Bendix

Service Data

SD-08-2412

Bendix® AD-9® Air Dryer

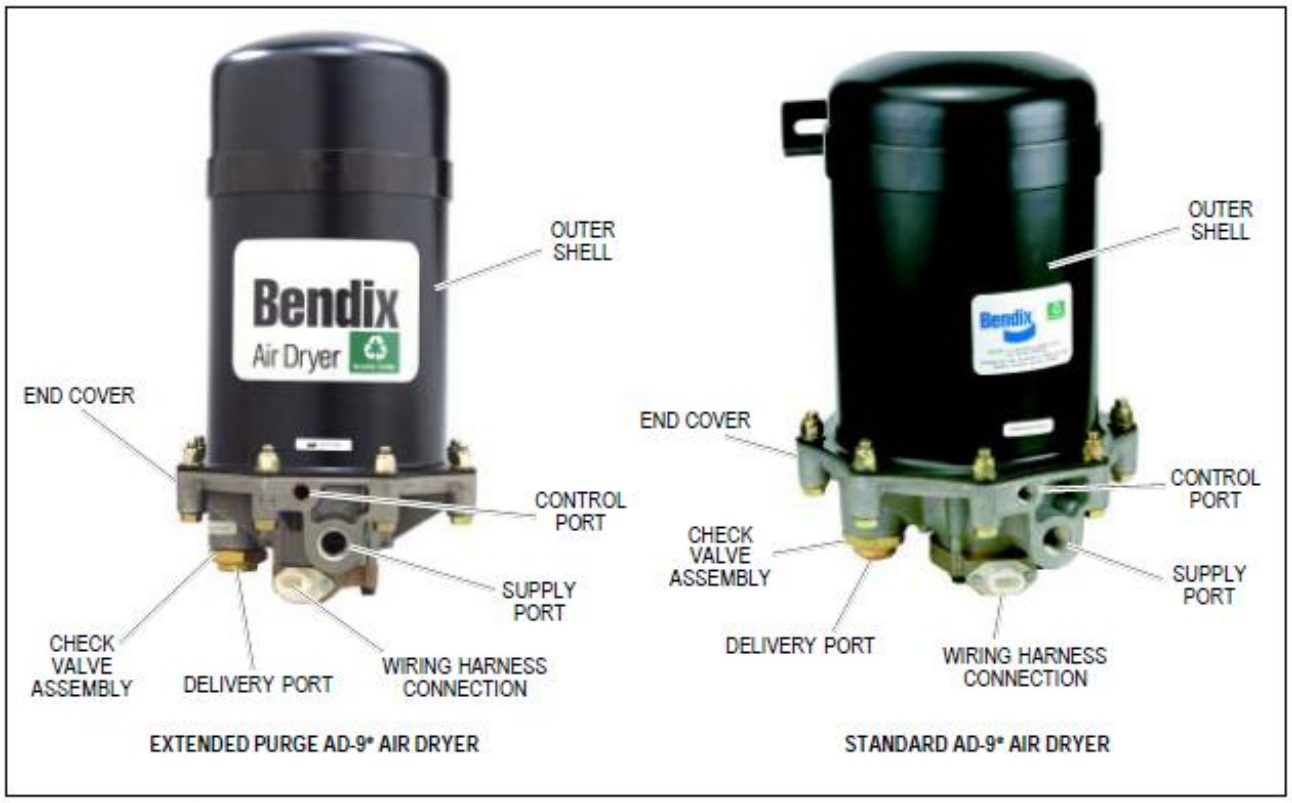

FIGURE 1 - AD-9® AIR DRYER MODELS

DESCRIPTION

The function of the AD-9® air dryer is to collect and remove air system contaminants in solid, liquid and vapor form before they enter the brake system. It provides clean, dry air to the components of the brake system which increases the life of the system and reduces maintenance costs. Daily manual draining of the reservoirs is eliminated.

The AD-9® air dryer consists of a desiccant cartridge and a die cast aluminum end cover secured to a cylindrical steel outer shell with eight cap screws and nuts. The end cover contains a check valve assembly, a safety valve, three threaded air connections and the purge valve housing assembly. The removable purge valve housing assembly incorporates a purge valve mechanism and a turbo charger cut-off feature that is designed to prevent loss of engine "turbo" boost pressure during the purge cycle of the AD-9® air dryer. For ease of serviceability, the desiccant cartridge and discharge check valve assembly are screw in type. The purge valve housing assembly, which includes the heater and thermostat assembly, and the discharge check valve assembly, is serviceable from the exterior of the air dryer, while servicing the screw-in desiccant cartridge requires removal of the air dryer assembly from the vehicle.

The AD-9® air dryer has three female pipe thread air connections and each is identified as follows:

Air Connection Port ID	Function/Connection
CON 4	Control Port (purge valve control& turbo cutoff).
SUP 11	Supply Port (air in).
DEL 2	Delivery Port (air out).

