

## **1.0 COACH EXTERIOR . . .**

### **Fiberglass Skins**

At Born Free Motorcoach, we constantly test and evaluate the latest in new fiberglass materials to offer you, the owner, the finest and the most long lasting products available. Even though we are constantly striving to use the best possible products in the construction of your motorcoach, the fiberglass finish may become dull, faded, or chalky without proper care. The following is a brief explanation of what causes dull or faded fiberglass finish and what can be done to restore the finish.

Fiberglass consists of two basic polyester products – gel coat and the structural reinforcement. Gel coat is the outer colored surface, and the structural reinforcement is a blend of polyester laminating resin mixed with strands of glass to create a structure that is strong, weather resistant, and long-wearing.

Man made and natural materials, when placed in the elements, slowly deteriorate. The material is exposed to the sun, water, wind, dust, and chemicals in the air; the amount of wear and tear depends on how you treat the product and maintain it. An automobile's exterior surface quickly deteriorates if you do not wash and wax the painted surface. Although the gel coated surface is approximately ten times thicker than the paint surface on your automobile, it reacts similarly when exposed to the elements.

#### **Chalking**

Chalk is the outer surface of the gel coat breaking down into an extremely fine powder. The chalk that develops is strictly on the surface. This problem is caused by overexposure to the sun's ultraviolet rays, chemicals in the air, or improper care of the gel coat surface. To alleviate the chalk, wash the unit and apply a sealant to restore the luster. If this is not effective, apply a fine rubbing compound, either by hand or with a power buffer. Follow this procedure with a good sealant. If this method is still ineffective, a light sanding using 600 grit (or finer) wet or dry sandpaper can be used followed by fine rubbing compound and a coat of sealant.

***NOTE:** If a power buffer is used, use low RPM with light pressure. Keep the buffer moving at all times to prevent heat build-up, which may result in softening of the gel coat surface.*

#### **Fading**

Fading means that the color has changed. Fading is caused by (1) chalking, which makes the color light, (2) pigments in the gel coat that have actually changed color due to a chemical reaction with chemicals or pollution in the air, or (3) the gel coat being bleached or stained by something. Stains may derive from dirt, dust, road tar, plant sap, rust, or materials from caulking or sealing compounds.

To determine how to remove a stain, pre-test the stain in an inconspicuous area first, using mild detergent. A mild abrasive cleaner may be used if necessary. The abrasive cleaner may leave the finish dull and may need to be buffed to restore the luster. Always apply a coat of sealant to the repair area when completed.

To remove a non-soluble stain, you may try acetone, paint thinner, or alcohol using care to prevent prolonged contact in order to minimize the risk of deterioration of the gel coat surface.

#### **Body Paint**

Some Born Free Motorcoaches have partial or full body paint on the fiberglass skins. The paint finish consists of a base coat, that provides the color, covered by clearcoat, which protects the base coat. It is the clearcoat that needs to be maintained especially in harsh environments. Clearcoats do not fade or lose gloss but may appear to when contaminated by the environment. Many products used for maintenance of fiberglass can also be used for painted surfaces. Touch-up paint and paint color information is provided with each coach when applicable.

#### **Washing your RV**

When possible wash and wax your unit in a shaded area to prevent rapid evaporation of water and soap that can result in water spotting. Use a separate sponge or wash mitt for fiberglass and painted surfaces and another for heavy dirt areas such as tires, wheel wells and undercarriage components.

Dirty sponges and mitts can be abrasive to fiberglass and painted surfaces. Brushes and mitts that are made of plastic bristles can be used for tires and wheel wells but should not be used on fiberglass or paint. Wash heavy dirt areas first and then work from the top down. Use a mild soap or detergent. Avoid using cleaners that contain harsh abrasives and try to avoid using combination wash-n-wax products. Ammonia-based glass cleaners can be used on stains or road tar but need to be followed immediately with warm soapy water and a clean water rinse. Drying your unit with damp natural or synthetic chamois, or other drying products can also eliminate water spots and stains that can occur from chemicals found in many tap-water and well water systems.

### **Waxes and Polishes**

Waxes (particularly carbauba waxes) have been a long standing favorite fiberglass protection method. Recently, however, the chemical industry has developed better products for sealing gel coated and painted fiberglass surfaces. These new polymer based products aren't just a coating that resides on the surface like waxes, they actually get into the pores of the gel coat or clearcoat and seal the surface from oxidation and other damaging elements. Polymer based sealers can be used to provide excellent protection for both fiberglass and painted surfaces.

There are many polymer based sealers available to protect your unit. When choosing a sealer, carefully read the label of the product to make sure it contains polymers that are designed to be used on gel coats or fiberglass, and painted surfaces, and determine how frequently the sealer should be applied. For coaches that have had waxes previously applied, wax removers are available for use before applying the sealant.

### **Repairs**

Scratches, chips, cracking, etc. on painted surfaces may be touched up using the touch-up paint provided with your unit. The paint formulation information provided with your unit can be used for larger repairs or your unit can be taken to a body repair shop to have the color matched. For large fiberglass gel coat repairs (non-painted surfaces), you may contact Born Free Customer Support and

we will send you the desired amount of gel coat material.

### **Doors and Locks**

Born Free Motorcoaches are equipped with the following locks and keys:

- (1) Chassis door and ignition.
- (2) Coach entrance door lock.
- (3) Coach entrance dead bolt lock.
- (4) Compartment door locks (Barrel Keys).

For a replacement, see chassis dealer, call Trimark for entrance door replacement keys, or call Born Free Motorcoach for replacement barrel keys.

### **Ladder and Rack**

An exterior roof mount ladder and rack provide access to the roof area for storage purposes and routine maintenance. Care should be taken when using the ladder in icy or rainy conditions. Do not exceed 100 pounds per square foot, or 1,000 pounds total weight of storage on the roof.

### **Roof Mounted Storage Compartment (OPTIONAL)**

A weatherproof storage pod is a very useful accessory for storing large items, like suitcases, sleeping bags, etc. Do not exceed 10 pounds per square foot, or 100 pounds total weight of storage in the compartment.

### **Sewer Hose Storage**

Storage for your sewer hose (Figure 1.1) is located on the driver side, in a net inside the access door of the compartment near the dump valve assembly.



Figure 1.1

### **Engine Fuel Door**

Access to your fuel tank fill is obtained through the fuel door (Figure 1.2) located on the driver side of the coach. Pay particular attention to the warning labels affixed to the door. Diesel owners



Figure 1.2

need to pay particular attention that when filling the fuel tank, diesel fuel is used rather than gasoline.

**WARNING: For your safety, all gas appliances must be turned off when refueling the vehicle.**

### Waterfill Access Compartment

An access door, located on the driver's side, approximately two thirds back (Figure 1.3), contains hooks for the potable water, city water fill, outside shower, outside cable connection, phone jack, and exterior light. The light is useful to aid you in evacuating the waste tanks at night.



Figure 1.3

### 120-Volt Exterior Outlet

A 120-volt weatherproof outlet (Figure 1.4) is available on your coach to operate 120-volt accessories. This outlet is controlled by a 120-volt ground fault-breaker (located in the converter) to prevent electrical shock caused by wet conditions. Use only grounded plugs and do not exceed the amperage limit of the breaker.



Figure 1.4

### Furnace Outlet

The exterior furnace outlet (Figure 1.5) is a combination intake and exhaust system for the furnace. When the furnace is operating, this vent may become hot.



Figure 1.5

**WARNING: Do not touch or place combustible materials near the furnace outlet.**

## Roof Mounted TV Antenna

### A. TV Antenna

Models with TV's have a Wingard Antenna (Figure 1.6) mounted on the roof, with controls inside the coach for adjustment. To operate the antenna first extend it by rotating the elevating crank clockwise. Once it has been fully extended, pull the directional handle away from the ceiling (to disengage it from the ceiling plate); rotate the antenna for optimal



Figure 1.6

reception. To retract the antenna before travel, first rotate it so the pointer on the directional handle aligns with the pointer on the ceiling plate. Then, turn the elevating crank counter clockwise until resistance is felt.

