

# HAMS

# Keywite

# August 2009

# NEWS

[www.marc.org.za](http://www.marc.org.za)

PO Box 1076, Hilton, 3245

## M I D L A N D S   A M A T E U R   R A D I O   C L U B



AFFILIATED TO  
THE SARL & IN  
ASSOCIATION  
WITH THE NATAL  
CARBINEERS

### The Chairman's Ruminations

#### **CLUB COMMITTEE: 2009-2010**

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The last Club meeting was a most interesting and enjoyable one with a number of topics covered, including mods to change the frequency coverage of a cheap Eveready Radio by Mickey ZS5QB, aircraft tracking as is done on APRS by Shaun ZR5S and a new PC linked antenna analyser by ZS5ML. Our Thanks to all three of you for very interesting demonstrations.

This month we are to meet at the Groenekloof repeater site in Hilton. This should prove to again be a very interesting visit. The site has been used by the club for many years and the building was built by one of our current members, Hartwig, ZS5WA. So I would encourage members to join us on the 19 September at 11 am. The November meeting will take place over the weekend 21/22 which is also the SARL field day contest. We are hoping to link up with the Highway and Durban Clubs for this event and make it a family weekend of it. The last field day was held at Midmar and was a great success for those that attended. We are yet to finalise the venue, so keep this weekend open for a camping weekend with the family.

The next RAE exams are to be held on the 22 October and application's must be into the SARL by the 24 September. We will be running a ZU course during September and will be advising those that have expressed an interest in the next week of the dates for the course. We have had about 7 people so far that have expressed an interest in writing the exams.

Mickey has given us notice that he wishes to give up running the Sunday morning Net, something that he has been doing for more years than he cares to remember. I would like to thank him for his dedication and the very professional manner that he has run the net you efforts are highly appreciated. We will surely miss his cheerful voice as net controller.

I am therefore looking for a volunteer to take over this duty. We are also considering changing the format somewhat and limiting the "formal part" of the net. Starting the net at 7.45 with a general call in followed by the club news bulletin combined with items of interest for club members from the SARL bulletin, and any pieces of news from members. This would be run by the bulletin news reader each week. Thereafter those that wished to carry on with the net would do so informally. There would be no formal reading of the SARL news bulletin at 8.30. The formal part of the net would take about 20 to 30 minutes. The main problem we see is how to link the HF and VHF networks, as not all have patch boxes or the necessary VHF and HF equipment. However with ECHO Link and a fully operational VHF/UHF network which will cover all member locations, this may not be such an issue as there are very few HF station on each Sunday. We would welcome, you the member views and alternatives.

I must express thanks to ZR5S and ZS5ML for their dedication to the maintenance of our repeaters particularly Gilboa which has experienced power problem in recent weeks.

I would also like to welcome the following new members to the club namely Gavin Classens and Pierre Hodgins and hope their association will be a long and fruitful one.

Finally I will be sending out invoices to those members who have not as yet paid their subs.

Enjoy the air waves. Mike ZS5BGV Chairman

## Diary of Events

31 August	Last day for discounted SARL membership renewals
5/9 September	IARU Region 1 SSB Field Day
12 September	BACAR Launch
13 September	Spring QRP Launch
15 September	Launch of SumbandilaSat
18-20 September	SARL VHF/UHF Contest
19 September	MARC monthly meeting at Groenekloof, Hilton

