

The READOUT

Vol. 10 No. 6 June 1987

Yesteryears

1916 OL' SILAS LOADS UP A HALF MILE OF BARB-WIRE FENCE WITH HIS HIGH-POWERED ROTARY SPARK-GAP XMTR



WORLD RADIO, June 1987

Stanislaus Amateur Radio Association, Inc.
P.O. Box 4601 Modesto, Ca 95352

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READOUT is the official publication of the STANISLAUS AMATEUR RADIO ASSOCIATION INC. "SARA" P.O. Box 4681 Modesto, CA. 95352. Entered as bulk mail at the U.S. Post Office Modesto, CA. 95352

Contributions to READOUT are always welcome and may be submitted to the editor, Bob Pinheiro, W6ZLD at 1221 Mist Flower Ct. Modesto, CA. 95353. SARA owns and operates two F.M. repeaters. 145.39 MHz (-) located on Mt. Dso 22 miles SW of Modesto at an elevation of 3,378 feet. Our 228 MHz repeater operates of 223.68 MHz (-) and is also located on Mt. Dso at an elevation of 3,500 feet. Both repeaters are equipped with an autopatch for the use of SARA members. SARA owns and operates a packet digipezer also located on Mt. Dso at 3500 feet. Frequency is 145.81 MHz. SARA conducts an informational net on both repeaters each Thursday evening at 800 pm with the exception of holidays. SARA meets the third Tuesday of each month at the Stanislaus County Administration building at the 12th and H streets in downtown Modesto. Meetings begin at 730 pm. SARA is incorporated with the State of California. SARA is an affiliated club of the American Radio Relay League (ARRL) and Stanislaus County RACES. Dues are \$15.00 per annum, \$7.50 for students up to sophomore in college. Dues are pro-rated for newly joining members from the date they join. ARRL membership and QST renewals may be made through SARA with a \$2.00 commission retained by SARA.

PRESIDENT

Denny Dugal.....WB6P.....571-9046

VICE PRESIDENT

Bud Pelletier.....NG0CV.....823-0877

SECRETARY

Laverne Landeros.....KB6ECF.....578-5554

TREASURER

Bob Vreugdenhil.....NG0CS.....522-6127

Next SARA Meeting

JUNE 16, 1987

..... PROGRAM.....

" A S T R O L O G Y "

PRESENTED BY
KB6LQA

730 pm

BUDGET COPY CENTER

1325 J STREET
MODESTO, CA 95354
TELEPHONE 529-5395

NEW EQUIPMENT DISPLAYED AT DAYTON HAMVENTION

There was plenty of new equipment either announced or on display for the first time by various manufacturers at this years Dayton Hamvention. Some of the more interesting equipment included the ICOM IC-900, a fiber optic multiband FM mobile transceiver for six bands 10 meters through 1.2 GHz. The unit is completely remotable from a small controller which can be placed on a visor or windshield, with individual band units placed in the trunk or other remote spot in the car. Also on display at ICOM was the new IC-375A, an all-mode 220 MHz transceiver and the IC-275, an all mode 2 meter transceiver. Kenwood had it's new FT-23R hand-held for 2 meters, and FT-73R for 70 cm on display. Kenwood

was also showing its new IP-100 Illustphone which, when used in conjunction with an VHF/UHF FM transceiver, will transmit graphics and pictures to another amateur station similarly equipped. Yaseu was showing its line of new 25 watt FM VHF/UHF mobile transceivers for the 2 meter, 220 MHz, 70 cm and 1.2 GHz bands (10 watts). Ten-Tec was exhibiting its new Paragon HF transceiver with a general coverage receiver. Company officials present said the first Paragons would be available in late May. Heathkit was displaying its new SB-1000 kilowatt amplifier and HK-232 TNC which can decode weather pictures, work VHF packet up to 9600 baud, plus CW, RTTY, AMTOR, and ASCII.

....de ARRL Newsletter

"OH, BEAUTIFUL LADIES, PLEASE KISS ME"

Two XYL's walking down the street were confronted by a talking FROG. Frog: "Oh, beautiful ladies, won't one of you please kiss me so I will be transformed into a handsome Amateur Radio operator?" The first XYL picked up the frog and put it in her purse. The second XYL asked, "Are you going to kiss him?" The first XYL said, "Nope. There are no handsome hams, they are always broke and besides, I can make enough money with a talking frog to buy myself a new handi-talkie."

