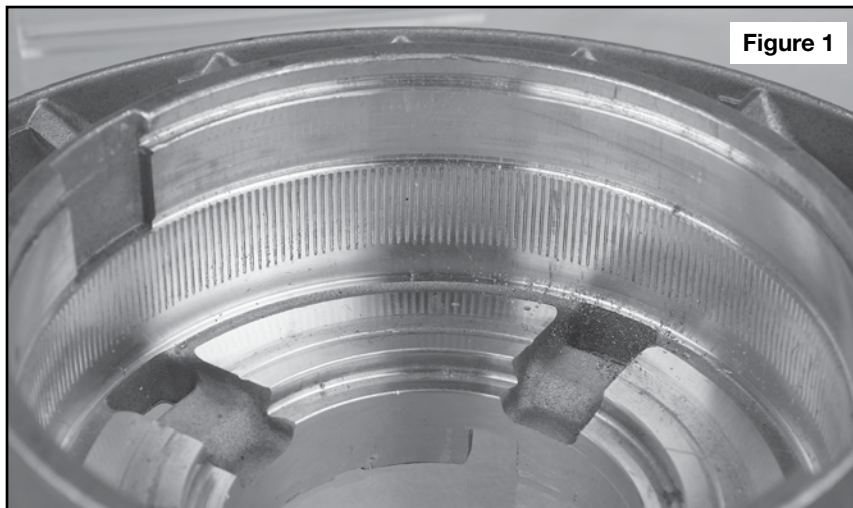
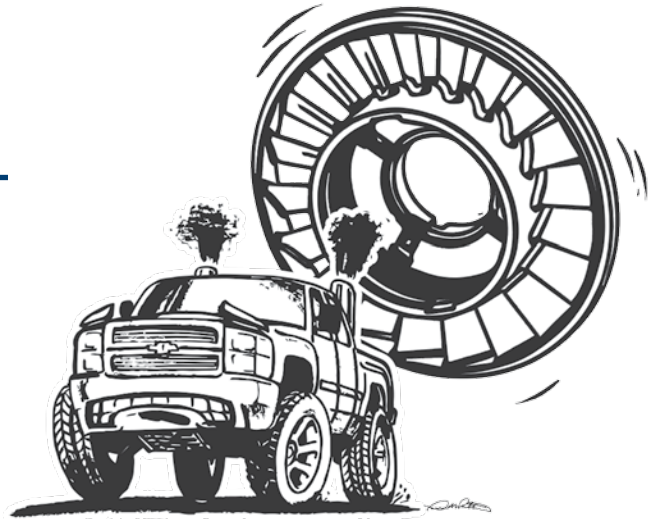


## Defending the Duramax® Diesel Against Allison® 1000 Stator Weakness

Duramax diesel engines can produce an incredible amount of torque, far more than the stock 2006–2010 Allison 1000 converter is designed to handle. This becomes a huge problem when a driver pushes their “performance” truck to actually *perform*. Parts break, the vehicle is out of commission and you’ve got a converter in the shop that’s going to fail again if you don’t tackle the real problem: an OE stator pushed beyond its limits. You can now easily take on this challenge by installing an enhanced stator assembly from Sonnax - the first and only upgrade to eliminate the crippling stator weakness in these Allison units.



A stock 2006–2010 Allison 1000 stator. The shallow serrations that engage the race will not hold against the torque produced by high-performing diesel engines.

### Weak OE Stator + Performance Engine = Disaster

Figure 1 shows the serrations on the inside of the Allison OE stator that engage with the outer stator race. They are shallow - only about .004" deep - and not even etched into the entire length of the race. The form and depth of the serrations are not precision machined. When the race is pressed into the stator, the race splines bite into the aluminum to deepen and form the grooves.

The result of this poor design is hardly any engagement between the stator and outer race. The stator will often break free under too much torque, spinning and damaging the transmission with aluminum debris.

Converters with these weak stators are typically found in Chevrolet Silverado, GMC Sierra HD 6.6L Duramax diesels and Allison 1000 transmissions. Although stator engagement was improved in the Allison LCT 1000, 2010-later converters, it was only upgraded for better hold in stock engine applications. In all cases, the real-world performance levels of these powerful vehicles will completely overwhelm an OE stator.

Some rebuilders confronted with converter failure correctly identify the problem as a broken stator and try to repair the damage. One method entails building up the aluminum material in the bore of the stator, boring the inside diameter back to OE specifications and then pressing the OE outer stator race into the pocket of the stator. This is just a repair, though, not a long-term solution. Reusing the OE stator only restores the same poor engagement that caused converter failure in the first place.

