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vol. 25
JANUARY
1981

PAARA

Graphs



palo Alto
AMATEUR
RADIO ASSN.

MENLO PARK C.D. RADIO CLUB, K6YQT

SHAVER RADIO, INC.

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K6DTX

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More than a dream.

The Santec HT-1200 4W SYNTHESIZER RADIO MODULE

- 4W Minimum / 1W Low (True low power, no resistor)
- 10 Memory Channels with Auto Memory Initialize Digital Display—Reliable Long-Life, Rugged LED's
- T14 Bit Microprocessor/Keyboard Control
- 16 Tone Touchtone Generator
- Single Button Memory Recall
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Sales subject to FCC Certification to Part 15.



When is a handheld a radio module? When it is designed from the start to be part of a complete 25 or 50W mobile system. Not only can the Santec HT-1200 operate on its own Ni-Cd battery, but also it can function respectably as the center of a modular synthesized high power mobile.

□ The HT-1200 produces at least 4 watts on all the ham frequencies, from 144.000 to 147.995, for the punch needed for repeater/handheld communications. The low power mode is true low current drain. □ A Texas Instruments TMS 1000 microprocessor powers the brain of the unit, providing keyboard entry of all digits down through the kHz digit. □ In addition to providing

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Compare the features and functions that come with the competition's popular 25 watt mobile units and you will find the HT-1200 system has them all beat! This dream of a radio is more than a dream, it's a reality. See us at the Dayton Hamvention for a hands-on demonstration of all the capabilities of the Santec HT-1200.

PAARAgraphs is the official organ of

The Palo Alto Amateur Radio Association and the Menlo Park Civil Defense Radio Club

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Membership in PAARA is \$6.00 per calander year (payable in January) which membership includes a subscription to PAARAgraphs. Freebe distribution to those who indicate an interest in the Club and as an inducement to their becoming members, and is subject to change with changing interests in the Club. Make payment to:

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| | | | |
|-------------|---|---------------|-------|
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Written contributions to the P.O. Box above, or: c/o Editor, 1043 Del Norte Av., Menlo Park, CA 94025

R E G U L A R M E E T I N G

Friday January 9, 1981

7:30 p.m.

Rooms 15-17, Menlo Park Recreation Center, Civic Center, Alma at Mielke Drive
Menlo Park

Tunnel VHF Radio Communication

by

Warren C. Struven, W6CB

Warren has a number of alternative titles for his talk—Underground Communication, Leaky Feeders, Tunnelcom—and he will present a popular version of a paper he presented at the National Telecommunications Conference in Houston this last autumn. Warren, a long time ham, is an engineer at SLAC and his talk is one way to get him to a PAARA meeting.

Future meetings: February 6, March 6, April 3, May 1, June 5, 1981

CIRCLE THE DATE

January 9, 1981

PAST CORNER: The December 5 meeting opened shortly after 7:30, after additional chairs were moved in to accommodate the seventy or so in attendance. Six guests were introduced.

Jim, K7UDG, gave a report on recent Explorer Post 599's activity including recent work on K6OTR repeater and how long it took to find a bad piece of coax. Jim expects the Post will install a high-level 450MHz repeater in the near future. The equipment is available and a mountain-top site is under negotiation with a reasonable chance of it working out.

Gerry, WA6LNV, reported on the progress of plans for the Christmas party. A show of hands indicated many of the attendees at the meeting planned to go to the dinner.

Gerry, W6NIR, made the nominations for 1981 Officers: President Gerry Tucker, WA6LNV, Vice President Dave Daniel, KB6WP, Secretary J. MacKaig, N6YV, Treasurer George Nixon, GI3OEN. Board nominations for the two year term 1981-1982 included Ed Fairbanks, W6AIN, Bill McElhinney, KA6LZI, and Bob Wheeler, K6SEM. To fill Board members Dave, KB6WP, and Mac, N6YV, vacancies because they would become Club officers, John Buonocore, KA6CUG, and Kevin Lapp, WA6FAC, were selected to complete the unexpired term. All were unanimously elected.

