



# RF



## NEWSLETTER

**Orange County Amateur Radio Club, Inc.**

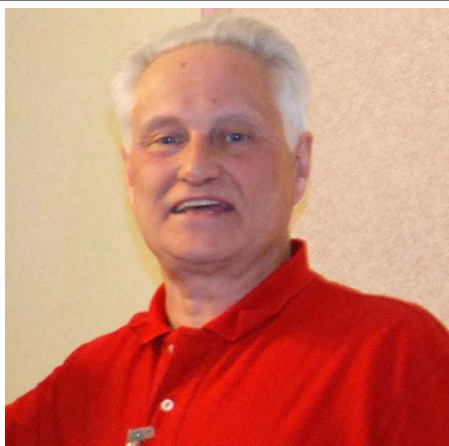
VOL. LVII NO. 03

P.O. BOX 3454, TUSTIN, CA 92781-3454

March 2016

### The Prez Sez.....

By Nicholas AF6CF



Hello!

We are now in March, and we have great news for all the Club members. This month speaker will talk about building a battery box not only useful for emergency operations, but also as a portable power supply for any activity like camping, beach party, etc. This is a very interesting project, so make sure you show up at the General meeting.

Field Day preparations are starting, with a few meetings planned to hear ideas and input from everyone. We plan to start a donations Fund for rent and gas so we will (hopefully) attain the goal of

funding the operation without too much burden for the Club members. We have open positions for Band captains, and plan to distribute a questionnaire at an upcoming meeting to see who is willing to participate. Site selection is underway, and we hope to have a site confirmed shortly. The FD co-chairs will be doing work organizing the event, and scheduling training for us, the not-so-skilled operators.

As usual, we will be having several members participating in Baker to Vegas race this month and because of that scheduling conflict we changed the General Meeting to Thursday March 17<sup>th</sup> instead of the usual Friday. Please make a note of this change in your calendar. We will also work on reserving a place for the Holiday banquet on a December date to be determined [editor's note - December 09]. So mark your calendars early!

I look forward to an eyeball contact with you all at the next General Meeting.

73 DE AF6CF

The speaker at next General meeting will be Tony Gaweł W6TNY explaining how you can build:

**"Cheap-to-Cadillac" EmComm Battery Boxes...."**

See page 6 and page 7 for details.

*The next General Meeting will be on:*

**Thursday, March 17, 2016  
@ 7:00 PM**

ENTER from the WEST SIDE entrance of the Red Cross Building, Room 208  
Take elevator to the 2<sup>nd</sup> Floor. See you there!



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[EDITORS@W6ZE.org](mailto:EDITORS@W6ZE.org)

**Monthly Events:****General Meeting:**

Third Friday of the month  
at 7:00 PM held at:  
**American Red Cross**  
600 Parkcenter Drive  
Santa Ana, CA  
(Near Tustin Ave. & 4<sup>th</sup> St.)

**Club Breakfast:**

First Saturday – March 05 at 8:00am  
Marie Callender's Restaurant  
1821 North Grand Ave  
Santa Ana, CA  
(North of 17th Street)

**Club Nets (Listen for W6ZE):**

28.375 ± MHz SSB  
Wed- 7:30 PM - 8:30 PM  
Bob AF6C, Net Control

146.55 MHz Simplex FM  
Wed- 8:30 PM - 9:30 PM  
Bob, WB6IXN, Net Control

7.086 ± MHz CW **OCWN**  
Sun- 9:00 AM – 10 AM  
Ann K6OIO, Net Control

**Club Dues for 2016:**

Regular/New Members\* - - - - - \$30  
Family renewal/Join\*\* - - - - - \$45  
New Member Join Jul-Dec\*\*\* - - - \$15  
Replacement Badge\*\*\*\* - - - - - \$3

\* New members Jan-Jun, w/badge.

\*\* Two members or more, w/badge.

\*\*\* New members Jul-Dec, w/badge.

\*\*\*\* There is a \$1.50 charge if you'd like to have your badge mailed to you.

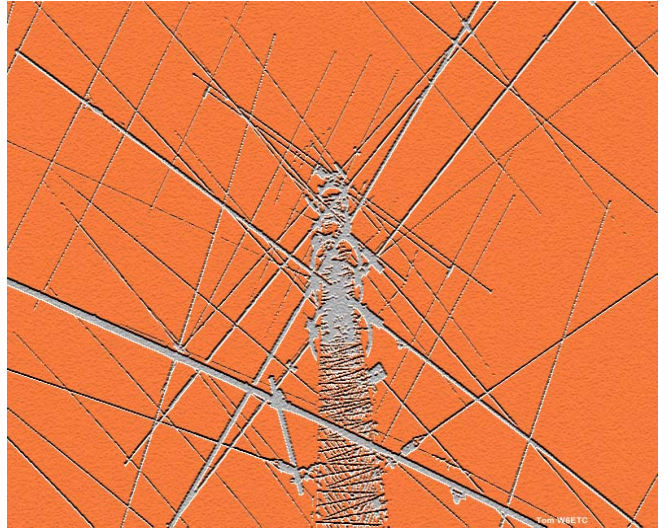




# 2016 OCARC SHOW & TELL SCHEDULE

**This is a list of suggested Show and Tell activities for the 2016 calendar year. Bring your item to show and tell! \***

**March:**      **Antennas**  
**April:**      **Antenna Analyzers**  
**May:**        VHF/UHF radios  
**June:**        **HF Radios**  
**July:**         Station accessories  
**August:**     **Morse Code**  
**September:** Digital Modes  
**October:**    **Auction – no “S-n-T”**  
**November:** Linear Amplifiers  
**December:** **X-MAS Party - no “S-n-T”**



\*If you wish to participate in the “Show & Tell”, please contact the Activities Chairman Tim, N6TMT [N6TMT@w6ze.org](mailto:N6TMT@w6ze.org), or just bring your “treasured stuff” to OCARC meetings to share with the other members. Note: Topics are subject to change without notice.

## Quick-View OCARC 2016 Calendar and Topic Schedule

	OCARC Membership**	Board of Directors Meeting <sup>B</sup>
1	1/15	1/09*
2	2/19	2/06
3	3/17*	3/05
4	4/15	4/02
5	5/20	5/07
6	6/17	6/04
7	7/15	7/09*
8	8/19	8/06
9	9/16	9/03
10	10/21	10/01
11	11/20	11/05
12	Club Christmas Party TBD	TBD

\*Indicates Change to normal schedule. OCARC Board of Directors normally schedules breakfast meetings on the 1<sup>st</sup> Saturday of each month *unless otherwise indicated*. <sup>B</sup> Indicates Breakfast available at extra cost, meeting held offsite at a location TBD

\*\*OCARC membership meetings are typically held the 3<sup>rd</sup> Friday each Month



## N6GP/7 In Chiricahua National Monument

### for ARRL National Parks On The Air (NPOTA)

By Tim Goeppinger, N6GP

I was on a road trip to Tucson January 23-24 for a birthday party for my fiancé's brother. We had some time to kill on Saturday, so I had the idea to activate Chiricahua National Monument in the Southeast corner of Arizona.



