



Coach House

PLATINUM[®]

Section 3

Electrical Systems

Ford Motor Company

Rev: 021419



**E-450
SUPER DUTY CHASSIS**

Electrical Systems

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Special Electrical Statement

Coach House Platinum Motorhomes are wired with a Master Disconnect Switch. The location and operation of this switch is detailed on page 3-41 of this manual.

Coach House, Inc. recommends that the Master Disconnect Switch be turned to the “ON” position any time your motorhome is in use. Vital systems including LPG and Carbon Monoxide detectors will not function unless the Master Disconnect Switch is turned “ON”

Firefly Control System

Your Coach House **PLATINUM** model is equipped with the “Firefly” control system.

This system uses a touchscreen home base to operate many of the electrical components in your motorhome.



The touchscreed pad is located above the sofa behind the driver's seat in the upper cabinet panel.

**Insert Firely Manual (3 Hole Punch)
Here**

Power Converter

Your Coach House **PLATINUM** is equipped with a power converter that supplies the motorhome with 110 volts AC (Alternating Current) and 12 volts DC (Direct Current). The source of power can be from the:

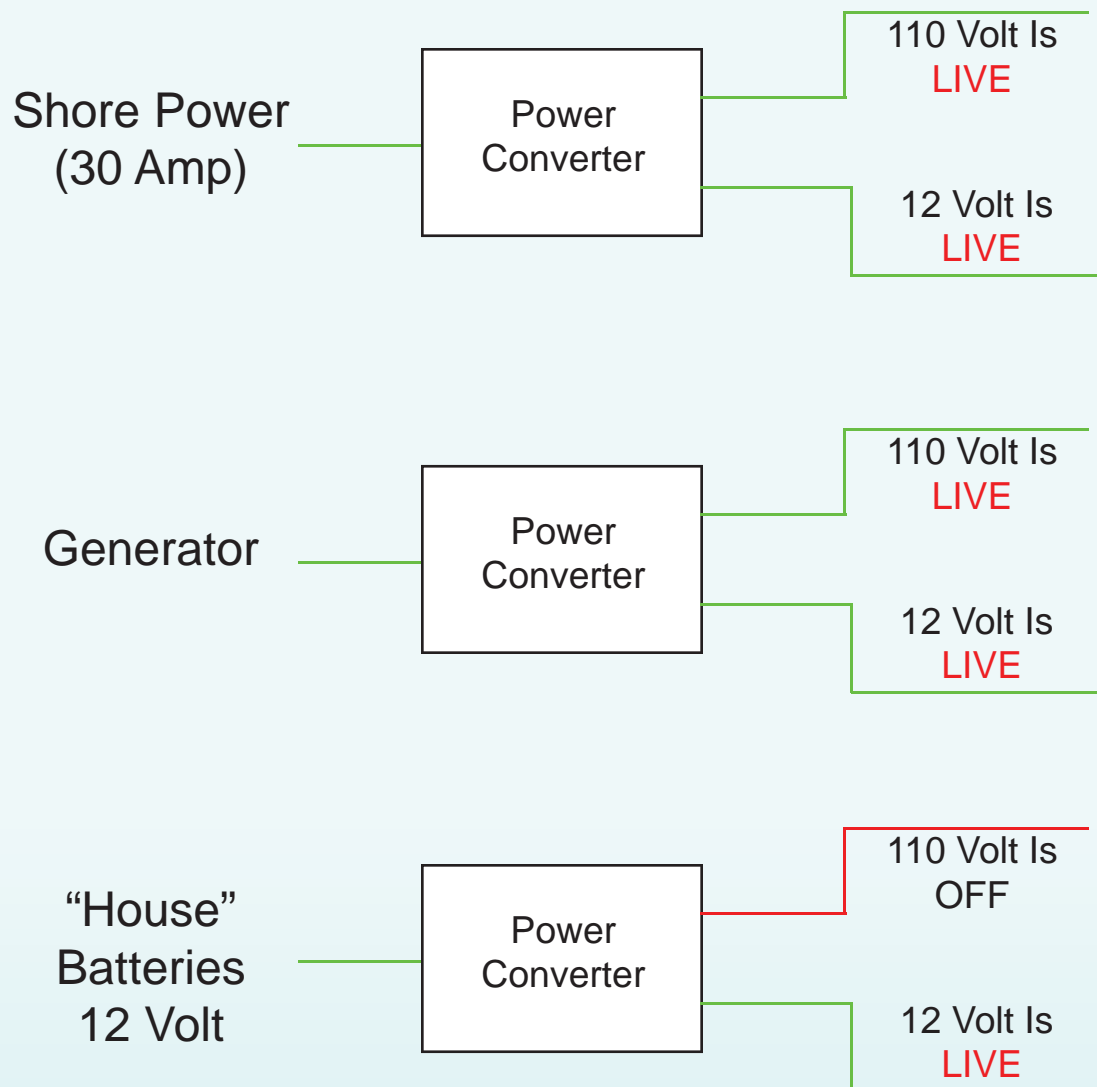
- 1) Auxiliary "House" 12 volt batteries
- 2) 110 volt external power cord (Shore Power)
- 3) Generator

