



# Section 3

## Electrical Systems

# Electrical Systems

Power Converter	.....	3-3
Progressive Dynamics Instruction Manual	.....	3-5
Circuit Breakers and Fuses	.....	3-7
Main Fuse Panel Diagrams	.....	3-8
Auxiliary Fuse Panel Diagrams	.....	3-9
Multi Battery Isolator	.....	3-10
Sure Power Manual	.....	3-11
Generator	.....	3-12
Cummins/Onan Generator Manual	.....	3-13
Auxiliary "House" Batteries	.....	3-14
Maintenance of Batteries	.....	3-18
80 Amp Breaker	.....	3-20
Battery Switch	.....	3-21
Power Input Selection Switch	.....	3-22
Auxiliary Start Over Ride Switch	.....	3-24
GFCI Receptacle	.....	3-25
Wiring Diagrams		
Main Control Panel	.....	3-27
Driver's Door Step Diagram	.....	3-29
Isolator / Charging System	.....	3-30
EL 108	.....	3-31

# 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:

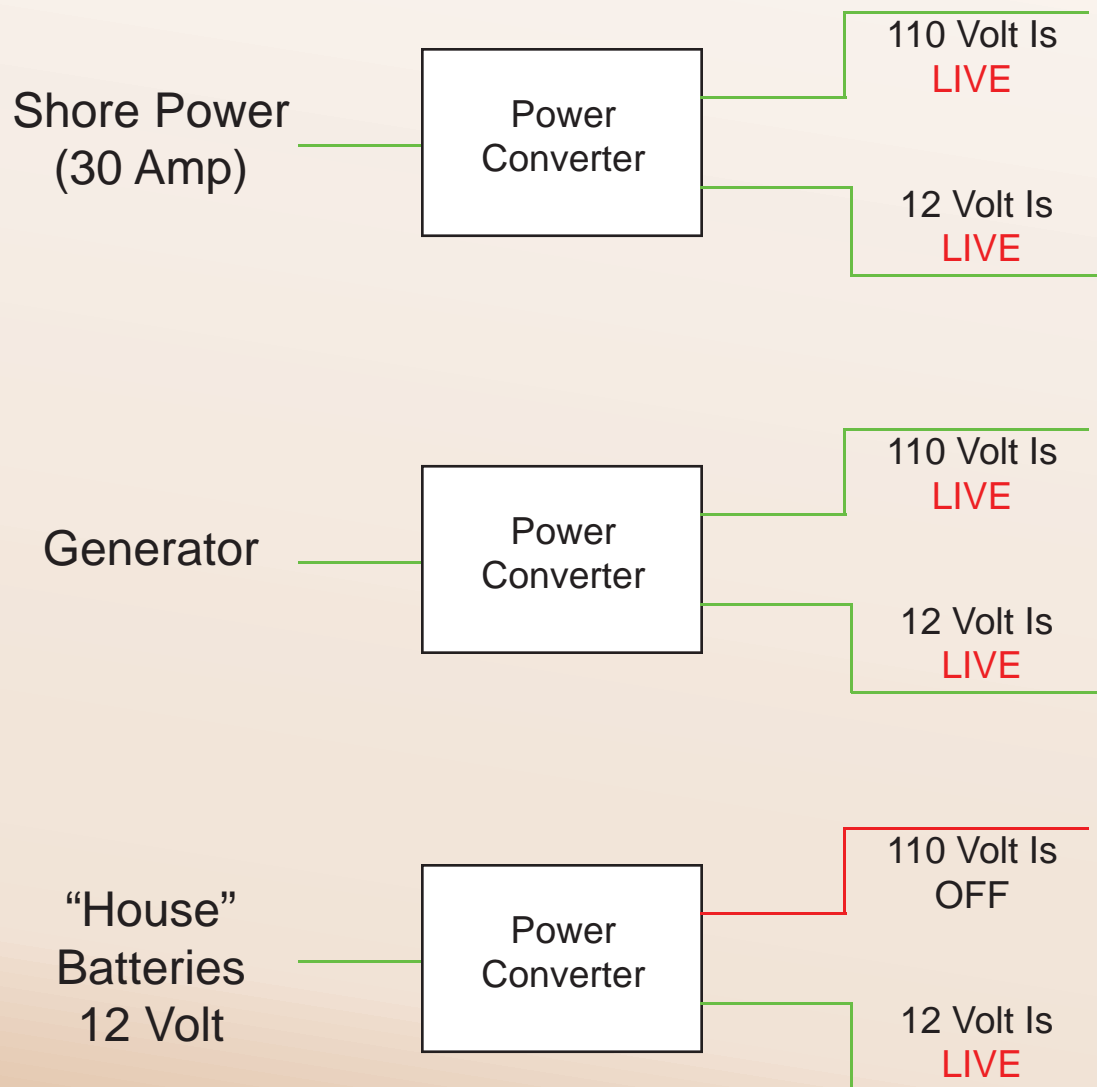
- 1) Auxiliary “House” 12 volt batteries
- 2) 110 volt external power cord (Shore Power)
- 3) Generator

