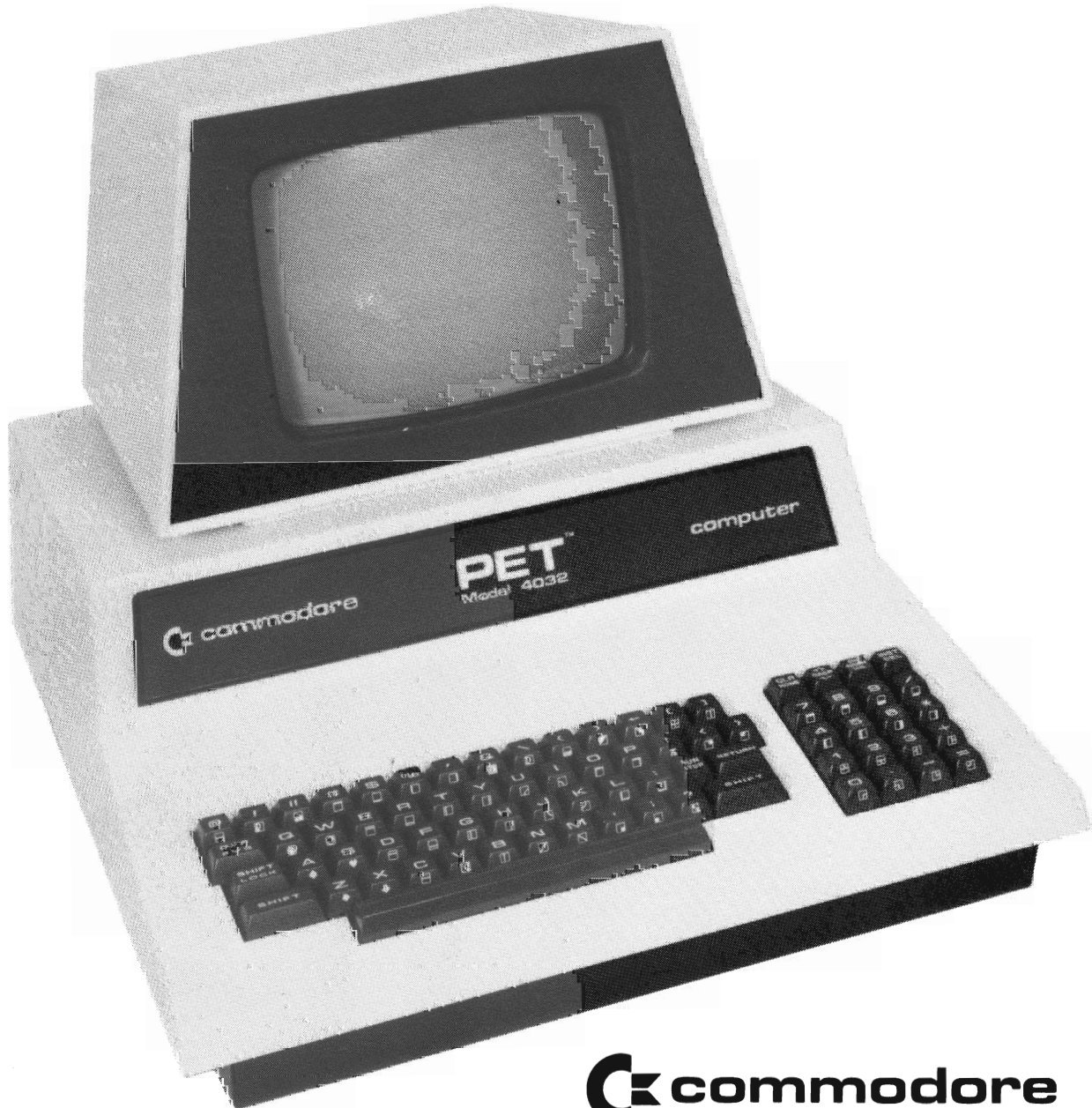

Commodore 4000 Series

Technical Manual

Model 4016/4032



commodore
COMPUTER

These documents are for repair service information only. Part numbers are for reference only. Only parts on current dealer parts list are available. No license is given for any use by possession of these documents and may not be reproduced in any form without the written approval of Commodore Electronics Limited.

PART NO.	DESCRIPTION
8032090-01	UNIV. DYNAMIC PET 8032-60HZ
-03	4032-60HZ (12")
-05	4016-60HZ
-07	UNIV. SUPER PET 9000 - 60 HZ
-09	UNIV. SUPERPET, COMBO-BRD 9000 - 60 HZ
8032090 - 11	UNIV. DYNAMIC PET, 4032-9" - 60 HZ

- 9 REWORK INSTRUCTIONS FOR FCC: JUMPER WIRE FROM UD3 PIN 1 TO UB14 PIN 35. USE 22 AWG (IT.108). THIS CONFIGURATION IS FOR -09 & -10 ONLY.
- 8 UD11&12 NOT FOR -07, -08, -09 & -10
- 7 IDENTIFY WITH APPLICABLE DASH NO.
- 6 SOLDER TO XTAL AND PCB.
- 5 FOR ITEMS 118 & 119, ALL ASSEMBLIES MUST HAVE SAME VENDOR.
- 4 SOLDER JUMPER, ITEM 106 FROM E1 TO SILVER CONTACT ON MT1, ITEM 73; TAKE CARE TO ALLOW NO MORE THAN ONE SECOND DURATION FOR APPLICATION OF HEAT DURING SOLDERING.

REVISIONS		
LTR	ZONE	DESCRIPTION
A		PRODUCTION RELEASE
B		REV PER ECO 2157
C		REV PER ECO 2172
D		REV PER ECO 2237
D		REV PER ECO 2308
E		REV PER ECO 2368
E		PER ECO 2414
F		REV PER ECO 2565 & 2555
G		REVISED PER ECO 2887
H		REVISED PER ECO 3027

11 CUT PINS 9 & 10 AT UE7.
CONNECT PIN 9 TO GND.

10 CONNECT ITEM 43 FROM PIN 15 OF UA19 TO VCC (#50).

4 REFER TO PART SUBSTITUTION INDEX, P/N 321233.

3 SOLDER AT 3 PLACES, EQUALLY SPACED AROUND THE BRASS BASE MT1 (ITEM 73)

2 IDENTIFY WITH APPLICABLE DASH NO.

1. SHEET 6 OF 7 SIZE C, SHEET 7 OF 7 SIZE D.

NOTES: UNLESS OTHERWISE SPECIFIED:

commodore	TITLE:	PCB ASSY - UNIV. DYNAMIC PET	
	DRAWN BY:	DATE:	ENGR:
	APPR:	3-11-81	6-17-81
	SIZE:	B	8032090
	SHEET:	6	OF 7

C

C

C

QUANTITY REQD PER PART / DASH NO.		PART NUMBER	DESCRIPTION	REF DES	QTY	NOTES
11	10					
1	1	8032088-01	FABRICATION-LNIV. DYNAMIC PET			
1	1	8032087-01	LOGIC DIAGRAM-LNIV. DYNAMIC PET			
1	1	901640-01	IC 2332	UA3		
1	1	901521-01	74LS00	UD5,UE5,UE11		
1	1	901521-24	74LS10	UD4,UE7,UE13		
1	1	901522-20	7425	UE14		
1	1	901521-02	74LS04	UE15		
1	1	901523-01	LM555	UD16		
1	1	901522-01	7417	UD15		
1	1	901435-01	6502	UB14		
1	1	901479-01	CRT CONTROLLER	UB13		
1	1	901522-13	74154	UE12		
2	2	901436-01	6520	UB12,UB16		
3	3	901524-01	MC3446	UA20,UB17,UC12		
1	1	901437-01	6522	UB15		
1	1	901521-09	74LS145	UC11		
2	2	901521-45	74LS393	UD3,UE6		
1	1	901521-21	74LS02	UD1		
2	2	901525-09	74574	UC1,UE1		
2	2	901525-01	74504	UD2,UE4		
2	2	901521-06	74LS74	UB2,UB1		
1	1	901522-28	74166	UA2		
1	1	901447-10	2316	UA3		
1	1	901521-32	74LS86	UC2	SEE NOTE 4	
1	1	901521-28	74LS164	UC3	SEE NOTE 4	
1	1	901521-16	74LS138	UC3		
4	4	901521-11	74LS157	UC8-UC10,UE2	SEE NOTE 4	
1	1	901465-22	2332	UD6		
1	1	901465-21	2332	UD8		
1	1	901465-20	2332	UD9		
1	1	901465-23	2332	UD10		
1	1	901522-04	IC 7400	UE1		
1	1	900110-07	CAP. LOW LEAK. ELECT. 14F50V C10			
56	56	900461-28	CAP. CERAMIC AXIAL .14F 50V C12-15,18,20-22,25-28,30-50,53,55-59,62-72,75,87,89,90,75,96			

TITLE: **PCB ASSY-LNIV. DYNAMIC PET**
 DRAWN BY: *[Signature]*
 DATE: 3-11-81
 ENGR: *[Signature]*
 DATE: 6-7-81
 APPR: *[Signature]*

SIZE: **B**
 REV: **H**
 SMT: **27**

commodore
8032090

QUANTITY REQD. PER PART / DASH NO.		PART NUMBER	DESCRIPTION	REF DES	QTY	NOTES
11	10					
3	3	900461-16	CAP, CERAMIC AXIAL .01µF 50V C52, 60, 61			
2	2	900461-20	CERAMIC AXIAL .022µF 50V C3, 4			
1	1	900100-45	ELECTROLYTIC 4700µF 25V C5			
1	1	900100-44	ELECTROLYTIC 470µF 16V C2			
5	5	900109-03	LOW LEAK. ELECT. 10µF 25V C1, 16, 17, 23, 24	SEE NOTE 4		
1	1	900050-21	DIPPED MICA, RADIAL, 22pF, 500V C97	SEE NOTE 10		
2	2	900402-13	TANTALUM 1µF 35V C6, 51			
2	2	900101-37	ELECTROLYTIC 47µF 16V C7, 11			
1	1	900463-08	CERAMIC AXIAL 220PF C92			
14	14	900462-29	CAP, CERAMIC AXIAL 47PF C74-C86, C88			
		48				
2	2	901550-84	RES, CARBON 1/4W 5% 1M R24, 25			
3	3	901550-58	470Ω R13, 16, 17			
4	4	901550-94	68Ω R10, 11, 46, 49			
2	2	901550-03	5.1K R19, 21			
2	2	901550-85	2.4K R18, 20			
1	1	901550-64	10Ω R8			
2	2	901550-20	10K R23, 27			
2	2	901550-69	1.5K R47, 48			
8	8	901550-49	100Ω R32-38, 40			
1	1	901550-19	4.7K R51			
1	1	901550-18	2.2K R53			
2	2	901550-56	47Ω R50, 52			
		61				
		62				
		63				
1	1	901550-93	39Ω R7			
16	16	901550-01	1K R1-6, 12, 15, 22, 26, 28, 39, 42-45			
1	1	901550-02	CARBON 1/4W 5% 3.3K R14			
1	1	902419-66	RES, NETWORK, DIP 14PIN 10K UB11			
		68				
2	2	902653-01	TRANSISTOR, TIP 29 Q1, Q2			
1	1	902550-01	TRANSISTOR, PACK Q2T2222 UE16			
		71				
		72				
1	1	907300-02	TRANSDUCER-PIEZO ACOUSTIC MT1			
		74				

commodore TITLE: PCB ASSY-LINIV. DYNAMIC PET
 DWN BY: [Signature] ENGR: [Signature] DATE: 7-11-81
 CHKD: [Signature] APPR: [Signature] DATE: 8-17-81
 SIZE: B 8032090 REV: H 3/7

C

C

QUANTITY REQD PER PART / DASH NO.				PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES
11	10	09	08					
11	10	09	08	75				
3	3	2	2	900750-05	DIODE, IN4005	CR1,5,7		
2	2	2	2	900757-01	BRIDGE 4A/50V	CR2,4		SEE NOTE 4
1	1	1	1	900753-01	IN5402 3A/200V	CR3		
				79				
				80				
2	2	2	2	900941-01	DIODE, ZENER 7.5V	VR5,6		
1	1	1	1	901527-03	VOLTAGE REGULATOR, 7905, -5V/1.5A	VR1		TO-220
1	1	1	1	901528-04	VOLTAGE REGULATOR, 7812, +12V/1A	VR2		TO-3
1	1	1	1	901528-01	VOLTAGE REGULATOR, LM323	VR4		
1	1	1	1	900556-02	CRYSTAL 16MHZ	Y1		
1	1	1	1	903326-07	HEADER ASSY .100 CENTER J10			7 PIN; REMOVE PIN 3 AT ASSEMBLY
2	2	2	2	903345-25	HEADER ASSY, DUAL ROW, 100 CENTER J4,9			50 PIN
1	1	1	1	903316-09	HEADER ASSY .156 CENTER J8			9 PIN; REMOVE PIN 7 AT ASSEMBLY
1	1	1	1	903331-07	HEADER ASSY, POLARIZED, 100 CENTER J11			7 PIN; REMOVE PIN 3 AT ASSEMBLY
1	1	1	1	903331-07	HEADER ASSY, POLARIZED, 100 CENTER J7			7 PIN; ORIENT OMITTED PIN TO PIN 6 POSITION
1	1	1	1	903331-20	HEADER ASSY, POLARIZED, 100 CENTER J5			20 PIN; ORIENT OMITTED PIN TO PIN 19 POSITION
				96				
4	4	4	4	904150-04	SOCKET, IC LOW PROFILE 24 PIN	UA3, UD7, UD11, UD12		SEE NOTE 8
1	1	1	1	904150-06	SOCKET, IC LOW PROFILE 40 PIN	UB14		
1	1	1	1	904150-01	SOCKET IC LOW PROFILE 14 PIN	UF1		
2	2	2	2	901151-17	COIL, INDUCTOR 2.2uH	L1, L2		
1	1	1	1	320086-02	BUS WIRE			
				102				
4	4	4	4	906403-19	RIVET, DOME HEAD, OPEN END			
2	2	2	2	906404-04	RIVET, DOME HEAD, CLOSED END			
				105				
1	1	1	1	903780-01	#30 WIRE WRAP WIRE, RED			
20	20	20	20	903781-01	22 AWG BARE WIRE ON TAPE, #FEEL			
-	-	-	-	903755-03	WIRE, INSULATED, 22 AWG, 12.5 LG			
1	1	1	1	320268-01	HEAT SINK			
1/8	1/8	1/8	1/8	904907-01	HEAT SINK, COMPOUND THERMAL			
				111				

TITLE: **commodore** PCB ASSY-UNIV. DYNAMIC PET

DATE: 1-11-81
 ENGR: [Signature]
 DATE: 6-11-81
 APPR: [Signature]

SIZE: B
 REV: H
 SHT: 47

C

C

C

QUANTITY REQD PER PART / DASH NO.		QTY	P	S	B	PART NUMBER	DESCRIPTION	REF DES	BEN	NOTES
11-10-09	08-07-04									
11	11	11				901521-13	IC, 74LS244	UB4-UB7, UB9, UB10, UD13, UD14, UE8-UE10		
9	9	9				901521-13	, 74LS244	UB4, UB5, UB9, UB10, UD13, UD14, UE8-UE10		
2	2	2				901521-29	, 74LS373	UB3, UB8		
1	1	1				901521-29	, 74LS373	UB3		
4	4	4				901453-02	, 2114	UC4-UC7		
2	2	2				901453-02	, 2114	UC4, UC5		
16	16	16				901470-01	, 4116	UA4-UA19		
8	8	8				901470-01	, 4116	UA5, UA7, UA9, UA11, UA13, UA15, UA17, UA19		
1	1	1				901474-03	, 2316	UD7		
1	1	1				901499-01	, 2316	UD7		
1	1	1				970150-07	IC, 2516 EPROM	UD7		
28	28	28				903025-01	FERRITE BEAD	FBI-26, 28, 29		
1	1	1				4022048-01	SHIELD BOX			
1	1	1				4022047-01	SHIELD CAP			
1	1	1				900461-22	CAP CERAMIC AXIAL, 0.033UF, 50V	C94		
1	1	1				900461-24	CAP CERAMIC AXIAL, 0.047UF, 50V	C93		
1	1	1				900463-04	CAP CERAMIC AXIAL, 100PF, 50V	C91		
133										
134										
135										
136										
137										
138										
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140										
141										
142										
143										
144										
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148										

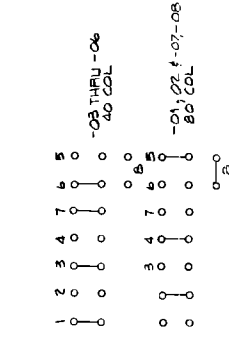
Commodore

PCB ASSY-LINIV. DYNAMIC PET

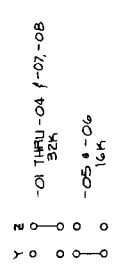
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 ENGR: [Signature]
 APPR: [Signature]

DATE: []
 SIZE: B
 REV: H
 SMT: 5/7

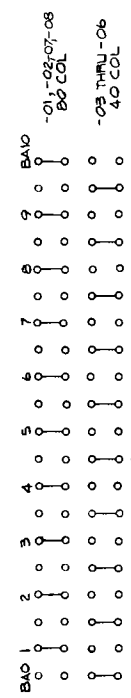
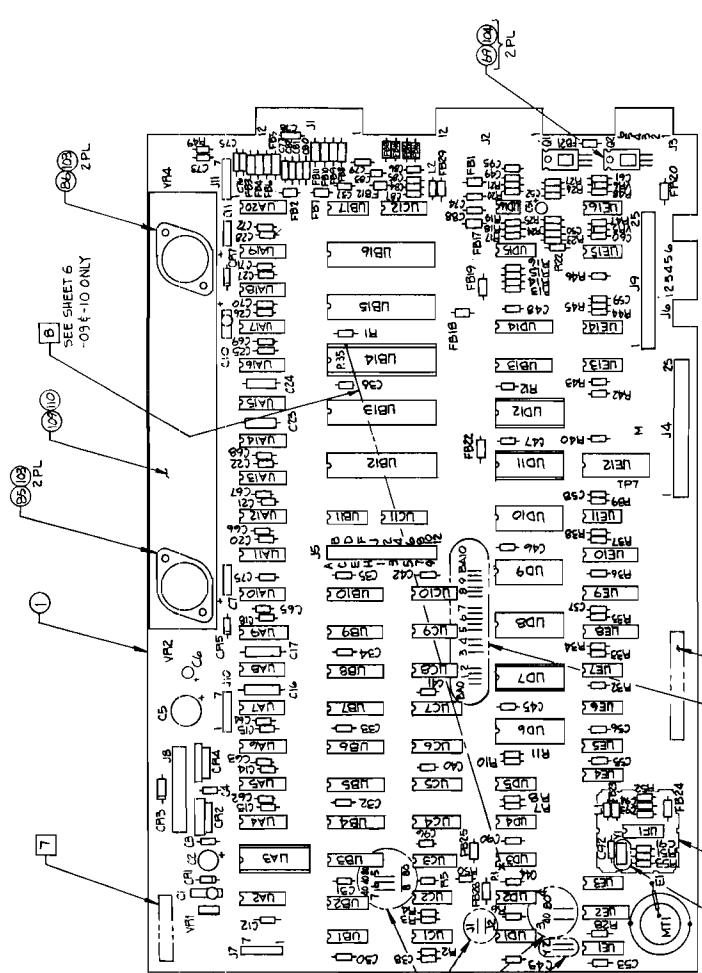
REVISIONS		DATE	APPROVED
1	SEE SHEET		



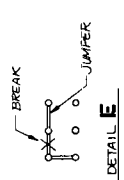
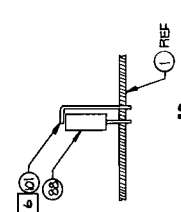
DETAIL **A**
 SCALE: NONE
 JUMPER CONFIGURATIONS



DETAIL **B**
 SCALE: NONE



DETAIL **C**
 SCALE: NONE
 JUMPER CONFIGURATIONS



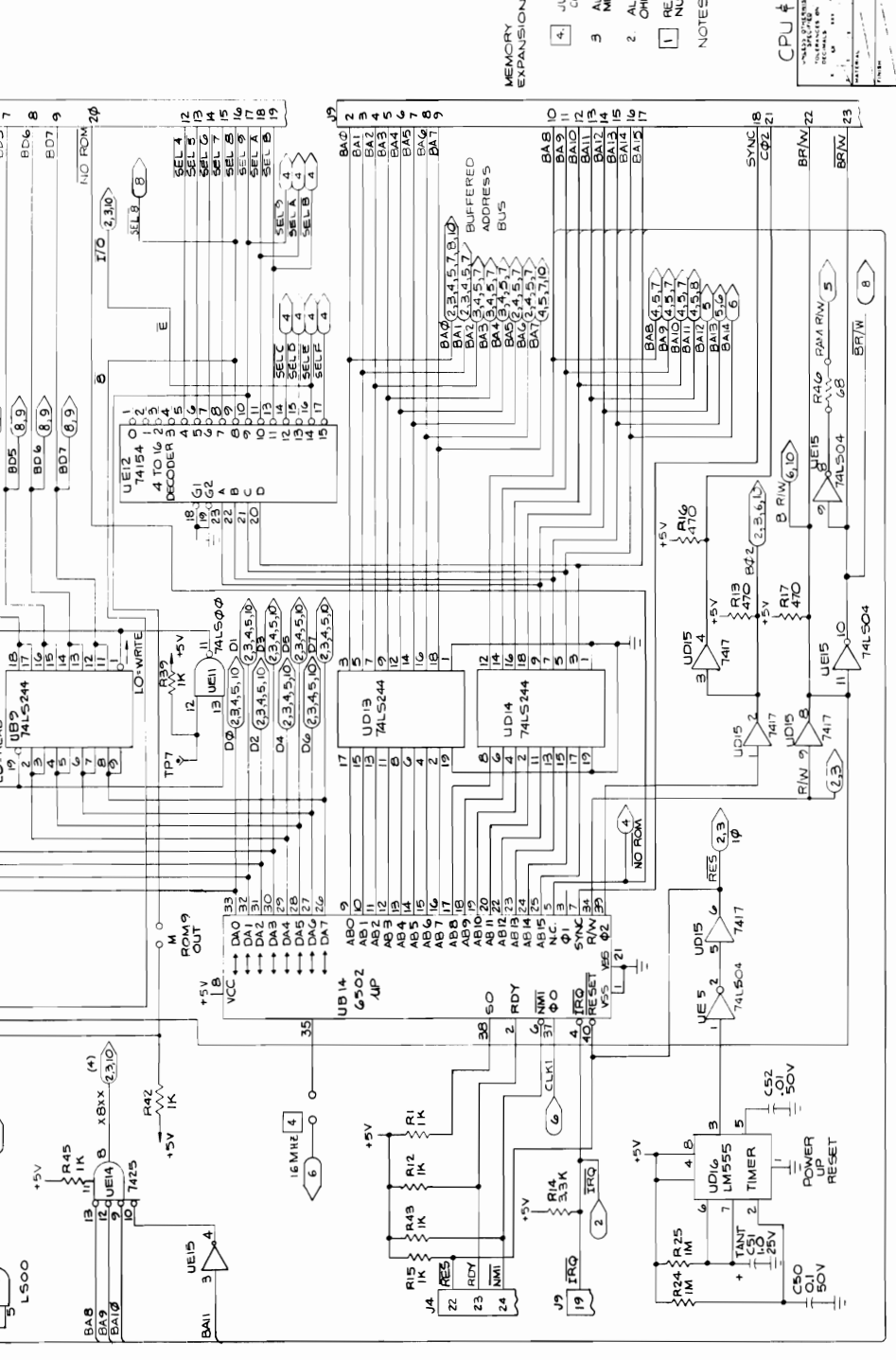
-01 THRU -10 SHOWN

DATE	REV	BY
7/7/72	1	MM
7/15/72	2	MM
7/15/72	3	MM
7/15/72	4	MM
7/15/72	5	MM
7/15/72	6	MM
7/15/72	7	MM
7/15/72	8	MM
7/15/72	9	MM
7/15/72	10	MM

commadore
 PCB ASSY -
 UNIDYNAMIC
 PET
 SIZE D 8032090
 SCALE 1:1 SHEET 7 OF 7

REV	DATE	DESCRIPTION	APPROVED
A	12/16/74	PRODUCTION RELEASE	
B	1/10/75	REV PER ECO 2573	
C	1/14/75	REV PER ECO 2617	

MEMORY EXPANSION



MEMORY EXPANSION

- 1 REFER TO ASSEMBLY DRAWING NUMBER 8032090.
- 2 ALL CAPACITOR VALUES ARE MEASURED IN MICROFARADS.
- 3 ALL RESISTOR VALUES ARE IN OHMS ±5% AND ARE 1/4 WATT.
- 4 JUMPER FOR SUPERSET CONFIGURATION ONLY.

