



OLIVER
TRAVEL TRAILERS

Legacy

ELITE

2017 Owner's Manual



INTRODUCTION

This manual has been prepared by the manufacturer to provide information and instructions covering the operation and maintenance of your recreational vehicle.

Nothing in this manual creates any warranty, either expressed or implied. The only warranty offered by the manufacturer is set forth in the limited warranty applicable to your vehicle.

The limited warranty provided by the manufacturers and the limited warranties issued by component manufacturers require periodic service and maintenance, and the owner's failure to do this service and maintenance may result in the loss of warranty coverage.

The owner should review the manufacturer's limited warranty and the limited warranty of all other manufacturers.

The purpose of this manual is to answer questions that commonly occur. Read it in its entirety. We want you to enjoy your Oliver Travel Trailer to the fullest and to help make your road to vacationing freedom more pleasant and relaxing.



OLIVER TRAVEL TRAILERS

737 COLUMBIA HIGHWAY
HOHENWALD, TENNESSEE 38462
TOLL FREE: 888-526-3978
FAX: 931-796-0156

OVERVIEW:

Welcome and Congratulations!

Thank you for investing in an Oliver Travel Trailer. There are many choices out there, but we firmly believe you have made the best one. You now have the freedom to travel and enjoy your leisure time in luxury.

We are confident that before taking possession of your new trailer that; you followed the Product Delivery Inspection procedure with your sales representative, received an extensive walk through and hands on demonstration of your purchase, had all of your questions answered to your satisfaction, and had the warranty statement contained within this manual explained to you.

Items of quality, such as this recreational vehicle, will always respond best to considerate treatment and care. Therefore, before operating it we recommend that you review the entire contents of this manual.

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Getting Acquainted

Throughout the manufacturer process, your recreational vehicle has been inspected by trained personnel and then again prior to deliver. Along with the new smell is the knowledge that no one else has used it. You will be the first to set camp, and extensively use all the standard and optional systems. When far from home you definitely do not want any unexpected surprises or frustrating questions. Spend a weekend camping at home. Make a point to use and become familiar with all the systems both inside and out. Note how long the stored water last? How much propane does it take to keep your beverages ice cold? Why didn't the satellite system pick up the big game? Find out what camping items are really needed, or not needed at all. Take notes: jot down any concerns, or ideas you might have that would make things better. Call us with questions or suggestions. We would really like to hear from you. The better acquainted you become at home, the more you will enjoy your first trip.

Best regards: The Oliver Family

Using This Manual

This manual is to explain most of the features of your trailer. While most of these features are similar from model to model, some features mentioned in this manual may not apply to your specific recreational vehicle. Review this manual with your dealer. Be sure to ask any questions you have at that time. Go over all warranty and registration information carefully. Read all component manufacturers owner's manuals and validate any individual warranties by completing and mailing individual warranty cards as required.

Always keep this owner's manual with the recreational vehicle for easy reference, making sure to comply with all notes and warnings. A careful owner is the best insurance against an accident.

Caution and Information Symbols

Throughout this manual we have placed special emphasis on information that requires your absolute attention. These **symbols** designate information that the user must be acutely aware of since failure to heed these cautions or warnings may result in product damage, property damage, serious injury or death.

**▲ SPECIAL ATTENTION SHOULD BE GIVEN TO ALL
INFORMATION PRECEDED BY THIS SYMBOL.
FAILURE TO DO SO MAY RESULT IN PRODUCT
DAMAGE, SERIOUS INJURY OR DEATH.**

This owner's manual is as current as possible at the time your recreational vehicle was produced. However, since our products are constantly being upgraded and improved, some differences may occur between the description in this manual and the product in the recreational vehicle. For instance, standard items and/or options may vary. If this occurs, follow the separate component manufacturers instructions provided in their literature. We will also make it available to you online on our website at www.olivertraveltrailers.com

Some of the equipment shown in this manual may be optional equipment not included or available with your recreational vehicle. Any special equipment, modifications or additions made by or at the request of the customer, or any subsequent owner, whether made at the factory or in the field are not covered in this manual.

We reserve the right to change the construction or material of any parts at any time without incurring the obligation to install such changes on delivered units.

**READ THE ENTIRE MANUAL AND HEED ALL CAUTION AND
WARNING STATEMENTS PRIOR TO OPERATION OF THE
OLIVER TRAVEL TRAILER.**

This recreational vehicle has been designed for short-term vacationing and recreational use. Using this vehicle as a permanent dwelling is not a consideration of the original design. If you intend to use your recreational vehicle in a commercial setting or as a permanent dwelling, it could cause your upholstery and interior surfaces to deteriorate prematurely. This premature wear caused by permanent residency may under the terms of the new vehicle warranty be considered abnormal and abusive and **could reduce or void your warranty coverage.**

Warranty Assistance

Should you need assistance with a problem, contact your dealer. The dealer will be able to determine whether the trailer should be taken to the dealership for proper remedy. If the problem is with an appliance, check the appliance manufacturer's information supplied with the recreational vehicle for information about warranty work and/or location of appliance service centers.

If you experience a breakdown or other problems while your recreational vehicle is under warranty, and an authorized service center or dealer is not available, contact the dealer you purchased your recreational vehicle from before having the work done at an independent service center. By notifying them, you will know what is covered under the terms of your warranty, as well as making them aware of your problem. Any parts that require replacement, that are covered under the terms of the warranty should be retained and returned to your dealer along with your invoice. This way they are able to check what has occurred and also make sure you are properly reimbursed for your expenditures.

Repairs made without prior authorization may be subject to denial or partial reimbursement. Modifications made to the recreational vehicle without proper authorization can result in reduction or loss of warranty coverage. Please make sure to contact your dealer before making such changes.

**WARRANTY CONTACT
INFORMATION ON NEXT PAGE**

STANDARD COMPONENT WARRANTY INFORMATION

Dometic Toilet – 310 Series Porcelain Toilet

Dometic

2320 Industrial Pkwy
Elkhart, IN 46516

Email: customersupportcenter@dometicus.com
Phone: 800-544-4881

Warranty: 2-Years



Deep Cycle Duralast Marine 12V Batteries

Duralast

123 South Front Street
Memphis, TN 38103

Email: Customer.Service@AutoZone.com
Phone: 800-288-6966

Warranty: 1-Year



Progressive Dynamics Converter

Progressive Dynamics, Inc.

507 Industrial Road
Marshall, MI 49068

Email: PDIWEST1@aol.com
Phone: 269-781-4241

Warranty: 2-Years



Dometic RM 2454 Fridge

Dometic

2320 Industrial Pkwy
Elkhart, IN 46516

Email: customersupportcenter@dometicus.com
Phone: 800-544-4881

Warranty: 3-Years



Elite Single Axle (Max Load 5000lbs) Elite II Double Axles (Max Load 7000lbs)

Dexter Axle Corporate Headquarters

2900 Industrial Parkway East
Elkhart, IN 46516

Email: N/A
Phone: (574) 295-7888

Warranty: 5-Years



Bulldog Collar-Lok Coupler w/High-Profile Latch – 2" Ball – 3" Channel Tonque – 5,000 lbs.

Cequent Performance Products, Inc.

47912 Halyard Drive
Suite 100
Plymouth, MI 48170

Email: N/A
Phone: 888-521-0510

Warranty: 1-Year



Furrion DV3200 Wall Mount Bluetooth NFC and HDMI RV Stereo

Furrion Headquarters

23891 Glenview Dr.
Elkhart, IN 46514

Email: warrantyUSA@furrion.com

Phone: toll free 1.888.354.5792

Warranty: 1-Year



Jensen J2412LED TV

ASA Electronics

2602 Marina Drive
Elkhart, IN 46514

Email: N/A

Phone: 877-305-0445

Warranty: 1-Year



Jensen Speakers

ASA Electronics

2602 Marina Drive
Elkhart, IN 46514

Email: N/A

Phone: 877-305-0445

Warranty: 1-Year



Shurflo 4008 RV Revolution By-Pass Pump

SHURFLO® East

52748 Park Six Court
Elkhart, IN 46514

Email: customer_service@SHURFLO.com
Phone: 800-854-3218

Warranty: 1-Year



Contoure Microwave Oven RV950S

InterCON Marketing

1540 Northgate Blvd.
Sarasota, FL 34234

Email: contactus@contoure.com
Phone: (941) 355-4488

Warranty: 1-Year



Barker's VIP 3000 and VIP 3500 Power Jacks

Barker Manufacturing

1125 Watkins Road
Battle Creek, MI 49015

Email: sales@barkermfg.com
Phone: (888) 367-6978

Warranty: 2-Year Extended



AirXcel MAXX Fan

AirXcel

3050 N. Saint Francis St.
Wichita, KS 67219

Email: rvp_sales@airxcel.com
Phone: 316-832-3468



Warranty: 2-Year Limited
(LIFETIME Limited Warranty on lid)

Dometic 13,500 BTU Penguin II A/C and Thermostat

Dometic

2320 Industrial Pkwy
Elkhart, IN 46516

Email: customersupportcenter@dometicus.com
Phone: 800-544-4881



Warranty: 2-Year Limited

Suburban Hot Water Heater

Suburban Manufacturing Co.

676 Broadway Street
Dayton, TN 37321

Email: N/A
Phone: 423-775-2131 Ext. 7107



Warranty: 2-Year Limited

Dometic 2-Burner Cooktop Stove

Dometic

2320 Industrial Pkwy
Elkhart, IN 46516

Email: customersupportcenter@dometicus.com
Phone: 800-544-4881

Warranty: 2-Year Limited



Michelin LTX M/S2 Tires – LT225/75/R16

Michelin

Consumer Care Department
P.O. Box 19001
Greenville, S.C. 29602-9001

Email: N/A
Phone: 1-866-866-6605

Warranty: 1-Year



VanAir Ventline Bathroom Exhaust Fan by Dexter

Ventline

902 South Division St.
Bristol, IN 46507

Email: N/A
Phone: (574) 848-4491

Warranty: 1-Year



Elite I – Atwood 16,000 Furnace

Atwood Mobile Products

1129 North Main Street
Elkhart, IN 46514

Email: N/A

Phone: 866-869-3118

Warranty: 2-Years



Elite II – Suburban Furnace NT-20 SQ

Suburban Manufacturing Company

676 Broadway Street
Dayton, TN 37321

Email: N/A

Phone: 423-775-2131 Ext. 7101

Warranty: 2-Year Limited



ZIP Break Away Safety Cable

Fastway Trailer Products – Progress Mfg. Inc.

353 South 1100 West
Provo, UT 84601

Email: info@fastwaytrailer.com

Phone: 877-523-9103

Warranty: 1-Year Limited



Dayton Stainless Steel Kitchen Sink

Elkay Headquarters

2222 Camden Court
Oak Brook, IL 60523

Email: CustCare@Elkay.com

Phone: 630-574-8484

Warranty: 1-Year Limited



Sterling Stainless Steel Bathroom Sink

Sterling Plumbing

444 Highland Drive
Kohler, WI 53044

Email: N/A

Phone: 1-800-STERLING

Warranty: 1-Year Limited



ITC RV Fontana Exterior Shower

ITC Global Headquarters

230 East Lakewood Blvd.
Holland, Michigan 49424

Email: sales@itc-us.com

Phone: 616-396-1355

Warranty: 1-Year



Delta Stainless Steel Kitchen Faucet

Delta Faucet Company
55 E. 111th Street
Indianapolis, IN 46280

Email: Customerservice@Deltafaucet.com
Phone: 1-800-345-DELTA

Warranty: 1-Year Limited



Dura Faucet Bathroom Sink Faucet/Shower Head

Dura Faucet
91215 SE 34th St.
Suite 106-382
Camas, WA 98607

Email: customerservice@dura faucet.com
Phone: 888-242-5932

Warranty: 1-Year Limited



OPTIONAL COMPONENT WARRANTY INFORMATION

Winegard Roadtrip Mission Satellite (RT4000S)

Winegard Company
3000 Kirkwood Street
Burlington, IA 52601

Email: help@winegard.com
Phone: 1-800-788-4417

Warranty: 2-Years Parts, 1-Year Labor



Winegard Roadstar Omni-directional Antenna (RS3000)

Winegard Company
3000 Kirkwood Street
Burlington, IA 52601

Email: help@winegard.com
Phone: 1-800-788-4417

Warranty: 2-Years Parts, 1-Year Labor



Voyager WiSight Rear View Camera

Winegard Company
3000 Kirkwood Street
Burlington, IA 52601

Email: help@winegard.com
Phone: 1-800-788-4417

Warranty: 2-Years Parts, 1-Year Labor



WIFIRanger RV Pack 2 – WIFI Booster

Mito Corporation
213 County Road 17
Elkhart, IN 46516

Email: questions@wifiranger.com
Phone: (574) 295-2441

Warranty: 1-Year



Wilson Mobile 4G Cell Phone Amplifier (470108)

WeBoost, LLC
3301 E. Desert Drive
St. George, UT 84790

Email: tech@wilsonelectronics.com
Phone: 1-866-294-1660

Warranty: 1-Year

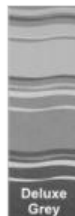


FIAMMA F45 Manual Crank Awning

Fiamma Inc.
2427 Forsyth Rd.
Orlando, FL 32807

Email: fiamma1@fiamma.com
Phone: N/A

Warranty: 2-Years Limited



Andersen No-Sway Hitch

Andersen Hitches

3125 North Yellowstone Highway
Idaho Falls, ID 83401-1709

Email: N/A

Phone: 800-635-6106

Warranty: Limited Lifetime



Progressive Industries EMS-HW30C Surge Protector

Progressive Industries, Inc.

1020 Goodworth Dr.
Apex, NC 27539

Email: sales@progressiveindustries.net

Phone: 919-462-8280

Warranty: Limited Lifetime



Blue Sky or ZAMP Solar Package

Blue Sky Energy, Inc.

2598 Fortune Way, Suite K
Vista, CA 92081

Email: sales@blueskyenergyinc.com

Phone: 760-597-1731

Warranty: 5-Year Limited Warranty

ZAMP Solar, LLC.

63255 Jamison Rd
Bend, Oregon 97703 USA

Email: support@zampsolar.com

Phone: 541-728-0924

Warranty: 1-Year



Trojan T-105 and 6v AGM Battery – Elite II Upgrades

Trojan Battery Company
12380 Clark Street
Santa Fe Springs, CA 90670

Email: N/A
Phone: 800-426-6569

Warranty: 12-Months (except 18 Months T-105)



Trojan Hydrolink Watering System

Trojan Battery Company
12380 Clark Street
Santa Fe Springs, CA 90670

Email: N/A
Phone: 800-426-6569

Warranty: 4-Years



Lifeline Deep Cycle Battery – Elite I Upgrade

Lifeline Batteries Inc.
292 E Arrow Highway
San Dimas, CA 91773

Email: N/A
Phone: 909-599-7816

Warranty: 5-Years



Xantrex 2000W Inverter

Xantrex

541 Roske Drive, Suite A
Elkhart, IN 46516

Email: N/A

Phone: 800-670-0707

Warranty: 24 Months



TRUMA AquaGo comfort Tankless Water Heater

Truma Corp.

825 E Jackson Blvd
Elkhart, IN 46516

Email: info@trumacorp.com

Phone: 1-855-55-TRUMA

Warranty: 1-Year



Dexter E-Z Flex Suspension

Dexter Axle Corp. HQ

2900 Industrial Parkway East
Elkhart, IN 46516

Email: N/A

Phone: 574-295-7888

Warranty: 2-Years



Reporting Safety Defects

If you believe that your vehicle has a defect, which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Oliver Travel Trailers.

If NHTSA receives similar complaints, it may open an investigation and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer or Oliver Travel Trailers.

To contact NHTSA you may either call the Auto Safety Hotline free at 1-888-327-4236 or go to <http://safercar.gov> or write to:

Administrator
NHTSA
1200 New Jersey Avenue S.E.
Washington, DC 20590

OLIVER WARRANTY

OLIVER TRAVEL TRAILERS (OTT TRAVEL TRAILER WARRANTY)

PROVIDED COVERAGE: GENERAL

YOUR NEW TRAVEL TRAILER (INCLUDING THE PLUMBING, HEATING AND ELECTRICAL SYSTEMS, INSTALLED BY THE MANUFACTURER) IS WARRANTED TO THE ORIGINAL OWNER UNDER NORMAL USE TO BE FREE FROM MANUFACTURER DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1) YEAR FROM DATE OF PURCHASE BY THE ORIGINAL OWNER.

THIS WARRANTY EXTENDS TO THE FIRST RETAIL PURCHASER, IS NOT TRANSFERABLE AND BEGINS ON THE DATE OF ORIGINAL RETAIL DELIVER. THIS WARRANTY EXTENDS FOR A PERIOD OF ONE YEAR. THIS WARRANTY COVERS ITEMS PRODUCED AT THE OLIVER FACTORY. THE OLIVER WARRANTY GUARANTEES THAT QUALITY WORKMANSHIP AND

PROFESSIONAL INSTALLATION WAS PERFORMED AT OUR FACTORY AND IS WARRANTED, UNDER NORMAL USE TO BE FREE FROM MANUFACTURER DEFECTS FOR A PERIOD OF ONE YEAR. THIS INCLUDES ITEMS SUCH AS THE FIBERGLASS BODY – INNER AND OUTER SHELLS, ATTACHMENT POINTS, FURNITURE, THE CHASSIS, PLUMBING, HEATING AND ELECTRICAL SYSTEMS, LP GAS LINES, AXLES, DOORS, CABINET DOORS, WINDOWS AND RELATED HARDWARE. IF THE ORIGINAL PURCHASER EXPERIENCES ANY PROBLEMS WITH ANY OF THE ITEMS LISTED WHILE UNDER THE ONE YEAR WARRANTY, CONTACT THE OLIVER SERVICE DEPARTMENT TO MAKE ARRANGEMENTS FOR REPAIRS. IF THE PURCHASER IS UNABLE TO RETURN TO AN OLIVER DEALERSHIP FOR REPAIRS, CONTACT THE OLIVER SERVICE DEPARTMENT AT **1-888-526-3978** BEFORE HAVING WORK DONE. REPAIRS MADE WITHOUT PRIOR AUTHORIZATION MAY BE SUBJECT TO DENIAL OR ONLY PARTIAL REIMBURSEMENT.

ALL INCLUDED FACTORY INSTALLED APPLIANCES CARRY THEIR OWN VENDOR WARRANTY STATEMENTS. THE WARRANTIES APPLY ONLY TO THE ORIGINAL CONSUMER PURCHASER AND ARE NOT TRANSFERABLE. OLIVER IS NOT AUTHORIZED TO REPAIR OR SERVICE ANY APPLIANCES OR COMPONENTS BUT WILL ASSIST WITH ANY WARRANTY ISSUES IN THE FIRST YEAR BY TALKING TO THE APPLIANCE MANUFACTURERS AUTHORIZED SERVICE DEALER AND REPLACING DAMAGED OR DEFECTIVE COMPONENTS IF DIRECTED TO BY THE APPLICABLE AUTHORIZED SERVICE DEALER. THESE APPLIANCES INCLUDE, BUT ARE NOT LIMITED TO: RANGE, OVEN, REFRIGERATOR, CONVECTION OVEN, WATER PUMP, WATER HEATER, AIR CONDITIONER, FURNACE, AUDIO-VIDEO EQUIPMENT, ELECTRIC STABILIZERS AND POWER CONVERTERS, DEPENDING ON OPTIONS INSTALLED. EVERY APPLIANCE IN THE TRAILER HAS INDIVIDUAL LITERATURE AND DOCUMENTATION STATING THEIR WARRANTY POLICIES AND SERVICE ARRANGEMENTS. PLEASE READ THESE PROVIDED DOCUMENTS AND REGISTER TO OBTAIN PROPER WARRANTY COVERAGE. TAKE CAREFUL NOTE OF THE PROCEDURES NEEDED TO ABIDE BY THESE INDIVIDUAL WARRANTIES. YOU ARE STILL URGED TO CONTACT OLIVER SERVICE DEPARTMENT

IF YOU EXPERIENCE ANY PROBLEMS WITH ANY APPLIANCES AND OUR STAFF WILL ASSIST YOU WITH HOW TO MAKE ARRANGEMENTS FOR REPAIRS.

NOTE: OLIVER TRAVEL TRAILERS ARE MANUFACTURED FOR RECREATIONAL PURPOSES, AND ARE NOT INTENDED FOR COMMERCIAL, RESIDENTIAL OR RENTAL PURPOSES. USE FOR THESE PURPOSES WILL VOID YOUR WARRANTY.

OWNER OBLIGATIONS

The owner is responsible for all maintenance and upkeep. If a problem occurs which the owner believes, is covered by this warranty, the owner shall contact the selling dealer or Oliver Travel Trailers, giving them sufficient information to resolve the matter.

The owner is also responsible for inspection and maintenance of all seals and joints around all attachment doors and windows, air units, satellite or television cable connections, as well as seams for plumbing fixtures, storage or discharge.

▲ **WARNING:** The owner's failure to perform such inspections and maintenance which results in water damage or any other damage shall void the warranty.

It is the owner's responsibility to notify the selling dealer of a defect in a timely manner. Failure to notify in a timely manner will void all or portions of this one year limited warranty.

This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Dealers or any other persons are not authorized to make modifications to this warranty. Any additional statements concerning this warranty, whether oral or written are not the responsibility of the manufacturer and should not be relied upon.

DELIVERY

To assist in avoiding problems with your trailer, we recommend you:

Read the Warranty.

Go over it thoroughly with your dealer.

Inspect the vehicle.

Do not accept delivery until you have gone through the coach with the dealer. The manufacturer has provided a checklist to be used during retail deliver. Check each item on the list and make sure the dealer does the same. Do not sign this checklist until you are satisfied with each inspection.

Ask questions about anything concerning your unit you do not understand.

Be sure your tow vehicle has the capacity to pull the unit you have selected.

WHAT IS NOT COVERED BY THIS WARRANTY

1. Tires and other equipment, which are covered by the separate warranties of the respective manufacturers of these components.
2. Damage caused by or related to:
 - Accidents, misuse or negligence.
 - Alteration or modification of the travel trailer or damage resulting from alteration or modification.
 - Environmental conditions (salt, hail, moisture, chemicals in atmosphere, sand, etc.).
 - Failure to comply with instructions contained in the Owners Manual.
3. Normal deterioration or wear and tear due to wear or exposure, such as fading of fabrics, wear, etc.
4. Normal maintenance and service items such as light bulbs, fuses, lubricants, seals and sealant, hinged adjustments, awning tension, etc. or

damages resulting from lack of maintenance.

5. Extra expenses such as transportation to and from dealer or authorized service locations, loss of time, loss pay, loss of use of unit, meals, inconvenience, commercial loss, towing, vehicle rental or any other incidental charges or consequential damages.

6. Any unit used as a permanent dwelling or for commercial or rental applications.

IDENTIFICATION AND SAFETY RECREATIONAL VEHICLE SERIAL NUMBER, DECALS AND DATA PLATES

Decals throughout the trailer aid in its safe and efficient operation:

Some giving warnings ▲ others give service instructions while others are used for identification. Read all decals and instruction plates before operating your recreational vehicle.

The Oliver Travel Trailer VIN Number is located on the driver's side, towards the lower front of the trailer in the area of the reflector.

WEIGHT RATING DEFINITIONS

GVWR (Gross Vehicle Weight Rating) - The maximum permissible weight of this trailer when fully loaded, including all weight at the trailers axle, plus tongue.

GAWR (Gross Axle Weight Rating) - The maximum allowable weight that an axle system is designed to carry.

UVW (Unloaded Vehicle Weight) - The weight of the trailer as manufactured at the factory, this includes all the weight of the trailer axle and the tongue.

CCC (Cargo Carrying Capacity) - Equal to GVWR minus each of the following; UVW, full potable water weight and full LP Gas weight.

SEE OPERATIONS AND PROCEDURES FOR FURTHER
EXPLANATIONS OF THESE VALUES

FEDERAL CERTIFICATION TAG

The Federal Certification Tag on travel trailers and fifth wheels can be located on the Road Side near the front of the unit and contains the GVWR, GAWR (front and rear) and tire pressure limits.

OCCUPANT SAFETY

SAFETY REGULATIONS FOR LP GAS SYSTEMS AND APPLIANCES

The following warnings are posted throughout your recreational vehicle to provide information on the LP gas safety. They have been installed not only because of requirements to do so, but also as a constant reminder to our customers to exercise proper caution when using or being around LP gas appliances and equipment. We are listing them here so that you may study them and make sure that you and your family understand and follow them.

▲ WARNING

PROPANE CYLINDERS SHALL NOT BE PLACED OR STORED INSIDE THE VEHICLE. PROPANE CYLINDERS ARE EQUIPPED WITH SAFETY DEVICES THAT RELIEVE EXCESSIVE PRESSURE BY DISCHARGING PROPANE TO THE ATMOSPHERE. FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.

