



The READOUT

Year 13

Number 10

October , 1991

Police Jammer Sentenced

James A. Haas, WT8Q, of Athens, Ohio has pleaded guilty to charges that he transmitted fake 'officer in distress' calls on the Prince William County, Virginia, police channels. He also pled guilty to unauthorized use of a credit card with which he bought some of the equipment used to transmit the phoney distress calls.

A federal judge in Alexandria, Va. sentenced Haas to serve three months in community confinement and undergo mental health treatment.

Haas, 39, a high school teacher in Ohio, was also ordered to pay \$762.87 in restitution for the use of the credit card and was also placed on probation for three years.

Haas was arrested in Sterling, Va. in April shortly after a false distress call was made on the police frequency. The FCC, FBI and local police used electronic tracking equipment to locate Haas who was operating from his van.

Out Of State Sales Tax Nixed By United States Supreme Court

The U.S. Supreme has ruled that states cannot force companies to collect taxes on mail-order sales in states where they do not a physical presence.

The court declined to hear an appeal from the State of Connecticut to re-examine a 1967 decision which set the case law on the subject. A coalition of 32 states

had lobbied to collect tax on out-of-state sales feeling it was a sure source of revenue.

The mail-order companies can now sleep easier and continue to provide a competitive atmosphere for marketing their goods. Taxes are still applicable to sales within the state where the mail-order business

is located and in those states were the company has another store(s). If the Court had decided to hear the case and decided it in favor of the states, it would have put many mail-order business out of business and caused those that remained to raise their already rock bottom prices.

Factory Repairs *Let the Experts Do It!*

By Bob Pinheiro, WA6ZLO

Lets face it....from time to time, our precious radios go on the blink. Now, assuming that you are not a certified repair technician with thousands of dollars worth of test equipment, then you are faced with sending the unit to the factory for repairs.

I know, it's a real pain to get it all packaged up, write a letter of explanation and then get it over to UPS for

shipment. And of course, you don't want to dwell very long on how much it is going to cost you. So, I thought I would shed some light on this subject and pass along some tips that I have learned and gleaned from other sources.

First of all, all major manufacturers have factory repair facilities scattered

See 'Repairs' page 11

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Thursdays @ 8 p.m.

(Except Holidays)

2 meters 145.39 MHz WD6EJF

220 Band 224.14 MHz WD6EJF

10 Meter 28,440 kHz USB

Tuesdays at 730 pm.

Contributions to *The READOUT* are always welcome and may be submitted to the editor by mail or via packet at N6REB-BBS on 145.79 MHz. The deadline for articles is the 15th of the preceding month. Articles regarding religion or politics are not accepted.

Editor

Bob Pinheiro, WA6ZLO

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209-523-5880

An ARRL affiliated club!

ARRL membership may be paid through SARA with the club retaining a \$2.00 commission. Please send your ARRL membership form along with your check made payable to "SARA". We will deduct the \$2.00 and send a check to the ARRL.

Lightning Safety Tips

These safety rules may save your life when lightning threatens. Stay indoors, and don't venture outside, unless absolutely necessary. Stay away from open doors and windows, fireplaces, radiators, stoves, metal pipes, sinks, and plug-in electrical appliances including radio equipment. Don't use plug-in electrical equipment like hair dryers, electric tooth brushes, or electric razors during the storm.

Don't use the telephone during the storm, lightning may strike telephone lines outside. Don't take laundry off the clothesline. Don't work on fences, telephone or power lines, pipelines, or structural steel fabrication.

Don't use metal objects like fishing rods and golf clubs. Golfers wearing cleated shoes are particularly good lightning rods.

Don't handle flammable materials in open containers. Stop tractor work, especially when the tractor is pulling metal equipment, and dismount. Trac-

tors and other implements in metallic contact with the ground are often struck by lightning. Stay out of the water as lightning may be about to strike you. Drop to the ground immediately.

Note: Persons struck by lightning receive a severe electrical shock and may be burned, but they carry no electrical charge and can be handled safely.

An unconscious person struck by lightning can often be revived by prompt mouth-to-mouth resuscitation, cardiac massage, and prolonged artificial respiration. In a group struck by lightning, the apparently dead should be treated first; those who show vital signs will probably recover spontaneously, although burns and other injuries may require treatment.

Recovery from lightning strikes is usually complete except for possible impairment or loss of sight or hearing.

Information obtained from the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA).

Are You Moving ?

If you are planning to move, please let us know **BEFORE** you do it. We use the bulk mail system to mail *The READOUT* each month which saves us postage costs.

However, the Post Office **WILL NOT FORWARD BULK MAIL**, even if you leave a forwarding address.

If you notice above the mailing label on the back page you will see the words....."Address correction requested".

That means that the Post Of-

fice will return the newsletter to us if you have moved and will give us your new address.

