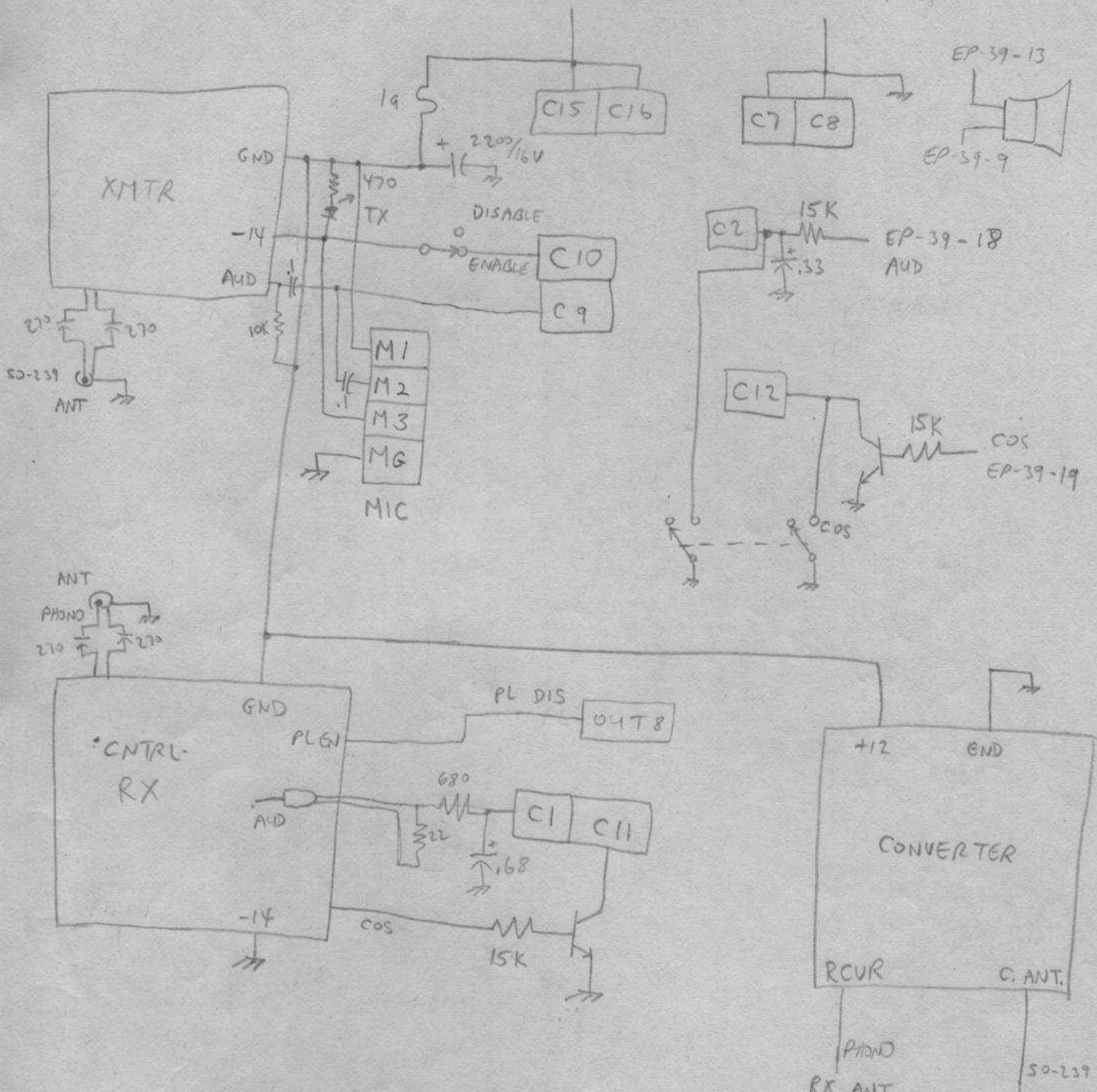


+12 EP-39-10

GND EP-39-8

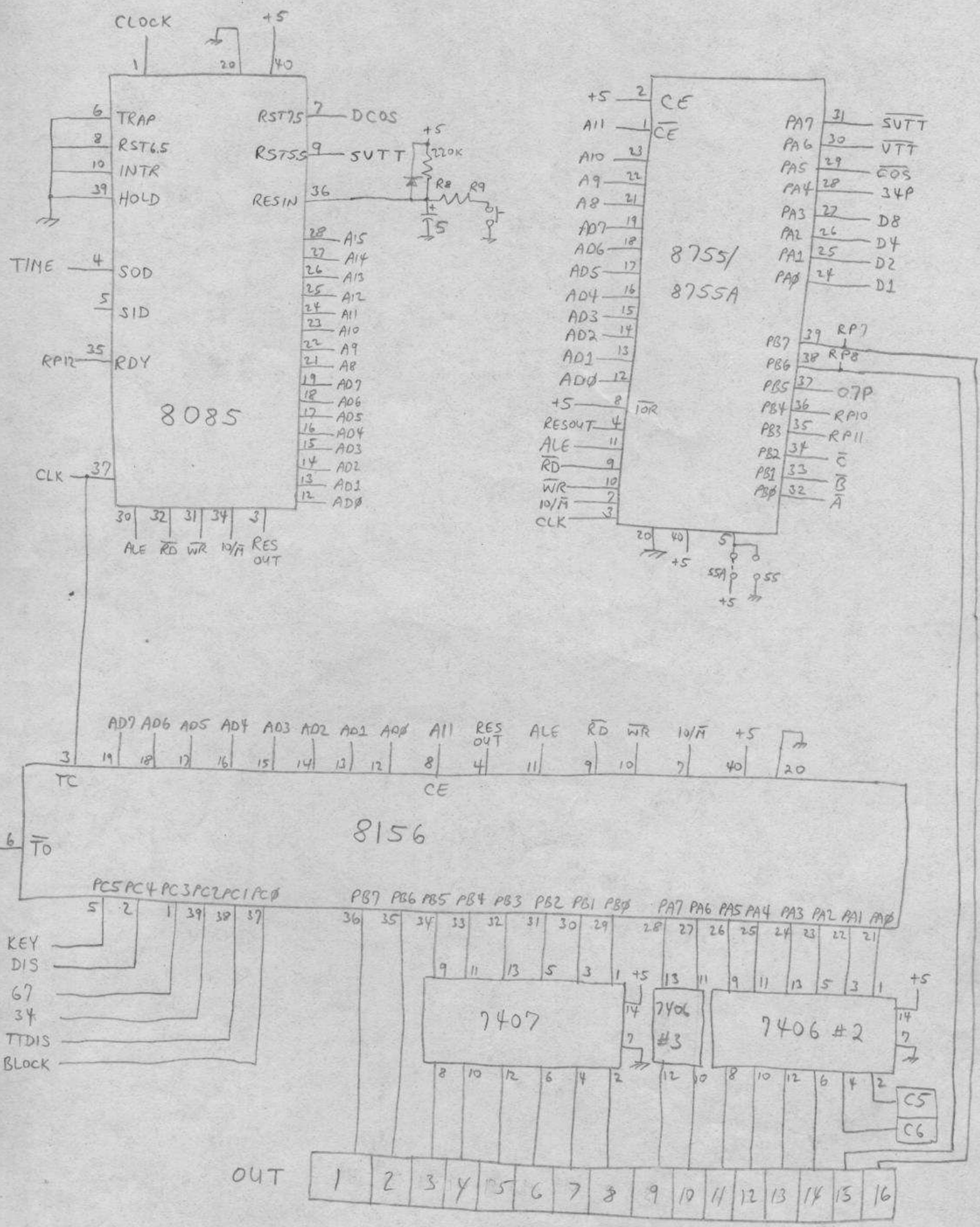


- C 3 — 34 EP-38-TBS02-12
AUD
- C 4 — 07 EP-38-TBS02-12
- C 5 — 07 DIS C.S. AND A13
- C 6 — 34 DIS C.S. AND A13
- C 13 — 34 EP-38-TBS02-10
PTT
- C 14 — 07 EP-38-TBS02-10

