

Transmission Report

Volume 13, No. 3

December 2022

It was GREAT to See Everyone at the 2022 Powertrain Expo & SEMA Tradeshow

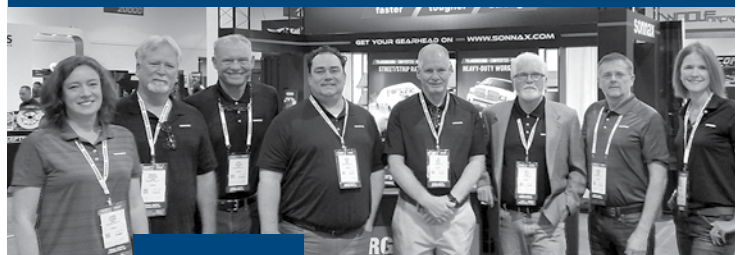
It takes months of planning and prep work to get ready for tradeshow — and it is always worth it! Thank you to all who stopped by to talk shop with our team. It was great to be back at Expo and SEMA, and we're looking forward to seeing you again next year. **Visit the Sonnax Facebook page to see more photos from the shows!**



Powertrain Expo Show Team



SEMA Show Team



Tech Specialist Randall Schroeder Keeps the Crowd Happy with Live Demos at Expo



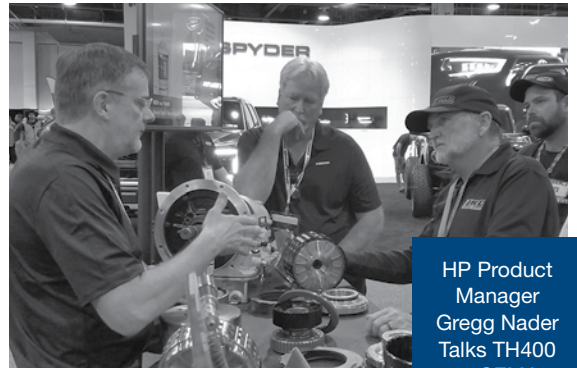
Sonnax Goes BIG with Performance at SEMA



Two Brands, One Company! Rostra & Sonnax Share an Expo Booth







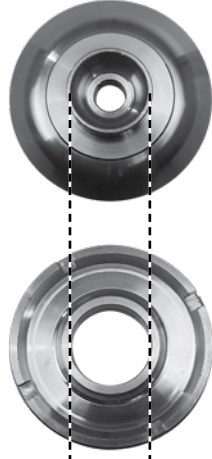
HP Product Manager Gregg Nader Talks TH400 at SEMA



How to Choose the Right 4L60/E Servo Ratio for Improving Reliability & Shift Feel

For years we have known the 4L60 and 4L60-E 2nd Gear servo came in three different sizes and one aftermarket size in the Sonnax 2nd Gear super hold servo. All of these servos have a “proper” apply-to-release ratio and accommodate a cushion spring.

With the 2007 4L70-E, there is a fourth OE servo size that gives builders another choice when looking for something with increased performance. Sonnax now offers an upgraded version of this .63 ratio servo, giving builders even more options for improving reliability and changing shift feel.

4-cyl./V-6 (Smallest OE Apply Area)	V-6/V-8	4L70-E	Corvette (Largest OE Apply Area)	Sonnax Super Hold
.46 Ratio	.55 Ratio	.63 Ratio	.74 Ratio	.87 Ratio
				
2.520"	2.312"	2.075"	1.792"	1.340"
Casting #8642554	Casting #8642553	Casting #24229159 Sonnax #77701-02K	Casting #8642093 Sonnax #77701-04K	Sonnax #77911-03K

.63 Ratio for Improved Reliability, Minimal Shift Change

The 8642553 casting used in V6 and V8 applications is by far the most common size we see. However, if you are looking to add “a little extra” to a heavy-duty rebuild and want a little more 2nd band apply area, but the Corvette or larger aftermarket servo is just too much for a daily driver, try the new Sonnax 2nd Gear servo kit [77701-02K](#). Like the other Sonnax servos, it features improved seals to enhance sealing during apply and release.