## 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 3-3.

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.

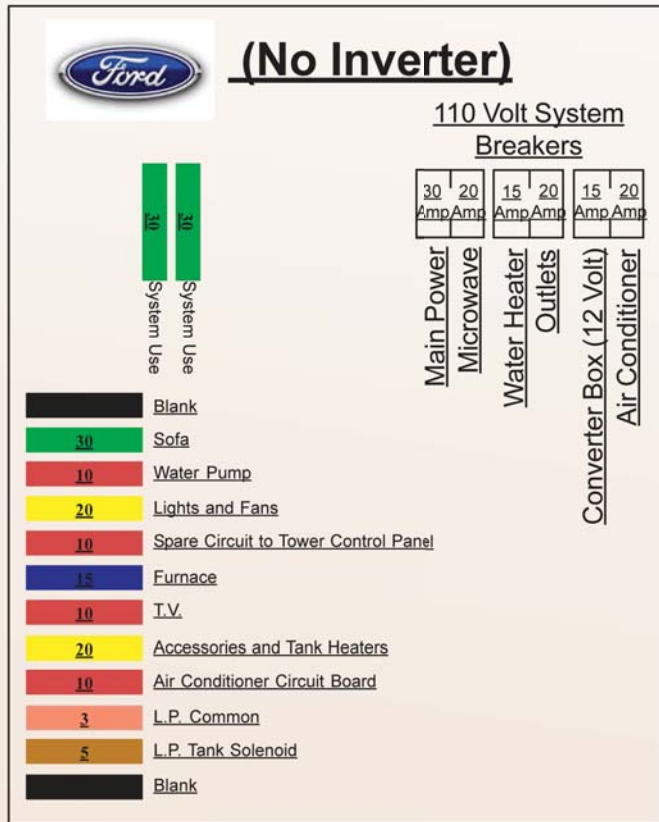
There is an auxiliary 12 volt fuse panel located above the driver's side seat in a compartment behind a smoked plexiglass door.

