

6T40 & 6T70 Drum Saver Kits

Unbeatable Protection Against 3-5-R Failures & Costly Comebacks

Anyone who has ever worked on GM Gen. 1 6T40/45/50 and 6T70/75 transmissions is familiar with the problem of the 3-5-R waved plate breaking in '07-'09 models. It's not uncommon in later units, either. When the plate breaks apart, it usually damages the drum splines, requiring an expensive new housing. Even if the plate hasn't failed yet, you know you can't risk leaving it in there, so this is an area that always gets attention during a rebuild. To protect the plate and drum from failure and make it easy to salvage even damaged drums, Sonnax now offers a simple and affordable solution: 3-5-R drum saver kits **144555K** and **124555K**. The combination of an improved waved plate and custom steel plate work together for top-notch protection against warranty comebacks.

When waved plate failure first became a chronic issue, GM did try to address the problem. They determined breakage was due to the plates being insufficiently stress relieved, so their solution was to shot-peen the plates to reduce the stress points that can lead to premature failure. Installing this



3-5-R Drum Saver Kits

Part No. 144555K

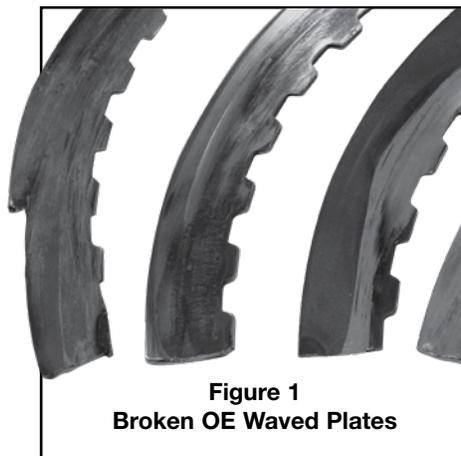
Fits Gen. 1 & 2 6T40, 6T45, 6T50

Part No. 124555K

Fits Gen. 1 & 2 6T70, 6T75

updated OE waved plate in early-model transmissions has become standard operating procedure throughout the rebuilding industry. Unfortunately, both stock and rebuilt units with the newer plate installed (including Gen. 2) are still failing in the field, causing warranty comebacks for builders. While the updated plate is more reliable than the older version, it doesn't eliminate all worries about whether the unit on your bench will end up as an expensive do-over. This brings up two questions:

1. Can you ensure the problem doesn't happen again while your build is under warranty?
2. Is there a way to salvage drums that have already been damaged by a broken plate?



Why Does the Waved Plate Break?

Many stress points for the waved plate can be eliminated by shot-peening. However, the design of the updated OE plate retains many of the stress points that allow it to break — namely all the teeth. Take a look at the broken plates in **Figure 1**. These are representative of EVERY broken OE plate Sonnax studied while researching a solution to this problem. Notice they are all separated exactly at a tooth corner

Continued on page 2...

Continued from page 1...

(a common stress point). Even OE plates that look OK to the eye can develop micro fractures here and be on the verge of failure. To prevent broken waved plates in 6T40/45/50 and 6T70/75 units, a different design is needed that eliminates these stress points once and for all.

Stopping the Failure Cycle

The waved plates in the Sonnax drum saver kits are shot-peened for added durability like the updated OE version, but we took the whole concept a step further by eliminating virtually all stress points: There are ZERO teeth on the Sonnax waved plate.

