

COMPONENT SIDE

PCB FABRICATION PERMISSION A ONLY  
 - S/N AREA SHOWN WHEN COMPLETED  
 USING BLACK INDELIBLE INK

SCHEMATIC REVISION

A 5/8/85

TIC - 03558

IGN - 03557

S. 1/4 W. 5/8

POSTARADS

25% TOTAL QTY - 211

CR. OF SOLDER

SCR. SHEET 2

IL - VER LA SEGUNDA PAGINA

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**ASSEMBLY DGRADING**  
Workstation 128K Memory PCB

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ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES. DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS. DIMENSIONS IN PARENTHESES TAKE PRECEDENCE OVER DIMENSIONS IN BRACKETS. DIMENSIONS IN BRACKETS TAKE PRECEDENCE OVER DIMENSIONS IN PARENTHESES.

NORTHSTAR 	
W/S MEM 128K PCB ASSY	
DATE: 3/2/84 BY: D. G. ... CHECKED: ... APPROVED: ...	D 03558-01 A

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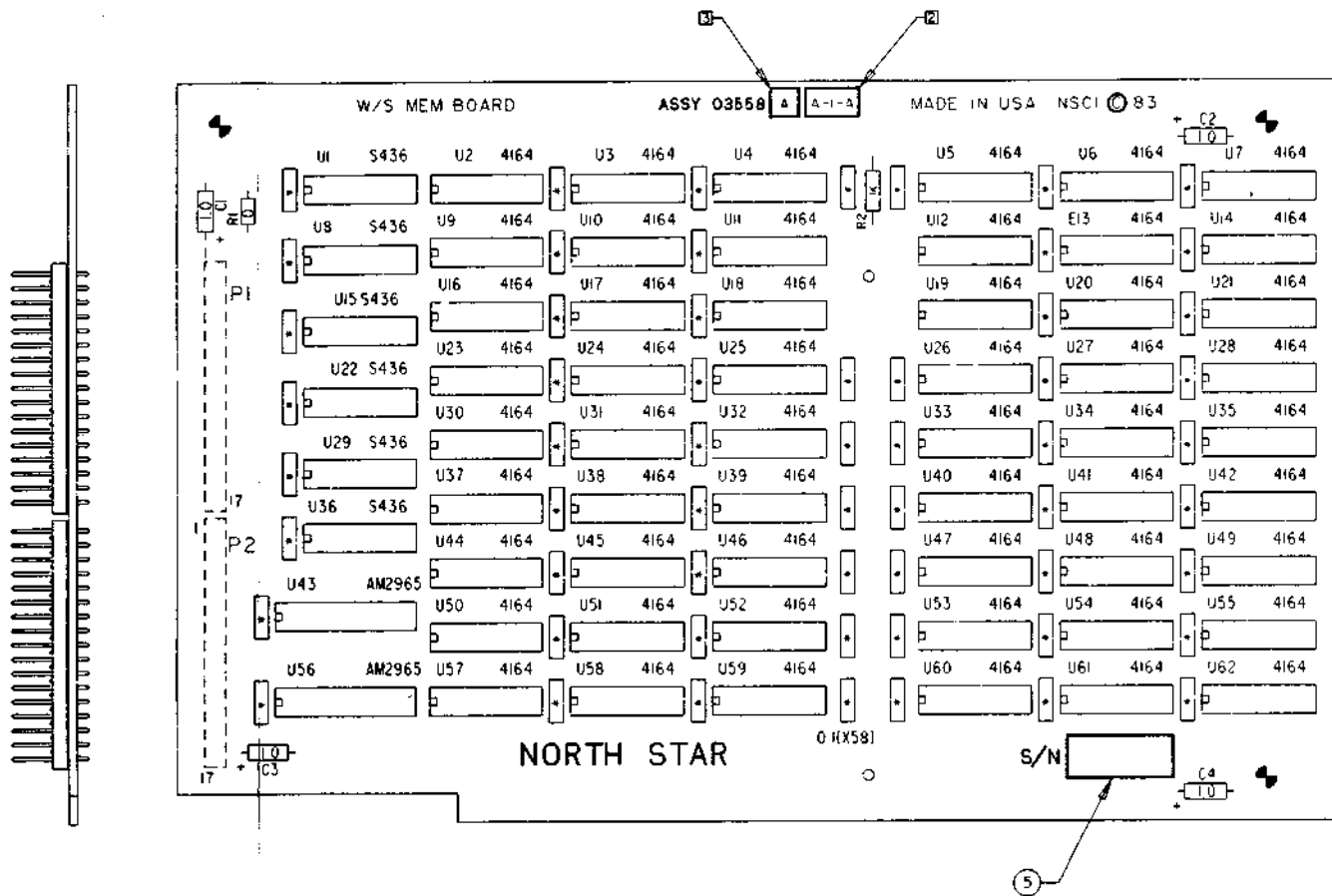
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COMPONENT SIDE

## NOTES: UNLESS OTHERWISE SPECIFIED -

- 1 THIS ASSY DWG TO BE USED FOR PCB FABRICATION REVISION  $\Delta$  ONLY
- 2 THIS PCB ASSY TO BE COOKED  $\Delta$  IN AREA SHOWN WHEN COMPLETED (USING BLACK INDELIBLE INK)
- 3 FABRICATION REVISION MODIFICATIONS APPLIED      SCHEMATIC REVISION
- 4 MARK ASSEMBLY REVISION IN AREA SHOWN
4. REFERENCE DOCUMENTS - SCHEMATIC - 03556  
FABRICATION - 03557
- 5 RESISTANCE VALUES ARE IN OHMS, UNLESS SHOWN OTHERWISE
- 6 CAPACITANCE VALUES ARE IN MICROFARADS
- 7 BYPASS CAPS TOP 0.01, 25V (TOTAL QTY = 58)
- 8 ALL TOOLING HOLES MUST BE FREE OF SOLDER
- 9 (A) FOR SPAN SH TRANSLATION - SEE SHEET 2  
(B) PARA TRADUCCION EN ESPANOL - VEA LA SEGUNDA PAGINA

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**ASSEMBLY DRAWING**  
**Workstation 384K Memory PCB**

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ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN MILLIMETERS. DIMENSIONS OF PARTS ARE SHOWN TO THE NEAREST MILLIMETER. DIMENSIONS OF ASSEMBLY ARE SHOWN TO THE NEAREST MILLIMETER. DIMENSIONS OF ASSEMBLY ARE SHOWN TO THE NEAREST MILLIMETER. DIMENSIONS OF ASSEMBLY ARE SHOWN TO THE NEAREST MILLIMETER.

NORTHSTAR W/S MEM 384K PCB ASSY	03558-02 A
MODEL	03558-02 A

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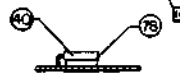
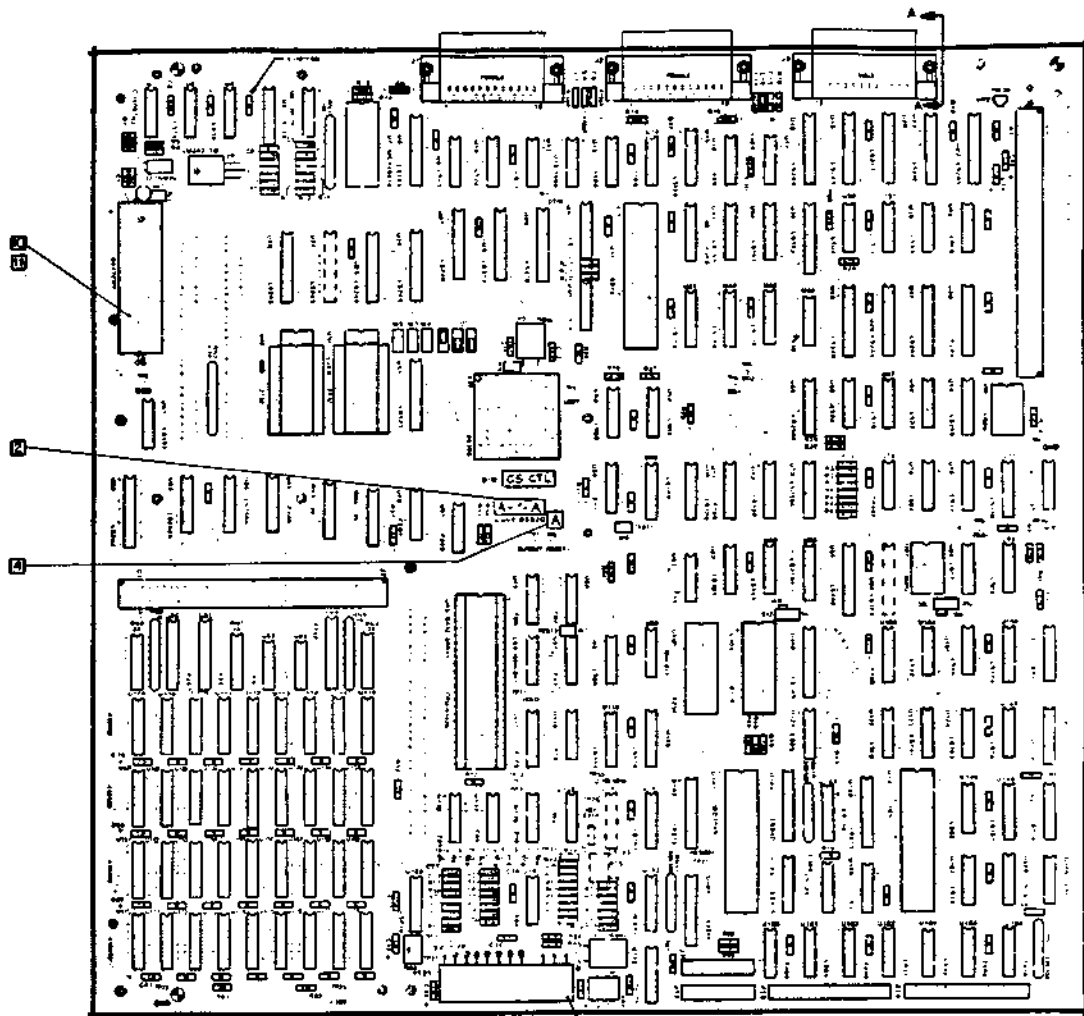
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- 12 REMOVE PIN 4 OF CONNECTOR J9, BEFORE INSTALLING.  
 13 DO NOT INSTALL THE FOLLOWING DASHED COMPONENTS: C21, U24, U86, UMD  
 R54, R57, R72, R73  
 14 INSTALL FOAM TAPE UNDER CRYSTAL Y2, Y3, AS SHOWN IN DETAIL A.  
 WARNING: DO NOT PLACE ASSEMBLED BOARD ON CONDUCTIVE SURFACE. THIS MAY  
 RESULT IN EXPLOSION OF BATTERY AND POSSIBLE DAMAGE TO OTHER COMPONENTS  
 ON THIS BOARD.  
 15 BATTERY TO BE MOUNTED AFTER WAVE SOLDERING TO PREVENT SHORTING.  
 BEND MOUNTING TABS AFTER INSERTION.  
 9 A) FOR SPANISH TRANSLATION SEE SHEET 2.  
 B) PARA TR DICCION EN ESPAÑOL VEA LA SEGUNDA PAGINA.  
 8 ALL TOOLING HOLES MUST BEE FREE OF SOLDER  
 7  = BYPASS CAPACITOR 0.1UF, 50V, (150 TOTAL).  
 6 ALL CAPACITOR VALUES ARE IN MICROFARADS (UF).  
 5 ALL RESISTOR VALUES ARE IN OHMS (Ω), 1/4 W, 5%.  
 4 MARK ASSEMBLY REVISION IN AREA SHOWN.  
 3 REFERENCE DOCUMENTS:

SCHEMATIC = #3310  
 FABRICATION = #3319

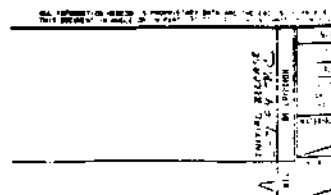
- 2 THIS PCB ASSY TO BE CODED "A" IN AREA SHOWN WHEN COMPLETED.  
 FABRICATION REVISION  
 MODIFICATION APPLIED  
 SCHEMATIC REVISION
- 1 THIS ASSY DNG TO BE USED FOR PCB FABRICATION REV "A" ONLY.

NOTES. UNLESS OTHERWISE SPECIFIED.



DETAIL A. 02  
 2 PLS (FOR Y2 (V3))

COMPONENT SIDE



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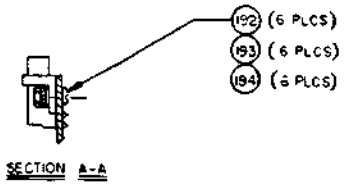
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**ASSEMBLY DRAWING**  
**Central PCB**



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PROM REVISION TABLE

PROM NAME AND PART NUMBER	REFERENCE DESIGNATION	REVISION LEVEL
PLL (03585)	U107	R01
BOOT-EV(03617)	U20	R0B
BOOT-00(03615)	U49	R0B

DATE SPECIFIED	DO NOT SCALE DRAWING	
DATE	DIMENSIONS ARE IN INCHES	
REV	REV	C5
REV	REV	CENTRAL PCB ASSY
REV	REV	D 03320 A

**MAJOR SUBASSEMBLY PARTS LISTS**  
Central PCB Subassembly

<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>	<u>REFERENCE</u>
1	03320	Assembly, PCB, Central, DIMENSION	D03320
3	03318	Schematic, PCB, Central	D03318
5	03319	FAB-A/W, PCB, Central	D03319
7	03429	SPEC-CONT, I.C., Gate Array	U95
11	01138	Capacitor, 33pF, 50V, 5%, Ceramic	C28
12	01070	Capacitor, .1uF, 50V, Ceramic	* Bypass, C24, C25, C34
13	01071	Capacitor, 150pF, 100V, 10%, Ceramic	C23
14	01075	Capacitor, 330pF, 100V, 10%, Ceramic	C27, C29
15	01077	Capacitor, 470pF, 100V, 10%, Ceramic	C7-C12
17	01091	Capacitor, .0068uF, 100V, 10%, Ceramic	C26
18	01093	Capacitor, .01uF, 50V, 10%, Ceramic	C4
21	01131	Capacitor, 1.0uF, 20V, ±10%, Axial Tantalum	C13-C15, C18-C20, C30-C33, C35
23	01135	Capacitor, 18pF, 50V, 5%, Ceramic	C1, C2, C16, C17
24	01137	Capacitor, 27pF, 50V, 5%, Ceramic	C22
25	01144	Capacitor, 100pF, 50V, 5%, Ceramic	C5, C6
30	19005	Delay Line, 100ns	U96
31	19009	Delay Line, 60ns	U99
33	43001	IC, 74LS00	U37, U39, U98, U121, U122, U169
34	43002	IC, 74LS02	U54, U88

**MAJOR SUBASSEMBLY PARTS LISTS**  
**Central PCB Subassembly (cont.)**

<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>	<u>REFERENCE</u>
35	43004	IC, 74LS04	U4, U36, U40, U75, U168, U181
36	43005	IC, 74LS05	U93
37	43006	IC, 74LS08	U53, U89, U148
38	43007	IC, 74LS11	U11, U68, U76
39	43009	IC, 74LS14	U167
40	43011	IC, 74LS30	U38
41	43012	IC, 74LS32	U44, U58, U104, U166, U183, U184
42	43017	IC, 74LS109	U30, U69
43	43021	IC, 74LS138	U5, U43, U70, U72, U77, U145
44	43024	IC, 74LS151	U33, U34, U119, U141, U149
45	43027	IC, 74LS161	U126
46	43030	IC, 74LS174	U106, U120, U150
47	43031	IC, 74LS175	U164
48	43036	IC, 74LS258A	U55, U63, U64, U73, U84
49	43038	IC, 74LS259	U41, U42, U59
50	43039	IC, 74LS273	U142, U146
51	43043	IC, 74LS373	U20, U28, U29, U35, U51
52	43044	IC, 74LS393	U61, U82, U83, U124
53	43059	IC, 7438	U185, U186
54	43070	IC, 1488	U13, U16
55	43071	IC, 1489	U12, U14, U17



**MAJOR SUBASSEMBLY PARTS LISTS**  
(cont.) Central PCB Subassembly

<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>	<u>REFERENCE</u>
56	43105	IC, 74LS10	U9, U57, U105
57	43106	IC, 74LS20	U10, U56
58	43112	IC, 74LS244	U18, U62, U45-U47, U163
59	43113	IC, 74LS153	U15
60	43117	IC, 74S04	U161
61	43134	IC, 74LS125	U165
64	43154	IC, 26LS31	U162
65	43165	IC, 6116, 200ns	U101
67	43170	IC, 74LS245	U8, U19, U22-U23, U25-U27, U85, U102
68	43176	IC, 8274	U31
69	43180	IC, 75175	U179
70	43185	IC, 74LS74	U2, U123, U125
71	43164	IC, 4164, 200ns	U108- U116, U127- U135, U151- U159, U170- U178
73	43193	IC, 74F240	U90, U91, U94
74	43195	IC, 7406	U180, U182
75	43196	IC, 74F08	U79, U136
77	43204	IC, 74F00	U92, U138
78	43206	IC, 74F11	U81, U97
79	43207	IC, 74F138	U65, U71, U103
80	43208	IC, 74F280	U66, U67
81	43210	IC, 74F74	U118
82	43211	IC, 74F109	U32, U117
83	43212	IC, 74F04	U80, U137
84	43215	IC, 8254	U100

**MAJOR SUBASSEMBLY PARTS LISTS**  
**Central PCB Subassembly (cont.)**

<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>	<u>REFERENCE</u>
85	43217	IC, 186, 6MHz	U52
86	43218	IC, MC146818	U7
88	43221	IC, 74HC10	U6
89	43222	IC, 74F32	U78
91	43238	IC, uPD765A	U147
92	43239	IC, WD1010-05	U143
93	43240	IC, 74LS629	U160
95	43243	IC, CD4007	U1
96	43244	IC, 74LS240	U21, U144
97	43250	IC, 74F244	U48
98	43050	IC, 74S74	U139
101	61001	Resistor Network, 22 Ohm, 16 Pin, DIP	RN3-RN5, RN7, RN9
102	61002	Resistor Network, 1K Ohm, 10 Pin, SIP	RN6, RN8
103	61006	Resistor Network, 4.7K Ohm, 10 Pin, SIP	RN2
104	61010	Resistor, 22 Ohm, 1/4W, 5%, CF	R31-R34
105	61011	Resistor, 100 Ohm, 1/4W, 5%, CF	R4, R11, R59, R64, R67, R69, R74, R81, R86, R87
107	61014	Resistor, 330 Ohm, 1/4W, 5%, CF	R15, R16, R61, R82
108	61015	Resistor, 470 Ohm, 1/4W, 5%, CF	R66, R68, R70, R77, R78
109	61017	Resistor, 680 Ohm, 1/4W, 5%, CF	R60
110	61018	Resistor, 1K Ohm, 1/4W, 5%, CF	R19, R25, R28, R35, R51-R53, R65, R75, R76, R79, R80, R88, R89
111	61019	Resistor, 1.2K Ohm, 1/4W, 5%, CF	R48, R49, R50
112	61021	Resistor, 3.3K Ohm, 1/4W, 5%, CF	R5, R14

**MAJOR SUBASSEMBLY PARTS LISTS**  
(cont.) Central PCB Subassembly

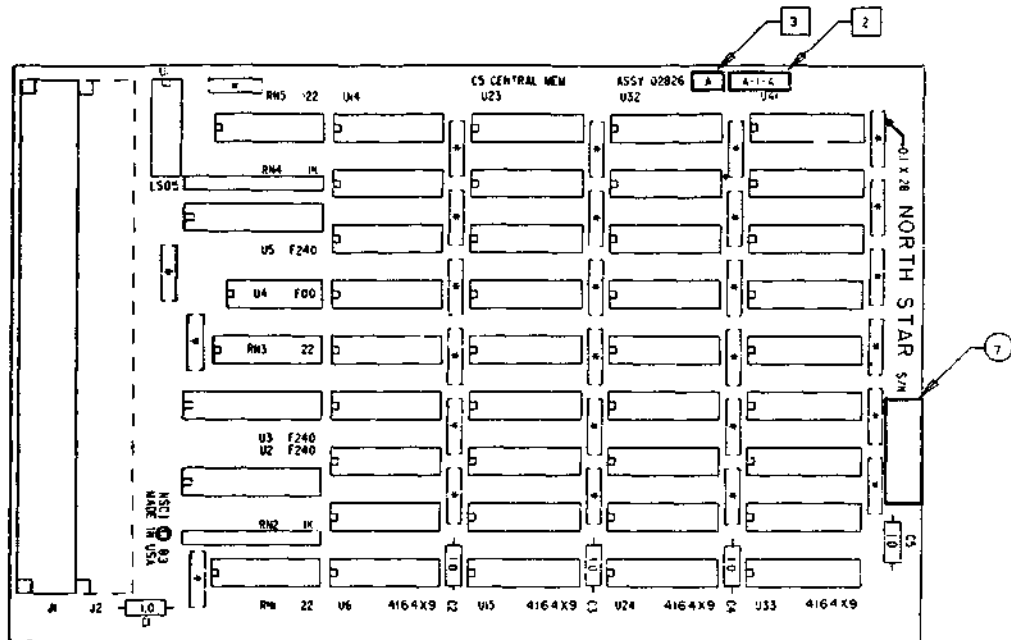
<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>	<u>REFERENCE</u>
113	61024	Resistor, 4.7K Ohm, 1/4W, 5%, CF	R18, R23, R24, R26, R27, R29, R30, R71, R36-R47, R84, R85 R7-R10, R12, R17, R20-R22
114	61028	Resistor, 10K Ohm, 1/4W, 5%, CF	
117	61052	Resistor Network, 220/330 Ohm, 8 Pin, SIP	RN10-RN12
118	61053	Resistor, 10 Ohm, 1/4W, 5%, CF	R55
119	61073	Resistor, 470K Ohm, 1/4W, 5%, CF	R1
122	61085	Resistor, 5K Ohm, Potentiometer	R83
123	61091	Resistor, 619 Ohm, 1/8W, 1%, MF	R62, R63
124	61092	Resistor, 10K Ohm, 1/4W, 1%, MF	R58
125	61094	Resistor, 13.3K Ohm, 1/8W, 1%, MF	R56
126	61114	Resistor, 100K Ohm, 1/8W, 1%, MF	R3, R6, R13
128	61127	Resistor Network, 10K Ohm, 10 Pin, SIP	RN1
130	61129	Resistor, 22 MegOhm	R2
133	65002	Regulator, LM340T-5	VR1
135	65006	Regulator, 79L05	VR2
137	65009	Diode, 1N4148	CR1-CR7
140	15004	Crystal, 10MHz	Y3
141	15005	Crystal, 32.768KHz	Y1
142	15009	Oscillator, 14.31818MHz	U60
143	15011	Oscillator, 8MHz	U87
144	15012	Crystal, 12MHz	Y2

**MAJOR SUBASSEMBLY PARTS LISTS**  
**Central PCB Subassembly (cont.)**

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ITEM	PART #	DESCRIPTION	REFERENCE
151	13010	Connector, 34 Pin (.100 x 100 Matrix)	J13, J14
152	13087	Housing--"Mini-jumper"	W1-W4, W8, W9
153	13092-01	Header, Single-row, 1 Position	T1-T27
154	13092-02	Header, Single-row, 2 Position	W1, W6, W7
155	13092-03	Header, Single-row, 3 Position	W2-W4, W8, W9
158	13093-10	Header, Double-row, 10 Position	J11
159	13103	Connector, 20 Pin, Right-angle	J12
161	13193	Connector, 25 Pin, Right-angle, D Type, Female	J1, J2
163	13156	Header, 12 Pin, Right-angle	J9
164	13159	Connector, 64 Pin, Male, DIN	J6, J7
165	13164	Header, 3 Pin, Right-angle	J10
166	13192	Connector, 25 Pin, Right-angle, D Type, Male	J3
169	13034	Socket, IC, 28 Pin	For U49, U50
170	13154	Socket, IC, 68 Pin	For U52
171	13155	Socket, IC, 48 Pin	For U95
175	75001	Battery, 3.6V, NICAD	
178	38147	Tape, Double-stick	For Y2, Y3
179	38152	Standoff, PCB, 5/8", Nylon	RAM Expan. PCB
181	38143	Standoff, PCB, 1", Nylon	Bus Expan. PCB
183	03585	Assembly, DIMENSION Central PLL PROM	U107
184	03584-1	Source Listing, PLL PROM	

# COMPONENT SIDE



**NOTES: UNLESS OTHERWISE SPECIFIED -**

1. THIS ASSY DWG TO BE USED FOR PCB FABRICATION PERIOD 'A' ONLY
2. THIS PCB ASSY TO BE CODED 'A-1-E' IN AREA SHOWN WHEN COMPLETED (USING BLACK INDELIBLE INK).  

FABRICATION REVISION  
MODIFICATIONS APPLIED

SCHEMATIC REVISION
3. MARK ASSEMBLY REVISION IN AREA SHOWN
4. REFERENCE DOCUMENTS: SCHEMATIC - 02824  
FABRICATION - 02825
5. RESISTANCE VALUES ARE IN OHMS, 1/4W, 5%
6. CAPACITANCE VALUES ARE IN MICROFARADS
7. BYPASS CAPACITOR, 0.1 U.F. 50V (TOTAL QTY = 281)
8. ALL TOOLING HOLES MUST BE FREE OF SOLDER
9. (A) FOR SPANISH TRANSLATION - SEE SHEET 2  
(B) PARA TRANSLACION EN ESPAÑOL - VEA LA SEGUNDA PAGINA

ALL INFORMATION HEREON IS PROPRIETARY DATA  
 SUCH INFORMATION TO OTHERS WITHOUT THE WRITTEN  
 PERMISSION OF THE COMPANY IS PROHIBITED.

	DATE: 11/75 BY: [Signature] CHECKED: [Signature] APPROVED: [Signature]
DESCRIPTION: [Blank]	
PART NO.: [Blank]	

**ASSEMBLY DRAWING**  
**Central RAM Expansion PCB**

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NORTHSTAR C6 CENTRAL MEM PCB ASSY	
PART NO. 02826	REV. 0
MODEL NUMBER: 02826	

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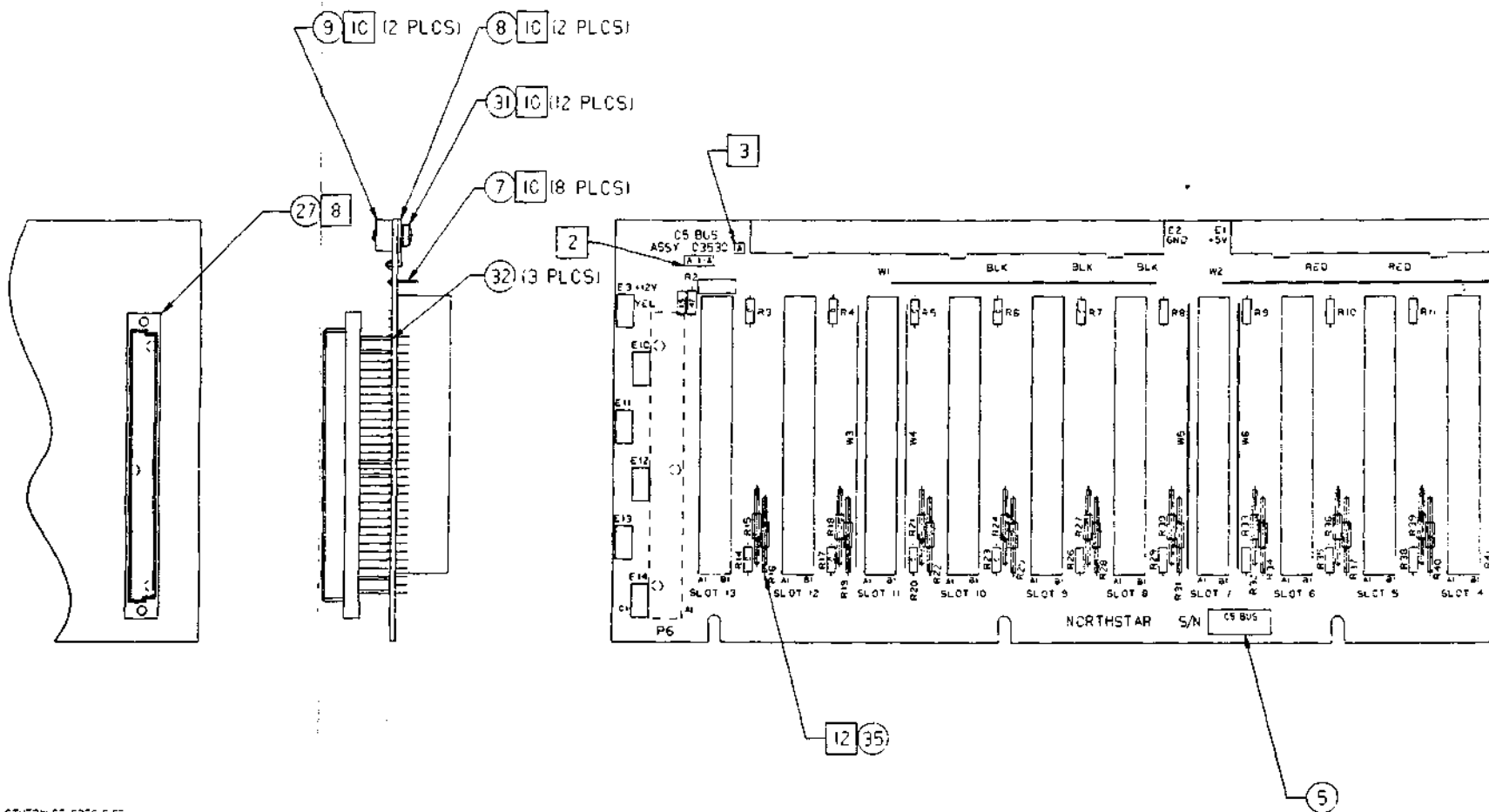
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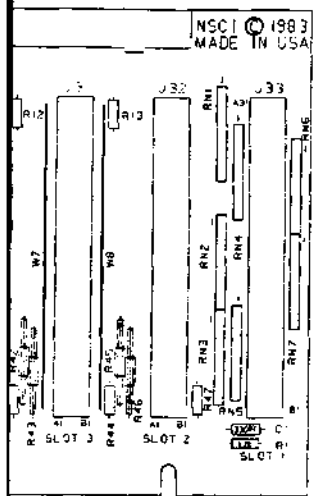
NOTES: UNLESS OTHERWISE SPECIFIED -

- 1 THIS ASSY SHG TO BE USED FOR PCB FABRICATION REVISION A ONLY
- 2 THIS PCB ASSY TO BE COOKED IN AREA SHOWN WHEN COMPLETED (SEE BLACK INDICIBLE MARK)
- FABRICATION REVISION MODIFICATIONS APPLIED SCHEMATIC REVISION
- 3 MARK ASSEMBLY REVISION AREA SHOWN
4. REFERENCE DOCUMENTS - SCHEMATIC - 03532B  
PAGE CATION - 035329
5. RES STANCE VALUES ARE IN OHMS (44W 5W)
6. CAPACITANCE VALUES ARE IN MICROFARADS
7. ALL TOOLING HOLES MUST BE FREE OF SOLDER
8. ORIENT P6 AS SHOWN. DO NOT USE PIN NUMBERS ON BACK OF CONNECTOR.
9. LAM FOR SPAN SH TRANS. LAM ON SET SHEET 2  
10. PARA TRACKING ON DIFFERENT LAMINATE SECOND PAGE
11. INSTALL AND SOLDER CDS AND W-WE AS A SECONDARY OPERATION AFTER WAVE SOLDER.
12. INDUCTANCE VALUES ARE IN MICROHENRS
13. R15, 16, 19, 21, 22, 24, 25, 27, 28, 30, 31, 33, 34, 35, 37, 38, 40, 42, 43, 45, 46 ARE INSULATED JUMPER WRES

COMPONENT SIDE VIEW

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**ASSEMBLY DRAWING**  
Bus PCB



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ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN MILLIMETERS. DIMENSIONS IN PARENTHESES INDICATE DIMENSIONS IN INCHES. DIMENSIONS IN PARENTHESES ARE TO BE USED ONLY IF THE DIMENSIONS ARE NOT SPECIFIED IN MILLIMETERS.

