9246A and 9246P-41.7KC
MAGNETIC TAPE ELECTRONICS

Logic. Layouts,
Current and History

SDS 900533B

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

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.

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

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, 92461A, 92462A, & 9346A. 9246P IMPLIES 9246P, 92461P, 92462P & 92463P. THE FOLLOWING CHART INDICATES THE EFFECTIVITY OF INDIVIDUAL PAGES.

PAGE NO.	AMPEX ONLY	POTTER ONLY	BOTH	92463P 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

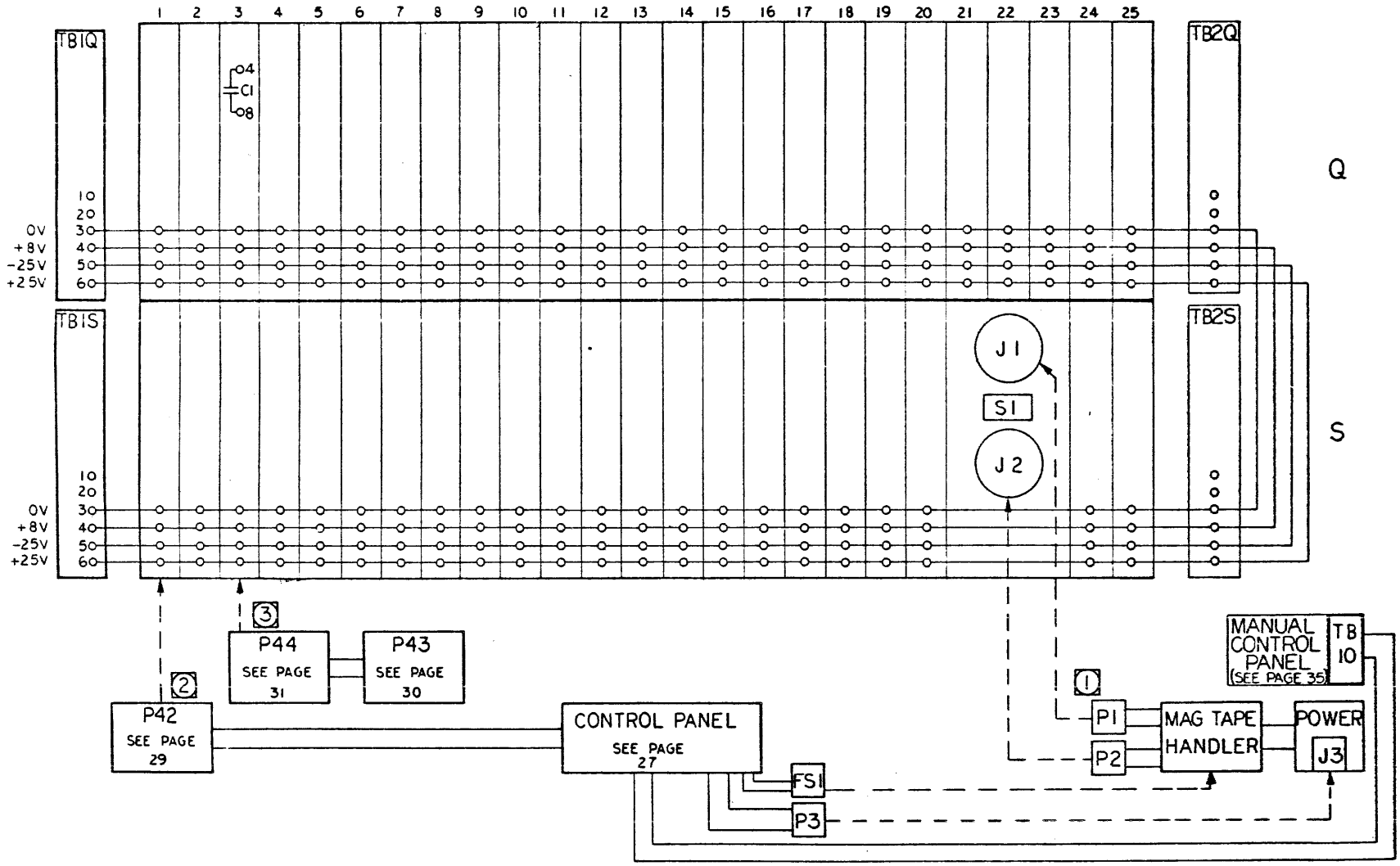
D

NOTES: UNLESS OTHERWISE SPECIFIED

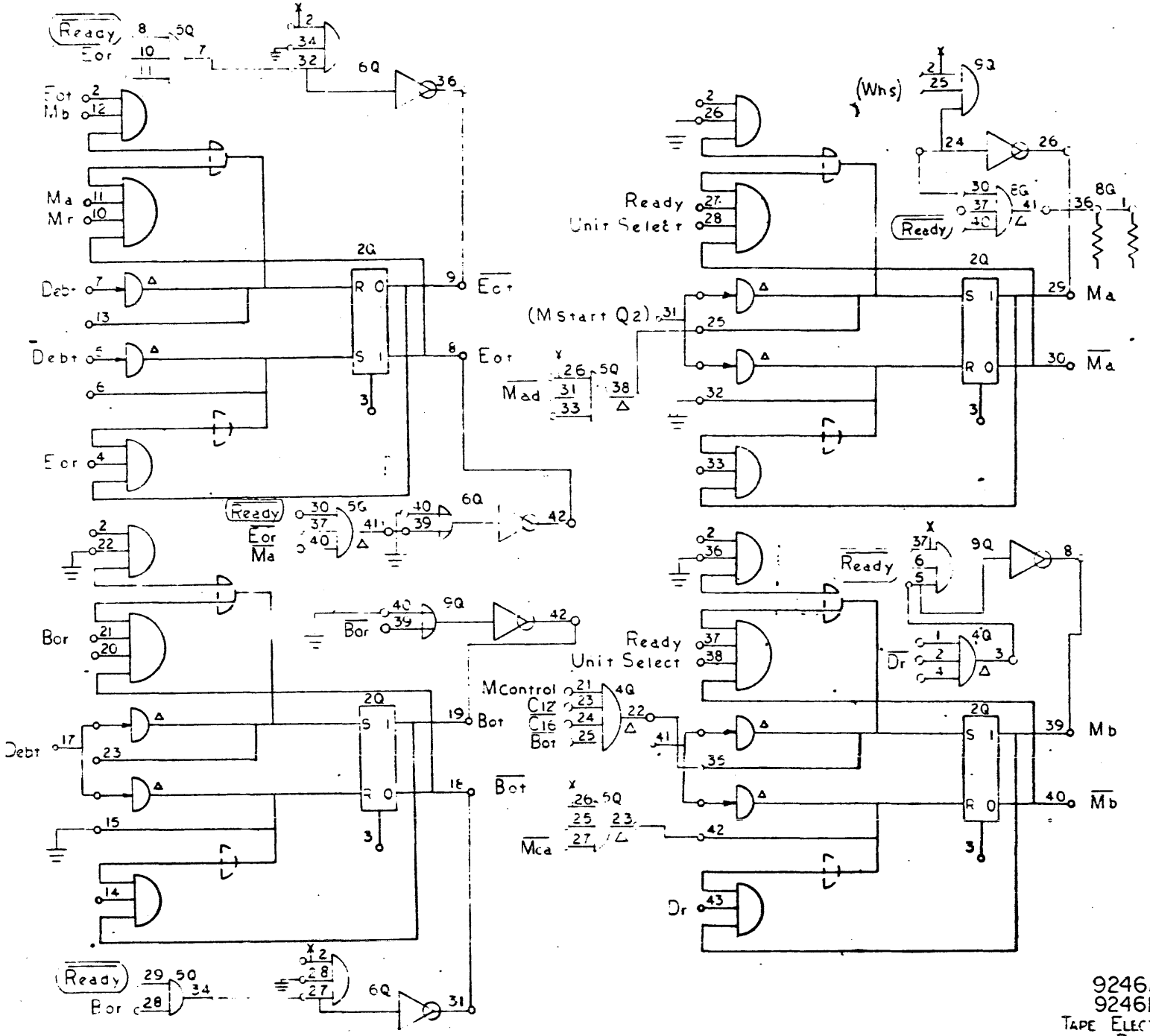
[1] RECEPTACLES J1 & J2 ARE PROVIDED FOR CONNECTION TO THE READ & WRITE HEADS OF THE MAG TAPE UNIT.

[2] RECEPTACLE J(1S) IS PROVIDED FOR P42 FROM CONTROL PANEL.

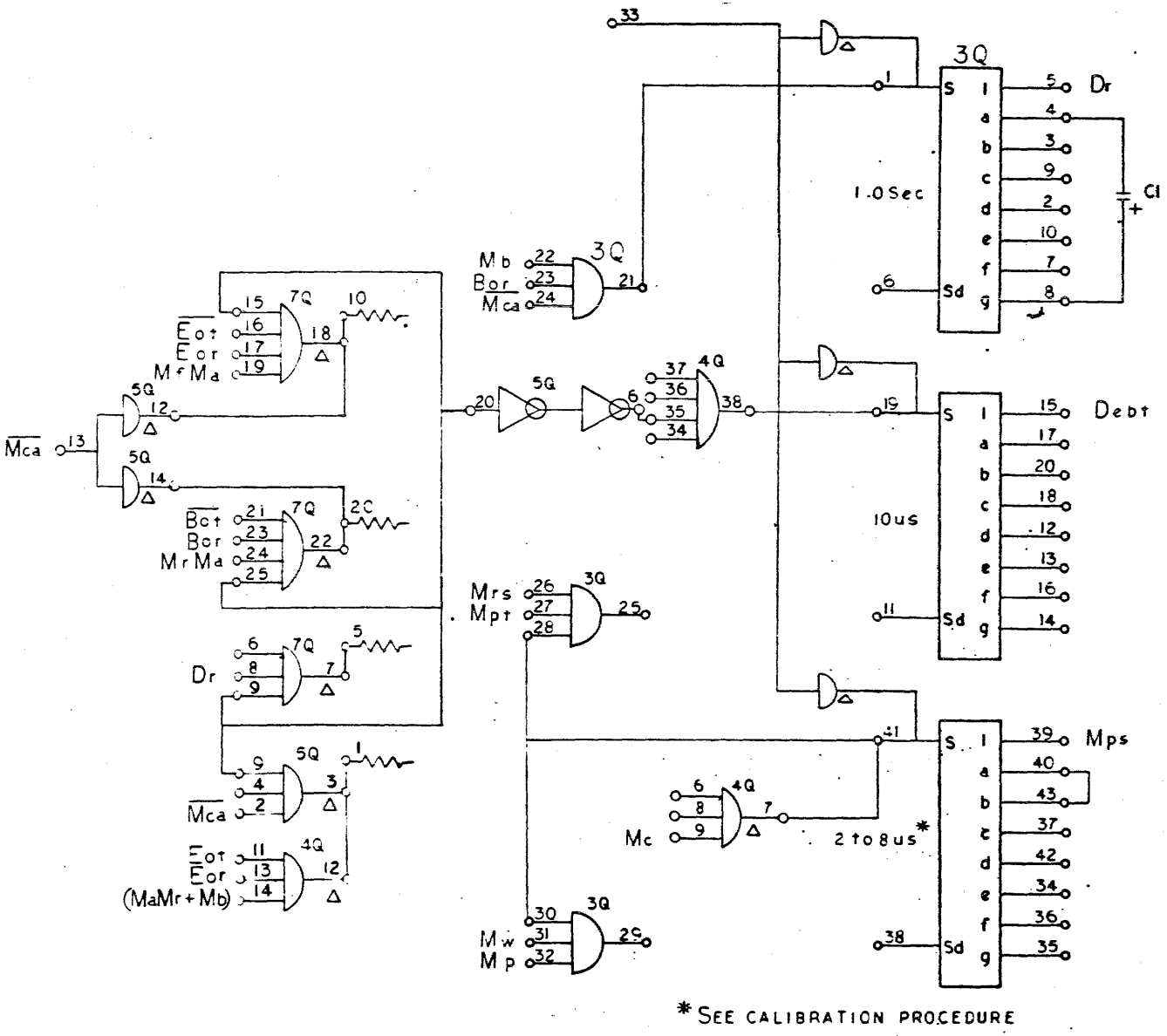
[3] RECEPTACLE J(3S) IS PROVIDED FOR THE P44 TO P43 CABLE. P43 CONNECTS TO RECEPTACLE J(24V) OF THE MODEL 9248 CONTROL UNIT OR TO J(2S) OF A SECOND MODEL 9246.