With its .63 ratio, this mid-range servo size is a perfect first option to consider when upgrading stock-type applications. The 4L60-E and 4L65-E units were originally built with smaller, .46 ratio or V-6, V-8 .55 ratio servos, while the later 4L70-E came with a .63 servo. In all these units, a “Corvette” .74 ratio servo is often too large, aggressive or harsh shifting for stock-type applications, making the Sonnax .63 ratio servo a perfect option for any build.



NEW!

2nd Gear Servo Kit
Part No. 77701-02K
.63 Ratio • Fits 4L60-E, 4L65-E, 4L70-E



2nd Gear “Corvette” Ratio Servo Kit

Part No. 77701-04K

.74 Ratio • Fits 4L60, 4L60-E, 4L65-E, 4L70-E

.74 Ratio for Extra Holding Power in Street Vehicles

The Sonnax 2nd Gear “Corvette” ratio servo kit 77701-04K is an upgrade from the smaller-ratio stock servo and adds holding power in many street applications. The exclusive Sonnax design features Viton® D-rings for more consistent apply and release than stock servos.



2nd Gear Super Hold Servo Kit

Part No. 77911-03K

.87 Ratio • Fits 4L60, 4L60-E, 4L65-E, 4L70-E

.87 Ratio for Maximum Holding Power

The Sonnax 2nd Gear super hold servo kit 77911-03K can be used as an upgrade from a stock “Corvette” servo or to add max holding power in extreme applications. It’s the perfect choice for performance applications when a larger-than-OE servo is desired, and its unique design avoids the timing flaws and excessive shock loads found in other aftermarket servos.



Double Up Protection Against 4L60/E Input Housing Failure

Part No. 77733-52K

Fits 4L60, 4L60-E, 4L65-E, 4L70-E

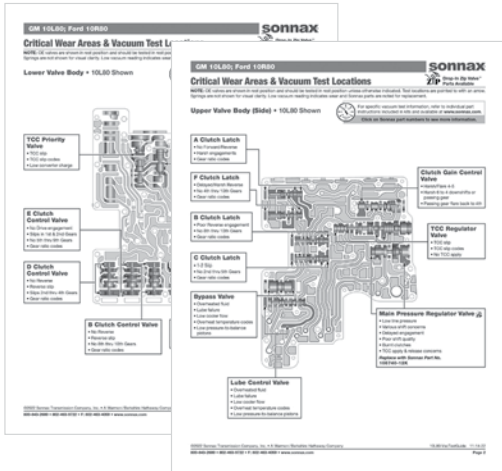
New Forward Sleeve Kit Adds Reliability to High-Torque Builds

- Increases input housing torque capacity
- Maintains OE forward piston apply area
- Combine with a Sonnax overrun sleeve for easy upgrades of older builds or new HD/HP builds

For years builders have guarded against 4L60/E input housing failure at the shaft area with a Sonnax overrun sleeve. As power levels increase, though, a similar failure can occur near the housing’s forward piston. You can now easily improve durability in this area by adding a second Sonnax reinforcing sleeve to the housing. This new forward sleeve kit 77733-52K is a recommended upgrade for all high torque capacity work/sport vehicles.

NOTE: Installation of the forward sleeve kit requires a compatible Sonnax aluminum overrun piston, which is not included in this kit. This piston is available in Sonnax overrun sleeve kit 77733-51KA and currently offered in Smart-Tech input housing kits. See instructions at www.sonnax.com for details.





FREE 10L80, 10R80 Vacuum Test Guide



- Learn Locations to Test
- Identify Common Transmission Problems
- Select Parts for Repairs

Print/download this guide and more than 40 others at www.sonnax.com/vacuum-testing.

