

Evolution Of My Rover Station

Jeff Townsend WB8LYJ

Evolution Of My Roving

- I started roving because I live in a severely terrain challenged location.
- For several years I operated out of my Jeep.
 - Space quickly dwindled as I expanded to new bands and bigger antennas.



Very Early Version



Bigger 2m and 432, 222 Added



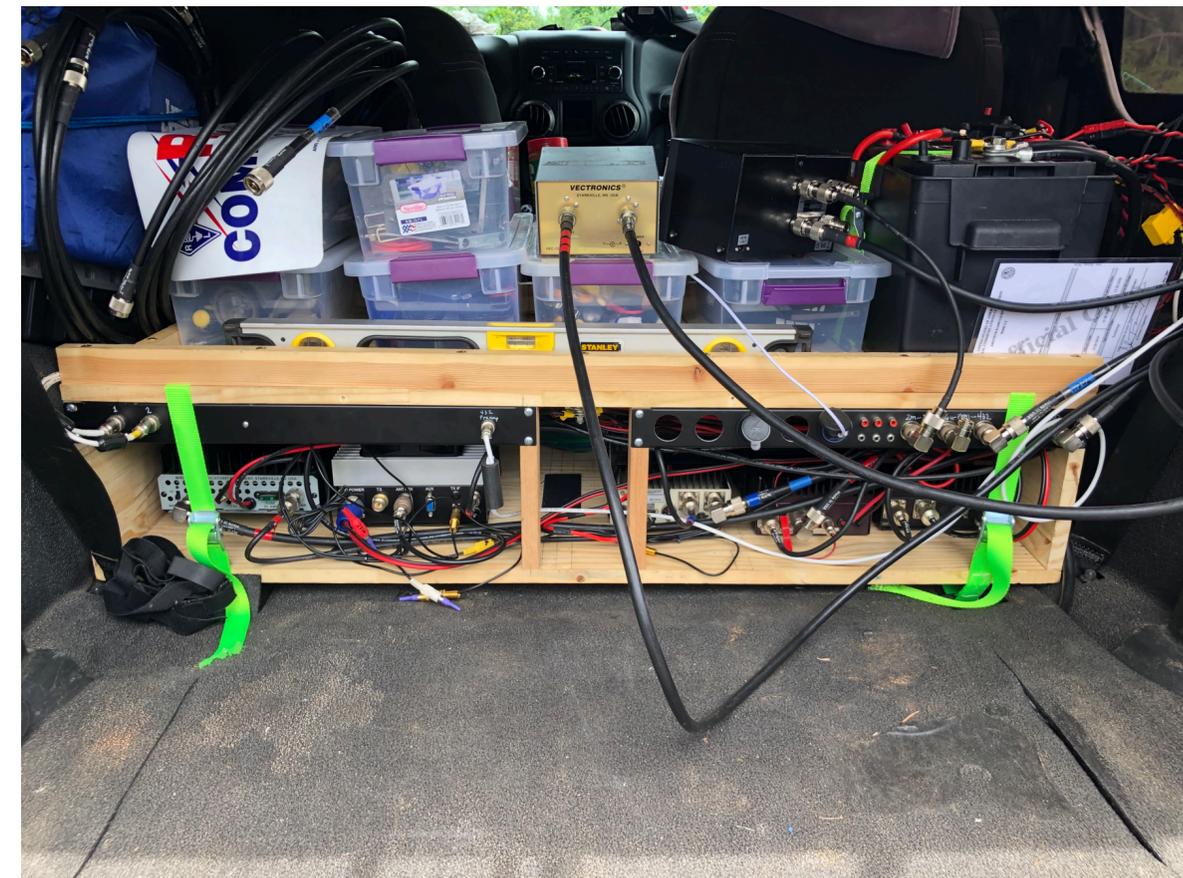
Bigger 6m antenna. Front mast added.



2m and 222 Perseids MS 2021

Early Equipment

- At the very beginning operation was from a table in front of the tailgate.
- Radio equipment was moved into the front seat.
- A Box was added to the back to house amps, transverters, and an second battery.



