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# Commodore 4000 Series

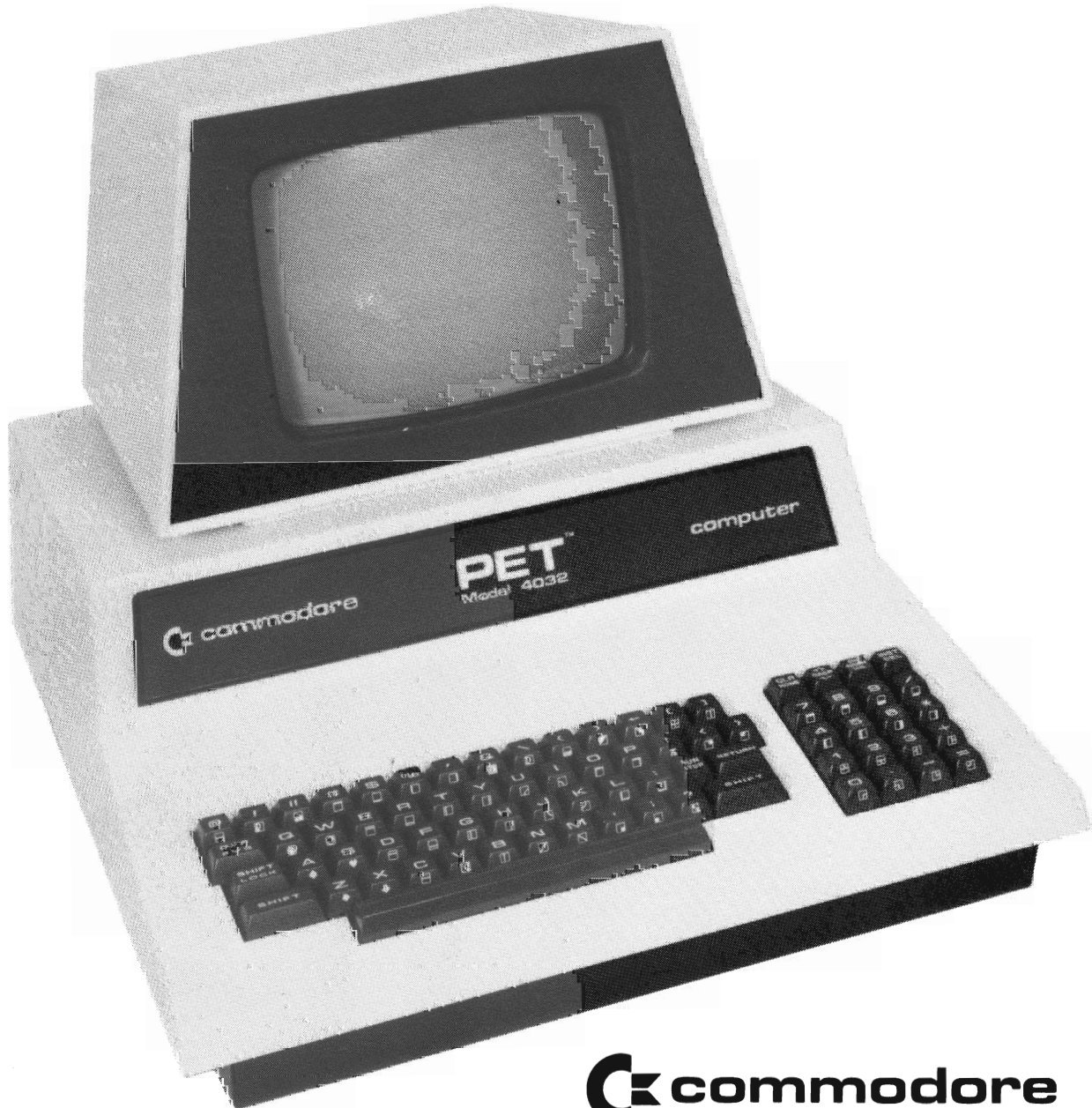
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## Technical Manual

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Model 4016/4032

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**commodore**  
COMPUTER

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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 UDI1&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	DATE:	3-11-81	ENGR:	APPR:	DATE:	6-17-81	SIZE:	B	DRAWING NUMBER:	8032090
	DRAWN BY:	DATE:	6-17-81	ENGR:	APPR:	DATE:	6-17-81	SIZE:	B	DRAWING NUMBER:	8032090	OF 7

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 C12-15,18,20-22,25-28,30-50,53,55-59,62-72,75,87,89,90,95,96			

DESIGNED BY: *[Signature]*  
 CHECKED BY: *[Signature]*  
 DATE: 3-11-81  
 ENGR: *[Signature]*  
 APPR: *[Signature]*

TITLE: PCB ASSY-LNIV. DYNAMIC PET

REV H 27  
 DATE 3-11-81  
 SIZE B  
 QTY 8032090

commodore

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

**commodore** TITLE: PCB ASSY-LNIV. 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
1110	0908					
3	3	900750-05	DIODE, IN4005	CR1,5,7		
2	2	900757-01	BRIDGE 4A/50V	CR2,4		SEE NOTE 4
1	1	900753-01	IN5402 3A/200V	CR3		
2	2	900941-01	DIODE, ZENER 7.5V	VR5,6		
1	1	901527-03	VOLTAGE REGULATOR, 7905, -5V/1.5A	VR1		TO-220
1	1	901528-04	VOLTAGE REGULATOR, 7812, +12V/1A	VR2		TO-3
1	1	901528-01	VOLTAGE REGULATOR, LM323	VR4		
1	1	900556-02	CRYSTAL 16MHZ	Y1		
1	1	903326-07	HEADER ASSY .100 CENTER J10			7 PIN; REMOVE PIN 3 AT ASSEMBLY
2	2	903345-25	HEADER ASSY, DUAL ROW, 100 CENTER J4,9			50 PIN
1	1	903316-09	HEADER ASSY .156 CENTER J8			9 PIN; REMOVE PIN 7 AT ASSEMBLY
1	1	903331-07	HEADER ASSY, POLARIZED, 100 CENTER J11			7 PIN; REMOVE PIN 3 AT ASSEMBLY
1	1	903331-07	HEADER ASSY, POLARIZED, 100 CENTER J7			7 PIN; ORIENT OMITTED PIN TO PIN 6 POSITION
1	1	903331-20	HEADER ASSY, POLARIZED, 100 CENTER J5			20 PIN; ORIENT OMITTED PIN TO PIN 19 POSITION
4	2	904150-04	SOCKET, IC LOW PROFILE 24 PIN	UA3, UD7, UD1, UD12		SEE NOTE 8
1	1	904150-06	SOCKET, IC LOW PROFILE 40 PIN	UB14		
1	1	904150-01	SOCKET IC LOW PROFILE 14 PIN UFI			
2	2	901151-17	COIL, INDUCTOR 2.2uH	L1, L2		
1	1	320086-02	BUS WIRE			
4	4	906403-19	RIVET, DOME HEAD, OPEN END			
2	2	906404-04	RIVET, DOME HEAD, CLOSED END			
1	1	903780-01	#30 WIRE WRAP WIRE, RED			
20	20	903781-01	22 AWG BARE WIRE ON TAPE, #FEEL			
1/2	1/2	903755-03	WIRE, INSULATED, 22 AWG, 12.5 LG			
1	1	320268-01	HEAT SINK			
1/2	1/2	904907-01	HEAT SINK, COMPOUND THERMAL			

