

## **CHAPTER V**

### **RULES FOR WORKING OF TRAINS ON THE ABSOLUTE BLOCK SYSTEM ON SINGLE LINES WITH ELECTRIC BLOCK INSTRUMENTS.**

**5.01. Means of granting or obtaining Line Clear —** (Refer GR 14.01 and SRs there to). Line Clear for a train from one block station to another in the direction of its running, shall be obtained/granted by means of—

- (a) electrical block instruments of token type of such construction that only one of the tokens applying to the same block section can be in use at the same time, in conjunction with telephone attached to the block instrument, or
- (b) electrical block instruments of tokenless type, in conjunction with telephone attached to the block instrument. Such instrument may be so designed that 'Line Clear' may be obtained by the Station Master of the block station from which the train is to be despatched with or without the co-operation of the Station Master of the block station in advance.

**5.02. Authority to proceed.—** [Refer GR 14.08 (b)]

The Loco Pilot shall not take his train from a block station unless he has been given an authority to proceed —

- (a) by a token for the block section, taken out from the electrical block instrument at the block station where electrical block instrument of token type as mentioned in Rule 5.01 (a) above is in use, or
- (b) by taking "off" of the last stop signal on the section provided with electrical block instrument of tokenless type as mentioned in Rule 5.01 (b) above.

## **PART - I**

### **(ELECTRICAL BLOCK INSTRUMENTS OF TOKEN TYPE)**

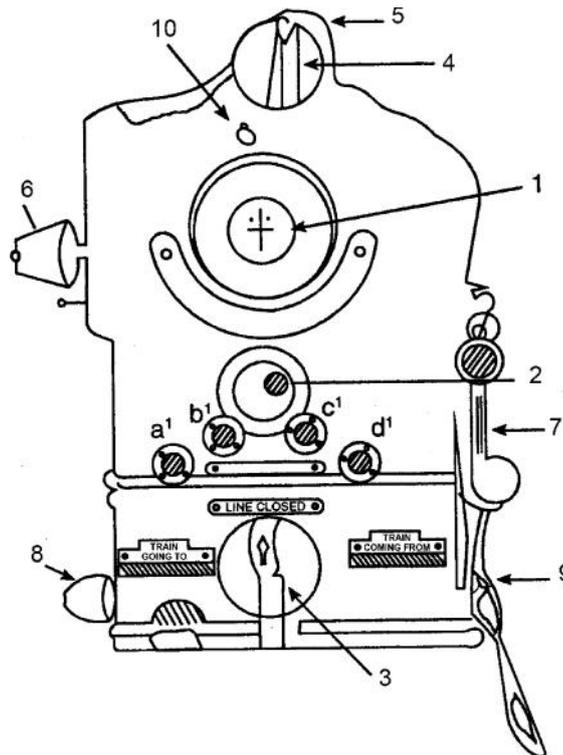
**5.03. Type of Instruments.**— 'Neale's Ball Token Instrument' type of Electrical Block Instrument is in use on the East Coast Railway :—

This instrument is provided with double locks and is kept sealed. The sealing is done by the Signal and Telecommunication branch. One key of double lock is kept under the personal custody of the Station Master and the other in the custody of the Sr. Technician (Sig). The object of providing double locks is to ensure that the concerned instrument shall not be possible to be opened independently by the Sectional Technician/Sr. Technician (Sig) or any other official of the S & T Branch without the direct consent of the Station Master.

Whenever it becomes necessary to open any instrument in terms of BWM rule 5.12 (3) (a) and 5.18 the Station Master shall operate the SM's key personally and unlock the same after signing Form T/351 keeping the key in his custody.

Whenever Form T/351 duly filled-in and signed by the officials of the S & T branch, certifying that the concerned electrical block instrument is properly closed, locked and sealed, it shall be the responsibility of the Station Master to operate the S. M's key and lock the same before signing the S. M's foil of the form T/351.

**5.04. Description of Neale's Ball Token Instrument**



(a) Names of different parts as numbered in the diagram are detailed below :—

- (1) Galvanometer.
- (2) Aperture for the disc indicating empty or existence of one or more Tokens in the instrument.
- (3) Operating handle and plunger.
- (4) Handle of the drum for inserting Tokens.
- (5) Flap covering the portion of the drum where tokens are inserted.
- (6) Bell (round gong for Down Instrument and sheep gong for Up Instrument).
- (7) Telephone hand combination.
- (8) & (9) For attachment of mechanical key locks for electric contacts for interlocking.
- (10) SM'skey.
- (a1), (b1), (c1), (d1)—Small glass windows to enable the operator to see the Token in the four respective Token races.

**Note :-** Immediately if no Token is visible from any of the four windows, the Sr. Technician (Sig) or SE/JE (Signal) is to be apprised of the fact through the Controller on phone followed by a written message as necessary.

(b) This Instrument has following aspects :—

- (i) The operating handle indicates "Train Coming From" and "Train Going To".

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- (ii) When there is no Token in the Instrument, the operating handle can be moved only to the "Train Coming From" position.
- (iii) The Token is inserted by placing it in a drum at the top of the instrument and the drum shall be revolved to allow the Token to drop into the Token chamber.
- (iv) Four small circular glass windows are provided for observing whether Tokens are available in the Instrument.
- (v) A shutter is provided which gives two indications;
  - (a) A green disc to indicate that there are one or more Tokens in the instrument, and
  - (b) A red disc to indicate that there is no Token in the instrument.
- (vi) The Tokens for adjoining block sections have spigots of different shapes.
- (vii) The Station Master obtaining "Line Clear" is the first to restore his operating handle to normal.

### **5.05. Description of Ball Tokens :—**

(1) The Tokens are aluminium balls, Each Ball Token is engraved in English with the code abbreviations of the stations at the either end of the block section to which it applies. The Ball Tokens are provided with different grooves so that they cannot be put into the instruments other than those to which they relate. The Ball Tokens are numbered serially.

(2) The Ball Tokens for adjoining block sections have spigots of different shapes.

(3) Instruments pertaining to one block section consist of 36 Tokens serially numbered.

**5.06. Requirements of Electrical Block Token Instrument :—**

(1) The Station Master has to go through one or more definite moving operations on the Instrument, in addition to the working of a bell, key or plunger:—

- (a) Before he can give permission to the Station Master at the other end of the section to release a Token.
- (b) Before he can extract a Token with the permission of the Station Master at the other end of the section.

(2) If a Ball Token has been extracted from an Instrument, should show a definite indication by the position of the handle which will be locked until the section has been cleared.

(3) Both Instruments will have to be restored to normal before a further operation of extracting aToken can be carried out.

(4) It should be impossible for the mechanism which permits a Line Clear being received, and the mechanism which permits a Line Clear being given, to be in operation at the same time on the same Instrument.

(5) There should be no opening giving access to the interior of the Instrument through which it is possible to operate the mechanism by any irregular means.

(6) The internal mechanism of the Instruments should be secured against unauthorised manipulation, and the

Instruments and batteries should be locked up and the keys kept by the authorised Signal Maintenance staff. The Instruments and batteries shall be sealed with lead or other suitable seals. (Refer Note under BWM Rule 5.03)

(7) Telephones must be provided in conjunction with Token Instruments.

(8) The period of overhaul of all single line Block Instruments is fixed at ten years. The date of the last overhaul of the Instruments is painted on each Instrument and the Block Maintenance staff should send them into the shops for necessary overhaul prior to the expiry of the period fixed for the purpose.

(9) The "Taking off" of the Advanced Starter or Last Stop signal where such signal exists, should be controlled by the Electrical block Token Instrument.

(10) Electrical interlocking is to be provided between the Station Master's control and the Block Token Instrument. This interlocking is to be so arranged as to ensure the putting of the Home Signal to danger after the arrival of each train before the instrument can be used for subsequent Line Clear work.

**5.07. Importance of bell signals.**—The provision of the telephone provided for under sub-rule (7) of BWM Rule 5.06 does not dispense with the necessity for the use of authorised code of bell code signals contained in GR 14.05 and BWM Rule 2.07.

**5.08. Responsibility of the Operating staff.**— The Station Master on duty alone shall be responsible to see that none but he himself operates the Electrical block instruments of Token type. He is responsible for the safe working of the instruments and that such safe working is dependent on the correct use of code of bell signals and the correct operation of the instruments being carried out in proper sequence.

**5.09. Mode of signalling trains on Neale's Token (Ball) Block Instrument :**

The process of signalling is as follows for a train to leave 'X' and proceed to 'Y'.

**Station 'X'**

**Station 'Y'**

(Block handles at station 'X' and 'Y' in "Line Closed" position. Last Stop and Home signal control key(s)/ SM's control slide (if any) pertaining to the block section concerned is/are in normal position).

- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Before asking for Line Clear on a section provided with Traffic Control, the Station Master shall consult the Controller.</li> <li>2. Inserts Station Master's key and turns.</li> <li>3. Sends "Call Attention" signal.</li> </ol> | <ol style="list-style-type: none"> <li>4. Inserts Station Master's key and turns.</li> <li>5. Acknowledges "Call Attention" signal.</li> </ol> |
|---|--|

**Station 'X'**

**Station 'Y'**

- |  |   |
|--|---|
| <p>6. Sends "Attend telephone" signal</p> <p>8. Takes up telephone, gives out station name.</p> <p>10. Ensures correctness of station and asks 'Y' if he is prepared to receive train No.....<br/>(Refer BWM Rule 2.07 (3).</p> <p>12. Repeats the Private Number given by Station Master 'Y'.</p> <p>13. Replaces telephone.</p> <p>15. Sends "Is Line Clear" signal on the plunger keeping the plunger pressed on the last beat for 5 seconds or till the galvanometer needle vibrates.</p> <p>17. Releases plunger, pulls out and turns the handle to "Train going to" position. A ball token will then drop into the aperture.</p> | <p>7. Acknowledges and attends telephone.</p> <p>9. Ensures correctness of station and gives out station name.</p> <p>11. If prepared to receive the train, replies 'Yes', take Line Clear for Train No..... Private No.....</p> <p>14. Replaces telephone.</p> <p>16. Pulls out and turns the handle to 'Train coming from" position, acknowledges "Is Line Clear" signal on the plunger keeping the plunger pressed on the last beat for 5 seconds or till the galvanometer needle vibrates.</p> <p>18. Releases plunger on observing the vibration of galvanometer needle.</p> |
|--|---|

<u>Station 'X'</u>	<u>Station 'Y'</u>
19. Complies with Rule 2.04, 2.07(5) (b) of BWM and ensures that the "Last Stop Signal" (if any) has gone to 'ON' and the Last Stop signal control is restored to normal.	
20. Sends "Call attention" signal.	21. Acknowledges.
22. Sends "Train entering block section" signal.	23. Acknowledges. 24. On the complete arrival of the train, complies with Rules 2.04 (1) (d); 2.07 (6); ensures that the approach signal(s) is/are and Station Master's control on Home signal (if any) is restored to normal.
26. Acknowledges.	25. Sends "Call attention" signal. 27. Places the token in the recess under the flap, turns the handle of the drum to allow the Token to drop, sends "Train out of block section" signal

**Station 'X'**

**Station 'Y'**

keeping the plunger pressed on the last beat for 5 seconds or till the galvanometer needle vibrates.

28. On observing the deflection of the galvanometer needle and on receiving the requisite bell code, turns the block handle to " Line Closed" position, acknowledges "Train out of block section" signal keeping t h e plunger pressed on the last beat for 5 seconds or till the galvanometer needle vibrates.
29. Releases the plunger and on receiving the requisite bell code signals turns the handle to "Line closed" position.
30. On observing the vibration of the galvanometer needle, releases plunger.

Instruments at both stations are again in their normal position.

**5.10. Restoring a Token into the instrument from which the same was originally extracted :—**

(1) The following are the circumstances when it becomes necessary to restore the Token into the same instrument from which it was extracted.

- (a) When the Station Master granting 'Line Clear' wishes to cancel the permission and thereby sends "Cancel last signal".
- (b) On receipt of "Obstruction Danger" signal as indicated in BWM rule 2.07 (9) (b),
- (c) Whenever the Station Master obtaining 'Line Clear' wishes to cancel the same for giving precedence to another train or for any other reasons,
- (d) When a train returns to the block station from which it left, and
- (e) On receipt of "Testing Line Clear".

(2) The Station Master say 'X' on being ready to restore the Token into the same instrument due to any one of the circumstances mentioned in sub-rule (1) above, shall ensure that the concerned signals of the block-section to which the Token refers are at 'ON' and the Station Master's control keys/slides for those signals (if any) are restored to their normal position.

