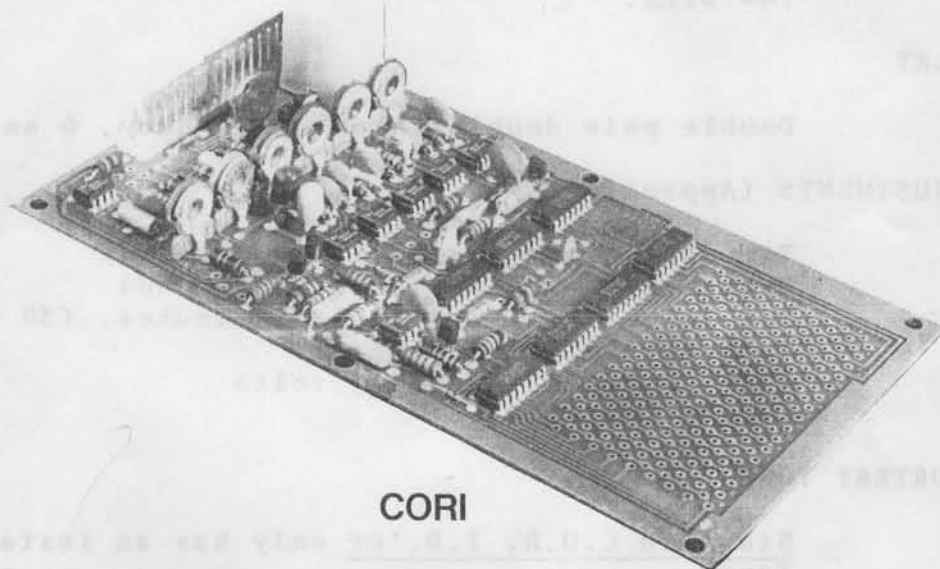




MAGGIORE ELECTRONIC LAB.

Hi Pro C.O.R. Identifier



Instruction Manual

SPECIFICATIONS

	<u>Standard</u>	<u>Deluxe</u>
GENERAL: Transistors.....	5	6
I.C.'s.....	13	15
Diodes (not including matrix).....	8	12
LED'S.....	0	2
Size.....	4½" X 8¼"	

POWER, VOLTAGE

D.C. 13.8 volts nominal.

D.C. Current: 70 nominal, 145 max.

Maximum operating voltage: +14.8 V. D. C.

Minimum operating voltage: + 6.0 V. D. C.

Reverse voltage protection and fuse.

PROGRAM

144 Bits.

RELAY

Double pole double throw heavy duty, 6 amps max.

ADJUSTMENTS (Approximate)

Time-out timer ----.5 to 15 minutes.

Hang timer ----- 0 to 12 seconds

I.D. timer ----- 1 to 15 minutes. (30 minutes opt.)

Tone -- 300 to 5000 hertz.

Tone output --- 0 to 10 volts

C.O.R. input.

COURTESY TONE

Standard C.O.R. I.D.'er only has an instant "Courtesy Tone".

Deluxe C.O.R. I.D.'er has a choice of either an instant or a delayed "Courtesy Tone".

Final I.D. approximately 3 minutes after the last active input.

LED'S to indicate time out and I.D.

C.O.R. IDENTIFIER

IDENTIFICATION AND EXPLANATION OF BOARD CONNECTIONS

The following is a description of the connections for the plugs and jumpers (or optional switches and L.E.D.'s).

Pin 1 through 6, relay contacts.

Pin 3; normally open, Pin 2; normally closed, Pin 1; common.
Pin 5; normally open, Pin 6; normally closed, Pin 4; common.
Avoid switching 110 vac on this relay; if you must, use proper bypassing.
(.5 mf min.) across contacts and inductors to reduce spikes and interfering pulses.