TITLE: <b>commodore</b>		PCB ASSY-UNIV. DYNAMIC PET		DATE: 1-11-81	ENGR: [Signature]	DATE: 6-11-81	APPR: [Signature]	SIZE: B	REV: H	SHT: 47
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C

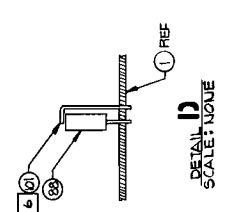
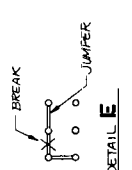
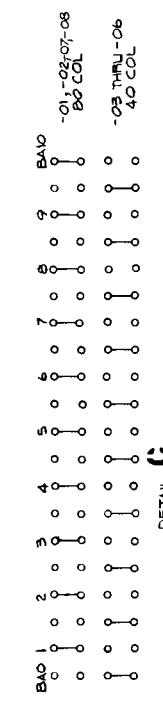
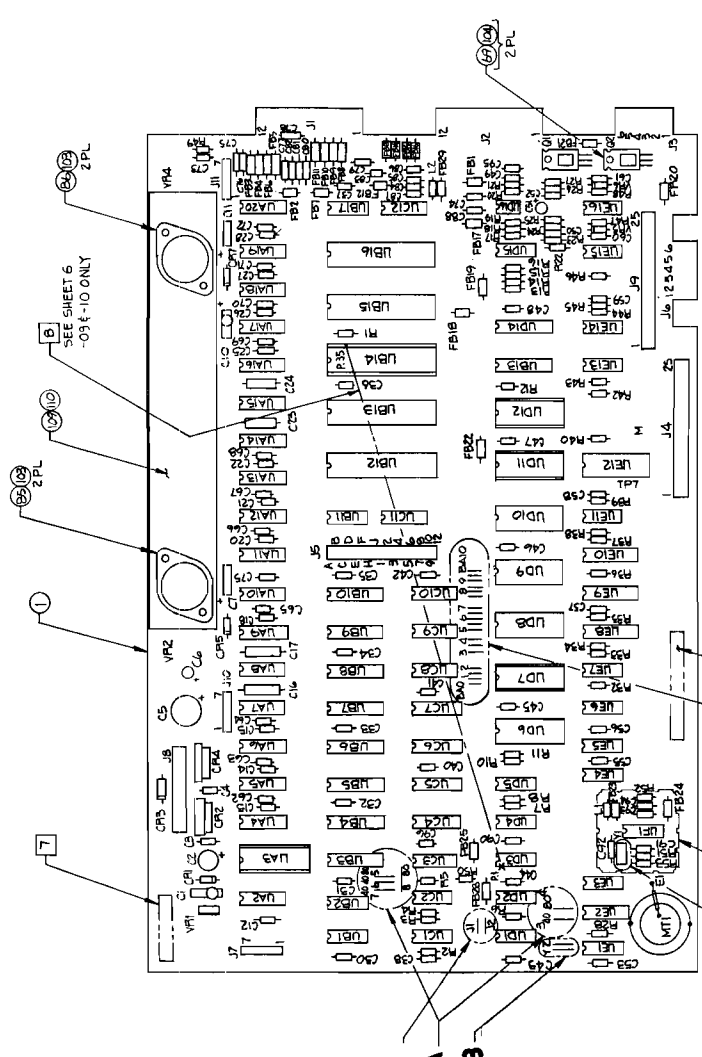
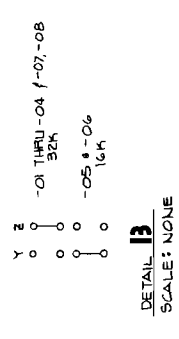
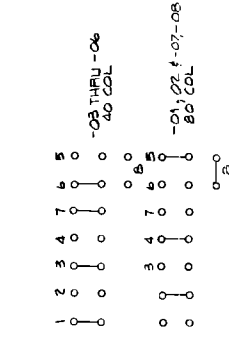
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QUANTITY REQD PER PART / DASH NO.		QTY	P	S	PART NUMBER	DESCRIPTION	REF DES	BEN	NOTES
11-10-09	08-07-04								
11	11	11	B	901521-13	IC, 74LS244	LIB4-LIB7, UB9, UB10, UD13, UD14, UE8-UE10			
9	9	9	B	901521-13	, 74LS244	UB4, UB5, UB9, UB10, UD13, UD14, UE8-UE10			
2	2	2	B	901521-29	, 74LS373	UB3, UB8			
1	1	1	B	901521-29	, 74LS373	UB3			
4	4	4	B	901453-02	, 2114	UC4-UC7			
2	2	2	B	901453-02	, 2114	UC4, UC5			
16	16	16	B	901470-01	, 4116	UA4-UA19			
8	8	8	B	901470-01	, 4116	UA5, UA7, UA9, UA11, UA13, UA15, UA17, UA19			
1	1	1	B	901474-03	, 2316	UD7			
1	1	1	B	901499-01	, 2316	UD7			
1	1	1	B	970150-07	IC, 2516 EPROM	UD7			
28	28	28	B	903025-01	FERRITE BEAD	FBI-26, 28, 29			
1	1	1	B	4022048-01	SHIELD BOX				
1	1	1	B	4022047-01	SHIELD CAP				
1	1	1	B	900461-22	CAP CERAMIC AXIAL, 1033, 4.7F, 50V	C94			
1	1	1	B	900461-24	CAP CERAMIC AXIAL, 1047, 4.7F, 50V	C93			
1	1	1	B	900463-04	CAP CERAMIC AXIAL, 100 PF, 50V	C91			
133			B						
134			B						
135			B						
136			B						
137			B						
138			B						
139			B						
140			B						
141			B						
142			B						
143			B						
144			B						
145			B						
146			B						
147			B						
148			B						

**commodore**      TITLE: PCB ASSY-LINIV. DYNAMIC PET      DATE: 3-11-87      ENGR:      DATE: 6-17-87      APPR:      SIZE: B      8032090      REV: H      SMT: 5/7

