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presents

John Parmenter, Jr.

Technical Advisor

Torque Converter Issues Related To Transmission Overhaul Before and After Rebuild

**TCRA Seminar
Louisville, Kentucky
April 25-26, 2014
Sponsored by W.I.T.**

Any questions or comments regarding this presentation or technical assistance can be addressed to the Precision International **Technical Hotline** at (800) 872-6649 or **e-mail** at technical@transmissionkits.com

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John Parmenter is a rebuilder and shop owner on Long Island, New York. John is an A.S.E. certified master technician. His shop handles a large volume of dealer warranty work. He is a technical advisor for Precision International and handles technical service calls as well as answering questions on Precision International's website www.transmissionkits.com. John's seminars are in demand worldwide as they are based on real world problems encountered in today's transmission shops.

Table of Contents

Transmission	Page
GENERAL	4
6L80/6L90	5-6
722.6/NAG.1	7-9
ADAPTIVES	10

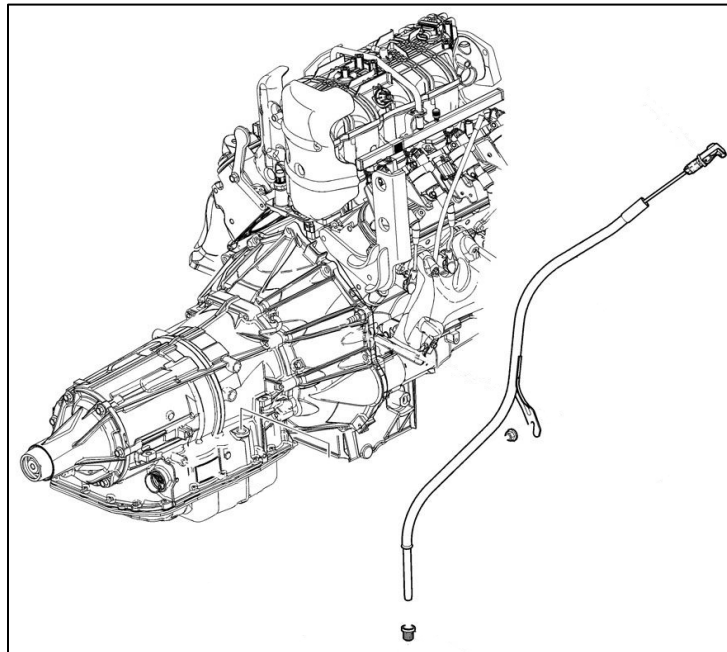
GENERAL

There are many concerns that can cause torque converter related issues. In running my own shop, we are seeing some new concerns, either causing torque converter issues or mimicking them. I also answer transmission related technical questions for Precision International. I speak to technicians globally who have transmission related concerns.

The following are several issues that have come to light with great frequency recently. My hope is by sharing this information it will aid you in helping support your customers and your product!

6L80/6L90

The 6L80/90 series of transmissions have been in service since 2006. They are in a large variety of vehicles from Chevrolet and GMC trucks to Corvettes and Cadillacs. When performing major transmission service on vehicles equipped with 6L80/6L90 transmissions, the transmission fill tube must be closely inspected.



The fill-tube on this transmission will be up to 60 inches long (depending on model). It has been known to vibrate and crack. When this takes place, water will enter the transmission. **This happens with such frequency GM released a service package 24262134.** It contains a foam sleeve and “zip-ties” to stabilize the fill tube. When receiving a request for an exchange 6L80/90 torque converter, advise your customer to *closely* inspect the fill tube as any water intrusion into the transmission fluid will cause the torque converter to shudder on apply and cause a very short service life.

This transmission has not been plagued with anti freeze or glycol intrusion. It is strictly rain water or A/C system run off causing this concern globally. The 6L80/90 transmission will come into repair shops for transmission service. Upon pan removal, filter inspection will reveal filter body damage. Either the seams appear to have “popped” open or the neck of the filter is cracked. This is due to transmission pump failure causing a high pressure fluid spike going down the filter neck resulting in filter body failure. If a repair shop is not aware of this, the vehicle will return shortly for major transmission service involving the pump and torque converter. This applies to Escalade, Avalanche, Camaro, Caprice, Savana, Sierra and Yukon models 2010-2014. This has also been seen in early release models going back to 2006.