Chiricahua is a 2 hour drive from Tucson. Before I left, I posted on the NPOTA Facebook page. During breakfast, some intel came in via Facebook from some locals. Mark Phillips, AD1E of Phoenix warned me that the scenic road in the park was closed, and that I would have to operate out of a canyon. He also was concerned about snow on the roads there.

Chiricahua is known for its forest of rock columns called Hoodos, and for its rich history with the Apache Indians and their leaders Geronimo and Cochise.

The elevation of the park ranges from 5200 feet at the entrance and visitors center, and nearly 7000 feet at Massai Point. The temperature was very comfortable at the visitors center, about 70 degrees and sunny.

Due to the road closure, I hiked a while on the trail to try to see some of the rocks. There were a few

patches of icy snow left on the trail that made it a bit dangerous.



By Zereshk – Used by Permission

I had a very short time window to operate on the radio. I selected the Bonita Creek Picnic area just inside the park. This location was at the mouth of a canyon, and was blocked to both the East and the West. I set up an End Fed 20m Dipole with a painter's pole and used a Seavan Container to hold up the other end of the wire.



I was able to operate for only about 30 minutes on 20CW. I put 28 QSOs in the log with huge pileups from all over the USA and Canada. Even with the canyon wall to the West, I was able to work Arnie N6HC and Rick N6PE back home.

I would like to return this year to activate Chiricahua from the higher elevation at Massai Point. Unfortunately, the road will be closed until March 26. I recommend this park to visit. There is no entry fee.  
<http://www.nps.gov/chir/index.htm>



THURSDAY MARCH 17<sup>th</sup> OCARC MEMBERSHIP MEETING WILL BE PRESENTING

**CERT and Emergency Communication (EmComm)**  
**Basic Battery Box Build and Demonstration**  
**Cheap to Cadillac**

Build by Tony Gawel W6TNY  
Reported by Tom W6ETC

Tony Gawel W6TNY will be doing a HANDS-ON PRESENTATION at the OCARC general membership meeting March 17<sup>th</sup> entitled "Basic Battery Box Construction and Demonstration."

It's **IMPORTANT to NOTE** the normal OCARC membership meeting **DAY** was **CHANGED** to **THURSDAY MARCH 17<sup>th</sup>** @ the American Red Cross instead of Friday the 18<sup>th</sup>. This change was necessary to allow a number of OCARC members to attend and participate in the [Baker to Vegas](#) event being held on March 18<sup>th</sup> – 20<sup>th</sup>.

Tony will be showing the Club how to build this low-cost emergency communication battery box on site. This will be a HANDS-ON demonstration. We will be breaking up in groups and each group will be building a battery box. For those in attendance there will be a no-charge door prize drawing for one of the battery boxes built at this meeting. The other boxes built at this meeting will be offered for purchase and those that remain will be added to the OCARC inventory of equipment for Field Day 2016 and beyond.

This is a meeting that you will not want to miss! Learn how to **build you own emergency communication battery box for \$50 to \$65 or less** with parts available locally and online. The end result will be an auxiliary power battery box that compares to some of the much more expensive ones found online and at Ham Conventions.

I've included a parts list for the emergency communication battery box being constructed in this article (see below). For those of you interested in step-by-step instructions on building an emergency communication battery box, we've included the full story as an attachment to this email. Look for 'Building an Emergency Communication Battery Box by Tony W6TNY.pdf'



## CERT and Emergency Communication Basic Battery Box

By Tony Gawel W6TNY

This Project is intended to provide CERT, EmComm teams and amateur radio clubs with a basic low cost Emergency Battery Box project that is simple to build and requires minimal tools. The article is designed to inspire a few ideas on what is possible by providing a Club/ Group activity that all members can participate in. The building process provides the builder with both comradery and pride of ownership in building their own (emergency) equipment (the fundamentals of Amateur Radio).

The battery Box is a quick, fun and inexpensive project for individuals and groups. If you have the components, the build can be completed in just a few hours or an afternoon. You start with the basic box and add your accessories and ideas as you go. The ultimate project you decide to build is determined by the skills of the group and your own imagination.

This project is not the high-end Mega EmComm box that many amateur radio operators often build! It is not designed to replace critical pieces of equipment either, but to supplement them. This project is designed for most people who want to be better prepared, and may not have the resources to build one of these so called Mega EmComm boxes.

Some of the advantages of the Battery Box project are;

1. The box is easily transported in the back of your car
2. It can be installed in your home/office
3. It can easily be taken in the field for EmComm or QRP operations.

A single box can provide limited emergency power during critical times but if the boxes are connected together the user can effectively add more battery capacity and air time when needed.

The unit is capable of supplying emergency 12 volt DC power in the field to charge most phones, HT radios, small HT repeaters, mobile radios operating on low power (QRP), and assorted led lighting.

A well-constructed EmComm box can provide temporary power for those running HamNet Wi-Fi Mesh Nodes, etc. What type of box you decide to build is based on your resources, skills and creative imagination. This article primarily focuses on building on the Cheap, building more Basic boxes, and for those that can afford to build the Cadillac box! The foundational design becomes the building block for the other designs. It only differs in the type of accessories that you decide incorporate.

Key advantages of this battery box design is that it can be customized, expanded, added on to as you need which makes it affordable and easy on your resources. The recommended procedures for building the different types of boxes are the same, but the addition of optional accessories can increase the unit's functionality and overall cost of the project.

An important consideration is that this design also lends itself to incorporating different battery sizes and types based on budget and availability. The build also attempts to incorporate a simple design to allow for quick battery replacement and for future upgrades potentially to the new LiPo4 light high capacity batteries (see Cadillac EmComm boxes).

## The Build

I wanted to build a quick, fun and inexpensive project that can be shared with others and that was one of the primary reasons why I designed the box. It provides emergency 12 volt DC power in a small light-weight waterproof case. Various types of batteries are plentiful and often recycled batteries can be found for free or for just a few bucks.

The building process has been simplified for non-technical people. The build begins with readily available 7 ah AGM UPS batteries which are inexpensive and available in most electronics surplus stores or from an older UPS unit. Another source of batteries may come from larger UPS systems. Depending on the type of UPS system if and when a battery pack fails there are often still a few usable batteries remaining. The 7ah battery which is typical in these UPS packs is a deep cycle battery which lends itself extremely well to these smaller types of projects.



Figure 1. Cadillac Box





Figure 2. Basic Box



Figure 3. Basic Box with USB Charge Adapter and Phone Cable

## Section I

### Safety

Battery Safety is an important consideration before you get started!

For example:

- Never disassemble a battery under any circumstances. The materials in a battery are often toxic and can cause severe burns and can damage your clothing.
- **Red wire goes to the Positive**
- **Black wire goes to the Negative**
- Never use a fuse larger than one that is rated or recommended for this project  
(Keep some spare fuses in your box)
- Do not short circuit a battery by crossing the positive and negative terminals as you can damage the battery and other electrical equipment components. It can also cause burns and/or injury to you.
- Never throw batteries into a fire as they can split, cause toxic fumes and leak acid.
- Don't reverse the polarity of the battery or you can damage your equipment and the battery.

Continued from previous page

- Don't use old and new batteries together. This can degrade the batteries.
- Always charge the battery at the correct voltage and amperage after use. Don't over-charge the battery as this can damage the battery and cause it to leak. Follow the charging procedures from the manufacturer.
- Store batteries in a sealed cool dry place when not in use (battery box).

