



OWNER'S MANUAL



TIFFIN
MOTORHOMES

MADE TO MOVE YOU.

Tiffin Motorhomes, Inc.
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DISCLAIMER

Many of the features and appliances described in this manual might not be reflected in the actual motorhome purchased, depending on the options and models selected by the motorhome owner. All items, materials, instructions, and guidance described in this manual are as accurate as possible at the time of printing. However, due to Tiffin Motorhomes' ongoing and dedicated commitment to excellence, improvement of Tiffin's motorhomes is a continuing process. Consequently, Tiffin Motorhomes reserves the right to make substitutions and improvements in its makes and models of motorhomes without prior notification. Substitutions of comparable or better materials, finishes, appliances, instrumentation, and instruction might be made at any time it is deemed prudent to provide the customer with the best possible motorhome, meeting the customer's requirements.

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RV OWNER'S MAINTENANCE RECORD 80



GENERAL INFORMATION

CHAPTER

1

Tiffin Motorhomes, Inc. ©
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GENERAL INFORMATION



TIFFIN MOTORHOMES

WHEREVER YOU GO, WE GO.

WELCOME TO A LIFE OF “ROUGHING IT SMOOTHLY”



Tiffin Motorhomes is excited that you have entered the world of motorhome travel and we believe that you and your family will enjoy this way of life for years to come. Your Tiffin built motorhome provides all the luxuries and comforts of home while allowing you to travel freely as you choose. But before heading out on the open roads, please make yourself familiar with this owner’s manual to learn more about the operations of your motorhome. Also, please work with your dealer to learn as much as possible about the functionality and features of your coach.

And remember - “wherever you go, we go.”

ABOUT THIS MANUAL

This operator/owner’s manual was prepared with you in mind. We want to provide you with the information you need to properly care for and use your vehicle and equipment. Please carefully read through this manual to help you understand how everything in your motorhome works.

NOTE: This operator’s manual describes many features of your Cahaba and includes instructions for its safe use. The manual, however, including its photography and illustrations, is of a general nature. Some equipment and features described in this manual may be optional or unavailable on your model. The instructions included are meant to serve as a guide and in no way extend the responsibilities of Tiffin Motorhomes beyond the standard written warranty. The descriptions, illustrations, and specifications in this manual were correct at the time of printing and Tiffin Motorhomes reserves the right to change specifications or design without notice, and without incurring obligation to install the same on products previously manufactured. Many of the instruction sheets and manuals for the various appliances inside your motorhome have been incorporated into this manual for your convenience. There’s also a flash drive in the information bag inside of your coach with instruction manuals to your appliances on it as well.

DELIVERY

Throughout the entire manufacturing process, your Tiffin motorhome has been regularly inspected by our qualified personnel to assure you of the finest product of the highest quality, without exception. However, the final inspection at our factory is not to be the last one. The pre-delivery inspection and system check that your dealer performs are the final inspections done to your particular motorhome prior to you actually receiving your new Cahaba motorhome. Your dealer is also available to assist you in understanding the warranties and completing the necessary forms to activate the warranties for the various appliances and accessories installed in your motorhome.

DEALER RESPONSIBILITIES

1. A pre-delivery inspection and systems check is performed to assure a thorough inspection of the motorhome and to assure the proper operation of all factory-installed components.
2. A customer walk-through is performed to familiarize the new customer with the motorhome, its systems and components, and their proper and safe operation.
3. Delivery of the Owner's Information Package which contains warranty cards and registrations for the vehicle and all factory-installed components from other vendors and suppliers to Tiffin Motorhomes. The detailed operation instructions and maintenance instructions on these components are also included in this package.
4. Assisting the customer in completing the registration forms to avoid loss of warranty coverage. The dealer should review the limited-warranty provisions with the customer to stress the importance of completing the warranty cards and registration forms for the components in the motorhome to enable the manufacturers to receive them within the prescribed time limits.
5. Providing the customer with information regarding warranty and non-warranty work on the vehicle and its separately warranted components.

CUSTOMERS RESPONSIBILITIES

The customer is responsible for regular and proper maintenance of the motorhome. Properly maintaining your motorhome will prevent conditions arising from neglect that are not covered by your Tiffin Motorhomes limited warranty. The maintenance guidelines in this manual and any other, applicable manual(s) should be followed. It is your responsibility and obligation to return the vehicle to an authorized dealer for repairs and service.

To assist you in avoiding problems with your motorhome, it is recommended that you do the following:

1. Read the warranty. Go over it thoroughly with your dealer to make sure you understand all the terms and conditions of the warranty.
2. Please ask questions about anything you don't fully understand about your Cahaba. Tiffin Motorhomes is here to serve you and assure that you have all the information necessary for your safe and enjoyable use of your new motor home.

3. When you are taking delivery, set an appointment for adjustments. This appointment should be within two weeks after you accept delivery.
4. You are responsible for and expected to use your Cahaba in a responsible, safe manner. Please take the time to familiarize yourself with the proper operation of the motor home and all its features before you attempt to use your motor home.
5. Once a year the roof seals need to be inspected and replaced if need to prevent leaks. This can be done at a Tiffin Motorhomes Service Center

TIFFIN MOTORHOMES LIMITED WARRANTY

The Tiffin Motorhomes limited warranty was provided to you by your authorized Tiffin Motorhomes dealer during the pre-delivery inspection. When you inquire about your Tiffin Motorhomes warranty, please refer to this document. Should you need or desire an additional copy or other information, please contact:



Tiffin Motorhomes, Inc.
 625 Fawn Grove Rd.
 Winfield, Alabama 35594

Tiffin Motorhomes will be pleased to send you an additional copy or any other information requested, as may be warranted.

MAJOR EQUIPMENT MANUFACTURERS

The following list is a compilation of the vendors and suppliers of the major subsystems and components of your Cahaba. This list is provided for your convenience and is not meant as a complete substitution of the literature and accompanying “how to contact us” information supplied by those vendors and suppliers in your Owner’s Information Package. Where appropriate, website information is provided as well.

(INCOMPLETE)

- | | | |
|------------------------|----------------|--------------------------------------------------------------------|
| • Contoure | (888) 656-9317 | contoureusa.com |
| • Elwell Corporation | (360) 608-0916 | elwellcorp.com |
| • True Induction | (877) 862-7049 | trueinduction.com |
| • Indel Webasto Marine | (954) 984-8448 | indelwebastomarine.com |

- Volta Power Systems (616) 226-4222 voltapowersystems.com
- RV Products (Coleman A/C) (316) 832-3400 airxcel.com
- Precision Circuits Inc. (630) 240-9832 precisioncircuitsinc.com
- RV Safe (714) 934-8512 rvsafealarm.com
- Triple H (800) 237-4277 triplehelectronics.com
- Girard systems (949) 259-4000 <https://www.lci1.com/>

For those looking for more information (e.g., locations of authorized subsidiaries), the following web site, www.rvamerica.com/data/s_alist.htm, should be helpful. This site provides complete, alphabetic listings of all suppliers and vendors for all contemporary recreational vehicles and motor homes.

WARRANTY SERVICE

Mercedes-Benz covers Roadside Assistance for the full term of the bumper-to-bumper chassis warranty of 3 years or 36,000 miles, whichever comes first.

Tiffin Motorhomes warranties its utilized construction for three years and its laminations for three years. Any service work performed after the expiration of the Tiffin Motorhomes warranties WILL NOT be covered under the conditions of the implied Tiffin Motorhome warranty. Exceptions may be made on an individual basis, to this deadline on account of the unavailability of parts and/or service appointment time where work is to be performed.

Neither Mercedes Benz nor Tiffin Motorhomes provides warranty for the motorhome tires. Please refer to the tire manufacturers guide provided in the Owner's Information Packet for any warranty information. However, do not rely on the possibility of an exception: please schedule any desired in-warranty work before the expiration of your motorhome warranty.

OWNER'S INFORMATION PACKAGE

The Owner's Information Package includes valuable documents about your Cahaba and its components and systems. By consulting the booklets and instruction manuals included in the Owner's Information Package, you will learn how to operate, maintain, and troubleshoot these items safely and effectively. The Tiffin Motorhomes Cahaba Owner's Manual does not cover every possible detail of equipment—standard and/or optional—installed on or in your vehicle.

As with all valuable documentation, please keep them in a safe, secure place for your later use and consultation. When you complete and mail to the respective manufacturer(s) any warranty/guaranty registration card(s), make a photocopy of both sides of each card prior to mailing and keep the photocopy in your permanent records for your Cahaba motorhome.

CUSTOMER RELATIONS

If you wish to schedule maintenance or service or wish to order parts, you should notify your local authorized Tiffin Motorhomes dealership to set up an appointment. If you are unsure of the location of your nearest authorized Tiffin Motorhomes dealership, please access the Tiffin Motorhomes website at www.tiffinmotorhomes.com and then click on the "Locate Dealer" button, then enter in the appropriate

search criteria such as state and retail sales, then click on the red ball located on the map to find dealer information in that area.


SPECIFICATION LABELS

There are two main numbers used to identify your Cahaba. The Vehicle Identification Number (VIN) is the legal identification of the completed vehicle. The VIN is the number used by the state for vehicle identification and registration.



Another label affixed to your Cahaba is the Recreational Vehicle Industrial Association (RVIA) label for Tiffin

Motorhomes, a manufacturer member of RVIA, has the obligation to disclose the following information, at minimum, to the purchaser of the motor home:



P.O. Box 596
Red Bay, Alabama 35562
www.tiffinmotorhomes.com

Phone: (256) 356-8661
Fax: (256) 356-8219
info@tiffinmotorhomes.com

MOTORHOME WEIGHT INFORMATION

YEAR: 2014 Model Name: 45 LP - Powerlide 5130E
Serial Number: 7361

GVWR (Gross Vehicle Weight Rating)
is the maximum permissible weight of the fully loaded motorhome.

UVW (Unloaded Vehicle Weight)
is the weight of this motorhome as manufactured at the factory with full fuel, engine oil and contents.

SCWR (Sleeping Capacity Weight Rating)
is the manufacturer's designed number of sleeping positions multiplied by 154 pounds (70 kilograms).

CCC (Cargo Carrying Capacity)
is equal to GVWR minus each of the following: UVW, full fresh (potable) water weight (including water heater), full propane weight and SCWR.

CARGO CARRY CAPACITY (CCC) COMPUTATION		pounds	kilograms
GVWR		81,300	37,270
minus UVW		37,330	16,933
minus fresh water weight of	90 gallons @ 8.3lb/gal	747	339
minus propane weight of	24.5 gallons @ 4.2lb/gal	82	37
minus SCWR of	4 persons @ 154lb/person	616	279
CCC for this motorhome*		12,525	5,681
GVWR		86,300	

*Dealer installed equipment and towed vehicle tongue weight will reduce CCC

WARNING: CONSULT OWNERS MANUAL(S) FOR SPECIFIC WEIGHING INSTRUCTIONS AND TOWING GUIDELINES INCLUDING AUXILIARY BRAKE REQUIREMENTS FOR ANY TOWED TRAILER OR TOWED VEHICLE.

This vehicle contains composite wood products that comply with the applicable California Code of Regulation Section 90120 Phase 1 or Phase 2 Formaldehyde emission standards.

"Just ask someone who owns one!"

- An indication of the contents of the motorhome weight label affixed to the motorhome.
- A concise explanation of the following items: Vehicle Weight (VW) distribution and Proper weighing techniques to be used to weigh the vehicle.
- Specific definitions for the following terminology:

Gross Vehicle-Weight Rating (GVWR) – This is the maximum permissible weight of the motor home when it is fully loaded.

Unloaded Vehicle Weight (UVW) – This is the weight of the motor home, as built at the factory, with full fuel, engine oil, and coolants. The UVW does not include cargo, fresh water, LP gas, or any dealer installed accessories.

Cargo-Carrying Capacity (CCC) – This is the maximum weight of all occupants including the driver, personal belongings, food, fresh water, waste water, LP gas, tools, tongue weight of towed vehicle [if any], dealer-installed accessories, and the like. The CCC is equal to or less than the GVWR minus the UVW.

Gross Combination-Weight Rating (GCWR) – This is the value specified by the chassis manufacturer as the maximum allowable loaded weight of the motor home with a towed trailer and/or vehicle [if any].

Sleeping-Capacity Weight Rating (SCWR) – This is the maximum weight capacity of the combined number of persons (i.e., number of people multiplied by 154 pounds per person) permitted to sleep within the vehicle.

