

INTRODUCTION

There are actually two interrelated electrical systems used in your motorhome: the 12-volt dc supply system; and the 120-volt ac supply system. The 12-volt dc supply system is divided into several branches, or zones, each functioning from the common 12-volt battery source. One branch provides the 12 volts required for the automotive starting, ignition and charging systems; remaining branches supply those motorhome circuits and appliances which require 12 volts dc for operation.

The 120-volt ac system includes those motorhome appliances which require 120 volts for their operation, supplied from either the internal generator plant; or from the external 120-volt ac (or a split 240-volt ac) supply, via the shoreline hookup.

12-VOLT DC SUPPLY SYSTEM

The 12-volt dc supply is furnished to the standard automotive starting, ignition and charging system; and to the motorhome distribution circuits.

A degree of interface exists between these systems in that the motorhome distribution circuits also provide some circuit breaker protection for certain automotive lighting functions. Each of these circuits relies on the 12 volts provided from the four series-parallel connected 6-volt batteries located in the compartment on the left side of the coach. An overall wiring diagram of the 12-volt supply and distribution system is included in Section X.

MOTORHOME 12-VOLT CIRCUITS

The 12 volts supplied to all motorhome appliances, outlets and accessories is routed from the batteries through a main 12-volt bus and routed to the individual branches, or zones, that are serviced from this supply. Circuit breakers are located behind the access panel at the front left side of the coach, and at each of the branches. Refer to figure 4-1 for location of circuit breakers within the outer access panel; figure 4-2 shows the fuses in the battery compartment. Refer to figure 10-1 for location and wiring data for the 12-volt distribution system and individual zone service.

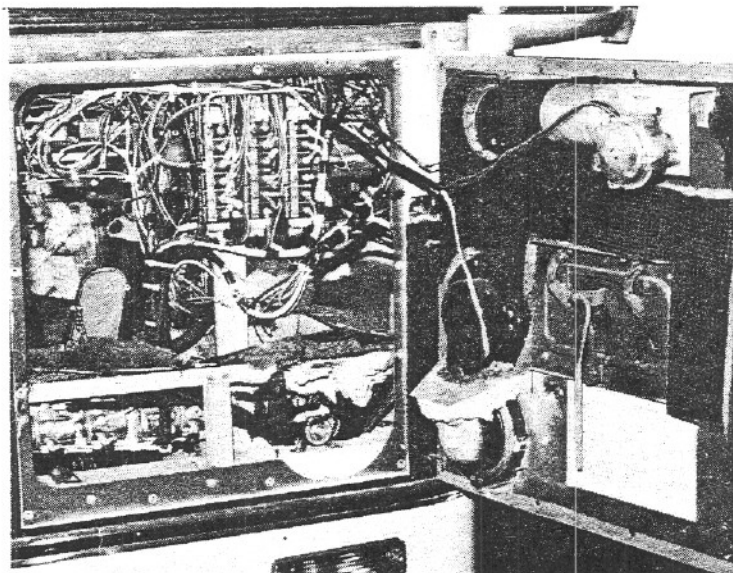


Figure 4-1. Circuit Breaker Panels (12 Volt DC)



BATTERY HEATERS

Thermostatically-operated 120 volt ac battery heater pads, figure 4-2, protect batteries from cold-weather deterioration. Heaters operate only from the ac supply line, requiring that the coach remain connected to shoreline power during cold weather.