WARNING: It is not safe to use cooking appliances for heating or anything other than cooking. Cooking appliances need fresh air for safe operation.

BEFORE OPERATION OF COOKING APPLIANCES

Open overhead vent and turn on the exhaust fan.

Open window.

This warning label has been located in the cooking area to remind you to provide an adequate supply of fresh air for combustion. Unlike homes, the amount of oxygen supply in a travel trailer is limited and proper ventilation when using the cooking appliances will avoid dangers of asphyxiation. It is

especially important that cooking appliances not be used for comfort heating as the danger of asphyxiation is greater when the appliance is used for long periods of time. Failure to comply could result in serious injury or death.

WARNING: Do not store LP gas containers, gasoline or other flammable liquids inside the vehicle because a fire or explosion may result.

A warning label has been located near the LP gas container. This label reads **“DO NOT FILL CONTAINERS TO MORE THAN 80 PERCENT OF CAPACITY.” FAILURE TO OBEY THIS COULD RESULT IN SERIOUS INJURY OR DEATH.**

Overfilling the LP gas container can result in uncontrolled gas flow, which can cause fire or explosion. A properly filled container will contain approximately 80 percent of its volume as liquid LP gas. [An 80 percent automatic shut-off has been installed on the LP gas tank, which will automatically prevent further filling when the gas volume has reached 80 percent of tank capacity.]

The following label has been placed in the vehicle near the range area:

▲ DANGER!!! IF YOU SMELL PROPANE

- 1. EXTINGUISH ANY OPEN FLAMES, PILOT LIGHTS AND ALL SMOKING MATERIALS .**
- 2. DO NOT TOUCH ELECTRICAL SWITCHES.**
- 3. SHUT OFF THE PROPANE SUPPLY AT THE TANK VALVE (S) OR PROPANE SUPPLY CONNECTION.**
- 4. OPEN DOORS AND OTHER VENTILATING OPENINGS.**
- 5. DO NOT USE THE RANGE EXHAUST FAN 6. LEAVE THE AREA UNTIL ODOR CLEARS.**
- 6. HAVE THE PROPANE SYSTEM CHECKED AND LEAKAGE SOURCE CORRECTED BEFORE USING AGAIN.**

FAILURE TO OBEY THESE INSTRUCTIONS COULD RESULT IN SERIOUS INJURY OR DEATH.

LP gas regulators must always be installed with the diaphragm vent facing downward. Regulators that are not in compartments have been equipped with a protective cover. Make sure that regulator vent faces downward and the cover is kept in place to minimize vent blockage, which could result in excessive gas pressure causing fire or explosion.

WARNING: Portable fuel burning equipment including wood or charcoal burning grills and stoves shall not be used inside the vehicle because they might cause fire or asphyxiation.

▲ FIRE SAFETY

Fire safety is an important part of owning a recreational vehicle. The following basic rules of fire prevention can reduce the possibility of a fire. Make sure that everyone in your recreational vehicle is familiar with the location of exits, including emergency exit windows.

1. Never store flammable liquids in the recreational vehicle.
2. Never leave cooking food unattended.
3. Never smoke in bed or near flammable materials.
4. Never allow children to play with the LP gas or electrical equipment.
5. Never use an open flame as a flashlight.
6. Always repair faulty or damaged wiring and electrical components.
7. Never overload electrical circuits.
8. Locate and repair LP leaks immediately.
9. Keep cooking surfaces clean.
10. Don't allow rubbish to accumulate.
11. Never clean with a flammable liquid.
12. Spray fabrics annually with a flame retardant liquid.

If a fire does start, make sure to follow these basic rules of safety.

1. Have everyone evacuate the recreational vehicle as quickly as possible.
2. After everyone is clear, check the fire to see if you can attempt to put it out. If it is large, (cannot get within 10 feet) or the fire is fuel fed, get clear of the recreational vehicle and have the fire department handle the emergency.

3. Make sure you know how to use the fire extinguisher. Read the label on the fire extinguisher and study the information in this manual to become familiar with the safe operation and maintenance of the extinguisher.

Fire Extinguisher

Underwriter Laboratories classifies fires into three types:

Class A: Wood, paper, fabric, rubber and certain plastics.

Class B: Flammable liquids such as grease, cooking oils, gasoline or kerosene.

Class C: Electrical fires started from live electrical wires from short-circuited motors or switches.

The fire extinguisher provided with the recreational vehicle is a chemical type suitable for extinguishing small fires of the Class B or C type.

Extinguishers are designed to put out a fire in the initial stage, not when it is blazing out of control. If a fire cannot be approached within 10 feet it is dangerous to try to put out or stand anywhere near it. The extinguisher does not need shaking. Hold it upright and stand six to ten feet from the fire with a clear path to an exit. Press the button down all the way aimed at the base of the fire and spray with quick motions from side to side. Avoid inhaling the dry chemicals. Although non-toxic, they could cause temporary irritation and vomiting. When the fire is out, clean up the area, as soon as possible. The dry chemical is non-corrosive, but some residue may cause surface damage if left too long. In the case of an electrical fire, disconnect the battery and throw off the main circuit in the unit. It is important that everyone knows where to find the main circuit and how it operates. If the shoreline power cord is connected, disconnect it.

To keep a fire extinguisher in operating condition:

Check pressure monthly or more often. Check the nozzle for obstruction. Read the instructions on the fire extinguisher for maintenance instructions and instructions on how to use the fire extinguisher.

Smoke Detector

Fire could start in a location that would prevent smoke from reaching the detector. Detectors also are better at detecting fast flaming fires than the slow smoldering variety. They are also not a cure for poor fire safety habits. Smoke detectors need occasional maintenance for reliable service. A smoke detector is designed to be relatively maintenance free, but there are three things you can do to keep a detector in reliable working order:

TEST – At least once a week by firmly pressing the button located near the center of the cover. The alarm should sound briefly. If it does not work, replace the 9-volt battery and test again.

CLEAN – The detector if grease or dust accumulates once a year. Remove the cover and the 9volt battery. Clean dust from sensing chamber openings with a vacuum and soft brush attachment. Replace the battery and depress the test switch. The alarm should sound briefly. If it does not work, try a new 9volt battery.

SERVICE – If the detector does not work send it to the manufacturer or its repair center. **DO NOT** attempt to make the repairs yourself (other than battery replacement).

What to do when fire alarm sounds

WARNING – Never ignore any alarm. If the alarm sounds and you are not absolutely certain of the source of the smoke, get everyone out of the travel trailer immediately. Leave immediately by your plan of escape. Every second counts, Do Not waste time getting dressed or picking up valuables.

Feel doors before opening them to see if they are hot. If a door is cool, open it slowly and check for fire and heat before you proceed. Do Not open a hot door – use an alternate escape route.

Stay close to the floor if air is smoky. Take short shallow breaths through a wet cloth if possible. Do Not return to your trailer, until fire officials say that it is safe.

Once outside, go to your selected meeting place and make sure everyone is there. Call the Fire Department from outside of the travel trailer with the activated alarm, at a safe location.

Carbon Monoxide Detector

Carbon monoxide is a colorless, tasteless, odorless gas. The water heater, furnace, LP gas refrigerator and cooking range produce carbon monoxide constantly when operating. Carbon monoxide is DEADLY. To protect yourself from the effects of carbon monoxide poisoning, please read and understand the following precautions.

KNOW THE SYMPTOMS: Dizziness, Intense Headache, Throb in Temples, Nausea, Vomiting, Muscular Twitching, Weakness/Sleepiness, Inability to Think Clearly

If anyone experiences any of these symptoms, get out into fresh air immediately. Get medical attention if symptoms persist. Check all suspect appliances or fuel burning devices. Shut them off and do not operate them until a qualified person inspects them.

Carbon monoxide detectors require a ten-minute initial warm up period to prepare and stabilize the sensor element. If the alarm sounds, it means that carbon monoxide gas is present in the air; it does not indicate a faulty alarm. It is warning you of potentially dangerous levels of carbon monoxide, possibly from outside sources (i.e. camp fires, Bar-b-ques. Etc.).

Carbon monoxide detectors should be tested weekly while the trailer is in use and before each trip.

Wheels and Tires

Tires play an important role in the load carrying capacity of the vehicle. To ensure good tire life, check tires often. Inspect the general condition of the tires, as well as the air pressure.

Always check the air pressure when the tire is cold. Tires that are hot from traveling will show high pressures. The maximum tire pressure and the load carrying capacity of the tire are imprinted on each tire sidewall. Always inflate your tires to their correct pressure. Don't over or under inflate.

Under inflated tires will run hot, shorten the tire's life and decrease the Oliver safe load limit. Over inflated tires will cause a rough and bouncing ride that can damage RV components or cargo. It is a good idea to always carry an accurate tire pressure gauge in the RV to make these checks. If pressure checks indicate a tire is losing air, check for signs of valve leakage, penetration or wheel and rim damage. Under or over inflating tires can cause tires to fail.

The way you drive can have a significant effect on the wear and life of tires. High speeds, unusual use of the brakes, taking corners too quickly and bad roads all can contribute to the early wear and failure of your tires. When you drive on surfaces with holes or rocks and other loose objects that can damage tires and cause misalignment, make sure to reduce speed and drive carefully. If you notice damage to a tire such as a bulge, uneven wear or damage by a foreign object or the road, have it inspected and repaired or replaced as needed at a reputable repair facility.

NOTE: Cold tire inflation pressure is defined as a tire that has not been used for three or more hours, or has been driven less than one mile. Tire inflation pressure of a hot tire may show an increase of as much as 6 psi over a cold tire. Measure and adjust tire pressure when the tires are cold.

▲ WARNING: When replacing a tire, make sure to replace it with a tire of the same size and specifications. Never use different types of tires together on the RV (i.e. radial and bias-belted). Mixing of tires can cause handling problems, as well as unusual tire wear, both of which can create unsafe or even dangerous driving conditions. If your spare is of a different size be especially careful and use only to get to the nearest repair facility.

Wheel Nut Torques

It is also important to have the wheel nuts checked regularly to make sure they have not loosened during travel. Follow the schedule for regular wheel nut torque checks. If you suspect that wheel nuts have loosened at any time, have them checked and torqued to proper limits immediately (90 Ft. Lbs.).

Owner Awareness

If you suspect or notice cracked or broken wheel stud bolts, they must be replaced, along with adjacent bolts. Adjacent bolts probably also been weakened due to additional stress placed on them.

Make frequent inspections of wheels and tires, looking for signs of wear or damage. Avoid abusive driving habits, such as hitting curbs, or chug holes at high speed, which can damage tires and wheel components.

NOTE: The proper method of tightening wheel nuts is with a torque wrench, not with an impact wrench or by hand. Because of the importance of having proper torque on wheel nuts, you should have wheels mounted and properly torqued by qualified personnel with the proper tools.

▲ WARNING: Failure to re-tighten wheel nuts as required could allow wheels to come off while the vehicle is in motion, causing loss of control, possible collision, serious injury or death.

Tire Safety Information

This portion of the User's Manual contains tire safety information as required by 49 CFR 575.6.

Section 1.1

"Steps for Determining Correct Load Limit - Trailer"

Section 1.2

"Steps for Determining Correct Load Limit – Tow Vehicle"

Section 1.3

Glossary of Tire Terminology, including "cold inflation pressure", "maximum inflation pressure", "recommended inflation pressure", and other non- technical terms.

Section 1.4

information from the NHTSA brochure entitled

"Tire Safety – Everything Rides On It"

This brochure, as well as the preceding subsections, describes the following items:

- Tire labeling, including a description and explanation of each marking on the tires, and information about the DOT Tire Identification Number (TIN).
- Recommended tire inflation pressure, including a description and explanation of:

- A. Cold inflation pressure.
- B. The vehicle placard and location on the vehicle.
- C. Adverse safety consequences of under inflation (including tire failure).
- D. Measuring and adjusting air pressure for proper inflation.

- Tire Care, including maintenance and safety practices.

- Vehicle load limits, including a description and explanation of the following items:

- A. Locating and understanding the load limit information, total load capacity, and cargo capacity.
- B. Calculating total and cargo capacities with varying seating configurations including quantitative examples showing / illustrating how the vehicles cargo and luggage capacity decreases as combined number and size of occupants' increases. This item is also discussed in Section 3.
- C. Determining compatibility of tire and vehicle load capabilities.
- D. Adverse safety consequences of overloading on handling and stopping on tires.

1.1. STEPS FOR DETERMINING CORRECT LOAD LIMIT –

TRAILER Determining the load limits of a trailer includes more than understanding the load limits of the tires alone. On all trailers there is a Federal certification/VIN label that is located on the forward half of the left (road) side of the unit. This certification/VIN label will indicate the trailer's Gross Vehicle Weight Rating (GVWR). This is the most weight the fully loaded trailer can weigh. It will also provide the Gross Axle Weight Rating (GAWR). This is the most a particular axle can weigh. If there are multiple axles, the GAWR of each axle will be provided. If your trailer has a GVWR of 10,000 pounds or less, there is a vehicle placard located in the same location as the certification label described above. This placard provides tire and loading information. In addition, this placard will show a statement regarding maximum cargo capacity. Cargo can be added to the trailer, up to the maximum weight specified on the placard. The combined weight of the cargo is provided as a single number. In any case, remember: the total weight of a fully loaded trailer cannot exceed the stated GVWR.

For trailers with living quarters installed, the weight of water and propane also need to be considered. The weight of fully filled propane containers is considered part of the weight of the trailer before it is loaded with cargo, and is not considered part of the disposable cargo load. Water however, is a disposable cargo weight and is treated as such. If there were a fresh water

storage tank of 100 gallons, this tank when filled would weigh about 800 pounds. If more cargo is being transported, water can be off-loaded to keep the total amount of cargo added to the vehicle within the limits of the GVWR so as not to overload the vehicle. Understanding this flexibility will allow you, the owner, to make choices that fit your travel 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 and as close to the axle positions as reasonable. Too many items on one side may overload a tire. The best way to know the actual weight of the vehicle is to weigh it at a public scale. Talk to your dealer to discuss the weighing methods needed to capture the various weights related to the trailer. This would include the weight empty or unloaded, weights per axle, wheel, hitch or king-pin, and total weight.

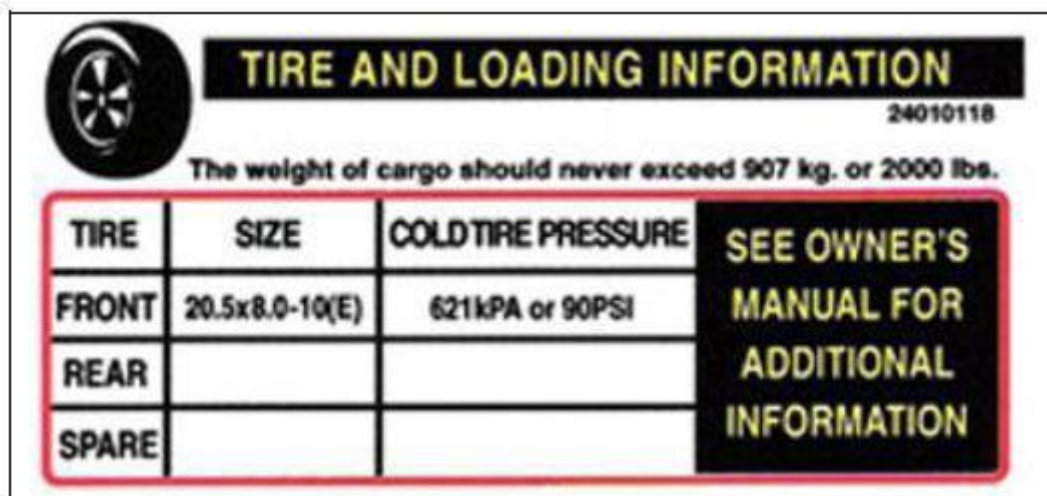
Excessive loads and/or under inflation cause tire overloading and, as a result, abnormal tire flexing occurs. This situation can generate an excessive amount of heat within the tire. Excessive heat may lead to tire failure. It is the air pressure that enables a tire to support the load, so proper inflation is critical. The proper air pressure may be found on the certification/VIN label and/or on the Tire Placard. This value should never exceed the maximum cold inflation pressure stamped on the tire.

1.1.1. TRAILERS 10,000 POUNDS GVWR OR LESS

Tire and Loading Information Placard – Figure 1-1

1. Locate the statement, “The weight of cargo should never exceed XXX kg or XXX lbs.,” on your vehicle’s placard. See figure 1-1. 2. This figure equals the available amount of cargo and luggage load capacity. 3. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage load capacity.

The trailer’s placard refers to the Tire Information Placard attached adjacent to or near the trailer’s VIN (Certification) label at the left front of the trailer.



1.1.2. TRAILERS OVER 10,000 POUNDS GVWR (NOTE: THESE TRAILERS ARE NOT REQUIRED TO HAVE A TIRE INFORMATION PLACARD ON THE VEHICLE)

1. Determine the empty weight of your trailer by weighing the trailer using a public scale or other means. This step does not have to be repeated.
2. Locate the GVWR (Gross Vehicle Weight Rating) of the trailer on your trailer's VIN (Certification) label.
3. Subtract the empty weight of your trailer from the GVWR stated on the VIN label. That weight is the maximum available cargo capacity of the trailer and may not be safely exceeded.

1.2. STEPS FOR DETERMINING CORRECT LOAD LIMIT – TOW VEHICLE

1. Locate the statement, "The combined weight of occupants and cargo should never exceed XXX lbs.," on your vehicle's placard.
2. Determine the combined weight of the driver and passengers who will be riding in your vehicle.
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" amount equals 1400 lbs. and there will be five 150 lb. passengers in your vehicle, the amount of available cargo and

luggage capacity is 650 lbs. $(1400 - 750 (5 \times 150) = 650 \text{ lbs.})$.

5. Determine the combined weight of luggage and cargo being loaded on the vehicle. That weight may not safely exceed the available cargo and luggage capacity calculated in Step # 4. 6. If your vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult the tow vehicle's manual to determine how this weight transfer reduces the available cargo and luggage capacity of your vehicle.

1.3. GLOSSARY OF TIRE TERMINOLOGY

Accessory weight:

The combined weight (in excess of those standard items which may be replaced) of automatic transmission, power steering, power brakes, power windows, power seats, radio and heater, to the extent that these items are available as factory-installed equipment (whether installed or not).

Bead:

The part of the tire that is made of steel wires, wrapped or reinforced by ply cords and that is shaped to fit the rim.

Bead separation:

This is the breakdown of the bond between components in the bead.

Bias ply tire:

A pneumatic tire, in which the ply cords that extend to the beads, are laid at alternate angles substantially less than 90 degrees to the centerline of the tread.

Carcass:

The tire structure, except tread and sidewall rubber which, when inflated, bears the load.

Chunking:

The breaking of pieces of the tread or sidewall of the tire.

Cold inflation pressure:

The pressure in the tire before you drive.

Cord:

The strands forming the plies in the tire.

Cord separation:

The parting of cords from adjacent rubber compounds.

Cracking:

Any parting within the tread, sidewall, or inner liner of the tire extending to cord material.

CT:

A pneumatic tire with an inverted flange tire and rim system in which the rim is designed with rim flanges pointed radially inward and the tire is designed to fit on the underside of the rim in a manner that encloses the rim flanges inside the air cavity of the tire.

Curb weight:

The weight of a motor vehicle with standard equipment including the maximum capacity of fuel, oil, and coolant, and, if so equipped, air conditioning and additional weight optional engine.

Extra load tire:

A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

Groove:

The space between two adjacent tread ribs.

Gross Axle Weight Rating:

The max weight that axle can support, as published on the Cert/VIN label on the front left side of the trailer. Actual weight determined by weighing each axle on a public scale, with the trailer attached to the towing vehicle.

Gross Vehicle Weight Rating:

The maximum weight of the fully loaded trailer, as published on the Certification / VIN label. Actual weight determined by weighing trailer on a public scale, without being attached to the towing vehicle.

Hitch Weight:

The downward force exerted on the hitch ball by the trailer coupler.

Inner liner:

The layer(s) forming the inside surface of a tubeless tire that contains the inflating medium within the tire.

Inner liner separation:

The parting of the inner liner from cord material in the carcass.

Intended outboard sidewall:

The sidewall that contains a white-wall, bears white lettering or bears manufacturer, brand, and/or model name molding that is higher or deeper than the same molding on the other sidewall of the tire or the outward facing sidewall of an asymmetrical tire that has a particular side that must always face outward when mounted on a vehicle.

Light truck (LT) tire:

A tire designated by its manufacturer as primarily intended for use on lightweight trucks or multipurpose passenger vehicles.

Load rating:

The maximum load that a tire is rated to carry for a given inflation pressure.

Maximum load rating:

The load rating for a tire at the maximum permissible inflation pressure for that tire.

Maximum permissible inflation pressure:

The maximum cold inflation pressure to which a tire may be inflated.

Maximum loaded vehicle weight:

The sum of curb weight, accessory weight, vehicle capacity weight, and production options weight.

Measuring rim:

The rim on which a tire is fitted for physical dimension requirements.

Pin Weight:

The downward force applied to the 5th wheel or gooseneck ball, by the trailer kingpin or gooseneck coupler.

Non-pneumatic rim:

A mechanical device which, when a non-pneumatic tire assembly incorporates a wheel, supports the tire, and attaches, either integrally or separately, to the wheel center member and upon which the tire is attached.

Non-pneumatic spare tire assembly:

A non-pneumatic tire assembly intended for temporary use in place of one of the pneumatic tires and rims that are fitted to a passenger car in compliance with the requirements of this standard.

Non-pneumatic tire:

A mechanical device which transmits, either directly or through a wheel or wheel center member, the vertical load and tractive forces from the roadway to the vehicle, generates the tractive forces that provide the directional control of the vehicle and does not rely on the containment of any gas or fluid for providing those functions.

Non-pneumatic tire assembly:

A non-pneumatic tire, alone or in combination with a wheel or wheel center member, which can be mounted on a vehicle.

Normal occupant weight:

This means 68 kilograms (150 lbs.) times the number of occupants specified in the second column of Table I of 49 CFR 571.110.

Occupant distribution:

The distribution of occupants in a vehicle as specified in the third column of Table I of 49 CFR 571.110.

Open splice:

Any parting at any junction of tread, sidewall, or inner liner that extends to cord material.

Outer diameter:

The overall diameter of an inflated new tire.

Overall width:

The linear distance between the exteriors of the sidewalls of an inflated tire, including elevations due to labeling, decorations, or protective bands or ribs.

Ply:

A layer of rubber-coated parallel cords.

Ply separation:

A parting of rubber compound between adjacent plies.

Pneumatic tire:

A mechanical device made of rubber, chemicals, fabric and steel or other materials, that, when mounted on an automotive wheel provides the traction and contains the gas or fluid that sustains the load.

Production options weight:

The combined weight of those installed regular production options weighing over 2.3 kilograms (5 lbs.) in excess of those standard items which they replace, not previously considered in curb weight or accessory weight, including heavy duty brakes, ride levelers, roof rack, heavy duty battery, and special trim.

Radial ply tire:

A pneumatic tire in which the ply cords that extend to the beads are laid at

substantially 90 degrees to the centerline of the tread.

Recommended inflation pressure:

This is the inflation pressure provided by the vehicle manufacturer on the Tire Information label and on the Certification / VIN tag.

Reinforced tire: A tire designed to operate at higher loads and at higher inflation pressures than the corresponding standard tire.

Rim:

A metal support for a tire or a tire and tube assembly upon which the tire beads are seated.

Rim diameter:

This means the nominal diameter of the bead seat.

Rim size designation:

This means the rim diameter and width.

Rim type designation:

This means the industry of manufacturer's designation for a rim by style or code.

Rim width:

This means the nominal distance between rim flanges.

Section width:

The linear distance between the exteriors of the sidewalls of an inflated tire, excluding elevations due to labeling, decoration, or protective bands.

Sidewall:

The portion of a tire between the tread and bead.

Sidewall separation:

The parting of the rubber compound from the cord material in the sidewall.

Special Trailer (ST) tire:

The "ST" is an indication the tire is for trailer use only.

Test rim:

The rim on which a tire is fitted for testing, and may be any rim listed as appropriate for use with that tire.

Tread:

That portion of a tire that comes into contact with the road.

Tread rib:

A tread section running circumferentially around a tire.

Tread separation:

Pulling away of the tread from the tire carcass.

Tread wear indicators (TWI): The projections within the principal grooves designed to give a visual indication of the degrees of wear of the tread.

Vehicle capacity weight:

The rated cargo and luggage load plus 68 kilograms (150 lbs.) times the vehicle's designated seating capacity.

Vehicle maximum load on the tire:

The load on an individual tire that is determined by distributing to each axle its share of the maximum loaded vehicle weight and dividing by two.