New 47RH/RE, 48RE Intermediate Shaft Gives You Another Upgrade Option

Sonnax extreme duty intermediate shaft kit 22171B-08K delivers the ultimate protection against breakage in high-power vehicles. A unique combination of innovative engineering and quality manufacturing guarantee maximum strength and resistance to fracture in even the most extreme applications.

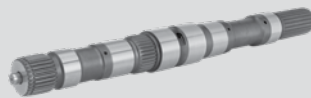
NOTE: As shown here, the rear spline is optimized by increasing the spline minor diameter (root of the spline), which increases the cross-sectional area of the shaft and its ultimate strength. As a result, machining is required for installation. The shaft rear spline is further optimized by eliminating the undercut where the selective spacer is located on a conventional shaft. To provide additional control of the rearward movement of the shaft, a Sonnax PTFE-coated washer is added. See instructions at www.sonnax.com for details.



Conventional Shaft with Selective Spacer



Input Shaft



Intermediate Shaft



Output Shaft

HEAVY DUTY

Stock Capacity
22121B-01

20% More Direct Clutch Torque Capacity
22121B-02K

Direct Replacement
22171B-HD

23 Spline
47/48RE 4WD Only
22173D-HD

EXTREME DUTY

Big Shaft (35 Spline) w/ Custom Billet Pump Cover
22121B-08K



Machining Required
22171B-08K

29 Spline Shaft & Input Gear*
22173D-01K

29 Spline Shaft**
22173D-01

*For '03-'06 48RE 4WD models only with NV271 or NV273 transfer cases.

**For 4WD 47/48RE models only. Also for use in 4WD 68RFE to 48RE conversions.

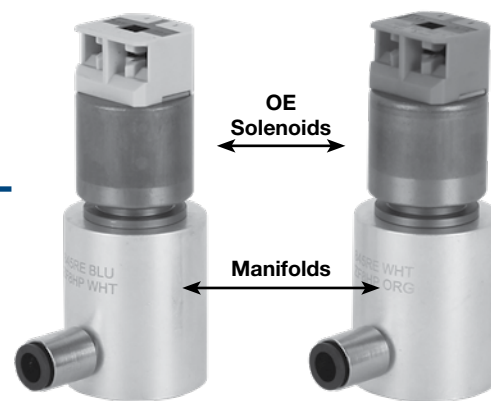
Take the Guesswork Out of Replacing 845RE, ZF8 Solenoids

The leading cause of solenoid failure in ZF8HP45/55/70 and Chrysler 845RE units is an inability to maintain an internal mechanical seal, resulting in a multitude of drivability concerns. Since it is not an electrical failure, it can be difficult to evaluate whether a solenoid is the cause of a particular problem.

Sonnax solenoid test manifold kit **35430-VTK** allows quick, easy, cost-effective pass/fail verification of solenoid internal sealing integrity.

Just insert solenoid snout into the test manifold, attach the manifold to Sonnax vacuum test stand kit **VACTEST-01K**, apply vacuum and observe the test stand gauge. A reading below 20 in-Hg. indicates a compromised solenoid that should be replaced.

A similar solenoid test kit (**95430-VTK**) is available for Ford 6R60/75/80/100 and ZF6 solenoids. Learn more at www.sonnax.com.



Part No. 35430-VTK
Fits ZF8HP45/55/70 & Chrysler 845RE

NOTE: Sonnax test manifold kits test internal mechanical sealing ability only; they do not test the integrity of the electrical coil and contacts. See instructions for details.

Sonnax vacuum test stand sold separately.