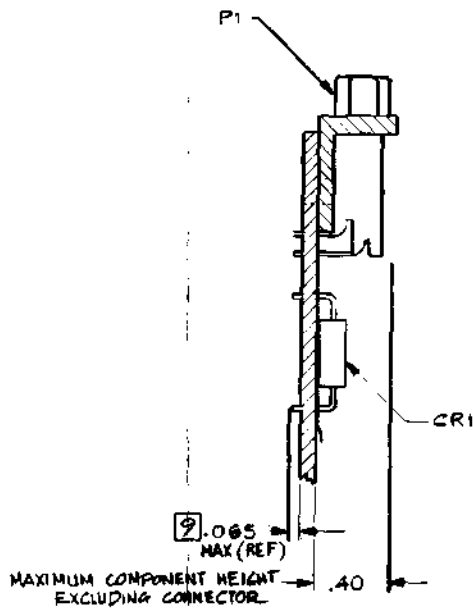
DATE	2-28-84
BY	...
CHKD	...
APP'D	...

**NORTHSTAR**

C5 BUS  
PCB ASSY

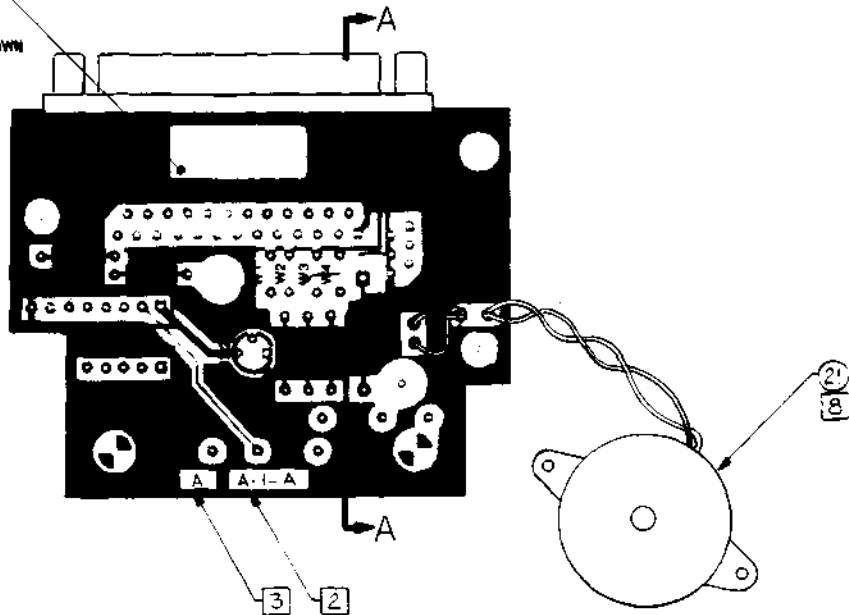
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SECTION A-A

7  
PLACE ON TOP OF  
CONNECTOR AS SHOWN



1. ALL LEAD PROTECTIONS .065 . TRM AS REQUIRED.
2. SOLDER LEADS OF SPEAKER AS INDICATED.  
3. PLACE AT NEXT ASSEMBLY IS ABOVE BOARD.
4. ALL HOLE EDGES MUST BE FREE OF SOLDER.
5. CAPACITANCE VALUES ARE N MICROFARADS ( $\mu F$ ).
6. RESISTANCE VALUES ARE N OHMS ( $\Omega$ ), AND  $\frac{1}{4} W, 5\%$ .
7. REFER TO COMPONENTS: SCHEMATIC - 03644  
FABRICATION - 03645
8. MAKE APPROPRIATE REVISION IN AREA SHOWN.
9. THIS PCB TO BE CODED A-1-A IN AREA SHOWN WHEN COMPLETED.  
(USING BLACK INDELIBLE INK)
- NOTIFICATION REVISION: SCHEMATIC REVISION
1. THIS ASSY DWG TO BE USED FOR PCB FABRICATION REV "A" ONLY.

NOTES: UNLESS OTHERWISE SPECIFIED

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UNLESS OTHERWISE SPECIFIED		DO NOT SCALE DRAWING	
ALL METAL PARTS MUST BE FREE OF BURRS AND SHARP EDGES		DIMENSIONS ARE IN INCHES	
ALL SURFACES TO BE		DATE	REV
PLATE FINISH	ORIGINAL	AL	2-6-84
ANGLES	90°	REV	2/17/84
FRANCHISE	1:16	REV	2/17/84
DATE		REV	2-6-84
REV	FORGE	DATE	03708
		MODEL	NEXT ASSY

ASSEMBLY DRAWING  
Station Interconnect

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NorthStar 

CB INTERCONNECT  
PCB ASSY

REV	NO.	DATE
C	03646	A
SCALE	Z 1 SHEET 1 OF 1	

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**SCHEMATIC DRAWINGS**

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**Introduction** This chapter of the manual contains schematic drawings for all circuit boards used in the DIMENSION computer except those associated with the floppy and fixed disk drives.

**Note:** A circuit name may be found on the lower right-hand corner of the workstation PCB and central PCB schematic diagrams. This feature simplifies use of the schematics and eliminates the need to block sections for discussion.

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**MAJOR SUBASSEMBLY PARTS LISTS**  
**Central Module Miscellaneous Parts**

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<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>	<u>REFERENCE</u>
1	03289	FAB, Louvre, Fan	
2	03290	FAB, Bracket, HD Drive	
3	03291	FAB, Drive Support, Bottom	
4	03376	FAB, Louvre, TBU	
5	03377	FAB, PCB Support	
6	03378	FAB, Flange, Drive Bezel	
7	03385	FAB, Drive Support, Top	
8	03463	SPEC-CONT, Cable, HD Control	
9	03480	FAB, Back Panel, Blank	
10	03464	SPEC-CONT, Cable, HD Read/Write	
11	03465	SPEC-CONT, Cable, Floppy Drive, Signal	
12	03468	FAB, Standoff, Keyhole	
13	03479	FAB, Back Panel, Workstation PCB	
14	03523	SPEC-CONT, Harness, AC Power	
15	03524	SPEC-CONT, Harness, DC Power	
16	03532	SPEC-CONT, Cable, 100 Foot Extension	
17	03534	FAB, Clip, Chassis Ground	
18	03604	SPEC-CONT, Cable, 25 Foot Workstation	
19	03631	FAB, Spring, Flat Panel	
20	03674	FAB, Jumper Bus Bar	
21	03675	FAB, Power Bus Bar	
22	03676	FAB, Stiffener Bar	
23	03677	SPEC-CONT, Harness, AC Input	
24	03681	SPEC-CONT, Foam Strip, Front	
25	03682	SPEC-CONT, Foam Strip, Rear	
26	03714	SPEC-CONT, Cable, Parallel Printer	
27	03715	SPEC-CONT, Fastener, Dual Lock	
28	03736	SPEC-CONT, Harness, LED Cable	
29	03720	FAB, Tilt Support, W/S (VDU), DIMENSION	
30	03285	Weldment, Bottom Cover, DIMENSION Central Module	
31	03286	Weldment, Top Cover, DIMENSION Central Module	
32	03634	FAB, Interconnect Box, Top, Workstation	
33	03685	Weldment, Shield, Power Supply	
34	03557	FAB-AW, PCB, Workstation Memory, DIMENSION	

)

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)

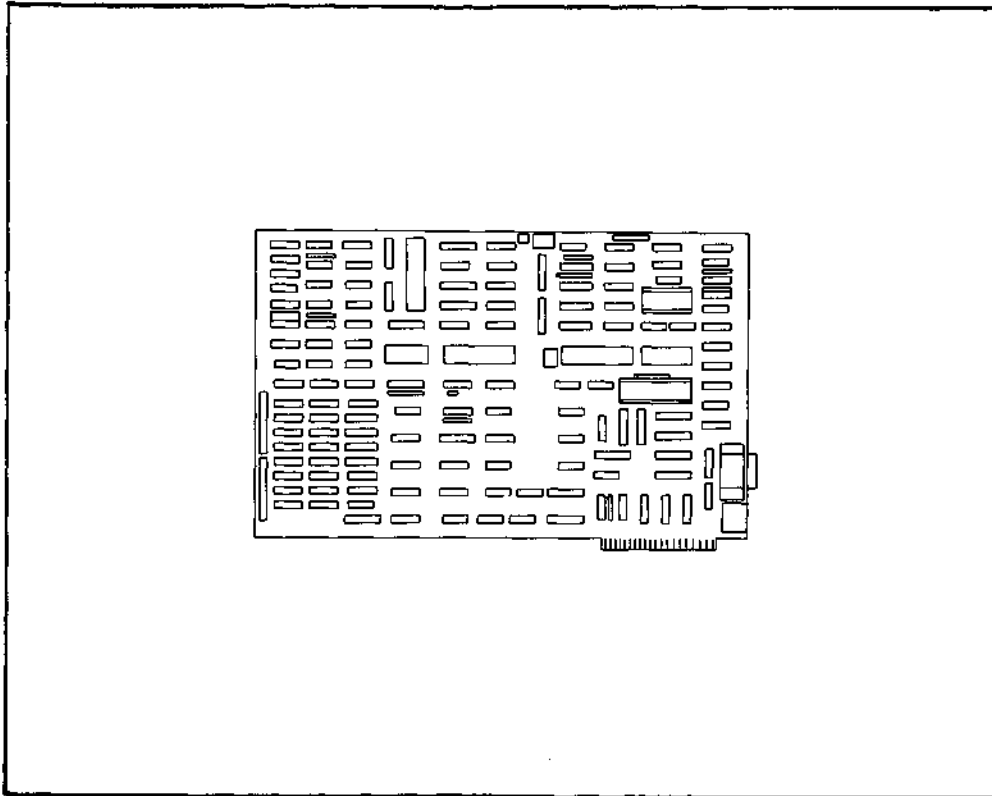
**MAJOR SUBASSEMBLY PARTS LISTS**  
Station Interconnect PCB Subassembly

---

<u>ITEM</u>	<u>PART #</u>	<u>DESCRIPTION</u>	<u>REFERENCE</u>
1	03646	DIMENSION Station Interconnect PCB Assy	03646
3	03644	Schematic, PCB, Station Interconnect	03657
5	03645	FAB-A/W, PCB, Station Interconnect	B03645
7	00947-XX	SPEC-A/W, Label, PCB Serial Number, DIMENSION	
10	01070	Capacitor, .1uF, 50V, Axial, Ceramic	C1
14	61013	Resistor, 220 Ohm, 1/4W, 5%, Carbon Film	R2
15	61020	Resistor, 2.2K Ohm, 1/4W, 5%, Carbon Film	R1
16	61025	Resistor, 5.6K Ohm, 1/4W, 5%, Carbon Film	
18	65014	Transistor, 2N2222	Q1
19	65037	Diode, P6KE16	CR1
21	75002	Speaker, Piezo Ceramic	LS1
24	13192	Connector, Male, D-type, Right-angle, 25-Pin	P1
26	13187	Telephone Jack, 6 Pin	



**SCHEMATIC DIAGRAMS**  
Workstation (1 of 8)



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5. UNLESS OTHERWISE SHOWN  
RESISTANCE VALUES &  
CAPACITANCE VALUES  
\* = BYPASS CAPACITORS

2. THE FOLLOWING CONVENTIONS

DWG SHEET NUMBER

1. REFERENCE DOCUMENTS

NOTES:

P1

COMPONENT	A	B	SOLDER
-IO CH CNK	01		GND
D7	02		RESET
D6	03		+5V
D5	04		
D4	05		-5V
D3	06		
D2	07		-12V
D1	08		
D0	09		+12V
IO CH RDY	10		GND
AEN	11		-MEMW
A19	12		-MEMR
A18	13		-I/OV
A17	14		-I/OV
A16	15		
A15	16		
A14	17		
A13	18		
A12	19		
A11	20		
A10	21		
A9	22		
A8	23		
A7	24		
A6	25		
A5	26		
A4	27		
A3	28		
A2	29		+5V
A1	30		OSC
A0	31		GND

J3

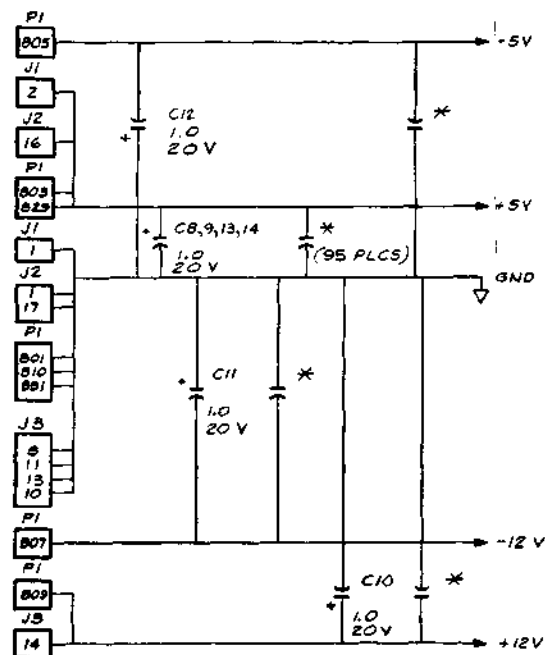
VIDEO	9	1	CHASSIS
VID RET	10	2	
EIA GND	11	3	RXD
+KBD	12	4	DSR
SOUND RET	13	5	-KBD
+12V KBD	14	6	SOUND
KBD REV	15	7	RXD
		8	KBD GND

J1

PIN	SIGNAL
1	GND
2	VCC
3	MPR
4	RAST
5	CAST
6	MPW
7	MD7
8	DIR
9	MD6
10	EDM7
11	EDM4
12	EDM3
13	MD5
14	EDM2
15	EDM5
16	EDM6
17	INSERTED

J2

PIN	SIGNAL
1	GND
2	M304
3	MD4
4	MD0
5	MD3
6	MD2
7	MD1
8	MA2
9	MA4
10	MA1
11	MA6
12	MA7
13	MA5
14	MA3
15	MA0
16	VCC
17	GND



PECIFIED:  
 RE IN OHMS ( $\Omega$ ); AND 1/4 W. 5%  
 ARE IN MICROFARADS (MF).  
 R, .01 MF, 25V (TOTAL QTY = 98)

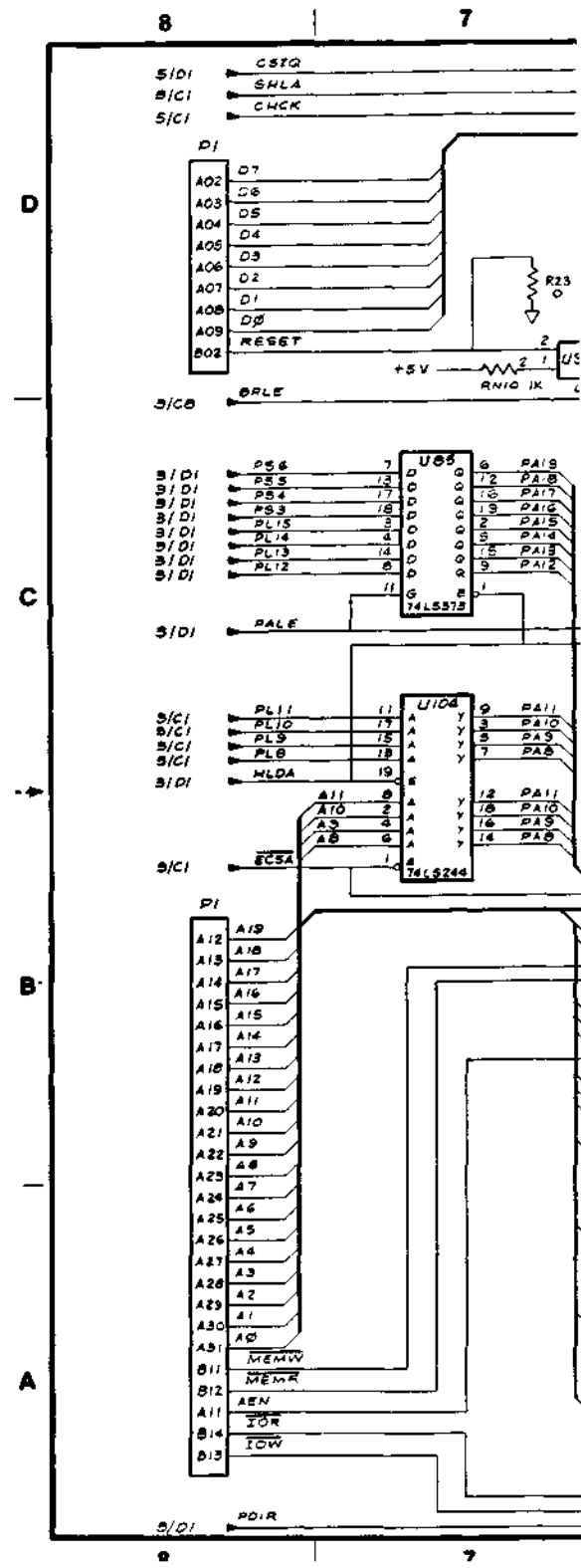
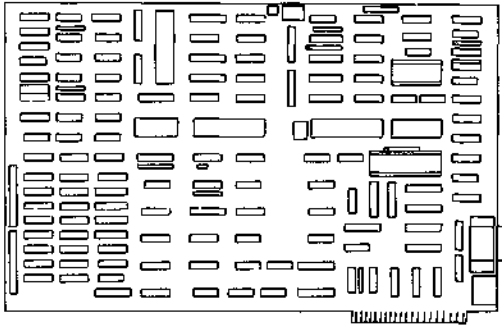
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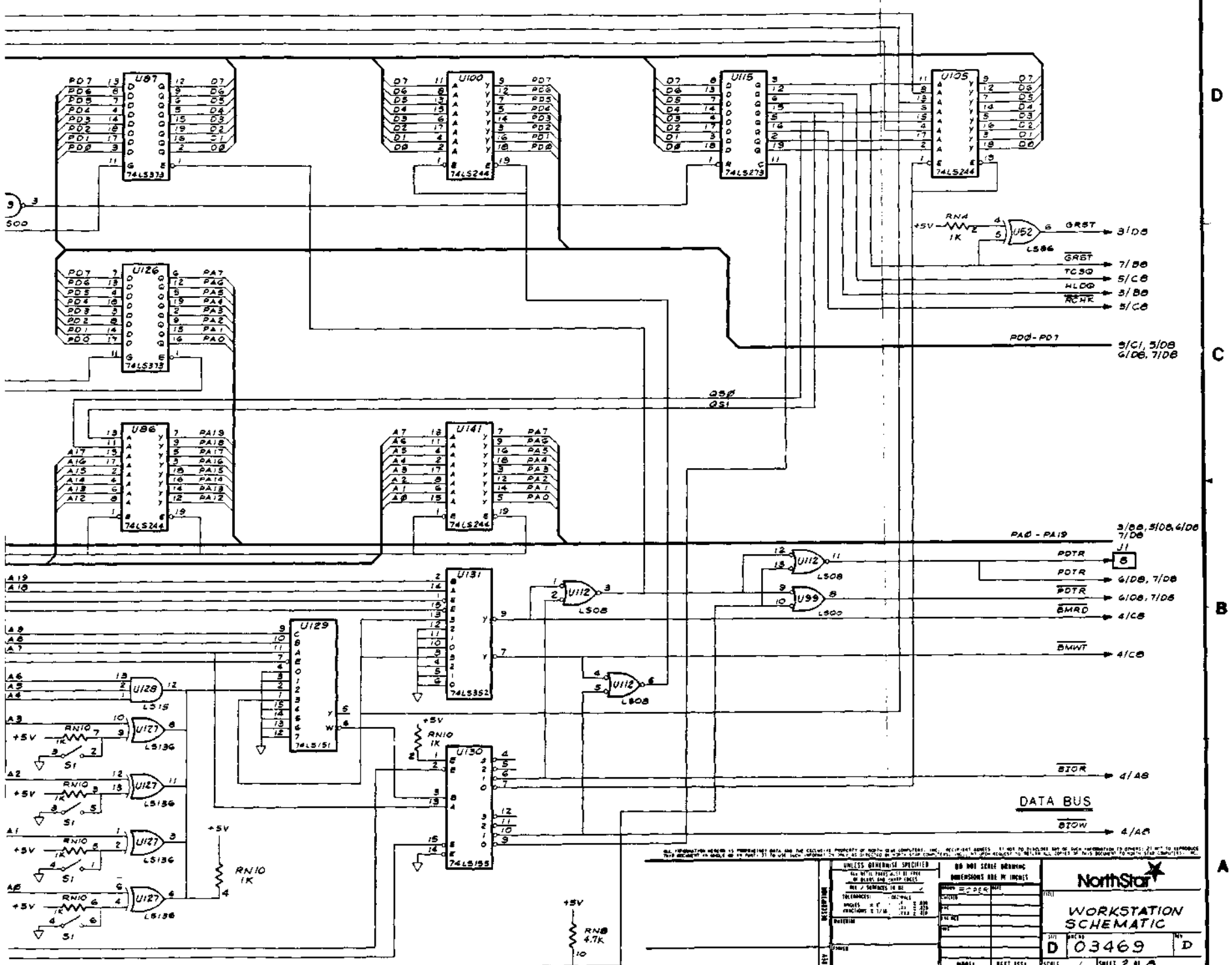
X/XX  
 D. DWG COORDINATE

NTS: FABRICATION - 03470  
 ASSEMBLY AND P/L - 03471

ECO = 3/26/84 ECO # 800 ALL CHANGES PER ECO T91 2/24/84 TAR INIT/RELEASE 11/17/84 TAR		UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES DIMENSIONS ARE IN MILLIMETERS DECIMALS = 0.001 FRACTIONS = 1/32		DO NOT SCALE DRAWING DIMENSIONS ARE IN INCHES DECIMALS = 0.001 FRACTIONS = 1/32	
PCB ASSEMBLY MODEL NEXT ASSY		NORTHSTAR WORKSTATION SCHEMATIC		SHEET NO. D 03469 OF 3	

**SCHEMATIC DIAGRAMS**  
Workstation (2 of 8)

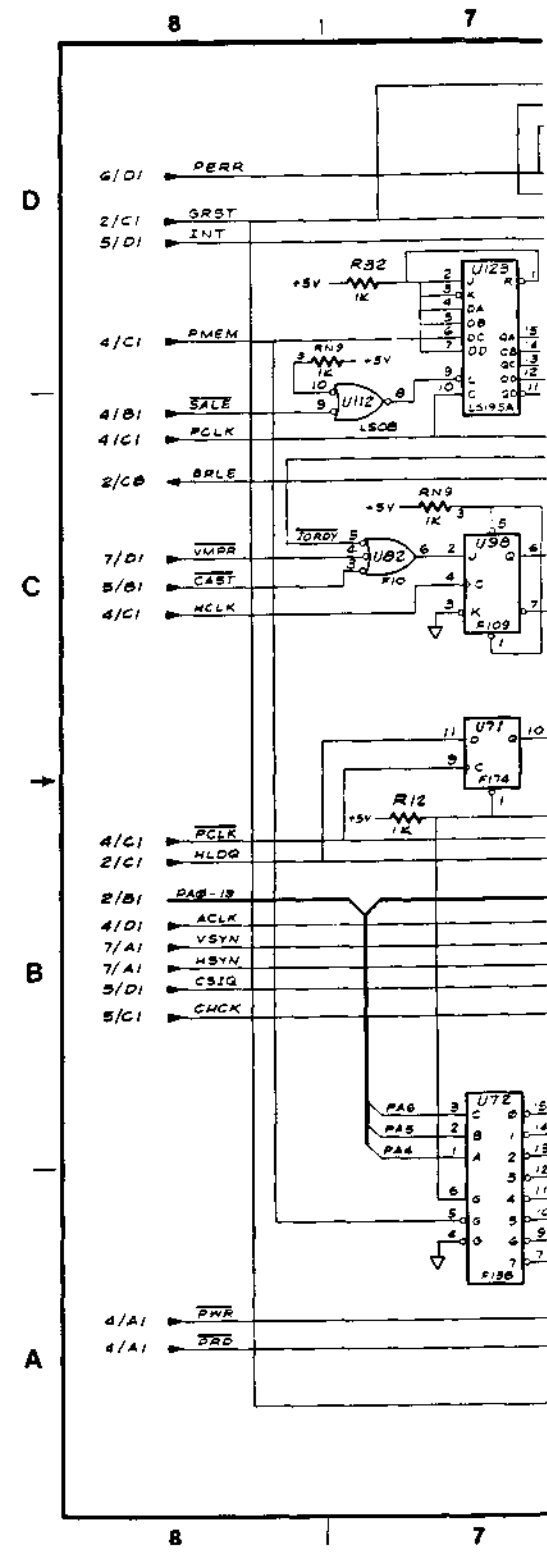
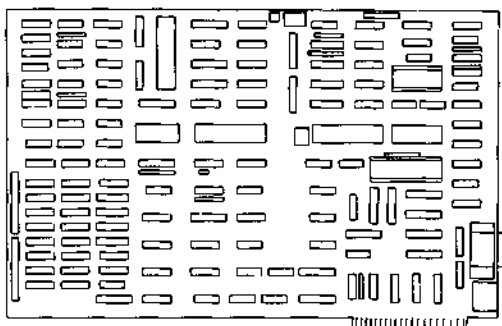




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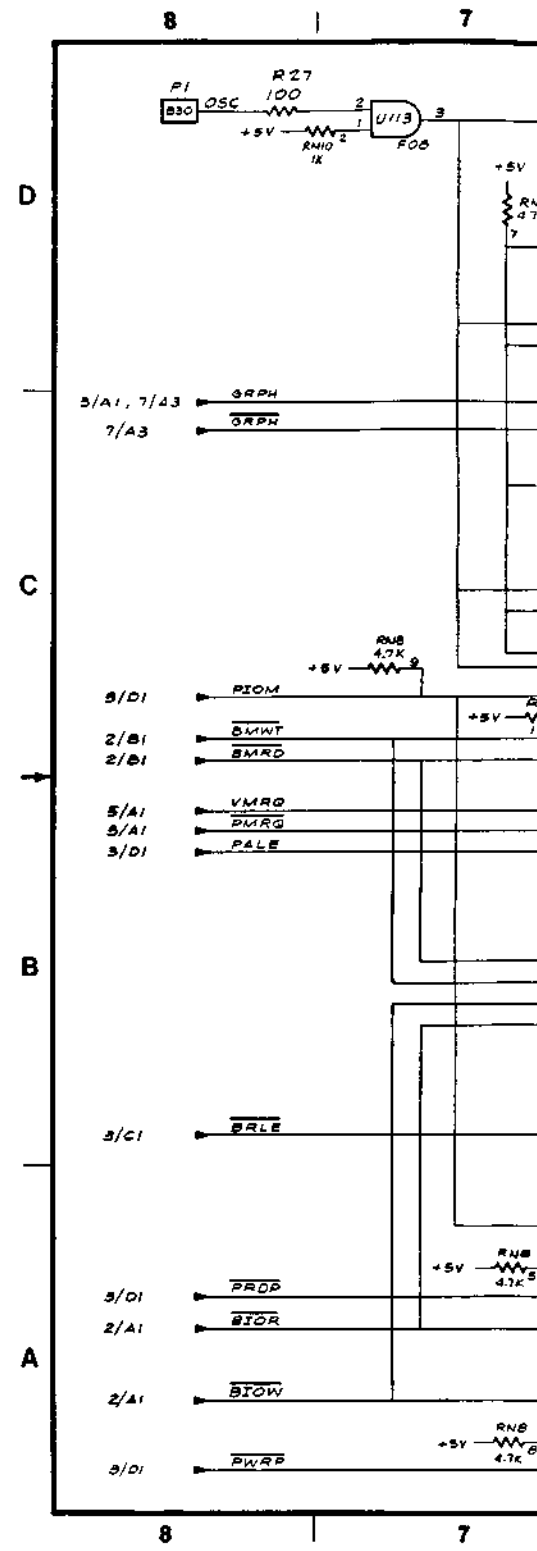
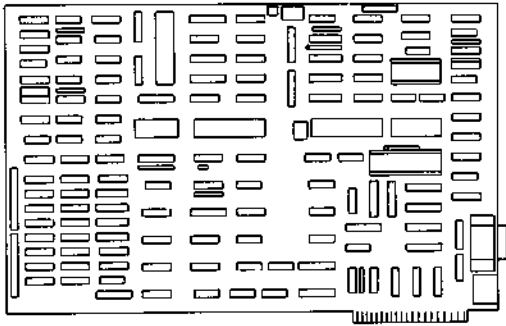
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DIMENSIONS ARE IN INCHES		DIMENSIONS ARE IN INCHES		TITLE	
TOLERANCES: FRACTIONS DECIMALS		SCALE		D 03469	
FRAMES		SHEET 2 OF 3		D	

