



## Transmission Report

Volume 5, No. 2

July 2014

### Baseball, Solenoids & Apple Pie

#### Hitting a Sweet Home Run with 55-50SN Rebuilds

Summer is upon us, which means warmer temperatures, baseball, solenoids and apple pie. Yes, that's right: solenoids. "What do solenoids have to do with summer, baseball and apple pie?", you're probably wondering. Hang in there!

A common saying from the coach to his team on the field is, "Know what you're gonna do with it." That's his way of reminding players to think about the situation.

If there's one out, a runner on first and the shortstop gets the ball, players should know to go to second for the force out with the hopes of turning a double-play at first. Thinking that through before the ball is hit increases the player's reaction time and – consequently – the chances of a successful outcome. Of course, knowing how the game is played is integral to deciding what the best play IS, not to mention what moves to make.

*Continued on page 2...*



# sonnax® TRANSMISSION PRODUCTS CATALOG

VOLUME **9**

## 500+ New Sonnax Parts Listings

## 12 New Units with Full Valve Body Illustrations!

Audi  
**01J**

Aisin AW  
**450-43LE**

General Motors  
**6L45-6L90**

Honda/Acura  
**4/5-Speed**

Hyundai-Kia  
**A4CF1 & 2**

Toyota  
**A340E/F**

**A750E/F**

**A760/960**

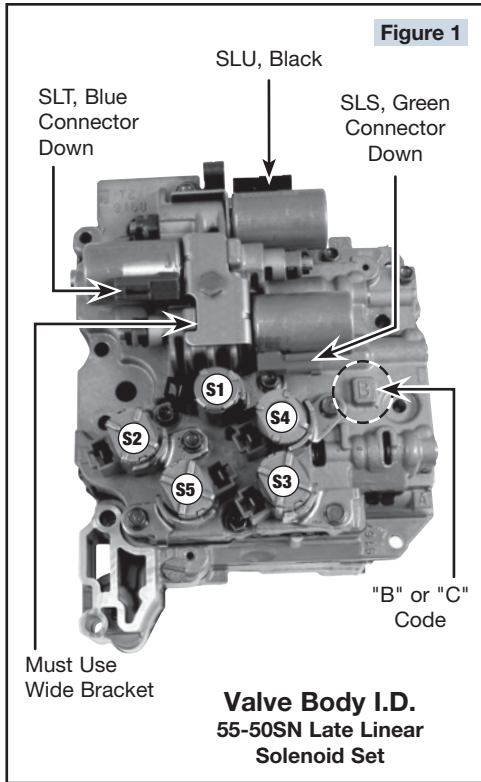
**U660E/F**

ZF  
**ZF6HP19/26/32**

**ZF6HP21/28/34**

**Catalog Coming  
Fall 2014!**

Continued from page 1



Approaching the common failure of Aisin AW 55-50SN solenoids is very similar to the game of baseball. The primary issue with these solenoids is the sticking nature of the two internal bushings as the ATF or coil temperature increases. Summertime temperatures add to the heat dilemma, particularly in stop/go driving when the cooling system is taxed and the solenoids are exposed to increased heat. Some rebuilders are finding success changing the bushings out, with a variety to choose from. But knowing how these solenoids function and how they work with each other can help determine if there's a play to make and which is the best choice. *Team Sonnax to the rescue!*

The three linear 55-50SN solenoids are used to control line rise (SLT), the converter clutch (SLU) and the oil flow rate and accumulation for the clutch circuits (SLS). These solenoids are fed a regulated line pressure of 90 psi max from the solenoid modulator valve. Excess or reduced pressure to the solenoids can occur when this valve wears in certain locations, leading to pintle sticking and inconsistent solenoid valve movement. Just like you must have a ball and a field to play baseball, a functional solenoid modulator valve is a MUST for proper solenoid control. *Play ball!*

**The Lineup** First up to bat: the SLU solenoid that controls the apply and release of the torque converter clutch, the second (B2) clutch and the low and Reverse (B3) clutch. Hard or soft 1-2 and 2-1 shifts, firm/late TCC apply, early TCC apply or no converter lockup all can be attributed to a faulty SLU solenoid. *One away!*

