



Generator Maintenance Best Practices

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On any list of common mobile clinic headaches, “balky generator” is way up at the top.

Which makes sense: As a rule, generators are designed to be backups – that is, for emergencies and less-than-continuous use.

In mobile healthcare, though, the generator is a vehicle’s other engine – not the one that gets you where you’re going, but the one that lets you do what you do once you get there. Converting fuel into electrical energy that can be used in the moment or later when it isn’t running, the generator powers computers, lights, diagnostic machinery and whatever else a clinic needs to operate, when it’s not directly plugged into the power grid.

Keeping your generator running, then, is critical. This learning module includes a set of rules that will help you avoid most such service disruptions.

But First, Some Generator Basics



BRANDS

There are many options, and though we won't offer specific recommendations, we do suggest choosing a well-known brand with widely available service centers and spare parts, as it will make Step 2 (see page 5) much easier.



TYPES

Conventional generators produce a fixed output of AC (alternating current) voltage. Inverter generators, on the other hand, convert AC power from DC (direct current) power, producing a cleaner, more stable electricity with lower harmonic distortion. This makes these generators the recommended power source for mobile units and their sensitive electronic equipment.



SIZE

This refers to the amount of energy a generator provides. One that is undersized will not be able to power a clinic's load. Running one that is too large, however, could cause a machine-damaging condition called "wet stacking," which occurs when not enough generated power is utilized. Do not compromise in this area once you know your wattage and greatest load demand.



FUEL SOURCES

Liquid propane

Pros: Lowest levels of emissions, noise, and vibration; long lifespan; easy to refill; better storage capabilities than gas or diesel; minimal maintenance.

Cons: Regulations require vehicle design that incorporates tank into chassis; more frequent fuel replenishment.

Diesel fuel

Pros: Less volatile than gasoline; provides more power than propane; most fuel efficient and reliable; long lifespan.

Cons: Highest upfront cost; tend to be louder than gas or propane; threat of "wet stacking".

Gasoline

Pros: Less expensive; most convenient fueling.

Cons: Highly flammable, making on-board fire extinguisher a must.

PRO TIP

Whether outfitting a new vehicle or replacing the power source on an existing one, choose a generator that runs on the same fuel as your vehicle.

NOISE

Though there have been major improvements in this area, some of the larger models necessary to power a mobile health unit can still be noticeably loud.



1. GET FAMILIAR WITH YOUR GENERATOR

Vehicle manufacturers and up-fitters are happy to provide orientation upon delivery of new vehicles, so designate specific staff members to be caretakers of the generator, and make sure they partake of those sessions. That said, everyone on board should familiarize themselves with the generator's operating manual, too, so they are aware of the basics, like where the dipstick and usage meter are.

PRO TIP

If your vehicle is not fitted with a carbon monoxide detector, install a battery-operated one, UL-listed for mobile-unit use. Then, test the detector every time you use your mobile clinic.

2. FIND A MECHANIC YOU TRUST

Whether your vehicle is road ready or you're still shopping for one, you need to know who you will call to service your generator, both preventatively and in an emergency.

The best leads for finding this person (or shop) are recommendations from your vehicle or generator manufacturer. You might also ask for referrals from other local mobile clinic operators who use the same type of generator. The Mobile Healthcare Association's regional coalitions and special interest groups are a great starting point for such inquiries.

In the rare instance that an informed recommendation is not available, seek out a well-reviewed mechanic who works on trucks and commercial vehicles or an electrician with experience in amperage problems.

PRO TIP

Vehicle maintenance, regularly scheduled or otherwise, likely means an interruption of clinical services. So plan and communicate accordingly.

3. ESTABLISH A MAINTENANCE SCHEDULE

This schedule should include regular servicing by your mechanic as well as interim check-ins by clinic staffers. And though a mechanic will know what needs to be looked at, it helps to have a person on your team who can ...

- Check for leaks. Look near the exhaust manifold and elsewhere.
- Check the generator belt. If there's fraying, replace it.
- Check connectors and fuse lines. Ditto.
- Change oil and other fluids. For instance, antifreeze and coolant.
- Check oil and fuel filters and filter screens. Remove contaminants or replace, as needed.
- Clean fan. Gently remove dirt and dust.
- Check amperage. Confirm voltage is within specified range.
- Check sockets. Ensure they're receiving proper power levels.
- Clear airway screens in the sound baffling compartment. Don't tamper with shrouds but remove leaves, slush, etc.

