Lucas

RIVER CITY RADIO RAG

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Deadline for submission of materials is the 20th of the month preceeding the desired month of publication. Any article dealing with any aspect of amateur radio is welcome.

It is not our intent to edit prospective articles, however we reserve the right, out of necessity, to delay publication of an article due to space limitations.

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1974

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FROM THE EDITOR

Again, this month, a mixed bag of articles; a really nice one by Glenn, on auto-patch systems. Jack, WØMIE was extremely busy this month, and as a result, could not contribute "WHO'S WHOM" this month.

The lateness is my fault, I am in the process of changing jobs, and the "ready for press" copy was lost for several days in a mess caused by an overzealous janitor!

Next month? Any contributors?

73, WAØDXZ Bob

IN CASE YOU MISSED IT

The September meeting of the Iowa City Amateur Radio Club was held in the basement of the First National Bank at 7:30 PM

Bob, WAØDXZ, ran through the old business, including plans for the second transmitter hunt. The idea of a W.A.S. contest was brought up, but died for lack of interest. Chuck gave a report on the progress in the repeater society.

The program was an A.R.R.L. film, "Ham's Wide World". Interesting, but a bit basic for our needs. Good for recruiting!

The group adjourned to coffee and cookies and conversation.

FOR SALE: Heath SB-220 Linear, good condition, the price is right! Gene KØCKX 338-1814.

EVERYTHING YOU ALWAYS WANTED TO KNOW ABOUT TOUCH TONE AND TOUCH TONE PAD INTERFACE UNITS!!

by WAØPUJ/Ø Glenn Johnson

With the growing crowd of two meter enthusiasts, there has evolved a variety of Telephone TouchTone Pad Interface Circuits connecting the pad to the transmitter. Most pads are used for the so-called "Auto-Patch" systems of remote dial phone patch. Others are used for access and control of different repeaters.

This article will attempt to answer some questions and perhaps give some ideas on how to hook up your pad to your two meter gear.

First, to describe the different pads available: the most popular (and most readily available) pad is the model 35 series pad. This is the pad used in most phones that are not the "TrimLine" style. This pad has 12 buttons, (0-9 plus * and #). The other pad which can be found is the model 82 series pad. This is the pad used in the "TrimLine" phones. It is perhaps harder to obtain, but is more preferable because of its small size and ease of mounting and wiring. The 35 series uses color coded wires while the 82 series uses numbered screw terminals.

Fig. 1 shows the location of the color coded wires on the 35 series pad. Fig. 2 shows the location of the screw terminals on the 82 series. Fig. 3 gives the cross reference between the

TOUCH TONE INTERFACE cont'd...

color codes and the terminal numbers. Each corresponding color coded wire and terminal have the same circuit connections within the pad. Fig. 4 shows a diagram of a typical Western Electric Touch Tone generator.

To prepare the pads for amateur service, some minor modifications are needed on both models...

---On the 35 series, one modification is required. Remove the 5.1 K resistor which is connected to the white and white-blue leads. This is easily located and snipped out.

---On the 82 series, four modifications are necessary. Referring to figure 5, (which shows the back of the pad with the little plastic cover removed),

1. Remove resistor between terminal 3 and the foil strip from terminal 2.
2. Bend the switch arm connected to terminal 3 up so there is an open between it and the contact from terminal 2.
3. In a similar manner, bend the switch arm up that is connected to terminal 4 and the contact below it to make an open. Make sure the two arms just bend to make an open and do not touch any other contact.
4. Connect a standard varistor between terminals 1 and 3.

Now you are ready to build an interface between the pad and your rig. When connecting the pad to a voltage source, either 9VDC (as from a battery), or 12VDC from a standard power

cont'd p. 5

supply or mobile source may be used, as most pads used today can handle a supply voltage from maybe 4VDC to 24VDC because of its voltage regulator. That is to say that a voltage within this range will not alter the frequency of the tones produced.