Another workaround for this problem involves drilling and pinning the outer stator race and the bore of the stator to ensure it can't spin under high torque. This technique might be more effective than resurfacing the part, but it involves time, labor, machining and tooling expenses that add to the cost of rebuilding a unit.

*Continued on page 2.*

Continued from page 1.

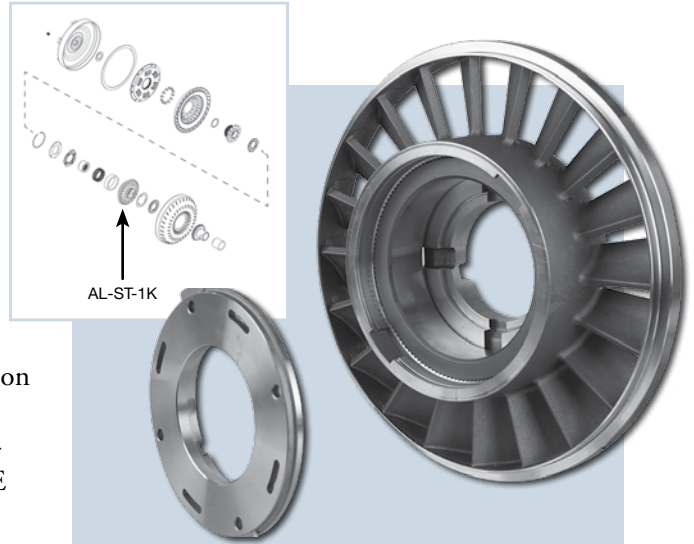
## Introducing the Sonnax Enhanced Stator Assembly

- Robust holding power for diesel engines
- No machining required
- Fits Allison® 1000/2000/2400 2006-Later

Rebuilders can easily eliminate the critical weakness of the Allison converter with Sonnax's new AL-ST-1K stator kit. The custom stator and outer stator race feature longer and deeper precision-machined splines to hold many times more torque than the OE stator assembly (**Figure 2**).

The Sonnax kit is a must-have replacement part for failed converters as well as new rebuilds in the two most common Allison converter applications (**Figure 3**). Later this year, Sonnax will introduce a similarly enhanced stator assembly for use with the Allison 1000/2000/2400 multi-plate clutch kits.

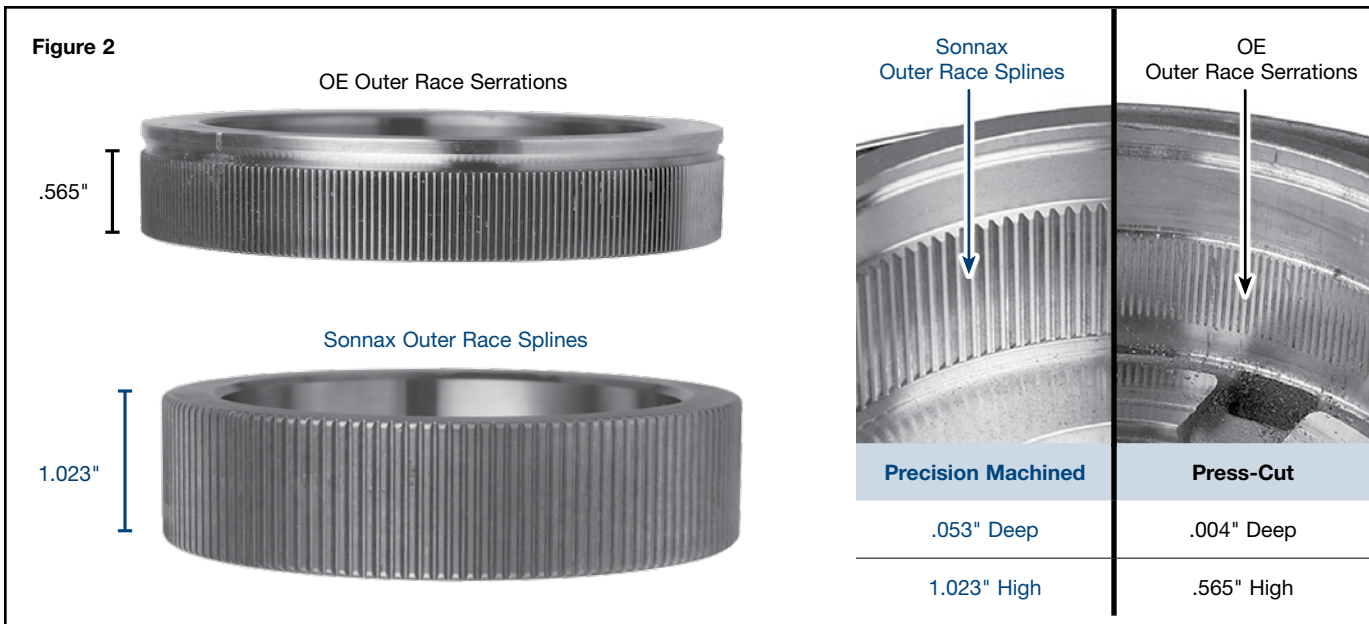
Ask your sales representative for details on these outstanding new products for performance diesel applications!



