

Transmission Report

Volume 6, No. 3

October 2015

Sonnax is YOUR SOURCE for Quality Remanufactured Valve Bodies

Founded in 2002 on the premise that technicians shouldn't have to choose between a "good used" or "dealer new" valve body, Valve Body Xpress (VBX) has long been the leading producer of guaranteed remanufactured valve bodies and solenoids.

In August 2014, Sonnax Industries acquired Valve Body Xpress to better meet the repair challenges of increasingly sophisticated modern transmissions. In combining the vast resources and know-how of both organizations, the transmission aftermarket now has one trusted source of quality solutions for every transmission job.

Whether you want to rebuild it yourself or save time and money with a remanufactured valve body, Sonnax has you covered. The full line of products is now conveniently listed alongside transmission components at www.sonnax.com.



Live webinars with Sonnax Tech Specialist Steve Garrett deliver transmission expertise into your hands!



- Convenient, 1-hour lunchtime sessions
- Join via computer or phone/tablet
- Ask questions and request additional tech support
- Download detailed handouts and access full webinar after each event

6R140, 6R60/80, 6F50 Solenoid Strategies

- Solenoid operation & flow characteristics
- Use scan tools to identify flow rate values & update/learn new values
- Diagnose & repair solenoid-related problems

Choose to attend any of five sessions:

- Nov. 3 at noon EST & MST
- Nov. 4 at noon CST & PST
- Nov. 4 at 7 a.m. AEDT (Australia)

Sign up TODAY at www.sonnax.com/webinars

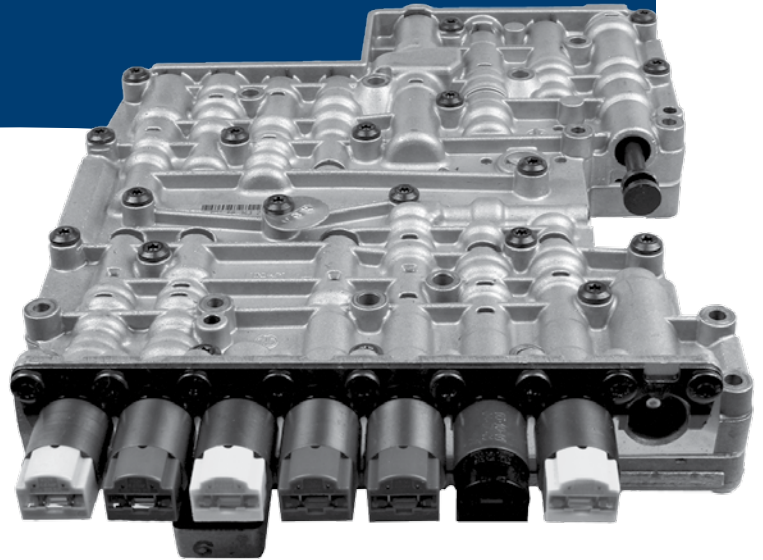
Can't make it to the live event? No problem! The recorded presentation and slides are posted online after the final session and are freely available anytime you want them.

Introducing Sonnax Remanufactured Valve Bodies

Save time and money with a quality rebuilt valve body from Sonnax.

Every premium valve body is completely disassembled, cleaned, updated, solenoids tested and replaced as needed. Each remanufactured unit is then hydraulically and electronically tested so it's ready to bolt up!

- Rebuilds feature genuine Sonnax parts.
- Backed by Limited Lifetime Warranty.
- No tools? No problem. Plug-and-play valve bodies save labor and tool costs in your shop.
- Get the job out the door fast. Stock up on off-the-shelf solutions for your in-demand repairs.



