NEW OWNER'S CORNER...

Lube and service basics for your new truck. Always follow the recommendations in your Owner's Manual. Below are excerpts from the manual and further TDR commentary.

Breaking in your new truck: Drive moderately for the first 1,000 miles to assist in breaking in the powertrain, brakes, bearings, etc. Do not use full throttle for extended periods, and vary speeds frequently. After the first 1,000 miles, use the truck normally. Particularly during the breaking-in period, avoid extended idling. Your Cummins engine will break in faster if you haul or tow with the truck. The engine will not be fully broken in, and will not reach its full power and fuel mileage potential, until it has operated for approximately 10,000 miles.

Fuel: Use only #2 diesel fuel. As an option in winter you may use #2 diesel fuel blended with #1 diesel or kerosene, or #2 diesel otherwise treated to lower the pour point of the fuel. Use #1 diesel fuel for extreme cold weather operation only. Always fill at popular locations that sell a lot of fuel. Diesel that has not been subject to long storage should contain less moisture and sediment.

Engine Oil: Use any high quality lube oil diesel rated 15W-40 with the API "donut" symbol CJ-4 or better, such as Cummins Premium Blue, Shell Rotella T, Chevron Delo 400. For very cold weather operation, you may use a diesel rated 10W-30, meeting the same API spec as above. Do *not* use synthetic oil if your engine has less than 10,000 miles on it.

Change Intervals: Change your engine oil and oil filter according to the chart in your Owner's Manual. Change the fuel filter at every other oil change. Neither Dodge nor Cummins recommends using extended drain intervals with the use of synthetic engine oils. Change transmission and axle fluids according to the types of service listed in your Owner's Manual.

Anti freeze/Coolant: Drain and refill every 24 to 36 months, using low silicate, diesel-rated, ethylene glycol based coolant. Pre mix half-and-half with distilled water before installation or addition.

Automatic Transmission fluid: Change fluid and filter every 40,000 miles for normal operation. For operation such as towing or heavy loads, change every 15-20 thousand miles.

The latest Mopar specification is ATF +4, type 7176.

The latest ATF +4 can safely be used in all previous 47 RE/RH automatic transmissions. In this case, logic prevails – if +3 is good then +4 is better! This information was verified by D/C's customer advocate personnel. If you have any doubts about the correct transmission fluid, consult your Owner's Manual.

Five-Speed NV4500 Manual Transmission (used from '94-'04): Change every 30-50 thousand miles, depending on load. Use 75W-90, GL-4 or 80W-90, GL-4 rated synthetic oil. Often members will ask about the GL-4 rated Castrol synthetic gear lubricant (75W-90). If the GL-4 classification is good, shouldn't a GL-5 rated lubricant be better? In the case of the NV4500 gearbox, not necessarily so. The GL-5 oil uses twice the amount of sulfur/phosphorous additive package as GL-4. At high temperatures, the phosphorous plates out and reduces the coefficient of friction of the synchronizer rings (New Venture Gear has seen this on shift stand tests). Since there's twice as much of it, there's more of a detrimental effect compared to GL-4.

Although it does not affect the NV4500, the additional sulphur content of GL-5 attacks brass.

Six-Speed NV5600 Manual Transmission (used from '00-'05): This transmission is filled with manual transmission fluid at the factory. This fluid does not require periodic changing. If it is necessary to add or change the fluid in this transmission use Mopar manual transmission fluid (Mopar P/N 4874464 or Texaco 1874). These are the only lubricants recommended for use in the NV-5600 transmission.

Six-Speed/G56 and G56R Manual Transmission (used from '05-Current): The lube oil recommended for the G56 and G56R transmission is Mopar ATF +4 is readily available at your local auto parts store or Mopar dealership.

Axle oil: Change every 30-50 thousand miles, depending on load. Use 75W-90, GL-5 rated synthetic oil for normal light to medium load duty cycle.

