



**SAFARI**

1-800-344-6332

OWNER'S MANUAL



The descriptions and specifications in this manual were in effect at the time of its approval for printing. Safari Motor Coaches reserves the right to change specifications or designs without notice or incurring obligation. This manual includes information on several different model options. Your motorhome may not contain every system described.

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# Foreword

To our valued customers:

Congratulations on the purchase of your luxurious new Safari Continental/Continental Panther. You have made a substantial investment of time and money in selecting your motorhome. Now let's take the time to get to know your coach. This, too, is worth the investment of your time and could save you some money.

Although we are quite sure this manual will never reach the *New York Times Best Sellers List*, or even *Barnes & Noble's Top Ten Beach Reads*, it will save you time and trouble, especially when you're out on the road, away from your local service center. Let's face it - even though we have done everything possible to prevent such circumstances, sometimes things go wrong. By reading this manual and the other manuals that came with your coach, you can troubleshoot some of the more common problems.

This manual is not designed to be a service manual, nor should it be used as such. It has been designed to give you a comprehensive overview of your motorhome's operational systems and features. If you require service or need warranty assistance, please call the number(s) listed in your *Safari Owner's Manual*. And remember...before calling Warranty, it's always a good idea to write down the last five numbers of your Vehicle Identification Number (VIN). This is located on a plaque next to the entry door on the exterior of the coach. This will speed the process of locating your records. It is also helpful to note your coach's mileage.

Thank you - and we hope you enjoy your new Safari motor coach!



## CHAPTER 1 – VEHICLE OPERATION

### Outline

**WARNING:** This supplement is meant for reference only. Please be sure to read your Safari Owner's manual for detailed descriptions of systems and component functions. Also become familiar with all procedures, cautions, and warnings given in the various manufacturers' manuals provided before operating your motorhome.

Your Safari Continental/Continental Panther has been designed to enhance your living and driving pleasure. The main and side dashboard panel's lights and controls are conveniently placed and easy to read. The in-dash heating and air conditioning unit is state-of-the-art. To ensure your comfort cabin temperature is set and then automatically maintained by the system.

Safari's 6-way powered driver's seat offers comfortable seating and helps to combat driving fatigue.

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**WARNING:** Make sure there is adequate ventilation when running your coach engine or heaters.

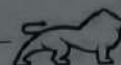
## Vehicle Operation

**WARNING:** When first starting your coach, you must wait until the Engine Preheat light shuts off. Do not crank the starter for more than thirty seconds at a time. If the engine fails to start, wait before cranking again.

When starting the engine, first make sure the parking brake is on and the headlights are off. Put the transmission in NEUTRAL and turn the key to the ON position. The Check Engine and Engine Preheat lights will activate. Wait until the Engine Preheat light shuts off before starting the engine. Under normal conditions, this should only take about five seconds. It will take longer when you are in colder climates. At this time, it would be a good practice to turn off the ignition and repeat this cycle before actually starting the coach.

Check the engine oil pressure soon after starting. You should let the engine idle for three to five minutes before moving out, but do not idle the engine too long. Idling for more than ten minutes can lead to improper fuel consumption and may cause problems with the efficiency of the engine.

**NOTE:** Minimize the load on the chassis batteries by turning off all unnecessary lights and accessories when starting your coach.



In cold weather the engine may be more difficult to start. Oil becomes thicker, making the engine crank more slowly. If you plan on traveling in cold areas (consistently below 20 degrees Fahrenheit), use oil that is recommended for colder climates.

If the chassis batteries fail to provide enough power to crank the engine fast enough, press the battery boost switch to connect to the house batteries for added power.

Carefully monitor all gauges while running the engine. The normal operating ranges are discussed in this section and in the engine and chassis manuals. Before shutting the engine down, allow it to idle for a few minutes to cool the combustion chamber, bearings, turbo charger and crankshaft.

**WARNING:** Monitor your gauges closely while driving. If any readings are not within their normal operating range, take appropriate action immediately.

## Main Dashboard

The Safari dash is designed to be easy to read and easy to use. All important gauges are placed directly in front of the driver and arranged for comfortable viewing. The controls are well marked for quick identification. Most of these items require little explanation, but they are summarized here.



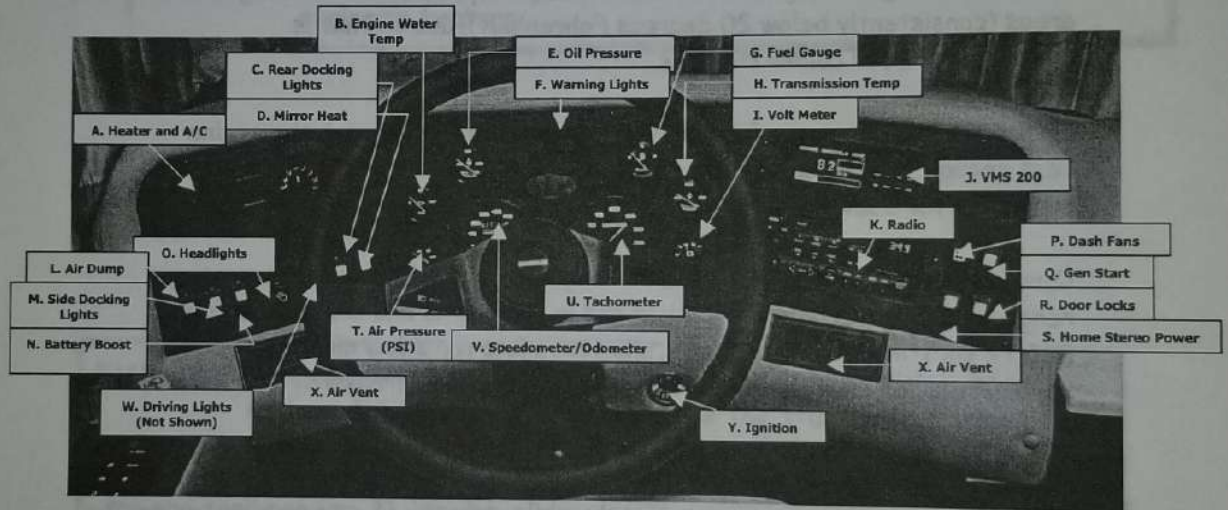


Figure 1: Main Dash

### A. Evans Tempcon Control

The Evans Tempcon dash heater/air conditioning unit's controls operate similarly to those found in luxury automobiles. Automatic temperature control allows you to preset the controls at a desired temperature that is automatically maintained by the system. In addition to fully automatic operation, outside air temperature can be momentarily displayed, along with ice warnings when the temperature is within 6 degrees Fahrenheit or 4 degrees Celsius of the freezing point. See the manufacturer's instructions in your warranty packet for detailed operating instructions.

### B. Engine Water Temperature

The normal operating temperature for the engine is 190 to 215 degrees Fahrenheit.



Overheating can occur because of insufficient coolant or a problem in the cooling system. It can also occur in hot weather with slow or stop-and-go driving.

**WARNING:** Do not operate the engine over 230 degrees. If the temperature reading exceeds this level, pull over promptly and allow the engine to cool. Extended or frequent operation at this temperature will damage your engine and void your engine warranty.

#### C. Rear Docking Lights

Two halogen lights are mounted on the back end of the coach to provide extra light while parking.

#### D. Mirror Heat

When this switch is turned on the remote mirrors will be heated. Use this feature when mirrors are frosted or fogged during cold weather conditions.

#### E. Oil Pressure

High or low oil pressure indicates possible problems with the lubrication of the engine. While idling, the gauge should read about 10 PSI and while driving it should rise to about 35 PSI. When the engine is cold, the pressure will be considerably higher due to the increased viscosity (thickness) of the oil.

**WARNING:** If the oil pressure drops significantly below 35 PSI while driving or 10 PSI while idling, stop the engine immediately and check the oil level.







## F. Warning Lights

Warning lights will activate under certain conditions to warn you of potential problems. They include: Left Turn, High Beam Indicator, High Water Temp, Right Turn, Fast Idle, Do Not Shift, Engine Warning, Low Oil Pressure PSI, Air Inlet, Park Brake Warning, Service Fuel, and Brake Service. (See Figure 2 Icon Bar Detail for layout.)