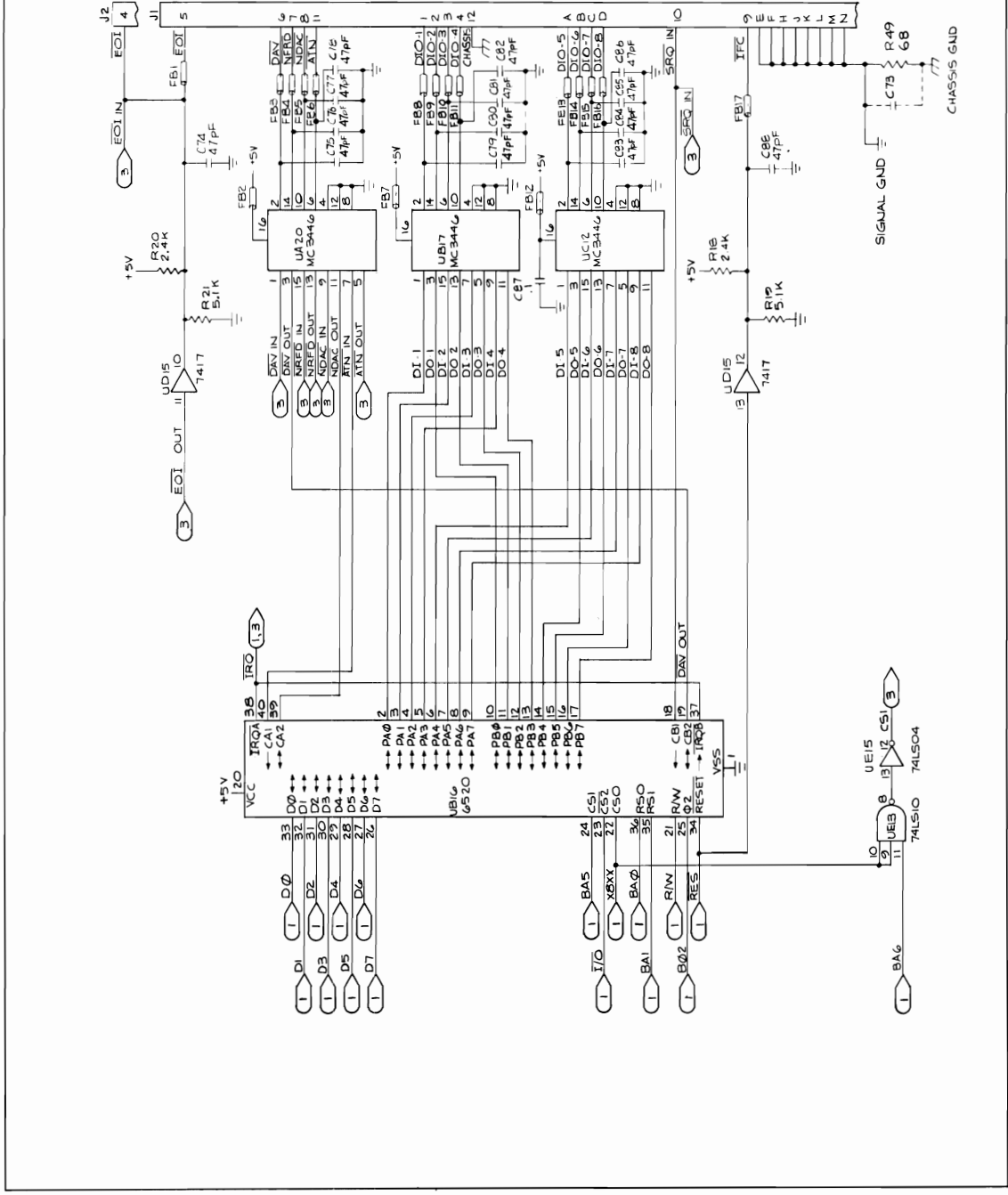
CPU MEMORY EXPANSION

COMMODORE
LOGIC DIAGRAM
UNIVERSAL
DYNAMIC PET

DATE: 1/10/75
REV: 1/10/75
REV: 1/14/75

8032090
D. 8032087
REV. C

REV	DATE	APPROVED



IEEE-488
INTERFACE

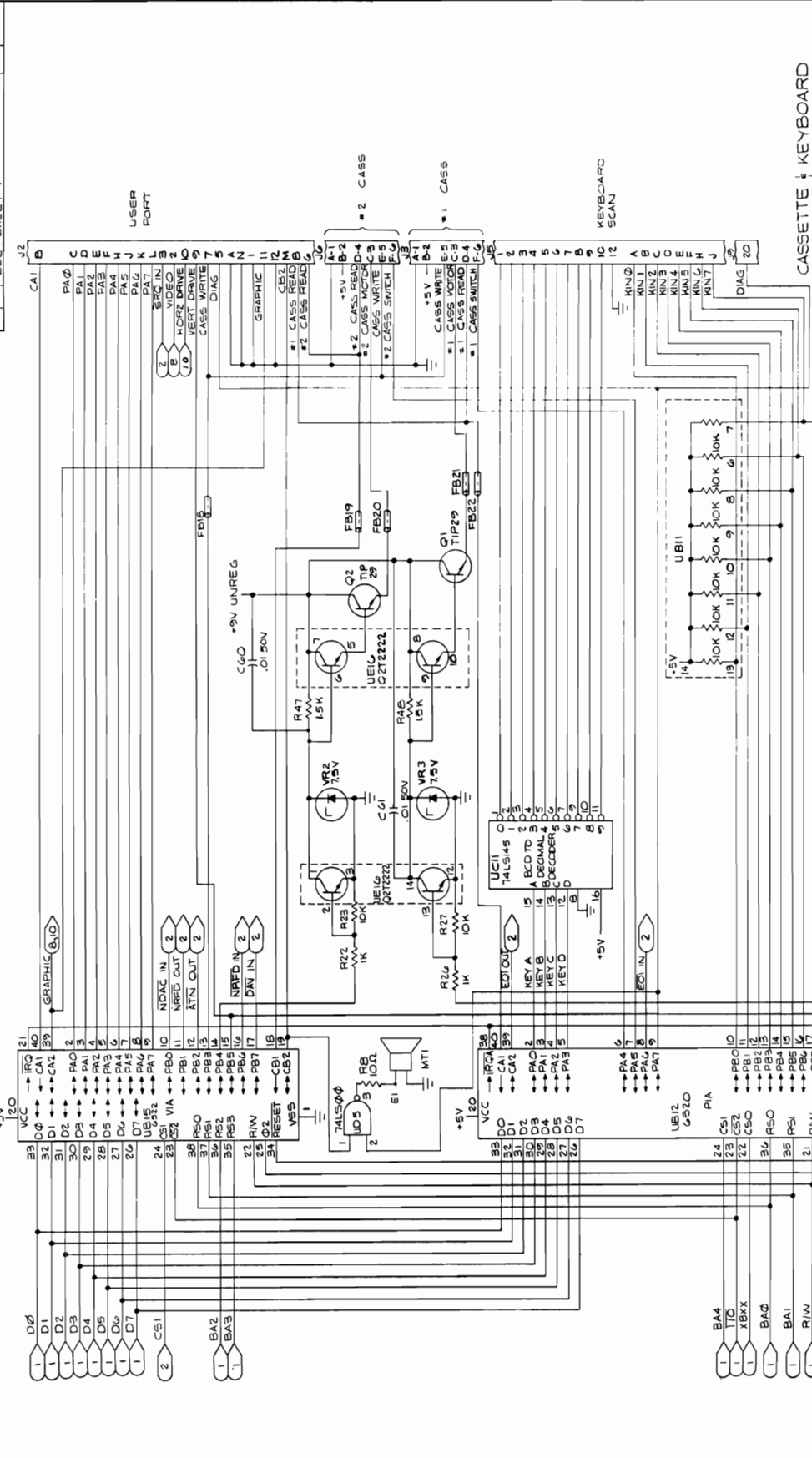
IEEE-488 INTERFACE

DESIGNED BY	C. DANIELE	DATE	10/7/81
CHECKED BY		DATE	
APPROVED BY		DATE	
SCALE	1:1	SHEET NO.	D
PROJECT NO.			8092087
SCALE			SCALE NONE
SHEET NO.			SHEET 2 OF 11

COMMADORE
LOGIC DIAGRAM
UNIVERSAL
DYNAMIC PET

REV. NO.	DATE	APPROVED
1		

REV. NO.	DESCRIPTION	DATE	APPROVED
1	SEE SHEET 1		



UNIVERSAL DYNAMIC PERIPHERALS		C. DANIEL, 12111	
DATE	REV. NO.	SCALE	SHEET 3 OF 11

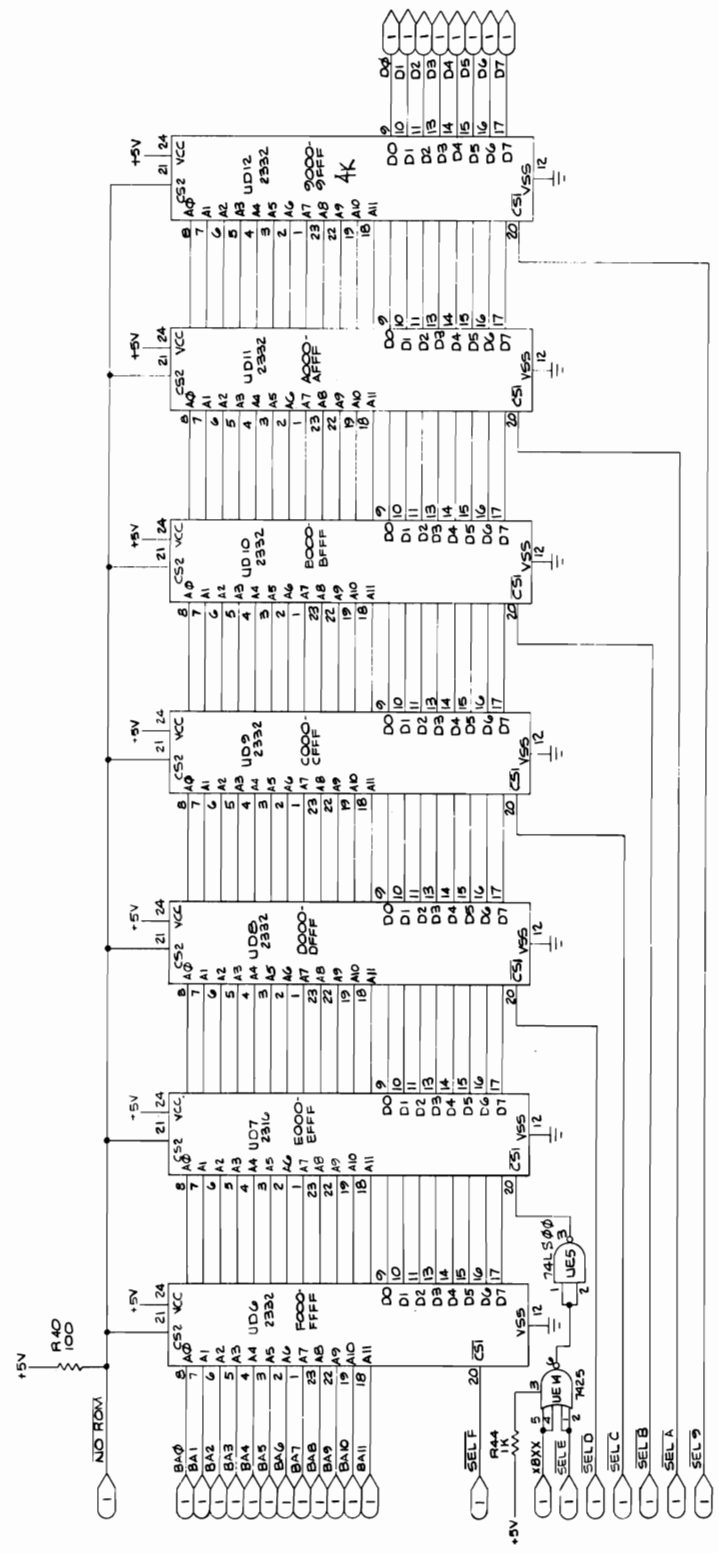
commodore
 LOGIC DIAGRAM
 UNIVERSAL
 DYNAMIC PERIPHERALS
 MODEL
 D 80320-87
 C

REV	DATE	APPROVED
1		

REVISIONS

DESCRIPTION

LIN ITEM SEE SHEET



ROMS

COMMODORE
LOGIC DIAGRAM
UNIVERSAL
DYNAMIC PET

FILE D 8032087 REV C

DATE 11/11/81

DESIGNED BY C. DANIELE

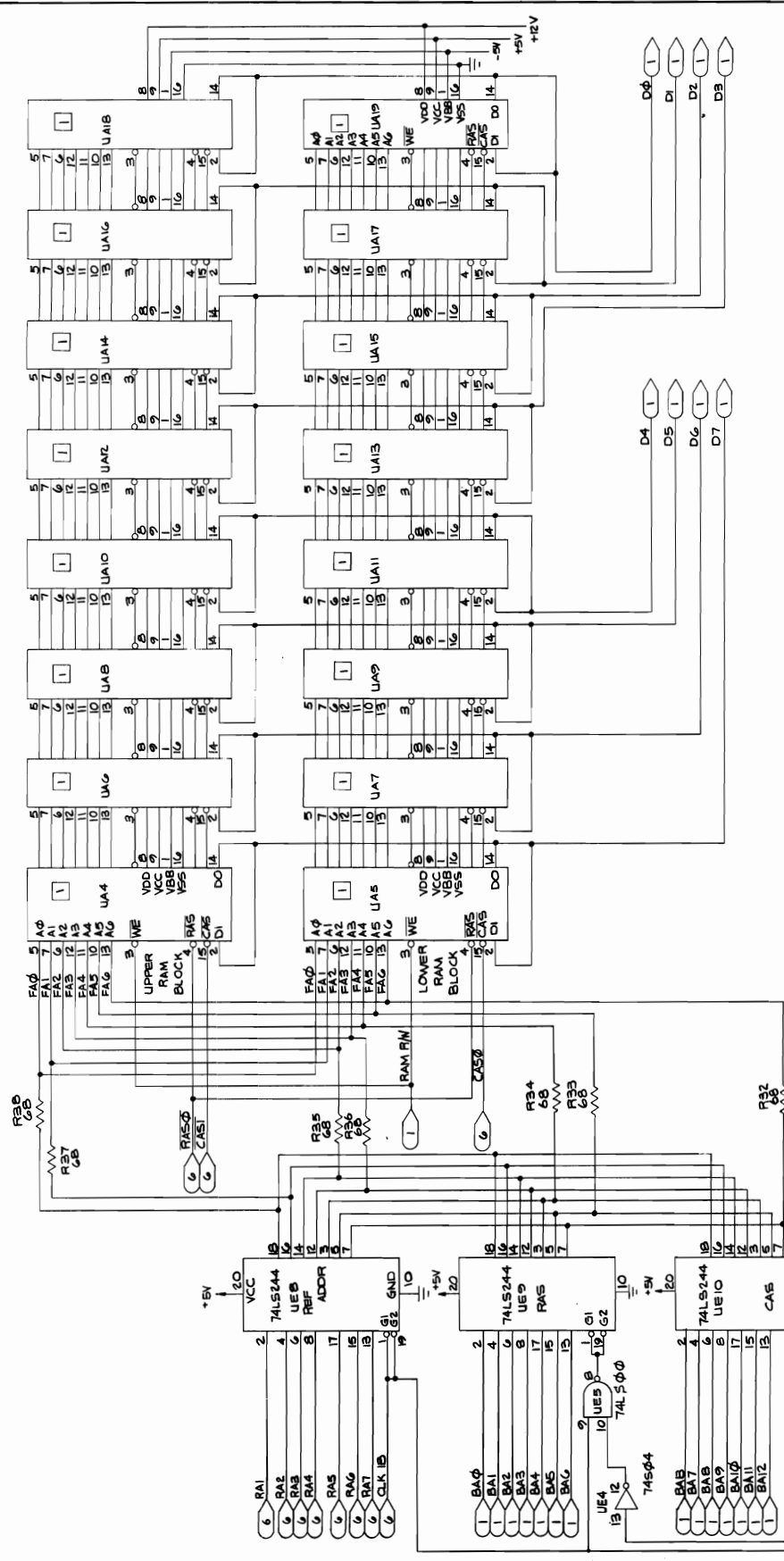
CHECKED BY

DATE

SCALE

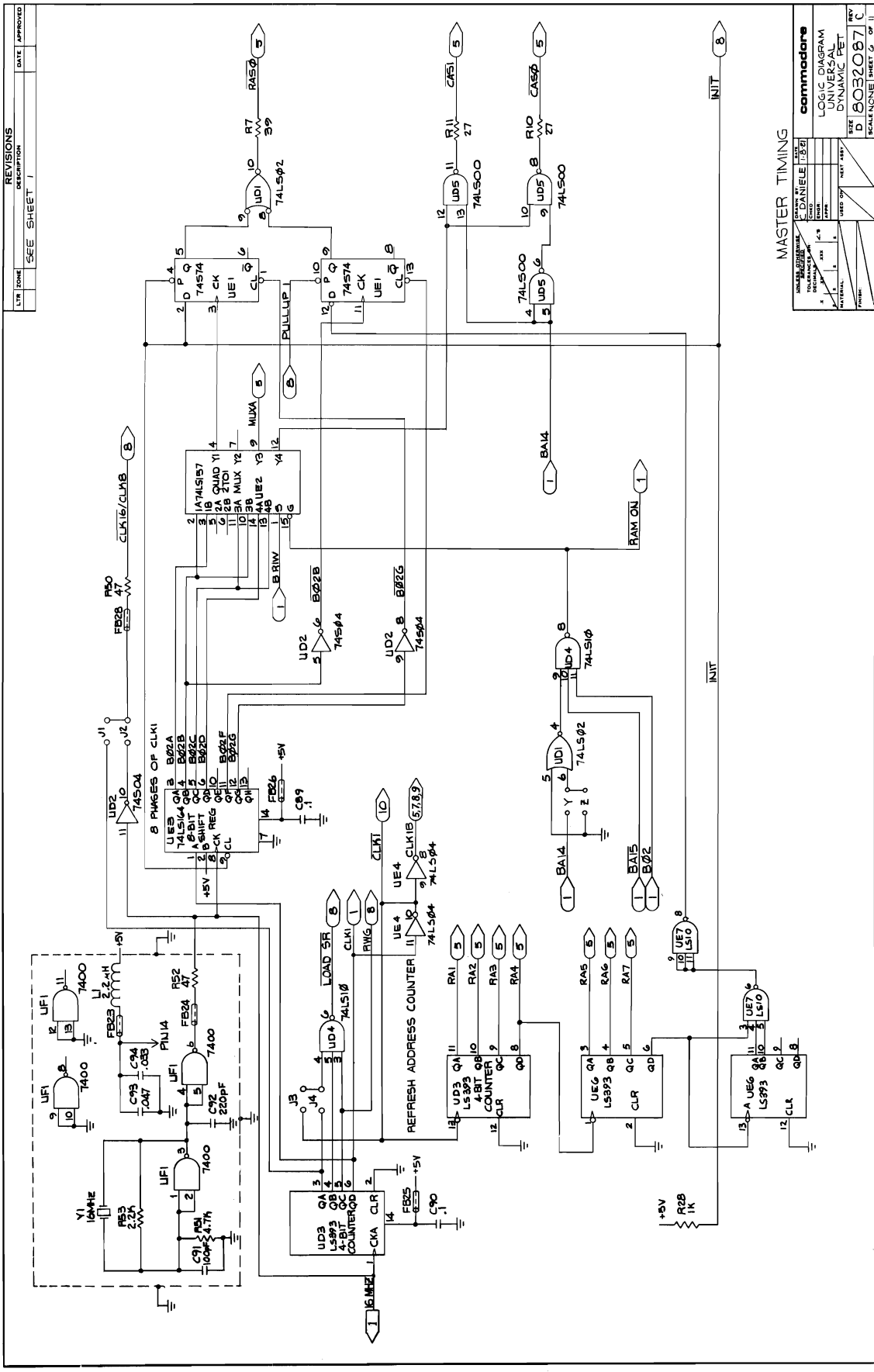
PROJECT

LTR ID#	REV	DESCRIPTION	DATE	APPROVED
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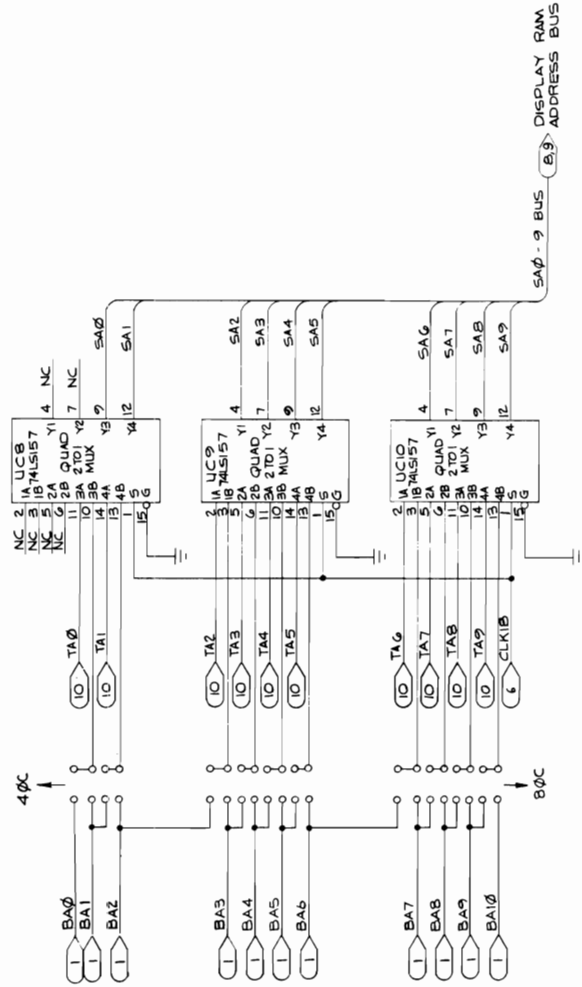


MAIN RAM

DESIGNED BY	DATE	REV
C. DANIELE	11/8/81	1
CHECKED BY	DATE	REV
APPROVED BY	DATE	REV
COMMODORE LOGIC DIAGRAM UNIVERSAL DYNAMIC PET		
FILE	D	BO320871C
PAPERHOUSE, SHEET 5 OF 11		



REV. NO.	REV. DESCRIPTION	DATE	APPROVED
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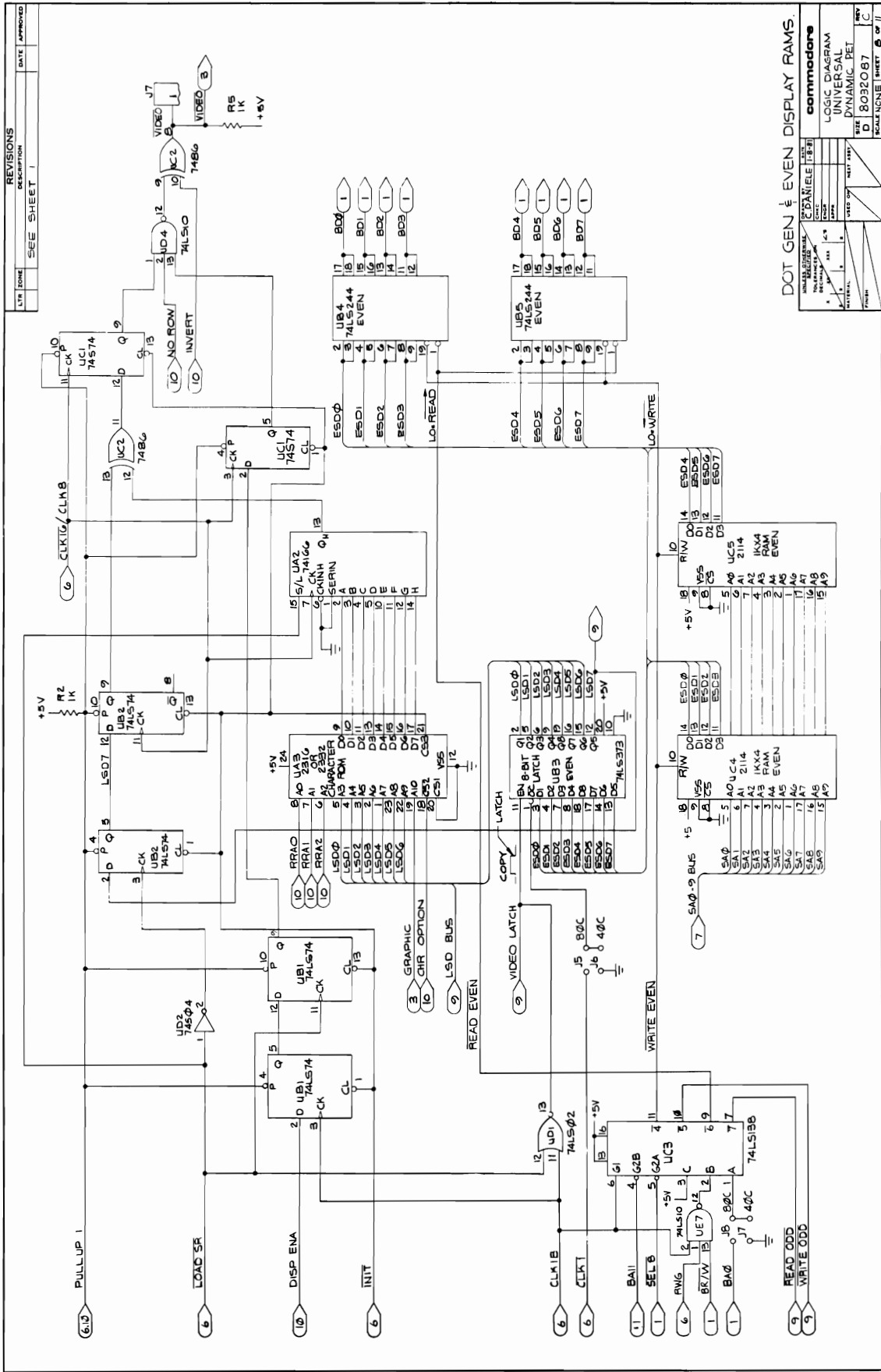


SA0 - 9 BUS (B) DISPLAY RAM ADDRESS BUS

DISPLAY ADDRESS MUX

DATE	REV. NO.	REV. DESCRIPTION	DATE	APPROVED

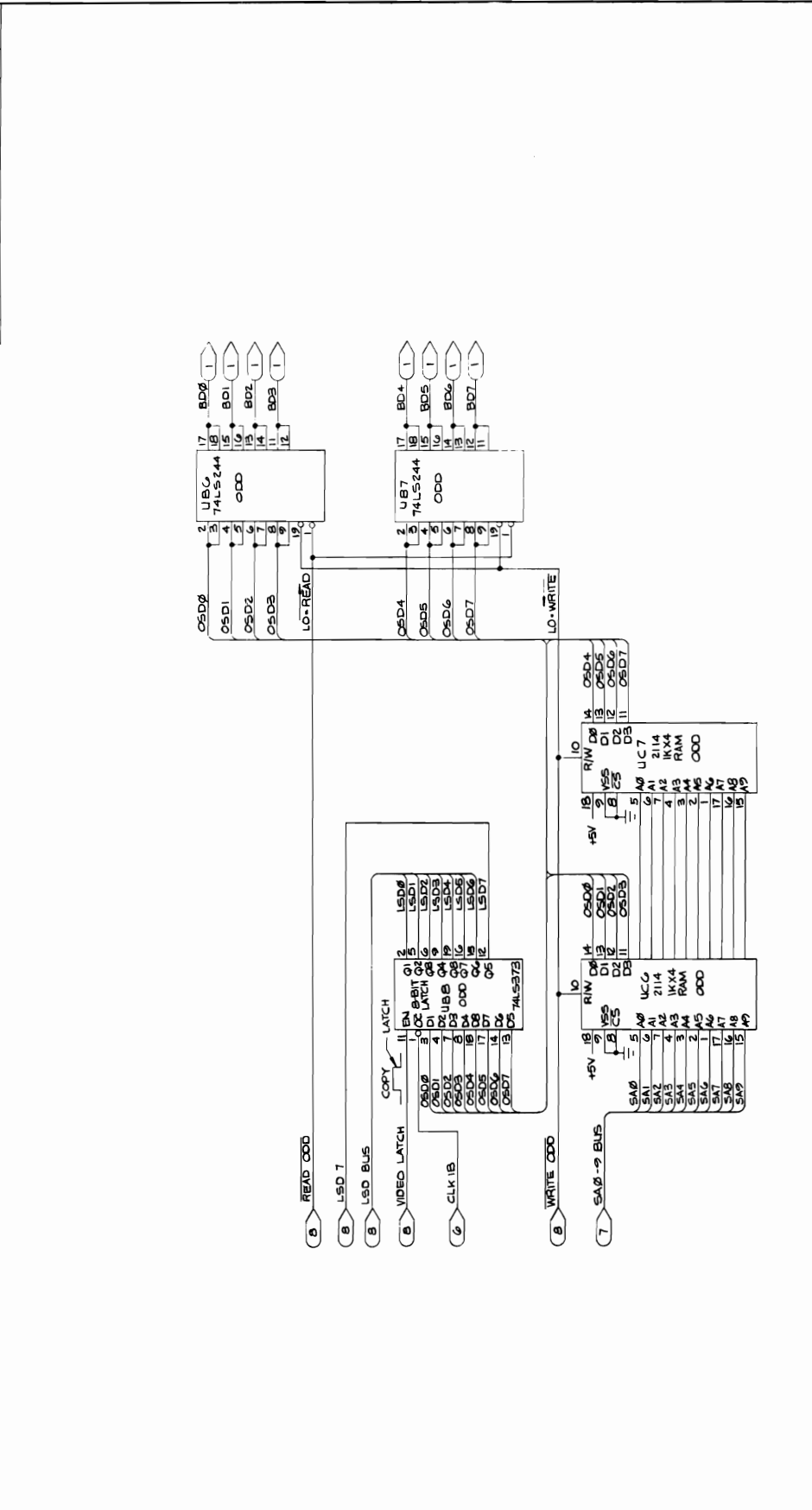
COMMADORE
 LOGIC DIAGRAM
 UNIVERSAL
 DYNAMIC PET
 D 8032087
 SCALE: NONE SHEET 7 OF 7



