



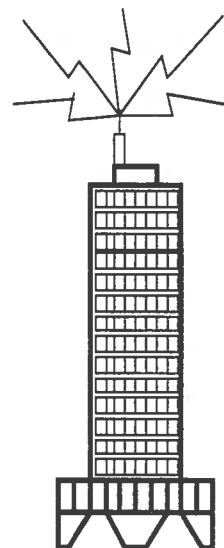
XARC

Monthly Newsletter

The Voice of the Xerox Amateur Radio Club

Xerox
Amateur
Radio Club

KE2MK/R
224.26/444.825
145.29



Dave Sweet
Harry Williams
Pete Fournia
Rick LaDonna
John Wright

KF2QJ
N2VML
WA2BPQ
N2IJI
KE2MK

President
Vice President
Secretary
Treasurer
Trustee

**1993 National VHF
Contest
First Place**
Mid Size Clubs

February 13,

**Next Club Meeting February 17,
1730 hrs**

Designing Your Own QSL's

by

Harry Williams, N2VML, Pete Fournia,
WA2BPQ, and John Wright, KE2MK

At "The Document Company" we have access to some pretty sophisticated equipment for designing and printing really nice QSLs. Harry, Pete, and John will show us how they did theirs. If you have cards you designed and/or printed yourself, bring a sample to the meeting and tell us about it. Its sure to be a fun meeting.

March Meeting Topic

At the March meeting, Barry Rickett, N2EZX, will be talking to us about the January VHF Contest results and about the superb station Barry and his crew ran during the event. The meeting will be held Thursday, March 17. Save the date.

Join us for what's sure to be a great program.

Meeting Survey Results

XARC Program Survey Feedback,

The results are in! I have, at long last, compiled and consolidated the second round of survey responses on the types of programs folks would like to see XARC sponsor during 1994. While the survey methodology was probably not statistically perfect, and the results not protectable, we do at least have some indication of the interests of the club, and this is an important start. The results are attached and you will see the responses ranked in two ways, 1) looking at the total points (votes per category x value) and 2) looking at the average score for each question (total points / responses). I frankly don't know which is "right" so both are provided. I found it interesting that six program topics were in the top ten of both rating schemes: antennas, HF digital modes, satellite communication, RFI/TVI solutions, making your own QSL cards, and electronic call sign databases. Obviously the next steps that will be pursued are to arrange for speakers for the high priority topics, and this is underway.

Postmark: 14-February-94 (Monday) 18:24:22 EST - (FirstClass:Wbst311:Xerox)
From: Xerox Amateur Radio Club:WBST129:XEROX
To: XARC:All Areas
Sender: Robert S. Karz:WBST311:Xerox
Copies: Laura Kerr:Wbst139, BBach:Roch805
Subject: Newsletter 2/94
Reply To: K2OID:WBST311:Xerox
Size: 145 Disk Pages
Note Format: XEROX Format
Note: XARC Club Members,

Here's the February Newsletter.

73

Bob, K2OID

Laura Kerr,

Please hard copy this to Jim Guentner.

Thanks

Bob Karz

The second round of surveys included a few extra questions on additional types of activities that the club could sponsor. There are not many of these so I will highlight them as follows:

Would You Be Interested In:

	No	Yes	Maybe
Weekend special events of programs	0	2	5
XARC community service project	0	2	5
Programs on nights other than monthly meetings	0	4	3
Club sponsored social event	2	2	3

This would indicate, to me anyway, that you might be interested in a greater variety of activities / programs depending on the subject, schedule, etc. This is interesting feedback that will be factored into the program plans for the year. It is apparent that we should validate the club's interest level before arranging special events.

Thanks again to all who provided input. There were lots of good ideas and we will try to cover as many as possible over time. Please call me if you have any questions.

73s
Harry Williams
N2VML

Editor's note:

Harry also has a detailed list of specific program topics and their survey ratings which has not been included in the newsletter due to space. Contact Harry for an electronic copy.

Repeater User Information

Members usually don't get user information about our repeaters unless

they ask. Consequently, I infrequently get inquiries about our Xerox repeaters. We usually refer the inquiry to Barry Rickett who services the request. The below information is an edited version of Barry's user sheet.