Tires: Weekly, check for proper air pressure with tires at ambient temperature. Please follow the Owner's Manual recommendations for increasing pressure as load increases. Front: 45-55 lbs. Rear: 40-80 lbs.

Cold Starting: Turn on key, and when "wait to start" light goes out, start the engine. You may need to apply light throttle (up to 1,000 RPM) to keep the engine running if it is very cold. Allow two or three minutes of idling time for oil to circulate in the engine before driving away. Use light throttle until engine has fully warmed up.

Washing and waxing: New paint is soft for the first 30 to 60 days after spraying, and should cure up to three months before gaining full strength. Wash your new truck with clean water on a cool paint surface for the first 30 days. Use a soft cloth with a "nap" surface. If the truck is very dirty, use a mild car wash soap diluted in water and applied with a soft cloth. Do not wax your truck for 30 days, then use a cleaner-wax which is suitable for clear coated finishes.

In this case, logic prevails – if +3 is good then +4 is better!

Mopar/Cummins/Fleetguard Part Number Reference

NOTES: This table Includes part number supercessions as of 12/11. Part numbers at the top are Mopar; middle are Cummins; bottom are Fleetguard. For lube filters the numbers on the left are paper/cellulose media design. The numbers to the right are Microglass or StrataPore design. Belt part numbers are Gates. Hose part numbers are Gates or Mopar. Hoses are listed with upper hose (top) and lower hose (bottom) of chart.

MODEL YEAR	FUEL FILTER PART #	LUBE FILTER PART #	AIR FILTER PART #	BELT (Assumes A/C)	HOSES
2012	68065608AA 5257769 FS43255	5083285AA 3949561 LF3972 LF16035	53034051AB AF27684	K081264	55056954 AB U 55056955 L
2011	68065608AA 5257769 FS43255	5083285AA 3949561 LF3972 LF16035	53034051AB AF27684	K081264	55056954 AB U 55056955 L
2010	68065608AA 5257769 FS43255	5083285AA 3949561 LF3972 LF16035	53034051AB AF27684	K081264	55056954 AB U 55056955 L
2009	68061633AA 5257769 FS43257	5083285AA 3949561 LF3972 LF16035	53034051AB AF27684	K081264	52028872 U 55056945 L
2008	68061633AA 5257769 FS43257	5083285AA 3949561 LF3972 LF16035	53034051AB AF27684	K081264	52028872 U 55056945 L
2007.5 6.7-liter	68061633AA 5257769 FS43257	5083285AA 3949561 LF3972 LF16035	53034051AB AF27684	K081264	52028872 U 55056945 L
2007	05015581AB 3942470 FS19856	5083285AA 3949561 LF3972 LF16035	53032700AB AF26106	K081264	52028872 U 52028873 L
2006	05015581AB 3942470 FS19856	5083285AA 3949561 LF3972 LF16035	53032700AB AF26106	K081264	52028872 U 52028873 L
2005	05015581AB 3942470 FS19856	5083285AA 3949561 LF3972 LF16035	53032700AB AF26106	K081264	52028872 U 52028873 L
2004	05015581AB 3942470 FS19856	5083285AA 3949561 LF3972 LF16035	53032700AB AF26106	K081264	52028872 U 52028873 L
2003	05015581AB 3942470 FS19856	5083285AA 3949561 LF3972 LF16035	53032700AB AF26106	K081264	52028872 U 52028873 L
2002	05015581AA 3942470 FS19855	05016547AB 3937145 LF3972 LF16035	4728406 3097074 AF25541	K080810	52028715 U 52006482AB L

