
The Friendly Computer

Technical Manual

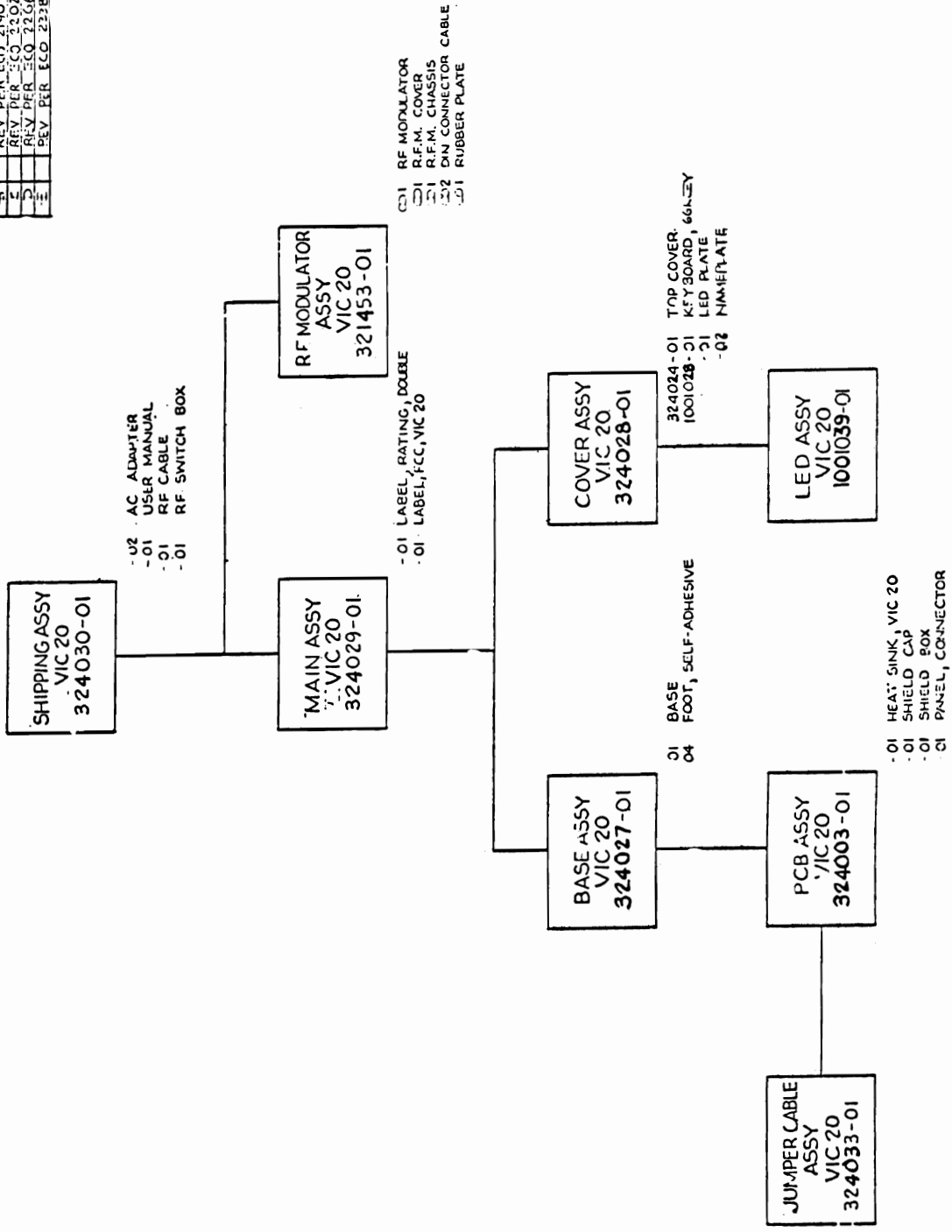
Model VIC-20



Commodore
COMPUTER

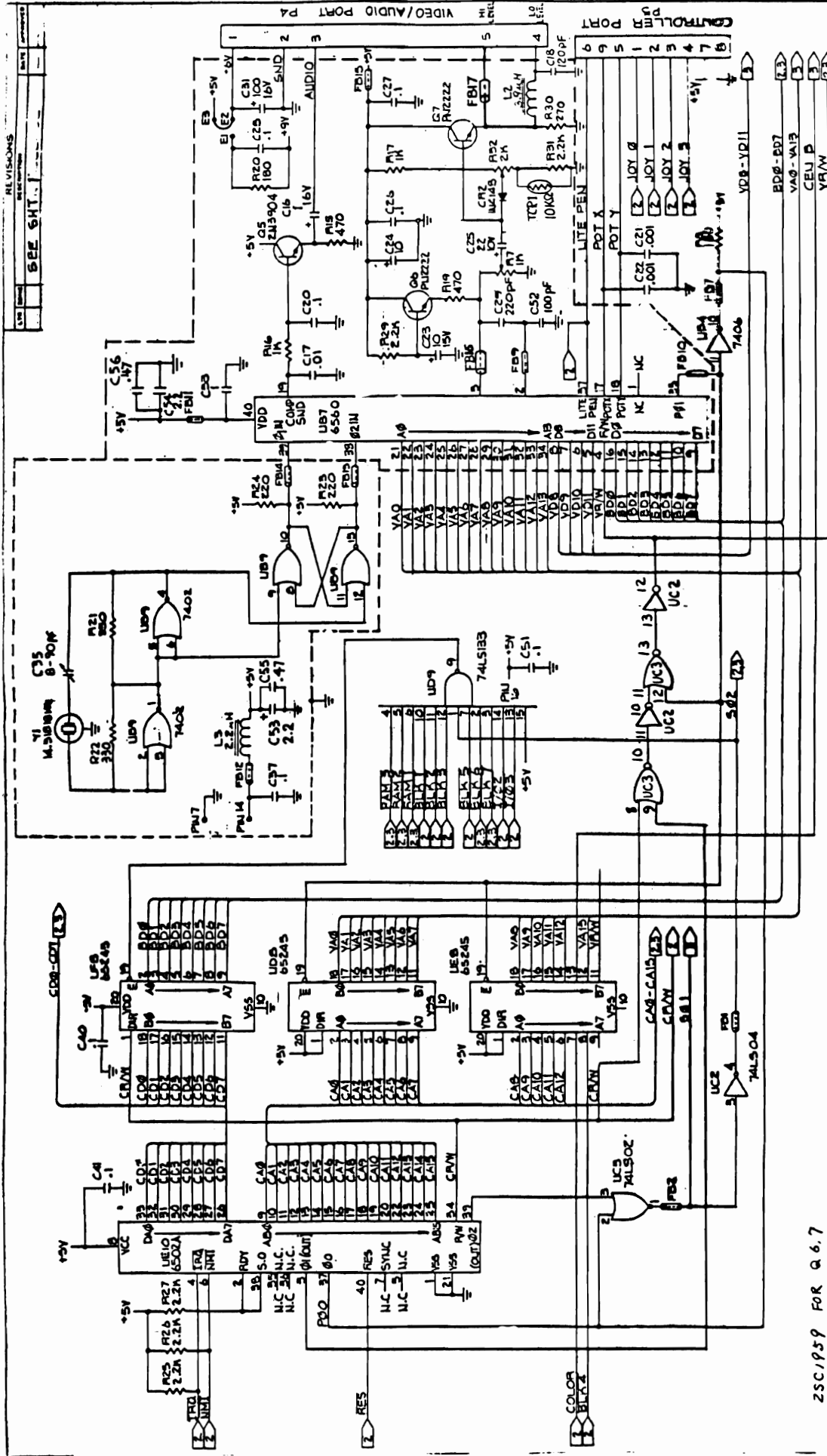
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REV	DESCRIPTION	DATE
A	PRODUCTION RELEASE	7/17/78
B	REV PER ECO 2190	9/18/78
C	REV PER ECO 2202	10/16/78
D	REV PER ECO 2206	11/16/78
E	REV PER ECO 2228	1/22/79