<b>The M.A.R.C. Infrastructure</b>			
<b>Voice Repeaters (FM)</b>		<i>Visit <a href="http://www.marc.org.za/pages/freq.htm">www.marc.org.za/pages/freq.htm</a> for updates of this list</i>	
VHF	Tx	Rx	Equipment
Howick - off air	145.6625MHz	145.0625 MHz	SCR200 20W, Diamond X-200 on rx and tx
Estcourt - off air	145.700 MHz	145.100 MHz	Emcom SA256 25W, Diamond X-200 on tx
Franklin - off air	145.725 MHz	145.125 MHz	GE MVP 10W - off air
Worlds View	145.750 MHz CTSS 88.5	145.150 MHz	Emcom SA256 25W, Diamond X-200 on rx and tx
Greytown	145.775 MHz	145.175 MHz	Home Brew @ 20w, Diamond X-200 on rx and tx
Underberg	145.7875MHz CTSS 88.5	145.1875MHz	Q8000 30W
Windy Hill	Will be taken over by Hamnet - off air		
<b>UHF</b>			
Mt Gilboa	439.225 MHz	431.625 MHz	General Electric III, Diamond X-200 on rx and tx
Zwartberg	438.775 MHz CTSS 110.9	430.175 MHz	GE MVP 15W - off air
<b>APRS</b>			
The national APRS frequency is 144.800 MHz (Tx & Rx). The I-Gate is at ZR5S (Blackridge). Fixed stations should beacon at approximately 30min intervals with a path of WIDE5-5. Mobile stations should beacon at approximately 1min intervals with a path of WIDE5-5. We have aprs digi's throughout KZN. A PBBS (mailbox) is on ZS0PMB-1 for emergency use. A KA-NODE is on ZS0PMB-7			
<b>Packet Radio</b>			
Hilton	144.625 MHz (Tx & Rx)	AEA PK-88, Slim-Jim	
The PBBS (mailbox) is on ZS0HIL-1. The digi is on ZS0HIL-2. Use Winpack to connect to the PBBS and leave a message for someone.			
<b>ECHO-LINK "voip"</b>			
Our node number is 244279 Call Sign ZS5PMB. This Echo-link facility is available on the Midlands linked Repeater network.			
<b>E-QSO "voip"</b>			
We are in the "101ENGLISH" virtual room, on the "repeater.dns2go.com" server. This is linked to RF at Blackridge on 433.400 MHz simplex.			
<b>BEACONS</b>			
Hilton	50.321 MHz (Tx)	ZS5SIX FSK	
<b>WEB SITES</b>			
MARC'S very own website	<a href="http://www.marc.org.za">www.marc.org.za</a>		
SARL's website	<a href="http://www.sarl.org.za">www.sarl.org.za</a>		
HAMNET website	<a href="http://www.hamnetkzn.org.za">www.hamnetkzn.org.za</a>		

## Regular Events

### The KwaZulu Natal Net:

Starts at 06h00 on 7.055 MHz. in winter and 3.650Mhz in summer and continues until 07h40. Colin ZS5CF hosts the net from 06h00 & Gary Potgieter (ZS5NK)-takes over later on.

### MARC Sunday Morning Net:

Times: 07h45. Club bulletin is presented at 08h00 and the national bulletin at 08h30.

Frequencies: HF: 3.620MHz  
VHF: 145.750, 145.675, 145.775MHz  
UHF: 439.225MHz

**Hamnet Bulletins:** Sundays at 07h00 on 145.625MHz and 3.670MHz  
Wednesdays at 19h30 on 145.625MHz and 3.670MHz

# A Beginners Guide to Repeaters, Questions and Answers...

A condensed version of an article by Kevin K. Custer W3KKC (AKA The Repeater Builder)

Many basic questions have been asked about our repeaters, and the following article should explain most questions. To many of you this might be too basic and possibly even boring...

## What is a Repeater?

A repeater, in concept, is not really a complicated device. A repeater is an automatically controlled transmitter and receiver that simply transmits what the receiver hears simultaneously. Imagine having a receiver on one channel, and a high power transmitter on the other, and then holding the microphone of the transmitter in front of the speaker of the receiver. Now make the operation fully automatic. Any user that can be heard by the receiver has the effectiveness of the high power transmitter at his control.

In general, repeater systems are usually located in places of high elevation (on tall towers, on top of mountains or tall buildings) and are equipped with large and efficient antennas, extremely low loss feedlines, and a transmitter and receiver that is very durable, rated for continuous duty, and built to be as immune as possible to interference.

The end result? People using a repeater get much greater range from their radio equipment than would be possible talking from radio to radio. This is how an individual with a portable walkie-talkie (handheld) transceiver can communicate with people many miles away with good clarity.

