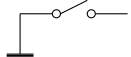


DRAWN
JUNCTION
= DIODE



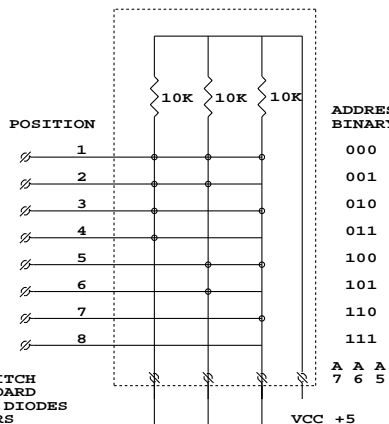
ADDRESSBIT TO ZERO
= DIODE TO GROUND

NEW SWITCH PLACED
LEFT NEAR JRC MARK
ON FRONT PANEL
1 TIME 8 POSITIONS



ON THE BACK OF THE SWITCH
IS A LITTLE CIRCUIT BOARD
THAT HOLDS THE MATRIX DIODES
AND THE THREE RESISTORS

ADDRESS DECODING MATRIX BOARD



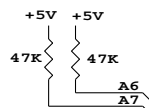
ADDRESSBITS
BINARY

- 000
- 001
- 010
- 011
- 100
- 101
- 110
- 111

A A A
7 6 5

VCC +5

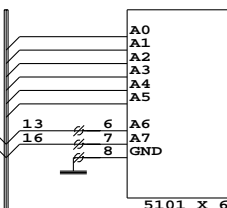
DISCHARGE AND
SECURITY R's



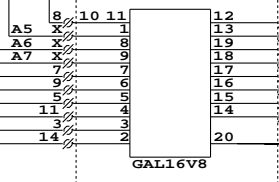
IN THE SRAMBANK THE ADDRESSBITS A6 AND A7 CUT FROM GROUND AND PULLED UP WITH 47K
ALL A6's AND A7's CONNECTED TO EACH OTHER. 1 SRAM IC HAS TO BE DESOLDERED!
GROUND CONNECTIONS (ONLY) TO PIN 8 ARE CORRECTED (WAS TO PIN 6 AND 7)

A6 AND A7 TO THE EMPTY PINS 13 AND 16 OF THE FORMER SWITCH BUFFER (4049)

SRAM BANK



BCDBIN4 GAL

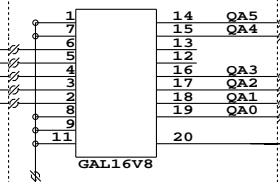


INVERS BCD CODE
CHANNEL SWITCH
POSITIONS 1 TO 24
(ORIGINAL SWITCH)

6 BITS INVERS BCD
TO 5 BITS BINARY DECODING GAL,
PLUS ADDRESSBUFFER FOR A5, A6 AND A7.
EXACT INTERNAL I/O PORT NUMBERING
ACCORDING TO COMPILER OUTPUT FILE

BOARD NUMBERING ACCORDING FORMER
4049 PINS
VCC2 AFTER THE DIODE IS TOO LOW,
PIN 1 IS CUT AND GOES DIRECTLY TO +5

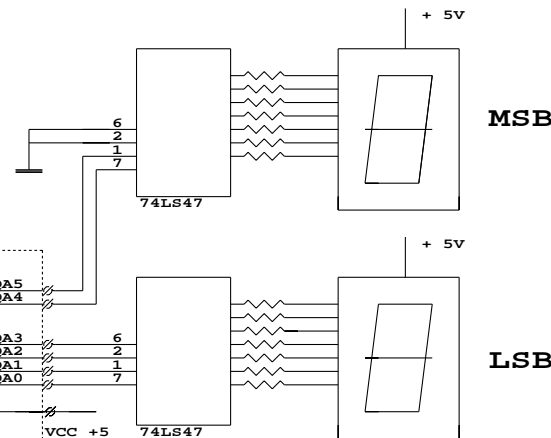
BINBCD2 GAL



DECODER GAL FROM 5 BITS BINARY
TO 6 BITS BCD FOR THE CORRECT
DISPLAY READOUT
ONLY A0 TO A4 ARE NEEDED FOR
CHANNEL ADDRESSING

A5 BELONGS NOW TO THE BANKSWITCHING
AND IS NOT CONNECTED TO THIS GAL

THE TWO DECODING GALs ARE EACH PLACED IN A SOCKET ON A PIECE OF CIRCUIT BOARD
THE BINBCD GAL IS PLACED BETWEEN THE 2 74LS47 IC'S, AND IS CONNECTED IN THE CUT INPUT SIGNALS
THE CHANNELSWITCH BUFFER (4049) IS REMOVED, A SOCKET IS PLACED THERE AND
A PIECE OF FLATCABLE WITH DIL PLUG CONNECTS BETWEEN SOCKET AND GAL BOARD
A6 AND A7 ARE CONNECTED WITH WIREWRAP FROM THE RAMS TO 2 UNUSED FORMER 4049 PINS



WATCH OUT: GAL's FROM THE SHOP ARE EMPTY!
THEY HAVE TO BE PROGRAMMED FIRST!!

W.A.J. GEERAERT PELABR

Title		MEMORY CONTROL UPGRADE FOR THE NDH - 515	
Size	Document Number	REV	
B	FROM 1 X 24 TO 8 X 24 CHANNELS		
Date:	December 31, 1999	Sheet	of