

Installation Instructions



BENDIX® AD-HF® & AD-HFi™ AIR DRYER SERVICE REPLACEMENT KIT

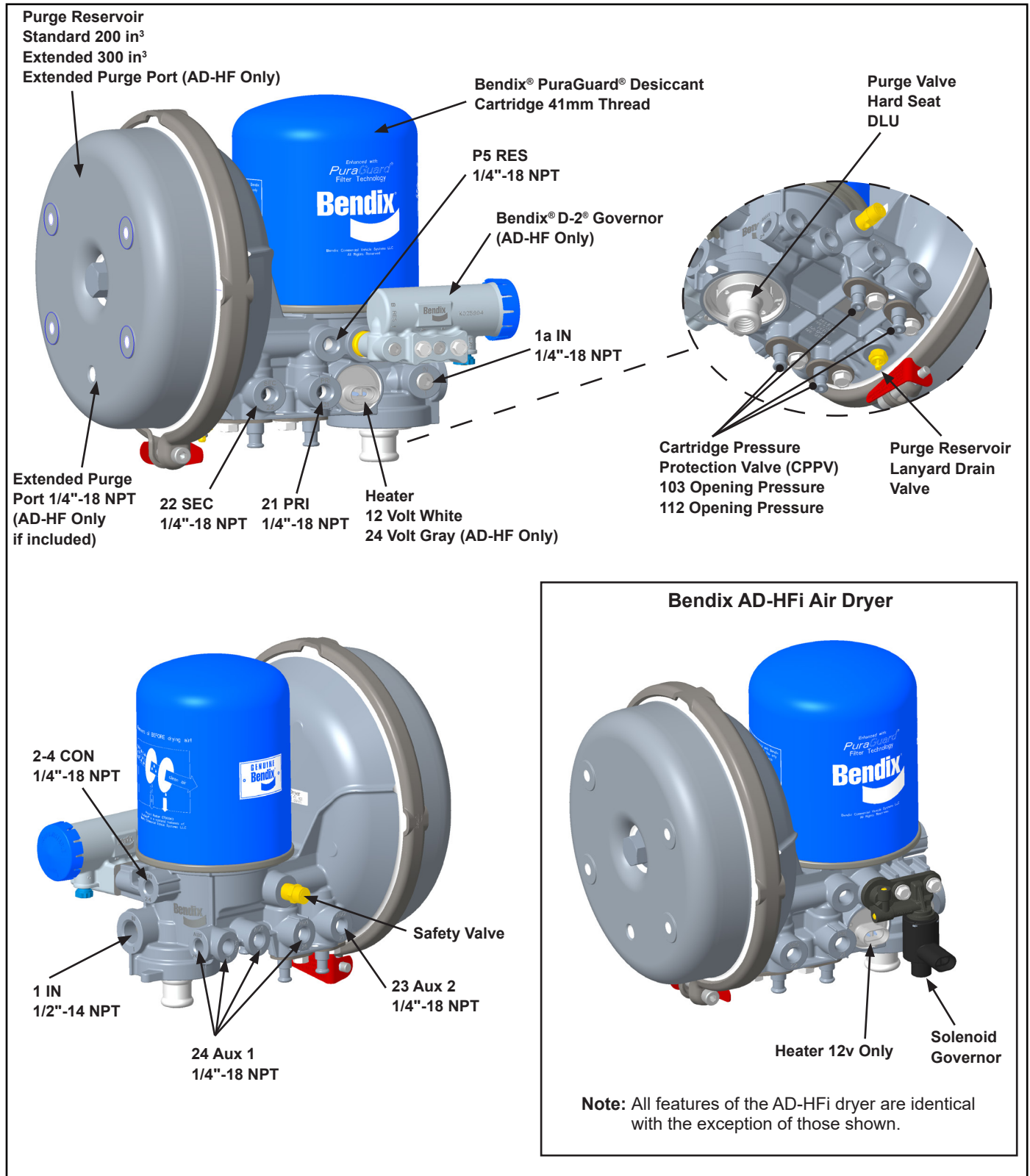


Figure 1 - Bendix® AD-HF® and AD-HFi™ PuraGuard® Oil Coalescing Air Dryers



GENERAL SAFETY GUIDELINES

WARNING! PLEASE READ AND FOLLOW THESE INSTRUCTIONS

TO AVOID PERSONAL INJURY OR DEATH:

When working on or around a vehicle, the following guidelines should be observed AT ALL TIMES:

