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SECTION 8

CW IDENTIFIER PROM

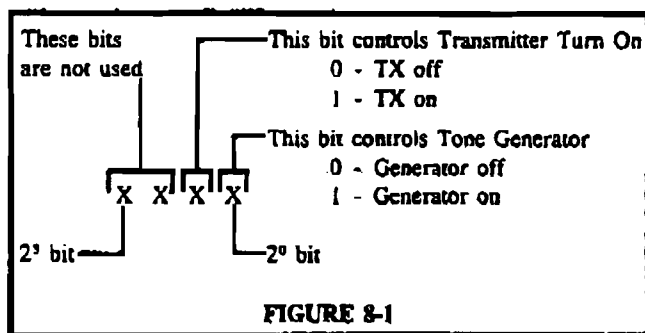
8.1 GENERAL

8.1.1 INTRODUCTION

The CW Identifier PROM is used in Johnson LTR 8000 repeaters and in the Johnson CR1000-series repeater CW Identifier Card. This is a 256 x 4 PROM and it stores the International Morse Code station identification which is periodically transmitted. The nibble routine described in Section 6 can be used to program this PROM.

8.1.2 CW IDENTIFIER OPERATION

When an identification occurs, the addresses of the PROM are stepped through starting with address 1. When the identification is finished, the identifier circuitry "parks" on address 0. As shown in Figure 8-1, bit 0 of each memory location controls the tone generator and bit 1 controls transmitter turn on. Bits 2 and 3 are not used. Therefore, if decimal 3 (0011 in binary) is programmed into a location, the transmitter and tone generator are turned on for as long as that location is addressed. The only codes used are 0, 2, and 3.



8.1.3 DETERMINING PROGRAMMING CODE

The Morse Code representation of the station identification can be determined from Table 8-1. Morse Code dots and dashes are programmed as follows:

Dot - One PROM location containing "3"

Dash - Three adjacent locations containing "3"

Time between dots and dashes - One location containing "2"

Time between ID symbols (letters and numbers) - Four locations containing "2"

Since the identifier "parks" on location 1, that location is programmed with "0". To allow the transmitter time to stabilize, the next 31 locations are programmed with "2". To allow smooth transmitter turn off, the last five locations are programmed with "2". A programming example is shown in the chart in Table 8-2. A chart similar to this one can also be used to record the data to be programmed into the PROM.

Since the programmer can program only half the PROM at a time (128 locations), the lower half of the PROM is programmed first followed by the upper half if used. The exact number of locations required depends on the station call sign being programmed.

8.2 PROGRAMMING A PROM

Program the PROM as follows:

- With no PROM in either socket, turn the power switch on. The QUESTION display will indicate "0.10".
- "0.10" requests the radio type. Enter "4" and press ENTER. Three dots will appear in the QUESTION display.
- Press the INPUT DATA key. A dot will appear in the QUESTION display.
- The dot requests the starting location number. Press the ENTER key. The programmer defaults to location 0. The location is displayed in the QUESTION display and the data in that location is displayed in the DATA display.
- Since location 0 remains programmed with "0", step to location 1 by pressing ENTER. Location 1 will be displayed.
- Locations 1-31 are programmed with "2". Program each location by entering "2" and pressing ENTER. (The programmer automatically increments to the next location when ENTER is pressed.)

- g. When all the data has been entered in that half of the PROM, exit by entering "***999#". Three dots will appear in the QUESTION display.
- h. Insert the PROM to be programmed into the 256 x 4 socket with the dot or notch upward. Press the locking lever down.
- i. Flip the vendor select switch to Signetics if required. (Texas Instruments 256 x 4 PROMs are not programmable with this programmer.)
- j. Press the PROGRAM key and "0.30" will appear in the QUESTION display. Enter "0" to program the lower half of the PROM or "1" to program the upper half of the PROM (the first time through enter "0"). Press the ENTER key and while the PROM is being programmed, a bright "0." appears in the QUESTION display. A properly programmed PROM is indicated when three dots appear in the QUESTION display. If "999" appears, press the CLEAR key and refer to Section 1.4.5.
- k. To program additional PROMs with the same information, change PROMs and repeat Step j.
- l. If some locations must be programmed in the upper half of the PROM, remove the PROM from the socket and erase the programmer memory by pressing CLEAR three times with three dots in the QUESTION display. Alternatively, turn the programmer off and then on again after a short pause.

