



# Installation Instructions

KIT  
PC. Nos. 106007  
& 106009

## NABCO E-6 H15 BASIC DUAL CIRCUIT BRAKE VALVE

### IMPORTANT!

These kits are designed for use in E-6 H15 Brake Valves manufactured by NABCO (Nippon Air Brake Company Ltd.) under license from Bendix. They cannot be installed in other E-6 valves. NABCO manufactured E-6 H15 Brake Valves can be identified by the letters "NABCO" cast into the valve body.

### MAJOR KIT #106009

QUANTITY	DESCRIPTION	KEY
1	Minor Repair Kit	
1	Lock Nut	8
1	Sleeve	17
1	Retaining Ring	18
1	Special Washer	19
1	Spring Seat	20
1	Spring Guide	21
1	Spring Washer	22
1	Primary Piston	23
1	Stem	24
1	Relay Piston	25
1	Exhaust Cover	26

### MINOR KIT #106007

QUANTITY	DESCRIPTION	KEY
1	Boot	1*
1	O-Ring (2.359" O.D.)	2
1	Relay Piston Spring	3
1	O-Ring (.386" O.D.)	4
1	Piston Return Spring	5
1	E-Ring Retainer	6
1	Stem Spring	7
1	O-Ring (2.109" O.D.)	9
1	Outer Spring	10
1	Inlet / Exhaust Valve Assy.	11
1	Exhaust Diaphragm	12
1	Diaphragm Washer	13
1	Diaphragm Screw	14
1	Inlet / Exhaust Valve Assy.	15
1	O-Ring (2.614" O.D.)	16
1	Piston Bushing	27
1	O-Ring	28
1	Inner Spring	29
1	Inner Spring Seat	30
1	Lubricant	
	*Not Illustrated	

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

Block wheels or hold vehicle by means other than air brakes and exhaust air from reservoirs supplying the E-6 valve.

1. Identify the supply and delivery lines to their respective ports and disconnect from valve.
2. Remove the Brake valve and mounting plate from the vehicle.
3. Separate the basic brake valve from its mounting plate.
4. Remove the Phillips head screw (item 14) securing the exhaust diaphragm (item 12) and washer (item 13) to the exhaust cover (item 26).
5. Remove the four screws that secure the exhaust cover to the lower body.
6. Remove the No. 2 inlet and exhaust valve assembly (item 15) from the lower body.
7. Remove the four hex head cap screws securing the lower body to the upper body and separate the body halves.
8. Remove the rubber seal O-ring (item 16) from the lower body.
9. Place a Phillips screwdriver in a vise. Place the upper body over the tip of the screwdriver so that the screwdriver passes through the hollow center (exhaust passage) of the valve. The tip of the screwdriver should engage the head of the stem (item 24). Hold down the spring guide (item 21) and remove the E-ring (item 6).  
**CAUTION:** When removing the E-ring, care must be taken since it is spring loaded. It is recommended that the piston be manually or mechanically contained while the E-ring and stem are being removed.
10. Remove the relay piston (item 25), relay piston spring (item 3), primary piston (item 23) and primary piston return spring (item 5) from the upper body. Remove the piston bushing (item 27) and bushing O-ring (item 28).
11. Disassemble the primary piston (item 23) by first removing the lock nut (item 8). Remove the spring washer (item 22), special washer (item 19), spring seat (item 20), inner spring seat (item 30), outer and inner springs (items 10 & 29). Remove the O-ring (item 9) from the primary piston (item 23).
12. Remove the large (item 2) and small (item 4) O-rings from the relay piston (item 25).
13. Remove the retaining ring (item 18) securing the No. 1 inlet and exhaust valve assembly in the upper body and remove the valve assembly (item 11).

## ASSEMBLY

Before assembly, lubricate all O-ring bores and rubbing surfaces with the grease provided in this kit.

The assembly procedure is the same for both the minor repair kit 106007 and the major kit 106009; however, items 8 and 17 thru 26 are not included in the minor kit and will have to be reused when only the minor kit is used.

1. Install the No. 1 inlet and exhaust assembly (item 11) in the upper body and replace the retaining ring (item 18) to secure it. Be sure the retaining ring is seated completely in its groove.
2. Install the large (item 2) and small (item 4) O-rings on the relay piston (item 25).

