

\$5.75

**MAGNETIC TAPE SYSTEMS
REFERENCE DOCUMENTS
FOR ALL "A" AND "P" SYSTEMS**

SDS 901040B

April 1967

This publication supersedes SDS 901040A-1
dated August 1965, revised February 1966.

SDS

SCIENTIFIC DATA SYSTEMS • 1649 Seventeenth Street • Santa Monica, Calif. • (213) 871-0960

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INTRODUCTION

This is an updating packet for all Ampex and Potter Magnetic Tape Systems shipped.

It is to be integrated into and used in conjunction with the following documents:

1. Logic Diagrams, Magnetic Tape Control unit SDS 103257 D
2. Logic Diagrams, Magnetic Tape Unit SDS 103258 D

These two documents have been supplied as BINDER II of the respective Magnetic Tape Technical Manuals.

The "E" revision pages and Addendum sheets supplied in this package reflect the configurations of all magnetic tape systems presently in the field.

History logic configurations can be determined by the Addendum pages with the corresponding schematics affected. These Addendum pages are for reference only and are not to be used for reworking. The respective Engineering Change Order numbers are referenced to the changes.

Subsequent updating packets will be supplied to be collated by the user.

MASTER INDEX
(SDS 901040)

TITLE

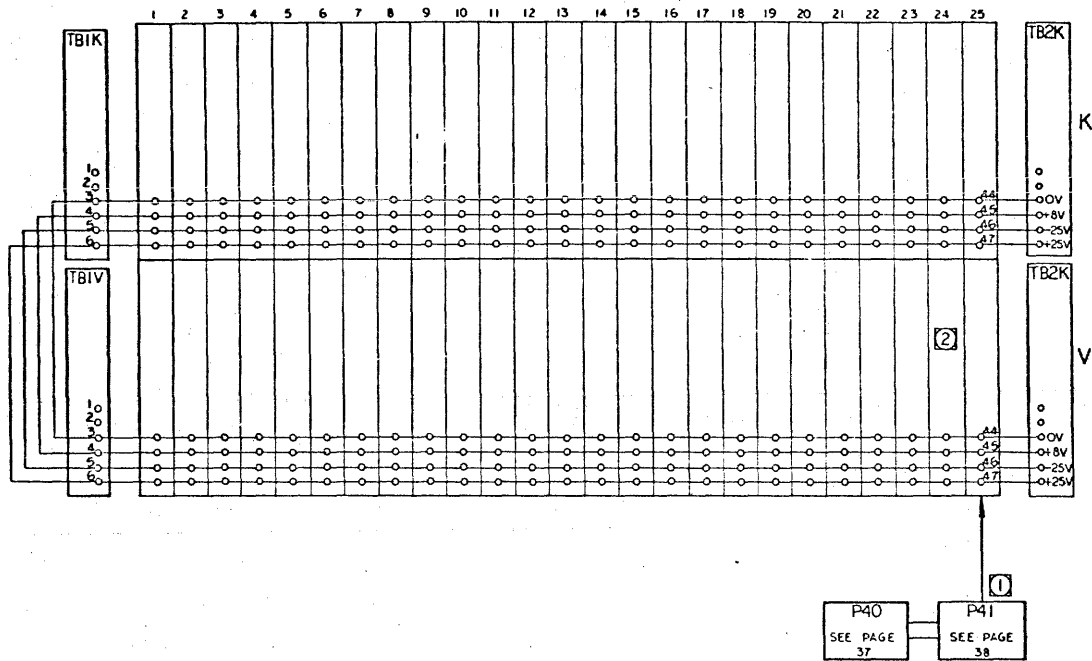
SDS NUMBER

LOGIC DIAGRAMS, MAGNETIC TAPE CONTROL UNIT	103257E
LOGIC DIAGRAMS, MAGNETIC TAPE UNIT	103258E
POWER DISTRIBUTION, SCHEMATIC	102334B
ZK51 TERMINATION MODULE	101714
ZK56 TERMINATION MODULE	103015
ZK57 TERMINATION MODULE, SCHEMATIC	103470
ZK58 TERMINATION MODULE, SCHEMATIC	103473
ZK58 MATERIAL LIST	103474
ZK67, ZK68 TERMINATION MODULES	114062
ILLUSTRATED PARTS CATALOG, SEE MODULE DATA SHEETS (SDS 900623 AND SDS 980034) TM-4 MANUAL AND MT-120 MANUAL	
SUPPLIERS CODE INDEX	900036

② RECEPTACLE J(24V) IS PROVIDED FOR P43 FROM A MODEL 9246 MAG TAPE UNIT.

NOTES UNLESS OTHERWISE SPECIFIED
 ① RECEPTACLE J(25V) IS PROVIDED FOR THE P41 TO P40 CABLE. P40 IS CONNECTED TO J(10) OF THE MODEL 910 OR 920 COMPUTER, OR J(38) OF THE MODEL 9120 Y BUFFER, OR TO J(14) OR J(64) OF THE MODEL 9126 SIGNAL COUPLER.

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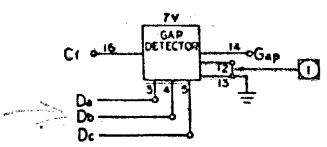
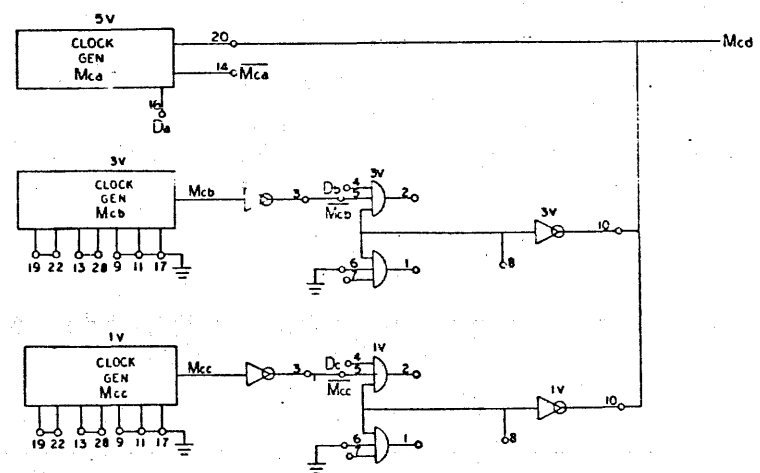


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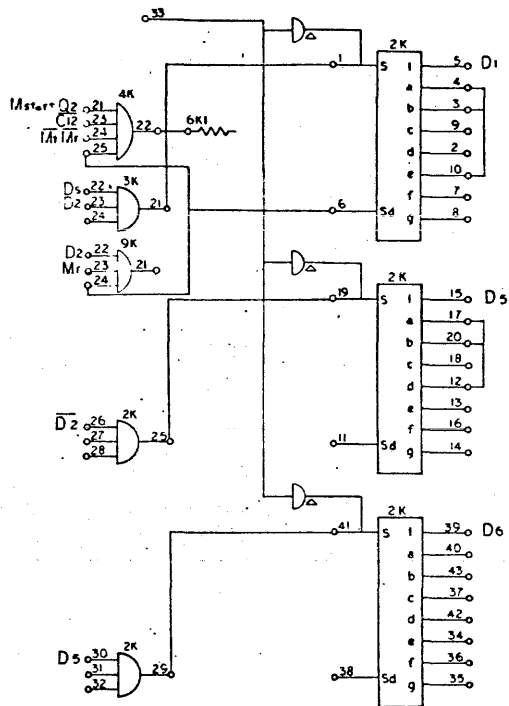
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92481	15KC 67 μ s	NOT USED	NOT USED	150	NOT USED	NOT USED
92482	15KC 67 μ s	41.7 KC 24 μ s	60KC 16.7 μ s	150	54	37
92483	24KC 41.6 μ s	65.72KC 15 μ s	96KC 10.4 μ s	95	34	23
9346	12KC 83.2 μ s	33.36KC 30 μ s	48KC 20.8 μ s	185	67	46

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92483, 9248, 92481, 92482
TAPE CONTROL
PAGE 4
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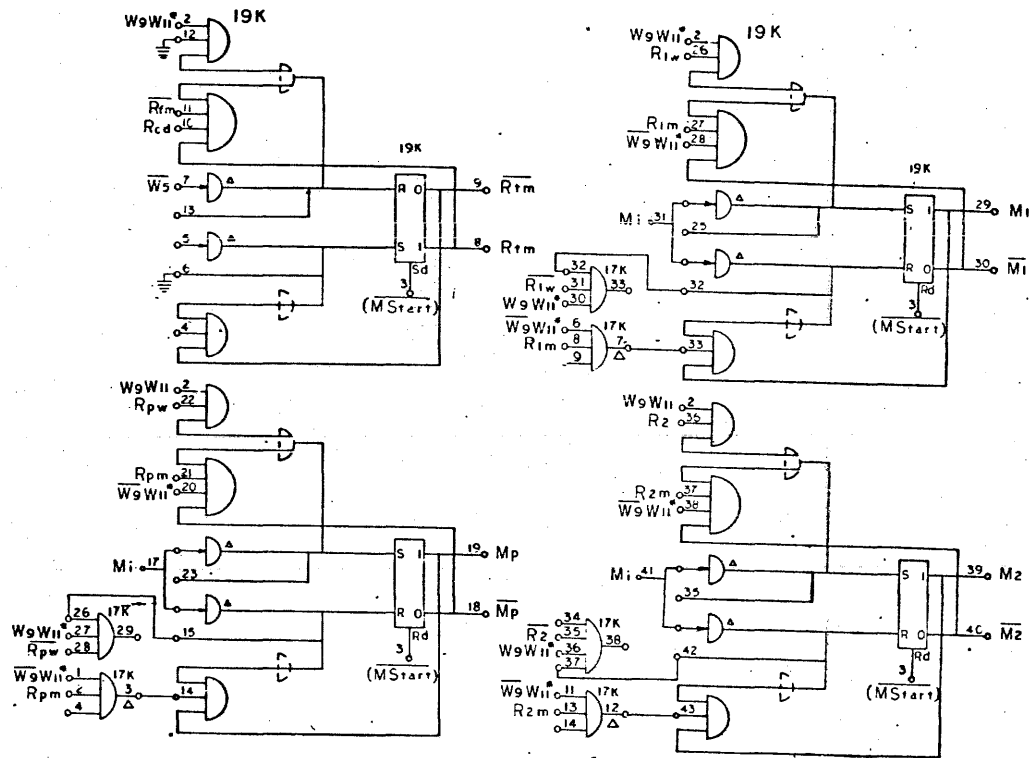
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9348	6 ms	425us	10us

9348,
92483, 9248, 92481, 92482
TAPE CONTROL
PAGE 12
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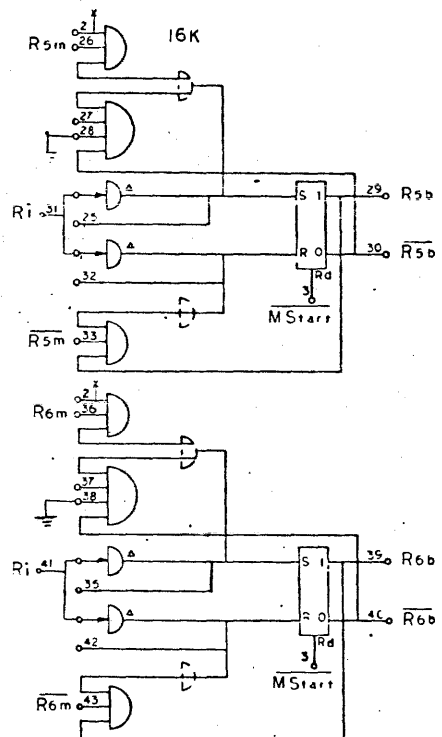
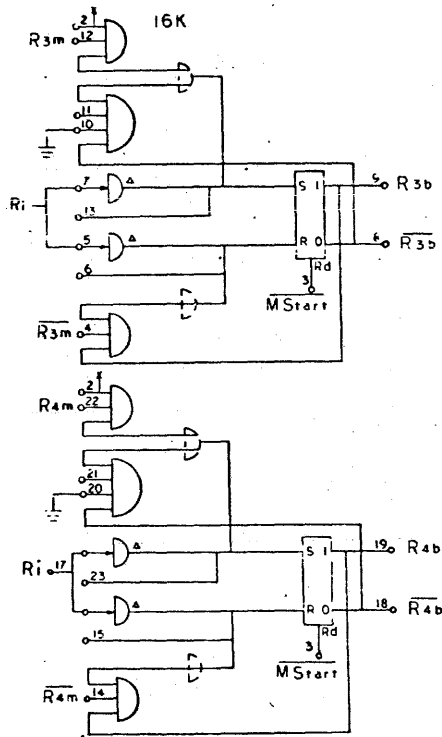


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 92483,9248,92481,92482
 TAPE CONTROL
 PAGE 14
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103257-101

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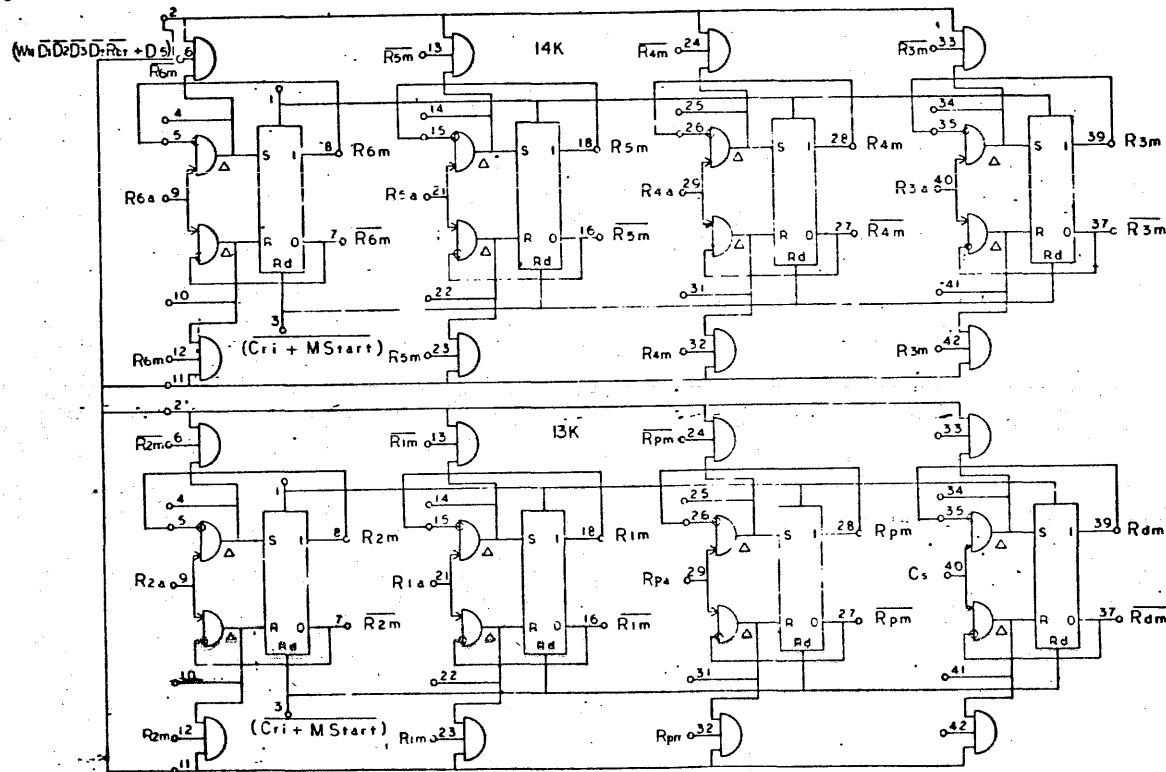
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TAPE CONTROL
PAGE 17
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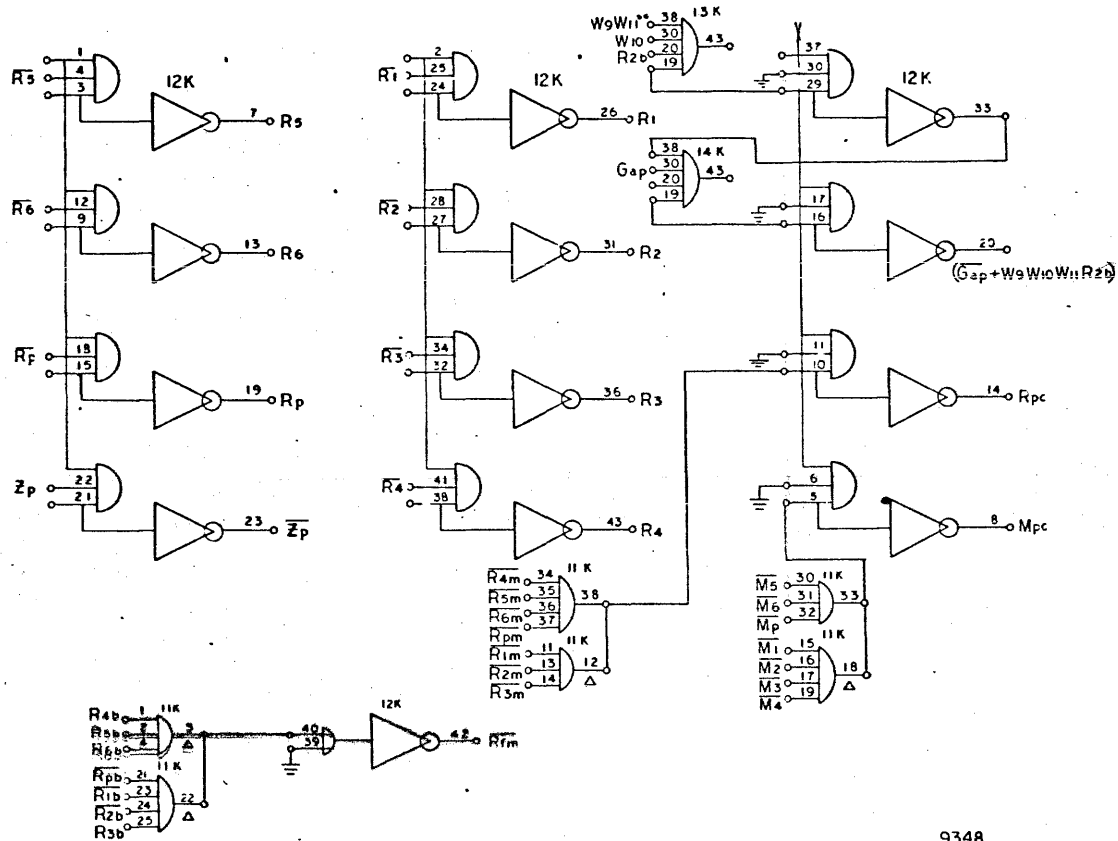


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TAPE CONTROL
PAGE 18
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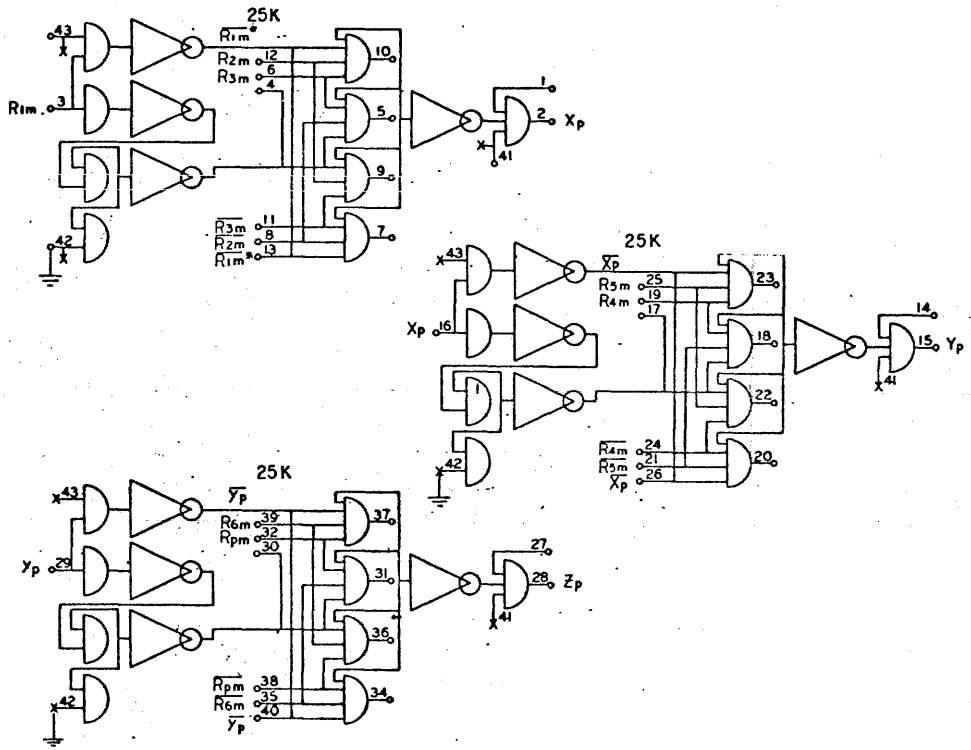


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 TAPE CONTROL
 PAGE 21
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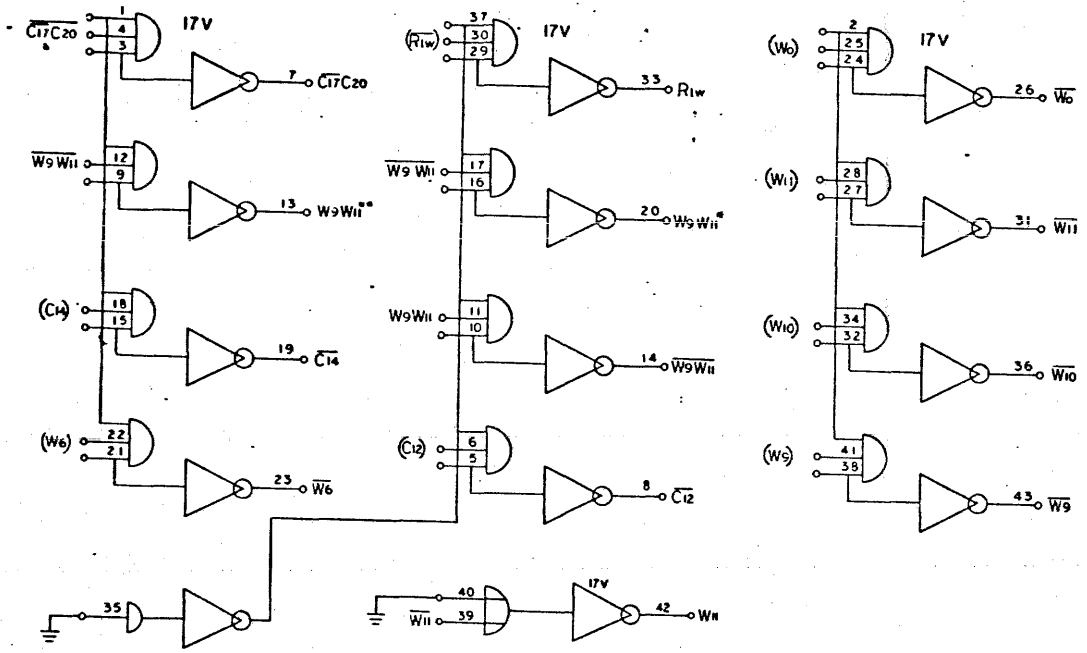


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 PAGE 23
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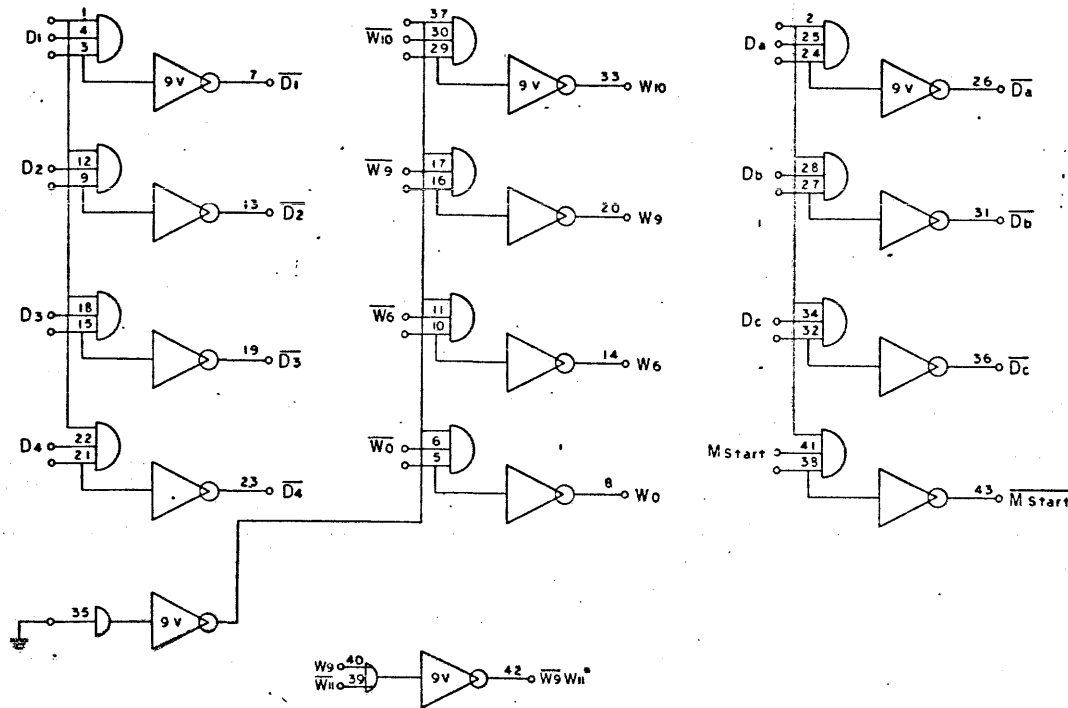


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TAPE CONTROL
PAGE 24
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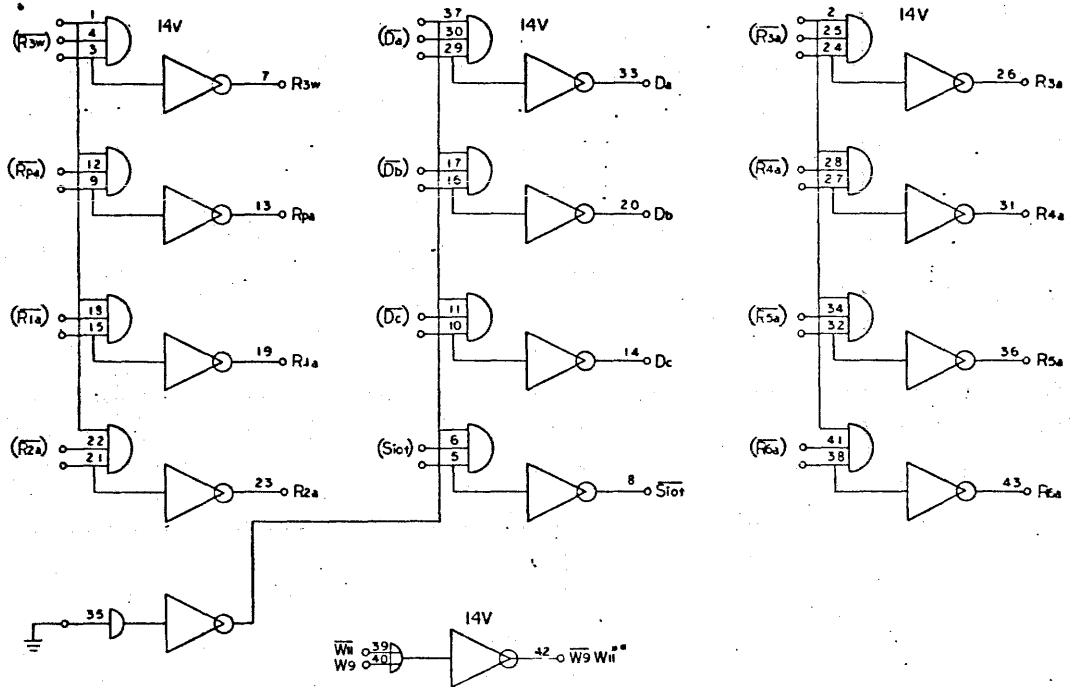


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 PAGE 25
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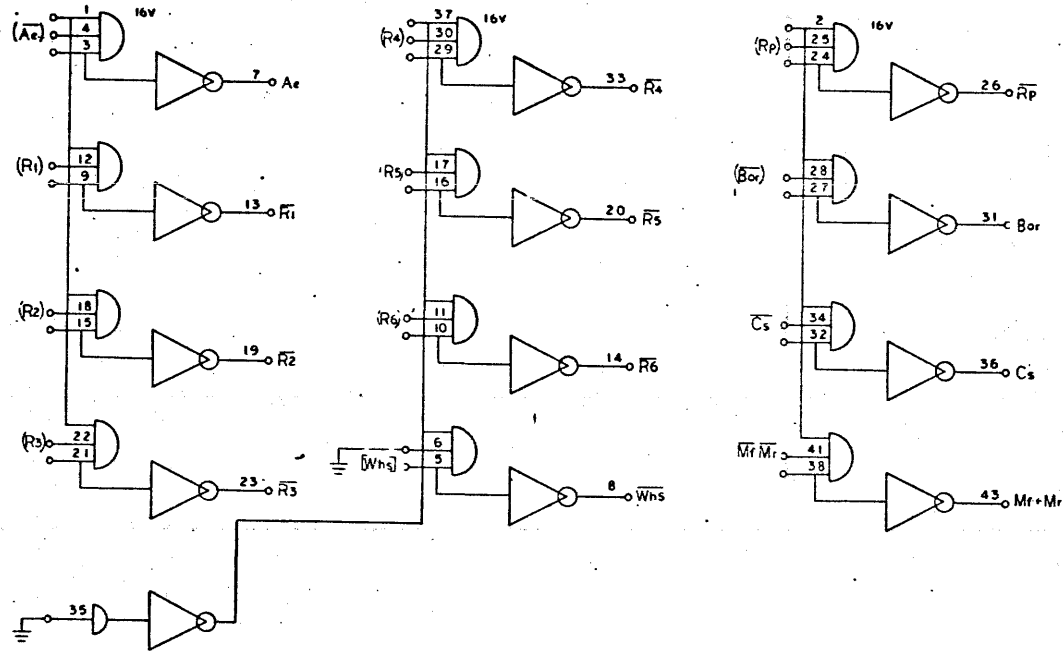


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TAPE CONTROL
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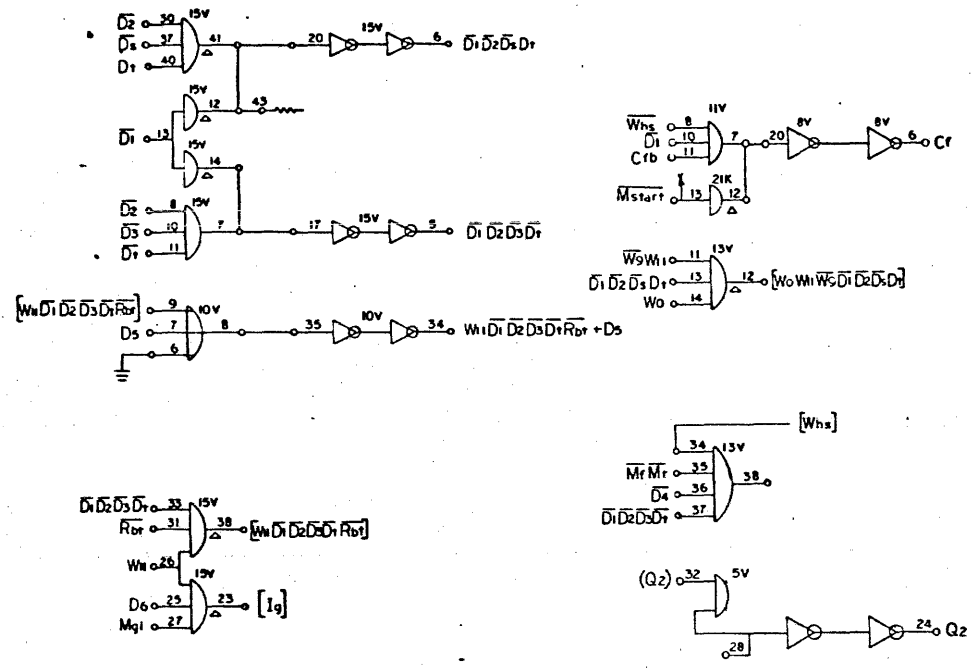


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TAPE CONTROL
PAGE 27
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REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV
NOTES AND/OR SPECIFICATIONS				
1. TOLERANCES UNLESS SPECIFIED		MATERIAL LIST		
2. DIMENSIONS UNLESS SPECIFIED		SDS SECURITY DATA SYSTEMS		
3. ALL DIMENSIONS UNLESS SPECIFIED		1445 PATENTING STREET, SANTA MONICA, CALIFORNIA		
4. CHECK DIMENSIONS		TITLE		
5. ALL DIMENSIONS UNLESS SPECIFIED		DIAGRAM, LOGIC, MAG TAPE CONTROL UNIT		
MODEL NO.	9248	REV	D	103257
HEET AMOUNT		SCALE	NO NOT SCALE DRAWING	SHEET

103257 101

REVISIONS		103257	C
REV	DESCRIPTION	CHK	DATE
A	REL. TO MFG.	T.D.	12/1/68
C	SEE REV E.O.		
D	SEE REV E.O.		



9348,
92483, 9248, 92481, 92482
TAPE CONTROL
PAGE 31
D

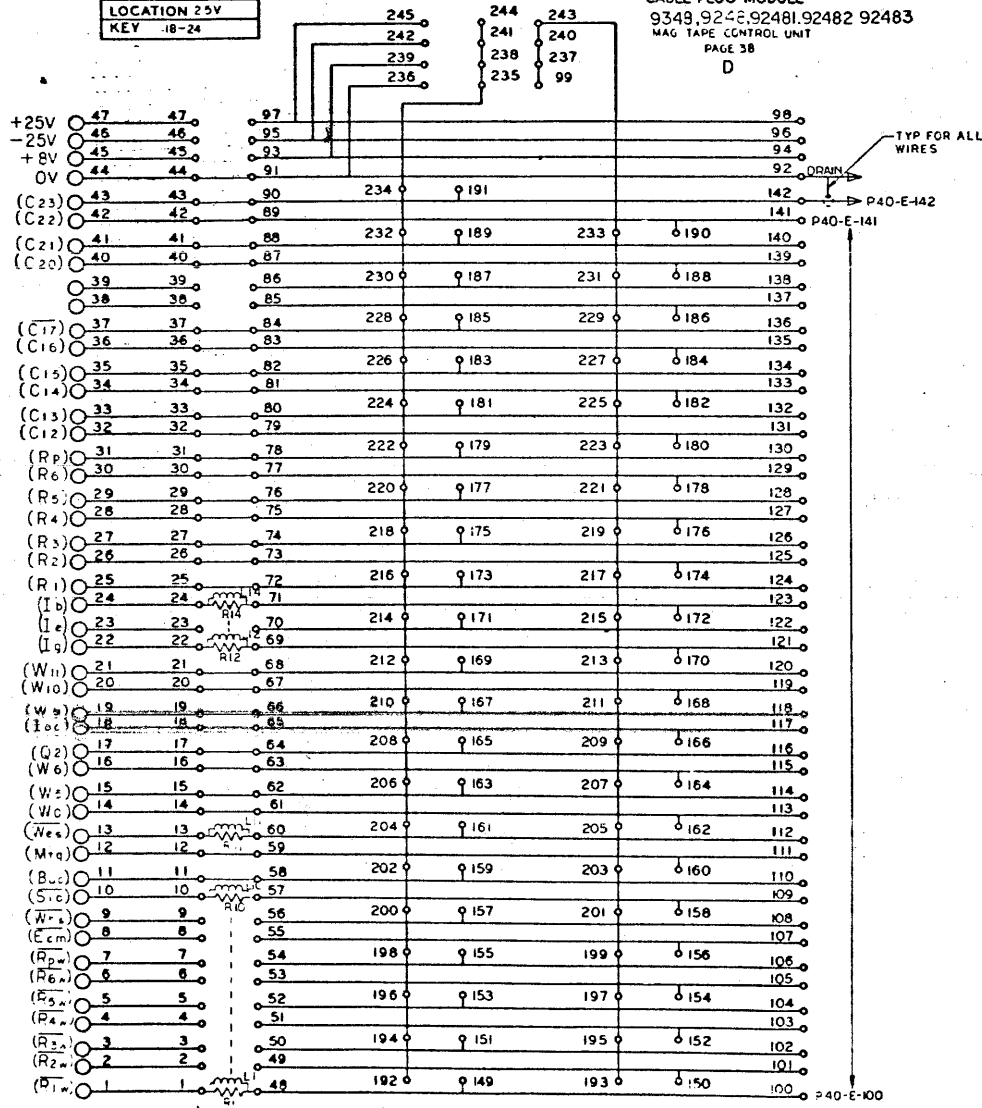
103257 101

NO.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV.
NOTES UNLESS SPECIFIED				
MATERIAL LIST				
DIAGRAM, LOGIC, MAG TAPE CONTROL UNIT				
MODEL NO.	9248		REV. NO.	D
PART APP.			NO.	103257
				C

REVISIONS		103257	D
REV	DESCRIPTION	CHK	DATE
A	REL. TO MFG.		
D	SEE REV E.O.		

DESIGNATION P41
LOCATION 25V
KEY IB-24

CABLE PLUG MODULE
9348, 9248, 92481, 92482, 92483
MAG TAPE CONTROL UNIT
PAGE 38
D



REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	DATE
		MATERIAL LIST		
NOTED UNLESS SPECIFIED		DRAWN	DATE	
1. UNLESS NOTED OTHERWISE		CHECK	DATE	
2. ALL DIMENSIONS ARE IN INCHES		APPR	DATE	
3. UNLESS NOTED OTHERWISE				
4. DIMENSIONS TO CENTER UNLESS NOTED OTHERWISE				
5. ALL DIMENSIONS TO BE SHOWN				
MODEL NO. 9248		TITLE		
NEXT AMP.		DIAGRAM, LOGIC MAG TAPE CONTROL UNIT		
		REV	DATE	
		D	103257	D
		SCALE	NO NOT SCALE DRAWING	

103257-101

REVISIONS			
REV	DESCRIPTION	CHK	DATE
A	REL TO MFG		10/15/58
B	SEE REV. E.O.		10/15/58
C	SEE REV. E.O.		10/15/58
D	SEE REV. E.O.		10/15/58
E	SEE REV. E.O.		10/15/58

PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG
1	E								
2	C								
3	C								
4	C								
5	E								
6	E								
7	E								
8	E								
9	E								
10	E								
11	E								
12	C								
13	E								
14	C								
15	D								
16	E								
17	C								
18	D								
19	D								
20	E								
21	D								
22	E								
23	D								
24	E								
25	D								
26	D								
27	D								
28	D								
29	E								
30	C								
31	D								
32	E								
33	E								
34	E								
35	E								
36	E								
37	D								
38	D								
39	E								
40	E								

REFERENCE DESIGNATIONS
ARE ABBREVIATED.
PREFIX THE DESIGNATION
WITH UNIT NUMBER
OR ASSEMBLY DESIGNATION
OR BOTH. (MIL. STD. 168)

9348,
92483,9248,92481,92482
MAG TAPE CONTROL UNIT
PAGE 1
E

NOTES:
1. REV. LETTERS LISTED INDICATE STATUS OF EACH SHEET OF THIS MULTIPLE SHEET DRAWING.
2. CHECK INDIVIDUAL SHEETS FOR REVISION LETTER AGAINST THIS SHEET BEFORE USING THIS DRAWING.

* NOT USED ON 92481.

