - Achnera.

3.0 SYSTEM OF SIGNALLING AND INTERLOCKING

Achnera Jn. Cabin Station is interlocked to standard-II(R) .The station is equipped with multiple aspect colour light signals and Points are Motor operated and also provided with interlocked crank handle. All the points and signals can be operated by SM on duty from the VDU provided in SM's office. Points and Signals are operated through interactive dialogue boxes appearing on the VDU screen. Interlocking between points and signals is achieved electronically (Solid State Interlocking) with operating VDU. An illuminated diagram of yard controlled by VDU showing the graphical position of points and signals appears on the VDU screen. Normal operation like route setting and points operation are done by selecting options in signal/point/track menus. Emergency relief commands are through two by pass the normal command controls provided by VDU.

Station Master console LCP (VDU) consisting of a computer with a high-resolution color monitor, keyboard and pointing device (mouse) is provided. Software is provided to display track mimic diagram of the station on the LCP (VDU) and to access all function through menus. When a function is selected, an appropriate guide format will be displayed along with pertinent information, to enter the correct command (Route request, point normal or reverse request etc.)

One hot standby (VDU) properly wired up is provided for emergency change over purpose. In case, the main LCP malfunctions, Station Master has to switch to hot standby LCP (VDU).

4. DETAILS OF SIGNALLING GEARS ARE AS FOLLOWS:

SIGNALS CONTROLLED BY VISUAL DISPLAY UNIT

(A) MAIN SIGNAL

S. No	Signal No.	Description	Details
1.	S1	DN Home signal CIK line	4 Aspect with route
2.	S2	UP Advance starter signal CIK line	2 Aspect
3.	S3	UP Home signal PRK line	3 Aspect with route
4.	S4	DN Advance starter signal PRK line	2 Aspect
5.	S5	SPARE	----------

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6.	S6	L-1 UP starter signal CIK line	3 Aspect
7.	S7	Spare	------
8.	S8	L-3 UP starter signal CIK line	2 Aspect
9.	S9	Spare	------
10	S10	L-2 UP starter signal PRK line	3 Aspect
11.	S11	Spare	------
12	S12	L-3 UP starter signal PRK line	2 Aspect

(B) SHUNT SIGNAL

1.	SH-101	DN shunt signal from DN main line (CIK line) to DN main up to S19 (AH) or on LINE NO 3 up to S12	Independent
2.	SH-102	Spare.	------
3.	SH-103	UP shunt signal from UP main line (PRK line) to UP main up to S17 (AH) or on LINE NO 3 up to S-8	Independent

(C) CALLING ON SIGNALS

S. No	Signal No.	Description	Details
1.	CO-1	DN Calling ON Signal from DN main line (CIK line) to DN main up to S19 (AH) or on LINE NO 3 up to S12	Below DN Home signal S1
2.	CO-3	UP Calling ON Signal from UP main line (PRK line) to UP main up to S17 (AH) or on LINE NO 3 up to S-8	Below UP Home signal S3

(D) BLOCK INSTRUMENTS

A.	UP & DN Line block section limit between Achnera Jn.cabin- CIK	Controlled by single line block proving axle counter panel block instruments with block instrument with block clearance by HASSDAC
B.	UP & DN Line block section limit between Achnera Jn.cabin- PRK	Controlled by single line block proving axle counter panel block instruments with block instrument with block clearance by HASSDAC

4.1 OPERATION CHART/SHEET:

OPERATION CHART FOR TAKING 'OFF' MAIN SIGNALS/CALLING ON SIGNAL

S.N.	Movement		MOUSE RIGHT CLICK		Required position of Points	L.C. Gate/ Remarks
	FROM	TO	Signal no.	Set Route		
1	S1	S19 (AH)	S1	A	201a/b N	1. LX-20A CLOSED & LOCKED. 2. SLOTTED BY AH .
2	C01	S19 (AH)	C01	A	201a/b N	1. LX-20A CLOSED & LOCKED. 2. SLOTTED BY AH . 3. Clear 60sec after C1T OCC, & Replace to ON

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						whenC1T Clear.
3	S1	S12	S1	C1	201a/b R, 202a/b N	LX-20A CLOSED & LOCKED.
4	S1	S12	S1	C2	201a/b R, 202a/b R	LX-20A CLOSED & LOCKED.
5	CO1	S12	CO1	C1	201a/b R	1. LX-20A CLOSED & LOCKED. 2. Clear 60sec after C1T OCC. & Replace to ON whenC1T Clear.
6	S2	UP HOME CIK	S2	H	1/2T, BXT (Achnera Jn Cabin-CIK)	CONTROLLED BY TGT POSITION OF CIK SIDE B/I
7	S3	S17 (AH)	S3	B	202a/b N	SLOTTED BY AH .
8	CO3	S17 (AH)	CO3	B	202a/b N	1.SLOTTED BY AH . 2. Clear 60sec after C3T OCC. & Replace to ON whenC3T Clear.
9	S3	S8	S3	C1	201a/b N, 202a/b R	-
10	S3	S8	S3	C2	201a/b R, 202a/b R	LX-20A CLOSED & LOCKED.
11	CO3	S8	CO3	C1	202a/b R	Clear 60sec after C3T OCC. & Replace to ON whenC3T Clear.
12	S4	DN HOME PRK	S4	K	3/4T, BXT (Achnera Jn Cabin-PRK)	CONTROLLED BY TGT POSITION OF PRK SIDE B/I
13	S6	S2	S6	G	201a/b N	LX-20A CLOSED & LOCKED.
14	S8	S2	S8	G	201a/b R	LX-20A CLOSED & LOCKED.
15	S10	S4	S10	J	202a/b N	-
16	S12	S4	S12	J	202a/b R	-

Sequence of Shunt signal operation

S.N.	Movement		MOUSE RIGHT CLICK		Required position of Points	L.C. Gate/ Remarks	App. lock by
	FROM	TO	Signal no.	Set Route			
1	SH101	S19 (AH)	SH101	A	201a/b N	1. LX-20A CLOSED & LOCKED. 2. SLOTTED (403) ~~101"A" YR~~ BY AH .	6AT
2	SH101	S12	SH101	C1	201a/b R	LX-20A CLOSED & LOCKED.	6AT

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3	SH103	S17 (AH)	SH103	B	202a/b N	SLOTTED 103"B" YR BY AH.	4/5T
4	SH103	S8	SH103	C1	202a/b R	-	4/5TT

Sequence of CONTROL SLOT operation

S.N.	Movement		MOUSE RIGHT CLICK		Required position of Points	L.C. Gate/ Remarks	App. lock by
	FROM	ROUTE	Signal no.	Set Route			
1	S20" AH" YR	A	20YN	YYN	-	Slot on SIG no S20 (AH)	DAL (120Sec.)
2	S22" AH" YR	B	22YN	YYN	202a/b N	Slot on SIG no S22 (AH)	DAL (120Sec.)

4.2 SLOT WORKING :-

a) SIGNAL AND SLOTS WORKED WITH AH-

i) AH station will set the required route and give the Electric slot on signal No.S1(A),C1(A),S3(B), C3(B), of Achnera JN. Cabin by button Nos.1YN and GSB for 'A' Route up to S19 and button Nos.3YN and GSB for 'B' Route up to S17 as the case may be and white illuminated LED will lit on the VDU to indicate that slot has been received for required route.

ii) AH station will set the required route and give the Electric slot on signal No.SH 101 for A route and on signal No.SH103 for B route of Achnera JN. Cabin by button Nos.101YN and GSB for 'A' Route up to S19 and button Nos.103YN and GSB for 'B' Route up to S17 as the case may be and white illuminated LED will lit on the VDU to indicate that slot has been received for required route.

iii) Achnera JN. Cabin will set the required route and give the Electric slot on signal No.S20 of Achnera up to S6 for A route and on S22 up to S10 for B route by clicking option. '20'YN and YYN and '22' YN and YYN respectively of Achnera JN. Cabin.

5. VDU INDICATIONS: -

The following indications are provided in Station Diagram on the screen of SM's VDU.

5.1 MAIN SIGNAL INDICATION:-

a) **Red indication** shall be displayed for controlled main signals set at "Stop".

b) **Yellow indication** shall be displayed for controlled/permissive main signals set at "Caution".

c) **Double Yellow indication** shall be displayed for controlled/permissive main signals set at "Attention".

d) **Green indication** shall be displayed for controlled/permissive main signals set at "Proceed".

e) **Yellow indication and a yellow slit indication** shall be displayed for controlled main signals set at "Caution with Route Indication".

f) Calling-ON signals have been provided below all Home Signals. The clearance of the Calling –'ON' signal indication by a circular Yellow light below Red light indication of that signal on the control VDU panel.

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5.2 SHUNT SIGNAL INDICATION: -

a) Horizontal White indication shall be displayed for ground Shunt signals set at "Stop". White circle shall indicate route free.

b) Blue/White indication shall be displayed for Shunt signals set at "Proceed" white circle with yellow indication shall indicate route is locked.

5.3 TRACK INDICATION: -

a) When track circuit is unoccupied and not failed shall be indicated by light less **Grey colour track.**

b) When track circuit is occupied or failed shall be indicated by **red track.**

c) When route is set, the track section shall be indicated by **yellow track.**

5.4 POINT INDICATION:-

a) White strip on the straight track to indicate that the point is set in normal position. The indication keeps flashing when the point is not detected in 'Normal' position, and also during the course of operation of point.

b) White strip on the inclined track to indicate that the point is set in reverse position. The indication keeps flashing when the point is not detected in 'Reverse' position, and also during the course of operation of point.

c) The background gray colour rectangle on each point of the crossover to indicate that the cross-over is locked by the setting of a route. The indication keeps flashing during the operation of route setting.

d) The back ground dark yellow coloured rectangle on each point of the crossover to indicate that the point are 'not free' for route call. This means that the cross over is not available to be set to position other than the one, in which it is set presently by route setting method. The points cannot be set to the other side by individual operation. In case, the route is set requiring the point in the same position, in which it is showing dark yellow coloured rectangles, the operation will be possible.

e) When the control on the crank handle for the point is released only crank handle release indication with yellow flashing appears near crank handle zone and when crank handle key out it gives steady Red indication in the crank handle zone.

f) A blue rectangle with Red circle inside indicates that the point is blocked and is, therefore, not workable

5.5 ROUTE INDICATIONS: -

Total track lay out of **Achnera JN. Cabin** yard is track circuited. The track circuits are divided in to zones as displayed in the track diagram screen appearing on the VDU. Normally, when no route has been set or locked, track circuits display white colour. When a command is given on the VDU to take 'off' a signal, all the track circuits on the route and overlap display flashing yellow colour. After confirmation of point set and locked, gate closed and locked and the overlap set, the yellow colour changes to steady yellow colour. Appearance of steady yellow indications mean that the route is set for the signal and is held locked till the same is released.

5.6 ROUTE RELEASE: -

On appearance of route indication for a movement to be made, all points on the route including those for isolation get locked and cannot be operated. As the train moves over the route, the yellow route indications of each track circuit turn in to red with the occupation by train. As the train moves ahead and clears the track circuits in rear, the red indications of the vacated track circuits change back into yellow. On completion of movement these yellow route indications in rear of the train will disappear & becomes white colour indicating thereby, that the route has been released and that the points on the route are now free to be altered for the next movement.

The overlap route will be released 120 second after the berthing track is occupied and the release of overlap route is indicated by the disappearance of yellow colour of the overlap tracks. A flashing "OV" near the respective starter signal indicates the time delay progress during normal or emergency overlap release.

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5.7 POINT OR SIGNAL LAMP FAILURE INDICATIONS:-

In the event of a point failure or failure of a signal lamp, the concerned point or signal indication on the control VDU will change from steady light to a flashing light.

In the case of any signal, if the 'Green' indication only is flashing, this will mean that the green lamp of the concerned stop signal and in case of distant signal off aspect lamp has fused, but the signal is exhibiting an 'OFF' aspect. But if the green flashing indication on the VDU panel is also accompanied by the steady red indication, this will mean that the off aspect lamps of the Signal have fused and that the signal is exhibiting the 'ON' aspect. The failure of Red lamp of a signal will be indicated by a flashing red indication on the VDU panel. In the event of failure of red lamp of a signal, the flashing red indication on the VDU panel.

SM on duty will immediately advise the concerned Station Master of the station in rear to issue caution order to the Driver of the train to be vigilant and see the blank signal. He will also take action to advise signal maintainer to replace the fused signal lamp.

5.8 CRANK HANDLE INDICATION: -

The indications are provided for crank handle near each zone of the crank handle at the VDU panel. A white steady light appears on the VDU panel stating the condition that the crank handle of the concerned zone is in 'locked' position. A red steady light appears on the VDU panel stating the condition that the crank handle of the concerned zone is in 'released' position.

5.9 POWER SUPPLY INDICATION: -

There are three power supplies available at this station namely:-

i) Local supply (UPPCL)
ii) Auxiliary transformers AT supply.
iii) Integrated power supply.

Indication of availability of all there supplies are made available on Automatic cum Manual changeover panel in SM's room.

5.10 FLASHING INDICATION: -

Functioning of the flasher relay is repeated on the VDU panel by continuous flashing indication. Availability of this indication on the VDU panel will indicate to the SM on duty that the flasher relay equipment is working satisfactorily.

In the event of flasher relay equipment becoming defective, the flashing indication on the VDU panel will either get extinguished or become steady. SM on duty will report the failure immediately to the SSE/JE/Signal Maintainer. During the period of failure of flasher relay equipment, flashing indication to indicate the fusing of signal lamps, or approach locking or incorrect setting of points etc., will not be available on the VDU panel. Clearing of the signal, however, proves that the point involved in the route are correctly set and locked. During the period of failure of flasher relay equipment, Signalled moves can be permitted without clamping and padlocking of the points involved in the route, but before authorizing any unsignalled move, SM on duty must ensure that the relevant points in the route are correctly set, clamped and padlocked.

5.11 BOBBING/FLICKERING SIGNALS: -

Whenever signal changes its aspect in succession, shall be treated as bobbing/flickering signal and shall be considered as showing the most restrictive aspect and it should be allowed to pass by observing instructions contained in SR: 3.68,3.69,3.70,9.12 and SRS there under.

The SM/ASM on receipt of information of a bobbing/flickering signal shall record the defect in the failure register and advise SSE/JE/Signal Maintainer concerned immediately to rectify the defect. Such failure should also be reported to the section controller, who will record the same on the chart and take action accordingly.

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6.0 OPERATION BY VDU:-

6.1 ELECTRICALLY OPERATED POINTS/CROSS-OVERS:

The points on running lines having signaled movements in both normal & reverse settings are provided with Electric Points Machines for electrical operation.
The following cross-overs are electrically operated from the SM's VDU:

Cross over No. 201a/201b
Cross over No. 202a/202b

The Points have been displayed in the station diagram appearing on the VDU screen as electrically operated.

6.1.1 INDIVIDUAL OPERATION OF POINT:

Right on near the point, which are operated. The Point menu appears. Left on' Direction on the menu, on which, a sub-menu appears. Left-'Free' on the sub-menu and transmit command. Once again follow the same process and this time, Normal or reverse on the sub-menu and transmit command. Point will move to reverse position and during movement of points, the Point indication will flash. The rectangular dark yellow box-along with steady white indication will flash. The rectangular dark yellow box-along with steady white indication will appear when the points are set and locked.

6.1.2 CRANK HANDLES:

Crank handles have been provided for the operation of points manually, when the points fail to operate electrically from the VDU. For this purpose, controlling keys, KLCR's have been provided in location box close to each cross-over. The KLCR key is locked but can be released through a command from the VDU ('crank release' on the crank handle sub menu of point menu and transmit). The initiation of the process of release of crank handle key the lock indication flashing and when points man extract key released, indication with steady red appears on VDU panel after crank handling the point may give their proper indication in the position it has been hand crank required indication of the point may appear in this case train shall be passed on proper signal after withdrawing control on crank handle. The key thus released, is used to unlock entrance in Point machine for the insertion of crank handle. The handle can thereafter be inserted in the point machine and the Point can be cranked to the desired position.
The control keys, KLCR's are so configured as to unlock crank handle opening of the matching Points only, while the crank handles can be inserted in any point machine for manual operation.
The signals and corresponding routes, which will remain failed after each crank handle control is releases by the SM on his VDU, till the Points are properly set with relevant indications appearing on VDU, and also till the crank handle control are normalized:

S. No.	POINT NO.	CRANK HANDLE
1	Cross over No. 201a/201b	CH:1
2	Cross over No. 202a/202b	CH:2

After manual operation of the points by crank handle two conditions arise as under: -

(a) Required indication of point appears on the operation VDU. In this case train shall be passed on proper signals.

(b) Required indication of point may not appear on the VDU screen and signal fails to come 'off, the concerned points shall be got clamped/cotter bolted and padlocked and the train shall be piloted on the authority of T-369 (3b). After the movement is completed the point shall be set in Normal position by means of crank handle if points cannot be normalized by VDU operation. The time and

purpose for which crank handle is released will be recorded in the nominated register.

It shall be the personal responsibility of the SM on duty at the VDU panel to ensure that: -

(i) Instructions given to the deputed traffic personnel for operating the crank handle regarding the defective points are thoroughly understood by him.

(ii) For the period, the crank handle is out of its housing no movements over the defective points concerned shall be done under the extant rules.

(iii) Reasons for use of crank handle, the number of defective points and the time and date are recorded and the entries are signed by SM on duty in the 'Special Occurrence Register'. In case there is no indication of the points on the VDU panel, the SM on duty shall get the points cotter bolted / clamped and pad locked after ensuring the correct setting of the points and the train shall be piloted on T-369 (3b).