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

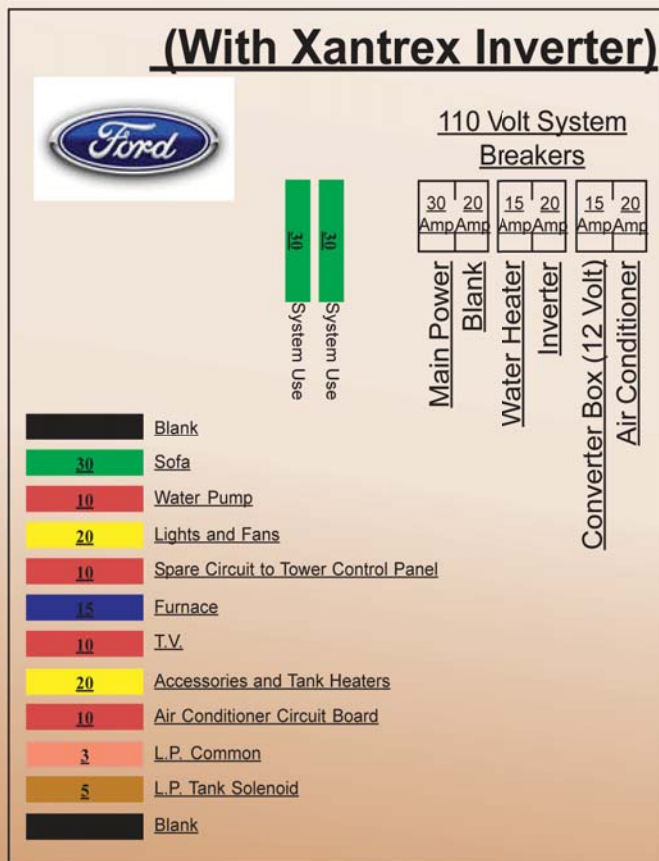
## CAUTION

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



Main Fuse Panel without Inverter Installed



Main Fuse Panel with Xantrex Pure Sine Wave Inverter Installed



## Auxiliary Fuse Panel (Above Driver's Seat)

<u>Circuit</u>	<u>Amp</u>	<u>Device</u>
1		Empty
2	5A	12v Power Supply
3	1A	T.V. Antenna Rotor
4	5A	Satellite
5	5A	Hot Water Solenoid
6	10A	CO and LP Detectors

# Multi-Battery Isolator Sure Power Manual



All Coach House FORD Chassis models have a Sure Power Battery Isolator installed which “shields” the engine battery from the house batteries when the engine is running and the alternator is charging the electrical system. The alternator will charge the engine battery first to make sure the engine systems are fully charged. When the engine battery is fully charged, the Battery Isolator will allow the alternator to charge the ‘house’ batteries when the engine is running.

# **Insert 2 Sided Sure Power Manual Here (Debbie Print)**

# 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.

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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.



Your Ford Chassis may have two (2) or three (3) batteries depending on how it was originally equipped at the factory.



## FORD Chassis

Interstate Deep Cycle Group 27 Model DCM0090

2 Standard      1 Extra (Optional)      3 Total

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.

**DCM0090**



**DEEP CYCLE  
MOBILITY**



**DCM0090  
VALVE-REGULATED  
LEAD-ACID BATTERY  
FOR DEEP-CYCLE  
APPLICATIONS**

**FEATURES**

- Robust plate for extended cycle life.
- Computer-generated grid design optimized for high-power density.
- Low-calcium grid alloy for reduced gas emissions and ease of recycling.
- Flame-arresting, one-way pressure-relief vent for safety and long life.
- UL-recognized component.
- Multicell design for economy of installation and maintenance.
- Case and cover available in standard polypropylene.
- Thermally welded case-to-cover bond to eliminate leakage.
- Removable handles.
- Can be used in any orientation. Upright, side or end mounting recommended.
- Absorbent Glass Mat (AGM) technology for efficient gas recombination of up to 99% and freedom from electrolyte maintenance.
- Not restricted for air transport — complies with IATA/ICAO Special Provision A67.
- Not restricted for surface transport — classified as nonhazardous material as related to DOT-CFR Title 49 parts 171-189.
- Not restricted for water transport — classified as nonhazardous material per IMDG Amendment 27.
- Longest cycle life available.
- Manufactured by an ISO9001 certified facility.