** NOT USED ON 92481, 9248.

REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	DATE
NOTES UNLESS SPECIFIED				
1. PERMANENT	DRAWN	USA	10/15/58	
2. PERM. COPY	CHECK	10/15/58	10/15/58	
3. PERM. COPY	APPR.	10/15/58	10/15/58	
4. PERM. COPY				
5. PERM. COPY				
MATERIAL LIST				
SDB				
DIAGRAM, LOGIC MAG TAPE CONTROL UNIT				
MODEL NO.	9248		REV. NO.	103257 E
SCALE			DO NOT SCALE DRAWING	SHEET 1 OF 1

Change	Reason
<p style="text-align: center;"><u>103257A</u></p> <p>Remove Resistor R1 (47 K Ω) from location 9K from Pin 40 to Pin 47.</p> <p>Add wire from Pin 40 to Pin 43 location 9K.</p> <p>Refer to Logic page 22</p> <p>OX14 Module used for 92483 models</p>	<p style="text-align: center;"><u>EO 103140C</u></p> <p style="text-align: center;"><u>EO 103403J</u></p> <p>800 BPI Operation Cri Timing Change. 200 KΩ Resistor in OX13 is used instead of 47KΩ external. See page 22 Addendum for One Shot Timing Adjustment change.</p>
<p style="text-align: center;"><u>103257E</u></p> <p>Added resistor 220 Ω 1/2 watt part #100111-221 from Pin 10V26 to 10V44 on back of chassis.</p>	<p style="text-align: center;"><u>EO 103140D</u></p> <p style="text-align: center;"><u>EO 107512B</u></p> <p>Resistor added for Digital to stair case test point. See page 29E for logic change.</p>

Signal	Logic Pages	Signal	Logic Pages	Signal	Logic Pages	Signal	Logic Pages	Signal	Logic Pages	Signal	Logic Pages	
Ae	27 22	(C17)	37 28, 38	W11 R2b	21 10	(Mrs)	32	R5	21			
(Ae)	27	C17 C20	24 29, 30, 34, 35	(lb)	36 38	M Start	29 8A, 13, 25, 28, 20, 32	(R5)	37 27, 38			
Bor	27 9, 32	C17 C20	28 24, 30	(lb)	36	M Start	25 8, 10, 11, 15, 16, 17, 28, 31	R5	27 19, 21			
(Bor)	27	(C20)	37 28, 38	(Ie)	36 38	M Start Rbi	8 9	R6	21 15			
Buc	37 29, 38	(C21)	37 35, 38	(Ie)	36	M Start Q2	30 10, 11, 12, 34	(R6)	37 27, 38			
Cf	31 4, 5, 6, 7, 8, 10, 22	(C21)	35	Ig	28	(M Start Q2)	34	R6	27 19, 21			
Cfba	5	(C22)	37 35, 38	(Ig)	35 38	Mtg	10 11, 38	[R1 R2]	19			
Cfbb		(C22)	35	Ig	35	Mtg	10	R1a	26 4, 18, 29			
Cfbc		(C23)	37 35, 38	[Ig]	31 28	(Mtg)	36 30, 37	(R1a)	26			
Cfb	31	(C23)	35	Ioc	37 30	(Mw)	32	R2a	26 4, 18, 29			
Cfra	5	Da	26 4, 5, 25	Mc	22 8, 9, 29, 36	M1	14 33	(R2a)	26			
Cfrb		6	Da	25 5	(Mc)	36	MT	14 21	R3a	26 4, 18, 29		
Cfrc		7	(Da)	26	Mca	4	(MT)	33	(R3a)	26		
Cfr	8	Db	26 4, 6, 25	(Mca)	34	M2	14 33	R4a	26 4, 18, 29			
Cfsa	5	Db	25 6	Mca	4 34	M2	14 21	(R4a)	26			
Cfsb		6	(Db)	26	Mcb	4	(M2)	33	R5a	26 4, 18, 29		
Cfsc		7	Dc	26	Mcb	4	M3	15 33	(R5a)	26		
Cfs	28	Db	25 7	Mcc	4	M3	15 21	R6a	26 4, 18, 29			
Cr	8 5, 29	(Dc)	26	Mcc	4	(M3)	33	(R6a)	26			
Cr W5 W6	5 6, 7	Ds	13 12	Mcd	4 22	M4	15 33	R1b	16 19, 32			
Cr + Cs	8D	Ds	13 10, 16, 31	M Control	30 13, 16, 34	M4	15 21	R1b	16 19, 21			
Cr + W9 W11 Mc	8 9	Dt	13 10, 11, 30, 31	M Control	34	(M4)	33	R2b	16 19, 21, 22, 32			
Cr + Cf W9 W11	8 13	Dt	13 11, 31	[Mcr]	29 28	M5	15 33	R2b	16 19, 21			
Cri	22 28	D1	12 13, 22, 24, 32	Mcr	28 10	M5	15 21	R3b	17 19, 21			
Cri + M Start	28 18	D1	25 8, 28, 31	Me	10 19, 22	(M5)	33	R3b	17			
Cs	27 8A, 9, 18, 22	D1 D2 D3 Dt	31 16, 21, 31, 32	Me	10 19, 22	M6	15 33	R4b	17 20, 21			
Cs	28 9, 27	D1 D2 D3 Dt	31 11, 13, 29	Mf	10 11, 34	M6	15 21	R4b	17 19			
C12	28 10, 34	D2	11 12, 13, 25, 30	Mf	10	(M6)	33	R5b	17 19, 21			
(C12)	37 24, 34, 38	D2	25 12, 31	(Mf)	34	Q2	31 11, 13, 30	R5b	17			
C12	24 10, 12, 28, 29	D2 + Dt	30 36	Mf Mr	11 12, 27, 31	(Q2)	37 31	R6b	17 20, 21			
(C12)	34	D3	11 13, 25	Mf + Mr	27 11, 31	R1	21 19	R6b	17 19			
C12 C13 C15 C16	29 13, 16, 30	D3	25 31	Mgi	13 31	(R1)	37 27, 38	[R1b R2b]	19			
(C13)	37 29, 35, 38	D4	11 25	Mgi	13	R1	27 19, 21	[R2b R1b]	19			
(C13)	35	D4	25 11, 31	Mi	30 14, 15	R2	21 14, 19	R1m	18 14, 16, 23			
C14	28 10, 16, 30, 34	D5	12 13, 31, 36	Mpc	21 22	(R2)	37 27, 38	R1m	18 16, 21, 23			
(C14)	37 24, 38	D5	30A	Mp	14 33	R2	27 14, 19, 21	R1m*	23			
C14	24 10, 13, 28, 30	D6	12 22, 31	Mp	14 21	R3	21	R2m	18 14, 16, 23			
(C14)	34	(Ecm)	32 38	(Mp)	33	(R3)	37 27, 38	R2m	18 11, 21, 23			
(C15)	37 29, 35, 38	(Ecm)	37	Mr	10 11, 12, 29, 32, 34	R3	27 19, 21	R3m	18 15, 17, 23			
(C15)	35	Fb	4 9, 13	Mr	10	R4	21 15	R3m	18 17, 21, 23			
(C16)	37 29, 35, 38	Gap	4 21	(Mr)	34	(R4)	37 27, 38	R4m	18 15, 17, 23			
(C16)	35	Gap + W9 W10		(Mre)	32	R4	27 15, 19, 21	R4m	18 17, 21, 23			

SIGNAL DIRECTORY (Continued)

Signal	Logic Pages	Signal	Logic Pages	Signal	Logic Pages	Signal	Logic Pages	Signal	Logic Pages
R5m	18 15, 17, 23	Rbt	9	[Rpw]	19, 20	[W0 W9 W11 DT —		W9 W11	32 24, 33
R5m	18 17, 21, 23	Rbt	9 31	Rpw	14, 28	D2 D5 Dt]	31 29	W9 W11 Me	19
R6m	18 15, 17, 23	Rdm	18 22	(Rpw)	20 38	W0 W5 W6 W9 W11	11 16	W9 W11 Me	19
R6m	18 17, 21, 23	Rdm	18 22	Rse	9 22	W0 W5 W6 W9 W11	11	W9 W11 Me	19
R1w	24 14	Rfb	13	Rse	9	W5	28 11	(W9 W11)	32
(R1w)	24	Rfb	13 4, 5, 6, 7, 29	Rsk	29	(W5)	37 28, 38	W9 W11 Me	19
[R1w]	19, 20	Rfd	9 8, 22, 29	RtM	30	W5	28 5, 8, 9, 14, 29, 30, 32	W10	25 21, 32
R1w	14	Rfd	9	Rtm	14 29, 30	(W5 W9 W11 Rcd +		(W10)	37 24, 38
(R1w)	20 38	Rfm	21 14	Rtm	14	W9 W11 Mc Rfd)	8 9	W10	24 10, 25, 30
(R2w)	20 38	Ri	29 16, 17, 22	Rwe	20	W6	25 5, 9, 30	W11	24 29, 31
R3w	26 15	Rpa	26 4, 18, 29	Sio	28 36	(W6)	37 24, 38	(W11)	37 24, 38
[R3w]	19, 20	(Rpa)	26	(Sio)	36 37, 38	W6	24 11, 25, 32	W11	24 20, 25, 28, 32
R3w	15	Rp	21 19	[Sio]	30 28	(W6)	24 11, 25, 32	W11 D1 D2 D3 —	
(R3w)	20 26, 38	(Rp)	37 27, 38	(Siot)	26	W9	25 29	— Dt Rbt + D5	31 13, 18
(R4w)	20 38	Rp	27 19, 21	Siot	26 30	(W9)	37 24	[W11 M Start]	29
R5w	28 15	[Rp R2]	19	Wes	22 36	W9	24 10, 25, 29	W11 M Start	28 13
[R5w]	19, 20	[Rp R2]	19	(Wes)	36 37, 38	W9 W11	29 4, 5, 6, 7, 8, 14, 19, 29, 30	Xp, Xp, Yp, Yp	23
R5w	15, 28	Rpb	16 19, 22, 32	(Whs)	36 32	W9 W11*	24 14, 15, 19, 22	Zp	23 22
(R5w)	20 38	Rpb	16 19, 21, 29	[Whs]	27	W9 W11**	24 8, 9, 11, 13, 16, 21, 29, 32	Zp	22
(R6w)	20 38	[Rpb R2b]	19	Whs	27 8, 28, 31, 36	W9 W11	29 6, 7, 8, 31	(W12), (W13),	
Rbi	16 8A, 28	[Rpb R2b]	19	(Whs)	32	W9 W11*	25 14, 15, 16, 19	(W14)	37
Rbt	16 8	Rpb	21 22	W0	25 11, 28, 31	W9 W11*	25 9, 11, 13, 16, 22, 32	(Zw1) thru (Zw6)	37
Rcd	9 8, 14, 16, 22, 29, 30, 31	Rpm	18 16, 23	(W0)	37 24, 28	W9 W11**		(Zwp)	37
Rcd	9 29	Rpm	18 16, 21, 23	W0	24 13, 25				
		Rpw	28 14, 20	W0 Rbi	28 32				

27

First logic page listed is signal source

Change

Reason

103257A

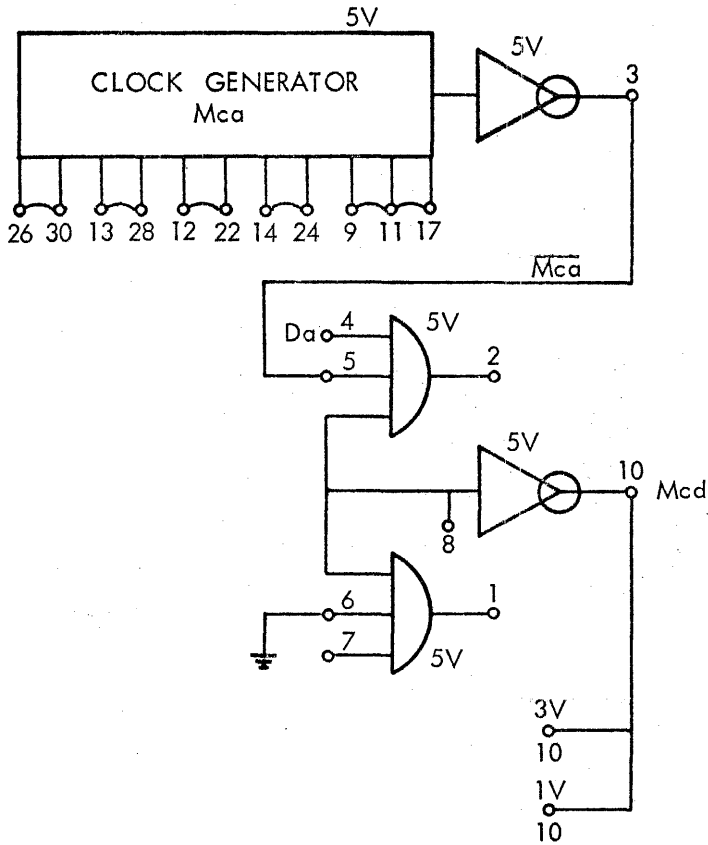
5V is CX13

EO 103403B

EO 103514B

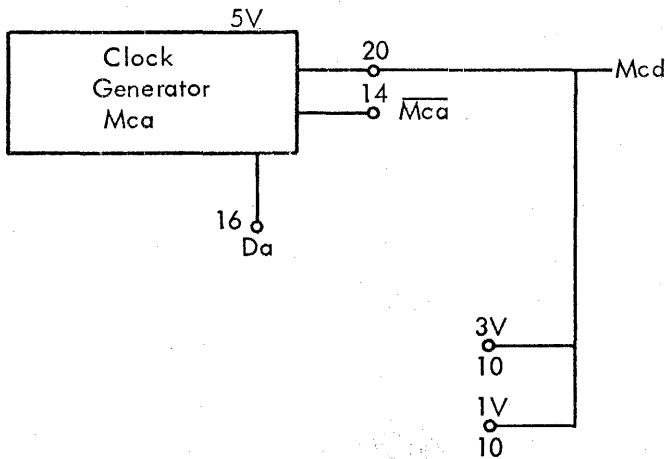
CX13 Clock Generator is not stable at 15KC. CX13 in location 5V was changed to a CK52.

9248 S/N 101 is only unit built with CX13.



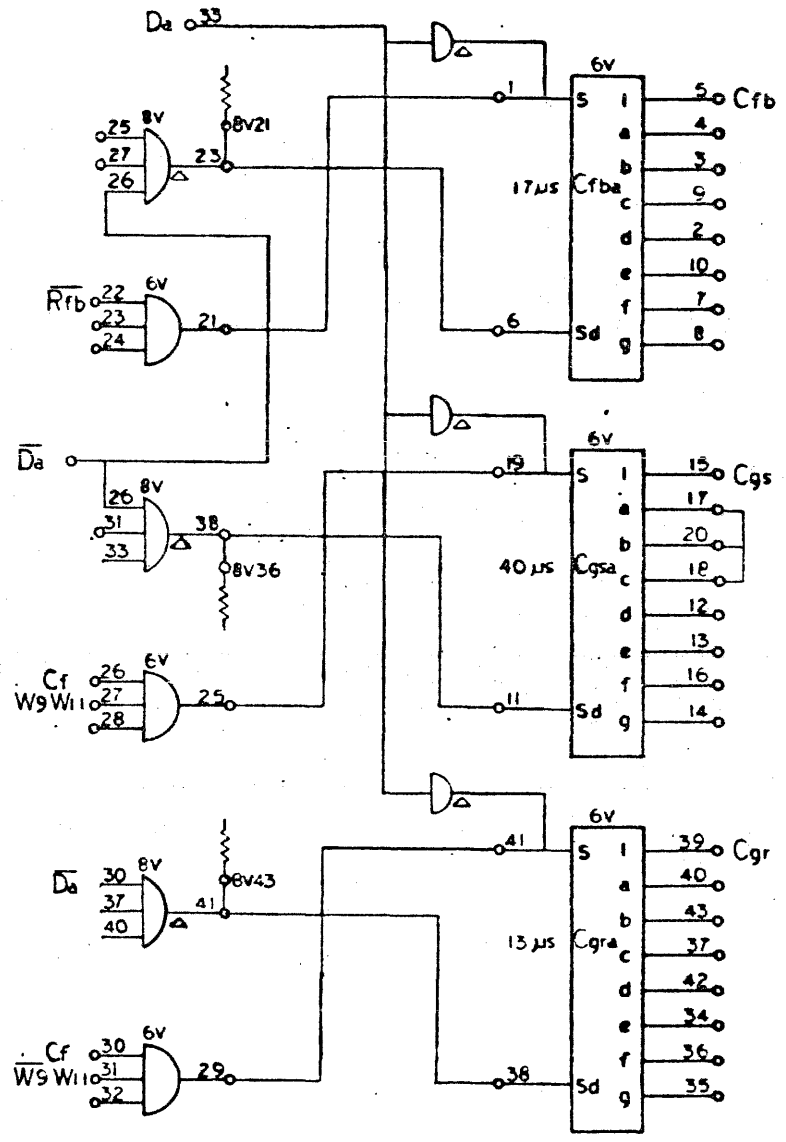
103257B

5V is CK52



Change	Reason
<p>Major logic change from A to C logic revision level. Change D adds timing chart.</p> <p>See Page 5 A and D revision.</p>	<p><u>EO 103403F</u></p> <p>In earlier systems, characters were lost when reading high density (556 Bpi) tapes without Interlace. That is reading the remaining characters in a long block when the interlace count had reached "0".</p> <p>Cr and $\overline{W5}$ W6 Q2 were setting and resetting Rcd at the same time.</p>
<p>Relocation of Cf W9 W11 Gate on D Revision to E Revision. Location 6V to 7K.</p> <p>Also added new timing adjustment chart on the E revision logic level.</p>	<p><u>EO 103403S</u> (for 92483)</p> <p><u>EO 107514H</u></p> <p>To insure compatibility between tape units at 800 Bpi operation. Change tightens the allowable write character skew.</p>

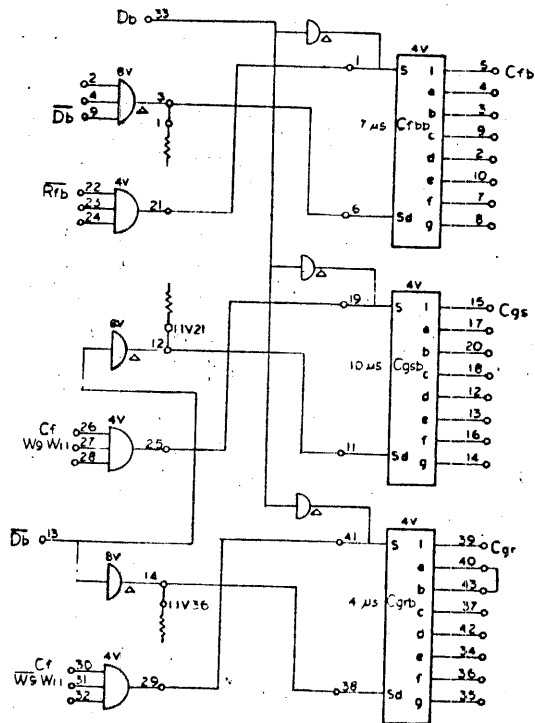
9-1



30

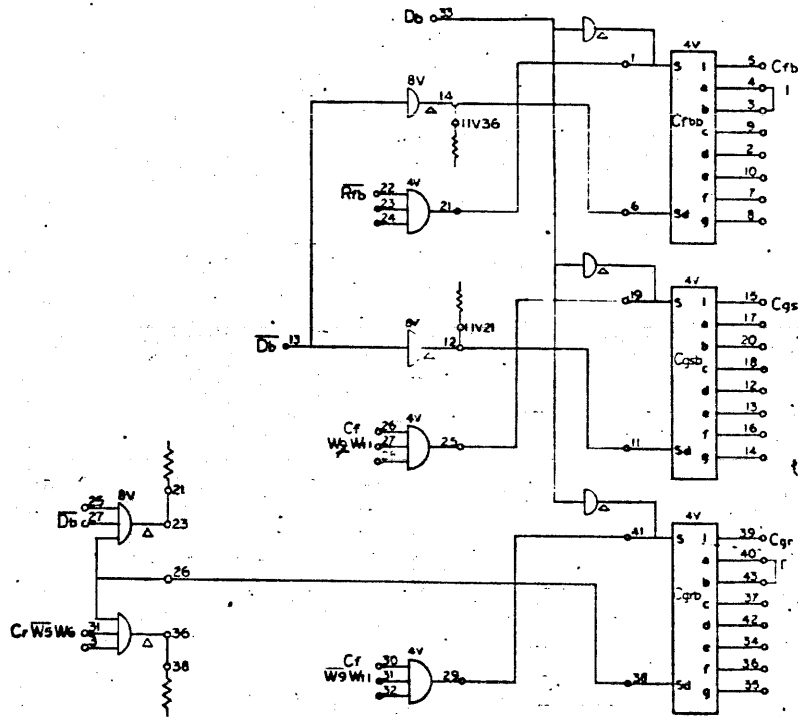
Change	Reason
<p>Major logic change from A to C logic revision. Change D adds timing chart.</p> <p>See Page 5 A & D revision.</p> <p>Added jumper between 4V4 and 4V3 on D revision to E revision.</p> <p>Deleted jumper between 4V40 and 4V43 on D revision to E revision.</p> <p>Also added new timing adjustment chart on the E revision logic level.</p>	<p><u>EO 103403F</u></p> <p>See Page 5 addendum sheet Item 1 for reason.</p> <p>EO 107514H for 92483 only allows adjustment of Cfbb to new range.</p> <p>EO 103403S for all but 92483 allows adjustment of Cgrb to new range.</p> <p>EO 103403S EO 107514H (92483 only).</p> <p>See Page 5 addendum sheet Item 2 for reason.</p>

CX-II



33

REV	DESCRIPTION	DATE	BY	CHKD
A	REL TO MFG			
C	SEE REV E O.			
D	SEE REV E O.			
E	SEE REV E O.			



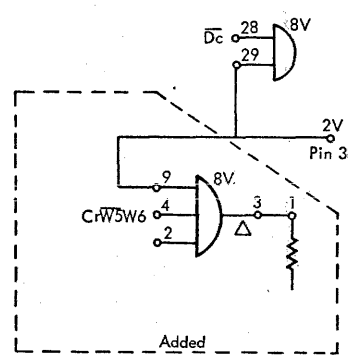
SIGNAL	12KC	15KC	24KC	33.3KC	41.7KC	66.7KC	48KC	60KC	96KC	
CHARACTER TIME	63.2us	67us	41.6us	30us	2.4us	15us	20.3us	16.7us	10.4us	
GAP DETECTOR	185us	150us	95us	67us	5.4us	3.4us	46us	37us	23us	7V14
DENSITY SPEED	200/60	200/75	200/120	555/60	555/75	555/120	800/60	800/75	800/120	
Cfb	20us	17us	11us	8us	6us	4us	5us	4us	2us	
Cfb SUM	60us	51us	32us	23us	18us	11us	15us	12us	8us	
Cgs	40us	34us	22us	16us	12us	8us	10us	8us	5us	
Cgr	425us	350us	250us	425us	350us	250us	425us	350us	250us	2K15
D1	6ms	4.7ms	3.8ms	6ms	4.7ms	3.8ms	6ms	4.7ms	3.8ms	2K5
D2	1.6ms	1.6ms	1.0ms	1.6ms	1.6ms	1.0ms	1.6ms	1.6ms	1.0ms	3K15
D3	20ms	20ms	8ms	20ms	20ms	8ms	20ms	20ms	8ms	3K39
Cf1	0.5us								0.5us	9K39
D4	14ms								14ms	3K5
D6	10us								10us	2K39

• TIMES GIVEN FOR Cgs & Cgr ARE TIMED TO FALL OF Cgs OR Cgr FROM RISE OF Cfb

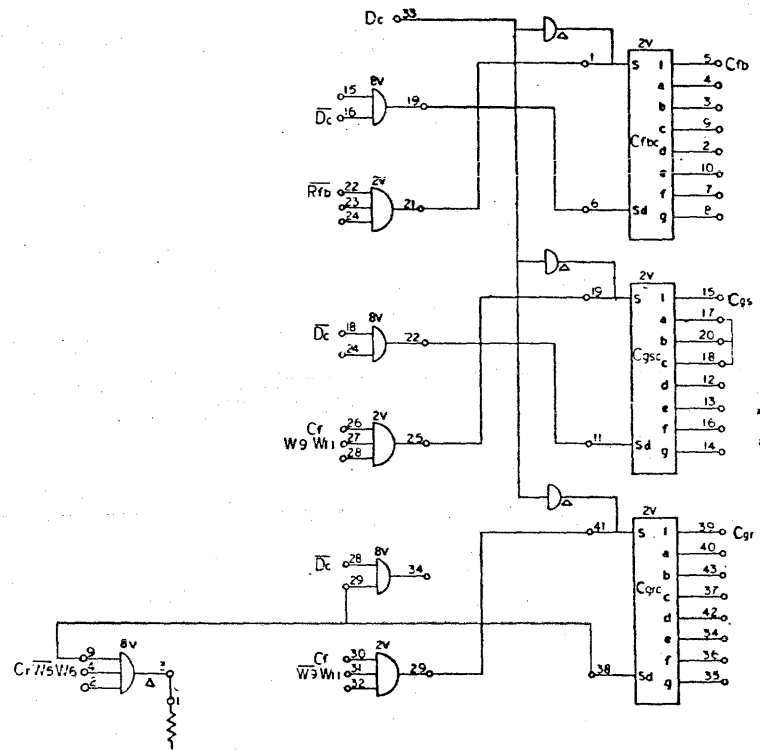
Ⓢ 92483 ONLY

9348, 9248, 92482, 92483
TAPE CONTROL
PAGE 6
E

REV	DRAWING NO.	DESCRIPTION	REFERENCE ORIGINATOR																								
MATERIAL LIST																											
<table border="1"> <thead> <tr> <th>ITEM NO.</th> <th>DESCRIPTION</th> <th>QTY</th> <th>UNIT</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>2</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>3</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>4</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>5</td> <td>...</td> <td>...</td> <td>...</td> </tr> </tbody> </table>				ITEM NO.	DESCRIPTION	QTY	UNIT	1	2	3	4	5
ITEM NO.	DESCRIPTION	QTY	UNIT																								
1																								
2																								
3																								
4																								
5																								
<p>SDS</p> <p>DIAGRAM, LOGIC, MAG TAPE CONTROL UNIT</p>																											
<p>9248</p>		<p>103257</p>																									
<p>D</p>		<p>E</p>																									

Change	Reason
<p>From A to C logic revision level added OR function to DC set input of Cgrc.</p>  <p>Added</p> <p>Added timing chart from C logic revision to D logic revision.</p> <p>From D to E revision, added jumpers between pins 17, 18 and 20 location 2V.</p> <p>Also added new timing adjustment chart on the E revision logic level.</p> <p>OX14 Module replaces OX13 Module in location 2V to meet new timing adjustment.</p> <p>Module not used in 9248 or 92481.</p>	<p><u>EO 103403F</u></p> <p>See Page 5 addendum sheet Item 1 for reason.</p> <p>Refer to Page 5D logic revision.</p> <p><u>EO 103403S</u> <u>EO 107514H</u> (92483 only)</p> <p>See Page 5 addendum sheet Item 2 for reason.</p> <p><u>EO 107536B</u> - 92482 <u>EO 107537B</u> - 92483 <u>EO 107538B</u> - 9348</p>

REV	DESCRIPTION	DATE	APPROVED
A	REL TO MFG		
C	SEE REV. E.O.		
D	SEE REV. E.O.		
E	SEE REV. E.O.		



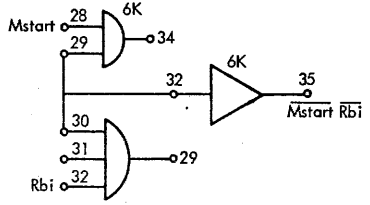
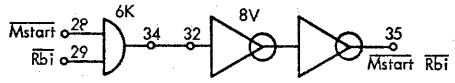
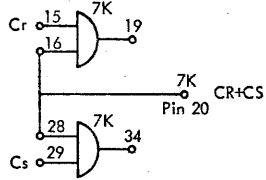
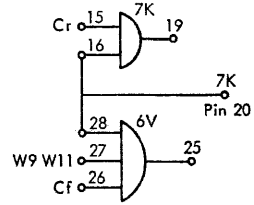
SIGNAL	12KC	15KC	24KC	33.3KC	41.7KC	66.7KC	48KC	60KC	96KC	
CHARACTER TIME	±32 us	67us	41.6us	30us	24us	15us	20.8us	16.7us	10.4us	
GAP	185us	150us	95us	67us	54us	34us	46us	37us	23us	7V14
DETECTOR										
DENSITY	200	200	200	556	556	556	500	600	800	
SPEED	75	75	120	60	75	120	60	75	120	
Cfb	20us	17us	11us	8us	6us	4us	5us	4us	2us	2K15
Cgs	60us	51us	32us	23us	19us	11us	15us	12us	8us	2K15
Cgr	40us	34us	22us	16us	12us	8us	10us	8us	5us	2K15
D5	42.5us	35.0us	25.0us	42.5us	35.0us	25.0us	42.5us	35.0us	25.0us	2K15
D1	6ms	4.7ms	2.6ms	6ms	4.7ms	3.8ms	6ms	4.7ms	3.8ms	2K5
D2	1.6ms	1.6ms	1.0ms	1.6ms	1.6ms	1.0ms	1.6ms	1.6ms	1.0ms	3K15
D3	2.0ms	2.0ms	8ms	2.0ms	2.0ms	8ms	2.0ms	2.0ms	8ms	3K39
Cri	0.5us								0.5us	9K39
D4	14ms								14ms	3K5
D6	10us								10us	2K39

■ TIMES GIVEN FOR Cgs & Cgr ARE TIMED TO FALL OF Cgs OR Cgr FROM RISE OF Cfb

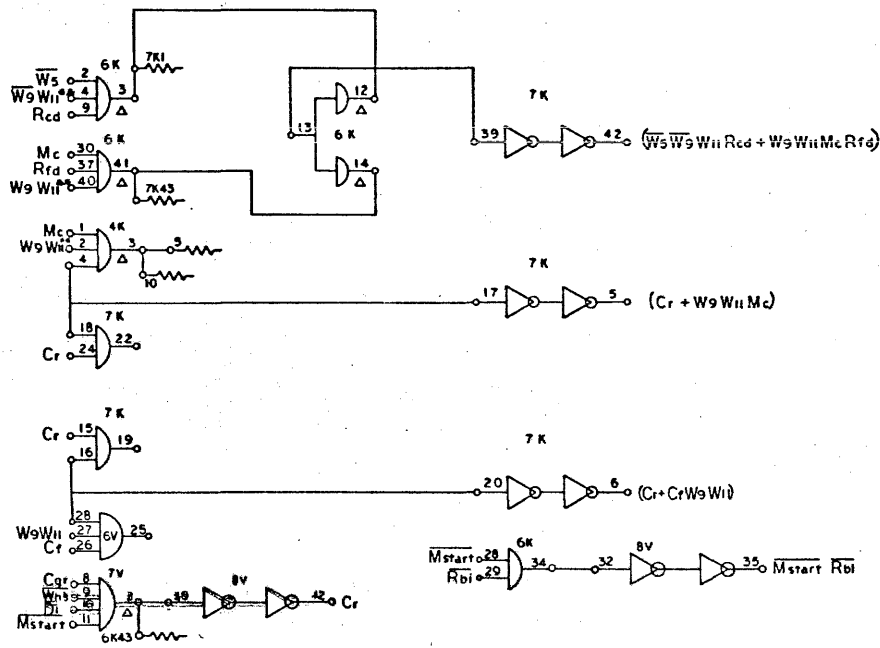
9348,
92482,92483
TAPE CONTROL
PAGE 7
E

NO. REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	DATE
NOTES UNLESS SPECIFIED		MATERIAL LIST		
1. UNLESS OTHERWISE SPECIFIED	2. DIMENSIONS ARE IN INCHES	SDS SCIENTIFIC DATA SYSTEMS		
3. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED	4. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED	TITLE		
5. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED	6. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED	DIAGRAM, LOGIC, MAG TAPE CONTROL UNIT		
MODEL NO.	9248	DATE	103257	E
DRAWN BY		CHECKED BY		
APPROVED BY		SCALE	50% (SCALE DRAWING)	SHEET 7

103257 1E1

Change	Reason
<p style="text-align: center;"><u>103257A</u></p>  <p style="text-align: center;"><u>103257C</u></p> 	<p style="text-align: center;"><u>EO 103403F</u></p> <p>See page 5 Addendum Sheet Item 1 for reason.</p>
<p style="text-align: center;"><u>103257C</u></p>  <p style="text-align: center;"><u>103257E</u></p> 	<p style="text-align: center;"><u>EO 103403S</u></p> <p style="text-align: center;"><u>EO 107514H</u></p> <p>See page 5 Addendum Sheet Item 2 for reason</p>

REV		DESCRIPTION	CHK	DATE	APPROVED
A		REL TO MFG			
C		SEE REV. E.O.			
D		SEE REV E.O.			
F		SEE REV E.O.			

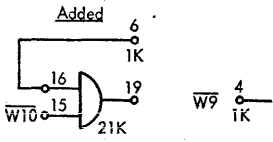


9348,
92483,9248,92481,92482
TAPE CONTROL
PAGE 8
E

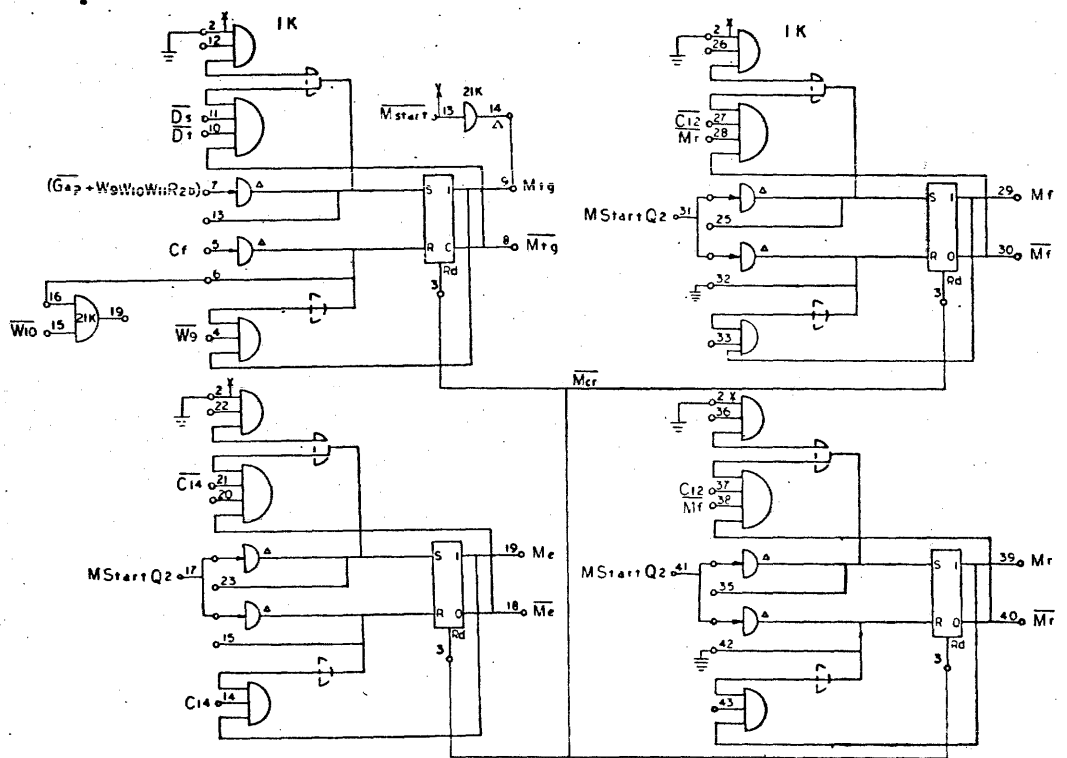
103257 | E

NO.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV.
MATERIAL LIST				
NOTED UNLESS SPECIFIED		DESIGN	SDS	
1. MATERIALS	2. DIMENSIONS	3. FINISH	SDS	
4. WEIGHTS	5. TOLERANCES	6. SURFACE FINISH	SDS	
7. MARKING	8. PACKAGING	9. STORAGE	SDS	
DIAGRAM, LOGIC, MAG TAPE CONTROL UNIT				
MODEL NO.	9248	REV.	D	DATE
REV. NO.		DATE	103257	E
REV. AUTH.		SCALE	DO NOT SCALE DRAWING	SHEET 2 OF 2

Change	Reason
<p>No logic changes made from A revision thru D revision.</p> <p>From D revision to E revision changed clock input signal to Rse flip-flop from Rsk to Fb.</p>	<p>EO 103403S EO 107514H (92483 only).</p> <p>See Page 5 addendum sheet Item 2 for reason.</p>

Change	Reason
<p>No logic changes made from A thru D revision.</p> <p>On E revision added $\overline{W10}$ or $\overline{W9}$ input to reset Mtg flip-flop.</p> 	<p><u>EO 103403M</u> <u>EO 107514D</u> (92483 only).</p> <p>To correct logic timing error in erase reverse operation.</p>

REV	DESCRIPTION	DATE	BY
1	REV. TO AFG		
2	SEE REV E D		
3	SEE REV E D		
4	SEE REV E D		
5	SEE REV E D		



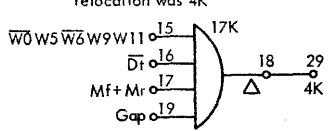
9348,
92483,9248,92481,92482
TAPE CONTROL
PAGE 10
E

REV	DESCRIPTION	DATE	BY
1	REV. TO AFG		
2	SEE REV E D		
3	SEE REV E D		
4	SEE REV E D		
5	SEE REV E D		

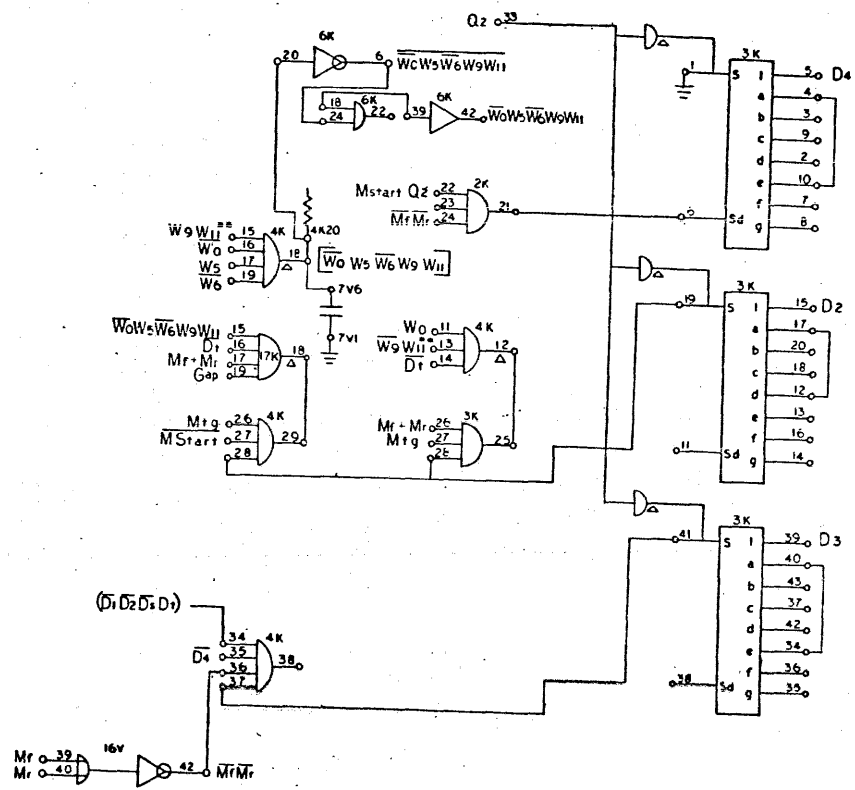
NOTES UNLESS SPECIFIED	DRAWN	DATE	SCALE
1. TOLERANCES ALL .010 DIMENSIONS UNLESS OTHERWISE SPECIFIED	CHETA	7-1-63	1:1
2. UNLESS ALL SHOWN LEADS ARE CONNECTED	APPR	7-1-63	7
3. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED			

MODEL NO	9248	REV. NO	D	103257	E
SCALE	NO NET SCALE SHOWN	SHEET	D.E.I.		

103257 1E1

Change	Reason
<p>From A to D logic change switched input to D4 onshot from auxiliary input (pin 1) to D.C. set input (pin 6). Added ground to pin 1 location 3K.</p> <p>From A to D logic change eliminated OR function to auxiliary set of D3 one-shot for model 92483 Also added timing chart for one shot settings.</p> <p>Refer to D Logic revision.</p>	<p><u>EO 103403E</u></p> <p>To trigger D4 on leading edge of M start Q2 avoiding timing race condition.</p> <p><u>EO 107514A</u></p> <p>Effective with first release and shipment of 92483 model Nos.</p>
<p>From D to E logic change.</p> <p>(A) Changed timing adjustment chart for D3 one shot.</p> <p>(B) Removed time select connection to 3K Pin 43 D3 one-shot.</p> <p>(C) Removed $\overline{W9}$ $\overline{W11}$ $\overline{W0}$ and gate circuitry OR function circuit from setting D3 and deleted note 1.</p> <p>(D) Relocated AND gate to location 17K to pick up Gap.</p>	<p><u>EO 103403R</u> <u>EO 107514C</u> (92483 only).</p> <p>On reverse erase, unit is stopping prematurely and leaving previously written information. This change keeps unit erasing until read head sees Gap and buffer clocking is finished.</p> <p><u>EO 103403P</u></p> <p>Not listed on left from D to E logic level, deletes circuitry covered by note (1) and transfers circuitry to Page 13.</p>
<p>relocation was 4K</p>  <p>The diagram shows an AND gate with four inputs labeled $\overline{W0}$, $\overline{W5}$, $\overline{W6}$, and $\overline{W9}$ corresponding to pins 15, 16, 17, and 19 respectively. The output of the gate is pin 18, which is connected to a 4K resistor and a triangle symbol. Pin 17 is also connected to a 17K resistor. Pin 29 is also connected to a 4K resistor.</p>	

REV	DESCRIPTION	DATE	BY
A	REL TO MFG		
D	SEE REV E.O.		
E	SEE REV E.O.		



