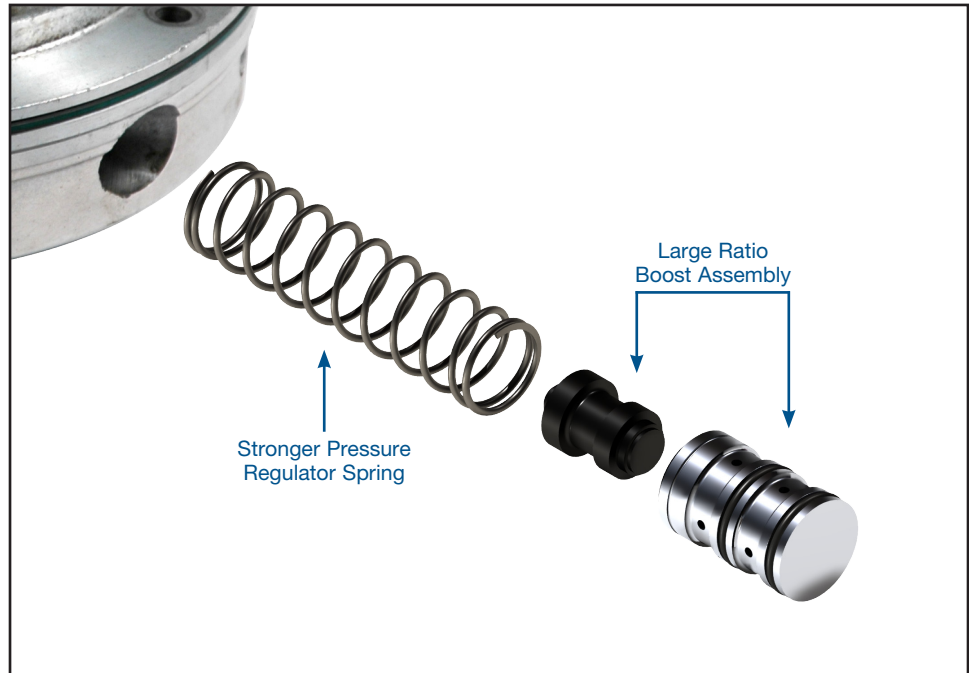


Ford E40D, 4R100

Line Pressure Booster Kit

Part No.
4R100-LB1

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



1. Disassembly

Discard the original boost sleeve/valve and large diameter pressure regulator spring. Save the small bumper spring.

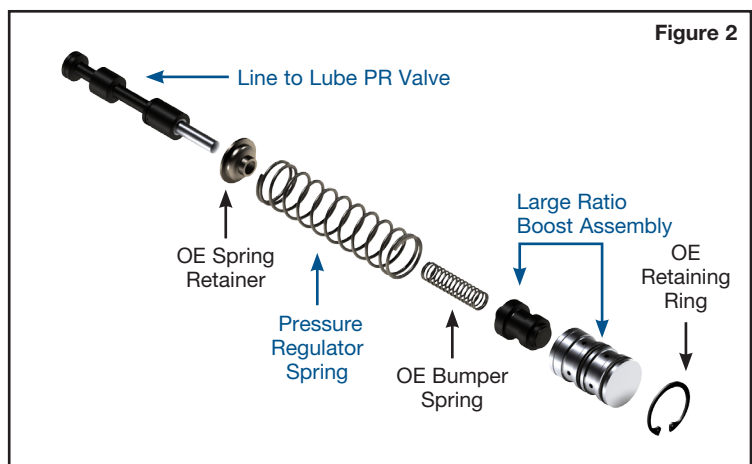
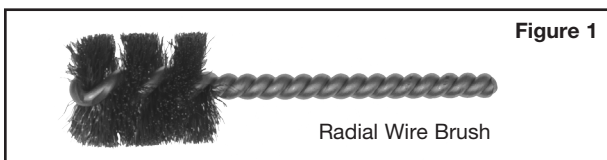
2. Bore Preparation

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

- 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.
- 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.

3. Installation

- Install Sonnax line to lube PR valve **36424-04K** or OE PR valve, the original small bumper spring and the new pressure regulator spring.
- With the open end toward the two springs, carefully push the sleeve assembly into the pump body, but only deep enough to reinstall the retaining ring.
- Install the retaining ring to the pump body.



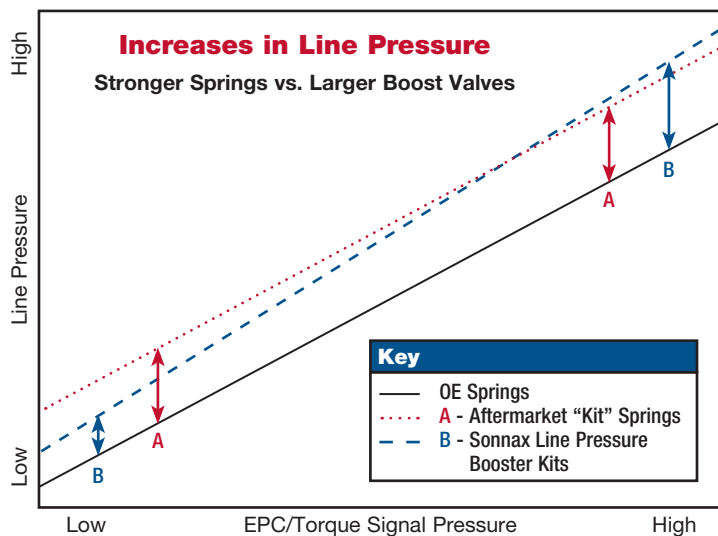
The Prescription for Optimum Pressure

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.

Figure 3



Pump Tech

Good Pressure Depends on a Good Pump

Verify Pump Specifications

Excess clearance equals low pump volume and pressure.

