



M AINTENANCE I NSTRUCTION

6BLC AIR BRAKES

DESCRIPTION

For many years, locomotive units were designed and built for specific types of service such as passenger, freight or yard switching. At that time, it was seldom if ever necessary to couple units together of different design and different air brake systems.

With the advent of General Purpose and Special Duty Road Switching Locomotives, their operating characteristics and design permitted a wide variety of services. To increase flexibility and utilization such units have been called upon to perform in multiple with other model locomotives and other air brake systems. This problem was met with the introduction of 6BLC air brakes that were applied to new units or could be installed as a modification to existing units equipped with 6BL or 6SL air brakes.

The 6BLC air brake is designed to provide the proper automatic and independent brake valve functions to allow units with 24RL or 8EL brakes and units with 6BL or 6SL brakes to be coupled in multiple. The former limitations of lack of control of the independent brake valve on trailing units is eliminated by 6BLC applications.

OPERATION - General

When making an independent brake application on a locomotive unit with 24RL or 8EL air brakes, Fig. 1, the independent application and release pipe is charged. This allows a controlled amount of air pressure to flow to the brake cylinder.

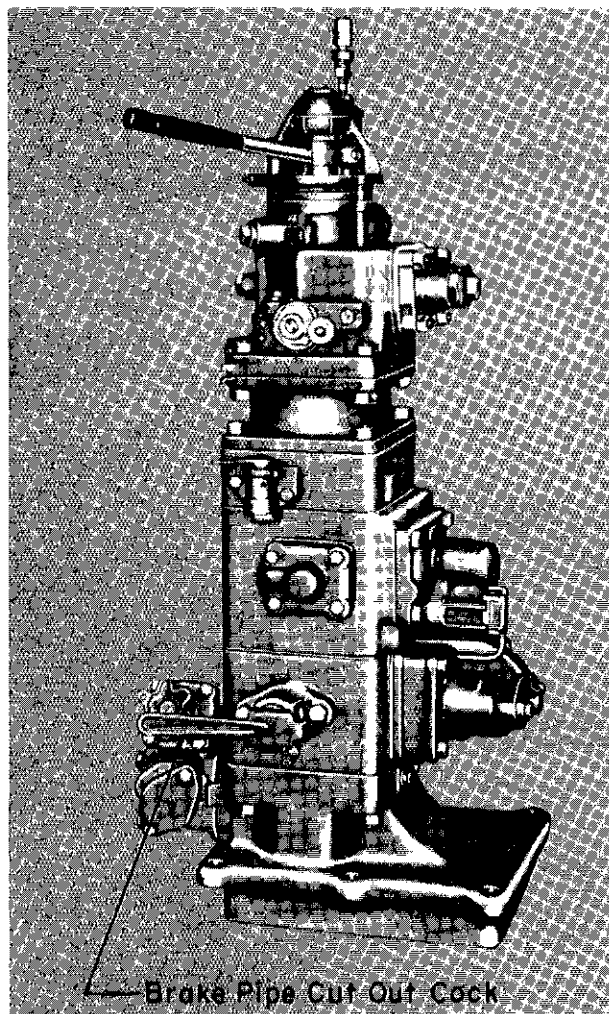


Fig. 1 - Independent And Automatic Brake Valve Stand-24RL

With the train (automatic) brakes applied, the independent (locomotive) brakes are actuated off by depressing the independent brake valve handle. This has the effect of charging the actuating pipe which in turn allows the air pressure in the brake cylinder to escape to atmosphere and release the brakes. Recent design changes by the manufacturer make it possible to actuate off the independent

brakes only when the independent brake valve handle is in the release position.

An independent brake application on a locomotive unit with multiple unit 6BL or 6SL air brakes, Fig. 2, charges the equalizing pipe which in turn admits air pressure to the brake cylinder through the brake cylinder pipe from the application portion of the 6KR distributing valve. The brakes on locomotive units in this category are released by depressing the independent brake valve handle after an automatic application. This unloads the equalizing pipe and causes the brake cylinder to return to normal release position as controlled by the application portion of the 6KR distributing valve.

As pointed out in the preceding paragraphs, units with 24RL or 8EL air

brakes employ a two pipe system for the independent brake function and 6BL or 6SL units employ a single pipe system for the independent brake function. The two cannot be coupled in multiple unless some modifications are made to enable the lead unit to control the independent brake valve function in all the units of the consist.

