

CHAPTER VI

RULES FOR WORKING OF TRAINS ON THE ABSOLUTE BLOCK SYSTEM ON DOUBLE LINE WITH ELECTRIC BLOCKINSTRUMENTS

6.01. Means of granting Line Clear : (Refer Gr 14.01)

A Block station/Cabin may give line clear for a train to the block station/Cabin in rear :—

- (a) Manually by means of electrical block instruments, in conjunction with telephone attached to the block instrument, or
- (b) Automatically by means of Track circuits or Axle Counters; Provided that where Axle Counters are provided —
 - (i) Count in and count out devices are provided on the track at the commencement and at the end of the block section respectively.
 - (ii) The last stop signal at the block station in rear is so controlled by the axle counter that such signal cannot display an 'off' aspect unless the block section provided with axle counter is clear and the axle counter shows 'clear' indication, and

- (iii) Visual indicators are provided at each block station at either end of the block section provided with axle counter showing the condition of the block section.

In the case of Intermediate Block posts, visual indicators are provided only at the block station in rear and are not provided at the Intermediate Block Posts.

6.02. Authority to Proceed : — [Refer GR 14.08 (a)]

6.03. Requirement for Double line block instruments :—

- (i) These instruments may be either the three or one wire type.
- (ii) These instruments shall be provided with indications for both Up and Down lines between two adjacent block stations. The indicators are to show any one of the following three positions : —
 - (a) Line Closed, (White),
 - (b) Line Clear, (Green) or
 - (c) Train on line (Red).
- (iii) The last stop signal shall be so controlled that such signal cannot display an 'off' aspect unless 'Line Clear' indication is obtained on the block instrument.
- (iv) There shall be no opening giving access to the interior of the instrument through which it may be

possible to operate the mechanism by any unauthorised or irregular means.

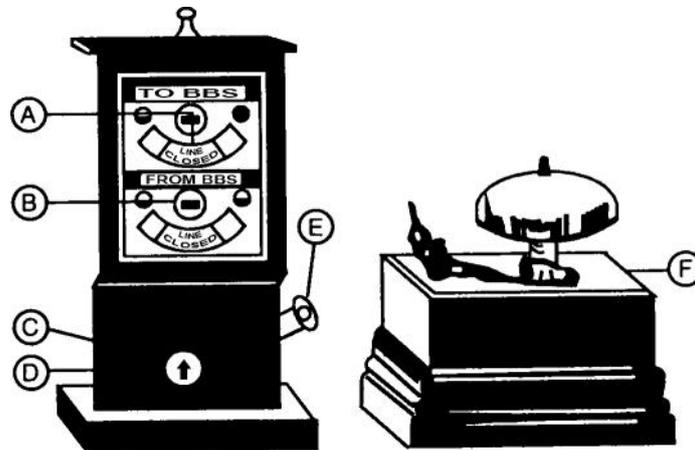
- (v) Each instrument shall have double locks and shall be kept sealed. One key of the double lock shall be kept under the personal custody of the Station Master/Cabinmaster and the other in the custody of the Sectional Technician/Sr. Technician (Sig).
- (vi) The Batteries in cup board shall be locked up and sealed, the keys being kept by the Technician/Sr. Technician (Sig) of the section.
- (vii) Telephones shall be provided in conjunction with Block instruments, but should be separate units.
- (viii) The period of overhaul for these instruments is fixed at 10 years or earlier, if required and the last date of overhaul is printed on each instrument.

6.04. Type of Instrument : —

Only Siemen's (SGE)/IRS type (HWH make) Double line three position lock and block electrical block instrument is in use on East Coast Rialway. Working instructions of only this instrument is discussed in this chapter.

6.05. Description of Siemen's (SGE) three position lock and Block instrument.

The various parts of the block instrument, as marked in the diagram and their functions are described below:—



Siemens (SGE)/IRS type (HWH make) Double line
Electrical Block Instrument

(i) The part of the block instrument marked (A) is for the purpose of indicating the signal received from the block station in advance. It has three indications, "Line Closed", "Line Clear" and "Train on Line" and is fitted with a needle, called upper needle, which may point to any of the three indications. The position of this needle can only be changed by the block station in advance. The indications of this needle refer to trains leaving the station and give a visual indication of the condition of the block section in advance. The indications of the upper needle correspond with those of the lower needle of the corresponding instrument at the station in advance.

(ii) The part of the block instrument marked (B) is for the purpose of indicating the signals sent to the block stations in rear. It has three indications 'Line Closed', 'Line Clear' and Train on Line' and is fitted with a needle, called the lower needle

which may point to any of the three indications. The indications of this needle refer to trains approaching a station and give a visual indication of the condition of the block section in rear. The position of this needle is changed by the operation of the commutator by the Station Master/ Cabinmaster of the station at which the instrument is located. The indications of the lower needle correspond with those of the upper needle of the corresponding instrument at the station in rear.

