STEVE	✓	13 May 80
BILL HOUGH	✓	13 MAY 80
BILL WILLIAMS		
DAVE ALLISON		

OHIO SCIENTIFIC

SALES/TECHNICAL

NEWSLETTER # 27

April 18, 1980

ADDING A SERIAL PRINTER TO THE C4P OR C8P

Many of our dealers have been asking for instructions to modify a 502 CPU board for a serial printer output. Below are step by step directions for the installation of RS-232 output components.

1) Install IC-U31 (7404).
2) Install Transistor Q2 (2N5226-PNP).
3) Install Resistor R55 (10K).
4) Install Resistor R56 (470).
5) Install Resistor R57 (10K).
6) Install 12 pin female Molex connector (J3).
7) Install -9v power supply to pin 24 of the bus. (C4P only).
8) Cut foil from bTx data (detail A).
The RS-232 Tx data is now available at pin 7 of J3 (ground is at pin 8). You may wish to install a switch at this point to disable printer output when the user is saving a program to cassette.

Depending on the printer used, it may also be necessary to install an input circuit to connect the Printer Busy or Printer Ready signal to the Clear To Send ($\overline{CTS}$) input of the ACIA. $\overline{CTS}$ must be low at the ACIA to enable output.

To install this circuitry follow these instructions:

1) Install IC-U30 (7414).
2) Install Resistor R46 (220).
3) Install Resistor R47 (390).
4) Cut foil connecting $\overline{CTS}$ to ground and install SPDT switch to allow selection of either the above circuit for printer operation or ground for cassette operation.
*NOTE: You may wish to install a DPDT switch and have one pole handle the $\overline{CTS}$ circuit while the other handles the printer output disable mentioned earlier.

The Printer Ready or Printer Busy signal is then connected to pin 5 of J3. Depending on whether this signal is high true or low true, you may have to jumper pins 3 & 4 of IC-U30. (i.e. the ACIA must see a low on $\overline{CTS}$ when the printer is able to accept more data.

ADDING A SERIAL PRINTER TO THE C4P OR C8P (cont.)

FOR THE COMPRINT-do the following:

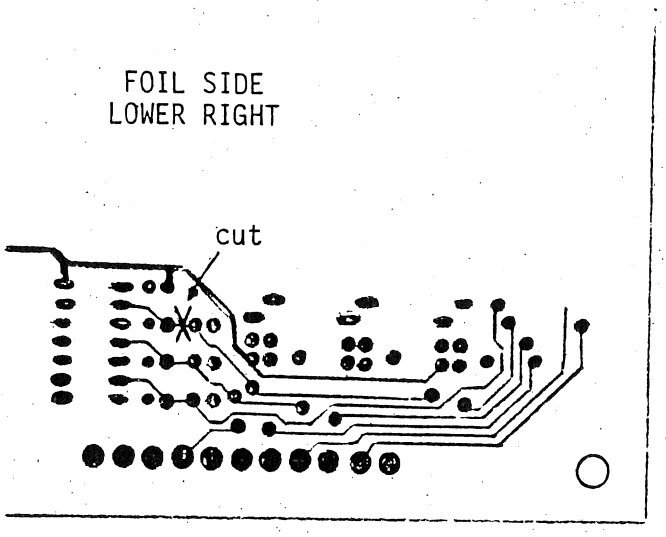
1) Install all above circuitry (EXCEPT $\overline{CTS}$ Circuitry)
2) Make the following connections.

FROM	TO
J3 pin 8	A15 board-J8 pin 7 (ground)
J3 pin 7	A15 board-J8 pin 3 (Tx data)

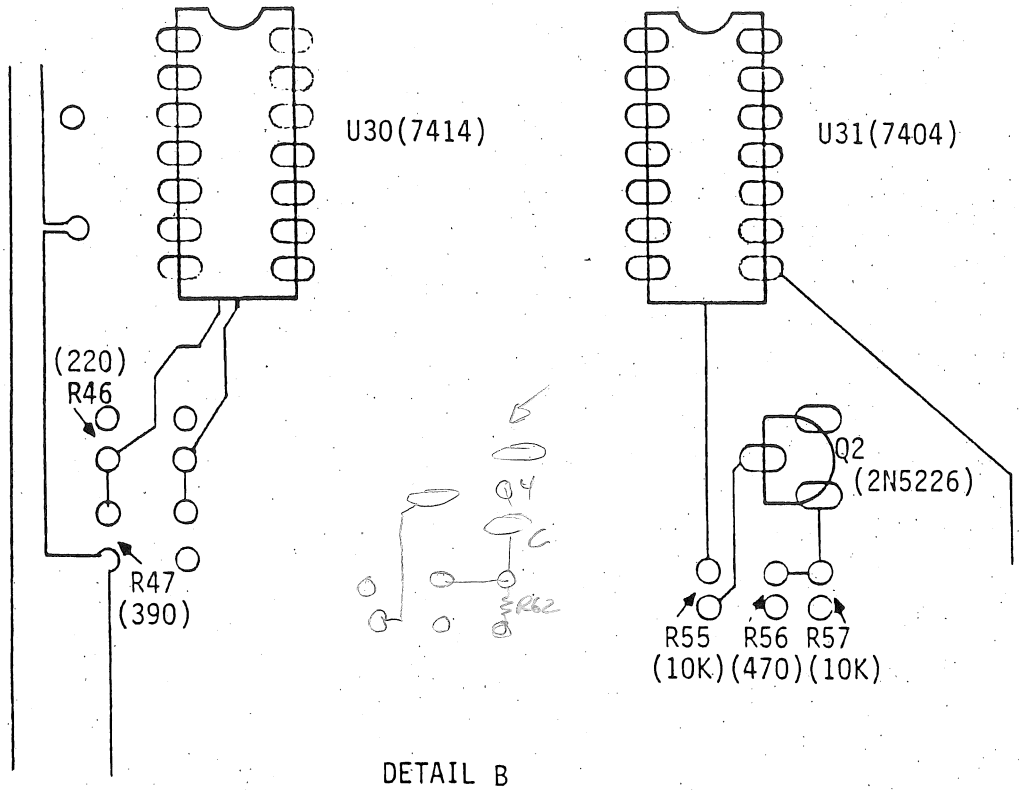
The COMPRINT connector may now be attached to J8 of the A15 board. To enable printer output, type SAVE <CR>.

To disable printer output, type LOAD <CR>, (space) <CR>.

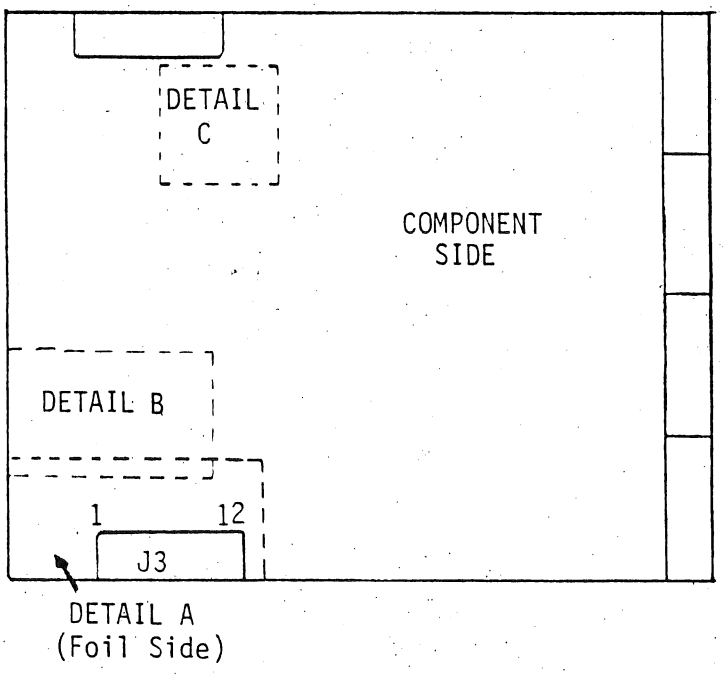
Make sure the previously installed switches are thrown to the proper position when using either printer or cassette output. Drawings and schematics have been included for your reference.