REVISIONS		DATE	APPROVED
LTR	NO	DESCRIPTION	SEE SHEET



REVISIONS		DATE	APPROVED
LTR	NO	DESCRIPTION	SEE SHEET

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

1. JUMPER FOR SUPERSET CONFIGURATION ONLY.

2. ALL CAPACITOR VALUES ARE MEASURED IN MICROFARADS.

3. ALL RESISTOR VALUES ARE IN OHMS ±5% AND ARE 1/4 WATT.

4. REFER TO ASSEMBLY DRAWING NUMBER 8032090.

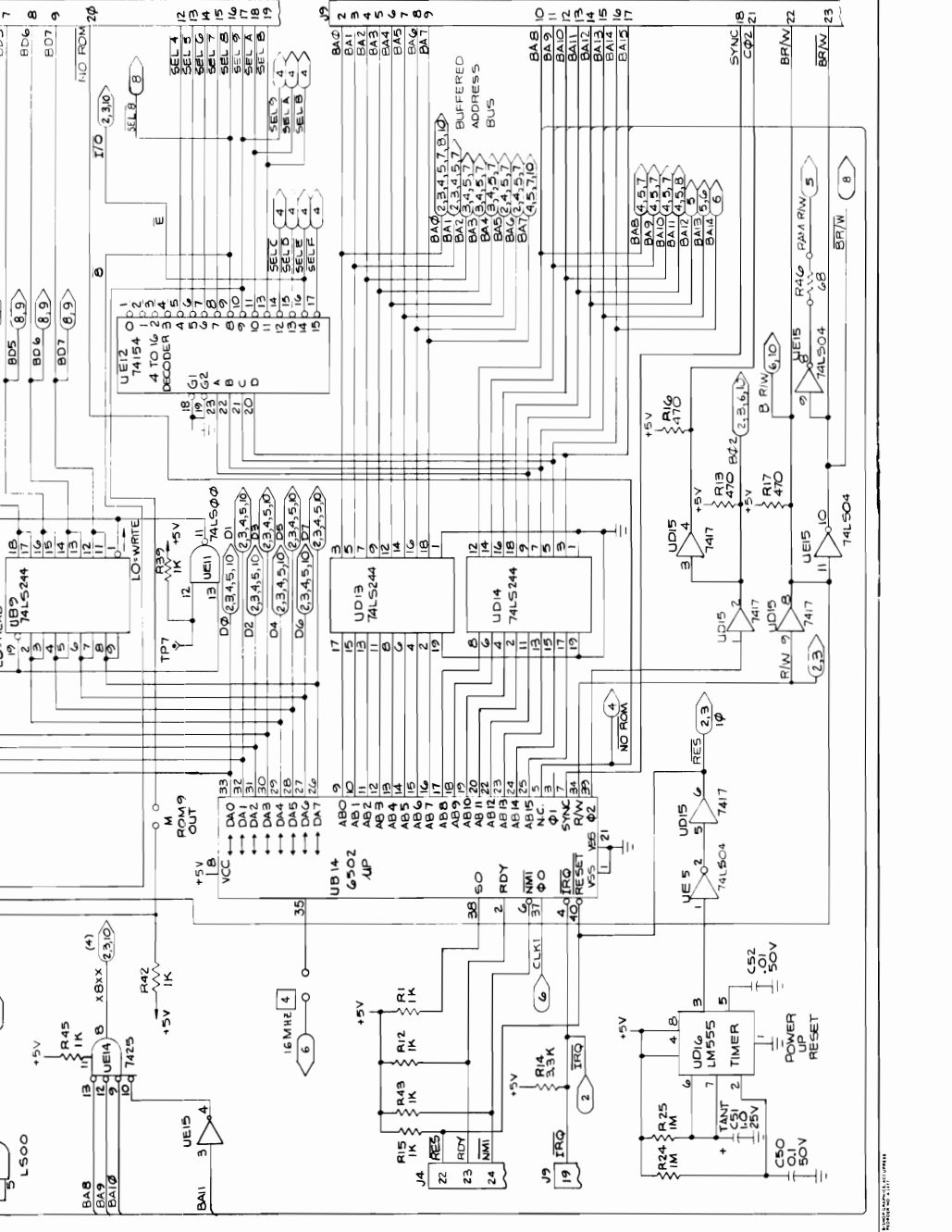
NOTES-UNLESS OTHERWISE SPECIFIED

CPU MEMORY EXPANSION

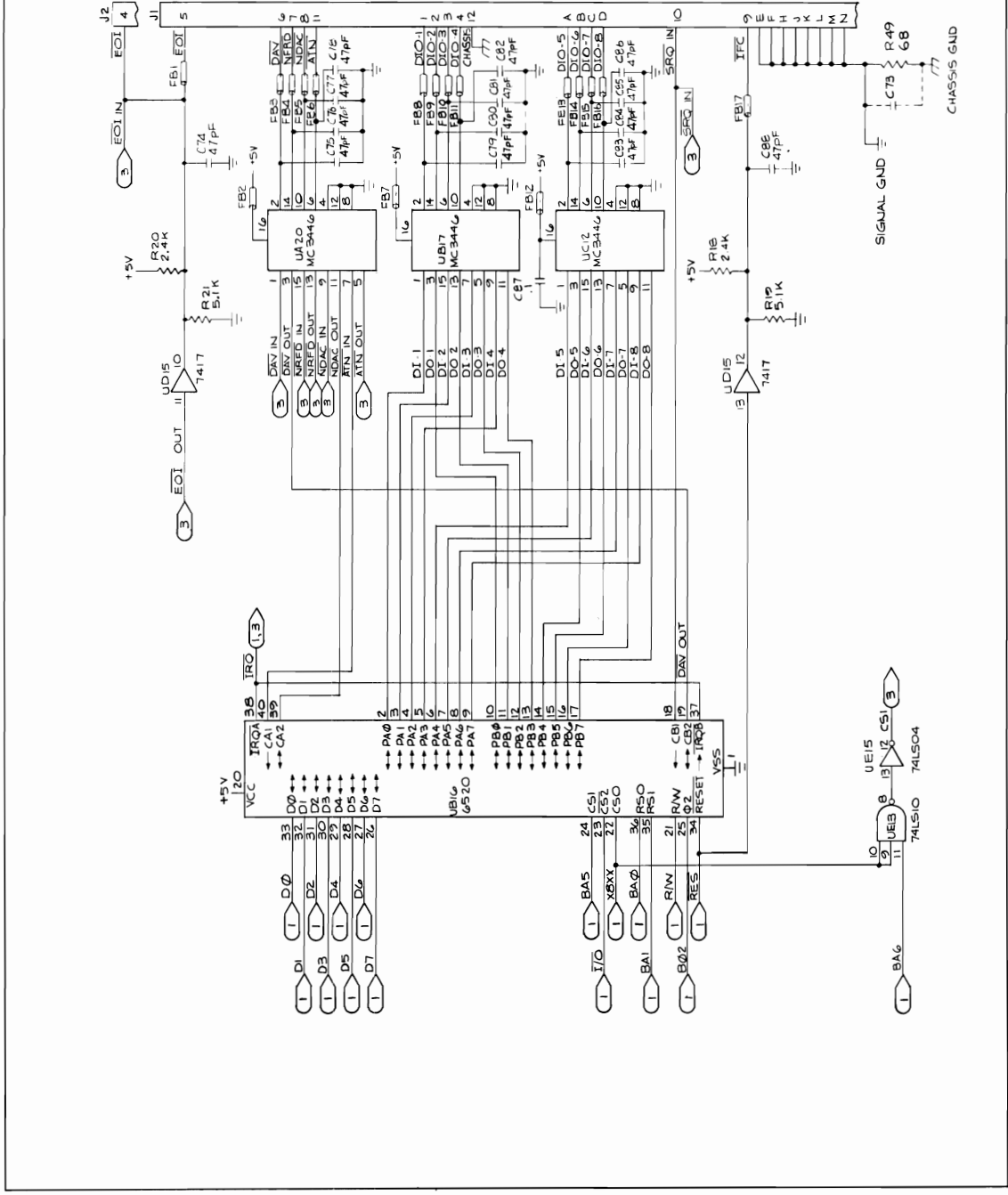
LOGIC DIAGRAM  
UNIVERSAL  
DYNAMIC PET

DATE: 1/10/75  
BY: J. H. ...  
CHECKED: ...  
PART NO: 8032090  
REV: 603

REV: D. 8032087  
REV: C.  
SCALE: 1:1



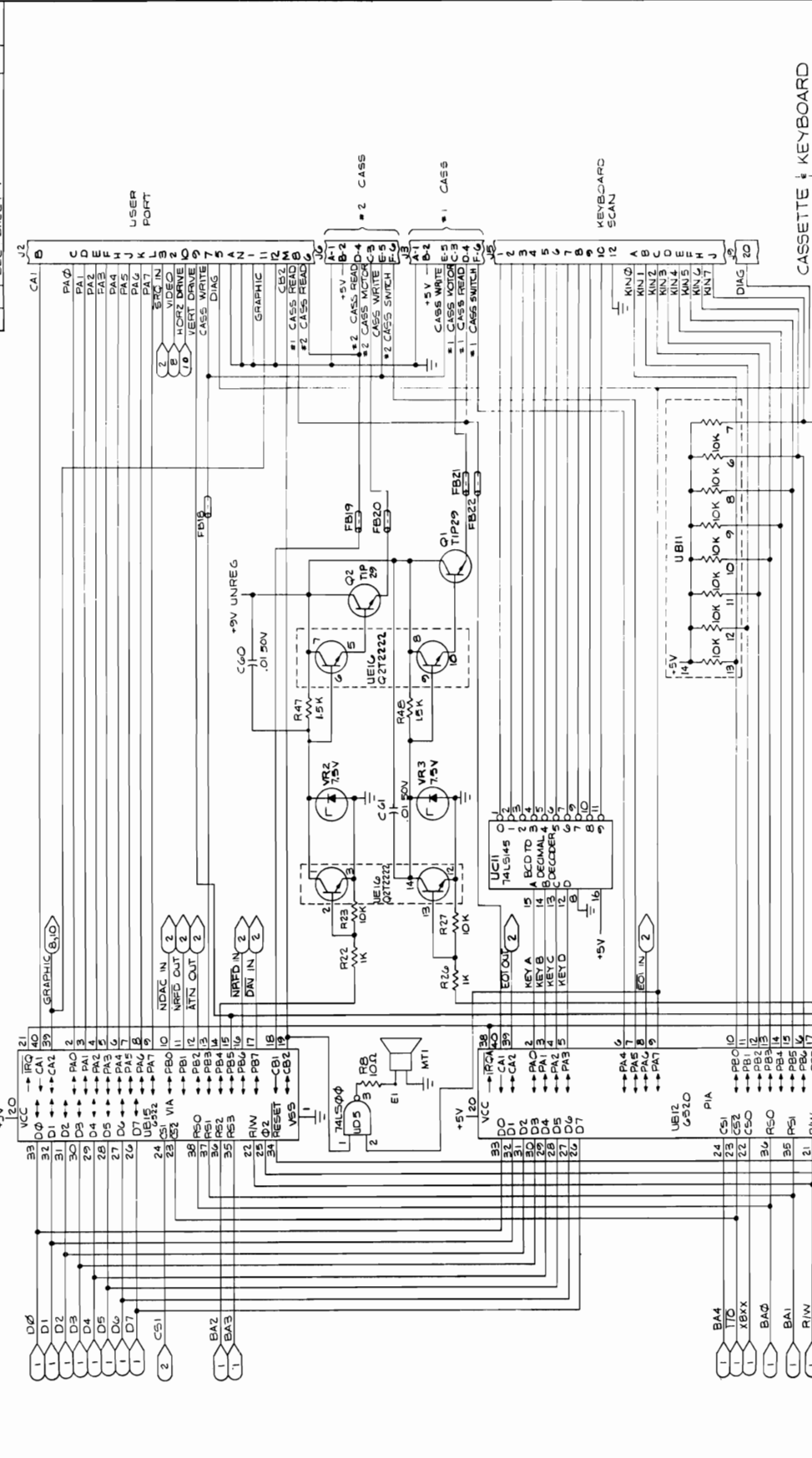
REV	DATE	APPROVED



IEEE-488 INTERFACE

DESIGNED BY	C. DANIELLE	DATE	11/7/81
CHECKED BY		DATE	
SCALE		SHEET NO.	1
COMMADORE			REV. C
LOGIC DIAGRAM			
UNIVERSAL			
DYNAMIC PET			
D 8092087			
SCALE-NONE			SHEET 2 OF 11