ONE SHOT SETTING

MODEL	D4	D2	D3
9248	14ms	1.6ms	20ms
92481			20ms
92482		1.6ms	1 ^A
92483		1.0ms	8ms
9348	14ms	1.6ms	20ms

^{1A} 92482A-20ms
92482P-8ms

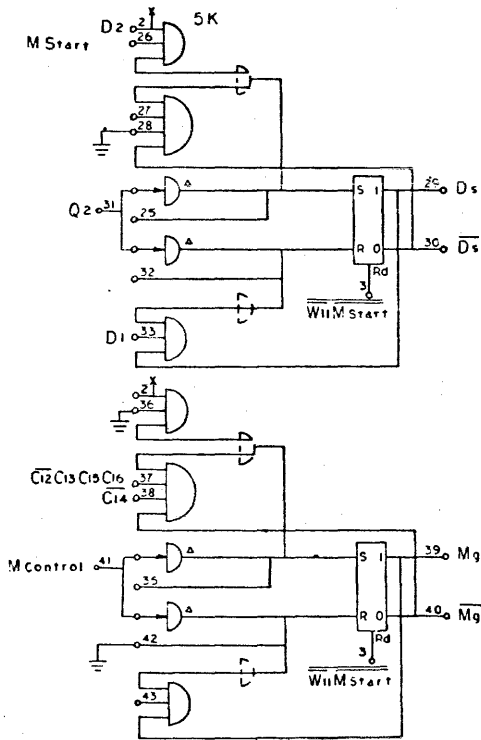
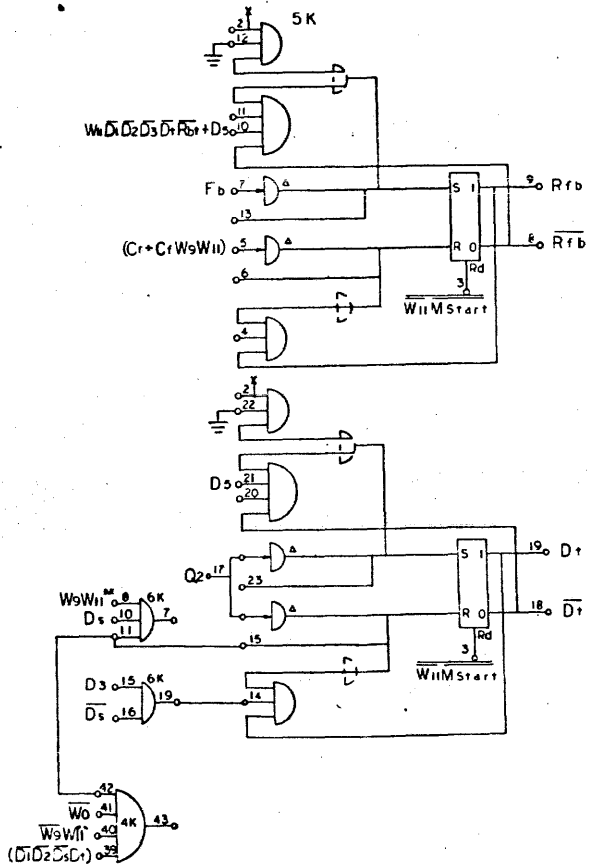
9348,
92483,9248,92481,92482
TAPE CONTROL
PAGE 11
E

103257 1E1

NO. REV.	DRAWING NO.	DESCRIPTION	REFERENCE ORIENTATION	REV.
NOTES UNLESS SPECIFIED				
1. TOLERANCES		MATERIAL LIST		
ALL DIMENSIONS		SDS DESIGN DATA SYSTEM		
2. UNLESS OTHERWISE SPECIFIED		DATE: 11/11/63		
3. ALL DIMENSIONS ARE IN INCHES		TITLE: DIAGRAM, LOGIC, MAG. TAPE CONTROL UNIT		
4. ALL DIMENSIONS ARE IN MILLIMETERS		MODEL NO: 9248		
5. ALL DIMENSIONS ARE IN MILLIMETERS		REV: D		
6. ALL DIMENSIONS ARE IN MILLIMETERS		DWG NO: 103257		
7. ALL DIMENSIONS ARE IN MILLIMETERS		REV: E		
8. ALL DIMENSIONS ARE IN MILLIMETERS		SCALE: 1/8" = 1" (SEE DRAWING)		
9. ALL DIMENSIONS ARE IN MILLIMETERS		SHEET: 11 OF 11		

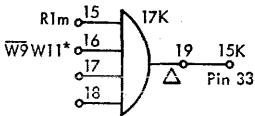
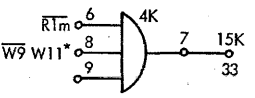
Change	Reason
<p>From A to C logic revision removed $\overline{W10}$ to Pin 15 location 21K. Reset term Dt flip-flop.</p>	<p>EO 103403E To trigger D4 or leading edge of M start Q2 avoiding timing race condition.</p>
<p>From C to D logic revision added additional OR function to reset term of Dt flip-flop for 92483 models only.</p>	<p>EO 107514A Effective with release and shipment of first 92483 model Nos. See D revision logic.</p>
<p>From D to E revision logic deleted 21K Pins 15, 16 & 19 and added W9 W11 term to 6K Pin 8.</p>	<p>EO 103403M Relocation of components only, no logical change.</p>
<p>Adds circuitry covered by note (11) D revision logic to all model Nos. on E revision.</p>	<p>EO 103043P Relocated from logic revision level D Page 11 for all models. To overcome tape creep problems.</p>

REV	DESCRIPTION	DATE	APPROVED
A	REL TO MFG		
C	SEE REV E		
D	SEE REV E		
E	SEE REV E		

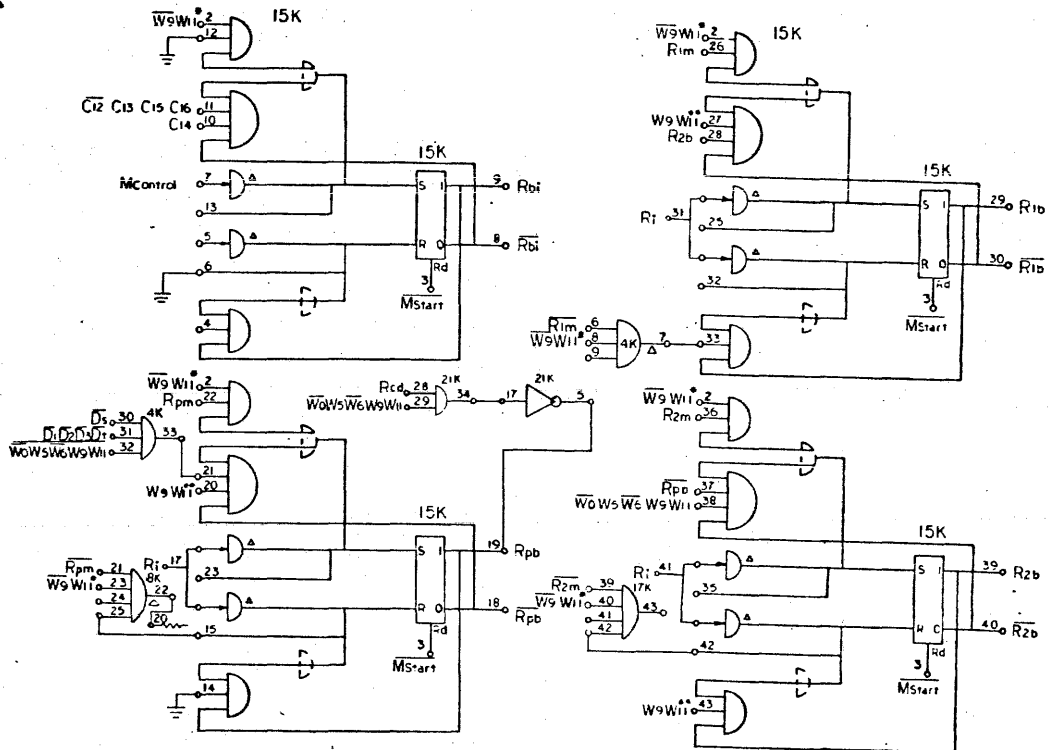


9348,
92483, 9248, 92481, 92482
TAPE CONTROL
PAGE 13
E

REV	DRAWING NO	DESCRIPTION	DATE	APPROVED
NOTES UNLESS SPECIFIED				
1	DESIGNED	DATE		
2	CHECKED	DATE		
3	APPROVED	DATE		
<p>SDS</p> <p>DIAGRAM, LOGIC, MAG TAPE CONTROL UNIT</p>				
MODEL NO	9248	REV	D	103257
NEXT ASSY		SCALE		E

Change	Reason
<p>From A through D revision level of logic, no changes.</p> <p>From D to E revision level of logic:</p> <p><u>103257D</u></p>  <p><u>103257E</u></p> 	<p><u>EO 103403R</u> <u>EO 107514G</u> (92483 only)</p> <p>Rearrangement of components to pick up extra diode. No logic change.</p> <p>Part of reverse erase problem leaving previously written information.</p>

REV.	DESCRIPTION	DATE	BY
A	REV. TO VFC	7/27/68	...
D	SEE REV E.O.	7/27/68	...
E	SEE REV E.O.	7/27/68	...



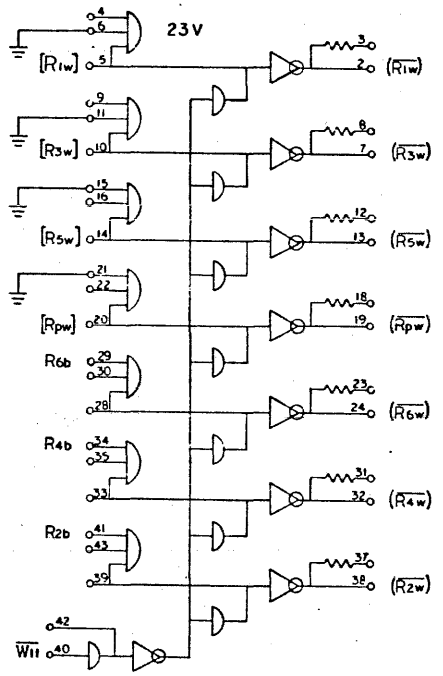
9348
 92483,92486,92481,92482
 TAPE CONTROL
 PAGE 16
 E

03257 | E |

REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION
		MATERIAL LIST	
NOTES UNLESS SPECIFIED		DRAWN	7/2/68
1. TOLERANCES	UNLESS SPECIFIED	CHECKED	...
2. DIMENSIONS	...	APPROVED	...
3. BREAK ALL SHARP EDGES	...		
4. DIMENSIONS	...		
5. HOLE DRILLING	...		
6. ALL DIM IN INCHES	...		
MODEL NO. 9248		SDS	
PART NO. 9248		DIAGRAM, LOGIC, MAG. TAPE CONTROL UNIT	
REV. D	DWG. NO. 103257	SCALE	
HEET 1 OF 1			

Change	Reason
<p>From A thru D logic revisions, no changes.</p> <p>From D to E logic revision, major logic change in gating RW signals.</p> <p>Compare logic revisions D & E.</p>	<p>EO 103403M</p> <p>EO 107514D (92483 only)</p> <p>To correct logic timing error on erase reverse operation</p>

REV	DESCRIPTION	DATE	APPROVED
A	REL TO MFG		
D	SEE REV E.O.		
E	SEE REV E.O.		



9348
 92483,92488,92481,92482
 TAPE CONTROL
 PAGE 20
 E

103257 | E1

REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV
MATERIAL LIST				
NOTES UNLESS SPECIFIED		DRAWN	103257	103257
1. TOLERANCES UNLESS OTHERWISE SPECIFIED		CHECK	103257	103257
2. DIMENSIONS UNLESS OTHERWISE SPECIFIED		APPN	103257	103257
3. FINISH UNLESS OTHERWISE SPECIFIED		SDS DATA PROCESSING SYSTEMS		
4. ALL DIM IN INCHES		THE PATENT OFFICE SHALL BECOME SOLE AGENTS		
		DIAGRAM, LOGIC, MAG TAPE CONTROL UNIT		
MODEL NO	9248	REV	D	103257
HEET AMOUNT		SCALE		E

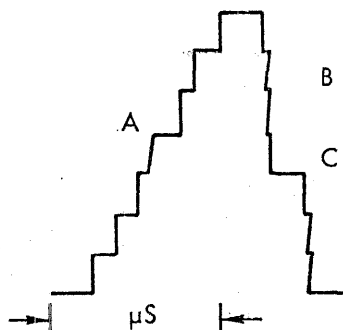
Change	Reason
<p>From A to D logic change deleted 47KΩ resistor from 9K pin 40 to pin 47 (+25v).</p> <p>Added jumper from 9K pin 40 to 9K pin 43.</p> <p>.5 μsec time change to 2.0 μs except for 92483 which uses OX14 module in 9K. With 92483 use .5 μsec.</p>	<p><u>EO 103140C</u> <u>EO 103403J</u> <u>EO 107514A</u></p> <p>Uses 220K resistor in OX13 module instead of 47K external for timing increase change.</p> <p>OX14 module effective on first 92483 shipped.</p>
<p>From D to E logic change all models use OX14 in location 9K and hence all have Cri signal set at .5 μsec.</p>	<p><u>EO 103403L</u> <u>EO 103140D</u> <u>EO 103403S</u></p>
<p>Deleted jumper between 9K17 and 9K20. Added jumpers between 9K pins 3, 4 and 9.</p>	<p>OX13 module in location 9K changed to OX14.</p> <p><u>EO 107514H</u> (92483 only)</p> <p>92483 has OX14 and is not affected.</p> <p>Cri now .5 μsec on all models.</p>
<p>From D to E</p> <p>Adds buffered signal to set Wes one-shot. Set side was DC input, is now auxiliary input.</p> <p>Compare D and E logic.</p>	<p><i>DONE</i> <i>7 NOV 75</i></p> <p><u>EO 103403L</u> <u>EO 107514C</u></p> <p>One-shot (Wes) being triggered by noise causing false errors in multi unit systems.</p>

Change	Reason
<p>No logic changes from A logic to D logic revision level.</p> <p>From D to E logic revision levels major changes were made. Compare D and E logic.</p> <p>Added additional OR gate input to Ri at pin 31 10v, removed ground to pin 31.</p>	<p><u>EO 103403M</u> <u>EO 107514D</u> (92483 only)</p> <p>To correct timing error in erase reverse operation.</p>
<p>Eliminated Rsk signal and combined Rpa and R1a through R6a into an analog test gate. Resistor added from 10v pin 26 to ground is 220 Ω.</p> <p>An explanation of the test gate is offered on page 29 Addendum B.</p>	<p><u>EO 103043S</u> <u>EO 103140D</u></p> <p><u>EO 107514H</u> <u>EO 107512B</u> 92483 only</p> <p>To insure interchangeability between tape units at 800 BPI. Write skew error detection was tightened to tighten allowable write character skew.</p>

10V Pin 26 Analog to Staircase Converter

The "OR" gate which was once RSK, is now used to detect the quality of the electrical deskew. The driven logic has been replaced with a 220 ohm resistor load. The value has been adjusted such that each bit as it occurs will cause a step of about one volt in amplitude. In the case of an all "ones" frame the converter will generate a signal staircase with a maximum of seven volts.

The leading edge of the waveform reflects the head mechanical misalignment, (gap scatter and gap are differential), for both the read and write head. The trailing edge shows how well the electrical compensation for these characteristics was accomplished.



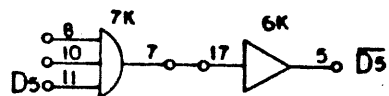
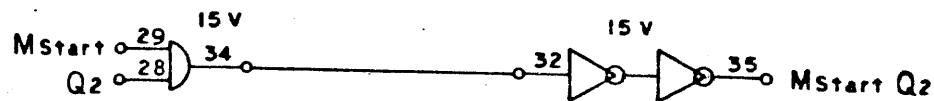
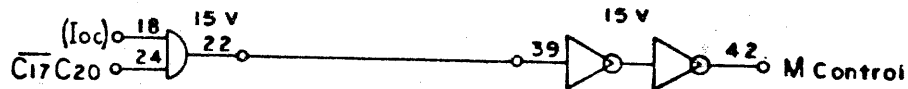
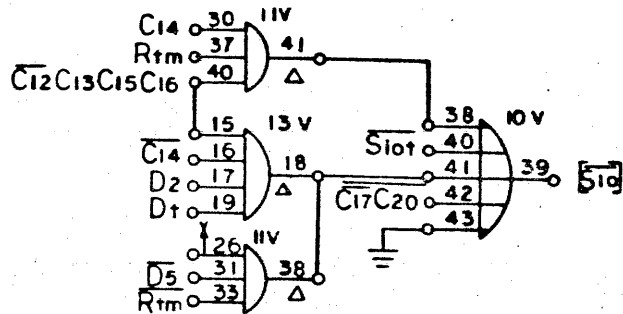
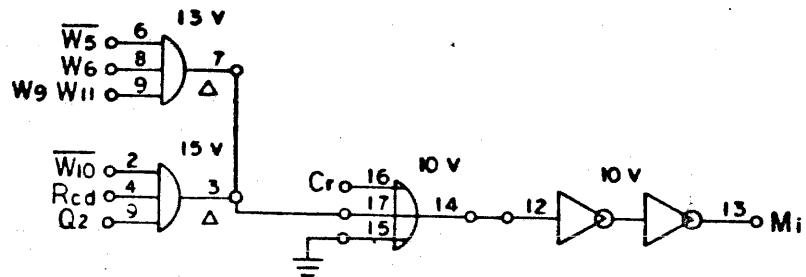
Staircase A, during the read pass of an "all ones" tape, is a measure of the skew in microseconds. This value will be in the order of up to 2 or 3 microseconds.

Staircase B exclusive of Point C would show how well the read deskew has been done. Point C would exist if one adjustment has been missed or incorrectly done. Although this differential is easily seen at the test point, readjustments are quite inaccurate and should not be attempted using only the test point. It is basically for qualitative checking.

If the tape unit is put in the "test mode" after read deskew, the write head scatter can be seen. This measurement would show if the misalignment is too bad to respond to any compensation.

After the alignment of write deskew, the test point will again show the quality of deskew. At 800 BPI this uncompensated deskew should be less than 1.5 μ s when observing the signal developed by an exerciser pass.

Change	Reason
<p>From A to C logic revision level major changes made to gating terms making up $\overline{S10}$</p> <p>Also $\overline{D5}$ signal eliminated and $\overline{D2} + \overline{D1}$ added.</p> <p>Compare A and D logic revisions.</p>	<p><u>EO 103403D</u></p> <p>Forward search failures were noted when running 15KC system programs on 15KC/42.7KC tape systems. An EOM to convert a scan to a read could result in Rcd locking on due to the longitudinal check character. As a result, the I/O Buffer would receive an erroneous clock prior to the first data character of the ensuing block.</p>



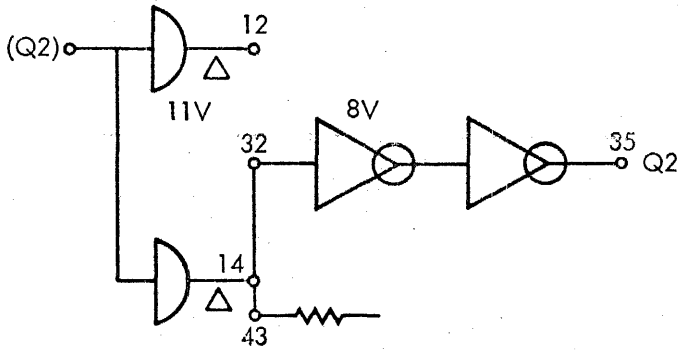
57

Change

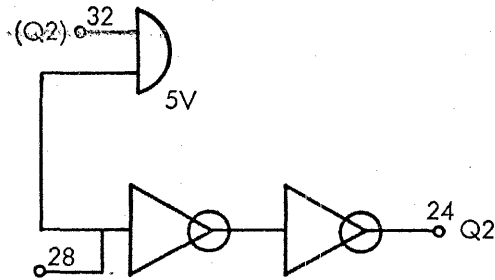
Reason

From A to C logic revision level, Q2 buffer relocated

103257A



103257C & D

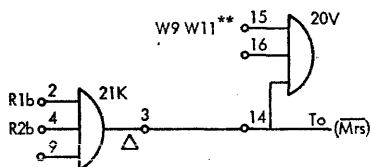
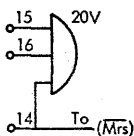
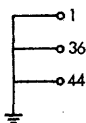


EO 103403F

Relocation of (Q2) to Q2 signal no logic change. Diode gates in 11V were required in revising gates to Cfba and Cgsa on C level logic change page 5.

Change

Reason

103257A103257C & D103257E

On Logic Pages
32 through 36

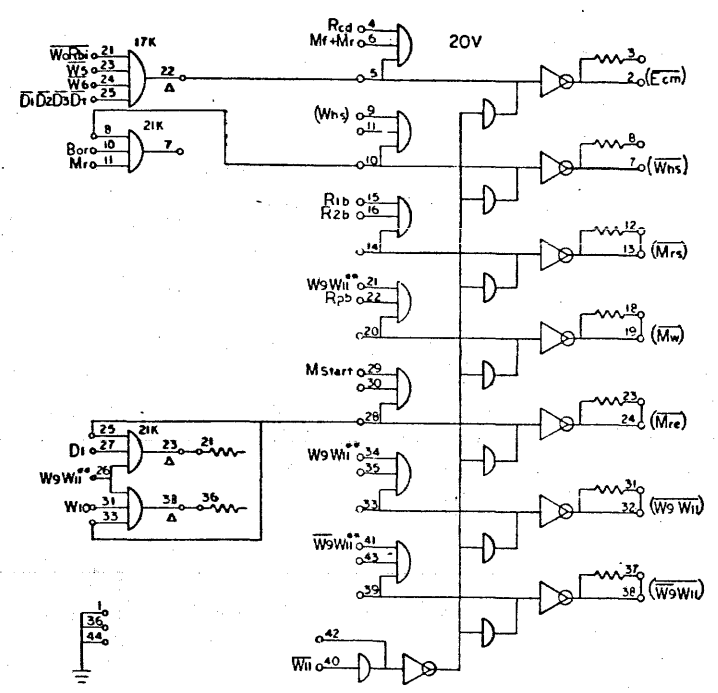
EO 103403F

Eliminates W9 W11** term
from gating to (Mrs) term.

See Addendum Sheet page
5 Item 1 for reason.

No logic change, only
indicates that AX14 Module
returns are tied to ground.

REV		DESCRIPTION	DATE	APPROVED
A		REL TO MFG		
C		SEE REV. E.O.		
D		SEE REV E.O.		
E		SEE REV E.O.		

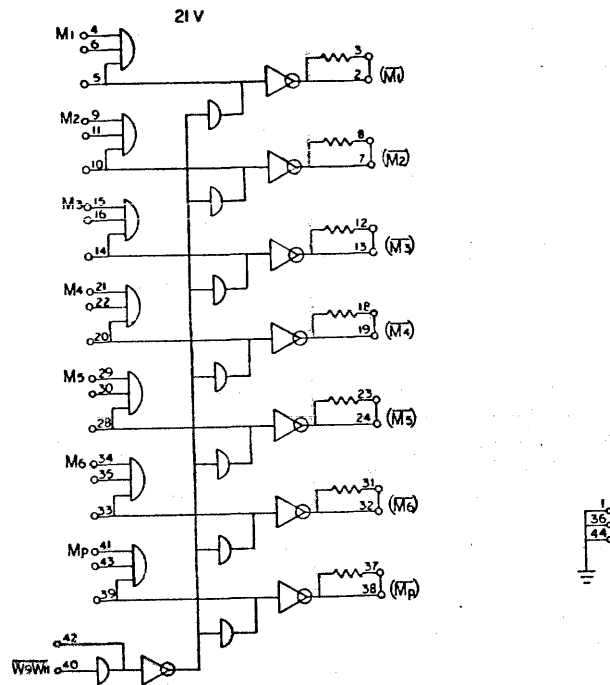


9348,
92483,9248,92481,92482
TAPE CONTROL
PAGE 32
E

103257 E

NO	FILE	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION	REV
NOTES UNLESS SPECIFIED					
1. DIMENSIONS		DRW	DATE	MATERIAL LIST	
BY 7/28		CHECK	7/27	SDS COMPUTER DATA SYSTEMS	
2. SERIAL ALL DIMENSIONS		APPR	7/27	TITLE	
BY 7/28				DIAGRAM, LOGIC, MAG TAPE CONTROL UNIT	
3. HOLE DIMENSIONS				MODEL NO	
4. ALL DIM IN INCHES				9248	
				REV	
				D	
				DATE	
				103257	
				E	
				SCALE	
				DO NOT SCALE DRAWING	
				SHEET 22 of 48	

REV	DESCRIPTION	DATE	BY	103257
A	REL TO MFG			E
D	SEE REV E.O.			
E	SEE REV E.O.			



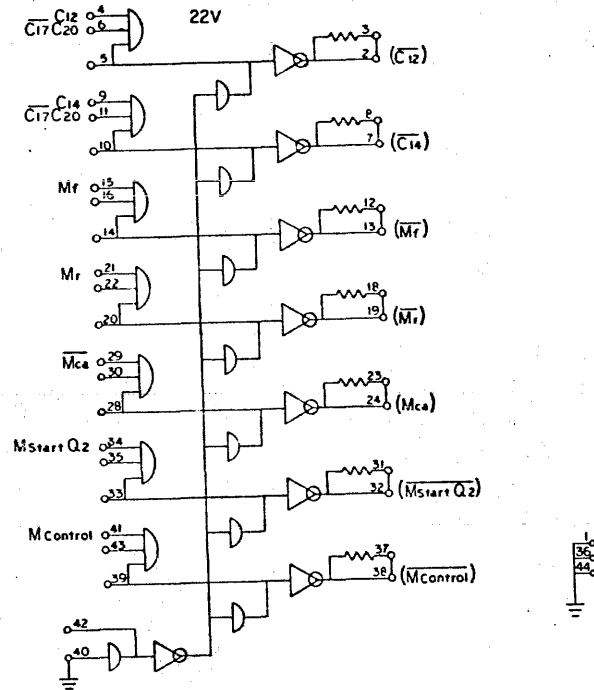
9348,
92483,9248,92481,92482
TAPE CONTROL
PAGE 33
E

NO.	DESCRIPTION	QTY	UNIT	REFERENCE DESIGNATION
MATERIAL LIST				
NOTES UNLESS SPECIFIED		DESIGN	DATE	
<ul style="list-style-type: none"> RESISTORS CONDENSERS DIODES TRANSISTORS RELAYS WIRE 		5/10/64 5/10/64 7/10/64	7/10/64 7/10/64	SDS Scientific Data Systems Santa Monica, California
DIAGRAM LOGIC MAG TAPE CONTROL UNIT				
MODEL NO	9248			
REV	D	DATE	103257	E
SCALE: NO COPY SCALE SHOWN: SHEET 33 OF 44				

103257 E

Change	Reason
<p>From A through D logic revision levels no changes were made.</p> <p>On E revision logic $\overline{C17}$ C20 was added to gate (C12) and (C14) signals.</p>	<p>EO 103403N EO 107514E (92483 only)</p> <p>To reduce noise between master control unit and slaves by keeping Cs quiet, except during Mag Tape EOM's and SKS's.</p>

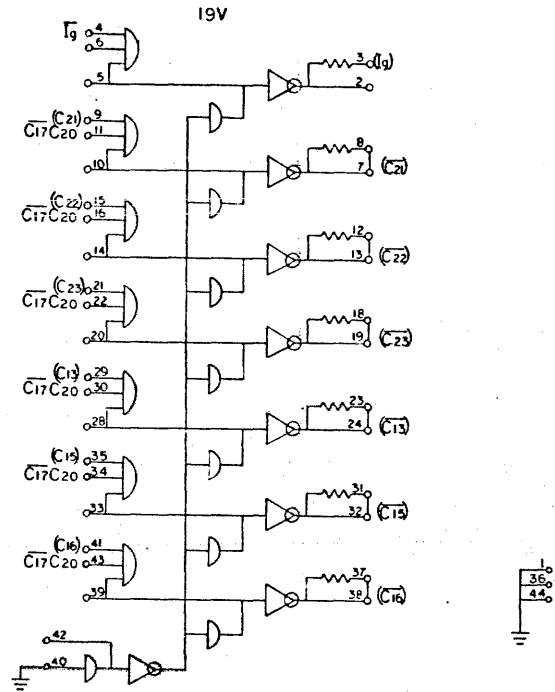
REV	DESCRIPTION	CHK	DATE	APPROVED
A	REL TO MFG			
D	SEE REV E D			
E	SEE REV E D			



9348
92483,9248,92481,92482
TAPE CONTROL
PAGE 34
E

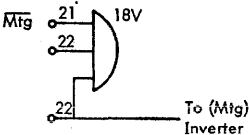
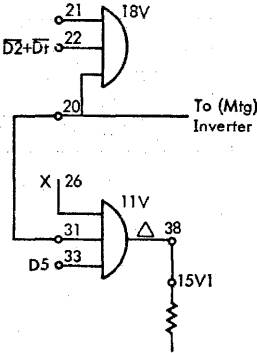
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NOTES UNLESS SPECIFIED				
1	DESIGNER	DATE	SCALE	
2	CHECKER	DATE	SCALE	
3	APPROVER	DATE	SCALE	
4	ALL DIM IN INCHES			
MATERIAL LIST				
SDS DESCRIBED DATA SYSTEMS				
DIAGRAM, LOGIC, MAG TAPE CONTROL UNIT				
MODEL NO	9248	REV	D	103257
HEET ASBY		SCALE		E
SHEET 34 OF 41				

REV	DATE	BY	103257
A			
B			
D			
E			

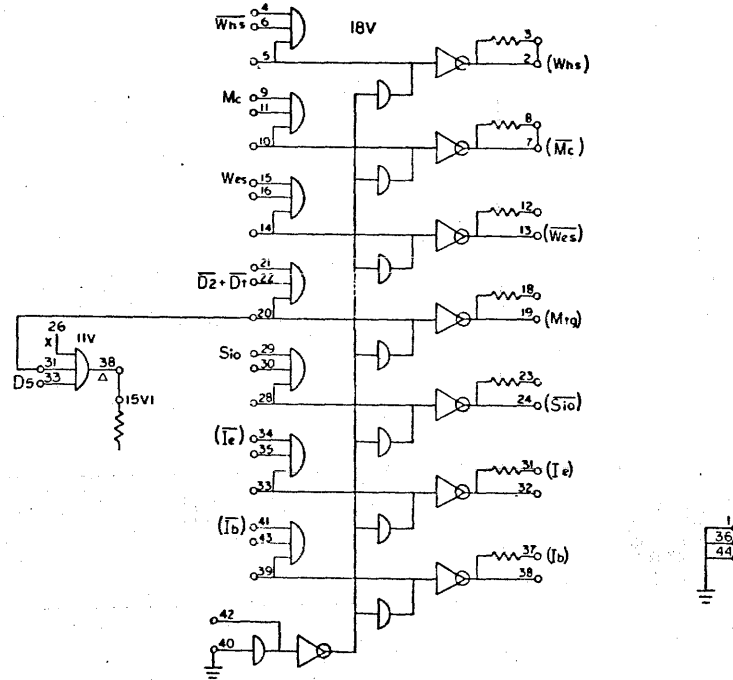


9348,
92483,9248,92481,92482
TAPE CONTROL
PAGE 35
E

NO. REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV.
NOTES UNLESS SPECIFIED				
1. DIMENSIONS		DRAWN	MATERIAL LIST	
ALL TO DIM		CHECK	SDS	
AND TOLER.		APPN	SDS	
2. CHECK ALL DIMENSIONS		TITLE		
AND LISTINGS		DIAGRAM, LOGIC,		
3. MATCH DIMENSIONS		MAG TAPE CONTROL UNIT		
4. MAX DIM IN INCHES		MODEL NO.		
		9248		
NEXT ASSEMBLY		REV.	REV. NO.	
		D	103257	E
		SCALE	DO NOT SCALE ON FIGURE SHEET 25 of 40	

Change	Reason
<p data-bbox="242 360 451 422">From A to C logic revision gating for (Mtg) signal changed.</p> <p data-bbox="291 464 360 485"><u>103257A</u></p>  <p data-bbox="265 764 387 786"><u>103257C, D & E</u></p> 	<p data-bbox="764 467 860 488"><u>EO 103403D</u></p> <p data-bbox="708 508 886 550">See page 30 Addendum Sheet for reason.</p>

REV	DESCRIPTION	DATE	APPROVED
A	REL TO MFG	11/15/52	[Signature]
C	SEE REV. E.O.		
D	SEE REV E.O.		
E	SEE REV E.O.		



9348,
92483, 9248 8 92481, 92482
TAPE CONTROL
PAGE 36
E

103257 1E1

REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	DATE
MATERIAL LIST				
NOTES UNLESS SPECIFIED				
1	UNLESS NOTED	BY 1/2" ANGULAR	BY 1/2" ANGULAR	
2	DRILL DIA	DRILL DIA	DRILL DIA	
3	DRILL DIA	DRILL DIA	DRILL DIA	
4	DRILL DIA	DRILL DIA	DRILL DIA	
5	DRILL DIA	DRILL DIA	DRILL DIA	
SDS DESIGNING DATA SYSTEMS				
DIAGRAM, LOGIC, MAG TAPE CONTROL UNIT				
MODEL NO.	9248		REV	D
DATE			DATE	103257
SCALE			SCALE	NO NOT SCALE DRAWING
			SHEET	26 OF 40

REVISIONS			103257	E
REV.	DESCRIPTION	CHK.	DATE	APPROVER
A	REL TO MFG		1/12/54	
D	SEE REV E.O.		1/12/54	
E	SEE REV E.O.		1/12/54	

MODULE LIST

ITEM	DESCRIPTION	MODEL	QTY				
			9248	92481	92482	92483	9348
1	CABLE DRIVER	AH4	6	6	6	6	6
2	AND/OR BUFFER AMP	BC10	3	3	3	3	3
3	AND/OR BUFFER AMP	BH10	1	1	1	1	1
4	OR GATE BUFFER AMP	BH11	1	1	1	1	1
5	CRYSTAL CLOCK GEN	CX13	1	-	2	2	2
6	COUNTER F.F.	FH15	3	3	3	3	3
7	UNIVERSAL F.F.	FH17	5	5	5	5	5
8	GATE EXPANDER	GH11	1	1	1	1	1
9	GATE EXPANDER	GC10	8	8	8	8	8
10	AND/OR INVERT.	IC10	2	2	2	2	2
11	AND INVERTER	IC12	4	4	4	4	4
12	AND INVERTER	IH12	2	2	2	2	2
13	ADDER MODULE	IK52	1	1	1	1	1
14	ONE SHOT MULT.	OX13	4	3	4	4	4
15	CLOCK GAP DETECTOR	SK59	1	1	1	1	1
16	UNIVERSAL F.F.	FC17	1	1	1	1	1
17	ONE SHOT MULT.	OX14	1	1	2	2	2
18	CLOCK GEN	CK52	1	1	1	-	-
19	CLOCK GEN	CK55	-	-	-	-	1
20	CLOCK GEN	CK56	-	-	-	1	-


REPLACEMENT PARTS LIST

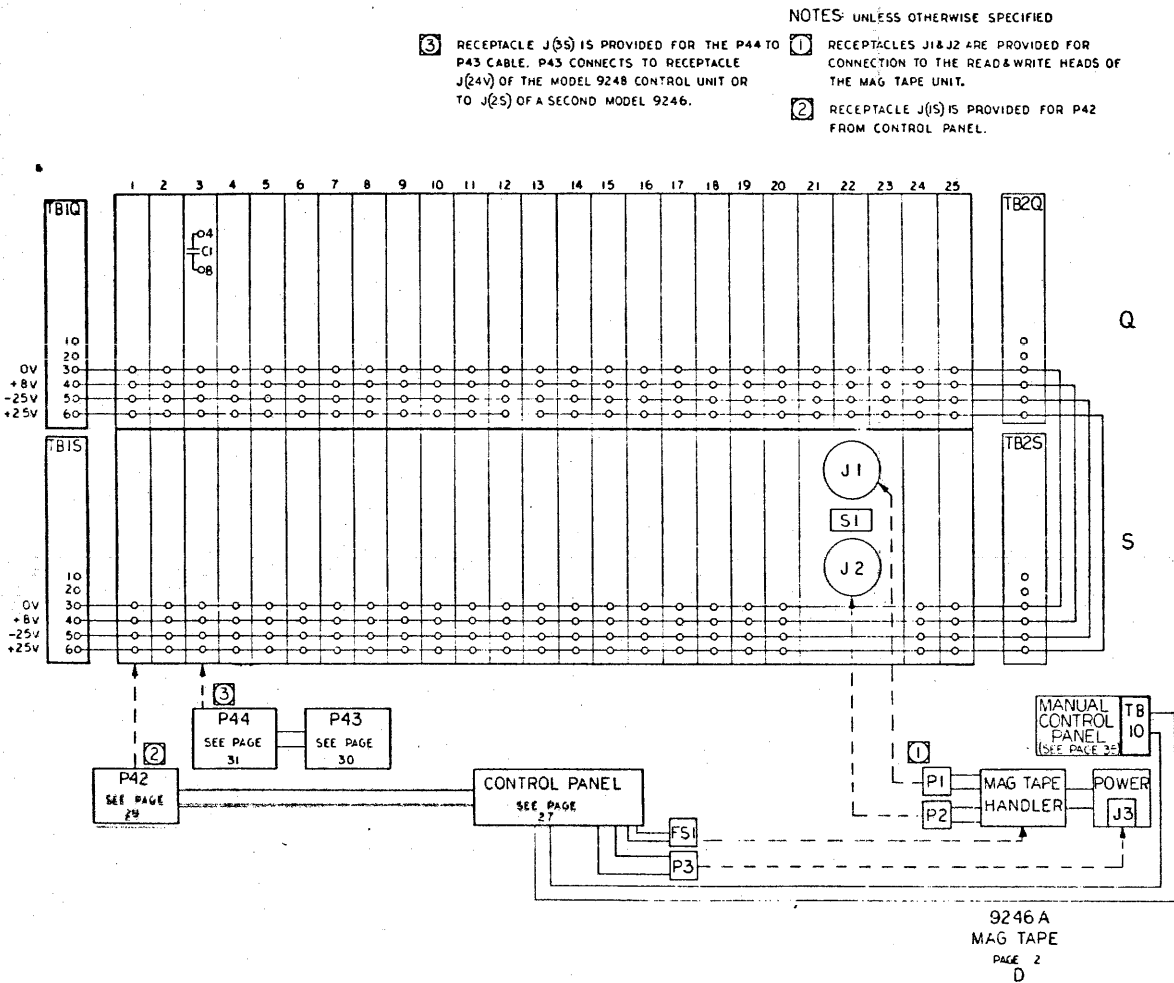
ITEM	DESCRIPTION	DESIGNATION	QTY	SUPPLIER CODE (SEE INDEX)
1	RESISTOR, 470 Ω \pm 2%	(PA)E27 THRU R38	12	16, 17
2	INDUCTOR, MOLDED 220 μ H \pm 5%	(PA)J11 THRU L26 (PA)J1 THRU L14	40	42, 99, 91
3	DIODE, SILICON SWITCHING IN S1A	(PA)CR1 THRU CR11	11	4, 12, 13, 14
4	CONNECTOR, SOLDER TAIL 47 CONTACT #100B-47	J1(K) THRU J(25) J1(H) THRU J(25)	50	82

CABLE LENGTH

ITEM	DESCRIPTION	CABLE LENGTH				DESIGNATION	QTY	SUPPLIER CODE (SEE INDEX)
		11'	20'	30'	40'			
5	RESISTOR 350 Ω \pm 2% 330 Ω \pm 2% 270 Ω \pm 2% 220 Ω \pm 2%					(PA)R1 THRU R26 (PA)R1 THRU R14	40	16, 17

9348,
92483, 9248, 92481, 92482
MAG TAPE CONTROL UNIT
PAGE 40
E

REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV.
		REPLACEMENT LIST		
NOTES UNLESS SPECIFIED:		SCALE		
1. DIMENSIONS UNLESS SPECIFIED 2. DIMENSIONS UNLESS SPECIFIED 3. DIMENSIONS UNLESS SPECIFIED 4. DIMENSIONS UNLESS SPECIFIED 5. DIMENSIONS UNLESS SPECIFIED		DRAWN: K. K. ... CHECK: ... APPR: ...	TITLE DIAGRAM, LCGIC MAG TAPE CONTROL UNIT	
MODEL NO.	9248		REV.	D
UNIT ARMY			FIG. NO.	103257
			SCALE	DO NOT SCALE DRAWING



REVISIONS		103258	
REV	DESCRIPTION	CHK	APPROVED
A	REL TO MFG		
	SEE REV. E.O.		
D	SEE REV E.O.		

