

October 27-30

Welcome To The 2016



Seminar









At The Paris In Las Vegas

October 27-30

Those %#@&! Torque Converters



Who Said You Can't Teach An Old Dog New Tricks



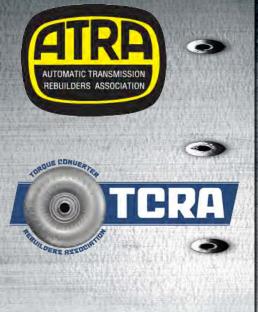




No Offense To My Wife's Family In Kentucky, I Wasn't Talking About The Dog Learning New Tricks











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General Motors







GM 4L60E DTC P0741 Set and Harsh 1-2 Shift

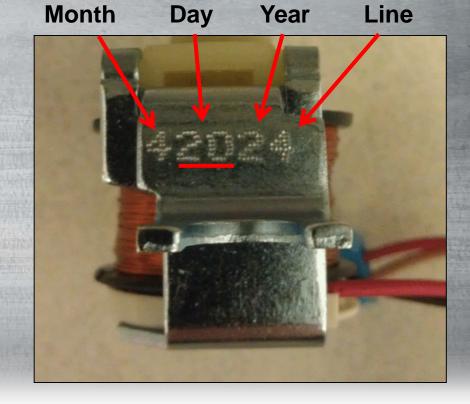
Some models manufactured between 10/01/2011 and 11/13 2012 may require the internal transmission wiring harness and TCC enable solenoid to be replaced anytime the transmission is in for a repair with DTC's P0741 TCC Stuck Off present.

- 2012 Colorado, Express, Silverado, Canyon, Savana and Sierra
- Built after 10/01/11

Check the TCC enable solenoid's five digit date code found on the solenoid body to see if it requires replacement.

- 1st digit (month of build) should be a 4 or higher or an alpha character.
- 2nd and 3rd digits are the day of the month.
- 4th digit should be a 2 or 3 (calendar year 2012, 2013).
- 5th digit (line of build) should be a numeric character typically a 3 or 4

Example: 42024 shown in the picture was produced April 20, 2012 on line 4. Any solenoid produced on or after April 17, 2012, date code of 4172# or greater, does not need to be replaced.









GM 4L60E DTC P0741 Set and Harsh 1-2 Shift

On some 2012 model year vehicles and engine sizes listed on page 3 with RPO codes LU3, LLV, LLR or M30. With trouble code (DTC) P0741 TCC Stuck Off.

There is special coverage for a period of 10 years or 120,000 miles (193,000km), regardless of ownership.

If DTC P0741 is found, dealers are to replace the internal wire harness at no charge to the customer.

For vehicles covered on <u>or after June 26, 2015</u>, must be submitted using the labor operation codes.

Claims with repair orders <u>prior to June 26, 2015</u>, must be submitted to the Service Contract provider.

Parts required shown on page 3





GM 4L60E the converter tore up a rag and restricted the filter.











GM 6T40/70 No Movement After Reflash

When reflashing some GM vehicles with an aftermarket scan tool the transmission will not engage. It may remain in neutral until the scan tool is removed.

Note: This has also been known to happen on other GM 6 speed units as well.



The actual reprogramming procedure for a GM vehicles shown in handout.









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GM 6T40/70 Overheat When Overfilled, Setting Code P0218

The 6T40/45 utilize a thermal type element to control the oil level in the unit similar to other GM units. Known as a "Fluid Level Control Valve" the unit is basically a thermally controlled stand pipe.

Take special care when filling these transaxles with fluid. The DEX6 fluid has to be at the correct temperature to obtain an accurate reading when full.

As little as ½ qt. overfull can lead to fluid leaking from the vent.

It may be easier to fill to the correct level using the Fluid Capacity chart shown below.

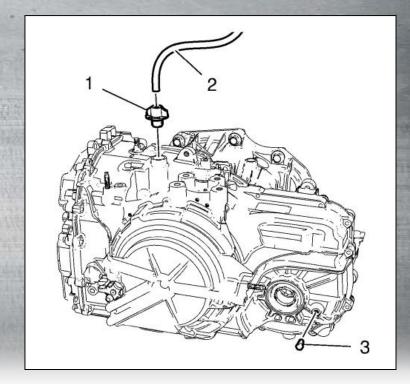
6T40/6T45

Valve Body Cover Removal 5.0-7.0 liters (5.3-7.4 quarts)
Fluid Change - Drain Plug 4.0-6.0 liters (4.2-6.3 quarts)
Overhaul 8.0-8.5 liters (8.5-9.0 quarts)

6170/6175

Valve Body Cover Removal 5.0-7.0 liters (5.3-7.4 quarts)
Fluid Change - Drain Plug 4.0-6.0 liters (4.2-6.3 quarts)
Overhaul 7.0-9.0 liters (7.4-9.5 quarts)

NOTE: All capacities are approximate. When adding, be sure to fill to the approximate level. Recheck fluid level after filling.





GM 6L80 TCC Slip, Shudder, DTC's

support assembly.

Here

The most common problem related to TCC issues on the 6L80 series transmission can be found with the Converter Feed Limit Valve bore located in the pump stator

> **Vacuum Test** Pressure TCC Converter Relief Control **Feed Limit** Ball Valve Valve





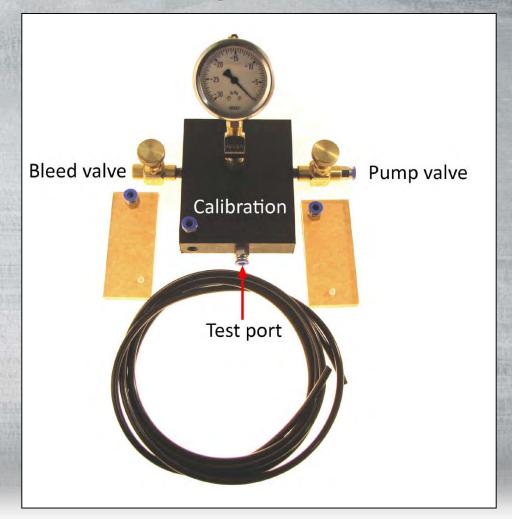




GM 6L80 TCC Slip, Shudder, DTC's

You can purchase a vacuum test stand or make your own from the information found in the 2015 June issue of Gears magazine.