REV	DATE	APPROVED
1	SEE SHEET 1	

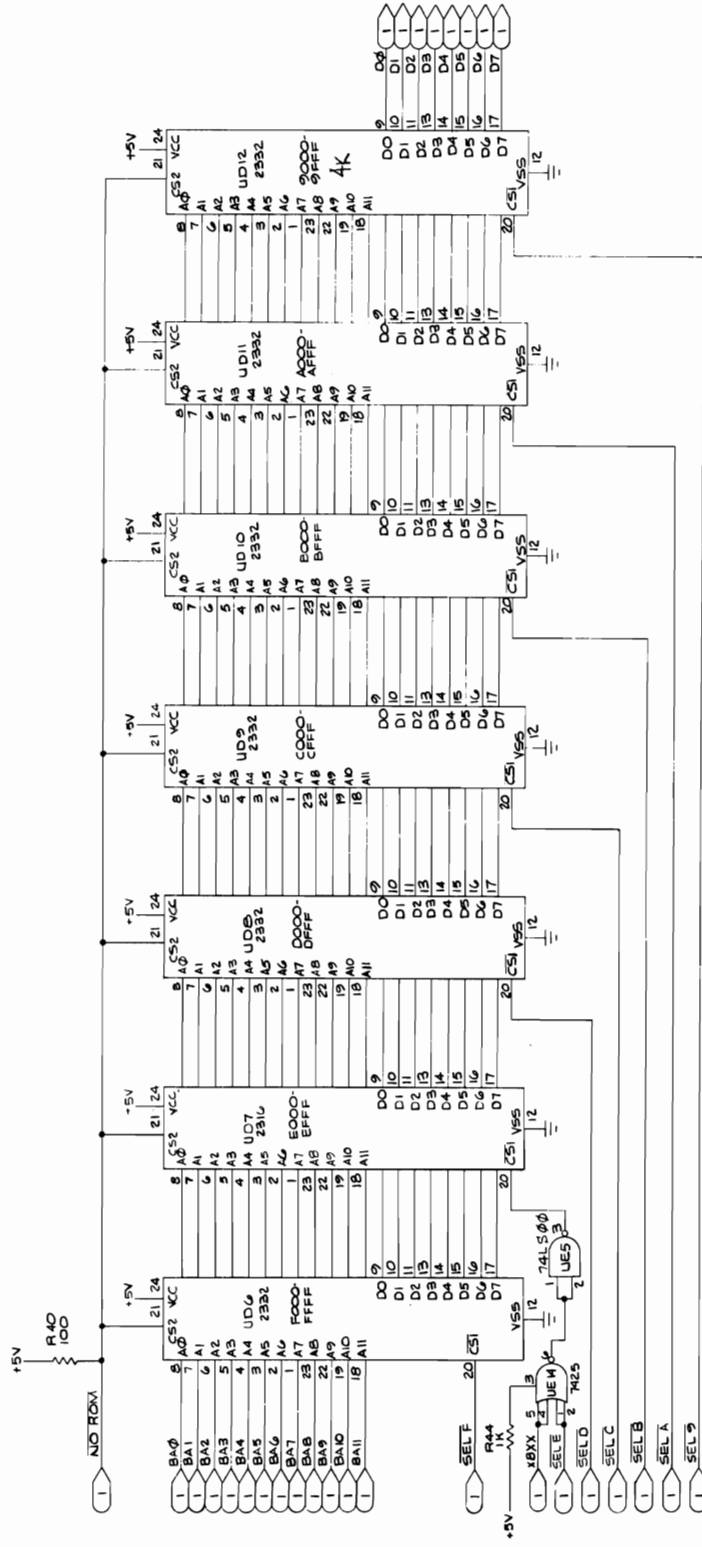


REV	DATE	APPROVED
1	SEE SHEET 1	

**COMMODORE**  
 LOGIC DIAGRAM  
 UNIVERSAL  
 DYNAMIC PET

MODEL: 80320-87  
 SCALE: NONE  
 SHEET 3 OF 11

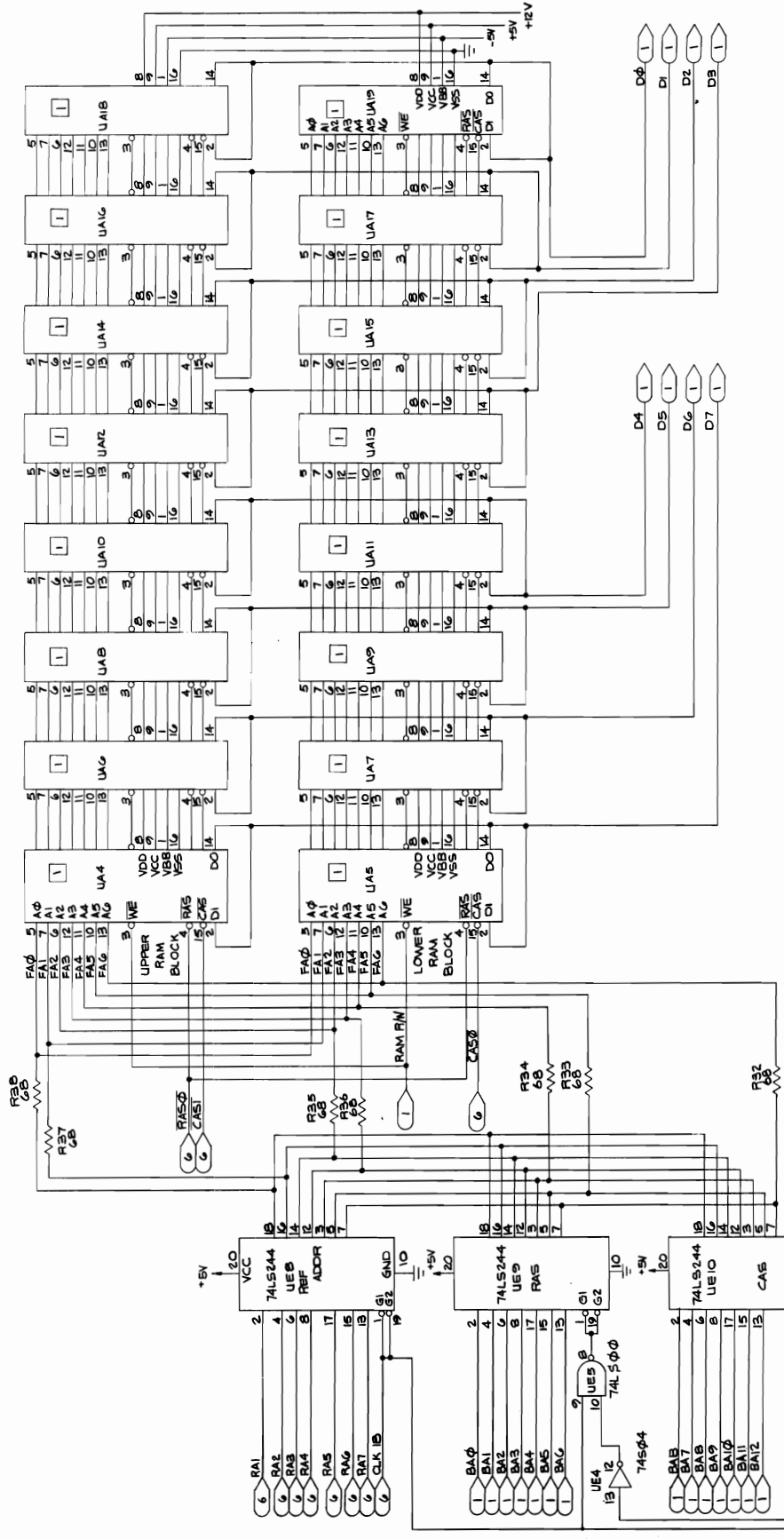
REVISIONS		DATE	APPROVED
LIN	ZONE	DESCRIPTION	
		SEE SHEET 1	



