

Eliminate Low Power RV A/C Starting Problems

SoftStartRV enables RV owners to run multiple air-conditioning units at the same time, even on a 30-amp circuit.

By Steve Froese, F276276

Modern RVs can pull a lot of power, especially those with 50-amp electrical service. Much of this energy is consumed by the air-conditioning units. And a single air conditioner can draw two to four times the running current during startup due to the inrush current required for the capacitor start motor. Because of this, owners of 30-amp RVs with two air conditioners can encounter difficulties trying to start both units at the same time — if it's even possible.

Energy management systems can really help by shutting down one or more air conditioners if another device, such as a water heater, requires the power. A solution for avoiding the issues with peak starting current is available from NetworkRV. The company's SoftStartRV allows RV owners to operate multiple rooftop air conditioners while using only a fraction of the originally required starting current. With the SoftStartRV, a single rooftop air conditioner can run on a 15-amp home outlet or a 2,200-watt inverter generator, and two RV air

conditioners can be operated on a 30-amp circuit, as long as both units have the SoftStartRV installed.

Mike Sokol, an electrical engineer who runs RVelectricity.com and has been contributing to RV publications for more than a decade, found that an air-conditioning unit has an initial inrush current of up to 52 amps during startup. This current lasts a very short time (around 150 milliseconds, or just over 1/100 of a second), but it is enough to trip a breaker on a 30-amp RV. The SoftStartRV replaces the air-conditioning unit's compressor start capacitor. It does not reduce the total inrush current since the compressor requires this total current in order to effectively start. Instead, it spreads the inrush over a longer period of time, so the peak current doesn't have to be as high. By extending the inrush time, it reduces the air conditioner power demand by 70 percent.

Sokol reports that the SoftStartRV reduces the inrush to 24 amps over 330 milliseconds. That is enough to prevent the air conditioner or RV circuit breaker from tripping. The SoftStartRV does not affect the compressor run capacitor, but during steady-state operation, the current draw of a properly operating air conditioner should not trip a breaker. As mentioned, a single air conditioner with a SoftStartRV installed can be started off a 15-amp circuit, or even a 3,000-watt

generator, while two air conditioners with SoftStartRV units installed can be started off a 30-amp circuit.

The SoftStartRV is installed directly inside the air conditioner roof shroud, so it involves climbing on the RV roof. If you are not comfortable going on the RV roof, or if it's not safe to do so, seek assistance with the install. Installation requires basic knowledge of electrical wiring and tools, and I would rate the level of difficulty as a three out of five. However, SoftStartRV now has a "no splice" method that makes installation even easier, and it's currently shipping with quick-disconnect terminals. (**Safety note:** Before beginning the installation, all 120-volt power *must be removed* from the air conditioner, since voltage is present at the rooftop unit even when the thermostat is off.) Mike Sokol produced a video on how to install a SoftStartRV using the no-splice method and is available on the website.

Installation on my coach took about 20 minutes. I may be the exception to the rule, given my experience with RV service and repairs, but I had not installed this product before. I estimate the install time to be no longer than one hour for most people.

The product comes with clear written instructions, and stellar online, phone, or email support is available. However, it is important to plan the SoftStartRV installation in terms of where to mount the control box. This box must be mounted somewhere on the rooftop unit itself, and many air conditioners have limited real estate in which to place the box. Therefore, determine where you are going to mount the box prior to starting the install, and route the wires accordingly. Be sure to keep the wires away from sharp metal surfaces that could damage them. The components are of high quality, and the strain relief meets National Electrical Manufacturers Association (NEMA) standards for moisture. Special discounts are available.

I highly recommend purchasing a SoftStartRV for each rooftop air conditioner. Installing the device allows an RV to run on limited shore or generator power, including multiple air conditioner units.

FMCA members enjoy special \$60 discounts off the SoftStartRV. Additional discounts up to \$120 off the regular price if you need 2 soft starters for your RV. SoftStartRV is so sure you'll love the difference that SoftStartRV A/C soft starters make for your camping experience, they offer a 90-day 100% full refund guarantee, and a 1-year warranty extendable to 2-years free, with online registration.

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