

## **CHAPTER VII**

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

**1. GENERAL:**

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

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

**a) FEATURES:**

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

**b) INDICATIONS:**

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

**3. CUSTODY OF KEYS:**

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

#### 4. RESET BUTTON

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

#### 5. COUNTERS FOR RECORDING RESET OPERATION:

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

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

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

#### 6. INDICATIONS:

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

**7. COMPLETE ARRIVAL OF TRAINS:**

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

**8. RESETTING PROCEDURE OF AXLE COUNTER:**

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

**9. FAILURE OF AXLE COUNTER:**

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

**10. WORKING OF TROLLEY/ MOTOR TROLLEY/LORRY ETC.**

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

**11. SHUNTING:**

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

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