BUT, they charge us 29 cents to do it! So, please remember to let us know, before you move, so we can get the right address.

Also, please remember if you live more than 150 miles from Modesto, you are entitled to the new \$10.00 membership rate when you renew your dues in January.

'Picket Fencing OR Multi-Path?'

By Tim Low, N6ZUC

I'd like to take a shot at clearing up some misconceptions concerning propagation. Propagation of course is the term used for how your radio wave acts once it leaves the antenna. How it travels through space, and how well it travels through space.

There are couple of terms I hear hams using interchangeably when in actuality they are quite different. The terms "picket fencing" and "multi-path", also know as "phase distortion", are sometimes thought of as the same thing. Although the symptoms seem the same, there are different causes. Let me explain.

Picket fencing is caused when a solid object, such as a mountain or building, is between the transmit and receive antennas. This causes the signal to be blocked. If the signal can't get through, you can't hear it, right? When you're mobile and you hear the station chop in and out, sharply and cleanly, this is most likely picket fencing. You're traveling past a series of solid objects that are blocking the signal. Only coming through between objects like light through a picket fence, hence the name.

Multi-path distortion is caused when the signal from the transmit antenna arrives at the receive antenna from more than one direction or path. Normally from the direct path, straight from the transmit antenna and from at least one other indirect path as well. The signal may be bouncing off a building or a big rock,

or a tractor-trailer rig down the street. In any case, the path of the indirect signal is longer, therefore it takes longer to reach the receive antenna. These signals, direct and indirect, are therefore out of phase with each other. Time equals phase. There is a physical law about equal and opposite forces canceling out. You know, that's what happens when an irresistible force meets an immovable object. The result is they wipe each other out! Rarely are these signals completely opposite. More likely somewhere in between. The signal is not completely wiped out. It will sound ragged and distorted. Not clean chop, like picket fencing.

There is another problem that can cause your signals to fade in and out as your travel along. It's called "polarization fade." This occurs when the transmit antenna is radiating one plane, and your mobile antenna is receiving in another. Most repeaters that I'm aware of, are all polarized in the vertical plane, the same as your mobile antenna. You must remember however, that as you move, the wind is bending your antenna and taking it out of a true vertical position.

If your antenna is particularly long and flexible, it will bounce up and down as you move along. This can cause a slight fluttering sound. If the signal you're receiving is an indirect signal only, direct signal blocked, it may arrive in any plane. The polarization will change as it bounces off solid objects. As the polarization changes, the signal fades in and out. Sometimes only slightly. This is usually a slower, more gradual fading.

Another misconception I hear

repeated time and again is about distance verses frequency. Many times I've heard other hams saying how they like using the 440 or even the 1200 Mhz band because in their opinion, the propagation characteristics are superior. Sorry....not true! They do have the advantage of building penetration, as the wavelengths are shorter, therefore they can squeeze through smaller openings. But as far as distance, the V's have the U's beat hands down. The higher you go in frequency the more power it takes to cover the same distance. Also at

'Picket fencing is caused when a solid object comes between the transmit and the receive antennas.'

VHF frequencies, the signal tends to bend over the horizon slightly. UHF and above are strictly line of

sight. You may have noticed that VHF television stations use only about 20% the power that a UHF station will radiate. The VHF station will still out-distances the UHF station.

Here's a propagation nasty you might find interesting. Have you ever been driving along, listening to an AM radio station when all of a sudden the signal just disappears? A couple minutes and another mile down the road, it comes roaring back in? A dead spot? What happened? Down in the low bands, when you key that transmitter, you're actually radiating two signals, a ground wave that is hugging the surface of the earth and a sky wave that is sent up towards the atmosphere at a high angle.

Maybe you're ahead of me here? That fade you noticed is caused when the high angle radiation is reflected off the atmosphere, and back towards the surface. When

See 'Propagation' page 4

Is That You God?

It was a cold winter afternoon when Charlie and Elmer hooked up on the local repeater. After the usually exchange of pleasantries, the QSO turned to the subject of ice fishing. It wasn't long before Jeb joined the discussion and all agreed to get together and go ice fishing. Charlie said he would bring the saw to cut through the ice. Jeb said he knew of a great spot that no one knew about and where they wouldn't be bothered.

Elmer agreed to provide the transportation. When they arrived at the pristine spot, Charlie drilled an access hole in the ice and inserted his saw. Suddenly, they heard a majestic voice say, "There's no fish under the ice!" They looked at each other not believing what they thought they had heard. Each thought the other was playing games.

Again Charlie started sawing on the ice. "There's no fish under the ice!" the deep majestic voice said. They again looked at each other wondering which one of them was playing games. They came to the conclusion it wasn't one of them. They began to shake thinking that possibly God was speaking to them. Charlie turned and looked skyward saying, "Is that you God?". "No, it's the rink operator!" said the voice.