Gross Axle-Weight Rating (GAWR) – This is the maximum allowable weight for an axle; the GAWR considers the weakest link in the tire, wheel, brakes, hubs, axle, springs, and attaching parts. To illustrate, if the axle is rated at 15,000 pounds and the tires are rated at 3,200 pounds each as a dual installation; then the maximum GAWR would be 12,800 pounds for a four-tire vehicle.

WEIGHT PROCEDURES

To weigh the motorhome properly, the motorhome should be level when the weighing process is performed. Your Cahaba motorhome has been designed and built in compliance with the recommended limits of the major-component/system suppliers to provide a realistic CCC. It is up to the final user to provide even distribution of the loads brought into the motor home to prevent uneven loading. Once the vehicle is loaded, it can be taken to any certified drive-on scales or individual-wheel scales to determine that the final weight is within specified limits for the motorhome. The procedure that can be used is as follows:

First, drive the motorhome onto the scales so that all wheels are on the scales; this provides the gross vehicle weight (GVW) of the vehicle and can be recorded as such. The GVW should not exceed the GVWR specified for the vehicle.

WEIGHT DISTRIBUTION

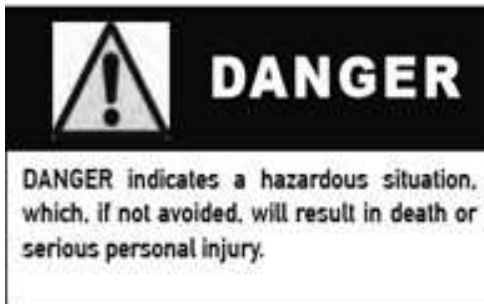
To assure the maximum stability of the motorhome under static (i.e., parked) and dynamic (i.e., moving) conditions, the distribution of the items to be carried and stored within the motorhome should be performed in such a manner to strive for reasonably even side-to-side and front-to-rear dispersion of the weight of the stored items.

This process will assure that the motorhome is not “lop-sided” in weight distribution (i.e., all the stored weight on one side and/or mainly towards the front or the rear).

Keeping a center of mass of the motorhome essentially centered on a front-to-rear and side-to-side basis will also provide better control of the motorhome when it is in motion.

SAFETY MESSAGES

Please note that several labels listed in this manual represent items that need your attention. The Danger, Warning, Caution, and Notice labels alert you to precautions that may help you avoid damage to your motorhome, its equipment or your personal safety. Please read and follow them carefully.





SAFETY INSTRUCTIONS

CHAPTER

2

SAFETY CONSIDERATIONS

Prior to using your motorhome, especially for the first time or after a long period of non-use, please read thoroughly all the instructions in the Owner's Manual and the chassis-manufacturer's manual before attempting to operate your motorhome. There are several safety considerations which you should realize and follow while your Cahaba is in motion. These safety considerations, as well as others meant to preclude any damage to the motorhome, are listed in this chapter. Besides the driver, it would be helpful for the passengers to be familiar with these safety considerations and precautions, too.



GENERAL WARNINGS

In general, there are several "common-sense" safety precautions that should be taken every time the motorhome is to be used on the road. These precautions include:

- Only seats with seat belts should be used while the motorhome is in motion; those seat belts should be worn by all people (driver, passengers) in the motorhome at that time.
- While the motorhome is moving, lock all seats in the forward-facing position to provide maximum safety for the users.
- While the motorhome is moving, no one inside should ever stand or kneel on seats (e.g., young children).
- In the majority of states, it is the law that seat belts must be used (fastened snugly about the chest and hip areas), anytime the motorhome is in motion, to provide desired protection in the event of a crash.
- Any fire extinguisher(s) should be inspected on a monthly basis to assure that each extinguisher is properly charged and ready for operation.
- Any smoke and/or carbon-monoxide (CO)/liquid propane (LP) alarm(s) should be regularly inspected and tested. If being used for the first time, the smoke and/or CO/LP alarm should be properly activated and fresh batteries installed before the motorhome is placed into service. Never sleep in a motorhome not having functional smoke and/or CO/LP alarm(s).
- While the motorhome is moving, the sleeping facilities are not to be used.
- In the event of an emergency, be sure to be familiar with all escape exits (doors, escape window). Do not use the emergency window as a routine exit; this is strictly to be used for emergency purposes only.

- Movement inside the motorhome should be minimized while the motorhome is in motion.
- Never leave the driver's seat unattended while the motorhome is in motion.

PRE-DEPARTURE CHECKLIST

For your continued safety and convenience, the following is a representative "check list" designed to assure your safety while driving:



- ✓ Clean all windows, mirrors, and light lenses (front, back, side) to assure that you can "see" and "be seen." Reposition any mirrors or other fixtures to provide an unobstructed view (front, sides, and back) from the driver's seat.
- ✓ Remove or secure all loose fixtures (e.g., awnings, flags, antennas, portable lights) to keep them from falling from the motorhome when the vehicle is in motion.
- ✓ Make a "walk-around" visual inspection of the motorhome to note any irregularities (e.g., loose trim) or problems (e.g., low tires); correct noted problems accordingly
- ✓ Check all interior storage-compartment doors to make sure they are properly latched. If need be, check inside all interior compartments to make sure that all cargo and equipment are properly secured so they won't work loose and become hazards during sudden starts and stops.
- ✓ Check tires for proper inflation (i.e., cold inflation pressure: 100 psi). If the motorhome has not been used, make sure that the "cold inflation" pressure is maintained. If the motorhome has recently been used, make sure that the "hot inflation" pressure (see the tire-manufacturer's literature to determine appropriate "hot inflation" pressure) is maintained. All tire pressures should be within 1-2 pounds (psig) of each other.
- ✓ Examine wheel lug nuts to assure their proper tightness. If any lug nuts were found to be loose, first check the fit of the wheel to the hub to make sure the wheel is mounted properly. If the wheel is improperly mounted it could cause the wheel to wobble when the

motorhome is in motion, then tighten the lug nuts.

- ✓ Check all fluid levels (e.g., engine oil, transmission fluid, coolant, power-steering fluid, brake fluid, battery fluid [if applicable], windshield-washer solvent) to assure correct levels are maintained. Fill any low reservoirs, as needed.
- ✓ DO NOT SUBSTITUTE any other fluids for specified oils, transmission fluid, brake fluid, or other hydraulic fluids—in most instances, substitutions are not acceptable and may void warranties.
- ✓ Prior to starting the motorhome engine, make sure all lines (e.g., water, sewer) and electrical power cords are disconnected and properly stowed.

DRIVING SAFETY

Figure 2-1 shows the driver side dashboard and instrument console.



Various adjustments need to be made to assure the driver's comfort and the safety of the motorhome before starting and moving the motorhome; these include:

- Do not attempt to adjust the driver's seat while the vehicle is moving.
- Do not adjust the tilt steering while the vehicle is moving.
- The driver should be familiar with all gauges, instruments, switches, and indicators on the instrument panel prior to driving.
- Do not operate the cruise-control function during any extreme weather situations (e.g., snow, ice, sleet, heavy rain) or when road conditions are hazardous (icy, snowy, winding roads, city traffic) or when a constant speed of the motorhome is not possible or if traffic conditions don't warrant such.
- Avoid driving the motorhome through any standing water. If deep enough, such water can wet the brake pads and cause fading of the brakes (i.e., loss of braking power) and lead to excessive sliding or pulling to one side or another.
- Know the limits of operation of the motorhome. Don't try to achieve excessive speeds, climb overly steep hills, traverse overly long grades, attempt to use the motorhome as an "off the road" (OTR) motorhome, rapidly switch lanes, or rapidly accelerate or decelerate the motorhome. When in doubt about the handling characteristics of the motorhome, consult your chassis manual for information.




FIGURE 2-1: DRIVER SIDE DASHBOARD


FUELS FOR THE MOTORHOME

 WARNING	
<p>Liquid propane (LP) gas containers, gasoline, or other flammable liquids are not to be placed or stored inside the motorhome because a fire or explosion may occur. LP gas containers (Figure 2-2) are equipped with safety valves that may relieve excess pressure by discharging gas into the atmosphere—any containment of that vented LP gas constitutes an explosive hazard.</p>	
<p>Figure 2-2: LP tank</p>	

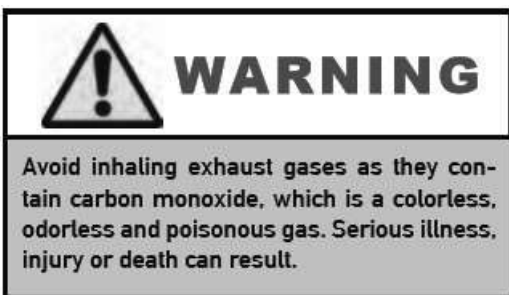
Your motorhome is designed to use diesel only for the engine used in the routine operation of the motorhome—these require prudent and safe handling to assure safety of the motorhome and its occupants; namely:

- Anytime the motor fuel tank is to be filled, the motorhome engine is to be turned OFF and all appliances should be turned OFF.
- A NO SMOKING policy should always be observed when refilling the fuel tank.
- NEVER use an open flame to examine the fluid levels in the fuel tanks.
- NEVER use any other “burning” equipment (e.g., charcoal grills, wood stoves, butane lights, propane lights) inside the motorhome. Doing so may cause fires and/or asphyxiation.

	DANGER
<p>All pilot lights, appliances, and their ignitors must be turned off before refueling of motor fuel tanks or propane containers. A failure to comply, could result in serious injury or death.</p>	

	WARNING
<p>Any portable, fuel-burning equipment (e.g., charcoal, propane, butane, wood) must not be used inside the motorhome. Any use of such equipment inside the motorhome may readily cause fires and/or asphyxiation by carbon-monoxide poisoning. Further, such unauthorized use would probably invalidate your motorhome insurance policy.</p>	

CARBON MONOXIDE WARNING



A properly maintained engine exhaust and ventilation system is the best way to protect against carbon monoxide's entry into the vehicle. We recommend that the exhaust system and body be inspected by a qualified motorhome service center:

- Each time the vehicle is serviced for an oil change.
- Whenever a change in the sound of the exhaust system is noticed.
- Whenever the exhaust system, underbody, or rear of the vehicle is damaged.

To allow proper operation of the vehicle's ventilation system, keep front ventilation inlet grill clear of obstructions at all times. Do not occupy a parked vehicle with engine running for an extended time and do not run engine in confined areas, such as a garage.

Your motorhome is equipped with a Carbon Monoxide alarm, which has a sensor that is designed to detect carbon monoxide gas fumes resulting from incomplete combustion of fuel. It will detect carbon monoxide gas from any combustion source such as from the furnace, oven/ range, water heater, refrigerator, chassis engine and generator engine.



Figure 2-3: Carbon Monoxide

CO/LP GAS DETECTOR

Since LP gas is denser than air, the LP gas will naturally settle to the lowest point in an enclosed space. In the motorhome, this would be the floor.

Because of this, the CO/LP gas detector (Figure 2-3) is necessarily mounted close to the floor. To activate the CO/LP-gas sensor on this detector for the first time, remove the sensor activation strip, if such was not performed during the pre-delivery inspection.

If the alarm persists in re-arming and giving further alarms, ventilate the motorhome by opening doors and windows and then check for possible LP gas leaks. If the leak cannot be readily found SAFELY, then close the main valve to the LP tank and turn "off" all gas appliances and then take the motorhome to a qualified service technician after the ventilation process is concluded and the doors and windows again shut.

This single compact system provides a powerful combined alarm that detects both Carbon Monoxide (CO) and explosive gases Propane (LPG) and Methane (Natural Gas). This detector uses the latest microprocessor technology combined with two electronic self-cleaning sensors that operate independently of each other. The combined unit can detect both CO and explosive gases simultaneously.

Carbon monoxide (CO) is a colorless, odorless, tasteless gas which, when breathed, bonds to the hemoglobin in the red blood cells and, thus, drastically reduces or blocks the transfer of oxygen from the lungs to the rest of the body.

In sufficient concentrations, CO kills by asphyxiation. In lesser amounts, CO makes the victim groggy, lethargic, and unable to think clearly or quickly.

CO is one of the products of combustion for many materials including petroleum-based products (e.g., gasoline, diesel fuel, propane, butane; among others). Since many of the appliances and the engines associated with the motorhome produce CO in their normal operations, it is necessary to assure that CO levels do not rise to dangerous levels within the motor home. In sufficiently high concentrations, CO can kill in minutes.

The most susceptible people to CO poisoning are unborn babies, small children, pregnant women, senior citizens, and people with cardiovascular or respiratory problems.

Consequently, it is prudent to check the CO monitor regularly for normal operation and to remain aware of the symptoms of CO poisoning which include dizziness, nausea, vomiting, muscular twitching, throbbing in the temples, incoherent thinking and speech, weakness, sleepiness, and intense headaches.

