

Bendix® AD-IS® EverFlow® Assembly

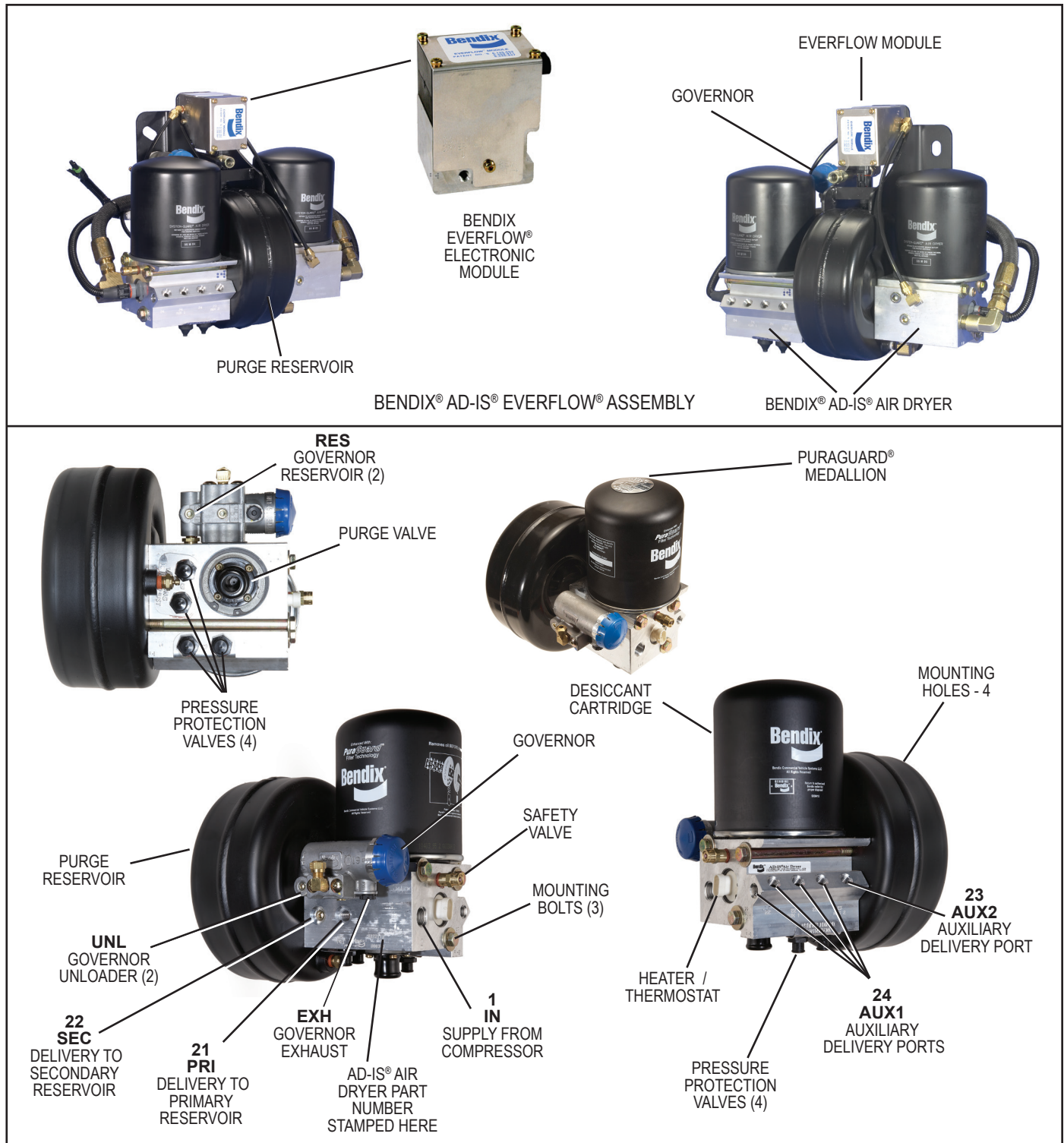


FIGURE 1 - BENDIX® AD-IS® EVERFLOW® ASSEMBLY, AD-IS® AIR DRYER, AND EVERFLOW® ELECTRONIC MODULE



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, or a Bendix® AD-9si™ 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.
- ▲ You should consult the vehicle manufacturer's operating and service manuals, and any related literature, in conjunction with the Guidelines above.
- ▲ Never exceed manufacturer's recommended pressures.
- ▲ Never connect or disconnect a hose or line containing pressure; it may whip. 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, 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 Bendix® Wingman® Advanced™-equipped vehicle.

DESCRIPTION

The function of the Bendix® AD-IS® EverFlow® assembly is to provide heavy vehicles that use large amounts of air with a dryer system that facilitates continuous flow drying. This assembly provides, in a single package, all the components necessary to operate two dryers. The assembly determines if high air demand is needed and continuously switches between dryers every 30 seconds until the high air demand ceases. When high air demand is not needed, the assembly uses the dryers as if in a normal braking system. Each dryer cycles as the air brake system requires. This feature prevents wasted air and unnecessary cycles. The assembly uses an electronic module that determines air demand and sequences the dryers for maximum efficiency.

The Bendix® AD-IS® air dryer collects and removes 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, but still may be mandated by law.

The function of the pressure protection valves is to protect each reservoir from a pressure loss in the other reservoir or a pressure loss in an air accessory. Each of the pressure protection valves in the AD-IS air dryer may have different pressure settings, but these are factory set and **must not be changed or adjusted**.

