Title:

Technical Manual for

FDD 705

Flexible Disc Drive

A/S REGNECENTRALEN

RC SYSTEM LIBRARY: FALKONERALLE 1 DK-2000 COPENHAGEN F

RCSL No: 44-RT 1787
Edition: November 1978
Author: Karsten Friis

Keywords: FDD 705, RC3600, RC3751.

Abstract: This paper contains technical information on the FDD 705 flexible disc drive.

Printed by A/S Regnecentralen, Copenhagen

CONTENTS PAGE

This page is intentionally left blank.

1. INTRODUCTION. 1.

The FDD 705 flexible disc drive is modified SA851R drive manufactured by Shugart Associates. Thus the technical documentation for the SA851 Double Sided Discette Storage Drive must be considered as an appendix to this manual.

2. MODIFICATIONS.

a. As described in section 7 of the OEM Manual for the SA851, the PCB contains a number of strapping possibilities. The status of the different traces (short/open) is listed in table 2.1.

b. The output signal 'SECTOR' has been changed into a 'MOTOR OFF' status. This is achieved by adding the wire:

(J1-32) - (4G-1)

The function of this modification is to gate the Motor Off status from the POW 735 power supply with the drive select signal.

TRACE DESIGNATOR	DESCRIPTION	TRACE Short/Open	Enable/Disable Option
DS1	Drive Select 1 Input Pin	S	E
DS2,3,4	Drive Select 2,3,4 Input Pins	O	D
1B,2B,3B,4B	Side Select Option Using Drive Select	O	D
RR	Radial Ready	S	D
RI	Radial Index and Sector	S	D
R(SHUNT 4H)	Option Shunt for Ready Output	S	E
2S	Two-Sided Status Output	S	E
850/851	Sector Option Enable	O,S	D
I(SHUNT 4H)	Index Output	S	E
S(SHUNT 4H)	Sector Output	S	(E)
8,16,32	8, 16, 32 Sectors	O	D
DC	Disk Change Option	S	E
HL(SHUNT 4H)	Stepper Power From Head Load	O	D
DS	Stepper Power From Drive Select	S	E
WP	Inhibit Write When Write Protected	S	E
NP	Allow Write When Write Protected	O	D
D	Alternate Input-In Use	O	D
D1,D2,D4,DDS	Decode Drive Select Option	O	D
DD	Standard Drive Select Enable	S	E
DL	Door Lock Latch Option	O	D
A,B,X.(SHUNT 4H)	Radial Head Load	S,O,S	E
C	Alternate Input-Head Load	S	E
Z(SHUNT 4H)	In Use From Drive Select	O	D
Y	In Use From Head Load	S	E
S1	Side Select Option Using Direction Select	O	D
S2	Standard Side Select Input	S	E
S3	Side Select Option Using Drive Select	O	D
TS,FS	Data Separation Option Select	O,O	D
IWS	Write Current Step	O	E
-S,-IS	-15V Supply Voltage	S,O	D

c. On the front plate a write protect push botton/indicator has been installed. This toggle switch has two sets of contacts and a small light bulb. The first set of contacts is used to short the write protect phototransistor sensor while the second set connects the lamp to +5V.

Figure 2.2 illustrates the physical location of the switch. The electric diagram is found on page 14 . The switch/lamp is connected to the PCBA via the edge connector J2.

