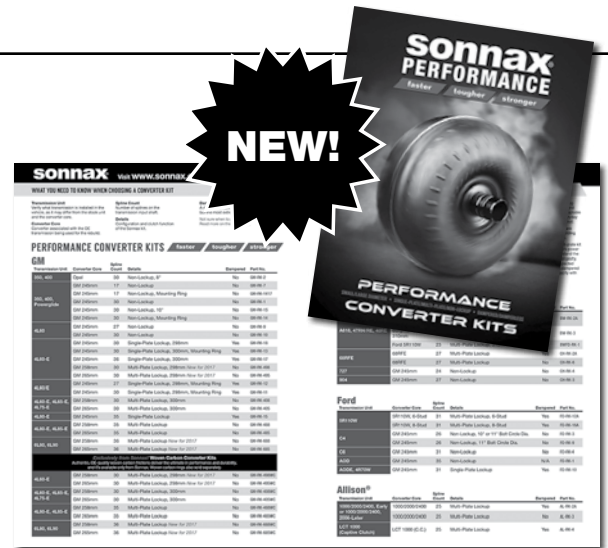


Performance Converter Kit Catalog

With this edition of the *Torque Converter Journal* you'll find the first comprehensive catalog dedicated to Sonnax converter kit upgrades. The parts charts inside let you easily select from the largest variety of kits available from any manufacturer, including both dampered and damperless multi-plates for diesel trucks.

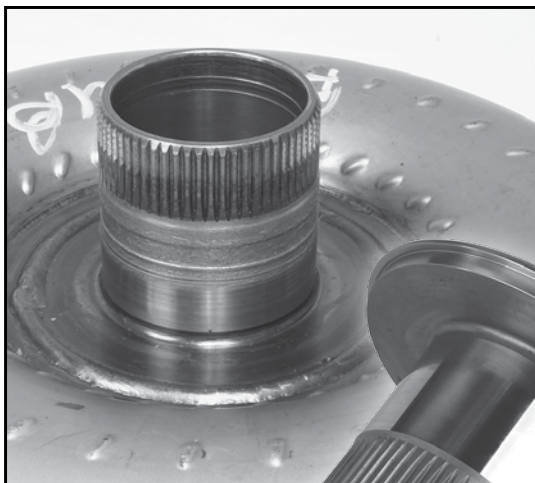
Sonnax Performance Goes Beyond the Converter

From heavy-duty shafts and servos to gear sets and slip yokes, Sonnax is the most trusted name in transmission upgrades. Ask your sales rep about performance product catalogs for 4L60/E, Powerglide and Dodge Diesel applications or order a FREE copy online by visiting the catalog request page at www.sonnax.com.



