

## Transmission Report

Volume 4, No. 2

August 2013



### Always Ask for Genuine Sonnax Parts

“Imitation is the sincerest form of flattery”, so the old saying goes. **But when imitation parts threaten the quality of your rebuilds, nothing is flattering about that!**

Experienced users know that Sonnax is more than just some valves and sleeves; **Sonnax is a system.** The Sonnax system includes patented holding fixtures, proprietary precision-engineered reamers and products designed to fix the root cause of transmission problems and restore the unit to its original specifications. Yet some folks might compromise the integrity of the Sonnax system by installing knock-off parts into their work to save a few bucks. Make sure you insist on genuine Sonnax products. Accept no substitutes!

#### A Whole New Business

Years ago, valve bodies were made of cast iron and the valves rarely moved. Under such conditions, valve body wear was negligible. In an effort to reduce weight and increase fuel mileage, OEMs began to introduce aluminum valve bodies and strategies such as PWM (among others) which had the valves buzzing inside those bores. There had always been valve body recalibration kits to change the shift characteristics of a transmission, but those kits did nothing to address the bore wear that these new units were exhibiting.



Almost 20 years ago, Sonnax invented a whole new market segment. The bore wear in aluminum valve bodies and pumps were rendering the parts useless prematurely. Replacements were expensive. So Sonnax pioneered a way to ream the bores and provide new valves or valve/sleeve combos to bring the performance level back to original specs and fix transmission problems for the long term.

Sonnax products were well-received in the transmission marketplace by production rebuilders and independent shops alike. Collectively, shops have saved millions of dollars by salvaging valve bodies and other transmission components which would have otherwise required replacement, and a whole new industry we now know as “valve body rebuilding” was born. Many shops now have a significant investment in Sonnax reamers and holding fixtures. Sonnax tools are an important part of the frequently-used tool arsenal in most shops.

**Yet some suppliers think you will jeopardize that investment in your future and your reputation by offering knock-off or substitutes of Sonnax parts.**

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## More than Meets the Eye: Sonnax Product Development

Sonnax valves are not just machined chunks of metal. Over the years, Sonnax has refined the product development process to assure users of the expected result. Two decades of accumulated data and hundreds of years of human technical expertise go into every Sonnax part. Many of the parts are so precise that the sleeve is individually machined to match the valve tolerance (a process performed using a patented machine invented by Sonnax).

**Research** It begins with a thorough evaluation of the valve body by experienced transmission professionals. Wear characteristics are noted and mapped. Our technicians consult with our design engineers to determine the best approach for each bore.

**Design** Sonnax engineers then design the reamers and parts together, holding to extremely close tolerances that cannot be duplicated by anyone simply trying to copy the parts. Decisions are made about materials, hardness and thickness of anodizing, tolerances and host of other variables that those not privy to our research simply cannot duplicate.

**Testing** Once the products are designed, prototypes are made and rigorously tested, both in valve body testers and in the vehicle. We know how each part will work and how the parts will work together to perform as you expect.

**How can a knock-off artist be expected to get all these tiny details right when they can't even use the right materials?**

## Tech Support Right from the Source

Of course Sonnax is renowned for technical support. Whether you use our telephone hotline or interact with an online tech support specialist on many of the Internet tech forums out there, Sonnax is unequalled in the amount and variety of ways we provide tech support.

