SOUTH WESTERN RAILWAY

BLOCK WORKING MANUAL

OF

SOUTH WESTERN RAILWAY

UP TO

Correction Memo No. 15,

DATED: 24.08.2022

CHAPTER –1

GENERAL INSTRUCTIONS APPLICABLE TO BLOCK WORKING

1.1 System of working: The instructions contained in the succeeding rules of this Manual refer to the working of trains under the Absolute Block System alone, unless otherwise specially stated.

1.2 Means of communication:

(a) The following means of communication are given in the order of priority for obtaining line clear :-

(i) Block instruments, Track Circuit or axle counters

(ii) Telephone attached to Block Instruments.

(iii) Station to Station fixed Telephones wherever available.

(iv) Fixed telephone such as Railway Auto phones & BSNLphones.

(v) Control telephone.

(vi) VHF Sets.

(b) If all the above means of communications fails the block section shall be considered totally interrupted and the procedure prescribed in SR 6.02 shall be followed for working of trains over such section.

1.3 Object of provision of Electrical Block Instruments: The object of signalling trains by Electrical Block Instruments are to provide at alltime

(i) A visual indication of the condition of the Block Section to which they refer to and

(ii) To guard against more than one train being admitted into a block section at the same time.

The following types of Block Instruments are in use on this Railway :-

(a) <u>Single line</u> : -

1. Neale's Ball Token Instruments.
2. Neale's tablet Token instrument.
3. Push Button type Tokenless instrument.(RAB)
4. Daido handle type Tokenless Block Instrument. (FM)

(b) <u>Double line</u> :-

1. Sieman's General Electric (S.G.E.) Lock and Block Instrument.

1.4 Block Competency Certificate (GR. 14.04.)

(1) The Principal, Zonal Railway Training Institute (ZRTI), is responsible for proper training and issue of Block Competency Certificates (BCC) to staff connected with block working, attending initial/promotional/refresher course and other special courses after necessary tests are conducted by him. Such certificates shall be valid only for a period of 3 years from the date of issue upto the last day of the month in which the BCC is due for any work it can be revalidated only once for six more months by Sr. Divisional Operations Manager / Divisional Operations Manager. **(CM No.11 dated 08.10.2020)**

2. The holder of the Block Competency Certificate shall advice the Sr.Divisional Operations Manager / Divisional Operations Manager in writing through the Station Master not less than 15 days in advance of the date of expiry of Block Competency Certificate.

3. Sr.Divisional Operations Manager / Divisional Operations Manager shall renew the same after conducting necessary test. A record of such test with its result shall be made at the back of the original Block Competency Certificate.

4. The Block Competency Certificate shall be in the personal custody of the staff while on duty, to whom it is issued (except when it is submitted for renewal)and it shall be promptly produced when demanded by inspecting Officials of the Operating and Signal Departments.

1.5 Train Signal Register: –

(1) A Train Signal Register shall be maintained for each BlockInstrument.

(2) The Station Master on duty shall, himself, record the actual time at which the bell signals are given or received on the Block Instrument, in the Train Signal Register, correct to the nearest minute.

(3) All entries shall be made in ink.

(4) All signatures shall be recorded in full and not by initials.

(5) No erasures or overwriting shall be made in the Train Signal Register. If any entry is found to be incorrect, a line shall be drawn lightly over it, so that it may be read at any time and the correct entry made above it and signed.

(6) A line shall be drawn in red ink, below the entry for the last train of the date.

(7) A line shall be drawn across the Train Signal Register whenever Station Masters change duty. The time of taking over / handing over of the instruments with requisite keys for each type of instruments, shall be recorded with time and shall be signed by

both the outgoing and incoming Station Master in the Train Signal Register.

(8) The Station Master taking over charge shall test the Block Instrument and record the result instantly in the Train Signal Register.

(9) The Station Master who makes entry for a train in the Train Signal Register shall continue to be on duty till all entries relating to that train are completed except in cases specially exempted under special instructions.

(10) The Train Signal Register in use shall be examined and signed daily by the Station Master in charge of the Station.

(11) The Train Signal Register shall be examined by Officers and Inspectors of the Operating, Safety and Signal & Telecommunication Departments and any irregularities noticed shall be reported to the Divisional Railway Manager. If the irregularity affects the Block Instrument, block shall be suspended and the concerned Signal and Telecommunication officials shall also be intimated.

(12) The Train Signal Register in use shall not be removed from the cabin or room in which the Block Instruments are kept without the orders of the Divisional Railway Manager. If reference to the Train Signal Register is required, the authorized official shall go to the cabin or room and take necessary extracts.

(13) The Train Signal Register shall be preserved at stations for one year after the use.

(14) On both single and double line sections entries shall be made in **red ink** in the Train Signal Register on the following occasions: -

i. Suspension or Interruption of block working.
ii. Block Back & Block Forward
iii. Trollies, Lorries, Motor Trollies, Motor Lorries Ladder Trollies and Tower Wagons on line.
iv. Line Blocks order.
v. Obstruction on running lines.
vi. Exchange of “Testing Signals” and extraction of Last Stop Signal control key for testing Last Stop Signal.
vii. Power Block order.
viii. Working of trains during abnormal conditions.

ix. Station Master breaking "off" duty after making an entry for a train in the Train Signal Register but before the transaction is completed.

x. Performing shunting in push button type Tokenless block territory when shunt key can't be extracted.

xi. Any other special occurrence.

Note: Sl. No. ii. Standard time is deleted. **(C.M No. 13 dated 02.12.2021).**

1.6 Private Numbers :

1) Different series of Private Number books are printed. The numbers are printed in the Private Number books at random in two digits. There are three columns in the Private Number Book Viz., Private Number, Train Number and Date.

2) The Transportation (Traffic) Inspector is responsible for the supply of the Private Number books to all stations. Care must be taken by him to see that Private Number books supplied to adjacent station /cabin are not of the same series.

3) The Station Master / Cabin Station Master on duty at every Station /Cabin is provided with three Private Number books one for his use and other two to be kept as a spare. They should be kept under lock & key and in the personal custody of the Station Master /Cabin Station Master on duty. Whenever stock of Private Number book is run down to one it should be intimated to Traffic Inspector for arranging supply of new Private NumberBook.

4) Private Numbers should be allotted to the successive train movements in the order in which they are printed in the book in use. When a number is allotted to a train, it must be scored with a line drawn horizontally through it, the number of the train for which it is issued are date on which it is issued, being entered in the columns provided for the purpose. If a Private Number has been allotted to a train the running of which is subsequently cancelled, the same Private Number shall not be allotted to any succeeding trains. If it is found from any cause that the next number to be used is the same as the last one issued, the sender shall cancel the number in his book and add the remark "Same as last Private Number", sign it and issue the next consecutive number. The station, receiving the number shall also be responsible for seeing that no two consecutive numbers received from the same station giving the Line Clear are the same. Single digit Private Numbers or number ending with 'Zero', if any found in the Private Number book shall not be used

and scored out with a remark ‘single digit’ or ending with ‘Zero’ and signed by the Station Master.

5) While handing over charge, the Station Master /Cabin Station Master who is handing over charge, shall hand over the Private Number book in use, together with the spare Private number books to the Station Master /Cabin Station Master who is taking over charge, noting down the last Private Number issued in the Station Diary and Train Signal Register and record the transaction. This shall be signed by both the Station Masters.

6) The Transportation (Traffic) Inspectors during inspection of station shall see that the Private Numbers are scored off correctly and that the Train Number, Level Crossing gate number and date are entered against each.

7) Used Private Number books shall be preserved by the Station Master incharge for a period of six months and there after shall be treated as old records and disposed off.

8) Whenever normal working is in force on sections provided with push button type Tokenless Block Instrument, the Station Master at sending station before setting Block Instrument to “Train Going To” condition shall inform the Station Master at the other end the train number and description. The Station Master at the other end shall acknowledge, if he is willing to receive the train, by repeating the train number and description, communicating his willingness to receive the train, supported by a Private Number. When the Private Number book in use is lost or mislaid, spare book shall be brought into use. Whenever the spare Private Number book is brought into use, the same shall be recorded in the Station Diary and Train Signal Register. The Station Master / Cabin Station Master shall inform the Station Master in charge of the station who shall arrange for prompt replacement. If the Private Number book which is lost mislaid is subsequently traced out, the same shall not be used but shall be returned to the Transportation (Traffic) Inspector, by the Station Master in a sealed cover.

9) If no spare Private Number Book is available, the Station Master shall prepare a manuscript Private Number sheet and use the same till such time a Private Number Book is supplied. Such manuscript Private Number sheet should be preserved and sent to the Transportation Inspector/Divisional Railway Manager along with the used Private Number Book.

1.7 Precedence of Trains.-

(i) On controlled sections, trains shall be worked in accordance with controller's orders.

(ii) On non - controlled sections or in the event of interruption in control communications, trains shall be given precedence over each other in the following order: -

1st - MRV and / or ART or light engines proceeding to work such trains or to accident spot.

2nd -Rajdhani/Shatabdi/Superfast/ Express Trains.

3rd -TroopTrains.

4th - Passenger Trains including Rail cars and Rail Motor coaches.

5th - Mixed trains.

6th - Inspection trains.

7th -Relief trains returning from Scene of accident. (if with Injured passenger higher priority will be given)

8th - Goods Trains.

9th - Light Engines not going to accidentspot.

10th- Material and all othertrains.

(iii) Owing to irregular running of trains, if two or more trains are ready to start from a same end of a Block Section, preference shall be given to the train standing higher in the table of precedence. If both trains have the same order of precedence, preference shall be given to the one having the longer distance to run.

(iv In order to avoid excessive detention to train of lesser importance, a Mail/ Express train running less than 10 minutes late may be detained up to 10 minutes in order to save a delay of 30 minutes or more to a passenger train or 45 minutes to a Goods train.

(v) A passenger train running less than 10 minutes late may be detained up to 10 minutes in order to avoid a delay of 30 minutes or more to a Goods train.

1.8 Testing of Block Instruments.-

(i) The Block Instruments and apparatus in conjunction with them may be tested by the authorized Signal and Telecommunication department official only.

(ii) Testing Signal shall not be exchanged unless the authorized Signal and Telecommunication department official is at one end of the Block Section.

(iii) The instrument and apparatus in connection with them shall not be tested after "Line Clear" has been given or obtained for a train or when the instrument is not in the "Line Closed" condition.

(iv) Necessary entries for exchange of Testing Signals shall be made by the Signal and Telecommunication department official and the Station Master at the other end in the Train Signal Register, **in red ink.**

(v) Whenever the Signal and Telecommunication official opens the Block Instrument such as for restoration of block working after a failure or for maintenance work or when fixing a new instrument, he shall test the instrument.

(vi) The Signal and Telecommunication department official shall test the working of the Last Stop Signal during his maintenance work or while restoring failures.

Note: *The authorized official for the purpose of the above said rules are Sr.DSTE/ DSTE, ADSTE, SSE/SE/JE/Sig, Technician (Electrical Singal).*

1.9 Contact between Block Circuit and any other Circuit/Cables.-

(i) If a contact exits between the block wires and any other circuit, there will be either a permanent or intermittent deflection of the Galvanometer needle and possibly irregular beats on the bell. A contact between two block wires would cause signals given on one instrument to be repeated on the neighboring instrument.

(ii) In such cases, not only the Block Instruments but also the block telephone connected with the instruments shall be considered as having failed and Block Instrument and telephone working shall not be resumed until authorized by the S & T official**.**

Note: *The authorized official for the purpose of the above said rules are Sr.DSTE/ DSTE, ADSTE, SSE/SE/JE/Sig, Technician (Electrical Singal).*

1.10 Responsibility of Station Master.-The Station Master on duty is responsible to ensure that no unauthorized person operates the Block Instruments.

1.11 Precautions when Government or Railway Telecommunication staff are required to work on the Telecommunication Wires/Cables.

(1) Before starting work on a telecommunication wire alignment carrying block wires or cables, the staff shall give notice in the following form to the Station Masters at both ends of the Block Section :-

To *Date: Time:*

The Station Masters, 'X' and 'Y'

Staff will commence work on wires/cables in the section from …….. to……..KMs on …….. (Date) from ……. To ……. Hours Acknowledge.

Designation ……..

Station ……..

(2) Only after the receipt of acknowledgement from Station Masters, the work shall be started.

(3) If the notice is from the telecommunication department, the Station Master shall also inform the concerned Railway Signal and Telecommunication department official. If it is from concerned Signal and Telecommunication department official, he shall inform the Divisional Railway Manager.

(4) The Station Masters need not suspend block working, but shall do so when they suspect a contact.

(5) The above precautions shall be observed till notice is received about the completion of the work on the wires. The same shall be communicated to the concerned Signal and Telecommunication department official if received from the telecommunication department and to Divisional Railway Manager if received from the official of Signal and Telecommunication department. (Through control if available)

Note: *The authorized official for the purpose of the above said rules are SSE/SE/JE/Sig, Technician (Electrical Singal).*

*****

CHAPTER II

DESCRIPTION OF BELL CODES

2.1 Bell Code (GR 14.05): -

For signaling of train the prescribed code of bell signals as detailed below shall be used and a copy of the same shall be exhibited in each block station near the place of operation of Block Instrument.

Sl. No.	Indication	Code	How signalled	How acknowledged
1	Call Attention or Attend Telephone	O	One Stroke or beat	One Stroke or beat
2	Is Line Clear or Line clear enquiry	OO	Two	Two
3	Train Entering Block Section	OOO	Three	Three
4	(a) Train out of Block Section. (b) Obstruction removed	OOOO	Four	Four
5	(a) Cancel Last Signal. (b) Signal given in error	OOOOO	Five	Five
6	(a) Obstruction danger Signal (General).	OOOOOO	Six	Six
	(b) Stop and Examine Train.	OOOOOO - O	Six pause one.	Six pause one.
	(c) Train passed without Tail Lamp or Tail Board.	OOOOOO - OO	Six pause two.	Six pause two.
	(d) Train divided	OOOOOO - OOO	Six pause three	Six pause three
	(e) Vehicle running away in wrong direction on Double line or into the Block Section on Single Line.	OOOOOO – OOOO	Six pause four.	Six pause four.
	(f) Vehicle running away in right direction on Double Line.	OOOOOO – OOOOO	Six pause five.	Six pause five.
7	Testing	OOOOOOOOOO OOOOOO	Sixteen	Sixteen

Note:*(1) 'O' Indicates stroke or a beat and '-'indicates a Pause.*

(2) Each signal shall be given slowly and distinctly.

(3) Exchange of bell code under reference No. 3 & 4 are not required in a section provided with tokenless block instruments or block proving axle counter and track circuiting in station yard including non running lines on either end.

2.2 Acknowledgement of Bell Signals. -(G.R 14.06).

(1) Each signal received shall be acknowledged by sending its authorized acknowledgement.

(2) No signal shall be acknowledged until it is clearly understood.

(3) A signal shall not be deemed to be complete until it is acknowledged.

(4) If the station to which a signal is sent does not reply, the signal shall be repeated at intervals of not less than 20 seconds until reply is received.

2.3 The "Call Attention "signal:-

1) This signal shall be given when it is necessary to attract the attention of the Station Master at the other end of the Block Section to the Block Instrument. This signal shall be given by a single beat.

2) In order to ascertain that only the correct block station is in contact and then convey the description and train number for which Line Clear is required as well as to ascertain whether the block station in advance is in a position to accept the 'is line clear' signal, the 'Call Attention' signal shall be sent to the block station in advance.

3) 'X' shall call "Y's" Attention by a single beat until "Y's" attention is obtained. 'Y' shall signify his attention by acknowledging with single beat.

2.4 The "Is line clear" signal: -

(i) when to be sent:-

(a) The "Is Line Clear" signal shall be sent only after it has been ascertained that the Block Section is clear by reference to records and oral communication with the other end.

(b) On Single Line the "Is line clear" signal shall be given only after receipt /dispatch and acknowledgement of the Train out of Block Section signal for the previous train.

(ii) when to be asked-

(a) At train starting station, Line Clear shall be asked 5 minutes before the booked departure of train.

(b) At intermediate stations, Line Clear shall be asked when a train is sighted in the case of trains stopping for 5 minutes or more.

(c) In the case of run through trains, where the running time from the block station in rear is 7 minutes or more, Line Clear shall be asked 7 minutes before the train is to pass through the station and in the case of run through trains with a running time of less than 7 minutes immediately on receipt of the "Train Entering Block Section" signal from the block station in the rear.

Note: *For Superfast/notified train Line Clear may be taken in advance as specified in the special instructions.*

2.5 Acceptance of the "Is line clear" signal and sending of "Line clear" signal .

(i) If , on the receipt of an "Is Line Clear" signal, the conditions under which Line Clear can be given are complied with, the block station in advance shall accept the signal by sending the prescribed signal to indicate "Line Clear" on the particular Block Instrument in use.

(ii) Except in case of failure of the Block Instruments, a train shall not be allowed to leave a block station unless the concerned Block Instrument is set to "Line clear" / "Train Going To" condition.

(iii) After the instrument is set to "Line clear" / "Train Going To" condition the Last Stop Signal wherever provided shall be taken "OFF".

2.6 Refusal of the "Is Line Clear" signal and sending of the "Obstruction Danger" signal.-

If, for any reason, the station in advance is unable to accept the "Is line clear" signal, such station shall refuse it by sending the "Obstruction Danger" signal.

2.7 The "Train Entering Block Section" signal :-

On the entry of train into the Block Section, the "Train Entering Block Section" signal shall be sent to the block station in advance and shall be duly acknowledged. This is in addition to "Train On Line" indication appearing in the Tokenless Block Instruments with an audible warning bell.

2.8 The "Train out of Block Section" or "Obstruction Removed" signal. (G.R. 14.10)

(i) When the Block Section has been cleared by the complete arrival of the train or by the removal of the cause of blocking the "Train out of Block Section or Obstruction Removed" signal shall be given by the block station in advance.

(ii) Before the 'Train out of Block Section' Signal is given, the Station Master shall satisfy himself that –

(a) The train has arrived complete and

(b) The conditions under which Line Clear may be given are complied with.

(c) The provisions of clause (b) of sub rule (ii) above may be relaxed at Class 'A' Single Line crossing stations. In such cases, the train is standing at its Starter, clear of the line on which the second train is to run.

2.9 The "Cancelling" signal :-

(i) The "Cancelling" signal is given to cancel the last signal given from the block station from which it is sent.

(ii) Where an "Is Line Clear" signal has been sent and it is afterwards found that the train to which it is referred has to be detained for shunting or other purposes or has returned to the block station from which that signal was sent, the canceling last signal shall be sent to the block station in advance, so that the previous signal may be cancelled.

(iii) Whenever line clear is cancelled the Station Master shall enter the reason for doing so in the 'Remarks' column of the Train Signal Register.

(iv) In the cancelling operations of Block Instruments on Single Line the deflection of the Galvanometer needle at 'Y' shall be watched while receiving the "Cancel Last Signal" from "X" the signal shall be acknowledged by 'Y' only if the deflection of the needle is

correct as detailed for each instrument. If the correct deflection is not obtained, 'Y' shall not acknowledge the "Cancel Last Signal" but call 'X' on the telephone and point out the irregularity. If even with further correct operation, the deflection of the needle is not correct, Block working shall be suspended.

(v) If Line Clear has been obtained by 'X' from 'Y' for a certain train, and it is afterwards found necessary to pass another train over the Block Section instead of the train for which "Is Line Clear" was originally asked, Line Clear shall be cancelled and a fresh Line Clear shall be obtained. If the Line Clear has been obtained with incorrect description and number, this should be cancelled and fresh Line Clear shall be obtained. If the mistake is noticed after the departure of the train, this shall immediately be notified over the phone to the station ahead to enable the latter to arrange for correct train reception and handling.

2.10 The "Testing" signal:

The "Testing" signal shall be used only for the purpose of testing the Block Instruments.

*****

CHAPTER IV

SINGLE LINE
TOKEN BLOCK INSTRUMENTS

4.1 Type of Token Block Instruments in Use.- The following Token Block Instruments are in use on sections of the Single Line, where trains are worked on Tokens-

(i) Neale's Ball Token instrument.

(ii) Neale's Tablet Token instrument.

4.2 Authority to Proceed:-

(i) The Token is the "Authority to Proceed" given to the Loco Pilot of a Train to enter the Block Section with his Train when Token Block Instrument working is in force.

(ii) The Loco Pilot shall ensure that the Token is not damaged and refers to the Block Section he is going to enter.

(iii) The Loco Pilot shall not accept a damaged Token as the "Authority to Proceed". A damaged Token is a Token which cannot be readily inserted into or extracted from the Block Instrument or the Station Code initials, Class and Number engraved on the Token have been defaced beyond recognition.

(iv) When Block Instruments are failed or suspended or where there is no Electric Block Instrument "Line Clear Ticket" shall be issued.

(v) The currency of the "Authority to Proceed" ceases when the train, to which it is issued, clears the Block Section at the either end.

(vi) When one Token has been taken out at station 'X' another token can not be taken out at 'X' or 'Y' until the token previously taken out has been inserted in the instrument at 'X' or 'Y'.

(vii) 36 Tokens in Ball Token Instrument and 40 Tokens in Tablet Token Instrument shall normally be provided in the Block Instruments controlling a Block Section. Only one Token can be taken out at any one time.

(viii) A token shall not be inserted in either instrument, at any time without communication being made with the station at the other end of the Block Section.

(ix) The deflection of galvanometer needle shall be carefully watched before attempting to extract the token. If the needle points to right no attempt shall be made to extract the token but the "Signal Given in Error" Signal shall be given to the Block Station ahead.

4.3 Rules for handing over of Token to Loco Pilots : -

(i) The Token shall be secured properly in the pouch.

(ii) Station code initials shall be visible through the opening.

(iii) The Token shall be handed over just before starting, when train stops for more than 5 minutes.

(iv) In the case of trains having shunting, the Token shall be handed over after shunting and when the train is ready to start. If a shunt metal Token has been issued to the Loco Pilot, it shall be recovered before handing over the "Authority to Proceed".

(v) For trains booked to stop for less than 5 minutes, the Token shall be handed over in front of the Station Master office or at the place at which the train is required to come to a stand.

(vi) When a pouch with hoop is not available or defective for delivery of the Token the Station Master is authorized to hand over the naked Token to the Loco Pilot either personally or through Competent Railway Servant, Trains shall be stopped out of course for this purpose.

(vii) One Token only shall be sent at a time through the same person when there is more than one train to start. In such cases, the Station Master shall ensure that the correct Token is delivered to each train.

4.4 Delivery of Token by Loco Pilot at station :-

(i) The Loco Pilot shall drop the incoming Token opposite to the Station Master's office or at a place specially mentioned otherwise.

(ii) The Station Master shall himself pick up or arrange a competent Railway servant to pick up the incoming Token immediately.

(iii) If the incoming Token is without a pouch, it shall not be dropped but shall be handed over personally to the Station Master or to a competent railway servant, non - stopping trains being stopped out of course at the station for this purpose.

4.5 Token not to be transferred from one train to another :- The Token of the incoming train shall not , under any circumstances, be handed over directly to the another out going train.

4.6 Delivery of Token to the Loco Pilot of a stopping train :-

(i) The Station Master shall deliver the Token personally to the Loco Pilot or if it is not possible for any reason, the Token may be delivered to the Loco Pilot through a competent railway servant..

(ii) The Station Master shall ensure that the correct Token is delivered to the Loco Pilot and the Loco Pilot shall ensure that he has received the correct Token for the train.

(iii) The out going Token shall be handed over to the Loco Pilot only after he delivers the incoming Token.

4.7 Delivery of Token to the Loco Pilot of a non-stopping train:-

(i) The Token shall be delivered to the Loco Pilot opposite to the Station Master office or at the nominated pickup points. The Token shall be delivered to the Loco Pilot either directly through pouch or through the Token pick up apparatus wherever provided.

(ii) At night, a lighted torch shall be exhibited to enable the Loco Pilot to pick up the Token. If for any reason, a torch cannot be used, a bright white light shall be shown.

(iii) At station where the Station Master's Office is located at one end of the platform the outgoing Token may be delivered to the Loco Pilot and the incoming Token dropped by the Loco Pilot at the place fixed by the Divisional Railway Manager which shall be stipulated in the respective Station Working Rules. A Token Exchange Board shall be provided at such a place. Reference to the provision of such boards shall be made in the Station Working Rules.

(iv) At stations where the Token pick up apparatus is in use Loco Pilot of trains shall drop the incoming Token and pick up the outgoing Token by means of the Token pick-up apparatus. The Station Master on duty shall be present on the platform and shall depute a competent Railway servant to remain at the Token pick-up apparatus. At night the latter shall exhibit a white light or torch to indicate to the Loco Pilot that the Token is ready for picking up.

4.8 Securing of Token for delivery. -

(i) The Station Master shall see that the Token extracted for a train is placed in the pouch provided for the purpose and that it is kept in his personal custody until it is delivered to the Loco Pilot.

(ii) If the pouch for the Token is provided with openings, the Station Master shall also ensure that the Token is placed in the pouch in such a manner that the station names engraved on it are visible through the openings.

(iii) It shall be ensured that the pouch is in good condition.

4.9 Two engines on one train: - If there are two engines on one train the Token shall be handed over to the Loco Pilot of the leading engine.

4.10 Insertion of Token in the Block Instrument :-

(i) Before the Station Master insert the incoming Token in the Block Instrument, he shall

(a) Satisfy himself that the train has arrived complete

(b) Ensure that all the reception signals taken 'OFF' for the said train are put back to 'ON'

(c) Ensure that the Token is correct in all respect and not damaged in any way

(d) Remove dirt if any from the Token

(ii) The Station Master shall then insert the Token in the concerned instrument and clear the section as detailed for each instrument.

4.11 Balancing of Token in Token Block Instruments :-

(i) The Station Master shall record in the remarks column of the Train Signal Register the total number of Tokens relating to each instrument, after insertion or extraction of every Token into or from the instrument.

(ii) At "00.00" hours daily the Station Master at either end of the Block Section shall verify the entries regarding the Token and tally it with the total number of Tokens provided for the Block Section.

(iii) The Station Masters shall inform the concerned Technician Electrical Signals when Token balance in their instrument falls to six and is expected to be exhausted. The Technician Electrical Signals shall proceed by first available means and balance the Tokens. While balancing, Tokens shall be taken out of the Block Instruments in the "Line closed" position.

(iv) The individual number of each Token removed by the Technician Electrical Signals and the time at which the transactions take place shall be recorded by him in the Train Signal Register on the line

immediately below the entries for the last train which will be counter signed by Station Master on duty. These entries shall be signed by the Technician Electrical Signals. The Technician Electrical Signals shall retain in his possession all the Tokens he has withdrawn until he deposits them in the instrument at the other end of the Block Section.

(v) The Technician Electrical Signals shall make a note in Train Signal Register of the individual number of each Token deposited in the instrument of the other end of the Block Section and sign with time and date.

4.12 Removal of defective Token (s) or provision of new Token (s) :-

When a defective Token is removed from or a new Token is inserted into an instrument, an entry shall be made in the Train Signal Register showing the class and number of the Token removed or inserted , the reasons therefore and the date and time at which it is carried out, these entries shall be signed by the Technician Electrical Signals and counter signed by the Station Master.

4.13 Replacement of Token Instruments :-

(i) Whenever a Token instrument in use at a station is replaced by another of the same type and class, the Station Master shall satisfy himself that all the Tokens which were in the old instrument are transferred to the new instrument.

(ii) An entry shall be made by the Technician Electrical Signals in the Train Signal Register giving the time and date at which the change of instruments is effected, with the individual number of each Token transferred and signed by him. The entry shall be countersigned by the Station Master with a further remark regarding the testing of the instruments made by him and the result of the same.

(iii) Whenever an instrument in use at a station is replaced, an entry must be made in Train Signal Register as well as in S & T history book by the Technician Electrical Signals specifying the number, class and type of the instruments removed or replaced with the individual numbers of the Token in each instrument. Whenever an instrument in use at a station is replaced by an instrument of a different type, an Officer of the Signal and Telecommunication department shall also be present.

4.14 Loss of Token :-

(i) When a Token is lost, the Station Master shall immediately inform the concerned officials of the Signal and Telecommunication department and suspend the Block Instrument. If, subsequent to the issue of message, the Token is found, the Station Master shall not insert the Token into the instrument but shall keep it in safe custody and hand it over to the SSE/SE/JE/Technician Electrical/Signals.

(ii) The SSE/SE/JE/Technician Electrical/Signal shall proceed to the stations concerned without delay. If the Token has since been found he shall, if the Token is in good condition, insert it into the Block Instrument and authorize resumption of Token working . If the Token is still not found or if Token is not in good condition, he shall authorize resumption of Token working after phasing and testing the instrument. The Station Masters shall then resume Token working. Entries shall be made by the Station Masters in the Train Signal Registers at both stations in red ink about the lost Token, suspension and resumption of Token working after phasing and testing the instruments.

(iii) The SSE/SE/JE/Technician Electrical/Signal shall advise the Station Masters concerned, CCRC/SSE Traction/SSE/C&W and SSE/P.way about the loss of Token. The loss of token message shall be notified to all staff concerned by the concerned supervisor. This Token shall not be accepted as an authority and the engineering staff will be on the look out for this Token. In case the Token is found, it shall be handed over to the nearest Station Master.

(iv) A Token found after restoration of the Token working shall not be inserted by the Station Master, but shall be kept by him. He shall advise the fact immediately to the SSE/SE/JE/Technician Electrical/Signal who shall insert the Token in the instrument if the Token is in good condition and advise all officials who were advised earlier about the restoration of the Token.

(v) If after a thorough search, a Token which has been lost cannot be found, a joint certificate to this effect shall be given to the Divisional Signal and Telecommunication Engineer and the Divisional Safety Officer, to all officials concerned giving full particulars of the lost Token and canceling the same, in addition the particulars of the Lost Token should be published in the Railway Gazette.

(vi) The particulars of Lost Token shall be conspicuously exhibited by the SSE/SE/JE/Signal near the relevant instrument for the information of the operating staff.

LOST TOKEN NOTICE

Token No.....pertaining to the Block Section from.....Station to.....Station has been lost. If handed over to the Station Master at either end of the Block Section, it shall not be used but kept in the safe custody by the Station Master who shall advise me forth-with.

Date.....

SSE/SE/JE/Signal

(vii) If the Token is not found for six months, it shall be replaced with a Token of the next higher number in continuation of the series in use on the section. The lost Token, if found subsequently shall not be inserted into the instruments but shall be broken and returned to stores by the SSE/SE/JE/Signal.

4.15 Last Stop Signal Control Key :-

This key when provided can be extracted when the operating handle is in " Train Going To" position and is used to unlock the Last Stop signal lever to take OFF Last of Stop Signal.

4.16 Last Stop Signal Control :-

(1) The provision of Last Stop Signal Control may be-

(i) with the internal electrical contact arrangement in the Instrument itself, or

(ii) with mechanically interlocked Control key kept on the instrument.

(2) In the case of electrical control, the turning of the operating handle to the "Train Going To" position and the operation by the Station Master of the Last Stop signal slide or the lever in the control frame allows the taking "OFF" of the Last Stop signal from the Cabin or Lever frame. On the train passes the Last Stop signal, the Control Slide or Lever shall be restored to normal.

(3) In the case of mechanical control, the Control Key is kept in a lock fitted up on the left hand side of the Instrument. It can be extracted from the lock only when "Line Clear" has been received and the Operating handle has been turned to "Train Going To" position. This Control key, on such extraction, is to be used to

unlock the Last Stop signal control on the Station Master's control frame, where provided, or inserted directly on the lever of the Last Stop signal itself for taking "OFF" the Last Stop Signal. The withdrawal of this Control key from the Instrument mechanically locks the Operating Handle in the "Train Going To" position.

(4) As soon as the train has passed the Last Stop Signal, the Control Slide or lever or signal lever as the case may be, shall be restored to normal and the Control Key extracted thereafter from the Control frame or Signal lever, and inserted back into the Instrument.

(5) If the Control Key is lost, the Operating handle, turned to the "Train Going To" position for the extraction of the Control Key, would remain locked in that position. The loss of the Control Key shall be promptly reported to the concerned Signal and Telecommunication department Official for necessary action.

(6) When Token Working be interrupted in any way after the Last Stop signal control has been given or is free to be given by means of Control Key or electrically, the Last Stop signal shall be considered defective and trains shall pass it at "ON" in accordance with G.R.3.70. The Last Stop signal Control Key shall not be used for releasing the control on the signal but shall be kept in the safe custody of the Station Master until Token Working is resumed.

4.17 Procedure to be followed when the Last Stop Signal control key is required by the Signal and Telecommunication department official for testing :-

An authorized official of the Signal and Telecommunication department shall give a written requisition to the Station Master. On receipt of requisition, the Station Master shall obtain Line Clear in the usual manner. The Token if any shall be immediately inserted back into the instrument. The Control Key of the Last Stop Signal shall be given to the Signal and Telecommunication department officials for testing. When the key is returned after testing the Station Master shall ensure that the Last Stop Signal is at "ON" and the Last Stop Signal lever/ knob is normal and the Last Stop Signal key is in good condition, he shall then insert the key into the instrument. The Station Master then cancel the Line Clear in the normal manner. Entries shall be made in red ink by both the Station Masters in the Train Signal Register regarding the above. This shall contain at the station where the Last Stop Signal control key is extracted the Date, Token number, Time of Last Stop Signal control key has been extracted as

well as the time when the Block Instrument has been normalized at the station giving line clear, the purpose for which Line Clear is given, the time at which Line Clear is given, as well as the time when Block Instrument has been normalized. All the Technician Electrical Signals and officials of Signal and Telecommunication department are authorized to test the Last Stop Signal as described above.

4.18 Missing of Token by Loco Pilot of run through trains :-

On occasions where the Loco Pilot enters a block section without the Token.(i.e. leaving the Token behind at the Station) and proceeds onwards without the Token, Block working should be suspended. In the case of trains passing through the Station while picking up the token if it is missed, the Loco Pilot should stop the train immediately and the missed Token is redelivered to him, there is no need to suspend block working.

4.19 Shunting outside the first stop signal :-

(i) Station Master shall obtain line clear as usual

(ii) The reasons shall be given and both the Station Masters shall record in the Train Signal Register.

(iii) Form T/806 will be handed over to Loco Pilot authorizing the Loco Pilot to proceed outside the first stop signal. The original documents shall be handed over along with the section token/authority to proceed to the Loco Pilot after obtaining Guard's signature in both the copies.

(iv) Despatch signals except Last Stop Signal if any shall be taken off

(v) On completion of shunting, Station Master shall recover the token/authority to proceed and the memo. He shall cancel the memo and return the same to the Loco Pilot .

(vi) Line clear shall be cancelled as usual.

4.20 Outlying Sidings controlled by the Token of the Block Section (G. R. 3.35):-

(i) Outlying sidings, taking off the running line, are provided on certain block sections. The points taking off the running line to such sidings are provided with locking arrangements, the siding lock being controlled and operated by the Token of the block section.

(ii) On the sections worked with Neale's (Ball or Tablet) Token Instruments where such Tokens cannot be directly inserted into the siding locks a Token key exchanger (siding key apparatus) is

provided at the siding. (The Ball or the Tablet) shall be inserted into the apparatus to release the siding key which shall, in turn, be inserted into the siding lock and unlocked for performing shunting into and out of the siding.

