Dave's Navion 2020D (TARVis) Troubleshooting and Maintenance Guide

Compiled by David Thomson

with generous assistance from the View/Navion Motorhomes FB group members

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Winnebago Navions (and Views) have numerous known issues that can require maintenance or repair. The first section of this guide is intended as a first-place-to-look in case of a failure. At the end of this section is a list of any special tools that are called out in the procedures listed. The second section lists tips for using the RV and its systems, while the third section compiles some maintenance tips that the View/Navion community has accumulated.

I began assembling this document for my own use, but due to community demand, I have made it available to the FB V/N forum members. Sections that are specific to modifications I have made on our Navion (the TARVis – Thomson's Adventure RV) have a note in green and can mostly be ignored by other users. Although much of this document will be useful for many Views and Navions, the fact that we have a 2020D will have influenced some of the content. Sections that are specific to a floorplan or year other than Dave's 2020D will be noted in blue. A diagram of the TARVis electrical system is included (Electrical Diagram) as well as one of the plumbing (Plumbing Diagram). When reference is made (in purple) to an item (e.g. Nnn for an appliance or device, Fnn for a fuse, or Bnn for a breaker) those refer to the items marked on that diagram.

Where possible, I have included sections of technical documents from manufacturers. Although this makes the manual considerably larger, it is consistent with the goal of making this manual the first and hopefully last place to look for solving some common problems. Hopefully, the manufacturers will rest easy regarding their copyrights, since this document is not being sold or used for profit in any way. I have also tried to give credit where credit is due.

This document will never be complete. Text in orange indicate some of the many sections that need contributions from the community. I will add to this document as possible, and will include a date stamp in the form YYYYMMDD in the name of the file in which this document is stored so that one can determine the most recent version available. If you contribute to this manual and would like your name included for credit for a section or photo, please indicate how your name should be shown. Also, if you would like to contribute, please include the brand and model of any item you are describing, as well as the year and floorplan of your RV, so that others have a good idea of how relevant your description is to their situation. You can send such information to David Thomson on the FB View/Navion forum by using Messenger or making a post and including my name so that it catches my attention. Please don't edit this document directly and re-upload it, since multiple people editing it will inevitably cause problems.

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Important Specs

These numbers are specific to our 2020D. Other models may vary.

Height	11’	(I’ve measured 10’ 8”, but 11’ is a good number to use for under bridges.)
Width	7’ 6.25”	
Length	25’ 6”	
GVWR	11030	(Max allowed weight of the truck fully loaded, not including toad.)
Tire Pressure	61 psi	
Freshwater Tank	30 gal	
Black Tank	41 gal	
Grey Tank	41 gal	
Propane Tank	12 gal, 50.76 lb	
Diesel Tank	24.5 gal	

Trouble-Shooting On-the-Road

This section is intended to help resolve issues that may occur while camping or traveling.

Coachnet!

A roadside assistance program is a useful option to have, in case the tips below are insufficient to the issue you may be having. Based on numerous posts on the FB V/N forum, Coachnet seems to be a favorite, though other companies/services have their proponents as well. As of this writing, a current phone number for Coachnet is 877-801-0333.

Murphy Bed Motor Failure

The Murphy bed joints and mechanisms can fail. If the bed is down and the slide is out, a failed Murphy bed can prevent the slide from being brought in, thus preventing moving the RV.

The Murphy bed uses two straps, one on the left (towards the rear of the RV) and one on the right. The left strap pulls the bed down. The right strap lifts the bed up. To lift the bed if the straps or motor have failed, it is necessary to disengage the left strap, then manually raise the bed.

The View/Navion manual contains the following instructions for manually raising the Murphy bed:

Manually Raise the Murphy Bed

If the Murphy Bed is malfunctioning you may need to manually raise the Murphy Bed.

- Lift the mattress slightly and unlatch the (4) four mattress straps from the bed frame slats. Remove the mattress from bed and set aside.
- Remove (4) screws from drive belt roller (located on the bottom side of mattress).



- Reattach mattress straps to bedframe slats.

- Manually lift the Murphy Bed into the stored position.
- Tie belt to sofa frame to secure.

To fix the belts (retension the belts), here are some relevant instructions:

Right-hand belt, lift belt - With the bed in the down position, wrap the belt 3 times around the drive shaft, then route it through the floor mounted roller and up to the bed tensioning plate.

Left-hand belt – With the bed in the down position, wrap the belt 9 times around the drive shaft in the opposite direction of the lift belt, then route it through the wall mounted roller and up to the bed tensioning plate.

Cycle the bed 6 times and lift it to a 45 deg position, at this point you should be able to take all the slack out of the left-hand belt"

The right-hand mechanism does almost all the work.

Christopher Sorensen assembled another set of more detailed instructions:

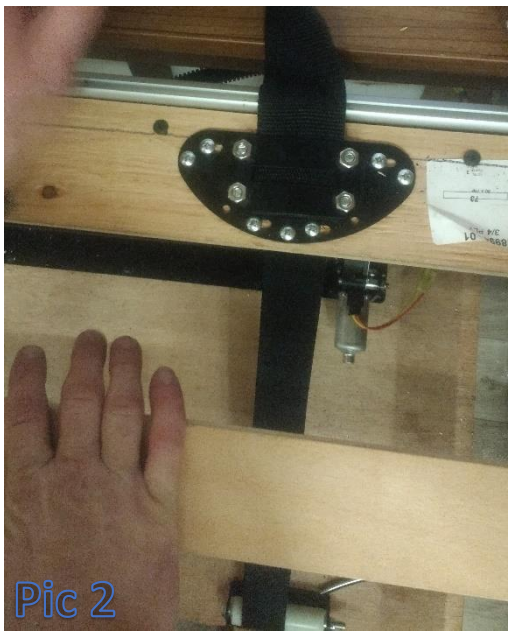
Initial Tensioning



1) With the bed in the down position, attach cabinet pad and unwind both straps completely from the motor axle.

2) Looking from the center of the motor, wrap the right hand strap counter clockwise around the axel two times.
(Pic 1)

3) Route the right hand strap across the floor through the roller asm to the Belt tensioner plate asm located on the top
of the Bunk Asm-Murphy. (Pic 2)



4) Carefully cycle the bed to the “up” position

5) Looking from the center of the motor, wrap the left hand strap counter clockwise around the axel two times (Pic
3)

6) Route the left hand up and over the upper roller asm to the Belt Tensioner

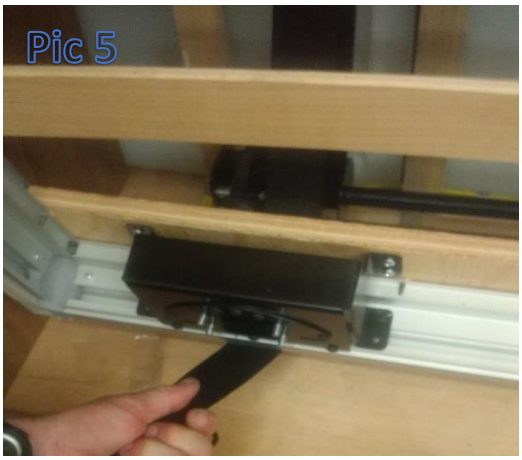
plate asm located on the bottom of the Bunk Asm-Murphy . (Pic 4)





***NOTE: Before cycling the bed ensure the batteries are fully charged, coach or generator is running, or plugged in to shore power to ensure proper voltage to power the bed. 13.5 Volts for optimal performance.**

7) Set the bed somewhere between a 45 degree angle and a 5-degree angle. The front strap should now have tension on it and the rear belt will be slightly loose. Loosen the nuts on the rear belt tensioner plate and pull the strap tight. Retighten the bolts. (Pic 5)



8) Cycle the bed up and down 5 times. Place bed back at a 45-degree angle and check the rear belt for tension. If it feels loose, repeat step 7 until there is adequate tension on the rear strap.

9) Cycle the bed up and down 10 times ensuring the bed is operating as intended. Place bed at 45-degrees and check the rear belt tension. Follow step 7 if the strap requires tensioning. If tight, process is complete.

Final Tensioning

1) After the mattress has been attached to the bed frame, follow steps 8 and 9 from the Initial Tensioning.

~~***NOTE: When cycling the bed up and down ensure to limit the motor by continuing to hold the button for 1-2 seconds after the bed is fully raised and fully lowered.***~~

I believe the above advice, now crossed out, to be bad advice. The motors have no limiting feature. Holding the switch down after the bed reaches its maximum extent only applies additional stress to the motors, straps, and pivot points. When lowering the bed, use your hand to assist it the final few feet, and stop running the motor as soon as the legs touch the floor. When raising the bed, some stress can be removed from the system by assisting the bed to move up for the first few feet.

Key Fob Issues

If you stop driving the RV, turn off the engine, walk back into the house, and leave through the coach door (e.g. never opened the driver's door), the key fob will get out-of-sync with the Mercedes system. The next time you try to start the engine, it will complain that the key cannot be found and should be placed in the magical slot near the bottom of the console. Pressing the lock and unlock buttons on the key fob will re-synchronize the system without having to insert the key in the slot.

Some people have reported that the coach door sometimes fails to lock when the fob is used. Cleaning the electrical contacts on the door with fine sandpaper may help. Others report that the following procedure helps: Lock the coach door with the physical key. Lock the cab doors with the key fob. Unlock all the doors with the key fob. Another person reported taking the contact assembly apart, cleaning and oiling it, and replacing it. This helped ensure that all the contacts were springing out properly and fixed the issue.



Photo: Peter Riess

Microwave

To set Microwave Clock

- Press and hold Timer/Clock button for 3 seconds. This will select 24hr clock.
- Press Timer/Clock again to select 12hr clock.
- Use numeric buttons to set time.
- Press Timer/Clock again to confirm time.

Equalizer Levelers

Equalizer Levelers – Manually Retract

The leveling system is equipped with the ability to override in the event of system failure. This will allow the jacks to be retracted so that the vehicle can be taken to a service/repair facility. The most common cause of system failure is weak/dead batteries, so it is best that the batteries be charged so that the jacks can be retracted in the normal manner.

Note: The two valves closest to the reservoir are for the front jacks. For further help call Equalizer Systems for assistance.

Manual Override for Uni-Directional Pump #'s 1551 and 3218

- The individual cartridge valves are clustered together on the side of the pump manifold. They are labeled 1 through 4.
- Locate the screws on the appropriate cartridge valve(s). Using a 1/8" Allen wrench, turn the screw(s) clockwise until seated in.
- Locate Valve DV-2. This will have an Allen override screw. This valve will be on the opposite side of the manifold from the cluster of cartridge valves. Using a 1/8" Allen wrench turn the Allen screw in until seated in.
- To retract locate DV-1. On pump # 1551 (see drawing on next page) this valve will be on the adjacent side of the manifold to the cluster of cartridge valves. Pull the red knob out and turn 1/4 turn clockwise. The knob will remain in the 'out' position.
- On pump # 3218 (see drawing on next page) it is in the center section between the motor and reservoir.

Note: This process will cause the jacks to collapse under the weight of the vehicle. Care should be taken that no one or objects could be harmed by this occurrence. The collapse of the jacks will lower the vehicle. This collapse is controlled (not rapid) by the system circuit design components and may be further controlled (feathered) by use of the knob on the above DV-1 valve.

- Operate the hand pump in steady full strokes (If equipped). It may take 50 strokes or so to get the jacks to start to move. This is a slow process, it will take many strokes to get the jacks retracted, thus it is designed for emergency manual override usage.
- If the hand pump seems to "lock up" it is probably due to the valve/override screws not being properly opened.

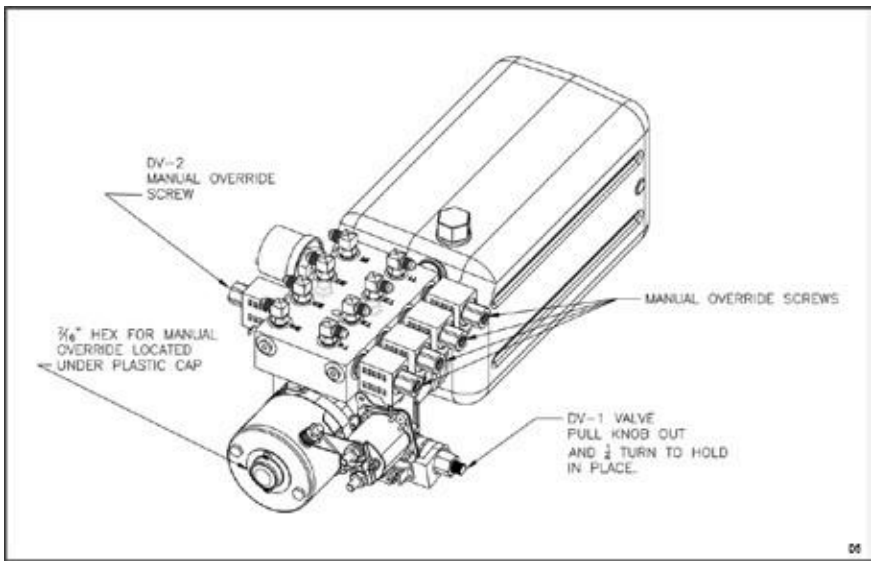
If Equipped with Override Hex on Motor - Pump # 3218

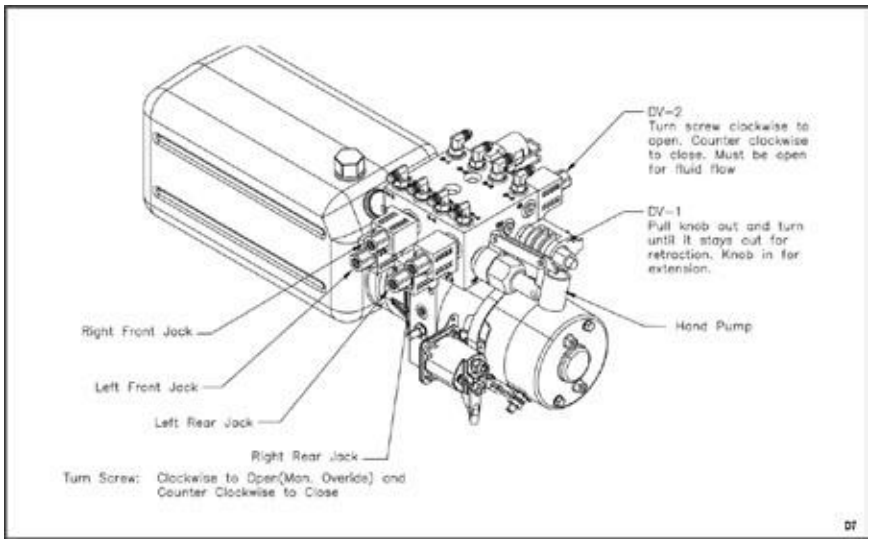
- After the steps on page 23 on the valves, remove the black plastic cap from the end of the motor (Can use a small flat head screwdriver).

- Place the drill with the 7/16” socket on the manual override shaft located at the end of the motor. Run drill in a clockwise direction at 2000 r.p.m.(minimum). The jack(s) will retract.
- Following manual override operation, failure to return all valves to normal position may result in one or more jack legs drifting down from their retracted (stowed) position. For cartridge valves, rotate the center screw fully counter-clockwise. For directional valves, rotate the red knob until it ‘snaps’ back to the normal position or return the Allen screw to the original “out” counter-clockwise position.

***Note: The normal operating position of the screw in the cartridge valve(s) is the counterclockwise ‘out’ position. The only time the valve should be shifted manually is when attempting to operate jack(s) via manual override.**

****Note: The normal operating position of the red knob on the directional valve(s) is the ‘in’ position. The only time the valve should be shifted manually is when attempting to operate jack(s) via manual override.**





To Extend the Jack(s):

- To extend the jack(s), follow all the above steps ***EXCEPT DO NOT*** Manually shift directional valve DV-1.
- Following manual override operation, failure to return all valves to normal/original position may result in one or more jacks drifting/traveling down from their retracted (stowed) position. For cartridge valves, rotate the center 1/8" Allen screws fully counter-clockwise. For valve DV-1 rotate the red knob so that it will snap into the in position.

Following manual override operation, failure to return all valves to normal position may result in one or more jacks drifting down from their retracted (stowed) position. For cartridge valves, rotate the center screw fully counter-clockwise.

Equalizer Levelers Beeping When Engine Starts

Often, if the RV is left parked for some days, when you start the engine, the levelers begin beeping. Press the Retract All on the levelers control panel, wait for them to stop moving, then turn them off. This is normal.

After getting a replacement control panel from Equalizers in 2025, it seems that the latest version of the control electronics automatically retract the levelers when you turn the engine on, probably with some conditions on how recently this auto-retract has been done. (E.g. it won't retract them twice in a row if you start, stop, and restart the engine.)

Equalizer Levelers Descend On Their Own

Some users have reported an issue in which one or more of the leveler jacks will descend when not commanded, potentially when driving. Apparently this is a known issue for which Equailizer will send a repair kit for free. Until they are fixed, some people have found it necessary to keep retracting them in order to be able to drive to a safe place.

Equalizer Levelers Hard Reset

When all lights on the control panel are lit and the levelers are non-responsive, it's necessary to reset the system by pulling the fuse (located near the propane tank) and then re-inserting it.

Another forum post described a similar situation. The Equalizer control panel had all the lights lit, but was unresponsive. They were able to resolve the situation by unplugging a power plug near the hydraulic pump and plugging it back in.

Both these solutions are described in a Service Advisory from Equalizer, shown below.

EQ SYSTEMS®

(800) 846-9659

EQ SYSTEMS SMART-LEVEL CONTROL PANEL LOCK UP

SERVICE ADVISORY October 2021

Cause and Effect

Certain voltage irregularities can cause the Smart-Level control panel to "LOCK UP". In this occurrence all lights on the control panel maybe on solid and no control panel button presses will have any effect including the power switch which will not turn the panel off. This may occur from the "absence" of a properly charged battery in which the only voltage supply is or was from some sort of minimum or low voltage supply to the system. It is also believed that very high voltage spikes may cause the Lock Up.

To Remedy

After a properly connected battery is present suppling the system a power reset will/should remedy the "LOCK UP". There are multiple ways to accomplish this depending on accessibility.

1. If the power supply to the system from the battery is run through a high amperage circuit breaker (this breaker will normally be 100 amperes or more). Simply manually trip this breaker, wait several seconds then reset the breaker.

2. At the pump assembly locate the two-pin power and ground connector. This connector will have a yellow fused wire and a black wire on the pump side mating with a red wire and a black wire on the harness that feeds the control panel on the other side. Disconnect this connector, wait several seconds, then reconnect.

3. Access the power and ground connector at the back of the control panel. It may be necessary to remove the 4 screws holding the panel in place. Once the connectors are accessible, disconnect the power and ground connector from the back of the panel. This connector is a 3-pin connector with 2 red wires and one black wire. Wait several seconds then reconnect.

TS Control Panel Lock Up

Slide-Out

Slide-Out – Electronic Fault

If the slider isn't working, check the slider controller, located in the second storage bay from the front on driver's side. A red LED can display error codes. Refer to the Supplemental Manual for descriptions of these errors.

Slide-Out – Low Battery Voltage

One person on the forum reported this experience:

A week ago when getting ready to leave Quartzsite a Neighbor's 2024D had an issue where the slide failed to retract on the front and back as wedged in at an angle. Reading the manuals and trying to access the motors proved to be futile. However the two of us were able to force the rear side to release the wedge and then fully extend by pressing the button and it moved 2" each time. The controller had shown an error message of bad motor or wire. How ever we were able to fully retract it 2" at a time by pressing and holding the button and releasing but after it stopped. Once fully retracted we reset by turning off the 12 volt house switch for 30 seconds and then back on. Error codes were cleared and slide function properly afterwards. While I can completely ID the cause I suspect it was low battery voltage as one of the two batteries had shut down. To me it proves the slide system to be resilient and also very sensitive to low voltage. Key take always.

1. Lithium batteries have higher voltage better option

2. Units with Mastervolt, run engine for at least 30 seconds to allow alternator and house battery to connect especially when Boon Docking.

3. Retract on shore power if possible

All these get the highest voltage for the slide motors.

Slide-Out – Manually Retract

The Supplemental Manual in the Winnebago packet has instructions on how to manually retract the slider. This involves removing some flanges to access the required parts. The location of these flanges is not clear. Once the motors have been disengaged from the slider drive system, an 8 point ½" socket and driver can be used to wind the slider in. Alternative instructions show where a 5/8" deep socket can be used to wind the slider in. The required sockets are in the lowest pantry drawer. The relevant section of the Supplemental Manual is shown below.

text from someone who has actually retracted the slide manually describing how to access the relevant mechanisms would be invaluable

⚠ WARNING

- Always make sure that the slideout room path is clear of people and objects before and during operation of the slideout room.
- Always keep away from the slide rails when the room is being operated. The gear assembly may pinch or catch on loose clothing causing personal injury.



Figure 3 *8-point star socket*

Override Modes (continued)

1. You will need to gain access from either the inside or outside, whichever is more convenient, of the unit to the **VERTICAL CHANNEL** assembly. Motors are currently located at the top of the channel. If accessing from the outside, the flange must be unscrewed.
2. Remove the screw cover (**FIGURE 4**) from the inner flange, beginning at the top of the **VERTICAL CHANNEL**.
3. Remove inner flange (**FIGURE 5**) to expose the motor (**FIGURE 6**).
4. Loosen the motor retaining screw (**FIGURE 7**). **DO NOT REMOVE THE SCREW.**
5. Unplug the motor from the harness and remove the motor by lifting it up and out.
6. Repeat steps 1-4 for the other side.
7. Push the room into the retracted position.
8. Secure the room in place by re-installing the motors, making sure the motor is properly seated, and torquing the motor retaining screw to 40 in lbs (**FIGURE 7**) or using a travel lock. **SEE NOTE BELOW ON SEATING MOTOR.**
9. Have the slide out room serviced by an OEM-authorized dealer as soon as possible. Do not operate room until service is complete as damage to the room may result.

Note: It may be possible to manually retract the room by accessing the ½" square drive tube at the bottom of each vertical channel assembly. This will only be possible if there is access to this area.

Manually retract the room as follows:

1. You will first need to follow steps 1-6 as detailed above.
2. Using a ½" 8-point star socket (**FIGURE 3**) and alternating from one side to the other, turn the ½" square drive tube to bring the room in. A 15 mm 12-point socket is an option if the ½" 8-point star socket is not available. Use caution, as the 15 mm 12-point socket does not fit as snug as the ½" 8-point socket.
3. When the room is retracted, secure the room per step 8 above.
4. Have the slide out room serviced by an OEM-authorized dealer as soon as possible. Do not operate room until service is complete or damage to the room or unit may result.

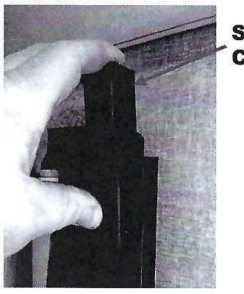


Figure 4 *Removing the screw cover*



Figure 5 *Removing the inner flange*



Figure 6 *Gaining motor access*



Figure 7 *Loosen retaining screw*

NOTE: Motor shown properly seated. No gap between mounting bracket and block.

Override Modes (continued)

Note: It may also be possible to manually retract the room by using a ratchet and socket attached to the end of the coupler (**FIGURE 8**).

1. You will first need to follow steps 1-6 under the Manual Retract Mode section to remove the motor.
2. Place a socket wrench with a 3" extension and 5/8" deep well socket (**FIGURE 9**) through the motor access opening and seat the socket onto the coupler (**FIGURE 10**). One man alternating from side-to-side of the room is able to retract a 1500 lbs room with or without a ramp.

Note: One person per side of the room (two total) with ratchet and socket will expedite the process. Room moves approximately ¼" for every 30-40 degree turn of the wrench.

3. Secure the room in place by re-installing the motors, making sure the motor is properly seated, and torquing the motor retaining screw to 40 in lbs (**FIGURE 7**) or using a travel lock. **SEE NOTE BELOW ON SEATING MOTOR**.
4. Have the slide out room serviced by an OEM-authorized dealer as soon as possible. Do not operate room until service is complete or damage to the room may result.



Figure 8 *Coupler*



Figure 9 *Ratchet with 3/8" extension and 5/8" deep well socket*

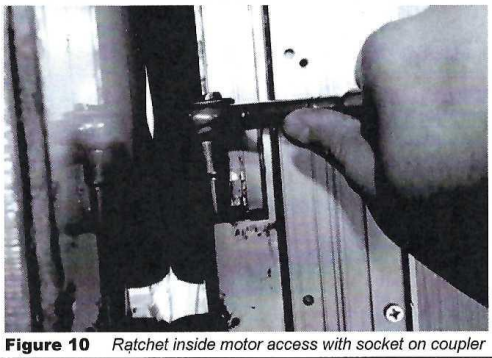


Figure 10 *Ratchet inside motor access with socket on coupler*

Slide-Out – Retract when Engine has Failed

For normal operation, the parking brake must be on and the engine running in order to move the slider. If the engine has failed and you need to move the slide in before towing the vehicle, you can over-ride these interlocks by jumping pins 2 and 8 (previously, it was thought that the proper pins were 2 and 7, but 2 and 8 is more likely correct) on the back of the slider switch with a paper clip or small piece of wire.

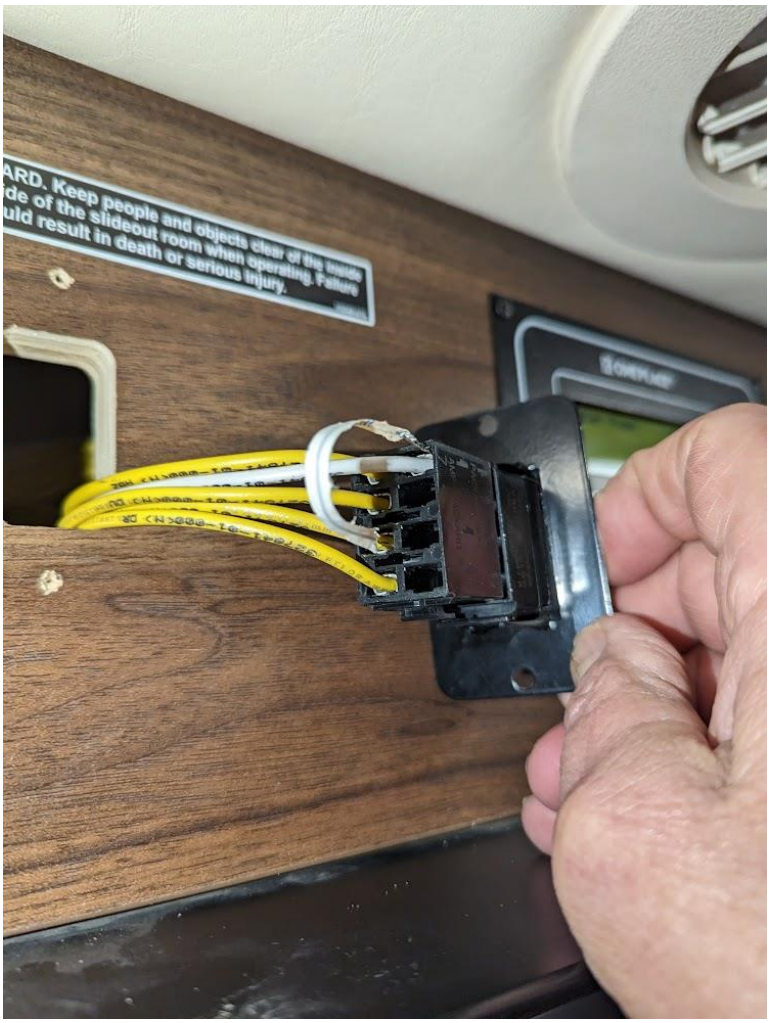


Photo: Dwight Gerrelts

House Door Failures

House Door Fails to Lock or Unlock

The house door lock can fail to work properly for numerous reasons. In addition to the ideas in this section (compiled from numerous forum posts by Tom Elwood), also refer to the section above on the Key Fob as well as the sections immediately following this section.

The contacts that are used by the locking system to detect that the door is closed can be faulty in several ways. Sometimes they become premanently depressed and will not pop out when the door is opened. Disassembling them and cleaning them might help in this situation. Check the wire contacts while it is disassembled.

The contacts can also become oxidized and no longer make good electrical contact. A fine sandpaper can be used to clean them. Some people use a pencil eraser for this purpose.

The contacts can be misaligned with the mating contacts on the door. One person reported removing the module on the door and adjusting it's position upon reassembly.

Another person reported that they removed the module and found that the wires on back of the the contacts had fallen off. They replaced the wires and used electrical tape to help hold them on.

If one of the cab doors is not closed all the way, the house door may fail to lock.

House Door Handle Breaks Internally

Thomas Hildebrand reported on the View/Navion forum about a failure in which a pin inside the door handle breaks, with the result that the remote control lock/unlock feature no longer works. He replaced the pin with a screw. He put complete instructions on that forum in a document named "Coach door remote lock repair.pdf".

This failure happened to our 2020D in September 2024. The photo below shows the broken pin in my hand and the silver screw in the white plastic piece which replaces the pin, allowing the black "loop" to engage. Removing the grey door panel involved removing the vertical pull handle on the inside of the door. For this, there are 5/64" Allen screws that hold on the decorative covers on the top and bottom of the handle. Under those, both top and bottom have two Phillips head screws hold (on our unit, at least) holding the handle on. Then there are four plastic clips that hold the grey plastic cover to the door. A cheap set of automotive trim tools makes pulling those clips easier.



House Door Handle Breaks When Opened Simultaneously From Both Sides

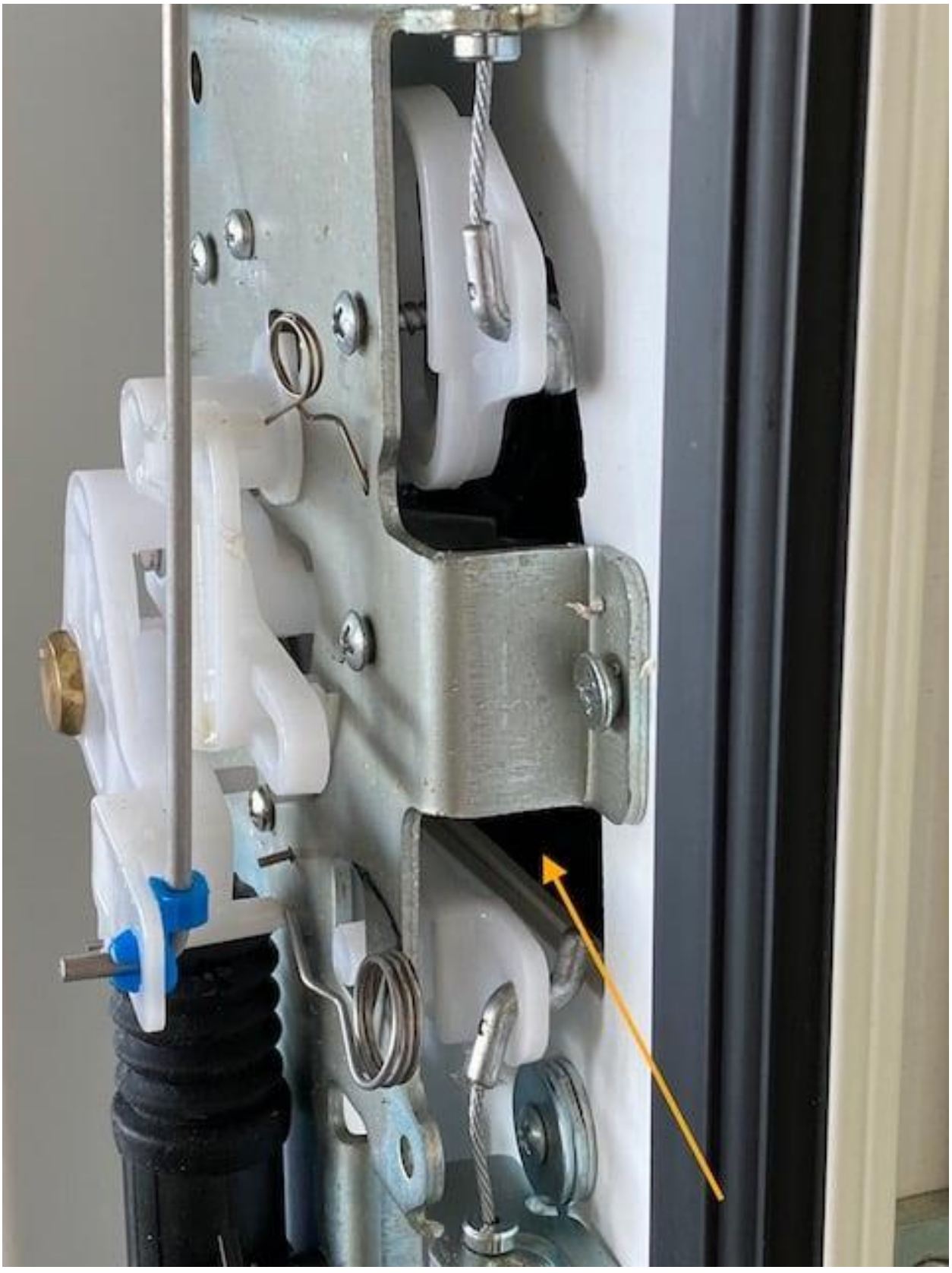
If the house door is opened simultaneously from both the inside and outside, the internal mechanism slips apart in a way that prevents the handles from working. Instructions from a fellow V/N owner are shown below. (Instructions and photos: Cam McKercher.)

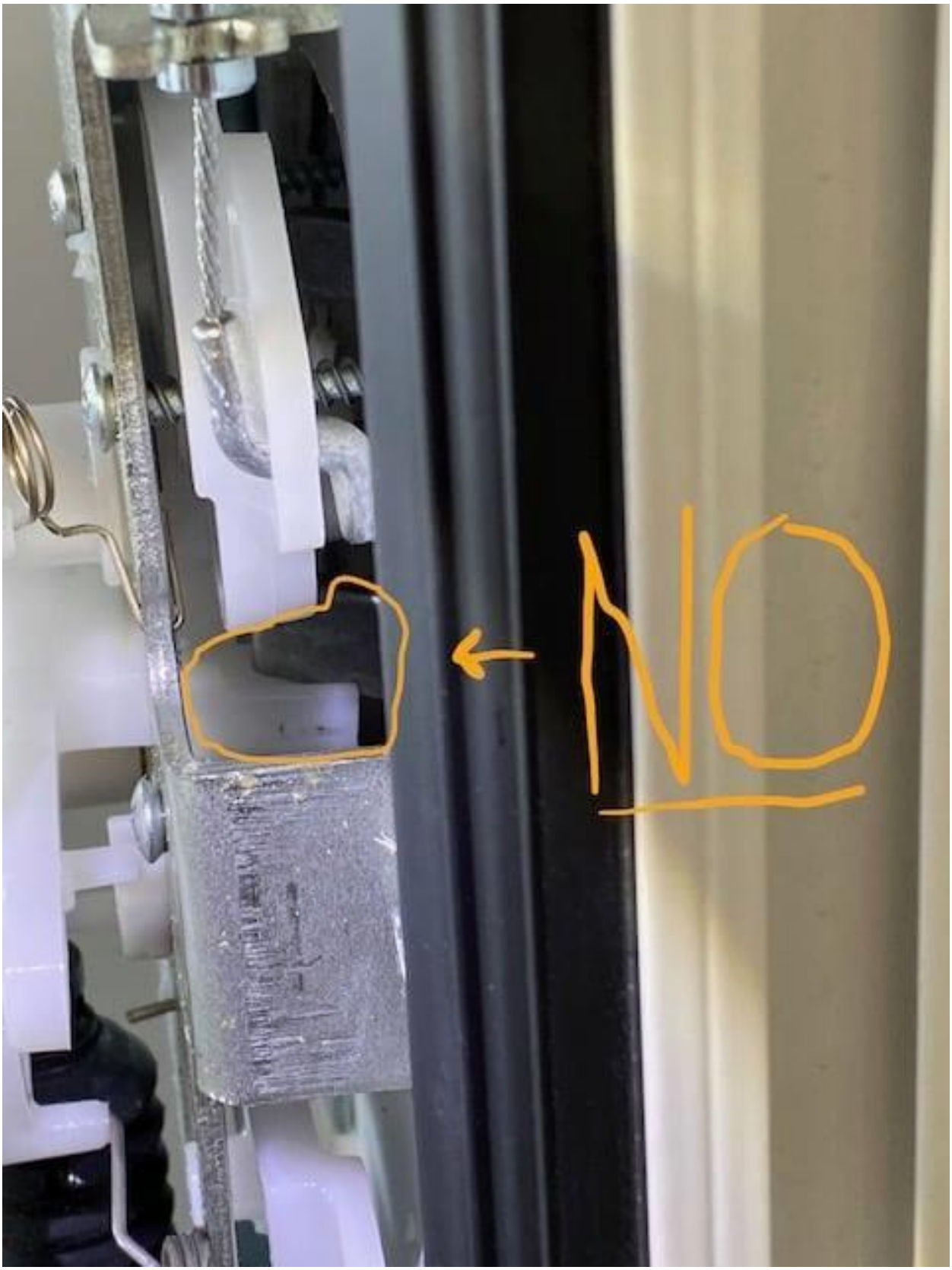
Outside handle flopping, inside won't lock.
Tools required: Allen/hex wrench, Phillips head screwdriver, flathead screwdriver or puller, ladder, wife in a good mood.
1. Remove inside long door handle w/Allen wrench and Phillips head screwdriver.
2. Remove 4 plastic studs/plugs that hold door trim on with flathead or puller. 1 on bottom, 2 on sides, 1 on top.
3. Remove inside door cover.
4. Look into lock mechanism, from side of door, white plastic piece is probably in front of a medal rectangle. It needs to be behind the medal rectangle. If you move the outside handle, you can see it moves the medal rectangle piece. Normally, the medal part pushes the plastic part…which opens the door. (SEE PHOTOS).

5. Pull the outside handle out (and hold out) while jiggling the exposed plastic lock mechanism. the plastic lever should pop back into place without much force. Fixed!
6. Replace door trim. 30 minute job. Hard part is getting the 4 plastic studs out without breaking them. They push back into place with finger pressure only.

See also: https://www.youtube.com/watch?v=x04kbPTOe6o






NO


YES!



House Steps Failures

The automatic steps for the house door can fail in several ways. In some instances, the steps seize up and won't move. Percussive maintenance with a hammer can be helpful in this case.

In other instances, the steps may not respond to the house door being opened and closed. In this case, cleaning/sanding the electrical contacts of the door mechanism may be helpful. A small sheet of fine grain sandpaper should be in the tool drawer for this purpose.

Others have reported that the steps move opposite to what is intended, when the coach door is opened and closed. One solution reported for this problem: Open the coach door so that the steps retract. Unplug the chassis battery. (See the Sprinter manual for information on how to do that.) (Also, be sure the engine has been off at least 20 minutes before unplugging the chassis battery.) Wait a few minutes with the battery unplugged. Plug it back in.

Some people have found that a plastic gear in the step motor unit breaks. I don't know if the gear itself can be replaced. Replacing the entire motor assembly (which can be purchased on Amazon) is not uncommon, perhaps for other failures besides the gear breaking.

Another reported failure occurred after the steps jammed into the curb when parked to close. The resulting symptom was that there was a thumping noise when the steps were extended, but not when retracted. The damaged part was a shaft with a gear on it, available as part #369417 from Lippert.

In the files section of the V/N FB forum, one can find both a Kwikee steps manual and a Kwikee steps replacement guide.

Jon Miller posted these troubleshooting instructions for the steps on the forum: First thing to check is the light under the steps, if it is on or comes on then the fuse is ok. Next, go under the steps and find all of the electrical connections that connect the controller to the motor, etc. (my 2022 has 3 of them) reseat each connection by unplugging it and then plugging it back together- that was what happened to mine. I followed the manufacturer's guidance by applying conductive grease in each connection to help keep the water out and prevent corrosion. If that does not do it, then remove the motor by removing the screws - be careful because the stairs will fall open when you take the motor out. Make sure that the steps move freely. Open and shut the door to see if the motor actuates when not bolted to the steps. If it does, your problem is mechanical so, clean and lube the gear that the motor actuates. If the motor does not move then you probably have a bad motor, or controller. I would suspect the motor over the controller. Motors are pretty inexpensive, but they do come in several styles so you need to buy the one that you have. In addtion, Rob Scarpa added this caution: DO NOT LIE UNDER THE STAIRS WHEN CHECKING WIRING OR WORKING UNDER. STAIRS MAY OPEN AND PIN YOU UNDER THEM OR WORSE.

You can also use a magnet to test the door sensor, which is on the hinge side of the door near the bottom, about 4 inches from the bottom. With the door open and the steps out, place a magnet near the switch on the door frame (on the RV side, not the door). If the magnet does not cause the steps to retract, the switch may be bad. When you close the door, check the alignment of the switch with the magnet mounted to the door. If they are not aligned properly, the switch may not detect the door closing.

Specific to Dave's Navion 2020D:

In our RV, a magnet with a bit of Velcro is kept near the top of the left (towards the front of the RV, left as you face the door from the inside) of the house door frame. This magnet can be placed on another piece of Velcro near the bottom of the left of the door frame in cases where the RV is parked too close to a curb or other obstruction for the steps to fully extend. Placing the magnet there prevents the steps from extending. Hence if the steps are not responding to the door opening, it may be that someone left the magnet there.

Awning Issues

These RV's have a "Carefree" awning. Unfortunately, it is not care-free.

Awning Operation

After the second awning recall fix, the parking brake must be on and the engine off for the awning to work. Although I haven't tested this, one forum participant reported that if the engine has been off a long time, the parking brake interlock may no longer work and the awning may refuse to extend. Lock and unlock the cab with the key fob to wake up the Mercedes system enough to re-engage the parking brake.

Awning Does Not Retract All the Way

The awning has limit switches for In and Out. The In switch is not actually used. The electronics sense the current to stop on In. But if the In switch is mis-adjusted (which can happen simply from road vibrations), it can stop the awning from retracting all the way. When this happened while camping, I used the instructions below to manual retract it, cable-tied it shut, and fixed it at home.

According to Carefree, our Navion has a Freestyle RM awning, for which they sent the manual. The manual states that the limit switches are under the left-hand side cover, but that was for the "original configuration". Of course, on our Navion, they are under the right-hand side cover. That cover cannot be removed, however, so there are two plugs covering access holes for the limit switch set screws. The top plug is for the Out switch, so remove the plug closer to the center of the RV. A 4mm Allen wrench can then be used to turn the limit switch. Turn it CW to make it go further In. (Similarly, the Out switch is turned CW to make it go further Out.) Our awning was stopping about a foot out, and it took several full turns of the screw to allow it to retract all the way.

Specific to Dave's Navion 2020D:

An additional fun feature was that the access hole was not lined up with the limit switch set screw, so a 4mm Allen wrench would not fit down into the set screw. I found that a 9/64" Allen wrench was small enough to fit through the access hole, but large enough to turn the set screw. But it was too long to fit in due to interference with the RV roof, forcing me to cut it down about a half inch. This customized Allen wrench is now included in our RV tool kit.

Phone App for Carefree Awning

Carefree has two apps in the app store. Be sure to get the one for which the icon has a picture of a yellow sun on a white background.

As of 2023, you should not try to use the Android app to update the firmware on the Carefree awning. Only the Apple app should be used for that. iPhones and iPads should work.

The only way to dim the lights is with the app. The light control on the app only works if the awning light switch on the RV is on. There is no hardware dimmer switch on the RV. The only way to set the wind sensitivity level is with the app. A higher number apparently means increased sensitivity, e.g. less wind will cause the awning to retract. The wind sensor for automatic retraction only works if it has good batteries and is paired to the awning controller (see below for pairing).

Awning Beeping

If you hear a faint beeping sound every 30 seconds, it probably means that the batteries in the awning wind detector are running low. These are two AA batteries in a box that must be taken apart with a screwdriver. The box is at the front end of the awning.

Some people report that even after replacing the batteries, the awning will continue to beep. Sometimes it stops after 10 minutes or so. Other times, people have found it necessary to turn power to the awning off for a few minutes, then back on, to reset the awning. To turn power off, use the coach battery switch. (See the Electrical System section for help identifying this switch.)

Pairing the Awning to your Phone

Steps for pairing your awning to your phone.

Have Carefree app open
Hit the gear in the top right corner
Hit the box in the top right corner
Enter 4-digit code- 3142
Hit the back arrow button in the top left corner
Hit the 9 boxes in the top left corner
You will see a Carefree -90 in this area- that is your awning
Click on it.

Pairing your Motion Sensor for the Awning

Steps for pairing your motion sensor/BT remote.

1 - Highlight carefree awning orange like in attachment photo
2 - Once highlighted hit extend or retract to ensure the awning we are working on his moving.
3 - Scroll down to (forget Peripherals - photo attached) click on BTMOTION/BTREMOTE
4 - Take out 1 battery of your new motion sensor/BT remote
5 - Scroll down to pairing - highlight obeying lost motion
6- Click on enter pairing mode
7 - Install battery in your new motion sensor/BT remote

8 - scroll to the right on your phone screen peripherals screen
From this screen you can see the motion sensor/BT remote paired with your phone. It will be some wind icon and a red dot under "connected" this red dot will turn green and you are hooked up and paired.

Thomas Hildebrand and others have posted additional information on the FB forums about how to address this issue. Among other suggestions, they describe a way to re-pair the awning and the wind sensor as follows; Fully retract the awning, then press and hold the retrat button for a few seconds (maybe up to 10 seconds). Release and wait about a minute for the controller to re-pair with the wind sensor. If you are using the phone app, you will need to re-pair your phone with the awning controller after doing this procedure.

Awning Lights Fuse

There is a fuse in the 12V power line for the awning lights under the floor of the cabinet under the kitchen sink. In Dave's RV, you must remove the trash cans and unscrew and remove the sliding mechanism for the trash cans to access the panel in the floor of the cabinet. This is normally a 2A fuse. I have measured the awning lights as using about 0.5A. In Dave's RV, this is now a 3A fuse, since this power has been tapped for use with the drinking water purification system. (See item F5 in the Electrical Diagram.)

Zip-Ties on the Awning and Power Switch

Somewhat Specific to the Awning on Dave's Navion 2020D:

~~Although the awning has already undergone one recall, it apparently still has a failure mode in which it can deploy while the RV is being driven. Until this issue is resolved by a future recall, the awning must be zip-tied shut whenever the RV is being driven. I put two zip ties near the front of the awning and two near the back, where gaps in the shroud allow the zip ties to be threaded through. If the awning is to be used while camping, one can climb up the rear ladder and clip the zip ties from the roof. A wire cutter is in the tool drawer that will work for this purpose.~~

~~When the zip ties are in place, it would be bad for the motor if the awning were to be turned on to try to deploy it. Since not everyone is aware of the zip ties, I installed a switch to disable power to the awning. This switch should be turned off whenever the zip ties are installed, and turned on whenever the awning is to be used. The switch is in the breaker area under the passenger seat of the cab.~~

As of July, 2024, the second awning recall has been performed on Dave's Navion. The power switch shown below has been removed, and the awning is operating normally. Zip ties are no longer being used, though some V/N owners suspect that the awning may still be prone to failure even with the recall having been done.



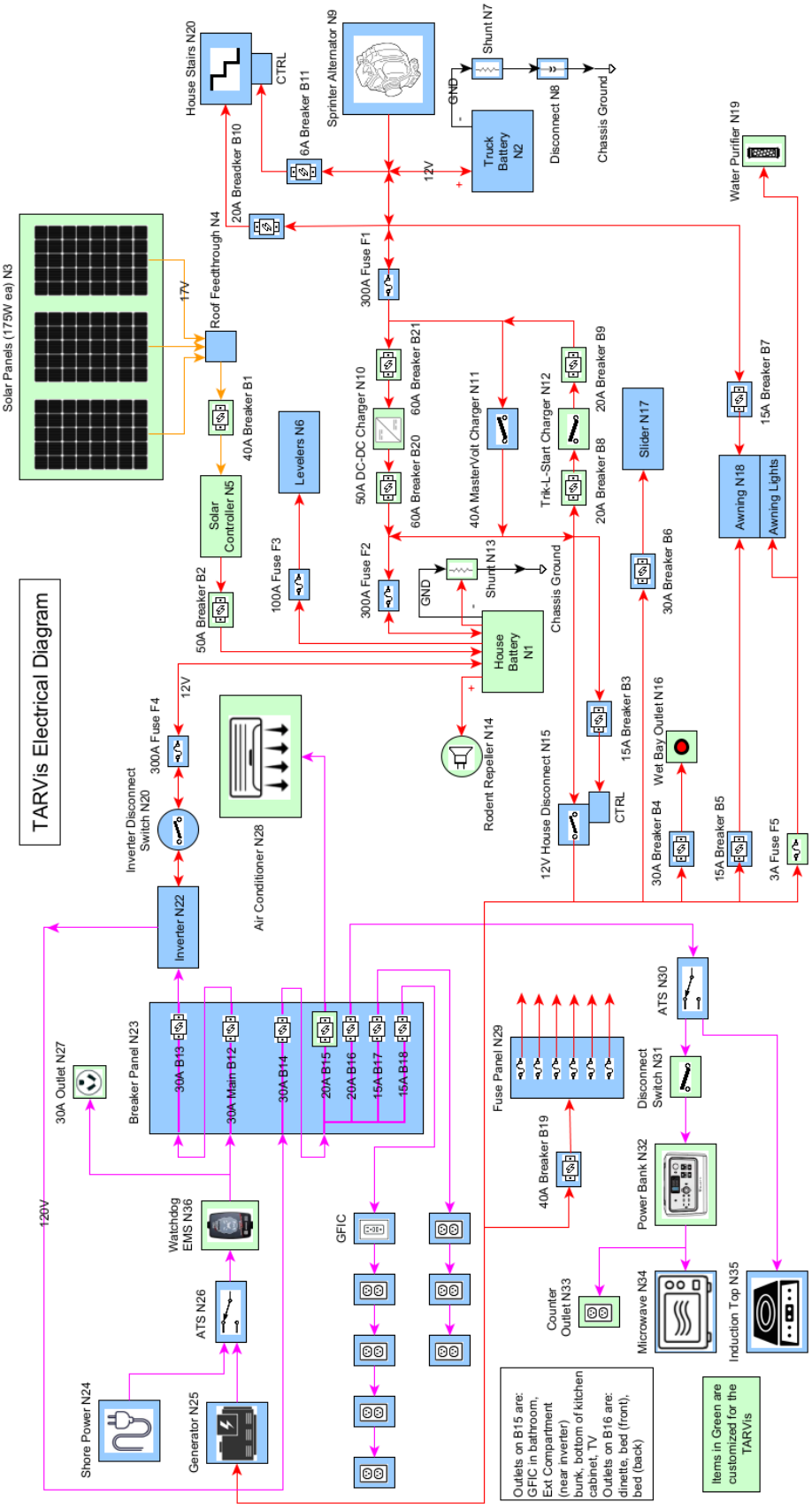
Manually Retracting the Awning

If the awning fails while out and needs to be manually retracted, climb the rear ladder. Use a Phillips screwdriver to remove the one screw holding the plastic cover onto the end of the awning assembly near the top of the ladder. (There is a retaining catch diametrically opposite the screw hole on the back side of the cover, so pull the side with the screw hole off first to release the cover.) Use a 3/8” rachet (no socket, just the rachet driver square end) to wind the awning in, using the 3/8” square hole revealed under the aforementioned cover.

Electrical Issues

Electrical Diagram

The diagram below shows the electrical system for Dave’s Navion. Items in Green are custom to the TARVis (Dave’s Navion). Item labels (N1, N2, F3, B5, etc.) are referenced throughout this document.


TARVis Electrical Diagram
Solar Panels (175W ea) N3
17V
Roof Feedthrough N4
20A Breadker B10
House Stairs N20
CTRL
6A Breaker B11
Sprinter Alternator N9
Shunt N7
GND
Disconnect N8
Chassis Ground
Truck Battery N2
12V
Water Purifier N19
300A Fuse F1
40A Breaker B1
Solar Controller N5
50A Breaker B2
Levelers N6
100A Fuse F3
50A DC-DC Charger N10
60A Breaker B21
60A Breaker B20
40A MasterVolt Charger N11
Trik-L-Start Charger N12
20A Breaker B9
20A Breaker B8
Slider N17
30A Breaker B6
15A Breaker B7
Awning N18
Awning Lights
300A Fuse F2
Shunt N13
GND
Chassis Ground
House Battery N1
Rodent Repeller N14
12V House Disconnect N15
15A Breaker B3
CTRL
Wet Bay Outlet N16
30A Breaker B4
15A Breaker B5
3A Fuse F5
300A Fuse F4
12V
Inverter Disconnect Switch N20
Air Conditioner N28
Inverter N22
120V
30A Outlet N27
Breaker Panel N23
30A B13
30A Main B12
30A B14
20A B15
20A B16
15A B17
15A B18
Fuse Panel N29
40A Breaker B19
ATS N30
Disconnect Switch N31
Power Bank N32
Watchdog EMS N36
ATS N26
GFIC
Counter Outlet N33
Microwave N34
Induction Top N35
Shore Power N24
Generator N25
Outlets on B15 are: GFIC in bathroom, Ext Compartment (near inverter) bunk, bottom of kitchen cabinet, TV
Outlets on B16 are: dinette, bed (front), bed (back)
Items in Green are customized for the TARVis

Fuses and Breakers

The resolution of many electrical issues begins with checking the fuses and breakers. To help with this, this section lists the locations of most of the fuses and breakers in our 2020D RV. Some notes for hidden fuses in other models are included at the end of this section, though that list is obviously incomplete.

Breakers

There are two sets of breakers in our RV that I am aware of. Under the passenger seat, on the outboard side, is a set of DC breakers. (These are B3, B4, B5, B6, B7, B8, B9, B10, B11, and B19 in the Electrical Diagram.) These vary from one model to another, though many of the breakers are common to most models. Dave's RV has several custom modifications in this panel. Although these breakers are all for DC power, some are connected to the house battery system, and some to the coach battery system. This panel contains breakers for things like the steps, awning, slideout, solar power, main coach DC circuit, and battery disconnect relay. On our RV, the Coach Breaker Panel breaker was somewhat faulty, causing it to trip frequently. It also had the issue that it did not pop out even when it was tripped, so you had to push it back in to reset it even though it did not look like it had opened. I replaced that breaker and the problem is resolved, but it is something to keep in mind with these breakers. In addition, though it should be obvious, these breakers are not the type that can be manually turned off. Such a feature would be nice for performing maintenance, but of course, that type of breaker is more expensive.

This is specific to Dave's Navion 2020D.

In our RV, the panel has been modified as shown below. The two Trik-L-Start aircraft-style breakers, B8 and B9 (in the Electrical Diagram), can be manually turned off, allowing the Trik-L-Start to be completely isolated from both the house and chassis battery, which is helpful during maintenance of the Mercedes systems. The location that previously had a breaker for solar power now has a breaker for the 12V outlet in the wet bay, B4, (used for the macerator pump, wet bay heater, tire pump, etc.) The awning breakers were revised as part of one of the awning recalls.



The second location for circuit breakers in the RV is in the power panel above the water heater, inside the cabinet to the right of the refrigerator. The larger of the two black panels contains the AC power breakers (N23 in the Electrical Diagram). There are two main circuits in this system. The breakers on the left are on the main AC power circuit, when AC power comes from the generator or shore power. There are typically two breakers here, one for the air conditioner and one for the Xantrex inverter (B13). The breakers on the right are on the output of the Xantrex inverter AC power (B15, B16, B17, B18 in the Electrical Diagram). Typically there are one or two breakers here for AC outlets. However, in Dave's RV, the air conditioner breaker B15 was moved from the left side to the right side, allowing the air conditioner to be run off battery power. There is another section describing this in detail.

Specific to Dave's Navion 2020D.

As delivered by the factory, there is a fuse on the solar power line buried in the feedthrough above the refrigerator. This fuse is hard to get to, and the fuse holder is prone to failure. This has been removed in Dave's RV and replaced with a 40A breaker B1 located in the top of the cabinet to the right of the refrigerator. In addition, a 50A breaker B2 is installed next to the solar converter, on the line from the converter to the battery. This breaker is in the outside storage compartment just to the left of the coach door.

Mercedes Fuses

There are three locations where Mercedes installed DC fuses: under the driver's seat (on the outboard side), under the passenger foot area, and, according to the Mercedes manual, in the base of the driver's seat. Details on what each fuse is for and its size can be found in the Sprinter Fuse Supplement Manual, which can be downloaded from Mercedes.

Coach Fuses

Most of the DC fuses for the coach are in the fuse panel above the water heater, in the cabinet to the right of the refrigerator (N29 in the Electrical Diagram). A convenient feature of these fuses is that the fuse board will light up for any fuse that has failed. The circuit for each fuse is listed on a sticker inside the fuse panel door.

There are three big Mega fuses in the battery box under the step. The center fuse F4 is 300A and is for the Xantrex inverter. The right fuse F3 is 100A and is for the levelers. The left fuse F2 is 300A and is for the main house 12V circuits. It feeds to under the passenger seat, to the MasterVolt, 40A house circuit, Trik-L-Start, Wet Bay circuit (e.g. the former Stabilizers circuit), the generator starter, and in most RVs, carries the solar current back to the battery from the breaker under the passenger seat. (In Dave's RV, the solar power does not use that breaker and does not go to the passenger seat.) In some RV's, a 125A fuse was installed for the left Mega fuse. 300A seems to be a better value for that fuse.

In addition to the fuses in the above panel, there are other fuses "hidden" around the RV. Here is a list of the fuse locations I have become aware of so far:

- Solar power fuse, above fridge, buried in the feedthrough. This has been removed in Dave's RV.
- Awning fuse F5, under the floor of the kitchen sink cabinet. See the section on the Acuva water filter for Dave's RV, since this fuse was increased in size to accommodate powering the Acuva as well as the awning.
- Somewhere above or behind the refrigerator is an inline 12V fuse for the refrigerator.
- The generator has a fuse inside it. See the section on the generator for more information.
- There is an inline fuse behind the pump for the levelers, behind the propane tank.

Other View/Navion models:

This list is far from complete, but other forum members have reported these fuses.

2014J – thermostat panel, air conditioner, hot water heater, refrigerator.

2017G – 7.5A fuse under the wardrobe in the winterizing area for the Truma water heater.

Specific to Dave's Navion 2020D.

A set of spare 12V fuses is in the cabinet above the sink. A spare of at least one of the BIG 12V fuses used in the battery box is there as well.

GFCI Outlet

The outlet in the bathroom is a GFCI outlet. If it trips, none of the outlets on the same circuit will work. Press the reset button in the middle of the outlet. The outlet in the cabinet behind the TV appears to be on the same circuit. The Electrical Diagram lists which outlets are on which circuit. The outlet on the top of the counter N33 is not on the GFIC circuit. (This outlet is specific to Dave's Navion and was added by the previous owner. It is now plugged into the Bluetti battery pack.)

Cold Operation of Li Batteries

~~Used to be somewhat Specific to the Ampere Time batteries in Dave's Navion 2020D. The TARVis now has an Epoch 320AHr Li battery, so these details are no longer as relevant:~~

~~The Ampere Time LiFePO4 batteries are rated to discharge at temperatures from -20C to 60C (-4F to 140F). However, if the temperature is below -15C (5F), the batteries should be heated before being discharged further. For charging, if the temperature is between -20C and 5C (-4F to 41F), the batteries' built-in heater will heat the batteries to 10F (50F) before they will start charging. Unfortunately, the charger in the RV (Xantrex) does not work well with the Ampere Time BMS. When the batteries should be heating themselves, the Xantrex gets confused and ends up turning on and off every second or two. At one point, I have seen the heaters begin working, but in general, do not expect that the internal heaters will work properly if the batteries need to be charged in cold weather.~~

~~Below -20C, the batteries will turn themselves off. Since these batteries have no blue-tooth interface, there is no definitive way to tell what is going on. One time I observed that the batteries had apparently turned themselves off overnight (though I doubt it got as cold as -4F). They were not supplying voltage to the inverter and the Trik-L-Start was beeping from low voltage. The Victron SmartShunt showed that they should have 80% capacity left, but the voltage as 9.9V. Starting the truck engine for a few minutes (to try charging with the alternator) did not have any effect. Plugging in shore power seems to have turned them back on. I'm guessing the 9.9V reading was from the sun (on a cloudy day) on the solar panels.~~

Generator Won't Start (Fuse Blown, Button Failed, Low Fuel)

There are numerous reasons why the generator might not start. One easy thing to check for is the fuse inside the generator. If this 30A automotive fuse is blown, the symptoms include: no lights or response on the inside generator control panel, and the generator will not start. To find the fuse remove the small panel to the right of the main generator hatch, as shown in the picture below. The screw has a 5/32" Allen head.





With the panel off, the fuse can be found near the top of the area revealed, as seen in the picture to the right.

The red button that is held down to start the generator is a common failure point. Some forum members have said that you may need to wedge something into the button to keep it down. Others have replaced the button.

In some cases, it may help the generator start to first start the Sprinter engine. If this does help, there may be an electrical issue with the generator that should be addressed as soon as possible.

Diesel Generator Shuts Off with Low Fuel

The diesel generator does not run if the fuel tank is below 1/3 or 1/4 full.

Turn On Lithionic Batteries after the Shut Off

Dave's Navion does not have factory Li batteries. However, those that do should be aware that after these batteries shut themselves off (if they are discharged too far?) it is necessary to manually turn them back on. text needed here to describe how to turn on Lithionic batteries after they turn themselves off

No Power from Solar Panels (Fuse Blown)

If there is no voltage at your solar controller despite good sun on the solar panels, it is possible that the 40A fuse on the solar power line has blown. This fuse is usually tucked up into the hole through the roof where the solar panel connector housing is installed.

The in-line fuse holder for this fuse is a known failure point. It may eventually fail (melt) even when the current in the line is well below the 40A limit of the fuse. This is probably most common in systems where more than the standard 200W of solar panels are installed. Also, in the case of Dave's RV, when this fuse failed, the solar panel voltage at the solar controller did NOT go to zero, but dropped below the level that would allow the battery to charge from the solar current. E.g. this fuse holder can fail gradually. This fuse has been removed in the TARVis and replaced with a breaker.

Trik-L-Start

Specific to Dave's Navion 2020D:

The Trik-L-Start and Amp-L-Start are aftermarket devices that keep the chassis battery charged when not in use by using the house battery. When plugged into shore power or with solar panels, this prevents the chassis battery from dying when not being driven for extended periods of time. Dave's Navion has a Trik-L-Start installed. (Although the Amp-L-Start is optimized for Lithium house batteries, the Trik-L-Start also works with Lithium.) With the Trik-L-Start installed, disconnecting the chassis battery as per the Mercedes manual will not fully remove power from the Mercedes electronics. To remedy this, two aircraft style breakers were installed, B8 and B9, allowing the Trik-L-Start to be disconnected from either or both the house and chassis battery. Disconnecting the Trik-L-Start from the chassis battery is required when maintenance on the coach

requires disconnecting its battery. Otherwise the Trik-L-Start will supply power to some of the Mercedes systems. If the Trik-L-Start is only disconnected from the chassis battery but not the house, an annoying (but soft) alarm will sound. Hence the two breakers are needed.

Turning off both breakers can also be useful in the winter. When the ambient temperature falls below -4F, Li batteries will turn off to preserve their functionality. In this situation, one could potentially leave shore power connected so that the Trik-L-Start remains happy, or one could turn off both the breakers until it warms up enough for the Li batteries to begin working again.

When both breakers are off, if you first turn on the Chassis breaker, then the House breaker, the alarm function will be silenced. If you turn them on in the reverse order, the alarm function will be re-enabled.



Breaker Panel under passenger seat as of September, 2025.

Batteries Not Charging or No 12V Power

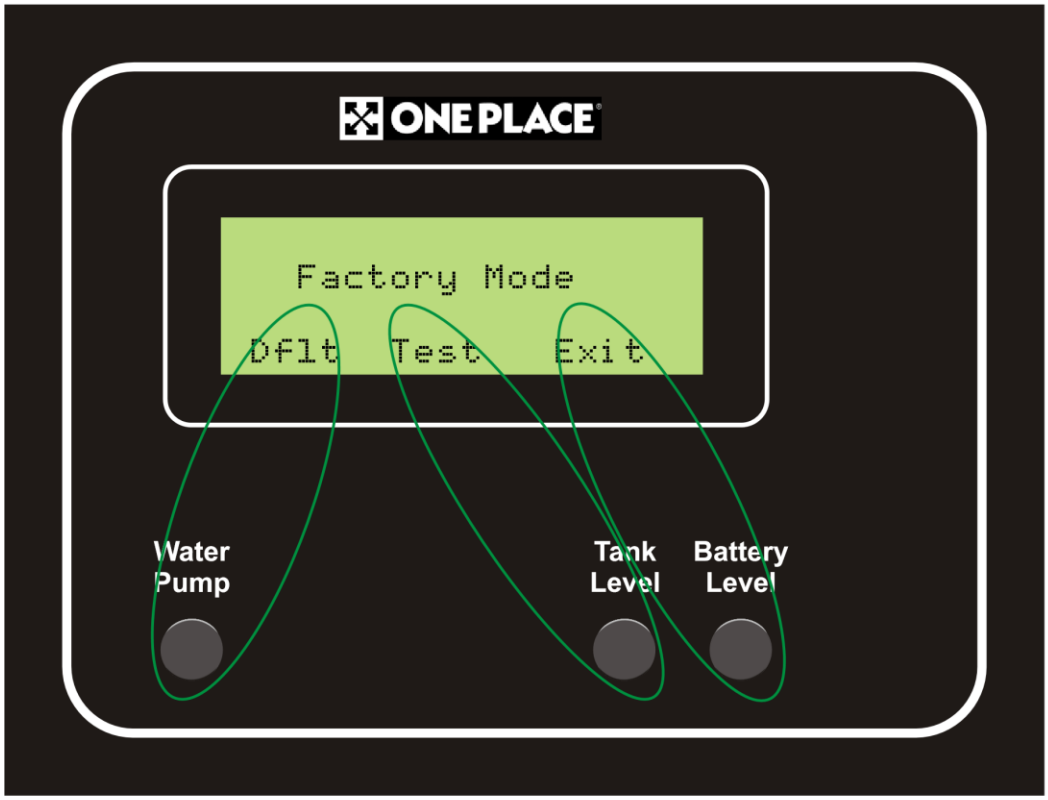
If your coach batteries are not charging or providing 12V power, check your inverter and battery switches. See the “Electrical System” section under “Tips for Using the RV Systems” for more information.

One Place Issues

The One Place control/monitor panel can flake out in a number of ways. The instructions below may be useful for resetting it.

The ONE PLACE MONITOR PANEL has three automatic learn features and it will learn:
1. If the Water and Waste Tanks have 1/3 or 1/4 increment sensors.
2. If a second Gray and/or second Blank Waste Tank exists.
3. If Water Heater Function exists.

Each feature above is learned independently, even for the individual Tanks.
Once a feature is learned, it is stored in non-volatile memory, and remembered even if Battery Power is removed from the Panel.



The ONE PLACE MONITOR PANEL has many safe guards to prevent improperly learning a feature. Should the Panel have learned something incorrectly, an option exists on the Panel to reset the original factory default, so that the Panel can re-learn the proper features.

To Reset the Panel to Default
1. Press and hold all three buttons shown above for approximately 6 seconds, until the above screen appears.
2. Press the Default Button (Water Pump)
3. Press the Exit Button (Battery Level).
4. The Panel will return to the Water Pump Display.

Xantrex Issues

Xantrex Inverter-Charger Turns Itself Off

By default, the Power Save Time is set to 25 hours. Thus, after 25 hours of not sensing a load, the Xantrex will turn off the inverter. This setting can be changed to smaller values or turned to "Off" using the Xantrex parameters menu.

If the inverter Power Save is enabled, the timer will be triggered when power use drops below 25 watts. Examples of low power uses are lights plugged into inverter outlets, small power supplies, clocks (including the microwave clock) and coffee makers on a timer. If you have low power device inverter needs similar to the above that you want to assure are on, you should disable the Power Save Time by changing parameter setting 05 to OFF on the inverter console.

Xantrex Charge Current When Using Generator

The generator can produce 27A at sea level, 22A at 5500 feet, 1A less for every additional 1000ft. The Xantrex inverter/charger is usually set to charge the batteries at about 8 or 9A (80A at 12V). If the batteries are low and being charged, the generator may have difficulty running the air conditioner or other high loads at the same time. Lower the charge current to the batteries using the instructions posted by the Xantrex control panel. Set it to 10A to continue charging slowly, 0 to not charge at all. Remember to reset it to 80A when the air conditioner is no longer needed.

For those who don't have Dave's Xantrex cheat-sheet posted by the inverter control panel, here it is:

To change the Xantrex battery charging current:

- Press and hold OK button for 3 seconds
- Press Scroll Up button to select feature
    - Setting 24 is charge current
- Press OK to change feature value
- Press Scroll Up to change value
    - Set to 80A for shore power
    - Set to10A when using generator to run AC to prevent overloading
- Press OK to confirm change
- Press Esc button to exit setting mode

Alternatively, it is possible to buy a replacement control panel from Xantrex that supports Bluetooth, which allows one to make this change much more quickly and conveniently using an app on your phone.

Specific to Dave's Navion 2020D.

Since the air conditioner is now wired to the inverter circuit, the Xantrex can now sense the air conditioner current draw. By using the Load Share feature of the Xantrex, it can detect when the total current through it exceeds a specified amount, and will then turn down the battery charging

current to avoid excess load. On Dave's RV, parameter 28 (Load Share) should be set to a value of 26. With this setting, when the total load reaches 26A, the Xantrex will turn down the battery charging. Thus it should not be necessary to use the above procedure to turn down battery charging manually.

Xantrex Charge Voltage Oscillates

This issue can be seen by watching the House Battery Voltage on the OnePlace display. If it is happening, the gas heater fan will sound like it oscillates, the Truma water heater will sound like it oscillates, and even the ceiling lights can be seen to grow brighter and dimmer with the oscillation. It also shows up on the Victron SmartShunt display on the phone app. The oscillation can be more than 1 volt, and cycles every few seconds.

To fix this, the Xantrex must be reset to factory defaults. Before doing that, cycle through all the parameters and note any values that are not factory default, so that you can restore them later. Also, turn off the Xantrex charging switch (big round knob near the floor near the coach door) so that it won't be charging before you restore your parameters to their proper values.

The manual describes how to access the parameters. In brief, press OK for three seconds. Use the ^ button to move through the parameters. When you get to parameter 99, press OK to select. Then press ^ to change it to "def" and press OK again. If you turn off the Xantrex immediately after setting back to defaults, it actually remembers old values and does not reset. So after resetting to defaults, cycle through the parameters again and set any custom values as needed. Note that when this happened to me, I had to do this procedure twice before the problem was fixed. I turned off shore power at one point and turned of the Xantrex at various times. Eventually it worked.

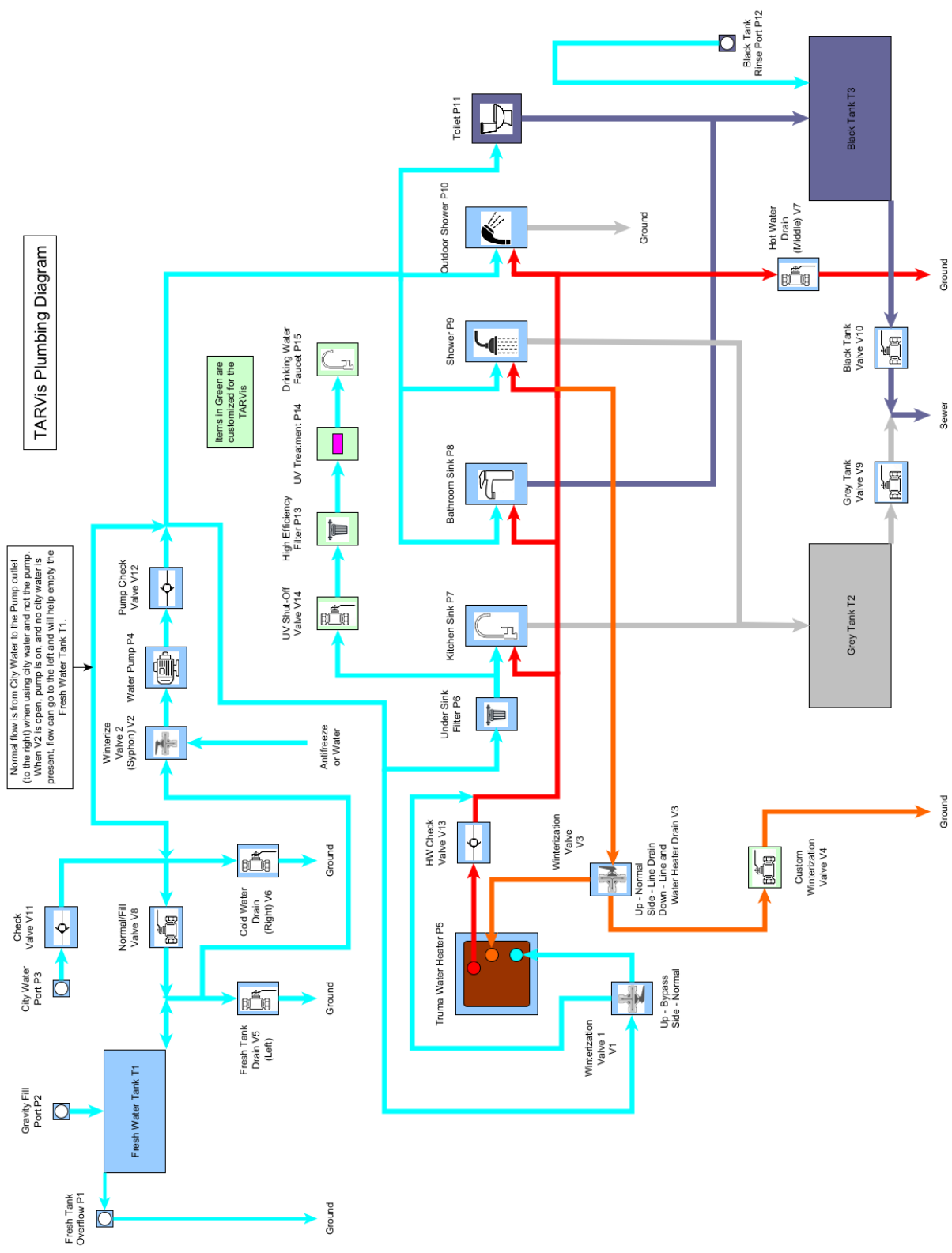
For our RV, the parameters that are set to values other than factory defaults are:

05 – Off 20 – USE 22 – 14.4 23 – 13.8 28 – 26

Water/Pump Issues

Plumbing Diagram

The diagram below shows the plumbing system for Dave's Navion. Items in Green are custom to the TARVis (Dave's Navion). Item labels (P1, P2, T3, V4, etc.) are referenced throughout this document.


TARVis Plumbing Diagram
Items in Green are customized for the TARVis
Normal flow is from City Water to the Pump outlet (to the right) when using city water and not the pump. When V2 is open, pump is on, and no city water is present, flow can go to the left and will help empty the Fresh Water Tank T1.
Fresh Water Tank T1
Gravity Fill Port P2
Fresh Tank Overflow P1
City Water Port P3
Check Valve V11
Normal/Fill Valve V8
Cold Water Drain (Right) V6
Fresh Tank Drain V5 (Left)
Ground
Winterize Valve 2 (Syphon) V2
Water Pump P4
Pump Check Valve V12
Antifreeze or Water
UV Shut-Off Valve V14
High Efficiency Filter P13
UV Treatment P14
Drinking Water Faucet P15
Under Sink Filter P6
Kitchen Sink P7
Bathroom Sink P8
Shower P9
Outdoor Shower P10
Toilet P11
HW Check Valve V13
Truma Water Heater P5
Winterization Valve 1 V1
Winterization Valve V3
Up - Normal Side - Line Drain Down - Line and Water Heater Drain V3
Up - Bypass Side - Normal
Custom Winterization Valve V4
Black Tank Rinse Port P12
Black Tank T3
Hot Water Drain (Middle) V7
Black Tank Valve V10
Sewer
Grey Tank Valve V9
Grey Tank T2

No Water from Pump

If you turn the water pump on and are not receiving any or little water at faucets, check for the following common issues

Valves

- Winterization values in Normal position.
- Hose connect value in Normal position (not in Fill position)

Pump Filter Clogged

Check the pump's strainer/filter to make sure it is not clogged. The strainer is located on the inlet side of pump and is clear with a metal screen in it. For recent D models, the pump is accessed by lifting the sofa seat and removing the wood panel that has a finger hole on the right side of the sofa.

- Make sure the pump is off and you have opened a faucet to relieve any water pressure
- Unscrew the clear filter and check the metal screen for dirt, clean if needed, re-attach filter, turn on pump and test for water at faucet.



Water line kinks

The water lines to and from the pump are braided nylon and in some models these lines can kink and obstruct water flow to or from the pump.

On newer D models these nylon lines are located under the sofa and move as the slide is extended and retracted, which has resulted in kinking where they bend sharply near the water pump. This can especially happen in warm weather when the nylon is warm and easier to bend.

To check for kinks

- First try to visually check the water line if possible. In D models you may be able to see these lines check where they connect to the water pump and by looking under the sofa by the floor using a flashlight.
- If you need to pull a line to check or you know which line is kinked and want to fix it:

- Make sure the fresh water tank is drained and faucet lines are drained. Use the winterization valves to drain, or water will rapidly flow out when a pump line is disconnected.
- Disconnect one or both water lines at the pump.
- In D models you see black tape holding the lines together and you will need to cut the tape in order to check or fix the a kink.
- If possible, pull line out enough to expose kink (D models have enough line to pull out away from pump.
- Straighten kink as much as possible. If you have a hair dryer, heat the kink with the dryer to soften it. It should begin to return to a normal shape as it warms. Use your fingers on the softened kink but just enough to help the line stay round, turn off the hair dryer and continue to press kink while it cools.
- If possible, purchase a cushion clamp (hardware store) and secure the hose at or near the kink with the clamp to a wood surface. In newer D models the hose can be secured in the access box where they bend before attaching to the water pump.

No Water from Bathroom Sink

If only the bathroom sink has low or no water flow, the problem is likely due to the aerator being clogged with debris. Twist the aerator off the faucet, clean, and replace.

Water pouring out from under RV

- Check winterization valves for water heater: D models - if in the wrong position water will pour out near passenger rear tire if in the wrong position. For D models, the winterization valves are behind a wooden panel at the bottom of the pantry area to the left of the fridge. A screwdriver is required to remove the panel.
- Check if Truma filter is inserted if you have winterized. Water will pour out of Truma access panel if the filter is missing.
- If water is pouring out under wet bay, check winterization valves in the wet bay.

Propane Detector Issues

The propane detector must be replaced after 5 years of use. It is not clear if these detectors have a 5 year shelf life or a 5 year use life, but the text on the most recent detector I bought indicated the latter. These detectors should start beeping when they have reached end-of-life.

Hair spray and other fairly common products that contain volatile organics can cause the propane detector to alarm.

The new propane detector in Dave's RV is also a CO detector.

Truma AquaGo On-Demand Water Heater

Truma Won't Start – Yellow Light on Switch is Flashing

If the Truma won't operate and the switch light is flashing, there could be numerous causes. Open the outside door to access the Truma and observe the flashing LED on the unit. The sequence of short and long flashes will indicate an error code that can be found in the Truma documentation to determine the likely issue. The Truma documentation also includes a trouble-shooting section that may be helpful. For quick reference, the flashing error code chart is shown below.

APPENDIX A – Error Codes

If the appliance malfunctions, LED 2 (refer to "Overview / Designation of parts" on page 2) will flash to indicate the malfunction.
There are short and long intervals of flashing. The flashing will repeat every 3 seconds.

1. Note the flashing intervals and check the list below.
2. Reset the appliance:
   – Switch off the appliance. / – Wait 5 seconds / –Switch the appliance on again.
3. If an error code is still displayed, contact an authorized Truma service center.

Error code	Flash code s =short = 0 l = long = 1	Error	Description
1	s,s,s,s,s,s,s,l	Flame not detected	There is a flame-detection error at the burner because the flame was not detected after release of gas and ignition. **Important:** The system indicates this error only after three attempts at intervals of approximately 30 seconds.
2	s,s,s,s,s,s,l,s	Error at over temperature switches (EOS, BOS)	The exhaust over temperature switch (EOS) or burner over temperature switch (BOS) is open/unplugged.
3	s,s,s,s,s,s,l,l	Error at exhaust pressure switch (EPS)	The EPS did not close when the flue fan was actuated because the fan did not push enough air through the exhaust channel. A cause could be, e.g., blocking of the exhaust channel or a faulty switch. OR The EPS is closed even though the flue fan is not running. Cause is a defective EPS or flue fan.
4	s,s,s,s,s,l,s,s	Error at water over temperature switch (WOS)	The WOS opened at a water temperature of over 185 °F (85 °C).
5	s,s,s,s,s,l,s,l	Flame detected at incorrect time	There is an error in flame detection of the burner because the flame was detected – before ignition or – before the release of gas or – after the gas was switched off.
6	s,s,s,s,s,l,l,s	Error in the safety circuit for gas valve	There is a heating request but gas cannot be released. One of the switches WOS, EOS, BOS, EPS is open/unplugged.
7	s,s,s,s,s,l,l,l	Error of burner MCU internal RAM	Error detected in the burner MCU's internal safety monitoring feature (safety variables are no longer correct or RAM/STACK was overwritten by mistake).
9	s,s,s,s,l,s,s,l	Malfunction of water outlet temperature sensor WOT	Water outlet temperature sensor WOT – has a short circuit or – is open/unplugged.
10	s,s,s,s,l,s,l,s	Error in the safety circuit	There is a heating request but gas is not released because a valve-actuation signal was not activated.
11	s,s,s,s,l,s,l,l	Error of MCU watchdog gas release	There is a heating request but the MCU watchdog does not release the gas path.
12	s,s,s,s,l,l,s,s	Internal error	
13	s,s,s,s,l,l,s,l	Short circuit shut-off valve	Short circuit detection in the gas valve (shut-off part) detected a current > 1000 mA and shut off.
16	s,s,s,l,s,s,s,s	Malfunction of the MCU	Internal error of the control unit.
20	s,s,s,l,s,l,s,s	Malfunction of water inlet temperature sensor WIT	Water inlet temperature sensor WIT – has a short circuit or – is open/unplugged or – the temperature of the sensor is colder than 14 °F (-10 °C).
21	s,s,s,l,s,l,s,l	Malfunction of circulation line temperature sensor WCT	Circulation line temperature sensor WCT – has a short circuit or – is open/unplugged or – the temperature of the sensor is colder than 14 °F (-10 °C).
22	s,s,s,l,s,l,l,s	Malfunction of gas valve, modulation section	Error at gas valve, modulation level, because - the modulator has a short circuit or - is open/unplugged.
23	s,s,s,l,s,l,l,l	Voltage is too high	The main power supply's voltage detector measured a voltage level of >16.4 V.
24	s,s,s,l,l,s,s,s	Voltage is too low	The main power supply's voltage detector measured a voltage level of <10 V.
25	s,s,s,l,l,s,s,l	Flue fan current consumption error	The current detector for the flue fan has measured a current outside the permitted limits.
26	s,s,s,l,l,s,l,s	Circulation pump current consumption error	The current detector at the circulation pump has measured a current outside the permitted limits.
27	s,s,s,l,l,s,l,l	Water circulation pump is running dry.	The circulation pump does not generate water flow. The water system may not be filled or not sufficiently vented. The circulation pump tries (20 times) to generate a water flow every 30 s (if successful, the error is reset).
28	s,s,s,l,l,l,s,s	Too low gas pressure.	Gas supply (in vehicle) to the appliance insufficient.
29	s,s,s,l,l,l,s,l	Too high heat power required.	You are trying to use more hot water than the appliance can supply.
30	s,s,s,l,l,l,l,s	Risk of freezing.	Temperature in the appliance below 27 °F (3 °C).
31	s,s,s,l,l,l,l,l	Decalcification finished.	–
32	s,s,l,s,s,s,s	Current too low.	Current in the antifreeze kit too low (e.g. cable break).
33	s,s,l,s,s,s,s,l	Current too high.	Current in the antifreeze kit too high (e.g. short circuit).

Stuck in Clean Mode

If someone inadvertently turns the Truma water heater control knob in the bathroom to "Clean", the unit will enter a decalcification cycle that can take hours to complete, during which hot water is not available. Use the steps below to resolve this issue.

Please follow these instructions step by step

1. Power to the unit must be on from the main panel
2. The outside switch on the AquaGo needs to be in the "ON" position either up or down.
3. Turn rotary dial on inside switch to "ECO" or "Comfort" mode (these are the top 2 positions on the switch)
4. Wait until you hear the circulation pump cycle on and off – You may need to "wake up" the switch by turning it on and off a couple times until you hear the circulation pump cycling.
5. Open all the hot water faucets in the vehicle- let the water run until the yellow light stops flashing, this could take 15 minutes or more. (During this time you will hear the circulation pump turning off and on in approx. 30 second intervals this is normal. The burner will not ignite)
6. Once the flush cycle is complete the LED on the control switch goes out and you will see a red LED fault code on the main control PCB. This is fault code 31 (S,S,S,L,L,L,L,L) "Decalcification Complete".
7. Turn rotary dial to the "off" position
8. Turn the rocker switch on the AquaGo to the "off" position wait 30 seconds
9. Turn rocker switch on the AquaGo back on- solid green light should be present
10. Turn the rotary dial to the "ECO" or "Comfort" mode (you may need to wake up the dial by turning it on and off a couple times)

The unit should work normally at this time.

Specific to Dave's Navion 2020D.

If you are boondocking and cannot afford to waste the water when flushing in the above instructions, it can be recirculated into the fresh water tank. In the wet bay, there is a hot/cold water outlet for an outside shower. In our Navion, I put a quick-connect on this water outlet so that the shower hose and head could be stored elsewhere to save space in the wet bay. This means that the fresh water hose can be easily connected to the shower outlet (since it also has a quick-connect). Attach the fresh water hose, then route the free end of the hose to the gravity fill of the fresh water tank on the outside of the slider. Open the hot water side of the outside shower when instructed above to flush the hot water.

Truma needs a Restart if Air is in the Lines

From Tyler McCullough, the Truma rep on Facebook: The flashing light on the inside Truma dial would indicate a fault. You would need to go outside and see what the red led flash code is and the reference the user manual which can give you an idea what is wrong. I would encourage you to call our service department at 855-558-7862 ext. 1, if you can't find the problem in the user manual.

Chantal is one of the Truma service staff in their Southern California Office. Here's the procedure that Chantal sent us:

"Power to the unit must be on from the main panel. The outside switch needs to be in the “ON” position. Turn rotary dial on inside switch to “ECO” or “Comfort” mode (these are the top 2 positions on the switch) Open all the hot water faucets in the vehicle- let the water run until the yellow light stops flashing, this could take 15 minutes or so. (During this time you will hear the circulation pump turning off and on in approx. 30 second intervals this is normal. The burner will not ignite) Once the inside switch stops flashing turn off water Turn rotary dial to the “off” position Turn the rocker switch on the AquaGo to the “off” position wait 30 seconds Turn rocker switch on the AquaGo back on Turn the rotary dial to the “ECO” or “Comfort” mode (you may need to wake up the dial by turning it on and off a couple times) The unit should work normally at this time."

Chantal Hershberger Customer Care Coordinator Truma Corp 825 E Jackson Blvd Elkhart, IN 46516 USA +1 574-208-6891direct +1 574-538-2426 fax +1 855-558-7862 ext. 113 Truma counts amongst the 100 most innovative medium-sized companies in Germany.

Geevon Color Weather Station

Specific to Dave’s Navion 2020D:

After changing batteries in any of the three remote temperature sensors, it is usually necessary to re-sync the sensor to the base unit. To do this, go to the base unit and press the Ch button repeatedly until the desired channel is selected. Then press and hold the Ch button for 3 seconds. Release the button and the base unit will search for the sensor.

Normally, the sensors are located in the base unit in the bathroom, the duct for the vent in the step well (outdoor sensor), the fridge, and the freezer. The wet bay, Truma hot water heater bay, and the indoor temperature near the TV have Govee temperature and humidity sensors that are read with an app. These can be useful for monitoring temperatures in plumbing areas in shoulder seasons when freezing pipes need to be avoided.

Mercedes (Truck) Issues

Disengage the Drive Shaft to Tow

Since the Mercedes has an electronic transmission, the drive shaft cannot be put in neutral if the engine won’t start. In order to tow the vehicle in this case, it is necessary to disconnect the drive shaft from the engine. This can be done by unscrewing four bolts where the at the front end of the drive shaft. These bolts require an E14 TRX-Star E-Torx wrench.

If these bolts are removed for towing, they should be replaced and not re-used.

Diesel Pump Nozzle Does Not Fit

Diesel pumps at truck stops often have a larger diameter than diesel pumps at gas stations, and these nozzles won’t fit into the fill port on the Sprinter. Several diesel automobile manufacturers will sell an adapter nozzle to resolve this problem for those times when such pumps are the only option for filling your tank. Our RV has such an adapter funnel in the storage

compartment right behind the driver's door. On the front wall of this compartment is a small container that holds the funnel.

Diesel

Mercedes recommends using low-sulfur petroleum diesel fuel. If B20 (20% bio-diesel) is used, it is recommended that the oil be changed twice as frequently as normally. B5 should not be an issue.

Do not put gasoline in the fuel tank!!!! Most gas stations have green handles for diesel pumps, but NOT ALL DO! If gasoline is put into the Sprinter fuel tank, do not drive the vehicle. Call a service company and have them drain the fuel tank. Starting the engine and driving can potentially ruin the engine, resulting in repairs in the 10's of thousands of dollars.

Coolant Warning in Cold Weather

Several forum members, including myself, have observed that when the Mercedes engine is started in cold weather (same say below 40F, mine was near 32F), the dash shows the warning "Refill Coolant Urgently See Operator's Manual". Although it is probably a good idea to check the coolant level, this warning, when caused by cold weather, will generally clear itself.

Lane assist, Traffic Sign Assist, Cruise Control Stop Working

Many drivers have noted that under certain conditions, some of the driver assist features can stop working. This seems to happen after driving for a long time with no other traffic in the sensors' view. Possible fixes that have been suggested are: turning off and on the cruise control, restarting the engine, having oncoming traffic or traffic in front of you. It is also possible that a software update to the Mercedes computer helps, since our RV has not generally had this problem since that was done.

Jump Starting the Mercedes

Specific to Dave's Navion 2020D. These procedures are speculative and are not recommended by Mercedes or any other manufacturer or expert. Use at your own risk and only if you know what you are doing. If you choose to use any of these ideas, you accept all risk and are responsible for all consequences.

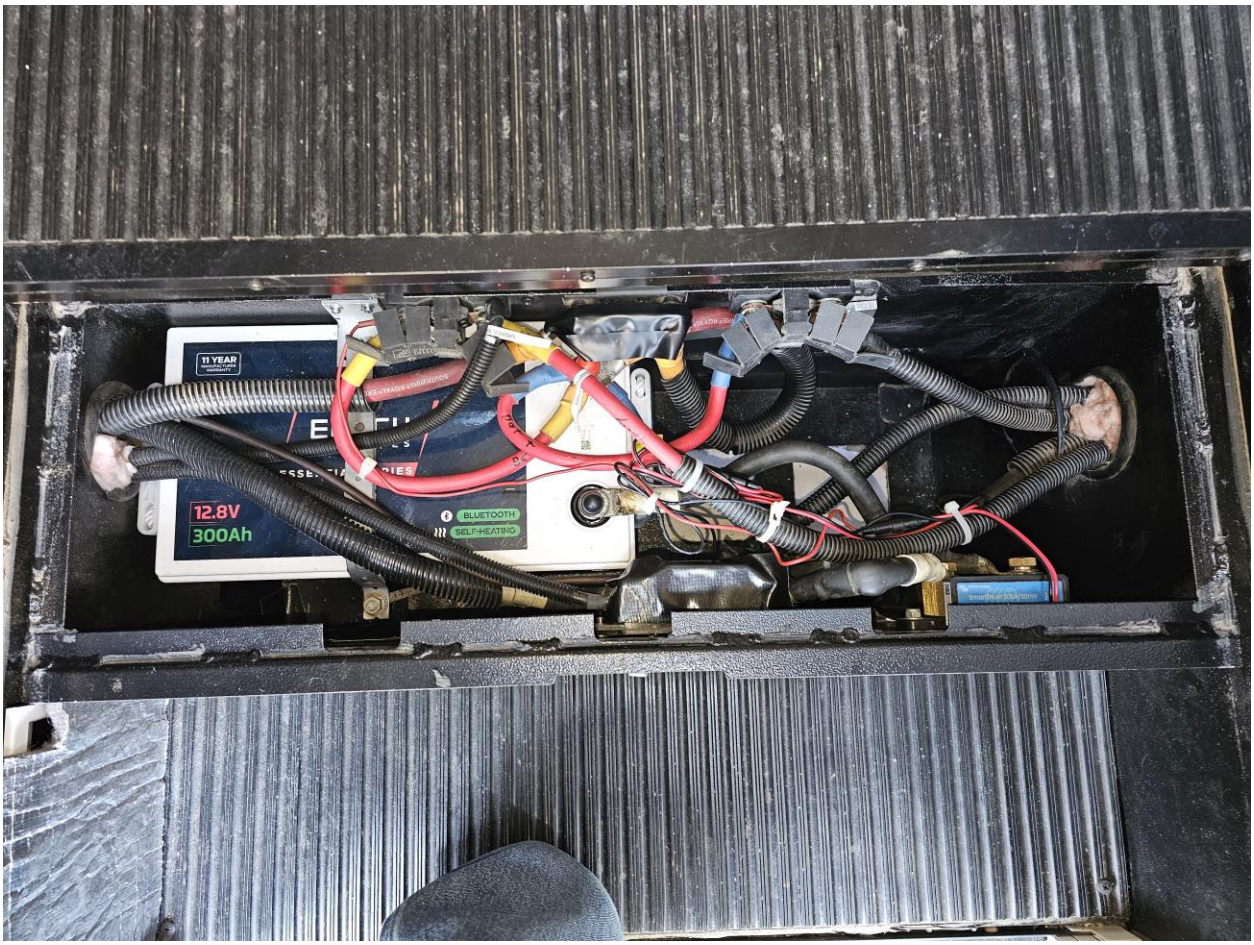
There should be a set of 20' jumper cables in the RV, probably in the rear most external storage bay on the passenger's side. If the Mercedes needs to be jump started, the best option is to find instructions in the Mercedes manual and jump from another vehicle. If no other vehicle is available and you really need to jump the van, you may be able to jump it from the house battery. One advantage of this is that the house and van batteries share a common ground, so only the positive terminals need to be connected to jump start the van.

The OnePlace will show both the house and chassis battery voltages. The Victron SmartShunt will show a more accurate house battery voltage, but you must have the app on your phone to read this. It is best to start with the house battery partially charged. If it is fully charged, you will create larger currents when connecting the batteries, which can be problematic. If it is already fully charged, proceed with caution, but if it is partially charged, it is probably best to

partially charge the chassis battery before running the generator to more fully charge the house battery.

The ideal scenario for jumping the Mercedes would be to charge the chassis battery adequately so that it can start the Mercedes by itself. In this way, you aren't drawing large starting currents from the house battery.

To connect the two batteries, first connect the red side of one end of the jumper cable to the house battery positive terminal. The house battery is under the steps of the main house RV door. Remove the step cover, then pop off the red cap from the battery's positive terminal. Attach the jumper cable to this terminal, making sure not to let the other end of the jumper cable touch anything. Then open the hood and find the red jumping post near the driver's side of the engine compartment. Push the red cap back to expose the jumping post. Attach the other end of the red side of the jumper cable to the post. The chassis battery should then start charging. (Again, note that the battery grounds are already connected, and you do not need to use the black side of the jumper cables. Just make sure the black ends do not touch anything.) You can check its charged voltage by disconnecting the cable from the engine terminal. (It will read at a higher voltage when actively charging than when it is on its own.) If you charge the chassis battery partially this way, then you can start the generator to add more charge to the house battery. Eventually, when the chassis battery has taken on enough charge, disconnect it and try starting the engine. If this does not work, you can further charge the chassis battery as above and try again. If it still does not work, you can consider leaving the cable attached while trying to start the engine. This will draw some additional current to the van starter from the house battery. If this current is too large, it is possible that some issues could arise. (Most likely hot cable, possibly involving melting.)



Note that the jumper cables are 4 AWG. 20’ of 4 AWG cable has about 0.005 Ohms of resistance. When the house battery is near fully charged and the chassis battery is low on charge, there may be about 2V difference between the two. With only the 4AWG cable’s resistance, up to 400A could flow at this voltage difference. There will be additional resistance, internal to the batteries and at the cable connection points, so the maximum current is likely less than that. The 4 AWG wire of the jumper cable can carry around 100A. It is important to monitor voltages and currents and use the generator intelligently to minimize the voltage difference and thereby minimize the current flowing at any particular time. (The Epoch LiFePO4 batteries claim to have an internal resistance of less than 0.03 Ohms. Normal lead-acid batteries have a typical internal resistance of 0.02 Ohms. The Mercedes battery is an AGM battery, which generally have lower internal resistance than lead acid. In any case, both batteries probably have internal resistances larger than the resistance of the cable, so the total amperage draw will probably be much less than 400A. The Epoch batteries also claim to have 200A max draw (100A max draw continuous).

Jacking Up the Van (to change a tire)

The Mercedes manual has information on where the jack is stored and how to use it. Importantly, do NOT jack the van up on the differential case in the rear. Forum users have posted pictures of how that case can deform when that is done, resulting in an expensive repair.

The front jack points are in front of and to the inside of the front tires. The rear jack points are in front of the rear tires, behind the storage bins, about a 3rd of the way up the length of the bin from the back.

Specific to Dave's Navion 2020D:

I spray painted all four jack points bright red to make them easily identifiable (at least until the road grime covers up the red paint…)

Special Tools Required for the Above Procedures

This section attempts to collate all the specialized tools that are called out in the above procedures, as well as some of the more general tools and supplies needed to carry out these fixes. In Dave's Navion 2020D, these tools are in the storage bin above the kitchen counter, closest to the coach door. Additional supplies (tapes, glue, cable ties, etc.) are in the bottom drawer of the pantry, to the right of the fridge.

- cordless drill/driver with a set of bits and adapters (the charger and spare battery are behind the TV)
- 1/8" Allen wrench
- 1/8" Allen bit
- 5/8" deep socket
- 1/2" 8 pt socket
- 3/8" rachet wrench
- E14 TRX-Star E-Torx wrench
- cable ties for awning (even 20" cable ties will require 2 joined together to encircle the awning)
- wire cutter/dykes for cutting cable ties
- fine grain sandpaper for cleaning coach door contacts
- diesel nozzle adapter
- automotive fuses
- 4mm Allen wrench for awning limit switch adjustment (or 9/64" as per notes)

Tips for Using the RV Systems

This section is for tips and tricks for the RV and its subsystems, specifically for issues that may not be readily apparent to first-timers.

Specific to Dave's Navion 2020D:

There is a set of check-lists in the notebook above the passenger seat visor: one for set-up at camp, one for before you start driving, and one for dumping the tanks.

Indoor Air Quality

Although RV's are leaky and poorly insulated, with the windows and doors closed and exhaust fans off, the CO2 level inside an RV will climb quickly. Although very unlikely to reach medically harmful levels, it is common for the CO2 level to go above 3000 ppm or more (whereas 450 ppm is the current typical outdoor level). Some peer-reviewed studies have suggested that levels above even 1500 ppm can induce measurable affects in cognition and mental processing. In any case, we often leave one MaxxAir fan on low (10% speed), even in hot or cold weather. This keeps the CO2 levels measured in our RV generally below 1000 ppm.

When using the MaxxAir fan(s), we prefer to bring in air from as low down as possible, since we usually travel in the warm seasons, and air under the RV is likely to be cooler than elsewhere. (Some people use one MaxxAir to draw air in, and the other to push it out, but that brings in air from the hottest possible place, the roof of the RV!) On our RV, there is one (maybe soon two) vents in the stair well by the coach door. A filter is behind each vent to prevent bugs and some dust from entering. Ducting under the RV helps draw the air from closer to the center of the RV rather than the outside edge, since air under the RV is often cooler when camping in one place for a while.

It is important to keep these vents closed when driving and especially when running the generator! To close the vents, close the louvers, then place the magnetic cover over the vent. Leaving these vents open while running the generator will bring in unpleasant and potentially dangerous fumes.

Generator

Generator Oil Warning

If the generator control panel says "Check Oil", don't worry. This is just a maintenance reminder, not a problem. To clear the message, press and hold the Start button while the generator is running.

Generator Fuel Consumption

The generator uses diesel fuel from the Mercedes fuel tank. It should shut off if the tank level falls below ¼. Note that the fuel gauge on the Mercedes dash calculates remaining fuel based on how much diesel the engine has used. E.g. if you run the generator, the fuel gauge will not go down! It does not register the generator fuel usage.

Running the generator uses 0.2 gallons/hour with a 1KW load, 0.27 at 2KW, and 0.36 at 3KW, according to its manual. Thus running the air conditioner should typically use a gallon of diesel every four hours.

Outside Air Vents

Specific to Dave's Navion 2020D:

There is a vent (maybe two in the future) in the entrance door stair well. When these are open (and the generator is off) and a Maxxair fan is on, cooler air from down below is drawn up into the RV. However, these vents MUST be closed when the generator is running, since there is significant exhaust smell and fumes drawn into the RV otherwise. Close the louvers and then place the magnetic cover over the vent to fully close it off.

Surge Protector

Specific to Dave's Navion 2020D:

In general, one should never plug the RV into a campground outlet without a surge protector in place. Our original surge protector was stolen off a campground pedestal, so I installed a Hughes Power Watchdog in the cabinet next to the fridge. Open the lower cabinet door to see the status of the surge protector. If the dog's face is all white, power is good. If not, an error code will be displayed, which can be found in the documentation in the folder of manuals. A phone app can also be used to monitor the surge protector.

This surge protector has a replaceable surge module, so if it stops working, one should investigate if the module needs to be replaced. Also, if it stops working and you absolutely must connect power, remove the wood panel around the protector (4 screws). Dismount the protector from the wall by removing three screws behind the unit (to the back wall of the cabinet). When the unit is free from the wall, you will find a plastic bag with three wire nuts cable tied to the lower power cable leaving the unit. With all power off (shore, generator, inverter), you can remove the input and output wires from the surge protector and use the wire nuts to connect them together: ground to ground, black to black, and white to white. Since the surge protector is after the generator Automatic Transfer Switch, it also protects against bad generator voltages. But if the surge protector fails, the generator, as well as shore power, will be unable to power the RV, hence the wire nuts may be useful to allow one to use the generator without plugging into an unknown power outlet.

Power Outlet

Specific to Dave's Navion 2020D.

In the power/wet bay (rear storage bay on driver's side), there is a 30A 120V outlet, N27. This outlet has power whenever the RV is plugged into shore power or when the generator is on. The inverter does not power this outlet. (It is wired just after the generator power transfer switch.) The purpose of this outlet is for powering a small, dedicated circuit in our house during power outages. Do NOT plug the shore cable into this outlet!

12V Outlet in Wet Bay

Specific to Dave's Navion 2020D:

On the right wall of the electrical compartment in the wet bay is a 12V outlet, N16. This is a convenient place to plug in the macerator pump when emptying the waste tanks at home. Don't use the 12V outlet in the cab, as its fuse is insufficient for the macerator pump.

This outlet is also used for a 100W 12V heater (with thermostat) that can be used to keep the wet bay from freezing when camping in the shoulder seasons. The heater mounts on a horizontal shelf surface at the very back of the wet bay, so that it's output is aimed up and into the plumbing area behind the left half of the wet bay. Note that even with this heater and various insulation added to the RV, this RV is NOT a 4 season camper and will not fare well in deep winter conditions. The heater is probably kept in the top of the cabinet to the right of the refrigerator. Also note that the wet bay and Truma water heater bay have Govee temperature sensors that can be read with a phone app, which can be useful when monitoring the plumbing areas during times when the pipes might freeze.

Air Conditioner Vents

Specific to Dave's Navion 2020D:

The vents in the air conditioner were modified to provided quieter, high flow. As a result, the "dump" vents directly on the bottom of the air condition are no longer operational. Don't bother opening them, since air will not come out of them.

Leveling

The parking brake must be on and engine running when operating the levelers. When leveling the RV, make sure the rear wheels do not lift off the ground. The parking brake and transmission apply to the rear wheels. If the rear wheels are off the ground, the RV can roll off the levelers and cause serious injury or damage. Parking with the front of the RV downhill can help prevent this.

Slider

The parking brake must be on and the engine running in order to operate the slider. It is recommended to move the slider all the way in or out without stopping. Sometimes it may be necessary to stop part way in or out: I don't believe this is a big deal, but generally I try to move it all the way in one step. After the slider has reached it's final position and you let go of the button, press the button (in the same direction as you were just moving it) again and hold it down until you hear the motors click. This synchronizes the motors.

Murphy Bed

The Murphy bed is a known point of failure. To prevent it from breaking, help set the bed down with your hand when lowering it, and assist the bed when raising it. If the bed begins to bind, slow, or make noise, stop and figure out why! Stop pressing the switch as soon as the bed reaches

its final position. Do not keep the switch pressed any longer than necessary, as that only puts more stress on the motor, straps, and pivot points.

Tank Heating Pads

The black and grey waste water tanks have heating pads. The power switch to turn these on is inside the cabinet above the cooktop. These heaters should not be used without shore power or the generator, since they will run down the batteries quickly. The pads are designed to turn on when the temperature is below 45 degrees and off at 60 degrees.

Specific to Dave's Navion 2020D:

Unfortunately, the heating pads on Dave's RV do not work.

While working to diagnose the heating pads, I found a relay that the switch powers to give power to the heating pads. It is under the shower area, in the back of the wet bay. It was very difficult to find the first time, so it now has a string tied onto it with a label. If you take off the panel in front of the bottom of the shower, you can find the string and retrieve the relay. (This relay DOES activate properly when the tank heaters are turned on, so the fault must be elsewhere, probably in the heaters themselves.)

Truma AquaGo On-Demand Water Heater

Off While Driving

According to the manufacturer, the Truma water heater should be turned off when the RV is in motion.

Freeze Prevention

If water freezes in the Truma, expensive damage will result. The manual describes how to winterize the Truma. Be sure to pull the filter out and leave it out when winterized.

Drinking Water

Specific to Dave's Navion 2020D:

There is an Acuva water purification system under the kitchen sink which feeds the drinking water faucet on the counter behind the kitchen sink. It has an extra prefilter which should be changed once a year and a UV treatment chamber. It is powered off the awning lights circuit, under the bottom of the cabinet beneath the kitchen sink, with the fuse having been changed from 2A to 3A. The water system is disinfected annually, and should be safe to drink from regardless, but the combination of filters and UV treatment ensures safe drinking water even if the local water supply is bad.

Norcold Refrigerator

Starting "Night Mode" tells the fridge to use a reduced compressor speed for the next 8 hours. This saves a little bit of battery power and reduces noise. Since the fridge is generally not being opened at night, the temperature should not be affected much.

Door From Hell – Don't Open from Both Sides at Once

Don't open the coach door from the outside and the inside at the same time. An internal part will slip past another and the handle will no longer work. See the entry under Troubleshooting about Door Handle Failure if this happens.

Idling the Sprinter Engine

Mercedes recommends against idling the Sprinter engine for long periods of time. Idling could be useful for charging the house battery from the alternator, or using the cab AC to assist in cooling the RV. One Sprinter expert suggested that any idling of more than an hour should be avoided. I have seen another recommendation that idling up to four hours is probably OK. Before idling for more than a few minutes, however, be sure to check the Diesel Particulate Filter level. (With the engine on, use the left steering wheel controls to access the "Service" info, then scroll down to the DPF.) If the DPF is more then 90%, you should not idle the engine. Driving for a period of time at 30 mph or faster will eventually cause the DPF to go into a cleaning mode and reduce the loading.

Parking Brake

The parking brake can be confusing to use. Pull up the handle to apply the brake. However, in order for the seat to rotate, the handle can be lowered without disengaging the brake. To disengage the brake, pull up again. When it reaches the top of its motion and becomes harder to move, depress the button and keep pulling up. That will allow it to be lowered while disengaging the brake.

According to one self-proclaimed Sprinter expert (not confirmed elsewhere), the proper way to set the parking brake is as follows:

- Put Sprinter in Neutral
- Lift parking brake handle.
- Release brake pedal.
- Press brake pedal.
- Put Sprinter in Park.
- Let engine run for two minutes (lets turbo charger cool).
- Turn off engine.

Supposedly, this procedure reduces stress on the transmission.

Mercedes Key Fob

Holding down the Unlock button on the key fob will roll the cab windows down until you release the button. Holding down the Lock button on the key fob will roll the cab windows up until you release the button.

Mopeka LP Tank Level Sensor

Specific to Dave's Navion 2020D:

The OnePlace LP gauge is notoriously inaccurate. The Mopeka LP Sensor uses a Bluetooth app and provides a much better indication of LP gas level. For the View/Navion LP tank, the app should be set to "Arbitrary" tank size, since our tank is not one of the preprogrammed options. Set the Orientation as "Horizontal", and the Diameter as 12". If "Inches" are selected for readout, the app will display the inches of LP detected in the tank. Be aware that 1"of LP near the halfway point (where the tank is widest) has much more LP than 1" near the top or bottom of the tank. If the app is set to read Percent, then it calculates volumetric percent, correcting for the shape of the tank. Thus 1% of LP near the top or bottom of the tank is the same amount as 1% near the middle. The magnitude of this correction is relatively small. Compared to a linear readout (as with Inches), the correction can be about 7% of the reading. Also, some people prefer to set the Diameter parameter to 9". With this setting the app will read 100% full when the tank is filled. (LP tanks never fill more than 80%, since they need a gas head space for thermal expansion.) If you set the app up this way, and set the readout to Percent, there will again be errors in the calculation, since it is correcting the linear reading to the wrong diameter tank. These errors are also on the order of 7% of the reading, maximum.

Tire Pressure

Our RV has a EEZ Tire Pressure Monitor System (TPMS) installed. When the engine is started, the EEZ display turns on. All 7 tire pressures will be acquired within 5 or 10 minutes. (The 7th sensor is on the spare tire under the RV.) The recommended cold pressure is 61 psi.

As the RV is driven, the pressure in the tires will rise. This rise is due to heating of the tire and the air inside the tire. The temperatures measured by the TPMS will not accurately reflect the internal tire temperature, since the sensors are constantly cooled by air as they spin on the end of the stem extensions. The rubber material of the tire will begin to degrade at 195F, and failure could be imminent above 200F to 220F. The table below is a snapshot of a spreadsheet, with the initial conditions as 61psi in a tire, atmospheric pressure at 12.4 psi (e.g. Denver, CO or 5000-ish feet above sea level) and initial temperature at 70F. Note that under these conditions, a pressure reading of 79 psi implies an internal tire temperature of 200F. If your starting tire pressure is different by a psi or two, the left column can just be shifted appropriately. If the outdoor temperatire is much different than 70F, the resulting pressures can be adjusted up roughly 1 psi for every 7 degree F increase in temperature. Thus for an outdoor temperature of 90F, a reading of 76 psi will imply an internal tire temperature of about 200F.

Do not drive the RV when the internal tire temperature goes above 200F. Strongly avoid driving the RV if the internal tire temperature goes above 195F. At Colorado altitude, a pressure reading of 75 psi to 78 psi could begin to correspond to worrisome temperatures in the tires.

Starting Pressure (psi)	Starting Temp (F)	Starting Temp (K)	Pressure (psia)	Atmos Pressure (psi)
61	70	294.1111	73.4	12.4
Pressure (psi)	Internal Temp (F)	Internal Temp (K)		
62	76.94253	298.1181	74.4	
63	84.15507	302.125	75.4	
64	91.3676	306.132	76.4	
65	98.58014	310.139	77.4	
66	105.7927	314.1459	78.4	
67	113.0052	318.1529	79.4	
68	120.2177	322.1599	80.4	
69	127.4303	326.1668	81.4	
70	134.6428	330.1738	82.4	
71	141.8553	334.1807	83.4	
72	149.0679	338.1877	84.4	
73	156.2804	342.1947	85.4	
74	163.4929	346.2016	86.4	
75	170.7055	350.2086	87.4	
76	177.918	354.2156	88.4	
77	185.1305	358.2225	89.4	
78	192.3431	362.2295	90.4	
79	199.5556	366.2365	91.4	
80	206.7681	370.2434	92.4	
81	213.9807	374.2504	93.4	
82	221.1932	378.2573	94.4	
83	228.4057	382.2643	95.4	
84	235.6183	386.2713	96.4	
85	242.8308	390.2782	97.4	

Electrical System

Electircal System Switches

Always…	Unless… Conserving Battery Power	Or… In Storage (Not Plugged In)
Rotary Inverter Switch - ON COACH BATT Switch - ON Inverter Remote Panel - ON Inverter Button - OUT	Rotary Inverter Switch - ON COACH BATT Switch - ON Inverter Remote Panel - OFF Inverter Button - OUT	Rotary Inverter Switch - OFF COACH BATT Switch - OFF Inverter Remote Panel - OFF Inverter Button - OUT Sprinter in Battery Standby







This electrical cheat sheet is great for helping to understand the somewhat confusing interplay of various switches and components. Personally, I differ from this when the RV is in storage. Since we have solar panels and are parked outside, I leave the Rotary Inverter Switch and Coach Battery Switch ON when in storage, with the solar panels keeping the batteries charged, and lights, etc. available in the coach for my occasional visits and projects. Since we have a Trik-L-Charger, this also keeps the chassis battery charged, so I don't put the chassis in standby. I do tend to turn the inverter off unless I need AC power for something. Doing this, I rarely need to plug the coach into ground power during storage.

The large round switch in the upper left of the image above is the Inverter/Charger Disconnect Switch. If this is turned off, the Inverter/Charger will not charge the batteries.

The upper of the two switches to the right of the Inverter/Charger Disconnect is the 12V Coach switch. When this switch is turned off, the 12V items in the house section of the RV (lights, water pump, fans, etc.) will not have power.

In the lower section of the the image above, there are two buttons that can be used to turn on the Inverter/Charger. The left image shows the button on the inverter itself, in the storage bay next to the coach door. General practice is to leave this turned off (out). The Xantrex control panel, in the kitchen, is shown in the right image. The button here is used to turn the Inverter/Charger on and off. The two buttons work as "OR" logic, so the Inverter/Charger is on when either button is on, and off when both buttons are off. Leaving the button on the Inverter/Charger itself turned off allows one to use the button on the control panel to determine whether the Inverter/Charger is on or off. The Inverter/Charger should be turned on whenever you want to 1) charge the batteries from 120V power (ground power or generator power), or 2) use 120V power in the RV when the generator is off and there is no ground power. Note that most Views/Navions are wired so that the air conditioner only works on generator or ground power, and not on inverter power.

Microwave and Induction Cooktop

In most Views and Navions, only one of these two appliances can be used at once. If the microwave is turned on, the induction cooktop will automatically be turned off. A few seconds after the microwave finishes and turns itself off, the induction cooktop will regain power, and LED will flash, and a soft beep can be heard. For Dave's Navion, see the section below on the Bluetti Power Bank.

Bluetti Power Bank for Microwave and Coffee Pot

Specific to Dave's Navion 2020D:

Our RV has 300AHr of Lithium batteries N1. When boondocking (without hookups), we can run the fridge and heater, fans, etc, overnight, and usually have more than 30% left in the batteries in the morning. So we tend to be a LITTLE careful about how low to let the batteries get in the evening. It would be nice to have a bit more buffer, but adding more Li batteries would be expensive and time consuming. My easy and less-expensive solution was to add a portable power bank. The Bluetti Elite 100 V2 has 1024WHr (about 80AHr) of Li batteries N32. This adds more than 26% more battery capacity. However, in order to use it properly and usefully, a lot of attention to detail must be made.

The Bluetti is located under the sink. Its input is plugged into the microwave outlet in the upper back right corner of that cabinet. The microwave and the counter outlet (added by the previous owner, not original from Winnebago) are then plugged into the Bluetti. The power cord for the Bluetti has a switch wired into it, N31, which is mounted just inside the right cabinet door, near the top of the cabinet. This switch allows one to easily disconnect the Bluetti input power from the RV, which is required in order to take advantage of the Bluetti.

The Bluetti is configured to never turn itself off. The Bluetti charges at 600W, both in normal and silent mode. There is a Bluetti phone app that is very helpful in monitoring and controlling the Bluetti.

In normal use, when plugged into shore power, with the Bluetti input switch On, the Bluetti will stay charged, and power will flow through it from the RV power to the microwave and counter outlet. Since the counter outlet is on the same circuit as the microwave, be sure not to use any high current devices (such as the coffee maker or toaster) in the counter outlet when using the microwave. This rule is true for all scenarios (shore power, generator, inverter only, etc.) Note that there is another outlet on the under side of the cabinets (with a short extension cord to make it easier to use) that is on a different circuit. In some situations, this can be used for the toaster or coffee maker.

There are several ways in which the Bluetti can be useful, as shown in the chart below. The primary purpose is to save charge in the main house batteries when boondocking. In this case, it is important to turn the Bluetti input power switch OFF when boondocking. If the switch is left ON, the microwave will run on power from the RV inverter, draining the house batteries. Leaving the switch ON will also allow the Bluetti to charge from the house battery, which is probably not desired when the generator is not running. When it is OFF, the Bluetti inverter kicks in and powers the microwave. The microwave draws about 1700W, whereas the Bluetti is rated at 1800W. (Don't use the Bluetti Power Lifting mode, which can produce up to 2700W, since that power is poorly regulated and the microwave may not work well on it. Note that in this mode, the power sharing switch, N30 (ATS, or Automatic Transfer Switch) that switches the RV circuit between the microwave and induction top, will not sense the microwave being used. Hence an advantage of this mode is that one can use both the microwave (or the coffee maker) and the induction top at the same time.

A second way to use the Bluetti is as mentioned above: Even when on shore power or generator power, if one turns the Bluetti input power switch off, one can run the microwave or other appliance from the Bluetti while also using the induction top.

A similar operation mode is to again turn off the Bluetti input power switch, so that the microwave is running on Bluetti power, allowing the RV power circuitry to handle more appliances than if it were also running the microwave. With this mode, one could run the air conditioner, TV, and other appliances on shore power or generator power while running the microwave. One particularly useful scenario is when running on generator power, running the air conditioner, and charging the house batteries. These two loads can use 2500W of the generator's available 3200W (maximum, often less in practice). In this situation, one normally needs to turn the air conditioner off before running the microwave. This mode of operation avoids that necessity. Even when running on shore power, with up to 3600W total, it can be useful to run the microwave off the Bluetti to avoid

overloading the main circuit, especially when the air conditioner is running and the house batteries are charging.

The current Bluetti charges at 600W, both in normal and silent mode. If the air conditioner is running and the house batteries are charging, charging the Bluetti may push the limits of the circuit. However, I recently moved the AC to the inverter circuit, so now the inverter can automatically lower the house battery charging current when other loads are present. In any case, when charging the Bluetti and house battery and running the AC, monitor the loads carefully to ensure that the system is not overloaded. Also, when boondocking, remember to turn the Bluetti input power switch off when you turn off the generator, otherwise the house battery, via the inverter, will continue charging the Bluetti and you will lose house battery charge.

To remove the Bluetti from the RV for use elsewhere, unscrew the rubber bumper from the floor of the cabinet near the front right corner of the Bluetti. Unplug all cords from the Bluetti, including the input power on the right side (not visible). Slide the Bluetti forward and out of the cabinet.

The current Bluetti uses about 1%/hour of its capacity to keep its AC inverter on. With the microwave plugged in so that its clock is lit (but not cooking anything), it still uses less than 1.5%/hour. So if you leave the Bluetti on overnight and all day, it will drain significantly over a couple of days with no other load. (This is way better than a Jackery I tried, however, which drew more than 3 times as much current to keep its inverter on.)

Bluetti Operation Modes for Dave's RV

Note that in the table below, "microwave" means either the microwave or the coffee maker or toaster, or other loads run from the Bluetti. The coffee maker and toaster are smaller loads than the microwave, but large enough that only one of these should be run at once. Also note that the Hughes Power Watchdog is a great way to monitor total power draw to ensure you don't overload the main circuit. Since moving the AC to the inverter circuit, it is now possible to run the AC (for relatively short periods of time) off the house battery, with no generator or shore power. When doing this, care must be taken regarding other loads used at the same time.

Bluetti Input Power Switch	RV Power	Notes/Loads
On	Shore or Generator	Normal operation, microwave or induction, not both, Bluetti will stay charged, microwave uses RV power. Microwave and induction top cannot be used at the same time.
Off	Inverter only	Microwave will use Bluetti power, conserving house batteries. Can run both microwave and induction at same time. Use caution running AC and induction at the same time.
Off	Shore or Generator	Microwave uses Bluetti, air conditioner and house battery charging can run at the same time as microwave, induction can run at the same time as microwave if the air conditioner is not running.

On	Generator	Bluetti can charge while the generator runs the air conditioner and charges the house batteries. Inverter should modulate house battery charging to prevent overloading the circuit. Be careful how many other loads are in use.

Air Conditioner Running Off House Batteries

Specific to Dave's Navion 2020D:

Normally, the air conditioner uses a 20A breaker that is wired on the "shore power" side of the breaker panel, so that it only works when shore power is on or the generator is on. Since our air conditioner has a soft start, and since we upgraded the house battery from 200 AHr to 300 AHr, I moved the air conditioner breaker to the Inverter side of the breaker panel. (If you undertake this project, be sure to move the air conditioner neutral wire to the inverter neutral buss bar as well as moving the air conditioner breaker to the inverter power buss.) This means that the air conditioner can be run off the house batteries, without shore power or the generator on. Obviously, the AC is a very large load, and will only run for a few hours at full power before draining the batteries, but there may be certain circumstances where this is useful. One instance when running the AC off the batteries without the generator on can be useful is when you are driving, especially when it is sunny. The combined charging from the solar system and the alternator will not completely keep up with the draw of the air conditioner running full blast continuously, but it will greatly extend the amount of time that one can run the air conditioner off the house battery.

Another consideration is that the Xantrex inverter's power transfer switch is only rated for 24A continuous, 30A momentary. The AC uses about 10A of 120V power (1200W). So with the AC running there is only about 14A more of 120V AC power available for everything else in the RV that uses AC power. If the air conditioner breaker were still on the shore power circuit, there would be 20A more AC power left for other uses. (Note that even with the air conditioner on the shore power side, in practice, one could not run the AC and the microwave at the same time. Also note that in Dave's RV, one can use the Bluetti to run the microwave at the same time as the AC, so this is not a limitation. This remains true with the air conditioner on the inverter circuit.) In general, if you are not using the inverter circuit to power the microwave (e.g. use the Bluetti) and are not using it to run the induction top, there will be few circumstances when the 24A limit will affect electrical usage. In particular, one of the other main power draws on the electrical system is when the Xantrex is charging the batteries. Up to 1KW can be used in that case. But that 1KW does not count towards the 24A limit of 120V AC current through the Xantrex, since it is DC output from the Xantrex.

When using the house battery to run the air conditioner, monitor the battery level frequently using the Epoch app or the Victron SmartShunt app to ensure that you do not drain the battery too low.

When running the air conditioners with the generator on, turn off the air conditioner before turning off the generator. If you do not, the inverter will trip and need to be reset. However, when running the air conditioner off the batteries and then starting the generator, the transition is handled without a problem. The air conditioner can be left on in this case.

Maintenance Procedures

This section includes maintenance ideas and procedures that would generally be done when you are not travelling.

Air Conditioner

Once a year or more, the return air filters of the air conditioner (inside the RV, snap off covers at the AC) should be cleaned.

Once a year, the air conditioner heat exchanger should be cleaned, probably using a commercial spray can of cleaner made for this purpose, followed by hosing it off. There are four bolts to remove to get the AC shroud off, two on top and two an the bottom of the shroud on the end nearest the back of the RV. Once these are off, push the shroud as much as possible towards the front of the RV and lift the front end up. If you try to remove the rear end first, you will damage the fins of the heat exchanger. – Specific to Dave's Navion: Due to the reflectix insulation I put on over the cold side of the AC, removing the shroud is even more difficult than normal, but it can be done.

Black (or Grey) Valve Leaking

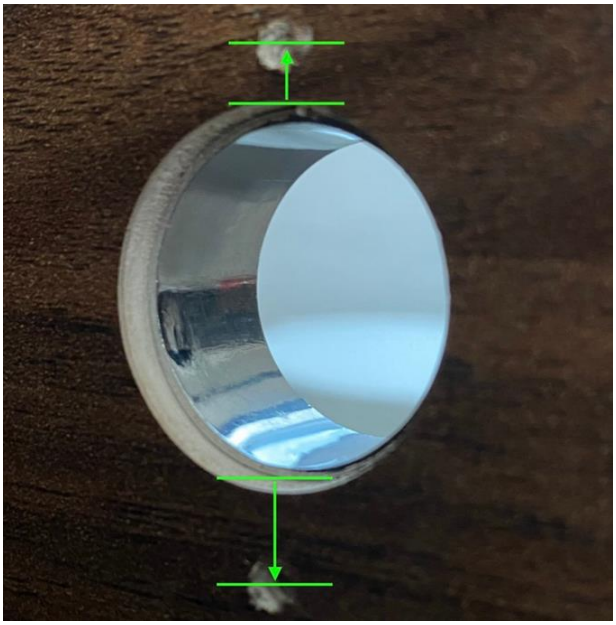
Taking off the sewer line cap and having yuck spill out is a fairly common problem. I've approached this in several ways. I bought a clear sewer line cap with a hose connection on it, and added a hose valve. With this, I can see if there is fluid behind the cap, and even drain it if there is.

In terms of maintenance, leaks from the black valve can also be caused by toilet paper and other solids getting caught in the valve. Taking the valve apart and cleaning the seal isn't as horrible a job as it sounds. Adding appropriate lube when putting it back together also helps the valve operate more smoothly.

Cabinet Knobs

The silver colored plastic cabinet knobs installed by Winnebago are known to break and jam. If one is stuck in and the cabinet won't open, it may be possible to slip a piece of stiff paper or other thin, rigid, but flexible material inside the latch between the button and the housing. Then rotate the material around the knob and the button will pop out.