The Station Master of 'X' and 'Y' shall then adopt the procedure detailed below :—

- | <u>Station 'X'</u>   | <u>Station 'Y'</u>   |
|--|--|
| 1. Sends "Call Attention" signal   | 2. Acknowledges,   |
| 3. Sends "Attend Telephone" signal.  | 4. Acknowledges.   |
| 5. Informs 'Y' about his readiness to restore the Token into the Instrument giving the reasons thereof and also the number on the Token. | 6. Ensures that the concerned block-section is clear, all approach and departure signals pertaining to the same block section are at 'ON' and the Station Master's control keys/slides for these signals (if any) are in their normal position. He shall then give his consent to Station Master 'X' to restore the Token into the instrument repeating the number on the token. |

The Station Master 'X' shall then follow the procedure detailed under Serial Nos. 25, 27 and 29 and the Station Master 'Y' shall follow the procedure detailed under Serial Nos. 26.28 & 30 under rule 5.09 exactly in the same sequence. The instruments at both stations shall then be in their normal position. Necessary remark shall be made in the Train Signal Register at both stations.

#### **5.11 Token balancing :—**

Due to running of more number of trains in one direction than the other, more number of Tokens accumulate at the instrument at one end of the section. This necessitates balancing of Tokens. At all block Stations where electrical block instrument of Tokens are provided, the number of tokens on hand is to be written in the remarks columns of the Train Signal Register at the end of each shift and advise the Technician/Sr. Technician (Sig) or SE/JE (Signal) as soon as total number of tokens in a particular instrument falls to 'Six'.

#### **5.12. Transfer of Tokens :—**

(1) The Station Master requiring Tokens to be transferred to his station shall advise the Technician/Sr. Technician (Sig) or SE/JE (Signal) as the case may be with intimation to section controller.

(2) The Block Token Instruments are fitted with small doors in the rear at the lowest elbow of the Token run away channel so that Tokens may be withdrawn through these doors without interfering with or exposing the mechanism of the Instruments. The doors are normally locked. The key of these doors are with the SE/JE (Signal) or the Technician/Sr. Technician (Sig).

(3) (a) If SE/JE (Signal) or the Technician/Sr. Technician (Sig) has occasion to withdraw Tokens for the purpose of transfer by opening the cover of the Instrument, BWM Rule 5.18 must be fully complied with. But if the Tokens are withdrawn through the rear door of the instrument, he will present form T/351 for disconnection before the Station Master who will first examine the authority of the concerned staff and then provided the block section concerned is clear and the handles of both the Block Token Instruments applicable to the section are in normal position, he will, after advising the Station Master of the station at the other end of the block section over phone, grant the permission by filling up and signing the book foil of T/351.

(b) The required number of Tokens will then be withdrawn by the SE/JE (Signal) or the Technician/Sr. Technician (Sig) through the rear door of the instrument and the doors locked in presence of the Station Master whereupon the Station Master will fill up the record foil of T/351 taking particular care that the numbers on Tokens are correctly recorded in the reconnection notice and in the order in which withdrawn. The SE/JE (Signal) or the Technician/Sr. Technician (Sig) and the Station Master will then jointly sign this foil.

(c) The SE/JE (Signal) or the Technician/Sr. Technician (Sig) shall record in the Train Signal Register at the Station the numbers on the Tokens he has withdrawn and in the order in which they have been withdrawn from the instrument. The Station Master will verify the entry, sign the register and insert the time at which the transaction takes place.

(d) The Technician/Sr. Technician (Sig) or the SE/JE (Signal) will then proceed to the other end of the Block Section and ask the Station Master's permission to deposit the Tokens into the instrument concerned. Provided the Block section is clear and the handles of both the instruments applying to the section are in normal position, he will give this permission and open the Token drawer. The Tokens should be deposited into the instruments without any delay and the Station Master should not block the section for another train until all the Tokens brought by the Technician/Sr. Technician (Sig) or the SE/JE (Signal) are deposited in the proper instrument.

(e) The Technician/Sr. Technician (Sig) or the SE/JE (Signal) shall drop the Tokens into the instrument in presence of the Station Master and record their individual numbers in the Train Signal Register in the order in which dropped. The Station Master shall verify this, and, when satisfied, shall sign the entry and note the time at which the transaction has taken place. The Station Master shall also sign the certificate at the foot of the record foil of T/351.

(f) The SE/JE (Signal) or the Technician/Sr. Technician (Sig) shall keep in his possession and be responsible for the safe custody of all the Tokens he has withdrawn, until he has placed them in the instrument at the other end of the section.

(g) The rear door of a Block Token Instrument must not be opened unless the handle of the instrument is in its normal position. See also sub-para (j) below.

(h) A Block Token Instrument must not be operated unless the rear door is properly closed and locked.

(i) If a Technician/Sr. Technician (Sig) or SE/JE (Signal) while transferring Tokens over his jurisdiction comes across such as section, where the Block Token Instruments have already been suspended due to a fault other than Token getting exhausted, he must not under any circumstances transfer Tokens over that particular section. The Station Master of the stations concerned must not sign the permission form T/351 but should inform him that the instrument has already been suspended. The Technician/Sr. Technician (Sig) or the SE/JE (Signal) concerned shall adjust the Tokens, if necessary, when the Block Token Instruments over the suspended section are put in working order and the normal working is resumed.

(j) In case of a failure due to Tokens exhausted, the SE/JE (Signal) or the Technician/Sr. Technician (Sig) may adjust the Token withdrawing them through the rear door of one instrument and depositing withdrawing them through the drum of the corresponding instrument. The Station Masters concerned may then, provided the Block section is clear, resume the working of the Block Token Instruments after satisfying themselves that both the handles have been brought to normal position, and the SE/JE (Signal) or the Technician/Sr. Technician (Sig) has signed against the entry of the number of Token transferred in the Train Signal Register book of the respective stations. (For specimen of form T/351 see Annexure-1).

### **5.13. Adjustment of Block Token Pouches and Hoops :-**

(1) Station Master must be careful that on every occasion when Tokens are adjusted by the Technician/Sr. Technician (Sig) or SE/JE (Sig), a corresponding adjustment of pouches and hoops is made by the Station Master provided, the pouches and hoops being supplied by SE/JE (Signal).

(2) Station Masters will replenish their stock of hoops and pouches on indent from the SE/JE (Signal) of the section whenever required.

(3) Pouches which cannot hold the Token securely should be returned to the SE/JE (Signal) for replacement. The hoops utilised for making over "Authority to Proceed" should be examined before use to ensure that they are in good condition and are not likely to snap at the time of picking up.

**5.14. Token damaged.**– (1) If a Token is damaged and it cannot be deposited in the instrument, notices to that effect shall at once be sent to the SE/JE (Signal) of the section, the Divisional Signal & Telecom. Engineer or the Assistant Signal and Telecom. Engineer and the Section Controller where the section is controlled by Train control. On arrival of the SE/JE (Signal) BWM rule 5.18 must be complied with before the Instrument is opened and the Instrument must then, in the presence of the Station Master, be so adjusted as to working to be resumed without the damaged Token which must be taken away for repair. Until necessary assistance arrives and the instrument has been adjusted, no train may be allowed to travel

over the section affected, except by means of Line Clear Tickets as prescribed in General Rule 14.25.

(2) Should aToken be damaged after it has been withdrawn and before it has gone forward into the section in advance, the train for which it has been withdrawn must not be detained for the Line Clear Ticket, but may proceed with the damaged Token.

**5.15.Token Lost.**—(1) Should aToken be lost, the concerned block instrument shall be considered as having failed and working of trains under Line Clear Tickets must be introduced at once. But in case the Token extracted from the electrical block token instrument in accordance with the procedure laid down in B.W.M. Rule 5.09 for a train, is lost in the process of picking up by the Loco Pilot or from the custody of the Loco Pilot before the train has left the station, that particular train may be allowed to proceed on the authority of a line clear ticket specified under GR 14.25 (1) issued by the Station Master since Line Clear for the train was already obtained. The Loco Pilot shall, however, issue a written memo to this effect to the Station Master, who shall paste the same in the concerned page of the Line Clear enquiry book with necessary remarks. The Station Master shall record the individual number of the Token Lost and the Private Number obtained earlier for the said train on the Paper Line Clear Ticket and also inform the Station Master at the other end of the concerned section of the loss of Token. After the train has

started, the Station Master shall send "Train entering block section" report for such train supported by a Private Number. Necessary remarks shall be made in the Train Signal Registers at both stations. The electrical block token instrument shall then be treated as suspended.

(2) After every possible enquiry and search have been made for missing Token, and when it has been established without doubt and it cannot be found, the Token must at once be reported as lost through diary entry to the Station at each end of the section, to the Divisional Mechanical Engineer, Divisional Electrical Engineer (OP), Divisional Safety Officer, Divisional Operations Manager, Divisional Transportation Inspector, the Divisional Signal and Telecom. Engineer or Assistant Signal & Telecom. Engineer, SE/JE (Signal) and Station Master of the station on either side of the section of which the loss occurs. The code abbreviation for these addressees will be "All concerned Token".

Care should be taken to mention in the message the number engraved on the Token lost and the section to which it applies. The number of the Token should be written and transmitted in words and not in figures.

(3) The loss of Block Tokens shall not be notified in the Caution Order issued from the notice station, but it should be issued from station in rear.

The Station Master of the station at each end of a section over which the Block Token Instruments are out of order, must by message, advise the Station Master of the next station on

his side, and the Station Master on either side so advised must make the following entry in the Caution Order issued to the Loco Pilots of trains approaching the section concerned :

Note :— Block Token working over section from .....to ..... out of order. Trains working on Line Clear Tickets.

This caution order shall be issued till block token working is resumed.

Example :—A,B,C & D are four consecutive stations. If the Block Token Instruments for the section between B & C are out of order and trains over that section are to work on the authority of Paper Line Clear Tickets, the Station Master at B & C must, by message, advise the Station Master A & D respectively. The stations at A & D must make the prescribed entry in the Caution Orders issued to Loco Pilots of trains leaving for B & C respectively.

(4) On arrival of the SE/JE (Signal), Rule 5.18 of BWM must be complied with and instrument must be adjusted by him so that normal working may be resumed.

The SE/JE (Signal) while resuming the electrical block token instrument for its normal working shall post a lost Token notice in the following form at both stations and shall submit a report to the Divisional Signal and Tele-communication Engineer.

**LOST TOKEN NOTICE**

Token no..... belonging to the section  
 ..... (station) and .....(station) is  
 lost. If brought back to the station, at either end of  
 the section, it must not be used but must be kept in  
 the safe custody of the Station Master, who must  
 advise me forthwith.

SE/JE (Signal)

Hd. Qrs.....

(5) If a lostToken is found after a failure message has been sent but before the arrival of the SE/JE (Signal) and even if trains have been passed meanwhile on Paper Line Clear, the instruments shall be restored by the Station Master personally who shall, provided the block section is clear, advise the Station Master at the other end of the section as follows :—

No. .... My message No. .... Token  
 No..... found. Last Train No. .... arrived/  
 left here last at..... (Time). Propose to  
 restore Token Instrument. Private Number.....

The Station Master receiving the advice shall, provided the block section is clear, reply as follows :—

No..... Your message No..... Restore your  
 instrument and let me restore mine. Last Train  
 No.....arrived/left here last at.....(Time. Private  
 Number.....

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Both Station Master shall then place their Instruments in the normal position carrying out the regular sequence of operations, and the Station Master who reported the failure shall cancel his original "Token lost" message by another message which should read as follows :—

No..... My No..... cancelled. Token found and Block Instrument is adjusted and restored.

(6) If a Token is found after the Block Instrument is adjusted and restored by the SE/JE (Signal) under no circumstances should the Token be deposited in the Block Instrument by the Station Master. Sub-rule(9) below must be complied with. The messages notifying the loss of and the restoration of the Tokens, issued by the Station Masters should be entered in the Caution Order Register.

(7) The stations at each end of the section to which the lost Token applies must enter in every Caution Order, issued subsequent to the loss of the Token, a notice as follows :—

Token No..... applicable between ..... and..... has been lost and must not be accepted by any Loco Pilot over the section.

This notice will be entered in the caution order until the lost token is restored in the instrument or a joint circular by operating and S&T as in sub-rule(10) is issued whichever is earlier.

(8) The original Token if found, after it is replaced by a new one or after a lapse of six months whichever is earlier, should on no account be replaced in the instrument but must in

be forwarded to the Divisional Signal and Telecom. Engineer for cancellation.

(9) If the Token is found within the period of six months or before being replaced by a new one, whichever is earlier, the SE/JE (Signal) must be advised by a message to arrange for its return to the Instrument. When either the original or a fresh Token as explained has been placed in the instrument, a message addressed to the persons mentioned in sub-rule(2) above, must be issued cancelling the message reporting the loss.

(10) On receipt of the Station Master's messages as per sub-rule(2) and SE/JE (Signal)'s report as per sub-rule(4) above, a joint circular (Operating and S & T) addressed to all concerned as mentioned in para (2) shall be issued by the Divisional Signal & Telecommunication Engineer and Divisional Operations Manager giving full particulars of lost token for the information of the concerned staff.