2 Meter Bandplan

144.00-144.05 --- EME (CW)
144.05-144.06----Propagation Beacons
144.06-144.10 ----General CW and weak signals
144.10-144.20-----EME and weak signal SSB
144.20 -----National Calling frequency
144.20-144.30 ----General SSB operation
144.30-144.50 ----OSCAR Subband
144.50-144.60 ----Linear translator inputs
144.60-144.90----FM repeater inputs
144.90-145.10----Weak signal and FM simplex
145.01,03,05,07,09 --widely used for packet radio.
145.10-145.20----Linear translator outputs
145.20-145.50----FM repeater outputs
145.50-145.80----Misc. and experimental modes
145.80-146.00-----OSCAR subband
146.01-147.37-----FM repeater inputs
146.40-146.58-----Simplex
146.61-146.97-----FM repeater outputs
147.00-147.39-----FM repeater outputs
147.42-147.57-----Simplex
147.60-147.99-----FM repeater inputs

.....'Propagation' from page 3

this sky wave meets the ground wave it is out of phase and causes the cancellation. Kind of like low band atmospheric multi-path. Therefore, the dead zone. This is only a problem at HF and below as ground wave diminishes with frequency. By the time you reach the 10 meter band, there isn't much ground wave remaining. When you get to the VHF bands, it's all gone.

This ground wave propagation is a real good reason for a good ground system under your HF vertical. At commercial AM broadcast stations, the common ground system is a grid work of #12 solid copper wire radials buried under the ground extending 1/4 wavelength, and spaced at 2% intervals. That's a lot of copper and out of the average hams hobby budget, but bury as much as you can as the more you bury the more omni-directional you're pattern will be. Also, anything over a 1/4 wavelength is a waste of good copper, as you will realize no additional benefit.

Studies by the Navy and others, now show that elevating these radials is even better than putting them underground. Can you imagine trying to cut the grass around something like that?

There is a great vertical antenna that is highly efficient in the absence of a good ground system. It's called the folded unipole, but I'm going to let you wonder about that one till another day. It makes great use of a limited space for a top notch mono-bander.

The packet BBS that I have using, AA6QN, has closed down. If you have any comments about this article, or have ideas or suggestions for future articles, send them to me in care of The READOUT.

If you have a project, or a question of a technical nature, I'll see if I can help you find the answer. 73, Tim, N6ZUC.

About the Author: Tim Low is a certified engineer by the National Association of Radio and Telecommunications Engineers. He holds a General Class Radiotelephone license and Amateur Extra class license, N6ZUC. He started in the broadcasting business at the age of 16 and has been a full time broadcast engineer for the past 11 years. He makes his home in Escondido, CA.

A GOOD IDEA..... " I never loan money to relatives. It gives them amnesia! "

For Sale

- (1) Star NX2400 letter quality 24 pin printer in excellent condition. \$200.00 Includes an inking machine and several ribbons.
 - (2) Brand new Goldstar Telephone answering machine \$45.00
 - (3) Heathkit HW4040 Packet TNC \$100 or best offer.
 - (4) LetraGraphix 1000 Typesetter. \$40.00 Excellent condition.
- Call Bob, WA6ZLO, evenings at 523-5880

Don't Do It!!

The voice I.D. on the 2 meter repeater is there for a purpose...to legally identify the repeater. Some of you are continuing to key up on it forcing it to switch to a CW to identify itself. Don't do it! Let it identify itself, and then continue with your QSO. Thank you!

"Ham Radio in Space" Video

For those of you with satellite receiving dishes, the "Ham Radio in Space" video produced by Roy Neal/K6DUE will air on Weststar transponder channel 4 on October 20, 1991 from 11 am to 12 noon PDT. The series contains six segments which can be used separately or combined according to instructional needs; "You Can Fly", "How Ham Radio Went Into Space", "Ham Stations on Earth and in Orbit", "Hams Go To School", and "Ham Radio in the 21st Century". Copies of this video are available on a loan basis from the Educational Activities Dept., ARRL, 225 Main Street, Newington, CT. 06111.

CALL SIGNS AS OF 9- 1- 1991

DISTRICT EXTRA ADVANCE GEN/TECH NOVICE

0 AA0FX ..KF0TY ... N0PHKKB0JML
1 WV1Q ..K1DK N1KBQKA1ZGQ
2 AA2GI ...KF2DZ ... N2NVSKB2NOU
3 WR3D ...KD3YN ... N3KKOKA3ZJJ
4 AC4JB ..KO4IZ ... KD4EMD ...KD4EMD
5 AB5AM ..KI5TL N5VZRKB5QHU
6 AB6EX ..KM6HY ..KD6AKN ...KD6AKN
7 AA7JU ..KG7TP ... N7TSXKB7OBU
8 AA8EU ..KF8PI N8QANKB8MZP
9 AA9BV ..KF9FL ... N9MNQKB9HEZ

22,000 Miles In Space Future Amateur Satellites

Since the mid-80's AMSAT has been studying phase IV, a geosynchronous Amateur satellite that many feel is the next step in the logical evolution of the OSCAR satellite program.

