

EAST COAST RAILWAY WALTAIR DIVISION



STATION WORKING RULES OF TYADA (TXD)

EAST COAST RAILWAY
WALTAIR DIVISION

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EAST COAST RAILWAY

WALT AIR DIVISION

INDEX OF CORRECTION SLIPS

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EAST COAST RAILWAY
WALT AIR DIVISION

STATION WORKING RULES OF TYADA [BROAD GAUGE]

Date of Issue:-

Date brought in force:-

NOTE: -

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

1. STATION WORKING RULE DIAGRAM:

(i) The Station Working Rule diagram no: SI/WRD/23123 Alt- 'C'.

(ii) CSTE/East Coast Railway Signal Interlocking Plan No: SI/23123 Alt- 'C'.

(iii) Date up to which corrected:

2. DESCRIPTION OF STATION:

2.1 GENERAL : LOCATION:

a) Name of the station	:	TYADA
b) Class of station	:	'B' class
c) Section	:	Kottavalasa-Kirandul
d) Double line/Single line	:	Single line
e) Electrified/Non Electrified	:	Electrified
f) Gauge BG/MG/NG	:	BG
g) Railway	:	East Coast Railway
h) Route	:	'D' Special
i) Situated at	:	Km 51.966
j) Reckoned from	:	Kottavalasa
k) Number of cabins	:	Centrally operated Domino type full-fledged panel along with VDU.
l) Standard of Interlocking	:	STD-I (R)

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

Sl no	Adjacent Block-section	Distance	Direction
a	SHIVALINGAPURAM (SLPM)	6.578 km	KTV end
	CHIMIDIPALLI (CMDP)	11.958 km	KRDL end
b	Provision of IBS	Nil	
c	Automatic signal	Nil	
d	DK station/Outlying sidings	Nil	
e	Passenger halt	Nil	

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

Between Stations		The Point from which the Block section commences	The Point at which the 'Block Section' ends
TXD-SLPM Direction	DN	From DN advanced starter signal no. 12 of TXD	UP Advanced starter of SLPM.
TXD-CMDP Direction	UP	From UP advanced starter signal no.13 of TXD	DN Advanced starter of CMDP.

2.4 GRADIENTS:

a) From the centre of the station building towards SLPM:

Chainage in Mtrs from CSB		Stretch	Gradient
From	To		
0.000	451.2	451.2	1 in 260 Falling
451.2	933.25	482.05	1 in 60 Falling
933.25	1168.25	235.00	1 in 70 Falling
1168.25	1537.25	369.00	1 in 65 Falling
1537.25	1629.25	92.00	Level
1629.25	2433.25	808.00	1 in 60 Falling
2433.25	2524.75	91.05	Level
2524.75	Into section	---	1 in 60 Falling

b) From the centre of the station building towards CMDP:

Chainage in Mtrs from CSB		Stretch	Gradient
From	To		
0.000	583.75	583.75	1 in 260 raising
583.75	4394.75	3811.00	1 in 60 raising
4394.75	Into section	----	1 in 150 Raising

2.5 (A) LAY OUT:

Sl no	Running Lines	Name of the Line	CSL in Mtrs.	Electrified/ Non Electrified
1	Line No.1	Main line	727 (STR-STR)	Electrified
2	Line No.2	Loop line	697 (STR-STR)	Electrified

(B) PLATFORMS:

One Rail level passenger platform measuring 207MX 6M is provided on Line No.2 (Loop line).

2.5.1 DIRECTION OF MOVEMENT & HOLDING CAPACITY:

(a) DIRECTION OF MOVEMENT:-

The trains coming from Shivalingapuram end and proceed towards Chimidipalli are UP trains and the trains coming from Chimidipalli end and proceed towards Shivalingapuram are DN trains.

(b) HOLDING CAPACITIES:

Line no	Designation	CSL	Electrified/ Non Electrified	CSL starting & Destination
Line No 1	Main line	727 Meters	Electrified	From Starter to Starter
Line No 2	Loop line	697 Meters	Electrified	From Starter to Starter

2.5.2 NON RUNNING LINES AND THEIR CAPACITY:

SI No	Name	Holding capacity in mtrs	Electrified/ Non Electrified
1	Hot Axle Siding	36.5 M (GJ -GJ)	Electrified
2	Substation Siding	130 M (DS-DE)	Electrified

(A) HOT AXLE SIDING:

One Hot axle Siding takes off from line no.2 (Electrified) at CMDP end of the yard and is isolated by derailing switch both side measuring 36.5M (GJ-GJ). The entrance point and corresponding derailing switch is coupled and operated by ground lever provided at site. When control 28 is transmitted from Panel/VDU, S1/C1, S2/C2, S6 & S5 signals of Line No.2 will be locked in their normal position.

Successive locking of point No.28: The hand operated points are operated individually by ground levers in succession. When control No.28 is transmitted from Panel/VDU a key X1 and X2 will be released. Key X1 will be inserted in point and releases key X3. This key X3 will be inserted on the other end of the point and point will be operated to reverse likewise key X2 will be inserted on other side of siding pint and releases X4 and X4 will be inserted on the other end of point, then the point is operated to reverse and set to HA siding. After the movement is completed with key X4 point will be normalized and key X4 will be inserted in the other end and releases key X2. This key X2 will be transferred back to SM with control 28. The same process will be followed on the other end of the siding to make points normal.

(B) SUB STATION SIDING:

One Substation Siding takes off from line no.1 (Electrified) at CMDP end of the yard and is isolated by derailing switch and terminated into a dead end measuring 130M (GJ-DE). The entrance point and corresponding derailing switch is coupled and operated by ground lever provided at site. When control 27 is transmitted from Panel/VDU, S1/C1, S2/C2, S7 & S8 signals of Line No.1 will be locked in their normal position.

Successive locking of point No.27: The hand operated points are operated individually by ground levers in succession. When control No.27 is transmitted from Panel/VDU a key P will be released. Key P will

be inserted in point and releases key Q. This key Q will be inserted on the other end of the point and point will be operated to reverse and set to Substation siding. After the movement is completed with key Q point will be normalized and key Q will be inserted and releases key P. This key P will be transferred back to SM with control 27.

2.5.3 ANY SPECIAL FEATURES IN THE LAYOUT:

(a) SLIP SIDING:

Slip siding is provided towards KTV end of the yard beyond DN advanced starter signal No.12 of 189.08 M and the slip siding point No. 21 which is interlocked with tokenless block instrument of section TXD-SLPM. The slip siding point is normally set to slip siding. The slip siding point will be operated and set to main line through route initiation.

(b) CATCH SIDING:

Catch siding is provided towards KRDL end of the yard within the station limits between UP Starter 5, 7 and UP advanced starter signal No. 13 of 692M and the catch siding point No.22 is controlled by single line tokenless block instrument of TXD-CMDP section and automatically operated by the train through sequential operation of track circuits when the instrument for section TXD-CMDP is in TCF position. The catch siding point is normally set to catch siding.

(c) Repeater Signal to signal No.6 is provided due to severe curves and cutting.

(d) Repeater Signal to signal No.12 for intervening tunnel.

(e) Repeater Signal to signal No.13 for intervening tunnel.

(f) DN Advn.STR Signal No.12, Repeater to S-12, DN Starter signal No.6, repeater to S-6 & DN main starter signal No.8 are on the RH side of the track.

2.6 LEVEL CROSSINGS: -NIL-

3.0 SYSTEM AND MEANS OF WORKING:-

(i) System of working: Absolute block system:

Trains are worked under Absolute block system in accordance with GR 7.01(1) (a), 8.01(1) (a) &(c), 8.01(2) (b), 8.03(2) (a), (b), (c) (ii), 14.01 to 14.07, 14.08(b) (iv), 14.09 to 14.13 and BWM chapter-IV part I.

(ii) Block instruments:-

Single line Diado type Tokenless block instruments are provided for block sections TXD-CMDP and TXD-SLPM vide GR 14.01(a) and the 'OFF' aspect of the last stop signal is the authority for the Loco pilots of all trains to enter into the block section vide GR 14.08(b) (iv).

(iii) Co-operative/Non Co-operative: Co-operative.

(iv) Provision of block telephone: Telephone attached to block instrument connecting the adjacent block stations concerned.

(v) Custody of keys of block instrument: Block instrument is provided with double locking. One key will be with SM and other key will be with S&T maintainer.

(vi) ON aspect of UP/DN Home & UP/DN Adv. starter are provided in respective block circuit.

(vii) Slip siding point No.21 & Catch siding point No.22 are interlocked with respective block instruments.

4.0 SYSTEM OF SIGNALLING AND INTERLOCKING:

- 4.1.0 a) Standard of Interlocking: This Station is provided with Standard-I (R) Electronic Interlocking.
- b) Type of signals: Multiple Aspect Colour Light Signals. The aspects and indications of the MACLS is governed by GR.3.08 (4) (b).
- c) The Station is provided with central Electronic Interlocking (EI). All signals and points are electrically operated from the central Panel / VDU provided at SM's Office.
- d) Method of operation: Central Panel/VDU is provided in the Station Master's office to electrically control all signals and points.
- e) Provision of axle counter/Track circuits on running lines:
Track circuits are provided in the yard as 1AT, 1T, 21T, 12AT, 23T, L₁T₁, L₁T₂, L₁T₃, L₂T₁, L₂T₂, L₂T₃, 24T, 13AT₁, 13AT, 2T, 2AT₁, 2AT₂, 2AT₃, 22T, 2AT and 2AT₄. Axle counters are provided for TXD-SLPM as BAXT and TXD-CMDP as BAXT. Normally the panel is blank except point and Block section indications for the above track circuits/ Axle counters are available on Panel/VDU at SM's office. When a signal is cleared the route indication 'Yellow' appears for the particular route set and 'Red' light appears as the train occupies the track circuit.
- f) Calling on signals/IBS: Calling-on signals are provided below Home signals (i.e. in both Up & Down directions) as per GR.3.13 (1) (b), (2) (3) (4) & (6) (b).
- g) IBS is not applicable at this station.
- h) The control Panel is provided with SM's key which shall always remain in the custody of the Station Master on duty for control of points, signals and crank handles control etc in terms of SR 3.36.03(a).
- i) A two position switch is provided on the control panel through which SM on duty can select the mode of operation (i.e. from Panel or VDU). The position of all points, signals and running lines are available in the Panel/VDU. Remainder Block collars are provided for use on push button which shall be placed on the point button and /or route button to prevent operation of the button in case of concerned line is blocked. The VDU is provided with SM's key user name and password which shall always remain with the personal memory of the Station Master on duty.
- j) Operation of EI from Visual display Unit is available as stand by operation.
- k) CRANK HANDLE:

When any point fails to operate normally by the Route Setting operation through Panel/VDU it is inevitable to operate the points with crank handle. The SM on duty shall personally ensure clamping and padlocking of all facing and trailing points on the route. Crank handles are interlocked with signals and interlocking system. When points become defective, the signals controlling these points shall be considered defective and vice-versa and the procedure for use of crank handle for motor operated points shall be followed as per operating manual para-2.19.

CH-1 controls 21, 23A/B; CH-2 controls 24A/B; CH-3 controls 22.