(11) No Loco Pilot shall accept the token lost notified in the Caution Order as per sub-rule(7) or as per sub-rule(10) above as a correct "Authority to proceed" unless—

- (a) the joint circular as per sub-rule (10) cancelled by a fresh joint (Operating and S &T) circular, or
- (b) a caution order with proper endorsement is issued by the Station Master along with such token.

(12) Whenever the lost token is restored in the instrument in terms of sub-rule(9) above, the Station Masters shall issue a caution order accompanying the token with proper endorsement

for the Loco Pilot to accept the token in the event of the same being issued to any Loco Pilot after being extracted from the instrument in the manner laid down in BWM Rule 5.09 till such time a fresh joint circular (Operating and S & T) is issued cancelling the original joint circular.

(13) In order that the running staff may have a ready record of lost BlockTokens, a list is published in the Gazette showing details of the Tokens reported to be lost and of those reported as recovered after loss.

(14) When a Token is reported as lost, but subsequently found within 6 months, it shall be deposited or restored to its respective instrument by the SE/JE (Signal) of the section. He should do so only if the token is not damaged/ defaced, by dropping the same through the Token drum when the instruments are in line closed position, and not by opening the front cover of the Instrument, or by the rear door of the instrument through which Tokens are extracted (for the purpose of transference), in the presence of the Station Master and obtain the latter's acknowledgement to this effect, the former making a suitable entry and signing the Train Signal Register as required by rules. This procedure should also be strictly adhered to in cases of replacement of lost tokens and damaged Tokens by new ones.

**5.16. Overcarriage of Block Tokens by Loco Pilots.—**

(1) Should a Token be inadvertently overcarried by a Loco Pilot, it must not be delivered to any station on another section, but must be retained by the Loco Pilot and handed over to the

crew controller of next crew changing station for transmission in a sealed cover to the Divisional Signal & Telecom. Engineer of the Division to which the Token belongs. The Divisional Signal & Telecom. Engineer will forward the Token in a sealed cover to the SE/JE (Signal) of the section for restoration of the proper instrument.

(2) The Station Master of the station from which the Token has been overcarried or is missing, in order to make sure that the Token has been overcarried and not lost, should at once instruct the Station Master of the station ahead on the Block Telephone to stop the train even if it is a non-stopping one and to enquire from the Loco Pilot as to whether he has overcarried the Token and, if so, get from him a memo to that effect; but in no case should the Token in question be made over to such Station Master.

(3) On receipt of this memo from the Loco Pilot, the Station Master will at once communicate the same to the Station Master of the station from which the Token is overcarried, who will then issue a message suspending the Block Instruments, giving the number of the Token and stating that it has been overcarried by the Loco Pilot. The SE/JE (Signal) on the authority of this message will resume Block Instrument working as soon as possible.

(4) If the Loco Pilot cannot certify by a memo that he has overcarried the Token, then, the Token in question should be treated as lost and the Station Master of the station from which the Token is missing, should take action as prescribed in BWM Rule 5.15.

**5.17. Should a Token be inadvertently left behind at station by a Loco Pilot, the following procedure shall be adopted :—**

(1) The Token should be kept in safe custody by the Station Master and handed over to the SE/JE (Signal) when he comes to resume block instrument working.

(2) (a) The Station Master of the Station at which the Token has been left behind must, in addition to an all concerned accident message under Class 'G', issue a message suspending Block Instrument working and giving particulars of the Token number and train number involved in the following form.—

Block Instrument working for section ..... to  
..... suspended due to Token No.....  
left behind by Loco Pilot of.....

(b) The JE/SE (Sig) on the authority of this message will resume Block Instrument working as early as possible and replace the Token in the proper Instrument.

**5.18. Opening of instruments for examination, test over-haul, repairs, adjustment of Tokens, etc :—** (1) The Station Master must not permit any person to open any Token or Tokenless Instrument except by the authorised officials. The particulars of officials authorised to attend such instruments are to be recorded in the Failure Register by SSE (Signal) of the section.

(2) The Instruments must on no account be opened for examination or in any way interfered with by the staff responsible for the maintenance unless the written authority of the Station Master has been previously obtained on form T/351. An entry to this effect must be made by the Station Master in the Train Signal Register book recording the time the instrument was opened and the time it was closed.

(3) Before the Station Master gives his written authority to the signal staff to open a Block Instrument for inspection, test or overhaul or for any other reason, he must inform the Station Master on duty at the station on the other end of the Block Section which the instrument about to be opened controls, and obtain from him permission verified by a Private Number for the instrument to be opened.

This permission must be obtained through the Block telephone, if in order, or through the electrical communication instrument in order of preference as per SR14.01.01 and the Station Master giving permission must note on his Private Number book against the Private Number given that it was issued for the inspection of the Block Instrument at.....station.

(4) The Instruments must not be opened for examination or in any way interfered with when "Line Clear" has been granted or obtained for a train. When opened, it shall not be used for any Line Clear work.

(5) While the Block Maintenance staff has opened any Block Instrument for any purpose, such instrument must be considered to be out of order, and must on no account be used for train working nor shall the instrument be brought into use again till the SE/JE (Signal) or the Technician/Sr. Technician (Sig) gives the Station Master a certificate on form T/351 to the effect that the instrument has been correctly closed and secured and is in proper working order. The Station Masters concerned should exchange "Line Clear" recording the particulars of such "Testing Line Clear" in the Train Signal Register book and must satisfy themselves that the instruments are in perfect working order before bringing the instruments into commission. Form T/351 received from the Block Maintenance staff should be pasted in the register meant for this purpose.

(6) No battery cupboard must be opened by the Block Maintenance staff when "Line Clear" has been granted or obtained for a train on any instrument controlled by the battery in the cupboard, nor should "Line Clear" be granted or obtained on any instrument controlled by the battery in a cupboard when the cupboard is open.

(7) While the Block Maintenance staff have an instrument or battery cupboard opened, under no circumstances other than the authorised staff interferes with the instrument or battery cupboard.

**5.19. Abnormal condition of Block Instrument—(1)**  
Should an instrument becomes defective in such a way as to

allow of more than one Token to be withdrawn from one pair of instruments at the same time, or to permit of a Token being extracted without complete adherence to the authorised procedure for withdrawing Token, the matter must be promptly reported as an accident under Class "M3", the Station Master of the station at the other end of the block section being included in the address of the message.

(2) The working of trains by means of the instruments affected must be suspended and trains shall be worked over the section on the authority of Line ClearTickets as prescribed in Chapter-III Part-1 of BWM and the affected instruments at both the stations must be sealed by the Station Masters concerned in such a way to prevent handling of the instrument.

(3) The Station Masters of the stations of which the working of Block Instruments has been suspended under this rule must on no account permit the defective instruments to be opened by any person not holding a "Special Permit" signed by the Divisional Signal and Telecom. Engineer or the Assistant Signal and Telecom Engineer. This "Special Permit" will be addressed to the Station Masters of the stations concerned and will in each case, bear a reference to the accident message issued. The authority referred to in BWM rule 5.18(1) must not be accepted as a "special permit" for such cases.

(4) When a second Token is withdrawn from the instrument at the station from which the first one has been issued, it must be carefully retained in security by the Station Master and be handed over to the representative of the Signal branch holding the special permit mentioned in sub-rule(3)

above and his receipt for it obtained. This receipt must be sent to the Divisional Safety Officer with the Accident report.

(5) The train carrying the first Token, on its arrival at the other end of the section, shall be signalled "Out of block Section" in the usual way by the Token being put into the instrument and notice must then at once be given suspending Token working between the two stations.

(6) When a second Token is withdrawn from the instrument at the station at the other end of the section to which the first one has been issued, it must be carefully retained by the Station Master in security and dealt with as per sub-rules 4 & 5 above.

(7) The representative of the Signal branch referred to in sub-rule(3) above, should thoroughly inspect the two block instruments concerned and check the number of Tokens in the two instruments. If the correct number of Token is not found, the procedure laid down in BWM Rule 5.15 shall be followed. If the cause of the irregularity was wrong manipulation of the instruments for which the traffic staff is at fault, he should at once bring this to the notice of the Divisional Safety Officer. He should further obtain written statements from the two Station Masters concerned, acknowledging that the instruments can be satisfactorily and safely operated and stating whether the instruments have their full number of Tokens or not, as the case may be. The Station Masters rendering this certificate must satisfy themselves that everything is correct, as they alone will be held responsible for any irregularity in the working of trains by means of the token instruments, which may be caused

by the fact that spare Tokens have been wilfully kept back. To prevent the block instrument being kept suspended for a longer period than is necessary the department at fault should accept responsibility without delay. In cases where responsibility cannot be fixed at once and provided no accident has occurred, the Divisional Signal and Telecom. Engineer or the Assistant Signal and Telecom. Engineer concerned may resume normal working if he is satisfied that normal conditions prevail. If it is considered necessary by the Divisional Signal and Telecom. Engineer or the Assistant Signal and Telecom Engineer to work the block instrument with extra care and vigilance by using Identification Number as laid down in SR 6.02.06 for a certain definite period, then the Divisional Signal and Telecom. Engineer or the Assistant Signal and Telecom Engineer concerned will instruct the Station Masters concerned in writing.

(8) Before normal working is resumed, an authority on form T/351 should be handed over to the Station Masters concerned by the representative of the signal branch referred to in sub-rule (3) above, who shall obtain the signature of the Station Masters concerned on the counterfoil. If the representative of the signal branch referred to above, cannot be present during the time of resumption of normal working, the SE/JE (Signal) of the section will be authorised to resume normal working.

(9) Form T/351 issued by representative of the signal branch referred to above, or the SE/JE (Signal) as the case may be, should be pasted in the Train Signal Register by the Station Masters and "Testing Line Clear" must be exchanged.

**5.20. In case of accidents of a serious nature.**— In case of accidents due to directly or indirectly to the defective or irregular working of block instruments thereby causing collision or damage and when the matter is reported as an accident under Class "A" the Block Instruments must not be opened or inspected until the joint enquiry is held or the responsibility is fixed. The Station Master shall ensure that the block instrument is kept sealed during this period.

**5.21. Suspension of Block Token Instruments for overhaul or repairs.**— (1) When the SE/JE (Signal)/ Technician/Sr. Technician (Sig) requires to suspend the working of block instruments on a section for overhaul or repairs, he must send a message to the Station Masters at both ends of the section with a copy to Divisional Operations Manager, Divisional Safety Officer and the Divisional Signal and Telecom. Engineer concerned in which must be stated clearly the reason why the working is to be suspended.

(2) In the event of the repairs having to be left incomplete or the instrument left for the inspection of a Superior Officer, the instrument shall be locked up by the SE/JE (Signal) or the Technician/Sr. Technician (Sig) and the permission given by the Station Master on Form T/351 for opening the instrument together with the unsigned counterfoil on Form T/351 will be torn out of the book by the SE/JE (Signal) or the Technician/ Sr. Technician (Sig) and fastened on the inside of the window so that it can be easily read through the window when the instrument is closed. On the instrument being again brought into use, the counterfoil will be signed and given to the Station

Master in the usual way [see sub-rule (3) below] and if the instrument is brought into use by a superior officer of the Signal & Telecom. branch, the "Authority to open" portion will be forwarded by the Block Maintenance staff resuming block instrument working to the one who opened the instrument.

(3) When the instrument is in working order and has been locked up, permission to resume block instrument working will be given to the Station Master on the counterfoil of Form T/351. The Station Master after receiving this permission must inform the station Master at the other end of the section that block instrument working may be resumed and give him a Private Number. This Private Number must be entered on Form T/351 and also on the counter foil.

**5.22. Inspection of single line Block Token Instruments.**—The following instructions are issued for the guidance of the SE/JE (Signal)s, Technician/Sr. Technician (Sig)s and Station Masters :—

(1) Instruments may be opened only by a duly authorised person who must produce his authority card signed by the Divisional Signal and Telecom. Engineer concerned.

(2) Instruments may be opened for inspection or transfer of Tokens only when the section is clear and the inspection or work can be completed before the instrument is again required for train working.

(3) For these inspections and for opening the instrument for the transfer of Token, a message notifying the suspension

of the block instrument working should not be issued but the written permission of the Station Master on Form T/351 must be obtained and the permission must bear a Private Number given by the Station Master at the other end of the section.

(4) Station Master must enter the time and date of inspection in the Train Signal Register.

(5) The date when each block instrument battery is attended to and the particular work done on it is to be entered in the battery history register/card by the S & T Maintenance staff.

(6) SE/JE (Signal) and Technician/Sr. Technician (Sig) must study the traffic conditions and attend to the instrument before Tokens are exhausted.

**5.23. Procedure to be followed when Maintenance party work on sections wherein Block wires are also carried.**—(1) No work of any description is to be started on a section wherein the Railway Block wires are carried through underground cable conductors without the official responsible for carrying out the work first giving the notice by message addressed to the Station Masters at either end of the section asking for their acknowledgement in the following form :—

To  
Station Masters, X and Y.