(iii) The part of the block instrument marked (C) is the commutator which can be turned with the bell plunger pressed on the last stroke of the bell code signal sent to the station in rear. A pointer is engraved on the face of the commutator. In the normal position of the commutator, the pointer on it remains vertical and the lower needle of the same instrument as well as the upper needle of the corresponding instrument at the block station in rear points to 'Line Closed' which signifies that 'Line Clear' has not been sent to the station in rear. When 'Line Clear' is given for a train to the station in rear, the commutator is turned to the right, the pointer on it is deflected to the right and the lower needle of the same instrument as well as the upper needle of the corresponding instrument at the block station in rear points to 'Line Clear' which signifies that 'Line Clear' has been sent to the station in rear. When line clear has been given for a train to the station in rear and the train enters the block section, the commutator is turned to extreme left, the pointer on it is deflected to the left and the lower needle of the same instrument as well as the upper needle of the

corresponding instrument at the block station in rear points to 'Train on Line' which signifies that the block section is occupied or is otherwise obstructed. The commutator is locked in the 'Train on Line' position only if 'Line Clear' indication has been previously given and remains locked till the train operates the incoming track circuit, and the control to operate the signal to which the incoming track circuit is connected is replaced to normal and at stations provided with facing points lock, the control to operate the first facing points lock is also replaced to normal.

If however, the commutator is turned direct from its normal (Line closed) position to 'Train on Line' position, it does not get locked.

(iv) The part of the block instrument marked (D) is the bell plunger by which code bell signals are sent. Each stroke of the plunger gives one beat on the bell of the corresponding instrument at the other end of the block section. This bell plunger also sets as commutator release plunger. To operate the commutator, it is necessary to press the bell plunger.

(v) The part of the block instrument marked (E), where provided is the SM's key, which is used for locking the commutator in any of its three positions. The key is to be taken out to lock the commutator against operation by unauthorised person(s) and also when temporary single line working is introduced. The commutator must always be locked when the person responsible for the operation of the block instrument

leaves his office/cabin. When changing duty this key must be handed over to the reliever by the relieved and a remark to that effect entered in the Train Signal Register. A second key is kept in a sealed envelop marked "spare key— Block instrument" and kept locked in the station safe. It is to be used only when the key in use has been lost or damaged. In such case a message shall be issued to Technician/Sr. Technician (Sig), Divisional Signal and Telecommunication Engineer and the Divisional Safety Officer. The Police shall also be informed if either key is lost. The lost/damaged key shall be replaced by the JE/SE(Sig) and in case of loss of key, the lock of the instrument to be replaced by the JE/SE(Sig).

(vi) The part of the Block Instrument marked (F) is the block bell by which audible bell code signals are received.

6.06. Provision of Track Circuit :—

(1) Outgoing track circuit is provided in advance of the last stop signal and is connected to this signal. Last stop signal for the purpose of this rule is —

- (a) The advanced starter signal, or
- (b) the starter signal at stations where an advanced starter signal is not provided, or
- (c) the Home signal at Class 'C' stations.

As soon as the engine passes over this track circuit, the last stop signal automatically goes back to 'on' position and

- (i) the commutator of the instrument at the receiving station shall be turned to the left while acknowledging the "Train entering block section" signal and then the lower needle of the receiving station and the upper needle of the despatching station to point "Train on line" position, and
- (ii) the control to operate the last stop signal is restored to normal at the sending station.

(2) An incoming track circuit is provided at the receiving station and is placed inside the Home signal in the case of 'B' class stations and 'A' class stations provided with loop(s); in advance of the starter signal in the case of 'A' class stations with no loops; and 400 metres beyond the Home signal in the case of 'C' class stations.

As soon as the engine passes over this track circuit, the signal mentioned above automatically goes back to 'on' position, and the electrical lock on the commutator is released and it becomes free for its operation after the control to operate the signal mentioned in (2) above is restored to its normal position and at stations having facing points, the control to operate the lock on this facing point is also restored to its normal position.

6.07. Precautions before sending "Line Clear Enquiry" signal [(Refer Rule 2.07(3))]

Before a Station Master/Cabinmaster asks for "Line Clear", he shall see that:—

(a) the stop signal controlling the entry of the train into the block section concerned i.e. the last stop signal is at 'on' position;

(b) the control to operate the stop signal mentioned in (a) above, is in its normal position;

(c) all entries in the Train Signal Register relating to the movement of the previous train which moved over the same block section have been completed; and

(d) the upper needle of the concerned block instrument points to "Line Closed" position.

6.08. Precautions before sending 'Line Clear' signal

[(Refer Rule 2.07(4), GR 8.02, 8.03 and 8.04)]

Before a Station Master/Cabinmaster sends "Line Clear" signal to the block station in rear, he shall ensure that—

(a) the conditions prescribed under GR 8.02 for 'A' Class stations; 8.03 for 'B' Class stations and 8.04 for 'C' Class stations are complied with;

(b) the control to operate the Home signal and other relevant approach signals and in addition, at 'A' class stations, the control to operate the starter signal of the nominated route on which the train is to be received are in their normal position;

(c) all entries in the Train Signal Register relating to the movement of the previous train which moved over the same block section have been completed; and

(d) the lower needle of the concerned instrument points to "Line Closed" position and the pointer on the commutator is in its vertical position.