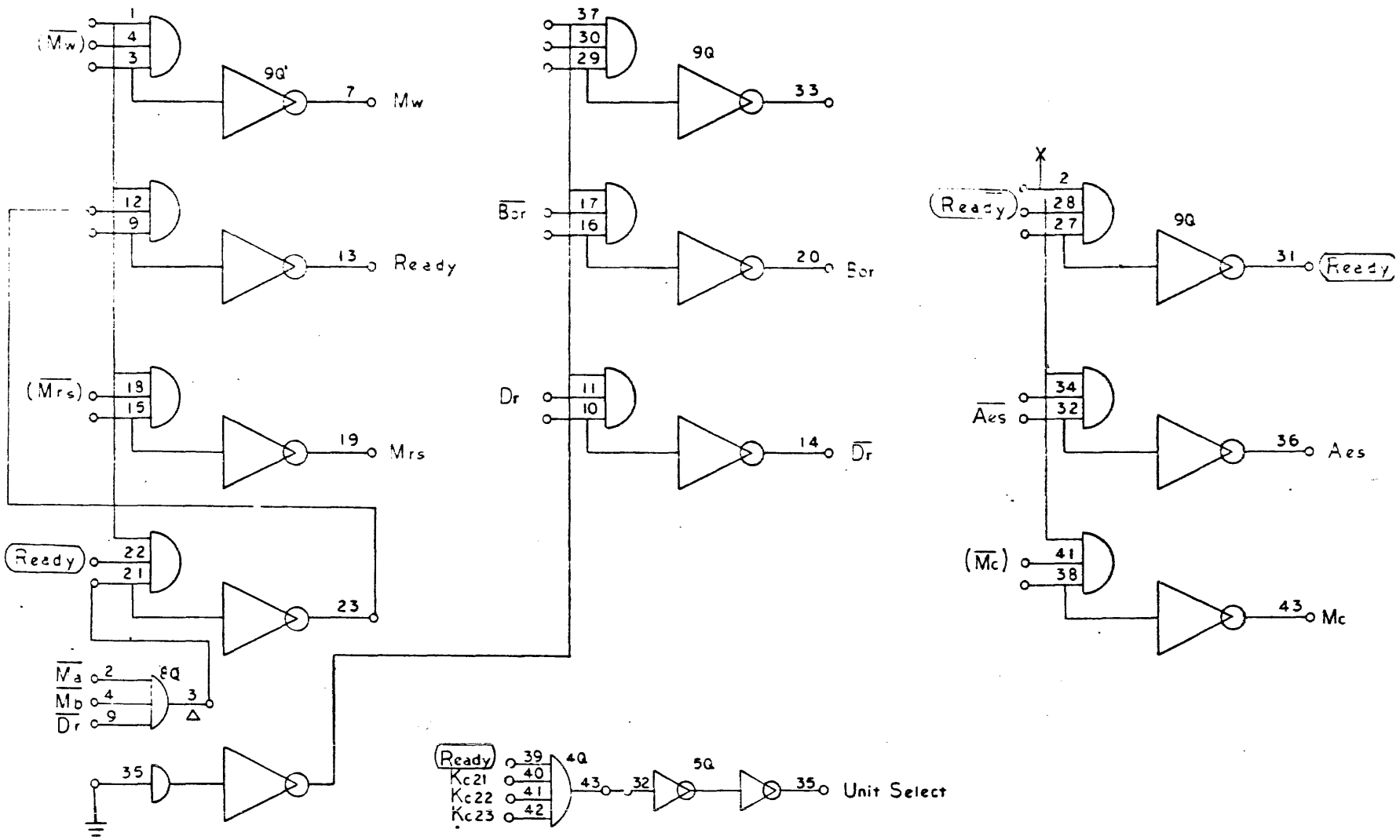


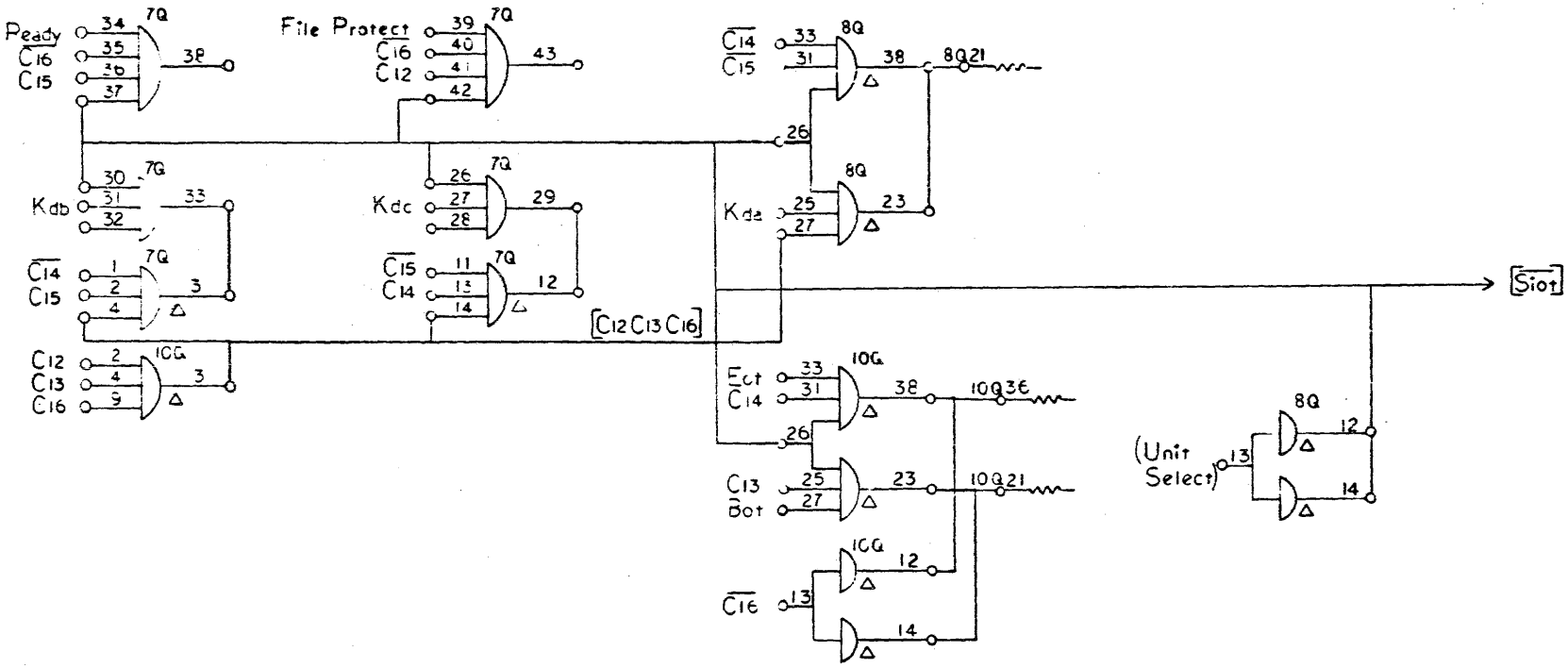
9246 A
MAG TAPE
PAGE 2
D

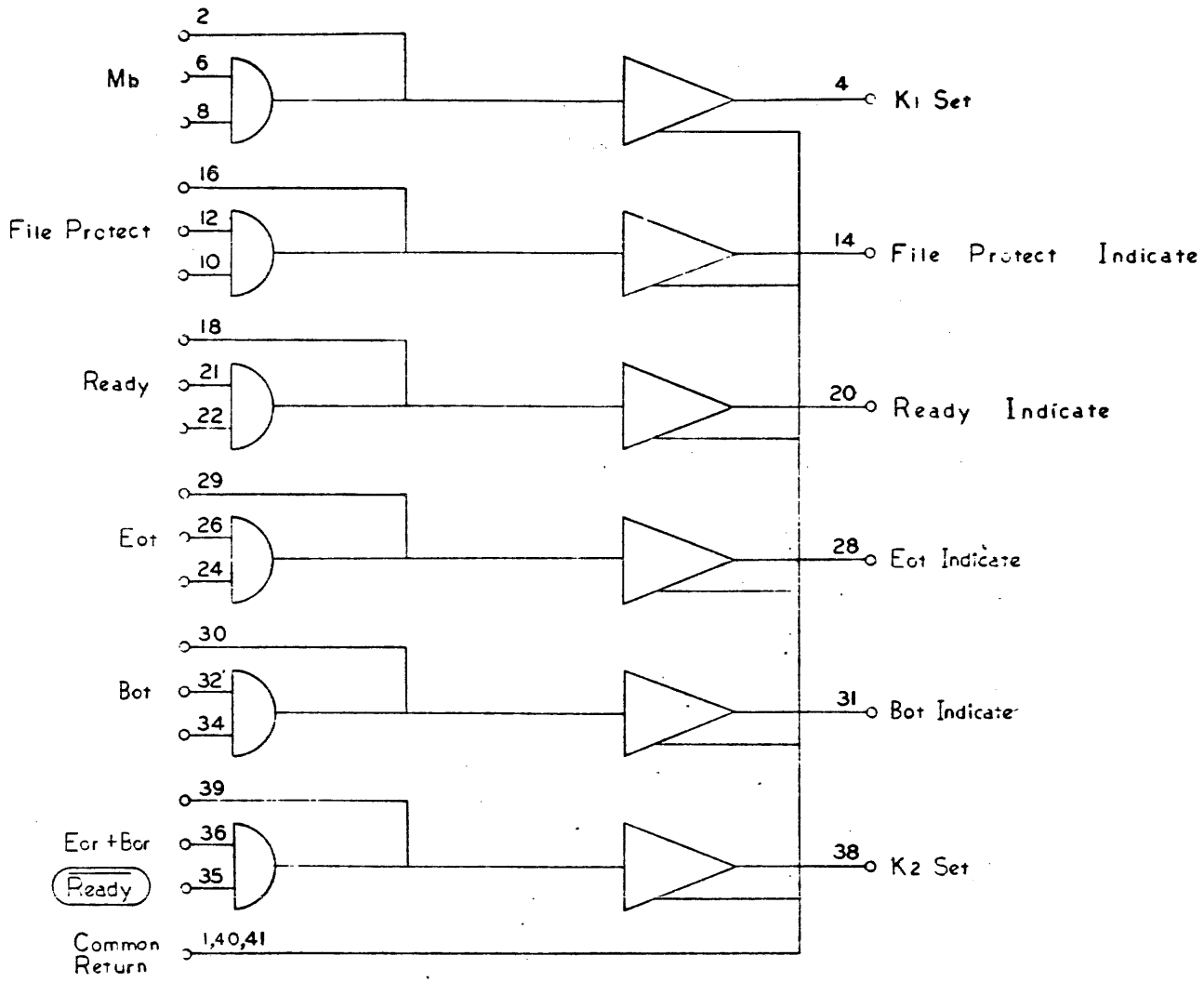


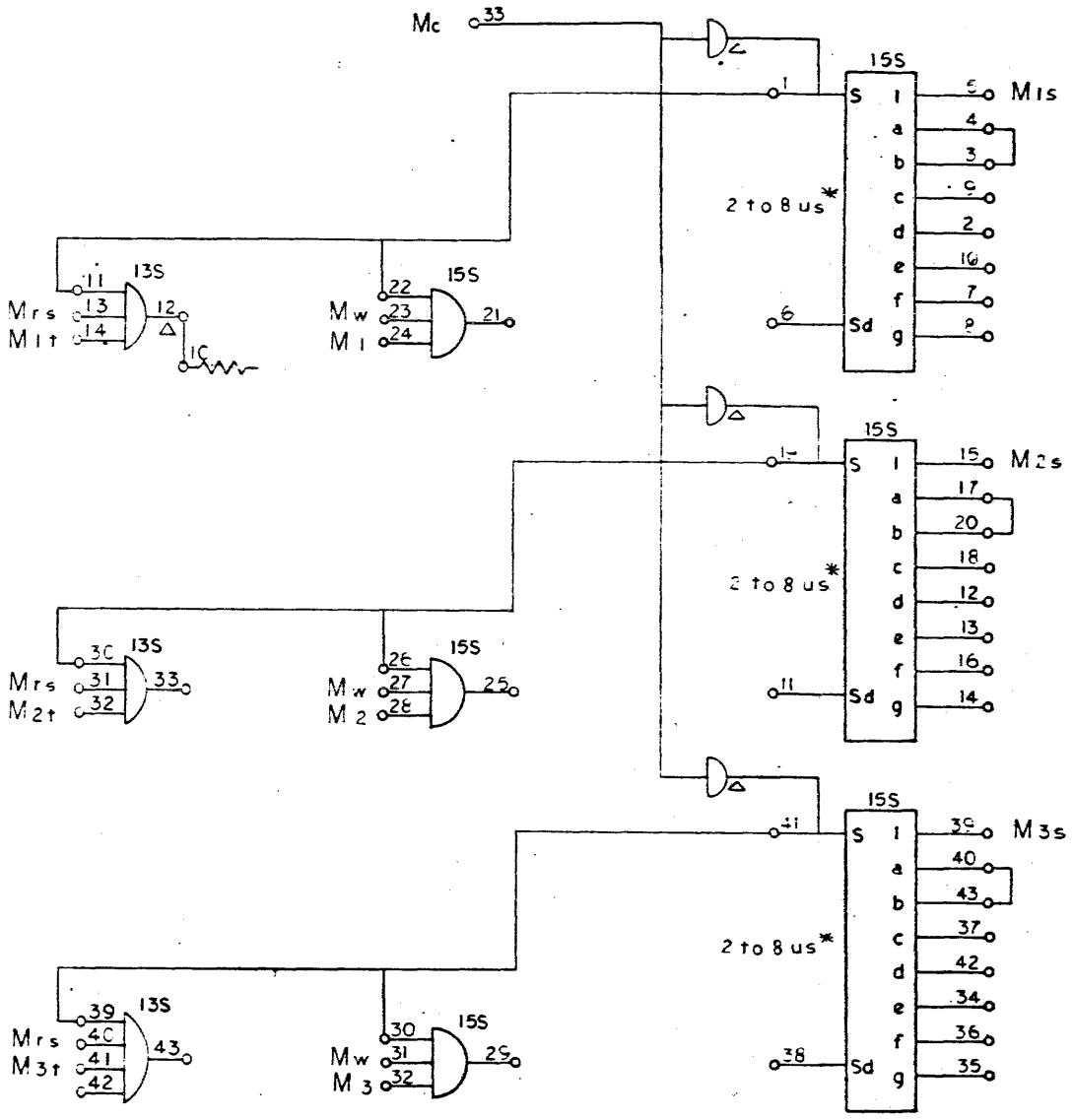
9246A
9246P
TAPE ELECTRONICS
PAGE 4
D


33
3Q
1
S
5
Dr
4
3
9
2
10
7
8
1.0 Sec
6
Sd
Cl
Mb
Bor
Mca
22
23
24
3Q
21
15
7Q
10
Eot
16
Eor
17
MrMa
19
18
5Q
12
20
5Q
37
4Q
6
36
35
34
38
19
Debt
15
17
20
18
12
13
16
14
10us
11
Mca
13
5Q
14
Bot
21
7Q
20
Bor
23
MrMa
24
25
22
Mrs
26
3Q
Mpt
27
28
25
6
7Q
5
Dr
8
9
7
9
5Q
1
4
3
Mca
2
Eot
11
4Q
Eor
13
12
(MaMr+Mb)
14
30
3Q
Mw
31
Mp
32
29
21
39
Mps
40
43
37
42
34
36
35
38
6
4Q
8
Mc
9
7
2 to 8us*
*SEE CALIBRATION PROCEDURE

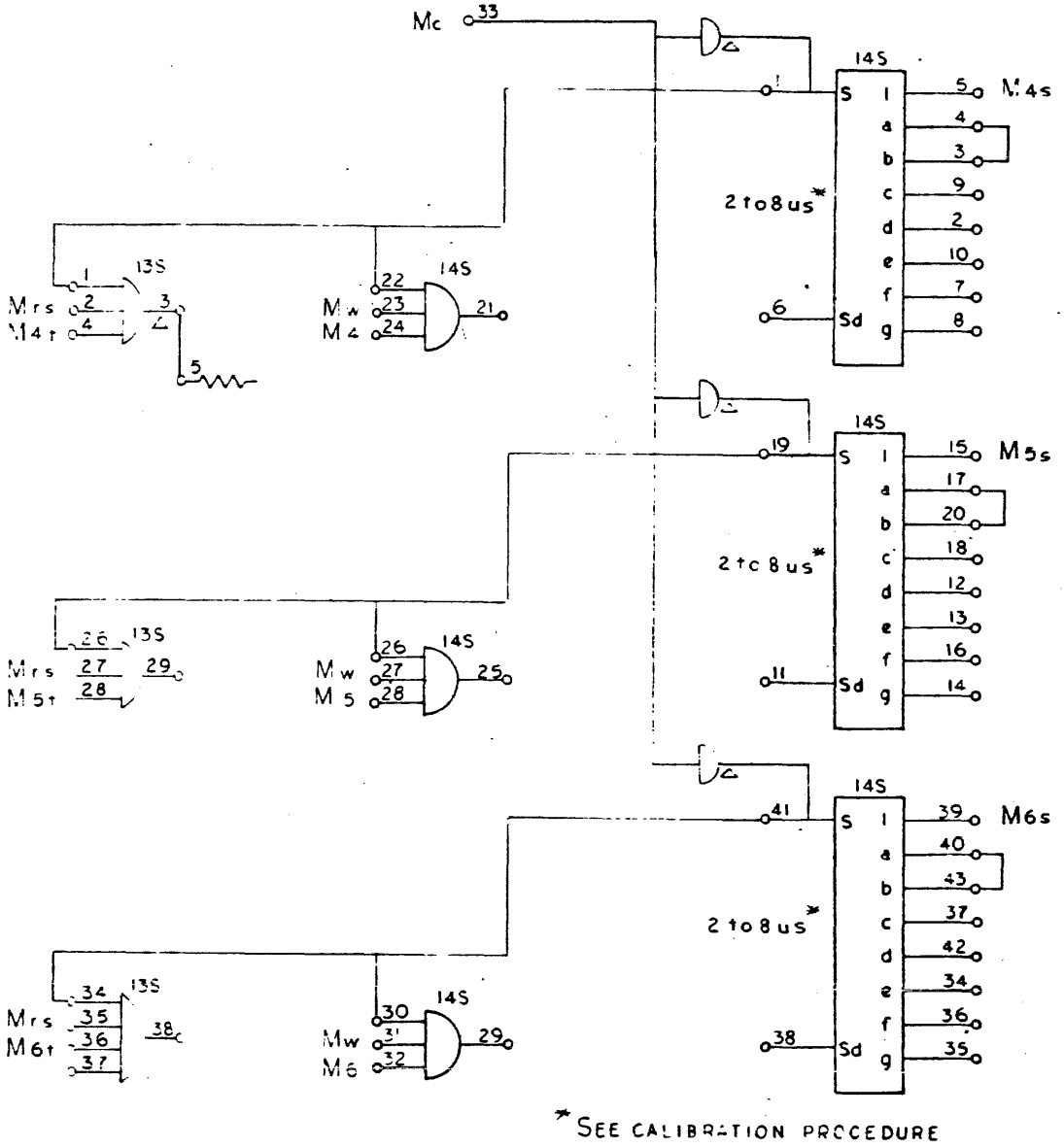

(Mw)
1
4
3
9Q'
7
Mw
12
9
13
Ready
(Mrs)
18
15
19
Mrs
Ready
22
21
23
Ma
Mb
Dr
2
4
9
EQ
3
35
37
30
29
9Q
33
Bar
17
16
20
Bar
Dr
11
10
14
Dr
Ready
Kc21
Kc22
Kc23
39
40
41
42
4Q
43
32
5Q
35
Unit Select
X
2
Ready
28
27
9Q
31
Ready
Aes
34
32
36
Aes
(Mc)
41
38
43
Mc

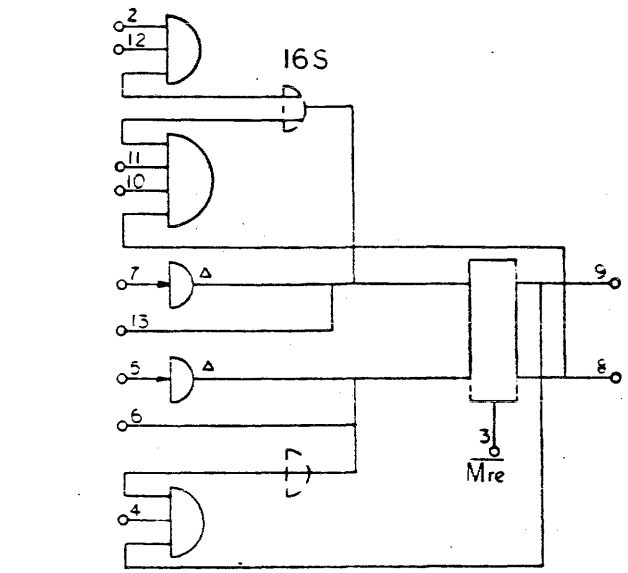

Ready
C16
C15
7Q
34
35
36
37
38
File Protect
C16
C12
7Q
39
40
41
42
43
C14
C15
8Q
33
31
38
8Q21
26
Kdb
7Q
30
31
32
33
Kdc
7Q
26
27
28
29
Kda
8Q
25
27
23
C14
C15
7Q
1
2
4
3
C15
C14
7Q
11
13
14
12
[C12 C13 C16]
Siot
C12
C13
C16
10G
2
4
9
3
Ect
C14
10G
33
31
38
10G36
26
C13
Bot
25
27
23
10G21
10G
12
C16
13
14
8Q
12
(Unit
Select)
13
14

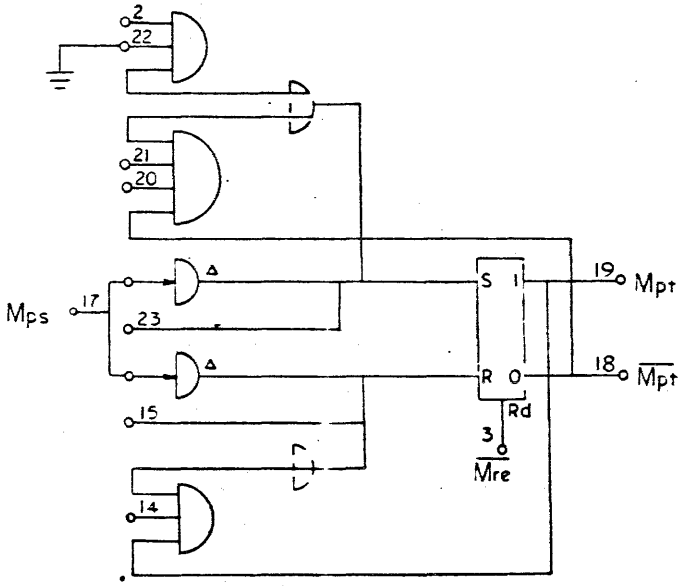

2
Mb
6
8
4
K1 Set
16
File Protect
12
10
14
File Protect Indicate
18
Ready
21
22
20
Ready Indicate
29
Eot
26
24
28
Eot Indicate
30
Bot
32
34
31
Bot Indicate
39
Eor +Bor
Ready
36
35
38
K2 Set
Common Return
1,40,41

