

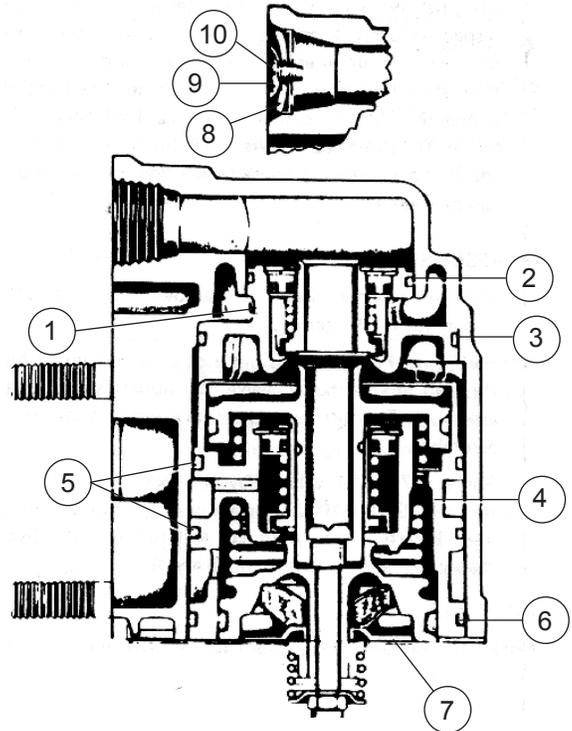
# Installation Instructions



## BENDIX® E-7™ BRAKE VALVE MAINTENANCE KITS



Bendix® E-7™ Brake Valve



\* Certain Bendix® E-7™ brake valves are mounted to a firewall plate with a Bendix® VM-1™ manifold valve on the engine compartment side. The sealing rings \* are used to seal the E-7 valve and the VM-1 valve, respectively, to the firewall plate.

| Kit Contents |                              |      |
|--------------|------------------------------|------|
| Item No.     | Description                  | Qty. |
| –            | Minor Repair Kit             | 1    |
| 1            | Upper Static Piston Assembly | 1    |
| 2            | O-Ring (1.812" O.D.)         | 1    |
| 3            | O-Ring (2.812" O.D.)         | 1    |
| 4            | Lower Static Piston Assembly | 1    |
| 5            | O-Ring (2.875" O.D.)         | 2    |
| 6            | O-Ring (3.00" O.D.)          | 1    |
| 7            | Retainer                     | 1    |
| 8            | Diaphragm                    | 1    |
| 9            | Washer                       | 1    |
| 10           | Screw                        | 1    |
| *            | Sealing Rings (.560" O.D.)   | 2    |
| *            | Sealing Rings (.755" O.D.)   | 2    |
| *            | Sealing Rings (.872" O.D.)   | 6    |
| 11           | Lubricant (BW-650M)          | 1    |



Figure 1 – Bendix® E-7™ Brake Valve Maintenance 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.

## REMOVAL (If necessary)

1. Block or hold the vehicle by means other than the air brakes and exhaust air pressure from the reservoirs supplying the Bendix® E-7™ brake valve.
2. In most installations the internal parts of the E-7 brake valve may be removed and replaced by removing the three cap screws which hold the pedal assembly in place and removing the pedal assembly. The parts may then be removed from the valve as described in disassembly.
3. If necessary to remove the E-7 valve from the firewall, identify the two supply and two delivery lines to their respective parts as connected to the brake valve. There may also be air lines to other air brake devices inside the cab, which should be properly identified and disconnected. In the case of the manifold type installation, the three cap screws which hold the manifold to the brake valve may be removed and the brake valve can be removed.

## DISASSEMBLY

1. Remove retainer (7). Remove the lower static piston assembly (4).
2. Fashion a hook from a piece of wire and insert the hook through the inlet-exhaust valve of the upper static piston assembly. Pull firmly and remove the upper static piston assembly.
3. Some E-7 brake valves have an exhaust check valve (8, 9, and 10), as shown on *Figure 1*. If so, remove and discard the screw (10), and remove and discard the diaphragm (8) and washer (9).

## ASSEMBLY

Note: Before assembly, lubricate all o-ring bores and mating surfaces with silicone base lubricant (11). DO NOT APPLY LUBRICANT TO THE RUBBER SPRING.

1. Install the o-rings (2 and 3), on the upper static piston assembly and install in the body of the valve.
2. Install the o-rings (5 and 6), on the lower static piston assembly as shown in *Figure 1* and install in the valve body.
3. Install the retainer (7), making certain locking tabs engage the bosses on the body.
4. Install the pedal assembly.
5. If the valve has provisions for the exhaust check valve, install the diaphragm (8), washer (9), and screw (10).
6. If the valve body has been removed from the firewall, install, taking care to properly locate the seal rings in the case of the manifold equipped valves. Reconnect the previously identified air lines to their appropriate parts where necessary.

## SERVICE CHECKS

### OPERATING

Check the delivery pressure of both the primary and the secondary circuits using test gauges known to be accurate. Depress the pedal to several positions between the fully released and fully applied positions, and check the delivered pressure on the test gauges to see that it varies proportionately with the movement of the brake pedal.

When the treadle is fully applied, the reading on the test gauge should fall off to zero promptly when the application is released. It should be noted that the primary circuit delivery pressure will be about 2 psi greater than the secondary circuit delivery pressure with the primary and secondary circuit supply reservoirs at the same pressure. This is normal in the E-7 valve.



An increase in stopping distance or a low pressure warning indicates a malfunction on one or the other brake circuits, and although the vehicle air brake system may continue to function, the vehicle should not be operated until the necessary repairs have been made and both braking circuits are operating normally.

### LEAKAGE CHECK

Make and hold a high pressure application.

Coat the exhaust port and the body of the brake valve with a soap solution.

Leakage should not exceed a 1" bubble in 3 seconds at the exhaust port in both the applied and released positions.

No leakage is permitted anywhere else.

For complete details on the operation and maintenance of this device, refer to *Bendix Service Data Sheet SD-03-818* available from [bendix.com](http://bendix.com).



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