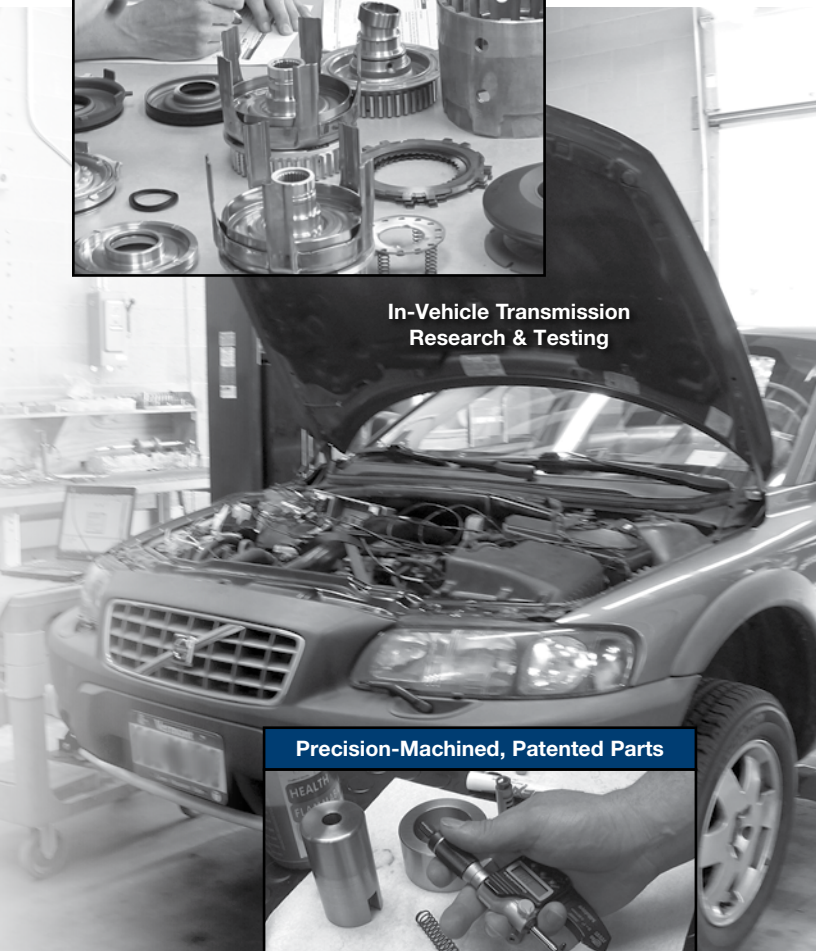
Maybe you've attended one of our Roadshows or seen a tech seminar presented by one of the Sonnax experts at a transmission industry event. Maybe you've read our tech articles in transmission industry trade magazines, used our industry-leading website to research a part or a problem, or found some valuable information in this newsletter. Nobody supports customers like Sonnax.

## Ask the knock-off guys about their tech support!

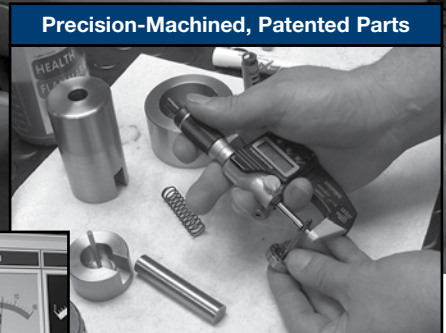
Of course they don't have any because they don't understand the parts, how they work or even the problem you're trying to fix. *They just machine metal.*



Product Development by In-House Transmission & Engineering Specialists



In-Vehicle Transmission Research & Testing



Precision-Machined, Patented Parts



Advanced Diagnostic & Quality Control Processes



Expert Technical Support

## Always Ask For Genuine Sonnax Parts



We know you won't risk the quality of your work with inferior, look-alike parts. Your reputation is worth more than a few dollars for cheaper substitutes. **Tell your distributor you will ONLY accept genuine Sonnax products.** Accept NO substitutes. ALWAYS demand genuine Sonnax parts!

## Online Vacuum Testing Guides

- **LEARN** Vacuum Test Locations
- **IDENTIFY** Common Associated Transmission Problems
- **FIND** Recommended Sonnax Parts for Quality Repairs

It's never been easier to test and diagnose valve body areas most prone to wear! Sonnax vacuum test guides identify these areas and the location to test circuits in specific units before and after making repairs.