As users of the machine and members of the Xerox Amateur Radio Club, you have use of the repeater and its functions. Following is a list of those functions. If you have any questions, please feel free to contact any one of the repeater control operators. They are:

CALL	NAME	WORK PH	HOME PH
KE2MK	John Wright	422-5130	223-3702
N2EVS			
WO2P	Fred Miller	422-9126	315-524-3486
KB6CSP	Wayne Lightsey	423-7786	396-2329
WR2T	Ray Crandall	422-1797	334-7720
KB2UW	Jim Guentner	422-7223	671-8199
WA2NZO	John Freigerger	423-4686	315-986-2706

The repeater control codes available to users are:

Auto Patch	xxxx
This connects to a Xerox Intelnet phone. You will need to dial a '9' to get an outside line, then dial the other 7 digits.	
Last number redial	xxxx
AAA Emerg. Road Svc.	900
Weather report	910
Emergency 911	911
Ontario Sheriff	917
Patch Clear	#00

In addition, members of the club and

them. If you would like a memory slot, contact N2EZZ for an assignment and to have the location programmed with your number. You will receive specific instructions on how to use the memory slot when it is assigned.

Before you attempt to place a patch call, it is advisable to use the touch tone test to determine if the repeater is hearing and decoding your tones properly. If successful, the repeater will return, in CW, "OK". (The test tone is a sequence of 3 numbers arranged vertical or horizontal on your tone pad. For example: "1 2 3" or "3 6 9".) The 3 repeater frequencies are listed on the newsletter header sheet. Only the 145.29 and 224.26 Mhz repeaters have auto patch service.

Articles Welcome

If you have an article, letters, or news you think may be of interest to club members please submit it to me for publication (electronically if possible). Your input can help us make our newsletter better.

Bob, K2OID

KARZ's Corner Gotcha

About three years ago when the Yaseu 1000D was introduced, it had a feature I thought would be the proverbial "cat's pajamas".....16 seconds of receive memory. How many times have you needed to hear the QTH or the QSL routing again or wanted to be sure that rare DX station had your call correct? For a mere \$4,000 or so for the 1000D plus an extra few hundred for the optional DVS-2 storage unit, the record capability could be yours.

Still, I realized it would make a neat station accessory. All I needed was for

someone to come out with the chip. Sure enough, Radio Shack introduced the ISD 1000A digital voice recorder chip last year for around \$18. I was tempted but didn't spring. Last month, it went on sale for \$13, and I just had to have one. After looking at the included literature, I wasn't sure it would do what I wanted, but what the heck, it's only \$13, so I bought one. I bread boarded it up on the kitchen table, hooked it up to a 3" speaker and an old mike, and the fun began. The chip is awesome! It has a few amplifiers and filters feeding an analog to digital converted attached to a 128 Kilobyte storage array, enough for 20 seconds of communications quality audio. On the other side is a D/A converter, another filter, and an audio amp. It also has control lines allowing you to change modes and partition memory, an internal clock, and an automatic gain control or AGC. The documentation is quite good, and the chip turned out to be even more flexible than I thought.

I wanted to set it up as a first in first out memory, always retaining the last 20 seconds of audio, but what I thought might require quite a bit of external circuitry needed only a single NAND gate to reset the message pointer when the end of memory signal was encountered.

I experimented with the circuit over several weeks, finding component values for the best audio quality, adding an audio amp for more output, and finding a switch combination for the most intuitive operation (one switch for record/hold and a second for play back/receive). Then I transferred the components to a 2 1/2" x 3 1/2" circuit board and tried it out with the rig. It was then that the February QST arrived with the "QSOcorder" on page 45. "So much for my brilliant letter to Hints and Kinks", I thought, and then I read the article.

I was really impressed with the author's credentials - PhD in EE, Professor at the Milwaukee School of Engineering, first licensed at 17. But then, I have a PhD, I'm a principal Scientist at Xerox, and I was licensed at 12 so la dee da. Besides, my circuit is better. Apparently the author was unaware of Radio Shack's magic chip.....he did everything "the long way". The result is that his circuit is crowded onto a 4.5" X 5" circuit board with less memory (and less capability) than mine. While the "QSOcorder" can be had for \$95 plus \$7 shipping, my whole project cost less than the \$25 he's charging for the software alone! Guess the letter to "Hints and Kinks" is back on.

The circuit diagram and construction notes follow. If you're interested, it would make a great mid winter project. For QST, all I have to say is "gotcha". As for me, I worked Peter Island this morning, and my new recorder confirmed that he received my call just fine.

73 and Good Hamming

The XARC-corder Circuit Notes

The circuit is straight forward to understand and build. In the record mode, the audio input is fed through to the output but is tapped by a 1K trim pot for input to the recorder. The pot is used to adjust the input signal level to the recorder chip. In practice, it is adjusted at about the 3/4 level. A capacitor and resistor at pin 9 control the chip's automatic gain control (AGC) which very effectively keeps the volume constant over a range of input voltages.