2001	05015581AA 3942470 FS19855	05016547AB 3937145 LF3972 LF16035	4728406 3097074 AF25541	K080810	52028715 U 52006482AB L
2000	05015581AA 3942470 FS19855	05016547AB 3937145 LF3972 LF16035	4728406 3097074 AF25541	K080810	52028715 U 52006482AB L
1999	04883963AB 3931476 FS19598	05016547AB 3937145 LF3972 LF16035	4728406 3097074 AF25541	K080810	52028715 U 52006482AB L
1998.5 24-valve engine	04883963AB 3931476 FS19598	05016547AB 3937145 LF3972 LF16035	4728406 3097074 AF25541	K080810	52028715 52006482AB
1998 12-valve engine	04883963AB 3931476 FS19598	05016547AA 3932217 3865405 LF3972 LF16035	4728406 3097074 AF25541	K080810	22081 U 22082 L
1997	04883963AB 3931476 FS19598	05016547AA 3932217 3865405 LF3972 LF16035	4728406 3097074 AF25541	K080810	22081 U 22082 L
1996	4741689 3923108 FS1253	05016547AA 3932217 3865405 LF3972 LF16035	4728406 3097074 AF25541	K080810	22081 U 22082 L
1995	4741689 3923108 FS1253	05016547AA 3932217 3865405 LF3972 LF16035	4728406 3097074 AF25541	K080810	22081 U 22082 L
1994	4741689 3923108 FS1253	05016547AA 3932217 3865405 LF3972 LF16035	4728406 3097074 AF25541	K080810	22081 U 22082 L
1993	4429107 3834656 FS1232	05016547AA 3932217 3865405 LF3972 LF16035	4713953 3097073 AF25023	080830	21930 U 20431 L
1992	4429107 3834656 FS1232	05016547AA 3932217 3865405 LF3972 LF16035	4428308 3097072 AF4555M	080830	21930 U 20431 L
1991.5	4429107 3834656 FS1232	05016547AA 3932217 3865405 LF3972 LF16035	4428308 3097072 AF4555M	080830	21930 U 20431 L
1991	4429107 3834656 FS1232	05016547AA 3932217 3865405 LF3972 LF16035	4428308 3097072 AF4555M	080816	20957 U 20431 L
1990	4429107 3834656 FS1232	05016547AA 3932217 3865405 LF3972 LF16035	4428308 3097072 AF4555M	080816	20957 U 20431 L
1989	4429107 3834656 FS1232	05016547AA 3932217 3865405 LF3972 LF16035	4428308 3097072 AF4555M	080816	20957 U 20431 L

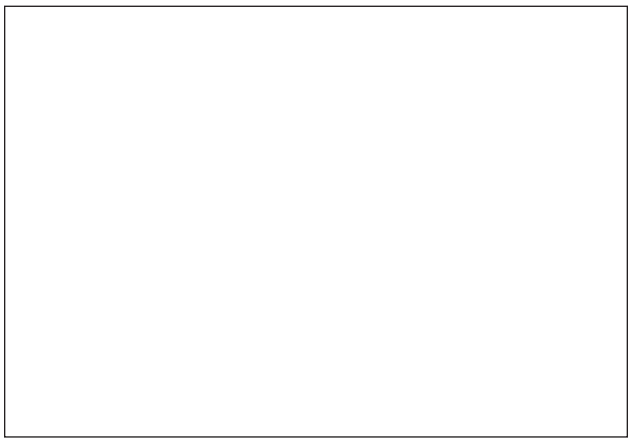
WHY ASK WHY— LIQUIDS IN YOUR TRUCK

By Robert Patton (updated 7/09)

Servicing a new and unfamiliar vehicle model for the first time can be frustrating. As I thumbed through the Volkswagen New Beetle (diesel) Owner's Manual there were many listings for lubricants that only showed the manufacturer's part numbers (in this case, those of Volkswagen). Purchase of the Robert Bentley shop manual did not give any further insight. Nor did a visit to the local VW parts counter unlock the mystery of the specification of the lubricants needed for routine maintenance. Case in point, what is the specification for and, thus, alternate (read: less expensive?) the lubricant needed for the five-speed gearbox?