68RFE Precision Bushings for More Reliable Builds

- Upgraded material composition outperforms OE bushings
- Superior wear characteristics eliminate premature deterioration



Individual Bushings
Sold 5/Bag

Part Name	Part No.
Bushing Kit Includes one each of all bushings listed below	72030-68K
4th Clutch Hub/Reaction Sun Gear Front Bushing	72030-07
4th Clutch Hub/Reaction Sun Gear Rear Bushing	72030-08
Front Reaction Carrier Bushing Replacement for un-grooved OE bushing	72030-10
Input Clutch Hub Bushing	72030-12
Input Shaft Bushing	72030-09
Low/Reverse Drum Front Bushing	72030-02
Low/Reverse Drum Rear Bushing	72030-01

Part Name	Part No.
Overdrive Clutch Hub/Shaft Front Bushing	72030-05
Overdrive Clutch Hub/Shaft Rear Bushing	72030-06
Output Shaft Bushing	72030-03
Rear Reaction Carrier Bushing	72030-11
Stator Bushing	72030-04

TH400 Smart-Tech[®] Drum Module



The GAME-CHANGER for a Faster, Tougher, Stronger TH400

- Increase wheel horsepower, improve acceleration & reduce shock on shifts while ramping up durability & safety
- A great value: all-in-one kit upgrades forward & direct drums plus everything else from intermediate sprag to back of the pump
- Unique design improves efficiency without reducing capacity
- Easy to assemble & install

When racing a TH400, it's critical to upgrade the forward and direct drums. The key is not only stronger, more durable parts, but improving efficiency for better performance, consistency and safety.

Grab a radical edge over the competition with the Sonnax Smart-Tech drum module. It's the first and only TH400 upgrade to optimize drum function with a unique configuration of both lighter and stronger components. The result: a big boost in transmission efficiency for more power to the ground, traction/stability on the shifts and the best protection you can get against catastrophic drum failure.



Part No. 34555-01K Fits TH400

NOTE: The Smart-Tech module is for use only in drag racing applications that do not use a front band.

For maximum durability in all other applications, a Sonnax clutch hub and heavy duty forward drum are recommended.



How It Works

There's a hard limit to what traditional aftermarket upgrades can do for the TH400. It's burdened by an inefficient drum system that involves starting/stopping/restarting a heavy direct drum on the 1-2/2-3 shifts. At racing RPM this consumes a huge amount of energy and puts a lot of strain on the transmission, which is why parts fail when they hit their limit.

The common method of installing lighter components to improve performance won't overcome this basic inefficiency.

Sonnax took a revolutionary new approach to the problem, re-engineering the entire forward/direct drum system with a unique configuration of lighter and stronger parts.

Weighing 3.3 lbs. less than an aluminum direct drum, with weight concentrated at the center, the module's direct clutch components take 53% less energy to operate than an aftermarket aluminum drum. This is a HUGE advantage no matter what kind of racing you're doing.

Learn More at www.sonnax.com/TH400



Tech Team Shop Talk

Caleb Perham

Product Support Representative

Caleb joined the Sonnax technical team in 2022. He has over 10 years experience as an automotive technician. In his spare time, he enjoys building circle track race cars.

Contact Product Support (800) 843-2600, Ext. 398 • sonnaxtechsupport@sonnax.com

Mon. – Fri., 8:30 a.m. – 5 p.m. ET

PTFE Seal Installation Tips

In this edition, we'd like to share a few tips on installing PTFE seals on Sonnax 2nd Gear super hold servo kit **22301B-01K** for Chrysler 46RH/RE, 47RH/RE, 48RE, A727 transmissions.

Non-scarf cut PTFE seals can be very intimidating to install for the first time, quite different from installing your average rubber O-ring. The main tool you are going to need with these is patience. Slow and easy will get you where you need to be.

Take the seal between your thumb and pointer finger, while pulling, work seal around to stretch evenly (**Figure 1**). Fit one edge of seal in the servo groove and install it all the way around. If it is still too snug to fit, you may have to repeat the previous stretching process until you can slide the seal the rest of the way over the end of the servo.

Once the seal is in the groove, you can roll the part in your hands to help shrink the seal deeper into the groove. You will then take the sleeve, making sure it is square, and gently work it over the seal (**Figure 2**).

