

OPERATION AND MANAGEMENT OF BRAKING SYSTEMS



LVOP 304

PROCEDURE

The correct operation and management of train braking systems is crucial to the safe operation of passenger train services. If the braking system or a component of the system becomes defective whilst the train is in service, the following safety measures should be considered.

- Bogies may need to be isolated,
- speed restrictions may apply,
- carriages may need to be detached or remarshalled,
- passengers may need to be transferred to other carriages, or detrained
- assistance may be required.

* Travelling with Airbrakes isolated

INTERMEDIATE CARRIAGES:

1. Isolate triple valve at branch pipe.
2. Bleed air trapped in brake cylinder.
3. Check wheel sets for scale or damage.
4. Apply defective air brake ticket.
5. Ensure handbrake is operative.
6. No more than 1 out of 10 or 10% total train mass brakes isolated.

TERMINAL END CARRIAGE:

1. Isolate triple valve at branch pipe.
2. Bleed air trapped in brake cylinder.
3. Check wheel sets for scale or damage.
4. Apply defective air brake ticket.
5. Ensure handbrake is operative.
6. No more than 1 out of 10 or 10% total train mass brakes isolated.
7. Move passengers to other cars.
8. Train manager to ride in and standby handbrake in the defective carriage.
9. Re-marshall the defective carriage at first available opportunity elsewhere in the consist other than the last 3 cars.

SELF PROPELLED TRAINS

NUMBER OF BOGIES ISOLATED OPERATIONAL RESTRICTION

1 in 8 (12.5%) or less	No Restrictions, operate normally
More than 1 in 8, to 1 in 4 (25%)	Maximum speed 80 km/h
More than 1 in 4, to 3 in 8 (38%)	Maximum speed 25 km/h

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More than 3 in 8 (38%)

Treat as disabled. Do not move train until attached to another train or assisting locomotive.

FAILURE OF BRAKE PIPE, MAIN RESERVOIR PIPE, AIR COMPRESSOR OR BRAKE VALVE

A train which experiences one or more of these failures whilst in service will be deemed as a total failure and cleared from the section in accordance with the procedures outlined in LVOP 10, 13, 15 and 16.

A train which experiences one or more of these failures during preparation will not leave the depot until repaired and a full brake examination conducted.

RELATED DOCUMENTS

- Network Rule NTR 416
- Network Rule NTR 424
- LVOP 402
- LVOP 410
- LVOP 520
- LVOP 616

TRAIN CREW PERFORM CONTINUITY TEST

- After train preparation
- After division or amalgamation
- When taking charge of an unattended train
- If the brake pipe continuity has been affected
- If the Driver has any doubt about the brake pipe continuity

SEQUENCE STEPS FOR CONTINUITY TEST FOR LOCO HAULED TRAINS

1. Secure train and fully charge the brake pipe, 70 lb psi (500 kPa.)
2. Request that Train manager/Observer performs continuity test.
3. Driver closes brake valve isolating cock or B/V cut off valve to "Out".
4. Train manager/Observer opens emergency brake pipe cock at rear of train.
5. Reduce brake pipe pressure by 25 lb psi. (200 kPa) then close cock.

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6. Ensure brake pipe pressure remains constant for 30 seconds.
7. Driver opens brake valve isolating cock or B/V cut off valve to "In".
8. Recharge brake pipe and check pressures, 70 lb psi. (500 kPa.) manager confirms brake pipe indicates a full service has been made.
9. Conduct brake pipe leakage test.
10. Restore brake pipe pressure and check all brake cylinders release.

SEQUENCE STEPS FOR LEAKAGE TEST.

1. Fully charge brake pipe, Loco hauled train 70 lb psi. (500 kPa.)
2. Make full service automatic brake application.
3. Close Drivers brake valve isolating cock or B/V cut off valve to "Out".
4. Monitor brake pipe pressure for 60 seconds.
5. If brake pipe pressure rises, check that other drivers brake valve isolating cocks are closed. Redo test, if pressure still rises, the train has failed the leakage test.
6. If brake pipe pressure falls by more than 5 lb psi. (35 kPa) over the minute, the train has failed the leakage test.
7. Remedy fault or detach defective vehicles.
8. Repeat leakage test.