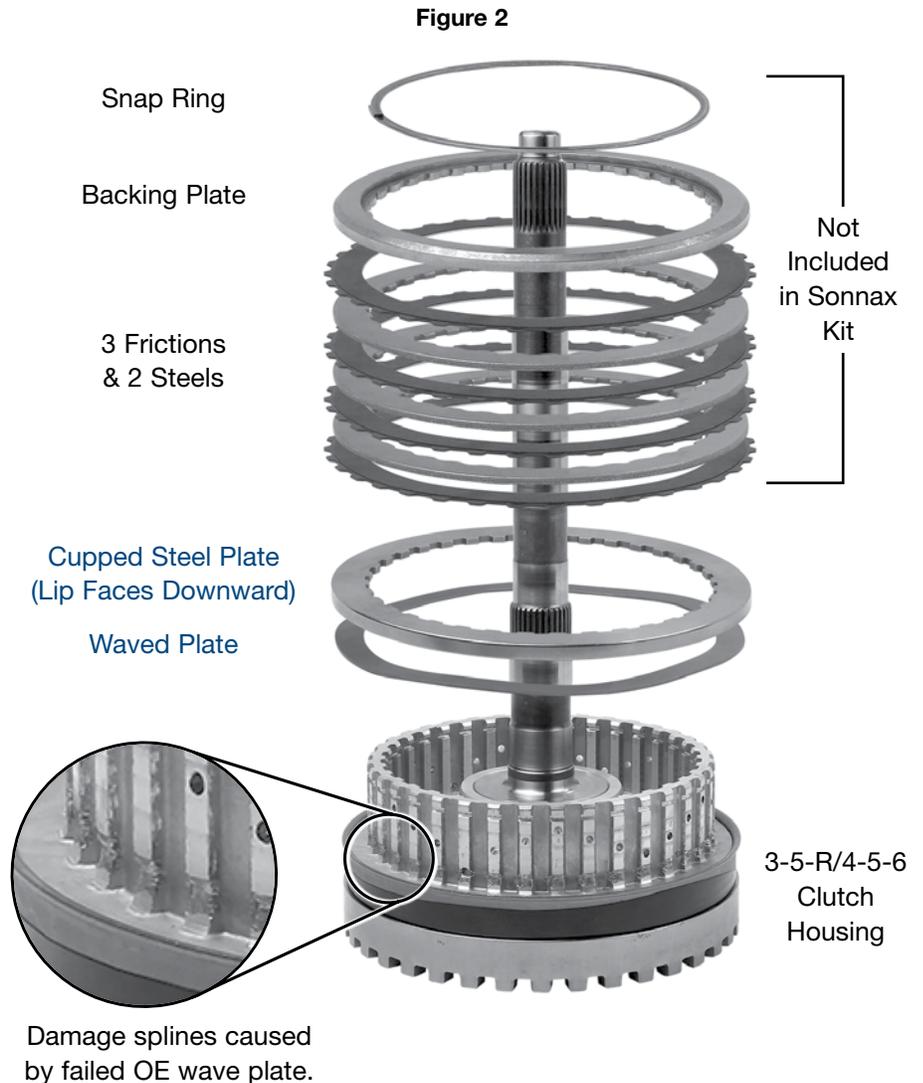
Because there are no teeth, we need a way to position and guide it on the drum. That's where the other part of the kit comes in: a custom, cupped steel plate.

This is a billet piece — not a thin, stamped plate — and it fits together perfectly with the Sonnax waved plate. The cupped steel plate fits right over the top of the waved plate to secure it in place on the drum (**Figure 2**). It's the same thickness as the bottom steel in the clutch pack (which is discarded in favor of the Sonnax steel), giving you perfect clutch clearance every time — PLUS great heat dissipation.

The cost of a failed drum while your rebuild is still under warranty is way too high with OE waved plates — the early-style or the late-style. These drums aren't cheap, and neither is pulling the tranny back out, tearing it down and installing new parts on your own dime. Adding a Sonnax drum saver kit to every build guarantees no more comebacks due to broken OE waved plates.

Salvaging Damaged Drums

These same two parts also will save you the hassle and expense of replacing a failed drum. If you have a unit on your bench with a broken OE waved plate and the drum splines are all chewed up as a result,



Adding a Sonnax drum saver kit to every build guarantees no more comebacks due to broken OE waved plates.

there's usually nothing to be done except source and install a new drum and OE waved plate, then cross your fingers. Because there are no teeth on the Sonnax waved plate, it can ride near the damaged spline area without interference; there is no danger of hanging up (**Figure 2**) like an OE plate would. This is so much faster and easier — not to mention less expensive — than buying a new drum and having to spend time transferring the shaft and piston over. Plus, you've got the best waved plate you can get in there to make sure your rebuild really lasts.