Steve, K6FS, gave a report on equipment to be acquired for the ARES station in the Menlo Park Civic Center. See Steve's PUBLIC SERVICE CORNER. Steve suggested the need for a 2-meter antenna of suitable quality to complete the installation. Ken, WA6NYB, volunteered a Ringo. It was accepted.

Bob, W6BFH, gave a report on a chance QSO with Dave, WB6JFH, and alerted members to look for Dave on 3952 at 8 p.m. Mondays.

The meeting broke for coffee, hot chocolate, cookies, raffle ticket sales and, for many, once a month QSO's with friends and acquaintances.

The program was spectacular. After Jack, WD6FGC, described the problems with a sea-sick crew member, he told of how his amateur radio friends encouraged him to make the trip alone from Honolulu to San Francisco. Daily contacts with friends ashore and with up-to-date weather information available, he gave us the experience of avoiding a hurricane to the south and a gale to the north--of waking on a blustery night to find another small boat only a few hundred yards away--and of sailing about 2500 miles only to get confused by California coastal fog.

Following the verbal description of his experience he showed slides of Honolulu and action scenes while enroute to San Francisco.

A question and answer session showed the interest of the group. Except for those of us that get sea sick, who wouldn't like to make the trip?

BOARD CORNER: It was the kind of Board of Directors meeting everyone likes. It started at 7:34 and ended at 8:15.

Gerry, WA6LNV, announced that 65 were expected at the Christmas Dinner and that a few more could be accommodated. Bob, K6SEM, had the door prizes that he had been commissioned to get at the November Board meeting.

Bob, SEM, reported that the 12.5KW generator transaction had been completed and that photographs of the unit would be taken to the DMV for the trailer's licensing.

Gerry, W6ARA, regretfully announced he could not continue as PAARA's representative to the CCRC. The Board will continue looking for a suitable replacement.

Steve, K6FS, gave a report on the Menlo Park Emergency Preparedness Program--See the PUBLIC SERVICE CORNER. Bob, SEM, turned over to Steve a bundle of correspondence, and some advice, pertaining to renewing K6YQT license.

Shannon, K6TNY, reported that Portola Valley has both HF and VHF gear and is in the process of developing an emergency communications station.

The Board selected January 9 as the next Club meeting, followed by the Board of Directors meeting on the 14th. All are invited.

It being too early to start carousing, most members went home.

VISITOR'S CORNER: Six guests signed the roster at the December meeting. They included Pete Brown (NC) of Sunnyvale, Mark Brown (NC) from San Jose, Dan Levin, N6BZA, Menlo Park, Bill Murphy, W1YC, Mountain View, Howard Gilbert, KB7OF, Los Altos, and Larry Johnson, K7LJ. Larry just moved to the area and gave no address, which is too bad. Ed, W6AIN, would like to have been able to invite him--as this issue of PAARAGraphs invites the others--to our January meeting. In talking with Pete and Mark, it was found they had come to the meeting to find out about Amateur Radio but it was never determined whether whether they found what they needed or not. Give us another try, each of you. Every month you will recognize a few more faces.

CUT AND PASTE CORNER: Please make the following changes in your December Roster:

Delete: the address for Clay Sherrod, K6OSQ
Change: Vanover, James, KA6KJP, to
VA Medical Center, Battle Creek, MI 49016
Add to: McElhinney, Bill: Call letters KA6LZI
Add: Wallace, Robert E. K6OL
240 Cervantes Road
Portola Valley, CA 94025 851 0249

JOINING CORNER: Subscribe to QST through George, GI3OEN, and the Club gets \$1.50 from ARRL. George would like, naturally, for all to settle on a single anniversary date. Talk about it at the January meeting.

PUBLIC SERVICE CORNER: The City of Menlo Park has now officially readied itself for emergency communications via Amateur Radio Emergency Service (ARES). Assistant City Manager Russ Scotten last week authorized purchase of a Kenwood TR-7800 2-meter transceiver and KPS-7 power supply for installation in the Emergency Operations Center, basement of the City Administration Building. With provision for a demountable outside antenna and two lengths of RG-8U already in place, plans for a fullfleged amateur station are nearing completion. A permanent antenna, unobtrusively mounted on the side of the building, is projected for the near future.

