sonnax®

TRANSMISSION PARTS

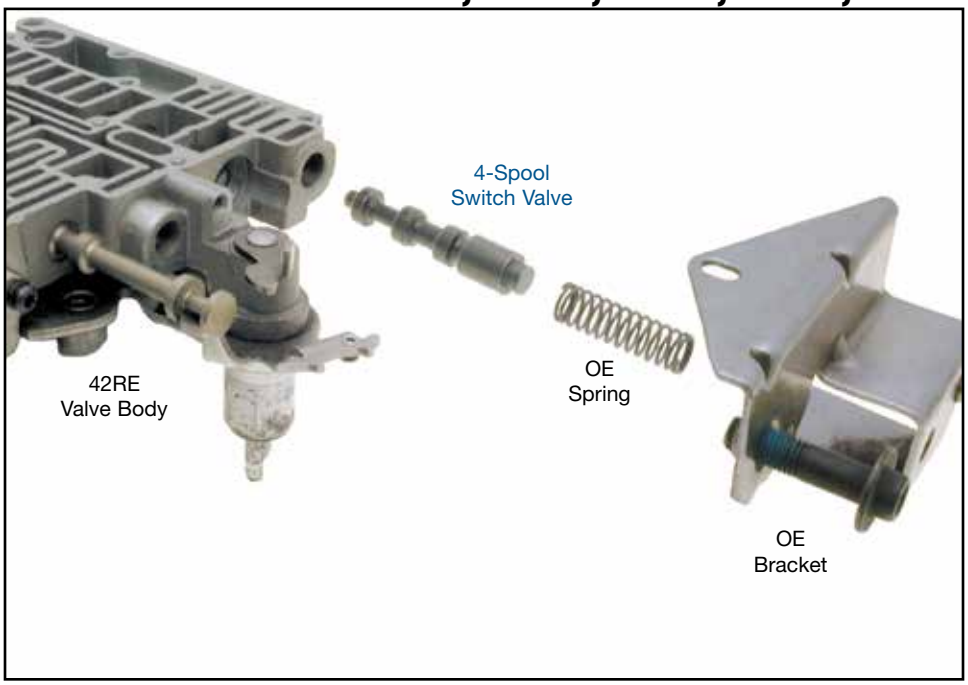
Instructions

Chrysler 42RE, 42RH, 44RE, 44RH, 46RE, 46RH, 47RE, 47RH, 48RE, A727, A904

4-Spool Switch Valve

Part No. 22771A-01

NOTE: Fits '93-later 4-spool valves only.



1. Disassembly

a. Remove OE bracket, spring and switch valve.

b. Discard valve, saving bracket and spring for reuse.

2. Installation & Assembly

a. Install Sonnax 4-spool switch valve.

b. Reinstall OE spring and bracket.

c. Modify separator plate per instructions following.

3. Boost Valve Adjustments

a. The boost valve is identified by the auxiliary tube and triangular plate on top of valve body.

b. Ensure this cover is flat and does not leak.

c. Ensure the auxiliary tube is tight.

CAUTION: Line pressure raises 8-10 lb. (with no TV influence) on TCC apply and 3-4 shift by way of the boost valve. Line pressure at TCC apply and 4th Gear can increase as much as 40% over the idle setting with heavy throttle. If a very strong pressure regulator spring or setting is used, line in 4th and TCC apply have been recorded up to 200 psi. Valve body warpage, hydraulic bindup or converter damage can occur at this level. We strongly suggest installing pressure gauges and checking line pressure at idle in Drive.

NOTE: All '93–later production used the boost valve. The converters built prior to this '93 design are not suggested by OE to be used with this boosted apply pressure.

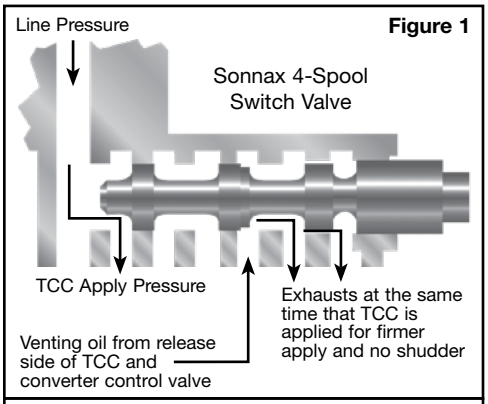


Figure 1

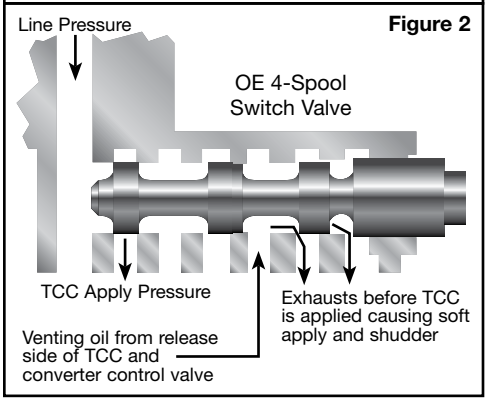


Figure 2

4. Valve Body Preparation

a. Resurface all the cast-aluminum pieces until flat to avoid cross-leaks.

b. Verify that the pressure regulator reducing sleeve (located at the opposite end of the spring on pressure regulator) is not badly worn.

c. Torque valve body-to-case bolts at 110 in-lb.

