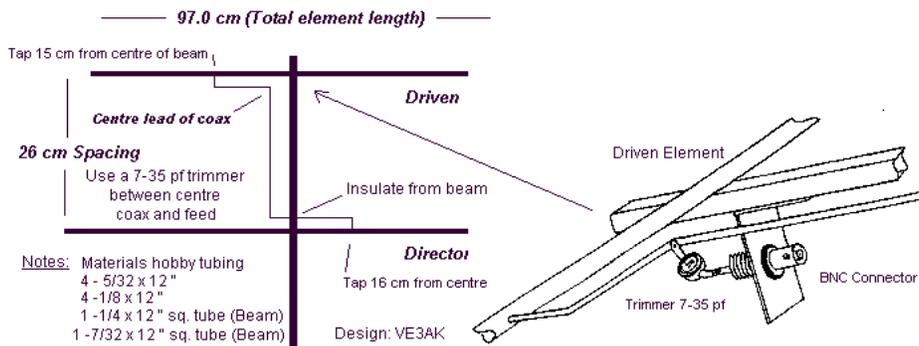


# The Feedline

SASKATOON AMATEUR RADIO CLUB



Hand Held Antenna for Fox Hunt (146.00 MHz)

Detail of Feed



Saskatoon Amateur Radio Club

P.O. BOX 751  
Saskatoon, SK S7K 3L7  
[ve5aa@qsl.net](mailto:ve5aa@qsl.net)  
<http://www.qsl.net/ve5aa>

**Saskatoon Amateur Radio Club Meetings are held the 2<sup>nd</sup> Tuesday of each month September til June.**

**Our meeting location is Alvin Buckwold School  
715 East Drive – West entrance  
Meeting is 0130Z (7:30PM local)**

**VISITORS AND GUESTS ARE ALWAYS WELCOME!**



**ARES  
Saskatoon**

### **NEXT ARES MEETING**

**Monday, Feb 17, 2008  
7:00 PM**

**#9 Firehall  
870 Attridge Dr.**

**Talk in 146.640-  
<http://www.ares-saskatoon.ca/>**

### **NEXT CLUB MEETING**

**Tuesday, Feb 12, 2008  
7:30 PM**

**ALVIN BUCKWOLD SCHOOL  
715 East Drive  
West entrance**

**BE THERE!**

### **Contests**

**Feb 2 MN QSO Party  
Feb 2-4 Delaware QSO Party  
Feb 2-3 10-10 Int. Winnter SSB  
Feb 2-3 Mexico Int. Cntst RTTY  
Feb 2-4 YL/OM Contest CW  
Feb 9-10 BC QSO Challenge  
Feb 9-10 CQ WW WPX RTTY  
Feb 9 FISTS Winter Sprint CW  
Feb 9-11 YL/OM Contest SSB  
Feb 16-17 ARRL Int. DX CW  
Feb 23-24 CQ 160m SSB  
Feb 24-25 NC QSO Party  
Mar 1-2 ARRL Int. DX SSB**

For further information on contests please refer to TCA, QST and CQ magazines.

## **COFFEE**

**Peter D's  
Saturdays 9:00 AM  
1301 8<sup>th</sup> St East**

Everyone is welcome. Hams, non-Hams, it doesn't matter. We're there to have good conversation with good friends.

**C'mon out and visit!**

# Saskatoon and Area Frequencies

## February 2008

### LOCAL AREA REPEATERS

<b>VE5SK</b>	146.640-	Saskatoon SARC
<b>VE5ZH</b>	147.270-	2 MHz offset, Saskatoon, Auto Patch
<b>VE5CC</b>	146.970-	Sktn. MARS. Linked to VE5SKN,VE5DNA and IRLP node 1360. Link code 502*/503*
<b>VE5SKN</b>	145.940-	Sktn MARS. 100Hz tone on xmt only. Linked to VE5CC. VE5DNA and IRLP node 1360. Link code 500*/501* ARES SAME wx Rcvr.
<b>VA5LLR</b>	145.390-	Lizard Lake
<b>VA5SV</b>	145.330-	Ridge East of Sktn
<b>VE5RPD</b>	145.190-	Elbow/Davidson
<b>IRLP NODE 1360</b>		Hard linked to VE5CC UHF Hub (444.975 +5M) & available to VE5CC, VE5SKN and VE5DNA VHF repeaters when linked.

