



**NUMBER:** 21-003-06

**GROUP:** Transmission

**DATE:** February 18, 2006

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**SUBJECT:**

Dipstick Tube Seal May Leak Causing ATF Contamination Or Transmission Shudder/Buzz

**OVERVIEW:**

This bulletin involves tests to be performed on the transmission to determine the integrity of the transmission oil fill tube seal. Dependent upon test results: the oil tube seal will require replacement, the transmission may require a flush procedure, and/or the transmission torque converter may require replacement.

**MODELS:**

2005 - 2006 (LX/LE) 300/Magnum/Charger

**NOTE: This bulletin applies to LX/LE vehicles equipped with a NAG1 transmission (sales code DGJ) that were built prior to December 2005 with a TRANSMISSION build date of July 08, 2005.**

**SYMPTOM/CONDITION:**

Water may leak past the transmission oil fill tube (dipstick tube) seal. Dependent upon the amount of water accumulation in the transmission oil, the customer may experience a transmission shudder vibration and/or an audible high frequency buzz-like sound. The shudder vibration or buzz-like sound may be most noticeable during light acceleration where partial application of the torque converter clutch (TCC) in 3rd, 4th, or 5th gear occurs.

The shudder/buzz condition may be due to the torque converter clutch and a "stick-slip" condition caused by contaminated transmission oil/fluid. The transmission fluid contamination may be caused by water intrusion past the transmission fill tube seal.

**DIAGNOSIS:**

1. Determine if the original transmission fill tube seal has been previously replaced with fill tube seal p/n 05189087AA (or later).
2. Has the transmission oil fill tube seal been replaced with p/n 05189087AA (or later)?
  - a. If YES >> STOP. This bulletin does not apply. Further diagnosis is required.
  - b. If NO >> Proceed to the next step.

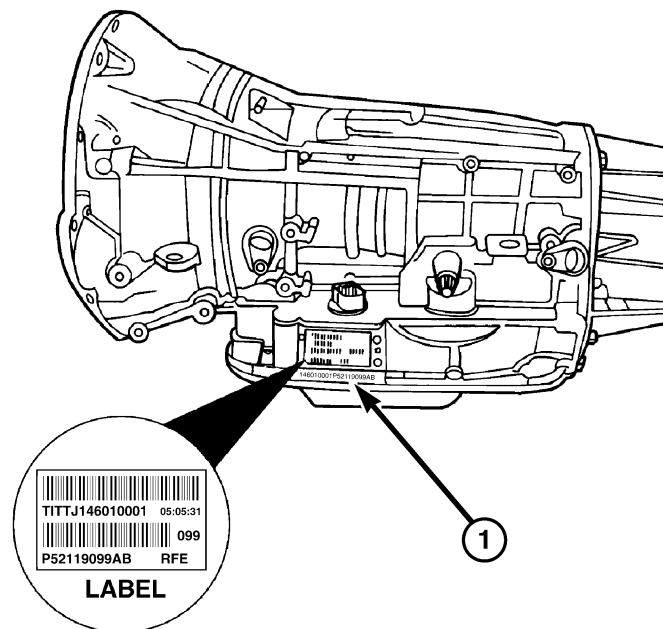


**Stick with the Specialists™**

The transmission has a transmission part and serial number label which is located on the left (driver) side of the transmission above the transmission oil pan (Fig. 1). The bottom (11 digit) number on the label is the transmission part number. **The TOP NUMBER (14 digit) on the label is the transmission SERIAL NUMBER.** The date that the transmission was built can be obtained from the serial number (example: TxxxxxDDDYxxxxx). The transmission build date is in Julian calendar format which uses a 3 digit number to represent the day of the year and a 1 digit number to represent the calendar year. In the serial number: the 6th, 7th, and 8th number (3 digits) represent the Julian day, and the 9th number (1 digit) represents the year (in Julian date format). Example: T12TJ 0015xxxxx shows that the transmission Julian build date is "0015". The numbers "001" in date "0015" equals the first day of the calendar year, or January 1st. The number "5" in date "0015" equals the calendar year, in this case the year 2005. A serial number of Txxxxx**1895**xxxxx has a Julian date of "1895". "189" equals July 8th, and "5" equals the year 2005.

NAG1 transmissions **built prior to a Julian date of 1895 (July 08, 2005)** may have suspect fill tube seals.