A first-response team has been organized, consisting of eleven Menlo Park hams living within walking distance of the EOC: Bob, W6BFH; Frank, WB6QPV; Bill, WD9ADG; Dave, KB6WP; Tiff, W6GNX; Gerry, W6NIR; and Steve, K6FS (coordinator). As members of the Menlo Park CD Radio Club (PAARA'S other arm) they will carry city-approved ID cards, have key access to the EOC, and will be on a police-fire-City Manager callup list for initial activation of the Center in a declared emergency.

As soon as K6YQT (or its successor call and station) has been renewed we will hold briefings on use of the equipment—the TR-7800 is a sophisticated beast—synthesized plus fifteen programmable channels, simplex or repeater—offset—emergency operation plans of the City and County, and orientation for City officials assigned to disaster-relief services. In the not-so-distant offing are visits to the Center during a regular PAARA meeting, with short presentations by members of Menlo Park police, fire public works department and the City Manager's office.

de Steve, K6FS.

#

MISSED PERSONS' CORNER:

Never having been able to resist an opporchancity to see my verbiage rendered in black and white print, I must write and contribute news on various fronts:

- * **HAM RADIO** - no HF antennas up yet; some activity on 2m, this being a beautiful site for signals to the n, e, and s.; joined the local RPTTY group (which has a repeater on 147.78-18)
- * **HOUSE** - have the lawn sodded in; installed a 400 lb. woodstove; finishing drywall joints in garage; the last of the draperies are due soon
- * **WORK** - PGE (Portland General Electric) keeps one busy: PBX, paging, telephone cables, keyphone equipment, inductive coordination, mobile radio controls, and SCADA computer quirks have been attacked so far. My company car has a 60 watt Mitrek on 48.46 MHz (the skip has been incredible lately!) It's very enjoyable to work on projects that require spending time at our antique hydro plants located in some very beautiful spots on the Bull Run and Clackamas Rivers.
- * **KA6KKD** - is taking a rest from pharmacy and is working in the PGE purchasing department. Sure is nice to be able to have our weekends and evenings together! Will have to get her nose back in the theory books so she can get her Tech. license. Congrats to all on another FB FD performance - W6BFH looked natty with his barnstorming buddy! Best wishes to all for the holidays from Orygun... Terry, N6RY and Charlotte, KA6KKD

PARTY CORNER: Like after Field Day in July, the Christmas Party in January. The preparation by Gerry, WA6INV, showed because everyone had a grand time and even Gerry didn't have a harried look.

PAARA members began arriving at Ricks a few minutes after six and continued drifting in for an hour until all table spaces had been filled—sixty five. The places of those who could not go at the last minute were filled by those who found they could.

Everyone mixed as nicely as the table set-up would allow and much across the room waving was done.

Dinner was good—one remark heard was "not great, but good". Certainly enough, and almost any banquet serves your baked potatoe in aluminum foil.

Bob, K6SEM, introduced the new officers and Board Members and thanked all for helping him make PAARA grow during his tenure as president.

Vivian, WB6GTV, incoming president of CCRC, made the Field Day plaque presentation to a number of Field Day types but there wasn't enough room for all of them "up front". Cam, K6RU, told how we did it.

Don, W6CFZ, set a different "chief Santa" look, and Eric, W6DU a different "elf" look, but they managed to distribute exchange gifts to everyone there. The raffle followed with Sally, XYL of Andy, K6EHS, got the Childs cook book and Eric picked up the call books. True to Eric's luck, he had just bought a set of call books so he put them up for a redrawing. Fred, YT, was the lucky second choice.

It was a great Christmas Party, smoothly run and comfortable. For those who missed it—try it next year



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POST 599 CORNER: NOTES FROM POST 599

HF - A Swan rig should soon be available for Post members and the newly acquired Atlas is being sent off for overhaul. A 10-80 meter vertical has been installed (HRO gave us a very good deal. Let them know their support of Post 599 is appreciated).

