



Southwestern REACTer



FEBRUARY 2017



My, how technology has changed... A pair of 2 meter hand-held radios. On the left is a Heathkit VF-2031 first marketed in 1978 and at right a Yaesu FT-270 from 2011. See page 4 for more information.

John Wright, SWR 042



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SWR's mission is to prepare for communications during emergencies and disasters. This preparation is accomplished through working community events such as: The Mother Goose (El Cajon) and North Park Holiday Parades, Descanso Endurance Horse Ride, San Diego International Triathlon, Fiesta Island Time Trials, the Silver Strand Half Marathon and CalFire Volunteers In Prevention Red Flag Patrol.

OFFICERS

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SWR 098

Vice-President: Daniel McDougal
SWR 063

Secretary: June McCollough
SWR 054

Treasurer:
Daniel Willan
SWR 061

Director-At-Large:
Jim Patterson
SWR 151

The Southwestern REACT General Meeting is held the third Thursday of the month at 7:00 PM at 2650 Melbourne Drive San Diego, CA

REACTIVE TEAM NET

The Team Net is held monthly on the first and fourth Thursdays at 8:00 PM on the 449.440 Mhz Community Based Repeater with a Negative offset of 5Mhz and a PL tone of 107.2 Hz (Mt Olay).

From Your President

By Roger McCollough, SWR 098

Our desire to help and serve; sharpening your special abilities

Who will you be tomorrow, in a month or a year? What in your past life experiences will you continue to use and grow or what will you leave behind? You left certain lifestyles behind, such as when you were a child, going to the park and playing in the sand-box or on a swing, and hide and seek. As an adult, you may join with friends in informal team sports or other outdoor adventures that have been part of your life since childhood. As you grew, you added training, work experience, and hobbies into the mix that, I hope, added happiness and joy. Sadly there may have been some sorrow or tragedy along the way.

Somewhere along the way, the challenge of amateur radio caught your interest and you added it to your capability "toolbox". A strong attraction within the ham community is to embrace the heritage to use the service to help others. We hope your membership into Southwestern REACT, and perhaps other groups or clubs, supports your desire to serve others.

If you decide to build a house, several needs become apparent. First might be the need for large quantities of money. In no particular order you also need design, knowledge, physical capability, tools, and most of all, the drive to complete the task correctly. Your growth in REACT has similar requirements. Let's compare them.

The money part is governed by the expected results. That is, are you building a home or a garden shed? In the radio comparison, you decide if your goal is just an HT, mobile unit, or a fully equipped shack. Design is planning your desired result. Knowledge, well, you can't know enough and must be a continuous process. Tools, of course,

are the radios, cables, antennas, stuff that makes it all work. The one thing that takes you to success is drive or desire to do something you can be proud of.

Beside the continuous input of funds—good luck with that—the other item that must be ongoing is your knowledge growth. Do you know all the capabilities of your radio and how to activate or modify them? How do you create a functional and capable communications station under variable conditions and support? Well "Bunkie", listen up.

Learning should be an ongoing practice. Your manuals should be your first line for learning your devices. Much of what you need can be solved with searches on the internet. Hands-on experience is difficult to improve on for building confidence and speed. Our Team has always promoted G.O.T.A. (Get On The Air), where newbies can go to learn how to use their radio while performing at an event. ARES is conducting their Gateway program after the conclusion of their regular monthly meeting to teach hams the use of an unfamiliar radio.

We have modified our General Meeting to allow more time to train or refresh member training. Some members have set their priorities to other adventures and missed our efforts to provide what they need and/or want. That leads to a question formed around today's title by asking:

**Is it your desire to help and serve?
And sharpen your special abilities?**

"Nuf said..."

LET'S GIT 'ER DONE!!!

pres@southwesternreact.org

American Red Cross Communication Team Report

By June McCollough, SWR 054

The ARCCT meeting was held on Feb 4th. We had a Seasonal Update and Equipment & Facilities Update. We have a review and update on the VHF/UHF Go-Kits. We did an inventory of each Kit and verified all equipment was in it.

ARCCT has a net every Tuesday night at 2000 hours (8:00 PM) on the ACS Frequency: 147.195; all amateur radio operators are welcome to check-in.