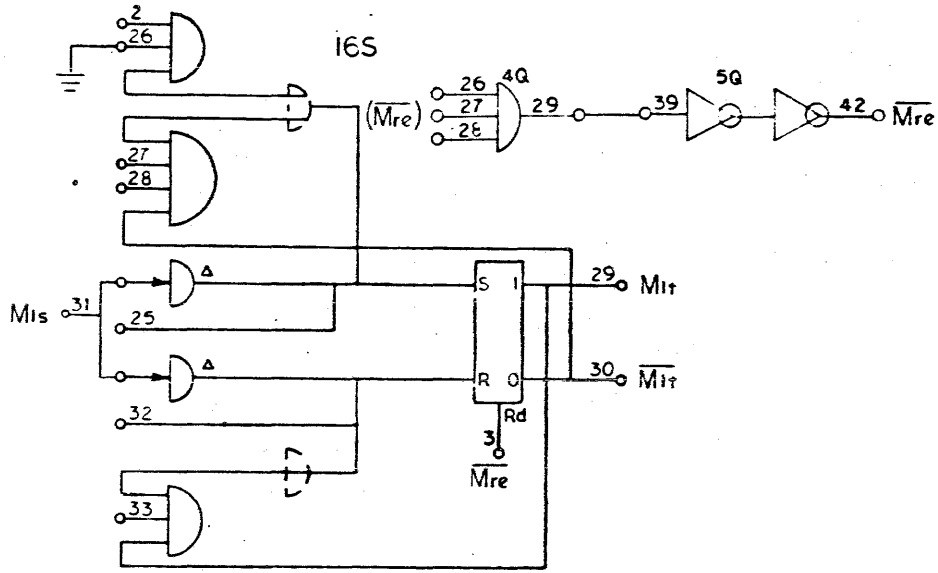


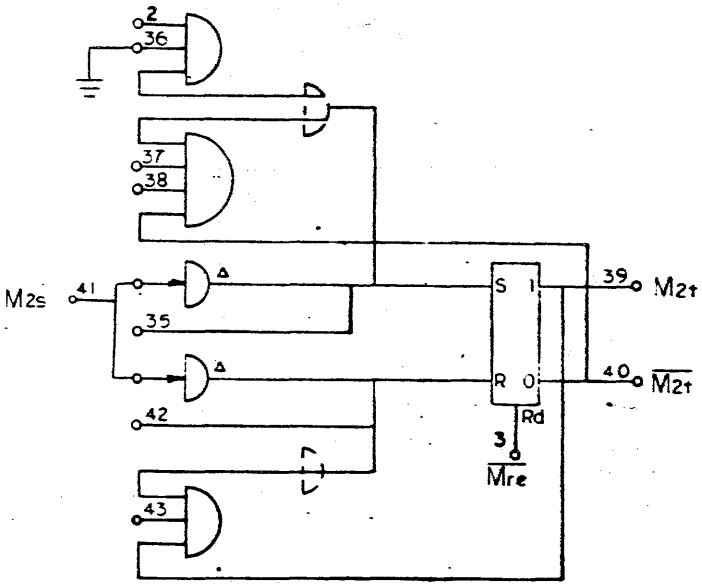
* SEE CALIBRATION PROCEDURE

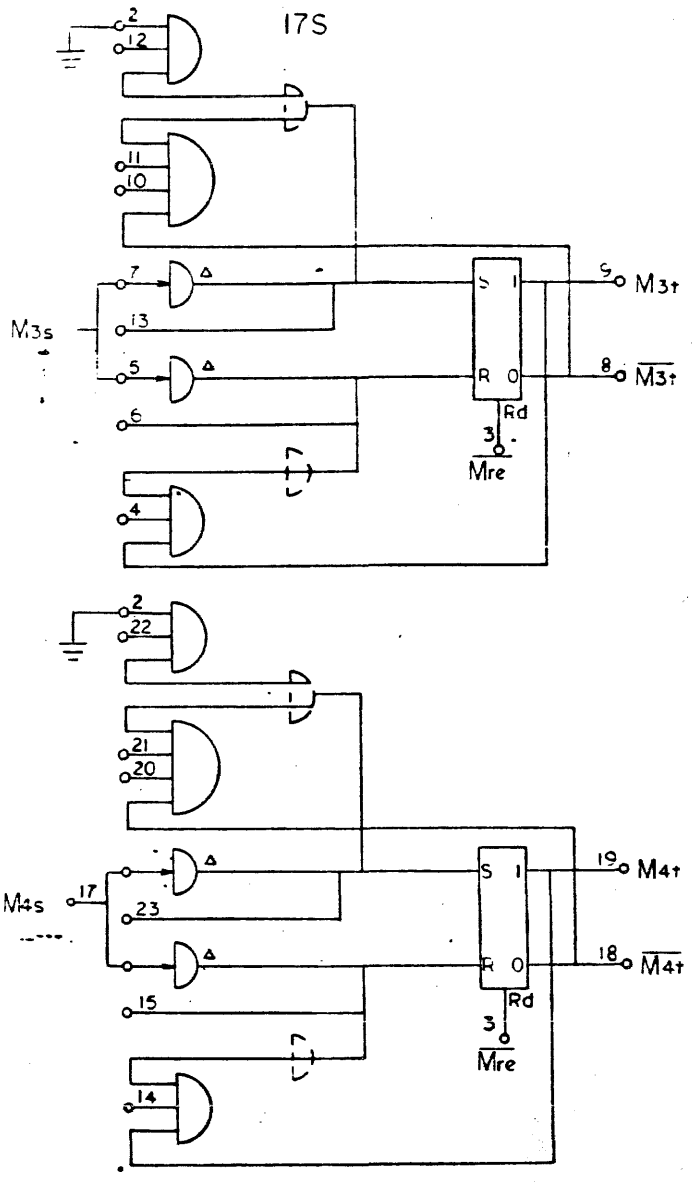

Mc
33
14S
S
1
a
b
c
d
e
f
g
Sd
5
4
3
9
2
10
7
8
6
M4s
2 to 8us*
13S
1
2
3
4
5
Mrs
M4t
22
23
24
21
14S
Mw
M4
19
15
17
20
18
12
13
16
14
11
M5s
26
27
28
29
25
Mrs
M5t
Mw
M5
41
39
40
43
37
42
34
36
35
38
M6s
34
35
36
37
38
30
31
32
29
Mrs
M6t
Mw
M6
* SEE CALIBRATION PROCEDURE

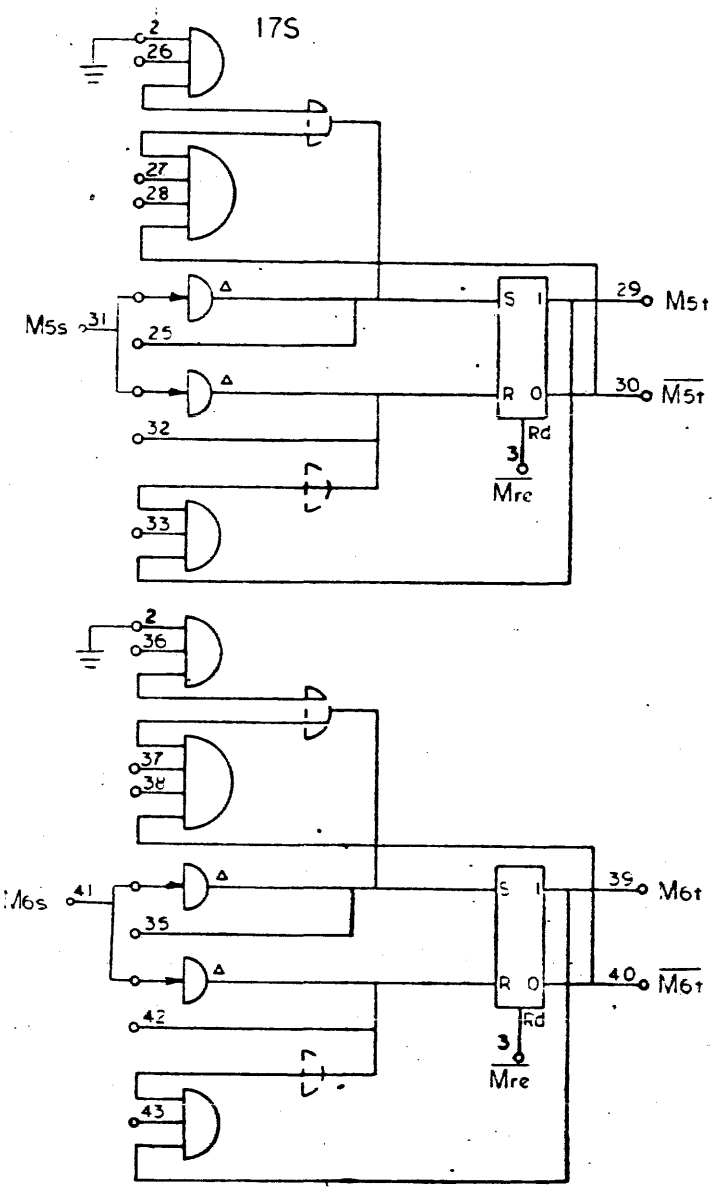

16S
2
12
11
10
7
13
5
6
4
9
8
3
Mre

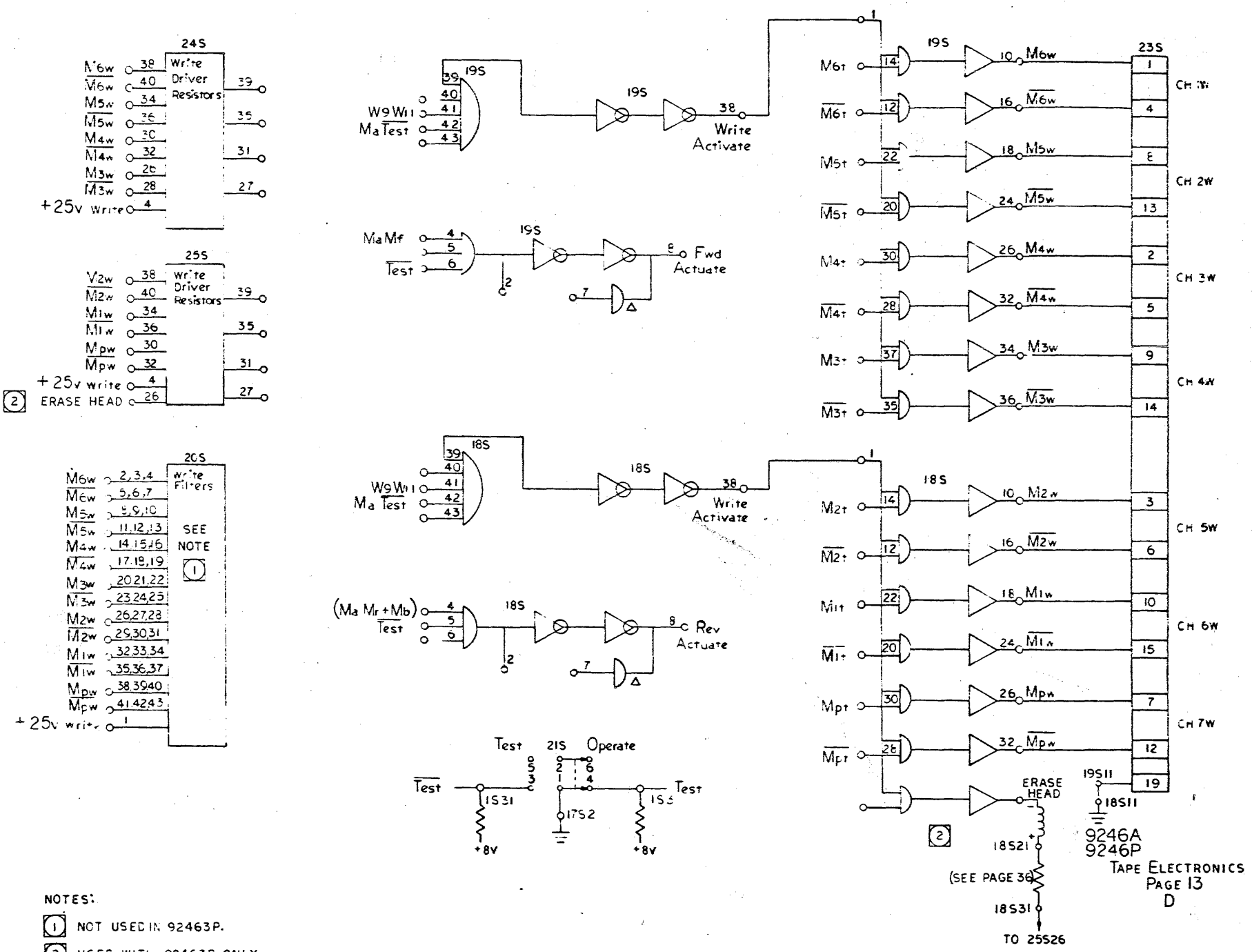

2
22
21
20
17
Mps
23
15
14
S
1
R
0
Rd
19
Mpt
18
Mpt
3
Mre


16S
2
26
27
28
(Mre)
26
27
28
4Q
29
5Q
39
42
Mre
31
Mis
25
32
33
S
1
R
0
Rd
29
Mit
30
Mit
3
Mre


2
36
37
38
41
M2s
35
42
43
S
1
R
0
Rd
39
M2t
40
M2t
3
Mre

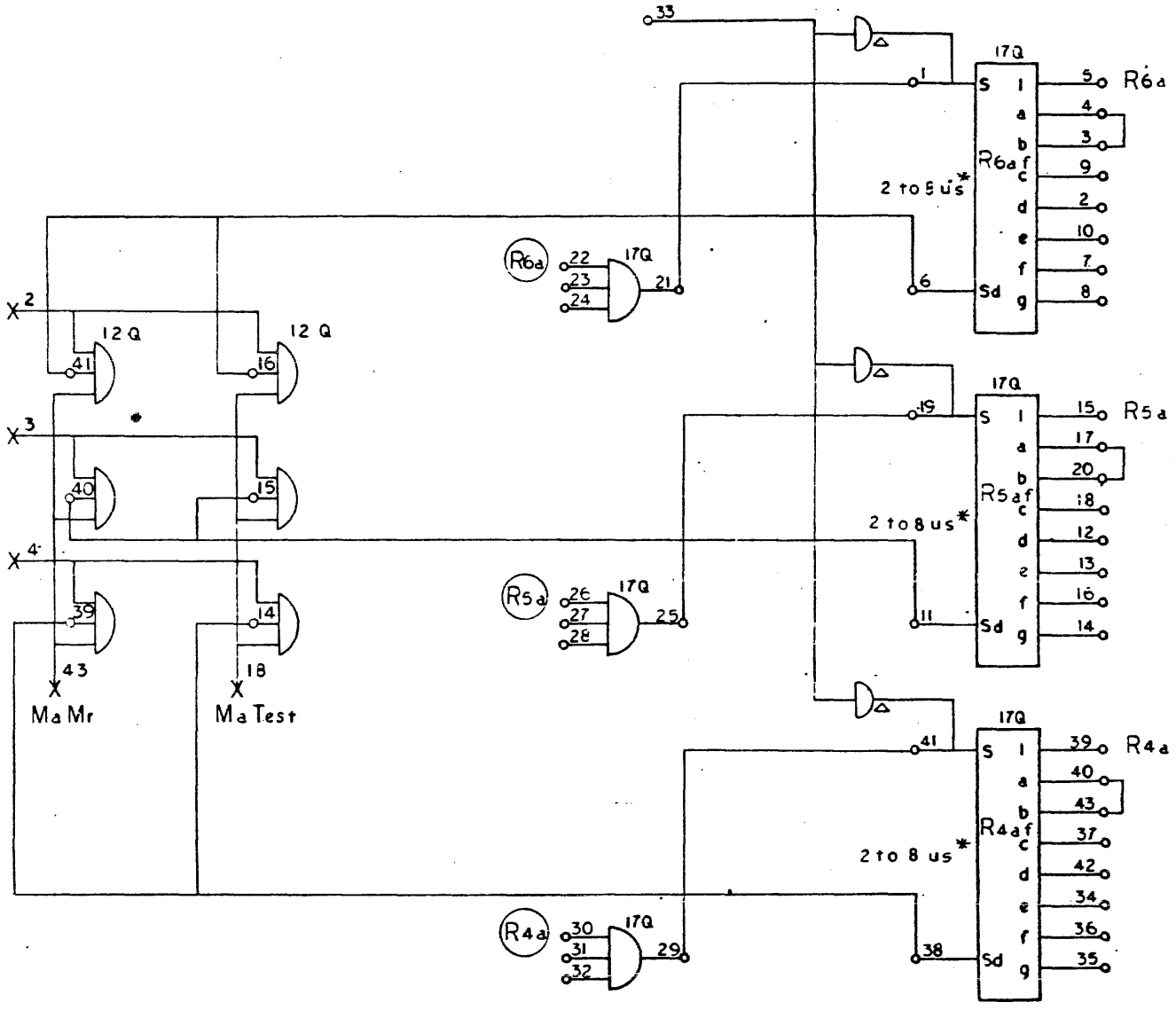

17S
2
12
11
10
7
13
5
6
4
M3s
S 1
R 0
Rd
3
Mre
9
M3t
8
M3t
2
22
21
20
17
23
15
14
M4s
19
M4t
18
M4t


17S
2
26
27
28
31
25
32
33
M5s
29
M5t
30
M5t
2
36
37
38
41
35
42
43
M6s
39
M6t
40
M6t