The next time you have one of these transmissions on the bench — early- or late-model, 6T40/45/50 or 6T70/75 — ask your distributor for a Sonnax 3-5-R drum saver kit. By preventing failure or helping you salvage a damaged drum, they will greatly improve the reliability of your builds for great insurance and peace of mind when working on these units.

Choose from 14
Sonnax Zip Kits for
6-Speeds

Ford

Gen. 1 & 2 6F35

6F50/55

6R140

6R60/75/80

GM

6L45/50/80/90

6T30, Gen. 2 6T40/45/50

Gen. 1 6T40/45/50

Gen. 1 6T70/75

Gen. 2 6T70/75/80

NEW KIT!

See Valve Body Layout on Page 6.

Toyota/Lexus

A750E/F, A760E/F/H,
A761E, A960E/F, AB60E/F

U660E/F

U760E/F

ZF

ZF6HP19/26/32 (Gen. 1)

Individual kits for units with and
without the 053 separator plate

ZF6HP21/28/34 (Gen. 2)

"The most helpful products to date
are your Zip Kits. Your Zip Kits hit
the valve body issues right on the
head. Thank you, Sonnax!"

— James T.

**ZIP
KIT**

The First Step in
Correcting Common
Shift Problems



Installing gimmicky parts or tinkering with shortcuts that ruin the integrity of the valve body will never truly repair a transmission. Fast, safe and effective shift repairs are EASY with a Sonnax Zip Kit.

- No reaming or special tools required
- Stops hydraulic leaks
- Extends the life of high-mileage units
- Includes in-depth tech booklet with diagnostic tips & installation steps, plus additional fixes for other worn areas in the valve body

Visit www.sonnax.com/zip-kits
for even more units!

New Parts for Jatco/Nissan JF015E Units

NEW!

These parts also fit Mitsubishi F1CJB.

Torque Converter Lube Regulator Plunger Valve Kits

- Installing Sonnax torque converter lube regulator plunger valve kit **33741F-07K** can restore correct clearances and maintain proper hydraulic control of the lockup clutch
- Hardcoat anodized aluminum valve combats premature wear
- Direct replacement, requires no tools and minimal bore preparation prior to assembly
- Sonnax also offers a new oversized version: **33741F-05K**

These transmissions can have complaints associated with a worn plunger valve and sleeve, including increased RPM during acceleration, no lockup and engine stall on engagement. This is due to the wear at the inside of the lockup control plunger valve sleeve allowing oil to escape, which affects the timing and quality of the lockup clutch apply and release action.



Oversized Lockup Control & Plunger Valve Kit

- Reconditioning the bore and installing Sonnax oversized lockup control and plunger valve kit **33741F-09K** restores optimal oil pressure management within the TC clutch apply/release circuits
- Hardcoat anodized aluminum valve combats premature wear
- Oversized valve reproduces OE pressure regulator function

The lockup control valve in these units operates under the direct command of the lockup control solenoid routed through a select switching valve and is also influenced via apply and release feedback balance passages. A worn bore, valve spool(s) or plunger valve assembly can cause loss of critical pressure to the sump, lube circuit or directly into apply or release passages, resulting in jerking on coastdown, harsh engagement and high engine RPM due to no lockup.



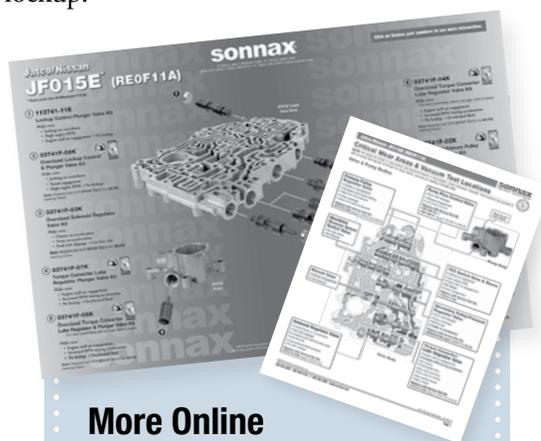
Input/Counter Drive Bearing

The input/counter drive bearing has a notoriously high rate of failure in these units. Designed by the OE bearing supplier as a sealed, caged-ball bearing, it became clear very quickly that the bearing was not up to handling the loads faced in this position. Finding the bearing broken during rebuild is a common occurrence.