3. Determine the transmission build date (Julian date) of the transmission by inspection of the serial number on the transmission part and serial number label.
4. Was the transmission built prior to July 08, 2005, Julian date 1895?
  - a. If YES >> Perform the Repair Procedure
  - b. If NO >> STOP. This bulletin does not apply. Further diagnosis may be necessary.



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**Fig. 1 Transmission Part And Serial Number Location**

1 - IDENTIFICATION NUMBERS MAY BE STAMPED INTO OIL PAN FLANGE.

**PARTS REQUIRED:**

Qty.	Part No.	Description
1	05189087AA	Seal, Fill Tube
1	68001278AA	O-Ring, Transmission 13-Way Connector Guide Bushing (Large)
1	68001279AA	O-Ring, Transmission 13-Way Connector Guide Bushing (Small)
(AR) 6	NPN	Rivet, Black Plastic 3-Leg (6.25 x 25.00 mm)
1	05191804AA	Leak Detection Fluid (8 oz. can be used to perform 4 repairs)
1	04897150AB or 04897151AB	Mopar Brake Parts Cleaner
(AR)	05013457AA	Fluid, Automatic Transmission (MS-9602 / ATF+4 / Quart)
(AR)	05013458AA	Fluid, Automatic Transmission (MS-9602 / ATF+4 / Gallon)
(AR) 1	52108325AA	Filter, Transmission Oil
(AR) 1	05137631AA	Torque Converter - 2005 - 2006 LX/LE (RWD or AWD) with a 5.7L or 6.1L engine
(AR) 1	05143212AA	Torque Converter - 2005 LX/LE (AWD) with a 3.5L engine
(AR) 1	05174299AA	Torque Converter - 2006 LX/LE (RWD or AWD) with a 3.5L engine.

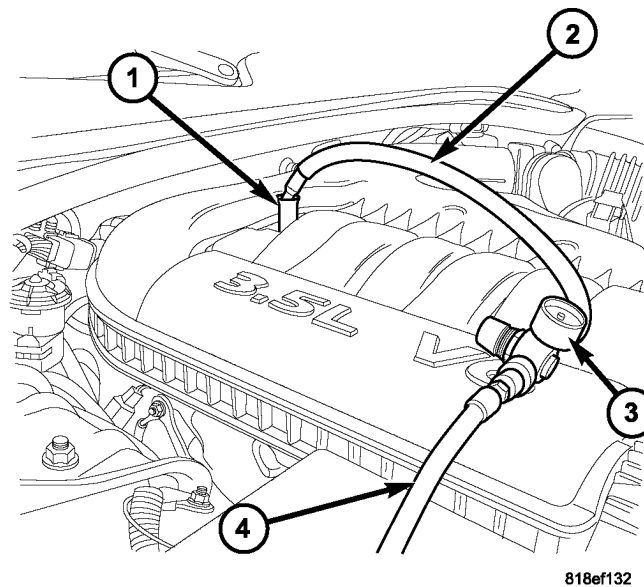
**SPECIAL TOOLS / EQUIPMENT:**

9336	Transmission Oil Dipstick
CH9401	StarSCAN® Tool
CH9404	StarSCAN® Vehicle Cable
8875A	Transmission Cooler Line Disconnect
9902	Fill Tube Oil Seal Installation Disc
W-18-MIL-1146AS	Air Pressure Regulator (w/hose)
NPN	6 inch "C" Clamp
NPN	Straight End and Scale/Ruler (to measure and verify torque converter depth to transmission)

**REPAIR PROCEDURE:****A. Air Pressure Test - Transmission Fill Tube Oil Seal:**

1. Place the vehicle on a suitable lift.
2. Open the hood and remove the transmission oil fill tube cap.
3. Connect the air pressure regulator hose to the transmission fill tube. **Do not connect shop air to the regulator at this time (Fig. 2).**
4. Verify that the regulator air pressure setting is turned all the way counterclockwise. This will provide minimal air pressure to the transmission.

**CAUTION: Never allow the air pressure inside the transmission to exceed 34 kPa (5 psi). This could cause transmission oil seal damage or separation the transmission vent cap from the transmission case.**



**Fig. 2 AIR PRESSURE REGULATOR**

- 1 - Transmission Oil Fill Tube
- 2 - Air Regulator Adapter Hose
- 3 - Air Regulator - Set To 14 kPa (2 psi) - DO NOT exceed 34 kPa (5 psi)
- 4 - Shop Air Supply Hose

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5. Connect shop air to the pressure regulator.
  6. Adjust the pressure regulator by turning the adjustment knob clockwise until the regulator gauge reads **14 kPa (2 psi)**.