**12 Volts – 90 Ampere-Hour Capacity @ 20-Hour Rate**

Ampere-Hour Capacity to 1.75 Volts per Cell @ 77°F (25°C)  
10.5 Volts per 12 Volt Battery

Approximate Discharge in Hours	20	10	5	1
Amp-Hour Capacity	92	84	67	46

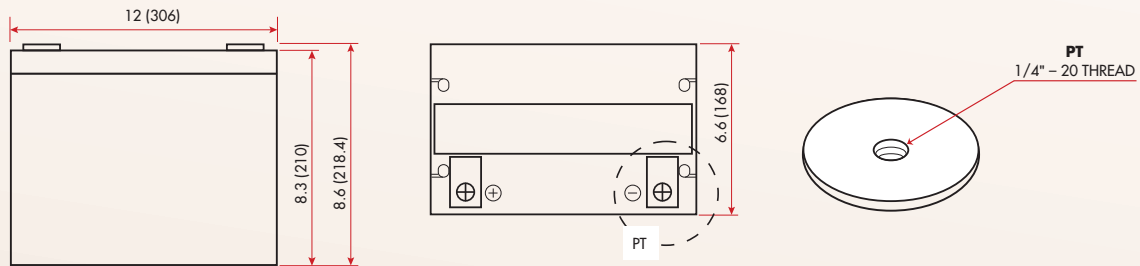
**Interstate Battery  
System of America, Inc.**  
12770 Merit Drive, Suite 1000  
Dallas, TX 75251  
Customer Service: 1-888-772-3600

Printed in the U.S.A. Rev. 12/06 MR 128782  
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[interstatebatteries.com](http://interstatebatteries.com)







## DCM0090 – Specifications

\*All dimensions in inches and (millimeters). All dimensions are for reference only. Contact an Interstate representative for complete dimensional information.

Cells Per Unit	Voltage Per Unit	Weight	Electrolyte	Max. Discharge Current	Short Circuit Current	Ohms Imped. 60 Hz
6	12	60.2 lbs. 27.3 kg	Absorbed H <sub>2</sub> SO <sub>4</sub> SG = 1.30	450 Amps	1350 Amps @ 0.1 sec.	8 mΩ

<b>Capacity</b>	90 Ah @ 20 hr. rate to 1.75 volts per cell @ 77°F (25°C)
<b>Operating Temperature Range (with temperature compensation)</b>	Discharge: -40°F (-40°C) to +160°F (71°C) Charge: -10°F (-23°C) to +140°F (60°C)
<b>Recommended Operating Temperature Range</b>	+74°F (23°C) to +80°F (27°C)
<b>Equalization and Cycle Service Charging and Current Limits</b>	≤ 36 A, 14.5 V – 14.9 V
<b>Self Discharge</b>	Interstate batteries may be stored for up to six months at 77°F (25°C), and then a freshening charge is required. For higher temperatures, the time interval will be shorter.
<b>Terminal</b>	Insert, threaded female, 1/4" – 20 (hardware included)

## Constant Current Discharge Ratings – Amperes @ 77°F (25°C)

Operating Time to End Point Voltage (in hours)

End Point Volts/Cell		5 min	10 min	15 min	30 min	1 hr	2 hr	3 hr	4 hr	5 hr	8 hr	10 hr	20 hr
9.60V	A	309.3	225.7	158.8	96.1	50.2	29.3	21.5	16.7	13.8	9.7	8.8	4.7
	W	3284.6	2480.4	1687	1020.8	581	338.6	249.1	194	159.7	112.9	102	54.9
10.20V	A	272.5	205.7	142.1	91.1	47.2	27.9	20.9	16.3	13.5	9.5	8.5	4.6
	W	3025.5	2283.1	1577.5	1011.6	545.9	323.5	242.4	188.9	125.5	110.4	99.5	53.5
10.50V	A	262.5	195.6	133.8	88.6	46	27.3	20.4	16.1	13.4	9.4	8.4	4.6
	W	2977	2218.7	1516.5	1004.9	528.4	316	236.6	185.6	154.7	109.5	97.8	52.8
10.80V	A	252.5	185.6	125.4	86.1	44.3	26.6	19.9	15.8	13	9.2	8.4	4.5
	W	2938.5	2160.2	1459.7	1002.4	514.1	309.3	231.6	182.2	152.2	107	97	52.6
11.10V	A	242.4	175.6	117	83.6	42.6	25.9	19.2	15.3	12.7	8.9	7.9	4.3
	W	2885	2089.2	1392.8	994.8	507.5	308.5	229.1	181.4	151.3	106.2	94.5	51