3. Install the O-ring (item 9) in its groove in the primary piston (item 23). Install the O-ring (item 28) in its groove in the primary piston bushing (item 27).
4. To assemble the primary piston (item 23). Install the inner (item 29) and outer (item 10) springs. Install the inner spring seat (item 30) with its flanged side toward the inner spring (item 29) then install the spring seat (item 20) with its flat side up. Insert the sleeve (item 17) into the piston and through the spring seats (items 20 & 30). Install the special washer (item 19), spring washer (item 22) and secure all the components by installing the lock nut (item 8) on the threaded end of the stem (item 17). Torque the nut (item 8) to 52-69 pound inches (60-80 kg.cm).
5. Place the relay piston return spring (item 3) in the upper body and place the relay piston (item 25) over the spring, so that the concave side of the piston is against the spring.
6. Insert the stem (item 24) into the relay piston. Place the upper body so that the tip of the screwdriver touches the head of the stem in the exhaust passage.
7. Insert the primary piston bushing (item 27) in the upper body. Install the primary piston return spring (item 5). Install the primary piston assembly into the upper body and place the stem spring (item 7) and spring guide (item 21) onto the stem of the primary piston and retain by installing E-ring (item 6). See the cautionary note under Step 9 in the "Disassembly" section of this manual.
8. Install the No. 2 inlet and exhaust valve assembly (item 15) in the lower body.
9. Place the exhaust cover (item 26) on the lower body and install the four machine screws with lock washers, to secure it to the body.
10. Install the exhaust diaphragm (item 12) and diaphragm washer (item 13) to the exhaust cover (item 26) using the Phillips head screw and lock washer (item 14).
11. Install the seal ring (item 16) in the lower body and secure the lower body to the upper body using the four hex head cap screws and lock washers. Torque to 35-60 inch pounds (40-70 kg.cm).
12. Install the mounting plate assembly and secure with three cap screws and lock washers.

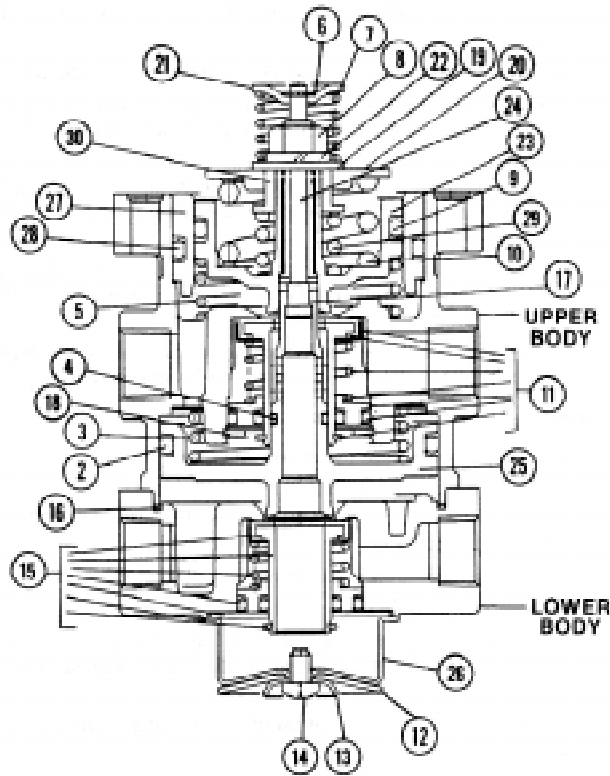
## OPERATING CHECK

Check the delivery pressure of both No. 1 and No. 2 circuits using test gauges known to be accurate. Depress the treadle 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 equally and proportionately with the movement of the brake pedal.

After a full application is released, the reading on the test gauges should fall off to zero promptly. It should be noted that the No. 1 circuit delivery pressure will be slightly greater than the No. 2 circuit delivery pressure with both supply reservoirs at the same pressure. This is normal for this valve.

**LEAKAGE CHECK**

Make and hold a high pressure application. Coat the exhaust port and body of the brake valve with a soap solution. Slight leakage is permitted at the exhaust port. No leakage between the body halves or the valve body and mounting plate is permitted. If unacceptable leakage is noted, the entire valve assembly should be replaced.



**E-6 H15 BASIC DUAL  
CIRCUIT BRAKE VALVE**