I took the path less researched, as there was not an easy answer, and purchased ($20 per liter) the Volkswagen part number G005 000 oil for my gearbox. I vowed to get some answers to many of the other VW specific part numbers, as they have a special number for all things liquid [power steering (what is G002 000 synthetic oil?), oil, and antifreeze] used in the vehicle. The only thing easy was the DOT-4 brake fluid.

Thinking back, I had run into a similar situation with another foreign car I once owned. Anyone care to point me in the direction of a "Pentosin CHF 7.1 or equivalent" fluid for a car's power steering system? Perhaps your experience as a new Turbo Diesel owner and its unique liquids is not unlike mine with the Volkswagen's mystery lubricants. Care to explain the difference in the engine oil for a diesel versus the engine oil used in your car? How about the New Venture 4500, five-speed gearbox oil—what makes it so unusual? The NV5600 gearbox oil is yet again different? The G56 gearbox oil is different too? Friction modifier fluid for the differential—where do I find such a product? Automatic transmission fluid, specification ATF 7176+4, sounds strange to me. Anything special needed for antifreeze? Brake fluid? Power steering fluid?



Special lubricants for your vehicle.

Do my new car experiences parallel your experience with the new ownership of your Turbo Diesel truck? Can we take these frustrations and make them into an opportunity to learn? You bet. Let's start with the lubricant that gets changed with the greatest frequency, the engine's lube oil.

FIRST THING TO NOTE—YOUR OWNER'S MANUAL

Yep, time to issue the editorial disclaimer. The authoritative source for this article is the Owner's Manual from my '99 2500 and my '07.5 3500 Turbo Diesel. Specifications do change and you should use the products listed in your manual. Our article is an effort to clarify and thus help you find readily available lubricants. Also, our article is written to stress the importance of using the correct lubricant by giving you some of the technical reasons behind the lubricant's uniqueness.

LUBE OIL CONSIDERATIONS

Many of you inquire about selecting the "best" for your truck. We hear a lot of questions like, "How about Mobil 1 or the Castrol Syntec synthetic lubricants?" Good intentions, but these oils are not blended to meet the requirements of a diesel. The API (American Petroleum Institute) "donut" rating for both oils is CD. Note the first letter "C" stands for Commercial or compression engine (a diesel). The "D" is the specification test the oil was tested at and was able to pass. The "D" specification was developed in 1952.

Up until the '07.5 6.7-liter engines the diesel specification was CI-4 plus/SM.

For '07.5 and the new 6.7-liter engine it changed to CJ. Is the CJ specification better than CI+4? Good question. Up until the CJ introduction the lube oils were better as the specification evolved. The TDR Issue 54 thru 58 magazines had a lengthy discussion on why CJ may *not* be better than CI+4 for the pre '07.5 engines.

The oil also needs to pass the API S (S stands for a service or spark/gasoline engine) category and current specification M. The S classification is needed to address and prevent wear on the sliding camshaft tappets.

MANUAL TRANSMISSION

1994-2003 Five-Speed NV4500 Manual Transmission

Reference your Owner's Manual and you'll note instructions to change the NV4500's gearbox oil every 30-50 thousand miles, depending on load. Use 75W-90, GL-4 or 80W-90, GL-4 rated synthetic oil. Chrysler part number 4874459 or Castrol Syntorq. Often members will ask about the GL-4 rated Castrol synthetic gear lubricant (75W-90). If the GL-4 classification is good, shouldn't a GL-5 rated lubricant be better? In the case of the NV4500 gearbox, not necessarily so. The GL-5 oil uses twice the amount of sulfur/phosphorous additive package as GL-4. At high temperatures, the phosphorous plates out and reduces the coefficient of friction of the synchronizer rings, (New Venture Gear has seen this on shift stand tests). Since there's twice as much of it, there's more of a detrimental effect compared to GL-4.