NOTE: If the programmer memory is not erased before entering data for the other half, improper programming may result.

- m. To program the upper PROM half, repeat the preceding procedure from the beginning.

TABLE 8-1
INTERNATIONAL MORSE CODE

<u>Letter</u>	<u>Code</u>
A	• —
B	— • • •
C	— • — •
D	— • •
E	•
F	• • — •
G	— — •
H	• • • •
I	• •
J	• — — —
K	— • —
L	• — • •
M	— —
N	— •
O	— — —
P	• — — •
Q	— — • —
R	• — •
S	• • •
T	—
U	• • —
V	• • • —
W	• — —
X	— • • —
Y	— • — —
Z	— — • •
0	— — — — —
1	• — — — —
2	• • — — —
3	• • • — —
4	• • • • —
5	• • • • •
6	— • • • •
7	— — • • •
8	— — — • •
9	— — — — •
/	— • • — •

3 = Dot

333
or X3 = DASH

2 = BREAK

Ø = TRANSMIT OFF

TABLE 8-2
PROGRAMMING EXAMPLE
(EFJ 1234)

Programmer Location	Code	Programmer Location	Code	Programmer Location	Code	Programmer Location	Code
0 Δ	0 Δ	41 2	3 - F	81 2	3 - 1	121 3	2
1	2	42 2	3.	82 2	3	122 3	2
2		43 2	2	83 3	2	123 3	3
3		44 3	3	84 2	2	124 2	2
4		45 3	2	85 3	2	125 3	3
5		46 3	2	86 3	2	126 3	2
6		47 2	2	87 3	3	127 3	3
7		48 3	2	88 2	2		
8		49 3	3	89 3	3	02 Δ	2
9		50 3	2	90 3	2	1 3	3
10		51 2	3	91 3	3	2 2	2
11		52 3	3	92 3	3	3 3	3
12		53 2	3	93 3	3	4 3	3
13		54 3	2	94 2	2	5 3	3
14		55 3	3	95 2	3	6 3	2
15		56 3	3	96 2	3	7 3	2
16		57 2	3	97 2	3	8 3	2
17		58 2	2	98 3	2	9 3	2
18		59 2	3	99 3	3	10 3	2
19		60 2	3	100 3	3	11 3	0
20		61 3	3	101 3	3		
21		62 2	2	102 3	2		
22		63 3	2	103 3	2		
23		64 2	2	104 3	2		
24		65 2	2	105 2	2		
25		66 2	3	106 3	3		
26		67 2	2	107 3	2		
27		68 3	3	108 3	3		
28		69 2	3	109 2	2		
29		70 3	3	110 3	3		
30	2	71 3	2	111 2	2		
31 3	3	72 3	3	112 3	3		
32 3	3	73 2	3	113 2	3		
33 3	2	74 3	3	114 2	3		
34 3	2	75 3	2	115 2	2		
35 3	2	76 3	3	116 2	3		
36 3	3	77 3	3	117 3	3		
37 3	2	78 3	3	118 3	3		
38 3	3	79 2	2	119 3	2		
39 3	2	80 2	3	120 2	2		
40 3	3						

Δ This is the lower half of the PROM.

Δ 0 = Transmitter and Tone Off 2 = Transmitter On 3 = Transmitter and Tone On.

Δ This is the upper half of the PROM.

WPIQ 488
program half of the prom
then start another half -