

MOTORCARS DIESEL VS GAS?

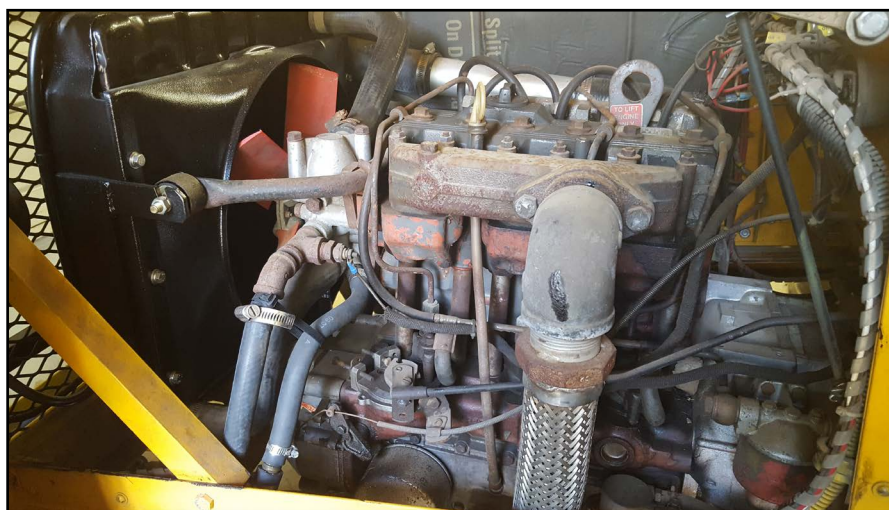
BY PHILIP L. HOPPER

Often people ask me why I have such a fixation on owning diesel powered motorcars. It is the result of a series of events. My first motorcar ride was on a popper. After nine breakdowns in less than eight hours, I decided that I would ride several motorcars before I made a purchase. I immediately crossed poppers off my list permanently. My second ride was on an A-4D with the Ford 4-cylinder gasoline engine. I liked the dependability of the Ford engine and the reliability of the four speed transmission with the reversing rear end. Over the next six months I did ride several other motorcars and decided I wanted a large motorcar with a four-speed transmission.

The first motorcar I actually went to see and consider buying was an A-4D with the 3-cylinder Lister-Petter diesel. After a 20 mile run, I purchased the motorcar and hauled it back to Texas from Maine. This was the beginning of my love and appreciation for diesel engines. Over the next three years I purchased three A-4Ds, one A-5E and two MT-14Ls with diesel engines. The motorcar fleet represents three major companies: Kubota, Mitsubishi, and Lister-Petter. Isuzu and Deutz diesel engines can also be found in motorcars; however I do not have direct experience with these engines. So what are the “pros and cons” of diesel engines?

PROs:

There are several advantages of running diesel engines. First, the engines are very dependable because they do not have an ignition system so there is no maintenance of points, spark plugs, condensers, coils or ignition wires. The diesel engines rely on very high compression ratios (at least 20:1) to ignite the fuel; therefore,



the components are often much more rugged than gasoline engine components with lower compression ratios. Diesel engines are very fuel efficient and produce high torque at all engine speeds. Be-

cause the engines have heaters in each cylinder to assure good fuel vaporization, they are very easy to start even at very low temperatures. This was probably a major factor for the Canadian railroads converting many of their motorcars from gasoline to diesel.

One of the most common problems experienced on motorcar runs is related to the fuel delivery system. Original factory fuel pumps often fail so most people have installed electrical fuel pumps to ensure a positive fuel flow at varying motorcar speeds and through one or more fuel filters. The diesel engine uses a large mechanical pump mounted directly on the engine. Most of these pumps pressurize the fuel to over 2,000 psi to ensure proper fuel dispersal through the injectors and into the cylinders. Fuel flow in diesel engines is seldom, if ever, a

problem.