### Aisin AW

60-40LE

60-41SN

### Ford

4/5R44E, 4/5R55E

**New** 5R55W/S

### GM

4L60-E

4L80-E

**New** 4T65-E

**New** 6L45, 6L50, 6L80, 6L90

### Toyota

**New** A340E/F, '00-Later V6 & V8

U140E/F, U240E, U241E

U151E/F, U250E

**New** U660E

### ZF

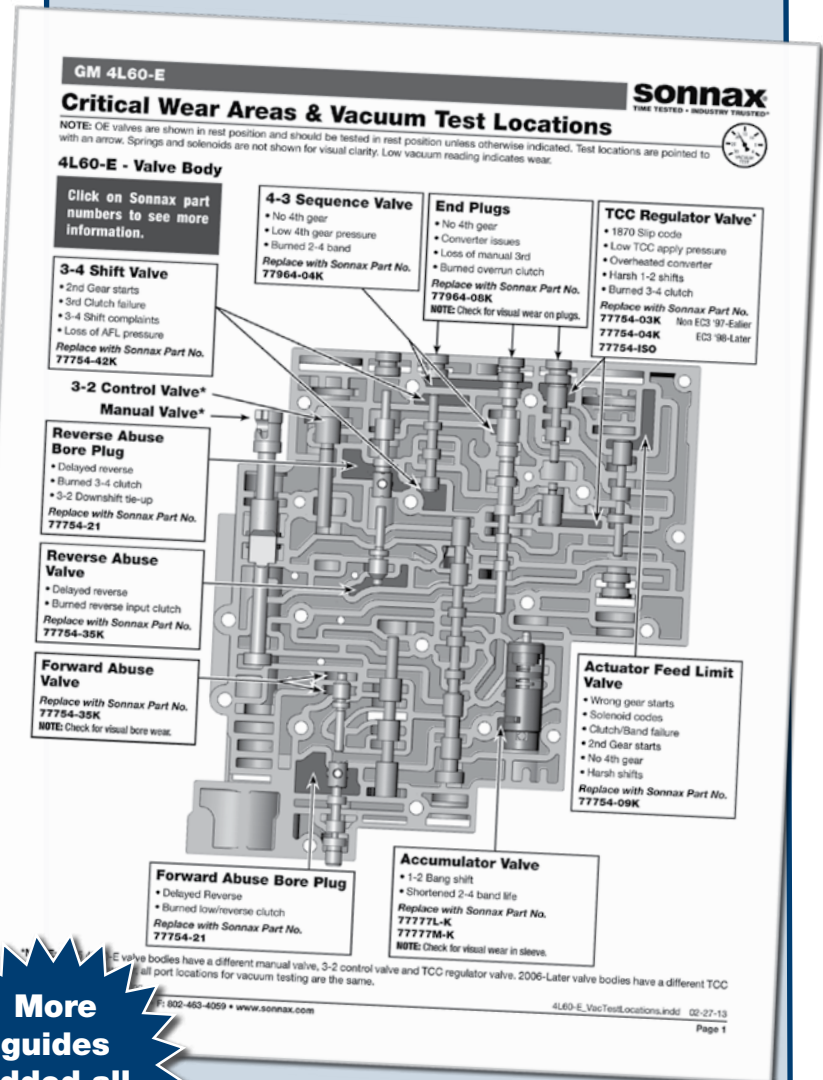
ZF6HP19/26/32 (Gen. 1)/

Ford 6R60, 6R80

ZF6HP21/28/34 (Gen. 2)

**VISIT [WWW.SONNAX.COM](http://WWW.SONNAX.COM)**

to view, print or download these guides  
& check out the latest available units!



**More guides added all the time!**

Take our survey on the **Sonnax Facebook Page!**



Scan code with smartphone to view guides or take the survey!



### What New Guides Do You Want?

Sonnax is working on more testing guides and wants your feedback on which guides for specific units would get the most use in your shop. Visit the Sonnax Facebook page, check out the survey and vote today!

## NEW for 2013

# 12 6L45, 6L50, 6L80 & 6L90 Transmission Solutions

### 1 104740-07K

#### Oversized TCC Regulator Valve Kit

Helps cure:

- Codes 741/742
- Excess TCC slip rate/harsh apply

**Note:** Requires tool kit F-104740-TL7 & the VB-FIX reaming fixture.



### 2 104520-11

#### Oversized Converter Feed Limit Valve

Helps cure:

- High TCC slip rate
- Converter overheat

**Note:** Requires tool kit F-104520-TL11C, VB-FIX & the VB-06 reaming fixtures.



### 3 104520-01K

#### Boost Valve Kit

Helps cure:

- Insufficient line rise in drive
- Soft shifts

### 4 104520-03K

#### Pressure Regulator Valve Kit

Helps cure:

- High/Low line pressure
- Harsh/Soft shifts

### 5 104520-07K

#### Oversized PR & Boost Valve Kit

Helps cure:

- High/Low line pressure
- Transmission overheating

**Note:** Requires tool kit F-104520-TL7, VB-FIX & the VB-06 reaming fixtures.



### 6L80-LB1

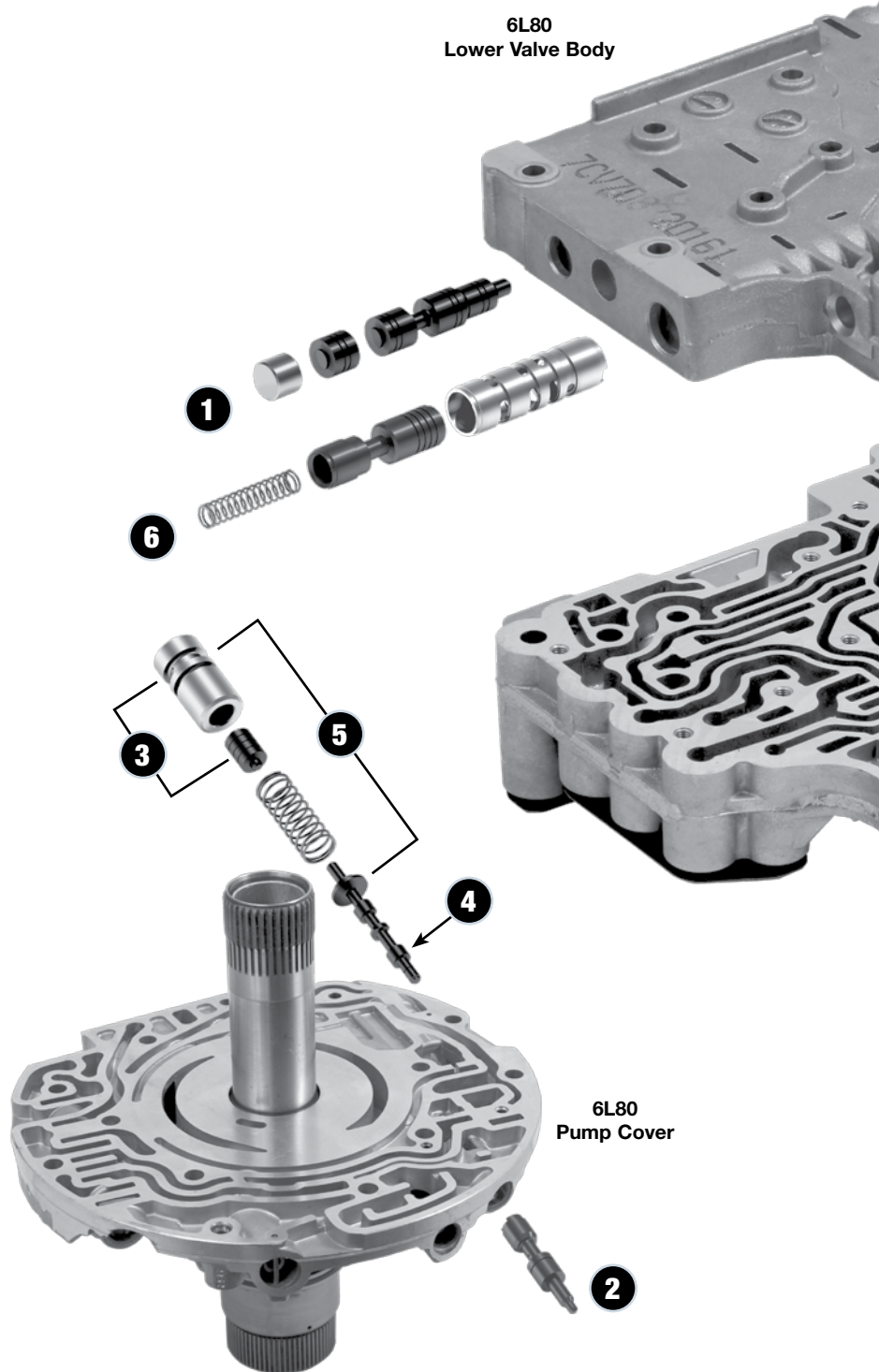
Parts Not Shown

#### Line Pressure Booster Kit

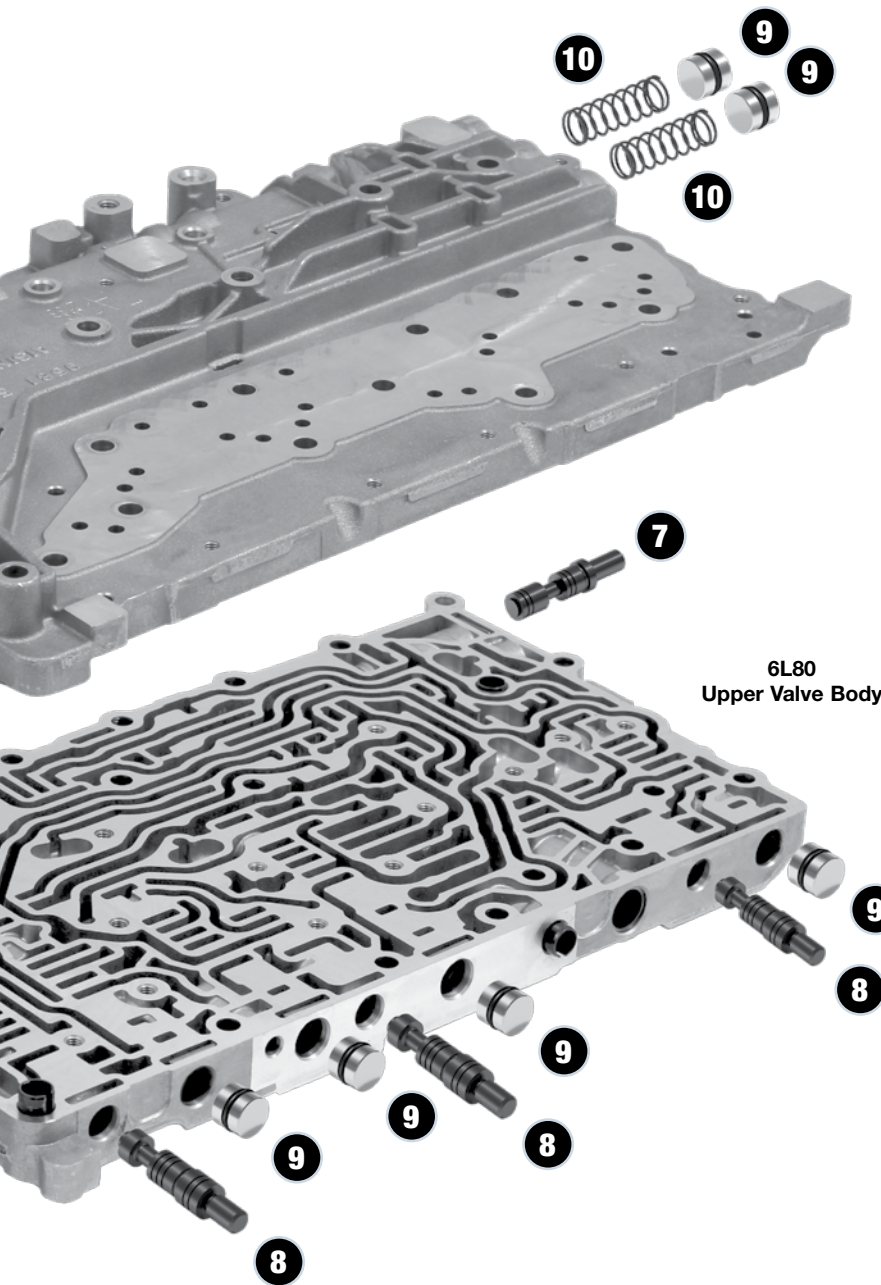
Precision-controlled pressure increases for quicker shifts without harshness.



6L80 Lower Valve Body



6L80 Pump Cover



6L80  
Upper Valve Body



*"I installed our first Zip Kit on a U140F, nice kit and additional information. What was really nice: to have at your fingertips the vacuum testing locations and the effects of the wear in that bore. Without this information I might not have vacuum tested and missed this problem. Nice kit, Sonnax."*

K. Mumie  
Foran's Transmissions • Minersville, PA

## 6 104740-09K

### Compensator Feed Regulator Valve Kit

Helps cure:

- Harsh shifts, CPC codes
- Bump up/down shifts

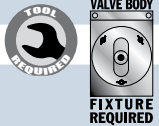
## 7 104740-12

### Oversized AFL Valve

Helps cure:

- Wrong gear starts
- Solenoid codes

**Note:** Requires tool kit F-104740-TL12 & the VB-FIX reaming fixture.



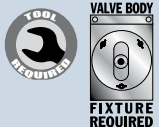
## 8 104740-01 Fits Any of 3 Locations

### Oversized Clutch Boost Valve

Helps cure:

- Shift quality is not load sensitive
- Clutch pressure solenoid codes

**Note:** Requires tool kit F-104740-TL & the VB-FIX reaming fixture.



## 9 104740-23K Includes 6 End Plugs

### O-Ringed End Plug Kit

Helps cure:

- Shift Complaints
- Burnt clutches

## 10 104740-02K Includes 2 Springs

### Clutch Select Valve Spring Kit

Helps cure:

- P0751 Code
- Cruise control disabled

## 6L80-6L90-ZIP Parts Not Shown

### Zip Kit®

It's easy to restore and extend vehicle shift quality with Zip Kits. Uniquely designed Sonnax parts target the root cause of valve body complaints and stop critical circuit pressure losses in the most common problem areas of the transmission.

