



# Tech Articles

**By: Ray Dyreson**

## **Just An Oil Change**

Ask the general public about auto maintenance and you will most likely hear about the oil change. Thousands of businesses have sprung up in the last thirty years just to do oil changes. The perception is that if you just change the oil and filter you have taken care of your car. There is an old proverb about auto service, "When requesting service you may choose two of the following: good, fast or cheap." If you choose fast and cheap you are not going to get good. I am not demeaning the quick lube businesses; they do give fast and cheap oil changes, but, is that what you really want? This brings up an old saying, "If you want it done right, do it yourself".

Over my fifty years of collecting and servicing cars, I have come up with some "old sayings". These include, "If you have to mow the grass you don't have enough cars", "There is nothing more useless than a new truck", and for this article, "The most important part of an oil change is not the oil change". While changing the oil and filter is certainly necessary, of more importance are the other things that get checked at the same time. Our Fieros are more than just a car for transportation, we actually like them and want to take good care of them. This means doing the servicing ourselves. I would bet most of you do your own oil changes and enjoy it. Of course it takes time if you choose cheap and good. I typically spend one to two hours to do a full "oil change".

First, when to do an oil change? I remember the 1950's when Havoline introduced a "new" oil. They advertised it as the "thousand mile oil". Then as time and technology progressed, the industry standard for years was to change the oil at 3 months/3,000 miles. Nowadays with the advent of synthetic oils and government intervention this is being changed to 7,500 or even up to 15,000 miles for some new cars. I still believe in the old 3,000 mile idea, not because the oil couldn't last longer but because other things need to be checked. I manage an auto service shop and I see that when the average driver hears they don't have to change the oil for 7,500 miles they don't check anything else for 7,500 miles either.

What oil to use? This is like discussing politics. Everyone has their own opinion. It used to be simple. Straight weight or multi-grade? Now you have synthetic, synthetic blends, high mileage etc. and a confusing choice of additives promising amazing things. Most of us have a brand loyalty, started when we first began playing with cars. For years I used only one brand. Now so much has changed with new base stocks, additives and government regulations that my "old favorite" isn't what it used to be. So I use any name brand regular oil in the 5W30 viscosity.

Now to discuss the proper procedure to change the oil. Run the engine or better yet drive the car enough to get the oil warmed up. You want it warm and circulated enough to get more of the solid particles suspended in the oil but not so hot it burns your hands. Now is a good time to check the automatic transmission fluid while the engine is running. Jack up the front and rear of the car and try to keep it as level as possible. Always use jack stands. Remove the oil filler cap to allow air to enter the crankcase, which in turn allows the oil to drain faster. Have a drain pan ready. The best type is a plastic one that is molded with a shallow funnel top built in and a drain spout on the side. Next remove the drain plug. The best tool to use is a 6 point box end wrench but these are getting hard to find. Second best is a good quality 12 point wrench. I don't recommend a ratchet and socket because it tends to twist and slip on the drain plug. If you must use a socket use the shortest 6 point one you have. If you have an '88 4-cylinder, the drain is a large cap that unscrews with a 24mm socket and exposes the internal filter so some of the following information may not apply. Unscrew the drain plug and drop it into the drain pan. Just kidding. If you are using my recommended pan, the plug won't fit through the small center drain hole anyway. Now unscrew the oil filter after making sure the drain pan is positioned to catch the filter oil that will drip out as well as the drain plug stream. The best way to unscrew the filter is a proper size filter socket but the compressing band style filter remover or even large slip joint pliers will work. While the oil drains it is time to do some of the other important things.

Check and top off all the other fluids. Don't forget the manual transmission fluid. If you have a Getrag that's easy as they have a dipstick. Others like the Isuzu are harder, some requiring removing the speedometer speed sensor. On these, check for any transmission leaks and if you see none you may assume the transmission is full. Check the air filter and replace if needed. All the while be on the lookout for anything wrong like wires rubbing, parts falling off, broken wires etc. Inspect the battery for loose terminal bolts and corrosion buildup. With the infamous GM side terminals, corrosion can be difficult to see. If in doubt remove the cable ends from the battery and clean them. If the

stubby bolts are corroded, don't bother cleaning them get new ones (GM # 12354949). Always use only the proper battery bolt as a normal bolt even slightly too long could puncture the battery case. Inspect the belts for looseness, fraying and glazing. Look around the water pump for coolant leaks and wiggle the pump pulley for any bearing play.

Check the lights. So many cars on the road have a light burned out. Even at car shows I see a nice car or two with a light out. How long has it been since you've honked the horn? Try it. Check the wipers. Don't overfill the washer tank fluid as hard cornering will cause some to leak out. While the wheels are off the ground wiggle them in and out at the top and bottom to check for bearing play, especially on the front of '84-'87 cars. Wiggle the wheels in and out from front to back to check for tie rod and ball joint play, especially on the rear of '84-'87 cars. Look through the wheels for a glimpse of the brake pad thickness. Spin each wheel by hand to check for a binding brake. Check tire condition and pressure including the spare. While under the car inspect for coolant leaks where the brackets touch the side coolant tubes. Inspect the brake, fuel and auto transmission cooler lines for rust and leakage. Under the front inspect for rusty radiator braces and steering rack mounting brackets. Check the radiator for damage and leaks.

Now for the lube part of a lube, oil and filter. Using a hand grease gun, lube all the tie rods and ball joints that have grease fittings. Using a water resistant spray, lube the door, hood and trunk hinges and latches. Put some graphite lock lube into the ignition, rear lid and door locks. Wipe the door and trunk weather-strips with rubber protectant.

By now the oil should have drained completely. Inspect the drain plug for stripped or stretched threads. Have a new plug available if you need it. All 4-cylinders use a 12mm X 1.75 thread (Dorman # 090-034) except 1988. Six cylinders used a 1/2-20 thread (Dorman # 090-052) in '85-'86 and switched to the 12mm X 1.75 for '87-'88. Always use a new sealing washer. These are available in aluminum, plastic, copper and rubber in steel. I prefer the steel type that has a molded in rubber seal (Dorman # 097-021) (Image 1). Tighten the drain plug just enough to seal. There is a torque spec of 25 foot pounds but after a few years you learn to just feel it. Now look on the old filter and make sure it has its rubber gasket still attached. If not, look on the sealing surface on the engine as sometimes it sticks there and will cause a "double gasket" leak. The AC Delco oil filter was originally a PF47. As part of the 2.5L recall this was changed to a PF52 that is a bit longer to give a little more oil capacity. Later versions of the PF52 were even longer. All engines should now use a PF52 except the 1988 four-cylinder that uses the internal cartridge part # PF1072 (Image 2). Wipe the gasket contact surface on the engine. Hold the filter at the approximate angle it will be in on the engine and pour in just enough oil to come up to the center hole. This will reduce the time the engine starves for oil on first startup. Wipe some of the oil on the filter gasket and screw on the new filter until the gasket touches. Tighten the filter by hand another 1/2-3/4 turn. Fill the engine with oil using a funnel or pour spout. Start the engine and let it run for 15-30 seconds. Shut it off for a minute and check the dipstick. If the level is OK run the engine again while checking for leaks, then lower the car off the stands. Either use a reminder sticker or somehow note the date and mileage so you'll know when to do this again.

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