### Stator & Outer Stator Race Kit AL-ST-1K

Kit includes the aluminum stator, outer stator race already pressed in place and the stator cap. Complete assembly requires:

- Sprag AL-SP-1
- Impeller-side bearing AL-N-3
- Inner race AL-HR-2
- OE snap ring & stator spacer



Converter Generation	TC-211 (Green) 2.01:1 Stall/Torque Ratio	TC-221 (Black) 1.75:1 Stall/Torque Ratio
1st	29530318	29530317
2nd	29538348	29538347
3rd	29538529	29538528
4th	29541293	29540484
5th	29543003	29543017

**Figure 3**

Sonnax stator kit AL-ST-1K will work for the two most common Allison converters. Use this chart to help identify which part numbers should have the weak OE stator assembly replaced.

# Beware of Imitations!

For more than 30 years, Sonnax has been the leading provider of quality aftermarket torque converter components. We have worked long and hard to achieve a reputation for the highest levels of product quality, outstanding customer service and innovative designs. If we don't make the parts, we partner with the best OEM sources such as BorgWarner and Koyo® Bearings (successor to the Torrington® brand) to make sure you have access to the very best products.

Unfortunately, the success of Sonnax has inspired some cheap, knock-off artists attempting to deceive the market with fake Sonnax parts. While "imitation is the sincerest form of flattery," this "flattery" is a source of great concern to us. Counterfeit parts hurt us all. Not only do these products fall far short of our high quality standards, they put you - our customers - at risk for time-consuming, expensive comebacks.

Sonnax customers recently alerted us to emails they received from Chinese companies offering "Sonnax" components listed under Sonnax part numbers. Upon investigating, we also found English-language websites for foreign companies with part illustrations labeled "Sonnax Part number XX-XX-XX." Buyer beware, these are not Sonnax products!

Rest assured that we have and will continue to do everything in our power to stop the influx of counterfeit Sonnax parts. We are vigilant about protecting the integrity of our domestic and international trademarks as well as our reputation. One recent victory: a Chinese company complied with our demand to remove the Sonnax name and part numbers from their website.

But we need your help! If someone other than Sonnax contacts you via phone, mail or e-mail trying to sell "Sonnax" parts, please let us know. We will pursue these sellers and do whatever we can to stop their fraud. It is dishonest and illegal.

It is a shame that we even need to discuss this topic, but it seems to be the way the world works these days. Of course, there is an easy way to protect your shop's reputation from bogus parts: buy direct from Sonnax, it's that simple!

Sincerely,

Steve Jaussaud

*Sr. Vice President, Product Development  
Chief Technical Officer, Sonnax Industries*  
sgj@sonnax.com

## Easy Repairs for Overheating Honda/Acura Converters

You can prevent costly comebacks this summer by helping transmission rebuilders correct valve body problems that cause a variety of torque converter complaints.

When summer temperatures rise, overheating converters are a real danger in Honda/Acura vehicles equipped with four or five-speed transmissions. The root cause isn't a problem with the converter, though, it's a worn or stuck TC check valve. A malfunctioning valve reduces working pressure in the torque converter and leads to excess heat buildup and TCC troubles. In some cases, the TC check valve bore can be so heavily worn that it requires an O-ring seal for effective repair.

To correct converter pressure and reduce the risk of overheating, recommend to transmission shops that they install O-ringed TC check valve kit 98892-29K or 98892-32K.