Next up: the SLT solenoid that primarily controls line pressure in accordance with engine torque at the primary regulator valve. SLT pressure also is directed to the secondary regulator valve to control converter feed pressure and feed the lube circuit. In addition, SLT pressure influences the forward clutch, second coast clutch and 3rd gear band. A multitude of symptoms could occur from a faulty SLT solenoid: harsh/delayed Neutral-to-Drive, harsh Forward, long shifts, low cooler flow, harsh TCC apply, and 2-3, 3-2, 3-4 and 4-3 shift complaints. *Two down!*

The last to bat: the SLS solenoid that controls clutch apply pressure by regulating Drive or Reverse fluid at the shift pressure control valve to control apply of the 2nd clutch, second coast clutch or direct clutch. This means a faulty SLS solenoid could create harsh Reverse and harsh/ flared 2-3, 3-4, 4-5 shifts. The same symptoms can be caused by issues at more than one solenoid, making diagnosis on root cause sticky sometimes. *Three down, and now the home team comes to the plate!*

## Performance Upgrades

Sonnax engineers and manufactures the industry's finest performance and heavy duty upgrades for these and other applications:

- **Dodge-Cummins Diesel**
- **GM 4L60-E**
- **GM Powerglide®**



Scan code with smartphone for high performance and heavy duty options.

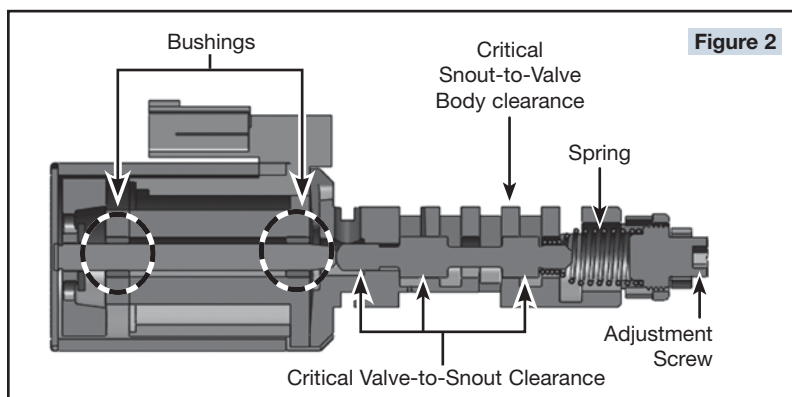


**sonnax®**  
**PERFORMANCE**

**faster / tougher / stronger**

## Hit a Home Run with Sonnax Remanufactured Solenoids

Sonnax offers sets of 55-50SN remanufactured linear solenoids engineered to address not only the sticking bushing, but a host of other potential failure modes leading to the same drivability concerns. Sonnax improved the bushings with an exclusive new design that incorporates better material, a sizing method for perfect



Wear between the solenoid valve and “snout” can result in loss of the critical SLU, SLT, SLS or solenoid modulator pressure, leading to various shift symptoms.

fit and finish every time, plus resists sticking even at elevated temperatures. *Base-hit, man on first!*

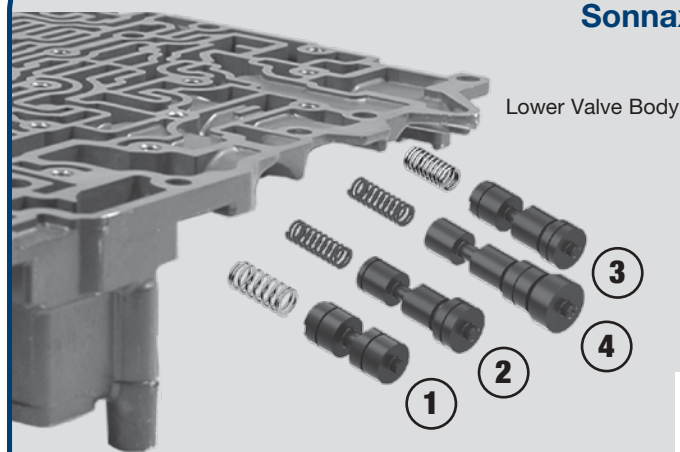
Wear between the solenoid valve and “snout” can result in loss of the critical SLU, SLT, SLS or solenoid modulator pressure, leading to various shift symptoms (Figure 2). Sonnax addresses these concerns by running every solenoid through a rigorous drive-cycle style test on a valve body test machine to ensure that excessive clearance is not occurring and reducing critical pressures. *Single up the middle, men on first and second!*