6.09. Mode of signalling of trains on Siemen's (SGE) three position lock and block instruments for a train to leave a block station and proceed to the next block station in advance.—

<u>Despatching Station</u> (Ensure compliance to Rule 6.07 of BWM)	<u>Receiving Station</u>
1. Sends 'Call attention' code of bell signals.	2. Acknowledges "call attention" code of bell signals.
3. Sends "Attend Telephone" code of bell signals.	4. Acknowledges "Attend Telephone" code of bell signals and attends on telephone. .
5. Attends on telephone and gives out station name.	6. Ensures correctness of station and gives out station name.
7. Ensures correctness of station and asks if he is prepared to receive train No..... [refer Rule 2.07 (3) of BWM]	8. If prepared to receive the train, complies with Rule 6.08 of BWM and replies "Yes" take line clear for train No.....". private number.....

- 8.(a) Repeats the private number given by the receiving station.
- 8(b) Ensures correctness of the private number and replaces telephone.
9. Replaces telephone. Sends "Is line clear" code of bell signals on the plunger.
10. Operates SM's key where provided. Acknowledges "Is line clear" code of bell signals on the plunger and on the last stroke, keeping the plunger pressed turns the commutator to right. Releases plunger.
11. (a) The lower needle of the block instrument points to "Line Clear" position.
- (b) The pointer on the commutator is deflected to right.
- 12.(a) Ensures that the Upper needle of the block instrument points to "Line Clear" Position.
- (b) Takes off last stop signal after ensuring that the route is clear, points, if any, are correctly set and the facing points are locked.
- (c) Train enters block section.
- (d) Last stop signal returns to 'ON' position automatically.
- (e) Puts back the control to operate the last stop signal to normal.

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13. Sends "Call attention" code of bell signals.
14. Acknowledges "Call attention" code of bell signals.
15. Sends "Train entering block section" code of bell signals after complying with Rule 2.07(5) of BWM.
16. Acknowledges "Train entering block section" code of bell signals and on the last stroke keeping the plunger pressed turns the commutator to extreme left.
17.
 - (a) The lower needle of the block instrument points to "train on line" position.
 - (b) The pointer on the commutator points to the left.
18. The upper needle of the block instrument points to "Train on line" position.
19.
 - (a) Takes 'off' reception signals after ensuring that the nominated line is clear, points are correctly set and the facing points are locked.
 - (b) Train enters the station and operates the incoming track circuit as mentioned in Rule 6.06 (2) of BWM.
 - (c) Home signal goes back to 'ON' automatically.

- (d) Complies with GR 14.10, SR 4.17.01 and BWM Rule 2.07 (6).
 - (e) Puts back the control to operate the signal mentioned in rule 5.06(2) of BWM as also the control to operate the first facing points lock to normal.
20. Sends "Call attention" code of bell signals.
21. Acknowledges "Call attention" code of bell signals.
22. Sends "Train out of block section" code of bell signals and on the last stroke keeping the plunger pressed turns the commutator to its next right so as to bring the pointer on the commutator to its vertical position and the lower needle of the block instrument in the "Line closed" position. Releases plunger.
23. Observes that the upper needle of the block instrument points to "Line Closed" position. Acknowledges "train out of block section" code of bell signals.

Normal conditions of the instruments at both stations are thus restored and can be operated again in the manner described above for the next train to move in the same direction between the stations concerned.

6.10. Action to be taken where block instrument are provided in end cabins :

(1) At stations where block instruments are provided in the cabins at either end, the provisions of SR 3.38.01 and 3.42.01 shall be observed by the Station Master at the station and the Cabinmaster/Asst. Station Master in charge of the Cabin in addition to the observance of the procedure for operation of the electrical block instrument detailed under Rule 6.09 of BWM.

(2) It shall be the responsibility of the Cabinmaster/ Asstt. Station Master in charge of cabins where block instruments are provided to give an intimation over the telephone to the Station Master at the station immediately on receipt of "Train entering block section" signal from the station in rear.

6.11. Mode of signalling of Motor trollies/material trollies, 4 wheeler Tower Wagon on Siemen's (SGE) three position lock and block instrument :

[Refer SR 15.25.03 (a); 15.25.09, 15.27.07 and GR 17.08]

Whenever a Motor trolley or a Material trolley or a 4 Wheeler Tower Wagon is to be worked between stations on line clear, the operation detailed below shall be carried out : —

Despatching Station

(Ensure compliance to Rule 6.07 of BWM)

1. Sends "Call attention" code of bell signal.
3. Sends "Attend Telephone" code of bell signals.
5. Attends on telephone and gives the name of station.
7. Ensures correctness of station and asks if he is prepared to grant line clear for..... trolley/ Tower wagon.
9. On observing the upper needle points to "Train on line" position, repeats the Private Number given by the receiving station and replaces telephone.