CONTINUITY TEST OF THE AIR BRAKE ON A 42 FOOT RAILMOTOR

A continuity test of the air brake shall be conducted in accordance with the following:

1. Before commencing a journey.
2. When vehicles are attached or detached.
3. Upon the continuity of the train pipes being interfered with any manner.
4. Where the train has been stationery for fifteen minutes or more and it is possible for unauthorised person to interfere with the continuity of the brake pipe.
5. If the driver has any doubt about the brake continuity.
- 6.

The continuity test shall be carried out not more than five minutes before the train is due to depart.

The guard will bell signal the driver, five short bells for test air brake, and the driver, upon hearing the bell signal will secure the motors by hand brake and then will adjust the straight air pipe pressure to approximately 10 psi. (70kpa). and then acknowledge the bell signal by repeating it.

Upon the bell signal being acknowledged, the guard will fully open the emergency cock, at the rear of the last vehicle on the train for a period of not less than fifteen (15) seconds.

The driver having observed that a suitable reduction in emergency pipe pressure has been

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made, as shown by the emergency pipe gauge in the drivers cab, will move the brake valve handle to the full application position until almost normal emergency pipe pressure has been restored.

The driver will then move the brake valve handle to the release position and upon the straight air pressure falling towards zero, open the driver's emergency cock and reduce the emergency pipe pressure by at least 20 psi. (140 kPa.)

The driver will then move the brake valve handle to the full application position and when almost normal emergency pipe pressure is restored, the brakes can be released as required. Before giving the all right bell signal to proceed, the guard is to ensure that not less than 60 psi. (415 kPa) is registering on the air gauge in the guard's compartment.

CONTINUITY TEST OF THE AIR BRAKE ON A 900 CLASS DIESEL TRAINS.

1. The Guard will bell signal the Driver for a continuity test of the air brakes, and the driver, upon hearing the bell signal will adjust the straight air pipe pressure too approximately to 10 lb psi (70 kPa). And then acknowledge the bell signal by repeating.
2. Upon the bell signal being acknowledged, the guard will fully open the brake pipe emergency cock, at the rear of the last vehicles on the train and reduce brake pipe pressure by not less than 20 lb psi. (140 kPa.)
3. The Driver having observed that a suitable reduction in the brake pipe pressure has been made, as shown by the brake pipe gauge in the driver's cab, will depress the brake valve handle in the release position, with the deadman foot pedal released, and note the recharge of the brake pipe and release of the brakes.
4. The Driver will then place the four position change-over cock in the non-control position, move the brake valve to the "handle out" position and reduce the brake pipe pressure by at least 20 lb psi (140 kPa) by opening the brake pipe emergency cock in the cab.
5. To restore the brake pipe pressure, the driver will depress the brake valve handle in the release position with the deadman pedal released and at the same time, move the four position change over cock to the required operating position.
6. The Guard is to note the application and release of the brakes at the rear end of the train.
7. Upon the brake cylinder pressure commencing to release, the driver will place the brake valve handle in a suitable position to hold the train stationary.

Straight Air Continuity Test

1. When the train is to be controlled under electro-pneumatic brake operation, the continuity of the straight air pipe is to be tested in the following manner:-
2. Upon completion of the normal automatic air brake continuity test and just prior to departure, the electro-pneumatic brake is to be fully applied.
3. Turn of the electro-pneumatic brake switch and place the four position change-over cock in the electro-pneumatic position.
4. When the train is ready to proceed, release the brakes and upon applying power ensure trains moves off freely with all brakes released.
5. Upon the train moving off freely, switch on the electro-pneumatic brake switch, move the four position change-over cock to the electro-pneumatic position and continue with normal operations.

6. Brake Valve and Deadman Test for LVR Rolling Stock.

During the preparation of a Railmotors, 900 class or any other types of locomotives it is the drivers duty to test the brake valve and any deadman / vigilance device where fitted and to see that they are functioning correctly.