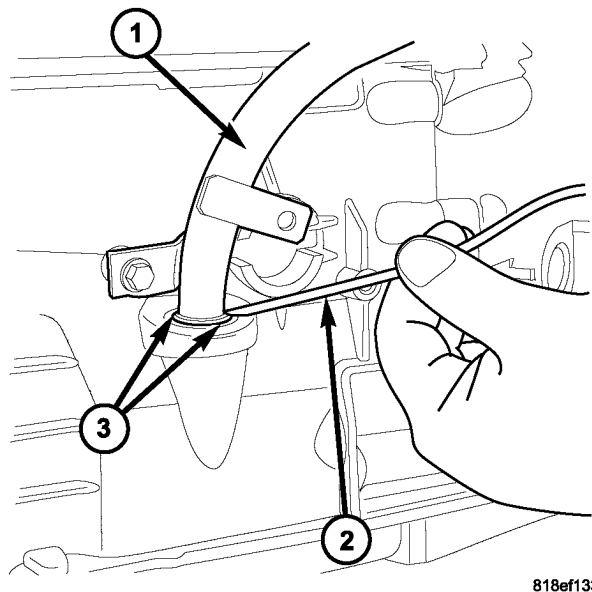
**NOTE: A hissing sound may be heard from the transmission vent. This is a normal condition.**

7. With the transmission pressurized to 14 kPa (2 psi), raise the vehicle.

8. Apply the leak detection fluid (or suitable soapy solution) around the top of the transmission fill tube oil seal. Inspect for air leakage (bubbles) between the oil seal-to-fill tube connection, and between the oil seal-to-transmission housing connection (Fig. 3).

**NOTE: On some seals with a large leak path, the leak detection fluid may be blown off the seal by the escaping air before the fluid has a chance to bubble.**

9. **Does the transmission oil fill tube seal leak air when properly pressurized?**
  - a. If **YES** >> Proceed to Section B - Road Testing The Vehicle For Torque Converter Shudder/Buzz.
  - b. If **NO** >> Proceed to Section C - Fill Tube Oil Seal Replacement.



**Fig. 3 LEAK CHECK SEAL**

- 1 - Transmission Oil Fill Tube
- 2 - Leak Detection Fluid - Applicator Nozzle
- 3 - Transmission Oil Fill Tube Seal

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## **B. Road Testing The Vehicle For Torque Converter Shudder/Buzz:**

**WARNING:** Have an assistant drive the vehicle during the vehicle road test, while the technician operates the StarSCAN® scan tool and monitors its data. Obey all traffic regulations. A smooth black top pavement is the preferred road surface for evaluation. The vehicle will need to be accelerated safely, at light throttle, from 56 to 80 km/h (35 to 50 mph).

**NOTE:** The shudder/buzz condition is usually much more detectable while the transmission is cold (below normal operating temperature).

1. Connect the StarSCAN® scan tool to the vehicle Data Link Connector (DLC).
2. Using the StarSCAN®, navigate to the ECU view, select TCM EGS 52, and select the Data Display screen.
3. Scroll to the Torque Converter Clutch (TCC) data information screen. The screen will display the following:
  - a. "TCC Duty Cycle"
  - b. "TCC Status"
  - c. "TCC Actual Slip"
  - d. "TCC Desired Slip"
  - e. "TCC Setpoint Pressure"
  - f. "Actual Gear"
  - g. "Target Gear"
4. With an assistant driving, accelerate the vehicle to 56 km/h (35 mph).
5. Verify that the transmission ("Actual Gear") is in either 4th or 5th gear.
6. Continue slowly accelerating the vehicle until the "TCC Status" changes from "OPEN" to "SLIP" mode.
7. While the transmission is in 4th or 5th gear and in "SLIP" mode, carefully evaluate the vehicle for the presence of a shudder vibration or an audible high frequency buzz-like sound. The shudder/buzz is most noticeable in 4th or 5th gear at vehicle speeds between 64 to 80 km/h (40 to 50 mph).
  - a. Under normal operation, the "TCC Actual Slip" value will change/modulate between 40 to 80 RPM's of slip.
  - b. When the shudder/buzz condition is present, the "TCC Actual Slip" value will change/modulate between 0 to 80 RPM's of slip. At 0 RPM's the TCC is not slipping as intended (sticking). The change between 0 RPM's and 80 RPM's may cause a "stick slip" shudder condition and/or an associated vibration induced buzz-like sound.
8. The shudder/buzz condition may not occur during the first evaluation attempt. Repeat steps 4 through 7 three more times to confirm the shudder/buzz condition. The engine and transmission may need to be brought up to normal operating temperatures to thoroughly diagnose. It is important to make certain that the transmission shudder/buzz condition is caused by the stick-slip of the transmission torque converter, and not some other vehicle component.
9. **Did the road test confirm the presence of a transmission torque converter clutch shudder/buzz condition when the torque converter was in its "SLIP" mode?**
  - a. If **YES** >> Proceed to Section D - Torque Converter Replacement. The torque converter must be replaced and the old transmission oil thoroughly flushed from the transmission.
  - b. If **NO** >> Proceed to Section E - Transmission Oil Drain. The old transmission oil must be thoroughly flushed from the transmission. The torque converter does not require replacement.

