

PO/CL 460  
INFORMATION

Chief Mechanical & Electrical Engr  
British Railways Board  
14 Melbury Terrace  
London  
NW1 6JU

Ref: 172-9-2

Date: 26 June 78

### TESTING OF AIR BRAKES AT SIDINGS & OUTSTATIONS

The procedures for testing air brakes at the 7 year and  $3\frac{1}{2}$  year overhauls are laid down and involve the use of an Air Brake Test Trolley. There is no intention of altering this requirement.

When it is necessary however to deal with occasional wagons with air brake defects at Sidings and Outstations, where no Test Trolley is available, the following procedure may be followed, using the portable rig shown on the attached sketch.

#### Preparation for Test

- (a) Park the wagon in the required position and chock the wheels. Place the handbrake in the 'OFF' position.
- (b) Couple up the Brake Pipe and Main Reservoir hose couplings on the portable rig to their respective couplings on the vehicle. Ensure that they are tightly coupled.
- (c) At the remote end of the vehicle fit a 1" dummy coupling to the Brake pipe hose coupling.  
No dummy coupling is required on the M.R. hose coupling as this is protected by its own check valve.  
Open both coupling cocks (handle in line with hose coupling).
- (d) Pull the Release valve and discharge the brake cylinder.
- (e) On Empty/Load vehicles where a pneumatic changeover valve is fitted, wedge the changeover valve to the Load position if the vehicle is in the Tare condition.
- (f) Connect up the B.C. test gauge line to the cylinder. Ensure that connections are tight.
- (g) Open the vehicle coupling cocks adjacent to the rig.
- (h) Shut off all cocks on the portable rig and connect a compressed air supply of not less than 85 p.s.i. to the Tee fitting adjacent to the Limiting valve (see sketch).

Note: The MR and BP supply cocks are adjacent to the Limiting valve. The exhaust cocks are at the extreme ends.

- (i) Open the MR and BP supply cocks. The MR gauge should charge to not less than 85 p.s.i. and the BP gauge to 72.5 p.s.i.

If the BP pressure is too low screw in the limiting valve. If too high, close the BP supply cock, open the exhaust cock and lower the BP pressure. Readjust the Limiting valve and recharge to check for setting.

No further adjustments to the Limiting valve should be made once the initial setting is obtained.

#### Test No 1 MRP and BP Leakage

After allowing about 6 minutes from the opening of the cocks close the two supply cocks.

Any fall in pressure must not exceed 1 p.s.i. in one minute on the BP gauge and 1 p.s.i. in 2 minutes on the MR gauge.

Close the BP coupling cock at the remote end and remove dummy coupling.

Check that any fall in BP has not increased.

#### Test No 2 Emergency Application

Open the MR cock. Open the BP exhaust cock and allow BP to fall to zero.

See that the B.C. gauge has charged to between 51 and 57 p.s.i. and that all blocks or pads are applied. If pressure continues to build up above the maximum the distributor must be rejected. Any fall in pressure on the B.C. gauge must not exceed 3 p.s.i. in two minutes.

Close the B.P. exhaust. Open the B.P. charging cock and see that pressure on the B.C. gauge falls to zero and the blocks or pads are clear of the wheels.

#### Test No 3 Partial Application

Close the BP charging cock, partially open the exhaust cock and close it when BP has dropped to about 60 p.s.i. With the BP at this pressure, the B.C. pressure should be between about 20 and 30 p.s.i. and should not have risen to the maximum value given in Test 2 or have fallen back to zero.

The distributor must be rejected if the B.C. pressure is not held reasonably stable. Before making a decision check that the B.P. pressure has not changed appreciably whilst observing the E.C. gauge. Re-open the exhaust cock and drop BP to zero.

#### Test No 4 Empty Pressure Test - E/L Vehicles only

Reopen the B.P. supply cock to charge BP. Remove the wedge from the E/L changeover valve. Close the B.P. supply cock and open the exhaust cock. See that the B.C. gauge charges to a lower pressure than in Test 2 and stays at this value. The 'empty' pressure varies according to the type of vehicle.

#### Test No 5 Release Valve

With B.P. at zero, the brakes applied, pull the release valve cord briefly. Check that the brakes release fully.

#### Disconnection of Test Rig

Close the MR supply cock and open the MR exhaust cock.

Uncouple from the wagon including the B.C., gauge. When refitting plug to B.C. ensure that this is tight.

Re-apply the handbrake and remove chocks.

To Remove the Distributor

1. Close the MR Isolating cock.
2. Close the Distributor Isolating cock.
3. Pull the release valve cord for a few seconds.

Testing of Rig Equipment

The rig is to be tested at 3 monthly intervals to ensure accuracy when performing brake tests.