Deadman Foot Pedal Operation for CPH Railmotors.

When the master control key is open, the deadman foot pedal must be depressed. If it is released, a warning buzzer will sound in the guard's compartment and at the same time, air pressure is exhausted from the throttle control and returns the diesel engine to idle speed. The release of the deadman foot pedal will cause an emergency application of the brakes and places the motor in neutral after three seconds of the deadman being released.

The deadman feature is isolated when the levers in the driver's control panel are returned to the neutral position and the master control key moved to the closed position.

The Testing of Brake Vale and Deadman on CPH Railmotors.

1. Check main reservoir gauge is registering 85 – 95 lb psi. (585 – 655 kPa) and the emergency pipe pressure is 65 lb psi. (450 kPa). Ensure brake valve isolating cock is open. Move the brake valve handle to full application position and check straight air pipe pressure rises to 60 lb psi. (415 kPa).
2. Close the brake vale isolating cock and check for leakage from the straight air pipe. If leakage exceeds 5 lb psi. - 35 kPa per minute, the defect must be rectified before the unit enters service.
3. Open the brake valve isolating cock. Move the brake valve handle to the release position and ensure the brakes release.
4. Fully open the emergency cock and note that the emergency pipe pressure falls to zero and the brakes are fully applied.
5. Close the emergency cock and move the brake vale handle to the full application position.
6. When the emergency pipe pressure is restored to almost normal pressure, the brakes can be released.
7. With the master control key open remove the foot from the deadman pedal and ensure the warning buzzer operates in the guard's compartment and after three seconds emergency pipe pressure falls to zero and the brakes are fully applied.
8. When the emergency pipe pressure is restored to almost normal pressure, the brakes can be released.
9. Close the master control key and fully apply the straight air brake.
10. At ground level, check brake piston travel and listen for any air leaks
11. The low air pressure indicator arm must be set in the horizontal position and it must remain in this position, to indicate sufficient air pressure is available for the operation of the breaking system before the unit is moved.

The Testing of Brake Vale and Deadman on 900 Class Diesel Units Train.

1. Check main reservoir gauge is registering 90 - 105 lb psi. (650 - 730 kPa) and the brake pipe pressure is 65 lb psi. (450 kPa.)
2. Ensure electro-pneumatic (EP) brake switch is turned on and four position change-over



cock is in the electro-pneumatic position. Depress brake vale handle, remove foot from deadman pedal, move brake vale handle to full service position and ensure that brake that brake cylinder and straight air pressure rises and remains steady at approximately 45 lb psi. (310 kPa.) Release the brake vale handle to ensure that straight air pressure is suppressing the deadman feature. Depress brake vale handle, move it to the release position and note the brakes release.

3. Place four position change-over cock in the pneumatic position and switch off electro-pneumatic (EP) brake switch. Move the brake valve handle to full service position, brake cylinder and straight air pressure should rise and remain steady at approximately 45 lb psi. (310 kPa). Place four position change-over cock in the "non control" position and check for leakage from the straight air pipe and brake cylinders. If leakage exceeds 5 lb psi. (35 kPa.) per minute, the defect must be rectified before the unit enters service. Move four position change-over cock back to the pneumatic position, depress brake valve handle, move it to the release position and note the brakes release.
4. Release the brake valve with foot off the deadman pedal, ensure the deadman feature operates, causing the brake pipe pressure to fall and brake cylinder pressure to rise.
5. Depress brake valve handle to charge the brake pipe and at the same time check the brakes release.
6. With the brake pipe fully charged, open the emergency cock and note that the brake pipe pressure is reduced to zero, close the emergency cock, depress the brake valve handle with the deadman pedal released to charge the brake pipe and release the brakes.
7. Depress deadman foot pedal, release brake valve handle and ensure the deadman feature remains suppressed.
8. Place the reverser lever in the neutral position and remove foot from the deadman pedal, note brake pipe pressure remains constant, indicating that the feature is being suppressed with the reverser lever in the neutral position.
9. Depress deadman pedal and move reverser leaver to the forward position. Place four position change over cock in the electro-pneumatic (EP) position, switch on electro-pneumatic (EP) brake switch and move the brake valve handle to the full service position.
10. At ground level, check brake piston travel and listen for any air leaks, especially from release magnet valves. Examine compressor belts are in good order.
11. The low air pressure indicator arm must be set in the horizontal position and it must remain in this position, to indicate sufficient air pressure is available for the operation of the breaking system before the unit is moved.