6L80/6L90

Many technicians worldwide are experiencing some difficulty after any major internal work on the 6L80. To achieve a quality drive - feel or function, General Motors has deleted the ability to “fast-learn” the TCM on these units. When not properly performed, common complaints are binding or slipping on shifts with *no* codes present. In many cases the 3-5/reverse frictions will become damaged and have to be replaced.

The following procedure has had excellent results in the field. After filling unit up with fluid, let it idle in gear sitting still for approximately 30 minutes. This will get the transmission fluid temperature up to 155°F. Now you can re-set the trans adapts with a scan-tool (we use Snap On 50/US Ultra). The TFT must be above 150°F. Remove the trans from park, then reverse, then neutral, then drive, reverse, drive, reverse, park. Be sure to pause 5 seconds in each range. Then you can go for a road test and have confidence in your repair.

There is a high frequency of the check balls shrinking. Many technicians are reporting check balls shrinking and “moving” in the valve body. The OE factory check balls are .250 or ¼ inch. Precision International includes torlon check balls in our overhaul kits.

The 6L80/90 series of transmissions uses the captive clutch design in many models. Its design lends itself to familiar failure issues, rivets breaking, aluminum stators cracking. The Sonnax website has a nice article by Mr. Ed Lee rebuilding the new captive clutch without fear, which has good tech information on servicing this style converter.

722.6/NAG 1

Beginning in the 2000 model year, Mercedes Benz brought the Sprinter series of work vehicles to the market place. They use the ZF 722.6 or NAG 1 series of transmissions. Being a heavy duty service vehicle, they have a “stand-alone” transmission cooler; it does not run in series through the vehicle’s radiator. In this service package, the transmission can command TCC operation in gears 3, 4 and 5. When diagnosing TCC related issues, it is imperative that the technician look at engine data on the scan tool. Engine misfire data is a line of information which gives detailed info into all engine cylinders’ performance. Engine performance issues are *easily* misdiagnosed as transmission and torque converter issues.

A complaint of TCC shudder has been increasing at a dramatic rate on the Precision International tech-line. There has been one issue in particular plaguing technicians. Sprinter vehicles, as well as Jeep Grand Cherokees 2002 thru 2013, with the 722.6 transmissions are experiencing the similar concern. Water intrusion into the transmission- not anti-freeze “water”! This enters through the fill tube. **Daimler Chrysler released an updated fill tube grommet part #4810021-AB.** This provided for an improved seal at the case to fill tube area. Two conditions are causing this rain water (snow run off) coming down the cowl of the fire wall of the vehicle following the fill tube down. This has been very prevalent this winter with all the snow as well as vehicles left running for periods of time in hot climate with the air conditioning on. The A/C system then sweats runoff directly onto the transmission dipstick. Sometimes this is easy to spot as rust will form on the fill tube. If not it can be easily overlooked.