- 01 RF MODULATOR
- 01 R.F.M. COVER
- 01 R.F.M. CHASSIS
- 012 DIN CONNECTOR CABLE
- 01 RUBBER PLATE

COMMERCIAL	
DRAWING TITLE	
VIC 20	
DATE	324032
REV	



REVISIONS

REV	DATE	DESCRIPTION
1	SEE SHT. 1	

-02 SHOWN UL CONFIGURATION

COMPONENT	VALUE	UNIT
ED0-ED7	2.3	Ω
VA0-VA13	5	Ω
CEU-P	3	Ω
YR/W	2.3	Ω

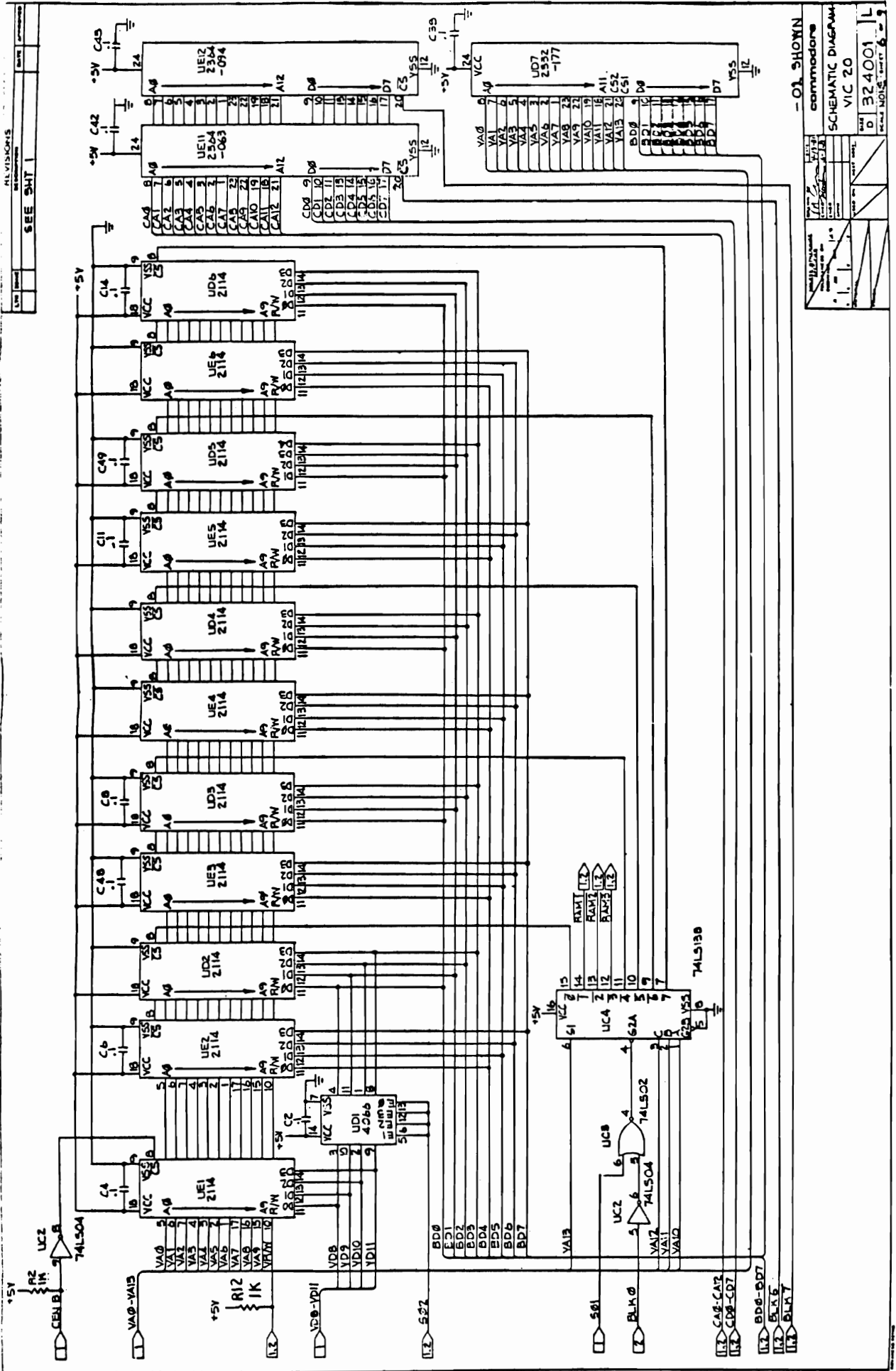
COMMERCIAL

REV	DATE	DESCRIPTION
1	11/22/83	SCHEMATIC DIAGRAM
2	11/22/83	SCHEMATIC DIAGRAM
3	11/22/83	SCHEMATIC DIAGRAM
4	11/22/83	SCHEMATIC DIAGRAM
5	11/22/83	SCHEMATIC DIAGRAM
6	11/22/83	SCHEMATIC DIAGRAM
7	11/22/83	SCHEMATIC DIAGRAM
8	11/22/83	SCHEMATIC DIAGRAM
9	11/22/83	SCHEMATIC DIAGRAM
10	11/22/83	SCHEMATIC DIAGRAM
11	11/22/83	SCHEMATIC DIAGRAM
12	11/22/83	SCHEMATIC DIAGRAM
13	11/22/83	SCHEMATIC DIAGRAM
14	11/22/83	SCHEMATIC DIAGRAM
15	11/22/83	SCHEMATIC DIAGRAM
16	11/22/83	SCHEMATIC DIAGRAM
17	11/22/83	SCHEMATIC DIAGRAM
18	11/22/83	SCHEMATIC DIAGRAM
19	11/22/83	SCHEMATIC DIAGRAM
20	11/22/83	SCHEMATIC DIAGRAM

VIC 20
PART D 32 4001-1
VIC 20 324 003
VIC 20 324 003



- 25C1959 FOR Q.6.7
25C1815 FOR Q.3.4.5
3. SUBSTITUTION OF TRANSISTOR
2. CAPACITANCE VALUES ARE IN MICROFARADS, 50M
1. RESISTANCE VALUES ARE IN OHM, 15W 15%
- NOTES - UNLESS OTHERWISE SPECIFIED:



SEE SMT

SCHEMATIC DIAGRAM
VIC 20

COMMODORE
VIC 20
D 324001

PART NO.	DESCRIPTION
-02	PCB ASSY USA
-05	PCB ASSY NTSC(USA, CANADA)
-09	PCB ASSY NTSC(USA, CANADA)

A	PRODUCTION RELEASE
C	8/11/81 REPLACED
D	9/22/81 Added -04 thru -06 Revised SHIS 2 thru 5 Rev PER ECO
E	11/30/81 Added -07, -08 Rev PER ECO
F	REV PER ECO 2572
G	4/29/82 REV PER ECO 2655
H	4/27/82 REV PER ECO 2656
J	7/27/82 REV PER ECO 2664
K	REVISED PER ECO 2667
L	5/12/82 REVISED PER ECO 2712
M	7/7/82 REVISED PER ECO 2760

- CUT UE8 PIN 9 & 11. PUT JUMPER UE10 PIN 3 TO UC3 PIN 9. PUT JUMPER UAB3 PIN 22 TO UC3 PIN 8. PUT JUMPER UC3 PIN 10 TO UC2 PIN 11. PUT JUMPER UC2 PIN 10 TO UC3 PIN 11. PUT JUMPER UC3 PIN 12 TO UB4 PIN 11. PUT JUMPER UC3 PIN 13 TO UC2 PIN 13. PUT JUMPER UC2 PIN 12 TO UB7 PIN 4.

2 FOR SUBSTITUTE SEE PART SUBSTITUTION INDEX PART NO. 321233

1 SHEET 6 OF 13 OF B ARE C-SIZE ASSY DWG. NOTES.

c b m ENGINEERING OSAKA JAPAN	TITLE	VIC-1001 PCB ASSY	DRAWN BY	DATE	DATE	SIZE	SHEET
			B. J. ...	1/17/81	1/1/81	B	324003-1 of 11

ITEM NO.	QUANTITY REQD PER PART/DASH NO.	PART NUMBER	DESCRIPTION	REF. DES	REV.	NOTES
1	1	324002-01	P.C. BOARD 180x390x1.6t	REV. C		GLASS EPOXY G-10
2	1	324002-02		REV. C		
3	1	324002-01		REV. D		
4	1	324002-02	P.C. BOARD 180x390x1.6t	REV. D		GLASS EPOXY G-10
5	1	324002-01	P.C. BOARD 180x390x1.6t	REV. E		GLASS EPOXY G-10
6	1	324002-01	P.C. BOARD 180x390x1.6t	REV. F		GLASS EPOXY G-10
7						
8	1	901435-02	LSI 6502A MPU	UE10		
9	2	901437-01	6522 VIA	UAB1.UAB3		
10	1	901486-01	2364-063 ROM	UE11		\$ C000 ~ \$ DFFF
11	1	901486-02	2364-064 ROM	UE12		\$ E000 ~ \$ FFFF
12	1	901486-06	2364-094 ROM	UE12		\$ E000 ~ \$ FFFF
13	1	901486-07	2364-095 ROM	UE12		\$ E000 ~ \$ FFFF
14	1	901460-02	2332-171 ROM	UD7		\$ 8000 ~ \$ 8FFF
15	1	901460-03	2332-177A ROM	UD7		\$ 8000 ~ \$ 8FFF
16	1	901491-01	6560 VIC	UB7		
17	1	901896-01	LSI 6561 VIC	UB7		
18						
19	1	901552-32	IC 7402	UB9		
20	1	901521-02	74LS04 HEX INV.	UC2		
21	1	901522-06	7406 HEX INV. OSC	UB4		
22	1	901521-01	74LS02 NOR GATE	UC3		
23	1	901525-14	74S02 NOR GATE	UC3		SUB. FOR ITEM 22
24	1	901521-15	74LS133 NAND GATE	UD9		
25	1	901525-02	74S133 NAND GATE	UD9		SUB. FOR ITEM 24
26	3	901521-16	74LS138 DECODER	UC4.5.6		
27	3	901525-09	74LS74	UB10		
28	3	901521-45	74LS245 BUS BUFFER	UE8.UE9.UD8		
29	1	901502-01	CD4066 BILATERAL SW.	UD1		
30	1	901523-01	IC NE555 TIMER	UB6		
31						
32						
33	11	901453-04	IC 2114L RAM STATIC	UD3~UD6 UE1~UE6		300RS
34						
35	1	901528-01	VOLT REGULATOR LM323	VR1		
36						
TITLE: VIC-1001 PCB ASSY DRAWN BY: P. Takano CHECKED: / / DATE: 9/1/84 APPR: / / DATE: / / SIZE: B SHEET: 2 of 11						

