

Zululand Amateur Radio Club News

The newsletter for the discerning Ham

October 2017

ZARC Committee

Chairman: Warren Snyders ZS5WOZ

Vice Chairman: Gerald Scrooby ZS5GS

Treasurer: Willie Axford ZS5WI

Secretary: Dawn Snyders ZS5ME

Ham Net: Vacant

Editor: Jo Snyders ZS5PO

Member: Jan Erasmus ZS5G

Webmaster: Chantel Pelser

Club Repeaters

Ntumeni 145.675 MHz

Empangeni 145.700

Club Nets

There is also a club discussion net on Tuesday evenings at 18:30 on the 145.675 repeater
Club Members have a schedule on Thursdays between 17:30 and 18:45 On 7.175 Or 3.645 Depending on propagation
ALL are more than welcome to join us for a "rag chew"

SARL News

08h30 - Sundays - 145.650, 7.066 MHz

NEXT ZARC MEETING

DATE: 12th November 2017 (**Sunday**)

TIME: Braai at ± 12:00, followed by the Meeting at ± 12:30

QTH: Tattenham Resort

E-Mail: dawnjo@telkomsa.net (Secretary)

Club Web site: <http://zs5zlb.org.za/>

Editor, Q.R.L.



Greetings & Salutations fellow members, I trust that this news letter finds you all in good health. The date of the next club meeting will be on Sunday 12th November 2017 at **Tottenham Resort Gingindhlovu**. The Braai will still take place at ± **12:00**, and the meeting at around **12:30**. Please make a note in your day books and diaries. The time for the meeting will be at **12:30**, giving everybody a chance to get there after Sunday morning commitments.

Have you bought insurance to continue enjoying your hobby yet? SARL membership IS that insurance!!!
Is your hobby worth R1.26 per day to you? YES?! Then join the SARL, it's the RIGHT thing to do!!!

The radical opinions, and rantings of the Editor, are not necessarily the opinions of, or supported by, the ZARC Committee, or it's members.

Wots Potting In The ZARC

Birthday Greetings Go To:



Dec: Belinda, SW of Warren ZS5WOZ on the 17th.

Jan: Daniel, grandson of Jo & Dawn on the 10th.

Many happy returns to all of you, and may you be spared for many more happy, healthy, years.
(If your birthday wishes do not appear here, it is because you have not informed me of your birth date).

Get Well Soon



Dawn, ZS5ME still NOT in the best of health.

We wish her a speedy recovery.

Club Happenings Competitions:



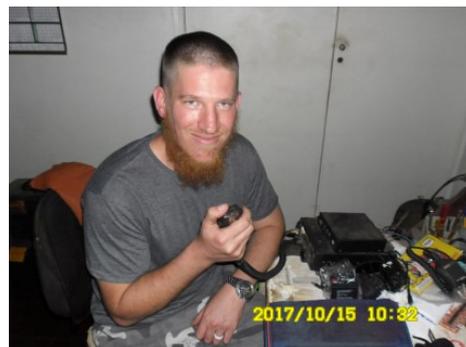
ZS5ZLB did not take part in any competitions during this month

Happenings:



We welcome a new member to the club, Jan Holtzhausen, (Left) who is studying to write the RAE early next year.

We also helped Hannes Coetzee, (Right) who was doing self studies for the RAE, with doing just the HF assessment test. He has since written the RAE, and passed. He applied for, and got the call-sign of ZS1JIL, because he is going to be settling in Hermanus.



APRS

People in the Richards Bay/Empangeni area can get into the PMB I-Gate on 144.800.

Repeaters

145.675: This repeater has a problem with the RX antenna, and the antenna needs to be replaced. As we do not have any more members who are fit & able to climb up the tower to do this job, it will have to stay like this until we can find a volunteer who can climb the tower to do the job.

145.700: This repeater is now a DEAD puppy, and needs to be recovered from this site. **STILL waiting for ESKOM to open up for us to get into this site.**

“SWAP SHOP”



If you have any items you want to get rid of, or if you are looking for something, Please let the Editor know and he will advertise it in the swap column for you.

Home Brewers Hoekie



A Cheap Power Supply ***The “St. Louis Switcher”***

by Matt Kastigar, N0XEU kastigar@swbell.net

Need an inexpensive bench supply that will also run an HF rig for under \$10? Well, read on! PC power supplies are getting cheap and used “chassis” are piling up in landfills, decreasing the prices for older units. The switching supply in a ‘larger’ PC can easily be modified to serve as a bench supply or even run a 100 Watt HF rig.

Getting the Parts

You’ll need to procure a PC power supply, minimum 250 Watts (300 or more preferred). I bought a 300-Watt unit Saturday, May 19 at a local surplus house for \$5. (This price was from this particular house and “...your mileage may vary...”) While you are there pick up a set of binding posts (25 cents each), a 15 Watt 2- or 3-ohm resistor (50 cents, get a metal cased one with mounting tabs or holes), a power switch if you supply does not have one (75 cents), four stick-on rubber feet (10 cents each), a toroid core about 1.5 inches in diameter (FT140-43, 50 cents) and a power cord (\$1). The total is \$8.65 plus tax; a well-stocked junk box can reduce this overall price.

Before making any modifications, make sure you have a working unit. Test the supply by loading the 5-volt side so that the regulator works.

Here’s how:

Verify that the supply is not plugged in. Remove the power cord and put it out of reach. Solder the 2- or 3-ohm, 15-Watt resistor across a red wire (5 volts) and a black wire (ground). Connect a Multimeter across a yellow wire (+12) and a black wire (ground). Plug in a power cord and power up the supply if it has a switch). You should measure 12 volts and the fan will run. If you’re this far, we can proceed - if it does not work, get another supply and try again.