Receiving Station

2. Acknowledges "Call attention" code of bell signals.
4. Acknowledges "Attend Telephone" code of bell signals and attends on Telephone.
6. Ensures correctness of station and gives out station name.
8. If prepared to grant Line Clear, complies with Rule 6.08 of BWM and replies "Line is clear for..... trolley/ Tower Wagon. Private Number Presses the plunger or keeping the plunger pressed turns the commutator to the left so that the lower needle points to "Train on line" position and the pointer on the commutator deflects to the left. Places "Motor trolley on line" board on the plunger.

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10. Ensures correctness of the Private Number and replaces telephone.
- 11.(a) Prepares and hands over an authority on form T/369(3b) for motor trolley/Tower wagon or on form T/1518 Part-B for material trolley.
- (b) Ensures that route is clear and points if any, are correctly set and facing points are locked.
- (c) Takes 'off' Starter signal, other than last stop signal.
- (d) Trolley/Tower Wagon enters the block section.
12. Sends "Call attention" code of bell signals.
13. Acknowledges "Call attention" code of bell signals.
14. Sends "Train entering block section" code of bell signals.
15. Acknowledges "Train entering block section" code of bell signals.
- 16.(a) Takes Off reception signals only after the trolley/ Tower wagon approaches the Distant/ Outer signal.

- (b) Trolley/Tower wagon enters into the station.
 - (c) Replaces the reception signals to 'on'.
 - (d) Motor trolley/Tower wagon Driver returns T/369(3b) or in the case of Material Trolley, the official charge of material trolley issue T/1518 Part-C to the Station Master.
 - (e) Removes "Motor trolley on line" board.
17. Sends "Call attention" code of bell signals.
18. Acknowledges "Call attention" code of bell signals.
19. Sends "Train out of block section" signal and on the last stroke keeping the plunger pressed turns the commutator to the next right so as to bring the pointer on the commutator to its vertical position and the lower needle points to "Line closed" position.
20. Acknowledges "train out of block section" signal on observing the "Line closed" position of the upper needle.

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| | 21. Sends "Attend telephone" code of bell signals. |
| 22. Acknowledges "Attend telephone" code of bell signals and attends on telephone. | 23. Attends on telephone and informs trolley/Tower wagon arrived complete at Hrs..... Mts. Private No. |
| 24. Repeats the private number given by the receiving station and replaces telephone. | 25. Verifies correctness of Private Number and replaces telephone. |

Note : All entries in the Train Signal Register in connection with running of Motor trollies/Material trolley/ Tower Wagon shall be made in Red ink.

6.12. Mode of signalling of Motor trollies when following a train or another Motor trolley :— [Refer SR 15.25.03(b)]

(1) Whenever Motor trollies are to be worked between stations in terms of SR 15.25.03(b), the SM/Cabinmaster responsible for the operation of block instrument shall, after obtaining line clear for the train or Motor trolley to which the other trolley/trollies shall follow, obtain permission to despatch from the other end SM/Cabinmaster. Such permission shall be given supported by Private Number. If two Motor trollies are to follow a train, Private Number shall be obtained separately for each Motor trolley.

(2) After the permission referred to in sub-rule (1) has been obtained, the Station Master of the despatching station

shall prepare "Following line clear authority" as indicated in SR 15.25.03(b) (iv) and hand over the same to the Driver of the rear most Motor trolley. The leading trolley shall be given a Caution Order permitting the Motor trolley to follow.....train (quoting the Private Number received) and..... Motor trolley is following.

(3) "Train out of block section" signal shall not be given by the Station Master of the block station in advance unless the last Motor trolley arrives and the "following line clear authority" given to the Driver under sub-rule (2) above, is collected and cancelled by the Station Master. Private Number shall be given for each Motor trolley separately assuring complete arrival of the trolley/trolleys.

(4)(a) At stations where block instruments are operated from the end cabins, the Station Master of the despatching station while advising the Assistant Station Master/Cabinmaster in charge of each cabin to obtain line clear for the train in terms of SR 3.42.01, shall also indicate the particulars of Motor trolley/trolleys which is/are to follow the train. The Assistant Station master/Cabinmaster while asking line clear for the train/ Motor trolley, shall include the particulars of the trolley/ trolleys which is/are to follow. Similarly the Assistant Station Master/ Cabinmaster of the end cabin at the other end block station as well as the Station Master shall include the particulars of the trolley/trolleys while complying with SR 3.38.01 (a). After line clear has been granted in compliance to No. 11 of Rule 6.09, No.8 of Rule 6.11 of BWM, the Assistant Station Master/ Cabinmaster in charge of the cabin shall grant permission for the Motor trolley/trolleys to follow the train over the block

instrument telephone supported by Private Number which shall be given separately for each Motor trolley. The Assistant Station master/ Cabinmaster in charge of the end cabin of the despatching station shall record in the Train Signal Register and report the same to the Station Master at the station, who shall issue the authority mentioned in sub-rule (2) above.

