

WHAT OIL SHOULD I BE USING IN THE HYDRAULIC SYSTEM OF MY TRACTOR?

The most truthful answer is to tell you exactly what every Operator's Manual printed by Colt, Case and Ingersoll has said about this question.

The correct oil is 20W40 motor oil for warm weather use. In really cold temps it is permissible to use 5W20 but that grade is a bad choice once the ambient temperature rises above the freezing point of water.

The simple answer to this question is: *"Any high quality motor oil of a suitable grade because 20W40 motor oil is nearly impossible to find these days except at an Ingersoll dealer for about \$10.00 per quart."*

So, just what are the suitable brands of motor oil?

One such oil is made by Shell Oil and is their Rotella T brand. Rotella is formulated to exacting standards for use in diesel engines. Rotella is often easy to find at places such TSC or Sam's Club or WalMart due to its high acceptance by the heavy truck industry.

Are there other brands besides Shell's Rotella T? Absolutely. Chevron's Delo is an excellent alternative. Well-known brands such as Mobil 1, Havoline, Sunoco, Pennzoil, Castrol, Valvoline, Quaker State, Kendall and others should have oil that is EQUAL in rating to the Shell product. Any jobber should have a chart for the brand of oil s/he is selling that will show which one crosses over to the Rotella made by Shell.

But is it necessary to use oil formulated for diesel engines?

It's not an absolute necessity but the approved diesel oils often contain higher amounts of anti-wear additives and detergent than oils that are formulated for gasoline engines. However, there are high quality motor oils for gasoline engines that I would not hesitate to use.

Will using diesel grade oil make a difference?

Good question. As far as I'm concerned, there is no definitive answer because no one has ever performed any real world tests that would prove diesel engine lubricants superior to gasoline engine lubricants when used as hydraulic oil.

However, the hydraulic system does have a gear pump and gerotor or geroller type motor. In addition, the tiller, brush cutter, finishing mower and chipper/shredder all use gerotor/geroller motors as well.

And if you have a AH 3100/4100 series, then you can add the deck and snowblower to the list of motorized attachments. As such keeping wear to a minimum is desirable.

In my opinion, changing the oil or filtering the oil is far more important than whether the oil has the most additives in it. Therefore, I don't get too hung up on that issue.

What grade or viscosity of oil should I use in my tractor?

Moving now to viscosity or thickness or weight of the oil.

As a tractor owner, there are choices you can make based upon where you live, how you use your machine and the ambient temperatures the machine will be operated in.

The weight of oil suggested by the factory is 20W40 because it can be used successfully in a wider temperature range than a straight grade. If the tractor is used only in warm weather in areas with four seasons or in climates where the temperature never drops below freezing, then straight grade 30 will work just fine.

However, for most people, a multi-grade oil, such as 15W40, 20W40 or 20W50 that can be left in all-year around is usually better if they have warm summers that can hit the high 90's F and cool winters that rarely get colder than 15 degrees F.

Multi-grade oils behave differently than straight grades do, thanks to the “modifiers” blended with the base stock of oil. At low temps, multi-grades act like the first number in their

designated grading and at engine operating temps, they perform like the last number in the designation of the grade.

This means that 15W40 oil will flow or pour like a 15 weight straight grade at 32 F but when the engine is hot, it will protect like a 40 weight straight grade.

For temps that drop lower than 15 F, then 10W30, 5W30 or even 0W30 are optional and often a very good idea. The key number is the last one and that is 30 because you definitely want your oil to behave like a 30 weight oil at minimum when it is at operating temperature.

Should I use synthetic oil?

It's not necessary but, if that's what you want to do, go ahead. Synthetic will work just fine and offers better cold winter performance than dino oil does. However, keep the following in mind when you are making this decision.

Only the newer Ingersoll tractors come equipped with a hydraulic oil filter. The older machines **rely** on the owner doing hydraulic oil changes every 500 hours MAX in order to remove

contamination and harmful particulate from the system.

But, if you look carefully at that chart, it also tells owners that the oil should be changed annually. In other words, the 500 hour rule is there for commercial users who can easily put that many hours on or more, in a single year.

The average homeowner puts about 50 hours per year of use on their tractor and to leave that oil in the system for ten years to hit the 500 hour oil change point would be absurd. This is where the dilemma regarding dino vs synthetic oil comes into play because synthetic costs more.

Cost aside, there is no question that synthetic oil is a much better choice if the tractor is subjected to temps that are close to 0 degrees F or lower. At that point, cost becomes a secondary issue to ease of starting and ensuring good lubrication.

For those who prefer a synthetic and don't mind paying the price, then Amsoil, Mobil 1, Red Line, RoyalPurple, Pennzoil, Motul, DuraLube, Castrol, Kendall, Valvoline, Quaker State and Havoline are all out there vying for your hard-earned bucks

CAN I USE OTHER TYPES OF OIL?

If you mean oils that are not true motor oils, then the answer is absolutely not. If you want the best performance from your tractor, you must use motor oil.

Other oils, such as those that are labeled as hydraulic oil, auto transmission oil or any oil other than motor oil will cause your tractor to lose ground speed as the oil gets warmer. Your tractor's hydraulic system relies upon having oil that is highly stable at all temperatures so that it can maintain the rated viscosity or weight. Only motor oil can deliver that performance.

