

THE DEMAND FOR DIESEL

by Dennis Bourgoïn and Tom Kane

The need for exceptional durability and long-term reliability without costly downtime is not new for the landscape industry. However, the trend toward compact, lightweight, high-speed diesel engines to handle landscape equipment applications, is.

Initially, there was reluctance to accept diesel power for smaller turf equipment. The primary engine used for landscape mowers was the air-cooled gasoline engine because it was lightweight and compact and offered a high horsepower-to-weight ratio. Without a cooling system to maintain, it was the exclusive choice to power turf equipment until the emergence of the small, lightweight, liquid-cooled diesel engine.

The major difference between gasoline and diesel engines is the method used to ignite the fuel/air mixture.

● A diesel engine introduces air only into the cylinder for compression, then injects a precisely-controlled amount of fuel into this red-hot compressed air. The burning of this expanding mixture acts on the pistons, turning the crankshaft, thereby producing horsepower and torque.

● In a gasoline engine, the air and fuel are mixed in the carburetor. At the proper time this mixture is ignited

by the ignition system and spark plugs. From this point on, the power and torque are derived in the same way as a diesel.

Although both engines appear to be similar in the way they produce power, there are some subtle but im-

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portant differences. Diesel engines compared to air-cooled gasoline engines offer several advantages:

Heavy-duty components. Diesel components are designed and built stronger to withstand the strenuous demands of the engine's higher compression ratios and inherent higher cylinder pressures. Longer engine life and durability are the benefits.

Lower fuel consumption. Engine heat is used more efficiently by diesels, resulting in less fuel consumption and longer mowing time between fills. Typically, diesels are 30 to 35 percent heat-efficient whereas air-

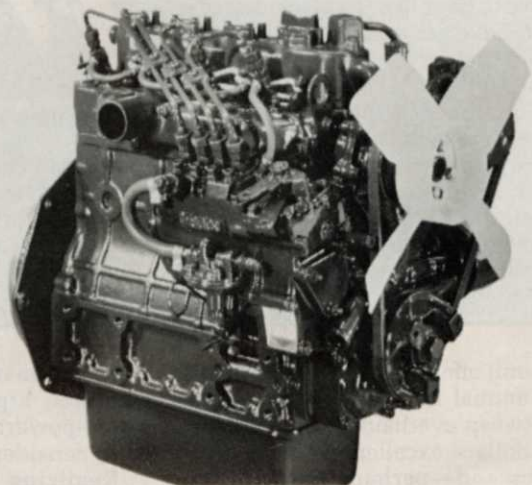
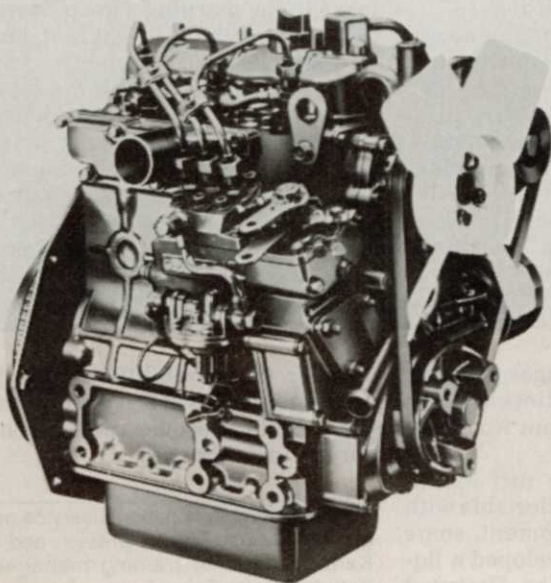
cooled gasoline engines are approximately 25 to 28 percent heat-efficient. This savings is realized not only in annual fuel costs but also saves labor dollars spent on frequent refueling and downtime.

Less maintenance. With no ignition system on a diesel to tune, this potential failure point is eliminated. The carburetor, another potential failure point, is totally eliminated on a diesel. No adjustments are normally needed on a diesel if due care is given to the fuel filter, oil changes and air cleaner system. A diesel will outlast gasoline units if good service maintenance procedures are practiced.

Torque characteristics. The torque curve on a diesel engine is generally flatter than a gasoline engine torque curve. This means that the torque does not drop off excessively at lower or higher rpms. The benefit to the landscaper is powerful cutting even in wet conditions.