***All the above repeaters are completely open.***

### ATV

<b>VE5ATV</b>	439.250 in	1277.250 out
		Saskatoon

### APRS

<b>VE5RHF</b>	144.390	Saskatoon	DIGI
<b>VE5BNC-3</b>	144.390	Saskatoon	
		IGATE & SATGATE	
<b>VE5HAN-4</b>	144.390	Hanley	DIGI
<b>VE5YR-4</b>	144.390	Davidson	DIGI
<b>VE5YMJ-4</b>	144.390	Eyebrow	DIGI
<b>VE5ADR-4</b>	144.390	Avonlea	DIGI

### PACKET

<b>VE5BBS</b>	145.010	Saskatoon	BBS
<b>VE5USR-3</b>	145.010	U of S	DIGI
<b>VE5YR-7</b>	145.010	Davidson	DIGI
<b>VE5HAN</b>	145.010	Hanley	DIGI
<b>VE5TH</b>	145.010	Regina	BBS
<b>VE5XXX</b>	145.010	Prince Albert	BBS
<b>VE5MPK-2</b>	145.010	Melfort	Node
<b>VE5MPK</b>	145.010	Melfort	BBS
<b>VE5NEP-3</b>	145.010	Minichinas	DIGI

### LOCAL AND REGIONAL NETS

Sask WX	80m	1400Z	3753 Khz
ARES (Sun.)	80m	1430Z	3753 Khz
Aurora	40m	2330Z	7055 Khz
		& 0200Z	
Manitoba	80m	0000Z	3747 Khz
Montana Traffic	80m	0030Z	3910 Khz
Saskatchewan	80m	0100Z	3735 Khz
Alberta	80m	0130Z	3700 Khz
Local Area	2m	0200Z	146.640-
B.C.	80m	0200Z	3727 Khz
Saskatchewan	2m	0300Z	146.970-
		linked net	146.940-
80m YL Net	80m	0315Z	3755 Khz
		Sundays	
Prince Albert	2m	0330Z	147.150+

**(All nets are daily except where noted)**

**All qualified Hams are welcome to check into any of these nets**



**MEETING MINUTES**  
**SASKATOON AMATEUR RADIO CLUB**  
**January 8, 2008, 7:45 pm**  
-----

Meeting attended by 20 hams.  
Presiding: Terry VE5HF

Everyone welcomed for the new year.  
Motion to accept minutes of previous meeting as circulated in The Feedline. made by Ron VE5RMS, 2nd by Eric VE5HG, Passed.

Treasurer's report/budget: Presented by Al VE5MDC  
Motion to accept by Ron VE5RMS, 2nd by Bob VE5NFG, Passed.

**General Business:**

Little Bear Lake Open House will be held on the August long weekend from Friday Aug 1st to Monday Aug 4th. A cabin is available so all you need to do is bring a sleeping bag and nourishment (byob).

Gus VE5SPI reported there will be a meeting soon to determine the future of the Santa Clause parade which was cancelled this year due to lack of volunteers. He will keep us posted.

Thanks went out to John VA5RJA for putting together our new club station enclosure at the Space Club. This enclosure can now be securely locked and we will need to get some spare keys cut. HF is operational on the Beam and multiband dipole. {VHF/UHF was operational by the end of the evening.} We still need to locate a Morse key and coax switch. To make this into a demonstrate station we would like to set up packet, PSK-31, RTTY, and possibly ATV and satellite. Bob suggested we could use a club laptop for PSK-31. John is fashioning another shelf and looking into a roll out desk area. Help in assembling our station would be appreciated.

Ron VE5RMS is now a liaison for the Nutana Regional and RCAC 107 Air Cadet squadron. He is attempting to set up a demonstration of amateur radio for the squadron and is looking for volunteers to help out some Saturday in the next few weeks. He will let us know what date is planned.

Ken VE5KRB asked if we had straightened out access to the club station after hours at the school and was notified that we do have access to the back door of the Space club and can disable/enable the alarm during our visits. Of course we must always treat this with due care and attention for the security of the school and our station.

Ken also mentioned that the Dave Glass award nominations are open and

must be made before July. Please send your nominations in to the club email address or give them to Ken.

The amateur radio class will be starting up in the next week and there are a few potential students lined up. Ken VE5KRB mentioned that he found an interactive CD program that is used for other training courses works very well for young students and suggested we should see if we could find one for Hams or contact RAC and suggest making one. The club should contact VE5BJ since he is involved in student programs with RAC.