Diesel fuel has many unique properties which make it preferred over gasoline. Diesel fuel is not readily flammable and generally won't ignite even if it directly contacts hot manifolds or exhaust pipes. Diesel fuels do not contain additives such as alcohol which can raise havoc with fuel system components. As most people have experienced with their trimmers, lawn mowers and other gas-powered engines, gasoline has a short shelf-life and goes "flat" after 30-60 days. The "flat" gas will have a very distinct smell because the lighter hydrocarbons in the gas have evaporated and the gas will be hard to ignite in the engine. Diesel fuel, unlike gasoline, does not go "flat" over time.

The majority of the motor cars with diesel engines utilize a radiator for cooling. The German Deutz is the only exception I have ever seen. The Deutz engine relies on forced air cooling. Most of my motorcars seldom exceed 165 degrees water temperature even at increased loads, steep grades or high outside air temperatures. Diesel engines with radiators can be stationary and run without overheating for hours. Try doing the same thing with an air cooled Onan CCKB on a 100 degree day!

Once the diesel engine is running it is basically self sufficient and doesn't need a battery. The diesel engine has no ignition to fail, has a mechanical fuel pump to provide a continuous fuel flow, will continue to run until the fuel cut-off is actuated and it runs at any altitude. There is no carburetor to tune because fuel is injected directly into the cylinders at over 2,000 psi at any altitude. If you are lucky enough to have a



Kubota diesel, you also have a hydraulic pump on the engine. This can be used to power the motorcar turntable without having to provide a separate pump.

Technical manuals and parts listings are reasonably easy to obtain and a MUST HAVE! Many dealers do not have part listings for these older engines. Be sure to save all receipts for parts for further reference. I maintain a separate binder for each motorcar I own that contains all the records for that motorcar. Make sure the receipt is easy to read with all the necessary

information needed to reorder the specific part. If the receipt is incomplete, put the part box label in the binder.

CONS:

Now that we have examined the positive aspects of diesels, let's look at the other side of the coin. Probably, one of the biggest drawbacks to owning a diesel is the availability of knowledge and expertise concerning diesel engines. The majority of the diesel engines found in motorcars were made for industrial applications and finding a reliable source of parts and information may be very difficult. If you visit your local Kubota, Isuzu, Mitsubishi or Lister-Petter dealer and inquire about parts or information concerning motorcar diesels you will see the dealers look at you with the "deer in the headlights" look. They have no clue about the engines because most of them were made 15-20 years ago and had industrial applications only. You need to find someone in the motorcar hobby or diesel engine mechanic that has worked with these engines.

Be sure to purchase the proper parts and main-

tenance manual(s) for the engine(s) that you have. The parts manuals are very specific for only certain engine serial numbers. The manuals indicate where to locate the engine serial number. The numbers can be difficult to find and very hard to read. Locate and record the engine serial number for each engine you have. When you go to order parts, the salesperson will insist on having the engine serial number before placing an order.

Purchasing diesel engines and their parts can really empty your wallet in a flash! I recently purchased a new Kubota Z-602 two cylinder engine for my narrow gauge MT-14L. The complete engine assembly with a radiator cost \$4,500. Most of the injectors I have ordered for other motorcars have cost from \$150 to \$400 each (plus shipping). Many of the parts are not available in the United States, must be ordered abroad, and may take months to obtain.

Even though diesel engines are extremely efficient, you generally can't rely on other operators to provide fuel if you run out. Carrying extra diesel fuel is vital. You definitely do not want to run out of fuel. If this should happen the fuel system must be purged of air. The purging process usually requires "cracking" each individual injector line open and actuating the manual fuel feed pump (if the engine has one) or turning the engine over with the starter, to expel the air from the lines. Once the

air is purged and all the lines are tightened, the engine will start.

The diesel engines tend to have a very high profile so they will not fit in a standard motorcar without extending the engine compartment upwards about 10 to 12 inches. The engines will be noisier and heavier than equivalent gasoline engines. The engine weight might not be a factor for most applications, but it will certainly influence the spring selection in motorcar suspension systems.

CONCLUSION

Your decision to run a gasoline or diesel engine should be based on many factors. Examine your finances, where you run your motorcar (altitudes), availability of reliable maintenance, the size of the motorcar you desire to operate, and short supply of diesel powered motorcars on the market. Weigh all the factors and then make an informed purchase. Either way (gas or diesel), enjoy your purchase!

