

Installation Instructions



BENDIX® AD-1™ & AD-2® AIR DRYER DESICCANT REPLACEMENT & MAINTENANCE KITS

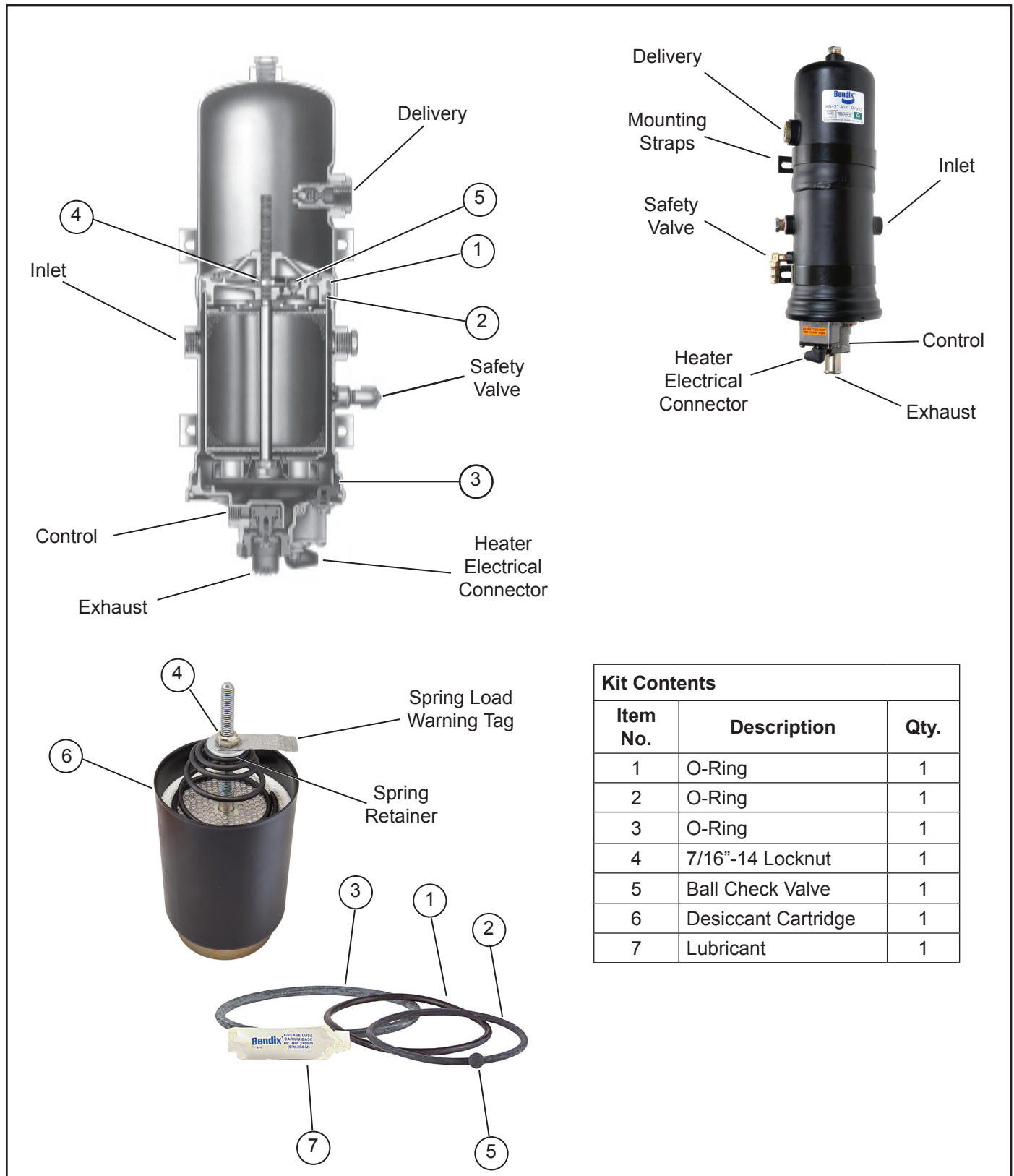


Figure 1 – Kit Contents

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.
- ▲ Never exceed manufacturer's recommended pressures.
- ▲ You should consult the vehicle manufacturer's operating and service manuals, and any related literature, in conjunction with the Guidelines above.
- ▲ 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.