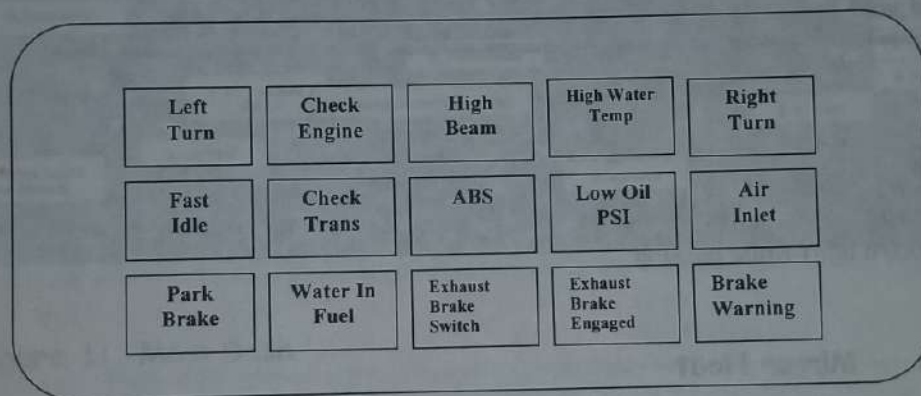


Figure 2 Warning Lights Detail

**WARNING:** If the Engine warning light activates while driving, the engine will automatically derate (operate at approximately half power with a maximum speed of 30 mph). If this happens, turn off the cruise control and press the RESUME/SET switch. The Engine warning light will then flash a two-digit diagnostics code that will be needed for repair if engine problems are detected. Do not shut off your engine before recording this code. (See engine manual for code details.)



### I. Fuel Gauge

The fuel reading will vary when cornering, accelerating, braking, and climbing or descending hills. The Continental's fuel tank has a capacity of 105 gallons (3126B engine). The Panther's fuel capacity is 112 gallons (425 engine).

### H. Transmission Temperature

The transmission should normally operate between 140 and 250 degrees Fahrenheit.

**WARNING:** If the transmission temperature reaches 290 degrees, stop the vehicle, shift into NEUTRAL, and run the engine at 1200 rpm for two minutes or more. The temperature should drop to its normal range. If problems persist, check the transmission oil level or consult an authorized service center.

### I. DC Voltmeter Gauge

This gauge displays the performance of the chassis DC system, especially the batteries and alternator. With the engine off and the key switch on, it should read approximately 12 volts. It should be approximately 13 volts with the engine running.

### J. SilverLeaf VMS 200 EL

The SilverLeaf VMS 200 EL MultiCenter is a sophisticated engine monitor. It enables communication with your engine and transmission to provide you with up-to-the-second performance and diagnostic information, and it allows you to access the special features of your engine previously reserved for mechanics.





The VMS 200 EL uses a single digital data link to the engine and transmission. Much of the information the VMS 200 EL displays is acquired through sensors attached to the engine and transmission Electronic Control Modules (ECMs). These ECMs pass the information along to the VMS 200 EL through this data link. In addition, the ECMs also provide data on their internal workings - data that you can't get from conventional sensors. Digital technology allows all this data to pass through a single pair of wires with absolute accuracy.

The VMS 200 EL will come on when you turn the ignition key to the ON position. It should beep, then display a logo for a few seconds. During this time it is initiating communications with the engine and transmission. It will then begin displaying performance information of the DRIVE screen. All this happens automatically, and there is no need to turn the unit on, or touch a button.

*Read the manufacturer's manual included in your warranty packet for operation instructions.*

## **K. Radio**

Your coach is equipped with an in-dash AM/FM/Cassette radio and a 6 disc Automatic CD Changer. A full set of operating instructions is available in the manufacturer's manual that comes with your warranty pack.

## **L. Air Dump**

Push the Air Dump switch to release all air from the chassis air bag system. It is important to discharge all the air from the air bags when storing or parking your coach for long periods of time. This reduces wear on the air bags. Dispersing the air also shortens the length the jacks must travel in order to level your coach.





### M. Side Docking Lights

Push this switch to activate the docking lights outside the coach. The docking lights are the large lights located on either side, near the top and center of the exterior. There is also a selector switch located near the entry that allows you to select the PS, DS, or both docking lights.

### N. Battery Boost

The battery boost switch can be used in addition to the chassis batteries for extra DC power when needed for starting the engine. (See the Electrical section description for more detail.)

### O. Headlight/Parking Light/Dimmer Switch

Turn the parking lights on by pulling the knob to the first stop. Turn the headlights on by pulling the knob out to the furthest extension. Turn the knob to the left or right to adjust the console dimmer lights brightness.

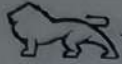
### P. Dash Fans

This switch controls the cabin circulation vents located on the dash at the center point of the windshield. The switch has two speeds. The first stop is low and the second stop is high speed.

### Q. Gen Start

Use this switch to start and stop the generator. Depress and hold until the generator starts. To stop the generator, press the lower portion of the switch until the motor comes to a complete halt.





**NOTE:** If the generator does not start within five seconds, release the button and try again. Continuous cranking can damage the generator starter.

### **R. Door Locks**

Press this switch to lock or unlock basement storage bay door locks (with the exception of the LPG, electric, Hurricane, generator, battery, pressure washer, inverter or chassis service center compartments).

### **S. Home Stereo Power**

This connects the residential stereo amplifier to the 120 VDC system.

### **T. Air Pressure (PSI)**

There are two needles in the air pressure gauge. The red needle shows the pressure in the air brake system and the green shows the pressure in the chassis air system. An on-board air pump creates air pressure in the chassis system. The chassis air bags automatically level the coach while driving. The normal operating range of air pressure should read between 90 and 110 PSI.

### **U. Tachometer**

The tachometer displays the engine rpm (revolutions per minute). The reading must be multiplied by 100. The engine should not be run at less than 1000 rpm for extended periods of time.





#### V. Speedometer/Odometer/Tripometer

The speedometer indicates the forward speed of the vehicle in miles per hour. The odometer tracks the total miles the coach has traveled. Before each trip, you may set the tripometer to zero. The gauge will then record the distance, in miles, that the coach has traveled. For coaches sold in Canada, the gauges are metered in kilometers.

#### W. Driving Lights (switch not shown)

These lights are typically used when driving conditions do not require headlights, such as an overcast day, where using the lights on the coach will increase your safety by allowing other drivers to easily see the coach from a distance. In Canada, headlights are required to be on during daylight hours but at a reduced brightness.

#### X. Air Vent

These vents distribute air from the heating, air conditioning and fresh air systems. Controls allow you to choose whether air is vented from outside the coach or if it is to be recirculated from within the coach interior.

#### Y. Ignition

Turn to start the engine and use accessory power. See chassis manual for details.





## Side Console

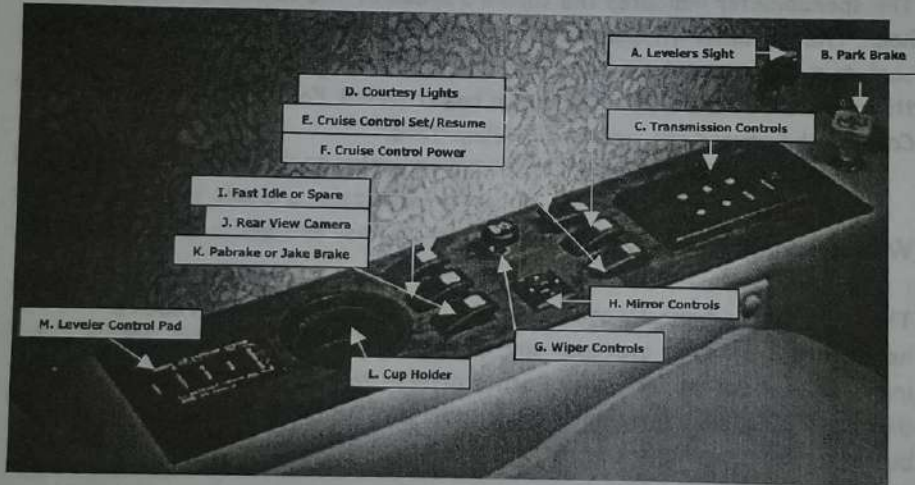


Figure 3: Side Console

### A. Levelers Sight

Allows for visual determination of the coach's relationship to level.