**NOTE: If the shudder/buzz condition occurs when the transmission torque converter is NOT in "SLIP" mode, then this Service Bulletin does not apply and further diagnosis is required.**

### **C. Fill Tube Oil Seal Replacement:**

1. If not already performed, remove the two transmission oil fill tube fasteners.
2. If not already performed, lift the fill tube out of the transmission case.
3. If not already performed, using a short screwdriver, pry the old fill tube oil seal out of the transmission case.

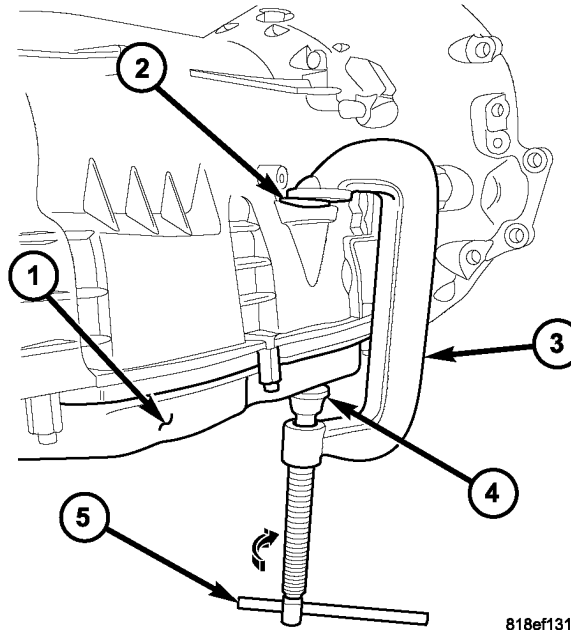
4. From the outside of the new seal, pierce the center of the seal surface with a small screwdriver along the molded “Y”. This will make installing the transmission fill tube easier.
5. Install the new fill tube oil seal into the fill tube bore on the transmission case. Push the seal in by hand until bottomed.

**NOTE: The seal cannot be fully installed by hand. The seal installer disc and “C” clamp must be used to fully seat the fill tube oil seal.**

6. Seat the new fill tube oil seal using the seal installer disc (Special Tool 9902) and a 6 inch “C” clamp (Fig. 4).

**CAUTION: Do not over tighten the “C” clamp during fill tube oil seal installation. Transmission oil pan damage or bending could occur.**

**NOTE: A piece of shim stock can be placed between the transmission oil pan and the “C” clamp to further eliminate the chance of damaging or bending the oil pan.**



**Fig. 4 INSTALL SEAL WITH C-CLAMP**

- 1 - Transmission Oil Pan - Protect Pan By Placing Shim Stock Between Clamp Foot And Pan
- 2 - Seal Installer Disc (Special Tool 9902) - Use To Fully Seat Seal To Transmission
- 3 - 6 inch C-Clamp
- 4 - DO NOT OVERTIGHTEN - C-Clamp Foot Must Be At Edge Of Pan
- 5 - Lightly Tighten C-Clamp Until Seal Installer Disc Bottoms At The Transmission Case

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7. Clean the end of the fill tube with a shop cloth. Then lightly lubricate the fill tube end with transmission oil and install the tube into the seal.

8. Install both fill tube fasteners hand tight.
9. Tighten the fill tube fastener at the bellhousing to 39 Nm (29 ft. lbs.). The bellhousing (upper) fastener must be tightened first.
10. Tighten the lower fill tube fastener to 12 Nm (105 in. lbs.).
11. **Did the original transmission oil fill tube seal leak when tested in Section A?**
  - a. If **YES** >> Proceed to Section F - Fill And Mix the Transmission Oil Prior To Flush.
  - b. If **NO** >> STOP. No further repairs are required.