DESCRIPTION

This kit consists of the items shown on page one and is for the Bendix® AD-1™ and AD-2® air dryer cartridge replacement.

REMOVAL AND DISASSEMBLY

Air Dryer End Cover Removal Procedure



The AD-2 air dryer cartridge contains a high spring load. When replacing the air dryer cartridge or performing any maintenance requiring end cover removal, perform the following procedure.

1. Loosen the air line to the control port of the air dryer and allow the trapped air to escape to atmosphere. After the air escapes, remove the control line from the air dryer.
2. Loosen the delivery line from the delivery port (or outlet) of the air dryer. After the pressure drops, remove the delivery line. Loosen the delivery check valve from this port to relieve any trapped air above the desiccant plate assembly. If the AD-1 air dryer has an external check valve at the delivery port, loosen it to relieve pressure.
3. Remove any exhaust silencers or the exhaust check valve cover from the base of the air dryer. Using a hex socket and wrench, loosen the purge valve assembly and allow any trapped air to escape. Slowly unscrew the purge valve and remove it.

4. Remove the supply line to ensure that air is not trapped in the air dryer by powdered desiccant material.
5. Check all ports to ensure that air is not trapped in the air dryer by powdered desiccant material.
6. Disconnect the heater wire from the end cover.

⚠ WARNING

The Bendix® AD-2® air dryer cartridge contains a high spring load. When replacing the AD-2 air dryer cartridge, or performing any maintenance requiring end cover removal, follow the procedure outlined below.

7. Mark the position of the air dryer end cover in relation to the air dryer shell.
8. Loosen the three cap screws on the end cover and turn the retaining clamps aside (cap screws may be left finger tight).
9. Locate the notch in the air dryer shell. While pushing the end cover up into the dryer, insert the blade of a screwdriver in the notch and slowly pry out the retaining ring. If the cartridge bolt has loosened, the cartridge spring may exert a force on the end cover retaining ring making removal of the retaining ring and end cover difficult. This spring force will prohibit the end cover moving up into the dryer shell when pushed up.

⚠ WARNING

This same force can also cause the end cover to come out of the air dryer shell unexpectedly during the removal process. **Exercise extreme caution to prevent bodily injury.**

10. Do not stand or lay directly under the end cover while servicing. Ensure adequate clearance between the end cover and other surfaces to prevent hand injury if the end cover dislodges rapidly during removal.
11. Using a 3/4" socket wrench, unscrew the cartridge bolt and remove the cartridge assembly. Occasionally the desiccant plate will separate from the cartridge assembly and hang up inside the dryer body. This can be removed by inserting a long bolt inside the center hole of the plate, cocking it sideways and pulling down. Pliers can also be used to grip one of the five webbed areas at the bottom of the plate.

DESICCANT CARTRIDGE DISASSEMBLY

1. Remove the two locknuts (Bendix® AD-1™ air dryer) or single locknut (AD-2 air dryer) and remove the desiccant plate.

NOTE:

- (a) In the old style assemblies, a retaining ring was used in place of the single nut or jam nut arrangement.
- (b) The plate on the AD-2 air dryer is spring loaded; however, the spring load is completely relieved when the nut is removed.

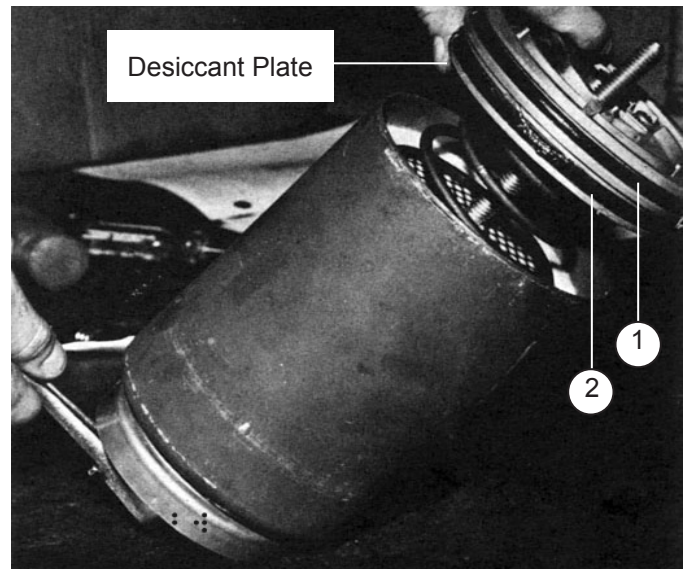


Figure 2–Desiccant Plate Removal

2. Remove the desiccant plate and set it aside. (See Figure 2.)
3. Remove the plate from the desiccant cartridge (6). Return the desiccant cartridge (6) for core credit or discard as a solid waste according to local laws and ordinances.
4. Remove and discard the two o-rings (1 & 2) from the desiccant plate previously set aside.
5. Remove the screw, retainer, and the ball check valve (5). Discard the ball check valve (5).
6. Clean all parts in a cleaning solvent equivalent to mineral spirits, making certain all strainers, seats, and orifices are clean and dry.

