

NORTHERN *Lite*



OWNER'S MANUAL

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Introduction

Welcome to the Northern Lite Family! We would like to thank you for choosing one of our high quality truck campers. This manual is designed to help you with the different systems in your camper in conjunction with the supplied manuals from the appliance and equipment manufacturers that we have included in the black pouch.

Your dealer also should provide you with a full walk through of all the systems but we understand sometimes it is a lot of information. If you have any questions, problems or concerns please contact your selling dealer. If they are not able to answer your inquiries please feel free to contact the factory directly.

Owner's Responsibility

As the new owner of a Northern Lite truck camper it is important to read this manual and all appliance manuals for safe and proper operation of your new unit.

Dealer's Responsibility

It is the dealer's responsibility to complete a full pre-delivery inspection prior to you picking up your new unit. Also they will complete a familiarizing of the camper and complete warranty registration.

Please read this entire manual and supplemental suppliers manuals before using or loading your Northern Lite truck camper.



Northern Lite Mfg. LP

New Recreational Vehicle Warranty

Northern Lite Mfg. Ltd. herein after called the Manufacturer, hereby warrants that the selling dealer, or the manufacturer will repair, replace or adjust any parts, except those parts and components which are covered by separate warranties of the individual manufacturers of such components (such as appliances, awnings, jacks & jack motors and windows) on its new recreational vehicles. If such parts are found to be defective in factory materials or workmanship made or supplied by the manufacturer. Most of these manufacturers have service centers throughout North America and their warranty information is included in the black document pouch.

This warranty is effective for twelve (12) months from the date of purchase by the original owner and warranty is nontransferable. This warranty does not cover any defects which are not immediately and properly reported as required herein. This warranty does not apply to the cost of transporting materials or the Recreational vehicle to or from the repair site.

This warranty also includes a six (6) year structural integrity warranty which becomes void by lack of regular maintenance, abuse, incorrect tie downs, neglect, alterations, modifications, accidents or misuse. All fiberglass repairs must be done with approved gel coat not automotive paint. All warranty repairs must have preauthorization prior to executing any warranty repairs. Any declared defects must be brought to the selling dealer or to the manufacturer attention no later than ten (10) days after the discovery of any alleged defects.

This warranty pertains only to new recreational vehicles handled in a normal manner. Any defects which, in the opinion of the manufacturer, have occurred as a result of misuse, acts of God, negligence, causes beyond control of the manufacturer, or alteration to the recreation vehicles are not covered by this warranty. This warranty does not apply to any recreational vehicle placed on rental or used for commercial purposes.

During the term of this warranty, repairs (parts & labour) will be made, at no charge to the customer, using Manufacturer's parts or authorized remanufactured parts.

This warranty becomes valid when the camper is registered online at www.northern-lite.com within (30) days of the date of purchase. The foregoing warranty is the only express warranty on the part of the manufacturer and the selling dealer. You may have other rights which vary by Province or State.

The foregoing express warranty is in substitution for and eliminates all other liabilities of any kind whether arising under statute, in tort, by implication of law and otherwise, including, to the full extent as may be allowed by law, liability for any other representations respecting the vehicle, statutory warranties or implied warranties or conditions as to its merchantability or fitness. Any suggested warranty or condition as to merchantability or fitness is confined to the applicable warranty term as defined herein.

Under no circumstances shall the manufacturer be accountable for loss or damage to the recreation vehicle or its parts, loss of time, inconvenience, business loss, consequential or other damages or any other claims associated to or amounting from any defect in factory materials or workmanship whenever found except as provided for herein.

We at Northern Lite Mfg. LP are continuously striving to improve our products. Changes are made from time to time as they are developed. We are under no obligation to retrofit from these changes to earlier models. The features and specifications are subject to change without notice. Northern Lite Mfg. Ltd. reserves the right to change any components used in production at their discretion.

We trust you will enjoy your new Northern Lite camper. Any success we now enjoy and hope to enjoy in the future will depend on how well we please our valued customers. Thank you for choosing a Northern Lite camper.

Installing and Loading Your Truck Camper

One of the most important aspects of owning a truck camper is learning how to correctly load and secure your truck camper to your truck. When loading gear into your camper, always try to keep the load even left to right. As well place heavier items forward of your trucks axle inside the camper.

Always ensure your truck has enough payload capacity to safely carry your camper. The dry weight of your camper is posted in the rear closet as weighed when it left the factory.

Tie Downs and Turn Buckles

The Northern-Lite 610 comes equipped with four ratchet tiedowns. These attach to the trucks in-bed cargo loops or cleats. The ratchets on all four corners must be used to secure the camper to the truck.

When loading, back the truck up under the camper centered left to right and stop about 18" short of the front of the box. Exit the truck and on the front jack, push the release lever to allow the webbing to freewheel on the ratchet. This will allow you to connect the Hook to the cargo tiedown in the truck bed. Repeat the process on the other front tiedown. Complete backing the truck under the camper until the front rubber bumpers contact the front of the truck box. Exit the truck and use the ratchet lever (gripping both paddles) to tighten the strap as tight as possible. Move to the other front ratchet and then repeat the process until the strap is tight. When the webbing has proper tension, you can feel a twang as you pluck the strap. Move to the rear of the camper and push the release lever and extend the rear tiedown hook to connect it with the rear cargo tiedown on the truck box. Tighten the strap with the ratchet, as tight as possible. Move to the other side of the camper and repeat the process on the other ratchet.

Recheck all ratchet straps to ensure that all are tight, and the camper is secured. Periodically check these ratchet straps during your travel, to ensure that all remain tight, and your camper is secure.

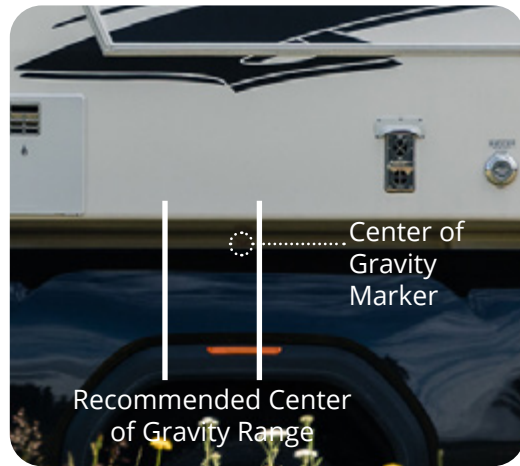
(The Northern Lite 610 tiedown does have a larger hole at the bottom, that can be used for Spring Loaded Fast-Gun tiedowns, which will require truck frame mounted tiedown brackets. When using Spring Loaded FastGun Tiedowns, do not over tighten them.)