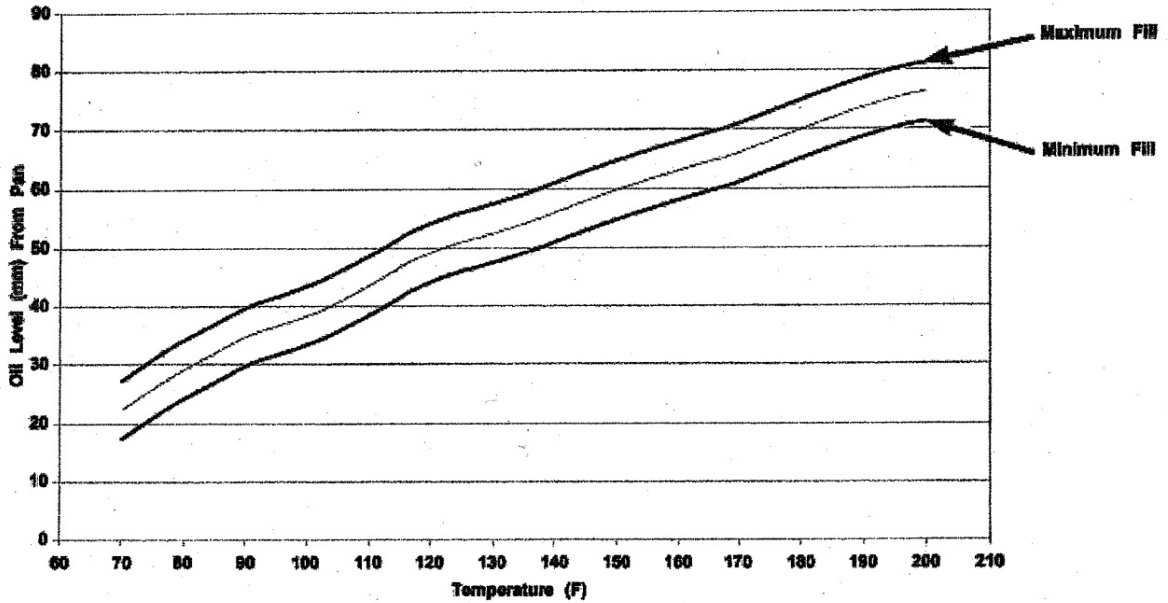
The problem became so prevalent that Daimler Chrysler released part #CBL0E131/21084008 - a shield which goes around the fill tube. Technicians should be aware of this as repeated torque converter failure is caused by water intrusion to the ATF+4 fluid. If the A/C lines are causing this issue, they can be gently moved to allow them to drain away from the trans fill tube. The water drain holes in the bottom of passenger side front fender and the drip rail on the firewall are easily clogged with debris causing rain water to attempt to “run” right onto the fill tube.

Always remember after transmission overhaul, 722.6 transmissions must have transmission adapts re-set by scan tool, including the torque converter adapts to allow for a trouble free and smooth operation.