Fig. 6 shows the schematic of a simple pad interface. The author has used this circuit with a 35 and 82 series pad and found it to work quite well. At one time a 9VDC battery was used for power with an ON/OFF switch to prevent battery drain with the pad not in use. Now 12VDC from the rig is used. The audio output is paralleled with the rig's mike and the pot adjusted for adequate output. The values of components are not critical in any part of the circuit. Most junk boxes are perfect places to find all the parts. It should be noted that to transmit a note from the pad, the transmitter must be keyed with the mike switch as the pad will not key the transmitter.

Another more sophisticated circuit the author uses is one described by K7QWR in Ham Radio March 1973. This circuit has several advantages over other interfaces:

--Automatic keying of the transmitter with delayed dropout(so a whole series of digits can be dialed before the transmitter drops out).

-- Automatic connect-disconnect of pad audio output to the transmitter audio system.

--No battery of transformer is required. The schematic is in Figure 7.

Cont'd P. 6

TOUCH TONE INTERFACE cont'd...

Note should be made that when using a series 82 pad with the above circuit, Q3 must be replaced with an NPN transistor.

Perhaps you are wondering how to use your pad now that you have it hooked up. Most auto patch installations use the * button to "pickup" the telephone, i.e., you push *, let up on the mike to hear the dial tone, and then proceed with dialing your number. Then, after you have said good-bye, you push # to hang up the autopatch. Cleverly, most systems have been put together so that after *, the first digit can't be a 0 or 1, so forget the free long distance phone calls to old drinking buddies.

Some of the more private systems require a 3 or 4 digit sequence to turn on the system, even before the * is used to pick up the phone. When using an autopatch, when using usually a good idea to say something like, "This is WAØPUJ using the WRØACU autopatch." and when closing.."This is WAØPUJ clear the WRØACU autopatch".

Two meters is now a whole new dimension in ham radio... and now autopatching is becoming THE THING on two meters. What's next? Autopatch via OSCAR??

73, de Glenn WAØPUJ

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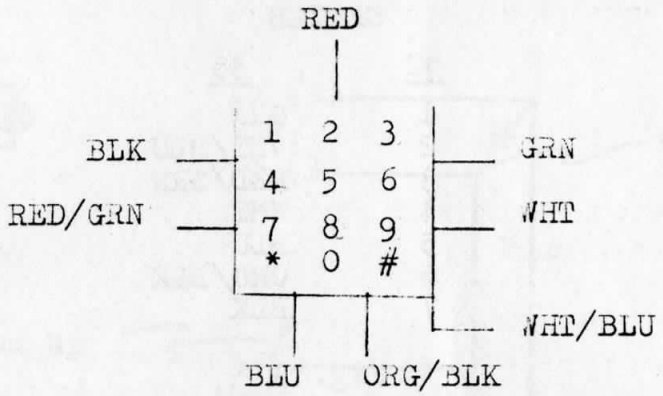

Fig. 1
35 Series (top view)

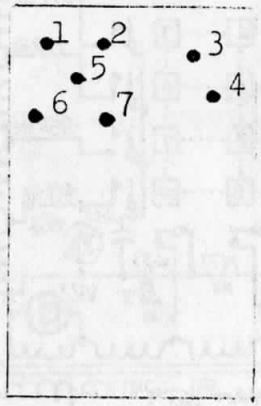

Fig. 2
82 Series (back view)

SERIES

82	35
1	GRN
2	WHT/BLU
3	RED/GRN
4	WHT
5	BLU
6	ORG/BLK
7	BLK

Fig. 3

Series 82 & 35 Cross-reference codes.