Sonnax input/counter drive bearing **323232-A** is a redesigned OE bearing that eliminates the old bearing's flaws. It's rated for approximately twice the load of the OE sealed bearing thanks to its open roller design and three additional rollers. The open design also allows for continuous lubrication to ensure trouble-free operation.



Upgraded Open-Syle Bearing



More Online

Check out our downloadable and printable vacuum test guide and valve body layout for the JF015E — and many other units — in our tech library at www.sonnax.com.

Must-Have Chrysler RFE Upgrades

Heavy Duty Overdrive Clutch Hub & Shaft

- Clutch hub and shaft is cryogenically treated
- Shot-peened lubrication cross holes
- Greater crack resistance than original hub and shaft

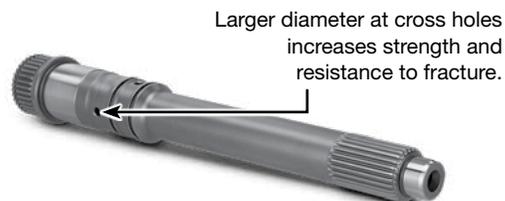
Overdrive clutch hub and shaft failure is common in Chrysler 66RFE and 68RFE transmissions, in both completely stock units and heavy duty/performance applications. The failure always begins with small cracks at the lubrication cross holes that migrate through the rest of the shaft, eventually resulting in catastrophic gear train failure.

Sonnax heavy duty overdrive clutch hub and shaft **72570-01** is a critical upgrade to protect any vehicle at any power level. Sonnax cryogenically treats the OE hub and shaft to make the base steel more stable, then shot-peens the lubrication cross holes to greatly reduce crack formation and increase load capacity.



Part No. 72570-01
Fits 66RFE, 68RFE

Heavy Duty Input Shaft



Part No. 72670B-01 Fits 68RFE
Includes checkball assembly and line-bored bushing.

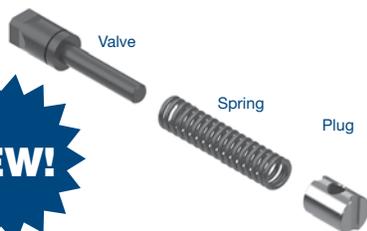
- Rolled splines for increased durability
- Specially heat-treated and processed for maximum toughness and straightness
- Manufactured from 300M ultra high-strength steel for maximum strength and resistance to fracture

Input shaft failure is common as power levels are increased in Chrysler 68RFE units. Sonnax heavy duty input shaft **72670B-01** is precision engineered and manufactured for unbeatable performance in high-horsepower gas and diesel applications. It is suitable for any street, towing or competition application.

A New Solution for Forward & Reverse Delayed Engagement & Clutch Distress in the 4L60-E

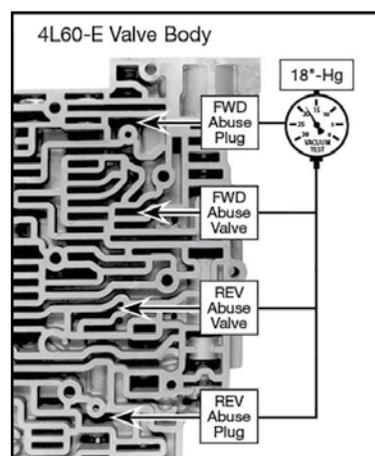
In 2002, 10 years after the 4L60-E was introduced to the market, Sonnax developed the **77754-21** forward and reverse abuse bore plug to combat the wear-related leakage that leads to delayed engagements and apply component damage. Turn the calendar and age the core another five years, and we developed drop-in replacement forward and reverse abuse valve kit **77754-35K** that has extended spool lengths on the valves to also help address the same engagement and clutch issues. Combined, these two products have helped salvage thousands of valve bodies.