Soft Rubber Mat

We recommend the use of a soft rubber bed mat, with a 3/8" max thickness, be installed directly under the bottom of every camper. This helps prevent the camper from sliding in the box. Do not use thicker horse stall type mats as they will allow the camper to move. **The use of a horse stall mat will void your warranty.** Your camper should be installed on a flat surface and fifth wheel hitches must be removed. If additional height is required we recommend using plywood cut to the length of your box with the 3/8" soft mat installed on top of the plywood.

Center of Gravity

Every Northern Lite truck camper has a center of gravity marker on the left and right side wall. The center of gravity should be within the COG load range found in your trucks Owner's Manual.



7-Way Plug Wiring

The 7-way plug on all Northern Lite campers is a female plug wired to industry standard 7-way flat pin wiring. You will need a male 7-way plug from your truck.

It is easiest to plug the 7-way connector into the camper once you have backed under the camper prior to lowering it.

White	Ground	10 Gauge
Black	Main Power (12 Volt)	10 Gauge
Green	Clearance Light	16 Gauge
Red	Not Used	16 Gauge
Brown	Not Used	16 Gauge
Yellow	Not Used	16 Gauge

Power Jack Raising and Lowering Truck Camper

- Read Happijac camper jack Owner's Manual and Happijac wireless remote camper jack controller manual before operating jacks.
- Always load and unload in a level and flat location.
- Always keep the front of the camper higher than the rear when raising or lowering.
- Camper front bumpers should just make contact with front of the truck bed.
- Use 12"x 12" pieces of plywood under each jack on soft ground and asphalt to prevent sinking.
- Never raise jacks past red safety line.
- Never leave jack unattended with locking lever in down position.
- Always disconnect camper tie downs before trying to level camper.
- Use extreme caution when windy.

IMPORTANT

Manual Loading of the Camper

- Raise the camper by inserting the jack handle firmly into the crank socket of one of the front jacks.
- Place the Locking Lever on the Happijac in the downward or "Free" position.
- Begin cranking the jack counterclockwise to extend the jack and raise the front of the camper by 3" working side to side. Or together on the front jacks if two people are loading.
- Move to the rear of the camper and again crank the jack counterclockwise to extend the rear jack(s). **Never raise the rear of the camper higher than the front.**
- Continue raising the camper going back and forth between the front and rear jacks till the camper floor is 3 to 6" above the height of the truck bed.
- With the camper clear of the truck bed, slowly back the truck under the camper, keeping equal distance between the wheel wells and the camper body. Ensuring the camper is aligned with the truck. (See Tiedown information on page for loading information)
- With the camper in the desired location on the truck. Begin by cranking on the rear jacks first, retracting them by cranking clockwise. Lower the rear of the camper by 3 to 4", and then move to the front of the camper and do the same. Repeat moving from rear to front, until the camper is in full contact with the truck bed.
- Secure the camper with the tiedowns, as described in the Tiedown Section.
- Once the camper is secured, fully retract all four jacks, and stow the crank handle.
- Flip the locking lever on all four jacks to the "Up" position, locking the jacks in place to avoid accidental jack extension.



Never raise the rear of the camper higher than the front.

Manual Unloading of the Camper

- Ensure that the 7Way electrical connection is disconnected, and that all tiedowns have been released.
- Place 12" Square Plywood pads below each Jack foot, and Flip the Lever on all jacks to Down
- Insert the Crank handle into the front jack socket(s) and begin cranking counterclockwise to extend the front jacks 3 to 4". Move to the other front jack (if working alone) and repeat the process, or together if two people are unloading)
- Move to the rear of the camper and insert the crank into the rear jack(s) socket.
- Crank the handles counterclockwise until the rear of the camper raises 3-4".
- **Never Raise the rear of the camper higher than the front!**
- Move to the front jacks and repeat raising the camper by 3-4".
- Go back and forth between the front and rear jacks, extending them in 3-4" increments until the base of the camper is 3-6" above the truck bed.
- Once the camper is clear of the bed, slowly drive the truck forward, be careful to pull away from the camper in a straight line, not hitting the wheel wells or jack. (Check your terrain prior to pulling forward, so that the truck does not hit a hole or rock, and pitch the truck into the camper)
- Once the truck is clear, you will need to lower the camper as low as possible. This ensures that the jacks are not stressed, and the camper is more stable in windy conditions.
- Insert the crank into the sockets of the rear jacks and lower the rear 3-4" working side to side if alone or together if two people are unloading.
- Move to the front and do the same. Bring the camper down in 3-4" increments.
- **Never lower the front more than the rear.**
- Continue repeating the steps above until the desired height is reached.



IMPORTANT

Camper Storage

Your camper is designed to be stored on the jacks. We recommend 12"X12" pieces of ¾" plywood under each jack pad. The camper should never be left in the air with the jacks fully extended. Always lower the camper as low as the jacks will allow and keep the front 2" higher than the rear. If you choose to add additional support using blocks or saw horses, you must have a full ¾" sheet of plywood between the bottom of the camper and the blocks or saw horses so that the weight is evenly distributed. Failing to do this may result in damage to your camper. Always store camper level left to right with the front higher than the rear.

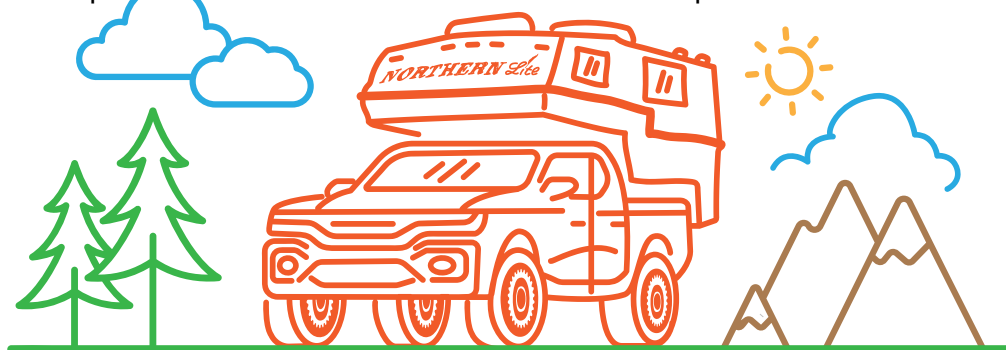
Camping Off the Truck

The 610 is not designed to camp in off of the truck. Camping in the 610 off of the truck may cause the camper to tip forward resulting in damage to the camper, injury, or worse.