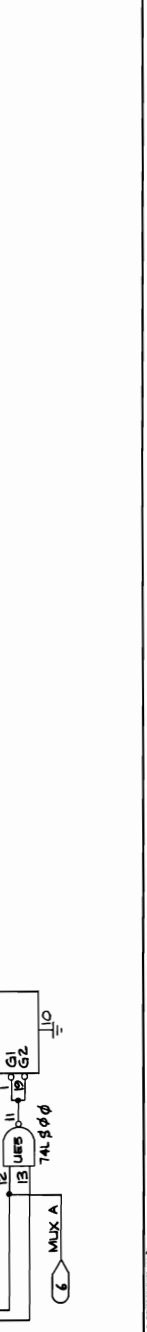
ROMS

DESIGNED BY	C. DANIELE
CHECKED BY	
DATE	
SCALE	
REVISIONS	
COMPANY	COMMODORE
PROJECT	LOGIC DIAGRAM
	UNIVERSAL
	DYNAMIC PET
SHEET	D 8032087
TOTAL SHEETS	12 OF 17

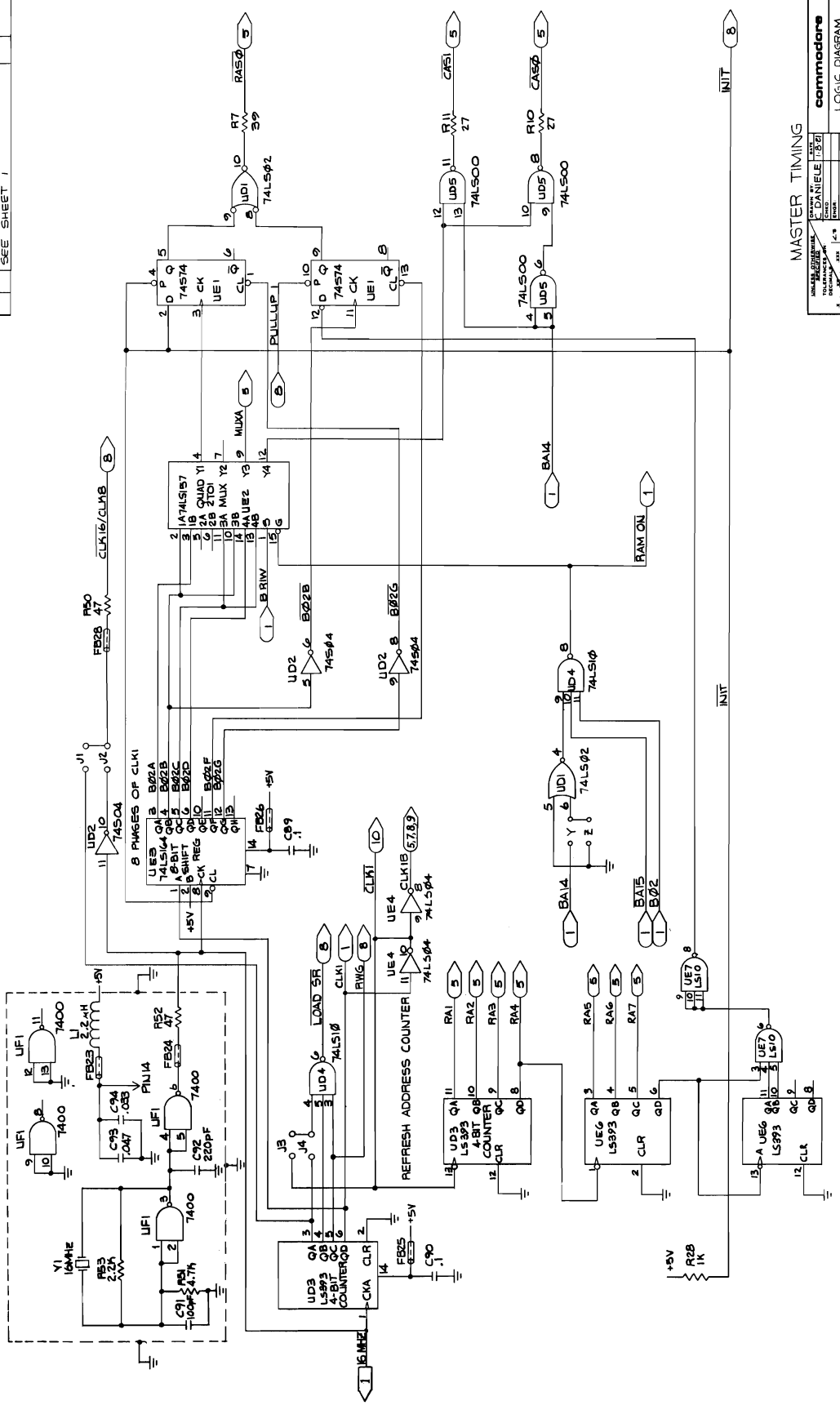
LYR ID#	REV	DATE	APPROVED
	1		
DESCRIPTION			
SEE SHEET 1			