**WARNING: Make sure your antenna is completely retracted before driving.**

### B. Signal Amplifier

All coaches with TV antennas are also equipped with a video switchboard (Figure 1.7). This switchboard allows one to utilize other video and audio components with the TV and in addition, serves as a signal amplifier for the incoming antenna signal. To activate the signal amplifier and improve your TV antenna reception push the power button on the switchboard. A red light indicates amplified antenna reception. The amplifier may interfere with cable and satellite signals so the button should be in the off position when receiving a signal from a cable hookup or a satellite.



Figure 1.7

### C. Cable Connection

Some campgrounds offer cable TV as a service to their customers. To use this service simply connect a TV cable wire from the connection point provided by the campground to the connection point found inside the Water Fill Access door (Figure 1.3) of the motorcoach. Note: When cable TV is being used, the Signal Amplifier button (Figure 1.7) may need

to be in the off position so it doesn't interfere with the cable reception.

## **Entrance Door Light and Grab Handle**

The exterior porch light, lighted grab handle and stepwell light are controlled by switches located inside the entry door on the wall.

## **2.0 COACH INTERIOR . . .**

### **Seat Belts**

For seat belt requirements, refer to RVIA (Recreational Vehicle Industry Association) and FMVSS (Federal Motor Vehicle Safety Standards). Most states, by law, require the use of seat belts. In addition, Born Free Motorcoach recommends the use of seat belts on all passengers while the vehicle is in motion. (The motorcoach has seatbelts on its chairs only—sofas and dinettes do not have seatbelts attached.)

According to Federal Regulations on recreational vehicles, an automatic restraint diagonal shoulder belt on the right front passenger seat is not approved (and therefore cannot be used) to secure a child safety seat. The safety of young passengers is not only your responsibility, it's the law.

### **Smoke Alarm**

A smoke alarm (Figure 2.1) is provided as protection in case of a fire. The alarm operates on a 9-volt battery. For your protection, we suggest you test the alarm before each trip and weekly while your motorcoach is in use.

Refer to the Smoke and Fire Users Guide for frequency of battery replacement and for proper operation and testing procedures.

***LIMITATION ON LIABILITY – The warranty on this alarm is limited to repair or replacement of the detector only. Born Free Motorcoach will not be liable for loss or damage due directly or indirectly to occurrences which the detector is designed to detect.***



Figure 2.1

***Some states do not allow the exclusion or limitation of incidental or consequential damages; so the above limitations or exclusions may not apply to you. The warranty gives you specific legal rights, and you may also have other rights which vary from state to state.***

### **Cabinets and Doors**

Your Born Free Motorcoach is equipped with oak, cherry, or maple cabinet doors. Because of normal movement of the coach and cabinet loading, the doors on some cabinets may become misaligned. Normally, a simple adjustment of the door striker or hinge is all that is required.

### **Beds**

Several types of beds are used in Born Free Motorcoaches, depending on the floor plan selected. They are designed for maximum comfort in seating and sleeping.

1. **42" x 76" Sofa Bed** – The sofa quickly converts from a sofa to a 42" x 76" bed by lifting up the front edge of the seat cushion and pulling out. The bed then can be made up for a comfortable night's sleep. To return it to a sofa, simply lift the front edge and push in.
2. **Dinette / Bed** – The optional dinette sofa combines sleeping accommodations with dining style seating. To prepare the bed, first remove the table and support leg. To convert the seats to a bed, lift up the front edge of each cushion and pull out. Storage is located under each seat base.
3. **Sleep-By-Number Bed** – The Rear Queen Model has the option of a Select Comfort Bed that measures 75" x 60". Access to the large storage area underneath is from the outside access door or lifting up on the bottom end of the bed. The bed hinges up and is assisted with gas struts.
4. **Inclining Bed** - Incline beds can easily be converted for sleeping by removing the back cushions. Each incline bed is also equipped with a remote control that can be used to elevate the head of the bed to a desirable position.

### **Carbon Monoxide Detector**

The C/O Detector (Figure 2.2) is designed to detect high levels of carbon monoxide in your coach. The

alarm operates on a 9-Volt battery. For your protection we recommend that you test the alarm before each trip and weekly while your motorcoach is in use. Refer to the Costar Owners Manual for frequency of battery replacement and for proper operation and testing procedures.



Figure 2.2

**LIMITATION ON LIABILITY** – *The warranty on this alarm is limited to repair or replacement of the detector only. Born Free Motorcoach will not be liable for loss or damage due directly or indirectly to occurrences which the detector is designed to detect.*

*Some states do not allow the exclusion or limitation of incidental or consequential damages; so the above limitations or exclusions may not apply to you. The warranty gives you specific legal rights, and you may also have other rights which vary from state to state.*

## Emergency Exits

The two cab doors and the coach’s entrance door are designated as exits for your Born Free Motorcoach. Additionally, the rear window on some Born Free’s is also designated as an emergency exit. An exit window will have a red latch. Familiarize all occupants with these exits in case of an emergency.

## Roof Vents

To provide adequate ventilation inside your coach, roof vents are installed in the ceiling.

### A. Shower Vent

The vent (Figure 2.3) is located in the shower ventilate the shower and bathroom area. The cover must be open before the fan is turned on, and the fan must be turned off before the handle is pulled down to close the vent. Push the handle up to open the cover and pull down to close. The cover should be in the



Figure 2.3

closed position when not in use.

### B. Fan-Tastic Vent

A Fan-Tastic vent (Figure 2.4) is located in the roof area near the front of the unit. Also, an exhaust only Fan-Tastic Vent is located in the bathroom. Refer to the Fan-Tastic Vent operating



Figure 2.4

instructions for proper use of the Fan-Tastic Fan. Do not travel with the roof vents in the wide-open position and make sure all roof vents are closed to ensure maximum efficiency when using the air conditioner.

## Roof Air Conditioner

Two 13,500 BTU Duo-Therm roof mounted air conditioners are installed as an option. The President model is equipped with two Comfort Control Center’s (Figure 2.5) which are mounted on the wall. The front comfort center controls the front air conditioner in addition to the furnace. The rear comfort center controls the rear air conditioner. Refer to the Comfort Control Manual for operating instructions.



Figure 2.5

- **Air Conditioner Operation** – The roof mounted air conditioner’s operate on 120-volt power supplied either by shoreline or generator produced 120-volt current. The AC / Heat Strip must be in the OFF position when starting the generator or plugging in the shoreline power cord.
- **Cooling Operation** – Select the fan speed that best satisfies your needs:
  - **High Cool** – Select when maximum cooling and dehumidification is required.
  - **Medium Cool** – Select when normal or average cooling is required.
  - **Low Cool** – Select when room is at desired comfort level and needs to be maintained. Normally, this speed is used for nighttime operation.

**NOTE:** *When in the cool mode, the blower runs continuously to circulate air and maintain an even temperature. The compressor will cycle on as cooling is required to maintain the selected temperature level.*

- **Heating Operation** – Turn the selector switch to Opt. Heat. The fan and heater will run as required. The heat strip takes a few minutes to warm up, but, if left on, does an adequate job of heating when small amounts of heat are required in the coach. The heat strip should not be used as the main source of heat for your motorcoach – the furnace should be used in colder conditions. Do not leave the heat strip on when the vehicle is unattended.
- **Maintenance** – Periodically remove the filter/grille assemblies located in the inside air box and clean. To remove the filter/grille assemblies (Figure 2.6) place thumbs and forefingers on the release tabs, squeeze the tabs inward toward the center of the grill and pull

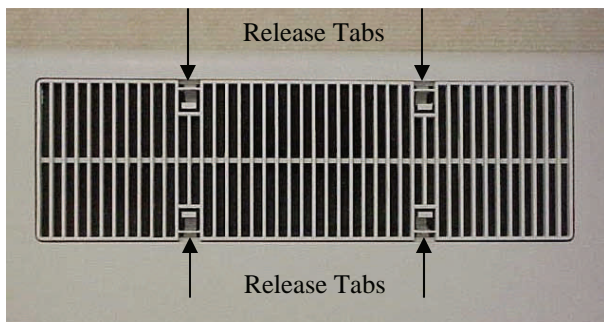


Figure 2.6

one side down. After the assemblies are removed, wash the filter/grille assemblies with soap and warm water. Let the assemblies dry and then reinstall.