Power Converter Location:

<u>MODEL #</u>	<u>Location</u>
220	Driver's Side Under Twin Bed
221 XL	Under Rear Dinette Seat
232 XL	Driver's Side Under Closet
261 XL	Passenger's Side Under Dry Storage Cabinet
261 XL (Twin Bed)	Driver's Side Under Twin Bed
261 XL (Sleeper Sofa)	Passenger's Side Under Dry Storage Cabinet
271 XL	Driver's Side Under Twin Bed
272 XL	Driver's Side (In the Bedroom under Drawers)



The converter is equipped with an automatic switchover relay to prevent both the generator and the external power cord from being connected to the converter at the same time. When either the external power cord or the generator is being used, both the 110 volt AC system and the 12 volt DC system will be activated inside the motorhome. When neither of these is connected, the 12 volt auxiliary batteries will activate only the 12 volt DC system.



Progressive Dynamics **Power Converter**

Instruction Manual

Insert Progressive Dynamics Manual Here

Circuit Breaker & Fuses

The location of the power converter can be found by looking for a black plastic box approximately 6" high x 12" wide. Location of the converter for your model is listed on page 3-5.

The door can be opened with a "push" touch and the circuit breakers and fuses can be located. The 110 volt AC breakers are located on the right with the first breaker on the left being the MAIN POWER, and the remaining breakers for the circuits as labeled on the door. The 12 volt DC fuses are the automotive push in type links and are located on the left side. The top two breakers are for system use, and do not feed the motorhome. The 12 volt DC circuits are labeled on the door.

There is an auxiliary 12 volt fuse panel located above the driver's side seat in a compartment behind a smoked plexiglass door.

Diagrams of the Fuse Panels for your model are located on the next two pages.

CAUTION

Whenever working on the electrical system, the system or circuit being worked on should be deactivated by disconnecting the power and/or throwing the main circuit breaker and safe procedures should be followed to prevent electrical shock. Any modifications made to the system should only be done by a professional to assure compliance with the codes and to assure safe installation practices.

Main Fuse Panel



PLATINUM MODELS W/FIREFLY

110 Volt System Breakers



<u>30</u> Amp	<u>20</u> Amp	<u>15</u> Amp	<u>20</u> Amp	<u>15</u> Amp	<u>20</u> Amp	<u>15</u> Amp	<u>15</u> Amp
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Main Power

Microwave

Water Heater

Power Inverter

Converter Box (12 Volt)

Air Conditioner

Refrigerator

A.C Power Sensor

<u>30</u>	<u>Refrigerator</u>
	<u>Blank</u>
	<u>Blank</u>
<u>10</u>	<u>12 volt Lights</u>
	<u>Blank</u>
<u>10</u>	<u>Furnace</u>
<u>10</u>	<u>T.V.</u>
<u>20</u>	<u>Accessories and Tank Heaters</u>
<u>10</u>	<u>Vent Fans</u>
<u>3</u>	<u>L.P. Common</u>
<u>5</u>	<u>L.P. Tank Solenoid</u>
<u>10</u>	<u>Drop Tap</u>

Auxiliary Fuse Panel (Above Driver's Seat)