### B. Park Brake

To set the park brake, pull out the handle. Release the park brake by pushing in the handle. Allow air pressure in the chassis air bag system to build to at least 90 PSI before releasing the brake. Do not attempt to move the coach with the park brake set.



## C. Transmission Controls

The Allison World Transmission in your coach is a highly sophisticated, electronically controlled automatic transmission. It is operated by a push button panel to the left of the driver's seat. It operates much like a typical automatic transmission, only with a push button control. However, unlike most automatic transmissions, this unit contains sophisticated electronics that evaluate every situation and actually "learn" the most efficient shifting pattern to compliment your driving style.

The controls consist of seven indicators located on the Side Console Panel, to the left of the driver.

1. Top - GEAR INDICATOR WINDOW.
2. Top Left - REVERSE.
3. Top Right - MODE INDICATOR (standard shift or economy shift.)
4. Middle Left - NEUTRAL.
5. Middle Right - DOWNSHIFT.
6. Bottom Left - DRIVE.
7. Bottom Right - UPSHIFT.

For normal driving, depress the button that coincides with the correct gear. Pressing the "N" puts it in NEUTRAL, "R" in REVERSE, and "D" in DRIVE. The transmission will not shift into REVERSE if the coach is moving forward. The arrows allow you to upshift or downshift while in DRIVE. The transmission automatically prevents shifts that might be damaging to the transmission.

The panel contains status lights to indicate the presence of a problem. If any of these lights are displayed, consult the chassis manual or an authorized service center immediately. The safeguards in the system may prevent certain shifts from occurring, and it will attempt to protect the transmission from further damage or problems. For detailed instructions refer to your Allison manual.







#### D. Courtesy Lights

This switch activates exterior lights along the caps of the coach. This is useful to alert passing motorists when they have safe clearance to return into the lane when passing on two-lane highways.

#### E. & F Cruise Set/Resume and Cruise Control Power

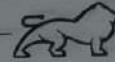
The Cruise Control SET/RESUME and POWER switches are to be used in operating the coach's CRUISE CONTROL. To engage the CRUISE CONTROL, follow the steps below:

1. Turn on Cruise POWER switch.
2. When you are at the desired speed, push the Cruise SET button.
3. The Cruise will disengage when you brake the coach. To return to cruising speed, press the RESUME switch.
4. If you wish to increase cruising speed while driving, press the RESUME switch and the coach will increase speed. If you wish to decelerate, press the brake pedal lightly to disengage the Cruise Control and repeat steps one and two.

**NOTE:** While your EXHAUST BRAKE switch is on Cruise Control will not operate.

#### G. Washer/Wiper Controls

Rotate the knob clockwise to turn on windshield wipers. There are three stops. The first is intermittent, the second is slow/continuous and the third is fast/continuous. Depress the knob for washer fluid.



## H. Mirror Controls

One control operates both side-view mirrors. The selector in the center of the knob determines which mirror is being adjusted. Slide the lever to either the LEFT or RIGHT position. Arrows are located around the selector that point in which direction to adjust the mirror: up, down, left or right.

## I. Fast Idle Feature (3126 Engine Only- Continental) Spare (Panther)

The Cruise POWER and RESUME switches can also be used to allow the coach to idle faster after starting. This is useful to quickly warm up the engine during cold weather starts. To use this feature, start the coach and put the transmission in NEUTRAL.

Press the Cruise POWER switch to engage the fast idle. Press the RESUME switch and hold until the desired idle speed is reached. The desired idle speed can also be reached by pressing the RESUME button repeatedly to increase the speed.

Please refer to your Caterpillar Operations and Maintenance manual for full instructions on how to use the Cruise Control.

## J. Rear-View Camera

The television monitor and stationary rear-view camera are installed at the factory to be ready to use. The camera is mounted on the back of the coach and is set to view a portion of the rear of the coach, your tow vehicle, and the area behind. This is a very useful feature when backing up, checking a tow car and while driving to make sure no vehicles are directly behind the coach.

The television monitor is your back up monitor. To activate, turn on the camera switch located on the Side Console in the cabin. This switch also activates the inverter.





Turn the switch to the ON position, turn on the TV, select VIDEO on the TV and the inverter will automatically activate and power up the rear-view camera.

#### K. Exhaust Brake Switch (Caterpillar 3126-B Engine)

**WARNING:** Your exhaust brake should not be considered a brake. It does not perform the functions of a brake. An engine retarder should be used for slowing the vehicle in some situations. It should be used only as a supplement to the primary brakes on your coach; never to bring the vehicle to a complete stop. It can increase stopping efficiency and save the primary brakes from overuse. Do not rely on it for safety.

Please refer to the manufacturer's manual for details on proper use.

A Pacbrake is simply a valve that restricts the flow of exhaust gasses and creates backpressure in the engine cylinders which, in turn, helps to slow the vehicle. The master ON/OFF switch on the Side Console controls the air solenoid. When activated, the air solenoid applies pressure to the Pacbrake cylinder, causing the Pacbrake to close.

Once the valve is closed the compressed air in the engine cylinder causes backpressure in the engine combustion cylinders. This pressure is normally "exhausted" on the exhaust cycle of the engine. When air pressure is held inside the cylinder the engine will work against this pressure as the air is expelled (kind of like holding your finger over a hose nozzle). This will cause the engine to absorb energy rather than produce energy, causing the engine to decelerate (or retard).

The Pacbrake is intended for use as a supplement to your vehicle's primary wheel braking system. It is used to help you control or reduce your road speed, either independently of the standard brakes or in conjunction. It should not be used by itself to completely stop the vehicle.





The Pacbrake can also be used to aid in routine slowing situations such as approaching slow or stopped traffic, traffic signals, or preparing to exit an off-ramp, etc.

When the Pacbrake is in actual use, the *CRUISE CONTROL will not* activate and the throttle is *closed* or in the *idling* position. The amount of braking power is relevant to the engine speed (rpm). In other words - the higher the rpm, the more the retarding power.

SMC Corporation has preset the Pacbrake to work in conjunction with the Allison World six-speed automatic transmission to protect the engine and the transmission. When the Pacbrake is activated, the transmission will downshift through the gears until it finally reaches second gear. Once fourth gear (a lock-up gear) has been reached, the brake will close and it becomes more effective. Whenever the throttle is depressed the Pacbrake will automatically deactivate.

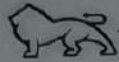
**NOTE:** All Pacbrake models are designed and approved for safe use at your engine's maximum rated rpm. Certain conditions may require downshifting for adequate rpm for maximum retarding. Refer to your Caterpillar manual for manufacturer specifications.

### Jacobs Two-Stage Brake Switch (Caterpillar 425 Engine)

The exhaust (Jake) brake switch can be used to increase stopping efficiency and save the primary brakes from overuse. The Jacobs brake is a muffled exhaust brake. Exhaust brakes should be used only as a supplement to the primary brakes on your coach.

The principle behind the Jake Brake is simple. It's a hydraulically operated device that converts a power-producing diesel engine into a power-absorbing retarding mechanism.





1. When the Jake Brake switch is activated the intake valve opens and air is forced into the cylinder by boost pressure from the turbocharger.
2. Air is compressed to approximately 500 psi by the engine piston. The energy required to compress this air is produced by the vehicle's driving wheels. Near top dead center, the Jake Brake opens the exhaust valves, venting the high pressure air and dissipating the stored energy through the exhaust system.
3. On the downward stroke, essentially no energy is returned to the piston and to the driving wheels. There is a loss of energy. This loss is how the retarding work is accomplished.

**NOTE:** While your Jake Brake switch is on Cruise Control will not operate.

Please refer to the manufacturer's manual for details on how to use either of the exhaust brakes.

#### **L. Cup Holder**

Convenient hands-free driver's cup holder.

#### **M. Levelers Control Pad**

Please refer to the operating instructions in the Levelers section of this chapter.