#### **D. Torque Converter Replacement:**

1. Remove the transmission oil pan and drain old oil. Temporarily install the transmission oil pan.
2. Replace the transmission torque converter. Follow the detailed repair procedures on TechCONNECT - SERVICE INFO tab / 21 - Transmission Transaxle / Automatic - NAG1 / Torque Converter / Removal and Installation.

**NOTE: During transmission installation, do not install the 13-way electrical harness connector to the transmission, do not install the transmission oil fill tube, and do not add new transmission fluid to the transmission.**

**NOTE: Immediately prior to transmission installation, it will be important to check the converter seating with a scale and straightedge to prevent damage to the torque converter or oil pump. Surface of converter lugs should be at least 19 mm (3/4 in.) to rear of straightedge when converter is fully seated.**

**NOTE: To not contaminate the new torque converter with the old transmission oil. DO NOT start vehicle or add transmission oil to the transmission at this time. In the following sections, the old transmission oil must be drained entirely from the transmission and oil cooler. The old transmission filter and oil fill tube seal must be replaced. Once this is completed, a flush and fill of the transmission oil must be performed six ( 6 ) times for vehicles that have had a torque converter replaced.**

3. Proceed to Section E - Transmission Oil Drain.

#### **E. Transmission Oil Drain:**

1. Place a suitable drain pan under the transmission oil pan.
2. Remove the transmission oil pan. The oil pan seal is reusable.
3. Remove and discard the old transmission oil filter.
4. If not already performed, disconnect the 13-way wiring connector to the transmission by turning the bayonet lock counterclockwise.
5. Loosen the transmission 13-way connector guide bushing screw located in the center of the transmission side of the 13-way connector and remove the connector guide bushing. Discard the two O-rings on the guide bushing.

**NOTE: The 13-way connector guide bushing must be removed prior to the removal of the valve body or damage to the valve body electrical lead frame may occur. Also, replace the two guide bushing O-rings during reassembly.**

6. Loosen all of the valve body retaining bolts and allow the oil that was trapped behind the valve body to drain.



7. Remove all of the transmission valve body retaining bolts and remove the valve body from the transmission.
8. If not already removed, remove the transmission oil fill tube and oil fill tube seal.
9. Allow the old transmission oil to drain from the transmission.
10. Drain the valve body by rotating the valve body at different angles to drain any remaining oil trapped inside the valve body.

**NOTE: Do not disassemble the valve body.**

11. Using Mopar Brake Parts Cleaner, clean the outside surfaces of the valve body assembly and the inside surface of the transmission oil pan.
12. Using shop air, blow off the valve body assembly and transmission oil pan.
13. Install the valve body to the transmission. Tighten the valve body retaining bolts to 8 Nm (70 in. lbs.).
14. Install new O-rings (2) to the 13-way connector guide bushing. Lightly lube O-rings prior to installation.
15. Install the 13-way connector guide bushing to the transmission. Tighten the guide bushing retaining screw to 1.5 Nm (22 in. lbs.).
16. Connect the 13-way wiring connector to the transmission by inserting the plug connector into the guide bushing and turning the bayonet lock of the guide bushing clockwise.
17. Install the new transmission oil filter.
18. Verify that both oil cooler line connections to the transmission are correct and tight. Install the dust covers over each connections.
19. Install the transmission oil pan using the original oil pan gasket. Tighten the retaining bolts to 8 Nm (70 in. lbs.).
20. Proceed to Section C - Fill Tube Oil Seal Replacement.