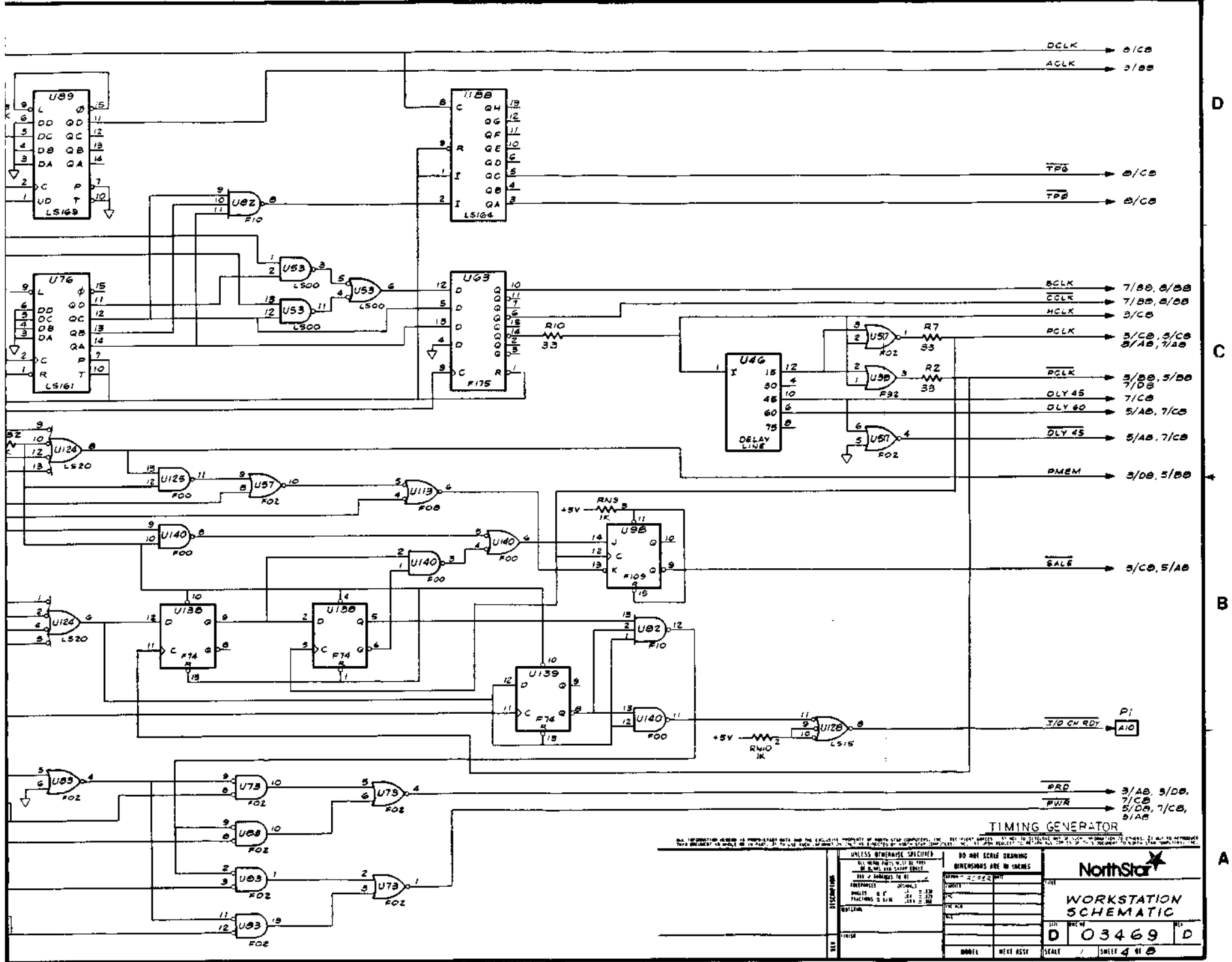
**SCHEMATIC DIAGRAMS**  
Workstation (3 of 8)





**SCHEMATIC DIAGRAMS**  
Workstation (4 of 8)





TIMING GENERATOR

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DESCRIPTION	UNLESS OTHERWISE SPECIFIED		DO NOT SCALE DRAWING	
	UNIT	VALUE	UNIT	VALUE
ALL DIMENSIONS	INCHES	AS SHOWN	INCHES	AS SHOWN
ANGLE	DEGREES	AS SHOWN	DEGREES	AS SHOWN
TOLERANCE	AS SHOWN	AS SHOWN	AS SHOWN	AS SHOWN
FINISH	AS SHOWN	AS SHOWN	AS SHOWN	AS SHOWN
SCALE	AS SHOWN		AS SHOWN	

NO.	DATE	BY	CHKD	APP'D	FILE

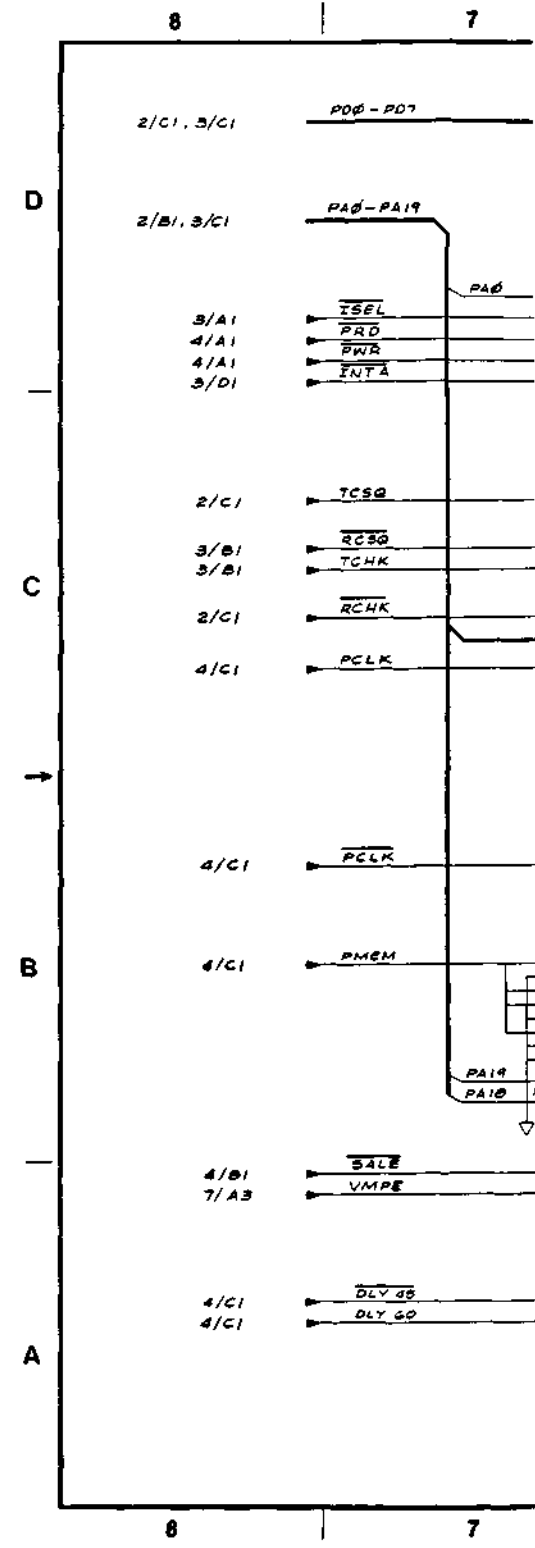
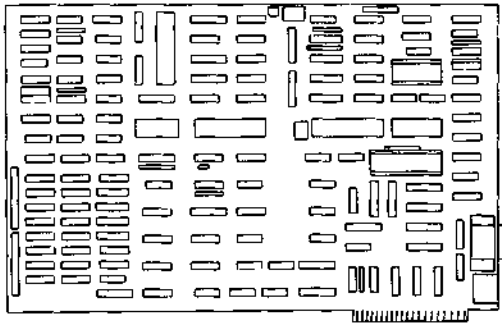
NorthStar

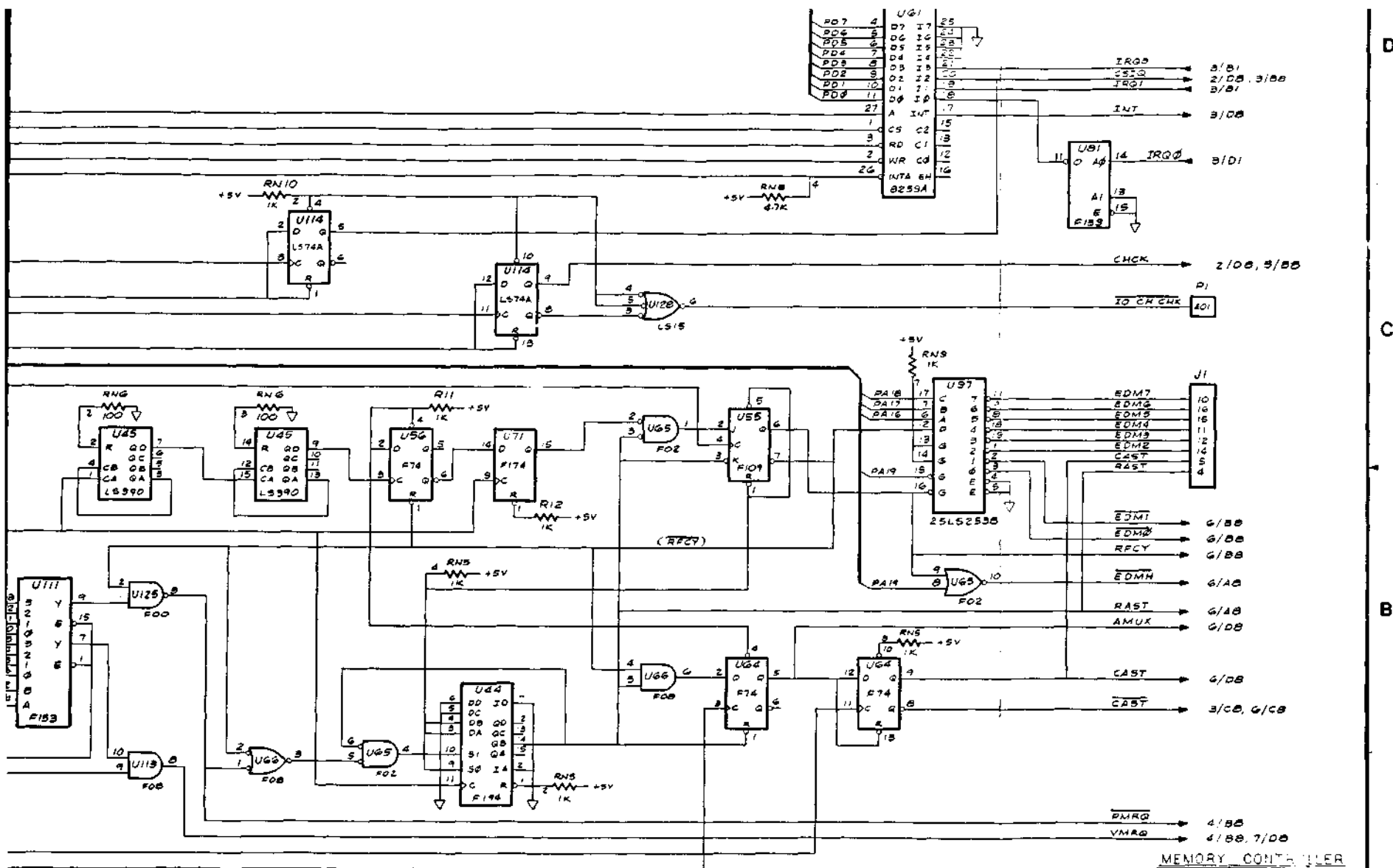
**WORKSTATION  
SCHEMATIC**

DWG NO.	D 03469	REV.	D
MODEL		SCALE	
DATE		SHEET	4 of 8



**SCHEMATIC DIAGRAMS**  
Workstation (5 of 8)



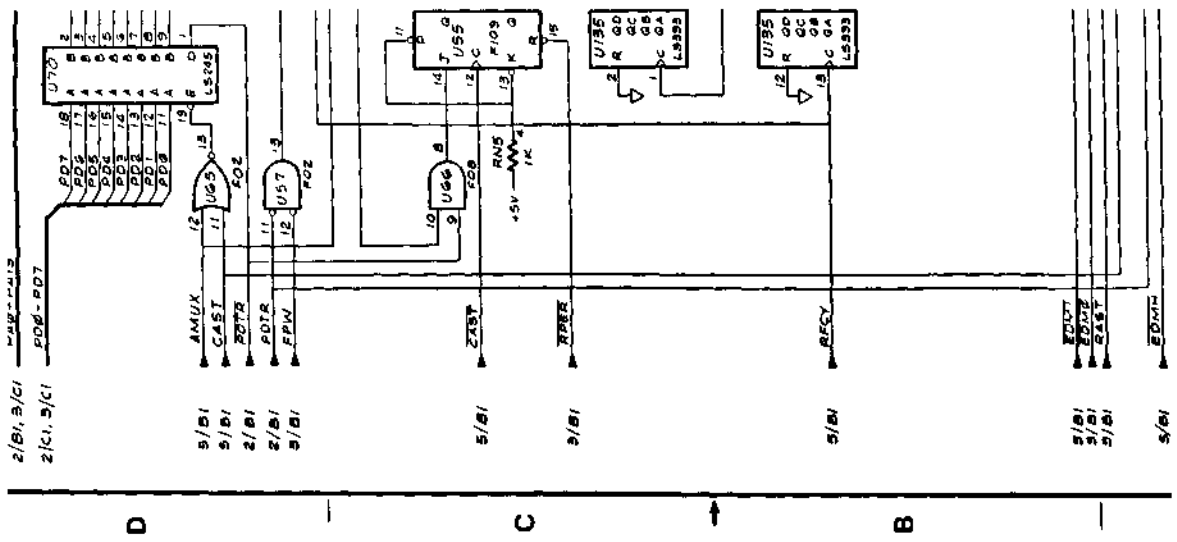


PD7	4	UG1	25
PD6	5	D7	17
PD5	6	DC	16
PD4	7	DS	19
PD3	8	DS	19
PD2	9	DS	19
PD1	10	D1	7
PD0	11	D0	10
	27	A	INT
	3	CS	C2
	3	RD	C1
	2	WR	C0
	26	INTA	6H
			0255A

MEMORY CONTROLLER

<small>ALL INFORMATION HEREON IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE AND IS THE PROPERTY OF THE U.S. GOVERNMENT. IT IS TO BE RELEASED TO THE PUBLIC ON REQUEST.</small>		<small>DO NOT SCALE DRAWING DIMENSIONS ARE IN INCHES</small>	
DRAWING NUMBER: 03469 REV: 1 DATE: 11/88 MATERIAL:	CHECKED BY: [ ] DESIGNED BY: [ ] APPROVED BY: [ ]		NORTHSTAR <b>WORKSHEMATIC</b> D 03469 D SCALE: 5:1
	MODEL: N187 857 SCALE: 5:1		

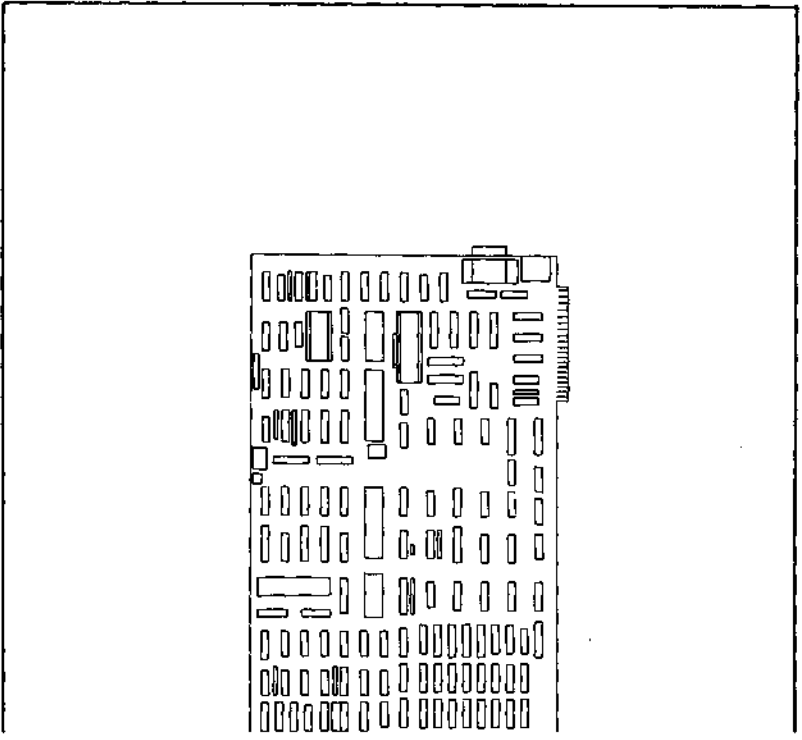
**SCHEMATIC DIAGRAMS**  
Workstation (6 of 8)

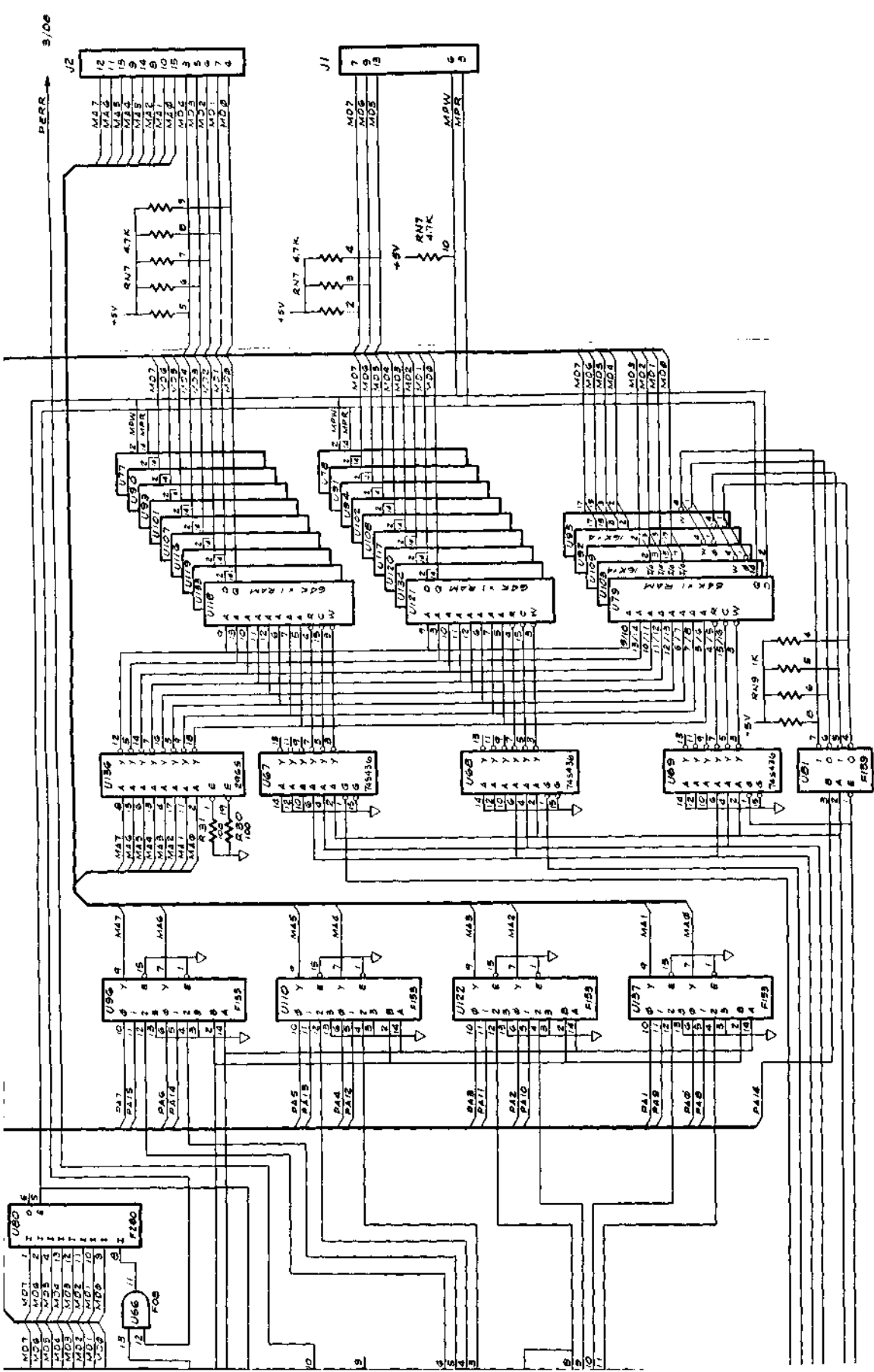


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PERR 3/06

**MAIN MEMORY**

UNLESS OTHERWISE SPECIFIED  
 ALL DIMENSIONS ARE IN INCHES  
 DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS

**NorthStar**

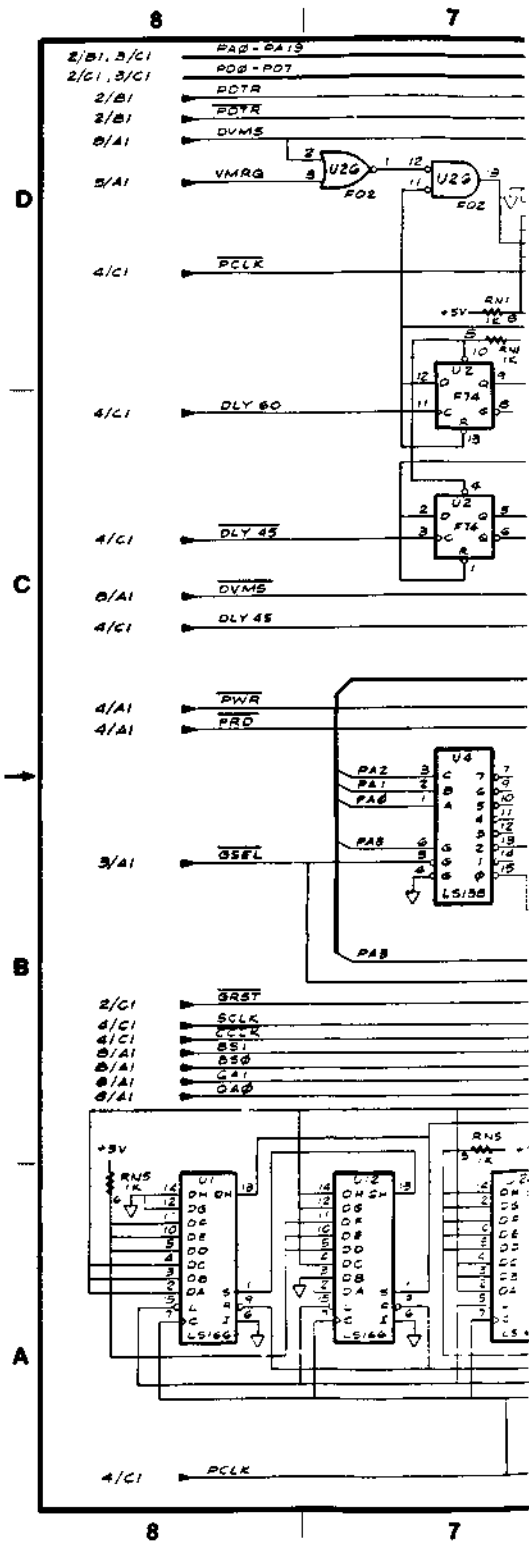
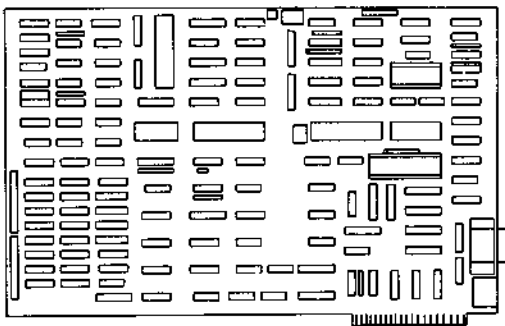
WORKSTATIC  
 SCHEMATIC

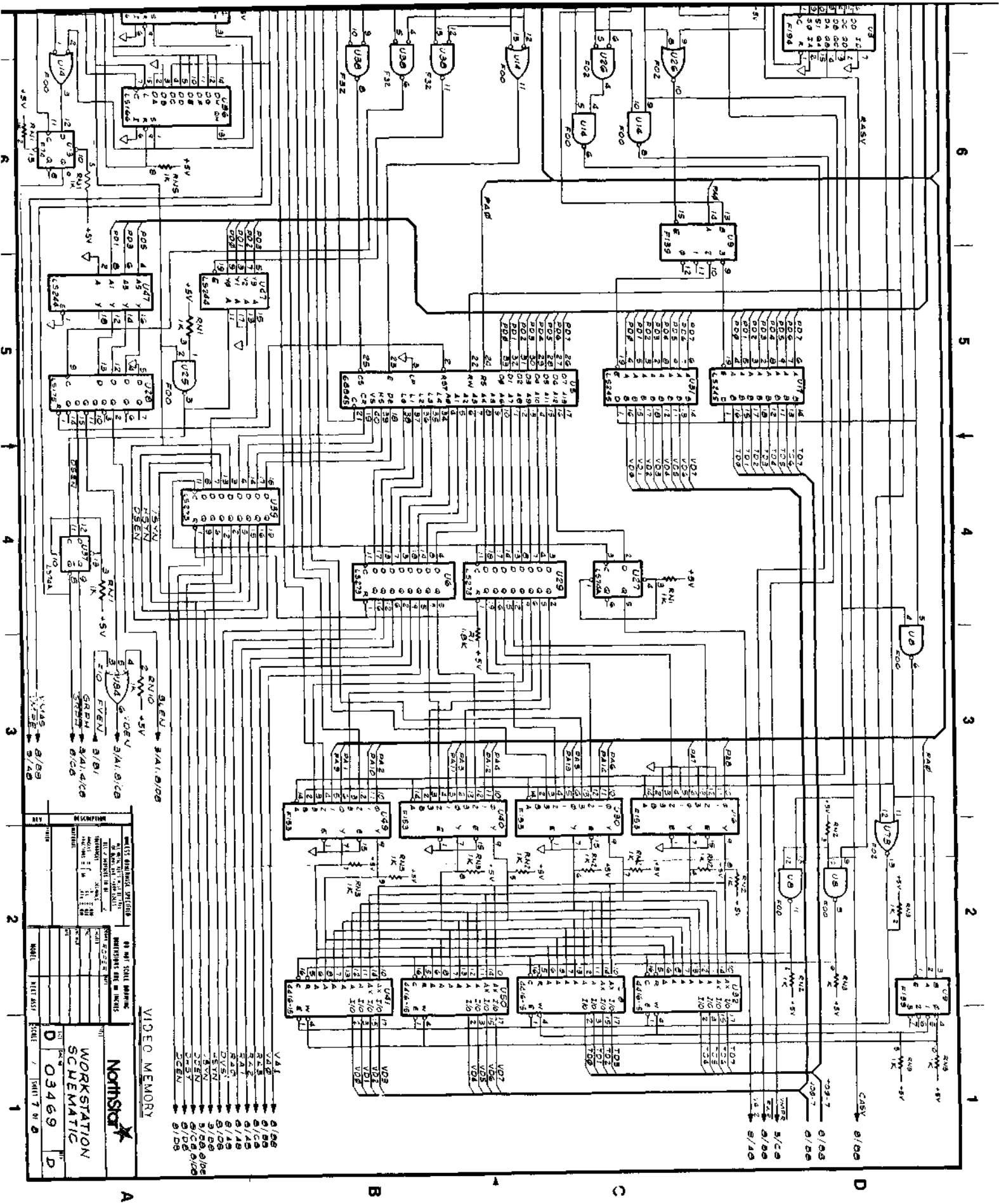
D 03469

REV. 001-159

418

**SCHEMATIC DIAGRAMS**  
Workstation (7 of 8)





VIDEO MEMORY

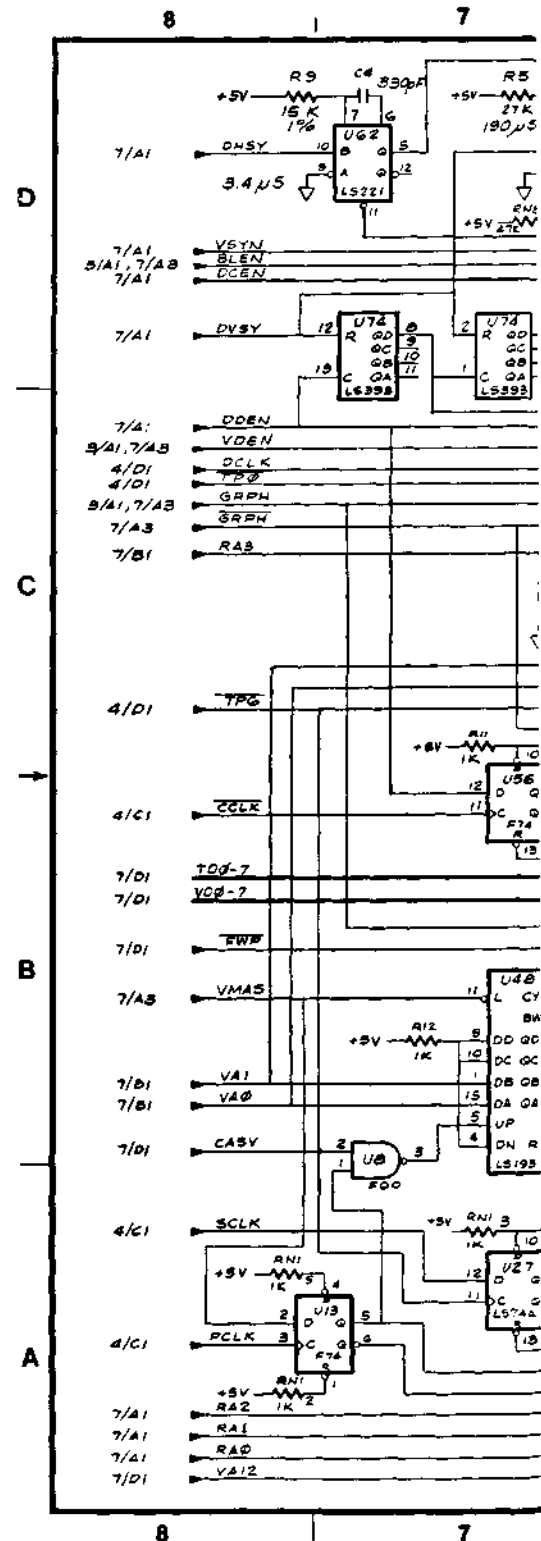
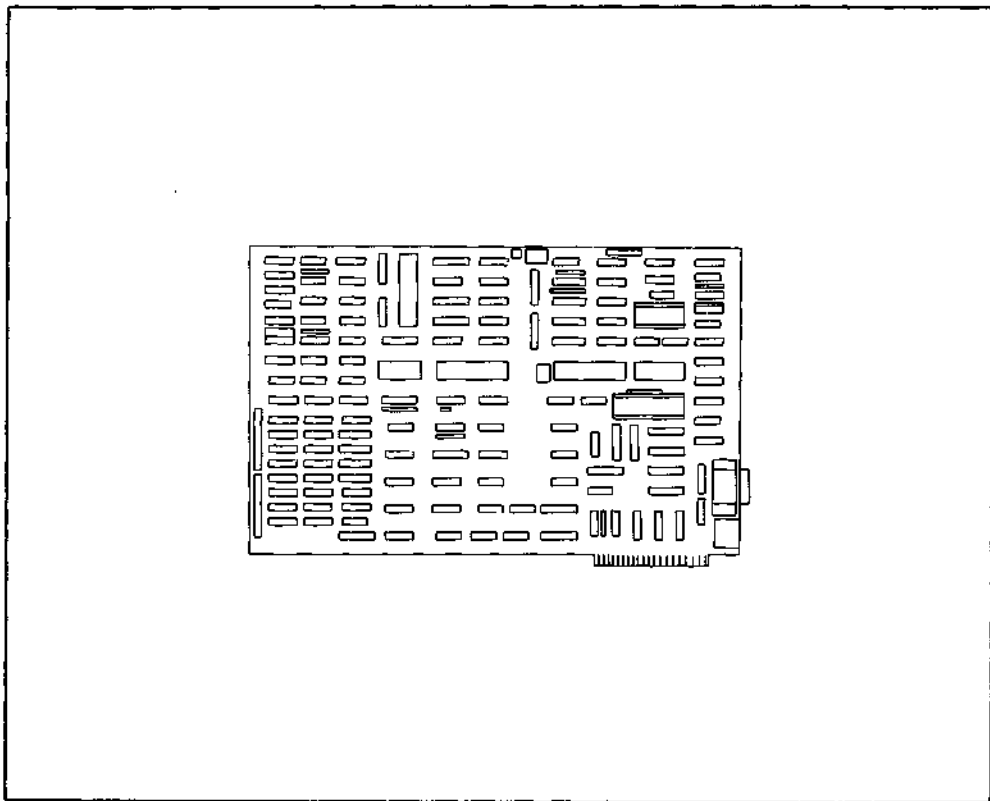
**Northstar**