Oversized Forward & Reverse Abuse Valve Kit **Part No. 77754-58K**



Now that the 4L60-E is closing in on its 30th birthday, the cores are in

need of some more TLC than drop-in parts to keep them road-worthy. Vacuum testing at the noted plug and valve locations helps determine if the new oversized forward and reverse abuse valve kit **77754-58K** is required. If these locations aren't holding the recommended vacuum with the Sonnax drop-in components, choose the new oversized kit to ensure best drivability and performance for your customer.

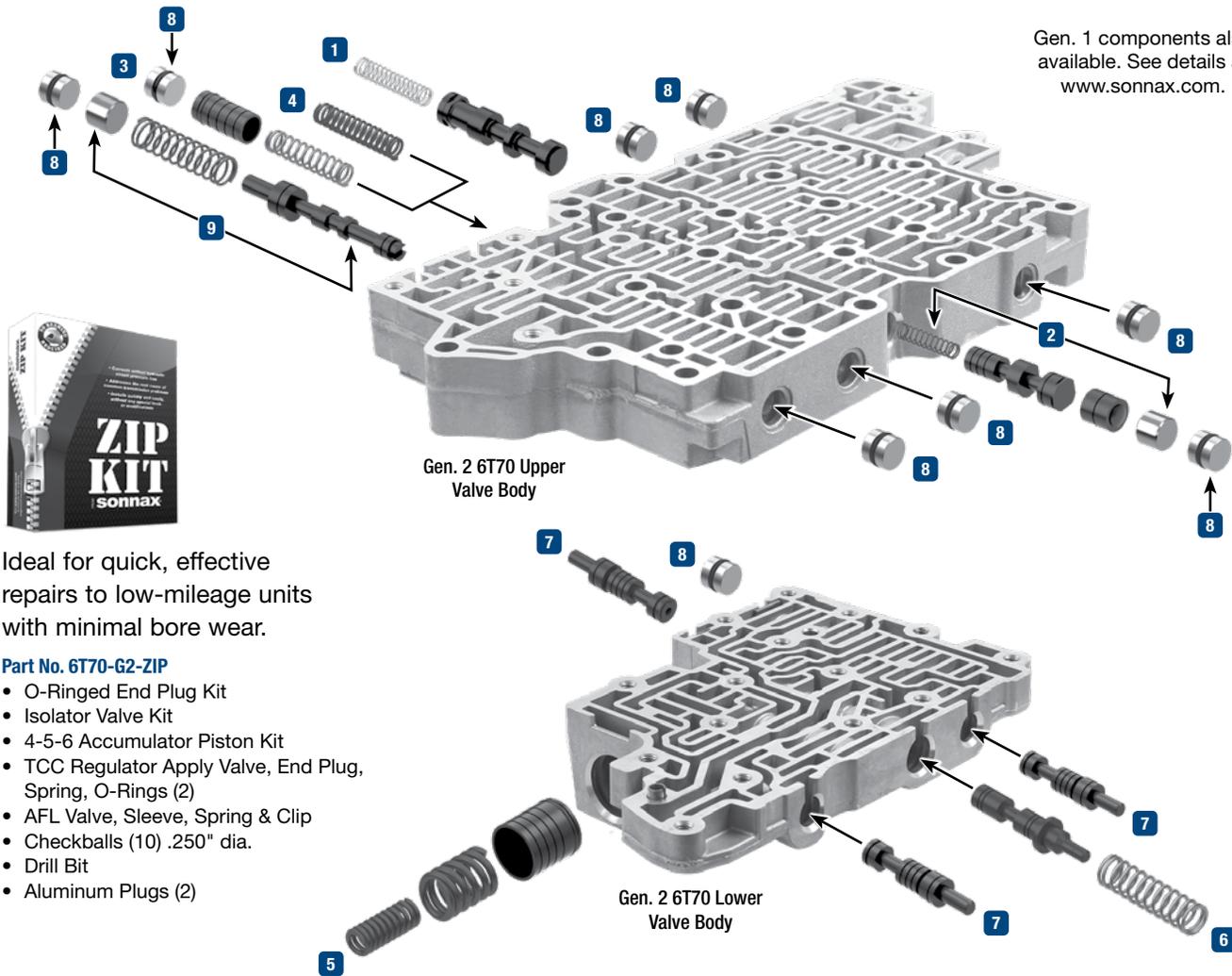


Which Kit is Right for Your Rebuild?

Vacuum testing is the best way to decide what type of repair is needed to restore valve function. Use a small test plate or the complete Sonnax vacuum test plate kit **77754-VTP** with Sonnax test stand kit **VACTEST-01K** to test the locations shown.

Gen. 2 6T70, 6T75 & 6T80 Valve Body Components

Gen. 1 components also available. See details at www.sonnax.com.



Ideal for quick, effective repairs to low-mileage units with minimal bore wear.

Part No. 6T70-G2-ZIP

- O-Ringed End Plug Kit
- Isolator Valve Kit
- 4-5-6 Accumulator Piston Kit
- TCC Regulator Apply Valve, End Plug, Spring, O-Rings (2)
- AFL Valve, Sleeve, Spring & Clip
- Checkballs (10) .250" dia.
- Drill Bit
- Aluminum Plugs (2)

Symptoms/Part Type	Product Name	Part No.	Details	Tooling
TCC/Lockup Symptoms				
Excess TCC slip, Low cooler flow, Overheating, TCC apply & release concerns, TCC apply codes	Oversized TCC Control Valve Kit	1 124740-14K		F-124740-TL14*