...de Dalton ARC, GA and WORLDRADIO.

DISNEYLAND REPEATER

The next time you visit the Magic Kingdom, Disneyland, at Anaheim, take along your HT and have a bit more fun using the 146.94 machine located in the park. There are some rules to follow. First, upon entering the park you must check in with the business office just inside the main entrance. Let them know that you are a ham and carrying your talkie with you. They will explain the use of the repeater, which requires special access codes, and the rules for use. Have fun!

Alpine Co. DXpedition



Aug 22 & 23

BROADCAST CALL LETTERS

For over 55 years the FCC has assigned broadcast station call letters west of the Mississippi River beginning with the letter "K". East of the Mississippi, the letter "W" was the first letter in the call. There were a few early exceptions to this assignment plan, notably, KDKA in Pittsburg, Pennsylvania. Now, the FCC says that there is no longer any justification for maintaining this plan and that broadcast stations should have the option of obtaining a call sign beginning with either the prefix letter "K" or "W" regardless of their geographical location.

AMATEUR RADIO CALLSIGNS

As of May 1, 1987, the following sequential call signs had been issued in the sixth call district. EXTRA- AA6CB. ADVANCED- KI6RM. GENERAL/TECH- N6PEX. NOVICE- KB6RII.

THE AMERICAN RADIO RELAY LEAGUE, INC.

SECTION MANAGER

SAN JOAQUIN VALLEY
Charles P. McConnell W6DPD

FCC has accepted in part the ARRL Petition for Reconsideration in PR Docket 85-196. This Docket transferred the maintenance of Amateur Examination Question Pools to the Volunteer Examiner Coordinators (VECs). Section 97.521 has been changed to require VECs to maintain one common question pool for each examination element and to require that present question pools will stay in effect at least until January 30, 1988.

FCC has affirmed its earlier ruling that all telegraphy test elements must contain all 26 letters, 10 numerals, 4 punctuation marks, and 3 prosigns. The telegraphy examination may be as long as necessary to satisfy the requirements.

More than 1500 comments have been filed in opposition to Docket 87-14, the proposal to reallocate the bottom 2 MHz of the 220 MHz band from the Amateur Service to the Land Mobile Service. Reports from the FCC indicate that most of the comments have NOT addressed the issue of narrow band modes proposed for the 2 MHz segment if it is transferred. The narrow band technique proposed is amplitude compandered single sideband which has a narrower bandwidth than FM.

QSL cards for DL7FT/SV/A Mt. Athos operations of June 26 through July 1, 1985 and March 26 through April 1, 1986 and T50DX have been accepted for DXCC Credit.

There are new bonuses for Field Day this year. Check the May 1987 QST for the complete rules. Send a 9x12 SASE with 4 units of first class postage to ARRL for your Field Day package.

New versions of the FCC 610 form are available from ARRL for a SASE. The new forms will NOT be available from FCC until the old versions are used up. This could be some time since the supply was near 100,000.

SINCE 1914 - OF, BY AND FOR THE RADIO AMATEUR



OFFICIAL MINUTES

ARRL affiliated club

The May 19, 1987 meeting of SARA was called to order at 7:33 pm by President, Denny, W66P. Introductions of 40 members and guests followed. The minutes of the previous meeting were read and approved with one correction of the Treasurer call being N60CS and not N60CV. Treasurer Bob, N60CS read the treasurers which was approved. W6DFX requested all who can, sign up to help in the fireworks booth. The petition to amend the bylaws regarding family membership dues was read, voted on and passed unanimously. FXX reported that he had talked to the ARRL regarding pressing the FCC to open up the bottom portion of the the 220 repeater band to allow Novices to operate the SARA 220 MHz machine. FXX said the ARRL was not supportive of such a move. FXX reported the setting up of a low level machine in the belief that a low level machine would be beneficial to all members and especially in emergencies should the high level machine lose power as it did a couple of weeks ago. W66P's opinion was that other projects should

