

इरिसेट
ब्लॉक सिग्नलिंग प्रयोगशाला
प्रयोग सं. बी एस एल - 17

IRISET
BLOCK SIGNALLING LABORATORY
EXPERIMENT NO.: BSL - 17

नाम

Name : _____

अनुक्रमांक

Roll No : _____

पाठ्यक्रम

Course : _____

दिनांक

Date : _____

प्राप्तांक

Marks Awarded : _____

अनुदेशक के आक्षर

Instructor's Initial : _____

Study of Axle Counter Block working (Block Proving Axle Counter with Block Panel)

BRIEF DESCRIPTION:

In the conventional Double line Block instrument all the operations pertaining to a train movement are done by the S.M who is receiving the train. The Complete arrival of the train is ensured by checking the Last Vehicle Board/ Tail Lamp manually by the receiving station Master.

By adopting Axle Counter Block Working following problems are overcome:-

1. Dependency of human agency to verify the complete arrival of the train and
2. Block operation delay associated with the granting of Line clear and closing of Block section in conventional Double line Block Working

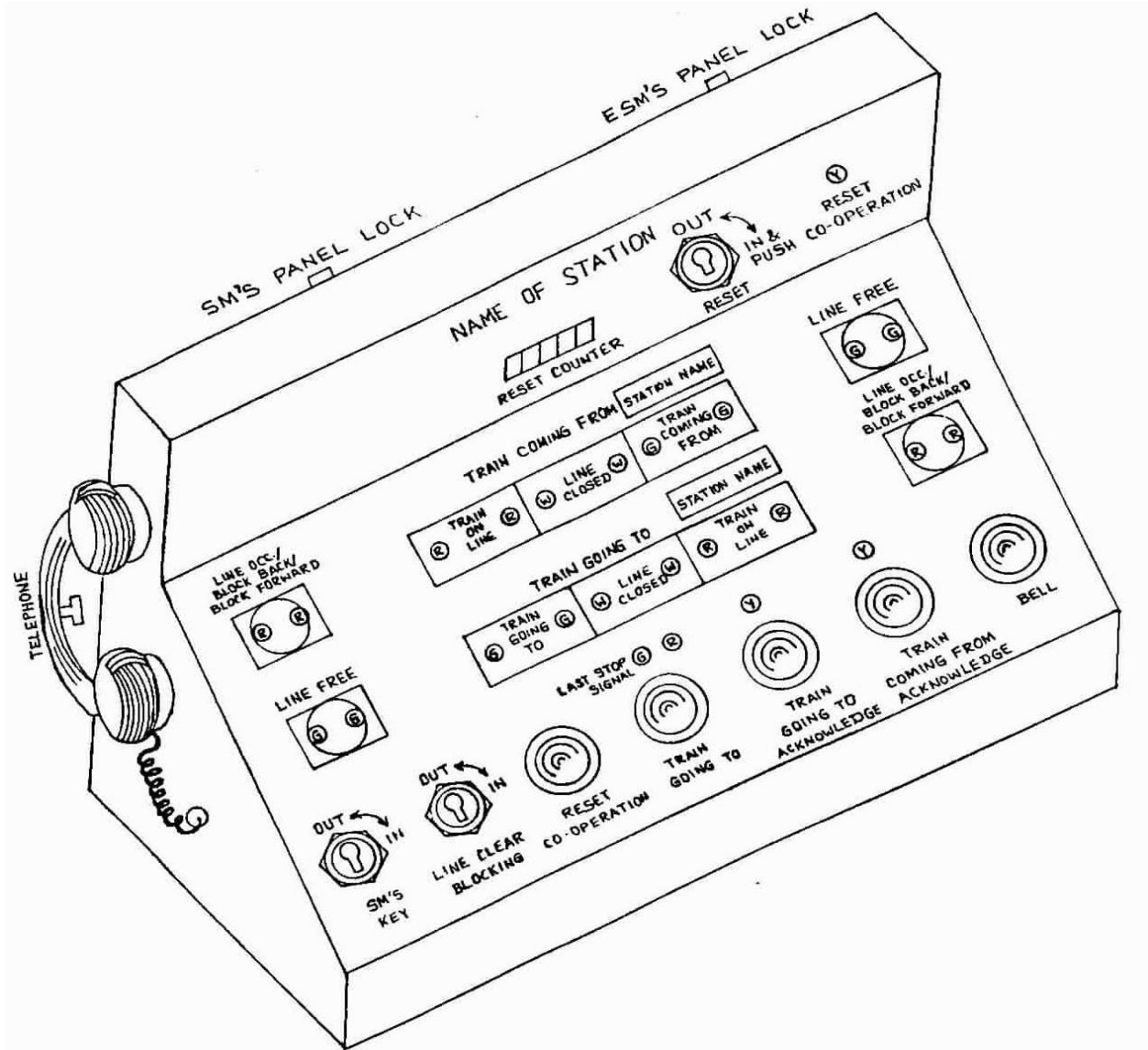
A Block Operating Panel (SM Panel) is provided one for each end of the section at a station. The panel is provided with Push buttons, Indicators, Keys, Acknowledgement buttons, counter, and telephone etc, for the easy reach of the operator. The Up and Down directions are also ear- marked by the Arrow Indicators on the panel.

