MAY, JUNE 2011

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CENTRAL PETROLEUM COMPANY
Cleveland, OH Walcott, IA

CENTRAL NEWS

Issue 823

AUTOMATIC TRANSMISSION FLUIDS

BY BLAINE BALLENTINE

Choosing an Automatic Transmission Fluid used to be easier. One fluid could be made to meet Ford and GM specs, and the other manufacturers found those performance levels acceptable.

Then transmissions became more complicated, the EPA forced higher fuel efficiency standards, manufacturers sometimes took different directions, and now there are over a dozen different ATF specifications. The problem is that one fluid cannot meet all the various manufacturers' specifications[1].

Take a look at the viscosity requirements of a few of the more popular ATF specifications in Table 1. Obviously one fluid cannot meet them all.

Fluid	cSt@100ºC
Dexron® VI	6.4 Max
Mercon® V	6.8 min
Mercon® SP	5.5 to 6.0
ATF + 4®	7.3 to 7.8
SAE 20 Engine Oil	5.6 to 9.3

Supplemental Additives

The splintered ATF market is not much of a problem for the dealer that only services one car brand, but other oil change professionals are not going to stock half-a-dozen ATFs. Many times they carry a single ATF, and then add an additive that is supposed to improve performance or claims to turn one type of ATF into another. For example, the installer may have a drum or tank of obsolete, but still popular, Dexron® III/Mercon® ATF, and then use an additive claiming to turn that into Chrysler ATF+4®. It is cheaper than buying the genuine fluid, he does not have to stock half-a-dozen ATFs, and if there is a problem, it is probably far enough down the road that it will not be blamed on the fluid. The problem is that the ATF cocktail will not meet the manufacturer's specs.

You may be thinking that only a few unscrupulous installers do this, but the practice is prevalent. A recent survey indicates that over half of installers use ATF supplements—94% of rebuilders, 80% of service centers, and 64% of quick lubes add a bottle of stuff intended to enhance the properties of automatic transmission fluid or convert one type of ATF to another[2].

An interesting side note discovered in the survey is that even dealers may not use genuine OEM fluids. Although dealers tell their customers to use only genuine manufacturer branded ATF, a significant percentage of those same dealers has a less costly ATF meeting the manufacturer's specifications in the tank in their service garage.

The next question is, "Do the additives work?" If you think about it, it is impossible, for example, to turn Dexron® III/ Mercon® fluid into Mercon® V. Mercon® V requires both a lower cold temperature flow and better oxidation stability than regular Mercon®. This can be accomplished with a different base oil, but not an additive.

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It should be obvious that an additive can not overcome an inferior base oil.

Even so, lubricant chemical manufacturer, Infineum, tested several aftermarket supplements added to ATFs for anti-shudder durability, viscosity retention, corrosion resistance, and wear protection. The results showed that they had significantly poorer performance than the genuine OEM branded ATFs. No surprise there.

The surprising part is that some of these additives that are supposed to enhance performance, actually lowered the quality of the base fluid. In these cases, the owner would be better off using the wrong ATF without supplemental additives.

Multi-Vehicle ATFs

The need for an ATF that can be used in a broad range of vehicles is clear. Trying to pump up an inferior ATF with supplemental additives does not work. The better approach is to use a well formulated multi-vehicle ATF.

The specifications are still mutually exclusive, and a single fluid cannot directly meet them all. However, a single fluid can be made that meets the oxidation stability requirements, the shear stability requirements, the cold flow requirements, and the wear requirements of all of them. A single fluid can be made to transfer the power smoothly through the frictional materials, and maintain that anti-shudder performance for an extended drain interval.