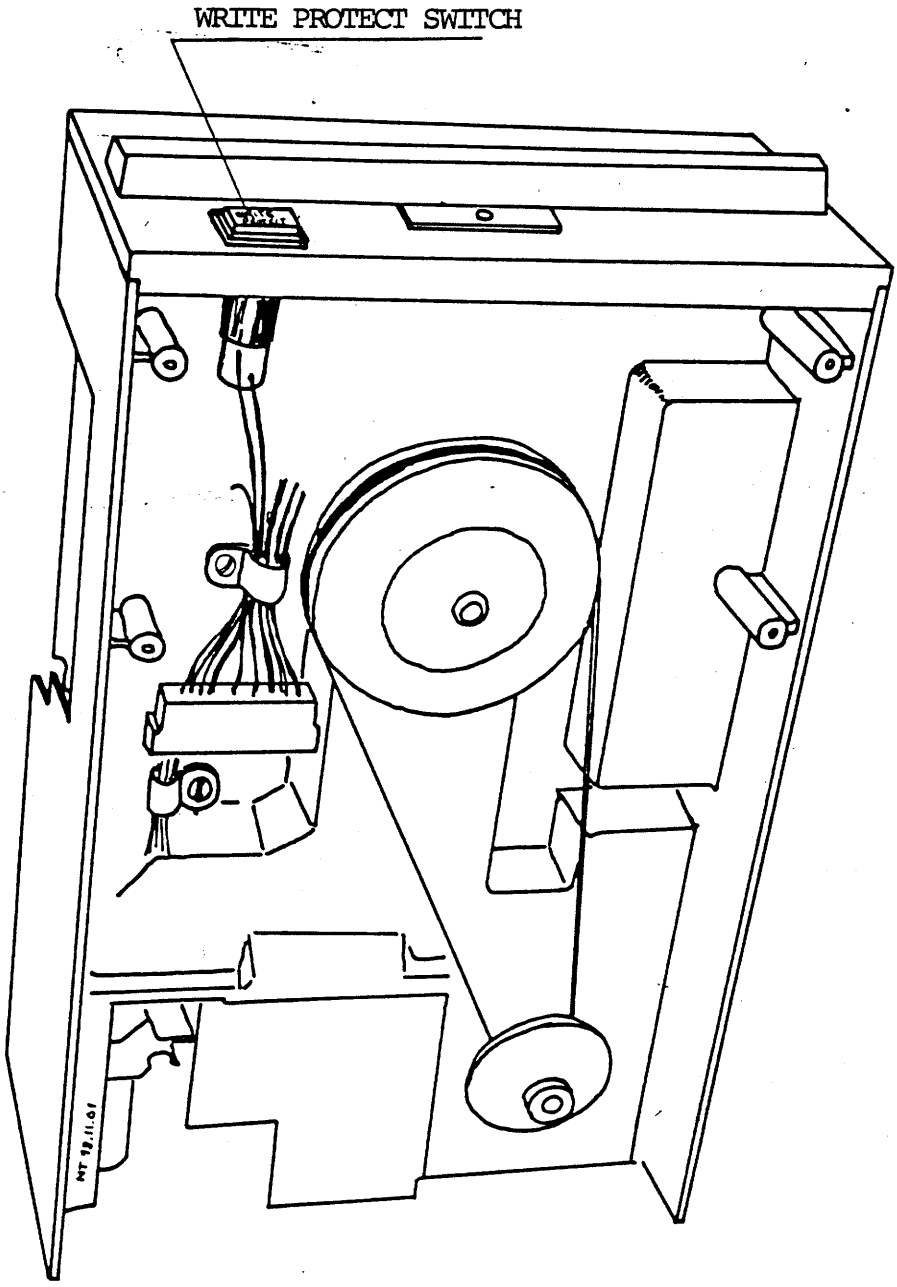


Fig. 2.2 Physical location of
Write protection switch/lamp

3. PLUG LIST.

FDD 705 - J1 Signal Edge Connector		
Signal Return	Signal	Description
1	2	-, Low Cur
3	4	NC
5	6	NC
7	8	NC
9	10	-, Two Sided
11	12	-, Disc Change
13	14	-, Side Select
15	16	NC
17	18	-, Head Load
19	20	-, Index
21	22	-, Ready
23	24	-, Motor Off
25	26	-, Drive Select
27	28	NC
29	30	NC
31	32	Motor Off (From POW 735)
33	34	-, Direction Select
35	36	-, Step
37	38	-, Write Data
39	40	-, Write Gate
41	42	-, Track 00
43	44	-, Write Protect
45	46	-, Read Data
47	48	-, Sep Data (not used)
49	50	-, Sep Clock (not used)

