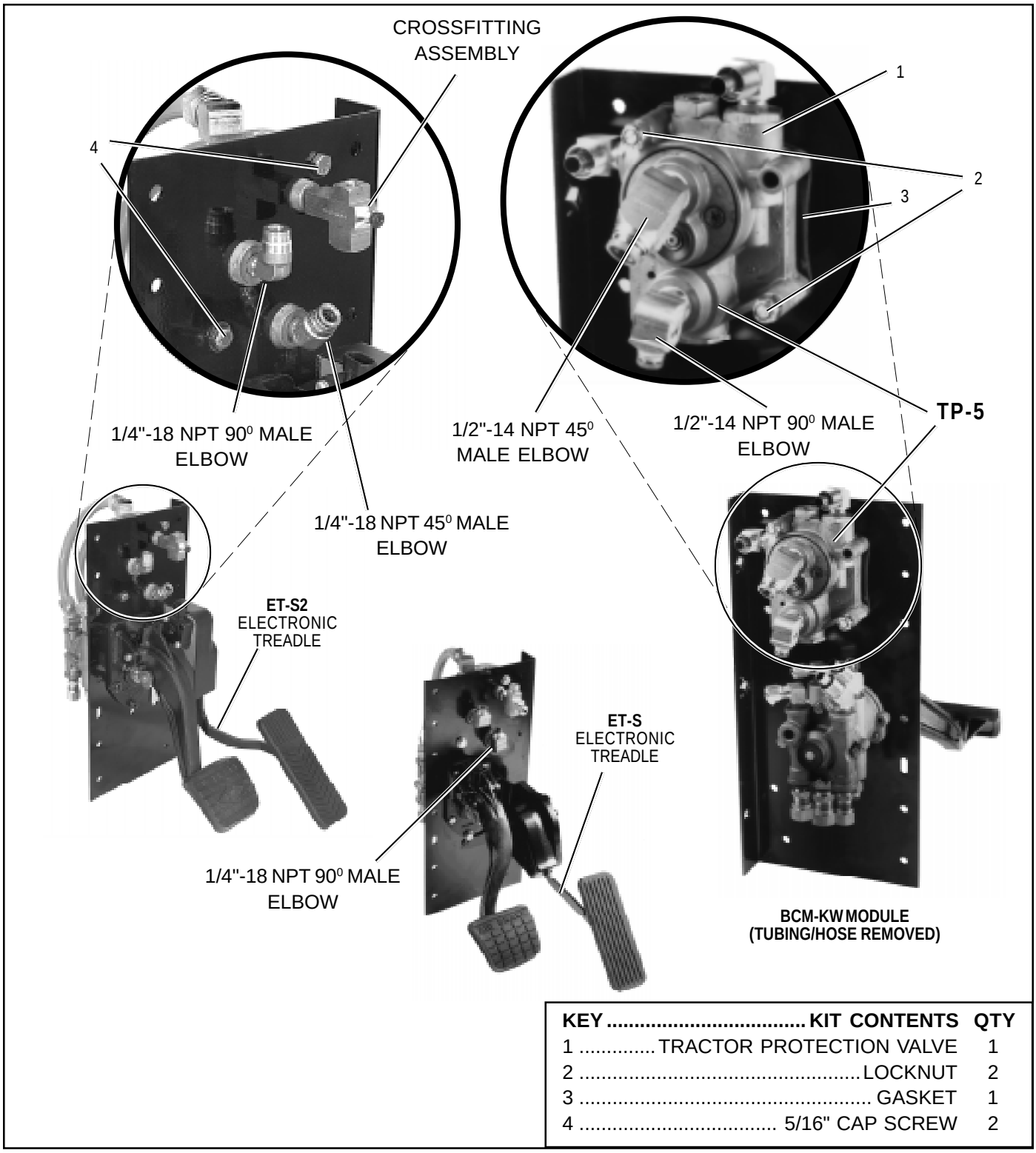
Installation Instructions

Kit Pc. Nos. 5002291 & 5002292

BCM-KW MODULE: TP-5 TRACTOR PROTECTION VALVE REPLACEMENT KIT



KEY	KIT CONTENTS	QTY
1	TRACTOR PROTECTION VALVE	1
2	LOCKNUT	2
3	GASKET	1
4	5/16" CAP SCREW	2

FIGURE 1 - ***BCM-KW MODULE***

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 a 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.**