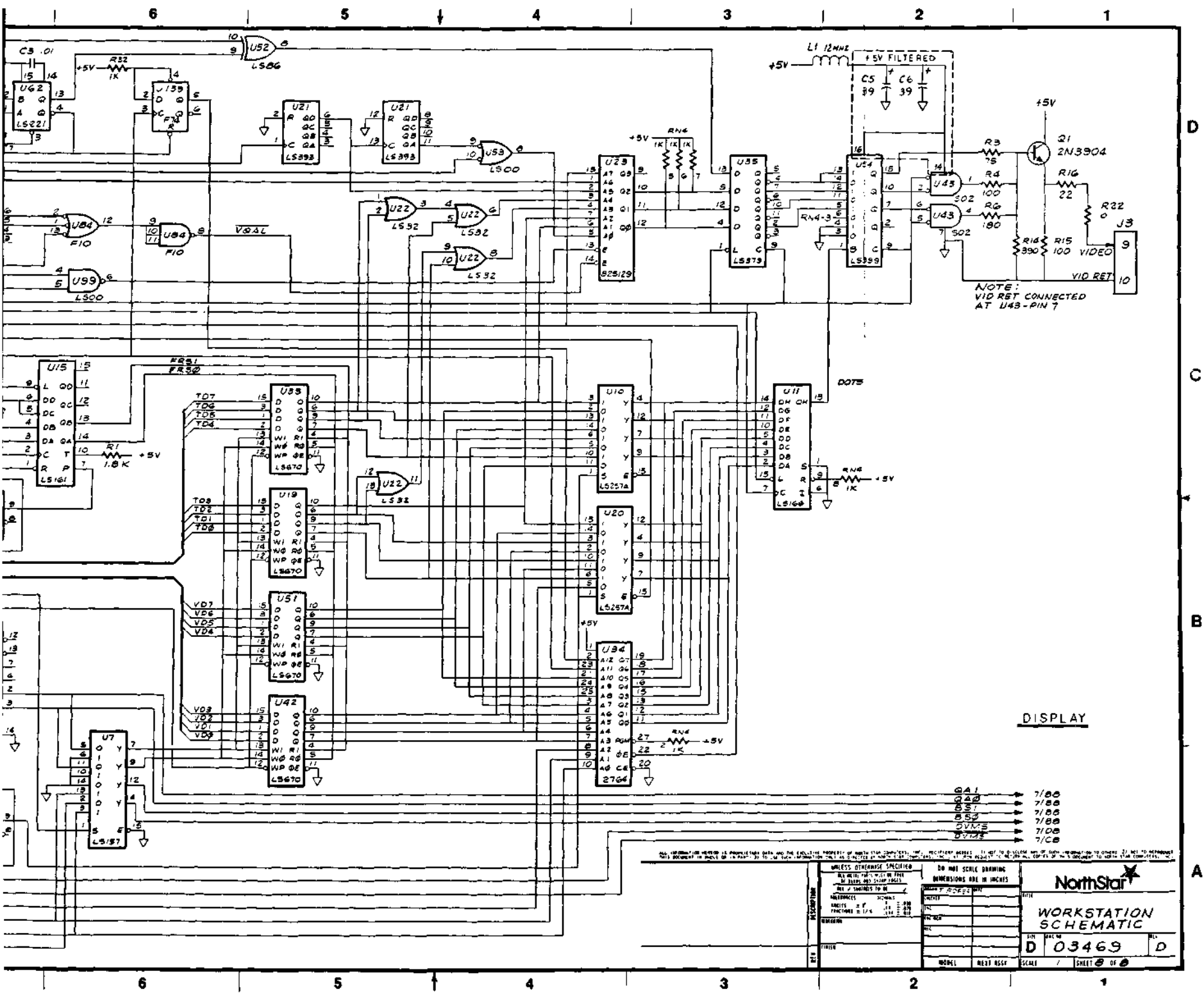
WORKSTATION  
SCHEMATIC

D 03469 D

DESIGNER		DATE	
CHECKED BY		DATE	
APPROVED BY		DATE	
DRAWN BY		DATE	
PROJECT NO.		REV.	
SHEET NO.		TOTAL SHEETS	
TITLE		SCALE	
MATERIALS		NOTES	
REVISIONS		APPROVED BY	
NO.		DATE	

**SCHEMATIC DIAGRAMS**  
Workstation (8 of 8)





NOTE:  
VID RST CONNECTED  
AT U43-PIN 7

DISPLAY

- DA1 → 7/00
- DA2 → 7/00
- DA3 → 7/00
- DA4 → 7/00
- DA5 → 7/00
- DA6 → 7/00

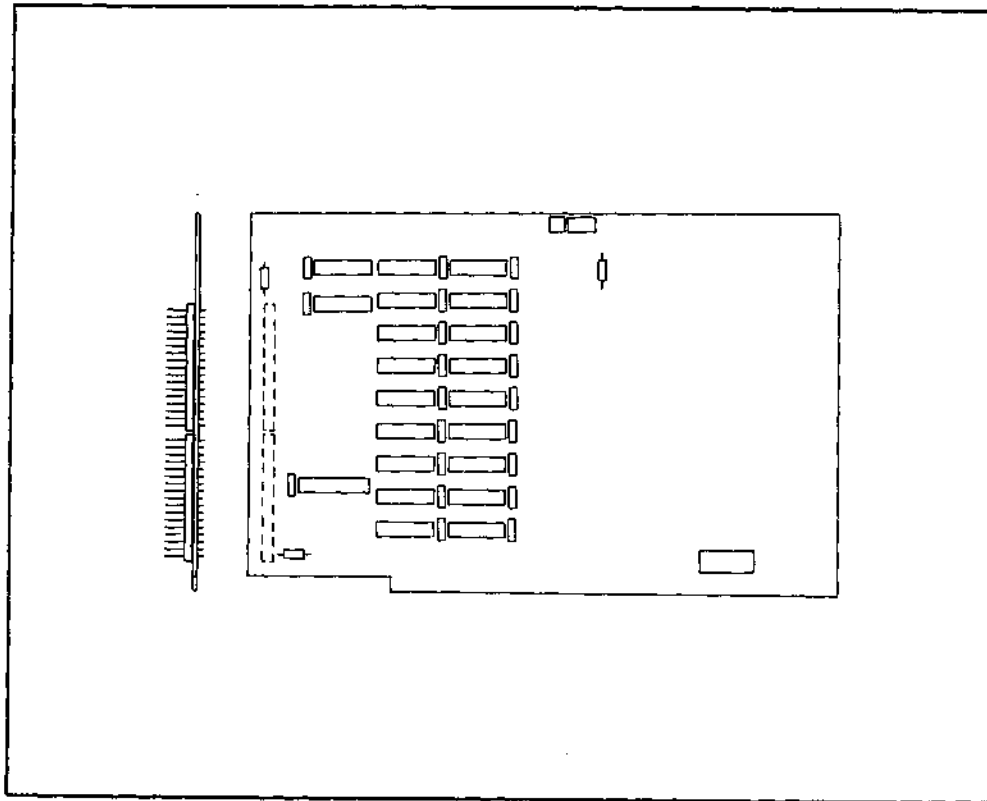
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REVISIONS	NO.	DATE	BY	REASON

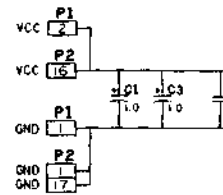

NorthStar  
**WORKSTATION SCHEMATIC**  
DIN: 03469  
SCALE: 1/8" = 1"



**SCHMATIC DIAGRAMS**  
Workstation 128K Memory PCB (1 of 3)

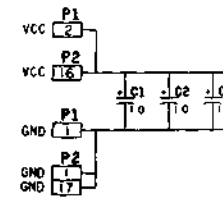


D



- 01 VERSION (128K)

C



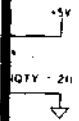
02 VERS (38)

B

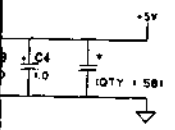
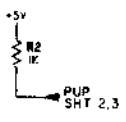
A

**NOTES:**

1. REFERENCE DOCUMENTS: FABRICATION - 03557  
128K ASSEMBLY AND P/L - 03558-01  
384K ASSEMBLY AND P/L - 03558-02
2. UNLESS OTHERWISE SPECIFIED:  
RESISTANCE VALUES ARE IN OHMS AND 1/4 W, 5 %  
CAPACITANCE VALUES ARE IN MICROFARADS (UF):  
\* BYPASS CAPACITOR 0.1UF, 25V  
- 01 VERSION (TOTAL QTY = 21)  
- 02 VERSION (TOTAL QTY = 59)
3. SECTIONS ENCLOSED BY DASHED LINES DO NOT APPLY TO
4. UNLESS OTHERWISE NOTED, ENTIRE SCHEMATIC APPLIES TO



ONLY



ION ONLY  
9K )

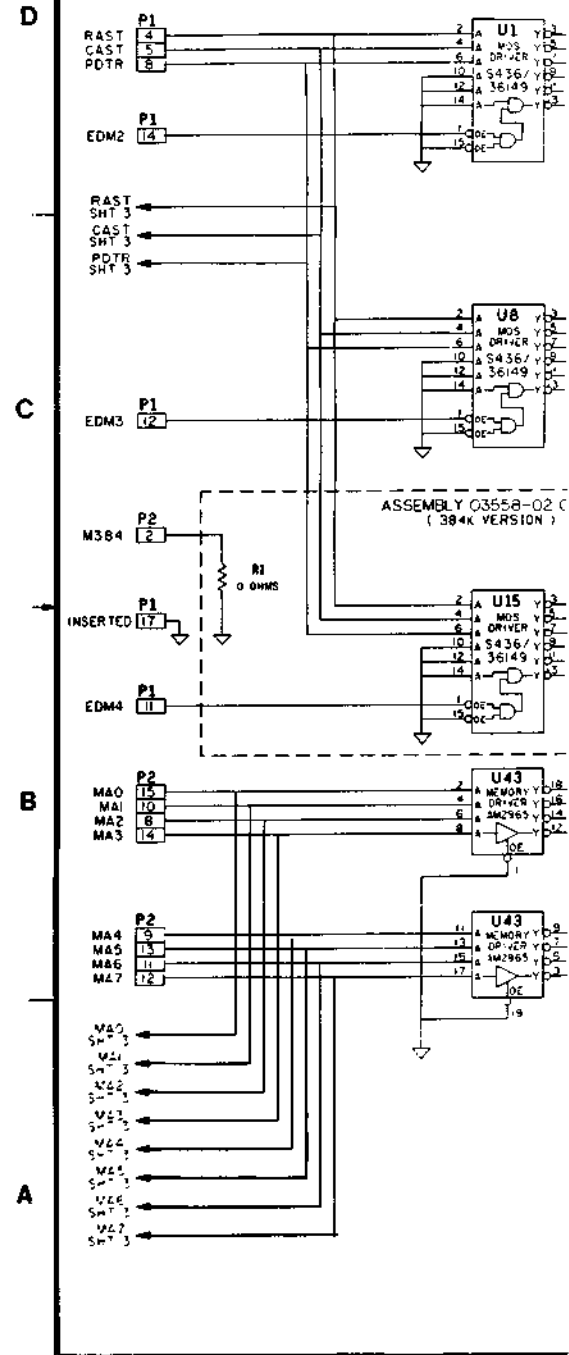
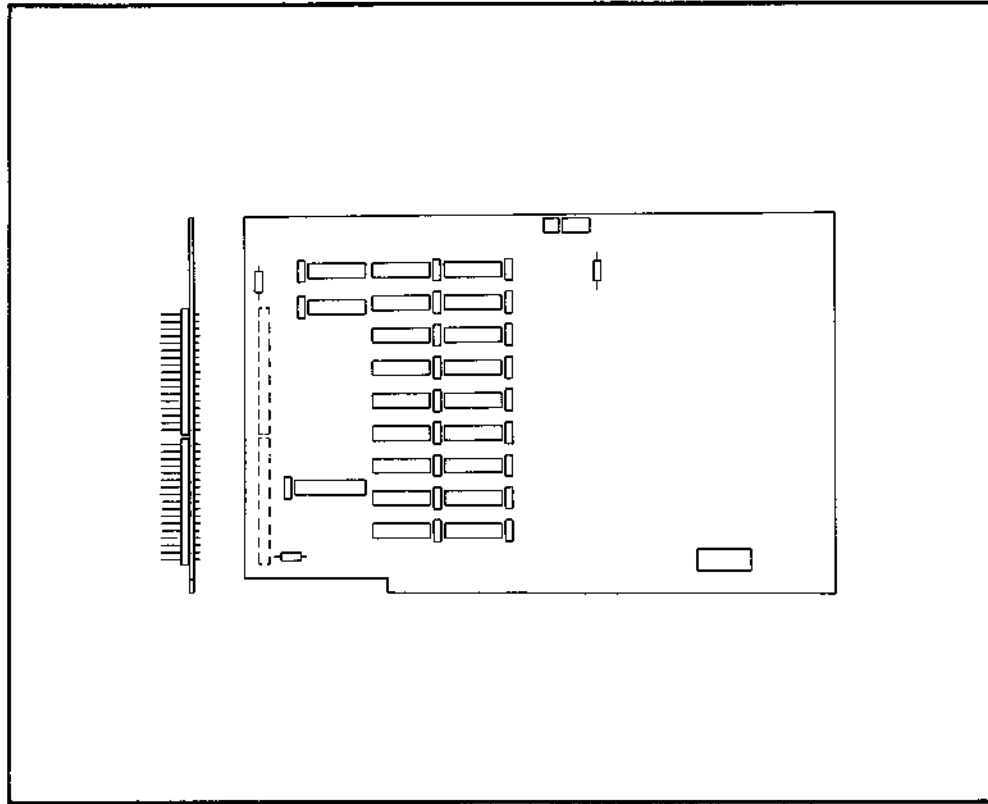
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C4	R2
U62	P2

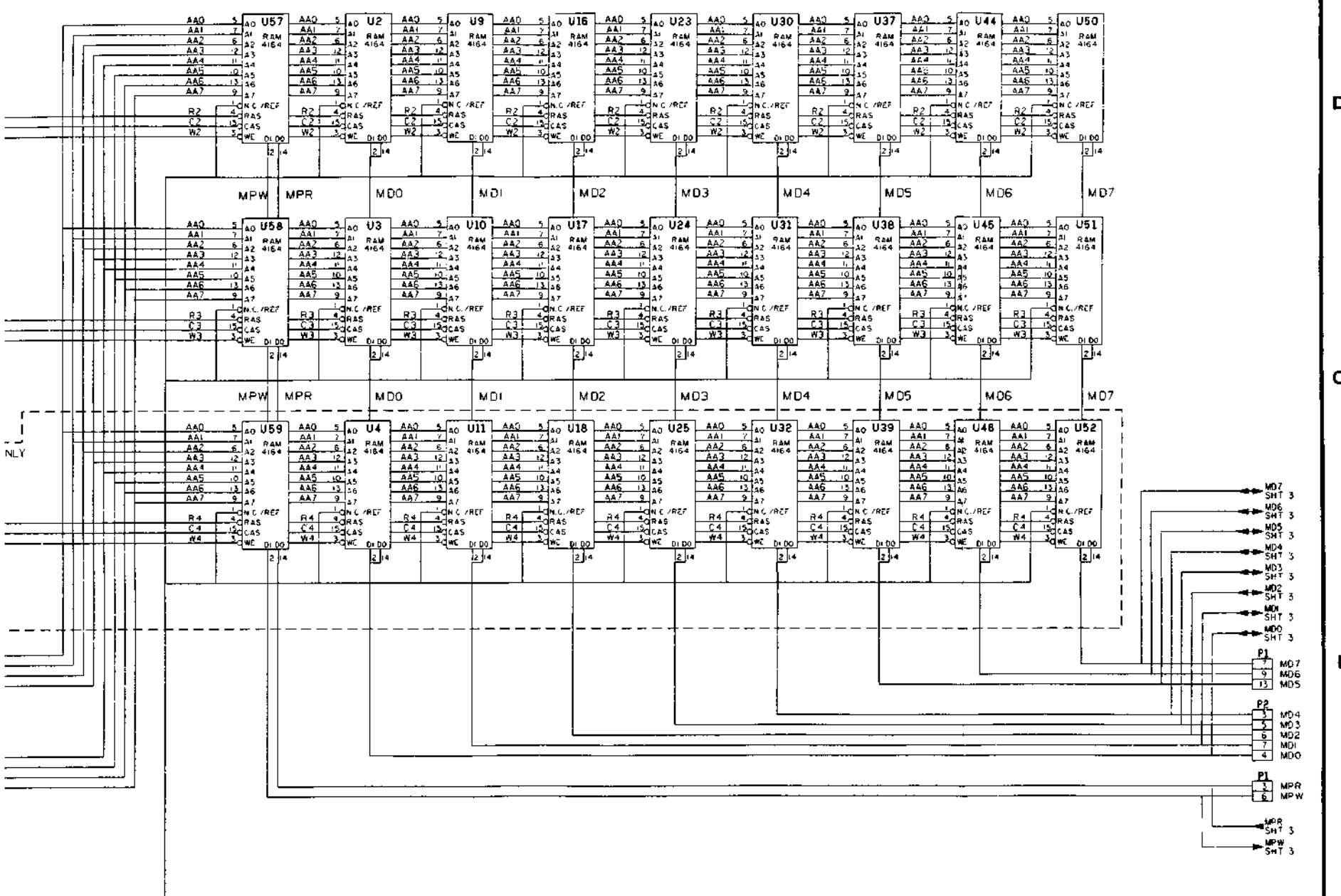
ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN INCHES  
DIMENSIONS ARE IN INCHES  
UNLESS OTHERWISE SPECIFIED

01 VERSION  
02 VERSION

A REV DESCRIPTION DATE	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES	NORTHSTAR W/S MEM PCB SCHEMATIC
	DIMENSIONS ARE IN INCHES UNLESS OTHERWISE SPECIFIED	D 03556 A SCALE 1 SHEET 1 OF 5

**SCHEMATIC DIAGRAMS**  
**Workstation 128K Memory PCB (2 of 3)**





PUP SHT 1

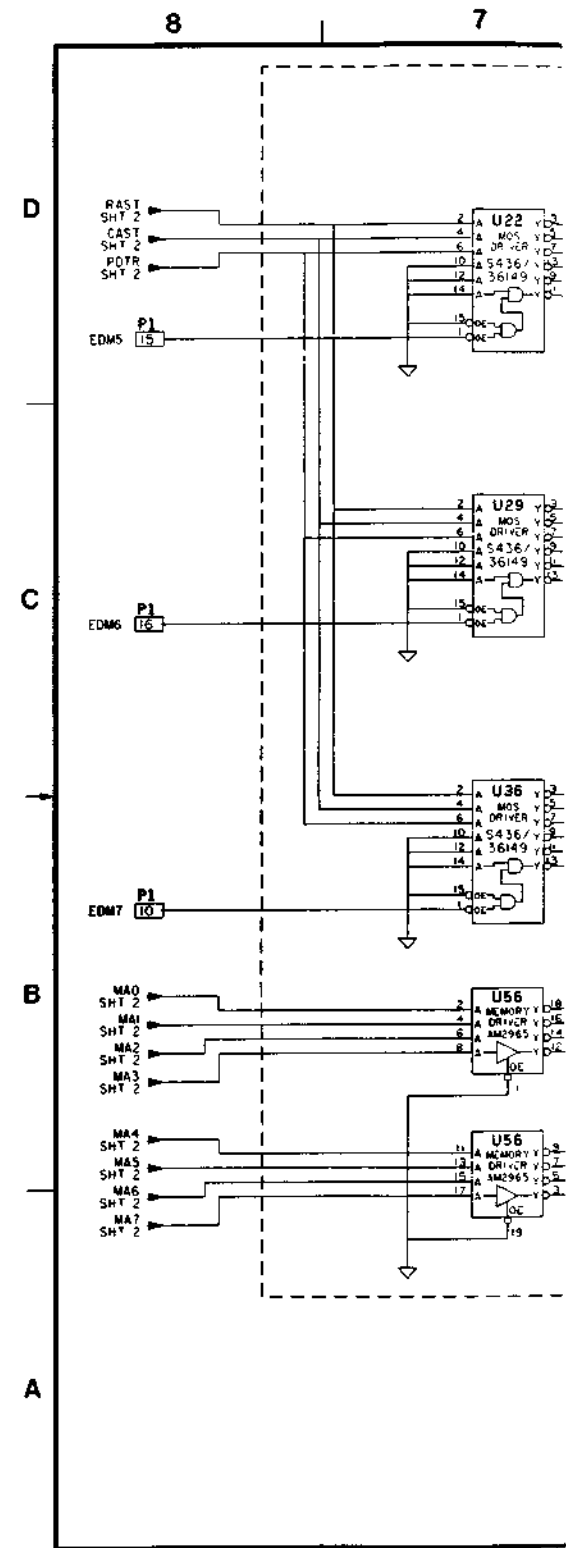
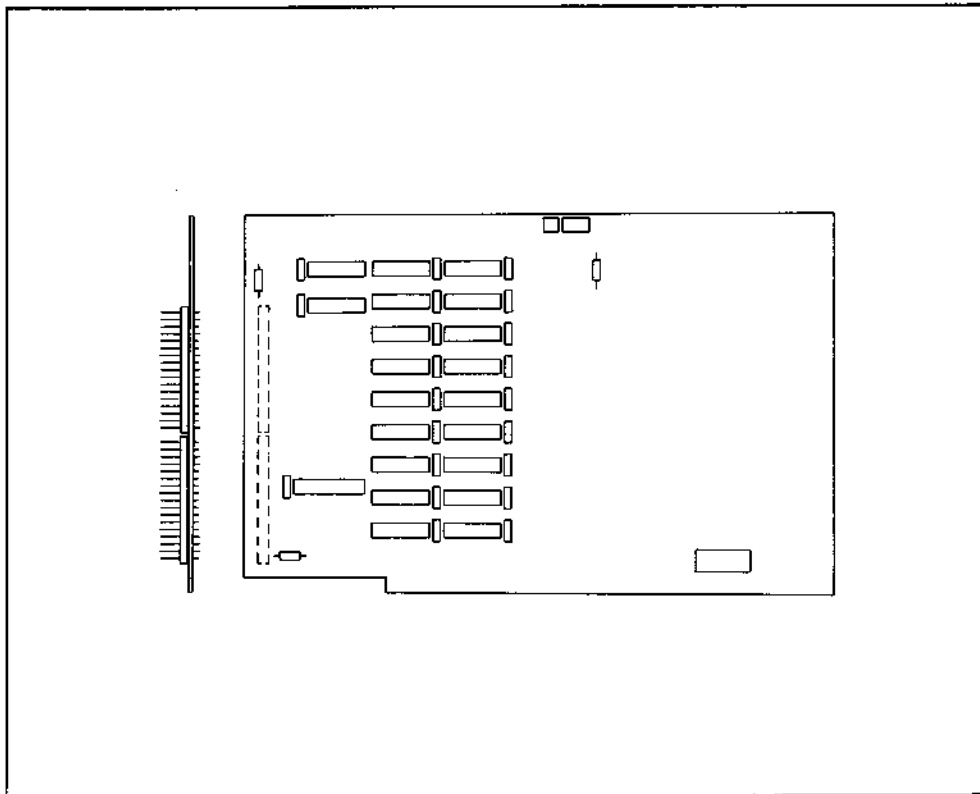
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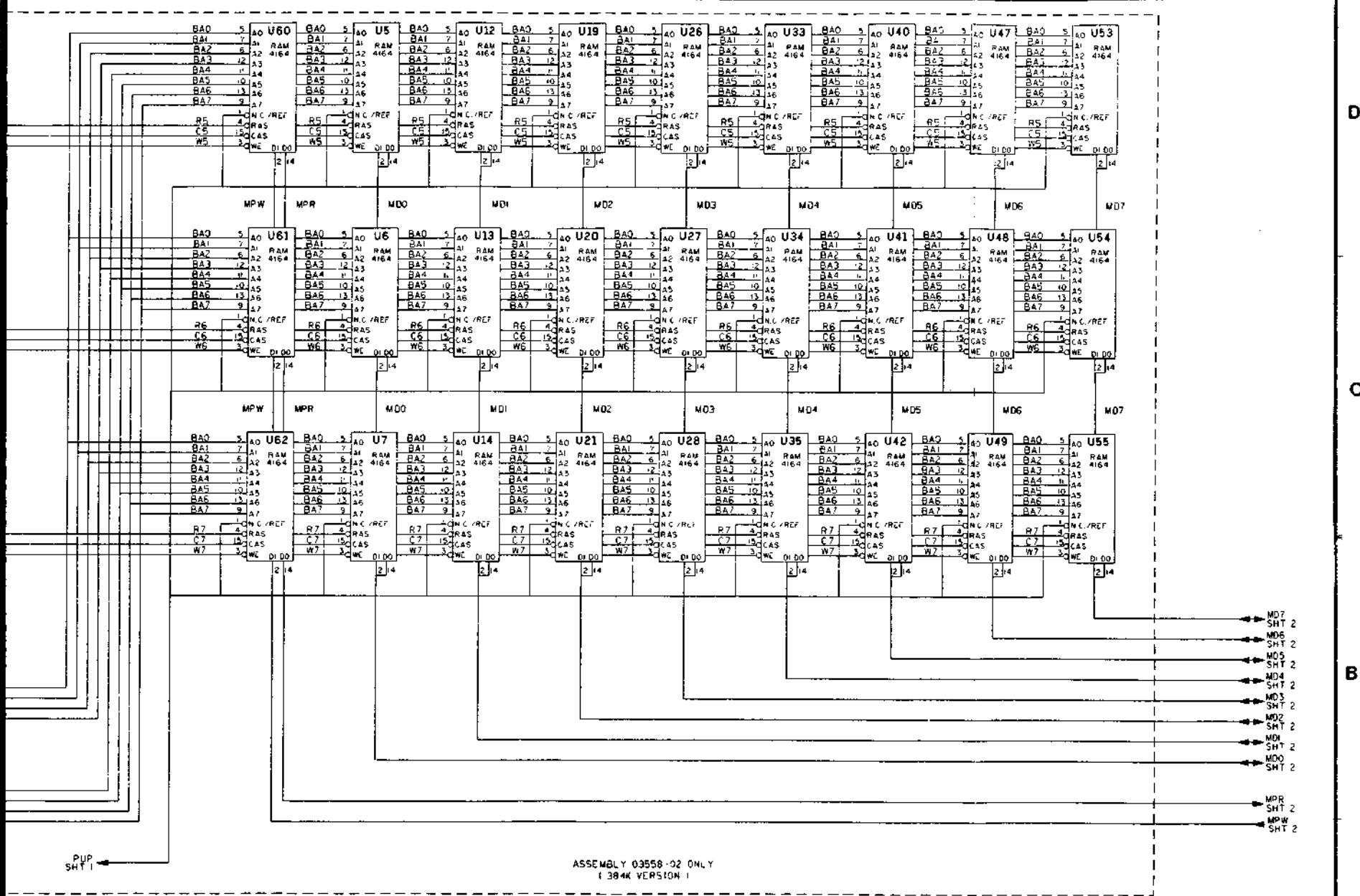
UNLESS OTHERWISE SPECIFIED:		DIMENSIONS ARE IN MILLIMETERS	
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DIMENSIONS TO DIMENSION LINES UNLESS OTHERWISE SPECIFIED.		DIMENSIONS TO DIMENSION LINES UNLESS OTHERWISE SPECIFIED.	
DIMENSIONS TO DIMENSION LINES UNLESS OTHERWISE SPECIFIED.		DIMENSIONS TO DIMENSION LINES UNLESS OTHERWISE SPECIFIED.	

