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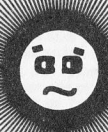
vol. 24

NOVEMBER

1980

PAARA

GRAPHS



**palo alto
AMATEUR
RADIO ASSN.**

MENLO PARK C.D. RADIO CLUB, K6YQT

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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
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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

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

FRIDAY NOVEMBER 7, 1980

7:30 P.M.

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

DX-PEDITIONS

by

Merl Parten K6DC

Merl is a well known Northern California DX Club
 Member and has a wealth of information about DX-
 peditions.

and

Nomination Night

Future Meetings: December 5, Christmas Party Dec-
 ember 15, January 2 (maybe), February 3, March 3.

PAST CORNER: Your editor was meant to go to the October 3 meeting—all stop signs said go, a beautiful evening in the blue and gold twilight. A fine meeting enjoyed by 46 amateur types including three guests. The clock was reset from 1940 to 1930 as Bob, K6SEM, lowered the gavel.

Guests were introduced including Bill Wilson, K6TBE and Bob Vaughn (NC) of Menlo Park, Jack Ruckman, WB6IJJ, from Campbell, and Lance Egeberg, KD6GG from Grants Pass.

John, KA6CUG, gave a report on a recent acquisitions by Post 599 including a 12.5KVA gasoline powered alternator. Bob, K6SEM, added remarks about its condition and, at least current, warehousing. The unit operates but needs work.

Hank, KA6M, gave a report of, and displayed, a amateur oriented ASCII MODEM and promised an item for PAARagraphs. See pg. 8.

Steve, K6FS, announced the need for ten operators with 2-meter equipment for the 2nd Annual V.A. Marathon Run scheduled for 10 a.m. October 26. Communications for the run was suggested by Jim, now KA6KJP last year. It turned out to be useful and fun.

Gerry, WA6LNV, the Christmas Party Coordinator, suggested all who plan to attend the December 15 affair at Rick's Swiss Chalet, let him know as soon as possible. He will supply more information at the next meeting.

Bob, SEM, gave last minute details on the organization of the Auction/Flea Market and the meeting broke for coffee, cookies and general discussions.

The program was a surprise and well received. An inside look at OSCAR included 24 slides with a running commentary. So now those who were at the meeting know what a complicated little box it is, and those who have talked through OSCAR know what the relay station looks like. An eyeball QSO with a robot. Field Day slides supplied by Ed, W6AIN, Bill, W6DVB, Fred, K6YT and Bob, SEM, brought cat-calls from friends of those pictured and introduced F.D. activity to those who have never had the experience.

A raffle of goodies finished the program and it could have been a disaster. Hank, KA6M, won the first drawing—and then the second. He passed on it. The stubs were thoroughly mixed again and Nolan, KB6LT, then had four of his five tickets drawn. He passed on the last three.

And it was off to the cooling foamy, doubtless to ponder the odds of such a drawing again.

o o o

BOARD CORNER: Unless one takes good notes it's not easy to write what took place. At 1934P the meeting apparently opened with a discussion of the Flea Market. At 1942 somehow Swede, N6CHL, sold a pair of shoes to Gerry, W6NIR. At 1950P the Auction/Flea Market discussion continued. Sometime later Bob, K6SEM, told of the PE-95 acquisition by Post 599, its condition and possibilities. By 2000P Mac, N6YV, moved PAARA negotiate with Post 599 for the PE-95. At 2001P Bob, W6BFH, by proxy, requested PAARA supply a 2-meter antenna for the Civil preparedness unit set up at the Civic Center in Menlo Park. At 2003P

a general discussion was held about the California QSO Party. Others in attendance were Gerry, WA6LNV, Ed, W6AIN, Eric, W6DU, Mac, N6YV, and Dave, KB6WP. The meeting broke up about 2045P.

The next Board of Directors Meeting will be November 12, 7:30 p.m. in the Club trailer just inside the gate at SRI. All non-officer, non-board member attendees are liable to be given a job.

o o o

FAR AWAY CORNER: Ed, W6AIN, got looking over his mailing list and found a dozen members who live far enough away to keep them from Club activities. A dozen is about ten percent of the membership, and if they could get to meetings would comprise 20 percent of the attendees.

