



# The Parasitic Emission



Volume 12, Number 10

Fall \*C\*O\*M\*P\*U\*T\*E\*R\* Issue!

October 1984

## Meeting Notice

by Joe Shupienis, WA3IHK

The October meeting of the Quad County Amateur Radio Club will be held on Friday, October 19, beginning at 7:30 pm. at the DuBois Sheraton Inn, Exit 17 of I-80.

This is the ELECTION MEETING!

After the meeting, we will have a very interesting program on the uses of computers in ham radio. WA3IHK, WA3UFN and K3PS will conduct the program, along with any others who bring their computers for display. The whole tone of the program will be to demonstrate how affordable computers can really be for the ham, and just what they can do in your hamshack!

Plan on attending the October SUPERMEETING, and bring a friend.

\*QCARC\*

## Election Notice

by Joe Shupienis, WA3IHK

The Quad County Amateur Radio Club will be holding elections for all club offices at this month's meeting. All full members of the QCARC are urged to attend this meeting and vote for the officers for the next 12 months.

Nominations are now open and will remain so until the actual time of the voting. If you know someone who would make a good club officer (including yourself), please come to the meeting, nominate them (including yourself) and vote for them.

If you don't do it, it won't get done.

\*QCARC\*

## Minutes of the September Meeting

by Bryan Simanic, WA3UFN

The regular meeting of the QCARC was called to order September 21, 1984, by President WA3IHK.

The minutes of the previous meeting were read and approved, with the correction to the attendance: Delete KA3MYR and MYR's YL, change to KA3MYP and MYP's YL.

TREASURER REPORT- Expenses \$12.01 for repeater electric. Checking account balance at approximately \$75.00. Currently there are 45 full members and 11 associate members. There are 12 complimentary copies of the newsletter mailed. There are 35 FM Association members.

COMMITTEE REPORTS- Pres. WA3IHK informed the members present of a recent "Silent Key"; W3UCS, Miller Young. Training report stated that the upgrade and novice classes maybe delayed until next year, due to the overburdened schedules of the instructors. The newsletter editor commented on the good supply of articles that he has been receiving, and commented that he hopes to see them continue. Emergency services report that the local ARES crew will be helping the DuBois police dept. during the Halloween season. More info will be available on the net. About five stations are needed.

OLD BUSINESS- Reminder about the QCARC annual picnic Sept. 23.

NEW BUSINESS- Comment expressed that we should take steps to prevent such occurrences that the "letter to the editor" conveyed, concerning the loss of newly licensed amateurs.

GENERAL- On the lines of the comment, it was stated that it is better to ask for help in setting up a new station, than to silently wish for help and have no one hear. Request for further nominations. Exec. Board: WA3BUX, KA3DWR, WA3GNS, KA3MYQ, WB3HUE. President: KA3DEO Motion to adjourn by K3PS, seconded by

(continued next page)

(Minutes...)

WA3UFN, carried. The meeting adjourned for the club program on Emergency Services.

ATTENDANCE- WA3IHK, K3PS, WA3UFN, W3WM, KA3MYQ, WB3IQD, WB3HUE, KA3KMJ, WB3IQE, KA3DEO, KA3DWR, KA3FHV, WA3GQU, W8JZZ, KA3MKY, WA3HUI.

**\*QCARC\***

Time-outs

by Bryan Simanic, WA3UFN

FOR SALE OR SWAP

New, not yet unpacked, Heathkit Model HM-2140A dual wattmeter. \$75.00, or swap for 2 meter or 70 cm equipment. Contact: Ev Boden - N3DEO.

// Time Out //

SHORTS

Wonders will never cease, WA3UFN is back on HF. He finally got around to putting up the antenna he bought at the Warren hamfest. Reports are that it works pretty well.

// Time Out //

Our club secretary can really cause problems. He accidentally recorded an incorrect call in last months minutes. That's not the best part, the poor unsuspecting guy had a YL at the meeting he didn't even attend, and when his XYL read the newsletter, well... Sorry Terry.

// Time Out //

In the "harmonics" department, congratulations to Dick, WA3HSE and Joyce, KA8REK. Their new addition to the family, Thomas, arrived September 27.

**\*QCARC\***

OK, you math types. If you think you're really sharp, this one's for you!

How many seconds are there in a year?