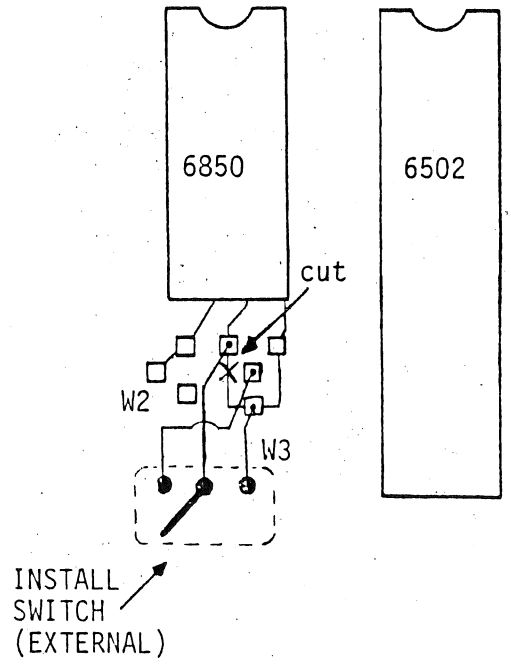


DETAIL A

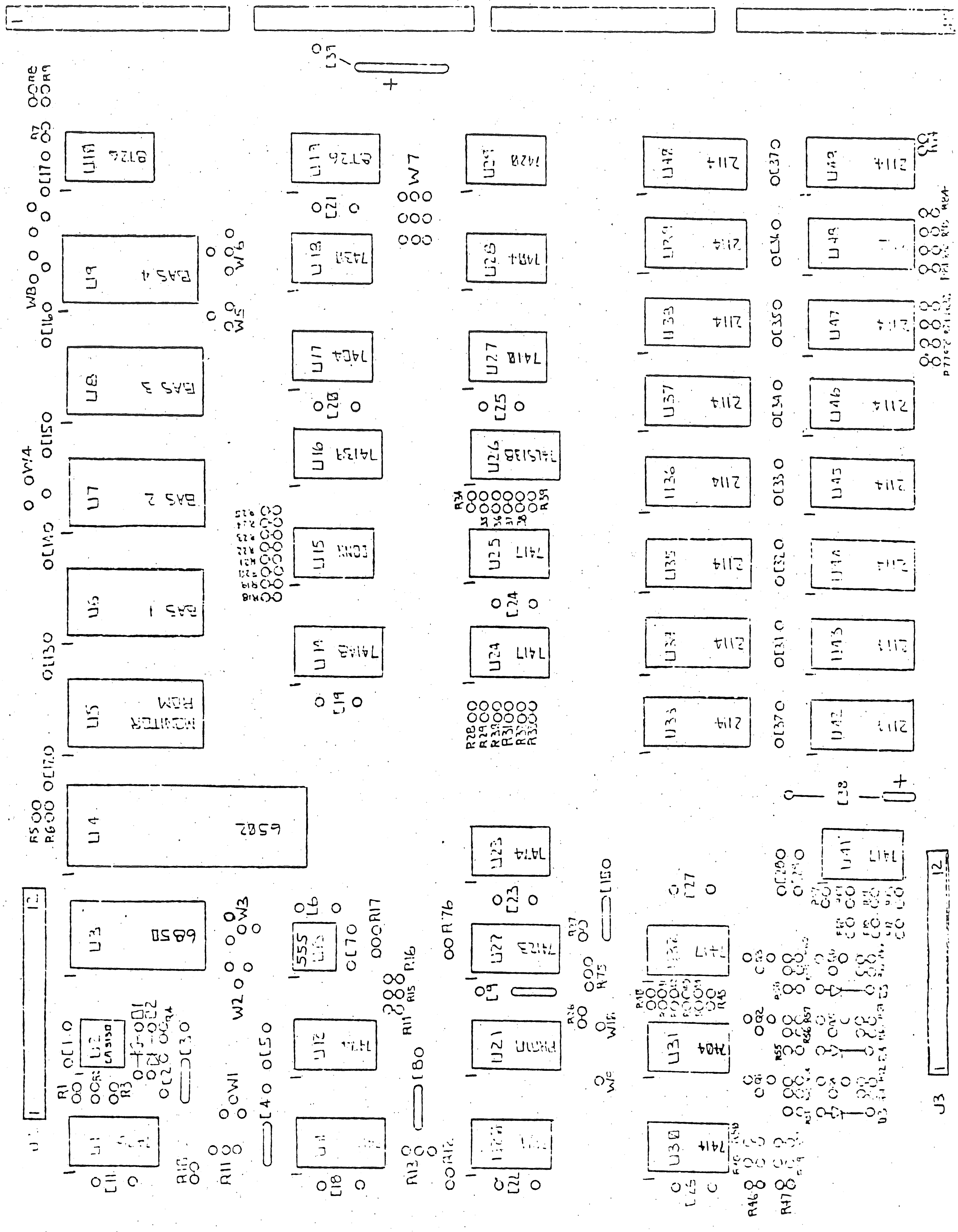


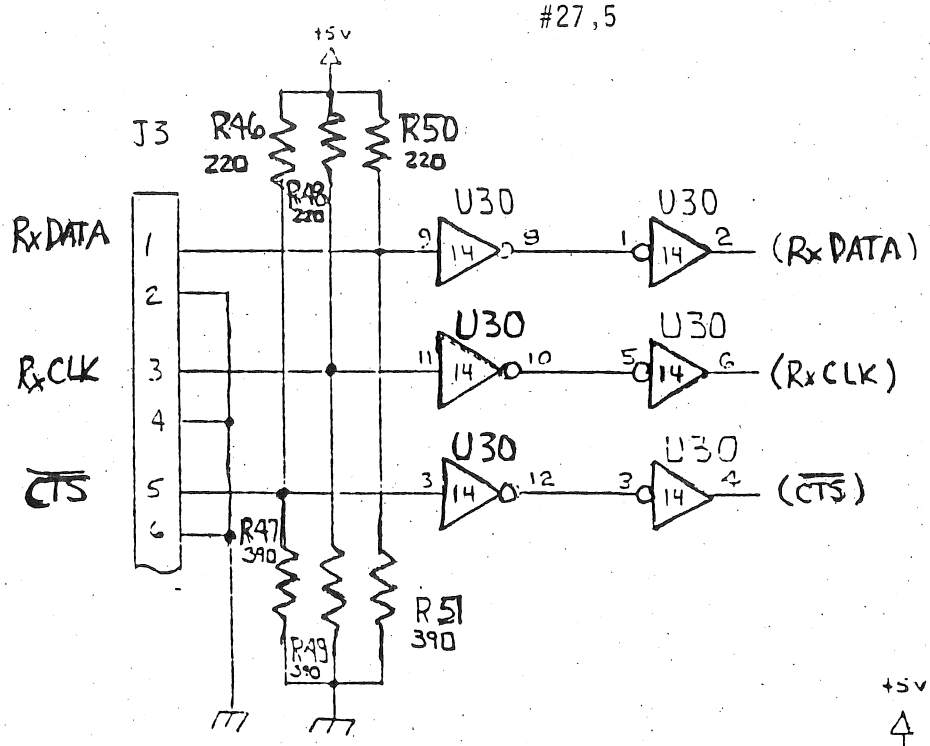
DETAIL B

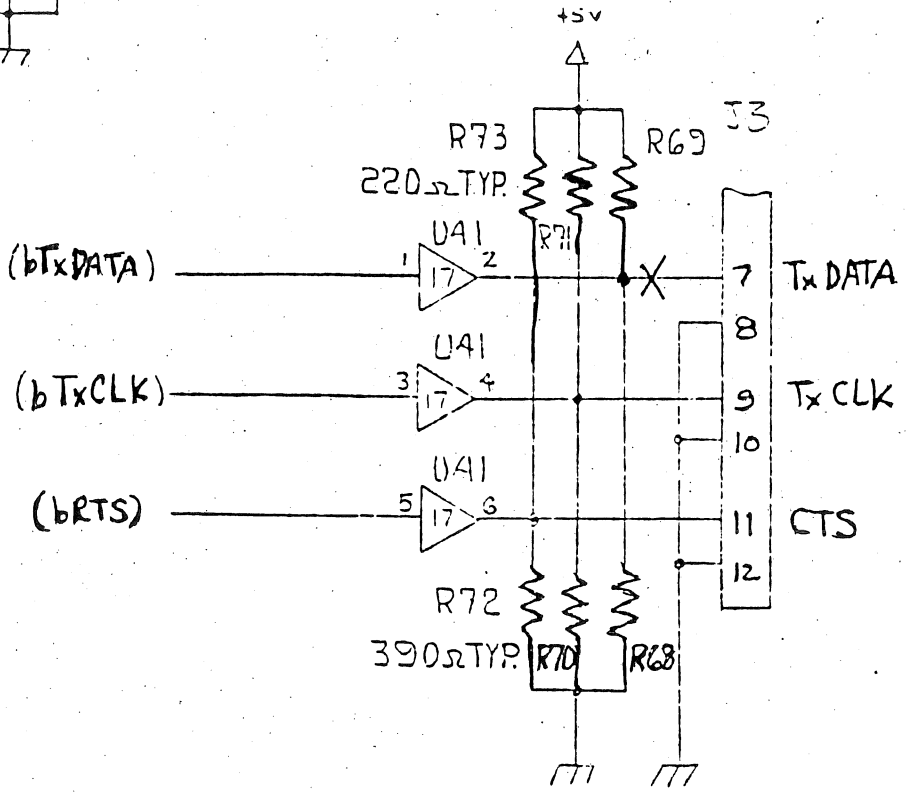




DETAIL C


U4 6502
U3 6850
U5 MONITOR ROM
U6 BAS 1
U7 BAS 2
U8 BAS 3
U9 BAS 4
U11 8T26
U17 8T26
U13 555
U24 7417
U25 7417
U26 74LS138
U27 7418
U33 2114
U34 2114
U35 2114
U36 2114
U37 2114
U30 7414
U31 7404
U41 7417
J3

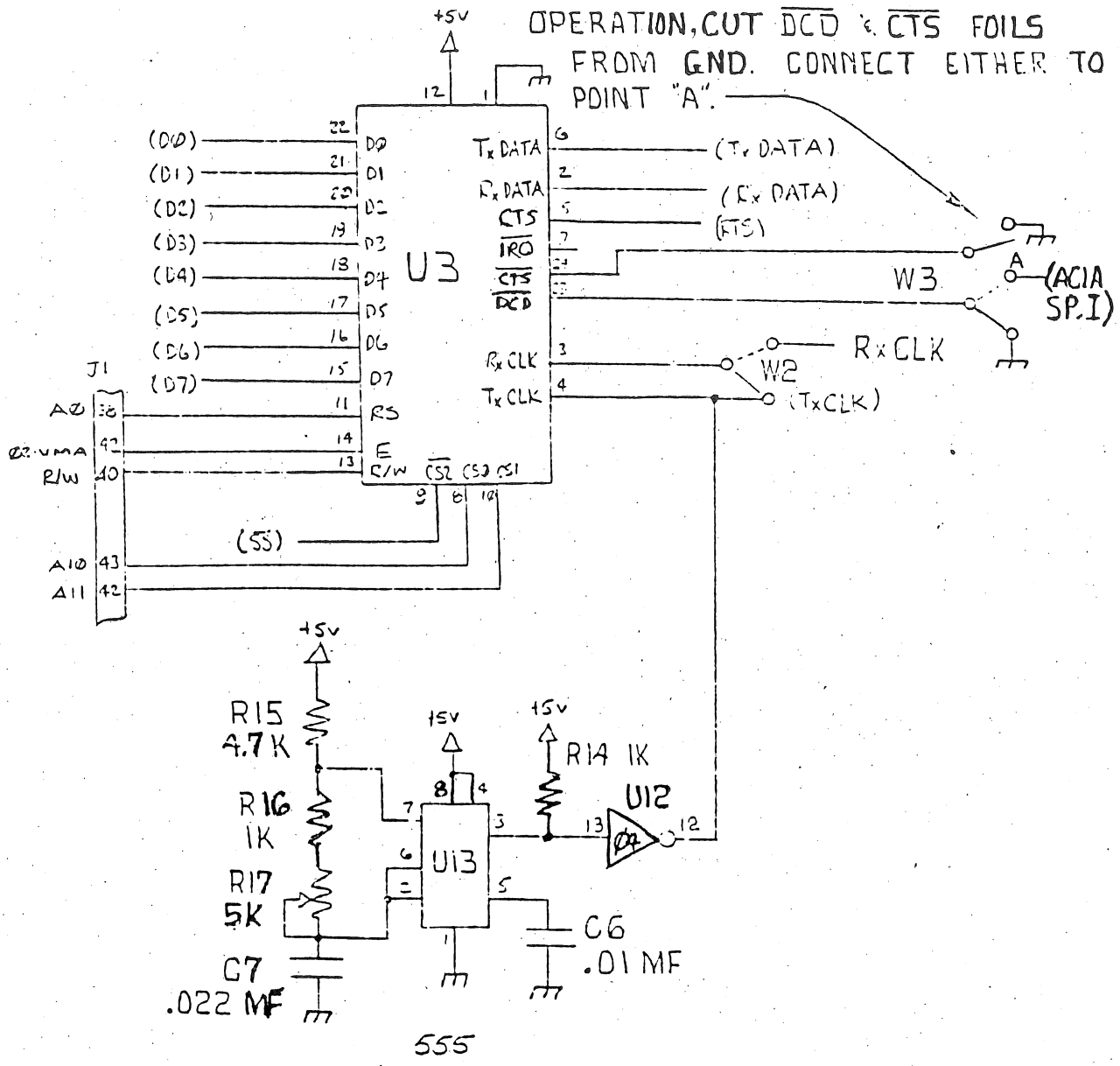




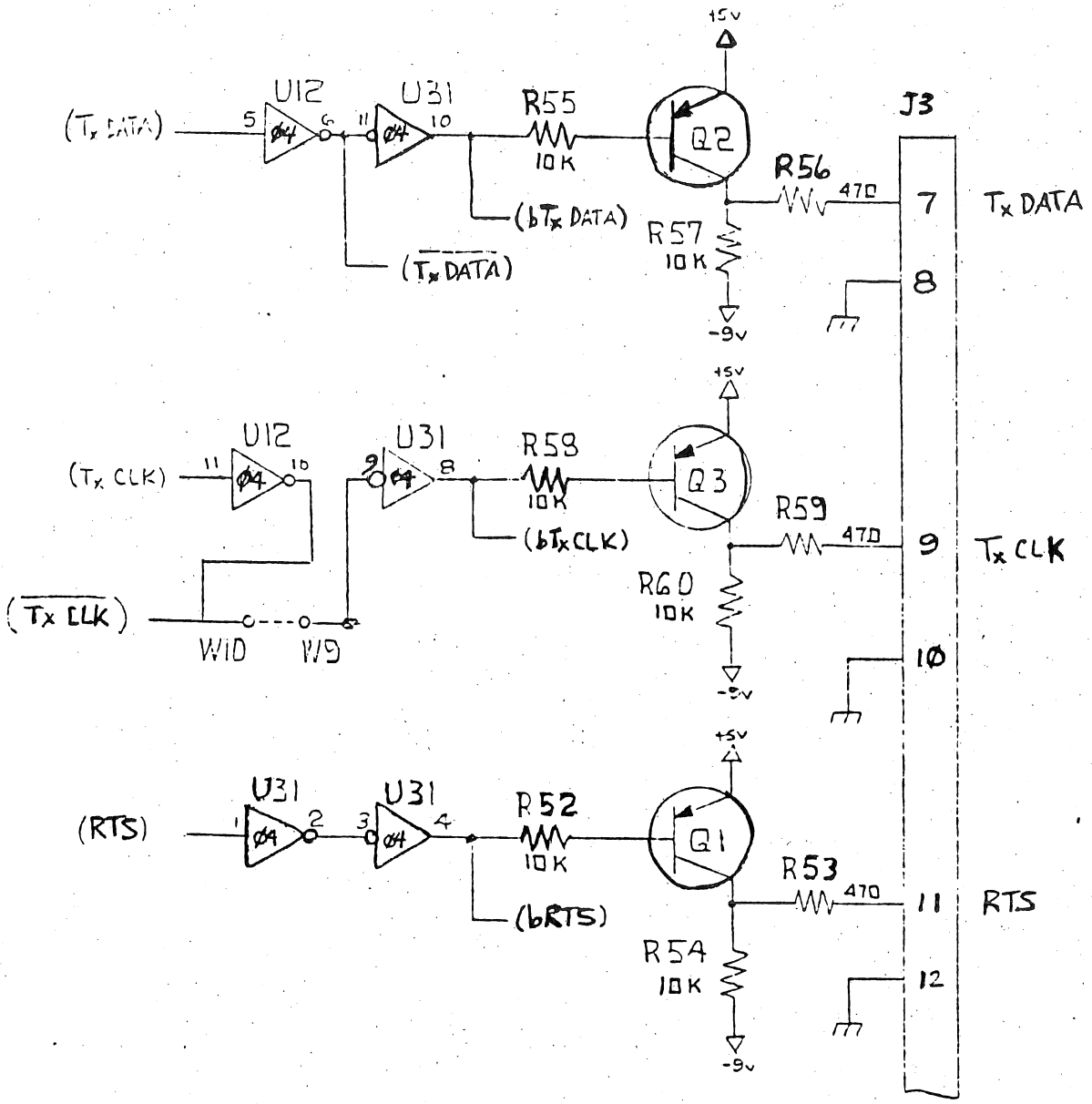
PHOENIX SCIENTIFIC			product name/number MODEL 502 - (SYNCHRO. INTERFACE)	
date	revision	page	status	sheet 3 of 12

(-SSD ACIA)

NOTE:
TO SELECT $\overline{DCD}$ OR $\overline{CTS}$ OPERATION, CUT $\overline{DCD}$ & $\overline{CTS}$ FOILS FROM GND. CONNECT EITHER TO POINT "A".



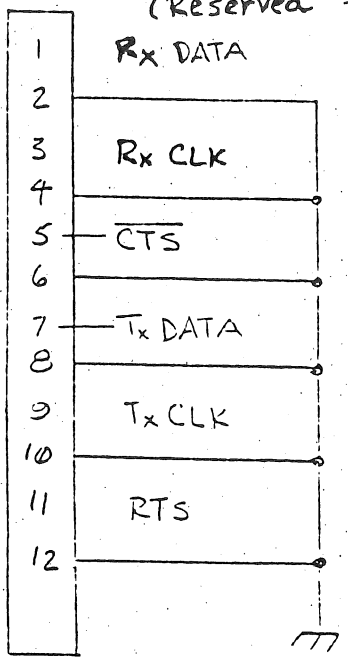
OHIO SCIENTIFIC	product name/number MODEL 502- (AUDIO CASSETTE)			
date	revision	page	status	sheet 7 of 12



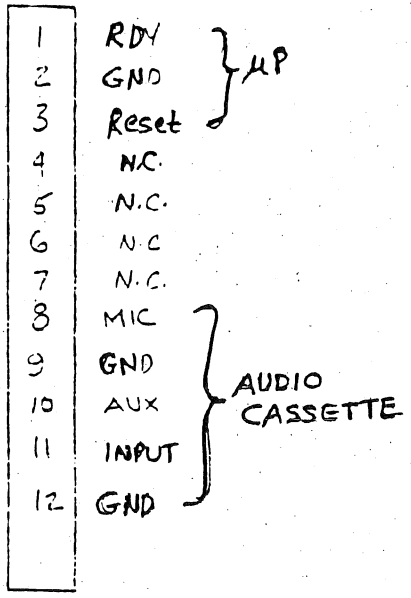
RS232 DRIVERS

OHIO SCIENTIFIC			product name/number MODEL 502 (SYNCHRO INTERFACE, RS232)	
date 26 APR 1978	revision	page	status	sheet 11 of 12

J3 (Reserved for synchronous I/O)



J2



OHIO SCIENTIFIC			product name/number MODEL 502 - (CONNECTORS)	
date	revision	page	status	sheet 0 of 12

ADDING A SERIAL PRINTER TO THE 600 BOARD

Outlined below are the modifications to a 600 Board for a serial printer output.