9246 A
MAG TAPE
PAGE 2
D

103258 10

REV	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION	ITEM NO
NOTES UNLESS SPECIFIED				
DRAWN		MATERIAL LIST		
CHECKED		SDS SCIENTIFIC DATA SYSTEMS		
APPR		100000 STREET, SANTA MONICA, CALIFORNIA		
DATE		TITLE		
10/1/63		DIAGRAM, LOGIC		
10/1/63		MAG TAPE		
MODEL NO		DATE		DATE NO
9246		D		103258
NEXT ASST		SCALE		INSET
		DO NOT SCALE DRAWING		

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
A	REL. TO MFG.	12/27/64	[Signature]
B	SEE REV. B.O.	1/2/65	[Signature]
D	SEE REV. E.O.	1/2/65	[Signature]

9246 DIRECTORY

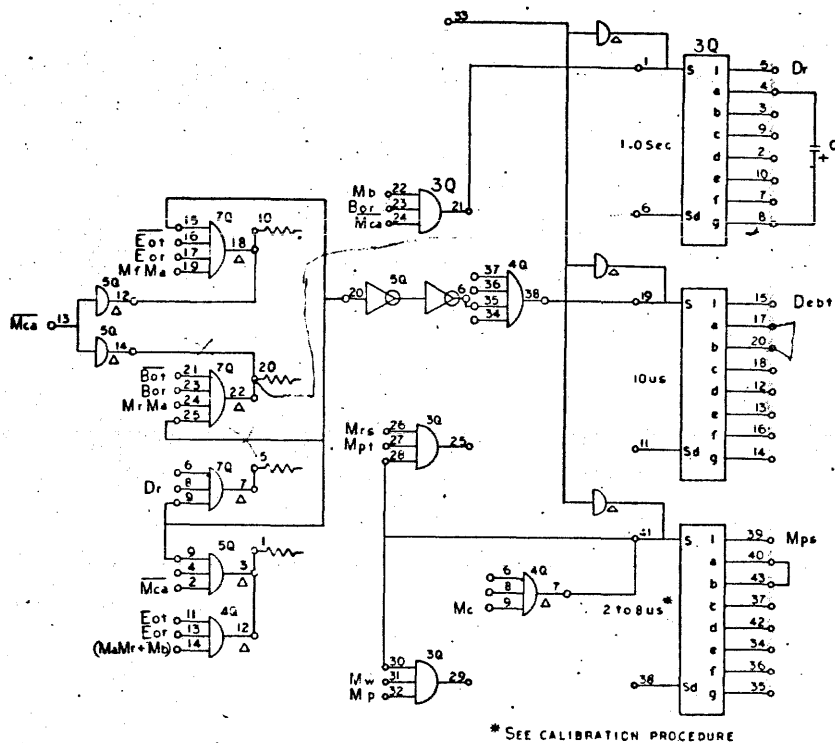
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(Aa)	24	Eor	22	M2e	9	R1a	2c
Aaa	5	Esa	22	M3a	9	R1a	1c
Aaa	26	Eur + Eor	22	M4e	17	R2a	1c
Ann. Contr. Panel	27	EGV Ror	19	M5e	10	R3a	1c
(Aor)	28	Eot	4	M6e	10	R3a	1c
Bor	4	Eot Indicate	4	M1t	11	R3a	1c
(Bor)	22	Flw Pr. Act: Indicate	8	M2t	11	R3a	1c
Dot	4	Forward Actable	13	M3t	12	R3a	1c
Dot Indicate	8	(H)	23	M4t	12	R3a	1c
Ch1 Read	26	(G)	23	M5t	12	R3a	1c
Ch2 Read	26	K1 Set	8	M6t	13	R3a	1c
C:1 Read	26	K2 Set	8	M7t	13	R3a	1c
C:4 Read	26	Ma	4	M8t	13	R3a	1c
C:6 Read	26	Mad	22	M9t	13	R3a	1c
C:7 Read	21	MTa	22	M10t	13	R3a	1c
C:1 Write	13	(O)1	24	Read	6	R3a	1c
Ch2 Write	13	Ma M	17	(Read)	6	R3a	1c
Ch3 Write	13	Ma M	17	Read, Indicate	8	R3a	1c
Ch4 Write	13	Ma M + Mb	19	Reverse Actable	13	R3a	1c
Ch5 Write	13	Ma Test	19	R1a	16, 17	R3a	1c
Ch6 Write	13	Ma Test	19	(R2a)	25	R3a	1c
Ch7 Write	13	Ma Test	19	(R3a)	25	R3a	1c
C12	20	Ma Test	19	Rpar	18	R3a	1c
C13	20	Mb	4	Rp	26	R3a	1c
C14	20	Mc	6	R1a	17, 17, 19	R3a	1c
CTA	20	REC	21	R2a	16, 17, 19	R3a	1c
C15	20	M Control	20	R3a	16, 17, 19	R3a	1c
CTB	20	Mf	21	R4a	16, 15, 19	R3a	1c
C16	20	Mp	21	R5a	16, 15, 19	R3a	1c
CTC	20	Mpe	5	Unit Select	6	R3a	1c
C21	22	Mpt	11	R6a	14, 17, 19	R3a	1c
CTD	22	Mpe	13	(RTa)	25	R3a	1c
C22	22	Mr	21	(RTa)	25	R3a	1c
CTE	22	STa	11	(RTa)	25	R3a	1c
C23	22	Mra	4	(RTa)	25	R3a	1c
CTF	22	M STa + Qa	20	(RTa)	25	R3a	1c
(Aa)	24	Mn	4	(RTa)	25	R3a	1c
(Aa)	24	M1	21	(RTa)	25	R3a	1c
(Aa)	24	M2	21	(RTa)	25	R3a	1c
(Aa)	24	M3	21	(RTa)	25	R3a	1c
Dem	5	M4	21	(RTa)	25	R3a	1c
Dr	5	M5	21	(RTa)	25	R3a	1c
Dc	6	M6	21	(RTa)	25	R3a	1c

9246A
9246P
MAG TAPE UNIT
PAGE 3
D

NO. FILE	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV. NO.																				
NOTES / CHECKS SPECIFIED																								
MATERIAL LIST																								
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1. TOLERANCES UNLESS SPECIFIED	FRAMES	1/2" x 1/2" x 1/2"	1/2" x 1/2" x 1/2"																					
2. DIMENSIONS UNLESS SPECIFIED	CHECK	1/2" x 1/2" x 1/2"	1/2" x 1/2" x 1/2"																					
3. SURFACE FINISH UNLESS SPECIFIED	APPRO	1/2" x 1/2" x 1/2"	1/2" x 1/2" x 1/2"																					
4. HOLE SURFACE UNLESS SPECIFIED																								
5. ALL DIMENSIONS UNLESS SPECIFIED																								
<p>SDS</p> <p>DIAGRAM, LOGIC, MAG TAPE UNIT</p>																								
MODEL NO.	9246	REV. NO.	D	103258																				
NEXT ASSY		SCALE	DO NOT SCALE DRAWING	SHEET 3																				

103258 | D |

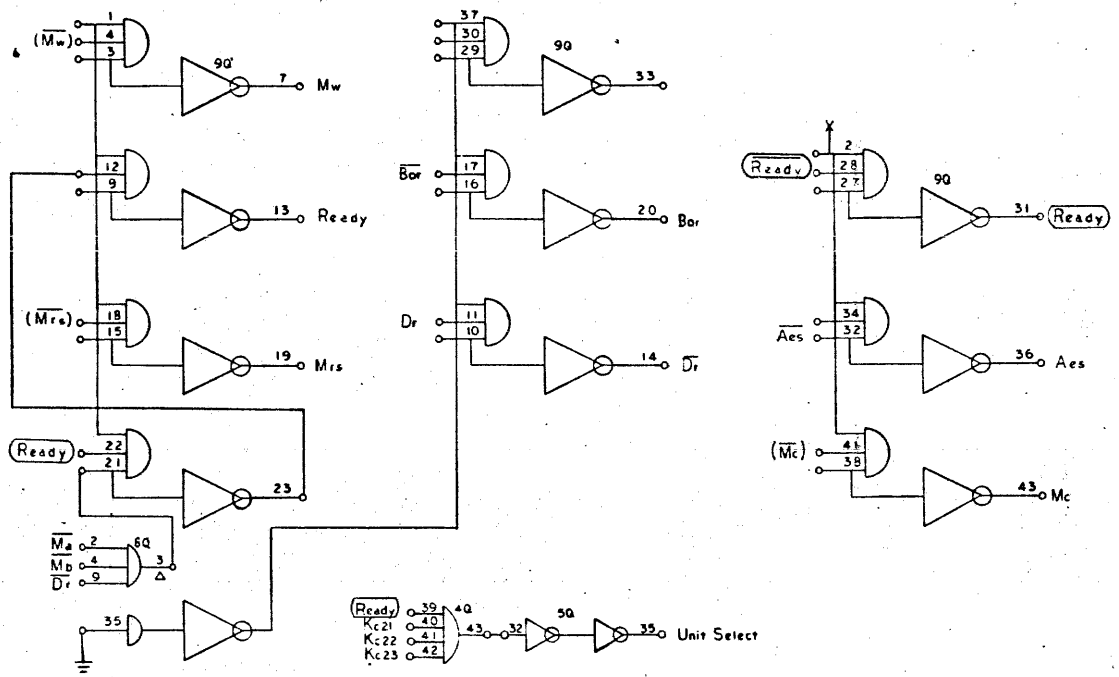
REVISIONS				
REV	DESCRIPTION	CHK	DATE	APPROVED
A	REL TO MFG		6/27/63	
C	SEE REV. E.O.			
D	SEE REV. E.O.			



9246A
9246P
TAPE ELECTRONICS
PAGE 5
D

REV	DRAWING NO	DESCRIPTION	APPROVED ENGINEERING
			SDS
NOTES UNLESS OTHERWISE SPECIFIED: 1. THE DRAWING IS TO BE MADE TO THE DIMENSIONS SHOWN. 2. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED. 3. DIMENSIONS ARE TO BE TAKEN TO THE CENTER OF HOLES UNLESS OTHERWISE SPECIFIED. 4. DIMENSIONS ARE TO BE TAKEN TO THE SURFACE UNLESS OTHERWISE SPECIFIED. 5. DIMENSIONS ARE TO BE TAKEN TO THE CENTER OF HOLES UNLESS OTHERWISE SPECIFIED.			
MODEL NO	9246	REV	D
REV		DATE	10/25/63
DIAGRAM, LOGIC, MAG TAPE UNIT		REV	D

REV.	DATE	BY	103258
A			
B			
C			
D			

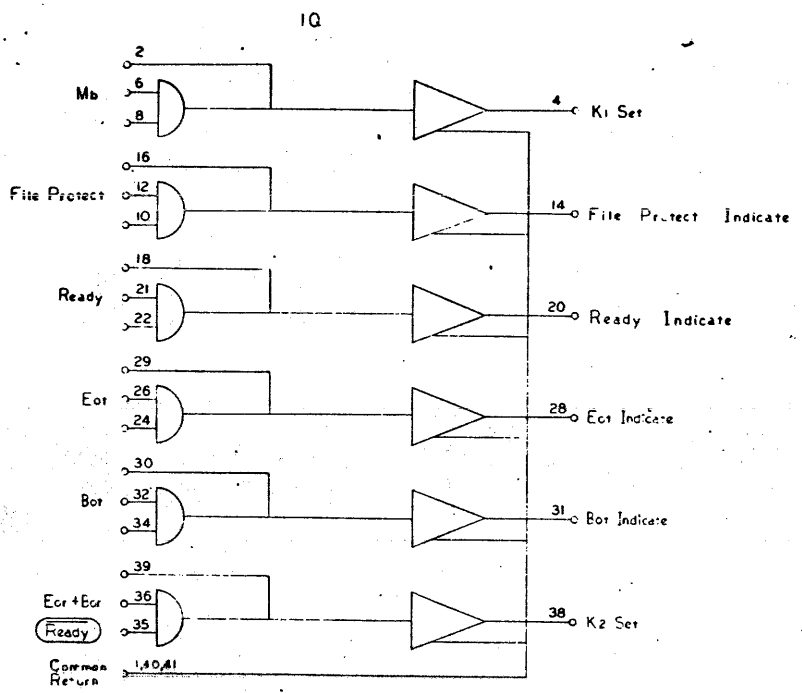


9246A
9246P
TAPE ELECTRONICS
PAGE 6
D

103258 | 0 |

NO. REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	DATE
NOTES UNLESS SPECIFIED				
1. TOLERANCES		DRAWN	11	11
2. DIMENSIONS		CHECK	5.1.3	7/27/73
3. MATERIALS		APP'D	5.1.3	7/27/73
4. FINISHES		TITLE		
5. DIMENSIONS		DIAGRAM, LOGIC, MAG TAPE UNIT		
MODEL NO.		REV. NO.		DATE
9246		D		103258
MFG. APPR.		SCALE		QUANTITY

REV	DESCRIPTION	DATE	APPROVER
A	REL TO MFG	1/14/63	2/2
C	SEE REV. E.O.		
D	SEE REV E.O.		

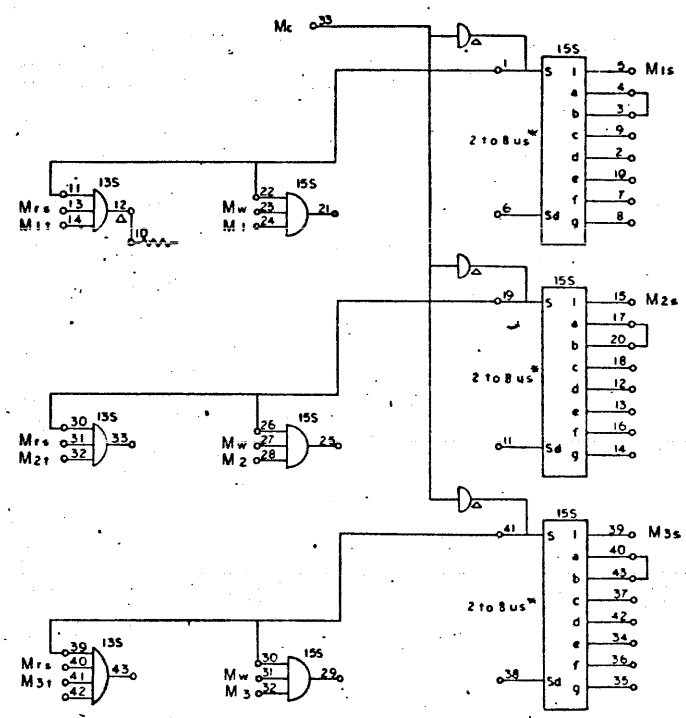


9246A
9246P
TAPE ELECTRONICS
PAGE 8
D

REV	DRAWING NO	DATE	DESCRIPTION	APPROVER	DATE
NOTES UNLESS SPECIFIED: 1. DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED. 2. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED. 3. DIMENSIONS ARE TO SURFACE UNLESS OTHERWISE SPECIFIED. 4. DIMENSIONS ARE TO HOLE UNLESS OTHERWISE SPECIFIED.		DESIGNED BY: <i>Q/12</i> CHECKED BY: <i>Q/12</i> DATE: <i>2/14/63</i>	SDS SYSTEMS DEVELOPMENT CORPORATION 1900 AVENUE OF THE STARS ANNAPOLIS, MARYLAND 21403	DIAGRAM, LOGIC, MAG TAPE UNIT	
MODEL NO	9246			REV	D
TEST ASST				DATE	10.0258

C3258 0

REV.	DESCRIPTION	DATE	BY	103258
A	REL TO MFE	7/1/63	WJ	22
C	SEE REV. E.O.	2/2/64	WJ	22
D	SEE REV E.O.	4/1/64	WJ	22



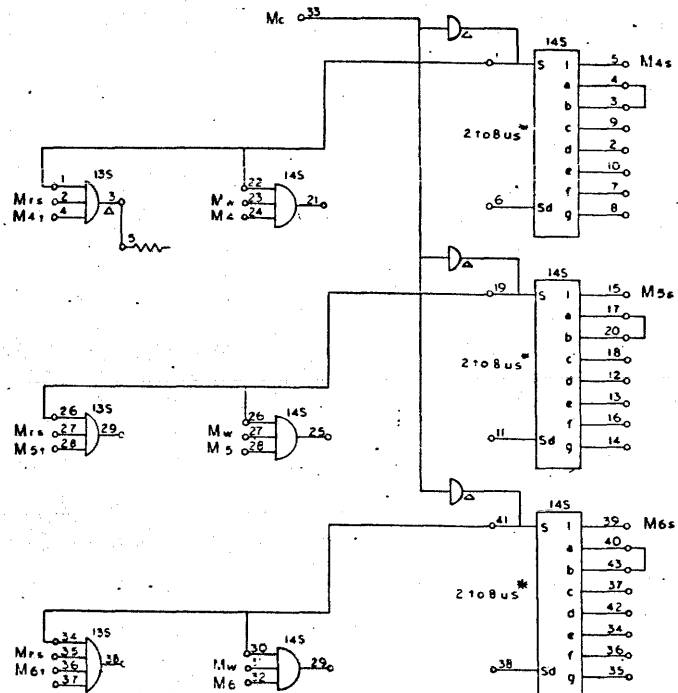
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9246A
9246P
TAPE ELECTRONICS
PAGE 9
D

103258 | D |

REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	DATE
NOTES UNLESS SPECIFIED				
1	DESIGN	WJ	7/1/63	
2	CHECK	WJ	7/1/63	
3	APPROVE	WJ	7/1/63	
MATERIAL LIST				
SDS SCIENTIFIC DATA SYSTEMS				
DIAGRAM, LOGIC, MAG TAPE UNIT				
MODEL NO.	9246	REV.	D	103258
HEAT ARMY		SCALE	NO NET SCALE DRAWING	WILEY

REV.	DESCRIPTION	DATE	APPROVED
A	REL TO MFG	10/18/68	[Signature]
B	SEE REV. E.O.	11/18/68	[Signature]
C	SEE REV. E.O.	11/18/68	[Signature]
D	SEE REV. E.O.	12/18/68	[Signature]



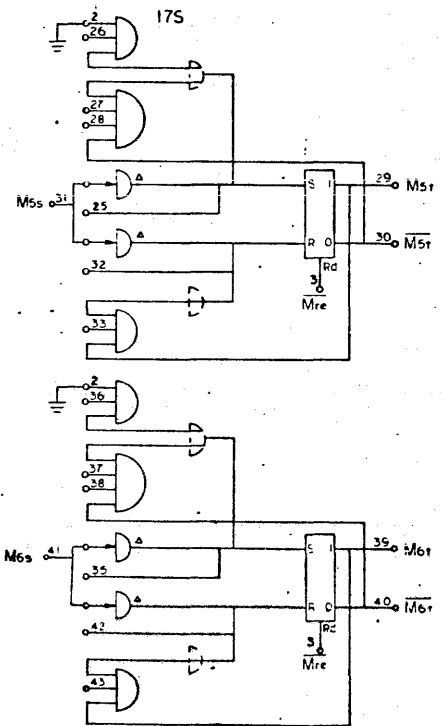
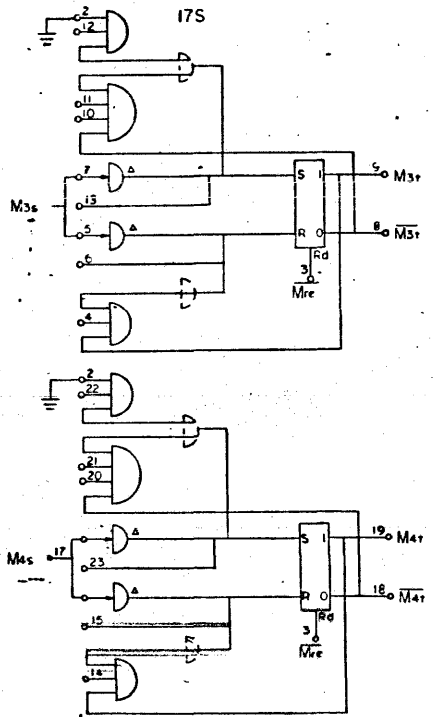
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9246A
9246P
TAPE ELECTRONICS
PAGE 10
D

DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV.										
9246	DIAGRAM, LOGIC, MAG TAPE UNIT		D										
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NOTES UNLESS SPECIFIED	DRAWN	CHECKED	APPROVED	DATE									
1. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.	[Signature]	[Signature]	[Signature]	7/18/68									
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DATE	ISSUE NO.	REV.											
10/18/68	1	D											

103258 | D |

REV.	DESCRIPTION	DATE	APPROVED
A	REL TO MFG	7/2/54	[Signature]
C	SEE REV. E.O.		
D	SEE REV E.O.	60	[Signature]

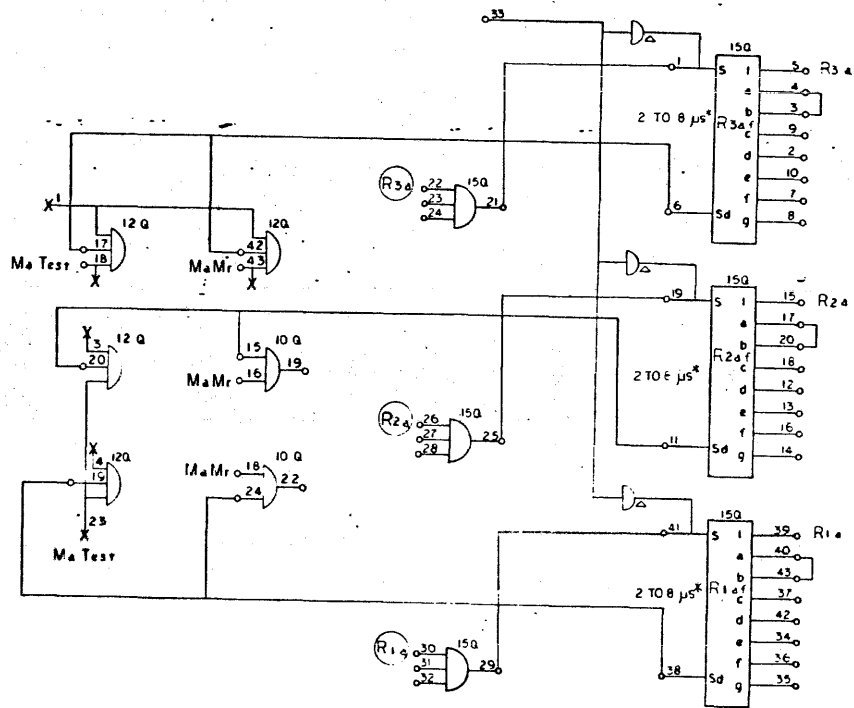


9246A
9246P
TAPE ELECTRONICS
PAGE 12
D

REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	DATE
NOTES UNLESS SPECIFIED		MATERIAL LIST		
1. DIMENSIONS UNLESS SPECIFIED		SDS SCIENTIFIC DATA SYSTEMS		
2. TOLERANCES UNLESS SPECIFIED		3000 GATEWAY STREET, SANTA MONICA, CALIFORNIA		
3. UNLESS ALL DIMENSIONS ARE SHOWN		TITLE		
4. HOLE LOCATIONS		DIAGRAM, LOGIC, MAG TAPE UNIT		
5. ALL DIM IN INCHES		MODEL NO		
9246		D 103258 D		
NEXT ARMY		SCALE DO NOT SCALE DRAWING SHEET 1/2		

103258 101

REV.	DESCRIPTION	DATE	APPROVED
A	REL TO MFG.	10/25/63	[Signature]
C	SEE REV. E.O.	11/25/63	[Signature]
D	SEE REV E.O.	1/1/64	[Signature]



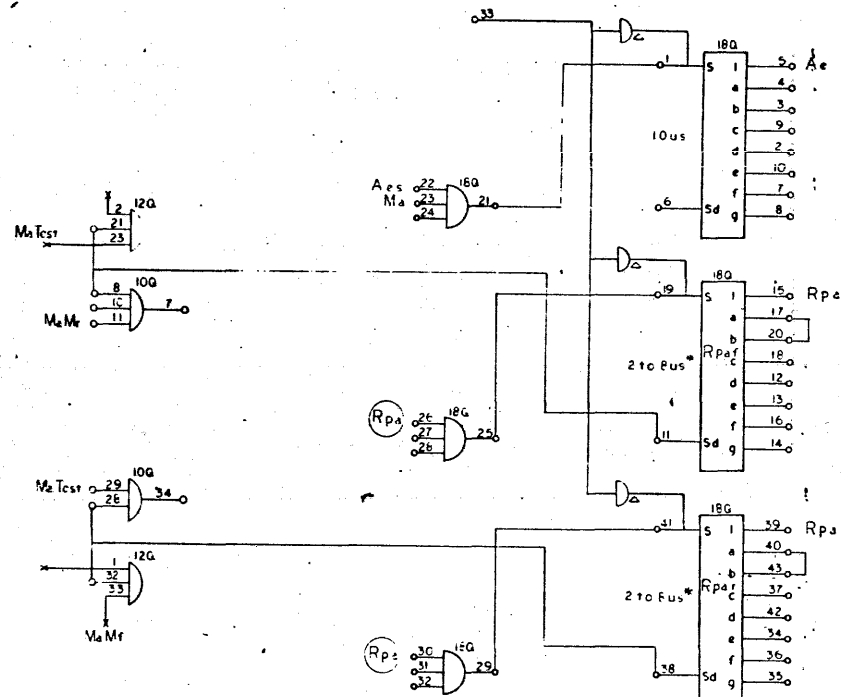
*SEE CALIBRATION PROCEDURE

9246A
9246P
TAPE ELECTRONICS
PAGE 16
D

REV.	DRAWING NO.	REV. DESCRIPTION	REFERENCE IDENTIFICATION	REV.
			SDS	
			DIAGRAM, LOGIC, MAG. TAPE UNIT	
MODEL NO.	9246		REV. D	103258
REV. DATE				

C3258 101

REV.	DESCRIPTION	CHK.	DATE	APPROVED
A	REL TO MFG			
C	SEE REV. E.O.			
D	SEE REV. E.O.			

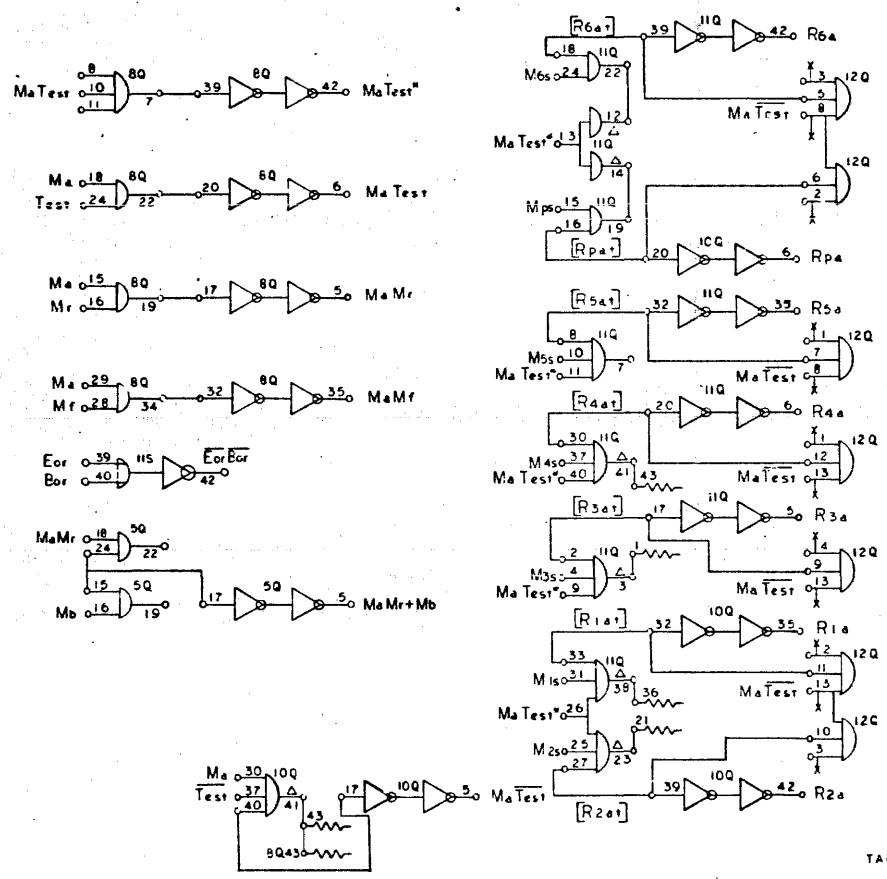


* SEE CALIBRATION PROCEDURE

9246A
9246P
TAPE ELECTRONICS
PAGE 18
D

NO.	REV.	DRAWING NO.	DESCRIPTION	DATE	BY	CHK.	APPROVED
MODEL NO 9246			DATE 10.3.58		DRAWING TITLE DIAGRAM, LOGIC, MAG TAPE UNIT		

REV	DESCRIPTION	DATE	BY
A	REL TO MFG	10/26/53	...
C	SEE REV. E.O.
D	SEE REV E.O.	2nd 12/18/57	...

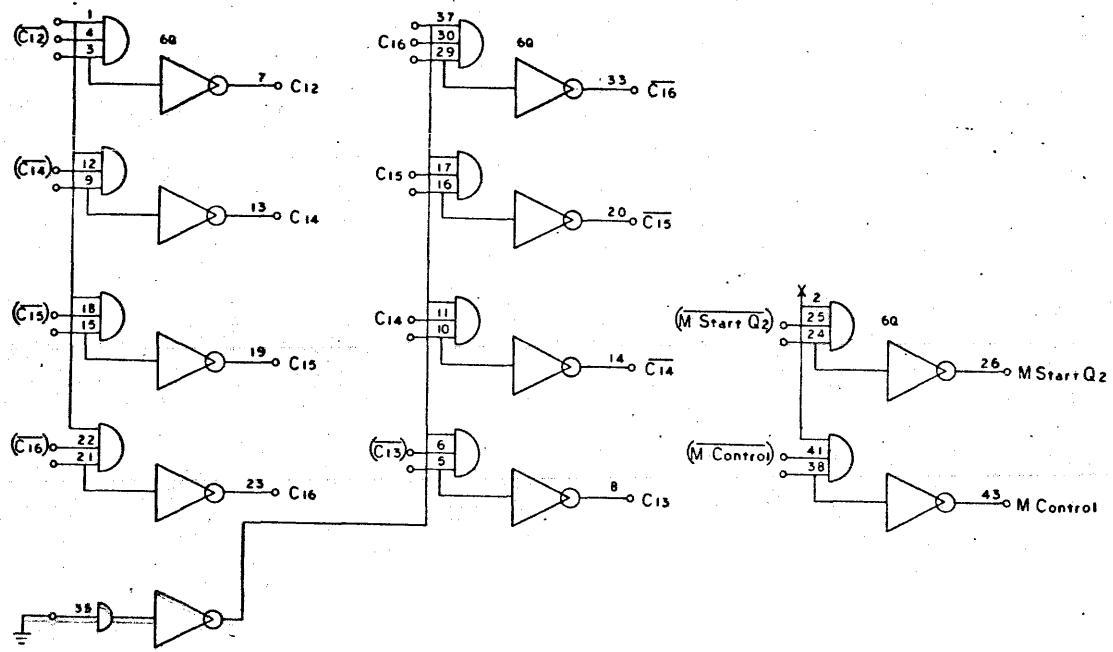


9246A
9246P
TAPE ELECTRONICS
Page 19
D

REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	DATE
NOTES UNLESS SPECIFIED				
DRAWN		DATE		
CHECKED		DATE		
APPROVED		DATE		
MATERIAL LIST				
SDS SYSTEMS DATA SYSTEMS				
DIAGRAM, LOGIC, MAG TAPE UNIT				
FORM NO.	9246	REV	D	103258
UNIT ARMY		SCALE	NO NET SCALE DRAWING	SHEET 19

103258 | D

REV		DESCRIPTION	DATE	BY	APP'D
A		RFL TO MFG			
C		SEE REV. E.O.			
D		SEE REV. E.O.			

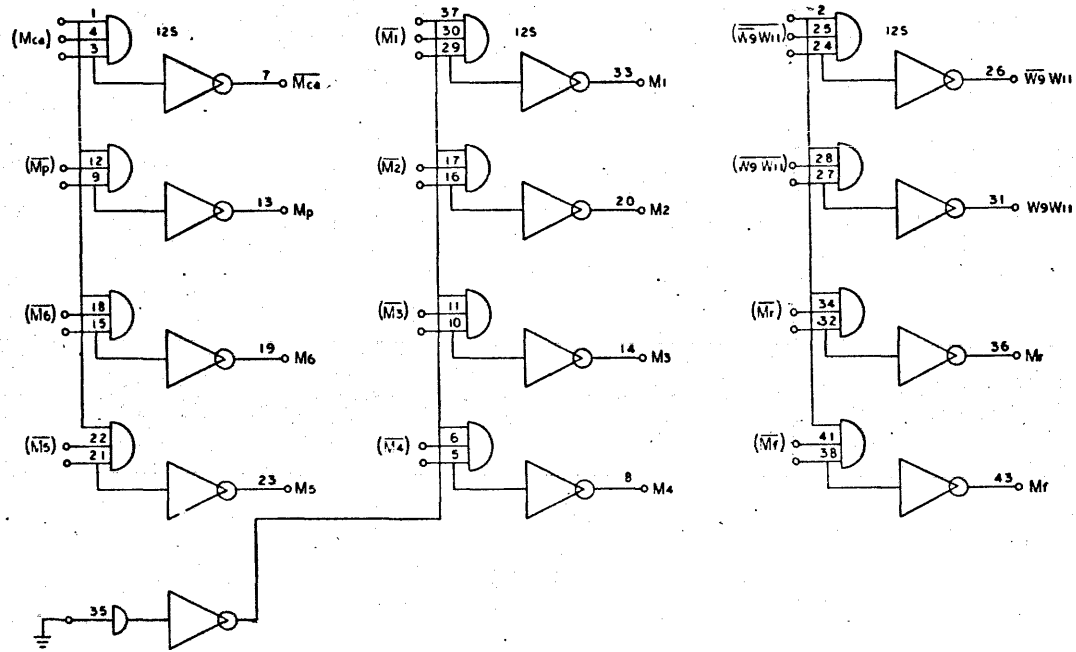


9246A
9246P
TAPE ELECTRONICS
PAGE 20
D

NO. PER	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION	REV
NOTES UNLESS SPECIFIED				
1. THIS DRAWING IS TO BE USED FOR FABRICATION OF THE UNIT.	CHECK	DATE	DATE	
2. APPROVE ALL DIMENSIONS AND TOLERANCES.	APPR	DATE	DATE	
3. CHECK SURFACE FINISH.				
4. ALL DIMENSIONS IN INCHES.				
MODEL NO	9246	REV	D	103258
REVISION		SCALE	DO NOT SCALE DRAWING	SHEET 20

103258 | D |

REVISIONS		103258	D
REV	DESCRIPTION	DATE	INITIALS
A	REL TO MFG	7/17/63	WJ
C	SEE REV. E.O.	7/24/63	WJ
D	SEE REV E.O.	7/24/63	WJ

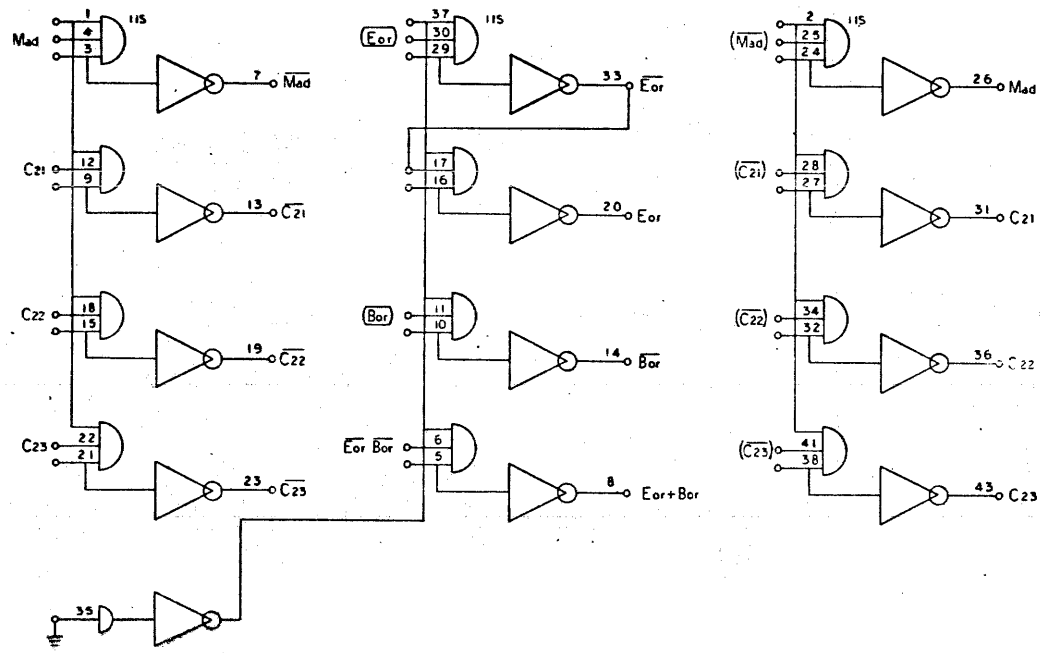


9246A
9246P
TAPE ELECTRONICS
PAGE 21
D

REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	DATE
MATERIAL LIST				
SDS SYSTEMS DATA SYSTEMS				
DIAGRAM, LOGIC, MAG TAPE UNIT				
MODEL NO.	9246	REV. NO.	D	103258
REV. NO.		SCALE	NO NOT SCALE ON A WORK	SHEET 1

103258 101

REV.	DESCRIPTION	DATE	APPROVED
A	REL TO MFG	7/23	[Signature]
C	SEE DEV. E.O.		
D	SEE REV E.O.		

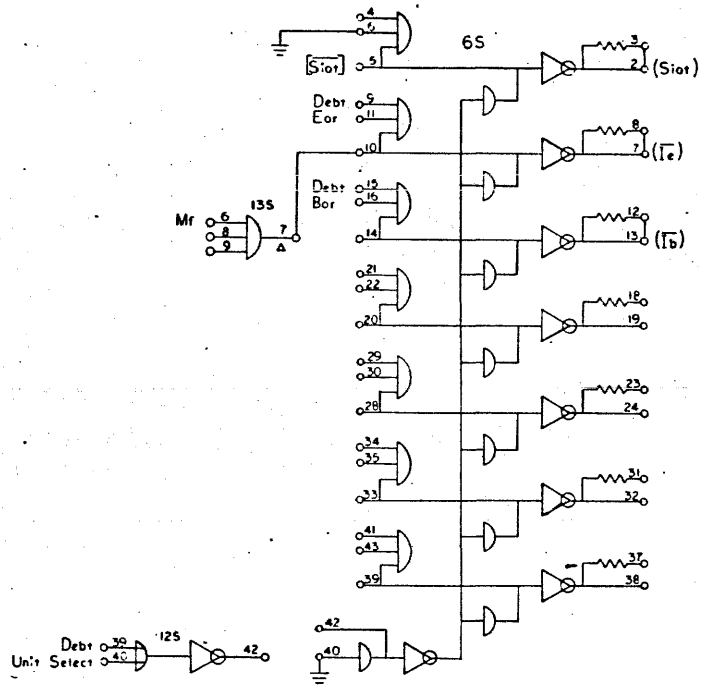


G246A
9246P
TAPE ELECTRONICS
PAGE 22
D

NO. REV.	DRAWING NO.	DESCRIPTION	REFERENCE IDENTIFICATION	ITEM NO.
			SDS SCIENTIFIC DATA SYSTEMS	
NOTES UNLESS SPECIFIED		DATE	TITLE	
1. TO OPERATOR	2. CHECK	7/23/63	DIAGRAM, LOGIC, MAG TAPE UNIT	
3. ALL DIMENSIONS	4. ALL DIM IN INCHES	7/23/63		
MODEL NO.	9246	REV.	D	103258
NEXT ASSY		DATE		D

03258 D

REVISIONS		103258	D
REV	DESCRIPTION	DATE	BY
A	REL TO MFG.	7/12/63	WFE
B	SEE REV E.O.	7/12/63	WFE
C	SEE REV E.O.	7/12/63	WFE
D	SEE REV E.O.	7/12/63	WFE

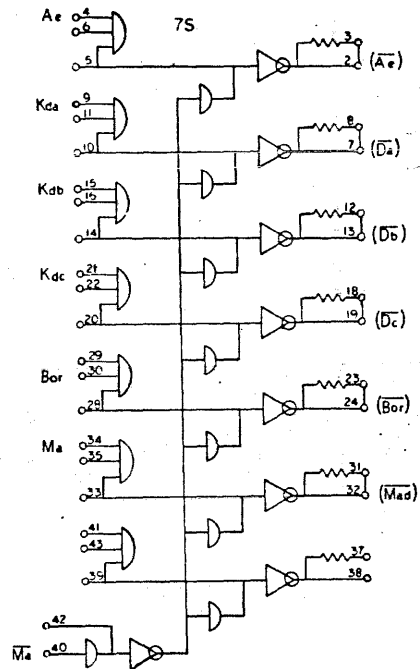


9246A
9246P
TAPE ELECTRONICS
PAGE 23
D

REV	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION	DATE
		MATERIAL LIST		
NOTES UNLESS SPECIFIED		DRWN	CHKD	DATE
1. DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES		CHECK	DATE	DATE
2. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE TO CENTER UNLESS OTHERWISE SPECIFIED		APPR	DATE	DATE
3. HOLE SPACINGS		TITLE		
4. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED		DIAGRAM, LOGIC, MAG TAPE UNIT		
MODEL NO	9246	REV		DATE
NEXT ASSY		D	103258	D
		SCALE	DO NOT SCALE DRAWING	SHEET 3

103258 | D |

REVISIONS		103258	
REV.	DESCRIPTION	CHKD.	DATE
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C	SEE REV. E. O.		
D	SEE REV. E. O.		

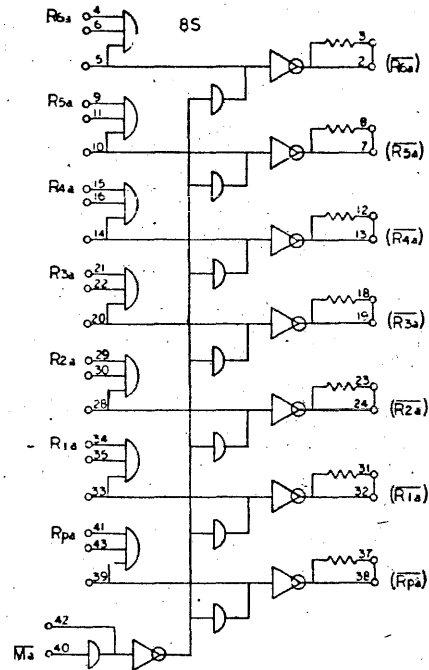


9246A
9246F
TAPE ELECTRONICS
PAGE 24
D

REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	DATE
NOTES UNLESS SPECIFIED		MATERIAL LIST		
1. DIMENSIONS	DRAWN	1-1	1-3	
2. TOLERANCES	CHECKED	CUB	7-30-53	
3. MATERIALS	APPROVED	WHT	7-14-53	
4. SPECIAL MFG. INSTRUCTIONS				
5. SPECIAL HANDLING				
6. SPECIAL STORAGE				
7. SPECIAL PACKAGING				
MODEL NO.		SDS		SDS SYSTEMS DATA SYSTEMS
9246		TITLE		DIAGRAM, LOGIC, MAG TAPE UNIT
REV.	DATE	REV.	DATE	
D	103258	D		
SCALE		DO NOT SCALE DRAWINGS (SHEET 24)		

103258 101

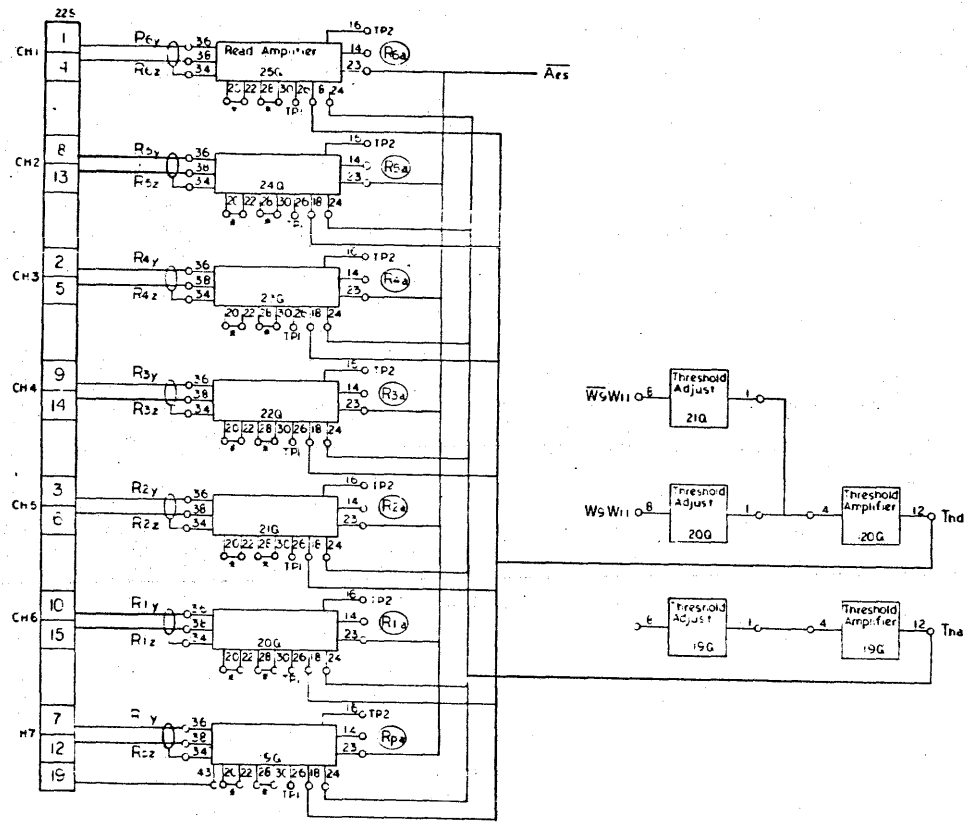
REV	DESCRIPTION	DATE	BY	103258 D
A	REF TO MFG			
C	SEE REV. E.O.			
D	SEE REV. E.O.			



