sonnax®
PERFORMANCE

High Performance TRANSMISSION Parts

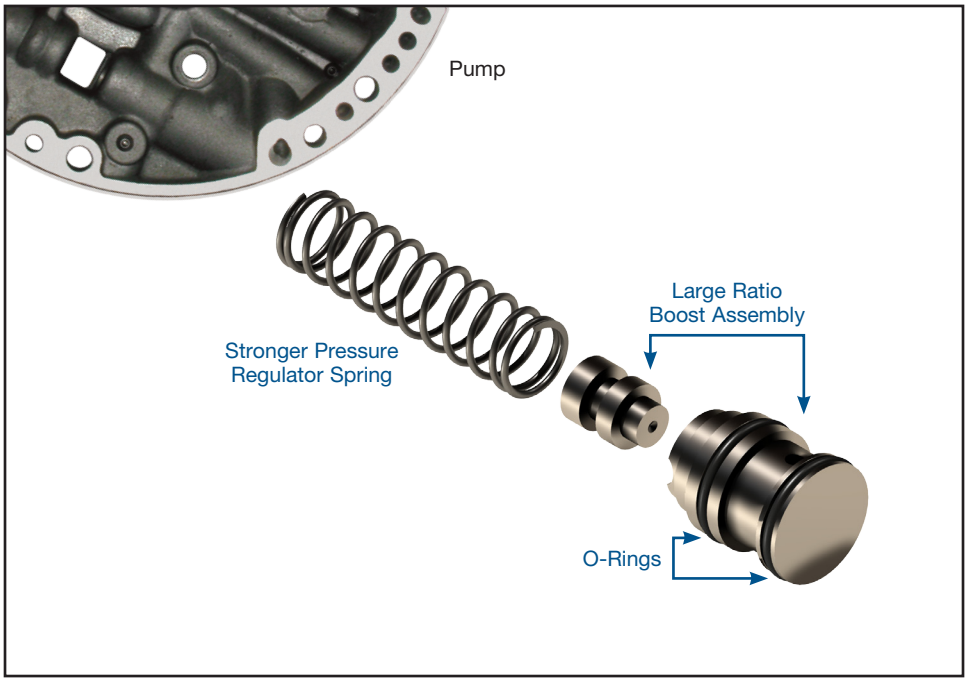
Instructions

GM 4L60 (700-R4), 200-4R

Line Pressure Booster Kit

Part No. 700R4-LB1

- Large Ratio Boost Assembly
- O-Rings (2)
- Stronger Pressure Regulator Spring



1. Disassembly

Remove and discard OE boost valve and sleeve, and large diameter pressure regulator spring. Retain the OE pressure regulator valve, reverse boost valve and sleeve and retaining clip.

2. Bore Preparation

The O-rings included in this kit provide extra insurance toward preventing cross leaks and should always be installed.

a. Carefully inspect snap ring grooves, feed holes or bore edges and de-burr if necessary to reduce cutting. A non-abrasive tool such as a radial wire brush (**Figure 1**) works best, but the bore should always be thoroughly cleaned after any de-burring.

b. Place the two O-rings into the grooves on the boost sleeve, roll sleeve over bench to resize the O-rings, then pre-lube the O-rings. Sonnax Slippery Stick™ (**O-LUBE**) or Door Ease® are ideal for this purpose.

Figure 1

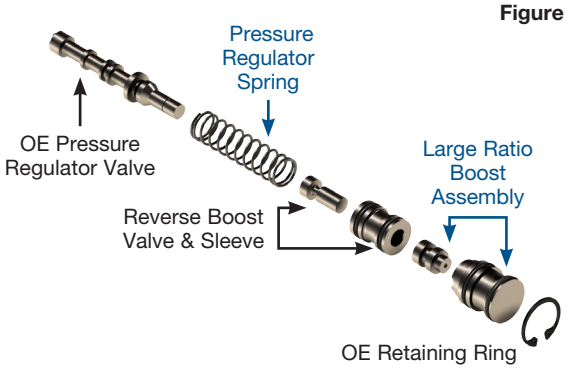


Figure 2

3. Installation

a. Install the new Sonnax pressure regulator spring.

b. Install the reverse boost valve and sleeve and Sonnax boost valve assembly in proper order (**Figure 2**). Carefully push the assemblies into the pump body but only deep enough to reinstall the retaining ring.

c. Install the retaining ring into the pump cover.

