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vol. 23

JULY 6, 1979

# PAARA

## GRAPHIS

palo alto  
AMATEUR  
RADIO ASSN.

MENLO PARK C.D. RADIO CLUB, K6YQT

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 \$4.00 per calander year (payable in January) which membership includes a subscription to PAARAgraphs. Interested others may subscribe to PAARAgraphs for \$1.00. Make payment to:

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REGULAR MEETING

Friday July 6, 1979 7:30 p.m.

AMATEUR RADIO CONTESTING

by

Gary Caldwell, WA6DEF

Now that Field Day is over, Gary will prepare us for the next Novice Roundup and for Field Day, 1980.

He will discuss what a contest is, and, in general, operating procedures to follow. Included will be a survey, with slides, of typical contest stations and antenna farms.

Gary is the President of the Northern California Contest Club (which operates WR6ABM) and is bound to spark latent desires to compete and to eliminate much of the reluctance many of us have to entering amateur radio contests.

CIRCLE THE DATE

Friday July 6, 1978 7:30 p.m.

Menlo Park Recreation Center, Civic Center, Menlo Park.

PAST CORNER: The June 1 meeting was called to order before your editor arrived. Fred, K6YT, distributed name tags to those present to receive them. He also gave a report on Field Day preparation progress, listing equipment available, team captains and the general plan of action.

Jim, K7UDG, reported the Explorers were set for the Western Wheelers Cycle Event to be held the next day.

Coffee, cookies and a raffle preceeded two ARRL motion pictures used in training programs. Fifty nine attended and all but filled the 64 chairs set up. This month more will be available.

BOARD CORNER: The Board of Directors and Club Officers met at the President's home June 6 because the trailer was off to Kootenahurn. Visitors included Fred, K6YT and Bob, W6BFH. Free beer but no skittle board.

Gerry, WA6LNV, reported he was trying to reserve our meeting place for a more extended period than the now possible three months at a time.

Bob, K6SEM, reported Steve, K6FS, was active with the CCRC and of his promotional program for the October 6 Auction/Flea Market. Steve was doing that while the Board Meeting was in progress.

Bob also gave a report on his efforts to develop future programme material.

Fred, K6YT, gave an update and rescheduling some antenna work. The smoke test was to be held June 16-17.

Gerry, WA6LNV, discussed advertising for the Auction/Flea Market and Gerry, W6NIR, volunteered to help with the flyer.

A general discussion of the "gimmick" for the Flea Market this year followed. Gerry, WA6LNV, suggested he contact distributors and manufacturers for quality items for auction and/or sale.

...

NAME CALLING CORNER: Fred, K6YT, gathered an armload of nametags and called Liza, WA7WXA, Willard, WB6WHZ, Jim, K7UDG, Peter,

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CUT AND PASTE CORNER: Please add the following

John Fraher KA6FRK 23000 Cristo Rey Dr.  
Jerry Hogsett W6PPK 1665-A Belleville Way  
Jerry Hogsett Jr KAGEYU 1446 Wildrose Way

\*\*\*\*\*

WD6CVP, Don, W6AAQ, David, W6JHU, Walt, W6ASH, Leonard, W6HLE, Clay, K5OSQ, Jim, WB6YOY, Robert, WA6HIV, Larry, KA6DZM and Doug, KA5DQR. To his disappointment he had to take some home because they were unclaimed.

He'll try again next month and hopes to have some more for Carl, KA6EKG, Nolan, KB6IV, Dave Daniel, Bob, W1ARR, Robert WA6ION, Rob, W6EGL, John, KA6EMX, Dave, W6PGQ, John, KA6FRK, Jerry, KA6EYU, and Jerry, W6PPK.

Whether they come or not we hope to have all name tags collected the month they arrive. Will they make it? Come to see.

+++

PUBLIC RELATIONS CORNER: Visitors with us in June included David Finklestein, KA6DLL, and Russell Rochett of Palo Alto, Roger Gearhart from Redwood City and Bonnie Allen from Pennsylvania. Your editor is in bad company. He didn't meet two of the visitors and odds are others did little better. Come again so we can identify voices with names.

ooo

EXPLORER'S CORNER: Post 599 has grown a little and we hope to continue this trend.