Long Term Usage

The 610, like most RV's, are not designed for long term continuous usage. If you are going to use your camper for extended periods of time it is very important to control the moisture in the camper. Both during winter and summer in high humidity conditions. Whenever using the cooktop, it is advised to always run the range hood fan to exhaust heat/moisture to the exterior. Run the fan after cooking for a short period of time to minimize the heat/moisture caused by cooking. If your camper is equipped with the optional roof vent fan. This also should be utilized during your cooking or in high humidity conditions. In below freezing conditions, we recommend keeping your thermostat set to at least 74 degrees Fahrenheit.

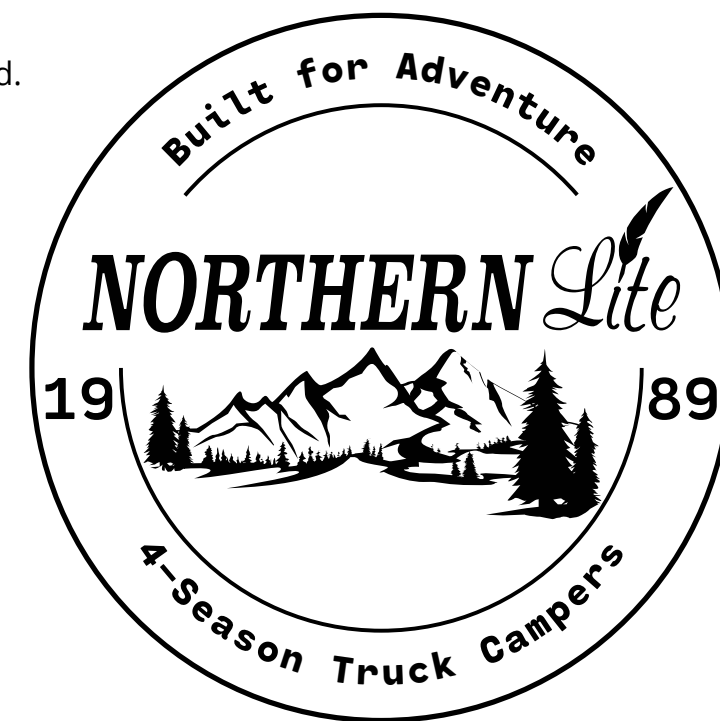
The Truma Combi also has a feature to help with long term usage. Although depending on the season, your camper may require heat for comfort in the camper as well as providing an environment for the tanks/basement to a temperature above freezing. When not using the heat mode, the Truma can be set to a fan or circulated air mode. Which will help to circulate moist air in the camper. Helping to reduce condensation and providing for a more even temperature throughout the camper. Refer to the Truma CP Manual for operational instructions.



Pre-Travel Checklist

To ensure that you have a great trip, and protect the investment that you have made in your truck camper, please go through the following checklist every time you prepare to move your camper.

- Ensure all windows are closed and levers are in locked position. *Failure to do this will result in window damage and possibly the loss of the window lens.*
- Ensure Heki Skylight is closed and latched.
- Ensure that the Lagon table leg is secured preventing the table and leg from rotating .
- Ensure the roof vent is closed.
- Always lower glass stove top cover prior to moving camper.
- Ensure fridge doors are securely closed.
- Ensure tie downs are in place.
- Ensure jacks are raised.
- Ensure the stairs are stored.
- Ensure that the Truma Combi (furnace and hot water) is turned off



Furnace and Water Heater

Your 610 Camper is equipped with a Truma Combi Furnace with an integrated water heater.

This appliance will run off LP Gas, or 120VAC, or a combination of both. The furnace portion of your Combi provides heat distribution to the interior of the camper, the basement storage and the termination valve, pump and tank area of your camper. Providing for four seasons use.

The water heater portion of the Combi will allow you to heat your water supply using LP Gas, Electric as well as a combination. The tank is not large, but it does have a fast recovery. When first turning on the water heater, it is advised to start up on LP Gas. As this is the fastest method of bringing up the water to temperature.

To operate the Combi on Gas, there is a switch located on the top of the Combi which is installed in the dinette seat. Open the left lid which will expose the Combi. There is a rocker switch (item #4) on the top of the Combi that must be turned on to use the Combi on a Gas or Gas/Elec. Combination.

The Truma Combi has an aeration elbow that is connected to a hose on the driver's side exterior. Keep this hose clear of debris and insects, as this allows air into the system to aid in draining the water heater tank.

Display and Operating Elements

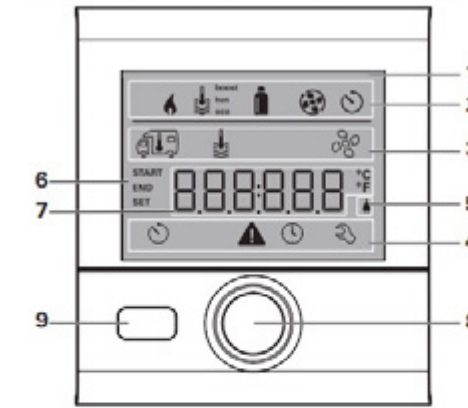


Fig. 1

- 1 Display
- 2 Status line
- 3 Menu line (top)
- 4 Menu line (bottom)
- 5 Power supply display 120 V AC (mains supply)
- 6 Time switch display
- 7 Settings/Values (displayed text)
- 8 Rotary push button
- 9 Back button

Rotary push button

The rotary push button (8) is used to select and change setpoints and parameters; it is then tapped to save the values. Selected menu items flash.

- Turn clockwise**
 - The menu is scrolled through from left to right
 - Increase values (+)
- Turn counterclockwise**
 - The menu is scrolled through from right to left
 - Reduce values (-)
- Tap**
 - Save a selected value
 - Select a menu item, go to the setting level
- Press and hold**
 - Main switching function – control panel on/off.

Back button

Press the back button (9) to go back to a previous menu and cancel settings. This means that the previous values remain unchanged.