Fuses Behind Panel (FORD)

Circuit	Amps	Device
1	Blank	Blank
2	5	TV Wall Plate
3	Blank	Blank
4	7.5	Satellite (Optional)
5	15	Engine Assist Solenoid (Hot Water Heater)
6	10	CO & LP Detectors

Auxiliary Fuse Panel (In Tower of Power)

Control Panel (FORD)

Circuit	Amps	Device
1	5	Entry Step (Ignition)
2	20	Entry Step Power
3	5	Entry Step Switch
4	5	Engine Battery (Autostart Generator Only)
5	5	House Battery (Autostart Generator Only)
6	5	Switched 12 Volt (Autostart Generator Only)

Power Inverter

The Xantrex 1200 Watt Freedom X Pure Sine Wave Inverter has been installed in your Coach House **PLATINUM** motorhome as standard equipment. The status panel for the inverter is located next to the 12 volt converter box (usually under the bed platform).



The inverter will supply 110 volt power to the electronic components (Television, DVD player, optional satellite receivers and the electrical outlets when you are not hooked up to shore power or running the generator. These devices will drain your “house” batteries if in use for an extended period of time.



Specifications

NOTE: Specifications are subject to change without prior notice.

Physical Specifications	Freedom X
L × W × H	14.8" (376mm) × 10.4" (263mm) × 3.5" (91mm)
Net Weight	10.4 lbs (4.7 kg)

Environmental Specifications	Freedom X
Ambient Temperature: Operating Temperature Range Storage Temperature Range	-4 –122 °F (-20 –50 °C), with output derated above 77 °F (25 °C) -40 –158 °F (-40 –70 °C)
Humidity: Operation/Storage	5–95% RH, non-condensing

System Specifications	Freedom X
Transfer relay rating	30A surge, 24A continuous
Transfer time (shore to inverter)	<20 milliseconds ^a
Transfer time (inverter to shore)	<20 milliseconds with a 20-second delay
Transfer voltage (shore to inverter)	<95 V and >135 V
Transfer voltage (inverter to shore)	<130 V and >100 V
Cooling	Fan, activated by any of the following: •High internal temperature •High AC output power

DC Input	Freedom X
Operating voltage range	LBCO voltage ^a –16.5 VDC
Safe non-operating voltage range	0–24 VDC
Nominal voltage	12.0 VDC
Nominal current at full load	116 ADC

AC Output	Freedom X
Output voltage range	110–125 VAC
Continuous power	1200 W @ 25 °C
Continuous current	10.0 A
Surge power	2400 W
Frequency	60 (or 50) Hz ^b
GFCI protection	customer-provided ^c
Wave shape	True Sine Wave
Peak efficiency	91%
Full load efficiency	≥ 86%

Regulatory Approvals	Freedom X
EMC and Safety	ETL listed to CSA 107.1 UL458 and UL458 Marine Supplement (drip shield with product number 808-1050 required) ABYC E11, A20, A25, A31
EMI	FCC Class B

a. To set LBCO, see "To change the Low Battery Cutout (LBCO) voltage:" on page 42.

b. To set the AC Frequency, see "To change the AC Output Frequency:" on page 45.

c. See "Ground Fault Circuit Interrupters (GFCIs)" on page 14 for approved devices.

Battery Seperator



FORD Chassis are fitted with an automatic Battery Seperator which electronically senses the condition of your battery system. The Seperator will control the charging of your "house" and engine batteries automatically assuming the batteries are able to receive a charge. (You need to check your batteries on a regular basis to ascertain their viability).

*** Batteries which drop below a minimum working voltage will not charge ***

*** Make sure your batteries are maintained to minimum working voltage at all times - including during storage ***

Generator



All FORD E-450 Chassis models are equipped with a:



4.0 kW ONAN (Gasoline) Microquiet Generator

Ford Chassis Generators feed directly from your fuel tank. No special fuel fill is needed to power your generator.

Safety Note:

Cummins Generators will not operate if your gasoline fuel tank is less than 1/4 tank full. This feature will ensure that your vehicle has sufficient reserve fuel available for other uses.