REV. NO.	DESCRIPTION	DATE	APPROVED
1	SEE SHEET 1		

COMMODORE
 LOGIC DIAGRAM
 UNIVERSAL
 DYNAMIC PET
 SIZE D 180320 B7
 SCALE NONE 1 SHEET 6 OF 11

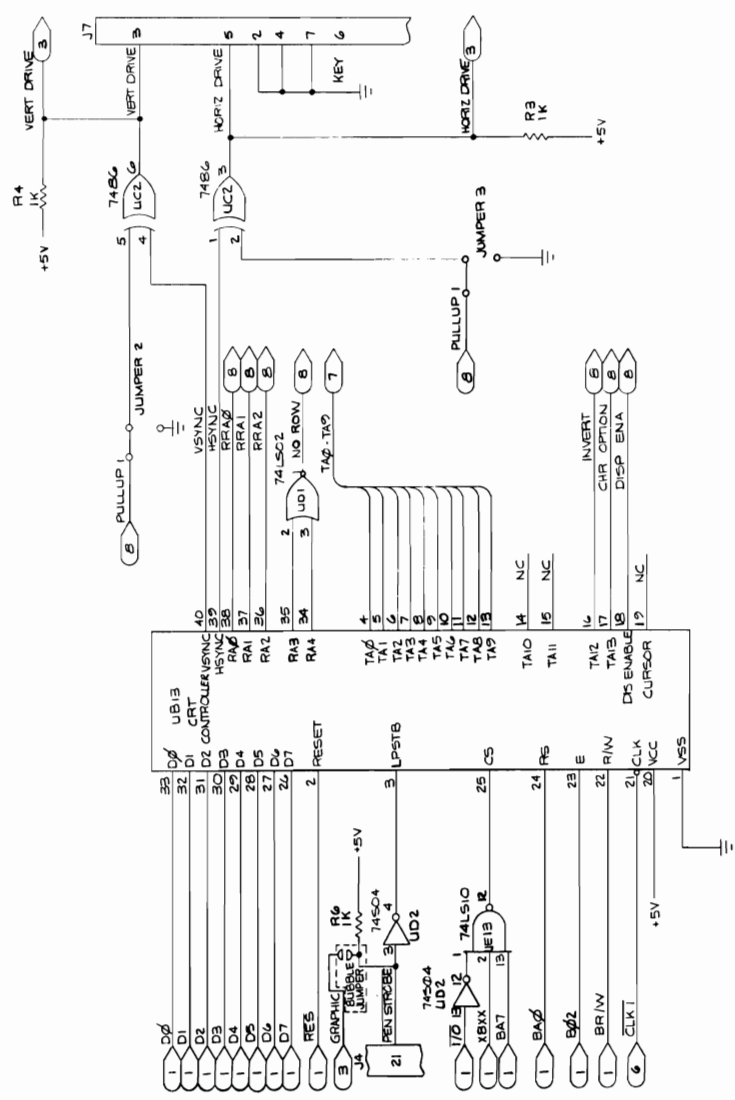
REVISIONS	
DATE	APPROVED
DESCRIPTION	
SEE SHEET 1	
LTR	INDEX



ODD DISPLAY RAMS

DESIGNED BY	C. DANIELE
CHECKED BY	
DATE	
SCALE	NONE
COMMADONE	
LOGIC DIAGRAM	
UNIVERSAL DYNAMIC RAM	
REF	D
SCALE NONE	SHEET 9 OF 11

REVISIONS	
LT#	DATE
1	SEE SHEET 1
	APPROVED



CRTIC AND SYNC BUFFERS

UNIVERSITY	DATE	DESIGNED BY	REVISED BY
COMMADORS	11/82	COMMADORS	
LOGIC DIAGRAM		UNIVERSAL	
DYNAMIC PET		DYNAMIC PET	
PART NO.		REV.	
D 8032087		C	
SCALE		SHEET	10 OF 11

PART NO.	DESCRIPTION	REVISIONS		
		LTR	ZONE	DESCRIPTION
8032080 - 01	UNIV. DYNAMIC PET 8032 - 60HZ	A		PRODUCTION RELEASE
		B		REVISED PER ECO 2062
		C		REVISED PER ECO 2066
		D		REVISED PER ECO 2068
		E		REVISED PER ECO 2087
		F		REV PER ECO 2564 & 2556
		G		REV PER ECO 2596
		H		REV PER ECO 2700
		J		REVISED PER ECO 2720

14 CUT TRACE FROM UC3/3 TO +5 ON COMP. SIDE: INSTALL JUMPER FROM UC3/3 TO UD3/2 ON SOLDER SIDE.

13 FOR SUBSTITUTE PART SEE PART SUBSTITUTION INDEX, PART NO. 321233.

12 REWORK INSTRUCTIONS FOR -07 & -08.
JUMPER WIRE FROM UE5 PIN 6 TO UB14 PIN 35. USE 22 AWG.

11 ADD JUMPER FROM CATHODE OF VR5 TO NEAREST LEAD OF R47.

3 SOLDER AT 3 PLACES, EQUALLY SPACED AROUND THE BRASS BASE MT (ITEM 69).

2 IDENTIFY WITH COMMODORE PART NO.
I. SHEET 6 OF 7 SIZE C, SHEET 7 OF 7 SIZE D.

NOTES: UNLESS OTHERWISE SPECIFIED:

PART NO.	DESCRIPTION
-03	4032 - 60HZ
-05	4016 - 60HZ
-07	9000 - 60HZ

10 IDENTIFY WITH APPLICABLE DASH NO.

9 COMPONENT SIDE: SOLDER JUMPER WIRE TO IC PIN 21 UB13 TO PIN 8 OF UE6. SOLDER JUMPER WIRE TO IC PIN 3 UB1 TO PIN 6 OF UC3.

8 COMPONENT SIDE: CUT PIN 21 OF UB13 CUT PIN 3 OF UB1

7 SOLDER SIDE: BRIDGE SHORT PINS 10 & 11 OF UD2 PRIOR TO SOLDER WAVE.
COMPONENT SIDE: CUT PINS 10 & 11 OF UD2

6 SOLDER TO XTAL AND PCB.

5 FOR ITEMS 116 AND 117 ALL ASSEMBLIES MUST HAVE SAME VENDOR.

4 SOLDER JUMPER, ITEM 107 FROM E1 TO SILVER CONTACT ON MT 1, ITEM 69; TAKE CARE TO ALLOW NO MORE THAN ONE SECOND DURATION FOR APPLICATION OF HEAT DURING SOLDERING.

commodore	TITLE: PCB ASSY, UNIV. DYNAMIC PET		DATE: 1-30-81	ENGR: M. ALVES	APPROV: [Signature]	SIZE: B	DRAWING NUMBER: 8032080
			CHKD: [Signature]			SHEET: 7	OF: 7

QUANTITY	REQD PER PART / DASH NO.	8	PART NUMBER	DESCRIPTION	REF DES	REN	NOTES
03	08070605	1	D 8032079	PCB FAB, UNIV. DYNAMIC PET			
1	1	1	D 8032081	LOGIC DIAGRAM, UNIV. DYNAMIC PET			
1	1	1	B 901435-01	IC, 6502	UB14		
2	2	2	B 901436-01	, 6520	UB16, UB12		
1	1	1	B 901437-01	, 6522	UB15		
1	1	1	B 901479-01	, CRT CONTROLLER	UB13		
3	3	3	B 901521-01	, 74LS00	UD5, UE5, UE11		
1	1	1	B 901521-32	, 74LS86	UC2	SEE NOTE 13	
1	1	1	B 901521-21	, 74LS02	UDI		
1	1	1	B 901521-02	, 74LS04	UE15		
2	2	2	B 901525-01	, 74S04	UD2, UE4		
2	2	2	B 901521-24	, 74LS10	UD4, UE13		
1	1	1	B 901522-01	, 7417	UD5		
1	1	1	B 901522-20	, 7425	UE14		
4	4	4	B 901521-11	, 74LS157	UC8-UC10, UE2	SEE NOTE 13	
1	1	1	B 901521-16	, 74LS138	UC3		
2	2	2	B 901521-06	, 74LS74	UB1, UB2		
2	2	2	B 901525-09	, 74B74	UC1, UE1		
1	1	1	B 901521-09	, 74LS145	UC11		
1	1	1	B 901522-13	, 74154	UE12		
1	1	1	B 901521-28	, 74LS164	UE3	SEE NOTE 13	
3	3	3	B 901522-03	, 74177	UD3, UE6, UE		
1	1	1	B 901522-28	, 74166	UA2		
1	1	1	B 901465-22	, 2332	UD6		
1	1	1	B 901465-21	, 2332	UD8		
1	1	1	B 901465-20	, 2332	UD9		
1	1	1	B 901465-23	, 2332	UD10		
1	1	1	B 901447-10	, 2316	UA3		
1	1	1	B 901523-01	, LM555	UD16		
3	3	3	B 901524-01	IC, MC3446	UA20, UB17, UC12		
1	1	1	B 900462-21	CAP. CERAMIC AXIAL 22PF 50V C54		SEE NOTE 13	
3	3	3	B 900461-16	CAP. CERAMIC AXIAL .014F 50V C52, 60, 61			
commodore TITLE: PCB ASSY, UNIV. DYNAMIC PET DRAWN BY: M. AMES DATE: 11-30-81 ENGR: DATE: APPR: DATE: SIZE: B 8032080 REV: J SHT: 2/7							

QUANTITY REQ. PER PART / DASH NO.		QTY	REF DES	DESCRIPTION	PART NUMBER	QTY	REF DES	NOTES
08	07	05	04	03	02	01		
75								
76								
77								
78	1	1	B	VOLTAGE REGULATOR, 7905, -5V/1.5A VR1	901527-03			TO-220
79	2	2	B	VOLTAGE REGULATOR, LM340-5, +5V/1.5A VR3, 4	901528-03			TO-3; SEE NOTE 13
80	1	1	B	VOLTAGE REGULATOR, 7812, +12V/1A VR2	901528-04			TO-3
81								
82								
83								
84	1	1	B	CRYSTAL 16MHZ	900556-02		Y1	
85								
86								
87	2	2	B	SOCKET IC, LOW PROFILE, 24 PIN UA3, UD7	904150-04			
88	4	4	B	SOCKET IC, LOW PROFILE, 24 PIN UA3, UD7, UD11, UD12	904150-04			
89	1	1	B	SOCKET IC, LOW PROFILE, 40 PIN UB14	904150-06			
90								
91	1	1	B	HEADER ASSY, .100 CENTER J10	903326-07			7 PIN; REMOVE PIN 3 AT ASSEMBLY
92	2	2	B	HEADER ASSY, DUAL ROW, 100 CENTER J4, 9	903345-25			50 PIN
93	1	1	B	HEADER ASSY, .156 CENTER J6	903316-09			9 PIN; REMOVE PIN 7 AT ASSEMBLY
94	1	1	B	HEADER ASSY, POLARIZED, 100 CENTER J11	903331-07			7 PIN; REMOVE PIN 3 AT ASSEMBLY
95	1	1	B	HEADER ASSY, POLARIZED, 100 CENTER J7	903331-07			7 PIN; ORIENT OMITTED PIN TO PIN 6 POSITION
96	1	1	B	HEADER ASSY, POLARIZED, 100 CENTER J5	903331-20			20 PIN; ORIENT OMITTED PIN TO PIN 19 POSITION
97								
98	1	1	B	HEAT SINK	320268-01			
99	M	M	B	HEAT SINK, COMPOUND THERMAL	904907-01			
100								
101	6	6	B	RIVET, DOME HEAD, OPEN END	906403-19			
102	2	2	B	RIVET, DOME HEAD, CLOSED END	906404-04			
103								
104	20	20	B	22 AWG BARE WIRE ON TAPE & REEL	903781-01			
105								
106	M	M	B	WIRE, INSULATED, #22 AWG	903755-03			
107	1	1	B	#30 WIRE WRAP WIRE, RED	903780-01			
108	1	1	B	BUS WIRE	320086-02			
109								
110	1	1	B	IC, 74LS244	901521-13		UB4, UB7, UB9, UB10, UD13, UD14, UE8, UE9, UE10	
111	1	1	B	IC, 74LS244	901521-13		UB4, UB5, UB7, UB10, UD13, UD14, UE8, UE9, UE10	

DRAWN BY: M. AMES
 CHECKED: [Signature]
 DATE: 1-30-91
 ENGR: [Signature]
 APPR: [Signature]

TITLE: PCB ASSY, UNIV. DYNAMIC PET
 SIZE: B
 REV: J
 SHIT: 47
 8032080

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LINE	QTY	RECD	PER	PART / DASH NO.	PART NUMBER	DESCRIPTION	REF DES	REND	NOTES
08	07	06	05	040302 01					
2	2	/	/	/	901521-29	IC, 74LS373	UB3,UB8		
11	1	/	/	/	901521-29	,74LS373	UB3		
4	4	/	/	/	901453-02	,2114	UC4-UC7		
2	2	/	/	/	901453-02	,2114	UC4,UC5		
16	16	/	/	/	901470-01	,4116	UA4-UA19		
8	8	/	/	/	901470-01	,4116	UA5,UA7,UA9,UA11,UA13,UA15,UA17,UA19		
11	1	/	/	/	901474-03	,2316	UD7		
11	1	/	/	/	901474-04	,2316	UD7		
11	1	/	/	/	901499-01	,2316	UD7		
11	1	/	/	/	901498-01	IC, 2316	UD7		
122									
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148									

REV J 5/7

8032080

SIZE B

DATE

ENGR:

DATE 1-30-81

CHKD: 1/3/77

APPR:

DRWN BY: M. AMES

CHKD:

TITLE: PCB ASSY, UNIV. DYNAMIC PET

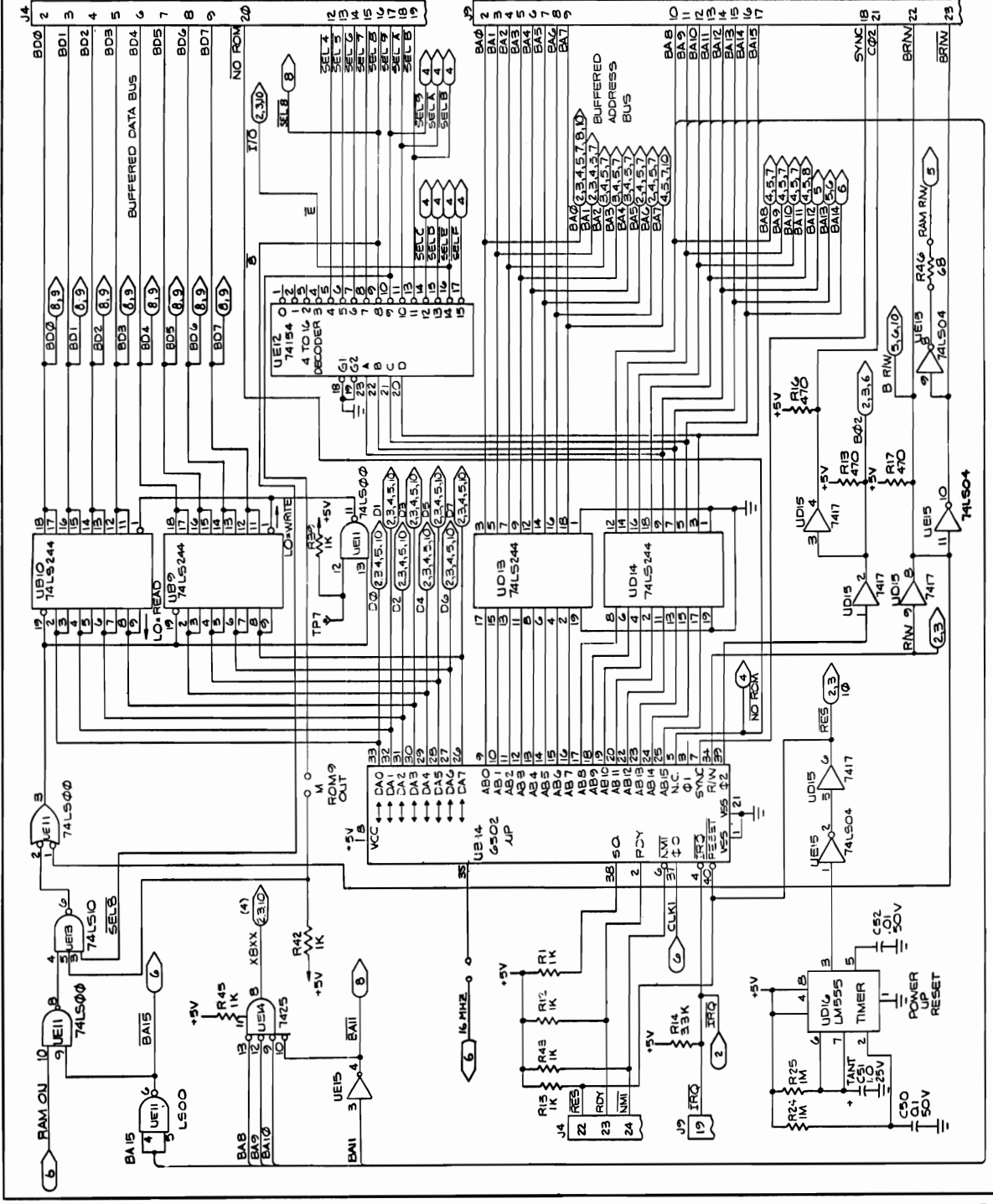
commodore

REVISIONS		DATE	APPROVED
A	PRODUCTION RELEASE	5/14/77	[Signature]
B	REVISED PER ECO 2091	5/14/77	[Signature]
C	REV PER ECO 2574	5/14/77	[Signature]
D	REVISED PER ECO 2607	5/14/77	[Signature]
E	REV PER ECO 2596	5/14/77	[Signature]

MEMORY EXPANSION

MEMORY EXPANSION

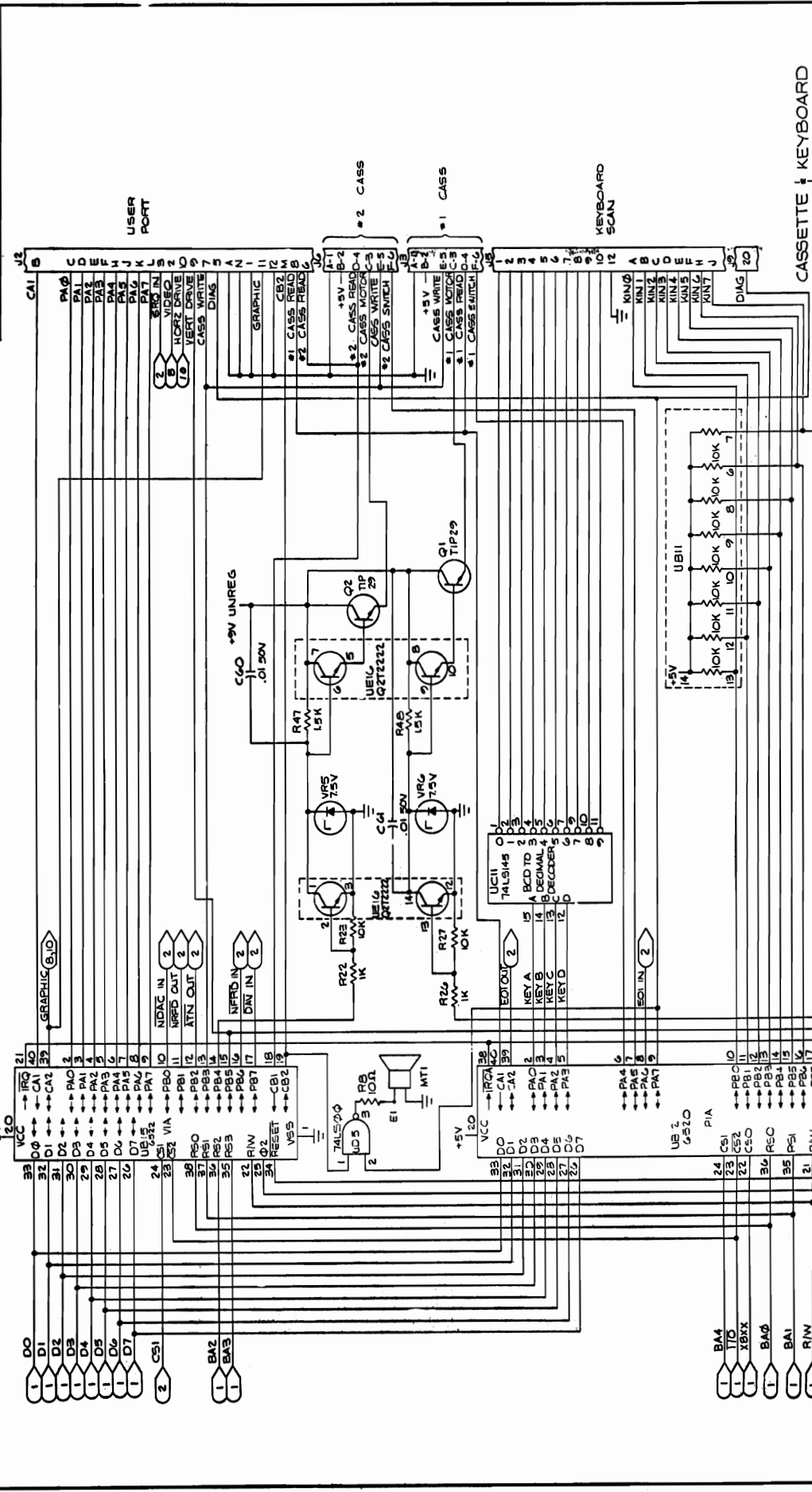
- ALL CAPACITOR VALUES ARE MEASURED IN MICROFARADS.
 - ALL RESISTOR VALUES ARE IN OHMS 5% AND ARE 1/4 WATT.
 - REFER TO ASSEMBLY DRAWING NUMBER 8032080.
- NOTES UNLESS OTHERWISE SPECIFIED:



CPU MEMORY EXPANSION

DESIGNED BY	C. DANIELS	DATE	5/14/77
CHECKED BY	[Signature]	DATE	5/14/77
APPROVED BY	[Signature]	DATE	5/14/77
PROJECT	8032080	SHEET	1 OF 11
COMPANIES		LOGIC DIAGRAM	
UNIVERSAL		DYNAMIC PET	

REVOLUTIONS		DATE	APPROVED
1	DESIGN SHEET		



REVOLUTIONS		DATE	APPROVED
1	DESIGN SHEET		

COMMODORE
 LOGIC DIAGRAM
 UNIVERSAL
 DYNAMIC PET

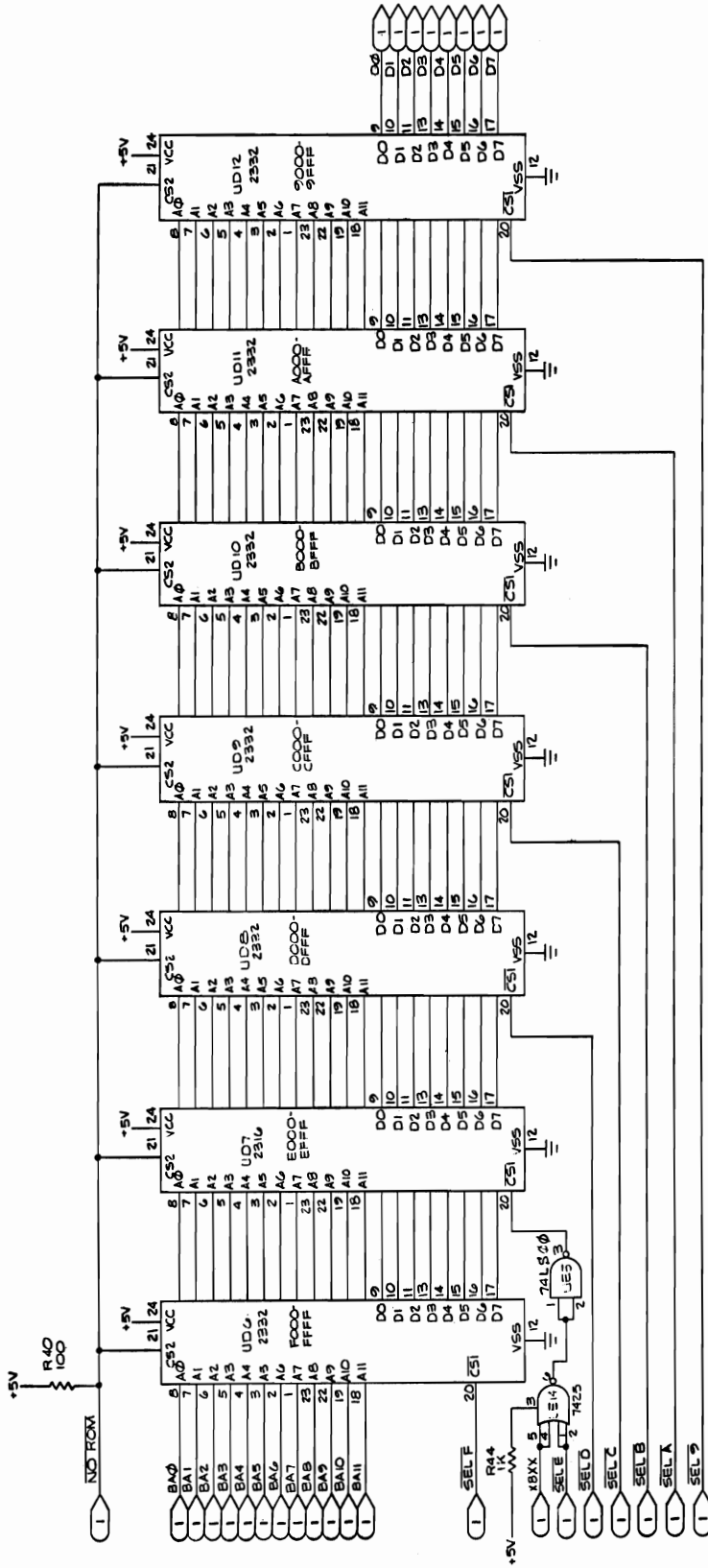
DESIGN BY: [Signature]
 CHECKED BY: [Signature]
 DATE: 4-8
 SCALE: NONE | SHEET 3 OF 11

UCI1 74LS145
 A BCD TO
 15 A BCD TO
 14 B DECODER
 13 C DECODER
 12 D
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UB11
 10K 10K 10K 10K 10K
 14 13 12 11 10 9 8 7
 10K 10K 10K 10K 10K