There's a New Hub in Town

Introducing an OE-Quality Repair for Damaged 6R140 Impeller Hubs



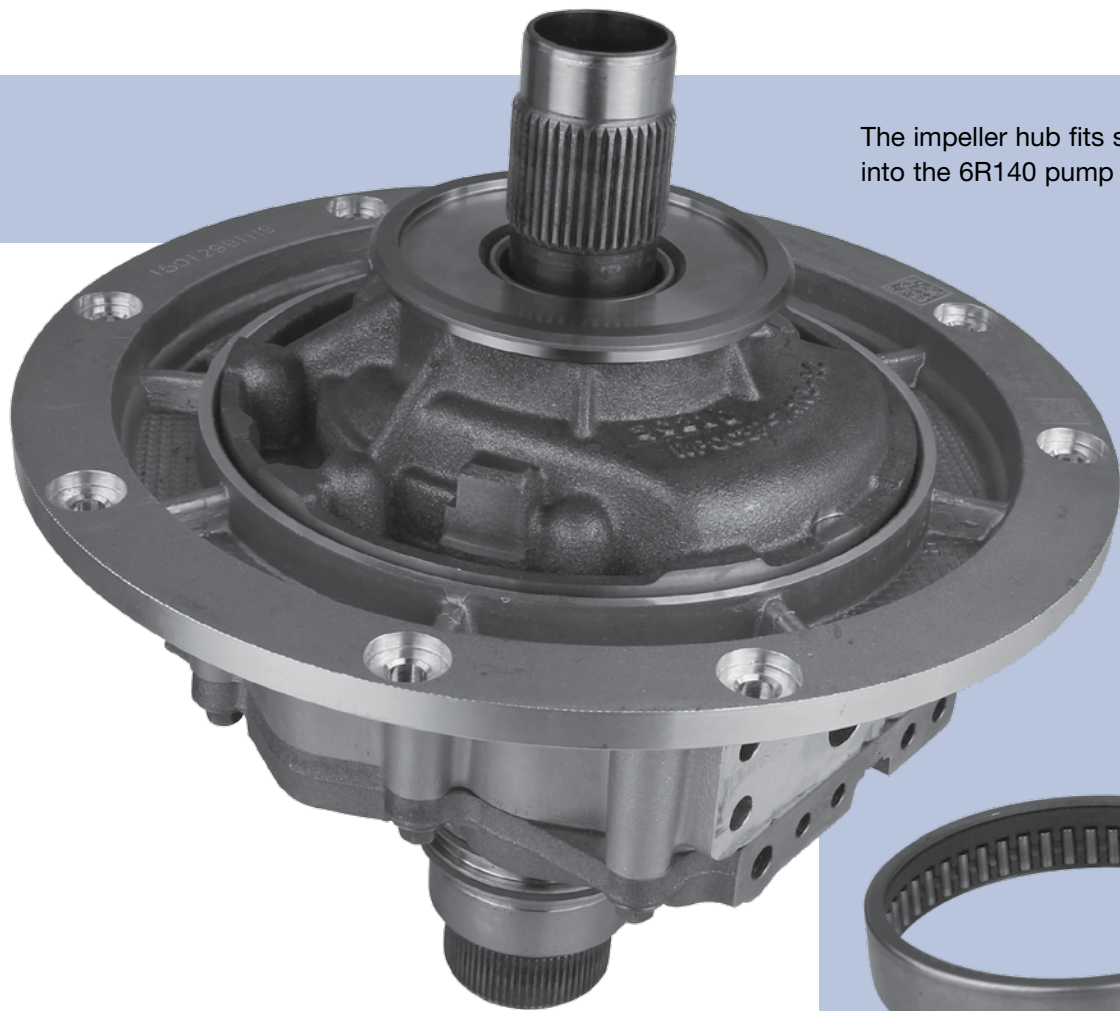
A damaged 6R140 hub.

After a considerable effort to design and test a replacement impeller hub for the Ford 6R140 torque converter, Sonnax is pleased to announce the release of **FD-90-140G** – the first for this unit available in the aftermarket. In comparison to some of our other flanged impeller hubs, this is not an inexpensive piece, however this is not an average impeller hub. The Sonnax engineering team went above and beyond to develop a quality hub that can be successfully installed into this cumbersome unit.

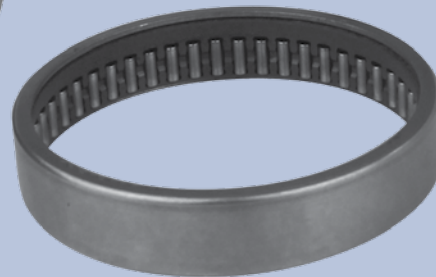
If you have ever tried to fit the 6R140 converter onto a transmission, you know that it can be difficult to install the converter into the pump. The unit is quite heavy, and the two sets of splines (O.D. splines drive the pump gear and, if applicable, the I.D. splines drive the PTO) have a very tight tolerance/fit. In addition, the O.D. of this thin-walled impeller hub rides on a drawn cup needle bearing. Converter rebuilders report that many virgin cores show evidence of wear/damage at the location where the needle bearing rides (not a bushing) on the hub, necessitating impeller hub replacement.

Continued on page 2...

Sonnax FD-90-140G



The impeller hub fits snugly into the 6R140 pump assembly.



The drawn cup needle bearing on which the impeller hub rides should always be replaced. It's available under Sonnax part number 126202.