The instruction manual supplied with the generator should be carefully reviewed. Care should be taken not to exceed the capacity of the generator to prevent any possible damage to the generator unit.

Insert Cummins Generator Manual Here

Auxiliary “House” Batteries



Auxiliary batteries are mounted on a slide-out tray next to the entry door for easy access.



“Lifeline” GPL-4CT

Two - 6 Volt Batteries Wired in Series

Rated 242 Amp Hours





The auxiliary batteries are charged either by:

- 1) The *Alternator* of the motor home while driving
- 2) The *Power Converter* when external 120 Volt AC power is connected
- 3) The *Generator*

Care should be taken to prevent the auxiliary batteries from being totally discharged by making sure that all of the lights, fans, and appliances are turned off when the motor home is not in use. Whenever the motor home is not used for a period of time, the 120 Volt power cord should be plugged in once a month for 8 to 12 hours to bring up the charge on the auxiliary batteries. The master 12 Volt electrical switch (found to the right immediately upon entering the main motor home door) must be ON for the converter charger to charge the auxiliary batteries. Refer to the power center instruction sheet for further information. A totally discharged battery will not normally recharge as quickly, or in the same manner as a low battery. Professional help should be used when attempting to charge a totally discharged battery.

The engine battery of the motor home is not charged from the power converter. The engine battery should be periodically checked and maintained. Refer to the Chassis Owners Manual for recommended engine battery maintenance.

Maintenance of Batteries

Batteries have a “life” which is determined by the number of charging/discharging “cycles”. When your system is not in use, proper care should be taken to extend the battery life by following simple procedures:

Short Term Storage:

- 1) Turn off the Interior Battery Switch (located inside the Motorhome Entry Door to the right).
- 2) Ensure that all current drains have been eliminated. (Turn off all appliances)

Long Term Storage:

- 1) Turn off the Interior Battery Switch (located inside the Motorhome Entry Door to the right).
- 2) Disconnect the “House” Batteries by removing the Main “Positive” (red) cable(s).



Note: Do not disconnect the short red cables between your batteries. Only disconnect the “long” red cable(s) which feed your motorhome.

- 3) Connect a Battery Maintenance Device (Charging System) to your “House” Battery Bank. Chargers and Maintenance Devices are readily available at Auto Parts Stores, RV Dealers, or your local Hardware Store.

Engine Battery Maintenance:

Please refer to your Chassis Owner’s Manual to correctly maintain your engine battery.

**Insert Battery Maintenance Manual in
See Through Pocket Here**

80 Amp Breaker

Your Coach House **PLATINUM** has an electrical system circuit breaker to prevent damage to your electrical system. The 80 Amp breaker will 'trip' if an overload situation occurs. Push in the red button to reset the breaker.

80 Amp Breaker Locations

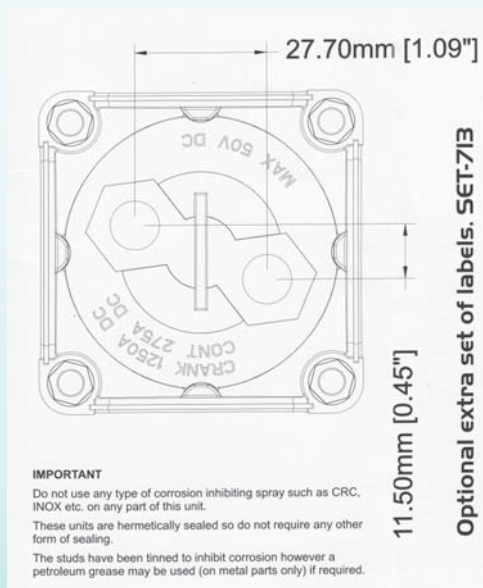
<u>Model #</u>	<u>Location</u>
220	Side of Galley Cabinet as you enter motorhome (on left)
221 XL	Under the Dinette Seat (Front)
232 XL	Front Edge of the Galley (Lower Cabinet)
261 XL	Under the Dinette Seat (Front)
261 XL (Twin Bed)	Side of Galley Cabinet as you enter motorhome (on left)
261 XL (Sleeper Sofa)	Under the Dinette Seat (Front)
271 XL	Behind the Lounge Chair (On the Galley Cabinet)
272 XL	Behind the Lounge Chair (On the Galley Cabinet)



Battery Switch

The battery switch is located at the exterior side door, on the cabinet behind the passenger's seat. Auxiliary batteries are being used when the switch is in the on position. Always turn the battery switch to the off position when the motor home is not being used, to prevent the auxiliary batteries from being drained.