9246A
9246P
TAPE ELECTRONICS
PAGE 25
D

REV	DRAWING NO	DESCRIPTION	DIFFERENTIAL NOTATION	DATE
NOTES UNLESS SPECIFIED				
1. TYPED WORK	DRAWN	DATE	BY	
2. CHECK	CHECK	DATE	BY	
3. CHECK AND APPROVE	APPV	DATE	BY	
4. CHECK APPROVAL				
5. ALL DIM IN INCHES				
MATERIAL LIST		SDS		
DIAGRAM, LOGIC, MAG TAPE UNIT				
MODEL NO	9246	REV	D	103258 D
SCALE		DO NOT SCALE DRAWING		SHEET 5

SEE REV. A.D.
 SEE REV. E.C.
 SEE REV. E.C.



* WIPERS 20-22 AND 28-30 ARE NOT USED IN 92463P.

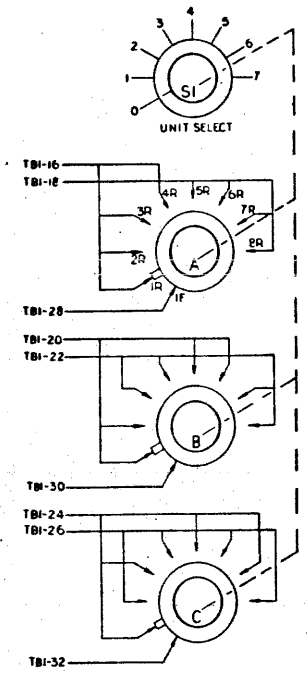
9246A
 9246P
 TAPE ELECTRONICS
 PAGE 26
 D

3256 D

NO. REV.	DRAWING NO.	DESCRIPTION	DATE	BY	APPR.	REVISIONS	DATE	BY	APPR.
NOTES UNLESS SPECIFIED:		DRAWN: [Signature]		CHECKED: [Signature]		SDS SCIENTIFIC DATA SYSTEMS 1700 BROADWAY, PHILADELPHIA, PA. 19103			
1. USE ALL SHOWN DIMENSIONS		2. CHECK ALL DIMENSIONS		3. CHECK DIMENSIONS		DIAGRAM, LOGIC, MAG TAPE UNIT			
MODEL NO.	9246	REV.	D	DWG. NO.	103258				
DATE		BY		APPR.					

REVISIONS		103258	D
REV	DESCRIPTION	DATE	APPROVED
A	REL TO MFG	2/17/63	[Signature]
C	SEE REV. E.O.	2/17/63	[Signature]
D	SEE REV E.O.	2/17/63	[Signature]

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15	TBI-15
16	TBI-39
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21	TBI-23
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39	TBI-41
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41	TBI-14
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44	P42-105-F51-1
45	P42-109-F51-2
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50	TBI-1
51	TBI-3

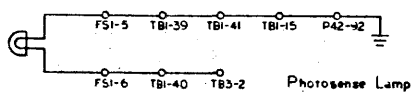
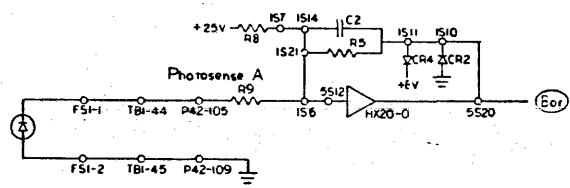
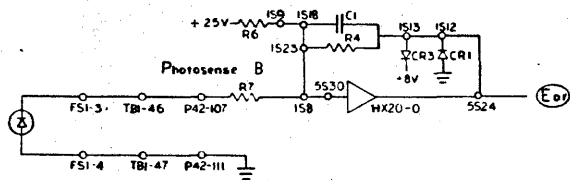


TB2
PHOTOSENSE
CONTROL
ASSY.
(SEE PAGE
29)

9246A
TAPE ELECTRONICS
PAGE 27
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DRAWING NO		DESCRIPTION		REVISIONS	
9246		DIAGRAM, LOGIC, MAG TAPE UNIT		D	
DATE		DATE		DATE	
BY		BY		BY	
CHECKED		CHECKED		CHECKED	
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QUANTITY		QUANTITY		QUANTITY	
UNIT PRICE		UNIT PRICE		UNIT PRICE	
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REMARKS		REMARKS		REMARKS	
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APPROVED		APPROVED			

REVISIONS			103258	D
NO.	DESCRIPTION	CHK	DATE	APPROVED
A	RFL TO MFG.			
C	SEE REV. E.C.			
D	SEE REV E.C.			

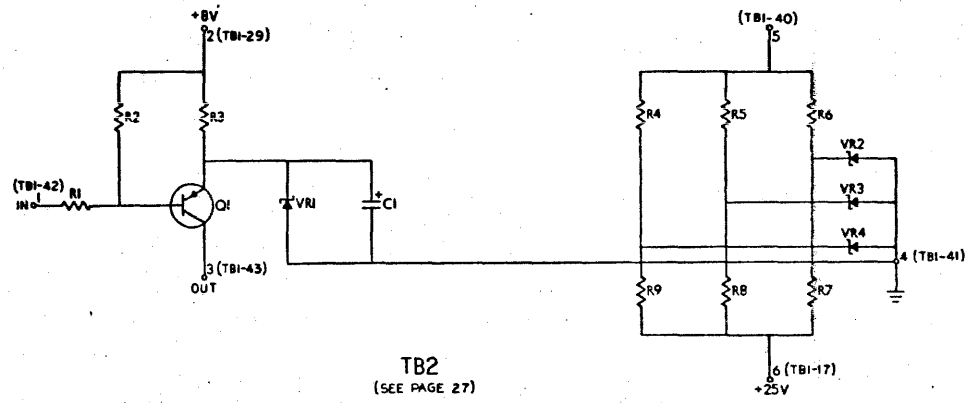


9246A
TAPE ELECTRONICS
PAGE 28
D

NO. REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	DATE
NOTED UNLESS SPECIFIED		MATERIAL LIST		
1. TOLERANCES UNLESS SPECIFIED	DRAWN	10/1/61	1-3	SDS COMPUTING DATA SYSTEMS <small>1525 PATENTING STREET, SANTA MONICA, CALIFORNIA</small>
2. DIMENSIONS UNLESS SPECIFIED	CHECK	C. B.	2/17/63	
3. FINISH UNLESS SPECIFIED	APPR.	W. E.	2/17/63	
4. HOLE POSITION UNLESS SPECIFIED				
MODEL NO.	9246	DIAGRAM, LOGIC, MAG TAPE UNIT		REV. NO.
WEST ARMY		SCALE	DO NOT SCALE DRAWING	DRYER
				103258
				D

103258 101

REVISIONS				103258	D
REV	DESCRIPTION	CHK	DATE	APPROVED	
A	REL TO MFG				
C	SEE REV. E.O.				
D	SEE REV E.O.				



TB2
(SEE PAGE 27)

9246A,
MAG TAPE UNIT
PAGE 29
D

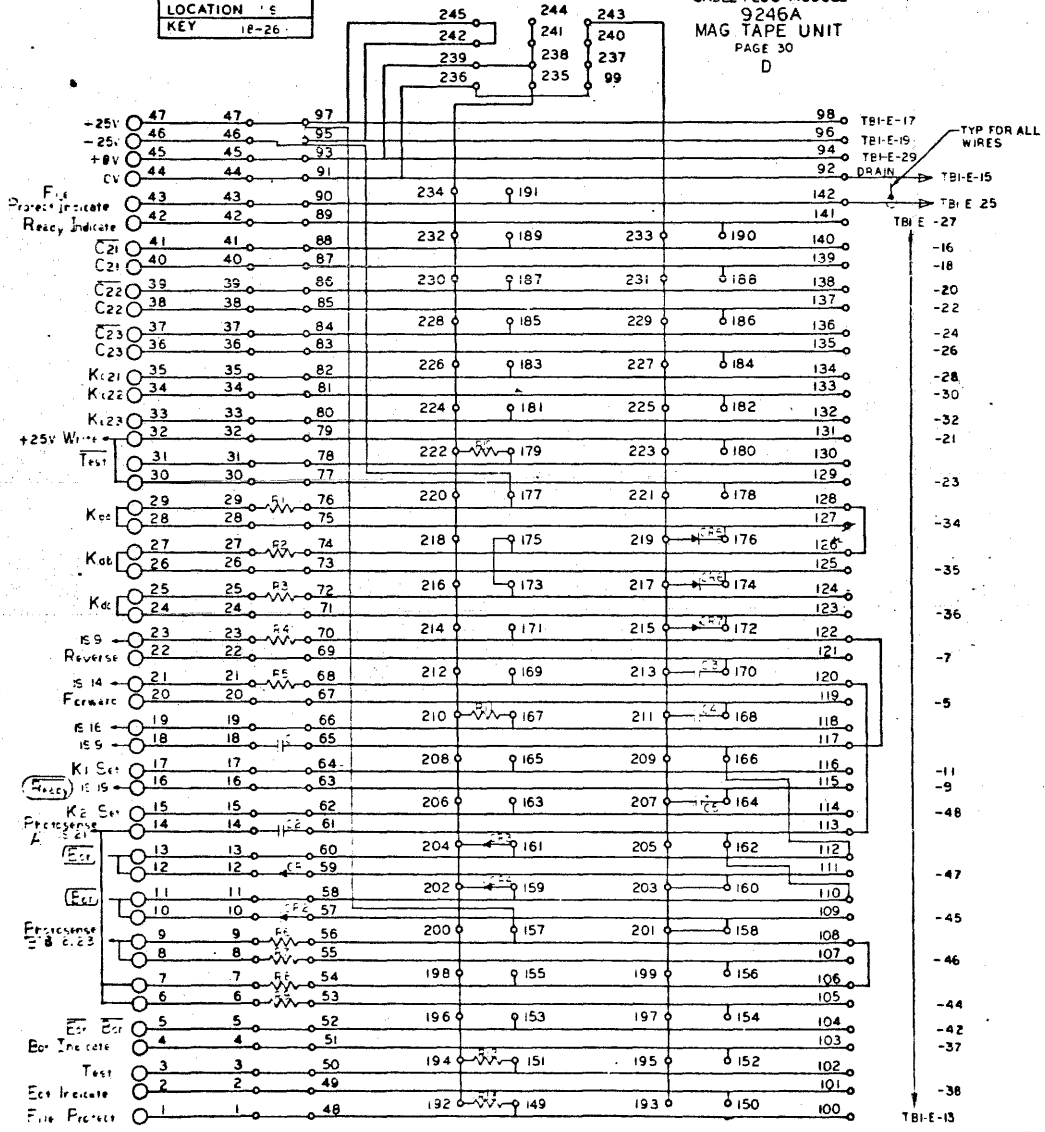
NO. DES	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV
MATERIAL LIST				
NOTES UNLESS SPECIFIED: 1. DIMENSIONS UNLESS OTHERWISE SPECIFIED 2. DIMENSIONS IN PARENTHESIS ARE FOR INFORMATION ONLY 3. DIMENSIONS IN SQUARE BRACKETS ARE FOR INFORMATION ONLY 4. DIMENSIONS IN BRACKETS ARE FOR INFORMATION ONLY 5. DIMENSIONS IN BRACKETS ARE FOR INFORMATION ONLY		SDS SIGNATURE DATA SYSTEMS 10000 UNIVERSITY DRIVE, SUITE 1000, COLLEGE PARK, MD 20740		
CHECKED: <i>[Signature]</i> 7/1/63 APPR: <i>[Signature]</i> 7/1/63		TITLE DIAGRAM, LOGIC MAG TAPE UNIT		
WORK. NO.	9246	REV.	D	103258
UNIT ARMY		SCALE	DO NOT SCALE DRAWING	UNIT

103258 D

REV.	DESCRIPTION	DATE	BY
A	DEL. TO WFO	10/15/54	JW
C	SEE REV. E.O.	12/15/54	JW
D	SEE REV. E.O.	12/15/54	JW

DESIGNATION P42
LOCATION 'S
KEY 18-26

CABLE PLUG MODULE
9246A
MAG TAPE UNIT
PAGE 30
D



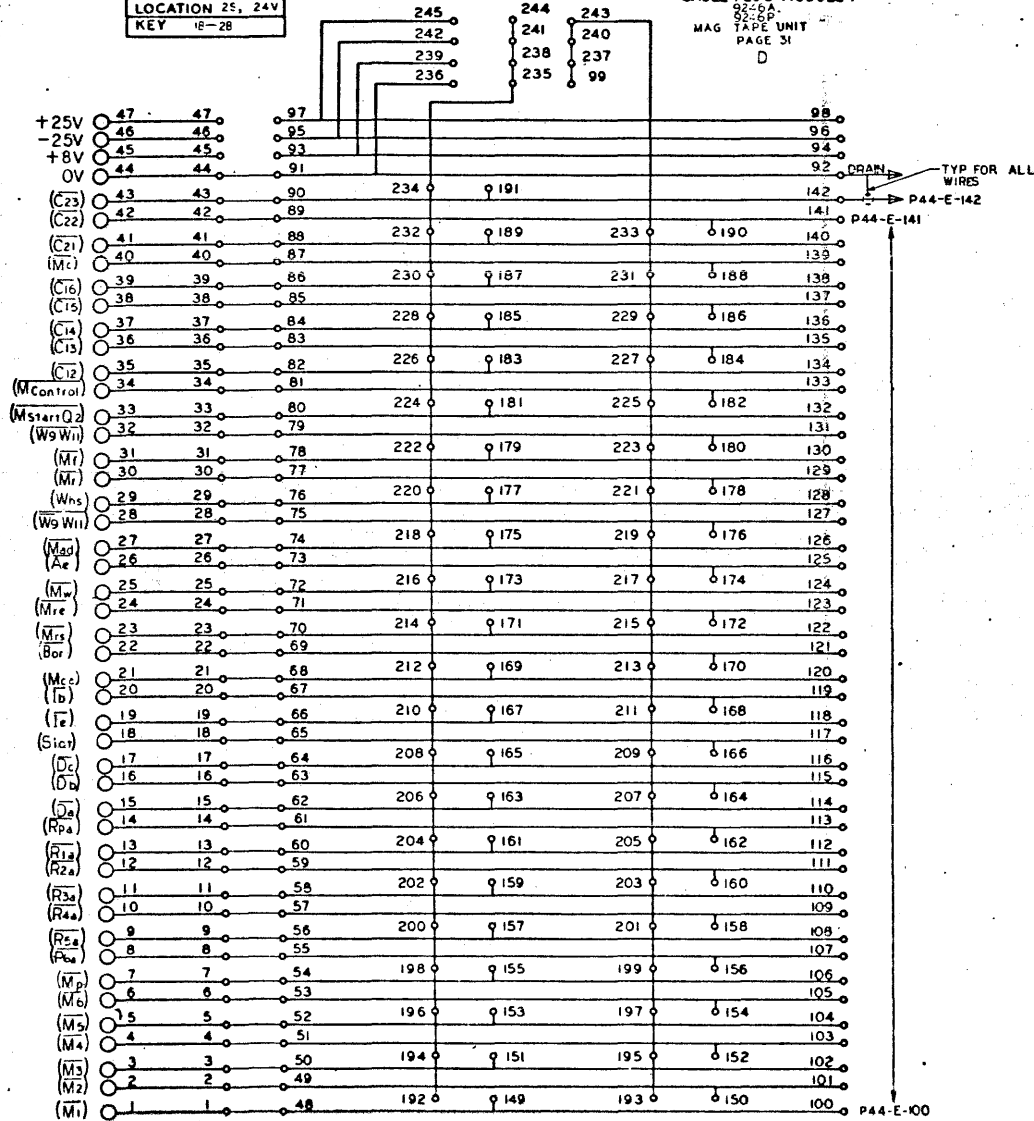
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MATERIAL LIST				
NOTES UNLESS SPECIFIED		DRAWN	DATE	
1. UNLESS OTHERWISE SPECIFIED		CHECK	DATE	
2. SEE ALL MOUNTING		APPRO	DATE	
3. MOUNT SURFACES				
4. ALL WIRE IN BUNDLE				
MODEL NO. 9246		SDS		
NEXT REV.		DAGRAM, LOGIC, MAG TAPE UNIT		
		REV.	DATE	
		D	103258	D
		SCALE	NO NOT SCALE DRAWING	SHEET 30

103258 D

REVISIONS			
REV	DESCRIPTION	CHK	DATE
A	REL. TO MFG.		
C	SEE REV. E.O.		
D	SEE REV. E.O.		

DESIGNATION P43
LOCATION 25, 24V
KEY 1E-28

CABLE PLUG MODULE
92-6A
MAG TAPE UNIT
PAGE 31
D

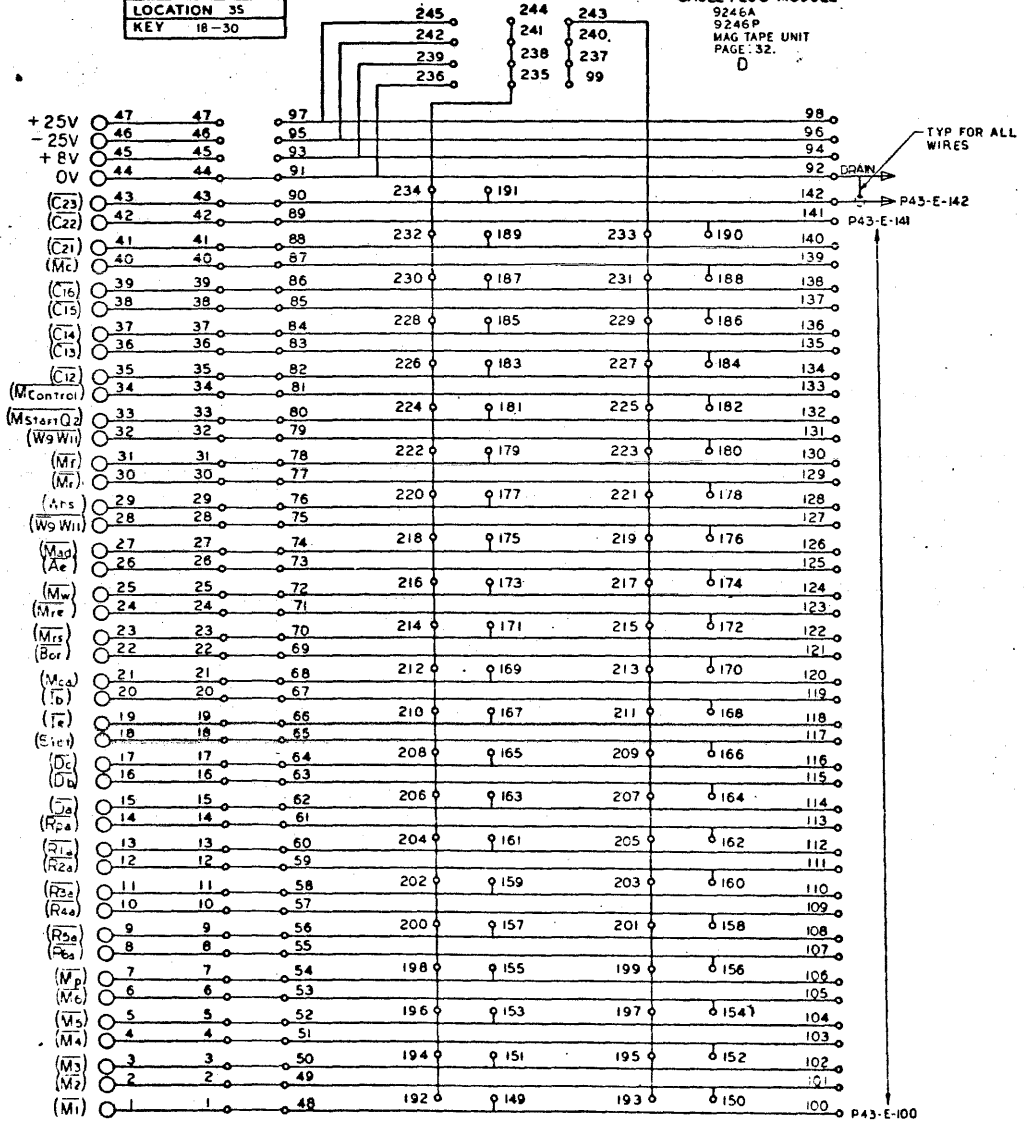


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NOTES UNLESS SPECIFIED			
CHECK	DATE	BY	DATE
1. CHECK ALL DIMENSIONS	2/1/72	JLH	2/1/72
2. CHECK ALL PART NUMBERS	2/1/72	JLH	2/1/72
3. CHECK ALL TOLERANCES			
4. CHECK ALL FINISHES			
5. CHECK ALL TYPING			
SDS ENGINEERING DATA SYSTEMS			
DIAGRAM, LOGIC, MAG TAPE UNIT			
MODEL NO.	9246	REV.	D
SCALE		NO. OF SCALE SHEETS	3
DATE		APP. NO.	103258
			D

REVISIONS			
REV	DESCRIPTION	CHK	DATE
A	REL. TO MFG.		
C	SEE REV. E.O.		
D	SEE REV E.O.		

DESIGNATION P44
LOCATION 35
KEY 18-30

CABLE PLUG MODULE
9246A
9246P
MAG TAPE UNIT
PAGE 32.
D



REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	FILE NO.
NOTES UNLESS SPECIFIED		MATERIAL LIST		
1. TO BE USED IN ALL DRAWINGS	DRAWN	DATE	SDS	
2. DRAW ALL PARTS TO BE USED	CHECK	DATE	MAG TAPE UNIT	
3. CHECK DIMENSIONS	APPV	DATE	TITLE	
4. MAG TAPE UNIT			DIAGRAM, LOGIC, MAG TAPE UNIT	
5. MAG TAPE UNIT				
MODEL NO	9246	REV NO	D	103258
DRAWN BY		SCALE	NO NOT SCALE DRAWING	SHEET 2-2

103258 D

REV.	DESCRIPTION	DATE	APPROVED
A	REL TO MFG	7/12/63	[Signature]
C	SEE REV. E.O.	10/15/63	[Signature]
D	SEE REV E.O.	10/15/63	[Signature]

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	1E	19	20	21	22	23	24	25
RX 10	FH 17	OX 13	GC 10	BC 10	IH 12	GC 10	BC 10	IC 12	BC 10	BC 10	GC 11		OX 13	OX 13	OX 13	OX 13	OX 13	HK 60	HK 60	HK 60	HR 60	HK 60	HK 60	HK 60	
P42 (A' UNITS P70 (P' UNITS	P43 ZK 57	P44	ZK 58	HX20 (NOT USED ON P' UNITS)	AX 14	AX 14	AX 14		IC 12	IC 12	GC 10	OX 13	OX 13	FC 17	FC 17	AK 52	AK 52	ZK 56					ZK 51	ZK 51	

Q

Q

S

S

9246A
9246P

TAPE ELECTRONICS
PAGE 33
D

NO. REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV.
NOTES UNLESS SPECIFIED				
1. DIMENSIONS UNLESS SPECIFIED		DRAWN: [Signature]		
2. TOLERANCES UNLESS SPECIFIED		CHECK: [Signature]		
3. DIMENSIONS UNLESS SPECIFIED		APPV: [Signature]		
4. DIMENSIONS UNLESS SPECIFIED		DATE: 7/12/63		
5. DIMENSIONS UNLESS SPECIFIED		SCALE: [Blank]		
6. DIMENSIONS UNLESS SPECIFIED		SHEET 33		
7. DIMENSIONS UNLESS SPECIFIED		SDS		
8. DIMENSIONS UNLESS SPECIFIED		DIAGRAM, LOGIC, MAG TAPE UNIT		
9. DIMENSIONS UNLESS SPECIFIED		D 103258 D		

103258 | D |

REVISIONS			103258	D
REV	DESCRIPTION	CHK	DATE	APPROVER
A	REL TO MFG			
C	SEE REV. E.O.			
D	SEE REV E.O.			

MODULE LIST

ITEM	DESCRIPTION	MODEL	QTY.
1	WRITE DRIVER	AK52	2
2	CABLE DRIVER	AX14	3
3	AND/OR BUFFER AMP	BC10	4
4	UNIVERSAL FF.	FC17	2
5	GATE EXPANDER	GC10	3
6	GATE EXPANDER	GC11	1
7	OPERATIONAL AMP	HX20-C	1
8	READ AMP	HK60	7
9	AND INVERTER	IC12	3
10	ONE SHOT MULT.	OX13	8
11	RELAY DRIVER	RX10	1
12	RESISTOR	ZK51	2
13	TERM. MODULE	ZK56	1
14	TERM. MODULE	ZK57	1
15	TERM. MODULE	ZK58	1
16	AND INVERTER	IH12	1
17	UNIVERSAL F.F.	FH17	1

REPLACEMENT PARTS LIST

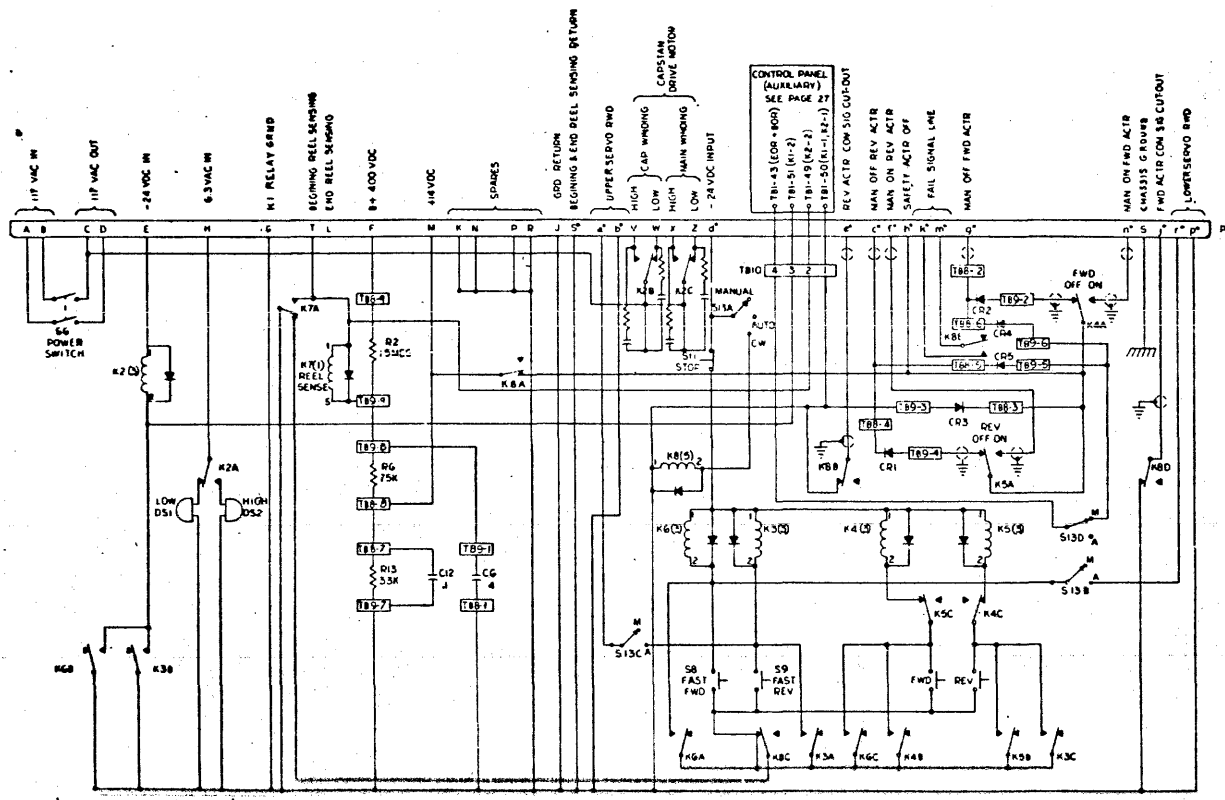
ITEM	DESCRIPTION	DESIGNATION	QTY.	SUPPLIER CODE (SEE INDEX)
1	RESISTOR, 3.3K ± 2%	(P42) R1, R2, R3	3	16, 17
2	↑ 1 MEGA ↑	(P42) R4, R5, R6, R8	4	16, 17
3	↓ 1K ↓	(P42) R7, R9	2	16, 17
4	RESISTOR, 8.2K ± 2%	(P42) R10, R11, R12, R13	4	16, 17
5	CAPACITOR, MYLAR 0033 μF ± 10%	(P42) C1, C2	2	26, 27, 7A
6	CAPACITOR, MYLAR 0068 μF ± 10%	(P42) C3, C4	2	26, 27, 7A
7	CAPACITOR, TANTALUM 4.7 μF ± 20% 50V	(P42) C5	1	23, 77
8	DIODE, SILICON SWITCHING IN914A	(P42) CR1 THRU CR7	7	4, 12, 13, 14
9	CONNECTOR, SOLDER TAIL 47 CONTACT # 7005-47	J(10) THRU J(25Q) J(15) THRU J(20S) J(24S), J(25S)	47	82
10	RESISTOR, 1.8K ± 2%	(TB2) R1	1	16, 17
11	↑ 15K ↑	(TB2) R2	1	↑
12	↓ 180 Ω ↓	(TB2) R3	1	↓
13	↓ 390 Ω ↓	(TB2) R4, R5, R6	3	↓
14	RESISTOR, 470 Ω ± 2%	(TB2) R7, R8, R9	3	16, 17
15	DIODE, VOLTAGE REGULATOR IN752	(TB2) VR1	1	2, 12, 13, 14
16	DIODE, VOLTAGE REGULATOR IN969A	(TB2) VR2, VR3, VR4	3	2, 6, 14, 65
17	CAPACITOR, TANTALUM 4.7 μF ± 20% 50V	(TB2) C1	1	23, 77
18	TRANSISTOR, SILICON SWITCHING 2N1132	(TB2) Q1	1	3, 10, 11
19	RECEPTACLE, 19 PIN # RSK 19-315L	J1	1	134
20	PLUG, 19 PIN # SK 19-325	J2	1	134
21	SWITCH, ROTARY # 102163	S1, S2	2	SDS
22	LAMP, INCANDESCENT # 47	DS1 THRU DS5	5	84
23	RESISTOR, WW 10 Ω ± 5%	R1 THRU R5	5	99, 100
24	RELAY, DPDT # D05X-7T # 80-6A/115VAC	K1 THRU K4	4	78 79
25	SWITCH, TOGGLE DPDT # 83054-SE	S1(S)	1	106
26	CAPACITOR, TANTALUM 4.7 μF ± 20% 50V	C1(A)	1	23, 77

9246A,
MAG TAPE UNIT
PAGE 34
D

103258 101

REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	QTY.
NOTES UNLESS SPECIFIED				
1. DIMENSIONS UNLESS OTHERWISE SPECIFIED	DRAWN	W.S. 7/9/68	SDS	
2. TOLERANCES UNLESS OTHERWISE SPECIFIED	CHECK	R. B. 7/11/68	REQUISITE DATA SYSTEMS	
3. BREAK ALL SHARP CORNERS	APPR.	W.S. 7/11/68	1000 FORTY-FIFTH STREET, SANTA MONICA, CALIFORNIA	
4. HIDE DIMENSIONS			TITLE	
5. ALL DIM IN INCHES			DIAGRAM, LOGIC MAG TAPE UNIT	
MODEL NO.	9246	REV.	D	103258
NEXT ASBY		DATE		D
SCALE			DO NOT SCALE DRAWING	SHOWN

REV	DESCRIPTION	DATE	BY
A	REL TO MFG	02/10/63	J. J. [unclear]
C	SEE REV. E.O.	07/20/64	J. J. [unclear]
D	SEE REV E.O.	08/18/64	J. J. [unclear]



- 7. #99 SIGNIFIES CHASSIS GROUND
- 8. USED WITH ASSY NO 310843710
- 9. S13 D-E NOT USED
- 10. ALL DIODES ARE M2009
- 11. ALL RELAYS SHOWN IN DEENERGIZED POSITION
- 12. ALL RESISTORS IN OHMS
- 13. ALL CAPACITORS IN MICROFARADS

MANUAL CONTROL PANEL

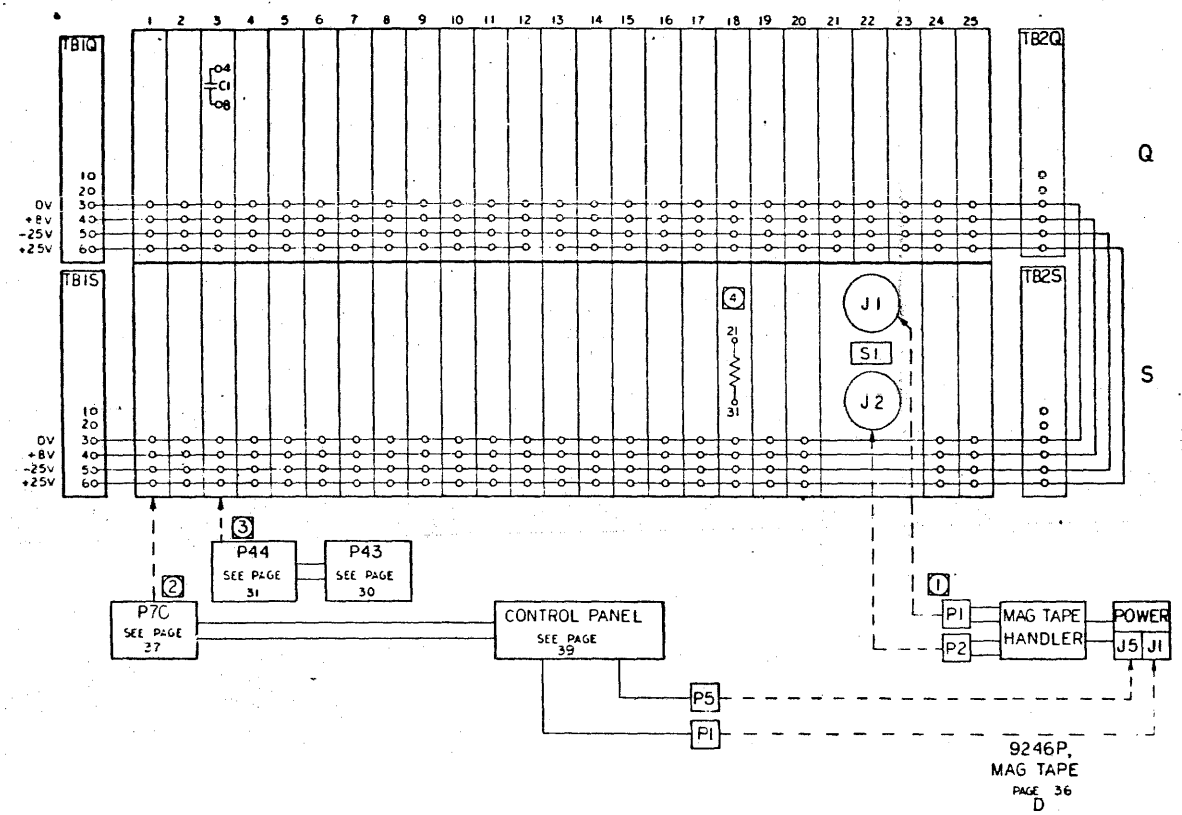
9246A
MAG TAPE UNIT
PAGE 35
D

REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION
	9246	DIAGRAM, LOGIC MAG TAPE UNIT	
		DATE: 7/7/63 CHECK: 02/12/63 APPR: 01/17/63	
		SCALE: AS SHOWN	

103258 (D)

REVISIONS			103258	2
REV	DESCRIPTION	DATE	APPROVED	
C	SEE REV. E.O.			
D	SEE REV E.O.			

- NOTES UNLESS OTHERWISE SPECIFIED
- ③ RECEPTACLE J(3S) IS PROVIDED FOR THE P44 TO P43 CABLE. P43 CONNECTS TO RECEPTACLE J(24V) OF THE MODEL 9248 CONTROL UNIT OR TO J(2S) OF A SECOND MODEL 9246.
 - ④ USED ON 92463P ONLY, RESISTOR 100680-750.
 - ① RECEPTACLES J1&J2 ARE PROVIDED FOR CONNECTION TO THE READ&WRITE HEADS OF THE MAG TAPE UNIT.
 - ② RECEPTACLE J(5S) IS PROVIDED FOR P70 FROM CONTROL PANEL.



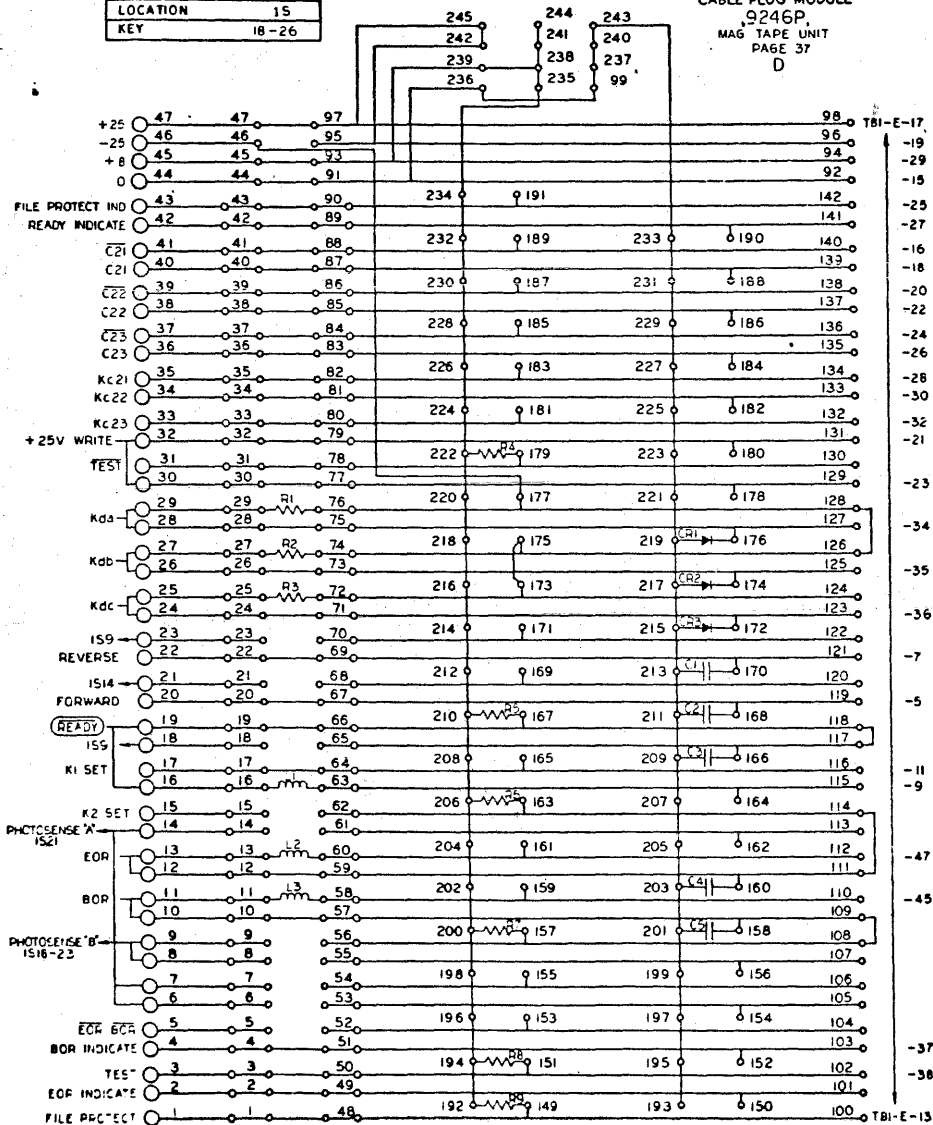
DWG NO	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION	REV
NOTED UNLESS SPECIFIED				
DESIGN: <i>[Signature]</i>		SDS ELECTRONIC DATA SYSTEMS		
CHECK: <i>[Signature]</i>		1325 PENTAGON STREET, BOSTON, MASS., U.S.A.		
APPR: <i>[Signature]</i>		TITLE		
		DIAGRAM, LOGIC MAG TAPE		
MODEL NO	9246	REV	D	DWG NO
MILIT ARMY				103258
SCALE		DO NOT SCALE DRAWING		SHEET 5

103258(1)

REV	DESCRIPTION	CHK	DATE	APPROVED
C	SEE REV. E.O.			
D	SEE REV. E.O.			

DESIGNATION	P70
LOCATION	15
KEY	18-26

CABLE PLUG MODULE
9246P
MAG TAPE UNIT
PAGE 37
D



NO.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV.
NOTES UNLESS SPECIFIED				
1	DESIGNED BY	W. J. WHEAT		
2	CHECKED BY	J. L. WHEAT		
3	APPROVED BY	R. J. WHEAT		
MATERIAL LIST				
SDS DATA SYSTEMS				
DIAGRAM, LOGIC MAG TAPE UNIT				
MODEL NO.	9246	REV. NO.	D	D
SCALE: NO NOT SCALE DRAWING SHEET 37				

REVISIONS				103258	D
REV	DESCRIPTION	CHK	DATE	APPROVED	
C	SEE REV. E.O.				
D	SEE REV. E.O.				