be much higher in priority. Needless to say this drew an enormous amount of discussion from WJ60, W6AFS, K6UVI and others. It was decided that additional information concerning costs etc. would be needed before shelving or voting on the issue. Break for refreshments at 8:45 pm. Meeting resumed at 9 pm. FFX announced summer license classes will start on June 23rd and will be from 7 to 9 pm each Tuesday night. He also announced that the next VE exam will be on June 6th in Modesto. W6AFS made a motion to purchase a battery and charger for the SARA 220 machine. Carried unanimously! Lori, N6JTD announced a tentative date and place for the 1987 SARA dinner-dance, October 3rd at the Oasis restaurant on Kiernan at McHenry between Modesto and Escalon. We will have our choice of of steak or chicken and choice of live or canned music. Sounds like quite a fun evening in store for all those that plan to participate. 6:30 to 7:30 pm social hour followed by din-

Eliminating radio interference in today's 'electronic' vehicles

By Dereck B. Campbell
Public Service Company of Oklahoma

Mobile radio has been plagued with interference problems since radio became mobile. Much has been written on the subject of automotive noise suppression. This article reviews practical noise reduction techniques as they have evolved and suggests some methods that enable radios and automobiles to coexist, each without interfering with the other.

The best time to prevent interference problems is before they occur—at installation time. A good installation, made according to the following guidelines, saves a lot of troubleshooting in the long run and makes the difference between a happy customer and a miserable one.

Installation tips

What follows is a summary of suggestions contained in manufacturers' technical bulletins, with emphasis on those that have been applied successfully in real-world situations.

Until recently, choosing a place for the transceiver in a vehicle was a matter of available space and convenience. The installer's main concern was to install the radio in such a way as to keep automobile electrical noises from getting into the radio system. Today, attention also must be given to preventing the

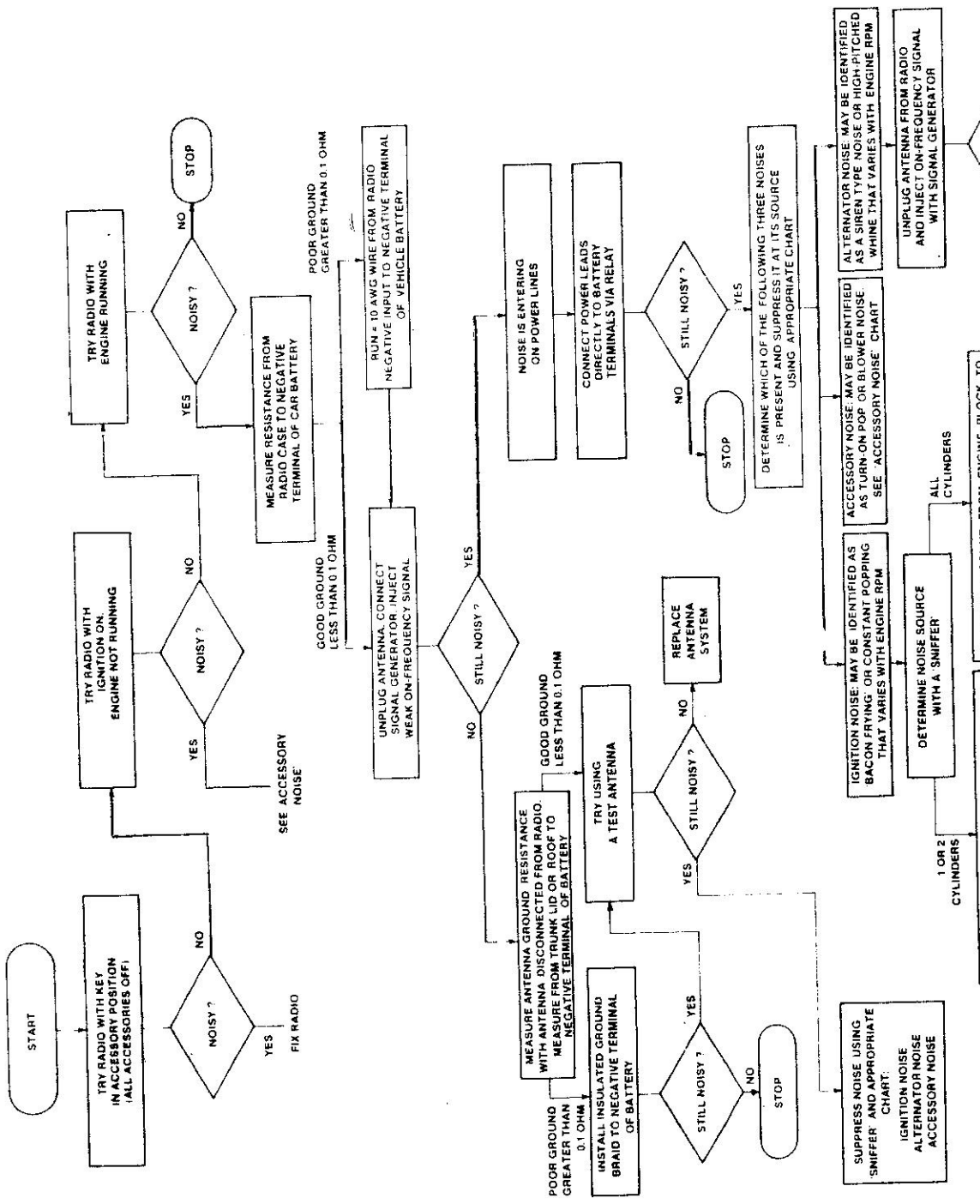
radio from interfering with the operation of the automobile.