- ▲ Park the vehicle on a level surface, apply the parking brakes and always block the wheels. Always wear personal protection equipment.
- ▲ Stop the engine and remove the ignition key when working under or around the vehicle. When working in the engine compartment, the engine should be shut off and the ignition key should be removed. Where circumstances require that the engine be in operation, **EXTREME CAUTION** should be used to prevent personal injury resulting from contact with moving, rotating, leaking, heated or electrically-charged components.
- ▲ Do not attempt to install, remove, disassemble or assemble a component until you have read, and thoroughly understand, the recommended procedures. Use only the proper tools and observe all precautions pertaining to use of those tools.
- ▲ If the work is being performed on the vehicle's air brake system, or any auxiliary pressurized air systems, make certain to drain the air pressure from all reservoirs before beginning ANY work on the vehicle. If the vehicle is equipped with a Bendix® AD-IS® air dryer system, a Bendix® DRM™ dryer reservoir module, a Bendix® AD-9si®, AD-HF®, or AD-HFi™ air dryer, be sure to drain the purge reservoir.
- ▲ Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in a manner that safely removes all electrical power from the vehicle.
- ▲ Never exceed manufacturer's recommended pressures.
- ▲ Never connect or disconnect a hose or line containing pressure; it may whip and/or cause hazardous airborne dust and dirt particles. Wear eye protection. Slowly open connections with care, and verify that no pressure is present. Never remove a component or plug unless you are certain all system pressure has been depleted.
- ▲ Use only genuine Bendix® brand replacement parts, components and kits. Replacement hardware, tubing, hose, fittings, wiring, etc. must be of equivalent size, type and strength as original equipment and be designed specifically for such applications and systems.
- ▲ Components with stripped threads or damaged parts should be replaced rather than repaired. Do not attempt repairs requiring machining or welding unless specifically stated and approved by the vehicle and component manufacturer.
- ▲ Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.
- ▲ For vehicles with Automatic Traction Control (ATC), the ATC function must be disabled (ATC indicator lamp should be ON) prior to performing any vehicle maintenance where one or more wheels on a drive axle are lifted off the ground and moving.
- ▲ The power **MUST** be temporarily disconnected from the radar sensor whenever any tests **USING A DYNAMOMETER** are conducted on a vehicle equipped with a Bendix® Wingman® system.
- ▲ You should consult the vehicle manufacturer's operating and service manuals, and any related literature, in conjunction with the Guidelines above.

VEHICLE APPLICATION REQUIREMENTS

GENERAL

The basic application requirements presented here apply to a standard air dryer installation. The majority of vehicles in use today will meet these basic requirements, however, some may not. Examples of vehicles that may not meet the requirements include, bulk trailer unloading operations and other high air consumption/continuous flow systems. While the Bendix® AD-HF® air dryer or the Bendix® AD-HFi™ air dryer can be used on these vehicles, the standard installation procedure presented in this manual may require modification to ensure proper operation and service life. Consult your local authorized Bendix parts outlet or sales representative for additional information.

- **Charge Cycle Time** – The AD-HF air dryer and AD-HFi air dryer are designed to provide clean, dry air for the brake system. When a vehicle's air system is used to operate non-brake air accessories, it is necessary to determine that – during normal, daily operation – the compressor should recover from governor "cut-in" to governor "cut-out" (usually 110 psi to 130 psi) in 90 seconds or less at engine RPMs commensurate with the vehicle vocation. If the recovery time consistently exceeds this limit, it may be necessary to "by-pass" the air accessory responsible for the high air usage. Consult your local authorized Bendix parts outlet or sales representative for additional information.
- **Purge Cycle Time** – During normal vehicle operation, the air compressor remains unloaded for 35 seconds for the standard AD-HF & AD-HFi air dryer or 55 seconds for the extended purge model. These purge times are required to ensure complete regeneration of the desiccant material. If the purge time is occasionally shorter than the times specified, no permanent ill effect should be expected, however, if the purge time is consistently less, an accessory by-pass system must be installed.
- **European Air Brake Systems** – Brake systems that incorporate compressors without integral unloading mechanisms and/or utilize a compressor discharge line unloader valve have special AD-HF & AD-HFi air dryer installation requirements. Consult your local authorized Bendix parts outlet or sales representative for additional information.

- **Air Compressor Size** – No restriction (for application information regarding non-Bendix compressors, consult the compressor manufacturer). For Bendix® compressors, refer to *Bendix Compressor Application Guideline, BW2625*. For assistance concerning compressor size compatibility, contact an authorized Bendix parts outlet or Bendix marketing representative.
- **Holset "E or QE" Type Air Compressors** – The Bendix® AD-HF® & AD-HFi™ air dryer is not compatible with this compressor type.
- **Use of Standard or Extended Purge AD-HF & AD-HFi Air Dryer** – Refer to the *Bendix Air Dryer Application Guideline, BW2600*.