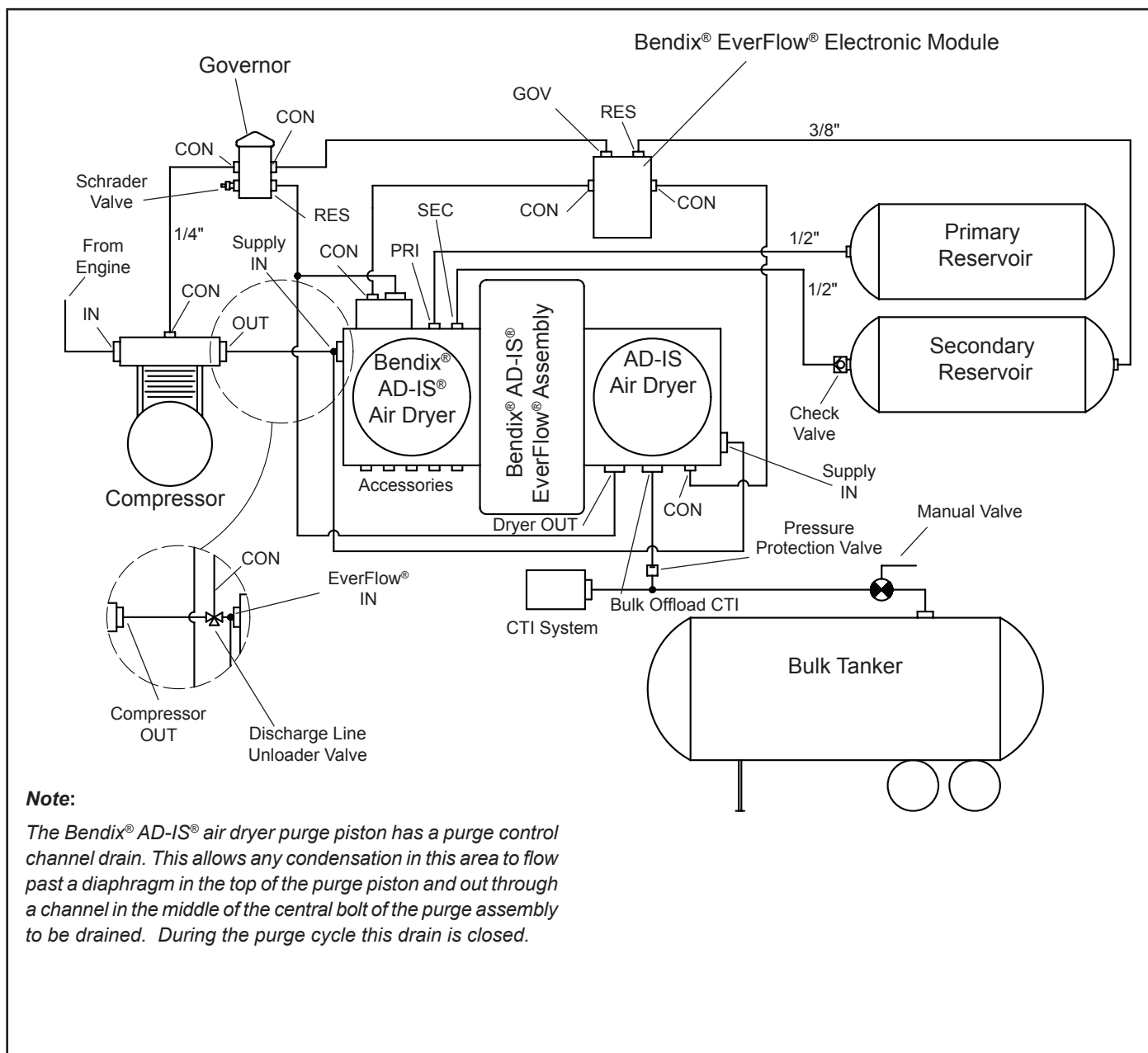


FIGURE 2 - BENDIX® AD-IS® AIR DRYER SYSTEM SCHEMATIC

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

The removable purge valve assembly incorporates the purge valve mechanism and a turbocharger cut-off feature that is designed to prevent loss of engine “turbo” boost pressure during the purge cycle of the Bendix® AD-IS® air dryer. For ease of maintenance, all replaceable assemblies can be serviced without removal of the air dryer from its mounting on the vehicle. Refer to the *Preventative Maintenance* section.

These units will not operate properly with a Holset-type compressor. For discharge line unloaded compressors a three way valve must be installed upstream of the air dryer. Contact Bendix Commercial Vehicle Systems for additional information.

BENDIX® AD-IS® EVERFLOW® ASSEMBLY OPERATION

GENERAL (Refer to Figure 2)

The Bendix® AD-IS® EverFlow® assembly is designed to receive compressed air from the vehicle air compressor. It then cleans and dries the air before delivering it to the vehicle’s primary reservoir, secondary reservoir and accessories. Additionally, the AD-IS EverFlow assembly controls the compressor/dryer charge cycle.