Gear Pocket Clearance	.001" to .0022" Check with feeler gauge and straight edge over pump face, or with Plastigauge and bolt complete pump together.
Outer Gear to Pump Body	.004" max.
Lobe to Lobe	.004" to .006" max.

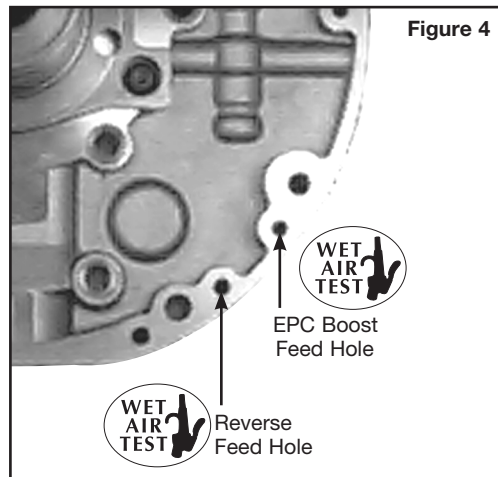
Check for Wear

- If gears are worn, replace with direct replacement Sonnax pump gear kit **36438A**.
NOTE: F5 and later casting number has larger volume (1.7 cu. in.) pump gears and is a preferred upgrade for early units with E9 and F2 (1.5 cu. in.) pump gears.
- Scratches and wear on pressure regulator valve indicate damaged pressure regulator bore.

Perform Wet Air Test

Pump Housing Flatness	.001"
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It is a good idea to perform the wet air test again (**Figure 4**) after installing the Sonnax line pressure booster kit. Continued leakage after replacing the boost valve and sleeve indicates cross leakage between the pump halves, which may be warped. Replace or resurface the pump halves to eliminate the remaining leakage, or use Loctite #518 gasket eliminator on the circuit from feed to boost sleeve.



Wet air tests can be done from either location for this particular application.

Optional Shift Tech

Looking for even firmer shifts?

Raise Accumulator Pressure During All Shifts

Install a larger line modulator valve to raise accumulator pressure during all shifts. Most heavy duty applications can go up one size without getting too harsh. Be sure to inspect original sleeve because a worn sleeve allows EPC oil to leak. Sonnax offers several line pressure modulator plunger and sleeve kits for 4R100 units:

- Kit for 6-cylinder and small 8-cylinder applications, .331" **Part No. 36948-03K**
- Kit for large 8-cylinder applications, .372" **Part No. 36948-05K**
- Kit for heavy duty/high performance applications, .427" **Part No. 96948-01K**
- Kit for extreme heavy duty applications, .500" **Part No. 96948-05K**

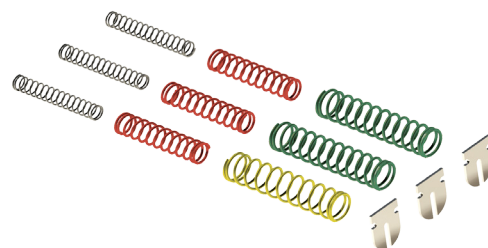
Line Pressure Modulator
Plunger & Sleeve Kits
36948-03K, 36948-05K,
96948-01K, 96948-05K



Quicker and Firmer Shifts

Install Sonnax performance-rated accumulator spring kit **36948-18K**. This spring kit is tunable and recalibrates accumulator pistons for quicker and firmer 1-2, 2-3 and 3-4 shifts.

Performance-Rated Accumulator Spring Kit
36948-18K



Selective Increase of Apply Pressure and Shift Feel

Install Sonnax accumulator control valve kit **36948-13K** for 1-2 and 2-3 locations and kit **36948-09K** for 3-4 location. These improved valves include spring shims for selective increase of apply pressure and shift feel.

Accumulator Control Valve Kits
36948-13K, 36948-09K



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	A0DE, 4R70W, 4R75W
Electronic Booster Kits	
44957-LB1	68RFE
44957-LB2	45/545RFE

*Early-style pump **Late-style pump

Bore Sizing Tool 36948-12



Line-to-Lube PR Valve 36424-04K



Center Support Seal Kit 36424-24K



Low/Reverse Modulator Valve Plunger & Sleeve 36947-06K



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.

Bore Sizing Tool

36948-12

This bore sizing tool is not required, but is recommended for use with Sonnax accumulator valve kits **36948-13K** and **36948-09K**. The tool allows the bore to be resized properly to prevent hang-up of the OE or Sonnax valve.

Line-to-Lube Pressure Regulator Valve

36424-04K

Sonnax line-to-lube pressure regulator valve **36424-04K** features a patented, internal line-to-lube passage with anti-drainback check valve that allows full-time flow to the converter and cooler circuit, yet prevents drainback. This upgrade is an essential part of any heavy duty rebuild. No machining is required.

Center Support Seal Kit

36424-24K

A major cause of low clutch apply pressure, soft shifts and burnt 2nd and 3rd clutches is leakage between the case and the clutch feed passages in the intermediate clutch support and the center supports. There is no positive seal as oil passes from the case to either of these supports, and normal clearance, accumulated wear and movement of the supports under load combine to cause major leaks at this location. For a 100% positive seal and zero leakage, install Sonnax center support seal kit **36424-24K** into every overhaul. No machining is required.

Low/Reverse Modulator Valve Plunger & Sleeve Kit

36947-06K

The low/reverse modulator valve plunger uses line pressure to control the position of the low/reverse modulator valve. Wear occurs at the ID of the sleeve and allows line pressure to leak to exhaust which can cause slippage, burnt clutches and loss of engine braking. Sonnax replacement low/reverse modulator valve plunger and sleeve kit **36947-06K** for '96-later units restores proper clearances for hydraulic sealing. No machining is required.