**Now let's have some fun!**

## Section II

### Battery Box Construction

This project is based off of the readily available (used but in good condition) 7 ah (amp hour) AGM UPS batteries and a plastic 30 cal ammo box available at most Harbor Freight stores or online at [www.Amazon.com](http://www.Amazon.com) . The 7 ah AGM battery's typical size measures 5.9 x 2.5 x 3.7 inches which is a good fit for this small (30 cal) Ammo box.

#### Building the Basic Box

- Place battery box on a sturdy table
- Inventory your materials from the build sheet
- Carefully remove the lid from the ammo box and place it to the side



Figure 4 Empty Ammo Box

- Measure about 5 inches from the front handle and mark the bottom of the battery box
- Install two cable tie mounts on the bottom of the ammo box or if you are installing a nylon strap hot melt glue the strap to the bottom of the box
- Insert the reusable tie into the mounts before securing the foam pad
- Use hot melt glue to install the foam padding on the bottom of the ammo box to hold down the nylon strap/ tie wrap and to protect the battery
- Glue some ½" foam on the front of the box by the handle

Continued on next page...



Figure 5 Front Battery Foam Pad

- Insert the battery in the box and tighten up the tie wrap or nylon strap
- Place the foam padding on both sides of the box
- Cut ½ inch foam for the front of the battery and hot glue this to the foam on the side of the battery

*To continue Basic Box Build proceed to Section IV*

### Building the Cadillac Box

- Place battery box on a sturdy table



Figure 6 Empty Ammo Box

- Inventory your materials from the build sheet checklist (see below)
- Carefully remove the lid from the ammo box and place it to the side
- Measure up about 5 inches from the front and mark the bottom of the ammo box
- Glue nylon strap, with the clips, in the bottom of the ammo box about 5" from the front. (pic)



Figure 7 Glue Battery Hold-down Strap



- Measure the inside of the ammo box and cut piece  $\frac{1}{2}$ " dense foam to fit the bottom of the ammo box to provide support for the battery.
- Drape the battery straps over the side of the box while you install the foam pad
- Hot glue this foam (with straps underneath – see image below) to the bottom of the battery box and place the battery on top of the foam until the hot melt glue sets.



Figure 8 Glue Down Bottom Foam Padding

- In an effort to protect the battery from damage and side to side movement measure and place  $\frac{1}{2}$  inch foam pad on the interior front side (closest to the latch) of the ammo box.
- Hot melt glue this to the front interior side of the box



Figure 9 Installing Back Foam Padding

- Measure and cut two  $\frac{1}{2}$ " pieces foam one for each side of the battery to secure it into the box



Figure 10 Installing Side Foam Padding

- Cut one  $\frac{1}{2}$ " foam for the front of the battery



Figure 11 Glue in Front Foam Padding

### Section III

- Select the terminal block (or similar) as indicated in the parts checklist. Carefully remove the clear plastic cover from the terminal block



Figure 12 Terminal Strip

- Using a screwdriver loosen the 8 terminal screws on one side of the block
- Select red bridge jumper clips and install the red jumper clips on the left 4 terminal screws and tighten them down (see image below)
- Then install the black jumpers clips on the right 4 terminals screws and tighten them down (pic)



Figure 13 Terminal Block with Bridge Jumpers

- Apply a small dab of hot melt glue on the bottom of the terminal block enough to install it to the center of the top of the interior of the ammo box. (pic) This allows room for connections on both sides of the terminal block and enough room to insert additional power accessories.

## Section IV

### Installing the Power Connectors

- Now set the battery box lid on the table on top of a block of wood.
- Now tape the template (See Template Section) to the top of the battery box and use it to mark the location of the 12v power jack
- (Option) Meter, USB Charger and Anderson connections (plus any optional devices)(pic)



Figure 14 Drilling Holes for Accessories

**Note:** You should mark the potential placement of, but don't drill the extra holes required if you are not going to be installing the additional accessories at this time. This will maintain the box's moisture resistance until which time you modify the ammo box. Once you're ready to be installing the components you have on hand:

- Using the 1/8" drill, make a pilot hole for each device location you will be installing. Do not drill extra holes if you are not installing the other devices.
- Using the step bit, drill a hole in the lid for the power jack and clean up any debris with a razor knife



Figure 15 Step Bit for Drilling Holes for Accessories

- In the example above, make a second hole for the Anderson connectors (optional)
  - Optional: Mark and install the triple hole face plate on the top of the box.
  - Optional: Drill the 3 holes for the volt meter, USB charger, and 12v power outlet
  - Optional: Drill a hole for the power switch to power the volt meter and USB charger
- Insert the 12v power socket in the box lid and tighten the locking ring.
- Insert the Anderson module and tighten the locking ring, the pins and wires will be installed later
- Insert the optional volt meter, USB charger, and power switch, for the meter and USB charger, into the lid and tighten down the locking rings.





Figure 15 Box with Accessories Installed

- If any of the connector housings are loose, apply a little Hot Melt Glue (or silicone) to seal and secure the housing in place

### Wiring Instructions:

- Gently place the lid back onto the battery box
- Push on the precut and terminated red wire into the 12v power jack and attach the wire to terminal 1 on the red terminal block.
- Insert the precut and terminated red wire to the Anderson connector and attach the wire to terminal 2 on the red terminal block.
- Push on the precut and terminated Black wire to the 12v power jack and attach the wire to terminal 5 on the red terminal block.
- Insert the precut and terminated Black wire to the Anderson connector and attach the wire to terminal 6 on the red terminal block.
- If you are using the USB charger and Meter:
  - Connect the switch red wire with 2 connections to the + side of the meter and + side of the USB connector.
  - Connect the other Red wire on the switch to terminal block 3
  - Connect the black wire on the switch to terminal 5
  - Connect a black wire from the USB module to terminal 4
  - Connect a black wire from the Meter – to terminal 5 (2 wires will go to this terminal)
- Loosen terminal 6 on the black terminal block and connect the black battery wire to the terminal block and then connect it to the black, Negative -, terminal on the battery.
- Loosen terminal 2 on the Red terminal block and connect the red battery wire. **With the fuse removed** install the red wire to the red battery terminal.

