

place on the generator. We switched on a 3-kw heat strip in the air-conditioner, a coffeemaker, interior 120-volt AC lights, the microwave oven and so on.

After the first test results were recorded, the kit was installed, and we repeated the test in the same location. Our results are as follows:

Noise Magnet Test Results

Test Location	Stock	Modified
Trailer hitch box 10' ahead of hitch box	83db 77db	65db 58db
Streetside	74db	66db
Curbside	73db	58db
Bedroom	54db	45db

We were impressed with the results. The decibel meter reported the hard facts of the matter, but from a practical standpoint, we could hear the results for ourselves. Inside or out, generator noise was substantially reduced from a rumble to a gentle purr. Personally, we would feel a lot less self-conscious about using a generator if we knew it would create less disturbance for our campground neighbors, and the Watermaker kit would be a big help in that regard.

With the air-conditioner cranked up to full blast, it's difficult to tell the generator is running when you are inside the trailer. When standing a few feet away outside, it's a tossup as to which is louder, the air-conditioner or the generator. The manufacturer, incidentally, has a Noise Magnet-equipped fifth-wheel trailer with an Onan diesel generator that runs so quietly, it has to be heard to be believed.

Although it's expensive, the Noise Magnet kit does exactly what the manufacturer claims it can do. If excessive generator noise is troubling you, this kit might well be worth investigating as an effective addition to your RV. TL

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cifically for that purpose and not just dime-store foam padding, so it's expensive and partially responsible for the kit's \$499 suggested retail price. Installation can run another \$300, depending on the application, and can require as little as five hours or as much as a full day or more. It varies, depending on how much customizing and fabrication are required.

It's important that there be enough clearance around the AC generator to allow installation of the sound-barrier material, plus some extra based on the generator manufacturers' recommendations. While the thin sound barrier is vital to the system's success, it isn't necessary to install the thicker egg-crate material all the way around the generator. The more the better, but it's not mandatory in all situations. Some RVs have compartments that are barely larger than the generator, in which case a new, larger enclosure might be needed to facilitate the Noise Magnet kit installation. This kind of job could lead to some major fabrication and, thus, greater expense.

An air-discharge chamber made of galvanized sheet steel is an integral part of the kit. When the cooling air is drawn into and expelled from the generator, engine noise escapes along with the expelled air, and noise also comes out through the air-inlet opening. The air-discharge chamber is installed over the generator's exhaust-air port, and since the chamber is lined with the

noise-absorption foam, much of the sound is absorbed while the expelled air continues on its way to the chamber's air-exit opening.

For cosmetic purposes, future air-chamber models will be built with a paintable coating that can be color-matched to each RV.

Under ideal circumstances, a new air-inlet baffle will be installed and lined with the noise-absorption foam (see photographs on page 73). This serves the same function as the air-discharge chamber, in that it reduces the amount of noise that escapes via an incoming cooling airstream.

Watermaker designers planned the discharge chamber to accommodate more than the minimum airflow required by the generator manufacturers, so there's no heat build-up with the Noise Magnet installed. We monitored the compartment heat before and after the installation, and it changed based on ambient air temperature, but did not seem to be affected by the kit.

The package includes a new supplemental muffler, plus a variety of pre-bent exhaust tubing sections and straight pieces. The typical installation won't require all of these pieces, but they're included for the user's convenience. To check for excessive exhaust back-pressure build-up, we temporarily installed all the tubing pieces in the kit, plus a couple extra 180-degree U-bends. Thus rigged in a worst-case scenario, we observed that exhaust back pressure

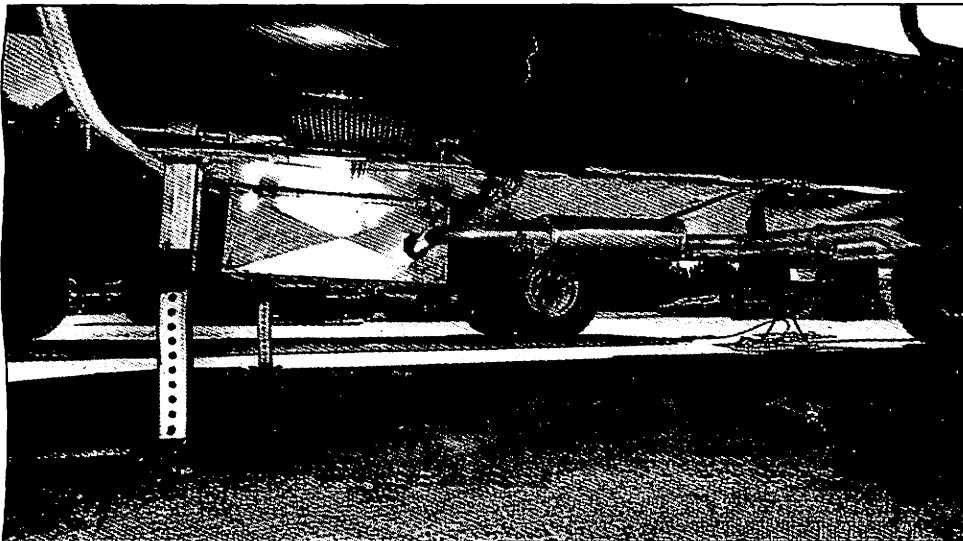
minimally increased by about 1 inch of water, from 7 inches to 8 inches. The average installation would record even less, so backpressure is not an issue with this kit.