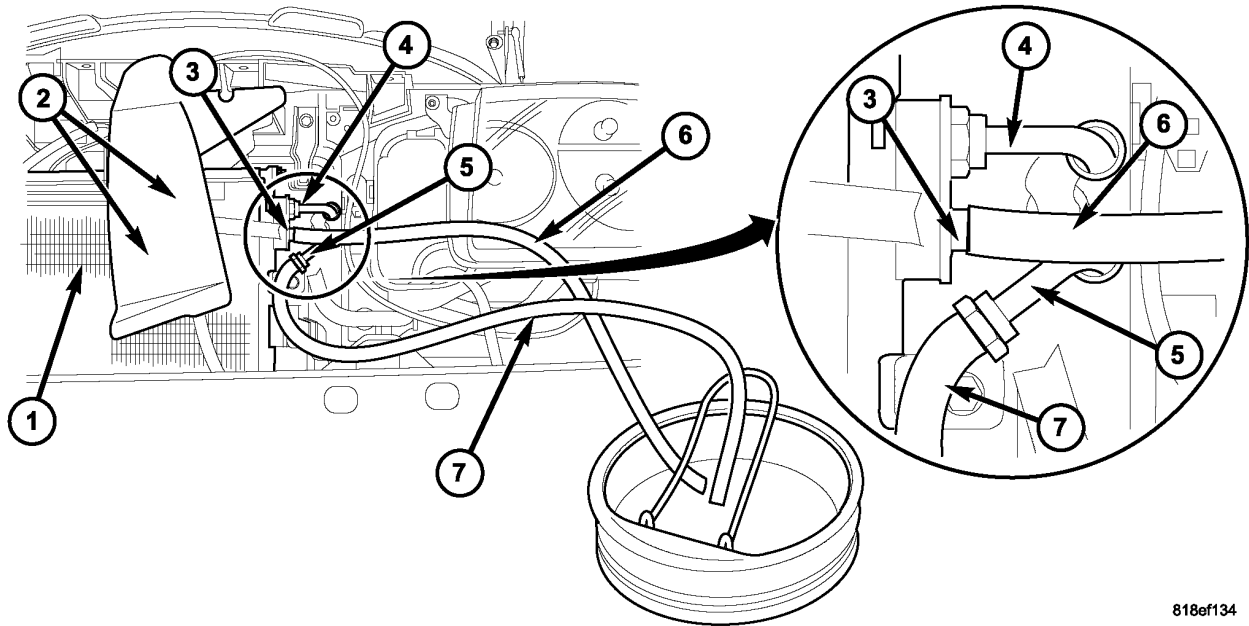
**F. Fill And Mix The Transmission Oil Prior To Flush:**

1. Lower the vehicle.
2. On vehicles that had the torque converter replaced, pour 7.5 liters (8 quarts) of new ATF+4 transmission oil into the transmission through the fill tube.
3. On vehicles that DID NOT have the torque converter replaced, pour 4.75 liters (5 quarts) of new ATF+4 transmission oil into the transmission through the fill tube.
4. Mix the transmission oil before flushing the transmission fluid from the transmission.
  - a. Turn off the air conditioning.
  - b. With the parking brake engaged and the service brake pedal applied, start the engine.
  - c. Allow the engine to idle for a moment.
  - d. With the brakes fully applied, place the transmission in "Reverse" and open the throttle 25% for 10 seconds. Release the throttle.
  - e. Place the transmission in "Neutral" and hold the engine RPM's at 2,000 for 10 seconds.
  - f. With the brakes fully applied, place the transmission in "Drive" and open the throttle 25% for 10 seconds. Release the throttle.
  - g. Place the transmission in "Neutral" and hold the engine RPM's at 2,000 for 10 seconds.
  - h. With the brakes fully applied, place the transmission in "Reverse" and open the throttle 25% for 10 seconds. Release the throttle.
  - i. Place the transmission in the "Park" position and turn off the engine.
5. Remove the front fascia from the vehicle. Protect fascia surface from damage (Fig. 5).
6. Remove the plastic push pin used to secure the top end of the black plastic deflector shield. The shield is located in front of the transmission oil cooler line connectors.

- Remove the transmission oil cooler the **BOTTOM** oil cooler line. The bottom line is the oil return line back to the transmission.

**NOTE: DO NOT disconnect the TOP cooler line from the transmission oil cooler.**

- Connect a 2 ft. (61 cm.) long 3/8" diameter hose to the open end of the bottom oil cooler line. Temporarily secure the hose to the cooler line with a standard hose clamp.
- Connect a 2 ft. (61 cm.) long 3/4" diameter hose to the open end of the oil cooler bottom fitting. Temporarily secure the hose to the cooler line with a standard hose clamp.
- Route the hose ends into a suitable drain pan.



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**Fig. 5 DRAIN HOSES AT TRANS COOLER**

- Combination Cooler - Transmission Oil Cooler and A/C Condenser
- Plastic Air Deflector
- Lower Oil Cooler Fitting - Use Lower Fitting To Flush Transmission And Oil Cooler
- Top Oil Cooler Fitting - DO NOT Disconnect Top Fitting and Line
- Lower (Return) Oil Cooler Line - Lower Line Returns Cooled Oil Back To Transmission
- 3/4" Diameter Rubber Drain Hose - Clamp Drain Hose To Lower Cooler Fitting
- 3/8" Diameter Rubber Drain Hose - Clamp Drain Hose To Lower Return Line

- With the parking brake engaged and the service brake pedal applied, start the engine. With the brakes fully applied, place the transmission into the "Drive" position. Allow the transmission to pump out all of the transmission oil into the drain pan. Once all of the transmission oil has been pumped out, place the transmission in to the "Park" position and turn off the engine.