## What is Simplex?

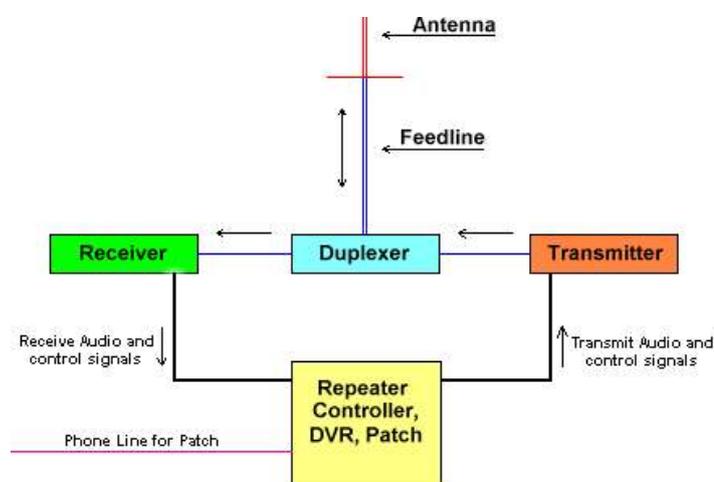
Simplex is point to point communications without the use of a repeater. Simplex operation utilizes the same frequency for receive and transmit, like a CB radio. I.E. Portable to Portable or Mobile to Mobile. The commercial 2-way world calls Simplex operation "Talk Around" because you are talking around the repeater, not through it.

There are such things as Simplex Repeaters. These machines listen on the frequency for activity, when it recognizes something it will begin to record that activity for a pre-determined time; usually 1 minute. A slang term for these is a "parrot repeater". After the activity ceases or the time has expired, the unit will repeat what it has recorded. This method of communications is somewhat cumbersome over a conventional repeater; because you are forced to listen to what you said earlier in time and the channel usage is problematic as you never know when someone else is recording; however it should not be discounted as these types of systems can be very beneficial.

## What is Duplex?

The simple explanation of full duplex operation is like the telephone, where both people can talk at the same time. In contrast, a pair of handholds operate in half-duplex mode because only one person can talk at a time. Since the 'repeater' listens and talks at the same time in relaying your message, it operates in full duplex mode. Here is another explanation.

## How does a Repeater work?



At first glance, a repeater might appear complicated, but if we take it apart, piece by piece, it's really not really so difficult to understand. A basic repeater consists of several individual pieces that, when connected, form a functional system. Here's a simple block diagram of a repeater:

The collection of the antenna, the feedline, the duplexer, and the interconnecting cables is frequently called the "antenna system".

## Antenna

Most commercial repeaters use only one antenna. The antenna simultaneously serves both the transmit and receive RF (Radio Frequency) signals that are going in to and out of the repeater. It's generally a high performance, durable, and very efficient antenna located as high on a tower or structure as we can get it.

Our repeaters, most of which qualify to belong to the vintage class, utilise two separate antennas. These have to be separated to prevent desensing from the transmit to the receive antennas. They don't have enough internal filtering systems to allow for duplexers to be used with a single antenna. Often cavity filters have to be used - more on this below.

## **Feedline**

The feedline on most repeaters isn't just a piece of standard coax cable, it's what's called Hardline. This stuff is more like a pipe with a center conductor than a cable. It's hard to work with and very expensive. So why do we use it? Performance! The signal loss is much lower in hardline than in standard cable, so more power gets from the antenna to the receiver and weaker signals can be received. A hard rule is that once any percentage of a received signal is lost that you can't get it back - ever. Remember, the signal at a repeater site doesn't just travel a few feet to an antenna like in a mobile rig. It may go hundreds of feet up the tower to the antenna. Just for fun check out the specs on a roll of coax some time and see how many dB of loss you'll get from 200 feet of cable, and remember 3db is 1/2 of your power, and 10db is 90% of your power. Hardline also tends to be more durable than standard cable, which increases reliability and helps us minimize the financial expense, and the tower climbs to replace it.

Due to the cost factor, we mostly use LMR400 cable, which typically has a 0.2dB loss per meter. On some of our towers, the top antenna is 30m high, resulting in a feed line of nearly 50m. This amounts to a loss of 10dB! Our Hilton site has feedline to the top receive antenna of approximately 70m in length - 14dB!

## **Duplexer**

This device serves a critical role in a repeater. To make a long story short, the duplexer separates and isolates the incoming signal from the outgoing and vice versa. Even though the repeaters input and output frequencies are different, the duplexer is still needed. Why? Have you ever been in a place where there's lots of RF activity, and noticed the receive performance of your handheld radio degrades to some degree? This is called desensitization, or desense, and it's a bad thing on a repeater. The receiver gets noisy or gets desensitized to the point of total deafness from the strong RF signals being radiated in its vicinity and confused about which signal it should receive. The result is poor receive quality, or in extreme cases, complete lack of receive capability. Keep in mind that in this example, the radios are picking up radiated power from one another and that's enough to cause trouble. Now imagine how much trouble there will be if you not only have the transmitter and receiver close together, but connect them to the same antenna! Transmitting only a few hundred kHz away in frequency would blow away the input to the receiver if the equipment was simply connected together with a Tee. That's where the duplexer comes in; it prevents the receiver and transmitter from 'hearing' one another by the isolation it provides. And the more isolation the better.