No ..... Maintenance party will commence working

on wire section..... to ..... on (date) from  
..... hrs. Acknowledge.

No work should be commenced unless the acknowledgement is received. If the acknowledgements are not received within an hour, reminder message shall be issued.

(2) The Station Masters on receipt of the message indicated in sub-rule(1) above shall issue the acknowledgement thereof, endorsing a copy of the same to the addressees mentioned in rule 5.24 (2) (a). The Station Masters at both ends of the section will issue an acknowledgement message in the following form :—

To ..... (Here enter the official designation of the Maintenance Official in charge of the party).

Copy to.....

No..... Your No..... dated.....  
acknowledged and extra special care will be exercised and Identification Numbers will be used for block working between .....and ..... from.....hrs. until receipt of line normal message.

Both the Station Masters may then continue to use the block instruments but with extra care and vigilance and using Identification Numbers until advised that the working party has completed their work vide sub-rule 4 below.

(3) Should there be any reason to believe that there is contact between the block wire and any other wire during the period the Maintenance party are working on the line, the Station Master will issue a block suspension message under rules for suspending block working and work on Line ClearTickets as prescribed in Chapter-III (part I) of BWM.

If a contact exists between the block and other circuits there will be either a permanent or intermittent deflection of the Galvanometer needle and possibly irregular beats on to bell. A contact between two block wires will cause signals given on one instrument to be repeated in the neighbouring instrument.

(4) On completion of the work and withdrawal of the party from the section, the maintenance official-in-charge should similarly notify the same to the Station Masters at either end of the section by a message in the following form :—

To  
Station Masters, X and Y,  
No..... My message No ..... of date  
..... underground cable repairs on section.....  
to..... completed and line normal.

(5) The Station Master on receipt of the above message shall cancel his previous message vide para(2) above.

(6) In the event of block working having been suspended due to contact beats as per para(3), normal working shall not be resumed unless both instruments and Tokens have been examined and checked by the SE/JE (Signal) concerned. On receipt of the authority of form T/351 from the SE/JE (Signal)

concerned, the Station Master shall then issue an "all concerned" message cancelling his first message and resume the block token working over the section suspended in terms of rule 5.19 of BWM.

(7) As far as possible a similar procedure as detailed above should also be followed when the maintenance party is proceeding on heavy interruption repairs.

(8) Under no circumstances should block working on a suspended section be resumed by the Station Masters unless authorised to do so by the SE/JE (Signal) concerned in Form T/351

**5.24. (a) Failure of Electrical block instrument** (Token type).—

(1) The Electrical block instrument (Token type) shall be considered as having failed and their working suspended in the following circumstances :—

- (i) Attention cannot be obtained on the block instrument including the failure of block telephone and Station to Station Hotline / Magnetophone .
- (ii) Bell signals received indistinctly or fail altogether.
- (iii) Where last stop signal has an electric lock interlocked with block instruments, the last stop signal lever can be reversed when the operating handle is not in "Train Going To" or "Sending" position.
- (iv) Reasons to believe a contact on block wire :  
The indications are —

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- (a) Permanent or intermittent deflection Galvanometer.
- (b) Signals given on one are repeated on the neighbouring instrument.
- (c) Interference from other message/telephone circuit as may be heard on the block telephone.

In such case BWM rule, 5.19 shall be followed.

- (v) Instrument or its battery counter is found unlocked or with defective seal/unsealed condition
- (vi) Operating handle cannot be turned after correct sequence of operation.
- (vii) A train arrives without proper "Authority to Proceed".
- (viii) Operating handle can be turned to any one of the three positions without the plunger being pressed from the other end station.

In such a case BWM rule 5.10 shall be followed.

- (ix) "Line Clear" cannot be cancelled after correct manipulation.
- (x) When a train is to be worked in terms of SR 6.02.05.

In this case the Station Masters themselves may resume normal working after ensuring that the block section is clear and after exchanging message as indicated in SR. 6.02.05(d)(vi).

- (xi) Token cannot be extracted after proper sequence of operation.

- (xii) Token can be extracted without adherence to the proper sequence of operation.

This is to be dealt with as per rule 5.19 of BWM.

- (xiii) Token is broken or damaged during or after extraction.

Rule 5.14 of BWM shall be followed,

- (xiv) No Token in instrument at station where train is to depart. Token indicator shows 'Red' for Neale's token instrument.

- (xv) Token received cannot be inserted or jams when inserted or the token drum is jammed.

- (xvi) Home signal control key, where provided, and interlocked with the block instrument is lost.

If the lost key is found subsequently, Station Masters themselves may resume normal working only when the block section is clear.

- (xvii) Token lost.

This is to be dealt with as per rule 5.15 of BWM.

- (xviii) Token overcarried.

This is to be dealt with as per rule 5.16 of BWM.

- (xix) Token left behind.

This is to be treated as an accident and action taken as per rule 5.17 of BWM.

- (xx) Token is issued to official of Signal and Telecommunication branch for work involving

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disconnection of outlying siding points controlled by token instrument.

In this case after the token is returned and on receipt of reconnection notice issued by the S & T official, Station Masters themselves may resume the normal working provided the block section is clear.

(xxi) Key of the token inserting drum is lost.

This is to be dealt with as per rule 5.16 of BWM.

(xxii) Last Stop signal control key, where provided on the instrument is lost.

In this case note below item (xvi) shall be followed.

(xxiii) When the Instrument is opened for test, overhaul or repairs.

In this case rule 5.18 and 5.21 of BWM shall be followed.

(xxiv) When more than one token can be extracted from one pair of instrument.

In this case procedure detailed under rule 5.19 shall be followed.

(xxv) When accident of a serious nature occurred directly or indirectly due to the defective or irregular working of block instruments thereby causing collision or damage.

This shall be dealt with as per rule 5.20 of BWM.

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

(2) (a) Whenever any electrical block instrument fails, the Station Master of the station at which the failure has occurred shall at once issue a message through the Section Controller on the section provided with Train control and on the section not provided with Train Control or in the event of failure of Train Control system, by issue of a message. In the controlled section, a message shall also be issued in addition.

The addresses shall be normally —

- (i) Technician/Sr. Technician (Sig) of the section.
- (ii) SE/JE (Signal) of the section,
- (iii) Divisional Signal and Tele-communication Engineer
- (iv) Divisional Safety Officer,
- (v) Station Master of the station at the other end of the section,
- (vi) Divisional Transportation Inspector,
- (vii) Divisional Mechanical. Engineer,
- (viii) Divisional Electrical Engineer (OP),
- (ix) Divisional Operations Manager

(b) In case where the Technician/Sr. Technician (Sig)/ SE/JE (Signal) is Headquartered at the same station at which the failure has occurred, a memo shall at once be sent to him and his acknowledgement obtained.

(c) It is the responsibility of each SE/JE (Signal) and Technician/Sr. Technician (Sig) to advise the Section Controller and the Station Master of the Headquarter station about his movement before he proceeds on line. This shall be done by

issuing a memo and the acknowledgement of Station Master obtained.

(d) On receipt of information regarding block failure, the Section Controller shall immediately advise S&T control and also advise the Technician/Sr. Technician (Sig) and/or the SE/ JE (Signal) in the section to attend the failure. For this purpose, the Section Controller shall maintain a Register (OP/T456) wherein such orders shall be recorded and also the date, time and station at which the order was repeated.

(e) The Station Master of the station reporting the failure shall record the block failure in the signal failure and inspection book.

(f) The Station Masters at both stations shall make entries —

- (i) in red ink in the Train Signal Register and
- (ii) in the Caution Order Register, when the Block Token working is suspended and also when normal working is resumed.

**5.24. (b) Resetting of axle counters when failed :**

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

(1) Preparatory Reset :- This type of resetting system exists in both digital and analog axle counters used for block proving. 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 reset until first train is despatched on PLC.

(2) Non preparatory Resetting : This type of resetting system exists in such block sections where analog axle counter are used for block proving. Despatching of first train on PLC is not required in this type.

(a) Non preparatory reset with cooperation : In case of failure of axle counter, 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 included in the SWR.

**5.25. Resumption of normal working.**— (1) Except in cases where Station Masters are authorised to resume normal working, Form T/351 duly filled in signed by authorised official of the Signal and Telecommunication Department certifying that the electrical block instrument concerned has been properly closed, secured and working properly must be obtained by the Station Master before normal working is resumed.

(2) After the certificate in Form T/351 as per sub-rule(1) above is obtained, the Station Masters shall not resume normal working unless

(a) it is ensured by exchange of messages supported by Private Number between the Station Masters that the concerned block section is clear of trains, and

(b) 'Testing Line Clear' is obtained and cancelled in the manner prescribed by the Station Master at the both ends of

the concerned section and the same is recorded in the Train Signal Registers at both stations.

(3) Whenever normal working is resumed, a message shall be issued cancelling the message issued in terms of sub-rule(2) of BWM Rule 5.24 and action taken as per clauses(e) and (f) of sub-rule (2) of BWM rule 5.24.

**5.26. Testing Line Clear.**—Whenever it is necessary to obtain 'Testing Line Clear', the Station Master shall ensure that the block section to which the block instrument relates is clear of all trains. Line Clear shall be obtained and a token shall be extracted in the similar manner by which line clear is normally obtained except that in lieu of sending and acknowledging "Is Line Clear" signal "Testing" signal shall be sent and acknowledged and no Private Number shall be given by the Station Master permitting to extract the token. The Station Master shall keep the token in his personal custody and test the behaviour of the last stop signal, if any. He shall then cancel the token in the manner prescribed under BWM Rule 5.10 (2). The Station Master at the other end of the concerned section shall also act in the similar manner.

**5.27. Block back and removal of block.**— (Refer GR 1.02(8) and 8.14). Whenever it becomes necessary to obstruct the line in terms of GR 8.13, the procedure detailed under rule 3.15 of BWM shall be followed.

**5.28. Working of Motor Trolley.** — (1) Whenever a motor trolley is to be worked in terms of SR 15.25.03(a), line clear shall be obtained in the manner detailed for working of trains.

(2) Whenever a Motor trolley is to follow a train or another Motor trolley, the Station Master responsible for the operation of block instrument, shall obtain the permission to despatch from the other end Station Master supported by a Private Number. If two Motor trollies are to follow a train, Private Number shall be obtained separately for each motor trolley. Entries in the Train Register shall be made in Red ink.

(3) Whenever Motor trolley/trollies is/are worked as per sub-rule(2) above, a board inscribed "Motor Trolley on line" shall be hung up on the block instrument plunger at both stations which may be removed only on arrival of the trolley/trollies at the other station.

(4) Whenever a Motor trolley/trollies is/are worked as per sub-rule(2) above, "Train out of block section" signal for the train shall not be sent until the trolley/ trollies has/have arrived at the other end station. Private Number shall be given for each Motor trolley separately assuring complete arrival of the trolley/ trollies.

**5.29. Working of Outlying sidings.**— (1) Outlying sidings taking off the running line, are provided in certain block sections. The points of such sidings, are provided with locking arrangements and the siding lock being operated by a control key which is controlled by the Station Master at one end of the concerned block section as mentioned in the Station Working Rules-.

(2) Such outlying siding may be worked either by—

- (a) keeping the concerned block section blocked against entry of trains from either end block station until the train to work the outlying siding completes its work and returns to the starting station, or

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- (b) on busy sections where regular train service must not 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.
- (3) (a) The procedure of working the outlying sidings shall be indicated in the Station Working Rules of stations at either end of the block section. However, to work outlying sidings in terms of sub-rule 2(a) above, Siding Key Register (form T. 98) is maintained at the block station exercising control over the "control key" to operate the points taking off the running line which shall remain under the personal custody of the Station Master (Specimen copy of T.98 is given at Annexure-41).
- (b) Loco Pilot shall be given the authority to proceed under the system of working. The authority to proceed shall be retained by the Loco Pilot till the train clears the block section when it shall be returned to the Station Master. In case of 'Line Clear Ticket' the Station Master shall cancel it and return to the Loco Pilot who shall dispose of the same in the usual way.
  - (c) The Guard shall be given the 'Control Key' and his signature obtained on Part I of Form T. 98. After the work in the siding is completed and on the complete arrival of the train at the starting station

the Guard shall return the "Control Key" to the Station Master and sign the Part III of Form T. 98 as a certificate that—

- (i) all points leading to the siding have been correctly set and locked for the main line,
- (ii) the derails/traps in the siding are set and locked to derail,
- (iii) all wagons in the sidings are clear of the main line and that nothing has been left fouling the main line, and
- (iv) the train has arrived out of the section with all vehicles complete.

**Note :—** If for any reason it becomes necessary to place wagons for loading or unloading in any portion of a siding (other than the loading or unloading points) or in any portion of the branch leading to the siding, a remark to that effect shall be made by the Guard while signing Part III of Form T. 98.

(d) The Station Master on receipt of the "Control Key" shall sign Part II of Form T. 98 and close the block section thereafter.