In record, the P/R and CE inputs (pins 27 and 23) are held low by the Record/Hold switch. Pin 1 of the 7400 NAND gate is held high by the 10K pull up resistor and

pin 2 of the 7400 is also high so long as the end of memory has not been reached. With both NAND inputs high, its output (pin 3) is low and is attached to input PD (pin 24) on the recorder chip. PD going high resets the memory. The 220 uf capacitor at pin 1 of the 7400 insures that PD is high while the chip is powering up at turn on and goes low several milliseconds later. Thus the chip comes up with a reset, and the memory starts to fill with audio.

When the memory is filled, EOM (pin 25 on the recorder chip) goes momentarily low. This drives the NAND gate and PD high which resets the memory counter and recording continues from the beginning. Thus, the chip always contains the last 20 seconds of audio. When the record/hold switch is in the "hold" position, P/R and CE go high. The zener diode protects pin 1 of the NAND gate from over voltage when the negative terminal of the already charged 220 uf start up capacitor goes from ground to +5V, driving the positive terminal (connected to the NAND input) to nearly 10 volts when the zener is not there. In "hold", the audio output remains connected to the audio input until the momentary play switch is depressed. Then CE is driven low, the audio output is switched from the audio input to the LM386 amplifier, and the recorded audio is played. As with the record mode, an EOM signal triggers a memory reset and the recorded audio will play from the beginning. When the play button is released, the audio output is reconnected to the audio input, and "live" audio is again heard. Switching the record/hold switch back to record grounds the 220 uf capacitor at the NAND input and generates a reset at PD. Otherwise, the recorder chip would stay in the record mode until the EOM signal is reached up to 20 seconds later.

The recorder chip doesn't have quite enough output for me, so I use the output to drive a LM386. I used the 386 because it works fine on 5 volts, but if more than its .2 or so watts are needed, an LM380 or LM390 would do fine. The only difficulty is that these chips require a (separate) higher voltage supply (8 volts or more). The capacitor and resistor in series at the LM386 output are to suppress noise.

I decided to power the recorder off my transceiver. It has a 28 volt supply from which other voltages are derived. Rather than tap into a 5 volt source at the transceiver, I decided to use the 28 volt source to minimize possible interference. The recorder draws 50 to 60 milliamps, so I used a 300 ohm dropping resistor to minimize the dissipation at the 7805 regulator. Actually the resistor is inside the transceiver so any accidental grounding of the DC line won't blow fuses. Of course, there are options to get the 5 volts you need.

The recorder chip uses an 819.1 KHz internal clock and does generate some RFI (apparently so does the "QSOcorder" in QST). I've used .1 uf disc capacitors at all power connections, and my worst case problems are about one "s" unit of hash on some parts of the 10 meter band. I've lined the bakelite case with aluminum foil tape to reduce the problem still more, but I'd recommend using a metal case.

Only 4 wires are required to connect the recorder to the outside world (DC+, GND, SPKR IN, and SPKR OUT). I'm using a DC power receptacle (Radio Shack 274-1567) because the + lead is protected and can't accidentally be shorted to ground. I'm using a normally closed stereo phone jack to tap the speaker line so that when the recorder is unplugged, the speaker operates normally. Finally, I'm using an unused

pin on the remote socket to bring the power out of the transceiver.

Bob Karz, K2OID

Finding Information About the Club

Xerox Amateur Radio Club documents are available in a public file drawer administered by XHFES. Our radio club folder contains the membership list; our Bylaws; a sample newsletter including a list of officer, membership application, and repeater frequencies; and a general description of the club. You may access this information by selecting the HENR801A:XEROX domain / PASFS-THREE drawer / XHFES drawer / Club Folders / Radio Club. This is the same drawer referenced on the last page of the Chatterbox.