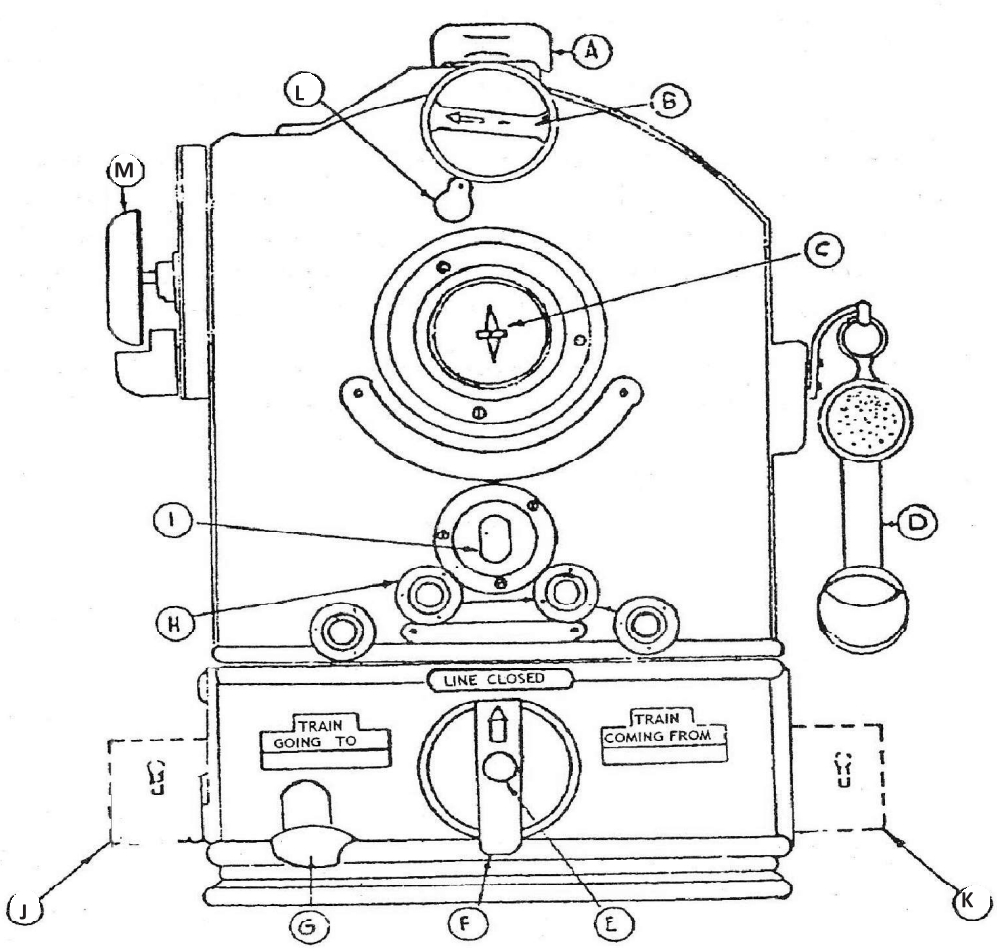
(iii) On busy sections where the regular train services are not to be dislocated by the work inside such siding i. e. where the service has to be maintained even before the shunting train sent into the siding returns to either of the block stations, auxiliary Token (occupation block) instruments are provided, one instrument at one of the two adjacent block stations and the other at the siding itself. With this arrangement it is possible, after shunting the train into the siding to set and lock the points for the main line and clear the block section maintaining the main line train services.

(iv) Detailed instructions for working the sidings shall be incorporated in the Station Working Rules of the stations concerned.

*****

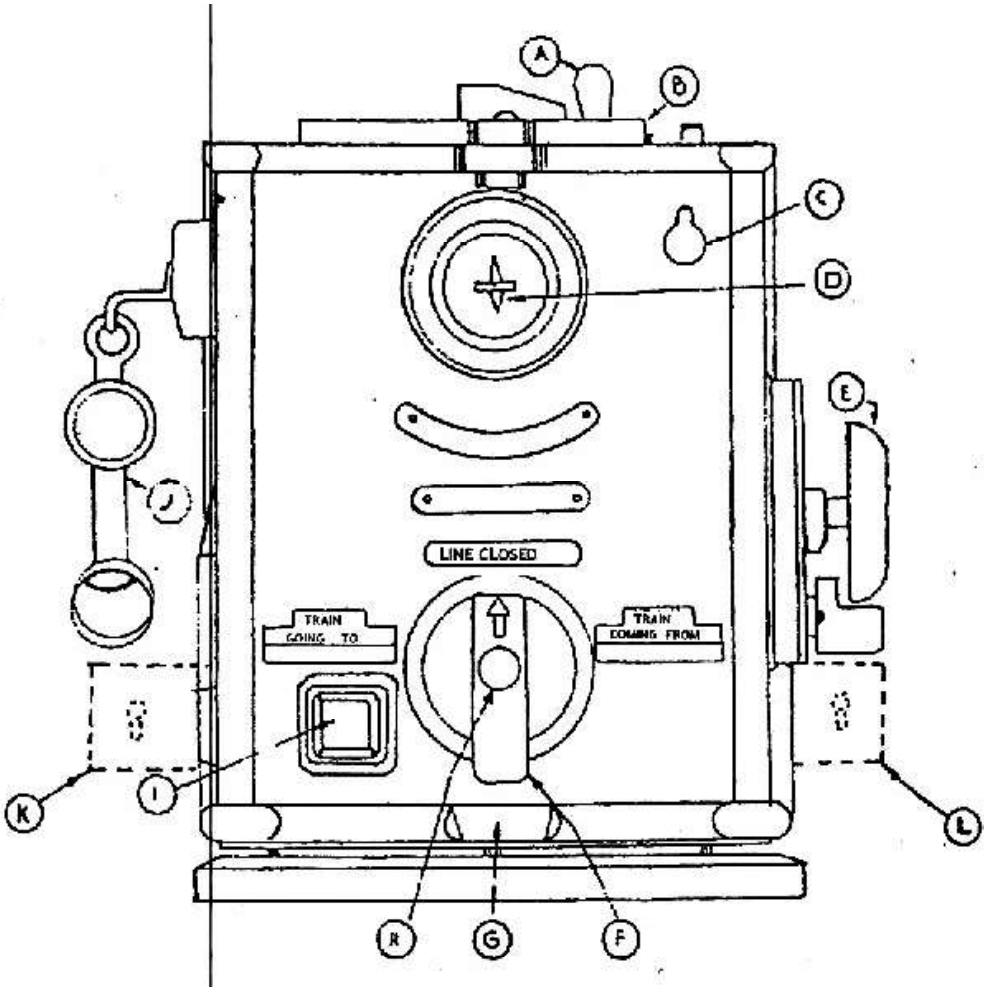
4.21 Description of Neale's Token Instrument :

4.21 (i) Diagram of NEALE'S BALL TOKEN Instrument



A. Token Receiver Cover
B. Token Receiver Handle
C. Galvanometer
D. Telephone
E. Plunger
F. Operating Handle
G. Token Exit
H. Token Windows
I. Token Indicator
J. 'E' Type lock with key in 'TGT' Position.
K. 'E' Type lock with key in 'TCF' Position.
L. SM's Key
M. Bell

4.21 (ii) NEALE'S TABLET TOKEN INSTRUMENT



A. Token Slide Handle
B. Token Slide
C. S.M. 's Key
D. Galvanometer
E. Bell
F. Operating Handle
G. Token Exit
H. Plunger.
I. Token Window
J. Telephone
K. 'E' Type lock with key in 'TGT' Position.
L. 'E' Type lock with key 'TCF' Position.

4.22 (i) Description of Neale's Ball Token Instrument

A) Token receiver cover	The Token receiver cover should be lifted for inserting the Token into the instrument.
(B) Token Receiver handle.	This should be turned for a Token to be deposited in the instrument.
(C) Galvanometer.	This indicates the flow of current from one instrument to another.
(D) Telephone	This is provided in conjunction with the instrument for communication with the station at the other end of the block section.
(E) Plunger	This is pressed for giving bell signals and for releasing the operating handle of the instrument at the station at the other end of the Block Section.
(F) Operating Handle	This can be set at 'Line Closed' or 'Train Going To' or 'Train Coming From' positions depending upon the position of the Block Instrument at the other end. It can be turned to any one of these positions, when a prolonged beat is received from the station at the other end of the Block section.
(G) Token Exit	A Token comes out through this exit when the Operating Handle is turned to the 'Train Going To' position.
(H) Token Windows	This indicates the availability of Tokens in the instrument.
(I) Token Indicator	The indicator shows a green disc if there is a Token and a red disc if there is no Token in the instrument.
(J) Bell.	This responds to Bell Code signals given by the station at the other end of the block section. At stations provided with more than one instrument different bells or gongs with distinctive sounds are fitted up to identify the individual instrument
(K) 'E' type lock with key in 'Train Going To' Position	This is provided where the last stop signal is controlled mechanically through block instruments. This can be released only when

	the Operating handle is in the 'Train Going To' position and is used for controlling the last stop signal lever. This key can be used for controlling slip siding points also.
(L) 'E' type lock with key in 'Train Coming From Position	This can be released only when the Operating handle is in the 'Train Coming From' position and is used for controlling the slip siding/catch siding points.
(M) Station Master's key	When the key is taken out, it locks the instrument in the last operated position and it will not prevent the incoming beats and telephone working. This key should be kept in the personal custody of the Station Master when it is not required for operating the instrument.

Note : *The number of the Token and the code initials of the two stations at each end of the block section to which the Token applies are engraved on each Token. Tokens are provided with grooves of a different pattern for different sections. Ball/Tablet Tokens are provided in 4 different classes viz., A class, B Class, C class and D class for different block sections.*

4.22 Description of Neale's Tablet Token Instrument:

The instrument is almost similar to Neale's Ball Token Instrument except the following differences:-

(a) **Token slide with Handle** :- A Token slide is provided at the top of the instrument instead of a Token Receiver cover. A tablet Token is inserted into the instrument by pushing back the slide.

(b) The Neale's Tablet Token Instrument are provided with Tablet windows instead of Token indicators.

4.23 Testing before taking over charge:

(i) The station master shall try to turn the operating handle to the "Train Going To' and 'Train Coming From' position without the co-operation of Station Master at the other end. If the handle cannot be turned to the two positions the instrument shall be considered to be in order.

(ii) He shall also satisfy himself that the deflection in the galvanoscope and the bell signals are correct.

(iii) If the test conditions detailed above are not satisfied the instrument shall be considered defective and token working is suspended.

(iv) Whenever a token can be extracted during such test, without the co-operation of the Station Master at the other end token working shall be suspended immediately and the token so extracted shall be secured under lock and key and delivered to the SSE/SE/JE/S, Tech. ES on arrival.

(v) The Staion Master after testing the Block Instrument shall record the result then and there in the Train Signal Register

4.24 Precautions to be taken before asking 'Is Line Clear' :-

(i) Before Station Master 'X' asks Station Master 'Y' for Line Clear, he shall examine his Train Signal Register, in order to ascertain:-

(a) That the 'Train Out of Block Section' or 'Obstruction Removed' signal has been received and entered in his Train Signal Register for the previous train that has passed over the 'X' – 'Y' Block section and also that the Block section is clear.

(b) That "Line Clear" has not been obtained from/given to Station Master 'Y' for any other train and by any other means.

(i) The Operating Handle is in the "Line Closed" position.

(ii) A Private Number has been obtained for the train

(iii) The last stop signal control key if provided, is in the Token instrument and the reception signal is in 'ON' position.

4.25 Precaution before giving 'line clear':-

(i) Before 'Y' gives line clear to 'X' he shall examine his train Signal Register in order to ascertain -

(a) That the 'Train Out of Block Section' or ' Obstruction Removed' signal has been received and entered in his Train Signal Register for the previous train that has passed over the X-Y block section and also that the block section is clear.

(b) Line clear has not been given to/obtained from 'X' for any other train.

(ii) A private number has been given for the train

(iii) The Operating Handle is in the Line Closed position

(iv) The Last Stop Signal Control key if provided is available in the Token instrument and all the reception signals are at 'ON"

4.26 'Train Entering Block Section' Signal :-

(a) On the departure of a train from a block station the "Train Entering Block Section" signal shall be sent to the block station in advance, and be duly acknowledged.

(b) When so acknowledged the Block Section shall be deemed to be blocked against any other train.

4.27 Condition for closing the block section (GR 14.10) :-

(i) the Station Master shall satisfy himself:-

(a) Ensure that the train has arrived complete

(b) Ensure that all the reception signals has been put back to 'ON'.

(c) Ensure that the token is correct in all respects and not damaged in any way and dirt is removed.

(ii) Call "Attention" on the instrument and get acknowledgement. The Station Master shall then insert the token into the instrument and close the Block Section as detailed by giving "Train out of Block Section" signal.

4.28 (i) Signalling a train from one block station to another Block Station.

Sending Station 'X'	Receiving Station 'Y'
(1) Insert Station Master's key and turn	
(2) Give 'Call attention' signal	
	(3) Insert Station Master's key and turn.Acknowledge. Attend telephone and call out station name.
(4) On receipt of acknowledgement, attend telephone. call out station name.	
(5) Ensure that correct station has responded and enquire on telephone 'Is Line Clear' for..... Train.	
	(6) Ensure correctness of station to which 'Line Clear' is required to be given. If line is clear and conditions for granting 'Line Clear' are complied with, inform 'Line is clear' for.....train and give Private Number..... (Repeat individual digit - e.g. 24-two four).
(7) Repeat the Private Number received	
(8) Give 'Call Attention' signal.	(9) Acknowledge. 'Attention' signal.
(10) Give 'Is Line Clear' signal. Prolong the last beat.	
	(11)Turn the Operating Handle to "Train \Coming From" position acknowledge "Is Line Clear" signal. Prolong the last beat till the needle of galvanometer jerks,

(12) Turn the Operating Handle to 'Train Going To' position. A Token comes out.	(13)After seeing the needle jerking (indicating the extraction of the Token at the other end) release the plunger.
(14) Give 'Call Attention' signal.	(15) Acknowledge and attend telephone.
(16) Give Token number with class.	(17) Repeat Token No. with class.
(18) (a) Take 'off' Last Stop signal if any. (b) Hand over Token to Loco Pilot. (c) On train entering the block section put back the Last Stop signal, if any, to 'ON'.	
(19) Send 'Call Attention' signal.	(20) Acknowledge.
(21) Give 'Train Entering Block Section' Signal.	(22) Acknowledge.
	(23) (a) Take 'off' reception signals. (b) Ensure that the train has arrived complete. (c) Put back reception signals to 'ON'. (d) Obtain the Token from the Loco Pilot and ensure its correctness.
	(24) Give 'Call Attention' signal.
(25) Acknowledge.	(26) (a) For Neale's Ball Token instruments :- Insert Token into Token Receiver and turn Token receiver handle. (b) For Neale's Tablet Token Block Instruments:- Draw out the Token slide keep the tablet in the space provided and push back the Token slide.
	(27)Give 'Train out of Block Section' signal. Prolong the last beat.
(28) Turn the Operating Handle to 'Line Closed' position. Acknowledge the 'Train out of Block Section' signal. Prolong the last beat.	(29) Turn the Operating Handle to 'Line Closed' position. Lock the instrument keep the key in the personal custody of SM on duty.

***Note** : Before turning the Operating Handle, it should be ensured that the Galvanometer is deflecting correctly as under :-*

(a) Both instruments of the Block Section are in 'Line Closed' position- Incoming and outgoing beats give clock-wise deflections.

(b) Both instruments of the Block Section not in the 'Line Closed' position and a Token is out. Incoming and outgoing beats give anti-clockwise deflection.

(c) One or both of the instruments of the Block Section, is not in the 'Line Closed' position, no Token is extracted outgoing and incoming beats give deflections in the opposite direction.

(ii) To cancel 'Line Clear' for Neale's Block Instruments

Sending Station 'X'	**Receiving Station 'Y'**
(1) Give 'Call attention' signal	(2) Acknowledge and attend telephone.
(3) On receipt of acknowledgement, attend telephone. Ask for consent by explaining the circumstances.	(4) Give consent.
(5) (a) For Neale's Ball Token instruments :- Insert Token into Token Receiver and turn Token Receiver Handle (b) For Neale's Tablet Token instruments Draw out the Token slide; keep the tablet Token in the space provided and push back the Token slide.	
(6) Send 'Cancel Last Signal'. Prolong the last beat.	(7) Turn Operating handle to 'Line Closed' position. Acknowledge "Cancel Last Signal". Prolong the last beat.
(8) Turn the Operating Handle to 'Line Closed' position.	(9) Lock the instrument Keep the key in the personal custody of SM on duty.

(iii) Procedure for testing the Block Instrument

Authorised S & T department official at 'X'	Station Master'Y'
(1) Insert Station Master Key and give 'Testing signal' (16 bell beats)	(2) Insert Station Master key and acknowledge 'Testing Signal'. (16 bell beats)
(3) Give 'Is Line Clear' signal prolonging the last beat	(4) While receiving the prolonged beat turn the Operating Handle to right i.e. "Train Coming From" position and acknowledge 'IsLineClear' prolonging the last beat.
(5) While 'Y' is giving the prolonged beat turn the operating handle to left i.e. "Train Going To" position. After taking out a Token, note down the Token No. and class and give one beat.	(6) Watch the deflection of the galvanometer needle and acknowledge with one beat.
(7) Insert the token into the instrument and give the "Cancellation Signal" prolonging the last beat.	(8) While receiving the prolonged beat, watch the deflection on the galvanometer needle, turn the operating handle to the 'Line Closed Position' and acknowledge the "Cancellation Signal"prolonging the last beat.
(9) While receiving the prolonged beat turn the operating handle to 'Line Closed' position	(10) Lock the instrument, keep the key in the personal custody of SM on duty.

The operation shall be repeated in the reverse direction, the Station Master at 'Y' commencing with the "Testing Signal" and the S&T Department Official acknowledging and then the instrument shall be locked at both ends.

The authorized S&T department official at 'X' and the Station Master at 'Y' shall enter in red ink in Train Signal Register on the line immediately below the entries for the last train as follows : -

Time ——— ———of Exchanged "Testing Signal" with Station Master —— station / Authorised official of the Signal and Telecommunication Branch . Extracted Token number_____and restored it to the instrument.

_____

Authorised official of the
Signal and Telecommunication Branch.

***Note**: The authorized official for the purpose of the above said rules are Sr.DSTE/ DSTE, ADSTE, SSE/SE/JE/Sig, Technician (Electrical Signals).*

4.29 Failure of Token Block Instrument (G. R. 14.13)

The Token Block Instrument shall be considered as interrupted and Token working suspended in the following circumstances :-

(1) 'Call Attention' cannot be obtained on the Token Block Instrument.

(2) Bell Codes are received indistinctly or failed altogether.

(3) The Galvanometer fails to move on "Bell Codes" being given or received or shows a wrong indication even after the 'Signal Given in Error' signal is given and acknowledged.

(4) The Token cannot be taken out even after exchanging proper 'Bell Codes' and correct operation of the Token Block Instrument.

(5) A Token can be taken out without exchanging proper 'Bell Codes' and without correct operation of the Block Instrument.

(6) A Token is broken or damaged in any way during or after extraction.

***Note:** In case of items (5) & (6) the Token shall be kept in the safe custody by the Station Master and handed over to the SE/JE/Signals or any other authorised official.*

(7) There is no Token in the instrument at the station from where a train is waiting to start.

***Note :** When a train is ready to start from the station at the other end of the Block Section, where all the Tokens have accumulated, Token working shall be resumed by the Station Masters themselves.*

(8) A Token received cannot be inserted or jams on inserting into the instrument.

(9) There is reason to believe that there is contact between the block wire and any other circuit.

Note:*(a) If a contact exists between the block wire and any other circuit. there is a possibility of irregular beats on the bell. A contact between two block wires would cause signals given on one instrument to be repeated on the neighboring instrument.*

(b) The telephone connected to the instrument, for train signalling shall also be considered as failed and working by means of the telephone should not be resumed until authorised by the SSE/SE/JE/Signals or any other authorised official.

(10) The battery counter of the block instrument is found unlocked.

(11) The First or Last Stop Signal Key where interlocked with the Token Block Instrument at stations is lost or has become defective.

(12) A Token extracted from the instrument at a station or delivered to the Loco Pilot or dropped by the Loco Pilot of a train at a Station cannot be found.

(13) A Token pertaining to the Block Section has been over carried to another station.

(14) The Loco Pilot of a train enters the Block Section without the Token pertaining to the Block Section or with the Token not properly obtained for the train.

(15) A train arrives at a station without the Token pertaining to the Block Section or with the Token not properly obtained for the train.

Note : *In case of items, (13) (14) & (15) this occurrence shall be reported as an accident.*

(16) The glass front of the galvanometer is broken.

(17) The Token indicator or the Token window is broken in the case of Neale's Ball or Tablet Token Instrument.

(18) The Operating Handle cannot be turned after the correct operations.

(19) The Operating Handle can be turned to any of the positions without co operation of the station at the other end.

(20) If the Station Master's key of the Token Receiver drum or slide is lost or the lock is out of order.

(21) Where the Last Stop signal is provided with an electric control interlocked with the Block Instrument :-

If the Last Stop Signal can be taken 'OFF' without the Operating Handle in the 'Train Going To' position.

(22) The 'Last Stop signal' control key, wherever provided on the instrument, is lost or has become defective.

Note:*(a) On recovering back the lost key, the Station Masters themselves shall resume to Token working, if it is in good condition.*

(b) The defective key shall be kept in the safe custody of the Station Master and handed over to the SE/JE/Signals or any other authorised official.

(23) Line Clear cannot be cancelled even after the correct operation of the Block Instrument.

(24) A Material train is required to be taken into the block section after Line Block has been imposed.

(25) A train is required to enter the block Section which is obstructed due to an accident or any other cause.

Note*: A relief train shall be started with form T/A 602. On the obstruction being removed the Station Masters themselves shall resume 'Block Working'.*

(26) It is known that the Token Instrument is defective in any way other than those specified above.

(27) When a Motor trolly or motor lorry following a train under the specified conditions does not, for any reason, go through to the station at the other end and the key of the clamp is returned to the station in rear.

(28) When a Station Master has lost or mislaid his Private Number book at the time of giving "Line Clear".

(29) When an accident relief train is required to enter the Block Section which is already occupied by a trolley or lorry on form T/1518 with line clear refused endorsement.

4.30 Occasions when Station Masters themselves shall resume Token working without certification by the SE/JE/S & T, Tech.ES.

(i) When there is no Token in the instrument at one end of the Block Section and when a train is ready to start from the station at the other end of the Block Section, where all the Tokens have accumulated.

(ii) When a traffic train is ready to enter the Block Section after line block has been removed or Line Block period has expired and material train, Motor trollies, if any, in the section have cleared the section.

(iii) When a accident relief train clears the Block Section occupied by a trolley on form No. T/1518 with line clear refused endorsement.

(iv) When the key of the token clamp is handed over to the Station Master of the Block Section in rear by the official of the motor trolley following a train and when the key is sent by the next available train to the block station ahead.

(v) When the SSE/SE/JE/S & T, Tech.ES returns the token to the Station Master after carrying out work at the outlying siding points.

(vi) When the Station Master unable to give a Private Number for a train at the time of giving Line Clear due to Private Number book being lost or mislaid but the same is subsequently found before giving "Line Clear" to another train or when he has a train to be started from his end.

(vii) If the 'Last Stop signal' control key, is lost and subsequently recovered in good condition.

(viii) When the First Stop Signal control Key at stations equipped with double wire signalling is lost and subsequently recovered in good condition.

(ix) When the Station Master key is lost but subsequently recovered in good condition

(x) When a train is ready to enter the Block Section after the obstruction in the Block Section has been cleared and trains which previously entered the obstructed Block Section have cleared the section.

4.31 Occasions for keeping the token under safe custody by the Station Master and handing it over to the S&T department official on arrival during suspension of token working.

(i) When a token can be taken out from the instrument without exchanging proper signals.

(ii) When a token is broken or damaged in any way during or after extraction.

(iii) When a token received from a train cannot be inserted.

(iv) When a token is lost but subsequently found after suspension of token working.

(v) When a token referring to the block section has been over carried to another station

(vi) When a train arrives at a station with a token not properly obtained for the train.

4.32 Occasions for keeping the First / Last Stop Signal Control key under safe custody by the Station Master and handing it over to the S&T department official on arrival.

(i) Whenever the First Stop Signal control Key at stations equipped with double wire signalling has become defective.

(ii) Whenever last stop control key, where provided on the instrument has become defective.

*****

CHAPTER V

SINGLE LINE

TOKENLESS BLOCK INSTRUMENTS

5.1 Type of Tokenless Block Instruments in use.- The under mentioned Tokenless Block Instruments are in use on section of single line of this Railway.

(i) Daido's Handle Type Tokenless Block Instrument (FM)

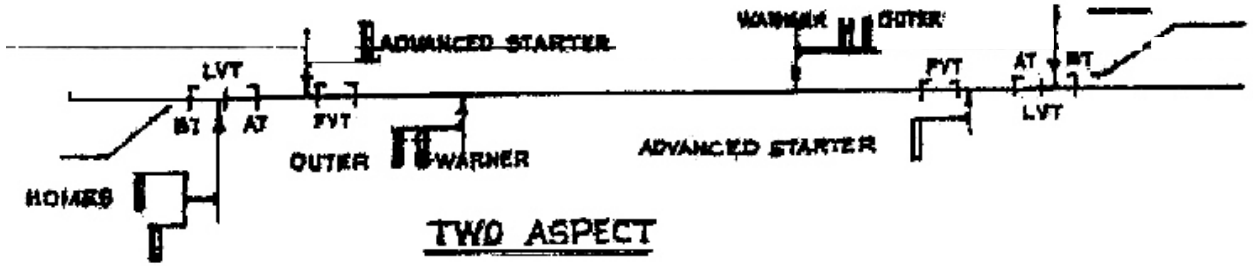
(ii) Push Button Type Tokenless Block Instrument

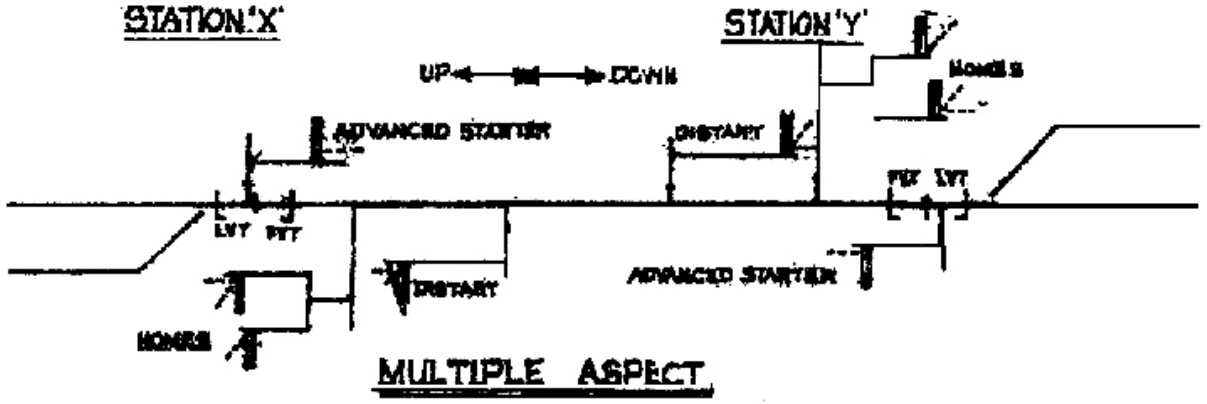
5.2 Authority to Proceed (G.R. 14.08).

(i) When the Block instruments show 'Train Going To' indication, the electric lock on the Last Stop Signal is released and it is possible to take 'OFF' the Last Stop Signal, which constitutes the "Authority to Proceed" to enter the Block Section.

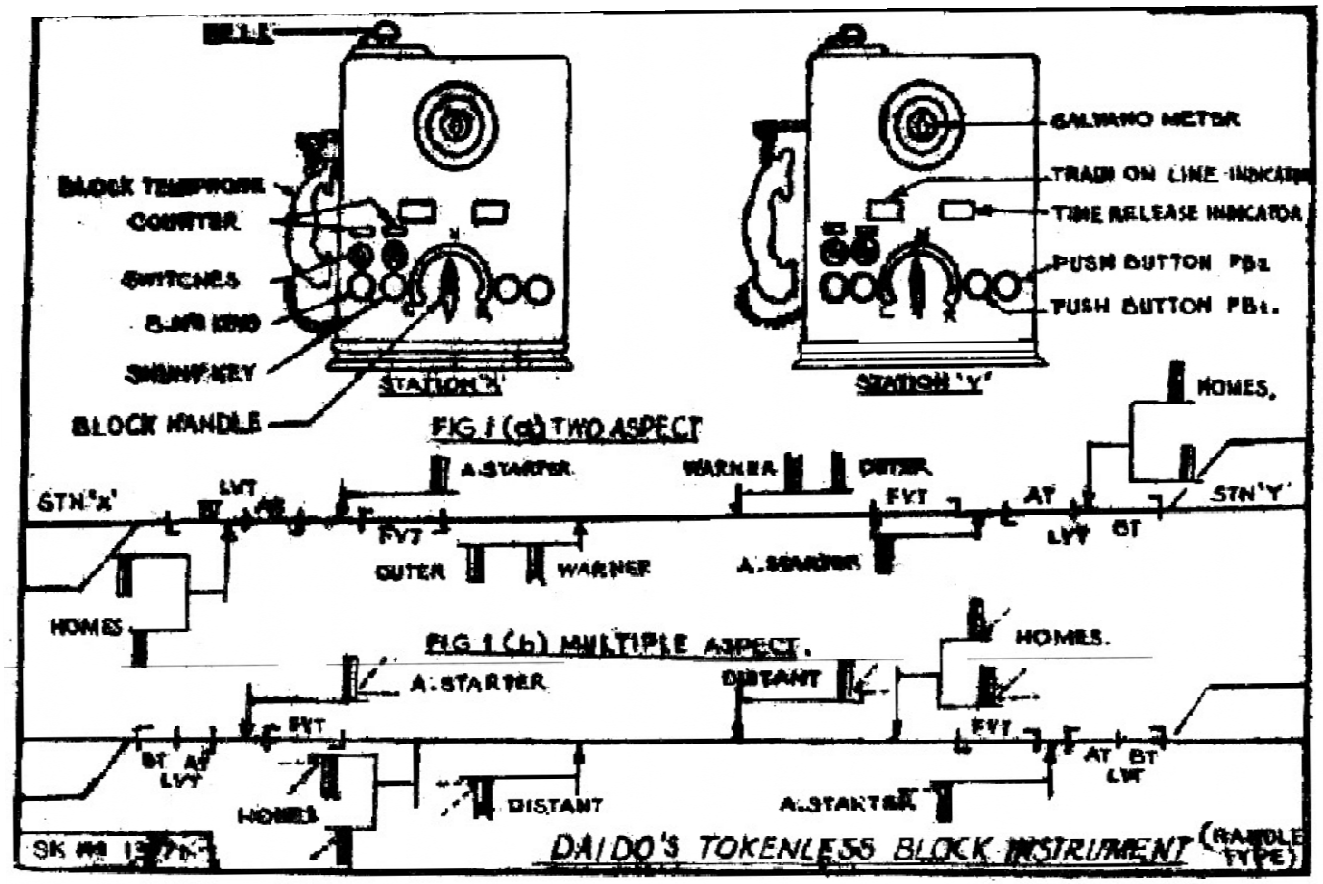
(ii) "During the failure/suspension of Block instrument" the Paper Line Clear Ticket shall be issued as "Authority to Proceed".

5.3 (I) Figure of layout of Single Line Station with "B" Class working in Two aspect and Multiple Aspect (Tokenless) Signalling Terriotories (Page 44)

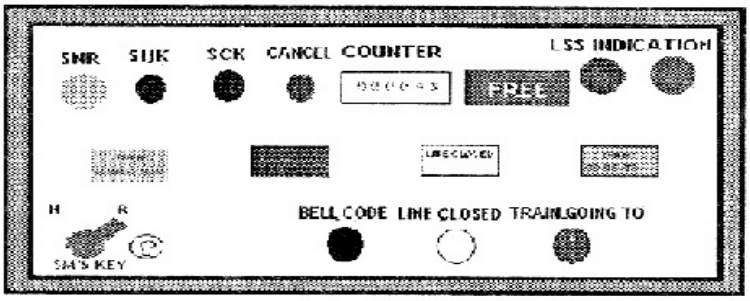




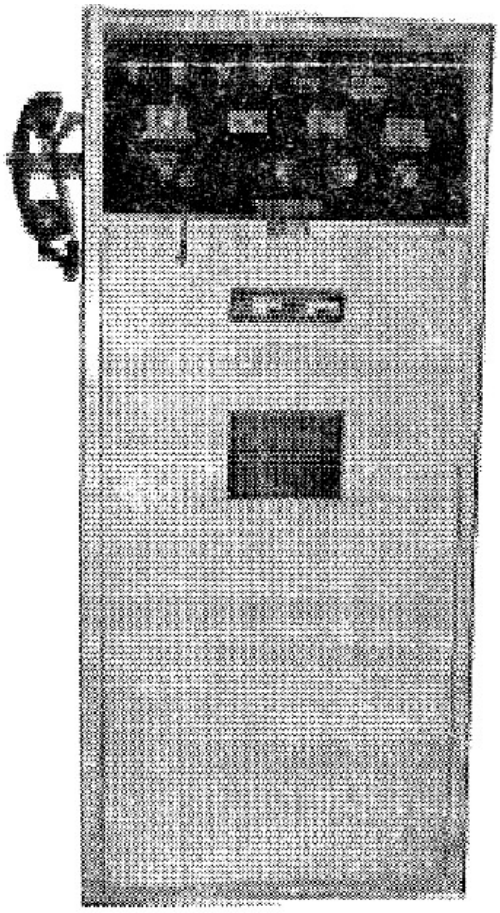
5.3 (ii) Daido's Handle Type Tokenless Block Instrument (FM)



5.3 (iii) Push Button Type Tokenless Block Instrument



FRONT PANEL OF TOKENLESS PTJ TYPE PUSHBUTTON INSTRUMENT



5.4 Description of Daido's Handle Type Tokenless Block Instrument :

(i) Figure No 5.3(ii) shows that a pair of Block Instruments are provided at two consecutive Block Stations, 'X' and 'Y' on the Single Line, to control trains entering the Block Section in both Up and Down directions. These Instruments are electrically connected with each other. The parts and functions of the Block Instruments are described below.

(a) Push Button - 1.
(b) Push Button - 2.
(c) Galvanometer.
(d) Single Stroke Bell or Gong.
(e) Block Handle
(f) Buzzer 1.
(g) Buzzer 2.
(h) 'Train On Line' Indicator.
(i) 'Time Release' Indicator.
(j) Cancellation Switch S-1 and its Counter.
(k) Cancellation Switch S-2 and its Counter.
(l) Shunt Key.
(m) Station Master's Key.
(n) Telephone.
(o) SNR indicator
(p) Indoor Apparatus.
(q) Outdoor Apparatus.

(a) Push Button - 1 : (PB – 1) This is used to transmit Code on Bell signals.

(b) Push Button - 2 : (PB – 2) This shall be pressed along with PB -1 by the Station Master at the other end to enable to turn the Block Instument Handle from one position to other position.

(c) Galvanometer : Consists of a needle housed in a glass fronted case, the deflection of the needle indicates the flow of outgoing and incoming currents.