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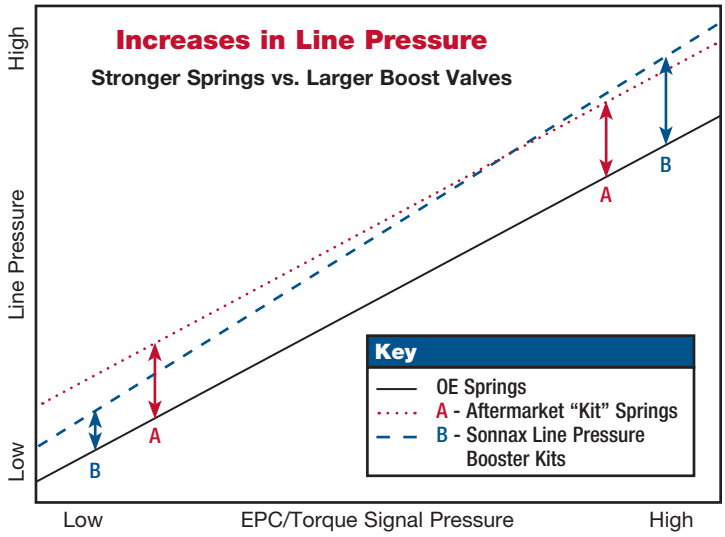
The Prescription for Optimum Pressure

Stronger pressure regulator springs raise pressure equal amounts at idle and maximum pressure. Many aftermarket "kit" springs are a compromise, raising pressure too much at idle and not enough at maximum pressures (**A** in graph). Larger boost valves, on the other hand, have a progressive effect on pressure, changing the rate of pressure increase (**B** in graph).

The Sonnax large ratio boost valves and stronger pressure regulator springs are designed to work together. This is an ideal combination: smooth engagements and lower load on the pump at idle, but a greater increase in pressure as the transmission is worked harder.

For a more in-depth look at raising line pressure, read *The Prescription for Optimum Pressure* in the Sonnax online technical library at www.sonnax.com.



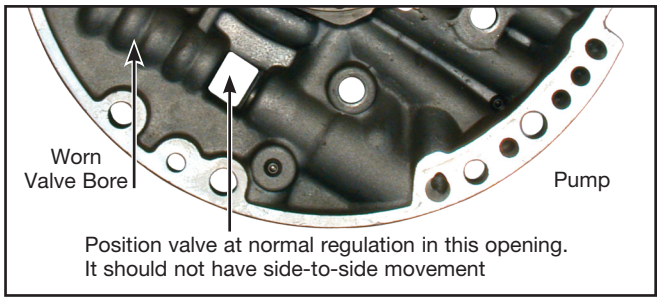
Pump Tech

Good Pressure Depends on a Good Pump

Verify Pump Specifications

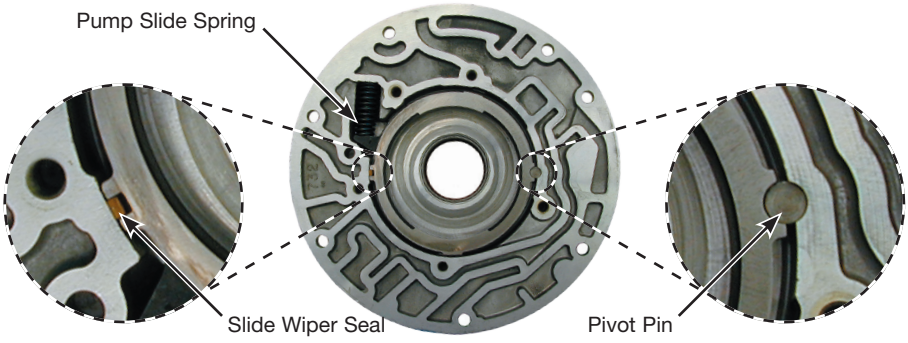
Excess clearance equals low pump volume and pressure.

Rotor, slide and vanes
.0005" to .002" Check with feeler gauge and straight edge over pump face, or with Plastigauge and bolt complete pump together.
Too Loose = low pressure. Too Tight = no line rise, slide is stuck. To check, remove all pump parts and seals, assemble halves with just the pump slide and shake. You should hear pump slide moving inside.