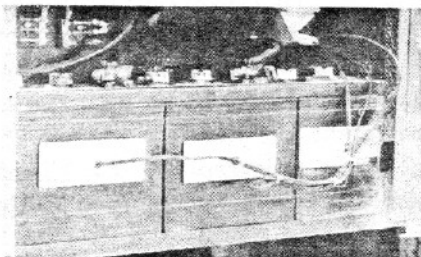


Figure 4-2. Battery Compartment

BATTERY CHARGER

The 12-volt battery supply is maintained in a fully-charged condition by either the engine alternator (when engine operates); or by two 50-ampere battery chargers, located in the left side mid-mount storage compartment, figure 4-3. These automatic electronic battery chargers operate whenever a source of 120 volts ac is supplied to the coach circuits (either shoreline or generator operation). When the battery chargers are operating, the batteries are effectively placed off-load and charged, while the battery chargers also supply 12 volts dc to the motorhome circuits. This makes it possible to use all 12-volt systems while still charging the storage batteries. The two chargers ensure rapid recharging of the main batteries and furnish a

total of 100 amperes of service to the coach.

NOTE

When using battery power only for operation of heavy-load circuits, such as lighting, motors and furnace, check battery condition periodically to prevent batteries discharging. If battery condition is marginal, operate generator plant to keep batteries charged.

DC SUPPLY MONITORS

There are two locations within the coach where the condition of the 12-volt dc supply can be monitored. The compartment just inside and to the left of the step-well contains a center-reading $-100-0+100$ ammeter which indicates the battery charging (+) current. The driver's dashboard instrumentation includes a voltmeter and an ammeter for monitoring battery condition during on-road and ac operation. Because battery condition is so vital to the proper operation of 12-volt motorhome appliances, use these meter readings to be constantly aware of the battery status to avert possible inconvenience or battery/component damage.

AC SUPPLY SYSTEM

Motorhome ac-operated appliances are supplied from either an external shoreline hookup; or from the internal generator plant. Selection of which power source is to be used is determined by a four-position ac power selector switch located in

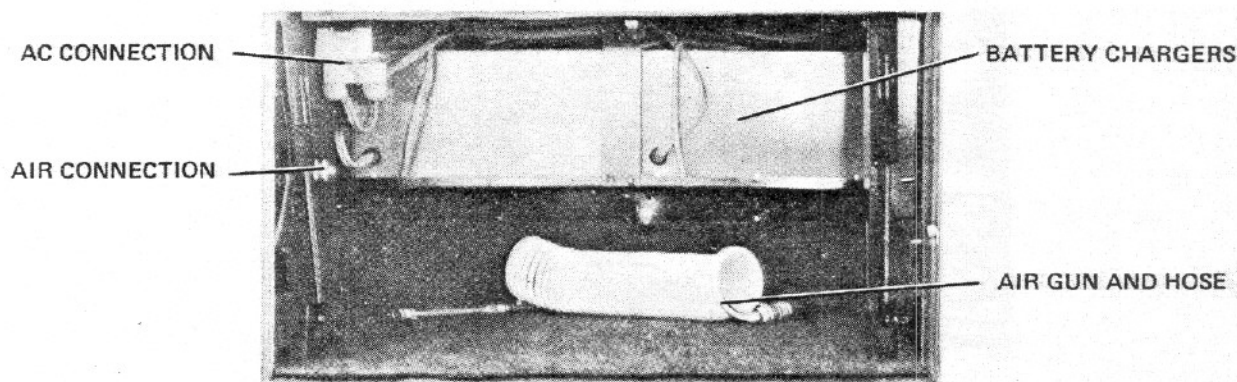


Figure 4-3. Location of Battery Chargers



a compartment just inside and to the left of the stepwell, as shown in figure 4-4. Set this switch to either GEN, SHORE 50A, SHORE 30A or OFF, depending on the power source availability. Leave this switch in OFF position to completely disconnect the motorhome 120-volt ac circuits.