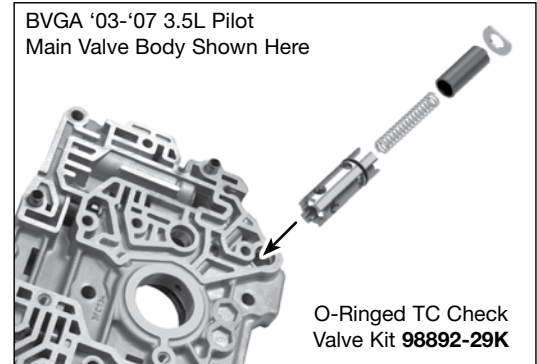
These parts require no reaming or special tools to install, making this an easy, highly effective repair that keeps at-risk vehicles on the road through the worst of the summer heat.

**Note:** These kits fit several Honda models, however the appearance of valve bodies and the location of the TC check valve bore may vary from model to model. Refer to the application charts on these part pages at [www.sonnax.com](http://www.sonnax.com) to verify fit. **Scan code to view parts!**



### Honda/Acura 5-Speed & 4-Speed, 3-Shaft

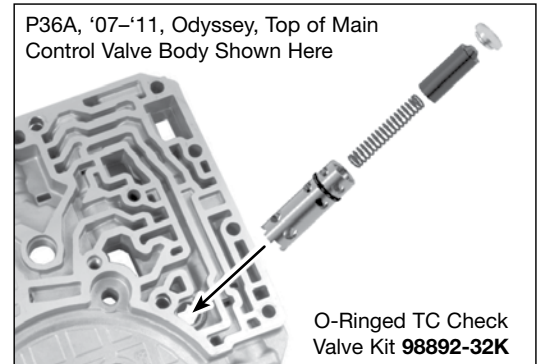
BVGA '03-'07 3.5L Pilot  
Main Valve Body Shown Here