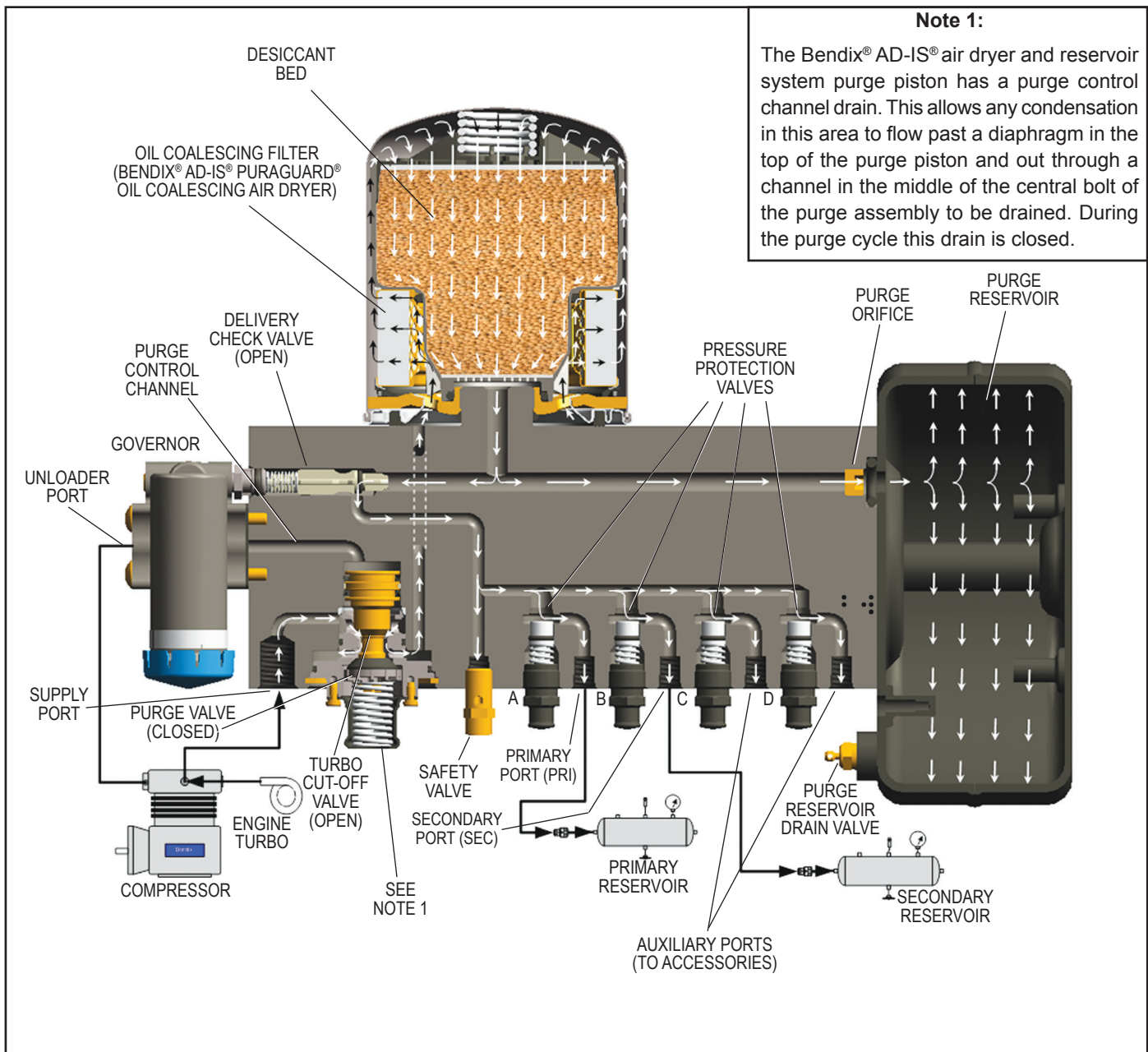


FIGURE 3 - BENDIX® AD-IS® AIR DRYER AND RESERVOIR SYSTEM CHARGE CYCLE

AD-IS EVERFLOW AIR DRYER OPERATION: GENERAL

The Bendix® AD-IS® EverFlow® assembly alternates between the dryers each time the brake system charges. During high air demand, the dryers alternate every 30 seconds to allow drying of the added volume of air. A pressure protection valve is needed after the dryers to maintain at least 70 PSIG at the dryers during high air demand. A Bendix® EverFlow® electronic module monitors the air brake system and determines the amount of demand. The AD-IS EverFlow assembly requires a signal from the delivery port of the governor into the GOV port of the EverFlow electronic module. The AD-IS EverFlow assembly also needs a supply air line from the secondary tank to the electronic module RES port. **This line must be 3/8 inch, or larger, tubing.**

The AD-IS EverFlow assembly is primarily designed to dry air on systems used for bulk unload and central tire inflation. The system operates best when a pressure protection valve is installed between the EverFlow assembly and the source of the high volume air. *Refer to the system schematics, Figure 2.* This pressure protection valve should have a minimum pressure of 70 PSIG. **Delivery pressure in excess of 175 PSIG can cause the purge valve to cycle rapidly between load and purge mode.**

NORMAL BRAKE CYCLE (Refer to Figures 3 & 4)

When the compressor is charging (compressing air) air flows through the compressor discharge line to the inlet (1 IN) port of one of the air dryers. The compressed air includes contaminants such as oil, oil vapor, water and water vapor. The air then flows into the desiccant cartridge, where it flows through a liquid separator which collects liquids and other contaminants.