Ref. Detail A

1)Install resistor R65 (470)
2)Install resistor R64 (10K)
3)Install resistor R63 (10K)
4)Install resistor R72 (1K)
5)Install transistor Q1 (2N5226-PNP)
6)Cut jumper at W10 (on foil side of board)
7)Add -9 power supply and connect -9 to pin 7 of J3 (ground is at pin 1).

The RS-232 Tx data is now available at pin 2 of J3 (ground is at pin 1).

You may wish to install an external switch at this point to disable printer output when the user is saving a program to cassette.

Depending on the printer used, it may also be necessary to install an input circuit to connect the Printer Busy or Printer Ready signal to the Clear To Send ($\overline{CTS}$) input of the ACIA. $\overline{CTS}$ must be low at the ACIA to enable output.

To install this circuitry follow these instructions:

Ref. Detail A

1)Install IC-U67 (74LS14)
2)Install resistor R39 (390)
3)Install resistor R38 (220)

Ref. Detail B

4)Cut foil at W3 that ties $\overline{CTS}$ (pin 24 of IC-U14) to ground. Install an external SPDT switch to allow selection of either the above circuit for printer operation or ground for cassette operation.
*NOTE: you may wish to install a DPDT switch and have one pole handle the $\overline{CTS}$ circuit while the other handles the printer output disable mentioned earlier.

The Printer Ready or Printer Busy signal is then connected to pin 3 of J2. Depending on whether the signal is low true or high true, you may have to jumper pins 8 and 9 of IC-U67 (i.e. the ACIA must see a low on $\overline{CTS}$ when the printer is able to accept more data.)

ADDING A SERIAL PRINTER TO THE 600 BOARD (cont.)

FOR THE COMPRINT-do the following:

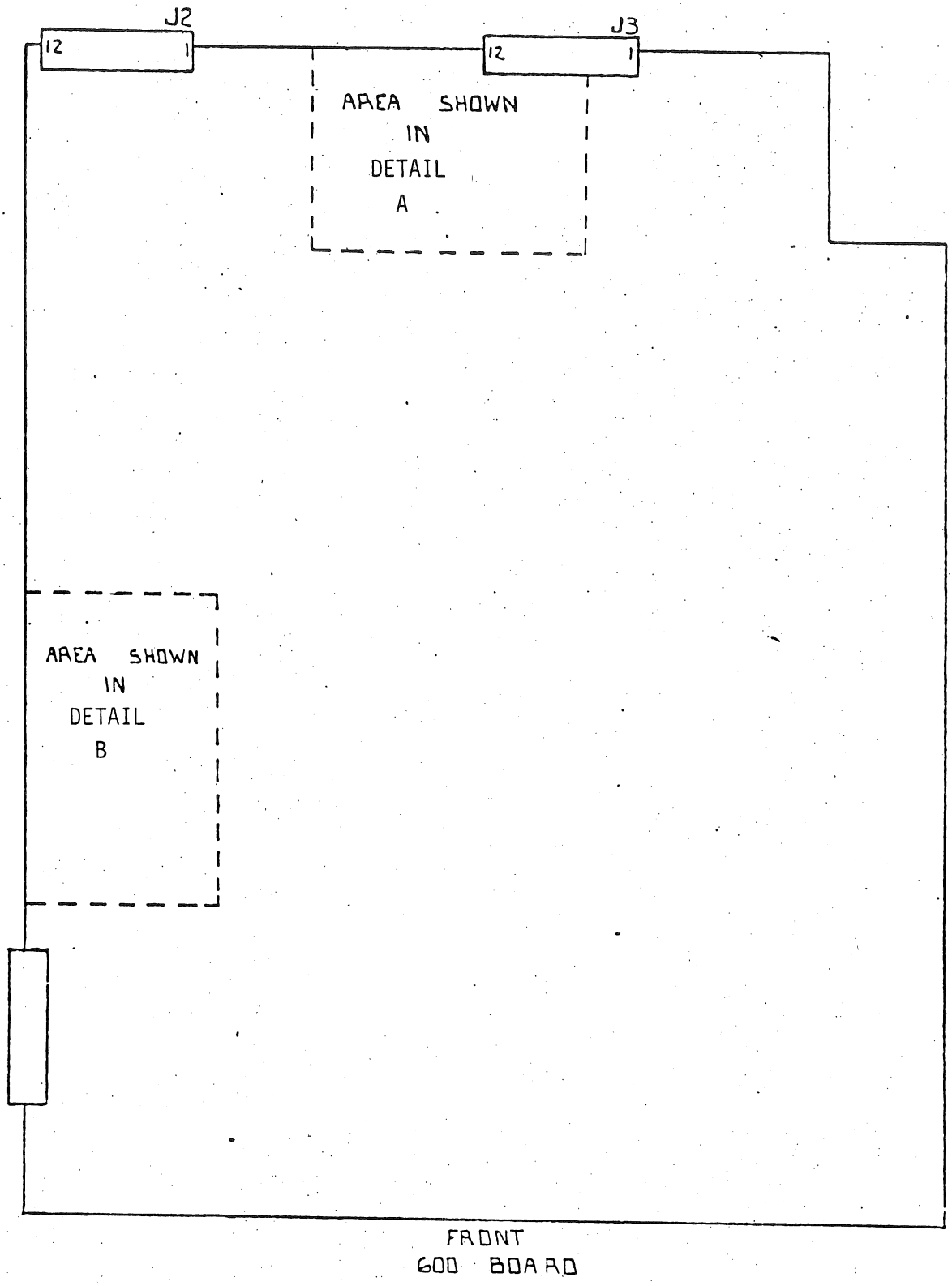
1)Install all above circuitry (EXCEPT pin 8 and 9 jumper on IC-U67)
2)Make the following connections:

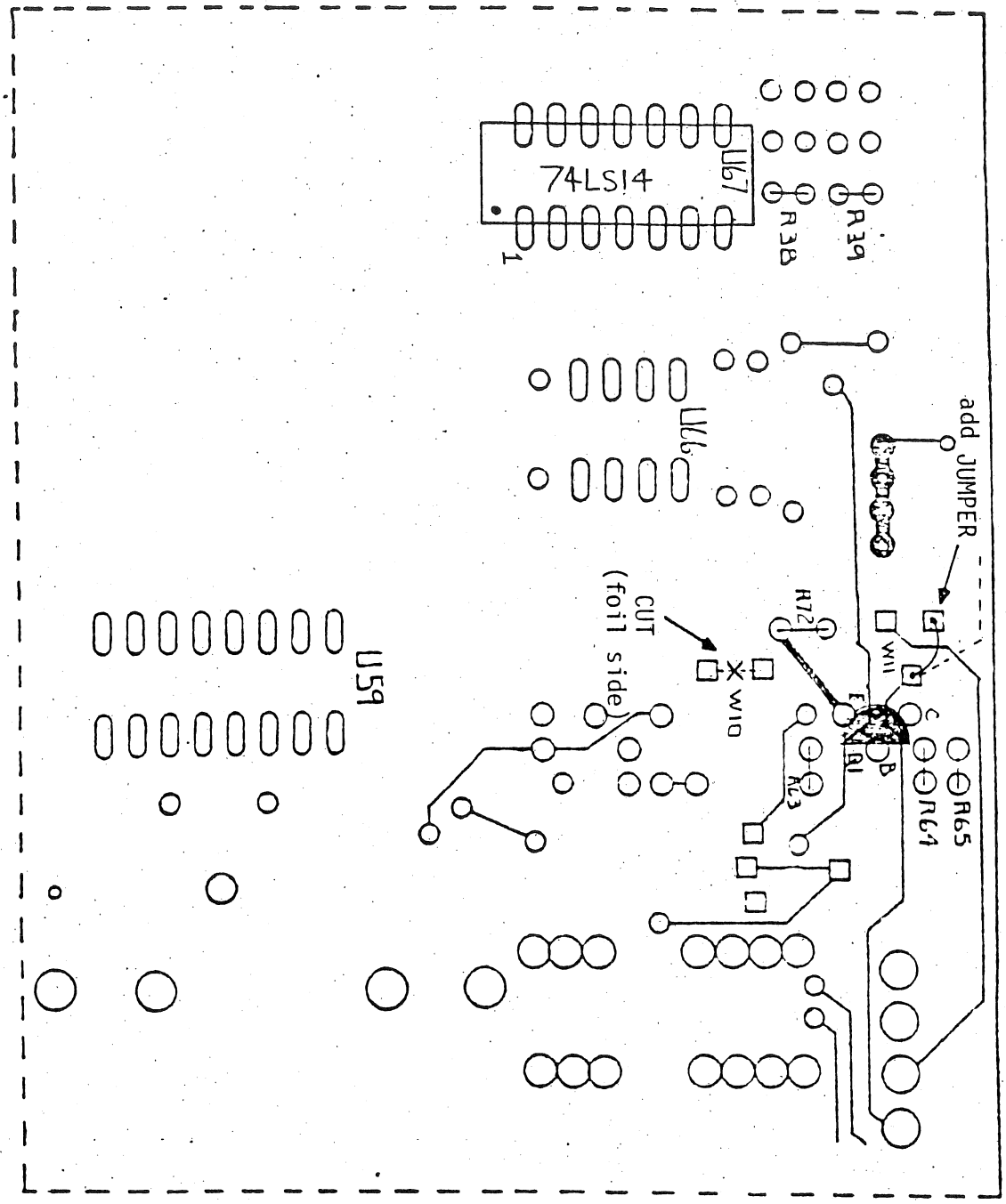
FROM	TO
J3 pin 2	Female CINCH pin 3 (Tx data)
J3 pin 1	Female CINCH pin 7 (ground)
J2 pin 3	Female CINCH pin 5 ($\overline{CTS}$)

The COMPRINT connector may now be attached to the female CINCH. To enable printer output, type SAVE <CR>. To disable printer output, type LOAD <CR> ,(space)<CR>. On mini-floppy systems the port is available as output device number one.

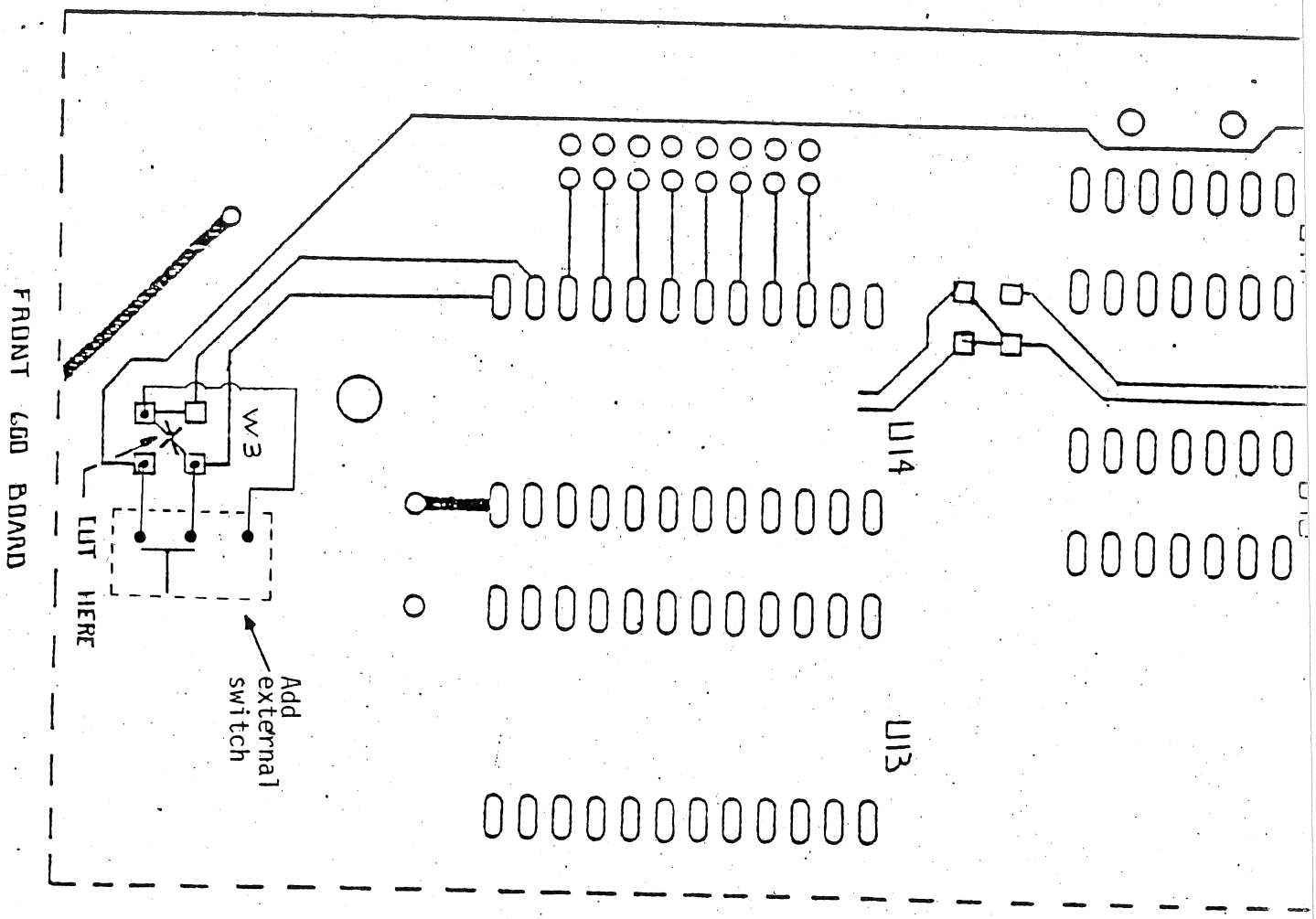
Make sure the previously installed switches are thrown to the proper position when using either the printer or cassette option.