- 7 Auxiliary I.D. keying and logic out for voice I.D. Grounding this connection will activate the identifier and key the relay. During automatic identification this terminal will remain low.
- 8 Remote repeater control. Switching to ground will disable C.O.R.
- 9 Optional connection to positive voltage source. By applying a positive voltage to this input (do not exceed $6\frac{1}{2}$ volts) this will activate the C.O.R. A jumper must be placed between "F" and "D".
- 10A Auxiliary relay input control of C.O.R. To operate this input, switch to ground.
- 10B Optional connection to voltage source of noise amplifier in receiver. By applying a voltage to this input (do not exceed $6\frac{1}{2}$ volts), this will control the C.O.R. Removing the voltage will turn the C.O.R. on. A jumper must be placed between "F" and "D" and ground Pin 9. Also remove R4 (100 k resistor). R3 may be changed to obtain proper voltage to the base of Q1, and cause relay to activate in close relation to squelch threshold.
- 11 Optional L.E.D. output for identifier, connect cathode of L.E.D. to ground. The L.E.D. will blink in unison with I.D.
- 12 Optional L.E.D. output for C.O.R. timer, connect anode of L.E.D. to +12 V.D.C. This L.E.D. will light when C.O.R. times out.
- 13 Normal connection to squelch circuit for controlling C.O.R., going from ground to open will operate C.O.R., jumper from "E" to "D" required for this function. In some cases R6 may require a lower value for proper C.O.R. action.
- 14 I.D. audio output

- 15 Direct relay control, normally connected to push to talk switch on local microphone. Grounding this pin will activate relay.
- 16 Ground.
- 17 + 12 volts.

TIMER RESET CONTROL

By jumping from common to "A" (see fig. 3) will cause the C.O.R. timer to reset on the input (carrier of repeater does not have to drop to reset timer), by switching from common to "B" will cause the timer to reset on the output. (carrier of repeater must drop to reset time-out timer). With no jumpers installed and a 10k ohm resistor from "C" common to ground will allow continuous C.O.R. operation without a time-out timer. These connections can be attached to a single pole double throw switch with center off.

AUTOMATIC KEY UP AND IDENTIFICATION OF REPEATER OR TO USE AS A BEACON

Lift negative end of "C21" capacitor and reconnect to "N" on the end of "R1", (a 10 K resistor). See Fig. #3.

Caution

Pins 11 and 12 must be attached to L.E.D.'s if they are used. Do not attach directly to ground or + 12 volts.

MATRIX SCANNING CONTROL

By placing a jumper from *common to *whole (see fig. 3) will cause the entire matrix to be scanned, even if there are no diodes in the system. Placing the jumper from common to part will incorporate the missing diode counter, which will count approximately 7 missing diodes, and then interrupt the scanning, so that the whole matrix will not have to be scanned. There is an advantage to this, the repeater will not have to remain keyed up any longer than necessary, and being that with a choice of scanning part and all of the matrix, the first part of the matrix can have one part of a program, and after approximately 7 missing diodes continue the program. By switching jumpers it will scan part of the matrix, or the whole matrix. A relay can be used here and connected to the battery backup system. When the battery backup system is activated, this could also activate a relay that will cause complete scanning of the matrix, and if a program is placed in the last positions of the diode matrix, everytime the repeater identifies, there will be an extra letter at the end of the program, notifying that the battery backup system is in operation.

The first diode position of the matrix will give a continuous tone. This can be used to set up the tone oscillator to your desired tone. The diode can be connected to a switch, and at will, can switch in or out a continuous tone. The diode must be out of the circuit when

*Common, whole and part in Fig. #3 designated as "C, W and P".

in normal scanning program: in otherwords, programming must start with the *second position in the matrix. Do not start program after the sixth position when in partial scan or identifier will not operate. The first position is only for a continuous tone.

*You may need to start in the third or fourth position if some of the I.D. is lost during start up.

INSTANT I.D. AFTER REMOVAL OF INPUT SIGNAL

If you do not want to wait for the hang timer to activate the I.D. when the I.D. timer calls for an I.D., then lift the negative end of "C21", capacitor and reconnect to the "A" - "C" jumper of the timer reset. If this lead remains disconnected, the I.D. er will be disabled.

NOTE

Most C.O.R. Identifier's are returned due to reversed diodes in the identifier. Check that all diodes are correct before returning. There will be a bench charge including shipping if board is returned for diodes placed incorrectly.

