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# PAARA

## GRAPHS



palo alto  
AMATEUR  
RADIO ASSN.

MENLO PARK C.D. RADIO CLUB, K6YQT

vol. 24

FEBRUARY 1, 1980

# SHAVER RADIO, INC.

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K6DTX

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**AZDEN**  
**REVOLUTIONIZES THE STATE OF THE ART**  
**AWE AND AZDEN INTRODUCE THE BRILLIANT NEW PCS-2000**  
**MICROCOMPUTER CONTROLLED**  
**2 METER FM TRANSCEIVER**

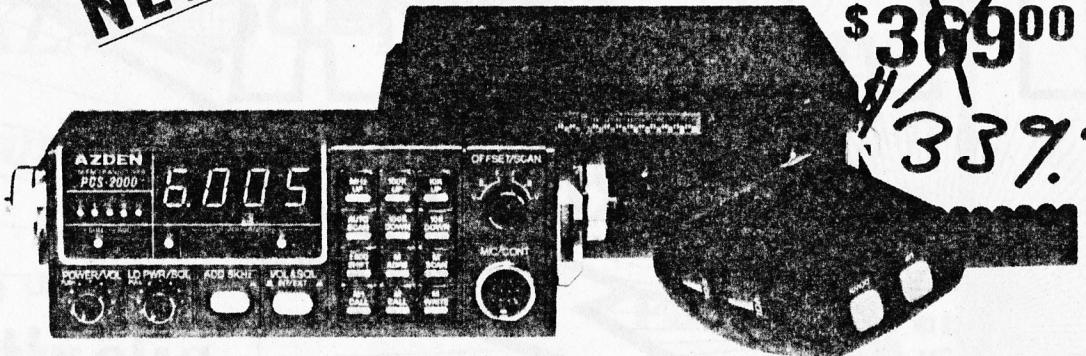
**NEW!**

NOT \$550.00  
**INTRODUCTORY**

~~PRICE~~

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## COMPARE THESE FEATURES WITH ANY UNIT AT ANY PRICE

- **FREQUENCY RANGE:** Receive and transmit: 144.00 to 147.995 MHz, 5KHz steps + MARS CAP\* and MULTIPLE OFFSET BUILT IN.
- **ALL SOLID STATE-CMOS PL DIGITAL SYNTHESIZED.**
- **SIZE: UNBELIEVABLE! ONLY 6 1/4" x 2 1/4" x 9 1/4". COMPARE!**
- **MICROCOMPUTER CONTROLLED:** All scanning and frequency-control functions are performed by microcomputer.
- **DETACHABLE HEAD:** The control head may be separated from the radio for use in limited spaces and for security purposes.
- **SIX-CHANNEL MEMORY:** Each memory is re-programmable. Memory is retained even when the unit is turned off.
- **MEMORY SCAN:** The six channels may be scanned in either the "busy" or "vacant" modes for quick, easy location of an occupied or unoccupied frequency.
- **FULL-BAND SCAN:** All channels may be scanned in either "busy" or "vacant" mode. This is especially useful for locating repeater frequencies in an unfamiliar area.
- **INSTANT MEMORY-1 RECALL:** By pressing a button on the microphone or front panel, memory channel 1 may be recalled for immediate use.
- **MIC-CONTROLLED VOLUME AND SQUELCH:** Volume and squelch can be adjusted from the microphone for convenience in mobile operation.
- **ACCESSORY OFFSET:** With one optional crystal, three non-standard offsets become available.
- **25 WATTS OUTPUT:** Also 5 watts low power for short distance communication.
- **DIGITAL S/RF METER:** LEDs indicate signal strength and power output. No more mechanical meter movements to fall apart!
- **LARGE 1 1/2 INCH LED DISPLAY:** Easy to read frequency display minimizes "eyes off the road" time.
- **PUSHBUTTON FREQUENCY CONTROL FROM MIC OR FRONT PANEL:** Any frequency may be selected by pressing a microphone or front panel switch.
- **SUPERIOR RECEIVER SENSITIVITY:** 0.28 uV for 20 dB quieting. The squelch sensitivity is superb, requiring less than 0.1 uV to open. The receiver audio circuits are designed and built to exacting specifications, resulting in unsurpassed received signal intelligibility.
- **TRUE FM, NOT PHASE MODULATION:** Transmitted audio quality is optimized by the same high standard of design and construction as is found in the receiver. The microphone amplifier and compression circuits offer intelligibility second to none.
- **OTHER FEATURES:** Dynamic Microphone, built in speaker, mobile mounting bracket, external remote speaker jack (head and radio) and much, much more. All cords, plugs, fuses, microphone hanger, etc. included. Weight 6 lbs.
- **ACCESSORIES:** 15' REMOTE CARLE... \$29.95. \*MARS CAP KIT... TBA PCS 6R A/C POWER SUPPLY... \$49.95

