C W ·· I D

(Kit 7010260)
(Wired 7010261)

LIMITED WARRANTY

Factory wired units are warranted for one year. The unit must be returned to the factory postpaid with a note describing difficulty and date of purchase, include a check to cover return postage. Our liability under warranty is limited to repair, adjustment or replacement of units proven to be defective. No further warranty is expressed or implied. Units modified or obviously misused will not be covered by the warranty.

The parts in kits built according to our instructions carry the original manufacturers' warranty. Defective parts must be returned for credit. Units built from kits may be returned to the factory for repair and alignment for a nominal charge, plus parts and shipping.

THEORY OF OPERATION

IC U1B and U1D are connected as a set-reset control flip-flop. A ground applied to the COR input, after the adjustable timer U-3 has completed a cycle, will cause the control flip flop to set pin 13 to low and reset U4 and U8 to zero. Pin 4 of U16 goes high and starts the clock (U2). The high output on pin 4 of U1B is also applied to the PTT output through a current limiting resistor. This output is used to key the transmitter. A power switching transistor may be used if necessary to interface the PTT output to a keying relay. The setting of R4 controls the code speed.

U4 and U8 are connected as a 160 bit counter driven by the clock. The output of U4 is decoded by U5 and U6 to select 1 of 16 columns. U7C and U7D combine the two 1 of 8 selects to a 1 of 16 select. The output of U8 is decoded by U9 to provide a ground for the selected row. When viewed from the component side, the matrix is scanned from left to right and top to bottom. Installing C7 in option A will reset the I.D. after all 160 bits are scanned. Installing C7 in option B will reset the I.D. after approximately 10 blank bits are scanned. This option is used when less than 70% of the matrix is needed.

A diode connected between the selected column and row will cause a high output from U7B producing a tone corresponding to a dit. Three consecutive diodes will produce a longer tone corresponding to a dah.

CONSTRUCTION

1. Install the I.C.'s as shown on the printed parts layout. Pin 1 is indicated by a small dot on the layout. Each IC is marked for positioning by either a notch in the end as shown, or a deep indentation in the top of the IC.

2. Install variable pots R4, R6, R9 and R11.

3. Remove C-7 a .01 disc from the parts packet and set it aside to be installed during MATRIX PROGRAMMING.

4.	Install the remainder of the resistors and capacitors as shown.
Be sure to observe proper polarity for C4 and C5.

5.	Install D1 and D2. The body MUST be placed as shown on the
parts layout. The color band (cathode) MUST be down.

MATRIX PROGRAMMING

Referring to the "C.W. Identifier Program Schedule" note that
rows are lettered from A-J and columns are numbered from 1-16. Each
square (1 bit) represents a diode position on the P.C. board.

Lay out the program which you require in the blank program
schedule provided following the rules as shown. If you wish the I.D.
to pause after keying, i.e., begin the I.D. sequence at a later time, you
may skip up to 9 spaces in the program before the first diode position
is reached.

Install the diodes in the matrix using a small soldering iron
(35 watts maximum).

Be extremely careful to avoid solder bridges and cold solder
joints. The bodies of the diodes in the matrix MUST be positioned as
shown in the printed parts layout. The color band (indicating cathode)
MUST be down.

C7 Installation

OPTION A:	The matrix is scanned from left to right and top to
bottom. When C7 is installed in the option A position, a negative pulse
is produced after the last bit in the matrix which resets the adjustable
timer and control flip-flop.

OPTION B:	When less than 70% of the matrix is used, C7 should be
installed in position B. This produces a negative (reset) pulse when
approximately 10 bits are scanned following the final code character.