DESCRIPTION



Do not install the air dryer included in this kit if it does not match the one being removed.

This kit is to be used to replace the AD-HF and AD-HFi air dryer. It is not a retrofit kit. This kit cannot be installed on vehicles that do not have an existing AD-HF or AD-HFi air dryer. As shown in Figures 1 through 4, there are several variants of AD-HF & AD-HFi air dryers. Be sure to verify the air dryer included in this kit is identical to the air dryer you are replacing. Ensure both air dryers have the same port configuration, governor type and cut-in/cut-out pressure settings, heater voltage, purge reservoir type, mounting configuration, and pressure protection valve opening pressure settings in the same locations.

VEHICLE PREPARATION

1. Park the vehicle on a level surface and prevent movement by all means other than the brakes.
2. Drain all the reservoirs to 0 psi.



Always depressurize the air dryer purge reservoir, and all other reservoirs on the vehicle to 0 psi before servicing the air dryer.

Air Connection Port ID	Function/ Connection	Port Size (NPT)	Qty.
1 IN	Inlet Port (air in)	1/2" - 14	1
1a IN	External Fill (through desiccant cartridge)	1/4" - 18	1
21 PRI	Delivery Port Out (to Primary Reservoir)	1/4" - 18	1
22 SEC	Delivery Port Out (to Secondary Reservoir)	1/4" - 18	1
23 AUX 2	Auxiliary Delivery Port (air out)	1/4" - 18	1
24 AUX 1	Auxiliary Delivery Port (air out)	1/4" - 18	4
2-4 CON	Unloader Control Air	1/4" - 18	1
P5 RES	External Fill (bypass desiccant cartridge)	1/4" - 18	1

