SALIENT FEATURES & WORKING PRINCIPLE OF BMBS WAGON BRAKE SYSTEM
GENERAL DESCRIPTION OF BMBS

The equipment consists of a transversely mounted pneumatic actuator (Brake Cylinder) with a self-contained, double acting slack adjuster, two brake beams, two bell crank levers and interconnecting push rods. The hand brake arrangement is available as a mechanical model with two flexible hand brake cables. The pneumatic actuator is 10” in diameter for application on high friction brake shoe (K type) on casnub type bogies. The system consists of a unique design with two pneumatic actuators to deliver reliable braking performance and is light in weight. It fits into any standard IR casnub bogie and uses 58mm thick brake shoes.
SALIENT FEATURES :-

1- Use of Two no’s of 10” Dia brake cylinders with automatic load sensing device.

2- Use of 58 mm thick K type non asbestos composite brake block.

3- Piston stroke of 56(+6,-0) mm in empty condition and 62 (+6,-0) mm in loaded condition is required to maintain.

4- Application of loads is at the ends the brake beam instead of centre resulted no chances of bending of brake beams.

5- Cylinder is with double acting slack adjustment feature with constant piston stroke resulting is uniform brake performances even as the brake shoes and wheels wears.
6- Total slack adjusting capacity is 500 mm including brake block wear, wheel wear and all clearances.

7- All cylinders are equipped with an automatic piston stroke indicator.

8- Replacement of the brake head is quickly and easy by removal by only one pin.

9- Provision of mechanical hand brake system with the use of two no’s stainless hand brake cables pulled through standard hand brake rigging.

10- Easy fitment of bogie mounted cylinder on any standard bogies without making any modifications.
ADVANTAGES OF BMBS OVER CONVENTIONAL BRAKE SYSTEM

1- SAB is eliminated providing in built slack adjuster to take up slack automatically.

2- Brake Rigging completely eliminated.

3- Wt of BK system Reduced approx: 300 Kg resulting more carrying capacity.

4- E/L system Modified to Automatic Load sensing hence there is no L/E handle.

5- Mechanical efficiency (Brake percentage) Increased to 47.6% (was 43.8% in case of BOXN)

6- Push Rod of conventional type eliminated BK rigging eliminated so there was a low chance of hanging parts in Train.
7- Braking Distance decreased.

8- Wheel wear is Reduced due to use of K-Type 58 mm thick composite BK Block.

9- Speed of Train Increased due to better control.

10- Reliability of BK system is increased.

11- Low Maintenance Cost.

12- No need of Detachment of wagons in en route when BK pipe Damage.

13- Cylinder is mounted parallel to the brake beam and transfer forces through the bell cranks.
14- Improves the efficiency and alignments of the braking forces with the wheels which reduced the wear of shoes and wheels.

15- Use of pressure regulated load sensing device, installed between body and bogie under frame act on 15 psi to maintain normal sensor arm travel of 95 mm.

16- Use of single stage distributor valve (conventional type).

17- Use of Two bell crank levers and two Inter connecting Push rods, to transmit braking force from bk cyl. to wheel through primary and secondary brake beams.
Brake cylinder with double acting slack adjustment feature.
DV in service
When BP reduced, piston moves outward and the indicator comes out from the BC.
When BP reduced, piston moves outward and an additional indicator is provided on the trolley, which comes down ward when DV allowed pr. to BC.
DV in isolated condition and manually Released…
Piston moves inside and the indicator also moves inside.
When piston moves inside, then the additional indicator which is provided on the trolley, moves upward.
Individual bogie can be isolated by isolating the corresponding bogie COC.

Normal position of bogie COC
Individual bogie can be isolated by isolating the corresponding bogie COC.
During single pipe operation the FP can be isolated by FP COC.
Provision of mechanical hand brake system with the use of two numbers stainless hand brake cables pulled through standard hand brake rigging in one trolley only.
Mechanical arrangement for Hand brake.
To apply hand brake rotate the wheel towards DV. (on either side)
As an indication the piston stroke indicator will come out.
To release hand brake rotate the wheel opposite to DV. (on either side)
As an indication the piston stroke indicator will go inside.
To ensure the hand brake application check the brake blocks are griping on the wheel of corresponding trolley.