O-Ringed TC Check Valve Kit **98892-29K**

### Honda/Acura 5-Speed

P36A, '07-'11, Odyssey, Top of Main  
Control Valve Body Shown Here



O-Ringed TC Check Valve Kit **98892-32K**

Make/Unit	Part No.	Part Name	Description
GM	6T70/6T75, Ford 6F50/6F55	GMFD-HT-1HS	Turbine Hub 27-Tooth hardened internal spline
		GMFD-RV-1	Turbine Hub Rivet Solid, Flat head, .380" Length, .238" Shank dia., .380" Head dia.
	258mm LU (4T65-E)	GM-I-33	Splined Insert Flanged, Damper assembly, 45-Tooth internal spline, Weld-In
	Allison® 1000/2000/2400, Early & Late (Including Multi-Plate Clutch Kits)	AL-WA-7	Stator Cap Impeller side, Conversion, 4.185" O.D., 2.152" I.D., .750" Tall, Aluminum
	Allison® 1000/2000/2400, 2006-Later	AL-ST-1K	Stator with Outer Stator Race & Stator Cap Kit Improved performance, Deeper spline coupling
Ford	6R60, 6R75W	FD-DA-23P	Piston Plate Improved design, Stronger tabs
	6F50/6F55, GM 6T70/6T75	GMFD-HT-1HS	Turbine Hub 27-Tooth hardened internal spline
		GMFD-RV-1	Turbine Hub Rivet Solid, Flat head, .380" Length, .238" Shank dia., .380" Head dia., 100/Bag
	6R140	FD-N-15	Thrust Bearing Enclosed, Impeller & turbine side, 3.771" O.D., 2.673" I.D., .288" Thick.
	6F35	FD-WS-38	Stator Cap Turbine side, 3.740" O.D., 1.650" I.D., .079" Thick., 2 O.D. Tabs
6R80, 260mm (Late), 6R80, 280mm (Late)	FD-RV-11	Captive Clutch Rivet Solid, Flat head, .375" Length, .310" Shank dia., .470" Head dia., 100/Bag	
Chrysler 45RFE, 545RFE	CH-HT-28HSK	Turbine Hub Two-piece version, 29-Tooth internal hardened spline, 8-Tooth external spline, Includes retaining ring	
Aisin AW TR-60SN (VW 09D), Captive Clutch	VW-HT-5HS	Turbine Hub 24-Tooth hardened spline	
	VW-RV-4	Rivet Solid, Flat head, .380" Length, .238" Shank dia., .430" Head dia., 100/Bag	
Aisin Seiki A465, AS68RC	AS-WA-1	Stator Cap Impeller side, 4.180" O.D., 1.810" I.D., .620" Thick., 2 O.D. Tabs, Aluminum	
	AS-PI-1	Front Cover Pilot 2.119" Pilot dia., Flanged, Thicker stem for increased strength, Weld-In	
Jatco/Nissan JF011E (RE0F10A)	JA-WB-3	Front Cover Thrust Washer Bronze, 1.650" O.D., 1.060" I.D., .170" Thick.	
	JA-N-16	Thrust Bearing Impeller side, Fully enclosed, 3.150" O.D., 2.126" I.D., .213" Thick., 4 Round O.D. tangs	
Mercedes 722.9 (Late)	MB-CP-14S	Steel Clutch Plate 36-Tooth internal spline, 7.383" I.D., 5.587" I.D., .071" Thick.	
	MB-CP-15S	Steel Clutch Plate 36-Tooth internal spline, 7.383" I.D., 5.587" I.D., .079" Thick.	
Mitsubishi F4/R4A51, F5/R5A51, V4A51, W4A51	MT-90-8G	Flanged Impeller Hub Flats, 1.692" Journal dia., 1.629" Assembled height, 1.800" Overall height	
Toyota/Lexus	U760E (TM-60LS)	TO-N-18	Thrust Bearing Impeller side, Partially enclosed, 3.474" O.D., 2.487" I.D., .169" Thick.
		TO-N-19	Bearing Race Impeller side, 3.585" O.D., 1.559" I.D., .059" Thick.
		TO-N-20	Thrust Bearing Turbine side, Partially enclosed, 2.993" O.D., 2.293" I.D., .149" Thick.
		TO-N-21	Bearing Race Turbine side, 3.251" O.D., 1.457" I.D., .031" Thick.
	U660E	TO-N-22	Thrust Bearing Impeller side, Partially enclosed, 3.494" O.D., 2.602" I.D., .150" Thick.
		TO-N-23	Thrust Bearing Turbine side, Partially enclosed, 3.279" O.D., 2.408" I.D., .150" Thick.
		TO-N-24	Bearing Race Impeller side, 3.811" O.D., 1.594" I.D., .059" Thick.
		TO-N-25	Bearing Race Turbine side, 3.487" O.D., 1.500" I.D., .079" Thick., 4 O.D. Tangs
VW/Audi 09D, (TR-60SN) Captive Clutch	VW-HT-5HS	Turbine Hub 24-Tooth hardened spline	
	VW-RV-4	Rivet Solid, Flat head, .380" Length, .238" Shank dia., .430" Head dia., 100/Bag	
ZF	ZF6HP21, 245mm (Luk)	ZF-CP-12	Clutch Plate w/Frictions Bonded 8.670" O.D., 4.240" I.D., .138" Thick., 4 I.D. Tabs, 4.975" Bolt circle dia.
	ZF6HP19, 245mm (Luk)	ZF-CP-13	Clutch Plate w/Frictions Bonded 8.670" O.D., 6.300" I.D., .138" Thick., Internal spline
	ZF8HP45, ZF8HP55	ZF-O-2	Compound Finger Joint Seal 1.722" O.D., .094" Width, Torlon®
Multi-Application	GM 400 (3L80), Allison® AT-540, Chrysler 68RFE & 68RFE with Multi-Plate Clutch Kit, BW 310mm LU (A618, 47RH/RE, 48RE), BW 310mm LU (A618, 47RH/RE, 48RE) with Multi-Plate Clutch Kit, BW 310mm NLU, Buick 350	GM-RS-1HPK	Heavy Duty Spring Retainer Kit Improved design, Includes shim GM-WS-43
Friction Rings	GM 6L80, 6L90 (300mm)	B45750HTE	Friction Ring 11.120" X 9.840" X .066", HTE
		B66750HTE	Friction Ring 11.120" X 9.840" X .066", HTE
	Ford 6R80, 280mm (Late)	B45955HTE	Friction Ring Cut-outs, 10.400" X 9.200" X .045", HTE
	Ford 6R80, 260mm (Late)	B45950HTE	Friction Ring Cut-outs, 9.880" X 8.750" X .045", HTE
	Various Applications	B45870HTE	Friction Ring 10.727" X 9.732" X .045", HTE
B66870HTE		Friction Ring 10.727" X 9.732" X .066", HTE	

# Introducing the Evolution of the Legendary Sonnax Input Shaft

## Smart-Tech® High Capacity Input Shaft & Piston Kit

20% More Direct Clutch Torque Capacity,  
No Modifications Required

Improving on the #1 Dodge heavy-duty input shaft, this NEW Sonnax Smart-Tech® kit is a powerhouse upgrade for hardworking 47RH, 47/48RE trucks.