**Ask Your Parts Distributor
for Sonnax Remanufactured
Valve Bodies**

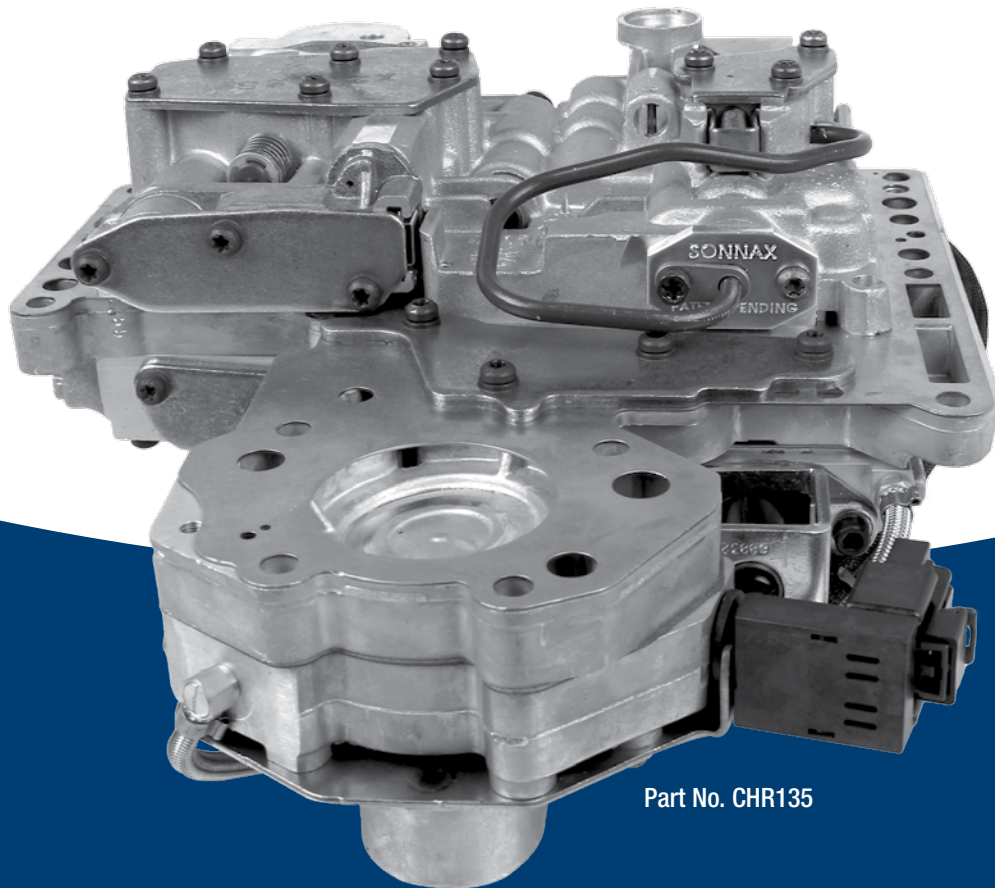
Find these & 200+ more remanufactured valve bodies at www.sonnax.com!

Unit	Application Details	Part No.
01M, 01N, 01P	'99-Later	VW204
09G, 09K, 09M, TF-60SN	Large Cans, Cooler on Case with Switches	AW6VWF1
	Large Cans, Cooler on Case without Switches	AW6VWF3
4R70W, 4R75W	'01-'08	F095
4T65-E	'03-Later	GM037
55-50SN, 55-51SN	Volvo, Early, No Letter or "A" Casting, No B5 Spring	AW55VE
	Volvo/Nissan, Late, "B" or "C" Casting, No B5 Spring	AW55VL
	Volvo/Nissan, '05-Later, with B-5 Spring	AW55NL
5R55E	'97-Later with 4.0L	F056
5R55S, 5R55W	'01-'08	F032
CD4E	F7 Casting, without Solenoid Pack	FM067
FNR5		F025
JF506E	VW	VW506
Saturn TAAT	Late '92-Later	SAT005
TF-80SC		AW6VF
TF-81SC		AW6FMF
U140E, U140F, U240E, U241E	'00-'05, without Central Lube Feed	TOY171
	'00-'05, with Central Lube Feed	TOY172
U151E, U151F, U250E	'04-'14	TOY181

Introducing the Sonnax 48RE Converted Valve Body

The breakthrough solution to the 48RE valve body shortage!