A duplexer is a device that is referred to by several different names like cavities or cans. A duplexer has the shape of tall canisters and is designed to pass a very, very narrow range of frequencies and to reject all others. There is some loss to the system because of the duplexer (called the "insertion loss"), however, the advantage of being able to use a single antenna and a single feedline usually outweighs the drawbacks.

We use these individual cavity filters on our repeaters, on or more on each antenna. Normally we have band pass filters on the tx, to make sure that the transmitter only transmits on a narrow band - the more band pass filters you put in line, the higher the attenuation of the frequencies below or above the transmit frequency. The receive antenna can also have bandpass filters, but often notch filters are used here. Again, more than one can be employed, to eg reject frequencies from the transmit frequency, and possibly other strong signals from the high site.

## **Receiver**

Receives the incoming signal. This receiver is generally a very sensitive and selective high performance one which helps weaker stations to be heard better by the repeater. It's also where CTCSS (Continuous Tone Coded Squelch System) or "PL" decoding takes place. More on this later.

## **Transmitter**

Most machines have a transmitter composed of two parts: an 'exciter' and a power amplifier. The exciter creates low level RF energy on the proper frequency and then modulates it with the audio. The power amplifier stages simply boosts the level so the signal will travel further. Transmitters come in two types: intermittent duty and continuous duty. One that is rated for continuous duty is preferred.

## **The "Station"**

The term "Station" is used to describe a stationary two way radio set; which includes the transmitter, receiver and sometimes the control circuitry. One example is the dispatch radio for a fire department. A 'Repeater Station' is a station designed to be used as a duplex repeater.

## **Controller**

This is the brain of the repeater. It handles station identification (through either CW or voice), activates the transmitter at the appropriate times, controls the autopatch, and sometimes does many other things. Some machines also have a DVR (Digital Voice Recorder) for announcements and messages. The controller is a little computer that's programmed and optimized to control a repeater. The various models of controllers have different useful features like speed-dial for phone patches, a voice clock, facilities to control a remote base or linking, etc. The controller gives the repeater its 'personality'. Whenever you're using a repeater, you're interacting with its controller. In the early days of

repeaters the controller was a large chassis full of relays and timers. These days a controller is most often a microcomputer based unit.

### **What is a Phone Patch or Autopatch? AKA "The Patch"**

Many repeaters have a feature that allows you to place a telephone call from your radio. Phone calls are generally restricted to the local calling area of the repeater to avoid long distance charges to the repeater's sponsors. If in doubt, ask if the repeater has an open patch and how to access it. When using the patch it is common courtesy to announce your intentions, e.g. "This is N3XZY on the patch". This may help to prevent anyone from keying up while you are trying to use the function. In most areas when you are finished with the patch the accepted protocol is to announce it, e.g. "This is N3XZY clear the patch".

### **DVR**

A DVR is a Digital Voice Recorder, or in modern terms a "voice mail" system for the repeater. Usually it's an option that is installed into the controller.

### **Repeater Operation**

Operating using a repeater isn't difficult. Following are some repeater explanations:

#### **What is Offset?**

In order to listen and transmit at the same time, repeaters use two different frequencies. On the 2 meter ham band these frequencies are 600 kHz apart. Here in SA, the transmit frequency is 600kHz lower than the receive (listening) frequency. This is referred to as a negative offset.

Virtually all ham radios sold today set the offset once you have chosen the operating frequency. As an example one repeater output is 145.750 Mhz. The input, or the frequency it listens on is 145.150 Mhz ( 600 kHz below). If you have your radio tuned to 145.750 Mhz with the offset enabled, when you push the PTT switch (Push-To-Talk) your radio automatically transmits on 145.150 Mhz. When you release the PTT to listen, the radio reverts back to 145.750 Mhz to listen on the repeater's output frequency.

#### **Standard Repeater Input/Output Offsets**

2 meters (145-146 MHz)	Down 600 KHz
70 cm (440 MHz, also called "UHF")	Down 7.600 MHz

#### **Why do Repeaters use an Offset?**

To use a repeater a user station must use a different transmit frequency than receive frequency. This is a form of duplex, or two frequency operation. It is known as half-duplex as you do not receive and transmit at the same time but normally use the push-to-talk button on your microphone to switch between the two.