Bob VA5BRT mentioned his interest in doing some slow speed CW work. Terry VE5HF mentioned he knew of slow speed nets by the 3905 Century club and others mentioned the W1AW regular schedule. Terry will contact Bob to set up a sched for practice.

Ken VE5KRB mentioned that he and Gus VE5SPI tracked down the noise problem on the repeater. Turns out it is a bad squelch potentiometer and they will be replacing it with a new one as soon as possible. Thanks Ken and Gus!

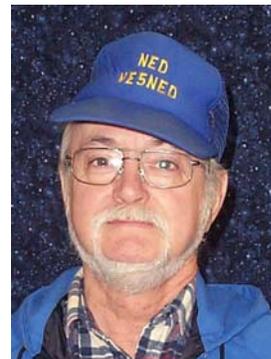
Eric VE5HG made a motion to send a token to VE5DN who is under the weather. Seconded by Ron VE5RMS. Lee VE5LEE will set something up and John VA5RJA will deliver it. Thanks folks.

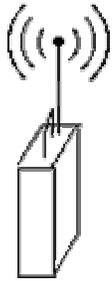
50/50 draw won by Bob VE5NFG

Meeting was followed by a demonstration by Gus VE5SPI on an inexpensive remotely controlled hidden transmitter controller kit called PicCon and available at [www.byonics.com](http://www.byonics.com). He assembled the kit in an evening and it has a number of software controlled features. Thanks Gus!

Motion to adjourn made by Les VE5LPP at 8:20 pm

Acting Recording Secretary  
Ned Carroll VE5NED





# Let's Go T- Hunting

by Joe Moell KØOV

**Here's an introduction to RDF contesting in southern California, updated from a paper originally submitted for Proceedings of the West Coast VHF/UHF Conference. Put this article in your ham club newsletter to encourage members to try T-hunting. (See the copyright notice at the end.)**

VHF/UHF enthusiasts often install yagis and quads at their home stations. Many take them out on camping trips and use them on public service events. But did you know that some enjoy flying the freeways and beating the back roads with one hand on the steering wheel and the other on a rotating antenna mast?

Perhaps you have seen these hams on weekends, intently driving and turning their beams. What are they doing? They are competing in hidden transmitter hunts.

If you've never experienced one of these mobile radio direction finding (RDF) contests, you have missed some of the greatest excitement a ham can have. While there are several names for it such as "fox-hunting" and "bunny chasing," in southern California this sport is almost always referred to as "T-hunting."

Transmitter hunting seems to be one of the best kept secrets in ham radio, even though dozens of hams here consider themselves to be regular hunters. They range in age from the teens to the eighties. Besides keeping the coordinated two-meter hunt frequency (146.565 MHz FM) hopping, hunters love to hash over their exploits by the hour on their favorite repeaters.

The idea is simple: One or two hams take a transmitter, antenna, and some sort of distinctive audio source to a carefully selected spot, then make continuous or intermittent transmissions. Usually they remain stationary, though mobile "bunnies" are popular with some groups. Sometimes there are more than one "T" to be found. Surplus ammunition cans are often used as hidden transmitter enclosures. The hunters, as individuals or in teams, do their best to home in on the hidden station(s) with their mobile and portable RDF gear.

## Fun, But Beneficial

T-hunters think their events are more fun than any other ham contest. You get to meet and socialize with your competitors both before and after the event. Usually, you'll find out your score and how well you placed before you go home. You may encounter your competitors along the way, with opportunities to try to

"psych them out" or misdirect them. (Hence the southern California maxim: "Never trust anything said by a T-hunter or hider.")

"Techies" like the thrill of finding the hidden T with gear they made themselves. They relentlessly work to improve their setups. Mystery lovers and dyed-in-the-wool contesters love the challenge, because every hunt is a fresh start to a new adventure. Your past performances are forgotten. It's just your team and your equipment against today's hider and the other hunters.

At some point, every ham will find knowledge of RDF techniques useful, because it simplifies such chores as finding a neighborhood source of power line interference or TV cable leakage. T-hunters here frequently are called upon to track down sources of "spurs," intermodulation and noise that can plague amateur (and sometimes commercial) repeaters.