Drawings and schematics have been provided for your reference.

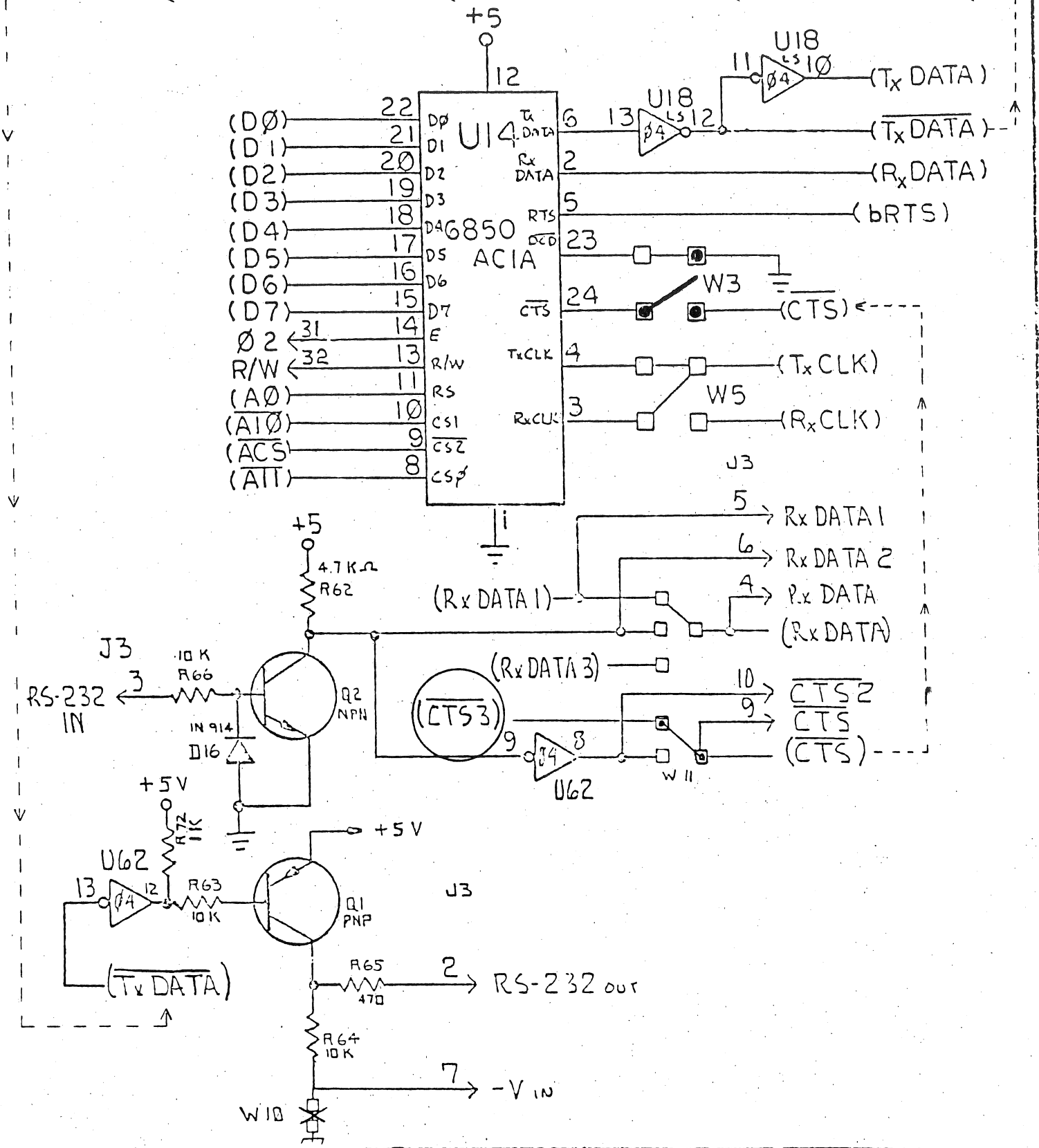

J2
12
1
J3
12
1
AREA SHOWN IN DETAIL A
AREA SHOWN IN DETAIL B
FRONT
600 BOARD


74LS14
U67
1
R38
R39
U66
add JUMPER
W11
W10
CUT
(foil side)
R72
R63
R64
R65
U59
Q1= ZN 3226
E
B
C
Bottom side
INSTALL THESE PARTS
U67= 74LS14
R38= 220
R39= 390
R63= 10K
R64= 10K
R65= 470
R72= 1K
FRONT OF 600 BOARD

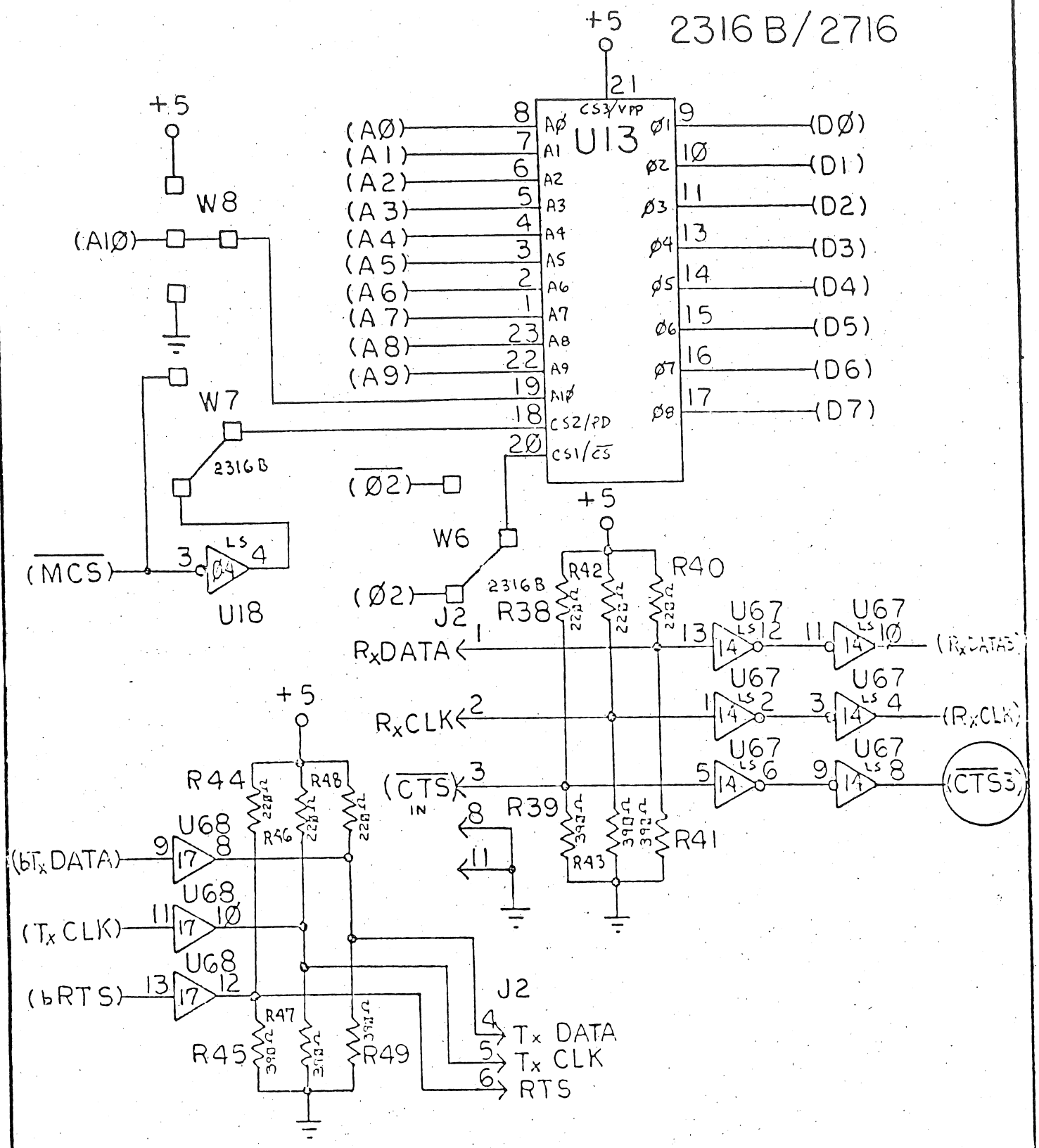
DETAIL A



DETAIL B

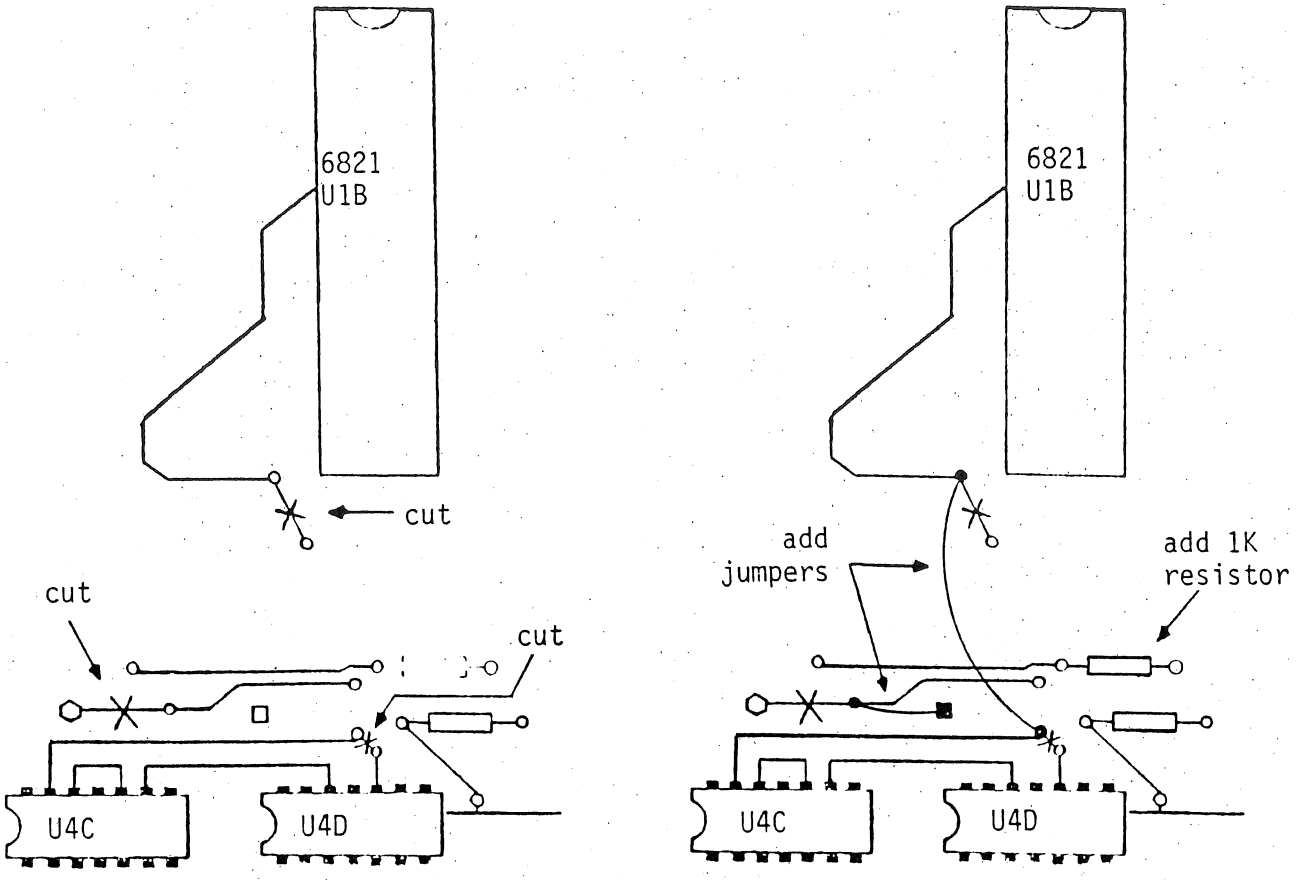


OHIO SCIENTIFIC			product name/number	
date 5 SEP 1978	revision B	page	status	sheet 6 of 13



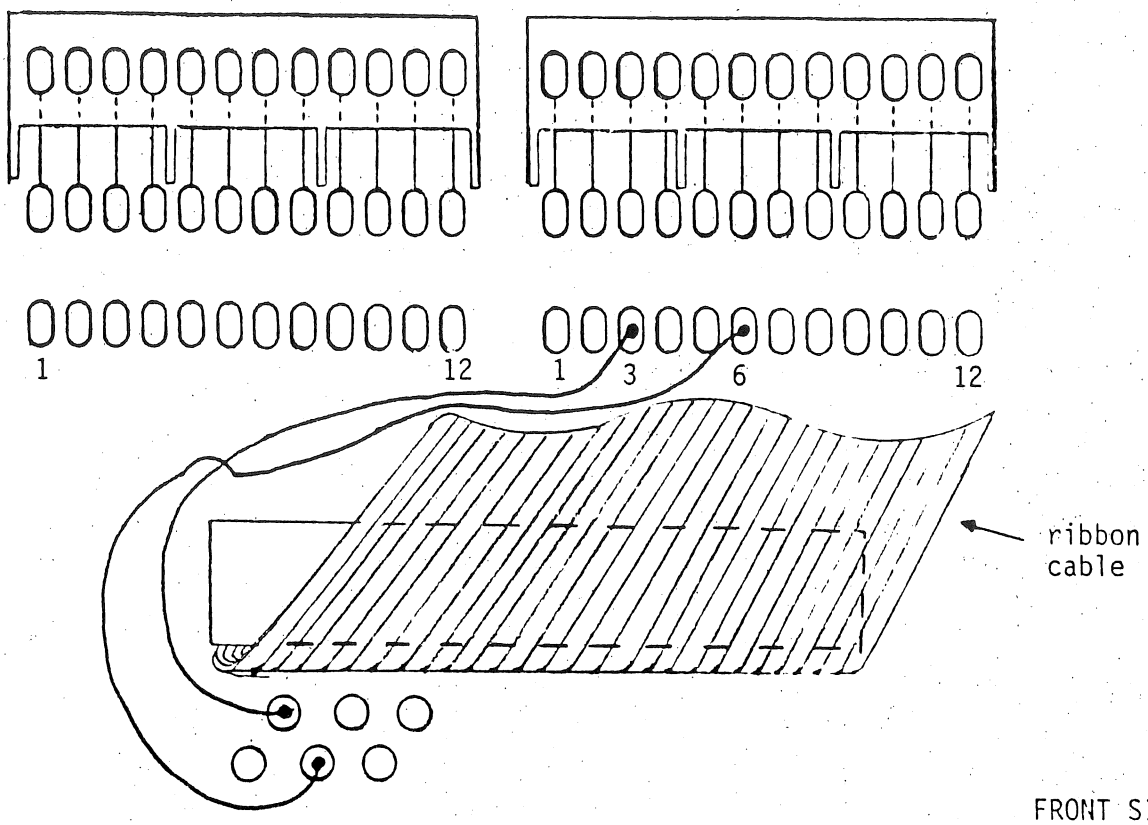
OHIO SCIENTIFIC			product name/number	
date .5 SEP 1978	revision B	page	status	sheet 5 of 13