One common cause for the cabinet latches binding is because the hole for the knob is not centered with respect to the two holes for the latch mechanism. (See photo.) It is possible to remove the latch, fill the screw holes, recenter the latch and drill new screw holes.



Bob Roos, who can be contacted on the FB group, can 3D print knobs that many group members attest are superior to the factory knobs. Bob can also print pucks that fit in the table mount holes in the floor, to prevent accumulation of dirt, and several other custom parts that are useful for V/N's.

Heating Pads on Tanks Coming Loose

The black and grey tanks have heating pads on their bottom side that can be used in cold weather to prevent freezing. Often, these pads begin to detach. Numerous suggestions have been made for how to reattach them. I used 3M 467MP Clear Adhesive Transfer Tape for this purpose. This tape is made specifically to resist water and a wide variety of chemicals and harsh environments, and I have seen it used in chemistry laboratories specifically for attaching heating pads to various items.

Flexible Solar Panels (Factory Original)

The flexible solar panels installed by the factor (SunPower 100W) were mounted to the roof with adhesive and some useless screws. Trapped moisture and heat from the sun trapped under the panels can damage the roof. If these panels still exist on your RV, they should probably be removed and either replaced or remounted. Many posts on the forums describe such solar system upgrades.

Fan Vent Cap Missing

The kitchen vent fan should have a rain cap on it. This cap often comes loose, allowing water into the vent. Replacement caps can be ordered from Amazon or elsewhere. I found one called "Colobrox RV Roof Mushroom Vent w/Water Guard", but that exact item may no longer be available. This included the main vent as well as the cap, though I only needed the cap. Putting this on with some RTV adhesive in the threads should help keep it from winding itself off again.

Diesel Generator

Diesel Generator Oil Change

Tom Lawrence posted a great set of instructions on how to change the oil on the Onan Cummins diesel generator. It also includes a lot of other useful information on the generator.

https://www.facebook.com/groups/ViewNavionMotorhomes/posts/10158137609578359/

Diesel Generator Exhaust Tube

The diesel generator exhaust from the engine has a short, 6" flex tube that goes to the generator muffler. It is visible when you take the generator front panel off, if you look through the left side, above the air filter, towards the back of the generator. On my unit, as well as several others posted on the forum, this tube has sheered through due to vibration. A replacement piece was $261 from Cummins. I found a 1.25" ID flex exhaust tube on Amazon from Tordxics and cut a 6" section. The original clamps were very hard to get around this larger OD tube, but I managed to put them on before putting the tube in place, then tighten them. These clamps have 10mm bolt heads. (All of this is done with the air filter cover off.) I also managed to make this repair without dropping the generator. I will monitor this repair to ensure that it holds up, especially since it isn't an OEM part. This tube should be checked on all similar diesel generators, since a broken tube can lead to exhaust entering the RV living area.

Dropping the Diesel Generator

Although I did not need to drop the generator to make the exhaust repair above, I did gather information on how to do that. In case you find that you need to drop the generator, here are some pointers:

Running the stabilizers down to jack up the rear end should give enough room for you to be able to move the generator out from under the RV.

Use a floor jack, a transmission jack, or a motorcycle jack of some sort. Something to allow carefully lowering the heavy generator.

There are four main bolts holding the generator in, two in front and two in back in C channels.

Before lowering the generator, you will need to disconnect the wiring harness and a ground wire on the forward right side (as you look at the generator). Also disconnect the fuel line (can stick a Phillips screwdriver in it to keep the fuel from running out). And disconnect the long exhaust pipe.

Most of the nuts involved are 13mm.

When it is dropped, there are ¼" hex screws holding the top cover on.

Diesel Generator Air Filter Tube

There is a white corrugated tube on the left side of the generator (when the front cover is off) that runs from the air filter housing to a fitting up above. Due to vibration, it is very common for this

tube to crack or break. Since it is just drawing air from above the generator into the engine, a crack probably isn't terribly important, since it will just draw a small part of that air in from the engine enclosure. Nonetheless, I obtained a section of this tubing from Tom Lawrence, who had purchased an excessive amount when he fixed his. Interestingly, I did not end up using Tom's tube, since I just cut the broken section off (which was right near the upper connection) and stretched out the remaining tube enough that it could be re-attached.

Spare Tire Rack

The spare tire is carried on a metal rack under the vehicle near the rear. The two nuts holding this rack up tend to corrode to the point where they cannot be removed. I used a nut cracker to remove these nuts, then cleaned the threaded rods, and put new nuts on with generous amounts of anti-corrosion compound. These nuts should be checked and more compound applied annually. It's a good idea to check the air pressure of this tire annually as well.

Equalizer Levelers

Equalizer Levelers Required Maintenance

EQ Systems has a document for their levelers titled "Required-Maintenance-Items-Hydraulic-Systems-EQ". It suggests that checks of more than half-a-dozen items should be done annually. Due to the length of the document and the lack of evidence that issues with these items typically arise, it has not been directly included here. Most of the items describe inspection of the various system components and looking for leaks. It does also recommend ensuring that the reservoir is filled to within 1" of the fill cap when the jacks are retracted. The recommended fluid is Dexron ATF.

Equalizer Levelers Programming

The Equalizers controller needs to be programmed in two ways before it will function properly. The first, Orientation Setting, tells the device which how the controller and its sensors are oriented relative to the coach. The second, Null, defines where "level" is. Usually (but apparently not always), the Orientation is set correctly at the factory and does not need to be reset. It may be useful to reset the Null on occasion. Although these procedures are likely seldom used, they are included here since not everyone will have a copy of the Equalizers manual.

After the system is fully installed the control panel must be programed for operation. Failure to do this will result in a failed or improper Auto Level. There are two program settings that must be programed in the following order - 1) Orientation and 2) Null.

Step 1 - Orientation Setting

• This process cannot be completed until after the system has been connected to power and the control panel has been mounted and all electrical harness connections have been completed.

• This process teaches the control panel where the front of the vehicle is and how the control panel is mounted (vertical or horizonal). If this process is not performed correctly the processor will not know where the front of the vehicle is.

• It is possible that without doing this process it may work on a level floor/shop environment however when at locations where the system needs to operate specific legs for leveling it very likely will operate the improper legs.

• Once this process is properly completed the setting will be “retained” in the control panel and should not ever need to be performed again unless the control panel is replaced or moved to a different location.

• With the control panel off, press and hold the ALL RETRACT button, then while holding it press the POWER button, then release both buttons. The power light will start blinking and you will hear a rhythm beeping, and the 4 jacks down indicator lights will be on.

• Next the orientation is selected by pressing one of the manual control arrows. The exact specific one is determined by how the panel is mounted (see examples below). You will select an up arrow if the panel is mounted vertically and down arrow if it is mounted horizonal. The specific one is the one that most relates to the front of the coach.

Examples

• If the panel is mounted vertically inside the vehicle so that when you are looking at it, you are also looking at the inside of the front of the vehicle. You would push the UP ARROW for the front jacks.

• If the panel is mounted vertically inside the vehicle so that when you are looking at it, you are also looking at the inside of the rear of the vehicle then you would press the UP ARROW for the rear jacks.

• If the panel is mounted vertically on the vehicle so that when you are looking at it, you are also looking at the side of the vehicle then you would press the UP ARROW for the left or right jacks depending on which is the closest to the front of the vehicle.

Step 2 - Setting the Null

Null is the term used to indicate the levelness of the coach. A Null setting should have been performed by the installer. If the coach is not level following an attempt to Auto Level, you will need to level the coach and reset the null. Use a bubble level on a flat surface in the center of the coach as a reference. You do not need to have the jacks deployed to set the null.

• To set the null, first press the POWER button on the keypad to activate the unit. The LED light next to the Power button should be lit RED when the power is on.

• Level the coach by deploying jacks manually, or by simply parking the coach on a level site. Once the coach is level, turn the POWER off at the panel.

• While holding down the AUTO LEVEL button, press and release the POWER button. This should cause the keypad to make a series of beeps.

• After the Keypad has beeped 5 to 6 times, release the AUTO LEVEL button and you will get a confirmation beep. (The Keypad will continue to beep if the Auto Level button is held) The new null has been set and the panel will store/remember this setting.

• Press and release the ALL RETRACT button to retract the jacks to the stowed position

Note: if you are not clear on this process please check our website for videos and/or call EQ Systems for assistance.

Equalizers Front Brackets

For some years, the front brackets for the levelers were installed using an odd attachment sometimes referred to as a box nut. This is a blind nut that goes up into the truck frame, with a bolt going through the bracket into the nut to tighten the bracket onto the frame. This box nut ages poorly, and within a few years, the front levelers will wiggle. Newly designed brackets can be purchased from Equalizer. Replacement is a bit physically challenging, but not technically difficult.

Equalizer Hydraulic Pump Leaking

A known failure of the pump for the Equalizer Levelers is that it can leak hydraulic fluid though the pump head into the motor. This only happens when the reservoir is above a certain level. Evidence of the leak can be seen by keeping the pump head clean and looking for fluid dripping down the motor. According to Equalizer, this leak will eventually cause the pump to fail, since the pump is intended to run dry. Equalizer will sell you a new pump. It is also possible to fix the leak by applying a liquid gasket inside the pump at the right location.

Lube Everything

Once a year, oil the stairs mechanism, hinges, slider, storage door hinges and latches, cab side mirror hinges, cab door latches, etc. Boeshield T-9 has been recommended and seems to work well. Do not lube the slide rails. Only lube the slide as specifically instructed to by the manufacturer.

Lube Slide-Out

Once a year, use CRC Power Lube with PTFE or similar lube (do not use oil-based lube) to lube the slider motor mechanisms. There is one lube point above and one below the slider rack, which should be lubed from both the inside and outside for both racks. The racks themselves should not be lubed, only cleaned as needed.

See also https://www.youtube.com/watch?v=DCelw4U3BDw

Apply Rubber Gasket Treatment

Once a year, treat all gaskets with a rubber seal treatment, such as 3-In-One RV Care Rubber Seal Conditioner. This includes seals all around the slide, some of which (e.g. on top) are very difficult to reach, coach and cab door seals, etc.

The Door from Hell

Window Coming Loose

One of the many problems with the Door from Hell is that the window is known to come off. Many people, myself included, have heard a flapping sound while driving which turned out to be the windows have come partially loose and banging against the coach in the wind. I implemented a fix, using 3M double-sided adhesive to re-adhere the window, followed by caulking around the entire window. However, a recall has now been issued, and Winnebago should be creating a better solution in the future.

Not Sealing

It is not uncommon for the Door from Hell to not seal well when delivered from the factory. From the inside, light can often be seen around the seal of the door.

text needed

Hinge Lubrication

The materials used for the hinges and pins for the coach door are such that galvanic corrosion will soon cause them to bind. It is recommended that these hinges be taken apart and lubricated with a copper-based anti-corrosion lube once a year. The instructions from Lippert are shown below. In addition to these steps, some people recommend using a “K” size drill bit to ream out the upper and lower leaves of the hinges when they are taken apart, to remove corrosion and create a slightly larger hole for the pin that will make it less likely for the hinges to bind. If you ream all the way through the leaf, including the end where the plastic cap fits in, the plastic cap will no longer remain snuggly in place. Bob Roos can make replacement plastic caps, in both the original diameter and in the diameter for a “K” drill bit hole.

METALLARTE - LUBRICATING DOOR HINGES

M-027

DOORS

Purpose

The purpose of this document is to detail the lubrication of the individual door hinge leafs.

Safety

⚠CAUTION

Moving parts can pinch, crush or cut. Keep clear and use caution.

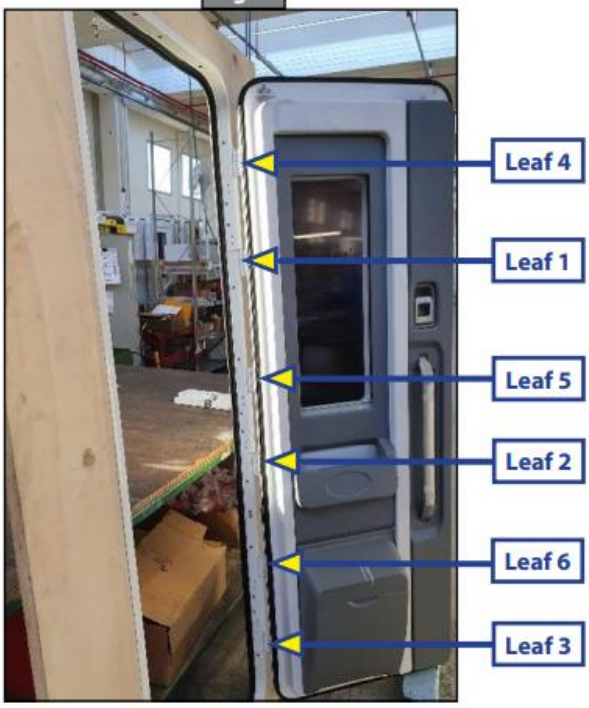
Resources Required

- Torx driver
- Lubricant Arexons type "AN251" or similar
- Bristle brush with sufficient reach (if necessary)

Procedure

1. Removal and lubrication of the door hinge leafs should be completed one at a time according to the order shown in Fig. 1, starting with Leaf 1.

Fig. 1



METALLARTE - LUBRICATING DOOR HINGES

DOORS

2. Remove the 2 Torx screws holding the hinge leaf in place and set aside the Torx screw for re-use (Fig. 2).
3. Remove the leaf by sliding it off the hinge pin (Fig. 3).
4. Using the built-in brush applicator of the bottle or a bristle brush, apply Lubricant Arexons type "AN251" or similar, to the open end of the hinge leaf (Fig. 4).
5. Use the brush to work the lubricant into the hinge leaf hole (Fig. 5).

Fig. 2



Fig. 3



Fig. 4



Fig. 5



6. Slide the hinge leaf back onto the hinge pin from which it was removed (Fig. 6).
7. Re-install the previously-removed Torx screws and tighten (Fig. 7).
8. Repeat steps 2 through 7 for the next five leafs.

Fig. 6



Fig. 7



Truma AquaGo On-Demand Water Heater Decalcification

1. Prepare for decalcification:
   a) Set control panel rotary dial in bathroom to “OFF”.
   b) Attach warning tags to all faucets.
   c) Remove the Truma access panel and switch Truma rocker power switch to “OFF”.
   d) Open a hot water faucet and wait for cold water.
   e) Turn off water pump/supply and leave hot water faucet open to depressurize & vent the system.
   f) Remove the water inlet filter, rinse and clean. Check the o-rings for cracks.
2. Decalcify.
   a) Using rubber gloves for protection, install the 6 Truma tablets.
   b) Re-insert the water inlet filter and switch Truma power switch to “ON”.
   c) Turn on water pump/supply and open all hot water faucets until water flows uniformly – make sure that you run it for a while, but don’t let too much pinkish water flow thru (the first time that I did this, the power switch showed error #27 and shut down – there might have been air in the line that interrupted the water flow).
   d) Set control panel in bathroom to “CLEAN” which will use about 8 gallons of water and take 2- 3 hours. The control panel switch will slowly flash on and off every second. When calcification is complete, the panel switch will be quickly flashing without pause continuously.
3. Rinsing the water system.
   a) Turn rotary dial on inside switch to “ECO” or “Comfort” mode (these are the top 2 positions on the switch).
   b) Open all the hot water faucets in the vehicle- let the water run until the yellow light stops flashing - this could take 15 minutes or more (probably should be hooked to city water or start with a full fresh water tank). During this time you will hear the circulation pump turning off and on in approx. 30 second intervals this is normal - the burner will not ignite.
   c) Once the yellow light on control panel stops flashing, close all hot water faucets. Turn both the control panel dial, then the rocker power switch to “OFF”. Turn off water pump/supply.
4. Checking and cleaning the inlet filter.
   a) Open a hot water faucet to relieve system pressure and make sure that there isn’t any decalcification agent left in the lines (turn pump back on and flush if necessary).
   b) Drain the water system, remove the water inlet filter, rinse & clean.
   c) Reinstall the water inlet filter and close the hot water faucet that was opened to relieve system pressure.
   d) Switch Truma power switch to “ON” (you need to switch the power off and on to unblock decalcification and enable further operation) and close the access door.
   e) Turn on the water pump/supply and open all hot & cold water faucets making sure that the water doesn’t have any pinkish tint (if so, rinse again) and remove warning tags.
   f) Turn the control panel rotary dial to the “ECO” or “COMFORT” MODE. The unit should work normally at this time.

Winterizing

The Winnnebago manual has two sets of instructions for winterizing, by blowing out the water and by filling the system with antifreeze. For the second (and maybe the first, which I haven't studied in detail), the manual describes that one drain the Truma water heater, leaving the filter out, then set Winterizing Valve 1 to Bypass before filling the system with antifreeze. However, the plumbing installed by Winnebago does not work for this purpose. If one pumps antifreeze in with the Truma filter out and the valve in bypass, the antifreeze will spill out of the water heater. The quickest solution is to drain the Truma, then re-install its filter, and fill the Truma with antifreeze just as with the rest of the system. (The Bypass valve can be left in the normal position for this.) After antifreeze has been fully circulated, take the Truma filter back out and let the antifreeze drain from the water heater. The filter can be left out during the winter for maximum safety against freezing.

The winterizing valves and Truma plumbing can be seen in the Plumbing Diagram.

Some have said that Truma recommends that one NOT put antifreeze through the water heater. It is possible to add another valve to the system in such a way that the bypass does work. Charles F. Collier has posted pictures on how to do this on the View/Navion Motorhomes forum. (Note that as of 20241110, his "Summer" picture shows the new valve closed, which it should not be. This will prevent the recirculation from working.)

Specific to Dave's Navion 2020D:

When winterizing the Acuva drinking water system should be drained. It is best to remove the filter, remove power from the UV treatment unit, and then remove the UV treatment unit from the wall and store it indoors where it won't freeze.

In November, 2024, I added another valve to the Truma to allow it to be fully isolated from the rest of the plumbing. For winterization, it can be drained and no antifreeze added to it. Or it can be drained while driving in cold weather, allowing the rest of the water system to be used (with freezing prevented by keeping the coach warm and using the wet bay heater).



Left – Valves set for normal use. during cold weather.



Right – Valves set to isolate Truma for winter-izing or travel