(e) If the Guard has passed remarks vide note below clause(c) above, the Station Master shall enter the same in the Caution Order Register and issue caution order to all trains entering the siding until the wagons are cleared.

(f) The Station Master of the block station at which the "Control Key" is provided under this rule, is responsible to ensure before obtaining/granting Line Clear for a train to move

over the same block section from which the outlying siding takes off, that the 'control key' is in his custody and confirm the same in the Line Clear enquiry/reply message for the train.

(g) In the event of the 'Control Key' being lost the Station Master shall at once issue a message to the Divisional Operations Manager, Divisional Safety Officer, Divisional Signal and Telecommunication Engineer, Divisional Mechanical Engineer, Divisional Electrical Engineer (OP); Officer-in-charge/GRP and RPF, Divisional Transportation Inspector, SE/JE (Signal), Station Masters of the notice station on either side and the Station Masters at the other end block section reporting the loss of control key. Until the lost key is recovered or until the locking arrangement of the points lock is replaced by the signal engineering department, the precautions laid down below shall be observed :—

- (i) The Divisional Transportation Inspector of the section shall travel on the Engine foot-plate of the first train to enter the same block section after the loss of key is detected/reported. The Loco Pilot shall be given a caution order to stop the train short of the outlying siding points and to proceed further only on being piloted by the Divisional Transportation Inspector to ensure by personal check that the points giving access to the outlying siding are correctly set, clamped and padlocked for the main line before hand signalling the Loco Pilot. The key of the padlock shall be kept under his personal custody and to be handed over to the Station Master of the block station at the other end assuring him in writing about the setting and securing of the

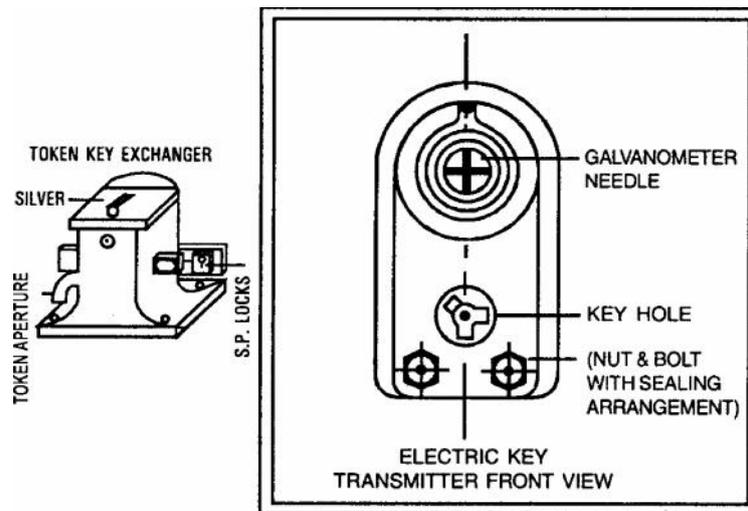
points. In the event of the Divisional Transportation Inspector is not readily available, this responsibility shall devolve on the Station Master of the block station at any one end of the block section from where the first train is about to leave after the loss of key is detected/ reported. The Station Master of the block station at which the key is handed over shall then issue a message to the Station Master at the other end block station indicating the padlocking of the point supported by a Private Number.

- (ii) The Station Master of the block station from which trains move over the point in the facing direction, shall issue caution order to Loco Pilots of all such trains to stop at the 'S' marker, ensure that the point is properly set for the main line, clamped and padlocked and then proceed at a speed not exceeding 15 km/h till the entire train clears the point.

(h) Normal working of trains shall be resumed either on the recovery of the lost key or on replacement of the lock. A message cancelling the message issued vide clause(g) above shall also be issued. If the lost key is found subsequent to the replacement of the points lock, a message shall at once be sent to the SE/JE (Signal)/Technician (Sig) who shall take the same on his imprest stock.

(i) In the event of a Siding Key Register being lost at a station, the Station Master shall open a new Register and shall make an entry to this effect in his Station Diary. The speed of the first train to enter the siding or branch shall be restricted to 8 kilometers per hour and a caution order issued accordingly.

(4) To work outlying sidings in terms of sub-rule 2(b) above, key Token exchangers in conjunction with Happers/ Electrical Key Transmitters are provided. The following is a description of these instruments together with the instructions for their operation—



- (a) Key Token exchanger:—
- (1) Flap covering the portion of the drum where tokens are inserted.
  - (2) Handle of the drum for inserting tokens.
  - (3) Key hole.
  - (4) The aperture, through which the tokens are delivered from the instrument.
- (b) Happers/Electrical Key Transmitter:—
- (1) Galvanometer
  - (2) Key hole.

- (c) Operation of Key Token exchanger:—
- (i) Whenever it becomes necessary to extract the key to operate facing points lock of the outlying sidings, the following operations are to be carried out :—
    - (a) Extract a Token from the electrical block instrument (BallToken type) in accordance with the procedure detailed in BWM Rule 5.09.
    - (b) Place the Token in the recess under the flap of the key token exchanger and turn the handle of the drum to allow the Token to drop.
    - (c) Turn the key in the key token exchanger and extract the same. The Key, so extracted, is the control key to operate facing points lock.
    - (d) TheToken dropped in exchanger thus gets locked.
  - (ii) Whenever it is necessary to extract the Token from the key token exchanger so as to bring the electrical block instrument to normal at both stations, the following conditions are to be observed and operations listed below are to be carried out :—

The competent railway servant responsible for working the outlying siding shall ensure that all vehicles have been properly berthed inside the siding and nothing is left obstructing the block section and no vehicle is left standing inside the siding fouling the running line. The said competent railway servant shall then ensure that the points on the running line are correctly set in favour of the running line. The Control key shall then be

extracted from the points lock so as to lock the point. The key so extracted shall be inserted in the key hole of the Happers/ Electrical key transmitter and turned and thus needle of the Happers/Electrical key transmitter will be deflected. This will permit the extraction of the key from the corresponding Happers/Electrical key transmitter at the other end. The following operations shall then be carried out:—

- (a) Insert and turn the key, so extracted, in the key hole of the token key exchanger.
- (b) A Ball token will then drop in the aperture.
- (c) The token shall then be restored in the electrical block instrument in the manner laid down in Rule 5.10 of BWM.
- (d) The detailed working procedure shall be given in the relevant Station Working Rules.

(5) **Siding Key Register (Form T. 98).**— (i) This Register records the transaction of keys controlling the working of outlying sidings. (See specimen at annexure-41)

(i) The form is divided into three parts. The first part is signed by the Guard when he takes over the key from the Station Master to work the siding.

On returning to the station after working the siding the Guard will return the key to the Station Master and at the same time sign the third part of the Key Register as a certificate that :

- (a) all points leading into the sidings have been correctly set and locked for the main line,

- (b) the derails in the sidings are set and locked to derail,
- (c) all wagons in the sidings are clear of the main line,
- (d) nothing has been left fouling the main line,
- (e) the train has arrived out of the section with all vehicles complete.

The Station Master will acknowledge receipt of the key by signing the second part of the Key Register.

(ii) If for any reason it becomes necessary to place wagons for loading or unloading in any portion of a siding (other than the loading and unloading points) or in any portion of the branch leading to the siding, a suitable remark must be made by the Guard in the third part of the siding Key Register (form T. 98) when he returns the siding key to the Station Master. The Station Master must immediately make an entry to the effect in the Caution Order Register and Caution Orders must be issued to all trains entering the siding until the wagons are cleared.

(iii) (a) In the event of a Siding Key Register being lost at a station the Station Master will open a new Siding Key Register and will make an entry to this effect in his diary. The speed of the first train to enter the branch line or sidings after the new Register is opened must be restricted to 8 kilometres per hour and a Caution Order to that effect must be issued to the Loco Pilot of the train.

(b) For sidings taking off from mid-section between two Block stations the loss of the Key Register at any of such stations must also be reported to the Station Master at the other end of the section and Caution Order issued.

★★★

**PART – II**

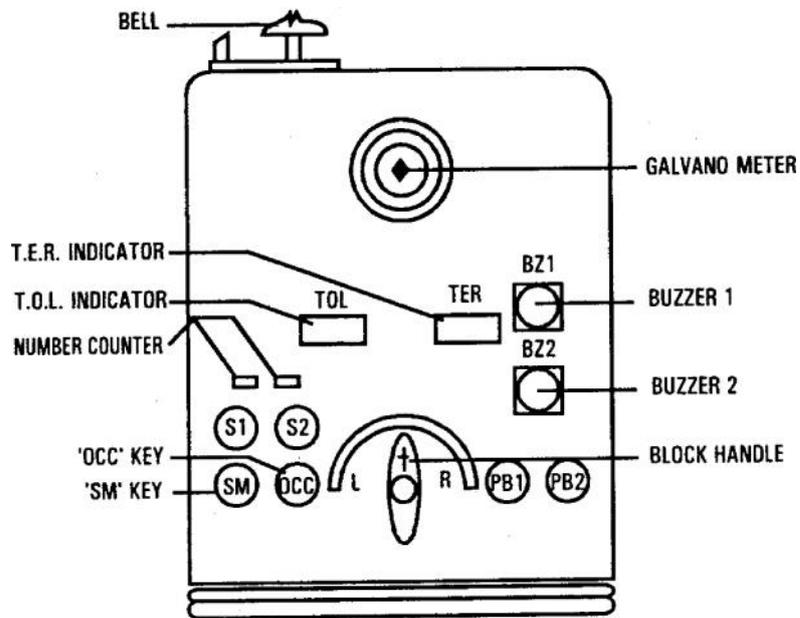
**(Electrical Block Instrument of Tokenless Type)**

**5.30.Type of Instruments.** — The following types of single line Tokenless Block Instruments are in use on the East Coast Railway :

- (i) Daido type and
- (ii) Kyosan (or Podanur) type.

**5.31. Description of Instruments :**

**(1) Daido type.**



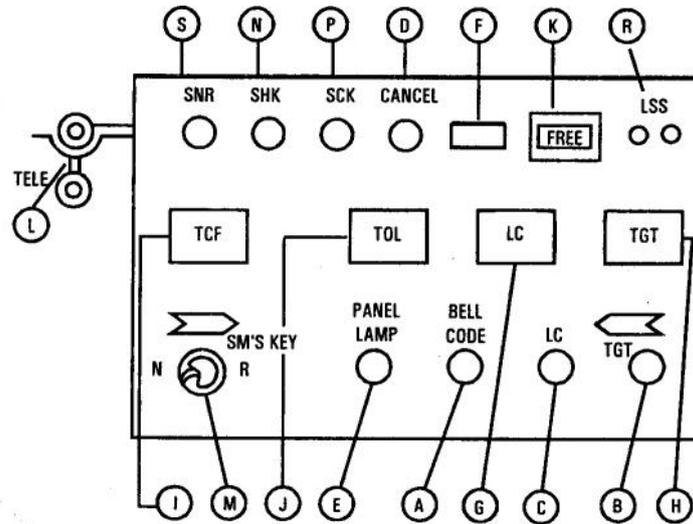
Daido Single Line Tokenless Block Instrument

The block instrument will have following controls and indications as shown in the sketch :

PB 1	Push Button 1	For Bell signal.
PB 2	Push Button 2	For releasing the Block Handle of the opposite instrument.
S1	Switch 1	For cancellation of "Line Clear" by sending station before the train has left.
S2	Switch 2	For cancellation of "Line Clear" by the sending station after the Train has entered the Block section and returned to the sending station and received on proper signals.
SM	Station Master's Key	Intended to lock the instrument and to prevent unauthorised manipulation of the same during the absence of the Station Master.
OCC	Occupation Key	Authority for Loco Pilot of a train to shunt upto the first stop signal. The key can be taken out only when the Block Instrument handle is in the 'Line closed' or 'TGT' position thus making it impossible to operate the Block Handle.
BZI	Buzzer 1	Audible indication at both stations when the train enters the block section.

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BZ2	Buzzer 2	Audible indication at the receiving station when the whole of the train passes within the Home signal.
TOL	"Train on Line" Indication	Provides automatic visual indication at both stations when the train enters the Block Section.
TER	'Time Element Relay Operation' indication	Provides visual indication for the cancellation of 'Line Clear' after a predetermined time.
Number Counter		Two Number Counters, one attached to each switch S1 and S2 for counting each cancellation operation.
Galvanometer		Detects the flow of current from one Instrument to another when either push button PB1 or PB2 is pressed.
Block Handle		Block Handle can be set at 'N' (Line closed), 'L' (train going to) and 'R' (Train coming from) position. It is locked by the block lever lock in all position.
Bell		Single stroke Bell for exchange of Bell Code Signal.

**(2) Kyosan (or Podanur) type.—**

Kyosan (or Podanur) type Push button type  
Tokenless single line block instrument.