Starting the Modifications

Unplug the power cord from both the wall outlet and the supply, and set it aside. Unsolder the 15-Watt resistor and set it aside for now. Open up the supply - it will be dirty and will need to be “blown out”. Disassemble the unit as much as possible and clean the supply chassis and the fan. An old toothbrush comes in handy here, as will a cheap paintbrush; better yet, you could use a can of compressed air. Be careful not to bend any component leads or to brush too hard - it does not take much to get the tumbleweeds out (read: use compressed air).

Wires, Wires Everywhere

Either 12 volts or 5 volts power the fan, and you should leave these fan wires intact. If the PC board is not marked with voltages where the many wires emanate from it, you can probably assume the following colour scheme: red wires are +5V, yellow wires are +12V, and black wires are ground. Other coloured wires may have -5V and -12V, but you won’t be using these. In fact, you should unsolder (or clip off) all wires but two red, three black and two yellow. You can now remove these extra wires, and snip off the PC motherboard connectors from the seven wires still coming from the supply’s PC board.

This should clear away lots of space for you to finish up the job.

Mounting the Power Resistor

Mount the power resistor to clear area on the inside of one of the chassis sides. Use screws, nuts and washers so that the heat generated in the resistor will be “sunked” to the metal side of the supply

chassis. Solder a red (+5V) and black (ground) wire to the resistor and use heat shrink tubing or tape to insulate the connections in case they come in contact with anything else (e.g., heat sink, case or other components.) The 5-volt portion of the supply has to have a load for regulation to occur and this resistor provides it.

Mount the Connectors and Controls

In this section you'll be drilling holes in the supply chassis for mounting the binding posts, power switch, fuse holder and possibly a meter. Before you drill any holes, consider the internal layout of the supply, being aware of heat sinks and vertically mounted parts that you'll need to avoid while installing the extra components. I mounted two binding posts on the 'front' of the supply, but if the back (i.e. the power cord side) has more space, or if it is your preference, go for it. Be careful to avoid internal heat sinks and board mounted components.

After mapping out the holes for the new connectors and controls, drill the holes in the panel being careful to thoroughly remove all metal chips from the PC board and chassis area. Connect the binding posts to the PC board with #14 'house wire' or other heavy wire in an enlarged hole from the 'former' yellow (+12V) and black (ground) wires. If you look at the PC board you can see a common area from which all the +12V yellow wires emanate. In a similar manner the ground (black) and +5V (red) wires all emanate from a common PC board area. When you enlarge a hole for the newer heavier gauge wires, be sure not to get too close to neighbouring copper traces. Alternatively you could use the remaining yellow and black wires coming off the pc board. I wound these wires coming from the PC board around a toroidal core (FT140-43) to help ensure that RF "hash" wasn't going to get into the radio being powered by the supply. Twelve to 15 turns will do it. There is usually an on-board miniature fuse - mine is 3.5A. I removed it and wired the ends of its holder to a panel-mounted fuse holder on the front of my supply and put a 3AG fast-blow fuse in it. I broke the black (hot) AC line and installed a 5- amp toggle switch on the front panel for convenience. Your supply might already have a power switch. If you want voltage and current meters, mount and wire these now. The voltage meter connects across the output binding posts (i.e., in parallel). The ammeter is in series with the positive post - the "+" meter terminal to the board and the "-" meter terminal to the red binding post. Check all wiring and remember that there are lethal voltages in this small box!!

Increasing the Terminal Voltage

At this point you have a 12-volt bench supply, capable of supplying at least 12 amps. BUT many mobile radios will not work or will not operate at full output power with only a 12V supply as they are spec'd for 13.8V (automobile voltage).

You'll probably be able to adjust your supply to provide this increased terminal voltage. There is usually a single regulator used for both the 5V and the 12V portions of the supply and changing its voltage divider resistors will change both supplied voltages. As we are not concerned with the 5V side, this is not an issue! Locate the regulator IC - it's usually a "house numbered" part. If your supply has a "voltage adjust" pot, you're in great shape and you can easily put the supply up to 13.8V.

Otherwise, get a copy of the manufacturer's data sheet on the IC (mine was a National Semiconductor part) to determine the correct values to use, and then follow the traces from the pins on the regulator to find the control resistors. This is a vague description, but because of the different flavours of power supplies, I cannot be more specific. I can help if you want to make this change. I replaced two components and the output went from 12.0V up to 13.5V (close enough to 13.8V). When I put a "12-volt load" on this supply, I found that it was able to maintain 13.2V up to a load of 15 amps (200 Watts). The voltage drops to 12.5V at a load of 17 amps. The heat sink gets warm to the touch - caution: some heat sinks are "hot" at B+ levels! With a load of 17.5 amps, the 3.5 amp fuse on the ac side of the supply let go. With a 350W supply, 20 amps (continuous) can be reached. The 5V supply now draws minimal power, with the lion's share being available for the 13.5V terminal output. Further increases in load current are not feasible as we are reaching the limitations of the PC board traces for current.

Batten Down the Hatches!

Now that you're done making the mods to turn your PC supply into a custom HF rig accessory, you can button up the chassis. Be careful not to pinch any wires during reassembly. Take your time and use nylon ties to keep wiring away from heat sinks and the fan blades. If you build this supply, please send me an e-mail describing how it worked out for you and what modifications you made. Some additional ideas include an over-current limiter and an output fuse or circuit breaker.



On The Dry Side



If you would like to contribute to your Club newsletter, or to contact me for any reason, please use the address / Phone numbers below.

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