(The details of standby operation from VDU is given under Appendix-'B1')

These crank handles are interlocked with the signaling and interlocking system at this station and normally locked inside the RKT instrument at the respective Crank Handles Locations. Crank handle keys can be taken out

only when all signals are not taken 'OFF' and the route is not locked for whatever reasons. Crank Handle can be released by pressing common 'TRANS' push button and concerned Crank handle control push button simultaneously. When the keys are taken out no signal can be taken 'OFF' over the particular route on the points nominated by the crank handle.

This key can be electrically transmitted at both ends locations of the yard for manual operation of the defective points.

The failure of motor operated points must be ensured by physical checking that there is no obstruction. SM on duty shall personally ensure the clamping and padlocking of all facing and trailing points. An emergency crank handle register shall be maintained by the SM on duty at the station as per para 2.19 (j) of the Operating Manual. Correct setting, clamping and padlocking of the points devolve on the SM on duty. (Details of use of Crank Handle as per Appendix-'B').

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

l) Catch siding and slip siding:

The station is equipped with catch siding at CMDP to protect station section from unauthorized movement of vehicles/Trains from TXD-CMDP block section. A slip siding is provided towards SLPM end beyond DN advanced starter signal no.12 to protect TXD-SLPM block section from unauthorized movement of vehicles/train from station yard.

(i) Slip siding:-

The slip siding is interlocked with block instrument for section TXD-SLPM so that it will not be possible to set the slip siding point no. 21 to running line unless the handle of the block instrument is either in receiving or in sending position. Similarly, the handle of the block instrument for section TXD-SLPM cannot be made normal unless the slip siding point no. 21 is set to its normal position i.e. to slip siding.

In case of failure of slip siding point No.21 for whatever reason, SM shall use crank handle CH-1 for slip siding point operation. There is no facility of emergency operation of slip siding point no. 21 from VDU/Panel in case of failure of slip siding point track circuit no 21T. There is no independent operation of slip siding point from VDU/Panel.

(ii) Catch siding:-

Catch siding point no. 22 is provided at CMDP end of the yard to protect the station yard from unauthorized movement of trains/vehicles from the block section TXD-CMDP. Catch siding point no. 22 is interlocked with block instrument for section TXD-CMDP, so that it will not be possible to set the catch siding point no.22 to running line unless the handle of the block instrument is in TCF or in TGT position. Similarly, the handle of the block instrument cannot be made normal unless the catch siding point is set to its normal position. Details are given in Appendix-'B'.

In case of failure of catch siding point No.22 for whatever reason, SM shall use crank handle CH-3 for catch siding point operation. There is no facility of emergency operation of catch siding point no. 22 from VDU/Panel in case of failure of catch siding point track circuit no 22T. There is no independent operation of catch siding point from VDU/Panel.

4.1.1 TAKING OFF CALLING-ON SIGNAL:

Miniature colour light Calling-on signal is provided below the Home signals in terms of GR.3.13 (6) (b). A Calling-on signal shows no light in the 'ON' position and Yellow light when taken "OFF". A calling-on signal, will be taken 'OFF' for reception of a train when the Home signal above it cannot be taken 'OFF' due to failure or any other reason or for admission of train on blocked line. Before taking 'OFF' Calling on signal during failure of track circuit the route and clearance of the track over which the train will be admitted must be checked physically by SM on duty. (The detailed procedure is given in Appendix-B)

4.1.2 SHUNT SIGNALS:

NIL

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

Relay room is provided with two independent locks. The key of one lock shall be in the personnel custody of Station Master on duty and the key of other lock shall be in the custody of S&T Maintainer. In the event of necessity such as for attending failure, or regular maintenance, on being requisitioned by S&T maintainer, SM shall hand over the key to the Maintainer. On completion of the work, maintainer shall lock the relay room and shall return the key to SM. The particulars of such transactions shall be entered by the SM in the relay room key register vide OM 13.16.

4.3 (A) POWER SUPPLY:

Normal: AT Supply-230v, 50Hz

Stand by:- 1st standby power supply: Andhra Pradesh State Electricity Board. 2nd stand by power supply: DG set.

(i) A changeover switch is provided in the Station Master's Office with the three power supplies viz., AT, Local and DG for changing the switch to the required supply position. A luminous indicator above the circuit breaker for each supply indicates the availability of the supply.

(ii) For IPS system that provides to EI, auto-change over has been provided.

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

(B) REMOTE MONITORING ASM BOX:

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

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

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

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

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

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

5. TELECOMMUNICATIONS:

- (a) Telephone attached to Token less Block Instruments is connected to adjacent stations on either side.
- (b) Hot line Telephone communication is provided between adjacent stations i.e. CMDP and SLPM stations.
- (c) The station is connected to KTV-KRPU control Circuit.
- (d) The station is connected to KTV-KRPU traction power control circuit.
- (e) Telephone communication is provided between Station Master on duty to UP CH locations and to DN CH Locations.
- (f) Telephone communication is provided between Station Master on duty and slip siding location.
- (g) 25w VHF set is provided at the station for emergency communication.
- (h) Auto Rly telephone is provided.
- (i) Telephone communication is provided between SM on duty and UP/DN Home signals.

5.1 FAILURE OF COMMUNICATION: -

- a. In the event of failure of communications between the adjacent block stations SR 6.02.06 shall be observed, for working the train.
- b. In the event of total failure of communications between the adjacent block stations SR 6.02.04 shall be observed, for working the train.

6. SYSTEM OF TRAIN WORKING:

6.1 DUTIES OF TRAIN WORKING STAFF:

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

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

6.1.1 TRAIN WORKING STAFF IN EACH SHIFT:

The following is the complement of operating staff provided at the station in each shift for train passing duty.

STAFF IN EACH SHIFT.

COMPLEMENT OF STAFF	STAFF IN EACH SHIFT
SS/SM	01
POINTS MAN	01

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

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

The SM on duty is responsible to ascertain the clearance of the nominated line between first facing point and advanced starter signal in each direction. The private number book should be under the custody of SM on duty who is authorised to use it.

6.1.3 ASSURANCE OF THE STAFF IN THE ASSURANCE REGISTER:

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

6.2 CONDITIONS FOR GRANTING LINE CLEAR:

- a. The conditions laid in GR 8.03(2)(a) (b) (c) (ii) shall be complied with the SM on duty before line is considered clear and line clear is granted.
- b. Before granting a line clear for a train the SM on duty shall personally ensure that the reception signals pertaining to a train are in the 'ON' position and burning properly vide GR 3.49(4).
- c. Line shall not be considered clear and line clear shall not be granted to an UP train unless:
 - i) Whole of the last preceding UP train has arrived completely.
 - ii) UP Home signal /calling-on signal No. 1A/B and/or C-1A/B is put back to 'ON' and
 - iii) Line is clear up to DN advanced starter signal no.12.
- d. Line shall not be considered clear and line clear shall not be granted to a DN train unless:
 - i) Whole of the last preceding DN train has arrived completely.
 - ii) DN Home signal /calling-on signal No. 2A/B and/or C-2A/B is put back to 'ON' and
 - iii) Line is clear up to UP advanced starter signal no.13.
- e. ADEQUATE DISTANCE: (SIGNAL OVERLAP)

To take off the Home signals for admission of a train, the adequate distance (overlap) as mentioned below shall be kept clear. [Refer GR.3.40 (3) (b) and SR there to]

CLEARANCE OF ADEQUATE DISTANCE (SIGNAL OVERLAP):

FOR UP TRAINS		
Line no.	From	To
1.	UP Main line starter Signal No.7	Up to the end of track circuit 24T when point no. 24 is Normal.
2.	UP starter signal No.5	Up to the end of track circuit 24T when point no. 24 is reverse.

FOR DOWN TRAINS		
Line no.	From	To
1.	DN starter Signal No.6	DN advanced starter signal No.12
2.	DN Main line starter signal No.8	DN advanced starter signal No.12.

6.2.1 ANY SPECIAL CONDITIONS TO BE OBSERVED WHILE RECEIVING OR DESPATCHING A TRAIN:-

For the reception of DN train Catch siding Point No.22 can be set to main line after two minutes time delay on sequential occupation of 2AT & 2AT1 track circuit to ensure 15 KMPH speed restriction.

6.2.1.1 SETTING OF POINTS AGAINST BLOCK LINE

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

Safety Point Alarm Unit (SPAU):

A safety point alarm is provided on the panel board with different indications: On complete arrival of a train at the station, the SM has to set the points immediately against the occupied line. In case the SM forgets to alter the points, after a time lag of 02 minutes, an audible buzzer will be heard from this instrument along with the 'RED' indication of the line on which the train has arrived.

The SM shall then press 'ACK' button to mute the buzzer, and immediately set the required points against the line on which the train has arrived.

On setting the points against the occupied line, the RED indication will disappear.

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

6.2.1.2 RECEPTION OF A TRAIN ON BLOCKED LINE:

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

6.2.1.3 RECEPTION OF TRAIN ON NON-SIGNALLED LINE:

NIL

6.2.1.4 DESPATCH OF TRAIN FROM NON-SIGNALLED LINE.

NIL

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

NIL.

6.2.1.6 ANY SPECIAL CONDITIONS:**(a) SPECIAL RESTRICTIONS:**

- (i) Motor trolleys are not permitted on the following line clear on BDVR-SLPM & SLPM-TXD block sections vide SR 15.25.03 (b) (iii) due to sharp curves and steep gradients.
- (ii) DN trains shall stop in rear of DN Home signal, unless the condition stipulated as per GR/SR 3.50.02 are satisfied along with Slip siding point No.21 is set & locked towards main line. SM/TXD is to be ensured.

(b) SPECIAL INSTRUCTIONS:

- (i) For piloting IN or P/OUT a train, the slip/catch siding should be clamped and padlocked and ensured by SM on duty.
- (ii) Trains should not be drawn up to the last stop signal and held up on steep gradient in order to clear the reception line for giving permission to approach to the following train as the station yard gradient is 1 in 260.
- (iii) No train shall be stabled on Main Line without line engine as the gradient is steeper than 1 in 400.
- (iv) Station yard will be taken extend to a distance of 50 meters beyond Stock Rail Joint of outermost points at either end of the station vide SOD revised 2004 Chapter-2, item No.2 note (e).

6.3 CONDITIONS FOR TAKING "OFF" APPROACH SIGNALS:-

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

6.3.1 RESPONSIBILITY OF STATION MASTER FOR RESTORATION OF SIGNALS TO "ON":

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

6.4 SIMULTANEOUS RECEPTION/DESPATCH, CROSSING AND PRECEDANCE OF TRAINS:

NIL

6.5 COMPLETE ARRIVAL OF TRAINS:**For section TXD-SLPM & TXD-CMDP:**

Entire block section between TXD-SLPM & TXD-CMDP is provided with digital axle counter.

For section TXD-SLPM:

A pair of digital axle counter is provided between TXD-SLPM beyond DN advanced starter signal No. 12 on 1T track circuit of TXD and another on 2T track circuit of SLPM for last vehicle verification.

For section TXD-CMDP:

A pair of digital axle counter is provided between TXD-CMDP one just beyond UP advanced starter signal no. 13 of TXD and another on 1T track circuit of CMDP for last vehicle verification.