## Other Controls

### Electric Step

The electric step is controlled by two methods: the activation of the ignition switch and by an ON/OFF switch near the doorway. The ON/OFF switch controls the 12 VDC power to the step. If the switch is on, then the step will extend and retract when the door is opened and closed. If the switch is off, the step will not move. Therefore, to lock the step in its extended position when parked, turn the switch on, open the door, and allow the step to extend, then turn off the switch.

The ignition switch overrides the ON/OFF switch. When the ignition is switched to the ON position and the door is opened the step will extend. It will automatically retract when the door is closed.

Some are equipped with other safety features that help to prevent damage to the step or motor. The step mechanism does require regular lubrication and it must be kept clean. *Refer to the manufacturer's manual for details on step operation and maintenance.*

**WARNING:** Always make sure the step is retracted before moving the coach.

### Entry Step Closeout (Front-entry)

This switch activates a power slide out floor to cover the front-entry step well for passenger comfort while traveling.





This closeout feature was designed to operate with an independent air cylinder that runs off the same compressor as the air horns.

### **Inverter Remote Panel**

This panel has a remote starter for the inverter and displays inverter functions. This switch is located on the bedroom wall. See the Inverter section of the Electrical chapter for details of operation.

### **Heater Craft**

The airflow into the coach is controlled by this switch. The fans can be set to HIGH for faster heating of the coach, LOW for normal heating, or OFF when minimal or no heating is required. There are control switches located near the Coach Monitor Panel, in the bathroom sink cabinet, and in the bedroom.

### **Hurricane Heat and Power**

The Hurricane panel is located near the Coach Monitor Panel. It contains several switches. Use the system control toggle switch to turn on the system. You can adjust the Zone 1 heat to either the low or high setting. There is also a switch for engine heat. See the Hurricane section of your Safari Owner's Manual for details of operation.





## Docking Light Selector

There are two switches labeled DS & PS located above the entry. After turning on the docking light switch located on the Side Console, use these switches to choose the docking lights on either the DS or PS of the vehicle. There is also a switch on the Main Dash panel that simultaneously turns on both docking lights.

## Slide Out Switch

This switch is located near the Coach Monitor Panel. Please familiarize yourself with the instructions for use of the slide out unit by reading your Safari Owner's manual before operating this switch.

## Electric Awning (Optional)

These buttons will extend and retract your patio awning. Push the DOWN arrow button to extend the awning and the UP arrow button to retract it. Push the STOP button when the awning is extended or retracted to the desired position. The awning will stop automatically when fully extended or retracted. See the Awnings section of your Safari Owner's Manual for operation and maintenance.







## Levelers

Safari installs a three-point hydraulic leveling system. The hydraulic system is designed to be easy to operate, quick, reliable, and, most importantly, stable. The levelers operate with power provided by a 12 VDC pump.

*Refer to your operations manual for operating details, troubleshooting and maintenance procedures before operating the leveling system on your coach. The following steps should be used only as a guideline after you are familiar with the procedure.*

**WARNING:** Do not allow anybody near the jacks or under the coach when operating the leveling system.

**WARNING:** If you plan to use the slide out unit, it is imperative that you extend the slide room prior to leveling the coach. Please familiarize yourself with this process by reading the Slide Out chapter of your Safari Owner's Manual.





### Extending the Three-Point Leveling System

Step 1	Park the coach in a level spot. Make sure your transmission is in NEUTRAL and the parking brake is set. Turn the ignition to the ACCESSORY position. If the coach is equipped with an air ride suspension system, press the AIR DUMP switch to discharge the air from your air bags.
Step 2	Go outside the coach and check to ensure the jacks have a clear path to the ground. Block the front tires. If leveling on asphalt or soft ground, place pads under the jacks. Pads should be made of a sturdy material such as wood or plastic and be at least 2x8x8 inches in size.
Step 3	<b>NOTE:</b> If you plan to extend your slide unit, please do so BEFORE leveling the coach. The slide unit will not operate unless the ignition switch is in the OFF position.
Step 4	Press the leveling system switch to the ON position. The green light will appear to indicate the system is ready.
Step 5	Extend the jacks by pressing the rocker switches to EXTEND. Always extend the rear jacks first and level the coach from side to side. Then extend the front jack and level the coach lengthwise. As the jacks extend, a red light will flash and a beeping alarm will sound. (This will also happen if the ignition key is turned on while the jacks are extended.)
Step 6	Turn off the leveling system and the ignition. All lights on the leveling system panel should be off

**NOTE:** The front tires should always be blocked when the leveling the coach.

**NOTE:** The leveling system should be operated at least once a month or each trip to keep the system in working condition.





**NOTE:** If leveling on asphalt or soft ground, use a pad under the jack to increase stability.

**NOTE:** Never move the coach with the leveling jacks or the slide unit extended. This will cause serious damage to the leveling system or slide mechanism as well as the coach itself.

**WARNING:** Do not attempt to use the jacks on unstable ground. Do not stack objects under the jacks except for the wood or plastic blocks mentioned in Step 2 of the leveling process. Never raise the tires off the ground. If the ground is too uneven for the jacks to adequately level the coach, the coach should be moved to a different location.

**WARNING:** Do not use leveling system for changing tires or working under the vehicle. There is a possibility that the vehicle may move and cause injury or damage if the system is not used properly. Use of the leveling system for any purpose other than intended may void the warranty.

**NOTE:** If slide out is extended, retract the unit AFTER retracting the jacks.



## Retracting the Three-Point Leveling System

Step 1	Be sure that the coach is in NEUTRAL and the parking brake is set. Turn on the coach ignition and leveling system switches. Clean any debris off the jack cylinders.
Step 2	While it is possible to use the RETRACT ALL switch to retract all the jacks at once, Safari recommends retracting the jacks using the individual jack switches. First, retract the front jack. Then retract both rear jacks simultaneously by pressing the rocker switches to RETRACT. This method will provide the smoothest possible retraction. The flashing red light and beeping alarm will deactivate when the jacks are within six inches of full retraction.
Step 3	Turn off the leveling system and the ignition. All lights on the leveling system panel should be off
Step 4	Retract the slide unit.
Step 5	Remove the tire blocks and jack pads. Inspect the jacks to be sure they are fully retracted.

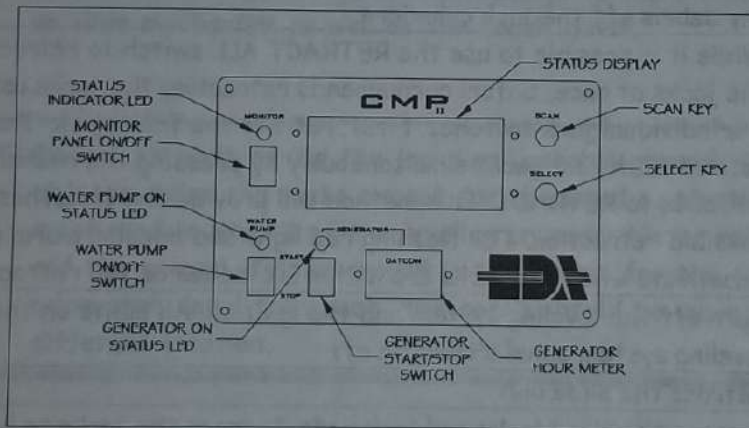
**WARNING:** Do not rely solely on the warning light and alarm. Visually inspect the jacks to ensure they are fully retracted.

For leveling system and jack maintenance instructions and detailed operating procedures, consult the manufacturer's operating instructions included with your manual package.





## Coach Monitor Panel (CMP II)



Located in the area above the dining table (front-entry) or above the entrance (mid-entry) in your Safari coach is the Coach Monitor Panel.

The Coach Monitor Panel (CMP) is microprocessor controlled, all solid-state to give high reliability and ease of use. Under normal operation it draws under 1/4 amp. No calibration or maintenance is required.

Unlike most monitor panels that give tank levels by one-thirds or one-fourths, the CMP can provide tank measurements to one-sixth of a tank, and displayed as a percentage of full. The LP Gas tank is measured to within 10%. Where most monitor panels give battery condition as 'Low,' 'Fair,' or 'Good,' the Coach Monitor Panel gives battery voltage (both House and Chassis) accurate to within three tenths (0.3) of a volt. Solar panel charging current is accurate to +/- 10% of its reading.