(b) The Assistant Station Master/Cabinmaster in charge of the end cabin at the receiving station shall observe the procedure detailed under sub-rule (3) above provided assurance has been received from the Station Master supported by a Private Number about the complete arrival of the last Motor trolley and that the "Following line clear authority" has been collected and cancelled.

(5) A Board with legend "Motor trolley on line" shall be placed on the block instrument at the receiving station as soon as permission is given for Motor trolley/ trollies to follow and shall be removed only after "Train out of block section" signal is given to the block station in rear as indicated in sub-rule 3 and 4 (b) above.

(6) All entries in connection with the running of Motor trollies under these rules shall be made in Red ink.

6.13. Action to be taken when Motor Trolley returns to station from which it has started :

(a) In the event of a Motor trolley/Material Trolley/4 wheeler Tower wagon returns to the station from which it has started, the Line clear authority as mentioned in Rule 6.11 of BWM, shall be returned to the Station Master of such station who shall cancel the same but in case of material trolley he shall collect

T/1518 Part-C from Material Trolley Incharge and issue a message supported by a Private Number. The Station Master of the other end on receipt of the message shall normalise the block instrument.

(b) In case a Motor trolley/material trolley after entering into the block section is removed from the line and is kept clear of the running line, the person in charge of the motor trolley shall send the T/369 (3b) to the Station Master of the nearest station certifying that the motor trolley is kept clear of running line at KM.....but in case of material trolley he shall collect T/1518 Part-C from material trolley incharge and the Station Master shall cancel the T/369 (3b) and issue a message supported by a private Number to the Station Master at the other end and thereafter the block instrument shall be made to normal.

(c) (i) In case a Motor trolley/Material trolley is required to be placed on line in the section between two block stations, the person in charge of the trolley shall not place the same on the line unless he has obtained a written permission issued by the Station Master of the nearest station. The official incharge of the Material trolley shall send a memo in case of Motor trolley and form T/1518 Part-A in the case of Material trolley indicating the kilometrage of the UP or Down line at which he proposes to put his trolley on the line and the station to which he wants to proceed.

(ii) The Station Master on receipt of the same shall block back or block forward the line as the case may be and then

send a written permission in case of motor trolley and T/1518 Part-B in case of material trolley indicating the Private Number received for blocking forward or back, under his signature and stamp. After the complete arrival of the trolley, the block shall be removed in the usual way.

(iii) The trolley shall be received by taking 'off' the reception signals, if the same is approaching the station on proper line.

6.14. (1) Cancelling line clear for a train —

If a station has obtained line clear for a train but for some reason, has to cancel it before the train has left, the procedure detailed below shall be followed so as to bring the instrument to its normal position. If departure signals were taken 'off' the Station Master shall observe the provisions of SR 3.36.02(b) (ii). In case the block instrument is installed in the cabins and manned by Cabinmaster, the Cabinmaster shall follow the procedure detailed below only if he is satisfied that the train has neither left nor started and that he has been authorised by the Station Master to cancel "Line clear" supported by a Private Number. After line clear has been correctly cancelled and the instrument is brought to normal, the Cabinmaster shall inform the Station Master supported by a private Number. Similarly the Cabinmaster of the receiving station shall obtain the permission of the Station Master by exchanging Private Number before he permits the Station Master/Cabinmaster of the despatching station to cancel Line Clear.

Despatching Station

(Upper needle points to "Line Clear" position. All departure signals pertaining to the same block section are at 'on' and the control to operate the last stop signal is normal)

1. Sends "Call attention" code of bell signals.
3. Sends "Attend telephone" code of bell signals.
5. Attends on telephone and informs the receiving station "I intend to cancel Line Clear for train No..... now at (Place) for....(here state reason) Private Number"
7. Sends "Cancel last signal" code of bell signals.

Receiving Station

(Lower needle points to "Line clear" position)

2. Acknowledges "Call attention" code of bell signals.
4. Acknowledges "Attend Telephone" code of bell signals and attends on telephone.
6. If prepared to cancel "Line Clear", ensures that all reception signals pertaining to the same block section are at 'on' and the control to operate the home signal is in its normal position. Informs the despatching station about his readiness to cancel Line Clear and replies "Your may cancel line clear for train No..... now at.....(Place). Private Number....."

8. Acknowledges "Cancel last signal" code of bell signals and keeping the plunger pressed on the last stroke, turns the commutator to the next left.
 - (a) Lower needle points to "Line closed" position.
 - (b) Pointer on the commutator shows vertical position.
9. Upper needle points to "Line closed" position.

(2) Canceling Line Clear for Motor Trolley/ 4 wheeler Tower Wagon/Material Trolley.

Before the instrument is brought to its normal position, the Station Master and/or the Cabinmaster shall follow the rules laid down in Rule 6.14(1) of BWM as for a train. In addition the Station Master shall withdraw the 'Authority to Proceed' i.e. T/369(3b) in the case of Motor Trolley/4 wheeler Tower Wagon and collect T/1518 Part-C in the case of Material trolley, cancel the T/369 (3b) and paste with the record foil and retain T/1518 Part-C in case of material trolley.