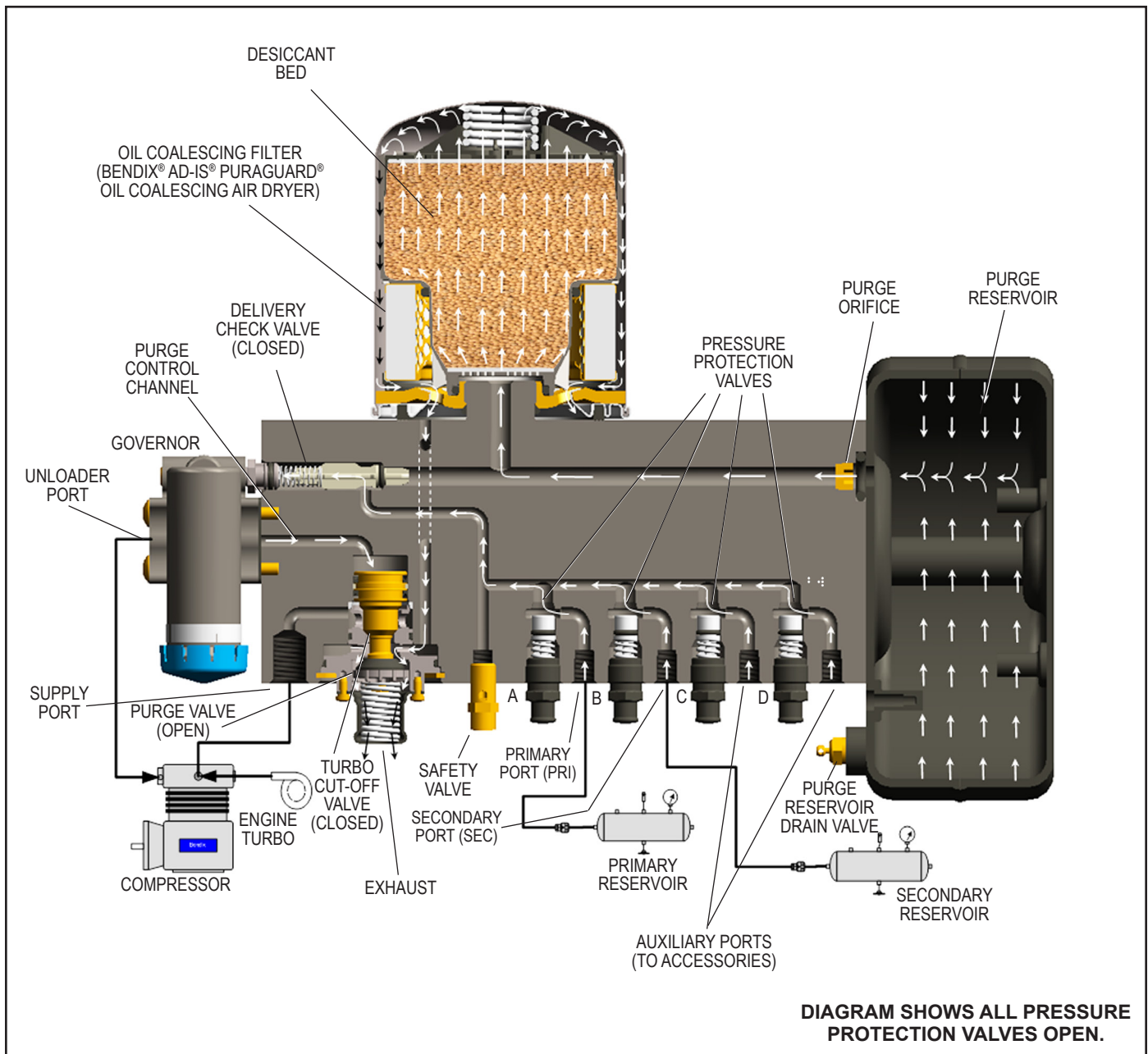


FIGURE 4 - BENDIX® AD-IS® AIR DRYER AND RESERVOIR SYSTEM PURGE CYCLE

Air then moves into the desiccant drying bed and becomes progressively drier as water vapor adheres to the desiccant material in a process known as “ADSORPTION.” Dry air exits the desiccant cartridge through the delivery check valve and also through an orifice into the purge reservoir. The delivery check valve opens, supplying air to pressurize the air brake system. The purge reservoir stores air that will be used to reactivate the desiccant during the purge cycle.

From a flat system—approximately 80 psi—the Bendix® AD-IS® EverFlow® electronic module is actuated and begins the purge cycle. When the air pressure reaches the specified opening pressure—typically 106 psi—the pressure protection valves will open and air will be supplied to the primary reservoir, secondary reservoir or other accessories. If the pressure protection valves are preset to different values, the valves will open in order of lowest

setting to highest setting when charging a flat system. The air dryer will remain in the charge cycle until the air brake system pressure builds to the governor cut-out setting of approximately 130 psi. When air brake system pressure reaches the cut-out setting of the governor, the governor unloads the compressor and the electronic module sends a signal to one of the air dryers to purge. The governor unloads the compressor by allowing air pressure to fill the line leading to the compressor unloader mechanism—causing the delivery of compressed air to the Bendix® AD-IS® EverFlow® assembly to be suspended. Similarly, the governor also supplies air pressure to the EverFlow electronic module. The electronic module uses this signal to determine the volume of air in the brake system. If the volume is normal, the electronic module sends a signal to the control port on the proper dryer. If the

volume is high, the electronic module switches the dryers every 30 seconds until the air volume demand returns to normal. The air dryer purge piston moves down in response to a pneumatic signal from the Bendix® AD-IS® EverFlow® electronic module, causing the purge valve to open to the atmosphere and the turbo cut-off valve to close off the supply of air from the compressor (this will be further discussed in the Turbo Cut-off Feature section). Water and contaminants which have collected in the dryer are expelled immediately when the purge valve opens. Also, air which was flowing through the desiccant cartridge changes direction and begins to flow toward the open purge valve.

Liquids and other contaminants collected by the liquid separator are removed by air flowing from the purge reservoir through the desiccant bed to the open purge valve. The initial purge and desiccant cartridge decompression lasts only a few seconds and is evidenced by an audible burst of air at one of the Bendix® AD-IS® EverFlow® assembly's purge exhaust. The actual reactivation of the desiccant bed begins as dry air from the purge reservoir flows through the purge orifice into the desiccant bed. Pressurized air from the purge reservoir expands after passing through the purge orifice.

The flow of dry air through the drying bed removes water vapor from the desiccant material. The purge lasts 30 seconds. The delivery check valve assembly prevents air pressure in the brake system from returning to the purging air dryer during the purge cycle. After the purge cycle is complete, the air dryer is ready for the next charge cycle to begin.

TURBO CUT-OFF FEATURE

The primary function of the turbo cut-off valve is to prevent loss of engine turbocharger air pressure through the AD-IS EverFlow assembly when both dryers are in the unloaded mode. At the onset of the purge cycle, the downward travel of the purge piston is stopped when the turbo cut-off valve (tapered portion of purge piston with a soft seat) contacts its mating metal seat in the purge valve housing. With the turbo cut-off valve seated (closed position), air in the compressor discharge line and AD-IS EverFlow assembly inlet port cannot pass through the air dryer. In this manner the turbo cut-off effectively maintains turbo charger boost pressure to the engine. **Delivery pressure in excess of 175 PSIG can cause the purge valve to cycle rapidly between load and purge mode. All AD-IS EverFlow assemblies require a soft seat purge valve.**

HIGH VOLUME MODE

If the GOV port of the electronic module indicates that the compressor has been charging for longer than 30 seconds, the dryers will alternatively purge every 30 seconds. This is an indication of high volume through the dryer. When the governor signal indicates the charge cycle is complete, the assembly returns to normal brake cycling.

PREVENTATIVE MAINTENANCE

For Bendix® AD-IS® EverFlow® air dryers: Preventative Maintenance is as easy as 1-2-3

Adhering to a preventative maintenance schedule is crucial to keeping a vehicle's air system clean and ensuring superior performance of all components that utilize system air—such as brakes, emissions equipment and automated manual transmissions. Depending on vocation, Bendix recommends a 1, 2 or 3-year air dryer cartridge replacement on vehicles equipped with a Bendix® compressor.

For severe service application—such as residential refuse trucks or school buses—the air dryer cartridge should be replaced every year or 100,000 miles; for pick-up and delivery operations, or for double- and triple-trailer line haul trucks, every two years or 200,000 miles is the recommendation. Line-haul operations using a single trailer should swap the filter out every three (3) years or 300,000 miles. The recommended intervals for trucks equipped with non-Bendix compressors are 6 months (50,000 miles), one year (100,000 miles) and two years (200,000 miles), respectively.