VHF - K6OTR (144.570/145.170) is working fine. So give it a try.

UHF - A 450MHz repeater is in the works.

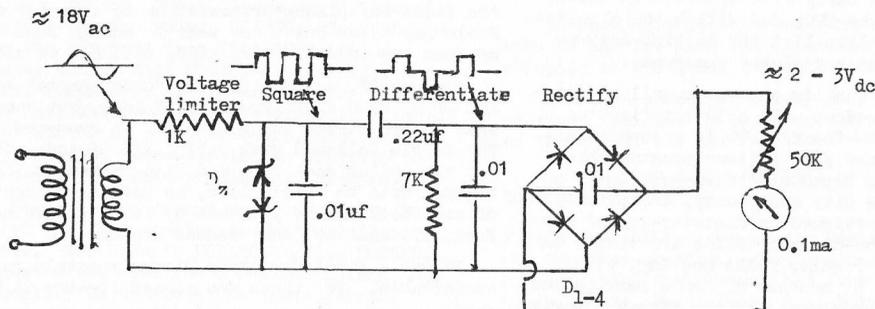
EVENTS - Another Novice Class is nearing completion. Congratulations to the new hams (and thanks to John, KA6CUG, for a job well done). **THE BIG NEWS:** Post 599 is sponsoring a flea market on January 10th, Saturday, 9 a.m. at the Bohannon Industrial Park, Menlo Park, off Marsh Road, east of Bayshore.

NOVICE CLASS CORNER: The Electronics Museum Amateur Radio Club is sponsoring a concentrated course to prepare persons interested in Amateur Radio Communication for the Novice Class F. C. C. examination. Class meetings will be held on February 3, 10, 17, & 24, 1981 from 7:30 p.m. to 9:30 p.m. at the Museum (near the domed observatory) at Foothill College in Los Altos Hills. There will be a 5th meeting on Tuesday, March 24 to administer the written exam.

For more information call Jim Koski at 967-3624.

#

CONSTRUCTION CORNER: Pirated from the EMARC RELAY, and made into a two-part series is a monitoring scheme for portable generators. The first is a Frequency Meter (0 - 100Hz). Next month is a expanded scale 100 to 130 volt voltmeter. Those who get the RELAY got them both in one issue. They were presented by Dick Blaine, K6ODK.



D₁₋₄ are any low current rectifiers. D_z are each 15 - 20 volts

(Calibrate using PG&E -- as close to 60HZ as anyone needs. ed.)

#

#

NET CORNER:

"This is KH6CO, will you give a call Jon?"
 "This is WB1BWV for the Pacific Maritime Mobile Net, are there any maritime mobiles wishing to check in? Please call WB1BWV for relay."

Muffled "02PM" (0 as in oh)

"I thought I heard something. Can anyone relay?"

"WØRML relay"

"02PM, this is WØRML. Is there anything we can do for you?"

"302PM"

"K7YDO, relay"

"Go ahead, Gerry."

"302PM, I have your call. Where are you located, what is your name, and what can we do for you?"

"303PM"

"KI2R, info"

"Go ahead, Bob."

"I thought I heard 302PM first, now it sounds like 303PM"

"KA6GWZ"

"Go ahead, Bill"

"He's not very strong here and his modulation is bad"

"303PM, this is KH6CO. Please verify your call and give your name and QTH".

Nothing more.

UNCLASSIFIED CORNER: This space is made available to members, and to non-members as space permits, for the acquisition or disposition of items-- mainly electronics.

FOR SALE: KDK FM2015 2-meter transceiver, 5 and 15 watts output. Fully synthesized with four pre-programmed channels. \$175. See Steve, K6FS, or call him at 322 4952.

FOR SALE: Yaesu 901-DM, used about 6 hours. Price negotiable. Cash, no trade. Roger, WD6DGT 367 7179.

#

All had heard of 3A's, B's, D's and one had worked a 3V8 once. Many thumbed through their Call Books for the elusive 302PM or 303PM, whichever it was, swinging their beams to a surmised direction.