Note:- *There will be no deflection if both the Stations press the Push Button PB - 1 simultaneously.*

(d) Single stroke Bell or Gong:

The Bell or Gong responds to the signals given by the station at the other end of the block section. At stations where more than one instrument is provided, different Bells or Gongs (with distinctive sounds) are fitted to identify the individual instrument whose Bell or Gong rings.

(e) **Block Handle**:- This has three positions as under—

(1) "Line Closed" position with the Handle vertical and the arrow pointing upwards.

(2) The 'Train Coming From' position with the handle horizontal and the arrow pointing to the right. The Handle is turned to this position when 'Line Clear' is given to the Station in rear for a train

(3) The 'Train Going To' position with the Handle horizontal and the arrow pointing to the left. The Handle is turned to this position whenever Line Clear is taken for a train that has to enter the Block Section in advance.

Note:*(a) The Block handle shall always be left in proper released condition in the 'Line Closed' or 'Train Going to' or 'Train Coming From' position. Leaving the handle in improperly released position may affect bell code transmission and other block operation.*

(b) The Block Handle is normally locked in the vertical i.e., 'Line Closed' Position, with the arrow pointing upwards. When it is released it is possible to turn to 'Train Coming From' or 'Train Going To' position as the case may be, when a prolonged beat along with necessary Bell Code is received from the station at the other end. The handle so turned will remain locked in that position until a prolonged beat along with necessary Bell Code is again received from the station at the other end after the relevant sequence of operation concerning either the train movement or cancellation of 'Line Clear' is completed.

(f) Buzzer 1.This provides an audible alarm at both the stations when the train enters the block section. This alarm will cease only when 'Train Entering Block Section' signal is acknowledged by the Station receiving the train. At the train despatching station, the buzzer will sound continuously and at the train receiving station intermittently, till acknowledged by the Station Master at the receiving station by pressing the Push Button -1 (PB - 1).

(g) Buzzer 2. This provides an audible alarm at the station receiving the train when the whole of the train passes within the Home signal. This alarm ceases when the Station Master's Control slide for the Home signal lever/ knob/control is put back to normal.

(h) 'Train On Line' Indicator. Normally this window shows white. It is operated automatically when the train enters the Block Section and then changes over to show 'Train On Line' on red background. This 'Train On Line indication changes back to white only when the Block Handle is restored to normal.

(i)'Time Release' Indicator : This is an indicator, which is displayed when the time element relay is operated after two minutes and the cancellation of 'Line Clear' is made possible. Normally, this shows 'Locked' on white background. When operated it changes over to `Free' on a green background.

(j) Cancellation Switch S-1 : This switch is operated for cancellation of Line Clear obtained when the train has not left the station. The operation of this switch is recorded progressively on the Counter.

(k)Switch S-2 : This switch is operated for receiving the train on Reception signals in the event of its returning back to the station from where it started. Every time when it is operated the counter register the next higher number.

(l) Shunt key :

(1)This is given as shunting authority to Loco Pilot of a shunting train when shunting is to be carried out beyond the Last Stop Signal and up to the opposing First Stop Signal.

(2)This key can be removed when the operating handle is in 'Line closed' position or "Train Going To" with Train On Line position and it can not be removed when the instrument is in "Train Coming From" or "Train Coming From" with Train On line position.

(3)It shall be removed and kept under personal custody whenever the block instrument is suspended other than the "Train Coming From" position.

(4)When extracted locks the Handle in that position, thus making it impossible to operate the Block Handle. However, the telephone communication is maintained.

(m)Station Master's key : Extraction of this key prevents unauthorised operation of the instrument during the absence of the Station Master. However, this does not prevent receipt of incoming bells and communication on telephone. This key should be kept in the personal custody of the Station Master when it is not required to operate the instrument.

(n)Telephone. A telephone is provided in conjunction with each instrument for communication with the Station Master at the other end of the Block Section.

(o)SNR' Indicator : This is a white light indication to verify if all relevant Controls, Levers, Signals etc., of the First Stop Signal or Last stop signal are normal. Once shunt key is extracted from the Block Instrument the SNR indication disappears.

(p) Indoor Apparatus : An electric control is provided on the Last Stop Signal Lever which is released only when 'Line Clear' has been received from the Station at the other end of the Block Section.

(q) Outdoor Apparatus:

The Outdoor apparatus is installed as under -

(1) **First Vehicle Track Circuit :** This is fixed slightly in advance of the Last Stop Signal. As soon as the engine or the first vehicle of a train going from 'X' to 'Y' passes over this Track circuit the Last Stop Signal is automatically replaced to 'ON' and the 'Train On Line' indication appears automatically on the instruments at stations 'X' and 'Y'. The buzzer at both stations will give an alarm and will continue until the 'Train Entering Block Section' signal is acknowledged by the Station 'Y'.

(2) **Electrical Signal Reverser(Mechanical Interlocking) :** This is actuated by the First Vehicle Track Circuit and replaces the Last Stop signal at 'X' to 'ON immediately by the engine or the first vehicle of the train going to "Y" passes over the First Vehicle Track Circuit.

(3) **Last Vehicle Track Circuit :** This is provided near the foot of the Home signal at stations provided with two aspect signalling or beyond the Home signal at stations equipped with Multiple aspect signalling as shown in Figures 5.3 (i) and 5.3 (ii) When the last vehicle of a train passes over this Track Circuit, the buzzer will give alarm at 'Y' and will continue to do so until 'Y' replaces the Home signal lever/knob/ slide to normal position.

5.5 Testing before taking over charge:

(i) The station master shall arrange to take "OFF" the Last Stop Signal without setting the instrument to "Train Going To' condition. If this is possible block working shall be suspended. He shall make an entry in the Train Signal Register for having tested the instrument.

(ii) The Station Master shall test the Operating Handle by turning it to any other position without the co-operation of the Station Master at the other end. It shall not be turned to other position.

5.6 Precautions before asking 'Is Line Clear' :-

(iii) Before Station Master 'X' asks Station Master 'Y' for Line Clear, he shall examine his Train Signal Register, in order to ascertain that:-

(a) The "Train Out of Block Section" or "Obstruction Removed" signal has been received and entered in his Train Signal Register for the previous train that has passed over the 'X' – 'Y' block section and also that the block section is clear.

(b) Line Clear has not been obtained from /given to Station Master 'Y' for any other train and by any other means.

(iv) The Operating Handle is in the "Line Closed" position.

(v) A Private Number has been obtained for the train

(vi) The Shunt key and Switches S-1 and S-2 are in their normal position.

(vii) Availability of SNR indication.

5.7 Precaution before giving 'line clear':

(i) Before 'Y' gives line clear to 'X' he shall examine his train Signal Register in order to ascertain that:-

1. The 'Train Out of Block Section' or ' Obstruction Removed' signal has been received and entered in his Train Signal Register for the previous train that has passed over the 'X'- 'Y' block section and also that the block section is clear.
2. Line Clear has not been given to/obtained from 'X' for any other train and by any other means.

(ii) A Private Number has been given for the train

(iii) The Operating Handle shall be in the Line Closed position

(iv) The Shunt key and Switches S-1 and S-2 are in their normal position

(v) availability of SNR indication .

5.8 'Train Entering Block Section' Signal.

(a) On the departure of a train from a block station the "Train Entering Block Section" signal shall be sent to the block station in advance, and be duly acknowledged.

(b) When so acknowledged the Block Section shall be deemed to be blocked against any other train.

(c) "Train Entering Block Section" signal shall also be given. 'Train On Line' indication appearing automatically on the Block Instrument along with the audible warning bell.

Note:*Immediately the train passes the Last Stop Signal at 'X' and enters the 'X'- 'Y' block section, the First Vehicle Track Circuit is operated. This brings about the 'Train on Line' indication at both the stations and also buzzers at both the stations 'X' and 'Y' operate until 'Y' acknowledge the 'Train Entering Block Section' signal by pressing PB-1.*

5.9 Condition for closing the block section (GR 14.10.)

(i) When the Block Section has been cleared by the arrival of the train or by the removal of the cause of blocking, the block section shall be closed by the Block Station in advance by giving the prescribed bell code signal.

(ii) Before such signal is given, the Station Master shall satisfy himself that :-

(a) The train has arrived complete, or the cause of the blocking the section has been removed

(b) The condition under which Line Clear can be given are complied with.

(c) All the reception signals have been put back to 'ON'.

(d) After the passage of whole train has passed inside Last Vehicle Track Circuit at 'Y', the train arrival buzzer will sound. The replacement of Home signal lever/knob/slide will stop the buzzer sound. Transmit the "Train out of Block Section" signal and co operate by pressing PB 1 and PB 2 buttons to operate Block Handle at 'X' first and with similar co operation from 'X', the Block Handle is turned to 'Line Closed' position at 'Y'.

(e) Availability of SNR indication .

5.10 (a) Signalling a Train from one Block Station to another Block Station :

Sending Station X	Receiving Station Y
(1) Block handle in 'Line Closed' position. All relevant signals and signal levers in normal position and SNR indication is available.	(2) Block handles in 'Line Closed' position. All relevant signals and signal levers in normal position and SNR indication is available.
(3) Insert Station Master's key and turn.	
(4) Give 'Call Attention' Signal and on getting acknowledgement, attend Telephone, give out the station name and ascertain the name of the Station which acknowledges the 'Call Attention' Signal.	(5) Insert Station Master's key and acknowledge, attend Telephone, and call out the Station Name.
(6) After ensuring the correctness of the Station from which 'Line Clear' is required, give train number and description of the train for which 'Line Clear' is required.	(7) After ensuring the correctness of the Station to which 'Line clear' is to be given,repeat the number and description of the train and if line is clear and conditions for granting 'Line clear' are complied with give Private Number.
(8) Repeat the Private Number.	
(9) Give Call Attention' Signal.	(10)Acknowledge the 'Call Attention' signal.
(11) Give 'Is Line Clear' signal by pressing button PB -1 and keep PB- 2 button also pressed for 5 seconds on the last beat. The Galvanometer needle shows a flick indicating that the handle at the other station has been turned. Release PB1 and PB 2	(12) (i) While X gives the prolonged beat, turn the Block Handle to 'Train coming From' and acknowledge 'Is Line Clear' signal by pressing button PB-1and keep PB - 2 button also pressed for 5 seconds on the last beat.

.	(ii) The Galvanometer needle shows a flick indicating that the handle at the other station has been turned. Release PB1 and PB 2.
(13)(i) While Y is giving the prolonged beat, turn the operating Block handle, to (ii)Take 'OFF' Train Going To' position. Last Stop signal. (iii) On the Train entering the Block Section, the Last Stop signal is automatically replaced to 'ON' position. (iv) 'Train On Line' indication appears automatically and the Buzzer/Bell starts sounding. (v) Replace Last Stop signal lever /knob to normal.	(14) 'Train On Line' indication appears automatically and the Buzzer /Bell starts sounding stop the buzzer by pressing PB-1.
(15) Buzzer/bell stops and give 'Train Entering Block Section' signal	(16)Acknowledge 'Train Entering Block Section signal by pressing PB 1 for 5 seconds. Buzzer/ Bell Stops.
	(17) (i) Take 'OFF' Reception signals. (ii) When the Train passes Home Signal the Home 'signal is automatically replaced to 'ON' position. (iii) As the Last Vehicle Passes the Last VehicleTrack circuit the Buzzer / Bell starts sounding. (iv) Replace the Home Signal lever/ knob/ slide control and the Buzzer/Bell Stops. *Note: Though Home Signal may go automatically to 'ON' by passage of the train 'Home signal lever/knob shall not be put back to normal, unless the*

	whole of the train has arrived inside the Home Signal. Failure to adhere to this will result in Block failure and the train arrival Buzzer will not sound under such circumstances.
	(18) After ensuring that the train has arrived complete give 'Call Attention' Signal.
(19) Acknowledge "Call Attention" Signal	(20) Give 'Train Out of Block section signal by pressing PB1 and press it along with PB - 2 Buttons prolonging the last beat for 5 seconds.
(21) Turn Block handle to line closed position and acknowledge "Train out of Block Section" signal by pressing PB1 and press it along with PB - 2 Buttons prolonging the last beat for 5 seconds.	(22) Turn the Block Handle to Line Closed position

Note:*(i) Similar procedure is repeated when despatching a train from Station 'Y' to Station 'X'.*

(ii) Before the Block Handle is operated it should be ensured that the 'last Vehicle Track Circuit' of the concerned Block Section are clear of any vehicles.

(B)(1) To Cancel a 'Line Clear' before the train enters the Block Section :

Sending Station X	Receiving Station Y
(1) Block handle at 'Train going to' position all relevant signals and signal levers and Station Master's slide for the Last Stop Signal concerned in normal position and SNR indication is available	(2) Block handle at 'Train coming from' position and all relevant signals and signal levers in normal position and SNR indication is available.
(3) Give "Call Attention" signal to Station "Y" and take his consent on Telephone giving a Private Number	(4) Give consent and repeat the Private Number.
5) (i) Turn cancellation switch S-1 for cancellation. (ii) Counter register next higher number. (iii) Wait until time release indicator operates.	
(6) Send 'Call Attention' signal	(7) Acknowledge 'Call Attention' signal
(8) Restore cancellation switch to normal and send 'Cancel Last Signal' while sending 'Cancel Last Signal' keep PB - 1 and PB - 2 buttons also pressed for 5 seconds on the last beat. Release the button PB 1 and PB 2 when the Galvanometer needle gives a click in its deflected position indicating that the Block handle at Station 'Y' has been turned.	(9) Turn the Block handle to "Line Closed" position. Acknowledge Cancel Last Signal and keep PB 1, PB 2 buttons also pressed for 5 seconds on the last beat.
10) Turn the block handle to line closed position.	

(2) Closing of Block Section after the train returns back to the despatching Station :

Sending Station X	Receiving Station Y
1. Block handle at 'Train Going to' position.	2. Block handles at 'Train coming From' position.
3. Give 'Call attention' Signal to station 'Y' on telephone and inform intention to cancel Line Clear after pushing back of train and take his consent by giving a Private Number.	4. Give consent and repeat the Private Number.
5. (i) Turn Switch S-2. Counter registers next higher Number. (ii) Take 'OFF' the Reception signals. (iii) Train passes Home signal which replaces to 'ON' auto matically (iv) The Last Vehicle passes the Last Vehicle Track Circuit, the Buzzer starts sounding (v) Replace the Home Signal lever / knob/ slide control and the Buzzer / Bell Stops.	
6. (i) On complete arrival of the train and provided the conditions laid down in G.R. 14.10 are complied with, (ii) Operate S-2 to normal position. (iii) Send 'cancellation' signal through PB - 1 and pressing together with PB-2 on the last beat for 5 seconds.	7. Turn Block Handle to 'Line Closed' position.

	8. Acknowledge 'cancellation' signal through PB - 1 and pressing together with PB-2 on the last beat for 5 seconds.
9. Turn the Block Handle to 'Line Closed' position.	

(c) Shunting Between Last Stop Signal and Opposing First Stop Signal.

Shunt key together with T/806 is the authority to shunt from LSS up to the opposing first stop signal.

Sending Station X	Receiving Station Y
1. Block instrument in 'Line Closed' 'Train Going To' with 'Train On Line' Condition.	2. Block instrument is in 'Train Coming From' with 'Train On Line' condition.
3. (a) Insert Station Master's key and turn. (b) Give 'Call Attention' signal to Station 'Y' and obtain his consent on Telephone.	4. (a) Insert Station Master's key and turn (b) Acknowledge 'Call Attention' and Give consent on telephone.
5. (a) Take out the Shunt key from the Block Instrument. Take out Station Master's key. (b) Hand over Shunt key and T/806 to Loco Pilot. (c) Loco Pilot completes shunting and returns shunt-key to Station Master. (d) Insert Station Master's key and turn, restore the 'Shunt Key' in the Instrument properly. (e) Inform the Station Master at 'Y' on block Telephone.	
	6. Acknowledge on block telephone.

Note: (1) In case of block instrument failure/ suspension or unable to extract the shunt key procedure laid down under SR 8.15 (i) shall be adhered to.

(2) Shunt key can be extracted when the instrument in TGT/TOL condition.

(d) Procedure for testing the block instrument

Authorised S & T official at 'X'	Station Master 'Y'
(1) Insert Station Master Key and give testing signal by pressing PB – 1 (16 bell beats).	2) Insert Station master key and acknowledge (testing signal by pressing PB – 1. (16 bell beats).
(3) Give 'Is Line Clear' signal prolonging the last beat by pressing PB –1 and PB – 2.	(4) Watch the needle deflection in the galvanometer and operate the handle to TCF position and acknowledge 'Is Line Clear' prolonging the last beat by pressing PB – 1 and PB - 2.
(5) (a) Watch the needle deflection in the galvanometer and operate the handle to TGT position. (b) Test the Last Stop Signal.	(6) Watch the deflection of the galvanometer needle and release PB – 1 and PB – 2.
(7) Turn the S1 knob to reverse and wait for 120/90 seconds as the case may be. After appearing free indication normalize S-1 knob and give the cancellation signal prolonging the last beat by pressing PB – 1 and PB - 2.	(8) While receiving the prolonged beat watch the deflection on the galvanometer needle turn the Operating Handle to the 'Line Closed' position and acknowledge the cancellation signal prolonging the last beat by pressing PB – 1 and PB - 2.
(9) Watch the deflection of the galvanometer needle and turn the operating handle to 'Line Closed' position.	

(a) The operation shall be repeated in the reverse direction, the Station Master at 'Y' commencing with the testing signal and the S&T department official acknowledging and then the instrument shall be locked at both ends.

(b) The authorized S&T department official at 'X' and the Station Master at ' Y' shall enter in red ink in Train Signal Register on the line immediately below the entries for the last train.

Time ——————

Exchanged "Testing signal" with Station Master —— station / Authorised official of the Signal and Telecommunication Branch at ———— Station. Taken off last stop signal and restored it to normal. Cancellation counter number recorded on the instrument is ————.

_____

Authorised official of the
Signal and Telecommunication Branch.

Note:*The authorized official for the purpose of the above said rules are Sr.DSTE/ DSTE, ADSTE, SSE/SE/JE/Sig, Technician (Electrical Signals).*

5.11 Failure of block instruments:-

The Block Instrument shall be considered to be interrupted and their working is suspended in the following circumstances.

(i) When 'Call Attention' cannot be obtained direct on the Block Instrument.

(ii) When signals on the Bell are received indistinctly or fail altogether.

(iii) If the Last Stop Signal fails return to 'ON' position as a train passes it.

(iv) If the Train arrival buzzer does not sound the alarm even after the complete passage of the train inside the Home signal over the 'Last Vehicle track Circuit' and Treadle (This may be due to failure of the Last Vehicle Track Circuit/ Treadle).

Note:*Though Home Signal may go automatically to 'ON' by passage of the train, home signal lever knob shall not be put back to Normal position unless the whole of the train has arrived inside the Home signal. Failure to adhere to this will result in a Block Failure and the Train arrival buzzer will not sound alarm under such circumstances.*

(v) When there is reason to believe that there is contact between the Block wire and any other circuit :

Note:*(a) If a contact exists between the Block wire and any other circuit, there is a possibility of irregular beats on the bell. A contact between two block wires would cause signals given on one instrument to be repeated on the neighboring instrument.*

(b) The Telephone connected with the instrument for train signalling also shall be considered as having failed and working by means of the telephone would not be resumed until authorised by the SE/JE/Signals or any other authorised person.

(vi) If battery counter of the block instrument is found unlocked.

(vii) When 'Train on Line' buzzer fails to give the alarm for any reason at the receiving station, even after display of 'Train on Line' indication on the Block Instruments.

Note:*(a) If a following train in the same direction working on paper line clear ticket actuates the TAR buzzer/Bell, block working may be resumed.*

(b) If there is no following train but there is a train to proceed in the opposite direction the same will be dispatched on paper line clear ticket. The Station Master at other end should use S-2 switch in the case of Handle type instruments and cancel push button in the case of push button type instruments, as, in the case of a train pushing back and receive the train on proper signals after which block working may be resumed without waiting for S & T staff.

(viii) When a Material Train etc. is required to be taken into a Block Section after Line Block has been imposed.

Note: *Block Working shall be suspended and the Material train etc. started with form T/A 602. After the Line Block has been removed the Station Masters themselves shall resume block working.*

(ix) When a train is required to enter a block section which is obstructed by an accident or for any other reason.

Note*: Block working shall be suspended and trains started with form T/A 602. On the removal of obstruction the Station Masters themselves shall resume block working*

.

(x) If it is known that the Instrument is defective in any way not specified above.

(xi) If the Galvanometer needle deflection fails, while transmitting the bell signals.

(xii) If the 'Train on Line' indication does not appear on the Instrument after the train has entered the Block Section.

(xiii) If the Last Stop Signal can be taken off without displaying 'Train Going To' indication on the Block Instrument.

(xiv) When the train arrives at a station without Line Clear having been given for it.

***Note** : This occurrence must be reported as an accident.*

(xv) Whenever the Block Handle is not free to be turned from one of the positions even after the correct sequence of operations.

(xvi) (a) If the Block Handle can be turned from 'Train On Line' to 'Line Closed' position before complete arrival of the train.

(b) If the Block Handle can be turned to any of the three positions without the co operation of the station master at the other end.

(xvii) when Line Clear cannot be cancelled even after proper sequence of operation.

(xviii) Last Stop Signal automatically replaced to 'ON' or "Train On Line" indication appears prematurely before the train actuates the "First Vehicle Track Circuit".

(xix) Motor trolley, Motor lorry, Lader trolly, Trolley or Lorry is required to enter a Block Section.

5.12 Occasions when Station Masters themselves may resume Block Instrument Working :-

1. When a traffic train is ready to enter the Block Section after the removal of "Line Block" or expiry of "Line Block" period and when the Block Section is clear of material trains, motor trolley etc.
2. When an Accident Relief Train clears a Block Section already occupied by a Trolley or Lorry on Form T/1518 with "Line clear Refused" endorsement.

3. When a train is ready to enter a Block Section once obstructed due to an accident but the cause of obstruction has since been removed and the Block Section is also clear of the obstruction.

4. When a train is ready to enter a Block Section after the clearance of Motor Trolley, Motor Lorry etc., allowed to proceed on the authority of "Line Clear Ticket".

5. When SM's key is lost and subsequently found.

5.13 Occasions when Block Instrument working is to be resumed by Divisional Signal and Tele-communication Engineer/Assistant Signal and Tele – communication Engineer or by any other Signal and Telecommunication Department Official authorized by name.

1. Last stop signal can be taken "OFF" when the instrument is not brought to "Train Going To" condition.

2. The instrument can be brought to "Line Closed" condition before complete arrival of the train.

3. "Train On Line" indication disappears before complete arrival of the train.

4. If the Block Handle can be turned to any of the three positions without the co operation of the Station Master at the other end.

5.14 Diagram of Push Button Tokenless Block Instrument.

5.15 Description of Push Button Tokenless Block Instrument.

(i) Figure No. 5.3 (iii) shows that a pair of Block Instruments are provided at two consecutive Block Stations, "X" and "Y" on the Single Line, to control trains entering the Block Section in both Up and Down directions. These Instruments are electrically connected with each other. The parts and functions of the Block Instruments are described below.

(a) Station Master's key.

(b) 'Bell Code' Push Button.

(c) 'Train Going To' Push Button.

(d) 'Line Closed' Push Button.

(e) 'Cancel' Push Button and its counter.

(f) 'Panel Lamp' Push Button(wherever available).

(g) 'Train Going To' Indicator.

(h) 'Line Closed' Indicator.

(i) 'SHK' Push Button.

(j) 'SCK' Push Button.

(k) 'Train on Line Indicator'.

(l) 'Train Coming from' Indicator.

(m) 'Free' Indicator.

(n) 'Signal Repeater Lamp' for Last Stop Signals.

(o) 'SNR' Indicator.

(p) 'Telephone'.

(q) 'Single Stroke Bell'.

(r) 'Alarm Bell/buzzer'.

(s) 'Shunt key 'SHK'.

(t) 'Slip Siding key'.

(u) 'Catch Siding key'.

(a) **Station Master's key :** When taken out it prevents unauthorised operation. However, bell codes "Train Coming From" indication, "Train On Line" indication and " Train Entering Block Section" audible warning etc., can still be received and telephone also will be working.

(b) **Bell Code or Bell Push Button :** This is operated to transmit 'Bell Code' signals, stop the buzzer and it is coloured black.

(c) **"Train Going To"Push Button :** This green colour Push Button is pressed along with the bell code button to set the Instrument to 'Train Going To' condition when dispatching a train. It is necessary to keep this Push Button pressed continuously till the 'Train Going To' condition appears.

(d) **'Line closed' Push Button :** This white colour Push Button is pressed along with the bell code button to set the Instrument to 'Line Closed' condition after the train has arrived at the receiving station. However, this Button is to be pressed in case of cancellation of Line Clear.

(e) **'Cancel' Push Button and its Counter :** When 'Train Going To' condition is to be reset to 'Line Closed' condition before the train has not entered the Block Section or when the train is to be pushed back to the sending station instead of proceeding to the next station, this Push Button is pressed along with bell code button. The counter registers the next higher number, whenever the cancellation button is pressed along with bell push button and it is coloured red .

(f) **'Panel Lamp'Push Button :** This yellow colour Push Button is provided to turn the panel lights 'ON' When this is pressed, the indicators excepting 'TOL' and 'FREE' are lit. This has to be pressed only when the condition of the Instrument is to be verified. For verifying the condition of the Block Instrument, only the 'Panel Lamp' Push Button has to be pressed, as pressing of the Bell Code Button would unnecessarily attract the attention of the Station Master at the other end and coloured yellow. The modified instrument may not have this button as the condition of the Block Instrument is displayed throughout.

(g) **'Train Going To' Indicator :** This shows 'Train Going To' indication on a green- background illumination/green light indication. This indication appears when Bell Code Button or panel Lamp Push Button is pressed.

(h) **'Line Closed' Indicator :** This shows 'Line Closed' indication on a white background illumination/white light indication. This indication appears when Bell Code Button or Panel Lamp Push Button is pressed.

(i) **'SHK' Push Button :** Shunt key can be extracted only by pressing this button. It is in blue colour.

(j) **'SCK' Push Button :** Wherever Catch or Slip Siding is provided the Catch or Slip Siding key can be extracted only by pressing this button. It is in blue colour

(k) **'Train On Line' Indicator :** This shows 'Train on Line' indication on a red background illumination/red light and remains lit till the Block Instrument is brought to 'Line Closed' condition by the Station Master.

(l) **'Train Coming From' Indicator :** This shows 'Train Coming From' indication on a green background illumination. It appears when Bell Code Button or panel Lamp push Button is pressed.

(m) **'Free Indicator' :** This is a green illumination/light that appears after 120 seconds upon cancellation of Line Clear operation when a train has not entered the Block Section and indicates the time release function,.

(n) **'Signal Repeater Lamps, for Last Stop Signal :** These are provided to indicate the condition of the Last Stop Signal. Green or red lamps repeat its 'OFF' or 'ON' aspects respectively.

(o) **'SNR' Indicator :** This is a white light indication to verify if all relevant Controls, Lever/knobs, Signals etc., of the First Stop Signal or Last Stop Signal are normal.

(p) **Telephone :** On the left side of the Instrument a telephone is provided for communicating with the Station Master of the other end of the block section.

(q) **Single Stroke Bell :** This bell operates when a bell signal is received.

(r) **Alarm Bell/Buzzer.**- This alarm bell/buzzer sounds continuously when a train has arrived at the station and intermittently when 'Train On Line' code is received.

(s) **Shunt key :**

(1) This is given as shunting authority to Loco Pilot of a shunting train when shunting is to be carried out beyond the Last Stop Signal and up to the opposing First Stop signal.

(2) This key can be removed when the instrument is in 'Line closed' position or "Train Going To"with Train On Line position and it can not be removed when the instrument is in 'Train Coming From' or 'Train Coming From' with Train On line position.

(3) It shall be removed and kept under personal custody whenever the Block Instrument is suspended.

(4) When extracted it prevents any operation on the Block Instrument, but does not prevent appearance of Train On Line and transmission of bell code signals.

(5) When this key is taken out shall be kept under safe custody of Station Master. The Station Master at the other end shall also be advised. It shall be properly secured in a pouch if provided and handed over to the Loco Pilot during shunting.

(6) For restoring the shunt key to the Electrical Key Transmitter it shall be inserted and turned clock wise to the maximum extent possible.

(t) **Slip Siding key :** Wherever the Slip Siding key is provided at stations equipped with these Block Instruments a Electrical key Transmitter with a key is provided by the side of the Block Instrument. The key in the Electrical Key Transmitter can be released only when the Station Master 's key of the

Block Instrument is turned and the Block Instrument is set to the 'Train Going To'/ 'Train Coming From' position. The extraction of the key, locks the Block Instrument which can be brought to the 'Line Closed' position only when the key is restored to the Electrical key Transmitter.

(u) **Catch Siding key:** - Wherever the Catch Siding key provided at Stations equipped with these Block Instruments an Electrical key Transmitter with a key is provided by the side of the Block Instrument. The key in the Electrical key transmitter can be released only when the Station Master's key of the Block Instrument is turned and is set to the 'Train Coming From' position. The extraction of the key locks the Block Instrument and can be brought to the 'Line Closed' position only when the key is restored to the Electrical key Transmitter.

(ii) Indoor Apparatus :

Electric Lock on Last Stop Signal : An electric lock is provided on the last Stop Signal lever which is released only when the 'Train Going To' indication is displayed on Block Instrument of the Block Section.

(iii) Outdoor Apparatus :

The Outdoor apparatus are installed as under -

(1) **First Vehicle Track circuit**:- This is fixed slightly in advance of the Last Stop Signal. As soon as the engine or first vehicle of a train going From 'X' to 'Y' passes over this Track Circuit, the Last Stop Signal assumes its 'ON' position, the Train On Line' indication appears automatically on both the Block Instruments at stations 'X' and 'Y'. In addition an intermittent audible warning sounds at "X", "Y" stations.

(2) **Electrical Signal Reverser**:- This equipment is provided where Semaphore Signalling is adopted and is actuated by the First Vehicle Track circuit and it replaces the Last Stop Signal at 'X' to 'ON' immediately the engine or the first vehicle of the Train Going To'Y' passes over the Track Circuit.

(3) **Last vehicle Track Circuit**:- This is placed in advance of the Home signal. When the last vehicle of the train passes over this Track circuit, the buzzer will give alarm at 'Y' and

continue to do so until 'Y' replaces the Station Master's Control slide/ knob for the Home Signal (or the Home Signal lever itself where Block cabins are provided) to normal.

5.16 Testing before taking over charge

The station master shall arrange to take "OFF" the Last Stop Signal without setting the instrument to "Train Going To' condition. If this is possible block working shall be suspended. He shall make an entry in the Train Signal Register for having tested the instrument.

5.17 Precautions before asking 'Is Line Clear' :-

(i) Before Station Master 'X' sets the "Train Going To" indication on the Block Instrument, he shall examine his Train Signal Register, in order to ascertain:-

(a) That the 'Train Out of Block Section' or 'Obstruction Removed' signal has been received and entered in his Train Signal Register for the previous train that has passed over the 'X' – 'Y' Block Section and also that the Block Section is clear.

(b) Line clear shall not be given or obtained by any other means for any other train.

(ii) Shunt key and Slip/Catch siding keys are intact in the Electrical Key Transmitter.

(iii) The instrument shall be in the Line Closed condition.

(iv) SNR indication shall be available.

(v) The Last Stop Signal indication shall show red.

(vi) Private Number has been obtained for the train

5.18 Precaution before giving 'Line Clear':-

(i) Entries for the previous train in the Train Signal Register are complete and the Block Section is clear and free from obstruction.

(ii) Line Clear shall not be given or obtained by any other means for any other train.

(iii) Shunt key and Slip/Catch siding keys are intact in the Electrical Key Transmitter.

(iv) The instrument shall be in the Line Closed condition.

(v) SNR indication shall be available.

(vi) Private Number should have been given for the train

5.19 **'Train Entering Block Section' Signal**.

(a) On the departure of a train from a Block Station the "Train Entering Block Section" signal shall be sent to the block station in advance, and be duly acknowledged.

(b) When so acknowledged the Block Section shall be deemed to be blocked against any other train.

(c) 'Train Entering Block Section' signal shall also be given in addition to the automatic 'Train On Line' indication appearing on the Block Instrument along with the audible warning bell.

***Note**: Immediately the train passes the Last Stop Signal at 'X' and enters the 'X-Y'block section, the First Vehicle Track Circuit is operated. This brings about the 'Train on Line'indication at both the stations and buzzer sound at receiving station. It shall be stopped by pressing bell code button*.

5.20 Condition for closing the Block Section GR 14.10.

When the Block Section has been cleared by the arrival of the train or by the removal of the cause of blocking, the Block Section shall be closed by the block station in advance by giving the prescribed bell code signal.

(i) Before such signal is given, the Station Master shall satisfy himself that:-

(a) The train has arrived complete, or the cause of the blocking the section has been removed

(b) The condition under which Line Clear can be given are complied with.

(c) All the reception signal has been put back to 'ON'.

(ii) On complete arrival of the train inside the Last Vehicle Track Circuit at Y, the train arrival buzzer will sound. To stop the buzzer sound restore the lever/ knob /slide control of home signal to normal position.

5.21 (a) Signalling a train from one block station to another block station

Sending Station 'X'	Receiving Station 'Y'
1. The Station Master shall press the panel lamp push button wherever provided to check the condition of the Block Section.	
2. Block Instrument is in 'Line Closed' condition.	3. Block Instrument in 'Line Closed' condition.
4. Insert the Station Master's key and turn. Give "Call Attention" signal.	5. Acknowledge the 'Call Attention' signal.
6. Give the train details	7. Repeat the train details and give Private Number.
8. Repeat the Private Number	
9. Give two bell beats and press the 'Train Going To' button along with the 'Bell Push Button'.	10. Block Instrument set to 'Train Coming From' position.
11. Block Instrument displays ' Train Going To' indication. Release button.	12. After ensuring the TCF position acknowledge it by two bell beats.
13. (a) Take off the Last Stop Signal. (b) Train enters Block Section. (c) Last Stop Signal is replaced to 'ON' automatically. (d) 'Train on Line' indication appears automatically. (e) Restore the Last Stop Signal lever/knob/slide to normal.	14. (a) 'Train on Line' indication appears automatically and audible warning sounds. (b) Press the button till the audible warning sound stops.
15 Give 'Call Attention' signal	16. Acknowledge the 'Call Attention' signal
17. Give 'Train Entering Block Section' signal by three bell beats.	18. Acknowledge 'Train Entering Block Section' signal by three bell beats.

	19. (a) Take 'OFF' the reception signals. (b) When the train passes the Home signal, the Home Signal replaced to 'ON' position. (c) As the Last Vehicle passes Last Vehicle Track Circuit, The audible warning sounds. (d) Restore the Home signal lever/knob/ slide to normal. (e) Audible warning Stops. ***Note :*** *Though Home signal may go automatically to 'ON' by passage of the train. Home Signal lever/ knob must not be put back to normal unless the whole of the train has arrived inside the last vehicle track circuit. This will result in a Block Failure and the train arrival Buzzer will not sound under such circumstances.*
	20. After ensuring that the train has arrived complete that all signals and signal levers are put back to normal, operate the 'Line Closed' button along with the 'Bell Push Button' and keep them pressed.
21. Block Instrument set to 'Line Closed' condition.	22. Block Instrument set to 'Line Closed' condition, Release buttons.
Note: *The Procedure for sending a train from Station 'Y' to 'X' will be similar to the above.*	

(b) To cancel the 'Train Going To' condition before a Train enters the Block Section.

