BRANCH 37 NZART

BRANCH MEETING WILL BE HELD AT
249 ETTRICK STREET INVERCARGILL
ON TUESDAY 11 OCTOBER 2011.
CLUBROOMS PHONE 218 8686
www.zl4gq.com

ZL4GQ

VOLUME 33 ISSUE 09 OCTOBER 2011

EMERGENCY MANAGEMENT SOUTHLAND

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ACKNOWLEDGES THE NEED FOR EFFECTIVE OVERALL COMMUNICATION AND THE SUPPORT RECEIVED FROM MEMBERS

WE ARE PLEASED TO BE ASSOCIATED WITH THE PRODUCTION OF THE CLUB NEWSLETTER

Branch Meeting 11 October 2011

October Club Meeting programme "All you need to know about Freeview TV so you can make the choice between UHF High Definition or Satellite TV. What equipment is required, what channels are available on each system. Can you install it your-self, who do you go to for help. There is a lot of misinformation out there at present and the facts from a Technician will inform us all."

LAST MONTHS MEETING

was a talk and presentation by Daniel ZL4DE about an irlp repeater unit.

BRANCH 37 NET

Every Sunday night at 20:00hrs on 145.775/146.800Khz is the branch 37 weekly net. All hams are welcome to come on to the net, even if its just to say hi.

NZART BROADCAST

Last Sunday of the month 20:00 repeated 21:00 3900Khz

AREC:

Training Night on first Tuesday of the month at the club rooms.

BRANCH MEETINGS:

Remember our meeting night on the second Tuesday of the month, at 7.30 pm.

HAM RADIO CLASSES

The classes have finished for the year with good results. Please contact Neville ZL4OX to enter names for next years Classes."

COMMITTEE MEETING:

Committee Members remember that your meeting will be held at 7.00 pm, on the second Tuesday of the month, before the Branch Meeting.

Please have all copy for the Newsletter to Tom ZL4HD by 5pm Monday, 24 October 2011.
126 Barrow street Bluff
Phone: 2128390 or 0226221863
Email: tomrh@xtra.co.nz

ANNUAL GENERAL MEETING

The Annual General Meeting for Branch 37 AGM will take place as part of the 8th November 2011 meeting.

Please come along and take part in the future of your Branch.

BRANCH SUBS

Single	$40.00
Family	$45.00
Junior	$15.00
Associate	$20.00

Subs remain the same for this year.

Fund raiser

One way to raise funds for the club is to hire out the clubrooms. If you know of any club/group that might be interested, tell a Committee member.

SUB PAYMENTS

For those people that will pay their subs online please make sure that they put the call sign as ID. If there is no ID it is impossible to know who has paid the sub.

BRANCH COMMITTEE

President	Bill Obers **ZL3TPE**
Phone	**215 9765**
Secretary	Mike Bailey **ZL4OM**
Phone	0273 446 851
Treasurer	Amy Hamilton c/- **ZL4OM**
Phone	
AREC	Neville Checketts **ZL4OX**
Phone	**2166599**

Committee

Owen Baird	**ZL4OB**	Phone	**2166055**
Tom Hardwick	**ZL4HD**	Phone	**2128390**
Neville Checketts	**ZL4OX**	Phone	**2166599**
Paul Aronsen	**ZL4PA**	Phone	**2358436**

Branch 37 Sunday net roster

September 04	Owen Baird	ZL4OB
September 11	Neville Checketts	ZL4OX
September 18	Tom Hardwick	ZL4HD
September 25	Owen Baird	ZL4OB
October 02	Neville Checketts	ZL4OX
October 09	Tom Hardwick	ZL4HD
October 16	Owen Baird	ZL4OB
October 23	Neville Checketts	ZL4OX
October 30	Tom Hardwick	ZL4HD
November 06	Owen Baird	ZL4OB
November 13	Neville Checketts	ZL4OX
November 20	Tom Hardwick	ZL4HD
November 27	Owen Baird	ZL4OB
December 04	Neville Checketts	ZL4OX
December 11	Tom Hardwick	ZL4HD

If anyone feels as if they would like to have a go at being a net controller please let Tom ZL4HD or know. It would only be about once very 4 or 5 weeks.

CALLSIGNS ON THIS MONTHS NETS

Is your call sign here? Hope to see you on the net. Every Sunday night at 20:00 hours

ZL4HD ZL4OX ZL4OB ZL4DE
ZL4PA ZL4FM ZL4OM ZL4KJ

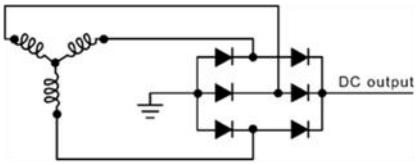
Alternator Whine

I want to revisit this problem, because there seems to be a lot of poor advice floating around on these pages. Let's start out with a few basic facts, but keep in mind this is NOT an alternator primer. If you need or want more data, the internet is your best friend.

The average alternator's output is between 13.9 and 14.2 VDC. It might be less if there is a problem with the alternator. In some cases it may be a little higher, but voltages over 14.6 VDC should be considered abnormal.