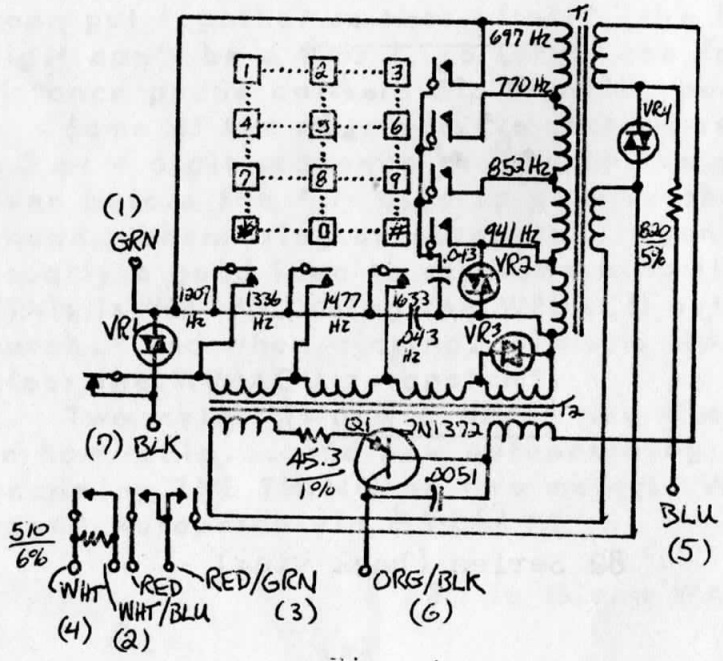

Fig. 4

Diagram of a typical Western Electric Touch-Tone generator.

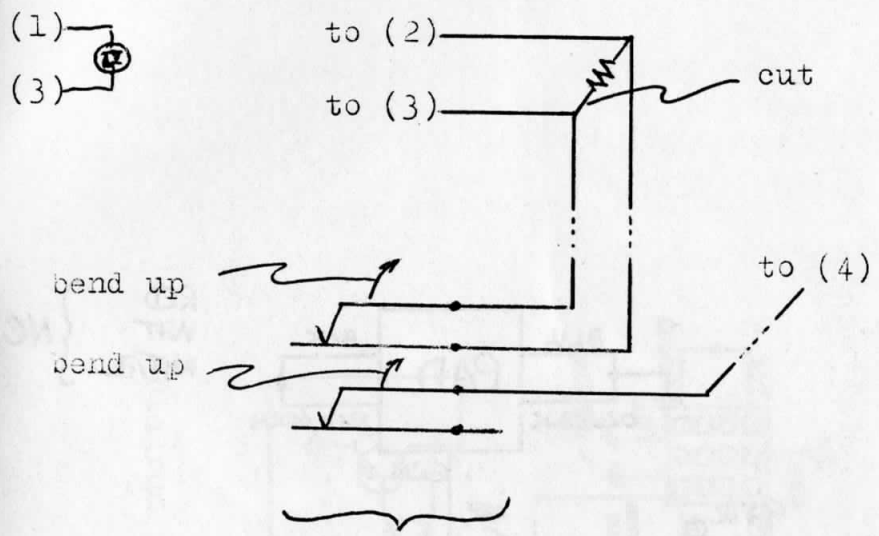

Fig. 5

Modifications required on the 82 series pad.