The position of the block section whether 'clear' or 'occupied' is reflected on the axle counter reset box provided in the Station Master's office which shows 'GREEN' when the block section is clear and 'RED' when block section is occupied. Whenever a train enters into the block section "Block section clear" indication 'GREEN' for the particular block section disappears and 'RED' indication appears.

After complete arrival of the train the 'RED' indication disappears and 'GREEN' indication appears. If after complete arrival of the train 'RED' indication does not change to 'GREEN' it should be assumed as Block instrument failure for the particular section and necessary action as per GR 14.13 is to be followed. The axle counters are interlocked with the respective block instruments for that section. If axle counter fails, advanced starter signal cannot be taken off for next train and the concerned instrument shall remain locked in last operated position.

A resetting arrangement is provided in the SM office to reset the system to normal position in case of failure of axle counter. The resetting is to be initiated by the SM at the receiving station only after physical verification of complete arrival of train by exchanging private number. The resetting can be accomplished only with the co-operation of SMs at either end of the block section.

NOTE:

Before taking off reception and dispatch signals for UP or DN directions the SM on duty shall ensure that the entire route including overlap and berthing portion is clear of all obstructions by observing the Track indication/Axle counter indication.

6.6 DISPATCH OF TRAINS:

a) To dispatch a train, the Station master on duty having obtained line clear for that train, shall set the route for the outgoing train correctly and satisfy himself by observing the visual indication on the Panel Board/VDU. He shall suspend all non-isolated shunting and then shall take "OFF" the concerned route starter and advanced starter signal. The 'OFF' aspect of the advanced starter is the authority to proceed into the block section. As soon as the train passes the advanced starter signal, Train entering section indication will appear on the panel. The SM will then send the train entering given section signal to the station in advance.

[Refer GR 3.38, 3.42, SR 3.36.04(b), 3.42.04 and BWM 2.07.5(a)]

b) ISSUE OF CAUTION ORDERS:

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

6.7 TRAINS RUNNING THROUGH:

The procedure detailed in Para 6.4, 6.5 shall be observed. The Station Master is responsible to observe/watch the condition of the vehicles on a passing train and shall wave green hand signal horizontally until anything wrong is noticed on train. For this purpose the Station Master on duty shall stand in such a position that he sees a clear view of the passing train and that his hand signals can clearly be seen by the Loco Pilot and Guard of the train.

He shall also depute the TPM on duty to the other side, for passing the train. The TPM on duty shall wave Green hand signal horizontally. He shall show danger hand signal if he notices anything is wrong and reports the same to the SM on duty.

The Station Master on duty is responsible to see that a train passes complete with its last vehicle indicator. If a train passes without last vehicle indicator or its authorized substitute, action shall be taken as per General and Subsidiary Rule. [Ref GR 3.40, 3.42, 4.17, 4.42, & SR 4.42.02 (b) (i), (ii), (iii), c & (d)]

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

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

b) AXLE COUNTER:

If the axle counter fails between the block sections, resetting procedure will be adopted as per Para 25 of SWR (APP-B) if the axle counter indication does not appear 'GREEN' & continues to show 'RED' condition after resetting, the concerned block section shall be suspended & failure intimation to be given to sectional signal Maintainer /JE/SE (Signal) for rectification.

c) BLOCK INSTRUMENTS:

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

d) RECEPTION OF A TRAIN ON BLOCKED LINE:

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

e) RECEPTION OF A TRAIN ON NON-SIGNALLED LINE:

NIL

f) DEFECTIVE SIGNALS:

Whenever signals become defective, the procedure laid down in GR & SR shall be followed. [Refer GR 3.68 to 3.71, 3.80 and SR 3.68.01(c)] In the event of signal showing no lights, station master on duty shall before giving line clear initiate action in accordance with the procedure laid down in GR and relevant SRs.[Refer GR 3.51, 3.69, 3.49(4), 3.68 to 3.77]

g) DEFECTIVE INTERLOCKING:

When interlocking becomes defective the SS/SM on duty shall be responsible for correct setting, clamping, padlocking of points for admission of train. [Refer SR 3.69.03 (a) & (c).

h) DEFECTIVE/DAMAGED POINTS:

When any point fails to operate normally by route setting operation through panel/VDU, it is inevitable to operate the points with crank handle. The SS/SM on duty shall personally ensure clamping and padlocking of all facing and trailing points on the route. Crank handles are interlocked with signals and interlocking system. When points become defective, the signals controlling these points shall be considered defective and vice-versa and the procedure for use of crank handle shall be followed as per operating manual para 20.06.

Station master on duty shall personally ensure the clamping and padlocking of all facing and trailing points. An emergency crank handle register shall be maintained by SM at the station as per para 20.06(d) of the Operating manual. Correct setting, clamping and padlocking of the points devolve on SM on duty. (Details of use of crank handle as per Appendix-'B'). The cases of the failures of the point should be promptly reported to the concerned signal maintainer/JE/SE (signal) for immediate rectification.

6.9 PROVISIONS FOR WORKING OF TROLRIES/ MOTOR TROLRIES/MATERIAL LORRIES ETC”:

a) Motor trolleys shall be worked as per GR 15.25 and SRs there to, BWM 5.11(1) (2), 5.12, 5.13, 5.14(2) (a) and circulars and orders issued from time to time. Material trolleys shall be worked as per GR 15.27 and SRs there to and in accordance with the provisions of Block Working Manual.

b) Tower wagons shall be worked as per GR 17.08 and SRs there to and BWM 4.39 and other circulars and orders issued from time to time.

c) Push trolleys shall run under block protection only vide SR 15.25.09(e).

d) Shunting key of token less block instrument at dispatch station as well as receiving station of the motor/push trolley shall be taken out and kept in the personal custody of SM on duty in addition “trolley on line” board shall be hung up on the handle of the block instrument. Special instructions contained in the circular No.19 of 6.4.88 should be followed.

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

7. BLOCKING OF THE LINES:

Whenever a running line is blocked either by loose vehicles or by stabling train or by a train which is to cross or give precedence to another train, the points at either end should immediately be set against the blocked line during shunting movement. A clear remark in 'RED' ink shall be made immediately in the train signal register and a record shall be made in the Station Master's diary also. Stable load register is also to be maintained. The stable load or loose vehicles are to be secured to prevent rolling down of vehicles. [Refer SR 3.36.3(b), GR 5.23 and SR 5.23.01]

A) SECURING OF VEHICLES:-

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

NOTE:

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

B) USE OF REMINDER BLOCK COLLARS:-

Whenever any running line is blocked or when a train is stopped to cross another train or detained for any other reason, even for a short while or during shunting operations, reminder collars shall be used by the SM on duty on the push buttons concerned.

8.0 SHUNTING:**8.1 GENERAL PRECAUTIONS.**

Shunting will be carried out at the station in accordance with General Rule and relevant Subsidiary Rules and Block working Manual [Refer GR 3.46, 3.52 to 3.56, 5.13,5.14,5.16 to 5.23, 8.05,8.06, 8.14 and 8.15] with relevant SRs and OM 7.01, 7.07, 7.08, 5.1(2) (B) shall be followed.

NOTE:

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

8.2 SHUNTING IN FACE OF AN APPROACHING TRAIN:

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

8.3 PROHIBITION OF SHUNTING, SPECIAL FEATURES IF ANY:

- (i) Hand shunting is prohibited at both ends of the yard vide GR 5.20.
- (ii) Fly shunting is prohibited at both ends of the yard vide SR 5.21.01 (c)
- (iii) For shunting in both ends of the yard, engine should be leading towards the falling gradient.

8.4 SHUNTING ON SINGLE LINE:

- i) Within station section: Governed by GR 8.10.
- ii) Between last stop signal and opposite first stop signal: Governed by GR 8.12.
- iii) Beyond opposite first stop signal: Unless the line is blocked back, the line outside the first stop signal shall not be obstructed vide GR 8.13.
- iv) During failure of Block instrument: Block back messages shall be exchanged between Station master at either end of the section which is intended to be obstructed supported by private number. Both the Station Masters shall fix line block collars on respective Block Instruments and shall continue shunting provided the Block section is clear.

8.5 SHUNTING ON DOUBLE LINE:

Not applicable.

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

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

(ii) In the event of occupation of block section due to accident or obstruction the authority for the train to work up to obstruction as and when required is T/A 602 & SR 6.02.05 shall be observed.

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

(iv) Failure/passing of Intermediate Block stop signal at 'ON' position: NIL

(v) Failure of Axle counter Block/BPAC: Procedure to be followed vide GR 14.13 & 14.14.

(vi) Failure of MTRC: NIL.

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

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

Crank handle operation is interlocked with the signaling and interlocking system at this station. Key of crank handles normally locked inside the RKT instrument at the respective Crank Handles Locations. Crank handle keys can be taken out only when all signals leading over the points are in the Normal position and the route is not locked for whatever reasons. Crank Handle can be released by operating common 'TRANS' push button and concerned Crank handle control push button simultaneously. When this key is taken out, no signal to the concerned point can be taken 'OFF' in the yard. This key can be electrically transmitted at both ends of the yard.

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

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

Emergency point operation facility is provided to operate the point from the panel in case of failure of point controlling track circuit. A push button (Black with Red dot) for emergency point operation is provided on the top of the Panel. If such operation is necessary, the SM on duty, after ensuring that SM's point Key is 'IN' and no vehicle is standing on the concerned point zone shall press the emergency point operation button (by breaking the seal) along with relevant point button simultaneously.

Then keeping point button pressed, emergency point button to be released and the point group normal button or point group reverse button is to be pressed for operating the point to 'NORMAL or REVERSE. Every emergency point operation shall be recorded in the station diary and in the register meant for this purpose.

Rules regarding locking of points and damaged points vide GR 3.39 and GR 3.77 to be followed.

(c) Certification of clearance of track before Calling –On Signal operation in initiated:-

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

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

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

9.1 TOTAL FAILURE OF COMMUNICATION:

Rules and regulations for working of trains during total interruption of communication on single line section shall be followed vide SR 6.02.04 and instructions laid down in BWM.

9.2 TEMPORARY SINGLE LINE WORKING ON DOUBLE LINE SECTION:

Not applicable

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

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

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

10. VISIBILITY TEST OBJECT:

The signal lights of signal No.7 for UP direction and Signal No.8 for DN direction of Line no.1 are earmarked in day and night as visibility test object vide GR 3.61.2(b)(iii).

11. ESSENTIAL EQUIPMENT AT THE STATION:

(Details are given in Appendix-'E')

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

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

Fog signalmen shall be detailed for duty at stations being recruited partly from the station traffic staff and partly from Engineering Track man and must not be substitutes or casual labour but regular employees of the railway.

12.1 STATION DETONATOR REGISTER (OPT/124):

A Register regarding detonator is maintained at the station.

12.2 INSTRUCTIONS:

(a) This register contains the following parts.

Part. - I: Particulars of fog signal men posted at the station from time to time.