MODULE LIST


ITEM	DESCRIPTION	MODEL	QTY
1	WRITE DRIVER	AK52	2
2	CABLE DRIVER	AX14	3
3	AND/OR BUFFER AMP	BC10	4
4	UNIVERSAL F.F.	FC17	2
5	GATE EXPANDER	GC10	3
6	GATE EXPANDER	GC11	1
7	READ AMP	H260	7
8	AND INVERTER	IC12	3
9	ONE SHOT MULT.	OY13	8
10	RELAY DRIVER	RX10	1
11	RESISTOR	ZK51	2
12	TERM. MODULE	ZK56	1
13	TERM. MODULE	ZK57	1
14	TERM. MODULE	ZK58	1
15	AND INVERTER	IH12	1
16	UNIVERSAL F.F.	FH17	1

REPLACEMENT PARTS LIST

ITEM	DESCRIPTION	DESIGNATION	QTY.	SUPPLIER CODE (SEE INDEX)
1	RESISTOR, 3.3 K \pm 2%	(P70) R1, R2, R3	3	16, 17
2	RESISTOR, 1.8 K \pm 2%	(P70) R6, R7	2	16, 17
3	RESISTOR, 8.2 K \pm 2%	(P70) R4, R8, R9	3	16, 17
4	CAPACITOR, MYLAR .0048 μ F \pm 10%	(P70) C1, C2	2	26, 27, 74
5	CAPACITOR, MYLAR .0033 μ F \pm 10%	(P70) C4, C5	2	26, 27, 74
6	DIODE, SILICON SWITCHING 1N914	(P70) CR1 THRU CR3	3	4, 12, 13, 14
7	INDUCTOR, WOLDED 10000 μ H \pm 5%	(P70) L2, L3	2	42, 90, 91
8	RECEPTACLE, 19 PIN #25K 19-315L	J1	1	134
9	PLUG, 19 PIN #SK19-326	J2	1	134
10	SWITCH, ROTARY #102163	S101, S102	2	585
11	RESISTOR, WW 10 Ω \pm 5%	R1 THRU R5	5	99, 100
12	RELAY, DPDT #DPSX-7T #80-6A/115VAC	K1, K3	2	78 79
13	SWITCH, TOGGLE DPDT #B3054-SE	S1(S)	1	106
14	CAPACITOR, TANTALUM 4.7 μ F \pm 20% 50V	C1 (A)	1	23, 77
15	CONNECTOR, SOLDBERTAIL 47 CONTACT #7008-47	J1(A) THRU J1(25A) J1(S) THRU J1(20S) J1(24S), J1(25S)	47	82
16	LAMP, MINIATURE #328	DS101 THRU DS105	20	83, 84
17	INDUCTOR, WOLDED 330 μ H \pm 5%	(P70) L1	1	42, 90, 91
18	RESISTOR, 560 Ω \pm 2%	(P70) R5	1	16, 17
19	CAPACITOR, MYLAR .0010 μ F \pm 10%	(P70) C3	1	26, 27, 74

9246P,
MAG TAPE UNIT
PAGE 38
D

NOT USED ON 92463P

REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	QTY
NOTES UNLESS SPECIFIED				
1. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED	2. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED	3. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED	4. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED	5. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED
6. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED	7. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED	8. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED	9. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED	10. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED
MATERIAL LIST				
DIAGRAM, LOGIC, MAG TAPE UNIT				
MODEL NO.		REV. NO.	D	103258
DATE		SCALE		D

CONTENTS

Item	Page No.
1. Revision Level Indicator	1
2. Cabling Diagram, Ampex System	2
3. Signal Directory	3
4. Logic Diagrams	4 thru 26
5. Auxiliary Control Panel, Ampex System	27 thru 30
6. Cable P43 - P44	31, 32
7. Module Locator	33
8. Replacement Parts, Ampex System	34
9. Control Panel, Ampex System	35
10. Cabling Diagram, Potter System	36
11. Auxiliary Control Panel, Potter System	37 & 39
12. Replacement Parts, Potter System	38
13. Termination Modules Schematic	
a) ZK51	
b) ZK56	
c) ZK57	
d) ZK58	
e) ZK67 & 68	

Module Changes

9248	92481	92482	92483	9348	Coordinate With EO	Module Change			
EO 103514	EO 107535	EO 107536	EO 107537	EO 107538		From	To	Loca.	
B					EO 103403B	OX13	CK52	5V	
D					NONE	OX11	OX13	2K	
D					NONE	OX11	OX13	3K	
D					NONE	OX11	OX13	9K	
D					NONE	OX11	OX13	4V	
D					NONE	OX11	OX13	6V	
E					EO 103403S	FC17	FH17	1K	
E					EO 107514H	FC17	FH17	15K	
E						FC17	FH17	19K	
E				FC17		FH17	20K		
F	B	B	B	B		GC10	GH10	10K	
F	B	B	B	B		GC10	GH10	11K	
G	B	B	C	B		GC10	GH10	17K	
G	B	B	C	B		GC10	GH10	18K	
G	B	B	C	B		JC12	IH12	16V	
H	C					EO 107514H	OX13	OX14	9K
		C	A	C		EO 103043S	OX13	OX14	2V
		C	A	C		EO 107514H	OX13	OX14	9K

REV	DESCRIPTION	CHK	DATE	APPROVED
1	INL. TO MAG			
2	SEE REV. E			
3	SEE REV. E			
4	SEE SEE EQ.			
5	SEE REV. E			

NOTE:

THIS DWG APPLIES TO BOTH THE AMPLEX (A) & POTTER (P) MAG TAPE UNITS. FOR SIMPLICITY ONLY 9246A AND/OR 9246P DESIGNATIONS ARE SHOWN ON INDIVIDUAL PAGES, 9246A IMPLIES 9246A, 9246IA, 92462A, & 9346A, 9246P IMPLIES 9246P, 9246IP, 92462P & 92463P. THE FOLLOWING CHART INDICATES THE EFFECTIVITY OF INDIVIDUAL PAGES.

PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG
1	E								
2	C								
3	C								
4	C								
5	E								
6	E								
7	E								
8	E								
9	C								
10	C								
11	C								
12	C								
13	E								
14	C								
15	C								
16	E								
17	C								
18	C								
19	E								
20	C								
21	C								
22	E								
23	E								
24	E								
25	E								
26	L								
27	E								
28	D								
29	C								
30	E								
31	E								
32	E								
33	E								
34	E								
35	D								
36	E								
37	E								
38	E								
39	D								

NOTES:

- REV LETTERS LISTED INDICATE STATUS OF EACH SHEET OF THIS MULTIPLE SHEET DRAWING.
- CHECK INDIVIDUAL SHEETS FOR REVISION LETTER AGAINST THIS SHEET BEFORE USING THIS DRAWING.

REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH. (MIL. STD. 16B)

PAGE NO	AMPLEX ONLY	POTTER ONLY	BOTH	92462P/3P VARIATIONS
1			X	
2	X			
3			X	
4			X	
5			X	
6			X	
7			X	
8			X	
9			X	
10			X	
11			X	
12			X	
13			X	X
14			X	
15			X	
16			X	
17			X	
18			X	
19			X	
20			X	
21			X	
22			X	
23			X	
24			X	
25			X	X
26			X	
27	X			
28	X			
29	X			
30	X			
31			X	
32			X	
33			X	
34	X			
35	X			X
36		X		
37		X		
38		X		
39		X		

LOGIC

103258 E

WIRE LIST

103404 M

9246A, 9246P
MAG TAPE UNIT
PAGE 1
E

NO. REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION
NOTES UNLESS SPECIFIED			
1. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN INCHES.	2. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN MILLIMETERS.	3. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN MILLIMETERS.	4. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN MILLIMETERS.
5. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN MILLIMETERS.	6. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN MILLIMETERS.	7. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN MILLIMETERS.	8. UNLESS NOTED OTHERWISE, ALL DIMENSIONS ARE IN MILLIMETERS.
MODEL NO	9246	REV	D 103258 E
TEST UNIT		SCALE	DO NOT SCALE DRAWING

103258/E

EO 103062 REVISION CHASSIS ASSEMBLY

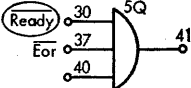
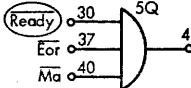
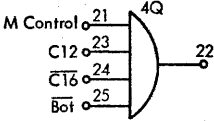
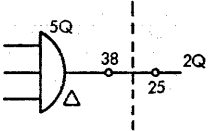
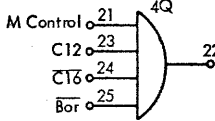
Adds C1 capacitor to chassis Q J3. Capacitor part No. 100311-475.
See logic diagram Page 5.

Reason: To fire 1 second delay (Dr) and hold off ready until delay runs out.

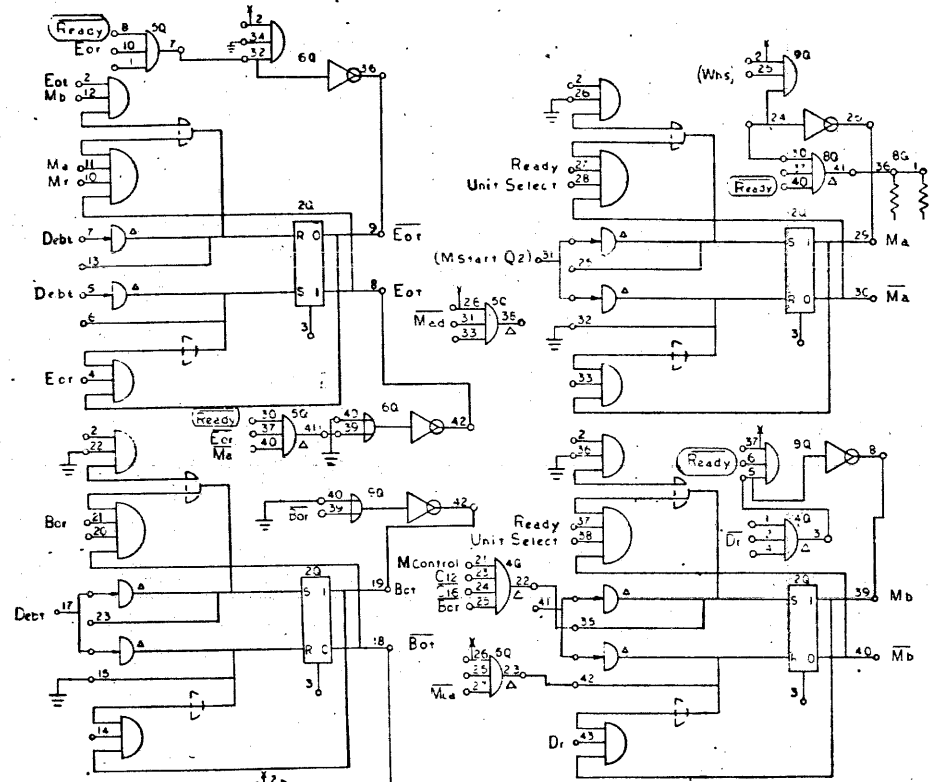
Tape units without capacitor added when performing a reverse scan and reaching load point (Bor) become immediately ready. Forward command can be issued before unit is capable of accepting it and will hang up.

Signal	Logic Pages	Signal	Logic Pages	Signal	Logic Pages	Signal	Logic Pages	Signal	Logic Pages
Ae	18, 24	(Db)	24, 31	(Mca)	30, 21	M5	12, 10, 13	R4af	14
Ae	24, 31	(Dc)	24, 31	Mca	4, 5, 21	M6t	12, 10, 13	R5af	14
Aes	6, 18	Debt	4, 5, 23	M Control	20, 4	M1w	13	R6af	14
Aes	6, 26	Dr	5, 4, 6	M Control	31, 20	M2w	13	R1ar	17
(Bor)	22, 28, 31, 37	Dr	6, 4	Mf	30, 21, 23	M3w	13	R2ar	17
Bor	4, 5, 6, 7, 19, 23, 24	(Eor)	28, 30, 22	(Mf)	30, 21	M4w	13	R3ar	17
Bor	4, 22, 30	Eor	4, 5, 19, 22, 23, 30, 37	Mp	31, 21, 5	M5w	13	R4ar	15
(Bor)	24	Eor	22	(Mp)	31, 21	M6w	13	R5ar	15
Bot	4, 8	Eor + Bor	22, 8	Mps	5, 11, 19	Photosense A, B	28, 29, 30	R6ar	15
Bot	4, 5	EOR + BOR	29, 35 Aonly	Mpt	11, 5, 13	(Ready)	30, 4, 6, 8, 37	R1y	26
Bot Indicate	8, 37, 30	Eor Bor	19, 22, 29, 30, 37	Mpw	13	Ready	6, 4, 7, 8	R2y	26
Ch 1 Read	26	Eot	4, 5, 7, 8	Mr	30, 4, 19, 21	(Ready)	6	R3y	26
Ch 2 Read	26	Eot	4, 5	(Mr)	31, 21	Ready Indicate	8, 30, 37	R4y	26
Ch 3 Read	26	Eot Indicate	8, 30, 37	(Mr)	31, 11, 12	Reverse Actuate	13, 30, 37	R5y	26
Ch 4 Read	26	File Protect	30, 37, 7, 8	Mrs	5, 6, 9, 10	Rpa	18, 19, 25	R6y	26
Ch 5 Read	26	File Protect Indicate	8, 30, 37	(Mrs)	6, 31	(Rpa)	25, 31	R1z	26
Ch 6 Read	26	Forward Actuate	13, 30, 37	M Start Q2	20, 4	(Rpa)	26, 18	R2z	26
Ch 7 Read	26	(Ib)	23, 31	(M Start Q2)	31, 20	Rpaf	18	R3z	26
Ch 1 Write	13	(Ie)	23, 31	Mw	6, 5, 9, 10	Rpar	18	R4z	26
Ch 2 Write	13	Kc21	27, 39, 6, 30, 37	(Mw)	31, 6	Rpy	26	R5z	26
Ch 3 Write	13	Kc22	27, 39, 6, 30, 37	M1	21, 9	Rpz	26	R6z	26
Ch 4 Write	13	Kc23	27, 39, 6, 30, 37	(M1)	31, 21	R1a	16, 17, 19, 25	(S1ot)	23, 31
Ch 5 Write	13	Kda	27, 24, 30, 37, 7, 39	M2	21, 9	R2a	16, 17, 19, 25	(S1ot)	7, 23
Ch 6 Write	13	Kdb	27, 24, 30, 37, 7, 39	(M2)	31, 21	R3a	16, 17, 19, 25	Test	13, 19, 30, 37
Ch 7 Write	13	Kdc	27, 24, 30, 37, 7, 39	M3	21, 9	R4a	14, 15, 19, 25	Test	13, 19, 30, 37
C12	20, 7	K1 Set	8, 30, 37	(M3)	31, 21	R5a	14, 15, 19, 25	Tha	26
C12	30, 20	K2 Set	8, 30, 37	M4	21, 10	R6a	14, 15, 19, 25	Thd	26
C13	20, 7	Ma	4, 18, 19, 24	(M4)	31, 21	R1a	25, 31	Unit Select	6, 4, 7, 23
C13	30, 20	Ma	4, 6, 24, 25	M5	21, 10	R2a	25, 31	Write Activate	13
C14	20, 7	Mad	22	(M5)	31, 21	R3a	25, 31	W9 W11	21, 13, 26
C14	30, 20, 7	Mad	22, 4	M6	21, 10	R4a	25, 31	(W9 W11)	31, 21
C15	20, 7	(Mad)	24	(M6)	31, 21	R5a	25, 31	W9 W11	21, 26
C15	30, 20, 7	Ma Mf	19, 13, 15, 17, 18, 5	M1s	9, 11, 19	R6a	25, 31	(W9 W11)	31, 21
C16	20, 7	Ma Mr	19, 14, 16, 18, 5	M2s	9, 11, 19	(R1a)	26, 16, 17	Whs	32, 4, 31
C16	30, 20, 7, 4	Ma Mr + Mb	19, 5, 13	M3s	9, 12, 19	(R2a)	26, 16, 17		
C21	22, 27, 30, 37, 39	Ma Test	19, 14, 15, 16, 17, 18	M4s	10, 12, 19	(R3a)	26, 16, 17	9246A	
C21	31, 27, 37, 39, 22, 30	Ma Test*	19	M5s	10, 12, 19	(R4a)	26, 14, 15	9246P	
C22	22, 27, 37, 30, 39	Ma Test	19, 13	M6s	10, 12, 19	(R5a)	26, 14, 15	PAGE 3	
C22	31, 37, 30, 39, 27, 22	Mb	4, 5, 8, 19	M1t	11, 9, 13	(R6a)	26, 14, 15	E	
C23	22, 27, 37, 30, 39	(Mb)	4, 6	M2t	11, 9, 13	R1af	16		
C23	31, 30, 37, 39, 27, 22	Mc	6, 5, 9, 10	M3t	12, 9, 13	R2af	16		
(Da)	24, 31	(Mc)	6	M4t	12, 10, 13	R3af	16		

112

From	To	Reason
<p data-bbox="194 365 256 384">103258A</p> 	<p data-bbox="515 365 578 384">103758B</p> 	<p data-bbox="746 365 912 384"><u>Wire list EO 103404B</u></p> <p data-bbox="702 419 933 480">Adds \overline{Ma} term to eliminate resetting Eor Flip-Flop due to noise on ready line.</p>
<p data-bbox="194 624 256 644">103258D</p>  	<p data-bbox="515 624 578 644">103258E</p>  <p data-bbox="453 872 598 910">Remove connection 5Q 38 to 2Q 25</p>	<p data-bbox="746 624 912 644"><u>Wire list EO 103404H</u></p> <p data-bbox="702 678 961 761">Changes \overline{Bot} term to \overline{Bot} driving set side of Mb Flip-Flop. For reverse scan and rewind problems at beginning of tape.</p> <p data-bbox="702 872 943 954">Noise on the \overline{Mad} line setting Ma. Also \overline{Mad} is redundant. EOM's can only legally select one unit at a time.</p>

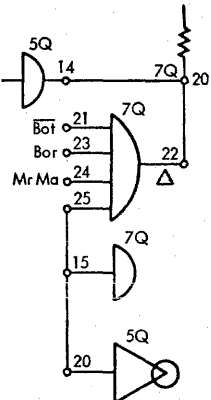
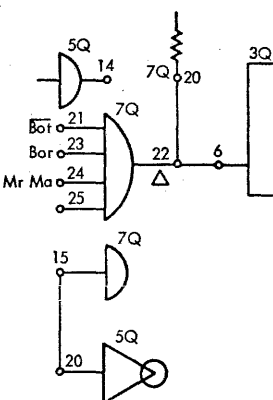
REV	DATE	BY	APP'D
1			
2			
3			
4			
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7			
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9			
10			

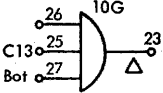
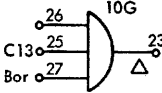


9246A
9246P
TAPE ELECTRONICS
PAGE 4
E

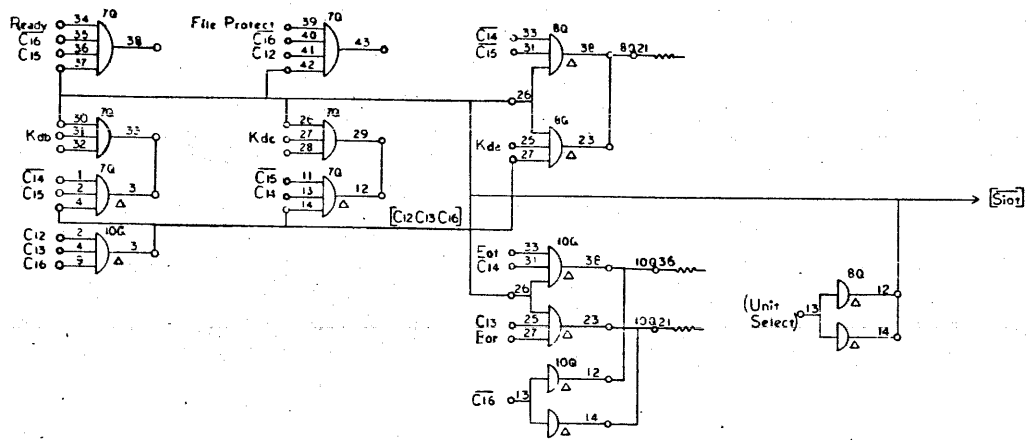
103258 | E |

REV	DRAWING NO	DATE	DESCRIPTION	REFERENCE IDENTIFICATION	FORM NO
NOTES UNLESS SPECIFIED					
1	103258	10/23/64	DIAGRAM, LOGIC, MAG TAPE UNIT		
2					
3					
4					
5					
6					
7					
8					
9					
10					

From	To	Reason
<p data-bbox="166 314 236 334"><u>103258D</u></p> 	<p data-bbox="474 314 543 334"><u>103258E</u></p> 	<p data-bbox="795 314 865 334"><u>103404H</u></p> <p data-bbox="704 375 963 444">\overline{BOT} sets 1 sec delay for reverse scan and rewind problems at beginning of tape.</p>

From	To	Reason
<p data-bbox="197 332 263 353"><u>103258D</u></p>  <p data-bbox="159 376 325 469">26 C13 25 Bot 27</p> <p data-bbox="249 376 288 393">10G</p> <p data-bbox="304 409 325 426">23</p>	<p data-bbox="511 332 577 353"><u>103258E</u></p>  <p data-bbox="473 376 639 469">26 C13 25 Bor 27</p> <p data-bbox="563 376 601 393">10G</p> <p data-bbox="615 409 636 426">23</p>	<p data-bbox="785 332 878 353"><u>EO 103404L</u></p> <p data-bbox="702 376 964 414">Bot term replaced by Bor term for early indication of load point.</p>

REV.	DATE	BY	CHKD.	103258
A				
B				
C				
D				
E				

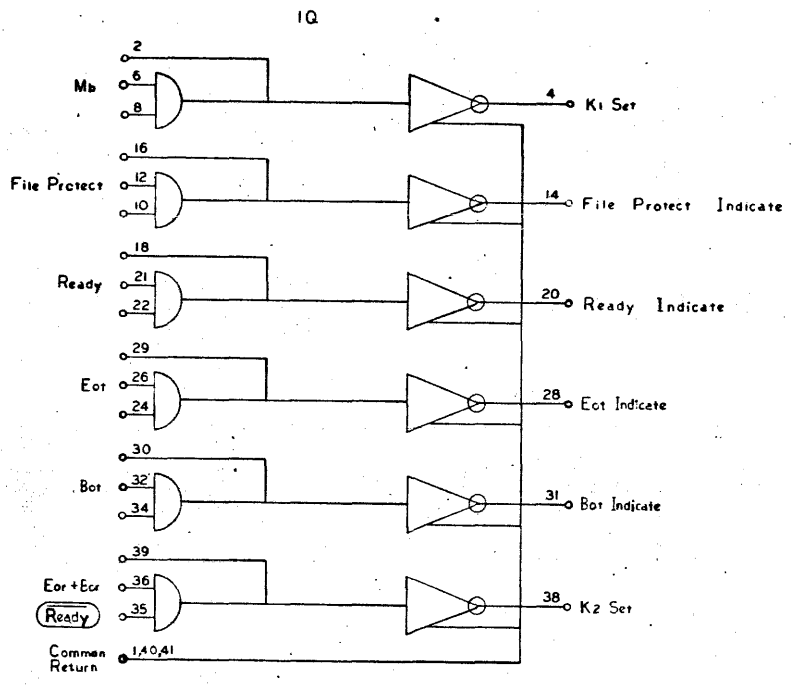


9246A
9246P
TAPE ELECTRONICS
PAGE 7
E

NO.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV.
NOTES UNLESS SPECIFIED				
1	DESIGN	DATE	SDS	
2	CHECK	DATE	SDS	
3	APPV	DATE	SDS	
MATERIAL LIST				
DIAGRAM, LOGIC, MAG TAPE UNIT				
MODEL NO.	9246	REV.	D	103258
NEXT ASST.		DATE	E	

103258 | F |

REV.	DESCRIPTION	DATE	BY
1	REL TO MFG		
2	SEE REV. E.D.		
3	SEE REV.E.D.		
4	SEE REV.E.D.		
5	SEE REV.E.D.		



9246A
9246P
TAPE ELECTRONICS
PAGE B
E

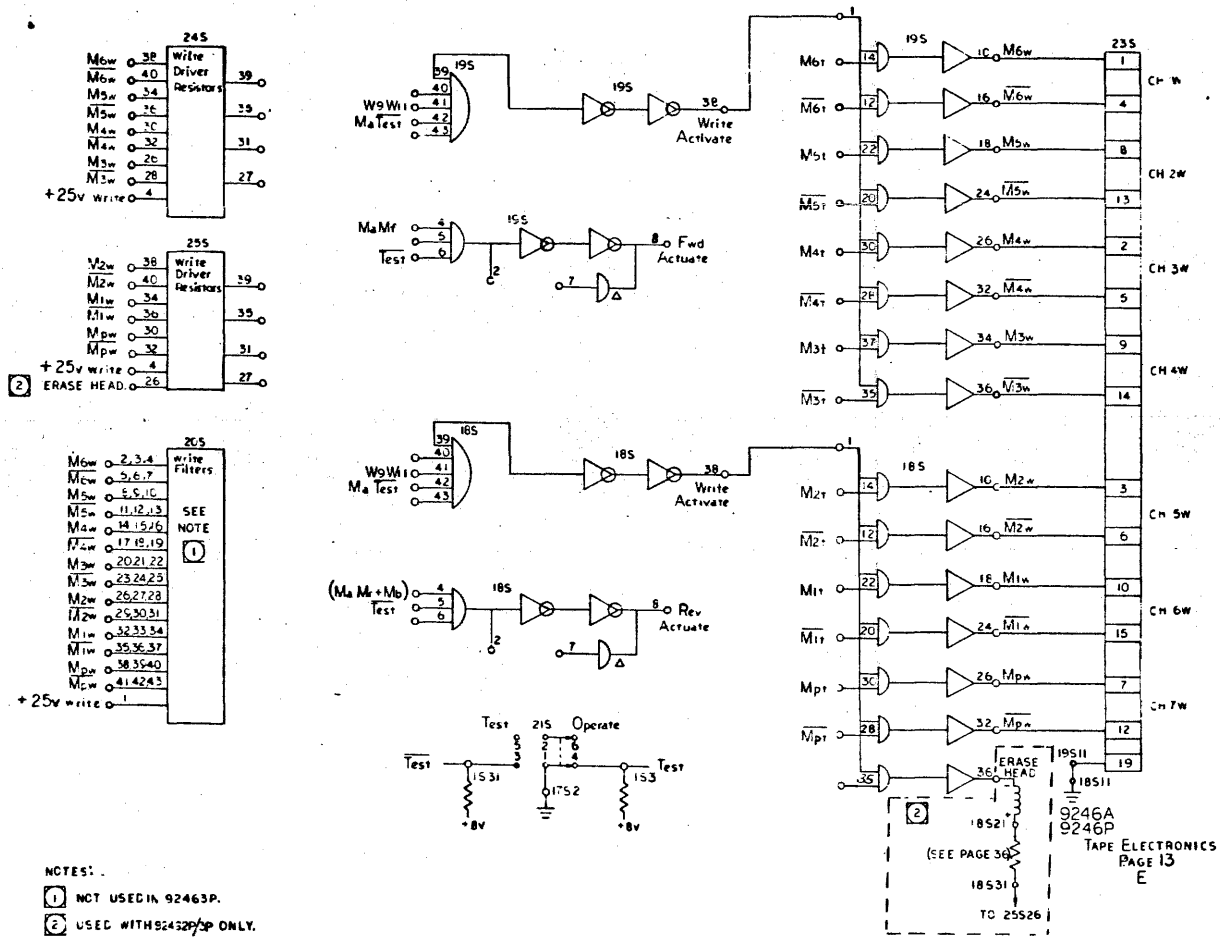
REV.	DRAWING NO.	DESCRIPTION	DATE	BY
NOTES UNLESS SPECIFIED: 1. ALL DIMENSIONS ARE IN INCHES. 2. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED. 3. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED. 4. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED. 5. DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED.				
MODEL NO. 9246		SD3 DIAGRAM, LOGIC, MAG TAPE UNIT		
PART NO. D		PART NO. 103258		REV. E

The following chart shows the pin numbers for the head wiring on a Potter unit.

(PICO = Potter Instrument Co.)

<u>PICO</u> <u>Channel</u>	<u>PICO</u> <u>Connector</u>	<u>SDS</u> <u>Connector</u>	<u>SDS</u> <u>Channel</u>
1	A - C	7 - 12	7
2	B - D	10 - 15	6
3	E - F	3 - 6	5
4	J - K	9 - 14	4
5	L - M	2 - 5	3
6	R - S	8 - 13	2
7	Y - Z	1 - 4	1
	Blk Wht	Blk Wht	

REV	DATE	BY	CHKD	APPD	DESCRIPTION
1					HL TO MFG
2					SEE REV. E.D.
3					SEE REV. E.D.
4					REV. EC



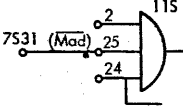
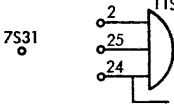
- NOTES:
- ① NOT USED IN 92463P.
 - ② USED WITH 92432P ONLY.

REV	DATE	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION
1				
2				
3				
4				

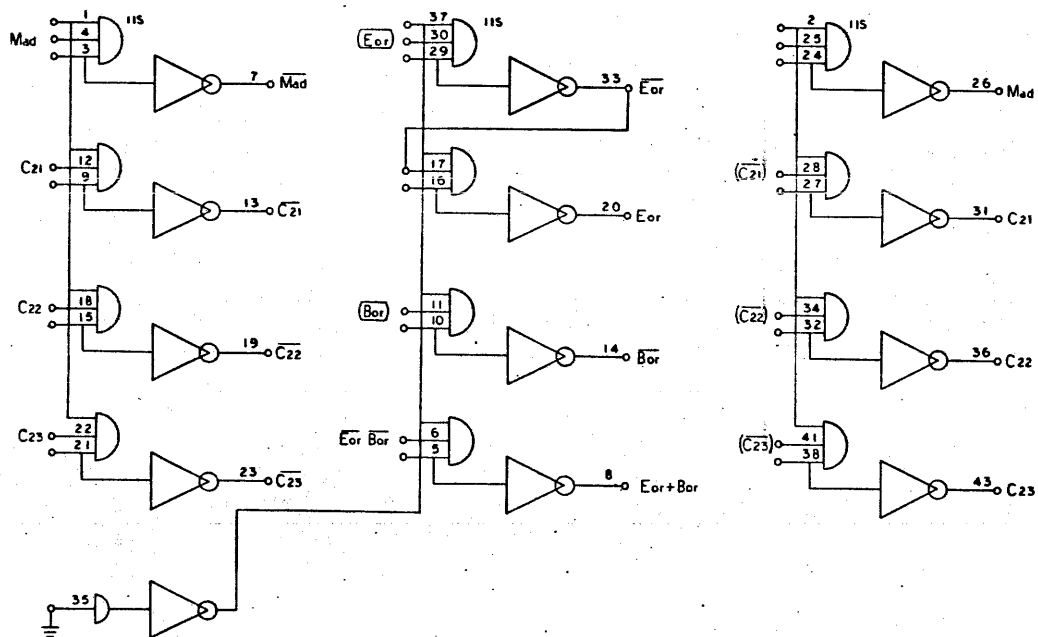
NOTES UNLESS SPECIFIED		MATERIAL LIST	
1. DIMENSIONS	AS SHOWN	QTY	DESCRIPTION
2. TOLERANCES	UNLESS SPECIFIED		
3. DIMENSIONS	UNLESS SPECIFIED		
4. ALL DIMENSIONS	UNLESS SPECIFIED		

MODEL NO	9246	REV	D	DATE	103258	ED	E
DATE		SCALE		BY		CHKD	

103258 | 1

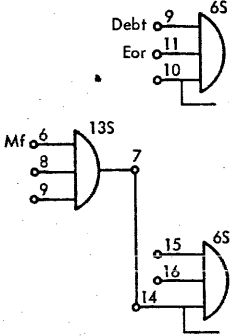
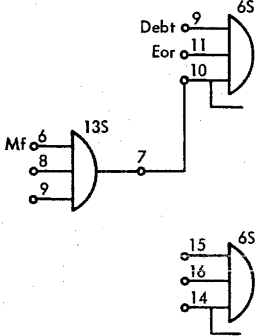
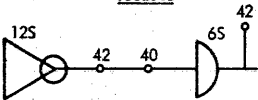
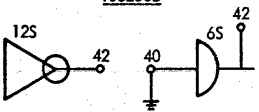
From	To	Reason
<p style="text-align: center;">103258D</p>  <p>The diagram shows a 7531 component connected to pins 2, 25, and 24 of a 11S component. A bus labeled \overline{Mad} is connected to pin 25 of the 11S component.</p>	<p style="text-align: center;">103258E</p>  <p>The diagram shows a 7531 component connected to pins 2, 25, and 24 of a 11S component. The \overline{Mad} bus is no longer connected to pin 25.</p>	<p style="text-align: center;">EO 103404H</p> <p>Eliminates \overline{Mad} Buss.</p> <p>See page 4 addendum for explanation.</p>

REV	DATE	DESCRIPTION
1		HEL TO MFC
2		SEE DEV. E.D.
3		EE REV. E.D.
4		SEE REV. E.D.

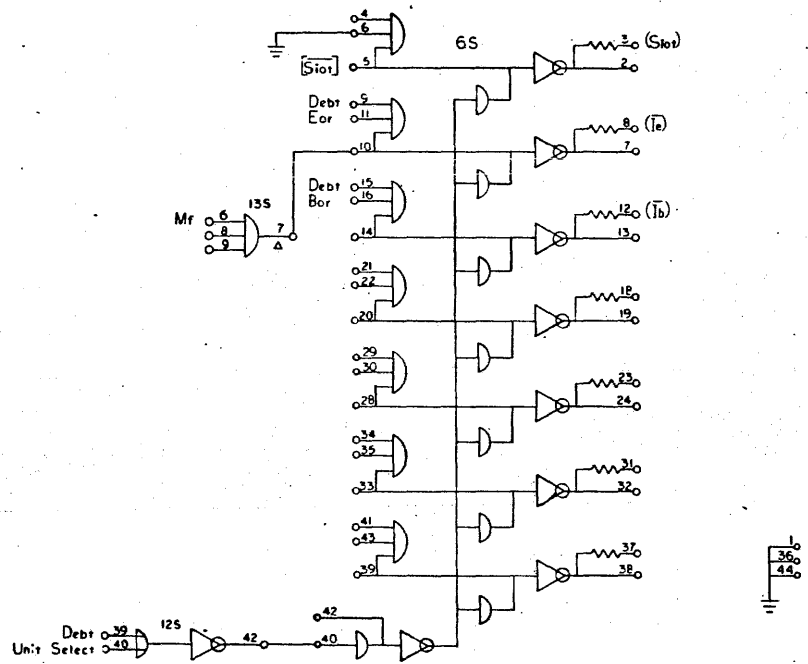


9246A
9246P
TAPE ELECTRONICS
PAGE 22
E

NO	REV	DRAWING NO	DESCRIPTION	DATE	INITIALS
NOTES UNLESS SPECIFIED					
1		DESIGN	CHECK	DATE	
2		APPV	DATE		
<p>SDS SYSTEMS DATA SYSTEMS</p> <p>DIAGRAM, LOGIC, MAG TAPE UNIT</p>					
MODEL NO	9246	REV	D	DATE	103258
NEXT ASSY					E

From	To	Reason
<p data-bbox="215 315 280 334"><u>103258A</u></p> 	<p data-bbox="495 315 560 334"><u>103258B</u></p> 	<p data-bbox="754 315 855 334"><u>EO 103404 B</u></p> <p data-bbox="700 375 930 415">Allows Eor interrupt in forward direction only.</p>
<p data-bbox="215 735 280 755"><u>103258B</u></p> 	<p data-bbox="495 735 560 755"><u>103258D</u></p> 	<p data-bbox="778 735 873 755"><u>EO 103404 E</u></p> <p data-bbox="702 786 935 826">Prevents Siot from floating. Eliminating False SKS Answers.</p>
<p data-bbox="225 948 291 967"><u>103258D</u></p> <p data-bbox="234 1000 282 1019">Wires</p> <p data-bbox="208 1040 291 1060">652 to 653</p> <p data-bbox="208 1068 291 1088">657 to 658</p> <p data-bbox="199 1096 299 1115">6512 to 6513</p>	<p data-bbox="500 948 565 967"><u>103258E</u></p> <p data-bbox="427 1000 617 1057">Deleted Wires and Added Ground to 65 Pins 1 and 36 from 65 Pin 44</p>	<p data-bbox="778 948 873 967"><u>EO 103404 H</u></p> <p data-bbox="702 1000 954 1040">To allow Logic operation with new ZK57 and ZK58 Terminators.</p> <p data-bbox="702 1057 840 1076">ZK57 - 103471-D</p> <p data-bbox="702 1076 840 1096">ZK58 - 103474-B</p> <p data-bbox="702 1117 850 1136">See Page 40 and 41</p>

REV.	DESCRIPTION	DATE	BY
A	REL TO MFG		
B	SEE REV E.O.		
C	SEE REV E.O.		
D	SEE REV E.O.		
E	SEE REV E.O.		



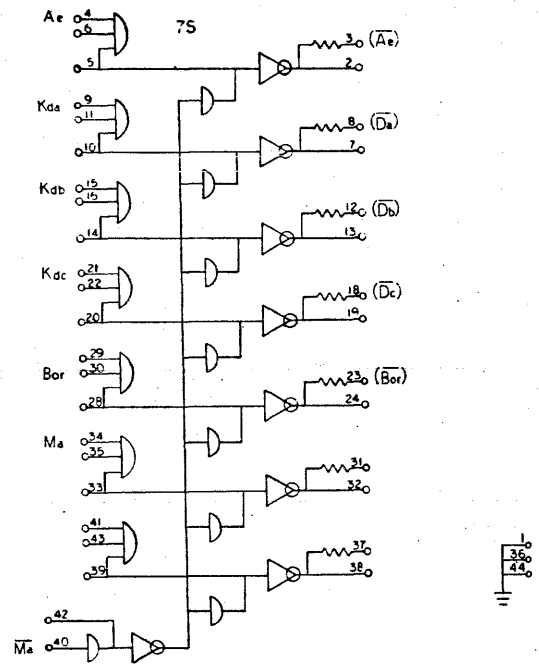
9246A
9246P
TAPE ELECTRONICS
PAGE 23
E

REV.	DRAWING NO.	DESCRIPTION	APPROVAL SIGNATURE	DATE
NOTES UNLESS SPECIFIED				
1	RELEASED BY	DATE		
2	CHECKED BY	DATE		
3	APPROVED BY	DATE		
4	DESIGNER			
5	ALL DIM IN INCHES			
MODEL NO.		SDS		
9246		SDS RESEARCH DATA SYSTEMS		
NEXT ASST		DIAGRAM, LOGIC, MAG TAPE UNIT		
REV.	DATE	BY	DATE	
D	103258	E		
SHEET		SHEET NO.		
		103258 E		

103258 E

From	To	Reason
<p data-bbox="197 334 263 354"><u>103258D</u></p> <p data-bbox="205 396 249 415">Wires</p> <ul style="list-style-type: none"> <li data-bbox="184 444 267 464">752 to 753 <li data-bbox="184 467 267 487">757 to 758 <li data-bbox="174 490 277 509">7512 to 7513 <li data-bbox="174 513 277 532">7518 to 7519 <li data-bbox="174 535 277 555">7523 to 7524 <li data-bbox="174 558 277 578">7531 to 7532 <p data-bbox="137 597 363 617"><u>(Mad)</u> connected to 75 pin 32</p>	<p data-bbox="498 334 563 354"><u>103258E</u></p> <p data-bbox="428 444 660 503">Deleted wires and added ground to pins 1 & 36 from pin 44, 75</p> <p data-bbox="428 597 638 639">deleted <u>(Mad)</u> term from 75 pin 32</p>	<p data-bbox="778 334 874 354"><u>EO 103404H</u></p> <p data-bbox="718 444 926 483">See page 23, Item 3 addendum for explanations.</p> <p data-bbox="718 597 884 639">See Page 4 addendum for explanation.</p>

REV.	DATE	BY	APP.	103258
A				
B				
C				
D				
E				



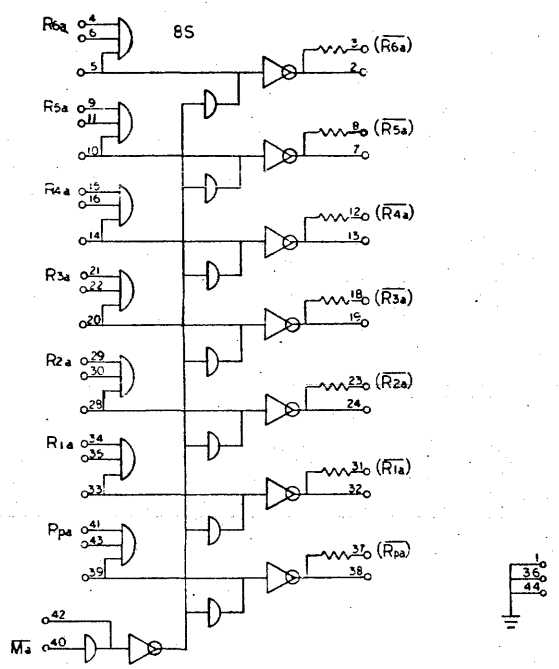
9246A
9246P
TAPE ELECTRONICS
PAGE 24
E

REV.	DATE	DESCRIPTION	REFERENCE DESIGNATION	BY
NOTES UNLESS SPECIFIED				
1	10/10/68	103258		
2	10/10/68	103258		
3	10/10/68	103258		
4	10/10/68	103258		
5	10/10/68	103258		
MATERIAL LIST				
SDS				
TITLE				
DIAGRAM, LOGIC, MAG. TAPE UNIT				
MODEL NO.	9246	REV.	103258	E
SCALE				

103258 1E

From	To	Reason
<p><u>103258D</u></p> <p>Wires</p> <p>852 to 853 857 to 858 8512 to 8513 8518 to 8519 8523 to 8524 8531 to 8532 8537 to 8538</p>	<p><u>103258E</u></p> <p>} deleted wires and added ground to 8S pins 1 & 36 from pin 44.</p>	<p><u>EO 103404H</u></p> <p>See Page 23 Addendum Item 3 for explanation.</p>

REV	DATE	BY	CHKD
A			
B			
C			
D			
E			



9246A
9246F
TAPE ELECTRONICS
PAGE 25
E

NO	REV	DRAWING NO	DESCRIPTION	DATE	BY	CHKD
NOTES UNLESS SPECIFIED						
1				2/2/68		
2						
3						
4						
5						
SDS SCIENTIFIC DATA SYSTEM						
DIAGRAM, LOGIC, MAG TAPE UNIT						
MODEL NO	9246		REV	D		103258
DATE			BY			E

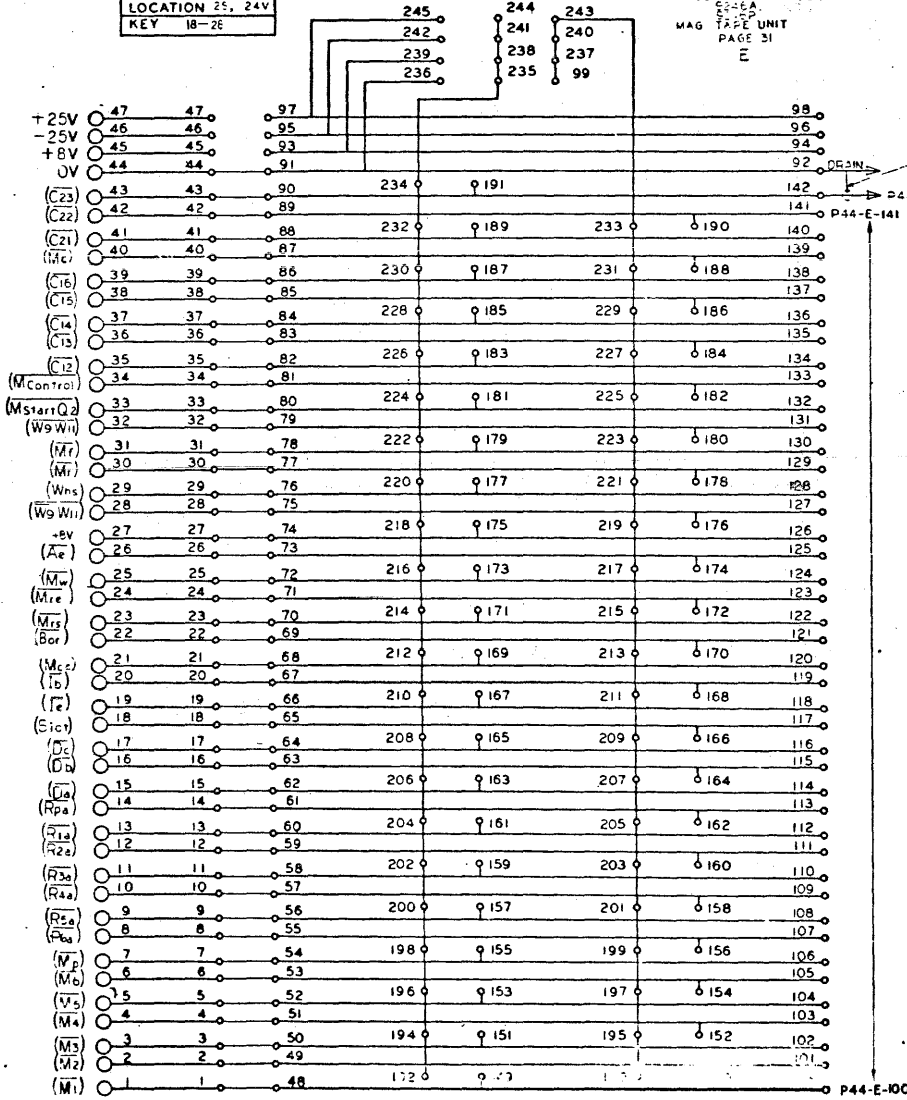
C3256 E

From	To	Reason
<u>103258D</u>	<u>103258E</u> Added Resistors R14 thru R22. 470 ohms $\pm 2\%$ SDS Part #100111-471	<u>EO 103140</u> Additional pull-up on C lines, to reduce noise.