Be sure you have R2 adjusted correctly or C.O.R. will not release. Make sure you understand the C.O.R. Identifier to avoid unnecessary return, or phone calls.

When C.O.R. Identifier is returned under warranty, do not pack in foam or bubble pack, as damage could result due to static electricity, voiding warranty.

EXPLANATION OF C.O.R. IDENTIFIER

It is very important that you be very careful not to short any pins while checking out or connecting up the C.O.R., or possible damage may result to the board.

The following is a few steps to familiarize you with the board.

1. Place jumpers from "A" to "C" or "B" to "C", and from "P" to "C" or "W" to "C". (See fig. 3, componet layout) These are the jumpers for resetting the time-out timer, and for part or whole scanning of the matrix.
2. Connect negative - 12 volts to pin 16, or to ground foil on edge of board.
3. Place jumper from "E" to "D".
4. Connect + 12 volts to pin 17. After momentary contact of pin 13 to ground, relay should activate. If power remains applied, the C.O.R. will time out, length of time depends on where R7 is set, the time-out timer adjust.

5. To prevent C.O.R. time-out, and to release relay, place a jumper from pin 13 to ground. Be sure not to short any pins. The relay will release. The time of release will depend on the setting of R9, the hang timer adjust. If relay remains activated, adjust R2, C.O.R. level adjustment, until relay releases.
6. With pin 13 still grounded, grounding pin 10 will now activate the relay. This is the reverse operation of pin 13.
7. Disconnect pins 10 and 13, and remove jumper from "E" to "D". Attach jumper from "F" to "D". Apply a small positive voltage, approximately 1 to 5 volts to pin 9. The relay should activate. This voltage should normally come from a positive source in the receiver squelch circuit. A positive voltage must be present when the received receiver signal is present.
8. With jumper from "F" to "D" and pin 9 to ground, and R4 (100 k ohm) removed, if a small voltage (do not exceed $6\frac{1}{2}$ volts) is applied to pin 10, the relay will release. This is the reverse operation of pin 9. This voltage should normally come from a positive source in the receiver squelch circuit. A positive voltage must be present when no receiver signal is present.
9. When relay is activated, grounding pin 8 (C.O.R. control) will release relay.
10. The deluxe C.O.R. Identifier has a special timer that will cause the Identifier to identify approximately 3 minutes after the last active input to the C.O.R. A jumper from "K" to "L" will incorporate this feature.

C.O.R. ADJUSTMENTS

Arrows next to pots in Figure 3 indicate increase in time, speed, or tone frequency.

R2 - C.O.R. sensitivity - adjustment applies only when using Pin 13 as C.O.R. input. Adjust so C.O.R. board resets properly with absence of receive signal.

<u>R9 Hang Time</u>	<u>R7 Time-out Time</u>	<u>R18 I.D. Output Level</u>	<u>R20 I.D. Tone Frequency</u>
<u>R13 I.D. Timer</u>	<u>R24 I.D. Speed</u>		

NOTES ON MATRIX PROGRAMMING

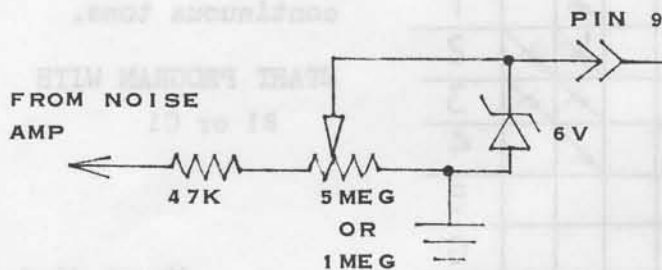
When programming second half of I.D. or using an extremely large single program, (and courtesy tone is utilized) leave a minimum of 4 or 5 blank holes before end of matrix. This prevents courtesy tone from being misinterpreted as part of I.D. message (such as "B" may sound like "6" if this suggestion is not followed).

A minimum of seven holes between first and second halves, still applies if switching between whole and part, is necessary for battery backup indication or other purposes.