Note: These torque converters have a high converter clutch failure rate.





General Motors





Ford Motor Co.











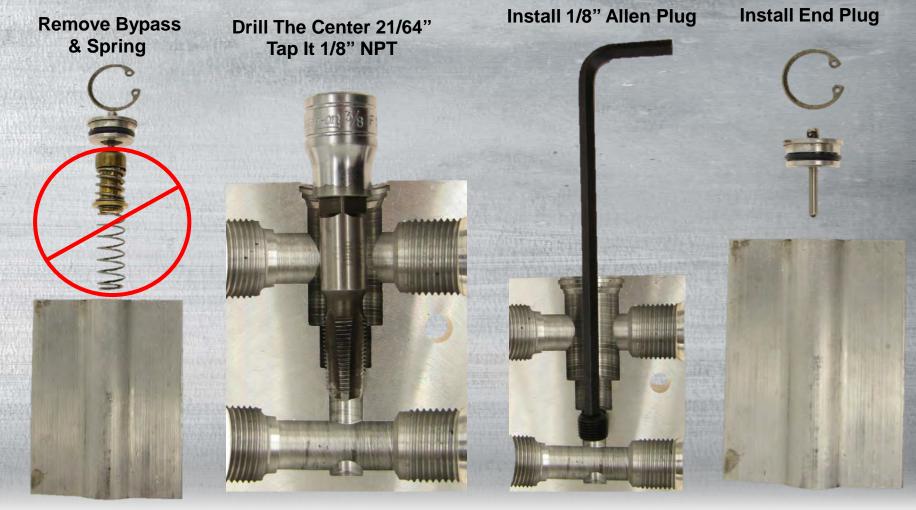
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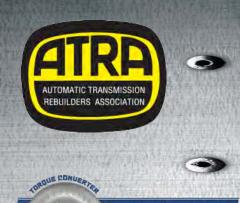
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Ford 4R70W/75E Transmission Over Temp

Transmission over temp can be caused by a malfunctioning cooler bypass.

An easy fix for this is to remove the cooler bypass from the vehicle and do the modifications listed below







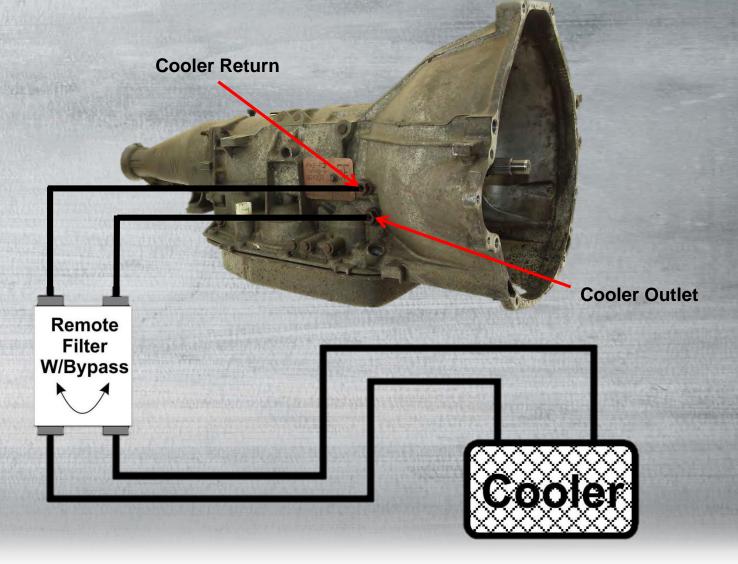


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Ford 4R70W/75E Transmission Over Temp

Make sure to check cooler flow using a flow meter at operating temperatures when lockup is applied.

Gear	GPM
Park	0.6
Rev	1.2
O/D (cold)	1.1
O/D (hot)	1.6
TCC (off)	1.6
TCC (on)	1.9





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Ford 4R75E Grinding, Whining, Vibration and/or Gear Slippage

There is a Ford TSB- 14-01-53 (which supersedes TSB 13-4-23) that states some Ford 2008-2010 models have a service kit available for repairing premature gear train failure caused by the forward sun gear needle bearing coming apart damaging the planet assembly.

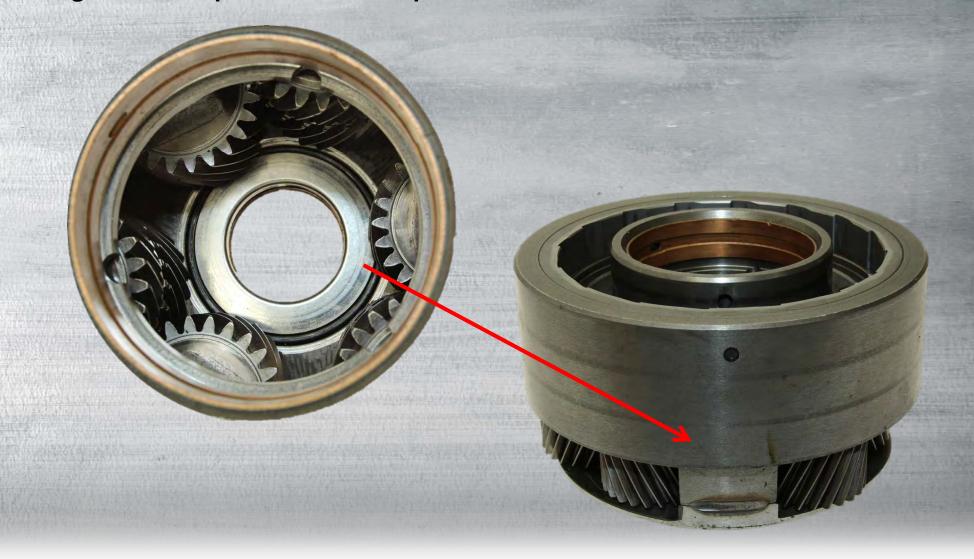
Ford Motor Company states that Crown Victoria, Grand Marquis and Town Car transmission oil coolers can not be flushed due to an internal thermostatic bypass valve. Planetary failure can cause the transmission oil cooler to become restricted.