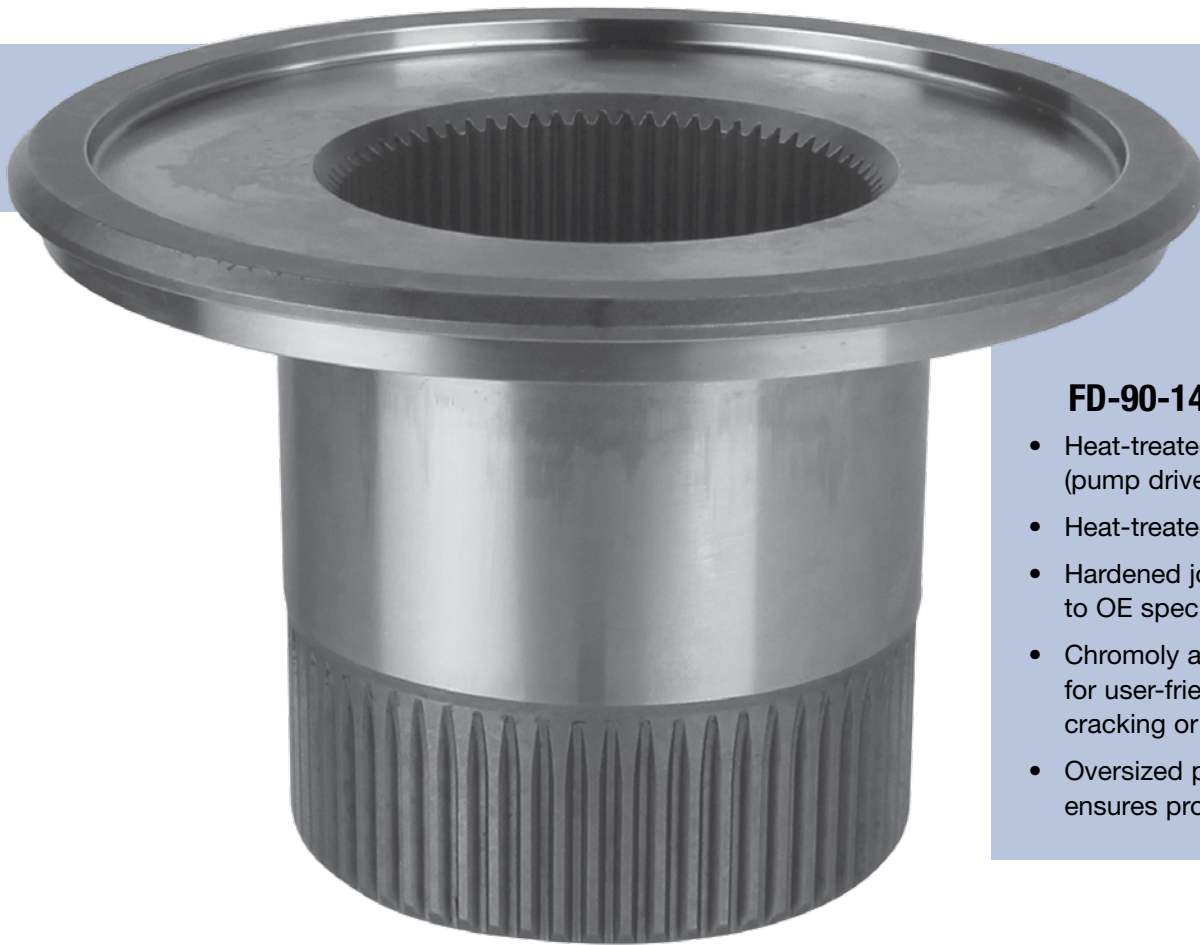
...Continued from page 1.

It's strongly recommended that the OE pump bearing be replaced when installing a replacement. Rebuilders know too well that needle bearings may look OK, but 100% replacement is part of a quality build. An OE replacement converter hub support pump bearing is available to transmission rebuilders from Sonnax under part number [126202](#).

The Sonnax impeller hub maintains very close tolerances on spline fit, I.D./O.D. dimensions and concentricity to precisely match OE function. This posed quite a challenge when designing an aftermarket part, though. The O.D. of the hub rides on a needle bearing, so it was critical that proper hardness of that surface was achieved. On the other hand, because the hub is thin walled and has splines at each end, it was a precise process to get the hardness of the hub within spec without distorting the roundness or fit of the hardened splines.

