

# Control Your Mobile Power

*Can commuting be a daily QSO party?  
Yes, with this no-payment installment plan.*

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**M**obile operation is one of the most efficient uses of time possible. It allows me and, I am sure, many other amateurs to squeeze some operating into an otherwise too busy day. Almost all solid-state transceivers for any amateur band have been designed with operating mobile in mind and can be

powered directly from an automobile's 13.8-volt power system.

Improper care in connecting amateur equipment to this power can cause problems, however, and, in some cases, even damage equipment. No one would knowingly try to operate a 13.8-volt radio from an eight-volt supply or from a supply that had 24-volt spikes on it. But low-voltage conditions can easily occur by having resistance in the circuit used to deliver power to the ra-

dio. Many high-power transceivers draw in excess of fifteen Amps while transmitting. Under these conditions, a few tenths of an Ohm can easily drop the supply voltage a few volts. A good, direct path from the battery to the radio should be made to ensure a steady supply voltage. This connection should also be fused for safety.

When we start our cars, nasty things happen to the power system. For one thing, it gets loaded down by the starter's high current demand. The starter, while grinding away to start the engine, can induce huge pulses onto the car's power system. These high-voltage pulses can kill solid-state devices.

## The Solution

Automobile manufacturers protect their radios and accessories from these starting transients by having a relay or switch connected to the ignition switch that disconnects power from these accessories while the engine is being started. This is why the radio turns off when the car is being started.

The circuit in Fig. 1 is a power-control system I use in my mobile operation. It uses the accessory voltage, which is disconnected automatically during starting,

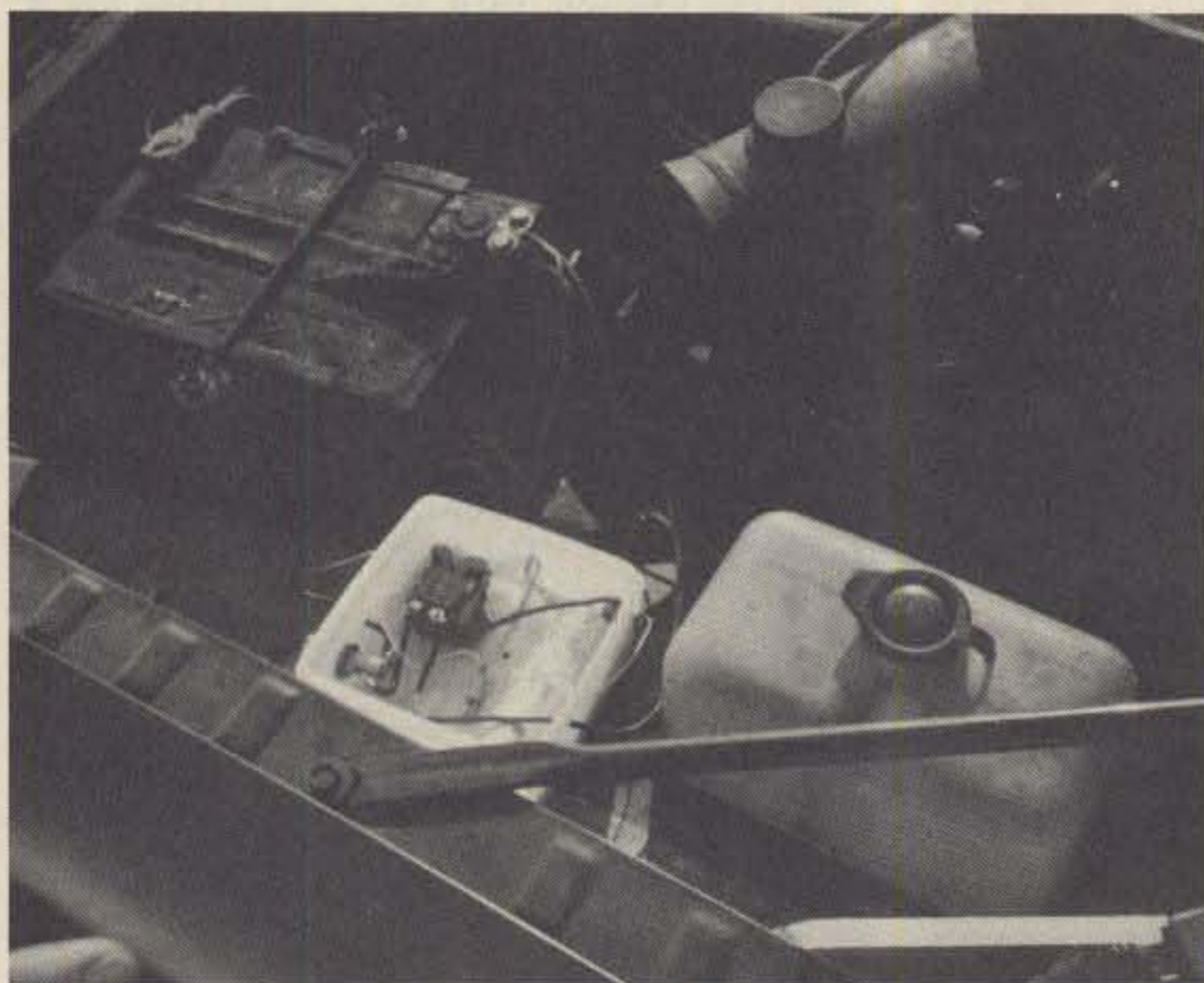
to operate a relay. Only when accessory voltage is present will power be supplied to the amateur gear. The capacitor helps filter out any residual noise and alternator whine.

Other than the accessory voltage wire to the relay coil, all wiring should be #14 or #12 stranded wire. Suitable wire can be found in the automotive department of most department stores.

Finding a place to put the circuit can be a difficulty, especially in today's smaller cars. I built mine into a soft-plastic sandwich box and bolted it onto the fender inside the engine compartment. Wires enter the box through tight-fitting holes. I mounted the fuse holder through a hole in the side where it would be handy and mounted the relay and capacitor to the box with double-sided tape. Fig. 2 shows the layout of my box, although most any layout would work.

## Finding the Voltages

The 13.8 volts coming from the battery should be obtained as close to the battery as possible. Most cars have two leads on the positive terminal, a fat one that goes only to the starter and a thinner one, about a quarter inch in diameter,



*The assembled power controller mounted on the wheel-well in the engine compartment of my car. The relay is held to the plastic sandwich box with double-sided tape, the capacitor is held with a cable tie, and the box is held in place with a single sheet-metal screw which also is the ground point for the relay and capacitor.*