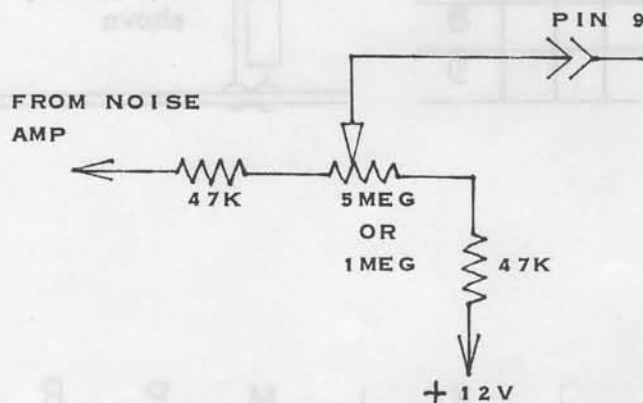
If after programming the entire I.D. and the I.D. continues to cycle regardless of timer setting, remove or lower the value of C9 (3.3 mf), this capacitor is located in the missing diode counter.

EXPLANATION OF PIN 9, NOISE AMP/INPUT

Pin 9 requires an approximate voltage of between .8 volts to 6.5 volts. In most tube type equipment the voltages are well above 6.5 volts, and the voltage swing in the squelch circuits may be small. When these conditions are encountered, a 1 meg or 5 meg pot may be required to adjust the voltage to the noise amp input. A few suggestions on circuit connections are drawn below.

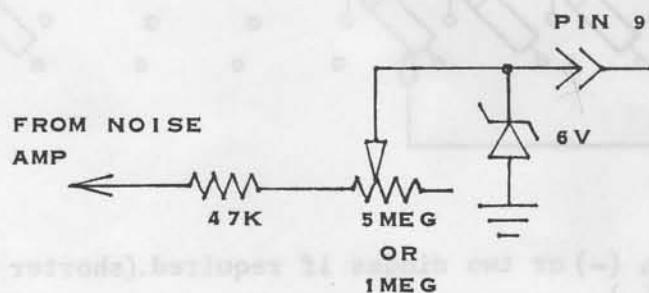


EXAMPLE 1



EXAMPLE 2

THIS CIRCUIT TO BE USED WHEN THE VOLTAGE SWING IS TOO SMALL OR C.O.R. OPERATES AT A DIFFERENT LEVEL THEN THE SQUELCH.



EXAMPLE 3

NOTE: Pin 9--- When squelch is open, voltage must go high. Connect to Pin "10" if voltage goes low when squelch is open. This operation is the opposite of pin 9.

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COURTESY TONE AND COURTESY TONE DELAY

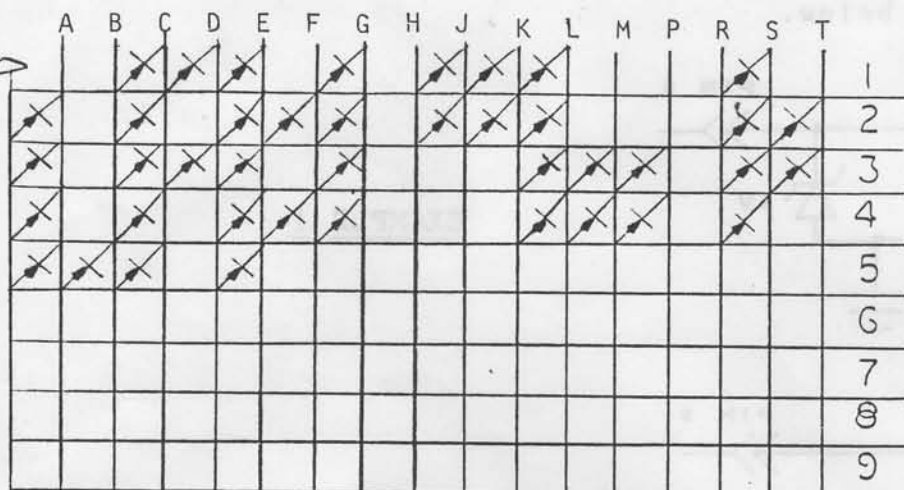
Instant Courtesy Tone: Jumper "T1" to "T2".

