



Installation Instructions

KIT PC. Nos.
103817, 103818
103980, 103981

AD-4 AIR DRYER MAINTENANCE KITS

103817
Major Maintenance Kit

Qty.	Description
1	Desiccant Cartridge Assy
1	End Cover Kit (103980)
1	Sealing Ring

103818
Purge Valve Maintenance Kit

Qty.	Description
1	Purge Valve
1	Diaphragm

103980
End Cover Maintenance Kit

Qty.	Description
1	Purge Valve Kit (103818)
1	Check Valve Assy.
1	O-Ring
1	O-Ring
2	Boot
1	Sealing Ring
1	Sealing Ring
1	Sealing Ring

103981
Desiccant Cartridge Kit

Qty.	Description
1	Desiccant Cartridge Assy.
1	Check Valve Assy.
1	O-Ring
2	Boot
1	Sealing Ring
1	Sealing Ring
1	Sealing Ring
1	Sealing Ring

OLD STYLE
PURGE VALVE
ASSY.

NEW STYLE
PURGE VALVE
ASSY.

IMPORTANT! PLEASE READ AND FOLLOW THESE INSTRUCTIONS TO AVOID PERSONAL INJURY OR DEATH:

When working on or around a vehicle, the following general precautions should be observed at all times.

1. Park the vehicle on a level surface, apply the parking brakes, and always block the wheels.
2. Stop the engine when working around the vehicle.
3. If the vehicle is equipped with air brakes, make certain to drain the air pressure from all reservoirs before beginning ANY work on the vehicle.
4. Following the vehicle manufacturer's recommended procedures, deactivate the electrical system in manner that removes all electrical power from the vehicle.
5. When working in the engine compartment the engine should be shut off. 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.
6. 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.
7. Never exceed recommended pressures and always wear safety glasses.
8. 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.
9. Use only genuine Bendix replacement parts, components, and kits. Replacement hardware, tubing, hose, fittings, etc. should be of equivalent size, type, and strength as original equipment and be designed specifically for such applications and systems.
10. Components with stripped threads or damaged parts should be replaced rather than repaired. Repairs requiring machining or welding should not be attempted unless specifically approved and stated by the vehicle or component manufacturer.
11. Prior to returning the vehicle to service, make certain all components and systems are restored to their proper operating condition.

VEHICLE PREPARATION

1. Park the vehicle on a level surface and prevent movement by means other than the brakes, such as chocking the wheels.
2. Drain ALL reservoirs to 0 p.s.i. (0 kPa).

IMPORTANT KIT INFORMATION

It is necessary to determine which kit part number is in use and follow the instructions and sequences for that kit. It is recommended that the air dryer be removed from the vehicle for ease of servicing **except Purge Valve Kit #103818**. For this kit follow the special instruction given under the heading "PURGE VALVE KIT 103818"

If any other kit is in use go to "AD-4 REMOVAL" and begin with step one. Refer to Figure 1.

PURGE VALVE MAINTENANCE KIT 103818

1. Refer to Figures 1 and 2. Remove the 1/4" cap screw and lockwasher from the bottom of the purge valve (inside the exhaust cover). Remove the diaphragm retainer, exhaust diaphragm and purge valve. Discard the exhaust diaphragm and purge valve.
IMPORTANT NOTE: Current versions of the AD-4 use a shoulder bolt and no diaphragm retainer. The diaphragm retainer is required if a shoulder bolt is not in use to prevent "pinching" the diaphragm between the head of the cap screw and the purge valve refer to figure 2.
2. Wipe the purge valve seating surface with a clean cloth.
3. Place the diaphragm retainer, diaphragm, and purge valve onto the 1/4" purge valve cap screw.
IMPORTANT NOTE: Current versions of the AD-4 use a shoulder bolt and no diaphragm retainer. The diaphragm retainer is required if a shoulder bolt is not in use to prevent "pinching" the diaphragm between the head of the cap screw and the purge valve, refer to figure 2.
4. Install the 1/4" cap screw, or shoulder bolt, with parts on it into exhaust cover and torque to 60-80 inch pounds.
5. Test the air dryer as outlined under the Preventive Maintenance and Checking Serviceability section of Service Data Sheet SD-08-2407.

