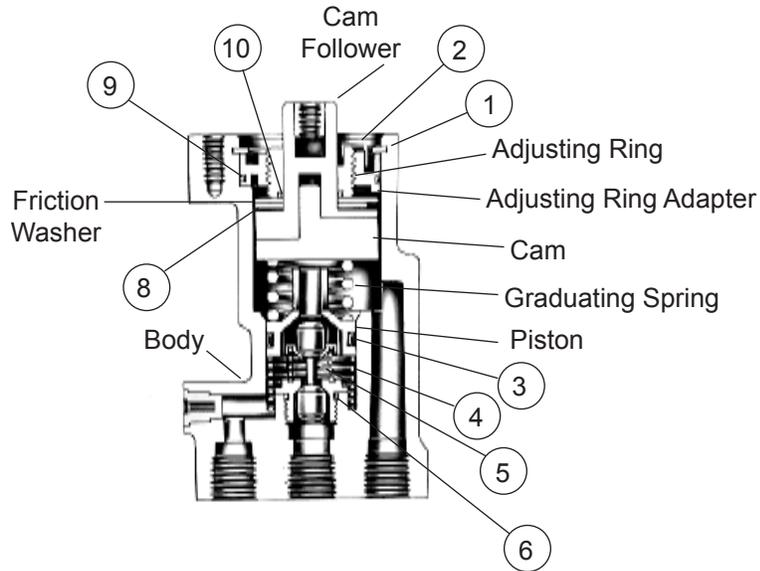


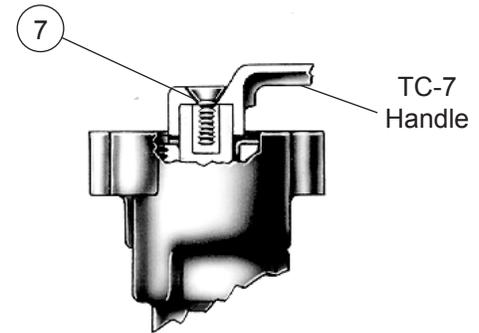
Installation Instructions



BENDIX® TC-7™ TRAILER CONTROL VALVE MAINTENANCE KIT



Bendix® TC-7™ Trailer Control Valve



Kit Contents		
Item No.	Description	Qty.
1	Retaining Ring	1
2	Adjusting Ring Lock Washer	1
3	O-Ring (.799 I.D.)	1
4	Spring	1
5	Inlet and Exhaust Valve Assembly	1
6	O-Ring (.489 I.D.)	1
7	Flat Head Phillips Machine Screw	2
8	Sealing Ring	1
9	O-Ring (1.246 I.D.)	1
10	O-Ring (.590 I.D.)	1
11	Tube of Lubricant	1

I.D. = Inside Diameter



Figure 1 – Bendix® TC-7™ Trailer Control Valve Maintenance Kit Contents



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.

REMOVAL

1. Block the wheels or hold the vehicle on a level surface by means other than the air brakes.
2. Drain all air pressure from all reservoirs.
3. Identify the air lines and connections and remove from the Bendix® TC-7™ valve.
4. Consult the vehicle manual for instructions on disassembly of the steering column components.
NOTE: Some TC-7 valve installations will be on the exterior of the steering column, in which case Step 4 can be disregarded.
5. Remove the TC-7 handle by first removing the flat head Phillips® machine screw (7) from the center of the head/handle assembly.
6. Dismount the TC-7 valve from the steering column.

DISASSEMBLY

If the valve is disassembled in a vise, be sure that the vise is not overtightened as the body and internal parts will distort.

1. Remove and discard the adjusting ring lock washer (2).
2. Remove and retain the adjusting ring.
NOTE: A spanner wrench can be used to rotate the adjusting ring, but if such a wrench is not available, the adjusting ring can be turned with a small screwdriver inserted in one of the inner notches of the ring.
3. Remove and discard the retaining ring (1).
4. Remove the adjusting ring adapter, cam follower, sealing ring (8), and friction washer. Note the surface configuration of the friction washer and the color of the sealing ring (8). If the sealing ring (8) is white and its accompanying friction washer has a SMOOTH surface, retain the white sealing ring (8) and discard the NEW BLACK sealing ring (8) contained in this kit. If the sealing ring (8) is black rubber and its friction washer is ribbed, discard the old sealing ring (15) and use the replacement contained in this kit. Discard o-rings (9 & 10) and retain all other parts.
NOTE: Check if friction washer is installed with ribs against or away from the sealing ring (8). The valve must be installed the same recommended way.
5. Remove and retain the cam and graduating spring.
6. Remove and retain the piston. Remove and discard the o-ring (3) from the piston.
7. Remove and discard the piston return spring (4).
8. Using an 11/16" deep well socket wrench, remove and discard the inlet and exhaust valve assembly (5) and the o-ring (6).