c b m ENGINEERING
OSAKA JAPAN

QTY	PART/DASH NO.	QTY REQD PER PART/DASH NO.	P.C.B. NO.	PART NUMBER	DESCRIPTION	REF. DES	QTY	NOTES
1				37 B	TRANSISTOR NPN 2N3904	Q3.5		
1				38	TRANSISTOR NPN 2N4401	Q4		
1				39	DIODE 2SD880	Q1		
2				40	DIODE PN2222	Q6.7		
3				41	DIODE 2SC1875	Q3.4.5		
2				42 B	TRANSISTOR NPN 2SC1959	Q6.7		
2				43 B	CAPACITOR HOND LITHIC .47uF .50V	C37.58		
1				44 B	DIODE ZENER 7.5V 500mW	CR1		NF-025
1				45	DIODE SIGNAL 50V 350mA	CR2		1S2472
1				46	DIODE RECT 10A 100V	CR4		PB101 SEE NOTE 2
2				47 B	CAPACITOR TANTALUM .047uF/16V	C55.56		
1				48 B	THERMISTOR SBT-1000	TCR1		
2				49 B	CAPACITOR TANTALUM 2.2uF/16V	C53.C54		
2				50 B	CAPACITOR ELECT. 1uF/16V	C13.16		
2				51	CAPACITOR ELECT. 10uF/16V	C23.24		SEE NOTE 2
1				52				
1				53	22uF/16V	C25		
2				54	100uF/16V	C31.44		
1				55	ELECT. 4700uF/16V	C39		
1				56	CERAMIC 120PF/50V	C18		
1				57	220PF/50V	C29		AXIAL TYPE
2				58	0.001uF/50V	C21.22		
1				59	0.01uF/50V	C17		
1				60	0.047uF/50V	C46		
30				61	0.1uF/50V	C18		
2				62	120PF/50V	C18		
1				63	220PF/50V	C29		
1				64	0.001uF/50V	C21.22		
1				65	0.01uF/50V	C17		RADIAL TYPE
1				66	0.047uF/50V	C46		
1				67 B	0.1uF/50V	C18		
1				68 B	0.22uF/25V	C30		
1				69 B	100PF/50V	C52		
1				70 B	CAPACITOR CERAMIC 8~90PF	C35		
1				71 B	POTENTIOMETER B1K2	R7		MITSUBI RGS6-FAN TYPE
1				72 B	POTENTIOMETER B2K2	R32		MITSUBI RGS6-FAN TYPE

DATE	1/1	SIZE	B	SHEET	3 of 11
DRAWN BY:	D. Takahashi	DATE	7/23/77	APPR:	
CHKD:					
TITLE: VIC-1001 PCB ASSY					

c b m ENGINEERING
OSAKA JAPAN

ITEM NO.	QUANTITY REQD PER PART/DASH NO.	PART NUMBER	DESCRIPTION	REF. DES	BEND	NOTES
73	2	901550-100	RESISTOR, CARBON 1/4W 5% 180Ω	R20, 33, 8		
74	2	- 52	220Ω	R23, 24		
75	1	- 76	270Ω	R30		
76	2	- 14	330Ω	R21, 22		
77	2	- 57	390Ω	R28, 12		
78	2	- 58	470Ω	R15, 19		
79	9	- 01	1KΩ	R2, 28, 34, 35		
80	1	- 69	1.5KΩ	R13		
81	5	- 18	2.2KΩ	R25, 27, 29, 31		
82	2	- 20	10KΩ	R1, 11		
83	1	- 61	220KΩ	R9		
84	1	901550-37	RESISTOR, CARBON 1/4W 5% 1.5MΩ	R14		
85	1		RESISTOR, CARBON 1/4W 5% 680Ω	R24		
86	1	900558-01	CRYSTAL 14.31818 MHz	Y1		DAIWA SHINKU HC-18/U
87	1	900562-01	CRYSTAL 8.867236 MHz	Y1		" "
88	1					
89	1	903559-04	FUSE SLO-BLO 5.2 x 20 250V3A	F1		S-N5057S
90	2	903613-01	CLIP, FUSE HOLDER			
91	1					
92	1	903483-01	POWER JACK	J1		HSC0463
93	1		POWER JACK	J1		
94	1					
95	1	904661-01	POWER SWITCH, RIGHT ANGLE	SW1		
96	1					
97	1	903362-01	CONNECTOR, DIN, 5 PIN	P4		TCS 4450-01-101 HOSHIDENKI
98	1	903361-01	CONNECTOR, DIN, 6 PIN	P3		TCS 4460-01-101 "
99	1	903363-01	CONNECTOR, MINI D 9 PIN	P5		09-67-009-2664 YAMAICHI
100	1	903346-01	CONNECTOR, CARD EDGE 44 PIN	P6		CE-263 MITSUMI
101	1					
102	2	903326-02	HEADER ASSY 0.1 PITCH 2 PIN	CA1, 2		MOLEX 3022-02A
103	1	903365-01	HEADER ASSY 0.1 PITCH 3 PIN	CA3		MOLEX 3094-03A
104	1	903364-01	HEADER ASSY 0.1 PITCH 20 PIN	CA KYB		R41-5614A
105	4	904150-06	IC SOCKET 40 PIN	UAS1, UAB3 UB1, UB10 UB7, UB12		
107	3	904153-03	IC SOCKET 24 PIN	UB11, UB12		
108	1					