Should any of these symptoms be experienced in the motorhome, you should IMMEDIATELY evacuate the motorhome and seek medical help. Shut down the motorhome and do not attempt to operate it again until the source(s) of the CO are located and fixed.



DANGER

Carbon monoxide gas—derived from products of combustion of diesel fuel, LP gas, and other petroleum-based products—is a deadly gas which can kill motorhome occupants, if allowed to accumulate in sufficient concentration. Assure that all engine operations are not restricted—tailpipes and exhaust ports should not be blocked or restricted in any way. Additionally, any accumulation of exhaust gases outside or underneath the vehicle should be avoided as such may enter the motor home through windows or vents—be careful how and where the motor home is parked to avoid such conditions. Regularly monitor outside conditions to assure that all exhaust gases can readily be dissipated and not enter the motor home inadvertently.

DANGER



Never sleep in a motorhome when the engine is running—engine exhaust fumes could enter the motorhome and cause disability or death. Regularly check the exhaust system to note any leakage sites and, if found, discontinue use of the motor home until they are repaired by a competent, qualified service technician. Do not attempt repairs on the exhaust system yourself and do not modify (temporarily or permanently) the exhaust system at all.

FIRE SAFETY

As with any enclosed system containing the three required conditions for fire (i.e., combustible materials, oxygen, ignition sources), there will exist the possibility of fire. Tiffin Motorhomes has taken every precaution and design practice to minimize or negate this possibility, but the final determination rests with the owner and user of the motorhome. Accordingly, it is in the best interests of the owners, users, and their guests to be aware of basic fire-safety practices and procedures and those particular features that Tiffin Motorhomes has provided for fire safety.

FIRE EXTINGUISHER

The Cahaba is equipped with a fire extinguisher located behind the PS seat. The extinguisher is rated for Class A, B and C (i.e., trash, wood, paper, grease, gasoline, diesel fuel, flammable liquids and electrical). Read and understand the accompanying owner's manual on that extinguisher (found in your Owner's Information Package) and remember the location of the extinguisher. These types of fire extinguishers are pressurized, mechanical devices and require that appropriate care be used in their safe storage and use. The owner's manual will provide necessary guidance for the proper storage, handling, and use of the extinguishers. Prudent preventive maintenance suggests monthly inspection of any fire extinguisher to assure that it is sufficiently pressurized (i.e., the needle on the gauge is in the "normal" zone) and that the mechanical components are not blocked in any way. Do not test a fire extinguisher by partially discharging the unit—this will cause a loss of pressure and may lodge some fire retardant materials in the valve mechanism and cause the extinguisher to continue to vent slowly down to zero pressure. If an extinguisher is ever partially used; continue its use until the unit is completely discharged, then have the fire extinguisher fully recharged at an appropriate service center (one can call any fire department for information on having an extinguisher recharged in that particular locality). DO NOT wait a long time to recharge an empty fire extinguisher; you'll never know when it may be needed. Should a fire occur inside or around the motorhome, evacuate the motorhome quickly and calmly—do not panic. In the event of heavy smoke or extensive flames, keep low (crawl if you must) and make your way to the nearest exit (door, emergency window) and leave. If the fire involves a fuel source (e.g., diesel fuel, LP gas); consider the probability of an explosion and move sufficiently far away to minimize personal harm. If such is available, immediately place a call to the local fire department (or ask someone nearby to do so) to report the fire. Consider the cause and the consequences of the fire and the risks associated with possibly fighting the fire yourself before trying to extinguish it. DO NOT expose yourself or others to unnecessary danger.

SMOKE DETECTOR

The Cahaba motorhome is equipped with a battery-operated smoke detector (Figure 2-5) located on the ceiling in the living area of the motorhome. The smoke detector should be tested on a weekly basis, before each trip, and after any period of storage of the motorhome. If a low battery condition is noted or the alarm "chirps" to indicate a low-battery condition, immediately replace the battery. It is suggested that you keep replacement batteries in the motorhome for any in-transit replacements so that the smoke-alarm capability is never compromised. DO NOT disable the smoke detector for any transient, false alarm (e.g., cooking smoke, dusty furnace, tobacco smoke). Ventilate the motorhome with fresh air and the alarm will reset.



Figure 2-5: Smoke Detector

ELECTRICAL

- Careless handling of electrical components can be fatal. Never touch or use electrical components or appliances while feet are bare, while hands are wet or while standing in water.
- Improper grounding of the vehicle can cause personal injury.
- Do not attach an extension cord to the utility power cord.
- Do not use any electrical device that has had the ground pin removed.
- Avoid overloading electrical circuits. Replace fuses or circuit breakers with those of the same size and amperage rating only. NEVER use a higher rated fuse or breaker.

LOADING

- Store or secure all loose items inside the motorhome before traveling. Possible overlooked items such as canned goods or small appliances on the countertop, cooking SAFELY pans on the range, or free-standing furniture can become dangerous projectiles during a sudden stop.
- Be aware of GVWR, GAWR, and individual load limit on each tire or set of duals.
- Never load the motorhome in excess of the gross vehicle weight rating or the gross axle weight rating for either axle.

MAINTENANCE

- Do not remove the radiator cap while engine and radiator are still hot. Always check coolant level visually at the see-through coolant reservoir.
- NEVER get beneath a vehicle that is held up by a jack only.
- Do not mix different construction types of tires on the vehicle. Replace tires with exact size, type, and load range.

EMERGENCY EXITS

There are no emergency exits in the Cahaba. However, there are rear and passenger side doors.

PARKING PROCEDURES

To park the motorhome in any unfamiliar terrain, examine the site for surface irregularities, slopes or inclines, and other items such as stumps, rocks, external connections for power/water/sewage and also examine the area immediately above the parking site for obstructions like tree branches and limbs, signs, overhead wiring.

If the motorhome is to be backed into the parking site, try to have that site be on the driver's left-hand side, as this will allow the driver to watch the rear of the motorhome. Back up slowly and use the side mirrors and the back-up camera as a guide or, better yet, have another person outside providing guidance to help park the motorhome.

When the motorhome is finally situated, shift the transmission into park, set the foot-operated park brake, and then turn "off" the engine.

If the motorhome is to be powered externally, connect the 120 VAC power to the motorhome. Connect the fresh-water supply and sanitize the water systems as needed. Connect the waste drain hose to the external sewer hook-up. Start the refrigerator, water heater, and furnace; as warranted.



HEATING & AIR CONDITIONING

CHAPTER

3

FURNACE

The living area of the Cahaba is heated using the Timberline system that also heats the water. This system uses a diesel burner, but also features an electric element. There is one blower located inside the DS bench in the rear and one located in the pedestal in the front.

AIR CONDITIONING SYSTEM

The air conditioner is 13.5 K BTU with soft start and Bluetooth Capability.

THERMOSTAT CONTROLS

The Timberline system is controlled with the Timberline touch screen control, seen in Figure 3-1. The best way to use the Timberline system is to enable the burner 🔥, the electrical element ⚡, and the hot water icon 🚿. The Timberline system will self-manage, prioritizing the element if the coach is plugged in and only using the diesel/gas burner as needed. When it's cold outside, set the thermostat to your desired temperature and the system will manage energy while maintaining the selected set point. If you are utilizing multiple 120V appliances at the same time (coffee maker, AC, etc.) you can turn off the electric element to conserve amperage and the Timberline system will maintain hot water and heat via the diesel burner. If you want to conserve diesel you can choose only the electric element. The controls for the air conditioner are located on the unit. The air conditioner can also be controlled via Bluetooth.



FIGURE 2-1: TIMBERLINE TOUCH



MAJOR APPLIANCES

CHAPTER

4

REFRIGERATOR

Your coach is equipped with a 2.3 cu. ft. 12 stainless steel refrigerator with freezer.

A 12-volt power supply (e.g., 12 VDC system of the motorhome, auxiliary battery, converter, or motorhome engine battery) is required for proper operation of the electronic control panel. For 120 VAC electrical operation of the refrigerator, either the 30 AMP shore power line must be connected or the on board generator must be running, or the refrigerator is also connected into the inverter system to provide the necessary 120-volt AC power.

For specific instructions on refrigerator please refer to the operating booklet found in the Owner's Information Package.



FIGURE 4-1

MICROWAVE OVEN

The Cahaba contains a 0.7 cu. ft. convection microwave. All microwave ranges operate on 120-volt AC electrical power, supplied either by the external electrical hookup or by the onboard electrical generator in the motorhome. Touch pad controls are used for operating the convection microwave (i.e. cooking temperature, mode, power level, and cooking time). For basic operating instructions, care, and maintenance for the proper use of the microwave, please consult the specific manual in the Owner's Information Package.



FIGURE 4-2:

COOKTOP

The Cahaba also contains a single-burner induction cooktop



Figure 4-3: induction cooktop

WATER HEATER

The Timberline system that heats the interior of the Cahaba also heats the coach's water. This is controlled with the Timberline touch screen control shown in Figure 3-1.



ENTERTAINMENT

CHAPTER

5

TELEVISIONS SETS

Currently, there is no television included with the Cahaba.

DVD PLAYER

Currently, there is no DVD player included with the Cahaba.



CABINETS & FURNITURE

CHAPTER

6

CABINETS

The Cahaba is equipped with several cabinets for storage needs. The front passenger side has a galley cabinet to two storage areas: a drawer on the inside at the top and a compartment on the outside at the bottom. Two overhead cabinets are also located in the rear bedroom area, one on each side of the coach.



FURNITURE

The rear bedroom area has a bench on both sides that are also used as the bed. The passenger side bench features a storage area under the bench lid, while the driver side bench features a cubby at the bottom as well as two drawers at the top.



CHASSIS FEATURES

CHAPTER

7

PERFORMANCE

The Cahaba is built on the Mercedes Sprinter van. It is equipped with a 3.0L 6-cylinder turbodiesel engine capable of 188 HP and 325 lb.-ft. of torque.

The van also uses a 7G-Tronic automatic with 4-wheel drive.

TIRES AND WHEELS

The Cahaba sits on 4 (+1 spare) LT245/70 R17 BF Goodrich all-terrain T/A KO2 tires with Vision Off-Road wheels.





ELECTRICAL FEATURES

CHAPTER

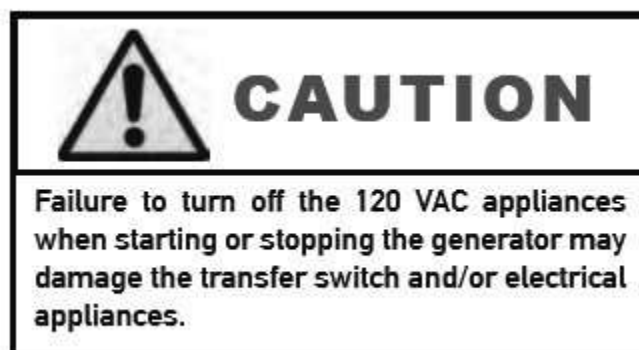
8

GENERAL INFORMATION

There are two electrical systems in your Cahaba motorhome. These are the 12-volt DC (VDC) system and the 120-volt AC (VAC) system. Most standard appliances require the 120-VAC system, while the majority of the lighting systems used in the Cahaba use the 12-VDC electrical system.

The electrical power for the 12 VDC system is supplied by the batteries of the Cahaba. Those batteries are charged by a power converter. The alternator also charges the batteries when the engine is running.

The electrical power for the 120 VAC is supplied by the 30 AMP shore power cord when the Cahaba is connected to an external power source. The inverter can also supply 120 VAC electrical power (to limited outlets and limited appliances) to the items onboard the Cahaba are powered by the inverter are limited to Televisions and Refrigerator —the inverter transforms the 12 VDC electrical power from the batteries into the 120 VAC electrical power needed for the basic appliances.



To connect the Cahaba to an external source of 120 VAC electrical power, it is first recommended that main 30-amp circuit breaker is in the “off” position. This is done to prevent any power surge upon connecting the motorhome to the external power source. Then unwind the power cord from the electrical compartment located in an external compartment. The standard, flexible, power cord supplied with the Cahaba is designed to handle 30 amperes. Make sure that the pins in the male end of the plug are oriented correctly so they match the power cable, and they are in good condition (i.e., aren’t bent or damaged).

Note: Do not attempt to use any electrical adapters to convert the provided 30amp power cord, as this will damage electrical components inside the motorhome.

If there is a circuit breaker switch at the “plug” end of the power cord, that breaker should be turned “off” before making the connection. Insert the plug into the mating outlet and then turn the circuit breaker “on.” Close and lock the electrical compartment door to protect the contents and to keep them clean and dry. Close the cover on the power box, if so equipped, to avoid an unintentional disconnection and to keep the contents clean and dry. Then switch the main breaker to the “on” position.

