

## DIAGNOSIS AND TESTING

### EFFECTS OF INCORRECT FLUID LEVEL

A low fluid level allows the pump to take in air along with the fluid. Air in the fluid will cause fluid pressures to be low and develop slower than normal. If the transmission is overfilled, the gears churn the fluid into foam. This aerates the fluid and causing the same conditions occurring with a low level. In either case, air bubbles cause fluid overheating, oxidation, and varnish buildup which interferes with valve and clutch operation. Foaming also causes fluid expansion which can result in fluid overflow from the transmission vent or fill tube. Fluid overflow can easily be mistaken for a leak if inspection is not careful.

### CAUSES OF BURNT FLUID

Burnt, discolored fluid is a result of overheating which has three primary causes.

1. Internal clutch slippage, usually caused by low line pressure, inadequate clutch apply pressure, or clutch seal failure.
2. A result of restricted fluid flow through the main and/or auxiliary cooler. This condition is usually the result of a faulty or improperly installed drainback valve, a damaged oil cooler, or severe restrictions in the coolers and lines caused by debris or kinked lines.
3. Heavy duty operation with a vehicle not properly equipped for this type of operation. Trailer towing or similar high load operation will overheat the transmission fluid if the vehicle is improperly equipped. Such vehicles should have an auxiliary transmission fluid cooler, a heavy duty cooling system, and the engine/axle ratio combination needed to handle heavy loads.

### FLUID CONTAMINATION

Transmission fluid contamination is generally a result of:

- adding incorrect fluid
- failure to clean dipstick and fill tube when checking level
- engine coolant entering the fluid
- internal failure that generates debris
- overheat that generates sludge (fluid breakdown)
- failure to replace contaminated converter after repair

The use of non-recommended fluids can result in transmission failure. The usual results are erratic shifts, slippage, abnormal wear and eventual failure due to fluid breakdown and sludge formation. Avoid this condition by using recommended fluids only.

The dipstick cap and fill tube should be wiped clean before checking fluid level. Dirt, grease and other foreign material on the cap and tube could fall into the tube if not removed beforehand. Take the time to wipe the cap and tube clean before withdrawing the dipstick.

Engine coolant in the transmission fluid is generally caused by a cooler malfunction. The only remedy is to replace the radiator as the cooler in the radiator is not a serviceable part. If coolant has circulated through the transmission, an overhaul is necessary.

The torque converter should be replaced whenever a failure generates sludge and debris. This is necessary because normal converter flushing procedures will not remove all contaminants.

## STANDARD PROCEDURE

### CHECK OIL LEVEL

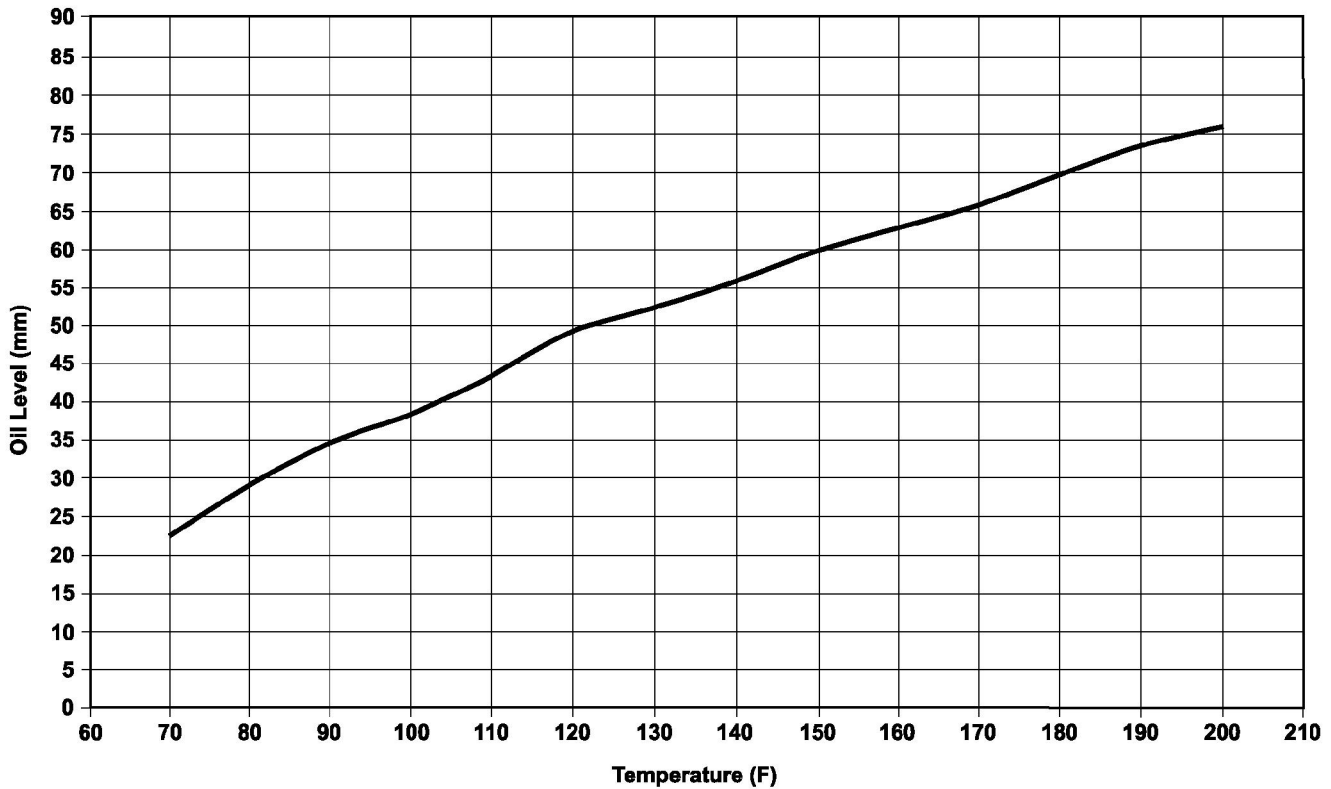
1. Verify that the vehicle is parked on a level surface.
2. Remove the dipstick tube cap.