These vehicles require replacement of the transmission fluid cooler (A/C condenser) as apart of the transmission cooling system.

There may be torque converter related codes P0741, P1741, P1742 and/or P1743 present. Inspect the transmission fluid pan and magnet for large metallic debris.



Carefully inspect the bearing down inside the planet. If there is any roughness felt the bearing and or the planet must be replaced.



The Torque Converter Rebuilders Association is a professional non-profit organization formed for the betterment of the converter rebuilding industry from industry leaders in the fields of Converter Rebuilding, Parts Supplier, Parts Distributor, and Transmission Shop Technicians.

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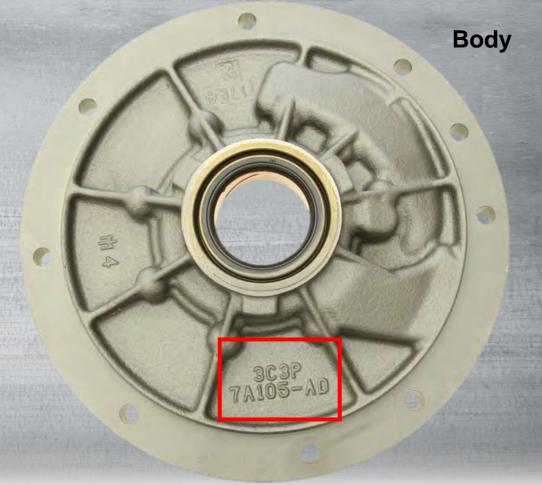
5R110W (Torqshift) No Movement After Rebuild

The problem is mismatched pump parts. The change occurs in 2005 and is not interchangeable with the earlier 2003-04 parts. The 2005 and later pump will retrofit back as a complete assembly. No interchange of parts between early and late are possible.

The early 2003-04 can be identified by the rough forged date found on the castings #3C3P on the pump and RF3C3P on the stator.

Stator Support







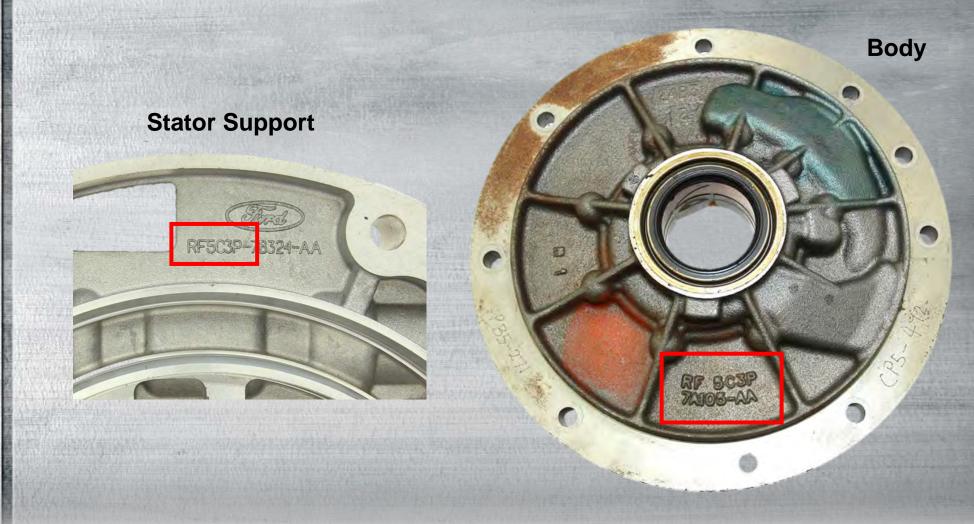






5R110W (Torqshift) No Movement After Rebuild

The 2005 & later pump assembly can be identified by the rough forged date found on the castings #RF5C3P.









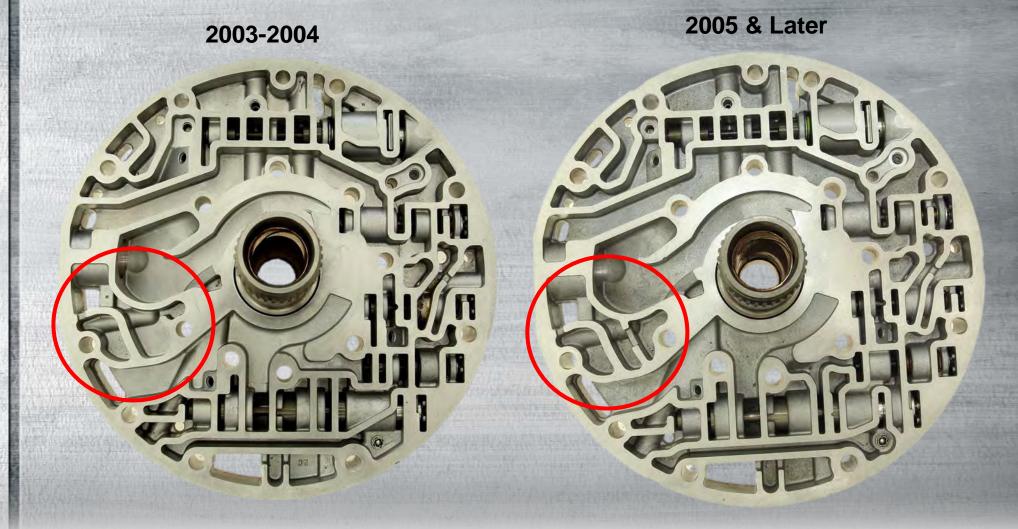


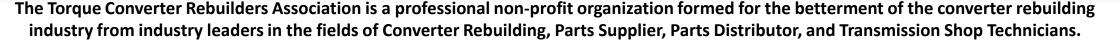
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5R110W (Torqshift) No Movement After Rebuild

The difference between the oil circuit worm tracks found in the pump stator supports are shown here.