SPYDER CONTROL SYSTEM

The Spyder control panel is located on the front shower wall. This panel allows you to control the house lights. This panel also allows you to monitor the holding tank levels and battery condition.

SHORE POWER

The Cahaba utilizes the SmartPlug for shore power. The 30 amp shore power cord can be used to charge the house battery or power the motorhome directly

Note: Do not attempt to use any electrical adapters to convert the provided 30amp power cord, as this will damage electrical components inside the motorhome.



FIGURE 8-?: 30A 125V SMARTPLUG INLET

BATTERY DISTRIBUTION CENTER

The Volta energy storage pack (battery) (4X4 ONLY) is located beneath the rear of the Cahaba. This battery can be charged with a shore power connection, a dedicated 6900W alternator, or optional solar panels. The Volta battery has an integrated disconnect. The Volta LCD control panel displays the state of the battery. For more information, please refer to the Volta user manual.



FIGURE 8-?: VOLTA ENERGY STORAGE PACK



FIGURE 8-?: VOLTA LCD CONTROL PANEL

The Dragonfly battery (4X2 ONLY) is located under the passenger side bench. This battery can be charged with a shore power connection, a dedicated 6900W alternator, or optional solar panels. The disconnect for this battery is located on the rear of the passenger side bench. A panel located on the front shower wall displays the state of the battery.

BATTERY INSPECTION AND CARE

Volta Battery:

Except for extended periods of storage, no specific maintenance is required for the service life of the Volta energy storage pack (4X4 ONLY). In the event the Volta energy storage pack has a breach of

container integrity or has been submitted to abusive operating situations (crush, short circuit, overcharge, over-discharge, submersion, evidence of combustion or exposure to fire, etc.), contact your authorized Volta representative. Only Volta approved technicians should service a Volta Power Systems energy storage and power distribution system.

Dragonfly Battery:

For the Dragonfly battery (4X2 ONLY), when batteries are not used for an extended period of time, they will gradually lose their optimal electrical charge. Therefore it is necessary to periodically recharge the battery to increase the overall life of the battery. It is also necessary to check the external condition of the battery on a regular basis.

Look for cracks in the battery case and cover. Check the vent plugs and replace them if they are cracked or broke. Keep the battery clean. If any accumulation of dirt or acid residue around the battery terminals may provide an electrical path for battery discharge. The areas around the terminals should be cleaned periodically.

One can use an old toothbrush and a sparse amount of diluted solution of baking soda (sodium bicarbonate) and water (distilled, or deionized is preferred; tap water is acceptable) to clean and neutralize any acidic build up around the battery terminals. If there is any foaming on the top of the battery, this indicates that acidic residues are being neutralized. Rinse the cleaned areas thoroughly with distilled or de-ionized water (tap water is okay as well).

Dry the battery cables and terminals to prevent corrosion; to protect those terminal further, use a plastic ignition spray on the terminals. Do not use grease on the terminals, especially on the metal to metal connections as grease may act as an insulator and keep the battery electrical power from entering the cables.

If the batteries are not going to be used for an extended period of time, they can be removed or the battery cables can be disconnected. IT IS STRONGLY RECOMMENDED that this service be performed by a qualified service technician as this process is complicated and needs to be followed in precise steps. The service technician will mark the positive and negative cables respectfully so they can be properly reconnected when you are ready to put your Cahaba back into service. These batteries will require periodic recharging to maintain their full charge.

Following manufacturer's recommendations as found in the Owners Information Package, periodically check the batteries to make sure there has been no change in their physical appearance.



WARNING: If the Cahaba ever requires any welding operations on the frame, first disconnect the chassis batteries. Failure to do so will destroy all of the chassis computer systems.



NOTICE: Disconnect the 120VAC electrical power cord and the negative terminal from the coach batteries while working on the Cahaba electrical system.



WARNING: Remove rings, metal watchbands and any other metal jewelry before working around batteries. If any metallic object (tool, jewelry, etc.) contacts the positive battery terminal or any other connection made to that terminal AND also contacts the negative terminal or any of its connections, a SEVERE ELECTRICAL SHORT will occur which could result in an explosion, fire and/or personal injury. Always wear eye protection.

120 – VOLT AC (VAC) RECEPTICALS

Your Cahaba motorhome is equipped with several 120 VAC receptacles (Figure 8-1) located throughout the interior of the motorhome.

These 120 VAC receptacles are of the “three-prong” variety; the third prong being a grounding pin which provides adequate grounding to protect one from any electrical shock.

For these receptacles to work properly, do not use an adapter, cheater, or extension cord which defeats the function of the grounding pin. For the same reason, never remove or bend away the ground prong or pin from any three-prong AC plug so that it would fit a two-prong AC receptacle (i.e., an ungrounded AC receptacle).

Never operate the Cahaba if there is an electrical short present, as an electrical short may deliver an electrical shock to anyone coming in contact with the exterior of the unit.

If you should feel even the slightest of electrical shock, immediately disconnect the unit from the 120 VAC power source and locate the electrical fault (i.e., typically, it is a break in the grounding circuit).

Do not reconnect the 120 VAC power until after that electrical fault is fixed— the grounding circuit must be continuous from the frame to the distribution panel, to the power cord, and to the earth ground so that electrical-shock protection is realized.



FIGURE 8-1: 120 VAC

USB RECEPTACLES

The Cahaba is equipped with USB ports conveniently located on the exterior side of the galley and the rear of the DS bench. These ports allow for easy access when charging cell phones, laptop computers, iPods, iPads or other tablets.

GROUND FAULT CIRCUIT INTERRUPT (GFCI) RECEPTACLES

The Cahaba has two 120 VAC GFCI receptacles (Figure 8-2), which provide greater protection against inadvertent electrical shocks. One is located on the PS bench rear and the other is located on the PS running board rear.

These specialized GFCI receptacles provide both overload and short-circuit protection for the user.

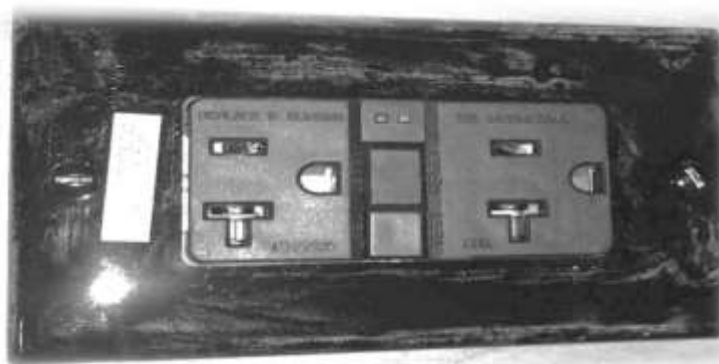


FIGURE 8-2: GFCI RECEPTICLE

All GFCI-protected receptacles are marked as such, but only one of them may have two pushbuttons on the receptacle (as shown in the picture). The upper pushbutton is a “test” button which can be used to assure that the GFCI function is working—all one need do to test this function is to push that upper button: There will be a momentary “click” and the circuit will be disconnected (i.e., no power is available at the GFCI-protected receptacles). To reset this GFCI breaker, push the lower button (the “reset”)

These receptacles protect the user from ground faults between an electrically “hot” wire and ground. The GFCI will not reduce the shock hazard if the short is between a neutral and “hot” wire, or two “hot load” wires. The GFCI should be tested at least once a month. The 120 VAC electrical system must be “on” for the GFCI to be tested. To test the GFCI the reset button needs to be pushed in fully before starting the test. Push the test button; this will cause the reset button to pop out which means that the protected circuits have been disconnected. Push the reset button back in until a “click” is heard—this will re-activate the protected circuit. If the GFCI is working properly, the reset button will remain in the “in” position.

INVERTER

The Cahaba’s Volta system uses a 3200W low-profile inverter (4X4 ONLY).



FIGURE 8-?: LOW-PROFILE INVERTER

The 4x2 Cahaba’s uses a 2000W Xantrax inverter. The Xantrax display panel is located on the front shower wall.

CONVERTER

The main converter is integrated into the main load center. The Volta system also uses two DC-DC converters (4X4 ONLY).

CIRCUIT BREAKERS

The circuit breakers and fuses are installed to protect the electrical system of the Cahaba from any overloads. Do not attempt to change the electrical circuitry or to add appliances yourself.

Please consult an authorized Tiffin Motorhomes Dealership or Tiffin Motorhomes, incorporated in Winfield AL to determine whether any changes you desire are appropriate and acceptable. Tiffin Motorhomes' qualified staff of electricians can readily determine whether any changes sought (e.g. solar, radio, amateur radio, satellite television receiver, personal computer system, and the like) are possible or not and can advise you on how best to realize these enhancements.

The circuit breakers (Figure 8-?) are located in the main 120 VAC distribution load center inside the passenger side bench.

When the circuit breakers are shut down or electrically tripped, they must be manually reset. As needed, manually reset the circuit breaker or breakers as shown in the accompanying figure.

The panel has a main 30amp breaker which turns off all incoming power to the panel's branch breakers. All branch breakers are labeled as to their function. This panel also has 12 VDC fuses, which are labeled as to their function.



FIGURE 8-?: MAIN 120 VAC

FUSES

The electrical circuits protected by the under-dash fuse block include: headlights, panel light for dashboard, tail lights, turn signals, cruise control, engine computer, accessory fuses, heater and dash air conditioning. Additionally, there is another chassis fuse panel which works in conjunction with the chassis fuse panel and provides comparable protection for the above-listed circuits.

Located beneath the access panel on the dashboard are two additional fuse panels; these panels protect the following electrical systems: mirrors, optional satellite jacks, camera, optional power windows, dash trim, lighter, map light, optional power seats, and radio.

Should there be any electrical failure of these components or systems, the first troubleshooting procedure should be to check the fuses and have available replacements to replace any blown fuses, as may be warranted.

As an aid to extracting and/or installing fuses in the fuse blocks, one may wish to buy an inexpensive fuse puller at any electronics or hardware store. This tool makes the installation or removal of fuses much easier and prevents inadvertent damage to nearby fuses or the fuse block itself.

SEVEN PIN TOWING CONNECTOR

Your Cahaba is equipped with a standard, 7-pin connector near the towing hitch at the rear of the motorhome to supply the necessary circuitry to control a towed vehicle.

The wiring of that connector is shown in the accompanying diagram (see Figure 8-3).

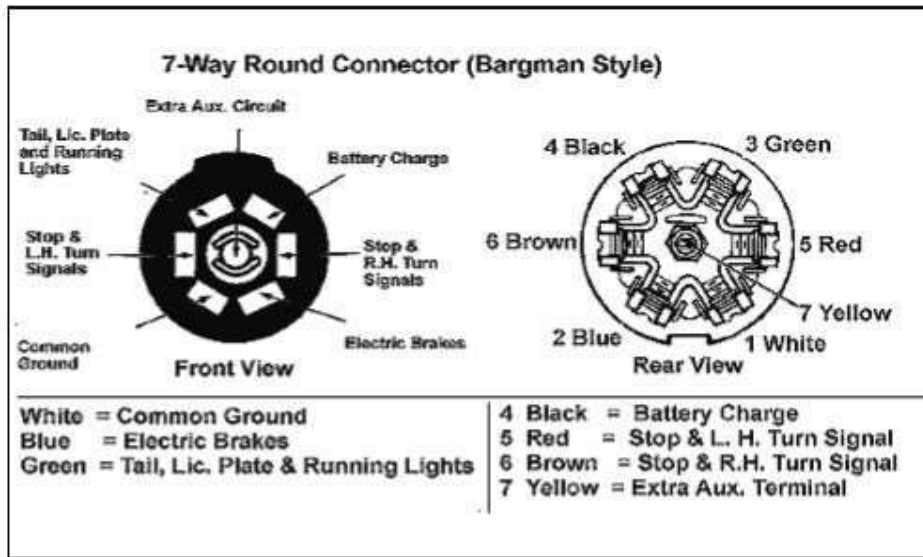


FIGURE 8-3: seven pin towing connector

Make sure that any cable from the vehicle to be towed is wired correctly to mate properly with the connections shown in the connector. If in doubt about proper wiring, have a qualified service technician prepare and install the necessary cable to mate with the 7-pin connector on the motor home to assure proper operation subsequently when any vehicle is actually towed by the motorhome.