Table 1 – AD-HF and AD-HFi Configuration

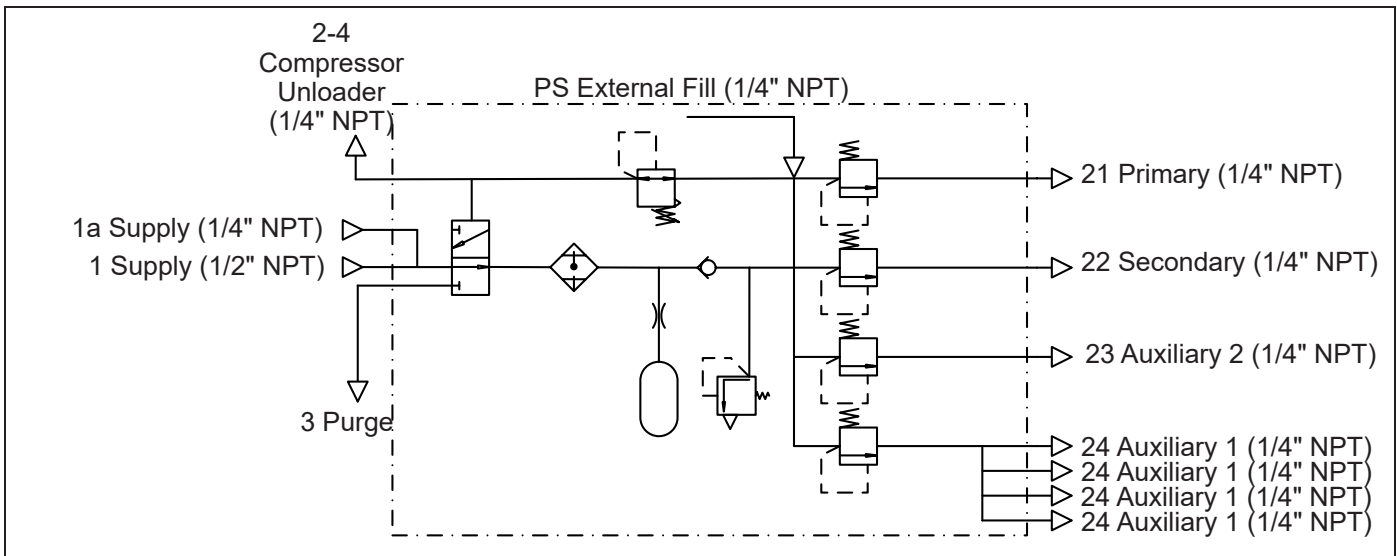


Figure 2 - Bendix® AD-HF® ISO Pneumatic Schematic

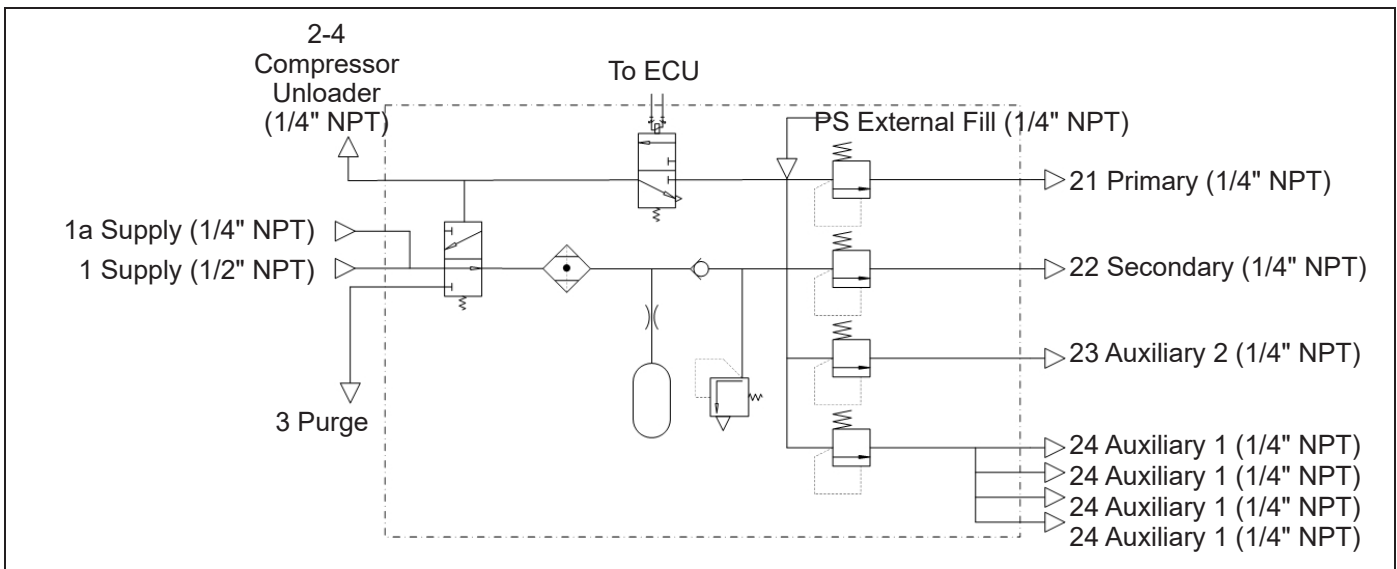


Figure 3 - Bendix® AD-HFi™ ISO Pneumatic Schematic

DISASSEMBLY

Identify and mark all connections on the air dryer for ease of installation.

1. Disconnect all air line connections and the heater connector to the air dryer.
2. Remove and retain the air dryer mounting bolts.
3. Remove the air dryer.

CLEANING & INSPECTION

1. Using a clean rag, wipe the air dryer mounting surface.
2. Inspect for physical damage to the air dryer mounting surface.