The next meeting will be on March 4, 2017 at 9:00 AM at 3950 Calle Fortunada, San Diego CA. 92123. These are open meeting for anyone unless they are discussing confidential ARC business.

ACS (Auxiliary Communications Services)

By June McCollough, SWR 054

The ACS meeting was held on February 6th at the Office of Emergency Service (OES). We welcomed three new members to ACS. We had 5-minute training on the ACS repeaters. The next training will be March 18th from 1300-1700 the topic will be coverage testing and exercise.

ACS has a net every Monday except First Monday or County Holidays at 1930 (7:30 PM). It starts on frequency 147.195 and then moves to 223.800, 52.600 and

448.78 (not necessarily in that order). If you would like to check it out, please feel free to check-in as visitor when requested at the end of the formal part of the net.

Tentative date for next training will be May 18th (0900-1300) - Subject to be determined but announced prior to date.

The next meeting will be on March 6, 2017 at 1830 hours (6:30 PM). All are welcome.

Amateur Radio Emergency Service (ARES)

By John Wright, SWR 042

The ARES meeting was held on Saturday, Feb. 11, 2017 at 8:00 AM at Scripps La Jolla Hospital.

Bill Calderwood, K1CT, gave a comprehensive presentation on NVIS, (Near Vertical Incidence Skywave) propagation and antennas.

The meeting was followed by the monthly Gateway Communicator Workshop at 10:00 AM. Anyone wishing to enroll in the workshop can contact Rob Freeburn, ARES Training Coordinator, at k6rjf.rob@gmail.com.

The next ARES meeting will be held on Saturday, March 11, 2017.

Announcement

San Diego Six Shooters

NEXT MEETING: Monday February 20, 2017 at 7:00pm
LOCATION: Marie Callenders Restaurant, 6950 Alvarado Dr, San Diego

SPEAKER: Dennis Vernnachia, N6KI

TOPIC: ARMY MARS during the Vietnam War

Please join us for a riveting presentation of ARMY MARS during the Vietnam War, as told by Dennis Vernnachia, N6KI. This presentation is a firsthand account of what it was like to operate an ARMY MARS station in a

war zone. Pictures and actual audio recordings of MARS QSO's demonstrate the importance of this amateur radio project to the men fighting in Vietnam and their families back home in the States.

Be sure to get to the restaurant early as this is sure to fill the meeting room to capacity!!

Editor's Note: I have seen this presentation and it is well worth it. I recommend everyone's attendance.

Technology Compared

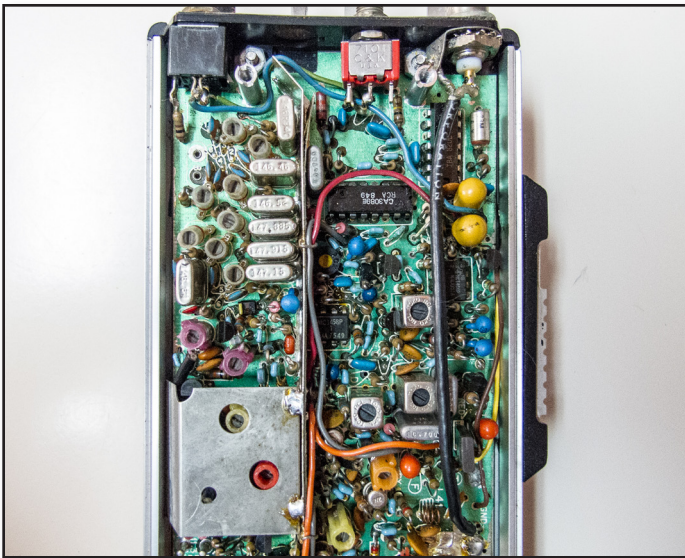
By John Wright, SWR 042

On the first page of this issue is a picture of a pair of hand-held radios, both of which are capable of operation in the 2 meter amateur radio band.

The Heathkit VF-2013 replaced Heath's original HT, the HW-2021 in 1978. It featured higher power—2 watts, switch selection of simplex or repeater offsets of plus or minus 600 KHZ. It offered a total of 8 crystal controlled channels. The radio was powered by eight soldered-in rechargeable NiCad batteries and came with a drop-in charger.