Sending Station 'X'	Receiving Station 'Y'
1. Block Instrument set to 'Train Going To' indication and all relevant signals and signal levers/ knobs are normal.	2. Block Instrument set to 'Train Coming From' indication and all relevant signals and signal levers/ knobs are normal.
3. (a) Insert Station Master's key and turn. (b) Operate the 'Cancellation button along with the 'Bell Push' button. (c) Counter registers next higher number.	
4. Give 'Call Attention' signal and attend telephone.	5. (a) Insert Station Master's key and turn. (b) Acknowledge 'Call Attention' Signal and attend telephone.
6. Give description of train and advise intention to cancel 'Train Going To' condition on telephone.	7. Acknowledge the description of train and intention to cancel 'Train Going To' condition.
8. Time release 'Free' indication appears after the 'Cancellation' button/switch is operated.	
9. Give 'Call Attention' signal	10. Acknowledge 'Call Attention' signal
11. Send 'Cancellation' bell code	12. Acknowledge 'Cancellation' bell code and keep 'Line Closed' button along with the 'Bell Push' button pressed on the last beat..
13. Press the 'Bell Push' buttons and 'Line Closed' button on receipt of the last beat of the cancellation bell code.	14. Block Instruments set to 'Line Closed' condition, Release buttons.
15. Block Instruments set to 'Line Closed' condition. Release buttons.	16. Lock the instrument keep the key in the personal custody of SM on duty.

(c) To Set the Block Instruments to 'Line Closed' condition when a train pushes back to the Despatching station.

Sending Station 'X'	Receiving Station 'Y'
1. Block Instrument displays 'Train Going To' and "Train on Line' indication.	2. Block Instrument displays 'Train Coming From' and Train on Line' indication and audible warning sounds intermittently.
4. (a) Insert Station Master's key and turn. (b) Acknowledge 'Call Attention' Signal and attend telephone.	3. (a) Insert Station Master's key and turn. (b) Acknowledge audible warning by pressing the 'Bell Push' button. (c) Audible warning stops. (d) Give 'Call Attention' and attend telephone.
5. Give description of Train and advise intention to push back the same.	6. (a) Acknowledge the description of the train and intention to push back the same. (b) Restore reception signal levers/ slide/knob to normal, if the signals have been taken 'OFF'.
7. (a) Take 'OFF' the reception signals. (b) Train passes over FVT and Home Signal returns to 'ON'. (c) As the Last Vehicle passes Last Vehicle Track Circuit the audible warning sounds. (d) Restore reception signal levers/slide/knob to normal. (e) Audible Warning stops.	
8. (a) Operate the 'Cancellation' button along with the 'Bell Push' button. (b) Counter registers next higher number.	

9. After ensuring that the train has arrived complete and all signals are at 'ON'. Give 'Call Attention' Signal	10. Acknowledge the 'Call Attention' signal.
11. Send 'Cancellation' code by operating bell push button.	12. Acknowledge 'Cancellation' code by operating bell push button and keep Line Closed button also pressed on the last beat.
13. Press bell push button and line closed button on receipt of the last beat of the cancellation code.	14. Block Instrument set to 'Line Closed' condition. Release buttons.
15. Block Instrument set to 'Line Closed' condition. Release buttons.	

(d). To Shunt between the Last Stop Signal and Opposing first stop signal.

Shunt key together with T/806 is the authority to shunt from LSS up to the opposing first stop signal.

Sending Station 'X'	Receiving Station 'Y'
1. Block instrument in 'Line Closed' 'Train Going To' with 'Train On Line' Condition.	2. Block instrument is in 'Train Coming From' with 'Train On Line' condition.
3. (a) Insert Station Master's Key and turn. (b) Give 'Call Attention' signal	4. (a)Insert Station Master's Key and turn. (b) Acknowledge call attention signal and attend telephone.
5. Inform intention to shunt up to first stop signal.	6. a) Give consent and communicate a Private Number. b) Take out the SM's key
7. (a) Take out the Shunt key (b) Hand over the Shunt key to the Loco Pilot. (c) Take out the SM's key	
8. (a) After completion of shunting, Loco Pilot returns the shunt key to the Station Master. (b) Insert SM's key and restore shunt key in the instrument.	
9. Give call attention and Inform completion of shunting.	10. Insert SM's Key and Acknowledge completion of shunting on telephone. Take out SM's key.
	11. Take out the SM's key

***Note** : (1) If Station 'Y' fails to establish ' Train Going To' condition Station 'Y' should verify the position of Shunt key from Station 'X' who should advise Station 'Y' as soon as shunting is completed.*

(2) Shunt key can be extracted when the instrument in TGT/TOL condition.

(e) Operation of Slip and Catch sidings while sending a Train from station 'X' to Station 'Y'.

Station 'X' is assumed to be provided with a slip siding protected by Last Stop Signal and station 'Y' with a catch siding protected by First Stop Signal.

Sending Station 'X'	Receiving Station 'Y'
1. Block Instrument displays 'Train Going To' indication.	2. Block Instrument displays 'Train Coming From' indication.
3. Insert Station Master's key and turn.	
4. (a) Take out the Slip Siding key by pressing the 'SCK' push button. **Note:** Wherever RRI has been introduced the operations of all the Points including the slip siding are controlled by RRI signalling ciruits. (b) Transmit the Slip Siding key to the siding point either electrically or manually. (c) Slip Siding point is set.	
5 (a) Take off the Last Stop Signal. (b) Train enters Block Section. (c) Last Stop Signal returns to 'ON' automatically. (d) 'Train On Line' indication appears automatically. (e) Restore the Last Stop signal lever/knob / slide to normal.	
	6. (a) 'Train On Line' indication appears automatically and audible warning sounds intermittently.. (b) Insert Station Master's key and turn. (c) Press 'Bell Push' button till the audible warning stops.
7. Give 'Call Attention' signal through 'Bell Push' button and attend telephone**.**	

8 Acknowledge call attention and attend telephone	
9. (a) Give train entering block section bell code. (b). Set the slip siding to normal. (c). Transmit the slip siding key back to SM either electrically or manually. (d). Restore slip siding to the instrument.	
	10. (a) Take out the catch siding key (b) Transmit the catch siding key to catch siding point either electrically or manually. (c) Train comes to a stop at first stop signal. (d) Catch siding point is set. (e) Take 'OFF' reception signal. (f) Train passes over FVT circuit. (g) First Stop signal return to 'ON'. (h) As the last vehicle passes the LVT circuit the audible warning sounds continuouosly. (i) Restore the home signal lever/knob to normal . (j) Audible warning stops. (k) Set the catch siding to normal. (l) Transmitt catch siding key to SM either manually or electrically. (m) Restore the catch siding key to the instrument. After ensuring that the train has arrived complete and all signals are at 'ON' operate Line Closed button along with the bell push button.
11. Block Instrument set to 'Line Closed condition.	12. Block Instrument set to "Line Closed Condition" Release buttons.

(f) Procedure for testing the Block Instrument

Authorised S & T department official at 'X'	Station Master'Y'
1. Insert Station Master Key and give testing signal (16 bell beats)	2. Insert Station Master Key and give testing signal (16 bell beats)
3. Give two bell beats and press the 'Train Going To' button along with the 'Bell Push Button'	4. Block Instrument set to 'Train Coming From' position.
5. (a) Block Instrument set to 'Train Going to' position. (b) Take 'off' the last stop signal for testing. (c). Restore the Last stop signal lever/knob to normal. (d). Operate cancellation button along with bell push button. (e) counter register next higher number. (f) Time release free indication appears 120 Second after the cancellation button operated.	
6. Give 'Call Attention' signal	7. Acknowledge the 'Call Attention' signal
8. Send Cancellation bell code by operating bell push button.	9. Acknowledge the Cancellation bell code by operating bell push button, keep line closed button also pressed on the last beat.
10. Press bell push button and Line Closed button on receipt of the last beat of the Cancellation code.	11. Block instrument is set to Line Closed condition. Release buttons
12. Block instrument is set to Line Closed condition. Release buttons	
13. Test the possibility of incorrect operation by trying to take 'off' Last Stop Signal without setting the instrument to "Train Going To" condition and satisfy that the Last Stop Signal can not be taken 'off'.	

1. The operation shall be repeated in the reverse direction, the Station Master at 'Y' commencing with the testing signal and the S&T department official acknowledging and then the instrument shall be locked at both ends.

2. The authorized S&T department official at 'X' and the Station Master at 'Y' shall enter in red ink in Train Signal Register on the line immediately below the entries for the last train.

Time ——————

Exchanged "Testing signal" with Station Master —— station / Authorised official of the Signal and Telecommunication Branch at ———— Station. Taken off Last Stop Signal and restored it to normal. Cancellation counter number recorded on the instrument is ————.

———————————

Authorised official of the
Signal and Telecommunication Branch / Station Master

Note: *The authorized official for the purpose of the above said rules are Sr.DSTE/ DSTE, ADSTE, SSE/SE/JE/S, Techinician (Electrical Signals).*

5.22 CHOUGLE siding:

As a special case CHOUGLE siding exists between KALEM-SANVORDEM (KM-SVM) section on Hubli Division. The shunt key which is the authority to enter the siding, can be extracted only in "Line Closed" condition from Token less block instrument at Kalem Station and shall be handed over to the Loco Pilot of Goods Train / light engine for working into or out of siding.
Necessary detailed outlying siding working instructions shall be incorporated in KALEM station working rules.

5.23 Failure of Block instruments:-

The Block Instrument shall be considered to be interrupted and their working suspended in the following circumstances.

(i) When Call Attention cannot be obtained direct on the Block Instrument.

(ii) When signals on the Bell are received indistinctly or fail altogether.

(iii) If the Last Stop Signal fails return to 'ON' position as a train passes it.

(iv) If the Train arrival buzzer does not sound the alarm even after the complete passage of the train inside the Home signal over the Last Vehicle track Circuit and Treadle (This may be due to failure of the Last Vehicle Track Circuit/Treadle).

> ***Note :*** *Though Home Signal may go automatically to 'ON' by passage of the train, home signal lever /knob shall not be put back to Normal' position unless the whole of the train has arrived inside the Home signal. Failure to adhere to this will result in a Block Failure and the Train arrival buzzer will not sound alarm under such circumstances.*

(v) When there is reason to believe that there is contact between the Block wire and any other circuit :

(vi) If the Instrument or its battery counter is found unlocked or seal missing.

(vii) When 'Train on Line' buzzer fails to give the alarm for any reason at the receiving station, even after display of 'Train on Line' indication on the Block Instruments.

(viii) When a Material Train etc. is required to be taken into a Block Section after Line Block has been imposed.

(ix) When a train is required to enter a Block Section which is obstructed by an accident or any other reason.

(x) If the 'Train Going To' indication is not displayed on the instrument when operated or 'Train On Line' indication is not displayed on the Instrument after the train has entered the Block Section.

(xi) If the Last Stop signal lever cannot be reversed when the instrument displays 'Train Going To' indication.

(xii) If the Last Stop Signal can be taken off without displaying 'Train Going To' indication on the Block Instrument.

(xiii) 'The test mentioned in item (xii) shall be made when Station Master takes charge of the Block Instrument and entry is made in the train Signal Register'.

(xiv) After a train has entered the Block Section when the Block Instrument is not displaying 'Train On Line' indication on arrival of the train the Block Instrument will be suspended.

***Note** : In this case irregularities shall be reported as an accident.*

(xv) If the instrument can be set to 'Line Closed' condition before complete arrival of the train.

(xvi) If the 'Train Going To' indication cannot be cancelled even after proper sequence of operation.

(xvii) when Line Clear cannot be cancelled even after proper sequence of operation.

(xviii) Last Stop Signal automatically replaced to 'ON' or "Train On Line" indication appears prematurely before the train actuates the "First Vehicle Track Circuit".

(xix) Motor trolley, Motor lorry, Ladder trolly, Trolley or Lorry is required to enter a Block Section

5.24 Occasions when Station Masters themselves may resume Block Instrument Working:-

1. When a traffic train is ready to enter the Block Section after the removal of "Line Block" or expiry of "Line Block" period and when the Block Section is clear of material trains, motor trolley etc.
2. When an Accident Relief Train clears a Block Section already occupied by a Trolley or Lorry on Form T/1518 with "Line Clear Refused" endorsement.
3. When a train is ready to enter a Block Section once obstructed due to an accident but the cause of obstruction has since been removed and the Block Section is also clear of the obstruction.
4. When a train is ready to enter a Block Section after the clearance of Motor Trolley, Motor Lorry etc., allowed to proceed on the authority of "Line Clear Ticket".
5. When SM's key is lost and subsequently found.

5.25 Occasions when Block Instrument working is to be resumed by Divisional Signal and Tele-communication Engineer/Assistant Signal and Tele – communication Engineer or by any other Signal and Telecommunication Department Official authorized by name.

1. Last stop signal can be taken "OFF" when the instrument is not set to "Train Going To" condition.
2. The instrument can be set to "Line Closed" condition before complete arrival of the train.
3. "Train On Line" indication disappears before complete arrival of the train.

*****

CHAPTER VI

DOUBLE LINE BLOCK INSTRUMENT.

6.1 (a) Type of block instrument in use: S. G. E. Lock and Block Instruments are in use on all sections of double line on this Railway.

(b) They are electrically connected each other and control trains passing over the down or up Block Section between two consecutive Block Sections.

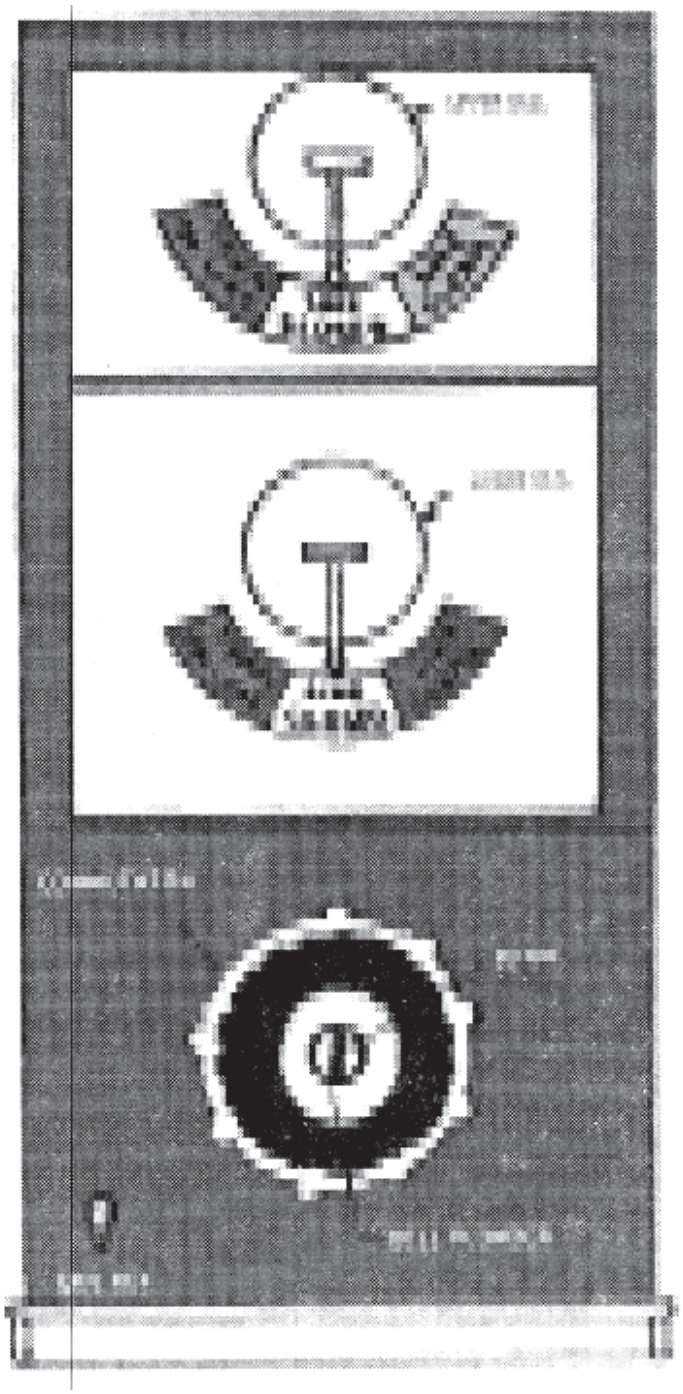
6.2 Authority to Proceed (G.R. 14.08).

(a) When the Block instruments show 'Line Clear' indication in the TGT dial, the electric lock on the Last Stop Signal will be released and it is possible to take 'OFF' the Last Stop Signal, which constitutes the "Authority to Proceed" to enter the Block Section.

(b) During the failure/suspension of Block Instrument, the Paper Line Clear Ticket shall be issued as Authority to Proceed.

(c) In line Clear condition, LSSR indicator shows No light without train passing over FVT, and the Block instrument shows "TOL" condition, the block instrument shall be treated as failed and line clear ticket shall be issued as authority to proceed**.** **(CM No .8 dated 19.06.2018)**

6.3 Diagram of S,G,E, Lock and Block Instrument :



6.4 (1) Description of S. G. E. Lock and Block Instrument

a) "Train Going To"(T. G. T) dial with indicator having three positions.

(b) "Train Coming From" (T. C. F) dial with indicator having three positions.

(c) An Operating Handle.

(d) A Bell Plunger.

(e) A single stroke bell.

(f) A telephone.

(g) Station Master's key

(h) Alarm Bell / Buzzer

(a) **The "Train Going To" Dial**:- The indications of this dial refer to trains leaving the station and the dial serves as a visual indicator of the conditions of the Block Section in advance. These indications are electrically controlled by the Station Master at the block station immediately in advance and the indications can be altered only by him. The indications of the 'Train Going To' dial correspond with those of the 'Train Coming From' dial of the corresponding instrument at the station in advance. There are three indications viz;

(i) 'Line Closed' indication which is shown on a white segment when there is no train in the Block Section and line clear has not been given for any train to enter it. The needle remains vertical on the white segment of the dial.

(ii) 'Line Clear' indication which is shown on a green segment when Line Clear has been received for a train to enter the Block Section. The needle deflects to the right and remains on the green segment of the dial.

(iii) 'Train on Line' indication which is shown on a red segment when the Block Section is occupied by a train or other obstruction and the needle deflects to the left and remains on the red segment.

(b) **The 'Train Coming From' Dial**:- The indications of this dial refer to trains approaching a station and the dial serves as a visual indicator of the conditions of the Block Section in rear. It is worked entirely by the Station Master of the station at which the instrument is located. The indications of the TCF dial at a station correspond with those of the TGT dial of the corresponding instrument at the station in the rear. These indications are the same as those described against the TGT dial.

(c) **The Operating Handle**:- The Operating Handle has three positions viz., Train on Line', Line Closed' and 'Line Clear'. The normal or middle position is 'Line Closed' with the arrow painted on the Operating Handle in vertical position. When turned to the right, it assumes the 'Line Clear' position and when turned to left, it assumes the 'Train on Line' position. When the Operating Handle at 'Y' is turned to the 'Line Clear' position, the TCF dial at 'Y' and TGT dial at 'X' will indicate 'Line Clear'. Simultaneously the lock on the Last Stop signal at 'X' will be released. When the Operating Handle is turned to the left or 'Train on Line' position, the TCF dial at 'Y' and the TGT dial at 'X' will indicate 'Train on Line'. The Operating Handle is free to be turned from 'Line Closed' to either 'Line Clear' or 'Train on Line', 'Train on Line' to 'Line Closed' and also from 'Line Clear' to 'Line Closed' or to 'Train on Line' position. However, when turned from "Line Clear" to "Train On Line" position the Handle gets locked in this position until the train has arrived, after actuating the Last Vehicle Track circuit and Home signal lever/knob has been put back to normal.

(d) **Bell Plunger:-** The bell plunger is used to give bell signals to the station at the other end of the Block Section. Each time the plunger is pressed the bell or gong of the corresponding instrument at the other end of the Block Section will give a single beat. The bell plunger in its normal position locks the Operating Handle in any of its three positions. The plunger should, therefore, be pressed before the Handle is turned.

(e) **Bell:-** The bell is intended to receive bell signals from the station at the other end of the Block Section. Each time the bell plunger is pressed at the adjacent station the bell will respond once.

(f) **Telephone:-** A telephone is provided along with each instrument for communication with the station at the other end of the Block Section.

(g) **Station Master's Key:-** This key is provided on the instrument, when locked prevents operation of the plunger and unauthorized operation of the instrument.

(h) **Alarm bell/buzzer:-** When a train passes the Last Stop Signal actuating the first Vehicle Track a bell / buzzer sounds alerting the Station Master to replace the Last Stop Signal lever/knob to normal.

(2) Indoor Apparatus.

(a) Electric Lock on the Last Stop Signal.

An electric lock, provided on the Last Stop Signal lever to lock the lever in the normal position is released only when 'Line Clear' has been obtained from the Block Station in advance.

(b) **Last stop signal lever/knob control key (Shunt key)**.

A mechanical/electrical key lock is also provided for the Last Stop Signal lever/knob. The key, when extracted locks the lever in the normal position, in case of panel/RRI this key prevents taking of 'OFF' Last Stop Signal and the key is used for shunt movements past the Last Stop Signal. The station code and the direction, Up or, Down to which it applies are inscribed on the respective keys.

(c) LSSR Indication:-

i) The LSSR Indicator is an indicator provided near the LSS on the CCIP/VDU (Control cum Indication Panel/Visual Display Unit) to indicate whether the LSSR relay (which controls the LSS) is in picked up condition or dropped condition. The LSSR indicator will be normally lit indicating that LSSR is in energized condition and not light when LSSR drops.

ii) When the LSSR indicator is not lit in **LINE CLOSED** condition it indicates that the FVT may have been disturbed due to some reason. The dropping of LSSR (Indication not lit) will cause Block failure for subsequent trains. To avoid block failure, the procedure as given in Note under para 6.6 shall be followed.

iii) When the Block instrument is in **LINE CLEAR** condition, normally the LSSR indication disappears only when the first vehicle track circuit (FVT) actuated by the train, as train passing over it and at the same time the block instrument needle will go 'TOL' condition. LSSR indication reappears once the train clears the FVT and subsequent normalization of LSS knob. (**CM No.8 dated 19.06.2018)**

***Note**: Where there is no provision of Mechanical key Lock for the 'Last Stop Signal' lever, the Last Stop Signal has to be passed for shunting purposes on a written authority in the prescribed form (T/806). The key should be extracted for shunting purposes only when the instrument shows TOL indication and the instrument should be revealing only after the shunt key is restored.*

(3) Home Signal Lever/Knob Contacts

(a) The electrical contacts on the Home signal lever/knob are necessary for the release of the lock on the Operating Handle after the arrival of the train.

(b) The Home signal lever/knob which has been operated for the reception of a train should be put back to normal only after the train has passed the Last Vehicle Track Circuit. The replacement of the Home signal lever/ knob to normal together with the operation of the Last Vehicle Track circuit releases the lock on the Operating Handle.

***Note**: The Home signal lever/knob should be pulled/turned for the reception of a train even if the signal has failed. However while reversing the lever/knob, if the defective signal assumes 'off" aspect it shall not be reversed which may leads to failure of Block Instrument .*

(2) Out Door Apparatus

(a) **First Vehicle Track Circuit :** This is fixed slightly in advance of Last Stop Signal. As soon as the engine of first vehicle of a train Traveling away from the station passes over the first Vehicle Track Circuit, the signal is replaced to 'ON' automatically.

(b) **Electric Signal Reverser on Last Stop signal :** This is controlled by the First Vehicle Track circuit and replaces the Last Stop Signal to 'ON' at the Station from where the train is started, immediately after the engine or first vehicle of the train passes over the First Vehicle Track Circuit.

(c) **Last Vehicle Track Circuit :** This is fixed at an adequate distance in advance of the First Stop signal. When the last vehicle of the train arriving into the station passes over the circuit it permits the Operating Handle to be restored to normal, i.e., from 'Train on line' to 'Line Closed' position after the Home signal lever/knob has been replaced to its normal position.

6.5 Testing before taking over charge

(i) The Station Master shall when taking over charge of the block instrument, test the instrument by attempting to take off the last stop signal without obtaining line clear. If the signal cannot be taken 'off' the instrument shall be considered to be in order. A record of this shall be made then and there in that Train Signal Register.

(ii) If the signal can be taken 'off' block working shall be suspended immediately and advised all concerned accordingly.

6.6 Precautions before asking 'Is Line Clear' :-

(i) The "Train Going To" dial shows line closed position.

(ii) The Last Stop Signal referring to the train is at 'ON'

(iii) Ensure that LSSR indicator available in the CCIP/VDU near LSS is lit. **(CM No.8 dated 19.06.2018)**

(iv) All the entries relating to the previous train dispatched are complete on the "Train Going To" side of the Train Signal Register.

(v) A private number has been obtained for the train.

(vi) No line clear has been received for any other train by any other means.

Note: Procedure to be followed when LSSR indicator is not lit in the CCIP/VDU with the Block Instrument in Line Closed condition

6.7 Precaution before giving 'Line Clear':-

(i) The "Train Coming From" dial shows line closed position.
(ii) The Reception signal referring to the train is at 'ON'
(iii) The operating handle is in Line Closed position
(iv) All the entries relating to the previous train received are complete on the "Train Coming From" side of the Train Signal Register.
(v) A private number has been given for the train.
(vi) No line clear has been given for any other train by any other means.

6.8 Granting Line Clear

(i) After observing the precautions before giving line clear if 'Y' is ready to receive the train 'Y' shall hold his bell plunger on the last beat and turn his handle to Line Clear position. He will then release the bell plunger to normal.
(ii) The action of 'Y' turning his Operating Handle to Line Clear position on his instrument will bring about the following:-
  (a) Line Clear will be indicated on the 'Train Coming From' dial of "Y's" instrument.
  (b) Line Clear will be indicated on the 'Train Going To' dial of "X's" instrument

6.9 'Train Entering Block Section' Signal.

(i) As soon as the train passes the last stop signal at 'X' and enters 'X' – 'Y' block section it actuates First Vehicle Track circuit controlling the Last Stop Signal and results the following changes.
  (a) Last Stop Signal will go back to 'ON'
  (b) 'Train on Line' Buzzer actuates automatically (if any) and 'X' should give "Train Entering Block Section" signal.
  (c) When so acknowledged, 'Y' keeping the plunger pressed operates handle to "Train on Line". 'The Train Coming' dial will then indicate "Train On Line" and the Block Section shall deemed to be blocked against any other train.
  (d) The needle in 'Train Going To' dial 'X' instrument and needle in 'Train Coming From' at 'Y' instument moves to train on line segment automatically.
  (e) An alarm bell starts sounding at 'X' until 'X' replaces the Last Stop Signal lever to its normal position.
  (f) Continuous buzzer starts sounding at 'Y' until the Operatin Handle is turned to 'Train On Line'.
(ii) 'X' will transmit the "Train Entering Block" Section signal only after the Last Stop Signal returns to 'on' and the train has entered the 'X' - 'Y' Block Section. 'Y' will acknowledge the signal and

while doing so he shall press the bell plunger on the last beat and turned his Operating Handle to the Train On Line position.

6.10 Precautions before closing the block section.

(1) The train for which "Line Clear" has been granted should have arrived complete.

(2) All the reception signals taken "OFF" for the train should have been put back to 'ON'.

6.11 Condition for closing the block section (GR 14.10).

(i) After the complete train has passed inside Last Vehicle Track Circuit at Y, Y will replace the Home Signal lever to normal position. The replacement of signal lever and the operation of the track circuit will release the lock on the Operating Handle at 'Y'. 'Y' will then give 'Train out of Block Section' signal and keep the bell plunger pressed on the last beat and turned the Operating Handle to Line Closed position. The Train Coming From dial at 'Y' and the Train Going Dial at 'X' will then display 'LINE CLOSED' indication. 'X' will then acknowledge the "Train Out of Block Section" signal.

(ii) Before 'Y' gives the "Train out of Block Section" or "Obstruction Removal" signal to 'X' he shall satisfy himself that the train has arrived complete by ensuring it as per the prescribed procedure. He shall also ensure that all the reception signal has been put back to 'ON'.

(a) Sending a Train from One Block Station to another.

Sending Station 'X'	**Receiving Station 'Y'**
1) Call attention signal and on getting acknowledgement attend telephone	2) Acknowledge attention signal attend Telephone and give out station name.
3) After ensuring the correctness of the station, from which Line Clear is required give number and description of the train for which Line Clear is required and ask 'Is Line Clear'.	4) After ensuring the correctness of the station, to which Line Clear is to be given, repeat the number and description of the train and if the conditions for granting Line Clear are complete, give PN for the train.
(5) Repeat the Private Number	
(6) Give 'Call Attention'.	(7) Acknowledge Call Attention.

8) Ask 'Is Line Clear' by giving two bell beats.	(9) Acknowledge with the two bell beats and hold the Bell Plunger pressed on the last beat and turn the Operating Handle to 'Line Clear' this will change the indication of the 'Train Coming From' dial at Y to 'Line Clear'
(10)At X the indication of the 'Train Going to' dial will change to 'Line Clear'	11) When the 'Train Going To' dial assumes the 'Line Clear' position, Take off the Last Stop Signal and allow the train to proceed.
(12)When the train passes the Last Stop Signal and operates the First Vehicle Track Circuit, Last Stop Signal will go back to 'ON' and the needle in TGT dial moves to train on line position automatically. As soon as the train passes the Last Stop Signal, the Last Stop Signal lever should be put back to normal to stop the alarm sound and then give the 'Train Entering Block Section signal.	(13) (a) In the TCF dial needle automatically moves to 'Train On Line' and continuous buzzer starts sounding. (b) Acknowledge the 'Train Entering Block Section' signal and keeping the plunger pressed on the last beat, turn the Operating Handle to the 'Train on Line' position to stop the buzzer sound. (c) The operating handle will get locked in 'Train On Line' position.
(14)The 'Train Going to Dial' assumes 'Train On Line'	(15) (a) Reverse the Home signal lever/ knob for the reception of the train. (b) After ensuring that the train has arrived complete inside the Last Vehicle Track circuit, put back the Home signal lever/knob to normal. (c) The restoration of the signal lever lever/knob and the train clearing the Track Circuit, releases the lock on the Operating Handle.
(17) As soon as the TGT dial changes to 'Line Closed' position, give 'Train Out of Block Section' acknowledgement.	(16) Give 'Train Out of Block Section' signal. Keeping the Bell plunger pressed on the last beat, turn the Operating Handle to 'Line Closed'. The TCF dial will now change to 'Line Closed' position.

(b) To Cancel line clear :-

Sending Station 'X'	Receiving Station 'Y'
(1) Signal lever relating to the block section is in the normal position	(2) Signal lever relating to the block section is in the normal position
3) Give "Call attention" signal and on getting acknowledgement attend telephone	4) Acknowledge "Call Attention Signal" attend Telephone and give out station name.
5) Inform intention to cancel line clear with reason.	6) Give consent
7) Send Cancellation Signal	8) Turn the Operating Handle from Line Clear to Line Closed position. Acknowledge the Cancellation signal. 'Train Coming From' dial shows 'Line Closed' position.
9) 'Train Going To' dial shows Line Closed position. Acknowledge the cancellation signal again.	

(c) Procedure for Block forward

When 'X' requires to shunt a train into the 'X-Y' Block Section the procedure given below shall be followed.

Sending Station 'X'	Receiving Station 'Y'
1. Insert Station Master's key and unlock the instrument. Give Call Attention signal.	2. Insert Station Master's key and unlock the instrument. Acknowledge Call Attention signal.
3. Inform the intention to perform black forward with the details of train and duration and ask 'Is Line Clear' for block forward	4. Repeat the train particulars duration of block forward and if prepared to allow block forward give Line Clear and communicate a Private Number.
5. Repeat the Private Number and give 'Is Line Clear' bell signal.	6. Acknowledge the 'Is Line Clear' bell signal and operate the handle by pressing the plunger to 'Train On Line' position, then "Y's" TCF dial shows train on line condition.

7. (a) The TGT dial of "X" shows 'Train On Line' (b) Ensure TGT – TOLcondition . (c) Extract LSS lever/knob control key. (d) Handover the key with T/806 to Loco Pilot. (e) After the train has entered the block section send train entering block section signal.	8. Acknowledge the train entering Block Section signal.
9. On completion of shunting, ensure that the train has arrived complete and the 'X' – 'Y' section is clear. (a) Recover the LSS key from the Loco Pilot and insert it in the LSS lever/EKT. (b) Cancel T/806 and return it to Loco Pilot. (c) Inform the completion of block forward to SM/Y on block phone and then give cancellation signal to 'Y'.	10. 'Y' shall turn his operating handle to the "Line Closed" position and acknowledge the canceling signal. "Y's" TCF dial changes to 'Line Closed' position.
11. Ensure Line Closed position in TGT dial and acknowledge cancellation signal.	

Note: *(i) Last Stop Signal shall not be cleared to control this movement*

(ii) Loco Pilot can pass the Last stop signal at 'ON' on the authority of Form T/806 + private number.

(iii) Whenever Material train is permitted on block forward SM shall issue a separate memo specifying the time by which the Material train shall return to the Station get the counter signature of the Guard and hand them over to Loco Pilot. Loco Pilot shall sign both the copies and return the duplicate to the Station Master. .

(iv) Any train entering the Block Section on Block Forward shall return to the same station from which it was started.

(v) On completion of shunting Station Master shall cancel T/806 entering time and date and return it to the Loco Pilot.

(vi) During failure of Block Instruments serially numbered messages confirmed by a Private Number shall be exchanged between 'X' and 'Y' before commencement of shunting and on completion of shunting to ensure that while block forward is allowed no other train is allowed in to the Block Section in advance on Line Clear by mistake.

(d) Procedure for Block Back

When 'X' requires to shunt a train into the 'Y – X' Block Section the procedure given below shall be followed.

Sending Station 'X'	Receiving Station 'Y'
1. Insert Station Master's key and unlock the instrument. Give Call Attention signal	2. Insert Station Master's key and unlock the instrument. Acknowledge Call Attention signal.
3. Inform the intention to perform black back on 'Y' – 'X' Block Section and give the details of train and duration of block back and ask SM 'Y' to apply 'Is Line Clear' for block back.	4. Repeat the train particulars duration of block back and if prepared to allow block back in to 'Y' – 'X' block section ask 'Is Line Clear' for block back.
5. Confirm the 'Is Line Clear' is for block back and communicate a Private Number.	6. Repeat the Private Number and send 'Is Line Clear' signal.
7. Acknowledge the 'Is Line Clear' bell signal and operate the handle by pressing the plunger to "Train On Line" position, then "X's" TCF dial shows "Train On Line" condition.	8. The TGT dial of "Y" shows Train On Line
9. (a) Prepare T/806 in duplicate entering the private number and issue it to Loco Pilot. (b) After the train has entered the rear Block Section give Call Attention bell and intimate the SM/Y over block telephone. 'Y's TGT dial needle changes to Train On Line position.	10. "Y's" TGT dial needle changes to Train On Line position. 11. Acknowledge attention signal and note down receive the information of train entering the Block Section over telephone.
12. On completion of shunting, ensure that the train has arrived complete and the 'Y' – 'X' section is clear. (a) Collect and Cancel T/806 and return it to Loco Pilot. (b) Inform the completion of block back to SM/Y on block phone .	13. Acknowledge attention bell signal and attend block phone.

14. Give cancellation bell signal and turn the Operating Handle to 'Line Closed' position. TCF dial needle changes to' Line Closed' position.	15. TGT dial needle changes to 'Line Closed' position. Ensure the above then acknowledge the cancellation bell code.