Without having an offset the repeater would simply hear itself when it was transmitting on the same frequency it was listening on. Even with the offset, the two frequencies are close enough that antenna system isolation is required. Again, this isolation is afforded by the duplexer or the cavity filters

#### **What is Carrier Access, Tone Squelch, CTCSS or a PL Tone?**

Carrier Access, or Carrier Squelch means that the repeater is looking for a carrier on the receiver frequency to open the squelch. A circuit called a Carrier Operated Switch senses the squelch opening, and tells the repeater that there is a carrier on the input. The controller keys the transmitter, thereby repeating the signal.

Continuous Tone Coded Squelch System, or CTCSS, is an a radio communications industry standard signaling scheme. It provides an electronic means of allowing a repeater to respond only to stations that encode or send a very precise audio tone at a very low level superimposed on the transmitter along with the microphone audio. The CTCSS system is used to prevent the repeater receiver from responding to unwanted signals or interference (it's looking for both the carrier and the tone before the signal is considered as valid). If a repeater is "in tone mode" that means it requires a CTCSS tone to activate the repeater. If it is in "Carrier mode" then it is ignoring the CTCSS decoder, if there is one. Modern repeater controllers offer a way to switch back and forth, even automatically, between the two modes. Originally there were 32 standard tones, now there are 37. Some manufacturers offer more, but most repeaters use one of the original 32 so as to allow the older radios to use the system. Aftermarket tone generators from several different manufacturers allow any station to be set up to transmit a CTCSS tone.

PL, an acronym for Private Line, is Motorola's proprietary name for CTCSS. General Electric uses the name "Channel Guard" or CG for the same system. Other names, such as Call Guard, Quiet Channel or Quiet Tone are used by other manufacturers.

In days of old, repeaters that used PL were considered to be closed or private. This is no longer the case as tone

operation has become more the rule instead of the exception. Uninformed people use CTCSS to "solve" interference problems. It doesn't. It just covers them up, or hides them. The unwanted signal is still on the repeater input, the tone decoder simply prevents the repeater from making it obvious. We also use CTCSS for interference problems.

A later system using digital bit streams followed CTCSS. Motorola uses the name Digital Private Line, or DPL for this. Other manufacturers use different names. DPL does not have the wide use the way PL does, since only a few radios have the DPL encode function.

### **How do you call someone on an Amateur Repeater?**

First, listen to make sure that the repeater is not already in use. Then listen some more. If you are a new ham that has never used a repater before it might pay to listen for a week or so and see what goes on, who seems to be the "regular users", and if you know any of them, perhaps from the local ham club meeting.

When you are satisfied that the repeater is not in use, begin with the callsign of the station you are trying to contact followed by your callsign. e.g. " W3ABC this is N3XYZ". If you don't establish contact with the station you are looking for, wait a minute or two and repeat your call.

If you are just announcing your presence on the repeater it is helpful to others that may be listening if you identify the repeater you are using. e.g. " This is N3XYZ listening on 750". This allows people that are listening on radios that scan several repeaters to identify which repeater you are using (and therefore which microphone to pick up to answer you). It is also popular to announce yourself mobile when travelling "ZS5XYS is mobile".

If the repeater you are using is a busy repeater you may consider moving to a simplex frequency (transmit and receive on the same frequency), once you have made contact with the station you were calling. Repeaters are designed to facilitate communications between stations that normally wouldn't be able to communicate because of terrain or power limitations. If you can maintain your conversation without using the repeater, going "simplex" will leave the repeater free for other stations to use. Where repeaters are not busy, it is preferred to stay on the repeater, as there might be listeners who enjoy these conversations.

### **Repeater Etiquette**

The first and most important rule is LISTEN FIRST. Few things are more annoying than someone that "keys up" in the middle of another conversation without first checking to make sure the repeater is free. Saying that your volume control was down too low and you didn't hear any conversation is no excuse - it just says that you didn't check your own station before you used it. If the repeater is in use, wait for a pause in the conversation and simply announce your callsign and wait for one of the other stations to acknowledge your call.