- **Trouble Shooting** – In case the unit fails to operate, check the power source first to make sure the shoreline is carrying a proper amount of current, check the generator to see if it is producing power, or check the breaker in the power converter to see if it is tripped. Refer to the Duo-Therm Air Conditioner manual for warranty and service information.

### Range Hood / Water Pump Switch / Monitor Panel

- **Range Hood** – Your Born Free Motorcoach is equipped with a 12-volt range hood (Figure

2.7). It has a built-in monitor panel to accurately read the holding tanks, water tank, and battery level; and switches for the hood light, fan, and water pump. The range hood may be cleaned



Figure 2.7

with soap and water. Periodically remove the aluminum filter and wash in soap and water, allow to dry and then reinstall.

- **Water Pump** – The water pump switch (Figure 2.8) will activate the water pump and provide water to different areas of the coach. It may be left on while camping and the pump will automatically cycle when water is needed. We advise that you turn the water pump switch off

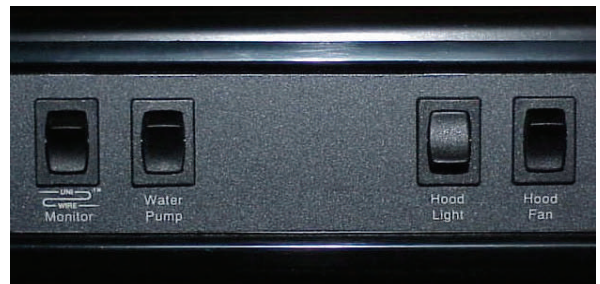


Figure 2.8

when traveling or if you are away from the vehicle to prevent excessive damage to the coach in the event of the development of a leak in the water system.

- **Monitor Panel** – Pressing and holding the “monitor” switch, will light up the panel (Figure 2.9) indicating the fluid levels in the black water holding tank, the gray water holding tank, the fresh water holding tank, and the charge condition of the auxiliary battery.

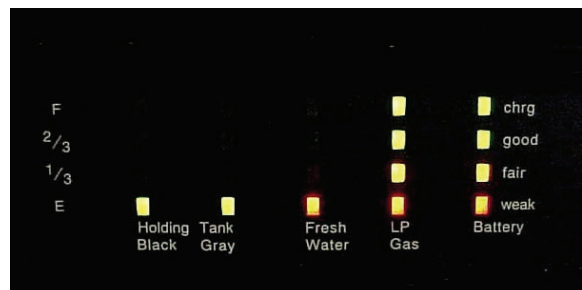


Figure 2.9

## Microwave Oven

Because we offer a variety of brands of electrical equipment; consult the manufacturer's owner's manual for proper operating instructions and warranty service information.

## TV/DVD

Born Free offers a variety of brands of TV's; consult the manufacturer's owner's manual for proper operating instruction and warranty service information.

## Interior Maintenance

Carpet, upholstery, curtains and shades should be vacuumed regularly. If the curtains need to be washed, they should be dry cleaned. Carpet spot remover may be used to remove stains and soiled spots from furniture and carpet.

## 3.0 ELECTRICAL SYSTEMS . . .

### 12-Volt Automotive Electrical System

The chassis batteries provide power to the following:

- (1) Headlamps
- (2) Turn Indicators
- (3) Console Panel Lamps
- (4) Windshield Wipers
- (5) Speed Control
- (6) Starter Motor
- (7) Backup Lights
- (8) Exterior Clearance Lights
- (9) Tail Lights, Indicator Lights, and Stop Lights
- (10) Cigarette Lighter (Dash Mount)
- (11) Auto Air Conditioner
- (12) Dash AM/FM Radio/CD

The above accessories are fused at the chassis fuse box. See your chassis owner's manual for location of the batteries and fuse boxes, and for proper fuse replacement. **NEVER** install a larger rated fuse as a replacement. Severe wire damage or possible fire may result. An additional fuse block (Figure 3.1) has been added for the ignition

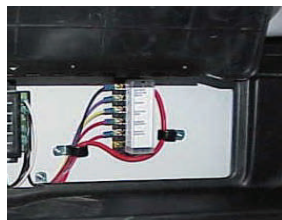


Figure 3.1

controlled circuits including the backup camera, the isolating relay delay, the electric step, and the electric awning controller. It is located below the passenger seat in a stow-away compartment entering the cab. This area is advised not to be used to store items because of the exposed DC wiring.

*Note: The chassis batteries are sealed and do not require maintenance.*

### Emergency Start System

An emergency start switch has been installed that allows use of the coach batteries for starting the engine when the chassis battery is dead. To use this feature, press the switch (Figure 3.2) at the same time the ignition key is turned to start the engine. Release the switch when the engine starts.



Figure 3.2

### 12-Volt Auxiliary Coach System

A standard coach is equipped with two deep-cycle, auxiliary batteries mounted on a slide-out tray, beneath the coach floor, on the driver's side. Auxiliary batteries for diesel units are located under the unit behind the passenger side running board.

The auxiliary batteries operate the following:

- (1) Interior Lights
- (2) Interior Roof Fans
- (3) Range Exhaust Fan
- (4) Furnace Fan and Igniter
- (5) Water Pump
- (6) Monitor Panel
- (7) Auxiliary Generator Starter
- (8) LP Leak Detector
- (9) Igniters for Refrigerator and Water Heater
- (10) 17" TV / DVD
- (11) Awning
- (12) Electric Step

An isolator relay (Figure 3.3) separates the chassis electrical system from the coach electrical system so the chassis battery won't run down while you are using the coach's auxiliary system. When the chassis engine is

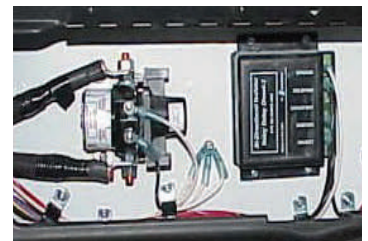


Figure 3.3

running, the isolator relay allows the chassis battery and the auxiliary battery to be charged by the alternator. A small charge is generated through the power converter to the auxiliary batteries when the vehicle is plugged into 120-Volt shore power, or, when the auxiliary generator is running. However, the rate of charge is a great deal less and will take longer to recharge.

**Note:** *The power converter does not charge the chassis battery while the coach is plugged into the 120-Volt Shoreline Power Cord or the auxiliary generator is in use.*

## 12-Volt Fusing

12 Volt fuses are located inside the front face of the kitchen cabinet (Figure 3.4) Refer to your coach 12V DC House Battery Circuits drawing (included in this packet) for location of this panel and

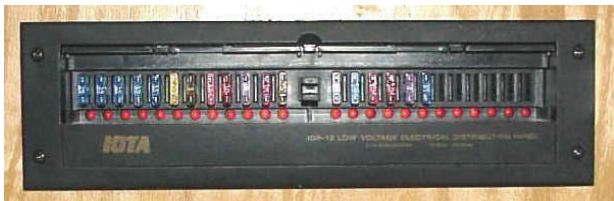


Figure 3.4

supplied circuits. **DO NOT** install a larger replacement fuse, as each circuit is rated for the size of fuse installed.