RDF plays an important part in Amateur Radio self-policing. In many areas of the country, including southern California, there are standing agreements between Local Interference Committees and district FCC offices, permitting volunteer ham RDFers to gather evidence leading to prosecution in serious cases of malicious interference.

You have up to a dozen competitive hunt opportunities to choose from every month in Los Angeles, Orange, Riverside and Santa Barbara Counties. They are all different in some way, such as time or mileage scoring, day or night start, single or multiple transmitters, intermittent or continuous signal, wide or narrow boundaries. (Or perhaps there are no boundaries at all!)

Most hunts are on two meters with FM signals, but there are occasional FM hunts on the 50, 223, 440 and 1200 MHz bands. There have even been hunts for Amateur Television transmissions on 434 MHz.

#### Winning Isn't Easy

There are many ways to score mobile T-hunts. Due to traffic problems, "First-In-Wins" hunts are less common than "Low-Mileage-Wins" hunts in southern California. Odometer calibration differences are resolved by requesting hunters to obtain an odometer correction factor by driving a standardized course in advance of the hunt. This correction factor is called the [Crenshaw Factor](#) because the course runs along Crenshaw Boulevard for approximately 9 miles.

T-hunters have become very sophisticated at finding dastardly hiding places. With the right combination of location and antenna, they make it difficult for hunters to get reliable bearings. Like a ventriloquist, a good hider can make the signal appear to be coming from some other location. With careful planning (and a little luck), the signal's characteristics can cause the hunters to approach the transmitter from the most difficult direction, with impassable roads or other obstructions, even though the T may be easily accessible via other routes. Perhaps the hider will camouflage the setup so well that the hunters won't find the transmitter unless they literally trip over it.

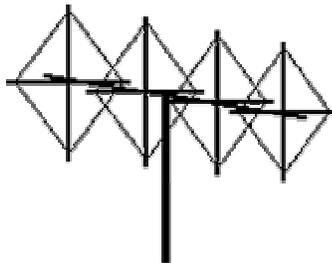
The most challenging of all southern California 2-meter RDF events are the All Day Hunts. Despite their difficulty, many enthusiasts like them best of all. The name is a misnomer, because these marathons often last the entire weekend. The transmitter(s) can be anywhere in the continental USA. The hunt starts in Rancho Palos Verdes. Hiding spots have included locations near Yosemite National Park (California), Las Vegas (Nevada), Yuma (Arizona), and St. George (Utah). The record path distance for a two-meter hidden transmitter signal to be heard at the starting point was set on the St. George hunt, well over 300 miles!

Not every T-hunt is this arduous, of course. Several clubs have sponsored hunts just for Beginners, to get things started. Hiders make brief transmissions on a repeater, encouraging hunters to come out and find them. After a while, they give clues to narrow the search area. The idea is to give every participant a good first-time experience, including a story-telling session at a restaurant after the hunt.

While some hunters prefer to go it alone, most have more success by teaming up. The driver concentrates on handling the vehicle, while the DFER turns the beam and reads the meters. The DFER also handles maps and plotting, unless there is a third team member for that task.

#### Inexpensive Beams Work Fine

In the Los Angeles basin, most hunters use some sort of beam antenna. Three to five element quads are most popular. Usually they are built in "diamond" form with a PVC pipe or wood boom and elements made of thin wire strung on fiberglass spreaders. Variations include the "stiff wire" version, which is much more tree-resistant. (It can get mashed, but is easily re-shaped and returned to service, as compared to "strung-wire" quads which more readily suffer wire breakage.)

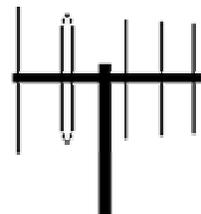


Strung wire 4-element diamond quad

Yagis are second to quads in popularity. Commercial models work fine, provided that the mast is attached at a good balance point. Occasionally you will see some other kind of gain antenna, such as a "ZL special." Small-diameter loops are seldom used for RDF above 54 MHz because of their bidirectional pattern and low sensitivity.

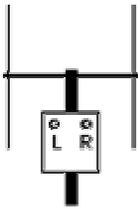
No matter which gain antenna is used, it is important that the mounting system allow for quickly changing polarization. Hiders can use any wave polarization on most hunts, so hunters must attempt to determine the correct polarization and hunt with it. Hunting a horizontal signal with a vertically polarized beam, for example, causes the direct signal to be attenuated. Reflections and scattered signals (multipath) from buildings and terrain features are enhanced relative to the direct signal when the wrong polarization is chosen.