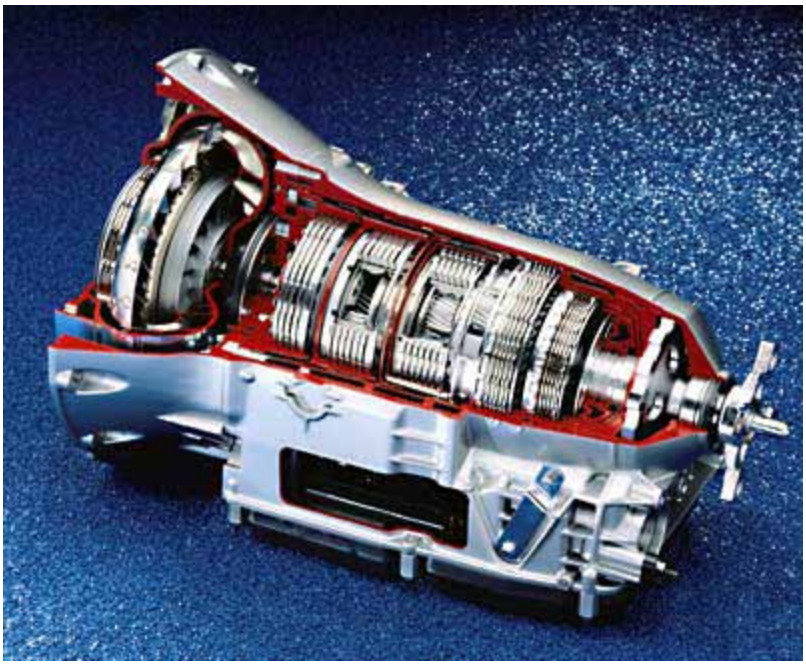
Cen-Pe-Co Synthetic Blend ATF

Cen-Pe-Co Synthetic Blend ATF is such a fluid. Although it is called "Synthetic Blend," it is made with 100% synthetic base oil to provide both superior low temperature flow and improved oxidation stability. The high viscosity index of the synthetic base stock means less viscosity improver is needed, which helps in providing outstanding resistance to viscosity loss. Although frictional characteristics are from additives, base oil is a big piece in the puzzle of maintaining shift performance throughout a long drain interval, and synthetic base oil offers an advantage here as well.

The trend in ATF viscosity has been thinner. With vehicle manufacturers bumping up against the limits imposed by the EPA, they are looking for anything that will help them achieve better fuel economy, including thinner ATF.

Cen-Pe-Co Synthetic Blend ATF falls in line with the viscosity requirements of the majority of automatic transmissions on the road at about 7.5 cSt. It does not meet the requirements of some of the thinner ATF specifications, as noted on our Product Data sheets. However, we still recommend Synthetic Blend ATF in these applications calling for thinner fluids. Its higher viscosity may sacrifice an incredibly small amount of fuel efficiency that no consumer could even measure, but that same higher viscosity does a better job of keeping rotating parts away from each other to reduce wear.

We have dragged our feet on recommending Synthetic Blend ATF in Dexron® VI applications because we wanted to be absolutely sure of Cen-Pe-Co Synthetic Blend ATF's performance in GM's clutch-to-clutch 6-speed transmissions. After reviewing additional data that became available recently showing clutch engagement characteristics, we are now very comfortable in recommending it in Dexron® VI applications. In fact, testing indicates that retention of the frictional characteristics is better with Cen-Pe-Co Synthetic Blend ATF than Dexron® VI. In other words, a transmission using Cen-Pe-Co Synthetic Blend ATF will continue to shift smoothly longer than a typical Dexron® VI fluid.



Regular VS. Synthetic Blend

We are occasionally asked which is the better ATF, Cen-Pe-Co Automatic Transmission Fluid or Cen-Pe-Co Synthetic Blend ATF? While we have heard field reports of reduced temperatures using Cen-Pe-Co Automatic Transmission Fluid compared to

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Dexron® III fluids, we have not had a direct comparison of Cen-Pe-Co Automatic Transmission Fluid with Cen-Pe-Co Synthetic Blend ATF.

Recently a test was performed that helps answer the question[3]. Three ATF formulations were tested in heavy duty transmissions in commercial buses in city service – Dexron® II, Dexron® III, and a multi-vehicle ATF sharing the same core chemistry as Cen-Pe-Co Synthetic Blend ATF.

Each fluid was run in three transmissions. Oil changes were at 18,600 miles, with samples drawn every 6,200 miles. The test was a nominal 225,000 miles with inspections at 75,000 miles.

The Dexron® III fluid lost viscosity. It sheared 14% more than the other fluids.

Dexron® II fluids are typically SAE 5W-20 and Dexron® III fluids 0W-20. To make Dexron® III, you typically start with a thinner base oil and add more Viscosity Index Improver than Dexron® II. Since Viscosity Index Improvers are made of polymers, that shear, it makes sense that the Dexron® II, showed better viscosity control. Perhaps maintaining a higher viscosity is why we received the field reports mentioned earlier of lower temperatures with Cen-Pe-Co Automatic Transmission Fluid than other brands of ATF.

Cen-Pe-Co Synthetic Blend ATF is made with synthetic base stock. Although it is like an SAE 0W-20, the high VI (viscosity index) synthetic base stock does not require as much polymer. It will hold its viscosity better than a typical automatic transmission fluids. So, if our theory about temperature and viscosity is right, we can anticipate lower temperatures in heavy duty service with Cen-Pe-Co Synthetic Blend ATF than most automatic transmission fluids.