### Which Sonnax Kit is Right for Your Rebuild?

Line Pressure Booster Kit	Zip Kit®	The Sure Cure®	Performance Pack
Affordable kit for big performance without a big price tag.	The first step in correcting common shift problems.	Big fixes for big problems you don't want back.	The best parts for performance & heavy duty recalibration.
<ul style="list-style-type: none"> <li>Affordable, drop-in kit with no special tools required</li> <li>Increases torque capacity</li> <li>Improves shift feel without low-speed harshness</li> </ul>	<ul style="list-style-type: none"> <li>Installs quickly &amp; easily without any special tools</li> <li>Stops leaks so the valve body works the way it's supposed to</li> <li>In-depth tech booklet for installation, plus diagnostics &amp; repair</li> </ul>	<ul style="list-style-type: none"> <li>Restores OE shift quality</li> <li>Repairs biggest trouble areas to reduce comebacks</li> <li>Step-by-step instructions for complete valve/pump body restoration</li> </ul>	<ul style="list-style-type: none"> <li>Highest quality performance upgrades</li> <li>Great shifts which firm up the harder the transmission is worked</li> <li>Consistent results, no guessing on calibration</li> </ul>



## New! GM 6L45, 6L50, 6L80 & 6L90 Line Pressure Booster Kit

Part No. 6L80-LB1

# ZIP KIT®

- Simple, Drop-In Parts
- Stops Hydraulic Leaks
- In-Depth Tech Booklet



## The First Step in Correcting Common Shift Problems



### Aisin AW

60-40LE (AF-13)

60-41SN (AF-17)

### Ford

4/5R44E, 4/5R55E

### GM

**New** 6L45, 6L50, 6L80, 6L90

### Toyota

U140E/F, U240E, U241E

U151E/F, U250E

**New** A340E/F, '00-Later V6 & V8

**Coming Soon** A750E

**Coming Soon** U660E

### ZF

ZF6HP19/26/32 (Gen. 1)/ Ford 6R60, 6R80

ZF6HP21/28/34 (Gen. 2)

Thank you to the readers of *Transmission Digest* for voting Sonnax's growing line of Zip Kits a 2013 Top Shop Product!

# SURE CURE 48RE *New!*

Every Sure Cure kit is a comprehensive reconditioning package featuring the best Sonnax products developed to help rebuilders restore and enhance transmission performance.

- **Restore Shift Quality & Reduce Comebacks**
- **Easy-to-Use, Step-By-Step Installation Guide**
- **Save Time & Money with One Kit from One Trusted Source**

Choose from 18 Sonnax Sure Cure kits!  
Learn more at [www.sonnax.com/sure-cure](http://www.sonnax.com/sure-cure)

#### Kit includes:

- Oversized Lube Regulated PR Valve & Line/TV Pressure Plug Kit 22771A-16K\*
- Manual Valve 22771-09
- Oversized Throttle Valve Kit 22771-04K\*
- 4-Spool Switch Valve 22771A-01
- Intermediate Plug & Pilot Kit 22171A-02K
- Output Shaft Bushing 12510-01
- Valve Body Detent Ball & Sleeve Kit 22771-12K
- 6-Tab Thrust Washer 22700GT-01
- Shift Linkage E-Ring
- Checkballs

#### Part No. SC-48RE

**\*NOTE:** These parts require Sonnax "F-Tool" kits to install as well as the VB-FIX, a self-aligning valve body reaming fixture. Details and instructions can be found at [www.sonnax.com](http://www.sonnax.com).