FDD 705 Edge Connector Signal Allocation

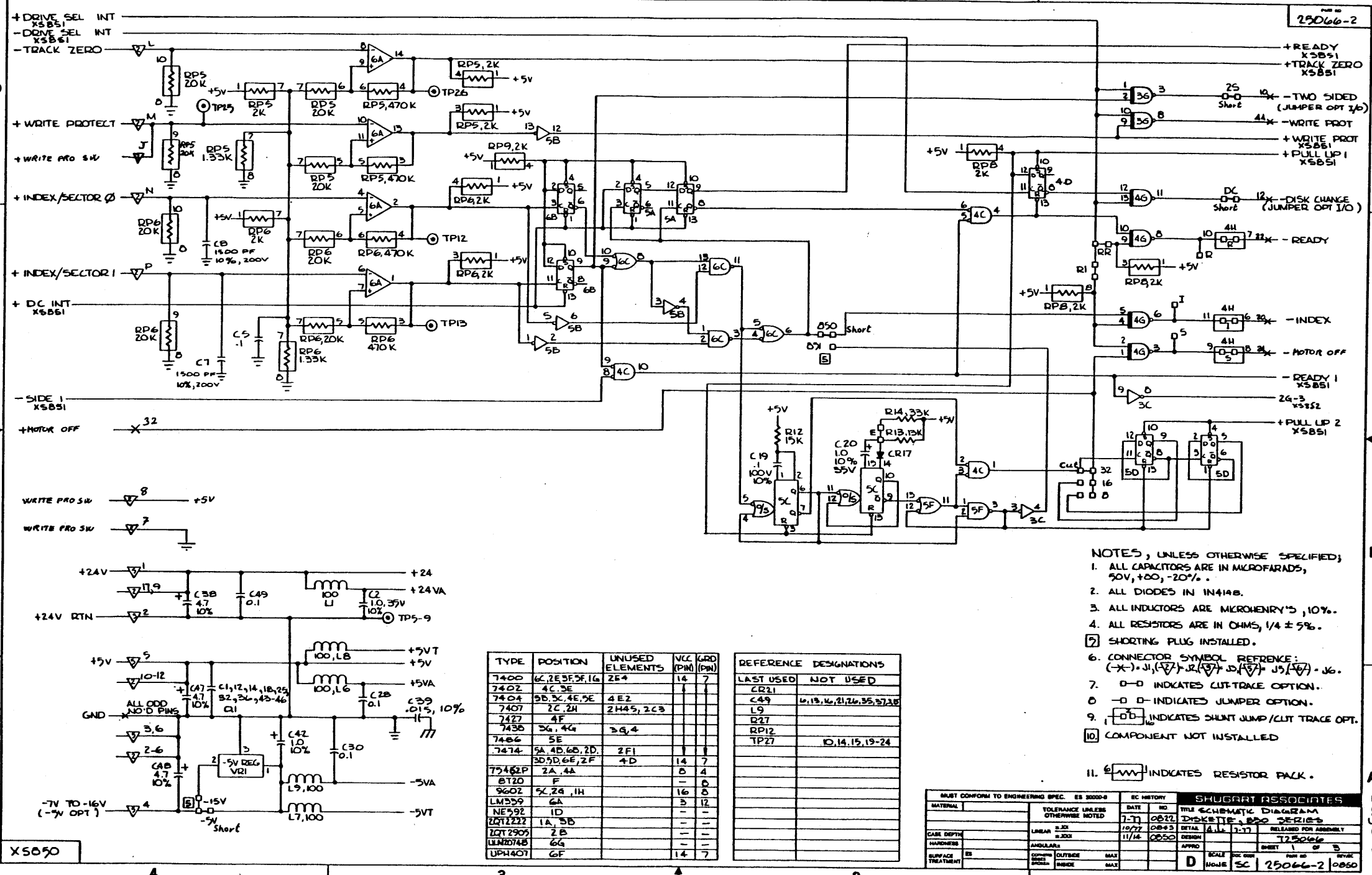
4. LOGIC DIAGRAMS. 4.

The following pages contain the logic diagram for FDD 705 flexible disc drive.

The diagrams are identical to the ones contained in the SA851 Technical Manual, except that they have been updated in accordance to the installed options and modifications.

When two drives are multiplexed on the same bus, the pull up resistors for the shared lines must be removed from one of the drivess This is carried out by replacing the terminating resistor pack in position 3H by the TRM 701. The TRM 701 contains only one pull up resistor, terminating the -, HEAD LOAD signal.

