

# EXPLORING EQUIPMENT

## THE KEY TO ENGINE TROUBLE-SHOOTING

By Paul Scholten

**F**or turf maintenance professionals, limiting equipment downtime is crucial. The less time a piece of equipment spends being repaired, the more time it can be at work in the field. A systematic approach to engine troubleshooting will help sports turf managers accurately diagnose and solve engine problems efficiently.

If you can't get your mower's engine to start, don't start tearing into the carburetor or ignition system until you've made a few basic checks.

Check for fuel in the tank or see if the fuel shut-off valve is open. Then, see if the engine spins over normally. If it does, you know the engine is not locked up and you can discount lubrication and compression as a problem. By quick-

ly eliminating these factors, you've already narrowed your troubleshooting efforts to the areas of carburetion and ignition. Keep in mind that a four-cycle, air-cooled engine has five requirements in order to start and run properly. It needs:

\*Carburetion—clean, fresh fuel delivered in the correct proportion to combustion air.

\*Ignition—good ignition spark, precisely timed for best performance.

\*Lubrication—proper amount and quality of lubricating oil.

\*Cooling—sufficient quantity of cooling air, no more than 20 degrees F hotter than outside ambient air.

\*Compression—30 to 45 psi minimum for starting and 90 psi minimum

for efficient operation and proper power.

If the engine runs for 30 minutes and then stalls, consider the performance of the engine first. Ask yourself how the engine started before the problem arose. Relate it to the five engine requirements. Does the engine restart immediately after it stalls? If "yes," the problem is probably an ignition component breaking down from the heat. If the engine needs to cool down before it will restart, the problem may be vapor lock or a sticking valve. If you're hearing a metallic *snap* in the engine during the cool-down period, you know the valves are the problem. □

*Editor's Note: Paul Scholten is the manager of the service and technical publication for Kohler Engines.*

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