For those of you "out there": Ray Baker, WD0CJI, Lacygne, Ks., Bob Allen, W6WQD, Tabb, Va., Virgil Barta, W6HTF, Lake Oswego, Or., Doug Baum, KA5DQR, Galveston, Tx., Terry Conboy, N6RY, and Charolette Conboy, KA6KKD, Lake Oswego, Or., Rick Ferranti, WA6NCX, Newton Center, Ma., Walt Harper (call?), and Dave Harper, WB6JFH, Deer Park, Wa., Herb Jones, W7QDB, Carson City, Nv., Gary Liljegen, W0SH, Des Moines, Ia., Hal Moore, W6DEF, Auburn, Ca., and one that comes to your editor's mind—to make the count wrong—Paul Churchill, W6QBY, Ventura, Ca., it would be nice to hear from you.

A note, hand written or typed 4 3/8" wide to fit PAARagraphs format, will be included in the December issue so you can keep all your good friends here appraised of your activity. (a full column is 11 1/4" long, and we would like somethin 75 to 125 words or 4 3/8" x 2 1/2 to 3" from each of you by November 10.)

+ + +

NEW MEMBER CORNER: Bill, K6TBE, has been a Bay Area resident since 1955, having come from Flint, Michigan where he was KBRIJ. First licensed in 1937, he built his own gear until the convenience of new equipment made home brew stuff unattractive.

Bill is a native of Ireland and moved to the U. S. when he was 16. He enjoys working schedules with friends around the midwest and east on 15 meters and in the southwest on 40. He is always ready for an interesting rag-chew, and is well able to hold up his end of the conversation.

Look for Bill at the next meeting. You'll be glad you found him and he'll know one more of us, one at a time.

== =



Don Fillmore

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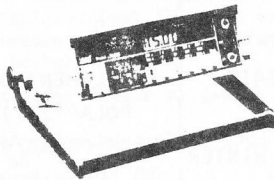
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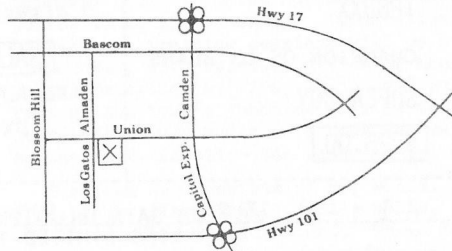
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CUT AND PASTE CORNER:

Please add the following to your April Roster:

William J. Wilson	K6TBE	1011 Henderson Av.	Menlo Park, CA	94025	325 4342
and change:					
George Nixon	GI3OEN/6	1140 Sherman Av.	Menlo Park, CA	94025	854 6445

AUCTION CORNER: With no specifics to go by, your editor/writer can only say the Auction/Flea Market was a great success. From his vantage point, where all auctioned items went through his hands, Bob, W6BFH, found the following tally: there was something for all.

Prices for the auctioned items included

34 items for	0-\$5.00
28	for 6-10.00
27	for 11-20.00
14	for 21-40.00
4 each for	41-60.00 and 61-100.00
1 each for	101-120.00 and 120-140.00,

for a total of 113 items. The breakdown is accurate but no value can be placed on the total because of the data organization.

Bob, K6SEM, did a masterful job making a fair appraisal of the value of things, bidding up the price to the satisfaction of sellers as well as buyers. The PAARA Flea Market table did a land office business but rumors are that Post 599 did better. Other Flea Market tables—about 35—did well too.

Shannon, K6TNY, and Ken, WB6NYB, wrestled gear from all over to all over, holding up anything that came along so all could see what they were bidding on. Irene, WB6RAF, and Marylin, DW1GHT, kept the accounts flawlessly.

As a spur-of-the-moment sign painter, Mac, N6YV, little could be found wanting. Fred, K6YT, handled much of the logistics as did Gerry, W6NIR, who also held sway over the PAARA table.

Visitors were warmly welcomed by Eric, W6DU, who passed out registration forms. Further greetings for buyers was made by Dave, KB6WP, for number assignments, and Sharon, one of Dave's harmonics, couldn't have done better selling raffle tickets. Down the line Ron, W6VG, sold flea market tables to be loaded with goodies. Some quickly emptied.

Post 599 did a great job helping Flea Marketeers and auction sellers bring in their gear and helping buyers out with their treasures. One hand cart went away. It is a hope that whoever loaded gear and hand cart into his vehicle invites the owner of the hand cart over to show him what was "picked up" at the auction.

The coffee and doughnuts were excellent and Ed, W6AIN, couldn't have been a better host in that department. More coffee and doughnuts were sold than ever before at one of our functions. Raffle prizes, arranged for by Gerry, WB6LNV, came from Alltronics, HDB Sales, Heathkit, HRO, u-do Electronics and Quement Electronics. They were all well recieved by the lucky winners.

