

# The Oil Problem and Other Global Issues

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Contributing Editor

**N**ice title for a paper by some think-tank guru for presentation to some group of self-important morons (Congress). Just to show you how deceptive the press can be, we actually are going to examine briefly the way we think about transmissions, and the correct lubricant fill for the most-common popular manual transmissions and transfer cases.

This issue of the magazine is devoted to international commerce, and we ought to think about how we classify product as import or domestic. There always has been a mystical fascination in our industry with so-called "import" transmissions. It is my belief that there is no such thing as an import. In the first place, a transmission is a transmission – it doesn't matter where it was designed or produced – they all function in a similar manner. With the world getting smaller every day and the consolidation of industries into multinational corporations, distinctions disappear. For example, Hondas, Toyotas and BMWs are being manufactured in the United States, and the Ford Crown Victoria is built in Canada. This makes the Crown Vic an import, but nobody in our field considers this car "foreign."

At this point we must factor into the equation the huge consolidation that will continue to happen in the auto industry. Ford owns Jaguar and a good chunk of Mazda. GM owns Saab and has agreements with Toyota and Isuzu. Chrysler and Mitsubishi have



shared designs and manufacturing for years. In short, to maintain efficiency and suppress costs, the automakers have been sharing technology and engineering and will continue to combine through purchases or agreements until only a few companies are left. Does DaimlerChrysler ring a bell? Why go to all the trouble and expense of designing, prototyping,

testing and developing your own powertrain when you can make a deal to buy one off the shelf from another manufacturer? Daewoo is a perfect example. Don't worry when one of these cars arrives at your shop. It is Korean only skin deep. Under the sheet metal it is good old GM engine and drivetrain.

The same thing is occurring on the design side. Many manufacturers are using transmission designs that are not "domestic." Chrysler uses Aisin-Warner AX5 and AX15 five-speed transmissions in its Jeep line; it even included a Peugeot transmission at one point. The other two dominant players in the SUV and truck market are using so-called "import" manual transmissions in their products. Ford uses Mazda-built five-speeds in its light-duty vehicles, and in the larger trucks it uses the ZF five- and six-speed German designs that are manufactured in Gainesville, GA. GM and Chrysler, through their joint venture New Venture Gear, manufacture the HM290, 5LM60, 3500, and HM282 and 284 five-speed transmissions, which started out as designs by the German manufacturer

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# Lubrication Guide

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- New Process Transfer Cases: 207, 208, 119, 129, 219, 228, 229, 231, 233, 241, 249, 128, 271, 273 – 5W-30 motor oil only
- New Process Transfer Cases: 243, 246, 136 – synthetic ATF only
- New Process Transfer Cases: 203, 205-75 – 90W gear oil only
- BorgWarner Transfer Cases: 1345, 1350, 1354, 1356, 1370, 4401, 4405, 4406, 4407, RA28 – Synthetic ATF only
- BorgWarner Transfer Cases: 4472, 4404 – 5W-30 motor oil only
- New Process 247 – Chrysler Part #05013457AA
- New Process 535 Transmission – GM Synchronesh Fluid part #12346349 only
- AX6, AX15 – GM Synchronesh Fluid part #12345349 only
- Peugeot BA10 – GM Synchronesh Fluid part #12345349 only
- M5R1, M5R2 – ATF only
- ALL T-5, all T-45, all T-56 – ATF only
- New Venture HM290, 5LM60, 3500 – GM Synchronesh Fluid #12345349
- New Venture 4500 – Castrol Syntorque Synthetic Gear Oil only
- ZF Truck Units S542, S547, S650 – Synthetic ATF only
- ZF Corvette Units S640 GM part #1062931, or Castrol RS only
- New Venture T350, A-578, Mitsubishi F5MC1 – Mopar M59417 MTX Fluid part #4773167 only
- Nissan FS571C etc. – 75-90W gear oil
- New Process 435 – 76-90W gear oil
- Muncie SM465-75 – 90W gear oil
- BorgWarner T-18, T-19 – 75-90W gear oil
- Tremec SMOD, SROD, TOD – ATF only.

**Courtesy of Rockland Standard Gear.**

Getrag. The C5 Corvette uses a T56 six-speed transmission manufactured by Tremec in Mexico and a rear differential made by Getrag. If you are still frozen in your thinking of import and domestic it would be best to put it behind you. The simple fact is that virtually every vehicle is a conglomeration of international parts and designs.

Lately I have received a great number of tech calls on manual transmissions and transfer cases involving shift problems and noise that are the result of the installing shop using the wrong lube in the gearbox. In doing some research I found many errors in various industry publications regarding which lube to use. Synchronizer design and function are much more complex and demanding today, and the oil used in the gearbox must be compatible with the design in order for the gearbox to function properly and provide the expected life span. The amount of research, testing and development that goes into every pint of lubricant is amazing. Do not make your own mixtures. The place to start is with the factory fill, and get the specs from the manufacturer.

I am listing here a guide to lube fill for the most-common units. This is not speculation, but the product of decades of testing in the real-world environment of commercial use, city driving and countless laps on the race track. The recommendations here reflect our real experience on units that have stood up under years of service and form the specified fill for our reman units to keep them under warranty. If a unit is not listed here, obtain the factory specifications from the service manual and use that lube only. After a repair, or in some instances if you are seeing the vehicle for the first time and are experiencing shift problems or certain types of noise, check for the correct lube FIRST. I would love to have a dollar for every unit that has been disassembled simply because the wrong lube was used. **TD**