The Testing of No. 4 Brake Valve.

1. Lap position.

Start the compressor with the brake valve handle in the full release position; when the pressure attains 40 lb psi. (275 kPa) in the main reservoir, place the brake valve handle in the lap position and fully open the steam valve of the compressor. In this position the black hand of the gauge should remain stationary, whilst the red hand continues to rise to 100 lb psi. 690 kPa main reservoir pressure. This ensures that the rotary valve is not leaking, should the black hand (brake pipe) continue to rise, the rotary valve is leaking through and requires attention.



2. Running Position.

Move the handle of the brake valve to the release position for (1) second then to the running position.

Observe the duplex pressure gauge and provided that the main reservoir is fully charged, the brake pipe pressure should rise and remain stationary at the set pressure of the slide valve feed valve, which should be 70 lbs psi. (500 kPa). This indicates that the ports and passages are clear through the slide valve feed valve and equalising port is clear. Care must be taken to ensure that the slide valve feed valve is set in accordance with the regulations, which is 70 lbs psi. (500 kPa.)

3. Service Application position.

Place the index finger of the right hand over the brake pipe exhaust port, then note, the pressure on the black hand of the gauge and make not more than a 5 lbs psi. (35 kPa) reduction with the brake valve in the service application position, returning the handle to lap. Note that the preliminary blow takes place at the back of the brake valve indicating that the preliminary port and connecting groove are clear.

If the finger is blown off the brake pipe exhaust port, the equalising piston is in good order. If the finger is not moved by the air pressure from the exhaust port, the equalising piston is blowing through.

4. Emergency Position.

Place the brake valve handle in the emergency position and note that there is a free flow of air from the emergency passage at the back of the brake valve and also that the black hand (brake pipe) of the gauge falls slowly to zero. This indicates that the large cavity is making direct passage.

Whilst the brake valve handle is in this position, examine the engine and the tender brakes, to see that the triples are correctly functioning; this is indicated by both brakes being applied and also shows that the branch pipe isolating cocks are fully open.

Also check:-

1. The brake piston travel to see that it is not excessive.
2. The thickness of the brake blocks.

5. Full Release Position.

The black hand should rise quickly to the same pressure as that registering on the red hand of the gauge. This will indicate that the equalising ports and passages are clear.

NOTE A variation of 2½ psi (17 kPa) between the red and black hands of the gauge is allowed.

6. Testing for Leakage.

Place the drivers brake valve handle in the full release position, then with the main reservoir and brake pipe fully charged to 100 lbs. psi (690 kPa) pressure, close the drivers brake valve isolating cock and shut off the compressor. Should the red hand fall, there is a leak between the discharge valve of the compressor and the relative connections leading to the isolating cock, through the main reservoir. If the black hand falls it indicates leakage



on the brake valve, equalising reservoir or brake pipe connections. Should the black hand fall when making the above test, the brake valve handle should then be placed in lap and if the leakage is in the equalising reservoir or its connections, this is immediately indicated by the lifting of the equalising piston.

7. Testing the Slide Valve Feed Valve.

After testing the rotary valve to ensure that it is tight, the setting or cutting-out pressure of the slide valve feed valve should be determined by placing the brake valve handle in the running position and noting the pressure to which the brake pipe hand of the duplex gauge rises.

The brake valve handle should then be placed in full release position to charge the brake pipe to maximum pressure, which should be the same as that indicated by the main reservoir hand of the gauge.