NOTE: Auxiliary batteries will NOT charge from engine alternator or converter with battery switch in the "OFF" position.



Auxiliary Start Over-Ride Switch

In the event that your engine battery does not have the power to start your motorhome, your **PLATINUM** is equipped with an Auxilliary Start Over-Ride Switch which will “tie” the house batteries to the engine battery to give an extra “boost” of power to start your motorhome engine.

Push the red switch and HOLD IT DOWN while starting your vehicle with the key.

The Over-Ride Switch is located on the dash panel just above your left knee when sitting in the driver’s seat.



GFCI Receptacles

A GFCI receptacle is different from conventional receptacles. In the event of a ground fault, a GFCI will trip and quickly stop the flow of electricity to prevent serious injury. All Coach House **PLATINUM** models have GFCI receptacles in the galley and the bathroom. See the GFCI manual for more information.



How to test your GFCI Outlet:

Step 1: Plug a lamp into the GFCI.

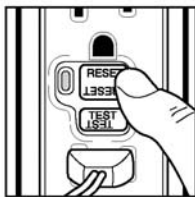
Step 2: Turn on the lamp.

Step 3: Push the TEST button on the GFCI. The GFCI should trip, stopping the flow of electricity to the lamp. Note that the RESET button will pop-out.



If the lamp DOESN'T turn off when the TEST button is pushed, the GFCI is not working properly and should be replaced immediately.

If the lamp DOES turn off when the TEST button is pushed, the GFCI is working properly and should be tested monthly. To restore power, press the RESET button.



If the power is not restored when the RESET button is pushed, the GFCI is not working properly and should be replaced immediately.

For more information on GFCIs and how to test monthly, go to www.tools.passandseymour.com/gfci or to participate in an interactive GFCI demo online, go to www.electrical-safety.org

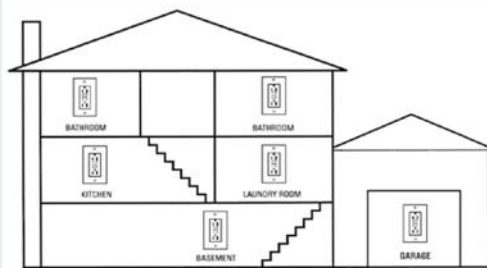
What is a GFCI Outlet?

A Ground Fault Circuit Interrupter (GFCI) Outlet protects you from serious injury due to electrical shock from:

- Hazardous leakage levels from appliances and tools
- Exposure to moisture while operating electrical equipment
- Frayed or damaged electrical wiring

Where are your GFCIs located?