So, you may be asking: why did the OEM complicate matters by creating such a precision interface between the impeller hub and the transmission pump? Well, they actually have it a little easier, because they were able to select a very high carbon content alloy that helps keep the thin-walled hub's tolerances and hardness in spec. Unfortunately, using the same material as the OEM is not a good choice for an aftermarket replacement impeller hub. While their alloy lets the OEM maintain its specs, special welding processes and

equipment are required for installation. Therefore, not only did Sonnax need to design the [FD-90-140G](#) to excel at form, fit and function, we also had to pay considerable attention to the installation – or “weldability” – of the hub. Sonnax experimented with various alloys and hardening processes to provide you with a part that meets the required performance specs AND is easily welded. If Sonnax simply offered a replacement hub made from the same alloy as the OE, it would likely crack if you were to weld it in place using the standard MIG welding equipment and processes common to torque converter remanufacturers.



FD-90-140G Features

- Heat-treated external splines (pump drive)
- Heat-treated internal splines (PTO)
- Hardened journal diameter to OE specifications
- Chromoly alloy that allows for user-friendly welds without cracking or warping
- Oversized piloting diameter ensures proper alignment

Tips for Successful 6R140 Impeller Hub Installation

1. Take the Chill Off when Welding Sonnax FD-90-140G

While the alloy used to manufacture the Sonnax hub is easily welded, it's not quite as forgiving as the material used in the bulk of Sonnax impeller hubs. The hub should be – at minimum – at shop temperature when welding it into the 6R140 impeller. If you are in a cold weather climate and you store cores and/or components in an unheated area, you should let parts warm up to room temperature before welding.

After welding the hub into place, let the assembly cool slowly, without quenching the parts. Immediately dousing the welded impeller into your leak test tank (to make it easier to handle, for example) would likely cause the hub to crack.

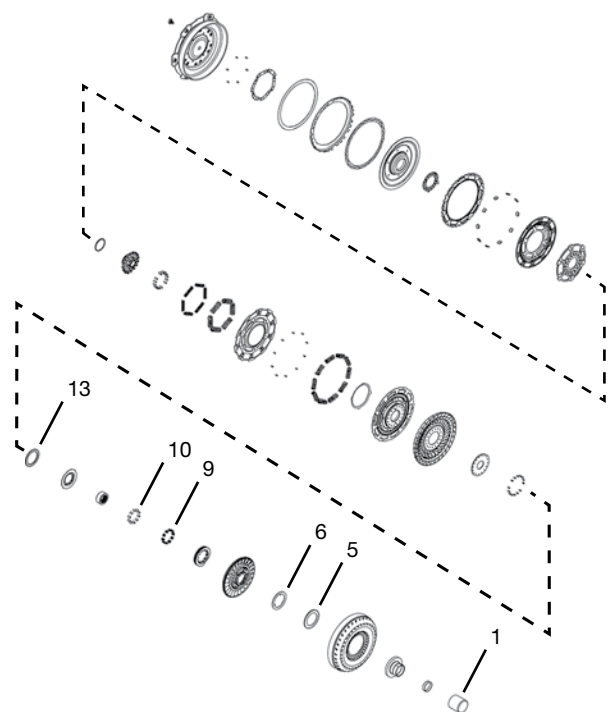
2. Develop Techniques that Guarantee Minimal Runout

Speaking of welding, it's worth noting that there are SAE and other papers written about the unique overall design of the 6R140 converter. Some of that information discusses how the OE parts require a very tight pilot-to-impeller hub runout tolerance to help reduce NVH issues and ensure proper operation and component durability. For the aftermarket, that