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

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

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

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

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

APPENDICES:

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

APPENDIX-'A'

WORKING RULES OF LEVEL CROSSING GATES

-NIL-

APPENDIX 'B'

SYSTEM OF SIGNALLING AND INTERLOCKING AND COMMUNICATION ARRANGEMENTS AT THE STATION

1. BRIEF DESCRIPTION OF THE SIGNALLING AND INTERLOCKING INSTALLATION:

This is a 'B' Class Station with Standard-I(R) interlocking with route setting type panel. The points and signals etc are power operated from a 'DOMINO TYPE' central panel or VDU installed in the station Master's office. This Station is equipped with multi aspect colour light signalling. The Handle type Token less Single Line block instruments are provided in the SM panel room for section TXD-SLPM & TXD-CMDP.

1.1. DISCRIPTION OF PANEL:

The yard layout is depicted on the panel and the panel is fixed parallel to the track so that when the Station Master faces the panel, the yard drawing on the panel corresponds to the actual field lay out. A Visual Display Unit (Computer) is provided in the SM's office as a standby option.

(The description and the function of Visual Display Unit is given in APPENDIX-'B1')

1.2. POINT PUSH BUTTONS:

Points are normally operated automatically along with route setting operation. However required points can be operated individually also. For this point push buttons BLACK in colour are fitted over the point layout on the panel board. The individual operation of electric point machine is controlled by these point push buttons in conjunction with the point group button (Black with Red dot) (Normal) or (Reverse) as per requirement, fitted on the top of the panel board.

- 1.2.1 When a point is set and locked correctly in NORMAL position, a 'white' steady strip light indication on straight line appears suggesting that the point is in NORMAL position.
- 1.2.2 When a point is set and locked in REVERSE position, a white steady strip light indication in reverse appears suggesting that the point is in REVERSE position.
- 1.2.3 When the points of any route have been correctly set and relevant signal is taken 'OFF', 'RED' indication appears near the points indicating that the concerned points are locked either in NORMAL or REVERSE.
- 1.2.4 When the points are neither set nor locked either in NORMAL or in REVERSE correctly, the normal and reverse indication will not be there but the indication will start flashing till such time the point is housed and locked properly in one of the positions. In such case points are to be set both ways by crank handle and clamped and padlocked. This indication will flash during point operation also by crank handle.
- 1.2.5 All points over running lines are operated by electric point machines.
- 1.2.6 The cause for non setting of the point in the desired position shall be checked up by the Station Master on duty according to GR and SR 3.68.01(C). If there is a defect other than an obstruction, this point shall be considered defective and action shall be taken for clamping and Padlocking of these points in the desired position by the Station Master on duty himself for all trains according to SR 3.69.03 (C). In such case both ends of the point shall be clamped and padlocked.

1.2.7 DESCRIPTION OF POINT PUSH BUTTONS:

SL.No	POINT BUTTON NO.	COLOUR	DESCRIPTION
1	21	Black	Slip siding point at SLPM end.
2	22	Black	Catch siding at CMDP end.
3	23 A/B	Black	Cross over point between Main line and line no.2 at SLPM end.
4	24 A/B	Black	Cross over point between Main Line and line no.2 at CMDP end.
5	27	Black	Control for Substation siding at CMDP end.
6	28	Black	Control for Hot axle siding at CMDP end.
7	Point Group button (Normal)	Black with Red dot	Common button for normal operation of points
8	Point Group button (Reverse)	Black with Red dot	Common button for reverse operation of points

1.2.3 DESCRIPTION OF POINT GROUP BUTTON:

There are two point group buttons (Black with red dot) at the top of panel one for Normal and one for Reverse operation of points. The button is operated in conjunction with point button to operate the concerned point to the required setting.

1.3 SIGNAL PUSH BUTTON:

These are Red coloured push buttons on the panel near that stop signals on the panel. These are operated in conjunction with Route button (White coloured) to take 'OFF' the signals.

1.3.1 DESCRIPTION OF SIGNAL BUTTONS:

SL NO	BUTTON NO.	COLOUR	DESCRIPTION
1	C-1	Red with white dot	Button for UP calling 'ON' signal for Line No.1 &2.
2	S-1	Red	Button for UP Home signal for Line No.1 &2.
3	C-2	Red with white dot	Button for DN calling 'ON' signal for Line No.1&2.
4	S-2	Red	Button for DN Home signal for Line No.1&2
5	S-5	Red	Button for UP L-2 starter.
6	S-6	Red	Button for DN L-2 starter.
7	S-7	Red	Button for UP L-1 starter.
8	S-8	Red	Button for DN L-1 starter.
9	S-12	Red	Button for DN Advanced starter.
10	S-13	Red	Button for UP Advanced starter.

1.3.2 SIGNAL INDICATION:

The aspects of the signals as obtained at any time are shown on the panel on the signal indication along side of the track. The ON aspect indications of stop signals are RED and OFF aspect indications GREEN on panel. The ON aspect of distant signal is yellow and OFF aspect is Green on the panel.

1.4 ROUTE BUTTONS:

1.4.1 Route buttons are provided separately on each running line on the panel for initiation of route. Common route buttons are also provided for taking off starters. An individual route button is provided for taking 'OFF' advanced starter for clearing the signal. It is necessary to operate the signal button and the concerned route button simultaneously for taking OFF concerned signal.

1.4.2 DESCRIPTION OF ROUTE BUTTONS:

SL. NO.	BUTTON NO.	COLOUR	DESCRIPTION
1	L1 UN	White	Common route button for UP & DN Home signal, UP & DN Calling-On signal.
2	L-2 UN	White	Common route button for UP and DN Home signals, UP & DN Calling-on signals.
3	12A-UN	White	Common route button for DN starters 6 & 8
4	13A-UN	White	Common route button for UP starters 5 & 7
5	12UN	White	Route button for DN advanced starter no.12
6	13UN	White	Route button for UP advanced starter no.13

1.5 CRANK HANDLE PUSH BUTTONS:

Sl no	CRANK HANDLE	CONTROL POINTS
1	CH-1	21, 23A/B
2	CH-2	24A/B
3	CH-3	22

1.6 MISCELLANEOUS PUSH BUTTONS:

SL No.	Button No	Colour	Description
1	SM's EMERGENCY POINT OPERATION KEY	---	This key is to be inserted and operated in the event of Emergency point operation
2	SM's PANEL KEY	---	To lock the control panel to prevent unauthorized operation
3	PANEL PC SWITCH	---	To give control of operation from panel to PC and vice versa
4	ACK FOR SYSTEM FAILURE	GREEN	To be pressed to silence system failure buzzer
5	GROUP TRANS PUSH BUTTON	WHITE WITH BLACK DOT	To be pressed to initiate slot of crank handle operation along with concerned slot/Crank Handle button.
6	GROUP RELEASE PUSH BUTTON	WHITE WITH BLACK DOT	To be pressed to withdraw/Normalize the control of slot of crank handle operation along with concerned slot/Crank Handle push button.

7	POINT GROUP NORMAL PUSH BUTTON	BLACK WITH RED DOT	To be pressed to initiate' NORMAL setting of point along with concerned point push button
8	POINT GROUP REVERSE PUSH BUTTON	BLACK WITH RED DOT	To be pressed to initiate' REVERSE' setting of point along with concerned point push button
9	EMERGENCY ROUTE RELEASE PUSH BUTTON	WHITE WITH RED DOT	To be pressed for emergency Route Release
10	SIGNAL CANCELLATION PUSH BUTTON	RED	To be pressed for canceling a signal which is already taken 'OFF' or to release a route after passage of a train.
11	SIGNAL /POINT FAILURE ACKNOWLEDGEMENT	RED WITH WHITE DOT	To be pressed for acknowledging signal lamp/point failure
12	EMERGENCY POINT OPERATION	BLACK WITH RED DOT	To be pressed to operate the point when concerned point zone track circuit failed.
13	BUTTON HELD ACKNOWLEDGEMENT PUSH BUTTON	WHITE WITH RED DOT	To be pressed for silencing button held buzzer in case of any push button remains pressed after the button is released.
14	UP TRAIN ARRIVED ACK PUSH BUTTON	CHOCOLATE WITH WHITE DOT	To be pressed for normalizing the Block instrument for section SLPM-TXD.
15	DN TRAIN ARRIVED ACK PUSH BUTTON	CHOCOLATE WITH WHITE DOT	To be pressed for normalizing the Block instrument for section CMDP-TXD.
16	CATCH SIDING OVERSHOOTING MUTING PUSH BUTTON	BLACK	To be pressed for silencing catch siding overshooting buzzer.

1.7 Power failure indication /Buzzer and power acknowledgement:

Power supply to the signaling installation is through integrated power supply system. The IPS is normally fed through AT supply. The 1st standby power supply is Andhra Pradesh state Electricity Board supply and 2nd standby is Diesel Generator. The available Local/DG supply is fed to the IPS through auto change over switch provided in IPS.

In the event of failure of the local power supply the SM on duty shall start the Diesel Generator. The power supply of the DG set is fed to the auto change over switch provided in IPS. The IPS system is connected with battery for safe working during transition of power. Remote monitoring ASM console for IPS is provided at SM's office which will give the following instructions.

	Instructions	Condition	LED indication	Remarks
A	Run DG set	50% DOD	Red	Auto/visual alarm. Alarm shall be acknowledged by SM on duty.
B	Emergency start	60% DOD	Red	Auto/visual alarm. Alarm shall be acknowledged by SM on duty.
C	System shut down	70% DOD	Red	Signal feed cut off and all DC-DC converters to work. Audio alarm will continue till Generator is stated.
D	Call S&T staff	Equipment fault	Red	Failure of any module will give the alarm in SM's panel. Alarm shall be acknowledged by SM on duty for audio cut off.

1.7.1 LED SIGNAL FAILURE INDICATION (RED SIGNAL LAMP MUTING BUTTON: RED WITH WHITE DOT):

Whenever LED signal becomes blank, a miniature flashing red light indication appears along with an audio buzzer indicates signal lamp failure. The SM on duty shall press the signal lamp/point failure Ack. Button, there by the buzzer stops but the red indication lamp becomes steady which continues till either LED signal is replaced /rectified or signal assumes other aspect.

1.7.2 VHLC INDICATION:

A VHLC (Vital Harmonic Logic Controller) indication is provided on the top of the panel for indicating which system of VHLC is working. This EI unit is consisting of two VHLC systems called system' A' and system' B. These two systems status (ON/OFF) will be indicated separately on the panel. If the VHLC indication is ON 'GREEN' indication will appear and if OFF 'RED' indication appears. If any one of the 'ON' line system fails automatically OFF line system will change to ON line with a gap of 180 seconds. A system failure buzzer is provided on the panel board to stop the VHLC unit buzzer. SM on duty has to press the system failure acknowledgement button provided on the top of the panel and intimate the same to ESM/SE/JE in charge for rectification of the failure. Whenever the system changes from A to B or B to A, SM on duty has to release all crank handle controls.

1.8 POINT FAILURE INDICATION (RED)/POINT FAILURE BUZZER/POINTS FAILURE MUTING BUTTON (RED WITH WHITE DOT):

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

1.9 EMERGENCY ROUTE RELEASE COUNTER:

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

2.0 EMERGENCY ROUTE RELEASE INDICATION (WHITE) EMERGENCY ROUTE RELEASE BUTTON (WHITE WITH RED DOT):

The Electronic interlocking is based on the principle of 'DEAD APPROACH LOCKING'. As such when a route is set and signal is taken 'OFF' on the route, the route gets locked. Normally the route is released by the passage of the train over the route.