The Block Instrument will have the following controls and indications as shown in the sketch :—

**(A) Controls :**

- (i) BPB 'Bell Push' Black To transmit Bell Code  
Button button Signals which are heard  
(Marked A) at the receiving station.  
This button is to be  
pressed simultaneously  
with button TGT or 'Line  
Closed' or 'Cancel' when  
any of their buttons is  
required to be  
operated.

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- |       |                                |                                  |       |  |
|-------|--------------------------------|----------------------------------|-------|--|
| (ii)  | TGT<br>Button<br>(Marked B)    | Train<br>Going To<br>push button | Green | This button is to be operated simultaneously with 'Bell Push Button' by the SM of the sending station. This sets the instrument to 'Train Going To' position and the receiving station instrument to 'Train Coming From' position if the conditions permit.                |
| (iii) | LCB<br>Button<br>(Marked C)    | Line<br>Closed<br>push button    | White | To be operated with 'Bell Push Button' by the SM at the receiving station to set both the instruments of the section to 'Line Closed' position.  |
| (iv)  | Cancel<br>Button<br>(Marked D) | 'Cancel'<br>push button          | Red   | <p>The button is to be operated along with 'Bell Push Button' –</p> <p>(a) to enable cancellation of 'Line Clear' condition if the train has not entered to block section.</p> <p>(b) to enable sending station to set the instruments to 'Line Closed' condition from</p> |

'Train on Line' position after the train has pushed back to the sending station.

- (v) Panel 'Panel Yellow To illuminate the various  
Lamp Lamp' indications whenever  
(Marked F) push button necessary, except the  
'free' and Train on Line' indications which  
continue to show when  
this button is operated.

**(B) Indication-Visible :**

- (vi) Cancellation Counter This registers one higher  
(Marked F) number each time the  
'cancellation button' is  
operated.

**Note :** SMs handing over & taking over charge should record in the train signal register book, the number exhibited by the counter at the time of change of duties.

- (vii) Line Line White This is stencilled indica-  
Closed Closed tion which illuminates  
stencilled Indicator when the instrument is in  
Indicator line closed condition.  
(Marked G)
- (viii) Train Train Green This is stencilled arrow  
going to going to which illuminates at the

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	stencilled Indicator Indicator (Marked H)			sending station when the instrument is set to 'Train going to' condition.
(ix)	Train coming from stencilled indicator (Marked I)	Train coming from' indicator	Green	This is a stencilled arrow indication which illuminates when the instrument is set to 'Train coming from' condition.
				<b>Note :</b> These three indication not normally show any indication but are lit only when the BPB button is pressed or the panel lamp button is pressed.
(x)	Train on Line Indicator (Marked J)	'Train on Line' Indicator	Red	This is a stencilled indication illuminated when the train enters the block section and continues to be lit till the train clear the block section and the SM at the receiving station normalises the instrument to "Line Closed position.
(xi)	Free stencilled indicator	'Free' Indicator	Green	This is stencilled indication which illuminates 120 seconds after

(Marked K)

the cancellation button is operated provided the train has not entered the block section.

**(C) Indicator Audible:**

(xii) (a) Train on line bell –

Gives intermittent audible warning at the receiving station when the train enters the block section. Its muting is done by pressing the BPB button by the SM at the receiving station.

(b) Train arrival Bell –

Gives continuous audible warning at the receiving station when the train has cleared the block section. It is silenced when the Home signal lever or the SM's control slide for the Home signal is normalised.

**Note :** SM of receiving station must ensure complete arrival of the train before normalising the instrument to 'Line Closed' condition.

(c) Single Stroke Bell –

Gives audible indication whenever BPB button is

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pressed on the instrument at the other station.

**(D) Auxiliary Apparatus :**

(xiii) (a) Block Telephone –  
(Marked L)

Establishes communication with the SM of the station at the other end of the Block section.

(b) SMK Station –  
(Marked M) Masters key

When this key is taken out it will prevent unauthorised manipulation of the block instrument. When taken out the key should be kept in the personal custody of SM on duty. Even if the key is out, the 'bell code', 'Train coming from' indication, 'Train entering section' audible warning can be received and 'Train on line' acknowledgement can be sent.

(c) Shunting key –

This is an authority to the Loco Pilot for shunting beyond last stop signal. When the key is taken out from an electric lock (provided separately), it

prevents any operation of the instruments but allows only reception and transmission of 'Bell Code' and 'Train on line' signals separately.

- |     |   |  |      |  |
|-----|---|--|------|--|
| (d) | SHK<br>Button<br>(Marked N)                               | Shunting<br>key button                           | Blue | To be pressed whenever the shunting key is to be extracted.  |
| (e) | SCK<br>Button<br>(Marked T)                               | Slip and<br>Catch<br>siding<br>key button        | Blue | To be pressed whenever the slip/catch siding control key is to be extracted.   |
| (f) | Last<br>stop signal<br>aspect<br>indication<br>(Marked R) | Red for 'ON'<br>and green<br>for 'OFF'<br>aspect |      | This is a visual aid to the SM whether the last stop signal is taken off or not.   |
| (g) | SNR indicator<br>(Marked S)                               |  |      | This is a visual aid to the SM to verify all his controls/levers etc. are normal. All these indications are lit only when BPB or Panel Lamp Push Button is pressed. They are normally OFF. |

**5.32. Additional requirements.**— The following additional equipments will be provided at the block stations at which instruments are located :—

- (i) A track circuit of 2 rail lengths ahead of the last stop signal to put back the signal to 'ON' position when the train enters this track circuit. The last stop signal is put back to 'ON' position and the "Train on line" indication will come up and Buzzer/Hooter will sound at the receiving station of the block section,
- (ii) Electrical Signal Reverser or equivalent electric circuits on the last stop signal of the despatching station is provided in order to enable the signal to return automatically to 'ON' position when the train enters the block section.

Once the last stop signal is replaced to 'ON' position, it cannot be taken 'OFF' unless a fresh 'Line Clear' is obtained. The SM will ensure that the last stop signal if provided has gone back to 'ON' position. SM's slide where provided for the last stop signal should be returned to normal.

- (iii) An electrical or mechanical lever lock or other equivalent electrical circuits to interlock the last stop signal with the 'Line Clear' indication of the block instrument.
- (iv) 2 track circuits of two rail lengths each in advance of the Home signal. The function of these track circuits is to restore the home signal to ON position and sound the buzzer/hooter at the receiving station when the train has passed within the Home Signal.

The sounding of the buzzer/hooter indicates the arrival of the train.

**5.33. Mode of signalling trains on electrical instruments of tokenless type.—**

Initially both the instruments are in 'Line Closed' condition and the Outer and Home or Distant and Home signals, as the case may be, and the Last Stop signal are all at 'ON' as well as SM's control slides for Home and last Stop signals pertaining to the block section concerned are in normal position.

**(1) Mode of signalling of trains on Daido type tokenless block instrument for a train to leave a block station for the block station at the other end :**

<u>Despatching Station</u> (Station 'A')	<u>Receiving Station</u> (Station 'B')
[Block handle in 'Line Closed' position. All signals and signal levers concerned (including SM's concerned slot slides) are in normal position.]	[Block handle in 'Line Closed' position. All signals and signal levers concerned (including SM's concerned slot slides) are in normal position.]
1. Inserts SM's key and turns.	
2. Presses the button PB-1 and sends call attention code of bell signals.	3. Inserts SM's key.
5. Sends 'Attend telephone' code of bell signals.	4. Acknowledges the call attention code of bell signals by pressing the button PB-1.

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6. Acknowledges the 'Attend telephone' code of bell signals and attends on telephone.
7. Attends on telephone, gives the name of the station and asks B if he is prepared to receive train No..... [Refer BWM Rule 2.07(3)]
8. Gives out the name of the station, and if he is prepared to receive, replies, 'Yes' take line clear for train No..... Private Number.....
9. Repeats the Private Number given by Station Master 'B' and replaces telephone.
10. Replaces telephone.
11. Sends 'Is line clear enquiry' code of signals through button PB-1 and keeps the buttons PB-1 and PB-2 pressed on the last beat for 5 seconds or until the Galvanometer needle vibrates.
12. Turns the operating handle to Train coming from' position.
13. Acknowledges the 'Is Line Clear' code of bell signals through button PB-1 and keeps the buttons PB-1 and PB-2 pressed on the last beat for 5 seconds or till the Galvanometer needle vibrates.
14. Turns operating handle to Train going to' position.

- 15 (a) Takes 'OFF' the last stop signal (after ensuring that the route is clear and points are correctly set and locked).
- (b) Train enters Block section.
- (c) Last stop signal returns to 'ON' position.
- (d) Train on line' indication appears automatically.
- (e) Buzzer 1 starts operating.
- (f) Puts back levers of Starter and Advanced Starter and last stop signal control slide to normal position.
16. Train on Line' indication appears automatically and Buzzer 1 starts operating.
17. Sends 'Call attention' code of bell signals through button PB-1.
18. Acknowledges 'Call attention' code of bell signals through button PB-1.
19. Sends Train Entering Block Section' code of bell signals after complying with BWM Rule 2.07(5).
20. Acknowledges Train Entering Block section' code of bell signals through PB-1. Buzzer stops.

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21. Buzzer 1 stops.
22. Takes OFF the reception signals (after ensuring that the line nominated is clear and points are correctly set and locked).
- 23 (a) Train enters the station.
- (b) Buzzer 2 starts operating.
- (c) Reception signals replaced to 'ON' position automatically.
- (d) Normalises the control to operate the Home signal (where provided) and complies with BWM Rule 2.07 (6).
- Note : The control to operate Home signal should be normalised only after the whole of the train arrived complete within the Home signal.
25. Acknowledges 'Call attention' code of bell signals.
24. Sends "Call attention" code of bell signals through PB-1.
26. Sends Train out of block Section' code of bell signals through PB-1 and the buttons PB-1 and PB-2 pressed on the

- last beat for 5 seconds  
or till the Galvanometer  
needle vibrates.
27. Turns operating handle to 'Line Closed' position.
28. Acknowledges 'Train out block Section' code of bell signals through PB-1 and keeps "Buttons PB-1 and PB-2" pressed on the last beat for 5 seconds or till the Galvanometer needle vibrates.
29. Turns operating handle to "Line Closed" position and thus buzzer 2 stops.

**(2) Mode of signalling of trains on Kyosan (or Podanur) type Push Button tokenless block instrument for a train to leave a block station and proceed to next block station at the other end :**

**Despatching Station**

**(Station 'A')**

1. Inserts S.M.'s key and turns.
2. Sends 'Call attention' code of bell signals by pressing 'Bell Push Button' (BPB).
4. Sends 'attend telephone' code of bell

**Receiving Station**

**(Station 'B')**

3. Acknowledges 'Call attention' code of bell signals by pressing 'Bell Push Button' (BPB).

signals by pressing 'Bell Push Button' (BPB).

6. Attends on telephone, gives the name of his station and asks 'B' if he is prepared to receive train No..... [Refer BWM rule No. 2.07(3)]
8. Repeats the Private No. received and replaces telephone.
10. Sends 'Is Line Clear Enquiry' code of bell signals by pressing 'Bell Push Button' (BPB) and operates 'Train Going to' (TGT) button simultaneously while sending the last code of bell signals through the BPB and keeps both the buttons pressed till 'Line Closed' (LC) indication extinguishes and 'Train Going to' (TGT) indication appears. (Button should not be released earlier).
5. Acknowledges 'attend telephone' code of bell signals by pressing 'Bell Push Button (BPB) and attends on telephone.
7. Gives his station name and if prepared to receive the train replies yes, obtain line clear for train No..... Private No.....
9. Verifies the correctness of the Private No. and replaces telephone.
11. 'Line Closed' (LC) indication extinguishes 'Train Coming From' (TCF) indication appears and then acknowledges 'is Line Clear Enquiry' code of bell signals by pressing 'Bell Push Button' (BPB).

- |   |  |
|---|--|
| <p>12.(a) Takes 'OFF' the last stop signal.</p> <p>(b) Train enters block section.</p> <p>(c) Last stop signal returns to 'ON' automatically.</p> <p>(d) 'Train On Line' (TOL) indication appears automatically.</p> <p>(e) Replaces control(s) to operate Last Stop signal to normal.</p> <p>(f) Sends 'Call Attention' code of bell signals by pressing 'Bell Push Button' (BPB).</p> | <p>13(a) 'Train On Line' indication (TOL) appears automatically and audible warning sounds continuously.</p> <p>(b) Inserts SM's key and turns.</p> <p>(c) Acknowledges Call attention code of bell signals through 'Bell Push Button' (BPB).</p> <p>(d) Audible warning stops</p> |
| <p>14. Sends Train Entering Block section code of bell signals through 'Bell Push Button' (BPB).</p> <p>[Refer BWM rule No. 2.07(5)]</p>  | <p>15. Acknowledges 'Train Entering Block Section' code of bell signals through 'Bell Push Button' (BPB)</p> <p>(a) Takes 'OFF' reception signal.</p> <p>(b) Train passes Home signal.</p> <p>(c) Home signal goes back to 'ON' position automatically.</p>                        |

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- (d) Audible warning sounds continuously.
- (e) Normalises the control to operate the Home signal (where provided) and complies with BWM Rule 2.07 (6).