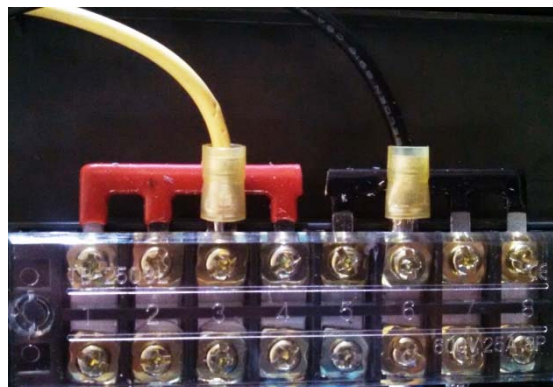


Figure 16 Attaching the Battery Wire to the Terminal Block















**EMERGENCY BATTERY BOX PARTS LIST****Cheap to Cadillac**

Build by Tony W6TNY

Reported by Tom W6ETC



QTY	Description & Online Link (when available)	Source	Price\$
1	30 Cal Plastic Ammo Box	Harbor Freight	\$5.00*
1	7 ah battery AGM or used UPS type battery <a href="http://www.amazon.com/ExpertPower-EXP1270-Black-Rechargeable-Battery/dp/B003S1RQ2S/ref=sr_1_1?s=electronics&amp;ie=UTF8&amp;qid=1443466649&amp;sr=1-1&amp;keywords=7+ah+battery">http://www.amazon.com/ExpertPower-EXP1270-Black-Rechargeable-Battery/dp/B003S1RQ2S/ref=sr_1_1?s=electronics&amp;ie=UTF8&amp;qid=1443466649&amp;sr=1-1&amp;keywords=7+ah+battery</a>	Amazon 	{\$16.14}
1	Inline ATC Fuse holder 12 AWG <a href="http://www.amazon.com/gp/product/B01AQ94ERY?keywords=4%20position%20pre%20insulated%20terminal%20barrier%20strip%20red%20black%2025a&amp;qid=1454610405&amp;ref=sr_1_1&amp;sr=8-1">http://www.amazon.com/gp/product/B01AQ94ERY?keywords=4%20position%20pre%20insulated%20terminal%20barrier%20strip%20red%20black%2025a&amp;qid=1454610405&amp;ref=sr_1_1&amp;sr=8-1</a>	Amazon/Walmart 	\$4.00
1	20 amp ATC Fuse <a href="http://www.amazon.com/gp/product/B004WK4Q3G?psc=1&amp;redirect=true&amp;ref=od_aui_detailpages00">http://www.amazon.com/gp/product/B004WK4Q3G?psc=1&amp;redirect=true&amp;ref=od_aui_detailpages00</a>	Walmart Auto Part Stores 	\$0.20
1	Nylon Strap (Optional)	Walmart/Harbor Freight	TBD Optional
1	Astra Depot Triple Function Dual USB Charger + Voltmeter + 12V Outlet Socket Panel Jack <a href="http://www.amazon.com/Astra-Depot-Function-Charger-Voltmeter/dp/B00QKDXB8E/ref=sr_1_4?ie=UTF8&amp;qid=1451949675&amp;sr=8-">http://www.amazon.com/Astra-Depot-Function-Charger-Voltmeter/dp/B00QKDXB8E/ref=sr_1_4?ie=UTF8&amp;qid=1451949675&amp;sr=8-</a>	Amazon 	\$17.00 Less expensive units are avail
1	Powerwerx Anderson connector (Optional) <a href="http://www.hamradio.com/detail.cfm?pid=H0-014534">http://www.hamradio.com/detail.cfm?pid=H0-014534</a>	HRO 	{\$18.95} Optional
TBD	25 Amp terminal barrier strips <a href="http://www.amazon.com/Anderson-Powerpole-Connectors-Pair-Genuine/dp/B005P9CATU/ref=sr_1_2?s=electronics&amp;ie=UTF8&amp;qid=1443461054&amp;sr=1-2&amp;keywords=anderson+power+pole">http://www.amazon.com/Anderson-Powerpole-Connectors-Pair-Genuine/dp/B005P9CATU/ref=sr_1_2?s=electronics&amp;ie=UTF8&amp;qid=1443461054&amp;sr=1-2&amp;keywords=anderson+power+pole</a>	Amazon 	\$8.00+-
1	8 position double row screw terminal covered barrier <a href="http://www.amazon.com/dp/B005I03WOI/ref=wl_it_dp_o_pd_nS_ttl?_encoding=UTF8&amp;colid=1H2RIQGS42FN&amp;coliid=11KYHRPUKATBH9">http://www.amazon.com/dp/B005I03WOI/ref=wl_it_dp_o_pd_nS_ttl?_encoding=UTF8&amp;colid=1H2RIQGS42FN&amp;coliid=11KYHRPUKATBH9</a>	Amazon 	\$2.40
1	Momentary push button (optional for meter) <a href="http://www.amazon.com/Yueton-Momentary-Button-Switch-Toggle/dp/B0119FH5Z2/ref=sr_1_2?ie=UTF8&amp;qid=1457249660&amp;sr=8-2&amp;keywords=Waterproof+Momentary+On%2FOff+Reset+Push">http://www.amazon.com/Yueton-Momentary-Button-Switch-Toggle/dp/B0119FH5Z2/ref=sr_1_2?ie=UTF8&amp;qid=1457249660&amp;sr=8-2&amp;keywords=Waterproof+Momentary+On%2FOff+Reset+Push</a>	Amazon 	\$0.70
1	Female F2 Push on Fully Insulated connector 12 AWG	Walmart AutoParts 	\$2.00
1	12 AWG Forked Terminal connectors (Accessories)	Walmart AutoParts 	
1	12 AWG Red and Black stranded 2 conductor speaker wire <a href="http://www.amazon.com/niceeshop-TM-Gauge-Silicone-Wire/dp/B00FGLSKUA/ref=sr_1_6?ie=UTF8&amp;qid=1456264612&amp;sr=8-6&amp;keywords=12+awg+red+and+black+wire">http://www.amazon.com/niceeshop-TM-Gauge-Silicone-Wire/dp/B00FGLSKUA/ref=sr_1_6?ie=UTF8&amp;qid=1456264612&amp;sr=8-6&amp;keywords=12+awg+red+and+black+wire</a> or <a href="http://www.amazon.com/gp/product/B00J35M2B8?psc=1&amp;redirect=true&amp;ref=ox_sc_act_title_1&amp;smid=A15TP87GWKFZSB">http://www.amazon.com/gp/product/B00J35M2B8?psc=1&amp;redirect=true&amp;ref=ox_sc_act_title_1&amp;smid=A15TP87GWKFZSB</a>	Amazon 	\$0.20ft+-
1	AFUNTA 5 pcs Mini USB LED Light Adjust Angle Portable Flexible Led Lamp with usb <a href="http://www.amazon.com/AFUNTA-Portable-Flexible-powerbank-Notebook/dp/B00EDJBPP8/ref=sr_1_2?ie=UTF8&amp;qid=1451952001&amp;sr=8-2&amp;keywords=usb+LED+light">http://www.amazon.com/AFUNTA-Portable-Flexible-powerbank-Notebook/dp/B00EDJBPP8/ref=sr_1_2?ie=UTF8&amp;qid=1451952001&amp;sr=8-2&amp;keywords=usb+LED+light</a>	Amazon 	\$5.00 Optional
	*sale price		

Tony W6TNY &amp; Tom W6ETC 2016 ~ pricing &amp; links subject to change without notice.