TESTING

1.   Connect +5 volts and ground to a regulated 5V source.

2.   Connect output (vol) to an audio amplifier or head phones.

3.   Ground COR

4.   Jump 5V to arm of R-6 to trip adjustable timer.

5.   Adjust R-9 and R11 for best sounding tone.

6.   Adjust R-4 for desired speed.

7.   Adjust R-6 for required time. For times longer than 5 minutes, C-4 will have to be increased. Be sure to use a tantalum capacitor with a voltage rating of at least 6 volts.
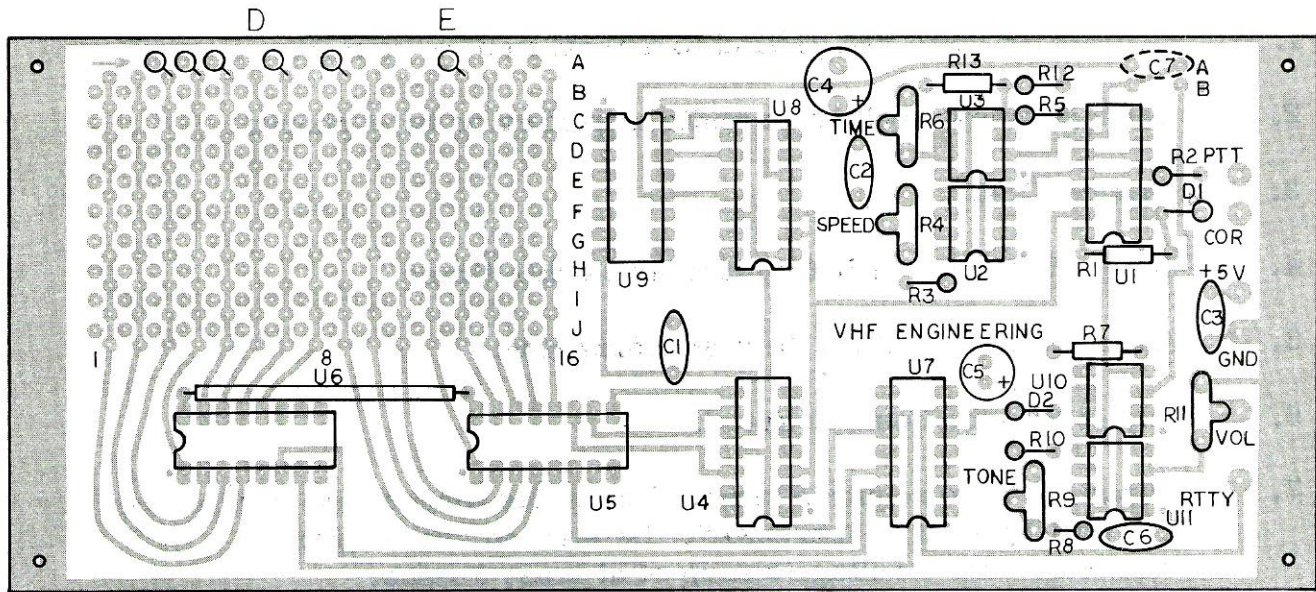
C. W. IDENTIFIER PROGRAM SCHEDULE
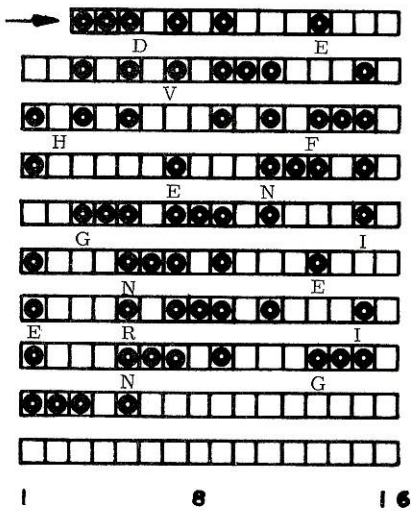
DAH = 3 BITS
DIT = 1 BIT
ELEMENTS SPACING = 1 BIT
CHARACTER SPACING = 3 BITS
WORD SPACING = 5 BITS
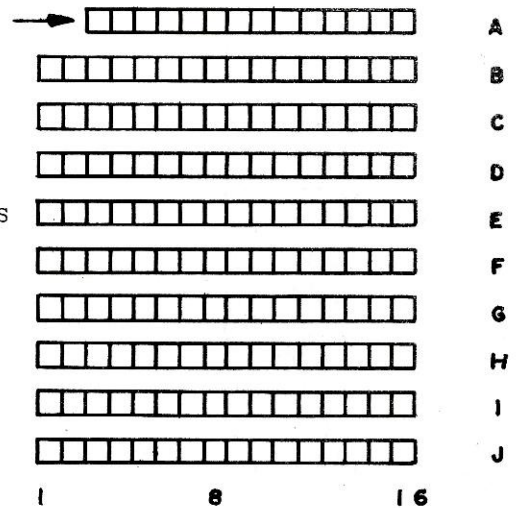
PRE-FORM ALL DIODE LEADS AS SHOWN.