Note:*(i) The Loco Pilot shall sign both the copies of T/806 retain the original and return the duplicate to the Station Master.*

(ii) Any train entering the block section on Block Back shall return to the same station from which it was started except in case of motor trolley occupied by an officer and proceeding in an emergency..

(iii) Outer and Home shall not be cleared for Block Back movements.

(iv) Whenever Material train is permitted on Block Back SM shall issue a separate memo specifying the time by which the Material train shall return to the Station get the counter signature of the Guard and hand them over to Loco Pilot. Loco Pilot shall sign both the copies and return the duplicate to the Station Master.

(v) During failure of Block Instruments serially numbered messages confirmed by a Private Number shall be exchanged between 'X' and 'Y' before commencement of shunting and on completion of shunting to ensure that while block back is done no other train is allowed in to the Block Section in rear by mistake.

(vi) During Block Instrument failures when T/806 with Private Number is issued as authority for block back, the Station Master shall mention the failure of Block Instrument in T/806.

(e) Procedure for shunting within station section:-

All shunt movements within station section shall be authorized as per procedure detailed under SR 8.15 (i)

(f) Procedure for testing the Block Instrument

Authorised S & T department official at 'X'	**Station Master 'Y'**
1. Insert Station Master Key and give Testing Signal (16 bell beats)	2. Insert Station Master Key and Acknowledge Testing Signal (16 bell beats)
3. Give 'Is Line Clear' signal	4. Acknowledge 'Is Line Clear' signal and give 'Line Clear' by turning the operating handle to 'Line Clear position'. 'Train Coming From' dial shows Line Clear.

5. 'Train Going To' dial shows Line Clear. Operate the Last Stop Signal lever/knob to see that the signal can be taken 'off'. Put back the Last Signal lever to normal. Give cancellation signal.	6. Acknowledge cancellation signal and turn the operating handle to Line Closed position. The 'Train Coming From' dial shows Line Closed position.
7. 'Train Going To' dial shows Line Closed position. Acknowledge the cancellation signal. Attempt to take off the Last Stop Signal and satisfy that it cannot be taken off.	

The above operation shall be repeated by the Station Master at 'Y' begining with 16 beats.

Testing signals shall then be exchanged again between the Signal and Telecommunication Official at 'X' and the Station Master at 'Y' in token of the operation having been completed.

Whenever testing signals are exchanged, the Station Master at one end of the Block Section and the Signal and Telecommunication Official or other authorized person at the other end shall record in the train signal register.

Time: ——————

Exchanged testing signal with the Station Master ——————— Signal and telecommunication official or other authorized person at ————— station.

6.13 Failure of Block Instruments.(S.G.E)

The Block Instruments shall be considered to have failed and block working suspended in the following circumstances—

(a) When the indications on the 'Train Going To' dial at 'X' do not correspond with the indications of the 'Train Coming From' dial or the position of Operating Handle at 'Y' .

(b) When the indications on the 'Train Coming From' dial do not correspond to the position of the Operating Handle.

(c) Whenever there is reason to believe that there is contact between the Block and any other circuit.

(d) When a train arrives at a station without 'Line Clear''

Note: *In this case the irregularity shall be reported as an accident unless the Loco Pilot is in possession of an 'Authority to Proceed Without Line Clear'.*

(e) If the Block Instrument or its battery counter is found without seals or locks.

(f) Whenever Single Line working is introduced.

(g) When the dial indicator glass is broken.

(h) If the Last Stop Signal lever can be reversed with no 'Line Clear' indication on the 'Train Going To' dial.

(i) If the Operating Handle can be restored from 'Train On Line' position to 'Line Closed' position before complete arrival of the train.

(j) Where the Operating Handle cannot be turned to "Train On Line' or 'Line Clear' or to 'Line Closed' in the process of granting or cancelling Line Clear.

(k) Where signals on the bell are not received distinctly or fail altogether.

(l) When a train for which Line Clear has been obtained and which has operated the First Vehicle Track circuit, changing the dial to Train On Line is backed for any reason in rear of the Last Stop Signal.

(m) Whenever a material train etc., is required to be taken into the section after line block has been imposed.

(n) When the Last Stop Signal does not go back to 'ON' even after the train has entered the Block Section and the Operating Handle at the other end has been turned to 'Train On Line' position.

(o) When a Motor trolley, Motor Lorry, Ladder trolley is required to enter the Block Section.

(p) If it is known that the instrument is defective in any way not specified above.

(CM No 12 dated 10.03.2021)

6.14 Occasion for Suspension of one dial of the Block Instrument (SGE)

(i) When the indication on the TGT dial at 'X' do not correspond with the indication of the TCF dial or the position of the operating handle at 'Y'.

(ii) When a train arrives at a station without Line Clear given for it.

(iii) If the Last Stop Signal can be taken 'OFF' without 'Line Clear' indication on the TGT dial.

(iv) If the Operating Handle which was turned from 'Line Clear' to 'Train On Line' position can be restored to 'Line Closed' before complete arrival of the train.

(v) When a train for which 'Line Clear' has been obtained and which has actuated the FVT changing the dial to 'Train On Line' is backed for any reason in rear of 'Last Stop Signal'.

(vi) Whenever a material train etc., is required to be taken in to the section after line block has been imposed.

(vii) If the Last Stop Signal fails to assumes 'ON' position after the train has entered the Block Section and Operating Handle at the other end is turned to 'Train On Line' position. **(CM No 12 dated 10.03.2021)**

6.15 Restoration of Block Instruments by Station Masters themselves.

(a) Working with Block Instruments which is suspended shall not be resumed until the instruments have been tested by the SE/JE/Signals except in the following cases where the Station Masters themselves may resume without such test

(i) In the case of Double Line, when the Block Instrument is suspended due to the introduction of Single Line working, block working may be resumed when Double Line working is restored.

(ii). When a train is ready to enter a Block Section once obstructed due to an accident but the cause of obstruction has since been removed and the Block Section is also clear of the obstruction.

(iii). When a train is ready to enter a Block Section after the clearance of Motor Trolley, Motor Lorry etc., allowed to proceed on the authority of "Line Clear Ticket**". (CM No. 12 dated 10.03.2021)**

(iv) When SM's key is lost and subsequently found.

6.16 Block forward and block back at stations provided with modified S.G.E. Lock and block instruments

1. Block Forward:-

(a) When 'X' requires to shunt a train into the 'X' – 'Y' block section i.e., on the line in advance of the Last Stop signal in the direction of 'Y', he shall intimate the fact by Telephone to 'Y' and give 'Y' the signal 'Is Line Clear'. If 'Y' is prepared to allow the block section to be occupied, he shall turn his Operating handle to the 'Train On Line' position and acknowledge the 'Is Line Clear' signal by repeating it. This will cause 'Train On Line' indication to appear on the 'Train Coming From' dial at 'Y' and 'Train Going To' dial at 'X' .This operation is called 'Block Forward'. Before turning the Operating Handle to 'Train On Line ' position , Station Master 'Y' shall say 'Line Is Clear' and communicate a Private Number.

(b) With lever of Last Stop signal in its normal position, 'X' shall the extract the Shunt Key from the lock and give it to the Loco Pilot of the train along with a "Shunting Order" From No.T/806. The Station Master 'X' shall prepare this form in duplicate and obtain the signature of the Loco Pilot on both the copies. The Loco Pilot shall retain the original and return the duplicate to the Station Master. In the case of a material train working on line, he shall prepare a memo also in duplicate specifying the time by which the Material train shall return to the station 'X' get the countersignature of the Guard and hand them over to the Loco Pilot . The Loco Pilot shall sign both the copies and return the duplicate to the Station Master.

(c) Any train entering the Block Section on "Block Forward" shall return to the same station from which it was started.

(d) The Shunt Key together with "Shunting Order" Form No.T/806 authorizes the Loco Pilot to pass the Last Stop Signal at 'X' at danger and shunt into the Block Section and return on the same line shunting in advance of the Last Stop Signal may then be performed.

(e) When such shunting is over, after satisfying himself that the train has arrived complete and the 'X' 'Y' block section is again clear, 'X' shall collect the Shunt Key from the Loco Pilot and insert it in the lock of the Last Stop signal lever. He shall also get back the copy of "Shunting Order" Form No.T/806 from the Loco Pilot, cancel it marking "time" and "date" and return it to the Loco Pilot. He shall, then, intimate the completion of "Block Forward" to Station Master 'Y' on the Block

Telephone and then give the "Cancelling" signal to 'Y' and 'Y' shall turn his Operating Handle to the "Line Closed" position, and acknowledge the signal. This will cause the "Line Closed" indication to be displayed on the "Train Coming From" dial at 'Y' and "Train Going To" dial at 'X'.

(f) All entries in the Train Signal Register shall be made in Red ink.

(g) During failure of the block Instrument, serially numbered messages confirmed by Private numbers shall be exchanged between 'X' and 'Y' before commencement of shunting and after completion of shunting to ensure that while "Block Forward" is allowed, no other train is allowed into the Block Section in advance on "Line Clear" by mistake.

2. Block Back –

(a) When 'X' requires to shunt a train into the 'Y' – 'X' block section, i.e. on the line in rear of the Home signal in Two Aspect signaling territory or in rear of the outermost facing points or Block Section Limit Board in Multiple Aspect signaling territory in the direction of 'Y' he shall intimate the fact by Telephone to 'Y' and ask the latter to apply for "Line Clear". If 'Y' is prepared to allow the Block Section to be occupied, he shall give the signal "Is Line Clear". 'X' shall then turn his Operating Handle to the "Train on Line" position. This will cause "Train on Line" indication to be displayed on the "Train Coming From" dial at 'X' and on the "Train Going To" dial at 'Y'. 'X' shall then acknowledge the "Is Line Clear" signal, he shall say "Line is Clear" and communicate a Private Number to Station Master 'Y'.

(b) The Station Master 'X' must then issue to the Loco Pilot a "Shunting Order" Form No.T/806 prepared in duplicate. The Loco Pilot shall sign both the copies, retain the original and return the duplicate to the Station Master. "Shunting Order" Form No.T/806 authorizes the Loco Pilot to shunt into the Block Section in rear of Home signal in two aspect signaling territory or in rear of the outermost facing points or Block Section Limit Board in Multiple Aspect signaling territory. In the case of material train working on line, the Station Master shall prepare a memo also in duplicate specifying the time by which the material train shall return to Station 'X', get the countersignature of the Guard and hand them over to

the Loco Pilot. The Loco Pilot shall sign both the copies and return the duplicate to the Station Master.

(c) Any train entering the block section on "Block Back" shall return to the same station from which it was started except in the case of a Motor Trolly occupied by an Officer and proceeding in an emergency.

(d) When shunting is over, after satisfying himself that the train has arrived complete and the 'Y-'X' Block Section is again clear, 'X' shall intimate completion of "Block Back" to 'Y' over the Telephone, turn his Operating Handle to the "Line Closed" position. This will cause Line Closed" indication to be displayed on the "Train Going To" dial –'Y' and "Train Coming From" dial at 'X'. 'X' shall then give the "Cancellation" signal. When 'Y' sees on the "Train Going To" dial "Line Closed", he shall acknowledge the signal by repeating it. Station Master 'X' shall get back the copy of "Shunting Order" Form No.T.806 from the Loco Pilot cancel it marking "Time" and "Date" and return it to the Loco Pilot.

Note *–The Outer or Home signal shall not be taken "Off" for the train for which the section has been "Block Back" as the movement of the train in such cases is only a shunt movement. Shunt signals, if any, shall be taken "Off".*

(e) All entries in the Train Signal Register shall be made in red ink.

(f) During failure of the Block Instrument, serially numbered messages confirmed by Private Numbers shall be exchanged between stations 'X' and 'Y' before commencement of shunting as well as after completion of shunting operations to ensure that while "Block Back" is done, no other train is allowed to enter into the Block Section in rear by mistake.

*****

CHAPTER VII

WORKING OF TRAINS AT STATIONS PROVIDED WITH BLOCK PROVING AXLE COUNTERS (BPAC)

1. GENERAL:

Block proving Axle Counters are provided in advance of UP & DOWN Home signals and in advance of Last Stop Signals of the station to monitor the status of the Block Section. Block proving axle counters are used for clearance of Block pertaining to that Block Section. An Axle counter indication- Cum –Reset Box is provided at the SM's office or at a place where the Block Instruments are provided, one each of each Block Section to indicate the clearance of the concerned block section and to facilitate Reset in case of Axle Counter failure.

2. DESCRIPTION OF THE INDICATIONS/FEATURES ON THE AXLE COUNTER INDICATION-CUM-RESET BOX:

a) FEATURES:

1. SM's key for authoring reset operations.
2. Reset push Button for resetting Axle Counter.
3. Counter for recording Reset Operations.

b) INDICATIONS:

1 Green Light (Large)	Clear	Indicate that the Block Section is clear
2 Red Light (Large)	Occupied/Failed	Indication that the Block Section is occupied/the BPAC has failed.
3 Green Light (Small)	Preparatory Reset	Indicate that the Axle counter resetting operation at both ends is completed.
4 Yellow Light (Small)	Power 'ON'	Indicate the availability of power supply.

3. CUSTUDY OF KEYS:

The SMs key of Axle counter indication –cum reset boxes shall be kept in a separate Glass Fronted case and the key of the glass fronted shall be under personal custody of the SM on duty.

4. RESET BUTTON

Reset button is provided in the Reset Box so that whenever the Axle counter shows Failed [Red Light-Large] conditions; SM on duty can reset the same to normal after ensuring that the Blocks Section is Clear.

5. COUNTERS FOR RECORDING RESET OPERATION:

Each and every operation of the reset button is counted on a digital counter and shall be recorded in a separate register indicating the movement before operation of the reset button as per the following format

Sl. no.	Date & Time	Axle Counter Failed After The Arrival Of Train No.	Private Number Given to the Station In Rear/ advance	Private Number Received from the station in rear/ advance	Counter reading before resetting	Counter Reading After resetting	Private Number for closing block section from receiving end	Private Number for closing block section from despatch end
1	2	3	4	5	6	7	8	9

Train no. dealt after resetting	Private no. given after getting 'Clear' indication	Private No. obtained after\ getting 'Clear' indication	Signature of SM on duty
10	11	12	13

6. INDICATIONS:

Indications are provided in the Axle Counter Indication-Cum-Reset Box to show the status of the concerned Block Section. The '**Clear**' [Green Light Large] indication on the concerned Axle counter indication Box shall be observed by the SM on duty before obtaining/ granting line clear on the relevant Block section. The Axle counter indication- Cum- Reset box displays '**Clear**' [Green Light-Large] indication when the Block Section is clear of trains/vehicles and 'occupied' [Red Light –Large] indication when the Block section is **occupied** or Axle counter pertaining to that section is failed.

7. COMPLETE ARRIVAL OF TRAINS:

In case the axle counter shows '**occupied**' [Red Light Large] indication with an audible warning even after the complete arrival of the train, no effort shall be made forcibly to bring the Block instrument to 'Line Closed' conditions. The buzzer shall be acknowledged by normalizing the Home signal knob. Before initiating action to reset the Axle Counter and permitting the next train into the Block Section, the SM shall comply with the provision of GR 14.10(1) & (2) and satisfy that the train, for which line clear is given, has arrived complete. Once the complete arrival of the train is verified action can be initiated to reset the axle counter at both ends of the affected section as per the procedure given under Para 8.

8. RESETTING PROCEDURE OF AXLE COUNTER:

After ensuring that the Block Section is clear the Axle Counter shall be reset. The resetting operation shall be resorted to only when there is "**occupied**" (Red light-Large) indication even though, the Block Section is clear. The following procedure shall be adopted after advising the S&T staff concerned about the failure of the axle counter.

8.1 The SM on duty at the receiving station at which the train has arrived complete shall give a Private Number to the SM at the other end (Dispatch Station) confirming the complete arrival of the train.

8.2 The SM on duty at the dispatch end shall acknowledge the same by communicating a Private Number.

8.3 The key of the reset box shall then be inserted in the reset box turned and pressed along with pressing of reset push button by both SMs independently.

8.4 The reset operation pertaining to Block Section is carried out independently at both ends.

8.5 'Preparatory Reset' (Green Light- small) indications to indicate that the Axle Counter resetting operations is complete will appear on the Axle Counter indication-cum-reset Box at both ends.

8.6 The counter provided for recording resetting operation will register next higher number. At both the ends necessary entries shall be made in the Block Proving Axle Counter Resetting Register maintained for this purpose by SM on duty at both the ends.

8.7 When the preparatory indication appears the receiving end Station Master should advise the Station Master at the other end that the block section is being closed.

8.8 The receiving end Station Master shall then close the block section normalizing

the block instrument and advise the same to the other end SM under the exchange of PNs.

With the preparatory reset indication available at both stations the line clear for the next train can be obtained through the block instrument and the LSS can be taken off and the train dispatched normally.

On clearance of the first train on preparatory reset at the receiving station the Axle Counter will show "Clear" indication at both stations. The receiving end Station Master shall then advise the Station Master at the other end, the availability of clear indication of the Axle Counter under the exchange of Private Numbers, Subsequent trains can be normally dealt.

On arrival of the first train on preparatory reset if the axle counters shows clear indication at both stations all subsequent trains can be normally dealt. However, if again the axle counter does not show "Clear" indication but preparatory indication continues, the block working shall be suspended and S&T officials of the section shall be advised to attend the failure.

The entries in TSR shall be made in red ink at both stations whenever "line clear" has been obtained with the axle counter showing "preparatory reset indication".

No attempt shall be made to close the block section on arrival of the train on preparatory reset if axle counter is still showing preparatory reset indication instead of "Clear" indication.

9. <u>FAILURE OF AXLE COUNTER:</u>

If axle counter does not show 'clear'[clear Light –Large] indication after clearance of the train on 'Preparatory Reset' it shall be treated as a treated as a failure of Axle counter. The block instrument working of the concerned Block Section shall remain suspended till S&T staff rectifies the same. During this period trains shall be dealt as per 14.13 and closing of Block section done as per 14.10[1][2] & (3) and Subsidiary Rules there under.

10. <u>WORKING OF TROLLEY/ MOTOR TROLLEY/LORRY ETC.</u>

"Motor Trolleys/Trolley/Lorry etc shall be worked as per the rules in force. After the Motor trolley has cleared the section, the SM on duty shall resume block working for subsequent trains. However in case the axle counter does not show clear indication after arrival of motor trolley at the adjacent station resetting of the axle counter shall be done as per Para 8 and train operations resumed".

11. <u>SHUNTING:</u>

Shunting shall be done as per the instrument contained in the Block working manual. However, after a Block Forward or Block Back operations is completed before bringing the Block Instrument to 'Line Closed' position, it shall be ensured that the axle counter shows 'clear' [Green Light-Large] indication.

Blank

CHAPTER VIII

INTERMEDIATE BLOCK POST

8.1 Description:-GR. 1.02 (31&32)

i) "Intermediate Block Post" means a class 'C' Station on a double line, remotely controlled from the block station in rear.

ii) "Intermediate Block Signalling" means an arrangement of signalling on double line in which a long block section is split into two portions by providing an intermediate Block Post.

iii) The complement of signals at an "Intermediate Block Post" is DISTANT and HOME- IN MULTIPLE ASPECT SIGNALLING TERRITORY.

iv) The Distant signal shall have two aspects "CAUTION" and "PROCEED" and 'P' marker plate will be fixed on it.

v) The Home signal at an Intermediate Block Post shall be provided with 'IB' marker and signal post telephone and called as "INTERMEDIATE BLOCK STOP SIGNAL".

vi) The Home signal shall have two aspects "STOP" and PROCCED''.

vii) The Home signal is remotely controlled from the Block Station in rear.

viii) The track shall be track circuited or provided with Axle Counters between the LSS of the station in rear and at least 400 metres beyond the Intermediate Block Stop Signal (Home).

ix) This track circuit / Axle Counter shall be connected to a track indicator available at the Block Station in rear, where the LSS is being operated.

x) The track indicator would show 'WHITE', when the Track is clear upto 400 mtrs beyond the IBS signal and 'RED',when Track is occupied or when the Track circuit/ Axle Counter is failed.

xi) LSS shall not be taken"OFF" unless the track indicator shows WHITE.

xii) The entry of trains into the block section Y-Z is controlled by the Intermediate Block Stop Signal which shall be interlocked with the block instruments at Station 'X' and 'Z'.

xiii) The Intermediate Block Stop Signal shall not be taken "OFF" for a train unless Line Clear has been obtained at the block station 'X' from the block station in advance 'Z' through the block instrument.

8.2 WORKING OF TRAINS:

i) A train shall not be started from the block station in rear (X) unless the track indicator at station 'X' shows "WHITE". For the first train line clear also has to be obtained through the block instrument from the Station Master at Station 'Z'. Individual Private Number shall be obtained from the Station Master in advance for the block section between Station in rear & IBP and IBP & Station in advance.

ii) Both the IBS signal and the LSS shall be taken "OFF" to despatch the said first train.

iii) As soon as the train passes the LSS, the track indicator shows "RED" and continues to show "RED" until the entire train passes 400 meters beyond the Intermediate Block Stop signal. A buzzer would sound when the train passes the LSS and the Station Master on duty at other end shall press the button to stop the buzzer.

iv) The second train from the block station in rear 'X' shall not be started by taking "OFF" the LSS unless the track indicator shows "WHITE".

v) The Intermediate Block Stop signal shall not be taken "OFF" for the second train unless the block section beyond the Intermediate Block Stop Signal is clear of trains and Line Clear has been obtained through the block instrument from the station 'Z'.

vi) Similarly subsequent trains shall be started one behind the other as stated above.

vii) Not more than two trains shall be available between the block stations 'X' and 'Z' at any given point of time.

8.3 FAILURE OF INTERMEDIATE BLOCK STOP SIGNAL:

When an Intermediate Block Stop Signal is at "ON" the Loco Pilot shall stop his train in rear of it and contact the SM in rear through the telephone provided on the signal post. If the Intermediate Block Stop signal is at "ON" on account of the occupation of the proceeding train in the block section Y-Z the SM shall intimate the same to the Loco Pilot and specify the time at which the Loco Pilot shall contact the SM once again at the specified time if the signal continues to be at "ON''.

i) In the event of the Intermediate Block Stop signal becomes defective and the Line Clear has been obtained through block instrument, the SM shall authorize the Loco Pilot to pass it at "ON" duly giving a message supported by a Private Number obtained for Line Clear from the SM of the station in advance.

FORMAT –I

Station:
Date:

From:	To:
SM-X	The Loco Pilot of Train(No.and Description) ……..……..at IBS Signal

The Intermediate Block Stop Signal could not be taken "OFF". However Line Clear has been obtained through the Block instrument. You are authorized to pass the Intermediate Block Stop Signal at "ON" and treat this message as the authority to proceed and enter block section after ensuring the closure of LC if any, Proceed at normal speed.

Private Number:
In figures:……
In words:…….

The Loco Pilot shall record this message with the Private Number in his rough Journal book. He shall then exchange signals with the Guard and proceeds to the block station in advance (Z) at normal speed.

ii) In the event of the Intermediate Block Stop signal being at "ON" on account of the failure of the block instrument and when Line Clear has been obtained through Block Telephone the SM shall issue a message through Signal Post Telephone to the Loco Pilot as follows :

FORMAT – II

Station:……..
Date: ……..

From:	To:
SM-X	The Loco Pilot of Train (No. and Description) ……..at IBS Signal

The Intermediate Block Stop Signal could not be taken "OFF" due to the failure of the block instrument. Line Clear has been obtained through the block telephone. You are authorized to pass the Intermediate Block Stop Signal at "ON". Treat this message as the authority to proceed and enter the block section after ensuring the closure of LC if any, proceed at normal speed.

Private Number:
In figures:……
In words:…….

iii) In the event of the Intermediate Block Stop signal being at "ON" account of the failure of the block instrument and when Line Clear is obtained through the Control telephone/VHF sets. The SM shall issue a message through Signal Post Telephone to the Loco Pilot as follows:

FORMAT-III

Station: Date:

From: To:

SM-X The Loco Pilot of Train (No. and Description)

…….. at IBS Signal.

The Intermediate Block Stop Signal could not be taken "OFF" due to the failure of the block instrument. Line Clear has been obtained through the Control Telephone/VHF sets. You are authorized to pass the Intermediate Block Stop Signal at "ON" and treat this as the authority to proceed and enter the block section after ensuring the closure of LC if any, (Proceed at a speed not exceeding 25 kmph when view ahead is clear and 10 kmph when view ahead is not clear when ID number is not used. When **ID numbers are used** no speed shall be imposed- ***Proceed at normal speed***).

Private Number:

In figures:

In words: (Read the message as applicable)

iv) In the event of the Intermediate Block Stop Signal being at "ON" on account of total interruption of communication between Stations 'X' and 'Z' the SM issue a message through Signal Post Telephone to the Loco Pilot as Follows:

FORMAT-IV

Station: Date:

From: To:

SM-X The Loco Pilot of Train (No. and Description)

…….. at IBS Signal.

Line Clear could not be obtained for your train due to total failure of communications. You are hereby authorized to pass the Intermediate Block Stop Signal at "ON'' after ensuring the closure of LC if any, and proceed cautiously to station "Z" and be prepared to stop short of any obstruction. The speed shall not exceed 15 kmph during day clear weather and 8 kmph during night and weather not clear.

Private Number: In figures: In words:

v) In the event of the Intermediate Block Stop signal being at 'ON' on the Loco Pilot shall proceed cautiously and make use of his engine whistle freely and frequently.

Note: *Whenever the SM gives a message to the Loco Pilot of a Train at the Intermediate Block Stop signal an entry shall be made in the Train Signal Register, in red ink.*

vi) The SM in rear station 'X' on becoming aware of the failure of the Intermediate Block Stop Signal due to the failure of the signal itself, the block instrument, track circuit, Axle Counter etc, shall treat the entire section between 'X" and 'Z' as one block section and before dispatching a train shall issue a Paper Line Clear Ticket as an authority to proceed along with the form T/ 369(3b) to pass the Intermediate Block Stop Signal at 'ON' without a stop. Before issuing the form T/369(3b) Private Number shall be exchanged with the Gateman of LC if any for closure of the level crossing. **(CM No 12 dated 10.03.2021)**

8.3.01 FAILURE OF SIGNAL POST TELEPHONE:

1) If the Loco Pilot is unable to contact the SM of the station in rear since Signal Post Telephone is out of order, after waiting for 5 minutes, the Loco Pilot shall pass the Intermediate Block Stop Signal at "ON" and proceed at a cautious speed not exceeding 15 kmph when view ahead is clear and not exceeding 8 kmph when view ahead is not clear.

2) The same cautions driving shall be exercised till he reaches the first Stop signal of the station of the station in advance, even if the FSS is 'OFF' and be prepared to stop short of any obstruction.

3) The Loco Pilot shall report the matter to the Station Master of the station in advance, who in turn shall advise the Station Master in rear.

8.4.0 FAILURE OF LAST STOP SIGNAL:

When the LSS alone becomes defectives despite the track indicator shows White Form T/369-(3b) shall be given to the Loco Pilot of the train with the following endorsement in it, as the authority to proceed.

ENDORSEMENT

Last Stop signal could not be taken "OFF", however the Axle Counter/track circuit indicator shows clear. You are authorized to pass the LSS at "ON" and treat this as the authority to proceed and enter the block

section and proceed up to the IBS signal.
PN obtained from SM in advance:
In figures: In words:

8.5.0 CLOSING OF INTERMEDIAE BLOCK POST:

THE INTERMEDIATE BLOCK POST SHALL BE TREATED AS CLOSED DURING THE FOLLOWING OCCASIONS:

1. During the failure of the block instrument on either side.
2. During the failure of the track/Axle counter.
3. During the failure of the Intermediate Block Stop Signal.
4. During the failure of the Distant at IBP in the "OFF" aspect.
5. During single line working on double line.
6. During total interruption of communications.
7. During the failure of the Track Indicator.

***Note**:-When the IBP is closed on account of the failure of Track Indicator, a Caution Order shall be issued to the Loco Pilot of the first train restricting the speed to 15 kmph during day clear weather and 10 kmph during night or day weather not clear, till the entire train clears the adequate distance (400 m) beyond the Intermediate Block Stop Signal.*

If the Loco Pilot finds any abnormality he shall stop at once and report it immediately to the SM at the station in rear either through the Portable telephone/ RE phone or SPT. For the purpose of reporting the Loco Pilot shall seek the assistance of the Section Traction Power Controller also.

8.6.0 PROCEDURES:

1. A numbered message confirmed by Private Numbers shall be exchanged between the SM in rear (X) and the SM in advance (Z) for closing of IBP.
2. The concerned dial of the block instrument shall be kept in the TOL position whenever possible.
3. The entire line between the LSS of the station in rear (X) and the adequate distance beyond the station in advance (Z) shall be treated as one block section.
4. The LSS and the IBS signal shall be suspended.
5. Line clear shall be obtained through the electric speaking instruments namely the block telephone/VHF sets in the order of priority.

6. When Line Clear is obtained through control telephone/VHF sets ID Number Sheets shall be used if supplied.
7. Paper Line Clear Ticket shall be issued as the authority to proceed for the entire section X –Z along with the form T/369-(3b)to pass the IBS signal at "ON" without a stop at the signal after ensuring the LC if any is closed against road traffic. **(CM No.12 dated 10.03.2021)**
8. At station "Z" the train shall be received on signals.
9. On complete arrival of the train, the SM shall give a Private Number to the SM in rear (X).
10. Trains shall be continued to work in the above said procedure until normal work is restored.
11. On restoration of normal working a numbered message supported by Private Number shall be exchanged between the SMs of the stations in rear (X) and in advance (Z).

8.7.0 BACKING OF TRAINS:

1. A board shall be fixed not less than 400 metres in advance of IBS signal facing against the direction of traffic, to read "No Backing without Permission"
2. Backing a train after passing an IBS signal is prohibited except in emergency.
3. To back a train up to the above mentioned board the protection shall be arranged first by placing the detonators one at 250 meters and two at 500 meters from the point up to which the train has to be backed.
4. If backing has to be done beyond the above said board, the following procedures shall be strictly adhered to.

   a) The Loco Pilot and Guard shall consult each other before doing so and protect the train in rear. Before backing the train, the Guard shall obtain the permission from the section controller through the portable (RE) telephone, when the train is standing for away from the IBS.

   b) Section controller shall grant his permission to the Guard by giving a message to this effect supporting by a PN, after getting the consent of the SM in rear of IBP.

   c) The SM in rear shall give a PN to the section controller as an assurance that he will not permit any other train to enter X-Y Rear section.

d) If a subsequent train has already been permitted to approach IBS signal, SM in rear shall not give his consent to back the train.

e) If the train to be backed is nearer to the IBS signal, Guard can take the permission directly from the SM in rear through the SPT of IBS signal instead of routing through the controller.

f) In case a subsequent train has already entered the block section X-Y the same shall be brought back to the station first and the concerned train subsequently.

g) If any difficulty is experienced in contacting the controller or the SM in rear, the Guard shall send the Diesel Assistant/ Assistant Loco Pilot to the nearest SM with a message containing the intention to back the train. The SM who gets the message shall in turn will give a message permitting the Loco Pilot and Guard to back the train after consulting the SM at the other end. The message must have the Station stamp.

h) While backing the train the rules pertaining to engine pushing on double line as per S.R. 4.12 (i) (b) (2) and S.R. 4.12 (i) (b) (3) (ii) shall be adhered.

8.8 DURING TOTAL FAILURE OF COMMUNICATIONS:

1. The procedure given under SR 6.02 (iii) shall be adhered to.
2. In addition to this,
   The IBS signal shall be treated as out of use.
   The LSS of the station in rear shall be suspended.
   The entire section between 'X' and 'Z' shall be treated as ONE block section.
   The Form T/369-(3b) shall be issued for passing the IBS signal at "ON".

8.9 SHUNTING:

BLOCK FORWARD:

(A) BLOCK FORWARD -X-Y REAR SECTION (UPTO IBS SIGNAL)

1. The X-Y Rear section shall be clear and free from obstruction.
2. The SM at station 'X' shall inform the SM of station in advance 'Z' about his intention to block forward and get his consent.

3. Necessary entries shall be made in red ink in the Train Signal Registers at the stations 'X' and 'Z'.
4. The following endorsement shall be made on form T/806- 'Shunt up to IBS signal No…..'
5. Wherever LSS Key/Shunt Key is interlocked with LSS, the LSS key/Shunt key shall be extracted and given along with form No T/806 which authorizes the Loco Pilot to pass the LSS at station 'X' at 'ON' and shunt into 'X' – 'Y' section of IBS. If the LSS Key/Shunt key is not interlocked with LSS this key need not be given and only T/806 shall be issued. **(CM No 12 dated 10.03.2021)**

(B) BLOCK FORWARD X-Y & Y-Z ADVANCE SECTION (BEYOND IBS SIGNAL)

1. The same procedure for Block forward on Double line shall be followed as per BWM Chapter-VI Para 6.16.
2. The entire section 'X' to 'Z' shall be treated as one Block section.
3. The Loco Pilot shall shunt up to the FSS of the station 'Z'.
4. The operating handle of the block instrument at "Z" shall be turned to TOL position.
5. Shunt key, if any, shall be extracted and given along with Form T/806.
6. A remark authorizing the Loco Pilot to pass the IBS signal at 'ON' shall be made in the From T/806.
7. On return to the starting station 'X' the operating handle shall be restored to Line Closed and Shunt key shall be inserted.

(C) BLOCK BACK

1. The same procedure for Block back on Double line shall be followed as per BWM Chapter-VI Para-6.16.
2. The entire section (X-Z) shall be treated as one block section.
3. The Loco Pilot shall shunt up to LSS of the station 'X' or FSS of the adjacent line of the station 'X' whichever comes first.
4. T/806 shall bear a remark, authorizing the Loco Pilot to pass the IBS signal at "ON" while returning.

8.10 WORKING OF MOTOR TROLLEY (S):

(a) MOTOR TROLLEY:

In addition to PLCT form T/369-(3b) shall be issued to the official in charge of the Motor Trolley to pass the IBS at 'ON'.

The entire section (X-Z) is treated as one block section for this purpose.

(b) MOTOR TROLLEY / TROLLEYS FOLLOWING A TRAIN:

1. Motor trolley/ trolleys, shall not be allowed to folllow a train, unless Line Clear has been obtained for the train.
2. The authority for each motor trolley is T/1525, with permission to pass the IBS signal at "ON". (T/369(3b) **(CM No 12 dated 10.03.2021)**
3. Only after the arrival of all the motor trolleys, which have entered into the section, subsequent train can be started.
4. The motor trolley / trolleys, are permitted to follow a train only during day clear weather, and when train is fully vacuum / air brakes.

(c) MOTOR TROLLEY/ TROLLEYS FOLLOWING A MOTOR TROLLEY :

The first Motor trolley shall be worked as train on Paper Line clear Ticket after suspending the block working and subsequent motor trolley / trolleys shall follow the Motor Trolley during day or night in clear weather. **(CM No 12 dated 10.03.2021)**

(d) PLACEMENT OF MOTOR TROLLEY IN THE MID-SECTION:

1. The entire section (X-Y and Y-Z) shall be treated as one block section.
2. The procedure laid down in BWM Chapter-XI Para 11.3(iv), shall be adhered to. **(CM No 12 dated 10.03.2021)**
3. Necessary remarks shall be made in Form T/A 1525 authorizing the Official In charge to pass the IBS signal at 'ON' if necessary. **(CM No 12 dated 10.03.2021)**

8.11 WORKING OF LORRY/OHE LADDER TROLLEY:

1. The entire section (X-Y and Y-Z) shall be treated as one block section and the procedure laid down in SR. 15.24 (xxii) and SR. 17.08 (vi) shall be adhered to.
2. Paper Line clear Ticket along with form T/369-(3b) shall be issued to the Loco Pilot to pass the IBS signal at 'ON' and proceed up to the Station in advance. **(CM No 12 dated 10.03.2021)**

8.12 WORKING OF TROLLEY:

The work in conjunction with from T/1518.
The entire section (X-Y and Y-Z) shall be treated as one block section and the procedure laid down in SR.15.24 (viii) (a) shall be adhered to.