Patent-pending innovation allows Sonnax to convert plentiful early-model RE Chrysler cores into premium-quality 48REs.



Part No. CHR135

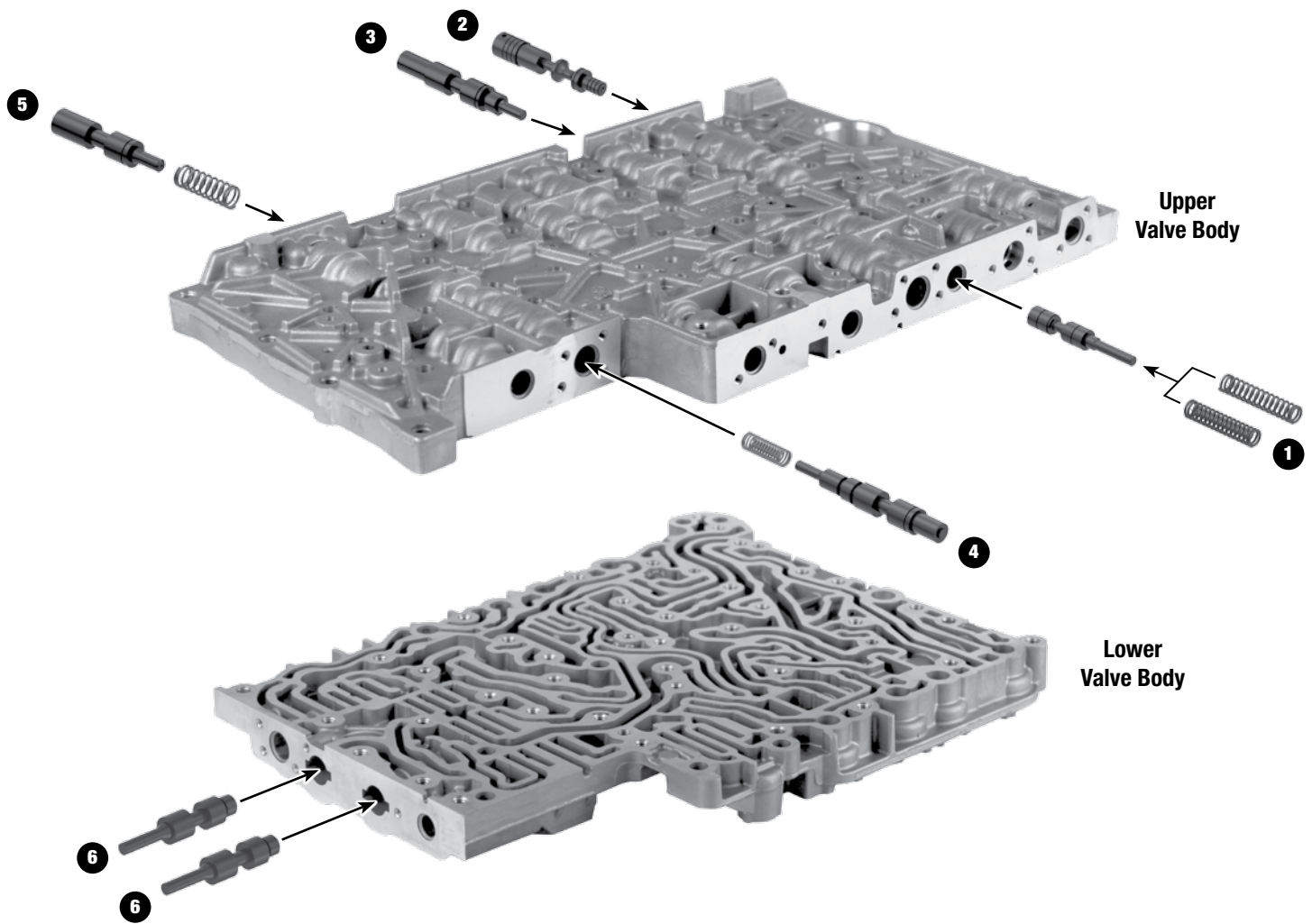
100% Tested to ensure pressure curves and timing match 48RE OE design.