From	To	Reason
Pin 27 of P43 ($\overline{\text{Mad}}$) signal.	Deleted ($\overline{\text{Mad}}$) signal from pin 27 of P43. Add +8v to pin 27 of P43.	Coordinate with EO 103404H. See Page 23 Addendum Item 3 for explanation.

DESIGNATION P43
 LOCATION 25, 24V
 KEY 18-26

CABLE PLUG MODULE
 MAG TAPE UNIT
 PAGE 31
 E



NO.	DESCRIPTION	REV.	DATE	BY
1	REVISED			
2	REVISED			
3	REVISED			
4	REVISED			
5	REVISED			
6	REVISED			
7	REVISED			
8	REVISED			
9	REVISED			
10	REVISED			

NO.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV.
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

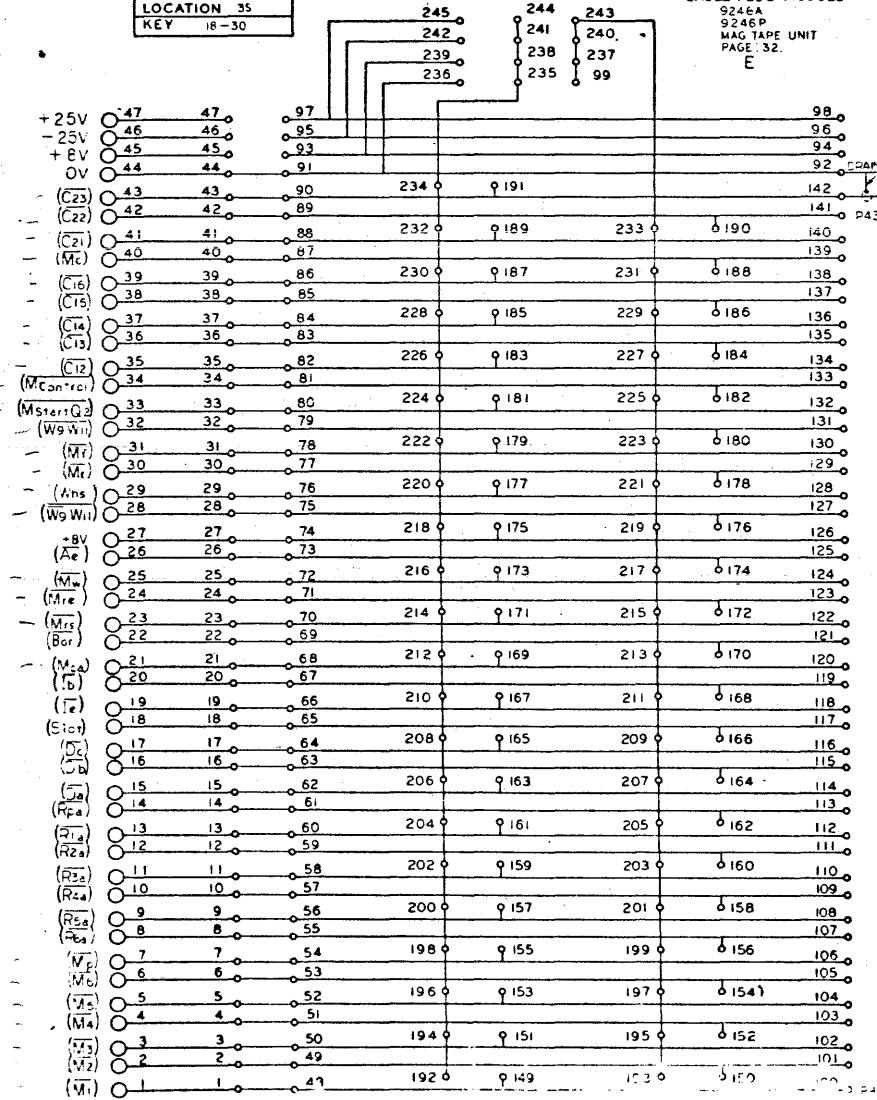
NO. 9246	REV. D	103258	E
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103258 E

REV	DATE	BY	APP'D
1			
2			
3			
4			
5			
6			

DESIGNATION P44
 LOCATION 35
 KEY 18-30

CABLE PLUG MODULE
 9246A
 9246P
 MAG TAPE UNIT
 PAGE 32
 E



TYP FOR ALL WIRES

Handwritten notes:
 = 8112
 21-111 same
 35
 82 + up same
 18 up same
 16 up same
 17 up same
 18 up same
 19 up same
 20 up 1 same

REV	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION	ITEM
NOTES UNLESS SPECIFIED				
DRAWN: [Signature]		SDS DRAWING DATA SYSTEM		
CHECKED: [Signature]		100 PERCENT CHECK DATA SHEET ACCORDANCE		
APPROVED: [Signature]		DIAGRAM LOGIC MAG TAPE UNIT		
MODEL NO	9246	REV	D	103258
DATE				E

REV	DESCRIPTION	DATE
A	REF TO MFG	
C	SEE REV. E.O.	
D	SEE REV E.O.	
E	SEE REV EC	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
	RX 10	FH 17	OX 13	GC 10	BC 10	IH 12	GC 10	BC 10	IC 12	BC 10	BC 10	GC 11		OX 13	OX 13	OX 13	OX 13	OX 13	HK 60	HK 60	HK 60	HK 60	HK 60	HK 60	HK 60	
Q																										
S	P42 (A UNITS P70 (P UNITS	D43 ZK57	P44	ZK58	HX20 (NOT USED ON P UNITS	AX14	AX14	AX14			IC 12	IC 12	GC 10	OX 13	OX 13	FC 17	FC 17	AK 52	AK 52	ZK56				ZK 51	ZK 51	
																									ZK67	ZK67
																									ZK68	ZK68
																									93	93
Q		FC17	OX11			IC12									OX11	OX11	OX11	OX11	OX11							
S															OX11	OX11										

→ ZK51 MODULES TO BE REPLACED FOR 800 BPI OPERATION:
 → ZK67 FOR "P" UNITS WITH ERASE HEADS.
 → ZK68 FOR "A" OR "P" UNITS WITHOUT ERASE HEADS.

MODULES IDENTIFIED WERE USED IN EARLY 9246A UNITS.

9246A
9246P

TAPE ELECTRONICS
PAGE 33
E

NO. REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION
NOTES UNLESS SPECIFIED		MATERIAL LIST	
1. DIMENSIONS	CHECK	SDS	
2. TOLERANCES	DATE	DIAGRAM, LOGIC, MAG TAPE UNIT	
3. FINISHES	APPROVED		
4. HOLE AND DRILL DIMS			
5. HOLE LOCATIONS			
6. HOLE DIA. IN HOLE			
MODEL NO.	9246	REV. NO.	D 103258 E
NEXT ASSY		DO NOT SCALE DIMENSIONS	

103258 | E

REVISIONS		NO	DATE	BY
REV	DESCRIPTION			
2	DEL TO MFG			
2	SEE REV. E.D.			
D	SEE REV. E.D.			
E	SEE REV. EC			

MODULE LIST			
ITEM	DESCRIPTION	MODEL	QTY.
1	WRITE DRIVER	AK52	2
2	CABLE DRIVER	AX14	3
3	AND/OR BUFFER AMP	BC10	4
4	UNIVERSAL F.F.	FC17	2
5	GATE EXPANDER	GC10	3
6	GATE EXPANDER	GC11	1
7	OPERATIONAL AMP	HX20-0	1
8	READ AMP	HK60	7
9	AND INVERTER	IC12	3
10	ONE SHOT MULT.	OX13	8
11	RELAY DRIVER	RX10	1
12	RESISTOR	ZK58	2
13	TERM. MODULE	ZK56	1
14	TERM. MODULE	ZK57	1
15	TERM. MODULE	ZK58	1
16	AND INVERTER	IH12	1
17	UNIVERSAL F.F.	FH17	1

REPLACEMENT PARTS LIST				
ITEM	DESCRIPTION	DESIGNATION	QTY.	SUPPLIER CODE (SEE INDEX)
1	RESISTOR, 3.3K ± 2%	(P42) R1, R2, R3	3	16, 17
2	↑ 1MEGΩ ↑	(P42) R4, R5, R6, R8	4	16, 17
3	↓ 1K ↓	(P42) R7, R9	2	16, 17
4	RESISTOR, 8.2K ± 2%	(P42) R10, R11, R12, R13	4	16, 17
5	CAPACITOR, MYLAR 0.033μF ± 10%	(P42) C1, C2	2	26, 27, 74
6	CAPACITOR, MYLAR 0.068μF ± 10%	(P42) C3, C4	2	26, 27, 74
7	CAPACITOR, TANTALUM 4.7μF ± 20% 50V	(P42) C5	1	23, 77
8	DIODE, SILICON SWITCHING IN514A	(P42) CR1, CR2, CR7	7	4, 12, 13, 14
9	CONNECTOR, SOLDER TAIL 47 CONTACT # 7008-47	J(15) THRU J(256) J(15) THRU J(205) - (245) J(255)	47	82
10	RESISTOR, 1.8K ± 2%	(TB2) R1	1	16, 17
11	↑ 15K ↑	(TB2) R2	1	↑
12	180Ω	(TB2) R3	1	↑
13	↓ 390Ω ↓	(TB2) R4, R5, R6	3	↓
14	RESISTOR, 470Ω ± 2%	(TB2) R7, R8, R9 (P42) R14 THRU R17	12	16, 17
15	DIODE, VOLTAGE REGULATOR IN752	(TB2) VR1	1	2, 12, 13, 14
16	DIODE, VOLTAGE REGULATOR IN964A	(TB2) VR2, VR3, VR4	3	2, 6, 14, 65
17	CAPACITOR, TANTALUM 4.7μF ± 20% 50V	(TB2) C1	1	23, 77
18	TRANSISTOR, SILICON SWITCHING 2N1132	(TB2) Q1	1	3, 10, 11
19	RECEPTACLE, 19 PIN # RSK 19-315L	J1	1	134
20	PLUG, 19 PIN # SK 19-325	J2	1	134
21	SWITCH, ROTARY # 102143	S1, S2	2	SDS
22	LAMP, INCANDESCENT # 47	D51 THRU D55	5	84
23	RESISTOR, 1/4W 10Ω ± 5%	R1 THRU R5	5	59, 100
24	RELAY, DPDT # DOSX-7T # 80-6A/115VAC	K1 THRU K4	4	78 79
25	SWITCH, TOGGLE DPDT # 3305A-SE	S1(S)	1	106
26	CAPACITOR, TANTALUM 4.7μF ± 20% 50V	C1(Q)	1	23, 77

9246A,
MAG TAPE UNIT
PAGE 34
E

NO	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION	REV
NOTES UNLESS SPECIFIED				
1	DESIGNED BY	DATE		
2	CHECKED BY	DATE		
3	APPROVED BY	DATE		
4	SCALE			
5	ALL DIM IN INCHES			
MODEL NO		REV	DATE	
9246		D	103258	E
NEXT AMP		SCALE	SCALE	DATE

REV	DESCRIPTION	DATE	APPROVED
C	SEE REV. E.O.		
D	SEE REV. E.O.		
E	SEE REV. E.O.		

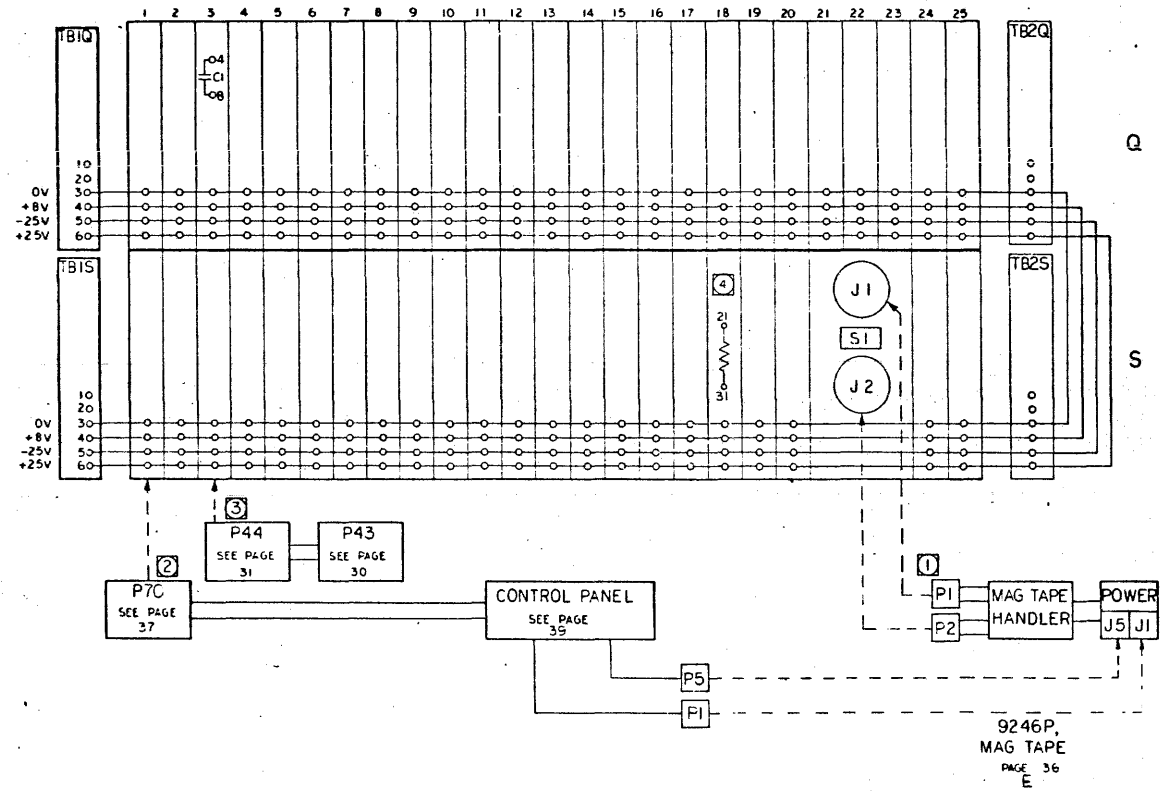
NOTES: UNLESS OTHERWISE SPECIFIED

① RECEPTACLES J1 & J2 ARE PROVIDED FOR CONNECTION TO THE READ & WRITE HEADS OF THE MAG TAPE UNIT.

② RECEPTACLE J(S) IS PROVIDED FOR P70 FROM CONTROL PANEL.

③ RECEPTACLE J(S) IS PROVIDED FOR THE P44 TO P43 CABLE. P43 CONNECTS TO RECEPTACLE J(24V) OF THE MODEL 9248 CONTROL UNIT OR TO J(2S) OF A SECOND MODEL 9246.

④ USED ON 924625³⁵ ONLY. RESISTOR 10068C-750. WITH ERASE HEADS



REV	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION
MATERIAL LIST			
NOTES UNLESS SPECIFIED		DRAWN: <i>[Signature]</i> CHECKED: <i>[Signature]</i> APPR: <i>[Signature]</i>	SDS STORAGE DATA SYSTEMS <small>SEE CATALOGUE ENTRY DATA SHEET FOR EQUIPMENT</small>
1. TOLERANCES UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS IN INCHES 2. DIMENSIONS IN PARENTHESES ARE FOR INFORMATION ONLY 3. ALL DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED		TITLE DIAGRAM, LOGIC MAG TAPE	
MODEL NO	9246	REV	D
DATE		REV NO	103258
NEXT ASSY		SCALE	NO HOT SCALE DRAWING

103258/E

POTTER

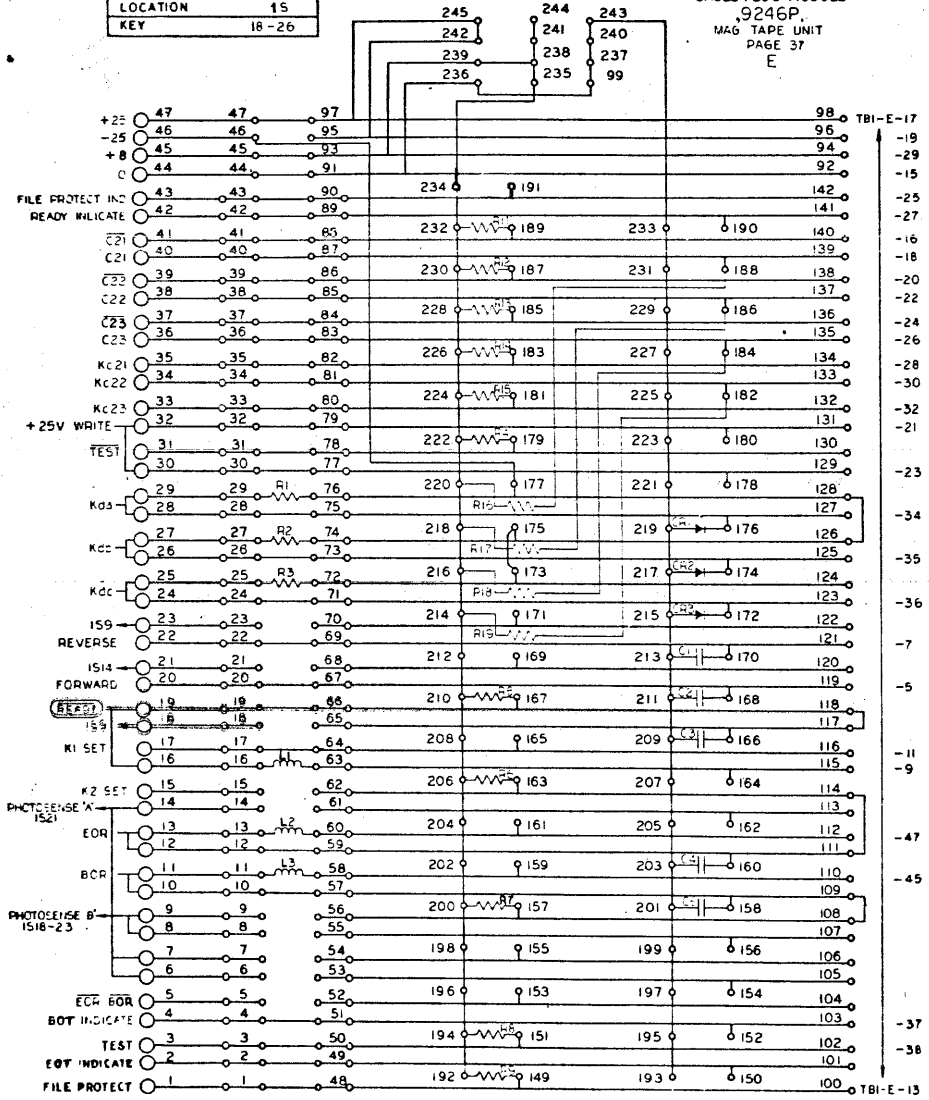
Addendum

From	To	Reason
<u>103258D</u>	<u>103258E</u> Added Resistors R11 thru R19. 470 ohms ±2% SDS Part #100111-471	<u>EO 103140</u> Additional pullups on C lines to reduce noise.

REV	DESCRIPTION	CHK DATE	APPROVED
T	SEE REV. E.O.		
D	SEE REV. E.O.		
E	SEE REV. EC		

DESIGNATION	P70
LOCATION	1S
KEY	18-26

CABLE PLUG MODULE
9246P
MAG TAPE UNIT
PAGE 37
E



POTTER

REV	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION
NOTES UNLESS SPECIFIED		MATERIAL LIST	
1. REFER TO THE DRAWING FOR ALL DIMENSIONS AND TOLERANCES.	CHECK	SDS SCIENTIFIC DATA SYSTEMS	
2. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.	APPN	1045 SULLY AVENUE, SANTA ANA, CALIFORNIA	
3. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.		TITLE	
4. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.		DIAGRAM, LOGIC MAG TAPE UNIT	
MODEL NO	9246	REV	D
DRAWN BY		DATE	103258
CHECKED BY		SHEET	37
APPROVED BY			E

PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG
1									
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NOTES:

1. REV. LETTERS LISTED INDICATE STATUS OF EACH SHEET OF THIS MULTIPLE SHEET DRAWING.
2. CHECK INDIVIDUAL SHEETS FOR REVISION LETTER AGAINST THIS SHEET BEFORE USING THIS DRAWING.

* NOT USED ON 52481.

** NOT USED ON 52481, 9248.

REFERENCE DESIGNATIONS
ARE ABBREVIATED.
PREFIX THE DESIGNATION
WITH UNIT NUMBER
OR ASSEMBLY DESIGNATION
OR BOTH. (MIL. STD. 168)

9348,
92483,9248,92481,92482
MAG TAPE CONTROL UNIT
PAGE 1
E

REVISIONS			
REV	DESCRIPTION	CHK	DATE
A	DEL TO MFG		
B	SEE REV. E.O.		
C	SEE REV. E.O.		
D	SEE REV. E.O.		
E	SEE REV. E.O.		
F	SEE REV. E.O.		

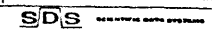
NO. REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV. NO.
NOTES: UNLESS OTHERWISE SPECIFIED				
DRAWN: [Signature]		DATE: 7/1/73		
CHECKED: [Signature]		DATE: 7/1/73		
APPROVED: [Signature]		DATE: 7/1/73		
<p>1. ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED.</p> <p>2. ALL DIMENSIONS ARE TO BE TAKEN TO THE CENTER UNLESS OTHERWISE SPECIFIED.</p> <p>3. ALL DIMENSIONS ARE TO BE TAKEN TO THE CENTER UNLESS OTHERWISE SPECIFIED.</p> <p>4. ALL DIMENSIONS ARE TO BE TAKEN TO THE CENTER UNLESS OTHERWISE SPECIFIED.</p>				
<p>SDS SYSTEMS DATA STORAGE</p> <p>THE COMPANY, 1000 WEST 10TH AVENUE, DENVER, COLORADO</p>				
<p>DIAGRAM LOGIC</p> <p>MAG TAPE CONTROL UNIT</p>				
FORM NO. 9248		REV. NO. D		REV. NO. 103257
NEXT ASSY.		SCALE		NO. OF SHEETS DRAWING SHEET 1 OF 20

REV	DESCRIPTION	DATE
A	REL TO MFG	
D	SEE REV E.O.	
E	SEE REV E.O.	
F	922 REV 20	

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
K	FH17	OX13	CF13	EC2	FH17	IC13	EH10	FH15	OX14	GH10	GH10	IC12	FH15	FH15	FH17	FC17	GH10	GH10	FH17	FH7	IC10	GC13	GC10	GH11	CK52
V	CK12	CK14	CK2	CK13	CK52	CK13	CK56	FC10	IC12	EH11	FC10	IC12	GC10	EH2	EC10	IC12	IC2	AX16	AX16	AX14	AX16	AX16	AX14	P43	P44
		2	1	1	4																				
	2	1																							
	1																								

9348,
92483,
92482,
92481,
9248
TAPE CONTROL
PAGE 39
E

1 NOT USED ON 92481, 2 NOT USED ON 9248. 4 CK55 USED 9348, CK56 USED ON 92483.

REV	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION	DATE
NOTES UNLESS SPECIFIED				
1. MATERIALS	DATE	BY	DATE	
2. CHECK	1/15		1/13	
3. APPROVE	1/15		1/13	
4. DRAWN BY				
5. CHECKED BY				
6. SCALE				
				
MODEL NO 9248				
DIAGRAM, LOGIC, MAG TAPE CONTROL UNIT				
SIZE 103257				
D F				
SCALE DO NOT SCALE DRAWING				

103257

REVISIONS		
REV.	DESCRIPTION	DATE
A	REL TO 17G	
D	SEE REV E.O.	
E	SEE REV E.O.	
F	SEE REV E.O.	

MODULE LIST

ITEM	DESCRIPTION	MODEL	QTY				
			9248	92481	92482	92483	92484
1	CABLE DRIVER	AK4	2	2	2	2	2
2	AND/OR BUFFER AMP	BC10	3	3	3	3	3
3	AND/OR BUFFER AMP	BH10	1	1	1	1	1
4	OR GATE BUFFER AMP	BH11	1	1	1	1	1
5	CRYSTAL CLOCK GEN	CK13	1	-	2	2	2
6	COUNTER F.F.	FH15	3	3	3	3	3
7	UNIVERSAL F.F.	FH17	5	5	5	5	5
8	GATE EXPANDER	GH11	1	1	1	1	1
9	GATE EXPANDER	GL10	3	8	8	8	8
10	AND/OR INVERT	IC10	2	2	2	2	2
11	AND INVERTER	IC12	4	4	4	4	4
12	AND INVERTER	IH12	2	2	2	2	2
13	ADDER MODULE	IK52	1	1	1	1	1
14	ONE SHOT MULT.	OX13	4	3	4	4	4
15	CLOCK GAP DETECTOR	SK53	1	1	1	1	1
16	UNIVERSAL F.F.	FC17	1	1	1	1	1
17	ONE SHOT MULT.	OX14	1	1	2	2	2
18	CLOCK GEN	CK52	1	1	1	-	-
19	CLOCK GEN	CK55	-	-	-	-	1
20	CLOCK GEN	CK56	-	-	-	1	-
21	CABLE DRIVER	AK6	4	4	4	4	4

REPLACEMENT PARTS LIST

ITEM	DESCRIPTION	DESIGNATION	QTY	SUPPLIER CODE (SEE INDEX)
1	RESISTOR, 470 Ω ± 2%	(P40)R27 THRU R38	12	16, 17
2	INDUCTOR, MOLDED 220 μH ± 5%	(P40)L1 THRU L26 (P41)L1 THRU L14	40	42, 99, 91
3	DIODE, SILICON SWITCHING IN 5144	(P40)CR1 THRU CR11	11	4, 12, 13, 14
4	CONNECTOR, SOLDER TAIL 47 CONTACT #700B-47	(J16) THRU (J25E) (J17) THRU (J25F)	50	62

CABLE LENGTH

ITEM	DESCRIPTION	CABLE LENGTH				DESIGNATION	QTY	SUPPLIER CODE (SEE INDEX)
		11'	20'	30'	40'			
5	RESISTOR	350 Ω ± 2%	330 Ω ± 2%	270 Ω ± 2%	220 Ω ± 2%	(P40)R1 THRU R26 (P41)R1 THRU R14	40	16, 17

9348,
92483, 9248, 92481, 92482
MAG TAPE CONTROL UNIT
PAGE 40

E

REV. NO.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	FORM NO.
		MATERIAL LIST		
1. DIMENSIONS UNLESS SPECIFIED IN 1/16" INCREMENTS UNLESS NOTED OTHERWISE		DRAWN: [Signature] CHECK: [Signature] APPROVED: [Signature]	TITLE: DIAGRAM, LOGIC MAG TAPE CONTROL UNIT	
MODEL NO.	9248	REV. NO.	D	103257
REV. ABBY.		SCALE	DO NOT SCALE DRAWING	SHEET 40 OF 40

REVISIONS			
REV	DESCRIPTION	CHG DATE	APPROVED
A	REL TO MFG		
B	SEE REV E.O.		
C	SEE REV E.O.		
D	SEE SEE E.O.		
E	SEE REV E.O.		
F	SEE REV E.O.		

NOTE:

THIS DWG APPLIES TO BOTH THE AMPEX (A) & POTTER (P) MAG TAPE UNITS. FOR SIMPLICITY ONLY 9246A AND/OR 9246P DESIGNATIONS ARE SHOWN ON INDIVIDUAL PAGES. 9246A IMPLIES 9246A, 9246A1, 9246A2, & 9346A. 9246P IMPLIES 9246P, 9246P1, 9246P2 & 9246P3. THE FOLLOWING CHART INDICATES THE EFFECTIVITY OF INDIVIDUAL PAGES.

PAGE	CHG	PAGE	CHG	PAGE	CHG	PAGE	CHG
1	E						
2	D						
3	D						
4	E						
5	E						
6	C						
7	E						
8	E						
9	C						
10	C						
11	C						
12	C						
13	E						
14	D						
15	C						
16	C						
17	C						
18	C						
19	D						
20	C						
21	C						
22	E						
23	E						
24	E						
25	E						
26	D						
27	C						
28	C						
29	C						
30	E						
31	E						
32	E						
33	F						
34	F						
35	D						
36	E						
37	E						
38	F						
39	D						

NOTES:

- REV LETTERS LISTED INDICATE STATUS OF EACH SHEET OF THIS MULTIPLE SHEET DRAWING.
- CHECK INDIVIDUAL SHEETS FOR REVISION LETTER AGAINST THIS SHEET BEFORE USING THIS DRAWING.

REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH. (MIL. STD. 168)

PAGE NO.	AMPEX ONLY	POTTER ONLY	BOTH	92462P/3P VARIATIONS
1			X	
2	X			
3			X	
4			X	
5			X	
6			X	
7			X	
8			X	
9			X	
10			X	
11			X	
12			X	
13			X	X
14			X	
15			X	
16			X	
17			X	
18			X	
19			X	
20			X	
21			X	
22			X	
23			X	
24			X	
25			X	
26			X	X
27	X			
28	X			
29	X			
30	X			
31			X	
32			X	
33			X	
34	X			
35	X			
36		X		X
37		X		
38		X		
39		X		

9246A, 9246P
MAG TAPE UNIT
PAGE 1
F

DWG NO.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV
NOTE UNLESS SPECIFIED		MATERIAL LIST		
1. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES	DRAWN	SDS		
2. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES	CHECKED	SDS		
3. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES	APPROVED	SDS		
4. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES		SDS		
5. ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES		SDS		
FORM NO. 9246		D. DIAGRAM, LOGIC MAG TAPE UNIT		
REV. NO.	REV.	REV. NO.	REV.	REV.
	D	103258		F
SCALE	NO NOT SCALE DRAWING	SHEET	33	

REV	DESCRIPTION	DATE	APPROVAL
A	REL TO MFG		
C	SEE REV. E.O.		
D	SEE REV. E.O.		
E	SEE REV. E.O.		
F	SEE REV. E.O.		

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	
RX 10	F-17	OX 13	GC 10	BC 10	IH 12	GC 10	BC 10	IC 12	BC 13	BC 10	GC 11		OX 13	OX 13	OX 13	OX 13	OX 13	OX 13	HK60	HK60	HK60	HK60	HK60	HK60	HK60	
P42 P4 UNITS	P43 ZK57	P44	ZK58	YX20 (NOT USED ON P UNITS)	AX15	AX16	AX16				IC 12	IC 12	GC 10	OX 13	OX 13	FC 17	FC 17	AK52	AK52	ZK56				ZK 51	ZK 51	
STC (P) UNITS																										

9246A
9246P

TAPE ELECTRONICS
PAGE 33
F

REV	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION	DATE
UNLESS OTHERWISE SPECIFIED 1. DIMENSIONS IN INCHES UNLESS OTHERWISE SPECIFIED 2. DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED 3. DIMENSIONS IN METERS UNLESS OTHERWISE SPECIFIED 4. DIMENSIONS IN FEET UNLESS OTHERWISE SPECIFIED		DRAWN: [Signature] CHECK: [Signature] APPR: [Signature]	SDS SYSTEMS DATA SYSTEMS 100 EASTMAN STREET, BOSTON, MASS. 02118	
MODEL NO	9246		DIAGRAM, LOGIC, MAG TAPE UNIT	
REV	D	DATE	103258	F
SCALE		DO NOT SCALE DRAWING	SHEET 3 OF 39	

REV	DESCRIPTION	DATE	APP'D
A	REL TO MFG		
C	SEE REV. E.O.		
D	SEE REV E.O.		
E	SEE REV E.O.		
F	SEE REV E.O.		

MODULE LIST

ITEM	DESCRIPTION	MODEL	QTY.
1	WRITE DRIVER	AK52	2
2	CABLE DRIVER	AX16	3
3	AND/OR BUFFER AMP	BC10	4
4	UNIVERSAL F.F.	FC17	2
5	GATE EXPANDER	GC10	3
6	GATE EXPANDER	GC11	1
7	OPERATIONAL AMP	Hx20-0	1
8	READ AMP	HK60	3
9	AND INVERTER	IC12	7
10	ONE SHOT MULT.	OX13	8
11	RELAY DRIVER	RX10	1
12	RESISTOR	ZK51	2
13	TERM. MODULE	ZK56	1
14	TERM. MODULE	ZK57	1
15	TERM. MODULE	ZK58	1
16	AND INVERTER	IM12	1
17	UNIVERSAL F.F.	FH17	1

REPLACEMENT PARTS LIST

ITEM	DESCRIPTION	DESIGNATION	QTY.	SUPPLIER CODE (SEE INDEX)
1	RESISTOR, 3.3K ± 2%	(P42) R1, R2, R3	3	16, 17
2	1 MEGΩ	(P42) R4, R5, R6, R8	4	16, 17
3	1K	(P42) R7, R9	2	16, 17
4	RESISTOR, 8.2K ± 2%	(P42) R10, R11, R12, R13	4	16, 17
5	CAPACITOR, MYLAR 0.033μF ± 10%	(P42) C1, C2	2	26, 27, 74
6	CAPACITOR, MYLAR 0.033μF ± 10%	(P42) C3, C4	2	26, 27, 74
7	CAPACITOR, TANTALUM 47μF ± 20% 50V	(P42) C5	1	23, 77
8	DIODE, SILICON SWITCHING IN914A	(P42) CR1 THRU CR7	7	4, 12, 13, 14
9	CONNECTOR, SOLD TAIL 47 CONTACT # 7008-47	J(10) THRU J(25) J(15) THRU J(20) J(24), J(25)	47	82
10	RESISTOR, 1.8K ± 2%	(TB2) R1	1	16, 17
11	15K	(TB2) R2	1	
12	180Ω	(TB2) R3	1	
13	390Ω	(TB2) R4, R5, R6	3	
14	RESISTOR, 470Ω ± 2%	(TB2) R7, R8, R9 (P42) R14 THRU R22	12	16, 17
15	DIODE, VOLTAGE REGULATOR IN752	(TU2) VR1	1	2, 12, 13, 14
16	DIODE, VOLTAGE REGULATOR IN964A	(TB2) VR2, VR3, VR4	3	2, 6, 14, 65
17	CAPACITOR, TANTALUM 4.7μF ± 20% 50V	(TB2) C1	1	23, 77
18	TRANSISTOR, SILICON SWITCHING 2N1132	(TB2) Q1	1	3, 10, 11
19	RECEPTACLE, 19 PIN # BSK 19-215L	J1	1	134
20	PLUG, 19 PIN # SK19-325	J2	1	134
21	SWITCH, ROTARY # 102163	S1, S2	2	SDS
22	LAMP, INCANDESCENT # 47	D51 THRU D55	5	84
23	RESISTOR, WW 10Ω ± 5%	R1 THRU R5	5	99, 100
24	RELAY, DPDT # DOSX-7T # 80-6A/115 VAC	K1 THRU K4	4	78 79
25	SWITCH, TOGGLE DPDT # 83054-SE	S1(S)	1	106
26	CAPACITOR, TANTALUM 4.7μF ± 20% 50V	C1(A)	1	23, 77

9246A,
MAG TAPE UNIT
PAGE 34
F

NO.	REV.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	DATE
MATERIAL LIST					
NOTES UNLESS SPECIFIED:		DATE: 1/24/73	SDS		
1. MATERIALS TO BE USED	CHECK: [initials]	DATE: 1/24/73	SDS ENGINEERING DATA SYSTEM		
2. DIMENSIONS TO BE USED	APPR: [initials]	DATE: 1/24/73	TITLE		
3. DIMENSIONS TO BE USED			DIAGRAM, LOGIC MAG TAPE UNIT		
4. ALL DIM. TO CENTER			SCALE		
MODEL NO.	9246		REV. NO.	D	103258
NEXT ASSY:			SCALE	BY: [initials]	DATE: 3/2/73

REVISIONS		C22-1F	
REV.	DESCRIPTION	CHK.	DATE
C	SEE REV. E.O.		
D	SEE REV. E.O.		
E	SEE REV. E.O.		
F	SEE REV. E.O.		