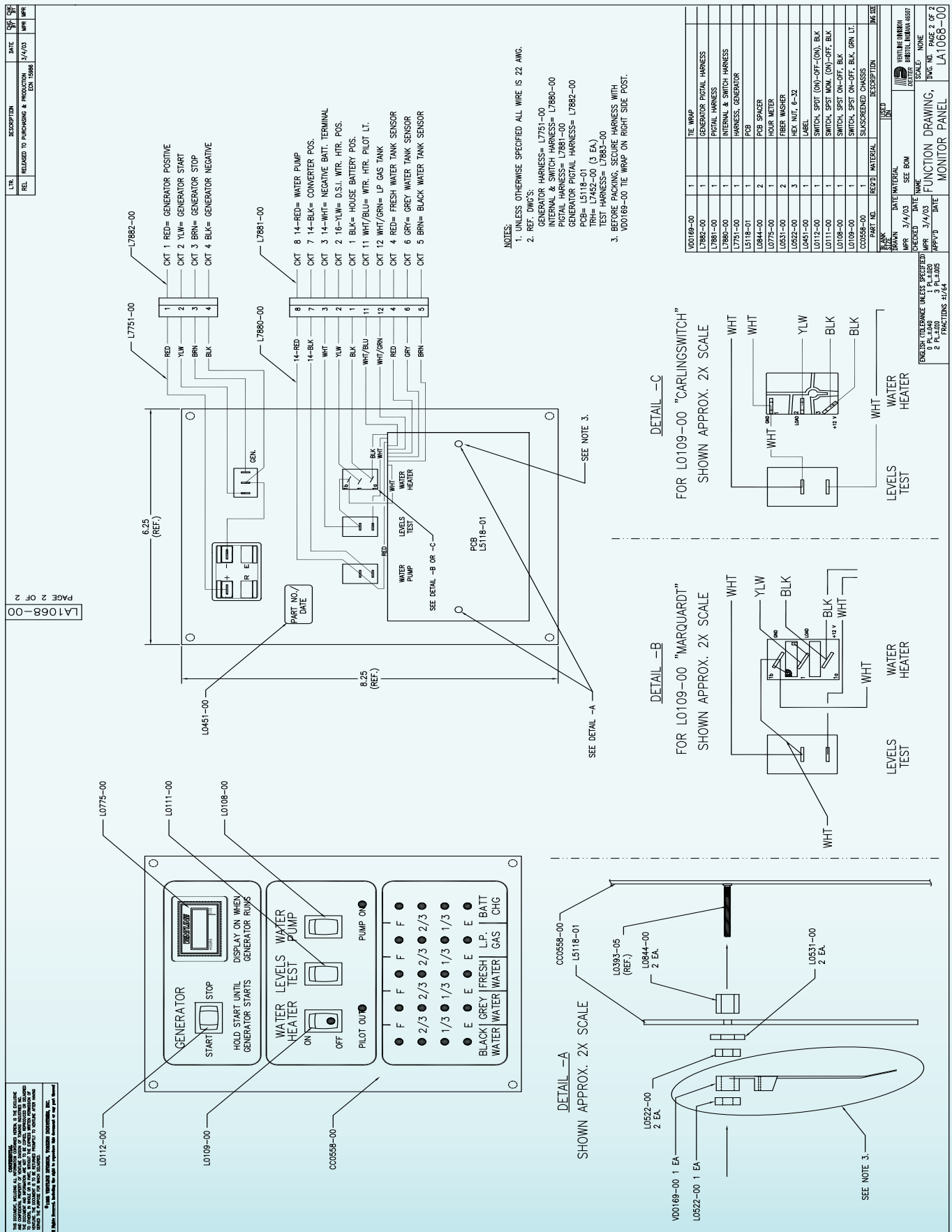
GFCI protection is required per the *National Electrical Code®* (NEC) for outlets servicing bathrooms, kitchen countertops, unfinished basements, garages, utility sinks, and outdoor locations.