**NORTHSTAR**  
W/S MEM  
PCB SCHEMATIC

D 03556 A

**SCHEMATIC DIAGRAMS**  
Workstation 128K Memory PCB (3 of 3)



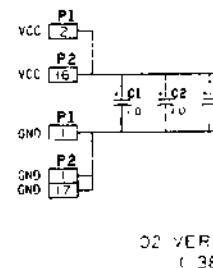
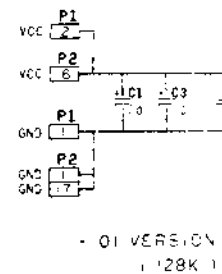
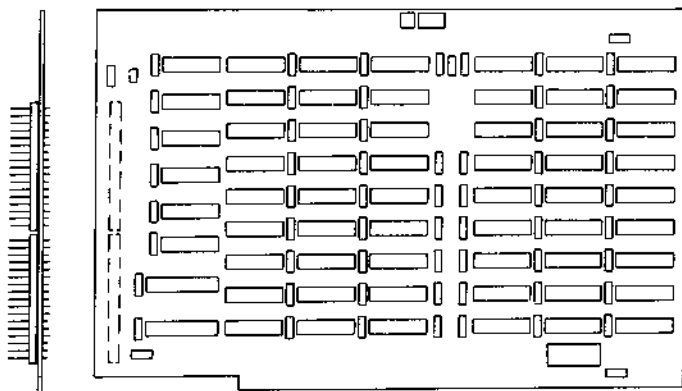


ASSEMBLY 03558-02 ONLY  
(384K VERSION)

ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN MILLIMETERS. DIMENSIONS IN PARENTHESES ARE IN INCHES. DIMENSIONS ARE TO UNLESS NOTED OTHERWISE. THIS DRAWING IS UNLESS OTHERWISE SPECIFIED TO BE MADE TO ORDER. THIS DRAWING IS NOT TO BE USED FOR REPRODUCTION OR REUSE WITHOUT THE WRITTEN PERMISSION OF THE ORIGINAL DESIGNER.

DESCRIPTION	UNLESS OTHERWISE SPECIFIED		DIMENSIONS ARE IN MILLIMETERS	
	ALL DIMENSIONS ARE TO UNLESS NOTED OTHERWISE	ALL DIMENSIONS ARE TO UNLESS NOTED OTHERWISE	ALL DIMENSIONS ARE TO UNLESS NOTED OTHERWISE	ALL DIMENSIONS ARE TO UNLESS NOTED OTHERWISE
MATERIAL	TEMP	PA	REV	DATE
REV	DATE	REV	DATE	REV
NORTHSTAR		W/S MEM		
PCB SCHEMATIC		03556		
MODEL		REV A		

**SCHEMATIC DIAGRAMS**  
Workstation 384K Memory PCB (1 of 3)



**NOTES**

1. REFERENCE DOCUMENTS: FABRICATION - 01557  
128K ASSEMBLY - 01558  
384K ASSEMBLY - 01559
2. UNLESS OTHERWISE SPECIFIED, RESISTANCE VALUES ARE IN OHMS, CAPACITANCE VALUES ARE IN PICO FARADS.
3. SOLDERING: VCC AND GND PINS TO BE SOLDERED TO BOARD.
4. DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

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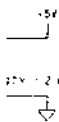
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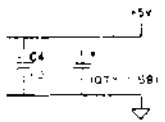
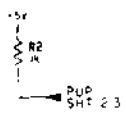
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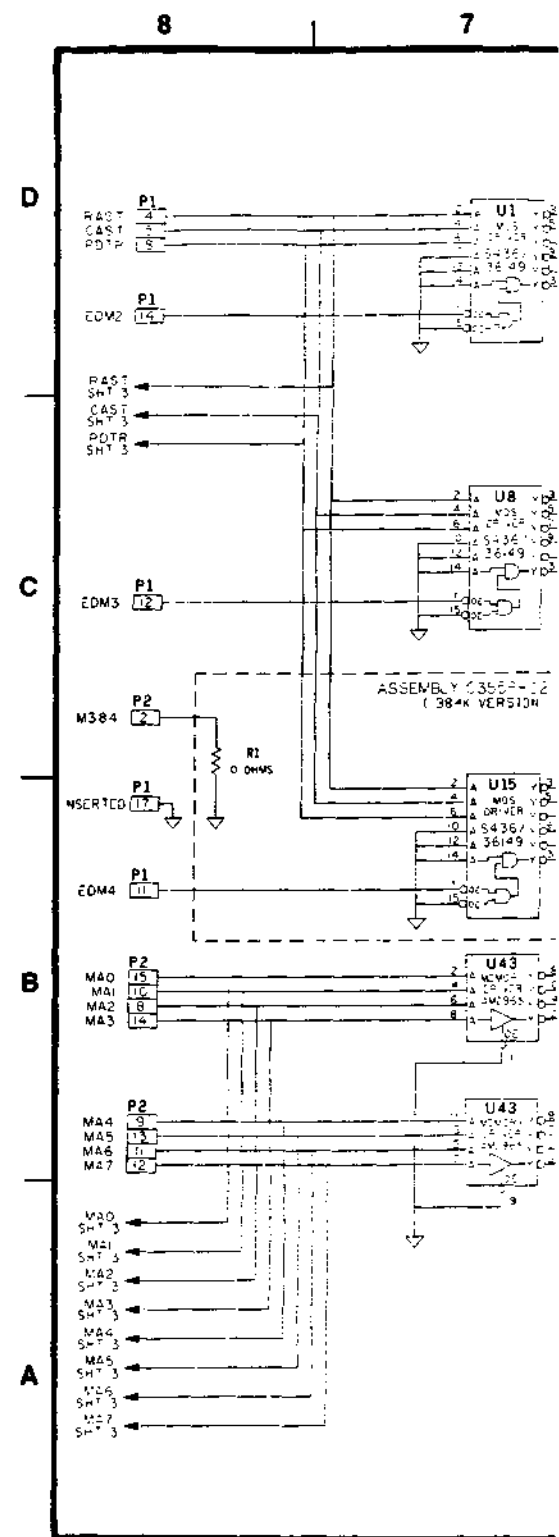
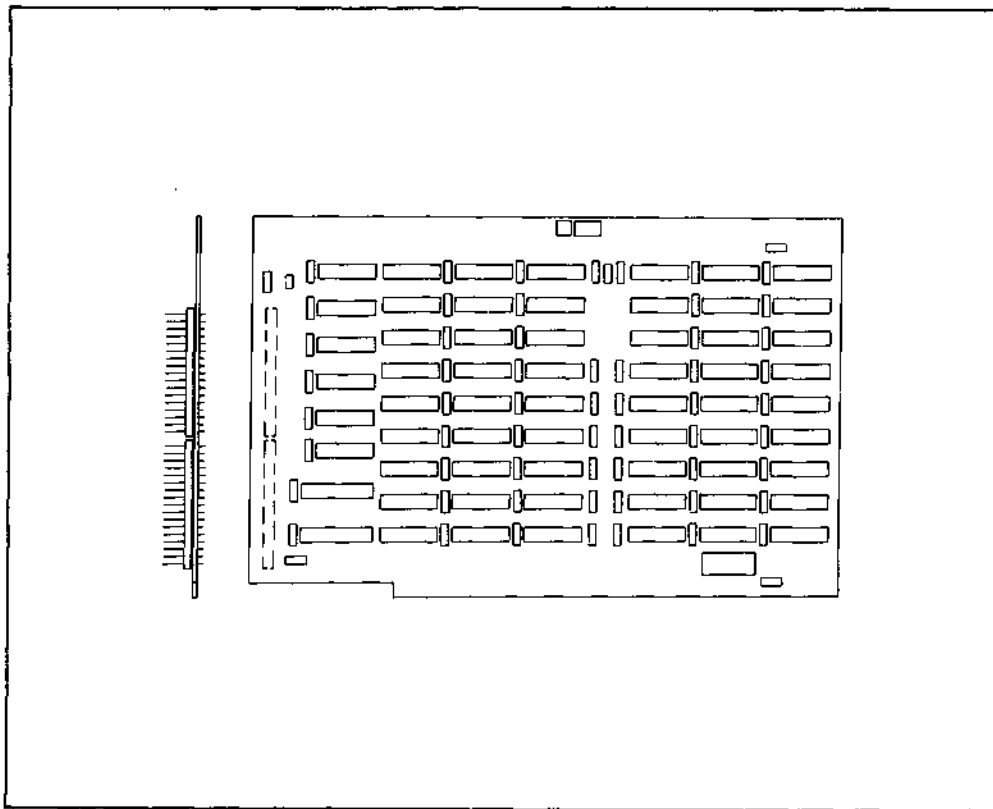
LAST REFERENCE DESIGNATOR USED	REFERENCE DESIGNATORS NOT USED
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U 6	

ALL DIMENSIONS UNLESS OTHERWISE SPECIFIED ARE IN MILLIMETERS. DIMENSIONS OF HOLES AND DRILLS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED. DIMENSIONS OF HOLES AND DRILLS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED. DIMENSIONS OF HOLES AND DRILLS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.

NORTHSTAR  
 W/S MEM  
 PCB SCHEMATIC  
 D 03556 A  
 3



**SCHEMATIC DIAGRAMS**  
Workstation 384K Memory PCB (2 of 3)



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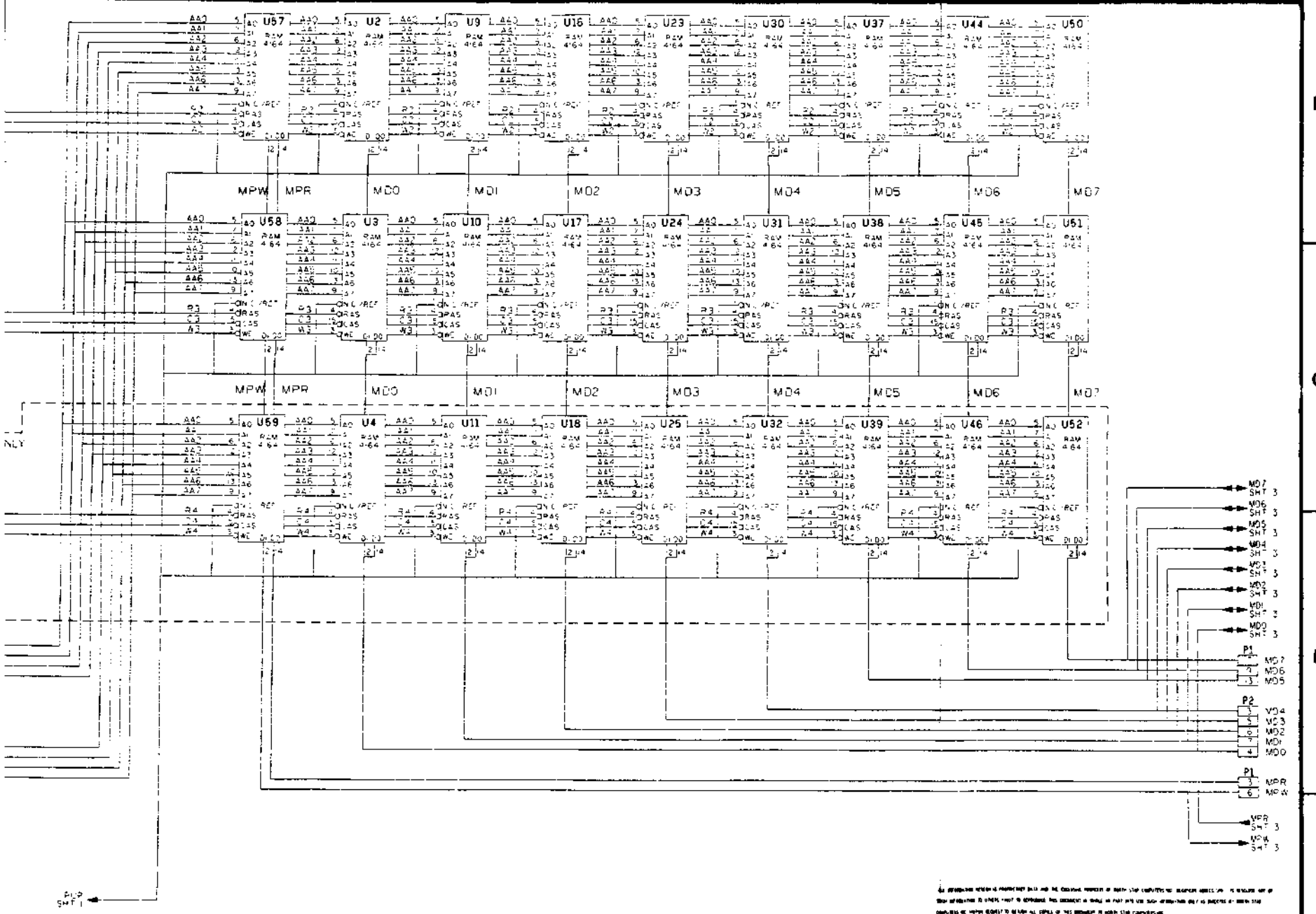
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ALL DIMENSIONS GIVEN IN PARALLELS UNLESS OTHERWISE SPECIFIED. DIMENSIONS IN PARENTHESES ARE FOR REFERENCE ONLY. DIMENSIONS IN PARENTHESES ARE FOR REFERENCE ONLY. DIMENSIONS IN PARENTHESES ARE FOR REFERENCE ONLY. DIMENSIONS IN PARENTHESES ARE FOR REFERENCE ONLY.

NORTHSTAR	
W/S MEM	
PCB SCHEMATIC	
D 03556 A	

6

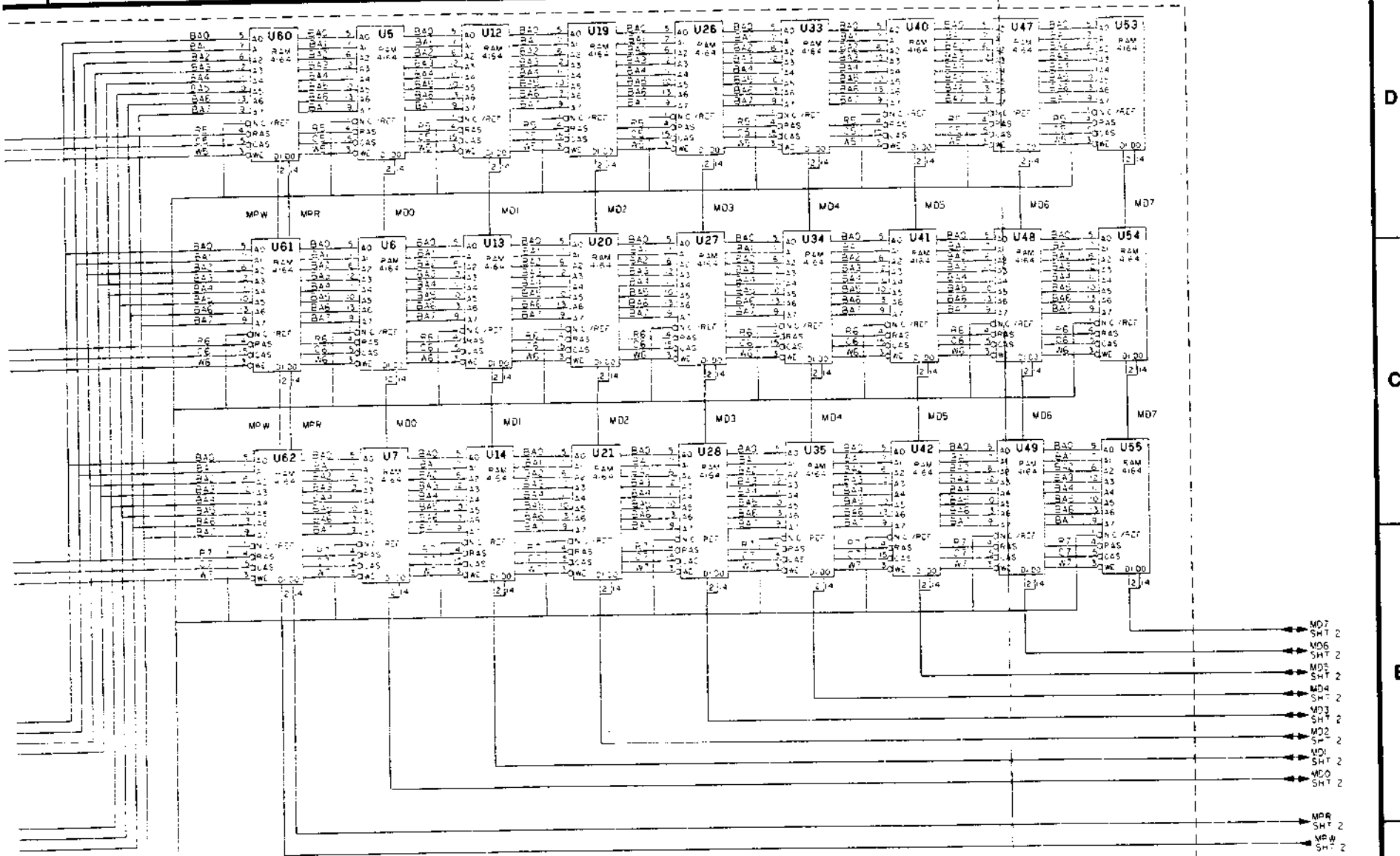
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4

3

2

1



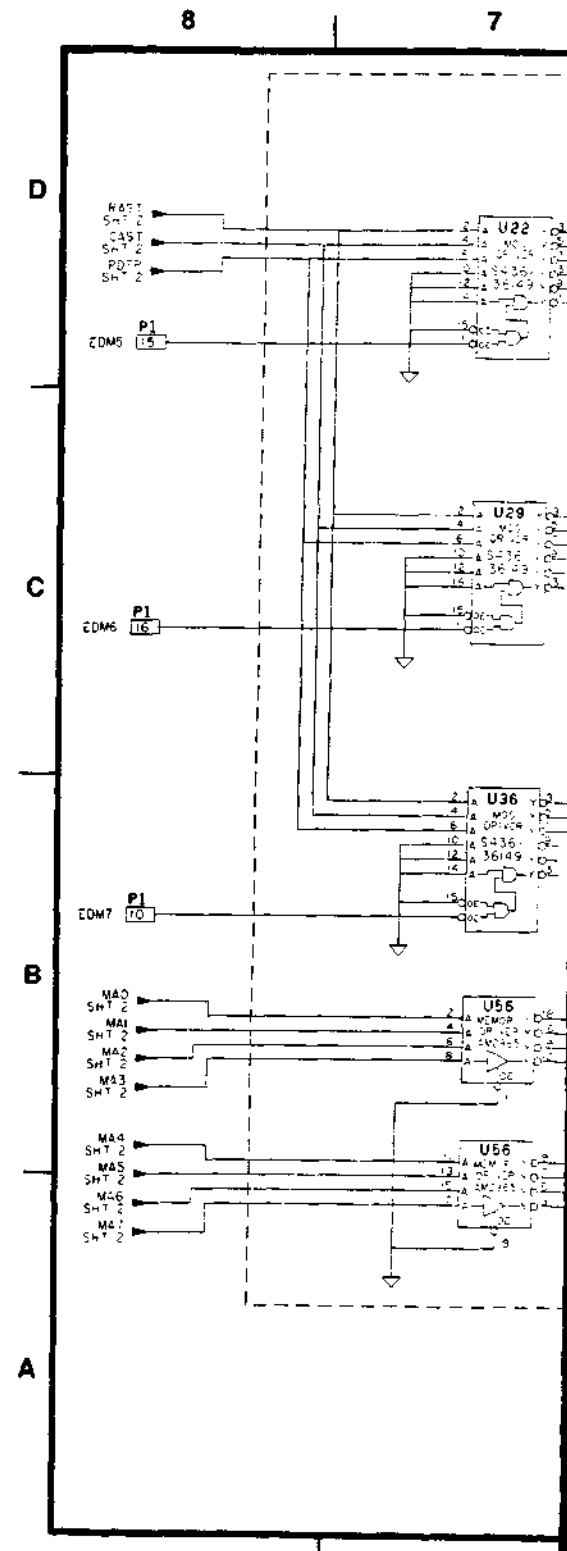
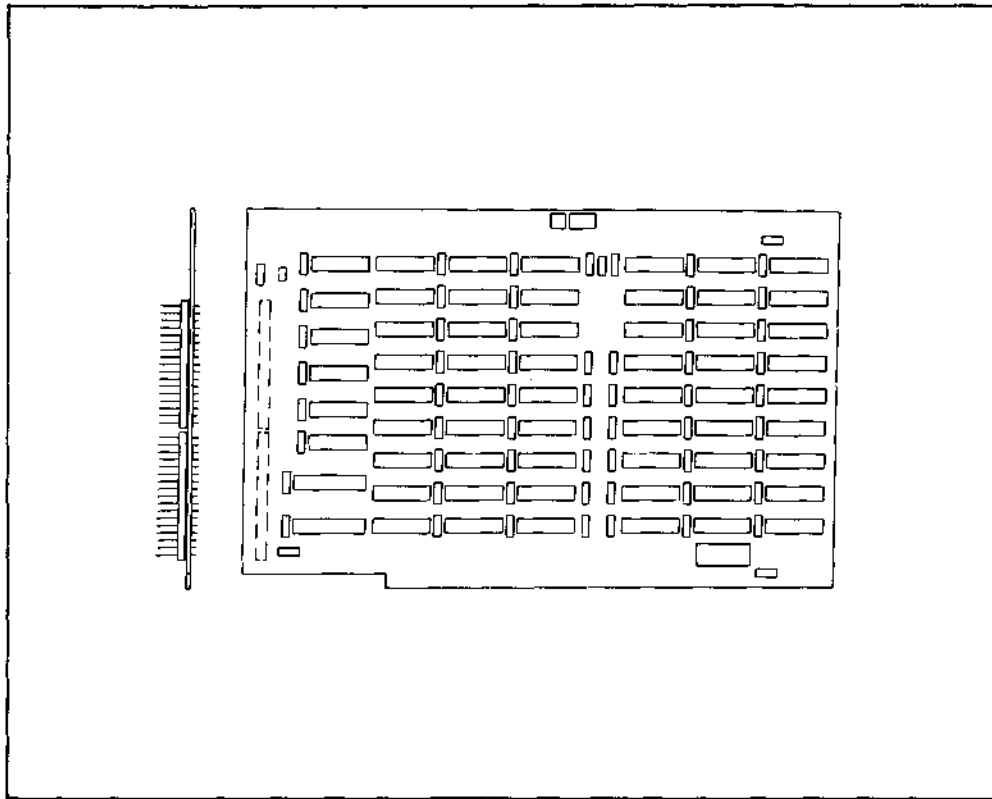
ASSEMBLY 03558 Q2 ONLY  
1384K VERSION I

ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.  
DIMENSIONS IN PARENTHESES ARE IN INCHES UNLESS OTHERWISE SPECIFIED.  
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE TO CENTER LINES UNLESS OTHERWISE SPECIFIED.

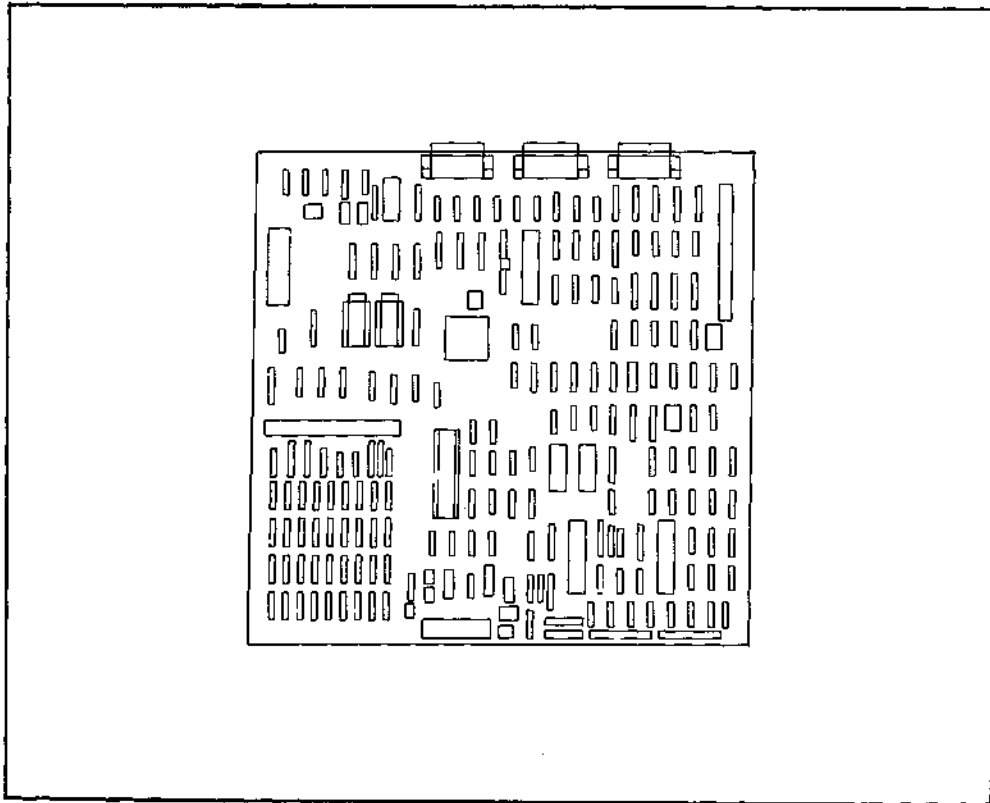
NORTHSTAR	
W/S MEM	
PCB SCHEMATIC	
D 03556 A	

REV.	1	DATE	10/10/83
APP.		DESIGNER	
CHECKED		DRAWN	
DATE		BY	

**SCHEMATIC DIAGRAMS**  
 Workstation 384K Memory PCB (3 of 3)



**SCHEMATIC DIAGRAMS**  
Central PCB (1 of 10)



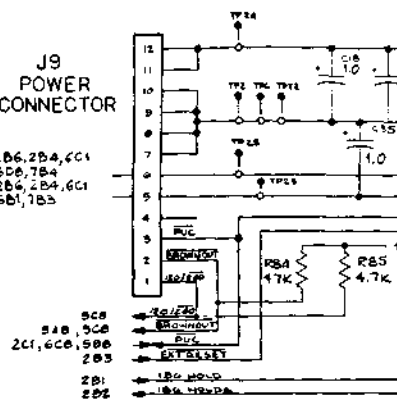
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7

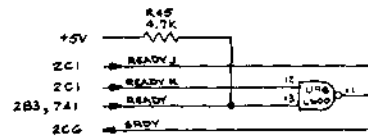
D

**J9  
POWER  
CONNECTOR**

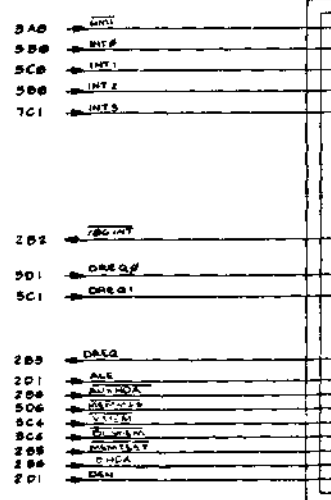
2B0, 2B6, 2B4, 6C1  
6B1, 6D0, 7B4  
2B0, 2B6, 2B4, 6C1  
6C1, 6B1, 7B5



C



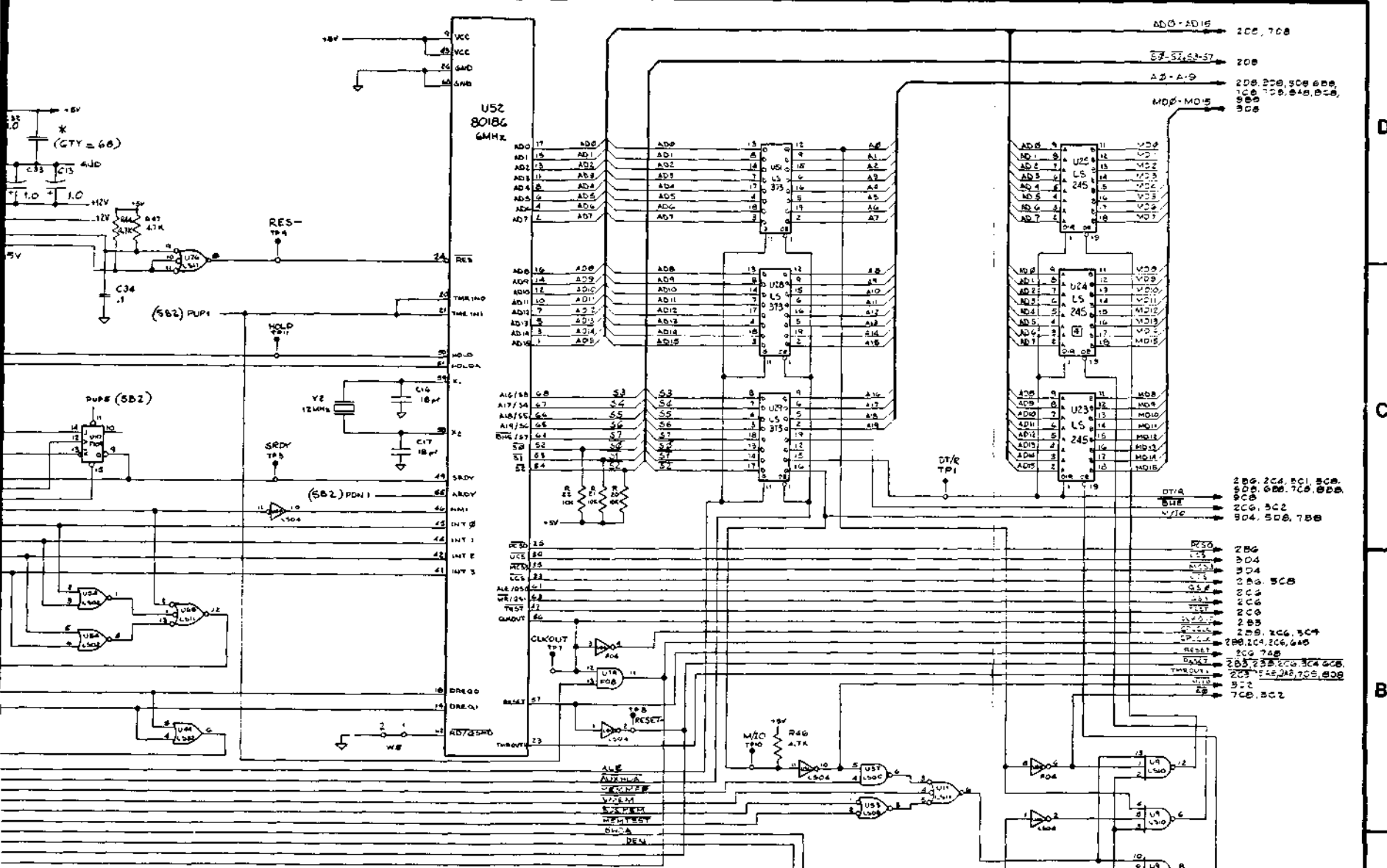
B



A

- 4 COMPONENT NOT INSTALLED
- 3. UNLESS OTHERWISE SPECIFIED:  
RESISTANCE VALUES ARE IN OHMS (Ω); AN  
CAPACITANCE VALUES ARE IN MICROFARAD.  
X = BYPASS CAPACITOR, 0.1μF, 50V (TCT)
- 2. THE FOLLOWING CONVENTION INDICATES  
DWG SHEET NO.       DWG 0000
- 1. REFERENCE DOCUMENTS: FABRICATION  
ASSEMBLY AND P/L