## 110-Volt System

Operated from a shoreline utility service, or an auxiliary generator source, the following equipment runs only off 110-volt power:

- (1) Roof Air Conditioner / Heat Strips
- (2) Refrigerator (except when operating on LP Gas)
- (3) Electric Appliances
- (4) Electrical Outlets
- (5) Microwave
- (6) 20" TV / DVD
- (7) Water Heater (except when operating on LP Gas)
- (8) Vacuum

The 110V Breaker Panel (Figure 3.5) with its circuit

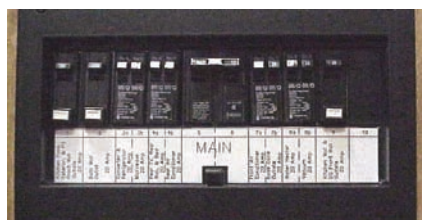


Figure 3.5

breakers are located inside the face of the kitchen cabinet above the 12V DC Panel.

## 110-Volt Utility Supply

A 50 Amp electric cord reel of 34-feet (Figure 3.6) is provided for connection to a utility supply. The recoil button is located on the side of the compartment box. A 50 to 30 amp and 30 to 15 amp adapter is provided to adapt to other utility supplies.



Figure 3.6

**Note:** *When using the 30-amp or 15-amp adapter, operating the air conditioner and too many other appliances may cause a circuit overload situation. Never use an ungrounded plug adapter; an electrical short may occur and cause serious electrical damage or personal injury. If your unit is connected to a utility supply for long periods of time, it is important to check the water level of the batteries every two weeks and add water as necessary.*

## Motorcoach Battery Care

Check the battery water level before every trip and at least once a week during heavy use. The terminals on the battery must be kept clean and free from corrosion. Even when idle, batteries will discharge due to chemical action and should be charged periodically. Do not connect the battery to a charger and leave for the winter; the danger of overcharging is too great and may result in the batteries overheating and creating a possible fire hazard.

## Battery Storage Compartment

Each coach is manufactured with an auxiliary battery storage compartment (Figure 3.7) located under the floor on the driver's side of the motorcoach, near the



Figure 3.7



generator. Two batteries are mounted on a sliding tray which can be extended in order to service them. This compartment is not weather-tight – fumes and gasses must be allowed to escape.

### Battery Disconnect

If the motorcoach is stored for the winter, turn the battery disconnect switch (Figure 3.8) to the “off” position. (The battery disconnect switch is located near the entrance step well).



Figure 3.8

### Converter Control Center – Battery Charger

When plugged into the 120-Volt shoreline, 120-Volt current enters the motorcoach from the 30-amp cord directly into the distribution panel. A converter which is plugged into an 110V outlet converts the 120-Volt power into 12-Volt DC current supplying 12V power to the DC circuits. The converter is also designed to plug in the Charge Wizard (Figure 3.9).

The Charge Wizard is a microprocessor-controlled unit that constantly monitors the RV battery voltage and then selects one of three charging voltages and one of four operating modes to



Figure 3.9

properly re-charge or maintain the RV battery. Given this fact, however, the chassis alternator is intended to be the primary source of charge. When plugged into shoreline power, no DC power is drawn from the auxiliary battery.

Dropping the front panel of the distribution panel will expose the circuit breakers that control the 120-Volt power in the motorcoach and the automotive type snap-in fuses that control the 12-Volt circuits. The circuit breakers are a manual reset type similar to those used in your home. If a short occurs, the breaker will trip and will have to be manually reset. The automotive fuses must be replaced using the same amperage rated fuse replacements. We

recommend you carry a supply of spare replacement fuses in the various sizes required. The circuits are identified inside the front panel.

In the event a circuit breaker trips or a fuse blows, reset the breaker or replace the fuse. If this happens again, we suggest you locate the circuit and unplug the offending appliance before resetting the breaker or replacing another fuse. The cause may be in the appliance itself. Never replace a blown fuse or circuit breaker with a larger rated fuse or breaker.

### Ground Fault Circuit Interrupter Breakers

For your protection and safety, we have installed a Ground Fault Circuit Interrupter breaker (GFCI) (Figure 3.10) in the AC distribution panel to protect the outlets in your Born Free Motorcoach located in areas that could be exposed to moisture. All 110V outlets that are protected with this device will trip the “GFCI” breaker if moisture is sensed.

We advise that you test the “GFCI” once a month to be sure the breaker is functioning properly. To test the device, simply push the “TEST” button (A). The breaker handle will audibly move to the center trip position, indicating ground fault protection. Reset the breaker by moving the handle to “OFF” and then to “ON”. If the test fails to trip the breaker, you should have the breaker replaced.

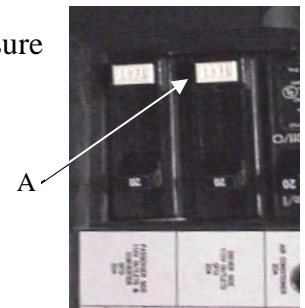


Figure 3.10

### 120-Volt Auxiliary Generator

The auxiliary generator (Onan generator shown in Figure 3.11) is located under the floor on the driver’s side of the vehicle. The



Figure 3.11

auxiliary generator in your motorcoach allows you to use 120-Volt appliances when 110-Volt power is not available. Gas generators operate on unleaded gasoline from the fuel tank of your motorcoach and LP generators operate on LP gas from the LP storage tank. The fuel tank must be at least one-fourth full for a gas generator to operate, and the

level of the LP tank must be at least 15% to adequately supply fuel for an LP generator to operate.

**WARNING:** *The exhaust from a gas generator contains carbon monoxide (CO). This gas is colorless, odorless, tasteless, lighter than air, and poisonous. The exhaust system of your auxiliary generator has been installed with your safety in mind, however, certain precautions must be taken to protect you from conditions beyond the control of the manufacturer.*

- Do not simultaneously operate your generator and a roof vent that could draw air containing exhaust gases into the vehicle.
- Do not open windows or non-powered vents in the vicinity of the generator location.
- When parking, position your motorcoach so the wind will carry exhaust fumes away from you. Note the position of other vehicles parked near you.
- Do not position your motorcoach so the generator exhaust is deflected off vegetation, snow, buildings, vehicles, or any other object that can deflect the exhaust under or into the vehicle.

The auxiliary generator can be started by a switch on the generator or by a Remote Mounted Start/ Stop Panel

(Generac generator remote start shown in Figure 3.12) inside the coach.

Refer to the Owner's Manual and Installation

Instructions and Remote Mounted Start/Stop Panel With Fuel Prime and Hourmeter for Operation, Maintenance, Troubleshooting, and Service and Warranty information for your generator.



Figure 3.12

## **4.0 LP GAS SYSTEMS . . .**

### **LP Tank**

Your coach uses liquid petroleum gas (LP / Propane) as a fuel for all the appliances which require heat, such as the water heater, furnace, range, oven, and absorption-type refrigerator. LP gas is economical and effective for these purposes;

when proper precautions are taken, it is a safe form of energy. The LP tank is located within the frame rails in the rear of the coach. Because of the tanks location, a remote fill inlet (Figure 4.1) is used. An emergency or convenience

switch is also supplied. This switch will close a solenoid that shuts off the line from the LP tank to the coach appliances. This switch should not be used while filling LP tank or while gases are present around the switch. Refer to the brochure included in your literature packet for basic information and safety practices.



Figure 4.1

**WARNING:** *The water heater must be filled with water before it is used. The heating system will actuate even when the water heater is empty. For your safety, all gas appliances must be turned off when refueling the vehicle.*

### **LP Gas Detector**

A standard feature in all Born Free Motorcoaches is the LP Gas Detector (Figure 4.2). It is designed to **detect** leakage in any LP gas piping and appliance system — **not to**

**prevent** leaks. When power is first applied, a yellow light will flash for 3 minutes while the detector is stabilizing. Caution: The detector cannot alarm during the 3 minute warm-up cycle.