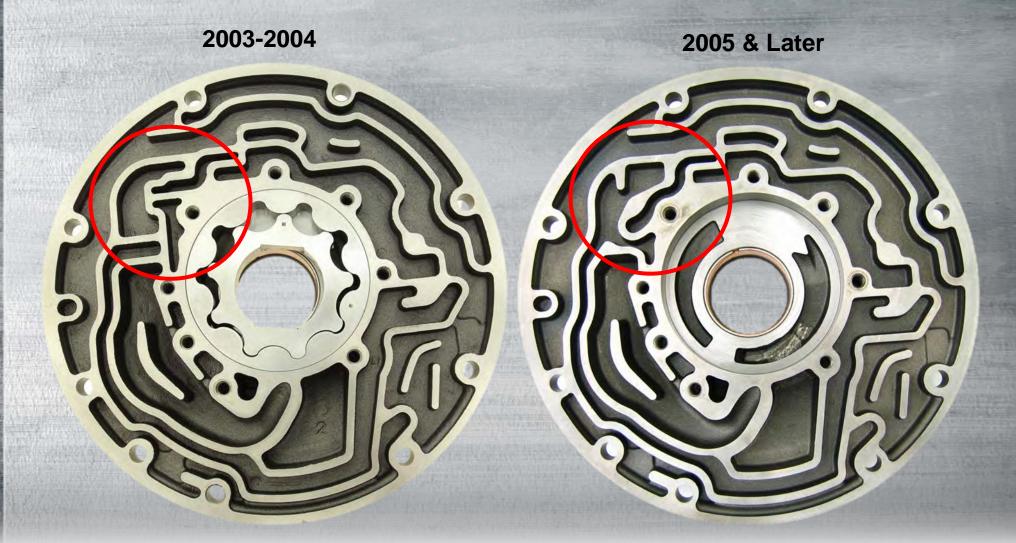




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5R110W (Torqshift) No Movement After Rebuild

The difference between the oil circuit worm tracks found in the pump bodies are shown here.







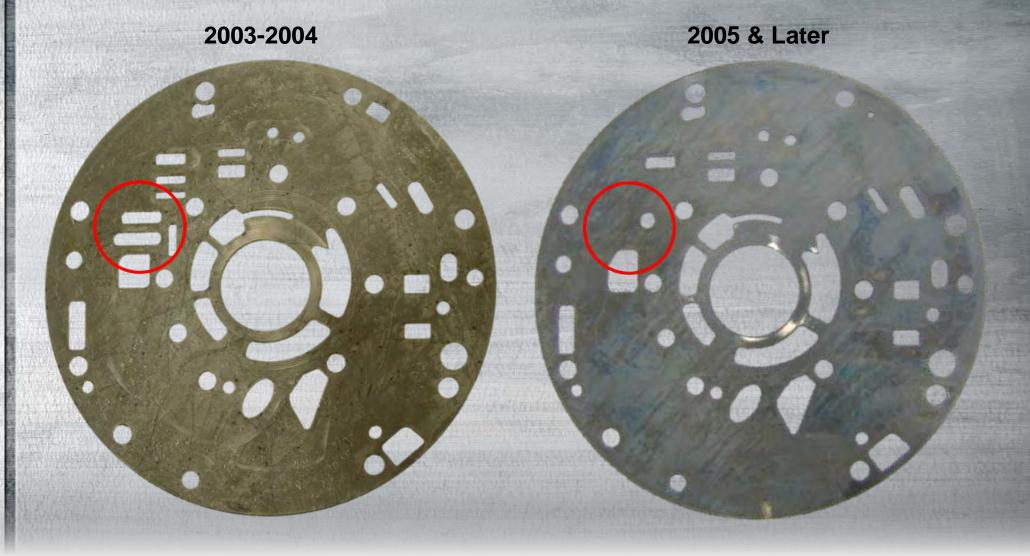




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5R110W (Torqshift) No Movement After Rebuild

The difference between the oil circuits found in the pump wear plates are shown here.











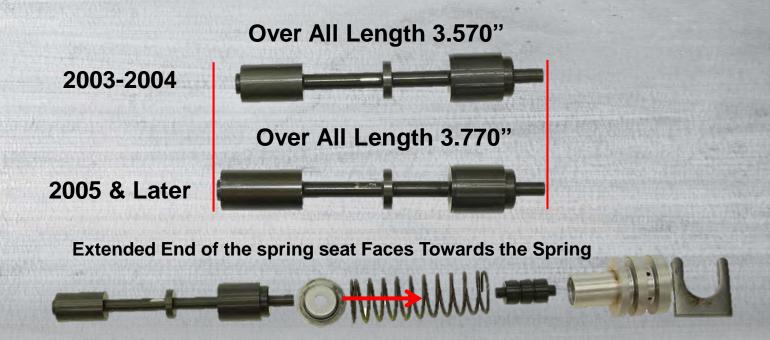
5R110W (Torqshift) Intermittent No Movement After Rebuild

This could be caused by the wrong TCC control valve being installed into pump stator.

There are two different lengths for the TCC control valve, the early 2003-04 and the
2005 and later.

With the early 2003-04 valve (shorter) installed into a 2005 and later pump stator, there will be no spring tension on TCC control valve spring. There will be approximately 1/4" of travel on the valve.

The overall difference in length between the two valves is 0.200" almost a 1/4".