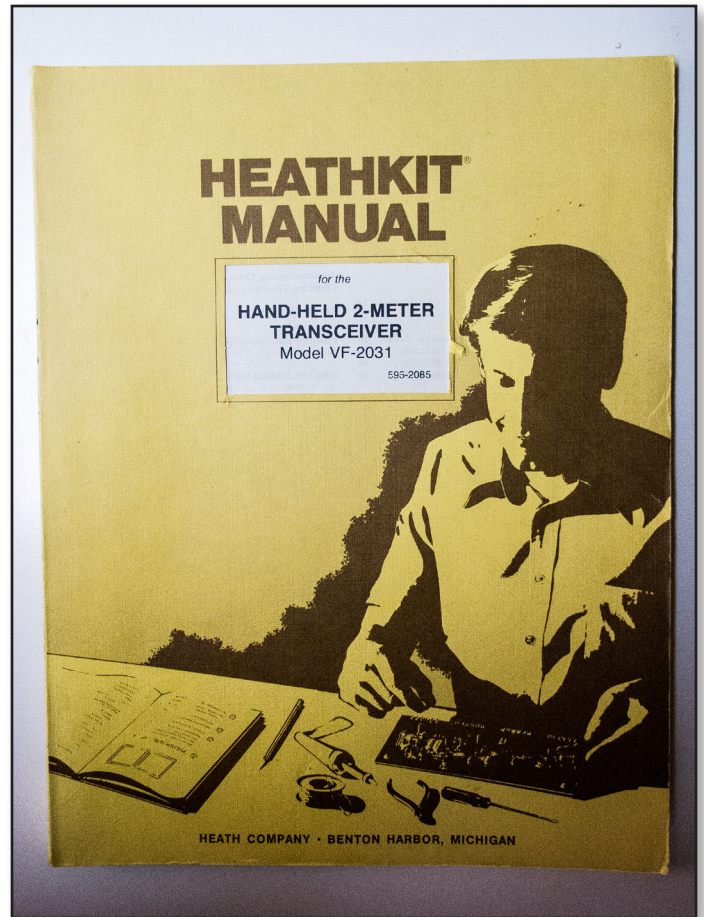
Heath marketed the radio to advanced kit builder. There were many tiny parts (for the time) in small places and it was more than many operators could take on. The assembly manual was 100 pages in length and was accompanied by a large folding schematic diagram and a pictorial parts booklet.

The radio weighed two pounds and was 3.25 " wide x 9" high x 2" deep.



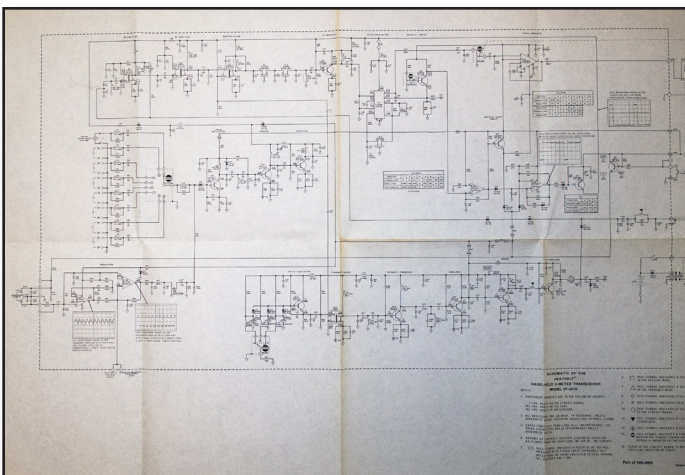
Interior of the Heathkit VF-2031 two meter hand-held radio.

John Wright, SWR 042



The cover of the VF-2031 Assembly and Operation Manual.

John Wright, SWR 042



Heathkit VF-2031 Schematic diagram.