Courtesy Tone Delay: Remove jumper from "T2" and jumper to "G".

Note: R31 controls delay time.

NOTE
"A"

Scanning Direction →



NOTE "A"

A-1 is reserved for continuous tone.

START PROGRAM WITH
B1 or C1

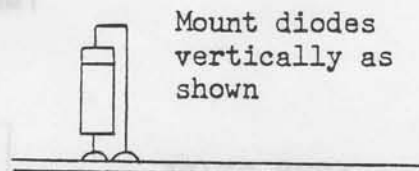


Fig. 1

EXAMPLE OF DIODE PLACEMENT

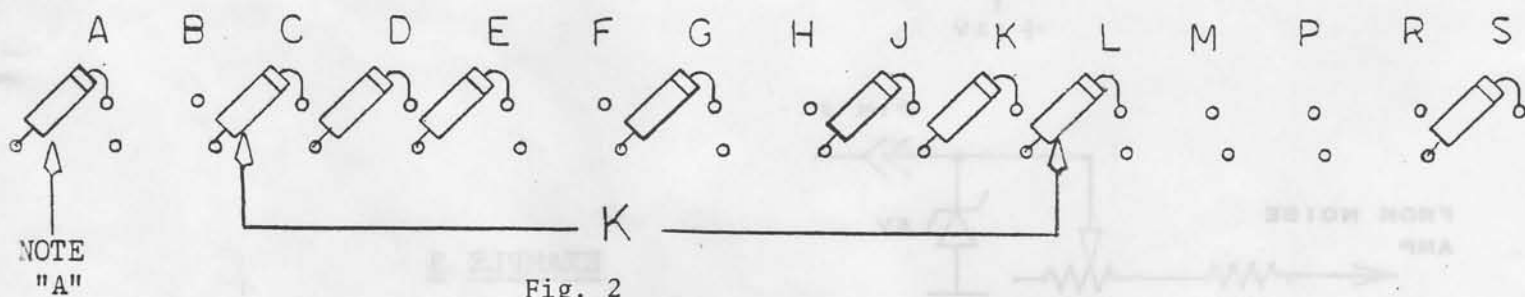


Fig. 2

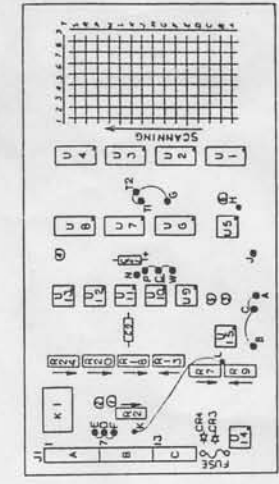