Although it does not affect the NV4500, the additional sulfur content of GL-5 attacks brass.

Like the Volkswagen saga, the GL-4 rated, Castrol Syntorq lubricant is difficult, if not impossible, to find at the local auto parts store. Thankfully there are advertisers in the TDR [Standard Transmission and Gear comes to mind—they sell the Syntorq in 1/2 and one-gallon quantities, (800) 783-8726] that have this lubricant for resale.

2001-2005 Six-Speed NV5600 Manual Transmission

To quote from the Owner's Manual, "This transmission is filled with manual transmission fluid at the factory. This fluid does not require periodic changing. If it is necessary to add or change the fluid in this transmission use Mopar manual transmission fluid (Mopar part number 4874464 or Texaco 1874). These are the only lubricants recommended for use in the NV-5600 transmission."

This is another example of a lubricant that you will not find at the local auto parts store. We've yet to do a full-blown exposé on the NV5600's lubricant. Discussions with Mike Patton, owner of Standard Transmission and Gear, revealed the following:

> The New Venture 5600 gearbox uses a synthetic 30-weight oil. From New Venture literature we know to use the Mopar 4874464 part number. However, Pennzoil Synchromesh, 30-weight, synthetic fluid has been confirmed as an acceptable alternative. The Pennzoil will likely not be easily found, but they've got it in stock at Standard Transmission.

2005-Current Six-Speed G56 Manual Transmission

The lube oil recommended for the G56 transmission is Mopar ATF+4. Mopar ATF+4 is readily available at your local auto parts or Mopar dealership.

AUTOMATIC TRANSMISSION FLUID

For the automatic transmission the latest DaimlerChrysler specification calls for the use of "ATF+4, type 7176."

Unlike the scenario of GL-4 versus GL-5 (in which the former is good but the latter is *not* better), the latest ATF+4 type 7176 can safely be used in all previous 47 RE/RH automatic transmissions. In this case, logic prevails—if +3 is good, then +4 is better! This information was verified by D/C's customer advocate personnel. If you have any doubts about the correct transmission fluid, consult your Owner's Manual.

Briefly the reason Dodge has the +3 and +4 designations is the highly refined base stock and friction modifiers that are specifically designed for the Chrysler transmission.

A footnote to the ATF fluid discussion. Many owners are new to the Dodge product. In order to check the ATF fluid level, the transmission should be at operating temperature and the fluid checked on level ground with the transmission sector in *neutral*. When in neutral the fluid is being routed through the transmission cooler unit. If you check the fluid in *park* the level will show higher than it actually is, as fluid is not being routed to the cooler in the park position. If you make the mistake of checking the fluid level with the vehicle in *Park*, the transmission may be operating without sufficient fluid.

AXLE LUBRICANT

The Owner's Manual suggests that the differential oil be changed every 30-50 thousand miles depending on the load factor. The specification for the axle oil is straightforward: use an API GL-5 rated oil. Use the viscosity that is recommended in your manual.

This replacement fluid is easy to find at the local auto parts store. However, should your '89-'02 truck with a Dana differential be a limited slip model you'll have to add Mopar's Hypoid Gear Oil Additive Friction Modifier to your fluid mixture. Yes, the lubricant is easy to find: the friction modifier is not. For the modifier I do not know of any product other than the recommended Mopar fluid that could (or should) be considered for use. For lack of verifiable information, stay with the factory recommended Mopar friction modifier for your '89-'02 limited slip differential.

In 2003 Dodge changed from Dana to American Axle as the vendor of the front and rear differential units. From my 2003 and 2007 Owner's Manual, "Limited slip rear axles do not require a limited slip additive." The Owner's Manual states fluid changes should be done every 15,000 miles for schedule "B: service.

The Mopar part number for the American Axle lubricant is 5102232AA. The specification from an '07 Owner's Manual calls for "GL-5 SAE 75W90 synthetic lubricant." As always, check your Owner's Manual for specific instructions for changes.