**NOTE: The transmission oil is flushed by having the oil in the transmission pan drawn through the transmission internals, through the outlet oil cooler line to the oil cooler, through the oil cooler and into the drain hose and drain pan.**

12. Install an additional 4.75 liters (5 quarts) of new ATF+4 transmission fluid into the transmission through the fill tube.
13. **Repeat steps 11 and 12 five (5) additional times to thoroughly flush the transmission.**
14. Disconnect the two drain hoses from the transmission oil cooler and bottom oil cooler line.
15. Connect the bottom oil cooler line to the transmission oil cooler. Verify a positive connection. Install the cooler line connection dust cover.
16. Position the deflector shield to the radiator support and install the plastic push pin.
17. Install the front fascia to the vehicle.
18. Proceed to Section G - Final Transmission Fluid Fill-Up and Check.

### **G. FINAL TRANSMISSION FLUID FILL-UP AND CHECK:**

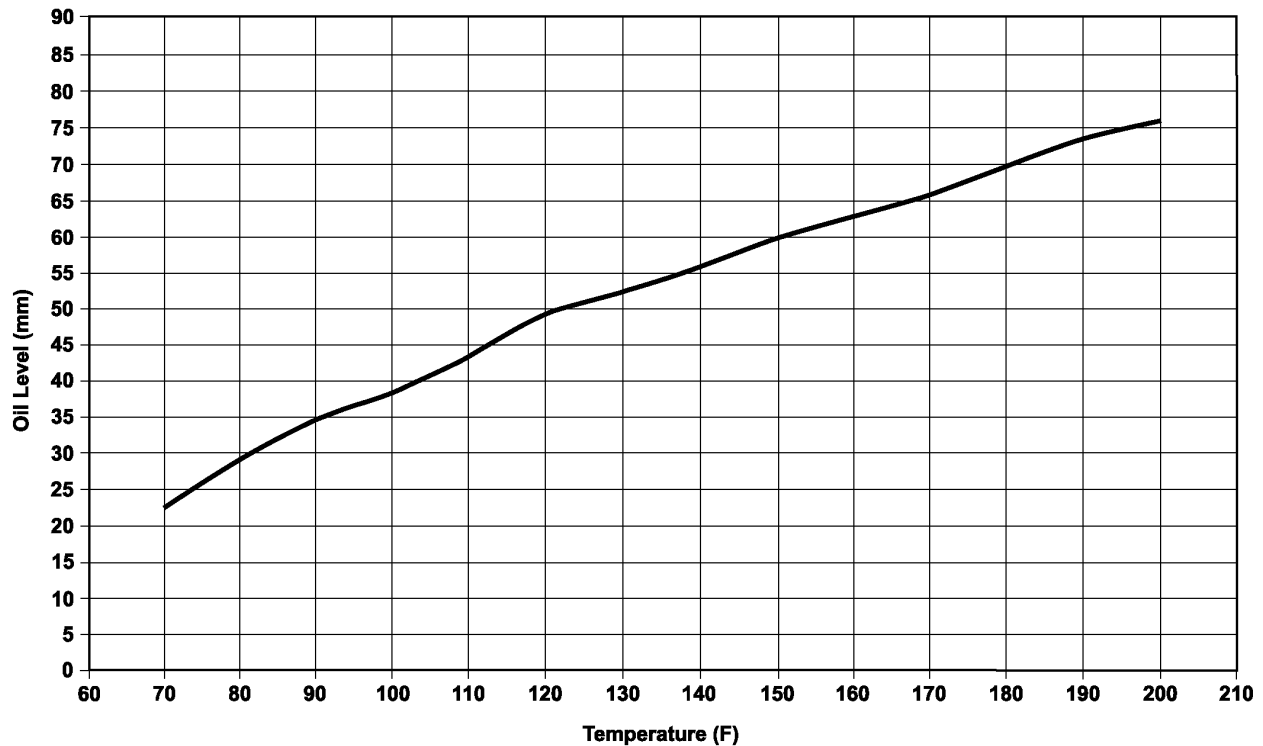
**WARNING:** Risk of accident from vehicle starting off by itself when engine running. Risk of injury from contusions and burns if you insert your hands into the engine when it is started or when it is running. Secure vehicle to prevent it from moving off by itself. Wear properly fastened and close-fitting work clothes. Do not touch hot or rotating parts.