The cutting out pressure of the slide valve feed valve is now checked by placing the brake valve handle in the running position and having the firemen make a brake pipe leak by slightly opening the brake pipe cock on the back of the tender. At the same time the driver should note the moment of the brake pipe hand of the gauge, which should fall to the same pressure as that noted in (1) and then remain steady, indicating that the slide valve feed valve has cut-in and is feeding air into the brake pipe. A permissible variation of 2½ psi (17 kPa) between the cutting-in and cutting-out pressures on the gauge is allowed.

Note. The slide valve feed valve should be set at 70 lb psi. (500 kPa.)

Testing the A-6.E.T. brake Valve.

Before starting the compressor, place the automatic brake valve handle in the lap position and independent brake valve in running position. Start the compressor working slowly until a pressure of 40 lb psi (275 kPa) is raised in the main reservoir, this will prevent damage to the compressor through water hammer, then turn the compressor starting valve on fully. As the pressure in the main reservoir increases the black hand of both duplex gauges should remain at zero, whilst the automatic brake handle is in the lap position, indicating the rotary valve is tight and is not blowing through.

8. Equalising Reservoir Control Valve Test.

When the main reservoir pressure has reached 90 psi (620 kPa) , place the automatic brake valve in the running position and note that the black hand of both gauges rises to the setting (cutting out pressure) of the slide valve feed valve. Also note that the black hand of the equalising reservoir rises at of 1 lb psi (7 kPa) per second, which is the rate at which the equalising reservoir control valve should feed. This indicates that the slide valve feed valve passages is clear and the equalising control valve is operating satisfactorily.

9. Low Pressure Governor Head.

When the pressure in the main reservoir builds up to 100 lb psi (690 kPa) the compressor should be stopped by the low pressure governor head.

10. Minimum Reduction Test.

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Test the minimum reduction feature by placing the automatic brake valve in lap, and note that a 7 lb psi. (48 kPa) reduction of pressure takes place on the equalising gauge and the brake cylinder gauge rises to approximately 10 lb psi. (70kpa). This indicates that the minimum reduction reservoir and piping is in good order.

11. Equalising Piston Test.

To test the equalising piston, make a 10 lb psi (70 kPa) service application. Note that the preliminary blow takes place at the back of the brake valve and that the equalising piston lifts causing a blow from the brake pipe exhaust. The hand of the brake cylinder pressure gauge should increase at a retarded rate as the valve of the equalising piston comes to rest on its seat.

12. Safety Valve and High Pressure Governor Head.

Place the handle of the brake valve in emergency position, and note the a free flow of air occurs at the back of the brake valve indicating that the large cavity is clear, also observe that the pressure in the brake cylinder increases at a rapid rate and that the safety valve lifts and reseats at a pressure of 55 psi (380 kPa). Also note that the main reservoir pressure increases to 120 psi (827 kPa) indicating that the high pressure head of the governor is functioning correctly.

13. Checking Warning and Retarded Release.

Place the automatic brake valve handle in the full release position and note that an audible blow of air takes place at the warning port, also observe that the hand of the brake cylinder pressure gauge falls at a retarded rate, which will indicate that the escape of air from the engine and tender brake cylinders is being restricted by the small port in the rotary valve. Before all the pressure is exhausted from the brake cylinders, the brake valve handle should be returned to the running position and a note made the hand of the brake cylinder pressure gauge falls through the remaining range at much quicker rate than when the handle was in full release position. The black hands on the gauges will rise again to the setting of the slide valve feed valve.

14. Testing the Slide Valve Feed Valve.

First place the automatic brake valve handle in the running position and check the setting of the slide valve feed valve, which should be 70 lb psi. (500 kPa). Place the brake valve in the full release position until the main reservoir and brake pipe are charged to at least 110 psi. (760 kPa). Then return the brake valve handle to the running position and then have the fireman make a brake pipe leak. Note that the low pressure head of the governor again permits the compressor to commence working when the main reservoir pressure is reduced to below 100 lb psi (690 kPa) and that the black hands of the gauge falls back to the setting of the slide valve feed valve and remain at that figure indicating that the slide valve feed valve has cut in. A permissible variation between cutting-in and cutting-out pressure on the gauge is 2½ lb psi. (17 kPa.)