The buses used in the transmission oil test have wet clutches. They are multi-plate clutch packs immersed in ATF. In severe duty applications, uneven load distribution can cause hot spots. These hot spots cause localized glazing of the frictional material, and/or degradation and loss of material. Needless to say, this shortens the transmission life as it leads to shifting problems and eventually no shift at all.

After 75,000 miles, evidence of six clutch hot spots was observed in the transmissions running Dexron® III, and five hot spots were observed in the Dexron® II transmissions. The transmissions using the multi-vehicle fluid had no hot spots after 235,000 miles.

The transmissions also have brake retard clutches. These clutches were in better condition with the multi-vehicle fluid than Dexron® III or Dexron® II, even at triple the mileage.

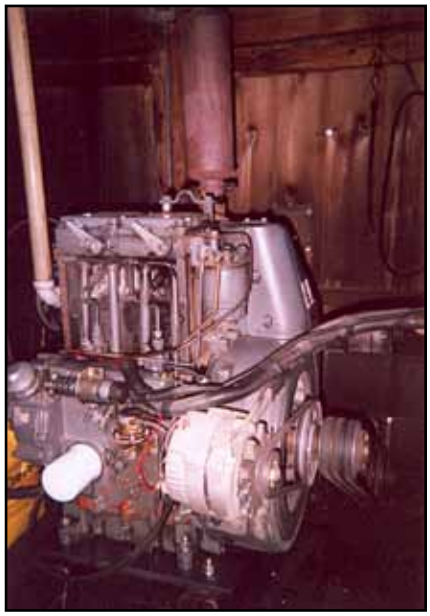
The bus test confirms what we already knew, that Cen-Pe-Co Automatic Transmission Fluid will outperform typical Dexron® III products in heavy duty applications. Further, we can expect Cen-Pe-Co Synthetic Blend ATF to provide even longer lasting shift performance in heavy duty applications than Cen-Pe-Co Automatic Transmission Fluid.

Conclusion

There are a few oddball automatic transmissions, such as Ford transmissions from the 1970s or Continuously Variable Transmissions, where a multi-vehicle ATF will not work. It is always a good idea to check the owners manual and our Product Data sheet to be sure of the recommendation. However, Cen-Pe-Co Synthetic Blend ATF will provide better wear protection, longer lasting shift performance, and longer drain intervals in the vast majority of automatic transmissions.
ou have some vehicles with blue ovals on them, others with bow-ties, and still others with various other emblems and logos, Cen-Pe-Co Synthetic Blend ATF is one fluid that will reduce wear in all of them.

Notes
Dexron® is a registered trademark of General Motors.
Mercon® is a registered trademark of Ford.
ATF+4® is a registered trademark of Chrysler.

References
1. "ATF's Changing World," by Clarence B McCollum, Lubes-N-Greases 8/2008, p 28.
2. "The Quest to Reduce Complexity, Inventory, and Cost," Infineum Insight, 9/2010, p 10.
3. "Proof of Performance Unveiled for Commercial Vehicle ATF" by Dave Pristic, Lubrizol Fluidline 1/2011



Special thanks to Joe Harmon, MI for sending in this outstanding testimonial from one of his customers.

I was asked to write a little testimony from my Cen-Pe-Co dealer Joe Harmon for the Diesel engine in the picture. My Dad installed the diesel brand new when the barn was built in 1981. Out side of having a cracked head while still under warranty, which Lister Diesel replaced, it has never been off the block. Dad retired in 2001. My brother & I purchased the farm and moved our cows in and the diesel Kept on going 2 times a day for the last 24 years with a total of 8800 days! He averages almost 5 hours running time every day for a total of over 40,000 hours!! It has never had a wrench on it except for minor adjustments. It has never had anything in the Crankcase but Cen-Pe-Co oil. We burn 10 weight in winter & 30 weight in Summer. I think Lister makes a good engine but I give a lot of credit to Cen-Pe-Co. I would not even consider any other brand of oil. We burn Cen-Pe-Co oils in 10 engines on the farm from the smallest 2½ horse Honda to our 90 horse tractor. I Purchased my first tractor in 1991 & it used a little oil but after having it on Cen-Pe-Co it does not use any oil today. Cen-Pe-Co works good for us & I hope it will always be available.

Romayne & Herman Graber