NOTES:



SPARE COMPONENTS REFERENCE TABLE:

COMPONENT	REF DES (OR LOCATOR)	PIN No.
LS04	U4	(5,6,12,13)
LS14	U167	(3,4)
LS11	U14	(3,4,5,6)
LS32	U104	(1,2,3,1,7,3)
LS74	U2	(1,2,3,4,5,6)
LS123	U40	(1,2,3,4,3,4,5)
1405	U13	(1,2,3)
1405	U14	(1,2,3)
F00	U138	(1,12,13)
F04	U137	(1,2,3,3)
F05	U136	(1,3,3)
F09	U32	(1,2,3,4,5,6,7)

REFERENCE DESIGNATOR TABLE:

LAST USED	NET USED
C35	U3
G7	
J14	
R88	
R12	
TP27	
VR2	
W9	
Y3	
U186	

80186 PROCESSOR AND BUFFERS

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ALL DIMENSIONS ARE IN INCHES		DIMENSIONS ARE IN INCHES	
TOLERANCES UNLESS OTHERWISE SPECIFIED		TOLERANCES UNLESS OTHERWISE SPECIFIED	
FINISH	DATE	DESIGNER	CHECKED
APPROVED	DATE	DESIGNER	CHECKED
REVISION	DATE	DESIGNER	CHECKED
REVISION	DATE	DESIGNER	CHECKED

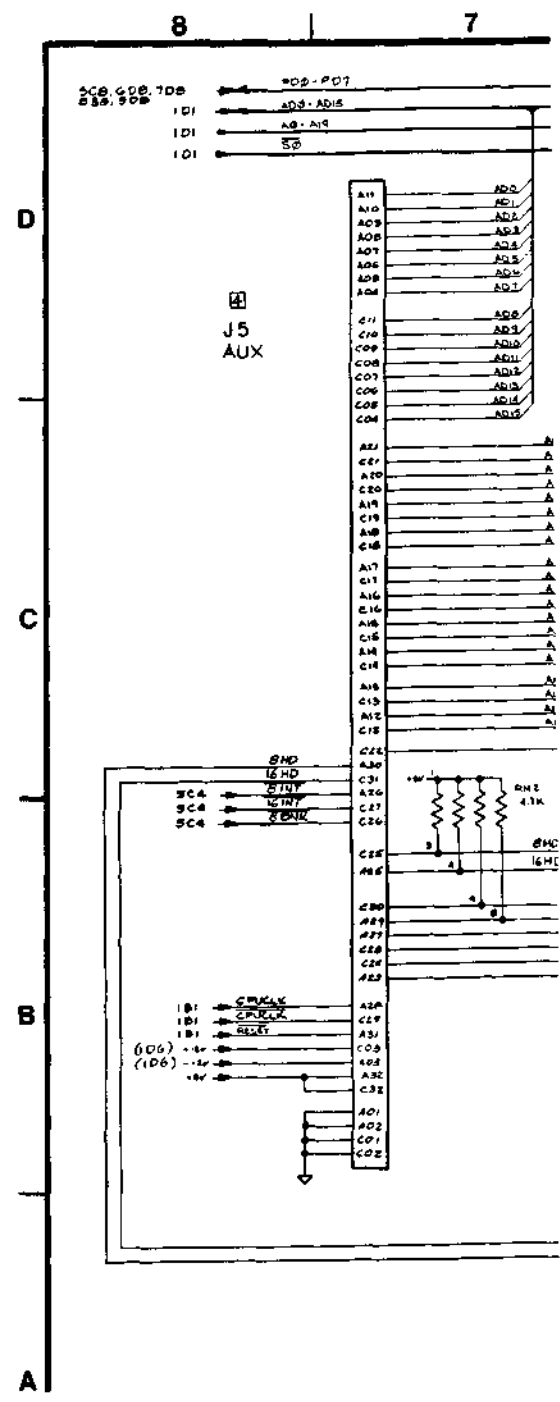
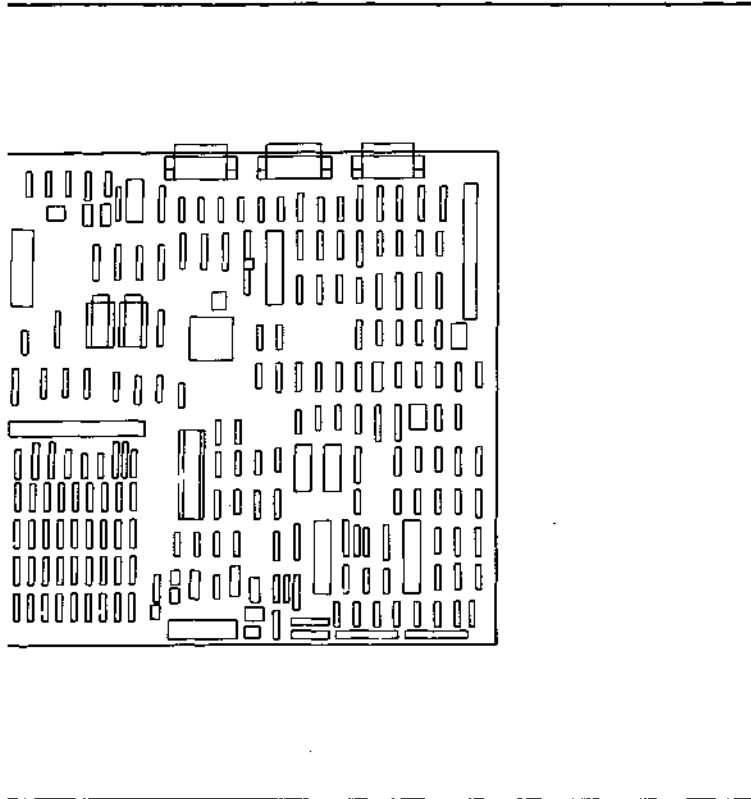
**NorthStar**  
C5  
CENTRAL PCB  
SCHEMATIC

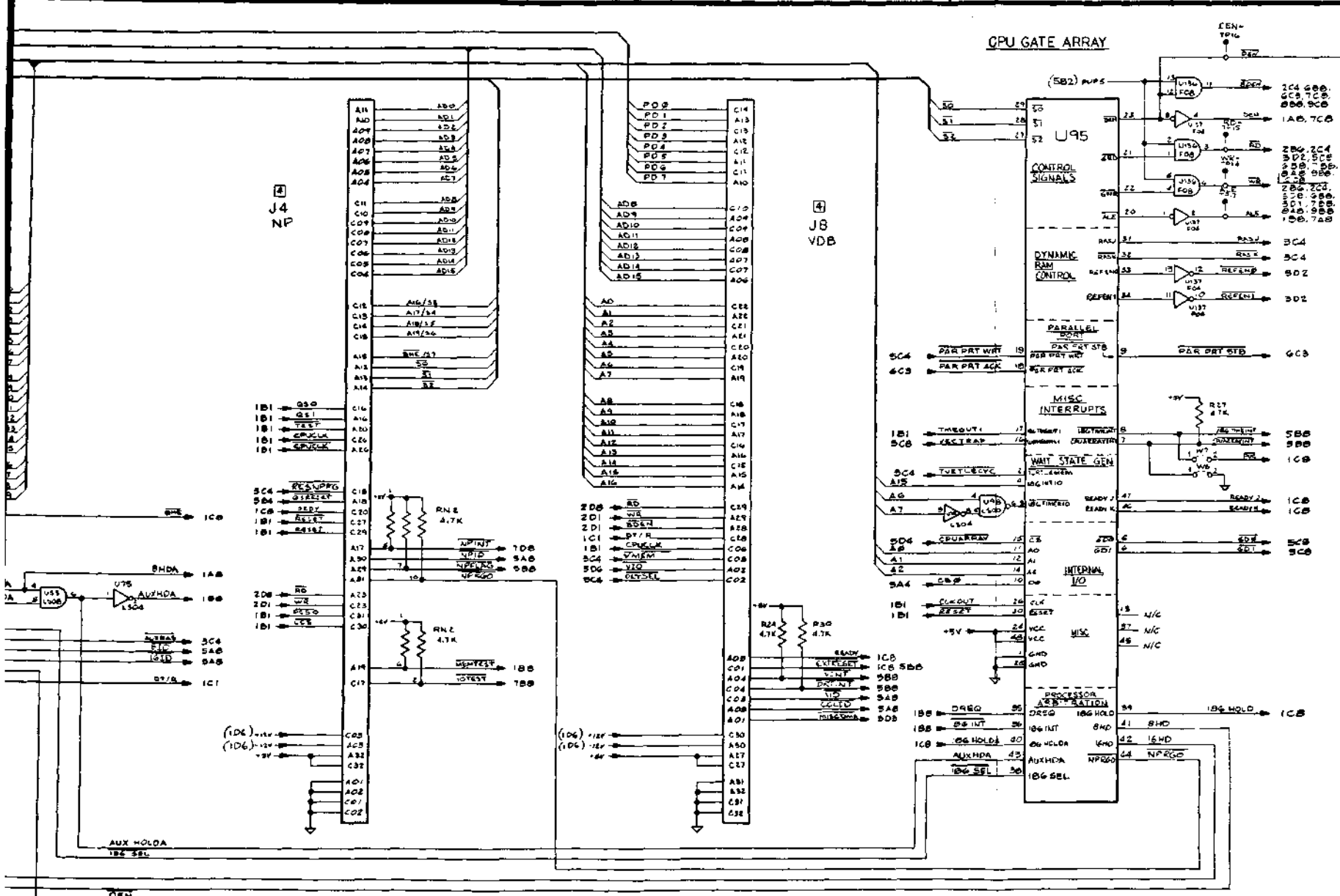
REV: **D** 03318 A

MODEL: \_\_\_\_\_ NET: 9530 SCALE: \_\_\_\_\_ SHEET: 1 OF 2

1/10W, 5%  
( $\mu$ F)  
(GTY = 60)  
CONTINUATION OF A SIGNAL:  
DATE  
C3319  
C3320

**SCHEMATIC DIAGRAMS**  
Central PCB (2 of 10)





MISC CONNECTORS AND GATE ARRAY

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DESCRIPTION	QUANTITY	UNIT	DESCRIPTION	QUANTITY	UNIT
RESISTOR	100	PC	RESISTOR	100	PC
CAPACITOR	100	PC	CAPACITOR	100	PC
IC	100	PC	IC	100	PC
WIRE	100	PC	WIRE	100	PC
...	...	...	...	...	...

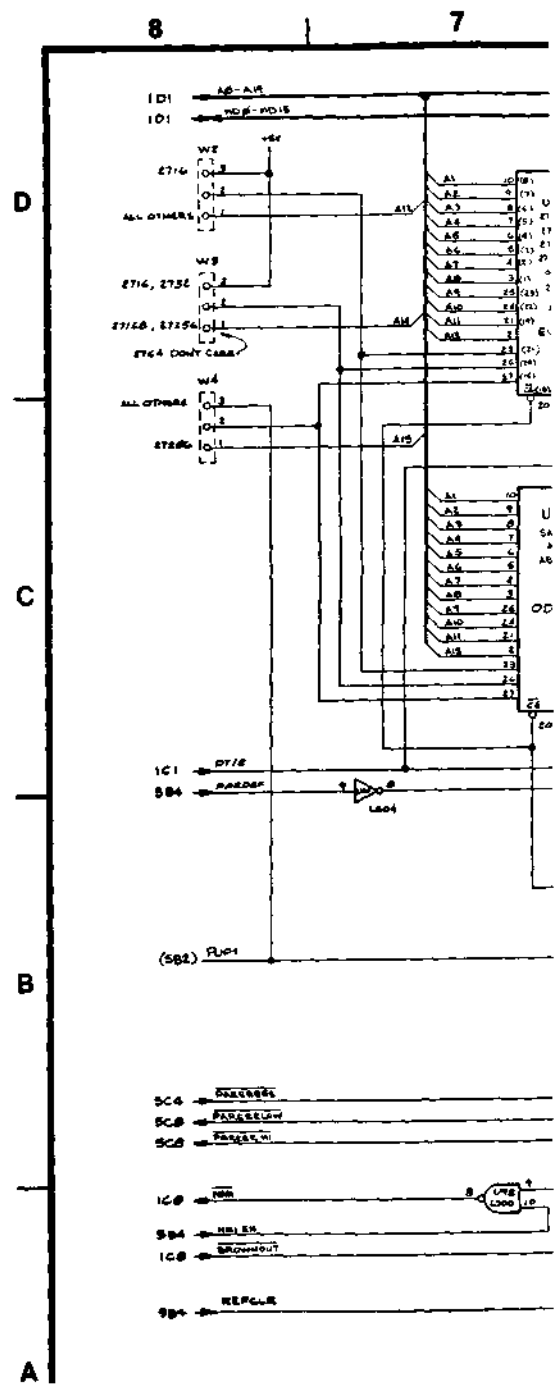
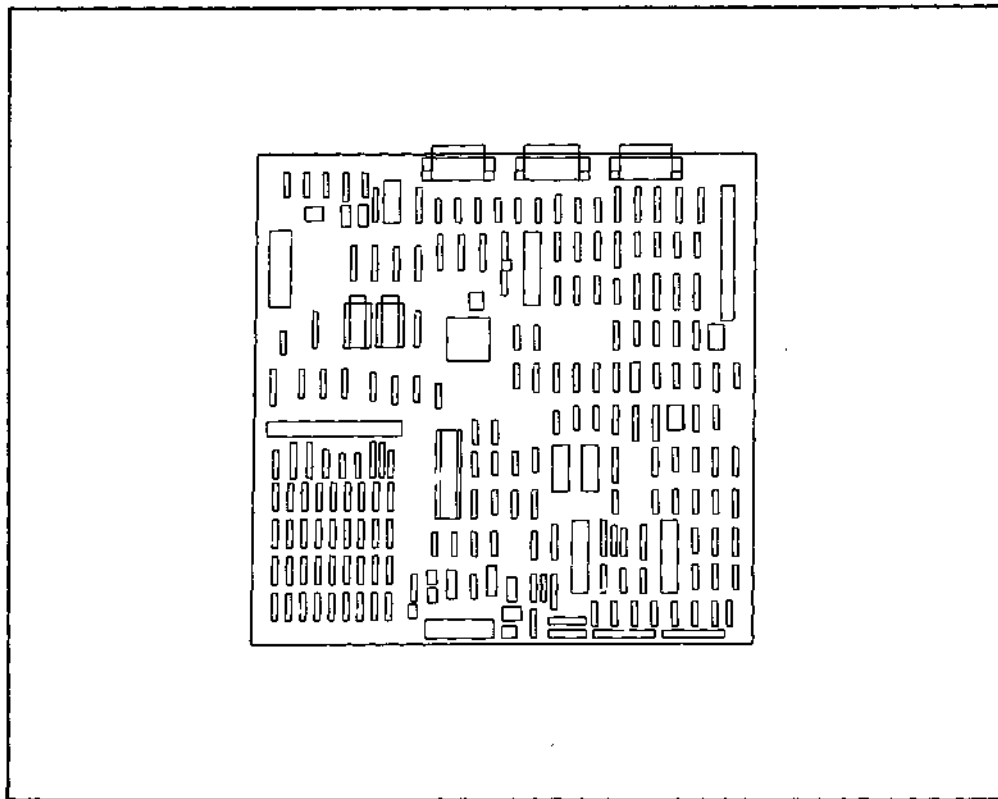
DO NOT SCALE DRAWING  
DIMENSIONS ARE IN INCHES

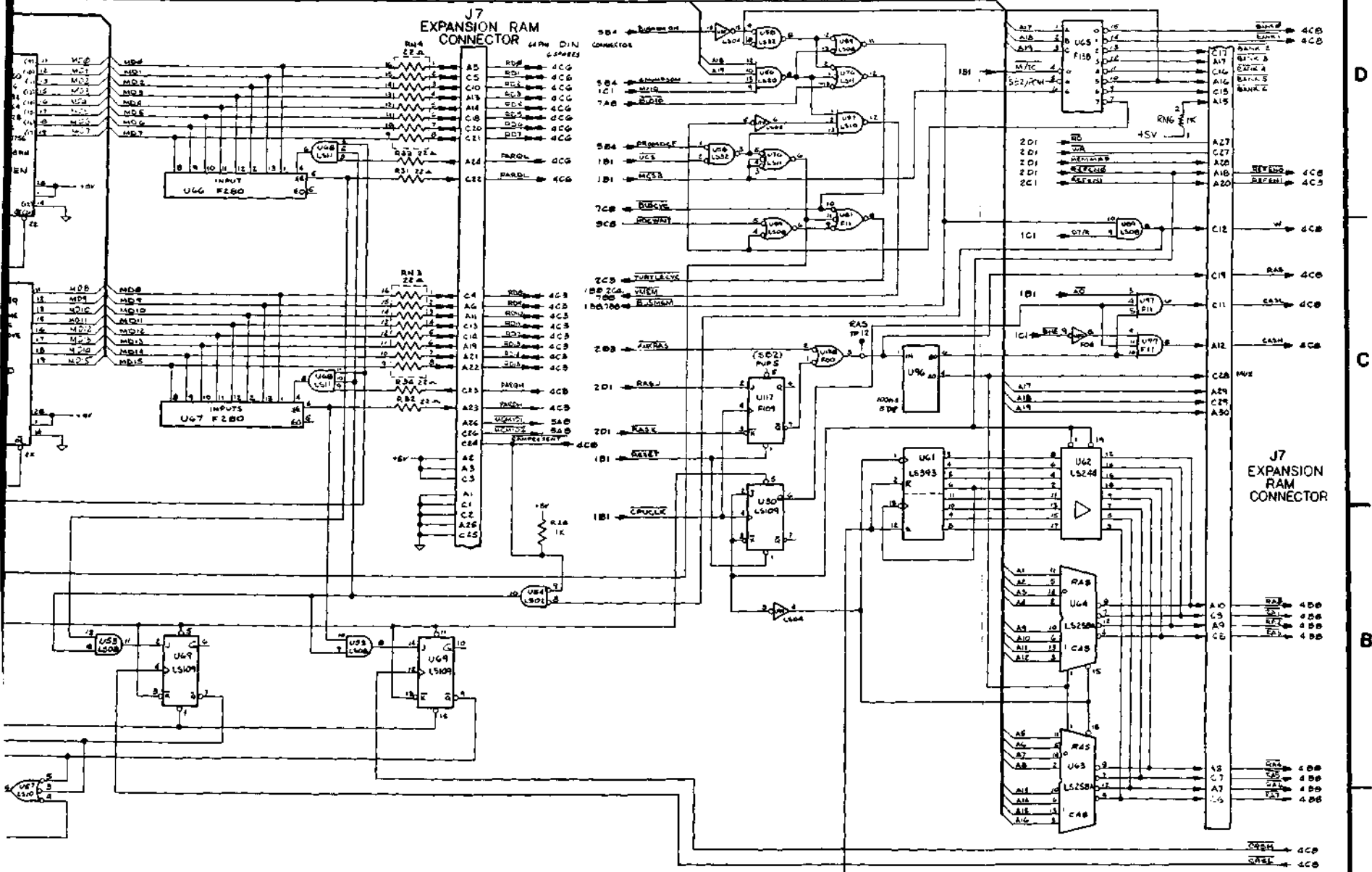
NorthStar  
C5  
CENTRAL PCB  
SCHEMATIC

REV: 03318  
D



**SCHEMATIC DIAGRAMS**  
**Central PCB (3 of 10)**





EPROMS AND DYNAMIC RAM CONTROL

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UNLESS OTHERWISE SPECIFIED	
ALL DIMENSIONS ARE IN INCHES	DO NOT SCALE DRAWING
DRAWN BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE
DATE	SCALE

DO NOT SCALE DRAWING	
DRAWN BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE
DATE	SCALE

**C5**  
 CENTRAL PCB  
 SCHEMATIC  
 REV: **D** DATE: 03/31/8  
 SCALE: 1:1 SHEET 3 OF 4

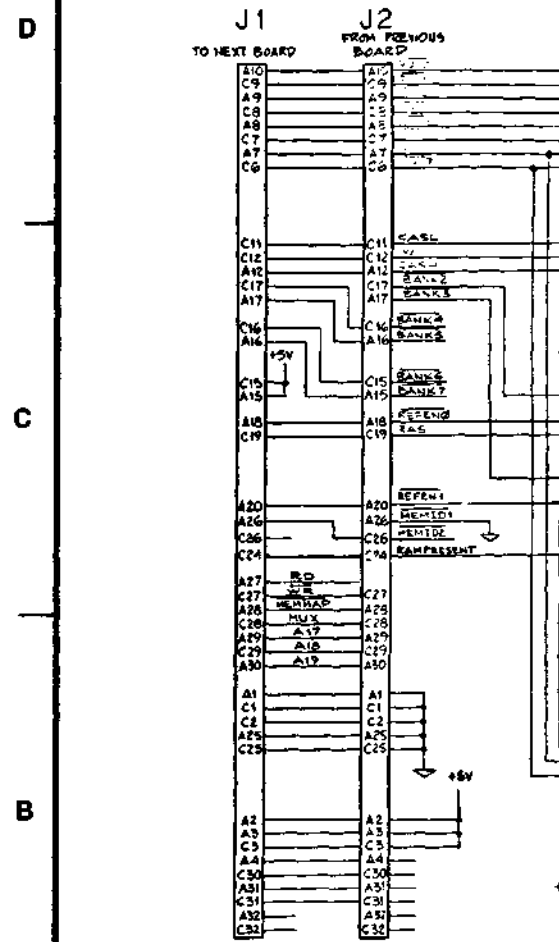
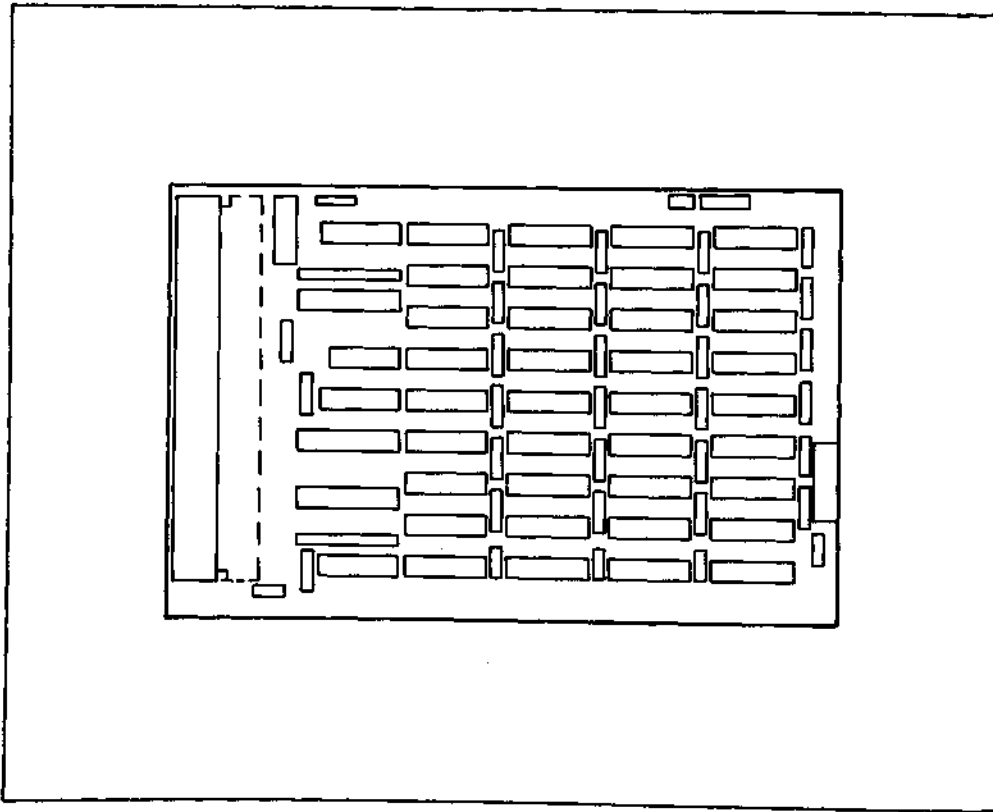
D

C

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**SCHEMATIC DIAGRAMS**  
Central RAM Expansion PCB (1 of 1)



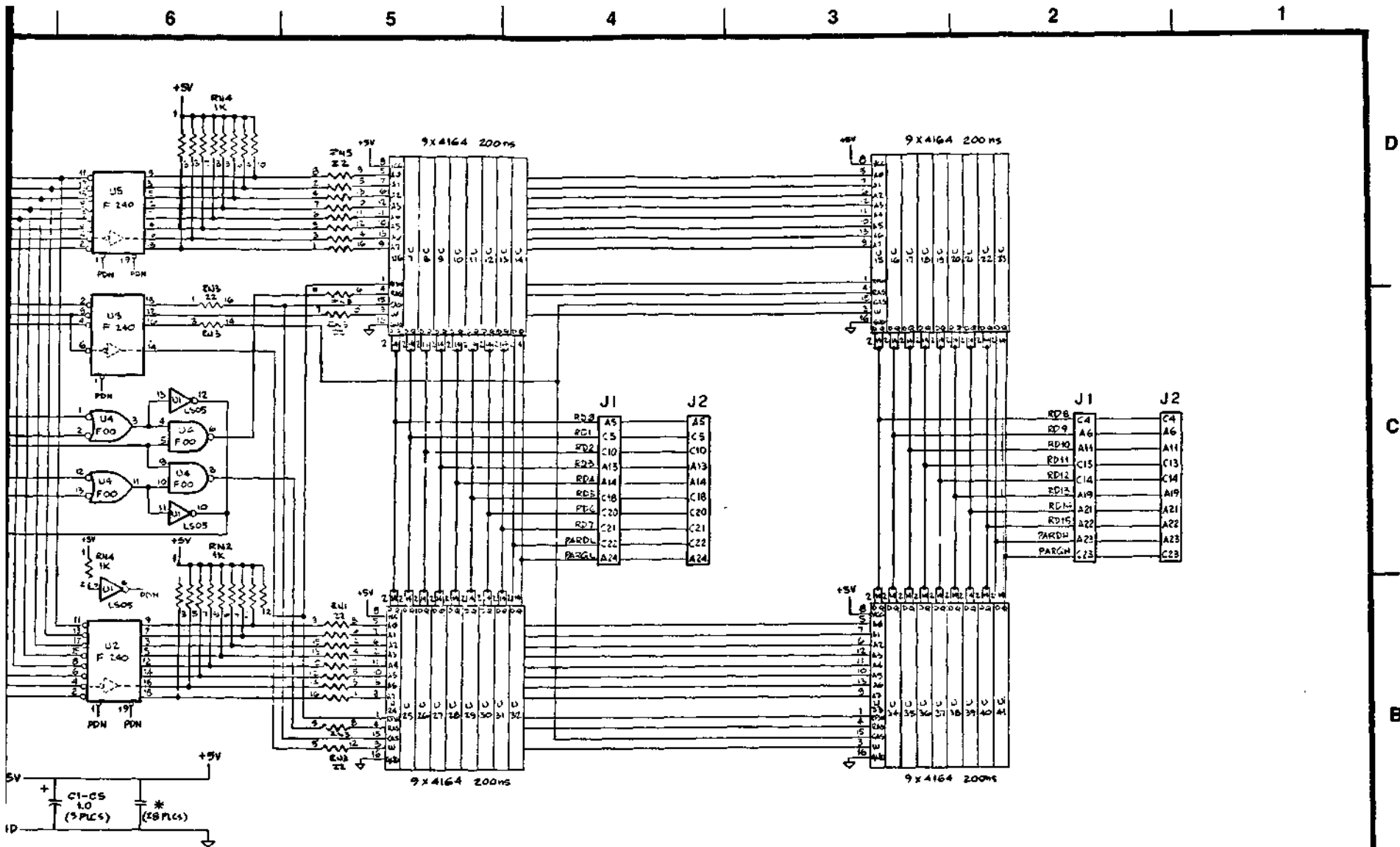
D  
C  
B  
A

3. UNLESS OTHERWISE SPECIFIED:  
RESISTANCE VALUES ARE IN OHMS (Ω), AND 1/4 W, 5%.  
CAPACITANCE VALUES ARE IN MICROFARADS (μF).  
\* = BYPASS CAPACITOR, 0.1 μF, 50V (TOTAL QTY = 2)

2. PIN NUMBERS FOR CONNECTORS ARE CORRECT FOR  
TO AVOID CONFUSION THESE NUMBERS ARE USED  
THE FEMALE CONNECTOR (J2) WILL HAVE THE NUMBER  
FOR END: i.e. A1 → A22  
A2 → A31  
A32 → A1

1. REFERENCE DOCUMENTS: SPECIFICATION - 02B2  
ASSEMBLY AND ?/?

NOTES:



28).  
 2 MALE DIN (J1).  
 OR BOTH CONNECTORS.  
 5 SWAPPED END

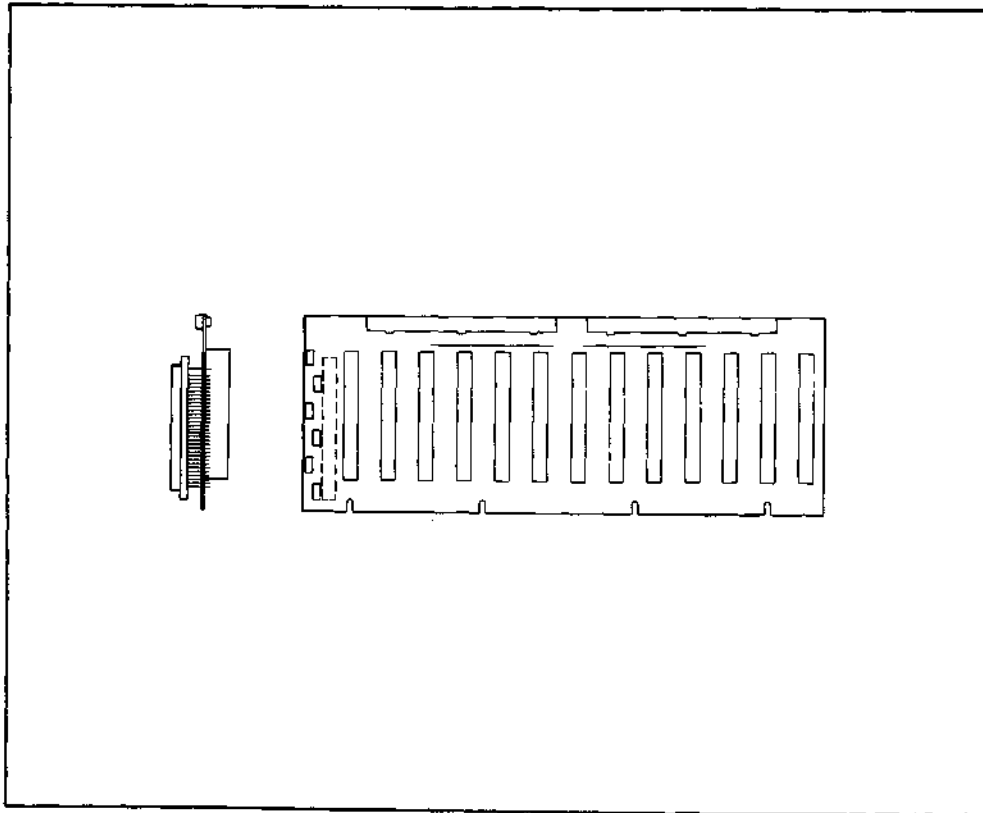
02826.

