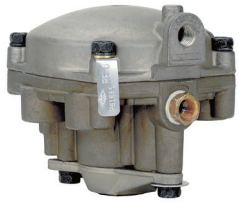


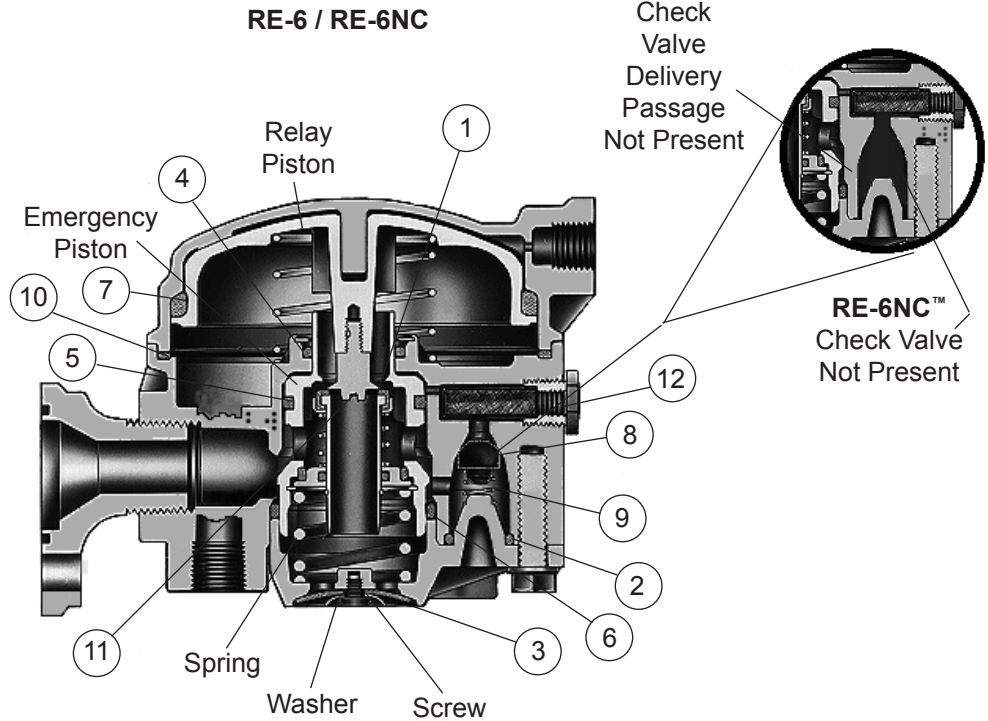
# Installation Instructions



## BENDIX® RE-6® & RE-6NC™ RELAY EMERGENCY VALVE KIT



Bendix® RE-6® Relay Emergency Valve



Kit Contents		
Item No.	Description	Qty.
1	Inlet and Exhaust Valve	1
2	Sealing Ring	1
3	Diaphragm	1
4	O-Ring	1
5	O-Ring	1
6	O-Ring	1
7	O-Ring	1
8	Check Valve	1
9	Check Valve Spring	1
10	Sealing Ring	1
11	Exhaust Valve Seat	1
12	Filter	1

Figure 1 – Bendix® RE-6® & RE-6NC™ Relay Emergency Valve Kit



## 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.
- ▲ 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.
- ▲ You should consult the vehicle manufacturer's operating and service manuals, and any related literature, in conjunction with the Guidelines above.

## BENDIX® RE-6® VALVE DESCRIPTION

The RE-6® valve is used in dolly and trailer brake systems. It is a dual function valve, combining the functions of a relay valve and an emergency valve.

The relay function is identical to that of a relay valve, a remotely controlled brake valve. Control pressure from the towing vehicle is routed through the trailer service line and on to the relay portion of the valve. The emergency function of the valve automatically applies full trailer reservoir air pressure to the trailer chambers when the trailer supply pressure falls below a predetermined minimum value.

The RE-6/RE-6NC Relay Emergency Valve may be flange- or reservoir- mounted. Ports are clearly identified for delivery, service, emergency (supply), and reservoir lines.