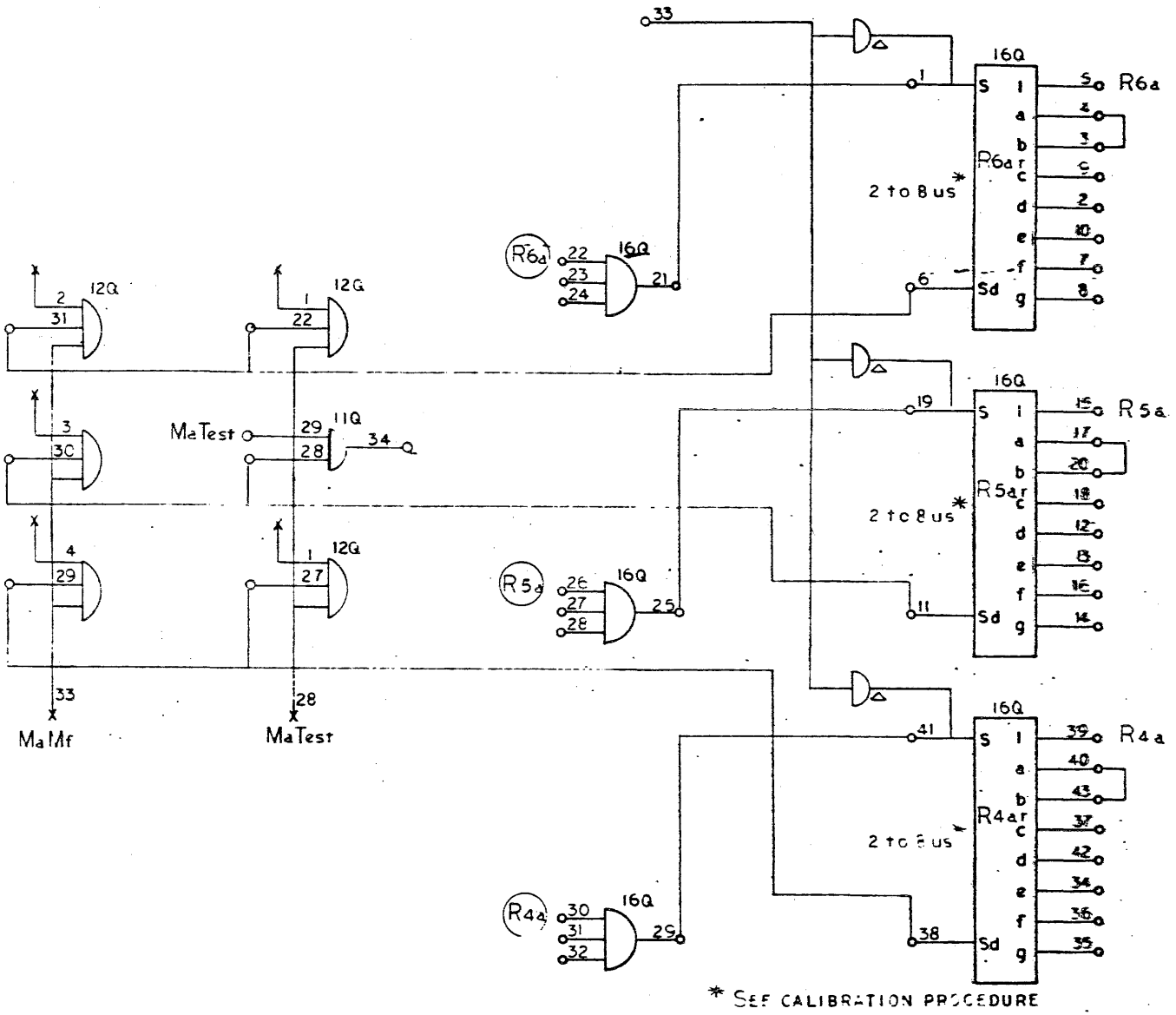


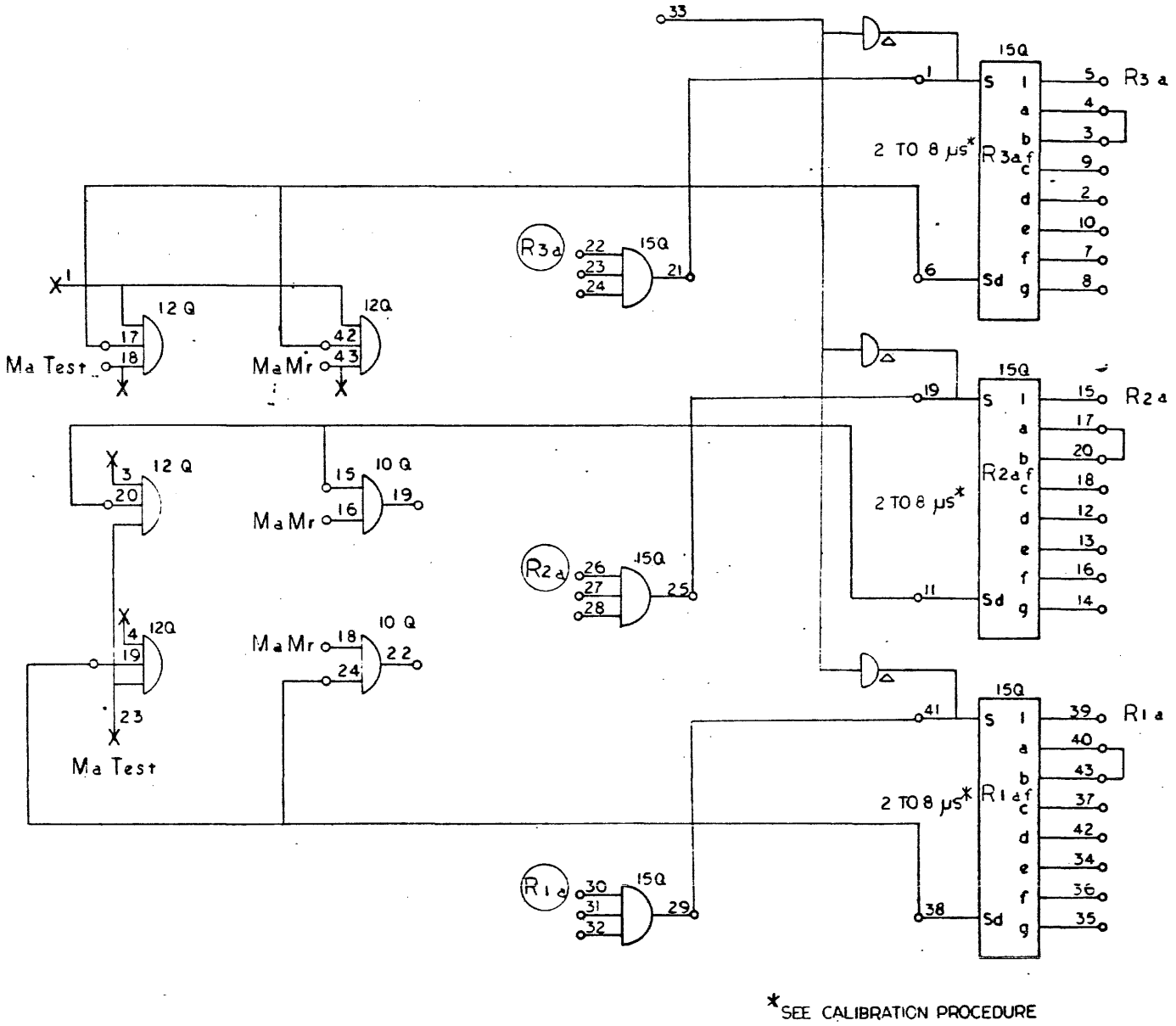
NOTES:

1. NOT USED IN 92463P.
2. USED WITH 92463P ONLY.

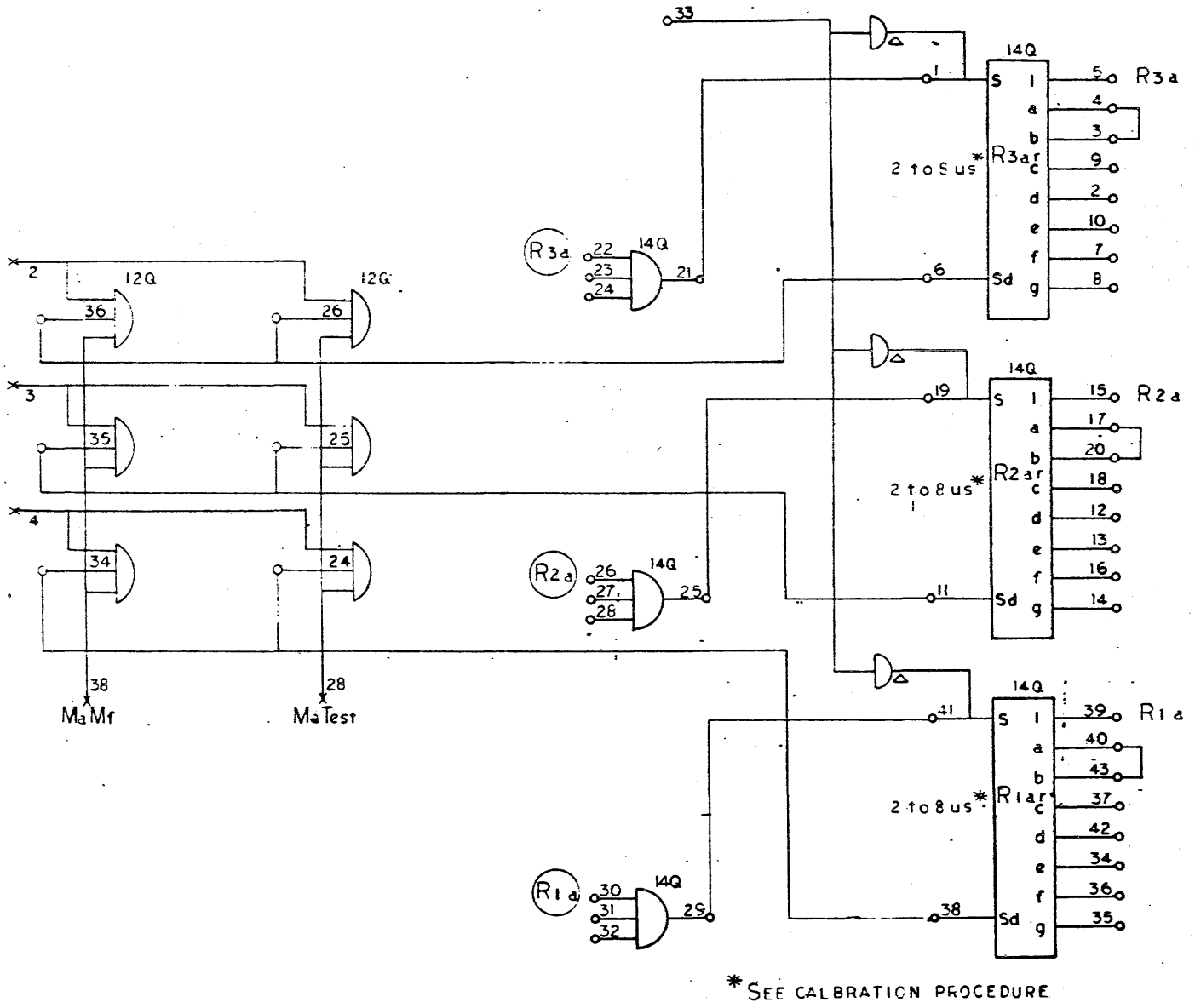


* SEE CALIBRATION PROCEDURE

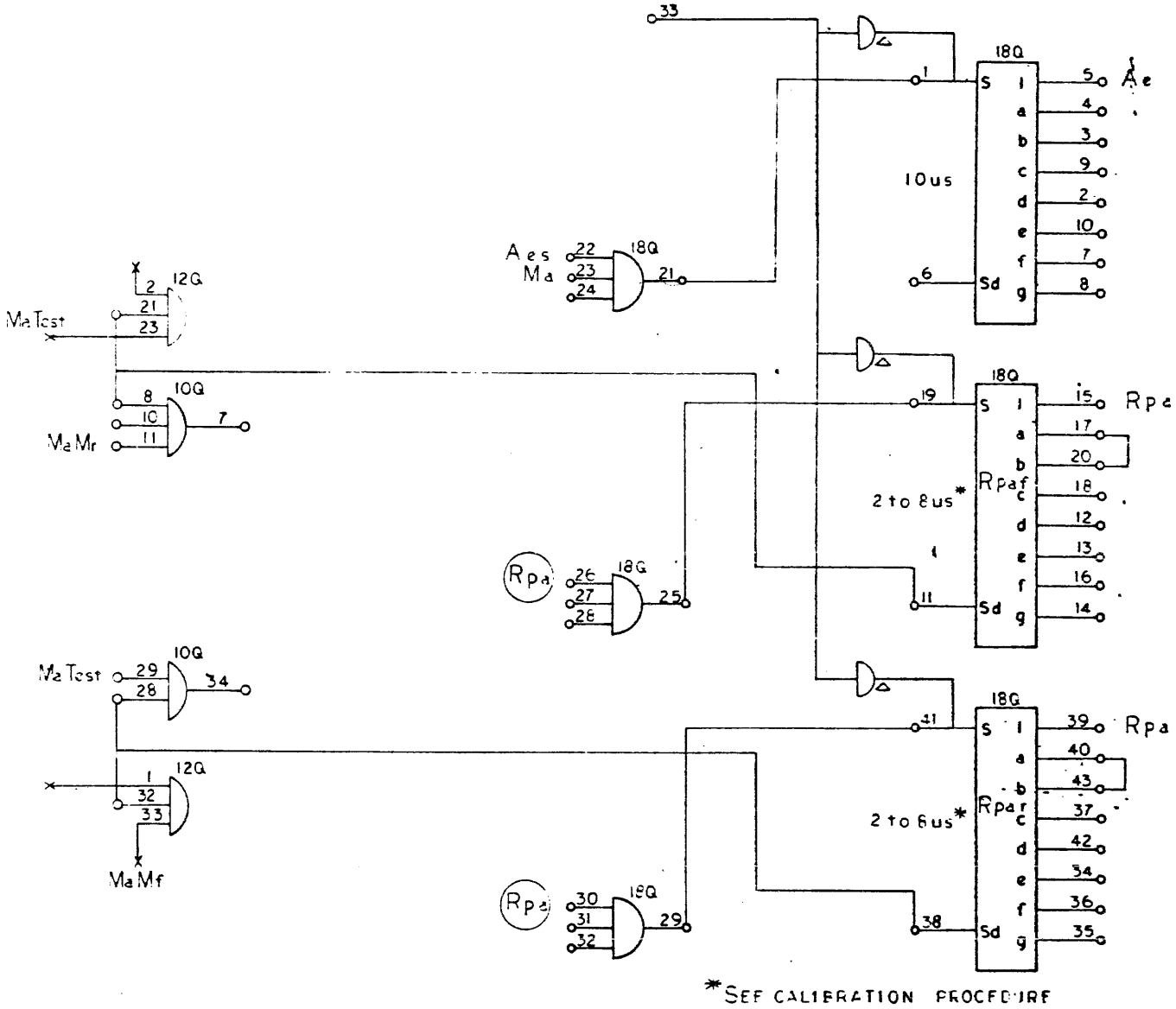

33
16Q
1
S
I
5
R6a
a
4
b
3
R6ar
c
9
d
2
e
10
f
7
Sd
g
6
8
2 to 8 us *
R6a
22
23
24
16Q
21
12Q
2
31
12Q
1
22
3
30
MaTest
29
28
11Q
34
4
29
12Q
1
27
33
MaMf
28
MaTest
16Q
19
S
I
15
R5a
a
17
b
20
R5ar
c
18
d
12
e
13
f
16
Sd
g
14
11
2 to 8 us *
R5a
26
27
28
16Q
25
16Q
41
S
I
39
R4a
a
40
b
43
R4ar
c
37
d
42
e
34
f
36
Sd
g
35
38
2 to 8 us *
R4a
30
31
32
16Q
29
* SEE CALIBRATION PROCEDURE