When the towed vehicle is uncoupled from the motorhome and the cable is disconnected from the 7-pin connector, be sure to close the spring-hinged cover plate on the connector to protect the contact pins from dirt or debris. In a similar manner, protect the cable end from similar damage, weather, or debris—one such method could be to place the connector end in a heavy-gauge plastic bag (e.g., polypropylene, polyethylene, etc.) and secure the bag tightly around the cable with a stout elastic band or tape and then mount the secured cable in a manner to keep it both from mechanical damage and water intrusion.

When the towed vehicle is again coupled to the motorhome via the towing hitch and the cable is again connected to the 7-pin connector, make sure the resultant connection is tight and solid so that the connection won't jar loose during use. Several supplemental methods to secure that connection have been used; some of which include securing the connection with a strong rubber band or with velcro type fasteners to provide a supplemental mechanical backup to the actual electromechanical connection. Should a conversion adapter to convert the round, seven-pin connector to a flat, four-pin connector be needed; such an adapter may be purchased from any RV after-market store.



EXTERIOR FEATURES

CHAPTER

9

TOWING HITCH

Towing hitch with a 5000 lb. capacity on the rear of the van
(INCOMPLETE)

SECURITY LIGHTS (4X4 ONLY)

An LED spotlight is mounted on each corner of the roof rack.

MIRRORS

The Cahaba uses the standard rear view, driver side, and passenger side mirrors

ROOF RACK (4X4 ONLY)

The Cahaba had a roof rack for luggage.

LIGHT BAR (4X4 ONLY)

Optional front LED light bar on roof rack.

LADDER (4X4 ONLY)

There is a side mounted ladder on the Cahaba to access the roof.



TIRE RACK (4X4 ONLY)

A tire rack to carry a spare.

MOLLE RACK (4X4 ONLY)

MOLLE rack for attaching additional brackets or equipment.

RUNNING BOARDS

Running board to assist entry into the van. Lighted with 12V LED and houses the sewer board on the driver side and a GFCI outlet on the passenger side.



INTERIOR FEATURES

CHAPTER

10

FLOORING

Vinyl flooring is standard throughout your Cahaba.

For routine cleaning, sweeping or vacuuming the floor would be sufficient. If more thorough cleaning is warranted, the flooring can be cleaned with a damp mop and water.

For stubborn stains, a mixture of soap free household cleaner (e.g., vinegar, ammonia or comparable products) mixed with water can be used.

You should not unduly saturate the floor surfaces with water, as this could damage the flooring substrate.

Do not use any abrasives (cleaners, scouring pads and the like) as they can scratch or mark up the vinyl flooring surfaces and may cause permanent damage to the vinyl flooring.



CEILING

The ceiling in your Cahaba is covered with a padded vinyl headliner which can easily be cleaned with a damp soft cloth and a mild detergent.

Clean around all vent areas to prevent any buildup of dirt, grease, or other accumulations.

WINDOW TREATMENTS

The Cahaba is equipped with blackout window shades. These shades keep out light and heat from the sun during the day and provides complete privacy at night.

Each shade can be removed or installed by zipping or unzipping them from the window areas.

The blackout shades are located on the windows of the bedroom area.



PLUMBING & BATH FEATURES

CHAPTER

11

MONITOR PANEL

The Spyder panel allows for monitoring the approximate levels of the black/gray tank and fresh water tank.

KITCHEN SINK

For the sink, cleaning care consists of washing only with mild detergents and water and using a soft cloth for subsequent drying and polishing.

SHOWER & ACCESSORIES

The Cahaba features a wet bath. This includes a shower that also houses the toilet. There is also a retractable shower screen and a removable shelf in the shower

The shower utilizes a shower miser, which allows the fresh water to circulate until it reaches the desired temperature before coming out of the shower nozzle. Once the water reaches the desired temperature, the blue line will turn white.



WATER PUMP

The water pump is self-priming and totally automatic, operating on demand whenever water is required. The water pump is used to pressurize the fresh water system when the unit is not connected to city water.

To start the pump, follow these instructions:

1. Fill or partially fill the fresh water supply
2. Open the kitchen and bathroom faucets
3. Turn the water pump switch to the “ON” position and allow the water to fill the water line
4. Close each faucet after it delivers a steady stream of water (close the cold water faucet first). Leave the hot water faucets “ON” until they deliver a steady stream of water.
5. The water pump should stop running once all the faucets are closed
6. The water pump is now ready for automatic operation. The pump will run when a faucet is open and stop when the faucet is closed.
7. Never allow the pump to run for long periods of time without water being present in the supply tank. Doing so may cause physical damage to the components or it may blow fuses

(INCOMPLETE)

All the water should be drained from the fresh water system when the unit is not in use for an extended period of time.

For more detailed information regarding the water pump, one should refer to the water pump manufacturers brochure located in the Owners Information Package.

If water does not flow when a faucet is turned "ON" while using the demand system, use the following troubleshooting chart:

SITUATION	Solution
Pump running – no water	1. Fill tank
Pump doesn't run	2. Clear the water line to the pump
	3. Check the pump switch
	4. Check the 12V fuses
	5. Check the electrical connections
	6. Check the motorhome battery

CITY WATER CONNECTIONS

The city water connection is located in the DS running board.

When connecting your unit to city water, use the water hose manufactured and labeled for potable water service. This will assure that the hose selected for use will not alter the taste of the water.

When connecting your unit to city water, use the water hose and connect to the city water port. While doing so, make sure the blue handle is turned to CITY.

(INCOMPLETE)

FILLING FRESH WATER TANK

The fresh water tank has a capacity of 28 gallons.

To fill the freshwater tank, make sure the blue handle is turned to TANK FILL

SANITIZING

SANITIZING HOT AND COLD FIXTURES AND FRESH WATER TANK

To assure complete disinfecting of the freshwater system, it is recommended that the following procedures be performed on a new system, on one that has not been used for a length of time, or one that may have become contaminated. This procedure is also recommended before long periods of storage, such as during the winter months:

1. Drain the freshwater tank by opening the drain valve. All of the faucets should be in the closed or "off" position.
2. Prepare a chlorine solution using one gallon of water and one-half cup of chlorine bleach (5% sodium-hypochlorite solution). Prepare enough of the chlorine solution to administer one

gallon of solution for every 15 gallons of tank capacity. Concentrations greater than 50 ppm may damage the water lines and/or the tank.

3. Once the freshwater tank is empty, close the drain valves in the water tank.
4. Pour the solution in the gravity fill which is located on the rear of this coach.
5. Turn “on” the water pump. On the sewer board turn the blue handle valve to “normal” position and turn the red handle valve to “normal” position.
6. Open each faucet, in turning “on” both the hot and cold faucets and flushing the toilet until all of the air has been purged from the pipes and the water runs freely. The entire system will then be filled with the sanitizing solution.
7. Allow the 50 ppm disinfecting solution to stand in the system at least four hours.

Drain the system and flush it with freshwater. The water system needs to be flushed with water repeatedly, if necessary, until there is no chlorine taste or smell left in the system. To remove any excessive chlorine taste or odor that might remain, prepare a solution of one quart of vinegar to five gallons of water. “Rock” the tank containing the solution; by moving the vehicle forward and backward several times to clean the tank; then drain that tank and refill with clean water.
(INCOMPLETE)

SANITIZING HOT AND COLD FIXTURES ONLY (NOT FRESH WATER TANK)

1. All faucets should be in the closed or “off” position.
2. Prepare a chlorine solution using one gallon of water and one-half cup of chlorine bleach (5% sodium-hypochlorite solution). Concentrations greater than 50 ppm may damage the water lines.
3. Connect one end of the vinyl hose to the inlet valve on the sewer board; place the other end of the hose into the solution that has been prepared.
4. Turn “on” the water pump. On the sewer board turn the blue handle valve sanitize/winterize and turn the red handle valve to bypass.
5. Open each faucet, in turning “on” both the hot and cold faucets and flushing the toilet until all of the air has been purged from the pipes and the water runs freely. The entire water lines will then be filled with the sanitizing solution.
6. When the sanitizing process is completed, turn the water pump “off”.
7. Allow the 50 ppm disinfecting solution to stand in the system at least four hours.
8. Drain the system and flush it with freshwater. The water lines will need to be flushed with water repeatedly, if necessary, until there is no chlorine taste or smell left in the system. To remove any excessive chlorine taste or odor that might remain, prepare a solution on one quart of vinegar to five gallons of water. Repeat steps four, five and six to run the solution through the water lines. Drain the system and flush with freshwater.

(INCOMPLETE)

FRESH WATER LINES

Check all of the plumbing connections for leaks at least on an annual basis.

If the water pump runs when all faucets are turned “off,” check for a possible leak. Be sure that the drain valves are closed. Connections at the kitchen and bathroom faucets normally seal by hand-tightening them and then making an additional half-turn with a wrench.

If a fitting leak persists, disconnect it completely and visually inspect it for mineral deposits or foreign material stuck on the sealing surfaces. Clean the surfaces thoroughly and reinstall the fitting.

GENERAL INFORMATION

The waste drainage system was designed to provide adequate and safe storage and/or disposal of waste materials. All of the materials used in the fabrication of this system are tested by a nationally recognized testing laboratory. The drainage system uses plastic piping and fittings connected to the sinks, toilet, and holding tanks. This plumbing permits the drainage of these fixtures to an outside termination. The vehicle should be reasonably level for best operation of both of the wastewater systems.

TOILET

The toilet features a foot-flush pedal.

The toilet (Figure 11-2) operates with water from either the fresh water tank with the water pump “on” or the city water supply. Before using the toilet, add water to the bottom of the tank. Refer to the “BLACK WATER TANK” instructions.

The toilet flushes waste directly into the black-water holding tank. It is imperative that you use as much water as possible when flushing to prevent tissue and other solids from clogging the holding tank outlet.

When using your toilet, fill the toilet $\frac{3}{4}$ full of water. To add water to the toilet bowl, push the pedal lever $\frac{1}{4}$ of the way down until the desired water level is reached. To flush the toilet, push down on the lever until the water swirls. A small amount of water should remain in the bowl.

The toilet should be cleaned regularly for maximum sanitation and operational efficiency. Clean the toilet bowl with a mild bathroom cleaner.

BLACK/GRAY WATER HOLDING TANK

The combined black/gray water tank has a capacity of 27 gallons. The black/gray water holding tank (i.e., sewage) is located directly beneath the toilet. Before using the toilet, you will need to treat the tank with water that is mixed with an odor controlling chemical. These chemicals are readily available at any RV supply store.

P-TRAPS

Each of the sink drains and the shower drain has a water trap (P-trap) to prevent holding-tank odors from entering the vehicle. These traps must have water in them to trap odors. When the vehicle is in motion, the water may splash out of the sink and shower drains. When the vehicle is stored, the water may evaporate from these traps allowing odors to enter the vehicle. If this occurs, run water from the faucet into the drain, allowing water to fill the traps again.

WASTEWATER DISPOSAL

To dispose of wastewater from the black/grey tank, the dump valve must be utilized. This is done by first unscrewing the cap to the dump valve located on the driver side rear, under the running board. Next, remove the sewer hose from its storage, located under the motorhome at the rear, and attach it to the dump valve. If your Cahaba has the electric dump valve, simply hold down the dump valve switch that is located on the driver side running board front until the black/grey tank is empty. If your Cahaba has the manual dump valve, you will need to pull the plunger to open the valve until the black/ grey tank is empty.

SEWER CONNECTION AND CAMPING

While using the motorhome, it is important to keep the black/grey-water holding-tank gate valve closed at all times, except when dumping. This allows an ample amount of liquid to remain in the tank to provide a smooth flow through the gate and drain valves when dumping. Sufficient liquid in the tank causes a swirling action that should take any accumulated solid wastes with it. Accumulation of solid wastes in the black water tank can be avoided by keeping the gate valve closed when connected to the sewer connection.





WINDOWS, AWNINGS, VENTS, AND DOORS

CHAPTER

12

WINDOWS

The Cahaba has a total of 6 windows: One in each cab door, one on each side of the bedroom area, and one in each rear door. The two windows in the bedroom area contain a smaller opening window within the large window. There may be a reflective coating on the windows to reflect back a portion of the sunlight to reduce the heating of the motorhome interior and to reduce the effects of the sun's "bleaching" of interior fabrics (curtains, upholstery).

AWNING

The Girard Systems power awning (Figure 12-1) is standard on the Cahaba.

This awning is extremely durable and can be operated during light rain and wind conditions. However, when periods of heavy rain or wind is expected, or you leave the awning unattended, the awning should be closed. Please note that damage caused by wind and rain is not covered by warranty.