Another potential failure mode is relaxation or coil binding of the internal solenoid spring. Sonnax tests every solenoid for concerns in this area too by verifying that the spring is providing the appropriate force to help correctly position the solenoid valve. *Flare over 3rd, bases loaded!*

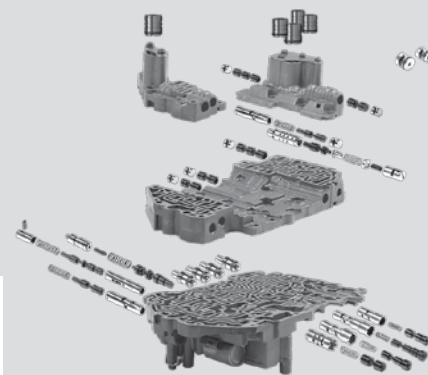
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## Coming Soon! TF-60SN Clutch Control Kits

Sonnax offers whole family of Aisin AW TF-60SN (VW/Audi 09G, 09K, 09M) parts!



Scan code with smartphone to view all TF-60SN parts.



### PROBLEM

- Flare upshifts/downshift bind-ups
- Excess clutch overlap & distress
- Harsh downshifts
- Flare on 1-2, 2-3 & 5-6 upshift

### SOLUTION

- 1. Oversized C1/K1 Clutch Control Valve Kit**  
Also fits TF-80SC & TF-81SC
- 2. Oversized K2 Clutch Control Valve Kit**
- 3. Oversized K3 Clutch Control Valve Kit**
- 4. Oversized B1 Clutch Control Valve Kit**

### Part Number

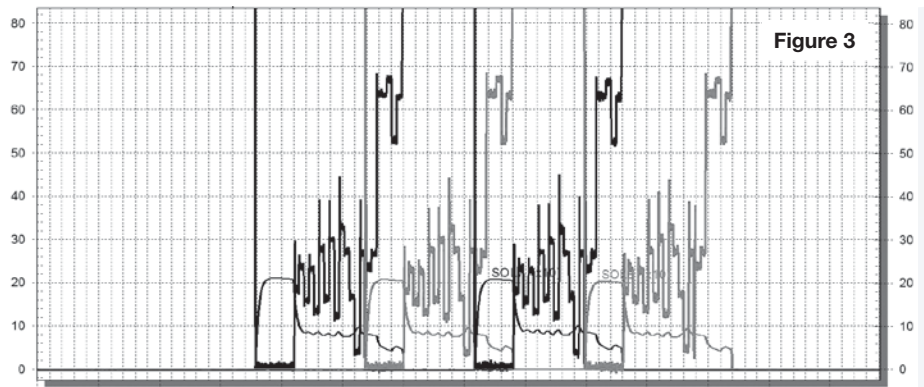
### Tool Required

<b>15741-55K</b>	F-15741-TL55 & VB-FIX
<b>15741-57K</b>	F-15741-TL57 & VB-FIX
<b>15741-59K</b>	F-15741-TL59 & VB-FIX
<b>15741-61K</b>	F-15741-TL61 & VB-FIX

Continued from page 3

Finally, one of the most difficult and time-consuming issues with these linear solenoids is adjusting the pressures. By turning the adjustment screw inward or outward, the spring force on the valve is altered, which increases or decreases the SLT, SLS or SLU solenoid pressure. Because these solenoids are so interdependent, small adjustments can affect many areas in the drive cycle. Getting each properly adjusted to the now-aging transmission and to any other corrections made to the valve body, clutches, etc. is no easy task. Sonnax solves the adjustment dilemma by incorporating a pre-calibration setting on each solenoid that works across vehicle platforms, eliminating time-consuming tuning at the shop after installation (Figure 3). **Grand-slam!**

Sonnax (Black) vs. New OE (Gray) Solenoid Pressure



Sonnax pre-calibrates the 55-50SN remanufactured solenoids to precisely match OE performance, eliminating the need for tuning after installation.