# 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

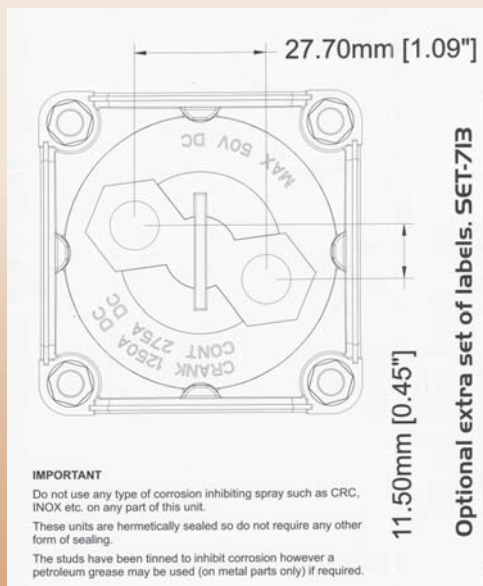
<u>Model #</u>	<u>Location</u>
220	Side of Galley Cabinet as you enter motorhome (on left)
221 XL	Under the Dinette Seat (Front)
232 XL	Front Edge of the Galley (Lower Cabinet)
261 XL	Under the Dinette Seat (Front)
261 XL (Twin Bed)	Side of Galley Cabinet as you enter motorhome (on left)
261 XL (Sleeper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

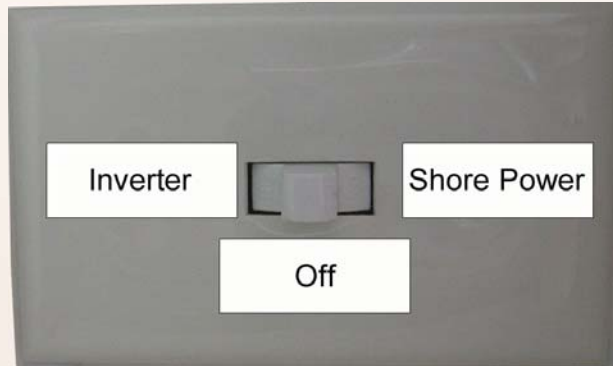
The battery switch is located at the exterior side door, on the cabinet behind the passenger's seat. Auxiliary batteries are being used when the switch is in the on position. Always turn the battery switch to the off position when the motor home is not being used, to prevent the auxiliary batteries from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

