

This describes the experimental solar and battery upgrade conducted on a '16 AS GT. It is not a step-by-step description, but covers the major changes. Project goal: Increase Boondocking convenience and lower the reliance on both the noisy Onan generator and the under hood alternator (sans fast idle).

[illegible]

Note “amp draw” is best “discoverable information or assumption” and may vary dramatically from reality.

2016 Airstream GT Boondocking Upgrade

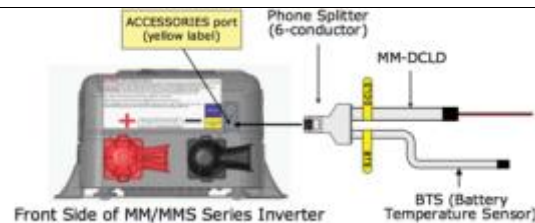
Steps taken for this project:

Remove SB 164: Service Bulletin 164 installs a solenoid to completely isolate the inverter/charger when the main disconnect is off is unfortunately a substantial energy hog, as much as 18 AH a day. If installed it can be found under the Driver Side Jump Seat.

This SB was issued because most users fail to turn-off the Inverter when not in use or storage which has a substantial load on the House batteries. Additionally, other parasitic loads not isolated by the main disconnect materially reduce the duration the van can stay unplugged from shore power without discharging the house batteries beyond the recommended 50% DOD.






OPTIONAL: Install Magnum DC Load Disconnect (MM-DCLD) so that the inverter turns-off when the Main Disconnect is turned off (leaves charger operational). This is a convenience item that helps prevent leaving the inverter on when one wishes to conserve house batteries by turning off the main house switch.



Install Plug-N-Play 200 Watts of additional Go-Power Flex 100E Solar Panels. 3M VHB tape can be used to install the panels. In this installation aluminum screen window framing, cut to size, was used to add additional bonding locations and to close off the leading edges to avoid wind lift. The kits comes with the connectors require to connect to the OEM installed panel wiring. 2, 6 Feet Solar Cables with MC4 Connectors at each end are required to run the rear panels to the front. No splicing or roof penetration required. I used stainless self-tapping screws and tie-wrap anchors to



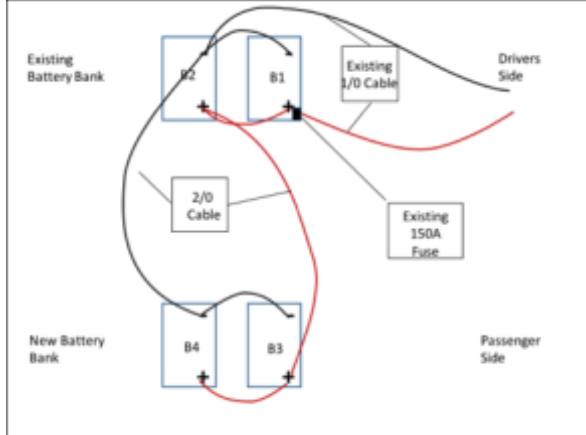
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<p>secure the wiring along the awning bracket.</p>	
<p>Replace the 15 amp DC thermal breaker with 20 amp. The 300 Watts solar will produce in excess of 17 amps in bright direct sunlight. The breaker is under the Driver Side Jump seat behind the electrical panel mounting board. The Atkinson controller and wiring is rated for over 25 amps and can be seen in the photo (has the American Flag sticker on it). NOTE: disconnect house batteries and solar panels before working in this space.</p>	 A close-up photograph of the electrical panel area. A white arrow points to a DC thermal breaker. To the right, the Atkinson controller is visible, featuring a small American flag sticker. Various colored wires (red, yellow, orange) are connected to the terminals.
<p>Install additional Lifeline 24T batteries to increase capacity to 320 AH (160 usable). There is sufficient space on the passenger side under the House to install two additional OEM battery trays (Part number 454982 Battery tray, AGM CL24, End mount and (6) 325128 Rivet, .25", Steel, Dome head, Recessed crown). Be cautious not to install higher than the floor beam or the battery will not fit.</p>	 A photograph showing two black OEM battery trays installed under the passenger side of the van. The trays are mounted on a metal frame, and a red terminal is visible on the left tray.
<p>I installed a Blue Sea Systems 5191 Fuse Block Terminal and 150 Amp Fuse. The objective is additional safety and to protect cabling crossing the van.</p>	 A photograph of a Blue Sea Systems 5191 Fuse Block Terminal. Two large red cables are connected to the terminals, which are secured with red heat-shrink tubing. The unit is mounted on a metal surface.

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Connect additional AGMs to existing OEM house batteries. NOTE: The connection shown is not optimal for battery life or balance, but selected in this experiment to avoid additional cable length (and associated voltage drop) from the Passenger Side to the Driver Side.

I set the Magnum AH capacity to 400AH to acknowledge the extra batteries and the charge rate to 100% (which equates to 50amps)



Finally, the LPG solenoid will consume ~8AH/day if left on. Operating the LPG switch is inconvenient given it's exterior location. I installed an interior switch (Carling Rocker Switch V1D1S00B-AZC00-000 ordered from Mouser) in series with the exterior LPG switch so the solenoid could be conveniently operated. My wife made vinyl labels for the switch.

The red wire labeled 6A located behind the bottom drawer at the floor level (below microwave) runs from the exterior switch to the gas solenoid. For ease of wiring I mounted the switch below the Passenger side jump seat.



Optional: Upgrading to a Victron BlueSolar MPPT 100/30 Solar controller

Modify the Driver Side Jump seat pedestal vent to allow wiring access to the exterior of the pedestal. Make a cut-out in the vent and I recommend installing a grommet to protect wiring.



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Install the Victron BlueSolar MPPT 100/30 Solar controller on the rear of the Driver Side Jump Seat pedestal and wire as instructed.



I recommend installing the accessory VE.Direct Bluetooth Smart dongle so settings and charge status can be monitored via a Smart Phone. The dongle is visible next to the main disconnect switch.