Most vulnerable in modern automobiles is the electronic command module (ECM). The radio transceiver should be put in the trunk, preferably on the driver's side, away from the ECM. Lines should be routed along the side opposite to the ECM—usually under the trim that holds the carpet to the floor.

In General Motors vehicles, the ECM is located under the dash, behind the glove compartment. Ford ECMs are located under the hood on the driver's side fender wall.

Control cables should be shielded. Most manufacturers supply shielded cable, but a few do not. In such cases, effective shielding can be fabricated using RG-8 coax braid covered with heat shrink tubing or tape to isolate the cable from the vehicle's body.

Battery leads entering the engine compartment should be kept as far as possible from ignition and any other wiring. Connections should be made directly to the battery—including the ground—and the ground wire should not be allowed to touch the vehicle's body at

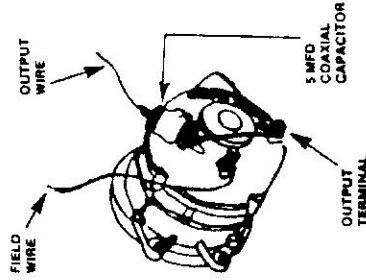


- (1) CHECK FOR LOOSE OR DEFECTIVE SPARK PLUG OR CRACKS IN PLUG OR WIRE INSULATOR
- (2) REROUTE PLUG WIRE LAYING AGAINST OR NEAR ANYTHING THAT COULD TRANSMIT NOISE TO RADIO / CAR WIRING OR SENSOR LEADS THAT TRAVEL INTO PASSENGER COMPARTMENT
- (3) CHECK FOR DEFECTIVE SPARK PLUG
- (4) CHECK FOR DRIED OUT OR CAKED SILICONE GREASE IN DISTRIBUTOR, DISTRIBUTOR POST OR PLUG CONNECTION
- (5) REPLACE DISTRIBUTOR AND ROTOR
- (6) BE SURE PLUG WIRES ARE RESISTIVE TYPE AND MADE FOR VEHICLE