## Monitor Power Switch

The Coach Monitor Panel (CMP) has a separate power switch allowing it to be turned off when not in use. This switch does not affect generator or pump operation.

## Generator & Pump Control Switches & Indicators

For convenience, the CMP also provides a location for switches to turn on the coach water pump and generator. An hour meter indicates the current run-time on the generator. Light Emitting Diodes (LEDs) above switches indicate pump and generator on/off status.

## Status Indicator

The Coach Monitor Panel's status indicator is a bi-color (red/green) LED located above the monitor power switch. In normal use when the CMP is turned on the status indicator will be green, showing that all parameters monitored by the CMP are within nominal values. If a parameter goes outside normal limits, the status indicator will turn red, to let the user know about something that should be acted upon and investigated. The status indicator will be red if any one or more of the following conditions is true:

- Fresh Tank Level less than 30% full
- Grey Tank Level more than 80% full
- Black Tank Level more than 80% full
- LP Gas Tank Level less than 20% full
- LP Gas Tank Level more than 90% full\*
- House Battery Voltage less than 11 volts
- House Battery Voltage more than 16.5 volts\*\*
- Chassis Battery Voltage less than 11 volts
- Chassis Battery Voltage more than 16.5 volts\*\*





## Notes:

- \* The LP Gas Tank is considered full at approximately 80% of total tank volume; the balance is reserved for temperature-related expansion. Use tank-mounted gauge for all filling operations.
- \*\* Battery voltage is obtained from the monitor panel DC input and not remotely from the battery itself.
- \*\*\* Solar Charging Current has no warning conditions.

## Touch Keypads

The CMP contains two solid-state touch keypads for user input to its microprocessor. The first key is SELECT, for selecting a particular item to monitor.

The second key is SCAN, to return the CMP to its automatic Scan Mode. Whenever a key is touched, the status indicator LED will blink as feedback that the keytouch has been recognized.

## Status Display

The Coach Monitor Panel utilizes a vacuum fluorescent display to provide a bright, easy to read display. The Status Display consists of two lines: the top line gives the name of the parameter monitored, and the bottom line shows the measured value, both numerically and graphically with a bar graph to give a quick visual indication of how things are.

At night when the brightness of the display might prove too much, a simultaneous touch of both the SELECT and SCAN keys will turn off the display. A touch of either key will turn on the display again. Whether the display is blanked or not, the status indicator LED still functions.





When the CMP identifies a parameter outside nominal limits, it turns the status indicator red. At the same time, it blinks the numerical value and bar graph on the corresponding status display to help the user identify the 'culprit.' Should more than one parameter be outside nominal limits, each affected status display will be blinking.

## Use

Turn on the Coach Monitor Panel and it automatically enters Scan Mode, sequencing through the different status displays. If you wish to look at a particular display, touch the SELECT key. With repeated touches to the SELECT key, you can manually scan through the screens until you reach the desired display. A single touch to the SCAN key returns the CMP to Scan Mode.

There is a separate tank module interfacing the CMP with each of the four tanks, as well as a Solar Current module. Each of these modules has a green LED that illuminates when that module is active. During normal SCAN mode, each LED will blink approximately once / sec. (1 Hz Rate).

When in SELECT mode, the tank that is being monitored will have an LED that blinks twice / sec. (2 Hz Rate). Note that the Solar Current module is active at the same time the Fresh Tank module is active; both blink at the same time and rate.

Each of the holding tank modules (Fresh/Grey/Black) is connected to six level sensors mounted in the tanks. Looking at the table below, notice that the Black and Grey tanks do not read the same as the Fresh water tank. The reason for this is to provide higher resolution at "critical" levels. For example, Black and Grey tanks critical level would be closer towards the full side. Conversely, the Fresh water critical level is closer to empty.







# OF PROBES SUBMERGED	% READING GREY/BLACK	% READING FRESH
1	25%	15%
2	50%	25%
3	60%	35%
4	75%	50%
5	85%	75%
6	100%	100%



## CHAPTER 2 – ELECTRICAL SYSTEM

### Outline

The electrical system in your Safari motor coach provides maximum power and this system is basically automatic in operation. Any appliance you would use in your home can be used in your coach within the amperage limits of the system. There are also features in place to prevent such problems as battery drain and circuit overload.



## Electrical System Operations

Your coach has five main sources of electrical power: the generator, the shore line connection, inverter, chassis batteries and coach batteries. All sources are independent of each other, but can be combined in a variety of ways to provide the most efficient electrical supply to the coach and to charge the batteries.

Your coach uses two types of power: 120 volt alternating current (VAC) and 12 volt direct current (VDC). Homes in North America use 120 VAC as their source of power, while 12 VDC is most commonly used in automobiles. In your coach, most of the appliances and lights you would find in a home use 120 VAC. Separated into two main paths, 120 VAC is distributed through a main circuit breaker box located in the passenger side rear bedroom overhead cabinet. Engine starting and control, dash lights, pumps, fans, and chassis functions use 12 VDC.

Batteries similar to those in automobiles provide this power source. The alternator charges these batteries while the engine is running and is assisted by the solar panels (if equipped). Your coach utilizes an inverter that will convert 12 VDC power into 120 VAC power when the two primary sources -- shore power or the generator -- are not available.

This inverter will also convert 120 VAC power to 12 VDC power to charge the batteries.

More information on operation of the generator, inverter, and the 12 VDC system is detailed later in this chapter. Please become familiar with your electrical system for your safety and to maximize its efficiency. Detailed manuals from the manufacturers of the generator and inverter are included with your manual package.

**WARNING:** Do not connect the shore line to any source other than an RV approved outlet. Connecting your shore line to 30 amp outlets such as dryer or welder outlets in the home or well pumps on a farm will cause extreme damage to the electrical system of your coach and may cause severe injury.



## 120 VAC SYSTEM

The 120 VAC system consists of the shore power, generator and inverter. The shore line connection is the primary source for power. Either the shore line or the generator powers all 120 VAC items in your coach. In the event no power is available from the shore line or generator, the inverter will provide power for such items as the television, VCR, or sound system. The system is protected from overloads by a set of circuit breakers and fuses.

The 120 VAC shore line system works via a power transfer switch. From this transfer switch, power is routed to the entire 120 VAC system. The inverter circuit is powered up through relays, which then furnish 120 VAC power to selected circuits in your coach.

The system will take power from the most appropriate source automatically. The inverter remote switch must be ON for the inverter to furnish power to the 120 VAC system. When dry camping, it is wise to only turn on the inverter when it is needed. Leaving the inverter on at all times will result in drained batteries.

Table 1. 120 VAC Operations

These items operate ONLY with shore line power or while running the generator:

- Rear roof air conditioning
- Front roof air conditioning
- Washer/dryer combo
- Hot water tank.
- Night stand outlets
- Bathroom G.F.C.I. outlet
- Pantry receptacle
- Refrigerator
- Battery charger

These items can operate with power from the inverter.

- VCR/Satellite
- Bose system amplifier
- Front TV
- Rear TV
- Living room sconce lights
- Bedroom sconce lights
- Dining light fixture
- Fluorescent galley light
- Bathroom lights
- B.O.C. outlet
- Icemaker
- Patio receptacles
- Living room /bar cabinet
- Gas cook top ignition
- Microwave/convection oven \*
- Galley G.F.C.I. outlet
- Two other galley outlets
- Appliance garage outlet

\* Non CSA vehicles with 2000 watt inverter only.