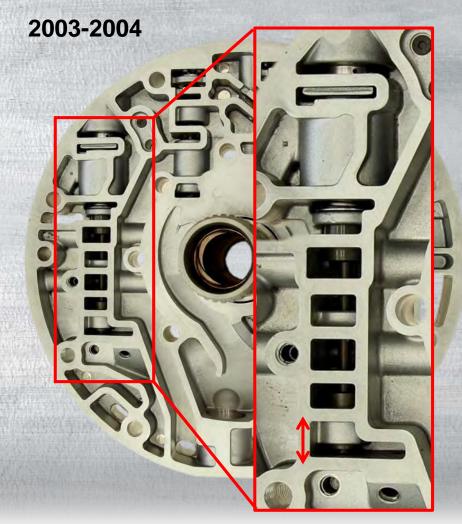


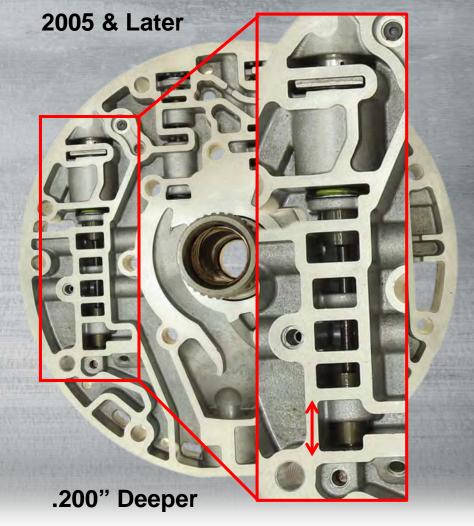


5R110W (Torqshift) Intermittent No Movement After Rebuild

If the valves are different then there must be something different in the stator support also.

The TCC control valve bore is .200" deeper on the 2005 and later stator support.







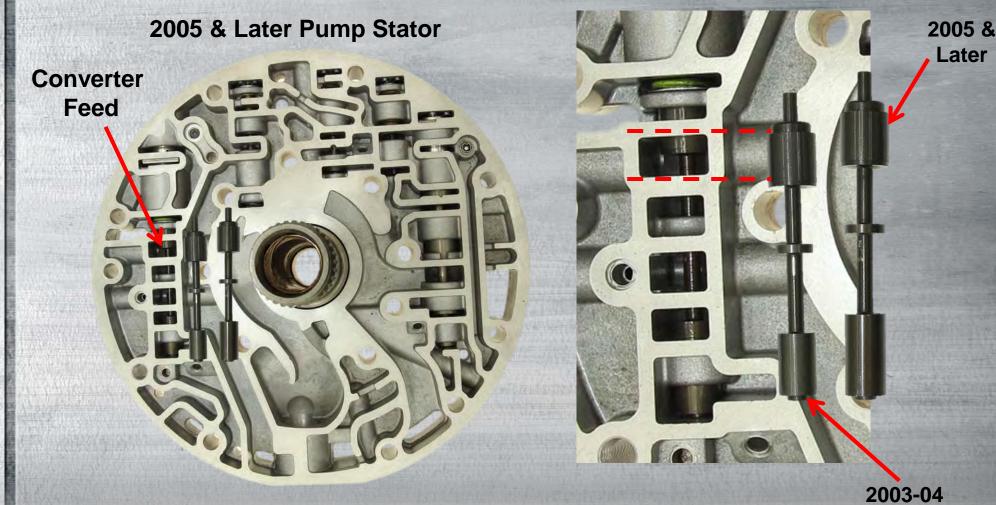






5R110W (Torqshift) Intermittent No Movement After Rebuild

This will allow the shorter valve to intermittently move into a position that will block converter feed oil.









Ford 6F35 P0218 Transmission Overheat Low Mileage

DTC P0218 Transmission Fluid Temperature Over-Temperature Condition is a common concern.

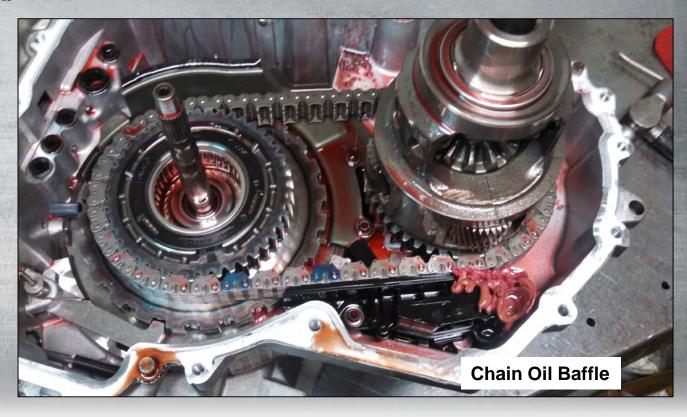
This happens very often within a day or two after the transmission has been serviced at a quick lube facility.

When the fluid level is checked you may see the transmission fluid level may only be a 1/4" above the full mark.

This can be as much as 3 quarts overfilled internally.

Some fully synthetic fluid expansion rates are very sensitive to temperature changes, which its why it's important to check the level at the correct temperature.

The chain oil baffle may become liquefied.











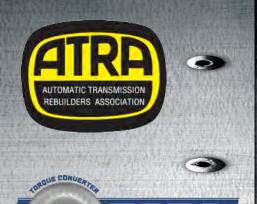
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Ford 6F35 P0218 Transmission Overheat Low Mileage

The solenoid block and filter can become distorted.











Ford 6F35 P0218 Transmission Overheat Low Mileage

This will cause the transmission fluid to aerate and become extremely hot.

So hot melted plastic will be found in the valve body molded around the valve springs and inside thrust bearings.

There is an updated dipstick and filler tube Part Number AL8Z-7A020-A for the 2009 Escape/Mariner built on or before 10/29/2008.















Ford 6R140W (Torqshift 6) Converter Update

In 2011 Ford made a change in the Torque Converter and Flywheel area. The early 8 stud pattern Diesel Torque Converter is no longer available.

The converter has been updated to a 6 stud pattern type along with the Flywheel.

The 8 stud converter and flywheel for gas vehicles is still available.

It is highly recommended by Ford to replace the Nuts that attach the torque converter to the flywheel.













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Ford 6R140W (Torqshift 6) Converter Update

The combination of flywheel / torque converter is a hefty price of \$894.00 retail, with a \$70.00 core charge.

The flywheel alone can be purchase for \$78.00 retail price and the torque converter for \$816.00.

