

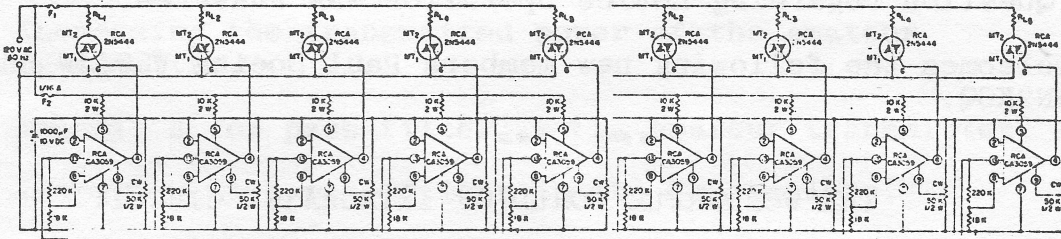
# HAM RAG

Affiliated with ARRL

NET meets each Monday at 9:00 P.M. local time on 28.7 megahertz



NOVEMBER ISSUE 1972



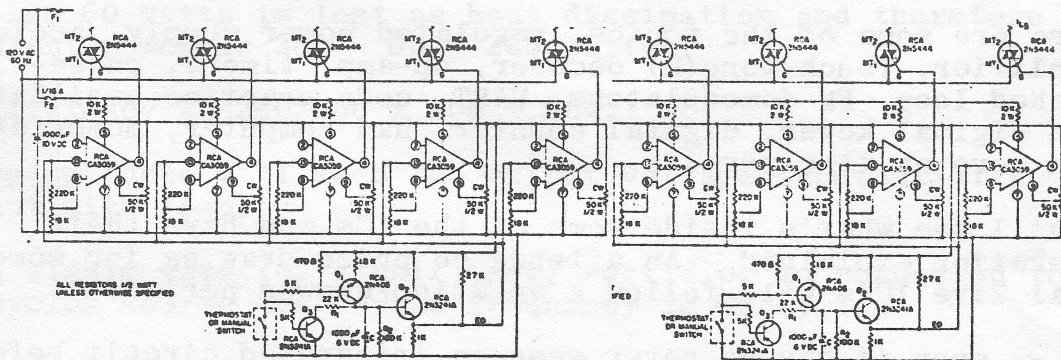
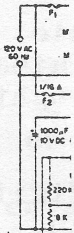
## "THE WONDERFUL WORLD OF INTEGRATED CIRCUITS"

program by Don Jackson W9BQC

7:30 PM, NOV. 10, 1972 AT ROCK VALLEY COLLEGE  
CLASSROOM BUILDING 1, ROOM 222

Enter from Spring Brook, drive to the North exit  
corner of parking lot

COFFEE AND DONUTS WILL BE SERVED



## ROCKFORD AMATEUR RADIO ASSOCIATION INC.

PRESIDENT — GUNNAR F. OHLSON, 5408 LACUMBRE [399-8289] K9WTS  
SECRETARY — RALPH L. SHAFF, 1927 HANCOCK ST. [964-8736] WN9HHH  
TREASURER — L.E. GEHLHAUSEN, 4610 CAYUGA RD. [399-3716] WA9WVY

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The October novice meeting was well attended and it is obvious that we have many dedicated novices in Rockford. The novice license was created July 1, 1951 and CW privileges given on 80 and 11 meters. Through the years the novices have gained frequency assignment and the November 22, 1972 changes would indicate that the trend is still upward.

WB9ETH, Jim, talked in general terms about equipment for a novice station. Question regarding novice operation was answered.

RARA welcomes the following new members Paul Boeing WB9AJU and Don Wallgren WN9KOQ.

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### THE WONDERFUL WORLD OF INTEGRATED CIRCUITS

At our next club meeting, I'll be giving the program on an exciting subject dear to my heart -- The Wonderful World of Integrated Circuits! (With apologies to W. Disney)

If you're not an advanced technical expert or electronic engineer, don't be scared away. This program will be aimed at the average ham -- even those of you who haven't caught up with the transistor yet.

Basically, the IC may be classified either linear or digital. We'll cover both types in a fast moving presentation and include a lot of thoughts and practical ideas on ham and experimenter applications...even demonstrate a few working circuits and hand out diagrams.

Here are some of the topics: regulated power supply, audio amplifier, Touch-tone(R) decoder, op-amp, timers, phase-locked loop, FM demodulators, UART, code practice oscillator and digital keyer, digital counter, ham computer, memories, and more as time permits.