CONVERTING A 470 REV. B FROM SINGLE SIDED TO DUAL SIDED OPERATION

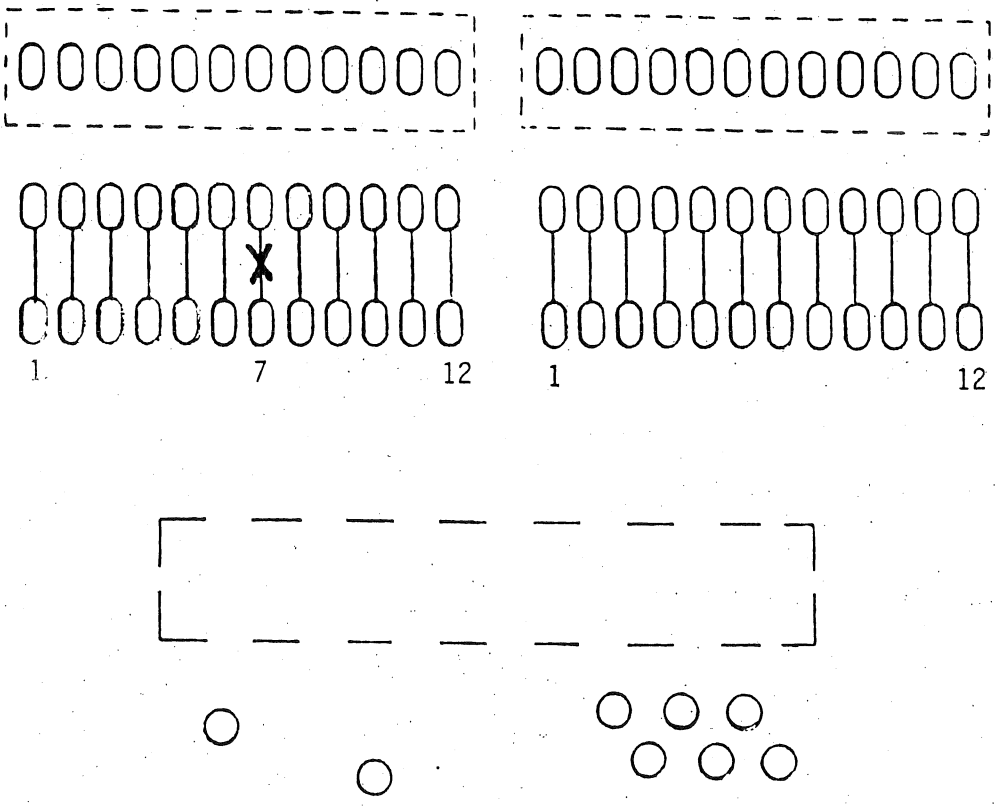


To convert A 470 rev. B floppy controller from single sided operation to dual sided operation, make the cuts and jumpers shown above and install a 1K pullup resistor where noted. The following pages show the differences on the A12 board (ribbon cable connector).