Hunters need sensitive mobile RDF setups for events like the All-Day hunts. They achieve it with their long beams, plus GaAsFET preamps, noise-quieting meters, and SSB receivers (even though the hider is transmitting FM).



Vertically polarized 5-element yagi

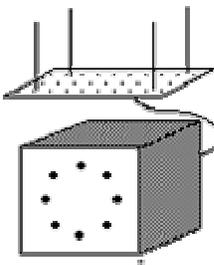
### Homing Sets Sniff Well



Another type of RDF instrument, called the homing or dual-antenna RDF, has its place in the arsenal of the well-equipped hunter. These units have a pair of vertical antennas, a switching circuit, and a direction sensor with some sort of left-right indicator, such as a meter or a pair of LEDs. They are easy to use: When the indicator says LEFT, turn the unit left; when it indicates RIGHT, turn right. There is a sharply defined crossover at which the unit points toward the signal source direction.

There are two types of dual antenna sets. One type is called a switched-pattern set and requires a receiver with AM detection. It is used mostly on the aircraft band. More popular with hams is the phase-front detector or Time-Difference-of-Arrival (TDOA) set. It is designed to work with any narrowband FM receiver that covers the frequency of interest. While they could be used in vehicles, these dual-antenna sets are used mostly for on-foot RDF. They are excellent for closing in at the end of a hunt ("sniffing") and for wilderness search/rescue work. Be sure to build or buy one with left-right indicators.

### Dopplers Have Their Place



An ideal RDF system would not require constant manual antenna turning. It would take directional readings hundreds of times per second, and continue to indicate the bearing after the signal leaves the air. Doppler type RDF sets, though far from ideal, fulfill all these wishes. The typical four-whip antenna system can be mounted without drilling holes in the vehicle.

Doppler readouts usually feature a ring of at least 16 LEDs, and may also include a three-digit display in degrees relative to the vehicle. In the clear, a well-installed doppler has about  $\pm 5$  degree bearing accuracy. Accuracy is degraded by multipath, just like it is with the homing RDF, but "eyeball averaging" while the vehicle is moving helps counteract this problem.

While popular in places such as Cincinnati and the San Francisco Bay area, doppler RDF installations have not caught on among most southern California competitive T-hunters due to their lower sensitivity compared to beam setups. Vertically polarized doppler antennas are at an extreme disadvantage if the hider transmits horizontal polarization, especially if the signal is weak and non-direct.

On the other hand, dopplers are a popular choice of jammer hunters, who are usually tracking strong vertically polarized signals. They like the rapid indication update rate and the ability to quickly get bearings on short-duration signals. Occasionally, you may see RDFers using both a beam and a doppler set on the same vehicle.

### How To Learn More

While commercial RDF equipment is available, the majority of southern California T-hunters prefer to build their own gear. All you need to get started is a directional antenna, an attenuator to knock down strong nearby signals, and a receiver with S-meter. You may have it all right now! If so, it will only take a bit of installation work on the family car to get you going.

For equipment information, installation ideas, and hunting techniques, read [TRANSMITTER HUNTING---Radio Direction Finding Simplified](#) by KØOV and WB6UZZ, published by Tab Books (#2701). This book is available at many electronics and ham radio stores. It is also available by mail from ARRL Bookstore and [from the authors](#).

For a new ham radio adventure, try going out on a hidden transmitter hunt. Be prepared for some pleasant surprises. Remember, every time you set out on a hunt, you never know where you'll end up, and you never know what you will find.

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If you reprint this article, please send a copy of it via [e-mail](#) or by postal mail to: Joe Moell KØOV, PO Box 2508, Fullerton, CA 92837

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## **Hello Saskatchewan hams:**

The Delta Amateur Radio Society again this year is sponsoring the BC QSO Challenge Feb 9 & 10.

Full rules can be found at:

<http://www.deltaamateurradio.com/BC%20QSO%20CONTEST.htm>

Band conditions are improving a little and we look forward to hearing from Saskatchewan during the contest.

73

Gordon Dick

VE7FKY

President: Delta Amateur Radio Society

# Silent Key

**Robert Hilton VE5NFG**

**b. Nov 10, 1957**

**d. Jan 18, 2008**



Robert John Hilton of Saskatoon, SK passed away at home on January 18, 2008 at the young age of 50, after a lengthy struggle with

heart disease.