- Thinner billet aluminum direct piston
- Longer direct (front) clutch hub
- Holds one extra, OE-thickness friction plate

Part No. 22121B-02K



### The Critical Improvement: Longer Clutch Hub & Custom Piston



The longer hub on the Smart-Tech® input shaft combined with the custom piston holds one extra, OE-thickness direct friction plate to handle increased torque capacity.

This kit installs as easily as OE and is more effective than relying on thinner steels or part modifications.

More NEW Performance Shafts!

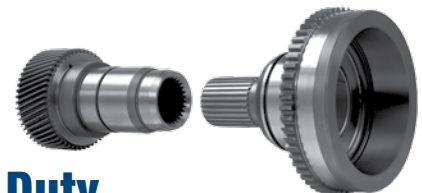


### Extreme Duty Intermediate Shaft

Patent No. 6,875,111

Part No. 22171B-HD

Patented design increases lubrication to prevent gear train meltdown in high-horsepower 47RE/RH and 48RE street, towing and competition trucks.



### Extreme Duty Output Shaft Kit

Part No. 22173D-01K

Larger diameter allows for increased cross-section to protect against breakage in 48RE 2003-2006 4WD trucks with NV271 or NV273 transfer cases.

# The Website Built for YOU

Using the Sonnax website is the best and fastest way to find Sonnax parts, instructions, tech articles and much more. Familiar catalog features you've come to rely on like exploded views, detail charts and part images are online, all up-to-date with the latest parts and information.

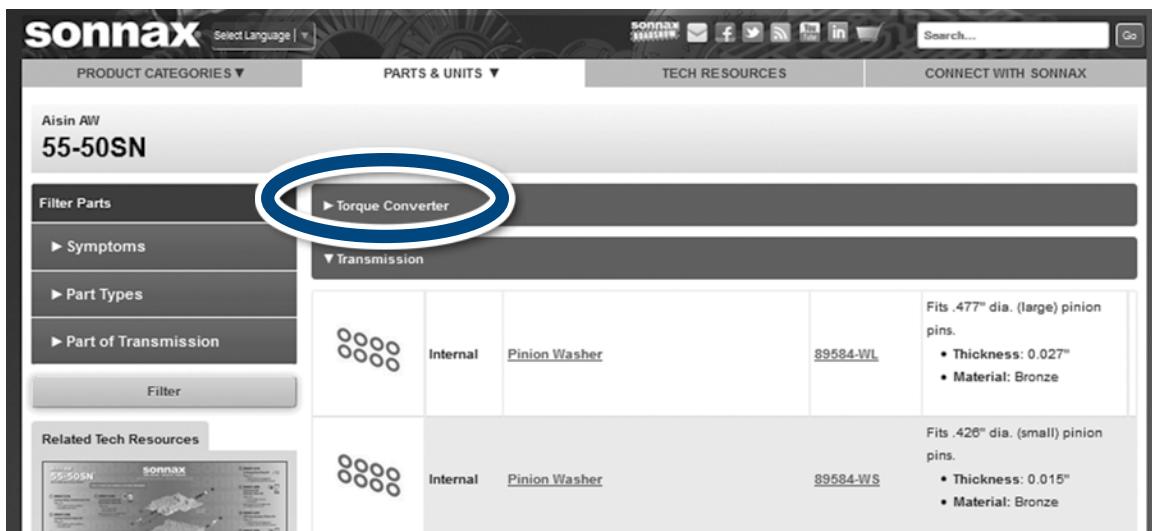
If you haven't given the website a try, check it out and let Sonnax know what you think! Your sales rep is available to help answer questions, and your comments and suggestions for improving the website are always welcome.