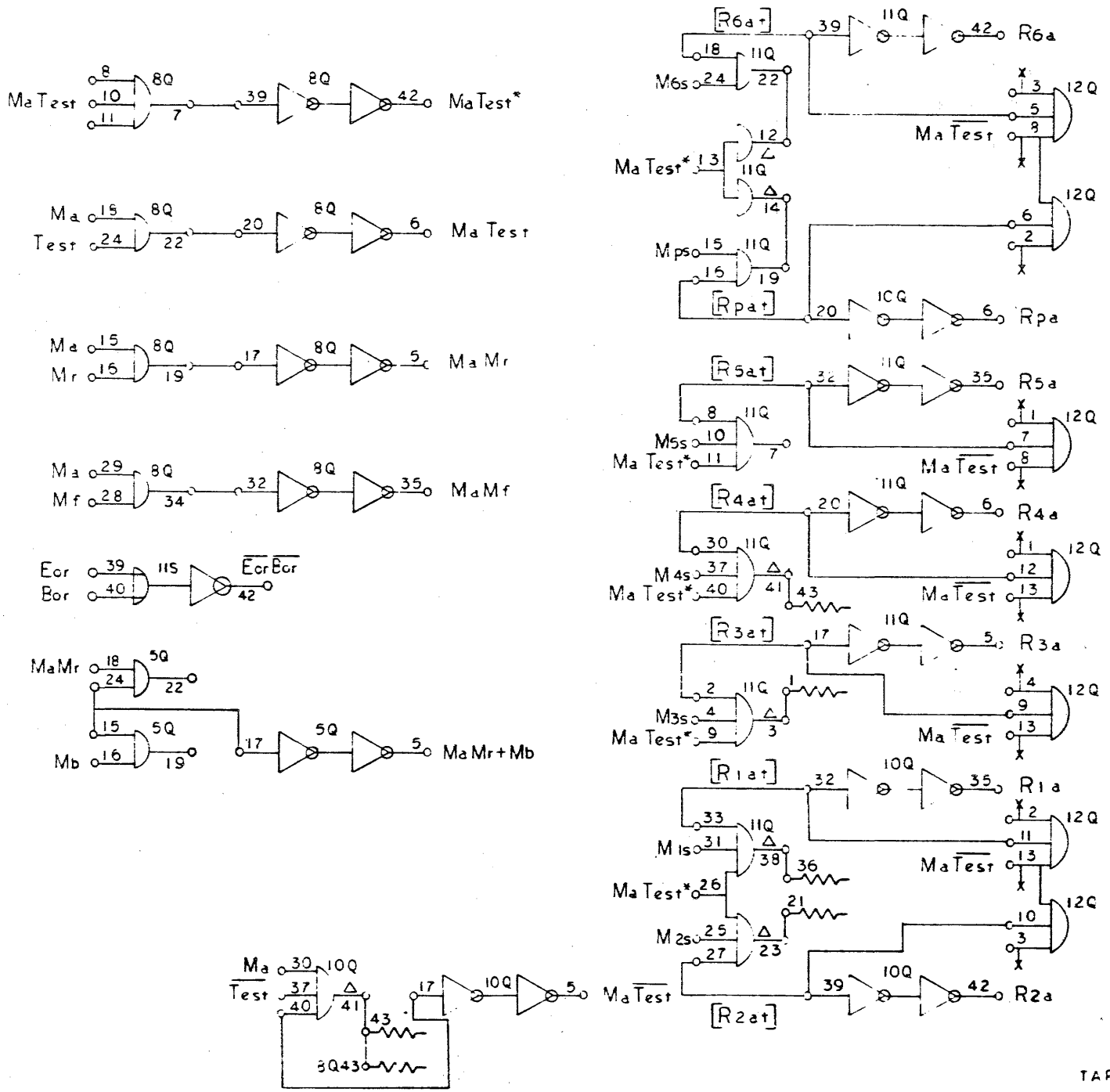
*SEE CALIBRATION PROCEDURE

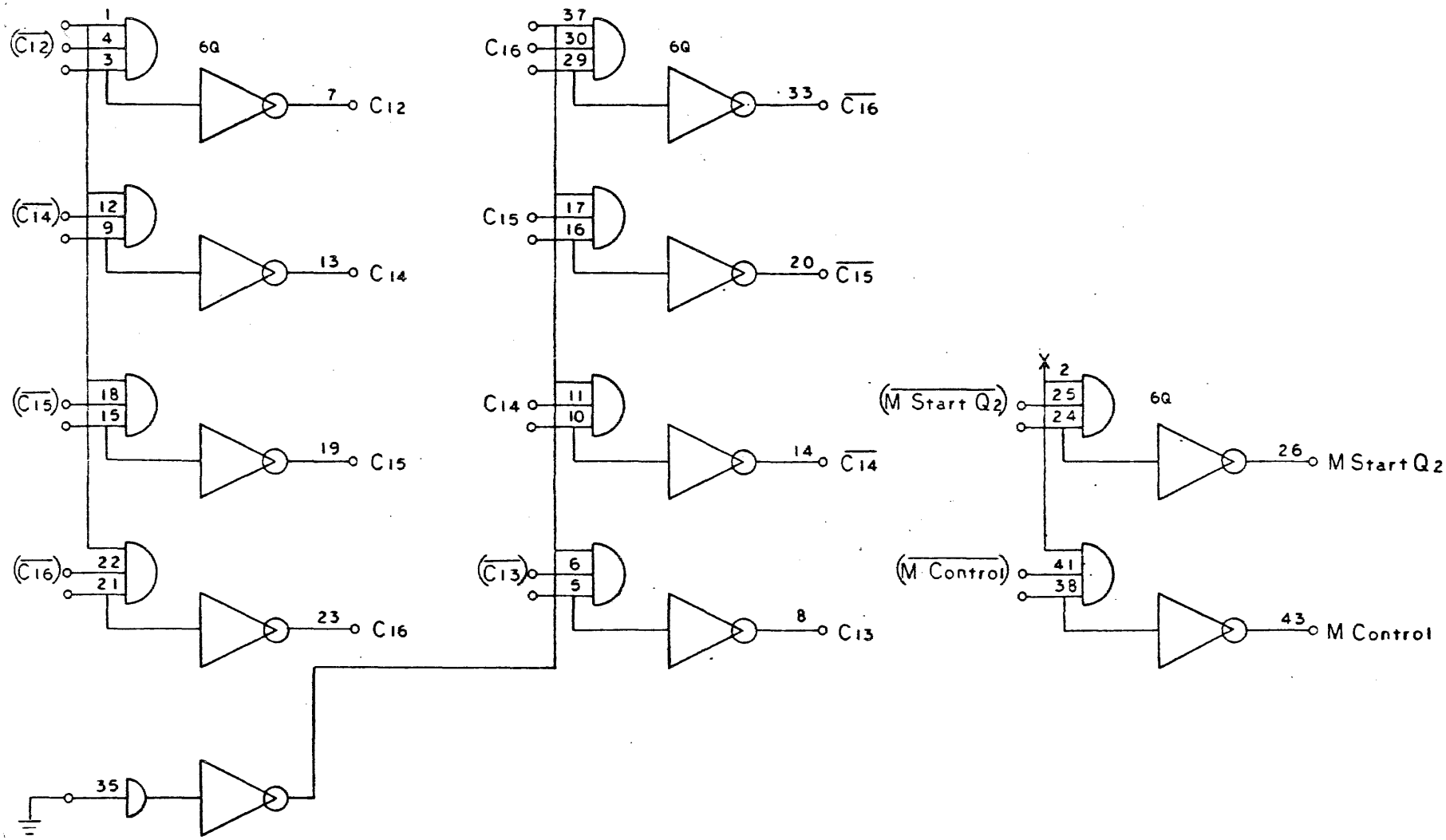


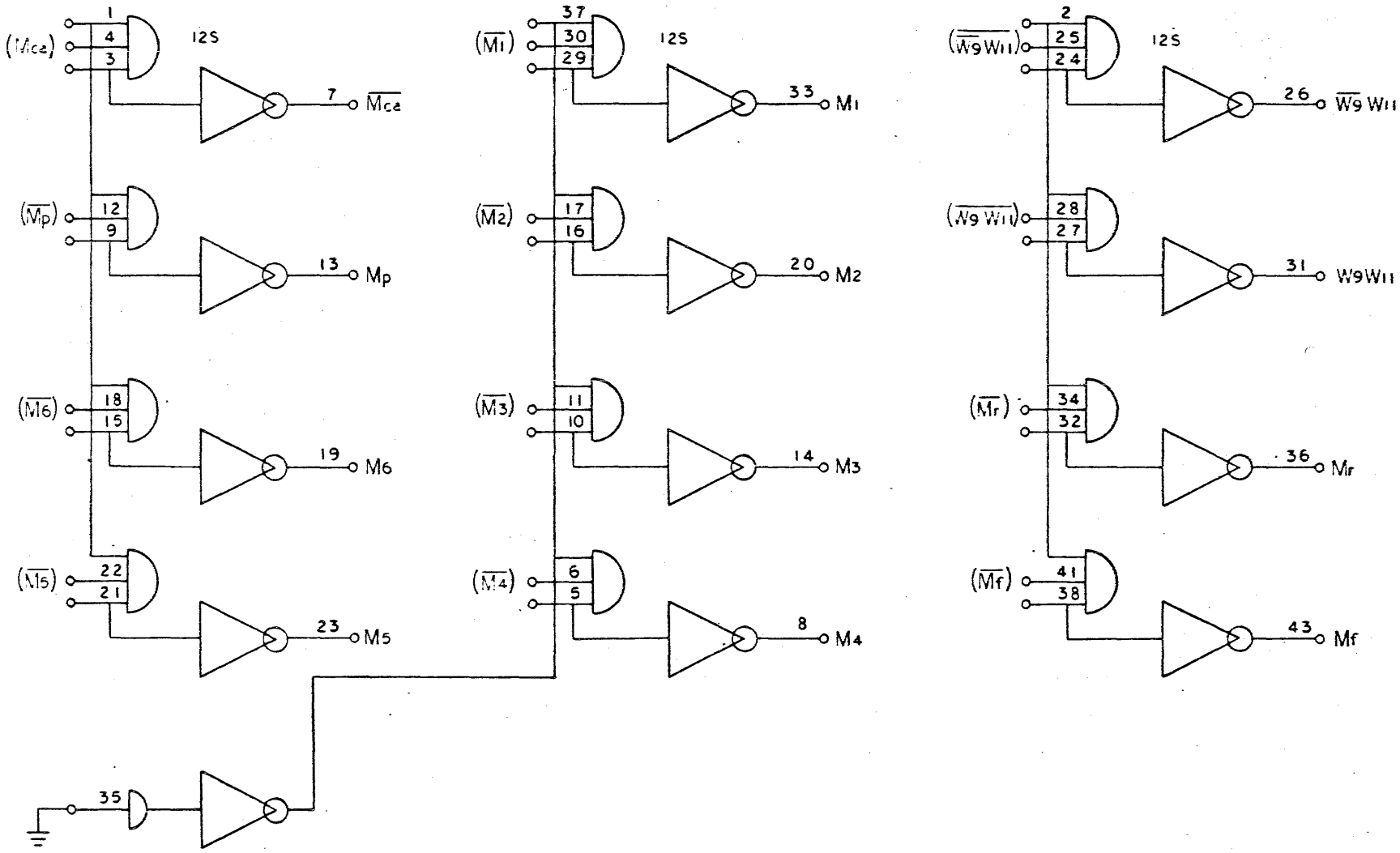
*SEE CALBRATION PROCEDURE

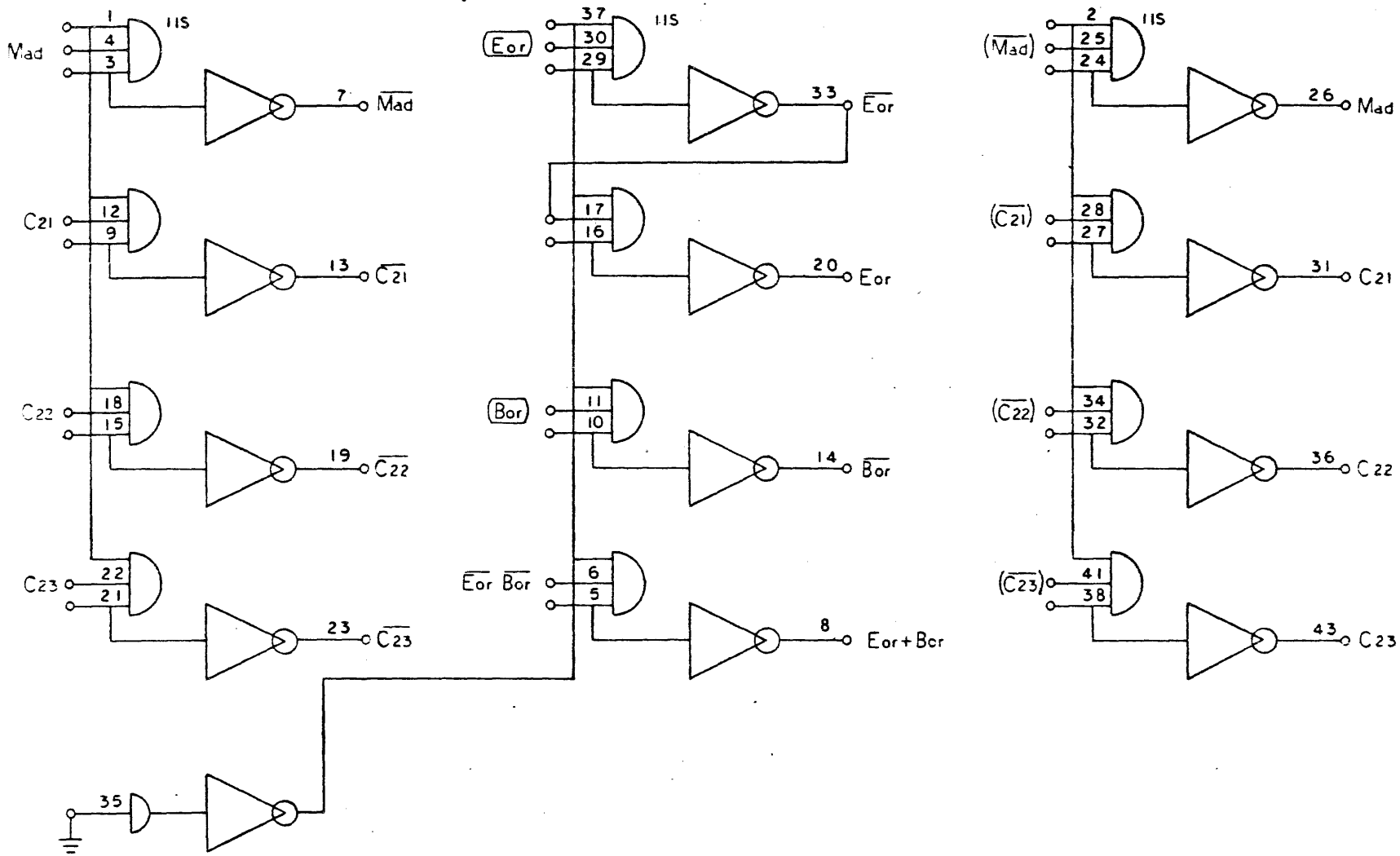


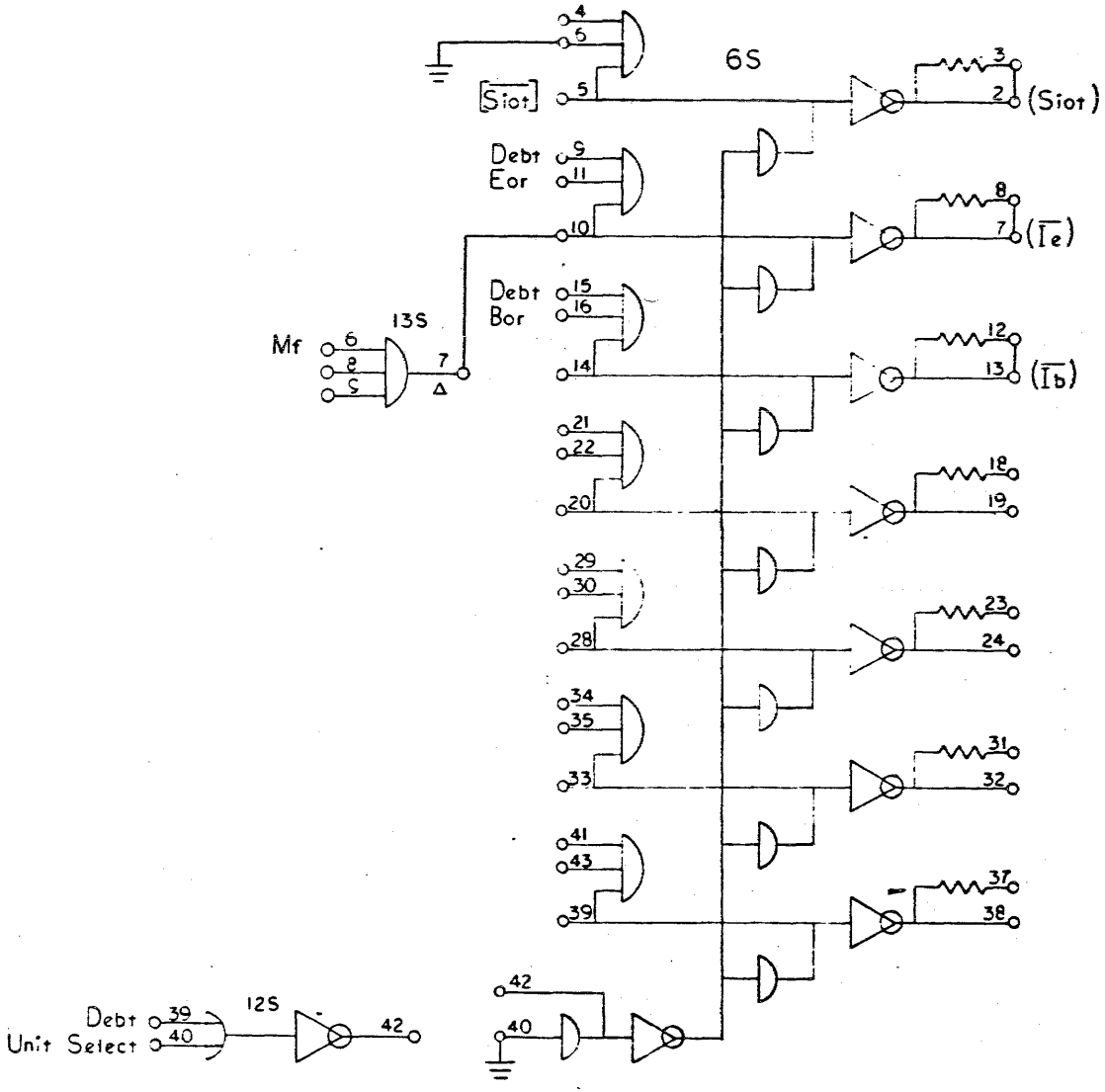
*SEE CALIBRATION PROCEDURE

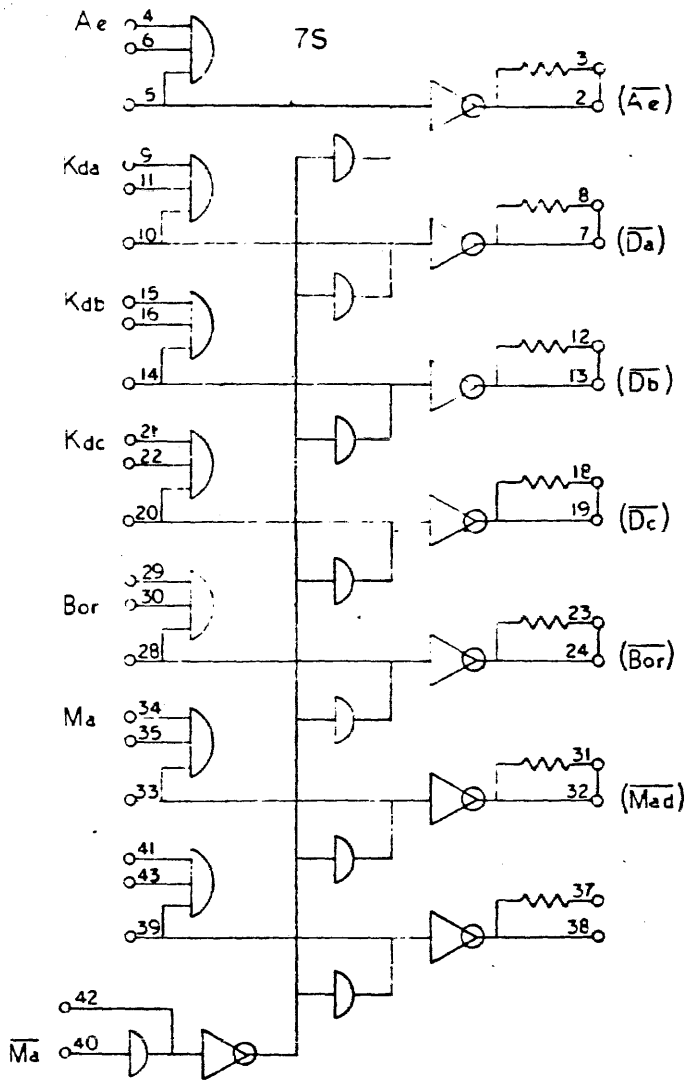

Ma Test
8Q
Ma Test*
Ma
Test
Ma Test
Ma
Mr
Ma Mr
Ma
Mf
Ma Mf
Eor
Bor
11S
Mb
5Q
Ma Mr + Mb
[R6at]
R6a
M6s
Ma Test*
Ma Test
12Q
Mps
[Rpat]
Rpa
[R5at]
R5a
M5s
[R4at]
R4a
M4s
[R3at]
R3a
M3s
[R1at]
R1a
M1s
M2s
[R2at]
R2a
Ma Test
10Q
3Q43
11Q