It is recommended to install the torque converter in the unit using tool part # 307-651/1 and 307651/3.

These are very heavy converters and damage to the front seal may occur if is not properly installed.











Ford 6R140W (Torqshift 6) Converter Update

On the web go to:

http://www.oepartsstore.com/a/Ford__/60549931__6471558/TRANSMISSIONCOMPONE NTS/ME11325.html

They're price for the converter is \$606.52, price for the flywheels \$48.83 and price for the nuts pack of 6 \$4.73.

Part # CC3Z -7902-C 8 Stud pattern V8 gas engines all.

Part # CC3Z-7902-D

6 Stud pattern diesel application only.

Part # CC3Z-6375-A

6 Stud pattern flywheel (purchase along with converter).

Part # W715234-S437 Nuts (converter to flywheel).

Part # BC3Z-6375-A 8 Stud flywheel early diesel application only.











Ford 6R140W (Torqshift 6) High Pitch Noise, Pump Whine

Check line pressure with a gauge. Is the pressure gauge smooth? If yes, the pressure regulator system is in good shape and no air is entering the system. If no, inspect for a cracked filter or poor seal. A cross leak or place for air to be sucked into system.

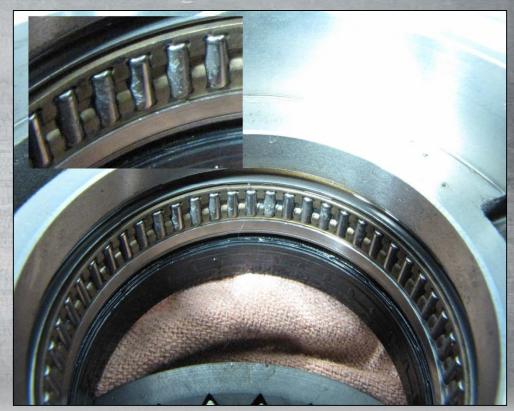
Is the noise there sitting still and in gear/ whenever the engine is running? If yes, inspect converter and converter hub bearing and pump. If no, inspect transmission gear train and drive train.

Ford now uses a bearing like some of the Mercedes transmissions. This bearing is also failing with low miles.

Inspect the bearing for pitting and wear marks. At this point in time the bearing is only sold as part of the complete pump.

Note: As a precaution always add a ground strap from the bellhousing to the frame or battery ground.

More information on pump failures will be covered at the end of the presentation.





Ford 6R140W (Torqshift 6) High Pitch Noise, Pump Whine

A no movement before or after overhaul may be caused by the forward/overdrive clutch drum assembly being damaged.

You may not detect the crack between the shaft and the drum until the drum is disassembled.

The drum may be marginal during overhaul and then break after installation.

The break is extremely smooth and can easily be overlooked.











CFT30 Transmission Overheat, Possible No Movement P0710 Set

TCM detected TFT sensor out of range 55°-175°C (67°-347°F). This may be followed by a no move condition with codes P0868 Transmission Fluid Pressure Low P0701 Transcontrol.

Check for a blocked or missing high pressure filter (when a used transmission has been installed). The filter is located behind the wheel well on the driver's side under the cover/cooler line adapter.

Note: Pressure codes may be set by bad aftermarket filters.







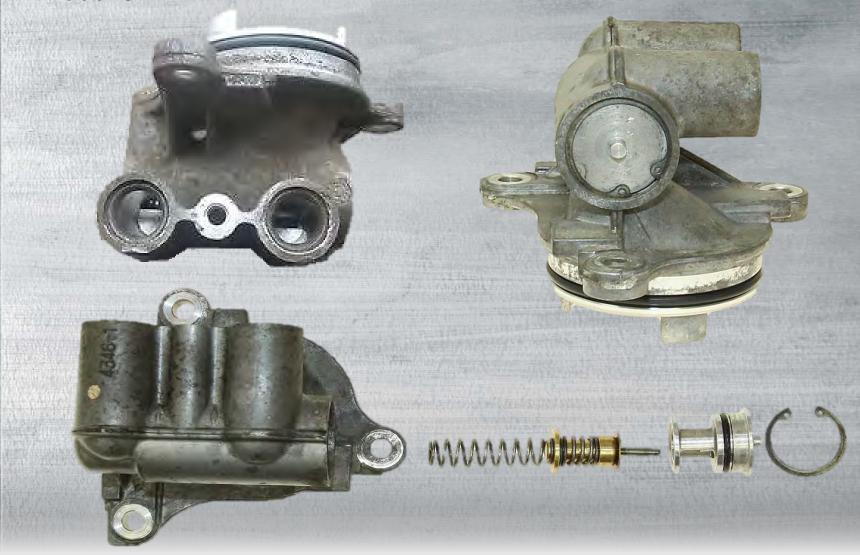






CFT30 Transmission Overheat, Possible No Movement P0710 Set

Always check to make sure the thermal element is working properly and not sticking with debris.





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Ford Motor Co.





Chrysler / Dodge











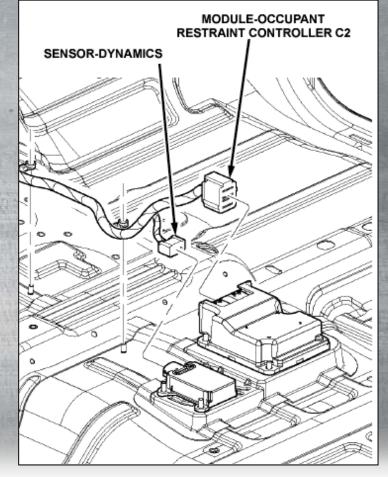
Chrysler/Dodge Vehicles Mistaken TCC Shudder, Possible ABS DTC 25

Some Dodge vehicles may experience what feels like a TCC shudder during turns. This may be caused by a bad Dynamic (G/Yaw) Sensor.

If any codes such as C1213 "G" Sensor Input Signal Stuck C1242 "G" Sensor Input Signal Performance or C1243 "G" Sensor Not Initialized, you must address these first.