ASSEMBLY

Prior to assembly, wash parts retained during disassembly in mineral spirits and dry thoroughly. Using the lubricant (11) included in this kit, lubricate the body bores, cam, cam follower, and all o-rings and o-ring grooves. NOTE: Do not lubricate the sealing ring, friction washer, or cam follower serrations.

1. Install the o-ring (6) on the inlet and exhaust valve assembly (5) and using an 11/16" deep well socket wrench, install inlet and exhaust valve assembly (5). Torque to 15 in-lbs.
2. Install the piston return spring (4).
3. Install the o-ring (3) on the piston and install the piston in the body.
4. Install the graduating spring in the body.
5. Install the cam in the body with the flat side toward the graduating spring. Index the cam "ears" to corresponding slots in the body.
6. Install the rubber sealing ring (8) on the cam follower.
7. Install the friction washer on the cam follower in the same manner as noted in Step 4 of Disassembly.
8. Install the cam follower in the body.
NOTE: Stop "ear" on cam follower will not permit improper assembly of cam follower; however, make certain that the positioning "ear" of the friction washer fits in the wide slot in the body.
9. Install the adjusting ring in the adapter until the adjusting ring is flush with the underside of the adapter.
NOTE: There are two indexing lugs on the adapter that fit into the slots in the valve body when the adapter is installed. Be sure to install the adjusting ring with its wrench slots accessible (up) after the valve is assembled.
10. Position the adapter and the adjusting ring assembly over the cam follower, making certain the adapter lugs fit into the body slots.
11. Push down on the cam follower and install the snap ring (1). Be certain the snap ring is completely seated in its groove.
NOTE: If the lugs on the adapter are not in their body slots, the snap ring cannot be installed completely.
12. Before installing the lock washer (2), adjust the valve as described.

ADJUSTMENT

Generally, the Bendix® TC-7™ trailer control valve should deliver full reservoir pressure; however, there are a few exceptions in special applications.

1. If the delivered pressure is below the specified final delivery pressure, it can be adjusted by removing the head and the adjusting ring lock washer and rotating the adjusting ring clockwise to raise the delivery pressure.

Care should be taken not to raise the delivery pressure beyond the design limits; exhaust opening could be restricted.

2. If the delivery pressure is above the specified final delivery pressure, it can be lowered by rotating the adjusting ring counterclockwise.
NOTE: A spanner wrench can be used to rotate the adjusting ring, but if such a wrench is not available, the adjusting ring can be turned with a small screwdriver inserted in one of the inner notches of the ring.
3. After adjustment is complete, install the lock washer (2) to hold the adjustment.

OPERATING TEST

Connect an accurate test gauge to a delivery port. When the handle is moved to the fully applied position, the gauge should register full reservoir pressure. When the handle is moved to the full released position, pressure should drop to **zero**.

NOTE: Some valves may be preset to deliver lower than reservoir pressure; however, the standard valves generally used on tractors are set to deliver full reservoir pressure. Intermediate positions should deliver proportional intermediate pressures. Upon release, the gauge should immediately register zero.

LEAKAGE TEST

Locate the exhaust port or exhaust line and apply a soap solution. With the valve in the released position, exhaust leakage should not exceed a 1" bubble in 5 seconds (100 sccm).

With the valve fully applied, leakage at the exhaust should not exceed a 1" bubble in 3 seconds (175 sccm).

INSTALLATION

1. Using the identification made during removal, reconnect the air lines to the TC-7 valve.
2. Consult the vehicle manual for instructions on remounting the TC-7 valve in or on the steering column. Do not overtorque the three 1/4" - 20 mounting screws (30-60 in-lbs).
3. Remount the TC-7 valve handle on the hex cam follower and secure the flat head screw (7). Select the appropriate screw (7) for the valve and discard the other. Torque to 30-60 in-lbs.

NOTE: Handle position cannot be adjusted.



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