It doesn't matter whether or not the year is a leap year - take your pick. The answer next month. (Or at the meeting!)

**\*QCARC\***

## A Disk Drive Power Supply

by Joe Shupienis, WA3IHK

At the Warren Hamfest, I found a deal that seemed too good to pass up. So I bought a half-width, 80 track, double sided, double density disk drive for \$120.00! New, yet!!

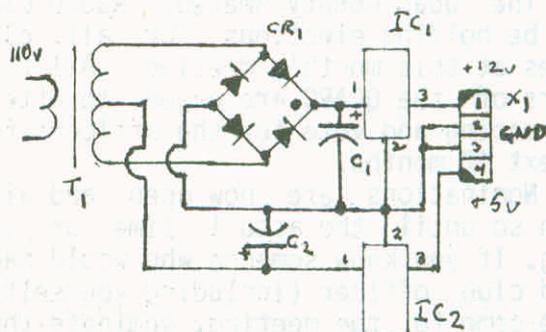
When I got it home, I planned on building a cabinet and power supply. To test it out, I used the power supply from an existing drive, and sure enough, the drive worked just great! Now for the power supply.

According to the instruction manual, the drive required +12 volts at 900 ma, and +5 volts at 800 ma (peak values). Since these were below an amp, the 1 amp regulator chips commonly available were chosen to simplify the circuit.

I decided that a 12 volt center-tapped transformer with a full-wave bridge and capacitive ripple filter would suffice. Well, it has sufficed, and the drive has been in 24-hour continuous service on my bulletin board for several weeks without any signs of overload or failure.

I was able, by careful parts layout, to make the whole works small enough to fit inside a thin-line drive cabinet, and the purchase price of all the parts at Radio Shack comes to less than \$15.00, including tax.

You can build this same circuit, too and take advantage of the bargain-priced drives now on the market. You have the advantage of not being afraid of a soldering iron, where most computer folks are strictly appliance operators. It's just like having money in the bank!!!



### Parts List

- C<sub>1,2</sub> - 1000 uF, 35 v electrolytic
- CR<sub>1</sub> - 2 amp, 50 volt full-wave bridge
- IC<sub>1</sub> - 12 Volt +1 amp regulator IC
- IC<sub>2</sub> - 5 Volt +1 amp regulator IC
- T<sub>1</sub> - 12.6 volt, 2 amp CT transformer
- X<sub>1</sub> - 4-pin female MOLEX, cut to fit.

```

1 REM Ham Bands & License Classes
2 REM =====
3 REM by Joe Shupienis, WA3IHK
4 REM
5 REM     This program answers the eternal question, "Where's the band?"
6 REM The new expanded phone bands are represented, so everybody should read.
7 REM When typing it in, omit everything after and including "REM".

10 DIM CW(70):           REM     CW bands for each class
20 DIM PH(70):           REM     Phone bands for each class
30 DIM CL$(5):           REM     License classes
40 FOR N=1 TO 70 STEP 2: REM     Read band edge assignments for each band.
50 READ CW(N), CW(N+1)
60 READ PH(N), PH(N+1)
70 NEXT N
80 FOR N=1 TO 5:         REM     Read the names of the license classes.
90 READ CL$(N)
100 NEXT N
110 FOR N=1 TO 7:        REM     Read the band names (meters)
120 READ BN$(N)
130 NEXT N
140 CLS:                 REM     Clear the screen.
150 PRINT "Ham Band Reference Program"
160 PRINT "===  ===  =====  ====="
170 PRINT
180 PRINT "Select your license class"
190 FOR N=1 TO 5
200 PRINT TAB(3); N; " - "; CL$(N)
210 NEXT N
220 INPUT "What is your number (1-5)"; C
230 IF C<1 OR C>5 THEN 220
240 CLS:                 REM     Clear the screen
250 PRINT CL$(C) " Class Frequency Assignments"
260 PRINT
270 PRINT "Band", "Frequencies"
280 PRINT "=====", "====="
290 FOR N=1 TO 7
300 I=14*(C-1)+2*N-1
310 IF CW(I)=0 THEN 380
320 PRINT BN$(N); " meters",
330 PRINT USING "##.### to ##.### mhz   CW"; CW(I), CW(I+1)
340 IF PH(I)=0 THEN 380
350 IF N=4 THEN PRINT TAB(16) USING "##.### to ##.### mhz   CW"; PH(I), PH(I+1)
360 IF N=4 THEN 380
370 PRINT TAB(16) USING "##.### to ##.### mhz   PHONE"; PH(I), PH(I+1)
380 NEXT N
390 INPUT A$
400 GOTO 140

1000 REM     Novice Frequencies
1010 DATA 0, 0, 0, 0
1020 DATA 3.7, 3.75, 0, 0
1030 DATA 7.1, 7.15, 0, 0
1040 DATA 0, 0, 0, 0
1050 DATA 0, 0, 0, 0
1060 DATA 21.1, 21.2, 0, 0
1070 DATA 28.1, 28.2, 0, 0