Figure 4.2

At the end of the stabilizing period the LED will turn green indicating full operation. If an abnormal amount of LP is detected in your coach, a red light will come on and you will hear the sound of an alarm. Should the alarm sound, refer to the Operating Instructions for 'Propane and Methane Gas Detector' for the correct course of action. The LED will alternately flash red and green when a malfunction is detected. If this occurs remove the detector immediately and return it for repair or replacement. If the detector does not seem to be properly operating, it should be examined by an RV dealer or the manufacturer should be contacted. The detector will not operate normally at voltages

lower than 7V DC. The detector should be tested after the vehicle has been in storage, before each trip, and at least once a week during use. Refer to the manual for test procedures.

**NOTE:** *Aerosol spray (hair spray, Pam Cooking Spray, cleaners, etc) in the area of the detector may set the alarm off.*

**LIMITATION ON LIABILITY** – *The warranty on this alarm is limited to repair or replacement of the detector only. Born Free Motorcoach will not be liable for loss or damage due directly or indirectly to occurrences which the detector is designed to detect.*

*Some states do not allow the exclusion or limitation of incidental or consequential damages; so the above limitations or exclusions may not apply to you. The warranty gives you specific legal rights, and you may also have other rights which vary from state to state.*

We encourage you to test the device before and after each trip. Refer to your product manual for proper testing procedures. The LP Gas system should be checked for leaks at frequent intervals. An oily substance having a pungent odor is mixed with LP Gas; if there is a leak, you will be able to smell it.

The best method of finding a leak is to use a soap solution made from ordinary dishwashing detergent and water. This solution can be applied with a small paintbrush to gas lines and connections. Bubbles will appear at any place where gas is leaking out of the system. Most leaks occur at fittings and can usually be corrected by tightening the fitting. Where tightening fails to stop the leak, the fitting must be replaced.

**WARNING:** *No flammable material should ever be used to check for leaks in an LP Gas system.*

Occasionally, water may find its way into an LP Gas system and if this water freezes, the operation of the system may fail. The addition of anhydrous methanol to the LP gas system will usually eliminate this problem. The anhydrous methanol absorbs the water and carries it out of the system as the gas is used. If possible, find a service station that adds methanol to their propane during the

winter months.

**Note:** *Addition of anhydrous methanol to your LP tank should only be performed by a certified technician.*

Most of the gas appliances in your Born Free Motorcoach have electronic pilot lights, which will engage to light the fuel upon demand. These appliances all have a device built in that will shut the flow of gas off to the burner if the burner is not ignited.

## Furnace

The furnace in your Born Free Motorcoach is an LP Gas burning model, which will distribute heat throughout the coach. It is controlled by a wall thermostat. In the 32' President, the front wall thermostat controls both the furnace and the front air conditioner (Figure 4.3). Refer to the product manual for proper maintenance and operation. It is not recommended that the furnace be used when the vehicle is in motion.



Figure 4.3

**Warning:** *Do not alter the vent assembly supplied with this furnace. Any modifications could affect furnace operations.*

## Water Heater

A six gallon water heater (Figure 4.4) is standard in each Born Free Motorcoach.

**Note:** *The water heater must be filled with water before the water heater is activated. Refer to the summer de-winterizing section to make sure all valves are turned in the proper direction for water heater use.*



Figure 4.4

To fill the water heater with water, turn the water pump switch on and open a hot water faucet. The

water pump will push water into the water heater tank, and air from the water heater will escape through the open hot water faucet. A steady flow of water from the open hot water faucet will indicate the tank is full and the faucet may be shut off. The best time to fill the water heater is when you are filling the fresh water tank.

### Lighting Your Water Heater

Water in the water heater can be heated by using either 110V power, or LP Gas and 12V power.

**Warning:** *To prevent damage to the water heater ensure that there is water in the heater. The heating system will activate even when there is not water in the heater. Failure to fill the water heater before activating the heating system can result in damage to the heating element.*

#### To use 110V power:

The switch for the 110 V heating element (Figure 4.5) is similar to a home wall switch but has a red toggle. Move the switch toggle to the “ON” position. (A light in the red switch toggle will light up to identify that the switch is on and will remain lit until the switch is turned off.) Once the water reaches the maximum manufactured preset temperature the heater will turn off. The internal non-adjustable thermostat will cause the water heater to cycle on and off to maintain the temperature of the water.



Figure 4.5

#### To use LP gas and 12V power:

The switch for the LP gas heating element (Figure 4.6) has a toggle and a separate red lens that will light up.

- (1) Turn on the gas supply at the LP gas tank.
- (2) Push the gas water heater ignition switch in the coach to the “ON” position. The red lens on the switch will light up while the water heater is trying to ignite. When the red lens light on the



Figure 4.6

switch goes off, the water heater has properly ignited. As when using 110V power, the internal non-adjustable thermostat will cause the water heater to cycle on and off to maintain the proper temperature.

- (3) If the igniter fails to light, the red lens light on the switch will stay on. Refer to the Gas Water Heater Installation and Operation Manual if the unit fails to ignite and for other operation, maintenance, and warranty and service information.

### Refrigerator

Your Born Free Motorcoach is equipped with an LP Gas and 120-Volt AC refrigerator. The refrigerator should be started a few hours before leaving on any trip or outing. Pre-chill all food and beverages in your house refrigerator before placing them in your coach refrigerator. This will hasten the time it takes to get the refrigerator cool, and will not raise the temperature by placing too great a load on it suddenly. An inexpensive refrigerator thermometer can be purchased at most hardware stores and will prove very valuable in monitoring the temperature of the refrigerator.

The coach and the refrigerator must both be level for proper refrigerator operation. Refer to the Refrigerator Installation and Operating Instructions for proper operation, maintenance, warranty and service.

### Range and Oven

To operate, simply turn on the LP Gas at the tank. Turn on the gas control to the desired burner and light the burner with a match or igniter.

If you are using an LP Gas range for the first time, you will notice flame height is appreciably lower than the natural gas range in your home. LP Gas contains more BTU per unit than natural gas and a lower flame will cook as quickly and contain as much heat as the larger natural gas flame.

The flame should always be a blue color without any yellow tips. If yellow starts to form on the tips, it will smoke or soot the bottoms of your cookware. Refer to your range manual for proper operation, maintenance, and warranty and service information.

**WARNING:** The range is not a substitute for your furnace and must never be used to heat the motorcoach.

## LP Gas Systems Maintenance

LP Gas systems normally operate for long periods of time with a minimum of maintenance. However, a few tips on maintenance will be useful. One of the worst enemies of LP Gas systems is the spider. Spiders are attracted to tunnels and holes. They frequently spin webs across and through the orifices of gas-fired appliances. These webs restrict the airflow and produce a weak yellow flame that typically deposits carbon. If a yellow flame is detected, all parts of the burner should be wiped clean and orifices should be blown clear with compressed air.

If spider webs are not present and the flame is still too yellow, the air adjustment of the burner needs to be adjusted until a blue flame is maximized. Refer to the affected appliance's operating instructions for more information, or, have a qualified technician make appropriate adjustments.

## 5.0 PLUMBING SYSTEMS . . .

### Fresh Water System

Fresh water can be supplied from two sources: the water tank located inside the motorcoach, or, from a campground water source connected to the water intake through a garden hose. The fresh water tank system is equipped with a demand pump (Figure 5.1) that controls water pressure by use of a switch built into the pump. When a faucet is opened, pressure in the water lines drop and cause the pump to start. When the faucet is closed, pressure builds up quickly and the pressure switch shuts off the pump. The manual switch, located on the range vent, is used to turn off the electrical power to the demand pump. The pump operates on 12-Volt power.



Figure 5.1

**NOTE:** It is a good practice to turn off the pump switch when leaving the coach for a period of time and when retiring for the night to prevent excessive water damage to the coach in the event of the development of a leak in the water system. If the pump cycles on and off and water isn't being used in the coach, shut the pump off and check the system for leaks.