## BENDIX® RE-6NC™ VALVE DESCRIPTION

The RE-6NC is a special non-charging relay emergency valve. It is used on dollies to comply with FMVSS121. The RE-6NC eliminates the need for a protected reservoir to provide the release air for the trailer spring brakes when the following requirements are met:

- The trailer supply line must be 70 psi minimum with any leakage-type service system failure.
- The parking brake must not drag at trailer supply line pressures above 70 psi.

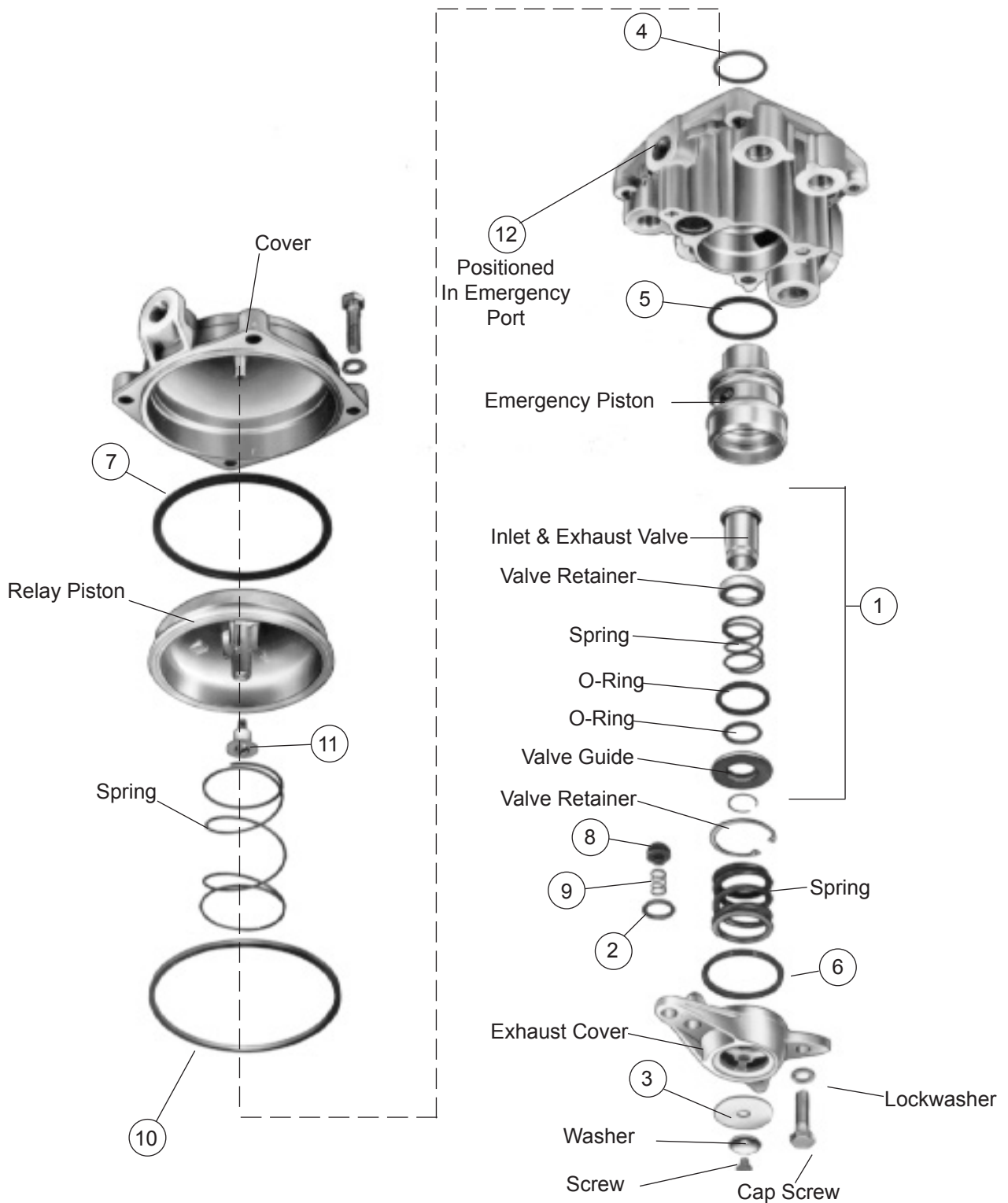
The relay function of the RE-6NC valve is identical to that of the RE-6 unit, serving the dolly or trailer system as a remote controlled brake valve. The emergency function of the valve automatically applies full trailer reservoir air pressure to the trailer or dolly chambers when the trailer supply pressure falls below a predetermined minimum value. The major difference between the RE-6 and the RE-6NC is that the RE-6NC allows supply pressure (initial charge) to release the spring brakes before the dolly or trailer reservoir(s) is filled.