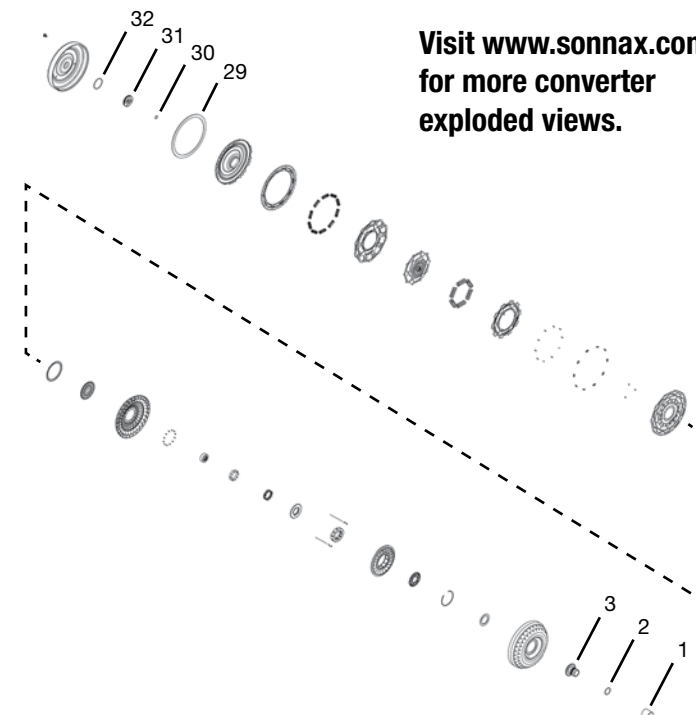
translates into a need for precise fixtures and procedures that will keep runout to an absolute minimum. Because this is such a large and heavy converter, and the impeller hub has an outside diameter more than 2.5", it might be worthwhile to review the equipment and process you use to weld the converter body together. A little analysis and planning up front could eliminate problems later on.

Repairing the 6R140 impeller hub is a more demanding job than replacing the tube-style hubs you see every day, like some 4L60 applications. Check out the new [FD-90-140G](#). This one-of-a-kind component meets all of the demands of form, fit and function, PLUS is engineered to be weldable and user friendly. It's a great new product to help prevent comebacks the next time you rebuild a 6R140.

GM 8L90



Chrysler 66RFE



Visit www.sonnax.com for more converter exploded views.

GM 8L90

I.D. No.	Part No.	Part Name	Description
1	MI-HC-C	Hub Cover	2-5/16" Dia., Plastic, Clear
5	GM-N-22	Thrust Bearing	3.583" O.D., 2.502" I.D., .159" Thick, Partially enclosed, Hardened steel
6	GM-N-23	Bearing Race	3.420" O.D., 2.600" I.D., .077" Thick, 3 I.D. tangs, Hardened steel
9	GM-S-12	Accordion Spring	.470" Width, .225" Relaxed height, .450" Relaxed length, 3.5 Fold count
10	GM-RO-480	Roll	.480" Length, .312" Dia., Hardened steel
13	GM-N-11	Thrust Bearing	3.391" O.D., 2.500" I.D., .150" Thick, Enclosed, Hardened steel

Chrysler 66RFE

I.D. No.	Part No.	Part Name	Description
1	MI-HC-Y	Hub Cover	1-7/8" Dia., Plastic, Yellow
2	CH-O-8V	O-Ring	1.612" I.D., .103" Cross section, Fluorocarbon
3	CH-90-25G	Impeller Hub	Flanged, 2 Flats, 1.875" Journal dia., 2.054" Assembled height, 3.120" Outer flange dia., 2.212" Height
29	B45066HTS	Friction Ring	11.250" O.D., 9.850" I.D., .045" Thick, HTS
	B45066HTE	Friction Ring	11.250" O.D., 9.850" I.D., .045" Thick, HTE
	B66066HTE	Friction Ring	11.250" O.D., 9.850" I.D., .066" Thick, HTE
	B66066HTS	Friction Ring	11.250" O.D., 9.850" I.D., .066" Thick, HTS
30	CH-O-10V	O-Ring	.676" I.D., .070" Cross section, Fluorocarbon
31	CH-WP-8	Thrust Washer	2.769" O.D., .693" I.D., .473" Thick, High-grade phenolic plastic
32	CH-O-11V	O-Ring	2.573" I.D., .103" Cross section, Fluorocarbon

Faster, Easier Rivet Installation for Late-Model Captive Clutch Converters

Stop struggling with rivets that won't stay in position! This unique new Sonnax tool [MI-TL-1](#) holds rivets securely in place to cut down on the install time with GM 258mm, 6L90 and Allison® LCT 1000 captive clutch converters.