John Wright, SWR 042

The Yaesu FT-270R, first marketed in 2009, is a compact, high-performance FM hand-held providing up to five Watts of RF power, along with big audio output (800 mW) and excellent protection against the elements! Protected against water ingress to IPX7 specifications (submersion for up to 30 minutes at a depth of 3 feet), the FT-270R features long operating time, thanks to the supplied 1400 mAh NIMH Battery Pack

Features:

- 5 Watts of output (Three power settings of 5.0 watts, 2.0 watts and 0.5 watts.)
- Large Backlit LCD Display
- Submersible
- 1400 mAh Battery Pack Yields Long Operating Time
- Expanded Receiver Coverage; The receiver's frequency range is 136-174 MHz, covering many public service, marine, and government channels.
- User Password; To prevent an unauthorized person from using your FT-270R, you may engage a security password that must be keyed in prior to operation, if you like.
- 200 Memory Channels
- Weather Broadcast Channels; In the U.S. version, a dedicated special memory bank of ten NOAA Weather Channels is available, with a "Severe Weather" alert capability.

The FT-270 weighs 13.8 oz and the case dimensions are 2.36" wide x 4.72" high x 1.26" deep.

Note: The following is a reprint of an article I wrote describing the construction of my Go-Box last year. Some Team members have already seen the finished product at a meeting and at the last fry's Operating day. Part 2 will appear in a future issue of the REACTer

Building a Go-Kit, Part 1

Article and Photos By John Wright, SWR 042

Introduction

As a member of ARES (Amateur Radio Emergency Service) I'm always looking at different concepts in emergency communications. A recent San Diego ARES meeting was dedicated to Go-Kits. Members were encouraged to bring their Go-Kits to the meeting where everyone could see them and get ideas for construction their own kits.

Most included HF radios, some type of VHF/UHF radio and a power source. The HF radios were usually equipped with some means of passing digital or Win-Link traffic. One ham had even included a small keyer and a set of paddles for CW operation. There were as many different configurations as there were hams present at the meeting.

On the way home from the meeting I had occasion to stop into a Home Depot store. (For what, I don't remember...) While there is noticed a display of Ridgid tool boxes. These particular boxes stacked and locked together to create a three tiered tool center on wheels. While I have no need for another tool box, my first thought was how they would work as the basis for a go-kit. My initial visualization was a battery and charger in the bottom box, the radios in the center box and the top box for cables and accessories. I bought it. (FIGURE 1)

What To Put In It

Now that I had the box, I had to decide what I was going to put in it. My initial plan was to include a 2 meter/440 dual-band VHF/UHF radio, but I had to acquire one. Conveniently, it was right about this time one of our cars decided to seize its engine. (It was sold to a recycler.) Now I had my Go-Kit radio, a Yaesu FT-7900R, and everything that went with it. I decided that I wanted the box to look as professional as possible, so I started investigating various meters and other ways to connect things together. One of the best sources for items like this is Powerwerx.[®] (<http://www.powerwerx.com>) I settled on several items from them. More on these later as I describe the construction of the kit.

Assembling the power box

I knew I wanted to put a battery and some way to charge it in the bottom box. I selected the NOCO Genius G3500 battery charger/maintainer from Powerwerx as the charger and bought a 92AH flooded deep-cycle marine battery at Walmart.

The Genius G3500 charger/maintainer has smart technology that will charge either 6 or 12V batteries of all types and will bring back a badly discharged or sulfated battery. It can remain connected to the battery indefinitely.

To install the charger and battery in the bottom (power) box, I first took a piece of discarded wood shelving, notched it to fit the contours of the box, rounded the edges and installed a pair of handles on it. (FIGURE 2)

Once that was done I attached the charger and battery box to the board. There was the potential for the cords on either end of the charger to rub up against the sides of the box, so I positioned the charger closer to the tool slots in the back of the box. Since I planned on using the slots in the box to store the charging cords anyway, I cut a hole into one of the slots and fed the cord through it. (FIGURES 3 & 4)

One of the things I wanted to include was an external cut-off switch for the main power. I also wanted this switch to lock. I purchased a switch designed for shop tools that has a removable piece to lock it in the OFF position.

This switch and a dual Powerpole socket were installed in holes cut in the front of the tool box. (FIGURES 5 & 6)

Now that all the parts were installed, it was time to wire it up.

The wiring was pretty straightforward. The first thing was to connect the charger leads to the battery. The battery came with threaded posts so it was a simple matter to slip the charger terminals over the posts. I then connected ring terminals to a pair of short red and black wires cut from a radio power harness. I did this to include fuses between the battery and the power outlet. Spade lugs were attached to the other ends of the wires and the wires connected to the battery.