## PREVENTIVE MAINTENANCE

1. Every 6 months, 50,000 miles, or 1,800 operating hours, perform "SERVICE CHECKS".
2. Every 12 months, 100,000 miles, or 3,600 operating hours, perform "OPERATIONAL AND LEAKAGE TESTS".

## SERVICE CHECKS

1. Remove any accumulated contaminants. Visually inspect the valve's exterior for excessive corrosion or physical damage. Repair/replace the valve as necessary.
2. Inspect all air lines connected to the valve for signs of wear or physical damage. Repair/replace as necessary.
3. Test air line fittings for excessive leakage and tighten or replace as necessary.



## OPERATIONAL AND LEAKAGE TESTS

1. Block the vehicle's wheels and fully charge the air system.
2. Apply and release the service brakes several times and check for prompt response of the brakes at all appropriate wheels.
3. With the air system fully charged, apply a leak check solution to the RE-6® valve or RE-6NC™ valve exhaust port. Leakage of a one inch bubble in five seconds is permissible.

4. Make and hold a full brake application and again apply a leak check solution to the RE-6 valve or RE-6NC valve exhaust port. Leakage of a one inch bubble in three seconds is permissible.
5. With the brakes still applied, apply a leak check solution around the valve where the cover meets the body. No leakage at this point is permitted.

If the valve does not function as described; or if leakage is excessive, repair the valve or replace it at any authorized parts outlet.

## REMOVAL

1. Identify, mark or label all air lines and their connections to the RE-6® or RE-6NC™ valve. Scribe a line across the body of the valve, including the valve cover. When the assembly process is reached, the line will serve as a reference to the position of the valve cover on the valve body. Disconnect the air lines.
2. Remove the RE-6 or RE-6NC valve from the vehicle.

## INSTALLATION

1. Use the mounting bracket provided with the valve, or, if securing the valve to a reservoir, use a Schedule 80 (heavy wall) short couple pipe nipple.
2. Reconnect all air lines to the valve using the identification made during removal.
3. Test all air fittings for excessive leakage and tighten as needed. Also, perform OPERATIONAL AND LEAKAGE TESTS before placing the vehicle back into service.

## DISASSEMBLY

Refer to *Figure 2* throughout.



The RE-6 & RE-6NC valve may be lightly clamped in a bench vise during disassembly. However, over-clamping will cause damage to the valve and result in leakage and/or malfunction. If a vise is used, position the valve so the jaws bear on the supply ports on opposing sides of the valve's body.

## MAJOR KIT 282812

1. Remove the four screws that secure the cover to the body, set aside, and then slowly remove the cover.
2. Remove and discard the sealing ring (10) from the sealing ring groove located at the top of the valve body.
3. If a spring is present, positioned between the bottom side of the relay piston and the upper portion of the valve body, set aside for the assembly process.
4. Remove the relay piston from the valve body. It may be necessary to tap the valve body lightly in order to dislodge the relay piston from the valve cover.
5. Remove and discard the large o-ring (7) on the relay piston.
6. Remove and discard the exhaust valve seat (11) from the relay piston.
7. Remove and discard the o-ring (4) from under the crimped-on retaining ring located in the upper portion of the valve body.
8. Turn the valve over, holding the exhaust cover, remove the three cap screws from the exhaust cover. Remove the spring and set the cap screws and spring aside for the assembly process.
9. Remove and discard the small sealing ring (2) from the exhaust cover (located on the check valve post).

10. The RE-6NC valve will not have a check valve (8) and spring (9).
11. Remove and discard the check valve (8) and spring (9) in the RE-6 valve.
12. Remove and discard the diaphragm (3) from the exhaust cover. Set screw and washer aside for the assembly process.
13. Remove the emergency piston and inlet/exhaust valve (1) assembly by pushing the assembly through the valve body, from the relay piston side of the valve. The whole assembly will come out of the valve body as one unit.
14. Remove and discard the o-ring (5) located in the groove of the emergency piston.
15. Remove and discard the o-ring (6), which creates the seal between the emergency piston and the exhaust cover.
16. Remove the retaining ring with appropriate pliers and set aside for the assembly process.
17. Remove and discard all internal parts. Valve guide, two o-rings, spring, valve retainer, inlet / exhaust valve (inlet and exhaust valve assembly).