This page is intentionally left blank.



NOTES, UNLESS OTHERWISE SPECIFIED;

1. ALL CAPACITORS ARE IN MICROFARADS, 50V, +80, -20%.
2. ALL DIODES IN IN4148.
3. ALL INDUCTORS ARE MICROHENRY'S, 10%.
4. ALL RESISTORS ARE IN OHMS, 1/4 ± 5%.
5. SHORTING PLUG INSTALLED.
6. CONNECTOR SYMBOL REFRENCE: (-X-) - J1, (-V-) - J2, (-V-) - J3, (-V-) - J4, (-V-) - J5, (-V-) - J6.
7. O—O INDICATES CUT-TRACE OPTION.
8. O—O INDICATES JUMPER OPTION.
9. INDICATES SHUNT JUMP/CUT TRACE OPT.
10. COMPONENT NOT INSTALLED
11. INDICATES RESISTOR PACK.

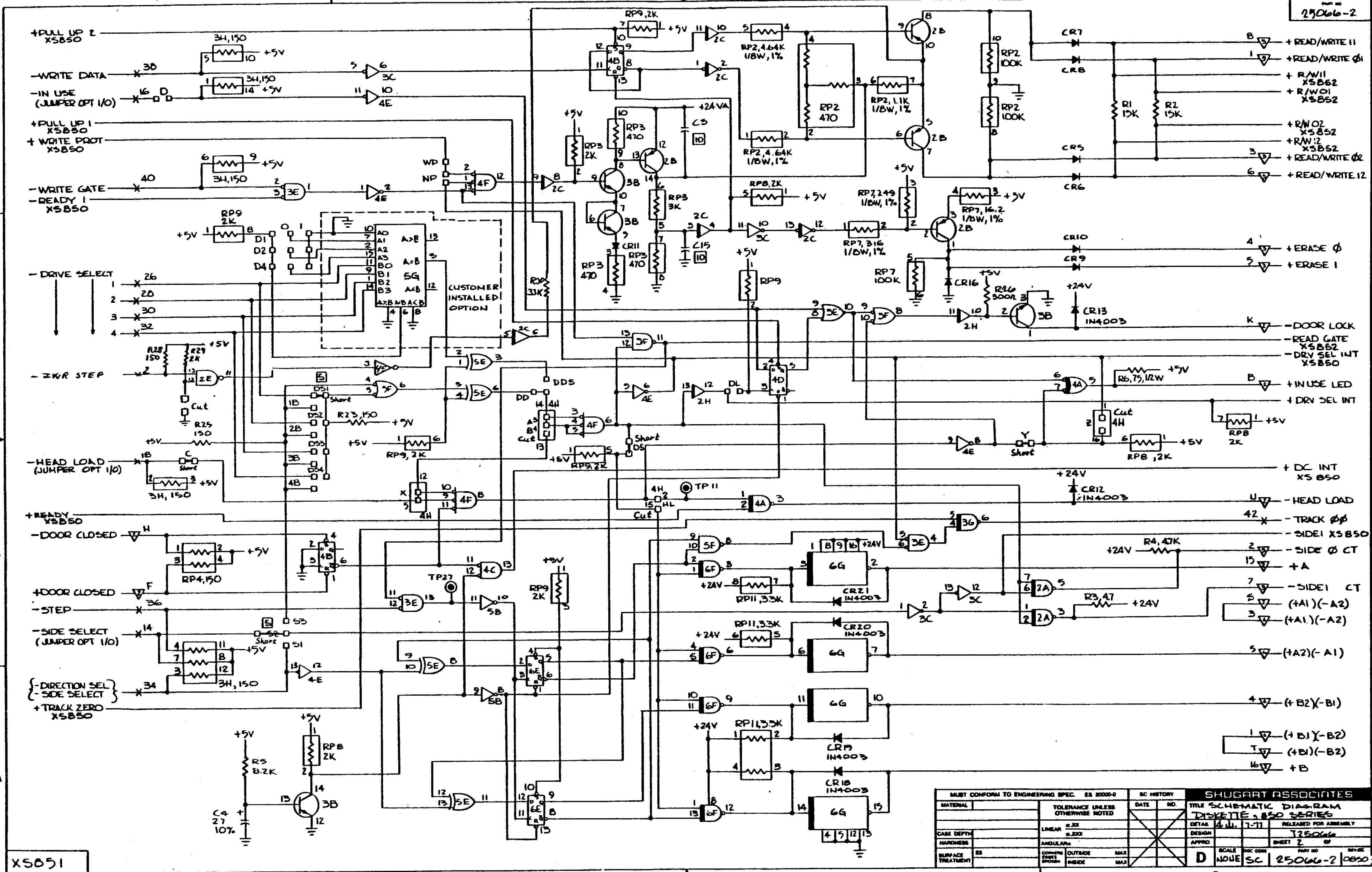
TYPE	POSITION	UNUSED ELEMENTS	VCC (PIN)	GRD (PIN)
7400	6C, 2E, 3F, 5F, 1G	2E4	14	7
7402	4C, 3E			
7404	5B, 3C, 4E, 5E	4E2		
7407	2C, 2H	2H45, 2C3		
7427	4F			
7438	3G, 4G	3G, 4		
7486	5E			
7474	5A, 4B, 6B, 2D,	2F1		
	3D, 5D, 6E, 2F	4D	14	7
75462P	2A, 4A		8	4
8T20	F		—	8
9602	5C, 2G, 1H		16	8
LM339	6A		3	12
NE592	1D		—	—
ZQT1222	1A, 5B		—	—
ZQT2905	2B		—	—
ULN2074B	6G		—	—
UPH407	6F		14	7