Testing the Independent Brake.

1. First test the slow application feature of the independent brake valve by placing the brake valve handle in the slow application position and noting that the hand of the brake cylinder pressure gauge rises slowly.

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2. When the brake cylinder pressure has reached approximately 30 psi. (20 kPa.) Check the quick application feature by holding the independent brake valve handle in the quick application position and note that the hand of the brake cylinder gauge now rises quickly to 45 psi.(32 kPa).
3. Check that the pressure reducing valve is set to 45 lb psi. (32 kPa) by keeping the handle of the independent brake valve in the quick application position and note that the brake cylinder hand remains steady at this figure.
4. Finally check that the independent release feature is working satisfactorily, by applying and lapping the automatic brake, and then return both brake valve handles to the running position.

Testing the Flow Meter Valve.

1. Place the automatic brake valve handle in the running position, charging brake pipe pressure to the setting of the slide-valve feed-valve.
2. Make a service application with the automatic brake, reducing the brake-pipe pressure to 50 lb psi.(35 kPa.)
3. After allowing time for the pressure to equalise, place the brake-valve hand in the running position.

An audible blow should be given from the warning port and one black hand on the gauge should fall towards zero and then rise and coincide with the other hand, and the warning blow should cease.

Testing the A7 EL. brake Valve.

1. The Independent brake valve is to be in the application position the automatic position the automatic brake valve in the “running” position and the isolating cock open on the brake pedestal being tested.
2. Check the main reservoir, brake pipe and equalising reservoir pressures. The brake pipe and equalising reservoir pressure should be 70 psi.(500 kPa)and main reservoir pressure within the prescribed range of 100 - 115 psi. (700 - 800 kPa.)
3. Place the independent brake valve in the running position and depress the vigilance control acknowledgement button. The volume timing reservoir pressure is to be maintained in the operating zone or the flashing light acknowledgement, whilst the brake test is being carried out.
4. Place the automatic brake valve in the service lap position and note that a minimum reduction of 7 psi (50 kPa) takes place in the equalising reservoir and brake pipe pressure. The brake cylinder pressure should rise to between 10 lb psi. - 14 lb psi. 70 - 100 kPa.
5. Release the locomotive brakes by placing the independent brake valve handle in the full release position until a full release of the brakes is obtained. Then return the independent brake valve handle to the running position.
6. Place the brake valve in the service application position and reduce the equalising reservoir and brake pipe pressure by 10 psi (70 k). Note that the equalising piston lifts and the brake cylinder pressure increases.
7. Check the brake piston travel is within the required limits and notes that the brake pipe and equalising reservoir pressure have not seriously reduced or increased with the brake valve in the lap position.
8. On Units equipped with Dynamic Brake.
Set up dynamic brake and note that the locomotive brakes release. Reduce the brake



pipe pressure to below 35 lb psi (250 kPa), note that the pneumatic control switch opens, cutting off the dynamic brake and at the same time re-applying the locomotive brakes.

9. Place the automatic brake valve in the full release position. Note the brake pipe and equalising reservoir pressure increases, the warning blows occurs and the locomotive brakes release at a retarded rate. The return the brake valve to the running position and check that the brakes release at a faster rate.
10. On Units equipped with Dynamic Brake.
Re-apply the dynamic brake to prove that the pneumatic control switch has closed. Fully apply the independent brake and check that brake cylinder pressure rises to 45 psi (350 kPa) then dispense with the dynamic brake.
11. Place the automatic brake valve in the emergency application position. Note that a heavy reduction occurs in the brake pipe and equalising reservoir pressures. The safety valves should lift on the distributing valve to maintain the brake cylinder pressure at 55 lb psi (400 kPa.)
12. Move the automatic brake valve handle to the running position and note that the flow meter functions.
13. Place the independent brake valve handle in the running position and note that the brake cylinder pressure releases.
14. With the locomotive hand brake on release the independent brake valve with the automatic brake valve in the running position and see that the vigilance control works and gives a penalty application automatic brake.
15. While the brake test is being conducted, the cutting in and out point of the governor is to be checked.