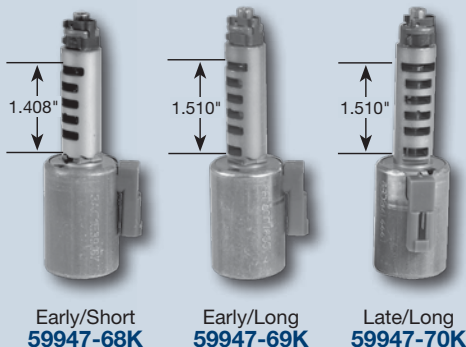
In addition to sets of fully tested and calibrated linear solenoids, Sonnax provides a full array of 55-50SN solutions for various shift concerns, including a brand-new 55-50SN Zip Kit that addresses the most common issues without the need for reaming. Now that's as sweet as a plate of warm apple-pie with some vanilla ice-cream!



## Set a Winning Line Up!

Sonnax offers the most effective, easy-to-install, affordable combination of parts for tackling troublesome Aisin AW 55-50/51SN units

### Remanufactured Solenoid Kits



Each kit contains a set of SLS, SLT & SLU solenoids.

Aisin AW 55-50SN, 55-51SN, AF23/33 and RE5F22A linear solenoids are used to control line rise (SLT), the converter clutch (SLU) and the oil flow rate and accumulation for the clutch circuits (SLS).

Sonnax recommends replacing faulty OE and aftermarket solenoids with these 100% tested and calibrated remanufactured solenoids. Specially developed with an exclusive Sonnax process to eliminate sticking solenoid problems, these kits are ideal to pair with Zip Kit AW55-50SN-ZIP.

## The Rookie All-Star!

Meet the newest member of the Zip Kit team,  
the perfect starter against the Aisin AW 55-50/51SN.

# Aisin AW 55-50/51SN Zip Kit®

# ZIP KIT®



Solenoid Modulator Assembly



Solenoid Relay  
Valve Kit

Boost Valve & Sleeve



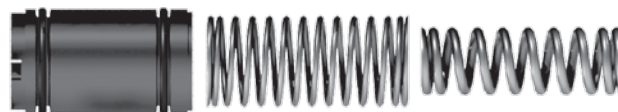
Secondary Regulator Valve Assembly



Pressure Regulator Assembly



Lockup Relay Control Valve Kit



LPC Accumulator Piston Kit



B5 Control  
Spring



Lockup Control  
Valve Kit



O-Ringed End Plug Kit  
(4 Small) (1 Large)



Springs (6)

Part No. **AW55-50SN-ZIP**

## The First Step in Correcting Common 55-50/51SN Shift Problems

Zip Kit **AW55-50SN-ZIP** targets the root cause of multiple complaints by sealing the critical circuit pressure losses in Aisin AW 55-50/51SN valve bodies (also fits AF 23/33 and RE5F22A units). The kit contains uniquely designed parts to prevent the loss of pressures within the main line, lockup, solenoid and SLT circuits. The kit also seals multiple circuits known to suffer from end plug leakage.

The Zip Kit quick guide provides clear and easy instructions on one sheet to get the unit sealed up and back on the road fast. In addition to general rebuilding tips and technical information, the technical booklet included in this kit contains vacuum testing information and locations at other key areas of the valve body.

Installs Easily with  
**No Reaming**  
or Special Tools Required

**Stops Leaks**  
so the Valve Body Works  
the Way It's Supposed To

**Bonus Tech Booklet**  
for Installation, Plus  
Diagnostics & Repair



ROADSHOW IN BOSSIER CITY, LA.

## Don't miss any exciting developments!

Follow Sonnax Roadshow updates on Facebook and Twitter, or become a Sonnax Insider to get updates by e-mail, RSS and more! Visit [www.sonnax.com](http://www.sonnax.com) for details.

## New Training for 2014!

From 2011 to 2013, the Sonnax Roadshow team presented more than 50 valve body diagnostics and reaming seminars throughout the United States and Canada. These free events were hosted by Sonnax distributor partners and trained thousands of rebuilders in cutting-edge diagnostic and transmission repair techniques.