Despatching Station

Receiving Station

(Upper needle points to "Train on line" position. All departure signals are at 'on').

(Lower needle points to "Train on Line" position).

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| <ol style="list-style-type: none"> 1. Sends 'Call attention' code of bell signal. 3. Sends 'Attend telephone' code of bell signal. | <ol style="list-style-type: none"> 2. Acknowledges 'Call attention' code of bell signals. 4. Acknowledges 'Attend telephone' code of bell |
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- signals and attends telephone.
5. Attends telephone and informs the receiving station 'I intend to cancel line clear for..... trolley/ Tower Wagon. Line clear authority collected here and cancelled. Private No.....
 6. If prepared to cancel 'Line clear' ensures that all reception signals pertaining to the same block section are at 'on' and the control to operate the Home signals is in its normal position. Informs the despatching station about his readiness to cancel line clear readiness to cancel line clear and replies, You may cancel line clear for trolley/ Tower Wagon. Private Number
 7. Sends 'Cancel last signal code of bell signal'
 8. Acknowledges "Cancel last signal" code of bell signal and on the last stroke keeping the plunger pressed turns the commutator to next right. Lower needle points to "Line closed" position and the pointer on the commutator shows vertical.
 9. Ensures that the upper needle points to "Line closed" position.

6.15. Block back or Block forward. —The procedure for Block back or Block forward as required under GR 8.14 and the procedure for normalising the instrument after the removal of the obstruction, shall be follows :—

(1) Block back :

<u>Shunting Station</u>	<u>Station in rear</u>
(Lower needle points to 'Line closed' position, pointer on the commutator points to vertical position)	(Upper needle points to 'Line closed' position)
1. Sends "Call attention" code of bell signals.	2. Acknowledged 'Call attention' code of bell signals.
3. Sends "Attend telephone" code of bell signals.	4. Acknowledges "Attend telephone" code of bell signals and attends telephone.
5. Attends on telephone and informs "I am blocking back section between..... (station) and (station) on..... line (Up or Down) for (state purpose) Private Number.....	6. If prepared to permit such blocking, replies "Noted. You may block back section (Up or Down) for (State purpose). Private Number

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| <p>7. Keeping the plunger pressed, turns the commutator to the left. Lower needle points to Train on Line'position and the pointer on the commutator deflects to the left.</p> | <p>8. Ensures that upper needle points to "Train on Line" position.</p> |
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(2) Block forward :

Shunting Station

(Upper needle points to "Line closed" positon)

1. Sends 'Call attention' code of bell signals.

3. Sends 'Attend telephone" code of bell signals.

5. Attends on telephone and informs "I am blocking forward section between..... (stn) and (stn) on line (Up or Down) for

Station in rear

(Lower needle points to "Line closed" position. Pointer on the commutator points to vertical)

2. Acknowledges 'Call attention' code of bell signals.

4. Acknowledges "Attend telephoen"code of bell signals and attends telephone.

- (state purpose). Private Number
6. If prepared to permit such blocking, replies "Noted, you may block forward section between (stn) and (stn) on line (Up or Down) for.. (state purpose). Private Number and keeping the plunger pressed turns the commutator to the left. Lower needle points to "Train on Line" position and the pointer on the commutator deflects to the left.
7. Ensures that the upper needle points to "Train on Line" position.

- Note :** (i) Before giving permission from a Class 'C' station to a block station in rear to authorise such block station to shunt outside Last Stop signal in terms of sub-rule (3) of GR 8.06, the Station Master of Class 'C' Station shall fulfil the condition laid down in GR 8.04.
- (ii) Before giving permission from a Class 'C' station to a block station in advance to authorise such block station to shunt in terms of sub-rule (2) of GR 8.06, the Station Master of Class 'C' station shall first block back the block section in rear pertaining to the same line.

(3) Removal of Block.— (a) When the obstruction is removed and the block section is clear and after the authority issued earlier for blocking the line is withdrawn and kept in the custody of the Station Master as required under SR 5.13.02, he shall issue a message supported by Private Number over the block instrument telephone to the other end Station Master as follows :—

"Shunting is completed. Block section between.....
(stn) and(stn) on Up/Down line is clear. Private
Number.....".

The Station Master at the other end station shall then reply as follows :—

"Noted, block Section between.....(stn) and..... (stn)
on Up/Down line is clear. Private Number....."

(b) In case of removing block after blocking forward, the Station Master of the shunting station shall then send "Obstruction removed" code of bell signals vide GR 14.05 which the other end Station Master shall acknowledge and turn the commutator to the right so that the instruments at both stations shows "Line closed" position.