(iv) Every crank handle zone is provided with magneto telephone with the SM on VDU panel duty SM.

(v) Two conditions may now arise.

(a) After crank handing, the points may give their proper indication in the position it has been hand cranked.

Or

(b) May not give any indication due to certain reasons. In case of (a) train can be received on proper signals. In case of (b) the train shall be piloted on T-369(3b) Attention is drawn to GR 3.51 of General & Subsidiary rules book.
NOTE:-In case a disconnection Memo is issued for a point, but Crank Handle is not required, as endorsement that Crank Handle not required must be made on top of the disconnection memo.

6.1.3 <u>EMERGENCY POINT OPERATION:-</u>

The operation of Emergency point operation is identical to normal point operation except in this case first SM has to send "Emergency point Normal/Reverse Request." After receiving indications, the SM will send Emergency Point Normal/Reverse Command to the field
NOTE: In the event of failure of the track circuit, if the points have to be operated, the SM on duty will first personally verify that the concerned track circuit is not occupied by any train and not locked in any route. Turn Left click and in option click on Emergency point release for operating the point from Normal to Reverse or Reverse to Normal as the case may be and release. It will be recorded on the EWN counter register.

6.2 <u>OPERATION OF MAIN SIGNALS</u>:-

The following procedure is follow for lowering of Main Signal: -
First Left click on main signal the command will appear in the 'current request stack' box, and after selecting the required option click the required option. During operation of route setting the point will flash till the point are set and locked. The rectangular gray colour boxes at the back ground of each point on the route as well as in the overlap will appear when the points are locked by route when the route is set and locked yellow colour on the track from main signal to the last stop signal. The red indication on main signal will turn to steady green (or yellow) when signal clears after setting of the route.
If reception is done on loop line, a linear yellow indication above Home signal will also appear, indicating that the route indicator is lit. The red indication on main signal will be steady yellow when signal clears after setting of the route.

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6.3 OPERATION OF 'CALLING ON' SIGNAL:

Calling 'ON' signal provided below all Home signals can be taken OFF during failure of track circuits, provided the requisite points have been set to the required position in the route and isolation points are set to required position.

(i) Calling on Signal will be cleared only when track circuit failure OR overlap point (or) both track and point failed (or) Main Signal lamp failed.

(ii) To clear a Calling on, we must have tried the Main Signal first besides the conditions as per point (i) and the Train to occupy the rear track C1T, C1 Signal indication is Yellow and Main Signal is in Red.

(iii) Click on C1 signal and all the possible routes for Calling on signal CO1 will be displayed as shown for main signal. Before lowering calling on signal ASM on duty will try for signal S-1

(iv) When C1 is clicked, main line is to selected. To clear calling on signal, train should occupy, rear track C-1T. Calling on signal will come even if track circuit in route is failed. If the conditions mentioned are not Yellow indication on Calling On signal will start flashing and will be steady after 60 seconds.

(v) To clear a Calling on, we must have tried the Main Signal first besides the conditions and the train to occupy the rear track C1T C1 Signal indication is Yellow and Main Signal is in red. Calling on Yellow indication will flash for 60 seconds and will be steady.

(vi) To cancel the Calling on signal cleared select "Calling ON signal Cancel"

(vii) Calling ON "Route Release" for clearing the set calling on route. When route release is applied, the GLKE will flash for 120 seconds and after completion of 120 seconds route release will be affected.

(viii) Emergency Route Cancel [EUYN]: This option is provided in VDU. However, when we click this option, it will ask for USER Name and Password. It will not wait for 120 seconds time delay. i.e. route will be released immediately.

6.4 OPERATION OF SHUNT SIGNAL:

In case of Shunting movement, Left click on shunt signal different option will appear after selecting the required option click on the option The shunt signal can then be taken 'OFF'.

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7.0 OPERATION CHART/SHEET

7.1 RECEPTION OF DN TRAINS FROM CIK

S. No.	Route	Action
1	Reception of DN train from CIK on line no 1 (AH side)	**After Getting the slot indication from AH for 'A' route .** 1. SM on duty will inform gateman at level crossing gate no. 20A about train, for closing the gate. 2. Take the cursor on LX-20A & click. It will open a dialog box with LX-20A Release and Lock option 3. When the gate is open it will be depicted by a steady red indication on the VDU. As soon as the gateman closes the gate the red indication will be extinguished and a flashing yellow indication starts. Take the cursor on LX-20A Lock and click. It will lock the Gate in closed position and the flashing yellow indication turns into steady yellow. 4. Take the cursor on Signal No S-1 & left click. It will open a dialog box with different option for desired operation. 5. Take the cursor on S1-A option and Click to clear the signal. 6. During the route setting, the Points which are not favorable, will flash till the Points are set and locked in required position. The circular yellow indication for locking of each Points in the route as well as in the overlap will appear. 7. When the route is set and locked the color of the track from DN Home signal no. S-1 to S-19 (AH) will turn to steady yellow . 8. The red indication on DN home signal no.S-1 will turn to steady G/YY/Y as per aspect of signal ahead.
2.	Reception of DN train from CIK on line no 3 (PRK side)	1. For closing and locking of LX-20A the same step 1 to 3 as mentioned in S.No.1 will be followed. 2. Take the cursor on Signal No S-1 & left click. It will open a dialog box with different option for desired operation. 3. Take the cursor on S1-C1 or S1-C2 option and Click to clear the signal. 4. During the route setting, the Points which are not favourable, will flash till the Points are set and locked in required position. The circular yellow indication for locking of each Points in the route as well as in the overlap will appear. 5. When the route is set and locked the color of the track from DN Home signal no. S-1 to S-12 including overlap will turn to yellow. 6. The red indication on DN home signal no.S-1 will turn to steady Y with route as per aspect of signal ahead.

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7.2 RECEPTION OF UP TRAINS FROM PRK

3.	Reception of UP train from PRK on line no 2 (AH side)	After Getting the slot indication from AH for 'B' route 1. Take the cursor on Signal No S-3 & left click. It will open a dialog box with different option for desired operation. 2. Take the cursor on S3-B option and Click to clear the signal. 3. During the route setting, the Points which are not favorable, will flash till the Points are set and locked in required position. The circular yellow indication for locking of each Points in the route as well as in the overlap will appear. 4. When the route is set and locked the color of the track from UP Home signal no. S-3 to S-17 (AH) will turn to steady yellow. 5. The red indication on UP home signal no.S-3 will turn to steady YY/Y as per aspect of signal ahead.
4.	Reception of UP train from PRK on line no 3 (CIK side)	1. Take the cursor on Signal No S-3 & left click. It will open a dialog box with different option for desired operation. 2. Take the cursor on S3-C1 or S3-C2 option and Click to clear the signal. 3. During the route setting, the Points which are not favourable, will flash till the Points are set and locked in required position. The circular yellow indication for locking of each Points in the route as well as in the overlap will appear. 4. When the route is set and locked the color of the track from UP Home signal no. S-3 to S-8 including overlap will turn to yellow. 5. The red indication on UP home signal no.S-3 will turn to steady Y with route as per aspect of signal ahead.

7.3 DESPATCH OF UP TRAINS TOWARDS CIK

5.	Dispatch of UP train from L.No.1 (towards CIK)	1. For closing and locking of LX-20A the same step 1 to 3 as mentioned in S.No.1 will be followed. 2. Take the cursor on Signal No S-2 & left click. It will open a dialog box with different option for desired operation. 3. Take the cursor on S2-H option and Click to clear the signal. 4. When the route is set and locked the color of the track from S-2 to 1/2T will turn to yellow. 5. The red indication on signal no.S-2 will turn to steady G when signal clears after setting of the route. 6. Take the cursor on Signal No S-6 & left click. It will open a dialog box with different option for desired operation. 7. Take the cursor on S6-G option and Click to clear

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		the signal. 8. During the route setting, the Points which are not favorable, will flash till the Points are set and locked in required position. The circular yellow indication for locking of each Points in the route as well as in the overlap will appear. 9. When the route is set and locked the color of the track from signal no. S-6 to the S-2 including overlap will turn to yellow. 10. The red indication on signal no.S-6 will turn to steady G/Y as per aspect of signal ahead.
6.	Dispatch of UP train from L.No.3 (towards CIK)	1. For closing and locking of LX-20A the same step 1 to 3 as mentioned in S.No.1 will be followed. 2. Take the cursor on Signal No S-2 & left click. It will open a dialog box with different option for desired operation. 3. Take the cursor on S2-H option and Click to clear the signal. 4. When the route is set and locked the color of the track from S-2 to 1/2T will turn to yellow. 5. The red indication on signal no.S-2 will turn to steady G when signal clears after setting of the route. 6. Take the cursor on Signal No S-8 & left click. It will open a dialog box with different option for desired operation. 7. Take the cursor on S8-G option and Click to clear the signal. 8. During the route setting, the Points which are not favorable, will flash till the Points are set and locked in required position. The circular yellow indication for locking of each Points in the route as well as in the overlap will appear. 9. When the route is set and locked the color of the track from signal no. S-8 to the S-2 including overlap will turn to yellow. 10. The red indication on signal no.S-8 will turn to steady Y when signal clears after setting of the route.

7.4 DESPATCH OF DN TRAINS TOWARDS PRK

7.	Dispatch of DN train from L.No.2 (towards PRK)	1. Take the cursor on Signal No S-4 & left click. It will open a dialog box with different option for desired operation. 2. Take the cursor on S4-K option and Click to clear the signal. 3. When the route is set and locked the color of the track from S-4 to 3/4T will turn to yellow. 4. The red indication on signal no.S-4 will turn to steady G when signal clears after setting of the route. 5. Take the cursor on Signal No S-10 & left click. It will open a dialog box with different option for desired operation.

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		6. Take the cursor on S10-J option and Click to clear the signal. 7. During the route setting, the Points which are not favorable, will flash till the Points are set and locked in required position. The circular yellow indication for locking of each Points in the route as well as in the overlap will appear. 8. When the route is set and locked the color of the track from signal no. S-10 to the S-4 including overlap will turn to yellow. 9. The red indication on signal no.S-10 will turn to steady G/Y as per aspect of signal ahead.
8.	Dispatch of DN train from L.No.3 (towards PRK)	1. Take the cursor on Signal No S-4 & left click. It will open a dialog box with different option for desired operation. 2. Take the cursor on S4-K option and Click to clear the signal. 3. When the route is set and locked the color of the track from S-4 to 3/4T will turn to yellow. 4. The red indication on signal no.S-4 will turn to steady G when signal clears after setting of the route. 5. Take the cursor on Signal No S-12 & left click. It will open a dialog box with different option for desired operation. 6. Take the cursor on S12-J option and Click to clear the signal. 7. During the route setting, the Points which are not favorable will flash till the Points are set and locked in required position. The circular yellow indication for locking of each Point in the route as well as in the overlap will appear. 8. When the route is set and locked the color of the track from signal no. S-12 to the S-4 including overlap will turn to yellow. 9. The red indication on signal no.S-12 will turn to steady Y when signal clears after setting of the route

8.0 TRACK CIRCUITS

Complete yard is track circuited by conventional DC track circuits.

9.0 NON-SIGNALLED MOVE OVER ELECTRICALLY OPERATED POINTS:

Non-signalled movement over electrically operated points should be permitted only after personal verification that the relevant points are correctly set, clamped and padlocked as per 3.68/1 of G&SR.

Whenever any non-signalled move has taken place over a point operated by an electric point machine whether in the facing or trailing direction, the SM/ASM on duty shall operate the points to the normal and reverse settings for the purpose of testing the points, after the SM/ASM has ensured that indication regarding the 'normal' and 'reverse' setting are correctly available.

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10.0 RESTORING SIGNAL TO 'ON' & CANCELLATION OF ROUTE AND OVERLAP.

a) RESTORING SIGNAL TO 'ON':

Whenever it is required to put back signal to 'ON' position during an emergency or due to any other reason, this be can be done by click on the concerned Signal along with the Emergency Signal Cancellation (ERN).

b) CANCELLATION OF ROUTE ALREADY SET:

Ordinarily a route once set need not be cancelled as the same gets cancelled automatically by the passage of the train over the entire route and this is indicated on the VDU by the extinguishing of the route lights. However, should it become necessary to cancel a route already set due to any reason the SM on duty should first restore the Signal Controlling the movement over the route to 'ON' as indicated in above. The SM on duty will then click the concerned Signal (other than Advanced Starter) and the Emergency Route Release (EUUYN). This will release the route including the overlap, provided no train has occupied the approach track circuit. However, if the approach track circuit is occupied, the route locked flash indication will appear (a small circular white light) at the right side of the signal. The route locked indication will remain for stipulated time interval i.e. not less than 120 seconds for the release of the approach locking.

The route should then be cancelled by repeating the procedure indicated above, only after the route locked indication becomes steady. Each time the route is thus cancelled, it will be recorded on the Emergency Route Release (EUUYN) counter provided on the control VDU panel, However, in the case of Advanced starter Signals, the route will get cancelled when the signal is restored to 'ON' position by means of Emergency Signal cancellation (ERN).

NOTE:

i) In case, the Route locked indication on the VDU extinguishes immediately before the lapses of stipulated time interval i.e. not less than 120 seconds due to the failure of equipment the SM on duty should wait for two minutes and then cancel the route in the usual manner. Further, the SM should report the failure to the Signal Maintainer immediately and record the same in the S&T failure Register.

ii) In case of one or more Track Circuit(s) is/are defective, the particulars route section covered by the defective Track Circuit will not get cancelled either by the passage of the train or by Operation of Emergency Route Release. In such cases, the SM on duty after verifying by personal observation that the defective Track circuit is not occupied by a train or vehicle, will advise the Signal Maintainer on duty in writing, giving the particulars of the route to be cancelled. The SM on duty will then operate the Emergency Route Section Release (EUYN) provided for this purpose on the VDU panel by left click on concerned signal and then Emergency Route Section Release option (EUYN) and release the particular route section

iii) The SM on duty will maintain a Register for recording the reading and other details of the route cancellation provided on the VDU.

c) CANCELLATION OF OVERLAP:

After the train arrives and occupies the berthing track, the overlap gets automatically released after the lapse of a stipulated time interval of 120 seconds. Should the overlap (having points in the overlap) not get released automatically after arrival of a train due to any reason, which will be indicated by the overlap portion remaining illuminated, the SM on duty should click the starter signal and then click overlap Release option. This will enable the overlap to be released. It will be recorded in the 'OYN' Counter provided on the VDU.

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d). RECORDING OF THE READINGS OF COUNTER.

Operation of the following are recorded on the counter provided separately for each of these : -

i. 'Calling-ON' signal (COGGN).
ii. Emergency Route Release (EUUYN)
iii. Emergency Route Section Release (EUYN)
iv. Emergency Point (EWN)
v. Overlap Release (OYN)

The SM on duty should keep a proper record of all such operations. Separate Registers should be maintained for each of the above commands where in each time the Button is operated, the reading on the counter should be recorded stating clearly the circumstances under which the emergency operation had to restored to. The SM on duty before handing over charge to his reliever should record the last reading of all the counters in the concerned Registers,

The SM who takes over the charge must verify by actual observation of the readings, on the counters that the last readings on the counters have been correctly recorded in the appropriate Registers and the registers should be signed by the SM on duty in token of it.

The Performa of various counters are as under:-

i) CALLING ON SIGNAL COUNTER (COGGN):

S. No.	Date	Time	Main signal that failed	Calling On signal that taken OFF	No. of track circuit that failed
1	2	3	4	5	6

Train No. received on Calling On signal	Reading in the counter		Block line on which train is received	Signature of SM on duty
	Before operation	After Operation		
7	8	9	10	11

ii) EME RGENCY ROUTE CANCELLATION COUNTER (EUUYN)

S.No.	Date	Time	Train No. for which route cancelled	Signal No. and route No. Cancelled
1	2	3	4	5

Reading in the counter		Reasons for cancellation of route	Remarks	Signature of SM on duty
Before Operation	After operation			
6.	7.	8.	9.	10

iii) EMERGENCY RUTE RELEASE COUNTER(EUYN)

S.No.	Date	Time	Signal No.	No. of Route locked	Date & train No.	Date & time Signal Maintainer advised
1	2	3	4	5	6	7

Date & time EUYN button is operated	Counter reading		Date & time EUYN button sealed	Sig. of SM on duty	Signature of Signal Maintainer on duty	Remarks
	Before operation	After operation				
8	9	10	11	12	13	14

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iv) **EME RGENCY POINT OPERATION COUNTER (EWN)**

S.No.	Date	Time	Track circuit No. controlling the point that failed	Date & time EWN button operated	Counter reading	
					Before Operation	After operation
1.	2	3	4	5	6	7

Reasons for which point operated	Date & Time EWN button Released	Remarks	Signature of SM	Signature of Signal Maintainer
8.	9.	10	11	12

v) **OVERLAP RELEASE COUNTER (OYN)**

S.No.	Date	Time	Train No.	Description of overlap failing to release	Counter reading		Signature of SM on duty
					Before Operation	After operation	
1.	2	3	4	5	6	7	8

vi) **AXLE COUNTER**

Date.	Time	Counter reading		Reason for resetting counter	Pvt No. Exchanged		Sig. Of SM Recd	Remarks
		Before Operation	After operation		Given			
1.	2	3	4	5	6		7	8

11.0 GENERAL INSTRUCTIONS:-

a) When a light diesel engine or any other light self propelled vehicle is to be passed over a point or cross over controlled by a track circuit, the SM on duty must in addition to watching the track circuiting on the control VDU panel, ensure through visual verification that the diesel engine etc. has cleared the concerned track circuit and has entered the next track section before interfering with the points set for the previous move or before permitting any other move on the affected lines.

b) In the event of failure of points and /or signals, intimation of the failure should be given by the SM on duty to the signal maintainer of the station on duty and SSE/sig

c) While issuing an authority to pass a defective signal in 'ON ' position, protecting facing points, endorsement should be made there on instructing drivers to observes speed restriction of 15 KMPH till whole of the train has cleared the facing points in the route.

d) The VDU panel is provided with a station Master's key to prevent unauthorized operation of points and signals. Normally all the buttons of the control VDU panel are ready to be operated at any time unless the SM on duty locks them by means of the SM's key.

e) After completion of each movement, the Point should be restored to their normal position.