If the sensor signal to the ABS system was not working correctly during turns, the ABS module will partially apply the brakes and may trip a DTC. The shudder feeling from the brakes can be mistaken for a TCC shudder.





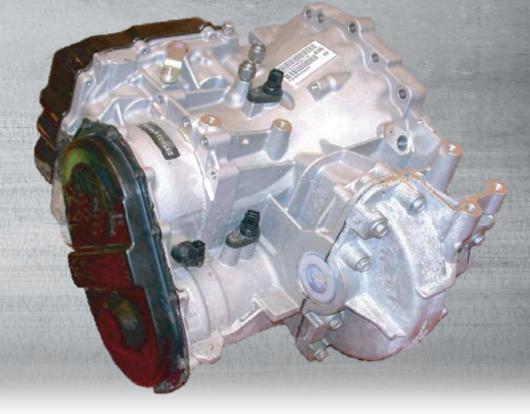


Chrysler/Dodge 62TE TCC and Shift Chatter After Rebuild

A complaint of a firm 2nd gear and a chatter going into 3rd gear after rebuild. The scan tool did not retrieve the codes. The computer would not quick learn or allow the converter break-in initialization.

When the scan tool function to clear all codes was performed it allowed the quick learn to be performed. The 1-2 shift became normal and the chatter was fixed after converter break in initialization was performed.

This is a clear case of the scan tool not communicating properly with the vehicle computer.







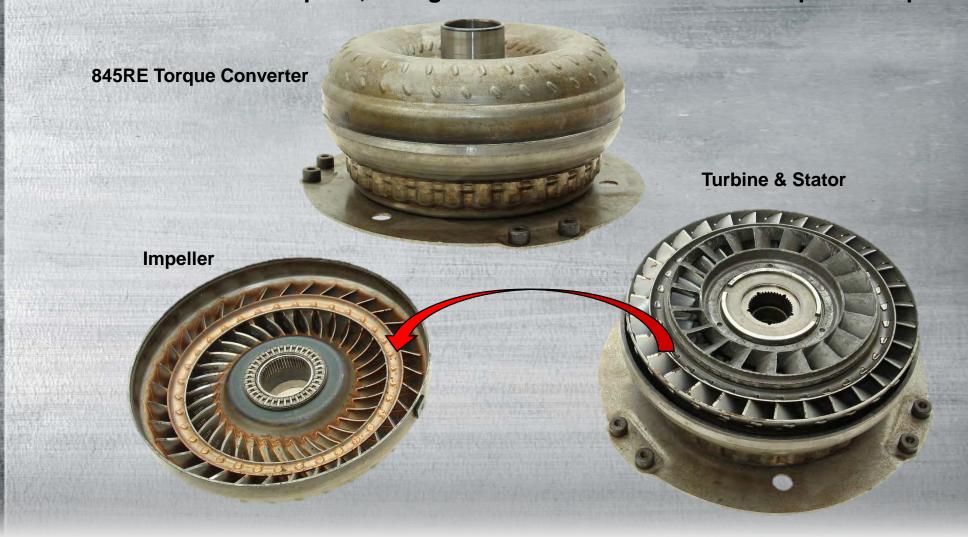


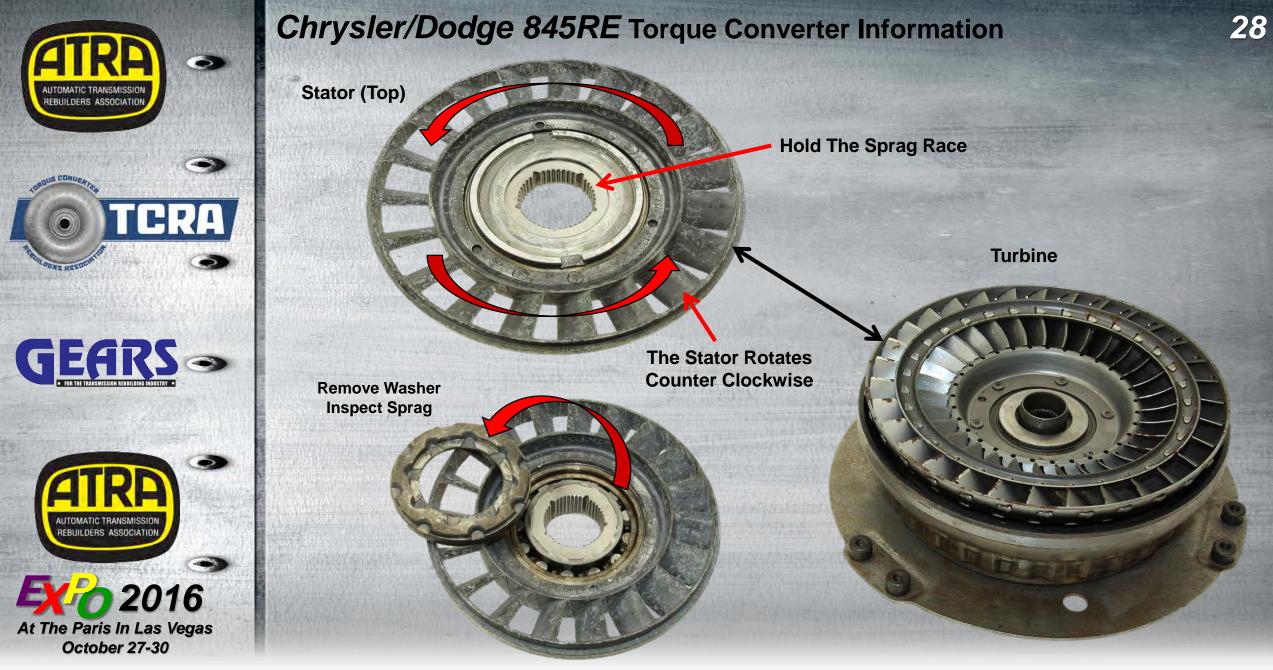


Chrysler/Dodge 845RE Torque Converter Information

The 845RE torque converter is using a "clutch drum" type of torque converter clutch.