### Fresh Water Tank

The fresh water tank fill (Figure 5.2) is located outside the coach on the driver's side behind the water fill access compartment



Figure 5.2

door. To fill the fresh water tank use a garden hose. Allow the water to run into the tank at a moderately slow speed. This will allow the air to escape and the tank will fill much easier. After the tank is full, allow the air to purge for approximately 3-4 minutes. You may be able to get several more gallons in the tank. Remember to fill the water heater when filling the fresh water tank. Never leave the coach unattended while filling the water tank. Overfilling of the tank can cause it to bulge which in some instances can cause cabinet damage. Remove the hose as soon as the tank is full.

### City Water Connection

A City Water Connection (Figure 5.3) has been provided on the outside of the coach for you to use when parked in a campground that has hookup facilities for "city water". This connection is located in the waterfill access area. To use, turn off the demand pump and connect a water hose to this fitting. The city water pressure will provide adequate water flow. The city water connection will by-pass the fresh water system and will not fill the fresh water tank. Some water systems have very high water pressure; to guard against damage to pressure-limiting



Figure 5.3

components it would be wise to use a standard pressure reducer in your hose line.

## Toilet

To flush the toilet, press the pedal down completely. To add water to the bowl, press the pedal to a horizontal position. Release when sufficient water is in the bowl. On some models, an optional hand sprayer is included. To use, simply press the sprayer thumb lever while stepping on the flush pedal. Refer to the Toilet Owners manual for operation troubleshooting, cleaning and parts.

**NOTE: It is highly recommended that you use an RV type toilet paper. RV toilet paper breaks down quickly and is easily discharged.**

## Drain Systems / Holding Tank Evacuation

To provide complete self-containment and to comply with requirements of good sanitation practices, your Born Free Motorcoach is equipped with a dual tank drain system. The sanitary holding tank (black water tank) receives waste from the toilet and the bathroom lavatory. The second tank (gray water tank) collects wastewater from the sinks and shower.

The two tanks share a common outlet (Figure 5.4) (located on the driver's side, at the rear of the coach) for connecting the 3" sewer hose for emptying. Each tank has its own slide valve so they can be evacuated separately.

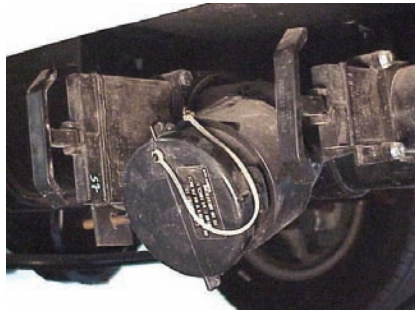


Figure 5.4

The holding tank should be evacuated only at an authorized sanitary disposal station or sewer hookup at a campground. Position your Born Free Motorcoach at the sanitation station so the sewer connection is located near the drain opening. Remove the cap on the drain opening and install the sewer hose to the connection. Place the open end of the sewer hose in the disposal drain, making certain it stays in position during the entire evacuation process. A secure connection to the sewer dump is highly recommended, and in some campgrounds, required. Each tank should be drained separately. DO NOT

open both valves at the same time – opening each valve separately will eliminate the risk of the contents of either tank running into the other. Dump the black water waste tank first. Pull the slide valve handle all the way out so the contents will run out in a quick flushing manner. When the black tank is empty, close the valve and re-engage the retaining clips. Evacuate the gray water waste tank in the same manner. Each tank should then be rinsed to assure all waste has been removed. If your coach has a black water tank flush system it can be used to flush the black water tank. Otherwise, the best method of rinsing the tanks is to make certain the slide valves are closed and then partially fill the black tank through the toilet and the gray tank through one of the sinks with fresh water; open the slide valves again to allow the rinse water to evacuate; close the slide valves and re-engage the retaining clips. Disconnect the sewer hose, rinse, and replace the sewer hose in its carrier.

When you are parked at a campsite with sewer hookup facilities, connect the drain hose, making sure the connection is tight so that septic odor does not come back into the coach. The method for draining the black waste tank and the gray water waste tank at a sewer dump station is the same as described above.

## Seasonal Protection –

**NOTE: Do not use automotive-type antifreeze. This ethylene glycol-type antifreeze is poisonous and is not approved for potable water systems.**

## Winterizing

Two gallons of RV antifreeze will be sufficient for this process:

1. Make sure the water pump, water heater and gas are turned off.
2. Relieve pressure in the water lines by opening and then closing a hot and cold faucet.
3. Turn the valves on the back of the water heater (Figure 5.5) to the

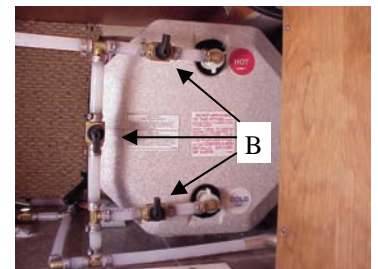


Figure 5.5

bypass position (B) so water can flow through the system but not into or out of the water heater.

- Go to the outside of the motorcoach, open the water heater door, (Figure 5.6) and open the pressure relief valve (C) to relieve pressure in the tank. Remove the anode rod (D) from the tank to drain the water from the heater.

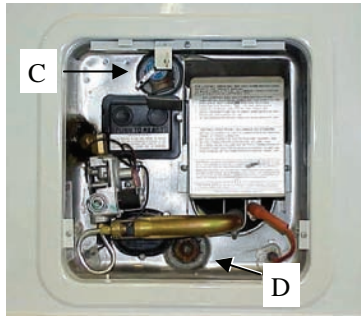


Figure 5.6

When the water heater is drained, close the pressure relief valve. Leave the anode rod out until the water heater is needed again. Refer to your water heater manual for more information on winterizing.

- Locate the fresh water tank and follow the white outlet hose to a drain valve that allows water to drain through the floor of the coach. Open the valve to drain the tank.
- After the fresh water tank is drained, close the drain valve. Continue to follow the white hose from the drain valve toward the water pump to a brass 3-way siphon valve (Figure 5.7). Turn the handle (E) so it is perpendicular to the direction of the water line. The 3-way siphon valve will be used later to add RV antifreeze to the lines.

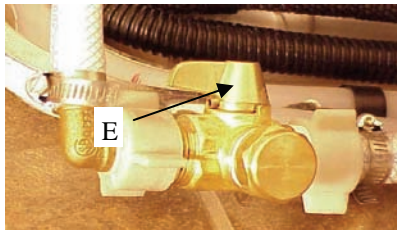


Figure 5.7

- Search for other drain valves (Figure 5.8) throughout the coach and open them (F) so water can drain from the lines. Drain valves may be located below the kitchen sink, below the stove, near the water heater, or in the outside

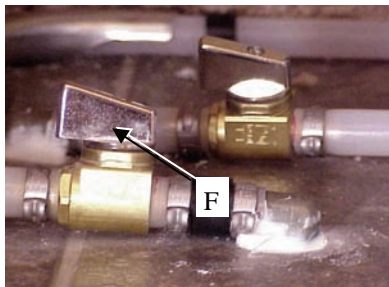


Figure 5.8

compartment near the base of the ladder. To assist in the draining process, open all hot and cold faucets to allow air into the system. When

draining the lines to the outside shower, press the lever on the shower head while opening the hot and cold faucets.

- When all lines are drained, close all drain valves and faucets.
- Locate the brass 3-way siphon valve mentioned earlier and remove the protective cap. Replace the cap with the siphon hose and put the other end of the siphon hose into the container of RV antifreeze. (Make sure the valve handle is pointed toward the siphon hose.)
- Turn on the water pump and then individually turn on the bathroom vanity faucet, tub faucet, showerhead, toilet, toilet spray hose, outside shower, and kitchen faucet until both hot and cold flow pink with RV antifreeze.
- Pour RV antifreeze down the sink and tub drains to fill the p-traps.
- Turn off water pump.
- Remove winterizing hose from the brass 3-way siphon valve and replace it with the protective cap.
- Dump the black and gray tanks. Your winterizing should be complete.