UC11
 15 A BCD TO
 14 B DECODER
 13 C DECODER
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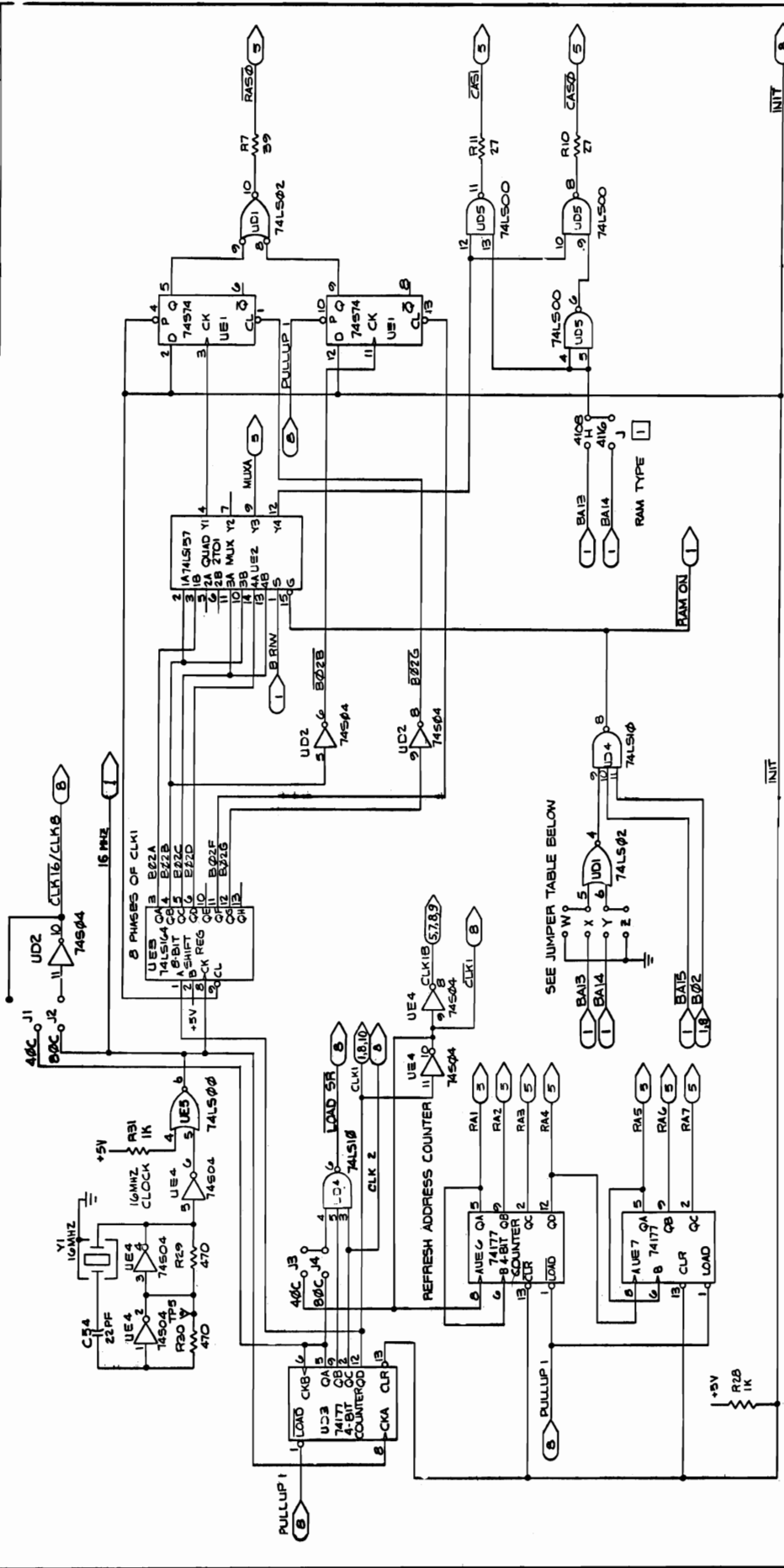
REV. NO.	DESCRIPTION	DATE	APPROVED
1	SEE SHEET 1		



ROMS

DATE	BY	REV.	NO.
cammatdiana LOGIC DIAGRAM UNIVERSAL DYNAMIC RAM			
REV.	NO.	DATE	APPROVED
1	803208		
PAGE NUMBER 1 OF 11			

REV	DATE	DESCRIPTION	APPROVED
1		SEE SHEET 1	



JUMPER TABLE

MEMORY JUMPERS

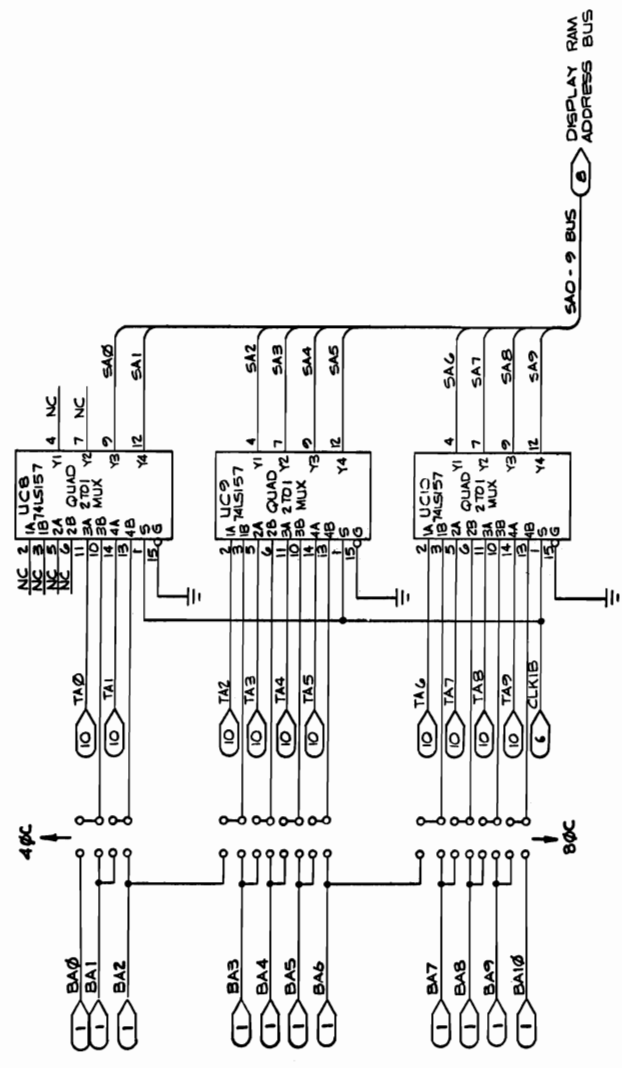
	32K	16K	8K	0K
W	0	0	0	0
X	0	0	0	0
Y	0	0	0	0
Z	0	0	0	0

MASTER TIMING

PARAMETER	UNIT	MIN	TYP	MAX
SETUP	ns			
HELD	ns			
RECOVERY	ns			
DELTA T	ns			
DELTA D	ns			
DELTA E	ns			
DELTA F	ns			
DELTA G	ns			
DELTA H	ns			
DELTA I	ns			
DELTA J	ns			
DELTA K	ns			
DELTA L	ns			
DELTA M	ns			
DELTA N	ns			
DELTA O	ns			
DELTA P	ns			
DELTA Q	ns			
DELTA R	ns			
DELTA S	ns			
DELTA T	ns			
DELTA U	ns			
DELTA V	ns			
DELTA W	ns			
DELTA X	ns			
DELTA Y	ns			
DELTA Z	ns			

COMMERCIAL LOGIC DIAGRAM UNIVERSAL DYNAMIC PET
 PART NO. B032081
 SCALE NONE SHEET 6 OF 11

REVISES		DATE		APPROVED	
NO.	DESCRIPTION				
1	SEE SHEET 1				

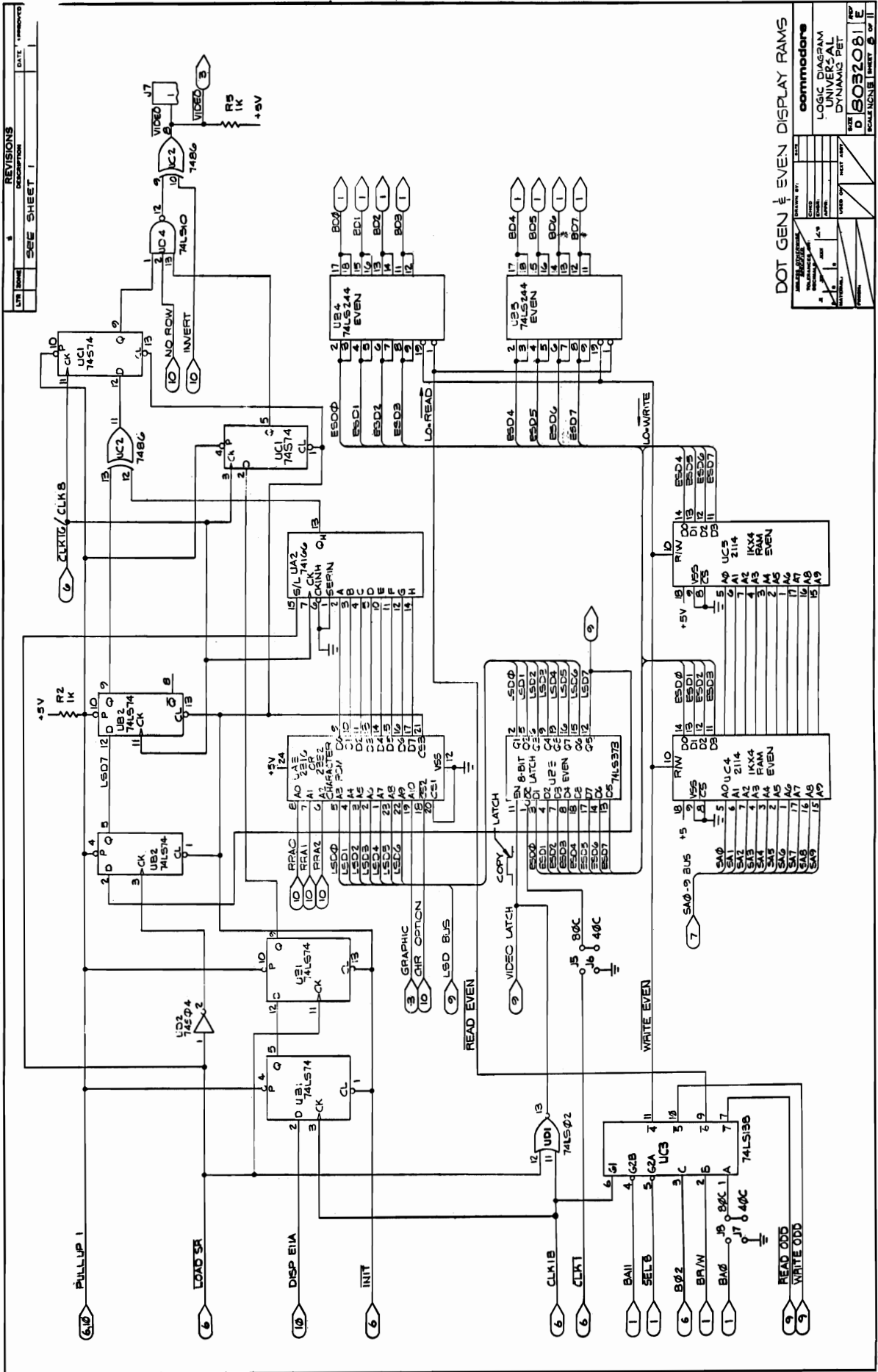


DISPLAY ADDRESS MUX

REVISES		DATE		APPROVED	
NO.	DESCRIPTION				
1	SEE SHEET 1				

DESIGNED BY	COMMADORE
CHECKED BY	LOGIC DIAGRAM
DATE	UNIVERS
SCALE	DYNAMIC
PROJECT	RET
NO.	D 8032081
SHEET	7 OF 11

REV	DATE	DESCRIPTION
1		REVISIONS
2		SEE SHEET 1

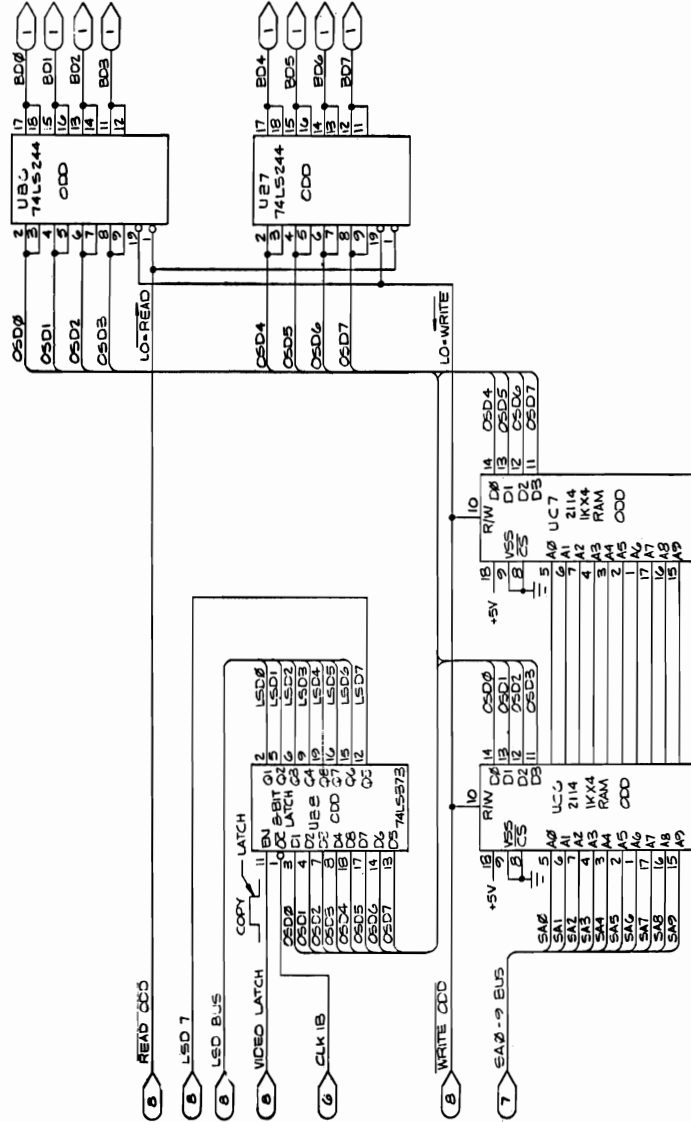


DOT GEN & EVEN DISPLAY RAMS

DESIGNED BY: _____
 CHECKED BY: _____
 DATE: _____
 SHEET 6 OF 11

COMMERCIAL LOGIC DIAGRAM
 UNIVERSAL DYNAMIC PET
 8032081

REVISIONS		DATE	APPROVED
1	SEE SHEET 1		



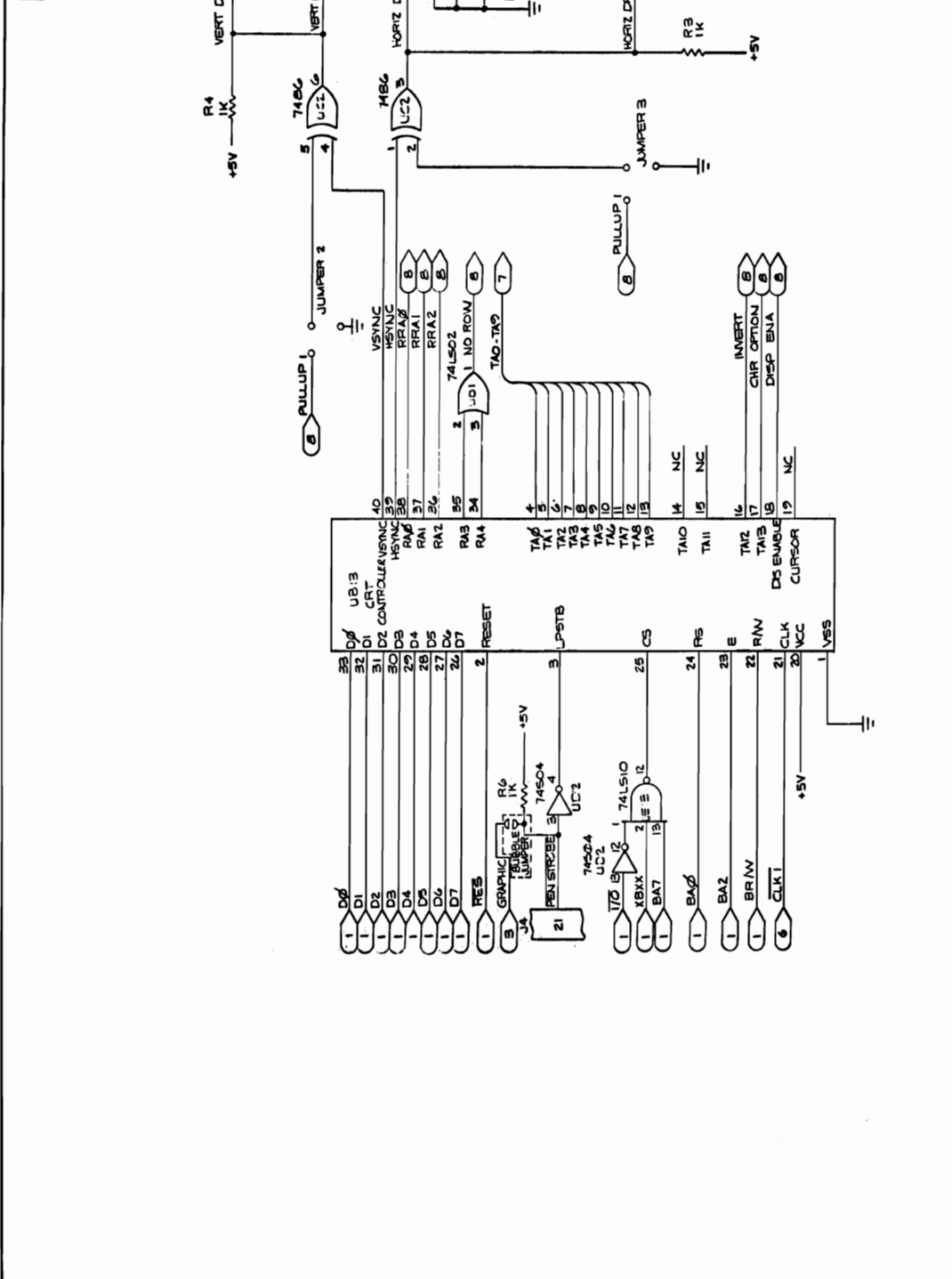
ODD DISPLAY RAMS

DATE	REV	BY	CHKD	APP'D

commadore
 LOGIC DIAGRAM
 UNIVERSAL
 DYNAMIC PET

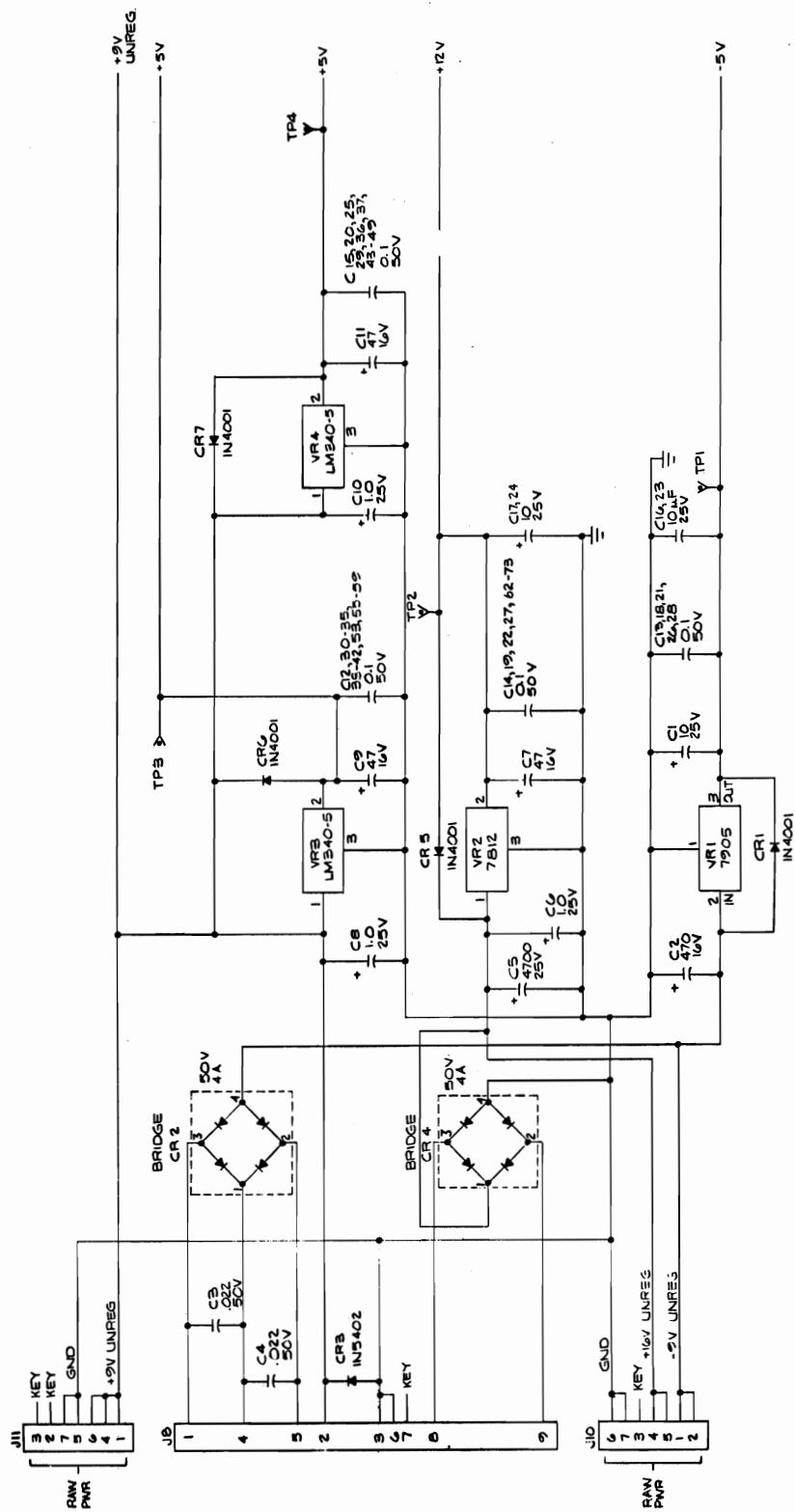
FILE D: BO32081
 SCALE NONE | SHEET 9 OF 11

REV	NO	DESCRIPTION	DATE	APPROVED
1	1	SEE SHEET 1		



CRTC AND SYNC BUFFERS	
DATE	REV
DESIGNED BY	DATE
CHECKED BY	REV
APPROVED BY	DATE
COMMODORE	
LOGIC DIAGRAM	
UNIVERSAL	
DYNAMIC PET	
SIZE	REV
D	B032081
SHEET NO. OF 11	

REVISIONS		DATE	APPROVED
LTR	DATE	DESCRIPTION	SEE SHEET 1



VOLTAGE REGULATOR

REV	DATE	DESCRIPTION
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REV	DATE	DESCRIPTION
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PART NO.	DESCRIPTION	REVISIONS		
		LTR	ZONE	DESCRIPTION
8032051-01	POWER SUPPLY ASSY, 8032 117V UL	A		PRODUCTION RELEASE
		B		REV PER ECO 1935
		C		REV PER ECO 2028
		D		REV PER ECO 2284
		E		REV. PER ECO 2777

- 6 REFER TO PART SUBSTITUTE INDEX P/N 321233.
- 5 SWITCH SHOWN IN 'OFF' POSITION.
- 4. ALL LEADS WILL HAVE A MINIMUM OF ONE WRAP AROUND TERMINALS PRIOR TO SOLDERING.
- 3 IDENTIFY WITH COMMODORE PART NO. 8032051 AND APPLICABLE DASH NO. LOCATE APPROX AS SHOWN.
- 2 DASH 04 CONFIGURATION SHALL BE USED FOR VDE, SEV & SEMKO.