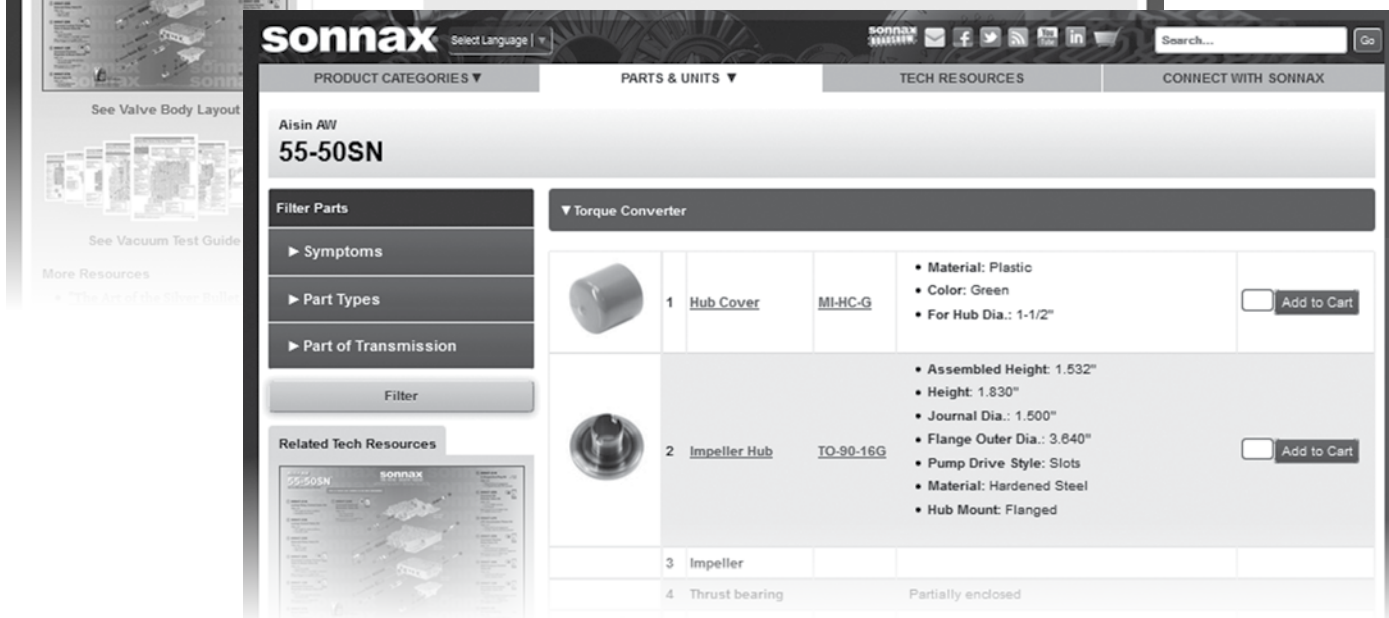
## Helpful Unit Page Features

You're on the Sonnax website, looking up parts for a specific application. You find the application you want and click to go to that page. When you arrive, though, it looks like only transmission products are available. Easy to fix!

**View all the torque converter parts.** Click the "Torque Converter" heading bar to display the full parts listing.



**Before**



**After**

## Print the exploded view & parts chart.

Use the “Print Parts List” button to add new unit pages to your Sonnax torque converter catalog.

You’ll get the full exploded view and parts listing printed out in a catalog-friendly format. More than 30 exploded images and hundreds of new parts can be printed to update your catalog:

- Chrysler 68RFE with Multi-Plate Clutch Kit
- Aisin AW TF-60SN (VW 09G)
- Aisin AW TF-80SC
- Aisin AW TR-60SN (VW 09D), Captive Clutch
- Allison® LCT 1000, 2010-Later
- Ford 5R110W, 6-Stud with Multi-Plate Clutch Kit
- Ford 5R110W, 8-Stud
- Ford 5R110W, 8-Stud with Multi-Plate Clutch Kit
- Ford 6F35
- Ford 6F50
- Ford 6R140
- Ford 6R60
- Ford 6R80, 260mm (Late)
- Ford 6R80, 280mm (Early)
- Ford 6R80, 280mm (Late)
- GM 6L80, 6L90 (300mm)
- GM 6L90 (Captive Clutch)
- GM 6T40/6T45, 236mm
- GM 6T70/75
- Honda/Acura MT4A, MDX
- Jatco/Nissan F011E (RE0F10A)
- Mitsubishi F4/R4A51, F5/R5A51 F4A51
- Saturn VTi-CVT
- Toyota U440E (Aisin AW 80/81-40LE)
- Toyota/Lexus U660E
- ZF4HP16
- ZF6HP26
- ZF6HP26, 255mm
- ZF8HP55

No one knows transmissions & torque converters like **sonnax**

**sonnax** Select Language | Search... | PARTS & UNITS | TECH RESOURCES | CONNECT WITH SONNAX

GM  
6L90 (Captive Clutch)

Filter Parts  
▶ Part Types  
▶ Part of Transmission  
Filter

Torque Converter  
Click on any bold part to see available Sonnax products.