**CAUTION:** Transmission oil temperature readings are taken using the StarSCAN® tool. The transmission oil temperature can be read **ONLY** when the gear selector and transmission are in either the Reverse “R” or in one of the Drive “D” (forward gear) positions. Always set the vehicle park brake **AND** apply the vehicle service brake when taking transmission oil temperature readings. Take a transmission oil temperature reading and return the transmission to the Park “P” position. When the vehicle is in either Park “P” or Neutral “N” the StarSCAN® displays the **ENGINE** coolant temperature (not the transmission oil temperature).

1. Monitor the transmission oil temperature:
  - a. Set the vehicle parking brake.
  - b. Connect the StarSCAN® to the vehicle diagnostic link connector.
  - c. Apply the vehicle service brake. Start the engine and let it run at idle speed with the transmission selector in the Park “P” position.
  - d. With the service brake applied, shift through the transmission modes several times with the vehicle stationary and the engine idling.
  - e. Return the transmission selector to the Park “P” position.
  - f. With the engine running, allow the transmission to warm up.
  - g. Apply the vehicle service brake, shift the transmission into Reverse “R” or Drive “D” position, and monitor the transmission oil temperature using the StarSCAN®. Shift the transmission back into the Park “P” position.
  - h. Continue to monitor the transmission oil temperature until the transmission oil temperature is within the temperature range of the Transmission Fluid Graph (Fig. 6). Place the transmission selector in the Park “P” position.

**NOTE:** Always check the oil level while the engine is running and the transmission selector is in the Park “P” position.

**NOTE:** For the LX/LE (300/Magnum/Charger), the handle end of special tool 9336 transmission oil dipstick may protrude from the fill tube when installed.



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**Fig. 6 NAG1 Transmission Fill Graph**

2. On the LX/LE, remove the dipstick tube cap. Push the transmission oil dipstick (Special Tool 9336) into the transmission fill tube until the dipstick tip contacts the oil pan. Pull out the dipstick and read the transmission oil level. Repeat if necessary.
  - a. Check transmission oil temperature using the StarSCAN®.
  - b. The transmission Oil Dipstick 9336 has indicator marks every 10 mm. Determine the height of the oil level on the dipstick. Using the height, the transmission temperature, and the Transmission Fluid Graph (Fig. 6), determine if the transmission oil level is correct.
  - c. Add or remove oil as necessary and recheck the oil level.
  - d. Once the oil level is correct, install the dipstick tube cap.
3. Proceed to Section H - Reset Transmission “Learned Adaptives” Using the StarSCAN®.

#### **H. Reset Transmission “Learned Adaptives” Using The StarSCAN®:**

1. Allow the engine and transmission to warm to normal operating temperature.
2. Connect the StarSCAN® to the vehicle Data Link Connector (DLC).
3. Starting at the StarSCAN® home screen select “**ECU view**”.
4. Select “**TCM EGS 52 Transmission**”.
5. Select the “**Data Display**” screen.
6. Select “**Reset Learned Adaptives**”.
7. Press the blue “**Start**” button in the upper right corner of the StarSCAN® screen.
8. Press the blue “**Next**” button
9. Allow the StarSCAN® to reset the learned adaptives.
10. Press the “**Finished**” button and then remove the StarSCAN® from the vehicle.

**POLICY:**

Reimbursable within the provisions of the warranty.

**TIME ALLOWANCE:**

<b>Labor Operation No:</b>	<b>Description</b>	<b>Amount</b>
21-10-16-94	Air Test and Replace Fill Tube Seal	0.6 Hrs.
21-10-16-95	Air Test, Road Test, Flush Transmission, Replace Fill Tube Seal, Replace 13-Way Connector Guide Bushing O-Rings, and Set Adaptives	3.6 Hrs.
21-10-16-96	Air Test, Road Test, Replace Torque Converter, Flush Transmission, Replace Fill Tube Seal, Replace 13-Way Connector Guide Bushing O-Rings, and Set Adaptives	4.9 Hrs
21-10-16-61	Add: If AWD equipped and when LOP 21-10-16-96 is performed	3.6 Hrs.

**FAILURE CODE:**

ZZ	Service Action
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