sonnax
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SERVO SOLUTIONS

There are many components that help maintain the hydraulic harmony of your automatic transmission, and sometimes it's the small parts that can cause the biggest headaches.

Your servo assembly, when working properly, ensures that your shifts are smooth, and that the bands and clutches are applied and released in proper time and with sufficient force.

If something goes wrong, you may hear a chorus of shift complaints from customers. Delayed forward or reverse engagements. 2-3 upshift flare. No 3rd gear. Slip in reverse. Poor 1-2 shifts. The 2-4 band applying in 3rd gear. Downshift clunk. The list goes on.

In many instances, these complaints can be traced to wear and tear of servo pistons and bores so severe that you have to replace the case. But there are less drastic, more cost-effective solutions.

Here's how your servo assembly works. The assembly consists of a piston and pin located in a bore in the transmission case. One end of the apply pin is seated against the friction band. The other end is connected to the servo piston. Hydraulic pressure from transmission fluid moves the servo piston toward the band. The pin compresses the band around the drum to hold it still. To release the band, transmission fluid is exhausted from the servo bore, and spring force allows the piston and pin to relax its hold.

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PRODUCT SPOTLIGHT

DIFFERENTIAL LUBE TUBE RETAINER
PART NO. 84532-01K

The flexible hose on the differential lube tube in 4T60-E and 4T65-E units softens as the temperature increases, and causes the pressure in the line to blow the steel tube out of the accumulator cover. This can lead to differential lube failure.

The Sonnax differential lube tube retainer, **84532-01K**, is designed to clamp the non-flexible forward servo apply line to the differential lube tube line, preventing the differential line from pulling out of the accumulator cover.

The retainer comes with a top and bottom clamp and bolt to ensure that the differential lube tube does not move out of its correct position.

FIX THESE COMMON COMPLAINTS

- Differential lube failure
- Difficulty in retaining lube tube in correct position

If the servo isn't operating properly, your customers will know because they're having shift problems. As a rebuilder, one sign to watch for is burned clutches and bands.

But how do you fix all these problems without spending a fortune on a new case?

In 4T60 & E transmissions, the 1-2 or reverse servo bores can become worn or scored from repeated oscillation caused by normal operation. You can repair the bore and salvage the case with our 1-2 or reverse servo & sleeve kit. This drop-in repair kit **84791-01K** includes a servo sleeve, piston, seal and spring spacer, and allows you to reuse the OEM springs, pin, washer, spring retainer, cover retaining ring and clip. And, in addition to salvaging the case, this kit improves reverse, 2-3 and 3-2 shift control.

There's a similar problem with the 4L80-E units: the piston seal wears away the front servo bore, creating oil leaks that affect apply pressure and damage the case. Our front servo piston & sleeve, **34989-02K**, allows the case to be salvaged and eliminates oil loss at the worn bore.

The kit includes an o-ringed servo bore sleeve that slips into the existing bore, while the piston includes a scarf-cut Teflon® seal with graphite filler to prevent cross leakage. A new servo spring is included to work with the smaller diameter piston.

In 4L60 & E transmissions, the servo apply areas often have to be increased to improve 1-2 shift feel. At the same time, normal wear at the 2nd apply servo piston allows accumulator oil to exhaust, compromising hydraulic integrity.

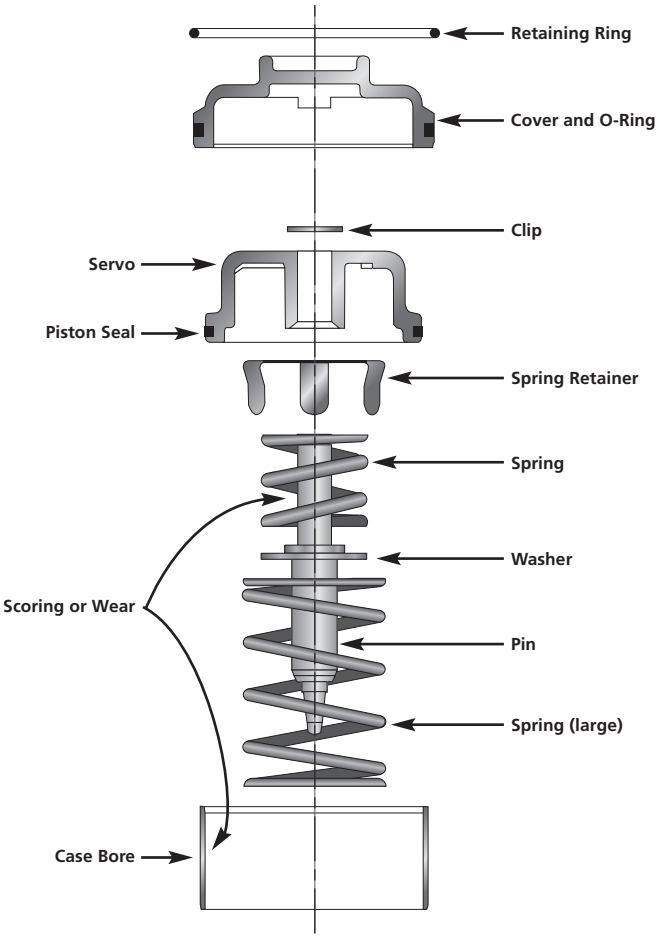
The general fix is to replace the 2nd apply servo piston assembly with a #553 version – which are increasingly hard to find. Sonnax offers servo saver sleeves and metal-clad Viton® seals that allow you to both salvage the existing #554 assembly AND convert it to a #553 version.

The sleeve, **77911-01**, is made from high-quality aluminum and can be pressed right into the existing housing, while the seal, **77911-02**, restores hydraulic integrity at the 2nd apply servo piston.

You may also get shift complaints on AXOD & E and AX4S units. These transmissions are prone to servo pin-bore leakage, along with incorrect shift calibration.

There are four upgraded products available to help you resolve shift complaints. The replacement servo piston **96728** restores hydraulic seal integrity. The servo spring **96995A** is longer and has a spring rate approximately 12 pounds lighter than OEM, reducing delayed forward engagements. The spring also eliminates downshift clunk complaints because it is stiffer than the OEM replacement. Our updated servo spring retainer clip **96945R** is made of hardened steel for better wear resistance and makes full contact with the pin groove radius, preventing the clip from breaking. Sonnax also offers **96945S**, which includes a servo pin, retaining clip and three o-rings.

Areas of Wear



Are you missing the most valuable tool a transmission rebuilder can own? Introducing the Sonnax Diagnostic Guide, a new way to troubleshoot complaints and find solutions. Our easy-to-use format allows you to look up your transmission problem and find just the right product to solve it. To order, please call us at 800-843-2600 or go online to www.sonnax.com.