You'll see what's inside some of the ICs and have their operation explained. An attendance prize drawing for some real live IC's will follow a question/answer period.

So -- even if you've never seen an integrated circuit before, come and enrich your knowledge. FRIDAY, November 10, 7:30 PM, Rock Valley College.

--Don Jackson, W9BQC

# NOVICE



## NOVICE & BEGINNER

Truly, the greatest news for novices is, to quote from the FCC rules effective November 22, "the requirement that the transmitter be crystal controlled is removed." Period, no strings attached. VFOs will be permitted (crystals also, may be used) and novices will no longer be mock bound. It seems to me our ham radio hobby will be far more enjoyable when we can tune to any novice frequency. Theoretically, the bands should be less crowded when the QSO is on the same frequency or only a very few Hertz apart.

Novice privileges on 145-147 MHz and 21.200 - 21.250 KHz of the 15 meter band are taken away, but we did not lose much because the 2 meter segment was used almost not at all and use of the 15 meter segment was very light indeed. In place of these, we are permitted to operate on 28.100 - 28.200 in the 10 meter band. This new novice privilege should give us better opportunities for DX with our low power transmitters. Over a given period of time there will be fewer openings than on 15 meters but when 10 meters is open the skip is long and you may be surprised at the signal strength from stations outside the U.S.A. Propagation on 10 meters is less predictable than on the 15, 40 and 80 meter bands but your best bet for working 28100 - 28200 will be after sunrise 'till before sunset. If 15 meters is excellent check 10 meters, it may also be open. By the way, if you have crystals with fundamental frequencies of about 7026 - 7049 KHz that your transmitter has been tripling for use in the 15 meter band, these same crystals will quadruple for the novice segment on 10 meters.

Now that we can lay out "rocks" aside and we can use VFO's, lets pay strict attention to FCC's cautionary warning to operate within the novice frequencies allotted to us.

De WN9HHH

ARRL NOVEMBER SWEEPSTAKES. See October QST page 87 for rules. Phone starts November 11, CW November 18. (Novices may enter.) Last year RARA entered as a club with 9 members submitting logs. Three made "clean sweeps" that is working all 75 ARRL sections. Anyone for a operating challenge? Tell me if you want to enter and submit your log for RARA! Logs and check sheets are available.

de K9WTS

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THE F.C.C. SAYS:- "THE NOVEMBER 22, PHONE EXPANSION RULES ARE EFFECTIVE AT 12 P.M. LOCAL TIME".

## FEATURE

Well, ol' PAK got himself a fancy new typewriter and so I'll return to my old stand and let the HAM RAG have a taste. I sure appreciate having HHH send me the HAM RAG each month. Fellows (and gals)... you all really look forward to getting your copy of the HAM RAG, but remember, the paper is only as good as you make it. Help out, and do your part by contributing, even if its just one news item.

Well, the repeater rules are finally the law of the land, and it really contained some unexpected bonuses. If you haven't read the new rules yet, do so immediately. They contain some parts that have nothing whatsoever to do with FM or repeaters. For example... new logging rules, new station identification rules, and expanded privileges for technicians are just part of the "gift package." And for repeaters, the rules sound more like something for commercial licensees than amateurs. The FCC wisely set power and antenna height limitations for repeaters and state many times that repeaters are strictly for intra-community (within the community) QSO's. Sure hope both Milwaukee and Chicago groups take note!! Also included are requirements for monitoring the repeater output frequency before transmitting to be sure the repeater does not interfere with a QSO on the frequency. And repeaters will now be assigned distinctive WR... call signs. All in all, it looks like a good, fair set of rules for repeaters.

Happy to hear of the results of the HAMFEST. Congratulations to both RARA and Big Thunder clubs on a real FB hamfest. I really enjoyed it and already look forward to next year. I even bought some of my old junk back that I thought I got rid of when I left Rkfd.

I've just returned from a week at the Motorola plant in Schaumburg. I may be a little biased since this company is now paying the bills around my house, but I can really say that this company really strives to turn out a fine product. As you may not know, Motorola is a "freak" in American industry. There are no unions in the company. They've had union votes, but the employees overwhelmingly turned the unions away. Furthermore, no one punches a time clock. They were taken out a few years ago against the advice of all the experts, and there is no plan to put them back. And, (women's libbers...note) the plant is almost totally populated by females who work on the production lines assembling those cute little red and gold striped thing on the circuit cards. Back in the test areas tho, it's a mans world with each test bench possessing enough test gear to make any ham jealous. Lunch hour really becomes a girl watcher's paradise.... the micro-mini's compete with the hot pants, and we enjoyed every minute of that! Although the company is progressive in its methods, it is conservative in its products. No product is released for sale unless everyone is sure it will do what they say it will and more.