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REV	DESCRIPTION	DATE	BY
UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES DIMENSIONS ARE IN INCHES TOLERANCES: FRACTIONS DECIMALS ANGLES IN DEGREES DIMENSIONS IN INCHES DIMENSIONS IN INCHES		DO NOT SCALE DRAWING DIMENSIONS ARE IN INCHES	
MODEL		REV	DATE

**NorthStar**  
**C5 CENTRAL MEM**  
**PCB SCHEMATIC**  
 D 02824  
 SHEET 1 OF 1

**SCHEMATIC DIAGRAMS**  
Bus PCB (1 of 1)



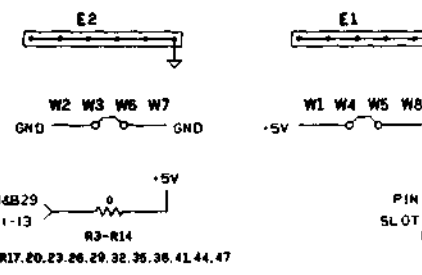
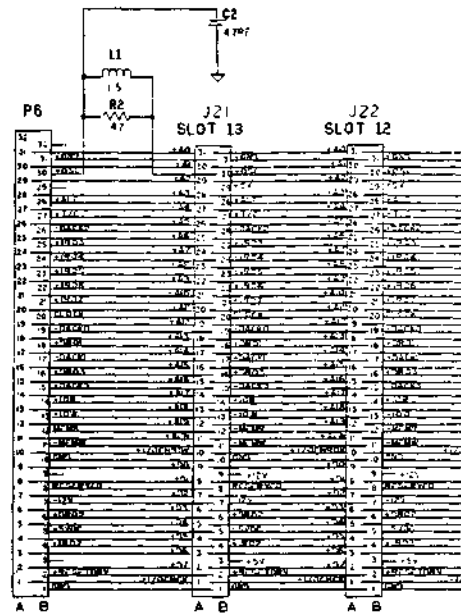
8 | 7

D

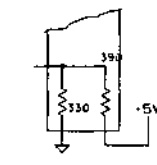
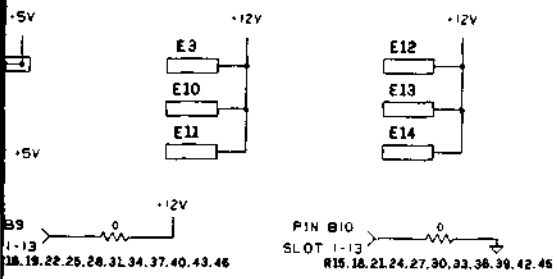
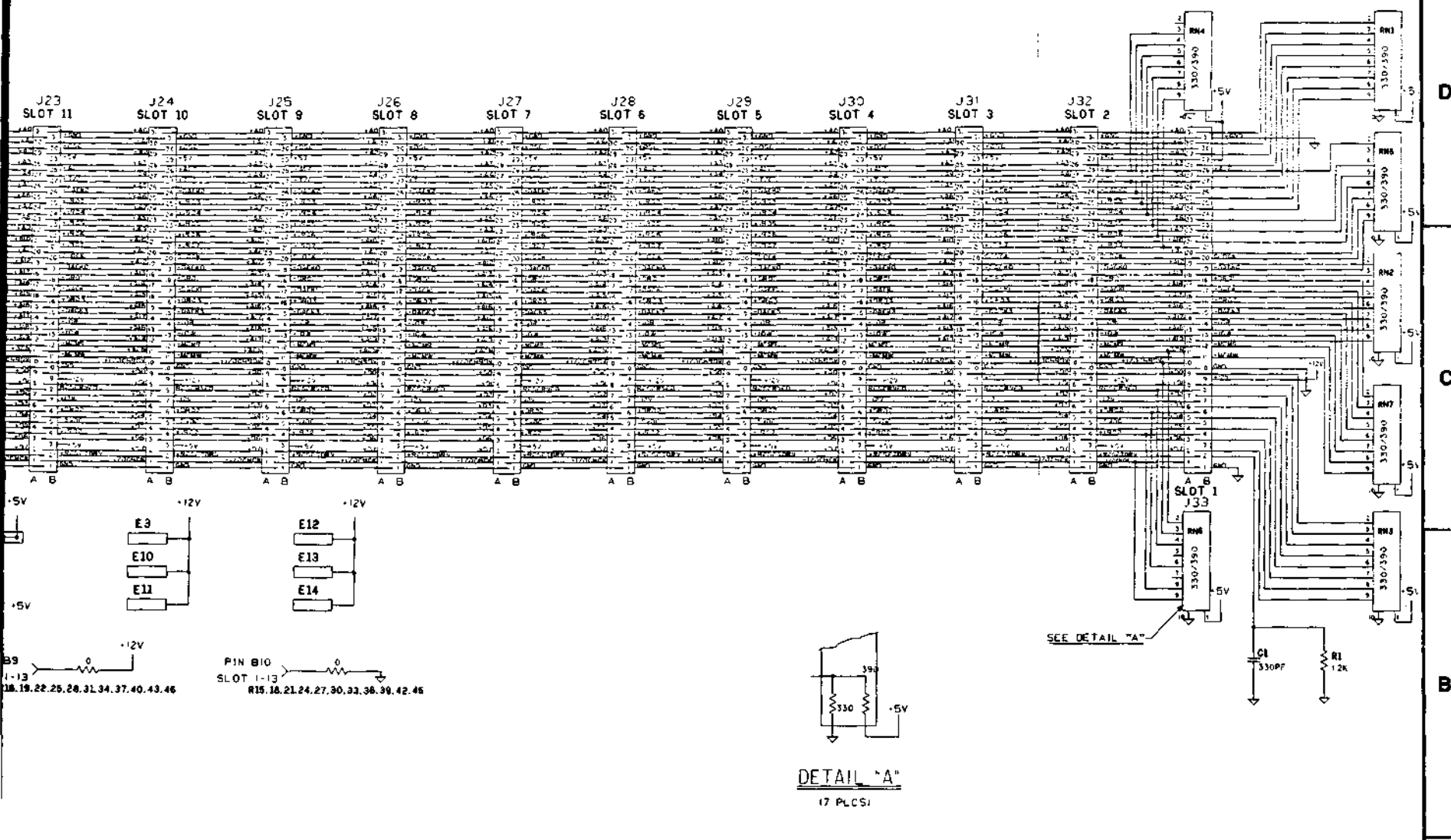
C

B

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- NOTES :**
1. REFERENCE DOCUMENTS FABRICATION - 03529.  
ASSEMBLY AND P/L - 03530.
  2. UNLESS OTHERWISE SPECIFIED  
RESISTANCE VALUES ARE IN OHMS AND 1/4 W. 5%  
CAPACITANCE VALUES ARE IN MICROFARADS (UF)  
INDUCTANCE VALUES ARE IN MILLIHENRYS (MH)

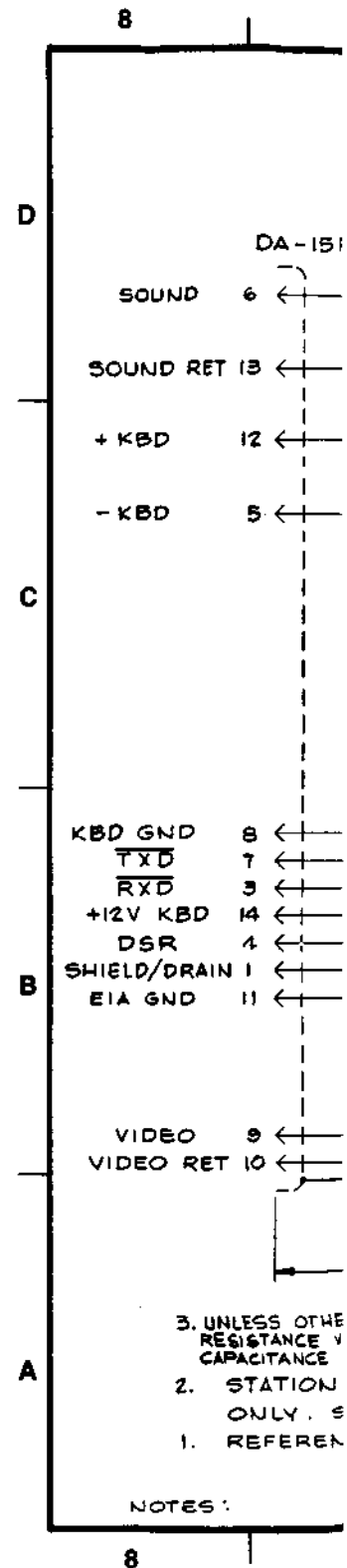
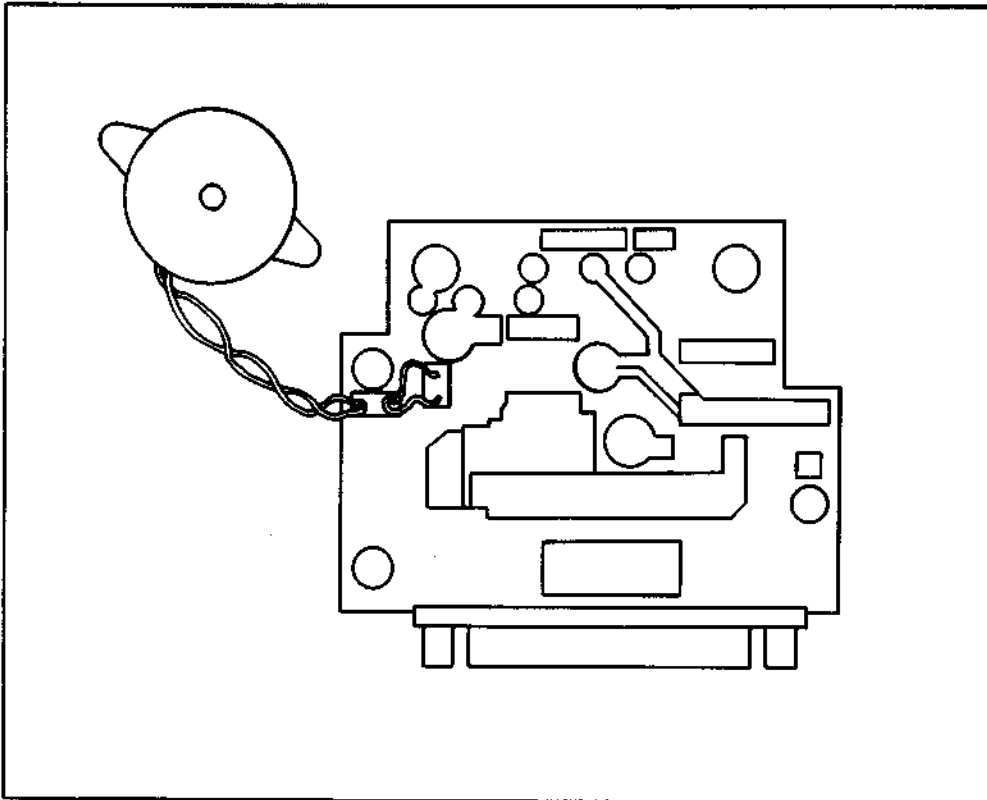


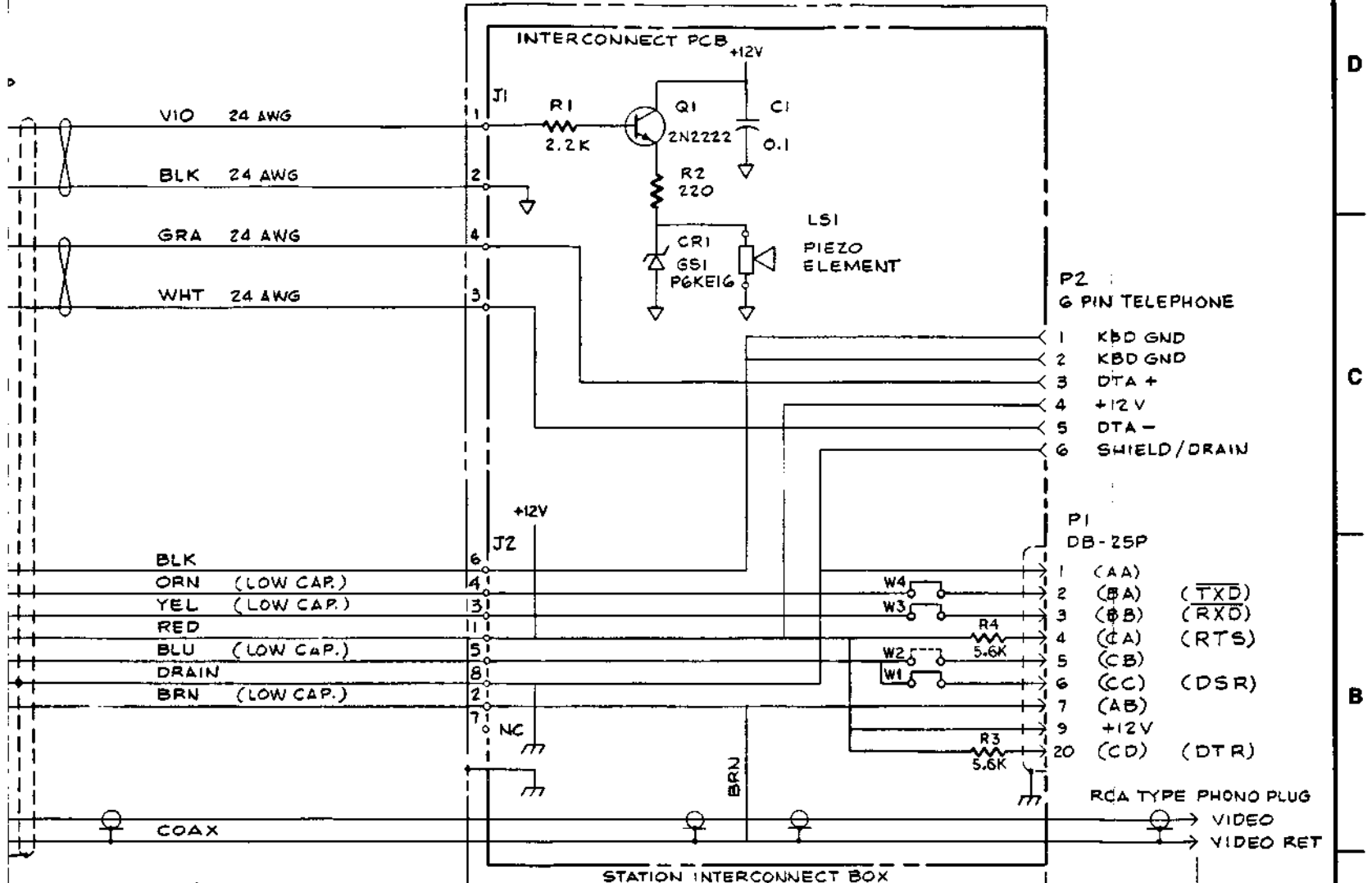
**DETAIL "A"**  
17 PLCS

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SERIAL REFERENCE DATE	UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES DIMENSIONS IN PARENTHESES ARE IN MILLIMETERS DIMENSIONS IN BRACKETS ARE FOR REFERENCE ONLY DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE TO SURFACE UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE TO HOLE UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE TO EDGE UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE TO CENTER UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE TO SURFACE UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE TO HOLE UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE TO EDGE UNLESS OTHERWISE SPECIFIED	NORTHSTAR C5 BUS PCB SCHEMATIC
	PCB ASSY DATE	D 03628 A

**SCHEMATIC DIAGRAMS**  
Station Interconnect PCB (1 of 1)





STATION CABLE  
COMPOSITE CABLE  
25 FEET

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UNLESS OTHERWISE SPECIFIED:  
VALUES ARE IN OHM (Ω), AND 1/4 W, 5%.  
VALUES ARE IN MICROFARADS (μF).  
CABLE SHOWN FOR REFERENCE  
EE NSCI DWG 03604  
CE: FABRICATION DWG - 03645  
ASSEMBLY AND P/L - 03646

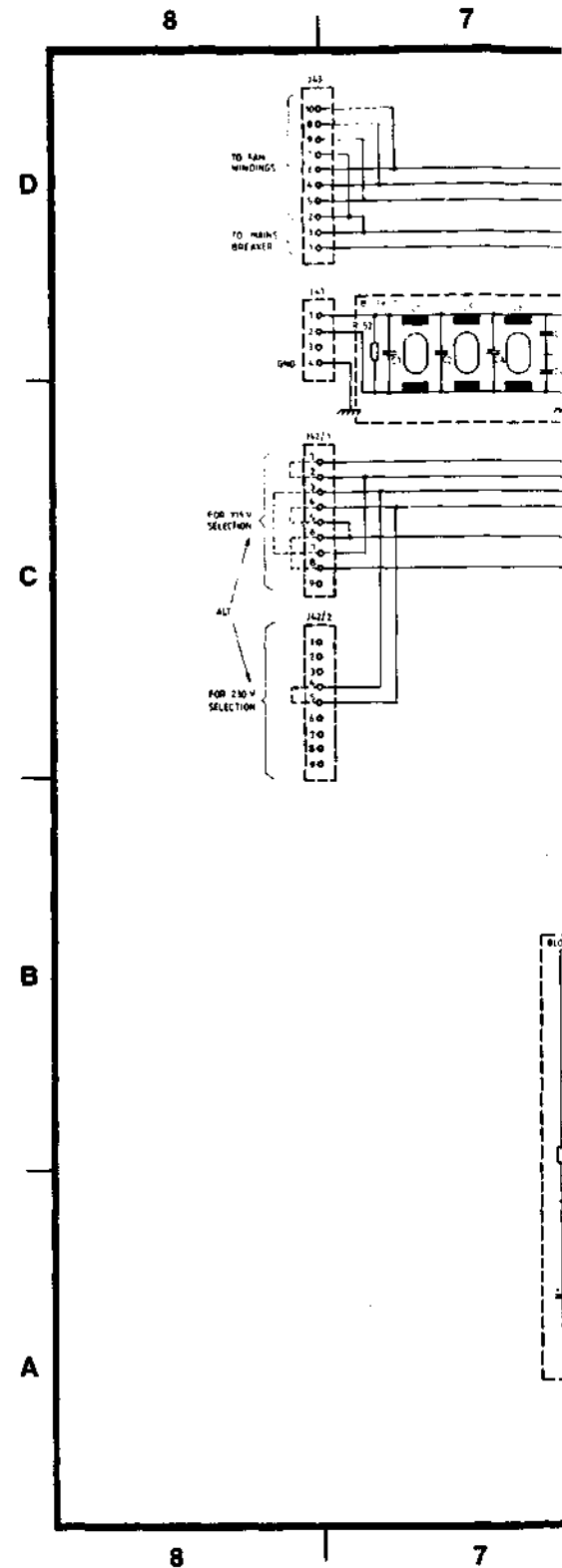
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A	REV	2-14-84

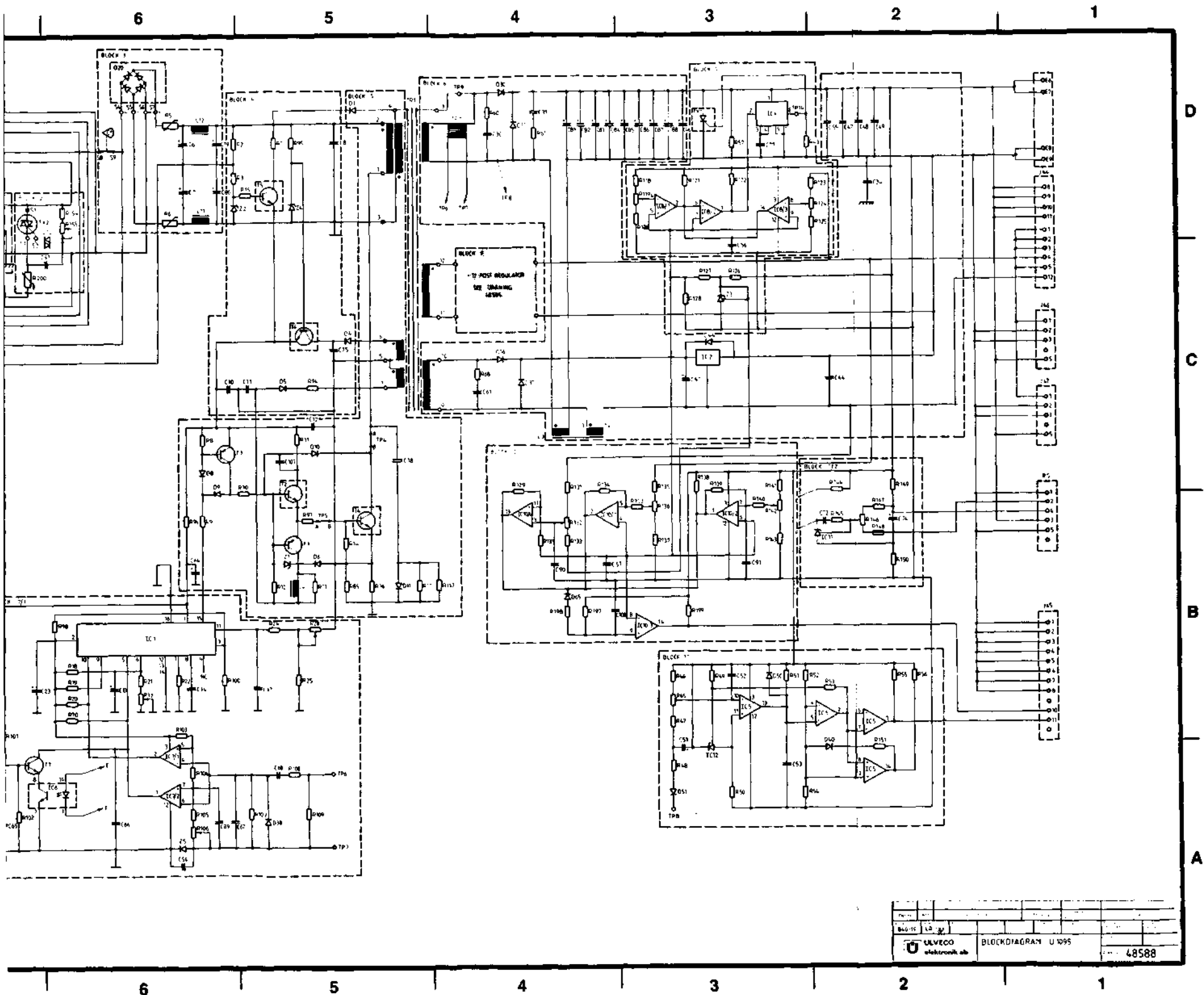
DATE	BY	CHKD	APP'D
2-14-84			
2-14-84			
2-14-84			

<b>NorthStar</b>	
C5 INTERCONNECT PCB SCHEMATIC	
SIZE	DWG NO
C	03644
SCALE	N/A SHEET 1 OF 1

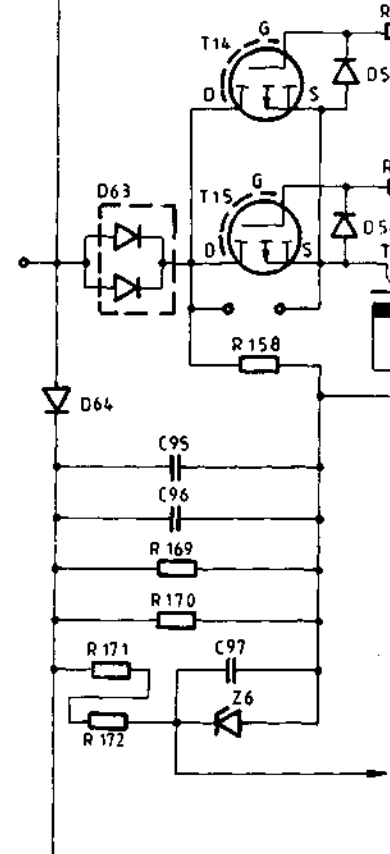


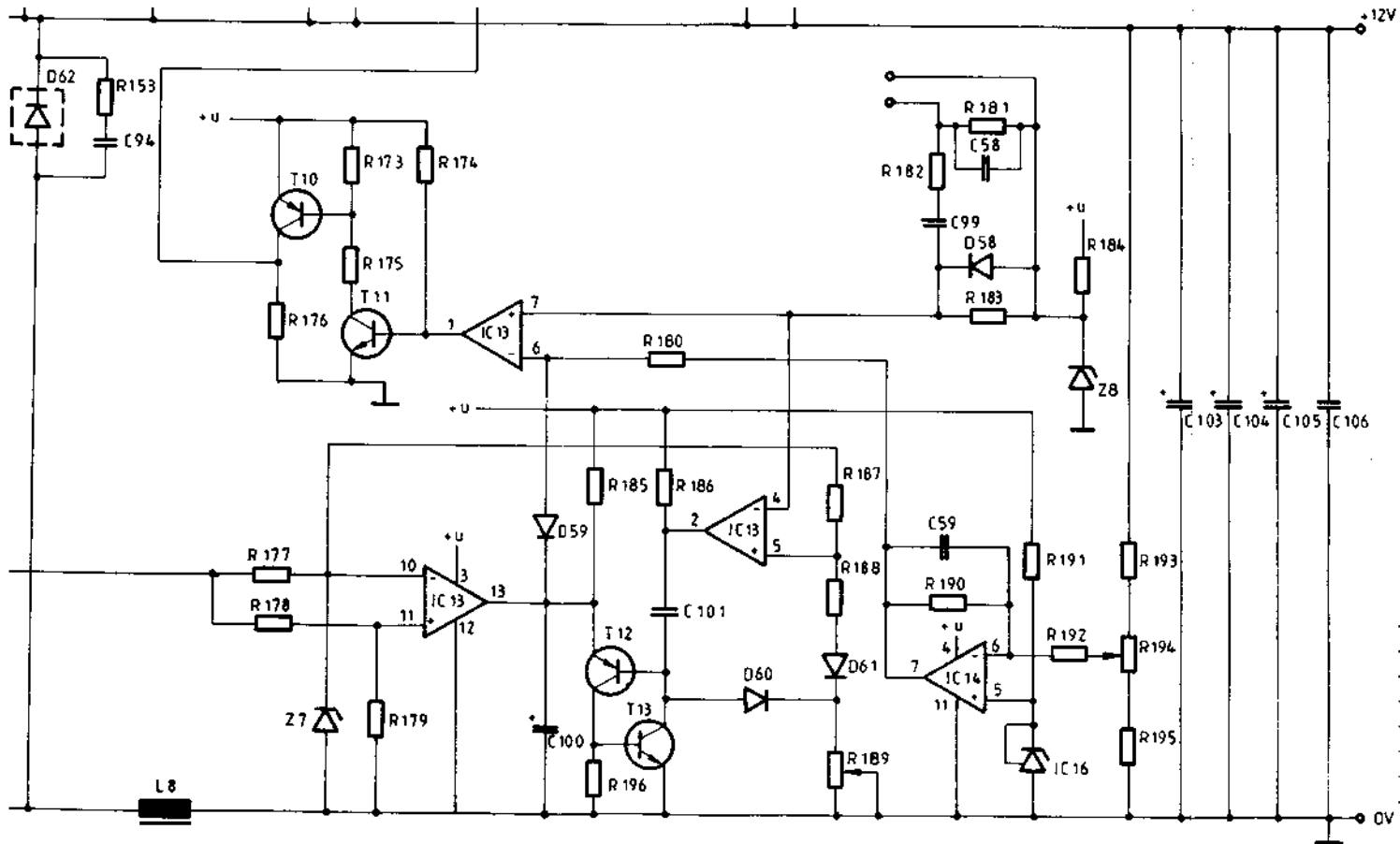
**SCHEMATIC DIAGRAMS**  
ULVECO Power Supply (1 of 2)






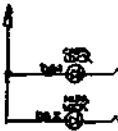
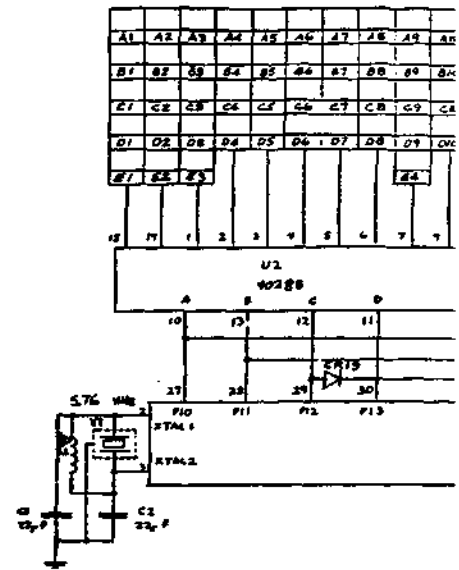
**SCHEMATIC DIAGRAMS**  
Power Supply PCB (2 of 2)