Air Connection Port ID	Function/ Connection	QTY
1 IN	Inlet Port (air in)	1
21 PRI	Delivery Port Out (to Primary Reservoir)	1
22 SEC	Delivery Port out (to Secondary Reservoir)	1
24 AUX 1	Auxiliary Delivery Port (air out)	4
23 AUX 2	Auxiliary Delivery Port (air out)	1
UNL	Unloader Control Air (D-2A™ Governor)	2
RES	Common Reservoir Pressure (D-2A Governor)	2
EXH	Governor Exhaust	1

TABLE 1 - BENDIX® AD-IS® AIR DRYER PORT DESIGNATIONS

More frequent intervals may be required depending on a vehicle's age, its compressor condition, use of a non-Bendix compressor, the operating environment, the vehicle's vocation, and its usage. In conjunction with these guidelines, fleets can determine the functionality of their filters by checking for moisture in the air brake system monthly. If moisture is present, the air dryer cartridge may require replacement. Reference the Bendix Service Data Sheet of the specific air dryer for additional information. (Recommended intervals for trucks equipped with non-Bendix compressors are 6 months (50,000 miles), one year (100,000 miles) and two years (200,000 miles), respectively.)

Notes:

1. *Replace both desiccant cartridges at one time. Failure to change both could cause one dryer to pass wet air and the other dryer to pass dry air. This would lead to a wet brake system.*
2. *A small amount of oil in the system is normal and should not be considered as a reason to replace the desiccant cartridges. Oil at the dryer purge exhaust is normal.*
3. *Visually check for physical damage such as chaffed or broken air and electrical lines and broken or missing parts.*
4. *Check the Bendix® AD-IS® EverFlow® assembly and purge reservoir bolts for tightness. See Figure 1. Torque the three air dryer bolts to 360–420 in-lbs and the four purge reservoir bolts to 300–360 in-lbs.*
5. *Perform the Operation & Leakage Tests listed in this publication.*
6. *The assembly will not operate without electrical power. Ensure electrical power is at the assembly during vehicle operation.*



This air dryer is intended to remove moisture and other contaminants normally found in the air brake system. Do not inject alcohol, anti-freeze, or other de-icing substances into or upstream of the air dryer. Alcohol is removed by the dryer, and reduces the effectiveness of the device to dry air. Use of these or other substances can damage the air dryer and will void the warranty.

OPERATION & LEAKAGE TESTS

(For additional information order "Air Leakage Video" BW2327 — available on www.bendix.com)

1. Check all lines and fittings leading to and from the air dryer for leakage and integrity. Repair any leaks found.
2. Build up system pressure to governor cut-out and note that the Bendix® AD-IS® air dryer purges with an audible escape of air. Watch the system pressure for leakage for a ten minute period. If pressure drop exceeds, for a single vehicle — 1 psi/minute from either service reservoir; or for tractor trailer — 3 psi/minute from either service reservoir, inspect the vehicle air systems for sources of leakage and repair them.
3. **CAUTION:** Be sure to wear safety glasses in case of a purge blast. Check for excessive leakage around the purge valve of the dryer, not in the purge cycle, with the compressor in the loaded mode (compressing air). Apply a soap solution to the purge valve exhaust port and observe that leakage does not exceed a 1" bubble in one (1) second. If the leakage exceeds the maximum specified, refer to section entitled Troubleshooting, Symptom 4.
4. Build up system pressure to governor cut-out and note that one of the AD-IS EverFlow assembly dryers purges with an audible burst of air, followed immediately by approximately 30 seconds of air flowing out of the purge valve. Apply and release the service brakes several times to reduce system air pressure to governor cut-in. Note that the system once again builds to full pressure and is followed by the AD-IS EverFlow assembly other air dryer purge. If system does not follow this pattern, refer to section entitled Troubleshooting, Symptoms 1, 2 and 3. Check the operation of the end cover heater and thermostat assembly during cold weather operation as follows:

A. Electric Power to the Dryer

Note: The Bendix EverFlow assembly should be wired through the ignition and not the battery. With the ignition or engine kill switch in the RUN position, check for voltage to the heater and thermostat assembly using a voltmeter or test light. Unplug the electrical connector at the air dryer and place the test leads on each of the connections of the female connector on the vehicle power lead. If there is no voltage, look for a blown fuse, broken wires, or corrosion in the vehicle wiring harness. Check to see if a good ground path exists. The EverFlow assembly requires the correct electrical voltage to operate properly.

B. Thermostat and Heater Operation (Refer to Figure 5). **Note:** These tests can only be conducted during cold weather operation. Turn off the ignition switch and cool the thermostat and heater assembly to below 40°F. Using an ohmmeter, check the resistance between the electrical pins in the air dryer connector half. The resistance should be 1.5 to 3.0 ohms for the 12 volt heater assembly and 6.0 to 9.0 ohms for the 24 volt heater assembly. Warm the thermostat and heater assembly to approximately 90°F and again check the resistance.

The resistance should exceed 1000 ohms. If the resistance values obtained are within the stated limits, the thermostat and heater assembly is operating properly. If the resistance values obtained are outside the stated limits, replace the heater and thermostat assembly.

REBUILDING THE BENDIX® AD-IS® AIR DRYER



DO NOT ATTEMPT TO ADJUST OR SERVICE THE PRESSURE PROTECTION VALVES. INCORRECT PRESSURE PROTECTION VALVE SETTINGS CAN RESULT IN THE AUTOMATIC APPLICATION OF THE VEHICLE SPRING BRAKES WITHOUT PRIOR WARNING.

MAINTENANCE KITS

See the proper Bendix Service Data Sheet or Quick Reference Catalog (BW1114) for a full list of maintenance kits available.

Note: Kits are not available for the servicing of the pressure protection valves (See Figure 6). Do not attempt to adjust or service the pressure protection valves—these are not service items.