#### TCC Complaints

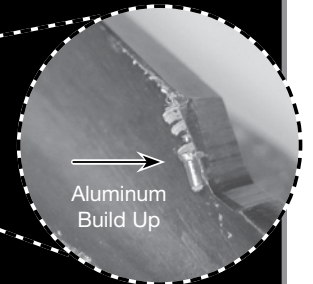
- Lockup shudder
- Lube failures
- Converter bushing failure
- Overheated converter
- Reduced cooler flow
- Soft TCC apply
- Build-up of release pressure during lockup causing multiple DTC's

#### Other Complaints

- Delayed engagement
- PR valve & throttle valve buzz
- Slips in reverse
- Poor cooler charge at idle, line control and/or kickdown
- Poor FWD & RVS engagement
- Detent bore wear
- Incorrect line pressure
- Throttle valve pressure concerns

## Have You Hugged Your Reamer Today?

Ok, probably not, but it's hard work reaming valve body bores and Sonnax reamers need a little love now and then. You will get the most out of your reamers by using them properly and taking the time to keep them in tip-top cutting condition. These highly engineered tools are designed to last an average of 50-70 bores before needing re-sharpening or replacing!

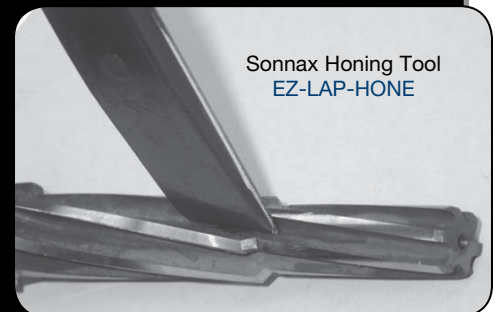


#### Reaming Tips

- Turning the reamer backward will dull it prematurely.
- Pushing on the reamer will result in poor surface finish and inadequate and sporadic material removal.
- Never use a crescent wrench, ratchet or pliers to turn the reamer.
- A dull reamer will cut a smaller hole. Reamers can be sharpened, but should only be done by a professional tool sharpener.

#### Maintenance Tips

1. **Check reamers after each use.**  
Aluminum build up can occur on the cutting edges after bore reaming.
2. **Remove any build up.**  
This can be done with a fine-grit diamond honing tool such as the Sonnax **EZ-LAP-HONE**.  
Carefully run the tool along the inside of the reamer cutting edges to remove aluminum build up.



## Transmission Report

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### Featured in this issue

Genuine Sonnax • Vacuum Testing Guides

GM 6L45–6L90 Solutions

New Transmission Kits • Reamer Care

**More Ways to Be  
a Sonnax Insider!**



### Is this newsletter getting into the right hands?

To update an address or request we stop this mailing to you,  
please call (800) 843-2600, 8:30 a.m. to 5 p.m. ET,  
or send an e-mail to [news@sonnax.com](mailto:news@sonnax.com).

## See you at Powertrain Expo Booth #213!

Sonnax will be a featured exhibitor at ATRA Powertrain Expo in Washington, D.C., Sept. 20–21 with lots of new products and tech resources. We'll also be doing vacuum testing and bore reaming right on the show floor for anyone who wants to learn these techniques. Look for the Sonnax Roadshow across from our main booth #213 and stop by to say hello if you're there!



### FREE Trade Show Pass

Visit Expo exhibits free of charge  
with a complimentary pass from Sonnax!

Just complete the pre-registration form and fax it to ATRA by Aug. 28 to receive a free badge, or bring the pass with you to the show to register at the door. **Visit the What's New page at [www.sonnax.com](http://www.sonnax.com) to download the registration form.**

Scan code with  
smartphone &  
click link to pass.

### Sonnax Technical Seminar

Sonnax Engineer Maura Stafford will be presenting "Hydraulically Speaking" on Friday at 9 a.m. as part of the ATRA technical program. Her talk will focus on late-model GM, ZF and Toyota valve bodies: their similarities, differences, common problems and methods for diagnosis.



### Sonnax Roadshow at Booth #209

**If you're in the D.C. area during Expo, you can get hands-on training in vacuum testing and reaming at the Sonnax Roadshow exhibit.**

This is a unique opportunity to work one-on-one with the same Sonnax instructors which present this popular technical seminar around the country. They'll be available during regular exhibit hours at the show to answer questions, demonstrate the equipment and help you learn the basics of these powerful diagnostic and rebuilding techniques.

Sonnax is a leading diversified supplier of specialized drivetrain products to the automotive and commercial vehicle industries, and to industrial sectors utilizing drivetrain technology. We design, manufacture and distribute replacement components worldwide.