The exhaust air-discharge chamber also encloses the stock muffler and piping, if possible, or it can house the auxiliary muffler if the stock unit is self-contained in the generator. This further reduces exhaust-system noise.

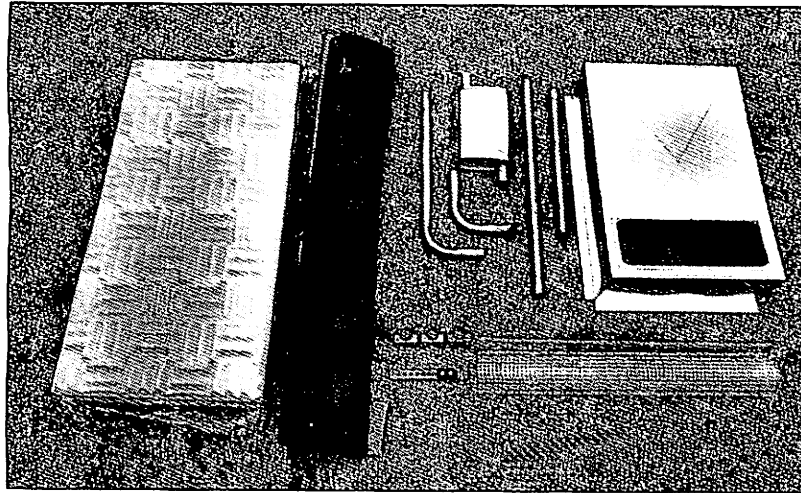
The unit we tested was installed in a Travel Supreme fifth-wheel trailer with a factory-optional generator prep compartment, so the job was relatively easy. There was plenty of room around the generator for the sound-absorption material, and the air-discharge chamber simply attached to the trailer underbelly.

First, we took the stock trailer with the Onan Emerald Plus 6.5-kw genset to a nearby park for noise-level testing. The trailer was placed on an asphalt pad surrounded by grass. Sound-level measurements were taken with the meter held next to the hitch-pin box, pointed at the generator compartment; at the same level, but 10 feet ahead of the hitch box; standing on the streetside of the unit, 10 feet from the trailer side wall opposite the generator compartment and exhaust outlet; standing curbside, the same orientation as above; and inside, with the meter held directly above the steps leading from the bathroom to the bedroom.

The test was done with as much "quiet" electrical load as we could



The stock muffler was encased in the air-discharge chamber, and the new muffler was mounted externally.



Generator manufacturers have made great strides in reducing the sound output from today's auxiliary power plants, but even under the best conditions, they can still seem noisy. When a typical generator is fired up in a pristine campground with nothing but the rushing breeze, a dancing brook and chirping birds for background accompaniment, the people who came out to enjoy those natural sounds can be irked indeed by the internal-combustion cacophony pattering away next door.

Watermaker RV Specialties Incorporated, along with the Premiere Automotive Services division of Boss Incorporated, has developed a new kit called the Noise Magnet, which is designed to dramatically reduce RV generator noise output. The Noise Magnet is available as an aftermarket or original-equipment accessory.

The company's philosophy is to

Noise Magnet

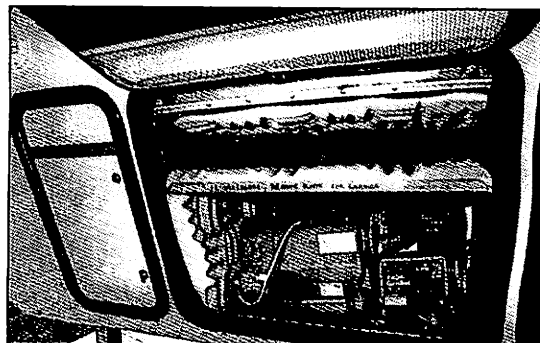
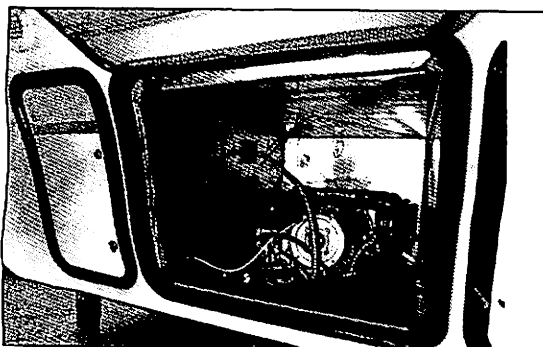
A kit that can reduce AC generator rumble to a whisper and keep campground neighbors smiling

by JEFF JOHNSTON

attack generator noise on four fronts, including inlet air, discharge air, engine mechanical and engine exhaust. Specific kit parts are planned to address noise production in each area.

The kit uses two layers of high-tech material, borrowed from the aerospace industry, designed specifically for noise abatement. Included are a 3/8-inch layer of high-density noise barrier, which prevents noise from traveling beyond the compartment walls—to which the material is adhered—and a 2-inch-thick layer of closed-cell, egg-crate-type material that absorbs the sound waves. The same materials are used to line the cooling air inlet and discharge routes, and an auxiliary muffler handles the exhaust noise. It was stressed by the manufacturer that all of the materials in the kit are non-flammable, for safety purposes.

The noise-absorption foam is a high-tech material designed spe-



The stock compartment (far left) had plenty of room for the kit. Completed installation shows noise-deadening material in place.