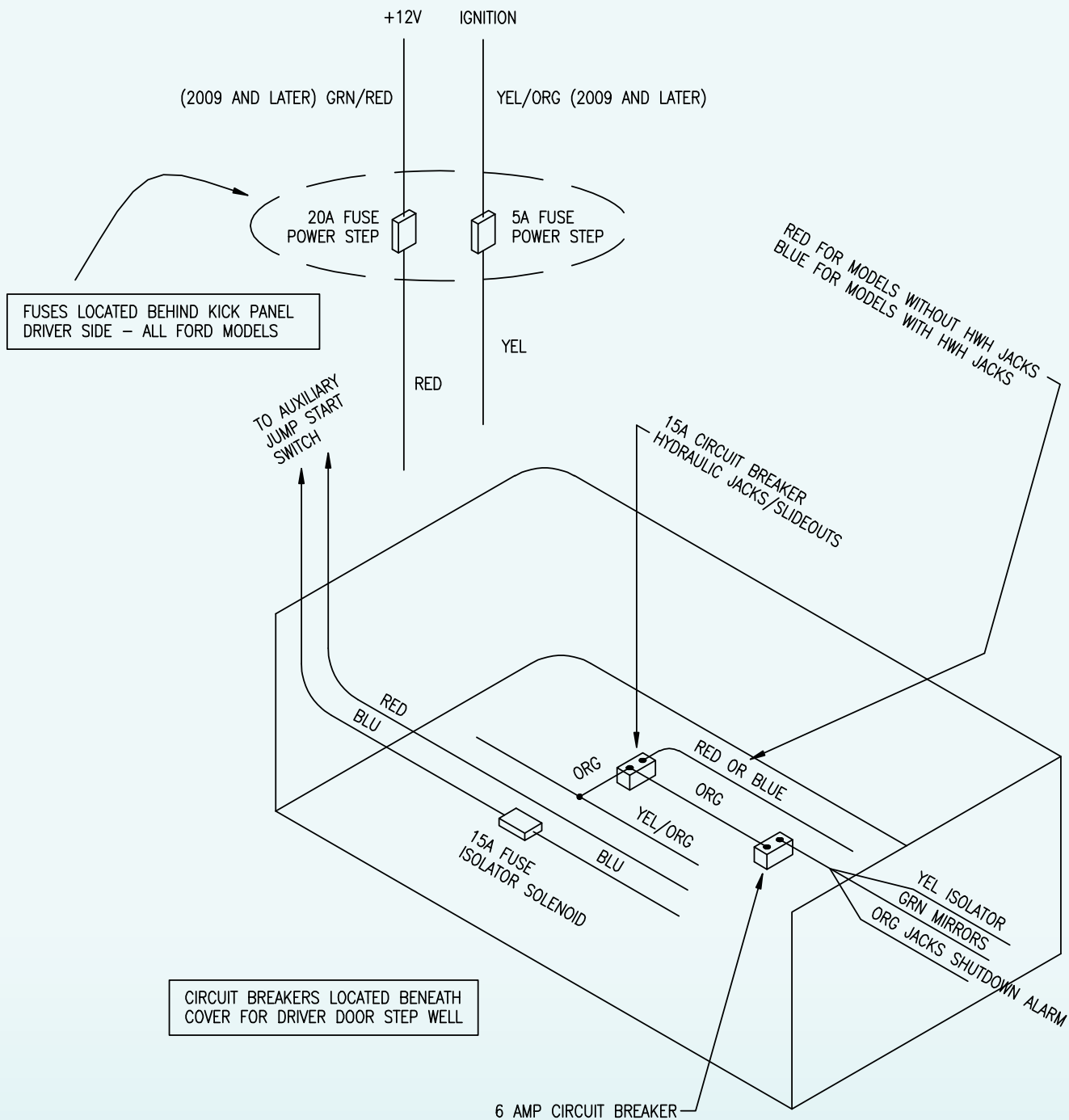



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Main Control Panel Wiring Diagrams

