

GMC WESTERN STATES
CHAPTER FMCA

HOW TO MAKE
YOUR ONAN GENERATOR
PURRRRRRR!

BY

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FALL ROUNDUP "BALLOON FIESTA"

ALBUQUERQUE, NM

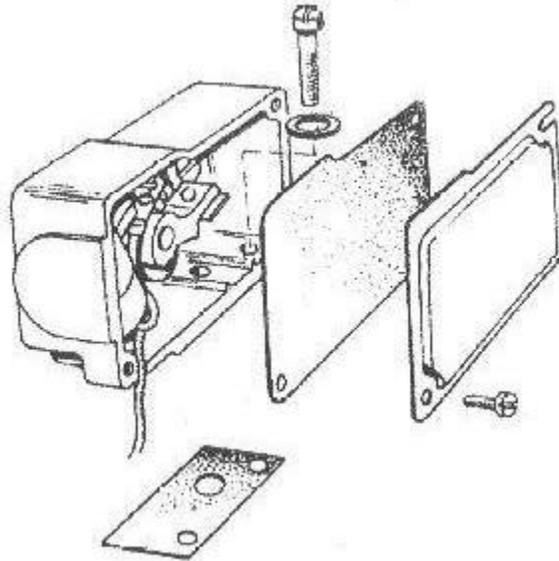
ATTENTION!

The material presented in this document is based on my personal experience. It is my viewpoint and does not represent authorized data pertaining to the GMC Motorhome or the Onan Generator. It is the responsibility of the readers to establish their position associated with this subject in relation to any vehicle repair and/or modifications.

ONAN GENERATOR IMPROVEMENTS

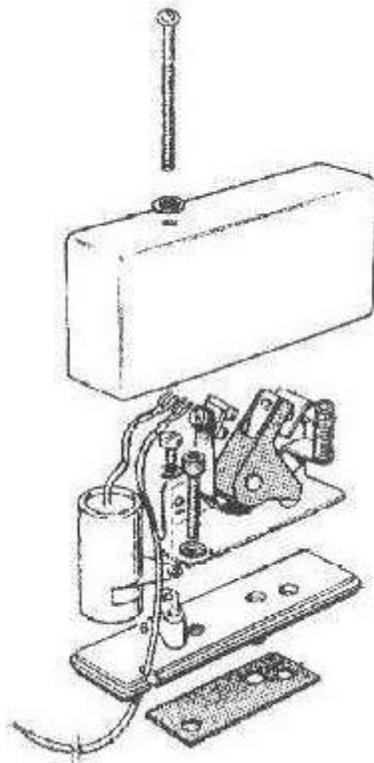
Our GMC Motorhomes normally came with a Model NH Onan Generator as part of the original equipment. If your Onan ignition system has not been modified, it uses mechanical points to trigger the ignition firing, same as was used in the pre1970s vintage automobiles. These mechanical points were always a source for problems as they all continuously degraded with usage. That's why most of the early GMCs that also came with mechanical- ignition points have been converted to High Energy Ignition (HEI), which provides a much higher voltage to the spark plugs. HEI is what GM called their version of electronic ignition. It provided a significant improvement in engine starting, running, and ignition system durability.

You can achieve similar performance improvements on your Onan generator by changing the mechanical-point ignition system to electronic ignition. Your generator will start much faster because the high-energy is provided to the spark plugs instantaneously at startup. Also, the hotter spark will cause the engine to run smoother and respond better to load applications.



Early Onan Points P/N 160-1158

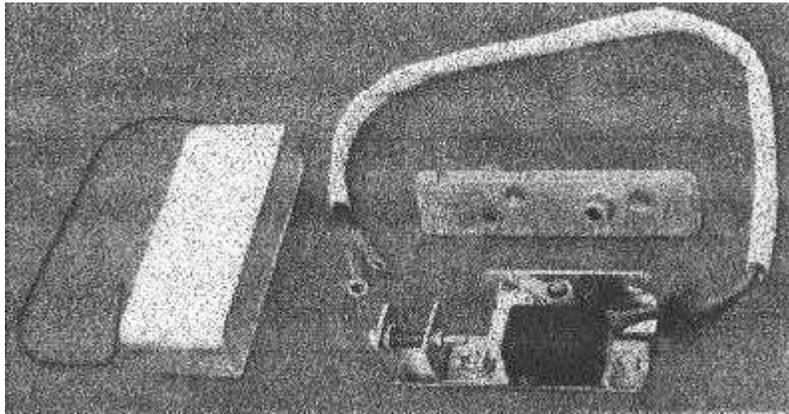
The mechanical points on the Onan generator are located on top of the engine, near the back, in what Onan calls a "Breaker Box Assembly". There were two types of breaker box assemblies used on the Onan Model NH "Power Drawer" series that came in the GMC Motorhomes. The early GMCs had an assembly (P/N 160-1158) shown in the above picture that had the access cover located on the backside of the breaker box. This made it very difficult to change the points. Sometime during the GMC production run, Onan changed the breaker box assembly to the design (P/N 160-1210) shown in the below picture.



Latter Onan Points P/N 160-1210

It was an improved design with a cover that lifted off the top. This greatly improved access to the points. They also modified the point's design so they could easily be adjusted with an allen wrench. This design could also be retrofitted on the early GMCs as a direct replacement for the original breaker box assembly.