Note : The control to operate Home signal should be normalised only after the whole of the train arrived complete within the Home signal.

- (f) Audible Warning stops.
- 16. Sends 'Call attention' code of bell signals through 'Bell Push Button' (BPB).
- 17. Acknowledges 'Call attention' code of bell signals through 'Bell Push Button' (BPB).
- 18. Complies BWM Rule 2.07(6) and after ensuring complete arrival of the train sends 'Train out of Block Section' Code of bell signal through 'Bell Push Button' (BPB) and on the last bell presses 'Line Closed' (LC) button simultaneously till such time TCF and

19. 'TGT' and 'TOL' indications extinguish and 'Line Closed' (LC) indication appears. Acknowledges Train Out of Block Section' Code of bell signals through 'Bell Push Button' (BPB). TOL' indication extinguish and 'Line Closed' (LC) indication appears.

**5.34. To cancel a Line clear which has been obtained** — Before proceeding to cancel the line clear obtained, the Station Master at the station at which the instrument is in 'Train going to' position, shall personally ensure that the train concerned has not started, the Last Stop signal has been properly put back to 'ON' position and the Station Master's slide for the Last Stop signal concerned is put back to normal and that they remain so until the cancellation procedure is completed.

**(1) Daido type Tokenless Block Instrument :**

**Despatching Station**

(Block Instrument handle at "Train going to" position, concerned Last Stop signal is at 'ON'. Last Stop signal control lever and slide are restored to normal). If the departure signals had been taken off they are replaced to 'ON' position.

**Receiving Station**

(Block Instrument handle at "Train coming from" position).

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- |  |  |
|--|--|
| 1. Sends "Call attention" code of bell signal on PB-1.   | 2. Acknowledges on PB-1  |
| 3. Sends "Attend Telephone" code of bell signal on PB-1.   | 4. Acknowledges on PB-1 and attends telephone.   |
| 5. Takes up telephone, calls out station name and asks for his consent.  | 6. Ensures that reception signal(s) is/are at 'ON', SM's Home signal slot slide is normal. Calls out station name and then gives his consent on telephone. |
| 7.a) Turns switch S1, from normal to cancellation position.  |  |
| (b) The 'Counter' registers next higher number.  |  |
| (c) Wait for 2 minutes.  |  |
| (d) T.E.R. (Time Element Relay) Indicator operates.  |  |
| 8. Sends 'Call attention' code of bell signals.  | 9. Acknowledges 'Call Attention' code of bell signals.   |
| 10. Sends cancellation code of bell signals through PB-1 and keeps the buttons PB-1 & PB-2 pressed for 5 seconds on the last beat. | 11. Turns his Block handle to 'Line Closed' position and acknowledges the code of bell signals through PB-1 and keeps PB-1 and PB-2 pressed for 5 seconds. |
| 12. Turns switch S1 to normal position, Turns Block handle to 'Line Closed' position.  |  |

**(2) Kyosan (or Podanur) type tokenless block instrument :****Despatching Station**

Block Instrument displays 'Train Going To' (TGT) indication, Home, Outer (where provided), the last Stop signal, signal levers and SM's slide (where provided) are normal. If the departure signals had been taken 'OFF' they are replaced to 'ON' position.

- 1.a) Inserts SM's key & turns.
- (b) Operates 'Bell Push' button for sending 'Call attention'signal.
3. Sends 'Attend Telephone' code of bell signal through 'Bell Push' button.
5. Attends block telephone and advises his intention to cancel 'Train GoingTo' (TGT) condition.

**Receiving Station**

Block Instrument displays Train Coming From' (TCF) indication.

- 2.a) Inserts SM's key & turns.
- (b) Acknowledges 'Attend Telephone' code of bell signal through 'Bell Push' button and attends on block telephone.
4. Acknowledges 'Attend Telephone' code of bell signal through 'Bell Push' button and attends on block telephone.
- 6.a) Acknowledges intention to cancel 'Train Going To'(TGT) condition.

- 7.a) Operates 'Cancellation' push button along with 'Bell Push' button.
  - (b) Replaces reception signal levers and SM's slide (where provided) to normal, if the signals were taken 'OFF'.
  - (b) 'Counter' registers next higher number.
  - 8. 'Free' indication appears two minutes after the 'cancellation' button is pressed.
  - 9. Sends 'Call Attention' code of bell signal by pressing 'Bell Push' button and also operates 'Line Closed' button and keeps them pressed. (Checking all relevant signals at 'ON')
  - 10. Acknowledges 'Call Attention' code of bell signal through 'Bell Push' button and cooperates in normalising the instrument by pressing 'Line Closed' button also and keeps the buttons pressed.
  - 12.a) Train Going To' indication (TGT) extinguishes and block instrument sets to 'Line Closed' condition.
  - 11.a) 'Train Coming From' indication (TCF) extinguishes and 'Line Closed' indication appears, setting the instrument to 'Line Closed' condition.
  - (b) Releases buttons.
  - (b) Releases buttons.
- Note : Buttons should not be released earlier.
- Note : Buttons should not be released earlier.

**5.35. Normalising of Block Instrument when train returns to the despatching Block Station** :— Before receiving the train back into the station from which it started, the following is the sequence of actions to be taken :—

**(1) Daido type tokenless Block Instrument.**

<u>Station 'A'</u> (Despatching Station)	<u>Station 'B'</u> ( Receiving Station)
<p>(Block handle on 'Train Going To' position)</p> <ol style="list-style-type: none"> <li>1. Advises Station Master B on telephone the intention to push back the train.</li> <li>3.a) Turns the switch S2 from normal to cancellation position.</li> <li>(b) The 'Counter' registers next higher number.</li> <li>(c) Takes 'OFF' the reception signals.</li> <li>(d) Train enters the station.</li> <li>(e) Buzzer 2 for arrival of the train starts operating.</li> <li>(f) Replaces the Home Signal lever to normal.</li> </ol>	<p>(Block handle on 'Train Coming From' position)</p> <ol style="list-style-type: none"> <li>2. Gives consent on telephone.</li> </ol>

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4. Sends Train out of Block Section' code of bell signals through PB-1 and keeps the buttons PB-2 pressed for 5 seconds on the last beat or till the galvanometer needle vibrates.
5. Turns his block handle to 'Line Closed' position.
6. Acknowledges 'Train out of Block Section' code of bell signal and keeps buttons PB-1 and PB-2 pressed for 5 seconds on the last beat or till the galvanometer needle vibrates.
7. Turns switch S2 to normal position.
- 8.a) Turns the Block handle to 'Line Closed' position.
- (b) Buzzer stops.

**(2) Kyosan (or Podanur) Type tokenless block instrument.**

**Station 'A'  
(Despatching Station)**

Block Instrument displays first 'Train Going To' and next 'Train on Line' indication.

- 1.a) Inserts SM's key & turns.
- (b) Gives 'Call Attention' code of bell signal through 'Bell Push button.

**Station 'B'  
( Receiving Station)**

Block Instrument displays first 'Train Coming From' and next 'Train on Line' indication.

- 2.a) Inserts SM's key & turns.
- (b) Acknowledges 'Call Attention' code of bell signal through 'Bell Push' button.



Note : Home signal lever must not be put back to normal until the whole of the train has arrived inside the last vehicle track circuit, otherwise this will cause block failure and the train arrival audible warning will not sound.

- 8.a) Verifies the complete arrival of the train and ensures all reception signals are put back to 'ON'.
- (b) Operates 'Cancel' Push Button' along with the 'Bell Push Button'.
- (c) 'Counter' registers next higher number.
- 9. Gives 'Call Attention' code of bell signal through 'Bell Push Button' and operates 'Line Closed' button along with 'Bell Push Button'.
- 10. Acknowledges 'Call Attention' code of bell signal through 'Bell Push Button' and cooperates in normalising instruments by pressing 'Line Closed' button along with 'Bell Push Button'.

- |  |   |
|--|---|
| <p>12.a) 'Train Going To' and 'Train On Line' indications extinguish and the block instrument sets 'Line Closed' condition,</p> <p>(b) Releases Buttons.</p> <p>Note : Buttons should not be released earlier.</p> | <p>11 .a) 'Train Coming From and Train on Line' indications extinguish and the block instruments set to 'Line Closed' condition.</p> <p>(b) Releases buttons.</p> <p>Note : Buttons should not be released earlier.</p> |
|--|---|

**Note** : The Push back operation is prohibited at stations provided with 'Catch Siding'.

**5.36. Shunting between the last stop signal and the First Stop signal from the opposite direction [GR 8.11 (a) and 8.12] :—**

**(1) Daido type tokenless block instrument.**

**Station 'A'**

(Shunting to be performed)  
(Instrument handle in 'Line Closed' position. Last Stop Signal and First Stop Signal are at 'ON' in the direction of B)

1. Informs Station Master 'B' of intention to shunt upto opposing first stop signal.
3. Inserts Station Master's key and turns.

**Station 'B'**

(At the other end of Block Section. Instrument handle in "Line Closed" position. Last Stop Signal and First Stop Signals are at 'ON' in direction of A)

2. Gives consent.

- 4.a) Takes out the occupation key of the concerned section Block Instrument and removes the Station Master's key locking the Block instrument.
- (b) Hands over the occupation Key to the Loco Pilot as his authority to do the shunting.
- 5.a) The Loco Pilot completes shunting and returns the occupation key to the Station Master.
- (b) Inserts SM's key and turns and replaces shunting key in the Instrument.
- 6. Informs Station Master 'B' through PB-1.
- 7. Acknowledges through PB-1

**(2) Kyosan (or Podanur) Type tokenless Block Instrument.—**

<u>Station 'A'</u>	<u>Station 'B'</u>
(Where shunting to be performed)	(At the other end of Block Section)
1. Block Instrument in 'Line Closed' condition. Last	Block Instrument in 'Line Closed' condition. Last Stop

- stop signal in the direction of 'B' and First Stop Signal from the direction of 'B' are 'ON'. signal in the direction of 'A' and First Stop Signal from the direction of 'A' are 'ON'.
2. Presses the 'SHK' push button.
  3. Takes out the shunting key from the Electric lock.
  4. Hands over the shunting key to Loco Pilot and takes out Station Master's key (SMK).
  5. Loco Pilot completes shunting and returns shunting key to Station Master.
  6. After ensuring that there is no obstruction left between last stop signal and opposing first stop signal, inserts Station Master's key in the block instrument and shunting key in the electric lock and turns to normal.

**Note :** Shunting between the last stop signal and opposite First Stop Signal at the catch siding end of the station is prohibited.

**5.37. Shunting between the Last Stop signal and opposing First Stop signal behind a departing train.—**

**(1) Daido type tokenless block instrument.—**

If shunting behind a departing train in accordance with GR 8.11 (a) is permitted in the Station Working Rules, the Station Master of the shunting station shall issue the authority for shunting in the prescribed form T/806 after observing the following procedure.

<u>Station 'A'</u>	<u>Station 'B'</u>
(Shunting Station)	(Other end of block Station)
(Instrument handle "Train Going To" position and TOL indication shows 'Red')	(Instrument handle "Train Coming From" position and TOL indication shows 'Red').
1. Sends "Call attention" code of bell signal on PB-1.	2. Acknowledges.
3. Sends "Attend Telephone" code of bell signal on PB-1.	4. Acknowledges and takes up telephone.
5. Takes up telephone and informs Station Master 'B' of his intention for shunting.	6. Gives consent.

**Note :** If the train clears the block section before shunting is completed and thereby block instrument handle at both stations is normalised, the Station Master of Station 'A' shall atonce follow the procedure detailed in BWM Rule 5.36(1)

**(2) Kyosan (or Podanur) type tokenless block instrument.—**

If shunting behind a departing train in accordance with GR 8.11 (a) is permitted in the Station Working Rules, the Station Master of the shunting station shall issue the authority for shunting in the prescribed form T/806 after observing the following procedure.

<u>Station 'A'</u> (Shunting Station)	<u>Station 'B'</u> (Other end of Block Section)
Block instrument in TGT and TOL position and the last stop signal at 'ON'.	Block Instrument in TCF and TOL condition.
1. Sends "call attention" code of bell signal on BPB.	2. Acknowledges "Call attention" code of bell signal on BPB.
3. Sends "Attend Telephone" code of bell signal on BPB.	4. Acknowledges "Attend Telephone" code of bell signal on BPB and attend on telephone.
5. Attends on telephone and informs Station Master 'B' of his intention for shunting.	6. Gives consent.

**Note :** If the train clears the block section before shunting is completed and thereby "Line Closed" condition is established at both stations, the Station Master of Station 'A' shall at once follow the procedure detailed in BWM Rule 5.36(2).