COMMADORE	
LOGIC DIAGRAM	
UNIVERSAL	
DYNAMIC PET	
FILE	D: BO320871.C
PROJECT	POWERHOUSE, SHEET 5 OF 11



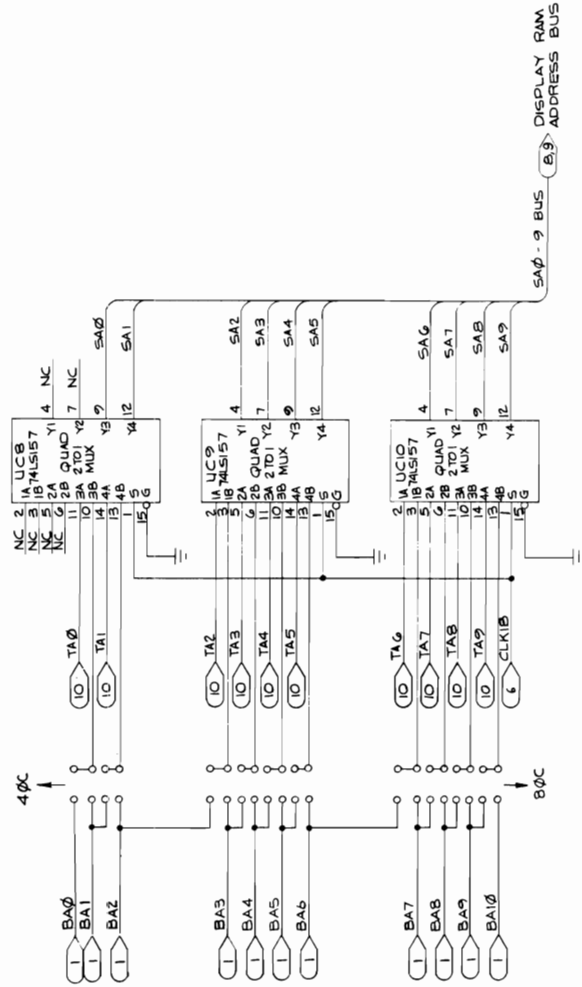
REV	DATE	DESCRIPTION	APPROVED
1		SEE SHEET 1	