When you are using the repeater leave a couple of seconds between exchanges to allow other stations to join in or make a quick call. This is particularly important when you have Echolink stations on air, as they often have a lag time of several seconds. If you respond to them without leaving a pause, they will not hear the first few seconds of your conversation. It also makes it impossible for another Echolink to break in. Some repeaters have a "Courtesy Tone" that will help in determining how long to pause. The courtesy tone serves two purposes. Some repeaters have a time out function that will shut down the transmitter if the repeater is held on for a preset length of time (normally three or four minutes). This ensures that if someone's transmitter is stuck on for any reason, it won't hold the repeater's transmitter on indefinitely. Also, where repeaters are linked, a faulty repeater will not lock up the whole system.

When a ham is talking and releases the push-to-talk switch on their radio, the controller in the repeater detects the loss of carrier and resets the time-out timer after the tail drops out. Many of the modern computerized controllers allow the owner to program a "beep" to indicate that the timer is reset. This beep is called the courtesy beep, or the courtesy tone. If you wait until you hear this beep (normally a couple of seconds) before you respond, you can be sure that you are pausing a suitable length of time. After you hear the beep, the repeater's transmitter will stay on for a few more seconds before turning off. This is referred to as the "carrier delay", or the "hang in timer". The length of the delay will vary from repeater to repeater but the average is about 2 or 3 seconds. You don't have to wait for the transmitter to drop off the air before keying up again, but you should make sure that you hear the courtesy tone before going ahead.

### **What is "Doubling" ?**

When two stations try to talk at the same time the signals mix in the repeater's receiver and results in a buzzing sound or squeal. When you are involved in a roundtable discussion with several other stations it is always best to pass off to a specific person rather than leave it up the air. e.g. "W3ABC to take it, this is N3XYZ" or "Do you have any comments Fred?, this is N3XYZ". Failing to do so is an invitation to chaos and confusion.

It is for this very reason that when groups hold scheduled Nets (network of hams meeting on air at a predetermined time), they assign a Net Control station. The Net Controls job is to make sure there is an orderly exchange and that all stations get a chance to speak. Listen to a local net and you will get an idea of the format and how the Net Control

juggles the various stations and traffic. It's a job almost anyone can handle, but as you will discover, some are much better at it than others. And if you try your hand at being Net Control for a night, you will discover just how hard it can be! (and you will gain a lot of respect for those that have the knack to do it and make it sound easy). A well run net is both informative and entertaining!

### **What is a Control Operator?**

The Part 97 of the FCC Rules requires all stations in the Amateur Service that are capable of operating unattended must be monitored for proper operation while in the unattended mode. This monitoring function is accomplished by a control operator. The Control Op can be the licensee of the station or anyone he or she chooses. In many cases, he or she also ends up being the person that answers questions about the repeater.

### **What is White Noise?**

White noise is a term used to describe a spectrum of broad band noise generated in a receiver's detector and sampled to control the receiver's squelch. When you open the squelch control and hear the rushing noise from the speaker, this is white noise. When the receiver is in carrier squelch mode the squelch circuit uses the presence of that noise to decide that the signal has gone away and it should mute the receiver speaker. When the receiver is in tone squelch mode it uses the absence of the tone AND the presence of the noise to indicate loss of signal. The "squelch tail" is that burst of white noise that you hear that starts when someone unkeys and ends when the squelch circuit actually mutes the receiver audio (some people mistakenly use the term to refer to the carrier delay mentioned above).

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Updated by Mike Morris WA6ILQ, Last revised 11-Feb-2008

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## **Editor's Waffle**

Another month has passed, and my intentions to send this newsletter out well before month end have failed. I am also waiting for some interesting articles from some of our members, so there is something exiting to look forward to in future issues. The basic repeater article was prompted after speaking to someone about repeater voter systems. This will be discussed in next month's issue.

Looking back, it has been a busy month once again. On the 15<sup>th</sup> of August, we assisted with the Capital Climb. A big thank you to Roger, ZS5EV, for coordinating the comms on the day. It is always a pleasure to help on this race. It always fascinates me how runners come up with fancy running gear to make a point. It really is a nice family event.

Our Gilboa repeater has been keeping us busy in the last month. It has given us top notch service since November last year. On 06 Sept the Gilboa repeater went off air, and telemetry data showed that power was lost on 12 August, at 23h00, the battery supplying power until 20h00 on 15/08/09. ZR5S and ZS5ML went up to the site, and found that the circuit breaker was down. No fault was found and the system was restored, and the battery was boost charged for an hour.

We tested the antennas, and found that the top Diamond X200 antenna was resonant at 142MHz, and had an swr of about 4 at 145.5MHz. So, something is wrong with the antenna. To protect the repeater, we changed to transmit antenna to the lower one, the swr of which was fine. The plan is to change/repair the antenna on our next visit.