NAG1

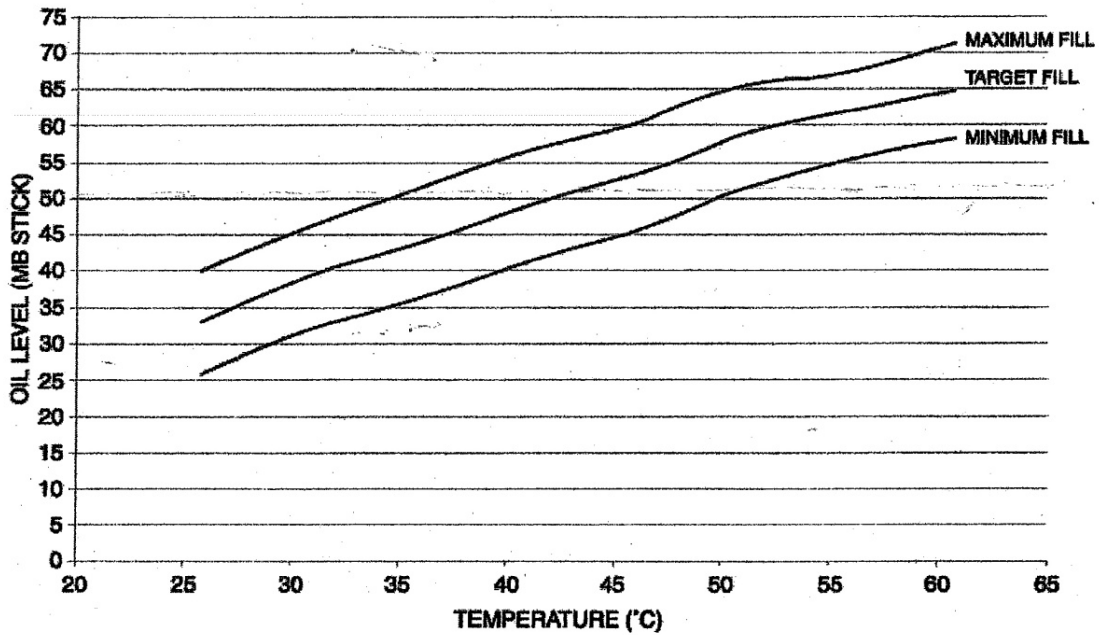
NAG1 GASOLINE TRANSMISSION FILL GRAPH

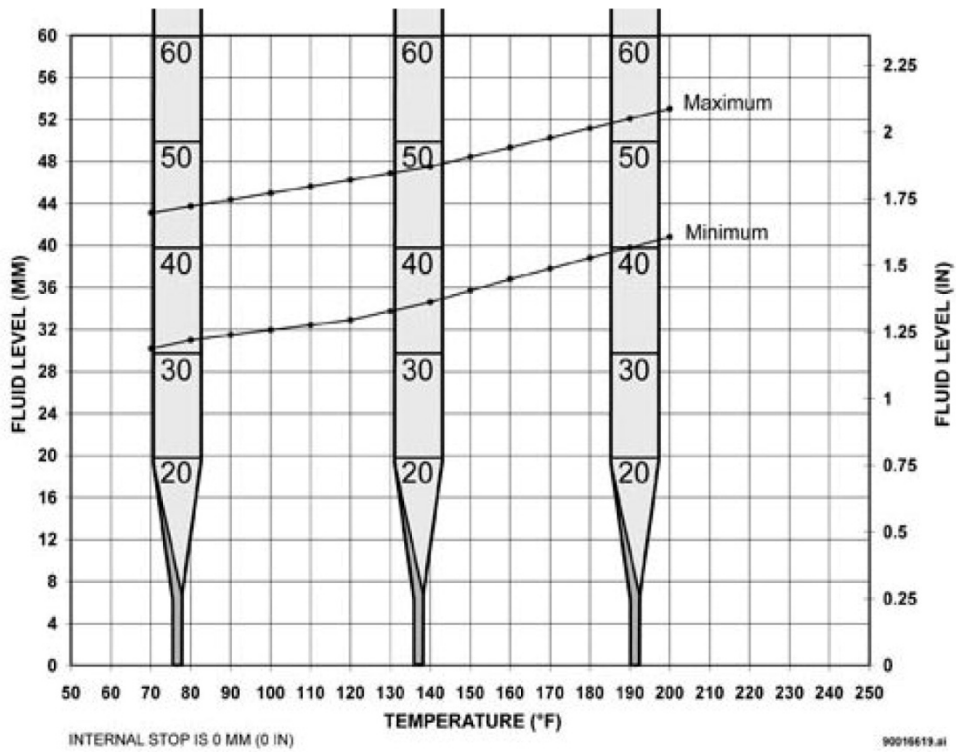
W5A580 Fluid Fill (LX/LC/LD/L2 Only)



NAG1 DIESEL FILL GRAPH

3.0L LE W5A580 Transmission Fluid Fill Curve





Thank you, ATRA.

ADAPTIVES

In the past when transmission overhauls were completed, all that was needed was to assure proper fluid level and return the vehicle to the customer. Beginning with the introduction of the Chrysler A604 transaxle in 1989, technicians began to do basic “re-learns” of transmission operation. This could be done by using a scan-tool and prompting a quick learn font or by driving the vehicle for an extended period of time with varying degrees of throttle. Then reset the CVI’s or clutch volume index allowing for good drivability.

Many technicians in the field still use their variation of this. Many transmission systems will *not* relearn transmission and torque converter values unless done by scan-tool or laptop. Before performing any re-learn process, here are several steps that are universal:

1. Proper fluid temperature let the vehicle run in neutral so operating temperature is achieved. An easy way to confirm this is to use an infrared thermometer. We use the Mac tools ET7612 Pro. It gives you an accurate temperature reading. You can also aim the infrared at trans cooler lines to verify temperature coming out of trans and temperature returning from cooler.
2. Scan all modules engine, transmission, ABS, transfer case to verify that there are no codes present. Codes present in a module will then not allow you to complete a proper re-learn. Also check TPMS system (tire pressure monitoring system) if available as a service code in this system is easily overlooked and will cause ineffective re-learn.