PARTS LIST

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R1	4.7K	(2020290)	C1	.1 cer	(2010440)	U1	7402	(1040020)
R2	1K	(2020231)	C2	.1 mylar	(2010450)	U2	NE555	(1050150)
R3	4.7K	(2020290)	C3	.1 cer	(2010440)	U3	NE555	(1050150)
R4	1 Meg Pot	(2020570)	C4	150MFD Tant.	(2010560)	U4	7493	(1040090)
R5	33K	(2020380)	C5	4.7MFD Elec.	(2010490)	U5	74151	(1040110)
R6	1 Meg Pot	(2020570)	C6	.1 mylar	(2010450)	U6	74151	(1040110)
R7	220K	(2020430)	C7	.01 cer	(2010410)	U7	7400	(1040010)
R8	2.2K	(2020260)				U8	7490	(1040070)
R9	5K Pot	(2020520)	D1	1N4148	(1010049)	U9	74145	(1040100)
R10	1K	(2020231)	D2	1N4148	(1010049)	U10	NE555	(1050150)
R11	5K Pot	(2020520)				U11	NE555	(1050150)
R12	4.7K	(2020290)	1	Manual	(5011002)			
R13	1 Meg	(2020470)						
			1	PC Board	(4040160)			
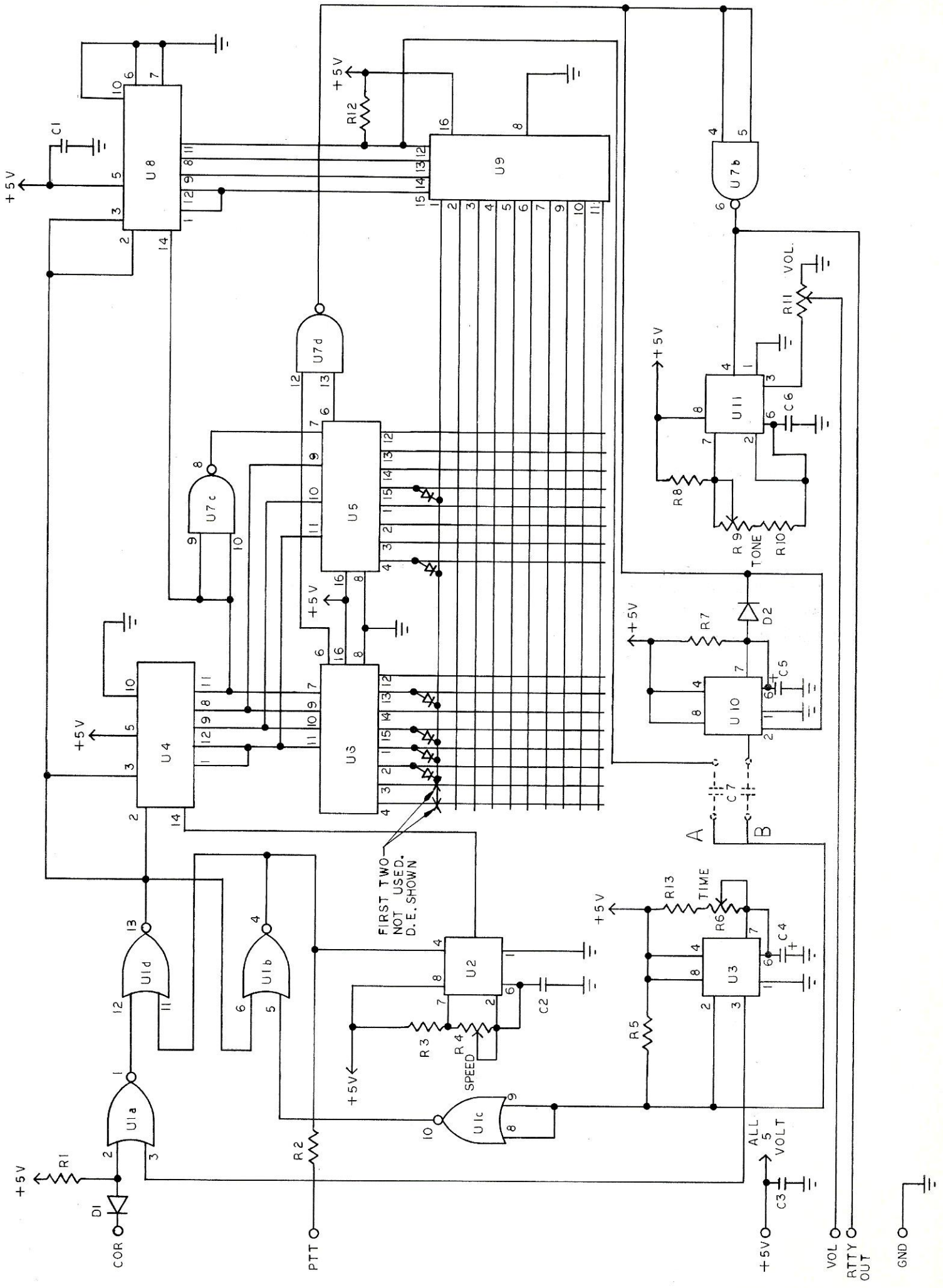
SPECIAL APPLICATIONS

When used in the VHF Engineering Repeater, the CWID can be wired to cause the repeater to ID at a constant interval. Make the following changes:

1. Remove the violet wire from the COR pin.

2. Solder a wire from the COR terminal to ground.

3. Remove grey wire from the PTT terminal.

On the COR board:

1. Remove the grey wire from the ID PTT terminal.

2. Wire the ID PTT terminal to ground.

Finally, connect a wire from the PTT terminal on the CWID board to the terminal on COR board connecting to the base of Q5, the relay switching transistor (this terminal should have a brown wire leading to the hot side of the simplex-repeat switch. Leave this wire intact).