**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.**

3. Actuate the service brake. Start engine and let it run at idle speed in selector lever position "P".

4. Shift through the transmission modes several times with the vehicle stationary and the engine idling
5. Warm up the transmission, wait at least 2 minutes and check the oil level with the engine running. Push the Oil Dipstick 9336 into transmission fill tube until the dipstick tip contacts the oil pan and pull out again, read off oil level, repeat if necessary.

**Note: The dipstick will protrude from the fill tube when installed.**



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***NAG1 Transmission Fill Graph***

6. Check transmission oil temperature using the appropriate scan tool.

**Note: The true transmission oil temperature can only be read by a scan tool in REVERSE or any forward gear position. (Refer to 21 - AUTOMATIC TRANSMISSION- NAG1/TRANSMISSION TEMPERATURE SENSOR/ PARK-NEUTRAL SWITCH - OPERATION)**

7. The transmission Oil Dipstick 9336 has indicator marks every 10mm. Determine the height of the oil level on the dipstick and using the height, the transmission temperature, and the Transmission Fluid Graph, determine if the transmission oil level is correct.
8. Add or remove oil as necessary and recheck the oil level.
9. Once the oil level is correct, install the dipstick tube cap.

## **TRANSMISSION FILL**

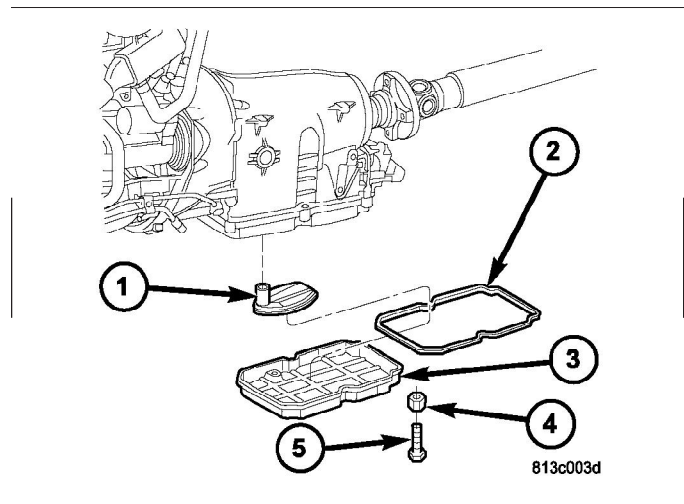
To avoid overfilling transmission after a fluid change or overhaul, perform the following procedure:

1. Verify that the vehicle is parked on a level surface.
2. Remove the dipstick tube cap.

3. Add following initial quantity of Mopar® ATF +4, Automatic Transmission Fluid, to the transmission:
  - a. If only fluid and filter were changed, add **7.4 L (14.8 pts.)** of transmission fluid to transmission.
  - b. If the transmission was completely overhauled or the torque converter was replaced or drained, add **8.1 L (17.1 pts.)** of transmission fluid to transmission.
4. Check the transmission fluid (Refer to 21 - TRANSMISSION/AUTOMATIC - NAG1/FLUID AND FLUID - STANDARD PROCEDURE - CHECK OIL LEVEL) and adjust as required.

## FLUID/FILTER SERVICE

1. Run the engine until the transmission oil reaches operating temperature.
2. Raise and support vehicle.
3. Remove the bolts (5) and retainers (4) holding the oil pan to the transmission.
4. Remove the transmission oil pan (3) and gasket (2) from the transmission.
5. Remove the transmission oil filter (1) and o-ring from the electrohydraulic control unit.
6. Clean the inside of the oil pan (3) of any debris. Inspect the oil pan gasket (2) and replace if necessary.
7. Install a new oil filter (1) and o-ring into the electrohydraulic control unit.
8. Install the oil pan (3) and gasket (2) onto the transmission.
9. Install the oil pan bolts (5) and retainers (4). Torque the bolts to 8 N·m (70 in.lbs.).
10. Lower the vehicle and add 7.0 L (7.4 qts.) of transmission fluid to the transmission.
11. Check the oil level (Refer to 21 - TRANSMISSION/AUTOMATIC - NAG1/FLUID AND FILTER - STANDARD PROCEDURE - CHECK OIL LEVEL).



### *Fluid/Filter Service Points*

- 1 - OIL FILTER
- 2 - OIL PAN GASKET
- 3 - OIL PAN
- 4 - RETAINER
- 5 - BOLT