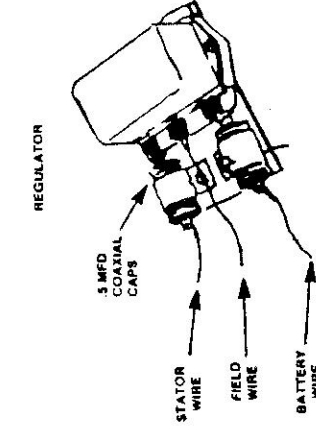
Vehicular Noise Elimination Flow Chart

- (1) CHECK GROUND FROM ENGINE TO NEGATIVE BATTERY TERMINAL. INSTALL HEAVY DUTY STRAP IF NECESSARY
- (2) INSTALL GROUND STRAP FROM ENGINE BLOCK TO FIREWALL IF NOT ALREADY THERE
- (3) INSTALL GROUND STRAP FROM FIREWALL TO HOOD LID. BE SURE TO SCRAPE PAINT FROM BOTH SURFACES TO ENSURE GOOD GROUND
- (4) CHECK HEATER CORE GROUND. INSTALL GROUND STRAP IF NECESSARY
- (5) CHECK AIR CONDITIONER ACCUMULATOR GROUND
- (6) MOVE AND SHIELD ALL WIRING FROM ELECTRONIC IGNITION AND PLUG WIRES
- (7) INSPECT PLUG WIRES. MAKE SURE SILICONE GREASE HAS NOT DRIED OUT. APPLY SOME IF NONE PRESENT
- (8) MAKE SURE PLUG WIRES ARE RESISTANCE TYPE, THE RIGHT LENGTH, AND MADE FOR THE VEHICLE
- (9) INSPECT ELECTRONIC IGNITION
- (10) DISTRIBUTOR CAP. CARBON BRUSH FOR EROSION OR CRACKS. APPLY SILICONE GREASE IF NONE. OR IF CAKED
- (11) ON GM CARS MAKE SURE CARBON BRUSH IS RESISTIVE TYPE
- (12) CHECK ROTOR FOR BURNED BLACK SPOTS OR DRIED SILICONE GREASE
- (13) CHECK FOR DEFECTIVE ECM OR HEI/IFM NOISE ONLY
- (14) INSPECT COIL AND INSTALL 470 μ F OR 0.5 μ F CAPACITOR ON BATTERY SIDE OF COIL

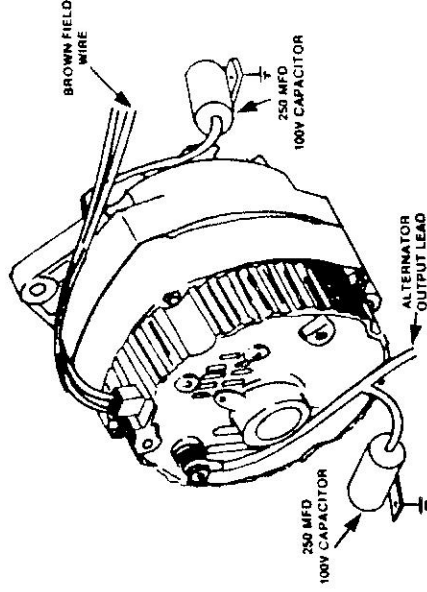
- STILL NOISY?
- YES →
- NO →
- (1) INSTALL 0.5 μ F FEED THRU CAPACITOR OR 250 μ F CAPACITOR TO OUTPUT LEAD. IF USING FEED THRU BE SURE CURRENT RATING IS ADEQUATE ON GM VEHICLES INSTALL 250 μ F CAPACITOR ON BROWN FIELD WIRE. IF NOT GM INSTALL 0.5 μ F FEED THRU ON REGULATOR STATOR AND BATTERY WIRE. (SEE FIG. 1)
 - (2) RUN RADIO POWER LEADS DIRECT TO BATTERY
 - (3) RUN # 10 AWG WIRE FROM POSITIVE BATTERY TERMINAL TO ALTERNATOR OUTPUT
 - (4) EXCHANGE RADIO'S WITH KNOWN GOOD ONE
 - (5) REPLACE ALTERNATOR: (A) (B) (C) FIELD WIRE OUTPUT WIRE OUTPUT TERMINAL 5 μ F COAXIAL CAPACITOR REGULATOR 0.5 μ F COAXIAL CAPACITOR STATOR WIRE FIELD BATTERY WIRE TOPS STATOR WIRE FIELD WIRE BATTERY WIRE 250 μ F 100-V CAPACITOR ALTERNATOR OUTPUT LEAD 250 μ F 100-V CAPACITOR BROWN FIELD WIRE CENTER CONDUCTOR WIRE WHITE PLASTIC INSULATION 2" OF COAX SHIELD CUT AWAY ANTENNA LEAD IN WITH ANTENNA BASE CONNECTOR REMOVED NOISE WIRE FROM HARNESS SNIFFER (A) ALL VEHICLES EXCEPT GM DISTRIBUTOR BATTERY TERMINAL 1 F COAXIAL CAPACITOR IGNITION SWITCH (A) (B) FOR GM VEHICLES PINK WIRE TO IGNITION