Vehicle normal load on the tire:

The load on an individual tire that is determined by distributing to each axle its share of the curb weight, accessory weight, and normal occupant weight (distributed in accordance with Table I of CRF 49 571.110) and dividing by 2.

Weather side:

The surface area of the rim not covered by the inflated tire.

Wheel center member:

In the case of a non-pneumatic tire assembly incorporating a wheel, a mechanical device which attaches, either integrally or separately, to the non-pneumatic rim and provides the connection between the non-pneumatic rim and the vehicle; or, in the case of a non-pneumatic tire assembly not incorporating a wheel, a mechanical device which attaches, either integrally or separately, to the non-pneumatic tire and provides the connection between tire and the vehicle.

Wheel-holding fixture:

The fixture used to hold the wheel and tire assembly securely during testing.

1.4. TIRE SAFETY - EVERYTHING RIDES ON IT

The National Traffic Safety Administration (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 (not carrying more weight in your vehicle than your tires or vehicle can safely handle), 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, and increase the life of your tires.

This booklet 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.

1.5. SAFETY FIRST–BASIC TIRE MAINTENANCE

Properly maintained tires improve the steering, stopping, traction, and load-carrying capability of your vehicle. Underinflated 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.

1.5.1. FINDING YOUR VEHICLE'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 vehicle is designed to carry)
- Front and rear gross axle weight ratings (GAWR– the maximum weight the axle systems are designed to carry).

Both placards and certification labels are permanently attached to the trailer near the left front.

1.5.2. 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 vehicle. 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 vehicle information placard expressed in kilopascals (kpa), which is the metric measure used internationally.)

Manufacturers of passenger vehicles and light trucks determine this number based on the vehicle's design load limit, that is, the greatest amount of weight a vehicle can safely carry and the vehicle's tire size. The proper tire pressure for your vehicle is referred to as the "recommended cold inflation pressure." (As you will read below, it is difficult to obtain the recommended tire pressure if your tires are not cold.) Because by design tires can 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.

1.5.3. 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.

1.5.3. 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 the 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 underinflated.

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 underinflated, fill it to the recommended cold inflation pressure indicated on your vehicle's tire information placard or certification label. While your tire may still be slightly underinflated 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 underinflated tire. Since this is a temporary fix, don't forget to recheck and adjust the tire's pressure when you can obtain a cold reading.

1.5.4. TIRE SIZE

To maintain tire safety, purchase new tires that are the same size as the vehicle's original tires or another size recommended by the 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 the tire dealer.

1.5.5. TIRE TREAD

The tire tread provides the gripping action and traction that prevent your vehicle from slipping or 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 for checking tread depth is to place a penny in the tread with Lincoln's head upside down and facing you. If you can see the top of Lincoln's head, you are ready for new tires.

1.5.6. 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.

1.5.7. TIRE REPAIR

The proper repair of a punctured tire requires a plug for the hole and a patch for the area inside the tire that 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.

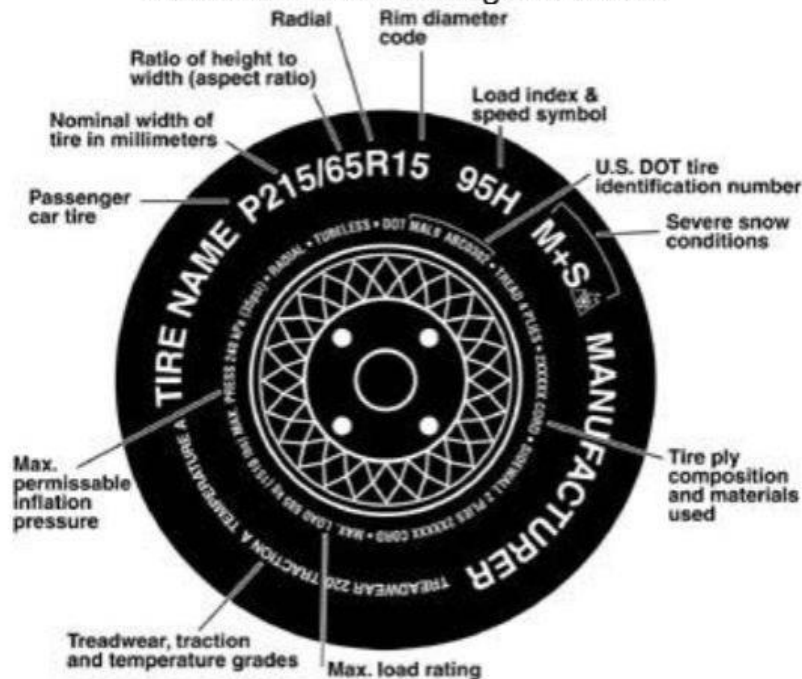
1.5.8. TIRE FUNDAMENTALS

Federal law requires tire manufacturers to place standardized information on the sidewall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a tire identification number for safety standard certification and in case of a recall.

1.5.9.1. Information on Passenger Vehicle Tires

Please refer to the diagram on the next page:

Please refer to the diagram below.



P

The "P" indicates the tire is for passenger vehicles.

Next number

This three-digit number gives the width in millimeters of the tire from sidewall edge to sidewall edge. In general, the larger this number is, the wider the tire.

Next number This two-digit number, known as the aspect ratio, gives the tire's ratio of height to width. Numbers of 70 or lower indicate a short sidewall for improved steering response and better overall handling on dry pavement.

R

The "R" stands for radial. Radial ply construction of tires has been the industry standard for the past 20 years.

Next number

This two-digit number is the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

Next number

This two- or three-digit number is the tire's load index. It is a measurement of how much weight each tire can support. You may find this information in your owner's manual. If not, contact a local tire dealer. Note: You may not find this information on all tires because law does not require it.

M+S

The "M+S" or "M/S" indicates that the tire has some mud and snow capability. Most radial tires have these markings; hence, they have some mud and snow capability.

Speed Rating

The speed rating denotes the intended speed at which a tire is designed for extended periods of driving. The ratings range from 99 miles per hour (mph) to 186 mph. These ratings are listed below. Note: You may not find this information on all tires because law does not require it.

Tire Safety Inform

<u>Letter Rating</u>	<u>Speed Rating</u>
Q	99 mph
R	106 mph
S	112 mph
T	118 mph
U	124 mph
H	130 mph
V	149 mph
W	168* mph
Y	186* mph

* For tires with a maximum speed capability over 149 mph, tire manufacturers sometimes use the letters ZR. For those with a maximum speed capability over 186 mph, tire manufacturers always use the letters ZR.

U.S. DOT Tire Identification Number

This begins with the letters "DOT" and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code where it was manufactured, and the last four numbers represent the week and year the tire was built. For example, the numbers 3197 means the 31st week of

1997. The other numbers are marketing codes used at the manufacturer's discretion. This information is used to contact consumers if a tire defect requires a recall.

Tire Ply Composition and Materials Used

The number of plies indicates the number of layers of rubber-coated fabric in the tire. In general, the greater the number of plies, the more weight a tire can support. Tire manufacturers also must indicate the materials in the tire, which include steel, nylon, polyester, and others.

Maximum Load Rating

This number indicates the maximum load in kilograms and pounds that can be carried by the tire.

Maximum Permissible Inflation Pressure

This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

1.5.9.2. UTQGS Information

Tread wear Number

This number indicates the tire's wear rate. The higher the tread wear number is, the longer it should take for the tread to wear down. For example, a tire graded 400 should last twice as long as a tire graded 200.

Traction Letter

This letter indicates a tire's ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as "AA", "A", "B", and "C".

Temperature Letter

This letter indicates a tire's resistance to heat. The temperature grade is for a tire that is inflated properly and not overloaded. Excessive speed, under inflation or excessive loading, either separately or in combination, can cause heat build-up and possible tire failure. From highest to lowest, a tire's resistance to heat is graded as "A", "B", or "C".

Max. Load Single kg (lbs.) at kPa (psi) Cold

This information indicates the maximum load and tire pressure when the tire is used as a single.

Load Range

This information identifies the tire's load-carrying capabilities and its inflation limits.

1.6. TIRE SAFETY TIPS Preventing Tire Damage

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

Tire Safety Checklist

- Check your tire pressure regularly (at least once a month), including the spare.
- Inspect tires for uneven wear patterns on the tread, cracks, foreign objects, or other signs of wear or trauma.
- Remove bits of glass and foreign objects wedged in the tread.
- Make sure your tire valves have valve caps.
- Check your tire pressure before going on a long trip.
- Do not overload your vehicle. Check the Tire Information and Loading Placard or User's Manual for the maximum recommended load for the vehicle.

CHECK LIST – FOR SET UP

1. Lower electronic tongue jack, chalk tires and disconnect safety cables.
2. Unlock trailer coupler from hitch ball.
3. Level trailer front to back, utilizing electric leveling jacks.
4. Pull out aluminum double step.
5. Make sure all appliances are in the off position.
6. Open propane tanks.
7. Plug in trailer's 120-volt power cord to correct 30 amps, 120-volt source.
8. Hook up sewer (black) and gray water drain hose. Keep black tank valve closed.
9. Make sure water heater is full of water; turn on self-igniting hot water heater.
10. Make sure appliances are turned on to their proper energy source.
11. Extend and secure awning.

Oliver Travel Trailers, Inc. is furnishing you with this guideline to assist you through your travels. If further assistance is needed, please contact our service department during our normal business hours at (888) 526-3978.

CHECK LIST – FOR TRAVEL

1. Are all interior drawers and doors closed and secured?
2. Are all windows closed and blinds down?
3. Is the microwave glass plate secure?
4. Are roof vents closed?
5. Are all stabilizer jacks retracted?
6. Is power cord disconnected and stored?
7. Is shower drain shutoff valve inside bathroom at toilet base closed?
8. Are propane tanks shut off and fiberglass tank enclosure secured properly?
9. Is awning secured tightly in casing?
10. Is trailer coupler secured to hitch ball and locked and hitch pin secure?
11. Is trailer plug secured to vehicle plug?
12. Is the flexible waste line secured behind the rear bumper and is the cap put on?
13. Is refrigerator on 12-volt power and 12 volt lights off?
14. Is door closed securely and locked?

15. Are the steps up?
16. Are safety cables secured?
17. Is outside TV cable disconnected and stowed?
18. Do all lights check okay – running lights, turn signals, and brakes?
19. Are all lug nuts tight?
20. Do tires have correct pressure?

Oliver Travel Trailers, inc. is furnishing you with this guideline to assist you through your travels. If further assistance is needed, please contact our service department at the number listed above during our normal business hours.

OPERATIONS AND PROCEDURES

Proper Loading and Weight Distribution

Your recreational vehicle has been designed to carry loads within specified limits. Exceeding these limits will greatly affect the handling of the recreational vehicle. These limits are defined in two ways.

DO NOT assume that you can fill all tanks and all storage areas and be within the GVWR. Weights of stored items will vary greatly and will affect total weight of your Oliver Travel Trailer.

Always weigh the Oliver at a certified weigh station equipped with platform scales. Check the telephone directory or with local authorities for the location of weigh stations in your area. If you find that you have exceeded the GVWR of the Oliver, you will have to remove items until you are within specified limits.

TRAVEL SUGGESTIONS

It is a good idea to empty the holding tanks before leaving on a trip and as often as possible when traveling, to help keep weight within acceptable limits. A gallon of water weighs about 8 pounds and a full tank weighs about 260 pounds. Try to carry only as much water as you will use when traveling.

It is also important to keep in mind, when traveling, that all items stored inside and outside the Oliver are secure, and all doors and drawers are secure. DO NOT add any type of rack or frame to the Oliver frame or

chassis. The alteration may result in unstable handling, be a safety hazard, could damage the Oliver Trailer, and void your warranties. In any case, the Oliver warranty will be affected.

Once you become familiar with loading your trailer, how to distribute the weight, and which items you normally carry, make a list and diagram you can use for future reference. Plan your loading and storage so that emergency items are easily accessed. Place heavier or breakable items on the travel trailer floor and lowest storage compartments for greater load stability. Make sure these items are well packed and secured to prevent movement. Take extra care not to overload the front and rear ends of the trailer. Place any light items in the upper cabinets.

Make sure to use packing material around breakable items such as plates and glasses in the cupboards if you will be towing over rough roads or terrain. It is a good idea to use non-skid materials under heavier items to help prevent shifting.

Most new trailer owners tend to carry more supplies than they really need. It is important to remember that each item added brings with it extra weight to tow and distribute.

TOWING VEHICLE REQUIREMENTS

When considering a towing vehicle, keep in mind certain requirements for safety and easy use:

Transmission – The transmission can be manual or automatic, but for most people, an automatic transmission will control engine loads better.

Power – Make sure your towing vehicle has adequate power to tow your travel trailer on the type of roads you will be using. Factors considered are engine power, cooling capability, and axle ratio. Discuss the towing capabilities of your vehicle with your tow vehicle dealer.

Tires & Suspension – It is important to make sure that your tow vehicle tires and suspension have a sufficient rating to handle the additional capacity needed to tow a trailer. Check with your tow vehicle dealer and owners manual for what type of tires and tire pressures are required. If your tow vehicle is equipped with air shocks as a load-leveling device, level the tow vehicle/travel trailer combination once it is hitched up.

Hitch – Make sure that your towing vehicle is equipped with a minimum of a Class III Hitch for a 17-foot trailer.

HITCHING

▲ AN IMPROPERLY COUPLED TRAILER CAN RESULT IN DEATH OR SERIOUS INJURY.

USE OF A TOW VEHICLE WITH A TOWING CAPACITY LESS THAN THE LOAD RATING OF THE TRAILER CAN RESULT IN LOSS OF CONTROL, AND MAY LEAD TO DEATH OR SERIOUS INJURY. Be sure your hitch and tow vehicle are rated for the Gross Vehicle Weight Rating (GVWR) of your trailer. Be sure the hitch load rating is equal to or greater than the load rating of your coupler. Make sure the hitch size is the same as the coupler size (2"ball). Replace worn, corroded or cracked hitch components before coupling the trailer to the tow vehicle. Make sure all hitch components are tight before coupling the trailer to the tow vehicle.

The 18.5' Oliver Travel Trailer is equipped with a Class III Bulldog Steel Coupler, rated at 5000 lbs. GVWR. The 18.5' model has a 4500 lb. maximum load rating (GVWR.)

The 23.5' Oliver Travel Trailer is equipped with a Class III Bulldog Steel Coupler, rated at 7000 lbs. GVWR. The 23.5' model has a 6500 lb. maximum load rating (GVWR.)

Tongue weight can play an important part in handling and control.

WARNING Always test drive your hitched tow vehicle after making changes to tongue weight, and do not attempt to adjust hitch with any weight on tongue!!!

▲ WARNING

THE PROPER SELECTION AND CONDITION OF THE COUPLER AND HITCH IS ESSENTIAL TO THE SAFE TOWING OF YOUR TRAILER, A LOSS OF COUPLING MAY RESULT IN DEATH OR SERIOUS INJURY.

Hitching a Travel Trailer

1. Raise trailer tongue (electric tongue jack) until the hitch coupler is high enough to clear the ball hitch.
2. Back the tow vehicle up to the trailer until the hitch ball is directly under the coupler on the trailer.
3. Set the parking brakes, open the locking collar on the coupler and lower it down on the ball.
4. Move the locking collar forward to lock in on the ball.
5. Insert a locking pin through the coupler lever and the bracket holes.

(To open, remove locking pin and firmly lift up and pull back on handle of retaining sleeve, the coupler will automatically disengage from ball and remain locked in open position.)

Safety Cables

After you have the travel trailer coupler properly attached to the hitch ball, the safety cables must be attached. To do so:

6. Cross the safety cables under the tongue and hitch.
7. Attach the hooks to the attachment loops provided on the tow bar portion of the hitch or to the vehicle frame, do not fasten to any part of the hitch unless the hitch has holes or loops specifically for that purpose.

▲ IMPROPER RIGGING OF THE SAFETY CABLES CAN RESULT IN LOSS OF CONTROL OF THE TRAILER AND TOW VEHICLE, LEADING TO DEATH OR SERIOUS INJURY. DO NOT ATTEMPT TO REPAIR A DAMAGED CABLE. IF THE SAFETY CABLE HAS BEEN DAMAGED IT MUST BE REPLACED.

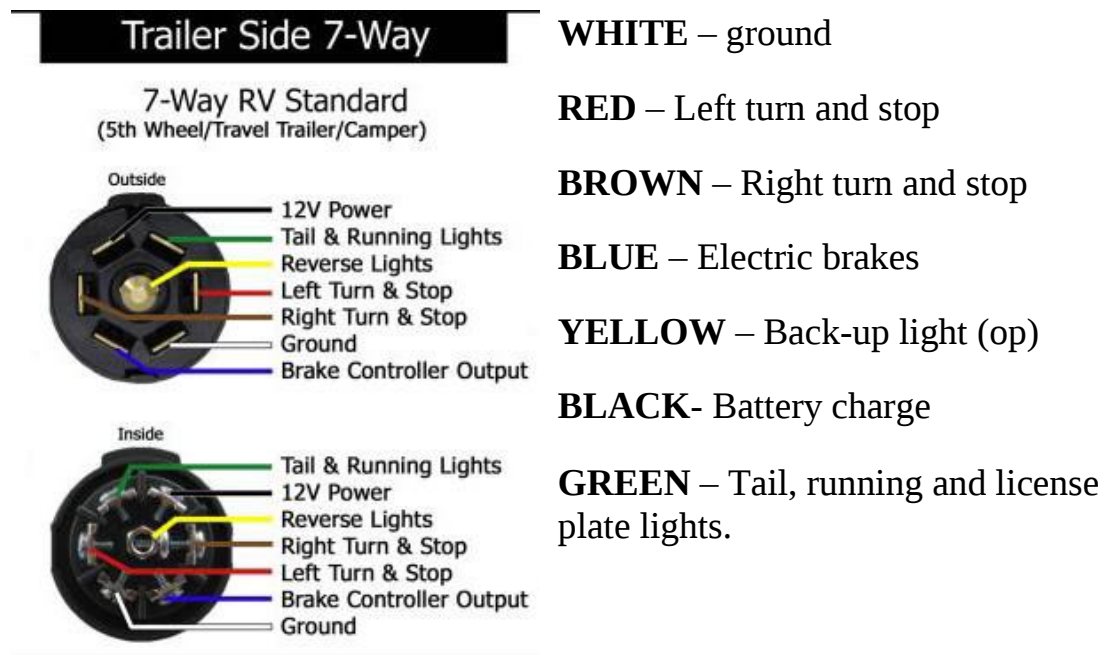
Breakaway Switch

This switch is designed to engage the trailer's brakes if the trailer were to become disconnected from the tow vehicle. Always be sure to connect the breakaway cable to the tow vehicle when hooking up!

Tow Vehicle Wiring

It also is necessary to install a proper electrical connection from the tow vehicle to your travel trailer. A car end pigtail has leads of adequate length to allow connection to your tow vehicle wiring system. Make sure that you use wiring of the correct gauge with sufficient slack between the travel trailer and tow vehicle to allow for turning without dragging on the ground. Have your tow vehicle dealer and/or hitch installer assist you with the installation.

The wiring color code for connection of the trailer to the tow vehicle is as follows:



Although your travel trailer has been checked at the factory, we recommend that you visually check to see that all lights are functioning properly before using the trailer.

Electrical hook-up

Plug the travel electrical pigtail into the socket located on the tow vehicle. Be sure there is enough slack to prevent disconnection during a full 90 degree turn.

Brake Shoe Adjustment

Refer to Electric Brake and Axle manufacturer The manufacturer of the brakes, axles, hubs and drums has an extensive manual. Please refer to this manual for information of any of these items.

Electronic Break Controller Adjustment

Refer to manufacturer

▲ DO NOT TRANSPORT PEOPLE OR PETS INSIDE THE TRAILERS. THE TRANSPORT OF PEOPLE, PUTS THEIR LIVES AT RISK AND MAY BE ILLEGAL.

▲ OVERLOADED TRAILERS CAN RESULT IN A LOSS OF CONTROL OF THE VEHICLE. THIS COULD LEAD TO DEATH OR SERIOUS INJURY.

▲ DO NOT EXCEED THE TRAILER'S GROSS VEHICLE WEIGHT (GVWR) OR AN AXLE'S GROSS AXLE WEIGHT RATING (GAWR).

Proper weight and load distribution is absolutely essential to safe towing. Common recommendations place approximately 10% to 15% of loaded weight on a travel trailer hitch. Too much or too little weight on the hitch leads to dangerous driving conditions such as sway and reduced tow vehicle control. Do not exceed the GVWR OR GAWR posted load weights.

3000 lb Electronic Tongue Jack- Refer to manufacturers manual

Located at the front of the frame of the trailer. The activation switch is situated below a 3-way float level and next to a nightlight (which illuminates the hitch work area). With the attached footplate, this jack can raise and lower the front of the trailer for hitching and unhitching on the 2" ball. It also is used in conjunction with the two rear 2500 lb electric stabilizing jacks to level the trailer from front to back, and side-to-side, when the trailer is unhitched. Basic maintenance consists of keeping it clean and lubricating it once a year. Refer to the manufacturer instructions for details.

The left and right rear stabilizing jacks are operated from switches mounted up front of the propane housing near the front jack. They can also be operated manually with a hand crank from within.

To operate, hold the switch in the position you wish to move the jack; either up or down. When released, the switch will automatically return to its center position, off position. It may be necessary to use the Emergency Hand Crank Handle if loss of power occurs. If power has been lost, check the 30 amp slow blow in line fuse near the jack in the yellow capsule, which is usually the problem. Be sure to replace it with only the same size amp fuse.

DRIVING TIPS

General

Get to know how your tow vehicle handles with the added weight of your RV. The brakes and steering operation will be different. Before leaving on a trip practice making right and left turns, braking, backing up and accelerating. Below are tips to help you in your driving.

Clearance

Watch out for overhanging tree branches, awnings, or similar obstructions that can damage your vehicle's roof or equipment or accessories mounted on the roof.

Turning

Generally the wheels of your Travel Trailer are set wider than those of your tow vehicle. To avoid hitting curves or other vehicles, pull several feet farther ahead before turning to allow for this extra width and the length of your Travel Trailer. Left turns require a wider than normal swing into the new lane of traffic to keep the trailer from encroaching into the opposing lane. Use turn signals early to communicate to traffic behind and slow down well in advance of any turn.

Passing

Avoid sudden maneuvers when passing a slower moving vehicle. Remember that additional time and distance are required to pass safely. Wait until the road is clear of oncoming traffic. Check the outside rearview mirrors and signal lane change before passing. When you have safe clearance, signal lane change and return to your original lane.

Braking

Allow a safe distance to stop; follow no closer than one combined tow vehicle – RV length for each 10 mph. Pump the brake pedal lightly to stop on wet or icy roads. If you start to slide, turn the steering wheel in the direction of the slide. **DO NOT** stomp the brake pedal!! A panic stop may increase the slide and could cause your unit to jackknife.

Backing

When backing your RV, place your right or left hand at the bottom of the steering wheel. To move your trailer to the left, move your hand to the left; to move the trailer to the right, move your hand to the right. If the trailer starts to jackknife, stop, pull forward and start again.

Downgrades

Reduce speed and shift the transmission to a lower gear to assist in braking on long or steep downgrades. Avoid situations that require excessive and prolonged use of the brakes. Apply and release brakes at short intervals to give them time to cool.

Upgrades

Reduce speed to 45 M.P.H. or less when climbing a steep upgrade. Shift the transmission to a lower gear to avoid engine overheating.

Parking on an upgrade

Parking vehicles on an upgrade is not recommended. If it is necessary, apply the brakes and have a passenger place wheel chocks behind the tires of your RV. When they are in place, slowly release brakes until chocks stop unit. Apply parking brake and place transmission in park position (place in first gear for manual shift vehicles).

Leveling Trailer

WARNING!!! DO NOT use the rear stabilizing jacks to level the trailer on any surface that is uneven and causes the wheels to be off the ground. The jacks are made to level trailer and provide stability on level ground.

Changing Tire

Turn on tow vehicle hazard warning flashers. Set emergency break. If close to moving vehicles, set up flares or warning lights. Chock opposite tire and leave trailer hitched to tow vehicle. Set main tongue jack to stabilize front end.

Remove Spare Tire

The spare tire is located behind the custom formed fiberglass spare tire shell. Removing it takes a couple of steps:

1. Flip down license plate holder to access wing nut.
2. Remove wing nut.
3. Now pull tire cover off and rest it on the ground.
4. Disconnect wiring for license plate light.
5. Remove the retainer ring holding spare tire in place.
6. Remove tire.

Loosen the lug nuts on the tire you want to remove. Check for a stable footing under the jack and place an ABS footing pad or block of wood about 4" in height below the jack foot plate. Raise the jack until the tire clears the ground, then finish loosening and removing them. Pull off the old tire, slide the hubcap out backwards and insert it on spare. Set spare tire evenly on the lug nuts and hand tighten lug nuts. Retract jack back to travel position. Now tighten lug nuts completely. Lug nuts should be torqued to 90 ft. lbs. Place the flat tire in the spare location. With some units that have the larger tires you will not be able to put the cover back over the tire if you put it on the rear. Retract other support jacks completely. Have the damaged tire checked and repaired or replaced. Be sure to have lug nuts re-torqued within 50 miles since they may loosen.