Truma Combi

Quick Reference CP Plus Functions

ADJUST ROOM TEMPERATURE
Range: 40-86°F (5-30°C)

SELECT ENERGY MODE
a) LP gas
b) MIX 1* - Electricity 850W + Gas
c) MIX 2* - Electricity 1700W + Gas
d) EL* - Electricity 850W
e) EL* - Electricity 1700W

ADJUST WATER TEMPERATURE

a) **Boiler**
Hot water generator is on. Icon flashes until desired temperature is reached.

b) **Eco**
Water temperature is 104°F (40° C)

c) **Hot**
Water temperature is 140°F (60° C)

d) **Boost**
Boiler content is heated quickly (boiler priority) for up to 40 minutes. The water temperature is then kept at the higher level (about 144° F (62° C) for two subsequent heating cycles. When the water temperature is reached, the room is heated again.

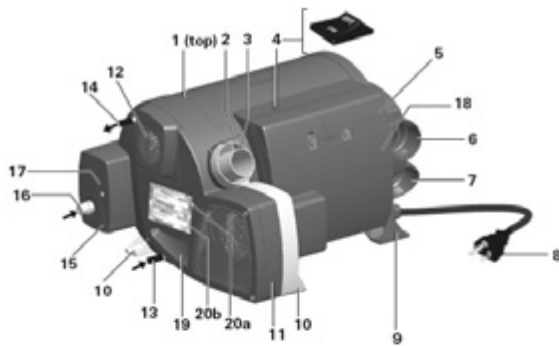
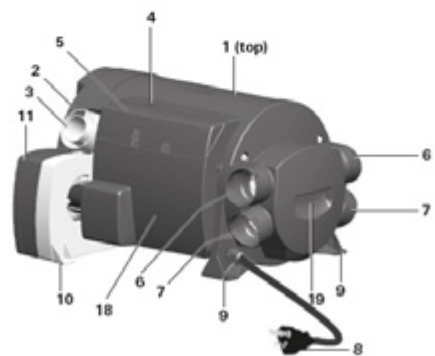


Fig. 2



Key

- 1 Combi furnace with supplementary indirect water heating
- 2 Connection for combustion air supply duct
- 3 Connection for exhaust duct
- 4 Switch for gas shut off valve
- 5 Connection cover
- 6 Warm air outlets (upper)
- 7 Warm air outlets (lower)
- 8 2-pole, 3 wire 120 volt electrical plug (NEMA 5-20P) (only on Combi eco plus and Combi comfort plus models)
- 9 Plastic frame feet
- 10 Aluminum frame foot
- 11 Circulated air fan
- 12 Fan for combustion air
- 13 Cold water connection (inlet)
- 14 Hot water connection (outlet)
- 15 Gas shut-off valve (behind the cover)
- 16 Gas connection (inlet)
- 17 Test connection (gas) (behind the cover)
- 18 Electronics housing cover
- 19 Recessed grips
- 20a Original type plate
- 20b Duplicate type plate

Both the Furnace and Water Heater portion of the Truma Combi are controlled by the Truma control panel located on the rear closet face. Read the operation manual for the CP Plus prior to starting the system.

SET CLOCK TO CURRENT TIME

SET TIME SWITCH
Set a start time and end time for room temperature, water temperature, energy mode and fan speed set points.

SETTINGS
Index - Show version number of connected device
Bright - Adjust backlighting
Lang - Adjust language
12-24h - 12/24 hour mode
Temp - °F or °C
Offset - Calibrate temp offset
Pr set - Factory reset

SELECT FAN SPEED

OFF
Fan is switched off (if furnace mode OFF)

a) **Vert**
Circulating air (if furnace mode OFF)

b) **Eco**
Low fan speed

c) **High**
High fan speed

d) **Boost**
Fast room heating. Available if the difference between the selected and current room temperature is >10° F (10° C).

Range/Sink Combination

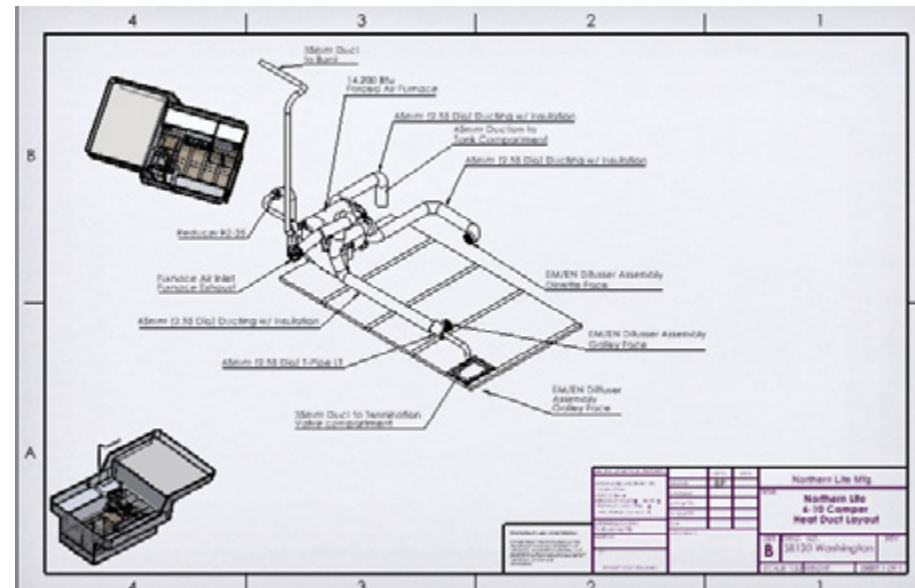
The 610 Galley has a two-burner cooktop with an integrated sink.

Lighting the Burner

Press in the knob corresponding to the burner you want to light and turn it anticlockwise (until the maximum symbol)

Simultaneously, activate the piezoelectric lighting device with several fast repeated pulses. When lit, keep the knob pressed all the way in for another 5 seconds (max) and then release it, adjusting the desired intensity of the flame. Note: the delay in releasing the knob heats up the safety thermocouple.

If the burner does not remain lit when you release the knob, it means that the thermocouple was not sufficiently preheated. Repeat the lighting process to correct the issue. Your cooktop has two burners, one being the Main burner, the other being the auxiliary burner. These burners have a minimum and maximum size for the cooking pots/pan that can be safely used.