A geosynchronous satellite orbits at approximately 22,000 miles altitude and appears to hang in one position in space. No tracking would be needed. Just point your antenna at a spot in the sky and "weld" your antennas in place!

It would provide a continuous 24-hour high-grade international "net" for audio, video, and messages on a scale never before seen in Amateur radio. Terrestrial repeaters would be linked to provide HT-to-HT communications a continent apart. Phase IV is already being developed in the lab! Amateur radio has a need for such a resource, but AMSAT realizes that it is not attainable at the financial resource level they have now.

If AMSAT goes geo-synchronous, they will have to compete with the big boys. Instead of spending several hundred thousand dollars for a spacecraft project, it will require a "few million". AMSAT President Doug Loughmiller, KO5I, of Paris, Texas, said "the culmination of the Microsat project is a significant event in the history of the Amateur satellite program. AMSAT-North America is very proud to have had the opportunity to build and launch a satellite for the worldwide Amateur radio fraternity.

AMSAT invites Amateurs the world over to use and enjoy Pacsat. However, if the Amateur community wants to continue to see more spectacular events like the Microsat launch, we've got to have help.

AMSAT is a small organization and they need all the financial support we can give them. They can't do it by themselves.

Excerpt from CQ April 1990 page 92 downloaded to the packet BBS system by KA9WPG.

Next SARA Meeting
October 15, 1991
730 Pm
You're Invited

SARA Minutes

By Ernie Rader, K6UVI, Secretary

The regular monthly meeting of SARA was called to order on September 17, 1991 at 7:35 PM by President Oliver Bourns, KJ6YZ. Thirty guests and members attended.

Al, N6SAE gave the treasurer's report as follows: the General Account had a beginning balance of \$244.04 with four debits of \$57.90 and one credit of \$30.00 for a balance of \$216.14. The Fund Raiser Account had a beginning balance of \$650.09 with one credit of \$24.00 for a balance of \$674.09. The Educational Training Account had a beginning balance of \$564.78, one debit of \$14.86 and one credit of \$85.38 for a balance of \$635.30. The treasurer's report was accepted as were the minutes of the previous meeting as printed in The READOUT.

The club station is up and running though there is a need for additional antenna work. This will take place a sometime in the future. We presently have someone to climb the tower for us. The club station computer is working and presently at Tim's, AB6FL, home. Keys for the club station can be checked out from Phil so members can use the club station.

The club's 6 meter repeater is ready for use except for the need for new cavities. N6YHY is working on that. LeRoy, NV6S has filed the necessary paperwork on this repeater, but it was returned unclaimed from NARCC. Phil, who is the two meter coordinator for NARCC, said he would take care of this personally on the first weekend

in October.

Under Old Business, K6UVI read a letter to the American Diabetes Association declining SARA's involvement in the upcoming bike-a-thon and presented a rough draft of the new club By-Laws.

There was a discussion of the purpose for both the General Fund and the Fund Raiser accounts. Their initial purposes were explained and it was decided to close the Fund Raiser Account and combine it with the General Account funds. A discussion of the origin and present purpose of the Educational Fund took place. There are presently more funds in that account than are needed, and it was suggested that any funds over \$300.00 be used to upgrade the club station.

WD0FFX suggested that a used TNC and HT be purchased so the station could operate on all modes of packet. There was a short discussion about why an HT instead of a base station because of the easier possibility of theft. Phil was commissioned to investigate the purchase of necessary equipment for this station upgrade. It was moved and seconded for the excess in the Educational Fund to be used for this purchase. There was a short discussion of the insurance to cover the club station. Phil is to submit a list of all the club station equipment so it can be added to our policy. Break at 8:23 pm and return at 8:37 pm.

A detailed discussion of our Thursday evening net was presented by our net coordinator Jo, N6SAH. Topics discussed included the purpose of the weekly net, the

duties of the net controllers, the problems encountered with "late or missed members" check-ins, and the need for patience when this activity takes place. Several new formats were suggested, and they were to be taken under advisement by Jo.

WD0FFX asked about Newline being presented other than during the Thursday night net. It was decided not to pursue this further unless excessive repeater time were to be taken at times other than on Thursday evenings.

Those attending were reminded that they should start thinking about a new slate of club officers. ARRL campaign letters from W6DPD and W8IXD (director and vice-director) were presented.