Well, that's enough sales pitch for now. If you have a chance to get to visit the plant at Schaumburg, do so... it's quite a trip.

Keep up the good work. And remember, if you come to Milwaukee to visit our ham emporium or whatever, please give me a call. My office is just across from Mayfair Shopping Center on Hwy. 100.

73, de K9PAK

## REMINDER

FCC has now acted in the matter of Docket 19162, regarding phone band expansion. Effective November 22, 1972, there will be 25 KHz more on 75 meters, a move down to 3775 KHz, and 50 more on 40 meters, down to 7150 KHz. There will be no expansion on 20, 15 or 10 and no change in the 25 KHz CW segments for extra. Voice sub-bands available exclusively to extras will be 3775-3800 and 21,250-21,270 KHz. Voice sub-bands available to advanced and extra will be 3800-3890, 7150-7225, 14,200-14,275 and 21,270-21,350 KHz. 50.0-50.1 MHz remains a CW sub-band for extra and advanced. Novices stay at 3700-3750, move to 7100-7150 and at 15 meters reduced to 21,100-21,200 KHz. They lose 145-147 MHz privileges entirely but will get CW privileges from 28.1-28.2 MHz. The novice requirement for crystal control is to be deleted. Full information is appearing in the November issue of QST.



RARA, gratefully acknowledges the contribution of time and skill by the lovely xyl of WB9ETH Peggy, who has completed the typing of our new revised Club Constitution. de K9UWN

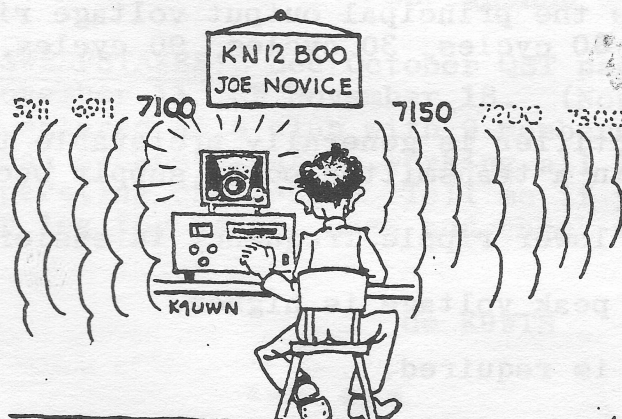
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HAM GEAR FOR SALE OR TRADE?  
NEWS ITEMS, JOKES OR CARTOONS OF INTEREST TO HAMS?  
FEATURE ARTICLES OR SMALL HAM GEAR BUILDING PROJECTS?  
WE WOULD LIKE TO PRINT THEM IN THE "HAM-RAG" - CALL:

Jack, K9UWN, 399-3890

Gun, K9WTS, 399-8289

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JOE, VFOs ARE WONDERFUL, BUT.  
WATCH THAT DRIFT.

Exam Quiz No. 2  
General Class License

7. The "Q" signal to stop transmitting is: QRT, QTC, QSY, QSA, QRK.
8. To avoid the danger of shock from high voltage it is best practice to:
- Install interlocks which remove high voltage when the transmitter case is opened.
  - Open all switches before touching any transmitter component.
  - Ground high voltage sources before touching any transmitter component.
  - Install bleeder resistors on all high voltage supplies.
- Practice all of these and in addition, THINK.
9. When the plate power of a vacuum tube is 300 watts and 60 watts is lost as heat dissipation in the plate element, the plate efficiency is: 80%, 30%, 90%, 50%, 95%.
10. In a plate supply filter system a swinging choke is used to:
- Keep the output voltage substantially constant with load.
  - Prevent overheating of the rectifier tube.
  - Prevent overloading of the power supply.
  - Vary the output voltage of the power supply in accordance with load requirements.
  - Eliminate spurious emissions.
11. When a single-wave single-phase rectifier is connected to a 60-cycle source the principal output voltage ripple frequency is: 60 cycles, 30 cycles, 90 cycles, 440 cycles, 120 cycles.
12. A full wave rectifier is generally preferable to half wave rectification in a transmitter power supply because:
- Resultant lower ripple frequency is easier to filter.
  - Resultant peak voltage is higher.
  - No filter is required.
  - Mercury rectifier tube may be used.
  - Resultant higher ripple frequency is easier to filter.