1. SHEET 3 OF 3 SIZE D
ASSY DWG

NOTES - UNLESS OTHERWISE SPECIFIED:

commodore	TITLE: POWER SUPPLY ASSY, 8032	DRAWN BY: K. CHRISTENSEN	DATE: 9-22-80	ENGR: []	SIZE: B	DRAWING NUMBER: 8032051
		CHKD. FOR MAT. []	9-19-80	APPR. []	SHEET: B	OF 3

REV. NO.	REV. DATE	REVISIONS	DATE APPROVED
1	10/16/80	SEE SHEET 1	

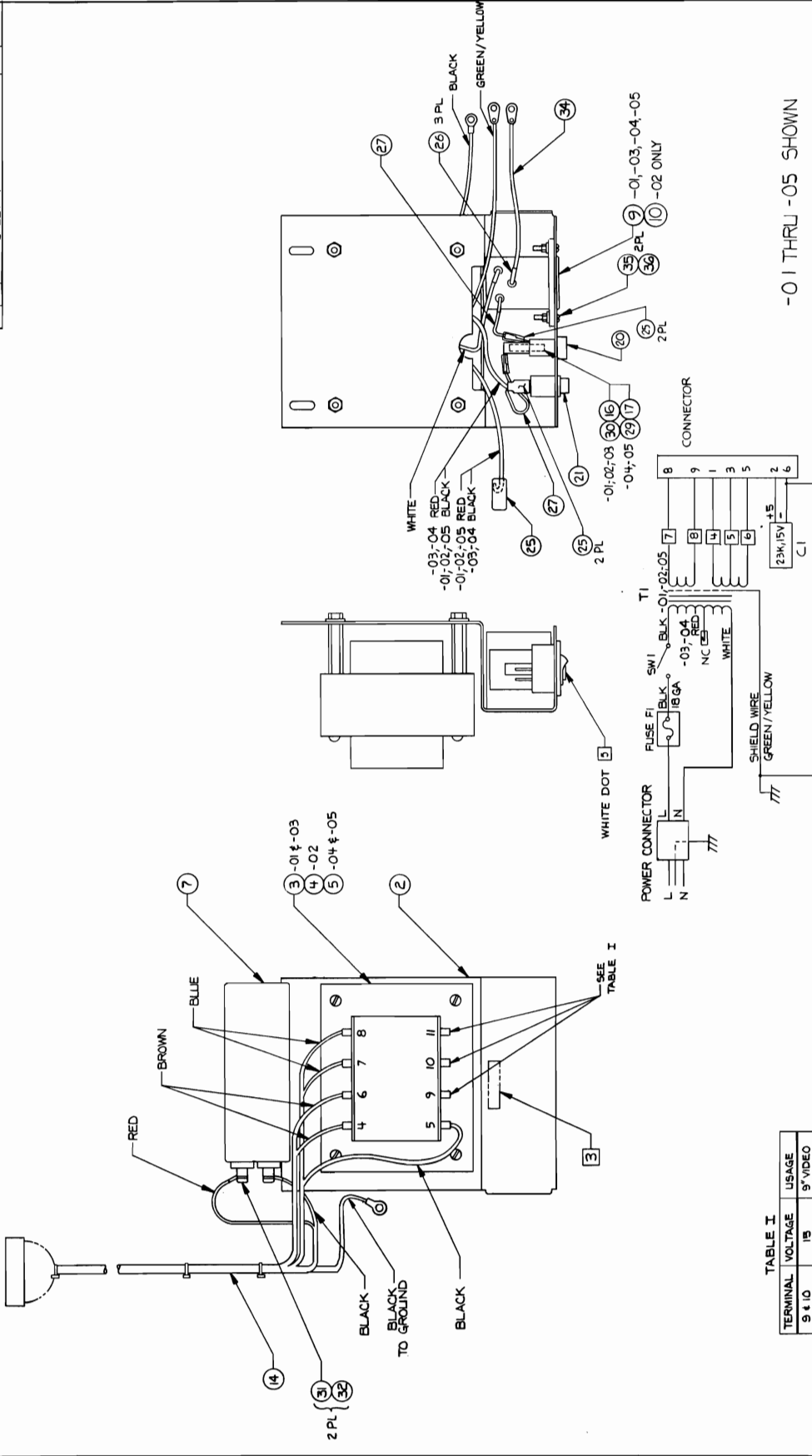


TABLE I

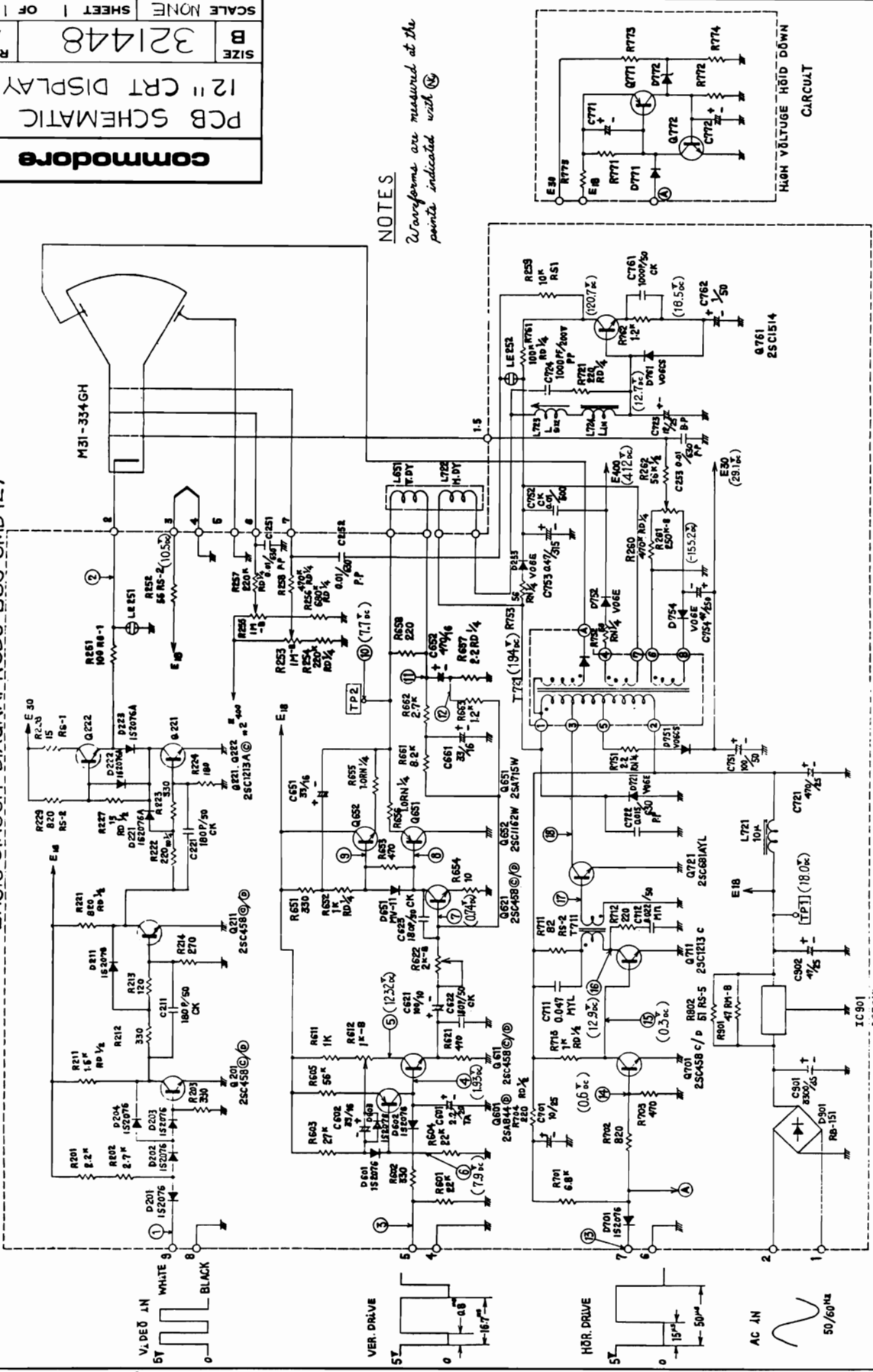
TERMINAL	VOLTAGE	USAGE
9 & 10	15	9" VIDEO
9 & 11	21	12" VIDEO

-01 THRU -05 SHOWN

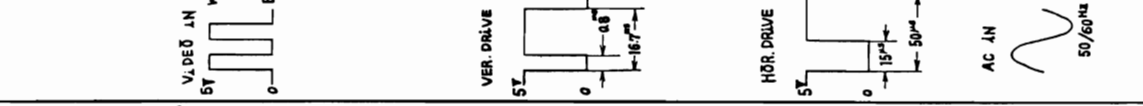
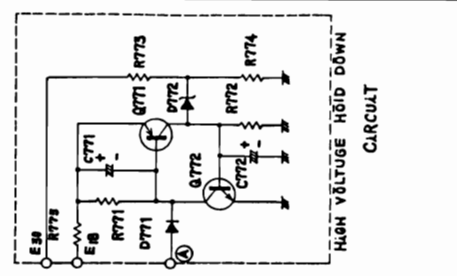
WIRING DIAGRAM

COMMODORE	
POWER SUPPLY	ASSY, 8032
8032	8032008 D 8032051 Z
8016	8016002 SCALE NONE SHEET 3 OF 3

BASIC CIRCUIT DIAGRAM (CDU-B80-CMD 12)




NOTES
 Waveforms are measured at the
 points indicated with Ⓢ



321450

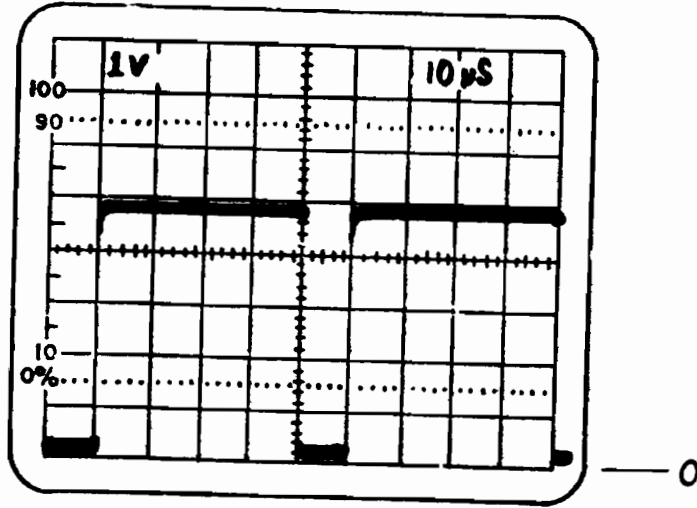
REVISIONS			
LT/ZONE	DESCRIPTION	DATE	APPROVED
A	PRODUCTION RELEASE	12/24/80	<i>[Signature]</i>

THE INFORMATION AND DATA CONTAINED HEREIN IS PROPRIETARY AND SHALL NOT BE USED OR DUPLICATED WITHOUT PERMISSION OF COMMODORE BUSINESS MACHINES, INC.

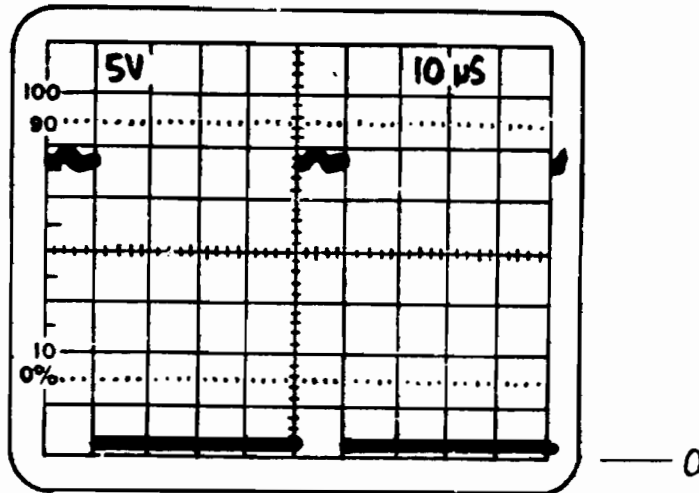
DRAWN BY: <i>Martin</i> CHD: <i>[Signature]</i> ENR: <i>[Signature]</i> PROB: APPD: ENG:	DATE 12-5-80 12/9/80 12/29/80	
		TITLE: PCB WAVEFORMS 12" CRT DISPLAY
		SIZE: A DWS NO. 321450 REV A
		RELEASE DATE: SHEET 1 OF 10

VIDEO (1/1)

1



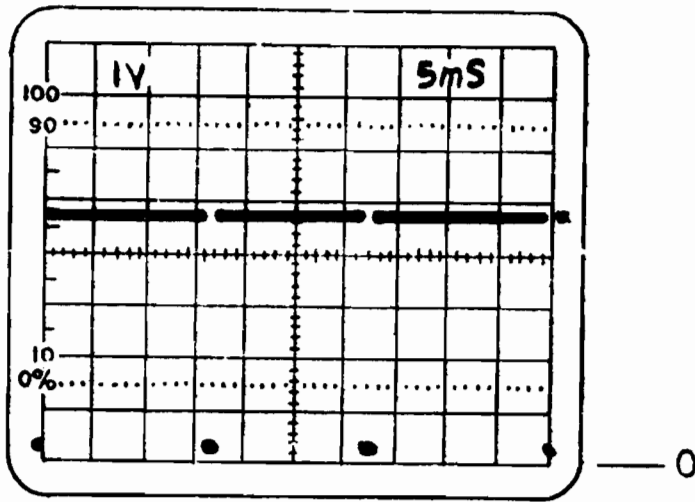
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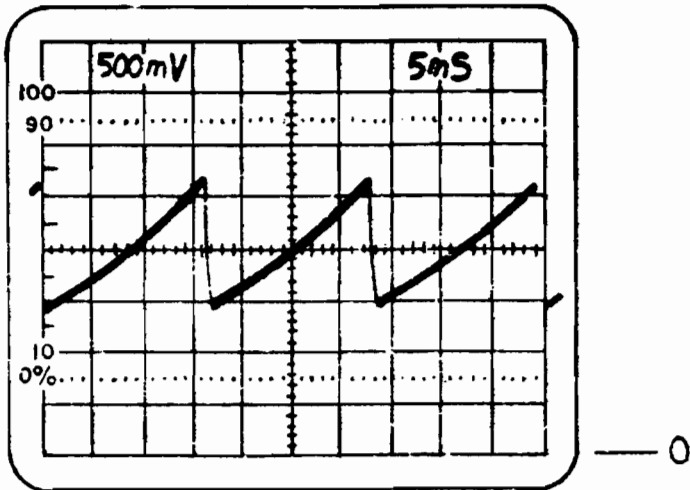
commodore		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE A	321450	REV A
SCALE NONE	SHEET 2	OF 10

VERTICAL (1/3)

3



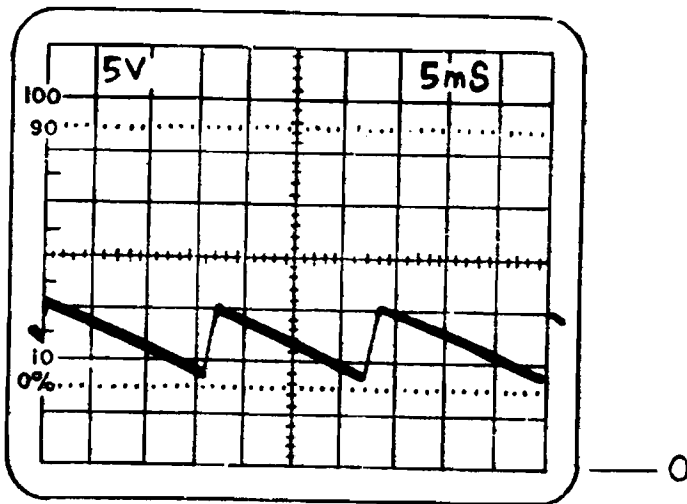
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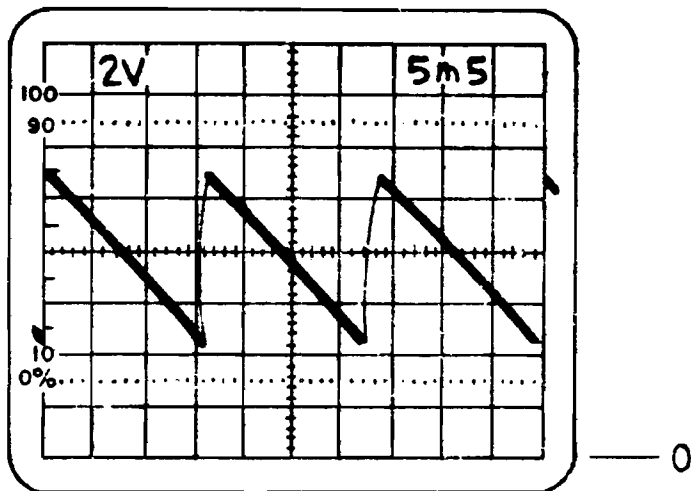
commodore		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE A	321450	REV A
SCALE NONE	SHEET 3	OF 10

VERTICAL (1/3)

5



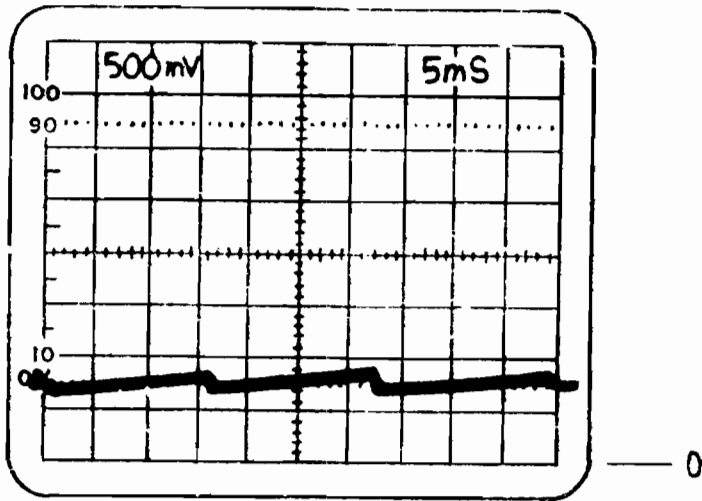
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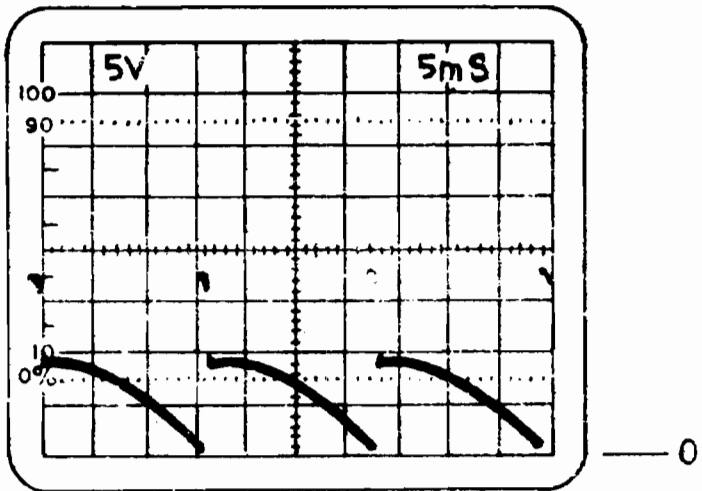
commodore		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE	321450	REV
A		A
SCALE	NONE	SHEET 4 OF 10

VERTICAL (2/3)

7



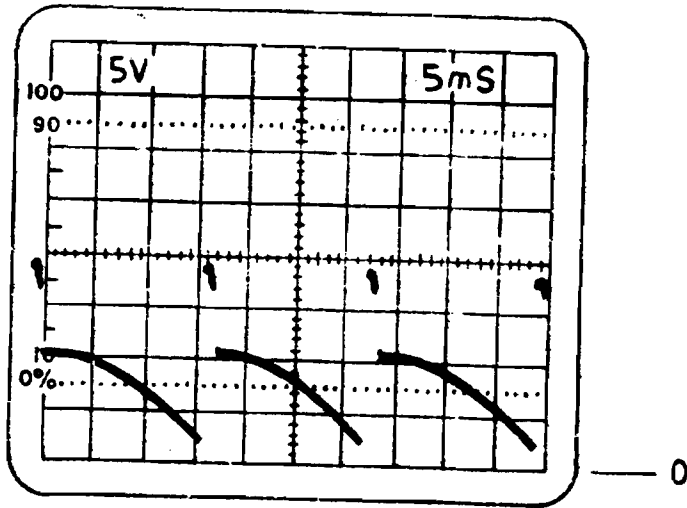
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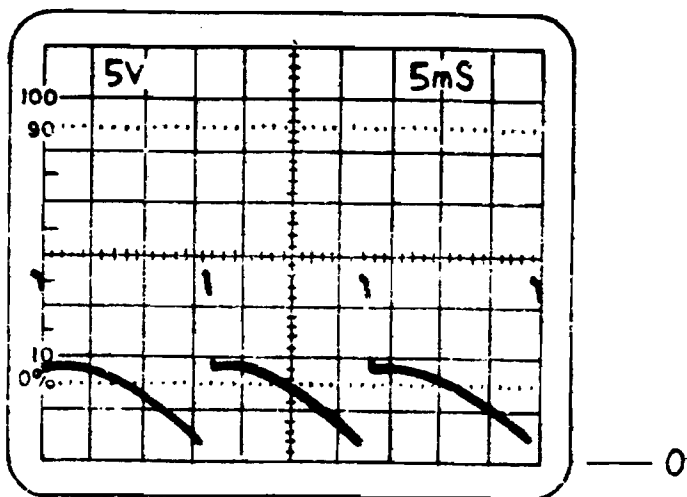
commodore		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE A	321450	REV A
SCALE NONE	SHEET 5	OF 10

VERTICAL (2/3)

9



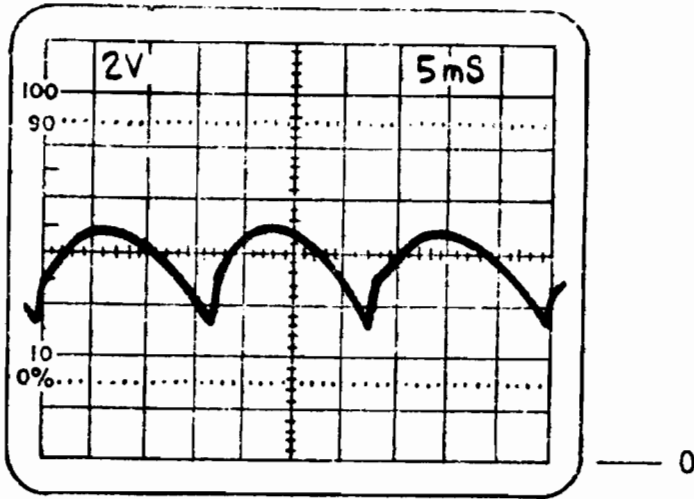
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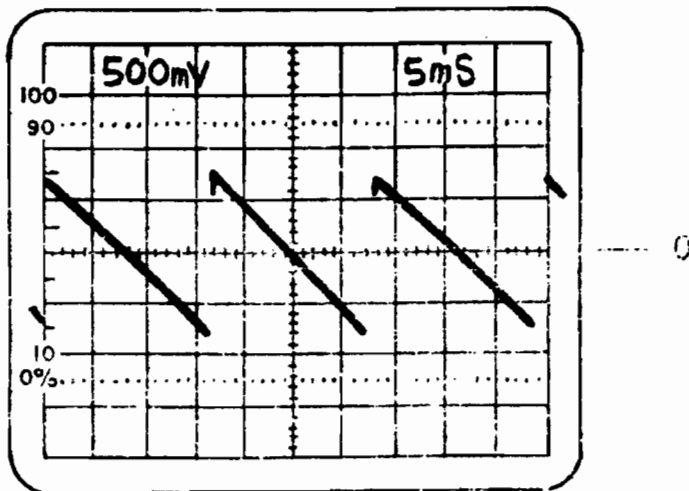
commodore		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE	321450	REV
A		A
SCALE	NONE	SHEET 6 OF 10

VERTICAL (3/3)

11



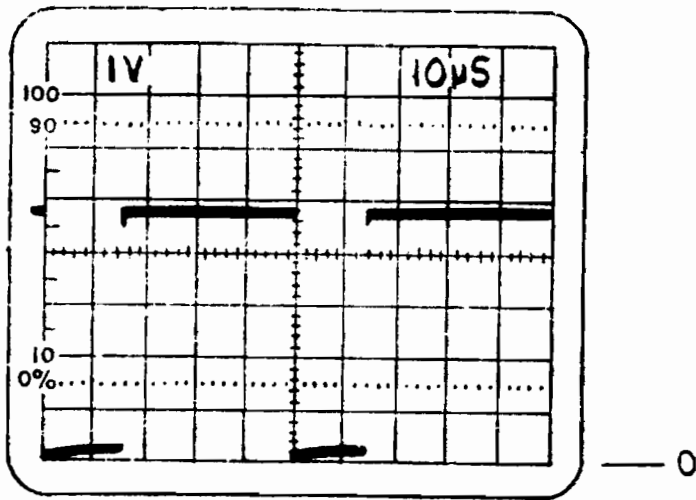
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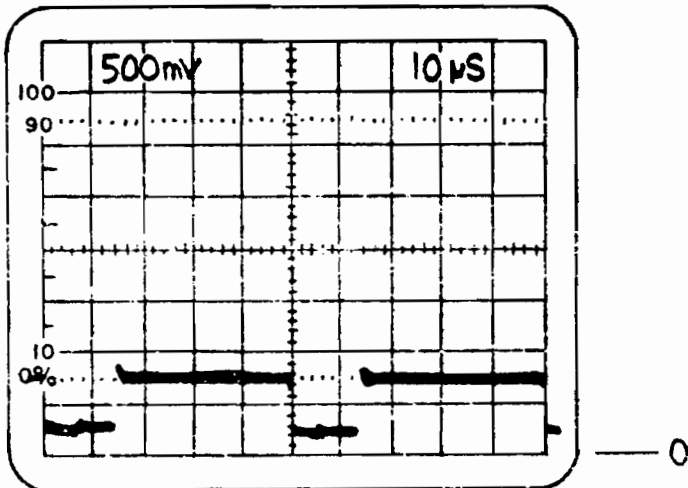
commodore		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE	321450	REV
A		A
SCALE NONE	SHEET 7	OF 10

HORIZONTAL (1/2)

13



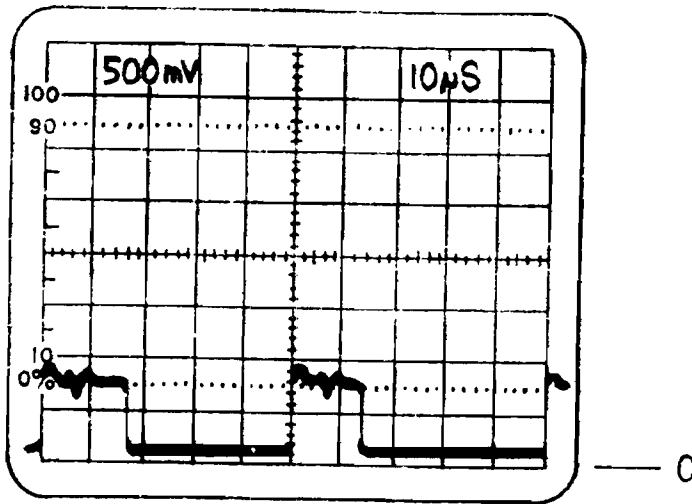
14



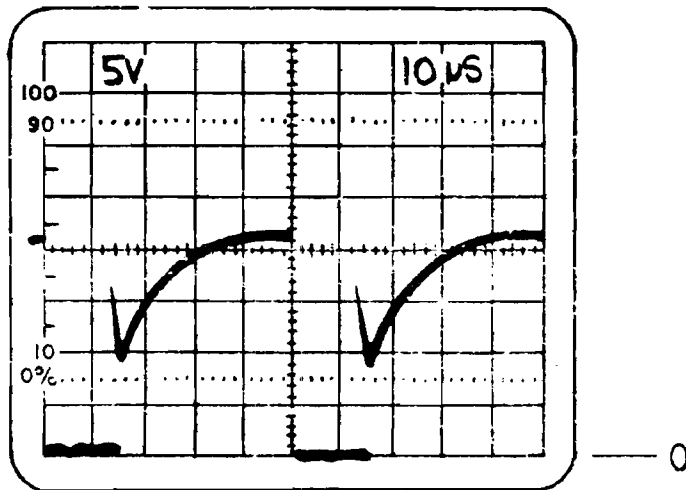
commodore		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE A	321450	REV A
SCALE NONE	SHEET 8	OF 10

HORIZONTAL (1/2)

15



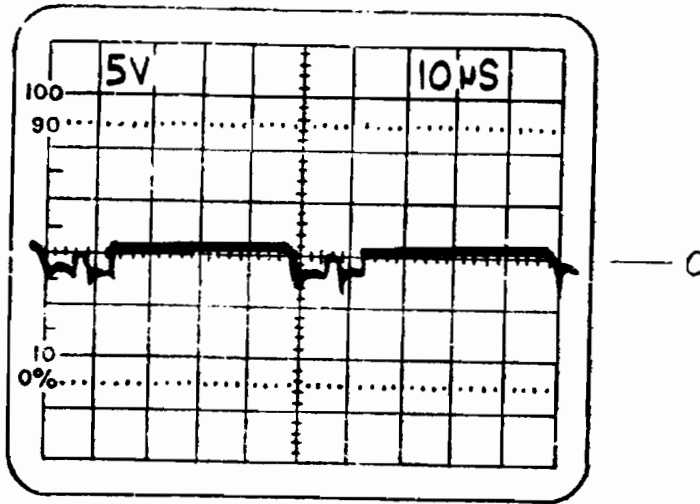
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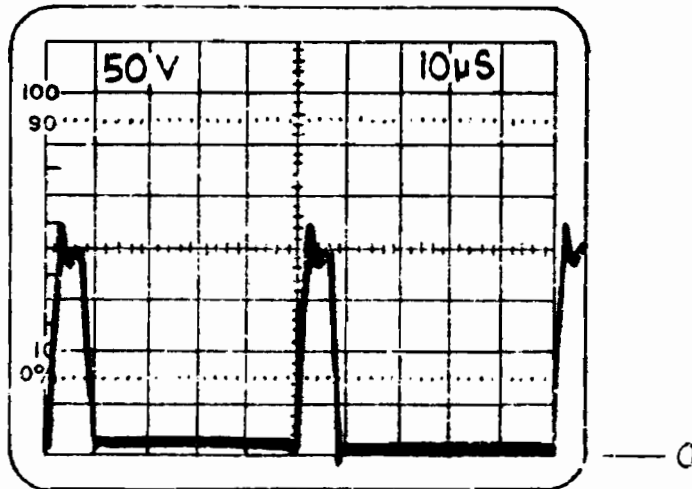
commodore		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE	321450	REV
A		A
SCALE	NONE	SHEET 9 OF 10

HORIZONTAL (2/2)

17



18




commodore		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE	321450	REV
A		A
SCALE	NONE	SHEET 10 OF 10

REVISIONS

LTR	ZONE	DESCRIPTION	DATE	APPROVED
A		PRODUCTION RELEASE	12/29/80	<i>R. Walker</i>

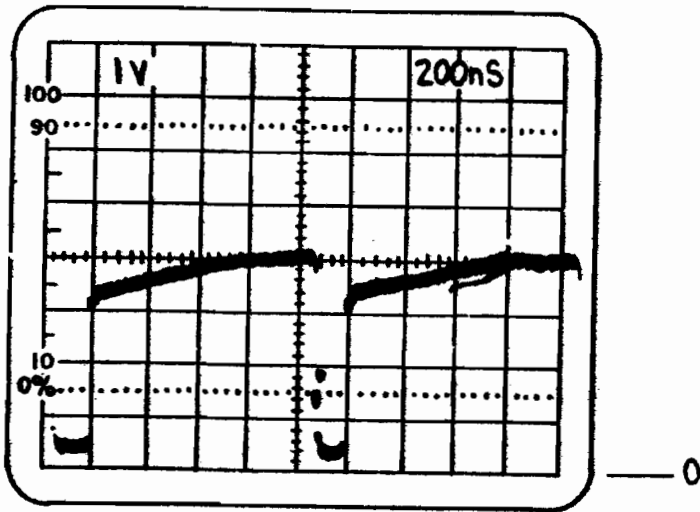
321447

THE INFORMATION AND DATA CONTAINED HEREIN IS PROPRIETARY AND SHALL NOT BE USED OR DUPLICATED WITHOUT PERMISSION OF COMMODORE BUSINESS MACHINES, INC.