Refurbished and improved with Sonnax parts.

Great for pressure and lockup upgrades in 46/47RE.

OE remanufactured valve bodies – while competitively priced – undergo only minimal restoration. The Sonnax 48RE provides far more value and durability. Each valve body is carefully refurbished in critical areas to restore proper function and prevent future wear.

- Upgraded Manual Valve
- Oversized Throttle Valve Kit
- Valve Body Detent Ball & Sleeve Kit
- Oversized Lube Reg. PR Valve & Line/TV Pressure Plug Kit
- Oversized 4-Spool Switch Valve
- Patented Pressure Curve Components
- Patented Lockup Conversion Components
- 3-4 Accumulator Spring
- New Governor Pressure Solenoid & Sensor



Mercedes 722.9 Valve Body Repairs

Symptoms	Description	Part No.	Tooling
<ul style="list-style-type: none"> • Low cooler & lube pressure • Harsh TCC apply & release • Erratic TCC apply pressure 	1 Oversized Lubrication PR Valve Kit	88740-09K	F-88740-TL9 & VB-FIX
<ul style="list-style-type: none"> • Erratic line pressure • Poor shift quality • Burnt clutches 	2 Oversized Working PR Valve Replaces early- & late-style OE valves.	88740-01	F-88740-TL & VB-FIX
<ul style="list-style-type: none"> • Bump shifts • 2-3 Flare/Harsh • 5-6 Flare/Harsh 	3 Oversized K1 Regulator Valve	88740-08	F-88740-TL8 & VB-FIX
<ul style="list-style-type: none"> • Harsh engagement • Delayed Forward & Reverse • 4-5 Flare/Harsh 	4 Oversized B2/BR Regulator Valve Kit	88740-04K	F-88740-TL4 & VB-FIX
<ul style="list-style-type: none"> • K3 clutch burned • 4-5 Flare/Harsh • No Forward 	5 Oversized K3 Shift Valve Kit	88740-06K	F-44892-TL3 & VB-FIX
<ul style="list-style-type: none"> • Solenoid codes • Wrong gear starts • Burnt clutches 	6 Oversized Solenoid Regulator Valve Fits either of two locations.	88740-02	F-88740-TL2 & VB-FIX

Sneak Peek at Sonnax - Powertrain Expo 2015

Talk shop with the Sonnax team and get the scoop on the hottest new transmission products at the industry's biggest tradeshow, Oct. 29 to Nov. 1 at the Rio All-Suite Hotel & Casino in Las Vegas.

- Remanufactured valve bodies
- Dodge diesel performance & heavy-duty upgrades (grab the new catalog at the show or request one online)
- 6R140, 722.9 & U660E rebuild components
- Vacuum testing & reaming demos

Get your **FREE Tradeshow Pass** to the Oct. 30 and 31 Exhibit Hall Days by visiting the Expo event on the Sonnax Facebook page.






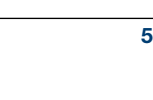


ZF6HP & 6R80 Precision Bushings

Restore Critical Clearances without Machining

ZF6HP and Ford 6R80 OE bushing material is soft and prone to premature wear, a critical flaw that leads to bushing failure and loss of pressure, resulting in gear ratio or solenoid codes.

To address this weakness, Sonnax ZF bushings are made from an upgraded bimetal material that prevents premature wear. An innovative manufacturing process delivers a finished-in-place tolerance for easy, press-in installation.