(c) In case of removing block after blocking back, the Station Master of the shunting station shall, while sending "Obstruction removed" bell of code signals, turn the commutator to the right so that the instruments at both stations shows "Line closed" position. The Station Master at the other end shall acknowledge the "Obstruction removed" code of bell signals on observing the "Line closed" indication of the block instrument at his station.

(4) (a) At stations where block instruments are installed in the cabins and manned by Cabinmaster, he shall follow the procedure detailed in sub-rule (1) and (2) above only on being authorised to do so supported by a Private Number by the Station Master at the Station. The Cabinmaster of the cabin shall communicate the Private Number received from the Cabin of the other end station to the Station Master at the station so as to enable the latter to issue the authority as required under SR 8.15.01 (d).

(b) Similarly the Cabinmaster of such cabin shall not remove the block as per sub-rule (3) above unless the Station Master at the station authorises him to do so supported by a Private Number. It shall be the responsibility of the Station Master to withdraw and cancel the authority for shunting as required under SR 5.13.02 before he authorises the Cabinmaster to remove the block.

(5) All entries in the Train Signal Register required under sub-rule (1), (2) and (3) above, shall be made in Red ink.

6.16. Failure of Block Instruments. — In the circumstances listed below, the block instrument either of the affected section or both sections (as indicated) shall be treated as having failed and the concerned section/sections of the block instrument must be suspended.

(a) Both sections. —

- (i) If code signals on the bell are not received distinctly or fail altogether.
- (ii) When block telephone and hotline/magneto telephone between two stations fails.

- (iii) If there is reason to believe that there is contact between the Block wire and any other circuit.

Note : If an intermittent contact exists between the Block and other circuits an irregular movement of the Pointer will be observed and possibly irregular beats on the bell. Should a permanent contact exists the upper or the Lower Pointer on the face of the instrument will take up a position, irrespective of any operation of the instrument. A contact between two block wires would cause signals given on one instrument to be repeated on the neighbouring instrument.

- (iv) If a train arrives at a station without line clear having been given for it. In this case the irregularity must be reported as an accident unless the Loco Pilot is in possession of an authority to proceed in accordance with SR 6.02.03.

Note : The working of the Block Instrument must not be resumed by the JE/SE(Sig) until permission of the Divisional Signal and Telecom-Engineer or the Assistant Signal and Telecom. Engineer has been obtained.

- (v) If the Block Instrument or its battery counter is found unlocked or the seal is found broken in the absence of an authorised representative of the Signal Branch.
- (vi) If it becomes possible to turn the block instrument commutator from 'Train on Line' position to 'Line closed' or 'Line Clear' position without the arrival of the train.

- (vii) When the Block instrument shows erratic movement of the indicators or is defective in any other way.

Note : In the cases of situation under sub-clauses (vi) and (vii) above, the working of the block instrument must not be resumed by the JE/SE(Sig) until permission of the Divisional/Assistant Signal and Telecommunication Engineer has been obtained.

(b) Affected Section –

- (i) If "Train on Line" indication fails to appear after the commutator has been turned to the left, as when giving "Line Clear" for Motor Trolley, etc.
- (ii) If the Last Stop signal fails to go to 'on' position as the train passes the signal.
- (iii) If the station cannot take off the Last Stop signal after 'Line Clear' has been obtained from the station ahead, and the upper needle points to 'green' i.e. when the Last Stop signal is out of order or suspended.
- (iv) If the commutator can be turned without pressing the Plunger.
- (v) If the Commutator cannot be turned from "Train on Line" to "Line Closed" after the complete arrival of the incoming train or the inward track circuit fails to be operated by the incoming train.
- (vi) If it is found possible to take 'off' the last stop signal without obtaining 'Line Clear' indication on the block instrument.

Note : In the case of situation under sub-clause (vi) above the working of the block instrument must not be resumed by the JE/SE(Sig) until permission of the Divisional/Assistant, Signal and Tele-communication Engineer has been obtained.

(c) Both sections (not due to failure) —

- (i) Whenever single line working is introduced between the stations concerned.
- (ii) whenever a Block Instrument has to be opened for attention by the Block Maintenance staff of the Signal Branch.
- (iii) Whenever maintenance department staff have to work on the cable lines.

6.17. Reporting of failure.—Whenever any block instrument fails and is suspended in terms of BWM Rule 6.16, the Station Master of the station at which the failure has occurred shall report to JE/SE(Sig), Technician/Sr. Technician (Sig) and the Section Controller and shall take action in terms of BWM Rule 5.24(2) as it relates to them.

6.18. Resumption of normal working.— The procedure detailed under Rule 5.25 of BWM shall be followed except that 'Testing Line Clear' shall be obtained and cancelled as detailed in Rule 6.19 of BWM.