At 19h00, I noticed that the power at Gilboa had failed again, shortly before 18h00. This means that another trip is needed to Gilboa. The most likely scenario is that the battery charger is faulty. Let's hope that it is not a faulty cable, which trips when there is enough moisture from weather conditions. A battery charger is much easier to replace than the cable.

Just an example to members who are not in favour of paying the increased yearly membership fees of R140: To sort the repeater today, we had to drive 332km, at the cost of over R1000, at our own expense, labour cost is of course not taken into consideration. Even the transportation cost cannot be borne by the club, and is thus expected to be sacrificed by the committee member you have elected to look after our repeater sites. I just mention this as there are some who complain that the membership fees are too high..

On 17/08/09, the Gilboa repeater lost power again, just 4 hours after it was restored. We suspect that the surge protector might be faulty. Shaun, ZR5S, Mike, ZS5BGV, Peter, ZS5PJ and myself, ZS5ML, braved the wet conditions and thick mist on 24/08/09, and proceeded into the permanent cloud layer, enshrouding Mt Gilboa. We replaced the top X200 antenna (water-filled from a bad centre joint), circuit breaker, surge protector and stays with stainless steel stays, while boost charging the battery.

Three days later it tripped again, and we went up to Gilboa on 30 Aug, accompanied by Joost, ZS5S. At the top, we found that another circuit breaker had tripped, and not our own, and thus allaying fears that our supply cable was faulty. Reminder to self - bring Joost along next time as well - he seems to be our good luck charm :-)

for a fresh one, as we had no way of resetting the circuit breaker in the locked Vodacom DB box. I'm busy recharging the old Gilboa battery it still seems to be in good nick - the battery protector is obviously doing its work.

The other events were covered by our chairman.

Please join us at our next meeting at Groenekloof, on 19 September, at 11h00. The topic is unclear as yet, but it could include antenna design. The directions are as follows:

Make your way to Hilton. If you are coming from Pmb on the R103, the old Howick Rd, then turn left into Dennis Shepstone Rd(M80) at the traffic light at Crossways. If you are coming from the N3/quarry side, proceed straight through the traffic lights.

Proceed for exactly 1.5km from there and you will find a big double gate on your left. It will not be locked - a chain and open lock will keep it in the closed position.

After passing through the gate, close it again, and turn immediately left onto the grass and follow the alley of cedar trees for about 100m. You will find our high site 50m further on. Hope to see you there.

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**If you have any useful articles for this newsletter, please email them to [zs5ml@marc.org.za](mailto:zs5ml@marc.org.za) for publication. Any articles of interest to Amateur Radio, both technical and non technical, will be well received**

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**Membership Fee Summary for 2009/2010 (due by 30 September)**

Full and Country Membership: R190-00 (R140-00)  
Joint Membership: R300-00 (R250-00)  
Student: R 95-00 (R40-00)

All who opt to receive their HHN by email qualify for a discount of R50-00. These discounted fees are shown in brackets.

The committee is also aware that some might not be in the position to pay these increases, and that they should be catered for. If you are in this position, or know of someone who would need assistance, please approach a committee member. Payment schedules will also be catered for, and confidentiality will be maintained. Please note that our financial year is from 1 July to 30 June in the following year, and that the new membership fees became due on 1 July.

*MARC's banking details are:*

Account Name: Midlands Amateur Radio Club Account Number: 62057756507  
Bank First National Bank Account Type: Current Account  
Branch: Bank Street  
Branch code: 220825 Use your Call Sign or Invoice Number as reference

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**Ham Bulletin Readers**

06 September - ZS5PJ

13 September - ZS5ML

20 September - ZS5BGV

27 September - ZS5CID

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**Tailpiece:**

A man and his wife were having some problems at home and were giving each other the silent treatment. Suddenly, the man realized that the next day he would need his wife to wake him at 5:00 AM for an early morning business flight.

Not wanting to be the first to break the silence (and LOSE), he wrote on a piece of paper "Please wake me at 5:00 AM." He left it where he knew she would find it. The next morning, the man woke up, only to discover it was 9:00 AM and he had missed his flight. Furious, he was about to go and see why his wife hadn't wakened him, when he noticed a piece of paper by the bed. The paper said, "It is 5:00 AM. Wake up."

Men are not equipped for these kinds of contests.