

CHAPTER III

METHOD OF WORKING BLOCK INSTRUMENTS

3.1. Access to and operation of equipment (G.R. 5.08):

No unauthorised person shall be permitted to have access to or operate signals, points, electrical block instruments and electrical communication instruments or any other appliances connected with working of the railway.

3.2. Signalling of a train from one Block station to another:

- a) The following is an example of how a train is signalled from 'X' to 'Y', on S.G.E. Lock and Block Instrument. **Before asking for 'Line Clear' for a train on controlled sections, permission of Controller shall be obtained.**

SGE Lock and Block instrument:

3.2. (A) (i) Despatching a train:

| Sending Station 'X' | | Receiving Station 'Y' | |
|---------------------|---|-----------------------|--|
| 1. | Give 'Call attention' and on getting acknowledgement attend telephone. | | |
| | | 2. | Acknowledge, attend telephone and give out station name |
| 3. | After ensuring the correctness of the station, from which line clear is required, give No. and description of train for which line clear is required. | | |
| | | 4. | After ensuring the correctness of the station to which line clear is to be given, repeat the No and description of the train and if the conditions for granting line clear are complied with, give private number for the train. |
| 5. | Repeat the PN. | | |
| 6. | Give 'Call attention' | | |
| | | 7. | Acknowledge |
| 8. | Give 'Is line clear' bell code | | |
| | | 9. | Acknowledge line clear bell code holding the bell plunger |

| Sending Station 'X' | | Receiving Station 'Y' | |
|---------------------|---|-----------------------|---|
| | | | Pressed during the last beat, turn the operating handle to line clear. This will change the indication of TCF dial at "Y" to 'Line clear'. |
| 10. | At 'X' the indication of the TGT dial is changed to 'Line clear' | | |
| 11. | When the TGT dial assumes the line clear position, the lock on the last stop signal will be released. Take off the LSS. | | |
| 12. | When the train passes the LSS and operates the first vehicle track circuit, LSS goes back to 'ON'. As soon as the train passes LSS, the LSS lever/knob should be turned to normal | | |
| 13. | Give 'Call attention' signal | | |
| | | 14 | Acknowledge. |
| 15. | Give 'Train entering block section' signal | | |
| | | 16. | Acknowledge the 'Train Entering block Section' signal and keeping the plunger pressed on the last beat, turn the operating handle to TOL position |
| | | | i) The TCF dial will then indicate TOL |
| | | | ii) The Operating Handle will be locked in the TOL position |
| 17. | The TGT dial at X assumes TOL position. | | |
| 18. | Attend telephone and give departure time. | | |
| | | 19. | Attend telephone and note departure time. |
| | | 20. | a) Reverse the Home signal lever/knob for the reception of the train. |

| Sending Station 'X' | | Receiving Station 'Y' | |
|---------------------|---|-----------------------|---|
| | | | (b) After ensuring that the train has arrived complete inside the Last Vehicle Track Circuit, put back the Home signal lever/knob to normal. (c) The restoration of the signal lever/knob and the train clearing the LVT releases the lock on the 'Operating handle' |
| | | 21. | Give 'Call attention' signal and give arrival time after getting acknowledgement |
| 22. | Acknowledge, attend telephone and note clearance time | | |
| | | 23. | Give 'Train out of block section' signal. Keeping the Bell plunger pressed on the last beat, turn the operating handle to 'Line closed'. The TCF dial will now change to 'Line closed' |
| 24. | As soon as the TGT dial changes to 'Line Closed' position, give 'Train out of block section' acknowledgement. | | |

3.2 (A) (ii) To cancel Line Clear before the train enters the block section :

| Sending Station 'X' | | Receiving Station 'Y' | |
|---------------------|--|-----------------------|---|
| 1. | Train Going To' dial displays 'Line Clear' indication | | |
| | | 2. | Train Coming From' dial displays Line Clear' indication |
| 3. | Ensure all the relevant signals are in 'ON' position; Give call attention; on acknowledgement ask consent by explaining the circumstances supported by a Private Number. | | |

| Sending Station 'X' | | Receiving Station 'Y' | |
|---------------------|--|-----------------------|--|
| | | 4. | Acknowledge call attention; give consent and repeat the PN; ensure that all relevant signals are in 'ON' position |
| 5. | Give 'Call attention' signal. | | |
| | | 6. | Acknowledge 'call attention' signal |
| 7. | Give 'Cancel last signal' | | |
| | | 8. | i) Acknowledge 'Cancel last signal'; holding the bell plunger pressed during last beat, turn the operating handle to 'Line Closed' position (ii) TCF dial displays 'Line Closed' indication |
| 9. | TGT dial displays 'Line Closed' indication | | |

3.2. (A) (iii) Procedure for despatching a train involving IBS :

| Sending Station 'X' | | Receiving Station 'Y' | |
|---------------------|---|-----------------------|--|
| 1. | Insert SM's key, ensure Axle Counter section is clear of obstruction by observing Green indication. Give 'Call attention' signal and attend telephone on getting acknowledgement. | | |
| | | 2. | Insert SM's key, acknowledge and attend telephone |
| 3. | Give description of train for which consent of Station Master 'Y' is required. | | |
| | | 4. | Repeat the train description and give consent by giving a PN |
| 5. | Repeat the PN | | |
| 6. | a) Take 'OFF' Last Stop Signal. b) As the train passes Last Stop Signal, K-2 indication appears along with audible buzzer. | | |