Check for Wear

- If pivot is worn, replace with Sonnax pivot pin **65797**.
- If vane has visible wear, replace with Sonnax pump vane **1280**.



Optional Shift Tech

Too much of a good thing causes problems

Most times when a feed orifice is enlarged, the change in shift feel is far greater than intended and results in nuisance harsh shifts which many customers do not like. Sonnax kits raise line pressure in a progressive way so the biggest increase in pressure is at higher pressure ranges when it is needed most. This has an overall positive effect on shift feel without generating complaints.

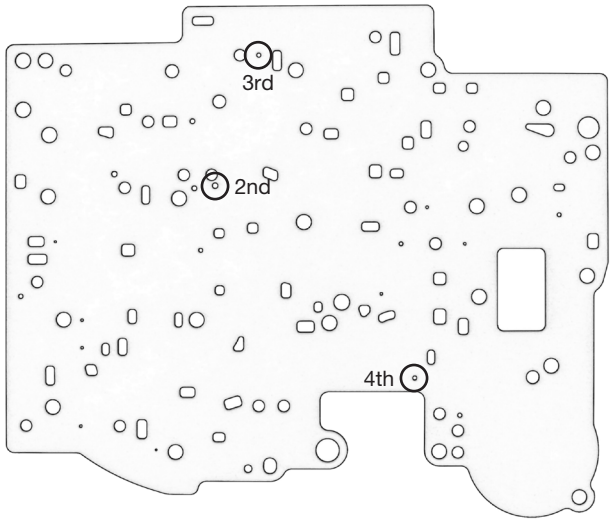
We do not recommend drilling feed holes in all transmissions or recommend specific drill sizes because there are so many different original calibrations and what works well in one may not work well in another. If you do wish to enlarge feed orifices, we have provided these guidelines to help you determine what drill size corresponds with a specific percentage increase in orifice area so you are less likely to cause problems.

Orifice Feed Hole Guidelines

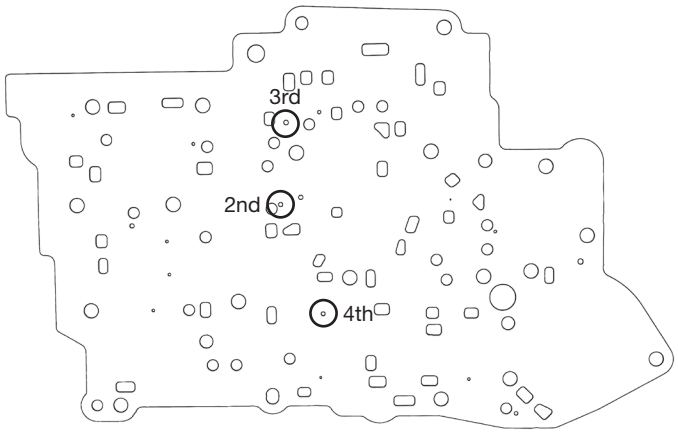
Do not drill feed holes too large. A small change in diameter can make a big change in the area of the hole the oil flows through. Use this chart to determine drill diamter for any increase in orifice area that you think best suits the vehicle.

Original Orifice Diameter	Enlarged Diameter ← Conservative				Agressive →
	+10% area	+ 20% area	+ 30% area	+ 40% area	+ 50% area
0.040	0.042	0.044	0.046	0.047	0.049
0.045	0.047	0.049	0.051	0.053	0.055
0.050	0.052	0.055	0.057	0.059	0.061
0.055	0.058	0.060	0.063	0.065	0.067
0.060	0.063	0.066	0.068	0.071	0.073
0.065	0.068	0.071	0.074	0.077	0.080
0.070	0.073	0.077	0.080	0.083	0.086
0.075	0.079	0.082	0.086	0.089	0.092
0.080	0.084	0.088	0.091	0.095	0.098
0.085	0.089	0.093	0.097	0.101	0.104
0.090	0.094	0.099	0.103	0.106	0.110
0.095	0.100	0.104	0.108	0.112	0.116
0.100	0.105	0.110	0.114	0.118	0.122
0.105	0.110	0.115	0.120	0.124	0.129
0.110	0.115	0.120	0.125	0.130	0.135
0.115	0.121	0.126	0.131	0.136	0.141
0.120	0.126	0.131	0.137	0.142	0.147
0.125	0.131	0.137	0.143	0.148	0.153
0.130	0.136	0.142	0.148	0.154	0.159
0.135	0.142	0.148	0.154	0.160	0.165
0.140	0.147	0.153	0.160	0.166	0.171
0.145	0.152	0.159	0.165	0.172	0.178
0.150	0.157	0.164	0.171	0.177	0.184