TP-5 REMOVAL

1. Park the vehicle on a level surface and block the wheels.
2. Drain the air pressure from all vehicle reservoirs - note that air lines may still hold residual pressure.
3. Mark all air lines and tubes/hoses to the TP-5 to aid reassembly, then disconnect.
4. Remove the pipe fittings from driver's cab side of the TP-5.

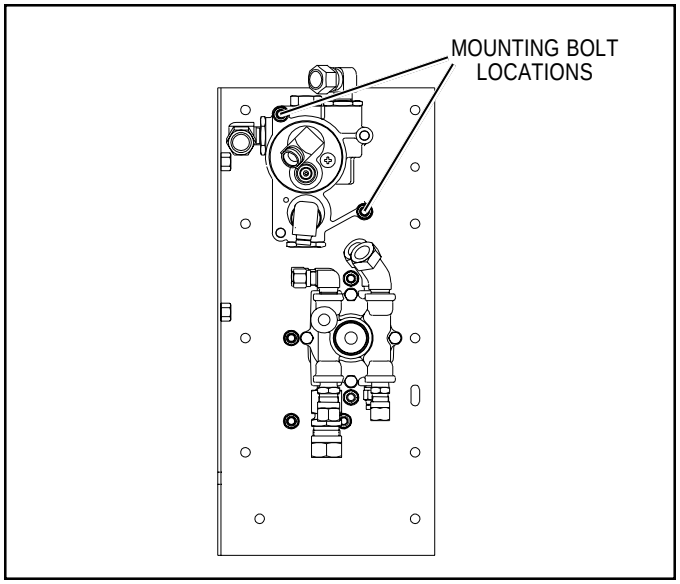


FIGURE 2 - ***TP-5 BOLT LOCATIONS***

5. The TP-5 mounting hardware is now removed.
6. The two hose/tube fittings can now be removed form the TP-5. Retain these for the assembly process, and set the TP-5 aside to use as a reference.

CLEANING AND INSPECTION

1. Use suitable solvent (e.g. alkaline detergent and water) to clean all metal parts (note that mineral spirits may damage paint finish).
2. Inspect components for corrosion, pitting, or cracks. Replace as necessary.

ASSEMBLY

1. Using the TP-5 removed as a guide, reattach the pipe fittings.
   Caution: The TP-5 valve may be lightly clamped in a bench vise during this process, however, over-clamping will result in damage to the valve and result in leakage and/or malfunction.
   Use Teflon Thread Sealant where needed, taking care not to allow any sealant to enter the valve. Torque to the minimum of the range for the specific fitting:
   1/8"-27 NPT: 55 - 85 lb. in.,
   1/4"-18 NPT: 130 - 170 lb. in.,
   1/2"-14 NPT:180 - 240 lb. in. and then continue rotating clockwise to the correct position. (See Figures 1, 3, 4, and 5.)
2. Attach the self-adhesive gasket to the TP-5.
3. Using the mounting hardware secure the TP-5 into position. Torque to between 75 and 110 lb. in.
4. Install fittings onto the driver's side of the cab firewall. Use Teflon Thread Sealant where needed, taking care not to allow any sealant to enter the valve. Torque the two ptc fittings to 130 lb. in., the crossfitting to 55 lb. in., and then continue rotating clockwise to the positions shown in Figure 6.
5. The hoses/tubes are then reattached using the markings made at disassembly as a guide.