Peter Fournia, WA2BPQ

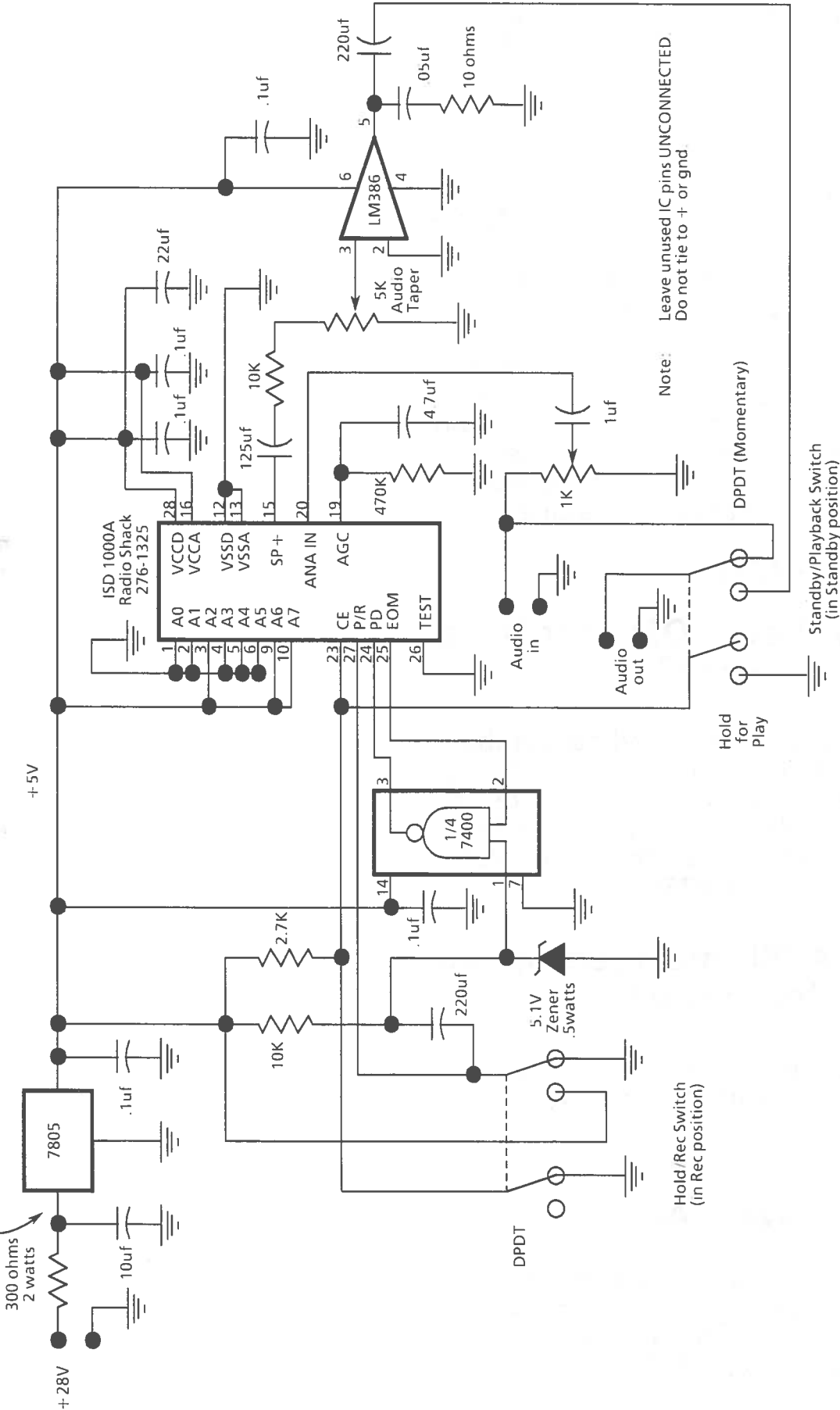
Equipment loans

As many of you know the XARC has recently increased its equipment inventory by leaps and bounds over what we had just a short time ago. I have been asked, as the chairman of the station committee, to publish a list of equipment which is available for short term loan to members of the club. When borrowing a piece of equipment, a note should be left in the club station with the item borrowed, the date borrowed, the anticipated return date, and the borrowers name and call.

The following is a list of equipment located at the station in building 337 which is available for lending per the above guidelines. All other items are not to be removed from the station for personal use.

Recorder Circuit R. Karz, K201D

Note: Circuit draws 50 - 60 ma max. Any input voltage from 8V to 30V is OK. Select dropping resistor for at least 8 volts at the input to the 7805 regulator.



Note: Leave unused IC pins UNCONNECTED. Do not tie to + or gnd.

Standby/Playback Switch (in Standby position)

Heathkit HW101 transceiver with Submitt want ads to Bob Karz, K2OID
speaker and power supply
KDK 2 Meter FM transceiver
12 volt power supply (blue box type)
Bird wattmeter, 3 - 30 Mhz, up to 100W
Kenwood VHF/UHF watt/SWR meter,
140 - 500 Mhz
Headphones
ARRL Handbook
ARRL Antenna book
US and Foreign area call books (1988
issue)
Software library disks, Amateur related,
(5 1/4 and 3 1/2 DSDD disks)

All of the equipment located at the station is, of course, there for the use of all our members at any time. I would strongly encourage you to use the station. The performance of the station is better than most would imagine.

Thanx Barry, N2EVS

Do you have QSL cards to send?

As a club we are entitled to combine ARRL members cards in one mailing. Just order your outgoing cards as always, include a current mailing label from QST and give them to Peter Fournia in bldg 129-075B.

Is your ARRL membership up for renewal?

If so remember to renew through the club. See Rick LaDonna for details.

Want Ads

Looking for a small, cheap tribander in good condition (eg. Cushcraft A4 or a Mosely TA33 Jr). Contact DAve Sweet, KF2QJ at extension 57669.