Introduction of Bogie Mounted Brake System (BMBS):
Bogie mounted brake system has been introduced for the freight stock in Indian Railways to reduce maintenance and tare weight of the stock.

In BMBS, brake cylinder is mounted parallel to the brake beams and transfers forces through the bell cranks. BMBS is designed for single pipe/twin pipe graduated release air brake system with automatic two stage braking.

Advantage over conventional system:
- Two numbers 10" dia. Brake cylinder with inbuilt double acting slack adjuster provided to adjust slack up to 500 mm and maintain a constant stroke.
- All cylinders are equipped with an automatic piston stroke indicator.
- Improved Brake efficiency of the system and high rigging ratio.
- Less system weight.
- Reliable, safe and easy maintained.
- Uniform wheel loading, uniform brake block and wheel wear.
- Easy to retrofit and no modification required in existing bogie for retro fitment.
- Integrated handbrake arrangement with SS hand brake cables. Easy to installation.
Main components of BMBS for one Wagon:

1. 10 inch Brake Cylinder without hand brake 1No
2. 10 inch Brake Cylinder with hand brake 1No
3. Primary Beam one for each bogie 2Nos
4. Secondary brake beam one for each bogie 2Nos
5. Lever L.H. one for each bogie 2Nos
6. Lever R.H. one for each bogie 2Nos
7. Push Rod two for each bogie 4Nos
8. Brake head four for each bogie 8Nos
9. Brake head pin four for each bogie 8Nos
10. K-type Brake block four for each bogie 8Nos
11. Brake block key four for each bogie 8Nos
12. Key retainer four for each bogie 8Nos
13. Set of pins, cotter and washer etc. 2Nos
14. Isolating cocks with vent for cylinder 2Nos
Automatic Pressure Modification Device (APM)

The load-sensing device protects the wheels by reducing empty-stock braking forces that can result in costly wheelskidding, especially under adverse weather or track conditions. The device is a body mounted valve to sense loaded or empty conditions, and provides a visual indicator of brake cylinder pressure. This valve is designed to optimize trouble-free performance on any application.

Working Principle of APM:

The wagons are provided with two stage Automatic Brake Cylinder Pressure Modification Device (APM) to cater for higher brake power in loaded condition instead of conventional manual empty load device. In this, brake cylinder pressure of 2.2 Kg/cm² is obtained in empty condition and 3.8 Kg/cm² is obtained in the loaded condition. APM is interposed between the under frame and side frame of the bogie.

The mechanism gets actuated at a pre-determined change over weight and changes the pressure going to the brake cylinder from 2.2 Kg/cm² to 3.8 Kg/cm² and vice-versa.

10” Dia. Brake Cylinder

The Brake Cylinder is mounted parallel to the brake beams and transfers forces through two bell-crank levers. Push rods are positioned under the bolster. This design improves efficiency by aligning the braking forces with the wheels, which results in a field-proven reduction in brake shoe and wheel wear, and delivers the most uniform wear. The integral double-acting slack adjuster maintains a constant piston stroke, resulting in uniform and efficient braking performance.
Operating Instructions:

**Do’s:**
- Before starting the train, move the brake valve handle (A-9) to release position.
- Wait for 3 minutes to release the brakes for single pipe brake system. If train brakes have not been released fully, it may result in brake binding and excessive force on coupler.
- Ensure that air flow indicator white needle coincide with fixed red needle and light and buzzer are not giving any indication.

**Don’ts:**
- Do not move train if the air flow indicator light is glowing, buzzer is giving sound and its white needle has not coincided with red needle.
- Do not start train after stopping the train at least for 3 minutes in case of single pipe air brake system.
- Do not move train unless the brakes on entire train are released fully.
- Do not operate D-1 emergency brake valve in case of train parting.
- Do not move train unless specified pressure is achieved.

**Disclaimer**

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