Along with protecting the water and drain systems, we advise you to follow these simple suggestions for proper winter storage:

- Remove all bedding and clothing to prevent mildewing.
- Remove all goods and clean cupboards.
- Affix newspapers to inside windows with masking tape. This protects carpets, curtains, and cushions from ultraviolet damage.
- Clean the refrigerator thoroughly and place an open package of baking soda inside, leaving the door open.
- Clean all appliances and stove vents.
- Turn LP tank valve to “off”.
- Turn battery disconnect switch to the “off” position.

### Summer De-Winterizing

- Fill your fresh water tank with clean water.
- Turn the valve on the brass 3-way siphon so it is parallel to the flow of the water.
- Turn the water pump on.
- Turn on all faucets, the toilet, and hoses. Let them run until they flow clear with water.
- Insert the anode rod into the water heater and

secure it in place.

6. Turn the by-pass valves on the rear of the water heater so all of them (3) are in a horizontal position.
7. With the valves turned correctly the water heater will start to fill with water. Lifting the stem of the pressure relief valve will help the water heater fill faster. When water comes out of the pressure relief valve the heater is nearly full. The pump will continue to run to complete the filling process.
8. When the water heater is full of fresh water and the lines are pressurized your pump should cycle off. Check all pressure connections in the water system to ensure they are secure and don't leak. Your de-winterizing is complete.

### **Disinfection of Potable Water Systems (RV's)**

As approved by the U.S. Public Health Service: To assure complete disinfection of your potable water system, it is recommended that the following procedures be followed on a new system, one that has not been used for a period of time, or one that may have become contaminated. This procedure is also recommended before long periods of storage, such as over winter.

1. Prepare a chlorine solution using one gallon of water and ¼ cup of household bleach (sodium hypochlorite solution). With the tank empty, pour chlorine solution into the tank. Use one gallon of solution for each 15 gallons of tank capacity. This procedure will result in a residual chlorine concentration of 50 ppm in the water system. If a 100 ppm concentration is required, as discussed below, use ½ cup of household bleach with one gallon of water to prepare the chlorine solution.
2. Complete filling of tank with potable water. Open each faucet and run the water until a distinct odor of chlorine can be detected in the water discharged. Do not forget the hot water taps.
3. Allow the system to stand for at least four hours when disinfecting the 50 ppm residual chlorine. If a shorter time period is desired, then a 100 ppm chlorine concentration should be permitted to stand in the system for at least one hour.
4. Drain and flush with potable water.

### **6.0 Tire Inflation and Vehicle Loading**

Vehicles manufactured by Dodgen Industries, Inc. are carefully designed and built to insure that the actual Gross Vehicle Weight (GVW) and the Gross Axle Weight (GAW) of completed vehicles are lower than the Gross Vehicle Weight Rating (GVWR) and the Gross Axle Weight Rating (GAWR) established by the chassis manufacturer.

Since the actual vehicle weights are lower than the maximum vehicle and axle ratings established by the chassis manufacturer, the tire pressure standard used by Dodgen Industries, Inc. for completed vehicles is also lower than the maximum tire pressures established by the chassis and tire manufacturers.

The following chart depicts the tire pressure standards that are applicable to vehicles manufactured by Dodgen Industries, Inc.:

	<u>Standard psi</u>	<u>Maximum psi</u>
<u><b>Ford E-350/450</b></u>		
<b>Front:</b>	<b>50</b>	<b>65</b>
<b>Rear:</b>	<b>70</b>	<b>80</b>
<u><b>Chevrolet Kodiak</b></u>		
<b>Front:</b>	<b>75</b>	<b>95</b>
<b>Rear:</b>	<b>80</b>	<b>95</b>

The owner of a vehicle manufactured by Dodgen Industries, Inc. is responsible for determining the optimal tire pressure to use for their vehicle dependent on the cargo weight and driving conditions under which they operate the vehicle. Overloading or under inflating tires can have negative effects including; rapid tire wear, tire failure, reduced handling capability, and dangerous on-road breakdown. The tire pressure standards cited above were selected as safe and reasonable baselines from which each owner will be able to make adjustment dependent on their particular needs.

### **Air Suspension**

This Born Free Motorcoach is equipped with an Link Air Suspension System. The compressor on/off switch is located on the dash. Also located with



that switch is the air dump switch. Refer to the Link Air Owner's Manual for Technical information and other specifications.

## Vehicle Loading Tips

When loading heavy items, balance side to side and front to rear. Do not put all heavy items in one compartment. After you have had the coach for a long enough time to establish how you are going to load it, put your standard load on the coach, fill it up with gas, water, and LP and then get individual wheel weights (or at least front and rear).

## Trailer Towing

Whenever a motorcoach is used for towing, adhere to the limitations listed below:

- The towing hitch (Figure 6.1) on the Born Free is a Class 3 Rated Hitch (500 pounds – tongue weight / 5000 pounds towing weight). Towed vehicles and trailers must not exceed the hitch ratings. The electrical connection for towing is located on the bumper (Figure 6.2).



Figure 6.1



Figure 6.2

- The Gross Combined Weight (GCW) must not exceed the Gross Vehicle Weight Rating (GVWR).
- Trailers weighing in excess of 1000 pounds require trailer brakes.
- Be aware that most states and Canadian provinces require braking systems on tow vehicles. This requirement is for both trailers and drivable vehicles.

Gross Combined Weight (GCW) equals the total weight of fully equipped motorcoach and trailer with cargo, driver, passengers, fluids, etc. Do not restrict radiator airflow by mounting front-mount spare tire, trail bikes, etc. to the front of the motorcoach.

***C A U T I O N: Installation of a frame-type equalization hitch on a motorcoach is not recommended.***

## Trailer Tips

- Make extra wide turns to compensate the wider turning radius of the trailer.
- When backing up, move trailer to the left by turning the front wheels of the motorcoach to the right. To turn the trailer to the right, do the opposite.
- Place wheel blocks (chocks) under the trailer wheels before setting brakes and transmission of the tow vehicle. The blocks will absorb the stress and secure the trailer.
- Frequently check operation of trailer brakes and trailer lights.
- Decrease trailer load substantially for high altitude driving.

## Driving Tips

Your Born Free Motorcoach will drive very much like your “family car”. The biggest difference in handling will come from an increase in weight, width, height, and length. All of these differences will become second nature to you after just a few miles of driving. You will be able to drive your Born Free at interstate speeds, just like your car; it will take a bit longer to achieve the maximum driving speed, however. The vehicle will slow more when climbing an incline because of the added weight. When maneuvering a pass, allow yourself more time and room for overtaking and cutting back.

Your Born Free is also wider and consideration should be taken when maneuvering in a tight place. When maneuvering in a tight place, it is best if you have your co-pilot get out and walk with the motorcoach as it moves. Station that person at the left rear of the coach where you can observe their signals.

As you become more familiar with your Born Free, you will become more aware of the additional weight, length, and width. However, height will have to be a constant thought when you approach low hanging branches or low building canopies. Allow 11 feet in most cases with a roof-mounted air conditioner for proper clearance.

The experienced traveler learns to “walk his rig” at

every stop; it takes but a minute to make a trip all the way around looking at the complete unit. Be sure all caps are in place, access doors secure, and tires are well inflated. Be sure to check the rear inside duals either by kicking them or hit them with a tire iron. An un-inflated tire will move on the rim causing heat build-up or possibly even a fire.

“Once around before in” is a good practice.

The fuel efficiency of your Born Free depends on several factors: the load it’s carrying, the size and weight of the body, driving habits and general condition and maintenance of the vehicle. Adding a trailer to your motorcoach will place an additional load on the engine and will reduce fuel economy.

There are some suggestions for increasing fuel economy:

- Refer to the Chassis Owner’s Manual for break-in instructions and driving speeds the first 1,000 miles.
- Change oil and filter according to manufacturers recommendations.
- Manually shift the automatic transmission when appropriate.
- Inspect air and fuel filters frequently when encountering excessive dust, bugs and debris.
- Keep cargo to a minimum.
- Make sure tires and air bags are properly inflated.
- Restrict dash air conditioner use when possible.