AD-4 REMOVAL

1. Identify and disconnect the three air lines from the end cover and note the position of end cover ports relative to the vehicle.
2. Pull boot from the thermostat and heater cover and slide it onto the wire to expose the connection. Remove nut and disconnect electrical wire from the terminal.
NOTE: Vehicles with insulated ground (2 wire) system will have two boots and two terminals to be disconnected.
3. Loosen the 5/16" X 4-1/2" hex bolt securing the upper and lower mounting straps. Disengage the mounting bracket hook from the end cover (Refer to Figure 1.)
NOTE: If the AD-4 being serviced has a right angle bracket instead of a lower mounting strap and safety hook, proceed to step 5, otherwise proceed to step 5.
4. Remove, retain and mark the two 3/8" end cover cap screws, lock nuts and four special washers that retain the lower mounting bracket to the end cover, also mark these two holes of the end cover. (These bolts are longer than the other 6 bolts.)
5. Remove the AD-4 air dryer from its mounting brackets on the vehicle.

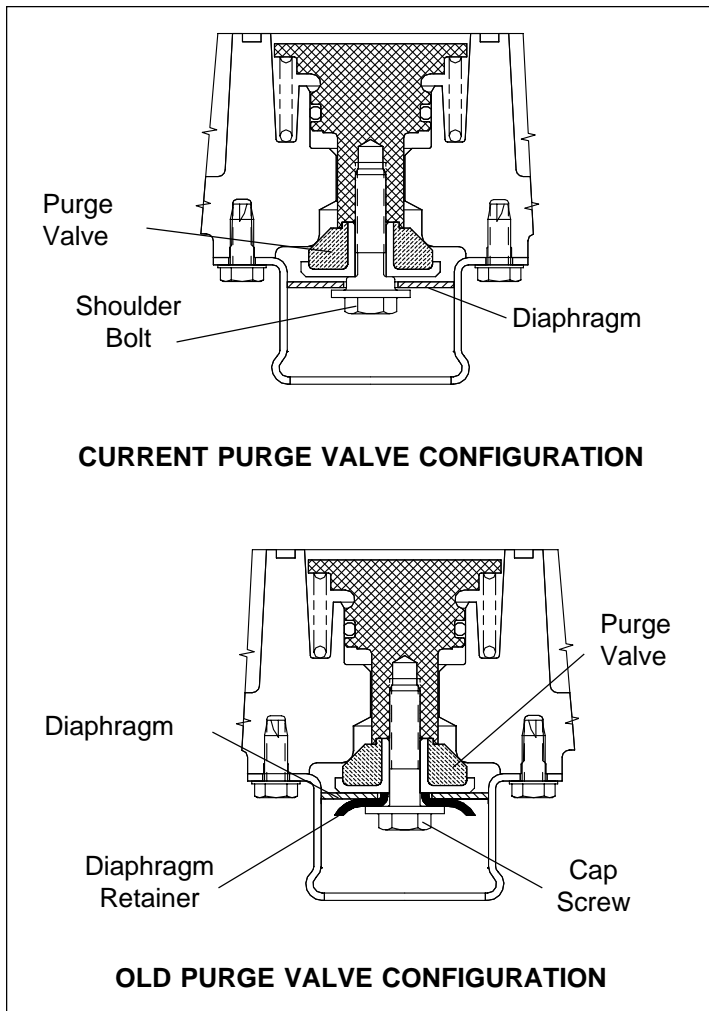


Figure 2 Purge Valve Retainer Configurations

DISASSEMBLY (Refer to Figure 1)

1. Scribe the end cover and housing to mark their relationship and assist in "Assembly". Remove the remaining 3/8" lock nuts, special washers and cap screws from the flange of the air dryer and separate the end cover from the air dryer housing. Separate the desiccant cartridge and sealing plate from the end cover. Remove and discard the three sealing rings. One sealing ring is located in the groove on the sealing plate and the other two are in grooves in the end cover.
2. Remove the four 1/4" cap screws and lockwashers that secure the sealing plate to the desiccant cartridge. Separate the sealing plate from the desiccant cartridge. Discard the sealing ring and desiccant cartridge.
3. Remove and discard the check valve assembly in the recess leading to the delivery port of the end cover. If Desiccant Cartridge Kit 103981 is in use, no further disassembly is required. Proceed to "Clean & Inspect" section.
4. Remove the 1/4" cap screw and lockwasher from the bottom of the purge valve (inside the exhaust cover). Remove the diaphragm retainer, exhaust diaphragm and purge valve. Discard the exhaust diaphragm and purge valve.

IMPORTANT NOTE: Current versions of the AD-4 use a shoulder bolt and no diaphragm retainer. The diaphragm retainer is required if a shoulder bolt is not in use to prevent "pinching" the diaphragm between the head of the cap screw and the purge valve refer to figure 2.

