DEPARTMENT OF CALIFORNIA HIGHWAY PATROL

INFORMATION BULLETIN

September 22, 2003

BENDIX INTEGRATED SOLUTION AIR DRYER
(INSPECTION PROCEDURES)

This Information Bulletin has been prepared as a guide to assist truck, bus and school bus inspection personnel in the procedures the California Highway Patrol recommends for checking the air brake system for vehicles equipped with the Bendix Integrated Solution Air Dryer (AD-IS). This procedure is generally used when checking for the proper installation and functioning of check valves to determine compliance with Vehicle Code Section 26507 (Check Valve).

The air dryer consists of a "spin-on" desiccant cartridge secured to a base assembly. The base assembly contains a check valve assembly, safety valve, heater and thermostat assembly, threaded air connections, purge valve assembly and four pressure protection valves.

The function of the pressure protection valves is to protect each service reservoir from a pressure loss in another service reservoir or air accessory reservoir. The AD-IS air dryer is designed to receive compressed air from the vehicle compressor; clean and dry the air; deliver air to the vehicle's primary reservoir, secondary reservoir, and accessory reservoir (if so equipped); and control the compressor/dryer charge cycle. Additionally, the dryer incorporates a "purge reservoir," that in most cases, replaces the "wet tank reservoir." Figure 1 illustrates a typical AD-IS air dryer.

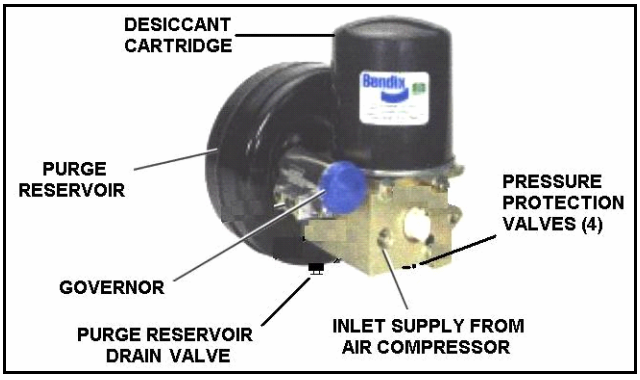

Fig. 1. AD-IS Air Dryer – Location of Purge Reservoir Drain Valve

The AD-IS air dryer alternates between two operational modes or “cycles,” the charge cycle and the purge cycle. During the “charge cycle” the air compressor is loaded (compressing air) with the compressed air flowing through the compressor discharge line to the inlet port of the air dryer body. When air from the compressor travels though the discharge line and into the air dryer, the temperature of the compressed air falls, causing some of the contaminants to condense and drop to the bottom of the air dryer purge valve assembly, ready to be expelled during the next purge cycle.

When the air brake system pressure reaches the cut-out setting of the governor, the governor unloads the air compressor and the “purge cycle” of the air dryer begins. The initial purge and desiccant cartridge decompression lasts only a few seconds and is evidenced by an audible burst of air at the AD-IS’s purge valve. After the purge cycle is complete, the purge reservoir is empty and the air dryer is ready for the next charge cycle.

In order to check the operation of the air brake system check valves when encountering vehicles equipped with the AD-IS air dryer, the following procedures should be followed:

1. Check all lines and fittings leading to and from the air dryer for leakage and integrity and ensure all air reservoir drain valves are closed.

2. Build up air system pressure to governor cut-out and note that the air dryer purges with an audible escape of air. *The initial purge lasts only a few seconds but approximately 30 seconds is required for the entire contents of the purge reservoir to flow though the desiccant cartridge.*

3. “Fan” the service air brakes to reduce air system pressure below cut-in pressure to approximately 80-90 pounds per square inch (psi). Build up air pressure to approximately 100 psi (below cut-out pressure).

4. Turn the ignition to the engine shutoff position.

5. Drain air at the AD-IS air dryer “purge reservoir.” *The drain valve is located in the front of the purge tank under the air dryer assembly*. *Open the drain valve by moving the center lever away from its closed position. Wait at least 10 seconds to allow any residual purge pressure to be released.*

6. View the primary and secondary air pressure “gauge” or “needles” to ensure the air system holds primary and secondary air system pressure. *The above procedure ensures that the pressure protection (check) valves for the primary and secondary air reservoirs are installed and are not defective.*

7. Close the purge reservoir drain valve.

8. Drain either the primary or secondary air reservoir to ensure the check valve for either the primary or secondary air reservoir holds air pressure.

9. Build up air pressure to approximately 100 psi (below cut-out pressure) and again, turn the ignition to the engine shutoff position.

10. Drain the secondary or primary air reservoir to ensure the check valve for either the secondary or primary air reservoir holds air pressure.

NOTE: When either the primary or secondary air reservoir drain valve is opened, initially both reservoir gauges will fall. However, the AD-IS primary and secondary pressure protection valves will close at pressures above 70 psi, protecting the remaining air brake system from further loss of air pressure.

Any questions regarding this Information Bulletin should be directed to Mr. Mike Ellis, Commercial Vehicle Section at (916) 445-1865.

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