VOLUME 24 NUMBER 2

FEBRUARY, 1980

\*\*\*\*\*  
PAARAGraphs is the official organ of  
The Palo Alto Amateur Radio Association and the Menlo Park Civil Defense Radio Club  
\*\*\*\*\*

1980 CLUB OFFICERS

President	:	Bob Wheeler	K6SEM	494 6549
Vice President	:	Eric Edberg	W6DU	948 1748
Secretary	:	Gerry Tucker	WA6LNV	326 4908
Treasurer	:	Irene Lile	WB6RAF	851 7473
Trustee, K6OTX	:	Fred Canham	K6YT	948 9238
Property	:	Ed Fairbanks	W6AIN	322 0319
ARES Officer	:	Steve Stuntz	K6FS	322 4952

\*\*\*\*\*

BOARD OF DIRECTORS

Chairman:	Bob Wheeler	K6SEM
Members :	Ed Fairbanks	W6AIN
	Swede Swenson	KA6BEU
	Shannon Lile	K6TNY
	Gerry Wagstaffe	W6NIR
	Terry Conboy	N6RY
	Jock McKaig	N6YV

\*\*\*\*\*

PAARA POLICIES

Membership in PAARA is \$6.00 per calendar year (payable in January) which membership includes a subscription to PAARAGraphs. Interested others may subscribe to PAARAGraphs for \$6.00. Make payment to:

PAARA, P.O. Box 911, Menlo Park, CA 94025

Written contributions to P. O. Box above, or, 1043 Del Norte Av., Menlo Park, CA 94025

\*\*\*\*\*

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Sue Lindner L6VLY

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

FRIDAY

FEBRUARY 1, 1980

7:30 p.m.

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

DX FOUNDATION--DX BEACONS

by  
Cam Pierce, K6RU

Cam is known to most members through his work during past Field Day activity. To others he is known as a DX hound sharing his expertise with anyone showing interest. His discussion of the DX Foundation should be of interest to all but the 300 GHz crowd. The use of Beacons and record keeping of signals coming from them, and their value, will be discussed

CIRCLE THE DATE

Friday

February 1, 1980

7:30 p.m.

FUTURE MEETINGS: March 7, April 4, May 2, June 6. Field Day June 27-28.

- 4 -  
AST CORNER: Eric, W6DU, rode herd on a record crowd esitmated at 65 to 70 attendees. Guests were introduced but the register failed to complete the rounds so many will ave to come to the February meeting to be recognized.

Six new members -- see Cut and Paste Corner -- were nominated for membership--ranging from unlicensed to Extra Class--and all were accepted.

Gerry, W6NIR, announced that Glen Baker's KUOK, estate would sell his equipment January 1 and Larry, KA6DZM, announced his own Flea market.

Jim, K7UDG, announced an anonymous \$100 donation to the Explorer Post 599 and sincerely indicated the Post's gratitude. Gerry, WA6INV, announced the Christmas Party was a great success and looks for even a better one this year.

Rick, WA6NCX/1 gave an interesting talk about how nuclear magnetic resonance affects everyday amateur radio. The slides of the NMR equipment were spectacular as were those of the MIT ham station.

+ + +

BOARD CORNER: The annual decision to make the PAARA President Chairman of the Board was made shortly after the Board of Directors meeting got underway. The meeting started unofficially at 7:30 p.m. in the Club trailer.

Attending were Bob, K6SEM, Gerry, WA6INV, Irene, WA6RAF, Ed, W6AIN, Gerry, W6NIR, Terry, W6RY, Shannon, K6TNY, and guest Fred, K6YT.

Minutes of the previous meeting were accepted and the the treasurers' report was greeted with solemn faces--and with whirring minds wondering what equipment might be needed to maintain a high position in Field Day this June.

A letter from the Schoofs was presented by Gerry, W6NIR. In it they indicated appreciation to the Club for their anniversary dinner and for the condition of their property after Field Day activities were over in 1979. They suggested the site would be available again for 1980 if it is needed.