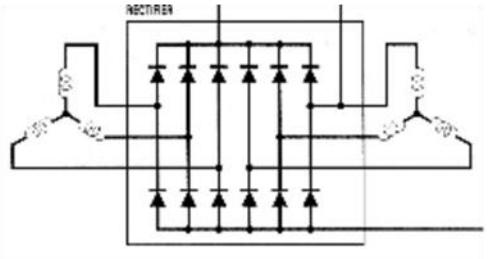
Continuous output and peak current ratings vary quite a bit. The requisite amperage ratings selected by OEMs are largely based on content. That is to say, how many features like rear window defrosters, premium sound systems, electric windows, and heated seats any given vehicle is equipped with. Heavy duty and high-end vehicles usually have larger ones as do those with extra-cost trailer towing packages.

Nowadays, the smallest OEM ones are rated about 90 amps peak, and the larger OEM ones about 150 amps peak. There are a few exceptions, but the highest rated OEM units are about 225 amps peak. The reason I use the term peak is this; very few OEM alternators will deliver their rated output continuously, and contrary to popular belief, there isn't any standard rule for peak versus average.



Almost all alternator stators (the non-rotating part) are wired in a wye configuration (as shown), and the rest are wired in a delta configuration (primarily Ford products). Rotating within the stator is the field. The field current and/or voltage is varied by the regulator so the output voltage is constant, regardless of the load, up to their peak amperage rating. There are several different regulation strategies employed. Some simply use a pass transistor, others use pulse width modulation, and some almost defy definition.

Depending on the engine type (diesel or gas), alternators are driven from two to five times engine speed, up to a maximum of about 16,000 rpm. As a general rule, the output frequency of an OEM alternator is equal to the engine rpm. That is to say, 1,000 rpm equals 1KHz. Their efficiency is about 90%. Thus, an alternator rated at 130 amps, with an output of 14 vdc, will have an input of around 2 KW, and will require about 3 HP to drive.



In a never-ending quest to reduce weight, and improve efficiency, most new-generation OEM alternators are double wound, and use twelve diodes instead of six. This not only reduces size and weight, the lower mass of the rotating field allows the alternator to be driven faster, which improves low rpm power output. It also doubles the ripple frequency.

As long as the diodes are doing their job, the output ripple is nearly nonexistent, as the battery is acting like a very large capacitor. When they don't do their job, the result is what we commonly call alternator whine. To be sure, there are other causes which will be discussed later.

While alternator whine can be a bane for us amateurs, as long as the alternator delivers its rated output, dealers don't care, and typically will not replace noisy ones under warranty. So this leads those who are plagued to seek other avenues of relief. For example, using RG8 as a power cord, or twisting the factory power cords of their transceivers. Doing so is junk science. Let's visit this in more depth.

First, any technique we use to shunt alternator whine to ground must present a low impedance at the frequency we're trying to suppress (less than 8 kilohertz typically). Further, it must be of lower impedance than the circuit it is attached to. In the case of vehicle DC wiring, that's seldom higher than a few tenths of an ohm.

An average power cord is ten foot long. A ten foot piece of RG8 has 250 pF of capacitance. At 8 kHz, 250 pF has a reactance of about 1,500 ohms. In terms of suppression, this amount is insignificant.

Twisted or not, a 10 foot power cord made from two number 10 conductors will have about 2 pF of capacitance per foot. Ten feet of it is an insignificant reactance even at 80 kHz! What's more, those who support twisting the power cord as a fix for alternator whine, and a host of other maladies, ignore some basic facts. Twisting works to reduce noise pickup only if both inputs and outputs are balanced, and neither end is grounded. That's not the case here.

Brute force filters offer some help, but there is a big downside too, and that's voltage drop. Radio Shack used to sell one that was rated at 20 amps. Inside its tubular construction is 20 feet of what appears to be number 16 Thermalese wire wound around a laminated steel core about 3/8 of an inch square, and and 2 inches long. A 1 uF coaxial capacitor completes the package. The input and output are size 10. The voltage drop at 20 amps is almost 2 volts. At 8 kHz, the suppression is less than 2 dB.

In some cases, a 1 Farad cap, like those used in mobile sound systems will suppress alternator whine if they're placed near the radio end of the power cord. However, they have a lot of drawbacks, not the least of which is their propensity to explode if dead shorted.

As alluded to above, there are another situations which can cause what ripple there is to invade the circuitry of your transceiver. One of those is a ground loop. Ground loops occur when there is a differential in current flow between the positive and negative power leads feeding the radio. This is typically caused by incorrect wiring techniques. Poor bonding of body on frame vehicles, and poor coax connections can also cause the problem.

Another problem altogether, which is often incorrectly identified as alternator whine, is the switching transients from the alternator's regulator. While diode induced whine directly varies with engine speed, regulator whine normally does not. It will appear louder at low rpms, and when there is a high amperage load. Since it is radiated RF energy, removing the antenna will cause it to go away. The only fix is to replace the regulator.

Distractors will surely point out that they fixed their alternator whine with one of the aforementioned anecdotal remedies. If that is indeed the case, then the original wiring was amiss.

Alan, KØBG
www.kobg.com

Branch 37 in cyberspace

The club website Is back up and running again. You can find it at **www.zl4gq.com**

If any member would like to add to the website, they can do so by email Ken@webfactor.co.nz

SENDER:
BRANCH 37 NZART
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