1. Un-insulated Trolley/Trolleys shall not be allowed to work.
2. The procedure laid down in SR.15.24 (x) (a) shall be adhered to.

8.13 SINGLE LINE WORKING ON DOUBLE LINE:

1. The IBS signal shall be treated as out of use, and the entire section (X-Y and Y-Z) shall be treated as one block section.
2. For trains running on the right direction, form T/D 602 along with T/369-(3b) shall also be issued to pass the IBS signal at 'ON'.
3. The Rules and regulations laid down in SR. 6.02 (iv) shall be adhered to.

8.14 OCCASIONS UNDER WHICH A SEPARATE AUTHORITY TO PASS IBS SIGNAL AT 'ON' SHALL BE ISSUED:

1. When a train is started on authority to proceed without line clear.
2. During Total Failure of communications.
3. Whenever train / Motor Trolley/ Lorry /OHE Leader Trolley / Trolly etc. is started on Paper Line clear Ticket. **(CM No 12 dated 10.03.2021)**
4. When a train is started on T/D 602, in the right direction, during single line working on double line.

8.15 MAINTENANCE OF TRAIN SIGNAL REGISTER:-

A single Train Signal Register (TSR) in the prescribed format shall be maintained at either end of those block sections where IBS are located between them. **(CM No 09 dated 31.07.2019)**

8.16 RESETTING OF AXLE COUNTER:

If the axle counter indication (Track Indicator) displays 'RED' light even when the axle counter section is clear of trains / vehicles and the connected track indications show no illuminated indication, the axle counters can be reset by the Station Masters with the co- operation of the Station Master at the other end to restore normal working. The axle counter can be reset by Station Master's using the reset button and release (Line Verification) button only after ensuring that the portion of

block section is clear of train/vehicle by verify the entries in train signal register. The reset button is provided at the station controlling the block section. Release button (Line verification Box) is provided at the station in advance.

The reset buttons with counters and release buttons (Line verification Box) are provided in a separate sealed box in Station Master's office. When the pair of Reset/Release buttons are pressed simultaneously the resetting process starts and a light is exhibited in the Station Master's office where the reset button is pressed. After resetting is over, the light gets extinguished and next higher number is registered on the digital counter. The buttons should be kept pressed till such time the light gets extinguished.

8.17 INDICATIONS:

a) K1: Appears at sending station when a train passes IBS at danger.

b) K2: Appears at sending station when a train passes LSS and LSS levers / switches still in reverse.

c) K3: Appears at sending station when a train passes IBS and IBS lever/ switch is still in reverse.

d) K4: Appears at sending station when IB Signal or Distant becomes no light.

(All indication is **white /Yellow** in colour and accompanied with Buzzer).

8.18 BUTTONS:

PB1: Pressed at sending station for resetting when a train passes IBS at danger after getting co-operation indication from advance Station.

PB2: Pressed at sending station for resetting when axle counter fails even after a train clears after getting co-operation. Indication from advance Station.

PB3: Pressed at receiving station after receiving the train and after normalizing the Block Instrument and after ensuring the section is clear for co-operation to sending station for both PB1 & PB2 cancellations.

8.19 CANCELLATION:

I) when a Train passes IBS at 'ON':

- K1 indication with Buzzer appear at sending station. Buzzer is stopped by pressing a push button.
- The receiving station receives the above train and after ensuring the complete arrival of the said train normalizes the Block Handle and after exchanging necessary information presses PB3.
- The sending station upon seeing the co-operation indication on panel presses PB1 and the system gets normalized.

II) When Axle Counter Fails:

- Axle Counter shows 'OCC' on panel at sending station even after train clears the section between LSS and IB Signal (including OV).
- The sending station informs receiving station.
- The receiving station receives the above train and after ensuring the complete arrival of the said train normalizes the Block Instrument and after exchanging necessary information presses PB3.
- The sending station upon receiving the co-operation indication on panel presses PB3 and the system gets normalized.

*****

CHAPTER IX

FOLLOW UP ACTION TO BE TAKEN DURING FAILURES OF BLOCK INSTRUMENT

9.1 Block Instruments Failure Record.

A record of the failures of Block Instruments/Signals, and other gear connected with working of signals shall be maintained in the S & T Failure Register at the station.

9.2 Transmission of reports.

(i) When block working is suspended, the Station Masters at both ends of the Block Section shall at once make entries in red ink in the Train Signal Registers immediately below the entries for the last train, showing the date and time from which block working was suspended and the cause of suspension, if known. Both the Station Masters shall then advise each other, and SE/JE/ Signals by telephone of the suspension and the cause thereof, if known, the cause of the failure being given only by the Station Master who first suspends the block working. A copy of this message shall be sent to the Divisional Railway Manager under cover and the Controller on duty shall be advised on the controlled sections by the Station Masters at 'X' and 'Y'.

(ii) The Mechanical Signal Maintainer and Technician Electrical Signals shall also be advised when there is a failure of the Last Stop Signal after 'Line Clear' has been obtained from the Station ahead.

Example
Date : Time.
From : Station Master/X to Station Master/Y Copy SE/JE/S.

Block Failure between station X-Y (the actual cause as observed by the Station Master).

Signature
Date : Time.

From : Station Master/Y to Station Master/X Copy SE/JE/S.

Under stood Block Failure between X-Y (the actual cause as observed by the Station Master).

9.3 Train Signalling during interruption or suspension of Block Working :

(1) In the event of failure or suspension of Block Instrument, 'Line Clear' shall be obtained by any one of the alternative means of communications in the order of priority indicated below :-

(i) Telephone attached to Block Instruments.

(ii) Station to Station fixed telephone wherever available

(iii) Fixed Telephone such as Railway autophones & BSNL Phones.

(iv) Control telephone.

(v) V.H.F. Sets.

(2) If the Station Master at 'X' cannot obtain 'Line Clear' from the Station Master at 'Y' through any one of the above means in the order of priority, the block section shall be considered to be totally interrupted and trains worked in accordance with the rules and regulations for working of traffic during total interruption of communications in accordance with SR 6.02.

(3) Before signalling a train through any one of the alternative means, the Station Master at X and Y shall at once exchange messages through such communication and record message in the Train Signal Register.

(4) (a) Whenever trains between 'X' and 'Y' are signalled through Block Telephone or Control as the case may be, they shall be dealt with in all respects in accordance with the following procedure.

(b) The number, description and the arrival and departure time of each train dealt with between X and Y, with the Private Number, shall be recorded, in red ink, then and there, in the Train Signal Register.

(c) The Station Master shall record in the Train Signal Register, the means of communication through which Line Clear messages are exchanged for obtaining/granting Line Clear.

(d) The Private Number of the Line Clear Ticket issued for each train shall be recorded in the Remarks Column of the Train Signal Register against the train entry.

9.4 Procedure to be adopted when the 'Train Entering Block Section' signal cannot be given owing to the Token Instrument having failed after the departure of the train or before clearing the Block Section for the train.

(a) If, after the departure of a train the 'Train Entering Block Section' signal for the train cannot be given to the station 'Y' owing to the Token instrument having failed, 'X' shall enter the time of departure in the Train Signal Register in red ink and send the following message by the telephone to the Station Master at 'Y' :-

No.....

Token Instrument failed. Train (No. and description).....left my station at.....hrs.....mts.

The Station Master at 'Y' shall record the departure time in his Train Signal Register in red ink and then acknowledge the message as under :-

No.....

Your No.....Understand Token Instrument failed and that train (No. & description).....left your station at.....hrs.....mts.

(b) Whenever Token working is suspended before the block section has been cleared on the Token Instrument for the train which last occupied the Block Section, the Station Master at 'Y' shall, on arrival of the train, enter the time of arrival, in the Train Signal Register in red ink and send the following message, by telephone to the Station Master at 'X' :-

No.....

Train (No. and description).....arrived here complete at .....hrs.....mts.

The Station Master at 'X' shall record the time of arrival in his Train Signal Register in red ink and then acknowledge the message as under :-

No.....

Your No.....Understand the train (No. and description).....arrived at your station complete at.....hrs.....mts.

9.5 Procedure to be adopted when the 'Train Entering Block Section' signal cannot be given or 'Train On Line' indication not displayed owing to the failure of the Block Instrument after the departure of the train or before clearing the section for the train.

(a) If after the departure of a train the 'Train Entering Block Section' signal cannot be given in case of Handle Type Tokenless Block Instruments or the 'Train On Line' indication is not displayed in case of Push Button Tokenless Block Instrument or owing to the Failure of the Instrument, X shall fill in the column 'Train Left at' in the Train Signal Register in red ink and send the following messages by Telephone to Y.

No.....

Block Instrument Failed. Train (No. and description).....left

my station at.....hrs.....mts.

Y shall record the departure time in his Train Signal Register, in red ink, and then acknowledge.

No.....

Your No.....understand Block Instrument failed and that Train (No. description).....left your station at.....mts.

(b) When Block working is suspended, in case of Handle Type Tokenless Block Instrument, before the Block section has been cleared on the instrument for the train which occupied by Block Section, Y shall on arrival of the train, fill in the column 'Train arrived at' in the Train Signal Register, in red ink and send the following message, by telephone to X .....

No.....

Train (No. and Description).....arrived here Complete.....

Hrs.....mts.

X shall record the arrival time in his Train Signal Register in red ink and acknowledge the message as under :

No.....

Your No.....understand that train (No. and description).....arrived at your station complete, at.....hrs.....mts.

(c) When the 'Line Closed' indication is not displayed after complete arrival of the train in case of Push Button Token less Block Instrument owing to the failure of the instrument. Y shall on arrival of the train fill the column 'Train Arrived At' in the Train Signal Register in red ink and send the following message, by telephone to X———

No.....

Train (No. and description).....arrived here complete at.....hrs.....mts.

'X' shall record the arrival time in his Train Signal Register book in red ink and then acknowledge the message as under:-

No.....

Your No.....Understand that train (No. and description) .....arrived at your station complete at.....hrs.....mts.

9.6 Procedure for signaling trains between 'X' and 'Y' through Block Telephone.

(a) If block working is suspended between the stations 'X' and 'Y' the Station Master at 'X' shall send a message through the Block Telephone to 'Y' as under :-

No.....

Block working is suspended. Train signalling shall be done through Block Telephone,

'Y' shall acknowledge it as under:-

Your No.....understand Block working is suspended and train signalling shall be done through Block Telephone.

(b) The Station Master at 'X' and 'Y' shall then signal all trains on the Block Telephone when 'Line Clear' is obtained through the Block Telephone, the Station Master shall write the words 'Block Telephone' after the words 'Line Clear obtained through' on the top of the Line Clear in the blank space provided for this purpose.

(c) All trains shall be stopped at stations 'X' and 'Y' run through trains being stopped out of course for handing over line clear ticket. The signature of the Loco Pilot shall be obtained in the Line Clear Ticket.

9.7 Procedure for signalling trains between 'X' and 'Y' through Control.

(a) If Block Telephone working is suspended between the stations 'X' and 'Y' on sections of the line, where Control working is in operation, the Station Master at 'X' shall send a message through the Control to 'Y' as under

No.....

Block Telephone Working suspended. Train signalling shall be done through Control.

The Controller on duty shall transmit the message to the Station Master at 'Y' who shall acknowledge it as under:-

No.....

Your No.....Understand Block Telephone Working suspended and Train signalling should be done through Control. The Controller on duty shall transmit the message to the Station Master at 'X'.

(b) The Station Master shall record his message and then repeat it to the Controller on duty who shall record it immediately in the Register specially provided for the purpose and then transmit it to the Station Master concerned. The Station Master shall record the message received immediately with the name of the Controller in the Train Signal Register.

(c) The Station Master at 'X' and 'Y' shall before asking and giving 'Line Clear' repeat the arrival and departure timings of the last three preceding trains on the 'X-Y' block section. The Controller shall also check the correctness of the particulars to ensure that the correct stations are contacted. **(CM No.12 dated 10.03.2021)**

(d) The Station Masters at 'X' and 'Y' shall then signal all trains through Control. When line clear is obtained through Control, the Station Master shall write the word 'Control' after the words 'Line Clear obtained through' on the top of the Line Clear ticket in the blank space provided for this purpose.

(e) All trains shall be stopped at stations 'X' and 'Y' run through trains being stopped out or course for handing over line clear ticket. The signature of the Loco Pilot shall be obtained in the Line Clear Ticket.

Note: *During failure of block instruments if the block instrument's bell is functioning all the bell codes shall be transmitted through the bell codes. If the bell also is defective the train entering block section and train out of block section shall be communicated through the adopted means of communication.*

Example : Date : Time.

From Station Master/X To Station Master/Y

Block Failure between X-Y (the actual cause for failure to be recorded).

9.8 LINE CLEAR TICKET

(i) Preparation of Line Clear Ticket.

During the failure /suspension of Block Instrument the train will be dealt on Line Clear Ticket.

(a) The line clear ticket shall be prepared by the Station Master himself and signed in full. It should be prepared with all relevant details without alteration and in carbon process. All the foils should bear the Station stamp. While filling up the line clear ticket if Station Master makes a mistake, he shall cancel the foil with the remark cancelled with reason therefore and a fresh Line Clear ticket shall be prepared.

(b) The Loco Pilot is responsible to check that the line clear ticket is in the authorized printed form with the details of correct Train No. Description, Date, Time, Direction and name of the From and To Station with Station Master's signature in full.

(c) Line clear ticket shall be prepared only after exchanging the outward and inward line clear enquiry/reply message as the case may be, through the authorized means of communication.

(d) Line clear ticket shall be in the authorized printed form No. T/C 1425 for Up direction and Form No. T/D 1425 for Down direction. **(CM No.13 dated 02.12.2021)**

(e) The means of communication shall be mentioned on the top the Line Clear Ticket.

(f) Whenever Line Clear message is exchanged through indirect means of communication, the system of calling station name, followed by establishing identity of the Station Master on duty by either cross checking Private numbers given for line clear to preceding three trains or identification number sheet should be used. **(CM No.12 dated 10.03.2021)**

(ii) Resumption of block working:-

1. In case where the Station Masters themselves are authorized to resume Block working in the aforesaid Rules they shall do so. In other cases, the Block Instrument shall be certified by the concerned Signal and Tele- communication department Official. In all cases the following precautions shall be taken before resumption.

   (i) Satisfy Block Section is clear. Exchange messages with the Station Master at the other end of the Block Section.

   (ii) On resumption of block working, send message to the concerned Signal and Telecommunication department official, Section controller and a copy to the Divisional Railway Manager.

*****

CHAPTER X

GENERAL WORKING OF TRAINS AT STATIONS PROVIDED WITH END CABINS.

Exchange of Private Numbers between the Station Master and Cabin/Cabins for reception of trains.

The sequence of action to be followed from the time the reception line is nominated till the Station Master release his control on the Home/Routing signal and exchange of Private Numbers is explained below:

(1) Duty Station Master.

(a) As soon as 'Line Clear' has been granted for a train by the Station Master or Cabin Assistant Station Master/Switchman (if the Block Instruments are situated in the cabins) the Station Master shall decide the line on which the train is to be received, and satisfy himself, that the reception line including the adequate distance, is clear and free from obstruction.

(b) He will then advise the Cabin Assistant Station Master/Switchman/ Cabinman on the telephone of both the cabins simultaneously the train number, description, probable time of arrival, whether the train is stopping or running through, and the line nominated for its reception.

(c) The Cabin Station Master/Switchman/Cabinman in both the cabins shall acknowledge by repeating these particulars.

(2) Cabin Station Master/Cabinman at the facing end :

(a) The Cabin Station Master/Cabinman at the facing end on receipt of the above information from the Station Master shall set all relevant points at his end correctly for reception of the train on the nominated line and lock all the relevant facing points.

(b) He will then satisfy himself that the nominated reception line is clear and free from obstruction.

(c) He will then give a categorical assurance to the Cabin Station Master/cabinman in the Cabin at the trailing end after ensuring that :-

(i) The nominated reception line is clear and free from obstruction, clearly indicating the number of that line.

(ii) All the relevant points at his end have been correctly set for the reception of the train on the said line.

(iii) All the facing points have been locked; and

(iv) All level crossing gates (including chained gates) are closed and locked against the road traffic and ask him to release his slot on the Home/Routing signal referring to the nominated reception line.

(3) Cabin Station Master/Cabinman at the Trailing end :

(a) The Cabin Assistant Station Master/Cabinman at the trailing end on receipt of the categorical assurance from the cabinman at the facing end shall set all the relevant points at his end correctly for the reception of the train on the nominated line, lock all the facing points (if any) and satisfy himself that the nominated reception line including the adequate distance is clear and free from obstruction.

(b) Ensure all Level Crossing gates (including chained gates) are closed and locked against the road traffic.

(c) Communicate a Private Number to the Cabin Assistant Station Master/ Cabinman at the facing end and then release his slot on the relevant Home/ Routing signal.

(4) Cabin Station Master/Cabinman at the facing end-

The Cabin Assistant Station Master/Cabinman at the facing end on receipt of the Private Number communicated to him by the Cabin Assistant Station Master/ Cabinman at the trailing end shall, in turn, communicate Private Number to the Station Master on duty to indicate that everything is completed at both ends for the reception of the train.

(5) Duty Station Master-

The Station Master on duty on receipt of the Private Number from the Cabin Station Master/Cabinman at the facing end shall, if everything is ready for the reception of the train, give a Private number to the Cabin Assistant Station master/ Cabinman at the facing end and release his control on the relevant Home/Routing signal.

(6) Cabin Station Master/Cabinman at the facing end-

The Cabin Station Master/Cabinman at the facing end after satisfying himself, that the relevant slot indicator is showing the 'OFF' indication shall take off the reception signals.

(7) As the purpose of exchanging of private number is to eliminate the chances of a signal being taken 'OFF' for an obstructed line, there is no need for exchange of Private Number where track-circuiting has been provided.

(8) At stations where Central Cabins are provided, the exchange of Private Numbers between the Cabin and the Station Master on duty shall take place as prescribed in paras (1) to (6) above before the Station Master's control on the signal is released.

*****

CHAPTER XI

WORKING OF MOTOR TROLLIES

11.1 WORKING OF MOTOR TROLLEY IN TOKEN SECTION

(i) Procedure for a Motor Trolley Working as Train or Motor Trolley to Follow a Train or another Motor Trolley in Token Territories.

{(SR 15.25 (I)}

(a) Section Token is the authority for a motor trolley when working as a train

(b) Token will be clamped when motor trolley is following a train or Motor trolley.

(ii) **Procedure for working under rules for working trains**. – The Official-in-charge shall inform the Station Master about the Block Section into which the Motor Trolly will enter and the time at which he will clear the Block Section. The Station Master shall then advice the Station Master at the other end of the Block Section, obtain Line Clear and hand over the authority to proceed to the Official-in-charge. Both the Station Masters shall at once enter in Red Ink in the Train Signal Register the Motor Trolly No. (in the Train No. column) and other particulars for a train. The Official-in-charge is entirely responsible for clearing the Block Section by the specified time.

Token Territory-Procedure:

(a) The Official-in-charge of the last Motor Trolly shall lock the clamp on the token to be handed over to the Loco Pilot of the train or the first Motor Trolly as the case may be which is to be followed and keep with him the key of the clamp in order to prevent the section being cleared for the train.

(b) **Responsibility of Station Master and Official in-charge: -** The Station Master shall advise the Station Master of the Block station in advance by telephone about the Motor Trolleys following the train or Motor Trolly and obtain his acknowledgement confirmed by individual Private Number for the Motor Trolleys following the train or Motor Trolly.

(c) The Station Master shall issue the original copy of Form T/1525 to the Official in-charge of each Motor Trolly duly obtaining the signature of the Official in-charge in duplicate copy.

Note: *The Private Number obtained for the Motor trolly from the Station Master in advance shall be entered.*

Both the Station Master shall immediately enter in red ink in the Train Signal Register as under: -

"Section Occupied by Train No. and description/Motor trolly No…… followed by Motor Trolly/Motor Trolleys No./Nos……..".

Date…….. Station Master

Note: *The Official-in-Charge of the following Motor Trolleys shall ensure that their Motor Trolleys are kept at a safe distance from the preceding train or Motor Trolly.*

(d) Except in an emergency the signals taken off for the despatch/reception of a train or the first Motor Trolly as the case may be shall not be put back to 'ON' until all the following motor Trollies have passed them. At stations where the despatch/reception signals are automatically put back 'ON' by the train or the First Motor Trolley as the case may be, the route set for train or first Motor Trolley shall not be altered until all the following Motor Trolleys have passed them. However the Official-in-charge of the motor Trolleys following a Train or Motor Trolly may pass the despatch/ reception signals at 'ON'.

(e) They shall be responsible to verify the correct setting of points during despatch/reception. The Station Master at the receiving end shall ensure all the following Motor Trolleys have arrived or the removal advice is received before he clears the block section.

Note: *For detailed instructions refer SR.15.25*

11.2 WORKING OF MOTOR TROLLEY IN TOKENLESS SECTION

(i) Procedure for a Motor Trolley Working in Tokenless Territories. {(SR 15.25 (i)}

When a motor trolley is working as a train, the block instrument has to be suspended and Line Clear Ticket will be issued as an authority to proceed.

(ii) Procedure for a motor trolley to follow a train or another motor trolley in Token less territories

(a) Motor Trolleys to follow a train:

Motor Trolley/Motor Trolleys may be allowed to follow a train on the section worked with push button / handle type Token less block instrument

during day in clear weather provided the train which is to be followed is worked with fully vaccum/Air brake through out in good working order.

Procedure.-

(1) The Station Master of the sending station after setting the instrument to "Train Going To" position shall at first extract the shunt key from the Block Instrument and keep it in his personal custody.

(2) He shall then advise the Station Master of the block station in advance by telephone that motor Trolley /motor Trolleys No. /Nos. is /are following the train and obtain individual private number for each motor trolley.

(3) The Station Master of the block station in advance shall acknowledge it with individual private No./Nos. for each motor trolley.

(4) The Station Master shall issue form No. T/1525 to the official/official in charge of the motor Trolley/Trolleys.

(5) Both the Station Master shall immediately enter in red ink in the Train Signal Register.

(6) Admission into the station.- except in an emergency, the signals taken "Off" for the reception of a train shall not be put back to "ON" until all the following Motor Trolleys have passed them. When the signals are automatically put back to "ON" by the train , the route set for the reception of the train shall not be altered until all the following Motor Trolleys have arrived. However the officials in-charge of the Motor Trolley following a train may pass the reception signals at "ON" they shall be responsible to verify the correct setting of points during reception. The receiving Station Master on arrival of the train must wait for the arrival of all the motor Trolleys following the train at his end.

(7) The officials in –charge of the motor trolleys shall, on reaching the station, hand over the duplicate memo to the Station Master. The receiving Station Master shall there upon advise the sending Station Master of the arrival of the motor trolleys mentioning the private number given for each motor trolley. The Station Master at the sending station shall then insert "shunt key" in the relevant block instrument shall then be brought to the instrument to line closed condition.

(b) Motor Trolleys following a Motor trolley.-

One or more Motor trolleys may be allowed to follow a Motor trolley on the section worked with Token less block instruments during day and night in clear weather.

Procedure.-

(1) The first Motor trolley shall be worked on line clear ticket and the following Motor Trolleys on the authority T/1525.

(2) The sending Station Master shall advise the Station Master of the block station in advance by telephone that motor trolles/ motor trolleys numbers are following motor trolley No. ….

(3) The Station Master of the block station in advance shall acknowledge it with individual private No./Nos. for each motor trolley.

(4) The station master shall issue LCT for the first motor trolley and No. T/ 1525 to the official/official in charge of the following motor trolley/ Trolleys.

(5) Both the Station Master shall immediately enter in red ink in the Train Signal Register.

(6) Admission into the station.- except in an emergency, the signals taken "Off" for the reception of first motor trolley shall not be put back to "ON" until all the following Motor Trolleys have passed them. When the signals are automatically put back to "ON" by the motor trolly, the route set for the reception of the train shall not be altered until all the following Motor trolleys have arrived. However the officials in-charge of the Motor Trolleys following a motor trolly may pass the reception signals at "ON" they shall be responsible to verify the correct setting of points during reception. The receiving Station Master on arrival of the first motor Trolleys must wait for the arrival of all the Motor Trolleys following the first motor trolley at his end.

(7) The officials in –charge of the motor Trolleys shall, on reaching the station, hand over the duplicate memo to the Station Master. The receiving Station Master shall there upon advise the sending Station Master of the arrival of the motor trolleys mentioning the private number given for each motor trolley. The Station Master at the sending station shall then insert "shunt key" in the relevant block instrument shall then be brought to the instrument to line closed condition.

(c) Break down of the Motor Trolleys

If any of the following motor trolleys (other than the last one) breaks down and if can't be propelled by hand , the official incharge shall promptly remove it from the line and send the "Removal advice " quoting the private number along with the duplicate memo (T. 1525) to the block station in advance through the official incharge of the motor trolley immediately following it enable the Station Master to clear the section in time on arrival of the last motor trolley. If the last motor trolley breaks down, the official incharge shall promptly remove it from the line and send the " removal advice" quoting the Private Number along with the form T/1525 to the nearest block station who shall advice the station at the other end by the telephone. Whenever the removal advise can not be sent through the official incharge of any of the motor trolley a messenger shall be sent to the nearest station with the form T/1525. On the receipt of removal advice the Station Master shall clear the section as usual.

11.3 Working of Motor Trolleys , Motor Lorries and Rail Motor Wagons on Sections Provided With S.G.E Lock and Block Instruments.

i. Motor Trolleys, Motor Lorries and Rail Motor Wagons:-

(a) Motor Trolleys, Motor Lorries and Rail Motor Wagons running from 'X' to 'Y' shall be dealt with within the same manner as trains.

(b) These vehicles are not ordinarily heavy enough to actuate the track circuit used in connection with the Block Instrument. Hence the block instrument shall be suspended and Motor Trolleys, Motor Lorries and Rail Motor Wagons shall be worked on 'Line Clear Ticket'. However, before suspending the Block Instrument, the relevant Operating Handle turned to Train On Line Position. On arrival of the Motor Trolley/Motor Lorry/ Rail Motor Wagon, Station Master at the receiving end shall turn the operating handle to 'Line Closed' position and block working shall be resumed by themselves.

ii. Motor Trolleys, Motor Lorry and Rail Motor Wagons entering 'X' – 'Y' Block Section and returning to 'X', without running through-

When a Motor Trolley, Motor Lorry or Rail Motor Wagon at 'X' requires to enter the 'X' –'Y' Block Section and return to the 'X', 'X' must block forward. He must then extract the shunt key from

the lock of the Last Stop Signal lever and give it to the official incharge along with 'Shunting order' form no. T/.806. when the Motor Trolley, Motor Lorry or Rail Motor Wagon returns 'X', 'X' shall cancel the 'Block Forward'.

iii. **Working of Motor Trolleys on the wrong line**:-

(a) In an emergency, if it is necessary to a Motor Trolley to enter the wrong line from'X' and go to 'Y', 'X' shall 'Block back' and give 'Shunting order' form T/806 to the official in charge who shall not place the Motor Trolley on the wrong line until he is in possession of form T/ 806. On the arrival of the Motor Trolley at 'Y', 'Y' shall advise 'X' and clear the Block Section.

(b) When a Motor Trolley is required to enter the wrong line from 'X' and then return to 'X' without going through, Block Section shall be cleared, on the arrival of the Motor Trolley at 'X' by cancelling the 'Block back'.

(c) When a Motor Trolley which has entered the wrong line from a Block Station has to be removed from the line in section, for any reason, the official incharge shall send a written advice to the Station Master 'X' and on receipt of this advice, the Block Section shall be cleared by cancelling the 'Block back'.

(d) The movements of the Motor Trolley on the wrong line as detailed in paras (a), (b) and (c) above shall be treated as shunt moves and only shunt signals (Inclusive any other stop signals used for shunting) shall be taken 'OFF' for such movements.

iv. Motor Trolley/ Motor Lorry/ Trolley /Lorry placed on track in mid section on Double Line:-

(a) When it is necessary to place a Motor Trolley /Motor Lorry/Lorry in mid section, the official in charge shall fill up, in triplicate the 'Notice' portion of the form no. T/A 1525 and send it through a messenger to the Station Master of the near Block Station who advise by telephone to station at the other end of the Block Section. The Station Master receiving form no. T/A 1525 shall ensure the following:

(1) The block working is suspended after the 'Train On Line indication has been made to appear on the

concerned dials of the Block Instrument by turning the Operating Handle. Form no. T/A.1525 shall be filled up after the exchange of the Private Numbers for the vehicle to be placed in mid section.

(2) The Station Master who has received the 'Notice' portion from the official incharge shall then fill up 'Certificate' portion in triplicate, take the original and hand over second and third copies to the messenger obtaining his signature or thumb impression in the Train Signal Register. The official in charge must not place the Motor Trolley/ Motor Lorry /Trolley /Lorry on the line until after he received the certificate.

(3) On arrival at the destination station, the official in charge shall fill up the ' Advise of arrival' portion and send it to the Station Master who shall fill up the 'Section cleared' portion, keep the duplicate and return the triplicate to the official in charge after turning the Operating Handle to its normal position. There after block working shall be resumed.

(4) Motor Trolleys or Motor Lorries removed from the line in mid section if a Motor Trolley or Motor Lorry working on 'Line Clear' ticket is required to be removed from the mid section, owing to a break down or for any other reason, the official in charge shall have the vehicle removed from the line at once and official in charge shall send a written advice, in the following form, to nearest block station by a special messenger with the ' Line Cleared ' ticket:-

To

The Station Master ……. .

Removed my Motor Trolley/ Motor Lorry from the line owing to ……. (Give reason) . I will not replace the Motor Trolley cum Motor Lorry on the line, until permitted.

Date……..

Signature and designation of
the Official in charge.

(5) If 'X' has 'Block Forwarded' for a Motor Trolley or a Motor Lorry to enter 'X' –'Y' Block Section and it becomes necessary the vehicles in mid section, the official in charge shall send, along with the written advice, in accordance with para (1) above, the key of the Last Stop Signal lever to 'X' who shall, on receipt of the key and the written advice cancel the 'Block Forward'.

(v) Motor Trolleys following a train :

(a) When Motor Trolleys are required to follow a train , the Station Master shall advice the Station Master at the other end of the Block Section by a numbered message and obtain from him a numbered message (which shall contain individual Private Number in respect of each Motor Trolley so allowed so follow in acknowledgement) and issue T/1525

(b) Immediately after the Motor Trolley leave the station following a train the Station Master shall place the motor trolley cap on the bell signalling key and make the following entry in the Train Signal Register:-

Up / Down line towards_____station occupied by Motor Trolley / Motor Trolleys no /nos_____following Train Number no and description_____Private Number / Numbers _____

(c) The Station Master at the other end at the Block Section shall on the train entering into the Block Section, turn the Operating Handle to "Train On Line " position and place the Motor Trolley cap on the plunger.

Note: *" The official incharge of the following Motor Trolleys shall ensure that their Motor Trolleys or kept at a safe distance from the proceeding Train or Motor Trolley. On the receipt of this written advise, Block Instrument working shall be suspended .*

(d) Except in an emergency the signal taken "OFF" for the reception of the train shall not be put back to "ON" until all the Motor Trolley have passed them , Motor Trolley being received on the line on which the train has been received . When the signals are automatically put back to "ON" by the train , the route set for the reception of the train shall not be altered until the Motor Trolleys have passed them. However , the official in charge of the Motor Trolleys may pass the reception signals at "ON". They shall be responsible verify the correct setting of points during reception.

(e) On arrival of the Motor Trolley at the station in advance the official in charge of motor trolley shall hand over original copy of the T/1525 to the Station Master shall make the following entry in the Train Signal Register: -

Private number/s_____Motor Trolley / Motor Trolleys no /nos_____arrived following train no and description at___ hrs mts. **(CM No.12 dated 10.03.2021)**

(f) He shall their upon send a numbered message to the Block Station in rear in the following form :-

My private no/nos_____Motor Trolley / Motor Trolleys/ no/nos_____has have arrived following train no and description _____at_____hrs mts.

(g) The Block Station rear shall acknowledge this by a numbered message. On message being exchanged between the Block Stations, the Motor Trolley cap shall then be removed from the Block Instrument at both ends and the Block Section cleared in the usual manner.

(vi) Break down of the Motor Trolleys

(a) If any of the Motor Trollies (other than the last one) breaks down and if can't be propelled by hand , the official in charge shall promptly remove it from the line and send the "Removal advice " quoting the Private Number along with the duplicate memo (T/1525) to the Block Station in advance through the official in charge of the Motor Trolley immediately following it enable the Station Master to clear the section in time on arrival of the last Motor Trolley. If the last Motor Trolley breaks down, the official in charge shall promptly remove it from the line and send the " Removal Advice" quoting the Private Number along with the duplicate memo to the nearest the block station who shall advice the station at the other end by the telephone. When Motor Trolley removed in the midsection for any reason, the official in charge shall send their "Removal Advice" to the Station Master. On the receipt of removal advice the Station Master shall clear the section as usual.

(vii) "Motor trolleys following a Motor Trolley" :

(a) The first Motor Trolley shall be worked on "Line Clear Ticket" and the following Motor Trolleys in the form T/1525. The sending Station Master advise the Station Master at the

other end of the Block Section by a numbered message obtain from him a numbered message (which shall contain individual Private Number in respect of each Motor Trolley allowed to follow in acknowledgement) and issue form T/ 1525

***Note**: The Private Number obtained for the motor trolley from the Station Master in advance shall be entered.*

(b) Immediately after the Motor Trolleys leave the station following the first Motor Trolley the Station Master shall place the " Trolley On Line" cap on the plunger and make the following entry in the Train Signal Register :-

Up/Down line to_____station occupied by Motor Trolley/Motor Trolleys no/nos _____ _____following Trolley no _____Private Number/s_____(inwards)_____

(c) The official incharge of the following Motor Trolleys shall ensure their Motor Trolleys are kept at a safe distance from the preceding Motor Trolley.

(d) On arrival of the Motor Trolley at the station in advance the official in charge of motor trolley shall hand over original copy of the T/1525 to the Station Master shall make the following entry in the Train Signal Register: -

Private number/s_____Motor Trolley / Motor Trolleys no /nos_____arrived following train no and description at___ hrs mts. **(CM No.12 dated 10.03.2021)**

(e) He shall their upon send a numbered message to the Block Section in rear in the following form :-

My Private No/nos_____Motor Trolley /Motor Trolleys/No/nos _____arrived following Motor Trolley _____at_____hrs_____mts.

(f) The Block Section in rear shall acknowledge this with a numbered message. On the messages being exchanged between the Block Station the "Train On Line" cap shall then be removed from the Block Instrument at both the station and the Block Section cleared in the usual manner.