DATE: 1/11 SIZE: B SHEET: 4 of 11

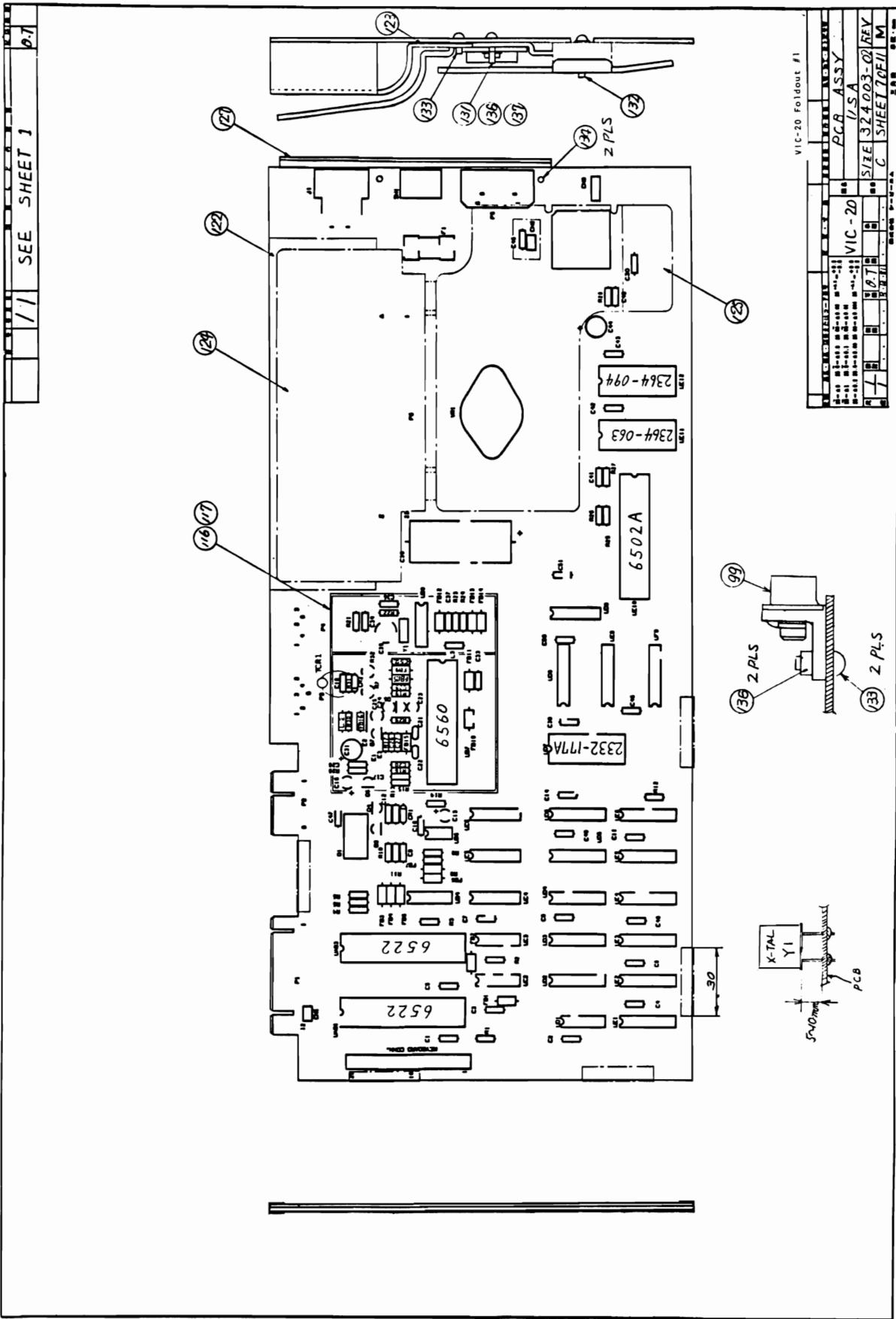
DATE: 9/29/91 APPR: DATE: 1/1

DRAWN BY: M. Takeda CHKD: VIC-1001 PCB ASSY

C b m ENGINEERING OSAKA JAPAN

QTY	QTY REQD PER PART/DASH NO.	PART NUMBER	DESCRIPTION	REF. DES	BEND	NOTES
109	05	324033-01	JUMPER CABLE ASSY			
1	1	200018-09	JUMPER WIRE			
2	2	901151-20	COIL INDUCTOR 3.9uH	L2		
1	1	901151-17	COIL INDUCTOR 2.2uH	L3		
1	1	520016	COIL INDUCTOR	L4		
16	16	903025-01	FERRITE BEAD	FBI-7916		
1	1	325539-01	COIL INDUCTOR	L4		
1	1	324016-01	SHIELD CAP			
1	1	324017-01	SHIELD BOX			
118						
119						
120	1/2	905508-01	TAPE ALUMINUM			
121						
1	1	1001044	GUIDE CARTRIDGE			
2	2	1001045	INSULATOR GUIDE			
1	1	1001046	HEAT SINK 5V REGULATOR			
1	1	1001047	HEAT SINK BRIDGE DIODE			
126						
1	1	1001005-01	PANEL, CONNECTOR			
128		1001005-02	PANEL, CONNECTOR			
129						
1	1	1001019-01	CUSHION PE FOAM 20x40x10			
2	2	906800-04	SCREW PAN HEAD M3x0.5x10	HEAT SINK 5V		ZINC CHROMATE
1	1	906800-05	SCREW PAN HEAD M3x0.5x15	HEAT SINK BRIDGE		ZINC CHROMATE
4	4	906800-03	SCREW PAN HEAD M3x0.5x8	GUIDE (2)		" "
2	2	906800-01	SCREW PAN HEAD M3x0.5x4	PANEL CONN.		" "
135						
4	4	905960-03	NUT HEX. M3x0.5	LM323		ZINC CHROMATE
2	2	905652-04	LOCK WASHER, EXT. TOOTHED, 3*	LM323		" "
1	1	905485-04	RUG, SOLDER			
1/2	1/2	904907-01	COMPOUND, HEAT SINK			6-746
140						
141		324001-01	SCHEMATIC DIAGRAM JPN			REV.
142	1/2	324001-02	" " UL			REV.
143	1/2	324001-03	" " PAL			REV.
144						

DATE: 1/1		SIZE: B	SHEET: 5 of 11
DATE: 1/1		SIZE: B	
DRAWN BY: T. Tabata		DATE: 9/18/97	APPR:
CHKD:		DATE: 1/1	
TITLE: VIC-20 PCB ASSY			
c b m ENGINEERING OSAKA JAPAN			

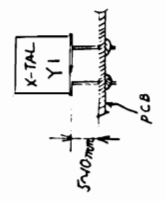
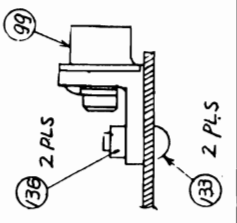


SEE SHEET 1

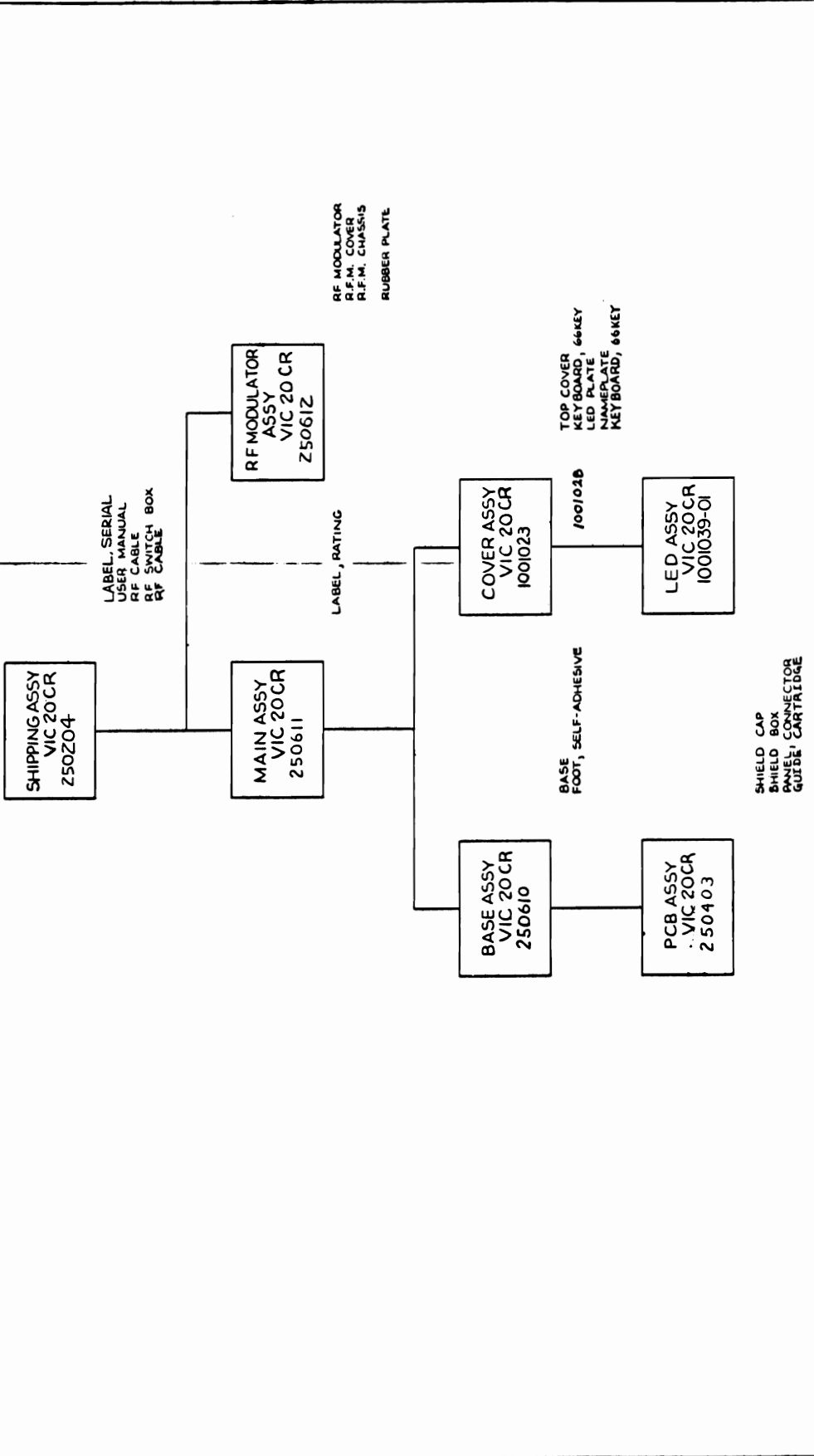
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VIC-20 Foldout #1

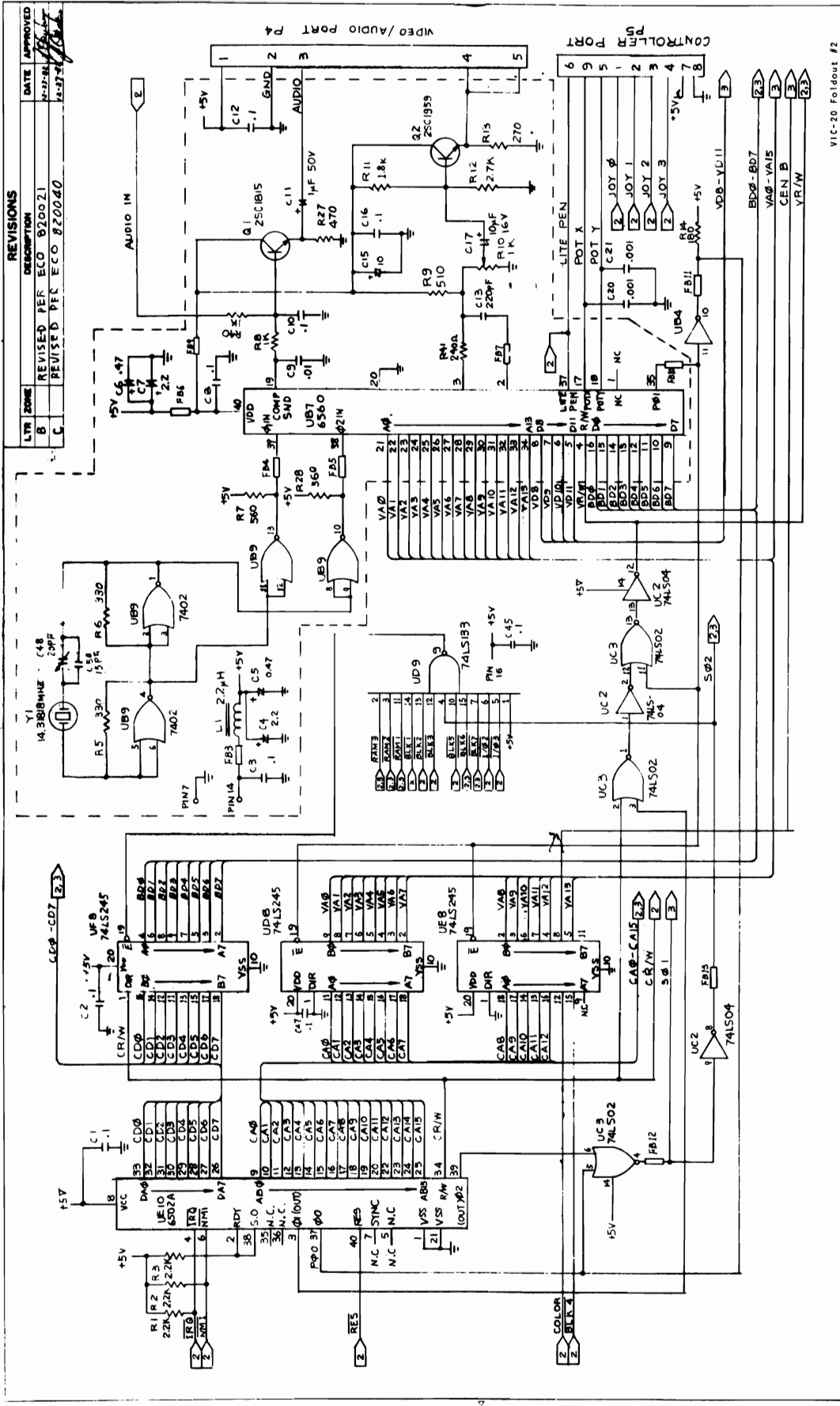
DATE: 11-1-80	BY: M
VIC-20	
PCB ASSY	
U.S.A.	
324003-01 REV	
C	SHEET 20/21
M	



