



# Installation Instructions

KIT PC. No.  
108939

SPECIAL E-10 MAINTENANCE KIT

**Kit Contents:**

Key No.	Qty.	Description
1	1	Filter
2	1	Retaining Ring
3	1	O-Ring
4	1	Spring
5	1	O-Ring
6	1	Lock Nut
7	1	Spring
8	1	Inlet/Exhaust Valve Assy.
9	1	O-Ring
10	1	O-Ring
11	1	Retaining Ring
12	1	O-Ring
13	1	Inlet/Exhaust Valve Assy.
14	1	Exhaust Diaphragm
15	1	Diaphragm Washer
16	1	Screw
-	1	Silicone Grease Tube

Special features:  
vented piston and solid, bolted connection

Special E-10 Brake Valve

**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.

## REMOVAL

1. Chock vehicle wheels or park the vehicle mechanically. Drain all system reservoirs.
2. Identify and disconnect all supply and delivery lines at the brake valve.
3. The basic brake valve alone can be removed by removing the three cap screws on the mounting plate's inner bolt circle. To remove the brake valve and treadle assembly, remove the three cap screws on the outer bolt circle of the mounting plate. NOTE: Before removing the treadle assembly, be sure to mark the position of the mounting plate to the upper valve body.

## DISASSEMBLY

Before disassembly, mark the relationship of the upper valve body, body, and lower valve body.

1. Place the E-10 in a bench with the two "number 1" supply ports between the jaws. Do not overtighten; the E-10 body can be distorted.
2. Remove and discard screw(16), washer(15), and diaphragm(14). NOTE: some E-10 brake valves do not include items 14-16 but have a special exhaust port cover. In this case, items 14-16 need not be used.
3. Remove and retain the four exhaust cover screws and the exhaust cover.
4. Remove and discard inlet/exhaust valve assembly(13).
5. Remove and retain the four hex head cap screws and the lower valve body.
6. Remove and discard O-ring(12) from the lower valve body.
7. Remove filter(1).
8. While depressing the spring seat, remove and discard retaining ring(2).
9. Remove and retain the spring seat. Remove and discard graduating spring(4).
10. CAUTION: Before removing lock nut(6), note that the lock nut and stem are under spring force. Take care when removing the lock nut; approximately 20 lbs. of spring forces will be released. Use a 3/8" wrench to hold lock nut(6) on the threaded end of the stem. Insert a screwdriver in the exhaust passage through the center of the valve and engage the stem's slotted head.
11. Remove and discard lock nut(6). Remove and retain stem.
12. Remove and retain the relay piston. Remove and discard its O-rings(9 and 10).
13. Remove and retain the primary piston and separate the upper valve body from the body.
14. Remove and discard piston return spring(7).
15. Remove and discard primary piston O-ring(3) and upper valve body O-ring(5).
16. Remove and discard retaining ring(11) and inlet/exhaust valve assembly(8).

## CLEANING & INSPECTION

1. Wash all metal parts in mineral spirits and dry.
2. Inspect all retained parts for excessive wear or deterioration. Repair/replace as necessary.

## ASSEMBLY

Before reassembly, lubricate all O-rings, O-ring grooves, piston bores, and metal-to-metal moving surfaces with the grease provided in the kit.

1. Install inlet/exhaust valve assembly(8) in body and secure with retaining ring(11). Make sure the ring is completely seated in its groove.
2. Install O-ring(5) in the upper valve body and O-ring(3) on the primary piston.
3. Install O-rings(9 and 10) on the relay piston.
4. Install the upper valve body into the body, using the identification marks made before disassembly.
5. Install the relay piston in the body and hold in place.
6. Install spring(7) in the body.
7. Install the primary piston into the upper valve body and hold in place.
8. Install the stem, threaded portion first, through the hollow center of the relay piston. Hold the stem in place using a screwdriver.
9. Secure the stem with lock nut(6). Torque to 20-30 inch pounds.
10. Place spring(4) in the primary piston and install the spring seat.
11. Compress the spring seat and install retaining ring(2). Make sure the ring is completely seated in its groove.
12. Install filter(1).
13. Install inlet/exhaust valve assembly(13) into the lower valve body.
14. Install the exhaust cover over the inlet/exhaust valve assembly(13) and secure with its four screws. Torque to 20-30 inch pounds.
15. Install O-ring(12) in the lower valve body. Install the lower valve body on the body, using the identification marks made before disassembly.
16. Secure the lower valve body with its four screws. Torque to 80-120 inch pounds.
17. Install diaphragm(14), washer(15), and screw(16). Torque to 5-10 inch pounds.

## INSTALLATION

1. Reinstall treadle assembly, making certain to line up the identification marks made during removal.
2. Reinstall the E-10 on the vehicle.
3. Reconnect the supply and delivery lines using the identification marks made during removal.

## LEAKAGE CHECK

1. Make and hold a high pressure (80 psi) application.
2. Coat the exhaust port and brake valve body with a soap solution.
3. Leakage permitted is a one inch bubble in 3 seconds.

## OPERATIONAL CHECK

Check the delivery pressure of both the "number 1" and "number 2" circuits using test gauges known to be accurate. Depress the treadle to several positions between fully released and fully applied. Check the delivered pressure to see that it varies equally and proportionately with treadle movement.

After releasing a full application, the test gauge reading for both circuits should promptly fall off to zero.

**IMPORTANT:**

A change in vehicle braking characteristics or a low pressure warning may indicate a malfunction in one or the other brake circuit. Although the air brake system may continue to function, the vehicle should not be operated until the necessary repairs have been made and both braking circuits, including pneumatic and mechanical devices, are operating normally. When performing brake work, always check the brake system for proper operation before returning the vehicle to service.