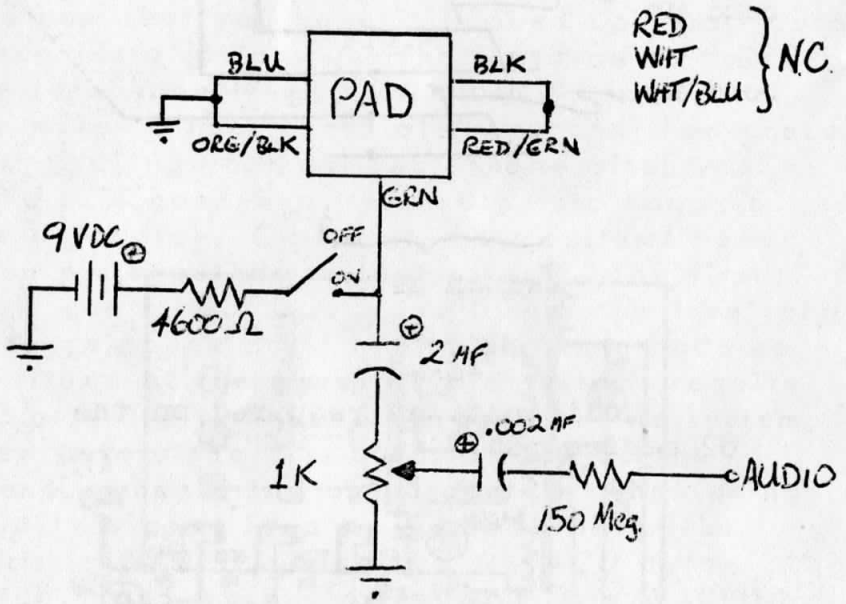

Fig. 6
A simple pad interface.

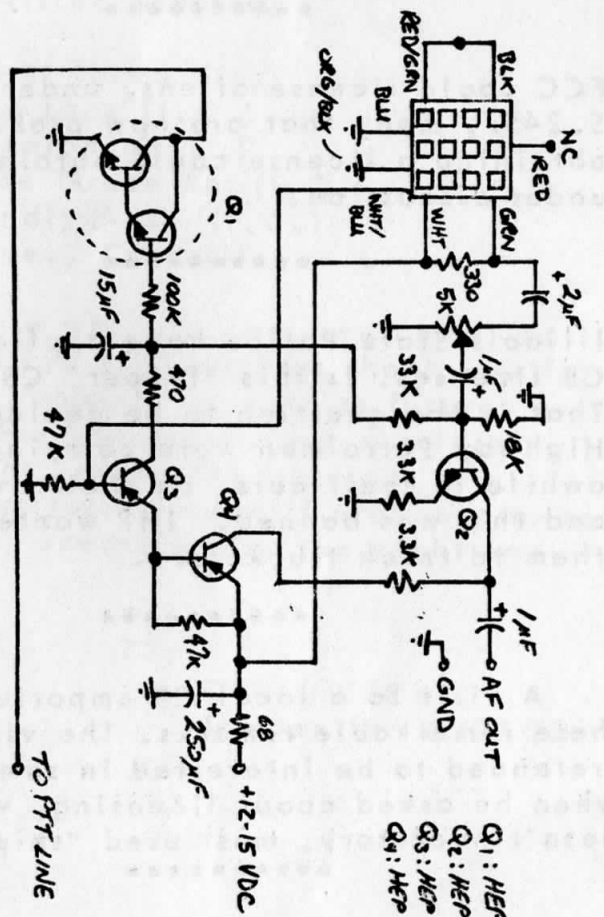

Fig. 7
Diagram of the "automatic" pad interface.

** STRAYS **

The National Radio Company will be back in business shortly, with plans to resume production of most of their discontinued equipment... more info: J. Welsh, President, National Radio Co., Melrose, Mass. 02176

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FCC could license aliens, under proposal S.2457, many that are now prohibited from obtaining a license could obtain one. This is under discussion.

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Illinois State Police have applied for 2000 CB licenses. Is this "Proper" CB use? That is the question to be decided. Iowa Highway Patrolmen were carrying them for awhile in their cars, on their own initiative, and this was banned. IHP wanted to use them to track truckers...

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A visit to a local CB emporium, showed these remarkable remarks. The visitor, a ham, pretended to be interested in some CB gear. When he asked about licensing, was told it wasn't necessary, most used "skip calls" !!

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Dear OM,

Below is a list of the current control points submitted to the FCC as of this date Sept 22, 1974. The receipt of this letter is to be considered authorization to operate the repeater on-off controls from the listed address. . .

403 Amhurst (Iowa City)
1516 Tracy Lane (I.C.)
733 W. Benton (I.C.)
1207 Wylde Green Rd. (I.C.)
1022 Friendly Ave. (I.C.)
511 5th Ave., Coralville

...To those who are new, welcome, to those who are still with us thank you for your past support, as well as future service. For the present we are turning off at night, on in the morning.
In the near future we will probably to to automatic operation for the nighttime hours...

73,

Gene, KØCKX
Trustee for WRØACU