REVISED	DESCRIPTION	DATE	BY
1	PRODUCTION RELEASE		



COMMERCIAL		DRAWING TREE	
VIC 20		VIC 20 CR	
REV	DATE	REV	DATE
1		1	
D 250004		A	



REV	DATE	DESCRIPTION	APPROVED
1	4-12-81	REVISED PER ECO 820021	[Signature]
2	4-27-81	REVISED PER ECO 820040	[Signature]

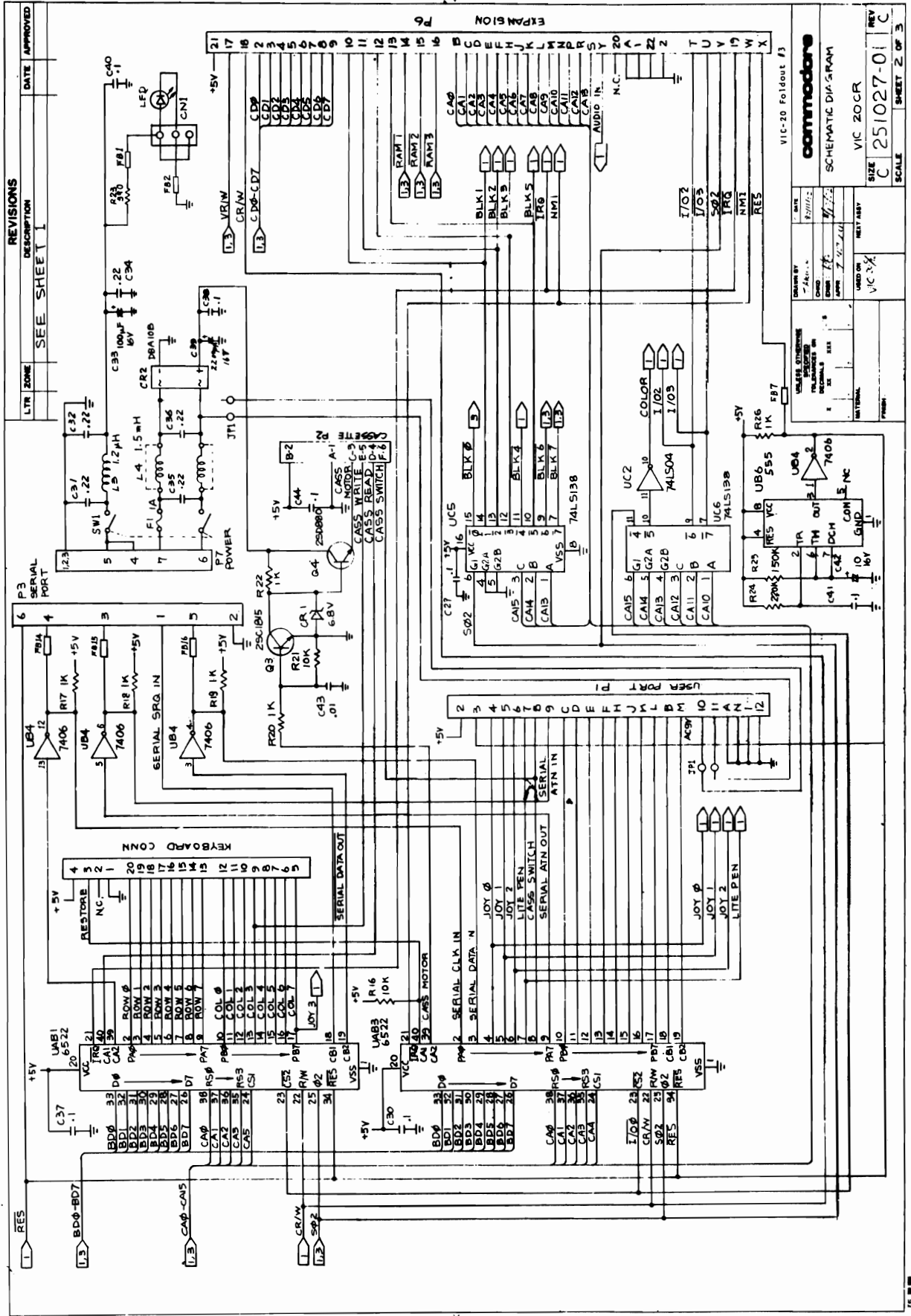
REV	DATE	DESCRIPTION	APPROVED
1	4-12-81	REVISED PER ECO 820021	[Signature]
2	4-27-81	REVISED PER ECO 820040	[Signature]

UNLESS OTHERWISE SPECIFIED	DATE	DESCRIPTION	APPROVED
ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED	4-12-81	REVISED PER ECO 820021	[Signature]
	4-27-81	REVISED PER ECO 820040	[Signature]

UNLESS OTHERWISE SPECIFIED	DATE	DESCRIPTION	APPROVED
ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED	4-12-81	REVISED PER ECO 820021	[Signature]
	4-27-81	REVISED PER ECO 820040	[Signature]

UNLESS OTHERWISE SPECIFIED	DATE	DESCRIPTION	APPROVED
ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED	4-12-81	REVISED PER ECO 820021	[Signature]
	4-27-81	REVISED PER ECO 820040	[Signature]

VIC-20 Foldout #2
Commodore
 SCHEMATIC DIAGRAM
 VIC 20CR
 SIZE C 251027-01 REV C
 SCALE SHEET 1 OF 3



REVISIONS

DATE	DESCRIPTION	APPROVED
SEE SHEET 1		

LTR ZONE

DATE	DESCRIPTION	APPROVED

VIC-20 Foldout #3

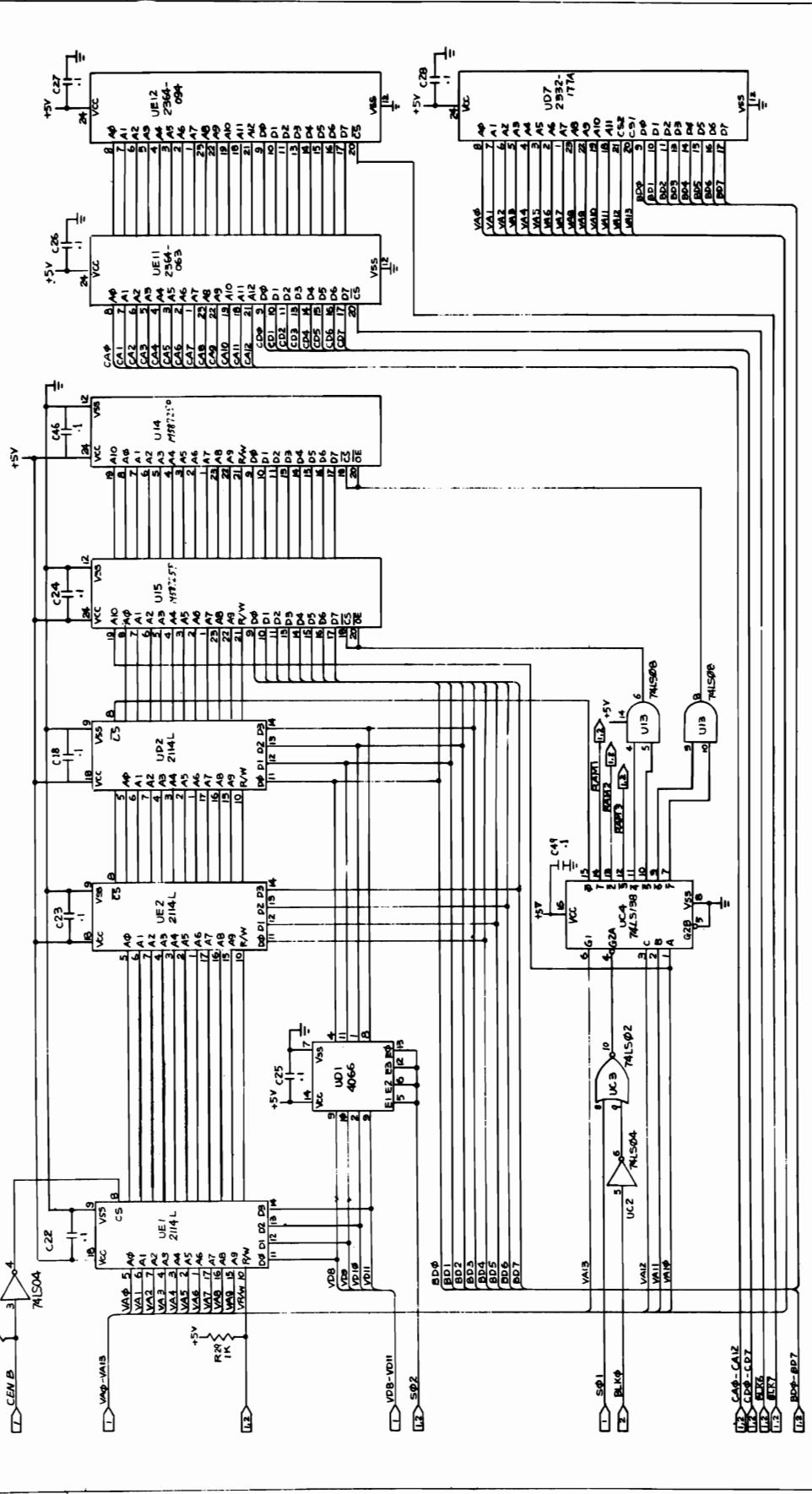
commodore

SCHEMATIC DIAGRAM

DATE	REVISION	BY	CHKD	APPD
7/27/80	1	VC		
7/27/80	2	VC		
7/27/80	3	VC		

UNLESS OTHERWISE SPECIFIED, ALL PARTS ARE TO BE PURCHASED FROM COMMODORE INTERNATIONAL.