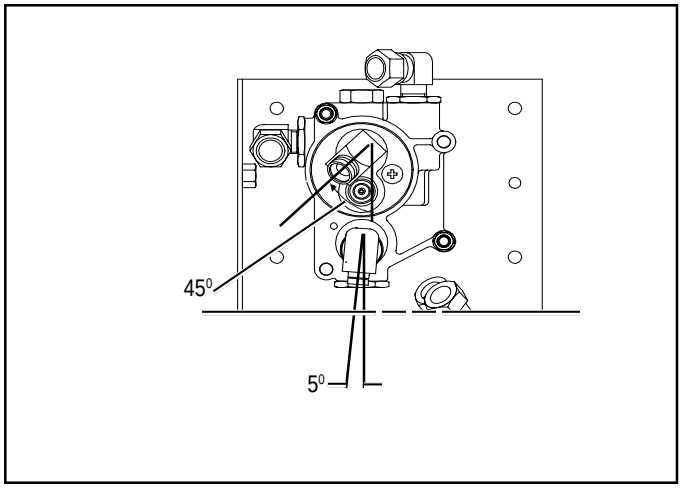


FIGURE 3 - ***TP-5 FITTINGS: REAR VIEW OF FIREWALL***

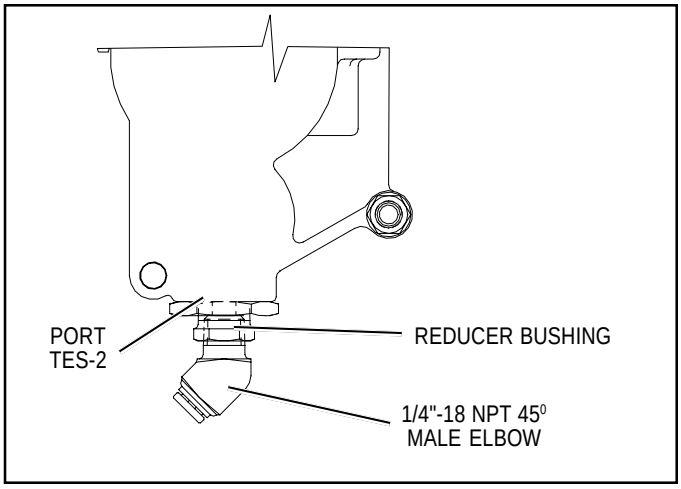


FIGURE 5 - ***SOME VERSIONS USE REDUCER BUSHING AND MALE ELBOW AT TES-2 PORT.***

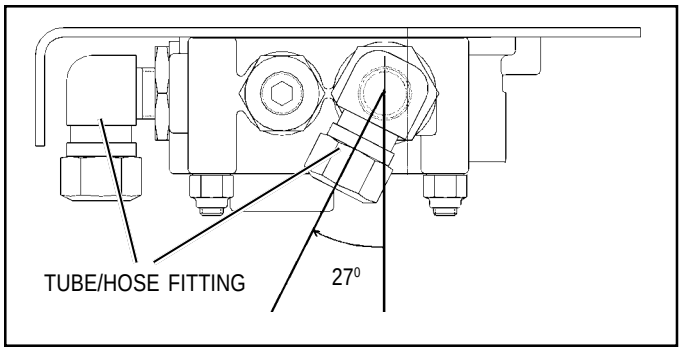


FIGURE 4 - ***TP-5 TUBE/HOSE FITTINGS (TOP VIEW)***

6. Perform *Operating and Leakage Tests* before returning vehicle into service.

OPERATING AND LEAKAGE TESTS

1. Charge the air brake system to governor cut-out, block the wheels, and place the trailer supply valve in the emergency position.
2. Disconnect the trailer service line hose coupling. Make a trailer hand control valve application. With a soap solution, check for leakage at the hose coupling and at the TP-5 exhaust port. Leakage should not exceed a one inch bubble in three seconds. If leakage is excessive, inlet valve(1) should be replaced.
3. With the hand valve still applied, turn on the ignition and make sure the stop lights are functioning properly.
4. Release the hand control valve application and place the trailer supply valve in the normal or "run" position.
5. Connect the service hose coupling to a test gauge, apply the hand control valve, and note that there is pressure at the test gauge.
6. With the hand valve still applied, check for leakage at the TP-5 exhaust with a soap solution. Leakage should not exceed a one inch bubble in three seconds. If leakage is excessive, diaphragm(2) should be replaced. Also check for leakage at the foot valve exhaust. Leakage should not exceed a one inch bubble in three seconds. If leakage is excessive, double check valve shuttle(5) should be replaced.

