



11-1998

SP268-P-Small Engine Maintenance & Operation

The University of Tennessee Agricultural Extension Service

Follow this and additional works at: http://trace.tennessee.edu/utk_agexmach

Recommended Citation

"SP268-P-Small Engine Maintenance & Operation," The University of Tennessee Agricultural Extension Service, SP268P-2M-11/98(Rev) E12-2015-00-049-99, http://trace.tennessee.edu/utk_agexmach/3

The publications in this collection represent the historical publishing record of the UT Agricultural Experiment Station and do not necessarily reflect current scientific knowledge or recommendations. Current information about UT Ag Research can be found at the [UT Ag Research website](#).

This Bulletin is brought to you for free and open access by the UT Extension Publications at Trace: Tennessee Research and Creative Exchange. It has been accepted for inclusion in Machinery by an authorized administrator of Trace: Tennessee Research and Creative Exchange. For more information, please contact trace@utk.edu.

Small Engines

Small Engine Maintenance and Operation

*James B. Wills, Jr.
Professor and Coordinator
Agricultural and Biosystems Engineering*

Common causes of problems with small engines on lawn and garden equipment:

1. **Dirt getting into the engine** — About 10,000 gallons of air are used in the combustion process for every gallon of fuel used by an engine. Maintain the engine air filter to prevent dirt from entering the engine.
2. **Failure to use proper engine oil** — Oil does more than lubricate the moving parts in the engine. It cools, cleans and seals the engine. Proper viscosity of oil is very important for proper operation and engine longevity. Follow recommendations in the manufacturer owner's manual.
3. **Failure to change oil** — Oil never wears out, but it collects acid, water, metal particles, sludge and other foreign

materials in the engine. If the oil is saturated with contaminants, it cannot perform the lubrication, cooling and cleaning necessary for proper engine operation.

4. **Failure to maintain proper oil level** — Most small engines in the five horsepower range only hold about 22 ounces of oil in the crankcase. Any drop in the oil level greatly diminishes the cooling capacity of the oil and puts extra stress on the remaining oil. Keep the oil level between the full and add mark on the dipstick. **NEVER OVERFILL WITH OIL.**
5. **Failure to use clean, fresh fuel** — This is one of the least costly and easiest ways to prevent fuel system problems with small engines. Using gas containers and handling fuel for small engines increases the



potential to get dirt, grass, dust and other trash in the fuel system. Fuel passages are tiny in small engines and can be plugged by tiny particles of dirt. Make extra efforts to keep fuel clean. Old gasoline tends to form gums and varnishes that can quickly plug fuel passages. Never use fuel that is more than 90 days old unless fuel stabilizer was added when the gas was fresh.

6. **Failure to cool off engines before stopping the engine** — Air-cooled engines rely on cooling fins and the blades on the revolving flywheel to keep the engine from overheating. Immediately after an engine is stopped from full speed, the temperature builds up in the engine because the flywheel, which acts as a fan, stops when the engine stops. This heat buildup is especially damaging to the engine oil. To reduce this occurrence, idle the engine for two minutes prior to shutdown.

7. **Failure to keep outside of engine clean** — This may sound like an unnecessary procedure, but there is valid reason for cleaning engine exteriors. Most small engines are air-cooled. Cooling fins on the engine head and engine block usually have fins to increase the exterior surface area, which expedite the air flow and cooling process. Oil and grease will build up over time and dust, dirt, grass clippings and other material will stick to the oil and grease and build up a layer of material on the cooling fins. This material acts as an insulator and prevents heat transfer from the engine to surrounding air. The result is an overheated engine that produces less power and damages the engine oil.



SP268P-2M-11/98(Rev) E12-2015-00-049-99

A State Partner in the Cooperative Extension System

The Agricultural Extension Service offers its programs to all eligible persons regardless of race, color, age, national origin, sex or disability and is an Equal Opportunity Employer.

COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS

The University of Tennessee Institute of Agriculture, U.S. Department of Agriculture, and county governments cooperating in furtherance of Acts of May 8 and June 30, 1914.

Agricultural Extension Service Billy G. Hicks, Dean