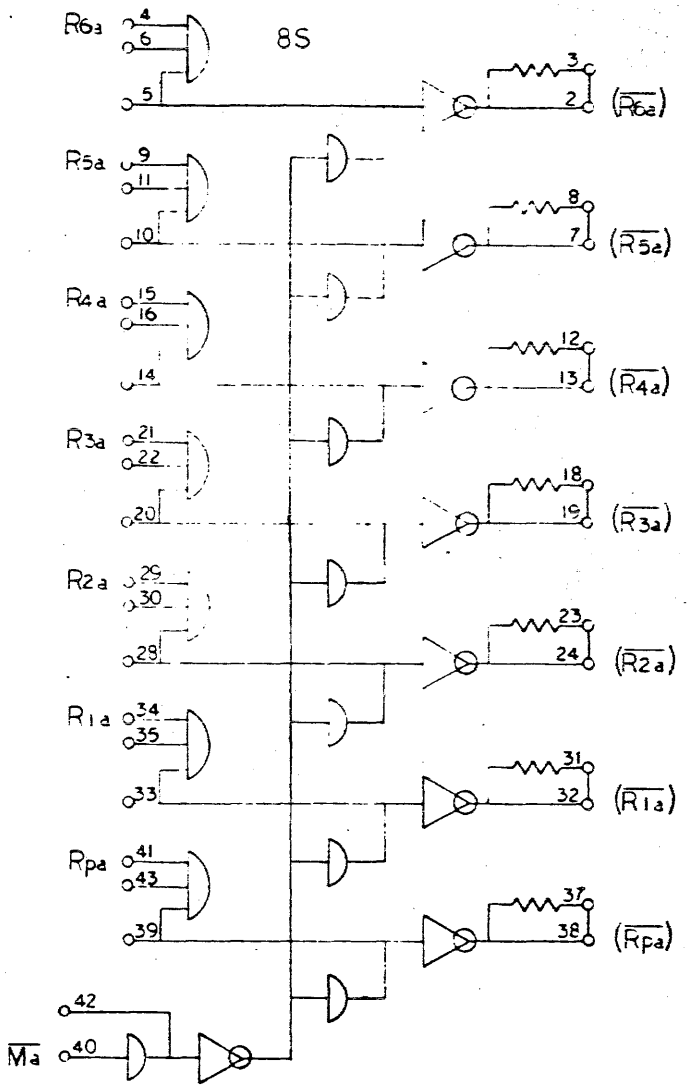

1
4
3
6Q
7
C12
12
9
13
C14
18
15
19
C15
22
21
23
C16
35
37
30
29
33
C16
17
16
20
C15
11
10
14
C14
6
5
8
C13
2
25
24
26
M Start Q2
41
38
43
M Control

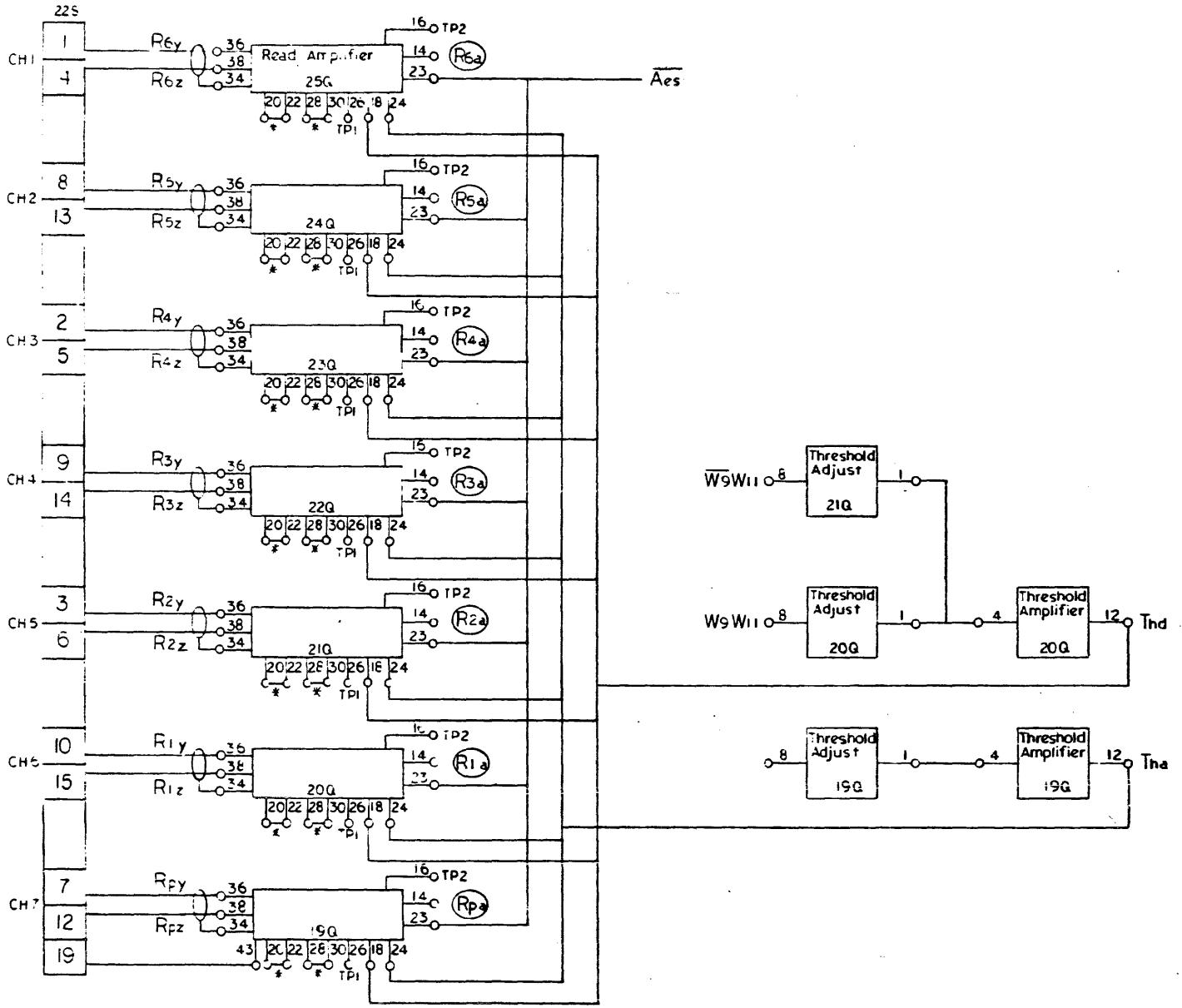

(Mce)
1
4
3
12S
7
Mce
(Mp)
12
9
13
Mp
(M6)
18
15
19
M6
(M5)
22
21
23
M5
35
(M1)
37
30
29
33
M1
(M2)
17
16
20
M2
(M3)
11
10
14
M3
(M4)
6
5
8
M4
(W9W11)
2
25
24
26
W9 W11
(W9 W11)
28
27
31
W9W11
(Mr)
34
32
36
Mr
(Mf)
41
38
43
Mf


Mad
1
4
3
11S
7
$\overline{Mad}$
C21
12
9
13
$\overline{C21}$
C22
18
15
19
$\overline{C22}$
C23
22
21
23
$\overline{C23}$
35
Eor
37
30
29
11S
33
$\overline{Eor}$
17
16
20
Eor
Bor
11
10
14
$\overline{Bor}$
$\overline{Eor}$ $\overline{Bor}$
6
5
8
Eor+Bor
($\overline{Mad}$)
2
25
24
11S
26
Mad
($\overline{C21}$)
28
27
31
C21
($\overline{C22}$)
34
32
36
C22
($\overline{C23}$)
41
38
43
C23


6S
Siot
Debt
Eor
Debt
Bor
Mf
13S
12S
Debt
Unit Select
(Siot)
(Ie)
(Ib)

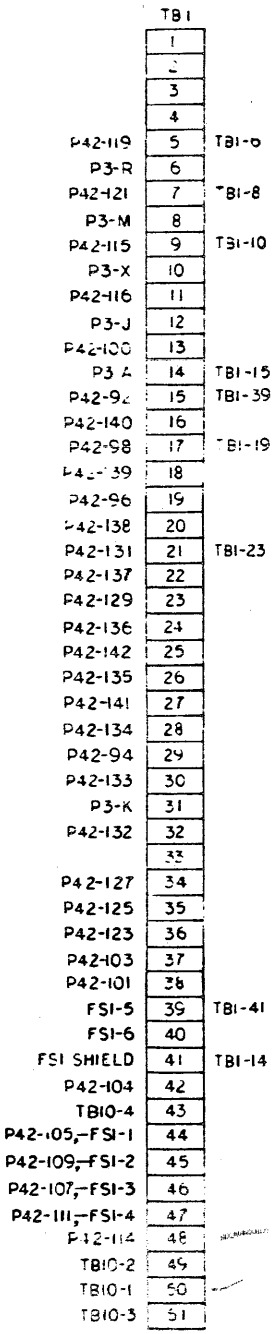

7S
Ae
4
6
5
3
2
(Ae)
Kda
9
11
10
8
7
(Da)
Kdb
15
16
14
12
13
(Db)
Kdc
21
22
20
18
19
(Dc)
Bor
29
30
28
23
24
(Bor)
Ma
34
35
33
31
32
(Mad)
41
43
39
37
38
42
Ma
40

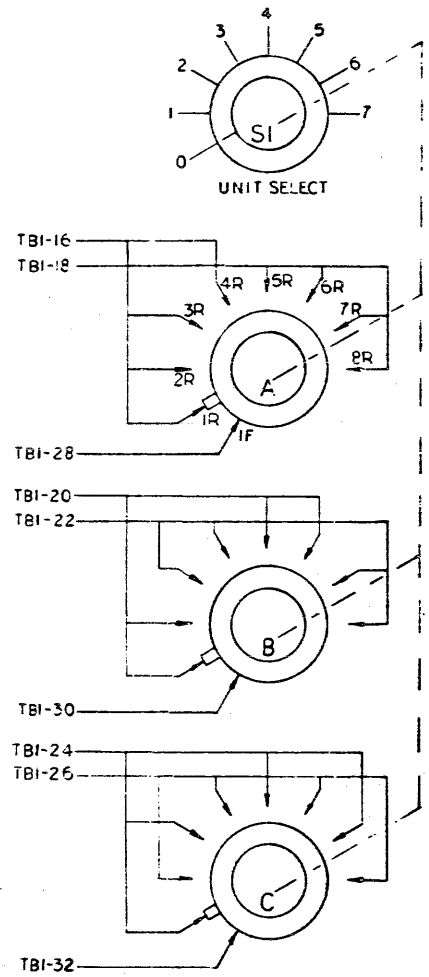

8S
R6a
4
6
5
3
2
(R6a)
R5a
9
11
10
8
7
(R5a)
R4a
15
16
14
12
13
(R4a)
R3a
21
22
20
18
19
(R3a)
R2a
29
30
28
23
24
(R2a)
R1a
34
35
33
31
32
(R1a)
Rpa
41
43
39
37
38
(Rpa)
42
Ma
40

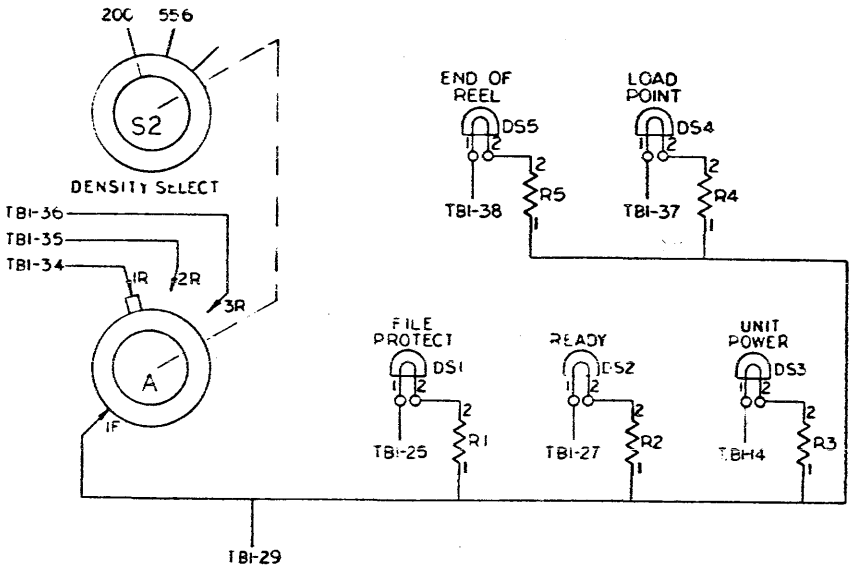


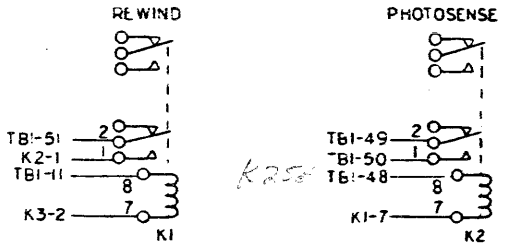
9246A
9246P
TAPE ELECTRONICS
PAGE 26
D

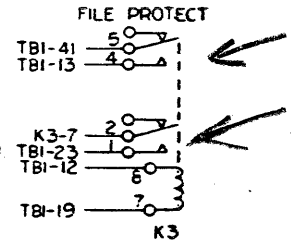
* JUMPERS 20-22 AND 28-30 ARE NOT USED IN 92463P.







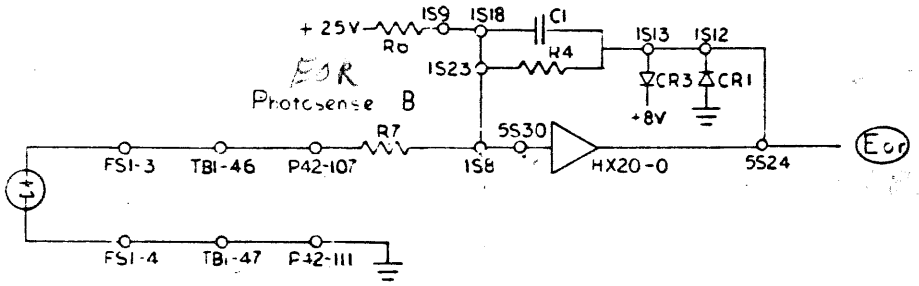


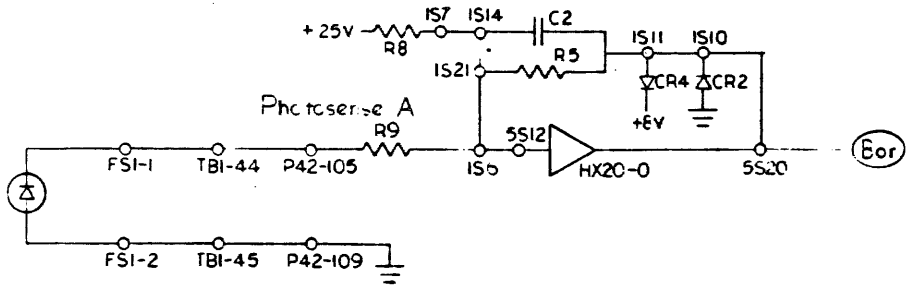


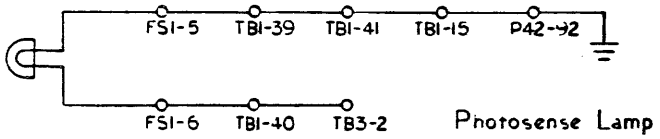
TB2
PHOTOSENSE
CONTROL
ASSY.
(SEE PAGE
29)

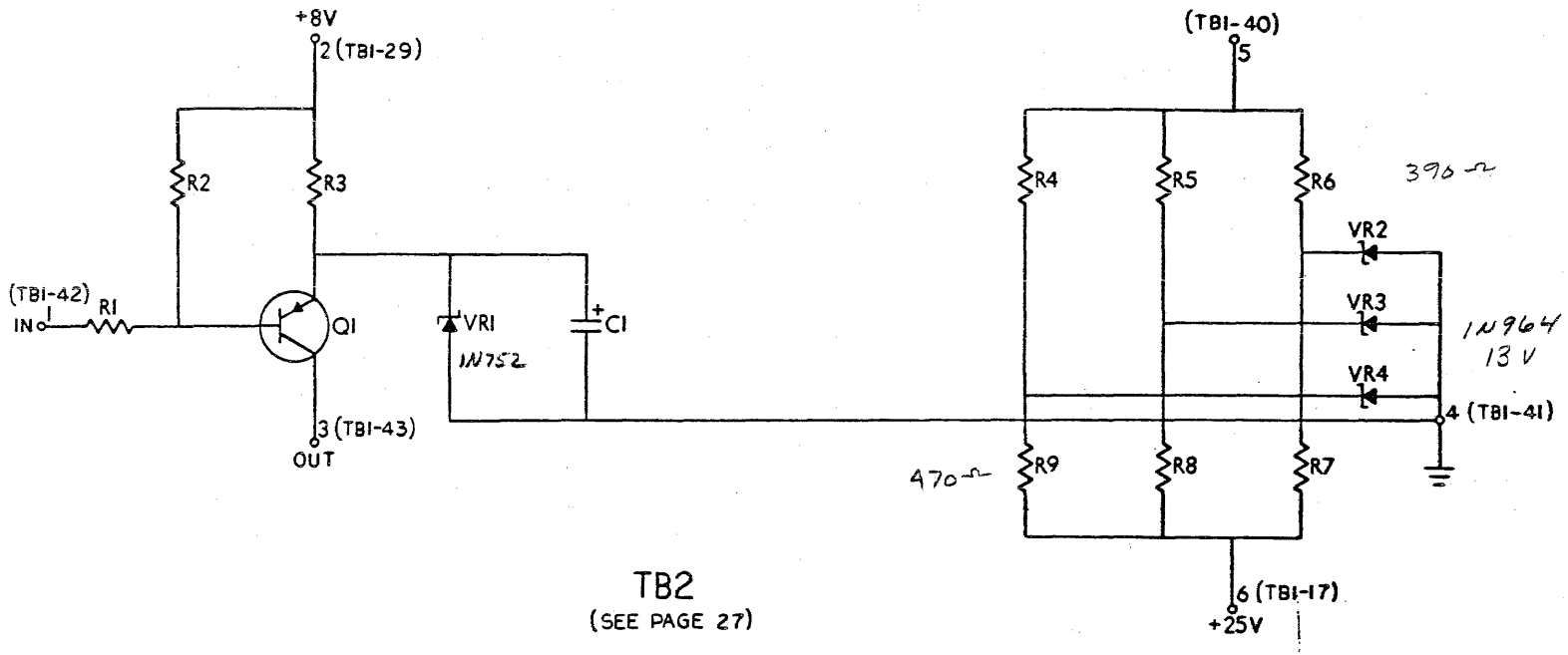
9246A
TAPE ELECTRONICS
PAGE 27
D

Relay Controlled Microswitches
5-24
E
5-25
on
Tape Deck
N.C. For write


+25V
R6
IS9
IS18
C1
R4
IS23
IS13
IS12
CR3
CR1
+8V
EOR
Photosense B
R7
5S30
FS1-3
TB1-46
P42-107
IS8
HX20-0
5S24
Eor
FS1-4
TB1-47
P42-111