▲ WARNING: FAILURE TO RE-TIGHTEN WHEEL NUTS AS REQUIRED COULD ALLOW WHEELS TO COME OFF WHILE THE VEHICLE IS IN MOTION, CAUSING LOSS OF CONTROL, POSSIBLE COLLISION, SERIOUS INJURY OR EVEN DEATH!

LIVING AREA

Overhead Vents

The vents circulate fresh air and exhaust odor.

Bathroom Vent – The bathroom vent has a switch to operate the exhaust fan. Push out or pull in on the grab handle to open and close the vent cover. Make sure to turn off the fan before closing the vent. Also be sure to remove any debris that falls into the vent that restricts its operation.

Roof Vent – A main cabin vent is standard with your Oliver and can be controlled using the provided remote control or control panel on the fan itself. To operate this, refer to the vent manufacturer's owner's manual.

Entry Door

The entry doors consist of both the exterior door and the screen door. The screen door is used for ventilation when the Oliver is parked. Always use the door retainer latch if you want to leave the door open. Failure to do so may result in damage to door.

DO NOT attempt to drive or pull the Oliver with the doors open. DO NOT drive or pull the Oliver with the outer door open and the screen door closed. The doors may be damaged and it is a safety hazard.

Aluminum Entry Step

A two step entry system is provided as standard equipment on all Oliver Travel Trailers. Lift up on the steps and pull forward, then fold out the bottom step. The steps are held in place by a detent on each side. To retract the steps, fold the bottom step and lift the steps out of the detent and push them back to the original stored position. Make sure that the steps are secure in the retracted position before moving the Oliver Travel Trailer.

Make sure to keep fingers away from the sliding mechanism when extending or retracting the steps. Use extra caution if exiting or entering the Oliver without the use of the step.

Side and Rear Table

Your table is the pedestal type. To set up table, install table leg into base

location on the floor. Lower table and line up table leg with base on bottom of table and support brackets along inner wall. Twist support ring at leg base 1/4 turn to lock table leg.

Note: The recess ledge over the rear table is also used for coffee table/end table when the bed is in use.

Making Beds

Rotate support ring clockwise 1/4 turn. Lift table straight up, away from sidewall support brackets. Remove table leg from base in floor. Remove leg from base on table. Set table on the back rest cushions to the center and arrange to make mattress. Store table leg under table on floor or in the closet.

Repeat procedure above for rear bed and include the extension for bed mode.

LP GAS SYSTEM

READ ALL MANUFACTURER APPLIANCE LITERATURE, INCLUDING THE INFORMATION ON THE LP BOTTLES AND REGULATOR, PROVIDED WITHIN THE UNIT PACKET AND FOLLOW ANY INSTRUCTIONS. – REFER TO MANUFACTURERS MANUAL. FAILURE TO COMPLY COULD RESULT IN DEATH OR SERIOUS INJURY.

Filling the LP Gas Tank

Refer to manual

LP Gas Regulator

Refer to manual

LP Gas Detector

Refer to manual

Hoses, Pipes, Tubes and Fittings

The hoses, pipes, tubes and fittings used in your LP system are designed to withstand pressures far exceeding those of the LP system. However, because

environment and time can contribute to the deterioration of these components, they must be inspected for wear at regular intervals. Be sure to inspect the hose before each Season, and when having the tank refilled. Look for signs of deterioration such as cracks or loss of flexibility. When replacing the hose or other LP components, make sure to always replace them with components of the same type and rating.

Road vibration can loosen LP gas fittings. It is important to check your LP system for leaks at least every 5000 miles and whenever the tank is filled. It is also a good idea to have your entire LP gas system checked annually by a qualified LP gas service representative.

ELECTRICAL GENERAL INFORMATION

The 30-amp electrical power supply provided for the Oliver is a dual system, operating with 120 volt AC and/or 12 volt DC. A Power Control Center Breaker Box and a Marine Grade Master Switch Command Station safeguard the electric system.

AC power is provided by either connecting the Oliver to an outside power source when parked, through use of your 30 amp Cord Reel, adding an inverter option or by use of a generator.

Under normal loads a 2000-watt unit is sufficient. When the 120-volt system is operational, power also passes through a system converter, allowing the full use of all 12- volt functions in the Oliver. (2000 watt generator may not operate A/C unit).

120-volt functions in the Oliver include the refrigerator, air conditioner, convection/microwave oven and the Suburban 3-way Self-Igniting Hot Water Heater.

Satellite TV and 3 GFI protected 110-volt outlets. All other electrical functions in the Oliver are supplied with the 12-volt power.

When it is not possible to access 120-volt power, the auxiliary battery(s) can supply the 12-volt system functions. The auxiliary battery(s) is rechargeable by power converter/battery charger when the Oliver is attached to an outside 120-volt power source, the connection from your tow vehicle, or by use of an external generator.

Connecting to an Outside Power Source

30 amp services are a 120-volt limited to a total draw of 30 amps. The power cord from the RV is three pronged. 30-amp service is the most common in the RV industry and used widely in campgrounds through the U.S. Even though any appliance in the RV can operate by itself, due to the 30 amp limitations, you may not be able to run certain groups of appliances at the same time (especially starting them at the same time). For instance, most air conditioners will draw up to 16 amps at start up and then run continuously around 11 amps. A microwave or convection oven may pull as little as 11 amps or as much as 18. Doing both simultaneously may overload the circuit, causing a breaker to blow.

(See chart below for typical amperage draw on common appliances)

A 30 Amp shoreline power cord is provided to attach the Oliver to a grounded power source. The electric utility service connection is located on the driver's side of the Oliver near the front. The 25 foot power cord is stored inside the unit.

NEVER use a two-wire extension cord or a cheater adapter with the ground pin removed or put a lower amperage plug on your power cord in place of the molded plug.

12-Volt Battery

The heart of the 12 Volt System is the battery. Batteries are essentially storage devices for electrical energy. Most batteries used in RV's are RV/Marine Deep Cycle, Lead-Acid types. These batteries contain lead plates and liquid sulfuric acid electrolytes in sections called cells.

Battery Storage Tray

The battery is located inside a custom enclosed slide-out battery storage tray at the center of the trailer on the driver's side. It is designed to smoothly move one to four batteries, making service or replacement a breeze. It is accessed through a drop down service door.

NOTE: Differing loads affect the ampere-hour rating of a battery. In normal use, loads vary in both amperage and the length of time they are applied, so these figures should be considered a guide rather than an accurate representation. Ampere-hour ratings vary depending on the size of battery

the manufacturer and method used to calculate the rating.

When ampere-hour ratings are known, they can be used to determine how many and what size batteries you need for your RV.

Typical Amperage Draws of Common RV Equipment

Light Emitting Diode (LED) lights type	0.25-1.0
Incandescent light, single socket, type 1141 bulb	1.5
Incandescent light, double socket type 1141 bulb	2.5
Water pump	4.0-8.0
Forced air furnace (fan and igniter)	4.0-8.0
Roof vent fan, 3-speed (depending on brand and speed)	1.5-6.0
Bathroom vent fan	2.0 High
volume exhaust fan (100 CFM)	1.5
Refrigerator, 3-way on 12 volt setting	15.0
TV, AC/DC 9-inch color on DC	3.0-4.0
TV, AC/DC 5-inch, black and white on DC	1.0-1.5
14-inch Flat Panel LCD display monitor	*
Audio/Video component DVD/MP3, CD, AM/FM player	1.7-6.0
Equalizer/amplifier on a stereo/cassette player	1.0-2.0
Satellite Direct TV Receiver DC-12 volt	*
CB radio, receive only mode	0.5
Video cassette player, 12 volt	1.0

BATTERY SAFETY

ALWAYS SHIELD YOUR EYES WHEN
WORKING NEAR BATTERIES

▲ WARNING Batteries can explode!! Do not smoke or expose any battery to electric sparks or flame. Batteries generate hydrogen when charging or discharging. Hydrogen and air are a very explosive mixture. Do not short across the battery terminals. The sparks could ignite the gases. Do not wear metal jewelry or a watch when working on a battery. Before doing any work on the electrical system, disconnect battery cable and 12 volt power cord. Do not reconnect the cables until all work has been completed. This will avoid the possibility of shorting or causing damage to electrical components or shock to the servicing person. Battery electrolyte is corrosive, poisonous and contains sulfuric acid. Avoid contact with skin, eyes, clothing or any painted surface.

Power converter

Refer to manufactures manual

Battery Charging

The converter also operates as a battery charger when it is connected to a 120-volt power source. If the battery is below its full charge, the converter charger will begin operation at a rate that reflects the level of discharge. When the battery is again fully charged the converter charger drops its charging level back to a maintenance level to keep the battery fully charged.

Circuit Breakers

The 120 Volt System is protected by circuit breakers in our Power Control Center, which automatically shuts the circuit off if the circuit load is too heavy or a short circuit occurs. If a circuit breaker has been tripped, do not reset the breaker until the cause of the problem is identified and corrected. Verify that the 120 volt outlet on the side of the sink and stove cabinet is a GFI outlet. In the event the outlet is tripped, it has to be reset by pushing the “reset” button on the 120 Volt outlet.

12-Volt Fuses

A 12-volt DC distribution panel is also a part of our Power Control Center. The panel contains circuits with replaceable fuses for protection of 12-volt lines. If any line is loaded beyond the capacity of its fuse, the fuse will blow. A portion of the 12-volt on the line must be turned off to reduce the total load on the line to a level below the capacity of the fuse. Replace the fuse with the same size fuse. Do not replace with larger fuse than indicated.

If this reduction of load on the line does not stop the blowing of fuses, there may be a short somewhere along the 12-volt line, or at a non-fused 12-volt component on the line. Check the 12-volt line and any component along the line. Locate the short and take necessary steps to repair it. If you cannot locate the problem have a qualified electrician check it out.

It is a good idea to keep additional fuses on hand in your travel trailer. Replacement fuses are available at service stations, hardware stores, or automotive supply stores. Remember that the replacement fuse must be the same amperage rating as the original.

WATER AND DRAINAGE

General Information:

Your new Oliver plumbing system has the dual ability to be self-contained with on board storage, complimented by a digital holding tank monitoring system, or to use facilities provided by an external pressurized source. In either case, the components of the system operate like those in your home. Components of the plumbing system consist of strong, lightweight, corrosion resistant materials. By following the instructions outlined here, you can expect efficient operation with minimum maintenance.

Oliver's plumbing can be divided into two separate systems. The fresh water system consists of those items, which are used to deliver water for your use, while the waste water system is made up of the drains, and tanks that store and remove water that has been used.

Fresh Water System

Fresh water is provided from an external pressurized source or from the fresh water storage tank. The connection on the Oliver is located at the rear, bottom driver side corner of the trailer.

External Hookup

Water provided from outside the Oliver is pressurized by the system from which it is delivered. When you connect your Oliver to an outside source, the fresh water tank and the water pump are kept separate from the remainder of the system by in-line check valves.

To attach the Oliver to an outside source of water:

1. Remove the cap from the city water inlet on the side of the Oliver.
2. Attach a potable water hose to the outside source of water.
3. Attach one end of the fresh water hose to the outside source of water.
4. Connect the other end of the hose to the Oliver city water inlet.
5. Turn on the outside source of water. Open the various faucets gradually to clear the air from the lines. Close the faucets when the water flows freely.
6. Be sure water heater is full of water before turning on the hot water heater.

Do not turn the water pump on when using water from an external supply.

Monitor Panel

The monitor panel allows you to check the approximate liquid levels in the fresh water, gray and black holding tanks, along with the charge on the batteries. Refer to manufactures manual for further assistance.

Fresh Water Tank

When an outside source of water is unavailable, water can be drawn from the fresh water storage tank through the use of the 12-volt pump system. The tank is filled through a standard pressurized water hose connection located at the rear area next to the city water inlet. Standard capacity of the fresh water tank is 32.5 gallons.

To fill the fresh water tank:

1. Remove the cap from the fresh water inlet.
2. Attach a fresh water hose to an outside water source.
3. Attach the other end to the Oliver fresh water inlet.
4. Turn on water source; fill until water starts to run from the fresh water overflow, which is located on the opposite side, between the aluminum steps and the refrigerator vent.
5. When the tank is filled, replace the water cap.

Note: Always fill the tank with clean drinkable water from a known safe source. Make sure to cap the water inlet when the tank is filled. Also, always fill system with a hose that you know is clean and is used only for this purpose.

When traveling, you may want to drain the tank, or keep the quantity of water in it to a minimum. This reduces the total weight of the Oliver for travel. When draining the tank make sure that the water pump has been turned off. The fresh water tank drain valve is concealed beneath the rear passenger compartment. Turning the water valve 1/4 turn can drain water in the tank. The water will be released below the trailer near the rear bumper. Do not forget to close the valve after emptying the fresh water tank.

Water Pressure

Note: When trying to drain entire on-board fresh water system, make sure to open faucets and remove water heater drain plug. This will equalize the air pressure and allow free water flow.

Water Pump

When using water from the fresh water tank, the system must be pressurized. A self-priming 12-volt DC pump, is provided to handle this function. A pump on/off switch is located in the attic (Elite II) and under the sink (Elite).

When initially starting up the self contained water system:

1. Make sure the tank is filled with water.
2. Open all faucets in the Oliver both hot and cold.
3. Place the pump control switch in the ON position.
4. Allow time for the hot water tank to fill. Shut off each faucet as the flow becomes steady and free of air. When the last faucet is shut off, the pump should also shut off.
5. The system is now ready for use.

The self-contained water system is a demand system. This means that the water pump will run whenever there is a need for water.

FRESH WATER DEMAND SYSTEM

Sanitizing the Fresh Water System

Sanitize the system before initial use; after extended periods of non-use; at least once a year during continuous use; and whenever there is suspicion that the system has been contaminated.

1. Prepare a chlorine solution using a gallon of water and 1/4 cup of liquid household bleach (5% sodium hypochlorite solution). Use one gallon of solution for each 15 gallons of tank capacity.
2. Using the transfer hose supplied at the water pump and, turning the diverter valves to the correct position, pumps the solution into the fresh water tank.

3. Complete filling the tank with fresh water.
4. Switch on the water pump. Open all faucets one at a time until all air is purged and the water flows freely.
5. Again add fresh water to the tank until the water tank is full.
6. Allow the system to stand undisturbed for (at least three hours).
7. Drain the system by opening all faucets and the fresh water tank drain valve, while flushing the system with water of drinking quality.
8. Continue flushing the system, allowing the water to flow for several minutes.
9. Close the tank drain valve and faucets. Refill the system with water of known drinking quality.

Waste Water System

The waste water system in your Oliver can be described as two separate systems; a gray water system that consists of the drain lines and holding tank for waste water from the sinks and shower and a black water system which includes the holding tank and drain for toilet wastes. Each system is self-contained, and allows disposal of the wastewater at designated dump stations.

The gray water system has drain traps. Both tanks are vented to equalize air pressure and disperse odors caused by drain water and waste. Sometimes stop and go while driving may empty the drain traps of water and allow the odors of the gray water tank to come into the coach. Residue in the drain water lines also can produce odors. To combat gray water holding tank odor, an approved deodorizing agent should be used. An agent that dissolves grease and fats and contains a detergent will help keep tank and drain lines clean and free flowing.

Holding Tanks

The Oliver Travel Trailers holding tanks hold 35.5 gallons in the grey tank and 18.5 gallons in the black tank. Each tank has a separate drain line and dump valve, which permits dumping tanks individually. Each tank should be emptied often at a dump station designated for this purpose. Most national state and private campgrounds have dumping facilities. Many service stations, particularly along interstate highways, also have these facilities and list dumping station locations across the nation.

If possible, empty holding tanks before a trip to reduce the gross vehicle weight. Enough water should be kept in the black water tank to cover the bottom in order to prevent hardening of any residue that may remain.

Generally, the black water tank should not be dumped until it is 3/4 or fuller. This practice ensures that enough water is in the tank to help flush wastes into the sewer line. If possible, fill tank to the 3/4 mark with additional water before draining. Never put anything in the holding tanks other than the normal drain water, wastes and biodegradable products. Paper products, gum, cigarettes, etc., no matter how small they may be; should never be placed into either the gray or black tanks.

Dump Outlets

To Empty the Holding Tanks:

- Remove the two pins from sides of aluminum bumper, and pull the flexible sewer hose out.
- Remove the end cover from the flexible drain line and position over dump station inlet. Make sure drain line is securely attached. Both drain termination handles are located below the courtesy wash station, in the compartment (above the water inlets). All of which is within reach of the flexible hose.
- Drain the black water tank first, by pulling the termination valve handle toward you. Make sure to allow sufficient time for the tank to completely drain, and then rinse the tank with several gallons of water by depressing the stool flush pedal. Close the stool flush pedal and fill toilet with water then flush. This creates additional force to clean the tank more completely.
- Drain the gray water tank by pulling the termination valve handle toward you. Draining the gray water tank last, with its soapy water, helps to further rinse the drain and flexible drain hose.
- When tanks are emptied, close termination valves by pushing handles back to closed positions.
- Remove flexible drain hose from the dump station inlet, using the shower hose, rinse off the flexible drain line if needed, cap it and replace it in the storage behind the rear bumper. Secure the bumper and cap the dump station inlet.

Waste Handling

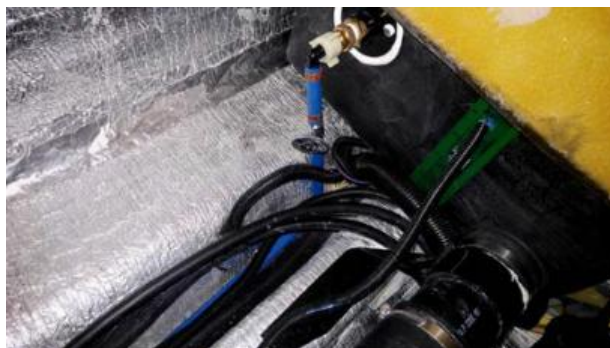
The following guidelines will help to ensure trouble free operation:

- Never put anything in the black water tank other than toilet paper, especially for RV systems.
- Do not put automotive antifreeze, household toilet cleaners or drain cleaners or any solid material into the waste water system.
- Always use chemicals in the black water system, using cleaners made for the RV systems.
- Always keep the drain cap in place and termination valves closed.
- After every third time the holding tanks are emptied, fill and flush both tanks with clean fresh water a couple times to keep them clean and clear.

If connecting to a campsite sewer inlet, DO NOT open termination valves until tanks are $\frac{3}{4}$ full. DO NOT keep black water valve open when parked. Solid wastes are not flushed directly into sewer system. Only liquid waste is drained. Water must accumulate and chemicals in tank need time to break down solids before they can be released. If draining gray water tank directly into sewer inlet while parked, make sure to close termination valve for a period of time before leaving, allowing some water to accumulate in tank to use for flushing drain line and flexible hose.

Black Tank Flush Port

Your Oliver comes standard with a black tank flush port on the street side near the bottom of the unit. This allows you to connect an outside water supply and rinse out your black tank. You will need to open the inlet valve located under the front dinette access panel. See picture below:



**WARNING: DO NOT OVERFILL TANK (18.5 GALLONS)!!!
DO NOT OPEN BLACK TANK DUMP VALVE UNTIL YOU
ARE READY TO DUMP!!!**

NOTE: Always remember to clean up the dumping site before leaving.
Never empty your holding tanks directly on the ground, a roadway, river or stream **DO NOT POLLUTE!!!!**

Termination Valve Maintenance

During the camping season, use a slide valve lubricant. Two to four ounces of this water soluble additive is poured down the drain into the gray tank and flushed down the toilet into the black tank to lubricate the inside of the dump valve blades and to coat the inside of the drains and tanks to aid in complete draining and trouble free valve operation. One of the most disagreeable RV repairs is replacing a stuck or broken dump valve with a full holding tank. RV technicians hate it and they get paid to do it. It is certainly no fun when it happens to you, miles from nowhere, in the middle of a vacation getaway. A little attention to the waste systems can avoid such scenarios.

Toilet

The marine style toilet installed in your Oliver is connected to the pressurized fresh water system. The toilet is equipped with a foot pedal located at the bottom front side of the toilet when facing it. To flush, step on the pedal and depress fully. To add water step on the pedal and hold it down half way until the desired level is reached.

Unnecessary frequent flushing of the toilet will quickly deplete your fresh water supply and fill your holding tank. If the black water tank becomes full, you will no longer be able to flush the stool until the tank can be drained.

Always use deodorizing agents specifically designed for use in holding tank systems and biodegradable toilet paper. Never use chlorine or caustic chemicals, such as drain cleaners or laundry bleach, in your system. They will damage your toilet seals. Never allow foreign objects (non-dissolving items) to be flushed down the toilet.

Don't allow a small problem to go unsolved. As soon as you detect a problem, take necessary steps to correct it. It is also a good idea to carry a few spare parts that will correct any small problem that might develop,

without unduly interrupting your trip.

Follow the toilet manufacturer's recommendations supplied with the toilet for cleaning and maintenance. If you have a toilet that differs from the description given here, make sure to follow the manufacturer's advice for operation.

SHOWERS AND CONTROLS

General

The shower/sink faucet is installed with a 4-foot flexible hose for showering and for cleaning the shower.

Care of Shower

From time to time you will want to remove soap film from the shower wall. Use any mild household foam cleaner. Never use harsh chemicals or abrasives on the shower walls or shower base. After taking your shower, leave the bath door open to allow the humidity and moist air to escape. Also leave the bath door open when the unit is not in use. This allows circulation of air and prevents mildew.

Water Systems Maintenance and Troubleshooting

Your plumbing may develop problems. Most of these problems can be greatly reduced, if not altogether eliminated, by following a schedule of planned inspections and maintenance. Neglect of proper maintenance procedures is the usual cause of most water system problems.

Road vibrations and excessive pressure from some city water sources are the main physical causes of water system damage. It is important to inspect all plumbing joints and fittings often for cracks and leaks. Water leaking from a plumbing joint can cause considerable damage if left unchecked.

There probably is a leak somewhere in the fresh water system if the pump is running and all the faucets and valves are closed. When the leaking fitting has been identified, attempt to stop the leak by tightening. DO NOT over tighten! Plastic fittings rarely need to be tightened with a wrench. If these fittings leak after tightening, disconnect the fitting and check for dirt, scale or other foreign substances that may be causing the leak. Clean the fitting thoroughly and reinstall. If leaking persists, shut off the water supply until

the fitting can be properly replaced. Check with Oliver Travel Trailers for correct method of replacement and replacement parts.

Proper winterization procedures of plumbing systems will normally be all that is necessary to prevent the damage caused by freezing. Freezing damage can harm any component of the system, including the water tanks, toilet, pump and all piping. Be sure to follow the winterization process outlined in the companion manual. Also be sure to discuss any additional precautions that should be taken to winterize your trailer's plumbing system with your dealer. Local climates vary and winter maintenance needs may be affected.

Be sure to read the literature supplied with plumbing components, such as the pump for troubleshooting tips. Also remember that it is possible for an electrical problem to cause water system problems. Lack of power to the pump can be caused by a variety of reasons. If you are unsure of how to locate and/or repair a plumbing problem, it is best to have your dealer or a qualified plumber handle the job.

Storage Preparation

When storing the recreational vehicle for the winter (or other extreme conditions), certain precautions need to be taken to protect it until you open it again for use. Make sure to talk with Oliver concerning any special requirements for storage in your particular geographic area. The following steps are general and Oliver can help you choose those that are most appropriate for your needs.

1. Make sure to park the recreational vehicle on a level surface.
2. Make sure to winterize the Oliver as outlined in the next few pages.
3. Clean the recreational vehicle thoroughly, both inside and out, as previously outlined, including the refrigerator.
4. Make sure all electrical switches and appliances are turned off.
5. Close all mini-blinds for protection of the trailer interior from UV sunlight.

6. Make sure all windows, doors, and vents are closed securely. Cover exterior vents on appliances to prevent moisture and insects from entering during storage.
7. Check the interior of the recreational vehicle periodically while in storage to make sure leaks have not developed or condensation formed that can damage interior components. Condensation can most readily be observed as moisture accumulation on windows and mirrors. To reduce condensation, make sure to occasionally air out the recreational vehicle during storage.
8. Make sure the tires are inflated to correct pressures.
9. If snow accumulates on the Travel Trailer, try to remove it as often as you can.

WINTERIZATION PROCESS

▲ DO NOT USE AUTOMOTIVE ANTI-FREEZE. AUTOMOTIVE ANTI-FREEZE IS POISONOUS AND NOT FOR USE IN POTABLE WATER SYSTEMS. ONLY USE ANTIFREEZE SUITABLE FOR DRINKING WATER SYSTEMS. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH!!!