### **Operating Tips – Diesel Owners**

The performance of your engine can be greatly affected by what fuel is used. Because of the variety of fuels available today (e.g. low sulfur, ultra low sulfur, blended biodiesel, etc.) it can be confusing to know what fuel will allow your engine to perform at its highest level of efficiency in different conditions. Your choice of fuels in hot or cold weather, for example, will affect engine performance and may impact it negatively or even create unsafe conditions. To better understand the impact of different fuels with your engine refer to the Chassis Owners Manual provided with your motorcoach.

Engine starting procedures and “break-in” instructions are also different for diesel engines. Please refer to the Chassis Owners Manual for more information.

### **Routine Maintenance**

We suggest the following guidelines be used when operating your Born Free Motorcoach:

- Change engine oil and filter at 3000 mile intervals. Please refer to the Chassis Owners Manual for oil specifications.
- Rotate tires at 5000-7500 miles and again at 10,000-15,000 miles.
- Align the front end at approximately 2500-4000 miles. Contact a truck alignment shop. If the motorcoach pulls to one side, immediate alignment is necessary. Failure to take immediate action can result in severe tire wear and create a very hazardous driving condition.
- Service the auxiliary generator per manufacturers guidelines.
- By nature of construction, RV’s have various roof mounted equipment, screws, seams and joints where water may penetrate the roof if a water tight seal is not maintained.

Roof-top sealants are subject to expansion and contraction from temperature changes and outside elements which may cause cracking, which could result in a water leak.

It is the owner’s responsibility to have these seams periodically checked and maintained to prevent future water leaks.

- Check the caulking twice each year and replace if needed. A rubberized silicone caulking is recommended.

### **Travel Tips**

Here are some traveling tips to keep in mind when you’re on the road with your Born Free Motorcoach.

- Remember to “think high and wide”. Save the top and sides of your motorcoach.
- Keep an eye on service station attendants. They may accidentally fill your water tanks with gas or vice-versa. They may also get the wrong type of fuel in your unit.
- Use manned tollgates – usually you will be charged one class more than a car. Some states may or may not require you to stop at weigh stations.
- Check the oil every time you stop for fuel.
- Check wheel lug nuts before you start each trip.
- Do not leave food or odor causing materials in your vehicle for extensive periods of time.
- Inspect your fire extinguisher for proper charge once a month. It’s also a good idea if everyone using the coach knows where the extinguisher is

located and how to use it in case of an emergency.

- Conduct a tour of your vehicle before departure to be sure that all compartment doors are closed and locked, cabinet doors closed, and the refrigerator doors are secured.
- First time motorcoach owners may have a tendency to crowd the centerline of the highway. Check your mirrors frequently to prevent crowding the centerline.
- When fogging appears on windows, there is an excessive amount of humidity inside the vehicle. In extreme cold conditions, the humidity can turn to frost or ice. To alleviate the excess moisture problem, open a roof vent slightly or open a window. Operating power vents will also help.
- Taste the water before filling your fresh water tank.
- Conserve water when taking a shower by taking “sea showers”. Wet down and soap from water saved in lavatory, then use the on/off button on the showerhead. Turn the water on and rinse.
- Dump sewage only at approved dumping stations.
- During peak camping season, phone ahead for a camping spot.
- You will find that sleeping bags save work. They take less space than blankets and are usually warmer.
- Some states will not allow you to pass through highway tunnels with LP gas on board your vehicle. If your route includes a tunnel, check with authorities before venturing out.
- Emergency items you should have are:
  - a. Flashlight
  - b. First Aid Kit
  - c. Emergency Flares
  - d. Tool Box
  - e. Plastic Bucket
  - f. Tow Chain / Rope
  - g. Wheel Blocks (for leveling) / Extra Jacks
  - h. Water Hose
  - i. 100-150 Foot Electrical Cord – 50 Amp Rating Minimum
  - j. Fire Extinguisher
  - k. Hydraulic Jack and Lug Wrench

## **Pre-Trip Inspection**

- Inspect springs, shocks, and steering mechanism.
- Check fluid levels – radiator, brake fluid, and washer fluid.
- Examine tires for wear and test for proper inflation.
- Test auxiliary battery for charge and condition – clean battery posts if necessary.
- Check all running lights, turn signals, and panel lights.
- Test horn.
- Check windshield wiper condition.
- Outside rear view mirrors function properly
- Test operation of generator
- Check dumping equipment (secure, clean, working order)
- Test all coach lights
- Test operation of furnace
- Test operation of air conditioner
  - A. Check air filters and clean if necessary. Make sure cooling unit coils are clean and free from debris.
  - B. Check to see that condensing unit is clean and free of obstructions that would block air flow
- Test operation of refrigerator and look at the burner to make sure the flame is blue.
- Test operation of the microwave, range hood, and stove.
- Turn the water pump on and check the water system for leaks
- Check all faucets (Hot and Cold)
- Test operation of the toilet
- Test operation of the water heater
- Check smoke detector and carbon monoxide detector batteries.

## ATTENTION OWNER

- Proper front-end alignment is a critical element in keeping your new Born Free Motorcoach handling properly and getting maximum tire life. Your Born Free Motorcoach was aligned at the factory without any load.

Alignment will change as the vehicle breaks in. The individual tire pressure you choose for your ride; the air pressure in the air bag suspension that you choose (if you have this option); the truck springs as they soften with use; the load (equipment, accessories, personal belongings, etc.) that you decide to add; and the location in the vehicle of this weight, can all have an effect on the alignment.

It is important for you to outfit and prepare your vehicle the way you intend to use it, and then have the front-end alignment checked. Choose a reputable alignment shop that has experience in larger vehicles. Dodgen Industries, Inc. / Born Free Motorcoach is under no obligation to pay for this alignment, because each customer will outfit their vehicle uniquely.

Please call our Customer Support Manager at 1-800-247-1835 if you need assistance.

- Motorcoach owners many times look for possible ways to improve the mileage and power performance of their vehicles. One alternative many people consider is dual engine exhaust systems.

We do not recommend that you convert your truck to dual exhaust. The wires, fuel hoses, generator fuel line, electrical isolator, and optional hydraulic jack pump and reservoir of your coach are positioned so that they are shielded, or far enough away from, the single exhaust system and catalytic converter to withstand the higher temperatures of today's vehicle engine. Adding dual exhaust would put these components in an unsafe distance to the heat generated from the additional exhaust pipe. Installing dual exhaust may negatively impact your warranty on many of the

components listed above; therefore, we do not recommend that you do this.

If you have any questions about this, please feel free to contact our Customer Service Department.

- Every Born Free Motorcoach has an on-board water pump system. Unlike a city water system to your home, you have the ability to shut off your system with a switch (which is located in the range hood face above the cook top).

RV's have numerous plastic fittings and lines, which make up the water system. We recommend that you always shut off your pump when the vehicle is in motion. If a fitting or line should break, due to the stress of some poorer roads, you may not hear the pump running above the engine or radio sounds; and if a leak should occur, you could experience water damage in your coach. We feel this has only a slight risk of happening, but we want you to be aware of it.

We also recommend turning **off your pump when you leave your vehicle for any length of time**. Small drips can occur, just like in your home plumbing around faucets and drains. If the pump is left on, the pressurized water system will continue to leak in your absence. When you are in the vehicle, you will hear the pump run for a second or two, which will be the telltale sign that there is a leak. Periodic inspections of the drain p-traps, faucet connections, and water line connections are recommended to avoid problems.

***Note – plumbing fittings may loosen or break under certain road conditions, which makes following these guidelines critical.***

Born Free Motorcoach always tries to use the very best products manufactured in our motorcoach construction, and we feel our plumbing system is superior to other brands. But, we also want you, the owner, to be aware of the trouble areas that can occur, and to take precautions to avoid trouble.

Please feel free to contact the Born Free Motorcoach Customer Support Department if you have concerns or questions.