Code P0741, Code 742, Harsh TCC apply, TCC slip, Loss of fuel economy, Low TCC apply pressure	Oversized TCC Regulator Valve Kit	2 124740-24K		F-124740-TL24*
Pressure Problems				
Low line pressure, Line pressure instability, No line rise, Burnt clutches, Harsh shifts	Isolator Valve Kit	3 124740-03K		
No line rise, Line pressure instability	Isolator Valve Spring	4 124740-16	5/Bag	
Shift/Engagement Concerns				
3-4 Flare, Ratio codes, 4-5-6 Clutch burned, Slipping gears, 3-4 Harsh	4-5-6 Accumulator Piston Kit	5 124740-57K		
Solenoid performance codes, Wrong gear starts, Clutch failure	Oversized AFL Valve Kit	6 124740-48K		F-124740-TL48*
Shift quality is not load sensitive, Harsh shifts, Slips & flares, Delayed engagement	Oversized Clutch Boost Valve	7 124740-56	Fits any of 3 locations	F-144740-TL22*
Pressure loss, Shift concerns, Burnt clutches, TCC apply concerns	O-Ringed End Plug Kit	8 124740-02K	Includes 9 end plugs	
Erratic line pressure, Poor shift quality, Burnt clutches, Low converter & lube flow	Oversized Pressure Regulator Valve Kit	9 124740-60K		F-124740-TL60*

* VB-FIX Required



Jason Laroche

Tech Support Representative

Jason's Years on the Team: 1

Jason's primary focus is providing Sonnax product assistance over the phone and through email.

Prior to working for Sonnax, Jason was a technical coordinator for a manufacturing company and an automotive technician. He attended Vermont Technical College, graduating with an associate's degree in automotive.

Besides an obvious interest in all things automotive, Jason also enjoys volunteering for his local animal rescue, Cas Cad Nac, and coaches his kid's sports teams.

Need Support? We're Here to Help!