The search for a CCRC representative continued with several names mentioned. Individual Board Members were to contact those able to be representative of the Club to the regional organization.

Amateur band QRM was discussed at great length but no action was recommended.

The meeting adjourned about 9:15 to the little spot down the block, over the winding walk for refreshments and unrecorded business.

PUBLIC RELATIONS CORNER: As sometimes happens, someone sat on the Register Book that gets passed around during the meetings for members and guests to sign, so it is likely some visitors went unrecorded at the January meeting.

Those who made it include: George, W6AIP, Bus, WB7FTD, Keith, WB6GYT, George, K6OG, Ray, W6JOV (he's a visitor?), R. Lockhart, W1AFN, and Steve Schellenburg.

Members from out of the area and only infrequent attendees included Rick, WA6NCX (near Boston) and Doug, KA5DQR (Galveston) were recognized by some.

We look for a repeat appearance from our guests and visitors. The more often you come the better you will be known.

It is important that the Registration Book make a complete round at meetings. It not only indicates which members are present but who our guests are. It is one way of keeping our mailing list correct. And it helps get a copy of PAARAGraphs to our guests.

o o o

CORNER OF EXPLORATION: In keeping with current world fads, Amateur Radio Explorer Post 599 underwent a major change in leadership. True democracy in action when, on January 9, 1980, Post Officers were elected. For the year 1980, Post Officers are: Robert Gallagher, KA6IRT, President; Chris Schellenberg, WB6WBK, Vice President; Jim O'Neil, KA6IKX, Secretary, Steve Schellenberg, Treasurer; John Buonocore, KA6CUG, Equipment Supervisor; and Russell Rockett, Post Librarian. Some controversy arose after the election because of two visitors voting. This will bring discussion at our next meeting.

Although an Amateur Radio license is not required for membership in our Post, licensing and upgrading are encouraged. Because of this encouragement, a new ham has joined the ranks: Robert Gallagher has the new novice call KA6IRT. This brings our running total to nine licensed members, two awaiting word from the FCC, and three still trying.

Future Post events include: an Amateur Radio display in Mayfield Mall (February 2, 10 a.m. to 5 p.m.), Scout Sunday (February 3) and novice code and theory classes. (for details, call 325-8309 or 366-8548)

As a final note, I have often wondered what Alexander Graham Bell really said when he spilled battery acid on himself. Could the first telephone call have been obscene???

73, Jim O'Neil, KA6IKX

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THE NEXT BOARD MEETING will be held in the Club trailer, just inside the guard gate at SRI. There's room for a dozen or so and all are welcome. 7:30, February 6.

CUT AND PASTE CORNER: Please add the following new members to your November, 1979 Roster and welcome them to future meetings and activities.

Mike Alexander	KA6GRU	355 Barton Wy.	Menlo Park, CA	94025	324 9246
Robert J. Gallagher	KA6IRT	1378 Ensenada Wy.	Los Altos, CA	94022	968 0847
Charles R. Kirkley		PO Box 3694; Dept PAAR	Stanford, CA	94305	
Robert J. Lockhart	N1AFN	PO Box 1026	Mountain View, CA	94040	854 5426
Raymond A. Nelson	KB6RZ	786 Allen Ct.	Palo Alto, CA	94303	493 9251
Leon Wartman	W6KTP	743 Holly Oak Dr.	Palo Alto, CA	94303	494 2613

and change as needed:

Mullard J. Edgerton	WA6VZZ	49 Showers Dr. #458	Mountain View, CA	94040
Jerry Hogsett	N6CCM	{from KA6FYW}		
Bill King	N6CHI	{from WA6OFN}		

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Mike has been heard on 15 talking with his brother in VET land on 15 using a Heathkit Apache with a 40 meter dipole. Keeping the family together via ham radio seems to work well with his weekly skeds. His interests lie in DX operation, traffic handling, Field Day, and QRP.

Bob was first licensed in 1978 and is now a General and President of Explorer Post 599. He is active on all Novice bands with a Yaseu FT-101-ZD and working to upgrade a step or two so he can get on the Post 2 meter net.

Charles is unlicensed but he has monitored the ham bands for years from 80 to 2 meters. While increasing his code speed he will operate on 11 meters. His interests include DX, traffic handling, OSCAR, and low power operation.

Bob was indicated as a guest in the PUBLIC RELATIONS CORNER and it wasn't until now (writing time) the common denominator was his call. We will check to make sure of his handle and pass it on next month. He was first licensed in 1978 and is a General. Right now he has no station but his interests are DX communication and VHF/UHF equipment and operation.

Ray has been licensed since late September and is busy working the HF bands 80 through 10 meters with his Kenwood TS 120S. His advanced Class license gives him greater freedom in the use of the HF spectrum than most of us have.

Leon is the old timer of the month. First licensed in 1938, when he got a General Class license for 10 wpm and wrote out answers to the questions instead of marking one-of-five, using the call W2IJU. With his TS-820S, Leon can be found in any portion of the 40 through 10 meter bands, an advantage of his Extra Class license.

Welcome to one of the craziest ham groups in the area!

? ? ?

PART WAY THERE CORNER: Jim Vanover passed his Novice code test about the middle of December and is anxiously awaiting the written test.

UPGRADE CORNER: Jerry, N6CCM was KA6FYW, a step up from Novice while Bill, N6CHI, ex WA6OFN, made a hop from Tech.

Dave, KAGGZG, upgraded to Tech in December and is now awaiting a new 2x2 call for his Advanced Class license and Larry, KA6DZM, made the hop from General to Advanced. Both made their successful trips to the City on January 9, and neither knew the other was in the crowd.

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FCC CORNER: The FCC now requires all requests for license modification to be made on FCC Form 610 (Clubs modification to be made on Form 610-B). Modifications approved by the FCC automatically renew the license for five years. It is no longer acceptable to modify a license by letter.  
" " "

ACTIVE CORNER: What your skills for Field Day. Enter any contest you can and sharpen your operation.

January 26-27: French Contest, CW, French stations work the world.

January 25-27: CQ WW 160-meter CW DX

January 27-28: Classic Radio Exchange. Using equipment 10 to 35 years old! Darned if your editor thought his gear was CLASSIC.

February 1-10: ARRL Novice Roundup.

February 3: North American Sprint.

February 2-3: Marconi International DX Competition. Phone.

February 2-3: CWSP International DX Competition. CW.

February 2-3: South Carolina QSO Party. Phone and CW.

February 2-3: New Hampshire QSO Party. Phone and CW with Novice frequencies suggested.

WAS during Novice Roundup; DXCC during the other contests. If you don't get QST for skeds, see Irene with \$18.00.

PAARAGraphs CORNER: Ten years ago PAARA met in the Veterans Memorial Building in Redwood City.

Mr. Charles Young, a Research Engineer with Johnson Williams of Mountain View discussed "Frequency Modulation Applications of CW Lasers".

Andy, VE3FZK, President, announced the application for membership of Dick, WN6FZM, now WB6BQY, and of Andy, K6EHS. Both were accepted.

FZK exhorted all possible 2-meter rigs be put in operation for the up-coming Simulated Emergency Test. Andy also suggested a 2-meter project whereby Club members would cooperate in building and operating the gear. A committee of Loyd, K6GXH, Gerry, WA6OPA, Andy, K6EHS and Craig, WA6ZXP to get the show on the road.

A program list for the whole year was included and thinking had begun on the highlight of the operating year—Field Day.

Three clubs were included in the meeting: PAARA, SCARS and SC C-D Club

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Five years ago Fred, K6YT, as President called the meeting together in the Menlo Park Recreation Center. Hal, W6DEF, supplied the minutes of the meeting which included details from Gary's, K6LVJ, showing and discussing a CD movie "Earthquake". Hal, W6DEF, then the Emergency Coordinator, described the up-and-coming SET. Bob Wallace, K6OL, added fuel to the meeting and set SET afire.

Paul, WN6IJP, now WA6IJP, was newly licensed, and Steve, K6FS, was looking for an unmodified SCR 522.

Terry, WB6GRZ, now N6RY, had a fine ten minute timer construction article. A whole page for a one-second beep!

Editor Rick, WA6NCX, put together a big 12 page edition which was produced by a staff of seven.

\* \* \*

EARTHQUAKE CORNER: A Friday, January 11 news story on the October Imperial Valley earthquake again illustrates the need for a good, solid, emergency communications system.

"Telephones became inoperable after the earthquake struck at 4:16 p.m., and when power was restored, circuits were so overloaded that phones were virtually useless.

At first, the only communication was by radio, but emergency radio signals could not cross the mountains to San Diego because relay devices atop the mountains could only be activated from San Diego.

- 6 -  
A ham radio operator finally was able to bounce a signal into San Diego.

The power failure knocked all commercial radio stations off the air for over an hour, including KILO, the designated emergency station. The earthquake broke the gas line to its emergency generator."

Each of us should have some gear available and operating in case of an emergency. Both HF and VHF are desirable. Don't trust your memory. Your editor just tried to find a complete list of emergency frequencies, hurriedly, as he would in an emergency, and failed to find what he has seen "somewhere". The only thing he could find was 3636, 3920, 144.81/145.41, 147.45 and the PAARA HF 3935 and 28650 frequencies. When the complete list is found it will be copied and placed under glass on the operating desk.

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WARC CORNER: Laid to rest for 20 years, the recent conclusion of the WARC session brought three new amateur bands and cleared up some interference.. .

New bands include 10.100-10.150, 18.068-18.168 and 24.890-24.990 in the HF spectrum and a number of changes or allocations in the UHF spectrum. 160-meters should get a shot in the arm with 1.800-1.850MHz going exclusively to amateurs and 80-meter Novices will also be able to enjoy the band without AM carriers all around.

The results were better than many had hoped for. But amateur radio will never be the way it once was—rock bound, call CQ and then tune the band for a reply. Or tune the transmitter with a wave meter and hope, when you call CQ, someone other than the FCC finds you out of the band and coaxes you into the fold.

It will be a time before the new bands can be enjoyed. January 1982 is the expected assignment to Amateurs for the 10 MHz band; the others sometime between 1984 and 1989. By then it will be time to gird for WARC 1999.

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UNCLASSIFIED CORNER: PAARAGraphs will insert items for members and for non-members, as space permits.

FOR SALE: Radio gear for disabled ham. Transmitters, linear, receivers, handbooks, mikes, parts—all in a mini-storage bin in Redwood City. Call Chuck, 364 0694.

WANTED: Donations of 2-meter AM gear for Post 599. See Jim, K7UDG at 325 8309, or Liza, at the February meeting.

= = =

EDITORS CORNER: Writ whilst taking breathers from digging up the sewer line. Typed whilst waiting for the man to come and fix it.



## Last call-HW-2036A 2-meter transceiver

**\$199.95**

with standard  
microphone

If you're still rock-bound by a 2-meter rig that can't take another crystal pair, the HW-2036A is for you. Its phase locked synthesizer/VCO loop lets you operate on any 4 MHz segment of the 2036A's 143.5 to 148.5 MHz range... just with the flip of a switch. Choose simplex or standard  $\pm 600$  kHz split operation. Pick your own offset (1 MHz max.).

The synthesizer is locked to a precision 10 MHz time base for outstanding accuracy, has crystal-controlled offsets, IC divide chain, and a unique NAND gate logic system which displays locked/unlocked status and inhibits out of band transmissions.

The receiver features a double tuned front end with MOSFET RF amplification, dual conversion, 8-pole crystal IF filtering for perfect bandpass shaping and outstanding adjacent channel selectivity, IC limiting, Quad detection, and excellent audio quality.

The transmitter gives you a minimum of ten watts out. Harmonic and spurious components are 60 dB down within 20 MHz of carrier reference. The HW-2036A also features sub-audible tone encoding, built-in 5 and 10 VDC regulators, hash filter/regulator to eliminate ignition noise and alternator whine. Includes gimbal-mount and PTT mike. For extra versatility, add the optional Heathkit Micoder II Microphone/Auto Patch Encoder (description on page 91) to your HW-2036A.

**Kit HW-2036A-2, with PTT mike.**

12 lbs. ... Was \$289.95 in Catalog 844R, Now 199.95

**Kit HWA-2036-3, Power Supply.** See pg. 93.

7 lbs. .... 32.95

**Kit HA-202A, 40 W Amp, 4 lbs.** .... 49.95

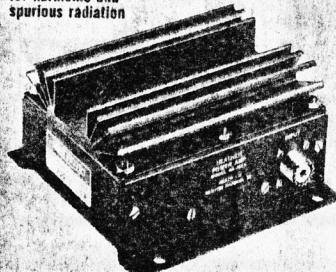
**HW-2036A SPECIFICATIONS:** Receiver: Sensitivity: 0.5  $\mu$ V for 12 dB SINAD (or 15 dB of quieting). Squelch Threshold: 0.3  $\mu$ V or less. Audio Output: 1.5 W at 10% T.H.D. typically 2 W. (5 kHz deviation). Image Rejection: -45 dB or greater. Spurious Rejection: -50 dB or greater. IF Rejection: -80 dB or greater. Internally Generated Spurious: Below 1  $\mu$ V equivalent. Bandwidth: 6 dB at 15 kHz min. and 60 dB at 30 kHz max. Modulation Acceptance: 7.5 kHz, min. Transmitter: Power Output: 10 W min. at 25°C and 13.8 VDC, into a 500  $\Omega$  load. Harmonic & Spurious Output: -60 dB. Modulation FM, 0 to 7.5 kHz, adjustable. Duty cycle: 100% with infinite VSWR. Tone Encoder: 3 tones, 70 to 200 Hz, approx.  $\pm 700$  Hz deviation. Frequency Increments: 5 kHz. Frequency Stability:  $\pm 0.0015\%$ . Operating Temp. Range: -10 to 50°C. Operating Voltage Range: 12.6 to 16 VDC (13.8 VDC nominal). Current Consumption: RX: 700 mA max, squelched. TX: 2.6 A max. at 13.8 V. Size: 2 1/4" H x 8 1/4" W x 9 1/2" D.

100

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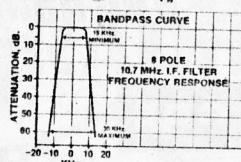
Delivers solid 40 W minimum for 10 watts in. Has antenna changeover relay and sensing circuitry for completely automatic T/R switching. Tuned input/output circuits provide low spurious radiation. Special emitter ballasted configuration — withstands VSWR's of up to 3:1.

**Kit HA-202A, 4 lbs.** ..... 49.95  
**HDP-3622, 3 ft. RG8U Jumper with PL259 conn.**  
1 lb. ..... 4.95

**HA-202A SPECIFICATIONS:** Power Output: 20 W @ 5 W in, 40 W @ 10 W in, 50 W @ 15 W in. Impedance: 500 nom. Input VSWR: 1.5:1 max. Max. Stable VSWR: 3:1. Harmonic and Spurious Radiation: -60 dB or better. Standby Current: 1 mA. Power Requirements: 12-16 VDC, 7 A max. Size: 3" H x 4 1/4" W x 5 1/2" D.

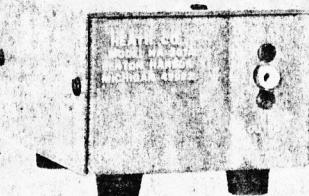


Front panel lever switches select any frequency in any 4 MHz segment of the HW-2036A's operating range.



The HW-2036A's 8-pole IF crystal filter greatly reduces adjacent channel interference — an important feature as 2-meters grows in popularity and the band becomes more crowded — to give you clear, static-free FM transmission and reception.

and 13.8 VDC, into a 500  $\Omega$  load. Harmonic & Spurious Output: -60 dB. Modulation FM, 0 to 7.5 kHz, adjustable. Duty cycle: 100% with infinite VSWR. Tone Encoder: 3 tones, 70 to 200 Hz, approx.  $\pm 700$  Hz deviation. Frequency Increments: 5 kHz. Frequency Stability:  $\pm 0.0015\%$ . Operating Temp. Range: -10 to 50°C. Operating Voltage Range: 12.6 to 16 VDC (13.8 VDC nominal). Current Consumption: RX: 700 mA max, squelched. TX: 2.6 A max. at 13.8 V. Size: 2 1/4" H x 8 1/4" W x 9 1/2" D.



### 10 W Amp for your 2-meter hand-held

The HA-201A delivers up to 10 W for a 1 1/4" W input, 8 W for a 1 W input — ideal for use with any low-power 2-meter transceiver. Fully automatic operation, solid-state transmit/receive switching, tuned input and output for maximum efficiency and reduced spurious emissions. Withstands infinite VSWR load. Includes dummy load, RF detector. Easy assembly. Comes with SO 239 connectors for easy hookup.

**Kit HA-201A, 2 lbs.** ..... 39.95  
**HDP-3622, 3-ft. RG8U Jumper with PL259 conn.**  
1 lb. ..... 4.95

**HA-201A SPECIFICATIONS:** Power Output (at 13.6 VDC input): 8 W @ 1 W in, 10 W @ 1.5 W in. Input/Output Impedance: 500. Power Requirements: 12-16 VDC, 2.2 A max. Size: 2 1/4" H x 5 3/4" W x 5 1/2" D.



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