Ver.1b EmComm Box



## Build Sheet

- Plastic 30 cal ammo box
- ½" Dense foam padding
- Anderson 30 amp Power Pole connectors
  - 1 Red and 1 Black Anderson 12-14 awg wire
- 12v Power plug
  - 1 Red and 1 Black wire
- Battery
  - 1 Red and 1 Black Battery jumper wire with fuse
- Terminal block 8 terminal
- Nylon battery strap with clip or reusable tie wrap
- Battery box Templates
  - Bottom box
  - Top Cover

## Tools

- Drill
  - 1/8" pilot hole drill bit
  - Step drill bit
- Hot melt glue or silicone sealer
- Voltage and polarity testers
- Razor knife

## Parts list

- |   |  |
|---|--|
| 1 | 30 Cal plastic ammo box                      |
| 1 | 7 Ah AGM battery                             |
| 1 | Piece of ½" inch foam for the bottom         |
| 2 | Pieces of ½" inch foam for the sides         |
| 2 | Pieces of ½ inch foam for the front and back |
| 1 | Inline ATC fuse holder 12 AWG                |
| 1 | 15 Amp ATC fuse                              |
| 1 | Marine 12v power adapter                     |
| 1 | Anderson power pole adapter                  |
| 1 | 8 position terminal block                    |
| 1 | 4 position Red Jumper                        |
| 1 | 4 position Black Jumper                      |
| 6 | Spade connectors                             |
| 2 | Butt connectors                              |
| 2 | Push on Battery connectors                   |
| 6 | 8" 12-14 AWG red and black zip wire          |

## Optional Items

- 1 Marine USB charger (recommended – Additional information forth coming)
- 1 Digital Volt Meter
- 1 Waterproof switch
- 1 Buck power supply
- 1 Solar panel
- 1 Float battery charger

## Additional Accessories Possibilities

- Larger battery
- Larger Case / Dual Batteries
- Lithium ion Phosphate Battery
- Second 7 ah battery
- Additional Anderson connectors
- Additional 12V power plugs
- AES cable for camping and RV use
- Solar, wind, generator
- Anderson daisy chain cable



**Figure 17 Daisy Chain Cable**

**Templates** (Pending) this is a work in process

**Note:** All information contained in the article is subject to change without notice.

## DISCLAIMER

The author makes no representations or warranties of any kind, express or implied, about the completeness, accuracy, reliability, suitability or availability with respect to the information freely offered, or related graphics contain for any purpose. Any reliance you place on such information is therefore strictly at your own risk.

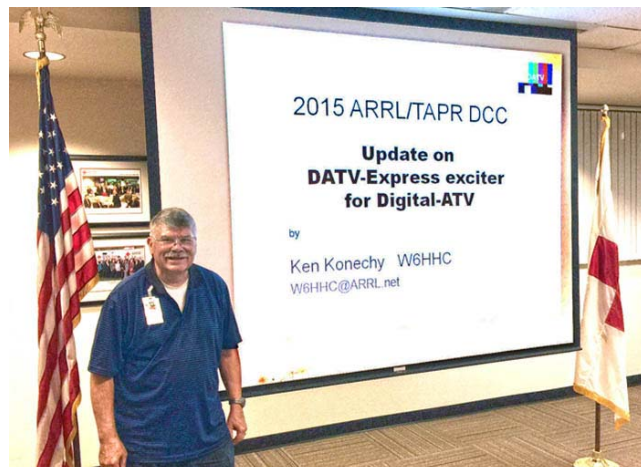
# OCARC General Meeting Minutes

## Feb 18, 2016

The OCARC General Meeting was held at the Red Cross Complex on February 18th 2016. The meeting was called to order at 7:02 pm. There were a total of 32 members and visitors attending. There was a quorum with all directors present, except N6XBP.

Our main speaker for the evening was Ken W6HHC speaking on

### **“Update on DATV-Express exciter for Digital-ATV”**



**Ken W6HHC explained recent progress for the Digital-Express transmitter project**

Ken W6HHC explained that this presentation had been given at the TAPR-ARRL Digital Communications Convention (DCC) in October of 2015.

### **DATV-Express**

- British ATV Club - Digital Forum  
[www.BATC.org.UK/forum/](http://www.BATC.org.UK/forum/)
- CQ-DATV online (free monthly) e-magazine (ePub format)  
[www.CQ-DATV.mobi](http://www.CQ-DATV.mobi)
- OCARC library of newsletter DATV articles  
[www.W6ZE.org/DATV/](http://www.W6ZE.org/DATV/)
- TAPR Digital Communications Conference proceedings (free downloads)  
[www.TAPR.org/pub\\_dcc.html](http://www.TAPR.org/pub_dcc.html)
- Yahoo Group for Digital ATV  
<http://groups.yahoo.com/group/DigitalATV/>
- DATV-Express project website  
[www.DATV-Express.com](http://www.DATV-Express.com)
- G4GUO github for DATV-Express source code  
[https://github.com/G4GUO/datvexpress\\_gui.git](https://github.com/G4GUO/datvexpress_gui.git)
- G4GUO github for express\_server source code  
[https://github.com/G4GUO/express\\_server.git](https://github.com/G4GUO/express_server.git)
- Hardkernel (Korea) for ODROID model U3 ARM-based "micro-PC"  
[www.hardkernel.com](http://www.hardkernel.com)
- Jean Pierre F6DZP web site for Titioune and MinTiouner  
<http://vivadatv.org>

**Ken provided a list of links for those interested in finding more info on Digital ATV**

### **SHOW-and-TELL:**

The first item in show-n-tell was a Q&A manual from early-1950's for the Commercial Second Class radio license.



**As part of the Show-n-Tell session, Nicholas AF6CF provided a 1950's Q&A manual for FCC Commercial Radio license.**

Clem WØMEC, the club's Technical Chairman, read several questions from the FCC Q&A manual and totally stumped the audience that evening.

The second item in show-n-tell was Tony Gawel W6TNY showing the size and weight of several "emergency battery boxes" models that can be built inside "ammo boxes" available at the Harbor Freight store. Tony W6TNY will be presenting a "How to Build" program for these "emergency battery boxes" at the OCARC March General Meeting that will held on **THURSDAY** evening on March 17. A list of components needed to build one of these battery boxes will be sent out to OCARC members soon.

Tony W6TNY explained that these portable battery-boxes can be built in a variety of cost and power-capacity and sophistication. The cheapest version of the battery box can be built for less than \$50.





Tony W6TNY showed three different models of emergency-battery-boxes that are easy to build

The final show-n-tell item was presented by Tom W6ETC and Nicholas AF6CF. Tom W6ETC and Nicholas AF6CF announced that Bioenno Power in Santa Ana had donated a prototype completely-featured 100 AMP-HR portable battery-box unit to the OCARC.



Tom W6ETC and Nicholas AF6CF display the high-end 100 AMP-HR battery-box donated to OCARC by Bioenno Power

Respectfully submitted by Ken Konechy

## Kevin Guice – KG6MIH (Silent Key)

Kevin Guice, KG6MIH, an active ham with COAR RACES in Orange and other volunteer programs like Red Cross and was a frequent visitor to OCARC meetings died on Feb 08 at the age of 28. A Celebration-of-Life ceremony was held for Kevin on Feb 27 by his parents Bobbie KG6MIF and Cliff KG6MIG. In the photo to right, Kevin is on the right with his father Cliff and his service dog, Gabby



COAR RACES members from Orange PD turned out at ceremony for Kevin KG6MIH



## OCARC BOARD MEETING MINUTES

**2016-03-05**

The OCARC Board meeting was held at the Marie Callender's Restaurant on Grand Ave in Santa Ana on March 5th, 2016. There were a total of 7 directors and members attending. There was a quorum with all Directors present except Vern KG6OXD, Greg W6ATB, and Clem WØMEC.