When it becomes necessary to alter the route after the signal has been taken 'OFF' vide SR 3.36.02(a), the concerned signal must be put back to Danger by simultaneously pressing the signal cancellation button and concerned signal button. After this, first the emergency route release button (White with Red Dot) positioned on the top of the panel to be pressed after breaking seal and subsequently the concerned signal button is to be pressed. A white light will be lit indicating that the timer is working. After a lapse of 120 seconds the white light along with the white strip of light will disappear suggesting that the route has been released. In case the route illumination (white strip lights) does not disappear, it suggests that the route is not released/cancelled. In such case the concerned S&T staff should be advised

immediately to release by rectifying the fault. It is to be ensured that after every emergency route release operation S&T staff shall seal the emergency route release button. Each operation of emergency cancellation of route should be recorded in the emergency route release counter register by registering the next higher number. All such operations and the new number should be recorded in the station diary counter register and in the train signal register.

3. EMERGENCY POINT OPERATION (BLACK WITH RED DOT):

Emergency point operation facility is provided to operate the point from the panel in case of failure of point controlling track circuit. A push button (Black with Red dot) for emergency point operation is provided on the top of the Panel. If such operation is necessary, the SM on duty, after ensuring that SM's point Key is 'IN' and no vehicle is standing on the concerned point zone shall press the emergency point operation button (by breaking the seal) along with relevant point button simultaneously. Then keeping point button pressed, emergency point button to be released and the point group normal button or point group reverse button is to be pressed for operating the point to 'NORMAL or REVERSE. Every emergency point operation shall be recorded in the station diary and in the register meant for this purpose.

Each emergency point operation is recorded in emergency point operation counter by registering the next higher number. SM on duty shall ensure sealing of emergency point operation button by S&T staff after completion of every such operation.

3.1 WORKING OF SLIP SIDING:

The slip siding is provided at KTV end of the yard beyond the DN advanced starter signal no.12. This slip siding point no.21 is normally set to the slip siding and is interlocked with block instrument for section TXD-SLPM so that it shall not be possible to set the slip siding point no.21 to running line unless the handle of the block instrument is either in receiving (Train coming From) or sending (Train Going To) position.

The slip siding point gets set for running line by the operation of buttons S-12GN and 12UN when the handle of the block instrument for the section TXD-SLPM is in 'Train Going To' position or by the operation of S1/C1 GN button with concerned route button when the block instrument of the above section is in receiving position i.e., 'Train coming From' position. The slip siding point sets to its normal position automatically after the complete passage of the train cleared by track circuit 1AT for DN trains and on clearance of 12AT track circuit by UP trains.

In case of failure of slip siding point No.21 for whatever reason, SM shall use crank handle CH-1 for slip siding point operation. There is no facility of emergency operation of slip siding point no. 21 from VDU/Panel in case of failure of slip siding point track circuit no 21T. There is no independent operation of slip siding point from VDU/Panel.

3.2 WORKING OF CATCH SIDING:-

A catch siding is provided at KRDL end of the yard between UP Starter 5, 7 and UP advanced starter signal no.13. The catch siding point is normally set to the catch siding.

3.2.1 For the dispatch of UP trains, it gets set to running line by the operation of the UP advanced starter signal button 13GN & route button 13UN when the block instrument for the section TXD-CMDP is in 'Train Going To' position. Catch siding point gets normalized automatically after clearance of the track circuit 2AT4 by train.

3.2.2 For the reception of DN trains, it gets set to running line automatically under the following circumstances.

(a) By the operation of DN Home signal button S2GN & concerned route buttons i.e. L1UN/L2UN.

(b) By the operation of DN calling-on signal button C2GN & concerned route button i.e. L1UN/L2UN.

(c) Catch siding point no.22 gets set to main line after 120 seconds time delay on sequential operation of track circuits 2AT & 2AT1 for reception of DN Home/calling-on signal.

(d) Catch siding point gets normalized automatically after clearance of track circuit 2AT by train.

3.2.3 When the DN train passed the 15kmph speed restriction board at a speed in excess of 15kmph and if the train is brought to a stop in rear of the DN Home signal, the catch siding point will still operate and set to running line and the DN Home signal will assume 'OFF' aspect after lapse of 120 seconds on occupation of track circuit 2AT4.

3.2.4 If the DN train Loco pilot passes the 15kmph speed restriction board and travels the length of track between the 15kmph speed restriction board and DN home signal in excess of 15kmph due to whatever reason, the train enters into catch siding. Once Loco pilot enters into catch siding with train, an over shooting indication appears on the panel/VDU along with audible buzzer. The buzzer can be silenced with over shooting muting button. The counter of catch siding over shooting will register next higher number. After acknowledgement the fact of over shooting the DN Home signal, the SM on duty can initiate emergency operation of the catch siding point through crank handle and the train has to be piloted IN vide SR 3.69.03.

3.2.5 There is visual and audible indications available in VDU/Panel as a reminder to SM to normalize the catch siding point after passage of UP/DN train past the catch siding track circuit no.22T. The buzzer gets silenced and indication extinguished only after normalization of catch siding point and normal indication obtained.

3.2.6 In case of failure of catch siding point No.22 for whatever reason, SM shall use crank handle CH-3 for catch siding point operation. There is no facility of emergency operation of catch siding point no. 22 from VDU/Panel in case of failure of catch siding point track circuit no 22T. There is no independent operation of catch siding point from VDU/Panel.

4.0 BUTTON HELD ACKNOWLEDGEMENT(WHITE WITH RED DOT):

All push buttons are self restoring type. A button held acknowledgement push button along with a white light is positioned at the top of the panel. When any point, route or signal button gets stuck up in pressed condition, a buzzer will sound along with flashing white light indication. The station master shall stop the buzzer by pressing the button held acknowledgement button (white with Red dot). The buzzer will stop but the flashing white indication of each point; route or signal will continue to glow until the pressed button is normalized. SM on duty shall try to find out the pressed button for normalization or otherwise inform the maintenance staff to rectify.

5.0 OVER LAP TIME RELEASE(WHITE LIGHT):

Separate indications (white light) for each overlap is provided near the starter signal to indicate the free or locked condition of the overlap. This indication light will glow when overlap is locked by any Home signal route and there will be no light when the overlap is free.

The locked indication starts flashing when the approaching train clears the rear end point zone track and occupies the berthing track. After a time lapse of 120 sec the white flashing light will disappear indicating concerned over lap is free.

6.0 TRACK CIRCUIT:

Entire yard is track circuited from Home signal to Advanced starter on either direction. The following track circuits are provided in this yard.

1AT, 1T, 21T, 12AT, 23T, L₁T₁, L₁T₂, L₁T₃, L₂T₁, L₂T₂, L₂T₃, 24T, 13AT₁, 13AT, 2T, 2AT₁, 2AT₂, 2AT₃, 22T, 2AT and 2AT₄. Indications for the above track circuits are available on Panel / VDU at SM's office. Normally the panel is blank except point and Block section indications for the above track circuits/ Axle counters are available on Panel/VDU at SM's office. When a signal is cleared the route indication 'Yellow' appears for the particular route set and 'Red' light appears as the train occupies the track circuit.

7. AXLE COUNTER:

Entire Block Section between TXD-SLPM and TXD-CMDP are provided with Single Section Digital Axle counters.

For SEC: TXD-SLPM: - A pair of digital axle counter is provided between TXD-SLPM one just beyond DN advanced starter No. 12 on 1T track circuit of TXD and another one on 2T track circuit of SLPM.

FOR SEC: TXD-CMDP: A pair of Digital axle counter is provided between TXD-CMDP beyond UP Advanced starter signal no.13 of TXD and another on 1T track circuit of CMDP.

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

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

A resetting arrangement for resumption of the system in case of failure of axle counter has been provided in the SM office of the adjacent Block stations after being assured by both the SM that the last vehicle has arrived complete at the receiving station by exchanging Private Number, then resetting to be complied with. (Details of resetting procedure given in Para No. 25 APPENDIX-'B')

NOTE:

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

8. STATION MASTER'S PANEL CONTROL KEY:

The panel is fitted with Station Master's lock up key to prevent any unauthorized operation of the panel. The Station Master on duty is the only authorized person to operate the panel and the panel key must always remain in his custody vide

SR 3.36.02 and GR 5.08. The key locks the panel board and no operations are possible. In case of emergency, signals can be put back to danger by operating concerned signal button and signal cancellation button without ASM's key also. However the provisions of SR 3.36.02 shall be followed while replacing signals also.

9. CRANK HANDLES:

When any point fails to operate normally by the route setting operation or through the concerned point button through panel, it is inevitable to operate the points with crank handle. Station Master on duty shall personally ensure clamping and padlocking all facing and trailing points en route. Crank handles are interlocked with signals and interlocking system. The CH push button (Blue) and group button (White with Black dot) is provided at the top of the panel board. This button has two indications viz., WHITE and RED. The White indication suggests that the crank handle key is in its interlocked position of the panel. This is called "Crank Handle Key 'IN' indication.

The Red indication suggests that the crank handle key is locked and not free for extraction from RKT. This is called 'Crank handle key locked' indication.

For extracting CH key from RKT, SM has to press relevant crank handle push button and group TRANS button simultaneously. The light white light besides the CH button starts flashing. After extraction of CH key from RKT at location box flashing white light disappears. On extraction of CH key from RKT, the points in that particular group can not be operated from the panel. After completion of point operation, the CH key will be retransmitted to the station electrically by inserting the CH key in RKT in location box and turned. The white flashing indication appears on the Panel board. The flashing will be stopped and steady indication appears on pressing concerned CH button and group release button (White with Black dot).

Crank handle control for operation of points:

SL No	CRANK HANDLE	CONTROL POINTS
1	CH-1	21 , 23 A/B
2	CH-2	24A/B
3	CH-3	22

9.1 SETTING OF ROUTE AND TAKING OFF RECEPTION SIGNALS:

For setting a route all the concerned points must be set by operation of relevant point button and group button one at a time in the desired position or by operating signal and route button. As soon as the required points are set to the required position, the concerned signal for the route will clear and a Yellow strip of light will appear on the route confirming that the route is set and locked. The signal 'OFF' indication will appear on the panel.

9.2 SETTING OF ROUTE AND TAKING OFF DEPARTURE SIGNALS:

For setting a particular route for departure of a train, all the concerned points must be set by operation of relevant point button and group button one at a time in the desired position or by operating signal and route button.

To take 'OFF' UP advanced starter signal no.13, UP LV section between TXD-CMDP should be clear and Line clear must be obtained from the concerned Block section in advance. Then the concerned advanced starter signal button shall be pressed along with the concerned route button for two or three seconds and released. This will clear the UP advanced starter signal and a white strip of light will appear on the panel.

To take 'OFF' DN advanced starter signal no.12, DN LV section between TXD-SLPM should be clear and Line clear must be obtained from the concerned Block section in rear. Then the concerned advanced starter signal button shall be pressed along with the concerned route button for two or three seconds and released. This will clear the DN advanced starter signal and a white strip of light will appear on the panel.

To take 'OFF' the starter signal the concerned signal button is pressed and at the same time common route button to be pressed for two or three seconds and released. This will clear the starter signal and a white strip of light will appear on the route from the concerned starter to advanced starter.