Fuel. Diesel fuel (#2D) does not readily ignite. It is safer to handle and can be stored over long periods of time, even over a season. Diesel fuel also helps lubricate some of the engine parts further, adding to the life.

Although the initial purchase cost is higher for diesel-powered equipment than air-cooled gasoline units, the up-front investment is often returned. The



Diesel (left) or gasoline (right) engine for your landscaping equipment? More contractors are finding the benefits of diesel engines outweighing those of gasoline engines.

What the industry is saying: To diesel or not to diesel?

It is no longer myth but fact: diesel power is catching on in the lawn and landscape industry.

"Kubota is the overall dominating diesel engine," says Mark Martin of DeBra Turf Equipment, Ft. Lauderdale, Fla. "Kawasaki is big in walk-behind rotaries, but Briggs & Stratton is just in the small stuff now."

When buying equipment, various factors must be considered by the prospective buyer, beginning with initial cost. Gasoline engines, of course, are less expensive out the door than diesel. Other considerations:

- horsepower;
- torque;
- physical size of the engine;
- noise level;
- serviceability;
- dependability;
- parts availability;
- cost of replacement parts; and
- use level (how many hours per week?).

Here is what some industry people are saying about diesel and gasoline engines:

Bill Lee, director of marketing for commercial equipment, Deere & Co.: "We believe that small operators may want to look at liquid-cooled gasoline engines. They are more durable now than when they first came out. In the mowing contractor market where you're not doing that heavy drafting or heavy loading, the mower will wear out its moving parts before either diesels or liquid-cooled gasoline engines. And you don't necessarily have to have 'gas hogs' just because you have gas engines.

"What it comes down to is that, if a guy's fleet is all gas and the business is doing well, he probably won't make the change. If the organization has already begun to make the transition to diesel, it will continue to drive toward diesel."

Michael Currin, Greenscape, Fayetteville, N.C.: "We are repre-



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Greenscape
Fayetteville, N.C.

sentative of a lot of landscape contractors. Many of our vehicles are bought second-hand and that affects whether we buy gas or diesel. We very rarely buy new vehicles or tractors. We just can't justify it. So usually, we don't have a choice.

"The big problem we found with diesels is their air filters. If people don't pay attention to that, they're in trouble."

Ron Kujawa, KEI Enterprises, Cudahy, Wis.: "We're switching



Ron Kujawa

to diesel in all our vehicles one ton and above. On our large out-front mowers, we believe the Kubota 340 engine (28½ hp) is outstanding. It puts out so much torque that it's comparable to a larger engine.

"Diesel engines have more torque and less maintenance. There is a higher initial cost, but we feel it's worth it. If there's a drawback to diesel power, it's that you have fewer places to get the fuel.

"But the first-time buyer of used equipment will be relegated to what's available, and that will most likely be gas power."

"Diesel is the way everybody would like to go," adds Martin. Not everybody has the money, but it's at least in the back of their minds. People are leaning toward diesels because of their longevity, lower maintenance costs and fuel economy.

"We're seeing landscapers going to diesel engines on riding rotaries in the 72-inch class. They feel that, in the long run, diesels can take the abuse. And if it lasts that much longer, it makes them more competitive."

Don Oliver, Dally Landscaping, Lodi, Calif.: "I have one Toro mower that's diesel. The other three riders are gasoline-powered. We've had wrong fuel problems twice already. Guys pick up the wrong surplus gas can when they leave in the morning. I keep warning them to take the right fuel, but they still get it mixed up."

Despite little problems like those at Dally, diesel engine sales are on the rise. It's no wonder. Martin reports mechanical problems with just three engines since DeBra has been selling diesel—and that's less than 1 percent of the total engines sold. □

diesel unit offers cost savings through a lower annual fuel cost, longer engine life between overhauls, fewer maintenance dollars, excellent power characteristics and—perhaps most importantly—potentially less downtime.

For many light-duty applicators, air-cooled gasoline-powered equipment will be the right choice. How-

ever, the many advantages of quiet, compact, high-speed diesels make diesel-powered equipment worthy of close consideration.

Realizing that some turf equipment users are more comfortable with gasoline-powered equipment, some manufacturers have developed a liquid-cooled gasoline engine. Designed

to offer the durability of the diesel with the familiarity of a gasoline engine, this has become a popular choice for the turf industry. **LM**

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