### Director Reports:

- **V. Pres** – Tom W6ETC explained that he is looking for more feedback from the club members on what programs they would like to see in the future. The board agreed that a list of proposed programs should be handed out in the coming Gen Mtg...with members indicating their top three choices for a future program.

### OLD BIZ:

#### • Newsletter Editors

Mar - Greg W6ATB  
 Apr - Tim N6TMT  
 May - Bob AF6C  
 June - Tony N2VAJ  
 Jul - Clem WØMEC  
 Aug - Greg W6ATB  
 Sept - (TBD)  
 Oct - Nicholas AF6CF  
 Nov - Paul W6GMU  
 Dec - Don N6XBP

#### • Program Speakers for Club Meetings

Mar 17 - Tony Gawel KJ6UFG on  
**EmComm Battery Box Basics**  
 Apr – TBD

#### • Field Day 2016 Site Selection

Nicholas AF6CF reported that he had visited Carla at the Centralia School District in Buena Park. A request for FD use of the field at the Knott Education Center has been submitted to Carla. Greg W6ATB has requested the required insurance rider for the school district.

#### • Club Membership Growth Proposals

- The club Membership Chair, Don N6XBP, reported that he had obtained an additional database of OC hams from the ARRL and is screening this new list

for e-mail addresses. The plan is to send out about 100-to-200 invitation e-mails per month.

- Don plans to provide labels for visitors to the next club meeting.
- Tony N2VAJ will determine the date of the next HRO "Ham Jam" event where the OCARC plans to have an INFO booth.

#### • New WebSite Membership Database

Don N6XBP reports he is scheduled have it finished at the end of April.

#### • Membership PayPal button

Discussion of this effort was tabled to next board meeting.

#### • OCARC VE Testing

The OCARC VE Team to be listed on the website and RF Newsletter.

#### • Update of Club Brochure

Bob AF6C reported that the club "tri-fold" brochure wording has been updated. Needs input on which pictures should be updated and what photos should be used.

#### • Club Calendar and Club Nets

Tom W6ETC commented on the schedule in last months RF. Tom plans to have it available each month. The club is looking for more volunteers to be net control, especially on 10 meters

#### • Disposal of OCARC Old Generator

No offers received yet to purchase the club's older 4KW generator that was purchase in 1986 (other than the informal one by AF6CF).

#### • FD BandPass Filters

AF6C was asked to hold off the 20 meter filter purchase until Nicholas coordinates with Ron Cade W6ZQ (in Arizona).

#### • W6ZE License Trustee

Tim N6GP has accepted taking over the club's license trustee position that has been held by AF6C since 6/6/78. The change will occur at license expiration /renewal on July 31, 2017.

#### • New Assistant WebMaster

Don N6XBP has agreed to be new assistant webmaster and will begin his training.

#### • More Equipment Storage

Still to be put into storage are the power

cables and beam antennas held by Ken, W6HHC and the TS-140 and Astron supply held by AF6C. (Note, there is no microphone with the radio. This something the club should look for. AF6C provided a loaner mic previously).

- **Club Assistant Historian**

Tom and Nicholas to ask Corey KE6YHX if he has an interest in becoming an Assistant Historian to help out the club's Historian Bob Evans WB6IXN.

- **Opportunity Drawing**

Coffee is suggested to go with the snacks. Nicholas mentioned a place in Anaheim (Sierra Donuts 714 2482-1443) that provides coffee in a rented container that we might utilize. It was also mentioned that there is a Keurig coffee machine in the Red Cross break room. Perhaps we can provide K-cups and half & half and sugar. We should be permission from the Red Cross before we do this. Don volunteered to purchase the K-cups and other supplies at Costco or Sam's Club.

#### **NEW BIZ:**

- **Feb Meeting Feedback**

Too Long. We should strive for meeting to be over by 9:30 PM and for longer breaks for socializing – longer breaks really wasn't a problem at the last meeting.

- **Upcoming Events**

Tom W6ETC suggested we all think about events that will be of interest to the club members.

- **OCARC Christmas Party**

The board agreed to use Friday evening Dec 9 for the club's dinner in December. A location will be confirmed.

#### **GOOD OF THE CLUB:**

- **One-half-Square Antenna**

Tony N2VAJ said he is building a 10M version of the One-half-Square-Antenna shown in the recent QST magazine for use on the 10M Net. It will be interesting to compare his new signals.

Respectfully submitted by *Ken Konechy* W6HHC  
and *Bob Eckweiler* AF6C

## Cash Flow - Year To Date

1/1/2016 through 3/8/2016

3/8/2016

Page 1

Category	1/1/2016- 3/8/2016
<b>INFLOWS</b>	
Badge Income	3.00
Dues, Membership 2016	1,205.00
Dues, New Member 2016	63.00
<b>TOTAL INFLOWS</b>	<b>1,271.00</b>
<b>OUTFLOWS</b>	
Food Snacks	52.63
Money Back For Change	10.00
Storage Locker	213.00
Web Site Hosting	44.97
<b>TOTAL OUTFLOWS</b>	<b>320.60</b>
<b>OVERALL TOTAL</b>	<b>950.40</b>



*An ARRL Special Service Club*

## OCARC 2016 Club & Special Event Calendar

**March 5, 2016 OCARC Board of Directors Meeting** <http://www.w6ze.org/MeetingInfo.html>

March 5-6, 2016 ARRL DX-SSB <http://www.soara.org/activities/>

March 12, 2016 Palm Springs Hamfest <http://palmspringshamfest.com/>

\*March 17, 2016 **OCARC General Meeting @ the ARC Santa Ana** <http://www.w6ze.org/MeetingInfo.html> (DATE CHANGE)

March 19, 2016 Baker to Vegas (Baker2Vegas) W7RBV Site <http://www.radiobaker2vegas.org/> ???

March 26-27, 2016 CQWPX-SSB World-Wide WPX SSB Contest <http://www.cqwp.com/>

**April 02, 2016 OCARC Board of Directors Meeting** <http://www.w6ze.org/MeetingInfo.html>

April 15, 2016 **OCARC General Meeting @ the ARC Santa Ana** <http://www.w6ze.org/MeetingInfo.html>

April 15-17, 2016 International DX Convention, Visalia CA <http://www.dxconvention.org/>

**May 07, 2016 OCARC Board of Directors Meeting** <http://www.w6ze.org/MeetingInfo.html>

May 20, 2016 **OCARC General Meeting @ the ARC Santa Ana** <http://www.w6ze.org/MeetingInfo.html>

May 20-22, 2016 Hamvention 2016 Dayton <http://hamvention.org/>

May 28-29, 2016 CQWPX-CW World-Wide WPX CW Contest <http://www.cqwp.com/>

**June 04, 2016 OCARC Board of Directors Meeting** <http://www.w6ze.org/MeetingInfo.html>

June 17, 2017 **OCARC General Meeting @ the ARC Santa Ana** <http://www.w6ze.org/MeetingInfo.html>

June 24-26, 2016 ARRL Field Day, OCARC Major Event (Link?)