6.19. Testing 'Line Clear'.— Whenever it is necessary to obtain Testing Line Clear' and cancel the same, the Station Master/Cabinmaster of both stations/Cabins shall ensure that the block section to which the block instrument relates, is clear of all trains. The block instrument at one end of the section

may, if necessary, be operated by the JE/SE(Sig) or his authorised representative when the other end Instrument shall be operated by the Station Master/ Cabinmaster. Entries shall also be made in the concerned Train Signal (cum log) Register in red ink by the official conducting the testing under his signature indicating the time when the testing was completed at the respective end. The following operation shall be made thereafter :-

- | <u>Station 'A'</u> | <u>Station 'B'</u> |
|--|---|
| 1. Sends 'Call attention' code of bell signal. | 2. Acknowledges "Call attention" code of bell signal. |
| 3. Sends "Testing" code of bell signal. | 4. Acknowledges "Testing" code of bell signal on the plunger and on the last stroke, keeping the plunger pressed turns the commutator to the right. Releases plunger. |
| | 5. (a) The lower needle of the block instrument points to "Line clear" position.
(b) The pointer on the commutator is deflected to right. |

- 6.(a) Ensures that the Upper needle of the block instrument points to "Line Clear" position.
 - (b) Takes 'off' last stop signal to ensure that the signal assumes 'off' position.
 - (c) Replaces the last stop signal to 'on'.
 - (d) Sends "Cancel last Signal" code of bell signal.
7. Acknowledges "Cancel last signal" code of bell signal and on the last stroke, keeping the plunger pressed turns the commutator to the next left.
- 8.(a) Ensures that the Upper needle points to 'Line closed' position.
 - (a) Lower needle points to "line closed" position; and
 - (b) Operates the control to take 'off' Last Stop signal to ensure that the signal remains in 'on' position.
 - (b) Pointer on the commutator shows vertical position.

Note : Station 'B' shall then carry out the operations listed under Station 'A' when Station 'A' shall carry out all operations listed under Stations 'B' above.

6.20. Procedure to be followed when Maintenance party work on sections where Block wires are also carried—

The procedure detailed under para 5.42 of Block Working Manual shall be followed.

6.21. Failure of outgoing track circuit and/or the last stop signal.—

If a Train when passing the last stop signal of a station, fails to change the indication from "OFF" to "ON", the Station Master/Cabin Master shall :—

- (a) at once replace the last stop signal to 'on'
- (b) Inform the block station in advance,
- (c) Suspend the block instrument after the train clears the block section.

6.22. Working of trains when Block Instrument fails.—

In the event of failure of Block Instrument, trains shall be worked in accordance with the instructions contained in SR 6.02.06 and paras 3.16 to 3.21 of Block Working Manual by the Station Master on duty.

From the time an interruption occurs until working of Block instrument is resumed, no attempt should be made to take 'off' the last stop signal for a train to enter the interrupted section.

In case the failure/suspension of the Block instrument is due to failure of inward track circuit, the receiving station shall arrange reception of the train complying with SRs 3.69.02 to 3.69.05 as may be applicable.

In the event of failure of all the means of communication detailed under SR 6.02.03, trains shall be worked in terms of SR 6.02.03.

6.23. Block Suspension — (a) When only one section of a Block Instrument is suspended in terms of BWM paras 6.16 (a) or 6.16 (c), the official on duty responsible for the operation of the block instrument shall write 'Block Instrument suspended at.....'...'for (cause)'. In that particular portion or both portions, as the case may be, in the Train Signal (cum log) register and draw a red line below this entry. As soon as normal working is resumed, and entry to that effect thus 'Block Instrument resumed at.....' shall be made in the concerned portion of the Train Signal (cum log) register by the official on duty responsible for its operation and also draw a red line below the entry.

(b) During the period of suspension of the Block Instrument, the Station Master on duty shall make all entries in connection with train passing in separate Train Signal (cum log) register specially maintained for the purpose at these stations where Block Instruments are operated by Cabinmaster.

(c) When both sections of a Block Instrument have to be suspended, the official on duty responsible for its operation shall secure a red label (as shown below) to the instrument. The same shall be removed immediately after normal working is resumed.



6.24. Resetting of axle counters when failed :

Resetting of axle counters are of two types. These are follows.

- (1) Preparatory Reset : This type of resetting system

exists in both digital and analog axle counters used for block proving except in IB sections. In case of axle counter failure, either sending or receiving end station will apply the preparatory reset and other end station will acknowledge by pressing reset button. Axle counter will not be reset until first train is piloted out.

In case of IB block section, digital axle counters are used for block proving. In case of axle counter failure in IB section, the sending end station send the permission to the receiving end station. Receiving end station then applies the axle counter reset. Axle counter will go into preparatory mode. Axle counter will not be reset until the first train is piloted out.

(2) Non Preparatory Resetting : This type of resetting system exists in such block sections where analog axle counters are used for block proving. Despatching of first train by piloting out is not necessary.

(a) Non Preparatory Reset with Cooperation : In case of failure of axle counters either sending or receiving end station will apply the reset to axle counter, and other end station will acknowledge by pressing reset button.

(b) Non preparatory Reset with non-cooperation : In case of failure of axle counter, either sending end or receiving end station will apply the reset to axle counter under exchange of private numbers with other end station. Detailed procedure of resetting of axle counters is mentioned in the SWR.

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