MASTER TIMING

REV	DATE	DESCRIPTION	APPROVED
1		SEE SHEET 1	

REV. NO.	REV. DATE	DESCRIPTION	DATE APPROVED
1	11/11/87	SEE SHEET 1	

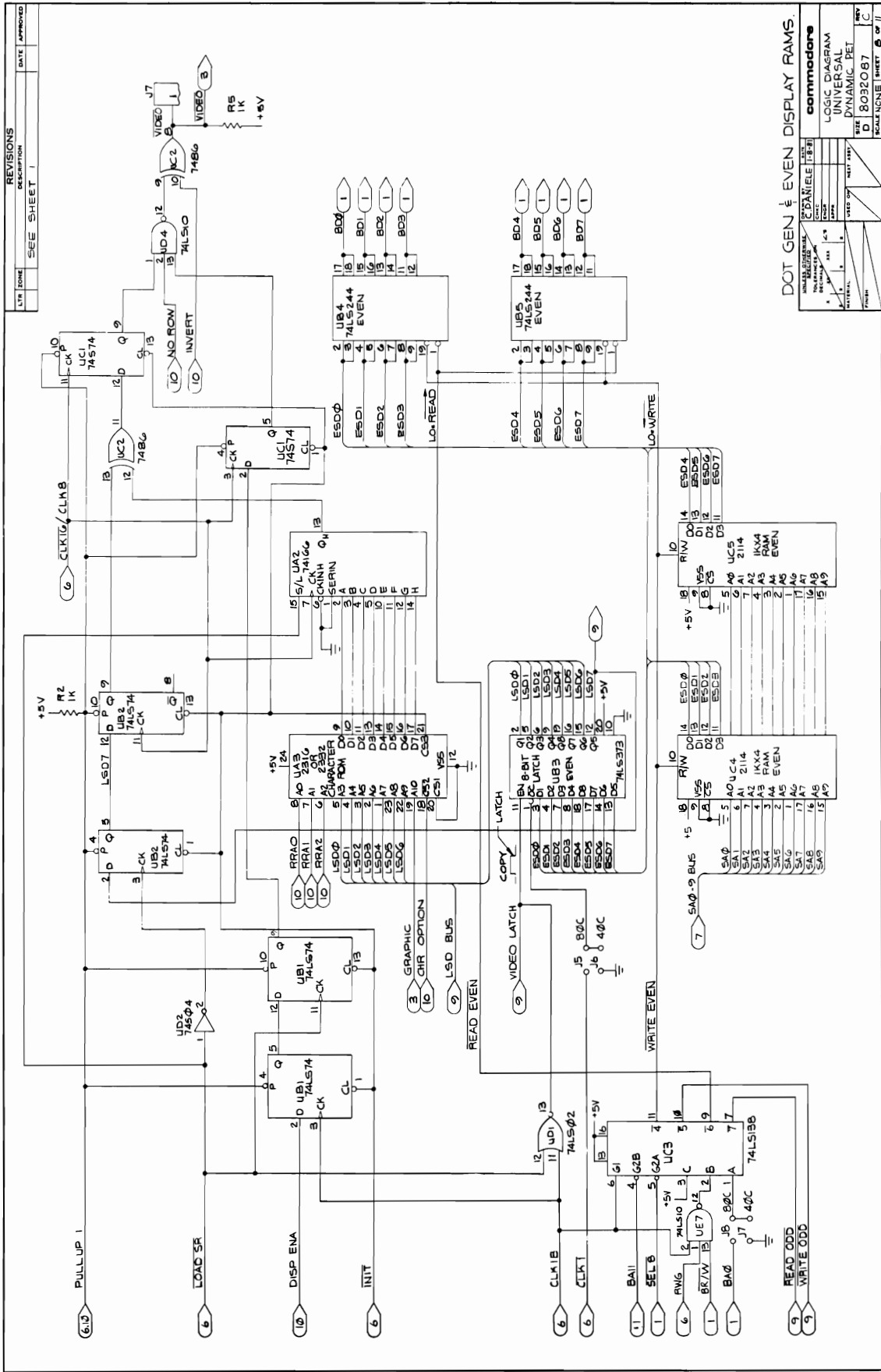


DISPLAY ADDRESS MUX

DATE	REV. NO.	REV. DATE	REV. NO.
11/11/87	1		

DESIGNED BY: [ ]  
 CHECKED BY: [ ]  
 DRAWN BY: [ ]  
 MATERIAL: [ ]  
 SCALE: NONE  
 SHEET 7 OF 7

COMMADORE  
 LOGIC DIAGRAM  
 UNIVERSAL  
 DYNAMIC PET  
 D 8032087



REV	DATE	APPROVED
1		

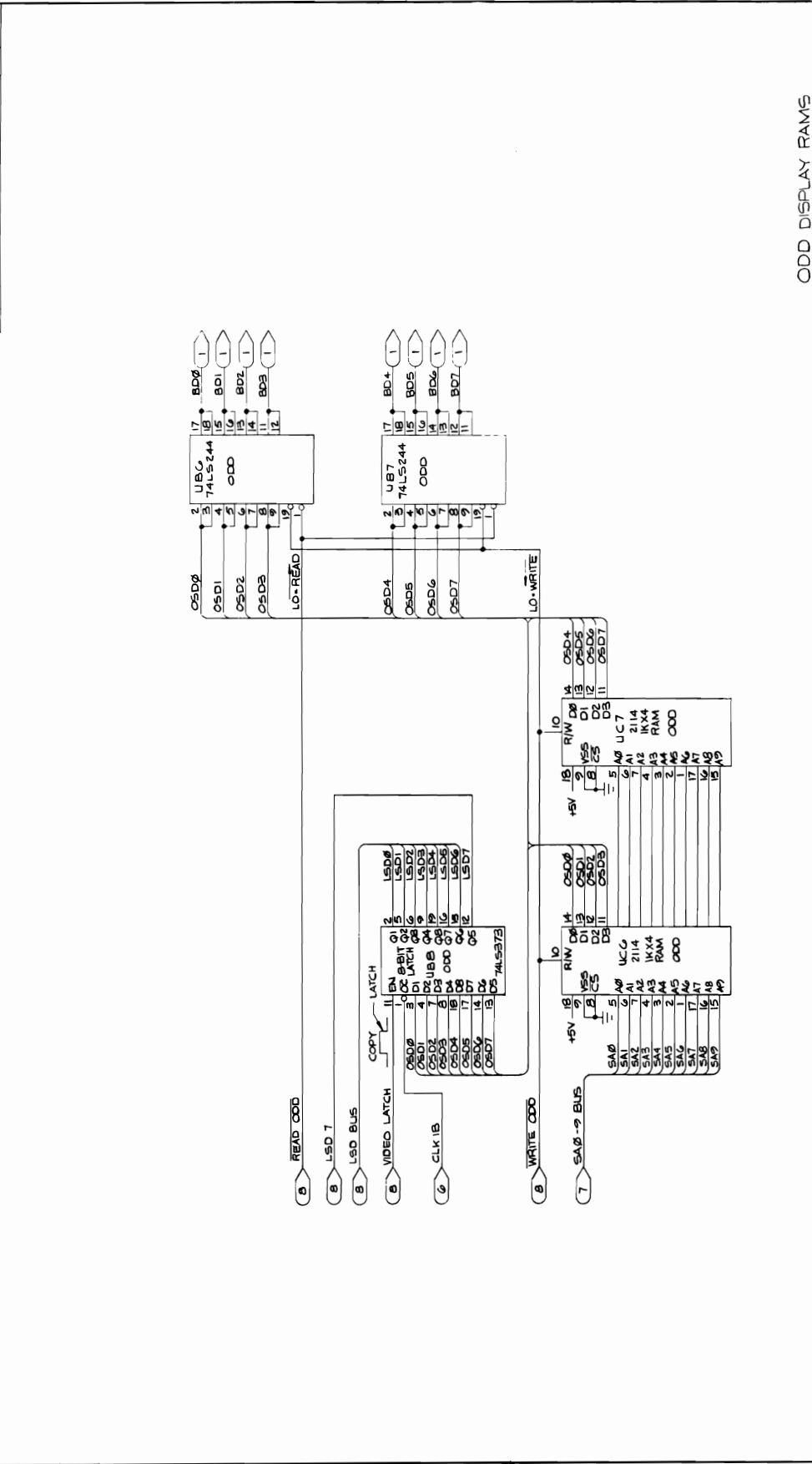
REV	DATE	APPROVED
1		

**COMMODORE**  
 LOGIC DIAGRAM  
 UNIVERSAL  
 DYNAMIC PET  
 D 180320 B7 C

REV	DATE	APPROVED
1		



REVISIONS		DATE	APPROVED
LYR	IDONE	SEE SHEET 1	

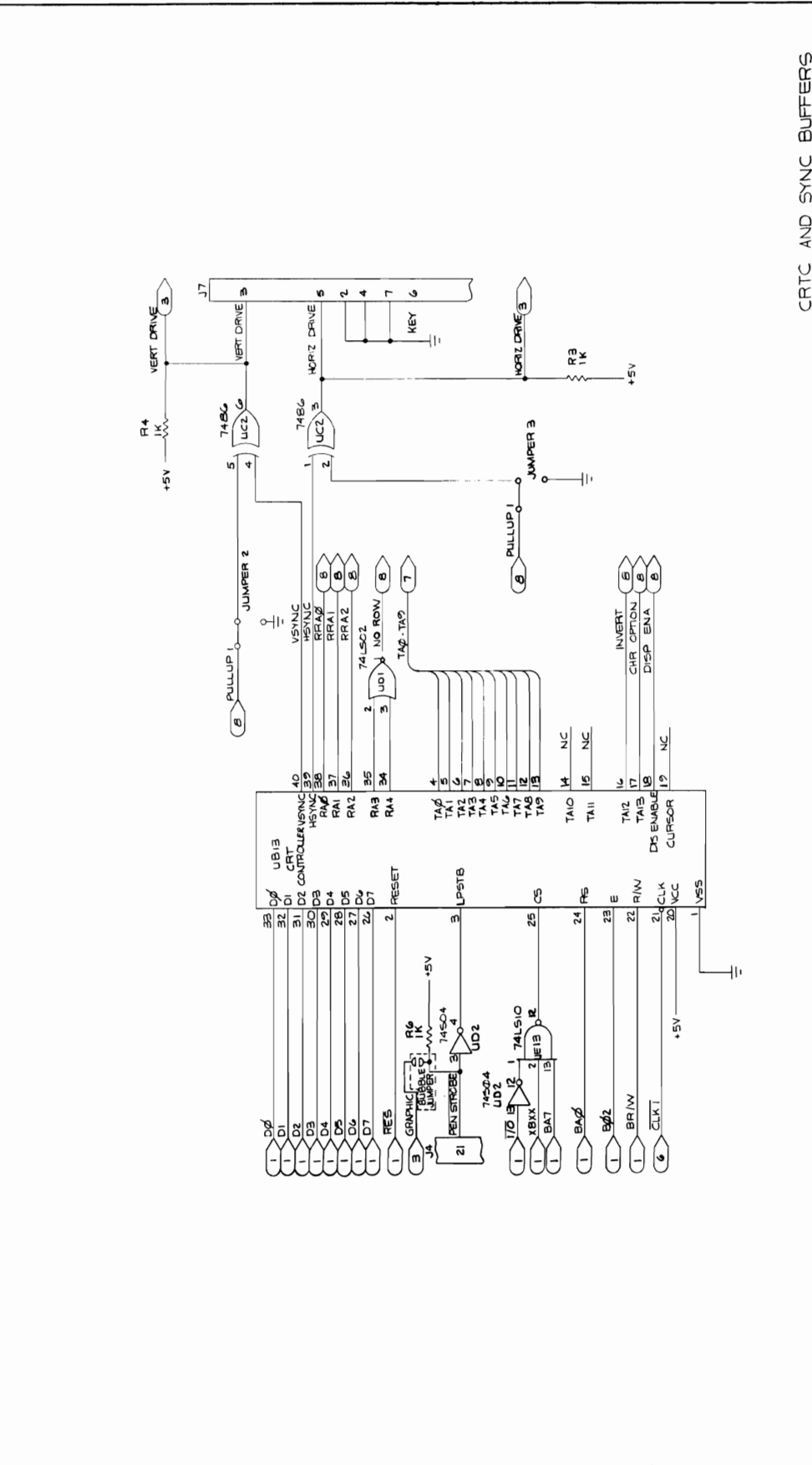


ODD DISPLAY RAMS

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

REVISIONS	
LT#	DATE

DESCRIPTION	

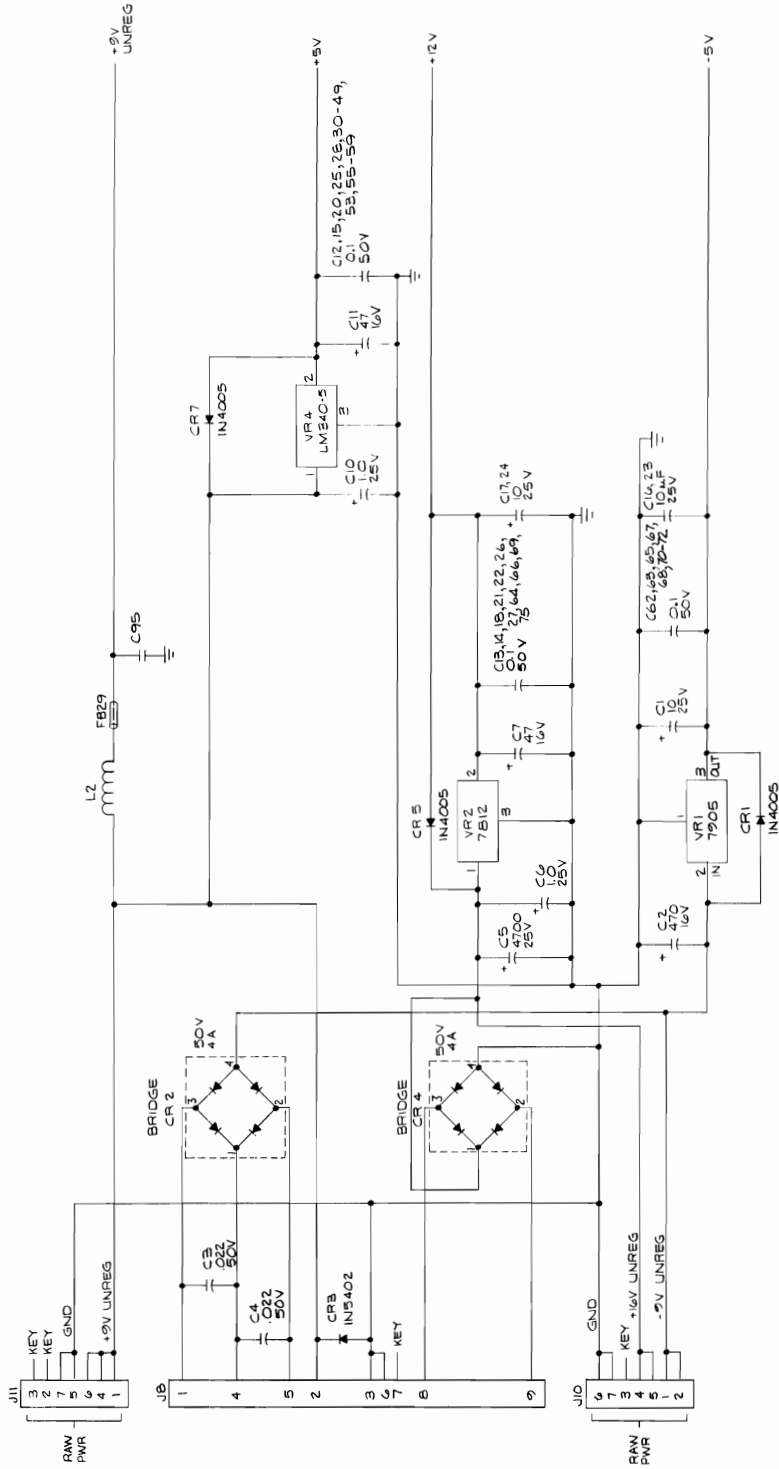


CRTC AND SYNC BUFFERS	
REV	DATE

COMMADORS  
 LOGIC DIAGRAM  
 UNIVERSAL  
 DYNAMIC PET

8032087

REVISIONS		DATE	APPROVED
LN	ZONE	SEE SHEET 1	



REVISIONS		DATE	APPROVED
LN	ZONE	SEE SHEET 1	

**VOLTAGE REGULATOR**

DESIGNED BY DANIELE TEBB

COMMADORA

LOGIC DIAGRAM

UNIVERSAL

DYNAMIC PBT

SCALE NONE

SHEET 11 OF 11

PART NO.		DESCRIPTION	
8032080 - 01		UNIV. DYNAMIC PET	8032 - 60HZ
- 03			4032 - 60HZ
- 05			4016 - 60HZ
- 07			9000 - 60HZ

REVISIONS	
LTR	DESCRIPTION