11.1 It must be ensured that the Dip lorries/ Material trolleys/ Motor trolleys/Push trolleys are invariably worked after obtaining specific permission of SM on duty under clear Memo. When the Trolley has been removed 'off' the track, such removal shall be confirmed by the Officer in-charge in writing to SM on duty.

11.2 Movement the insulated Axle of the trolleys will not effect the functioning of track circuit.

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12. ADDITIONAL PRECAUTIONS TO BE OBSERVED:-.

The SM on duty can disable operation of any defective /disconnected point and the relevant route button .the gear should be enabled except under the following circumstances:-

a) When the disconnected point is reconnected and reconnection memo to this effect is received or,

b) When the defective point has been put right and advice is received or,

c) When the SM/ASM to undertake a move after he has personally ensured the correct setting clamping and pad locking of the points and the keys are in his personal custody or,

d) When the special duty guar d authorize the SM/ASM to undertake the Movement over the points supported by a private numbers.

13.0 WORKING OF TRAINS DURING FAILURES:

(A) PASSAGE OF TRAINS WHEN MOTOR POINTS ARE DEFFECTIVE:

i) When an electrically operated Motor Point fails to respond to the Button operation, the SM on duty will first re-set the point to the operated position and depute the Points man to find out if any obstruction is lying in between the tongue and stock rails at both ends of the cross over.

ii) The points man on arrival at the point will look for any obstruction between the stock and switch rails on both ends of point, remove the same if found any and display an alright signal to SM on duty for setting the point. In case, obstruction is found the points man will display hand danger signal.

iii) On receipt of an all right signal from the Points man, the SM on duty will set the Points to the required position. If the Point still fails to respond or on receipt of Hand Danger Signal from the Points man, the SM on duty will remove the Crank Handle and the relevant crank handle key, proceed to the site of defective point after locking the Control VDU panel and retaining the key in his personal custody. On reaching the defective point, he will set the point manually in the required position (both the ends in case of cross over point), clamp and padlock it and will come back to VDC panel room and unlock the VDU panel. He will operate point button along with point group button, so that point indication on the VDU panel will be corresponding to that at site and then authorize the move.

NOTE: While setting crossover point from 'Normal' to Reverse' care should be taken to set mar ked 'A' first and then set the other end marked 'B' Similarly, while setting from 'Reverse' to 'Normal' end marked 'B' should be set first and then the end marked 'A'. In case after setting the Point manually and the relevant 'N' or 'R' indication is available on the VDU panel and the requisite signal can be cleared for the move, clamping and padlocking of points is not necessary provided there is no damage to the machine & ridings connected. If the Signal Maintainer is available, he will assist the SM in manual setting of Points.

(B) PASSAGE OF TRAINS WHEN POINTS ARE DISCONNECTED:

i) While the S&T staff is attending to disconnected/defective points and traffic has to be passed over them. SM on duty will proceed to the concerned points with the object of getting the points set by the S&T as per S.R.3.51/1.

ii) He will take with him a special Register opened for this purpose in which an entry of the move will be made and the signature of the S&T Staff attending to the points will be obtained against that entry as an assurance that the S&T Staff has agreed to the move. The SM will also sign against the entry. After the points have been set for the contemplated move, SM will clamp and padlock the points, & retain the keys and return to the station for undertaking the move. After the passage of traffic, the SM will return padlock keys to the S&T Staff for continuing their work on points.

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C) **WORKING OF TRAINS DURING THE FAILURE OF TRACK CIRCUITS WHEN THE 'CALLING ON' SIGNAL HAS ALSO FAILED.**

I) The SM on duty will check up regarding the failure of circuit and the latter will proceed to the affected track circuit along with a points man, The SM after verifying the clearance of the defective track circuit will set the requisite route and then issue 'T/369(3b)' to the Driver to pass defective signal at 'ON', provided the requisite point is set and locked indications are available on the illuminated diagram and the track circuits other than the track circuit certified are clear. The route for which T/369/(3B) is issued should not be cancelled until the entire route including the overlap is cleared by the train except in the case of trains which are likely to be detained on platform lines in which case the route may be cancelled until the entire route including the overlap is cleared by the train except in the case of trains which are likely to be detained on platform lines in which case the route may be cancelled alter the complete arrival, clear of track circuits controlling the points in rear.

II) Movement affected by the track circuit failure should not be done simultaneously over the crossover. Simultaneous movements are permitted only on the straight routes under these circumstances.

III) Whenever any non-signaled move has taken place over a point operated by electric point machine, either in the facing or trailing direction, the SM on duty shall operate the point to the normal/reverse setting for the purpose of setting the point. After the SM has ensured that indication regarding the normal/reverse setting is correctly available, further movements may be permitted over the point.
NOTE: - In the case of disconnected/defective points ,the setting of the other end or ends where the work is/are not carried out will be done by the SM on duty.

14.0 WORKING OF DIGITAL AXLE COUNTER FOR CLEARENCE OF BLOCK SECTION ON SINGLE LINE SECTION :-

14.1 WORKING OF HASSDAC(ACHNERA Jn. CABIN-CIK & ACHNERA Jn. CABIN-PRK) :-

High Availability single section Digital axle counters **(HASSDAC)** have been provided to monitor the clearance of block section between ACHNERA Jn. CABIN-CIK & ACHNERA Jn. CABIN-PRK on single line sections as a last vehicle checking device.

HASSDAC is known as dual SSDAC i.e SSDAC1 and SSDAC2 concern Advance Starter Signals can be taken OFF only if one or both SSDAC Channels (SSDAC1 /SSDAC2) is/are in clear condition. On duty SM comes to know the status of CLEAR by GREEN (large LED) or OCCUPIED by RED (large LED) of axle counter from axle counter Reset Box (provided in SM room).

Whenever any train enters the block section and passes over the detection points (kept at the entry of the block section) the axle counter equipment will start counting the number of axles passed over it. This count is recorded as IN-COUNT. Similarly, when the train reaches destination station and passes over the detection unit (kept at the entry of the block section) the axle counter equipment will count the number of axles which have passed over the detection point at the exit end. This count is recorded as OUT-COUNT.

When OUT-COUNT is same as IN-COUNT, the axle counter Indication cum Reset Box will show green indication. When the block section is occupied or there is mismatch in IN-COUNT and OUT-COUNT, the axle counter Indication cum Reset Box will show RED indication of section occupied. When axle counter Indication cum Reset Box is showing RED indication, it can have two implications: (i). A train portion is left behind in the block section OR (ii). HASSDAC is failed due to technical fault.

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14.1.1 FAILURE OF HASSDAC:

There can be following scenarios:

i). **SSDAC 1 is showing 'CLEAR' and SSDAC2 is showing 'OCCUPIED':**
In this case on duty SM not require to reset the failed axle counter (SSDAC2) this failed axle counter will auto resettled by reset box automatically and after auto resetting a Green color (small LED) of preparatory reset indication will glow on reset box and on reset box " WAIT FOR PILOT TRAIN" will display and internal (hidden) reset counter will increase by one number. After arrival of train axle counter will show CLEAR & OCCUPIED RED (small LED) indication will convert in GREEN by GREEN (small LED) CLEAR indication. No failure memo to be issued as signaling system is working on the other axle counter. If after arrival of train SSDAC 2 not show clear indication or not accepting auto resetting, In this case Signal Maintainer or concerned JE/SSE to be called for checking the axle counters. No failure memo to be issued as signaling system is working properly.
Same above shown procedure to be follow If SSDAC 2 is showing 'CLEAR' and SSDAC1 is showing 'OCCUPIED.

ii). **If both the axle counters (SSDAC1/SSDAC2) is in Failed state (OCCUPIED):**
Failure memo to be issued. As both axle counters (SSDAC1/SSDAC2) of UP block section between ACHNERA Jn. CABIN-CIK OR DN block section between ACHNERA Jn. CABIN-PRK fail, the block instrument of ACHNERA Jn. CABIN-CIK / ACHNERA Jn. CABIN-PRK section will also fail and concern Advance Starter signal of ACHNERA Jn. CABIN cannot be taken 'OFF'. In such case, the on duty SM shall ensure complete arrival of train according to G.R. 4.17 and S.R's thereof. In case on duty SM is unable to ensure complete arrival of a 'run through' train, he shall ensure complete arrival of train though exchange of private number from train dispatching station in rear and also the section controller. In this case on duty SM require to reset the axle counter manually.

14.1.2 RESETTING OF HASSDAC:

(i) The HASSDAC is a dual axle counter system. On reset box installed in Station Master office,status of both axle counters are display (HASSDAC-1 & HASSDAC-2). If any one of them is failed than that HASSDAC will show occupied. If both are failed than both HASSDAC will show occupied. If one of them is failed than train working will be normal via second unit of HASSDAC. If both axle counters (HASSDAC-1 & HASSDAC-2) are failed than block working will be failed.

(ii) After ensuring that the block section is clear, the HASSDAC axle counter shall be reset. The resetting operation shall be resorted to only when there is "Occupied" (Red Light–Large) indication even though the Block Section is 'Clear'. The following procedure shall be adopted after advising the S&T staff concerned about the failure of HASSDAC Axle Counter.

(iii) The Station Master on duty at the receiving station in which the train has arrived complete shall give a private number to the Station Master at the other end (dispatch station) confirming the complete arrival of the train.

(iv) The Station Master on duty at dispatch end shall acknowledge the same by communicating a private number.

(v) The key of the reset box shall then be inserted in the reset box, turned & pressed along with pressing of reset push button by both Station Master's independently.

(vi) The reset operation pertaining to block section is carried out independently at both ends.

(vii) "Preparatory Reset" (Green Light–Small) indication will appear on the Axle Counter Indication cum reset box at both ends to indicate the Axle Counter resetting operation is complete.

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(i) The counter provided for recording resetting operation will register next higher number. Necessary entries shall be made in the 'Block Proving Axle Counter Resetting Register' maintained for this purpose. Similar entries are made by the Station Master at the other end of the block section also.

(ii) When the 'Preparatory Reset Indication' appears, the receiving end Station Master should advice the Station Master at the other end that the Block Section is being 'Closed'. The other Station Master shall give a Private Number to this effect to receiving end Station Master.

(III) The receiving end Station Master shall then 'Closed' the Block Section by normalizing the Block Instrument.

(iv) On clearance of the first train after 'Preparatory Reset' at the receiving Station, the HASSDAC axle Counter will show 'Clear' Indication at both stations and subsequent train can be normally dealt.

(v) If on arrival of the first train on 'Preparatory Reset', the HASSDAC axle Counter (When both HASSDAC-1 & HASSDAC-2 are failed) do not show 'Clear' indication but Preparatory indications continue and the Block Instrument remains in 'Train On Line' position, the Block working shall be suspended and S&T officials of the section shall be advice to attend the failures. The trains will work on laid down procedures for block failure by issuing necessary authorities until the failures is attended by S&T staff and put right.

(vi) The entries in Train Signal Register shall be made in red ink at both stations whenever 'Line Clear' has been obtained with both HASSDAC axle Counter (HASSDAC-1 & HASSADC-2) is showing 'Preparatory Reset Indication'.

(vii) No attempt shall be made to close the Block Section on arrival of train on Preparatory Reset if HASSDAC axle Counter (HASSDAC-1 & HASSADC-2) is still showing Preparatory Reset indications, instead of 'Clear' indications.

(viii) The counter increments by one count, every operation of resetting should be recorded in separate register as per the columns indicated below:

1. Sr. No.
2. Time and date.
3. Failed after the train number.
4. First train which was passed on proper authority to pass a signal at ON position.
5. Counter reading (prior to resetting).
6. Counter reading (after resetting).
7. First train which passed on proper line clear after normalization of axle counter.
8. Signature of on duty ASM/Cabin master.
9. Signature of on duty SM granting reset co-operation.
10. Remarks of SE/JE (Signal).

NOTE: -

1. No resetting of axle counter to be done if section is occupied or is going to be occupied. This must be ensured by on duty ASM.
2. SE/JE /Signal and SM must ensure the size LED if the same gone defective.
3. SE/JE/Sig./ESM must seal the reset box after resetting.

15. TRACK CIRCUITS / AXLE COUNTER AND THEIR INDICATIONS:

(i) Continuous Track circuit is provided on main line no1 from a point about 5 rail length rear of DN Home signal No.1 to DN Home signal No.19 (AH) including over lap of East end. Track circuits Nos. are C1T, 1/2T, 6AT, 201bT, 06T, 01AT, 01BT, C19T(AH).

(ii) Continuous Track circuit is provided on main line no2 from a point about 5 rail length rear of UP Home signal No.3 to UP Home signal No.17 of AH including over lap of East end. Track circuits Nos. are C3T, 3/4T, 4/5T, 202bT, 02AT, 02BT, C17T (AH).

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(iii) Continuous Track circuit is provided on line no3 201aT, 08T, 03CT, 03BT, 03AT, 202At.

(iv) Further main line is track circuited by digital axle counter from UP. Adv. Starter signalNo.2 of **Achnera Jn Cabin** to DN. Adv. Starter of **CIK** for block proving. T.C. Nos. is BXT (**Achnera Jn Cabin** -CIK).

(v) Further main line is track circuited by digital axle counter from DN. Adv. Starter signal No.4 of **Achnera Jn Cabin** to UP. Adv. Starter signal of **PRK** for block proving. T.C. Nos. is BXT (**Achnera Jn Cabin -PRK**) .

(vi) Indications for clearance for Block proving by Axle Counters i.e. BXT (**Achnera Jn Cabin** -CIK), and BXT (**Achnera Jn Cabin -PRK**) are indicated on the resetting panel/VDU Panel provided in SM' S office. Indications of track circuit have been shown on VDU panel. Track circuits are divided into suitable size of sub-track circuit shown on working rule diagram as well as demarcated on panel. Indicators for all these track circuits are provided on these illuminated panel.

16. INTERLOCKED GATES: - There is an interlocked power operated lifting barrier traffic gate No.20A at CH: 366.00 in between Starter Signal No.8/6 and shunt Signal No.101 at this station. The level crossing is controlled by button numbers 20 XN and XXN provided on the operating VDU panel. The normal position of the level crossing is open to road traffic, which is indicated on the VDU panel by a circular yellow flashing light, provided above the gate position. The level crossing is interlocked and protected by all up and down trains in that direction in such a way that the signals for the movement in these directions cannot be taken 'OFF' unless the level crossing is closed and locked against road traffic and the control has been transferred to the VDU panel.

When it is necessary to close and lock the lifting barriers against road traffic the VDU Panel SM on duty will inform the gateman to close the barriers against the road traffic for the movement of trains. The gateman on receipt of instructions from Panel ASM the gateman will press the red button till the indication will appear on the gate panel. This indication shows the gate is closed and locked against road traffic. After closing, locking the gate, the gateman will advise the SM on duty about closing of the gate against road traffic.

17. <u>WORKING OF BLOCK PROVING AXLE COUNTER PANEL BLOCK INSTRUMENT BETWEEN ACHNERA JN. CABIN- CIK & ACHNERA JN. CABIN -PRK ON SINGLE LINE</u> :-

For the purpose of line clear working Block proving Axle counter panel block instrument have been provided between ACHNERA JN. CABIN-CIK & ACHNERA JN. CABIN -PRK as per para No.739 of block working manual 2013. These block panels are provided with various push button, keys, Indicator, counters and buzzers. Their nomenclature and functions are details below.

(1) PUSH BUTTONS

Push button	Functions
BELL	(i) To the transmit BELL codes (ii) To take Line clear, when pressed along with TGT button (iii) To cancel Line Clear when pressed along with CANCEL button.
TRAIN	Station master of dispatching stations operates it along with bell

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GOING TO (TGT) RED	button. When TGT button is pressed along with bell button, by the stations which is dispatching a train, the block panel of that station gets green TGT indications .Simultaneously, the block panel of the receiving station gets GREEN TCF indications.
CANCEL YELLOW IN COLOUR	It is operated along with 'Bell" button to enable cancellation of 'Line clear" condition. if the train has not entered the block section or after the train has pushed back to the station in rear. This operation for cancellation of Line Clear is done by the train receiving stations.

CANCEL CO-OP GREEN IN COLOUR	It is operated by train dispatching station for extending of cancel co-operation to train receiving station
ACKN. BLACK IN COLOUR	It is operated to acknowledge the section occupied or section free condition. it mutes the SECTION OCCUPIED/FREE buzzer.