A12 Floppy Connector Board Modified For Single Sided Drives

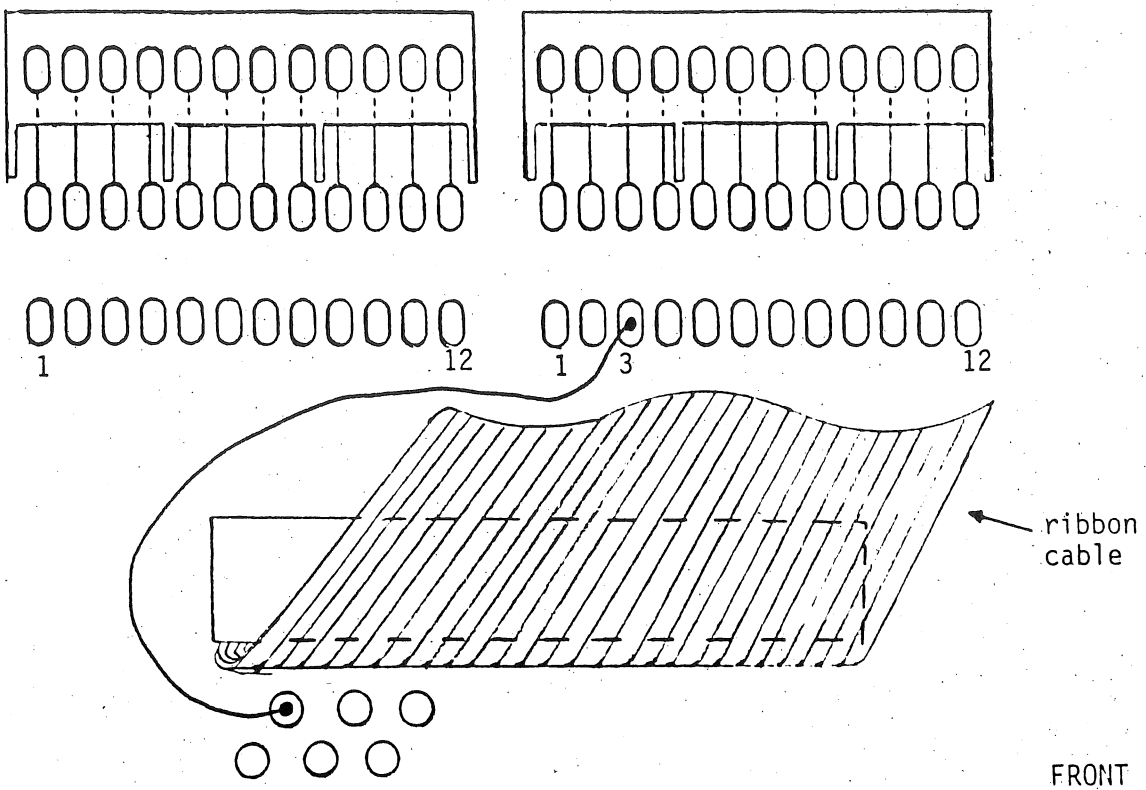


FRONT SIDE of board

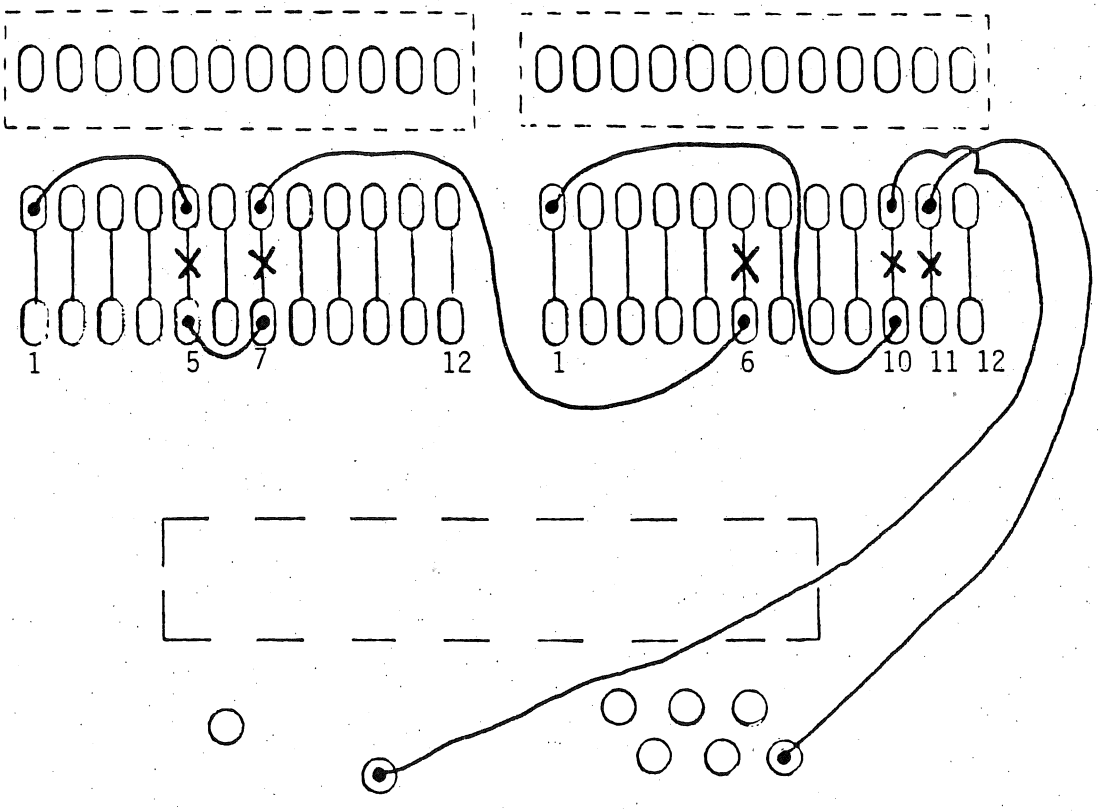


BACK SIDE of board

A12 Floppy Connector Board Modified For Dual Sided Drives

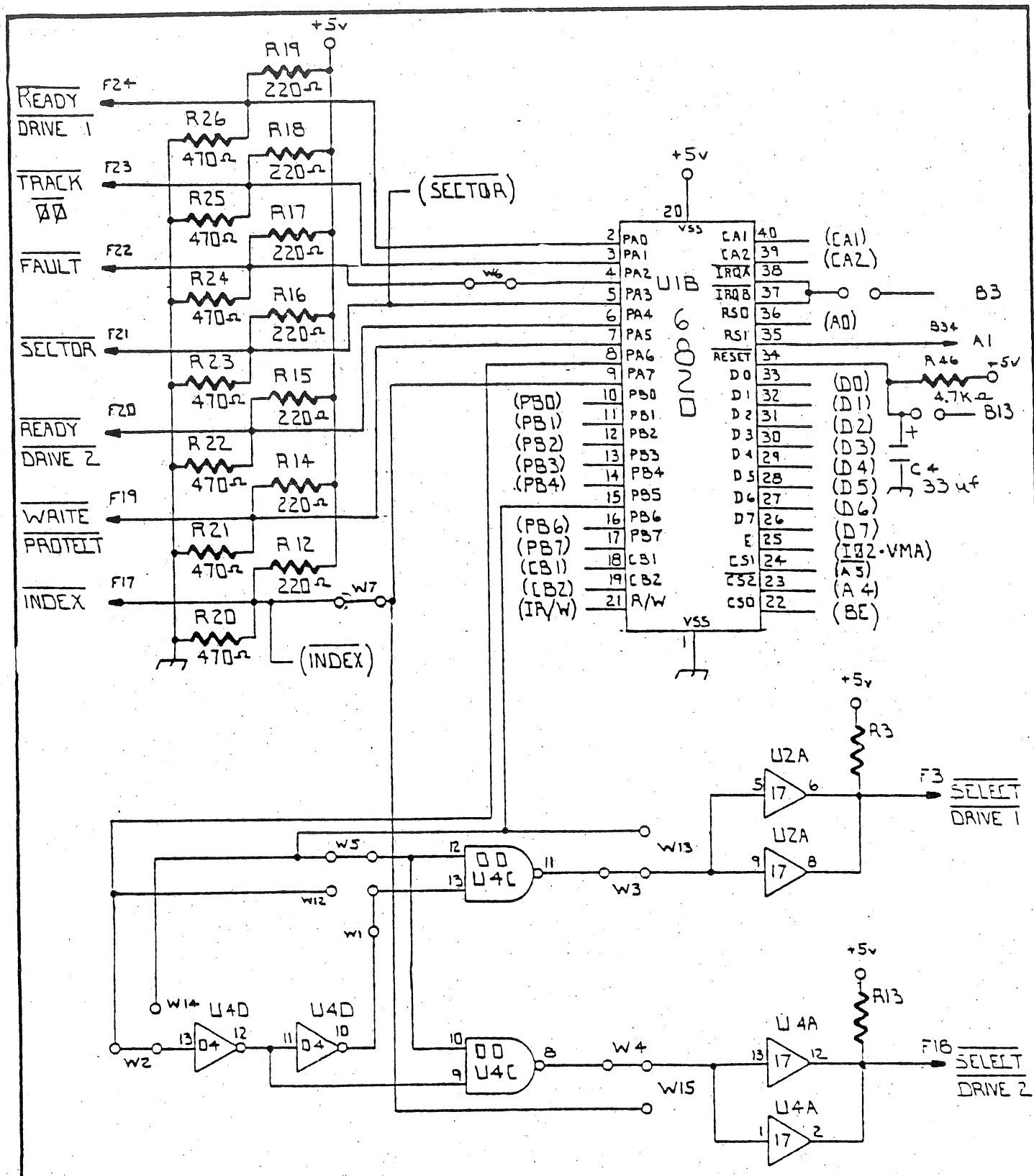


FRONT SIDE of board

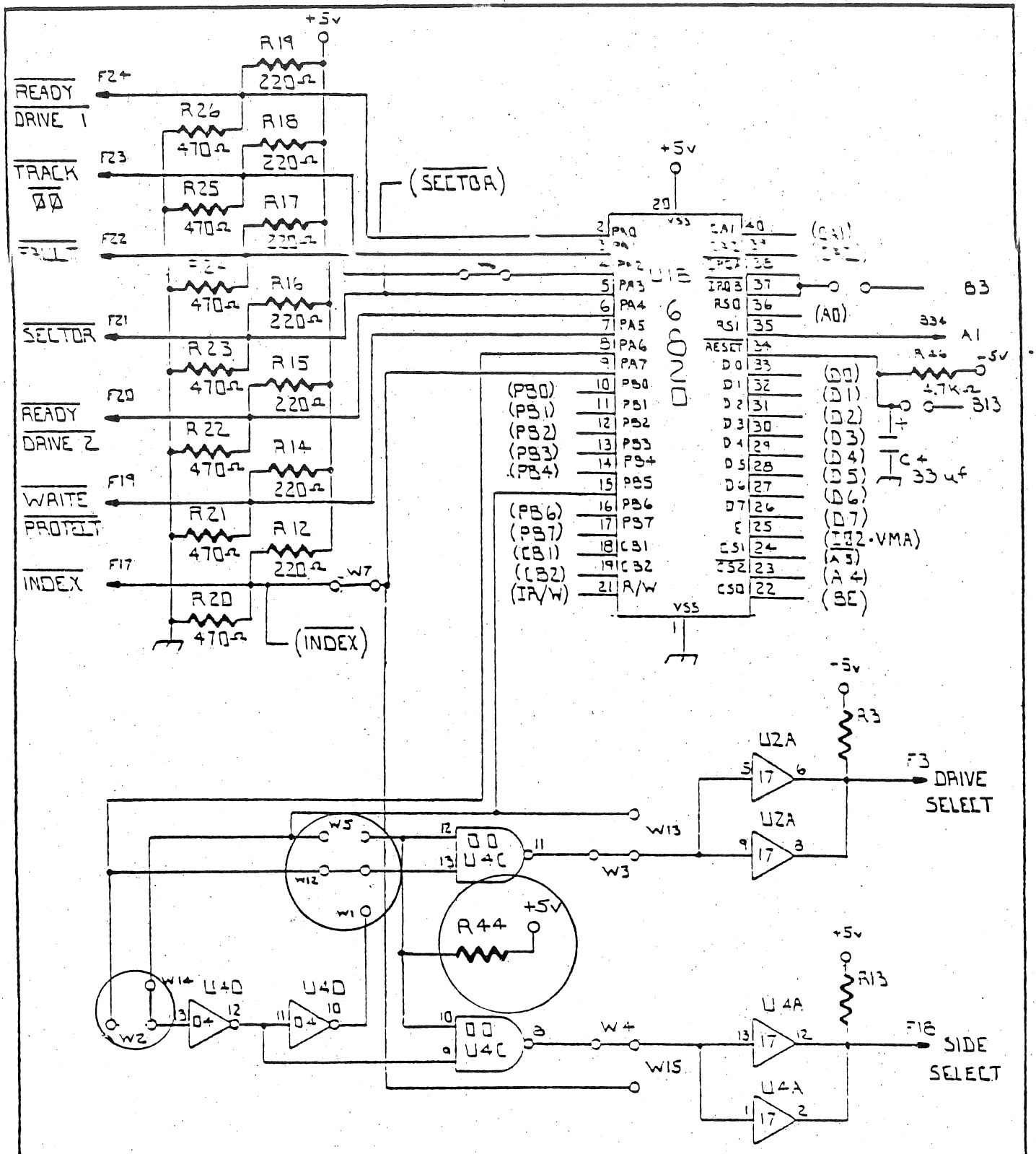


X=cut

BACK SIDE of board



OHIO SCIENTIFIC	product name/number MODEL 470 SINGLE SIDED FLOPPY INTERFACE			
date 27 JUL 1979 DRAWN ~ J.L.K.	revision	page	status	sheet 3 of 5



OHIO SCIENTIFIC

product name/number MODEL 470

DUAL SIDED FLOPPY INTERFACE

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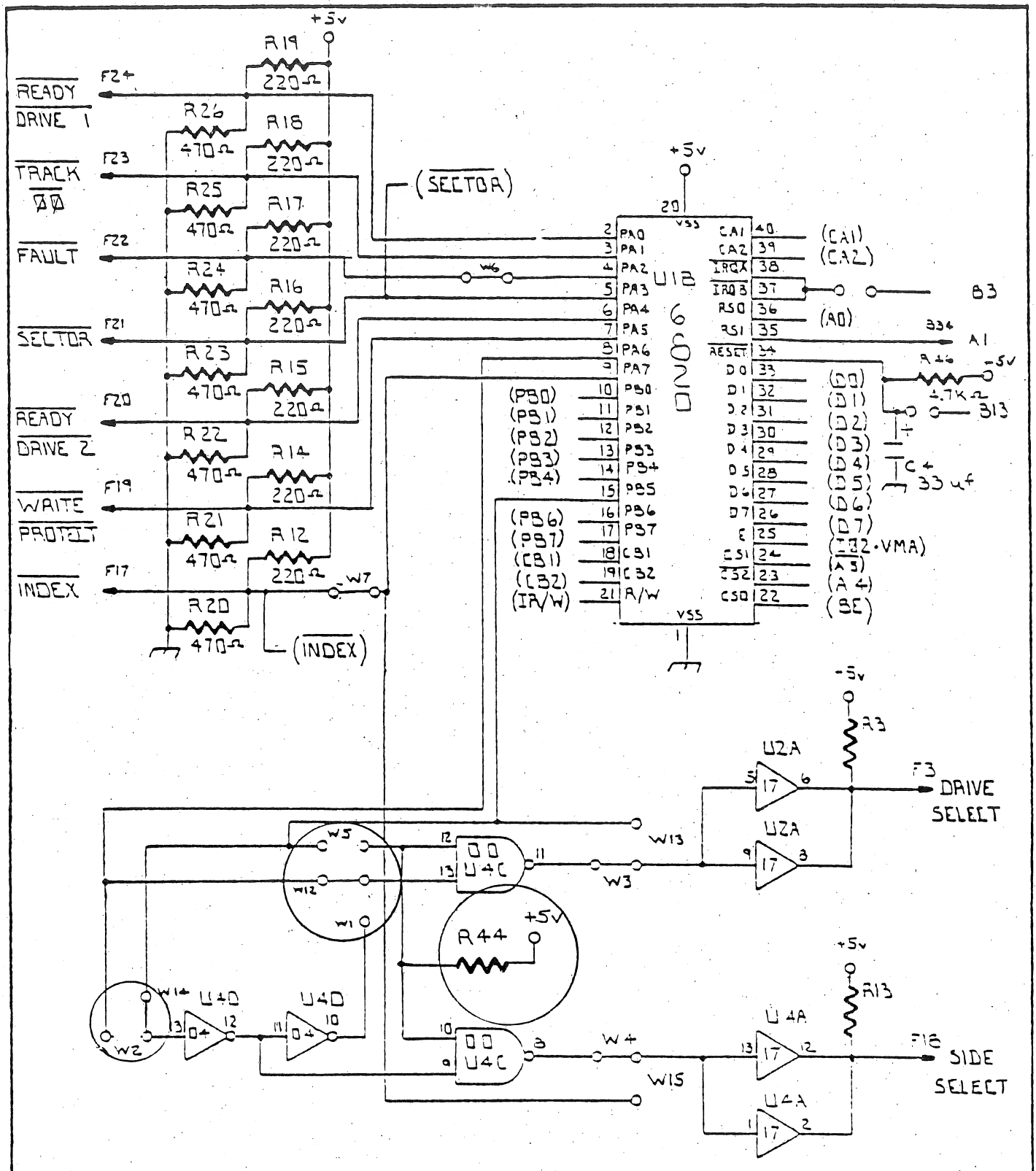
27 JUL 1979				3 of 5
DRAWN ~ J.L.K.				



OHIO SCIENTIFIC

product name/number MODEL 470

DUAL SIDED FLOPPY INTERFACE

date	revision	page	status	sheet
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DRAWN ~ J.L.K.				

510 REV.C "SHMON" STRAPPING

The following shows the necessary cuts and jumpers to install a "SHMON" Eprom to the 510 REV.C.

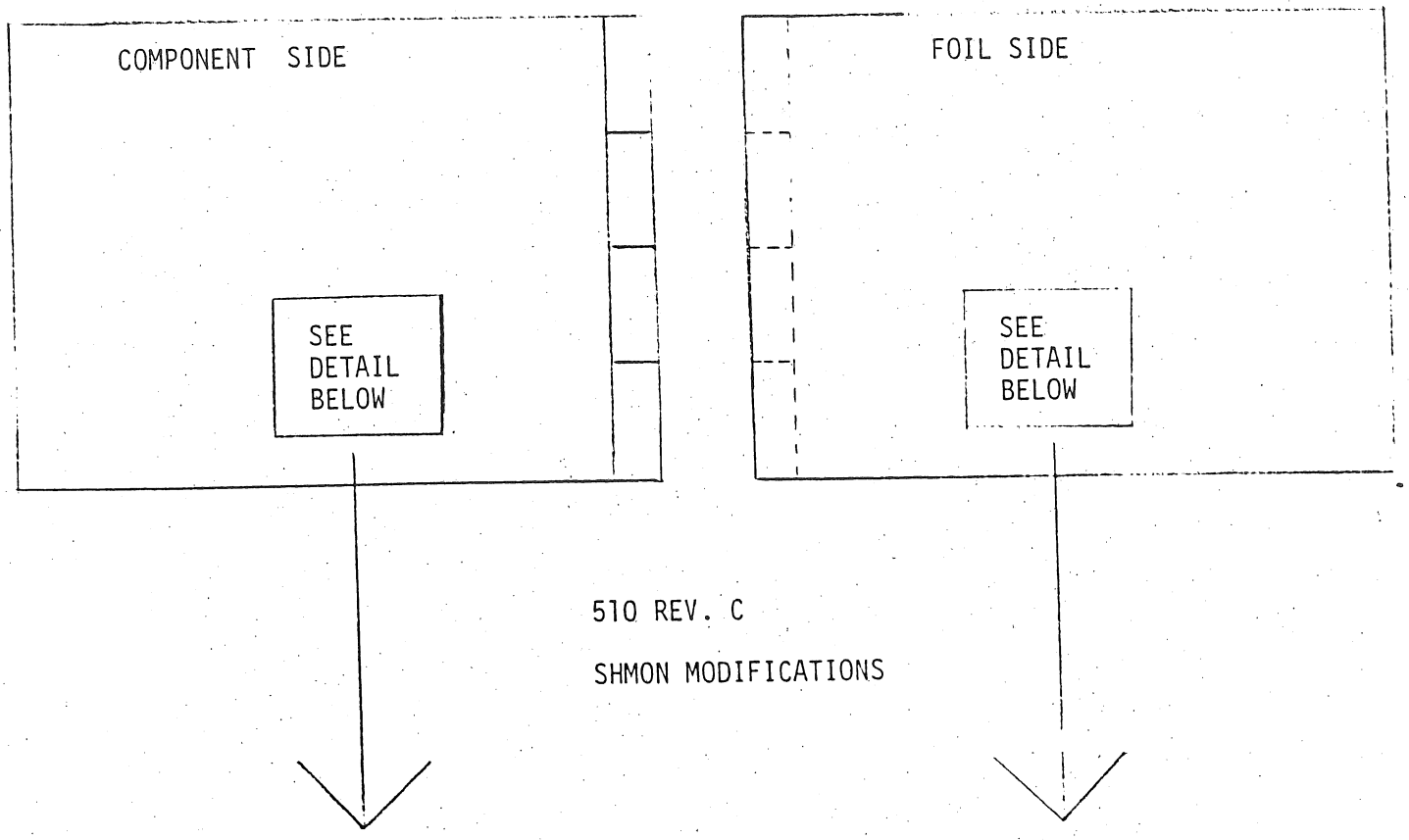
Application: CD-23 "ADD ON'S" TO A C3-A.

1. Cut jumper from $CS2_A$ to pin 15 of U45 (74148).
2. Install jumper from $CS2_A$ to pin 14 of U45 (74148).
3. Cut jumper from $CS1_A$ to pin 12 of U54 (7404).
4. Install jumper from $CS1_A$ to pin 13 of U54 (7404).

DO NOT make the other jumpers for the 2716 shown on the schematic.

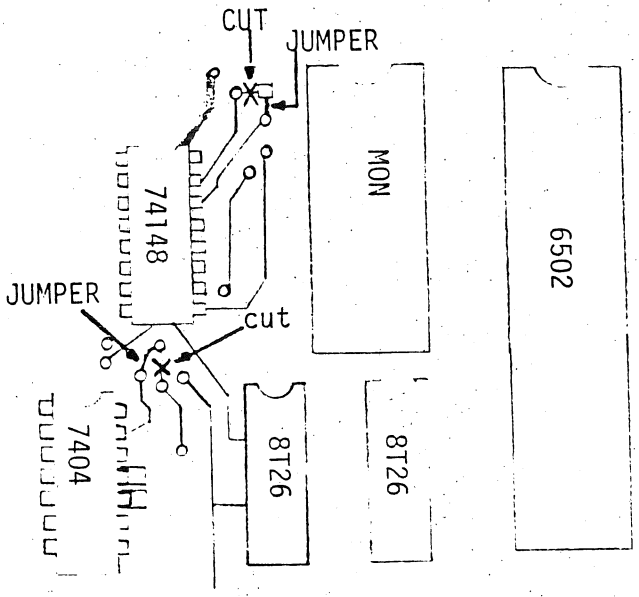
5. If the "SHMON" Eprom provided is marked "LOW", then cut the foil from pin 6 of U45 (74148) to pin 19 of U46 (Prom Socket.) Install jumper from pin 19 to pin 12 of U46.

Drawings and Schematics have been provided for your reference.