```

(Continued next page...)

2000 REM Technician Frequencies

2010 DATA 0, 0, 0, 0  
 2020 DATA 3.7, 3.75, 0, 0  
 2030 DATA 7.1, 7.15, 0, 0  
 2040 DATA 0, 0, 0, 0  
 2050 DATA 0, 0, 0, 0  
 2060 DATA 21.1, 21.2, 0, 0  
 2070 DATA 28.1, 28.2, 0, 0

3000 REM General Frequencies

3010 DATA 1.8, 2.0, 1.8, 2.0  
 3020 DATA 3.525, 3.75, 3.85, 4.0  
 3030 DATA 7.025, 7.15, 7.225, 7.3  
 3040 DATA 10.1, 10.109, 10.115, 10.15  
 3050 DATA 14.025, 14.15, 14.225, 14.35  
 3060 DATA 21.025, 21.2, 21.3, 21.45  
 3070 DATA 28.0, 28.3, 28.3, 29.7

4000 REM Advanced Frequencies

4010 DATA 1.8, 2.0, 1.8, 2.0  
 4020 DATA 3.525, 3.75, 3.775, 4.0  
 4030 DATA 7.025, 7.15, 7.15, 7.3  
 4040 DATA 10.1, 10.109, 10.115, 10.15  
 4050 DATA 14.025, 14.15, 14.175, 14.35  
 4060 DATA 21.025, 21.2, 21.225, 21.45  
 4070 DATA 28.0, 28.3, 28.3, 29.7

5000 REM Amateur Extra Frequencies

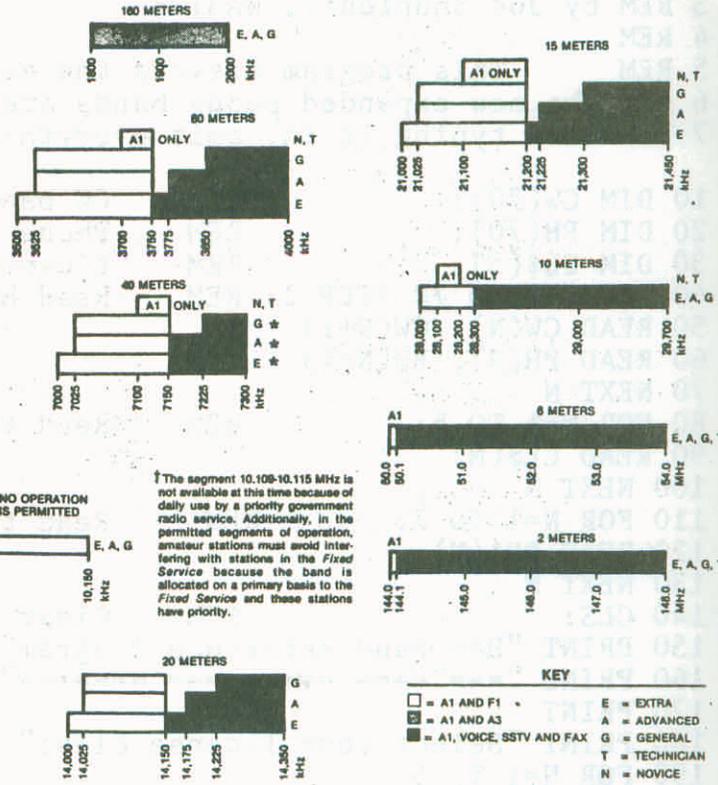
5010 DATA 1.8, 2.0, 1.8, 2.0  
 5020 DATA 3.5, 3.75, 3.75, 4.0  
 5030 DATA 7.0, 7.15, 7.15, 7.3  
 5040 DATA 10.1, 10.109, 10.115, 10.15  
 5050 DATA 14.0, 14.15, 14.15, 14.35  
 5060 DATA 21.0, 21.2, 21.2, 21.45  
 5070 DATA 28.0, 28.3, 28.3, 29.7