(g) Except in an emergency the signal taken "OFF" for reception of the first Motor Trolley shall not be put back to "ON" until all the Motor Trolley have passed them the Motor Trolleys being received on the line on which the first Motor Trolley has

been received. When the signal are automatically put back to "ON" by the first Motor Trolley,. The routes set for the reception of the first Motor Trolley shall not be altered until all the Motor Trolley have passed them. However, the official in charge of Motor Trolley following Motor Trolley may pass reception signals at "ON". They shall be responsible to verify the correct settings of points during reception.

(vii) Entries in the Train Signal Register -: All entries in connection with Motor Trolleys/Motor Lorries /Push Trolleys and Lorries shall be made in **red ink** in the Train Signal Register.

*****

ANNEXURE – "B"

TO

BLOCK WORKING MANUAL

OF

SOUTH WESTERN RAILWAY

WORKING INSTRUCTIONS FOR SOLID STATE BLOCK PROVING AXLE COUNTER (DIGITAL) (SSBPAC (D))

FOR

SINGLE LINE

&

DOUBLE LINE

(Correction Memo No.10 dated 20.11.2019)

BLOCK WORKING INSTRUCTIONS FOR SOLID STATE BLOCK PROVING AXLE COUNTER (DIGITAL) (SSBPAC(D))

SINGLE LINE

1. DESCRIPTION OF BLOCK PANEL FOR SINGLE LINE (UFSBI & SSBPAC (D) SINGLE LINE):

1.1 KEYS: -

KEYS	FUNCTIONS
SM KEY	SM's control key. The key when out, prevents the following operations: a) Transmission of BELL code b) Transmission of LINE CLEAR inquiry request. c) Resetting of Axle Counter d) Cancellation of Line Clear e) Release of Shunt Key
AXLE COUNTER RESET KEY	Axle Counter reset key where provided/when pressed resets the axle counter provided reset co-operation is available from other station.
MAINTAINER BACK COVER LOCK KEY	A lock is provided at the back of panel for maintenance purpose.
SM's BACK COVER LOCK	For Double lock arrangement, a lock on the back of block panel is provided which can be operated by key kept in the custody of Station Master.
SHUNT RELEASE KEY	Shunt Release Key (normally turned and kept OUT) a) The following operations is possible when IN, To take out SHUNT KEY from electric key transmitter (EKT), which serves as tangible authority for Loco Pilot to shunt beyond Last Stop Signal up to First Stop Signal. b) The following operations are not possible when IN: (i) To take LINE CLEAR (ii) Other side station to take LINE CLEAR (iii) Closing of block. (iv) To take Last Stop Signal to "OFF"
CATCH/SLIP SIDING	This key where provided is USED to perform CATCH/SLIP SIDING operation.

1.2 PUSH BUTTON (Non-locking type):

PUSH BUTTONS	FUNCTIONS
BELL	To transmit BELL codes to station at other end of Block section. To take LINE CLEAR, when pressed along with TRAIN GOING TO button. To cancel LINE CLEAR, when pressed along with CANCEL button. To extend co-operation for cancellation to other station, when pressed with RESET button.

TRAIN GOING TO	Station Master of sending station operates it along with bell button. This sets sending block panel to 'TRAIN GOING TO' condition and receiving station block panel to 'TRAIN COMING FROM' condition Green TGT indicates this condition on block panel.
CANCEL	It is operated along with 'BELL' button to enable cancellation of 'LINE CLEAR' condition, if the train has not entered the block section or after the train has pushed to the station. Station Master at train receiving station does cancellation operation.
ACKN	It is operated to acknowledge the section occupied on section free condition. It silences the SECTION OCCUPIED/FREE Buzzer
AXLE COUNTER RESET CO-OP	It is operated to extend co-operation from a station where evaluator of axle counter has not been provided for resetting of Axle Counter. It is operated by train sending station for extending cancel co-operation to train receiving station.

1.3 <u>INDICATORS:</u>

INDICATORS	FUNCTIONS
LINE CLOSED YELLOW	Circular indication in between the directional arrowhead. To indicate Block Section free from vehicles and LINE CLEAR not granted/received at train receiving/train sending station respectively.
TRAIN COMING FROM (TCF)	In a directional arrowhead pointing downward for incoming traffic towards station.
GREEN	To indicate LINE CLEAR has been obtained, when TRAIN GOING TO Button and BELL button have been pressed at sending station and the conditions for the granting of LINE CLEAR at receiving station have been complied with and a rectangular indication named TCF lights up GREEN.
RED	To indicate TRAIN ON LINE on entry of incoming train on LINE CLEAR and a rectangular indication named TOL lights up RED.
FLASHING GREEN	To indicate: a) Block section clear after arrival of train, associated signals and their controls not normal at either station. b) Cancellation of LINE CLEAR before entry of train in Block Section. Block section clear after arrival of train, associated signals and their controls at normal at both stations but after unintentional insertion of Shunt Releases Key IN, when the train was in section.

TRAIN GOING TO (TGT) GREEN RED FLASHING GREEN	In a directional arrowhead pointing upward for outgoing traffic away from station at train sending station. To indicate LINE CLEAR received when TRAIN GOING TO button and BELL button have been pressed on Block Panel of train sending station and the condition for taking the LINE CLEAR have been complied with at both stations and a rectangular indication named TGT lights GREEN. To indicate TRAIN ON LINE on entry of outgoing train on LINE CLEAR and a rectangular indication named TOL lights up RED. To indicate: a) Block Section clear after arrival of train at other station, but associated signals and their controls not normal at either or both stations i.e. SNK off or Shunt Key indication 'RED' b) LINE CLEAR cancelled before entry of train in block section.
LAST STOP SIGNAL RED GREEN	Its shape is circular monogram of signal Red indication means Last Stop Signal is at 'ON' Green indication means Last Stop Signal is at 'OFF'
RESET/CANCELLATION CO-OPERATION YELLOW	Its shape is circular and is placed near reset key. It indicates that co-operation has been received from block panel where reset co-operation button has been provided.
CANCEL indication FLASHING YELLOW	Circular LED To indicate progress of LINE CLEAR cancellation timer of 120 seconds. The indication lights up on pressing of CANCEL along with BELL button, when TRAIN COMING FROM is displaying FLASHING GREEN indication.
LINE FREE (GREEN) LINE OCCUPIED (RED)	Green indicates line is clear of vehicles. Red indicates line is occupied
SNKE YELLOW	It is provided near TRAIN GOING TO directional arrowhead. When lit yellow it indicates LSS, FSS, Controls are normal and TCF indication is not available at station on other end of block section.
SNOEK YELLOW	It is provided near TRAIN COMING from directional Arrowhead. When lit yellow it indicates LSS, FSS controls are normal TCF indication is not available at station on other end of Block Section.
SM KEY (IN) GREEN	Lit indicates SM KEY is 'IN' and turned.
SHK-IN/OUT GREEN/RED	When lit Green indicates Shunting Key has not been taken out. When lit RED indicates Shunting Key has been extracted.
TRAIN ACKNOWLEDGEMENT IN/OUT YELLOW	Lit at the time of train entry into and exit from the block section. It remains lit until acknowledged.
Co-operation timer	It starts flashing when cancellation process starts and flashes for 120 seconds.
SSBPAC OK indication	Where provided, glows GREEN when SSBPAC (D) is OK otherwise Extinguished.

SSBPAC FAIL indication	Where provided, glows RED when SSBPAC (D) goes into a failure mode otherwise Extinguished.
Communication LINK FAIL indication	Glows steady YELLOW when LINK FAILS otherwise flickering.

1.4 COUNTERS:

COUNTERS	FUNCTIONS
CANCEL	It keeps record of cancellation of 'Line Clear' when train has not entered block section or train has been done 'push back' operation.
RESET	Reset Counter on block panel at the station where Axle Counter Reset Key is provided. It keeps record of number of successful resets of Axle Counter.

1.5 BUZZERS:

BUZZERS	FUNCTIONS
BLOCK	It gives signal as per BELL CODE sent by operator at station at other end of block section
SECTION	Its audible signal informs SM that train has either occupied or cleared the Block Section.

1.6 BLOCK TELEPHONE:

For Speech Communication with SM at other end of Block Section.

1.7 SHUNT KEY OF EKT:

An auxiliary EKT is provided with SM's Block Panel to serve as SHUNTING Authority.

The Key of this transmitter is normally 'IN' and taken 'OUT' to use as tangible authority given to Loco Pilot of a train to perform shunting upto opposing First Stop Signal (FSS).

Released when SHUNT RELEASE KEY of Block Panel is turned to 'IN'.

2.0 Signalling of a train over the block section using Axle Counter Proven Block Panel (USFBI & SSBPAC (D) single line):

Taking 'X' and 'Y' as two consecutive Block stations, the sequential procedure for dispatching a train, cancelling 'Line Clear' etc., is as detailed below. Before asking for 'Line Clear' on controlled sections, the Station Master shall obtain the permission of Controller.

2.1 DESPATCHING A TRAIN

Block panel operators at sending and receiving stations will follow the events listed hereunder for dispatching and receiving a train:

SENDING STATION		RECEIVING STATION	
1.	SM ensures; LINE CLOSED indication YELLOW, SNK indication YELLOW, SNOEK indication YELLOW, LINE FREE indication GREEN, SHUNT KEY indication GREEN, SM KEY indication GREEN.	2	

	SM sends 'Call Attention' signal to receiving station by pressing BELL button and hold on block telephone.		Ensure SM KEY indication GREEN SM acknowledges the 'Call Attention' signal by pressing BELL button. Attend telephone
3	After ensuring correct station has responded, ask "IS LINE CLEAR FOR .....TRAIN	4	After ensuring, LINE CLOSED indication YELLOW, SNK indication YELLOW, SNOEK indication YELLOW, LINE FREE indication GREEN & SHUNT KEY indication GREEN & Then say "LINE IS CLEAR FOR……. TRAIN" supported by a Private Number.
5	Repeat the Private Number and note down. SM simultaneously presses BELL & TRAIN GOING TO buttons until 'TRAIN GOING TO' arrowhead indication lights up GREEN. (If aforesaid indicator does not appear after 3 seconds (approx.) of pressing the buttons, SM releases the buttons and rechecks conditions at his station and asks station at other end to recheck the conditions for grant of LINE CLEAR.)	6	'LINE CLOSED' indicator turns off and 'TRAIN COMING FROM' arrowhead indication lights up GREEN.
7	'LINE CLOSED' indicator turns off. 'TRAIN GOING TO' arrowhead indication lights up GREEN. Releases BELL & TRAIN GOING TO buttons.		
8	Takes OFF 'Last Stop Signal' SNK indicator turns 'OFF' Train enters the Block Section. Last Stop Signal indication on block panel turns to RED. LINE FREE indicator turns to 'RED' SECTION buzzer starts ringing & 'TRAIN GOING TO arrowhead indication turns RED. ACKN indicator lights up. Acknowledges the buzzer by pressing ACKN button. ACKN indicator turns off and Buzzer is silenced. Note the train entering the block section timings. Puts back the Last Stop Signal controls to normal. SNK lights up YELLOW. SNOEK indicator turns 'OFF'	9	SNOEK indicator turns 'OFF' LINE FREE indicator turns to RED. SECTION buzzer starts ringing & 'TRAIN COMING FROM' arrowhead indication turns RED. ACKN indicator lights up. Acknowledges the buzzer by pressing ACKN button. ACKN indicator turns off & buzzer is silenced. Note the train entering the block section timings. SNOEK lights up YELLOW. Takes reception signal 'OFF' to receive the train. SNK indicator turns 'OFF'. Train passes Home Signal. Home Signal replaces to 'ON'. Train clears the Block Section.
11	SECTION buzzer starts ringing. ACKN indicator lights up. LINE FREE indicator turns to GREEN 'TRAIN GOING TO' arrowhead indication turns to FLASHING GREEN.	10	SECTION buzzer starts ringing. ACKN indicator light up & LINE FREE indicator turns GREEN. 'TRAIN COMING FROM' arrowhead indication turns to FLASHING GREEN.

	Acknowledges the buzzer by pressing ACKN button. ACKN indicator turns off & buzzer is silenced. Note the train out of block section timings.		Ensure the conditions for closing the block section as per GR 14.10 and SRs thereunder. Acknowledges the buzzer by pressing ACKN button. ACKN indicator turns off & buzzer is silenced. Note the train out of block section timings.
13	SNOEK lights up yellow. 'TRAIN GOING TO' arrowhead indication turns off. 'LINE CLOSED' indicator lights up.	12	Replaces all controls pertaining to reception of train to normal. SNK lights up YELLOW. 'TRAIN COMING FROM' arrow head FLASHING GREEN indication turns off. 'LINE CLOSED' indicator YELLOW lights up.

Note: 1. The procedure for sending a train from station 'Y' to 'X' will be similar to the above.

2. To prevent the other end station from taking Line Clear, the Station Master shall remove the shunt key from block panel.

2.2 REFUSAL TO 'LINE CLEAR ENQUIRY'

When the Station Master does not want to grant line clear for any reason block section is blocked by the presence of a train in the section or train parting or shunting or opening of level crossing in mid-section or for any other reason, the SHUNT KEY of EKT shall be taken out and kept in safe custody.

If the block station SM at other end refuses the 'IS LINE CLEAR' enquiry signal, no train shall be allowed to leave until a fresh IS LINE CLEAR enquiry signal has been given to block station at other end and accepted.

On removal of obstruction, the shunt Key of EKT shall be inserted and turned to IN position and the Shunt Release Key should be kept OUT. SM shall immediately inform SM of other end about the fact, so as to enable him to send a fresh IS LINE CLEAR signal.

2.3 CANCELLATION OF 'LINE CLEAR'

In a single line 'LINE CLEAR' has been cancelled, no train shall be allowed to leave in the opposite direction until a message has been received acknowledging such cancellation and stating that the train for which the Line Clear has been obtained is detained. In case another train is to be dispatched from the same direction fresh LINE CLEAR shall be obtained.

2.4 METHOD OF LINE CLEAR CANCELLATION BEFORE THE TRAIN ENTERS THE BLOCK SECTION

SENDING STATION		RECEIVING STATION	
1	Puts back Last Stop Signal to 'ON', if already taken 'OFF', ensures; SNK indicator YELLOW, SHUNT KEY indicator at GREEN, SM KEY indicator GREEN, Advises receiving end station SM about cancellation on telephone duly communicating a Private	2	Agrees to request, communicates a Private Number and ensures: SNK indicator YELLOW, SNOEK indicator YELLOW,

	Number after prescribed BELL code.		SHUNT KEY indicator GREEN, SM KEY indicator GREEN
3	Ensures SNOEK indicator YELLOW Presses CANCEL CO-OP button and releases on receipt of BELL code.	4	CO-OP to light up YELLOW Presses BELL & CANCEL button with SM Key IN & SHUNT Key in 'OUT' CANCEL COUNTER increments by 1 'TRAIN COMING FROM' indicator turns to FLASHING GREEN CANCEL indicator lights up FLASHING YELLOW & continues flashing for 120 seconds.
5	'TRAIN GOING TO' indicator turns FLASHING GREEN	6	On expiry of 120 seconds. TRAIN COMING FROM flashing indicator and CANCEL flashing indicator turns off 'LINE CLOSED' indicator lights up.
7	TRAIN GOING TO indicator turns off. LINE CLOSED indicator lights up		

2.5 TO CLOSE THE BLOCK SECTION AFTER PUSHING BACK OF A TRAIN

After a train has been pushed back at the sending station, the sending station advises the receiving station regarding this under exchange of Private Number. The receiving station can close the section by pressing BELL and CANCEL button after taking cancel co-operation from other end.

METHOD OF CANCELLATION AFTER PUSH BACK OPERATION

SENDING STATION		RECEIVING STATION	
1	Train clears the Block Section. LINE FREE indicator turns GREEN. SECTION buzzer starts ringing. ACKN indicator lights up. 'TRAIN GOING TO' arrow head indication turns to FLASHING GREEN. Acknowledges the buzzer by pressing ACKN button. ACKN indicator turns off.	2	Train clears the Block Section. LINE FREE indicator turns GREEN. SECTION buzzer starts ringing. ACKN indicator lights up. 'TRAIN COMING FROM' arrowhead indication turns to FLASHING GREEN. Acknowledges the buzzer by pressing ACKN button. ACKN indicator turns off.
3	Advises receiving end station SM about cancellation duly communicating a PN on telephone after prescribed BELL code.	4	Agrees to request and communicate a Private Number and ensures SNK indicator YELLOW, SNOEK indicator YELLOW, SHUNT KEY indicator GREEN and Gives consent on telephone after prescribed BELL code.
5	After verbal consent from other end SM. Ensure SNK indication YELLOW,	6	CO-OP to light up YELLOW.

	SNOEK indication YELLOW, SHUNT KEY indication GREEN, Presses CANCEL CO-OP button and releases on receipt of BELL code.		Presses BELL & CANCEL button with SM Key IN. CANCEL COUNTER increments. CANCEL indication lights up FLASHING YELLOW & continues flashing for 120 seconds.
8	TRAIN GOING TO arrowhead indication turns off. LINE CLOSED indication lights up.	7	On expiry of 120 seconds, TRAIN COMING FROM arrowhead indication and CANCEL indication turns off. 'LINE CLOSED' indication lights up.

2.6 TO SHUNT BETWEEN LAST STOP SIGNAL AND OPPOSING FIRST STOP SIGNAL: Axle counter Proven Block Panel. (UFSBI & SSBPAC (D) Single line):

(The shunt key is normally locked in EKT, controlled by Block Panel. The shunt key can be extracted only when block panel is displaying 'Line closed' condition. Shunt Key is the authority for Loco Pilot to shunt between Last Stop Signal and opposing First Stop Signal)

SENDING STATION 'X'		**RECEIVING STATION 'Y'**	
Block panel in the 'Line closed condition. All relevant signals in normal position		Block panel in the 'Line closed' condition. All relevant signals in normal position.	
1	Inserts SM's key and turn		
2	Give information to Station Master/'Y' on telephone		
		3	Give consent by giving a PN
4	a) Press shunt key on block panel and take out shunt key from EKT. Shunt key 'IN' indication (YELLOW) disappears and 'OUT' indication (RED) appears. b) Handover the shunt key to the Loco Pilot c) Take 'OFF' shunt signal, if any.		
5	On train entering the block section, buzzer starts ringing and 'Line closed' indication (GREEN) disappears. 'Section occupied' indictor (RED) appears. Acknowledge the section buzzer by pressing ACK button.		
		6	On train entering the block section, section buzzer starts ringing and 'Section clear' indication (GREEN) disappears. 'Section occupied' indicator (RED) appears. Acknowledge the buzzer by pressing ACK button.
7	a) After completion of shunting, Loco Pilot returns the shunt key to the Station Master who shall replace the key. Turn the EKT clock wise position as far as possible and leave.		

	Shunt key 'IN' indication appears. b) On clearing the block section, buzzer starts ringing and 'section clear' indication (GREEN) appears; 'Section occupied' indication (RED) disappears. Acknowledge the buzzer by pressing ACK button. Inform SM/'Y' by giving the Private Number.		
		8	On clearing the block section, section buzzer starts ringing and 'section clear' indication (GREEN) appears; 'Section occupied' indication (RED) disappears. Acknowledge the buzzer by pressing ACK button. Acknowledge repeating the Private Number.

Note: - If station 'Y' fails to establish TGT condition, station/'Y' should verify the position of shunt key from station/'X' who should advise station/ 'Y' as soon as shunting is completed.

2.7 FAILURE OF AXLE COUNTER PROVEN BLOCK PANEL (UFSBI & SSBPAC (D) SINGLE LINE) AND LAST STOP SIGNAL

(a) Failure of Block Panel

The block panels must be considered as defective in the following cases:

i) When no indication is available on the Block Panel.
ii) When none of the indications viz. 'Train Coming From/Train Going To' appears on the Block Panel except 'Line Free'
iii) When no train has entered into the Block Section but the Block Panel shows 'Line Occupied' Red indication and this indication persists even after Resetting has been tried as per para 2.6.
iv) When 'TRAIN GOING TO' or 'TRAIN COMING FROM' indications do not appear by appropriate action though condition for asking 'LINE CLEAR' and granting permission to approach are available.
v) 'TRAIN GOING TO' or 'TRAIN COMING FROM' indicator does not turn to RED to give 'TRAIN ON LINE' on the entry of train into Block Section at either end of the station.
vi) When a train has arrived at the receiving station but the Block Panel still shows 'TRAIN ON LINE RED' indication and persists even after resetting has tried as per para 2.6.
vii) When a train has arrived at the receiving station but the Block Panel shows FLASHING GREEN/GREEN indication even after ensuring SNKE indicator & LCB key IN at both the station.
viii) Total failure of communication during which train shall be worked as per extant rules in force on the Railway.
ix) Any damage is seen or reported to block equipment i.e., Block Panel, Axle Counter Track Devices, Axle Counter equipment and block multiplexer equipment etc.,
x) When, after a Line Clear cancellation, CANCEL indicator does not light up FLASHING YELLOW or lights up steady YELLOW after appropriate actions. Or;
xi) When SSBPAC (D) Fail indication appears.
xii) When Communication Link Fail indication becomes steady yellow.
xiii) When Last Stop Signal cannot be kept 'ON' during its suspension/disconnection.

xiv) When Last Stop Signal of the station does not go back to 'ON' position on the entry of a train into the Block Section.

xv) When the Bell code signals are received indistinctly or are not received.

xvi) If it is known that the block panel is defective in any way not specified above.

Note: Whenever, a difficulty is faced to set the Block Panel to TGT or 'Line Closed' the Station Master shall verify from other end Station Master about the availability of SNK, SHK(IN), SCK (IN) indicators before treating the Block Panel as failed.

2.8 <u>Diagram are kept as Diagram 1 & 2</u>

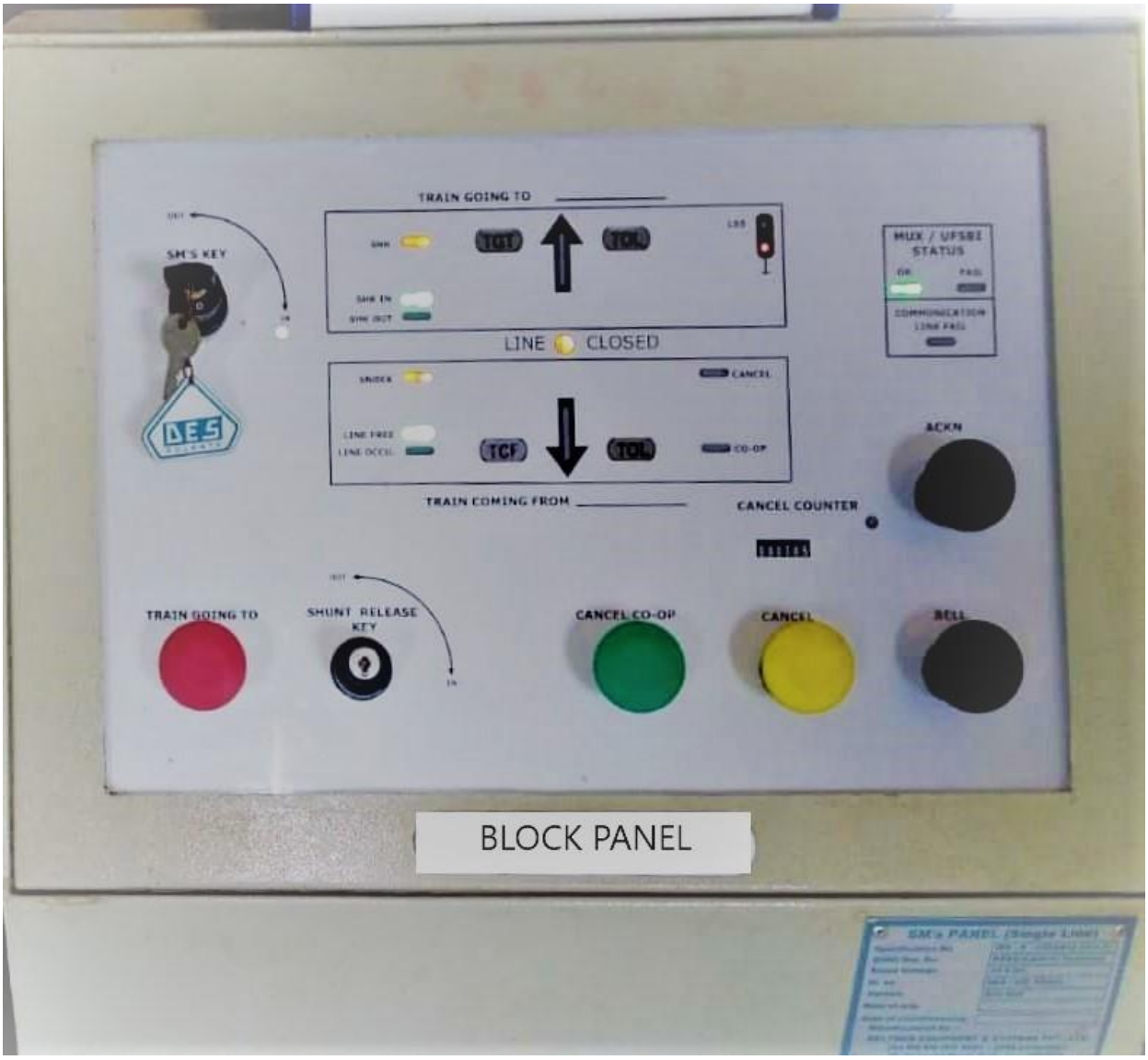


DIAGRAM 1

Block Panel of SSBPAC(D)

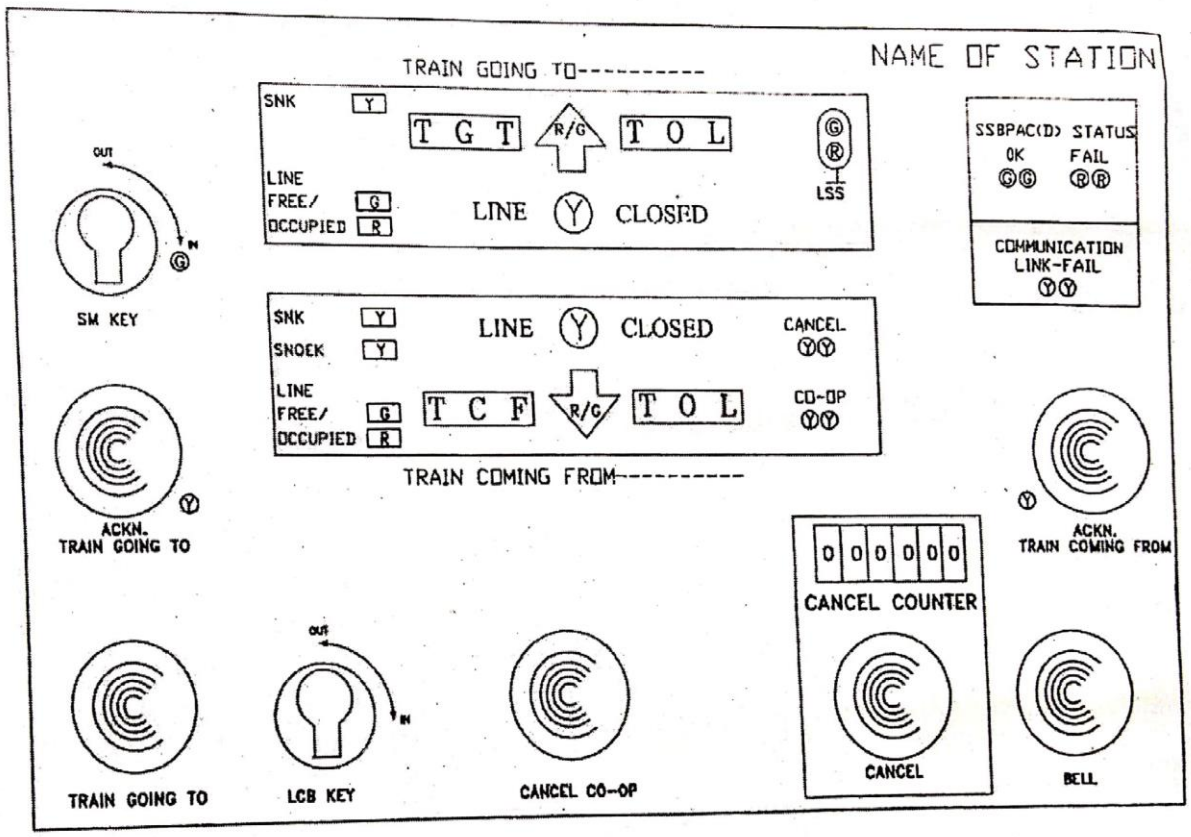


DIAGRAM 2

WORKING INSTRUCTIONS FOR SOLID STATE BLOCK PROVING AXLE COUNTER (DIGITAL)

DOUBLE LINE

1.0 Description of Block Panel of SSBPAC (D)

SM's Block Panel is provided with following KEYS for following functions.

.

1.1	SMs Key		SM/ASM' control key The key when out prevent following operations: a) Transmission of BELL code b) Transmission of IS LINE CLEAR inquiry request c) Cancellation of LINE CLEAR
1.2	LCB Key		LINE CLEAR BLOCKING Key. It serves the following when out, To prevent station in rear to take LINE CLEAR To prevent closing of Block
1.3	SM's Back Cover lock Key		To open or lock the back cover by SM/ASM/Switchman, when required by signal staff for maintenance or repairs.
1.4	Maintainer Back cover lock key		To open or lock the back cover by authorized signal staff, for maintenance or repairs, provided SM's back cover lock key.
2.0	**SM's Block Panel is provided with non-locking PUSH BUTTONS**		
2.1	BELL button (Black in colour)		a) To transmit BELL codes to station at other end of Block section. b) To take LINE CLEAR, when pressed along with TRAIN GOING TO button. c) To cancel LINE CLEAR, when pressed along with CANCEL button.
2.2	TRAIN GOING TO Button (Red in colour)		To transmit IS LINE CLEAR inquiry to station in advance for taking LINE CLEAR. It is used in conjunction with BELL button at train sending station to light up TRAIN COMING FROM (GREEN) indication on Block Panel of receiving station, which in turn automatically grants LINE CLEAR to light up and TRAIN GOING TO (GREEN) indication on Block Panel of sending station.
2.3	ACKN button(s) (Black in Colour)		Two such buttons are provided, one each for dispatch line and receive line. To silence the SECTION buzzer on occupation or clearance of block section.
2.4	Cancel Co-Op Button (Green in Colour)		To give co-operation from sending station to cancel the line clear at receiving station.
2.5	CANCEL Button (Yellow in colour)		It is used in conjunction with BELL button at train receiving station under the following conditions: Train has not entered the block section and Line Clear cancellation has to be done. Complete train has been pushed back at train sending station.

3.0	**SM's Block Panel is provided with ILLUMINATED INDICATORS**		
3.1	LINE CLOSED Indication YELLOW		Circular indications (Two Numbers) in between the directional arrowhead To indicate Block Section is free from vehicles and LINE CLEAR not granted/received at train receiving/train sending station respectively.
3.2	TRAIN COMING FROM Indication		In a directional arrowhead pointing downward for incoming traffic towards station at train receiving station.
3.3	GREEN		To indicate LINE CLEAR granted, when TRAIN GOING TO Button and BELL button have been pressed at sending station and the conditions for the granting of LINE CLEAR at receiving station have been complied with and a rectangular indication named TCF lights up GREEN
3.4	RED		To indicate TRAIN ON LINE on entry of incoming train on LINE CLEAR
3.5	FLASHING GREEN		To indicate: Block section clear after arrival of train, but associated Signals and their controls not normal at either of station or LCB Key is OUT. Cancellation of LINE CLEAR before entry of train in Block Section.
3.6	TRAIN GOING TO Indication		In an arrowhead pointing upward for outgoing traffic away from station at train sending station.
3.7	Green		To indicate LINE CLEAR received when TRAIN GOING TO button and BELL button have been pressed on Block panel of train sending station and the condition for taking the LINE CLEAR have been complied with at both stations and a rectangular indication named TCF lights up GREEN.
3.8	RED		To indicate TRAIN ON LINE on entry of outgoing train on LINE CLEAR.
3.9	FLASHING GREEN		To indicate: a) Block Section clear after arrival of train at other station, but associated signals and their controls not normal at either or both stations or LCB Key is OUT at receiving station. b) LINE CLEAR cancelled before entry of train in block section.
3.10	Cancel CO-OP indication YELLOW		Indication to indicate co-operation extended by station at other end for cancellation of line clear by pressing Cancel Co-operation button.
3.11	CANCEL indication		Circular LED.
3.12	FLASHING YELLOW		To indicated progress of LINE CLEAR cancellation timer of 120 seconds. The indication lights up on pressing of CANCEL Button along with BELL button, when TRAIN COMING FROM is displaying FLASHING GREEN indication.
4.0	**SNK Indications**		**Two such indications are provided.**
4.1	SNK YELLOW		i) SNK (D): Yellow provided near TRAIN GOING TO directional arrowhead to indicate LAST STOP SIGNAL and its controls at ON/Normal. ii) SNK (R): Yellow provided near TRAIN COMING FROM directional arrowhead to indicate reception of signal(s) and its controls at ON/Normal.