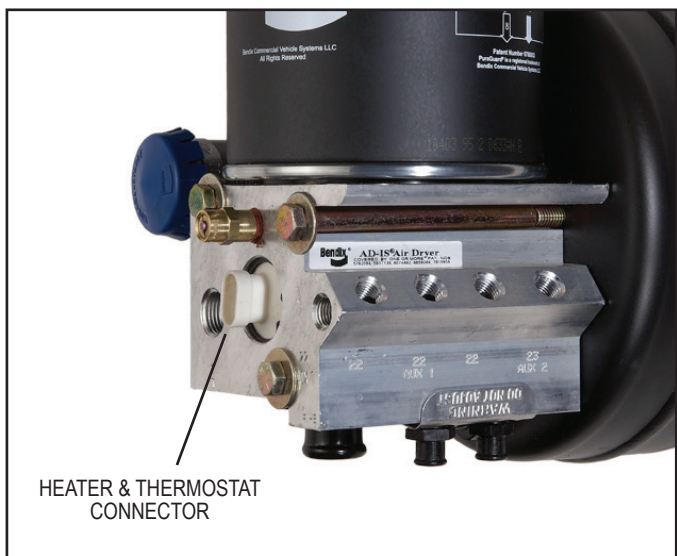


FIGURE 5 - AD-IS® AIR DRYER HEATER AND THERMOSTAT CONNECTOR

Maintenance Kits	
Kit Description	Piece No.
Delivery Check Valve Replacement Kit	5004052
Desiccant Cartridge Replacement Kit (Standard)	5008414
Desiccant Cartridge Replacement Kit - Bendix® AD-IS® PuraGuard® air dryer (can be used to replace the standard cartridge)	5008414PG
Drain Valve	5004961N
Governor and Check Valve Replacement Kit	5004049
Governor Gasket	5007834
Heater & Thermostat Replacement (12 volt)	109495
Heater & Thermostat Replacement (24 volt)	109496
Bendix® PuraGuard® Oil Coalescing Desiccant Cartridge Service New Kit	K020366
Mounting Bolt Kit	5009233
Protective Boots (for pressure protection valves)	5005163
Safety Valve	800350
Splash Shield Kit (includes bracket and cover)	5006698
Splash Shield Cover	5005266N
Silencer Kit	K021189
Wiring Harness & Splice Kit	109871N

Purge Valve Assembly Type	Configuration	Service Kit Pc. No.
Purge Valve Assembly for climate conditions above -40°C (-40°F)	Bendix® AD-IS® Air Dryer	K022105
	AD-IS® EverFlow® Module	K031560
	AD-IS® Discharge Line Unloader	K031562
Arctic Purge Valve Assembly for climate conditions of -40°C to -50°C (-40°F to -58°F)	AD-IS® Air Dryer	K031559
	AD-IS® EverFlow® Module	K031561
	AD-IS® Discharge Line Unloader	K031563

GENERAL

When rebuilding or replacing components of the air dryer, use only **genuine Bendix® parts**. For ease in servicing, the AD-IS air dryer has been designed so that any of the maintenance kits shown in this manual can be installed without removing the air dryer from the vehicle.



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

If, after completing the routine operation and leakage tests, it has been determined that one or more components of the air dryer requires replacement or maintenance, refer to the previous list to find the appropriate kit(s).

TESTING THE BENDIX® AD-IS® EVERFLOW® ASSEMBLY

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 one Bendix® AD-IS® air dryer purges with an audible burst of air, followed immediately by approximately 30 seconds of air flowing out of the purge valve.
3. Apply and release the service brakes several times 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 other AD-IS air dryer exhaust.
4. It is recommended that the total air system be tested for leakage to ensure that the AD-IS air dryer will not cycle excessively.

See Bendix publication BW5057 "Air Brake Handbook" for additional information.

BRAKING SYSTEM PROTECTION

The Bendix® AD-IS® EverFlow® assembly allows the system to maintain one brake circuit up to about 100 psi even after a pressure loss in the other brake circuit. This allows a vehicle to be moved (in an emergency), but with reduced braking capacity. Compare this to a conventional system where a loss of pressure in one service tank leaves the vehicle with a limited number of reduced braking capacity applications before the parking brakes automatically apply and stay on.

ROADSIDE INSPECTION

In the event of a roadside inspection, the system behavior will be as follows: When the system is charged to governor cut-out, and then one reservoir drain valve is opened, initially both reservoir gauges will fall, however, the EverFlow assembly primary and secondary pressure protection valves will close at pressures above 70 psi, protecting the remaining brake circuit from further loss of pressure.

TEMPORARY AIR DRYER BYPASS

To temporarily bypass the EverFlow assembly, the following procedure needs to be followed.

Follow the *General Safety Guidelines* outlined on page 2 in this document.

Make sure that all residual pressure has been released and the air dryer purge reservoir has been drained to 0 psi, then remove the air supply line from the compressor to the inlet port (1 IN). Remove the safety valve from the AD-IS air dryer body (see Figure 1 for location). Note that a short puff of trapped air may vent from the safety valve port when the valve is being removed. Install a T-fitting into the port.

Using any adapters necessary, reinstall the safety valve in one of the branches of the T-fitting. Using any adapters necessary, install the air supply line into the remaining T-fitting port. After testing the T-fitting for any air leakage, by using a soap solution after charging to system cut-out pressure (a 1" bubble in 10 seconds is acceptable), the vehicle may be returned to temporary service.

Note: This is a temporary bypass of the air dryer, and full repair of the unit must be carried out at the earliest opportunity. With the EverFlow assembly removed from the system, contaminants will be entering the air system: reservoirs will need to be manually drained daily until the repairs are completed. At the end of each working day, park vehicle and slowly drain pressure through the drain valves – leave open to the atmosphere, for several hours if possible. When repairs are carried out, be sure to check that all reservoirs (including the air dryer purge reservoir) are emptied of all contaminants.

If after bypassing the EverFlow assembly the system pressure still does not build, use the following procedure to remove, clean and reinstall the delivery check valve.