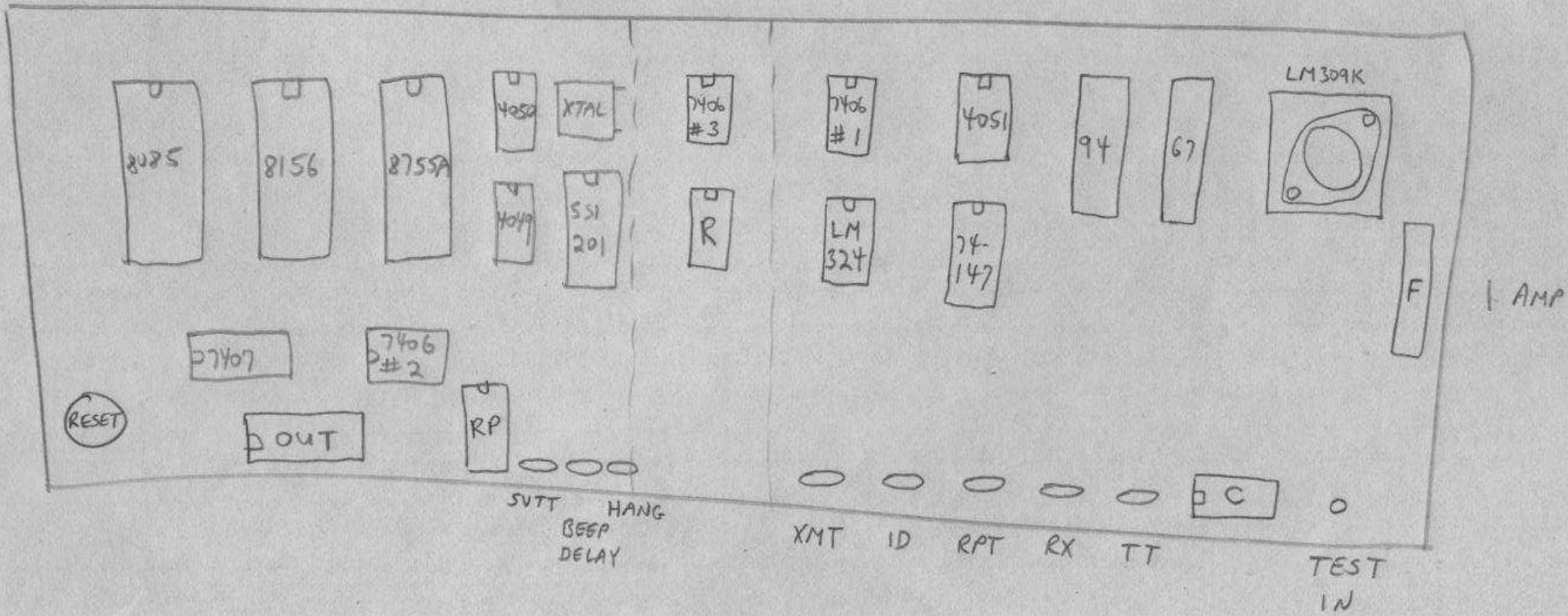
TBS01-11,12 GRD

224.24 REPEATER
 INTERCONNECTIONS
 N3IC 9-80

224,24 CONTROLLER -
MP SECTION
N3IC 9-80



TOP VIEW



224.24 CONTROLLER-LAYOUT
NSIC 9-80

67

94

451

74667

74117

LM324

74004

R

201

955

4049

8755

8156

8085

□

RP

74667

7400

OUT

C (CONNECTOR)

- 1 - CRAUD
- 2 - RPT RX AUD
- 3 - 34 AUD
- 4 - 07 AUD
- 5 - 07 DIS
- 6 - 34 DIS
- 7 - GND
- 8 - GND
- 9 - TX AUD
- 10 - TX PTT
- 11 - CR COS
- 12 - RPT RX COS
- 13 - 34 PTT
- 14 - 07 PTT
- 15 - +12
- 16 - +12

OUT

- 16 - IN PB7
- 15 - IN PB6
- 14 - PORT 1, BIT 3 (NO)
- 13 - PORT 1, BIT 4 (NO)
- 12 - PORT 1, BIT 5 (NO)
- 11 - PORT 1, BIT 6 (NO)
- 10 - PORT 1, BIT 7 (NO)
- 9 - PORT 1, BIT 8 (NO)
- 8 - PORT 2, BIT 1 (NG)
- 7 - PORT 2, BIT 2 (NG)
- 6 - PORT 2, BIT 3 (NG)
- 5 - PORT 2, BIT 4 (NG)
- 4 - PORT 2, BIT 5 (NG)
- 3 - PORT 2, BIT 6 (NG)
- 2 - PORT 2, BIT 7 (TTU)
- 1 - PORT 2, BIT 8 (TTU)