Our members, new and old, include: Bob Gallagher, President, Jim O'Neill, Vice President, Sandy Large, Secretary/Treasurer, John Buonocore, KA6CUG, Equipment Manager, Karl Jogis, Jerry Hogsett Jr., KA6FYW, Huntley Hornback, Mary Hogsett, Chris Schellenberg, WB6WBK, Andy Valencia, WB6RRU, David Finklestein, KA6DLL and John Johnston

On June 3rd we provided communications for a bicycle tour sponsored by the Western Wheelers. Jim, K7UDG, was in charge of the home base at Gunn, and the rest of us were manning the three other check-points. Our thanks to John, KA6EMX, Jerry, W6PPK, for helping.

With fierce determination we staved off such disasters as a smashed front wheel, a temporarily misplaced biker, and a missing jar of pickles!

All of us are looking forward to exper-

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New Members to your April Roster:

Los Altos, CA 94022 967 3822  
Sunnyvale, CA 94087 735 7994  
Mountain View, CA 94043 967 1650

\*\*\*\*\*

encing our first (for most of us) Field Day. From what we've heard, it should be quite an experience. It's also been rumored that PAARA is going to take first place. So, LET'S DO IT!

If anyone wants any info on the Post, call Jim, K7UDG, or Liza, WA7WXA, on 325-8309.

73,

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de Sandy Large.

FAMILY CORNER: We have a number of two to a family members in, or associated with, the Club—well, only three on the April Roster. But with Mary Hogsett joining the Explorer Post that makes one family with three. Good work, Jerry, W6PPK. Many of us have tried but without that success to reach that mark.

CCRC CORNER: Steve, K6FS, represented PAARA at the CCRC meeting June 6, selling the Auction/Flea Market to the eight clubs that were represented.

The major item of business was information regarding a General Class License Study Group to be formed in July. The classes to be held at Kelly Tuttle's home at 886 Highlands Circle, Los Altos. Interested parties should call Kelly at 961 2259, preferably on weekends, for more information.

Steve collected some potential program material which will be submitted to Andy, VE3PZK and Bob, K6SEM.

A possible source of technical articles for PAARagraphs was given. Articles are solicited from all sources and Steve's lead will be investigated.

AUTHOR'S CORNER: Irv Gottlieb, W6HDM, has published another book—this one entitled "Solid-State Power Electronics" which is being made available by Howard Sams Co., publishers.

Irv's books are found in the technical libraries of electronics and semiconductor firms, in colleges and in industrial training courses. He indicates that the editorial format makes his book useful to hobbyists and non-professional electronics oriented people.

The book is available from Zack's and Quement's. Other book stores can order it for you.

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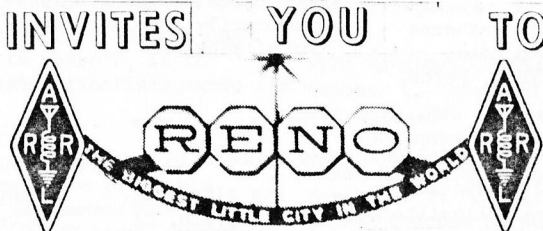
KNOWLEDGE & WISDOM CORNER: Eighteen minutes after the hour and all through the house.... WWV on 5, 10, and 15 mHz: "Solar-terrestrial indices for 23 June - Solar flux 180, A index 10, repeat.....0000UT Boulder K index 2, repeat....."

"Daddy, what's a solar flux, an A index and a UT Boulder K?"