## MINOR KIT 282813

1. Remove the four screws that secure the cover to the body, set aside, and then slowly remove the cover.
2. Remove the sealing ring (10) from the sealing ring groove located at the top of the valve body and set aside for the assembly process.
3. If a spring is present, positioned between the bottom side of the relay piston and the upper portion of the valve body), set aside for the assembly process.
4. Remove the relay piston from the valve body. It may be necessary to tap the valve body lightly in order to dislodge the relay piston from the valve cover.
5. Remove the large o-ring (7) on the relay piston and set aside for the assembly process.
6. Remove and discard the o-ring (4) from under the crimped-on retaining ring located in the upper portion of the valve body.
7. Turn the valve over, holding the exhaust cover, remove the three cap screws from the exhaust cover. Remove the spring and set the cap screws and spring aside for the assembly process.
8. Remove and discard the small sealing ring (2) from the exhaust cover (located on the check valve post).
9. The RE-6NC model will not have a check valve (8) and spring (9).
10. Remove the check valve (8) and spring (9) in the RE-6 and set aside for the assembly process.
11. Remove and discard the diaphragm (3) from the exhaust cover. Set screw and washer aside for the assembly process.
12. Remove the emergency piston and the inlet/exhaust valve (1) assembly by pushing the assembly through the valve body, from the relay piston side of the valve. The whole assembly will come out of the valve body as one unit.

13. Remove and discard the o-ring (5) located in the groove of the emergency piston.
14. Remove and discard the o-ring (6), which creates the seal between the emergency piston and the exhaust cover.
15. Remove the retaining ring with appropriate pliers and set aside for the assembly process.
16. Remove and discard all internal parts. Valve guide, two o-rings, spring, valve retainer, inlet/exhaust valve (inlet and exhaust valve assembly).

## **CLEANING & INSPECTION**

1. Using mineral spirits or an equivalent solvent, clean and thoroughly dry all metal parts. Do not damage bores with metal tools.
2. Wash all non-metallic components in a soap and water solution. Dry thoroughly.
3. Inspect interior and exterior of all metal parts for severe corrosion, pitting, and cracks. Superficial corrosion and/or pitting on the exterior of the body and cover is acceptable. Replace the entire valve if the body or cover interior show signs of corrosion or pitting.
4. Inspect each non-metallic component for cracks, wear, or distortion. Replace the valve if these conditions are found.
5. Make certain the air channel running from the cover through the top surface of the body to the supply port is clear and free of obstruction.
6. Inspect the pipe threads in the body. Make certain they are clean and free of thread sealant.
7. Inspect all air line fittings for corrosion. Replace as necessary. Remove all old thread sealant before reuse.

## **ASSEMBLY**

Before assembly, lubricate all o-rings, seals, and pistons as well as body and cover bores, using the lubricant provided in the maintenance kit. Use all of the lubricant, and spread it evenly on the rubbing surfaces.

## **MAJOR KIT 282812**

1. Install o-ring (5) into the groove on the emergency piston.
2. Install the inlet/exhaust valve assembly (1) into the emergency piston. Packaged as one unit.
3. With Truarc pliers, install retaining ring, making certain it is in the groove in the emergency piston.
4. Install the emergency piston (including the inlet/exhaust valve assembly just installed) into the valve body.
5. Install the spring in the body.
6. Install the sealing ring (2) onto the check valve post, located on the exhaust cover.
7. Install the diaphragm (3) onto the exhaust cover, securing it with the screw and washer set aside in the disassembly process.