(II) Description of Keys:

Push button	**Functions**
S.M Key	This key when taken out prevents the following: (i) transmission of BELL code operations: (ii) transmission of Line Clear enquiry code. (iii) cancellation of line clear.
MAINTANCE BACK COVER LOCK KEY	A lock is provided at the back of block for maintenance purpose.
SM's BACK COVER LOCK KEY	For double lock arrangement of a lock on the back of Block panel is provided which can be operated by key kept in the custody of station master.
SHUNT RELEASE KEY	Shunt Release key (normally OUT) The following operation is possible when IN a) to take out SHUNT KEY from electric key transmitter (EKT) . which serves as tangible authority from driver to shunt beyond last stop signal b) the following operation are not possible when IN i) to take line clear ii) other side station to take line clear iii)closing of block i) To take off the last stop signal

(III) Description if indicators:

Indicators	**Functions**
'LINE CLOSED'	Circular indication in between directional arrowhead. In lit condition (yellow), it indicates that section is free from vehicles & Line Clear has not been granted or received.

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TRAIN COMING FROM GREEN	Its shape is directional arrowhead pointing downwards for incoming traffic at train receiving station and a rectangular indication named TCF. To indication "LINE CLEAR" granted. when TRAIN GOING TO button and BELL button have been pressed at sending station and condition s for granting line clear at receiving station has been compiled with . To indicate:
FLASHING GREEN	(a) line clear has been withdrawn before the entry of train in block section or. (b) Block Section has cleared after the arrival of train, but associated signals & their controls have not been put to normal at either of the stations. (c) Block section has cleared after the arrival of train, associated controls are normal at both stations but after unintentional of shunt key 'IN' in the sending section when the train was in the section.
TOL INDICATION RED	In a directional arrow head pointing upwards send rectangular indication for outgoing traffic of the train sending station To indicate TRAIN ON LINE on entry of incoming train on LINE CLEAR.
'TRAIN GOING TO GREEN FLASHING GREEN	In a directional arrow head pointing upwards for outgoing traffic at train sending station and a rectangular indication named TGT. To indication LINE CLEAR received when TRAIN GOING TO button have been pressed at sending station and the conditions for talking line clear have been complied with at both stations to indicate: **(a)** line clear has been withdrawn before the entry if train in block section or. **(b)**Block Section has cleared after the arrival of train, but associated signals & their controls have not been put to normal at either of the stations. **(c)** Block section is cleared after arrival of train, associated controls are normal at both stations but after unintentional insertion of shunt key 'IN' in the sending section when the train was in the sections.
TOL INDICATION RED	In a directional arrow head pointing upwards send rectangular indication for outgoing traffic of the train sending station. To indicate TRAIN ON LINE on entry of incoming train on LINE CLEAR.
CANCEL CO-OPERATION INDICATION YELLOW	Indication to indicate co-operation extended by station at other end for cancellation of line clear by pressing cancel cooperation button.
CANCEL INDICATION FLASHING YELLOW STEADY YELLOW	Circular LED To indication progress of LINE CLEAR cancellation timer of 120 seconds .button in presence of Cancel co-operation indication , WHEN TRAIN COMING FROM display with FLASHING GREEN indication To indication cancellation timer matures but due to some reason the system does not go to line closed.

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LINE FREE GREEN	An indication is provided near the arrowhead indication to show block section is clear of vehicles.
SNKE (LOCAL)YELLOW	Two such indication are provided i) SNK: yellow indication provided near TRAIN GOING TO directional arrowhead to indicate Last Stop signal and its control at ON/Normal ii) SNK: Yellow indication provided near TRAIN COMING FROM directional arrowhead to indicate Home signal and its control at ON/Normal
SNKE (OTHER END) YELLOW	i)provided near TRAIN COMING FROM directional arrow head to indicate LAST STOP SIGNAL, Reception signal and its control at ON/Normal ii) Shunt key of EKT at other station is "IN" and shunt release key in SM block panel is "OUT"
LAST STOP SIGNAL RED GREEN	Circular in monogram signal. To indicate LAST STOP SIGNAL is "ON" To indicate LAST STOP SIGNAL is "OFF"
LINE OCCUPIED IDICATION RED	An indication is provided near arrowhead indication to show block section is occupied or axle counter is failed.
SM KEY (IN) GREEN	Indication near SM Key To indicate SM Key IN
SHK-IN/OUT	It has two indications, GREEN indicates shunting key has been taken out and RED indicates shunting key has been extracted.
TRAIN ACKNOWLEDGE MENT IN/OUT	An indication near ACKN button this is lit up(yellow) at the time of train entry into and exit from the block section .it remains lit until acknowledged.
UFSBI/MUX OK INDICATION	GREEN when UFSBI is of otherwise extinguished
UFSBI/MUX FAIL INDICATION	RED when UFSBI goes into a failure mode otherwise extinguished.
Communication LINK FAIL indication	Steady YELLOW when LINK between two UFSBI's FAILS else extinguished.

a. **Description of counters:**

Counters	Functions
CANCEL LINE CLEAR	Its keeps a record of cancellations of Line clear when train has not entered Block section or when a train has been pushed back.

b. **Description of Buzzers:**

Counters	**Functions**
BLOCK BELL	It gives signal as per BELL Code sent by SM of the station at the other end of block section.
SECTION Buzzer	It is an audible signal which informs the SM that the train has either occupied or cleared the block section.

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B) **WOKING OF SINGLE LINE BLOCK PROVING AXLE COUNTER PANEL BLOCK INSTRUMENTS FOR DISPATCHING TRAINS ACHNERA JN. CABIN to CIK/PRK:-**

Whenever a train is to be dispatched from **ACHNERA JN. CABIN** to **CIK/PRK**, the ASM on duty at **ACHNERA JN. CABIN** shall ask ' LINE CLEAR' Making suitable entries in the train register, ASM on duty at **CIK/PRK**, will grant verbal line clear supported by this private number after ensuring that all the conditions for granting line clear are fulfilled.

On getting this verbal permission supported by private number from ASM **CIK/PRK**, the ASM on duty at **ACHNERA JN. CABIN** shall press the "BELL" button "TGT' button on his block simultaneously. As soon as the button are pressed as mentioned above, the LINE CLOSESD' indication disappears and the relevant arrowhead indication with green light appears on the block panel at both the end i.e "TGT' at **ACHNERA JN. CABIN**, and TCF' at **CIK/PRK**, will be illuminated. The 'LINE FREE' indication at both ends will continue to exhibit green lights as usual, indication that the block section is still clear.

After setting of route for dispatch of an UP/DN train, SM/ **ACHNERA JN. CABIN** on duty shall lower the relevant starter & Advance starter signal . As soon as the train occupies the block section, the directional arrowhead indications and 'LINE FREE' indication turn red at both stations. SECTION buzzer starts ringing and also TGT, TCF indication turns to RED of block panel at **ACHNERA JN. CABIN & CIK/PRK**, respectively. To stop the buzzer ASM on duty shall press the ACKN button.

After this ASM **CIK/PRK** shall take off the concern Home signal. When the train clears the block section. SECTION buzzer starts ringing and "TRAIN COMING FROM" indication turns to flashing green at **CIK/PRK**

To stop the buzzer at **CIK/PRK** ASM on duty shall press AC KN button "LINE FREE" indication turns green, "SECTION' Buzzer starts ringing and "TRAIN GOING TO" indication turns to flashing green at **ACHNERA JN. CABIN.** ASM on duty at **ACHNERA JN. CABIN** acknowledges the buzzer by pressing ACKN button "TRAIN GOING TO" indication turns green "SECTION" buzzer start ringing and 'TRAIN GOING TO" indication disappears and LINE CLOSED indication appears at **ACHNERA JN. CABIN**

When all the controls pertaining to reception of train at **CIK/PRK** are normalized. SNKE (Local) indication appears. TRAIN COMING FROM indication disappears and LINE CLOSED indication appears. At **ACHNERA JN. CABIN** also TRAIN GOING TO indication disappears and LINE CLOSED indication appears on the block panel.

C) **WORKING OF LINE CLEAR BLOCK PROVING AXLE COUNTER PANEL BLOCK INSTRUMENT FOR RECEPTION OF TRAINS COMING TO ACHNERA JN. CABIN FROM CIK/PRK.**

When a request for granting "Line clear" is received from ASM **CIK/PRK.** for particular train supported by his private Number .the ASM on duty at **ACHNERA JN. CABIN** shall note down the particulars in the train register and after satisfying himself that conditions for granting ' line clear' indicated on the panel are compiled with, shall grant verbal line clear supported by his private number.

On getting this verbal permission supported by private number from ASM / **ACHNERA JN. CABIN**, the ASM on duty at **CIK/PRK** shall press the "BELL" button and "TGT" button on his block panel simultaneously. As soon as the buttons are pressed as mentioned above the "LINE CLOSED" indication disappear and the relevant arrowhead indication with green lights appears on the block panel at the both ends i.e 'TGT" **CIK/PRK** and " TCF" at **ACHNERA JN. CABIN** will be illuminated the "LINE FREE ' indication at both the end will continue to exhibit green lights as usual , indication that the block section is still clear.

After this ASM **CIK/PRK** shall take off the concern advanced starter. As soon as the train occupies the block section. The directional arrowhead indication and 'LINE

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FREE" indication turn red at both stations SECTION. Buzzer starts ringing and also TGT, TCF indication turns to RED of block panel at **CIK/PRK & ACHNERA JN. CABIN** respectively. To stop the buzzer ASM on duty shall press the ACKN button. After setting of route for reception of train, ASM/ **ACHNERA JN. CABIN** on duty shall lower the concern Home signal. when the train clears the block section ,SECTION buzzer starts ringing and "TRAIN COMING FROM" indication turns to flashing green at **ACHNERA JN. CABIN**. To Stop the buzzer at **ACHNERA JN. CABIN** ASM on duty shall press ACKN button. 'LINE CLEAR" indication turns green, SECTION buzzer starts ringing and "TRAIN GOING TO' indication turns to flashing green at **CIK/PRK.** ASM on duty at **CIK/PRK** acknowledges the buzzer by pressing ACKN button. TRAIN GOING TO" indication disappears and LINE CLOSED indication appears at **CIK/PRK** When all the controls pertaining to reception of train at **ACHNERA JN. CABIN** are normalized, SNKE (Local) indication appears, TRAIN COMING FROM indication disappears and LINE CLOSED indication appears. At **CIK/PRK** also TRAIN GOING TO indication disappears and LINE CLOSED indication appears on the block panel.

D) **BLOCK BACK OPERATION**

The SM , who intends to block back the line, shall inform the SM of stations at other end on the telephone for permission to Block Back who will acknowledge the message supported by private number . SM puts the shunt release key in SM Block panel to 'IN" and takes SHUNT key of EKT OUT and hand over to driver of the train being block backed to perform shunting in block section.

On completion of shunting, section clear message will be sent to SM of station at other end on telephone about obstruction removed supported by private number . thereafter SM will insert shunt key of EKT and turn to IN position and takes out the shunt release key.

E) **PUSH BACK OPERATION:**

After the train has been pushed back into train sending station following action appears-

	SENDING STATION		RECEIVING STATION
1.	Train clears the block section, LINE FREE indicator turns GREEN. Section BUZZER starts ringing .ACKN indicator lights up	2.	Train clears the block section ,LINE FREE indicator turns GREEN .section BUZZER starts ringing . ACKN indicator light up.

	TRAIN GOING TO arrowhead indication turns to FLASHING GREEN		TRAIN COMING FROM arrowhead indication turns to FLASHING GREEN
	Acknowledge the buzzer by pressing ACKN button .ACKN button turn off		Acknowledge the buzzer by pressing ACKN button . ACKN button turn off.
3	Advises receiving end station SM about cancellation on telephone after prescribed call attention buzzer.	4	Agrees to request, ensures SNK indicator YELLOW, SNOEK indicator YELLOW, SHUNT KEY indicator GREEN and gives consent on telephone
5	After verbal consent from other end SM to ensure SNK indication yellow , shunt key indication green, presses CANCEL CO-OP button and releases on receipt of call attention buzzer	6	CO-OP to light up yellow, press BELL & CANCEL button with SM key IN. CANCEL COUNTER INCREMENTS CANCEL indication light up

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			FLASHING YELLOW& continues flashing for 120 seconds
8	TRAIN GOING TO arrowhead turns off, LINE CLOSED INDICATION light up.	7	On expiry of 120 seconds. TRAIN GOING FROM arrowhead indication and cancel indication turns off. LINE CLOSED INDICATION LIGHTS UP

17. **Cancellation of Line Clear :**

After a train sending station has taken line clear, the receiving station can carry out line clear cancellation with consent of other end station. Sending station puts back LSS to "ON", if already taken "OFF" and its control to normal ensures SNK at "YELLOW" sending station extends co-operation by pressing CANCELCO-OPERATION button.

On receipt of co-operation indication, receiving station presses bell and cancel button with SM KEY "IN" Receiving station observes cancel indication to light up flashing yellow and releases the button. TRAIN GOING TO /TRAIN COMING FROM Arrowhead indication turns to flashing green at sending/receiving station respectively . after 120 seconds LINE CLOSED indication light up "YELLOW" TRAIN GOING TO /TRAIN COMING FROM Arrowhead indication and cancel indication extinguishes.

Method of cancellation:-

SENDING STATION		RECEIVING STATION	
1.	PUTS back LSS to "ON", if already taken 'OFF' ensure SNK at YELLOW, Advices receiving end station SM about cancellation on telephone after prescribed Call attention buzzer.	2.	Agrees to request, ensures SNK at YELLOW and SNOEK at YELLOW and gives consent on telephone after prescribed Call attention buzzer.
3.	After verbal contest from other end SM presses Cancel co-operation button and releases on receipt of Call attention buzzer.	4.	Waits for co-operation light up yellow and presses, bell & cancel button with SM key IN. Cancel counter Increments. TRAIN COMING FROM indication turns to flashing green. Cancel indication lights up flashing Yellow & continues flashing for 120 seconds.
5.	'TRAIN GOING TO' indication turns flashing green.	6.	On expiry of 120 seconds, TRAIN COMING FROM indication &cancel indication turns off. LINE CLOSED indication lights up.
7.	'TRAIN GOING TO' indication turns off LINE CLOSED indication lights up.		

18. **POWER SUPPLY EQUIPMENT AND POWER SUPPLY FAILURES:-**

Two sources of Power supply Main (Supply from UPPCL) and catenaries through auxiliary transformers (AT) are available for feeding the signaling circuits at this station. The primary source is Local Power from UPPCL and a secondary source is AT .Both these supplies have been made available in the Automatic Changeover Panel (MACLS Panel) provided in the SM's room

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having an Auto/Manual Changeover Switch. Pilot lamps have been provided in the MACLS Panel to indicate the availability of supplies in the MACLS Panel. Whenever power from UPPCL fails the Auto Change over switches Automatically to AT supply. In case the Auto Change over switch fails to operate after one source of power supply fails, the Station Master on duty shall operate the Manual Change over switch to the position of other source of power supply mentioned on the panel. Whenever the supply from UPPCL fails for longer duration, the switch should be put to other position for ensuring power supply and Electrical Controller shall be informed through the Section Controller.

Beside this, one ASM Panel for IPS is also provided in the ASM's room for monitoring the status of Integrated Power Supply (IPS) system for signaling. The audiovisual indications available on the ASM panel are for any failure in IPS and monitoring the status of batteries to generate the audio-visual alarm for the following conditions;

Voltage Monitoring indication panel :-This shows voltage level. Digital voltmeter provided.

Call S&T Staff:-This LED glows when any of the modules, converters (DC-DC), CVT etc fails, SM on duty should bring it to the notice of S&T staff when this LED glows.

18.1 General Instructions:-

In case of non-lamp on the board remaining permanently extinguished showing non availability of the normal supply. ASM on duty will arrange to inform the SE/JE/(Electrical) through XR / control message for attending the equipment with copies to JE/Elec.& SE/Sig of the section.

19. TELE-COMMUNICATIONS: -

1. The Telephone connection is provided between Station Master VDU Panel and
   (a) SM ACHNERA. AH Jn Cabin
   (b) L.C. Gate No. 20A, 21.
   (c) Control office at AGRA CANTT.
   (d) Crank Handle Locations.

2. Single line Block Instruments with Block proving by digital Axle counter are provided in SM's VDU panel to connect:

   (i) Achnera Jn Cabin - Chiksana
   (ii) New Jn Panel Cabin - Parkham

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20. HEAD QUARTERS OF THE OFFICIAL TO BE ADVISED

In case of failure of S&T gears advice must be sent in writing and by wire to the following officials.

1.	Electrical signal maintainer	: Achnera Jn. Cabin
2.	SSE(Signal)	: AH
3.	Traffic Inspector	: AGRA
4.	Chief Controller	:AGRA
5.	Asstt. Divl. Signal and Tele. Engr.	:AGRA
6.	Sr.Divl. Safety officer.	:AGRA
7.	Divl. Signal & Telecom. Engr.	:AGRA
8.	Sr. D.S.T.E.	: AGRA
		: AGRA

In case of failure of power supply advice must be sent in writing and by wire to the following in addition to the officials mentioned as above.

1. Electric Wireman (Maintainer)	:	AGRA.
2. Sr. Electric Foreman (G)	:	AGRA
3. Electric Foreman PSI	:	AGRA
4. Sr. Divl. Elect. Engr./G	:	AGRA
5. D.E.E. (PSI)	:	AGRA.
6. D.E.E. (G)	:	AGRA

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OPERATOR VISUAL DISPLAY UNIT DESCRIPTION

1. INTRODUCTION:

1.1 OVERVIEW

This user manual explains the instructions & step by step procedures to be followed by the stations master/s during the operation of field gears from the Operator Visual Display Unit (VDU).