"Why, son, let's take a look at pages 12 and 13 of QST for January, 1979. Instead of counting spots on the sun the way they used to do, now somebody with a great big radio telescope measures the sun's radiation at 2800 mHz (or 2.8 GHz for all the giggies), up in Canada every day at 1700UTC. This tells us how that old devil Ionosphere is acting, in a number that can run from 100 to maybe even 300 in a good year (like 1979-1980). The higher it is, the higher up in the HF spectrum you can work, the farther you can work between wherever you are and some place else, like maybe East Overcoat or Pumxsutawney. And the higher up you

# '79 ARRL PACIFIC CONVENTION

NEVADA AMATEUR RADIO ASSOCIATION  
SIERRA HAMFEST



August 11&12 1979

can work, the farther you can work - that's called DX. And the less power you'll need, usually."

"Is that what they call Maximum Usable Frequency, Dad OM?"

"Right, son; the hotshots call it MUF, pronounced muf."

"Okay, pop; so what's this A and K stuff?"

"We-e-ell, A is a number squeezed out of measurements of the earth's magnetic field over a 24-hour period. It can run from zero all the way to 400 maybe, but you hardly ever hear of it getting as high as 100. The lower it is, the better for everybody; 10 and below is great for DX or just for talking to Aunt Jane in Bellevue, especially if you happen to be near the north or south pole. Low A's mean your signal is less likely to get soaked up by whatever soaks up HF signals than if you had a high A."

"Is that why they call it concert pitch, Dad-ol'-Dad?"

"No way, kid; you're thinking of audio at 440 hertzycles. We're talking HF-RF."

"So what's the K, Oh possessor of all knowledge and wisdom?"

"Don't bug me, bub. K is like A, only our kindly environmentalists at their country club in the Colorado Rockies take a reading every six hours. That's why they tell you the time before telling you the K-number. It's more of a here-now thing, short-range like. And the lower, the better for HF types. If it gets bigger than 3, it even tells six and two meter nuts to look out for trouble, and if it gets up to 4, beware of storms and strife everywhere from 160 meters on up."

"I guess I got it, except when the guy gives out the numbers and says conditions have been low, moderate or active, quiet or unsettled, he's talking about what's already happened. How come he then rears back and lays down a forecast for the next 24 hours?"

"Easy, he looks at the figures for the last 24 hours, or maybe longer, and estimates a prediction."

"You mean he shoots a guess."

"Sure. But it's an educated one; with enough dope on what's beeh happening, he can give up to 9-to-1 odds on upcoming conditions. Even for a month ahead."

"Is that what all those weird curves are in QST? The ones labeled 'When Are The Bands Open?'"

"You got it, kid. If you're playing around the HF's, learn to read the fine print. It'll help you figure out when to try to where, even if you're not a DX-chaser. And get in the habit of picking

up WWV once or twice a day, like morning and evening, and logging the numbers, the summary of present solar-terrestrial indices, and the forecast of what's likely for the next 24 hours. The dope is mostly good and it's free if you don't pay taxes. Learn to use it."

"Gee, pop - ain't technology great?"

"Black Magic, son - black magic. Ask me another."

(Above typed while half-listening to original Spike Jones recording of "Cocktails for Two").(de Steve, K6FS.)

NOVICE CORNER: Dave Daniels took the written part of the Novice Exam June 5, indicating that his Form 610 was properly filled out, and the longer he waits for word from the FCC, the happier he is. He was hoping the right word, starting with KA6 would arrive in time for Field Day....

Swede, KA6BEU, received his last card for WAS-15 meters June 18. Now the whole bundle goes to ARRL for the coveted certificate. With a few DX cards in hand, his next challenge is DXCC. He hopes that the response from foreign stations is better than trying to get a card from one Arkansas station: three tries, the last with a self addressed stamped card included with a plaintive cry for help to get WAS. Finally he found another Arkansas station. Have heart, says Swede.

GENERAL CORNER: John, KA6EMX, and Larry, KA6DZM, took themselves out of the Novice Tent for Field Day by receiving their Bachelor's Degree in Amateur Radio (June is normally commencement month). They are both doing quite well...John got on two meters and Larry has been pounding brass.

Meanwhile, Swede, KA6BEU and Paul, WA6IJP and a whole raft of unnamed Explorers were planning a trip to the City to meet the devil on Wednesday after Field Day.

At last the Novices have begun to move! Congratulations to John and Larry, and good luck, our June 27 expeditionary force.