SIZE: VIC 20CR
 C 251027-01
 SCALE: SHEET 2 OF 3



PART NO.	DESCRIPTION	REV	DATE	BY	REASON	DATE	BY	REASON
250403-02	PCB ASSY, USA	A	8/11/82		PRODUCTION RELEASE			
		B			REV PER ECO 820034			
		C	8/11/82		REV PER ECO 820041			
		D	11/1/82		REV PER ECO 830006			
		E			REV PER ECO 830010			

1. SHEET 6 OF 11 B-SIZE

ASSY DWG.

NOTES:
SHEETS 8,9,10 NOT IN THIS SET

c b m ENGINEERING OSAKA JAPAN	TITLE:	VIC-20CR PCB ASSY		DRAWN BY:	S. H. J. J.	DATE:	1/1	SIZE:	B	SHEET:	1 OF 11
	CHKD:	S. H. J. J.		CHKD:	S. H. J. J.	DATE:	11/19/82	APPR:	1/0		

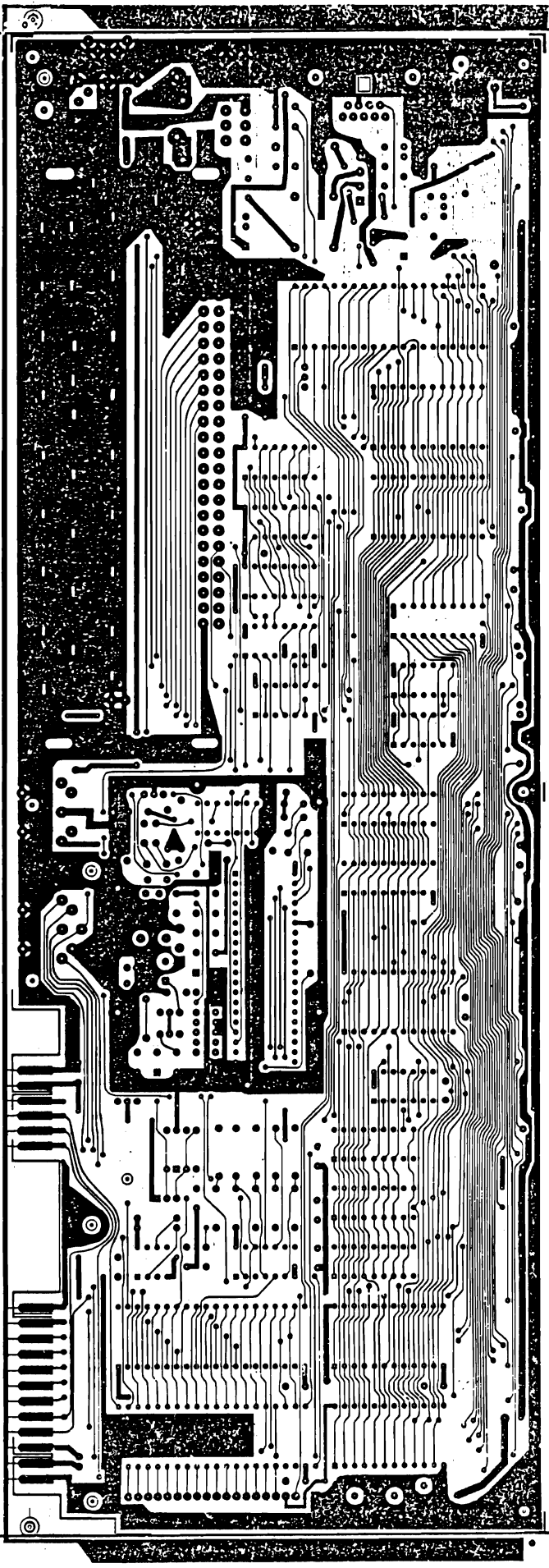
ITEM	QTY REQD PER PART/DASH NO.	PART NUMBER	DESCRIPTION	REF. DES	BOM	NOTES	DATE	SIZE	SHEET
							1/1	B	
1	02	251040-01	PC BOARD 380 x 136 x 1.62			GLASS EPOXY G-10			
2	1	251040-02	PC BOARD 380 x 136 x 1.62			GLASS EPOXY G-10			
3	Ref	250403	VIC-20CR PCB ASSY SMT II						
4	Ref	251027-01	SCHEMATIC DIAGRAM (NTSC)			WITHOUT PAL			
6									
7									
8	1	901425-02	LSI 6502A MPU	UE10					
9	2	901437-01	LSI 6522 VIA	UAB1, UAB3					
10	1	901426-01	LSI 2364-063 ROM	UE11		\$C000 ~ \$8FFF			
11	1	901426-02	LSI 2364-064 ROM	UE12		\$E000 ~ \$FFFF			
12	1	901426-06	LSI 2364-094 ROM	UE12		\$E000 ~ \$FFFF			
13	1	901426-07	LSI 2364-095 ROM	UE12		\$E000 ~ \$FFFF			
14	1	901460-02	LSI 2332-171 ROM	UD7		\$8000 ~ \$8FFF			
15	1	901460-03	LSI 2332-177A ROM	UD7		\$8000 ~ \$8FFF			
16	1	901491-01	LSI 6560 VIC	UB7					
17	1	901896-01	LSI 6561 VIC	UB7					
18									
19	1	901552-32	IC 7402	UB9					
20	1	901521-02	IC 74LS04 HEX INV.	UC2					
21	1	901522-06	IC 7406 HEX INV, OSC	UB4					
22	1	901521-21	IC 74LS02 NOR GATE	UC3					
23	1	901521-03	IC 74LS08 AND GATE	UB3					
24	1	901521-15	IC 74LS133 NAND GATE	UD9					
25	5	901525-02	IC 74LS133 NAND GATE	UD9					
26	3	901521-16	IC 74LS138 DECODER	UC4, 5, 6					
27	1	901525-09	IC 74LS74A FF	UB10					
28	3	901521-45	IC 74LS245 BUS BUFFER	UD0, UE8, UE8					
29	1	901502-01	IC CD4066 BILATERAL SW	UD1					
30	1	901523-01	IC 555 TIMER	UB6					
31									
32									
33	3	901453-04	IC 2114L RAM STATIC	UE1, UE2, UD2		300nS			
34	2	925302-01	IC M58725P 16K-SRAM	UE4, UE5					
35									
36									
TITLE: VIC-20CR PCB ASSY							DATE: 1/1	SIZE: B	SHEET: 2 OF 4
DRAWN BY: S. Hayashi							DATE: 11/9/82	APPR: J.C.	
CHKD: J. Sakai									
C b m ENGINEERING OSAKA JAPAN									

QUANTITY REQD PER PART/DASH NO.	ITEM NO	PART NUMBER	DESCRIPTION	REF. DES	BEND	NOTES	DATE		SHEET
							DATE	SIZE	
	37	902693-01	TRANSISTOR NPN 2SC1815	Q103			1/1	B	250403
	38	902695-01	TRANSISTOR NPN 2SC1959	Q2			1/1		
	39	902694-01	TRANSISTOR NPN 2SD880	Q1			1/1		
	40								
	41								
	42	900927-01	DIODE ZENER 0.5X6.8Y	CR1					
	43								
	44	251028-01	DIODE RECTIFIER DBA10B	CR2					
	45								
	46								
	47	251029-01	CAPACITOR TRIMMER CTZ51 20PF	C48					
	48	251075-1	CAPACITOR CERAMIC Y5V 25V 0.1UF X	C1-3, 8, 10, 12, 16, 18, 22-30, 37, 38, 40, 41, 44 ~ 47, 49 / FORMING DISC TYP.					
	49	900411-02	CAPACITOR TANTAL 16V 2.2UF M	C4, 7					
	50	900402-17	CAPACITOR TANTAL 16V 0.47UF M	C5, 6					
	51	900100-16	CAPACITOR ELECT 16V 1UF	C11					
	52	900100-25	CAPACITOR ELECT 16V 10UF	C15, 17, 42					
	53	251073-1	CAPACITOR CERAMIC F 50V 0.01UF X	C9, 43					
	54								
	55								
	56	251071-26	CAPACITOR CERAMIC SL 50V 220PF K	C13					
	57	251069-8	CAPACITOR CERAMIC B 50V 0.001UF K	C20, 21					
	58	251075-7	CAPACITOR CERAMIC Y5V 25V 0.22UF X	C31, 32, 34					
	59	900101-33	CAPACITOR ELECT 16V 2200UF AXIAL C37						
	60	700100-40	CAPACITOR ELECT 16V 100UF	C33					
	61	700150-11	CAPACITOR MYLER 100V 0.22UF K	C35, 36					
	62	251030-01	CAPACITOR CERAMIC N3300 50V 151EJ	C50					
	63								
	64								
	65	200016-41	VINYL WIRE						
	66	905476-05	HEAT-SHRINK ABLE TUBE Ø3x20						
	67								
	68								
	69								
	70	251041	POTENTIOMETER B 1K	R10					
	71								
	72								
TITLE: VIC-20 CR PCB ASSY							DATE: 1/1	SIZE: B	SHEET: 3 OF 11
DRAWN BY: S. Hayashi							CHKD BY: S. Hayashi	DATE: 1/1	APPR: 1/1
C b m ENGINEERING OSAKA JAPAN							VIC-20 CR PCB ASSY		