1.2 DOCUMENT PURPOSE

This document is to be used as a supplementary document of **Station Working Rule (SWR)** for the respective station.

1.3 DOCUMENT SCOPE

The scope of this document will cover up the following main functionalities related with the Electronic Interlocking System.

- Operator VDU user functionalities,
- Station Master Actions during the system failure.

1.4 SYSTEM OVERVIEW

VDU consists of a Fan less Embedded PC which is suitable for KYOSAN make PCI bus interface arrangement to communicate logic sub rack directly through OFC with a high resolution color monitor, keyboard and pointing device (mouse).

The Software is installed to display the Station Yard diagram on the VDU and that it allows access to all functions through pop-up menus. When a particular function is selected, an appropriate Menu will appear on the screen by selecting a required operation clicking by the Left button of the pointing device (mouse) a function (Signal clear and cancellation, Route release, Point operation, Gate release etc.,) can be executed.

The Computer VDU may be used for controlling and monitoring the station, however indications on the Station yard diagram of VDU will be dynamically updated.

2. SELECTION OF CONTROL:

A dual VDU (Computer) is provided for the operation of signals, points, L.C. gates, crank handles, siding controls from the Station Yard diagram. A Station Yard diagram will be displayed on the VDU, which will exactly suits the yard plan as per Signal Interlocking plan

3. STATION CONTROL KEYS:

To prevent the unauthorized operation by other than on duty ASM/SM a Physical key is provided externally in "KEY CUM COUNTER BOX" available on a SM VDU table.

To identify the Physical SM key IN & OUT condition a separate indication is provided in VDU as shown below.

Physical SM key OUT will disable all the control menu's in the yard layout. Physical SM key IN enable all the PC SMKEY IN control menu.

- When Physical SMKEY is out.

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- When Physical SMKEY is IN.

4. OPERATIONAL PROCEDURE:

OPENING OF POP-UP MENUS

All the Pop-up (control) Menu of the VDU panel are possible by clicking left button of a pointing device (mouse) on the specific control map. When the operator clicks on the control map (e.g. Point, Signal, Crank handle etc.) a popup menu appears. The pop-up menu displays all the possible operations of the Control map. The operator can track his pointing device on the pop-up menu to point to the commands he intends to do. The tracked command is highlighted on the pop-up menu. The operator shall click the left mouse button on the command he intends to give.

5. ABOUT THE TCS:

The main menu of the TCS displays the information about the TCS. It also displays the Version information of the Train Control System.

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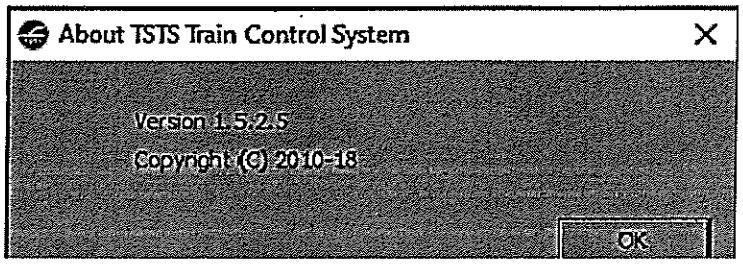


6. VDU INDICATIONS:

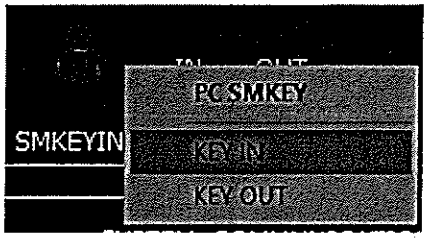
A) PC SMKEY IN & PC SMKEYOUT

On duty SM/ASM has to ensure physical SMKEY IN and need to track the pointer to the "PC SMKEY" icon and click the "KEY IN" in the menu by the left button of the mouse, by this a Password window will appear. ASM/SM need to enter the password and press the OK Button provided on the Password window.

PCSMKEY IN will enable all the control menu's in the yard layout..

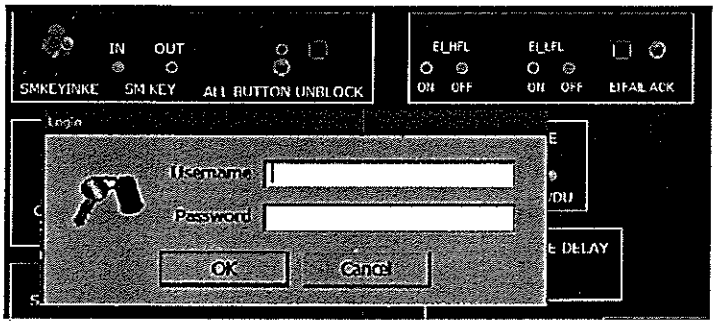
PCSMKEY OUT will disable all the control menu's in the yard layout, except Signal Cancel.

- Physical SMKEY is out, At that time SMR & PC SMKEY Menu status.



- Physical SMKEY is IN, At that time SMR & PC SMKEY Menu status.

- After Pressing KEY IN, It Will ask user authentication.



- After that Provide USERNAME & Password and Press OK to Make VDU KEY IN.

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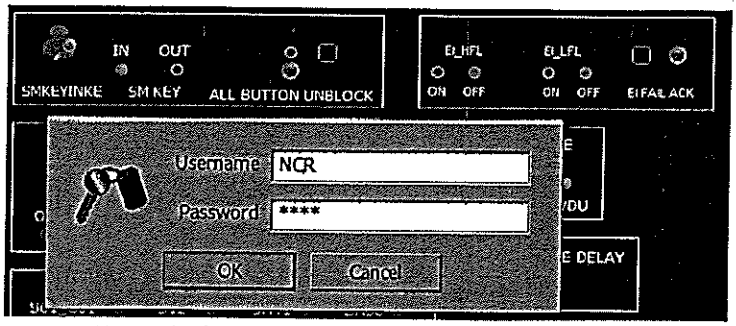
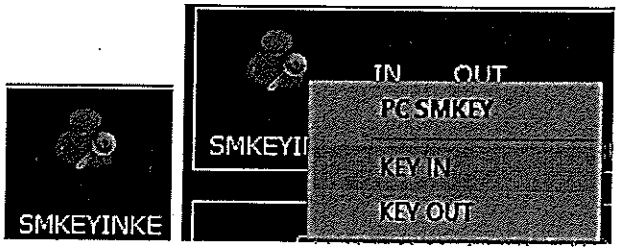
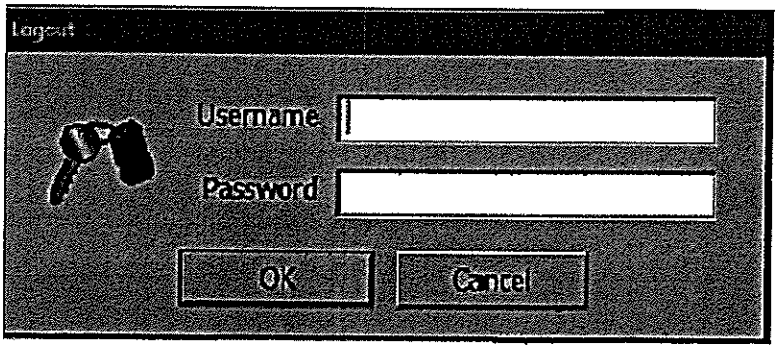


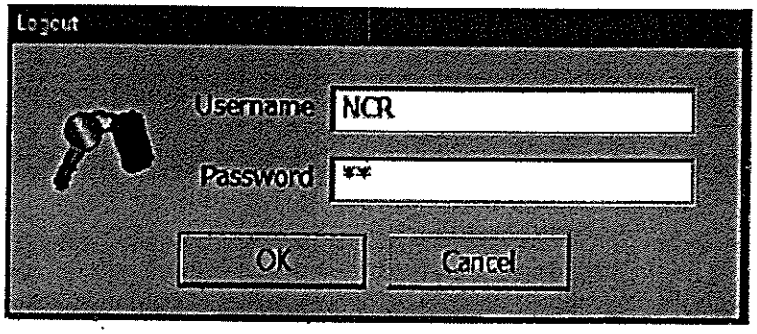
- KEYIN indication and PC SMKEY Menu status after VDU KEYIN.



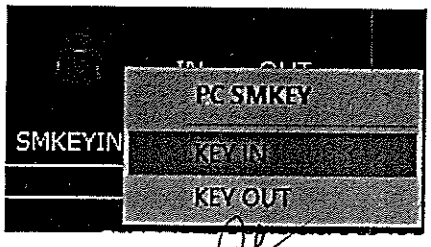
- After Pressing KEY OUT, It Will ask user authentication.



- After that Provide Username & Password and Press OK to Make VDU KEYOUT.



- KEYOUT indication and PC KEY Menu status after KEYOUT In VDU.



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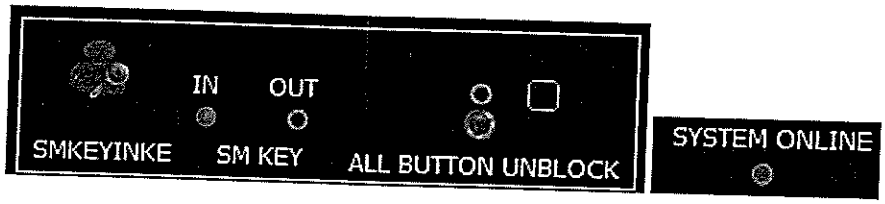
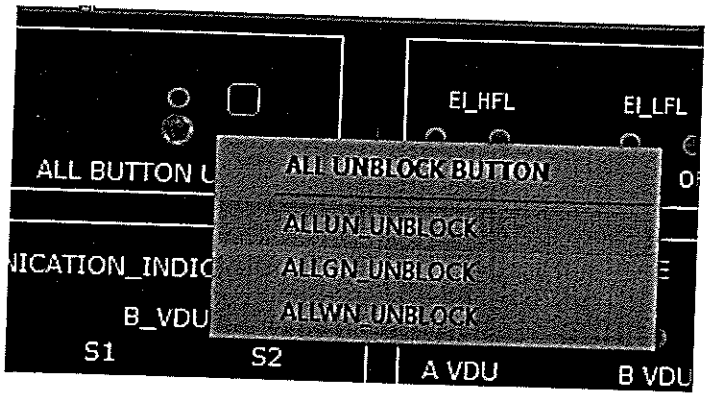
B) ALL BUTTON BLOCK & UNBLOCK

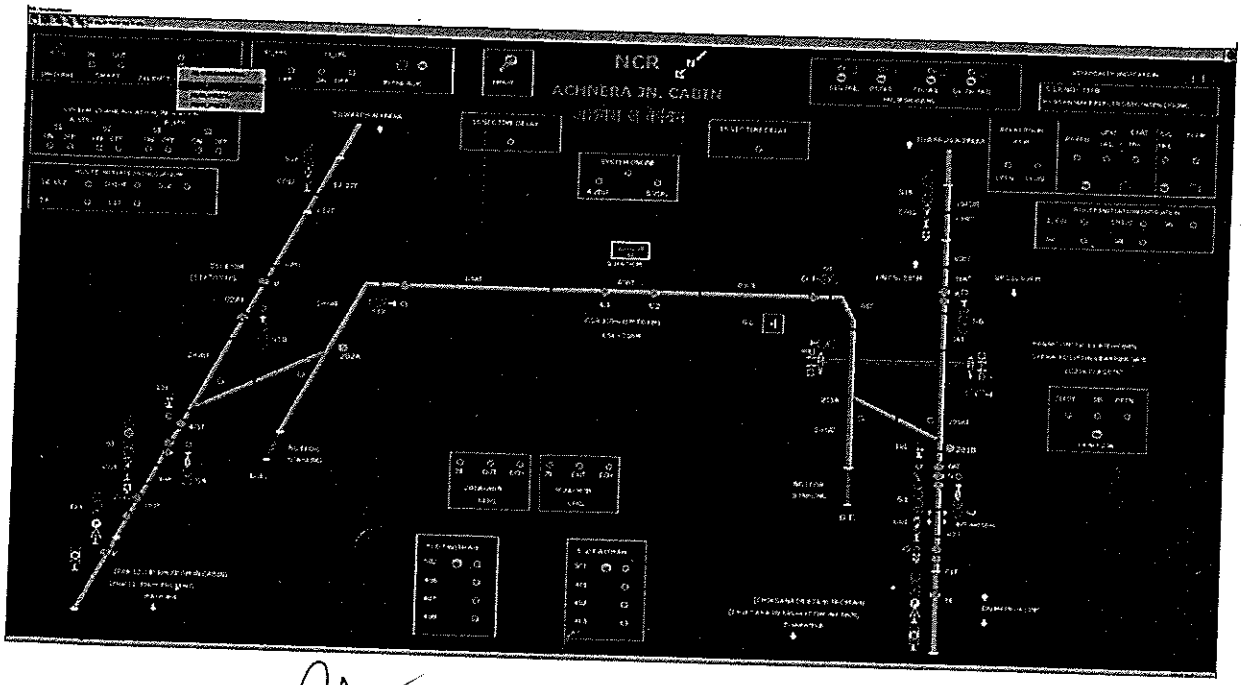
1. After System Boot up
   a. All the Signal, Route and Point buttons will be blocked.
   b. System ONLINE indication will flash.





2. After system initiation timer completed i.e. after 130 seconds,
   a. System ONLINE Steady indication will display
   b. All unblock buzzer will sound

3. After EI system ONLINE steady initiation and PC KEYIN, All unblock of Signal, Route and Point button to be done



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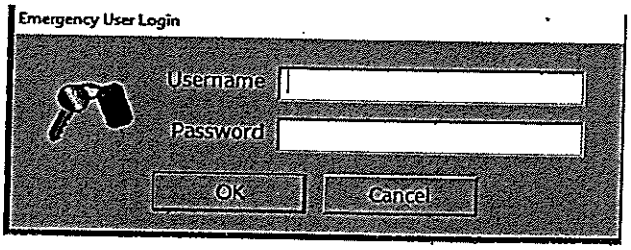
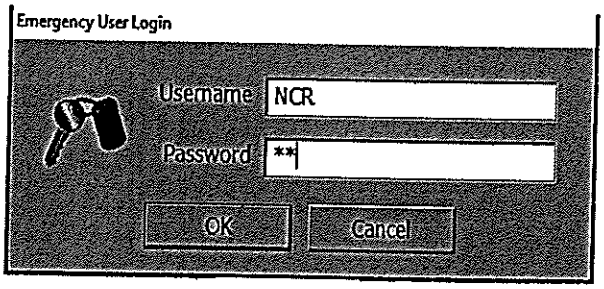
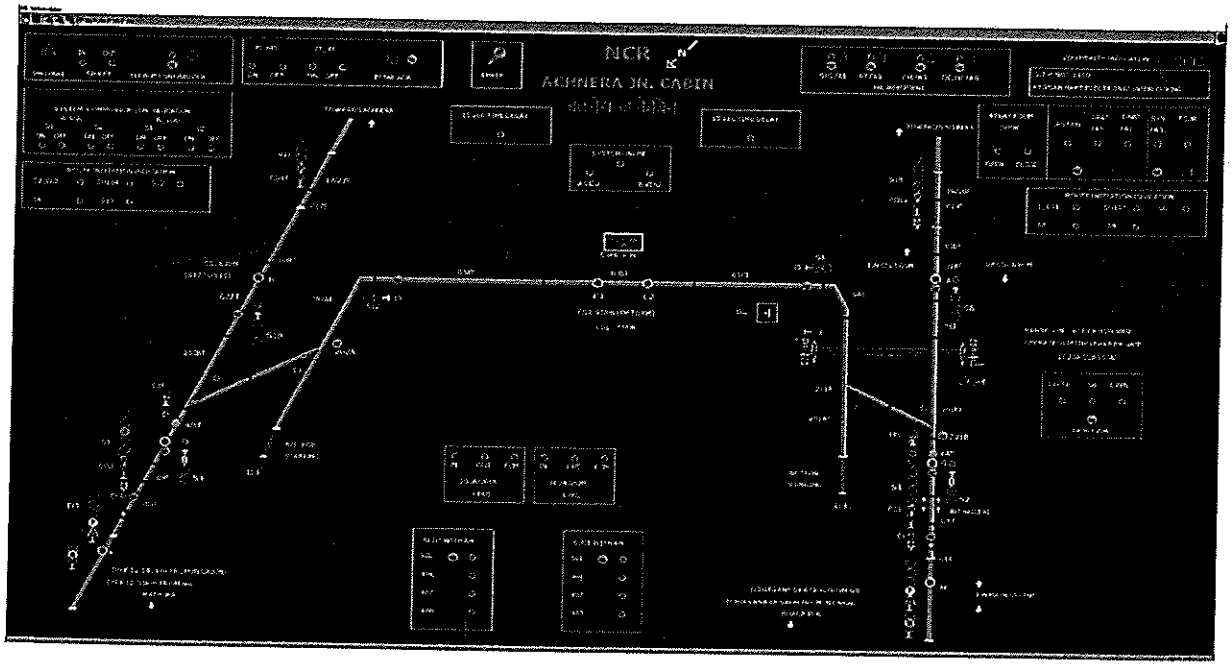
4. It will ask user authentication after pressing All unblock menu.