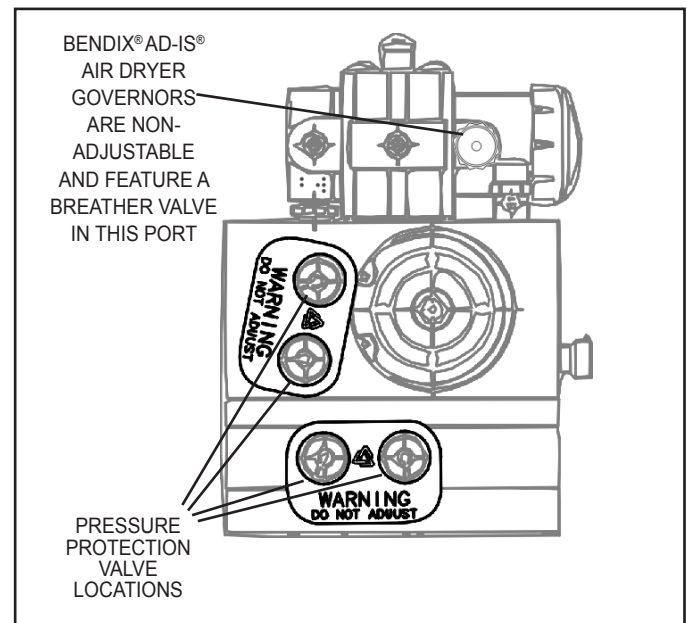


FIGURE 6 - PRESSURE PROTECTION VALVE LOCATIONS

DO NOT ATTEMPT TO ADJUST OR SERVICE THE PRESSURE PROTECTION VALVES. INCORRECT PRESSURE PROTECTION VALVE SETTINGS CAN RESULT IN AUTOMATIC APPLICATION OF VEHICLE SPRING BRAKES WITHOUT PRIOR WARNING.

DELIVERY CHECK VALVE CLEANING PROCEDURE

(Note: This is only required if system pressure does not build after temporary bypass is completed.)

Refer to Figure 6 throughout this procedure. Depressurize the air brake system following the *General Safety Guidelines* outlined on page 2 in this document. Also, always depressurize the air dryer purge reservoir before servicing the air dryer.

This procedure does not require removal of the Bendix® AD-IS® air dryer from the vehicle.

1. Remove the line from governor and mark for easy reinstallation.
2. Remove the bolts attaching the governor to the AD-IS® air dryer and retain for reassembly.
3. Remove the governor from the air dryer. Be aware that a short puff of trapped air may vent when the governor is removed. Retain the governor gasket for reassembly if a new governor gasket is not available. Remove and retain the o-ring from the adapter.
4. The spring/delivery check valve can now be removed. A second delivery check valve is located in the dryer without a governor. This check valve is located behind a hex head plug near the control line from the Bendix® EverFlow® electronic module to the air dryer. Carefully remove the hex plug and follow the instructions that follow.
5. Remove and retain the o-ring from the check valve body.

CLEANING & INSPECTION

Consult the service data sheet for the dryer used in your AD-IS® EverFlow® assembly. The service data sheet contains information useful for maintenance and service of the air dryers.

CLEANING & INSPECTION

1. Use a suitable solvent to clean all metal parts, and use a cotton swab to clean the bore (**Note: Do not use abrasives or tools to clean the bore: any scratches caused may necessitate replacing the AD-IS air dryer and reservoir system.**) Superficial external corrosion and/or pitting is acceptable.
2. Clean the o-rings with a clean dry cloth. Do not use solvents.
3. Inspect for physical damage to the bore and the check valve seat. If the bore is damaged (by scratches etc., that would prevent the delivery check valve from seating), replace the AD-IS air dryer.
4. Inspect the delivery check valve, o-rings, etc. for wear or damage. Replace, if necessary, using the check valve replacement kit available at any authorized Bendix parts outlets.
5. Inspect all air line fittings for corrosion and replace as necessary.