9.3 TAKING OFF CALLING ON SIGNAL:

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

To take "OFF" Calling-on signal the train must come to a stop at the foot of the Home signal, occupying the track circuit (1AT, 2AT as the case may be) in rear of the Home signal. When a train occupies the track circuit a RED

light strip will appear on the Panel/VDU. The particular route on which train is intended to be received shall be set by operating the point push button and group button individually or by signal and route buttons pressing or by crank handling in the event of failure of operation of points through panel/VDU. After the route is set, the Calling On signal button 'C-1(A-B)/C-2(A-B) (Red with White dot) shall be pressed (as the case may be) simultaneously along with the concerned route button for 2 to 3 seconds and then released. UP Calling-on signal C-1A/B clears after a lapse of 60 seconds on occupation of 1AT and DN-calling-on signal C-2 A/B clears after lapse of 120 seconds on occupation of 2AT4. The Calling-on signal clears i.e. a Yellow light glows at the concerned Calling-on signal on the panel.

10. RELEASE/ CANCELLATION OF ROUTE:

Normally when a train is received or dispatched on any route, the route illumination will disappear automatically after passage of the train suggesting that the route is released.

NOTE:-

UP and DN calling on signals, UP and DN advanced starters are to be manually cancelled after the passage of the train to cancel the route.

11. REPLACEMENT OF SIGNALS TO ON:

Signals are replaced to 'ON' automatically by the operation of the first track in advance of the signal. It will not be possible to re-clear the signal again unless the due process for clearing the signal is repeated again. For replacement of any signal to 'ON' position manually, the respective signal button and signal cancellation button (RED) is to be pressed simultaneously.

12. INTERLOCKING OF SIGNALS/POINTS :

All running line points are fitted with point machines which have in built locking and are electrically detected by the relevant Home signals and starters.

12.1 Advanced starter signals are interlocked with respective Block instrument in LINE CLEAR position.

12.2 The Block instruments cannot be made to normal unless the respective Home is put back to 'ON' aspect and the respective block section monitored by axle counter is clear of trains.

- 12.3 Signals once taken OFF can be put back to ON in case of emergency by pressing the concerned signal button in conjunction with signal cancellation button even when the panel is locked up with Station Master's key.

13. PILOTING OF TRAINS IN TO THE STATION YARD:

Whenever Home signal becomes defective, trains can be admitted by taking off calling-on signal. When both home and calling-on failed, then the trains will be piloted 'IN' in terms of SR 3.69.3(a) &(c).

The SM on duty shall nominate a clear line and shall set the nominated route correctly from the panel or shall advise the TPM on duty at station to set the nominate route with the help of crank handle during failure of points. The TPM shall set the facing and trailing points and clamp and padlock the same under the supervision of SM on duty at station in both the cases.

Then the SM on duty shall then hand over the written authority (T/369(3b)) to the TPM for "piloting IN" the train. While going towards home signal, the TPM shall check that the points have been correctly set, clamped and padlocked. After the train has been brought to a dead stop at the foot of the home signal the TPM shall hand over the PILOT memo to the Loco Pilot board the engine and display proceed hand signal to pass the defective home signal.

NOTE:

- 1) The station master on duty shall personally supervise the correct setting, clamping and padlocking of both end points for admission of a train.
- 2) The keys of padlock used for clamps on the points shall be kept in the personal custody of SM on duty till such movement is either completed or alternatively cancelled.
- 3) The SM on duty shall ensure the closure of the interlocked gate supported by a private number from the gateman on duty.

13.1 PILOTING OF TRAINS OUT OF STATION YARD:

When starter signal has become defective, the SM on duty shall set the points correctly from the panel or advise the TPM to set the concerned points correctly for the outgoing train with the help of crank handle. The TPM on duty shall clamp and padlock both the facing and trailing end points under supervision of SM on duty in both the cases. He shall also advise the gateman to close the level crossing gate/gates on the route for dispatch of a train.

The SM on duty shall then authorize the TPM on duty to hand over the pilot memo T/369(3b) along with other authorities if any to the Loco Pilot of the train. Thereafter, he shall display proceed hand signal at the foot of the starter signal vide subsidiary rule 3.70.01.

In case advanced starter signal becomes defective BWM 3.33 will be followed.

NOTE:

- (1) The station master on duty shall personally supervise the correct setting, clamping and padlocking of both end points for dispatching of a train.
- (2) The keys of padlock used for clamps on the points shall be kept in the personal custody of SM on duty till such movement is either completed or alternatively cancelled.
- (3) The SM on duty shall ensure the closure of the interlocked gate supported by a private number from the gateman on duty.

14. VERIFICATION OF LINE CLEARANCE BY STATION MASTER ON DUTY FOR RECEPTION OF TRAINS INTO THE YARD:

In the station yard, a route on the running line comprises of entrance, berthing and dispatch portion of the yard and this portion of the yard should be clear of any obstruction for the passage of any train or for any other movements.

The clearance of the route including overlap must be ensured by the Station Master on duty personally through Luminous indications of the track before any movement of trains are permitted on the concerned route subjected to the other conditions such as locking of points etc.

15. CRANK HANDLING EMERGENCY OPERATION OF POINTS:

Crank handle operation is interlocked with the signaling and interlocking system at this station. Key of crank handles normally locked inside the RKT instrument at the respective Crank Handles Locations. Crank handle keys can be taken out only when all signals leading over the points are in the Normal position and the route is not locked for whatever reasons. Crank Handle can be released by operating common 'TRANS' push button and concerned Crank handle control push button simultaneously. When this key is taken out, no signal to the concerned point can be taken 'OFF' in the yard. This key can be electrically transmitted at both ends of the yard.

On account of the doubtful operation of any track circuit by a light vehicle including self propelled vehicle such as Motor trolley or light Diesel/electrical engine or tower wagon, indicating the occupancy of the track. It is necessary to satisfy SM on duty that the said vehicle has cleared point zone track circuits by observing the track indications on either side of the cross over.

16. EMERGENCY OPERATIONS:

The following are the instructions for emergency operations.

16.1 CANCELLATION BUTTON AND COUNTERS:

16.1.1 For the purpose of the emergency operations there is an emergency Route cancellation button (provided at the top of the panel) and also there is a counter for counting emergency operations involving the concurrent operation of the emergency route cancellation button. The Station Master on duty must press the emergency route button along with concerned signal button for which emergency route releases is desired. A yellow indication will appear below the signal indicating that the timer has started operating and after lapse of 120 seconds the desired route will be released provided all other conditions are favorable for the route release.

16.1.2 The counter registers the number of such emergency operations performed for such emergency cancellation and the Station Master on duty shall specify the cause for such usage giving the particulars of cause and the time of operation as related to a particular train etc. in the train signal register. The detailed operation instructions are as follows:

16.2 EMERGENCY OPERATIONS CANCELLATION THE LOCKING OF POINTS NOT RELEASED AFTER THE PASSAGE OF THE TRAIN FOR WHAT EVER REASON:

If the locking of the route does not get released for one reason or the other after passage of the train it is necessary to take recourse to the following emergency operations

- a) Firstly, it must be ensured that the signal is in the ON position.
- b) Operation as detailed in Para 3.0 to be followed.

- 17.0 LOCKING OF RELAY ROOM:
The relay room shall be locked with a double lock which can be opened only after both the keys are inserted and turned. One key of the lock shall be kept with the Station Master on duty in his custody and other with Maintainer. Whenever required for maintenance, the key in the custody of Station Master shall be given to the Maintainer. After completion of the work the Maintainer be properly recorded in relay room register maintained at the station and duly signed by the Station Master and the Maintainer concerned as per OM 1.14. In addition, the Station Master shall also observe SR 3.51.05.
18. MAINTANANCE OF S&T INSTALLATION AND ADHERENCE TO MAINTENANCE SCHEDULES:
- 18.1 Regular maintenance of S&T installations and adherence to the schedules of maintenance is also the mandatory schedules of testing of points, track circuits, point machines, level crossing gates, the associated interlocking apparatus i.e., cables and finally the interlocking functional tests is a must for the safe and satisfactory working of those installations at this Station.
- 18.2 The tests, checks and replacements etc. including overhauling shall confirm to the schedule of maintenance as indicated in the signal engineering manual as also in the current and extent instructions / circulars on the subject.
19. PROCEDURE TO BE FOLLOWED IN CASE OF FAILURE OF A SIGNAL AND INTERLOCKING INSTALLATIONS:
In case of failure of any interlocking gear at the station, the failure report should be communicated by the Station Master on duty through a memo to the Sectional Maintainer and the Signal Engineer of the Section and others as per G& SR 3.51.04 and 3.68.04 and document all such transactions.
- 19.1 INSPECTION OF POINTS BEFORE DECLARING THEM DEFECTIVE:
Before declaring a Signal as defective the setting of point on the route to which it applies shall be inspected by the Station Master on duty irrespective of the position of the Buttons the Panel in term of SR 3.68.04(c).
- 19.2 RECTIFICATION AND CHECK BEFORE RESUMING NORMAL WORKING:
After receipt of this information, the sectional maintainer shall attend to the failure after giving a disconnection memo. After rectification of the fault the sectional maintainer shall give a reconnection memo detailing rectification. Thereafter the Station Master on duty shall personally check the defective apparatus. After satisfying himself that the gear is in good and proper working order, he shall resume the normal working of the said defective gear in terms of SR 3.64.04 (c) and (d).
20. PROCEDURE FOR CARRYING OUT PLANNED MAINTANANCE WORK:
Whenever any normal maintenance or special works for heavy renewals etc., are involved, these works should be pre-planned by the signal & Telecommunication field staff and the Inspector of the section should give to the Station Master in writing "Advance Intimation" about this planned work in terms of GR 15.08.01.
21. EMERGENCIES:
Notwithstanding anything contained in the aforesaid Paras, when equipment is found to be defective and unsafe for passage of trains, the Signal and Telecom. Staff shall at once suspend the working of such equipment and the associated installation and issue a "Suspension Memo" explaining the seriousness of the defect or damage to the interlocking installation to the Station Master and obtain SM's acknowledgement. After this, the usual practice of issuing disconnection memo and reconnection memo can follow and the Station Master must promptly act on such messages and take adequate precautions treating the S&T installations as defective and pass trains over the affected interlocking gears according to extant instructions as contain in GR & SR 3.77.