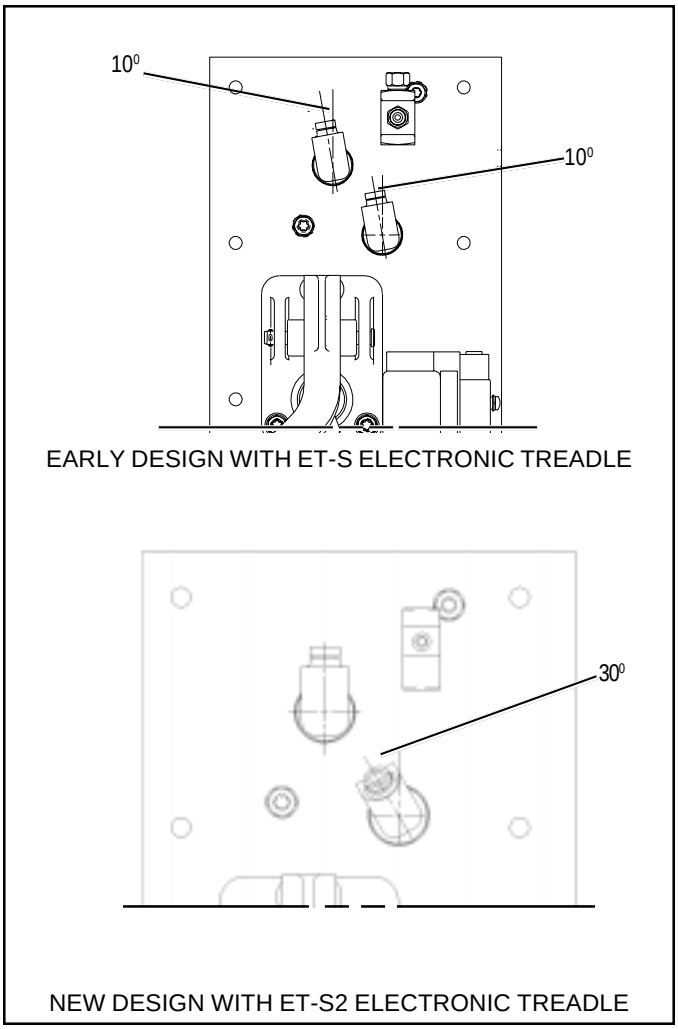


FIGURE 6 - ***TP-5 FITTINGS: ORIENTATION FOR FRONT OF FIREWALL***

7. With the hand valve still applied, check for leakage at the 1/16" vent hole in the TP-5 body. Leakage should not exceed a one inch bubble in three seconds. Leakage indicates that either O-ring(3) or O-ring(4) is not sealing. Release the hand control valve application and check for leakage at the vent hole. If leakage continues, O-ring(3) should be replaced. If leakage stops, O-ring(4) should be replaced.
8. Make and hold a foot valve application. Check for leakage at the hand control valve exhaust. Leakage should not exceed a one inch bubble in three seconds. If leakage is excessive, double check valve shuttle(5) should be replaced.
9. Release the foot valve application. Disconnect the line from the brake valve's primary circuit delivery to the TP-5 "REAR PCD" port and block off its end. Make a foot valve application and check for leakage at the TP-5 "REAR PCD" port. Leakage should not exceed a one inch bubble in three seconds. Reconnect the primary circuit line and reverse the procedure for the secondary circuit line and the TP-5 "FRT SCD." Leakage at the TP-5 "FRT SCD" port should not exceed a one inch bubble in three seconds. If leakage is excessive, double check valve shuttle(6) should be replaced.

If the TP-5 fails to function as described, repair the valve as noted or replace it at the nearest authorized Bendix parts outlet.