If the Oliver is used in cold weather and left unheated for an extended period, the water in a tank or drain line may freeze. If this occurs you should take immediate steps to thaw it before damage to the system occurs. DO NOT continue to use water system components if such a condition exists. If damage has occurred, make sure to have it repaired before using again.

Before using the system again in warmer weather completely flush the system with water, flush the toilet and sanitize the entire fresh water system.

6) Drain the freshwater tank by opening the shut-off valve located in the rear curbside service access closest to the galley. (See figure 3 for correct valve positioning) Next, turn on the kitchen, bathroom, & outside wash station faucets to help decrease drain time & empty the hot & cold water lines.



Figure 3 Valve in Open Position

- 7) Once water stops flowing from the faucets, turn off the water pump at the switch under the pantry, turn off faucets, & close the freshwater tank drain valve.
- 8) Once the water within the water heater has cooled, locate the pressure release valve on the water heater panel located outside the travel trailer on the curb-side of the unit near the rear of the unit. Open the pressure release valve by lifting up on the lever. Finally, remove the drain plug located at the bottom of the panel with a 1 1/8" socket to drain the tank.



Figure 4 Pressure Release Valve and Drain Plug Locations

9} After the water heater has been completely drained, replace the steel plug and close the pressure release valve.

10} It is recommended that you use air to blow the remaining water from the lines. Insert air gun into the fresh fill and city connection inlet ports and blow out the lines.

11} Adjust the water pump valves in the curbside access compartment closest to the galley to the winterization configuration. (*See configuration on next page*)

12} Connect the hand pump to the city water inlet located on the driver's side rear of the unit. Put the loose end of the tube into a container of antifreeze. In order to ensure that antifreeze fills the city water line turn on the faucet in the outside wash station and then pump antifreeze into the line until the antifreeze flows from the faucet. Lastly, shutoff the faucet before proceeding to the next step.

13} Connect a hose that measures 3' or less to the inlet located at the lower rear of the unit and to the right of the bumper. On some models, the inlet is located in the far right side of the compartment behind the bumper. Next, stick the loose end of the hose into a container of RV antifreeze.

14} Turn on the water pump and then turn on the hot water at the faucet in the bathroom and leave it running until antifreeze flows from it. Repeat the process for the cold water lines. Note: if after a few minutes antifreeze doesn't flow from the faucets or toilet turn off the water pump to avoid damaging it.

15} Next, flush the toilet, releasing the pedal once antifreeze begins to flow into the toilet bowl. Leave some antifreeze in the bowl to keep the seal lubricated.

16} Repeat the procedures done in step 11 for the kitchen faucet and then for the faucet in the outside wash station in the rear driver's side compartment.

17} Pour 1 cup of RV antifreeze into the kitchen sink drain, the bathroom sink drain, and the shower drain.



Figure 6 Inlet Located to the right of the bumper

APPLIANCES

General Information

The following instructions are general in nature and may vary with the appliances in your Oliver. Each appliance should have an individual owner's manual and operating instructions supplied with the Oliver. Please refer to these manuals for more detailed instructions and information on the operation of your particular appliance.

The various appliances in your Oliver will provide home-like convenience while traveling. They have been designed and tested by the manufacturers and then again by Oliver.

The respective manufacturer warrants each appliance in the Oliver. Be aware that constant improvement in design of the Oliver may mean that an appliance in the Oliver may not yet be covered in this manual. It is extremely important that you review all the literature provided in the manufacturer's information package provided with your Oliver. Fill out and mail any warranty registration cards required by the appliance and report any missing literature at that time.

It is important that you carefully read all of the manufacturers information provided regarding both operation and maintenance of the appliances. Pay close attention to all safety precautions given and make sure to follow them.

Be sure to keep all literature including this manual with the Oliver for easy reference. If service any appliance is required contact Oliver or a service representative of the appliance manufacturer. Most appliance manufacturers have a toll free service telephone number for your convenience.

****Tutorial videos can be found online at www.olivertraveltrailers.com/travel---trailer---videos/***

CARE AND MAINTENANCE

The limited warranty and the limited warranties issued by component manufacturers require periodic service and maintenance and the owner's failure to provide this service and/or maintenance may result in loss of warranty coverage for that item. The owner should review Oliver Fiberglass Products (OFP) limited warranty and the limited warranty of all manufacturers of component parts of your Oliver.

Care and maintenance of the recreational vehicle is an important step in maintaining the safety, dependability and appearance of the unit. Keep good records of all maintenance performed since these may be necessary for warranty information or may assist in possible repairs needed.

Operational usage and climate may affect the frequency of necessary maintenance. Preventative maintenance is important to the life and enjoyment of any recreational vehicle. Many problems can be caught before they occur. Please do not hesitate to call your dealer with a question on maintenance or care of any items.

Always refer to the manufacturers recommendations located within the literature contained within the unit packet.

TV Antenna

Keep the antenna clean of bugs or dust. Wash it with a mild soap detergent. Never use an abrasive type cleaner on the finish. While traveling in heavily wooded areas watch for trees, limbs, etc., to be sure the antenna clears.

Fiberglass

Your Oliver Travel Trailer is composed of finished fiberglass in both inner and outer shells. It requires the same care as a fine automobiles' finish. Wash your Oliver at least once a month. Use warm water and a mild detergent to clean the finish. Take care to avoid spraying water directly into refrigerator, water heater and furnace vents when washing the Oliver. Remove bird and tree sap droppings, insects and tar as soon as possible to avoid staining of the finish.

Any finish will deteriorate with time. Dulling and fading can be increased by exposure to extreme sunlight, air pollutants, and excessive moisture. Surface

weathering of fiberglass does not change the strength of the fiberglass.
Regular washing and waxing of exterior surfaces is the best insurance against surface deterioration such as fading, yellowing or chalking.

Wax fiberglass surfaces at least once a year with standard liquid or paste wax. (In some areas it is best to wax twice a year). Make sure to follow the directions for use as outlined by the product manufacturer. Make sure to wash and wax your unit out of the hot sun and when exterior surfaces are cool.

Storage of the Oliver out of direct sun also helps preserve its fiberglass finishes.

Physical damage to fiberglass should be taken care of immediately to avoid moisture from entering through breaks, reducing its exceptional insulative properties and possibly causing problems with interior walls and components. Cover breaks in the fiberglass with plastic sealing the edges with tape until proper repairs can be made.

Note: Do not use rubbing compound or any abrasive cleaner or abrasive cloth on the Oliver. If using a tar and insect remove, make sure it is safe for use on painted surfaces.

Seals and Adhesive

It is important to maintain the seals and adhesives of your Oliver to prevent moisture from entering and destroying your Oliver. When washing your Oliver inspect the seals for signs of drying out and wear. Weather, sun and road vibration will have an effect on seals causing them to dry, crack or separate.

Frame

Check the condition of the frame regularly. Admire it, knowing you will never need to repaint, or be concerned for rust. You should wash it regularly, especially when towing the Oliver in the winter, in areas where road salts are used.

Tires and Wheels

General maintenance and regular inspections are essential. Check for tread wear, tire pressure, and sidewall cracking.

▲ SOME MAINTENANCE MAY REQUIRE THE USE OF SPECIAL TOOLS. DO NOT ATTEMPT TO SERVICE, REPAIR OR WORK ON ANY AXLE, BRAKE OR WHEEL SYSTEM UNLESS YOU HAVE APPROPRIATE SKILLS, KNOWLEDGE AND THE PROPER TOOLS. LACK OF PROPER TRAINING, FAILURE TO FOLLOW PROCEDURES OR USE SPECIAL TOOLS AND SAFETY EQUIPMENT COULD RESULT IN PROPERTY DAMAGE, SERIOUS INJURY OR LOSS OF LIFE.

Wheel Bearing Lubrication

Wheel bearings should be hand repacked every 12,000 miles or every 12 months. Every time the wheel hub is removed, the wheel bearings must be adjusted. Turn the hub slowly to seat the bearings while tightening the spindle nut until the hub still no longer turns. Loosen the spindle nut so it may be turned by hand. Tighten nut finger tight then loosen to first hub slot allowing alignment. Install cotter pin.

Prepare bearings by cleaning with solvent to remove the old grease. Repack by pressing fresh grease into bearing roller area. Repack bearings more often if subject to extremely wet conditions. If trailer has not been used for more than 2 months, the wheel bearings should be inspected and repacked if necessary.

Windows and Doors

Check the seals around the windows and doors at regular intervals. Follow previous instructions for checking the condition of seals and repairing as necessary.

Make sure that windows remain operative by adjusting and lubricating latches and moving parts annually. Also check the condition and operation of the door locks, lubricating as necessary. Use powdered graphite or light oil to lubricate moving parts on doors and windows.

Keep screens and window slides clean and free of debris to maintain proper operation. Test the operation of all windows occasionally to make sure they are working properly, closing flush and that the locks are holding tight.

Drainage System

The drainage system, including the tanks and associated drain piping, should be periodically inspected for road damage. Any deterioration of the sealant

around joints and fittings should be repaired immediately.

Exterior Lights

Make sure to check the operation of all exterior lights often. Even though many of the exterior lights are closed LED systems you can never account for external road hazards. Check all lights, including turn signals, headlights, running lights, brake and back up lights, etc. to make sure they are working correctly. Replace burnt out bulbs or cracked reflectors immediately.

Appliances, Sinks, Counter Tops

Clean with hot soapy water or a good liquid cleaner. Treat your fiberglass sinks like you would your tub at home. Avoid using abrasive cleaners or ammonia-based cleaners. Also, when cleaning stainless steel with a mild cleanser, rub gently with the grain and rinse well. Rinse after each use and wipe down.

Be sure to remove all food and ice from the refrigerator at the end of each trip. Prop the door open slightly to keep the interior dry and free of mold, mildew and odors.

Make sure to read all literature provided with each of the appliances and follow the maintenance instructions included. Pay particular attention to any cautions or warnings included. Also read the rest of this manual and follow the instructions for the care and use of appliances.

Do not place hot pans directly on counter tops because they can damage or scorch the surface.

Pre-finished Panels and Wood Surfaces

Treat cabinetry and wood surfaces as you would any fine furniture product in your home. Proper care and maintenance of wood products will help extend their life.

Clean pre-finished panels with a spray-type furniture polish. Avoid getting wood surfaces wet. Wipe off and dry immediately if you do get wet. Do not use abrasive cleansers around wood finishes. Clean regularly with a soft cloth and cleaner designed for wood products such as lemon oil or any oil based wood cleaning product. Avoid constant exposure to direct sunlight, which can cause fading and drying of wood surfaces.

Electrical System

The electrical system requires minimal maintenance under normal circumstances. Most electrical maintenance in the recreational vehicle involves the battery. Keeping the battery properly maintained will help to eliminate many frustrating electrical problems. If you experience electrical problems with your recreational vehicle, make sure to have it checked by a qualified electrician. For more information regarding the maintenance of flooded and AGM batteries, see the Trojan Battery User Guide included in Section 3 of the Elite II Owners Manual.

Roof Vents

Check roof vents regularly for debris that may block air flow or jam the cranking mechanism. Lubricate the cranking mechanism with light oil.

ABS Plastic

Some components of the recreational vehicle are constructed of strong, lightweight ABS plastic. Sometimes, it may be necessary to remove stains or generally clean. A mild solution of soap and water will clean many stains and should be used initially. Tougher stains may require stronger cleaners. Be sure to read the label to determine if the product is safe for use on ABS.

Avoid abrasive cleansers (even the liquid and cream types), alcohol based products and solvents such as acetone and MEK (methyl ethyl ketone). Gasoline and kerosene should not be used because of the damaging effect they have on the plastic surface, as well as the fire hazard they present. Often the damage caused by solvents, alcohol and oil based products may not be immediately noticeable, but the plastic is made weaker and prone to stress cracking.

Care of Table

Your table will warp if left in wrong position for any length of time. During storage or non-use, the table should be left in the bed position, with the cushions left in the dining position. Never leave heavy items sitting on the table.

Care of Upholstery Fabrics

Regular vacuuming will help keep colors fresh and prolong wear. Apply a quality upholstery shampoo [mixed to the manufacturer's instructions], to a small inconspicuous area of the fabric. If there are no adverse effects, clean

the remaining area. Use suds (not water) and apply with a soft brush in a light, circular motion. When dry, vacuum. If the shampoo does not clean the test area properly, contact a professional cleaner.

Note: Cushion seats are subject to normal deterioration and to wear and exposure. Normal protective measures can help ensure longer fabric life.

Food Storage

In the event the recreational vehicle is left for a period of time without the furnace in operation, canned goods and other foods packed in water should be stored as high as possible, since heat rises. They also might be stored in the refrigerator as insulation against the cold. Store dry foods and other items that are not damaged by freezing in the lower storage areas.

Condensation

Cooking produces large amounts of moisture, not just as steam from pots and pans, but also as a product of combustion. Make sure to use the exhaust vents and open a window slightly to control the humidity. At night leave a roof vent or window slightly open.

SCHEMATICS

In the next several pages you will find schematics for the various systems installed on the Oliver including, plumbing, wiring, and LP lines. Although these schematics are used primarily for service reasons, please take the time to review and understand them. Please see the index below to locate a specific schematic.

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Cabinet Lights ----- 97

Switch Plates ----- 98-99

Monitors ----- 100

HVAC/Water Systems ----- 101

Communications ----- 102

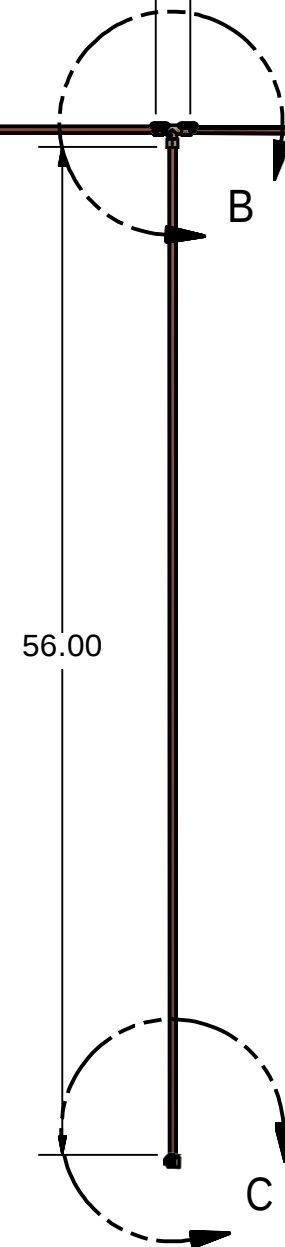
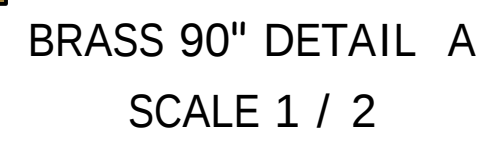
120v Harness ----- 103-106

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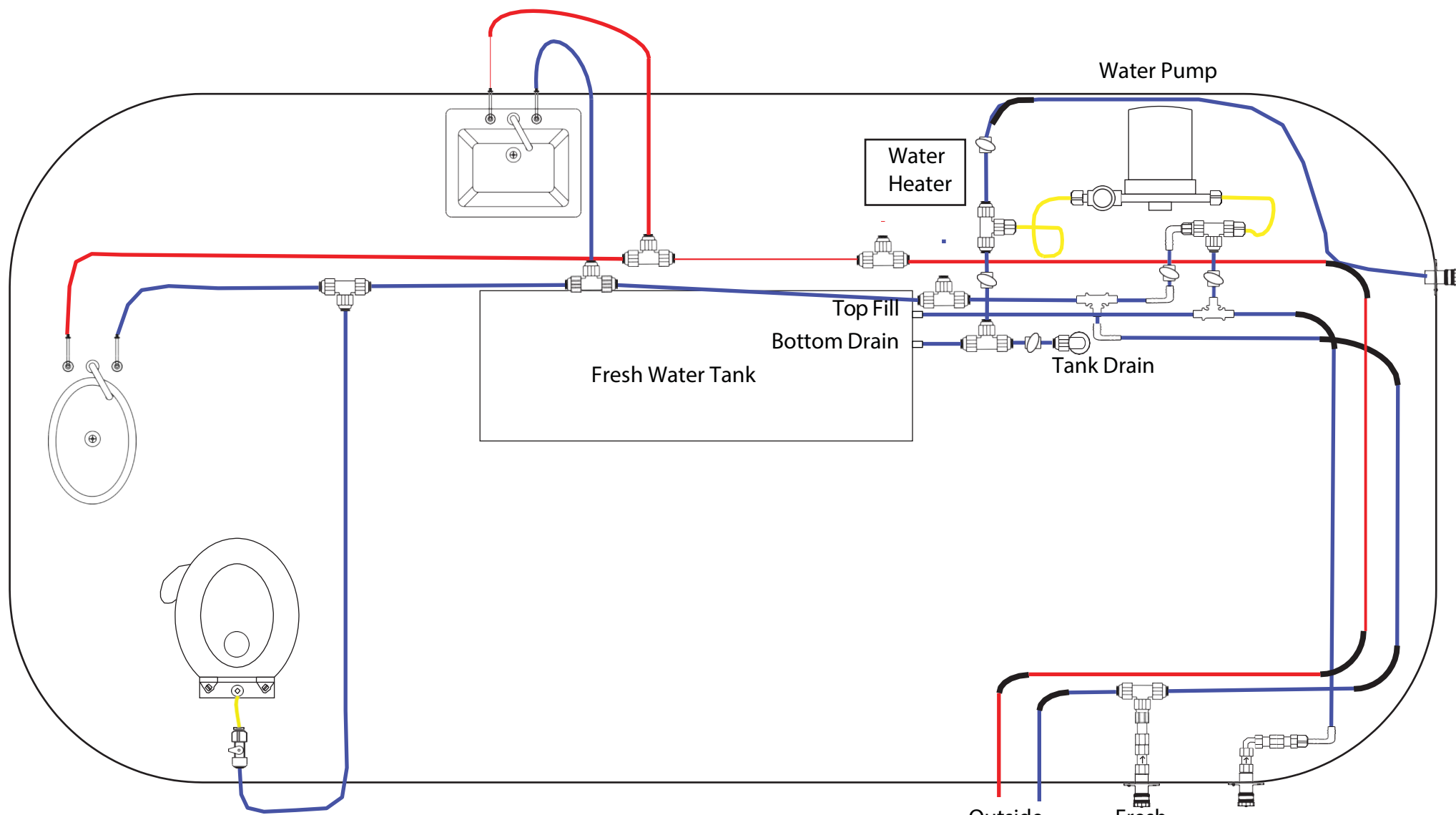
ZAMP Solar ----- 108

Structural Drawings

Frame ----- 109



DRAWN mikeayers	8/22/2016	TITLE		
CHECKED				
QA				
MFG				
APPROVED				
		SIZE C	DWG NO Assembly1-1	REV
		SCALE	SHEET 1 OF 1	



-  Plastic tee
-  Diverter valve
-  Push-Fit tee
-  Sharkbite Valve
-  Fitting extension

-  Elbow with female fitting
-  Elbow
-  Push-Fit 90
-  Female fitting
-  Push-Fit Connection

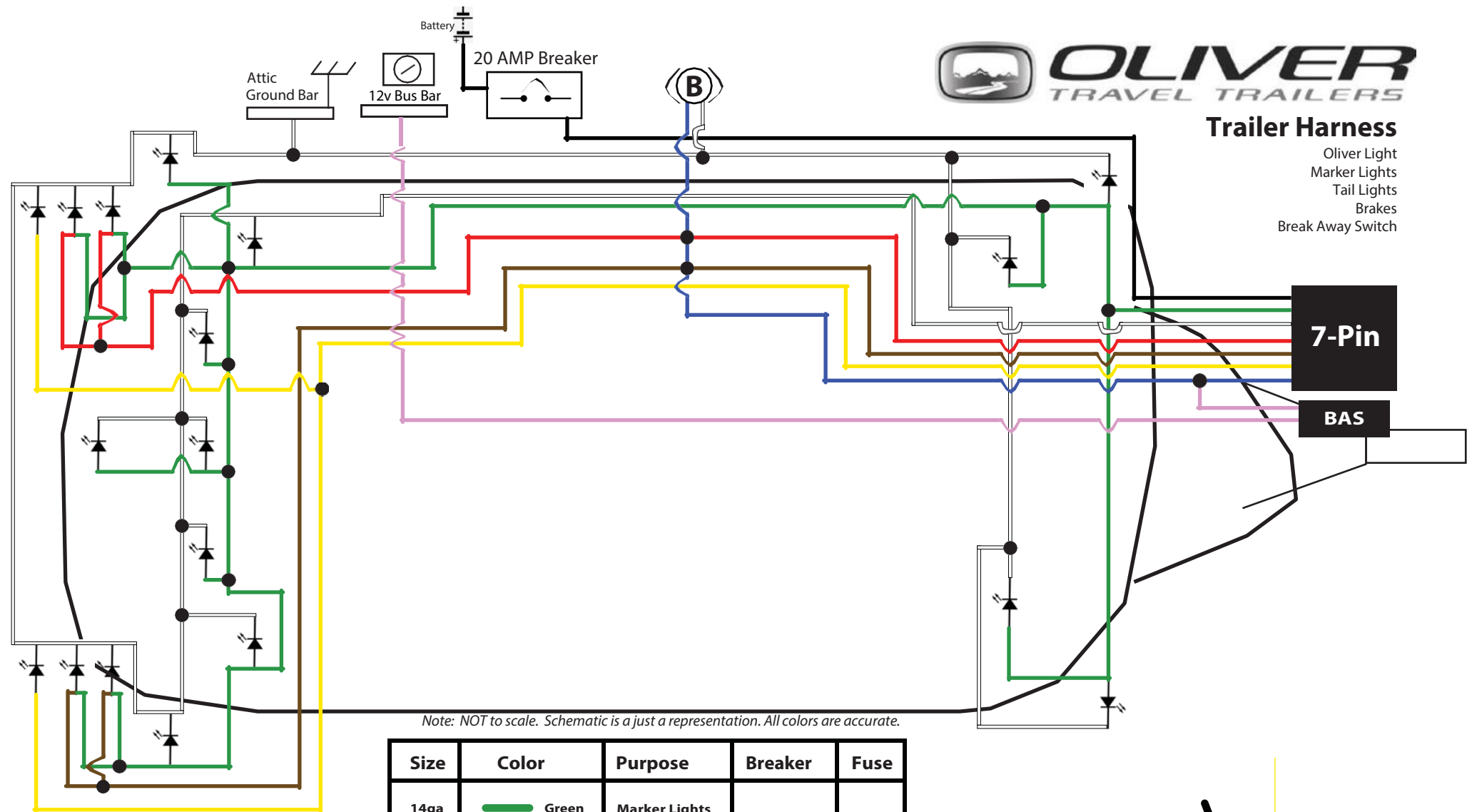
-  Extension
-  Check valve
-  Ball valve
-  Bend
-  Inlet representation

OLIVER
TRAVEL TRAILERS
Elite I - Pex Water Layout



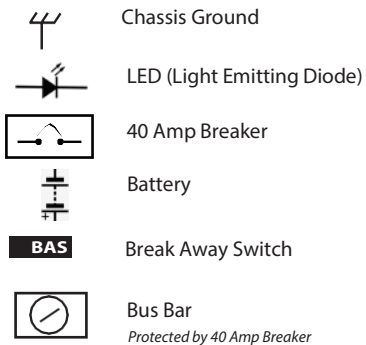
Trailer Harness

Oliver Light
Marker Lights
Tail Lights
Brakes
Break Away Switch



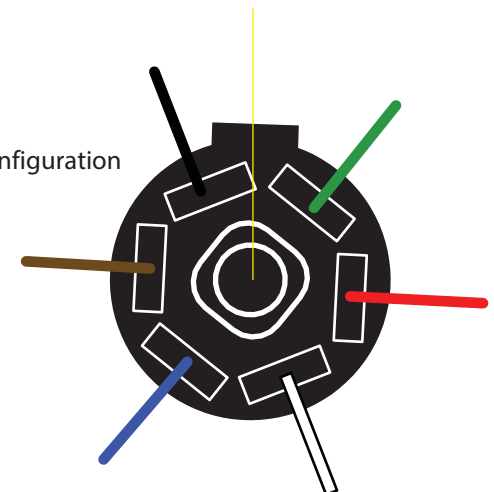
Note: NOT to scale. Schematic is a just a representation. All colors are accurate.