4L60 Orifice Feed Holes



200-4R Orifice Feed Holes



Recommended Sonnax Products

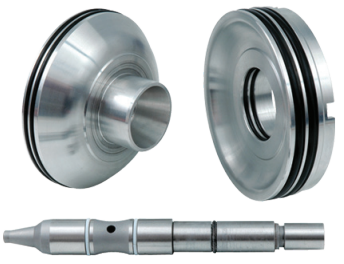
Part No.	Unit
Hydraulic Booster Kits	
4R100-LB1	E40D, 4R100
4L60E-LB1	4L60-E, 4L65-E, 4L70-E*
4L60E-LB2	4L60-E, 4L65-E, 4L70-E**
700R4-LB1	4L60 (700-R4), 200-4R
400-LB1	400
4L80E-LB1	4L80-E, 4L85-E
4T65E-LB1	4T65-E
350-LB1	350
4R70W-LB1	AODE, 4R70W, 4R75W
Electronic Booster Kits	
44957-LB1	68RFE
44957-LB2	45/545RFE

*Early-style pump **Late-style pump

Pump Slide Spring 77722-01K

TCC Apply Valve Kit 77805-K

2nd Gear Super Hold Servo Kit 77911-03K



Line Pressure Booster Kits

Hydraulic Booster Kits Sonnax hydraulic line pressure booster kits contain stronger pressure regulator springs and large ratio boost valves designed to work together to provide progressive pressure increases as driving conditions become more demanding. Sonnax springs are approximately 10% stronger than OE and more conservative in impact than other aftermarket "kit" springs.

Electronic Booster Kits Chrysler 45RFE, 545RFE and 68RFE units are unique because they utilize a true closed-loop pressure control system: the computer reads line pressure at all times through a full range pressure sensor. This means traditional methods of raising line pressure will have no effect because the computer simply re-adjusts the pressure until the voltage signal from the pressure sensor matches what the computer wants to see. Sonnax electronic line pressure boosters alter the pressure signal sent to the computer, causing the computer to raise line pressure. These kits are ideal for heavy duty and modified vehicles and even stock transmissions when a little extra pressure is desired. The booster installs easily between the pressure sensor and vehicle harness using OE-style sealed connectors.

Pump Slide Spring
77722-01K

In high performance applications, when engine speed exceeds 5800 rpm, the centrifugal force on the pump vanes acts to center the pump slide and reduce the pump volume. In high performance applications it is critical to maintain maximum pump volume in order to hold line pressure and avoid 3-4 clutch failure. The Sonnax spring **77722-01K** is stiffer than the combined force of the dual OE springs and is able to hold the pump slide in a maximum volume position despite the high engine speed.

TCC Apply Valve Kit
77805-K

TCC Apply valve for 4L60 & E non-PWM units is made from hardened steel to match the OE material. Precision valve has a Teflon® seal to eliminate cross leaking of converter signal oil and converter feed oil.

2nd Gear Super Hold Servo Kit
77911-03K

The Sonnax 2nd Gear Super Hold Servo Kit **77911-03K** has 18% more apply area than the "Corvette" servo (largest OE) and maximizes holding power in 2nd gear with more positive 1-2 and 2-3 shifts. Dual seals on the 2nd gear piston and separator ensure positive band apply/release and eliminate cross leaks, which contribute to 2-4 band and 3-4 clutch failure. This servo is the perfect option when more holding power is desired without causing excessively harsh upshifts and downshifts. The included apply pin is longer than the longest OE pin, and has added seals to reduce leakage of 3rd and 4th gear oil pressure. For the ultimate servo combination in your 4L60/4L60-E, Sonnax recommends using the **77767K** 4th Gear Super Hold Dual Servo Assembly with the **77911-03K** 2nd Gear "Super Hold" servo.