224.24 CONTROLLER-
PINOUTS

N3IC

9-80

PARTS

8085
8156
8755
4049
4050
7406 (3)
7407
74147
4051
LM324
SSI-201

13 ICs

SOCKETS:

40 (3)
22 (1)
16 (8) → 10
14 (4) → 3
5

16 17

220K

10M (3)

.1 (14)

~~1~~ (10)

POT ~~10~~ 5-100K
3-1M

- 6V ZEN

- 15V ZEN

100Mf

1A FUSE

- FUSE HOLDER

7805

VECTORBOARD

3.58 MHz XTAL

10M
,01 (2)

*
RP
R
C
OUT

15°C - roll off:

$$\frac{697}{1633} = 1.55 \quad (3.8) \\ (1.46) \quad (3.3)$$

$$\frac{941}{1209} = 1.14 \quad (1.14) \\ (1.14)$$

$$\frac{697}{1477} = 1.46 \quad (3.3) \\ (1.39) \quad (2.8)$$

697: .782

941: .711

MAX: > 6V pk-pk

1209: .625

MIN: 60 mV pk-pk

1477: .561

NOISE + .775 RMS : = amount

1633: .535

(each tone)
0 dbm = .775 V (2.2)

+6 = 1.55 (4.4)

-24 = .049 (.11)

decode time - 22-75 ms

John:

Changes between your software and RPT 85-2.4 -

3-minute timer in software - SOD set to time out rptr.
Upon timeout, rptr says "TIME" and shuts down.

DE000 changed for BCD-enabled TT decoder.

Y#Y works with all 16 TT.

Linking codes added (1#2, 1#6, 1#9, *).

9#9 changed to ASCII.

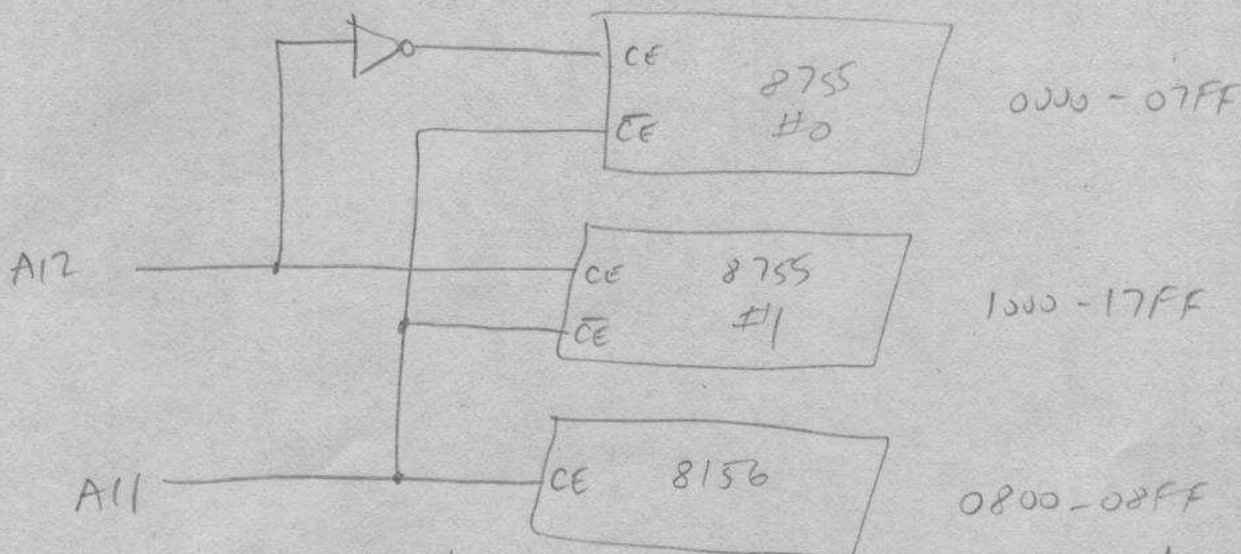
Post interrogate command added.

Bleep pitches changed (just for a difference)

10 pitch changed (to prevent confusion when linked to 94).

6#6, 7#7, 8#8 removed to make room for new software.

To add a 2nd 8755 for 4K ROM:



This way keeps your hardware compatible with your current software.