OPERATING COMBINATIONS

The operating combinations possible after multiple unit 6BL or 6SL units have been converted to 6BLC can best be illustrated in chart form. The charts herein show the valve positions and air end connection positions to be maintained when employing the various combinations.

Caution When Operating With 24RL Units Leading 6BLC Units

If an automatic brake application is actuated off by depressing the independent brake valve handle and then an independent brake application is made, followed by an independent release (moving the independent brake valve handle to release position), the brakes will release on all the 24RL units, but not on 6BLC or 6BL units. However, these brakes can be released at any time by depressing the independent brake valve handle.

Shipping Locomotive Dead

When shipping locomotive units, equipped with 6BLC air brakes dead in a train, the following valve positions must be maintained:

1. All trainline cut-out cocks in closed position except the brake pipe cock.
2. Dual ported cut-out cock in open position or place K2A rotair valve in pass.
3. Dead engine cut-out cock in open position.
4. Dead head cock in dead position.
5. Automatic brake valve in run position.

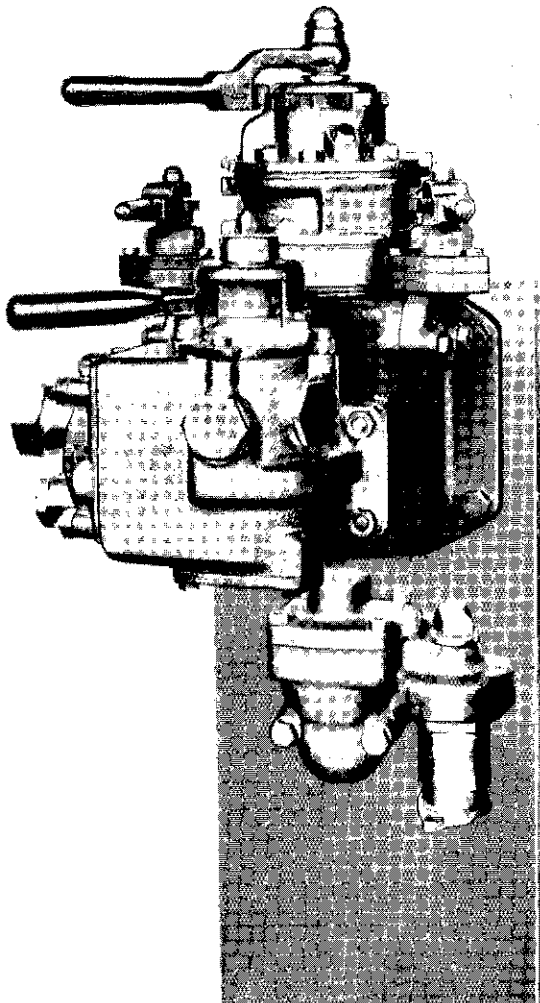


Fig. 2 - Independent And Automatic Brake Valve Stand-6BL

24RL UNIT COUPLED TO 6BLC UNIT COUPLED TO 6BL COUPLED TO 6BLC UNIT
OPERATE THIS DIRECTION ONLY

24RL (Lead) Coupled to 6BLC Coupled to 6BL Coupled to 24RL

Valve Positions				
Dead Heading Cock	Open	Dead	Trail	Trail
Auto. Brake Valve	Run	Lap	Lap	Lap
Ind. Brake Valve	Release	Release	Release	Release
K2A Valve or	Pass.	Pass. Lap	—	Pass. Lap
Dual Ported Cutout Cock	—	Closed	—	Closed

Air End Connections				
Independent Application And Release Pipe				
Actuating Pipe				
Equalizer Pipe				

NOTE: 6BL Unit Cannot Lead 24-RL Unit.