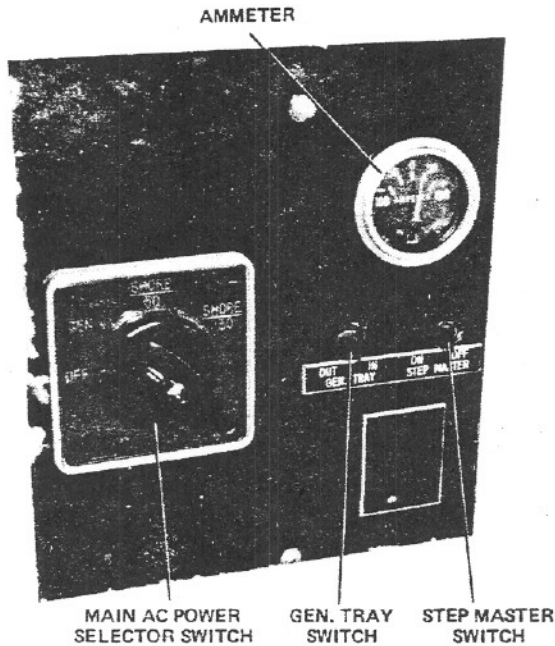


Figure 4-4. Ac Power Selector Switch

POWER LINE MONITOR

A dual power line monitor is located on the galley wall to monitor the ac shoreline supply (or generator supply) voltage. If the shoreline is "split", one monitor is connected to each side. Each monitor has polarity and ground detector circuits to indicate possible electrical hazards due to incorrect hookups.

AC CIRCUIT BREAKER PANELS

Two main ac circuit breaker panels are located within the rear closet. Refer to figures 4-5 and 4-6 for identification and location of load center and over-current circuit breakers, respectively.

GENERATOR OPERATION

The generator plant has its own 12-volt starting battery so that it can operate independently of the coach 12-volt batteries and can be started even if the motorhome batteries are discharged.

The generator can be started and stopped from either of two locations within the coach: at the driver's instrument panel; or at the galley wall monitor switch panel. In addition, the generator can also be started at the remote panel located in the generator compartment.