FIGURE 12-1: POWER

To operate the awning:

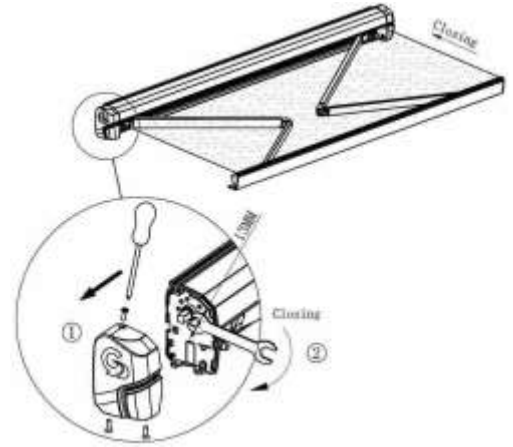
- To OPEN the awning: Press and release the "OUT" switch. The awning will open completely. To interrupt the awning motion, press and release the "STOP" switch. The awning will stop.
- To CLOSE the awning: Press and release the "IN" switch. The awning will close completely. To interrupt the awning retracting, press and release the "STOP" switch. The awning will stop.
- To turn ON the LED light: Press the "ON" switch
- To turn OFF the LED light: Press the "OFF" switch

For more information about the awning, please refer to the awning owner's manual.

IN CASE OF AWNING POWER FAILURE OR TO MANUALLY CLOSE THE AWNING:

- The Girard GG750 has a manual override to close the awning in case of power failures.
- Remove the endcap opposite the motor, by removing the 3 Philips head screws.

- Using a 13mm wrench, turn the square manual override shaft in order to close the awning, see Figure below. NOTE: The manual override is one-way, it can only be used to close the awning.
- Replace endcap using the 3 Philips head screws.
- Figure below is showing a right hand motor version of the GG750. If your coach is equipped with a left hand version, the manual override will be on the opposite side.
- Once power is restored, the awning will resume normal operation.



NOTE: This procedure can also be used to manually retract the Over the Door Awning.

VENTS

The roof of the Cahaba houses one 12VDC exhaust vent fan (Figure 14-3). A three-speed switch controls the fan speed. The vent fan should only be left in the “on” mode when the motorhome is parked and in use. The fan will not operate until the vent is open.

DOORS

The Cahaba is equipped with a mid-passenger side sliding door, front driver and passenger side doors, and two rear doors.

When opened all the way, the mid-passenger side sliding door will stay open.

The mid-passenger side sliding door and rear door openings are equipped with a zip-down bug screen that will allow in fresh air, but will keep bugs out.



DRIVING YOUR MOTORHOME

CHAPTER

13

SINGLE VISION CAMERA MONITOR SYSTEM

The rear-view monitoring system is provided to aid the driver in backing and parking the motorhome.

A camera mounted on the rear of the vehicle feeds a televised view of the rear of the motorhome to the monitor located in the front near the driver. If the mode switch is in the “manual” mode, the monitor will be “on” when the ignition switch is turned “on.”

If the mode switch is in the “automatic” mode, the monitor will display the picture from the rear-mounted camera only when the transmission is in “reverse” gear. To use this system effectively, please consult the owner’s manual for this system. This manual is in the Owner’s Information Package.

AM/FM/CD STEREO SYSTEM

An AM/FM/CD stereo system is included in the motorhome. This system is powered by the 12-volt DC system of the motorhome and operates like any conventional car-stereo system. The coach is also SIRIUS XM compatible with a subscription.



DASHBOARD HEATING/COOLING CONTROLS

The dash air conditioner/heater is not designed to heat and cool the entire interior of the motorhome. It is intended only to provide heating and cooling for the cab area. A small amount of air will blow out of all the defrost and dash vents regardless of the mode settings.



ROUTINE MAINTENANCE

CHAPTER

14

WASHING

When washing your Cahaba by hand, use a mild cleaning agent, such as car shampoo. Wash the vehicle with lukewarm water and a soft car sponge. When doing so, do not expose the vehicle to direct sunlight. Carefully spray the vehicle with water and dry off with a leather cloth. Be careful not to point the water jet directly towards the air inlet grilles. The blower should be switched off while doing so. Do not let the cleaning agent dry on the paint-work. At the onset of winter, remove all traces of road salt deposits carefully and as soon as possible. For more information on washing your Cahaba, refer to the Mercedes-Benz Sprinter manual.

SEALS

The seals around the doors, windows, vents, and external seams should be checked at least semi-annually. If deterioration is noted during a routine maintenance inspection, reseal the seams or seals with an approved sealant to prevent leaks. Your Tiffin Motorhomes dealer can perform resealing inspections and subsequent work for you. It is recommended that a Tiffin Motorhomes authorized service center perform these inspections periodically and perform the necessary resealing as required.

PROPER SEALANTS FOR APPLICATION

The following sealants are recommended for specific applications, as noted in the table. These can be purchased through the Tiffin Motorhomes parts and service department by calling 205-487-4710.

Recommended Sealants For Specific Sealing Applications	
SEALANT	APPLICATION
Plas-T-Code	Metal or Fiberglass Roof
Surebond #SB-140	Rubber Laminated to Metal Roof and All Skylights
Carlisle #502 LSW Self Leveling Sealant	Rubber Roof Over Wood Base
Silicone Sealant	Cover Butyl and Other Sealants
Parbond	Seal Across Tops Of Windows on Exterior Surfaces Where Silicone Is Not Used

ROOF CARE & MAINTENANCE

Proper care and maintenance of your motorhome including your roof is important for sustained trouble-free performance. Normal maintenance is simple and easy and does not require special materials. The roof of the motorhome is metal and can be cared for in the conventional manner. Clean the roof at least every three months. The roof should be professionally inspected by a dealer annually.

MOISTURE MAINTENANCE

This section outlines important recommendations to manage moisture in your motorhome to avoid moisture related damage such as mold. The materials and methods used to construct your motorhome were selected in part to minimize air leakage and to create a weather tight exterior shell.

However in order to protect your investment and reduce the risk of moisture related damage and costly repairs, attention and care has to be taken to manage moisture inside of your motorhome.

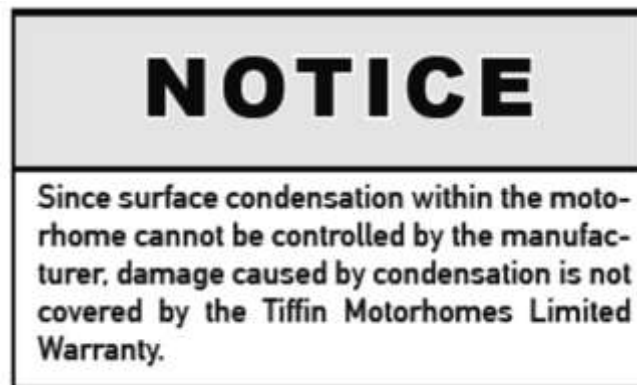
NOTE: These are only suggestions intended to minimize moisture related issues with your motorhome. If any concerns arise, contact Tiffin Motorhomes' Service Department

INTERIOR CARE

Signs of excessive moisture can be obvious, such as water droplets forming on surfaces or wet carpet. Conversely, signs of excess moisture can be subtle, such as condensation forming on metal surfaces.

When symptoms appear, it is important to immediately determine the cause of the excess moisture and take appropriate corrective action to prevent moisture related damage.

CONDENSATION



Damage may occur to your vehicle if excessive condensation exists. Accumulation of condensation on surfaces within your motorhome occurs when warm, moist air contacts a cool surface. It is most evident on the inside of windows, but this problem can be controlled by:

1. Slightly opening a window or roof vent to allow the moisture to escape from the motor home.
2. A small dehumidifier is also very effective in removing moisture from the air.

FABRICS

The fabrics used in the Tiffin Motorhome for the bedspread contain fire retardant additives that may be damaged by use of improper cleaning products. Cleaning instructions for these items are "DRY CLEAN ONLY".

Water based products are not recommended for cleaning the fabrics in your motorhome. Most water based household cleaning products are not formulated for use on these fabrics and may cause excessive shrinkage or fading.

For best results, the fabrics in your motorhome should be cleaned by a professional carpet and upholstery cleaner.

Spills, spots or stains should be treated as soon as possible to avoid permanent damage to the fabrics. If a spill occurs, blot the fluid with a dry towel, do not rub the spill as rubbing may cause the liquid to "set" in the fabric and cause a stain.

While attempting to clean a spot or stain, always start from the outside and work inward to avoid spreading the stain further. Some stains or soils are extremely difficult or impossible to totally remove. These stains should receive immediate professional attention.

Spills, spots, stains or soiled areas are the responsibility of the owner and are not covered by the Tiffin Motorhomes Limited Warranty.

WALLS & CEILING

The wall and ceiling coverings should be cleaned periodically to maintain a new appearance. Use a nonabrasive cleaner with a soft cloth on the walls. Do not use solvents of any kind, as those solvents may damage the surfaces being cleaned.

DASHBOARD

To keep the motorhome dashboard in like-new condition, regularly follow these guidelines:

DO:

- Dust and clean the dashboard with a soft, damp cloth or chamois, wiping the surface gently
- Use a mild detergent and lukewarm water
- After washing and rinsing the dashboard, dry it by blotting with a damp cloth or chamois

DO NOT:

- Use harsh chemicals that may damage the dashboard
- Use cloths containing grit or abrasive particles or kitchen scouring compounds to clean or dust the dashboard
- Subject the dashboard to hard, direct blows
- Use boiled water, strong solvents, or other such materials to clean the dashboard, as they will soften the plastic

WOODWORK & FLOORS

The wood cabinetry should be cared for with furniture polish to sustain the natural beauty and luster of the wood. This procedure will also keep the cabinetry looking new, prevent the wood from drying and reduce chances of accidental staining or aging.

Use area rugs and floor mats by the side entrance door to trap dirt.

Use soap and water to clean the flooring, begin by vacuuming the floor to remove loose dust and dirt.

Then, damp mop the floor with a standard cleaning solution. The mop should be damp but not dripping.

Feel free to use soap based cleaners, scouring powders, steel wool, abrasive cleaners, wax or polish on the ceramic floor as this floor is impervious to these cleaning agents.

To remove stubborn spots like shoe polish, oil, tar, markers, scuffs and the like; use a household solvent or nail polish remover on those spots then wipe those treated areas with a damp cloth.

To remove chocolate, grease, juice or wine, use warm water and any off the shelf abrasive cleaner. To remove candle wax or chewing gum, carefully scrape off when the material has hardened. For further tips, please see the manufacturer's information sheet in your Tiffin Motorhomes Owner Information Package.

COUNTERTOPS

To care properly for the countertops in your motorhome, always use a heat pad or trivet to protect the surface from hot objects that may mar or damage the countertop surface. Hot pans and heat producing appliances (such as electric skillets), when set directly on top of the countertop, can possibly mar the beauty and finish of the product.

Additionally, since heat producing appliances can also damage the countertop seams, it is essential to check with Tiffin Motorhomes to identify seam locations to avoid them during subsequent use of the motorhome.

Although solid surfacing is repaired easily, certain steps should be taken to protect it. Be sure to use a cutting board rather than cutting an item directly on the countertop surface. Although minor scratches and cuts can be repaired a little care will assure that the countertop surface will keep looking new for years. Avoid using harsh chemicals on the countertop. Wipe the countertop with a damp cloth to remove water spots. For most dirt and stains, wipe with a damp cloth and soapy water or ammonia based cleaners (e.g., Windex).

If a stain doesn't respond to soap and water, for a matte finish apply an abrasive cleanser and buff it with a Scotch-Brite pad using a circular motion. Use the same technique in the case of a cigarette burn. If the finish is a gloss finish, please contact the dealer for specific cleaning instructions.

Do not expose the surface to harsh chemicals such as paint remover, turpentine, nail polish remover or any stove and drain cleaners. If these chemicals should come into contact with the countertop surface, immediately wash off these chemicals, using appropriate safety to avoid injury.

In the event of subsequent staining or spotting, sand the affected surface lightly with fine sandpaper (400 grit or finer), then buff in a circular motion with a Scotch-Brite pad.

ACCESSORIES

The metallic light fixtures, bath accessories and faucets can be cleaned by wiping with a soft, damp cloth. Washing with warm water will remove dry water spots. Polishing those fixtures with a soft cloth will also enhance the appearance.

Do not use cleaners that contain harsh or abrasive chemicals. Alcohol or other similar solvents should never be used either.

DETECTORS

The CO/LP propane gas detectors are self-contained and DO NOT require any maintenance other than normal cleaning and periodic testing. The smoke detector installed in your motorhome is a nine volt, battery operated detector.

The CO/LP gas detector is wired directly to the house batteries. The batteries in the smoke detector need to be tested periodically and replaced when necessary. When cleaning the case on and of the detectors, use a damp cloth or paper towel.