**July 04, 2016 OCARC Board of Directors Meeting** <http://www.w6ze.org/MeetingInfo.html>

July 15, 2016 **OCARC General Meeting @ the ARC Santa Ana** <http://www.w6ze.org/MeetingInfo.html>

July 16-17, 2016 North American QSO Party (RTTY) <http://ncjweb.com/NAQP-Rules.pdf>

**Aug. 06, 2016 OCARC Board of Directors Meeting** <http://www.w6ze.org/MeetingInfo.html>

Aug. 06-07, 2016 North American QSO Party (CW) <http://ncjweb.com/NAQP-Rules.pdf>

Aug. 19, 2016 **OCARC General Meeting @ the ARC Santa Ana** <http://www.w6ze.org/MeetingInfo.html>

Aug. 20-21, 2016 North American QSO Party (SSB) <http://ncjweb.com/NAQP-Rules.pdf>

**Sept. 03, 2016 OCARC Board of Directors Meeting** <http://www.w6ze.org/MeetingInfo.html>

Sept. 16, 2016 **OCARC General Meeting @ the ARC Santa Ana** <http://www.w6ze.org/MeetingInfo.html>

Sept. 24-25, 2016 CQWWDX-RTTY CQ WW RTTY DX Contest <http://www.cqwwrtty.com/>

**Oct. 01, 2016 OCARC Board of Directors Meeting** <http://www.w6ze.org/MeetingInfo.html>

Oct. 01-02, 2016 California QSO Party <http://www.cqp.org/> rules: <http://www.cqp.org/Rules.html>

Oct. 21, 2016 **OCARC Auction** (Link Pending)

Oct. 09-11, 2016 The 34<sup>th</sup> Annual ARRL & TAPR Digital Comm. Conference <https://www.tapr.org/dcc.html>

Oct. 14-16, 2016 ARRL Pacific Division Convention (PACIFICON) <http://www.pacificon.org/>

Oct. 22-23, 2016 JOTA (Jamboree-on-the-Air) <http://www.scouting.org/JOTA.aspx>

Oct. 26-27, 2016 CQ Worldwide DX Contest, SSB <http://www.cqww.com/>

**Nov. 05, 2016 OCARC Board of Directors Meeting** <http://www.w6ze.org/MeetingInfo.html>

Nov. 05-07, 2016 ARRL CW November Sweepstakes <http://www.arrrl.org/sweepstakes>

Nov. 19-21, 2016 ARRL November Sweepstakes Contest, SSB <http://www.arrrl.org/sweepstakes>

Nov. 20, 2016 **OCARC General Meeting @ the ARC Santa Ana** <http://www.w6ze.org/MeetingInfo.html>

Nov. 26-27, 2016 CQ Worldwide DX Contest, CQ <http://www.cqww.com/>

Dec. 02-04, 2016 ARRL 160-Meter Contest <http://www.arrrl.org/160-meter>

Dec. 10-11, 2016 ARRL 10-Meter Contest <http://www.arrrl.org/10-meter>

Dec. TBD, 2016 OCARC **OCARC Holiday Party** (Marie Callender's Yorba Linda / date & booking pending)





## OCARC 2016 DUES are DUE !!!

Don't forget to pay your OCARC dues for 2016. Please note the amount of the dues was raised this year to \$30 per year (see page 2 for family rates & more). You have through end of March 2016 to pay your dues without falling in arrears. Don't miss out on the events planned by our new Board. You can send a check made out to OCARC to the club PO Box (listed on W6ZE.ORG) or pay at the club meetings.

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## The Orange County Amateur Radio Club has the following Generator For Sale



**Groban 4,000 Watt Generator** with Towable Trailer  
Rated 4KW 120/240 VAC 60 Hz @ 3,600 RPM

**\$\$\$ Make us an Offer \$\$\$**

**Details/Condition:** • Originally purchased March 24, 1986 from Santa Fe Toolline Supply

- Briggs & Stratton (8 or 10 hp) engine? Electric start, meter panel & circuit breakers. Eng. overhauled 1994+-.
- Generator is mounted on a Harbor Freight trailer for towing with lights & spare tire.
- Trailer had been licensed for the road but registration has recently expired.
- Unit was used each Field Day only from 1986 through 1999 without any serious problems.
- It was know to be running in June of 2006.
- Unit has been stored outside under a tarp at one of OCARC members home since that time.
- It has not been running since then and may need some minor to extensive work?
- Total running hours on the meeting is estimated at 350 hours.
- Engine was overhauled approximately 1994.
- A new battery is required for electric start & Carburetor needs rebuilding (leaks fuel).
- Condition of tires is not known but more than likely may need to be replaced due to its age.
- The equipment is located in the City of Fountain Valley, CA

For more information email [ocarc\\_info.org](mailto:ocarc_info.org) or check update details on the **OCARC website** [www.w6ze.org](http://www.w6ze.org) website for the most up to date information on the generator for sale. Equipment offered subject to prior sale without notice.

# ANSWER TO THE DECEMBER PUZZLER

Part 1 of the Puzzler (Dec. 2015 “**RF**” p 6) **worth 25 points**, was to solve for the voltage across R5 in Problem 1 (to the right). This is the standard Wheatstone bridge circuit. The best place to start is to redraw the schematic as shown in Figure A:

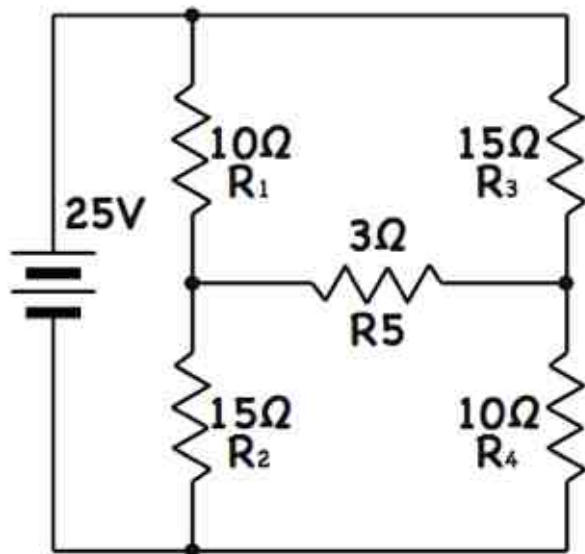


Figure A

Simplify it more by removing R5 (Figure B):

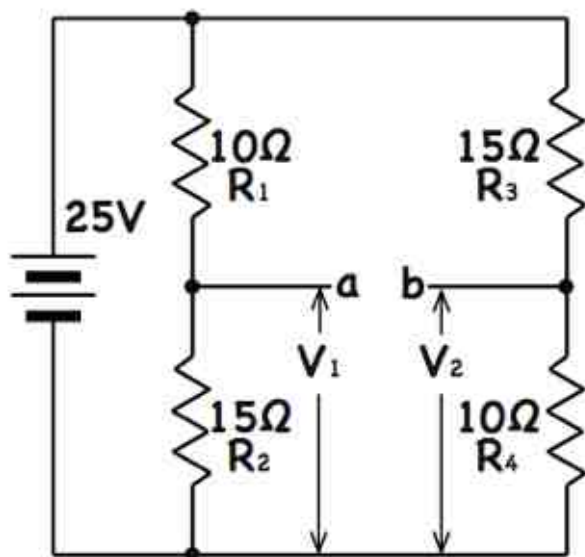
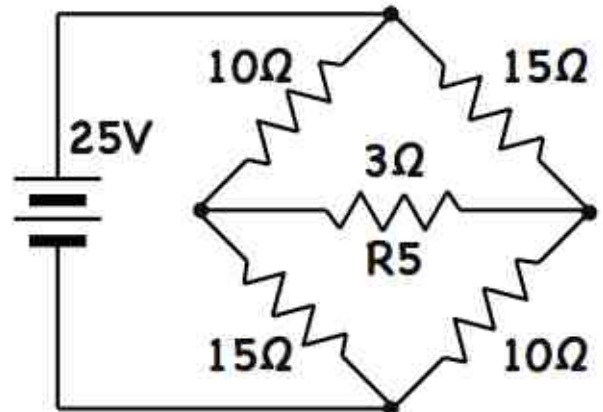