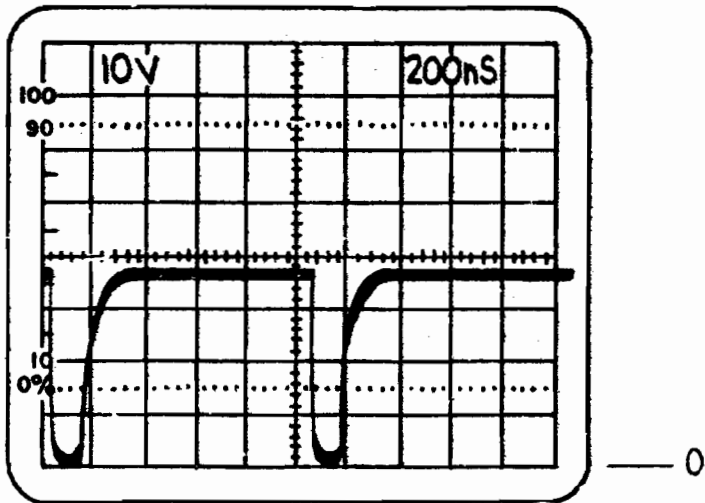
DRAWN BY: <i>[Signature]</i>	DATE 12-7-80	 commodore
CHKD: <i>[Signature]</i>	12/9/80	
ENGR: <i>[Signature]</i>	12/29/80	
PROD:		
TITLE:		PCB WAVEFORMS 9" CRT DISPLAY
APPD:		SIZE: A DWG NO. 321447 REV A
APPD:		RELEASE DATE: SHEET 1 OF 10

VIDEO (1/1)

①



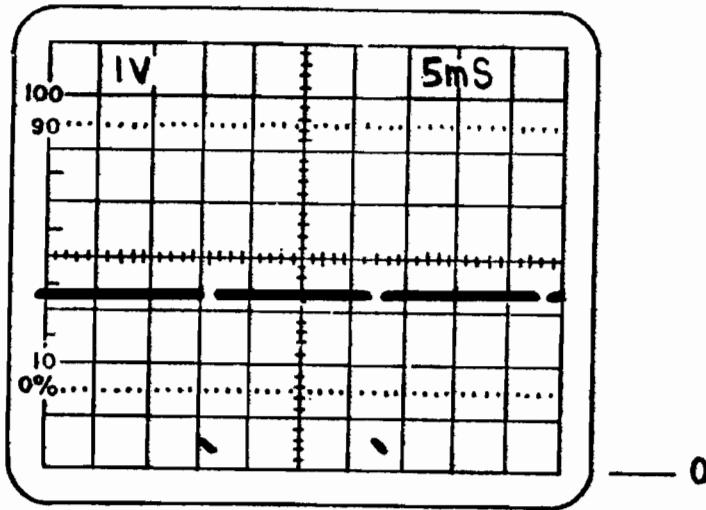
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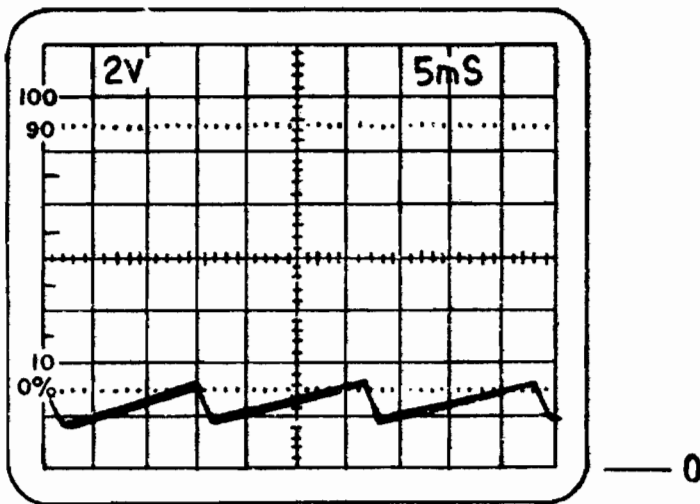
commodore		
PCB WAVEFORMS		
9" CRT DISPLAY		
SIZE A	321447	REV A
SCALE NONE	SHEET 2	OF 10

VERTICAL (1/3)

3



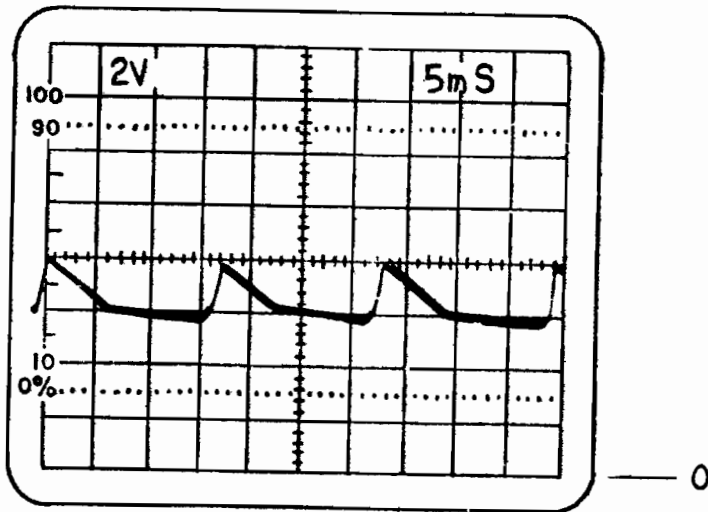
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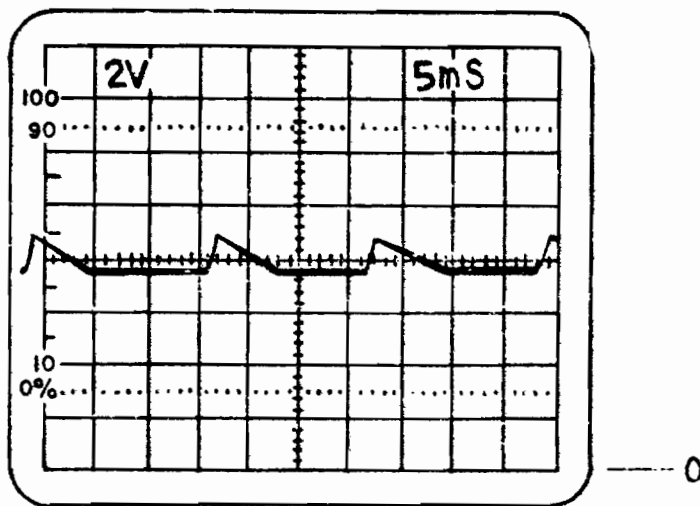
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PCB WAVEFORMS 9" CRT DISPLAY		
SIZE A	321447	REV A
SCALE NAME	SHEET 3 OF 10	

VERTICAL (1/3)

5



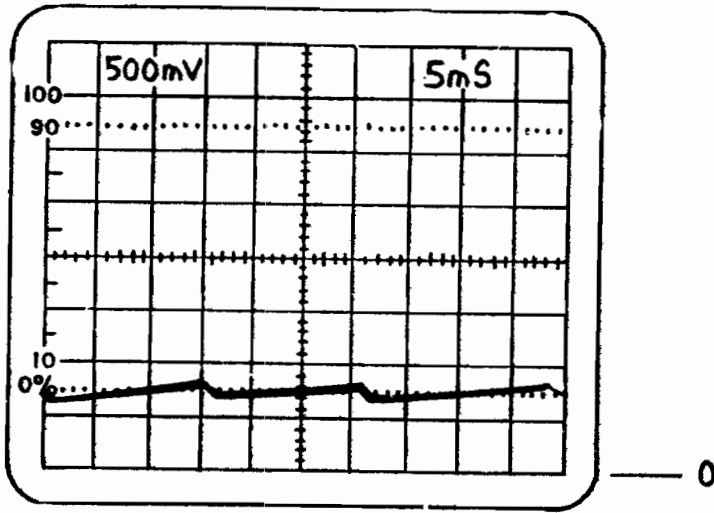
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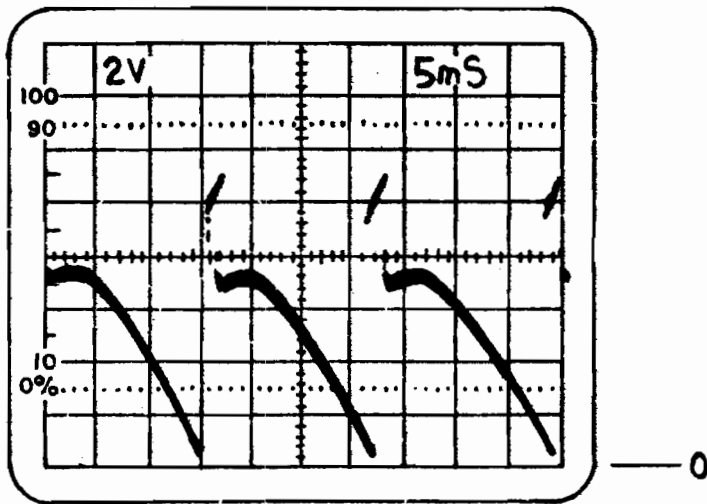
commodore		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE A	321447	REV A
SCALE NONE	SHEET 4	OF 10

VERTICAL (2/3)

7



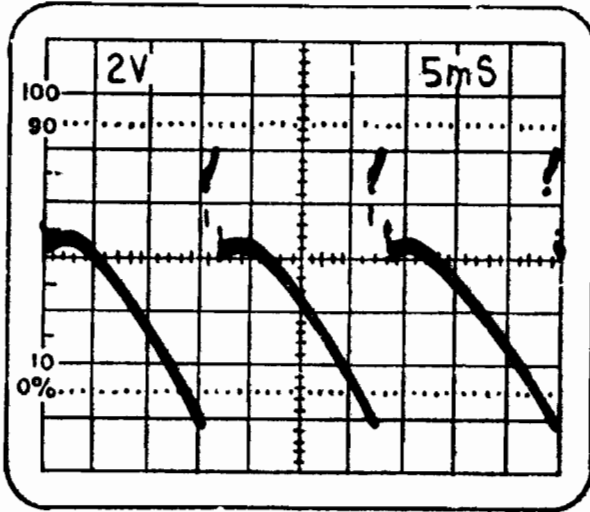
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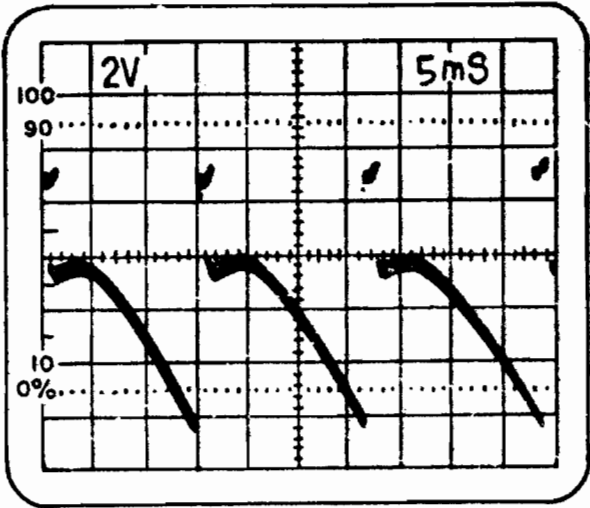
commodore		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE	321447	REV
A		A
SCALE	NONE	SHEET 5 OF 10

VERTICAL (2/3)

9



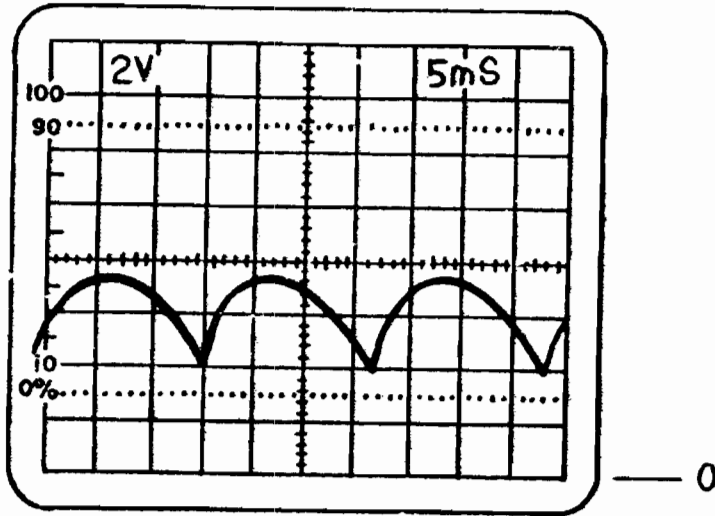
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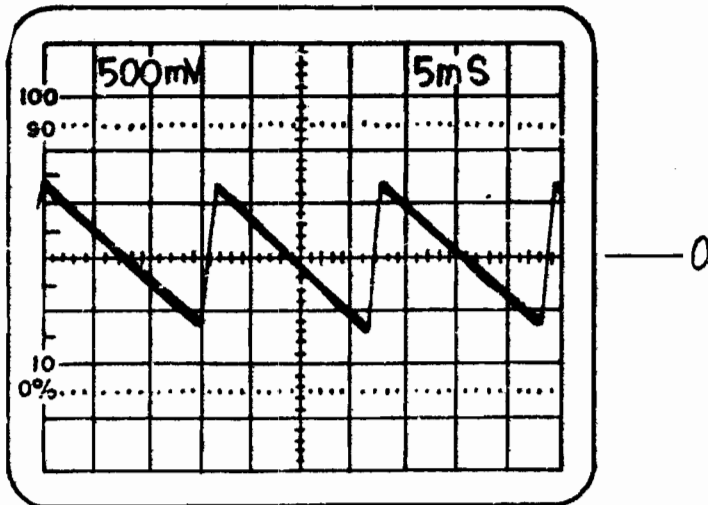
commodore		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE A	321447	REV A
SCALE NONE	SHEET 6	OF 10

VERTICAL (3/3)

11



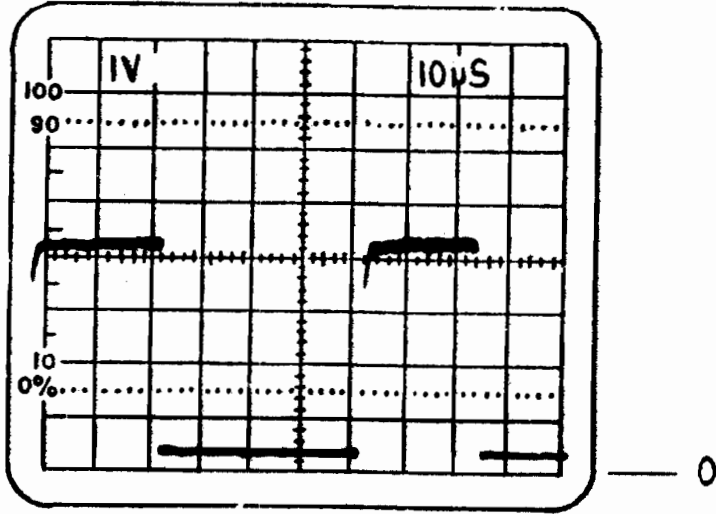
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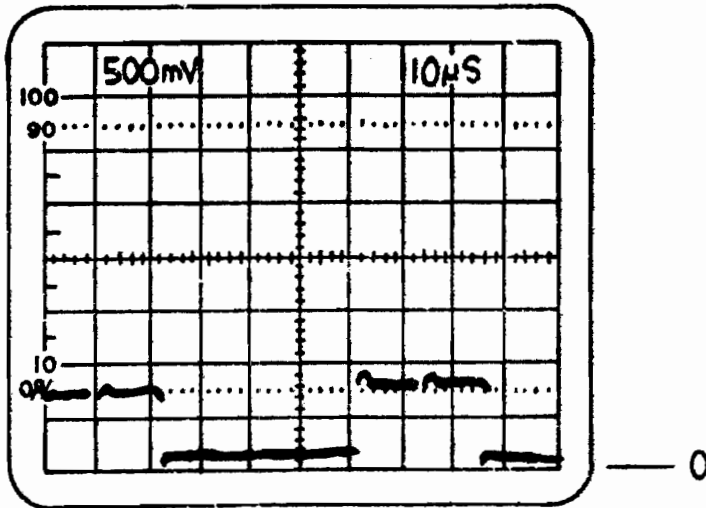
commodore		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE A	321447	REV A
SCALE NONE	SHEET 7	OF 10

HORIZONTAL (1/2)

13



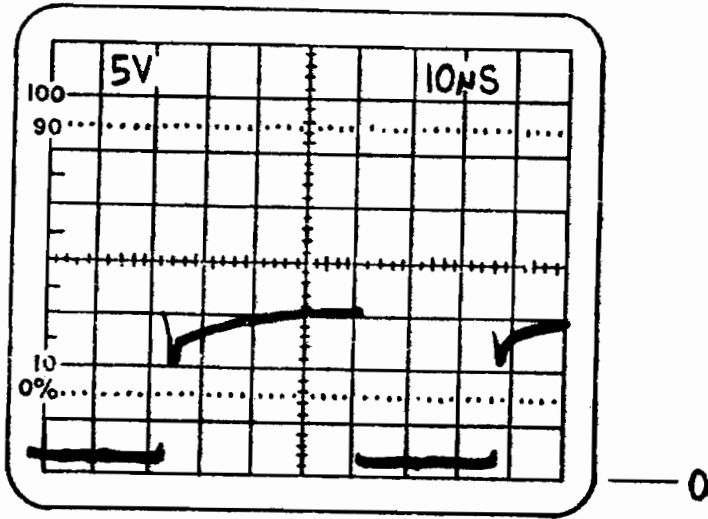
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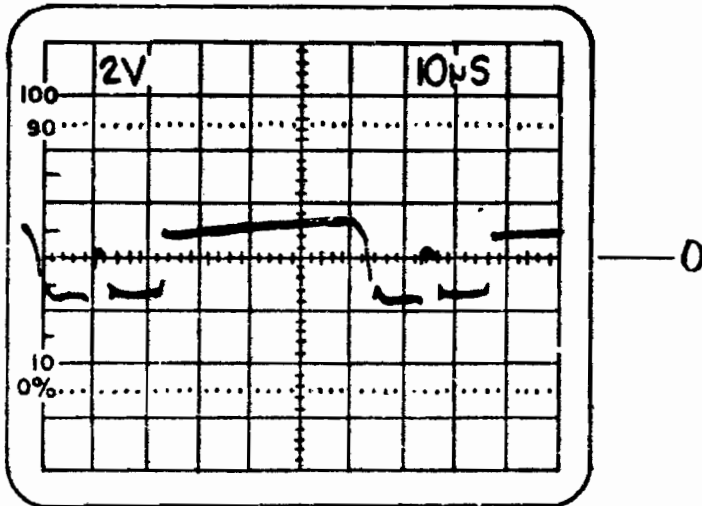
commodore		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE	32447	REV
A		A
SCALE	NONE	SHEET 8 OF 10

HORIZONTAL (1/2)

15



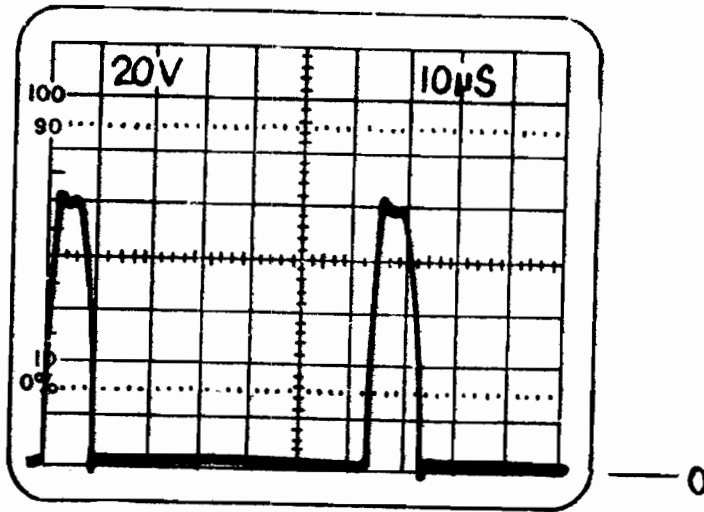
16



commodore		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE	321447	REV
A		A
SCALE NONE	SHEET 9	OF 10

HORIZONTAL (1/2)

17



commodore		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE A	321447	REV A
SCALE NONE	SHEET 10 OF 10	

PART NO.	DESCRIPTION
320351-01	DYNAMIC PET P.C.B. ASSY, 16 K GRAPHIC
↑ -02	32 K GRAPHIC
-03	16 K BUSINESS
↓ -04	32 K BUSINESS
-05	DYNAMIC PET P.C.B. ASSY, 8 K GRAPHIC
-06	DYNAMIC PET P.C.B. ASSY, 8 K GRAPHIC WITH INTERNAL CASSETTE
-07	DYNAMIC PET P.C.B. ASSY, 16 K GRAPHIC
↑ -08	32 K GRAPHIC
↓ -09	16 K BUSINESS
-10	32 K BUSINESS
↑ -11	DYNAMIC PET P.C.B. ASSY, 8 K GRAPHIC
320351-12	DYNAMIC PET P.C.B. ASSY, 8 K GRAPHIC WITH INTERNAL CASSETTE

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
AG		REVISED & REDRAWN PER ECO 1850	9/29/80	<i>[Signature]</i>
AH		REVISED PER ECO 1898	12/1/80	<i>[Signature]</i>
AJ		REVISED PER ECO 1920	12/8/80	<i>[Signature]</i>
AK		REVISED PER ECO 1928	12/8/80	<i>[Signature]</i>
AL		REVISED PER ECO 2001	1/21/81	<i>[Signature]</i>

7 IDENTIFY WITH COMMODORE PART NO. & APPLICABLE DASH NO. LOCATE APPROX AS SHOWN.

6 WHEN SHUNTS ARE OMITTED SUBSTITUTE JUMPER WIRE PREPARED PER DETAIL C, IN LOCATIONS SHOWN IN DETAIL A & D. THREE JUMPERS PER SH1 LOCATION, SIX JUMPERS PER SH2 LOCATION.

5 OMIT ON -05,-06,-11 & -12 CONFIGURATIONS ONLY.

4 ITEM 107 MAY BE SUBSTITUTED FOR ITEM 106; HOWEVER, PARTS SHALL NOT BE MIXED.

3. 54XXX, 54SXXX AND 54LSXXX MAY BE SUBSTITUTED FOR 74XXX, 74SXXX AND 74LSXXX.