Since the Powerpole outlet has two sets of contacts, I found some dual tab spade lugs in my junk box and attached appropriate red and black wires to them. These wires then had 30A Powerpole contacts crimped on the other ends. The Powerpole contacts were inserted into the back of the PP outlet and the spade lug ends attached to the switch.

The battery was placed in the battery box in the bottom of the tool box and the charger leads connected to the charger. The Genius G3500 charger comes with a very nice locking plug to connect the leads to the charger. (There is also a set of large alligator clips that connect into the same plug in place of the battery leads. Both are fused.) The other leads from the battery were connected to the power switch.

It was now time to test everything. The charger was

plugged into a wall outlet and turned on. The battery immediately started charging. Voltage checks were made at various point along the path and battery voltage was present at all points. (FIGURE 7)

As is always the case, as soon as something is completed, one realizes it could have been done better. I realized that it would have been prudent to have some way to easily disconnect the battery from the switch and also have the Powerpole outlet on the back of the box rather than the front. By moving the outlet to the back of the box, it would free up the hole for a voltmeter to monitor the battery's state of charge.

After a quick trip to HRO for the voltmeter and some work with my Powerpole crimping tool I had the changes made. The battery was now connected to the switch via Powerpoles (FIGURE 9) and the switch connected to the outlet in the same fashion. The connection to the meter came off the same connection as the outlet. The charger was not an issue because it already had a very nice locking plug in the cable. (FIGURES 9–14)

To be continued...



FIGURE 1: The tool box set as purchased from Home Depot.



FIGURE 2: The component mounting board cut to fit and located in the bottom of the tool box.

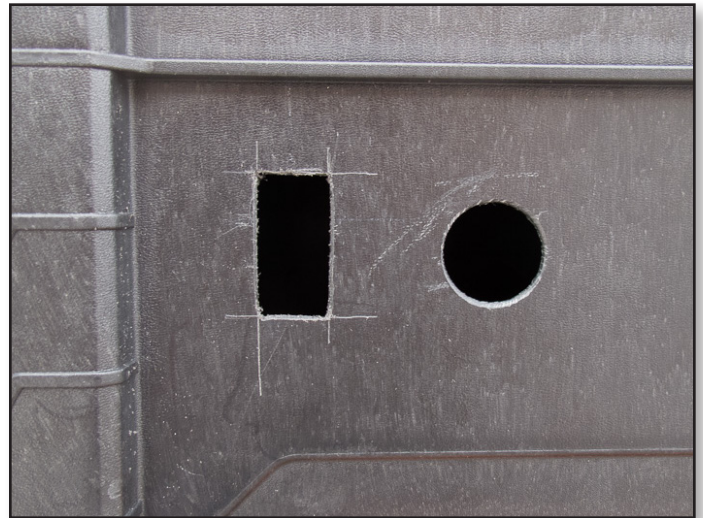


FIGURE 5: Holes for the power switch and (initially) the Powerpole® sockets on the front of the box.

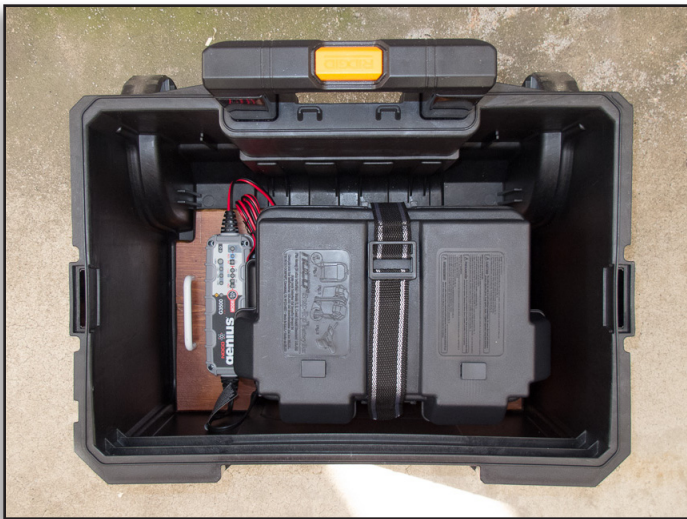


FIGURE 3: The charger (left) and the battery box mounted to the board.