- Call **(800) 843-2600, Ext. 398**
- Use the "Contact Us" form at **www.sonnax.com**
- Send an email to **sonnaxtechsupport@sonnax.com**

Perfecting Your Shift Timing in GM 700R4 Applications

For years, the GM 700R4 (4L60) has been utilized in many hot rod projects and classic cars. Its smaller footprint and wide variety of parts make it a popular choice for builders.

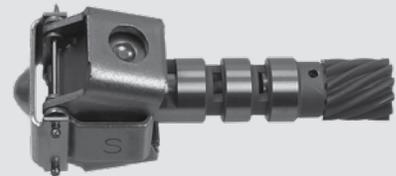
Sourcing a donor 700R4 is relatively easy, considering the large variety of vehicles GM used it in. GM installed them in S-10s, Astro vans, Corvettes and everything in between. One of the challenges of adapting the 700R4 to your specific application is perfecting the shift timing, which is controlled by the TV cable, governor and valve body. It is always best to start with a valve body that came from an application that is close to what it is going into. A core from a van with a 350 engine and 3.73 gears will always work better than a core from a station wagon and 2.73 gears. The TV cable should be properly set with 1.48" of cable travel between closed and wide open throttle.

Because the governor came in many configurations from GM depending on the engine and vehicle size, Sonnax offers three governors: part Nos. **729**, **731** and **730** for different applications (see images and labels at right).

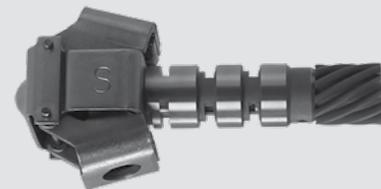
To further perfect your shift timing, there are a variety of governor weights and springs available from the aftermarket

you can customize our governor with to set your shift points to your liking. Heavier weights and springs will cause earlier shifts, while lighter weights and springs will cause later shifts. Always make changes one at a time, first to weights, then to springs. Changes can also be made to the shift valve spring weights to really dial in your shift points.

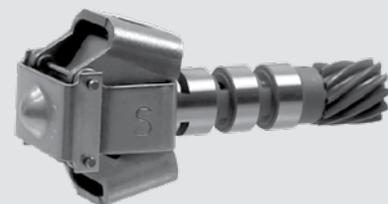
Sonnax Governors



Part No. 729: Earliest Shifts for Primarily Diesel Vehicles



Part No. 731: Later Shifts for Gas Vehicles



Part No. 730: Earlier Shifts for Gas Vehicles

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Transmission Report

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October 2019

Featured in this Issue

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THE END of 3-5-R Failure as You Know It**
- **New Parts for Jatco/Nissan JF015E**
- **Must-Have Upgrades for Your 66RFE/68RFE**
- **Perfecting Shift Timing in the 700R4 (4L60)**

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 email 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.

Aisin Seiki AS68RC

Hard-Working Trucks Need Hard-Working Parts

NEW!

New Heavy Duty Stator Shaft Kit Helps Save More Than Just the Pump

If you've had the chance to work on an Aisin Seiki AS68RC transmission out of a Dodge commercial truck, odds are you've run into the very common problem of a stator shaft that has either spun in the pump or been destroyed by a whip-sawing broken input shaft. If you haven't seen this issue yet, get ready — this weak point will surely bring an AS68RC to your bench sooner or later.

If you get one of these units with symptoms such as overheat, converter issues, slipping or no movement, you will usually find the stator shaft chewed up. But there was traditionally no replacement stator shaft available from the OEM; instead, you had to buy a matched pump/valve body assembly for north of \$3,000 just to get a good stator shaft!

To help you complete repairs for a fraction of the cost of a new pump, Sonnax has developed heavy duty stator shaft kit **99520-05K**. Capable of withstanding 15% more torque than the OE shaft, the Sonnax stator shaft achieves reliable holding power with longer and deeper serrations at the press-fit area than OE, coupled with roll pins for added security.

In addition to stator problems, these units have common issues with manual shafts breaking and K2 clutch hubs becoming damaged. Rest assured, when you run in to any of these issues, Sonnax solutions are there for you and your customer.



Part No. 99520-05K
Fits Dodge Units Only