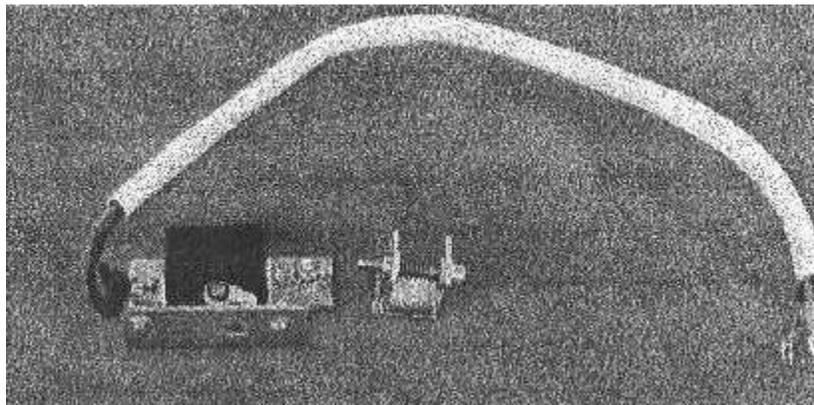
Sometime after General Motors stopped producing the GMC Motorhomes, Onan started using electronic ignition on their generators. They made the design so it could be retrofitted on previous Onans, except the "Power Drawer" series used in the GMC Motorhomes. The intake manifold on the Power Drawer series is too close to the ignition box to allow installing the electronic ignition unit without some modifications.



Electronic Ignition Kit P/N 160-11376

The electronic ignition kit (EIK), shown above, is Onan P/N 160-1376 and should be available at most Cummins Dealers and/or facilities that sell and work on Onan generators. You can also purchase it at Camping World Stores. Last fall this EIK was selling for around \$125.00.

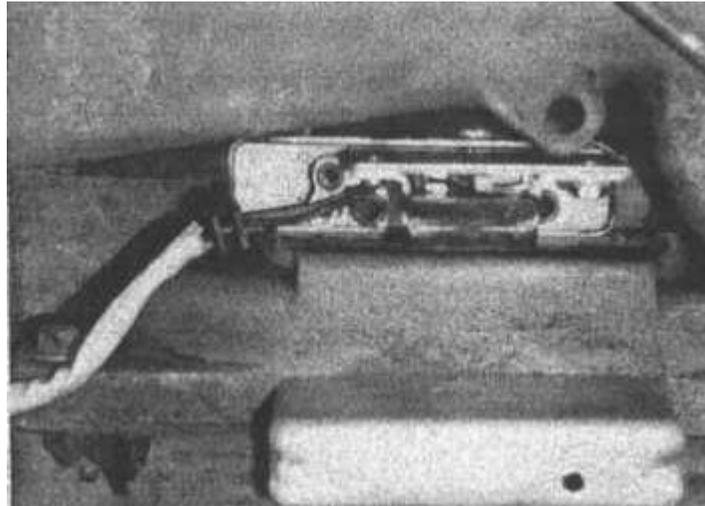
If you have the later breaker box assembly on your Onan, you can convert to electronic ignition by combining the base plate (P/N 160-1172) from your old unit with the electronic assembly in the EIK. The base plate, cover and cover bail in the EIK are not used. The electronic unit must be modified by cutting off the allen wrench screw and bracket that is used to adjust the ignition timing.



Modified EIK

The cut is made adjacent to the mounting slot as shown in the above picture. This does not cause a problem as you can still adjust the timing by sliding the unit horizontally within the slots for the mounting screws. You may need to file a few thousandths off the inboard side of the threaded post protruding up from the base plate to provide clearance to mount the EIK. The electrical wires connect to the ignition coil- red to positive side and black to negative side.

If you have the early design ignition box, you can also convert to electronic ignition by purchasing the base plate for the later design breaker box assembly. This base plate is available from Onan as P/N 160-1219 (replaces P/N 160- 1172). You will also need to drill a hole in the top of the cover that comes with the EIK, in alignment with the threaded hole in the base plate, and you will need a 1.50-inch long 10-24 screw to attach the cover.. The bail that is used to hold the cover on the EIK is not used.



Installed EIK.

The above picture shows the EIK installed with the cover removed. You can see how close the unit is to the intake manifold on the right side, and the need to cut off the adjustment mechanism. The cut-off point can not extend beyond the base plate or it will interfere with installing the cover.

After making this change you will need to adjust the ignition timing. You should also verify that your Onan is operating within the specified frequency range by adjusting the carburetor and/or governor as specified in your GMC Maintenance Manual. If you use an automotive-type tachometer to adjust the Onan rpm, you must divide the reading by two, as the Onan fires the spark plugs on each revolution.

If you do not have a tachometer or frequency-meter, you can adjust the frequency using a 110 vac electric clock with a second hand, along with a stopwatch. Just plug the clock into a 110-vac outlet in your GMC and adjust the rpm until the clock shows a true 60 seconds in one minute shown on the stopwatch.

After you make this modification to electronic ignition, and make the associated adjustment to the timing and frequency, your Onan should start much easier and run as smooth as your GMC.

HAPPY