Print Parts List

	1 Hub Cover	MI-HC-B	<ul style="list-style-type: none"><li>• Length: 1.500"</li><li>• Material: Plastic</li><li>• Color: Black</li><li>• For Hub Dia.: 1-3/4"</li></ul>	Add to Cart
	2 Impeller Hub	GM-90-72G	<ul style="list-style-type: none"><li>• Assembled Height: 2.527"</li><li>• Flange Outer Dia.: 4.193"</li><li>• Journal Dia.: 1.834"</li><li>• Height: 2.830"</li><li>• Hub Mount: Flanged</li><li>• Pump Drive Style: Slots</li><li>• Material: Hardened Steel</li></ul>	Add to Cart
	3 Impeller		Impeller-side <ul style="list-style-type: none"><li>• Inner Dia.: 2.502"</li><li>• Thickness: 0.159"</li><li>• Outer Dia.: 3.583"</li><li>• Bearing Style: Partially Enclosed</li><li>• Material: Hardened Steel</li></ul>	Add to Cart
	4 Thrust Bearing	GM-N-22		Add to Cart

**Impeller Hub**  
GM-90-72G

Sonnax flanged impeller hub GM-90-72G fits GM 6L80 (late), 6L90, 300mm converters. The hub has a large, reinforced flange and a recessed pocket to contain associated thrust bearing [GM-N-22](#).

- Hub Mount: Flanged
- Pump Drive Style: Slots
- Material: Hardened Steel
- Assembled Height: 2.527"
- Flange Outer Dia.: 4.193"
- Journal Dia.: 1.834"
- Height: 2.830"

Learn More

## Use the exploded view to check part details.

Click on any **bold** part in the exploded view to see details about available parts.

For example, clicking the image identified as “number 2” in the exploded view will open the pop-up window shown above. If there is more than one “number 2” part, all those parts will appear in this pop up.

Close the pop-up by clicking the “X” in the top right-hand corner.

**sonnax**<sup>®</sup>  
TIME TESTED • INDUSTRY TRUSTED<sup>®</sup>

# Torque Converter Journal

Volume 9, No. 1  
July 2015

Sonnax Industries Inc.  
1 Automatic Drive  
P.O. Box 440  
Bellows Falls, VT  
05101-0440

## Featured in this Issue

- **Defending the Duramax Diesel Against Allison 1000 Stator Weakness**
- **Fraudulent Parts Warning**
- **Prevent Honda/Acura Converter Overheating**
- **New Parts Guide**
- **Website Tips & Tricks: Print New Catalog Pages**

Sign Up for E-news at [www.sonnax.com](http://www.sonnax.com)



- New Product Updates
- Free Tech Resources
- Industry Events & More!

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**

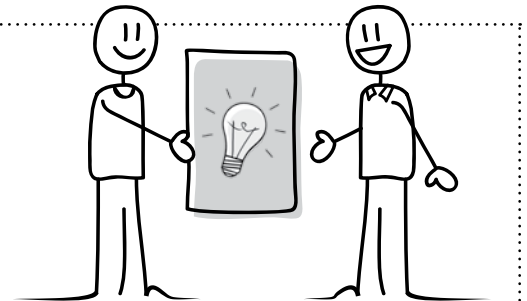
# sonnax wants **YOUR NEW PART IDEAS**

## Helping Sonnax Develop New Products Helps YOU

Hundreds of new Sonnax converter parts are released each year, many brought to market thanks to the insight and ideas shared by rebuilders.

Unlike your shop, Sonnax does not see a constant flow of converters coming through the door. When you cut cores open and examine the components to determine exactly what parts are needed for a quality rebuild, that is valuable information always of interest to Sonnax. It's particularly critical when you're working on a late-model units for which aftermarket products aren't as widely available. Sonnax wants to help you obtain these parts.

Communicating product ideas to your sales representative lets Sonnax know there's a component gap to fill. If you've made a request, but haven't seen the part for sale, don't be afraid to ask again! You could learn that it's already in development, and knowing there is customer demand helps Sonnax prioritize bringing that part to market.



## It's Easy to Be Part of Sonnax Product Development

**Pass along new product requests to your sales representative.**

Your feedback is always welcome and communicated promptly to the Sonnax product development team.

### Contact Sonnax Torque Converter Product Line Manager John Sackevich

John works one-on-one with rebuilders to continually expand Sonnax's full-line catalog of converter components. E-mail him anytime at [jds@sonnax.com](mailto:jds@sonnax.com).