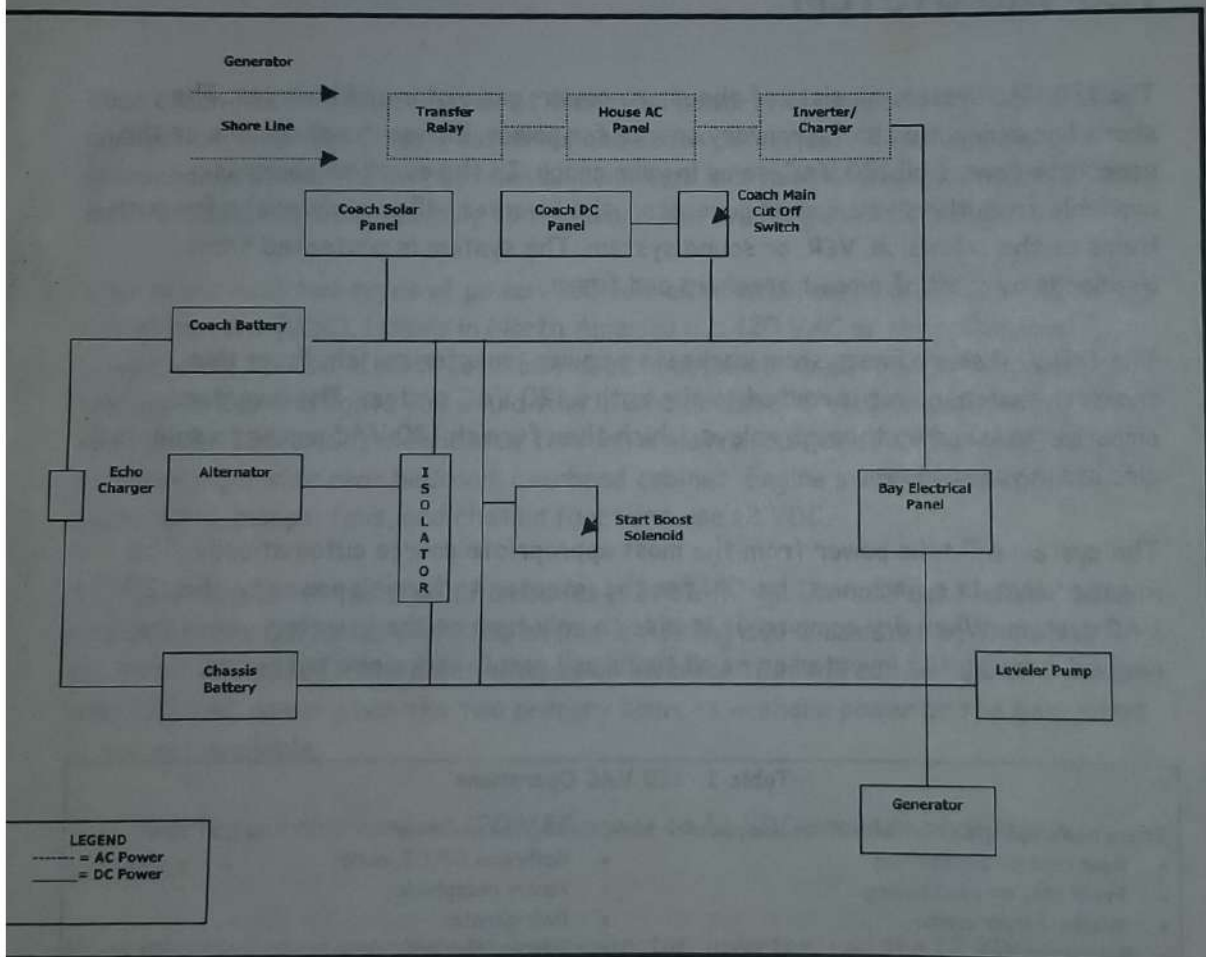


Figure 4 Simplified Electrical System

**WARNING:** Modifying the circuitry in your motorhome may void the warranties of the coach and any appliances on that circuit. Never work on a live circuit. Never bypass breakers or fuses.



## Circuit Breakers and G.F.C.I.

The 120 VAC system has two important safety mechanisms. First, a set of circuit breakers prevents any circuit from being overloaded. A breaker can be tripped as the result of a short circuit, a faulty appliance, or too many appliances being run on the same circuit. The system is divided into several separate circuits which decrease the load on each and allow other circuits to operate if one goes down.

**WARNING:** A circuit without a breaker presents a serious safety hazard. Never attempt to bypass the circuit breakers for any reason. Doing so will void the warranties of your coach and any appliance on the circuit.

The main breaker panel is labeled with the names of the appliances and outlets located on each circuit. The inverter contains its own circuit breaker so power from it is not channeled through the main panel. The RESET switches are located on the inverter itself. If the inverter is not producing power, check the breaker on the inverter. Also check the sub-breaker panel for inverter circuit #2 in the D/S bedroom overhead.

G.F.C.I. refers to Ground Fault Circuit Interrupt. This is a safety feature that halts power through a circuit if a short or other malfunction occurs. This is an important mechanism and has been designed to help prevent electrocution injuries. The G.F.C.I. works in a manner similar to a circuit breaker. If a fault is detected in the circuit, a switch inside the G.F.C.I. is tripped, halting the power flow. The circuit will not operate again until the switch is reset on the G.F.C.I. receptacle.

**WARNING:** G.F.C.I. circuits are designed to help prevent electrical shock, not overloads. They do not replace circuit breakers.





Not all circuits are connected to the inverter and so not all appliances can be run without the generator or shore line.

The remote inverter panel is located on the bedroom TV cabinet. Additionally, there is an inverter sub-breaker panel on inverter circuit #2, located in the D/S bedroom overhead cabinet.

The inverter has its own internal breakers; therefore, power from the inverter is not channeled through the circuit breaker panel. If power is not reaching appliances served by the inverter, you should reset the inverter by depressing the RESET button. Check the sub-panel as well.

The power for the inverter comes from the house batteries. You should monitor the battery level as you use your appliances. The battery level can be checked using the Coach Monitor Panel. When battery levels drop to about 10.5 - 11.0 volts, the inverter will shut down.

Your coach is equipped with a 2000 watt inverter. This inverter is ample for most purposes.

**NOTE:** Power provided by the inverter is intended for your convenience. It should be used sparingly so that it doesn't drain the batteries.

**WARNING:** Never store liquids or flammable material near the Automatic Transfer switch or the inverter.

## 12 VDC SYSTEM

The 12 VDC coach system provides power for a variety of applications. Many coach lights, fans, the water pump, and other coach accessories use 12 VDC.





In addition, 12 VDC power is used to ignite the Hurricane system, power its fans, and run the indicator lights in the refrigerator and monitor panel. The 12 VDC system also can provide temporary power for the 120 VAC appliances with use of the inverter.

The 12 VDC system is divided into two sections. The "chassis" section powers the engine, running lights, dash accessories, and generator. It includes the "chassis" batteries and alternator. (Bose Stereo option uses 120 VAC operation for amplification.)

The "house" section powers the 12 VDC interior lighting, ceiling fans, refrigerator, furnace, water heater, monitor panel, radio, and water pump. This section includes the set of "house" batteries. It also provides power to the inverter.

A boost switch connects the two systems. This allows the house system to supplement the chassis system and also prevents the chassis battery from being drained by house demands. This is more fully discussed in the next section.

## Chassis System

The chassis electrical system is enhanced by Safari in several ways. The system provides power for starting the engine and also powers the leveler pump and generator.

It is recharged by the alternator and solar panel and protected by a 250 amp fuse. It can also be charged with generator or shore power by the Echo charger.

The solar panels provide up to <sup>75</sup>~~5~~-watts of power during the daytime to assist charging the chassis batteries. This helps to maintain the battery charge even when parked for extended periods. All solar panels produce a slight drain during the night. In your coach, the drain is virtually immeasurable.

**NOTE** Solar panels will not be immediately operational if the coach has been stored inside for a while.







## Isolator

Power from the alternator is channeled through an isolator. This device allows the alternator to simultaneously charge the chassis and house system, while keeping the two systems separate. With the isolator, draining the house batteries will not affect the chassis batteries, and vice-versa. With a small amount of care, at least one battery system will always be charged.

## Battery Boost Switch

If the chassis batteries lose their charge and become unable to start the engine, it is possible to apply the house system to the task. A boost switch, located on the left side of the Main Dash panel, connects the two systems. By activating the switch, the starter can get power from the house batteries. The boost switch should only be activated for the time that the power is needed.

**NOTE:** To start the engine when both the chassis and house batteries have lost their charge, connect the shore line to an approved RV outlet and activate the boost switch. Do not start your coach until there is enough charge in the battery system.

This will be indicated on the remote panel when the amp charge has dropped from its starting level.

## House System

The house 12 VDC system provides the power for all 12 VDC accessories with the exception of the engine starter, leveler pump, generator, and automotive functions. The system includes four batteries that are designed to preserve their power even after repeated drains and charges, as long as the battery is properly maintained.