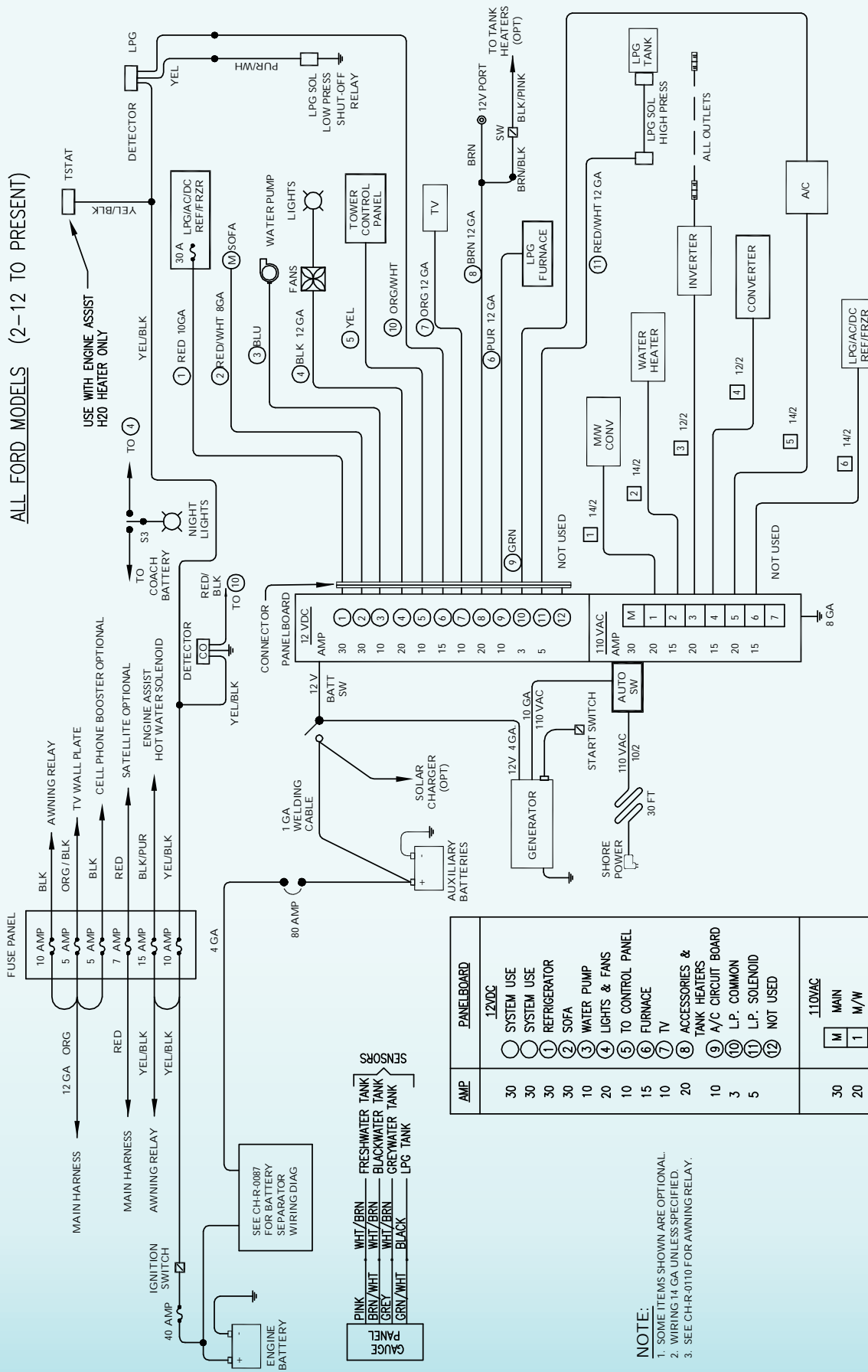




1479	2	4-30-13	UPDATE WIRING PER D112.
1415	1	11-8-11	UPDATE FUSE LOCATION.
	0	11-12-09	
ECR	REV	DATE	DESCRIPTION
FUSE & CIRCUIT BREAKER LOCATION FOR POWER STEP, HYDRAULIC JACKS, POWER MIRROR, & ALTERNATOR (FORD)			 Coach House Van Motor Homes
			No. CH-R-0089

SHEET 1 OF 2





NOTE:

1. SOME ITEMS SHOWN ARE OPTIONAL.
2. WIRING 14 GA UNLESS SPECIFIED.
3. SEE CH-R-0110 FOR AWNING RELAY.

<u>AMP</u>	<u>PANELBOARD</u>		
30	12VDC		
30	○ SYSTEM USE		
30	○ SYSTEM USE		
30	① REFRIGERATOR		
30	② SOFA		
20	③ WATER PUMP		
10	④ LIGHTS & FANS		
10	⑤ TO CONTROL PANEL		
15	⑥ FURNACE		
10	⑦ TV		
20	⑧ ACCESSORIES & TANK HEATERS		
10	⑨ A/C CIRCUIT BOARD		
3	⑩ L.P. COMMON		
5	⑪ L.P. SOLENOID		
	⑫ NOT USED		
	110VAC		
30	<table border="1"> <tr> <td>M</td> <td>MAIN</td> </tr> </table>	M	MAIN
M	MAIN		
20	1 M/W		
15	2 WATER HEATER		
20	3 INVERTER		
15	4 CONVERTER		
20	5 A/C		
15	6 REFRIGERATOR		
	7 NOT USED		

1647	23	1-24-17	UPDATE FUSE BLOCK FOR AWNING RELAY.
ECR	REV	DATE	DESCRIPTION

PLATINUM 110VAC & 12VDC WIRING DIAGRAM



Coach House

Motor Homes

No. EL108