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## RV Electrical-system Suggestions

by Dennis Gaub, for KOA Kompass

Your recreational vehicle represents a sizeable investment that can run into six figures.

So, it pays to spend a modest amount – about the cost of dinner for two – on heavy-duty extension cords that protect RV appliances from low-voltage damage, according to a Kampgrounds of America expert.

Jim Finch, KOA's assistant vice president/technical services, said the issue involves modern RVs equipped with either 30- or 50-amp service. The rigs need large power cords to hook up at campsites. Those cords come out of utility panels located in the center or towards the back of RVs.



**Jim Finch**

Complicating matters, RV ranks include motor homes that have grown longer and are often towing cars, along with shorter trailers and campers. It thus becomes a challenge for campgrounds to pick the best spots to place power pedestals that bring electricity to RVs.

RV cords and sockets on the power pedestals "are supposed to mate up," but that doesn't always happen, according to Finch, who's been with KOA for 23 years.

"That isn't a good situation, and the only solution is an extension cord," he said. Unfortunately, campers tend to use thin 14-gauge extension cords suitable for operating tools such as power saws and drills. But, those cords are unsuitable for hooking up an RV that may have more electrical appliances than many homes did 30 years ago.

"When they use an extension cord that's too small, the wiring in the extension cord is totally inadequate to carry the load their rig will require. To compound that, they typically will have at least a 25-foot (extension) cord," he said.

The cord coming out of the unit is usually 25 feet long, resulting in a total cord length of 50 feet or more – far longer than needed to connect the RV to the power pedestal.

The root of the problem: a long electrical connection, including an undersized cord, results in excessive voltage drop, Finch said. Voltage loss, in turn, can damage electricity-demanding appliances such as air conditioners and heaters that are expensive to repair or replace.

The national electrical code allows a 5-percent voltage drop, the sum of a 3-percent loss in the campground's electrical feed and a 2 percent loss in the RV, he said.

"And if you get 30 amps on a little light extension cord, you can have more than a 5-percent drop just in the extension cord," Finch said.

"That's why the extension cord should be at least as big or bigger than the wire size that's coming out of the unit – bigger wire for 50 amp than 30 amp – and it should be as short as possible," he said.

RV suppliers sell large-diameter extension cords, but they're typically 25 feet long, he said, and that reintroduces unwanted voltage loss. Finch suggested going to an electrical supply outlet and getting a custom-built cord. He recommended carrying a 10-foot cord and a

5-foot cord.

"For \$30, not over \$50," someone could get two or three beefy extension cords and achieve the goal of hooking up an RV using the shortest possible cord length, Finch said.

He speaks from experience, having lived in a 32-foot travel trailer while working for KOA's company properties group. During that period, Finch used two extension cords, a 5-footer and a 10-footer.

"If it was more than 15 feet, I found another site or a different way to park so I could get by with the shorter extension," he said.

"In a perfect world," Finch said, "we'd have a pedestal with adequate power located precisely right for (RV owners) and they'd never need to use an extension cord. But they will mostly likely need to use an extension cord, so they should have two or three of different lengths."

Ideally, the extension cords should be larger in diameter and higher in capacity than the cord coming out of the RV to minimize voltage drop.

"They might have a quarter-million dollars invested in their motor home; I'm asking them to invest another \$50 to protect it," Finch said.

Future articles based on Jim Finch's expertise:

- Why campgrounds want RV owners to match the power requirements of their vehicle with the power supplied by a hookup, especially hooking up a 50-amp vehicle to a 50-amp supply
- Help for new campers on holding tank strategies and tactics for avoiding clogged lines

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