Net traffic continued for a while, relaying maritime mobile positions, courses and speeds and occasionally a member would QSY for phone patch work, when the signal was heard again. This time loud and clear.

"Three forty three PM" followed by an "oops".

The "oops" was from Ed, W6KJI, a mainstay in net activity. He had acquired a talking clock which he kept in his shirt pocket. The elusive 302PM or 303PM, whichever it was, had been the gadget, left on a minute or two shortly after 3 o'clock, triggering Ed's VOX.

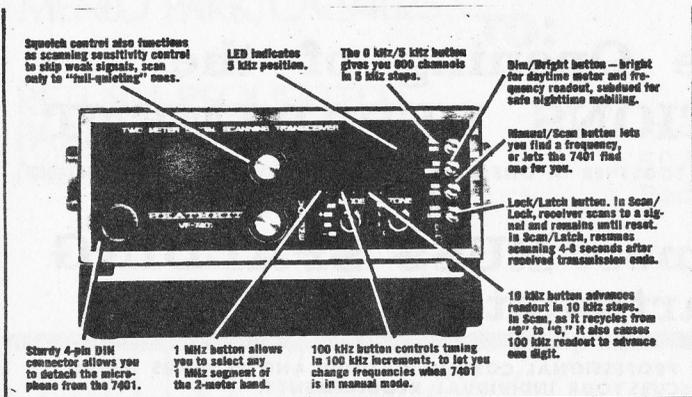
Some net members checked out before 3:43PM and doubtless spent a moment or two, until the next day, trying to find out where the 3oh's were.

They were as fleeting, if not as real, as 1980.

HAPPY NEW YEAR

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Squelch control also functions as scanning sensitivity control to skip weak signals, scan only to "full-quieting" ones.

LED indicates 5 kHz position.

The 0 kHz/5 kHz button gives you 800 channels in 5 kHz steps.

Dim/Bright button - bright for daytime motor and frequency readout, subdued for safe nighttime mobilizing.

Manual/Scan button lets you find a frequency, or lets the 7401 find one for you.

Lock/Latch button. In Scan/Lock, receiver scans to a signal and remains until reset. In Scan/Latch, resumes scanning 4-8 seconds after received transmission ends.

10 kHz button advances readout in 10 kHz steps. In Scan, as it recycles from "99" to "00" it also causes 100 kHz readout to advance one digit.

Sturdy 4-pin DIN connector allows you to detach the microphone from the 7401.

1 MHz button allows you to select any 1 MHz segment of the 2-meter band.

100 kHz button controls tuning in 100 kHz increments, to let you change frequencies when 7401 is in manual mode.



Give the Amateur on your list the ultimate gift: the VF-7401 2-Meter FM Digital Scanning Transceiver!

\$349.95
with PTT
microphone

- Continuously adjustable, 15-watt output
- Band scan capability 1 MHz at a time - front panel selectable
- 800-Channel synthesized capability
- Preprogrammed power-up on your favorite channel
- Microphone is detachable

If you have one or more repeaters in your reception area, you need the Heathkit VF-7401 2-Meter FM Digital Scanning Transceiver. You can't effectively monitor one or more repeaters, plus simplex frequencies, without a scanning transceiver like the VF-7401. And never again will you have to search through a repeater guide on the highway. The VF-7401 will find all of the local activity for you, because this exciting Transceiver scans the entire 2-meter band in 1 MHz segments. When it finds an active channel, it stops! It stays on the active channel, when you select the Scan/Lock Mode, until you reset it. Or, set your VF-7401 in the Scan/Latch mode, and it will resume scanning when the received transmission ends.

You can adjust the receiver to stop scanning for "full-quieting" signals only. Or, open up the squelch when there are 2-meter band openings. Your VF-7401 will find that "2-meter DX" for you without the tedious task of flipping through channels one by one. Naturally, your VF-7401 lets you change frequencies manually, too. Three small front panel switches allow you to select manually any desired frequency at the scan rate. Once you have the frequency you want, you may also offset it by a separate 5 kHz switch.

Your VF-7401 will "power-up" on the frequency of your choice. While building your transceiver, you program in any simplex or repeater frequency. Then, every time you turn it on, before it begins to scan, that frequency is monitored first. Besides simplex, your VF-7401 has +600 kHz, -600 kHz and 1 MHz offsets. It can accommodate any 2-meter amateur band offset combination, even MARS and CAP. The VF-7401 is a continuously adjustable, 15-watt (nominal), solid-state, narrow-band FM transceiver. Featuring a hot receiver, it incorporates a double-tuned front end with MOSFET RF amplification, dual-conversion, 8-pole crystal IF filter-

ing for perfect bandpass shaping and outstanding adjacent channel selectivity, IC limiting, Quad detection and excellent audio quality. An improved synthesizer eliminates the need for a panel-mounted syn lock light. Power amp tuning and output power level adjustment are both accessible from the rear panel without removing the case. Also added—a sturdy SO-239 antenna connector, plus chassis-mounted power and external speaker jacks.

Your VF-7401 has a detachable microphone with rugged 4-pin DIN connector. And if you choose the optional Micodot™ II Microphone/Auto Patch Encoder (described on page 91), stop worrying about when your mike battery is going to run down. The Micodot II draws its power directly from the VF-7401. Also included is a handy gimbal-mount bracket for mobile installation. The Transceiver requires a 13.8 V, 3 amp continuous, 4 amp intermittent, power source such as a charging automobile electrical system, or the optional VFA-7401 AC Power Supply described on page 94.

Kit VF-7401-1, Transceiver and Micodot II, Shpg. wt. 12 lbs. 369.95
Kit VF-7401-2, Transceiver and PTT Microphone, Shpg. wt. 12 lbs. 349.95

VF-7401 SPECIFICATIONS: Receiver: Sensitivity: 0.5 μ V for 12 dB SINAD (or 15 dB of quieting). Squelch Threshold: 0.3 μ V or less. Audio Output: 1.5 watts at less than 10% THD; 2 watts maximum output (typical). Image Rejection: -50 dB or greater. Spurious Rejection: -50 dB or greater. IF Rejection: -80 dB or greater. Internally Generated Spurious Signals: Below 1 μ V equivalent. Bandwidth: 6 dB at 15 kHz minimum and 60 dB at 15 kHz minimum and 60 dB at 30 kHz maximum. Modulation Acceptance: 6.5 kHz minimum. Transmitter: Power Output: 15 watts nominal to a 50 Ω (∞ resistive) load at 25 $^{\circ}$ C and 13.8 VDC. Harmonic and Spurious Output: -60 dB. Modulation: FM, 0-7 kHz, adjustable. Duty Cycle: 100% with VSWR of less than 10:1. Tone Encoder: 3 tones 70 to 200 Hz, approx. 700 Hz deviation. Transmitter Offset: -600 kHz, +600 kHz, +1 MHz (AUX). General: Frequency Coverage: Any 4 MHz segment from 143.5 to 148.5 MHz. Frequency Increments: 5 kHz. Frequency Stability: \pm .0015%. Operating Temperature Range: +15 $^{\circ}$ F to +125 $^{\circ}$ F (-10 $^{\circ}$ C to +50 $^{\circ}$ C). Operating Voltage Range: 12.5 to 16 VDC (13.8 VDC nominal). Current Consumption: Receive Mode: 550 mA max., squelched; 750 mA max., full rated audio. Transmit Mode: 4A max. at 13.8 VDC. Dimensions: 23 $\frac{1}{2}$ " H x 7 $\frac{1}{4}$ " W x 10 $\frac{1}{4}$ " D (7.0 x 18.4 x 26.0 cm).

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NDP-432, Shpg. wt. 1 lb. 4.95

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EDP-127 18.95

1980 Edition. ARRL Radio Amateur's Handbook. Up to date electronics theory and application. 538 pages.
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73 Dipole Antennas. Description, construction of 73 different dipole and long-wire antennas. 160 pages.
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