REFERENCE DESIGNATIONS	
LAST USED	NOT USED
CR21	
C49	6,13,16,21,26,35,37,38
L9	
R27	
RP12	
TP27	10,14,15,19-24

MUST CONFORM TO ENGINEERING SPEC. ES 20000-8		EC HISTORY		SHUGART ASSOCIATES
MATERIAL	TOLERANCE UNLESS OTHERWISE NOTED	DATE	NO.	TITLE SCHEMATIC DIAGRAM DISKETTE, 850 SERIES
	LINEAR ±.XX ±.XXX	7-77	0822	DETAIL 4 OF 5 7-77 RELEASED FOR ASSEMBLY
CASE DEPTH		10/77	0845	DESIGN T25066
HARDNESS	ANGULAR±	11/14	0850	APPRO SHEET 1 OF 5
SURFACE TREATMENT	COMPLETE EDGES BROKEN OUTSIDE MAX / INSIDE MAX			D SCALE NONE DOC CODE SC PART NO. 25066-2 REVISE 0850

XS050

This page is intentionally left blank.



MUST CONFORM TO ENGINEERING SPEC. ES 30000-0

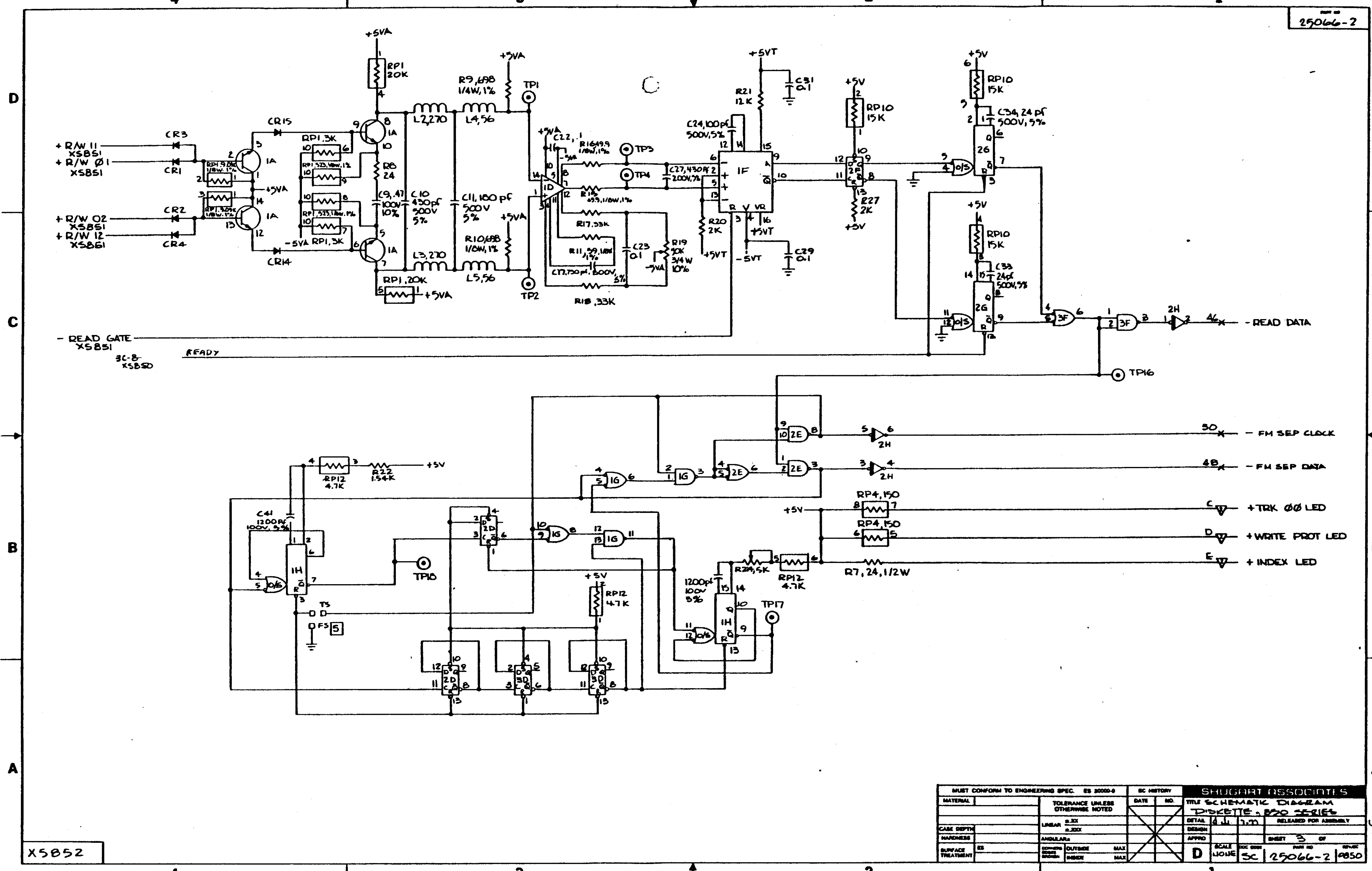
TOLERANCE UNLESS OTHERWISE NOTED

SHUGART ASSOCIATES

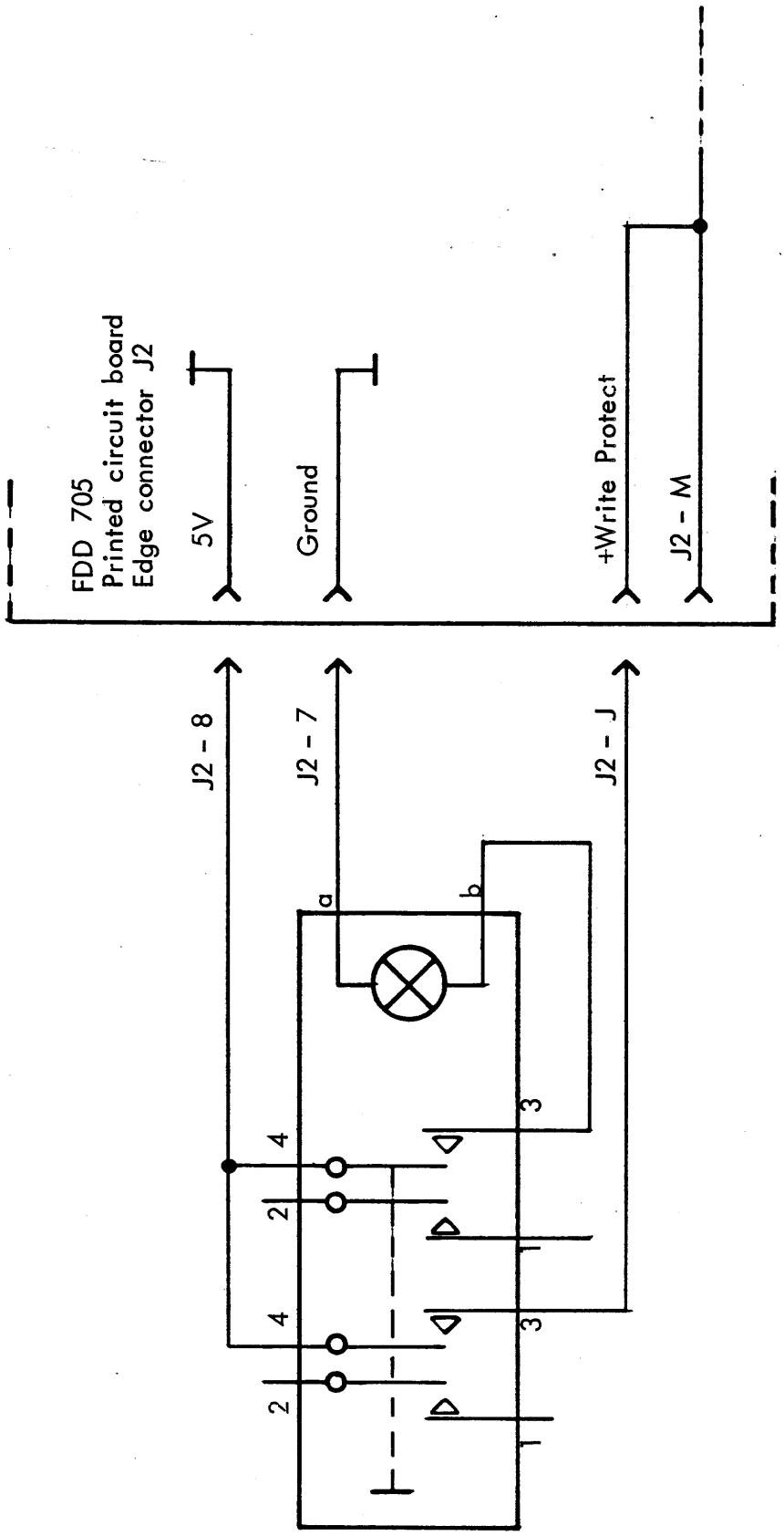
TITLE SCHEMATIC DIAGRAM DISKETTE, 850 SERIES

D | NONE | SC | 25066-2 | 0850

This page is intentionally left blank.



25066-2
+R/W 11 XS851
+R/W Ø1 XS851
+R/W 02 XS851
+R/W 12 XS861
- READ GATE XS851
3C-8- XS85D
READY
TP1
TP2
TP3
TP4
TP16
TP17
TP18
- READ DATA
- FM SEP CLOCK
- FM SEP DATA
+TRK ØØ LED
+WRITE PROT LED
+ INDEX LED
R7, 24, 1/2W
RP4, 150
RP12 4.7K
R22 1.54K
RP10 15K
C34, 24 pf 500V, 5%
C33 24pf 500V, 5%
R27 2K
R21 12K
C31 .01
C29 .01
C24, 100 pf 500V, 5%
C27, 430 pf 200V, 7%
R20 2K
R19 10K 3/4W 10%
C23 .01
R17, 33K
R18, 33K
R9, 698 1/4W, 1%
R10, 698 1/8W, 1%
L2, 270
L3, 270
L4, 56
L5, 56
C10 430pf 500V 5%
C11, 100 pf 500V 5%
C9, .47 100V 10%
R8 24
RP1 20K
RP1, 3K
CR1
CR2
CR3
CR4
CR14
CR15
C41 1200pf 100V, 5%
1200pf 100V 5%
X5852
SHUGART ASSOCIATES
TITLE SCHEMATIC DIAGRAM DISKETTE, 850 SERIES
MUST CONFORM TO ENGINEERING SPEC. ES 20000-0
TOLERANCE UNLESS OTHERWISE NOTED
RELEASED FOR ASSEMBLY
SHEET 3 OF
SCALE NONE
D
SC
25066-2
9850



Write Protection Switch/Lamp Circuit Diagram.