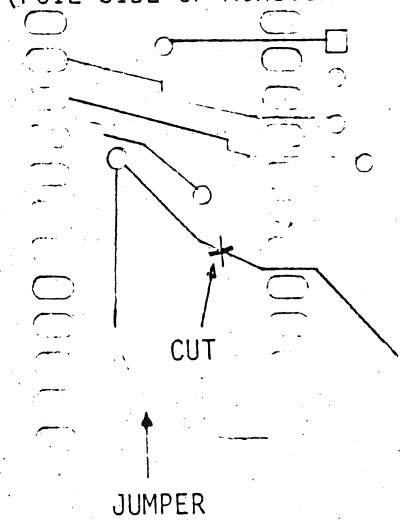


510 REV. C

SHMON MODIFICATIONS

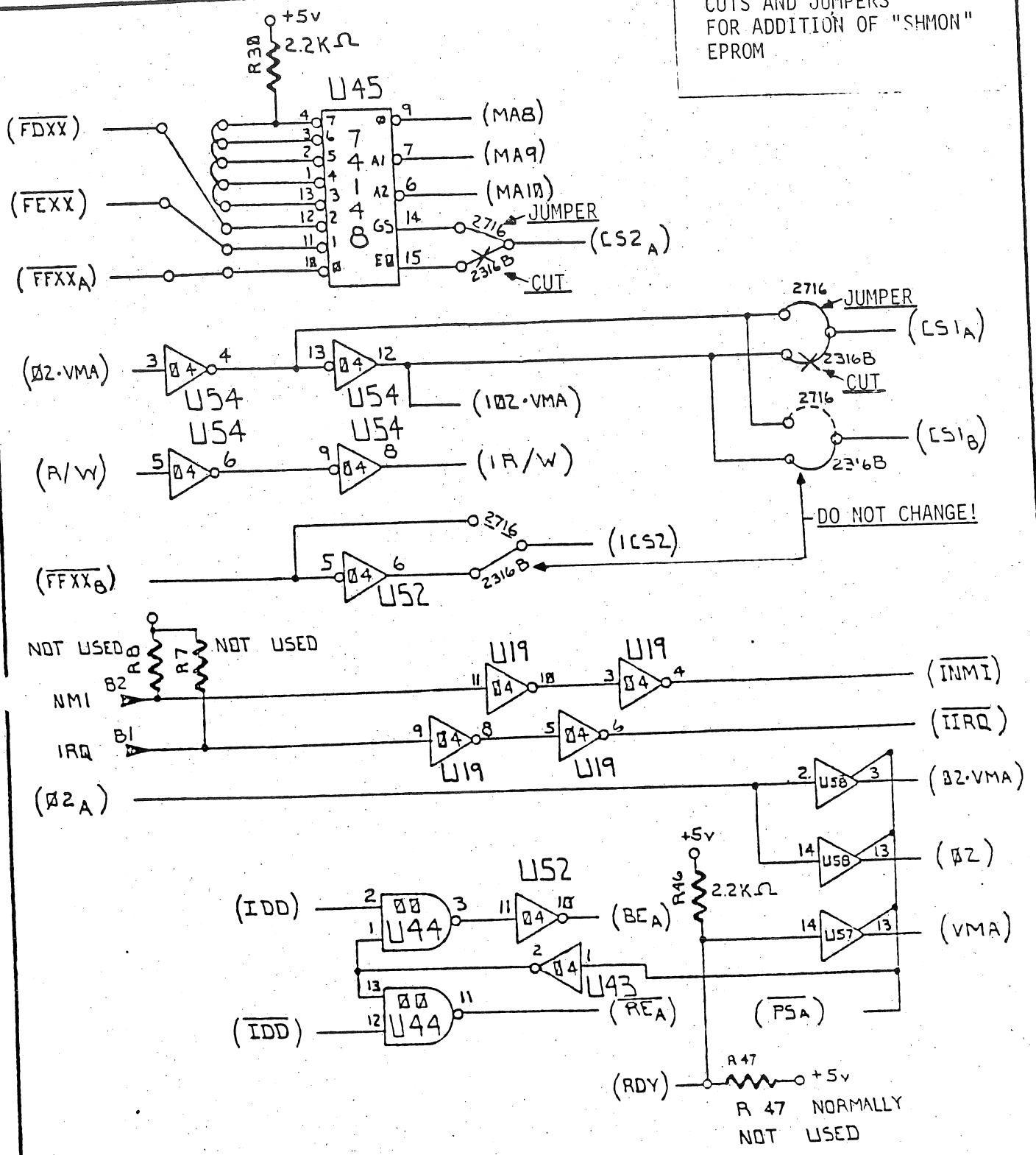


(FOIL SIDE OF MONITOR SOCKET)

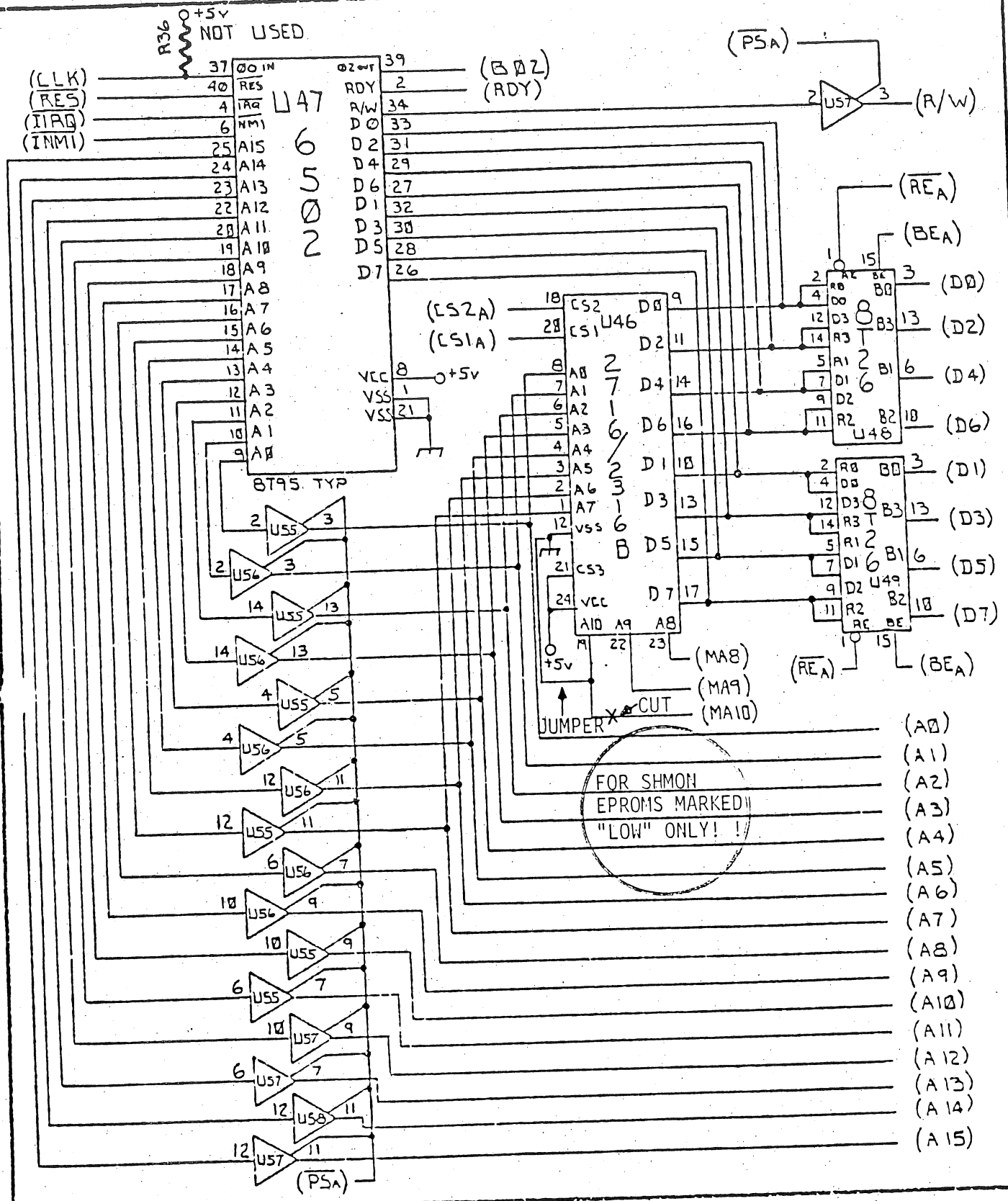


NOTE: THIS MODIFICATION IS USED ONLY WHEN SHMON IS MARKED "LOW"

CUTS AND JUMPERS
FOR ADDITION OF "SHMON"
EPROM



OHIO SCIENTIFIC	product name/number MODEL 510 REV C			
date 24 APR 1979 DRAWN ~ J.L.K.	revision	page	status	sheet 2 of 11



OHIO SCIENTIFIC			product name/number MODEL 510 REV C 6502 CIRCUITRY	
date 24 APR 1979 DRAWN~ J.L.K.	revision	page	status	sheet 1 of 11

#27,25

527 STRAPPING FOR MEMORY MANAGEMENT (LEVEL 3)

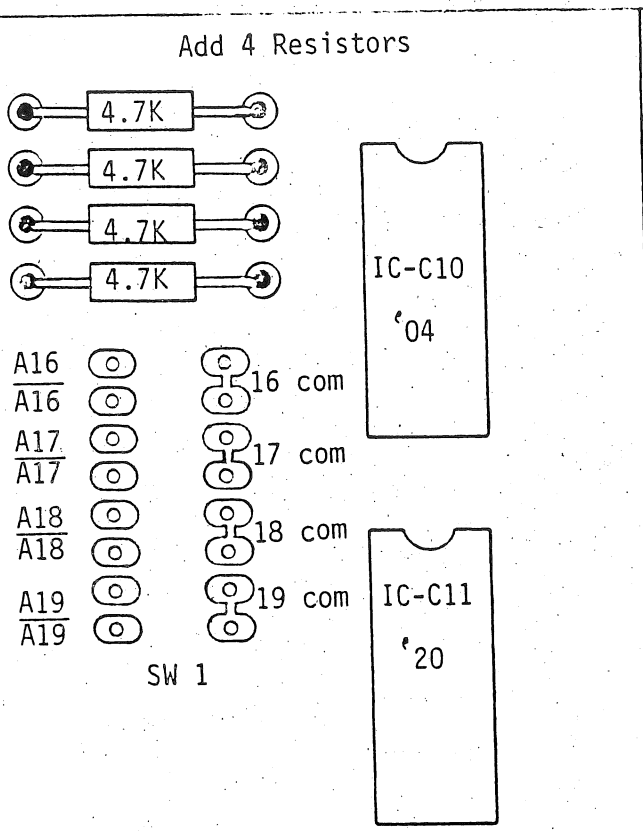


FIGURE 1

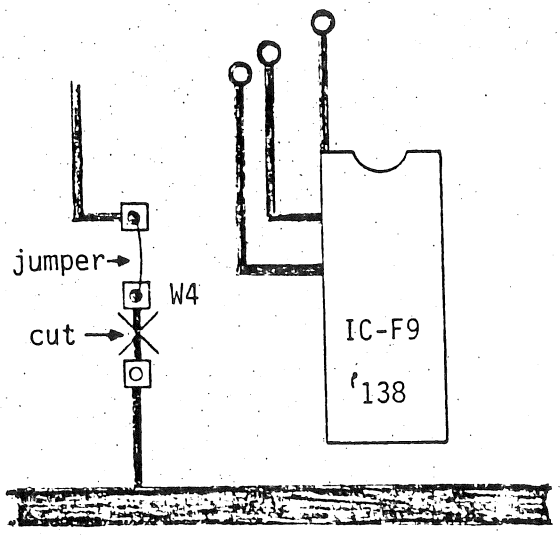


FIGURE 2

The 527 can be strapped for Memory Management (Level 3) using the following procedure.

REF. FIGURE 1.

1) Install 4 4.7K resistors (R1,R2,R3,R4)
2) Jumper for desired partition:

Partition	A19 common to	A18 common to	A17 common to	A16 common to
F	A19	A18	A17	$\overline{A16}$
E	A19	A18	$\overline{A17}$	$\overline{A16}$
D	A19	A18	$\overline{A17}$	$\overline{A16}$
C	A19	$\overline{A18}$	$\overline{A17}$	$\overline{A16}$
B	A19	$\overline{A18}$	A17	$\overline{A16}$
A	A19	$\overline{A18}$	$\overline{A17}$	$\overline{A16}$
9	A19	$\overline{A18}$	$\overline{A17}$	$\overline{A16}$
8	A19	$\overline{A18}$	$\overline{A17}$	$\overline{A16}$
7	$\overline{A19}$	A18	A17	$\overline{A16}$
6	$\overline{A19}$	A18	$\overline{A17}$	$\overline{A16}$
5	$\overline{A19}$	A18	$\overline{A17}$	$\overline{A16}$
4	$\overline{A19}$	$\overline{A18}$	$\overline{A17}$	$\overline{A16}$
3	$\overline{A19}$	$\overline{A18}$	A17	$\overline{A16}$
2	$\overline{A19}$	$\overline{A18}$	$\overline{A17}$	$\overline{A16}$
1	$\overline{A19}$	$\overline{A18}$	$\overline{A17}$	$\overline{A16}$
0	$\overline{A19}$	$\overline{A18}$	$\overline{A17}$	$\overline{A16}$

527 STRAPPING FOR MEMORY MANAGEMENT (LEVEL 3) (cont.)

REF. FIGURE 2

1) Remove pin 4 of IC-F9 from ground by cutting foil trace as shown (W4).
2) Jumper pin 4 of IC-F9 to pin 6 of IC-C11 as shown (W4).

Refer to Tech Letter #8 for other 527 addressing information.

NOTE: The pads of SWI have been laid out to accept a rocker dip switch if you desire to use one.