Trailer

In spring of 2022 I started on a trailer

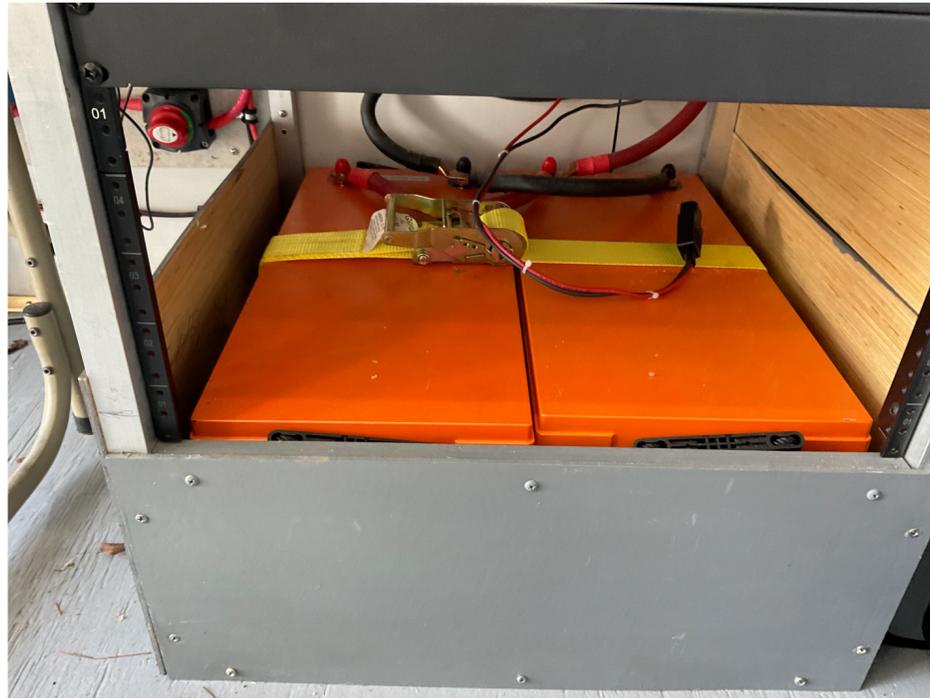
- 6' x 10' enclosed cargo trailer
- Dual rear doors
- Side door
- Added insulation
- Added a window
- Added rear stabilizer jacks



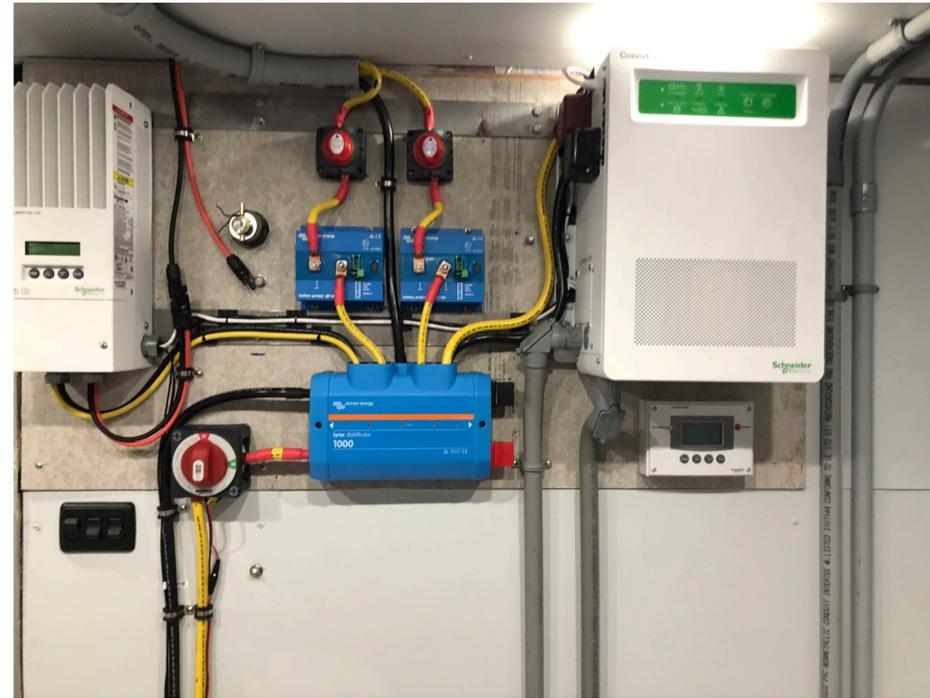
Power Systems

- Solar Power
 - 3 x 365w solar panels cover most of the roof.
 - Solar charge controller
 - Inverter / Charger 3800w continuous, 4400w for 30 minutes
 - 48v 200ah (10kwh) LiFePo₄ battery bank
 - Low voltage disconnects for two 48vdc circuits
 - Battery monitor
- 12v 400ah (5kwh) LiFePo₄ battery bank
- Three 12v circuits with low voltage disconnects
- Battery monitor
- 120vac charger for the 12v battery bank