(A)



(B)



(C)

Fig. 1—Alternator noise can be caused by corroded or worn slip rings and brushes. A 0.5 μ F coaxial capacitor may be installed at the alternator output terminal as shown in (A). Capacitor should have adequate current and voltage ratings. Voltage regulator breaker contact arcing can cause popping (varying with engine speed) noise in receiver. Remedy with two 0.5 μ F coaxial capacitors as shown in (B). Drawing (C) shows variation for General Motors vehicles that have regulator built into the alternator.

any point. Only #10 AWG wire or larger should be used. The ground and hot wires should be twisted together tightly to form an RF choke.

In-line fuses should be placed as close to the battery as possible. Most users prefer to have the radio turn off with the ignition switch. This can be done with a relay. The relay coil is connected to the ignition on the fuse block. The ignition connection should be used only for operating this relay.

Keeping RF out of ECMs

One problem that has occurred in GM vehicles is the engine dying when the transmitter is keyed. This is due to RF getting into engine sensor leads and retarding the engine's timing. The solution is to find the ECM and identify the ground terminal "K." Its ground should be rerouted to the engine block. Then a piece of RG-58 coax braid should be connected from the negative battery terminal to the ECM case. If this does not alleviate the problem, ferrite beads should be placed on the sensor lines and the ECM battery line.

Tracking the source

As most techs know, care at installation time is important, but not necessarily sufficient to prevent all kinds of radio noise. If noise persists, or occurs some time after installation, other procedures are indicated.

The first step is to determine how the noise enters the radio. Usually, noise enters the radio via the power lines or the antenna. To determine which, simply disconnect the antenna and, using a signal generator, inject a weak, on-frequency signal. If the noise is still present, it is entering on the power lines. If the

noise stops, it was entering through the antenna. Proper installation usually precludes noise entering on power leads.

The 'sniffer'

Noise picked up by the antenna has to come from somewhere! Noise sources can be tracked down using a home-brew device known as a "sniffer" together with an oscilloscope. An accompanying sidebar shows how to build a practical sniffer.

The sniffer connects to the vertical input of the oscilloscope. The scope's vertical sensitivity is set to maximum and its horizontal deflection adjusted to about one (1) msec per division. The sniffer then can be moved around the engine compartment to pinpoint "hot spots." To locate noise sources precisely, the vertical sensitivity of the oscilloscope can be reduced.

Probable causes

It is more than likely that the sniffer will identify either the alternator or the distributor as the culprit.

Alternator noise can be corrected by installing a 0.5 μ F coaxial capacitor on the output of the alternator.

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ner at 730 pm. Motion made and approved that the further discussion on the dinner-dance be tabled until the next meeting. A very enlightening program was presented by Doug Hanson, WBS-MFV of Manteca on the High Sierra Repeater System. Meeting adjourned at 1010 pm. Respectfully submitted by SARA Secretary, Laverne, KB6ECF.

EMERGENCY PREPARENESS

A great new book is being made available to the public on the subject of emergency preparedness. The 96 page paperback 'Expect the Unexpected' is a cooperative project between the American National Red Cross and Maxwell House Coffee. The book details how to plan for an emergency, food and water hints, survival kits, first aid information, sample emergency plans for you and your family, and other helpful items. The book is available through many local American Red Cross chapters. This text would make a great addition to your ARES library. Stop by your local Red Cross chapter or branch office and pick up a copy.

.....de N6JQJ

INSURANCE INCREASES ??

Rumors have been flying lately that the Insurance industry was in the process of increasing insurance premiums for drivers with cellular phones in their vehicles. The rumor had it that the reason for the supposed increase was the feeling that vehicles so equipped caused the driver to be less attentive to their driving and therefore increasing their chances of becoming involved in an accident. Some of the rumors included any type of radio equipment. Presumably this included Amateur radio. So, I decided to check it out! RELAX!!! Not true, says the California State Automobile Association. According to the underwriter I talked to, the only thing they want to know about cellular phones is whether they are permanently installed or portable. If they are permanently installed there covered, if portable there not.

