

## **Air Brake and Inspection Instructions**

There are four types of air brake tests that we do on the Sumpter Valley.

- Pre-trip Locomotive
- Initial Terminal Air Brake and Inspection
- Set and Release
- Road Train

The first three are done on a regular basis, with the fourth being done occasionally, when one or more cars are picked up en route. Each will be discussed in detail below.

**Pre-trip Locomotive Air Brake Test** Prior to leaving the service facility at the beginning of the day, an application and release test of the locomotive brakes must be made in the following order.

1. Brake pipe is charged to the prescribed pressure (usually 70 psi)
2. Independent brake is fully applied and it is observed that brakes apply on the locomotive and tender. Independent brake is released and it is observed that brakes release on the locomotive and tender.  
Note: Steps 3 and 4 (below) do not apply to the Heisler
3. A 10 psi reduction with the automatic brake valve is made and it is observed that brakes apply on the locomotive and tender. The independent brake is bailed (actuated) and it is observed that brakes release on the locomotive and tender.
4. An additional 10 psi reduction is made with the automatic brake valve and it is observed that the brakes apply on the locomotive and tender. The automatic brake valve is released and it is observed that brakes release on the locomotive and tender.
5. Locomotive brake pipe leakage shall be tested at the beginning of each day the locomotive is used and shall not exceed 5 psi per minute.

**Initial Terminal Air Brake Test and Inspection** Whenever a train is made up or an existing train is being prepared for service for the day, an Initial Terminal Air Brake Test and Inspection must be performed.

1. Crew assembles consist, including air hoses, making sure angle cocks are in the proper position.
2. Handbrakes on cars should all be released.
3. Engineer charges the brake pipe and allows the entire consist to become fully charged as indicated by gauge on the rear car. (Note: a portable air gauge may be used on the brake pipe if there is no gauge on the rear car.)
4. On signal from trainman, engineer makes a 20 pound reduction with the automatic brake valve and gives one short whistle toot or otherwise notifies trainmen that the brakes have been applied.
5. After brake pipe exhaust ceases, crew waits one minute to allow brake pipe to equalize.

6. Trainmen inspect train to determine that the brakes are applied to each car, brake rigging does not bind or foul and all parts of the brake equipment are properly secured.
7. Engineer checks brake pipe leakage for one minute.
8. If brake pipe leakage exceeds five pounds in one minute, engineer will notify trainmen to inspect the train for leaks. Engineer will then release brakes.
9. After leakage has been corrected, re-do the test starting at step 1.
10. When inspection and leak test have been completed, a signal to release the brakes will be given. The engineer will place the automatic brake valve in the release position and sound two short blasts on the whistle or otherwise notify train crew that the brakes have been released.
11. Trainmen inspect each brake to see that it releases properly.
10. While making the Initial Terminal Air Brake Test, train must be inspected on both sides prior to departure. Inspection of train when train brakes are set per 4 (above) will qualify for the inspection of one side of the train. The other side may be inspected at any time after train is made up, whether brakes are set or not. Release inspection per 9 (above) may be utilized as the inspection of the opposite side of the train. Items to be observed, all from ground level, are:
  - A. Piston travel of between 6" and 8" as measured when brakes are applied
  - B. Condition of wheels; broken or cracked
  - C. Protruding, hanging or dragging objects
  - D. Brake rigging that is not secure
  - E. Cars that are leaning
  - F. Cars that are sagging
  - G. Cars that are not on the truck center plate
  - H. Insecurely attached doors
  - I. Broken or missing safety appliances
  - J. Contents leaking from car
  - K. Insecure coupling devices
  - L. Overheated wheel or journal
  - M. Any apparent hazard that could cause an accident
  - N. Open loads including logs, ties, lumber, trailers and equipment on flat cars must be safely loaded and secured.
11. If height or width approaches clearance restrictions, consult with proper authority.
12. Any car that fails its brake test and/or has another defect noted during the inspections AND cannot be repaired in a reasonable period of time must be set out of the consist.
13. Upon successful completion of the air test and inspection, the engineer must be notified verbally that the test has been completed.

**Set and Release Test** Whenever the train line is broken a Set and Release Test must be performed. Reasons for requiring this test include:

- A. Completion of a run around move where no cars are added to the consist
- B. A car is removed from the consist

- C. Train has become uncoupled for any reason
  - D. The air line has separated for any other reason
1. The engineer will charge the brake pipe while the crew inspects the consist to assure that all angle cocks are in the proper position.
  2. Sufficient time will be given that the brake pipe is fully charged as shown by air gauge on the rear car.
  3. On signal from trainman the engineer will make a 20 psi reduction with the automatic brake valve. Engineer will sound one short toot or otherwise notify trainman that the brakes have been applied.
  4. Trainman will inspect rear car to ensure that the brakes apply on that car.
  5. Trainman will signal engineer to release the brakes; engineer will sound two short toots or other wise notify trainman that the brakes have been released.
  6. Trainman will inspect rear car to ensure that the brakes release on that car.
  7. Trainman will notify engineer that the brake test is complete.

**Road Train Air Brake Test** A Road Train Air Brake Test will be performed where cars are added to the consist after the Initial Terminal Air Brake Test.

1. After one or more cars are added to the train, engineer charges the brake pipe to allow the entire consist to become fully charged as indicated by gauge on the rear car.
2. On signal from trainman, engineer makes a 20 pound reduction on the automatic brake valve and sounds one short toot or otherwise notifies trainmen that the brakes have been applied.
3. After brake pipe exhaust ceases, crew waits one minute to allow brake pipe to equalize.
4. Trainmen inspect added cars to determine that the brakes are applied to each car, brake rigging does not bind or foul and all parts of the brake equipment are properly secured.
5. Engineer checks brake pipe leakage for one minute.
  - A. If brake pipe leakage exceeds five pounds in one minute, engineer will notify trainmen to inspect the train for leaks. Engineer will then release brakes.
  - B. After leakage has been corrected, re-do the test starting at step 1.
6. When inspection and leak test have been completed, a signal to release the brakes will be given. The engineer will place the automatic brake valve in the release position and sound two short blasts on the whistle or otherwise notify train crew that the brakes have been released.
7. The brake on each added car as well as the last car of the train must be inspected to see that it sets and releases properly.
8. Added car or cars will be inspected as per Item 10 of the Initial Terminal Air Brake Test.
9. Upon successful completion of air test and inspection train crew will notify engineer.