This battery type is known as a "deep cycle" battery. The system is routed through the fuse panel located over the bed in the rear of the coach.

The system is charged by several sources. The alternator charges the system through the isolator when the engine is running. As mentioned above, the isolator keeps the house system separate from the chassis system, preventing the chassis battery from being drained by the house appliances. The inverter/charger provides power from a 120 VAC source, either the generator or shore line. It operates automatically according to the presence of 120 VAC power. There is a 75 watt solar panel located on the roof of the coach. This panel, in conjunction with the isolator, assists in charging the house batteries, during the day when direct sunlight is present.

The house battery system provides power to the circuits that connect to the interior and lighting. These include the ceiling fans, fans for the Hurricane heating system, water heater, water pump, cargo lights, and refrigerator. They are connected directly to the house batteries through an 80 amp circuit breaker beside the house batteries. A fuse panel is located by the 120 VAC breaker in the bedroom overhead cabinet. The house battery system is also connected to the chassis system through the boost switch.

The strength of the batteries can be checked using the Coach Monitor Panel. The monitor can only give a general indication of the charge level of the battery, but is an important tool for your power management.

With five ways to recharge your batteries (shore line, generator, alternator, solar panels, Echo charger), you have plenty of options to assist your power management. One factor to remember is that recharging time is greatly affected by the load. The less drain from lighting and accessories, the faster the batteries will recover.

## Fuses

Fuses offer a simple and effective method of protecting the 12 VDC lines from overloads.





By burning out during an overload, they stop the current and end the hazard the overloaded circuit might present to the appliances and to the coach. Fuses are an important safety feature, and should never be bypassed.

If power no longer flows to a particular 12 VDC appliance or circuit, the fuse should be one of the first items to check. A fuse can be checked visually, but an ohmmeter will detect whether the fuse still conducts electricity if you are in doubt. If the fuse is blown, there may be a problem in the system. Check the appliances on the circuit for signs of damage or defects and check the wiring for possible shorts.

**NOTE:** When replacing a fuse, always use a fuse of the same amperage rating -- never higher.

## TV Antenna System

Your coach is equipped with an amplified TV booster. It is located in the overhead cabinet above the driver's seat. The path from the antenna can be followed down to the antenna booster switch. The antenna booster switch will light RED, indicating that the booster is in operation.

This switch also controls whether the system is sending signals from the antenna or a cable connection. When the switch is on, the antenna is being selected. A shore cable is in use when the switch is off.

The output of the booster switch is wired to the input of the video switch box, which supplies signals to all outlets. This system allows you to view from antenna, cable, satellite, or VCR on all three television connections.

There is a third television outlet located in the basement storage for outdoor program viewing. This line is tapped off of the bedroom television line; therefore, different channels cannot be viewed on the bedroom and basement televisions at the same time.





**NOTE:** Turn the antenna boost switch off when not in use. It will continue to draw power from the batteries even when the television is off. Shutting off the 12 VDC cut off switch will also halt power to the boost switch as well as all other house 12 VDC items.

## APPENDIX A – LOCATION REFERENCE GUIDE

### Outline

This appendix provides charts and factory wiring reference information. This information was correct at the time of printing, but is subject to change without notice. The purchase of certain options may also cause changes of factory wiring. The following abbreviations are used in this appendix: PC = Passenger Compartment Driver's Side





## APPENDIX A – LOCATION REFERENCE GUIDE

### Outline

This appendix provides charts and tables giving reference information. This information was correct at the time of printing, but is subject to change without notice. The presence of certain options may also cause changes affecting these tables. The following abbreviations are used in this appendix: PS = Passenger Side DS = Driver's Side





## Reference Guides

The following tables are designed to help you locate various items in your coach. The location of many items varies with the floor plan and with certain options.

### Plumbing and Waste

Function	Location
Fresh water tank	Basement front between rails
Black waste tank	Under toilet
Grey waste tank	Basement at rear
Water tank drain valve	Fresh water tank PS
Low point drain valves	Water service center
Water pump	Behind water service panel
Water heater	Wardrobe rear lower
Water filter	PS in water bay service center

### Appliances and Connections

Function	Location
Water bay service center	DS, forward of rear wheels
Chassis service center	PS, far rear bay
LP gas tank service center	DS; behind front wheels
Hurricane heating system	PS behind front wheels
Generator	Center front of unit



## Electrical

Function	Location
Electrical bay	DS, in front of front wheels in bay
Transfer switch	DS, behind rear wheels
House batteries	PS, behind rear wheels in bay
Chassis batteries	PS, behind rear wheels in bay
12 VDC cut off switch	Chassis service center
Inverter monitor	Bedroom TV cabinet
AC breaker panel	Bedroom overhead cabinet
AC sub-breaker panel	Bedroom overhead cabinet
Fuse panel - house	Bedroom overhead cabinet
Chassis & dash breaker board	Electrical bay
Transfer relay	DS, front of rear wheels in 12v bay

## Miscellaneous

Function	Location
Coach monitor panel	Front-entry/Dinette overhead Mid-entry/Above entry
Front thermostat	Refrigerator cabinet
Generator switch	Front-entry/Dinette overhead Mid-entry/Above entry Dash Panel On the generator
Entry step switch	Above entry
Slide out control	Front-entry/Dinette overhead by Monitor Panel Mid-entry/Above entry by Monitor Panel
Bedroom thermostat	Bedroom TV cabinet
Fuse panel (House)	Bedroom overhead cabinet





## Engine and Chassis

Function	Location
Fuel tank	Between rails, behind front axle
Fuel fill	DS, front corner
Oil fill	Above radiator at rear access
Oil dipstick	Chassis service center
Transmission fill & dipstick	Chassis service center
Hydraulic fluid reservoir	Chassis service center
Fuel/water separator	Chassis service center
Coolant fill	Above radiator, back access
Oil filter	DS, middle of engine
Coolant filter	DS, top of engine
Air filter	PS, best reached from below
Air restriction indicator	Chassis service center
Remote engine start	Chassis service center
Secondary fuel filter	Chassis service center
Auxiliary air chuck	Chassis service center
Service light	Chassis service center
Service plug	Chassis service center
Hydraulic fluid	Chassis service center

## Electric Bay

The electrical bay is located on the driver's side in front of the tires. The house fuse block and AC breakers are located in the bedroom overhead cabinet.





Figure 7: DC Breaker Lay Out (Continental/Panther)