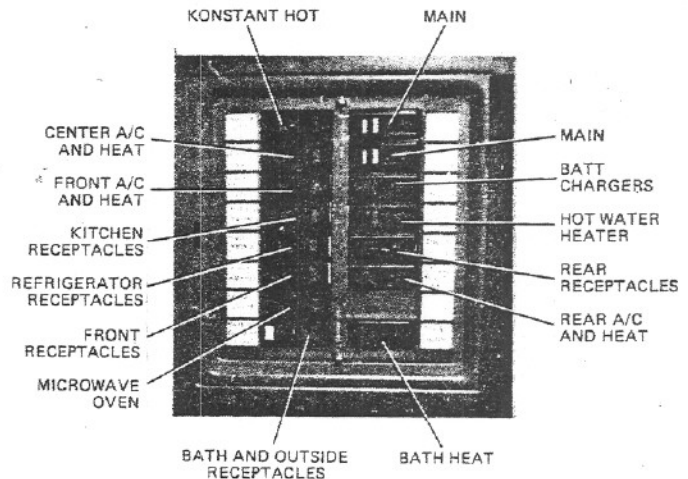


Figure 4-5. Load Center Circuit Breakers

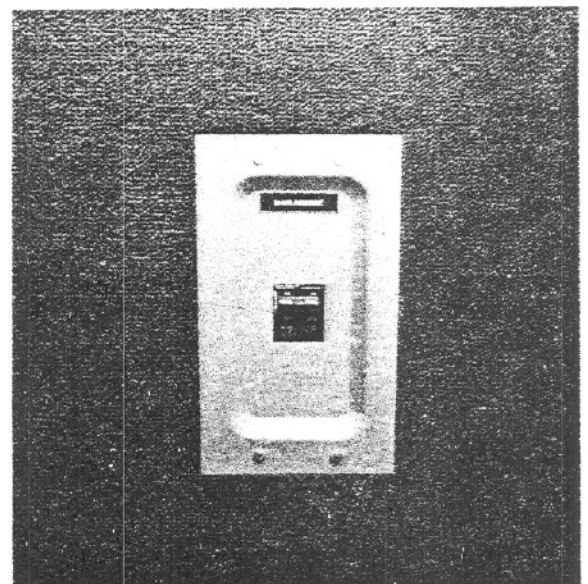


Figure 4-6. Over-Current Circuit Breakers



To start the generator, push the **GENERATOR** switch forward to the **ON** position and hold until the generator starts, as indicated by the generator **ON** indicator lighting. **DO NOT HOLD SWITCH ON FOR LONGER THAN 15 SECONDS AT A TIME!** If the generator does not start the first time, wait a minute and try again. Release the switch when the **ON** lamp glows. The generator may be stopped at any time, from either of the two locations in the coach, by holding the switch down to the **STOP** position until the generator stops (light in switch extinguishes). However, if the generator is started with the **REMOTE START** switch directly at the generator compartment, figure 4-7, it can only be stopped at that location, with the **STOP** switch.

It is not advisable to start the generator under a heavy load, especially with the high current demands made by the air conditioners. This may cause hard starting and possible damage to the generator electrical system. It is a good practice to remember to set the **MAIN SELECTOR** switch to **OFF** (figure 4-4) before turning on the generator so there will be no electrical load on the line. Also, remember to set the selector switch to **GEN** position when the generator is being used; and to reset the switch to either **OFF** or to **SHORE** position, as appropriate.

The generator is housed within an air-operated extendable tray, shown in the opened position in figure 4-7. The tray is normally locked into place by a hand-latch located underside. To open, unlock the latch and extend the tray outward by operating the **OUT-IN GEN. TRAY** switch in the stepwell compartment. Note that the tray is air-operated via an electrical solenoid and that the air pressure must be up for tray operation.

CAUTION

The generator tray is **HEAVY** and moves in and out with a great deal of force. **KEEP HANDS OFF TRAY WHEN OPERATING SWITCH!**

AC SHORELINE OPERATION (COMMERCIAL POWER)

Set the power selector switch, figure 4-4, to the

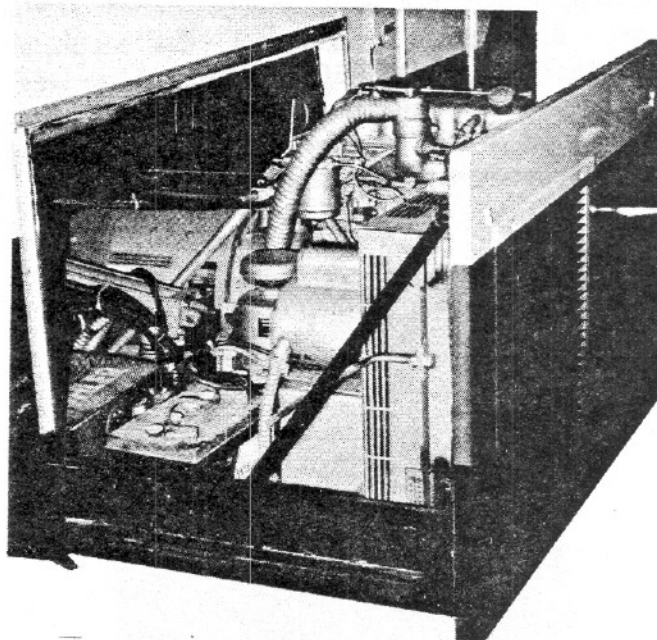


Figure 4-7. Generator Compartment Extended

proper **SHORE** position **BEFORE** the motorhome electrical system and external supply are joined. For purposes of safety, observe all precautions when making these connections. First, connect the shoreline to the coach; then connect it to the power source. Poor grounding or incorrectly-wired receptacles can cause personal harm as well as equipment damage or fire hazards. Check power line monitors on galley side wall to verify correct supply voltage, polarity and grounding of hookup.

NOTE

Your motorhome has been wired in accordance with the National Electrical Code. All 120-volt ac wiring is two-wire service with ground; all 220-volt wiring is three-wire service with ground. If the motorhome is connected to an external hookup which has only a two-wire circuit, ground the third wire on the adapter to the external supply metal junction box or conduit. Utilize the polarity detector indicators on the power line monitors to be sure that lines are properly connected and grounded.

