

Reducing Downtime with Engine Maintenance



Source: www.TurfMagazine.com

To stay successful and productive, landscape contractors must keep their equipment up and running. Preventive maintenance, especially on equipment engines, helps them achieve this. The engine might seem small in relation to the piece of landscaping equipment it powers, but it plays a large part in the life and performance of the product.

An effective engine maintenance program is the result of several different factors, such as the type of equipment, the machine's work environment and the manufacturer's specific requirements. Although there might be a few differences in how to maintain various engines, there are some basic maintenance steps that should be taken with any engine.

The daily routine

Although it is often the most overlooked step, daily maintenance is usually the easiest and quickest to perform.

An engine should never be started without first checking the oil, yet many operators neglect this simple step. Oil is one of the keys to the service life of an engine, so it should be checked daily. Prior to the daily oil check, be sure to wipe off the dipstick to prevent harmful dust or dirt from entering the engine.

Checking the condition of the air filter is another important daily maintenance practice that can prevent significant damage. A clogged, wet or damaged air filter can lead to a loss in power, or it might cause an engine to not run altogether, resulting in wasted time due to troubleshooting. Even worse, a neglected filter may shorten the life of an engine by allowing dirt or water into sensitive areas. It only takes about five minutes to check the oil and air filter, but a damaged engine could take as many as 10 hours to

overhaul.



A dirty, wet or clogged air filter can impede the engine from running properly, so be sure to check the condition of the air filter daily.

PHOTOS: SUBARU

Another of the most basic daily maintenance steps is cleaning the engine. Not only does it get rid of potentially harmful dirt, but it also gives the operator a chance to check the engine for leaks, loose parts and damaged components. Replace anything that is damaged, and tighten loose parts that could vibrate and potentially harm nearby components.

Prior to cleaning the engine, always be sure to shut it off and let it cool down. Spray it with a nonpetroleum-based degreaser, wait for the solvent to start breaking down the dirt, then wipe it clean with a cloth or soft brush. Warm water at a low pressure can be used to rinse the engine. Dry the outside immediately afterward, then run the engine for a few minutes to help dry any parts that could not be easily dried with a cloth. Though it may seem convenient, never clean an engine with a pressure washer. The sheer power of the washer is enough to break through the engine seals and cause water to enter the engine.

Once the equipment is clean, pay particular attention to any signs of fuel leakage. If a fuel leak is detected, tighten the parts causing the leak or replace them immediately. Failing to fix the leak is not only wasteful and inefficient but also potentially dangerous.

Though keeping up with daily checks is a good starting point of a maintenance program, it's just one step. Engines also require a variety of maintenance on a less frequent basis throughout the year to retain performance and maximize the life of the equipment.



Regular maintenance

One item that not only needs to be addressed on a daily basis, but also bimonthly, is the engine oil. In addition to checking the level and quality of oil daily, change it at least every 100 hours to remove potentially harmful sludge. Also, after using a new engine for 20 hours, change the oil to remove assembly lube and the metallic particles created during initial break-in.

The air filter also needs daily and bimonthly attention. Regardless of how dirty the air filter is, clean it every 100 hours and change it monthly. Along with oil, the air filter is one of the most important factors in promoting peak performance and long service life.

Most manufacturers recommend cleaning foam air filters with soapy water or a

mixture of three parts kerosene and one part engine oil. After cleaning with soapy water, rinse the filter thoroughly, squeeze out excess water and blot dry with a paper towel or shop rag. Work a small amount of engine oil into the filter and blot away any excess before reinstalling it. If unsure of the proper cleaning method, consult the owner's manual.

Clean a paper filter by removing it and tapping it on a hard surface to knock off any excess dirt. Do not use compressed air to clean the filter elements as this might tear the paper. Most manufacturers typically recommend replacing paper filters after about 50 hours of use. Some manufacturers incorporate standard reusable filters, which operators can wash with soap and water.



Inspect the spark plugs every 50 hours for damage, dirt and excessive carbon build-up. Dirty spark plugs can cause a decrease in power and poor starting performance. Clean spark plugs with a wire brush or spark plug cleaner and immediately replace any containing cracked porcelain.

Additionally, it is important to clean and inspect the fuel strainer and fuel filter every month. If there is sediment on the fuel strainer, shut off the fuel line valve before any maintenance or cleaning. Then, remove, empty and clean the sediment bowl and clean the filter screen. If sediment has gone into the tank, all the fuel will need to be removed. Clean the residue from the sediment reservoir, which is the lowest point in the tank. Use a clean rag to wipe sediment from the filter element and the sides of the tank before refilling the tank with clean fuel.

On an annual basis, inspect the engine for dirty, broken and misaligned parts. Such parts can cause a variety of engine problems, and thoroughly inspecting the engine gives the most comprehensive view of what needs to be cleaned and repaired. Furthermore, check the fuel hose each year and replace it if there are cracks.

Troubleshooting tips

In addition to following a maintenance schedule, be aware of the audible and visual signs of other maintenance needs. Not addressing a small problem early on can lead to a much bigger problem in the future.

 If an engine is experiencing hard starts, check the valve clearance on the intake and exhaust valves and adjust according to manufacturer specifications. When checking the valve clearance, ensure the engine is cold and position the piston at the top dead center of the compression stroke. After the clearance is adjusted, rotate the crankshaft and check the valve clearance again.

A reduction in power is often an indication that the cylinder head and carburetor need to be inspected and cleaned. Check the cylinder head's valves, seats, ports and guides and remove any carbon or gum deposits from the components. Check the air filter's cleanliness, as well.

If the recoil rope hangs loose and doesn't completely return, the lubricant may have washed off. Remove the recoil return and apply additional lubrication to fix the problem. Ignoring the issue can result in a broken rope or eventual damage to the recoil starter.

Additionally, a loss of power or a smoking engine may signal an internal engine problem. Blue-colored smoke indicates that the engine is using oil, a problem that tends to be more common on cold days. Look to see if the breather hoses are plugged and check the piston rings, which may be bad, to determine the cause of the smoke. If the smoke is black in color, it typically indicates that the mixture is too rich. Incorrect mixtures of air and fuel cause the majority of carburetor problems; therefore, it is important to prevent clogged jets, air passages and fuel passages that keep air and fuel from flowing freely. Check the carburetor for dirty or defective parts and clean or replace them if needed. A change in elevation may also cause black smoke, in which case the engine should be modified to handle the difference. If the basic troubleshooting maintenance techniques fail to work, a trained mechanic should conduct a leakdown test or compression test to determine the cause for any smoking or power reduction.

Like smoke colors, different noises also can indicate specific problems. For instance, if the engine begins to make a popping noise or backfire, the mixture of fuel and air is likely too lean in the carburetor. A knocking noise will generally indicate a worn connecting rod, while a tinny or metallic sound may mean something is loose.

Making the investment to spend a few minutes on maintenance minimizes downtime and is worth it in the long run. Outlining and sticking to a maintenance plan will ready the equipment for any need and preserve quality performance for years to come.