I. Identify the following external parts on the SM Panel(Block Panel):-

1. SM Key for authorized operation of SM panel (SMK)
2. Line Clear Blocking/Cancellation key (LCB)
3. Bell Push Button (BPB)
4. Train Going To Button (TGT)
5. Reset Co-Operation Button
6. TGT Acknowledgment Button with LED Indication
7. TCF Acknowledgment Button with LED Indication
8. LSS Indication
9. Line Free Indication.
10. Train Going To Strip Indication.
11. Train Coming From Strip Indication.

12. Line Occupied / Block Back/Block Forward Indication.
13. Reset Key
14. Reset Co-operation Indication
15. Reset Counter.
16. Block Telephone
17. Maintainer's lock at rear of SM Block panel.

SM Panel (Block Panel):



II. REGULAR TRAIN SENDING OPERATION:-

'A' Sending station	'B' Receiving station
1. Insert SM key and press BPB (Bell Push Button) to call attention of SM at 'B'	-----
-----	SM at 'B' on hearing the bell acknowledges it by pressing BPB, attends telephone and exchanges information regarding the movement of train from 'A' towards 'B'
3. SM at 'A' after the conversation is over keeps buttons BPB & TGTB pressed till Green indication 'Train Going To' appears.	-----
-----	4. This results in the White 'Line closed' indication to disappear and Green indication of ' Train Coming From ' to appear in the panel.
5. The block panel at Station 'A' also displays Green 'Train Going To' indication and White 'Line Closed' indication disappears. Now the buttons are released and the LSS is taken 'OFF'. LSS lamp Green indication appears on the panel. Train accepts the signal and enters the Block section. This not only causes the LSS automatically to go to 'ON' but also Green 'Line free' indication as well as ' Train Going To ' indication to disappear, while Red 'Train On Line' and ' Line occupied ' indication and a buzzer with a miniature white light to appear on the panel. SM now presses the TGT acknowledgement button to suppress the buzzer and to put off the white light.	-----
-----	6. Simultaneously the Green 'Line Free' indication as well as ' Train Coming From ' indications disappears on the panel and Red 'Train On Line' and ' Line Occupied ' indication with a buzzer and a white miniature light appears. SM at 'B' is now aware of the entry of the train into the Block section. He presses the TCF acknowledgement button to suppress buzzer and to put off the white light. Then takes 'OFF' the Home/Reception signal. As soon as the train passes the Home signal, the signal is replaced to 'ON' automatically. A

<p>-----</p>	<p>buzzer sounds continuously after the complete train has passed the Block Overlap. Now the block panel displays White 'Line Closed' and 'Line Free' indication. The Red 'Train On Line' and 'Line Occupied' indication disappears and gives a buzzer with a miniature white light to mark the complete train arrival. SM now presses the TCF acknowledgement button to stop the buzzer and the white light disappears, also the Green 'Line Free' indication appears now.</p>
<p>7. Similarly the SM Block panel at 'A' displays White 'Line Closed' and 'Line Free' indication and Red 'Train on Line' and 'Line Occupied' indication disappears. A buzzer with a white miniature light will appear. Now the SM will press the TGT acknowledgement button to stop the buzzer and the white light disappears, also the Green 'Line Free' indication appears.</p>	<p>-----</p>

III. Take line clear at station 'A' and record your observations. Fill in the blanks with correct words.

1. Line clear is being obtained at station 'A' by pressing BPB and _____ buttons, the _____ indication disappears in the panel and _____ appears in the panel at station 'A'. These changes take place at station 'A' after _____ indication appears at station 'B'

(TCF, TGT, TOL, Line closed, TGT, TCF)

2. At station 'A' the LSS is taken 'OFF' after the _____ appears in the panel.

(TCFK, TGTK)

3. The entry of the train into the Block section is simulated by operating Dummy Wheel over the track device at entry of the Block section and it brings the following changes in the panel. The _____ of LSS and _____ indication disappears and the _____ indication with a buzzer appears in the panel to register the entry of the train into the Block section. Simultaneously at station 'B' the _____ indication disappears and the _____ indication appears in the panel along with buzzer. The SM at both stations presses the _____ buttons to suppress the buzzer. The _____ indication persists.

(TCF, TGT, Green Indication, TOL, TOL, ACK, TOL)

4. The entry of train into the Block section also causes the _____ to drop since the _____ is operated at the _____ point.

(Axle counter, EVR/VR, Exit, Entry)

5. Home signal at station 'B' is taken 'OFF' and the train is admitted into the station. The train on clearing the Block section and the Block overlap operates the axle counter to prove the complete arrival of the train and the relay _____ is operated. This also changes the TOL indication into the _____ indications in panels at both the stations 'B' & 'A', simultaneously the buzzers also sound both at stations 'B' and 'A', the buzzers are suppressed by pressing the respective acknowledgement buttons by the SMs of both station to mark the closing of the Block section after the complete arrival of the train.

(Line occupied, EVR/VR, Line Free, Line Closed)

- IV. i) Refusal of line clear by the Advanced station is done by inserting _____ if out, removing the _____ key and pressing _____ button.

(LCB, SM Key, TGT, BPB)

- (ii) For resetting the system in case of Axle counter failure, the SM at rear station presses the _____ which will give a yellow indication in the SM panel of of Advanced station, on observing the indication, SM presses _____ to restore the system to _____

(TGT, ACK button, Reset co-operation Button, Reset button with key, Normal)

- V. Give the requirement of number of Telecom QUAD CABLE conductors for a pair of Axle Counters Block Working Instrument with Multiplexer in a section: -

- VI. Write down merits of ACBW over the Double line Block Instrument.

Signature of the trainee