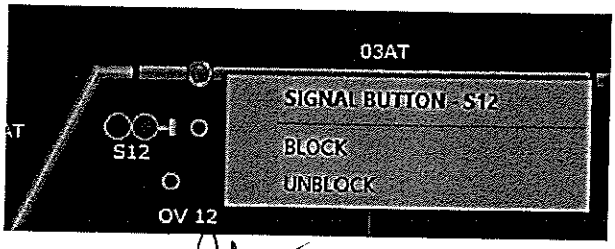
5. After All Unblock



C) INDIVIDUAL BUTTON BLOCK UNBLOCK

i) SIGNAL BUTTON

1. Signal Button Block menu Enabled condition



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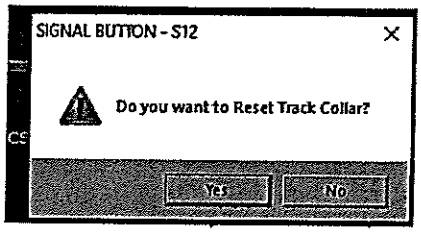
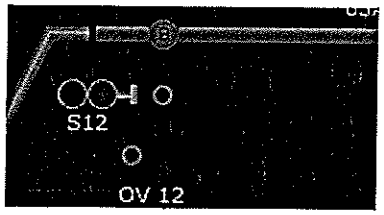
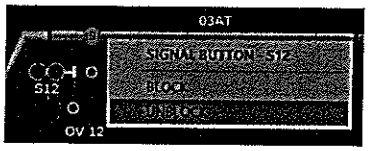
2. Signal Button Block confirmation



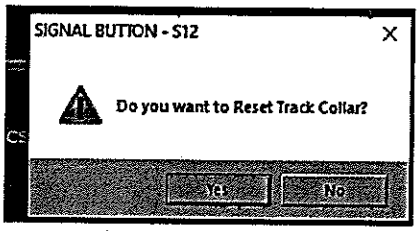
3. Signal Button Blocked indication



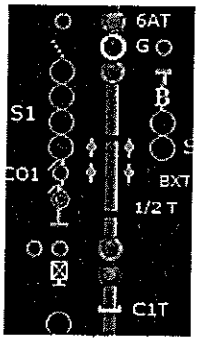
4. Signal Button Unblock menu Enabled condition



5. Signal Button Unblock confirmation



6. Signal Button Unblocked indication



ii) ROUTE BUTTON

1. Route Button Block menu Enabled condition

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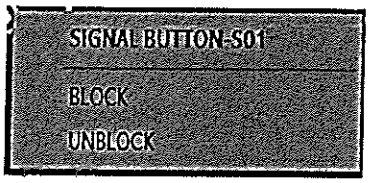
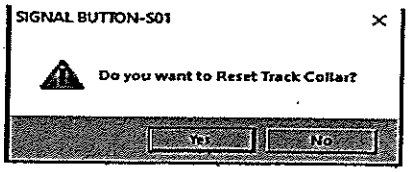
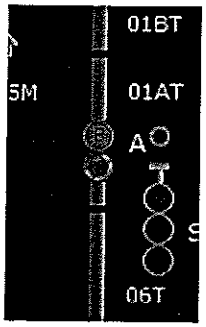


2. Route Button Block confirmation

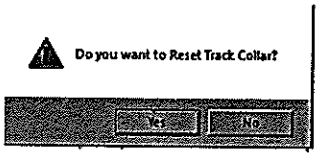


3. Route Button Blocked indication

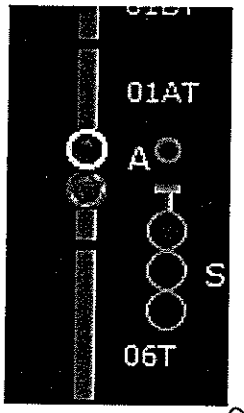


4. Route Button Unblock menu Enabled condition

5. Route Button Unblock confirmation



6. Route Button Unblocked indication



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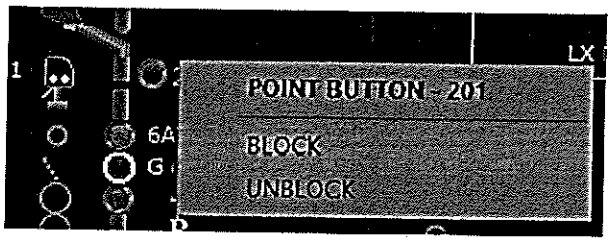
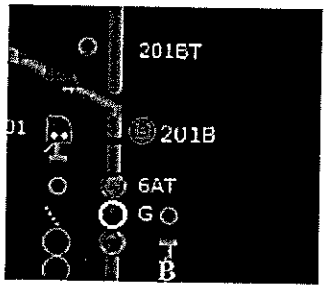
iii) POINT BUTTON

1. Point Button Block menu Enabled condition

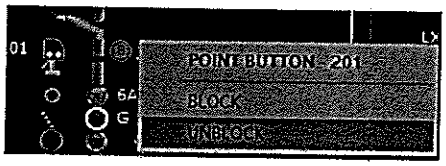


2. Point Button Block confirmation

3. Point Button Blocked indication

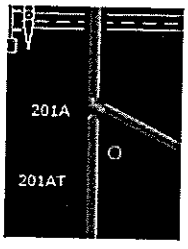


4. Point Button Unblock menu Enabled condition



5. Point Button Unblock confirmation

6. Point Button Unblocked indication



D) TRACK INDICATION

1. Track Free Indication

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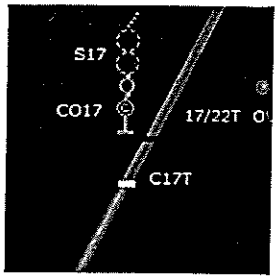
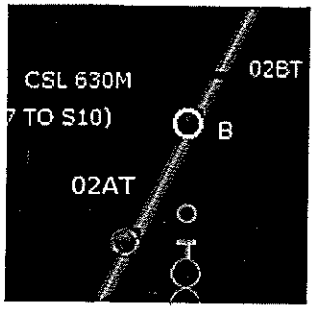
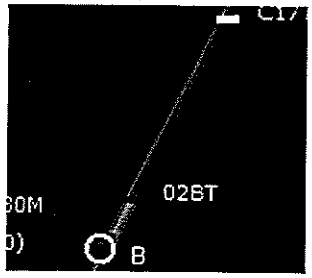


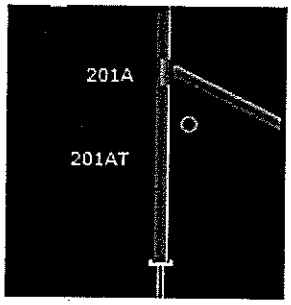
2. Track Route set & Lock indication



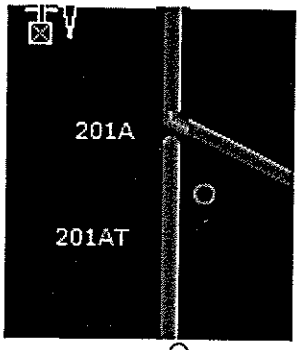
3. Track Occupied indication



4. Point Track Free Normal Indication



5. Point Track Free Reverse indication



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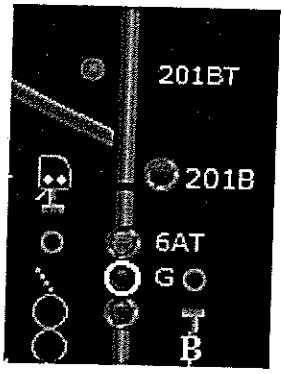
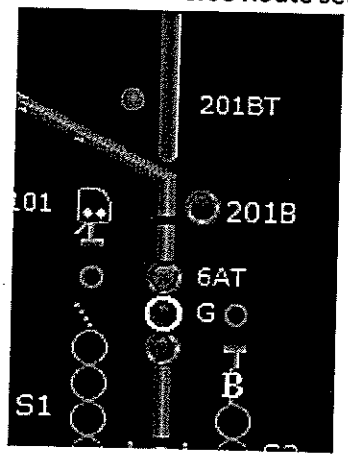
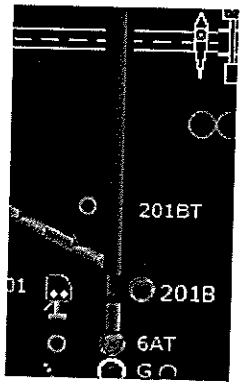
6. Point Track Normal Route set & Lock indication



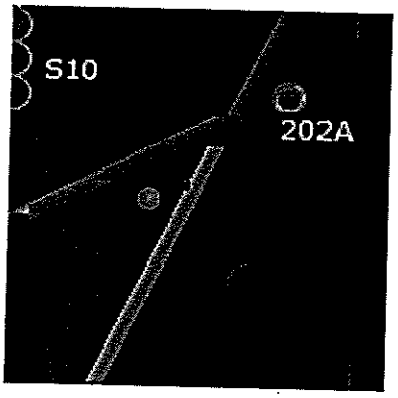
7. Point Track Reverse Route set & Lock indication



8. Point Track Normal Occupied indication



9. Point Track Reverse Occupied indication



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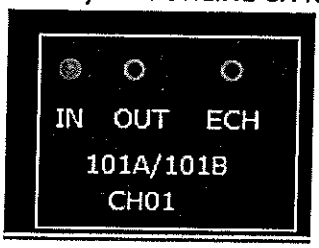
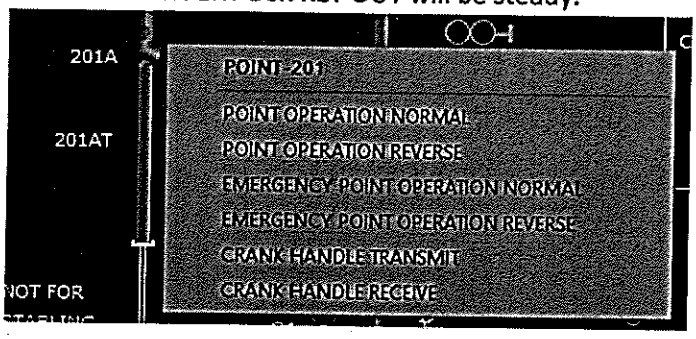
E) CH INDICATION

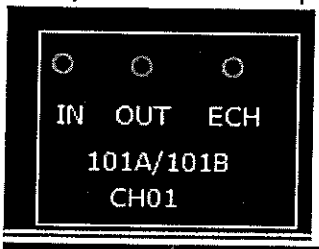
1. After system ONLINE CH KEY IN steady indication will display.

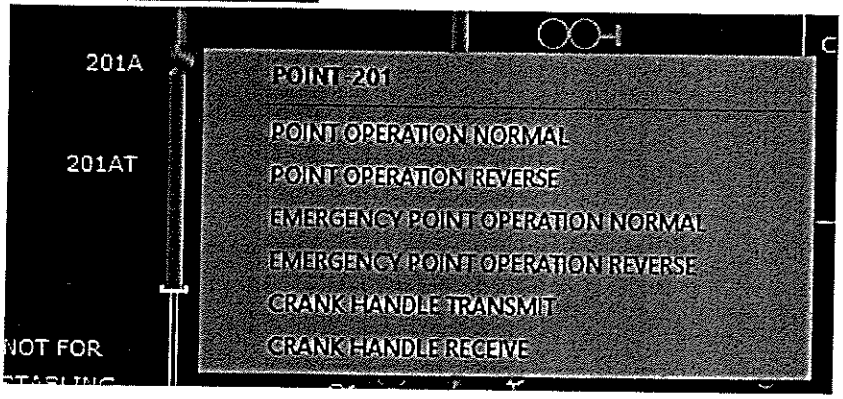


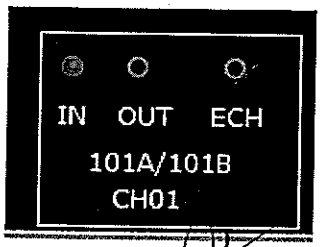
2. To release Crank Handle SM has to press TRANSMIT CONTROL menu in concerned point button , then KEY OUT indication will flash and CH KEY IN will be blank. After Extraction of CH KEY from CH EKT Box KEY OUT will be steady.



3. After inserting CH KEY to CH EKT Box CH KEY OUT indication will flash. SM should receive CH KEY by using RECEIVE CONTROL menu in concerned crank handle button. After that IN steady Indication will display.







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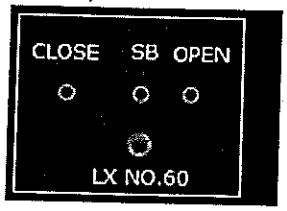
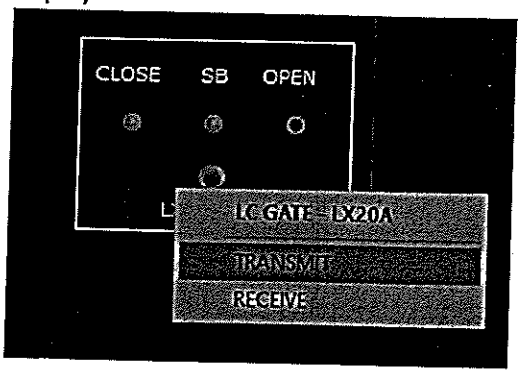
F) LEVEL CROSSING INDICATION

1. After system ONLINE LX OPEN indication will flash.

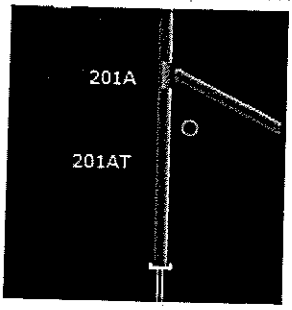


2. SM has to press RECIEVE CONTROL menu in concerned LX button, then CLOSE indication will display.

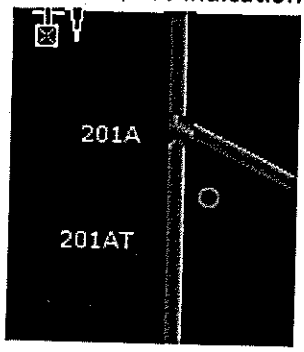


G) POINT INDICATION

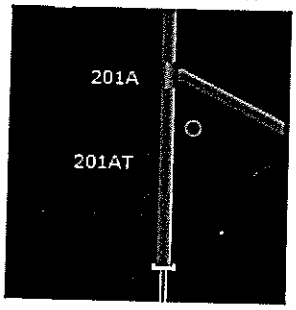
1. Point Normal indication



2. Point Reverse indication



3. Point Free indication



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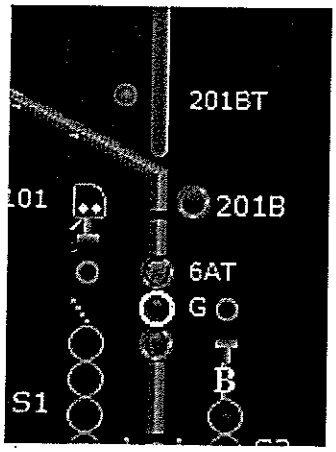
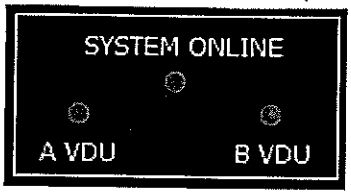
4. Point Lock indication



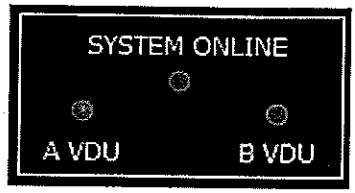
6.1 K5BMC SYSTEM INDICATIONS:

A) OPCA/OPCB INDICATION

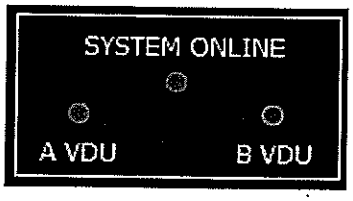
OPCA and OPCB is healthy and KEYIN operation done in OPCA



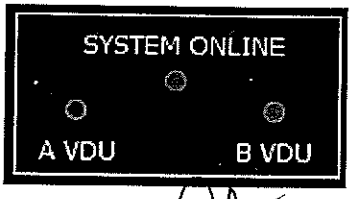
OPCA and OPCB is healthy and KEYIN operation done in OPCB



OPCA is working Online and OPCB failed



OPCB is working Online and OPCA failed



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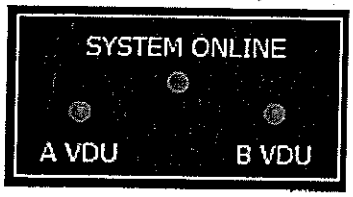
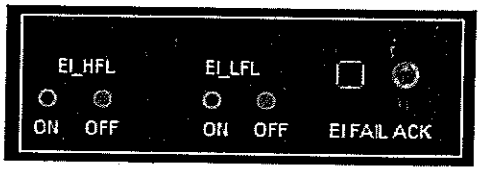
OPCA & OPCB healthy and SM not done KEYIN operation in both OPC

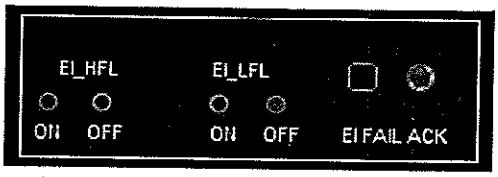


B) EI INDICATION

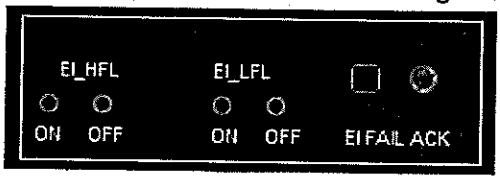
EI healthy indication



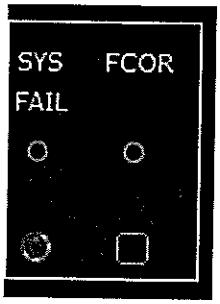
If anyone Main or Redundant of the system component failure like ETPIO2 card, Communication card, CPU card, Power Supply card, DC-DC converter or communication equipment, then EI low fail indication will flash.