MODULE LIST

ITEM	DESCRIPTION	MODEL	QTY
1	WRITE DRIVER	AK62	2
2	CABLE DRIVER	AX16	3
3	AND/OR BUFFER AMP	BC10	4
4	UNIVERSAL F.F.	FC17	2
5	GATE EXPANDER	GC10	3
6	GATE EXPANDER	GC11	1
7	READ AMP	HK60	7
8	AND INVERTER	IC12	3
9	ONE SHOT M.U.L.T.	OY13	8
10	RELAY DRIVER	RY10	1
11	RESISTOR	ZK51	2
12	TERM. MODULE	ZK56	1
13	TERM. MODULE	ZK57	1
14	TERM. MODULE	ZK58	1
15	AUD INVERTER	IH12	1
16	UNIVERSAL F.F.	FH17	1

REPLACEMENT PARTS LIST

ITEM	DESCRIPTION	DESIGNATION	QTY.	ELECTRICAL CODES (SEE DRAWING)
1	RESISTOR, 3.3 K ± 2%	(P70) R1, R2, R3	3	16, 17
2	RESISTOR, 1.0 K ± 2%	(P70) R6, R7	2	16, 17
3	RESISTOR, 8.2 K ± 2%	(P70) R4, R5, R9	3	16, 17
4	CAPACITOR, MYLAR .0010, F ± 10%	(P70) C1, C2	2	24, 27, 74
5	CAPACITOR, MYLAR .0010, F ± 10%	(P70) C3, C6	2	24, 27, 74
6	DIODE, SILICON SWITCHING 1N414A	(P70) CR1 THROUGH CR3	3	4, 12, 13, 14
7	INDUCTOR, WOUND 1000 μH ± 5%	(P70) L2, L3	2	42, 90, 91
8	RECEPTACLE, 19 PIN # 32119-315L	J1	1	134
9	PLUG, 19 PIN # 32119-325	J2	1	134
10	SWITCH, ROTARY #102163	S101, S102	2	5D5
11	RESISTOR, WW 10 Ω ± 5%	R1 THROUGH R5	5	99, 100
12	RELAY, DPDT # 808X-7T # 10-4A / 115VAC	K1, K3	2	78 79
13	SWITCH, TOGGLE 1/2 TON # 83254-SE	S1(S)	1	106
14	CAPACITOR, TACTUALUJ 4.7, F ± 20% 50V	C1(C)	1	23, 77
15	CONNECTOR, SCREW TERMINAL 47 CONTACT # 7000-47	J(13) THRU J(250) J(5) THRU J(205) J(245), J(255)	47	82
16	LAMP, MINIATURE # 323	DS101 THRU DS105	20	83, 84
17	INDUCTOR, WOUND 350 μH ± 5%	(P70) L1	1	42, 90, 91
18	RESISTOR, 560 Ω ± 2%	(P70) R5	1	16, 17
19	CAPACITOR, MYLAR .0010, F ± 10%	(P70) C3	1	24, 27, 74
20	RESISTOR, 170 Ω ± 2%	(P70) R0 THROUGH R3	9	16, 17

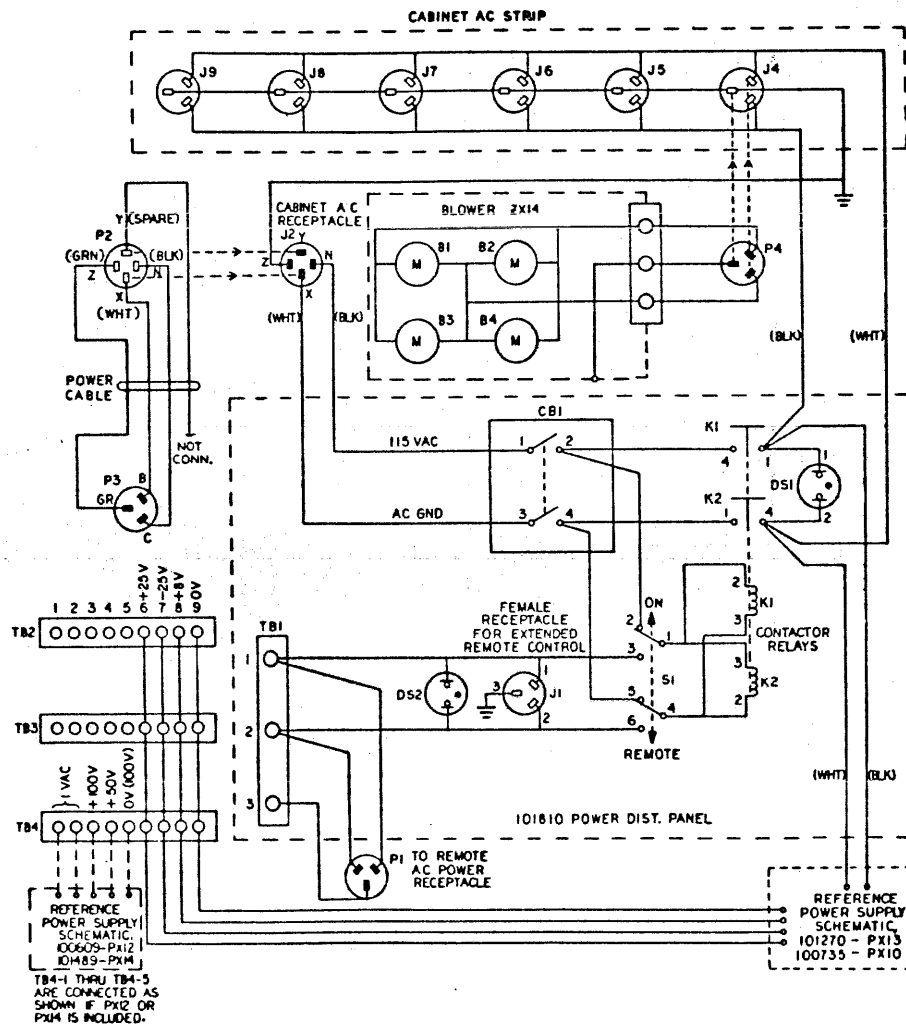
9246P
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PAGE 38
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* NOT USED ON 92463P

DWG. NO.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV.
		MATERIAL LIST		
NOTED UNLESS SPECIFIED		DRAWN	CHKD	APPD
1. DIMENSIONS AS SHOWN UNLESS OTHERWISE SPECIFIED		DATE	DATE	DATE
2. MATERIALS AS SHOWN UNLESS OTHERWISE SPECIFIED		DATE	DATE	DATE
3. FINISHES AS SHOWN UNLESS OTHERWISE SPECIFIED		DATE	DATE	DATE
4. PAINTS AS SHOWN UNLESS OTHERWISE SPECIFIED		DATE	DATE	DATE
5. TOLERANCES UNLESS OTHERWISE SPECIFIED		DATE	DATE	DATE
6. SURFACE TREATMENTS UNLESS OTHERWISE SPECIFIED		DATE	DATE	DATE
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195. SPECIAL REQUIREMENTS UNLESS				

REV	DESCRIPTION	DATE	BY	102334 B
B	SEE REV B.O			

REFERENCE DESIGNATIONS ARE ABBREVIATED. PREFIX THE DESIGNATION WITH UNIT NUMBER OR ASSEMBLY DESIGNATION OR BOTH. (MIL. STD. 168)



REV	DRAWING NO	DESCRIPTION	REFERENCE DESIGNATION	DATE
MATERIAL LIST		SDS INDUSTRIAL DATA SYSTEMS 100 LITTLEFIELD STREET, SANTA MONICA, CALIFORNIA		
1. MANUFACTURER 2. QUANTITY 3. PART NUMBER 4. PART NAME 5. PART TYPE		CHECKED: <i>[Signature]</i> APPROVED: <i>[Signature]</i> DATE: 10/1/63 SCALE:		
REFERENCE: 9110, 9114, 9119, 9200, 9204, 9219 UNIT: 9110, 101088, 100984, 100781		TITLE: SCHEMATIC, POWER DISTRIBUTION DRAWING NO: 102334 REV: B		
SCALE: NO UNIT SCALE DRAWING		SHEET: 2 OF 2		

102334/B

REVISIONS		102334	B
REV	DESCRIPTION	DATE	APPROVED
	SEE SH1 ONE		

REPLACEMENT PARTS LIST

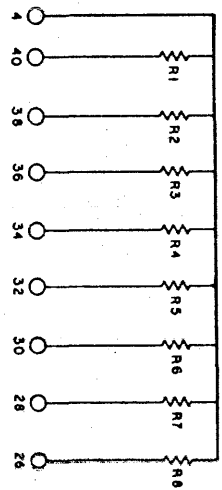
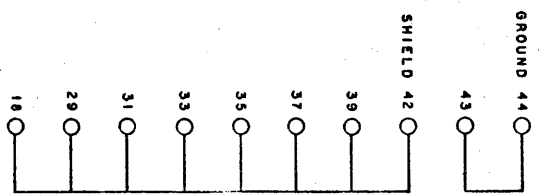
ITEM	DESCRIPTION	DESIGNATION	QTY	SUPPLIER CODE (SEE INDEX)
1	CORD, A.C. #16/3 SPT-3 CORD WITH #PA-3 PLUG	PI, PA	2	101
2	CONNECTOR, 5 WIRE FEMALE #3523	P2	1	102
3	CONNECTOR, 3 WIRE MALE #3331	P3	1	102
4	RECEPTACLE, 3 WIRE FEMALE #5256	J1	1	102
5	CONNECTOR, 5 WIRE MALE #3525	J2	1	102
6	WIREMOLD, A.C. #G20GB306	J4 THRU J9	1	103
7	LAMP, NEON #249-784H-1437	DS1, DS2	2	104
8	RELAY, SPST #NAS-13A/115 VAC	K1, K2	2	79
9	CIRCUIT BREAKER, DOUBLE POLE #2XAM1516-25-250 VAC 60 CYCLE CURVE 2	CB1	1	105
10	SWITCH, TOGGLE DPDT	S1	1	106

DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	REV
MATERIAL LIST			
DESIGNED BY	DRIVER	CHECKED	DATE
1. J. V.	J. V.	J. V.	7/2/73
2. J. V.	J. V.	J. V.	7/2/73
3. J. V.	J. V.	J. V.	7/2/73
4. J. V.	J. V.	J. V.	7/2/73
5. J. V.	J. V.	J. V.	7/2/73
SDS		SCHEMATIC POWER DISTRIBUTION	
MODEL NO.	REV. NO.	SCALE	DATE
9119, 9210, 9214, 9219	D	102334	B
9119, 9210, 9214, 9219	SCALE	DO NOT SCALE DRAWING	SHEET 2 OF 2

102334 B

REVISIONS		C1714	A
REV	DESCRIPTION	CHK DATE	APPROVED
A	RELEASED TO MFG	12/1/62	[Signature]

POLARIZING PINS: 12 & 24



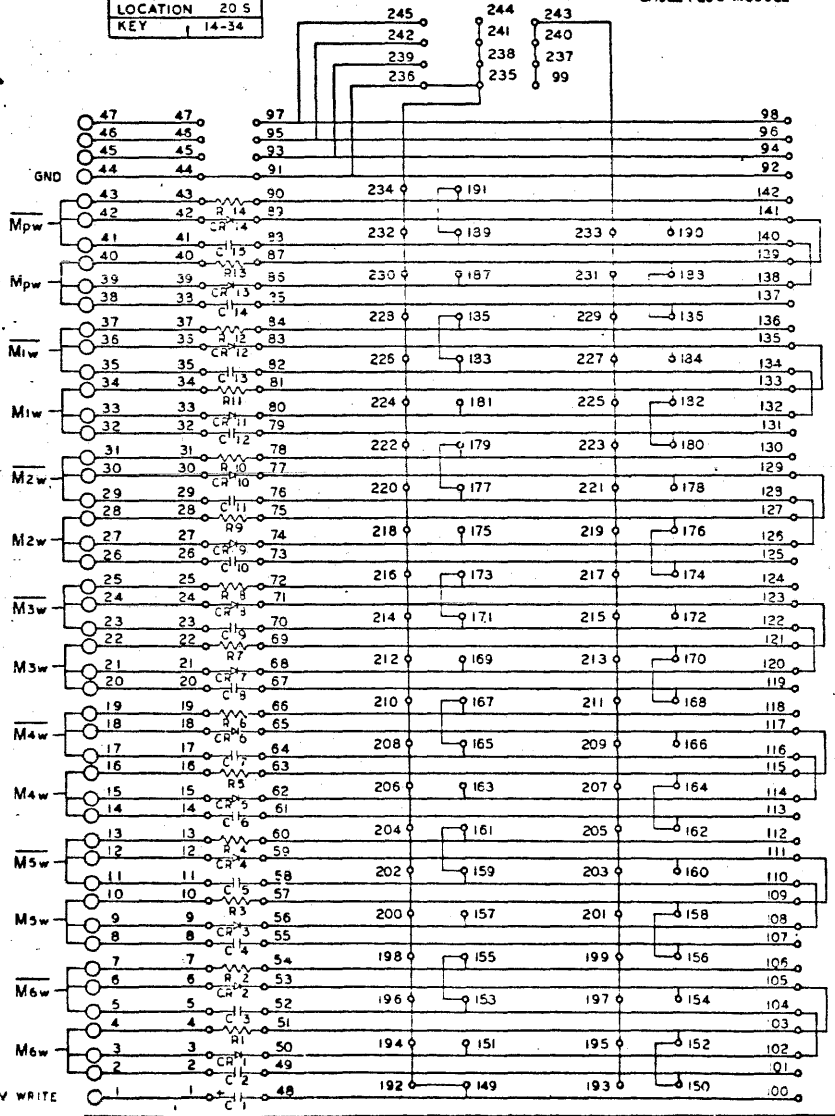
JOB NO.	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION
			13
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DRAWN: [Signature] CHECKED: [Signature] APPROVED: [Signature]		DATE: 12-10-62 FILE: [Signature]	
MODEL NO. ZK51 NEXT APP:		SD S ELECTRONIC DATA SYSTEMS THE ELECTRONIC DATA SYSTEMS COMPANY SCHEMATIC RESISTOR MODULE SIZE D DATE 101714 A SCALE: NO NOT SCALE DRAWING	

101714A

REV	DESCRIPTION	DATE	BY
A	RELEASED TO MFG		

DESIGNATION ZK56
LOCATION 20 S
KEY 1 14-34

CABLE PLUG MODULE



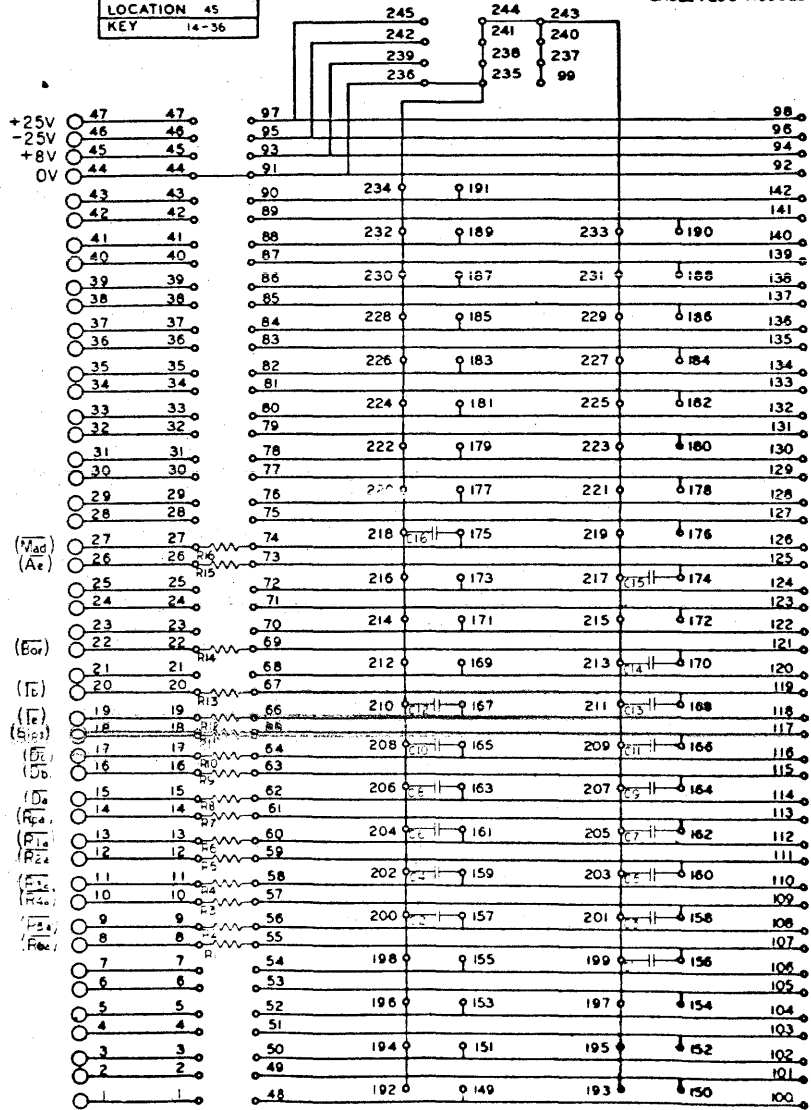
103015 A

REV	DESCRIPTION	DATE	BY												
A	RELEASED TO MFG														
MATERIAL LIST															
QUANTITY	DESCRIPTION	REFERENCE DESIGNATION													
1	SCHEMATIC TERMINATION MODULE (20 S)														
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PARTIAL NO. ZK 56		REV. NO. 103015 A													
SCALE: NO. NOT SCALE DRAWING															

REVISIONS				
REV	DESCRIPTION	DATE	BY	APPROVED
A	RELEASED TO MFG	1/7		

DESIGNATION ZK 58
LOCATION 45
KEY 14-36

CABLE PLUG MODULE



REV	DRAWING NO.	DESCRIPTION	REFERENCE DESIGNATION	DATE

MATERIAL LIST			
QUANTITY	DESCRIPTION	UNIT	REMARKS

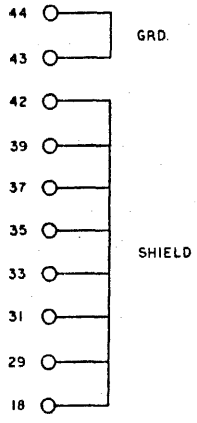
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DRAWING NO. ZK 58	REV. NO. D	REV. DATE 103473	REV. LETTER A
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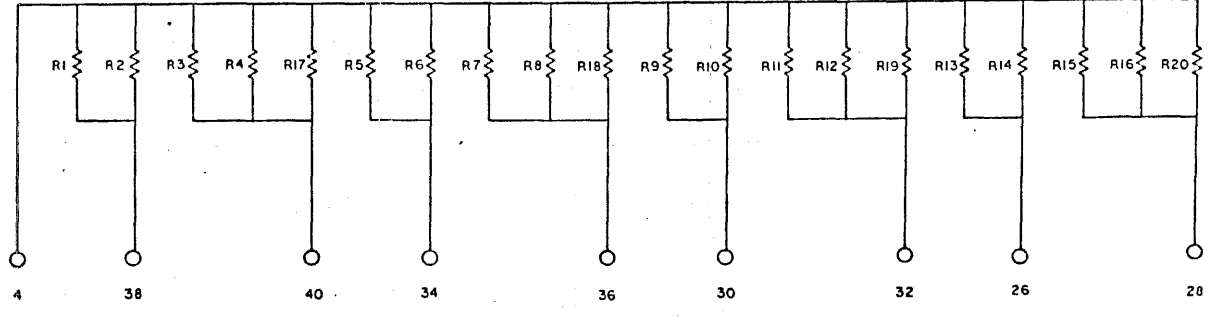
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REV	DESCRIPTION	DATE	BY
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REFERENCE DESIGNATION		114062	
DESCRIPTION		SCHEMATIC, RESISTOR MODULE	
MATERIAL LIST		ZK67 ZK68 114062	
PART NAME		114062	
DRAWN		7	
CHECKED		5 5 5	
APPROVED		5 5 5	
DATE		5 5 5	
SCALE		D	

POLARIZING PINS 12 & 24



NOTES:
 1. R17 THRU R20 DO NOT APPEAR IN ZK68.



Code No.	Name	Address
1	Motorola Semiconductor	5005 E. McDowell Rd. Phoenix, Arizona
2	Same as 1	
3	Fairchild Semiconductor	545 Whisman Road Mountain View, Calif.
4	Same as 3	
5	General Electric Co. Semiconductor Products Div.	Electronics Park Syracuse 1, N. Y.
6	Same as 5	
7	RCA Semiconductor Div.	Somerville, N. Y.
8	Silicon Transistor Corp.	East Gate Blvd. Garden City, N. Y.
9	Same as 8	
10	Hughes Semiconductor Div.	500 Superior Ave. Newport Beach, Calif.
11	Texas Instruments, Inc.	P.O. Box 5012 Dallas, Texas
12	Same as 11	
13	Pacific Semiconductors, Inc.	1420 Aviation Blvd. Lawndale, Calif.
14	Continental Device Corp.	12515 Chadron Ave. Hawthorn, Calif.
15	Sperry Semiconductor Div.	380 Main Ave. Norwalk, Conn.
16	Corning Glass Works	550 High St. Bradford, Penn.
17	Welwyn International, Inc.	3535 Edgecliff Terr. Cleveland 11, Ohio
18	Same as 11	
19	Arco Electronics, Inc.	Community Drive Great Neck, N. Y.
20	Sangamo Electric Co.	1207 N. 11th. St. Springfield, Ill.
21	Micamold Electric Mfg. Co.	65 Gouverneur St. Newark, N. J.
22	Kemet Company	11901 Madison Ave. Cleveland 1, Ohio
23	Sprague Electric Co.	481 Marshall St. North Adams, Mass.
24	U.S. Semiconductor Products	3540 W. Osborn R. Phoenix, Ariz.
25	General Electric Co. Capacitor Dept.	Hudson Falls, N. Y.
26	Same as 23	
27	Same as 23	
28	Raytheon Semiconductor Co.	350 Ellis St. Mountain View, Calif.
29	National Semiconductor Corp.	P.O. Box 443 Danbury, Conn.
30	General Instrument Corp.	65 Gouverneur St. Newark, N. J.

Code No.	Name	Address
31	Sylvania Electric Products Semiconductor Div.	100 Sylvan Road Woburn, Mass.
32	Western Semiconductors	2200 S. Fairview St. Santa Ana, Calif.
33	Computer Diode Corp.	250 Garibaldi Ave. Lodi, New Jersey
34	Tungsol Electric Inc.	1 Summer Ave. Newark, N. J.
35	Bourns, Inc.	1200 Columbia Ave. Riverside, Calif.
36	International Resistance Co.	401 N. Broad St. Philadelphia, Penn.
37	General Resistance, Inc.	430 Southern Blvd. New York 55, N. Y.
38	Same as 23	
39	Technitrol Engineering Co.	1952 E. Allegheny Ave. Philadelphia, Penn.
40	Same as 39	
41	Delevan Electronics Corp.	77 Olean Road East Aurora, N. Y.
42	Same as 41	
43	Delco Radio Division	700 E. Firmin St. Kokomo, Indiana
44	Atohm Electronics	7648 San Fernando Rd. Sun Valley, Calif.
45	Dale Electronics, Inc.	P.O. Box 609 Columbus, Nebraska
46	Tepro Electric Co.	5 St. Paul Street Rochester 4, N. Y.
47	Sage Electronics Corp.	Country Club Road East Rochester, N. Y.
48	Littelfuse Inc.	1865 Miner St. Des Plaines, Illinois
49	Bussman Mfg. Co.	University at Jefferson St. Louis, Missouri
50	Sola Electric Company	1717 Busse Road Elk Grove Village, Ill.
51	Cinch Jones Division	1026 S. Homan Ave. Chicago, Ill.
52	Same as 51	
53	Ohmite Mfg. Co.	3635 Howard St. Skokie, Illinois
54	Cutler-Hammer, Inc.	321 N. 12th. Street Milwaukee, Wisc.
55	Centralab	900A E. Keefe Ave. Milwaukee, Wisc.
56	Eldema Corporation	1805 Belcroft Ave. El Monte, Calif.
57	Same as 23	
58	Same as 25	
59	Same as 20	
60	Same as 51	

No.	Name	Address
61	Same as 54	
62	Amelco, Inc.	341 Moffet Blvd. Mountain View, Calif.
63	Transitron Electronic Corp.	168-182 Albion St. Wakefield, Mass.
64	Same as 10	
65	Same as 30	
66	American Semiconductor Corp.	3940 N. Kilpatrick Chicago, Illinois
67	Hoffman Electronics Corp. Semiconductor Division	Box 471 1001 N. Arden El Monte, Calif.
68	Delta Semiconductors, Inc.	835 Production Place Newport Beach, Calif.
69	Pulse Engineering, Inc.	560 Robert Ave. Santa Clara, Calif.
70	Nytronics, Inc.	550 Springfield Ave. Berkeley Heights, N. J.
71	Alladin Electronics, Inc.	Nashville 10, Tenn.
72	Ferroxcube Corp. of America	E. Bridge Street Saugerties, New York
73	Electra Mfg. Co.	4051 Broadway Kansas City, Mo.
74	Same as 25	
	Same as 24	
76	Same as 24	
77	Same as 24	
78	Same as 53	
79	Allied Control Co, Inc.	2 East 2nd Ave. New York, 21, N.Y.
80	Same as 23	
81	Same as 20	
82	Elco Corporation	Willow Grove, Penn.
83	Chicago Miniature Lamp Works	4433 Ravenswood Ave. Chicago 40, Illinois
84	General Electric Co. Miniature Lamp Dept.	Nela Park Cleveland 12, Ohio
85	Same as 34	
86	Automatic Electric Sales Corp.	North Lake, Illinois
87	Same as 24	
88	Same as 47	
89	Same as 45	
90	J.W. Miller Co.	5917 S. Main St. Los Angeles 3, Calif.
91	Stanwyck Winding Co.	137 Walsh Ave. Newburgh, N. Y.
92	Same as 36	
93	Same as 73	
94	Same as 23	
95	Philco Corp.	Lansdale Division Lansdale, Penn.
96	Amperex Electronic Corp.	230 Duffy Avenue Hicksville, N. Y.

Code No.	Name	Address
97	Siliconix, Inc.	1140 W. Evelyn Ave. Sunnyvale, Calif.
98	Continental Connector Corp.	34-63 56th Street Woodside 77, N. Y.
99	Same as 23	
100	Same as 53	
101	Royal Electric Corp.	95 Grand Ave. Pawtucket, R. I.
102	Harvey Hubbell, Inc.	Bridgeport, Conn.
103	The Wiremold Co.	Hartford 10, Conn.
104	Dialight Corp.	60 Stewart Ave. Brooklyn 37, N. Y.
105	Heinemann Electric Co.	2636 Brunswick Pike Trenton 2, N. J.
106	Arrow-Hart and Hegeman Electric	103 Hawthorne St. Hartford, Conn.
107	Allen Bradley Co.	136 W. Greenfield Ave. Milwaukee 4, Wisc.
108	General Electric Co. Meter Division	1 River Road Schenectady 5, N. Y.
109	Same as 70	
110	Winchester Electronics, Inc.	Willard Road Norwalk, Conn.
111	AMP, Inc.	Harrisburg, Penn.
112	Grayhill, Inc.	569 Hillgrove Ave. LaGrange, Illinois
113	Controls Co. of America	9555 Soreng Ave. Schiller Park, Illinois
114	Amphenol-Borg Amphenol Connector Division	1830 S. 54th Ave. Schiller Park, Illinois
115	Same as 36	
116	Same as 36	
117	Same as 73	
118	Same as 73	
119	Same as 11	
120	Thermalloy Co.	4417 N. Central Expressway Dallas 5, Texas
121	Astro Dynamics, Inc.	Second Avenue Northwest Industrial Park Burlington, Mass.
122	Tor Mfg. Co.	1533 E. Walnut St. Pasadena, Calif.
123	Wakefield Engineering, Inc.	9 Broadway Wakefield, Mass.
124	Same as 35	
125	Same as 36	
126	Same as 37	
127	Erie Resistor Corp.	644 W. 12th Street Erie, Penn.
128	Same as 55	

Code No.	Name	Address
129	Same as 37	
130	C.P. Clare and Co.	3101 Pratt Blvd. Chicago 45, Illinois
131	The Adams and Westlake Co.	N. Michigan Street Elkhart, Indiana
132	Not Assigned	
133	Not Assigned	
134	Cannon Electric Co.	3208 Humboldt St. Los Angeles 31, Calif.
135	Indiana General Corp.	Crows Mill Road Keasbey, New Jersey
136	Same as 23	
137	Electro-Cube, Inc.	805 Fairview Ave. South Pasadena, Calif.
138	Monitor Products, Inc.	815 Fremont Ave. South Pasadena, Calif.
139	Rotron Mfg. Co.	Woodstock, N. Y.
140	The Digitran Co.	660 S. Arroyo Parkway Pasadena, Calif.
141	Minneapolis-Honeywell Semiconductor Products Div.	2747 4th Ave. South Minneapolis, Minn.
142	Babcock Relays Div.	1645 Babcock Ave. Costa Mesa, Calif.
143	Simco Company	19th and Walnut St. Lansdale, Penn.
144	IMC Magnetics Corp.	570 Main Street Westbury, N. Y.
145	Malco Mfg. Co.	4025 W. Lake St. Chicago 24, Ill.
146	Drake Mfg. Co.	4626 N. Olcott Ave. Chicago 31, Ill.
147	Same as 25	
148	Same as 23	
149	Same as 20	
150	Westinghouse Electric Co.	Semiconductor Dept. Youngwood, Penn.
151	Stancor Electronics, Inc.	3501 W. Addison St. Chicago 18, Ill.
152	Ammon Instruments, Inc.	345 Kelley St. Manchester, N.H.
153	Raytheon Company Industrial Components Div.	465 Center Street Quincy, Mass.
154	Same as 108	
155	Same as 55	
156	Capitol Machine and Switch Co.	36 Balmforth Street Danbury, Conn.
157	Same as 82	
158	Same as 51	
159	Quam-Nichols Co.	Marquette Rd. at Prairie Chicago 37, Illinois

Code No.	Name	Address
160	Magtrol, Inc.	241 Seneca Street Buffalo 4, New York
161	West Coast Electrical Mfg. Co.	233 W. 116th Place Los Angeles 61, Calif.
162	Minneapolis-Honeywell Micro Switch Division	Chicago and Spring Sts. Freeport, Illinois
163	Eldema Corp.	1805 Belcroft Ave. El Monte, Calif.
164	Potter and Brumfield Div. of Amer. Machine and Foundry	1200 E. Broadway Princeton, Indiana
165	Electric Indicator Company	Camp Avenue Stamford, Conn.
166	General Instrument Co. Magne Head Division	3216 W. El Segundo Hawthorne, Calif.
167	Contract Tool Corp.	3820 Hoke Ave. Culver City, Calif.
168	Milton Ross Metals Co.	250 Jacksonville Rd. Hatboro, Penn.
169	Robinson Company	3636-5 W. 139th St. Hawthorne, Calif.
170	ADC Products, Inc.	6411 Cambridge St. Minneapolis 26, Minn.
171	Same as 170	
172	Same as 170	
173	Same as 53	
174	Bendix Corporation Scintilla Division	Sidney, New York
175	Ward Leonard Electric Co.	75 South Street Mount Vernon, N.Y.
176	Clarostat Mfg. Co. Inc.	Washington Street Dover, New Hampshire
177	J.B.T. Instruments, Inc.	133 Hamilton Street New Haven 8, Conn.
178	Herman H. Smith, Inc.	2336 Nostrand Ave. Brooklyn 10, N.Y.
179	International Instruments	88 Marsh Road Orange, Conn.
180	U.S. Engineering Co. Div. of Litton Ind.	13536 Saticoy St. Van Nuys, Calif.
181	Campbell Industries	Dover, New Hampshire
182	California Resistor Corp.	1631 Colorado Ave. Santa Monica, Calif.
183	Kelvin Electric Co.	5907 Noble Ave. Van Nuys, Calif.
184	Angstrohm Precision Co.	7341 Greenbush Ave. N. Hollywood, Calif.
185	Mepco Inc.	35 Abbet Ave. Morristown, N. J.
186	Wood Electric Corp.	244 Broad Street Lynn, Mass.
187	Pendar, Inc.	509 Sherman Ave. Coeur D'Alene, Idaho

Code No.	Name	Address
188	Aerovox Corp.	740 Belleville Ave. New Bedford, Mass.
189	Cornell-Dubilier	50 Paris Street Newark 1, N. J.
190	Augat Inc.	33 Perry Ave. Attleboro, Mass.
191	Dearborn Labs	Box 3431 Orlando, Florida
192	TRW Capacitor, Div.	112 W. 1st Street Ogallala, Nebraska
193	Electron Products	1962 Walker Ave. Monrovia, Calif.
194	Mallory & Co. Inc.	3029 E. Washington St. Indianapolis, Ind.
195	Ampex Corp.	401 Broadway Redwood City, Calif.
196	Astron Division	255 Grant Avenue E. Newark, N. J.
197	Elgin Controls Division	2435 N. Naomi St. Burbank, Calif.
198	Superior Switch Co.	1001 W. Broad St. Richmond, Va.
199	Rheem Electronics	5250 W. El Segundo Hawthorne, Calif.
200	Union Carbide Cons. Prod. (Eveready)	270 Park Ave. N. Y., New York
201	Mossman, Inc. Donald P.	Box 265 Brewster, N. Y.
202	Dickson Elect. Corp.	310 S. Wells Fargo Scottsdale, Arizona
203	Master Specialties	15020 Figureoa Gardena, Calif.
204	Alco Elect. Prod. Inc.	3 Wolcott Ave. Lawrence, Mass.
205	Southern Electronics	150 W. Cypress Ave. Burbank, Calif.
206	San Fernando Elec. Mfg. Co.	1509 First Street San Fernando, Calif.
207	Leecraft Mfg. Co. Inc.	21-16 44th Rd. Long Island City, N. Y.
208	Oak Mfg. Co.	Crystal Lake, Illinois
209	National Cash Register Co.	S. Main at K St. Dayton, Ohio
210	Sylvania, Lighting Prod. Division	60 Boston St. Salem, Mass.
211	Westinghouse Lamp Div.	MacArthur Blvd. Bloomfield, N. J.
212	National Radio Inc.	37 Washington St. Melrose, Mass.
213	James Electronics Inc.	4050 N. Rockwell, Chicago, Ill.

Code No.	Name	Address
214	Vemaline Products Co.	Box 1, Franklin Lakes, New Jersey
215	United Shoe Mach. Corp.	Federal at High St. Boston 7, Mass.
216	Atlas Tack Corp.	South Pleasant St. Fairhaven, Mass.
217	Cambridge Thermionic Corp.	445 Concord Ave. Cambridge 38, Mass.
218	Hartwell Corp.	9035 Venice Blvd. Los Angeles 34, Calif.
219	Kulka Electric	633 S. Fulton Ave. Mt. Vernon, N. Y.
220	Atlee Corp.	2 Lowell Ave. Winchester, Mass.
221	Birnbach Radio	145 Hudson St. New York 13, N. Y.
222	Southco Fastener Co.	233 Industrial Hwy. Lester, Penn.
223	Standard Pressed Steel Co. (SPS)	Box 1084, Jenkintown, Penn.
224	Penn Engineering & Mfg. Corp.	Box 311 Doylestown, Penn.
225	National Transistor, Div. ITT	500 Broadway Lawrence, Mass.
226	Lerco Div., Microdot	220 Pasadena Ave. South Pasadena, Calif.
227	Burndy	Norwalk, Connecticut
228	Electro-Mec Inst. Co.	47-51 33rd St. Long Island City, N. Y.
229	Ohio Nut & Bolt	36 First Ave. Berea, Ohio
230	Riedon Div. On Mark Eng.	11728 Vost St. No. Hollywood, Calif.
231	Rubbercraft Corp. of Calif.	1800 W. 220th St. Torrance, Calif.
232	Masterite Industries	835 W. Olive St. Inglewood, Calif.
233	Weckesser Co. Inc.	5701 Northwest Hwy. Chicago 46, Illinois
234	Key Resistor Corp.	321 W. Redondo Beach Blvd. Gardena, Calif.
235	Alpha Wire Corp.	180 Varick St. New York 14, N. Y.
236	Nylon Molding Corp.	141 South Ave. Garwood, New Jersey
237	Dakota Engineering Co.	4315 Sepulveda Culver City, Calif.
238	PCA Electronics	16799 Schoenborn St. Sepulveda, Calif.
239	ILS Div., Merriam	10978 Madison Ave. Cleveland, Ohio

Code No.	Name	Address
240	Philadelphia Insulated Wire Co.	333 New Albany Rd. Moorestown, N. J.
241	Amerock Corp.	4000 Auburn St. Rockford, Illinois
242	Superior Electric Co.	383 Middle St. Bristol, Conn.
243	Reon	155 Sawmill River Rd. Yonkers, N. Y.
244	Hardwick Hindle	Huntington, Indiana
245	Driver, W. B.	1875 MacCarter Hwy. Newark 4, N. J.
246	Driver-Harris	202 Middlesex St. Harrison, N. J.
247	Pacific Electricord	747 W. Redondo Beach Blvd., Gardena, Calif.
248	Standard Wire & Cable	3434 Overland Ave. Los Angeles 34, Calif.
249	Illumitronic Eng.	680 E. Taylor Ave. Sunnyvale, Calif.
250	Belden Mfg. Co.	415 S. Kilpatrick Ave. Chicago 44, Ill.
251	Arnold Eng.	Box G, Marengo, Ill.
252	Carstedt Research	2501 E. 68th St. Long Beach 5, Calif.
253	Maloney Elect. Co.	5390 Bircher Ave. St. Louis, Mo.
254	Gerrard, A. J.	400 E. Touhy Ave. Des Plaines, Ill.
255	Ducommun	4890 S. Alameda Los Angeles, Calif.
256	Stevens Paper Mills Inc.	Box 347 Windsor, Conn.
257	Schweitzer, P. J.	Lee, Massachusetts
258	Cottrell Paper	10 Purchase St. Fall River, Mass.
259	American Pamcor	181 Hillcrest Havertown, Pa.
260	Johns - Manville	220 E. 40th St. New York 16, N. Y.
261	Minnesota Mining & Mfg. Co. (3M)	2501 Hudson Ave. St. Paul, Minn.
262	Permacel Mfg. Co.	U. S. Highway 1 New Brunswick, N. J.
263	Technical Tape Co.	240 North Ave. New Rochelle, N. Y.
264	Anaconda	605 Third Ave. New York, N. Y.
265	Essex Wire	1601 Wall St. Fort Wayne, Indiana
266	Kennecott Wire	Phillipsdale 16, R. I.
267	Phelps - Dodge Copper	4400 New Haven Ave. Fort Wayne, Ind.

Code No.	Name	Address
268	Westinghouse, Specialty Transf. Div.	Greenville, Pa.
269	International Rectifier	233 Kansas St. El Segundo, Calif.
270	Chicago Printed String	2322 Logan Blvd. Chicago 47, Ill.
271	Varflex	514 W. Court St. Rome, N. Y.
272	Natvar Corp.	211 Randolph Ave. Woodbridge, N. J.
273	General Electric Wire & Cable Div.	1285 Boston Ave. Bridgeport, Conn.
274	Standard Record Mfg.	17 N. San Gabriel Blvd. Pasadena, Calif.
275	Sun Chemical Corp. Electro-Tech Prod. Div.	Nutley, N. J.
276	Camlock Fastener Corp.	22 Spring Valley Rd. Paramus, N. J.
277	Thomas & Betts	36 Butler St. Elizabeth, N. J.
278	Unistrut	933 W. Washington Blvd. Chicago, Ill.
279	Victor Wire & Cable	618 Main St. Warwick, R. I.
280	Thermatics Corp.	P. O. Drawer 505 Elm City, N. Carolina
281	Reeves-Hoffman	145 Cherry St. Carlisle, Penn.
282	Bulova Electronics	61-20 Woodside Ave. Woodside 77, N. Y.
283	Palmer Inst. Co.	1017 Mission St. Pasadena, Calif.
284	Filtair, Inc.	706 Forrest St. Charlottesville, Va.
285	Signetics	680 W. Maude Ave. Sunnyvale, Calif.
286	American Super-Temp. Wires, Inc.	W. Canal St. Winooski, Vermont
287	Jan Hardware Mfg. Co.	38-03 Queens Blvd. Long Island City 1, N. Y.
288	International Business Mach. Co.	112 E. Post St. White Plains, N. Y.
289	Hoskins Mfg.	4445 Lawton Ave. Detroit 8, Michigan
290	Zippertubing Corp.	13000 S. Broadway Los Angeles 61, Calif.
291	CPR International	555 N. Alaska, Torrance, Calif.
292	Western Insulated Wire	2425 E. 30th Los Angeles 58, Calif.
293	Minneapolis Honeywell, Meter Div.	Greiner Field Manchester, N. H.

No.	Name	Address
294	Ives, H. B.	New Haven, Conn.
295	Plastiglide Mfg. Co.	1757 Stanford St. Santa Monica, Calif.
296	Croven Ltd.	500 Beech St. Box 1420, Whitby, Ontario, Canada
297	Darnell Corp.	12000 S. Woodruff Ave. Downey, Calif.
298	Tracor	Austin, Texas
299	Barden Corp.	200 Park Avenue Danbury, Conn.
300	Kooltronic Fan Co.	Box 504 Princeton, N. J.
301	Waldes-Kohinoor	47-16 Austel Place Long Island City, New York
302	PIC Design Corp.	477 Atlantic Ave. E. Rockaway, N. Y.
303	Shakeproof Division Illinois Tool	St. Charles Road Elgin, Illinois
304	Elastic Stop Nut Co. (ESNA)	2330 Vauxhall Road Union, N. J.
305	National Lock Co.	42 Hermon Street Newark 5, N. J.
306	Groov-Pin Corp.	1125 Hendricks Cswy. Ridgefield, N. J.
307	Harrison Labs. Div.	45 Industrial Road Berkeley Heights, New Jersey
308	Boston Gear Works	14 Hayward Street Quincy 71, Mass.
309	Emerson & Cumming	869 Washington Street Canton, Mass.
310	ARBCO Electronics	7820 Gloria Van Nuys, Calif.
311	Sealectro	139 Hoyt St. Mamaroneck, New York
312	General Sensor, Inc.	Box 231 Athens, Texas

Code No.	Name	Address
313	Thermal-Systems, Inc.	15100 S. Broadway Gardena, Calif.
314	Tinnerman Products, Inc.	Box 6688 Cleveland 1, Ohio
315	Brush Beryllium Co.	17876 St. Clair Ave. Cleveland, Ohio
316	National Beryllia Corp.	1st & Haskell Avenues Haskell, N. J.
317	Frenchtown Porcelain	Frenchtown, N. J.
318	Lenz Electric Mfg. Co.	1751 N. Western Ave. Chicago 47, Ill.
319	Space Products Co.	2235 E. Artesia St. Long Beach, Calif.
320	Sterling Inst. Div.	76 E. 2nd Street Mineola, N. Y.
321	Atlantic India Rubber Co.	571 W. Polk St. Chicago 7, Illinois
322	Waldom Electric	4627 W. 53rd Street Chicago, Illinois
323	Mystik Tape Inc. Div.	1700 Winnetka Ave. Northfield, Ill.
324	Amphenol-Borg, Controls Div.	120 S. Main Janesville, Wisc.
325	General Electric, Transformer Div.	1 River Road Schenectady, N. Y.
326	GC Electronics Div.	400 S. Wyman St. Rockford, Ill.
327	United Carr Fastener Div.	459 Watertown St. Newtonville, Mass.
328	North American Elect. Div. IRC	71 Linden St. West Lynn, Mass.
329	Carol Cable Div., Crescent Wire	249 Roosevelt Ave. Pawtucket, R. I.
330	Plastoid Corp.	42-61 24th Street Long Island City, N. Y.
331	G-V Controls Inc.	101 Okner Parkway Livingston, N. J.
332	Teletype Corp.	5555 Touhy Avenue Skokie, Illinois
333	Parker Seal	10567 Jefferson Blvd. Culver City, Calif.