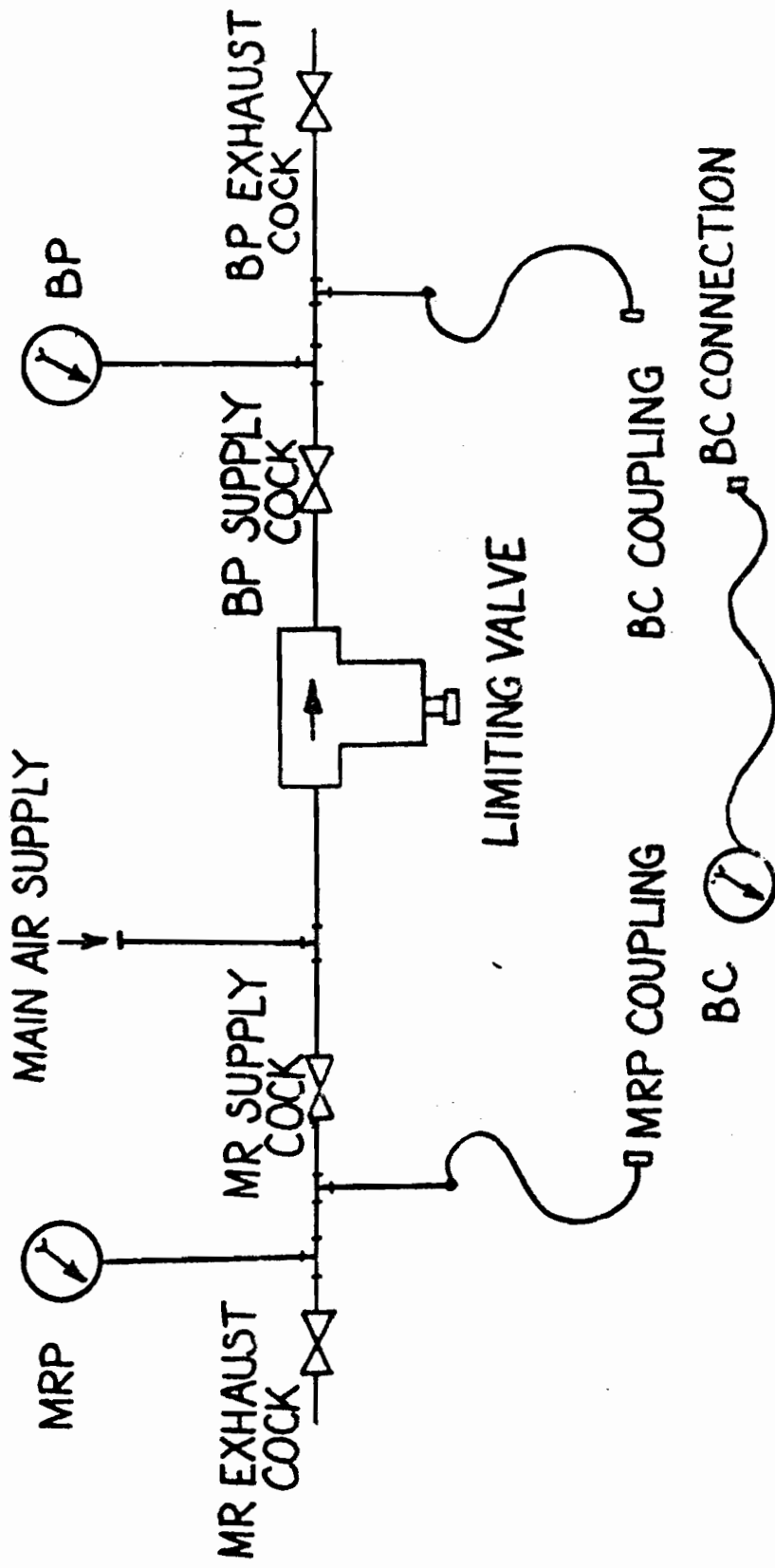
- (a) Air Leaks: The equipment shall be tested for leaks and rectified as necessary.
- (b) Hoses and Washers: All hoses and washers in the coupling heads are to be checked and replaced if found to be defective.
- (c) Gauges : A spare test gauge should be kept and tested every 3 months on a dead weight tester in movements of 10 lb/in<sup>2</sup> up to the limit of the gauge. The readings obtained are to be correct within  $\pm \frac{1}{2}$  lb/in<sup>2</sup>.

The test rig gauge is to be checked at 3 monthly intervals against the above mentioned gauge. Readings are to be taken at 50 lb/in<sup>2</sup> up to 90 lb/in<sup>2</sup> in 10 lb/in<sup>2</sup> increments. If the readings do not agree to within  $\pm 1$  lb/in<sup>2</sup> then the gauge is to be exchanged with the spare.

- (d) Limiting Valve : To ensure that the limiting valve is functioning correctly the following procedure is to be carried out:-  
Once the gauges have been checked and found sufficiently accurate adjust the limiting valve to give a reading of 72.5 lb/in<sup>2</sup>. This is done by screwing in the limiting valve if the reading is low. If the reading is too high, close the BP supply cock, open the BP exhaust cock and allow the BP pressure to drop. Readjust the limiting valve and recharge to check for setting. No further adjustments should be made once the initial setting is obtained. Check for repeatability at least 3 times by closing the BP supply cock and opening the exhaust cock to allow the BP pressure to drop. Close BP exhaust cock and open the BP supply cock to allow the BP pressure to build up and thus check that the gauge reading is the same for all 3 applications.

If it is found that the gauge readings do not repeat then the valve is defective and should be replaced.

  
for K Taylor



TEST RIG FOR BRAKE TESTING WAGONS

- MR = Main Reservoir
- BP = Brake Pipe
- BC = Brake Cylinder