Burner	Minimum Size	Maximum Size
Main Burner	6.29" - 160mm	8.66" - 220mm
Auxiliary Burner	3.14" - 80mm	6.29" - 160mm

Your Truma Combi delivers heat to your camper using a high temperature low velocity heat distribution system, that is almost silent. Although the ducting is insulated, ensure that areas that contain ducting are not used for storage.



Warning! Truma Combi and its attached components are extremely hot. Ensure that Combi Enclosure and components are not contacted while the Combi is running. Burn Risk!

DANGER

- Do not use gas cooking appliances for comfort heating.
- Can lead to carbon monoxide poisoning which can lead to death or serious injury.

WARNING

- Gas cooking appliances need fresh air for safe operations.
- Before operating:**
- Open vents or windows slightly or turn on exhaust fan prior to using cooking appliances.
 - Gas flames consume oxygen, which should be replaced to ensure proper combustion.
 - Improper use can result in death or serious injury.

Plumbing System

Your Camper's water system uses PEX waterlines that connect all fixtures, appliances etc.

Your water tank is filled from a Potable water inlet located on the left side of the camper near the front. This fill goes directly to the water tank, as does the vent, from this same connection. Fill the tank from a potable water source and check the level on the monitor panel located on the fridge wall. When full remove the hose and then place the cap back onto the fill.

To operate the system, turn on the water pump switch that is located on the monitor panel. With the pump on, any faucet/shower/toilet that is opened, will start the pump and deliver water to the desired fixture. When the fixture is shut off, the pump will stop running shortly after.

The second method using the water system in the 610, is City Water. Located at the Front Roadside corner of the camper, is an inlet that is marked City Water. To use this feature, remove the plug from the connection and connect a potable water hose. Only use a water hose that is suitable for drinking water, and only use it for that purpose. Using the same hose for washdown etc. can contaminate the hose and you drinking water.

To protect your plumbing system, when connected to city water, you must use a a 40-50lbs pressure regulator.



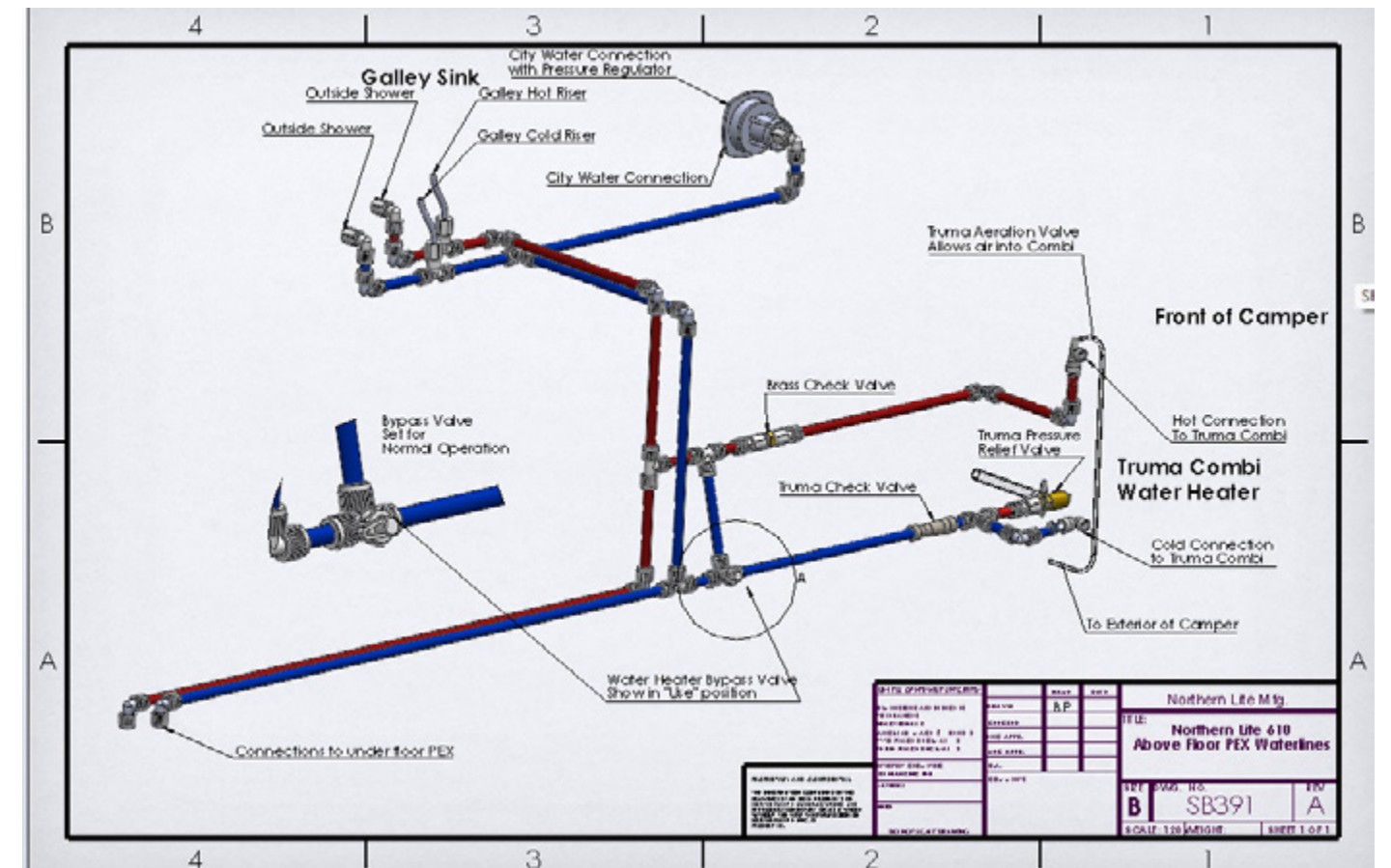
Being that when connected to city water, your camper has an endless supply of water. It is advised that when leaving the camper for extended periods, that the city water be turned off at the source. Protecting the camper if there should ever be a faucet, or connection failure.

Fresh Tank Maintenance

From time to time your water tank may develop an odor if it has not been used for some time, or if some contaminated water entered the tank/system. To ensure complete disinfection of your potable water system it is recommended that the following procedures be followed. You may also wish to cleanse your system using this procedure prior to winterizing your camper.

Procedure

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



Winterization

Your 610 camper is equipped with built-in plumbing components to simplify winterizing your camper.

Located at the base of the fridge cabinet is an access hatch. Behind this hatch is the water heater bypass valve. This valve shuts off supply water to the Combi Water Heater and directs it to the remainder of the hot waterlines. That way when winterizing, you are not filling your Combi water heater with anti-freeze. This system utilizes a single valve for this operation, there is a check valve in the system that prevents anti-freeze from back flowing into the water heater output.

To Winterize the 610, follow the steps below.

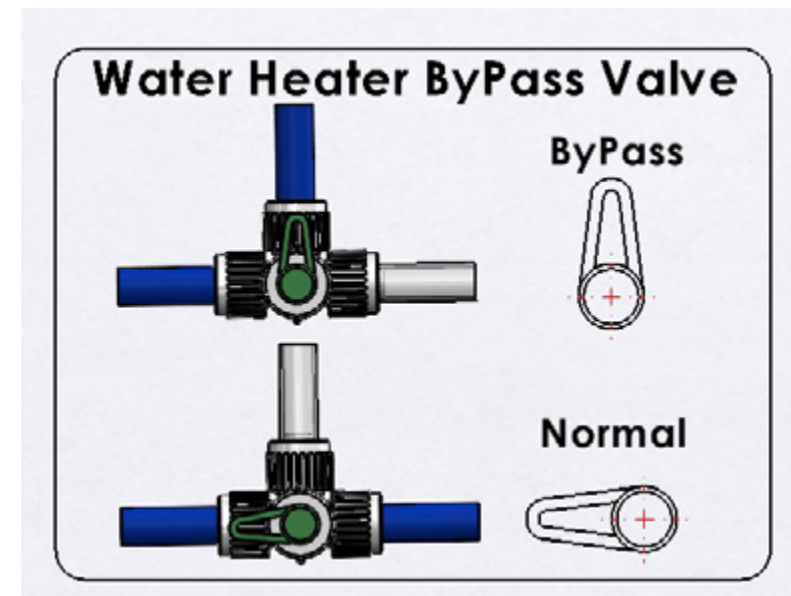
- Open the LH Baggage door located on the exterior of the camper below the entrance door.
- At the bottom of the service compartment there are two valves. To Drain the Water tank, open Valve "A".
- Once Drained, Close Valve "B" this closes off the line from the tank to the water pump. Also, close valve "A".
- Drain all the above floor lines using the low point drain valves, which are located on the roadside wall in the service compartment. Valve "E" drains the hot waterlines, Valve "F" drains the cold lines.
- Valve "G" is the Truma Combi Pressure Relief valve. This empties your hot water tank. Open the Hot side of the galley sink or outside shower, to relieve pressure.
- By flipping the lever on this valve (G), hot water will be under pressure and drain the line from the water tank as well as the tank contents. Once the flow stops you can close the valve and shut the faucet or shower.



Caution: Water exiting the pressure relief valve is Hot, Scalding can occur.

- Close the pressure relieve, as well as the two low point drain valves.
- Enter the camper and remove the service hatch on the fridge face. Turn the handle on the By-Pass valve (Fig.1) so that it aligns with the vertical Pex Tubing. This puts the system into a winterize mode and bypasses the Truma Combi. See the Decal in the valve Area for reference.
- Remove Cap "C" and Connect the Anti-Freezer Pick-up hose. Place the pickup tube into a gallon of Potable Anti-Freezer.
- Turn on the water pump with the switch located on the monitor panel.
- Flush the cassette toilet, until Pink Antifreeze is visible in the toilet. Provide one additional flush to ensure that Anti-Freezer is present in all components of the toilet.
- Open the Galley Cold faucet, and run the faucet, till pink Anti-Freezer is visible. Shut off the faucet.
- Then repeat the same process for the hot water side of the faucet.
- Go outside and open the cold faucet on the Exterior Shower. Run the cold faucet on the shower till Pink appears. Then repeat the process for the hot faucet.
- Go into the camper and turn off the water pump. Exit the camper and locate the city water connection on the roadside. Remove the plug from the hose connection, and carefully remove the screen filter with rubber washer, preventing damage to the rubber washer
- Invert the conical filter so that the screen points inward and standing aside of the opening, push the screen in (or use a ballpoint pen) to depress the backflow valve. This will cause antifreeze pressure in the waterlines to squirt out of the city water opening and winterize this section of the waterlines.
- Once this is completed, install the screen filter with the cone pointing outward, and then close the inlet using the plug.

This will complete winterizing of your waterlines!



Summerize Your Water System

- To make your winterized camper ready for summer use, follow the following procedure.
- In the basement service compartment, open all low point drains to allow the anti-freeze in the lines to drain.
- Once the flow has stopped, close the low point drains.
- Your tank drain valve "A" (located in the basement service compartment) should be closed.
- Open the water tank pickup valve "B" to allow water to flow to the pump.
- Ensure the Anti-Freezer pickup cap is on, and the Antifreeze Valve D is closed.
- Enter the camper and remove the access hatch under the fridge.
- Turn the water heater bypass valve so that the handle aligns with the horizontal line (Fig 2.) This allows water to flow to the water heater.
- Fill the water tank with some water, and then turn on the water pump.
- Opening each faucet will flush out any residual anti-freeze from the system.
- When the anti-freeze is no longer present at each location, shut the faucets and you can fill the water tank, making the system ready for summer use.
- Remember at this point the water heater is empty on the Combi, and a hot water faucet will need to be opened to fill the water heater. When water is present at a hot faucet location, the Combi Water heater is filled and is ready for use. You can top up the water tank with about 3 gallons of water, which is what would have gone into the water heater.

Waste Drainage System

Prior to use

- Remove the waste holding tank through the rear service door.
- Place the waste-holding tank upright and turn the pour out spout upwards.
- Remove the cap from the pour out spout.
- Check the correct dosage of your waste holding tank additive and add it to your waste holding tank.
- Add approximately 3 litres of water to the tank to ensure that the chemical is evenly distributed covering the bottom of the tank.
- Screw the cap back onto the pour spout.
- Slide the waste-holding tank back into its original position via the service door.

Use of the Toilet

- On the front of the toilet, move the lever to Open the slider valve on the tank.
- Use both hands to rotate the toilet bowl to the desired position.
- After using the toilet, press the flush button and hold for several seconds to flush the toilet.
- Rotate the toilet back to its stored position and close the slider valve on the tank.

Toilet information

- Always use RV toilet tissue, as it dissolves quickly and prevents clogging.
- Flushing your toilet will be more effective if you pulsate the flush by pressing the button several times in a row.
- To prevent water damage to your camper, do not travel with water in the toilet bowl.
- Do not leave water in the toilet bowl if the toilet is not being used. This does not help reduce unpleasant odors, and only leads to flooding.

Emptying the Toilet waste holding tank.

- Your Cassette toilet has a level indicator near the back of the toilet, on top of the fixed portion. When the indicator turns from Green to Red, the waste-holding tank is full.
- Remove the waste holding tank from the toilet tank access door.
- Fold out the pull handle until it's fully extended.
- Pull the tank to an authorized waste disposal point.
- Place the waste holding tank upright and turn the pour out spout upwards.
- Remove the cap from the pour spout.
- Press and hold the vent button with your thumb while the pour out spout is pointing downwards to empty the waste holding tank.
- Add approximately 5 liters of water to the waste holding tank and replace the cap.
- Gently shake the tank to clean it, then empty the waste holding tank again.
- Remove the float from the waste-holding tank by turning it clockwise and rinse the float with tap water.
- Fold in the pull handle until it clicks into place.
- Slide the waste holding tank into the toilet and close the service door.
- If you wish to continue using your toilet after emptying the waste holding tank, prepare the waste holding tank again. See "Prior to Use!"



To prevent water damage to your camper, do not travel with a holding tank that is more than $\frac{3}{4}$ full. Otherwise leaking may occur through the venting system.

Do not allow the waste holding tank to become too full.

Always use green toilet additives, that are safe to empty into septic tanks or small biological systems on camping sites.

Emptying the Camper Grey Waste Tank

- Connect a sewer hose with the bayonet fitting to the grey waste tank outlet, located in the roadside rear storage compartment. Pull the 1 $\frac{1}{2}$ " slider valve all the way to empty the tank.
- The Grey waste tank is now empty. Push in the slider valve firmly, and cap the outlet with the termination cap.



The galley drain line does not use a conventional P-Trap and utilizes a waterless trap. Therefore, no antifreeze needs to be added to the drain. Warning, if ever the Galley drain line needs clearing, remove the waterless trap before using a mechanical clearing tool in the drain line. Otherwise, damage will occur to the trap.

Electrical System

120-Volt Power Cord

The Northern Lite 610 is wired to operate both 12volt and 120VAC electrical systems. The 120VAC portion of the camper is supplied via a detachable 30amp Power Cord on the exterior of the Camper. This cord has a polarity indicator. This will illuminate if the power source that your camper is plugging into has been wired incorrectly, preventing damage to your camper and appliances.

This cord runs to the Power Distribution Center where the power is split into branch circuits delivering power to the various appliances, and receptacles.

The circuits and their breakers are listed on the inside of the converter door.

The 120VAC portion of the Converter powers the Power Converter (12v), Receptacles, Optional Microwave and Air Conditioner. As well there is a circuit, which supplies power to the Truma Combi for Heat and Hot Water. These circuits are protected by breakers in the panel. Refer to the label inside the door to identify these circuits and their breakers.

The 12volt power that comes from the power center is distributed to several circuits. Providing 12volt power for the Ceiling Lights, Cabinet Lights, Range Hood Light & Fan, Ceiling Fan. As well there are circuits for the Truma Control Panel, the Truma Combi (fan/ignition), the Ceiling Fan, Water Pump and Toilet. The 12volt Circuits are protected by automotive type ATC fuses.

Lithium Batteries

The Northern Lite 610 is designed to be powered by a Lithium Battery only. The battery box will hold a variety of Lithium Battery brands, and sizes. Lithium Batteries require no ventilation, are lighter and provide more power. Which is why this source of power has been selected.

Lead Acid or AGM batteries should never be used in this compartment, as during charging Lead Acid and AGM batteries do off gas Hydrogen, which explosive when exposed a spark or flame.



A Lead Acid or AGM battery should never be installed in the non-vented 610 battery location. An Explosion causing injury or death, may result.

The 610 is equipped with a battery disconnect switch that is located on the galley face. By turning this red key, you will disconnect all 12volt power that is distributed through the panel board. The Fridge, and Optional power jacks, will remain connected to the battery and are available for use.

While driving, your battery disconnect switch should be left in the on position, as the charge coming from your truck passes through the converter to the battery. If the switch is off, your truck will not charge your camper battery.

You can check if your truck is charging the battery by doing this test.

- Start your truck and ensure that the 7-way connection to your camper is made.
- Go into the camper and turn the disconnect switch to "Off". This ensures that no power from the battery is making its way to the distribution center.
- Turn on any 12volt light or fan. If it operates, then your camper is receiving power from the truck.
- Turn off the light or fan used in the test, and then turn the disconnect switch back to "ON." This will allow power to run from the truck to the camper battery.

The battery is also charged off the roof mounted solar panels. Power from the panels runs to the solar controller first, where the voltage is regulated, and then that regulated power continues to the battery. There is a breaker for the solar panel located in the battery compartment.



Warning! Only install Lithium Batteries that include a Battery Management System (BMS) in the designated battery non-vented storage area.

The Optional battery provided by Northern Lite is a smart lithium battery. The optional battery is a Dometic GoPower GP-ADV-LIFEPO4-100. The Battery is controlled by an internal battery management system (BMS). The BMS is a non-power consuming, passive electronic device, that protects the battery against deep discharging, overcharging, over-temperature and ensures cell balancing on all serial blocks during charging. The Battery is equipped with a Power button with an LED. This button turns the battery On/Off, and will allow the battery to transition between modes

Mode	LED Function	Battery Function
On	LED is solid on	Battery charge and discharge paths are both enabled and BMS power is on
Off	LED is solid off	Battery charge and discharge paths are both disabled and BMS power is on
Sleep	LED is slow flashing	Battery charge path is enabled but discharge path is disabled and BMS power is on
Reserve	LED is slow flashing	Battery charge path is enabled but discharge path is disabled and BMS power is on

There is a heater inside the battery on the bottom of the side cells. This heater is controlled by the BMS and allows for the battery to be charged in ambient temperature as low as -20oC. The BMS has three modes for heater control. Without using the heater, the battery will not charge at temperatures below 0C.

Mode	Heater Function
Auto	The heater is always on when the battery is in sleep mode and always off when battery is in OFF mode. When battery is in ON mode the heater will only turn on when there is a charging source available that is capable of fully powering the heater.
On	Heater always turns on when the battery internal temperature is below 2C and stays on till the Battery's internal temperature is above 7C.
Off	Heater is always off

The battery can be monitored and controlled using the Go Power Connect! App. The App can be downloaded from this site:



Follow the instructions to add the GP-ADV-Lithium Battery to your App.

Battery Safety



Warning! Risk of Injury

- Batteries contain aggressive and caustic acids. Avoid battery fluid coming into contact with your body. If your skin does come in contact with battery fluid, wash that part of your body thoroughly with water. If you sustain any injuries from acids, contact a doctor immediately.
- When working on batteries, do not wear any metal objects such as watches or rings. Batteries can cause short circuits which can cause serious injuries.
- Only use insulated tools when working on the battery
- Do not place any metal objects on the battery.
- Wear goggles and protective clothing when working on batteries. Do not touch your eyes when working on batteries.
- Do not use defective batteries.



Warning! Health Hazard

- Keep battery out of reach of children.



Caution! Electrocutation Hazard

- Keep battery away from water.
- Avoid Short Circuits.
- Avoid Clothing rubbing against the battery.
- Wear antistatic clothing when handling the battery.



Caution: Explosion Hazard

- Do not place battery in an area with flammable liquids or gases.
- Never attempt to charge a frozen or defective battery. Place the battery in a frost-free area and wait until the battery has acclimatized to the ambient temperature. Then start the charging process.
- Do not smoke, use an open flame or cause sparking near the battery.
- Keep the battery away from heat sources.



Notice! Damage Hazard

- Only use rechargeable batteries
- Prevent any metal parts from falling on the battery. This can cause sparks or short circuit the battery and other electrical parts.
- Ensure the polarity is correct when connecting the battery.
- Follow the instructions of the battery manufacturer and those of the manufacturer of the system or vehicle in the battery is used.
- If the battery must be removed, first disconnect the ground connection. Disconnect all connections and all consumers from the battery before removing it.
- Only store fully charged batteries. Recharge stored batteries regularly.
- Do not carry the battery by its terminals.

Safety and Misc. Systems

Smoke/CO Detector

Every camper comes equipped with a combination smoke and carbon monoxide detector. Test the device after your camper has been in storage, before each trip and once a week during a trip. Replace the batteries at least once a year with two "AA" batteries or when the low battery alarm goes off (will beep once a minute). Test after replacing batteries.

Never disconnect the battery due to nuisance alarms or from cooking. Ventilate the camper and the alarm will stop. Vacuum once a month to keep dust free.

LP Gas Detector

The LP Gas Detector in the 610 is located in the Galley face. This detector is hard wired into the camper's 12-volt system. This detector will alert you of the presence of potentially dangerous LPG gas, that may be the result of a defective appliance, propane line leak or an incorrectly adjusted appliance burner. In the event that the detector goes off. Extinguish all flames and smoking materials. Do not turn on any lights or fans. Open a window and door and leave the camper. Do not enter the camper till the propane odor is not detected. Or when the LPG detector stops the alert.

The LPG detector will periodically beep if your camper battery voltage is too low. These beeps will occur every 30-60 seconds.

This means that your detector is working, but not at the optimum level of detection. Charging the battery, or plugging the camper into shore power, will stop this alert once the battery voltage rises.

Fire Extinguisher

Every camper comes equipped with a Fire Extinguisher mounted off the floor by the rear door. Pull the pin and direct discharge at the base of the fire in a sweeping motion. Once used the fire extinguisher must be refilled or replaced.

Solar Panel

Your camper comes standard with at least 2 x 200 watt solar panels and a 30amp solar controller. At peak sunshine your panels will charge up to 19.2amps into your camper's batteries. The solar panel bypasses the battery disconnect switch so it always charges your battery and the Solar Controller is a smart charger so it won't overcharge your batteries.

Looking for manufacturer guides?

northern-lite.com/northern-lite-manuals/



Microwave

To operate your optional microwave you must be plugged into shore power.

Means of Egress

As required by all RV Codes, your 610 camper has two means of egress, should an emergency arise.

The main means of egress is the Entry door. Should that exit be inaccessible, the alternate means of egress is the dinette window. Locate the red handles, push out the window and exit the camper.

Camper Maintenance

Interior Windows/Heki Skylight

Never clean your windows or skylight using paper towel as it can scratch them. Use a soft micro-fiber towel and the supplied cleaner. If you do scratch your windows there is a scratch remover kit supplied with each camper. When washing the outside always spray windows first to ensure no grit or grime is left on them and use a clean soapy brush to gently clean window. Always spray brush with water first to ensure there is nothing in the brush that may scratch the windows.

Always ensure windows are closed and latches are in locked position prior to moving camper.

Fabric

Seat cushions are foam backed and can be professionally cleaned if needed.

Ceiling

If you get a stain on your ceiling fabric use a carpet spot cleaner to gently clean the area.

Exterior Maintenance

The exterior of your camper is a high end Marine Gel Coat and should be washed regularly with mild soap and water. Waxing the front of the camper using a quality Fiberglass boat wax will make removing bugs and road grime easier.

Wax the jack legs every six months to prevent rusting. If you are driving in winter, clean jacks regularly to keep road salt and calcium off the jacks.

Check roof coating and sealants every six months. If there is any peeling or lifting scrape off any loose sealant and reapply.

Sealant Used

Around roof vents: *Dicor Lap Sealant*

Around solar brackets and TV antenna: *Dicor Lap Sealant*

Around all doors, lights, Windows & center trim: *Proflex RV or 3MUV4000*

To reseal the inside of the plastic boxes and jack bracket: *Proflex RV*

Useful Links

Truma Combi	www.truma.com
Norcold Fridge	www.norcold.com
Progressive Dynamics	www.progressvekyn.com
Thetford Cassette Toilet	www.thetford.com
Happijac	www.happijac.com
Shurflo Water Pump	www.shurflowaterpump.com
Lithium Battery	www.gpsolar.com
Solar Regulator	www.gpsolar.com
Air Conditioner	www.dometic.com
Maxx Fan	www.maxxair.com
Entry Step	www.torklift.com
Range Hood	www.furrion.com
Rear Vision System	www.furrion.com
Exterior Shower	www.bandbmolders.com