22. PROCEDURE TO BE FOLLOWED IN CASE OF FAILURE OF SIGNALS AND POINTS AND USE OF CRANK HANDLE:

- 22.1 When crank handle key is removed from RKT for operation of the defective motor operated points, the responsibility for its safe custody rests with the Station Master on duty, till it is replaced back to RKT.
- 22.2 The cases of failure of Motor Operated Points should be promptly reported to the Concerned Signal maintainer /Signal Inspector for immediate rectification.
- 22.3 Whenever an emergency Crank handle is required to be used by a Signal Official for maintenance of work attending to failure, the Signal Official will give a disconnection memo to the Station Master on duty and after making necessary entries in the emergency Crank Handle register, the Station Master on duty; will obtain acknowledgement of the Signal Official in the emergency Crank Handle Register and then handover to him the emergency Crank Handle for the Points concerned. All the concerned Points will be treated as defective till the Emergency Crank Handle is returned back to the Station Master on duty.
- 22.4 Before parting with the emergency crank handle either for attending failure or for Maintenance work by Signal Maintenance Officials, the Station Master on duty will ensure that the reception and departure Signals are put back to ON position. The Points for the affected lines shall be treated as Non-interlocked. The Station Master on duty is responsible for introduction of Non-interlocked working and the trains will piloted IN and OUT duly clamping and Padlocking the Points, both in facing and trailing directions over which the train is to pass, as per GR 3.69 and 3.70 with relevant SR's. The Station Master on duty will be personally responsible for setting and locking of Points, for reception and dispatch of all trains.
- 22.5 The Emergency Crank Handle Register is to be maintained vide OM 2.19 by the Station Master on duty wherein the particulars of usage of the Emergency Crank Handle must be recorded.

23. SUSPENSION OF LAST STOP SIGNALS:

- 23.1 When the Block Instrument is suspended with its handle in 'TRAIN GOING TO' position for whatever reason, the concerned Last Stop Signals controlled by the Block Instrument must be treated as suspended and trains shall be worked on PLCT.
- 23.2 The Station Master on duty shall not grant LINE CLEAR unless he has ensured that the lamps of fixed signals which apply to the trains are glowing. If the Signal Lights are not glowing the Station Master on duty shall before giving
- 23.3 LINE CLEAR shall initiate action in accordance with the procedure prescribed in GR 3.68 to 3.71 and relevant SR's vide GR 3.49(4).

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

- 24.1 Axle counters are provided between TXD-SLPM and TXD-CMDP Single line section for Block proving.
- 24.2 The occupation and clearance of the axle counter section are indicated on panel by 'Red' and 'Green' lights.
- 24.3 If any Block proving Axle counter section fails, the Last stop signal at the rear station can not be taken 'OFF' and Block instrument at advance station can not be turned to "Line Closed" position after arrival of a train and in such case, resetting of last vehicle checking device is to be resorted to in either section.
- 24.4 Even after completion of reset operation, LVCD Axle counter will show clear only if next train is passed. The next train is to be piloted.

- 24.5 No train should be allowed on signal to leave a station in any particular direction unless:-
Track clear indication is available for the relevant axle counter track circuited portion and Last stop signal is not taken 'OFF'.
- 24.6 A resetting arrangement for the resumption of the track circuit by means of axle counter under failure condition at either end station of the Block section is provided, which should only be resorted to after the train that was lastly sent, arrives fully at the at the receiving station and is certified in this respect by the SM at the receiving station through exchange of Private Number.
- 24.7 Reset arrangements are provided in the Reset Box in the SM's office for Sections TXD-SLPM and TXD-CMDP. The key for the Reset Box should normally be kept with SM. And for every such operation of the resetting the Axle Counter, the SM on duty shall record giving details of the date of use, train number, time, and number registered on the counter and reasons for resetting and initial each such entry.
25. RESETTING OF LVV DIGITAL AXLE COUNTER:
- i) Whenever after complete arrival of train, the LVV axle counter continue to show 'RED' on the panel board, the on duty SS/SM at both ends of the section shall resort to reset the axle counter. For this purpose SS/SM at receiving end shall first verify that Block section is clear of trains. If the failure has occurred after arrival of train, SS/SM shall obtain signature from the guard of stopping train on the train intact register (vide GR&SR 4.17, 4.17.01) or by exchanging signal with the guard of through train, so that he can ensure that the train has arrived completely before resorting the LVV axle counter. SS/SM of receiving end shall inform the failure of axle counter to on duty SS/SM of dispatching end for UP/DN section.
 - ii) SS/SM at receiving end then sends an operating person to verify that the last vehicle is clear of Block section. After verifying the clearance of last vehicle of concerned block section, the operating person exchanges private number and press the button in the LVV box.
 - iii) On exchanging private number the SS/SM at both ends will insert the reset key for corresponding section and shall press the nominated reset button. By this operation LVV axle counter will reset and associated counter will change to next higher number at both ends.
 - iv) SS/SM at both ends shall record the counter number so changed due to reset of axle counter in the reset register and also in the Train signal register mentioning the purpose of reset. After the reset operation is completed preparatory reset indication will appear on reset box at both ends which suggests that the reset operation is successfully completed and the first train has to be piloted out. On arrival of the piloted train the axle counter track cct zone of the section shows clear and normal working shall be resumed. Even after arrival of piloted train, LVV axle counter zone does not show clear indication, S&T staff to be informed for getting rectified the failure of axle counter.
 - v) It is mandatory that every reset operation of LVV axle counter first train after reset process shall have to be piloted out.
26. SIGNAL LIGHTS:
The station Master on duty at 00.00 hrs (2nd shift) must also ensure from panel board that all the signal lights are glowing properly and brightly. This fact must be recorded in the Diary under a separate entry and confirm to the section controller on duty.

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

The station Master shall set the time in his clock according to the time signal given by the section controller on duty at 16.00 Hrs every day according to GR and SR 4.01.01 and 4.01.02.

28. **TELECOMMUNICATIONS:**

- (a) Telephone attached to Token less Block Instruments is connected to adjacent stations on either side.
- (b) Hot line Telephone communication is provided between adjacent stations i.e. CMDP and SLPM stations.
- (c) The station is connected to KTV-KRPU control Circuit.
- (d) The station is connected to KTV-KRPU traction power control circuit.
- (e) Telephone communication is provided between Station Master on duty to UP CH locations and to DN CH Locations.
- (f) Telephone communication is provided between Station Master on duty and slip siding location.
- (g) 25w VHF set is provided at the station for emergency communication.
- (h) Auto Rly telephone is provided.
- (i) Telephone communication is provided between SM on duty and UP/DN Home signals.

29. **WORKING OF AUTOMATIC FIRE DETECTION AND ALARM SYSTEM:**

- In case of any alarm-Zone number on the LCD display can be seen.
- Note down the zone No. and panel display name, by referring display chart.
- Then open the key pad and press the "OFF" button and enter the code 1111 (1 digit four times).
- Automatically it will get reset.
- Once you find the zone number rush to that particular area where the detector gives alarm.
- The movement the detection detects any smoke particles, the RED LED will blink along with the alarm.
- Once you reach the area where the detector is giving the alarm, check whether the alarm is due to the fire or for any other reason.
- To alert the people in case of emergency press "*" sign of the n-e which is present inside the key pad together for few seconds. This will enable you to hear the panel alarm.
- To reset the panel press "OFF" button and enter the code 1111 (1 digit four times).
- If the power fails on this will enable us to see the red indicator on the panel.
- In case of failure in power and if the battery is fully charged, the panel can function effectively as long as the charge in the battery is present.

AUTO DIALLING:

If you hear alarm from the panel, this system will dial the Railway Auto telephones as assigned to the all concerned.

APPENDIX-B1

1. VISUAL DISPLAY UNIT (VDU):

1.1 INTRODUCTION:

A visual Display Unit (VDU) is used for controlling and monitoring a station.

A VDU basically displays an imitation of the actual station, with indications and controls that are updated in real time. VDU system works in conjunction with VHLC system.

1.2 PURPOSE:

This document explains the procedure for operation of functions (clearance of signal or cancellation, point operation, Route release etc.,) required to be executed using VDU.

1.3 SYSTEM OVERVIEW:

The PC based control cum indication panel (here after referred as operator VDU) functions similar to that of the conventional control cum indication panel (here after referred as PANEL) for the operation of signals, points, crank handles and siding controls etc.

An operator VDU consists of CPU with a color monitor, key board and point device (mouse). Through serial communication, the exchange of control and indication messages takes place between VHLC and operator VDU. The software installed to display the station yard imitation panel diagram on the operator VDU and it allows access to all functions by clicking menus. By selecting the menu of the pointing device (mouse), the function (Signal clear and cancellation, Route release, point operation, Gate release etc.,) can be executed.

Either operator VDU or PANEL may be used for controlling or monitoring the station, however, indications on the station yard imitation diagram of operator VDU and PANEL will be dynamically updated.

1.4 MODE OF SELECTION- PANEL/OPERATOR PC:

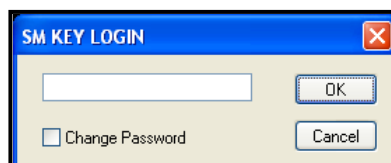
For the stations having both operator PC and PANEL, the privilege has been given with the operator to control the station through operator PC or PANEL. Obviously, the station having only operator VDU or PANEL does not possess the selection feature.

The operator VDU is having controls to operate the field gears from the mimic panel diagram. A mimic panel diagram displayed on the operator VDU will be exact replica of the PANEL and suits the yard plan as per SI plan.

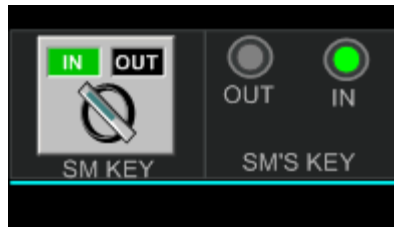
1.5 SM's KEY:

SM KEY IN operation can be achieved through operator PC as follows.

Operator shall single left click on the SM- Key soft selector switch, which will enable the login password window to appear as shown below.



After the entry of a valid user name & password, the SM key in operation will be enabled (color of the background change to GREEN)



SM KEY OUT operation can be achieved through operator PC as follows:
Operator shall single left click on the same(SM Key) icon, which will enable the login password window to appear. After the valid entry of user name and password, the SM KEY OUT operation will be enabled (color changes back to RED. This will lock all the controls in operator VDU except the signal cancellation facility.



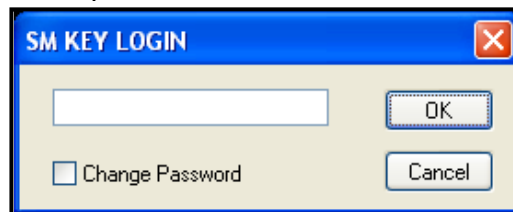
1.6 OPERATOR VDU- MODE OF OPERATION:

A two position selector switch (PANEL/PC) is provided on the PANEL along with the SM's key. A similar soft selector switch (PC REQ/ACK) is also provided in the VDU. Both of these switches, in conjunction, have to be used to transfer controls to the PANEL or operator VDU.

The operator can select PANEL or PC mode of operation and certain procedures to be followed are as mentioned below.

1.7 OPERATOR PC TO OPERATOR PANEL- CHANGE OVER:

- Ensure that SM's key is in ON position on the PANEL.
- Ensure that PANEL/PC switch is in PANEL position.
- On the operator VDU, click the selector switch (PC REQ/ACK) to 'REQ' position.
- A password window will appear on the screen. Enter the correct user name and password in the required text boxes. Click the OK button.



- Now the operator PC indication will start flashing (on both VDU and PANEL).
- Change the PANEL/PC SWITCH to PC mode in the conventional panel.
- Now the PC indication will be steady and PANEL indication will disappear.
- Click the SM key. (A password window will appear on the screen).
- Enter the correct username and password in the text boxes followed by OK button. Now overall control is transferred to operator VDU and the station operation can be performed through operator VDU.