If you are still having difficulty, another option is to tightly wrap the seal with electrical tape and let it sit for several minutes (**Figure 3**). This will size the solid PTFE seal down. This method can be used on any other seals of this type when a dedicated sizing tool is not available. These seals are very strong and can stretch quite a bit before you break them.



Figure 1 – Stretching Seal



Figure 2 – Fitting Seal



Figure 3
Still having difficulty?
Wrap seal with electrical tape and let it sit for several minutes to size down.

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Featured in this Issue

- Powertrain Expo & SEMA Photo Recap
- New 4L60/E Servo Ratio Options & Housing Upgrade
- New Chrysler & ZF8 Parts
- New 10-Speed Vacuum Test Guide
- New TH400 Drag Racing Drum Upgrade

To update your address or request to stop this mailing, please call 800-843-2600, 8:30 a.m. to 5 p.m. ET, or send an email to news@sonnax.com.

Sonnax is an industry leader in the cutting edge design, manufacture and distribution of the highest quality products to the automotive aftermarket, commercial vehicle industries, and industrial sectors utilizing drivetrain technology.

 A Marmon |
Berkshire Hathaway
Company



Sonnax Transmission Product Catalog Vol. 10

We're thrilled to introduce a new volume of our full-line transmission products catalog.

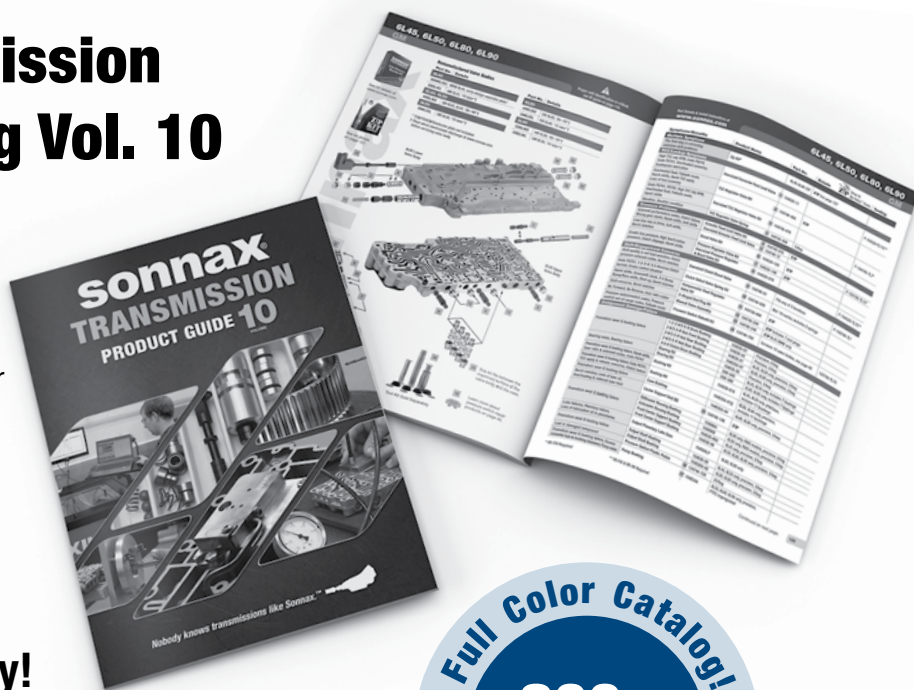
We started publishing this popular product guide back in 1997, and it's been a great asset to the industry ever since. Our 10th edition is our largest one to date at a whopping 224 pages!

Jam-packed with helpful valve body diagrams, product listings and tech articles, this catalog is said to be "the best diagnostic tool in the industry."

Request Your FREE Copy Today!

Free copies of the catalog were mailed with the October edition of *Transmission Digest* and *Gears* magazines.

If you haven't received a copy or want an extra for the shop, request one today at www.sonnax.com.



Full Color Catalog!

200+
Pages!