Testing the 26L. brake Valve.

1. The independent brake valve is to be in the application and the automatic brake valve in the release position. The brake valve cut off valve set at 'IN' and MU valve in the 'Lead or Dead' position on the brake pedestal being tested.
2. Check the main reservoir, brake pipe and equalising reservoir pressures. The brake pipe and equalising reservoir pressure should be 70 lb psi. (500 kPa). The main reservoir pressure 100 – 115 psi. (700 to 800 kPa).
3. Place the independent brake valve in the release position and depress the vigilance control acknowledgment button. The flashing light is to be acknowledged, whilst the brake test is being carried out.
4. Place the automatic brake valve in the minimum reduction position and note that a minimum reduction of 7 psi. (50 kPa) takes place in the equalising reservoir and brake pipe pressures. The brake cylinder pressure should rise to between 70 and 100 kPa.
5. Release the engine brakes with the independent brake by depressing the handle in the release position until a full release of brake cylinder pressure is obtained.
6. Place the auto brake valve in the 'service' application zone and reduce the equalising reservoir and brake pipe pressure by 10 psi. - 70 kPa. Note that the regulating and relay valves function and the brake cylinder pressure increases.
7. Conduct a power test. Place brake valve cut off valve in the 'OUT' position, check the brake piston travel is within required limits. Note that the brake pipe pressure has not seriously reduced or increased with the brake valve cut off valve in the 'OUT' position.
8. Test the pneumatic control switch. With the independent brakes fully applied place the reverser in the forward position with the generator field circuit breaker on. Then take one notch see that you get a reading on the amp meter. Now reduce the brake pipe by

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- 35 psi. - 250 kpa and see that the pneumatic control switch opens and cut the power off.
9. Place the automatic brake valve handle in the release position. Note that the brake pipe and equalising reservoir pressure is restored.
10. Take one notch see that you get a reading on the amp meter indicating that the pneumatic control switch has closed.
11. Place the automatic brake valve in the emergency application position. Note a heavy reduction occurs in the brake pipe and equalising reservoir pressure.
12. Move the automatic valve handle in the release position and note that the flow meter functions correctly.
13. Place the independent brake valve handle in the release position without depressing handle and note that the brake cylinder pressure releases.
14. Open emergency cock at the base of the pedestal and check that brake pipe is quickly and considerably reduced in pressure.
15. Maintaining feature check. Close emergency cock and fully recharge brake pipe.
16. Place automatic brake valve handle to service zone and reduce brake pipe pressure by 70 kpa. Leave handle in this position.
17. Open emergency cock slightly to vent brake pipe and note that brake pipe pressure remains constant at a reduced level.
18. With the locomotive hand brake on release the independent brake valve with the automatic brake valve in the running position and see that the vigilance control works and gives a penalty application automatic brake.
19. While the brake test is being conducted, the cutting in and out point of the governor is to be checked.

BRAKE EXAMINATION

1. Before commencing a brake examination the Driver shall obtain the Guards running sheet so the examination details may entered on the Guards running sheet.
2. Make full service automatic brake application and close drivers brake valve isolating cock or B/V cut off valve to "Out".
3. Monitor brake pipe pressure for 60 seconds, observe any rise or fall in brake pipe pressure.
4. Inform the examining employee that they may commence.
5. Examining employee carries out examination, noting the condition of brake pistons, brake shoes and pins, wheels, couplings, safety chains, hoses and piping, jumper couplings, buffers and diaphragms, doorway curtains and gangway chains.
6. On arrival at last vehicle, examining employee opens brake pipe cock and vents to zero.
7. Driver recharges brake pipe.
8. Examining employee checks other side of train on the return and the brakes are released.
9. Examining employee and Driver are to enter brake examination details on the Guards running sheet sign and return to Guard.

RELATED DOCUMENTS

LVOP 300