**5.38. Shunting outside first stop signal.** (Refer GR 8.13)— In addition to the procedure laid down in BWM Rule 3.15, the Station Master shall also observe Rule 5.36(1) and 5.36(2) of BWM in case of Daido type and Kyosan (or Podanur) type tokenless instruments respectively.

**5.39. Working of Motor Trolley/4 wheeler Tower Wagon.**— (1) Whenever a motor trolley is to be worked in terms of SR 15.25.03 (a) or a 4 wheeler Tower Wagon, the Station Master of the despatching station shall obtain the permission from the Station Master of the other end block station over the block instrument telephone supported by a Private Number provided the block instrument at the respective station is in "Line Closed" condition. The Trolley holder/Tower Wagon Driver shall be given an authority on form T/369(3b) as the "AUTHORITY TO PROCEED ". At the receiving station, the trolley/4 wheeler Tower Wagon may be received by taking 'off reception signals. On arrival of the trolley/4 wheeler Tower Wagon at the other end block station, the Trolley holder/4 wheeler Tower Wagon Loco Pilot shall deliver T/369(3b) to the Station Master certifying that the Trolley/4 wheeler Tower Wagon has arrived complete under his signature. The Station Master shall keep the same as record. Arrival Report shall be given supported by a Private Number. Records shall be maintained in the Train Signal Register books at both stations in red ink. In case it is necessary to cancel line clear for a Trolley/4 wheeler Tower wagon already obtained, before the Trolley/4 wheeler Tower Wagon was left, messages authenticated by Private Numbers shall be exchanged between the Station Masters concerned and record thereof is maintained in the Train Signal Register.

However, the working of 8 wheeler Tower wagon will be regulated as per the movement of running train on line clear and last stop signal being taken 'OFF'.

(2) Sub-rule(2) and (4) of the Rule 5.28 of Block Working Manual shall be followed for allowing the Motor Trolley/trolleys under SR 15.25.03(b).

(3) Whenever a Tower Wagon or Motor Trolley/ trolleys is/are allowed to run under these rules, a board inscribed "Motor Trolley on Line " shall be hung up on the block instrument at both stations. In addition lever collar/slide collar shall be placed on the slide control to operate the last Stop signal at both stations. These may be removed only after the Tower Wagon or trolley/ trolleys has/have cleared the block section.

**5.40. Working of Material Trolley.**— Whenever it is necessary to work any material trolley in terms of **SR 15.27.07**, the OCC Key/Shunting Key shall be handed over to the trolley holder along with the written authority on Form T/1518 Part 'B' to work in the section. Entries in red ink shall be made in Train Signal Register indicating the time when the material trolley is placed on line; removed from line; arrives the next station or returns to the starting station.

**5.41. Working of Materials train** — Whenever it is necessary to despatch a Material train, line clear shall be obtained in accordance with the procedure detailed in BWM Rule 5.33. In case it is to return to the starting station after completion of its work, the procedure detailed in BWM Rule 5.35 shall be observed before the reception signal(s) is /are taken off and also to normalise the block instruments at both stations.

**5.42. Procedure to be followed when Maintenance party works on sections where Block wires are also carried :—**

(1) No work of any description is to be started on section wherein the railway block wires are carried through underground cable conductors without the officials responsible for carrying out the work by first giving the notice at least one day prior to the date on which it is intended to commence the work through message addressed to the Station Masters at either end of the section asking for their acknowledgement in the following form :—

To : Station Masters of A and B

Copy:JE/SE(Sig).....Technician/Sr.Technician(Sig).....

No.....Maintenance Party will commence working on wire section .....to .....on ..... (date) from ..... (hrs.) Acknowledge.

The acknowledgement must be obtained before commencing the work. If the acknowledgements are not received within an hour, reminder message shall be issued.

(2) The Station Masters on receipt of the message indicated in sub-rule(1) above shall issue the acknowledgement thereof, endorsing a copy of the same to the addressees mentioned in Rule 5.24(2) (a) in the following form :—

To : .....(Here enter the official designation of the Maintenance/Official incharge of the party)

Copy to .....

No..... Your No.....

Dated..... acknowledged.

Block Instrument working for trains between ..... (station) and.....(Station) shall remain suspended from ..... Hrs. of .....(date). Trains shall be worked on Paper Line ClearTicket till completion of work and the instruments certified by SE/JE (Signal)..... (Section).

(3) On completion of the work, the official in charge of the maintenance party shall cancel the message issued under sub-rule (1) above on the following form :—

To : Station Masters 'A' and 'B'

Copy to SE/JE (Signal).....and Technician/Sr. Technician (Sig) .....

No .....My message No.....of ..... (date) cancelled. Block wire repairs on section ..... to..... completed and line normal.

(4) The SE/JE (Signal) on receipt of the message indicated in sub-rule (3) above, shall issue T/351 after testing the instruments at both stations.

(5) The Station Masters on receipt of the message indicated in sub-rule (3) and T/351 as mentioned in sub-rule(4) above, shall cancel the original message issued under sub-rule (3) above, and resume normal working after Testing Line Clear is obtained and cancelled.

**5.43. (a) Failure of Electrical block Instruments (Tokenless type) —**

(1) The electrical block instrument (Tokenless type ) shall be considered as having failed and their working suspended in the following circumstances :—

**Daido Tokenless Block Instruments.**

- (a) If code signals on the bell are not received distinctly or fail altogether.
- (b) When block telephone and hot line/magnetophone between two stations fails.
- (c) 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.
- (d) If the station cannot take 'off' the last stop signal after 'Line Clear'" has been obtained from station ahead i.e. when the last stop signal is out of order or suspended.
- (e) If the last vehicles Track circuit fails to operate after the passage of the train after the Home signal goes back to normal.
- (f) If the TOL indication fails to appear on the instrument after the train has entered the Block Section ahead.

**KYOSAN (or PODANUR) TYPE Tokenless Block Instrument.**

- (a) If code signals on the bell are not received distinctly or failed altogether.
- (b) When block telephone and hot line/magnetophone between two stations fails.
- (c) If the Block Instrument or its battery counter is found unlocked or the seal is found broken in the absence of any authorised representative of the Signal Branch.

- (d) If the station cannot take 'off' the last stop signal after Train Going To' indication appears on the instrument i.e. when the last stop signal is out of order or suspended.
- (e) If the last vehicle Track circuit fails to operate after the passage of the train after the Home signal goes back to normal.
- (f) If the indication does not appear for 2 minutes after operation of 'Cancel' and 'BPB' buttons during cancellation of the line clear before the train enters the block section.
- (g) If the digital counter at any station fails to register the next higher number while cancelling the 'Line Clear' before the train enters the block section or while setting the instrument to 'Line Closed' when a train is pushed back to the despatching station.
- (h) If in the "Line Closed" condition the 'Line Closed' indication does not appear on the instrument when the panel lamp button or BPB button is pressed.
- (i) If the L.C.(Line Closed) indication at the receiving station disappears and theTCF (Train Coming From) indication does not appear after the Station Master on duty at the sending station has pressed the Bell Push Button and the "Train Going to " button.
- (j) If the L.C. (Line Closed ) indication at the sending station disappears and theTGT (Train Going To) indication at the sending station does not appear after the Station Master on duty at the sending

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station has pressed the Bell Push Button and the "Train Going To" button.

- (k) (i) If the 'Train on Line' indication does not appear after the train has entered the block section.
- (ii) If the intermittent audible warning does not sound at the receiving station when train enters the block section or does not stop when the 'Bell Push' button is pressed at the receiving station.

### **(2) Suspension of Block Instruments :**

#### **Daido Tokenless Block Instruments.**

- (a) When Block Instrument handle becomes locked.
- (b) 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 has come under conditions of total interruption vide SR 6.02.04).
- (c) If the Last Stop signal can be taken off without 'Line Clear' having been obtained.
- (d) If at the receiving station, the 'Train out of Section' indication appears when a train is in the Block Section.
- (e) If the 'Line Clear' cannot be cancelled as per Rule 5.34 of BWM although the proper manipulation has been done.
- (f) If there is reason to believe that there is contact between the Block and any other circuit.
- (g) If the last stop signal fails to go to 'ON' position as the train passes the signal.

**KYOSAN (or PODANUR) TYPE Tokenless Block Instrument :—**

- (a) If the Last Stop signal can be taken 'off' without 'Line Clear' having been taken.
- (b) If at the receiving station, the "train out of section" indication appears when a train is in the block section.
- (c) If the 'Line Clear' cannot be cancelled as per Rule 5.34 of BWM although the proper manipulation has been done.
- (d) If the Last Stop signal fails to go 'ON' position as the train passes the signal.
- (e) If a train arrives at a station without TCF (Train Coming From) and TOL (Train On Line) indications appearing on the Block Instrument at that station pertaining to the block section.  
(In this case, the irregularity must be reported as an accident unless the Loco Pilot has come under conditions of total interruption vide SR. 6.02.04)
- (f) If both the instruments pertaining to a block section indicate TGT or indicate TCF at the same time.
- (g) If any instrument indicates both TGT and TCF indications for a particular block section, at the same time.
- (h) If the Station Master's Key is lost or damaged.
- (i) If the shunting key can be extracted when the instrument is set to 'Train Coming From' condition.
- (j)
  - (i) If there is contact on line wires.
  - (ii) If maintenance party is working on line.

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- (k) If there is any indication contrary to the indications as mentioned in various paras of this rule.
- (l) When any of the instruments of the block section concerned, is under adjustment by maintainer.
- (m) If there is reason to suspect any other abnormality not mentioned above.

**Rectification of failures :**

(a) In case of failure coming under List '1' above Technician/Sr. Technician (Sig) of the section should be called who is authorised to attend to the same.

(b) In the case of failure coming under List '2' above the Station Masters of the stations at which the working of Tokenless Block Instruments has been suspended under this Rule must on no account permit the defective instruments to be opened by any person not holding a special permit signed by the Divisional Signal and Telecom.Engineer or Asstt. Signal & Telecom. Engineer. This special permit will be addressed to the Station Master of the Station concerned and will specially authorise the opening of theTokenless Block Instrument during the abnormal conditions.The usual authority for opening Block Instrument as per Rule 5.18 of BWM should not be accepted .

(3) Whenever the electrical block instrument of Tokenless Type fails, the Station Master of the Station at which the failure has occurred shall take action as detailed in BWM Rule 5.24(2). Trains shall be worked in terms of BWM Chapter III read in conjunction with SR 6.02.06 between the stations concerned during the period of the Block Instrument remains suspended.

**5.43 (b) Resetting of axle counters when failed.** Rule No. 5.24(b) of BWM shall be followed.

**5.44. Testing Line Clear.**— (1) Whenever it is necessary to obtain "Testing Line Clear" the Station Master shall ensure that the block section to which the block instrument relates, is clear of all trains. The instrument at one end of the section shall be set to "Train Going To" "(TGT)" position with or without cooperation of the Station Master at the other end of the section according to the type of block instrument obeying the procedure laid down in Rule 5.33 of BWM except that:—

**(a) In case of DaidoType Instrument :—**

- (i) train number and Private Number need not be given and repeated and
- (ii) instead of sending and acknowledging "Is line Clear" signal, "Testing" signal shall be sent and acknowledged.

**(b) In case of Kyosan(Podanur) type Tokenless Instrument :—**

- (i) 'Call attention' signal shall be sent and acknowledged before the instrument is set to "Train Going To" condition.
- (ii) "Testing" signal shall be sent over the "Bell Push Button" (BPB) and "Train Going To" (TGT) button shall be operated along with the last beat on the BPB.

(2) The Station Masters of both stations shall then operate the Last Stop signal control at their respective stations so as to test the behaviour of the last Stop signal and ensure that the aspect displayed by the respective Last Stop signal corresponds the condition of the block instrument.

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(3) The Station Masters of both stations shall then normalise the block instrument in accordance with the procedure detailed under Rule 5.34.

(4) The procedure detailed under sub-rule 1, 2 and 3 above shall thereafter be repeated by the operation of the block instrument from the other end station of the concerned section.

(5) Entries shall be made in the Train Signal Register Books at both stations and in the remarks column the behaviour of the Last Stop signal shall be recorded.

**5.45. Resumption of normal working.**— The procedure detailed under rule 5.25 of BWM shall be followed.

### **5.46. Recording of the number shown on the.—**

#### **(1) Daido Type Tokenless Block Instrument :—**

When taking over charge, the Station Master shall check the number indicated in S1 and S2 counters and record the number in 'RED' ink in the remarks column of Train Signal Register.

#### **(2) Kyosan's Type Tokenless Block Instrument :—**

The number exhibited by the number counter should be recorded in 'RED' ink in the remarks column of the Train Signal Register by the Station Master while taking over charge.

### **5.47. Verification of recording of Counter numbers in TSR by SM incharge :**

The Station Master-in-charge while complying with Rule 2.09 (e) of Block Working Manual shall ensure that recording of numbers required under Rule 5.46 of BWM are correctly recorded.

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