6R80	ZF6HP19	ZF6HP21	ZF6HP26	Bushing Type	Fits Journal Dia.	Part No.	
	✓		✓	Rear Stator Support	25.97mm/1.022" Input	95030-01	
✓			✓	Rear Stator Support	29.96mm/1.180" Input	95030-02	
	✓		✓	"A" Drum Front	59.77mm/2.353"	95030-03	
	✓		✓	"A" Drum Rear	49.97mm/1.967"	95030-04	
✓	✓		✓	Input/Output	16.98mm/.669"	95030-05	
✓			✓	Sun Gear	24.17mm/.952"	95030-06	
✓			✓	"B" Direct Clutch	33.97mm/1.337"	95030-07	
	✓	✓		Front Stator Support	24.17mm/.952"	95030-09	

Missed It by “That Much”

Measure the TCC Plunger Valve to Avoid RE5R05A Pressure Problems

Do you remember the old show *Get Smart*, with Agent 86 (aka Maxwell Smart)? One of his more famous lines was “Missed it by that much!,” typically stated when he had missed something by a considerable bit. Sometimes it can be like that with valve bodies, when details are important, but easily overlooked. Unfortunately, the consequences in the shop of missing some details don’t result in canned laughter, but a potential comeback.

Recent examination of early and late RE5R05A 1st through 4th design valve bodies as well as an RE7R01A highlight how small variations in critical valve dimensions can impact functionality. In these valve bodies, the TCC control valve is stroked by the TCC solenoid (**Figure 1**).

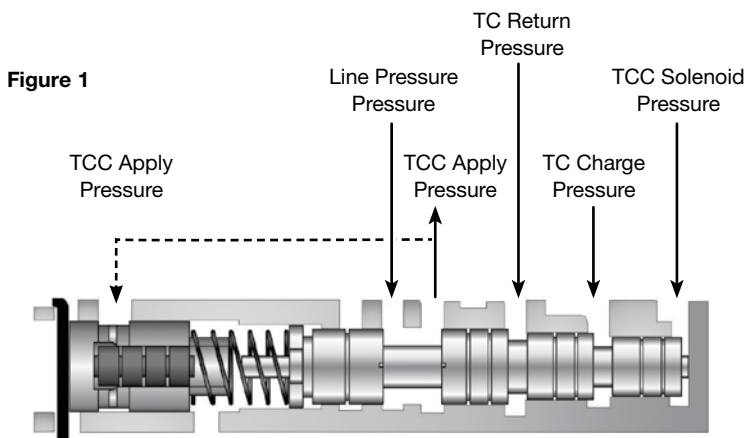


Figure 1

As solenoid pressure ramps up, it allows line pressure to be regulated into TCC apply pressure. Some of this TCC apply pressure also is routed to the small TCC control sleeve and plunger valve to help properly balance the control valve and set the TCC apply pressure.

Looking at this small plunger valve assembly in the noted Jatco/Nissan valve bodies, it might be easy to assume they are all the same. In fact, the plunger valves vary in diameter, which has a significant impact on TCC apply pressure between the different applications. **Figure 2** shows what the pressures should be for each design, assuming a 65 psi pilot valve feed pressure to the TCC solenoid. With the RE7R01A being similar in size to the later RE5R05As, it stands to reason that the pressures would be similar as well.

The Perils of Mismatched Plungers

What would happen if we mistakenly place a late-design RE5R05A plunger valve assembly in an early valve body (or vice versa)? What about if we put an early RE5R05A plunger in an RE7R01A valve body? **Figure 3** shows the TCC apply pressures that would result: between a 26 and 34 psi swing for each application!