For commercial power (120 v ac), the coach is equipped with a 25-foot 10-3 shore line; for 220 volts ac, a heavier 6-3 cable is used.

Before completing the shoreline hookup, shut off the ac appliances and set the power selector switch to the appropriate SHORE position. Connect the shoreline, stored in the compartment shown in figure 4-8, between the external power source and the coach shoreline receptacle. (The coach receptacles are located in the same compartment as the water hookups, in the rear next to the left side tail light, figure 5-1.)

In many instances, the shoreline hookups will not be rated to operate all electrical appliances in your coach. Check with facility personnel to determine the maximum current capability of the hookup. Usually, only one air conditioner or electrical hot water heater may be operated at a time. The current ratings for appliances designated for standard or optional (identified by *) usage in your coach are listed in table 4-1.

Table 4-1. Electrical Ratings for Motorhome Appliances

Item	Current Rating (Amperes)
Air Conditioners	
13,500 BTU	17.5
Hot Water Heater	10.0

Television Receivers	
Black-and-white	.5
Color	1.0
Battery Chargers (depends on battery condition/load)	0 to 12.0
Engine Block Heater	10.0
Electric Heaters	
“Cheater Heater”	12.5
Battery Heaters	----
Heat Tapes	----
*Microwave Oven	15.0
Food Center	4.0
Vacuum Cleaner System	9.0
Refrigerator	2.5
*Ice Maker	2.5
*Washing Machine/Dryer	25.0
*Instant Hot Water	----

SAFELINE ALARM

Your coach is equipped with a shoreline disconnect alarm, which is located on the bulkhead panel over the driver. This device will provide an audible or visual alarm whenever the shoreline is left connected to the coach at the same time that the ignition switch is turned ON. This assures that the coach is not inadvertently driven away while still connected to the shoreline hookup.

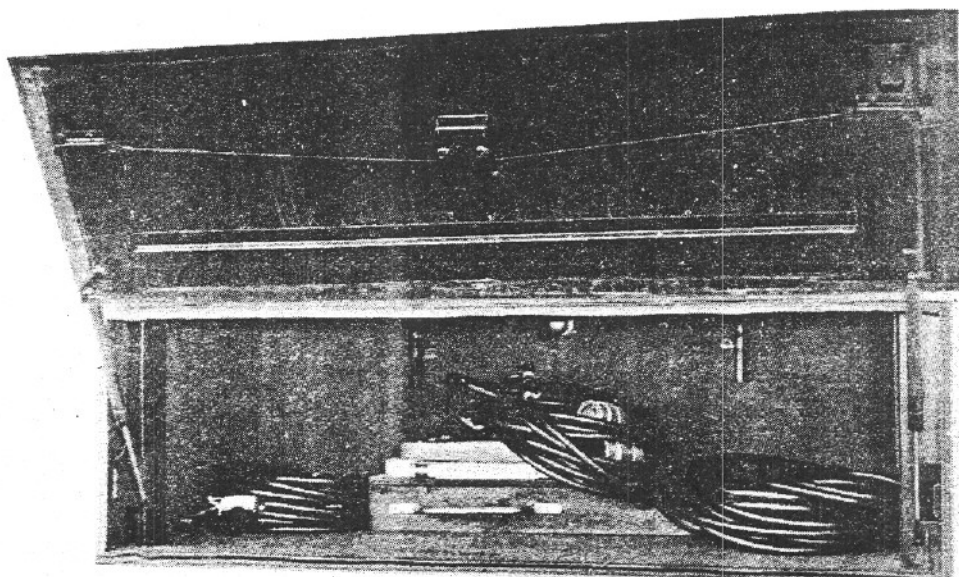


Figure 4-8. Shoreline Hookups (Storage Compartment)