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

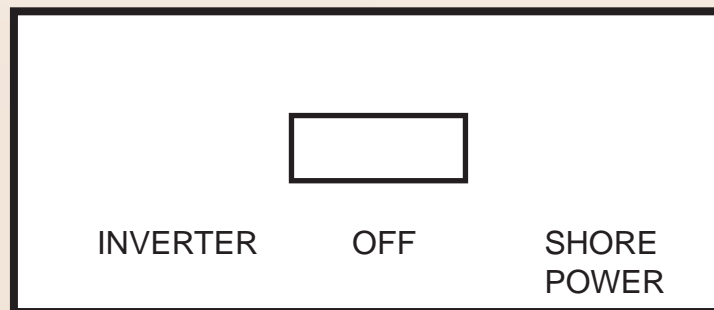




# Power Input Selection Switch

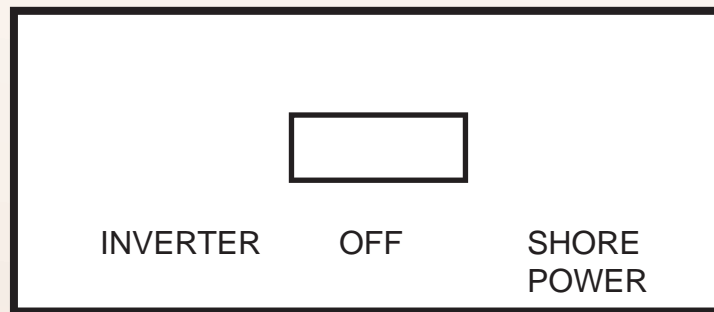


A selector switch has been installed in your **PLATINUM** motorhome to protect the inverter from being shorted out when hooking up to shore power. This switch is usually located above the driver's compartment either in the fuse panel area, or on the cabinetry above the slide out. The switch is a three position switch. The following diagram shows the positions.



**THIS SWITCH IS NOT INSTALLED IF A  
XANTREX PURE SINE WAVE INVERTER  
WAS INSTALLED IN YOUR COACH HOUSE  
MOTORHOME.**

Power for the front outlets, the television and electronics, and the automatic legless awning are all fed through the Power Input Selection Switch. Each position feeds power to the outlets and appliances differently.



When the Selector Switch is in the “Inverter” position, 110 Volt Power to the front outlets is supplied from the “House Batteries” it is possible to drain your house batteries if the switch is in this position too long without recharging your house batteries. Plugging in to Shore Power will charge your batteries while the Inverter is selected.

When the Selector Switch is in the “OFF” position, no power is supplied to the front outlets. **The powered awning will NOT work when the switch is in this position.** Severe damage could be done to the awning in inclement weather if power is not supplied.

When the Selector Switch is in the “Shore Power” position, 110 Volt Power to the front outlets is supplied from the 110 Volt source you are plugged into. The house batteries will not drain their charge in this position. Remember to plug in your shore cord in this position.

**Make sure your Battery Cutoff Switch is in the ON position and the Inverter is turned ON any time the Electric Awning is deployed. Damage to your Awning or Motorhome may occur if power is not available in the event of inclement weather.**

# 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 white 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](http://www.tools.passandseymour.com/gfci)**

or to participate in an interactive GFCI demo online, go to

**[www.electrical-safety.org](http://www.electrical-safety.org)**

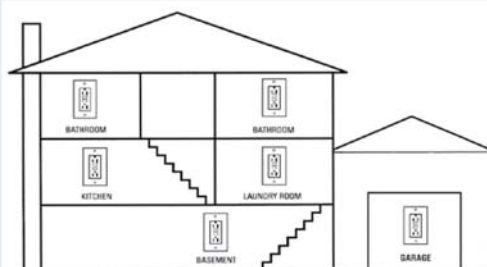
## What is a GFCI Outlet?

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?