Figure 2

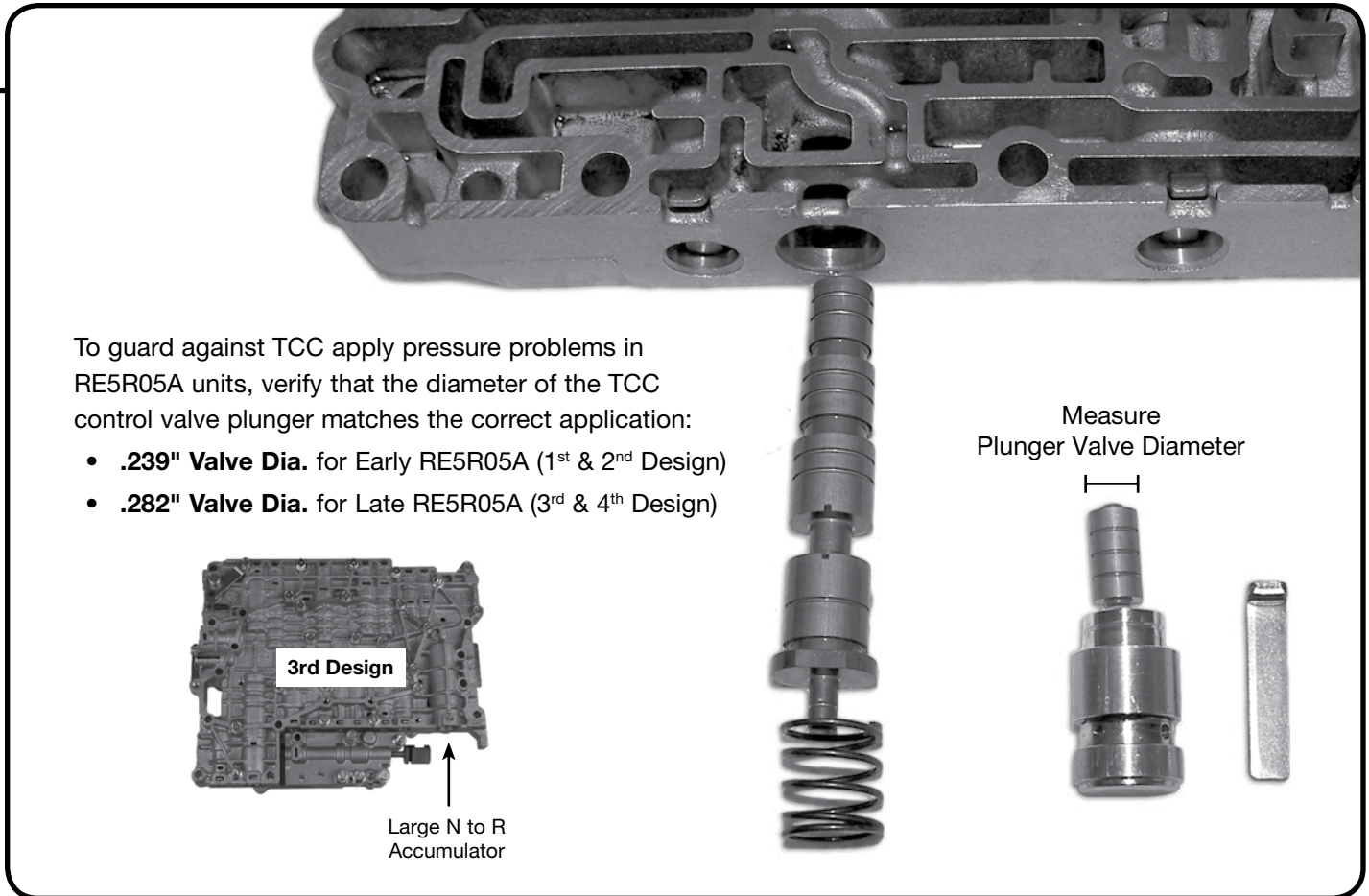
Application	Matched Plunger Valve	TCC Apply Pressure
Early RE5R05A (1st & 2nd Design)	.239" Dia.	92 psi
Late RE5R05A (3rd & 4th Design)	.282" Dia.	66 psi
RE7R01A	.298" Dia.	62 psi

The consequences of a mismatched plunger assembly are detrimental to converter function, but the problems vary depending on valve body design.

While in Drive, the TCC in early RE5R05A truck or sedan applications goes to full lock-up in 5th gear and is allowed slip lockup in 4th and 5th gears. So reducing TCC apply pressure by incorrect assembly in early RE5R05As could result in unintentional slipping, lack of complete lockup and a burnt converter clutch leading to loss of fuel economy.