To determine exactly what regular servicing means for your generator — or generators, for power-hungry programs — the owner's manual is a good starting point.

But: The manufacturer's recommendation is likely based on relatively infrequent use. In most cases, the suggested interval will be every 200 to 500 hours of running time. Your service intervals will vary, depending on:

USAGE: If your clinic is a weekend-only enterprise you can probably adhere to the manufacturer's timeline. Otherwise, your usage is likely to be much more significant, and that will demand more frequent maintenance. One New York City-based clinic that uses its generator 40 hours each week gets it serviced every 150 hours.

LOCATION: A generator that runs in a busy metropolitan area or serves a vehicle that regularly navigates dusty rural roads is more likely to collect debris in fuel lines and fans, and to incur punctures in electric lines.

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3. ESTABLISH A MAINTENANCE SCHEDULE (cont.)

Always record generator servicing. Such documentation will offer proof of preventative maintenance for warranties, keep you on schedule once the warranty period is complete, and alert you to more-frequent issues that can indicate that your machine is nearing the end of its lifespan.

 **PRO TIP**

As with any combustion device, lubrication is critical. So be sure to follow a schedule of regular inspections and replacement. (Consider changing the oil and filter at the same time.) And keep in mind that locations that experience extreme seasons may require the use of different oil grades for winter and summer.

4. LOG GENERATOR HOURS

How else will you know when it's time for servicing? A meter on the machine displays total usage hours; require drivers to log those numbers at the start or end of the day, in an Excel grid or other program such as Manager Plus, which can be set to send a service reminder based on hours or days.

 **PRO TIP**

A rule of thumb: If your generator hasn't been used for 72 hours, run it for at least 20 minute (or refer to the timing on your engine specifications). Once a week, inspect the exhaust for color, contaminants and leaks from the exhaust manifold. Record the hours on the usage meter and check the oil level. If it has its own starter battery, ensure both posts are free of contamination and firmly attached. And test your vehicle's circuit breakers, if applicable.

5. TEACH THE TEAM TO TROUBLESHOOT

However buttoned up your maintenance protocols, things likely will go wrong.

But a few simple questions can render a call to a mechanic moot. Three common ones — and their quick-fix answers — are:

- **Did you run low on gas?**

The most common reason a diesel generator stops working is the most obvious one: not enough gas in the tank! A vehicle will prioritize fuel for driving, so generator operations shut down when the level drops below one-quarter full. If the generator turns off, starts up perfectly, then shuts off again, it's likely time to fuel up.

- **Did the generator overheat?**

If the thermometer says the temperature is too high, add coolant bit by bit, pausing for a moment between pours to see if it does the trick. If this is a recurring issue, your fan may need a good cleaning.

- **Is a reset in order?**

Never underestimate the magic of a reboot. In your generator's case, ensure that the power converter and its fans are running properly — and that everything is plugged in — then hit the "reset" button (check the manual for location).

PRO TIP

Generator troubleshooting works best when everyone on your staff is familiar with the owner's manual and the machine itself. So carve out time for an all-hands training session, ideally led by a pro, who can demystify achievable fixes and warn against overreaching.



Review Quiz

1. What is the most common reason a generator stops working?
 - a) Overheating
 - b) Busted fuel line
 - c) Not enough gas
2. Who is best suited to service your generator?
 - a) Your car mechanic
 - b) A professional with specific knowledge about generators
 - c) A team member who's "good at fixing things"
3. Which is most important when determining how often to schedule service?
 - a) Frequency of use
 - b) Miles driven
 - c) Time between servicings
4. Which is NOT a question to ask while troubleshooting a broken generator?
 - a) Is the vehicle low on gas?
 - b) Is the generator overheating?
 - c) Does it need new oil?
 - d) Does it need a reset?
5. Which need NOT be part of your regular servicing protocol?
 - a) Changing the oil and filters
 - b) Tightening the bolts
 - c) Checking the fan and belts
 - d) Replenishing fluids

Answers:

1. c; 2. b; 3. a; 4. c; 5. b.