Sonnax offers two styles of rivets that work with this tool: [BW-RV-1](#) for the LCT 1000 and [GM-RV-12](#) for the 6L90.



	Make/Unit	Part No.	Part Name	Description
	Aisin AW 450-43LE	TO-HT-3HSMOD	Turbine Hub	20-Tooth internal spline. Specially designed for use with bearing adapter kit TO-WS-2K to eliminate the machining otherwise required to use the kit with a standard hub. Stator machining is required.
Ford	6R80, 280mm (Early-Style)	FD-WA-26	Stator Cap	Aluminum, 3.963" O.D., 1.930" I.D., .294" Tall, .155" Functional thickness, .294" Total thickness, Notches
	6R140	FD-90-140G	Impeller Hub	Flanged, Pump & PTO splines, chromoly, 2.508" Journal dia., 2.672" Assembled height, 4.500" Flange O.D.
General Motors	280mm LU (4L60-E) "VJCX"	GM-90-76G	Impeller Hub	Butt-mount, Slots, Hardened steel, 1.748" Journal dia., 2.400" Assembled height
	6T70/6T75 & Ford 6F50/6F55	GMFD-WS-1	Wear Plate	2.953" O.D., 1.902" I.D., .031" Thick, Steel, 8 Tangs
		GMFD-WA-1	Stator Cap	Aluminum, 3.465" O.D., 1.5" I.D., .365" Thick, Notches
		GMFD-WA-2	Stator Cap	Aluminum, 3.465" O.D., 1.7" I.D., .34" Thick, Notches
6L80, 6L90 (300mm), 6L90 (Captive Clutch)	GM-WP-16	Thrust Washer	3.150" O.D., 2.557" I.D., .047" Thick, Notches, OE material	
	GM-HT-56HS	Turbine Hub	36-Tooth hardened internal spline, 55-Tooth external spline	
High Performance	Allison® LCT 1000 (Captive Clutch)	AL-RK-4	Multi-Plate Converter Clutch Kit	Dampered, Lockup, 25 Spline count
		AL-WA-9	Stator Cap	Aluminum, 4.165" O.D., 2.293" I.D., .396" Functional thickness, .541" Total thickness, Notches
	GM 4L60-E, 4L65-E, 4L75-E (300mm)	GM-RK-405WC	265mm Damperless Multi-Plate Racekit	Woven carbon version, Lockup, 30-Tooth spline count
		GM-RK-408WC	258mm Damperless Multi-Plate Racekit	Woven carbon version, Lockup, 30-Tooth spline count
	GM 4L80-E, 4L85-E	GM-RK-485WC	265mm Damperless Multi-Plate Racekit	Woven carbon version, Lockup, 35-Tooth spline count
		GM-RK-488WC	258mm Damperless Multi-Plate Racekit	Woven carbon version, Lockup, 35-Tooth spline count
	GM 4L80-E, Single Plate Performance Converter	GM-MD-4-2	Mechanical Diode	Fits 3.250" stator bore, 37-Tooth internal spline, 10-Strut design, 2-Strut engagement
	BorgWarner 310mm LU (A618, 47RH/RE, 48RE)	BW-RK-3	Damperless Multi-Plate Converter Clutch Kit	Lockup, 23-Tooth spline count
	Chrysler 68RFE	CH-RK-6	Damperless Multi-Plate Converter Clutch Kit	Lockup, 27-Tooth spline count
	Allison® 1000/2000/2400	AL-RK-3	Multi-Plate Converter Clutch Kit	Damperless, Lockup, 25-Tooth spline count
ZF	ZF6HP26, 255mm	ZF-O-6V	O-Ring	2.550" I.D., .103" Cross section, Fluorocarbon

You Ask — We Answer

Some frequently asked questions from our torque converter customers ...