Figure 3

Application	Mismatched Plunger Valve	TCC Apply Pressure
Early RE5R05A (1st & 2nd Design)	.282" Dia. (Late RE5R05A)	66 psi
Late RE5R05A (3rd & 4th Design)	.239" Dia. (Early RE5R05A)	92 psi
RE7R01A	.239" Dia. (Early RE5R05A)	96 psi



To guard against TCC apply pressure problems in RE5R05A units, verify that the diameter of the TCC control valve plunger matches the correct application:

- **.239" Valve Dia.** for Early RE5R05A (1st & 2nd Design)
- **.282" Valve Dia.** for Late RE5R05A (3rd & 4th Design)

Lockup in Drive is controlled differently in late RE5R05As. Sedans lockup in 5th and have slip lockup available in 3rd through 5th gears; trucks lockup in 4th or 5th gear and have slip lockup available in 3rd gear. Inadvertently increasing TCC apply pressure in these applications could result in driveability complaints related to a lack of power and harsh converter apply.

In the RE7R01A, the converter clutch is designed to slip lockup in 2nd through 7th gear, with full lockup in 7th gear, so increased TCC apply pressure also would cause harsh converter apply and a lack of power. Other complaints may be related to a lack of engine performance, as the TCC would be applied more than it should be during TCC slip mode, especially in 2nd through 4th gears.

Although the late RE5R05A and RE7R01A TCC control plunger valve diameters only differ by .016", it's best not to inadvertently mix those assemblies. **Figure 4** shows the results of swapping these sizes. While not as startling in overall pressure variance from the OE, the percentage of pressure difference is significant enough to raise a cautionary flag.

Figure 4

Application	TCC Apply Pressure		
	With Matched Valve	With Mismatched Valve	% Change
Late RE5R05A (3rd & 4th Design)	66 psi	59 psi	-11%
RE7R01A	62 psi	69 psi	+11%

So don't "miss it by that much!" When replacing the TCC control plunger valve for wear or other reasons in these Jatco/Nissan units, pay close attention to the size of the valve. Visit www.sonnax.com for additional valve body guides that will help you identify the various RE5R05A design configurations.

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Featured in this issue

- Remanufactured Valve Bodies
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- 722.9 Valve Body Repairs
- ZF6HP & 6R80 Precision Bushings
- RE5R05A Pressure Problems
- What's New for Powertrain Expo 2015

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 e-mail to news@sonnax.com.

Sonnax designs, manufactures, tests and distributes a wide variety of components used to remanufacture torque converters, rebuild automatic transmissions, upgrade driveshafts and protect the driveline from over-torque damage.

Sonnax is a 100% Employee-Owned Company

CASH for Solenoid Cores

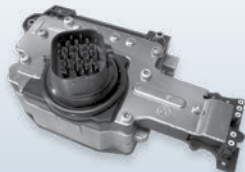
Sonnax Makes It FAST & EASY to Return These Solenoid Cores

- 1. Collect Cores** Both OE and remanufactured cores are accepted. Five or more cores is recommended.
- 2. Contact Sonnax** Visit www.sonnax.com OR call (800) 843-2600, Ext. 379, OR e-mail cores@sonnax.com.
- 3. Ship Your Cores** Sonnax pre-pays all shipping charges and provides labels.
- 4. Get Paid!** Sonnax sends you a check in the mail.

45RFE/545RFE/68RFE
'04-Later



45RFE/545RFE
'03-Earlier



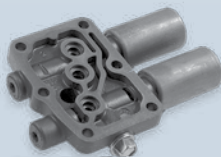
62TE



AX4N/4F50N
& AXODE/AX4S



E40D/4R100



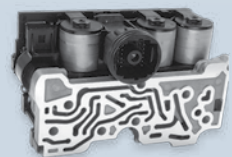
Honda Dual Linears



Aisin AW 5- & 6- Speed



ZF6HP19/26/32
Yellow or Blue Capped



5R55W/S

Start a core return online and find purchase program details at www.sonnax.com.