RPT 85-2.4 Codes

- 1#2 : from 94 "LINK FRM 94" (link to 220)
from 67 "LINK FRM 67"
 - 1#6 : from 220 "LINK TO 67"
 - 1#9 : from 220 "LINK TO 94"
 - * : from anywhere "UNLINK"
 - 3#3 : unblock
 - 4#4 : from 220 TT test
 - 5#5 : from 220 repeat 777
 - 9#9 : from 220, from 94 if linked to 94, from 67 if linked to 67
- ASCII ID @ 110 baud, 2 bits no parity, 2 stop bits
2295 Mark, 2125 space

Single digit control codes:

- 1-5 Select ID
- 6,7 Rotate 1-4, 1-5
- 8 Lock 10.5
- 9 Reset all
- 0 Output mode, ext with #
- * Interrogate mode: XY, read back port X, list Y status as 0, 1
ext with #
- # Force ID

Command codes valid only from control freq or 220.

INPUT

PORT 1 : 00

SUT7	UT7	COS	SP	SP	DF	DZ	DI
------	-----	-----	----	----	----	----	----

(7)

PORT 2 : 01

04T16	04T15	07P	SP	SP	C	B	A
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(8)

OUTPUT

PORT 4

(DUMMY)

DIS LINK FRM 14		DIS LINK FRM 67	DIS SAS	DIS 444	DIS 549	DIS "TIME"	DIS LINK TO
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(9)

PORT 1 : 09

SP	SP	SP	SP	SP	SP	34 DIS	07 DIS
----	----	----	----	----	----	-----------	-----------

(10)

PORT 2 : 0A

SP	SP	SP	SP	SP	SP	SP	450 PL 241
----	----	----	----	----	----	----	---------------

(11)

PORT 3 : 0B

DIS KEEP	DIS TIME	KEY	RPT OFF	LINK 07	LINK 34	DIS 77	BLOCK
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(12)

DUMMY


```

0001 0000 ; REPEATER CONTROL SYSTEM MONITOR PROGRAM
0002 0000 ;
0003 0000 ; FOR USE WITH AN 8080 CONTROLLER
0004 0000 ; WITH I/O PORTS
0005 0000 ; AND THE NECESSARY EXTERNAL HARDWARE
0006 0000 ; INCLUDING A TOUCH TONE (R) DECODER
0007 0000 ;
0008 0000 ;
0009 0000 ; NOVEMBER 1977, ROBERT GLASER W3IC
0010 0000 ;
0011 0000 ;
0012 0000 ;
0013 0000 ; 85- SERIES FOR 8085/8755/8155(6) SYSTEM
0014 0000 ;
0015 0000 ;
0016 0000 ;
0017 0000 ; VERSION 85-2.6
0018 0000 ;
0019 0000 ;
0020 0000 ; VERSION FOR BCD-ENCODED TOUCH TONES
0021 0000 ; (FOR 222.64/224.24 MHZ RPT)
0022 0000 ;
0023 0000 ;
0024 0000 ; LAST MODIFIED NOVEMBER 1980
0025 0000 ;
0026 0000 ;
0027 0000 ;
0028 0000 PSW: EQU 6
0029 0000 SP: EQU 6
0030 0000 SIM: EQU 30H
0031 0000 PORT1: EQU 0
0032 0000 PORT2: EQU 1
0033 0000 PORT3: EQU 0BH
0034 0000 OPOR1: EQU 9
0035 0000 OPOR2: EQU 0AH
0036 0000 DDR1: EQU 2
0037 0000 DDR2: EQU 3
0038 0000 CSR: EQU 8
0039 0000 TIML: EQU 0CH
0040 0000 TIMH: EQU 0DH
0041 0000 CWSPD: EQU 4711 ;19 WPM
0042 0000 RTYSP: EQU 678 ;110 BAUD
0043 0000 IDTMO: EQU 112
0044 0000 IDTM1: EQU 229
0045 0000 IDTM2: EQU 14
0046 0000 CWTON: EQU 2009+16384 ;890.8 HZ
0047 0000 CMLTN: EQU 4474+16384 ;400 HZ
0048 0000 MRKTN: EQU 780+16384 ;2295 HZ
0049 0000 SPCTN: EQU 842+16384 ;2125 HZ
0050 0000 BEEP1: EQU 8135+16384 ;220 HZ
0051 0000 BEEP2: EQU 6457+16384 ;277 HZ
0052 0000 BEEP3: EQU 4068+16384 ;440 HZ
0053 0000 ;
0054 0000 ;
0055 0000 ;
0056 0000 ORG 0

```