| Sending Station 'X' | | Receiving Station 'Y' | |
|---------------------|--|-----------------------|---|
| | c) Put back Last Stop Signal lever / knob | | |
| 7. | (a) Give 'Call attention' (b) Ask line clear for this train to enter into the IB section | | |
| | | 8. | a) Acknowledge and note departure time. b) If conditions for granting line clear are fulfilled, give PN. |
| 9. | Repeat PN. | | |
| 10. | Give 'Call attention'. | | |
| | | 11. | Acknowledge. |
| 12. | Give 'Is line clear' signal. | | |
| | | 13. | Acknowledge and turn the commutator of TCF dial to 'line clear' position |
| 14. | TGT dial displays 'Line Clear' position | | |
| 15. | Take 'OFF' IBS and confirm the same through indications. | | |
| 16. | As the train passes IB signal, K-3 indication appears along with buzzer. | | |
| 17. | Give 'Call attention' | | |
| | | 18. | Acknowledge. |
| 19. | Give 'Train entering block section' signal, attend telephone and on acknowledgement and give timings. <i>Note: Now one more train can be sent into Axle Counter section</i> | | |
| | | 20. | Acknowledge 'Train entering block section' signal and turn the commutator to TOL position, the buzzer stops |

| Sending Station 'X' | | Receiving Station 'Y' | |
|---------------------|--|-----------------------|--|
| | | 21. | (a) Take 'OFF' reception signals. (b) As the train passes Home Signal, put back the Home signal knob / lever to normal. |
| | | 22. | Ensure the conditions for closing block section are complied with. Give 'call attention' signal, Attend telephone on acknowledgement and give clearance time. |
| 23. | Acknowledge, attend telephone and note clearance time. | | |
| | | 24. | Give 'Train out of block section ' signal and turn the commutator to 'Line Closed' position. |
| 25. | Acknowledge 'Train out of block section' signal. | | |

Note :

- i) Two entries for the same train shall be made, i.e., one for Axle Counter section and the other one for IB section.
- ii) If both Axle counter and IB sections are clear of obstruction, both the transactions can be recorded at a time, but timings and entries shall be made separately.

3.2 (B) Exchange of Private Numbers between Station Master and Cabin/Cabins for reception of train:

The sequence of action to be followed from the time reception line is nominated till Station Master releases his control on the Home/Routing signal and exchange of Private Numbers is explained below:

a) Duty Station Master:

- i) As soon as 'Line Clear' has been granted for a train by the Station Master or CASM/Switchman/Cabin Master (if the block instruments are situated in the cabins) the Station Master shall decide the line on which the train is to be received and satisfy himself that the reception line including the adequate distance is clear and free from obstruction.

- ii) He will then advise the CASM/Switchman/Cabin Master on telephone to both the cabins simultaneously the train number, description, probable time of arrival, whether the train is stopping or running through and the line nominated for its reception.
- iii) The CASM/Switchman/Cabin Master in both the cabins shall acknowledge by repeating these particulars.

b) Cabin Assistant Station Master/Switchman/Cabin Master at the facing end:

- i) The CASM /Switchman/Cabin Master at the facing end on receipt of the above information from the Station Master shall set and lock, either electrically or otherwise, all relevant points at his end correctly for reception of the train on the nominated line.
- ii) He will then satisfy himself that the nominated reception line is clear and free from obstruction.

iii) He will then give a categorical assurance to the CASM /Switchman/Cabin Master in the Cabin at the trailing end after ensuring that: -

- a) The nominated reception line is clear and free from obstruction, clearly indicating the number of that line.
- b) All the relevant points at his end have been correctly set for the reception of the train on the said line.
- c) All the facing points have been locked
- d) All level crossing gates are closed and locked against the road traffic and ask him to release his slot on the Home/Routing signal referring to the nominated reception line.

c) Cabin Assistant Station Master / Switchman/Cabin Master at the trailing end:

- i) The CASM /Switchman/Cabin Master at the trailing end, on receipt of the categorical assurance from the cabin at the facing end, shall set all the relevant points at his end correctly and lock all the facing points, if any , for the reception of the train on the nominated line and satisfy himself that the nominated reception line including the adequate distance is clear and free from obstruction.

- ii) Ensure that all level crossing gates are closed and locked against the road traffic.
- iii) Communicate a Private Number to the CASM /Switchman/Cabin Master at the facing end and then release his slot on the relevant Home/Routing signal.

d) Cabin Assistant Station Master /Switchman/Cabin Master at the facing end:

The CASM /Switchman/Cabin Master at the facing end on receipt of PN communicated to him by the CASM /Switchman /Cabin Master at the trailing end shall, in turn, communicate a Private Number to the Station Master on duty to indicate that everything is completed at both end cabins for reception of the train.

e) Duty Station Master:

The Station Master on duty on receipt of Private Number from the CASM /Switchman/Cabin Master at the facing end shall, if everything is ready for the reception of the train, give a Private Number to the CASM /Switchman/Cabin Master at the facing end and release his control on the relevant Home/Routing signal.

f) Cabin Assistant Station Master /Switchman/Cabin Master at the facing end:

The CASM /Switchman/Cabin Master at the facing end, after satisfying himself that the relevant slot indicator is showing 'OFF' indication, shall take 'OFF' the reception signals.

- g) As the purpose of exchanging of Private Number is to eliminate the chances of a signal being taken OFF for an obstructed line, there is no need for exchange of Private Numbers where '**track circuiting/axle counter**' has been provided and is in working order.
- h) At a station where only one cabin is provided, the exchange of Private Numbers between the cabin and the Station Master on duty shall take place as prescribed in paras (e) to (f) above, before the SM's control on the signal is released.