DESICCANT CARTRIDGE ASSEMBLY

1. Install the new ball check valve (5) with the retainer and screw.
2. Thoroughly lubricate the plate o-rings (1 & 2) with the lubricant (7) furnished in this kit. Install each in their proper groove in the plate. Set the completed plate assembly aside for later installation.
3. Remove the metal tag and the locknut (4) which holds the spring retainer and spring in position on the new cartridge (6).
4. Secure the assembly with locknut (4). Be sure to place the metal tag under the locknut (4) so that the text is visible. Turn the locknut (4) to draw the assembly together until the spring is compressed to half the free height. While compressing the spring, slowly turn the cartridge (6) tapping the side of the shell with a plastic mallet. This allows the desiccant material to settle properly into place. Continue to tighten the locknut (4) making sure all items are properly aligned. Tighten the nut firmly using an 11/16" socket or box wrench. (See Figure 3.)

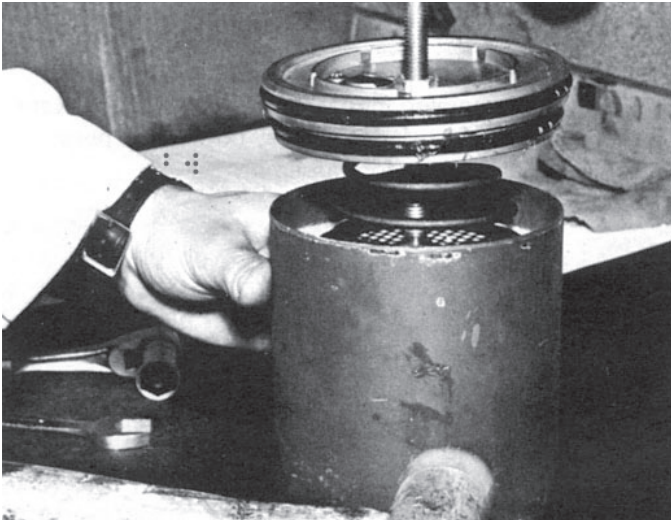


Figure 3—Desiccant Plate Installation

AIR DRYER ASSEMBLY

1. Wipe the inside of the air dryer body clean. If a solvent is used, be certain that no residue or solvent is left in the shell.
2. Check to be certain a film of lubricant is present on the o-rings. Install the cartridge/plate assembly into the shell, engage the cartridge bolt and tighten to 375 in-lbs (32 ft-lbs).
3. Check the end cover o-ring seat to be certain it is clean. Lubricate the end cover o-ring (3) and install it on the end cover. Install the end cover in the dryer shell.
4. Position the end cover as marked in Step 7 of the REMOVAL AND DISASSEMBLY procedure. Install the retainer so that the gap in the ring is within an inch of the notch in the shell.

5. Lubricate the threads on the three cap screws and reinstall with retainers.
6. Connect the air line to unloader port and the heater wire to the terminal.
7. To test, slowly build air pressure from 0 psi to the governor cut-out pressure and observe that the air dryer purges as maximum pressure is attained. During the slow build of air pressure, test for leakage around the end cover o-ring by applying a soap solution. No leakage is permitted. For additional information see *Bendix® Service Data sheet SD-08-2403*.

NOTE: It is suggested at the time of cartridge replacement, the end cover and integral check valve assemblies should also be rebuilt. The following Bendix® AD-2® air dryer maintenance kits should be used:

- Purge Valve Maintenance Kit287053N
- Delivery Check Valve (Old-Style) Maintenance Kit287298N
- Delivery Check Valve (New One Piece Body) Replacement Kit107454N

NOTE: The old-style delivery check valve has been replaced with a one piece body. This can only be serviced with a delivery check valve replacement kit.



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