Symbol Legend



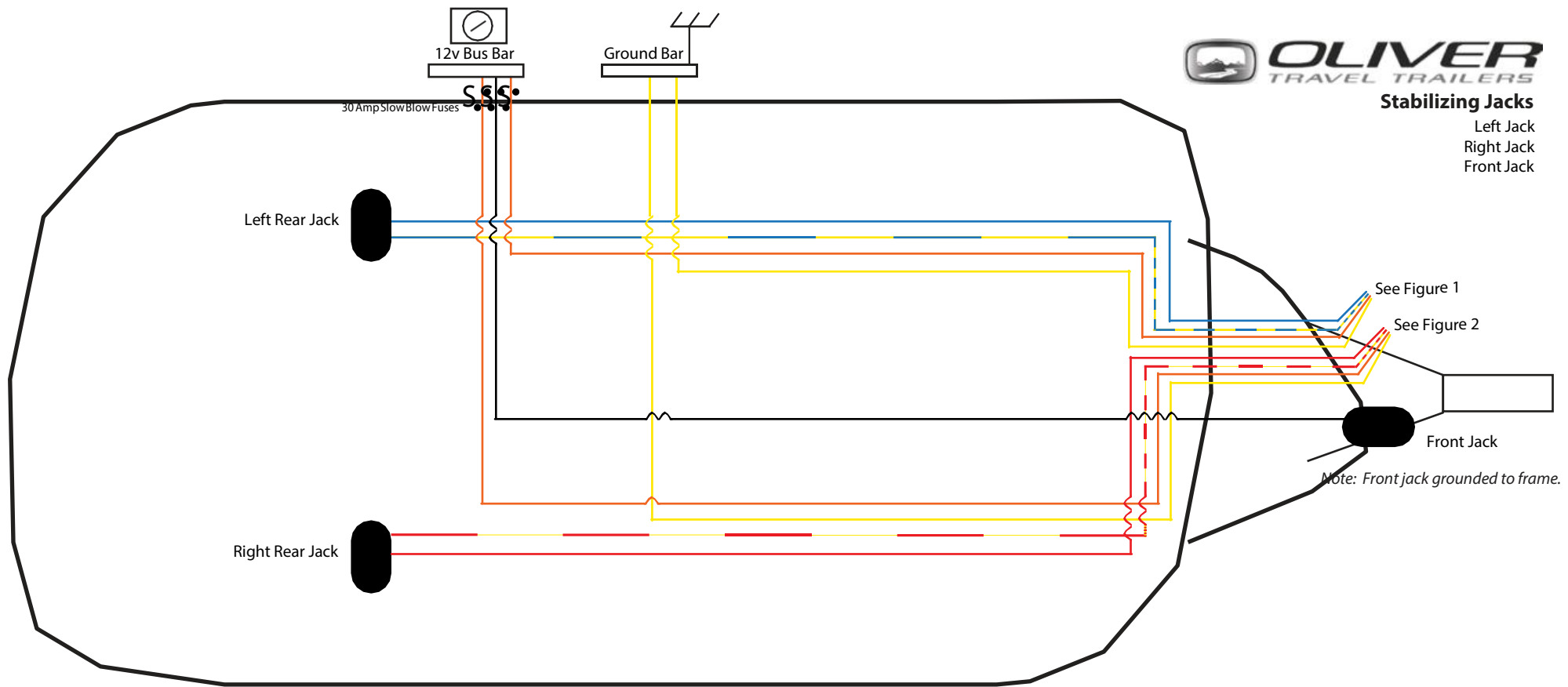
Size	Color	Purpose	Breaker	Fuse
14ga	Green	Marker Lights		
14ga	White	Ground		
12ga	Black	Charge Wire	20 Amp	
14ga	Red	Street Side Tail		
14ga	Green	Street Side Tail		
14ga	Brown	Curb Side Tail		
14ga	Yellow	Back Up Lights		
14ga	Blue	Brake Wire		
14ga	Pink	Break Away Switch		

7-Pin Configuration



Stabilizing Jacks

Left Jack
Right Jack
Front Jack



Note: NOT to scale. Schematic is a just a representation. All colors are accurate.

Size	Color	Purpose	Breaker	Fuse
10ga	Orange	2x Rear Jack Switches		30A SB
10ga	Black	Front Jack Switch		30A SB
10ga	Yellow	Grounds		
10ga	Yellow/Red	Right Rear Jack		
10ga	Red	Right Rear Jack		
10ga	Yellow/Blue	Left Rear Jack		
10ga	Blue	Left Rear Jack		

Symbol Legend

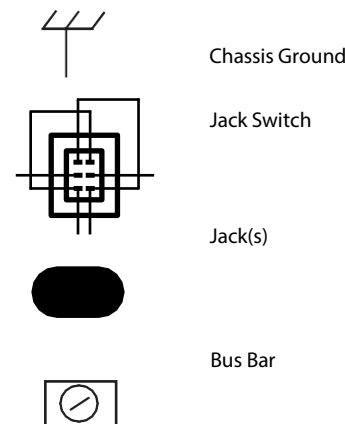


Figure 1
Left Rear Jack Switch

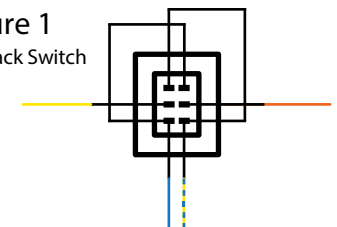
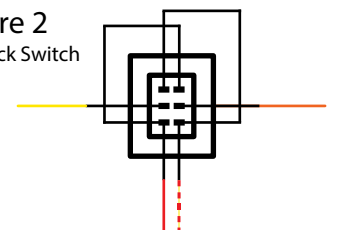
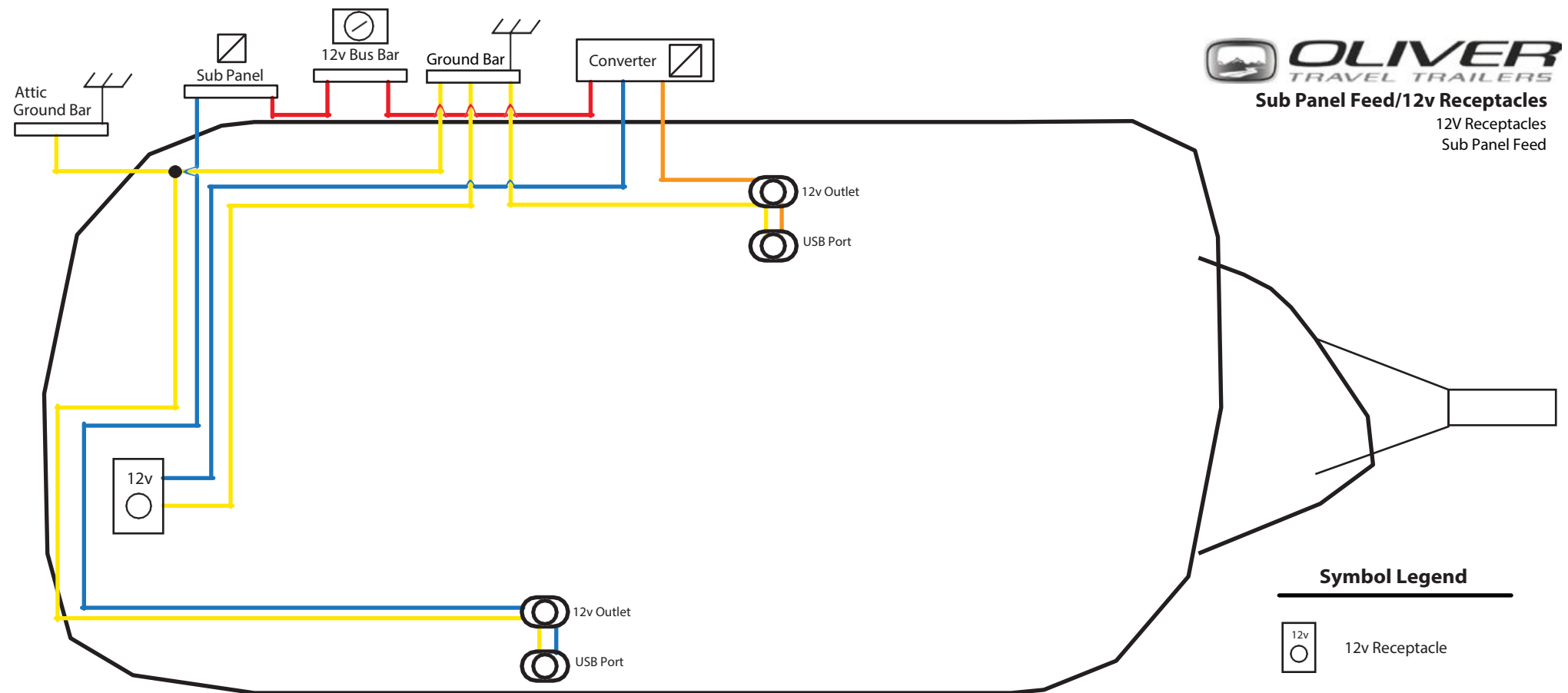


Figure 2
Right Rear Jack Switch



Sub Panel Feed/12v Receptacles

12V Receptacles
Sub Panel Feed



Note: NOT to scale. Schematic is a just a representation. All colors are accurate.

Symbol Legend



12v Receptacle



Chassis Ground



Converter



Bus Bar

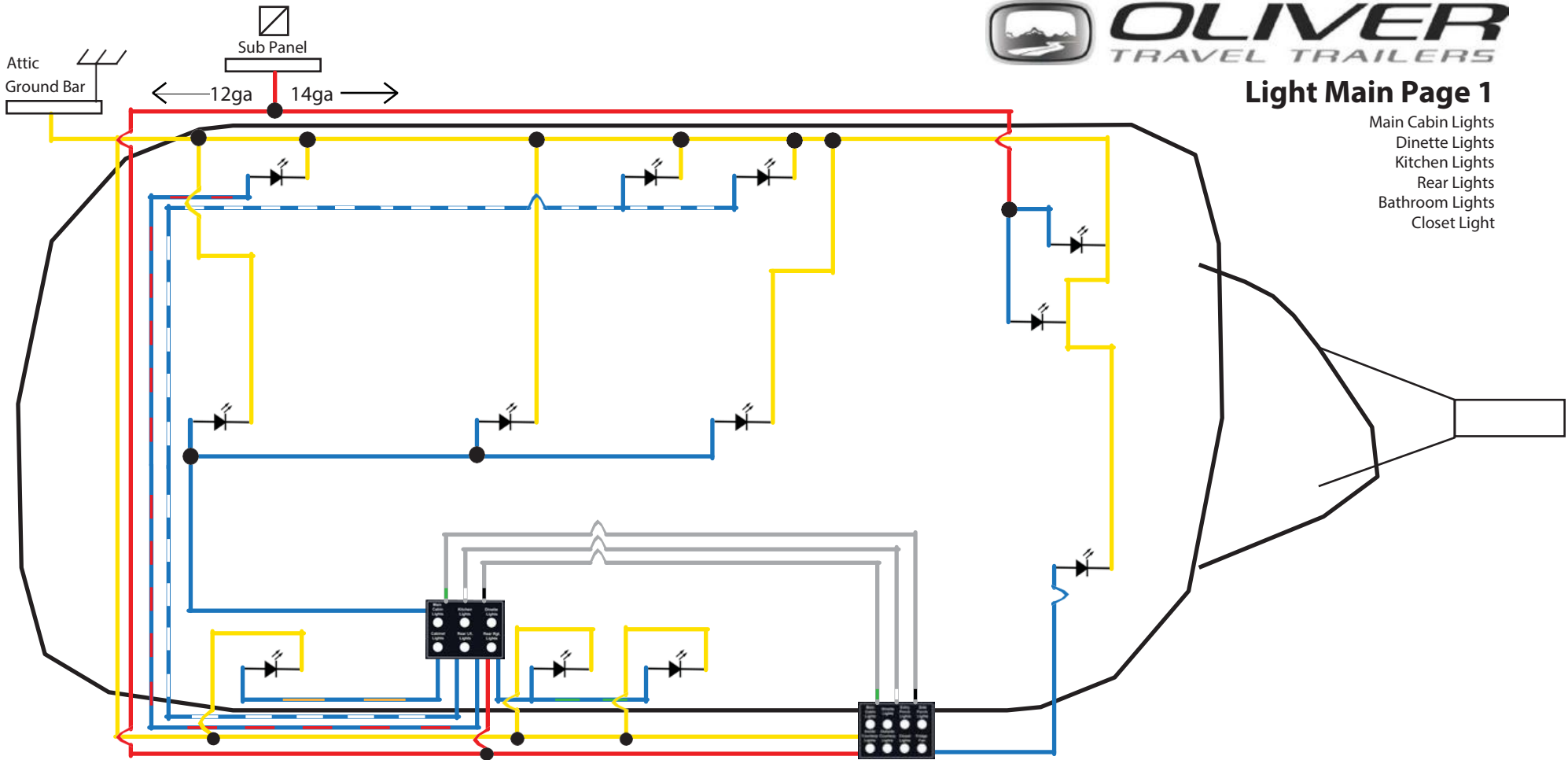


USB/12v Receptacle

Size	Color	Purpose	Breaker	Fuse
10ga	Blue	Attic 12v	15 Amp	
10ga	Yellow	Attic 12v Ground		
6ga	Yellow	Ground to Ground		
6ga	Red	Bus Bar to Sub Panel		
6ga	Red	Bus Bar to Converter		
12ga	Orange	Dinette 12v Recep	15 Amp	
12ga	Blue	Kitchen 12v Recep	15 Amp	
12ga	Yellow	12v Ground		

Light Main Page 1

Main Cabin Lights
Dinette Lights
Kitchen Lights
Rear Lights
Bathroom Lights
Closet Light



Size	Color	Purpose	Breaker	Fuse
14ga	Blue	Main Cabin Lights		
14ga	Blue	Bathroom Lights		
14ga	Blue/White	Dinette Lights		
14ga	Blue/Orange	Right Rear Light		
14ga	Blue/Green	Kitchen Lights		
14ga	Blue/Red	Left Rear Light		
14ga	Gray	Traveler Wires		
12ga/14ga	Red	Light Main Hot	15 Amp	
12ga	Yellow	Ground		



Main Entrance Switch Plate
See Figure 1 on Switch Plate Drawing Page

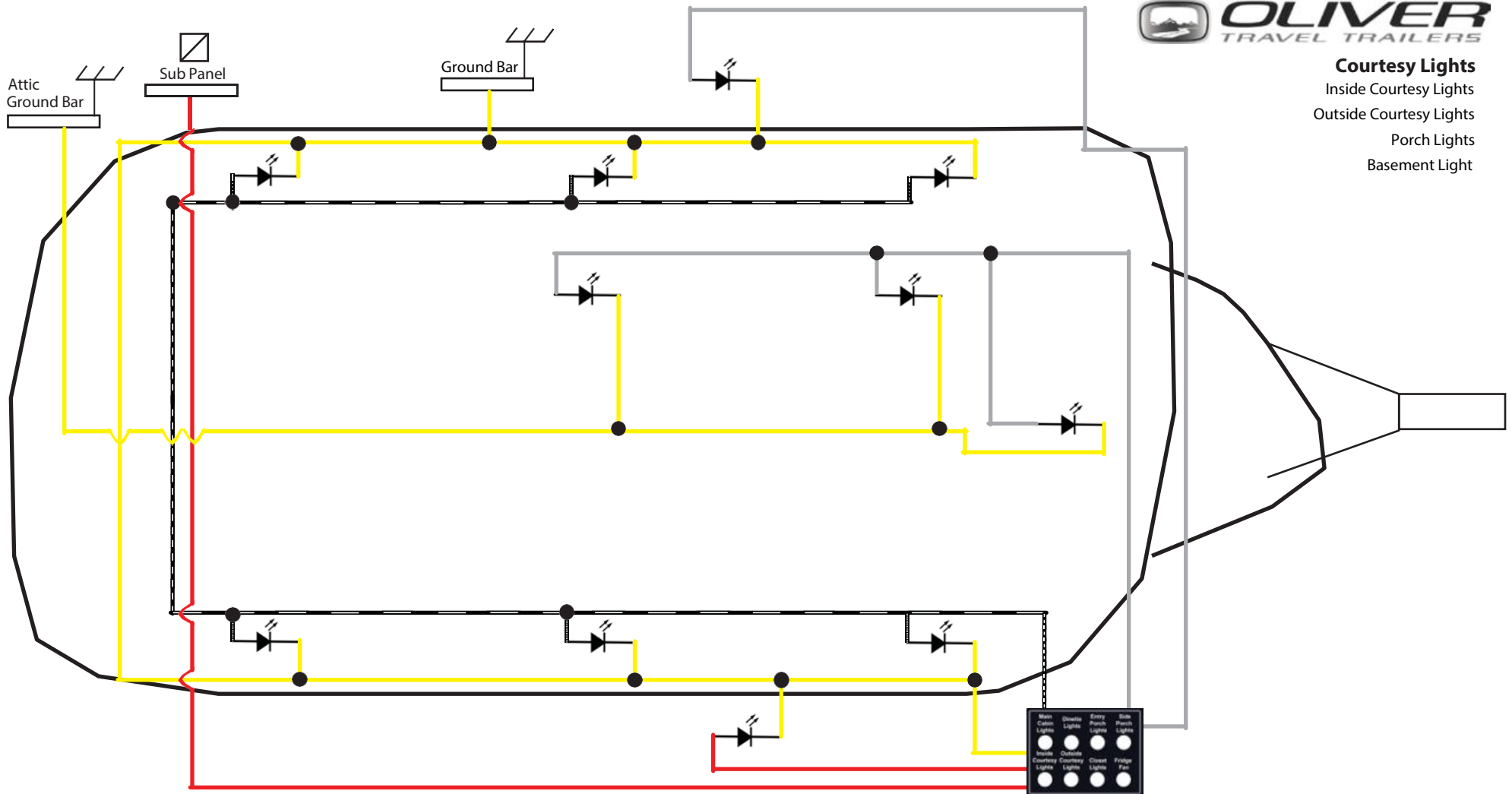


Kitchen Area Switch Plate
See Figure 2 on Switch Plate Drawing Page

Symbol Legend

-  Converter
-  Chassis Ground
-  LED (Light Emitting Diode)

Note: NOT to scale. Schematic is a just a representation. All colors are accurate.



Courtesy Lights
 Inside Courtesy Lights
 Outside Courtesy Lights
 Porch Lights
 Basement Light

Note: NOT to scale. Schematic is a just a representation. All colors are accurate.

Size	Color	Purpose	Breaker	Fuse
14ga	Grey	Inside Courtesy	15 Amp	
14ga	Black/White	Outside Courtesy	15 Amp	
14ga	Yellow	Ground		
14ga	Red	Curb Side Porch	15 Amp	
14ga	Grey	Street Side Porch	15 Amp	

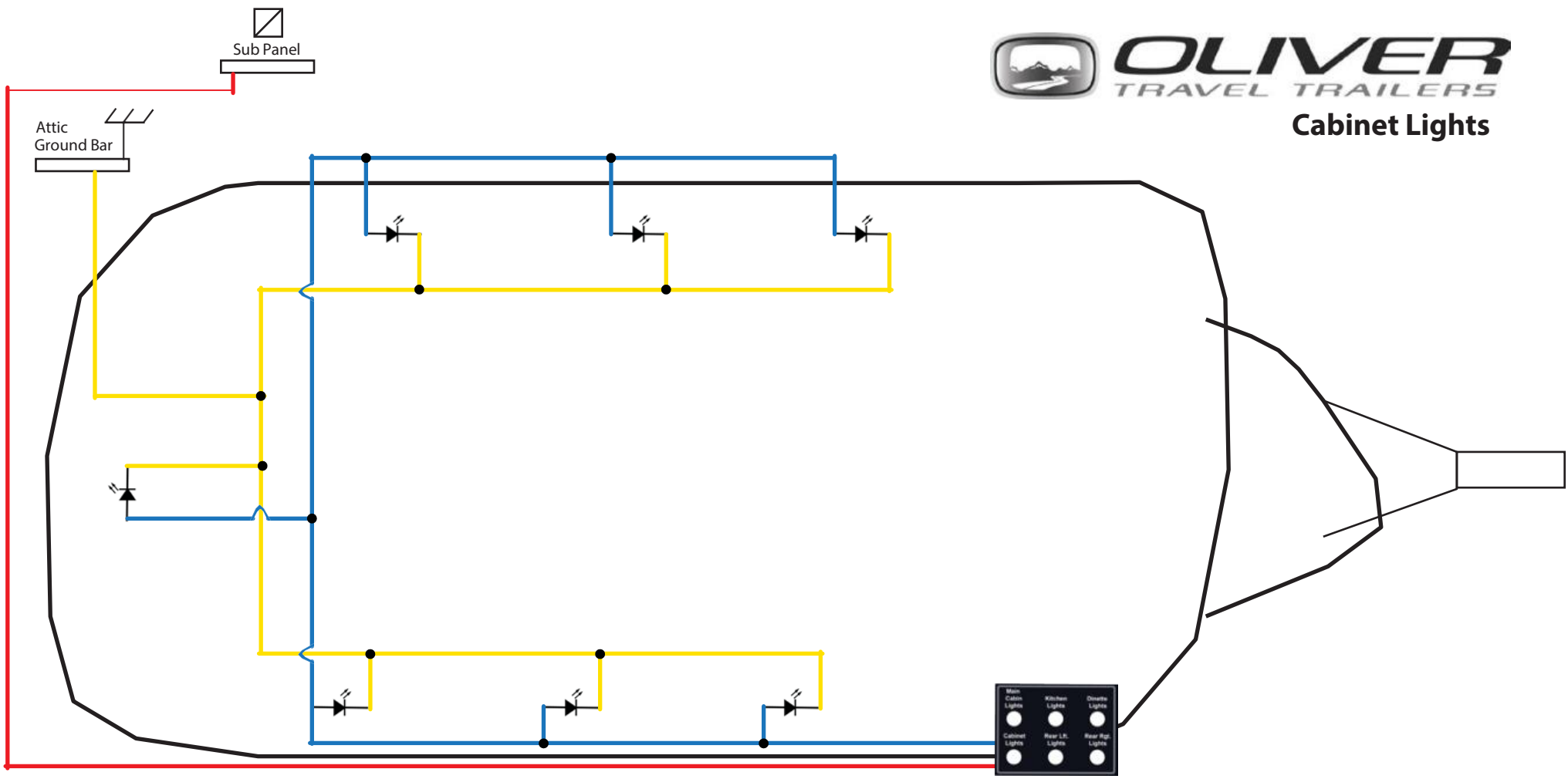


Main Entrance Switch Plate
 See Figure 1 on Switch Plate
 Drawing Page

Symbol Legend

-  Converter
-  Chassis Ground
-  LED (Light Emitting Diode)

Cabinet Lights



Note: NOT to scale. Schematic is a just a representation. All colors are accurate.