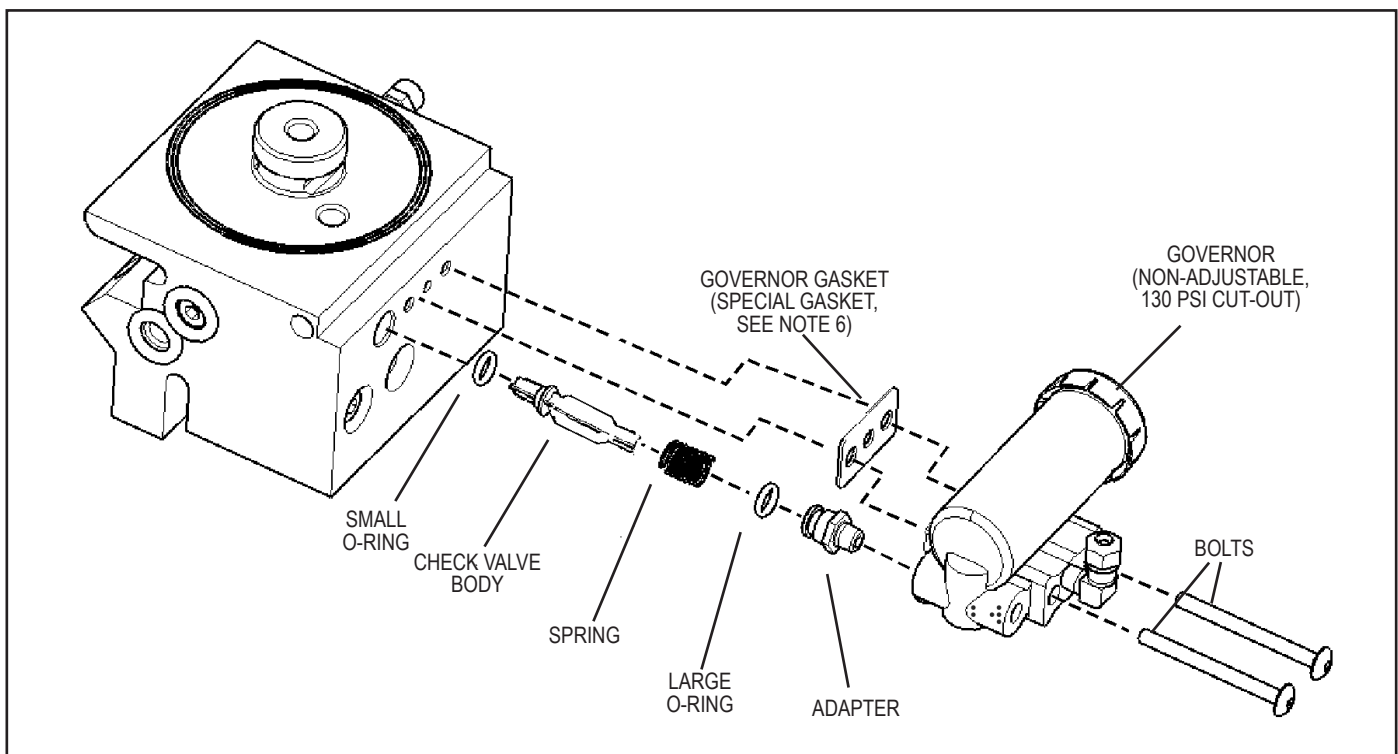


FIGURE 6 - BENDIX® AD-IS® AIR DRYER DELIVERY CHECK VALVE

ASSEMBLY

1. Lubricate the smaller o-ring and check valve body with a heavy-duty lithium grease.
2. Install this o-ring on the check valve body by sliding the o-ring over the set of four tapered guide lands. The o-ring groove holds the o-ring in its correct location.
3. At the other end of the check valve body, the spring is installed over the set of four straight guide lands. When the spring has been pushed to the correct location, the check valve body is designed to hold the end of the spring in position: be sure that the spring is not loose before continuing with this installation.
4. Install the assembled check valve body/o-ring/spring in the delivery port so that the o-ring rests on its seat and the free end of the spring is visible.
5. Grease the adapter and the remaining larger o-ring and install it onto the fitting.
6. Position the governor gasket, then insert the governor mounting bolts through the governor and tighten (to 125 in-lbs). **Note:** Do not replace with a standard compressor/governor gasket.
7. Re-attach the air line to the governor.
8. Before placing the vehicle back into service, check to see that the system pressure now builds to full operational pressure.

TESTING THE EVERFLOW® ASSEMBLY AIR DRYERS

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 one of the AD-IS® EverFlow® Assembly air dryers purges with an audible burst of air, followed immediately by approximately 30 seconds of air flowing out of the purge valve.
3. Apply and release the service brakes several times 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 other AD-IS EverFlow assembly air dryer exhaust.
4. It is recommended that the total air system be tested for leakage to ensure that the AD-IS EverFlow assembly air dryers will not cycle excessively.

See Bendix publication BW5057 "Air Brake Handbook."

TROUBLESHOOTING THE AD-IS® EVERFLOW® ASSEMBLY

Consult the Bendix®AD-IS® air dryer service data sheet, SD-08-2418, for air dryer maintenance and service information.

1. Excessive dryer purging in the loaded cycle.
 - The purge valves in both dryers must have soft-seat turbo cut-off valves. See Figure 7. Remove the purge valve and examine the upper window, replace with soft seat purge valve.

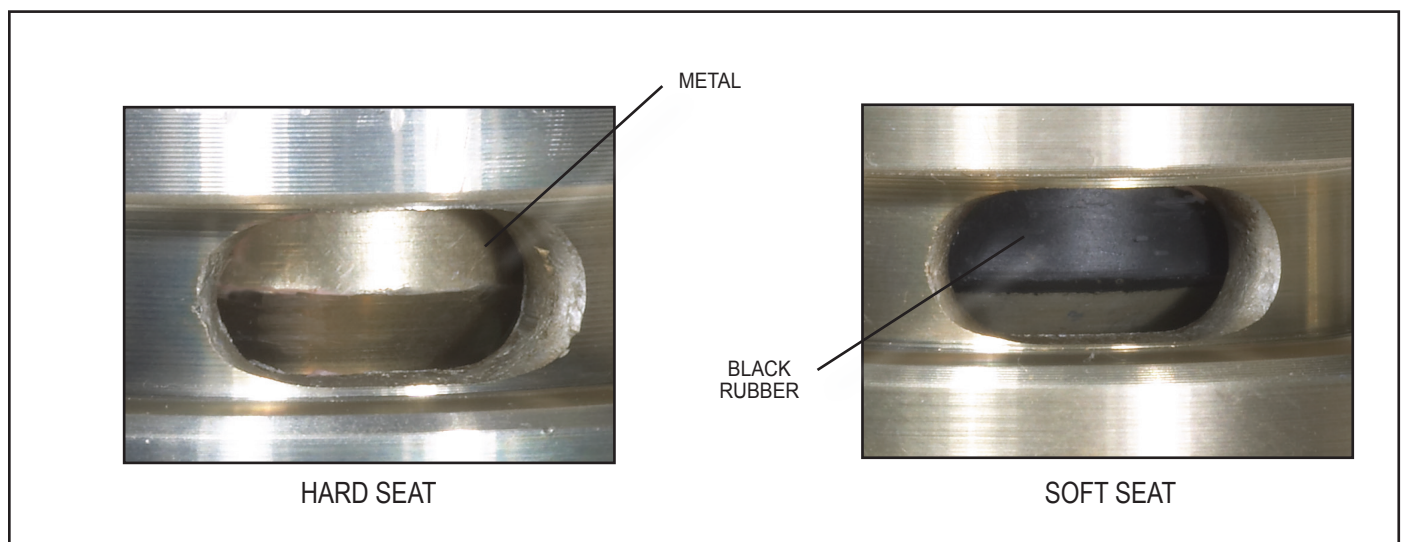


FIGURE 7- IDENTIFICATION OF HARD AND SOFT SEAT PURGE VALVES

- Excessive pressure (above 175 PSIG) in the compressor discharge line. Look for obstruction downstream of the Bendix® AD-IS® EverFlow® assembly such as a pinched line or restrictive valve or fitting.
2. Air dryers do not purge.
- Insufficient air pressure in the secondary reservoir.
- The Bendix® EverFlow® electronic module will not operate until air pressure in the secondary tank reaches 80 PSIG.
- The check valve in the EverFlow assembly supply line from the secondary tank is installed incorrectly. *Refer to Figure 2.*
 - The fuse is blown or the air dryer is not connected to the vehicle electrical system. Check the electrical connection. If the fuse is blown, replace the fuse with a higher amperage fuse. The fuse must be 15 amps or higher.
 - Incorrect voltage. The air dryer voltage must match the vehicle voltage. Air dryers with a white heater connector are 12 volt DC and air dryers with a grey heater connector are 24 volt DC.

3. Air brake system will not build air.

- Compressor is undersized.

Some small capacity compressors will not develop sufficient air delivery at engine idle to allow proper operation of the EverFlow assembly and charge the air brake system. It may be necessary to upgrade to a compressor with a higher delivery.

4. Water in downstream reservoirs.

- Dryers not purging. *See step 2 - Air dryers do not purge.*
- Desiccant cartridges need to be replaced.
- No pressure protection valve installed downstream of the air dryers. *Refer to Figure 2.*



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