OPPORTUNITY CORNER: PAARA's help with communication around the 10-km First Annual Veteran was so appreciated by the Menlo Park VA Facility that we've been invited to assist again this year! Date: Sunday, October 26; Time: 0900 (run starts at 1000); Place: VA parking lot, just off Willow Road, Menlo Park. Need six more mobiles/HT's on 2-m simplex (147.45 or ?) to accompany official monitor teams at points along the 10-km course, starting and finishing at the VA hospital. The course passes through neighborhoods, around Burgess Park, the Menlo Park Library, past SRI, Menlo-Atherton High School, and back. Please contact Steve, K6FS, before October 26 if you can help.

+ + +

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DANGER IN THE HAM SHACK

"A POTENTIALLY DEADLY THREAT exists in many ham-shacks due to PCB, the potent cancer-causing chemical widely used as a high-voltage insulator until a recent ban was imposed on its use by the Environmental Protection Agency. Polychlorinated biphenyls have been widely used in the manufacture of capacitors and transformers since the early 1930s, and many amateurs are currently using PCB-filled capacitors in their high-voltage supplies without being aware of the potential hazard.

THERE IS NO DANGER so long as seals are intact, but exposure to liquid PCB seeping from a leaking capacitor could have grave health consequences for an Amateur or his family. Amateurs who suspect their oil-filled capacitors might contain PCB — GE's Pyranol is one well-known ex-

ample — should check all seals carefully for leakage and make sure the capacitors are run well below their ratings to avoid stress.

DAMAGE OR LEAKING PCB-FILLED components should not be thrown in the garbage; in fact, it is illegal to dispose of more than three pounds (one quart) of PCB except in a sealed drum at a government-approved disposal site! At press time, HR Report is discussing alternative disposal arrangements for PCB-filled components with the EPA."

Another possible source of PCB is transformer oil which many Hams have used in dummy loads. Some oil contains PCB, some does not. In any event, keep it away from children. DO NOT WASH THOROUGHLY WITH SOAP AND WATER.

ASCII MODEMS * PACKET RADIO MODEMS * COMPUTER MODEMS
--- BELL 202 COMPATABLE, 1200 BITS PER SECOND ---

RAXON-SANGAMO T202C & T202D & T202E

Recently the FCC opened the amateur bands to ASCII code transmission at speeds which far surpass the traditional RTTY rate of 45 Baud. For example data transmission on 2 meters can now run at 1200 Baud, opening up new possibilities for computer-to-computer file exchange, packet radio, computer radio networks, automatic traffic handling between regions, and all sorts of new services which were unavailable previously.

To take advantage of this new service, a station needs a computer (or at least a terminal), a modem and a radio. The modem converts the computer's digital signals to tones suitable for use on voice channels. There are many different modems currently in industrial use, but the Bell 202 type modem is quickly becoming the defacto standard for radio service at 1200 bps.

A Bell 202 modem is a frequency shift keying device which has a mark tone at 1200 Hz, and a space tone at 2200 Hz. These units generally operate in half-duplex mode (only one direction at a time) which is great for radio work, but a little inconvenient for telephone use. Some 202 units have a low speed reverse channel which allows full duplex signalling on a phone circuit. Since industry is currently adopting full-duplex 1200bps modems, many 202 type units are appearing on the surplus market and can be purchased at very reasonable prices. There is no easier way to get your computer on the air.

In order to promote packet radio concepts and the greater use of ASCII on the air, Hank Magnuski, KA6M, purchased a large quantity of Rixon/Sangamo T202 modems which were being dumped by an industrial broker. Rixon/Sangamo is one of the leading and most reputable modem manufacturers in the country. These modems were built around 1970 from discrete components and are very rugged and serviceable. The manufacturer has been most cooperative in providing us with technical documentation on these modems, and we now have copies of the complete service manuals. The modems are being refurbished and checked out by Explorer Post 599, and various checks are made to insure that the units function. The prices are hard to beat:

- T202D 8 Card unit for 2-wire or 4-wire service \$75.
- T202D 10 card unit includes slow speed reverse channel, \$85.
- T202C 11 card unit with reverse channel and auto answer, \$90.
- T202E 3 card unit with transmit only capability, \$50.

For more information contact:

Chris Schellenberg, WB6WBK, 415 324 4951
John Buonocore, KA6CUG, 415 366 1658
Hank Magnuski, KA6M, 415 854 1927.

de Hank, KA6M

PUBLIC SERVICE CORNER: Menlo Park Emergency Operations Center: When the new MP City Administration building was constructed, a large basement-level earthquake-survivable room was included to serve as nerve center for city-wide disaster relief services. Underground hardwired phone lines were brought in from MP police, fire and public works offices, with links to terminals of the County microwave system. A separate vault, outside the building and also below ground level, houses a 75-KVA 240VAC diesel-driven generator, with automatic cutover to start on failure of commercial power. This powers the entire ops center plus certain other offices in the ad building.

Note that all communication between the ops center and the outside world at present is by underground phone cable; there was no, repeat no, plan for direct radio backup in case of cable failure. Recognising this as a possible problem in case of severe emergency, a group of Menlo hams met with City Manager Mike Bedwell and members of his staff several times over the last year. Result: City-built provision for erecting temporary antennas outside the ops center, with two coax feedlines run through specially installed conduit to an operating position in the center. This position and outside antennas will be used by an amateur radio emergency service (ARES) station to supplement surviving communications in a large-scale disaster.

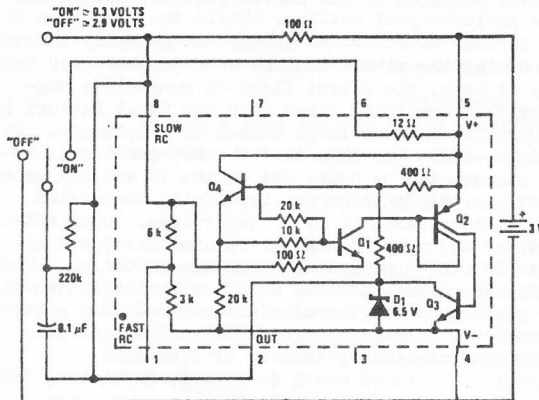
In October 1979 an exercise was held demonstrating feasibility of covering all of Menlo Park on 147.45 and 223.5MHz simplex, using temporary anten-nason demountable masts outside the ops center. Observers included Russ Scotten, Asst City Manager, Billy Ray White, Menlo Park Mayor, Bob Peterson, City Engineer, and Cecil Williams, District Administrator, San Mateo County Area CD Organization. PAARA participants were W6AIN, W6BFF, KB6WP, WA6SLF, K6WD and K6FS. Coordination with Atherton emergency ops center was also demonstrated, via 147.45; communication via repeater was tested with WB6IZF, King City, and with WA6EEP, Half Moon Bay, to show capability for inter-area communication.

We - PAARA and its other half, Menlo Park CD Radio Club, K6YQT (see cover of PAARAgaphs) - are in process of building a quick-response team of a dozen or so local hams, permanent residents living within easy access (1 to 1 1/2 mile radius) of the ops center. This team will carry city and county approved photo ID cards authorizing passage through police lines as necessary. Familiarization and operational training sessions will be held in the ops center, with representatives of Menlo Park Municipal Departments (fire, police and public works). Part of the team's function will be to organize and coordinate other Menlo Park hams who may volunteer on the spot, in city-wide emergencies.

The team now consists of Ed, W6AIN, Frank, WB6QFV, Pres, K6WD, Alan, WA6AZF, Bill, W6DVB, Tiff, W6GNX, and Steve, K6FS (coordinator). Three to six more members are needed—preferably from west Menlo Park. Call K6FS—he'll call you.

de Steve, K6FS

CONSTRUCTION CORNER:



Latch circuit using an LM3909 chip. Circuitry inside dashed lines is the LM3909. The circuit switches to and holds its condition whenever the switch changes sides (courtesy National Semiconductor Corporation).

Need a multi-position remote control on-off switch? Bob, W6BFH, did. Three volts, three components and a chip did the low-level switching, a solid-state relay, courtesy Perry, KD6ID, did the switching. Low level lines means telephone-type wire (at least as long as 200 feet) with at least eight switches turn a light on or off. Better than stringing #14 four wire cable and using expensive switches. Circuit from MASTER HANDBOOK OF 1001 MORE PRACTICAL ELECTRONIC CIRCUITS. MP library 621.38 PAI. (note pencilled change in diagram)

POST 599 CORNER: Post 599 is busier than ever. As most of you know, if you showed up at the PAARA Auction and Flea Market, Post 599 was there en masse (or perhaps "in force" would be a better description considering our aching bones.) Post members started the day early at 6:45 a.m. at the Clubhouse. We found it took one Brat, one Datsun pick-up, one VW van plus the trunks of assorted cars to carry it all. It was hard work but worth it. The hard work didn't end there, however. Post 599 members immediately went to work helping auction participants bring their gear to the tables. After that, we manned our own flea-market tables. We'd like to thank all of you who stopped by and supported our organization.

Post 599 would like to welcome Rob Taylor, KA6NAN, to the advising group. Rob is a programmer at Stanford Hospital and first met the Post when he took our code and theory class.

Speaking of class, the next Novice Class will begin Friday, November 14 at 7:30 p.m. at the Clubhouse behind St. Thomas Aquinas Church on the corner of Homer and Waverly in Palo Alto. Call 325 8309 for more information.

de Lisa, WA7WXA

GRACIOUS CORNER: All members should let those who contributed raffle prizes to the Auction and those who advertise in PAARAgaphs that we appreciate their help in the Club's activities.



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ADVERTISER IN PAARAgaphs and CONTRIBUTOR TO PAARA

UNCLASSIFIED CORNER:

PAARA will enter requests for, or offers of, items in this section from Club members or, as space permits, from interested persons.

WANTED: Sturdy 2-meter vertical for donation to Menlo Park CD Emergency Operation Center. 5/8" wave ok. Ringo Manger or similar would be fine. Contact Steve, K6FS, at the meeting or call 322 4952.

+++



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COMING EVENTS CORNER:

- Nov. 7 PAARA Nomination Night. Come defend yourself at the regular meeting.
- Nov. 14 New code and theory class starts. See Post 599 or call Jim, K7UDG, 325 8309.
- Dec. 5 PAARA Election Night. Last chance to defend yourself at the regular meeting. You can be elected in abstinecia. (where?)
- Dec. 15 PAARA Christmas Party. Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. 493 7575. See Gerry, WA6LNV, or call him at 326 4908

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QRM CORNER: The rash of FCC citations continues as indicated in THE REPEATER for October. Copies of three Public Notices were printed.

The first, dated August 27, 1980, describes "RADIO 'JAMMER' LOCATED", and tells how the FCC monitored "party" records or tapes on the input frequency of WB6AAE/R.

The inspection revealed the San Francisco operator was unlicensed and the call sign he had been using is assigned to an amateur station in a nearby California city.

The notice explains the penalties for unlicensed operation includes fines of up to \$2,000 per violation and/or criminal prosecution.

The second Public Notice dated September 5, 1980, describes "RADIO AMATEUR CHARGED WITH CAUSING INTERFERENCE". The FCC monitored transmissions from a "WA6" call sign issued to a General Class licensee located near Stockton. On September 3, 1980, an Official Notice of Violation was issued that licensee alleging that he violated the following FCC Rules:

- Section 98.78 Not operating the station in accordance with good amateur practice.
- Section 97.113 Transmitting a prohibited form of broadcasting.
- Section 97.125 Causing interference to normal repeater operations.

The third, dated September 8, 1980, entitled "RADIO AMATEUR CHARGED WITH TRANSMITTING INDECENT LANGUAGE", and describes events of August 30, by a "K6" located in Oakland. Follow-up inspection of the station was conducted on September 4, 1980. On September 5 the General Class licensee was cited under Section 97.117--Transmitting communications containing obscene, indecent, or profane words, language, or meaning.

THE REPEATER editor, Doc, WA6QVS, editorializes in part:

"The FCC investigation is not in the opinion of this writer a fly-by-nite operation. There is every reason to feel that we can expect to see further releases of notices of violation.

"Let us remember that as 'club members', we are also 'users' of the club repeater. The FCC cannot be expected to play favorites in the issuance of violations to users of the club machine--after all--a violation is a violation no matter who commits it."

He continues with some good repeater operation practices--which are mostly good for other operations as well. He compliments the legitimate users of the repeater and admires the restraint practiced by most users. Sometimes to ignore an annoyance will make it go away...But the FCC helps.

+++

RFI CORNER: AMATEUR-RELATED RFI shows significant increase. Complaints to the FCC of alleged interference to electronic home entertainment equipment by Amateurs increased significantly in the period October 1979 through March 1980. In fact, according to Jeffrey Young, Chief, Investigations Branch, Field Operations Bureau, FCC, the number of complaints received in the

latest six-month reporting period was up almost 44 percent compared to the number received during the same period a year earlier. While the incidence of RFI to home entertainment equipment normally increases during the winter months, when people spend more time at home, the latest flood of complaints suggests that something other than the usual factors is responsible for the large number of complaints. For example, it is possible that the RFI problem is being exacerbated by heavy use of the 10 and six meter bands. . . bands which are frequently associated with alleged cases of RFI. Regardless, Young noted that the majority of Amateur-related RFI cases involve RF over-load and not harmonic radiation. Thus, in the long run, the only solution to the Amateur's RFI problem is for the manufacturers of home entertainment to correct design deficiencies that make their products susceptible to RF fields.

de Signal, September, 1980
by N4XX

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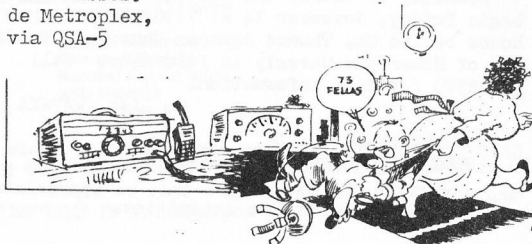
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LOVE AND KISSES CORNER: The numerals 88 and 73 have been a tradition in communications language for almost 120 years. The older of the two, 73, appeared in 1853, meaning "My love to you." In 1857, the first official definition made it a "fraternal greeting between operators." Two years later, 1859, Western Union made "73" a part of their "92" code to indicate "Accept my compliments." The final change came in 1895, when "73" meant "Best Regards" for the telegraph, and later for radio operators.

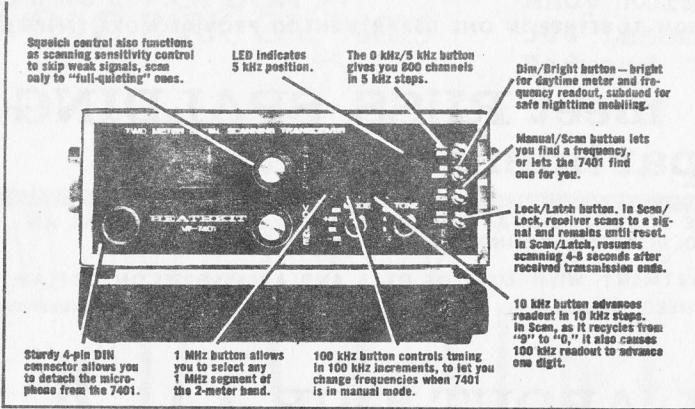
"88" never received the formality of an official listing until it was adopted as one of the "Ham Abbreviations." It had been one of the telegraph operators' traditional terms since well before the turn of the Century. During the First World War, "88" was used by the U. S. Army Signal Corps, again, strictly as an operator's abbreviation in unofficial communications. At the close of WW-I, "88" achieved official status as a part of Amateur Radio terminology: "love and kisses."

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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 600 channels in 5 kHz steps.

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

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

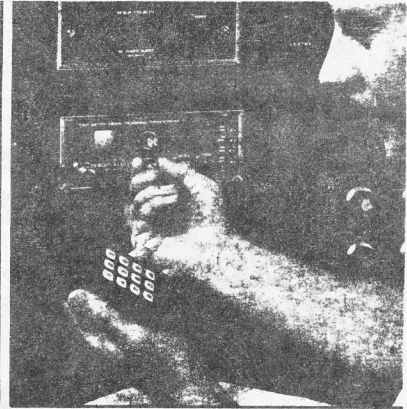
Lock/Latch button. In Scan/Lock, receiver scans to a signal and remains until reset. In Scan/Latch, resumes scanning 4-5 seconds after received transmission ends.

10 kHz button advances readout in 10 kHz steps. In Scan, as it recycles from "9" to "0," 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.



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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 Micoder™ II Microphone/Auto Patch Encoder (described on page 91), stop worrying about when your mike battery is going to run down. The Micoder 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 VFS-7401-1, Transceiver and Micoder II, Shpg. wt. 12 lbs. 369.95

Kit VFS-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 50° (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: +.0015%. Operating Temperature Range: +15 $^{\circ}$ F to +125 $^{\circ}$ F (-10 $^{\circ}$ C to +50 $^{\circ}$ C). Operating Voltage Range: 12.6 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: 2 $\frac{3}{4}$ " H x 7 $\frac{3}{4}$ " W x 10 $\frac{1}{4}$ " D (7.0 x 18.4 x 26.0 cm).

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