Size	Color	Purpose	Breaker	Fuse
14ga	Blue	Cabinet Lights		
14ga	Yellow	Ground		
14ga	Red	Light Switch		



Kitchen Area Switch Plate
 See Figure 2 on Switch Plate
 Drawing Page

Symbol Legend

-  Converter
-  Chassis Ground
-  LED (Light Emitting Diode)

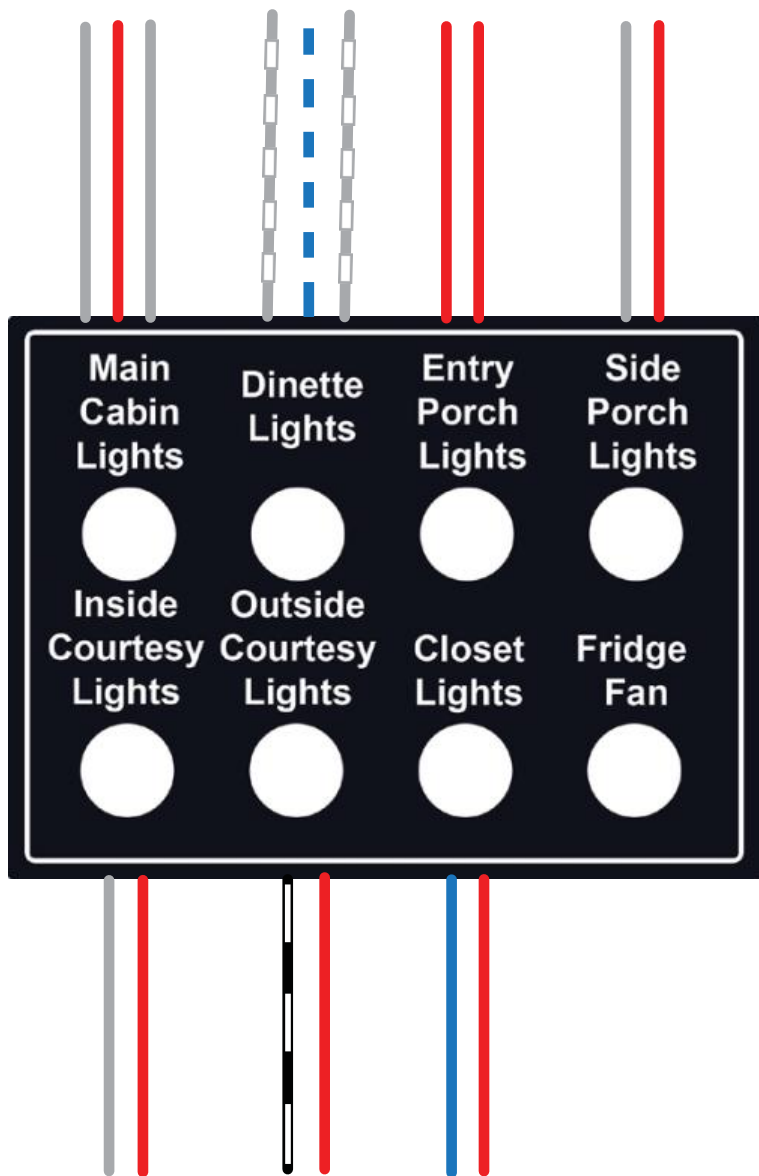


Figure 1

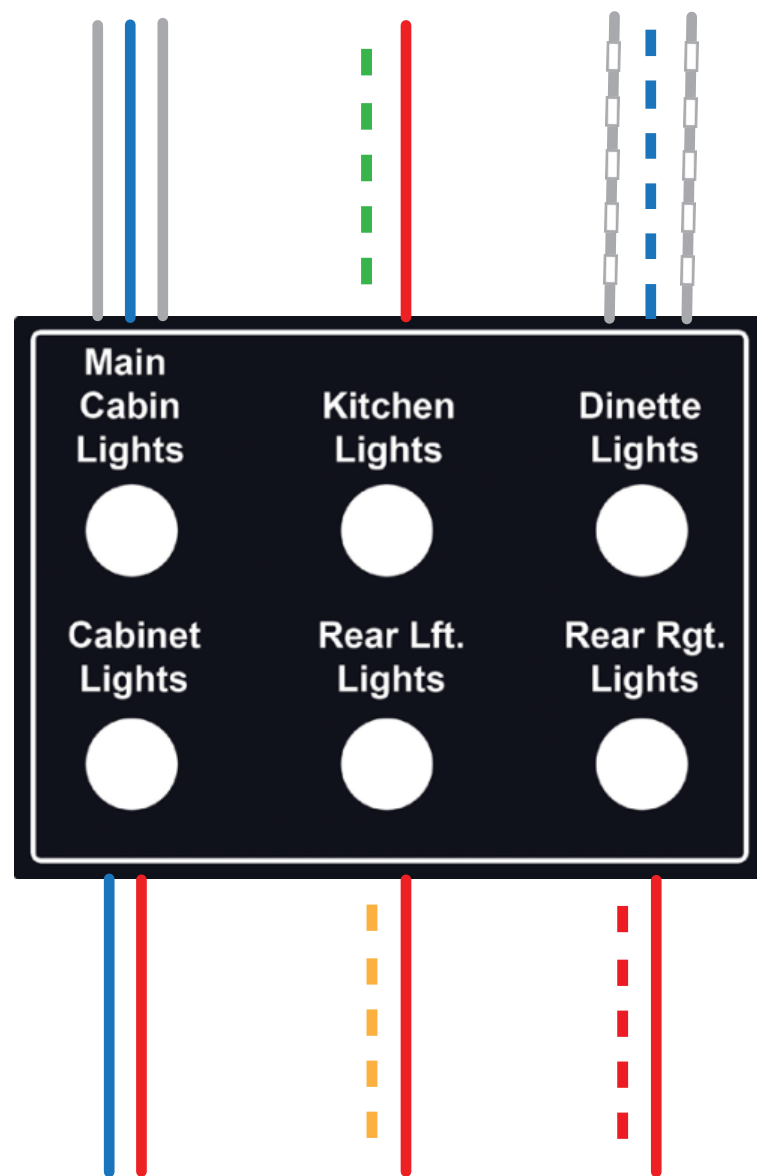
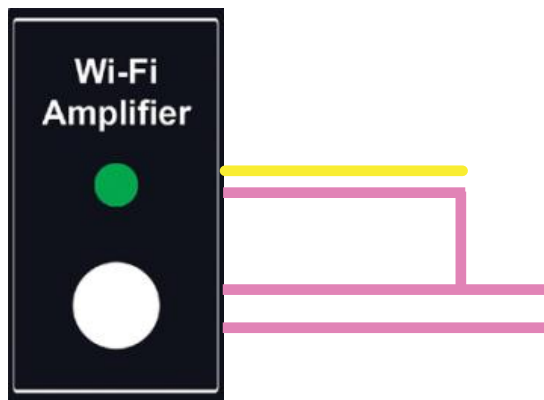
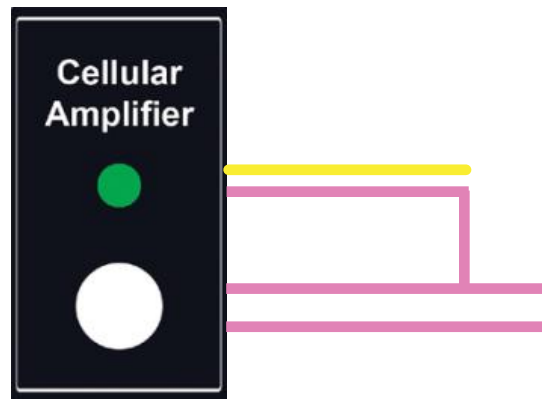


Figure 2

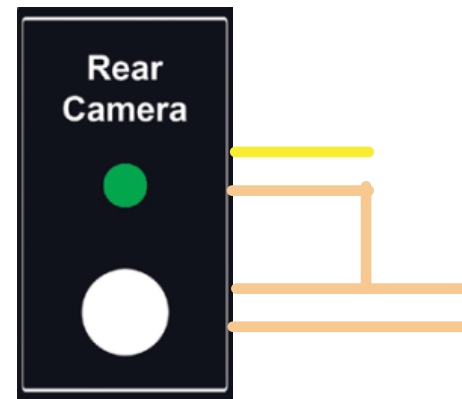
Wi-Fi Switch Plate



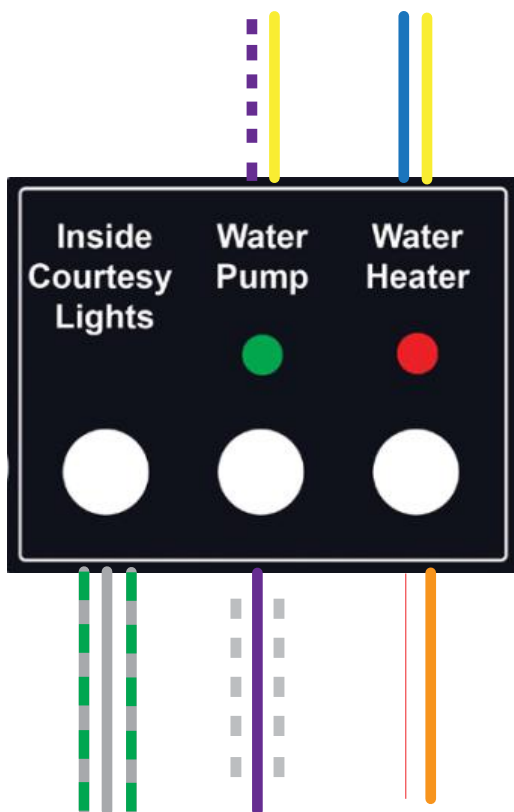
Cell Switch Plate



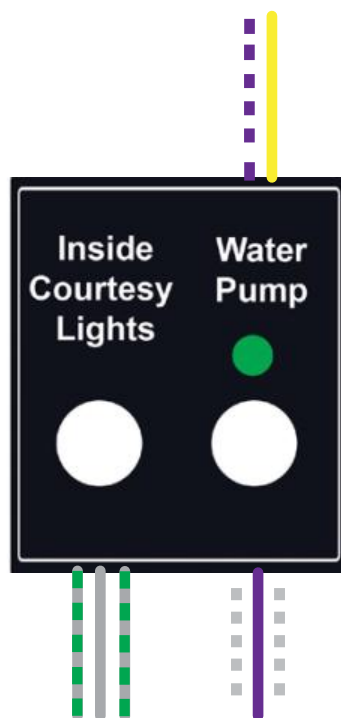
Camera Switch Plate



Standard Water Heater Switch Plate



Truma Water Heater Switch Plate



Size	Color	Purpose
14ga	Yellow	LED Ground
14ga	Tan	Camera(s)
14ga	Pink	Cell/WiFi
14ga	Red	Water Heater
14ga	Orange	Water Heater
14ga	Purple	Water Pump
14ga	Red/Gray	Water Pump
14ga	Blue	Water Heater LED
14ga	Purple/White	Water Pump LED
14ga	Green/Grey	Inside Courtesy Lights
14ga	Grey	Inside Courtesy Lights

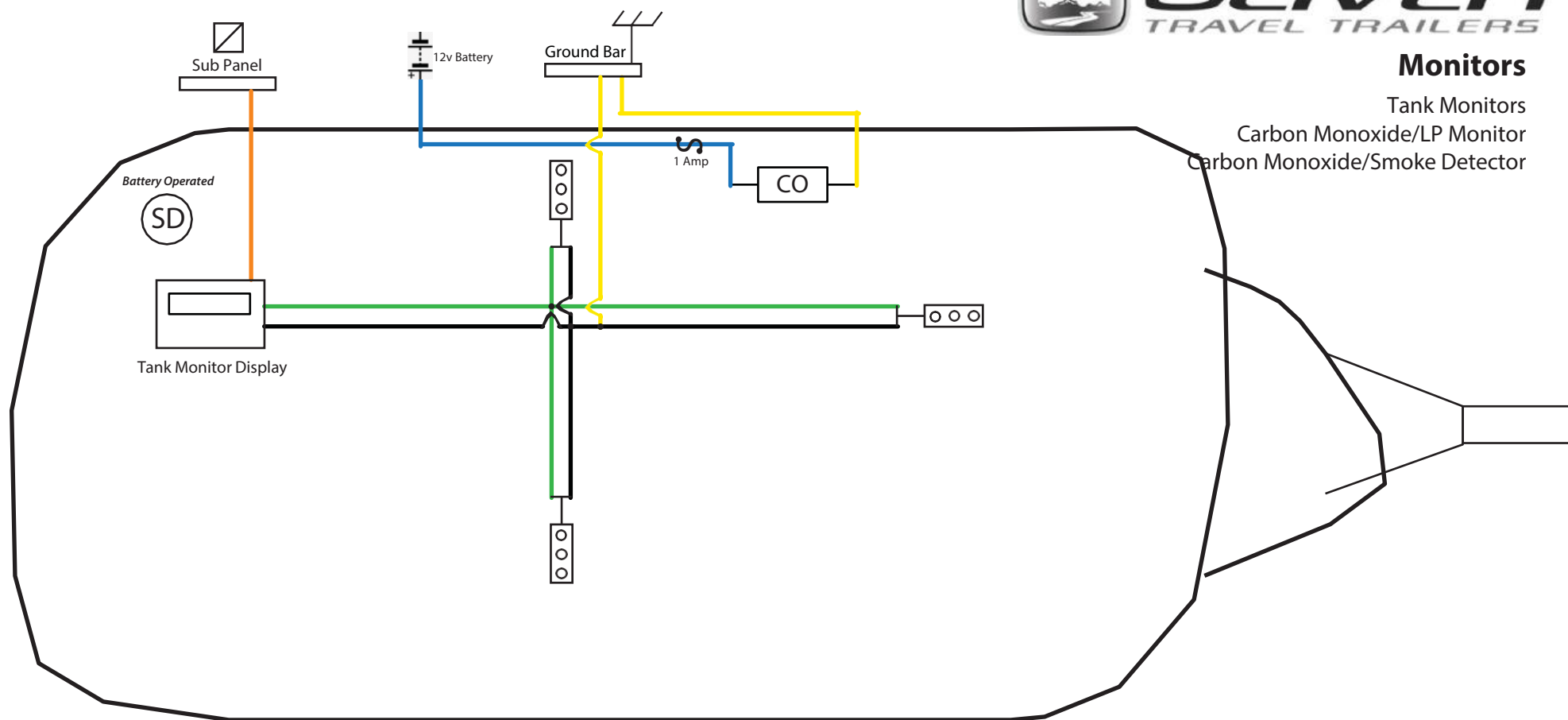


Monitors

Tank Monitors

Carbon Monoxide/LP Monitor

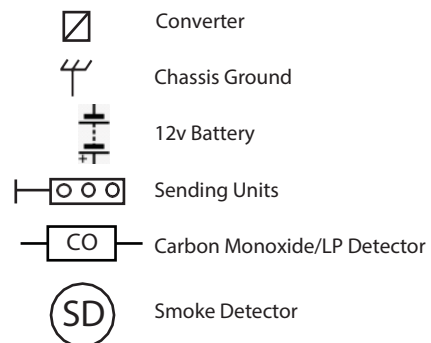
Carbon Monoxide/Smoke Detector

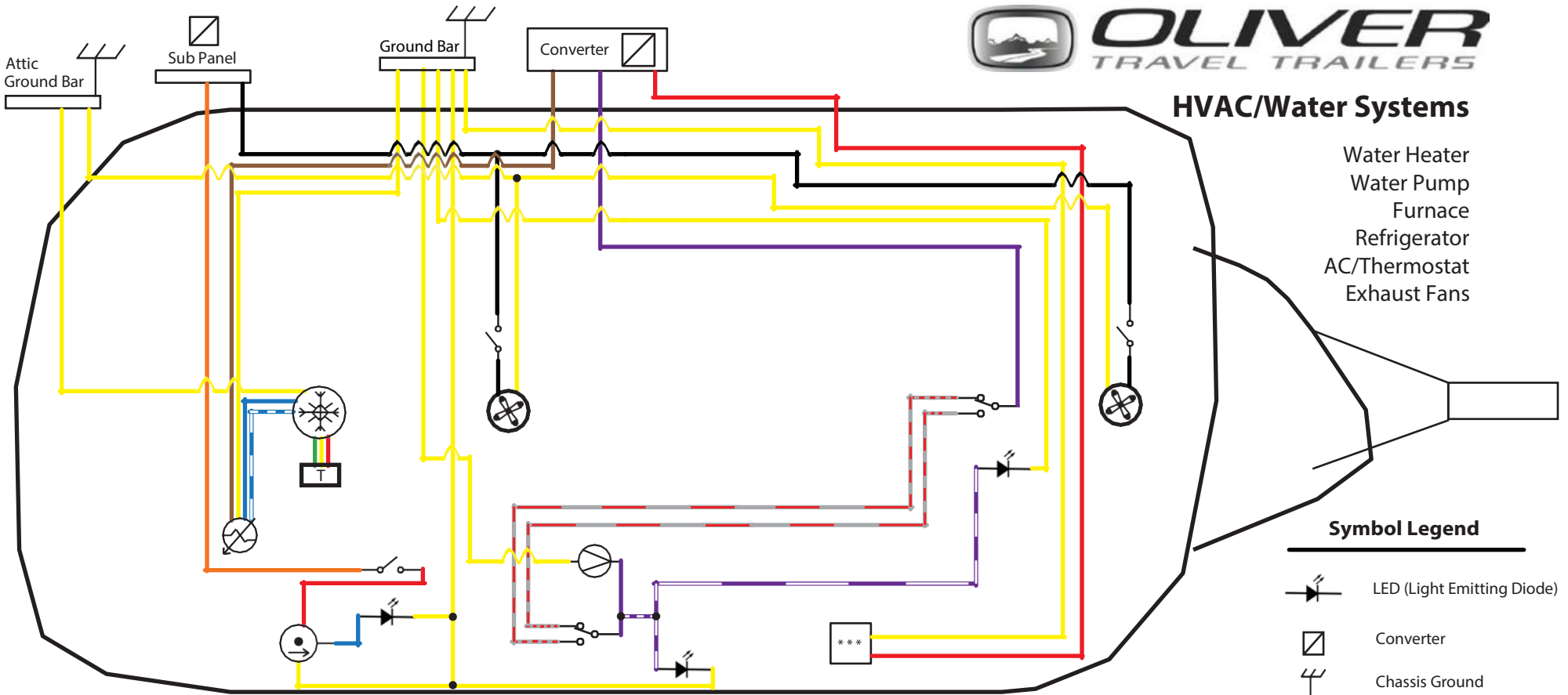


Note: NOT to scale. Schematic is a just a representation. All colors are accurate.

Size	Color	Purpose	Breaker	Fuse
14ga	 Green	Sending Units		
14ga	 Black	Sending Units		
14ga	 Orange	Tank Monitor		
14ga	 Blue	CO/LP Detector		1 Amp
14ga	 Yellow	Ground		

Symbol Legend





HVAC/Water Systems

Water Heater
 Water Pump
 Furnace
 Refrigerator
 AC/Thermostat
 Exhaust Fans

Symbol Legend

-  LED (Light Emitting Diode)
-  Converter
-  Chassis Ground
-  Exhaust Fans
-  Switch
-  3-Way Switch
-  Water Pump
-  Water Heater
-  Furnace
-  Air Conditioner
-  Refrigerator
-  Thermostat

Note: NOT to scale. Schematic is just a representation. All colors are accurate.

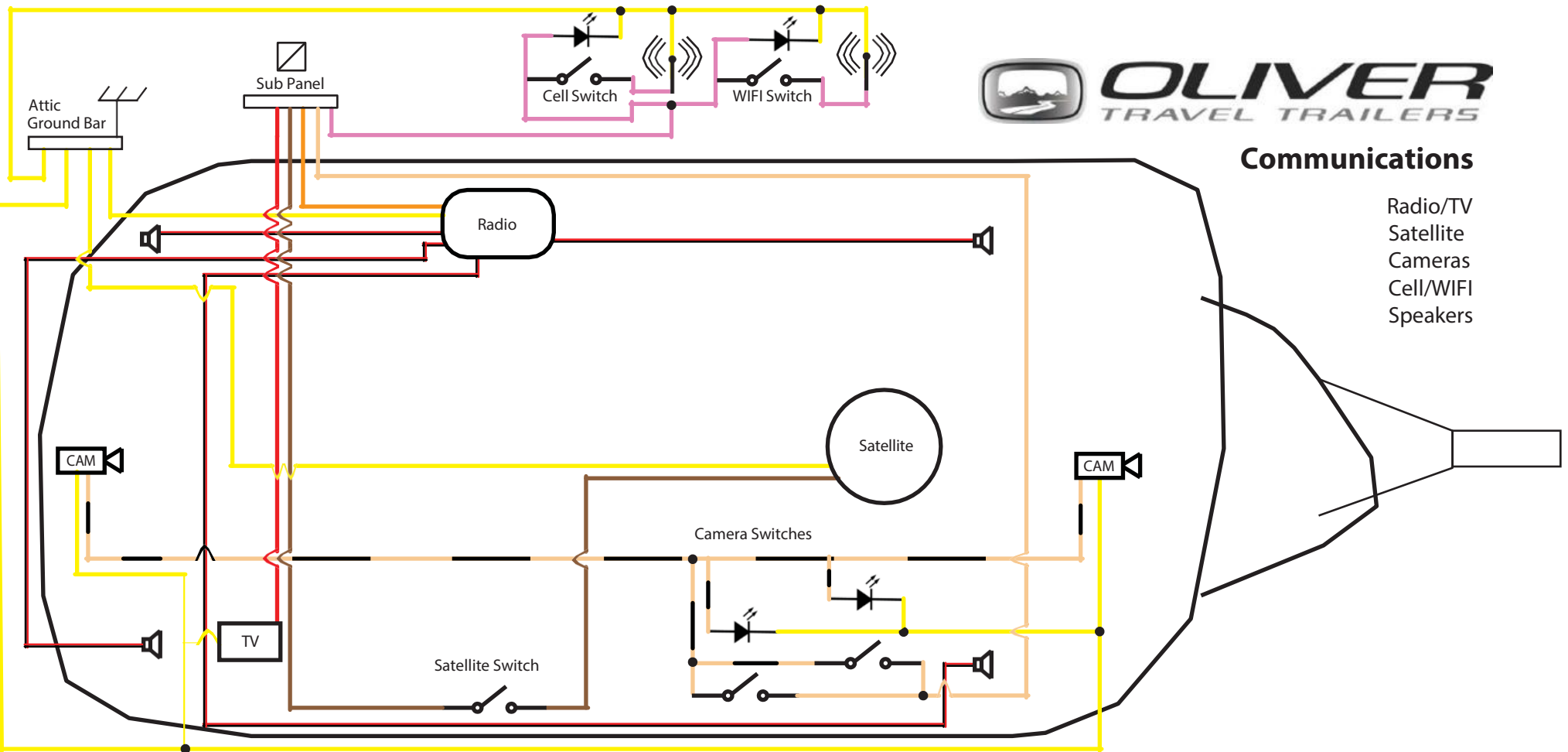
Size	Color	Purpose	Breaker	Fuse
14ga	Red	Water Heater Hot	15 Amp	
14ga	Yellow	WH Ground		
14ga	Blue	Water Heater LED		
14ga	Purple	WP Switch Hot		15 Amp
14ga	Yellow	WP Ground		
14ga	Purple/White	Switch LEDs		
14ga	Grey/Red	Switch Travelers		
14ga	Red	Water Heat Switch		
14ga	Orange	Water Heat Switch	15 Amp	
14ga	Brown	Furnace Hot		7.5 Amp
14ga	Blue	Furnace to AC		

Size	Color	Purpose	Breaker	Fuse
14ga	Yellow	Furnace Ground		
14ga	Blue/White	Furnace to AC		
10ga	Red	Refrigerator Hot		20 Amp
10ga	Yellow	Fridge Ground		
12ga	Black	Exhaust Fans	15 Amp	
12ga	Yellow	Fans Ground		
28ga	R/Y/G	Thermostat		



Communications

Radio/TV
Satellite
Cameras
Cell/WIFI
Speakers



Size	Color	Purpose	Breaker	Fuse
14ga	Tan	Camera(s)	15 Amp	
14ga	Tan/Black	Camera(s)		
14ga	Red	TV	15 Amp	
14ga	Orange	Radio	15 Amp	
14ga	Brown	Sat Switch		
14ga	Pink	Cell/WiFi	15 Amp	
14ga	Yellow	Ground Wires		
	Black/Red	Speaker Wire		

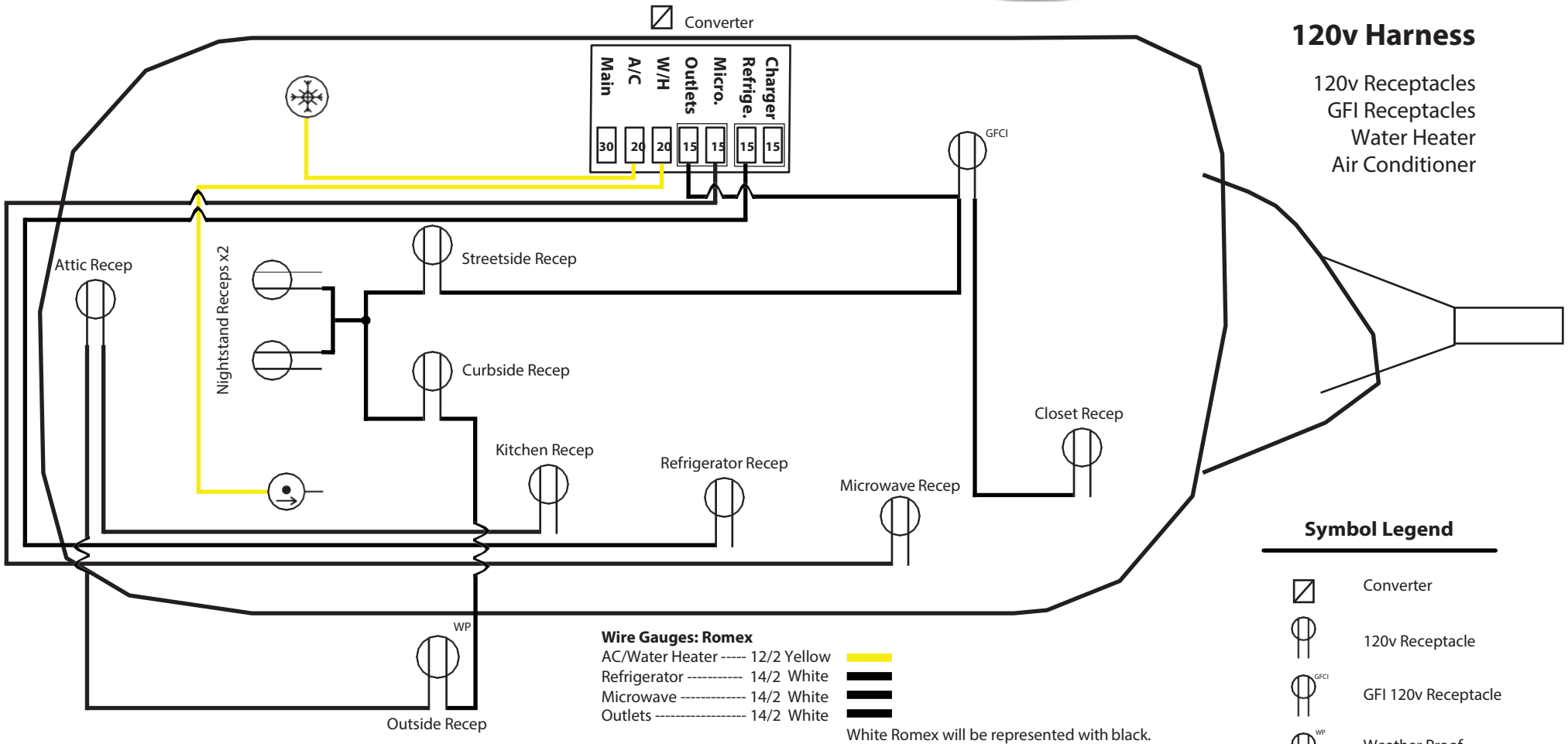
Symbol Legend

	Converter		TV		LED (Light Emitting Diode)
	Chassis Ground		Cell/WiFi		Speakers
	Camera(s)		Switch		Satellite
	Radio				