13. An amateur station may transmit music only under the following conditions.

On 160 meters only after 2400 GMT.

During an aurora scatter on 50 MHz.

Under no circumstances.

By special permit from FCC.

By agreement with FCC field engineer.

14. Interference with television reception when caused by simple overloading of the TV receiver by a properly operating amateur transmitter, may be reduced by:

Installing a low pass filter on the TV receiver.

Using a linear power amplifier in the amateur transmitter.

Increasing the transmitted power of the amateur transmitter.

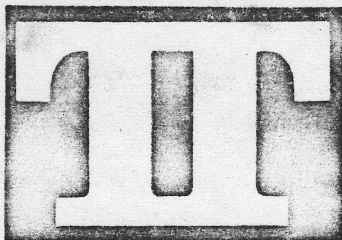
Install a low pass filter in the amateur transmitter.

Install a high pass filter in the TV receiver.

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#### Answers to Quiz No. 2

7. QRT means stop transmitting. (You should know the meaning of the other answers also!!)
8. Practice all of these and in addition think is the only way to avoid shock from high voltage.
9. The efficiency is defined as the output power divided by the input power and if expressed in % multiply it by 100. In this case 60 watts is lost as heat dissipation and therefore the output power is  $300 - 60 = 240$  watts.
- The efficiency is  $240/300 \times 100 = 80\%$ .
10. A swinging choke will keep the output voltage substantially constant with load.
11. When a single wave (or a half wave) rectifier is connected to a 60 cycles source the ripple frequency is 60 cycles.
12. A full wave rectifier is preferable because the resultant higher ripple frequency is easier to filter.
13. An amateur station may transmit music under no circumstances.
14. Simple overloading of television receiver may be reduced by installing a high pass filter in the TV receiver.



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## ANNOUNCING

### 1972 ANNUAL TECHNICAL TIPS FORUM

Thursday, November 9, 1972  
Henrici's Motor Inn  
I-90 (Exit US 20)  
Rockford, Illinois  
3 p.m. until 9 p.m.

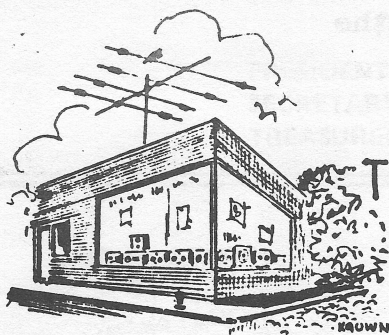
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Varistors  
Varnish  
Wave Soldering  
Welding Equipment  
Coil & Toroid Winders  
Wire Spools  
Selective Plating

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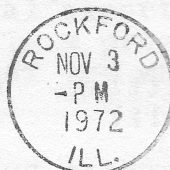
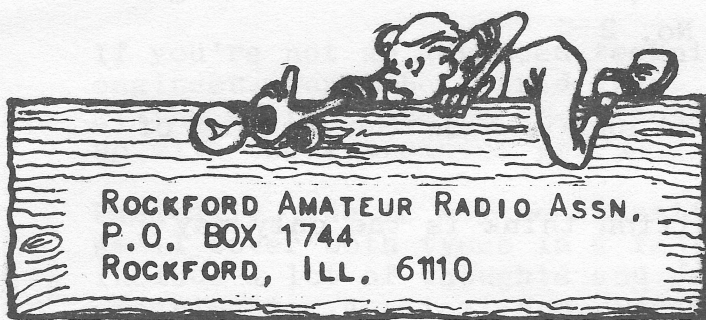


# THE TRADERS CORNER

For Sale: Amateur receiver 80 - 10 meters, SSB-AM-CW sensitivity 1 microvolt, Heath HD-11 Q-multiplier. Original cost \$200 +, manual included. \$85 mike, WN9IOG phone 1-874-4646.

**FOR SALE:** Swan 250C with remote VFO and power supply.  
Call Mrs Harvey James at 633-0087.  
Excellent condition, reasonable price.

**FOR SALE:** Central Electronics 100V xmtr w/manual; 6 mtr. 5 el beam - Hy Gain, 10 mtr. Military Surplus RCVR w/P.S.; Push to Talk G Stand for D-104 Mike; Stancor Mod. xformer, 25W w/prim. and sec. taps; Teletype 14 and 15 parts. Call Marv Smith, K9RUK, 965-4521, 1818 Hancock Street, Rockford, Illincis



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