TRANSFER CASE

Wow, here is another easy one. The manual reads, “Use Mopar ATF +4 Automatic Transmission Fluid Type 7176 or equivalent, or a fluid of the type labeled Merco or Dexron III automatic transmission fluid.” It is easy to find the Mopar ATF +4, 7176 at the local parts store. For simplicity I would suggest using the ATF +4 in the transfer case too.

ANTIFREEZE/COOLANT

Many owners have heard the truck-stop stories about special additives and conditioners that are necessary in diesel engines. These stories are occasioned by a problem called cavitation erosion (pitting of they cylinder walls due to the implosion of air bubbles in the cooling system) which does occur in many other diesel engines. But the answer is not to be found in a special “brew” for your Turbo Diesel engine. For a complete technical discussion, see Issue 54 and 59. Bottom line: cavitation erosion is not a problem with the Cummins B-series engines in Dodge Ram pickups.

For the definitive answer on coolant, I consulted the 1999 Owner’s Manual, “Recommended Engine Coolant.”

The manual reads: “Chrysler Corporation vehicles have been designed to operate on ethylene glycol-based engine coolant. Ethylene glycol-based coolants are the only type recommended for use in your Chrysler Corporation vehicle.

“Maintain cooling system solution at a 50% concentration of ethylene glycol antifreeze with water. A higher concentration of antifreeze is recommended if temperatures below -37°F are anticipated, but not to exceed 70% antifreeze. A 50% antifreeze mixture should be maintained year-round for protection against corrosion, boiling, or freezing. If coolant is rusty or dirty, discard and refill as recommended. Do not use additional rust inhibitors or anti-rust products, as they may not be compatible with the radiator coolant.”

The preceding passage from the 1999 Owner’s Manual material does not give any specifics on the ethylene glycol-based coolants to be used in your Turbo Diesel. Is there newer information in later versions of the Owner’s Manual?

Yes, the ’03 and ’07 manuals are much more specific than the ’99 book. Reading from the manual, “Mopar antifreeze/coolant 5year/100.000 mile formula HOAT (hybrid organic additive technology) 5011764AB or equivalent.”

Wow, is the HOAT coolant backward compatible with the good ‘ole ethylene glycol green stuff that we are all familiar with? Yes, HOAT coolant is backward compatible. Again, TDR Issue 62 and 54 had a lengthy discussion on all of the different types of coolants that are now in the marketplace. Bottom line: stick with the HOAT formulas and you’ll be okay.

POWER STEERING

Oops, from the 1999 Owner’s Manual here is another vague specification: “Only petroleum fluids specially formulated for minimum effect on rubber hoses should be used. Mopar Power Steering Fluid 04883077 is a fluid of this type and is recommended.” Without a clear definition I have defaulted to the Mopar part number. However, the Owner’s Manual for a 2003 Turbo Diesel shows the proper fluid to be Mopar ATF+4. Ditto the 2007 manual. So, just as we saw with different manual transmissions, there is not a one-size-fits-all lubricant for truck’s power steering. When in doubt check the manual for your truck.

BRAKE FLUID

Yes, another easy item to cross-reference. The manual from my ’99 Turbo Diesel reads, “Only brake fluid conforming to DOT-3 and SAE 1703 should be used.” DOT-3 fluid is easy to obtain. The 2003 Owner’s Manual shows DOT-3, DOT-4 or DOT-4+, the 2007 manual shows the same.

CONCLUSION

No doubt you noticed that there were differences in the specifications from the three Owner’s Manuals (1999, 2003, and 2007) that were the basis for this article. Your Owner’s Manual is the resource for the specifications. Follow the book’s recommendations. Likely you also noticed the evolution of the lube oil specification (from CH to the newly released CJ) and the ATF fluid from Mopar 7176 to 7176 +4. The ATF is backward compatible.

Notes: