

Rangeline TSB

Airstream has identified a few service opportunities on Rangeline models built before 5/22/2023. The following service bulletin will help identify the issues and the solutions. Please complete each procedure in the order provided. Not all Rangeline's will require every update. All Rangeline's, even those built between 5/22/2023 and 10/10/2023, will require the Firefly firmware to be updated to 1.28.

WARNING: Before working on the touring coach, turn off the inverter and unplug from shore power so there is no 120-volt power.

Note: most fixes will require access inside the driver's side bed base electrical cabinet. Do not reinstall the cabinet panels until all steps are completed.

Identified Issues:

- House battery not charging while driving (3)
- House battery not charging from solar (1, 5)
- Soul module causing communication issues in the CAN network (4)
- Solar panels charge chassis battery as primary and house as secondary (5)
- Inverter/converter occasionally loses settings (1, 2)
- Inverter/converter settings are incorrect (1, 2)
- Inverter/converter turns OFF on its own (1)
- Generator overheat warning without the generator being on (1)
- Generator hour meter inconsistent operation on home screen (1)
- Incorrect EMS settings for Generator (1)
- Electrical system shuts down (1, 2)
- Unprotected 12-volt antenna booster wires (6)

Repair Remedies:

1. Update Firefly firmware
2. Update Xantrex firmware
3. Inspect and repair ignition signal connection and update Orion settings
4. Inspect and replace the Soul module, if needed.
5. Reverse wires on GoPower box
6. Cap unprotected ends of TV booster wires

Tools Needed:

- Phillips screwdriver or power drill
- 14mm socket and ratchet
- Torque wrench (ft/lbs)
- USB drive formatted to FAT32 (8gb or smaller)
- Micro-USB cable
- Windows laptop

Materials Needed:

- Wago or Butt splice connectors
- Electrical tape
- SeeLevel Soul module (if applicable)
AS# 514050-01

Software Needed:

- Firefly firmware update package – 1.28
- Xantrex firmware update package(s)
 - XC Pro 1.0X to 2.11.zip
 - XC Pro 2.08 to 2.11.zip
 - XC Pro 2.10 to 2.11.zip

1. Firefly Firmware Update (1.28)

Airstream has determined that due to changes in the Xantrex, Auto-Gen Start, Energy Management, and solar settings a Firefly firmware update is required. This firmware update also addresses the generator warning messages. The 1.28 firmware update will automatically upload the required system settings for the indicated components. After the update, the wireless Firefly RF control switches, and the SOC (State of Charge) will need to be recalibrated manually.

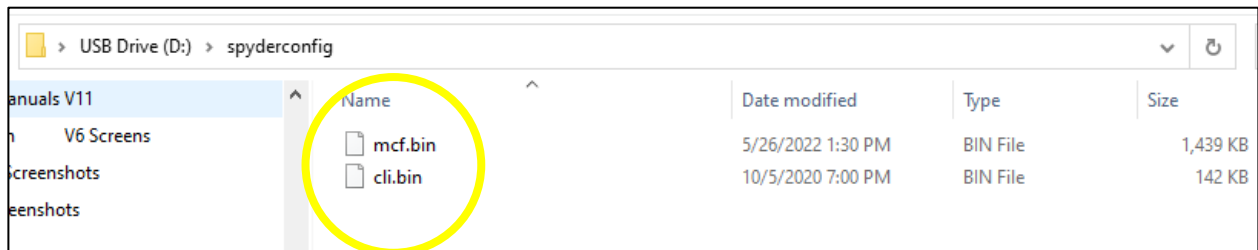
Note: to watch a video on how to update the Firefly firmware, click here: <https://www.youtube.com/watch?v=7mfdKKeIDfU>.

To update the Firefly firmware to 1.28, complete the following steps:

1. Load the Firefly firmware files onto a freshly formatted FAT32, 8gb or smaller, USB drive.
 - a. The files should be located on the root directory of the USB drive, inside a folder named: **spyderconfig**



2. Drag and drop the files into the newly created **spyderconfig** folder.



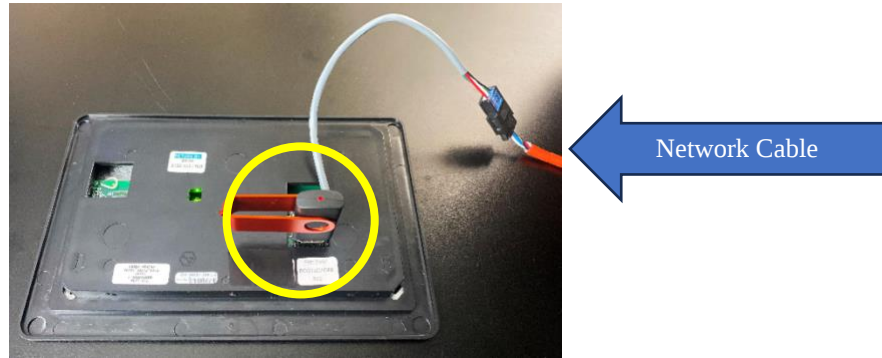
Note: the Firefly system will reset during the update, which will cause all lighting to turn off. You may wish to use a flashlight for additional lighting during the update process.

3. Remove the main Firefly touchscreen from the wall by placing your fingers along the top of the screen and applying pressure “down and out” to pop the screen out of the wall mount.

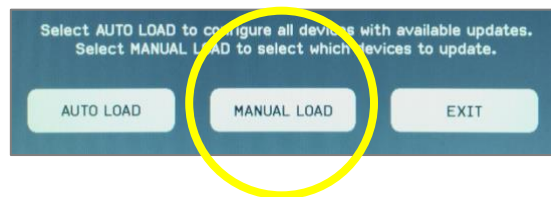


Note: be careful not to drop the touchscreen once it breaks free from the wall mount.

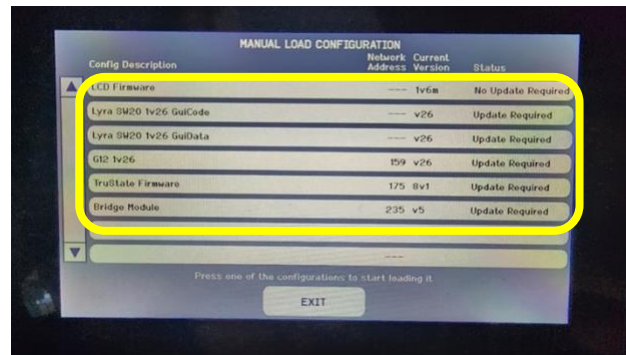
4. Plug the flash drive, containing the firmware update files, into the USB port on the back of the touchscreen. Next, unplug the network cable from the touchscreen for at least 5 seconds, then plug it back in.



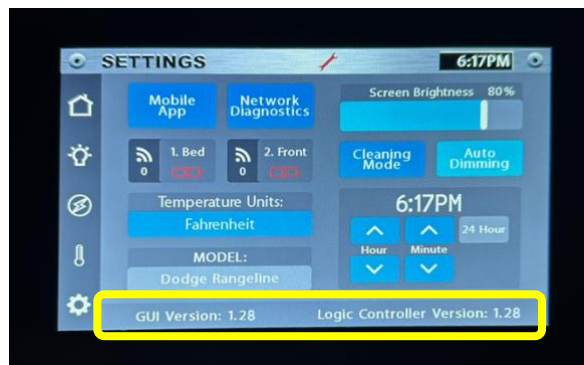
5. Once the touchscreen boots back up, tap Manual Load.



6. Several updates may be required. Tap the first update to begin the installation process (even if it says “No Update Required”). Once the status for the first update changes to “Update Successful”, repeat this process for the remaining updates.



7. Once all configs have been updated successfully, tap Exit. Remove the flash drive from the screen and perform another power cycle, by unplugging the network cable and waiting 5 seconds.
8. Verify the update by checking the GUI and LC versions on the SETTINGS page to ensure 1.28 is displayed.



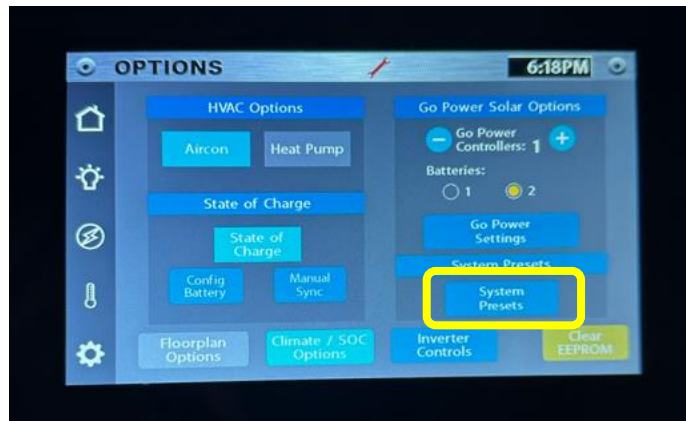
9. Once the GUI and LC versions have been verified, reinstall the touchscreen by applying pressure to the corners to “snap” it back into the wall mount.

10. With the touchscreen remounted, and the Firefly firmware updated, the inverter and solar controller settings can be automatically updated. To do so, navigate to the “Settings” page on the Firefly display. Press and hold on the MODEL icon.

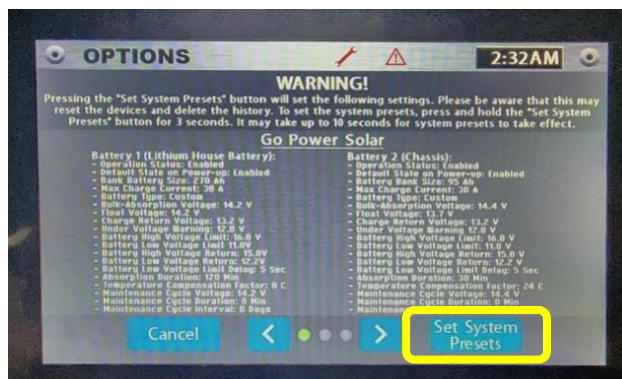


Note: press and hold near the center of the icon. It may take several seconds of pressing before the next screen is displayed.

11. On the ensuing OPTIONS screen, update the inverter and solar controller settings by pressing the “System Presets” button under the Go Power Solar Options section.

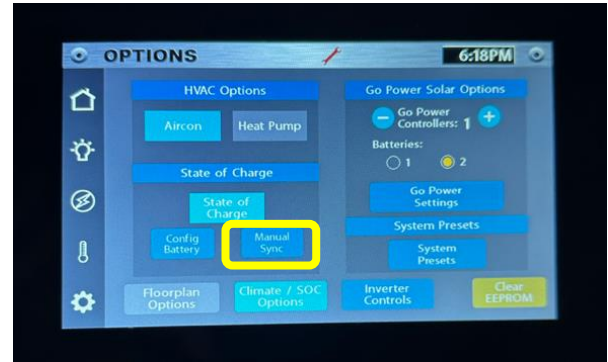
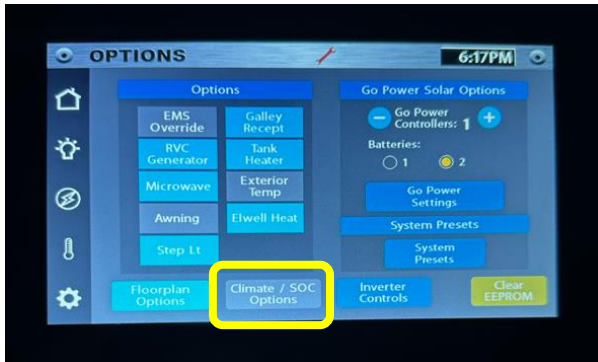


12. On the next screen, press and hold the “Set System Presets” button until the display returns to the previous OPTIONS screen. The solar and inverter settings will now be updated.



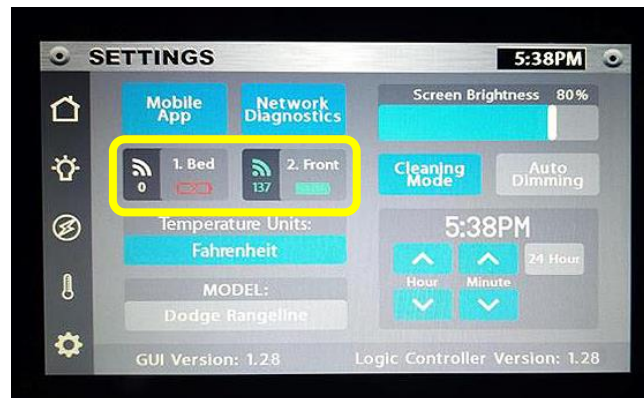
Note: “Battery Type” for Battery 1 may show as Custom or Lithium. Battery 2 may show as Custom or AGM.

13. After updating the inverter and solar controller settings, the SOC (State of Charge) will need to be recalibrated.
14. From the OPTIONS screen, press the “Climate / SOC Options” button. Then, under the State of Charge section, press the “manual sync” option. The battery will need to be charged to 13.7-13.8 volts prior to manually calibrating the SOC, otherwise the voltage readings will be inaccurate. If the voltage is higher than 13.8 volts, the battery will need to be discharged to meet this requirement. If the battery is below 13.7, connecting to an external AC power source will start the charging process. Once the display shows 13.7 volts (typically 5 minutes or less), the “manual sync” button can be pressed.

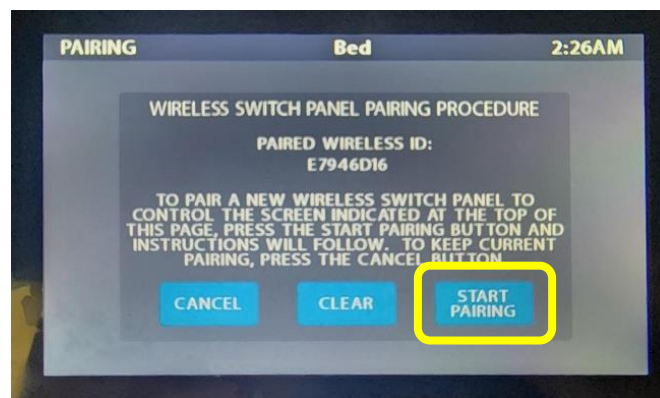


Note: prior to syncing, the SOC will be displayed as volts. After manually syncing, the SOC will display as a percentage.

15. After updating the Firefly firmware, updating solar and inverter settings, and calibrating the SOC, the wireless RF switch panels may need to be recalibrated. To verify, check the “bed” and “front” icons located on the SETTINGS page. If the icon is green, no further action is required. If the icon is red, the switch will need to be recalibrated.



16. To recalibrate, press and hold the red icon until the pairing screen is displayed. Press the “Start Pairing” button, and when prompted, press any 2 buttons on the RF switch panel. Once complete, the Firefly update is finished.



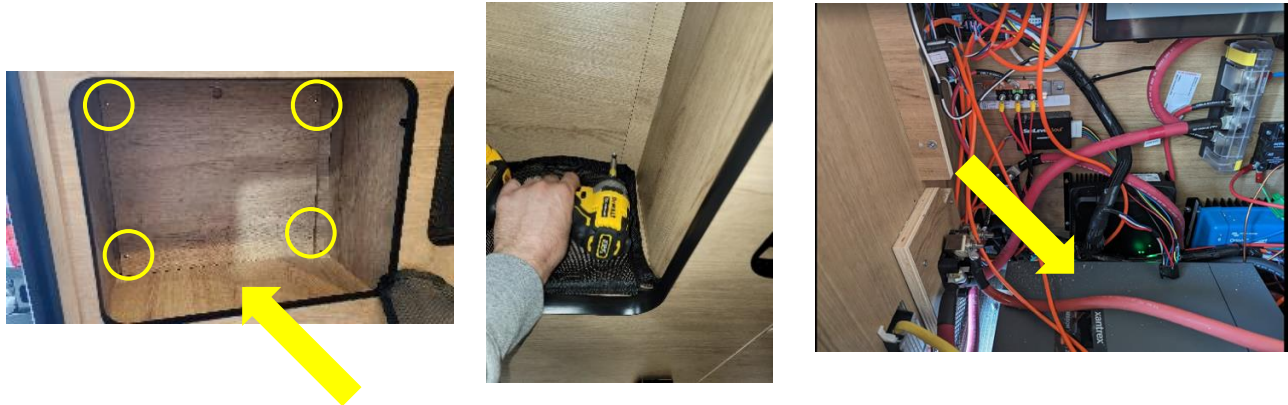
2. Xantrex Inverter/Charger Firmware Update

Airstream has found that the Xantrex inverter/charging system sometimes loses its settings, has incorrect settings, or shuts off automatically. It has been determined that a communication error exists between the Firefly and Xantrex systems. To correct the issue, the Xantrex inverter/charger firmware needs to be updated to version 02.11.

Note: depending on the inverter's current firmware, a specific update file will be required. If the firmware updates are not done following this process, the communication board will be damaged, and a new inverter will need to be installed.

To update the Xantrex firmware, complete the following steps:

1. To gain access to the electrical cabinet, located below the driver's side bed base, remove the 4 screws from the back panel and the screws from the bottom panel. The Xantrex inverter/charger will be on the floor in the lower left side of the cabinet.



2. Verify the U3 by pressing the middle button on the inverters display a few times, until the firmware version is shown. Use the chart below to determine which firmware file is needed, based on the U3 displayed.

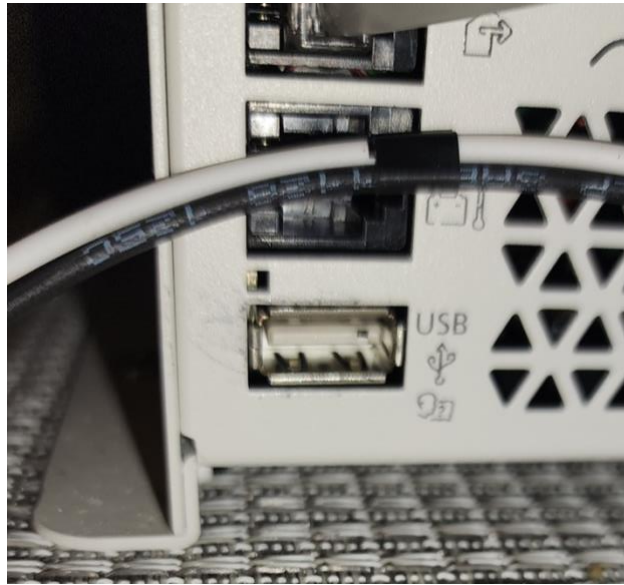


U3 Version	Firmware Folder
01.07 – 01.XX	XC Pro 1.0X to 2.11.zip
02.08 or 02.09	XC Pro 2.08 to 2.11.zip
02.10	XC Pro 2.10 to 2.11.zip

3. After determining which firmware is needed, download the zipped Xantrex firmware folder onto a freshly formatted FAT32 USB drive.

Example: if the inverter has a U3 version of 01.07, firmware folder **XC Pro 1.0X to 2.11.zip** will need to be downloaded on a formatted USB, extracted, and installed.

4. Locate the USB port on the right side of the inverter.

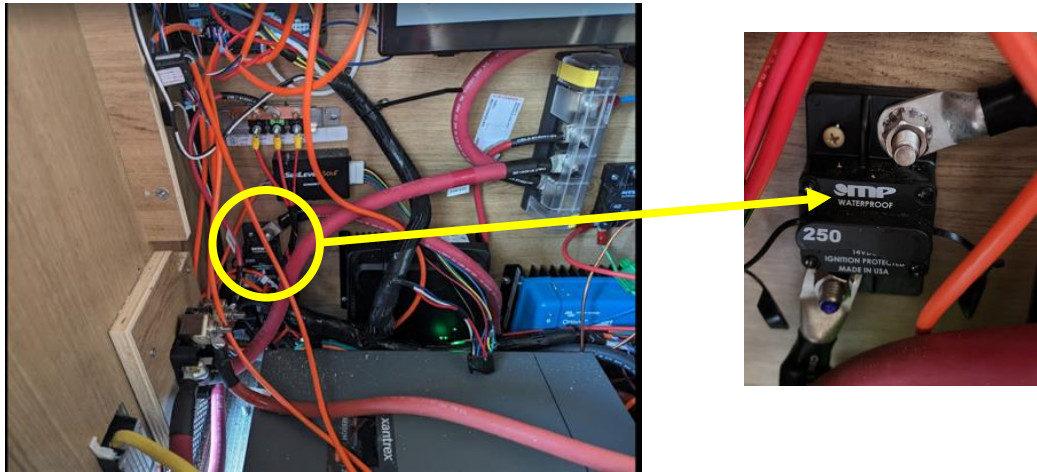


5. If not already, power ON the inverter by pressing the power button on top of the inverter.



6. Insert the USB drive, containing the firmware update, into the USB port on the side of the inverter. An LED light next to the USB port should flash green/red. Wait a few seconds for the light to turn solid green. After the light turns solid green, wait a few more seconds for the light to go out.

7. Once the light has gone out, remove all 12-volt power from the inverter. To do so, disconnect the main red power line to the inverter from the fuse, using a 14mm socket. Next, press the power button on the inverter display twice (once for OFF and again for ON). This should remove all residual power from the capacitors. Do not just turn off the inverter by pressing the power button. Without disconnecting the main line, residual power may still be present.



8. With the inverter powered down, remove the USB drive.
9. Reconnect the main red power line to the fuse and wait for the inverter to turn on. The LED light, next to the USB port, should blink green.
10. Once the light stops blinking, verify the U3 now displays firmware version 02.11, by pressing the middle button a few times until the firmware version is shown.



- a. In the unlikely event that the U3 does not display firmware 02.11, which was installed, please contact the Airstream Customer Service Department at 877-344-1076 Ext. 7401, for additional steps.

Note: after power cycling the inverter/charger the U3 may take up to a minute to correctly display.

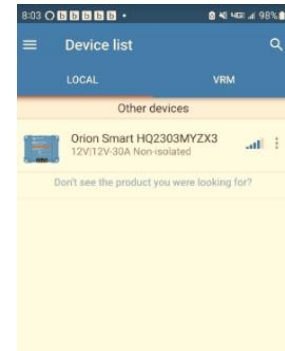
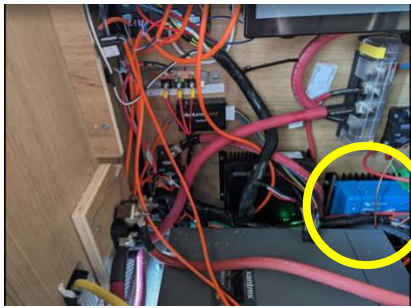
11. With the firmware version 02.11 installed, and verified, retorque the main red power line using a 14mm socket, to 11 ft/lbs.

3. Updating DC-DC Converter Settings and Inspecting/Correcting Ignition Signal Connection

Airstream has determined that the Victron Orion-Tr Smart DC-DC Converter's programming is defaulting to an incorrect setting of "Power Supply" instead of the correct setting of "Charger." It was also found that the connector on the DC-DC harness may have a socket-to-socket connection, instead of the correct pin-to-socket connection.

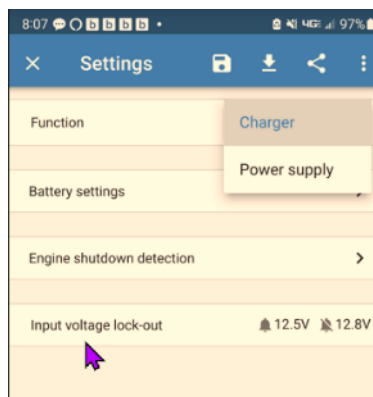
To reset the Victron Orion DC/DC charger programming, complete the following steps:

1. Download the VictronConnect app from the App store.
2. Once downloaded, start the program and search for the local Orion device. When prompted, enter the passcode. The default passcode could be 000000 or 111111. If neither of those work, the passcode can be found on the Orion DC/DC charger, located in the electrical cabinet. The passcode will be a 6-digit number identified on the label as "Pin."



Note: If the device list displays multiple Orion devices, make sure you are connecting to the proper device.

3. Once logged into the correct Orion device, next to the FUNCTION field, tap to select between "power supply" and "charger." Select the correct setting of "Charger."



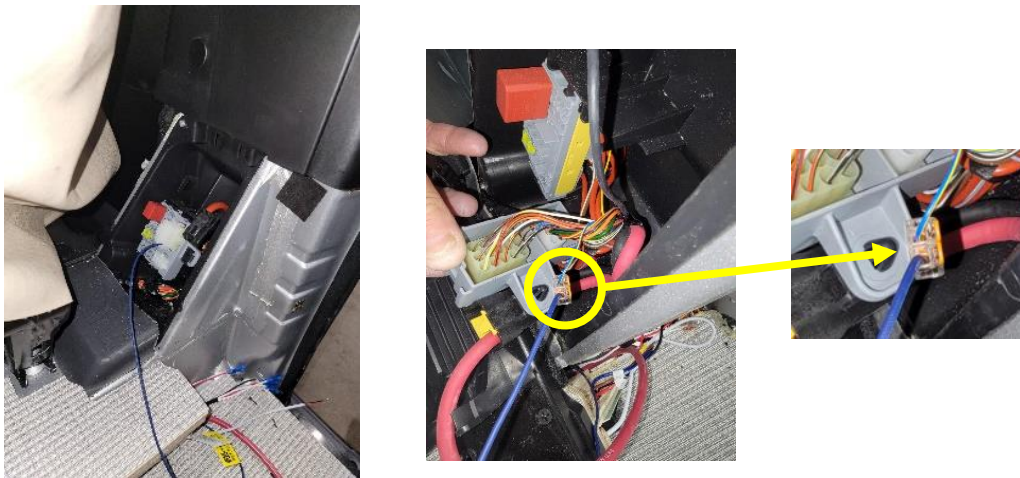
Note: if "charger" is already set, no further action is required.

To correct the DC-DC Connector issue, complete the following steps:

4. Remove the fire extinguisher, and the passenger's side B-pillar cover, to inspect the connection. If a Wago connector, or butt splice, is connecting the Dodge harnesses Blue/Yellow wire to the Airstream Blue wire, no repair is required.



5. If the wires are connected through the 15-pin connector housing, they will need to be repaired. Remove the plug from the harness containing the Airstream Blue wire. Cut the wire from the plug and discard the plug. Remove the Dodge plug from the harness and locate the Blue/Yellow wire and cut it from the plug. Connect the Airstream Blue wire and Dodge Blue/Yellow wire together, using a Wago or butt splice. Make sure to wrap the Wago or butt splice with electrical tape.



6. Reinstall the Dodge connector and verify the voltage is flowing, using the VictronConnect app. To do so, start the vehicle's engine and open the VictronConnect app.



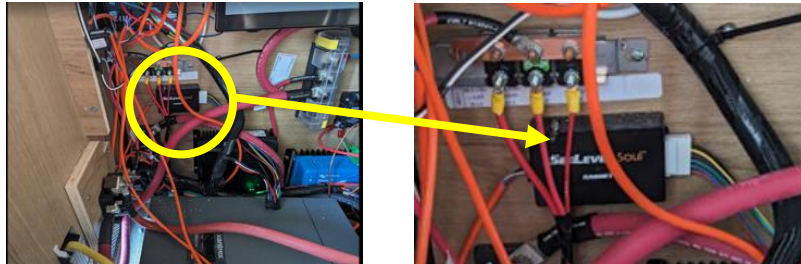
7. Once the voltage has been verified, reinstall the B-pillar fasteners, and the fire extinguisher.

4. SeeLevelL/Garnet Soul Module Inspection and Replacement

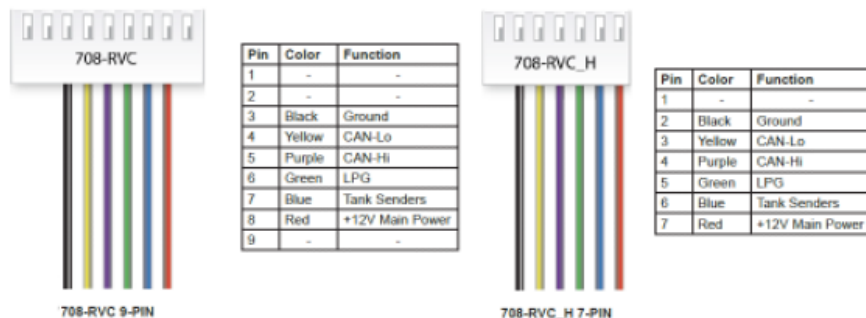
Garnet Instruments has determined that the SeeLevelL Soul Data Module may cause RV-C Network failures in temperatures exceeding 104F (40C). In high heat environments, the processor clock timing shifts out of CAN specification, causing the RV-C network to fail. The shift in timing can also cause the Xantrex inverter to stop communicating on the RV-C Network. A firmware update (4.5.2 or newer) was created for the 708-RVC_H and tested at temperatures up to 185F (85C) for 72 hours without any failures. Although the issue has been observed and duplicated, some 708-RVC and 708-RVC_H models passed testing and did not fail.

To inspect the Soul module, and replace, if necessary, complete the following steps:

1. Locate the Soul module, it will be a small black box, mounted to the electrical cabinets wall with a SeeLevelL Soul logo. If the installed Soul module has a 7-pin connector, it does not need to be replaced. If the module has a 9-pin connector, it will need to be replaced with a new 7-pin version.



2. To replace the Soul model, remove the screws securing the module to the wall. Disconnect the 9-pin connector harness and the RVC plug. Mount the new 7-pin module using the same screws and connect the RVC plug.
3. With the new Soul module installed, a new 7-pin harness will be needed to replace the old 9-pin harness. To do so, cut the wires from the 9-pin harness and connect them to the 7-pin harness, that was provided with the new module, using the wiring schematic below.



4. Once the correct 7-pin module has been confirmed, or installed, a firmware update may be required.

Note: if a new 7-pin Soul module was installed, no firmware update will be required.

- a. Rangeline's with a manufacturing date after 5/22/2023 will have the correct firmware already installed. No further action is required.
- b. If the manufacturing date is before 5/22/2023, download the Soul Configuration Tool to verify the firmware. Visit <https://www.garnetinstruments.com/seelevel-soul> to download the configuration tool.
- c. If the Soul Configuration Tool identifies the firmware as 4.5.2, or newer, no further action is required.
- d. If the Soul Configuration Tool identifies the firmware as something other than 4.5.2, or newer, download the Soul Updating Software, to update the firmware. Visit <https://www.garnetinstruments.com/soul-downloads/> to download the software. The Soul Updating Software instructional document is also available for download with this link. Follow the instructions to update the firmware in the affected 708-RVC_H (7-pin) modules.