2 USE BUSINESS ROM AT UD8.

1 USE GRAPHIC ROM AT UD8.

NOTES-UNLESS OTHERWISE SPECIFIED:

SHEET 6 OF 6 SIDE D ASSY DWG

commodore	TITLE	DYNAMIC PET PC BOARD ASSY		ENGR D. GARD	1-18-79	SIZE	DRAWING NUMBER
				APPR T. WATA	1-18-79	B	320351
		DRAWN BY	G. CARROLL	DATE	1-18-79		SHEET
		CHKD	B. SEILER				OF
							6

QUANTITY REQD PER PART / DASH NO.												ITEM	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES						
12	11	10	09	08	07	06	05	04	03	02	01												
1	1	1	1	1	1	1	1	1	1	1	1	1	D	320350-01	P.C. BOARD DYNAMIC PET								
1	1	1	1	1	1	1	1	1	1	1	1	2	D	320349-01	LOGIC DIAGRAM								
1	1	1	1	1	1	1	1	1	1	1	1	3	B	90A35-01	IC 650Z MPU	UC4							
2	2	2	2	2	2	2	2	2	2	2	2	4	B	90A36-01	650Z PIA	UC6 UC7							
1	1	1	1	1	1	1	1	1	1	1	1	5	B	901437-01	650Z VIA	UC5							
2	2	2	2	2	2	2	2	2	2	2	2	6	B	901522-03	74117 BINARY PRESETTABLE COUNT.	UF2,UF4							
1	1	1	1	1	1	1	1	1	1	1	1	7	B	901522-01	7417 HEX BUFFER	UA10							
1	1	1	1	1	1	1	1	1	1	1	1	8	B	901522-20	7425 NAND GATE	UBZ							
1	1	1	1	1	1	1	1	1	1	1	1	10	B	901521-09	74LS145 BCD-TO-DECIMAL DECODERS	UC9							
1	1	1	1	1	1	1	1	1	1	1	1	11	B	901522-21	74191 SYNC COUNTER	UG5							
1	1	1	1	1	1	1	1	1	1	1	1	12	B	901522-13	74154 4 TO 16 LINE DECODERS	UDZ							
1	1	1	1	1	1	1	1	1	1	1	1	13	B	901522-04	7400 NAND GATE	UG10							
3	3	3	3	3	3	3	3	3	3	3	3	14											
3	3	3	3	3	3	3	3	3	3	3	3	15	B	901525-09	74574 FLIP-FLOP	UH1,UG8,UH9	ITEM 113 MAY BE USED AS A SUBSTITUTE						
2	2	2	2	2	2	2	2	2	2	2	2	16	B	901525-01	74504 SCHOTTKY HEX INV.	UL1,UH2							
1	1	1	1	1	1	1	1	1	1	1	1	17	B	901521-03	74LS08 AND GATE	UG1	ITEM 114 MAY BE USED AS A SUBSTITUTE						
2	2	2	2	2	2	2	2	2	2	2	2	18	B	901521-01	74LS00 NAND GATE	UH4,UH5							
1	1	1	1	1	1	1	1	1	1	1	1	19	B	901521-02	74LS04 HEX INV.	UA3							
2	2	2	2	2	2	2	2	2	2	2	2	20	B	901521-03	74LS08 AND GATE	UH0,UF1							
2	2	2	2	2	2	2	2	2	2	2	2	21	B	901521-24	74LS10 NAND GATE	UAS,UG7							
2	2	2	2	2	2	2	2	2	2	2	2	22	B	901521-04	74LS20 NAND GATE	UG2,UG11							
2	2	2	2	2	2	2	2	2	2	2	2	23	B	901521-07	74LS93 COUNTER	UH9,UH11							
4	4	4	4	4	4	4	4	4	4	4	4	24											
4	4	4	4	4	4	4	4	4	4	4	4	25	B	901521-08	74LS107 FLIP-FLOP	UG6,UH6							
4	4	4	4	4	4	4	4	4	4	4	4	26	B	901521-11	74LS157 DATA SEL	UH7,UH8							
1	1	1	1	1	1	1	1	1	1	1	1	27	B	901521-28	74LS164 8-BIT PARALLEL COUNTER	UF3,UF5	ITEM 111 MAY BE USED AS A SUBSTITUTE						
1	1	1	1	1	1	1	1	1	1	1	1	28	B	901521-12	74LS165 SHIFT REG.	UG10,UA							
8	8	8	8	8	8	8	8	8	8	8	8	29	B	901521-13	74LS244 BUFFER	UF3,UC3							
4	4	4	4	4	4	4	4	4	4	4	4	30	B	901522-26	74LS153 DATA SELECTOR MULTIPLEX.	UE1							
2	2	2	2	2	2	2	2	2	2	2	2	31	B	901521-29	74LS373 OCTAL D-TYPE LATCH	UE7,UE8							
commodore												TITLE: DYNAMIC PET P.C. BOARD ASSEMBLY		DRAWN BY:		CHECKED:		DATE:		SCALE:		SHEET:	
												320351		B		320351		AL		26			

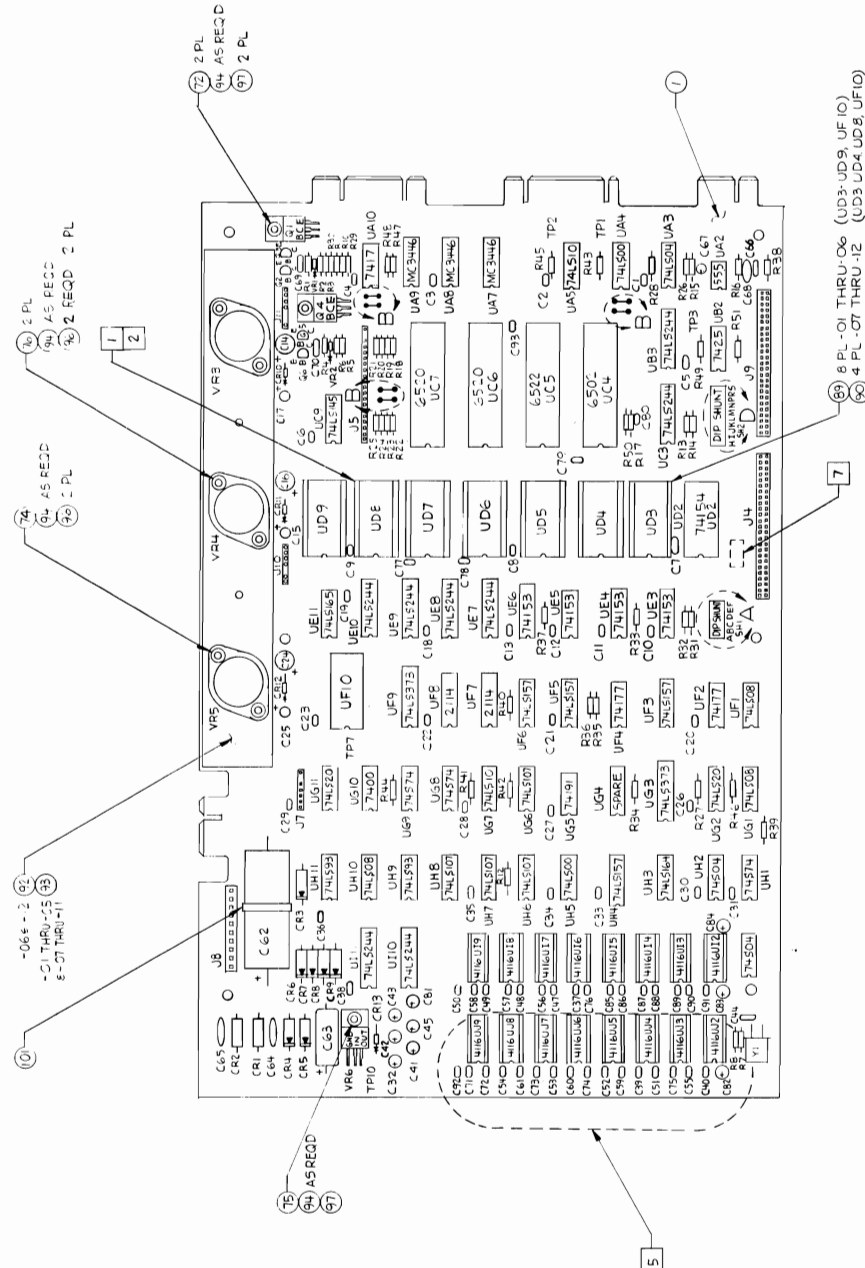
QUANTITY RECD PER PART / DASH NO.		1 2 3 4 5 6 7 8 9 10 11 12	8	PART NUMBER	DESCRIPTION	REF DES	RENO	NOTES
10908	07060504							
12	11	10	9	08	1C	RAM 4K STATIC	UF7-UBB	400 NSEC
2	2	2	2	2	4116	RAM 16K DYNAMIC	UIZ-UI9	SEE ITEM 108 OR 109 FOR SUBSTITUTE
-	8	8	-	8	4116	RAM 16K DYNAMIC	UIZ-UI9	
-	8	8	-	8	6316	004 ROM (CHAR. GEN.)	UF10	
1	1	1	1	1	6316	011 ROM (E000-E1EE)	UD8	1
-	-	-	-	-	6316	007 ROM (E000-E1EE)	UD6	
-	-	-	-	-	6316	008 ROM (E000-E1EE)	UD1	
-	-	-	-	-	6316	009 ROM (E000-E1EE)	UD9	
-	-	-	-	-	6316	024 ROM (CHAR. GEN.)	UD8	2
1	1	1	1	1	LM555	TIMER	UA7-UA9	
3	3	3	3	3	MC 3446	INTFC BUS	UA7-UA9	
3	3	3	3	3	900010-36	CAPACITOR CERAMIC 0.01UF 50V	CG6-69,70	
2	2	2	2	2	900010-37	CERAMIC 0.02UF 200V	CG4,65	
1	1	1	1	1	900150-07	POLY. FILM 0.1 UF 100V	CG8	
1	1	1	1	1	900010-47	CERAMIC 12PF 200V	CG4	
1	1	1	1	1	900101-38	ELECT. 470UF 16V	CG3	
3	3	3	3	3	900100-33	ELECT. 47UF 16V	CA,16,24	
1	1	1	1	1	900101-40	ELECT. 4700UF 25V	CG2	
5	1	6	1	6	900020-01	DIPPED CERAMIC 0.1UF 50V	CI-C13	5 SEE SH 6 ASSY DRAWING
							CI8-C23	
							CG2-C31	
							C33-C40	
							C47-C61	
							C71-C80	
							C85-C93	
4	4	4	4	4	900402-13	TANT. 1.0UF 75V	CF5,17,25,67	
9	9	9	9	9	900108-31	CAPACITOR, ELEC. LOW LEAKAGE 10UF 25V	C32,41,42, CA3,CA5,	SEE ITEM 99 FOR SUBSTITUTE
							CB1-CBA	
4	4	4	4	4	900750-01	DIODE IN4001 1A/50V	CR10-13	SEE ITEM 56 FOR SUBSTITUTE
9	9	9	9	9	900750-01	IN540Z 3A/200V	CR1-9	
2	2	2	2	2	900941-01	ZENER 7.5	VR1,2	
5	5	5	5	5	900750-05	DIODE IN4005	CR10-13	SUBSTITUTE FOR ITEM 53
2	2	2	2	2	901550-69	RESISTOR 1/4W 5% 1.5K OHMS	R1, RA	
10	10	10	10	10	901550-70	" " 10K OHMS	R2, RG	
							R18-R75	

TITLE: DYNAMIC PET P.C. BOARD ASSEMBLY
 DRAWN BY: _____
 CHECKED: _____
 ENGR: _____
 APPR: _____
 DATE: _____
 SIZE: B
 REV: 320351
 SHIT: 3/6

commodore

QUANTITY REQD. PER PART / DASH NO.		REF DES	DESCRIPTION	PART NUMBER	QTY	UNIT	REF DES	NOTES											
12	11								10	09	08	07	06	05	04	03	02	01	
14	14	14	14	14	14	14	14	RESISTOR 1/4W 5% 1K OHMS	901550-01	B									
2	2	2	2	2	2	2	2		901550-84	B									
2	2	2	2	2	2	2	2	IM	901550-85	B									
2	2	2	2	2	2	2	2	2.7		B									
1	1	1	1	1	1	1	1	3.3K		B									
1	1	1	1	1	1	1	1	3.9		B									
4	4	4	4	4	4	4	4	4.7		B									
8	8	8	8	8	8	8	8	6.5		B									
2	2	2	2	2	2	2	2	5.1K		B									
2	2	2	2	2	2	2	2	RESISTOR 1/4W 5% 270 OHMS	901550-76	B									
2	2	2	2	2	2	2	2	TRANSISTOR NPN 2N3904	901550-01	B									
2	2	2	2	2	2	2	2	" NPN 2N4401	901550-01	B									
2	2	2	2	2	2	2	2	TRANSISTOR NPN 1N719	901550-01	B									
1	1	1	1	1	1	1	1	VOLT. REG. 7812 11ZV / 1A-TO-3	901528-04	B									
1	1	1	1	1	1	1	1	" 7805 -5V / 1A-TO-220	901521-03	B									
2	2	2	2	2	2	2	2	VOLT. REG. LM 340-5 +5V 1.5A TO-3	901528-03	B									
5	5	5	5	5	5	5	5	VOLT. REG. LM 323	901528-01	B									
1	1	1	1	1	1	1	1	DIP SHUNT 10 PACK	904777-10	B									
1	1	1	1	1	1	1	1	DIP SHUNT 6 PACK	904777-06	B									
5	5	5	5	5	5	5	5	JUMPER	320086-02	B									
1	1	1	1	1	1	1	1	HEADER ASSY. POLARIZED (100) 20 PIN	903331-20	B									
1	1	1	1	1	1	1	1	" POLARIZED (100) 7 PIN	903331-07	B									
1	1	1	1	1	1	1	1	(100) 7 PIN	903326-07	B									
1	1	1	1	1	1	1	1	POLARIZED (100) 7 PIN	903331-07	B									
1	1	1	1	1	1	1	1	HEADER ASSY. (.156) 9 PIN	903316-09	B									
2	2	2	2	2	2	2	2	HEADER ASSY. POST, STRAIGHT .100 CENTERS	903345-25	B									
4	4	4	4	4	4	4	4	IC SOCKET 24 PIN	904150-04	B									
5	5	5	5	5	5	5	5	IC SOCKET 24 PIN	904153-04	B									
commadore		DYNAMIC PET P.C. BOARD ASSEMBLY		TITLE:		CITY: NY		ENGR:		DATE:		SIZE: B		REV: 370 351		SHEET: 3		OF: 6	

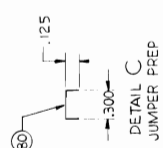
QUANTITY REQD. PER PART / DASH NO.		QTY	REF	PART NUMBER	DESCRIPTION	REF DES	REF NO	NOTES	
07	08								09
		91	B	904150-06	IC SOCKET 40 PIN	UC4			
		92	C	320268-02	HEAT SINK				
		93	C	320268-01	HEAT SINK				
		94	B	904907-01	HEAT SINK COMPOUND THER.				
		95							
		96	B	906403-19	RIVET-DOME HEAD, OPEN END				
		97	B	906404-04	RIVET-DOME HEAD, CLOSED END				
		98							
		99	B	900402-09	CAP. TANTULUM 10µF 20V		C3241, 42, 43, 44	SUBSTITUTE FOR ITEM 52	
		100					C45, C81-C84		
		101	B	905051-01	CABLE TIE				
		102							
		103	B	900556-02	CRYSTAL 16MHZ.	Y1		SEE ITEM 104 FOR SUBSTITUTE	
		104	B	900557-01	CRYSTAL 16MHZ.	Y1		SUBSTITUTE FOR ITEM 103	
		105							
		106	B	901470-02	IC 8K DYNAMIC RAM 4108-30 M816K	U12-U19		8 DEVICES USED FOR 8K VERSION 4	
		107	B	901470-03	IC 8K DYNAMIC RAM 4108-31 M816K	U12-U19		8 DEVICES USED FOR 8K VERSION 4	
		108	B	901470-02	IC 8K DYNAMIC RAM 4108-30 M816K	U12-U19		16 DEVICES USED FOR 16K VERSION FOR ITEM 33	
		109	B	901470-03	IC 8K DYNAMIC RAM 4108-31 M816K	U12-U19		16 DEVICES USED FOR 16K VERSION FOR ITEM 33	
		110							
		111	B	901522-22	74157 DATA SEL			MAY BE USED AS A SUBSTITUTE FOR ITEM 26	
		112	B	901522-27	74164 8-BIT PARALLEL OUTPUT			" " " " " " " " " " " "	
		113	B	901522-22	7474 FLIP FLOP	U11, U68, U69		" " " " " " " " " " " "	
		114	B	901525-05	74508 AND GATE	U61		" " " " " " " " " " " "	
		115	B	901465-23	6332-120 ROM (B000-BFFF)	UD5		" " " " " " " " " " " "	
		116	B	901465-20	6332-059F ROM (C000-CFFF)	UD6		" " " " " " " " " " " "	
		117	B	903335-20	HEADER ASSY, POLARIZED (.100), 20 PIN	J5		SUBSTITUTE FOR ITEM 81	
		118	B	903335-27	↑ POLARIZED (.100), 7 PIN	J11		SUBSTITUTE FOR ITEM 82	
		119	B	903335-37	↑ POLARIZED (.100), 7 PIN	J10		SUBSTITUTE FOR ITEM 83	
		120	B	903335-07	↓ POLARIZED (.100), 7 PIN	J7		SUB. FOR ITEM 84, ORIENT OMITTED PIN TO PIN 6 POSITION	
		121	B	903337-09	HEADER ASSY (.156) 9 PIN	J8		SUB. FOR ITEM 85, REMOVE PIN 7 AT ASSY	
		122	B	901465-21	6332-096 ROM (D000-DFFF)	UD7			
		123	B	901447-29	6316-034 ROM (E000-E7FF)	UD8			
		124	B	320176-01	JUMPER WIRE (22 AWG)				
		125							
		126	B	901474-02	6316-035 ROM	UD8			
		127	B	901465-22	6332-075 ROM (F000-FFFF)	UD9			
TITLE: DYNAMIC PET P.C. BOARD ASSEMBLY									
commcione								DATE: 3-20-85	BY: AUL
DRAWN BY: ENGR: APPR:								SIZE: D	AU 3/86



6 PIN	USED WITH ITEM 33
10 PIN	USED WITH ITEM 33
6 PIN	USED WITH ITEM 55
10 PIN	USED WITH ITEM 55
6 PIN	SUB USED WITH ITEM 108
10 PIN	SUB USED WITH ITEM 109
6 PIN	USED WITH ITEM 106
10 PIN	USED WITH ITEM 106
6 PIN	SUB USED WITH ITEM 107
10 PIN	SUB USED WITH ITEM 107

DETAIL A
SH1

DETAIL D
SH2

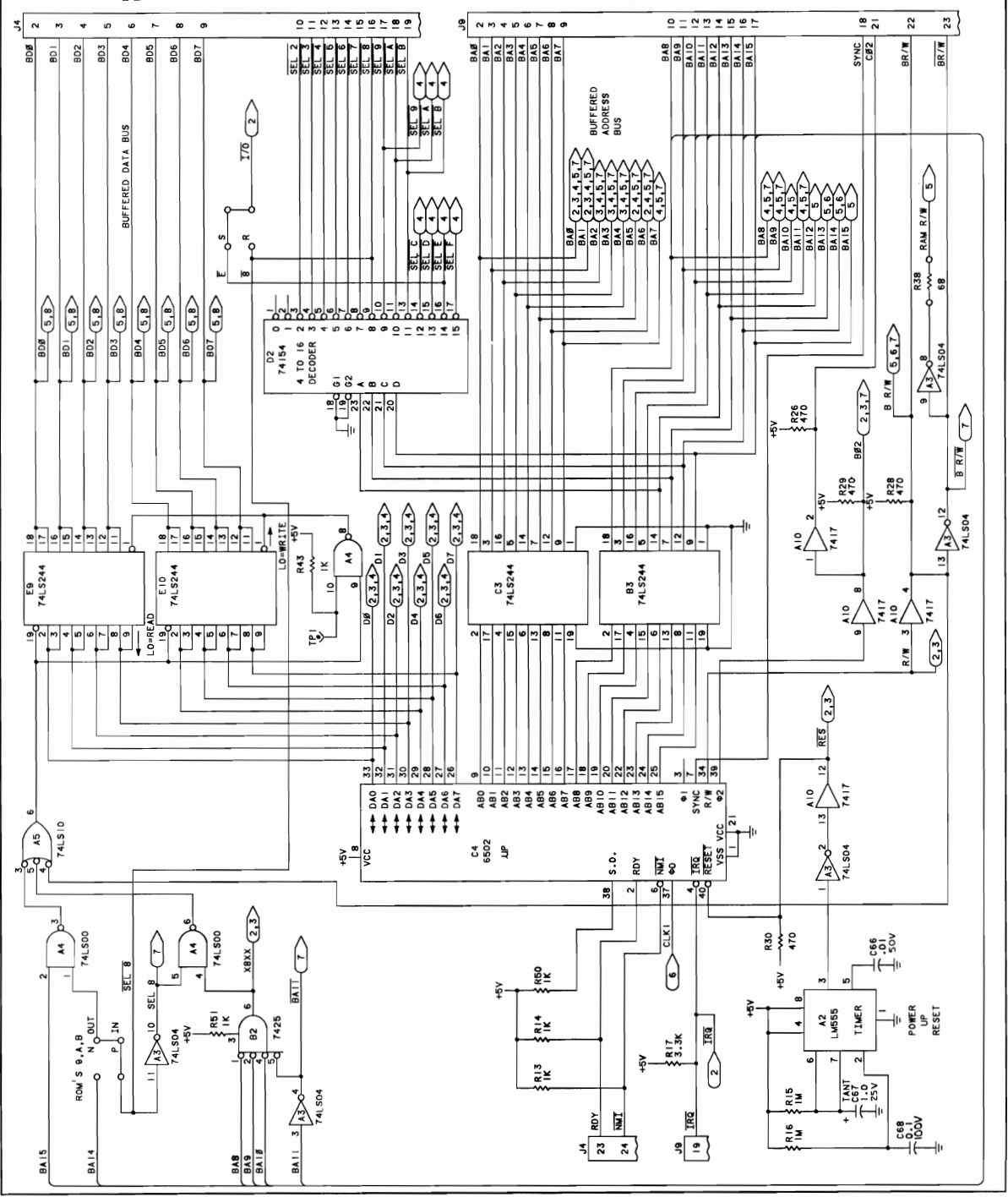


commodore
 DYNAMIC PET
 P.C. BOARD ASSY
 320351
 320465
 SCALE: FULL SHEET 1 OF 6

REV	ZONE	DESCRIPTION	DATE	APPROVED
A		PRODUCTION RELEASE PER ECO 975	1/17/71	[Signature]
B		REVISED PER ECO 1193	1/27/71	[Signature]
C		REVISED PER ECO 1162	1/27/71	[Signature]
D		REV PER ECO 1479	1/28/71	[Signature]
E		REV PER ECO 1769	2/2/71	[Signature]

MEMORY EXPANSION

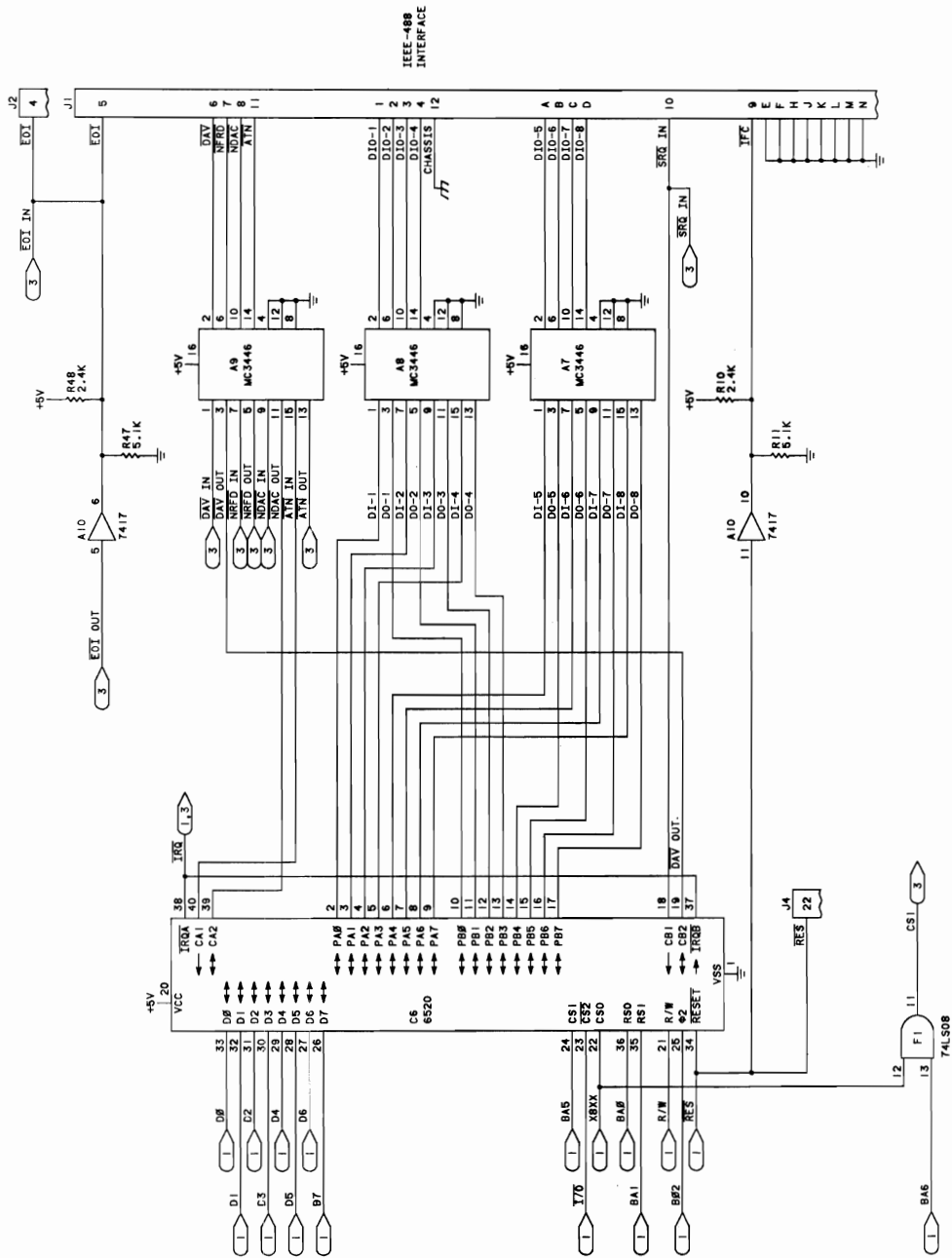
MEMORY EXPANSION



REV	ZONE	DESCRIPTION	DATE	APPROVED
A		PRODUCTION RELEASE PER ECO 975	1/17/71	[Signature]
B		REVISED PER ECO 1193	1/27/71	[Signature]
C		REVISED PER ECO 1162	1/27/71	[Signature]
D		REV PER ECO 1479	1/28/71	[Signature]
E		REV PER ECO 1769	2/2/71	[Signature]

