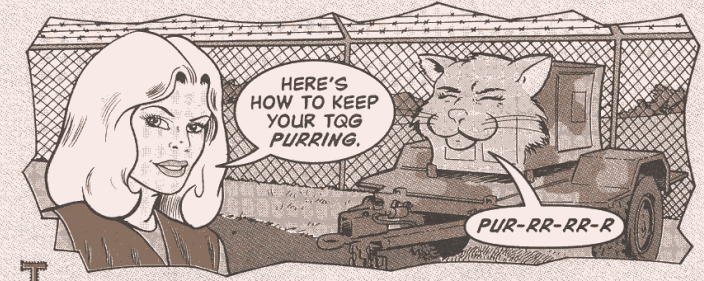
ALL ABOUT WETSTACKING

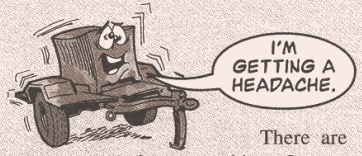


The ideal load for your tactical quiet generator (TQG) is 80 percent. An 80 percent load heats the generator up to normal operating temperature and loads the generator into the most fuel and cost efficient operating range.

Unfortunately, even the smallest TQGs, the 5- and 10-KW, are too big for some communications missions. You just can't get that 80 percent load. Sometimes you can get by with 60 percent, maybe a little lower. But when you hit the 50 percent range, the TQG starts to wetstack.

Wetstacking

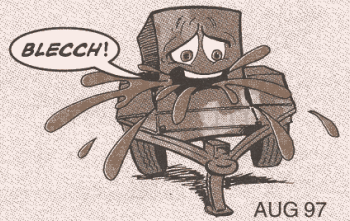
Wetstacking is the buildup of diesel fuel and carbon residues in the engine and exhaust system of the generator. This buildup leads to cooler, rougher running engines with reduced power, hard starting and more smoke. That leads to maintenance headaches.



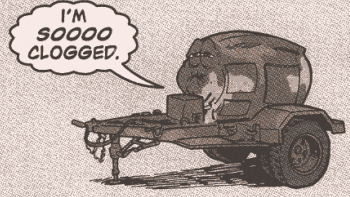
There are two reasons for wetstacking: One, at light loads the diesel engine fuel-metering system does not operate as effectively as at higher loads. Two, diesel engines do not reach full operating temperatures at light loads.

This metering problem lets fuel pass through the engine without burning. Most of that unburned fuel becomes carbon buildup.

The lower engine temperature reduces thermal expansion of the internal engine components, which increases the gap between piston and cylinder walls. That increased gap allows more oil to enter and move through the combustion chamber as slobber.



The lower temperatures also let some of the combustion products that normally leave the engine as a gas to condense out of the exhaust stream, clogging mufflers.



No Load Banks

If you think a dedicated load bank will solve the low load problem, think again. There are no portable load banks authorized or available for dedicated loading of the TQGs.

Here's how to win the fight against wetstacking:

⊕ Select the right size generator for the mission load and profile so that the load factor is as close to 80 percent as possible. You can also adjust the electrical distribution system to match the capacity of the generator set.

⊕ Shut off the generator if there's not going to be a load for a while. Then make sure someone is available to restart the generator before the load is applied. Starting and stopping the generator won't hurt after it has run long enough to charge the batteries.

⊕ If your mission requires high loads for short periods of time, with minimal or low loads in between, burn and clean out engine slobber residue as part of normal PMCS. You do this by running the generator at an 80-100 percent load long enough to heat the engine to full operating temperature and burn out the carbon and slobber. It should take from one to two hours.

If your mission requirement won't let you meet that load, your local Director of Logistics or Director of Public Works has load banks and they will let you "burn out" your generators. Ask about them.

⊕ Remove the muffler on 5- and 10-KW TQGs and clean it. See your generator TM for the procedure.

⊕ Latch on to a copy of FM 20-31, Electric Power Generation in the Field. It tells you how to calculate loads and set up power distribution systems. Get in touch with your ATCOM LAR if you need help.

Although generators can be started and stopped frequently, and run at low loads, they perform best with large, continuous loads.