QUANTITY REQD PER PART / DASH NO.	REV	PART NUMBER	DESCRIPTION	REF. DES	BEND	NOTES	DATE	SIZE	SHEET
									4 of 11
1	02	251068-61	RESISTOR CARBON RADIAL 1/4W 5% 270Ω	R13			1/1	B	250403
1	1	251068-63	RESISTOR CARBON RADIAL 1/4W 5% 330Ω	R5, R6			1/1		
1	1	251068-67	RESISTOR CARBON RADIAL 1/4W 5% 470Ω	R27			1/1		
1	1	251068-68	RESISTOR CARBON RADIAL 1/4W 5% 510Ω	R1			1/1		
2	1	251068-69	RESISTOR CARBON RADIAL 1/4W 5% 560Ω	R7, R8			1/1		
1	1	251068-76	RESISTOR CARBON RADIAL 1/4W 5% 1KΩ	R8			1/1		
1	1	251068-82	RESISTOR CARBON RADIAL 1/4W 5% 1.8KΩ	R11			1/1		
1	1	251068-86	RESISTOR CARBON RADIAL 1/4W 5% 2.7KΩ	R12			1/1		
1	1	90550-100	RESISTOR CARBON AXIAL 1/4W 5% 180Ω	R14			1/1		
1	1	90550-54	RESISTOR CARBON AXIAL 1/4W 5% 290Ω	R23			1/1		
9	1	90550-01	RESISTOR CARBON AXIAL 1/4W 5% 1KΩ	R5, 17, 20, 22, 26	R29		1/1		
3	1	90550-18	RESISTOR CARBON AXIAL 1/4W 5% 22KΩ	R1-3			1/1		
2	1	90550-20	RESISTOR CARBON AXIAL 1/4W 5% 10KΩ	R16, 21			1/1		
1	1	90550-16	RESISTOR CARBON AXIAL 1/4W 5% 150KΩ	R25			1/1		
1	1	90550-61	RESISTOR CARBON AXIAL 1/4W 5% 220KΩ	R24			1/1		
1	1	251068-60	RESISTOR CARBON AXIAL 1/4W 5% 240Ω	R91			1/1		
1	1	251042-01	CRYSTAL 16.3818 MHZ	Y1			1/1		
1	1	251042-02	CRYSTAL 8.86236 MHZ	Y1		WITH GND PIN	1/1		
1	1	903358-11	FUSE SLO-BLO 5.2φ × 20 250V 1A	F1			1/1		
2	1	903613-01	CLIP FUSE HOLDER	F1			1/1		
1	1	904500-01	POWER SWITCH	SW1			1/1		
1	1	903362-01	CONNECTOR PIN 5 PIN	P4			1/1		
1	1	903361-01	CONNECTOR PIN 6 PIN	P3			1/1		
1	1	906130-01	CONNECTOR PIN 7 PIN	P7			1/1		
1	1	251057	CONNECTOR MINI.D 9 PIN	P5			1/1		
1	1	903346-01	CONNECTOR CARD EDGE 44 PIN	P6			1/1		
1	1	903365-01	HEADER ASSY 0.1 PITCH 3 PIN	CN1			1/1		
1	1	903364-01	HEADER ASSY 0.1 PITCH 20 PIN	CN KYB			1/1		
5	1	903331-20	HEADER ASSY 0.1 PITCH 20 PIN	CN KYB			1/1		
5	1	903332-03	HEADER ASSY 0.1 PITCH 3 PIN	CN1			1/1		
TITLE: VIC-20 CR PCB ASSY									
DRAWN BY: S. Hayashi / 1/1 CHKD: 20/1/81 / 1/1									
DATE: 1/19/81 APPR: /13									
C b m ENGINEERING OSAKA JAPAN									

QUANTITY REQD PER PART/DASH NO.	REF. NO.	PART NUMBER	DESCRIPTION	REF. DES	BEND	NOTES	DATE		SHEET	
							DATE	SIZE		
	107	904150-06	IC SOCKET 40 PIN	UAB1, UAB3		UB7, UE10	1/1	B	250403	
	110	904153-03	IC SOCKET 24 PIN	UE11, UE12, UD7			1/1			
	111						11/19/72			
	112	251031-01	JUMPER CABLE 2 PIN	JPI						
	113									
	114	901151-17	COIL INDUCTOR 2.2MH	L1		LAL03 XM				
	115	325570-01	COIL INDUCTOR 1.2MH	L3						
	117	325559-02	ASSY LINE FILTER	L4						
	118	903025-01	FERRITE BEAD	FBI, 2,3,6,10,17						
	119	325563-01	FERRITE BEAD RADIAL	FBS-5,7,9						
	120	251032	SHIELD CAP							
	121	251033	SHIELD BOX							
	122	251034	GUIDE CARTRIDGE							
	123	251035	PANEL CONNECTOR							
	124	1001019-01	CUSHION PE FOAM 20x40x1.4	P5		ZINC CHROMATE				
	125	906883-03	SCREW TAPPING M3x6 L9	ITEM 123		ZINC CHROMATE				
	126	906883-15	SCREW TAPPING M3x5 L9							
	127	251093-01	INSULATION SHEET	P5						
	128									
	129									
	130									
	131									
TITLE: VIC-20CR PCB ASSY							DRAWN BY: S. H. ...	DATE: 1/1		
C b m ENGINEERING OSAKA JAPAN							CHKD: ...	11/19/72	APPR: ...	

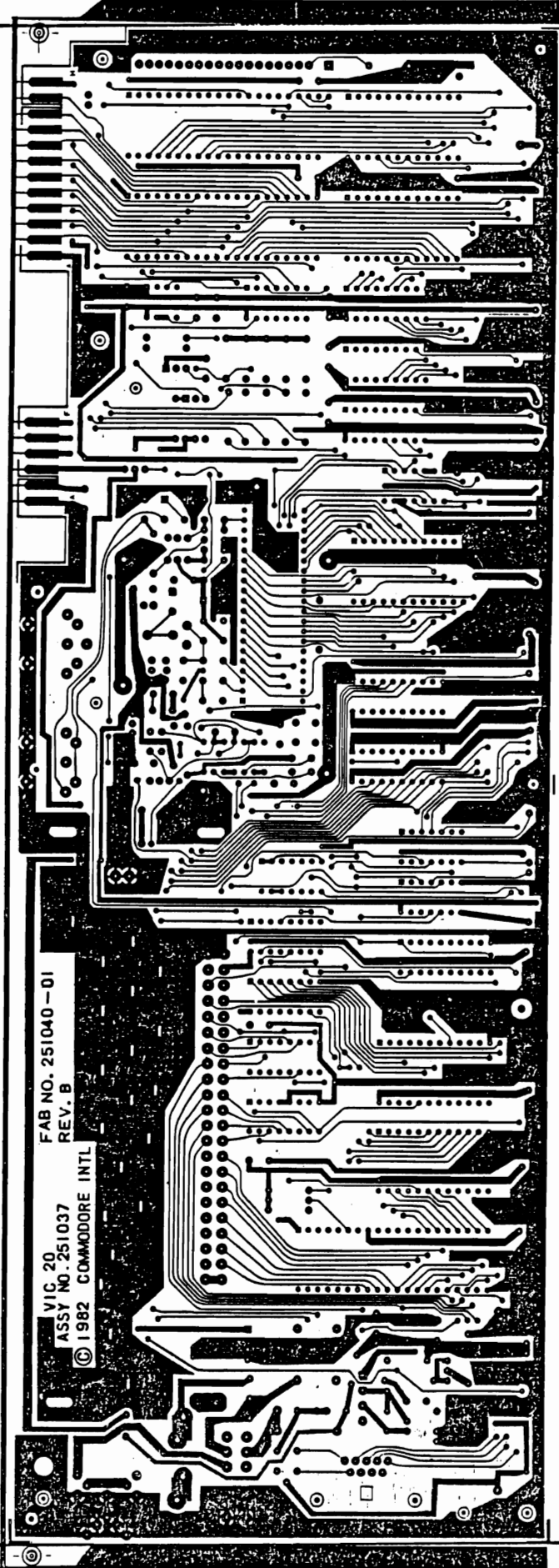
REVISIONS		DATE	APPROVED
LTR	ZONE	DESCRIPTION	
		PRODUCTION RELEASE	



UNLESS OTHERWISE SPECIFIED TOLERANCES ON DECIMALS		DRAWN BY: <i>[Signature]</i>		DATE: 1/31/82
.X	.1X	.1XX	2.5'	3
2	3	2	3	3
MATERIAL:		USED ON: VIC		NEXT ASSY: -20CR
FINISH:				
commodore				
PCB ART WORK				
COMPONENT SIDE				
SIZE	B	Z50403	SCALE	SHEET 6 OF 11
REV	E			