Bob was born on November 10, 1957 to John and Patricia Hilton, both of Brandon, MB. At a young age they moved to Pembroke, ON where his Dad became a radio and T.V. announcer. His sister Leslie was born and the boom in the Potash Industry took them to Esterhazy, Sk. Bob finished his schooling there and settled in Saskatoon. He became a miner at Cominco and eventually a boiler engineer.

Bob never married but gave great affection to his cats Loki, and Raaaalph. He had wonderful friends and belonged to the Amateur Radio Club. His call # was VE5NFG Another love in his life was camping. Although he loved to go wherever the road took him, his favorite camping spot of late was 'The Slab' a spot by Nipawin. Other favorite pass times were computers, music, geo cashing and tinkering and collecting radios — antique or otherwise.

Bob is predeceased by his parents Jack and Pat. He leaves to mourn his sister Leslie, her husband Gary, their children Tyson, Brendon, Mattison and Ryder, aunts, and cousins.

Bob's family would like to thank you all for your love and support, prayers and friendship. Also to Byron's mom 'adopting' him and making him raisin cookies at Christmas, and Arlea you've been a God send. May God Bless You All.

---

**"Bob"**

As I sit here at 2pm on Saturday the events of this morning still seem a bit unreal. When I joined the Saskatoon Amateur Radio Club Bob was already on disability from the potash mine where he had worked. He still had his long hair but looked and acted much older than his true age. At first I didn't know what to make of this unusual character, however it didn't take long to see his quirky sense of humour and his quiet wit. He was very quiet most of the time, at some meetings he would remain silent for the entire meeting. As we were leaving Les would make a comment on how Bob should quit dominating the conversation. Bob would shoot back an insult about people who talk all the time but have nothing to say, then you would catch him smiling because he had succeeded in provoking someone to take the bait he had laid out.

As you got to know him better you realized that he was a lot smarter than most people, smart enough not to express opinions lightly. but to consider all aspects and then offer a

response.

Bob was a walking contradiction, he could be as fussy as an old maid librarian. or as reckless as a teenager. I remember one day helping him with some antenna work, he insisted on strapping the coax every 14 inches all along the side of the house. A few weeks later I made the mistake of going with him in his motorhome to "dump the tank". We went to a site on the north side of town and when he pulled back on the hi-way he turned north and headed out the road to Rosthern, he put the pedal to the floor and held it there. After about a mile we were on the high side of 90 and the speedo was in mph ! The overhang above the cab was shaking till I thought it would tear right off. He only let up when he got to the Warmen Road exit to come back into town. I could see that he was very pleased with himself because he had succeeded in scaring the pants off of me.

Bob had several interests. Number one was Ham Radio, collecting old radios and other interesting equipment number two. He also loved camping at the lake, and Geocaching, he and Les and later myself spent many hours trekking through brambles and thorns along the riverbank searching for the elusive cache.

Bob had several serious bouts of heart problems since I met him and spent a lot of time in hospital. His heart problems were made worse by diabetes, but during the past year he had made great improvement. He lost weight, he ate better, he walked three times a week at the field house as well as long walks around the neighborhood ,for a time he even quit

smoking . Last summer when we were out geocaching it was hard to keep up with him .Over the last few weeks we noticed a decline in his health, and during the final week he was very short of breath. On thursday Les and I went out with him for the last time. We had planned to take his van out for new tires but he was feeling too weak . Les and I suggested that we should drive him to his doctor or to emergency but he was not interested. Instead we went out for a snack and he just had a cup of ice cream . Afterward Les drove him home and dropped him off. We didn't hear from him again. He didn't check the net thursday or friday and e-mails were not answered. This was not unusual for Bob because he often kept odd hours. This morning (Saturday) at about 8:45 when he still didn't answer the radio I drove over to check on him and I discovered our worst fears were true.

I'll miss Bob, he was the slowest eater I ever knew. About an hour and a half for a light lunch was average. We would be out together and I would ask him a question, I knew he heard me but there would be no response of any kind. A day or two later he would show up with a massive computer printout explaining in minute detail the answer to my question. Lunch won't be as interesting from now on .

VE5NFG this is VA5RJA - We are clear...

73 Bob CUL.....Les

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