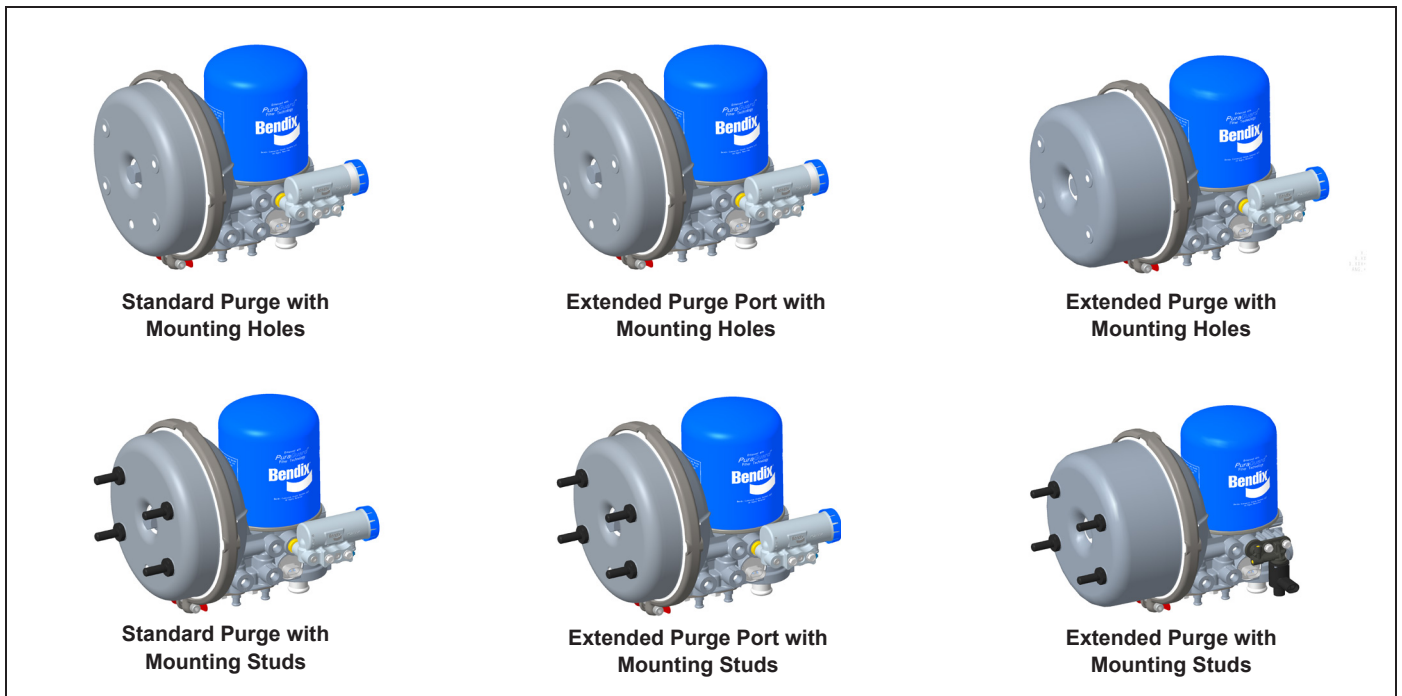


Figure 4 - Bendix® AD-HF® and AD-HFi™ Air Dryer Purge Volume and Mounting Configurations

ASSEMBLY

1. Secure the air dryer to the vehicle using the mounting hardware that was removed during disassembly. Torque to 300-320 in-lbs.

NOTE: Maximum thread engagement for mounting bolts is .75" (See Figure 5).

2. Connect all air and electrical connections to the new air dryer as marked during the disassembly process.

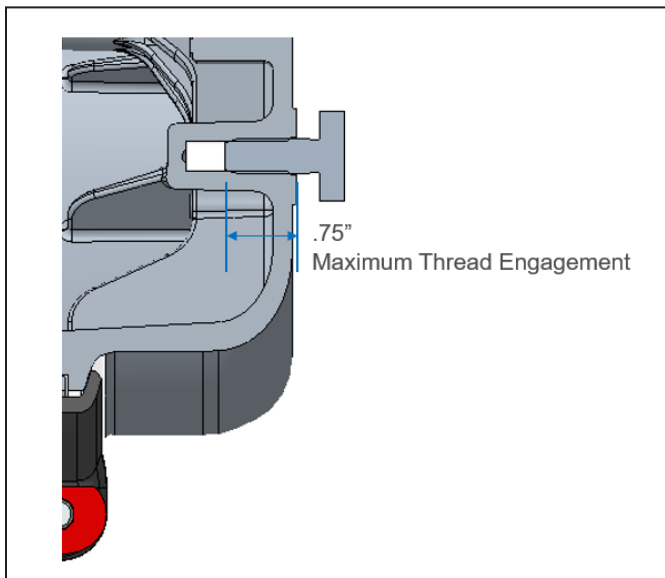


Figure 5 - Maximum Thread Engagement

TESTING THE AIR DRYER

Before placing the vehicle in service, perform the following tests:

1. Close all reservoir drain valves.
2. Build up system pressure to governor cut-out and note that the AD-HF® or AD-HFi™ air dryer purges with an audible burst of air, followed immediately by approximately 30 seconds of air flowing out of the purge valve.
3. "Fan" the service brakes to reduce system air pressure to governor cut-in. Note that the system once again builds to full pressure and is followed by a purge at the AD-HF or AD-HFi air dryer exhaust.
4. It is recommended that the total air system be tested for leakage to ensure that the air dryer(s) do not cycle excessively.

For additional information refer to the *Bendix Air Brake Handbook, BW5057*.

Knowledge Dock™
BLOGS • PODCASTS • VIDEOS
24/7/365
Visit knowledge-dock.com

Search for Bendix products
quickly and easily at
B2Bendix.com,
our new e-commerce tool.

Log on and learn from the best.
Online training that's available
when you are – 24/7/365.
Visit brake-school.com