Under new business, KC6VWO proposed a regular swap meet for the valley to be sponsored by SARA. It was decided to consider the proposal, but more information needed to be gathered, and Bill volunteered to research the project further.

Meeting adjourned at 9:21 pm. Respectfully submitted, Ernie, K6UVI, club Secretary.

Amateur Ranks Growing

In the 10 months ending in July, 31,385 new Amateurs were licensed, more than half in the four months following the advent of the codeless Technician class ticket. New Novice license figures remain healthy with 1088 in June and 1662 in July.

—American Radio Relay League

Editor's Notes

By Bob Pinheiro, WA6ZLO

Welcome to new **SARA** member Marty Lanser, KC6YTF, of Modesto. Marty is an announcer at radio station KOSO. Welcome back to an old member who has not been with us for many years. Frank Belcher, W6NLX, of Modesto, was one of the earliest members of **SARA** back in the late 70's when the club was first formed. Congratulations to Matt Garcia, KC6MXU, who upgraded to Advanced last month. Also, congratulation to Rita Palacios-Rader who passed her Technician test in September. Rita is the wife of Ernie, K6UVI. She is waiting for her call to arrive. Tim, WB6UJD, has decided to turn in his old call, WB6UJD, for an Extra class call. He has been an Extra for a long time, but held on to his old call. His new call is AB6FL.

- Texas Instruments Co. in Dallas, Texas, has developed a tiny surface-mounted device transmitter which can be placed inside currency, boxes of jewelry, vehicles or other items that might be targeted by thieves. A vast, cellular-like monitoring network, aided by hand-held and vehicle mounted direction finding (DF) equipment, keeps track of the beacons' movements. The system has taken 18 years of experimentation to perfect and has police and sheriffs singing its praises. Speaking of miniature transmitters, meter readers may become a thing of the past if a new electronic system is accepted. The system would use 218-219 Mhz band to read electric and gas meters and transmit those reading to the supplier using 100 mW transmitter.

- ICOM scanners are finally coming to America. After a year of waiting, the new ICOM models R1, R100 and R72 are now available. A settlement between ICOM and Uniden Corporation of America has been reached in their dispute over patent rights. Uniden acquired basic scanning patents when they bought out Electra (Bearcat) and Regency several years ago. ICOM as been selling their scanners in Europe for several months.

- Speaking of scanners, an amendment to the new Federal Communications Commission Act of 1991 (H.R. 1674), Section 8, would prohibit the manufacture of any scanner which is capable of cellular telephone reception. The new law also prohibits the manufacture of decoders which can revert digitally-encoded cellular transmissions

back to clear voice.

- The FCC has granted a small Washington company permission to build, launch and operate the first satellite service designed to beam radio programs directly to home receivers. Initially, WorldSpace Corp.'s Afrispace will provide radio service throughout Africa and parts of the Middle East. Listeners will need special car-mounted or hand-held receivers that are likely to cost as much as \$100 to be able to pickup the signal.

- Radio waves delivered to the heart through a tube can cure some common forms of irregular heartbeats and eliminate the need for surgery, pacemakers or lifelong drug treatments, according to researchers. Doctors describe the technique as being highly effective for treating forms of tachycardia-irregularities that cause the heart to race suddenly. The new therapy is called radio-frequency current catheter ablation. Three out of every 1,000 people have tachycardia, although no one knows precisely how common the condition is.

- According to Cushcraft, their new 26B2 Two Meter FM antenna offers the highest gain of any 2 meter FM antenna in the world. The 26B2 replaces the popular 230WB and provides more gain, cleaner pattern, and improved ultramatch feed system. It's also lighter and has less windloading. The package includes two antennas, stacking frame and wiring harness- everything you need. The 26B2, which Cushcraft calls "The Boomer," is available from your favorite radio dealer.

- We have all heard the term "white noise", but have you ever heard of "pink noise"? Apparently there is such a thing and a daytime religious AM broadcast station in Milford, Ct. has resorted to it to fend off jamming. The station has been plagued by a jammer who intrudes on its frequency to make 'unkind comments" about its programming and fund-raising appeals. The station transmits the "pink noise" several minutes before they drop their carrier. A search is underway for the scofflaw. Maybe our resident engineer, Tim, N6ZUC, will expound on this subject of "pink noise". It all sounds very interesting.

- I leave you with this thought. Now is the time to clean out your rain gutters and check your antenna connections before the winter rains set in. 73, Bob

Smile! You're On Red Light Cameras

Australian Detection Devices Always On The Job

Visiting the land down under would surely be a treat. If you do, and you decide to rent a car and drive around yourself, there are a couple of things you should know.

One, the Australians drive on the wrong-side of the road (by our standards) and they have R.I.C.'s. What's that mate? R.I.C. stand for Red Light Cameras. Now, don't get the wrong impression here. We are not talking about cameras surveilling red light districts and besides, you had no intentions of knowingly visiting a "red light district" ...right?