1. How can I find out what parts you have, if I can't go to the Sonnax website? www.sonnax.com is indeed the place to be if you want to know what parts are available. There are other ways to find out when new parts hit the streets, though.

a. The *Torque Converter Journal*: This newsletter – published twice a year – always contains a comprehensive listing of products released in the past six months. If you're reading this and have received past newsletters, you haven't missed out on any new parts.

b. Sonnax E-news: To learn about new parts as SOON as they become available, you want to make sure you're receiving Sonnax e-news. If you haven't seen these new product announcements via e-mail, talk to your sales rep and they'll help ensure they get to you. You also can sign up on the Sonnax website by visiting www.sonnax.com/insiders.

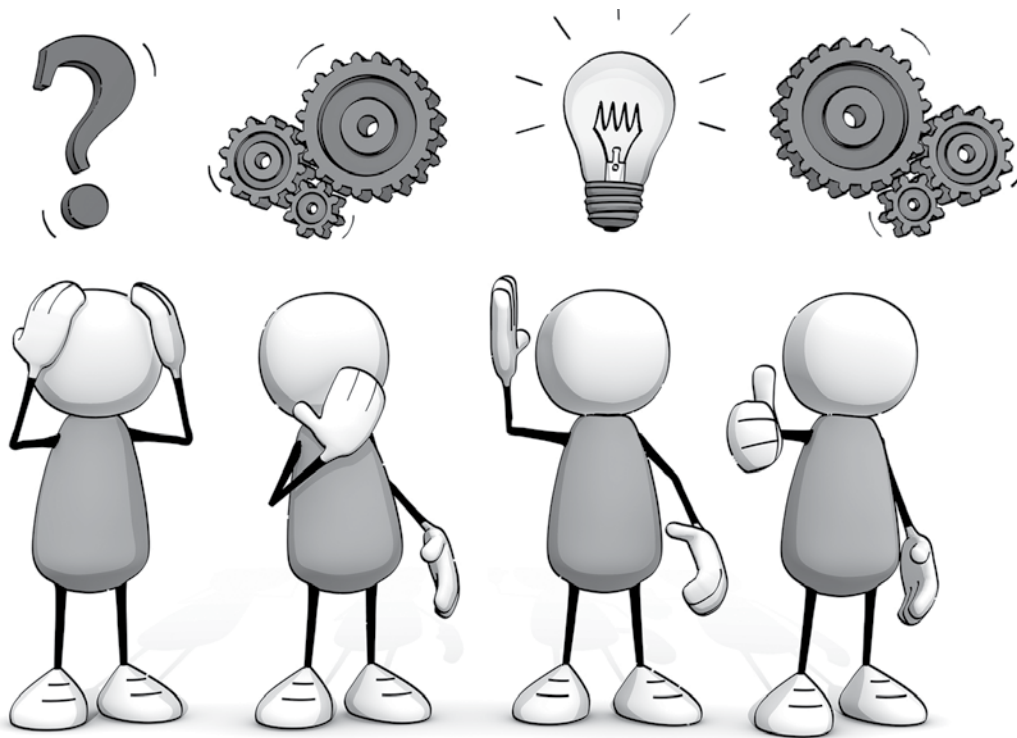
c. Facebook: Are you a fan of Sonnax? Follow us on Facebook where new products, tech resources, photos and much more are shared every week.



If you did “Like” the Sonnax Facebook page, but haven't seen a post recently, visit www.facebook.com/Sonnax/ and review your “Liked” settings. Under Notifications, “On” needs to be checked.

2. When are you coming out with a new catalog? No new catalog will be published this year, so Volume 7 remains the most recent edition. Your most up-to-date “catalog” is actually www.sonnax.com, where you get instant access to current part listings and exploded views. New products are added on a daily basis, so if you don't see a converter component offered online, that means it's not available yet. Talk with your sales rep if there's a part you don't see, but are interested in ordering. They may be able to tell you when it will be available.





3. When is X part coming out? If you've let us know you're looking for parts we don't have, we've absolutely listened. Right at this very moment, our team is developing dozens of parts in high demand for units new and old. The months (and sometimes years) of research, engineering and testing that goes into every Sonnax product is all to ensure that when we do bring them to market, they are the best they can be.