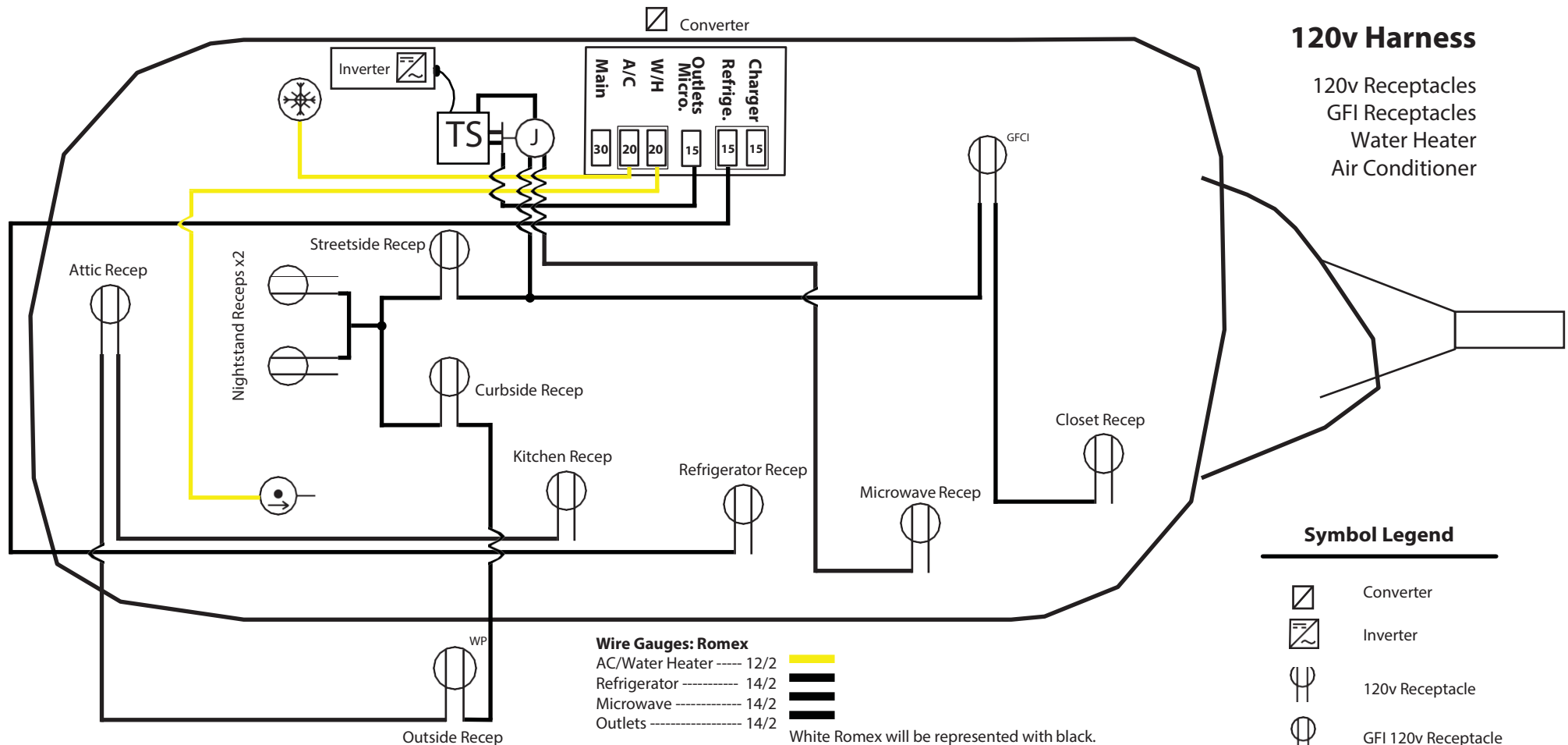
Note: NOT to scale. Schematic is a just a representation. All colors are accurate.

120v Harness

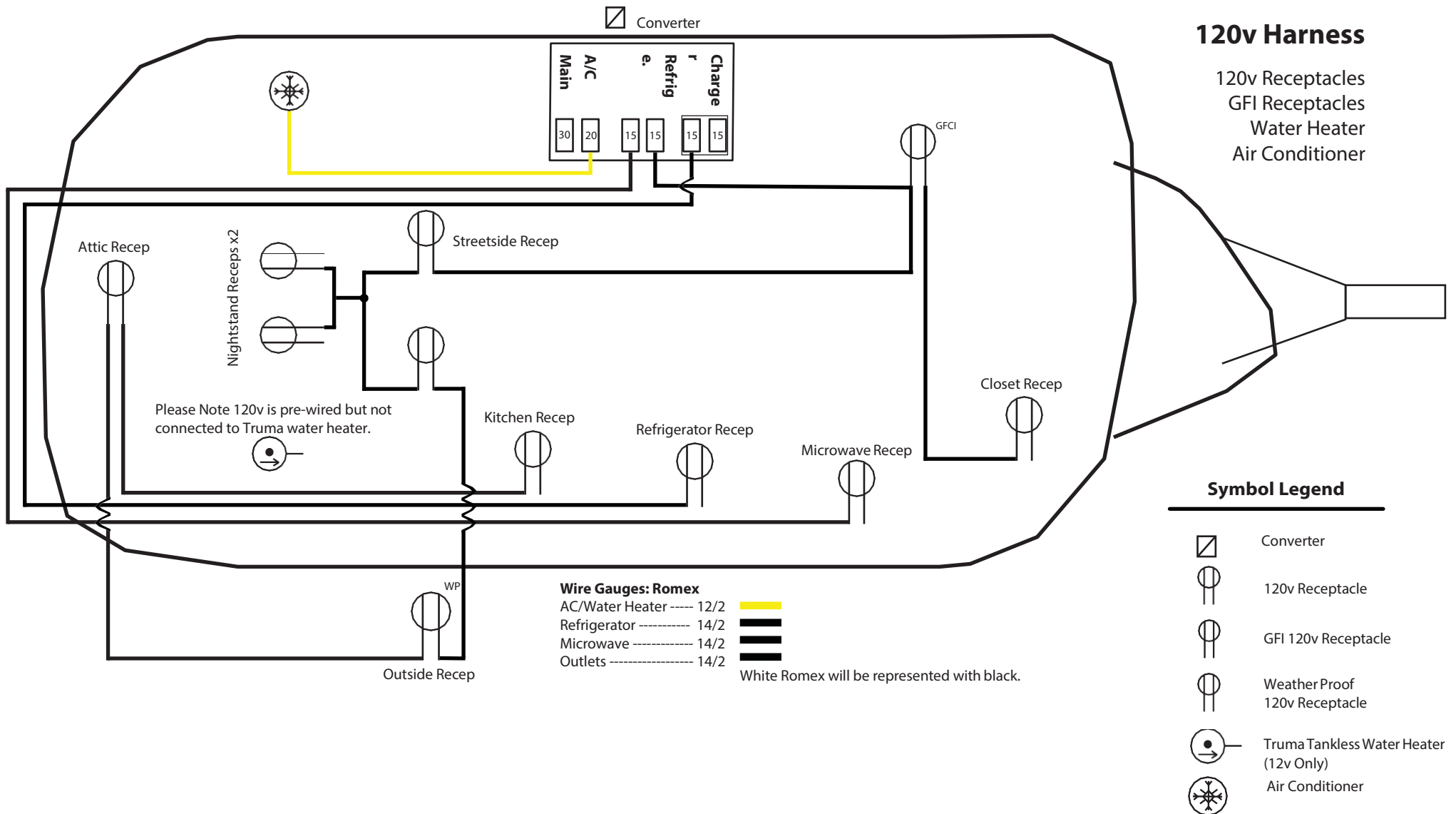
120v Receptacles
GFI Receptacles
Water Heater
Air Conditioner



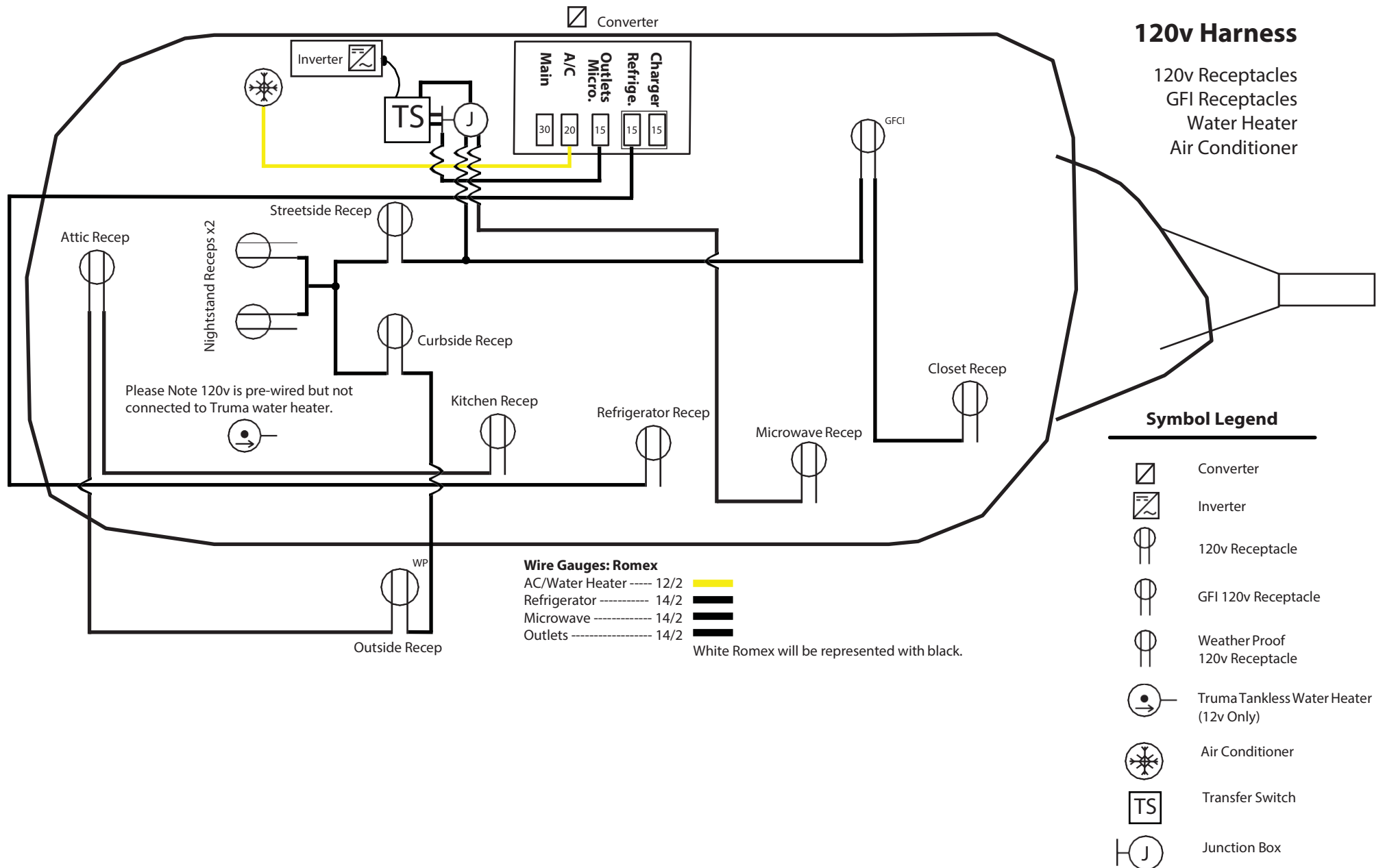
120v Outlet Schematic for Converter with Suburban Water Heater and NO Inverter



120v Outlet Schematic for Converter with Suburban Water Heater and Inverter



120v Outlet Schematic for Converter with Truma Tankless Water Heater and NO Inverter



120v Outlet Schematic for Converter with Truma Tankless Water Heater and Inverter

Battery packages for the **Oliver Legacy Elite II** are available in three different combinations.

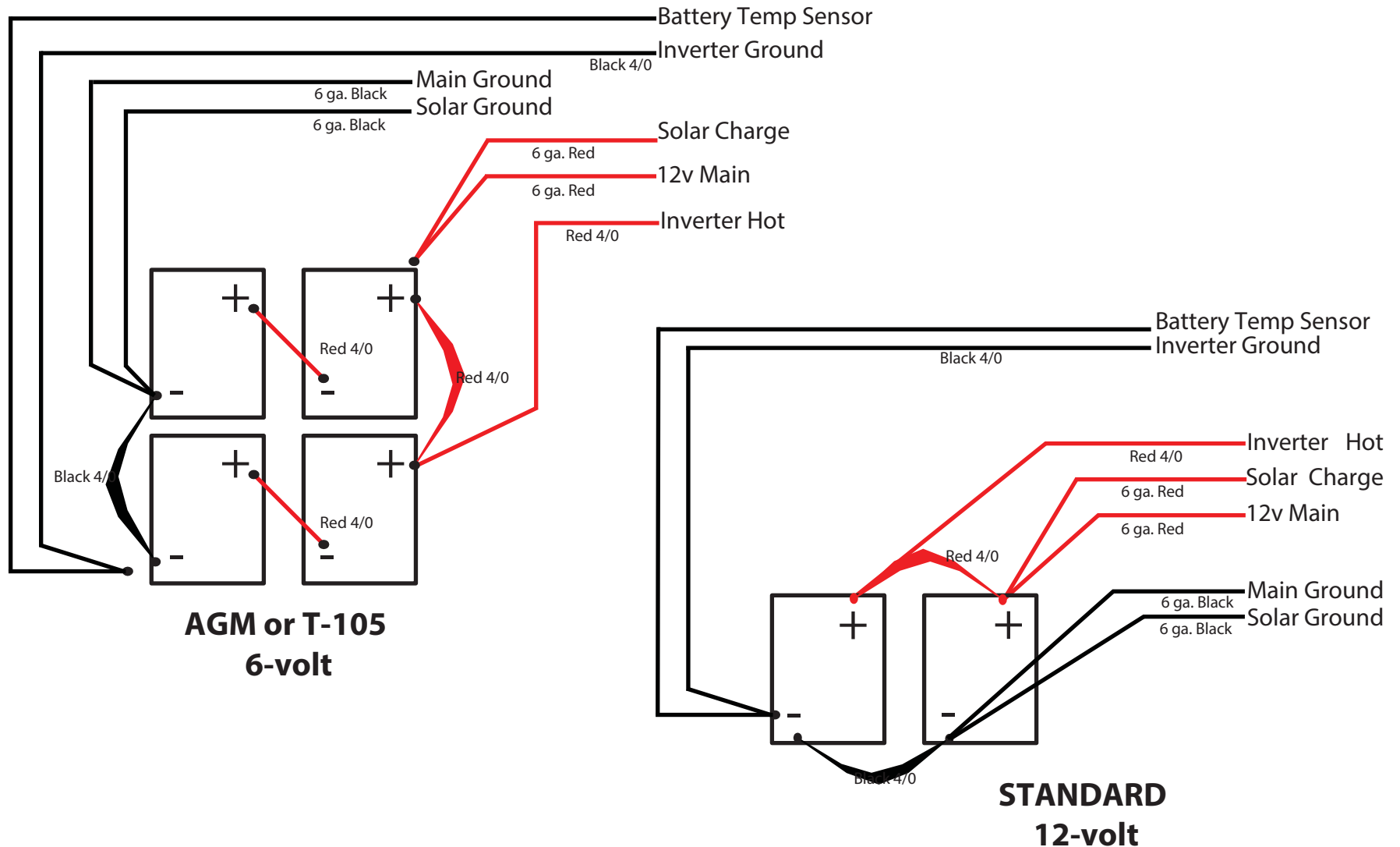


Battery Schematics

4x 6v Batteries
2x 12v Batteries

The schematics shown below consist of every option available.

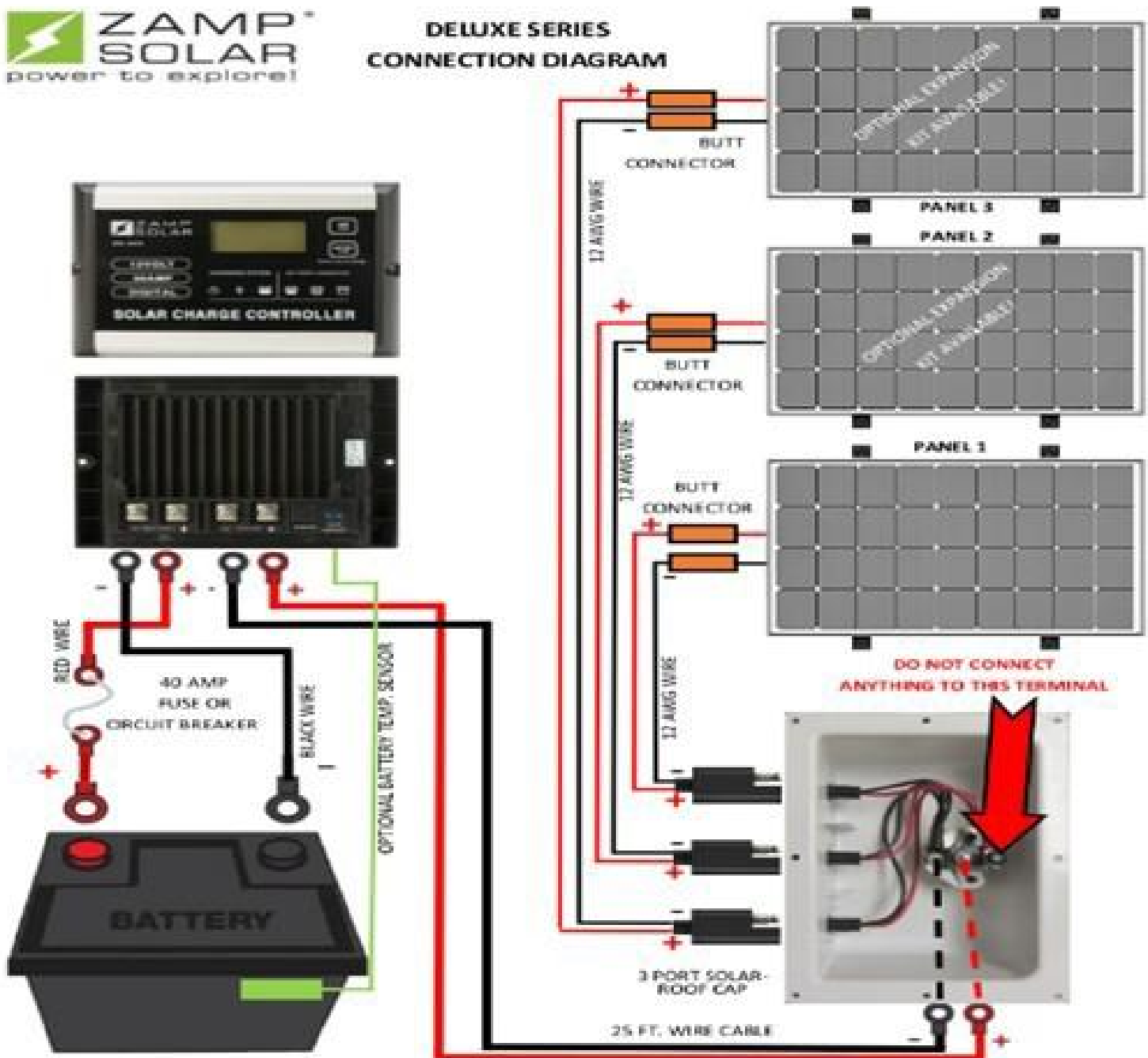
Please note that in the absence of an inverter ALL jumper wires reduce to 6 gauge.

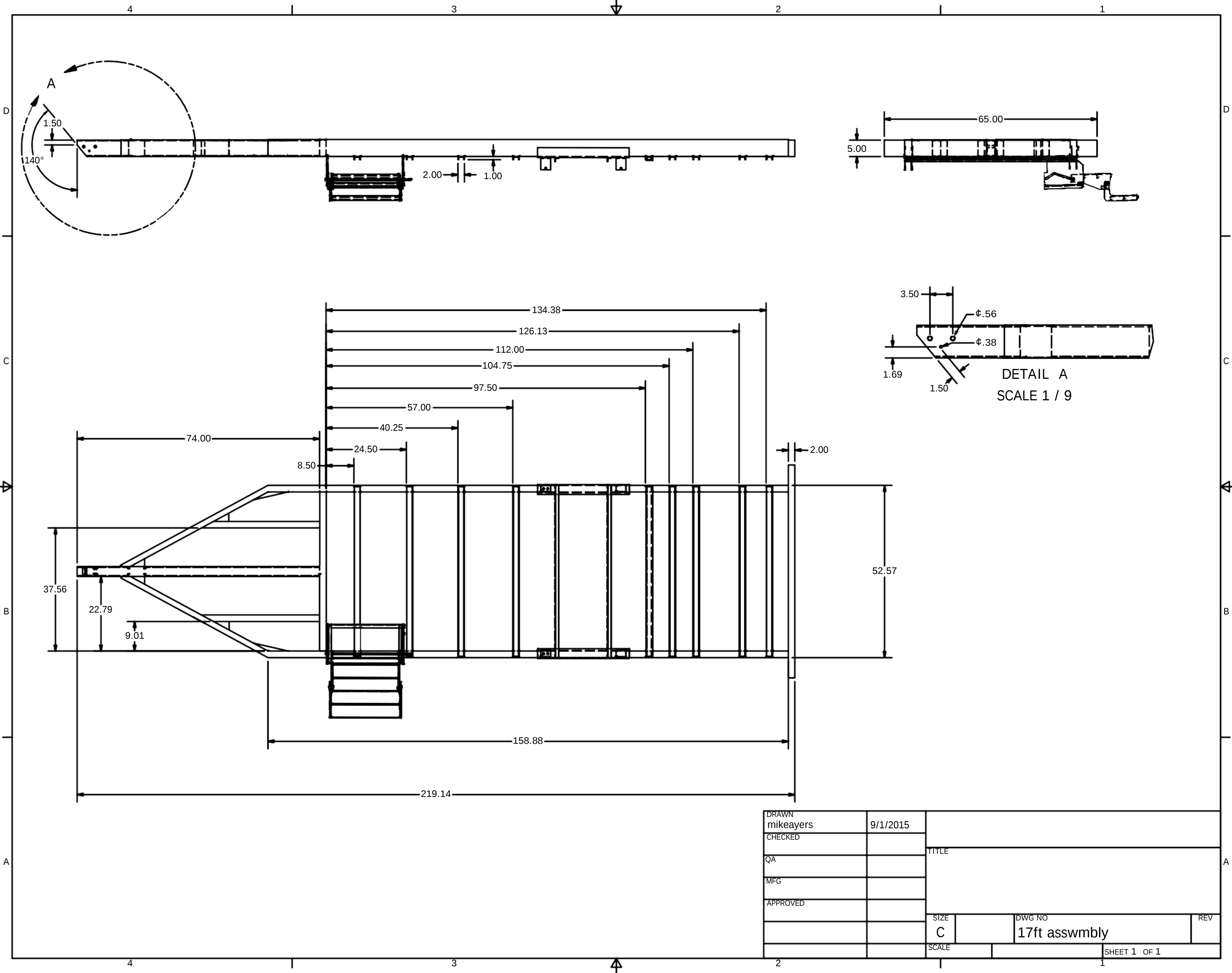


ZAMP Solar Schematic



DELUXE SERIES CONNECTION DIAGRAM





DRAWN mikeayers	9/1/2015	TITLE		
CHECKED				
QA				
MFG				
APPROVED		17ft asswmbly		
		SIZE C	DWG NO	REV
		SCALE	SHEET 1 OF 1	