FIGURE 6: The main power switch and the Powerpole® socket installed on the front of the box.



FIGURE 4: The battery charger in position and the charging cord routed through a hole in the slots in the back of the box.

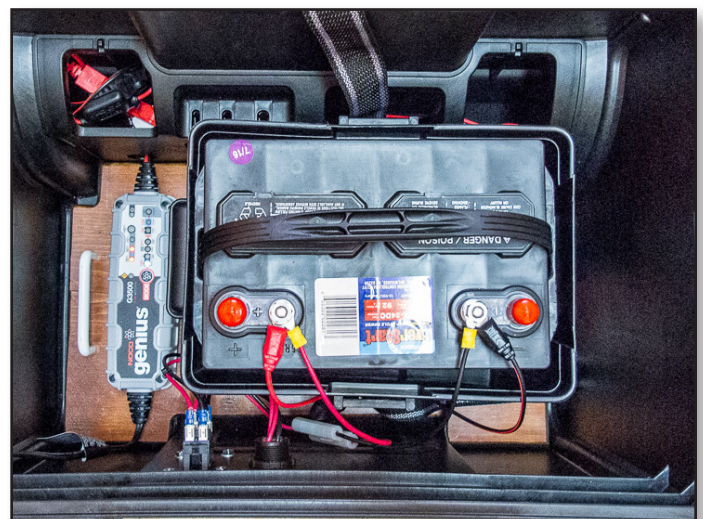


FIGURE 7: The battery and charger all wired up. The cords for the charger are routed through the section on the back of the box. (Note: This is not the final configuration.)

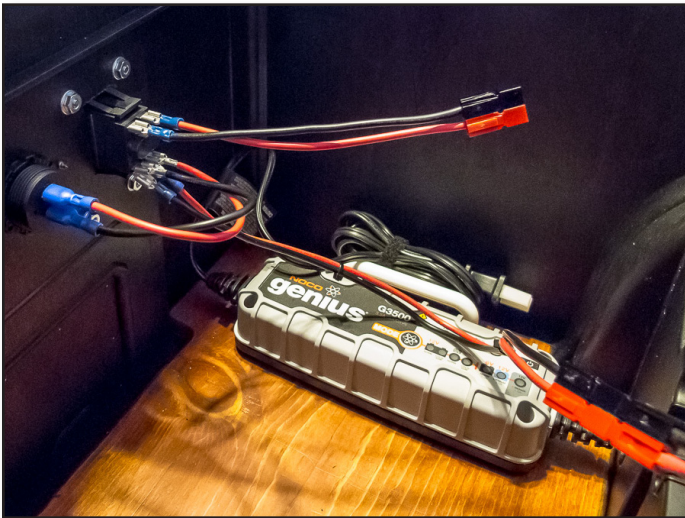


FIGURE 9: The second and final wiring configuration. The leads at the top connect to the battery and the leads coming off the bottom go to the Powerpole socket.

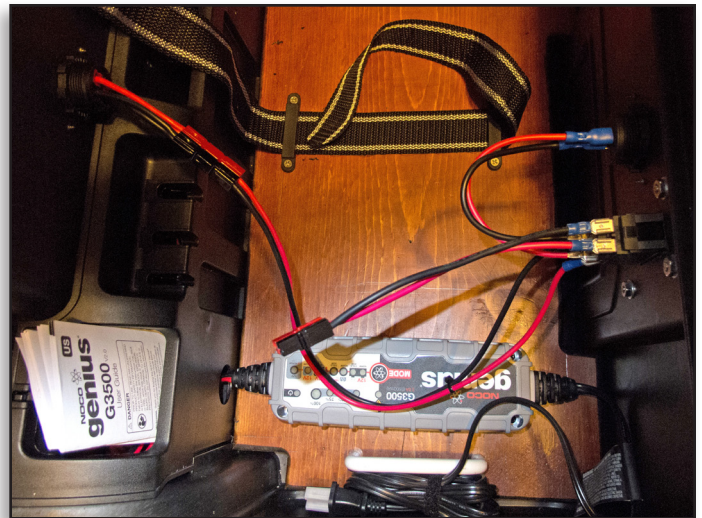


Figure 10: Top view of the second wiring configuration.