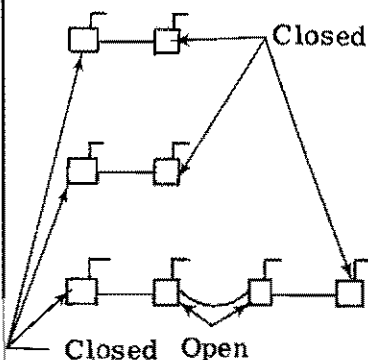
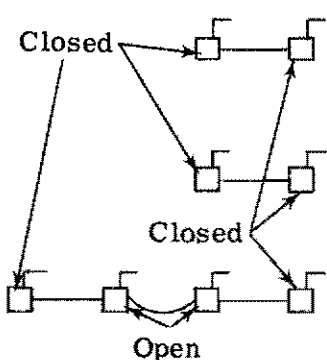
6BLC UNITS COUPLED TO 8EL UNITS
OPERATE EITHER DIRECTION

8EL Coupled to 6BLC (Lead) (Trailing) 6BLC Coupled to 8EL (Lead) (Trailing)

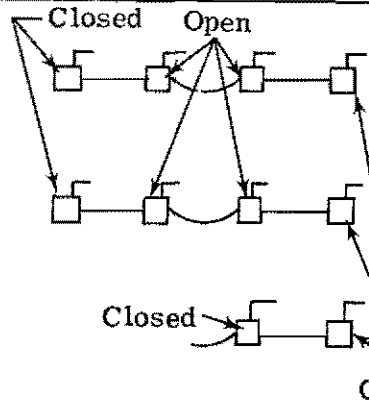
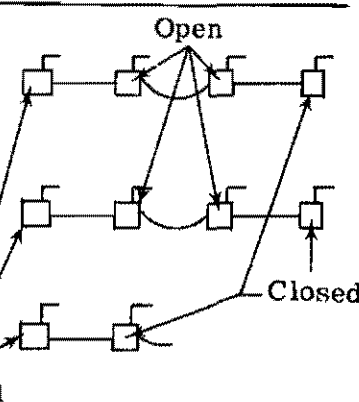
Valve Positions				
Dead Heading Cock	Open	Dead	Lead	Closed
Auto. Brake Valve	Run	Lap	Run	Run
Ind. Brake Valve	Run	Release	Release	Lap Locked
K2A Valve or	—	Pass. Lap	Pass.	—
Dual Ported Cutout Cock	—	Closed	Open	—

Air End Connections				
Independent Application And Release Pipe				
Actuating Pipe				
Equalizer Pipe				

**6BLC UNITS COUPLED TO 6BL UNITS
OPERATE EITHER DIRECTION**

	← 6BLC Coupled to 6BL (Lead) (Trailing) →		6BL Coupled to 6BLC (Lead) (Trailing)	
Valve Positions				
Dead Heading Cock	Lead	Trail	Lead	Trail
Auto. Brake Valve	Run	Lap	Run	Lap
Ind. Brake Valve	Release	Release	Release	Release
K2A Valve or	Pass.	—	—	Pass. Lap
Dual Ported Cutout Cock	Open	—	—	Closed
Air End Connections				
Independent Application And Release Pipe				
Actuating Pipe				
Equalizer Pipe				
NOTE: 6BL Units Cannot Lead 24-RL Units.	Closed Open		Open	

**6BLC UNITS COUPLED TO 24RL UNITS
OPERATE EITHER DIRECTION**

	← 24RL Coupled to 6BLC (Lead) (Trailing) →		6BLC Coupled to 24RL (Lead) (Trailing)	
Valve Positions				
Dead Heading Cock	Open	Dead	Lead	Closed
Auto. Brake Valve	Run	Lap	Run	Run
Ind. Brake Valve	Release	Release	Release	Release
K2A Valve or	Pass.	Pass. Lap	Pass.	Pass. Lap
Dual Ported Cutout Cock	—	Closed	Open	—
Air End Connections				
Independent Application And Release Pipe				
Actuating Pipe				
Equalizer Pipe				
	Closed		Closed	

6. Independent brake valve in release position.

MAINTENANCE

The component parts of 6BLC and 6BL or 6SL air brakes are identical except for the addition of a filler piece on which no maintenance or testing is required. Therefore, the bench repairs,

cleaning and rack test are the same as used on 6BL or 6SL equipment.

Air brake tests on 6BLC equipped locomotive are the same as any 6BL or 6SL multiple unit locomotives except that there is no holding feature function or graduated release function. Manuals already on hand pertaining to 6BL or 6SL brakes should be referred to when maintaining and testing 6BLC air brakes.