6000 REM License Classes

6010 DATA Novice, Technician, General, Advanced, Amateur Extra

7000 REM Band Names

7010 DATA 160, 80/75, 40, 30, 20, 15, 10



\* Phone operation is allowed on 7075-7100 kHz in Hawaii and areas near ITU Region 3, including Alaska.

Fig. 1 — This chart includes the new HF phone-band privileges that become effective at 000 UTC September 1, 1984. Until then, U.S. amateurs must follow the mode allocations depicted in the chart on page 51, January 1984 QST.

Ham Band Reference Program

Select your license class

- 1 - Novice
- 2 - Technician
- 3 - General
- 4 - Advanced
- 5 - Amateur Extra

What is your number (1-5)? 3

So there, you have it. This program runs on my Radio Shack Model III, and it should run on most others, too. If the USING statement makes yours burp, leave it and the quote out. =IHK

General Class Frequency Assignments

Band	Frequencies	
160 meters	1.800 to 2.000 mhz	CW
	1.800 to 2.000 mhz	PHONE
80/75 meters	3.525 to 3.750 mhz	CW
	3.850 to 4.000 mhz	PHONE
40 meters	7.025 to 7.150 mhz	CW
	7.225 to 7.300 mhz	PHONE
30 meters	10.100 to 10.109 mhz	CW
	10.115 to 10.150 mhz	CW
20 meters	14.025 to 14.150 mhz	CW
	14.225 to 14.350 mhz	PHONE
15 meters	21.025 to 21.200 mhz	CW
	21.300 to 21.450 mhz	PHONE
10 meters	28.000 to 28.300 mhz	CW
	28.300 to 29.700 mhz	PHONE

A Simple RTTY Terminal Unit You Can Build  
 by George McKnight, WA3GNS

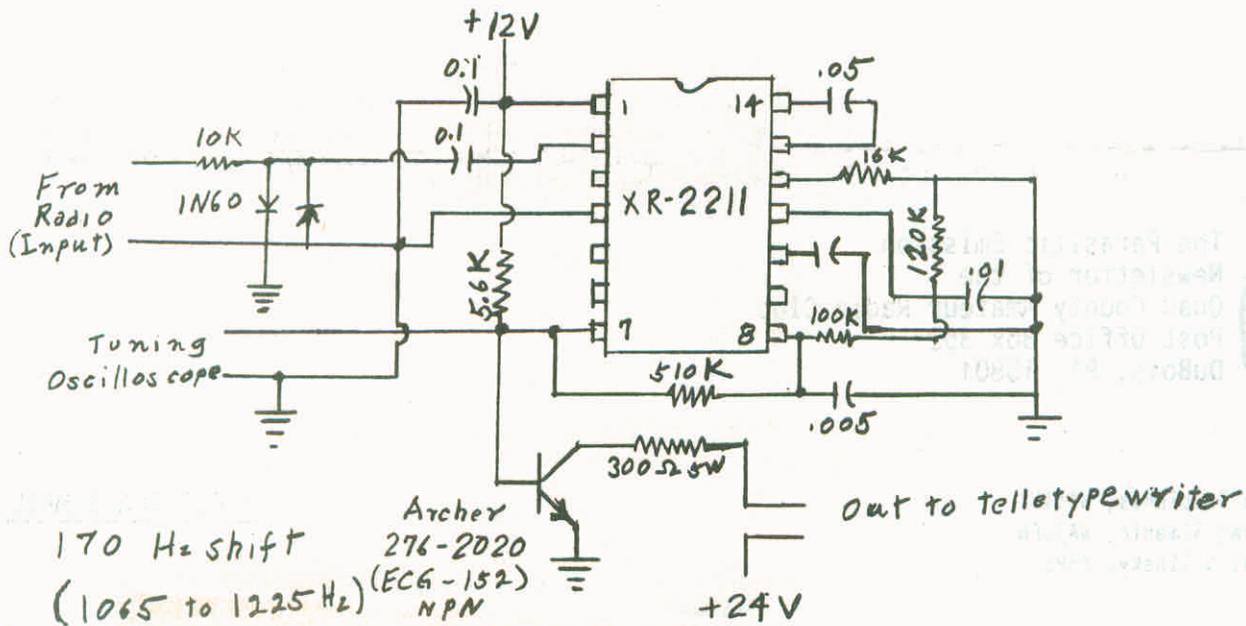
Teletype sound interesting? It's still active. Recently Radio Shack advertised:

"Dynamite ICs for Modems & RTTY"

XR-2206 AFSK Generator and XR-2211 FSK Decoder, \$5.95 each.

This set the old memory working: A model 15 Teleprinter and related equipment, idle in my basement for 15 years, since the standard frequency shift was changed from 850 Hz to 170 Hz shift. Those old toroidal coils just wouldn't tune sharply enough for the narrower band! Now here is a little 14-pin centipede that will even tune down to 60 Hz shift and work for computer ASCII, too for only \$6.00! I got it!

With my new treasure in hand, and the instruction sheet packed with it, I set about building the decoder. The input voltage should be between 2 millivolts and 3 volts; the audio output of my Kenwood is just fine, but I added a clipper to limit the peaks to plus and minus 1 volt. The TTY needs 100 ma. at 20 volts or more, and the XR2211 output is rated at 5 ma., so a transistor output amplifier was added. With the circuit values recalculated from the instruction sheet, this became the schematic diagram:



Now to the junk box and a couple of new parts. A perf-board 4 1/2" x 6" gave adequate room for all of the parts, with an equal space left over for building a transmitting encoder later. An IC socket was used to keep from damaging the IC during assembly and to make replacement possible (I just might make a mistake). I had two 12 volt regulated power supplies which would provide ample 12 volt and 24 volt current. The pins of the IC socket just fit the holes of the perf-board, so the wiring was easy. With some trial-and-error corrections (like whether to connect the TTY in parallel or series with the 2020 transistor), everything was ready.

First I checked to see how the decoder worked. I found that a 1225 Hz input from an audio oscillator would give a steady "off" lock, and a steady 850 Hz tone

would give a steady "on" lock. Switching from one to the other gave a good response, but with other combinations, an unpredictable pulsed output was obtained.

Switching to the radio, I found some stations around 7.195 MHz with the characteristic warbling tone, and the oscilloscope gave some promising indications. With the scope across the output to the TTY, the coil inductance gave pulses with each output change that made interpretation difficult, but by connecting it at the input of the "final" gave nice square wave indications. It took a while to get more than gobbledy-gook, but I soon learned how to tune the receiver with the "RIT" control to get a proper sounding tone and then fine-tune for the proper scope pattern. Then it happened: "LKMEDKBZZWHICH I T2551CPIN IT AND I DO HAVE OAO,-.950,IHH" It made some sense on lower sideband!!! Then, tuning in on W1AW, 7.194 MHz at the time given in QST gave some good copy on which to learn. But after 5 minutes, it went gobbledy-gook and printed only half a line at a time! Why?

Back to QST and I found that after bulletins in Baudot (RTTY language) they repeat then at twice the speed in ASCII (computer language) and later sometimes in AMTOR (a new error-correcting code). And the ASCII transmissions were why lots of the amateur messages couldn't be copied, along with interference problems.

The equipment works fine now on the W1AW bulletins and lots of others also. It's lower sideband on both 40 and 20 meter bands. European broadcasts come in frequently.

Now to build the transmitting unit so I can have some QSO's and get some DX-RTTY QSL's! It's easy with IC's.

Anybody else for some RTTY fun?

\*QCARC\*



The Parasitic Emission  
Newsletter of the  
Quad County Amateur Radio Club  
Post Office Box 352  
DuBois, PA 15801

President: Joe Shupienis, WA3IHK  
Secretary: Bryan Simanic, WA3UFN  
Treasurer: Paul Silinsky, K3PS

FIRST CLASS MAIL

Bryan Simanic  
509 Burt Street  
DuBois PA 15801

F 1984  
WA3UFN

Member:



An Affiliated Club of the  
American Radio Relay League



Serving Radio Amateurs in Clearfield, Jefferson, Elk and Cameron Counties since 1975