THIRD ANGLE SYSTEM DIMENSION IN

REVISIONS		
LTR	ZONE	DESCRIPTION
		PRODUCTION RELEASE
		DATE
		APPROVED



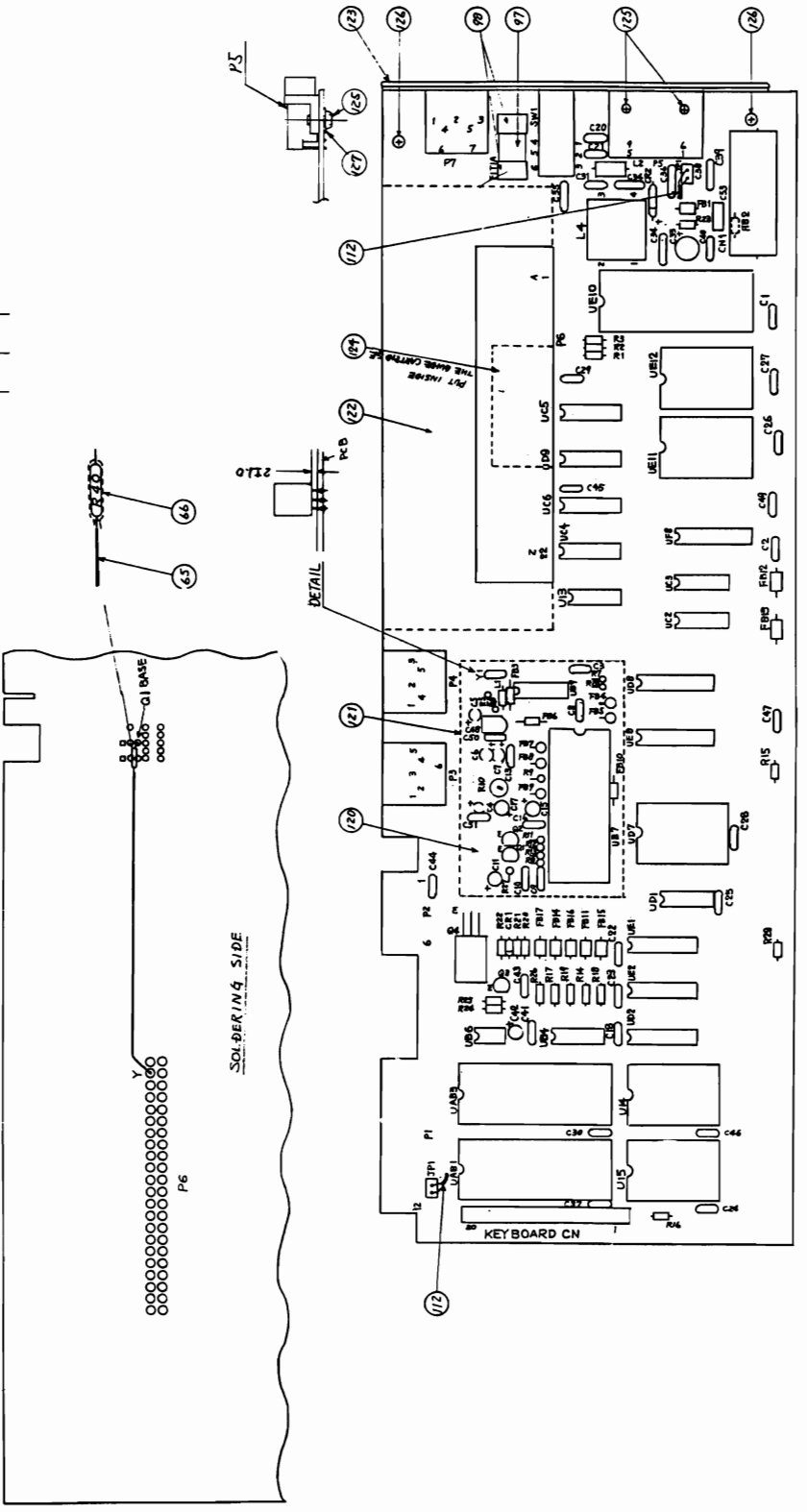
■K-51

VIC 20
 ASSY NO. 251037
 © 1982 COMMODORE INTL

FAB NO. 251040-01
 REV. B

UNLESS OTHERWISE SPECIFIED TOLERANCES ON DECIMALS		DRAWN BY: Y. Saito		DATE: 1/16/82
.X	.XX	.XXX	ENGR: J. B. Smith	DATE: 1/17/82
Z	Z	Z	APPV: J. B.	DATE: 1/27/82
MATERIAL:			USED ON	NEXT ASSY
FINISH:			VIC	-20CR
COMMODORE		PCB ART WORK		
CIRCUIT SIDE		SIZE B 250403		
SCALE		SHEET 7 OF 11		
REV E		THIRD ANGLE SYSTEM DIMENSION		

REVISIONS		DATE	APPROVED
LTR ZONE	DESCRIPTION		
SEE SHEET 1			

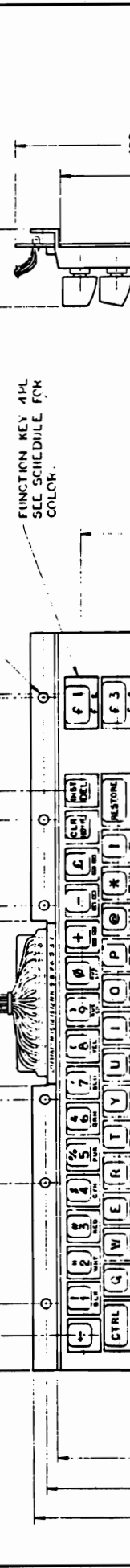
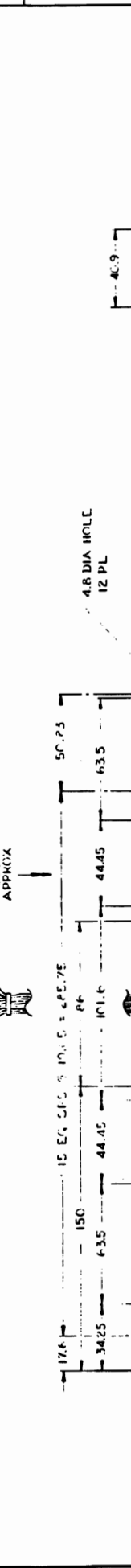


VIC-20 Foldout #5

DESIGNED BY: <i>V. de</i>	DATE: 17/12/74
CHECKED BY: <i>V. de</i>	DATE: 17/12/74
DRAWN BY: <i>V. de</i>	DATE: 17/12/74
SCALE: <i>1:1</i>	
MATERIAL: <i>FR-4</i>	
USED ON: <i>VIC-20CR</i>	
TEST ASBY: <i>VIC-20CR</i>	
SIZE: <i>C</i>	REV: <i>E</i>
SCALE: <i>1:1</i>	SHEET: <i>11</i> OF <i>11</i>

commodore
VIC-20CR
PCB ASSY

FUNCTION KEY COLOR SCHEDULE		WIRE COLOR SCHEDULE		REVISIONS			
PART NO.	USED ON	NO.	COLOR	NO.	DESCRIPTION	DATE	APPROVED
1001048-01	KEY, CAP, C-UNIT	1	WHITE	11	RED		
1001048-01	VIC. 20	2	BROWN	12	BROWN		
1001048-02	C-#4	3	BLACK	13	WHITE / GREEN		
		4	YELLOW	14	WHITE / VIOLET		
		5	GREY	15	WHITE / BLUE		
		6	WHITE	16	WHITE / GREEN		
		7	KEY	17	WHITE / YELLOW		
		8	BLACK	18	WHITE / GREEN		
		9	NC	19	WHITE / RED		
		10	GREY	20	WHITE / BROWN		



12	11	10	9	8	7	6	5
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	26	27	28	29	30	31	32

- 10 ALL DIMENSIONS ARE REFERENCE ONLY.
- 11 ALL KEYCAPS TO BE DARK BROWN (38-768460), EXCEPT FUNCTION KEYS.
- 12 ALL CHARACTERS & GRAPHICS TO BE IVORY (38-135550).
- 13 KEYCAPS ARE TWO SHOT MOLDED TRUNCATED PYRAMID WITH CONCAVE TOP FOR CHARACTERS. ALL GRAPHICS ARE ON THE FRONT SIDE OF KEYCAPS BY SILKSCREEN. CONTACT RESISTANCE SHALL NOT EXCEED 1K Ω OVER LIFE OF CONTACT. (10 MILLION OPERATIONS).
- 14 CONTACT TO BE PROTECTED FROM CONTAMINATION OVER LIFE OF CONTACT.
- 15 IDENTIFY WITH COMMERCURE PART NO. 226166. 4 APPLICABLE.
- 16 IDENTIFY WITH COMMERCURE PART NO. 226166. 4 APPLICABLE.
- 17 THE PART IS PURCHASED & MANUFACTURED FROM MITSUBISHI IN TOKYO JAPAN.
- 18 THE PART IS PURCHASED & MANUFACTURED FROM MITSUBISHI IN TOKYO JAPAN.
- 19 THE PART IS PURCHASED & MANUFACTURED FROM MITSUBISHI IN TOKYO JAPAN.
- 20 THE PART IS PURCHASED & MANUFACTURED FROM MITSUBISHI IN TOKYO JAPAN.
- 21 THE PART IS PURCHASED & MANUFACTURED FROM MITSUBISHI IN TOKYO JAPAN.
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- 30 THE PART IS PURCHASED & MANUFACTURED FROM MITSUBISHI IN TOKYO JAPAN.
- 31 THE PART IS PURCHASED & MANUFACTURED FROM MITSUBISHI IN TOKYO JAPAN.
- 32 THE PART IS PURCHASED & MANUFACTURED FROM MITSUBISHI IN TOKYO JAPAN.

COMMERCURE
 KEYBOARD 64 KEY
 U.S. VERSIONS
 1001026
 SCALE 1/1 SHEET 1 OF 1