commodore
 LOGIC DIAGRAM
 DYNAMIC PET
 JUP-MEMORY EXPANSION
 ID 320349
 SCALE 1 OF 3

REVISIONS		DATE	APPROVED
1	LTP DONE		
SEE SHEET 1			

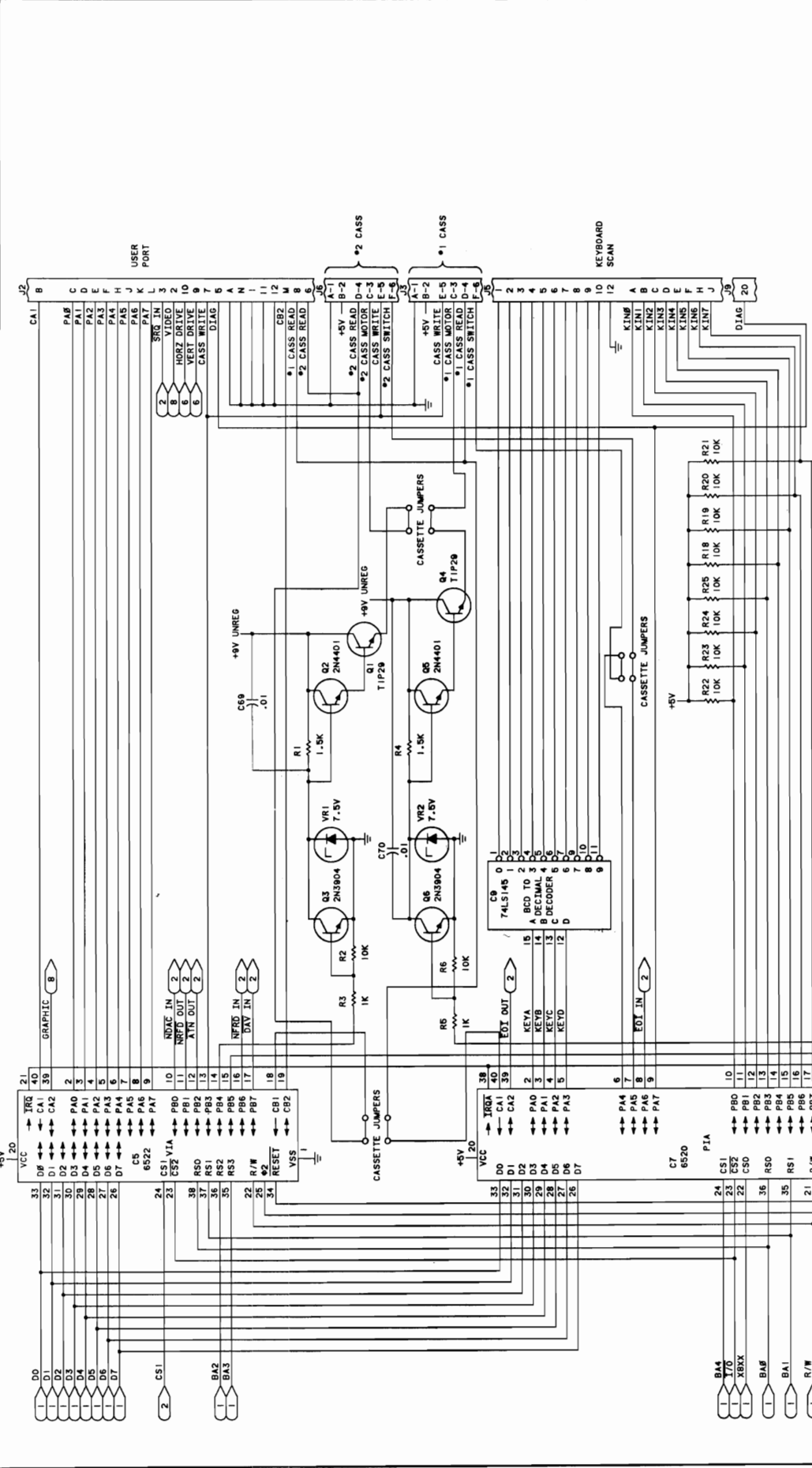


IEEE-488 INTERFACE

DESIGNED BY		DATE	APPROVED
LTP			
CHECKED			
DRAWN			
USED ON			
PART NO.			
SCALE			
SHEET 2			
OF 9			

commodore
 LOGIC DIAGRAM
 DYNAMIC PER
 IEEE-488 INTERFACE
 320349
 SCALE
 SHEET 2 OF 9

REV. NO.	DESCRIPTION	DATE	APPROVED
1	SEE SHEET 1		



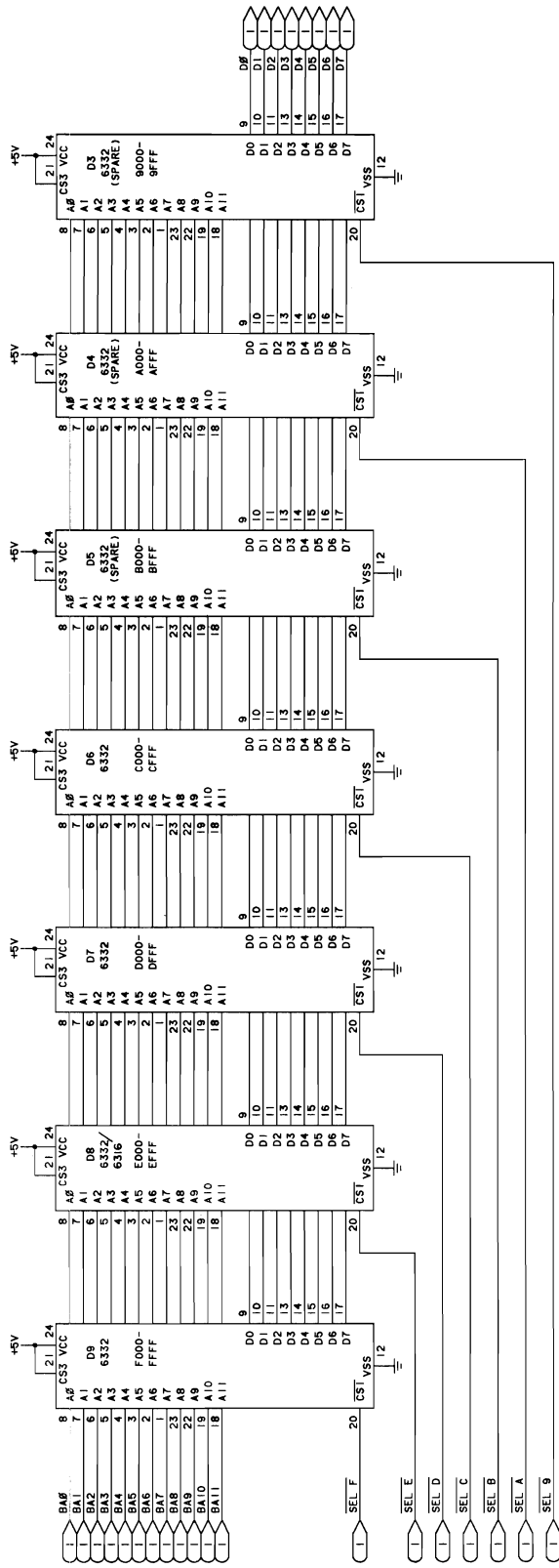
DATE	REV	BY	CHKD	APPD

COMMODORE
 LOGIC DIAGRAM
 DYNAMIC PET
 CASSETTE & KEYBOARD

SCALE: 1" = 100'

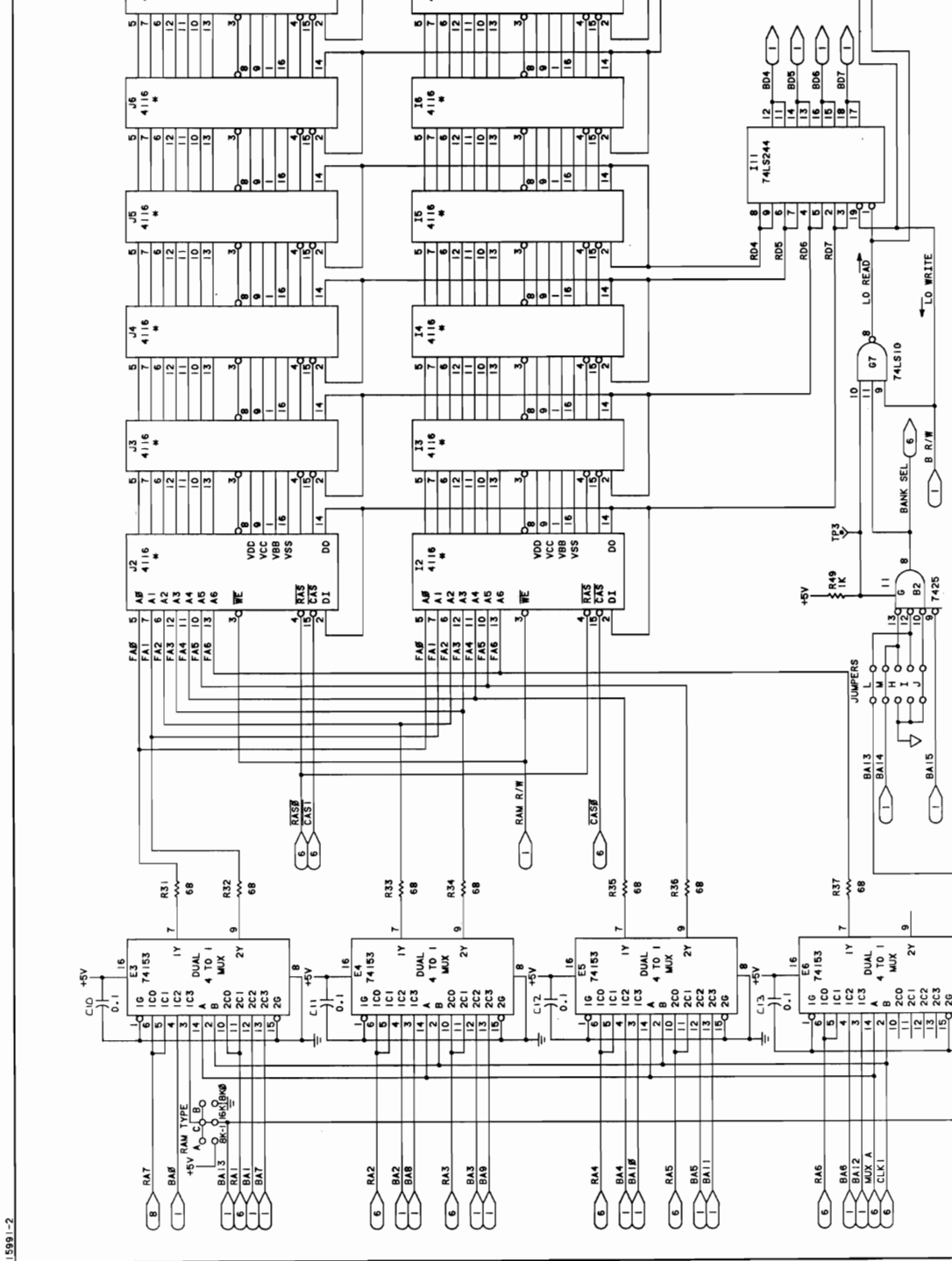
SHEET 3 OF 8

LYR ZONE	REVISIONS
	DESCRIPTION
	DATE
	APPROVED
	SEE SHEET 1



DESIGNED BY	DATE
CHECKED	
APPROVED	
USED ON	NET USE
MATERIAL	
SCALE	SHEET 4 OF 9
REV	E
SIZE	D 320349
ROMS	
LOGIC DIAGRAM	
DYNAMIC PET	
COMMADORE	

REVISIONS	
LTR	DATE
DESCRIPTION SEE SHEET 1	



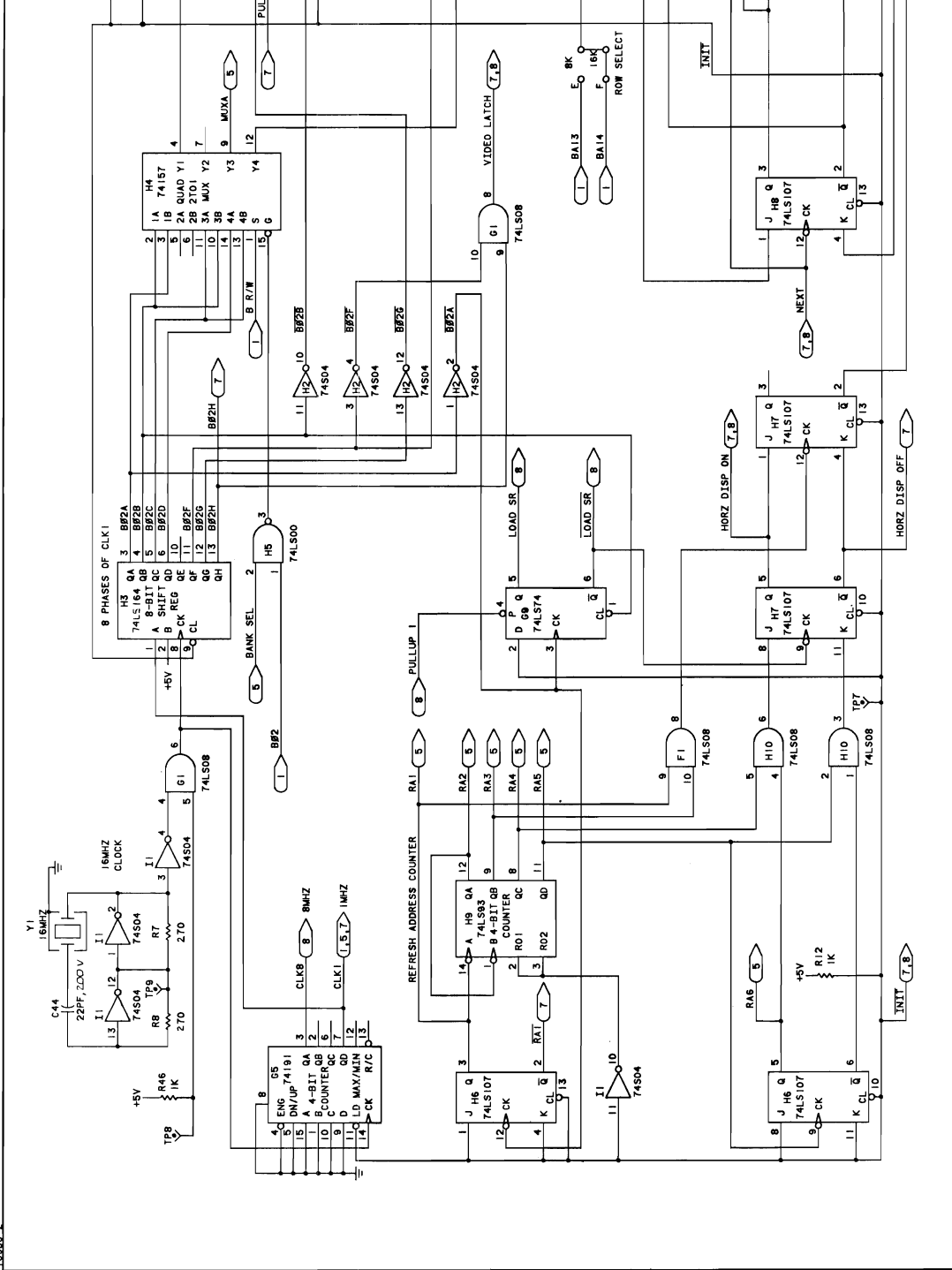
UNLESS OTHERWISE SPECIFIED:	DRIVEN BY
1. RESISTORS	
2. CAPACITORS	
3. DIMENSIONS	
4. TOLERANCES	
5. FINISHES	
6. MATERIALS	
7. USED ON	
8. PART NUMBER	
9. SCALE	
10. SHEET	
11. OF	
12. REV	
13. E	
14. D	
15. 3.20349	
16. 3	

commadore
LOGIC DIAGRAM
DYNAMIC PET
RAMS

NOTE: ALL CIRCUITS MARKED * ARE FOR 32K MACHINE ONLY

1/15891-2

REV. NO.	DESCRIPTION	DATE	APPROVED
1	SEE SHEET 1		



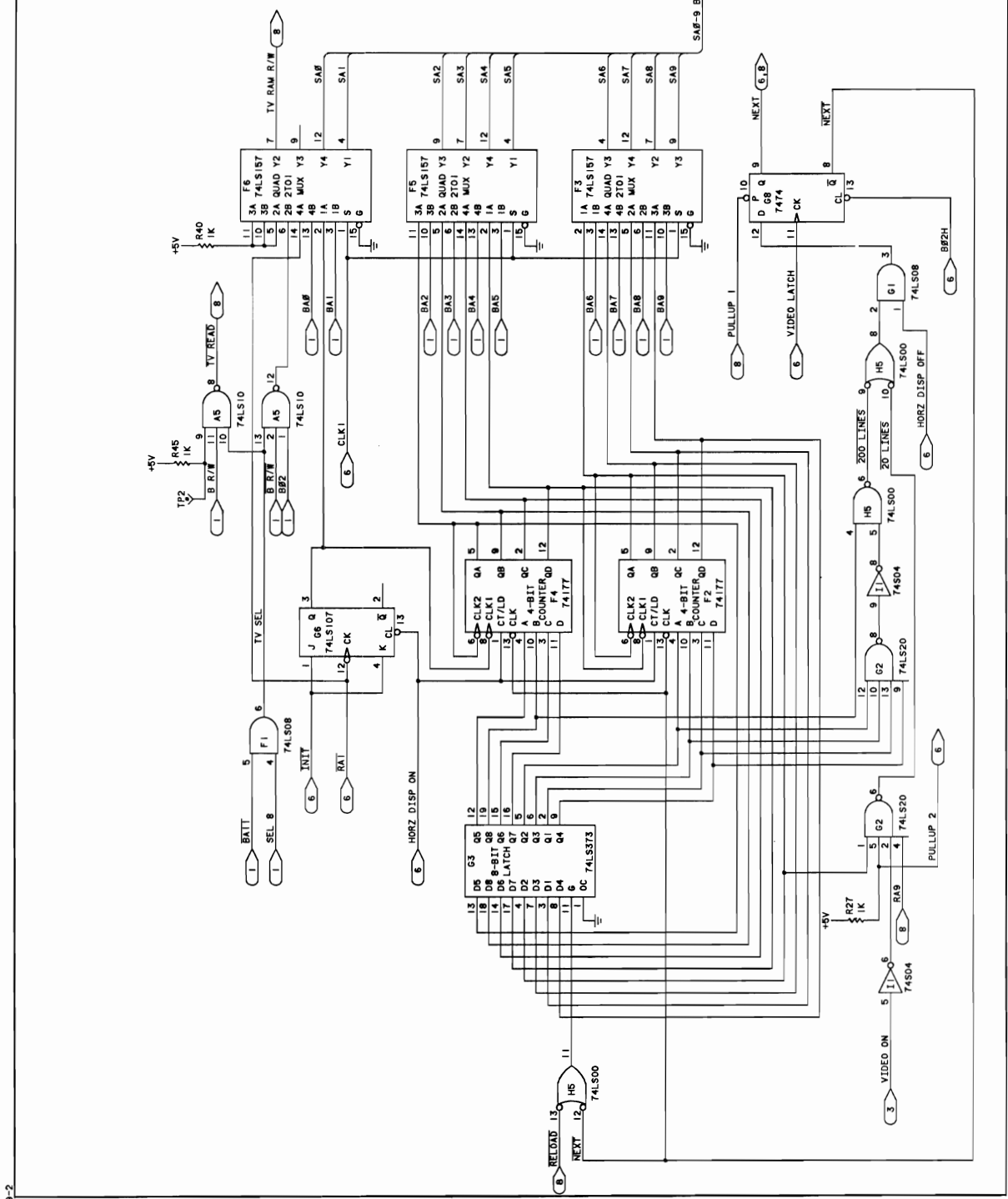
DATE	1981.08.11
DESIGNED BY	...
CHECKED BY	...
APPROVED BY	...
SCALE	1:1
SHEET	6 OF 9

COMMODORE

LOGIC DIAGRAM
DYNAMIC PET
MASTER TIMING

SIZE: D 320349
REV: E

REV. NO.	DESCRIPTION	DATE	APPROVED
1	SEE SHEET 1		

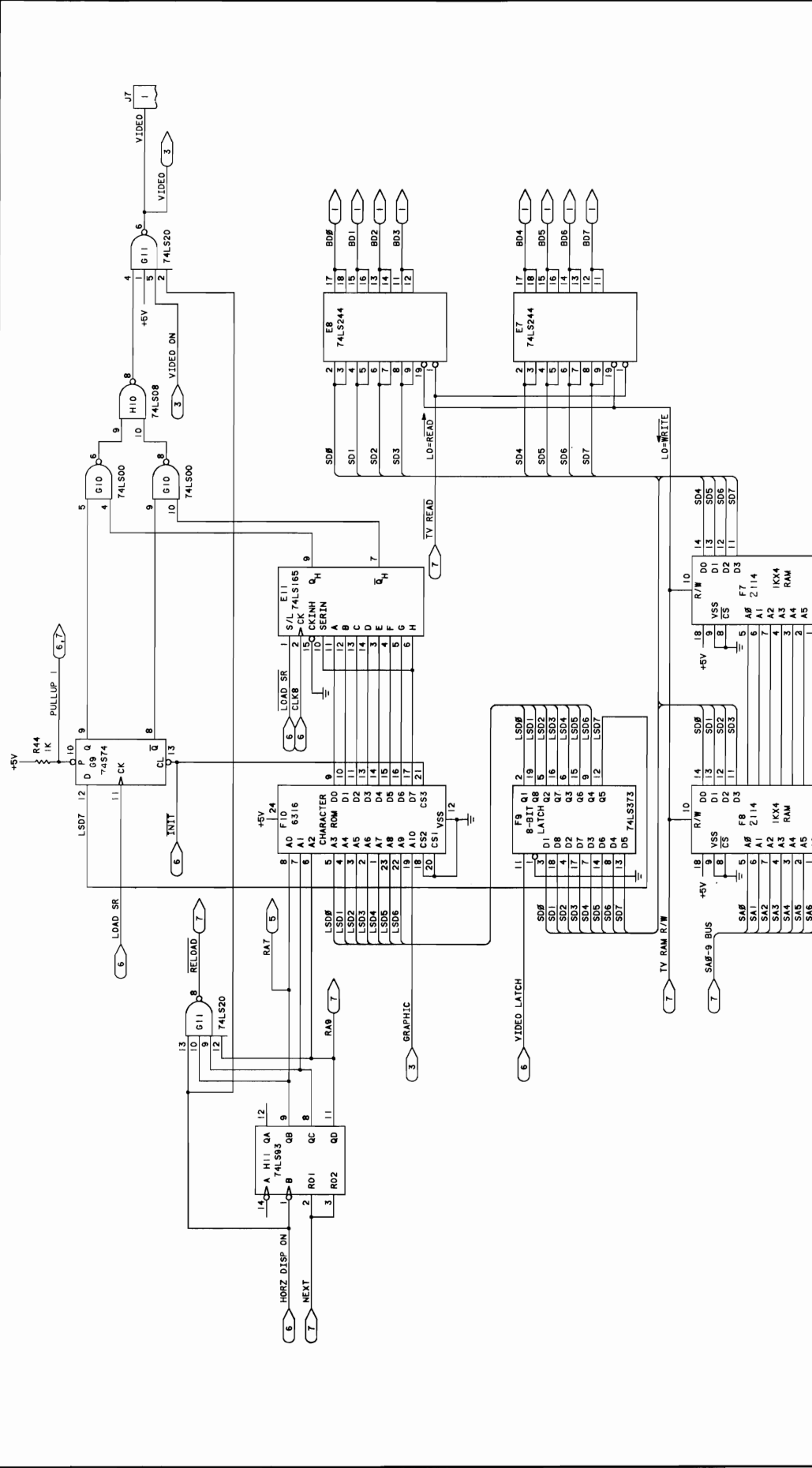


DESIGNED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE
USED ON	PROJECT
COMMADONE LOGIC DIAGRAM DYNAMIC PET DISPLAY LOGIC SIZE D 320349 REV E SCALE SHEET 7 OF 9	

7/15989-2

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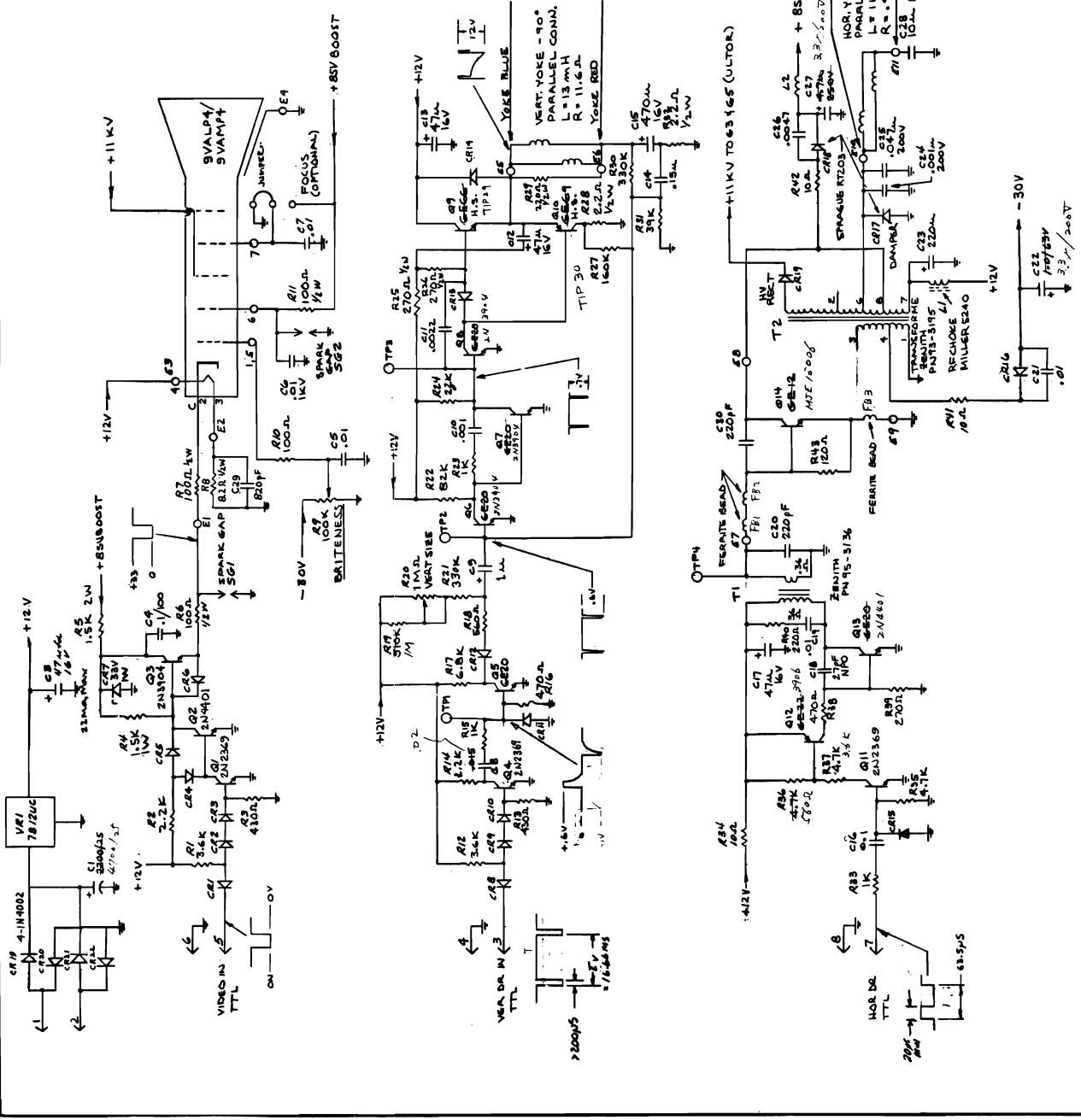
REVISIONS	
LTN ZONE	DESCRIPTION
SEE SHEET 1	DATE APPROVED



DATE	REV
SEE SHEET 1	E

LOGIC DIAGRAM
DISPLAY RAMS
SIZE D
SCALE 3:20349
SHEET B OF 9

COMMODORE
DRAWN BY: CHUD
CHECKED BY: CHUD
DATE: 1/1/74
SCALE: 3:20349
SHEET B OF 9



- NOTES:
- 1) R7, SG1, SG2 TO BE LOCATED AT TUBE SOCKET.
 - 2) C30, R43 LOCATED WITH Q14 ON HEAT SINK. FERRITE BEADS ON LEADS CONNECTING TO PCB.
 - 3) BOARD CONNECTOR IS MOLEX PART NO. 09-64-1081.
 - 4) YOKE IS ZENITH PART NO. 95-3214.
 - 5) R9 LOCATED REAR OF PCB 1/4" SHAFJ BY 2" LONG.
 - 6) R20 MOUNTED PERPENDICULAR TO BOARD. SCREWDRIVER ADJ.

COMMODORE	
DESIGNED BY: RSJ	APPROVED BY:
DATE: 3-9-76	
DISPLAY SCHEMATIC	
REVISED: 3-11-77	DATE: 4-11-77
REVISION NUMBER: 6-15-77	DATE: 6-15-77
DRAWING NUMBER: 320032	