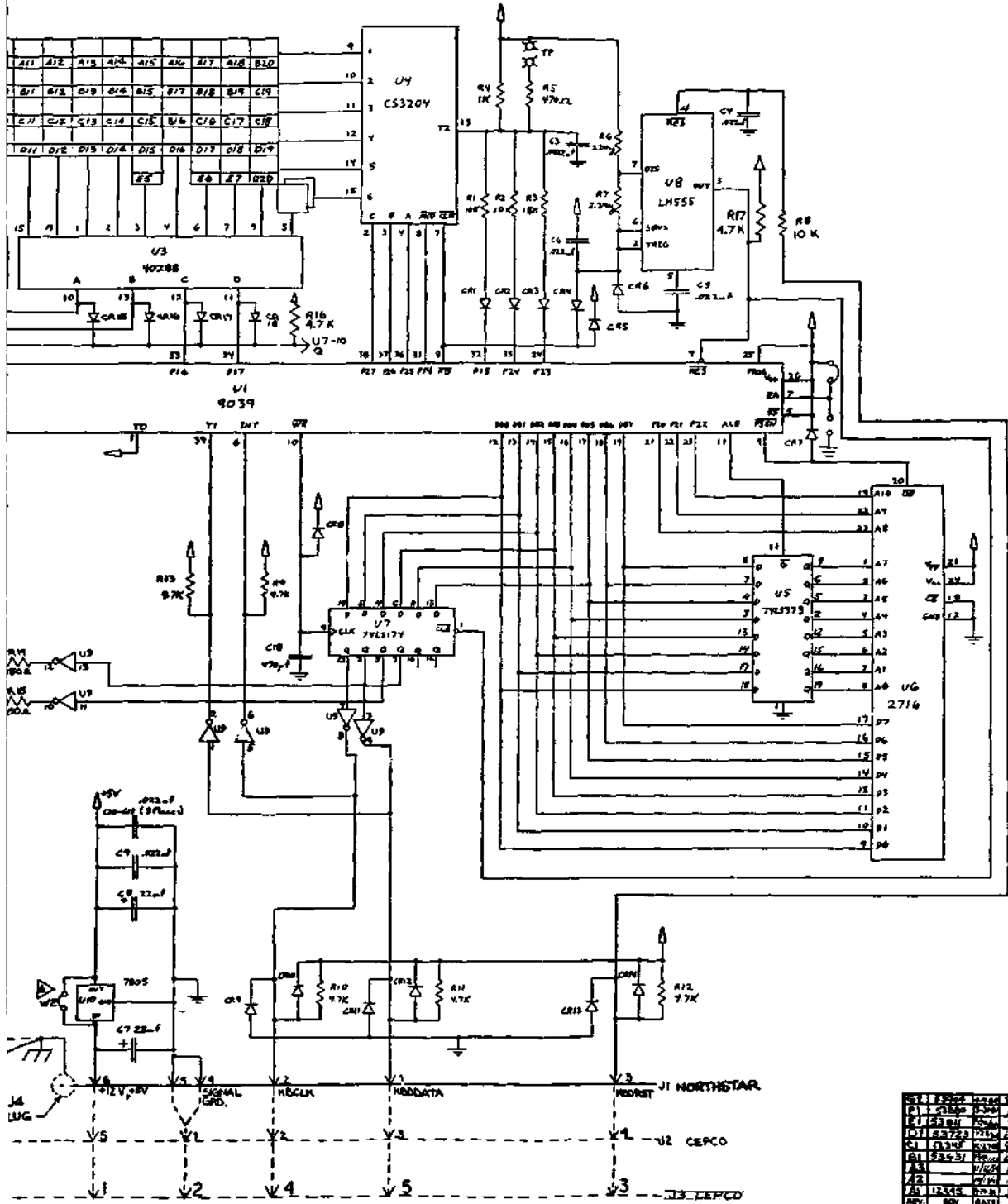




Det nr	Ant	Benämning			Material	Mod nr	Anm	
Konstr	Ritad	Kop	Konu	Stand	Godk	Skala	Ersätter	Ersatt av
84 0119	LR / SD						Replaces	Replaced by
							Project	Date
							Run nr	Rev
+12V POST REGULATOR							Drawing no	48585

**SCHEMATIC DIAGRAMS**  
Cherry Keyboard (1 of 1)





- NOTES:**
- ▷ USED ON
  - ▷ USED ON BFN3-B452 (CUT PIN 3, POLARIZATION KEY).
  - ▷ CR18, CR19 NOT USED ON BFN3-B452.
  - ▷ R10, R11 USE 220Ω (833B-221J) ON BFN3-B452.
  - ▷ MASKED ROM 352J-M046, MASKED PROCESSOR 352M-913B, WHEN USING 352M-913B, DELETE U5 & U6, CHANGE JUMPER ON PIN 7, U1.
  - ▷ NOT USED ON BFN3-8402.
  - ▷ 350M-8049 MAY BE SUBSTITUTED FOR 350M-8039
  - ▷ NOT USED ON BFN3-B451

PART NO.	QTY	TYPE	IND. NO.	LOCATION(S)	REV 1840
0007-1067	1	7 PIN CONNECTOR		J3	
0007-1054	1	LUG		J4	
0001-0990	2	LED		DM1, D52	
0018-0018	1	CRYSTAL		Y1	
0007-0831	1	6 PIN BNC JACK		J2	
0007-0178	1	6 PIN BERG STICK		J1	
834K-226K	1	CAPACITOR, 22μF		C8	
350Q-091Q	1	I. CIRCUIT		U10	
350C-1007	1	I. CIRCUIT		U5	14 7
350B-8555	1	I. CIRCUIT		U8	8 1
350Q-1174	1	I. CIRCUIT		U7	16 8
353W-8044	1	I. CIRCUIT		U6	24 12
350F-4373	1	I. CIRCUIT		U3	20 10
350D-8204	1	I. CIRCUIT		U4	16 1
350D-8028	2	I. CIRCUIT		U2, U3	16 8
350M-8039	1	I. CIRCUIT		U1	40 20

**COMPONENT LOCATIONS TABLE**

PART NO.	QTY	TYPE	IND. NO.	LOCATION(S)
833B-181J	2	RESISTOR, 150Ω		R4, R15
850-0022	19	DIODE, 1N4148		CR1-CR19
834G-471J	1	CAPACITOR, 470μF		C18
834G-226K	1	CAP. TAN, 22μF		C7
834G-225K	12	CAPACITOR, 022μF		C4-C6, C9-C17
834G-222K	1	CAPACITOR, 0022μF		C2
834G-220J	2	CAPACITOR, 22μF		C1, C2
833B-183J	1	RESISTOR, 18K		R3
833B-225J	2			R6, R7
833B-471J	1			R5
833C-1M2J	1			R4
833B-472J	7			R3, R13, R14, R17

**COMPONENT LOCATIONS TABLE**

PART NO.	QTY	TYPE	IND. NO.	LOCATION(S)
833B-105J	3	RESISTOR, 10KΩ		R1, R2, R8

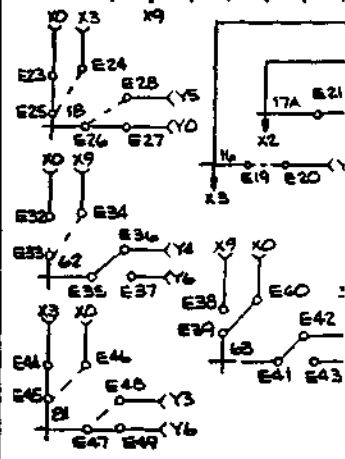
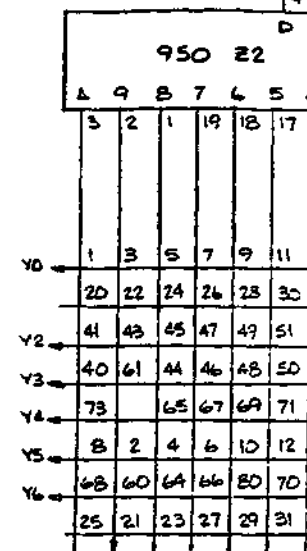


WAS K 3610-003

REV.	BY	DATE	APP.	SCALE	PROPERTY OF CHERRY ELECTRONIC CO. TO BE RETURNED WITHOUT PERMISSION.
P1	CS320Y			N/A	MATERIAL: N/A
P2	CS320Y			N/A	CHERRY ELECTRICAL PROD. CORP.
P3	CS320Y			N/A	REV SPEC:
P4	CS320Y			N/A	
P5	CS320Y			N/A	
P6	CS320Y			N/A	
P7	CS320Y			N/A	
P8	CS320Y			N/A	
P9	CS320Y			N/A	
P10	CS320Y			N/A	
P11	CS320Y			N/A	
P12	CS320Y			N/A	
P13	CS320Y			N/A	
P14	CS320Y			N/A	
P15	CS320Y			N/A	
P16	CS320Y			N/A	
P17	CS320Y			N/A	
P18	CS320Y			N/A	
P19	CS320Y			N/A	
P20	CS320Y			N/A	
P21	CS320Y			N/A	
P22	CS320Y			N/A	
P23	CS320Y			N/A	
P24	CS320Y			N/A	
P25	CS320Y			N/A	
P26	CS320Y			N/A	
P27	CS320Y			N/A	
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P39	CS320Y			N/A	
P40	CS320Y			N/A	
P41	CS320Y			N/A	
P42	CS320Y			N/A	
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P67	CS320Y			N/A	
P68	CS320Y			N/A	
P69	CS320Y			N/A	
P70	CS320Y			N/A	
P71	CS320Y			N/A	
P72	CS320Y			N/A	
P73	CS320Y			N/A	
P74	CS320Y			N/A	
P75	CS320Y			N/A	
P76	CS320Y			N/A	
P77	CS320Y			N/A	
P78	CS320Y			N/A	
P79	CS320Y			N/A	
P80	CS320Y			N/A	
P81	CS320Y			N/A	
P82	CS320Y			N/A	
P83	CS320Y			N/A	
P84	CS320Y			N/A	
P85	CS320Y			N/A	
P86	CS320Y			N/A	
P87	CS320Y			N/A	
P88	CS320Y			N/A	
P89	CS320Y			N/A	
P90	CS320Y			N/A	
P91	CS320Y			N/A	
P92	CS320Y			N/A	
P93	CS320Y			N/A	
P94	CS320Y			N/A	
P95	CS320Y			N/A	
P96	CS320Y			N/A	
P97	CS320Y			N/A	
P98	CS320Y			N/A	
P99	CS320Y			N/A	
P100	CS320Y			N/A	

**SCHEMATIC DIAGRAMS**  
Keytronics (1 of 1)

LAST USED	NOT USED
Y1 C19	
X1 B15	
X1 Z3	
R21 E31	



- ② CUT E8 TO DISABLE INTER
  - ⑦ OPTION CHART

P21	P22	P23	PRC
X		X	AS
X	X	X	AD
0	X	X	RE
1	X	X	RE

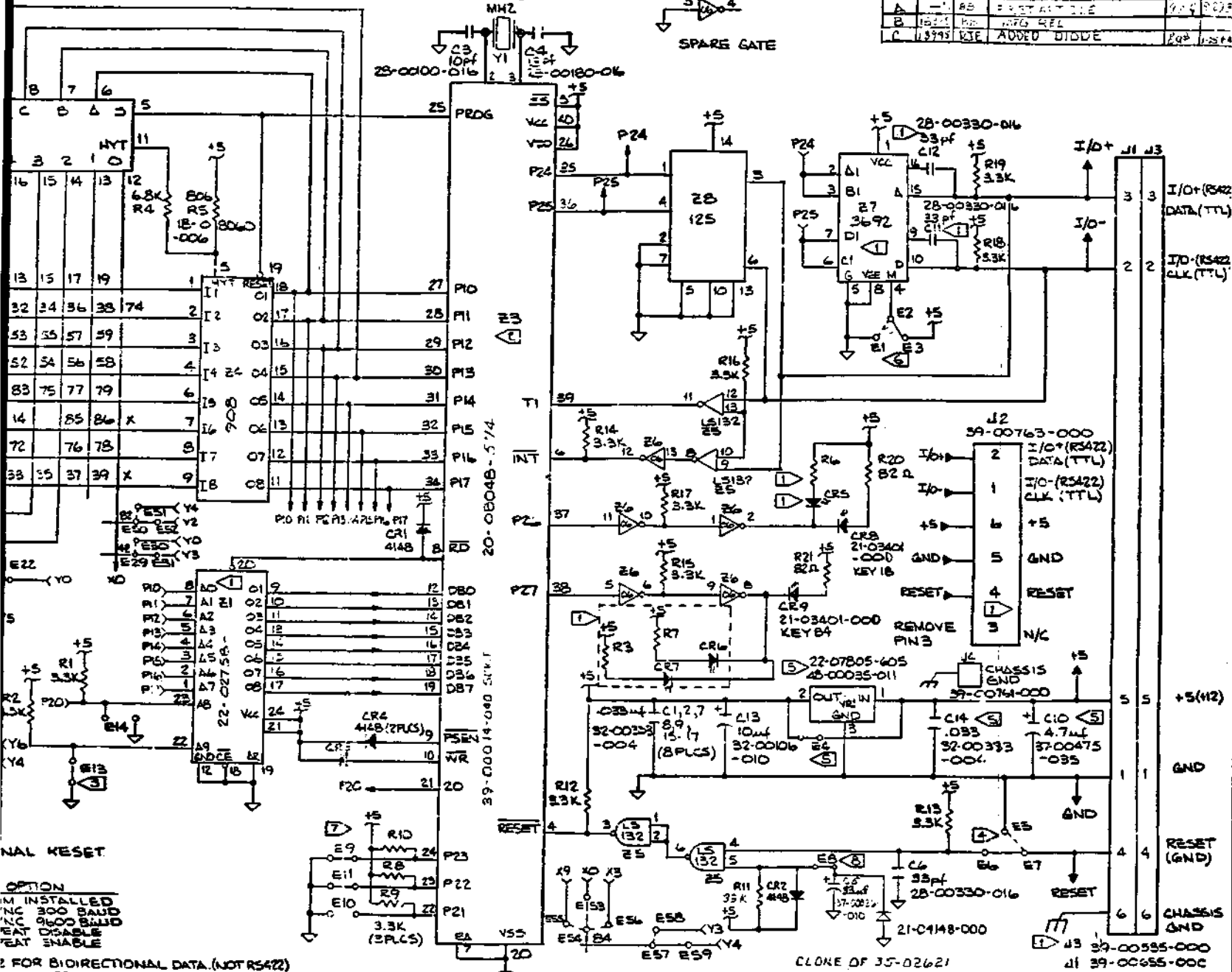
  - ⑥ CUT E2 TO E3, CONN. E1 TO E
  - ⑤ CUT E4 AND INSTALL C10, C11 SUPPLY.
  - ④ CUTTING E7 TO E6, CONN. E7 EXTRA GND WIRE.
  - ③ CUTTING E13 FORCES FROM T
  - ② ON -OSX ASSY. INSTALL 20-
  - ① NOT NORMALLY INSTALLED
- NOTES:

48-00200-107

4.608

MHZ

REV.	ECO	BY	DESCRIPTION	APP	DATE
A	-	RS	POST ASSEMBLY		10/4/80
B	1521	RS	1976 REL		
C	1595	RTE	ADDED DTDDE		10/2/81



OPTION  
 IF INSTALLED  
 AT 300 BAUD  
 AT 9600 BAUD  
 TEST DISABLE  
 TEST ENABLE

FOR BIDIRECTIONAL DATA (NOT RS422)  
 AND 22-07805-605 AT VR1 FOR +12  
 TEST DISABLES EXTERNAL RESET. ADD  
 UPPER HALF.  
 28748-574 AT Z3.

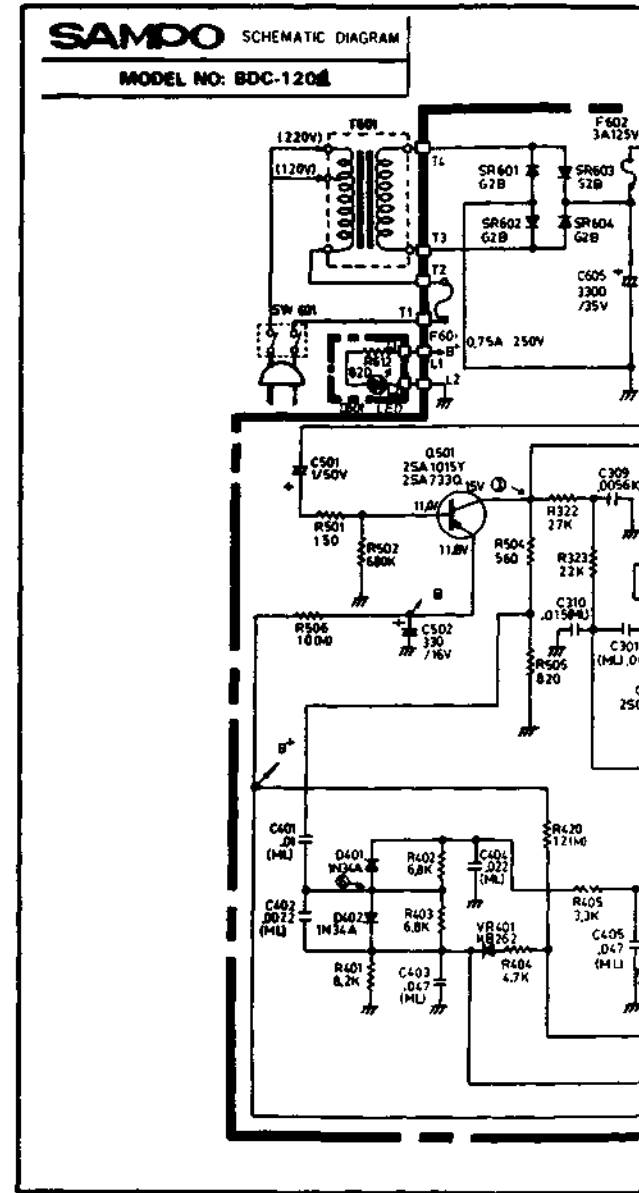
NOTICE OF SUPPLEMENTARY INFORMATION  
 ALL DIMENSIONS ARE IN INCHES  
 UNLESS OTHERWISE NOTED  
 TOL. EXCEPT AS NOTED  
 HOLE DIA.  
 FRACT. 2/164"  
 XXX = .015"  
 ANG. 2 = 1°  
 DR JAR 9/4/83

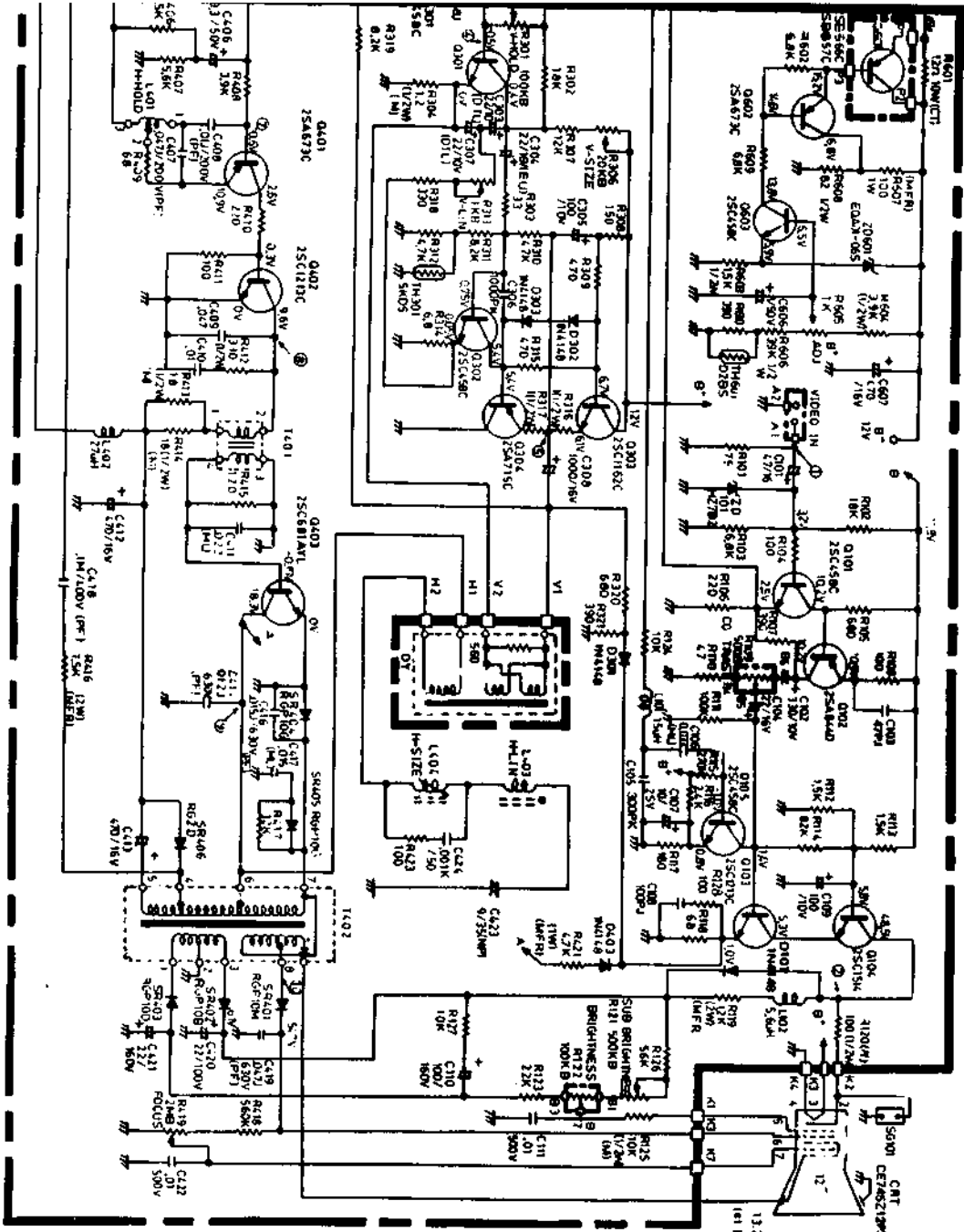
APP	RELEASED	DATE	DR	REV.	SCALE	PART NO.	TITLE	DESCRIPTION	DWG. NO.	SHEET	OF
NORTH STAR							SCHEMATIC		35-02751	1	1

Key Tronic Corporation  
 SPOKANE, WASH., U.S.A.



**SCHEMATIC DIAGRAMS**  
Sampo Video (1 of 1)



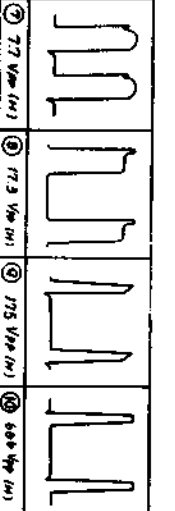
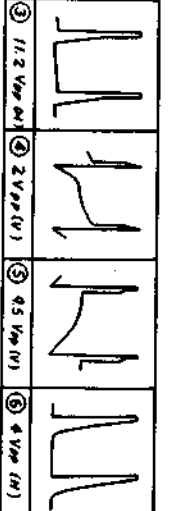
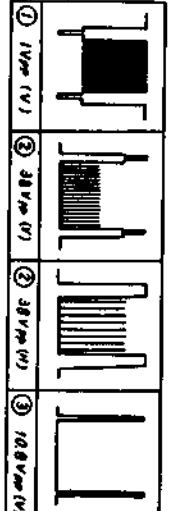


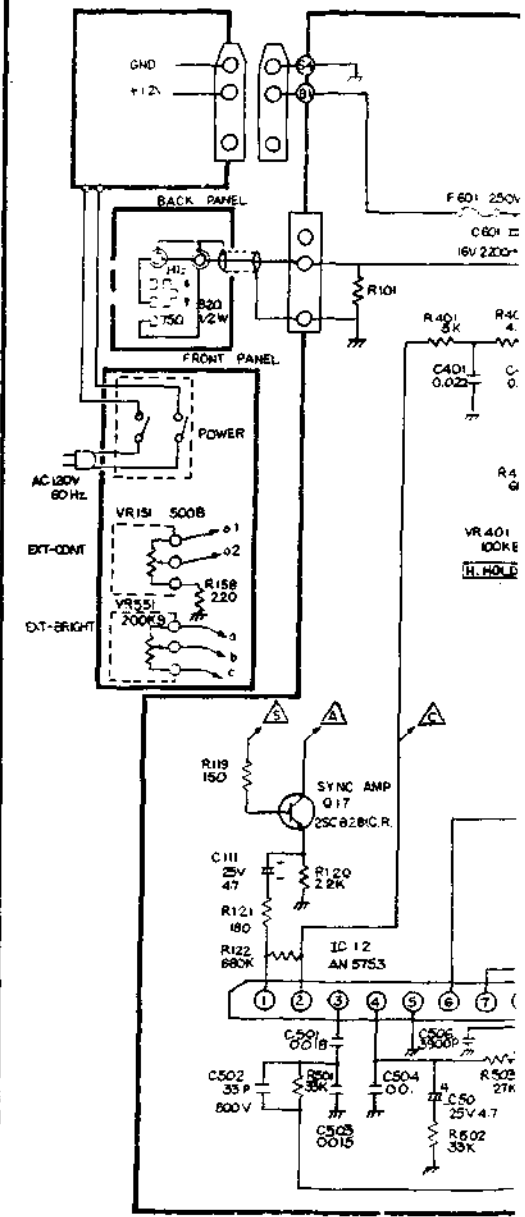
**CRITICAL COMPONENT WARNING**

These critical components that are checked on the schematic diagram and assembled on the PCB are used to prevent shock, fire hazard and excessive X-radiation. All these critical components must be replaced only with the same type identified to those in the schematic diagram and parts list.

**NOTE**

- All resistor values are in ohms, K = 1000, M = 1000000.  
 (unspecified) : Carbon film, 5% SW  
 (40) : Carbon film, 1%  
 (40) : Metal film, 5%  
 (CT) : Cement wire-wound, 5%  
 (unspecified) : Cement, 50% (DIP) Epc. Non-polar, 510K  
 J: 50%, K: 20%  
 L: 50%, 10% Epc. <math>A\_{70}^{\circ}C</math> within 10%  
 (40) : Mylar, 1% 5% unspliced, 510K  
 (40) : Polyester, 4% 5% M: 520% unspliced, 510K  
 (DTL) : Tantalum, 520%  
 3. The circuit diagram is original one. Specifications there may be a slight difference from your set.  
 4. All printed voltages are shown under 1.0 Vpp video input (0.2 Vpp signal).

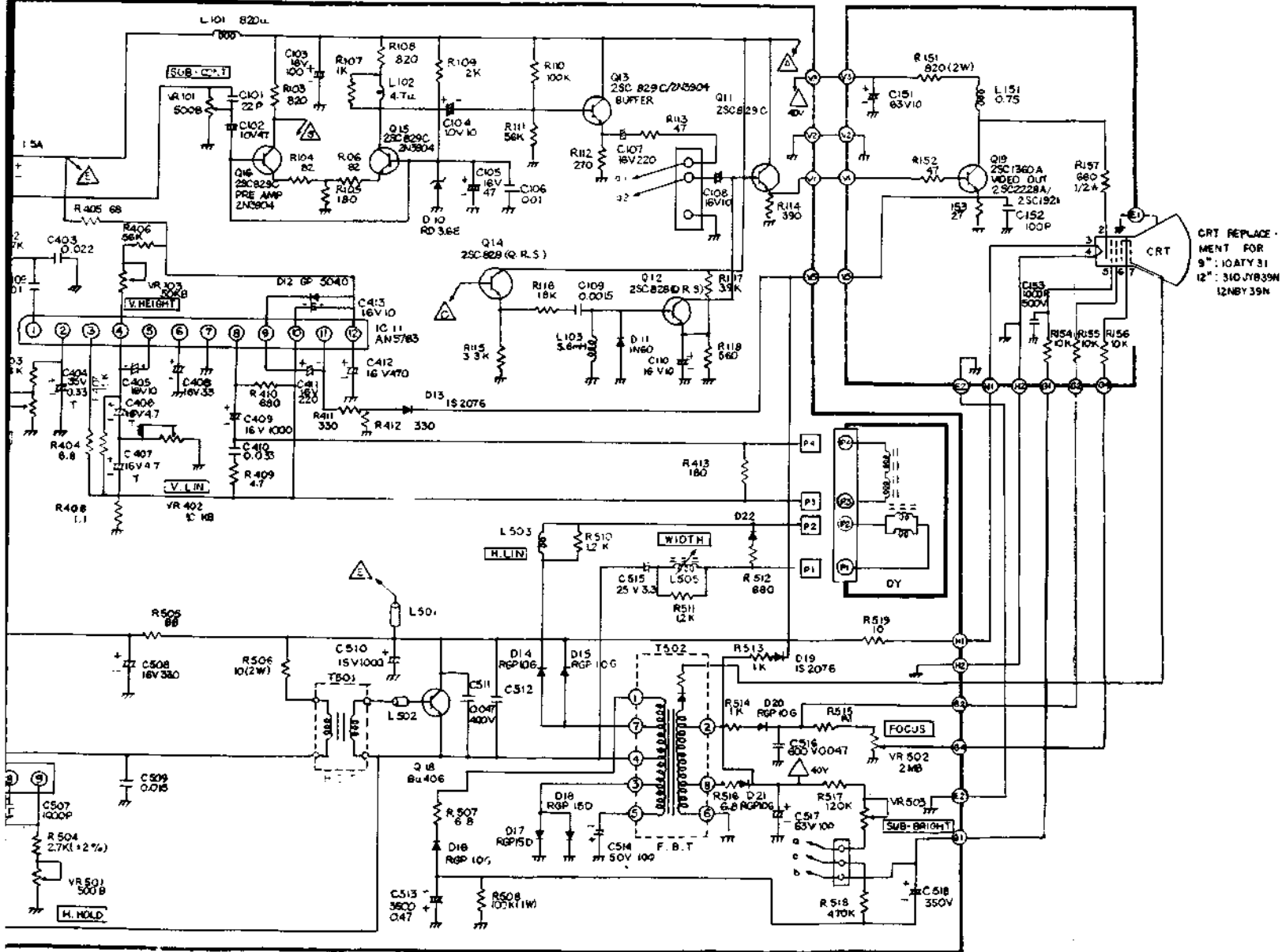




RAM

D/MD-1251D

1. ALL RESISTANCE VALUES IN OHMS, K=1,000 M=1,000,000
2. UNLESS OTHERWISE NOTED IN SCHEMATIC DIAGRAM ALL CAPACITORS LESS THAN 1 ARE EXPRESSED IN MFD AND THE VALUES LARGER THAN 1 ARE IN PF
3. THIS IS FUNDAMENTAL CIRCUIT DIAGRAM, SOME PRODUCTION CHANGE MAY BE MADE WITHOUT REVISION OF THE DIAGRAM.





# DC POWER SUPPLY