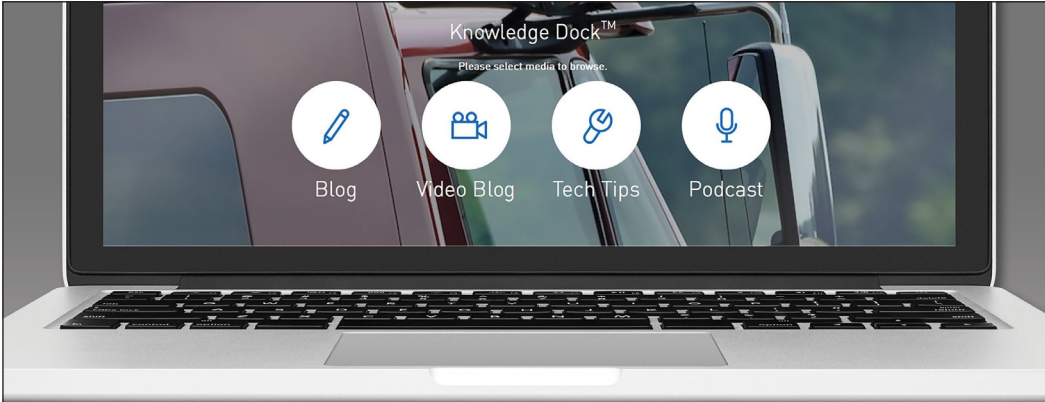
8. For the RE-6®, install the small check valve spring (9) onto the check valve (8) and drop it into the check valve cavity. The spring will fit in the groove on the exhaust cover (making sure spring is positioned in the center of the cavity). If changing the RE-6NC™, discard the check valve (8) and spring (9).
9. Install the o-ring (6) into the channel between the valve body and the emergency piston.
10. Turn the valve over and install the o-ring (4) in the channel under the crimped-on retaining ring located in the upper portion of the valve body. (This must be done before the exhaust cover is installed because the emergency piston will cover this o-ring.)
11. Turn the valve back over and install the exhaust cover. Install the cap screws and lock washers, torque to approximately 100 in-lbs.
12. Turn the valve over and install the sealing ring (10) in the groove located at the top of the valve body.
13. Apply the adhesive sealant to the exhaust valve seat (11) threads and install in the relay piston.
14. Install the o-ring (7) around the relay piston.
15. Insert the relay piston into the valve cover and push the piston to the top of the cover.
16. If so equipped, install the piston return spring.
17. Install the cover to body, making certain the scribe marks line up as marked in the "REMOVAL" section.
18. Torque the cap screws to approximately 100 in-lbs.
19. Perform the OPERATIONAL AND LEAKAGE TESTS before returning the vehicle to service.

## **MINOR KIT 282813**

1. Install the o-ring (5) into the groove on the emergency piston.
2. Install the inlet/exhaust valve assembly (1) into the emergency piston. Packaged as one unit.
3. With Truarc pliers, install the retaining ring, making certain it is in the groove in the emergency piston.
4. Install the emergency piston (including the inlet/exhaust valve assembly just installed) into the valve body.
5. Install the spring in the body which was set aside in the disassembly process.
6. Install the sealing ring (2) onto the check valve post, located on the exhaust cover.
7. Install the diaphragm (3) onto the exhaust cover, securing it with the screw and washer set aside in the disassembly process.
8. For the RE-6 unit, install the small check valve spring (9) onto the check valve (8) and drop both into the check valve cavity (set aside in the disassembly process). The spring will fit in the groove on the exhaust cover (making sure spring is positioned in the center of the cavity). If changing the RE-6NC model, no check valve (8) or spring (9) were present in the disassembly process.
9. Install the o-ring (6) into the channel between the valve body and emergency piston.

10. Turn the valve over and install the o-ring (4) in the channel under the crimped-on retaining ring located in the upper portion of the valve body. (This must be done before the exhaust cover is installed because the emergency piston will cover this o-ring.)
11. Turn the valve back over and install the exhaust cover. Install the cap screws and lock washers, torque to approximately 100 in-lbs.
12. Turn the valve over and install the sealing ring (10) in the groove located at the top of the valve body (set aside in the disassembly process).
13. Install the o-ring (7) around the relay piston (set aside in the disassembly process).

14. Insert the relay piston into the valve cover and push the piston to the top of the cover.
15. If so equipped, install the piston return spring set aside in the disassembly process.
16. Install the cover to the body, making certain the scribe marks line up as marked in the "REMOVAL" section.
17. Torque the cap screws to approximately 100 in-lbs.
18. Perform OPERATIONAL AND LEAKAGE TESTS before returning the vehicle to service.



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