



Installation Instructions

KIT
PC. No. 283863

FIELD MAINTENANCE KIT FOR VM-1 CONTROL VALVE MANIFOLD

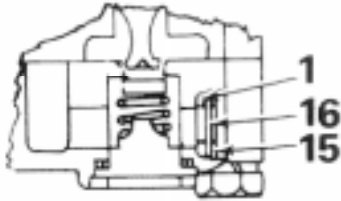


Figure 2

Qty.	Description	Key
1	O-Ring	1
1	O-Ring	2
1	O-Ring	3
2	Shuttle Valve	4
1	O-Ring	5
1	Inlet Valve	6
1	Inlet Valve Spring	7
1	Piston Spring	8
1	O-Ring	5*
1	Inlet Valve	6*
1	Inlet Valve Spring	7*
1	Piston Spring	8*
1	Lower Gasket	9
1	Upper Gasket	10
3	O-Ring	
1	Lubricant	

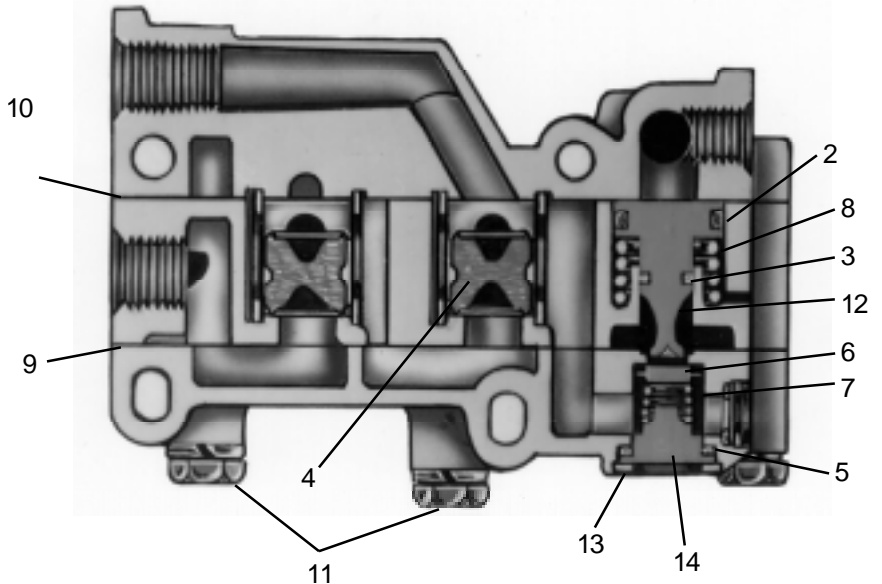


Figure 1

Figure 1 This kit consists of the parts listed above.

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.

NOTE: The kit contains necessary parts to repair three different versions of the VM-1 valve. Item 1, O-Ring 240543, is used only in the oldest version such as 283039 or 283934 as shown in partial section Fig. 2. Items 5, 6, 7, and 8 are used in the early version plus the second version, such as 287050.

Items 5*, 6*, 7*, and 8* are used in the latest version such as 288295 or 288301. The list of parts is keyed to the numbers on Figures 1 and 2 for appropriate location of parts.

REMOVAL

Block vehicle wheels, completely drain the air brake system, remove the connecting lines and remove the valve from the firewall manifold.

DISASSEMBLY

1. Remove the six cap screws and lock washers (11).
2. Separate upper, lower, and intermediate bodies. Remove gaskets (9) and (10).
3. Remove piston (12) and piston spring (8) from intermediate body. Remove O-Rings (2) and (3) from piston.
4. Remove both double check shuttles (4) and guides from body.
5. Remove large snap ring (13) from lower body and remove valve retainer (14) and inlet valve spring (7). Remove O-Ring (5).
6. On older version valves (see Fig. 2) remove the small snap ring (15), sealing disc (16) and O-Ring (1).

ASSEMBLY

NOTE: Before assembly, clean all parts in mineral spirits. Lubricate all O-Rings, bores, and mating surfaces with Silicone lubricant BW-650-M (piece number 291126).

1. Install double check valve guides in the appropriate bores in the intermediate body. The guides should snap over the boss at the bottom of each bore. Place double check shuttles (4) in the guides.
2. Install O-Rings (2) and (3) on the piston (12).
3. **NOTE:** Early design valves with the small inlet valve use items 5, 6, 7, and 8, piece numbers 214745, 249543, 241205, and 290176. The current design with the large inlet valve uses items 5*, 6*, 7*, and 8*, piece numbers 239136, 291750, 291757, and 291756. Use the parts appropriate to the valve being rebuilt and discard the ones not used.

Install the appropriate piston spring (8) and insert the piston (12), taking care to align it correctly with the bore in the body and the piston spring.

4. Install new gaskets (9) and (10) on either side of intermediate body, making sure locating pins match corresponding holes in gasket.
5. Carefully install upper and lower bodies, being careful that the piston (12) is properly aligned as the upper body is brought into place.
6. Secure assembly with six cap screws.

NOTE: Two of the cap screws are shorter than the other four and go on the end opposite the inlet valve and piston. Torque to 80 inch pounds.

7. Install the proper inlet valve (6), spring (7), and retainer (14). Install the retaining ring (13) making sure it is engaged in groove.
8. On early design valves place O-Ring (1) (Fig. 2) in place. Install sealing disc (16) and retaining ring (15), making sure retaining ring fits properly in groove.
9. Re-install the valve on the firewall manifold using the three new O-Rings, piece number 212268. Re-install and reconnect the stop light switch and air connections.

SERVICE CHECK

1. With ignition switch on, place tractor protection control valve in emergency position and note that trailer stop lights function.
2. Charge air brake system to governor cut-out and block wheels.
3. Apply trailer hand control valve and check at open tractor service hose coupling for leakage. Excessive leakage would indicate faulty tractor protection valve inlet valve.
4. Release trailer hand control valve and place tractor protection control valve in normal running position.
5. Connect tractor service hose coupling to a test gauge.
6. Apply trailer hand control valve and note that service air pressure is present at the service hose coupling. If service air pressure is not present, this would indicate either a faulty tractor protection valve or a faulty shuttle in one of the double check valves. Check foot brake valve exhaust for leakage. If leakage is detected, double check valve requires servicing.
7. With ignition switch on, apply and hold a foot brake valve application and note that stop lights function. Check exhaust of trailer hand control valve for leakage. If leakage is detected, double check valve requires servicing.
8. Disconnect line from primary circuit delivery (PCD) port. Plug end of line or drain the primary circuit reservoir. (**NOTE:** Fitting and crimped copper tubing can be assembled and used as a plug. Care should be used so that there is no danger, if plug be loosened, that it be projected by air when application of foot brake valve is made.)
9. Make a foot brake valve application and check primary circuit delivery (PCD) port of manifold for leakage. Leakage at port indicates double check valve requires servicing. Remove plug from line and reconnect to manifold.
10. Disconnect line from secondary circuit delivery (SCD) port and plug end of line or drain the secondary circuit reservoir. Make a foot brake valve application and check secondary circuit delivery (SCD) port of manifold for leakage. Leakage at port indicates double check valve requires servicing. Remove plug from line and reconnect to manifold.
11. Test for gasket leakage. Retorque cap screws to 80 inch pounds.