- -

IMPORTANT NOTICE

CA-12 and 505 Rev. B

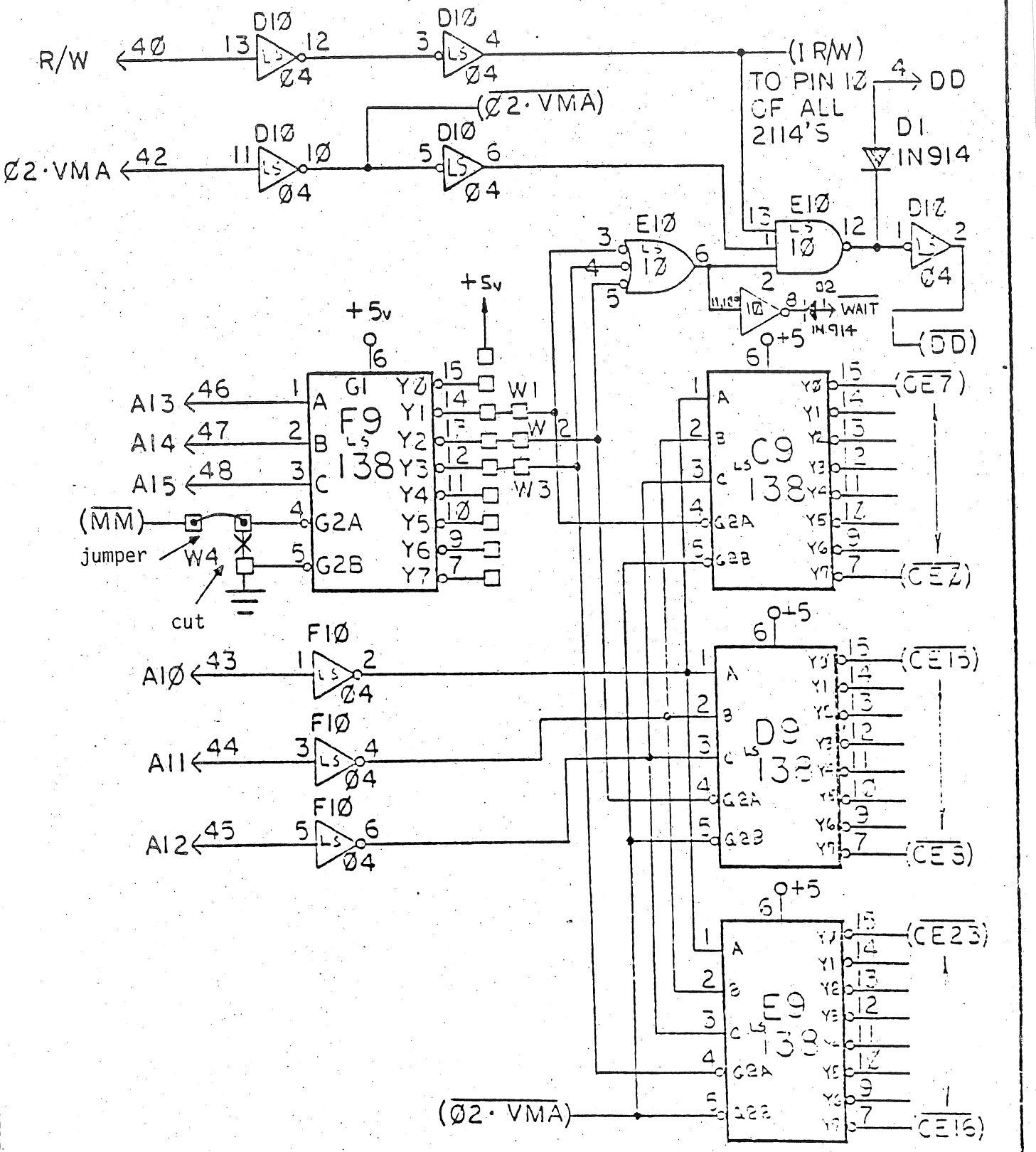
The following steps are required to use a 96 line parallel I/O board with a 505 Rev "B".

1) Remove IC U3G and IC U4H
   (depicted on p. 70 and p. 79 of the Howard Sams Photofact C4P series.)

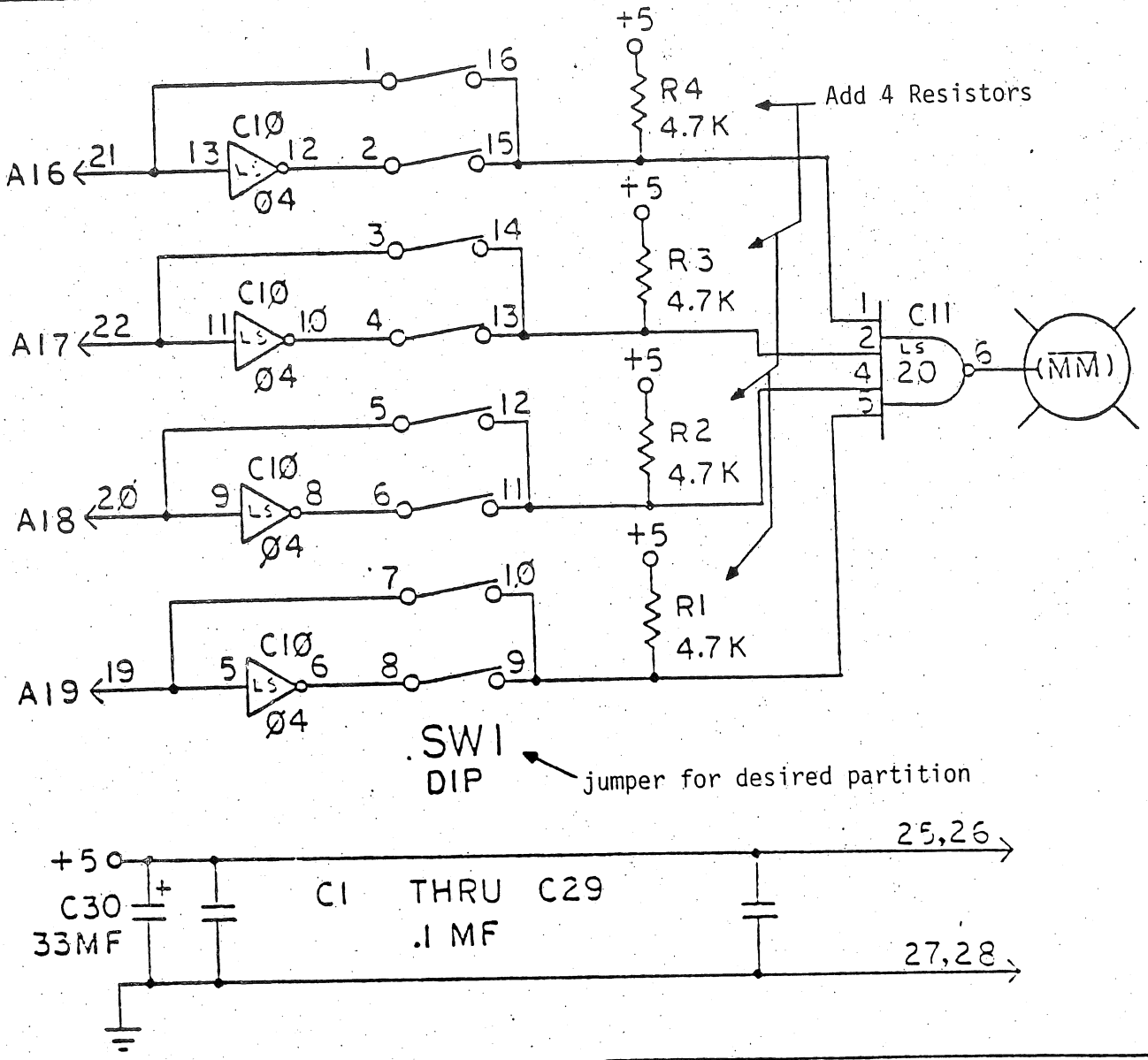
2) Install the CA-12 96 line parallel I/O board.

   Note that this deletes the OSI I/O BUS at J2 of the A15 board.

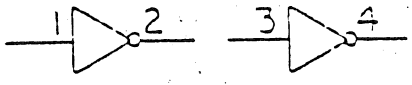
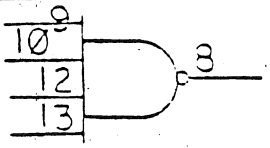
#27,27



OHIO SCIENTIFIC	product name/number ·24K MEMORY 527			
date 6·27·78	revision	page	status	sheet 1 of 6



PWR & GND DESIGNATIONS			
DEVICE	+5	GND	OTHER
Ø4	14	7	
10	14	7	
20	14	7	
138	16	8	
8T26	16	8	
8T26	16	8	

UNUSED GATES	
C10 Ø4	
C11 20	

OHIO SCIENTIFIC	product name/number 24K MEMORY 527	
date 6·27·78	revision	page
status	sheet 6 of 6	

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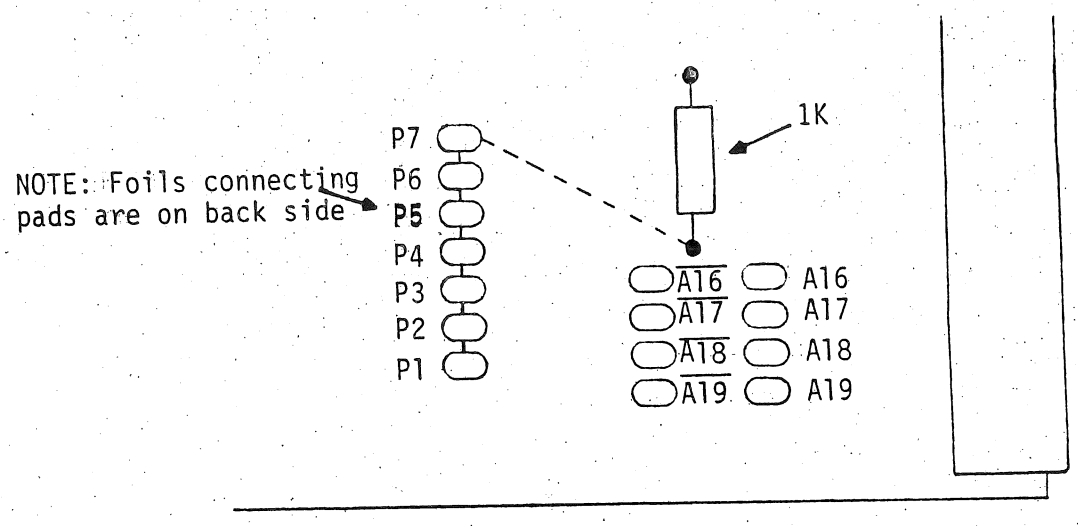
535 (48K Dynamic)
Strapping to level 3

*Note: 535 Dynamics are capable of 1 MHZ operation only , and will not work with the Z80 or 6800!

Bottom right, component side (Molexes ⟶)



1. Back side of board - cut foil between: P1 & P2
   P2 & P3
   P3 & P4
   P4 & P5

2. Jumper for desired partition:

Partition	P1 to	P2 to	P3 to	P4 to
F	A19	A18	A17	A16
E	A19	A18	A17	$\overline{A16}$
D	A19	A18	$\overline{A17}$	A16
C	A19	A18	$\overline{A17}$	$\overline{A16}$
B	A19	$\overline{A18}$	A17	A16
A	A19	$\overline{A18}$	A17	$\overline{A16}$
9	A19	$\overline{A18}$	$\overline{A17}$	A16
8	A19	$\overline{A18}$	$\overline{A17}$	$\overline{A16}$
7	$\overline{A19}$	A18	A17	A16
6	$\overline{A19}$	A18	A17	$\overline{A16}$
5	$\overline{A19}$	A18	$\overline{A17}$	A16
4	$\overline{A19}$	$\overline{A18}$	$\overline{A17}$	$\overline{A16}$
3	$\overline{A19}$	$\overline{A18}$	A17	A16
2	$\overline{A19}$	$\overline{A18}$	A17	$\overline{A16}$
1	$\overline{A19}$	$\overline{A18}$	$\overline{A17}$	A16
0	A19	$\overline{A18}$	$\overline{A17}$	$\overline{A16}$

#27,29

535 (48K Dynamic)
Strapping to level 3

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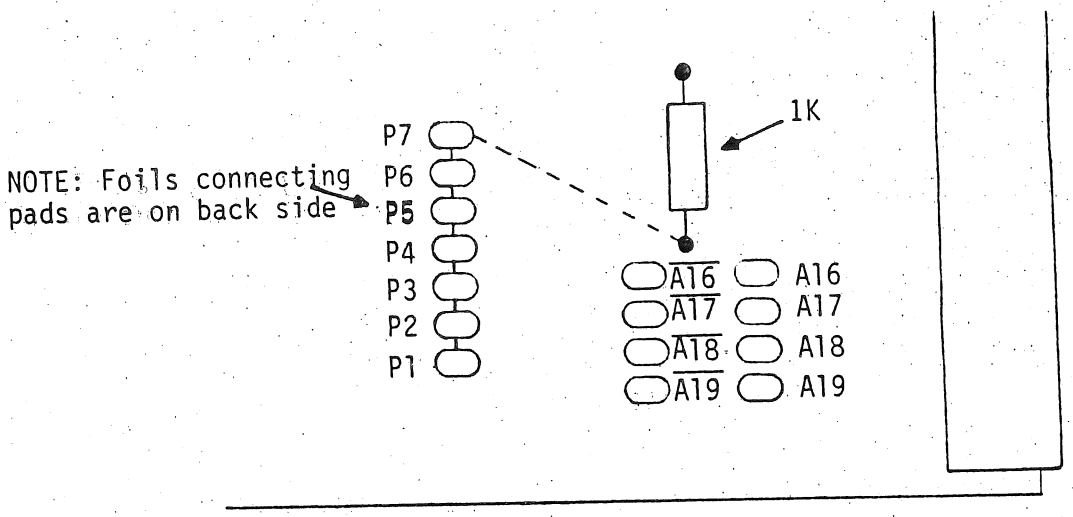
Bottom right, component side (Molexes ⟶)



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