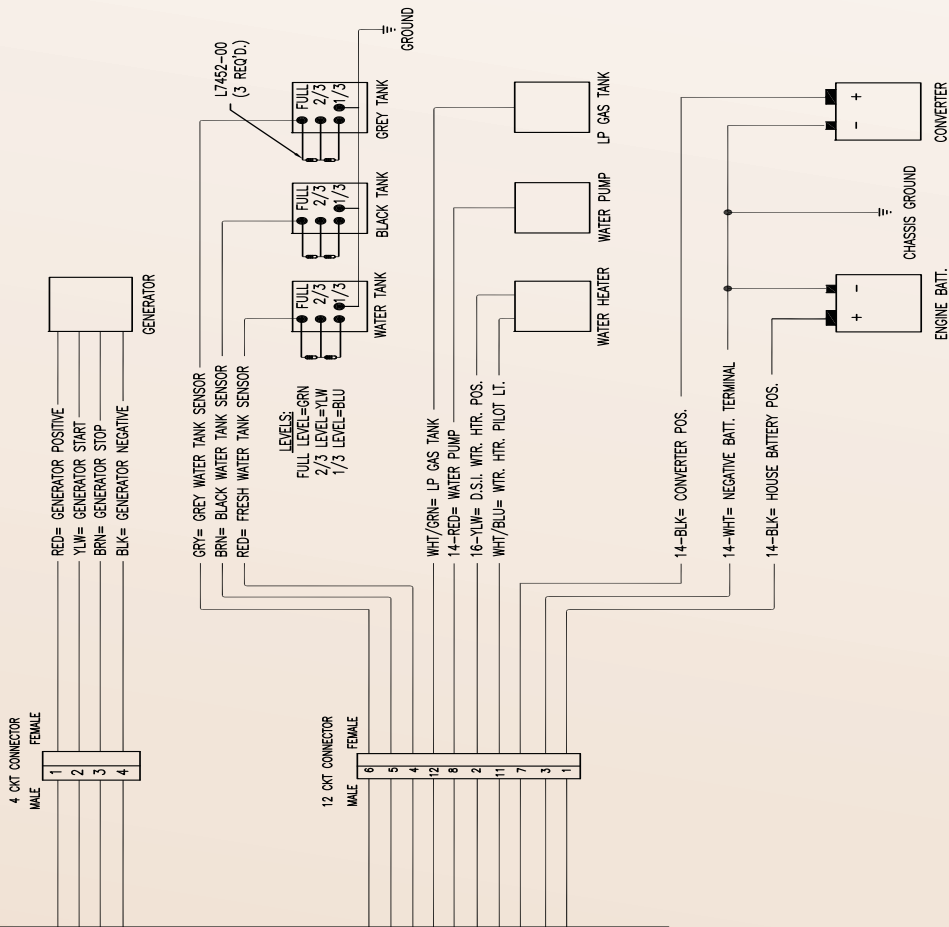
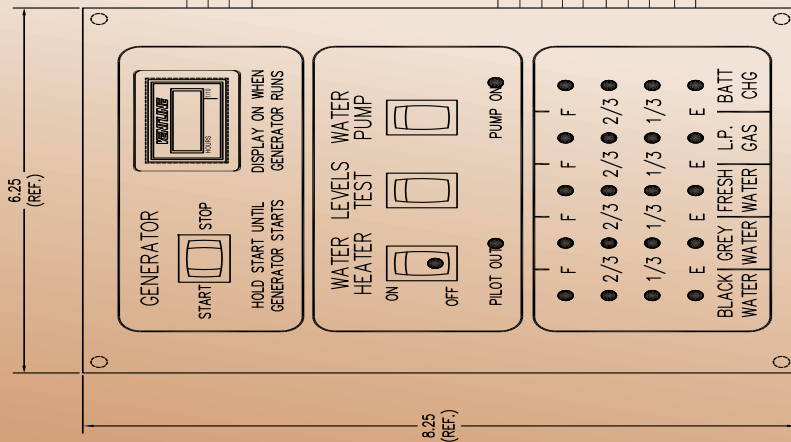
GFCI protection is required per the *National Electrical Code®* (NEC) for outlets servicing bathrooms, kitchen countertops, unfinished basements, garages, utility sinks, and outdoor locations.



Legrand/Pass & Seymour  
is a proud sponsor of:



# Main Control Panel Wiring Diagrams

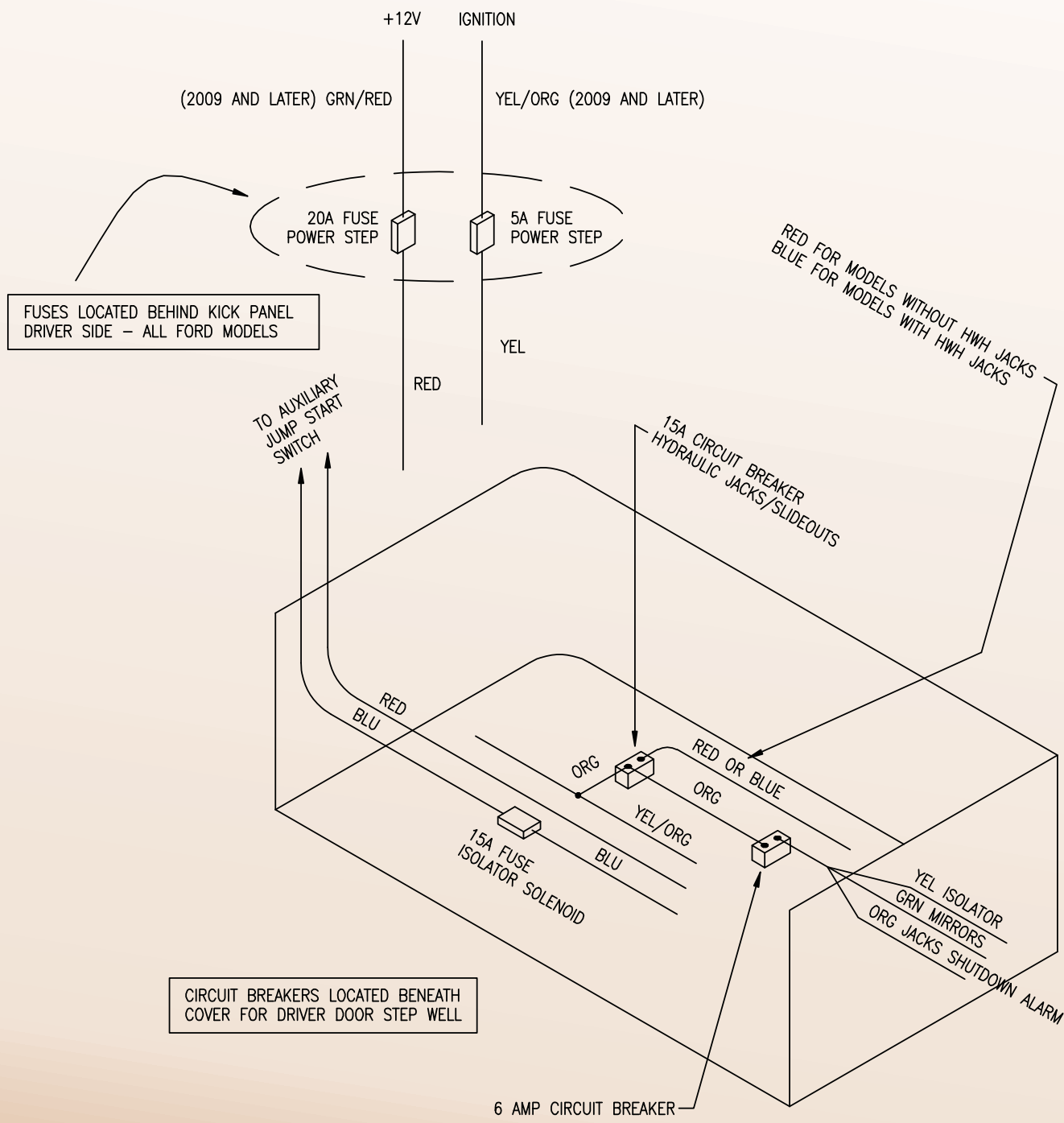



- NOTES:
1. UNLESS OTHERWISE SPECIFIED ALL WIRE IS 22 AWG.
  2. REF. DWG'S:  
GENERATOR HARNESS= L7751-00  
INTERNAL & SWITCH HARNESS= L7880-00  
PIGTAIL HARNESS= L7881-00  
GEN. PIGTAIL HARNESS= L7882-00  
PCB= L5118-01  
TRH= L7452-00 (3 EA.)  
TEST HARNESS= L7883-00
  3. BEFORE PACKING, SECURE HARNESS WITH VDU/69-00 TIE WRAP ON RIGHT SIDE POST.

PART NO.	RECD	MATERIAL	DESCRIPTION	IMG ID
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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)			 <b>Coach House</b> Van Motor Homes
			No. CH-R-0089

SHEET 1 OF 2