5. Separator Plate Modification Adjustments (Figure 3)

a. Open exhaust port/slot cut in plate. Exhaust should be .350–.400" wide on gas, or .450–.500" wide on diesel. The wider the slot, the faster the release oil exhausts and a firmer apply is felt.

b. Drill TRE orifice to .062". This is the .042" orifice inboard of the exhaust port/slot mentioned above. Going larger than .062" will create a bump on TCC apply.

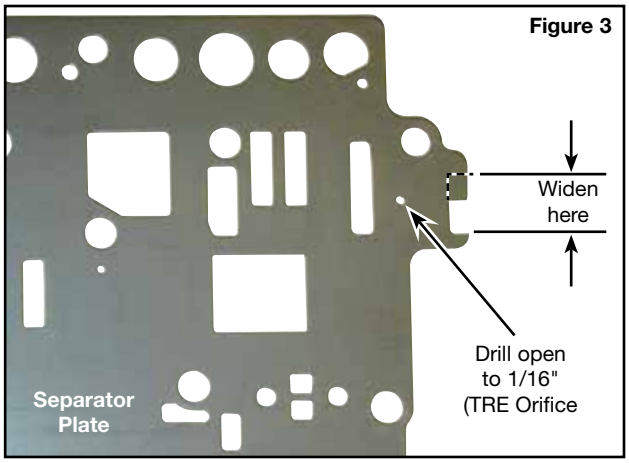


Figure 3

6. Pressure Regulator Spring Adjustments (Figure 4)

a. Each full clockwise turn of the adjuster will distance the plate by .050". Adjust to obtain a distance of .300–.350".

b. Adjust the pressure regulator spring to obtain a setting of 60-65 psi at idle in Drive. Verify by installing gauge into line pressure tap (passenger side, middle of case, between accumulators).

c. Line pressure will be boosted at TCC apply and 4th Gear. Use caution adjusting the spring or high pressure will create bindups from cross-leaks and increase throttle sensitivity.

d. Distance measurement for spring setting will approximate correct line pressure only if black OE spring (.062" wire gauge) is used. Aftermarket springs will require pressure gauge reading and subsequent readjustment of the distance setting to obtain the correct line pressure.

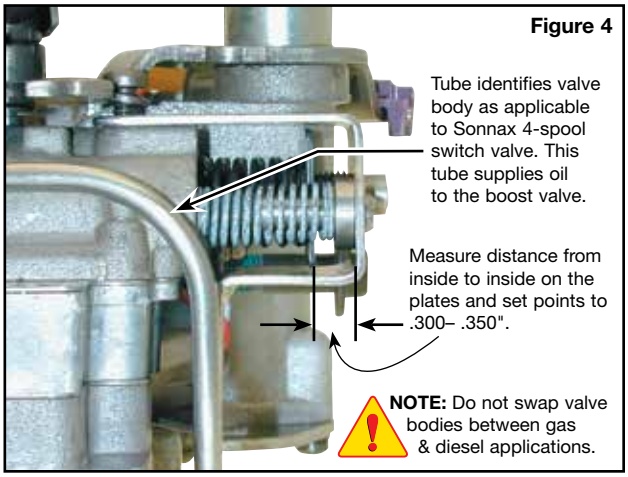


Figure 4

7. Critical Pump & Cooler Flow Quality Adjustments

a. There are many problems with restricted lines, drain back valves and contaminated coolers. If a previous converter failed, the remains will end up in the radiator.

b. From the return line (rear of case) cooler flow must be at least 1 quart in 20 seconds (.8 gpm), in Drive at idle. The SonnaFlow® is the best tool to isolate a restricted radiator. Good SonnaFlow® readings are: .7–.9 gpm idle in Drive, 1.8 at 45 mph with TCC off and a rapid rise to 2.1–2.2 gpm with TCC apply.

c. Ensure pump circuits are tight. The suction circuit has been found to pull in air through separator plate at the front case surface. Verify this by pressurizing the filter suction hole, with selector in Reverse. Look for leakage at the plate surfaces. Pulling air into the suction circuit will create poor engagement, acceleration and converter slippage. Many concerns of sealing ring leakage at the turbine shaft to pump area. This creates trapped release oil between the cover and piston, which reduces TCC clamping pressure.

8. Switch Valve Design Adjustments

a. Valve end stops or their stems, control the position of a valve when at rest and after stroked into shifted position. The distance between the spools controls oil circuit flow and timing. The OE valve "at rest" position had spools which did not align with the body casting, and at full stroke the TCC release exhaust was restricted (**Figures 1 & 2**).

b. The Sonnax valve was designed because of complaints of low mileage friction and repeated TCC damper spring failure. The stem length, spool spacing and exhaust timing have been improved to ensure quick stroke, reduce valve bounce and allow total exhaust of TCC release oil between the piston and cover.

9. Switch Valve Operation

Tapping into the release oil circuit (at valve body) and graphing the release pressure timing of a poorly sequenced switch valve often reveals a very unbalanced control. Instead of a drop-in release pressure, as the TCC solenoid calls for apply, there is an oscillating affect.