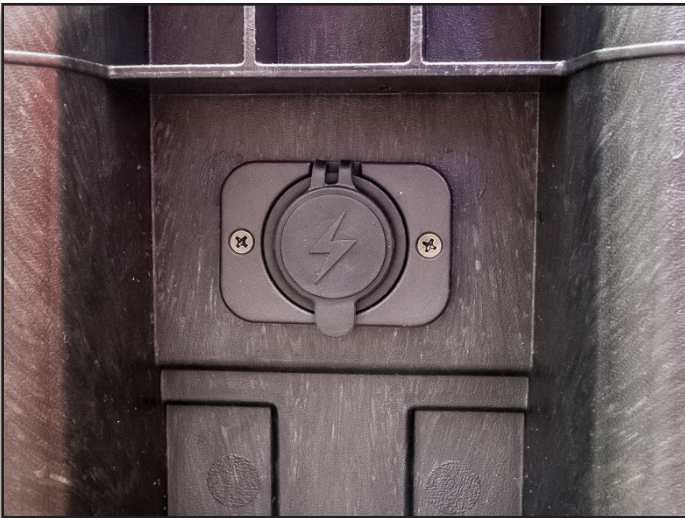


Figure 11: The Powerpole socket relocated to the back of the box.



Figure 12: Main power switch and voltmeter that replaced the Powerpole socket on the front of the box.

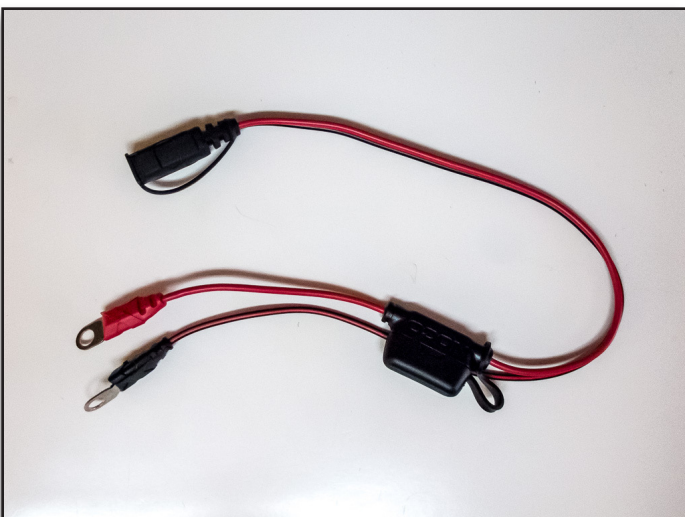


FIGURE 13: The fused cable for the battery charger. This is as it came from the manufacturer. There is also another interchangeable cord with alligator clips.

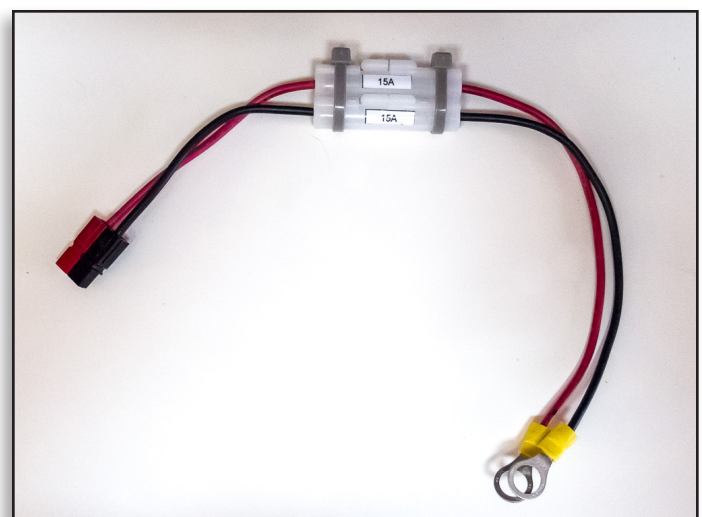


FIGURE 14: The main power cord from the battery. This was made from an OEM cable from a Yaesu mobile radio.