RIC's were introduced in Melbourne, Australia in August 1983 to reduce the number of right angle (intersection) collisions in the metropolitan areas. At selected intersections throughout the city, sensing loops are placed in the road surface between the Stop line and the Pedestrian line. After the traffic control signal turns red, the loops are activated and will detect any vehicle that passes over them. When a vehicle does so, a photograph of the vehicle is taken.

A second photograph is taken one second later. The two photos are then compared to see if the driver ran the red light. According to the Victoria State police, when a violator is detected, the registered owner of the vehicle is checked through VICROADS, which is their equivalent of our DMV. Then a Penalty Notice (a ticket) is compiled and mail to the registered owner. Now, wait a minute. What if the registered owner wasn't driving the car? Doesn't make any difference! In March of 1986 the Australians

enacted the Motor Car Photographic Detection Devices Act.

This law provided the machinery for imposing upon "OWNERS" of motor vehicles vicarious criminal liability when detected by photographic devices like RIC's.

Statistics have shown at intersections equipped with RIC's, accidents have been reduced by 30%. Presently, there are 15 RIC's in Melbourne, and another 20 slated for installation.

' The law charges owners of motor vehicles with vicarious criminal liability when detected by photographic devices. '

"Now" you say, "I can handle that! Just don't run any red lights!"

Ok! What about speeding? The Aussies have you covered with SAC's. No, not the Strategic Air Command. Speed Activated Cameras. They were put into service in March, 1986 after being developed by the Victoria State Police Force. The cameras also use imbedded sensors on the highways and streets which are spaced 2.5 meters apart and use the formula of time over distance to calculate your speed.

Three years after introducing SAC, the police developed a Slant Doppler Radar Speed Camera called GATSO. These units have the capability of being mounted on

tripods or in vehicles and can operate in all kinds of weather 24 hours a day.

GATSO projects a radar beam across the carriageway (roadway) at a set cosine angle of 20 degrees. As a vehicle enters this beam its speed is checked. If it is over the speed limit, a photograph is automatically taken. Super imposed on the photograph is the date, time, location, camera operator and the vehicle's speed. Again, under law, the registered owner is responsible and he or she gets the ticket regardless of who was driving. During fiscal 1989/90, 31,962 offenders were detected and prosecuted.

State statistics show that vehicular collisions were down by 53% (1989/90) as driving habits adjusted to the fact that big brother was watching through the eyes of the cameras.

By the way, if you decide to drive down under, be sure to buckle up. The fine for being unbuckled is \$110 for all occupants over 18 years of age and \$135.00 for all occupants under 18 years of age for which the driver is liable.

Contributions to

The *READOUT* can be made through my Packet Mailbox on the N6REB BBS, 145.79 MHz in Modesto. Ca. If you mail your contribution, please send them directly to my home address listed on Page 2, not to the post office box. All contributions are welcome and carefully considered. Articles involving religion or politics are not accepted.

de WA6ZLO

VE Test Sessions Northern California

Date	City	Contact Phone	Notes
10 OCT	San Carlos	415-367-7197	D/PR
12 OCT	Sunnyvale	408-255-9000	S
16 OCT	Sacramento	916-483-3293	A
19 OCT	Cupertino	408-243-8349	A
19 OCT	Redwood City	408-255-9000	S
26 OCT	Fairfield	916-662-0801	A
26 OCT	Fresno	408-255-9000	S
26 OCT	Merced	209-383-2166	A
26 OCT	Stockton	209-952-5996	A
27 OCT	Sunnyvale	408-255-9000	S
2 NOV	Cupertino	408-243-8349	A
9 NOV	Fresno	408-255-9000	S
9 NOV	Jackson	209-295-7947	A
9 NOV	Sunnyvale	408-255-9000	S
14 NOV	Sacramento	916-483-3293	A
14 NOV	San Carlos	415-367-7197	D/PR
16 NOV	Cupertino	408-243-8349	A
16 NOV	Porterville	209-539-2429	S
16 NOV	Redwood City	408-255-9000	S
16 NOV	Sacramento	916-483-3293	A
16 NOV	Sonora	209-586-4917	A
23 NOV	Fresno	408-255-9000	S
23 NOV	San Fran.	415-986-5055	A
24 NOV	Hercules	415-467-4292	A
24 NOV	Sunnyvale	408-255-9000	S
30 NOV	Fairfield	916-662-0801	A
30 NOV	Stockton	209-952-5996	A
1 DEC	Chico	916-342-1180	C
7 DEC	Concord	408-255-9000	S
7 DEC	Cupertino	408-243-8349	A
7 DEC	Modesto	209-883-2968	A
7 DEC	Novato	415-897-8950	A
12 DEC	San Carlos	415-367-7197	D/PR
14 DEC	Oakhurst	209-683-8430	A
14 DEC	Sunnyvale	408-255-9000	S
21 DEC	Cupertino	408-243-8349	A
21 DEC	Redwood City	408-255-9000	S
28 DEC	Fairfield	916-662-0801	A
29 DEC	Sunnyvale	408-255-9000	S