Figure B



Problem 1: 25 points

Now you have two separate circuits across the 25V battery. You can solve each one for its Thevenin equivalent (Figure C):

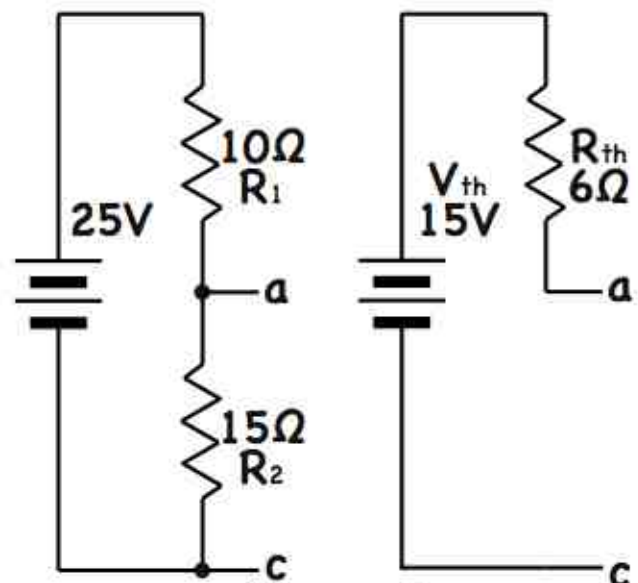


Figure C

On the left is the lefthand part of the circuit and on the right is its equivalent. The equivalent voltage appearing across ‘a’ and ‘c’ is determined by the voltage divider equation:

$$V_{TH} = V [R_2 / (R_1 + R_2)]$$

$$V_{TH} = 25 [15 / (10 + 15)]$$

$$= 25 (15/25)$$

$$= 15 \text{ volts}$$

The equivalent resistance is just the resistance across 'a' and 'c' with the battery replaced by a short. This is the resistance of the two resistors in parallel:

$$R_{THL} = (R_1 \times R_2) / (R_1 + R_2)$$

$$= (10 \times 15) / (10 + 15)$$

$$= 150 / 25$$

$$= 6 \text{ ohms}$$

If you do similar calculations for the right side of Figure B you get:

$$V_{THR} = 25 [10 / (10 + 15)]$$

$$= 25 (10/25)$$

$$= 10 \text{ volts}$$

And: Since the two resistors are identical on the right side to those on the left side, even though they are reversed in position, their parallel resistance is the same.

$$R_{THR} = 6 \text{ ohms}$$

Figure D is Figure B with the Thevenin values replacing the actual battery and resistors:

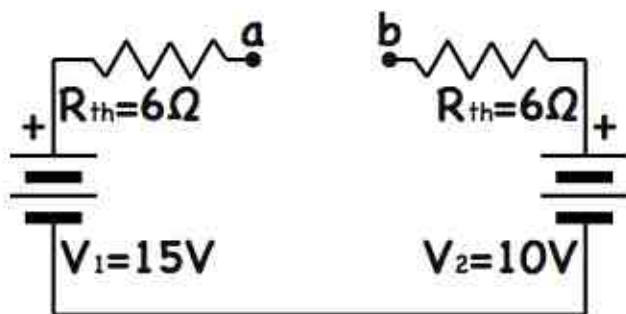


Figure D

Since the voltages are bucking each other, the actual voltage is 15V - 10V or 5 volts; and since the two  $R_{TH}$  resistors will be in series when  $R_5$  is reintroduced, they can be replaced with a single 12Ω resistor.

The resulting simplified schematic, with  $R_5$  reintroduced, is shown in Figure E.

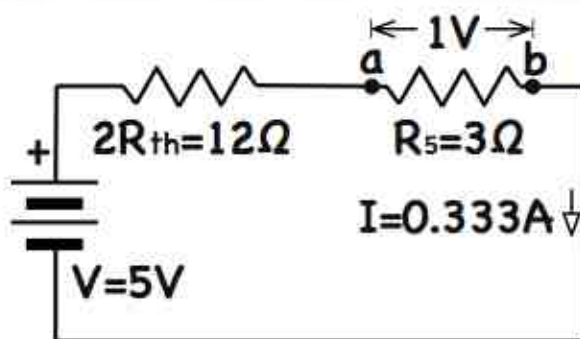


Figure E

From Figure E we see we just have a simple circuit comprised of a 5-volt battery and two resistors adding to 15 ohms. From Ohm's Law:

$$I = E / R$$

$$I = 5V / 15\Omega$$

$$I = 0.333 \text{ amperes}$$

Thus the voltage across  $R_5$ , the 3-ohm resistor is just another simple Ohm's Law calculation:

$$E = I \times R$$

$$= 0.333A \times 3\Omega$$

$$= 1 \text{ volt}$$

I've tried to solve this problem step-by-step so those of you without a lot of electronic knowledge can use it as a learning tool (after all I was last years club's Technical Director). If you have a question, please feel free to ask it. Page 2 of the newsletter has feedback information.

**BUT WAIT**, the answer to Part 2 of the Puzzler, "What was the second question?" - **worth 75 points**, - a multiple choice question - is:

- For 75 points: Which tire went flat?**
- a. The front driver's-side tire.
  - b. The rear driver's-side tire.
  - c. The front passenger's-side tire.
  - d. The rear passenger's-side tire.

**YOUR ANSWER HERE:**



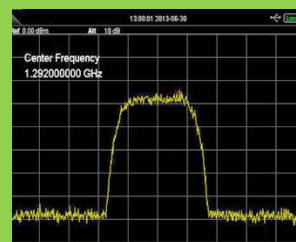
We only had one person brave enough to send in an answer; Doug - K6PGH scored a 75 on the December Puzzler! On the curve, that's an A Plus. The rest of you get an F Minus.





## Digital Amateur TeleVision Exciter/Transmitter

Now available from



# DATV-Express



- A more affordable DATV exciter can now be ordered
- Fully assembled and tested PCBA
- DVB-S protocol for DATV (using QPSK modulation)
- Can operate all ham bands from 70 MHz-to-2450 MHz
- RF output level up to 10 dBm (min) all bands (DVB-S)
- Software Defined Radio (SDR) architecture allows many variations of IQ modulations
- "Software-Defined" allows new features to be added over the next few years, without changing the hardware board
- As extra bonus, the team has been able to get the board to transmit DVB-T 2K mode, however we cannot guarantee the performance of that protocol. Caveat Emptor!
- Requires PC or ODROID running Ubuntu Linux (see User Guide)
- Price is US\$300 + shipping – order using PayPal



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