1.8 OPERATOR TO PANEL- CHANGE OVER:

- Ensure that SM's key is in ON position on the VDU.
- On the VDU, ensure that PC REQ/ACK switch is in REQ position.
- Turn the PANEL/PC switch to 'PANEL' mode. Now the PANEL indication will start flashing on both PANEL and VDU.

- On the operator VDU, click the selector switch (PC REQ/ACK) to 'ACK' position. A password window will appear on the screen. Enter the correct username and password in the required text boxes. Click the OK button.
- Now the PANEL indication will be steady and the operator PC indication will disappear. Now the overall control is transferred to PANEL and the station operation can be performed through PANEL.

PC Control Indication Before making request



PC Control Indication after request & acknowledgment.



1.9 COMMUNICATION HEALTH STATUS INDICATION:

The VDU is interfaced with VHLC system using GE's proprietary protocol. One or more VHLC can be connected to a common VDU through serial multi dropping. The communication link enables the VDU to send/receive all the data (control, indications) to/from VHLC.

The Health status of the link is indicated by an icon at bottom right of VDU display (see figure below).



VHLC Link OK (Green)



VHLC Link fail (Red cross)

A failure communication link makes VDU inactive, hence disabling all the indications and controls. This failure can be caused by problems in communication link (broken wire), ports or VHLC itself (e.g. when switched off).

In this condition, all the signals, tracks and points are indicated by grey color. A failure message also flashes on the VDU become active once again.



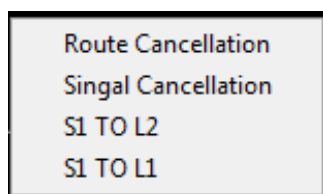
1.10 MENU OPERATION:

All the necessary operations like selecting and cancelling a route, point, crank handle operations, gate operation etc., are all executed using windows based menu. The menus are in-built and very simple to use.

The signals, points, crank handle etc., on the screen have their own menus. A white rectangular area appears on placing the mouse pointer on these screen objects. This rectangle represents the menu-sensitive area as shown below.

The operator has to then single right-click within the rectangle for opening the object's menu. A list of items is displayed next to the selected VDU object.

Signal Operation Menu-TXD



Choose the required operation from the menu and by single left- click on the highlighted (in BLUE) item. Following this operation, a confirmation dialogue box opens up as shown below.

The operator can either proceed the action by pressing "YES" button, or cancel the action by pressing the "NO" button. It is recommended that the time gap that should be maintained between two consecutive actions should be at least 2 seconds.

1.10.1 ROUTE SETTING:

To set a route, single right-click on to the concern signal for accessing its menu. A list of items is displayed next to the selected signal. Choose any of the routes by moving the mouse pointer down the menu item. The selection will be highlighted in BLUE color. And then single left-click on the route which is required to be set. This action is followed by a confirmation dialogue box. Press "Yes" to see a route, or "No" to cancel the route.

1.10.2 SIGNAL CANCELLATION:

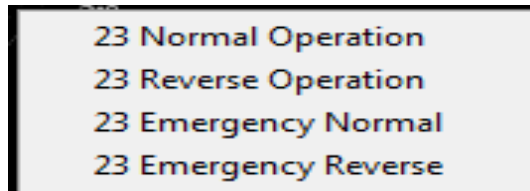
To cancel the signal, single right-click on the concern signal for accessing its menu. A list of items is displayed next to the selected signal. Choose the signal cancellation by moving the mouse pointer down the menu item. The selection will be highlighted in BLUE color. And then single left-click on the signal cancellation to select. This action is followed by a confirmation dialogue box. Press "Yes" to cancel the signal, or "No" to reject the signal cancellation.

1.11.3 ROUTE CANCELLATION:

To cancel the route, single right-click on the concern signal for accessing its menu. A list of items is displayed next to the selected signal. Choose the route cancellation by moving the mouse pointer down the menu item. The selection will be highlighted in BLUE color. And then single left-click on the route cancellation to select. This action is followed by a confirmation dialogue box. Press "Yes" to cancel the route, or "No" to reject the route cancellation. If the concern route has approach lock, the timer stats running and then after 2 minutes, the route will be released. If there is no approach lock, route will be released immediately.

1.10.4 POINT OPERATION-

Point Operation Menu-TXD



NORMAL TO REVERSE

To operate the point from Normal to Reverse, single right-click on the concern Point for accessing its menu. A list of items is displayed next to the selected point. Choose the point reverse option by moving the mouse pointer down the menu item. The selection will be highlighted in BLUE color. And then single left-click on the point reverse to select. This action is followed by a confirmation dialogue box. Press "Yes" to reverse operation, or "No" to reject the reverse operation.

1.10.5 POINT OPERATION- REVERSE TO NORMAL

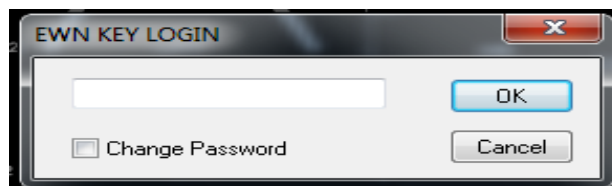
To operate the point from Reverse to Normal, single right-click on the concern Point for accessing its menu. A list of items is displayed next to the selected point. Choose the point Normal option by moving the mouse pointer down the menu item. The selection will be highlighted in BLUE color. And then single left-click on the point Normal to select. This action is followed by a confirmation dialogue box. Press "Yes" to Normal operation, or "No" to reject the Normal operation.

1.10.6 EMERGENCY POINT OPERATION:

Emergency route release requires two operations. First, to turn in the EWN KEY to IN position and this requires password. The second is to trigger the Emergency point operation by menu operation.

First, single left click the EWN KEY to turn the key into IN position. If it is not in OUT position. A password dialogue box appears on the screen. Enter the correct password and press OK button. Now the EWN key is in IN position, which ensures that the emergency operation can be done.

EWN KEY LOGIN



(i) EMERGENCY POINT OPERATION- NORMAL TO REVERSE:

To operate the point from Normal to Reverse, single right-click on the concern point for accessing its menu. A list of items is displayed next to the selected point. Choose the emergency point reverse option by moving the mouse pointer down the menu item. The selection will be highlighted in BLUE color. And then single left-click on the emergency point reverse to select. This action is followed by a confirmation dialogue box. Press "Yes" to reverse operation, or "No" to reject the Reverse operation.

(ii) EMERGENCY POINT OPERATION- REVERSE TO NORMAL:

To operate the point from Reverse to Normal, single right-click on the concern point for accessing its menu. A list of items is displayed next to the selected point. Choose the emergency point Normal option by moving the mouse pointer down the menu item. The selection will be highlighted in BLUE color. And then single left-click on the emergency point Normal to select. This action is followed by a confirmation dialogue box. Press "Yes" to Normal operation or "No" to reject the Normal operation.

1.10.7 CRANK HANDLE:

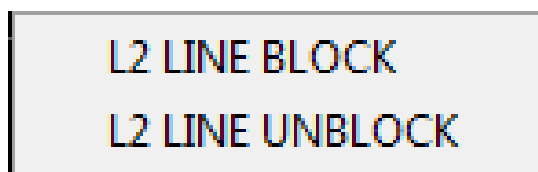
To transmit or Release control of the crank handle, single right-click on the concerned crank handle provided on the operator VDU.

Choose "Transmit control" or "Release control" from the menu list and single left-click on it. This action is followed by a confirmation dialogue box. Press "Yes" to transmit control (or release control) or "No" to cancel the operation.



1.10.8 LINE BLOCK COLLARS:

To provide Line block collar, single right click on the concerned route button on the VDU i.e, L1UN, L2UN, 12-UN, 12A-UN, 13A-UN, 13-UN.



APPENDIX 'C'

ANTI COLLISION DEVICE (RAKSHA KAVACH)

NIL

APPENDIX-'D'**DUTIES OF TRAIN PASSING STAFF AND STAFF IN EACH SHIFT.****1. STATION MASTER (IN CHARGE):**

- i) He is responsible for trains passing during his shift.
- ii) He is responsible for the general and satisfactory working of the station and for the efficient discharge of duties by staff working under him.
- iii) Ensuring that the general working of the Station is being carried out in strict accordance with the current rules, procedures and instructions.
- iv) He shall keep all Rule books, Registers, Files and documents neat and up to date.
- v) He shall be responsible for general up-keep of the station.
- vi) He shall ensure that all equipment, apparatus, and instruments including signaling and interlocking gears and fittings are kept clean and oiled by S&T officials.
- vii) His special attention is drawn to Chapter-II of G&SR and GR 5.01 to 5.08 with relevant SRs and O.M. Chapter-2. He shall follow the instructions laid down in SR.3.68.01 (c) and (d) and SR 14.07.01 and B.W.M.2.09 (e).
- viii) He shall promptly attend to accidents and report them.
- ix) He shall supervise the work of safe working staff and conduct night inspections and report lapses of staff working under him.

2. STATION MASTER:

- i) He is responsible for trains passing during his shift.
- ii) He shall promptly bring to the notice of SM incharge all irregularities and accidents in course of his shift duties.
- iii) During the absence of SM I/C, the duties of the Station Master will devolve on him.
- iv) He shall follow SR 3.68.01(c) and (d) SR 14.07.01 and OM Chapter-2.
- v) His special attention is drawn to Chapter-2 of G&SR 1976 and GR 5.01 to 5.08 with relevant SRs.
- vi) He shall be responsible for obtaining and granting line clear to trains or for shunting movements as per SWR & G&SR.
- vii) As an assistant to SM I/C, he shall carry out the instructions given from time to time.

3. TRAFFIC POINTS MAN :

- i) He shall work under the orders SM on duty.
- ii) He shall couple and uncouple vehicles under the supervision of SM.
- iii) He shall watch and guard the packages and other Railway property lying in the Station premises.
- iv) He shall report any irregularities coming to his notice.
- v) He shall not leave his duty unless properly relieved or authorized by his superiors.
- vi) Neither shall he absent himself from duty nor shall he exchange his duty without prior permission of his superiors.
- vii) He shall do loading and unloading of parcels, smalls and Guard's boxes. He shall do piloting IN and OUT.
- viii) He shall deliver any official message to the proper person/office. He shall carry out any other duties entrusted to him by the SM on duty.
- ix) He shall follow OM Chapter-2 rule No.2.02 (f).

NB: - All staff should be in uniform while on duty and follow their rosters issued by Sr. DPO/WAT from time to time.

APPENDIX 'E'**ESSENTIAL EQUIPMENT**

Essential equipment's shall be maintained in good Working order.

Sl. No	Description	Quantity
i)	Detonators	20
ii)	LED based Tri Colour flashing torch.	3(1 Spare)
iii)	Hand Signal Flags	3(1 Spare)
iv)	Safety chains with Pad locks	6
v)	Clamps with Padlocks	8
vi)	Skids	6
vii)	Wedges	4
viii)	Fire & Sand buckets	6
ix)	Fire Extinguishers	2
x)	Line blocking collars	6
xi)	Motor trolley on line board	2
xii)	Block suspension board	2

APPENDIX 'F'

RULES OF WORKING OF DK STATION, HALTS, IBH, IBS AND OUTLYING SIDINGS.

-NIL-