.....de WA6ZLO

V. E. LICENSE EXAMS IN NORTHERN CALIFORNIA / NEVADA

Updated 10 May 87. Date, City of test, Call-sign and Telephone of Contact Person. Test Fee \$4.35 .

Jun 13 Novato N6AQY (415)897-8950
Los Altos Hills W6NLS (408) 255-9000.
Jun 13 Nevada City CA N6AX (916)273-9376 (Pre-Reg ONLY).
Jun 16 Eureka KB6FIW (707)442-9245.
Jun 20 Fairfield W6YGY (707)425-2230.
Jun 27 Auburn NR6N (916)722-3598.
Jul 3 Watsonville WX6A (415)932-0491.
Jul 5 Chico KE6EP (916)893-5208.
Jul 11 South San Francisco W06F (415)755-5784.
Jul 11 Jackson KE6NS (209)296-4771
Los Altos Hills W6NLS (408) 255-9000.
Jul 18 Monterey WE6R (408)649-8766.
Jul 21 Eureka KB6FIW (707)442-9245.
Aug 2 Pleasant Hill WX6A (415)932-0491.
Aug 8 Los Altos Hills W6NLS (408)255-9000.
Sep 5 Eureka KF6FY (707)822-4541.
Visalia W6MUV (209)627-5346.
Sep 6 Chico KE6EP (916)893-5208.
Sep 12 Novato N6AQY (415)897-8950
Los Altos Hills W6NLS (408)255-9000.
Sep 27 Santa Cruz KB6XY (408)425-4703.
Oct 4 Pleasant Hill WX6A (415)932-0491.
Oct 10 Los Altos Hills W6NLS (408)255-9000.
Oct 11 Fresno WT6E (209)896-4505.
Oct 17 Monterey WE6R (408)649-8766.
Nov 1 Chico KE6EP (916)893-5208.
Nov 14 Jackson KE6NS (209)296-4771
Los Altos Hills W6NLS (408)255-9000.
Dec 5 Eureka KF6FY (707)822-4541
Visalia W6MUV (209)627-5346.
Dec 6 Pleasant Hill WX6A (415)932-0491.
Dec 12 Los Altos Hills W6NLS (408)255-9000.

Alpine Co. DXpedition Aug 22 & 23

FCC INDECENCY RULING AND "SHOCK RADIO"

The radio/TV industry is well aware of the new broadened definition of indecency ...and so is cable. National cable penetration has reached 48.7% of all U.S. households, up 4% from a year ago. Some broadcasters aren't happy that the ruling might put them at a disadvantage to cable. The FCC has said that future violations might result in something stronger than warnings. The Pacifica Foundation, which was named in the original 1978 George Carlin "seven dirty words" monologue decision could lose its KPFK-FM (Los Angeles) license for broadcasting "patently offensive" material about safe sex between men. They, like other stations, maintain their broadcasts are a public service. Pacifica has filed suit against the FCC. Another station, WSPR-AM in Springfield MA, gives away red, white and blue condoms embossed with their call letters (installation costs extra)...to call attention to the issue of AIDS. So called "shock jocks", disc

jockeys that use off-color humor to attract listeners, reacted to the ruling with anger and satire. They could be fined up to \$2,000 a day and their stations could lose their licenses. While cable and satellite programming appears exempt from the indecency standards, the public telephone system isn't. The FCC has been trying to come up with ways for some time now to curtail minors from dialing up the moan-and groaners, thanks to a Congressionally ordered clamp-down on sexually oriented 976 (50 cent cost) telephone message services. The FCC has now re-established access codes as an acceptable method of restricting access to obscene or indecent telephone message services in areas served by the New York Telephone Company and has established scrambling as an acceptable alternative in all areas of the country.

...L. de W5YI Report



Editor's WA6ZLO Notes

Shorty Sutter, K9YBM, has moved back to Lafayette, Ind. to be closer to his family and grandchildren. Shorty came to Dakdale several years ago from Lafayette and has been a member of SARA for several years. Good Luck Shorty, hope to hear you on the low bands. +++ The Duncan family of hams has moved from Manteca to Ceres. Please correct your rosters to show their new address, 2521 2nd street, and telephone number of 537-2785. Welcome to Tony Rose, WA6KDI, a recent graduate of a the SARA license class. Tony, of Turlock, earned his EXTRA license and a free membership in SARA for 1987. This brings our 1987 membership to 160 and climbing. +++ The Alpine Dxpedition is shaping up nicely. The selection of

a site should have been made by now and we will have the information for you next month. It's expected to be in the area of Bear Valley off Hwy 4. Remember, this is a club sponsored event and all members and guests are welcome to participate. Alpine County is one of the most sought after counties in the nation because there is virtually no activity from that county. We understand that there are two licensed hams in the county but neither is active on the low bands. Should be a monstrous pileup and lots of fun for all. You don't have to be an operator, if you will like to be part of the support team or just a curious spectator, you're welcome. Contact Chairman Larry, WD6-CMI, at 667-8363 in Turlock and sign up. +++ Two old "hams" who had been friends since their boyhood days were sitting on park bench talking about what good health that they were enjoying. One of them staring down the street said, "Ya know, George, my eyes are still so good that I can see that fly walking around on that post down there in the next block." Now George, not to be outdone, cocked his head and replied, "Well John, I can't see that fly, but I can hear his feet

going pitty-pat when he walks." +++ Leroy, NV6S, reports that Russ KB6VI reported the most number of rabbit contacts during the recent CW Rabbit Contest with 8. He was followed by Bill, W6AFS with 6 and Laverne, KB6ECF with 4. +++ Art, KF6EE, of Ione, CA. has apparently become the first Amateur to work all states (WAS) by Packet Radio. +++ A grassland fire broke out on Mt. Oso during the hot spell we had the first two weeks in May. The fire started when high winds felled the PG&E power lines feeding the mountain. Although the fire started within a mile and a half of our repeater, firemen were able to keep it from doing any damage to equipment on the hill. All power to the hill was out for over 5 hours, but our two meter repeater operated flawlessly on the battery backup system. The fire consumed over 1500 acres before it was brought under control a week later. +++ We have gone to press earlier than normal this month because of vacation time. Next month we will publish the 1987 issue of the Northern California Two Meter Repeater Directory. Have a good one, and stay cool. 73, de WA6ZLO .

NEXT SARA LICENSE CLASS

SARA Educational Director, Phil, WD0FXX, has announced the next SARA license class will start June 23, 1987. The classes will be held each Tuesday evening from 7-9 pm at County Center 3, Oakdale Rd. and Scenic Drive in Modesto. All classes from Novice to Extra will be taught. To register, call Phil at 523-9018.

WELCOME NEW MEMBERS

SARA's membership has grown to 163 with the addition of the following new members. Welcome to Al BeMent, K6AXV, of Stockton. Al is a Technician and retired. KB6SEZ, Whit Woodard of Groveland. Whit is a Minister and holds a General. Dave Bullard, KB6NBJ, a Technician is a school custodian in Manteca. Charles Shaffer, KB6---, from Ceres is a Novice and an air conditioning and refrigeration mechanic at Doctors Medical Center. WA6KDI, Tony Rose, Turlock is an Extra and a farmer. Welcome back William Luebke, KA6DJR an instructor at Modesto Jr. College and Tim Bosma, WB6-UJD, a purchasing agent for Turlock Irrigation District.

CALENDAR

- June 16, 1987... SARA Monthly Meeting 730 p.m.
KB6LQA on Astrology.
- July 21, 1987... SARA Monthly Meeting 730 p.m.
Dann Butterfield on
Stealing Cars (Repo Expert)
- Aug. 18, 1987... SARA Monthly Meeting 730 p.m.
- Aug. 22-23, 1987... DXpedition to Alpine County
- Sept. 9-11, 1987... ARRL National Convention in
Portland, Oregon
- Sept. 15, 1987... SARA Monthly Meeting 730 p.m.
- Oct. 3, 1987... SARA 10th annual dinner-dance
Oasis Restaurant on McHenry.
- Oct. 20, 1987... SARA Monthly Meeting 730 p.m.
KB6DIV Boating in the Sea of
Cortez

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

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