Since the oil in the hydraulic reservoir is not only the lifeblood of entire hydraulic system but it is also the equivalent of the driveshaft in your car. The oil is what transmits engine horsepower to the drive motor that spins the rear wheels by way of the trans-axle. The oil is what lubricates and cools all the expensive parts in the hydraulic system. It is also the least expensive and easiest component to change out. New pumps will cost you around \$200.00 minimum and drive

motors can range right up to the \$1000.00 mark. Those are component prices. Labor is extra. Weigh those prices against the cost of annual oil changes.

The foregoing article is the personal opinion of Tom Arnold. Readers are free to accept or reject any part of the article or all of the article, as they see fit. It is up to the reader to perform his own due diligence prior to choosing the oil for his/her tractor.

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Absolutely.

Mobil's Delvac, Petro-Canada's Duron and Chevron's Delo are every bit as good and are direct replacements for Rotella.

Texaco and Chevron are the same company but Texaco has the Havoline brand and offers 15W40 and 20W50 diesel grade oil.

Quaker State is a division of Shell Oil and does not market oil for diesel engines.

Pennzoil does not market oil for diesel engines either.

20W50 Grade

For years, I have been advocating 20W50 over 15W40 on the forum. Back in 2004, Bill Parkin (chief engineer for Ingersoll) and I had a lengthy conversation and oil choice was one of the topics. It was Bill who told me that 20W50 was a far better grade to use than 15W40 and that if 20W50 was unavailable, then choose straight grade 30 as the alternative. Members who were using 15W40 and then switched to 20W50 have reported an increase in ground speed.

The 15W40 is made by Shell but 20W50 is not. However, the straight 30 weight can be had from Shell but due to the high acceptance of multi-grade oils, you need to hunt harder to find it.

Places that cater to the heavy trucking industry or heavy equipment industry are more likely to carry the straight weights than local retailers selling to car owners. You can also go online to Shell's Rotella website and use their dealer locator feature or you can telephone their customer service people. For alternative sources of suitable oil, I offer the following brands. While it is true that Rotella, Duron, Delvac, Delo and Havoline are made to a high standard for diesels, almost all of the oils used in gasoline engines do contain anti-foaming additives and anti-wear additives. Choose one that you know can be found locally and then go to their website to download the spec sheet for it.

Amsoil makes a 20W50 oil that is used in diesel applications.

Red Line has a 20W50 grade synthetic.

Valvoline Turbo offers 20W50 diesel grade.

Royal Purple has 20W50 diesel grade.

Spectro Performance Oils offer 20W50.

Conoco-Phillips-Kendall have several diesel oils available

Texaco Havoline 20W50

Pennzoil 20W50

This particular grade of oil is used widely in the garden tractor industry. HydroGear, a company that makes hydrostatic trans-axles for many well-known brands (Scag and BadBoy) spec's 20W50 for their units.

Winter warm-up in sub-zero temps will take longer than with lighter grades but most people should be able to run this grade year-round.

I do not recommend anyone choosing "house brand" or "off brand" motor oils for this application because while those oils do come from one of the major oil companies, they are blended for the purchaser who is trying to meet a certain selling price. That makes me wonder as to what may be left out of those blends even though they have certain spec numbers on the label.

What about the winter time?

For most people, multi-grade oil, such as 15W40 can be left in all-year around if they have warm summers that can hit the high 90's F and winters that rarely get colder then 15 degrees F.

Start the tractor up with the trans-axle in neutral and then push the travel lever fully forward. Leave the tractor running at quarter throttle for 15 minutes and the fully circulating oil will warm up to the point where it is highly fluid.

For temps that regularly drop lower than 15 F, then 10W30, 5W30 or even 0W30 are optional choices. The key number is the last one and that is 30. The W stands for winter in multi-grade oil. The first number or numbers indicate what viscosity the oil should act like when it is cold, thanks to the modifiers that were added to the base grade during blending. However, when things warm up, remove the multi-grade with the 30 number. Go back to the 20W50 preferably or the straight 30 as the second choice. I know that seems weird but it is my understanding that the straight 30 holds its viscosity much better than any multi-grade that has 30 as its last number. I will not tell you that you shouldn't run 15W40 because many owners do use this grade and are content with its performance.

CAN I USE SYNTHETIC OIL?

Sure, if that's what you want to do, go ahead. Synthetic will work just fine and offers better cold weather performance than dino oil does. However, keep the following in mind when you are making this decision. Only the newer Ingersoll tractors come equipped with a hydraulic oil filter. The older non-filtered machines RELY on the owner doing a total change out of the hydraulic oil every 500 hours MAX or ONCE A YEAR in order to remove contamination and harmful particulate from the system.

Oil is the lowest cost part in a hydraulic system. It is also the very thing that lubricates and protects all of the other parts. And lastly, oil is the easiest item to replace from a labour/time standpoint. The only objection that I have against synthetics is that owners will form a belief that changing their hydraulic oil annually isn't necessary thanks to switching over to synthetic. This would be a huge error. Synthetic oils can get just as dirty and contaminated as dino based oils do when there is no filter to remove that stuff.

OTHER THAN MOTOR OIL, WILL ANOTHER TYPE OF OIL WORK?

Absolutely not. Do not introduce anything into your hydraulic system other than the correct grade of motor oil.

If you want the best performance from your tractor, then adhere to the recommendations above. Hydraulic oils, auto transmission fluids or any oil other than motor oil will likely cause your tractor to lose ground speed as they get warmer. Your tractor relies upon having oil that is highly stable when it comes to maintaining rated viscosity or weight. Only motor oil can deliver that performance.

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