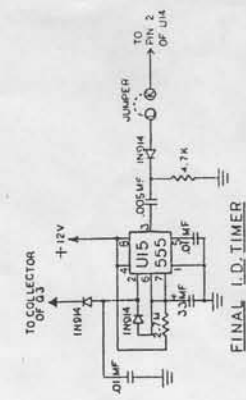
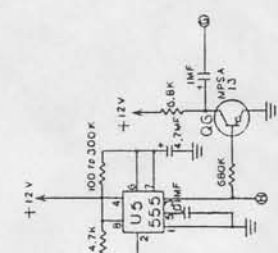
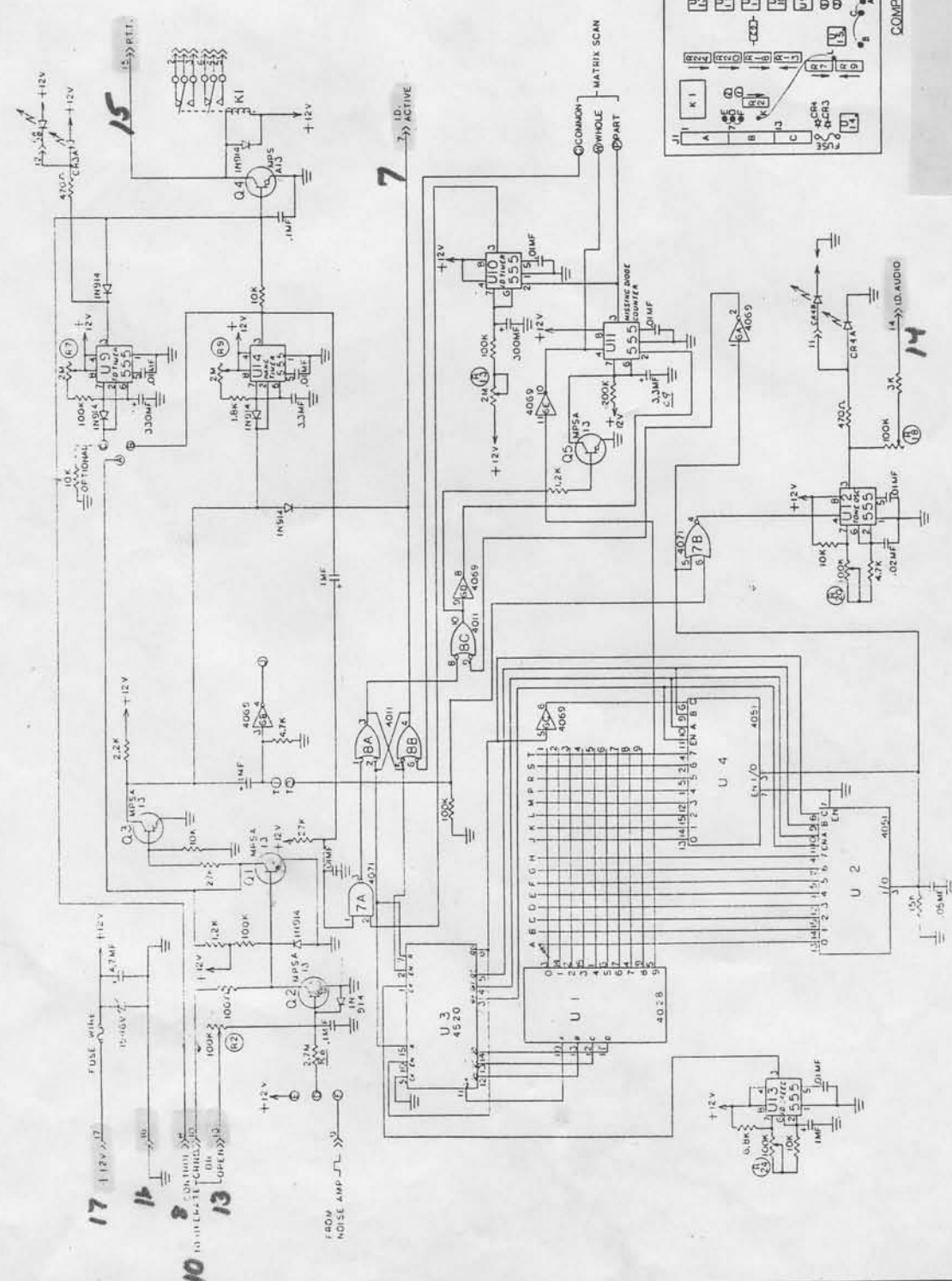
When programming: 3 diodes = a dash (-) or two diodes if required.(shorter dash)
1 diode = a dot (.)
1 space between dots and dashes
3 spaces between numbers and letters

Layout the program on a blank piece of paper before installing diodes. This will avoid a chance for error.