+25V
R8
IS7
IS14
C2
R5
IS21
IS11
IS10
CR4
CR2
+8V
Photosense A
R9
5S12
FS1-1
TB1-44
P42-105
IS6
HX20-0
5S20
Bor
FS1-2
TB1-45
P42-109


FS1-5
TB1-39
TB1-41
TB1-15
P42-92
FS1-6
TB1-40
TB3-2
Photosense Lamp

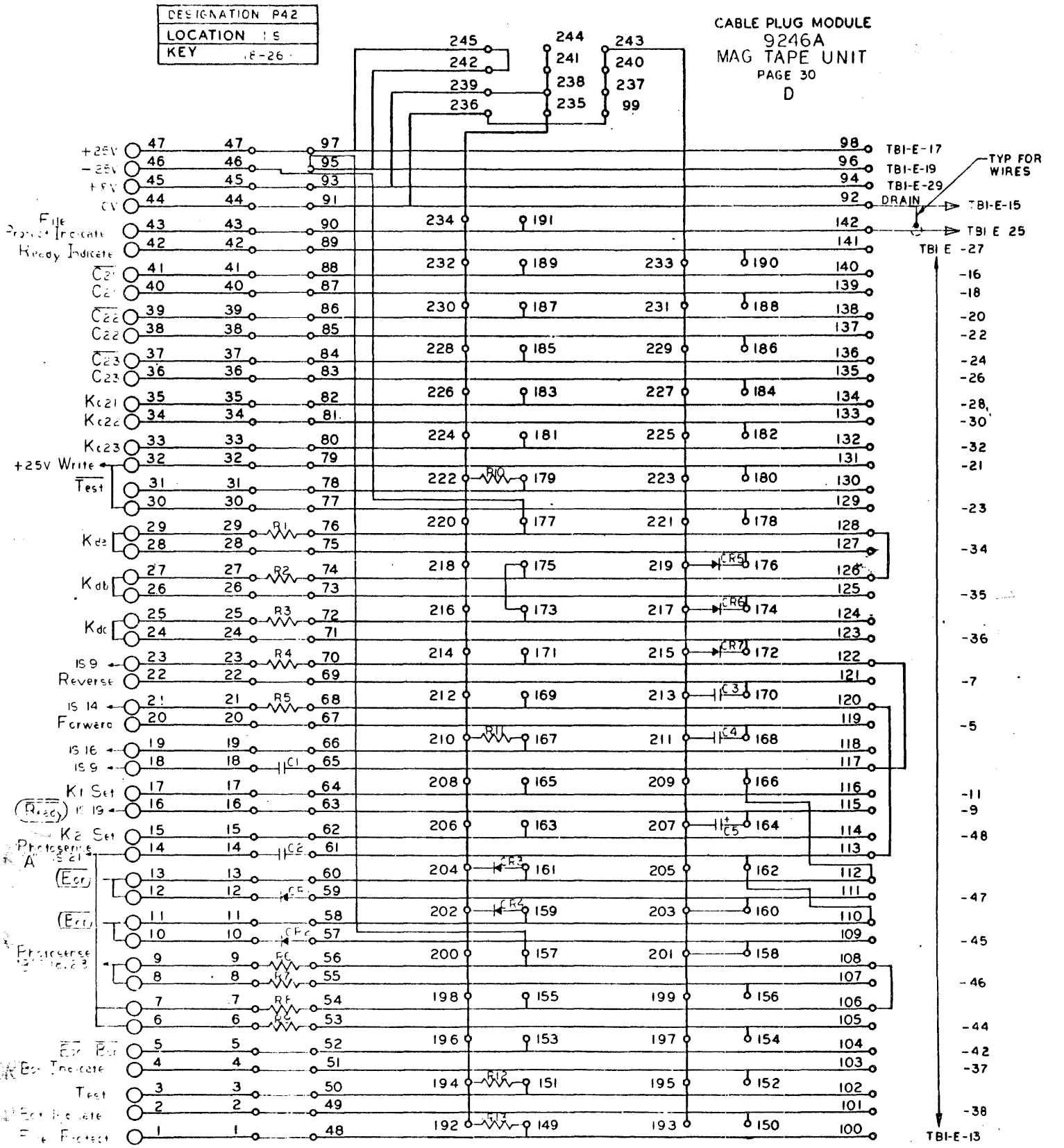


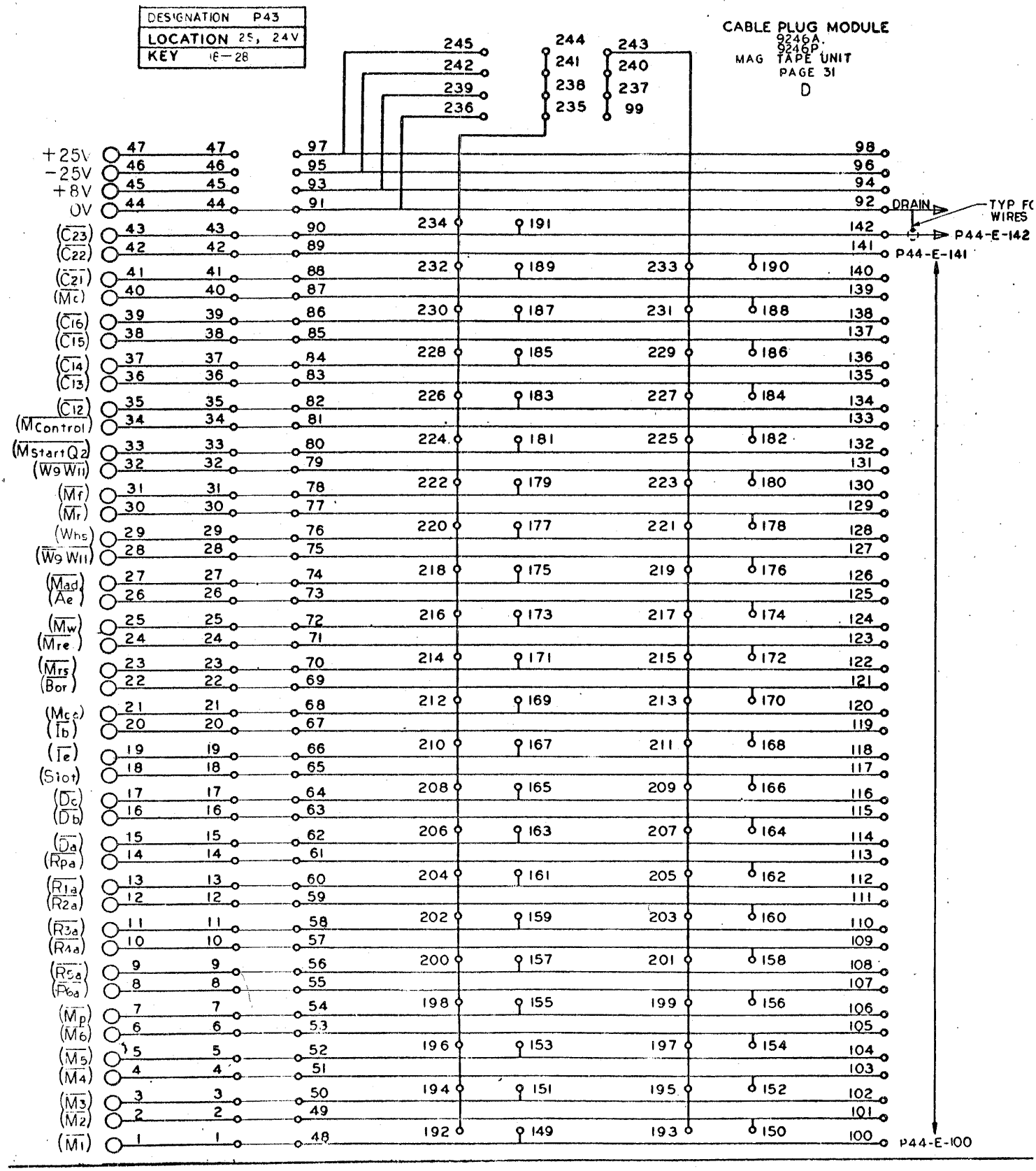
TB2

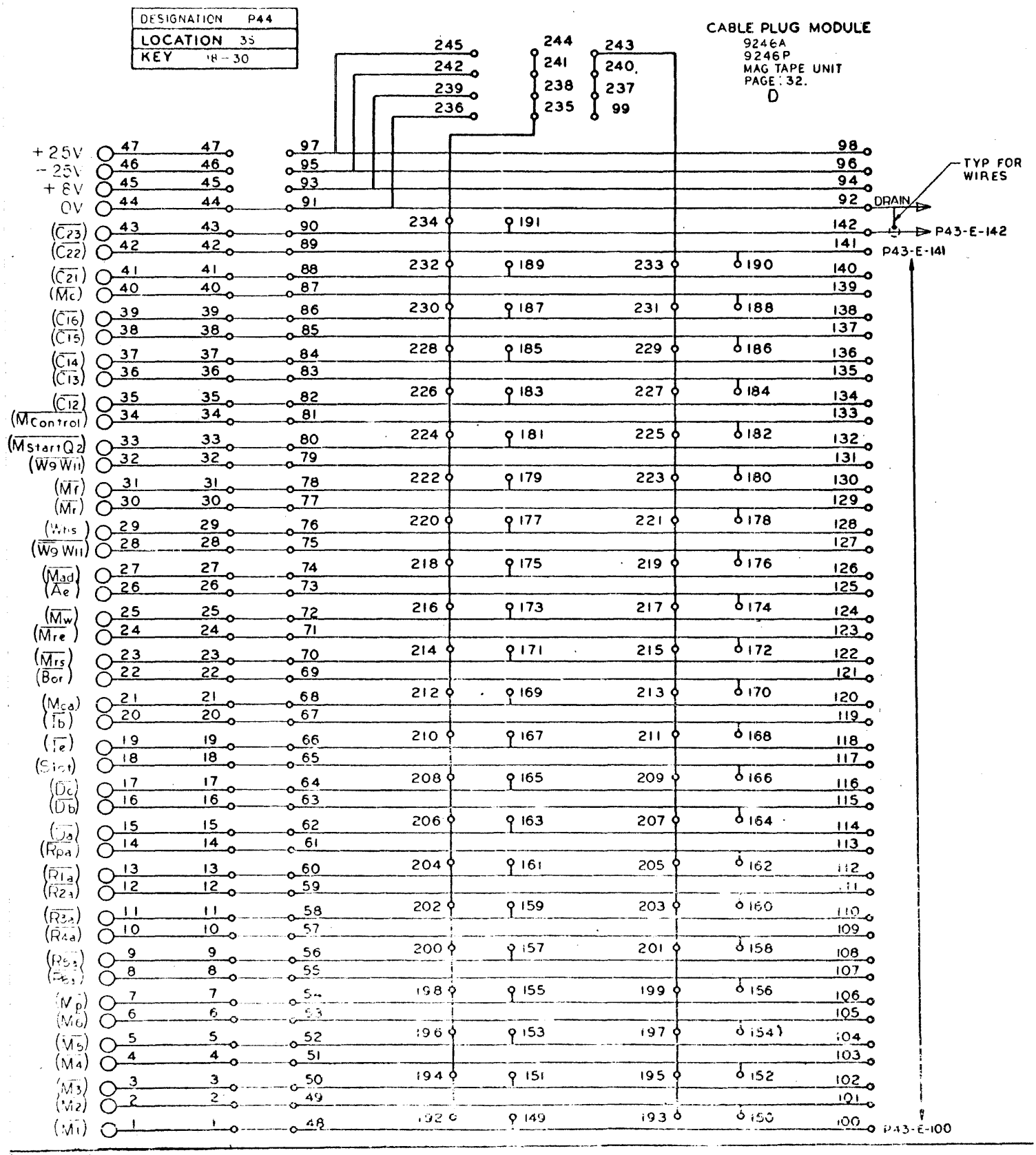
(SEE PAGE 27)

DESIGNATION	P42
LOCATION	1 S
KEY	(E-26)

CABLE PLUG MODULE
9246A
MAG TAPE UNIT
PAGE 30
D




DESIGNATION P43
LOCATION 25, 24V
KEY 16-28
CABLE PLUG MODULE
9246A
9246P
MAG TAPE UNIT
PAGE 31
D
+25V
-25V
+8V
0V
(C23)
(C22)
(C21)
(Mc)
(C16)
(C15)
(C14)
(C13)
(C12)
(M Control)
(M Start Q2)
(W9 W11)
(Mf)
(Mr)
(Whs)
(W9 W11)
(Mad)
(Ae)
(Mw)
(Mre)
(Mrs)
(Bor)
(Mce)
(Ib)
(Ie)
(Siot)
(Dc)
(Db)
(Da)
(Rpa)
(R1a)
(R2a)
(R3a)
(R4a)
(R5a)
(Pba)
(Mp)
(M6)
(M5)
(M4)
(M3)
(M2)
(M1)
DRAIN
TYP FC WIRES
P44-E-142
P44-E-141
P44-E-100


DESIGNATION P44
LOCATION 3S
KEY 18-30
CABLE PLUG MODULE
9246A
9246P
MAG TAPE UNIT
PAGE 32.
D
TYP FOR WIRES
DRAIN
P43-E-142
P43-E-141
P43-E-100
+25V
-25V
+8V
0V
245
242
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	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
Q	RX 10	F- 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	CX 13	CX 13	CX 13	HK60	HK60	HK60	HK60	HK60	HK60	HK60
S	P42 ('A' UNITS) P70 ('P' UNITS)	P43 ZK57	P44	ZK56	HX20-0 (NOT USED ON 'P' UNITS)	AX 14	AX 14	AX 14			IC 12	IC 12	GC 10	CX 13	OX 13	FC 17	FC 17	AK 52	AK 52	ZK56 NOT USED ON 9246P				ZK 51	ZK 51

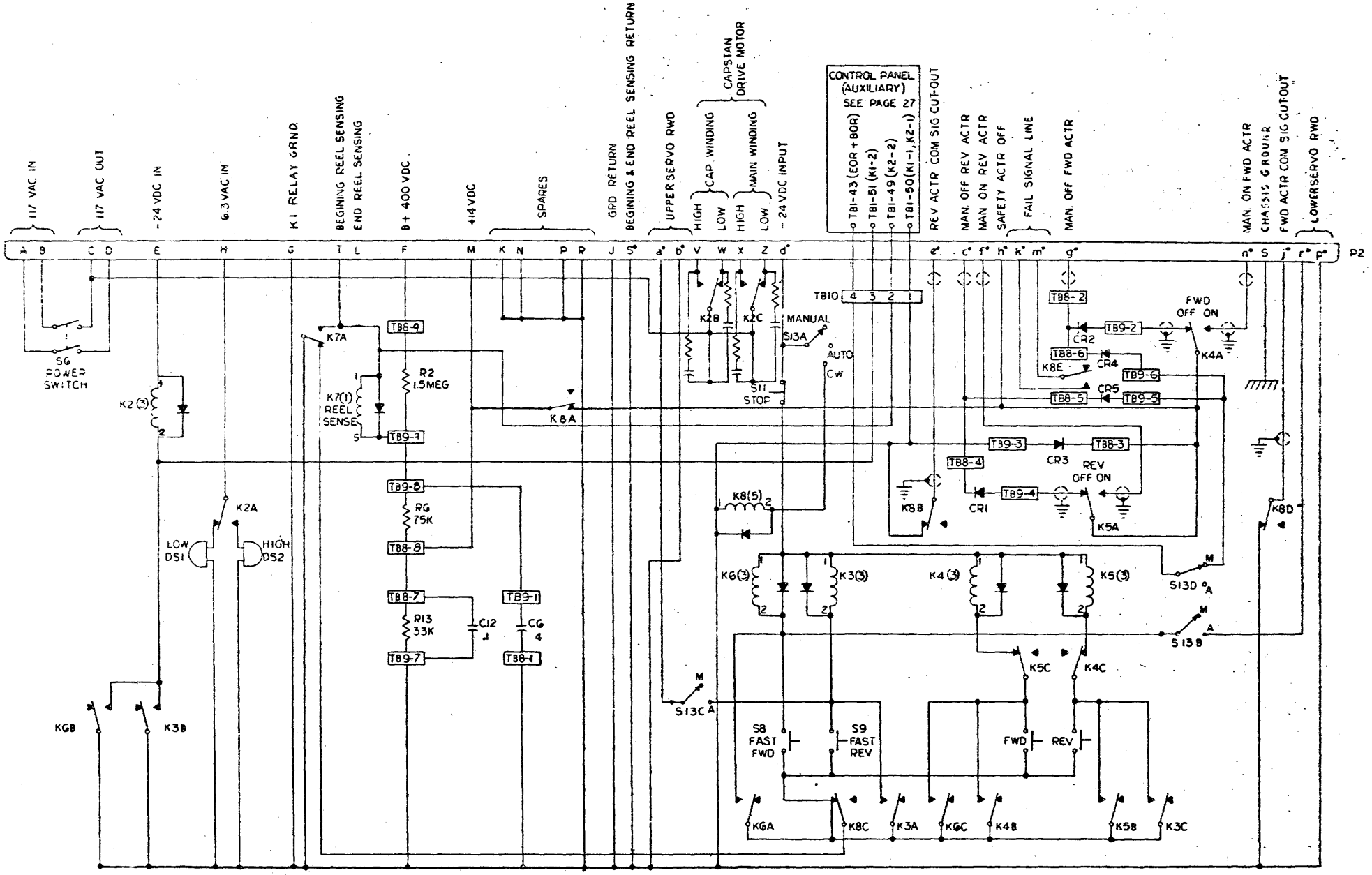
9246A
9246P

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	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 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 .0033μF ± 10%	(P42) C1, C2	2	26, 27, 74
6	CAPACITOR, MYLAR .0068μF ± 10%	(P42) C3, C4	2	26, 27, 74
7	CAPACITOR, TANTALUM .47 μF ± 20% 50V	(P42) C5	1	23, 77
8	DIODE, SILICON SWITCHING IN914A	(P42) CR1 THRU CR7	7	4, 12, 13, 14
9	CONNECTOR, SOLDERTAIL 47 CONTACT # 7008-47	J(1Q) THRU J(25Q) J(1S) 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	180Ω	(TB2) R3	1	
13	390Ω	(TB2) R4, R5, R6	3	
14	RESISTOR, 470Ω ± 2%	(TB2) R7, R8, R9	3	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 # RSK19-31SL	J1	1	134
20	PLUG, 19 PIN # SK19-32S	J2	1	134
21	SWITCH, ROTARY # 102163	S1, S2	2	SDS
22	LAMP, INCANDESCENT # 47	DS1 THRU DS5	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(Q)	1	23, 77