ADVANCED CORNER: At the rate John is going we might just see him here one of these months. And Larry, too.

EXTRA CORNER: The only thing we can print here is hope.

" " "

QSL CARD CORNER: Club members, especially those with "temporary" calls....before upgrading....can avail themselves the use of your editor's letter press. If you are curious about how one works and need cards for WAS, see Bob, W6BFH.

WINDY CORNER: After seeing how the Field Day antennas bounced around in 40 knot winds on the weekend of June 16-17, feeling the towers vibrate and try to lift from the ground, and hearing the whistle of the wind in the guy-lines, one wonders just how much force the wind is placing on the various structures involved.

To analyze the whole bit takes more of a library than is locally available—perhaps some can come up with answers to some unanswered questions.

If you have ever wondered what your antenna wind load is, or will be once it is up in the air, the following might be of help.

"Wind force, or, drag" as referred to in aerodynamics is determined by the wind velocity, air density, and the shape of the object in the wind stream. Although the first correlation of these factors was published by Newton as early as 1686, it is only because of aviation research that it is now possible to accurately predict air drag for various objects.

The formula for air drag "D" is commonly expressed:

$$D = C_d \frac{\rho}{2} V^2 S, \text{ where,}$$

- $\rho$  is the density of the air, .00238 slugs/ft<sup>3</sup> at 59°F with a barometer of 29.96" Hg; greater on a cold, dry day than on a warm, humid day.
- V is the wind velocity in Knots
- S is the cross sectional area at right angles to the wind.
- $C_d$  is a dimensionless coefficient of drag which varies with the shape or profile of the object in the wind stream. Antennas are made up of wires, cylinders, flat plates and masts. Wires have a  $C_d$  of unity; flat plates 1.28.

Substituting the density of the U. S. Standard Atmosphere in the above formula and converting to useful units where  $D_1$  is in pounds,  $V_1$  is in knots, and  $S_1$  is in square feet, we get

$$D_1 = .00339 C_d V_1^2 S_1.$$

$V^2$  is the kicker. As you halve or double the wind speed the drag decreases/increases markedly. At 20 kts, a TH6DX has 11 pounds drag, a TH3Jr, 5.25, and a 40 meter doublet of number 12 wire and 40 feet of RG-59U only .624 pounds. Double the wind speed and the drag is 44, 21, and 2.5 pounds respectively.

Next month, if assorted diameters of pipe, conduit, and wood members hold up under test, a tabulation of how long a mast may be used to support how much drag using different materials. (Editor's note: Anyone with a knowledge of strength of materials and a good handbook with the necessary parameters to satisfy the above paragraph is invited to fill in the blank space in next month's PAARagraphs.)  
\* \* \*

UNCLASSIFIED CORNER: PAARagraphs will include items desired or for sale/trade/swap as space permits (you list it, space will permit) from Club members, and, as space permits, from interested others. Offerings or desires are received preferably in writing to the editor. Otherwise, at your risk for accuracy, through 325-0497.

WANTED: By almost a Novice, Dave Daniels, a HF rig of good repute. He would like to limit an initial expense to about \$250.00. Any offerings will be screened through Gerry, W6NIR, Dave is also expecting to upgrade and is looking for 2-meter gear. But first let's get him on HF, and hooked, so he'll really find out what amateur radio is all about.

FOR SALE: Yaesu-101 w ith DDI digital read-out (Spectronics). Nice condition with manuals. \$420.00

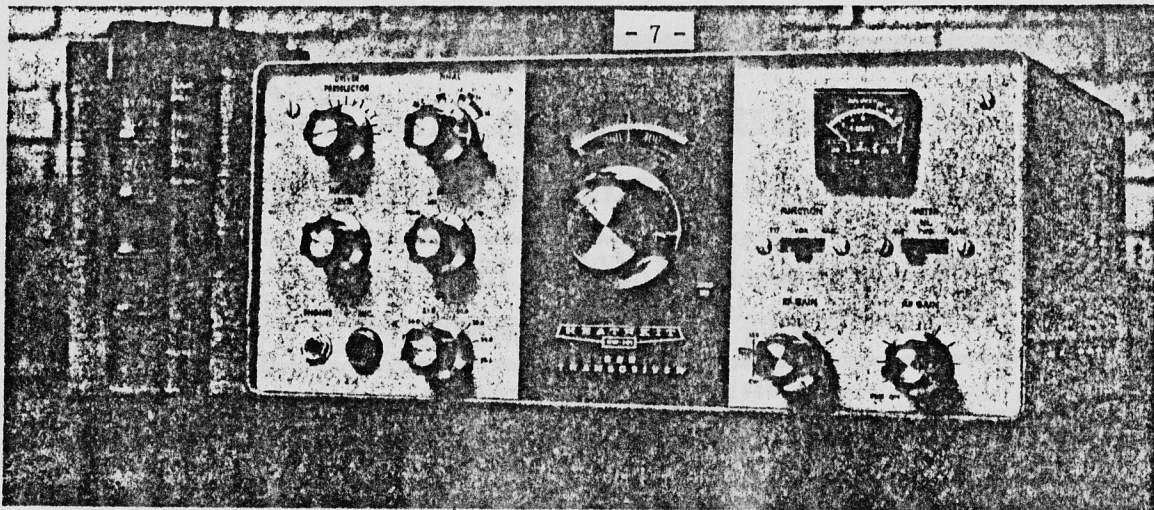
Johnson Matchbox, 250 watt, \$90.00. See Dusty, K6MPN, 368 8156, or at the meeting.

WANTED: Donations of equipment for Auction or Flea Market Sale at the PAARA Auction/Flea Market at Ampex Cafeteria, October 6. Quality comes first—the rest to the flea market (ours or someone elses). PAARA is a non-profit organization and as such, your contributions are tax deductible. THINK AHEAD. April 15, 1980 isn't that far away.

FLEA MARKET, FARS, Foothill College, Los Altos, September 9. Times indicated next month.

FLEA MARKET/AUCTION: PAARA, Ampex Cafeteria, October 6. More information next month—hold the date, get the goodies, win the raffles, eat doughnuts, drink the coffee, socialize!

PAARA MEETINGS in the future include August 3; September 7; October 5; PAARA Auction/Flea market October 6; November 2, Nomination Night; December 7, Pearl Harbor day and Election Night; and in December, a CHRISTMAS PARTY.



## HW-101...One of the World's Best Transceiver Values

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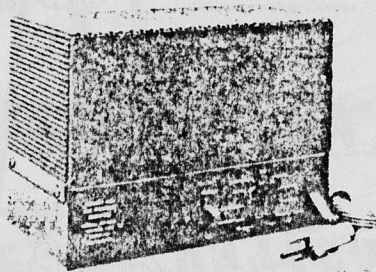
The Heath HW-101 gives you full coverage 10 through 80 meter operation at a price that's unbeatable! It's an excellent first rig for the Novice, yet you'll find it packed with the features and performance that every Ham will appreciate.

Look over its clean front panel styling...power up, flip the mode switch. Instantly you've got your choice of USB, LSB, or CW operation. Key the transmitter, VOX or PTT, and you command a high performance pair of 6146s that'll pump a clean 180 watts PEP in on phone or 170 watts in on CW. Spin the massive main tuning knob and a solid 36:1 Jackson drive opens the bands and lets you explore with ease. Up on 15 make the HW-101's fantastic 0.35  $\mu$ V sensitivity work for you. While on 80 and 40 you'll rapidly come to appreciate the 101's crystal IF filtering as it cuts away the QRM and lets you enjoy your QSOs. And if you've got a "sked" to make, with a net or your pal, switch in the 100 kHz calibrator and let it put your HW-101's FET VFO exactly where you want to be.

Kit assembly is easy and fast with an open chassis layout, uncrowded circuit boards and a color-coded wiring harness. Special "switch boards" with built-in wafer switches help eliminate intricate wiring to greatly simplify assembly. The HW-101, it's an unbeatable deal at an unbeatable price.

Kit HW-101, Shpg. wt. 22 lbs. .... 399.95  
SBA-301-2, 400 Hz CW crystal filter, Shpg. wt. 1 lb. .... 41.85

**HW-101 SPECIFICATIONS: RECEIVER:** Sensitivity: <0.35  $\mu$ V for 10 dB S+N/N for SSB operation. SSB selectivity: 2.1 kHz min. @ 6 dB down; 7 kHz max. @ 60 dB down; (3.395 MHz filter). CW selectivity: (optional SBA-301-2 CW crystal filter); 400 Hz min. @ 6 dB down; 2.0 kHz max. @ 60 dB down. Output Impedance: 8 ohm speaker, and high impedance headphone. Power output: 2 watts with <10% distortion. Spurious response: Image and IF rejection >50 dB. **TRANSMITTER:** DC power inputs SSB 180 watt PEP (normal voice, continuous duty cycle), CW 170 watts (50% duty cycle). RF power output: 100 watts on 80 through 15 meters; 80 watts on 10 meters (50 ohm non-reactive load). Output impedance: 50 ohm to 75 ohm with <2:1 SWR. Oscillator feed-through or mixer products: 45 dB below rated output. Harmonic radiation: 40 dB below rated output. **Transmit-receive operation:** SSB: PTT or VOX. CW: Provided by operating VOX from a keyed tone, using grid-block keying. CW sidetone: Intensely switched to speaker or headphones in CW mode. Approx. 1000 Hz tone. Microphone input: High impedance with a rating of -45 to -55 dB. Carrier suppression: 45 dB down from single-tone output. Unwanted sideband suppression: 45 dB down from single-tone output at 1000 Hz reference. Third order distortion: 30 dB from two-tone output. RF compression (TALC): >10 dB at 0.1 mA final grid current. **GENERAL:** Frequency coverage: 80-10 M amateur bands. Frequency stability: <100 hertz per hour drift after 45 minutes warmup from normal ambient conditions. <100 Hz for  $\pm$ 10% line voltage variations. Modes of operation: Selectable upper or lower sideband (suppressed carrier) and CW. Dial calibration: 5 kHz. Calibration: 100 kHz crystal. Audio frequency response: 350 to 2460 Hz. Power requirements: 700 to 850 volts at 250 mA with 1% maximum ripple; 300 volts at 150 mA with 0.05% maximum ripple; -115 volts at 10 mA with 0.5% maximum ripple; 12 volts AC/DC at 4.76 amps. (see fixed & mobile power supplies below). Cabinet dimensions: 6 $\frac{1}{2}$ " H x 14 $\frac{1}{2}$ " W x 13 $\frac{1}{4}$ " D.  
\*Triple Action Level Control.



### Fixed-Station AC Power Supply for the HW-101 SSB/CW Transceiver

Provides the operating voltages for the HW-101 as well as those necessary for the operation of many other Heath transceivers. Has high voltage and two internally selectable low B+ taps. Also provides fixed bias and 12.6 filament voltage. The HP-23C features excellent bias supply filtering and extremely low ripple content on both high and low voltage outputs.

Kit HP-23C, Shpg. wt. 19 lbs. .... 64.95

**HP-23C SPECIFICATIONS:** High voltage output: 820 VDC no load; 700 VDC @ 250 mA  $\pm$ 10%. AC ripple: Less than 1% @ 250 mA. Low voltage output: (High tap) 275 VDC, no load; 250 VDC @ 100 mA;  $\pm$ 10%. (Low tap) 275 VDC, no load; 250 VDC @ 100 mA;  $\pm$ 10%. Less than 0.05% AC ripple @ 150 mA, continuous duty to 175 mA. Fixed bias: -130 VDC  $\pm$ 10%, no load; -100 VDC @ 20 mA. Power requirements: 120/240 VAC, 60/50 Hz, 350 watts maximum. Dimensions: 9" L x 4 $\frac{3}{4}$ " W x 6 $\frac{3}{4}$ " H.

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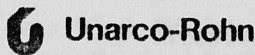
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