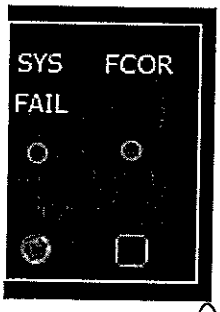
If both Main or Redundant of the system component failure like ETPIO2 card, Communication card, CPU card, Power Supply card, DC-DC converter or communication equipment, then EI low fail and EI high fail indication will flash.



FCOR & SYS fail healthy status



FCOR & SYS fail indication (Flashing Red & Buzzer)



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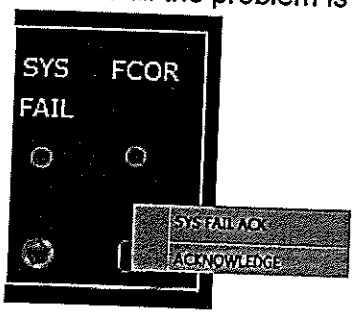
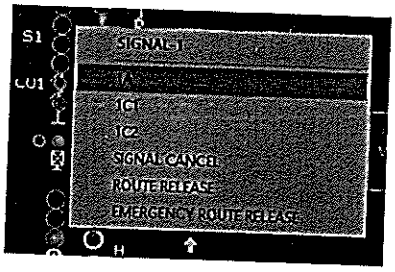
6.2 SYSTEM FAILURE ACKNOWLEDGEMENT:

During FCOR or all the IO board or anyone communication channel failed then system failure buzzer will sound. To acknowledge system failure Red colour button provided near system failure buzzer indication. Once the button is acknowledged, the buzzer will go off. The indication remains till the problem is rectified.



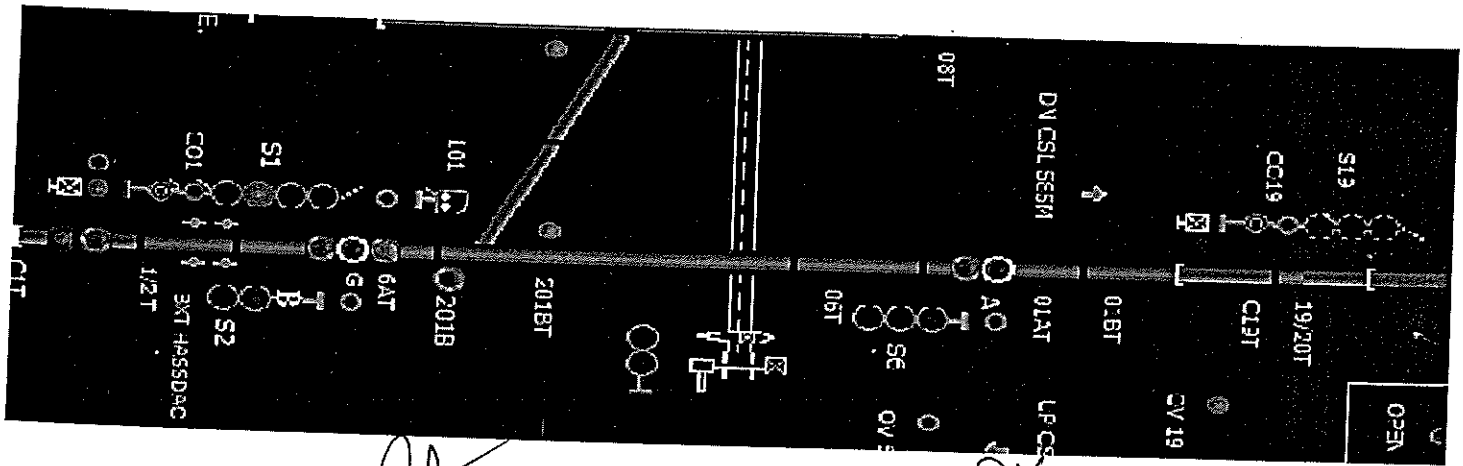
7. MAIN SIGNAL OPERATION:

To Take-Off a Signal with the desired route the SM/ASM 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.



SETTING A ROUTE:

To set a route of a signal, click on a possible route of the signal, after done so the route initiated yellow steady indication will appear on the route initiation indication symbol and all the relevant points Normal/ Reverse set indications will starts flashing if it is not available in the required position. After setting of point in the route required condition (Flashing indication will be steady) a complete yellow route set indication will appear from the Replacement Track of the signal to the last track of the route also the points will be locked (A Point locked can be ensured from the Yellow Steady indication will appear near the point). Finally a Route locked Yellow Steady indication will appear near by the signal. The signal is Taken-Off now. The yellow route set indication will turn to red when the train occupies the track circuit.



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CONDITIONS FOR SETTING A ROUTE:

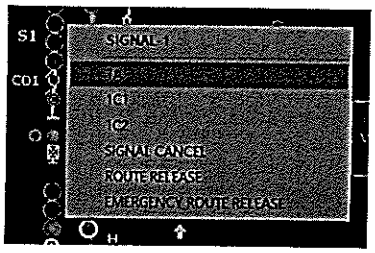
The following condition to be ensured before setting the route by the SM/ ASM.

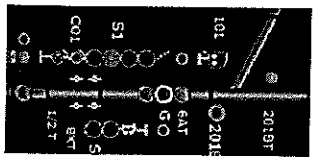
1. All the tracks in the route are not occupied or failed.
2. All the Crank handles of the required route related points to be in Key IN condition and locked.
3. All the related Siding control keys to be in Key in condition.
4. If any Level Crossing gates are falling under the route that should be closed and locked (KEY IN).

SIGNAL CANCEL, EMERGENCY ROUTE RELEASE & EMERGENCY ROUTE RELEASE (SPECIAL):

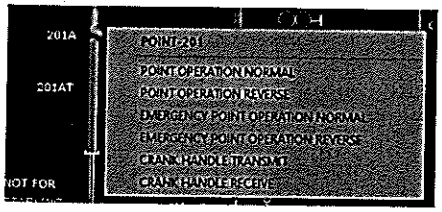
To cancel a signal when the route is set and the signal in taken-off.

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 EMERGENCY ROUTE RELEASE menu. The route locked indication will starts flashing if the approach track occupied or Dead Approach for 120 sec, After the completion of 120 sec, the locked route will be released and counter provided for the route release will change to next higher digit which should be recorded by SM/ASM.



EMERGENCY ROUTE RELEASE (SPECIAL):

In case where the route has to be released under track fail, this operation applied with SM & ESM knowledge. For doing this operation ESM has to put physical Emergency Key to be in and then When clicked on the option EMERGENCY ROUTE RELEASE(SPECIAL) menu, there will be a window asking for user name and password. After correct user name and password given the route locked indication will starts flashing for 120 sec, After the completion of 120 sec, the locked route will be released only after the Emergency Key has

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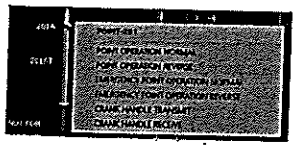
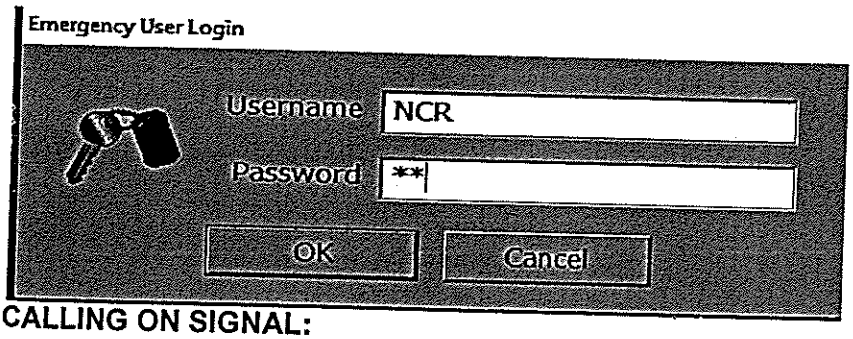
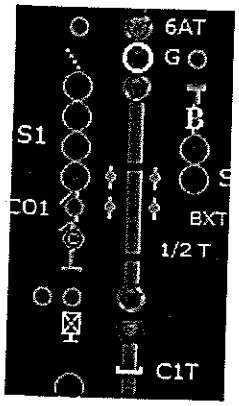
been taken out by the ESM. counter provided for the route release will change to next higher digit which should be recorded by SM.

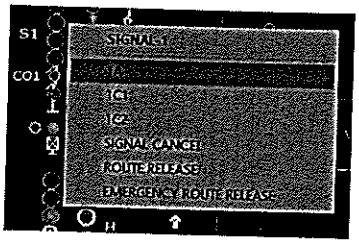




CALLING ON SIGNAL:

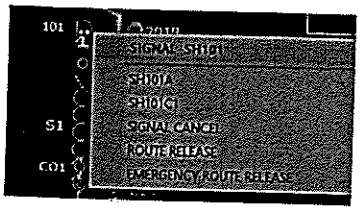
All the operation for Calling on signal is same as main signal but Calling on track occupied condition to be ensured before setting the route. After setting the route calling on initiation timer will run (i.e. 60 sec.) and then signal will clear.





SHUNT SIGNAL:

For setting and cancelling the signal route for the shunt signal the same procedure shall be followed as explained in section Main signal operation.



8. POINT OPERATION:

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

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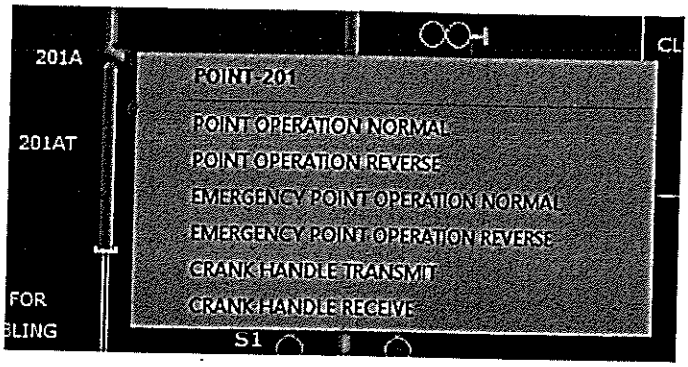
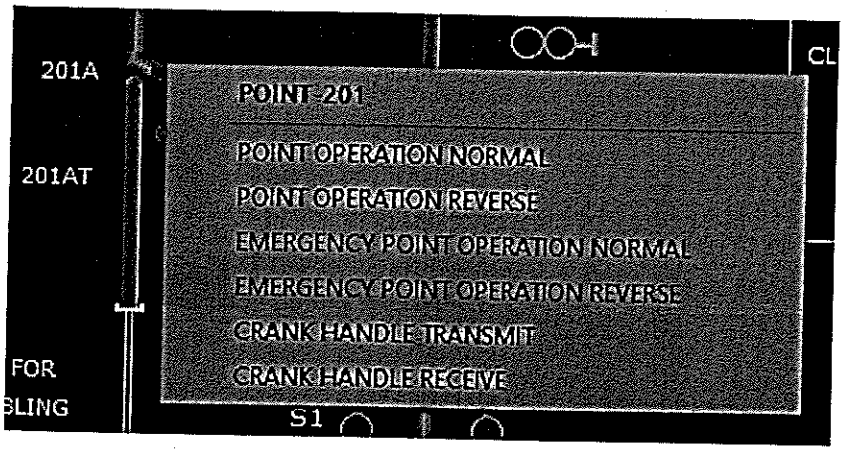


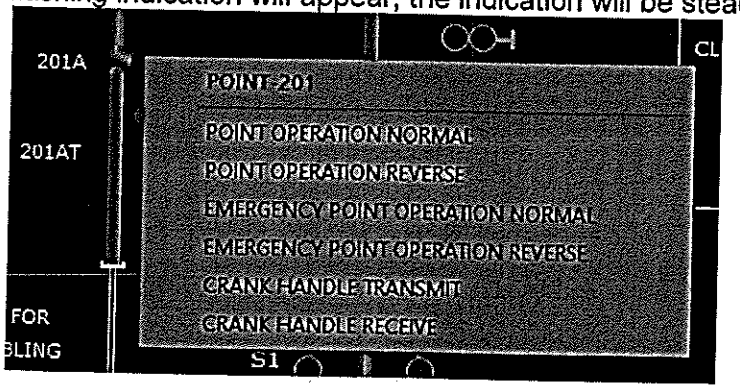
POINT NORMAL OPERATION:

To operate the point to normal 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.



POINT REVERSE OPERATION:

To operate the point to reverse 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.



EMERGENCY NORMAL / REVERSE OPERATION:

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

For doing this operation ESM has to put physical Emergency Key to be in and then Click on the EMERGENCY NORMAL/REVERSE menu, it will ask for user name and password. After given, the point will operate to the desired condition.

After the Emergency point operation a specific counter will increase to its next higher digit and this number should be recorded in the register provided for this purpose by the SM.

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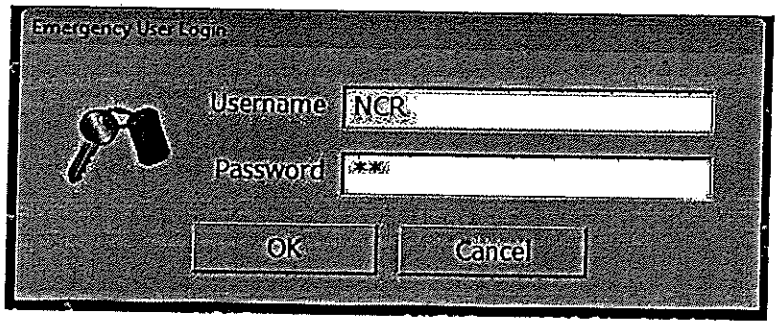
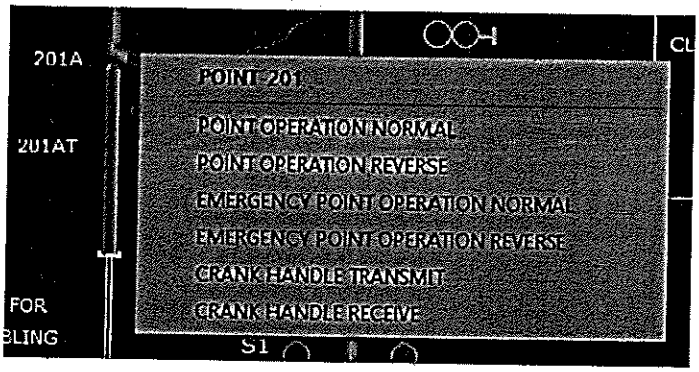


9. CRANK HANDLE CONTROL OPERATION:

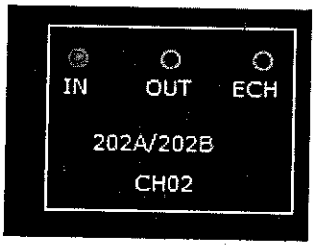
NORMAL CRANK HANDLE EXTRACTION CONTROL:

To Transmit or Release control of the Crank Handle, SM/ASM needs to track the mouse pointer to concerned Crank Handle button on the VDU, after clicking by the left button of the mouse a popup menu will appear as below..

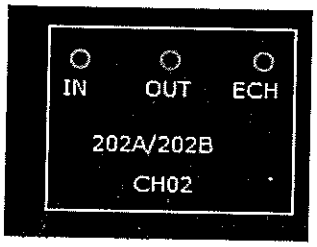
For Transmitting the Crank Handle KEY to the field personnel SM /ASM has to transmit the control by clicking the TRANSMIT CONTROL option on the menu.



After transmission the KEY OUT indication will starts flashing, now the KEY can be extracted from the KLCR. A Crank handle out steady red indication will appear when the key is taken out from KLCR.



When the Manual point operation is over, after putting the KEY in the KLCR, A KEY OUT flashing indication will appear on the VDU, Now the SM/ ASM has to Lock the control for the Steady indication. A Crank handle locked Green indication will appear when the particular Crank Handle has locked by SM /ASM by clicking the RECEIVE CONTROL menu.



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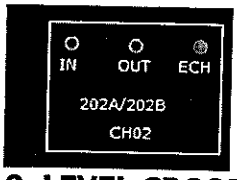
EMERGENCY CRANK HANDLE EXTRACTION CONTROL:

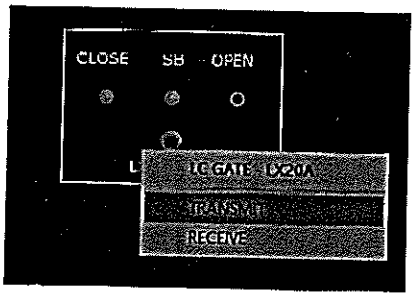
Emergency crank handle extraction required to be done when route or sub route is locked.

This operation is same as normal crank handle extraction operation, but Key transmit or release will happen only after ensuring concerned signal is ON and the time delay of 120 sec. when SM has clicked the Transmit control menu under route or sub route is locked.

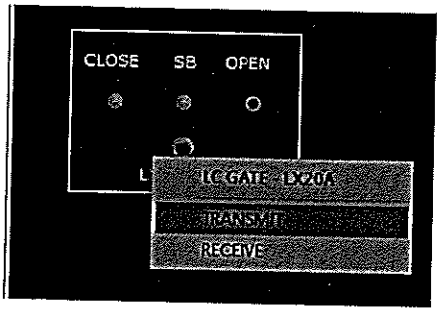


10. LEVEL CROSSING GATE OPERATION:

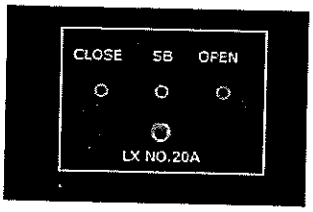
To Transmit or Release control of the Level crossing gate, click on the Level crossing control provided like the following on the VDU.