Note: Most walk-ins OK, call the contact number for time & location. The following items are required at all test sessions:

- 1 -Test Fee
- 2- Two forms of ID
- 3- The original and a copy of any Amateur license you now hold.
- 4- Copy of any pending Novice 610 form.
- 5- Calculator, pen and pencil

- An 'A' is an ARRL/VEC test.
- An 'S' is a Sunnyvale VEC test
- A 'C' is an Chico-GEAR VEC test
- A 'D' is a DeVry-VEC test.
- A 'PR' is a Pre-registration only call the number given.

If you hold and Extra or Advanced class license and would like to be a VE in this area, contact Chet Jensen, W6XK, 883-2968 for more information.

PACTOR A New Digital Mode

Looking for a digital mode suitable for poor HF paths? One that combines the best of packet and AMTOR? It's here! It's called PACTOR and the controller cards are available in kit or assembled form. PACTOR features include:

- Memory-ARQ (Cumulative method for reconstruction of the original packets)
- Online data compression (Huffman coding makes messages smaller and quicker)
- Faster and safer change over (Break-In)

Packet + AMTOR= PACTOR

- Complete ASCII character set (Not just capital letters, permits transmission of binary files).
- Safer close down of transmissions (Two-sided QRT)
- Automatic mark space detection (No fixed mark/space rule)
- Optional connection to external frequency standard.
- Unambiguous addressing (Your complete call-sign, not just a 4-character SELCAL)
- Automatic selection of optimum transmission speed (100 and 200 baud)
- Powerful listen mode.

The neatest part of PACTOR is the Memory-ARQ. Let's say your rig and PACTOR controller received only some of the characters in a packet. The controller knows (from the CRC checksum) that there are errors, so it requests a re-transmission. But it remembers all it got during the first try and combines it with what it gets the second time around to piece together a full packet. It ACK's and the other station starts transmitting the next packet. Really speeds throughput in rough conditions!

PACTOR automatically changes speed to suit propagation. Slow for bad conditions, fast for good conditions. At slow speed (100 baud) packets are 10 bytes (characters) long. At high speed (200 baud) they are 24 bytes long.

For more information of this new mode of digital communications contact Miles Abernathy, N5KOB, at his call-book address. The PACTOR kits are selling for \$320 and the assembled units for \$390.

-Thanks AARC-OVER Austin, Tx. Amateur Radio Club and N5KOB

Renew Your SARA Membership Early And Save Money.

The SARA membership year runs from January 1st through December 31st of each year. The rate structure is usually reviewed at the December meeting of SARA with increases, if any, based on the general health of the treasury and anticipated expenses vs. the estimated number of members. Running a club is just like running a small business and we must have the income to pay our bills.

Over the last three years we have raised the dues a dollar a year to help keep up with increased costs and it appears this year will be no exception. So, here's your chance to beat the probable increase. Renew now, before January 1, 1992, and you pay the 1991 rate.

As an added bonus, those of you living more that 150 miles from Modesto can renew for 1992 for just \$10.00 under the new rate adopted this year.

So, what are you waiting for? Send in your check or money order (along with the a completed membership form below) to the club's Post Office Box. Your renewal must be received prior to December 31, 1991 to qualify. This also helps the club over the roughest part of the year when the treasury is the lowest. Thank you!

DUES: (1991)

- Full Membership\$22.00
 - Associate (Unlicensed)\$11.00
 - Student (Up to Sophomore in college)\$11.00
 - Family (For head of household)\$22.00
- \$11.00 each for the next two family members living in the same home.
 The fourth , or more, family members living in the same home are FREE.
 Out of Area .. More than 150 miles from Modesto. \$10.00

MEMBERSHIP APPLICATION		Date _____
<i>"Early Bird Renewal 1992"</i>		
Name _____	Call _____	
Address _____	ARRL Member? _____	
City _____	State _____	Zip _____ Home Phone _____
Bus. Address _____	Bus. Phone _____	
Occupation _____	Date of Birth _____	
Class of License _____	Year First Licensed _____	
FOR OFFICIAL USE ONLY:		
	Membership Year 1992	Entered Roster ()
Treasurer ()	Welcome/Autopatch letter sent: ()	Entered Mail List ()

Mail your check or money order to SARA, PO Box 4601, Modesto, CA. 95352

.....'Repairs' from front page.....

throughout the country. They are generally well-structured, customer-oriented and staffed with qualified technicians. The big three, Yaesu, Kenwood, and Icom all have repairs facilities in the Southern California area. (Look in the back of your manual for the manufacturers repair facility address nearest you.)