## Building on three years of success, the Roadshow is charting a new course to reach an even larger audience.

The Sonnax team will travel cross country to work one-on-one with rebuilders in their shops, helping to troubleshoot valve bodies, evaluate repair options and teach advanced skills pioneered by Sonnax.

Rebuilders will gain valuable, hands-on experience while learning some of the best techniques in the industry, and be able to apply these effective methods to significantly improve their daily procedures.

# sonnax® ROADSHOW

Watch for the Sonnax tech van coming to a city near you!





## Tory

**Technical Support Representative**

Tory's Years on the Team: 7.5

### Special Skills:

- Explaining where and how to use Sonnax products
- Troubleshooting problems with repairs
- Roadshow assistant presenter

### Background:

- 20+ Years in the industry
- Associate's degree in automotive technology
- Technician experience with Ford, Mazda, Saab and Volkswagen vehicles

### Hobbies:

- Gearhead - loves cars, snowmobiles and motorcycles
- Movies, classic rock music and all forms of home and mobile Infotainment equipment

# Tech Team

## Shop Talk

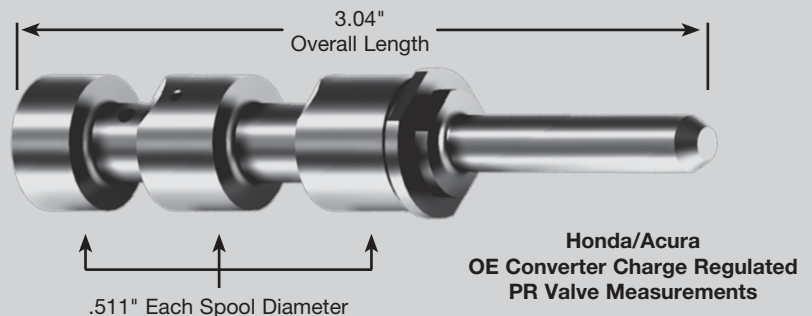
### Question:

I am interested in Honda converter charge regulated pressure regulator valve 98892-04K. Will it fit my application?

### Answer:

This pressure regulator valve actually fits most 4/5-speed Honda/Acura units. The only exceptions are the A6VA, AOYA, BOYA, MPOA, MPJA, APXA, MPXA, MP1A, PX4B, MPRA, RO, MPZA, M5HA, M1WA, M5DA, MPWA and MPYA.

**When in doubt, check the OE valve.** As long as it has three spools that measure .511" in O.D. and is 3.04" in overall length, the Sonnax valve should work.



Sonnax employs a team of skilled technicians dedicated to working one-on-with industry professionals.

Whether you're trying to identify the right Sonnax part for a problem unit, build a powerhouse performance tranny or find help with reaming and diagnostics, Sonnax is here for you!

## Technical Questions?

- Call **(800) 843-2600**
- E-mail [info@sonnax.com](mailto:info@sonnax.com) or use the "Contact Us" form at [www.sonnax.com](http://www.sonnax.com)
- Visit the Sonnax **Facebook** page
- Tweet **@SonnaxVT**

## Transmission Report

Volume 5, No. 2

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### Featured in this issue

55-50/51SN Solenoids & Zip Kit<sup>®</sup>

Transmission Parts Catalog Vol. 9

Sonnax Roadshow 2014

Honda 4/5 Speed Valve Identification Tips

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Free Tech Resources,  
Industry Events & More!

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#### 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).

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**



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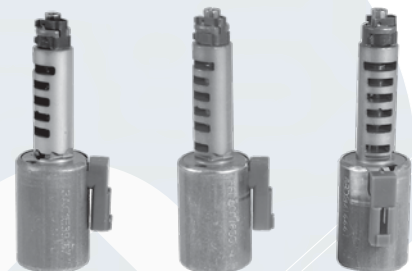
E-news LinkedIn

Facebook RSS

YouTube

## Hit a Home Run Against 55-50/51SN Problems

See pages 4-5 for details



**Remanufactured Solenoid Kits**

Install the all-new 55-50SN Zip Kit alongside Sonnax remanufactured solenoids for the *easiest, most effective and affordable* valve body repairs!