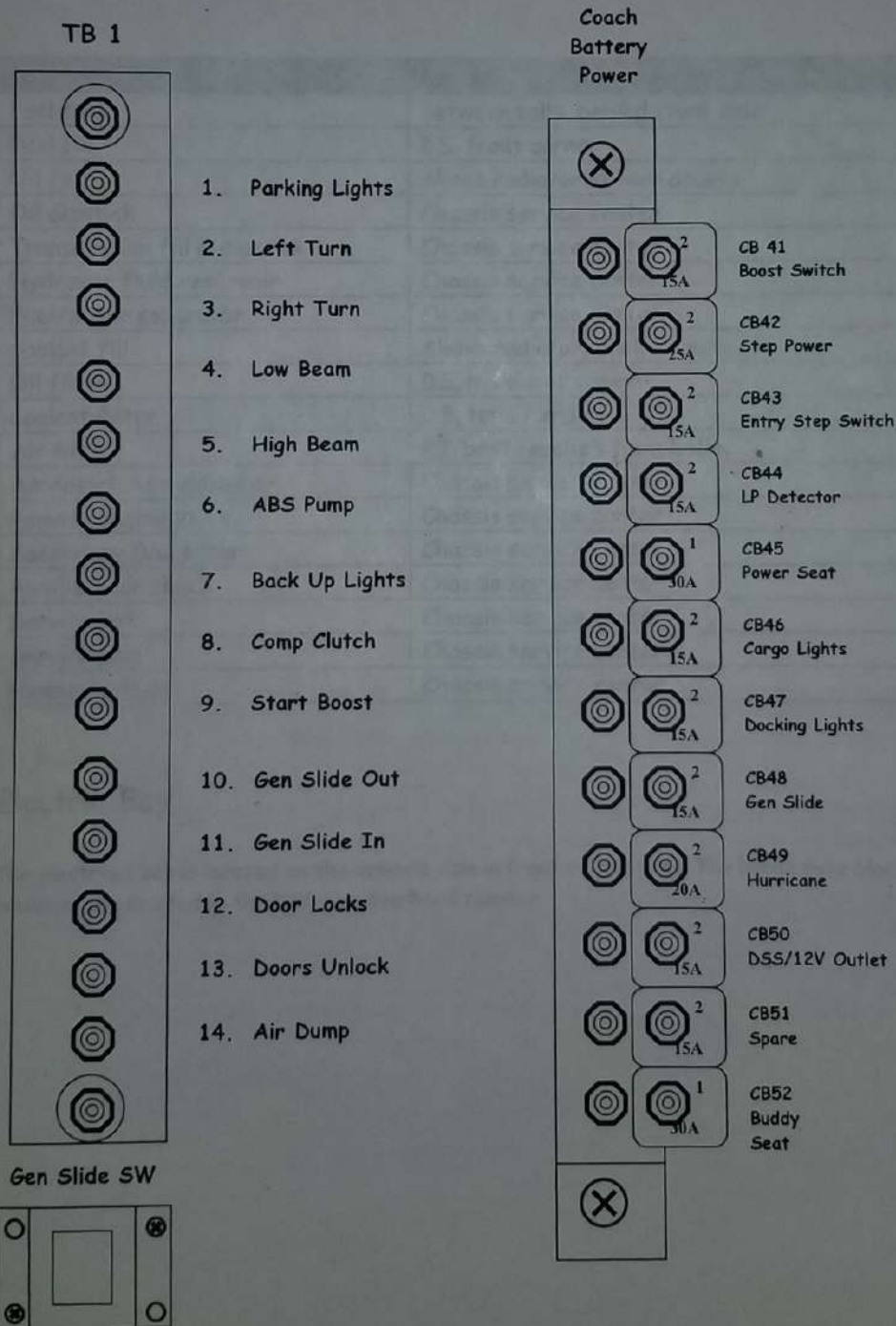
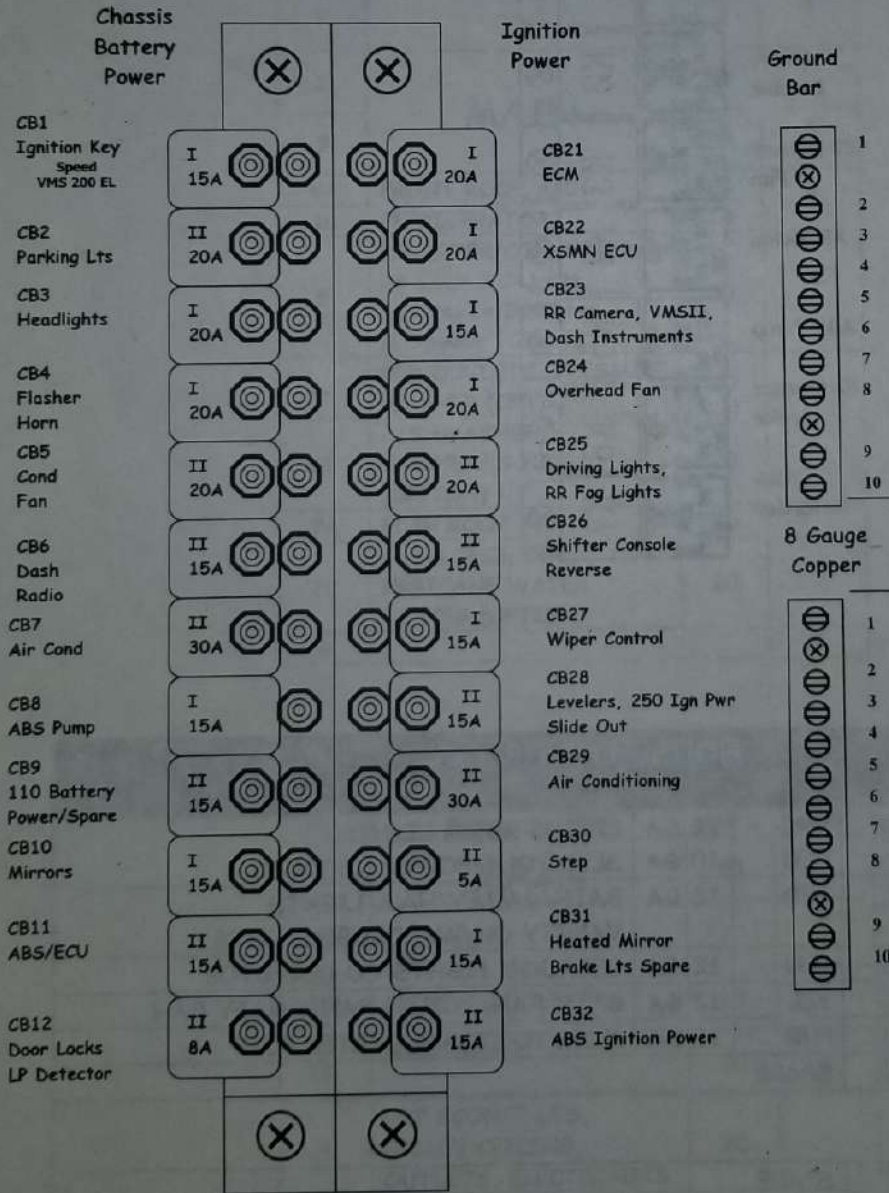
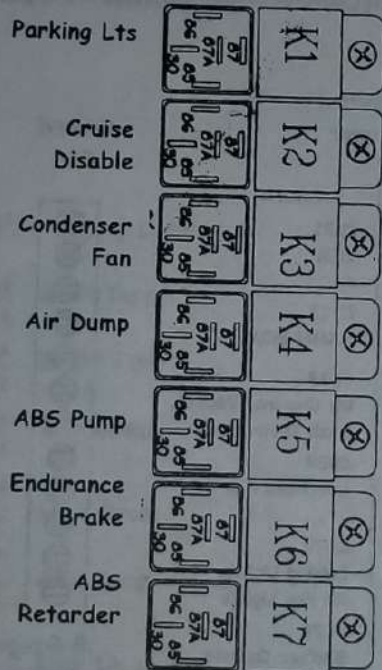




Figure 7: DC Breaker Lay Out (Continental/Panther - Continued)





### HOUSE FUSE BLOCK

CKT	AMPS		WIRE	SIZE	DESCRIPTION
1	20		ORG	12 GA	LIVING ROOM LIGHTS
			RED	10 GA	SLIDE OUT POWER (OPTION)
2	20		RED	12 GA	BATH/GALLEY/HALL LIGHTS VANITY OH/WARDROBE LIGHTS
3	20		BLU	12 GA	BEDROOM LIGHTS/CO DETECTOR
4	15		YEL	12 GA	BATH FAN/TOILET FAN/GALLEY FAN
5	15		PUR	12 GA	MONITOR PANEL/WATER PUMP
6			SPARE		
7			SPARE		
8	15		BLK	12 GA	FRONT & REAR TV BOOST
9	5		YEL	14 GA	REFER/PRINCESS STOVE (OPTION)



FREEDOM 20 MAIN PANEL			
CKT	DESCRIPTION	AMPS	LEG
1	<b>MAIN</b>		A
2		50	B
3		50	A
4A	FRONT ROOF A/C	20	B
4B	REFRIGERATOR	20	
5	INVERTER/CONVERTER All 120V AC Lights, Electronics, Icemaker, Microwave, Outlets	30	A
6A	BED OUTLETS, PRESSURE WASHER (OPTION)	20	B
6B	DISHWASHER, WASHER/DRYER (OPTION)	20	
7A	REAR ROOF A/C	20	A
7B	BOTH GFCI, BOC, HRRICANE WATER HEATER (OPTION)	20	
8			B

INVERTER SUB PANEL			
CKT	DESCRIPTION	AMPS	LEG
1	<b>MAIN</b>	20	A
2A	REAR TV	20	A
2B	SLIDE OUT OUTLETS	20	A
3	MICROWAVE	20	A
4	FRT SCONCE LTS, GALLEY CEILING, OUTLETS, ELECTRONICS	20	





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