



Installation Instructions

KIT
PC. No. 283861

FIELD MAINTENANCE KIT FOR R-7 MODULATING VALVE

Qty.	Description	Key
1	O-Ring	4
1	O-Ring	8
1	Exhaust Diaphragm	15
1	O-Ring	17
1	O-Ring	18
1	O-Ring	19
1	O-Ring	20
1	Inlet & Exhaust Valve Assm.	21
1	Spring	30
1	Valve	31
1	Double Check Valve	37
1	O-Ring	38
1	Tube of Lubricant	-

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.

REMOVAL

1. Park and hold the vehicle on a level surface by means other than air brakes.
2. Drain air pressure from all reservoirs.
3. **Identify** all air lines and disconnect them from the R-7.
4. Remove the mounting screws and remove the R-7.

DISASSEMBLY

1. Remove the exhaust cover screw (14), exhaust cover (16), and exhaust diaphragm (15). Discard exhaust diaphragm (15.)
2. Remove the four cap screws (13) and washers (12), and remove the cover (11).
3. Remove and discard O-Ring (20).
4. Remove control piston (10).
5. Remove and discard O-Rings (17, 18, 19) from control piston (10).
6. Remove and discard retaining ring (9).
7. Remove and discard inlet and exhaust valve assembly (21).
8. Remove the four cap screws (34), washers (33), and cover complete (1).
9. Remove spring seat (2).
10. Remove and retain springs (3 and 5).
11. Remove balance piston (6).
12. Remove and discard O-Ring (4) from balance piston (6).
13. Remove 1/4" socket head pipe plug (32).
14. Remove and discard spring (30) and check valve (31).
15. Remove and discard retainer (39).
16. Remove supply port adapter (40).
17. Remove and discard O-Ring (38).
18. Remove valve guide (36).
19. Remove and discard check valve (37).

ASSEMBLY

Prior to assembly, wash the metal components in mineral spirits and dry thoroughly. Lubricate all O-Ring grooves and valve body bores with the lubricant provided in this kit.

1. Install O-Ring (38) on the supply port adapter (40).
2. Install valve guide (36) and check valve (37).
3. Install adapter (40) and secure by installing retaining ring (39). Make sure the retaining ring is completely seated in its groove.
4. Install spring (30) on check valve (31) and install assembly in the body.
5. Install pipe plug (32) and torque to 130-170 inch pounds.
6. Install O-Ring (4) on balance piston (6) and install the balance piston in the valve body.
7. Install the inner and outer springs (3 & 5) in the balance piston.
8. Install spring seat.
9. Install cover assembly (1) and secure with the cap screws (34) and washers (33). Torque to 30-60 inch pounds.
10. Install inlet and exhaust valve assembly (21) and secure with the retaining ring (9). Be sure the retaining ring is completely seated in its groove.

11. Install O-Rings (17, 18, 19) on the control piston (10).
12. Install the control piston (10) in the valve body.
13. Install O-Ring (20) on valve cover (11).
14. Install cover (11) on the valve and secure with cap screws (13) and washers (12). Torque to 80-120 inch pounds.
15. Install diaphragm (15), exhaust cover (16), and secure with screw (14). Torque screw to 20-30 inch pounds.

INSTALLATION

1. Install the R-7, securing with the mounting screws.
2. Reconnect all air lines according to the identification made during removal.
3. Build up air system pressure.
4. Perform Operating and Leakage Tests **before** putting vehicle into service.

OPERATING TEST

Block vehicle and hold by means other than vehicle brakes. Charge air brake system to governor cut-out pressure.

1. Place parking control valve in "park" position. Observe that spring brake actuators apply promptly. Remove one line from delivery port of valve and install test gauge known to be accurate. Place parking control valve in "release" position. Observe that the spring brake actuators that remained connected release fully.
2. With parking control valve in "release" position, note gauge pressure reading. (Check vehicle manual for correct spring brake actuator hold-off pressure.) If pressure reading is incorrect, Modulating Valve should be adjusted. (See section "Adjustment of Modulating Valve-Spring Brake Actuator Hold-Off Pressure.")
3. Place parking control valve in "park position"—gauge reading should drop to zero promptly. A lag (more than one second) in drop of pressure would indicate faulty operation of the single check valve (within the Modulating Valve).
4. With the parking control valve in the "park" position, fully apply foot brake valve several times and note that pressure reading increase on gauge occurs each time brake valve is applied. If pressure reading does not occur, the Modulating Valve requires servicing or replacing.
5. Place parking control valve in "release" position. Determine the reservoir which supplies balance port and drain completely. Apply foot brake valve several times and note that pressure reading on gauge decreases each time foot brake valve is applied. After foot brake valve has been applied several times, pressure on gauge will drop to the point where release of the spring brake actuators will no longer occur.

LEAKAGE TEST

Place the park control valve in the "release" position; using a soap solution, coat exhaust and vent hold (in proximity of adjusting screw). Slight bubble leakage permitted.

If the valve does not function as described, or if leakage is excessive, it is recommended that it be repaired with genuine Bendix parts or replaced with a new or remanufactured unit available from a Bendix outlet.

ADJUSTMENT OF MODULATING VALVE - SPRING BRAKE ACTUATOR HOLD-OFF PRESSURE

Block vehicle by means other than vehicle brakes. If it has been ascertained that hold-off pressure for the spring actuators is incorrect (see Section "Operating Test"), adjustment should be made as follows:

1. Build system pressure to governor cut-out (approximately 120 psi). It is important that system leakage for a single vehicle not exceed a 2 psi drop in one minute with brakes released. Correct system leakage before proceeding with adjustment.
2. Place parking control valve in "park" position and install an accurate test gauge in a delivery port of the modulating valve. Place parking control valve in "release" position and observe pressure reading on the test gauge. Refer to vehicle manual for recommended pressure. Adjust as necessary.

TO RAISE HOLD-OFF PRESSURE

Loosen Locknut Turn adjusting screw clockwise and observe reading on gauge. To raise hold-off pressure, turn adjusting screw clockwise; to lower hold-off pressure, turn adjusting screw counterclockwise until pressure is below that desired and then turn screw clockwise to desired pressure. Tighten locknut securely after completing adjustment.