7. SIGNIFIES CHASSIS GRND. SIGNIFIES COMMON GROUND.
6. USED WITH ASS'Y NO 310543710
5. S3- D-E NOT USED.
4. ALL DIODES ARE IN2069
3. ALL RELAYS SHOWN IN DEENERGIZED POSITION
2. ALL RESISTORS IN OHMS
1. ALL CAPACITORS IN MICROFARADS

NOTES: UNLESS OTHERWISE SPECIFIED

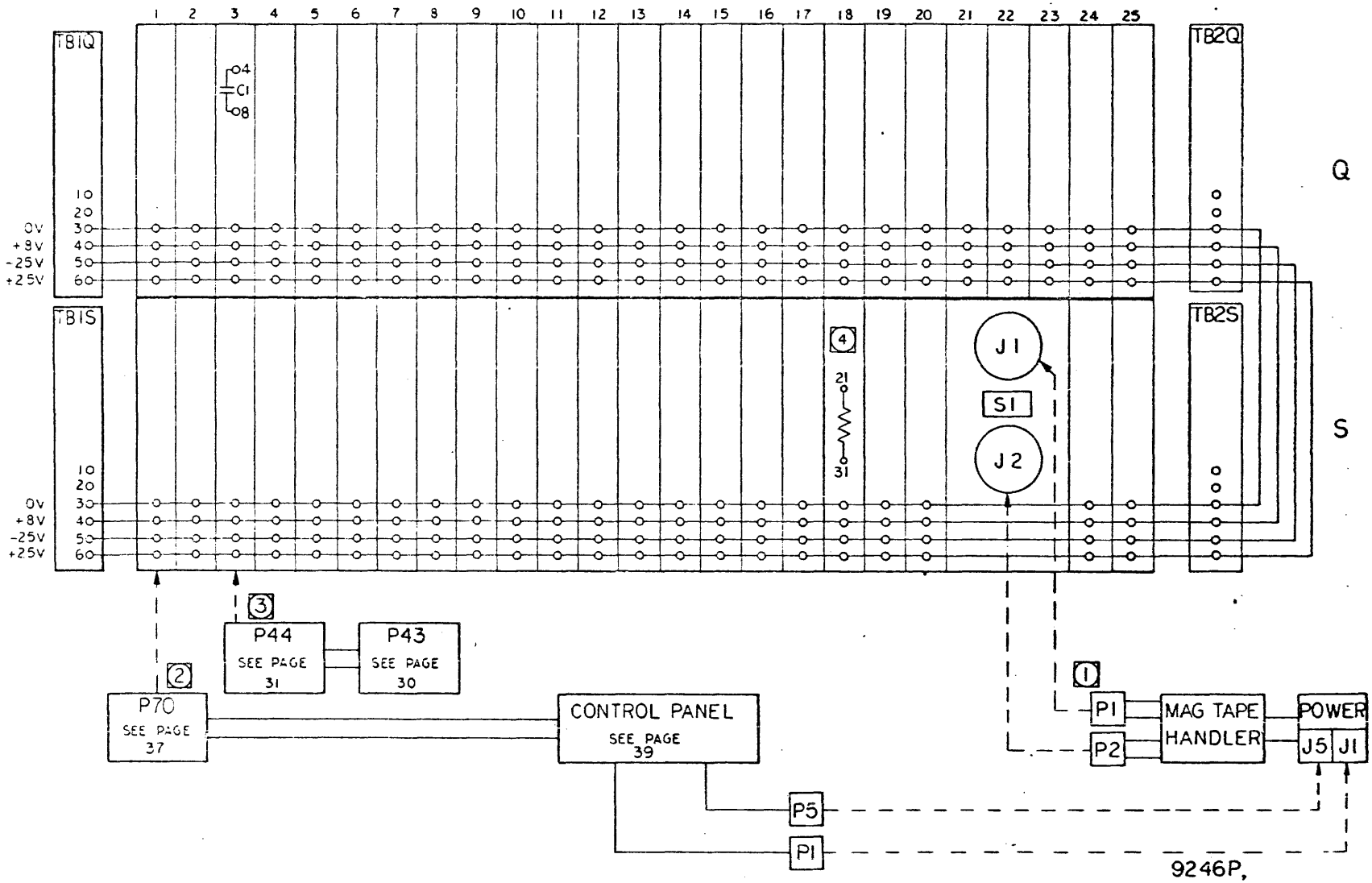
MANUAL CONTROL PANEL

S246A
MAG TAPE UNIT
PAGE 35

D

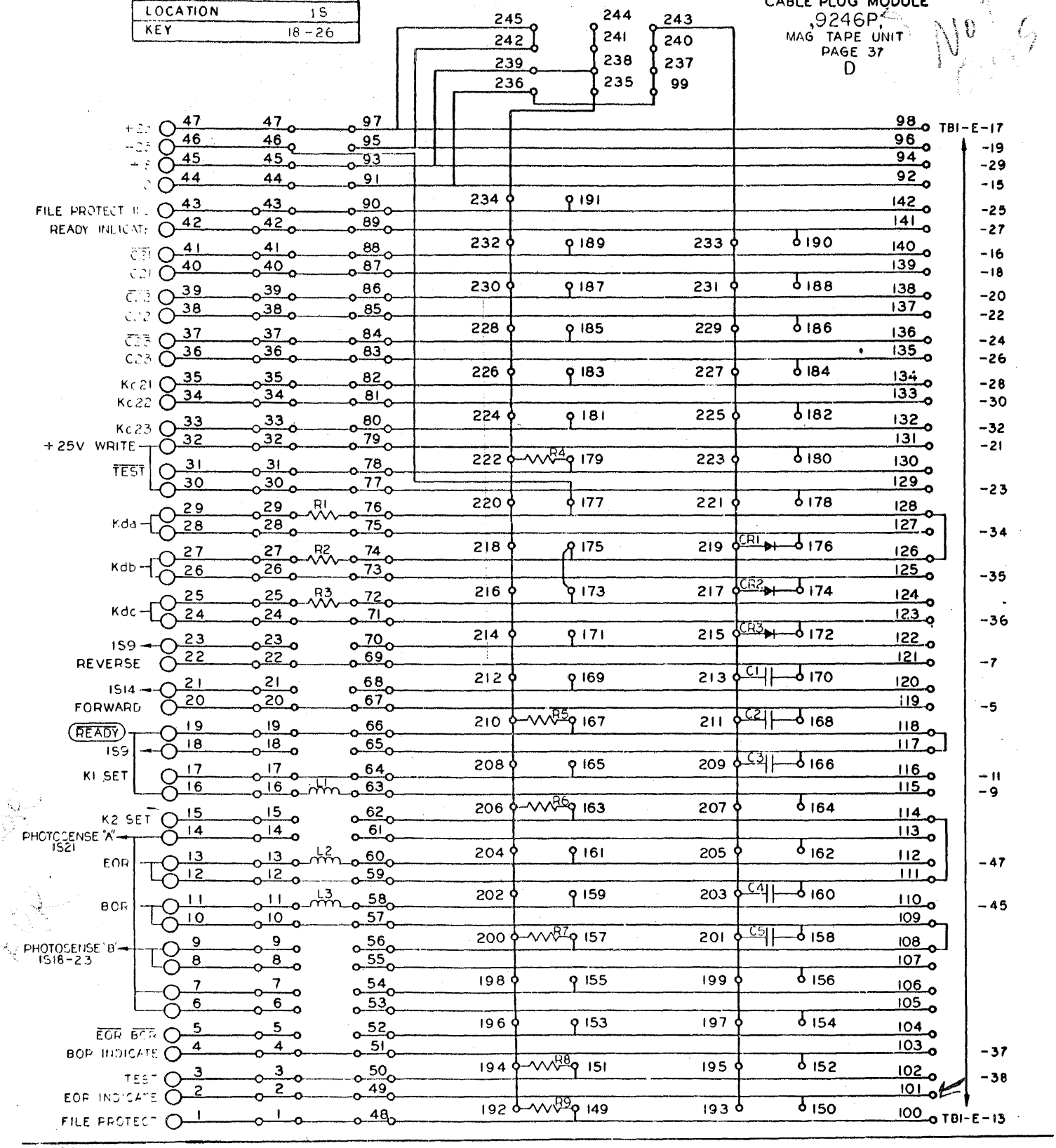
NOTES: UNLESS OTHERWISE SPECIFIED

1. RECEPTACLES J1 & J2 ARE PROVIDED FOR CONNECTION TO THE READ & WRITE HEADS OF THE MAG TAPE UNIT.
2. RECEPTACLE J(1S) IS PROVIDED FOR P70 FROM CONTROL PANEL.
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.



DESIGNATION	P70
LOCATION	1S
KEY	18-26

CABLE PLUG MODULE
,9246P,
MAG TAPE UNIT
PAGE 37
D



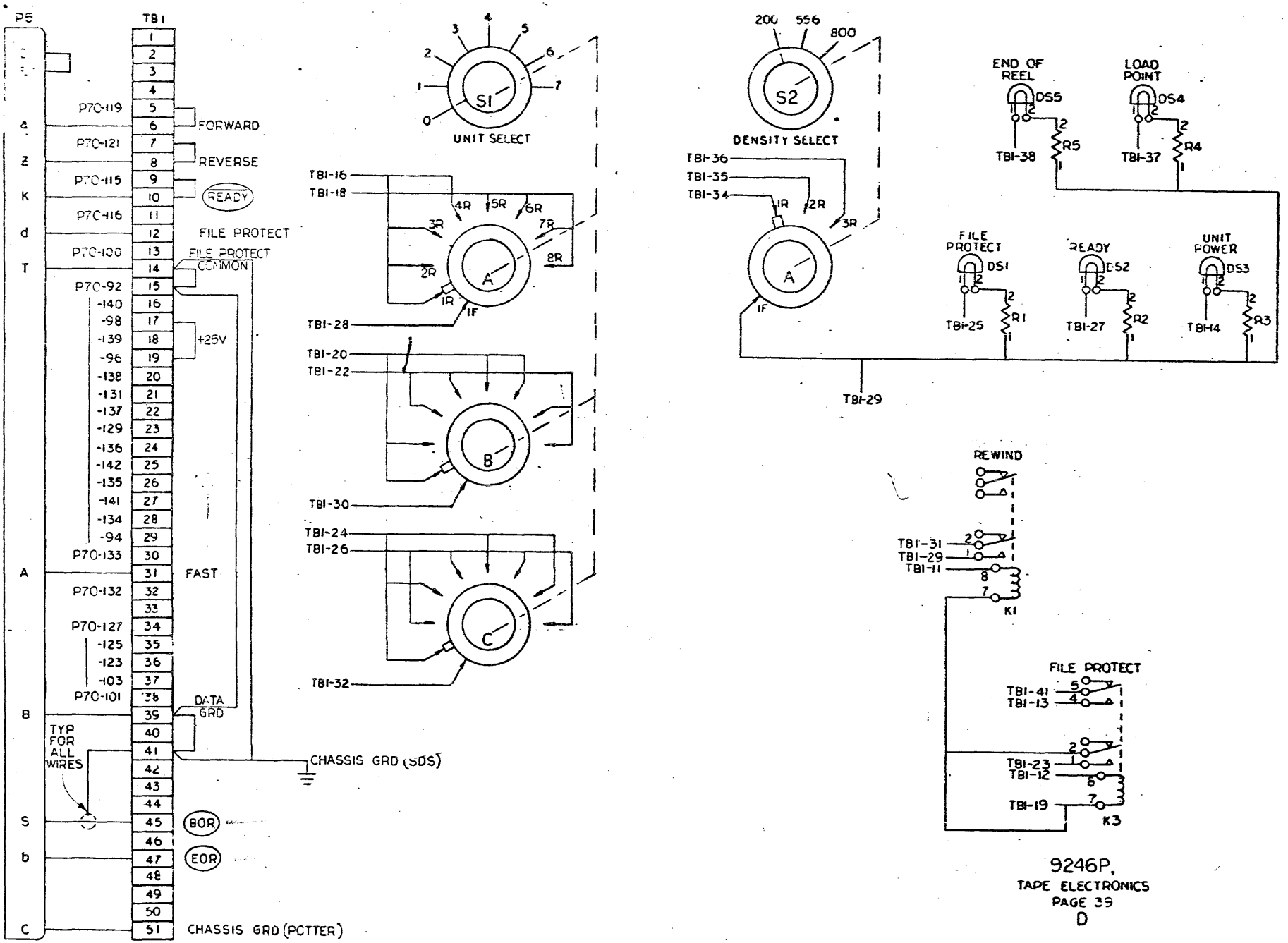
MODULE LIST

ITEM	DESCRIPTION	MODEL	QTY
1	WRITE DRIVER	AKS2	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	HK60	7
8	AND INVERTER	IC12	3
9	ONE SHOT MULT.	OX13	8
10	RELAY DRIVER	RX10	1
11	RESISTOR	ZKS1	2
12	TERM. MODULE	ZKS6	1
13	TERM. MODULE	ZKS7	1
14	TERM. MODULE	ZKS8	1
15	AND INVERTER	IH12	1
16	UNIVERSAL F.F.	FH17	1

REPLACEMENT PARTS LIST

ITEM	DESCRIPTION	DESIGNATION	QTY.	SUPPLIERS CODE (SEE INDEX)
1	RESISTOR, 3.3 K ± 2%	(P70) R1, R2, R3	3	16, 17
2	RESISTOR, 1.8 K ± 2%	(P70) R6, R7	2	16, 17
3	RESISTOR, 8.2 K ± 2%	(P70) R4, R8, R9	3	16, 17
4	CAPACITOR, MYLAR .0068 µF ± 10%	(P70) C1, C2	2	26, 27, 74
5	CAPACITOR, MYLAR .0033 µF ± 10%	(P70) C4, C5	2	26, 27, 74
6	DIODE, SILICON SWITCHING 1N914A	(P70) CR1 THRU CR3	3	4, 12, 13, 14
7	INDUCTOR, MOLDED 10000 µH ± 5%	(P70) L2, L3	2	42, 90, 91
8	RECEPTACLE, 19 PIN #RSK 19-315L	J1	1	134
9	PLUG, 19 PIN #SK19-325	J2	1	134
10	SWITCH, ROTARY #102163	S101, S102	2	SDS
11	RESISTOR, WW 10 Ω ± 5%	R1 THRU R5	5	99, 100
12	RELAY, DPDT #DOSx-7T #80-6A/115VAC	K1, K3	2	78 79
13	SWITCH, TOGGLE DPDT #83054-SE	S1 (S)	1	106
14	CAPACITOR, TANTALUM 4.7 µF ± 20% 50V	C1 (Q)	1	23, 77
15	CONNECTOR, SOLDERTAIL 47 CONTACT #7008-47	J(1Q) THRU J(25Q) J(1S) THRU J(20S) J(24S), J(25S)	47	82
16	LAMP, MINIATURE #328	DS101 THRU DS105	20	83, 84
17	INDUCTOR, MOLDED 330 µH ± 5%	(P70) L1	1	42, 90, 91
18	RESISTOR, 560 Ω ± 2%	(P70) R5	1	16, 17
19	CAPACITOR, MYLAR, .0010 µF ± 10%	(P70) C3	1	26, 27, 74

* NOT USED ON 92463P


P5
TB1
P70-119
FORWARD
P70-121
REVERSE
P70-115
READY
P70-116
FILE PROTECT
P70-100
FILE PROTECT COMMON
P70-92
-140
-98
-139
-96
-138
-131
-137
-129
-136
-142
-135
-141
-134
-94
P70-133
+25V
FAST
P70-132
P70-127
-125
-123
-103
P70-101
DATA GRD
TYP FOR ALL WIRES
CHASSIS GRD (SDS)
BOR
EOR
CHASSIS GRD (POTTER)
S1
UNIT SELECT
TBI-16
TBI-18
TBI-28
TBI-20
TBI-22
TBI-30
TBI-24
TBI-26
TBI-32
S2
DENSITY SELECT
TBI-36
TBI-35
TBI-34
TBI-29
END OF REEL
LOAD POINT
DS5
DS4
TBI-38
TBI-37
R5
R4
FILE PROTECT
READY
UNIT POWER
DS1
DS2
DS3
TBI-25
TBI-27
TBH4
R1
R2
R3
REWIND
TBI-31
TBI-29
TBI-11
K1
FILE PROTECT
TBI-41
TBI-13
TBI-23
TBI-12
TBI-19
K3