This clutch has one steel plate, a single two sided friction disk and a pressure plate.





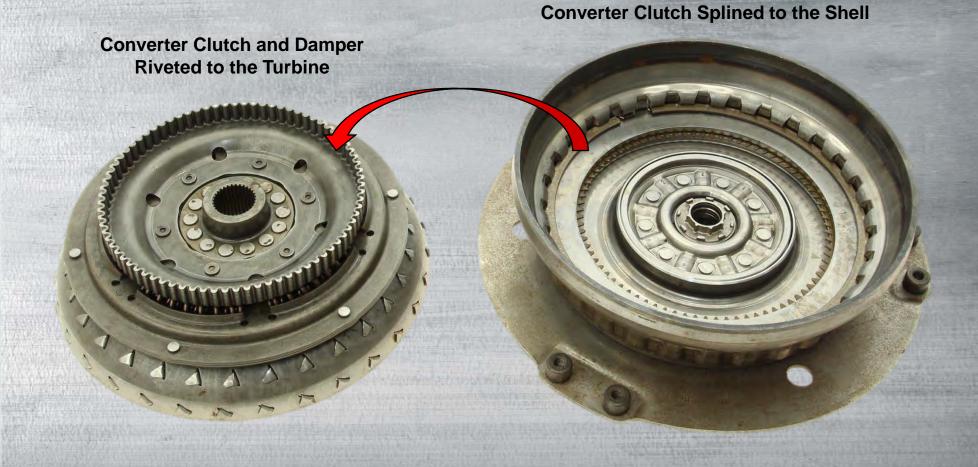








Chrysler/Dodge 845RE Torque Converter Information











Chrysler/Dodge 845RE Torque Converter Information

Steel Plate, Friction Disc, Pressure Plate



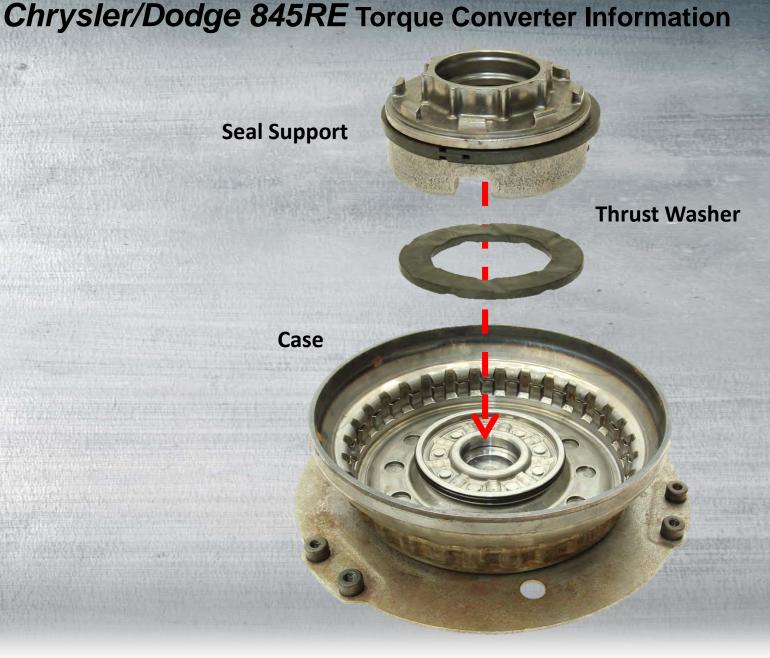














Chrysler / Dodge











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Imports Miscellaneous



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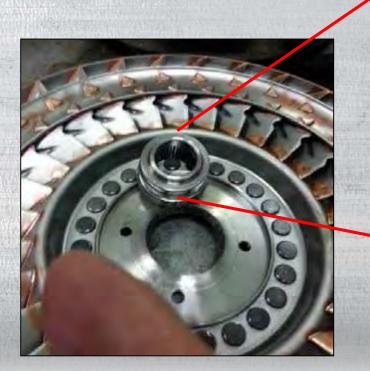


U660E TCC Slip or No Move Condition

The tip of the input shaft has no sealing ring or O-ring to seal the converter clutch apply circuit. The seal should be inside the converter.

There are no bushings or seals for the converter clutch apply circuit. The smooth area just past the spline in the converter is where the tip of the input shaft contacts to seal the converter clutch circuit.

If there is any wear in this area it could cause a TCC slip code. The problem is not so much that the smooth area is wearing out, instead they're breaking off causing a no move condition.





Breaking Off



Special thanks to Steve Jaussaud at Sonnax for the heads up along with the photos and this information.











Miscellaneous Pump Failures All

Here are some tips that will help prevent these issues:

- The converter pilot is a tight fit with the crankshaft, so make sure it doesn't have any paint on
 it. Make sure the journal is smooth and free of any burrs or nicks.
- Check the crankshaft, make sure it's clean and free of any corrosion or debris that can bind the pilot.
- Take some extra time to slide the converter up to the flexplate and make sure the pilot fits smoothly into the crankshaft.
- When you bolt up the converter to the flexplate during installation, make sure you pull the converter all the way toward the crankshaft, and then tighten the converter bolts gradually as you turn the converter. Make sure the converter pilot doesn't bind as you tighten the bolts.
- Clean the engine block and bellhousing of any paint, debris or corrosion.
- Check the dowel pins, make sure their extended out far enough.
- Check the dowel pin holes on the bellhousing, make sure they are not worn out.
- Add a ground strap from the engine block to the battery/frame to prevent electrolysis.
- When your putting the pump together instead of squirting oil onto the pump gears pack it with trans jell.

Here are a couple of tips that were used back when the Aisin Seiki units where failing on the lift:

- With the engine off and the first 4 quarts or so have been poured into the unit. Have another 4
 quarts ready. Don't wait, have someone ready to add it right away after you start the vehicle.
- If it fills too slow it may be better to turn off the engine and add more and then restart engine.
- You can also start out with more than 4 quarts instead start out with 8 quarts or more.











Thank You For Attending The



2016 Seminar See You Next Year