4.3	SNOEK (SNK other end) YELLOW		Provided near TRAIN COMING FROM directional arrowhead to Indicate LAST STOP SIGNAL and its controls at station in rear are at ON/Normal.
4.4	Last Stop Signal (LSS) Indications		Circular in monogram of signal.
4.5	RED		To indicate Last Stop Signal is at 'ON'.
4.6	GREEN		To indicate the Last Stop Signal is at 'OFF'.
4.7	LINE FREE indication GREEN		To indicate Block Section is clear of vehicles.
4.8	LINE OCCUPIED indication RED		To indicate Block Section is occupied.
4.9	ACKN indication		A indication near ACKN button.
4.10	YELLOW		To indicate SECTION buzzer ON status.
4.11	SM KEY 'IN' Indication		Indication near SM KEY.
4.12	GREEN		To indicate SM KEY.
4.13	SSBPAC(D) OK Indication		Glows GREEN when SSBPAC(D) is OK otherwise Extinguished.
4.14	SSBPAC(D) FAIL Indication		Glows RED when SSBPAC(D) goes into a failure mode otherwise Extinguished.
4.15	Communication LINK FAIL indication		Glows steady YELLOW when LINK FAILS otherwise flickering.
5.0	**SM's Block Panel is provided with following Buzzers**		
5.1	BLOCK Buzzer		To register the BELL CODE sent by other end SM
5.2	SECTION Buzzer		To register the occupation & Clearance of each Block Section

5.3 Cancel Counter: To register the cancellation of Line Clear. It is incremented by one for every cancellation operation done which is a non-resettable type. Cancellation to be done by receiving station & Co-Operation by sending station

5.4 Block Telephone: For speech Communication with SM at other end of Block Section.

6.0	**Operations of Block Panel:**
6.1	Method of Signalling Trains from Block Station to Block Station to on an UP/DN line in a Double Line section
6.2	a) SM of the station intending to send a train from his station has to obtain verbal consent on block telephone on alternate means from station in advance before taking LINE CLEAR on its Block Panel. Entries of Train No. to be made in registers of both stations. b) Before a request for IS LINE CLEAR is sent to station in advance, SM of sending station shall ensure the following near TRAIN GOING TO arrowhead on its Block Panel: i) LINE CLOSED indication YELLOW & ii) LINE FREE indication GREEN & iii) SNK indication YELLOW

	c) The station in advance while granting his verbal consent shall ensure the following near TRAIN COMING FROM arrowhead on its Block Panel: i) LINE CLOSED indication YELLOW & ii) LINE FREE indication GREEN & iii) SNK indication YELLOW & iv) SNOEK indication YELLOW Then inserts and turns LCB Key d) Thereafter SM of sending station presses BELL and TRAIN GOING TO buttons. e) The arrowhead, TRAIN GOING TO/TRAIN COMING FROM lights up green at sending/receiving station respectively f) SM of sending station releases BELL & TRAIN GOING TO buttons on getting TRAIN GOING TO green indication. g) The sending station SM after obtaining LINE CLEAR on its Block Panel can send the train into Block Section by taking the LSS to 'OFF'. On entry of train into section, TRAIN ON LINE lights up RED at both the stations in arrowhead indication. SECTION buzzer sounds at both the stations along with ACKN indication near respective ACKN button. Pressing of ACKN button of concerned line (Despatch/Receive) will turn off the buzzer and ACKN indication. h) The train is received at receiving station on proper reception signals. On complete arrival of train, TRAIN GOING TO/TRAIN COMING FROM arrowhead indication turns to FLASHING GREEN and LINE FREE indication turns to GREEN at both the stations. TRAIN GOING TO/TRAIN COMING FROM arrowhead indication continuous FLASHING GREEN at sending/receiving stations respectively till reception and departure signals and their controls are not at normal or LCB KEY is not "IN". In case reception and departure signals and their controls are at normal and in capital LCB key is "IN", TRAIN GOING TO/TRAIN COMING FROM arrowhead indication turns off and LINE CLOSED. Indication lights up YELLOW.
6.3	**Following is the sequence of operations of signaling a train between two stations:**
	The block section being clear and the 'LINE CLOSED' indication being displayed on Block Panel at both the stations. The action is taken by sending stations SM as under:

	Sending Station		**Receiving Station**
1	a) Ensure LINE CLOSED indication YELLOW, SNK indication YELLOW, LINE FREE indication GREEN Insert SM Key & Turns to IN (b)Send 'Call Attention' signal to receiving station by pressing BELL button.	2	Acknowledges the 'Call attention' signal by pressing BELL button
3	Sends 'Attend Telephone' signal by pressing BELL button.	4	Acknowledges by pressing BELL button and attends telephone
5	Attend telephone and advises station in advance about the intended movement of the train on telephone & ask for LINE CLEAR. Give Number and description of train and ask for Line Clear.	6	a) Ensures LINE CLOSED indication YELLOW, SNK indication YELLOW, LINE FREE indicator GREEN & LCB key IN & b) Then say "LINE IS CLEAR FOR……. TRAIN" supported by Private Number
7	Repeat the PN and SM simultaneously presses BELL & TRAIN GOING TO buttons until 'TRAIN GOING TO'	8	'LINE CLOSED' indication turns off and 'TRAIN COMING FROM' arrowhead indication lights up GREEN.

	arrowhead indications lights up GREEN. (If aforesaid indication does not appear after 3 seconds (approx.) of pressing the buttons, SM releases the buttons and rechecks conditions at his station and asks station in advance to recheck the conditions for granting of LINE CLEAR)		
9	'LINE CLOSED' indication turns off. 'TRAIN GOING TO' arrowhead indication lights up GREEN. Releases BELL & TRAIN GOING TO buttons.		
10	Takes LSS to 'OFF' SNK indicator turns 'OFF' Train enters the Block Section. LSS indication on block panel turns to red. LINE OCCUPIED indications lights up RED. SECTION buzzer starts ringing & 'TRAIN GOING TO' Arrow Head indication turns RED. ACKN (TGT) indication lights up Acknowledges the buzzer by pressing ACKN (TGT) button. ACKN (TGT) indication turns off and Buzzer is silenced. Note the train entering the block section timings. Puts back the LSS controls to Normal. Ensures SNK lights up YELLOW.	11	SNOEK indicator turns 'OFF' LINE CLOSED indication lights up RED. SECTION buzzer starts ringing & 'TRAIN COMING FROM' Arrow Head indication turns RED. ACKN (TCF) indication lights up. Acknowledges the buzzer by pressing ACKN button. ACKN (TCF) indication turns off and buzzer is silenced. Note the train entering the Block section timings. SNOEK lights up YELLOW. Takes reception signal(s) 'OFF' to receive the train. SNK indicator turns 'OFF' Train passes Home Signal. Signal replaces to 'ON' Train clears the Block Section including Block Overlap.
13	SECTION buzzer starts ringing, ACKN (TGT) indication lights up YELLOW. LINE FREE indication turns to GREEN. 'TRAIN GOING TO' indication turns FLASHING GREEN. Acknowledges the buzzer by pressing ACKN (TGT) button. ACKN (TGT) indication turns off and buzzer is silenced.	12	SECTION buzzer starts ringing. ACKN(TCF) indication lights up YELLOW LINE FREE indication turns from RED to GREEN 'TRAIN COMING FROM' Arrow Head Indication turns from RED to FLASHING GREEN. Ensure the conditions for closing the block section as per GR 14.10 and SRs thereunder.

	Note the train out of block section timings.		Acknowledges the buzzer by pressing ACKN (TCF) button. ACKN (TCF) indications turns off and buzzer is silenced. Note the train out of Block Section timings.
15	 'TRAIN GOING TO' Arrow Head Indication turns off. 'LINE CLOSED' indication lights up.	14	Replaces all controls pertaining to reception of train to Normal. SNK lights up YELLOW. 'TRAIN COMING FROM' Arrow Head flashing green Indication turns off. 'LINE CLOSED' indication YELLOW lights up.

7.0 REFUSAL TO 'LINE CLEAR ENQUIRY'

When the SM does not want to grant line clear for any reason block section is blocked by the presence of a train in the section or train parting or shunting or opening of level crossing in the mid-section or for any other reason, the LCB key shall be taken out and kept in safe custody of the SM of the receiving station. **(CM No.15 dated 24.08.2022)**

On removal of obstruction, SM of receiving station shall immediately inform SM of sending station in rear about the line free condition and put LCB key IN, so as to enable him to send a fresh 'LINE CLEAR ENQUIRY'.

8.0 CANCELLATION OF "LINE CLEAR"

After a sending station has taken LINE CLEAR, in case of cancellation of train or for testing, the receiving station can carry out LINE CLEAR cancellation by pressing BELL & CANCEL button with SM Key IN only when the CO-OP button at the sending station is kept pressed. TRAIN GOING TO/ TRAIN COMING FROM arrow indication turns to FLASHING GREEN at sending/receiving station respectively.

a) Method of cancellation due to cancellation of train:

SENDING STATION		RECEIVING STATION	
1	Give call attention signal put back LSS to 'ON', if already taken 'OFF', ensures: SNK indicator YELLOW, Advises receiving end station SM about circumstances for cancellation after prescribed BELL code supported by a Private Number.	2	Acknowledge and attend telephone Agrees to request, ensures; SNK indicator YELLOW, SNOEK indicator YELLOW, and gives consent supported by Private Number.
3	After verbal consent from other end SM Presses CANCEL CO-OP button and releases on receipt of BELL code.	4	 CO-OP to light up YELLOW Presses BELL & CANCEL button with SM key IN CANCEL COUNTER increments by 1. 'TRAIN COMING FROM' indicator turns from GREEN to FLASHING GREEN.

			CANCEL indicator lights up FLASHING YELLOW & continues flashing for 120 seconds.
5	'TRAIN GOING TO' indicator turns from GREEN to FLASHING GREEN	6	On expiry of 120 seconds, 'TRAIN COMING FROM' indicator arrow and CANCEL indicator turns off 'LINE CLOSED' yellow indicator lights up
7	TRAIN GOING TO arrow indicator turns off. LINE CLOSED yellow indicator lights up		

9.0 Closing of block after a PUSH BACK operation

After a train has been pushed back at the sending station, the sending station advises the receiving station on telephone. The receiving station can close the section by pressing BELL & CANCEL button after getting co-operation from sending station.

10.0 Method of Push Back operation

SENDING STATION		RECEIVING STATION	
1	Train clears the Block Section. LINE FREE indication turns GREEN. SECTION buzzer starts ringing. ACKN (TGT) indication lights up. 'TRAIN GOING TO' arrowhead indication turns to FLASHING GREEN. Acknowledges the buzzer by pressing ACKN (TGT) button. ACKN (TGT) indication turns off and buzzer is silenced. Ensure SNK indication YELLOW.	2	Train clears the Block Section, LINE FREE indication turns GREEN. SECTION buzzer starts ringing. ACKN (TCF) indication lights up. 'TRAIN COMING FROM' arrowhead indication turns from red to FLASHING GREEN. Acknowledges the buzzer by pressing ACKN (TCF) button. ACKN (TCF) indication turns off and buzzer is silenced
3	Requests other end station SM on telephone regarding closure of the block, after prescribed BELL code. Give Private Number.	4	On request from sending station SM about closing of Block Section after prescribed BELL code give Private Number. Ensures SNK indication YELLOW.
5	Gives co-operation to other end station for cancellation by pressing the cancel co-op button and releases on receiving a bell code.	6	Co-operation indication light up yellow. BELL and CANCEL button pressed, Released with SM key & LCB key IN, Cancel counter increments CANCEL indication lights up FLASHING YELLOW and continues flashing for 120 seconds. On expiry of 120 seconds, TRAIN COMING FROM arrowhead flashing

			green indication & cancel yellow indication turns off. LINE CLOSED indication yellow lights up.
8	TRAIN GOING TO Arrow Head Indication turns off. LINE CLOSED indication yellow lights up.	7	On expiry of 120 seconds, TRAIN COMING FROM arrowhead indication & cancel indication turn off. LINE CLOSED indication lights up.

11.0 BLOCK BACK

The SM, who intends to Block Back the line, shall inform the SM of station in rear on telephone for permission to Block Back, who will acknowledge the message and grant permission supported by a Private Number. SM who intends to Block back takes LCB Key OUT and keeps in safe custody. The SM will then issue necessary authority (Form T.806 with PN) to Loco Pilot of train to perform shunting in Block Section.

On completion of shunting, section clear message will be sent to SM of station in rear on telephone about obstruction removed supported by Private Number, who in turn will acknowledge the same supported by a Private Number. Thereafter SM will insert LCB Key and turn IN position.

All the entries in Train Signal Register (TSR) for this operation should be made in RED ink. The reasons for Block Back shall be recorded in remarks column against each entry.

Method of Block Back operation(CM No.15 dated 24.08.2022)

Station intending BLOCK BACK		STATION IN REAR	
1	Block Panel Displays; LINE CLOSED – YELLOW LINE FREE – GREEN SNOEK - YELLOW	2	Block Panel displays; LINE CLOSED – YELLOW LINE FREE – GREEN SNK – YELLOW
3	Inserts SM Key and turns, Gives call attention by pressing bell button	4	Acknowledges call attention/attend telephone signal by pressing bell button.
5	Attends telephone	6	Attend telephone
7	Inform intention to block back for shunting in Block Section.	8	Acknowledges and gives consent by Private Number.
9	The LCB is taken out and kept in safe custody. Issue necessary authority (Form T.806) to Loco Pilot of train to perform shunting in Block Section.		
10	On entry of train in Block Section, SECTION buzzer starts ringing and LINE CLOSED indication turns off. ACKN(TCF) indication lights up. LINE FREE indication goes off and LINE OCCUPIED indication lights up RED.	11	On entry of train in Block Section, SECTION buzzer starts ringing and LINE CLOSED indications turns off. ACKN (TGT) indication lights up. LINE FREE indication goes off and LINE OCCUPIED indication lights up RED.

	Acknowledges the buzzer by pressing ACKN (TCF) indication turns off and buzzer is silenced.		Acknowledges the buzzer by pressing ACKN (TGT) button. ACKN (TGT) indication turns off.
12	On clearing of Block Section. SECTION buzzer starts ringing and LINE CLOSED indication lights up. ACKN(TCF) indication lights up. LINE OCCUPIED red indication turns off and LINE PREE indication turns GREEN. Acknowledges the buzzer by pressing ACKN(TCF) button. ACKN yellow indication turns off.	13	On clearing of Block Section. SECTION buzzer starts ringing and LINE CLOSED indication lights up. ACKN (TGT) indication lights up. LINE OCCUPIED red indication turns off and LINE FREE indication turns to GREEN. Acknowledges the buzzer by pressing ACKN button. ACKN indication turns off.
14	On completion of shunting, SM verifies the line between opposite STARTER (if any)/Shunt signal or Block section Limit Board/Stop Board/fouling mark and FIRST STOP SIGNAL, free from any vehicle. Inserts SM key and turns, Gives call attention/attend telephone signal.	15	Acknowledges call attention/attend telephone signal.
16	Attends telephone.	17	Attends telephone
18	Inform shunting is completed supported by Private Number	19	Acknowledges supported by a Private Number.
20	Inserts LCB and turn in.		

12.0 BLOCK FORWARD

The SM, who intends to Block forward the line, shall inform the SM of station in advance on Telephone for permission to Block Forward, who will acknowledge the message and grant permission supported by a private number. The SM of advance station takes LCB key OUT and keeps in safe custody. The SM of this station will then issue necessary authority (T.806 with PN) to Loco Pilot of train to perform shunting in Block Section.

On completion of shunting, message will be sent to SM of station in advance on telephone about obstruction removed supported by a private number, who in turn will acknowledge the same supported by a Private Number. Thereafter SM of advance station will insert LCB key and turn to IN position.

All the entries in Train Signal Register for this operation should be made in RED ink. The reasons for Block forward shall be recorded in remarks column against each entry.

Station intending BLOCK FORWARD		Station in ADVANCE	
1.	Block Panel displays; LINE CLOSED – YELLOW LINE FREE - GREEN	2	Block Panel displays; LINE CLOSED – YELLOW LINE FREE - GREEN
3	Inserts SM key and turns IN, gives call attention/attend telephone signal by pressing bell button	4	Acknowledges call attention by pressing bell button/attend telephone signal.

5	Attends telephone	6	Attends telephone
7	Inform intention to perform shunting in Block Section.	8	Acknowledges and gives consent by Private Number
10	Issue necessary authority (T.806 with PN) to Loco Pilot of train to perform shunting in Block Section.	9	The LCB Key is taken out and kept in safe custody.
11	On entry of train in Block Section, SECTION buzzer starts ringing and LINE CLOSED indication turns off. ACKN (TGT) indication lights up LINE FREE green indication turns off. LINE OCCUPIED indication red lights up Acknowledges the buzzer by pressing ACKN (TGT) button, ACKN (TGT) indication yellow turns off.	12	On entry of train in Block Section, SECTION buzzer starts ringing and LINE CLOSED indication turns off. ACKN indication lights up Yellow. LINE FREE indication turns RED. Acknowledges the buzzer by pressing ACKN (TCF) button. ACKN (TCF) indication turns off.
13	On clearing of Block Section. SECTIONbuzzer starts (TGT) ringing and LINE CLOSED indication lights up Yellow. ACKN indication lights up yellow. LINE FREE indication turns to GREEN. Acknowledges the buzzer by pressing ACKN (TGT) button. ACKN (TGT) indication yellow turns off.	14	On clearing of Block Section TCF SECTION buzzer starts ringing and LINE CLOSED indication yellow lights up. ACKN(TCF) indication lights up yellow. LINE FREE indication turns up GREEN. Acknowledges the TCF buzzer by pressing ACKN (TCF) button. ACKN (TCF) indication turns off and buzzer is silenced.
15	On completion of shunting, SM verifies the line between STARTER/Shunt Signal/Stop Board/Fouling mark and LAST STOP SIGNAL, free from any vehicle. Gives call attention to attend telephone by pressing bell button.	16	Acknowledges call attention by pressing bell button.
18	Attends telephone	17	Attends telephone
20	Inform shunting is completed supported by a Private Number.	19	Acknowledges supported by a Private Number
		21	Inserts LCB and turn in.

13.0 SHUNTING OF TRAIN

13.1 SHUNTING OF TRAIN UP TO LAST STOP SIGNAL

While shunting on dispatch line, the LAST STOP SIGNAL should be kept ON.

SM key shall be taken out. The Loco Pilot of shunting train shall be given shunting order to shunt up to LAST STOP SIGNAL. on completion of shunting, the line between STARTER/Shunt Signal/Stop Board/Fouling mark and LAST STOP SIGNAL should be checked free from any vehicle and only then SM key shall be inserted and turned to IN position.

13.2 SHUNTING BEHIND A TRAIN

Shunting behind a train should be performed with a message to Station in advance. The station in advance shall take LCB Key out and keep in safe custody.

Shunting shall be performed as per SR 8.9(i). On completion of shunting, SM of sending station verifies the line between STARTER/Shunt Signal/Stop Board/fouling Mark and LAST STOP SIGNAL free from any vehicle.

The message regarding completion of shunting shall be sent to station in advance.

SM of station in advance inserts LCB Key and turns to IN position.

14.0 BLOCK FAILURES AND ACTION TO BE TAKEN:

The block failures can be categorized into the following:

15.0 FAILURE OF THE BLOCK PANEL:

Block panel should be considered defective for Up and /or Down trains, as the case may be. The Block Panel should not be restored for normal working until tested by competent signal staff and certified fit by them for use after the under-mentioned cases except for the case of Communication Link Failure (steady yellow indication). After the Communication Link Failure indication becomes flickering (OK indication) again block panel operation can be restored.

CAUSE OF FAILURE		ACTION TO BE TAKEN
1	When no indication of any sort, at all appears on the Block Panel or:	For case 1-9, Block Panel should be treated as defective block working suspended and trains should be dealt with by taking LINE CLEAR on the electrical communication equipment provided and by provision of GR 14.13 and SR there under, if any
2	When the Bell Code signals are received indistinctly or;	
3	Any damage is seen or reported to block equipment or;	
4	When none of the indications viz. 'TRAIN COMING FROM and TRAIN GOING TO' appears on the block panel except 'LINE FREE' or;	
5	When no train has entered into the block section but the 'LINE OCCUPIED' indication lights on RED on both lines and these indications persists even after resetting of the Axle Counters have been tried or;	

6	When a train has arrived at the receiving station but the Block Panel still shows 'TRAIN ON LINE' RED indication and persist on both lines or;	
7	When BI Fail indication (SSBPAC (D) red) comes or;	
8	When Link Fail indication becomes steady yellow.	
9	When 'TRAIN GOING TO' or 'TRAIN COMING FROM' Arrow Head Indications do not appear by appropriate action though condition for asking 'LINE CLEAR' and granting permission to approach are available. Or;	
10	TRAIN GOING TO or TRAIN COMING FROM Arrow Head Indications does not turn to RED to give TRAIN ON LINE indication on the entry of train into Block Section at either of the stations or;	For case 10-12, the Block Panel should be treated as defective for respective line, Block working suspended for respective line and trains should be dealt with by taking LINE CLEAR on the electrical communication equipment provided and by provisions of GR 14.13 and SR there under if any. In addition to action taken for case 1-12, all efforts should be made to keep the LAST STOP SIGNAL at ON position. If it is not possible, then a competent Railway Servant should be deputed with RED had signal at the foot of the LAST STOP SIGNAL to warn the Loco Pilots of the approaching trains. In addition, all trains in the relevant direction should be stopped at Home Signal and after ensuring that they have come to a stop, the Home Signal should be cleared to caution aspect only. The STARTER signal should not be taken OFF until the issue of relevant authority to pass the STARTER and LAST STOP SIGNAL to the Loco Pilot. Caution order should also be issued to the Loco Pilot about the defect of LAST STOP SIGNAL.
11	When a train has arrived at the receiving station but the Block Panel shows FLASHING GREEN/GREEN indication even after ensuring SNK indication and LCB key IN or;	
12	When, after a cancellation CANCEL indication does not light up FLASHING YELLOW or STEADY YELLOW after appropriate actions or;	
13	When Last Stop Signal cannot be kept at 'ON' during its suspension/disconnection.	
14	When Last Stop Signal of the station does not go back to 'ON' position on the entry of a train into the Block Section.	
15	Total failure of communication during which train shall be worked as per extent rules in force on the Railway.	In addition to action taken for case 1-14, the trains should be dealt with under the extent rules as outlined in GR 14.13 and SR there under.

16.0 Failure of LAST STOP SIGNAL and Action to be taken

Cause of failure of the LAST STOP SIGNAL		ACTION TO BE TAKEN
1	When LAST STOP SIGNAL cannot be taken OFF even through LINE CLEAR has been obtained; Or	Failure shall be informed to Signal Staff immediately. Form T/369-(3b) shall be issued to the Loco Pilot of train with an endorsement that Line Clear has been taken through Block Instrument along with the Private Number received from the Station in advance, as Authority to proceed. **(CM No.15 dated 24.08.2022)**
2	When LAST STOP SIGNAL can be cleared without obtaining LINE CLEAR; Or	BLOCK PANEL shall be suspended. The LAST STOP SIGNAL should be considered to have failed and failure shall be informed to Signal staff immediately.
3	LAST STOP SIGNAL does not restore to ON position on entry of train into Block Section.	BLOCK PANEL shall be suspended. The LAST STOP SIGNAL should be considered to have failed and failure shall be informed to Signal staff immediately.

17.0 SUSPENSION OF BLOCK WORKING & ACTIONS TO BE TAKEN

CAUSES OF SUSPENSION		ACTION TO BE TAKEN
1	When material lorries or Motor trolleys or tie-tampering machines or Rail Motor/Bus or Rail cum road vehicle or Tower wagon (4 wheeler) has to run in the section.	BLOCK PANEL shall be suspended for respective line and these vehicles shall be worked on relevant authority.
2	An accident takes place in the mid-section.	BLOCK PANEL shall be suspended for both lines, if line adjacent to affected line is reported to have been infringed, till the infringement exists for dispatch line or, LAST STOP SIGNAL shall be treated as INOPERATIVE and FAILED.
3	When any part of Block Panel is opened or removed for repairs under duly accepted disconnection notice	BLOCK PANEL shall be suspended LAST STOP SIGNAL shall be treated as INOPERATIVE and FAILED
4	When Last Stop Signal of the station has been taken by Signal staff for repairs.	LAST STOP SIGNAL shall be treated as INOPERATIVE and FAILED
5	During Block FORWARD	LAST STOP SIGNAL shall be treated as INOPERATIVE and FAILED

When the cause of suspension of BLOCK PANEL and/or LAST STOP SIGNAL is removed the normal working of BLOCK PANEL and or LAST STOP SIGNAL as the case may be, shall be restored by SM.

****

SOUTH WESTERN RAILWAY

BLOCK WORKING MANUAL

PART - II

WORKING OF TRAINS UNDER AUTOMATIC BLOCK SYSTEM ON DOUBLE LINE

1.01 General Instructions:

i) These instructions are supplementary to Chapter IX of the General and Subsidiary Rules 1976 edition and other relevant General and Subsidiary Rules applying to Automatic Block System except where otherwise provided for.

ii) The equipment relating to the Automatic Block System on Double line is provided in the control Panel for operating points and signals at the respective stations.

1.02 Authority to proceed

The 'OFF' aspect of Semi-Automatic stop Signal or Manual stop Signal controlling entry into the Block Section constitutes the 'Authority to proceed' for trains to enter the block section.

1.03 Description and working of Panel/Route setting/RRI/EI type Interlocking Control Panel

(i) The panel/Route setting/RRI/EI type interlocking Control Panel provided at the Stations on the Automatic Double Line section shall have the following features:

a) Bell Push Buttons
b) Approach Buzzers
c) Approach Acknowledgement Buttons.
d) Route setting buttons
e) Signal and point operation knobs
f) King Knobs
g) Panel telephone
h) Station Master's key
i) Route Cancellation Buttons
j) Signal Blank Buzzer
k) Gate control knob if LC gate available
l) Signal Blank buzzer Acknowledgement button
m) Power failure Buzzer
n) Power acknowledgement button **(CM No 1 dated 06.08.2018)**

(ii) **Bell Push button: -** It is used to call attention of the adjacent station. While starting the train, the Station Master shall call the adjacent Station Master and inform him about the particulars of train number and description.

(iii) **The approach Buzzer: -** It starts sounding at the receiving station as soon as the train has passed the Semi-Automatic stop Signal / Manual stop Signal (controlled by the station in rear) or as may be specified in SWR. The Station Master on duty at the receiving station shall press the concerned approach acknowledgement button to stop the buzzer. If a following train has entered the block section, before the previous train has cleared it, the approach buzzer will sound only after the previous train has cleared the block section.

(iv) **Approach Acknowledgement Buttons: -** The approach Buzzer starts sounding at the receiving Station as soon as the train has passed the Semi Automatic / Manual Stop signal (LSS) or as may be specified in SWR. The Station Master on duty at the receiving station has to press the concerned Approach Acknowledgement Button to stop the Buzzer. If a following train has entered the block section, before the previous train has cleared it, the Approach Buzzer will sound only after the previous train has cleared the Block section.

(v) **Panel telephone:-** It is provided at the appropriate end of the panel and is used to communicate with the Station Master of the adjacent block station. In the case of failure of Panel telephone, Inter cabin / station Group telephone/ the Railway Auto phone / BSNL / Control telephone / Very High Frequency set shall be used as alternative means of communication.

(vi) **King knob: -** It is provided at stations (where necessary) to control the Semi-Automatic stop Signal controlling reception and dispatch of trains, which can be made to function either as Manual or Automatic. It has two positions i.e. 'Normal' and 'Reverse'. When the king knob is in the 'Normal' position, the concerned Semi-Automatic Stop Signal works as a Manual Stop signal and when the king knob is in the 'Reverse' position, the same works as an Automatic Stop signal. The Semi-Automatic Stop Signal protecting a point acts as an Automatic Stop Signal with the 'A' marker lit when the point is set to the 'Normal' position. When the point is set to 'reverse' position, the Semi- Automatic Stop Signal shall function as a Manual Stop Signal with the 'A' marker light extinguished. Separate king knobs shall be provided for each direction.

(vii) The functioning of Route setting buttons, Signal and Point operation knobs, Route Cancellation Buttons and Station Master's key are the same as found in any other Panel/RRI/EI panels.

1.04 Authorized means of communications: -

The following are the authorized means of communications used for the purpose of working trains in Double Line Automatic Sections: --

(i) Panel telephone
(ii) Inter cabin/Station Group telephone
(iii) Station to station fixed telephone
(iv) Fixed telephones such as Railway Auto phones and BSNL phone.
(v) Control telephone
(vi) VHF sets.

Note: - When all the above said means of communications have failed, Total Interruption of communications is said to prevail.

1.05 Train working: -

(i) Before starting a train, the Station Master on duty shall consult the Section Controller and obtain his permission to start. Then he shall call the Station Master of the block station in advance and advise him the train number and description. The Station Master at the other end shall acknowledge the same by communicating a Private Number in token of his readiness to receive the train.

(ii) Train Signal Register shall be maintained at all block stations. The following entries shall be made in the Train Signal Register:-

Train coming from……	**Train going to……**
a) Date	a) Date
b) Number and Description of the Train	b) Number and Description of the Train
c) Time, Permission asked for	c) Time, Permission asked for
d) Time, Permission granted	d) Time, Permission obtained
e) PN (in words and figures)	e) PN (in words and figures)
f) Time, Approach Buzzer sounded	f) Time of departure of the train
g) Time of arrival of train	g) Signature of Station Master
h) Signature of Station Master	h) Remarks
i) Remarks	…..

Note: -

(a) Entries relating to cancellation of Permission shall be made in red ink in the Train Signal Register against the entry for the train.

(b) Any other relevant entry as required by the Station Working Rules and other instructions in force should also be promptly recorded in the Train Signal Register.

(c) During suspension of normal working, all entries in the Train Signal Register should be made in red ink.

1.06 Failure or suspension of Normal working

Automatic Block working is considered failed / suspended on the following occasions:-

(i) Failure of all signals likely to last for some time and cause serious delay when means of communications are available:-

The trains shall be worked as per the provisions of SR. 9.12 (1).

(ii) Failure of all signals likely to last for some time and cause serious delay when no means of communications are available:-

The trains shall be worked as per the provisions of SR. 9.12 (2)

(iii) Temporary Single line working on Double line:-

The trains shall be worked as per the provisions of SR. 9.12 (3)

(iv) Temporary Single line working on double line when no means of communication is available and signals are also failed: The trains shall be worked as per the provisions available in SR. 9.12(4). **(CM No 1 dated 06.08.2018)**

(v) Despatch of a Relief engine/train to assist a crippled train:-

The trains shall be worked as per the provision of SR. 9.12(5).

1.07 Restoration of Failures: -

(i) In case of failures referred in Para 1.06 of this manual, normal working shall not be resumed until the Signals or Communications or both have been certified to be in order by the concerned Signal and Telecommunication official.

(ii) In the case of obstruction on track, a responsible Engineering/ Electrical official not below the rank of JE shall certify that the track is safe for passage of trains.

(iii) A record of the failure of normal working and also other failures shall be maintained in the Signal, Block failure and Inspection book.

(iv) In case of failure as stated in rule (iv) of 1.06, the normal working shall be resumed by the Station Masters themselves, when the cause for the failure/suspension is removed.

1.08 Shunting

(i) For shunting beyond departure Stop signal (Manual stop signal/Semi-automatic stop Signal) at a station and up to the next Automatic stop Signal.

(a) When it becomes necessary to make shunt moves into the first signaling section, the Station Master shall advise the Station Master at the other end of the block section about the shunting and get his consent which shall be supported by a Private Number.

(b) The SM shall ensure that the first Automatic Block signaling section is clear by observing the indication on the panel and shall then authorize the movement by taking 'OFF' of shunt signals if any, Semi-Automatic/Manual Stop signal and also issue T/806. **(C. M. No. 14 dated 10.01.2022).**

(c) The SM shall authorize the Loco Pilot to shunt upto the next Automatic/Semi-Automatic Stop signal indicating the signal number or the place up to which he shall shunt in the memo within the first Automatic Block Signaling section.

(d) During shunting, Line Block caps have to be provided on the signal knobs, protecting the section.

(ii) For shunting into the block section in advance beyond the first Automatic Block signaling section.

(a) When it becomes necessary to make shunt moves into the block section in advance beyond the first Automatic signaling section, the SM shall inform the Controller and get his permission for blocking the section between the two block stations by exchanging Private Numbers.

(b) The Station Master shall advise the Station Master at the other end of the block section about the shunting and get his consent which shall be supported by a Private Number.

(c) Both the SMs shall ensure that the concerned block section shall be clear of trains.

(d) The SM shall then authorize the Loco Pilot to perform shunting beyond the departure stop signal of his station by issue of a written memo in the prescribed format.

(e) The individual number(s) of the Automatic/Semi-Automatic Stop signals which have to be passed while performing shunting shall be mentioned in the memo. The time by which the Loco Pilot shall clear the block section may also be mentioned in the memo.

(f) Shunt Signal/Semi-Automatic/Manual Stop signal may be taken off. Otherwise, the SM shall ensure the correct setting and clamping / padlocking of points on the route of dispatch before the issue of the written memo.

(g) In the case of Semi-Automatic Gate Stop signal, the Loco Pilot shall ensure that the gate is closed against road traffic before passing the same.

(h) For return movement into the station, shunt signal if any may be taken off or movements shall be controlled by hand signals.

(i) On completion of shunting, Loco Pilot shall hand over the written memo to the SM who shall cancel the same with time and return it to the Loco Pilot.

(j) Entries regarding the shunting shall be made in red ink in the TSR.

(k) During the period of shunting, Line block caps have to be provided on the signal knobs, protecting the section.

(iii) For shunting into the block section in rear – Movement against the Direction of Traffic

(a) Station Master shall ensure that the entire block section is clear of trains.

(b) The SM shall inform the Controller and get his permission for blocking the section by exchanging Private Numbers.

(c) Station Master shall then advise the Station Master in rear about the shunting and get his consent, which shall be supported by a Private Number. The SM shall inform the Gateman about the shunt movement when communication is available.

(d) The Station Master shall also give a Private Number to the Station Master of the block station in rear as an assurance that all the trains which have

entered the block section have arrived complete at the station.

(e) The Station Master of the block station in rear shall place Line Block caps on the relevant signal knobs controlling entry into the concerned block section.

(f) The Station Master shall then authorize the Loco Pilot to shunt into the block section in rear by issue of a written memo in the prescribed format.

(g) The place upto which shunting is required to be done may be indicated in the memo in terms of the signal number or other means. The time at which the section has to be cleared may also be mentioned in the memo.

(h) The Loco Pilot shall be responsible to ensure that the level crossing gates if any are closed against road traffic before passing the same.

(i) For the return shunt movement into the station, shunt signals if any shall be taken off or the movement shall be controlled by hand signals.

(j) On completion of shunting, the Loco Pilot shall hand over the written memo to the SM who shall cancel the same with time and return it to the Loco Pilot.

(k) Entries regarding the shunting shall be made in red ink in the TSR.

(iv) The written memo referred in sub-rule (ii) & (iii) of Para 1.08 shall be in the following format:-

From **To**

SM_____ Loco Pilot / Loco Pilot (Shunting) of T.No

You are authorized to perform shunting towards ---------- station upto the Automatic / Semi-Automatic Stop signal No ---------- / Specified location. You are authorized to pass intervening Automatic/Semi-Automatic Gate Stop signal Nos .....duly observing that the gates are closed against road traffic. On return, you shall bring your train to a stop at Signal No.---------- / location ---------- , and thereafter you will be guided by the taking 'OFF' of Shunt signal ,or Signals.

Date:

Signature of the SM

Signature of the Loco Pilot / Loco Pilot (Shunting)

Note: **108 (iv) Format of Written memo (Deleted vide C. M. No. 14 dated 10.01.2022)**
& 108 (v) Re-numbered as 108 (iv) (vide C. M. No. 14 dated 10.01.2022).

1.09 Working of Trolley / Motor trolley / Ladder trolley

i) Only Trollies , which are insulated, are allowed to work in the Automatic Double line territory duly suspending the Automatic block working.

ii) Motor Trollies are prohibited from working on sections worked under Automatic Block system.

iii) Trollies shall be worked on the authority of a '**written memo' prepared in duplicate** in the format given below**:-**

Station Date:

From

Station Master _____

To

Official-in-charge of the Trolley/Lorry No_____

The Automatic Block working between _____ station and _____station is suspended. This authority permits your trolley Number_____to enter the block section towards_station in the Up/Down line. You shall clear the block section_____station at_____hours_____mts. Private Number_____.

Signature of the Official In charge **Signature of the Station Master**

(iv) On arrival of trolley / lorry at the station, the Station Master shall give a Private Number to the Station Master at the other end for the complete arrival of the trolley / lorry and resume normal working.

(v) Both end Station Masters shall make entry in red ink in the Train Signal Register.

(vi) Procedure for working OHE Ladder trolley in suburban Automatic Block Double line shall be followed as per provision in S.R.17.08 (iv).

(vii) Procedure for working OHE Ladder trolley in Non-suburban Automatic Block Double line shall be followed as per provision in S.R.17.08

(viii) Automatic Block Double Line working shall be suspended and the Station Master shall issue the following **'written authority'** as prescribed below.

Station: Date:

From

Station Master _____

To

Official-in-charge of the OHE Ladder Trolley No_____

The Automatic Block working between_____station and _____station is suspended. This authority permits your OHE Ladder trolley Number_____to enter the block section towards_____station on Up/Down line. You shall clear the block section_____station at_____hours___mts. Private Number _____

Signature of the Official In charge **Signature of the Station Master.**

(ix) On arrival of OHE Ladder trolley at the station, the Station Master shall give a Private Number to the Station Master at the other end for the complete arrival of the OHE Ladder trolley and resume normal working.

(x) Both end Station Masters shall make entry in red ink in the Train Signal Register.

****