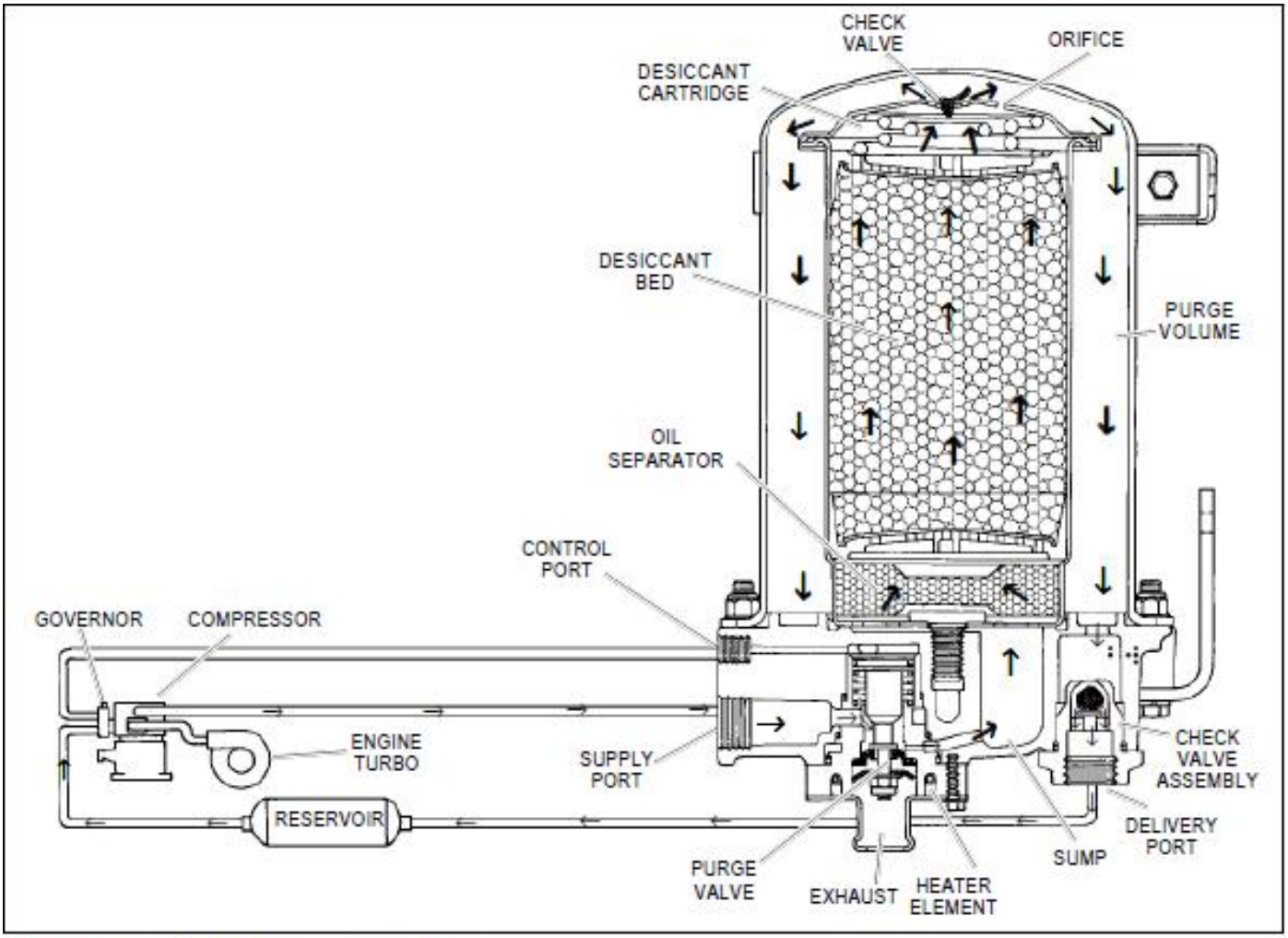

FIGURE 2 - AD-9® AIR DRYER CHARGE CYCLE

PREVENTIVE MAINTENANCE

Important: Review the warranty policy before performing any intrusive maintenance procedures. An extended warranty may be voided if intrusive maintenance is performed during this period. Note: It is acceptable for the purge valve to be maintained as necessary, i.e., the installation of a purge valve maintenance kit, without voiding the warranty. Because no two vehicles operate under identical conditions, maintenance and maintenance intervals will vary. Experience is a valuable guide in determining the best maintenance interval for any one particular operation.

Every 3500 operating hours, or 1 year: replace the desiccant cartridge to increases the life of the system and reduces maintenance costs.

OPERATION OF THE AD-9® AIR DRYER

The AD-9® air dryer alternates between two operational modes or “cycles” during operation: the *charge cycle* and the *purge cycle*. The following description of operation is separated into these “cycles” of operation.

CHARGE CYCLE (refer to Figure 2)

When the compressor is loaded (compressing air) compressed air, along with oil, oil vapor, water and water vapor flows through the compressor discharge line to the supply port of the air dryer end cover. As air travels through the end cover assembly, its direction of flow changes several times, reducing the temperature, causing contaminants to condense and drop to the bottom or sump of the air dryer end cover.

After exiting the end cover, the air flows into the desiccant cartridge. Once in the desiccant cartridge air first flows through an oil separator which removes water in liquid form as well as oil and solid contaminants.