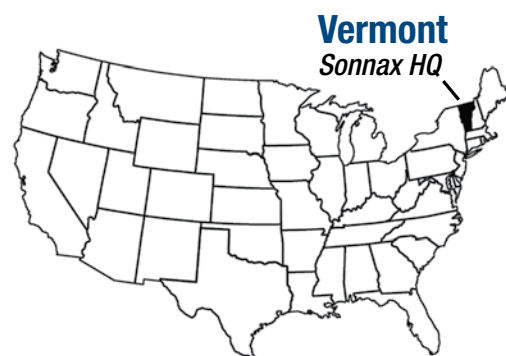
4. Why doesn't Sonnax have pricing on its website? I want to order parts online. Asking our customers to set up and manage online accounts is cumbersome. Who needs another login and password to remember? Only your Sonnax account rep. can give you real-time insight into inventory, pricing and product availability. Whether you call, e-mail, fax or submit a request, every order gets their personal attention to ensure it's accurate, complete and gets out the door on time.

5. What's the latest I can place an order to have it ship that same day? Day to day that can change, but as a general rule – if it is a UPS order – you should have it sent in for same-day shipping no later than 3 p.m. ET. If it's a UPS air shipment, the cutoff time is 4 p.m. ET.

6. Can Sonnax help me with this converter problem I'm having? Sonnax has many tech articles on its website, but TCRA is the best source of information for torque converter rebuilders. Sonnax sales reps are happy to help as much as they can and refer you to other sources if necessary.

7. Why are my parts back ordered? We try our best keep our shelves stocked for all our customers' needs, but sometimes production delays or unexpected bulk orders cause us to come up short. If there are parts you use in large quantities on a regular basis, a pre-order might be the way to go. Contact your rep. today for details.

8. If I have a problem with a product, what do I do? Talk to your sales rep right away! They will help troubleshoot the issue and arrange for a return or replacement as necessary. All returns need a return authorization, so your sales rep can keep your account details up-to-date.



10. BONUS: What state is Vermont in? We blame the New England Patriots for some of the confusion. Contrary to myth, New England is not a state, and Vermont really is located in the State of Vermont. Sonnax headquarters is tucked away southern Vermont, right on the border with New Hampshire.

Keep Your RFE Converters on the Road with the Smart-Tech® Overdrive Clutch Housing Kit

- Modified housing holds physically larger clutch pack for 20% more clutch capacity
- 2X Thicker steels & double-sided frictions guarantee more protection against heat damage than fragile OE clutches
- Bolt-on anchor plate eliminates clutch pack flexing & distortion that contributes to heat build-up
- Combine with Sonnax line pressure booster kit RFE-LB1 for even higher levels of performance

Dodge trucks pulling heavy loads or boosted to 400–600HP are at high risk for Overdrive burnup due to the stock transmission's insufficient clutch capacity and fragile OE clutches. Increasing torque capacity by 20%, this groundbreaking new Overdrive housing kit from Sonnax is the ONLY top-of-the-line upgrade that eliminates clutch problems without relying on valve body/pump modifications or adding the expense of extra components.



Fits 45RFE, 545RFE, 65RFE, 66RFE, 68RFE

Part No. 72960-06K Patent Pending

- Overdrive/Reverse Housing
- Bolt-On Anchor Plate
- Anchor Plate Shims (2)
- UD/OD Reaction Plate
- Adapter Sleeve
- Lip Seal
- Friction Clutch Plates (6)
- Steel Clutch Plates (5)
- Screws (12)
- Chisel

Make sure your diesel specialist shop knows about the new Sonnax overdrive housing kit.



2017 TCRA Seminar Heads to California

The Sonnax team will be bringing its expertise — not to mention shiny, new parts — to the Torque Converter Rebuilders Association Seminar April 21–22 at the Marriot Ventura Beach in Ventura, Calif.

The annual gathering features two days of business, troubleshooting and technical seminars led by some

of the industry's best speakers, including Sonnax V.P. of Technical Development Bob Warnke. Proud to be a platinum sponsor of TCRA, Sonnax will also host a casual reception on the seminar's first day from 5–7 p.m.

Join us! Register at www.tcraonline.com.