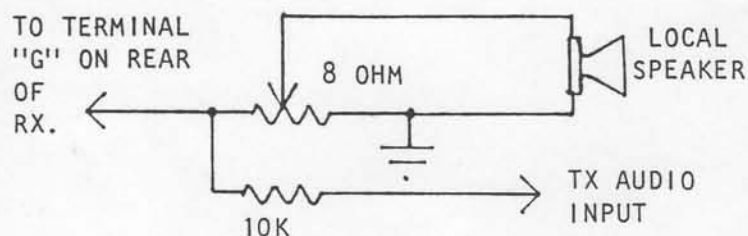
DIODE PROGRAMMING

W/THOUT SIGNAL HIGH

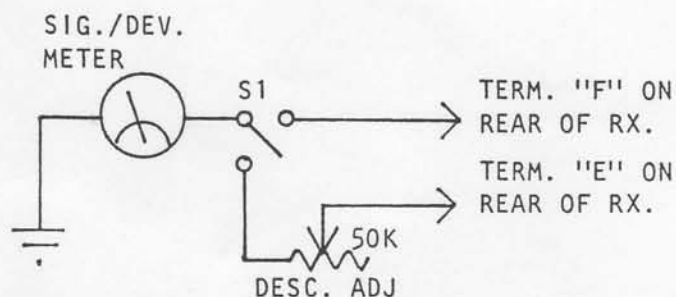
BELOW CIRCUITS APPLY TO DELUXE C.O.R.



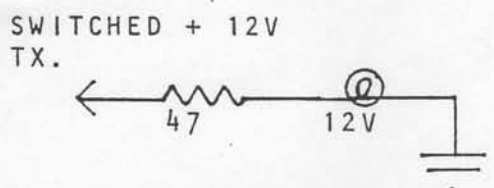
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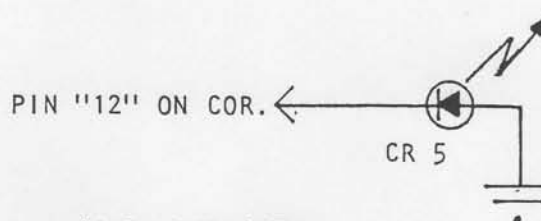
LOCAL SPEAKER AND AUDIO COUPLING



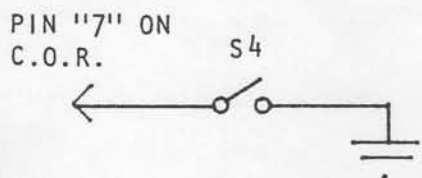
METER CIRCUIT



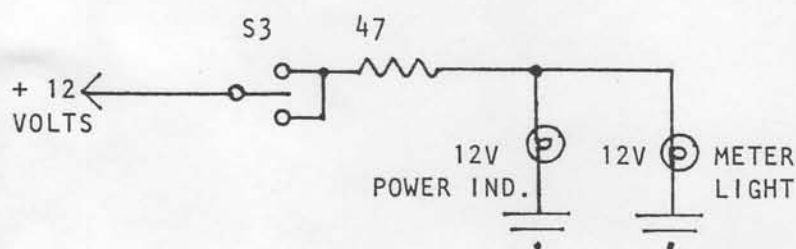
TRANSMITTER INDICATOR



*I.D. INDICATOR

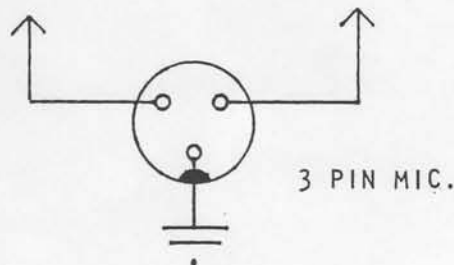


*I.D. ACTIVATE



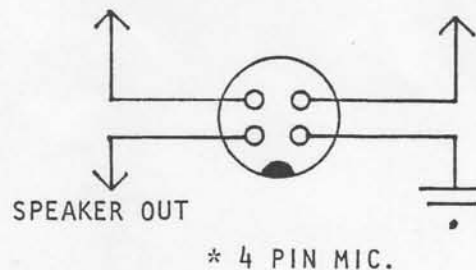
P.T.T. TERM. "15" ON C.O.R.

LOW IMPEDANCE TERM. "K" ON REAR OF TX.



P.T.T. TERM. "15" ON C.O.R.

LOW IMPEDANCE TERM. "K" ON REAR OF TX.



* NOT ON Hi Pro MK I