Note: the updating software downloads to a Windows laptop and connects to the module via micro-USB cable.

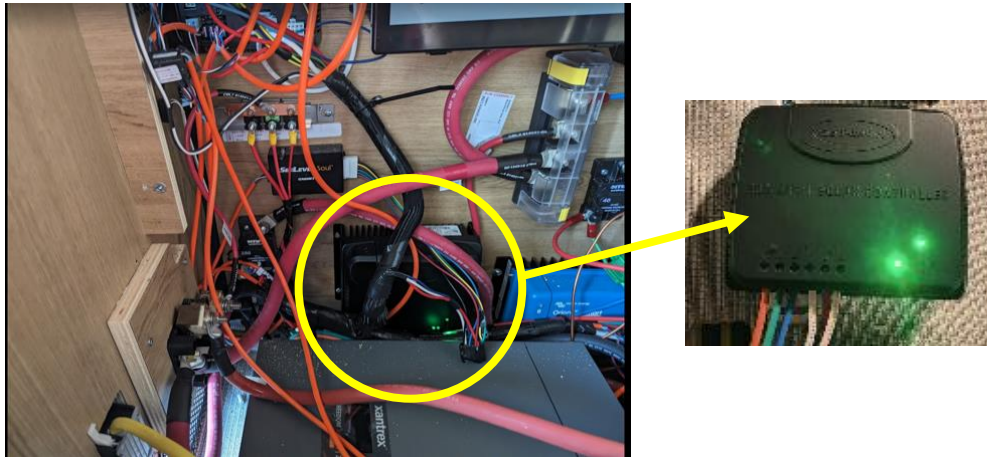
5. With the latest Firmware Revision (4.5.2 or newer) of SeeLevelL Soul 708-RVC_H installed, monitor and confirm, normal operation during the hottest part of the day, when the air temperature around the SeeLevelL Soul is exceeding 104F (40C).

5. Updating Roof Solar Panel Wiring Configuration

Airstream has determined that the roof mounted solar panels were wired to the chassis battery as primary and the house battery as secondary. This wiring provides solar charging to the chassis battery before charging the house battery. The GoPower box will need to be rewired to allow the solar panels to charge the house battery, providing better utilization of the solar panels.

To rewire the solar GoPower box, complete the following steps:

1. Locate the GoPower box. It will be a black box towards the bottom of the electrical cabinet, beside the Orion DC/DC charger.



2. Verify that the wiring on the solar controller is wired to make the house battery the primary solar function with the chassis battery being secondary.

Correct wiring:



- a. SC1e (Blue wire - house battery) wired to Battery #1 +terminal
 - b. SC1c (Red wire - chassis battery) wired to Battery #2 +terminal
3. If the controller is wired with SC1c (chassis) into Battery #1, it will need to be relocated to the Battery #2 +terminal. The SC1e (house) wire will be relocated into the Battery #1+terminal. See wiring schematic below.

6. Unprotected 12-Volt TV Antenna Booster Wires

Airstream has determined that the pre-wired TV antenna booster circuit may be unprotected. The ends of the pre-wires should be capped to prevent it from blowing a fuse.

To cap the ends of the wires, complete the following steps:

1. Start by removing the panel, to the right of the microwave, that has the Firefly RF control panel on it. Remove the Firefly panel, to prevent damage.



2. With the Firefly panel removed, push in at the top of the wood panel, this will assist in giving you a way to pull the panel away from the grabber catches, holding the panel in place.



3. Locate the TV antenna booster pre-wires, which are brown and white wires, with a coaxial cable. Cap, both the brown and white wires, with Wago connectors. When finished, make sure to wrap the Wagos with electrical tape.



4. Once capped, put the panel cover back in place and reinstall the Firefly RF controller.



The Rangeline Service Bulletin is now complete. With all 6 updates completed and verified, the electrical cabinet can be reassembled. Completing all updates provides the Rangeline multiple added benefits while also correcting a few known areas of concern. When submitting a warranty claim, please list each repair as a separate job operation and use the operation code associated with each job. If you have any questions, or concerns, about this Service Bulletin, please contact the Airstream Customer Service Department at 877-344-1076 Ext. 7401.