When you write your letter of explanation as to what's wrong with the radio, be sure to include your name and address, date of purchase and invoice number if it's still in warranty and a phone number where you can be reached during the day. If your unit is still in warranty, there is no charge for parts or labor even if you did not send in the warranty card when you bought it. Most major manufacturers will repair your unit under warranty agreements if you send in proof of purchase and the date.

The next most important thing is make sure you package it right for shipment. Poor packaging on your part can lead to damage during shipment. It needs to be *WELL-CUSHIONED!!!* Don't use crushed up newspaper. Place the radio in a strong carton with at least *THREE INCHES* of resilient packing material on all sides. Seal your package with reinforced tape and mark it "Fragile" on at least two sides. Remember, the carrier (UPS) will not accept liability for shipping damage if the unit is insufficiently packed. Do not send accessory items like the microphone, power supply cords, manuals etc. The factory has these readily available to hook up to your radio for testing.

When your radio arrives at the factory, most of them

will send you a postcard to acknowledge receipt and the condition of your radio upon receipt. The postcard will also indicate the repair tag number and estimated turn-around time for repairs.

The repair cycle is usually two to three weeks but can be much quicker depending on the problem. The hourly bench charge is usually around \$55 to \$75.00 an hour with a one-hour minimum. The average repair cost is usually less than \$100.00. I always plan for at least \$100.00 and hope for the best. One of the most common problems service departments run into involve problems with batteries. Another big problem is damaged equipment in shipping due to poor packaging by the owner.

If you have made modifications to your equipment such as out-of-band operations, the factory technicians will not disturb them unless they are the cause of the problem. The most common errors that owners make which result in failure of their equipment includes: using improper power supplies, making improper modifications and not protecting their equipment from lightning.

Should you have to call the factory for any reason, be sure to have the postcard they sent you handy so you can give them the repair tag number. Usually the factory tracks all repairs by computer entries and the young lady who answers the phone can usually tell you in a few seconds the status of your radio. All factory repairs usually carry a 30 day warranty on parts and labor.

I know, you hate to shell out so much money, but it's been my experience its better to bite the bullet as far as costs go and get it done right the first time. Otherwise, you maybe sorry you tried to do it yourself.

Technical Report

By LeRoy, NV6S

The new receiver for the 440 repeater has arrived and I am trying to find time to take it up the hill and install it. I also have to mount it in a box. It has a helical resonator that should really help with interference problems. I also believe there are coax problems at the site since the signal level seems too little here for ten watts output. I'll check into that when I get up the hill.

I have also built a small circuit to let us know when the system is on battery backup power. When installed the system will give a high pitched beep every thirty seconds when the repeater is on battery operation. It is similar to the emergency beep used on police radios

except it will not cause the repeater to transmit when not already keyed. It may be slightly annoying but it is really needed to let us know that we are on battery power so we can keep our conversations short and limit them to those that are more important than just rag chewing. This is needed to allow the batteries to function for many hours in emergencies even after an extended power outage. I hope to install the beeper when I make my next trip up the hill.

The entire digi system is still down due to antenna problems at the site. The Bureau of Reclamation is installing a new tower and have agreed to let me know when it is ready for us to install our antennas. At the present time we lack a support structure for the antennas.

That is all I have at this time except to say thanks to those who have helped me out on the trips up the hill.

Calendar

Oct. 15, 1991 SARA Monthly Meeting730 pm
Nov. 16, 1991 VE Testing in Sonora900 am
Nov. 19, 1991 SARA Monthly Meeting730 pm
Dec.7,1991 VE Testing in Modesto900 am
Dec. 17, 1991 SARA Monthly Meeting730 pm
Jan. 21, 1992 SARA Monthly Meeting730 pm

SARA meets the third Tuesday of each month (except holidays) at the Stanislaus County Administration Building at 12th and H Streets in downtown Modesto. The meetings are held in the lower-level conference room starting at 730 pm. Visitors and interested parties are most welcome.

SARA is an ARRL Affiliated Club and is affiliated with Stanislaus County and the City of Modesto RACES.

The club owns and operates three FM repeaters using the club station call of WD6EJF. Frequencies are 145.39 MHz, 224.14 MHz & 440.225 MHz. The club's digipeater, WD6EJF-1, operates on 145.79 MHz. All repeaters and the digipeater are located on Mt. Oso, 18 miles SW of Modesto at an elevation of 3400 feet in the Coast Range mountains. SARA conducts informational nets each Thursday evening at 8 pm on the 2M and 220 repeaters.

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Modesto, CA. 95352

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**The Next SARA Meeting is October 15, 1991
at 730 pm & You're Invited!**