DO NOT spray cleaners or wax directly into the detectors case as this action may cause false alarms or hinder the normal operation of the detectors.

An inexpensive battery detector tester would be a good investment to make. This tester would allow checking of the batteries in the various alarms, any flashlights used in the motorhome and batteries in other appliances which may be in the motorhome during travels.

ROUTINE MAINTENANCE SCHEDULES



All routine maintenance is the responsibility of the owner and is not covered by the Tiffin Motorhomes Limited Warranty. Use the maintenance record found in Chapter 15 to record all performed maintenance as required.

Please note that any damage caused by improper or unperformed maintenance is not covered by the Tiffin Motorhomes Limited Warranty. Items supplied by other manufacturers may require specific individual maintenance not listed herein. Please refer to the manufacturers' suggested maintenance guidelines in the Owners Information Package.



MONTHLY:

- Check the water levels of the batteries

EVERY THREE MONTHS:

- Test smoke alarm and carbon monoxide/LP gas detector.
 - Check operation of windows, latches, and hinges.
 - Clean the roof ducted air conditioner filter or filters.
 - Clean and inspect door and window seals; reseal where necessary.
 - Inspect and reseal around the tub and shower area where necessary.
 - Lubricate the exterior door hinges and latches with a graphite (silicone) lubricant.
- Check, clean, and tighten battery cables and inspect batteries for proper fluid levels.

EVERY SIX MONTHS:

- Change the battery in the smoke detector.
- Rotate tires as recommended by the tire manufacturer.
- Check all gas appliances for proper operation.

- Change the batteries in both the smoke detector

ANNUALLY:

- Inspection of roof seams and joints should be performed by an authorized Motorhomes Service Center. If resealing is necessary, it is the owner’s responsibility and is not covered by the Tiffin Motorhomes Limited warranty.
- Sanitize the fresh water system.

MERCEDES MAINTENANCE SCHEDULE

Your Sprinter is equipped with the Active Service System (AASYST). The maintenance computer tracks distance driven and time elapsed since your last service. The service is shown in the multifunction display in the instrument cluster.

The multi-function display shows a message approximately one month before the maintenance service is due. It indicates when the next service is due in miles or days.

The symbols or letters on the service display shows the type of service that is due.



A – Oil Service Plus



B – Maintenance Service

Services are carried out in a series defined as A - B. The first oil service plus (SERVICE A) is due after 20,000 miles. The first maintenance service (SERVICE B) is due after 40,000 miles.

SERVICE DUE DATE DISPLAY

One of the following messages appears:



Service A: Due inDays



Service A: Due in.....Miles



Service A: Due now

SERVICE DUE DATE HAS BEEN EXCEEDED

A qualified specialist workshop, (e.g., an authorized Sprinter Dealer) resets the service display during the service appointment.

If the service due date has been exceeded, one of the following messages will appear in the display:



Service A: Exceeded by.....Days



Service A: Exceeded by.....Miles

Additionally, a warning tone sounds.

Any additional information can be found in the Mercedes Maintenance Booklet found in the Sprinter Owner's Manual package.

WINTERIZING

To store your vehicle for the winter months, it is necessary to winterize the water system to help prevent freezing of this system. To do this, follow these instructions:

1. Drain all the water from the water system including the holding tank(s) and freshwater tank. Also, drain the water filter. For the holding tank(s), open the gate valve(s) to drain the tanks. Turn off water heater before draining to prevent burning the element out.
(NOTE: This procedure is to be performed only at a waste water pumping station to prevent dumping of contaminated water elsewhere). For the water heater, remove the outside cover and then remove the drain plug. When this tank is drained, replace the drain plug and then replace the cover. For the water tank, open the red-handled valve to drain the tank; then close the valve. Remove the filter cartridge from the water filter and store it in a clean environment. Empty any excess water from the filter housing and replace the housing.
2. At the sewer board turn the blue handle valve to the sanitize/winterize position turn the red handle valve to the bypass position.
3. Connect a vinyl hose to the inlet valve on the sewer board place the other end of the hose into a gallon of freshwater system antifreeze. NOTE: Do not use automotive antifreeze; use only antifreeze approved for RV applications. Otherwise, damage to the systems being protected may result.
4. Turn “on” the water pump to start the flow of antifreeze. Turn “on” each faucet, one at a time, including the kitchen faucet, bath faucet, inside and outside showers and allow pure antifreeze to run through that piping. Let about one cup drop into the drains to protect the traps.
5. When all the antifreeze is withdrawn from the bottle, disconnect the vinyl hose from the inlet valve on the sewer board. (This may require more than one gallon of antifreeze).

6. When the winterize process is completed, turn the water pump “off”. Store the vinyl hose for future use.

(INCOMPLETE)

DE-WINTERIZING

1. To de-winterize your vehicle, open both of the low-point drains to allow the antifreeze solution to drain from the water system.
2. Next, close the low-point drains and connect your vehicle to the city water system. Put water in the freshwater tank and pump at least one gallon through the water pump to re move the antifreeze from the water pump.
3. As in winterizing, open the kitchen faucet, bath faucet, inside and outside showers, turning “on” both the hot- and the cold-water valves and flushing the stool until the antifreeze solution is flushed out of the system and the water flow is clear.
4. Open the freshwater tank supply valve from the pump and the icemaker valve.
5. Be sure to close the fresh water tank drain valves to allow the tank to fill.

(INCOMPLETE)

WHEEL CARE

The care and maintenance of your wheels are simple and require no special material or products; simply follow the directions included in the Owner’s Information Package for these. Timely care and cleaning will maintain the appearance of these wheel products for many years.



TIRE & SAFETY INFORMATION

This portion of the Owner’s Manual contains tire safety information as required by 49 CFR 575.6. The National Traffic Safety Administration (NHTSA) can be contacted at 1-888-327-4236. Their

web site is <http://www.safecar.gov> and their address is: NHTSA, 400 Seventh St, S.W., Washington, D.C. 20590.

SECTION ONE:

The National Traffic Safety (NHTSA) has published a brochure (DOT HS 809 361) that discusses all aspects of Tire Safety, as required by CFR 575.6. This brochure is reproduced in part below. It can be obtained and downloaded from NHTSA, free of charge, from the following web site:

<http://www.nhtsa.dot.gov/cars/rules/TireSafety/ridesonit/tires index.html>

Studies of tire safety show that maintaining proper tire pressure, observing tire and vehicle load limits, avoiding road hazards, and inspecting tires for cuts, slashes, and other irregularities are the most important things you can do to avoid tire failure, such as tread separation or blowout and flat tires. These actions, along with other care and maintenance activities, can also:

- Improve vehicle handling
- Help protect you and others from avoidable breakdowns and accidents
- Improve fuel economy
- Increase the life of your tires

This section presents a comprehensive overview of tire safety, including information on the following topics:

- Basic tire maintenance
- Uniform Tire Quality Grading System
- Fundamental characteristics of tires
- Tire safety tips

Use this information to make tire safety a regular part of your vehicle maintenance routine. Recognize that the time you spend is minimal compared with the inconvenience and safety consequences of a flat tire or other tire failure.

SAFETY FIRST BASIC TIRE MAINTENANCE

Properly maintained tires improve the steering, stopping, traction, and load carrying capability of your motorhome. Under-inflated tires and overloaded vehicles are a major cause of tire failure. Therefore, as mentioned above, to avoid flat tires and other types of tire failure, you should maintain proper tire pressure, observe tire and vehicle load limits, avoid road hazards and regularly inspect your tires.

FINDING YOUR MOTORHOME'S RECOMMENDED TIRE PRESSURE AND LOAD LIMITS

Tire information placards and vehicle certification labels contain information on tires and load limits. These labels indicate the vehicle manufacturer's information including:

- Recommended tire size
- Recommended tire inflation pressure
- Vehicle capacity weight (VCW – the maximum occupant and cargo weight a

motorhome is designed to carry.)

- Front and rear gross axle weight ratings (GAWR – the maximum weight the axle systems are designed to carry).

UNDERSTANDING TIRE PRESSURE AND LOAD LIMITS

Tire inflation pressure is the level of air in the tire that provides it with load carrying capacity and affects the overall performance of the motorhome. The tire inflation pressure is a number that indicates the amount of air pressure - measured in pounds per square inch (PSI) - a tire requires to be properly inflated. (You will also find this number on the motorhome information placard expressed in kilopascals (kPa), which is the metric measure used internationally).

Motorhome manufacturers determine this number based on the motorhome's design load limit, that is the greatest amount of weight a motorhome can safely carry and the motorhome's tire size. The proper tire pressure for your motorhome is referred to as the "recommended cold inflation pressure". Because tires are designed to be used on more than one type of vehicle, tire manufacturers list the "maximum permissible inflation pressure" on the tire sidewall. This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

CHECKING TIRE PRESSURE

It is important to check your vehicle's tire pressure at least once a month for the following reasons:

- Most tires may naturally lose air over time
- Tires can lose air suddenly if you drive over a pothole or other object or if you strike the curb when parking
- With radial tires, it is usually not possible to determine under-inflation by visual inspection for convenience, purchase a tire pressure gauge to keep in your vehicle. Gauges can be purchased at tire dealerships, auto supply stores, and other retail outlets.

The recommended tire inflation pressure that vehicle manufacturers provide reflects the proper psi when a tire is cold. The term cold does not relate to the outside temperature. Rather, a cold tire is one that has not been driven on for at least three hours. When you drive, your tires get warmer, causing the air pressure within them to increase. Therefore, to get an accurate tire pressure reading, you must measure tire pressure when the tires are cold or compensate for the extra pressure in warm tires.

STEPS FOR MAINTAINING PROPER TIRE PRESSURE

- Step 1: Locate the recommended tire pressure on the vehicle's tire information placard, certification label, or in the owner's manual
- Step 2: Record the tire pressure of all tires
- Step 3: If the tire pressure is too high in any of the tires, slowly release air by gently pressing on the tire valve stem with the edge of your tire gauge until you get to the correct pressure •
- Step 4: If the tire pressure is too low, note the difference between the measured tire pressure and correct tire pressure. These "missing" pounds of pressure are what you will need to add •

Step 5: At a service station, add the missing pounds of air pressure to each tire that is under inflated

- Step 6: Check all the tires to make sure they have the same air pressure (except in cases in which the front and rear tires are supposed to have different amounts of pressure)

If you have been driving your vehicle and think that a tire is under-inflated, fill it to the recommended cold inflation pressure indicated on your vehicle's tire information placard of certification label.

While your tire may still be slightly under-inflated due to the extra pounds of pressure in the warm tire, it is safer to drive with air pressure that is slightly lower than the vehicle manufacturer's recommended cold inflation pressure than to drive with a significantly under-inflated tire.

Since this is a temporary fix, don't forget to recheck and adjust the tire's pressure when you can obtain a cold temperature reading.

TIRE SIZE

To maintain tire safety, purchase new tires that are the same size as the motorhomes original tires or another size recommended by the chassis manufacturer.

Look at the tire information placard, the owner's manual or the sidewall of the tire you are replacing to find this information. If you have any doubt about the correct size to choose, consult with a tire dealer.

TIRE TREAD

The tire tread provides the gripping action and traction that prevents your motorhome from slipping and sliding, especially when the road is wet or icy. In general, tires are not safe and should be replaced when the tread is worn down to 1/16 of an inch. Tires have built in tread wear indicators that let you know when it is time to replace your tires.

These indicators are raised sections spaced intermittently in the bottom of the tread grooves. When they appear "even" with the outside of the tread, it is time to replace your tires.

Another method of checking your tread depth is to place a penny in the tread with Lincolns head upside down and facing you. If you can see the top of Lincolns head, you are ready for new tires. If you are still unsure if your tires need to be replaced, contact your local professional tire dealer and have your tires inspected.

TIRE BALANCE AND WHEEL ALIGNMENT

To avoid vibration or shaking of the vehicle when a tire rotates, the tire must be properly balanced. This balance is achieved by positioning weights on the wheel to counterbalance heavy spots on the wheel and-tire assembly.

A wheel alignment adjusts the angles of the wheels so that they are positioned correctly relative to the vehicle's frame. This adjustment maximizes the life of your tires. These adjustments require special equipment and should be performed by a qualified technician.

TIRE ROTATION

Rotating tires from front to back and from side to side can reduce irregular wear (for vehicles that have tires that are all the same size). Look in your tire manufacturer's owner's manual for information on how frequently the tires on your motorhome should be rotated and the best pattern for rotation.