If using kit #103818 no further disassembly is required, proceed to Clean & Inspect section of instructions.

5. Remove piston and spring from the center cavity on top side of the end cover.
6. Remove the O-ring from the piston and discard the O-ring.

CLEAN & INSPECT

1. Prior to assembly, wash all metal parts thoroughly using a quality commercial solvent, such as mineral spirits.
2. Inspect all component parts for wear or damage and replace any parts that fail this visual inspection.

ASSEMBLY (Refer to Figure 1)

IMPORTANT: If using kit

#103817, follow steps 1 through 16.

#103980, follow steps 1 through 5 and 7 through 16.

#103981, follow steps 6 through 16.

1. Place spring into the cavity in the center of top side of end cover.
2. Lubricate the piston O-ring groove, the O-ring, and hole in end cover with barium base lubricant (provided in kit) and install the O-ring on the piston. Place piston inside the spring installed in Step 1.
3. Turn cover over on a flat clean surface (make sure piston and spring remain in proper position), compress spring by pushing down on end cover and align square shank of piston in mating hole in the end cover.
4. Place the diaphragm retainer, diaphragm, and purge valve onto the 1/4" cap screw.

IMPORTANT NOTE: Current versions of the AD-4 use a shoulder bolt and no diaphragm retainer. The diaphragm retainer is required if a shoulder bolt is not in use to prevent "pinching" the diaphragm between the head of the cap screw and the purge valve, refer to figure 2.

5. Install the 1/4" cap screw with parts on it into the bottom of the piston and torque to 60-80 inch pounds.
6. Place sealing ring on bottom of desiccant cartridge. The desiccant cartridge, sealing ring and sealing plate should be wiped and free of lubricant prior to this assembly procedure. Attach cartridge to plate (smooth side of plate opposite cartridge) with four 1/4" socket head cap screws and lockwashers. Torque to 80-100 inch pounds.
7. Lubricate and install the two sealing rings in the recesses of the end cover. Use the barium base lubricant provided.
8. Install the check valve assembly into the end cover making sure the holes in the metal stamping are facing up and the tang on the check valve assembly fits into the mating recess in the end cover. Refer to inset of figure 1.

9. Place desiccant cartridge and sealing plate assembly onto end cover. (Taking care not to displace sealing rings.) The large hole in the sealing plate must line up with the check valve and spirol pins in the sealing plate must enter corresponding holes in the end cover.
10. Lubricate outer sealing ring with barium base lubricant provided and install the outer sealing ring on the sealing plate. Place the outer housing of the air dryer over the desiccant cartridge (lining up marks made on the outer housing and end cover prior to disassembly) and retain with eight 3/8" hex head bolts, special washers, and lock nuts. Torque to 270-385 inch pounds.
11. Install the assembled AD-4 Air Dryer (if an AD-4 with a lower right angle bracket instead of a lower mounting strap is being serviced proceed to step #12) on the vehicle by sliding it into mounting brackets until mounting bracket hook catches under the lip of the cover. Proceed to step #13.
12. Install the assembled AD-4 air dryer back onto the vehicle by slipping it into the upper mounting bracket. Align the two unused holes in the end cover with the bottom mounting bracket such that the bottom bracket supports air dryer. The AD-4 end cover should rest on the bracket. Using the remaining two 3/8" cap screws, four special washers, and two lock nuts, secure the air dryer to the lower bracket. Tighten, then torque the two remaining cap screws to 270-385 in. lbs.

NOTE: If 3/8" bolts require replacement, insure that the replacement bolts are grade 5 minimum and the same length as the original bolts. Use of inferior bolts can compromise the integrity of the air dryer and lead to premature failure. When a lower, right angle mounting bracket (instead of a lower mounting strap) is used; line up the marks made on the outer housing and end cover. Install the six (standard) 3/8" cap screws, lock nuts and twelve special washers. The two longer 3/8" cap screws will be used to secure the AD-4 to the right angle mounting bracket.

13. Tighten the 5/16" X 4-1/2" bolt and nut on the upper mounting bracket. Torque to 80-120 in lbs.
14. Reconnect the three airlines to the proper ports on the end cover (identified during disassembly).
15. Prior to reconnecting thermostat and heater wire, strip boot from wire and replace with new boot from kit. Dual terminal kit will have two boots. Reconnect wires and place boots in position to protect connection by forcing them over knobs on the plastic cover.
16. Test the air dryer as outlined under the Preventive Maintenance and Checking Serviceability section of Service Data Sheet SD-08-2407.