12v Batteries



48v System
Charge Controller and Inverter



Solar Panels



Wiring the 12v System



48v Batteries

Masts and Antennas

- Tilt over crackup 7m military mast. Thanks to Bob, W4ZST.
- Push up Fiberglass mast from the original Jeep installation.
- Two rotators
- Door that contains all the antenna connections
- 6m YU7EF 0606WL1 6 element yagi
- 2m M2 9 element yagi
- 222 YU7EF 222 14 element yagi (2)
- 432 Innovantenna 19 element LFA (2)
- 1296 Antennas Amplifiers yagi





Antennas and everything else loaded



Mast stowed for travel

Bob W4ZST was extremely helpful in obtaining the mast, doing some engineering, and welding to get it mounted on the trailer.

Thanks again Bob



All set up
222, 432, and 1296

Equipment Mounting

- Full height 19" rack on the left side of the operating desk
- Small 19" rack under the right end of the desk
- Small wall mount rack for the network, 10MHz reference, and time server.



Operating Location

- Laptops
- Monitor(s)
- Radios
- Power distribution
- This is continuously evolving
- It will probably never be done.



Network, Internet, and Computers

- Internal ethernet network
- Starlink Internet
- Raspberry Pi GPS locked time server (keeps computer times synced)
- Two 17" laptops running Linux with 28" 4K monitors
- Leo Bodnar GPSDO to provide 10mhz reference for 222 and 1296 transverters

Choosing what grid to activate

- Start close to home
- For 6m FFMA activations use the FFMA Leaderboard spreadsheet (<https://kv5w.com/2021/08/31/ffma2/>)
 - Use the FFMA Most Needed Map tab to start with.
 - I don't have any highly needed grids nearby so I use the Grid Trends tab
 - Look for grids where need is climbing.
 - This indicates that there may no longer be anyone that regularly gets on from these grids.
 - These may not be highly needed grids right now but if they continue to climb they will be.
- For 2m and up activations use the US488 144-222-432 spreadsheet. (<https://kv5w.com/2021/12/20/us-488-144-222-432-most-needed-grids/>)
 - This works similar to the FFMA spreadsheet.
 - More data is needed to make this more useful. Please consider adding your 2m - 70cm grids.

Choosing when to go

- For 6m sporadic E season is best.
- For 6m, 2m, and 1.25m meteor showers are a good time.
 - The biggest ones are the Perseids in August and the Geminids in December.
- For 2m and up anytime there is good tropo is a good time.
 - Watch the Hepburn predictions (<https://www.dxinfocentre.com/tropo.html>)
 - Watch the APRS propagation map (<https://vhf.dxview.org/>)

Choosing Locations

- In hilly terrain choose a spot as high and clear as possible.
- In flat terrain look for parks, trail heads, or boat ramps.
- Some sites may have restricted hours so determine when you need to be there.
 - On 6m openings to the west coast and PNW may occur as late as 12:00 or 1:00 am.
 - Meteor showers usually rise early evening and extend through morning. Access after dark is important.
- Avoid Interstate rest areas, Truck stops, proximity to gas stations, and power substations. These tend to be very noisy locations.
- Barry K7BWH maintains a rover location database. Please add any spots you use. (<https://coilgun.info/rover-us/home.htm>)
- Look for locations using Google Maps.
- Check for elevation and obstructions using heywhatsthat.com.

Awards

- Rovers aren't generally eligible for FFMA, or VUCC awards unless their operating locations all fall within a 200km circle.
- Rovers are eligible for Reverse VUCC which is maintained by CSVHFS.
(<https://www.csvhfs.org/index.php/awards-and-programs/reverse-vucc>)
 - The awards are based on how many grids you activate on each band.
- The Gridzilla Contest for FFMA Activators.
(<https://kv5w.com/2023/01/09/ffma-activator-award/>)

Questions?