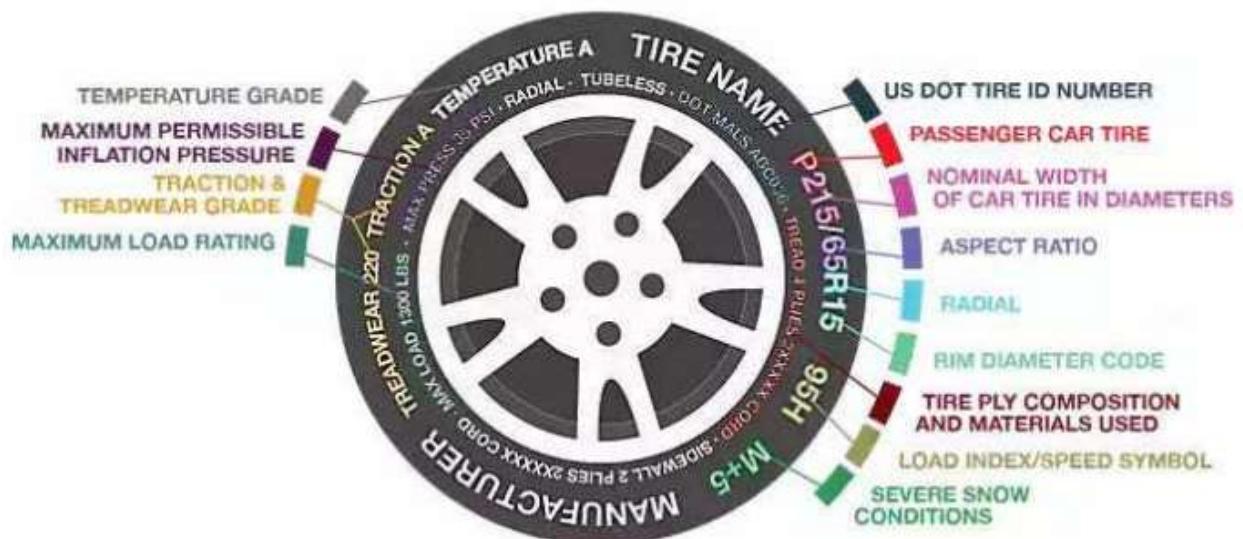
TIRE REPAIR

The proper repair of a punctured tire requires a plug for the hole and a patch for the area inside the tire surrounds the puncture hole. Punctures through the tread can be repaired if they are not too large, but punctures to the sidewall should not be repaired.

Tires must be removed from the rim to be properly inspected before being plugged and patched.

INFORMATION ON PASSENGER MOTORHOME TIRES

TIRE SIDEWALL MARKINGS



The image above provides an example summary of the sidewall markings on passenger vehicle tires.

For specific information regarding the tires on your motorhome, please refer to the tire manufacturer's manual which is located in your Owners Information Package.

VEHICLE LOAD LIMITS

Determining the load limits of a motorhome includes more than understanding the load limits of the tires alone. On a motorhome, there is a federal certification label that is affixed in the rear closet.

The certification label will indicate the motorhomes gross vehicle weight rating (GVWR). This is the most weight the fully loaded vehicle can weigh. It will also provide the gross axle weight rating (GAWR).

CARGO CAPACITIES

For motorhomes, cargo can be added to the vehicle, up to the maximum weight specified on the placard. For motorized vehicles, the combined weight of passengers and cargo is provided as a single number. If fewer people are traveling, more cargo can be added.

If more people are involved, the weight of cargo must be reduced. In any case, remember: the total weight of a fully loaded vehicle, including passengers is not recommended to exceed the (GVWR).

For motorhomes, water and propane (LP) gas also need to be considered. The weight of the fully filled propane (LP) gas container is considered part of the weight of the motorhome before it is loaded with people or cargo and is not considered part of the disposable cargo load.

Understanding this flexibility will allow you to make choices that fit your travel and camping needs.

When loading your cargo, be sure it is distributed evenly to prevent overloading front to back and side to side.

Heavy items should be placed low as close to the axles positions as allowed. Too many items on one side may overload a tire.

The best way to know the actual weight of the motorhome is to weigh it at a certified public scale. Talk to your RV dealer to discuss the weighing methods needed to determine the various weights related to the motorhome. This would include weights for the following: axles, wheels, hitch and total weight.

HOW OVERLOADING AFFECTS YOUR MOTORHOME AND TIRES

The results of overloading can have serious consequences for passenger safety. Too much weight on your motorhomes suspension system can cause:

- Spring issues
- Shock absorber issues
- Brake failure
- Handling or steering problems
- Irregular tire wear
- Tire failure
- Other serious damage

TIRE SAFETY TIPS

Preventing tire damage:

- Slow down if you have to go over a pothole or other objects in the road
- Do not run over curbs or other foreign objects in the roadway, and try not to strike the curb when turning corners or when parking

Tire safety checklist:

- Check the tire pressure regularly (at least once a month), this check should also

- include the spare tire
- Inspect tires for uneven wear pattern on the tread, cracks, foreign objects or other signs of wear or trauma
 - Remove bits of glass or foreign objects wedged in the tire tread. (*Use caution when removing such debris as to not cause personal injury*).
 - Make sure your tire valves have valve caps
 - Check tire pressure before, during, and after a long trip
 - DO NOT overload your vehicle. Check the tire information and loading placard or tire manufacturer's owner's manual for the maximum recommended load for the motorhome

SECTION TWO:

STEPS FOR DETERMINING CORRECT LOAD LIMIT

1. Locate the statement "The combined weight of occupants and cargo should never exceed XXX lbs." on your motorhome's placard
2. Determine the combined weight of the driver and passengers that will be riding in the motorhome
3. Subtract the combined weight of the driver and passengers from XXX kilograms or XXX pounds
4. The resulting figure equals the available amount of cargo and luggage capacity. For example, if the "XXX" equals 1,400 lbs. and there will be five 15 lb. passengers in your motorhome, the amount of available cargo and luggage capacity is 650 lbs. $(1400 - 750(5 \times 15)) = 650$ lbs.).
5. Determine the combined weight of luggage and cargo being loaded into the motorhome. That weight may not safely.
6. If your motorhome will be towing a trailer, tow vehicle etc., that load will be transferred to your motorhome. Consult this section to determine how this reduces the available cargo and luggage capacity of your motorhome.

TIRE PRESSURE

Correct tire inflation pressure is essential to maximizing the life of your tires and assuring the safety of the motorhome and its occupants. Driving with tires that are not correctly inflated for the load of the motorhome is dangerous and may cause premature wear, tire damage and/or loss of control of the motorhome.

An under inflated tire will build up excessive heat that may actually approach the vulcanization temperature of the rubber and lead to tread separation and/or disintegration of the tire.

Under inflated tires will also cause poor handling of the motorhome, rapid and/or irregular tire wear and an increase in rolling resistance of the motorhome which, in turn produces a decrease in fuel economy of operation.

An over inflated tire will reduce the tire's "footprint" (i.e., its actual contact with the road); thus reducing traction, braking capacity and handling of the motorhome.

A tire that is over inflated for the load that it is carrying will also contribute to a harsh ride, uneven tire wear and the tire itself will be more susceptible to impact damage.

Maintaining correct tire pressure for each loaded wheel position on the motorhome is critically important and must be a part of regular motorhome maintenance.

TIRE MAXIMUM LOAD RATING

Federal law requires that the maximum load rating be molded into the sidewall of the tire. If you look at a tire sidewall, you may see some "typical" information such as:

Max. Load Single 2,880 Lbs. at 61 PSI cold

Max Load Dual 2,470 Lbs. at 61 PSI cold

The maximum load allowed for the size tire and load rating and the minimum cold air inflation pressure needed to carry that stated maximum load are noted on the tire. Using less air pressure would reduce the load carrying capacity of the tire.

The amount of air pressure you need depends on the weight of the fully loaded motorhome. You cannot determine the correct air inflation pressure, unless you know the actual weights of the motorhome.

WEIGHING THE MOTORHOME

Earlier in Chapter 1, the procedures for weighing your motorhome were presented. These procedures provided the weighing of a "non-loaded" (i.e., not stocked with the possessions and provisions the user would normally have on board for travel) motorhome.

Obviously any additional weight stored on board (inside and underneath) the motorhome will contribute to the overall weight of the motorhome. If not stored uniformly throughout the motorhome, additional weight of the possessions and provisions of the motorhome user will load each axle and each tire differently (front to rear and side to side distribution of that additional weight).

Accordingly it is necessary to weigh the motorhome fully loaded as the user would have it for travel.

Moreover, it is necessary to weigh each tire position individually.

Overloading the motorhome can produce problems with the tires, wheels, springs, brakes, drive train and other motorhome assemblies. In addition, an overloaded motorhome uses more fuel, is more difficult to handle properly and can lead to driver fatigue quicker than normal.

In a worst case condition, if any component should fail, this could result in loss of control of the motorhome and subsequent damage and possible injury to driver and passengers.

In certain states, the Highway Patrol routinely weighs motorhomes to check for overloaded axle weights. Therefore, there are many good reasons for assuring that the motorhome is properly loaded and not overloaded - this can be accomplished through a proper weighing of the fully loaded motorhome.

FREQUENCY OF CHECKING TIRE INFLATION PRESSURES

When you have determined the "correct" tire inflation pressures for each of the motorhome tires and inflated the tires under "cold" conditions, meaning the tires haven't been driven for more than one mile, then the air pressures in the tires should be periodically checked to make sure that they keep their proper pressure.

It is recommended that tire pressures be checked at least once a month or preferably every two weeks and before any major trip.

On long trips, the tires should be checked every "drive" morning. On short trips (a day or less), the tires should be checked before one departs on the trip and again before one returns home.

Check tire pressures when they are "cold"; that is tires haven't been driven at all or at most, less than one mile before being measured. In this manner, the tire pressure has not been increased by the heating associated with tire sidewall and tread flexure associated with traveling.

If you check tires that are warm or hot, remember that they will necessarily read higher than normal. Do not "bleed" these tires down to "cold pressure" readings as they will probably be under inflated when they are actually cool. Do not make any adjustments to tire pressures when the tires are warm or hot, if such can be avoided.

To make these tire pressure measurements, it is recommended that you purchase a high quality, truck tire air gauge which has an angled dual head. This type of gauge allows you to check inflation pressures of both the inner dual wheel which has the valve stem pointing towards one and on the outer wheel which has the valve stem pointing away from one. Pressure sealing valve caps should always be used to protect the valve stems and prevent air from escaping from the valve stems.

TIRE WEAR, BALANCE, AND WHEEL ALIGNMENT

In addition to tire inflation considerations, the tires should also be periodically examined for other types of normal "wear and tear". If installed and maintained properly, all tires mounted on the motorhome should wear in a smooth and even pattern.

If the tires begin to show irregular wear patterns and the motorhome alignment is still correct, then sometimes having the tires rotated and changing their wheel position will allow the tires to wear evenly.

Check the chassis manufacturer (Mercedes Benz) and its literature in the Owners Information Package for particulars on maintaining proper wheel alignment.

TIRE CLEANING

Proper cleaning of the tires will assure maximum years of service. A soft brush and a normal mild soap should be used to clean the tires. Use care in applying any tire "dressing" product as these contain petroleum derivatives, alcohol or silicones which may cause deterioration of the rubber. This could lead to cracking and accelerate the aging process. In many instances it isn't the actual dressing itself, but the reaction of the product with the antioxidant in the tire. Heat can compound this problem also.



MAINTENANCE & DATA CHART

CHAPTER

15

RV OWNER'S DATA SHEET

Please enter the following information in the table for your future use:

CAHABA: _____ YEAR: _____ MODEL # _____			
TIFFIN SERIAL # _____			
DATE/MILEAGE	WORK PERFORMED	PERFORMED BY	COST

Reproduction Master – Copy this sheet and use copy to maintain your maintenance records. You may wish to keep the completed sheets in a three-ring binder for your permanent record.

RV OWNER’S MAINTENANCE RECORD

CAHABA: _____ YEAR: _____ MODEL # _____			
TIFFIN SERIAL # _____			
DATE/MILEAGE	WORK PERFORMED	PERFORMED BY	COST

RV OWNER'S MAINTENANCE RECORD

CAHABA: _____ YEAR: _____ MODEL # _____			
TIFFIN SERIAL # _____			
DATE/MILEAGE	WORK PERFORMED	PERFORMED BY	COST

RV OWNER'S MAINTENANCE RECORD

CAHABA: _____

YEAR: _____

MODEL # _____

TIFFIN SERIAL # _____

DATE/MILEAGE	WORK PERFORMED	PERFORMED BY	COST



TIFFIN

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www.tiffinmotorhomes.com