For Transmitting the LX KEY to the Gate man, SM /ASM has to transmit the control by clicking the TRANSMIT CONTROL menu of the LC. After transmission the Key OUT indication will starts flashing, now the KEY can be extracted from the KLCR.



The Key out steady Red indication will appear when the key is out for gate operation.



When the gate has closed, after putting the KEY in the KLCR, A Key OUT flashing indication will appear on the VDU, Now the SM/ ASM has to Lock the control by clicking RECEIVE CONTROL menu for the Steady indication.

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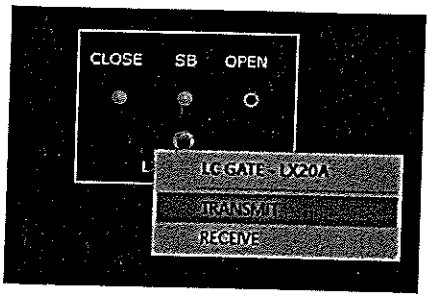
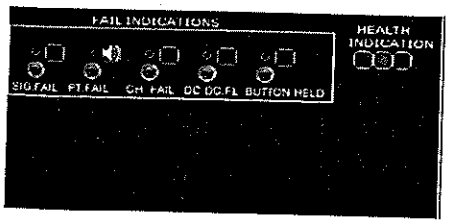


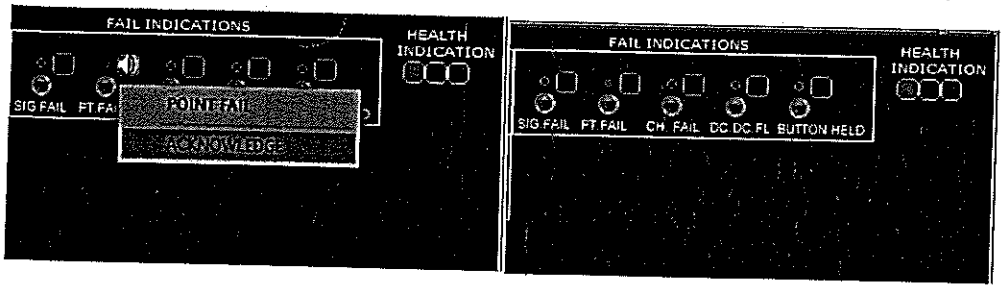
11. POINT FAILURE/ SIGNAL FAILURE/ CRANK HANDLE FAILURE & DC.DC CONVERTER FAILURE:

POINT FAILURE:

The point failure indication will flash & relevant buzzer sounds when any of the points are fail to operate or point detections are not available.

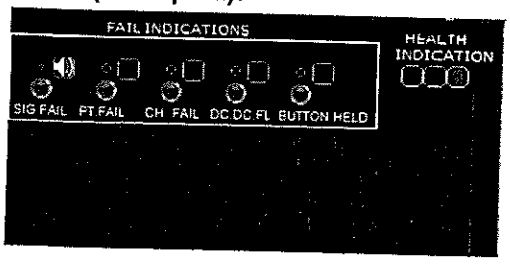


After Acknowledgement Buzzer will stop but fail indication will flash until problem has solved.

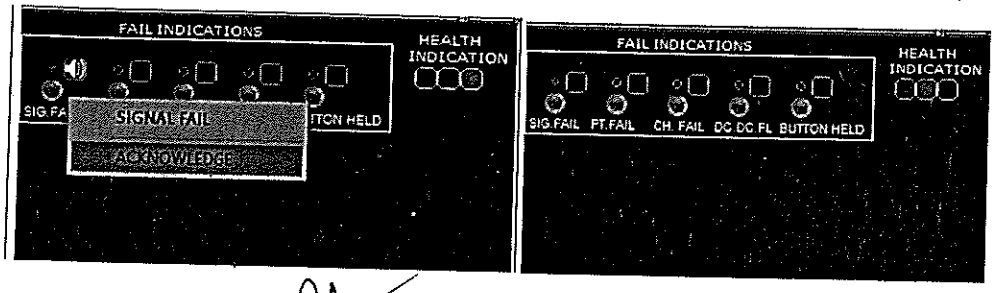


SIGNAL FAILURE:

The signal failure indication will flash & relevant buzzer sounds when any of the signals are blank (no aspect).



After Acknowledgement Buzzer will stop but fail indication will flash until problem has solved.



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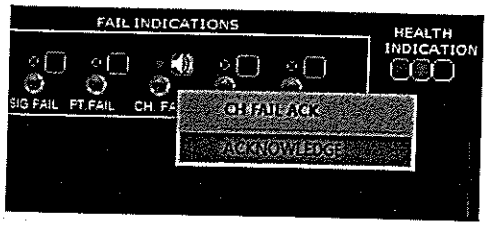
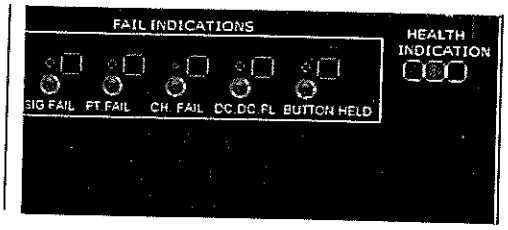
CRANK HANDLE FAILURE:

The Crank handle failure indication will flash & relevant buzzer sounds when crank handle failed.

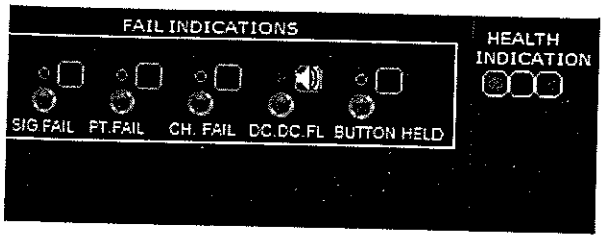


After Acknowledgement Buzzer will stop but fail indication will flash until problem has solved.

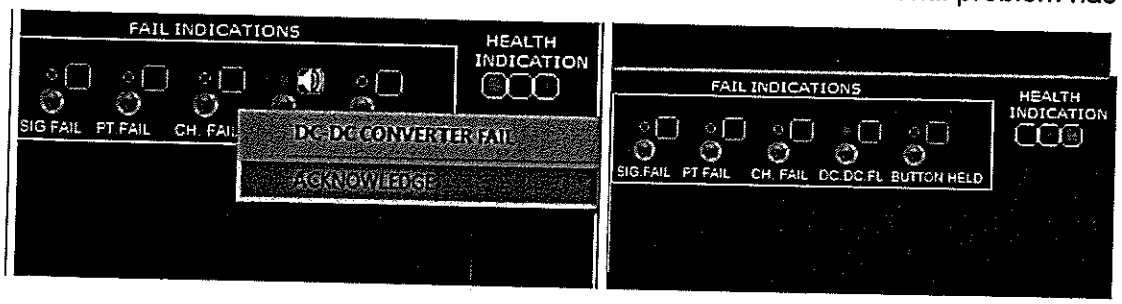


DC.DC CONVERTER FAILURE:

The DC.DC failure indication will flash & relevant buzzer sounds when DC.DC converter of OPC failed.



After Acknowledgement Buzzer will stop but fail indication will flash until problem has solved.



13. EXTREME EMERGENCY CRANK HANDLE RELEASE OPERATION:

Extreme Emergency crank handle extraction will happen only when EI, VDU PC or VDU fails.

1. EI fails - under this conditions all signal assumes ON aspect and through external circuits. The SM shall then operate extreme emergency control key along with pressing a self restoring button. crank handle key of all points are free to be extracted after a time delay of 120 sec.

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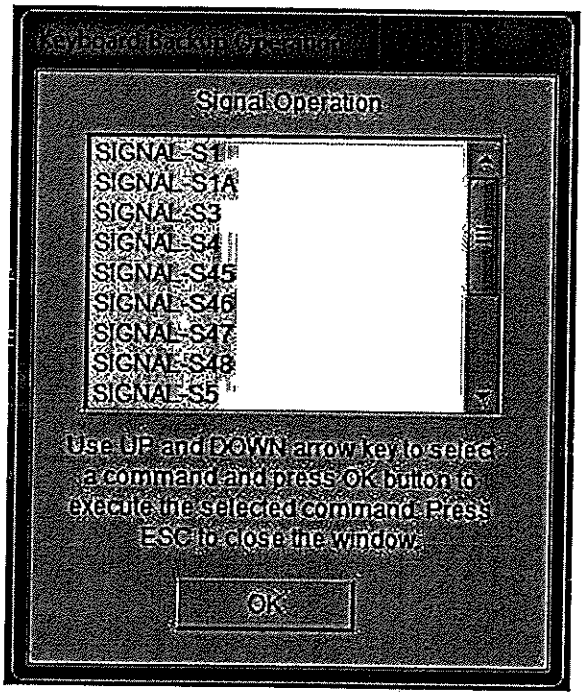
2.VDU PC fails/ Communication between EI & VDU PC fails – under this condition, EI detects the failure of communication between EI and VDU and VDU fail bit will pickup in EI logic. This will drop all LR's and restores all signals to ON. The SM shall then operate extreme emergency control key along with pressing a self restoring button. Crank handle key of all points are free to be extracted after a time delay of 120 sec.

3.Operating display unit fails – Under this condition display may be blank. Display also may go blank in above mentioned two failure conditions. The SM shall then operate extreme emergency control key along with pressing a self restoring button. This will put a signal to ON and crank handle key of all points are free to be extracted after a time delay of 120 sec.

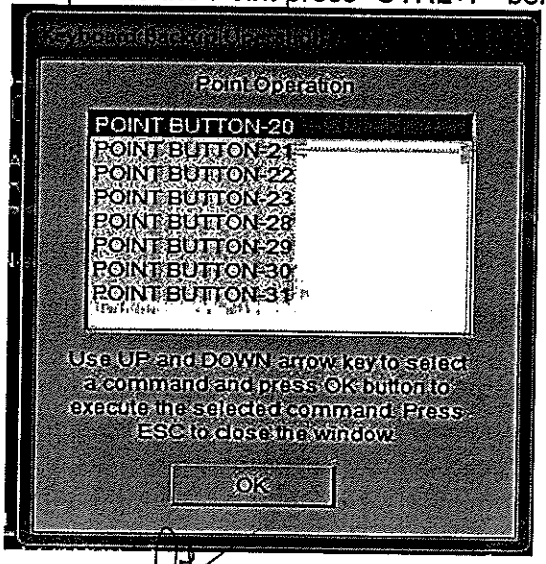
15. KEYBOARD OPERATION:

1. For PCSMKEY IN press "CTRL+L" and for OUT press "CTRL+O" then User authentication window will be displayed on VDU.

2. To operate the Signal press "CTRL+S" below window will open.



3. To operate the Point press "CTRL+P" below window will open.



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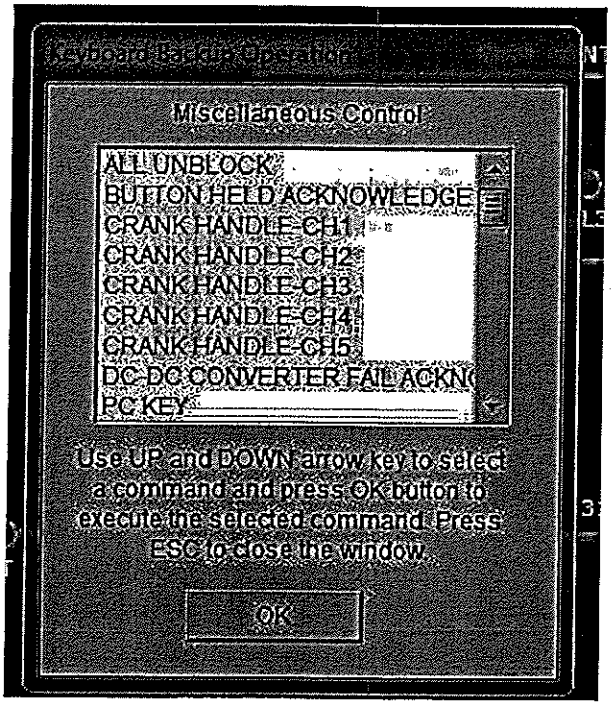
4. To operate the MISC operation like Crank handle/LC press "CTRL+M" below window will open.



16. VDU CHANGEOVER FROM "A" VDU TO "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. Vise 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.

17. INSTRUCTIONS TO STATION MASTERS WHILE RESETTING OF SYSTEM:

OBSERVATIONS	ACTION BT STATION MASTERSD
SYSTEM Failure indication flashing and System fail buzzer sounds.	Acknowledge system fail buzzer by pressing acknowledge push button PC and inform ESM about failure.
EI_LFL Failure indication flashing and System fail buzzer sounds.	Inform ESM about failure.
EI_HFL Failure indication flashing and System fail buzzer sounds.	Inform ESM about failure.

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APPENDIX 'C'

ANTI COLLISION DEVICE (RAKSHA KAVACH)

-NOT PROVIDED-

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APPENDIX –'D'

DUTIES OF THE STAFF :

(i) **STATION MASTER**

a) The Station Master on duty shall be responsible for the efficient discharge of duties devolving upon the several members of the staff either permanent or temporarily under his orders at the station or within station limits and such staff shall be subject to his authority and direction in the working of the station.

b) The Station Master on duty shall also be responsible that the general working at the station is carried out in strict accordance with the rules for the time being in force.

c) No person other than the Station Master on duty shall ask for/or give line clear or give authority to proceed ,T-369(3b), Caution order and Authority to proceed without line clear.

d) The Station Master is responsible for giving 'Train out of Section' signal after ensuring that the train has passed with tail lamp/tail board on the last vehicle or the Guard's alright signal.

e) The Station Master on duty is responsible for ensuring that signals taken off for a train are put back to 'ON' immediately the train has passed them as per GR.3.36 (2)/Para No.11.03 (b)of B.W.M.

f) In case of unusual occurrence, the station master on duty must ensure safety reporting of occurrence and render assistance as per GR. 2.11 of G&S Rules.

g) The point's man on duty shall be responsible for handing over all the authorities to the driver and guard as & when required. He will be responsible for exchanging alright signals for run through trains from the opposite side of the Station Master.

h) The Station Master is responsible for better maintenance of safety literatures and train work in records.

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Sr.DOM/G&C/AGRA

(i) GATEMAN :-
The duties of gateman are given in Appendix 'A' to these rules.

(ii) POINTS MAN :-

a) He shall obey all lawful orders of the SM on duty. They will deliver transportation forms and message in correct manner under the orders of station master on duty.
b) The pointsman shall assist in shunting operation in safe and efficient manner and carry out all lawful orders passed on to them.
c) They will work-pass the trains from OFF side or from any other place so advised by station master on duty and shall show all right signals to train staff if all right for the train to continue the journey. On observation of anything abnormal they will immediately show hand signal to train staff and also inform the station master on duty for further action.
d) Pointsman will secure vehicle as per 5.23/1 & 5.23/2 of G&SR under supervision of Guard/SM person incharge of shunting.
e) He shall be responsible to see that fouling mark are kept clear after complications of shunting.
f) In case of track failure he shall assist the SM to ascertain the clearance of line.

(iii) GENERAL :-

a) All station staff must adhere to any lawful duty/responsibility assigned to them from time to time.
b) All staff of the station must appear in proper and neat uniforms, when on duty and should promptly obey all lawful orders given to them by any official placed in authority over them.
c) The staff will work in conformity with and according rosters issued by DRM/NCR Agra and posted at the station, General and subsidiary rules 2.02, 2.05, 2.06 and 2.10 should apply to all staff.
d) The SM on duty will not go Off until the train for which line clear has been given or received has cleared the block section and line has line has been closed behind it (GR3.57(2) & SR 14.07/3) except when a material train is working in block section or a train that has been disabled in the block section or a train which cannot proceed due to impassable obstructions: when instructions contained in SR 14.07/4 shall apply. All the on duty staff will leave his duty after arrival of his reliever.

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APPENDIX 'E'

ESSENTIAL EQUIPMENT AT THE STATION:

S.No.	EQUIPMENTS	STATION
01	Detonators	40
02	H.S. Lamp Tri colours	05
03	Green flags	04
04	Red flags	06
05	Stretcher	01
06	Safety chains	02
07	Fire extinguisher	02
08	Fire buckets with stand	04
09	First Aid Box	01
10	Switch clamps	06
11	Pad locks	10
12	Wooden wedges	04

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APPENDIX - `F'

RULES FOR WORKING OF 'DK' STATIONS, HALTS, IBH, IBS, OUTLYING SIDING –

KHEDA SADAN is a 'D' Class station on AH-PRK section at a distance of 5.438 Kms. from Achnera Jn. cabin.

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Sr.DOM/G&C/Agra

APPENDIX - 'G'

RULES FOR WORKING OF TRAIN IN ELECTRIFIED SECTIONS

This appendix pertaining to AC traction working and will be issued separately by Sr. DEE/TRD/Agra, to be treated as the part of SWR/Achnera Jn. Cabin. Station staff to follow the rules mentioned therein strictly.

(K.GGOSWAMI)
Sr.DOM/G&C/Agra

(PRAVEEN KUMAR YADAV)
Sr.DEE/TRD/Agra