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

LTR	ZONE	DATE	APPROVED
		3/5/74	C. K.
		3/15/74	
		3/15/74	
		3/15/74	
		3/15/74	
		3/15/74	
		3/15/74	
		3/15/74	
		3/15/74	
		3/15/74	

- 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 UBI TO PIN 6 OF UC3.
- 8 COMPONENT SIDE: CUT PIN 21 OF UB13  
CUT PIN 3 OF UBI
- 7 SOLDER SIDE: BRIDGE SHORT PINS 10 & 11 OF UD2 PRIOR TO SOLDER WAVE.  
COMPONENT SIDE: CUT PINS 10 & 11 OF UD2  
SOLDER TO XTAL AND PCB.
- 6 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.

- 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:

<b>commodore</b>	TITLE: PCB ASSY, UNIV. DYNAMIC PET		DATE: 1-30-74	ENGR: M. ALVES	APPROV: [Signature]	SIZE: B	DRAWING NUMBER: 8032080
			CHKD: [Signature]			SHEET: 1	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	, 74S74	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			
TITLE: PCB ASSY, UNIV. DYNAMIC PET							
commodore							
DRAWN BY: M. AMES DATE: 11-30-81 ENGR: DATE: 12/2/81 APPR: DATE: 12/2/81							
REV: J 8032080 SIZE: B SHT: 2/7							



QUANTITY REQ. PER PART / DASH NO.		QTY	REF DES	DESCRIPTION	PART NUMBER	QTY	REF DES	NOTES
0807060504030201		75						
		76						
		77						
1	1	78		VOLTAGE REGULATOR, 7905, -5V/1.5A VR1	901527-03			TO-220
2	2	79		VOLTAGE REGULATOR, LM340-5, +5V/1.5A VR3, 4	901528-03			TO-3; SEE NOTE 13
1	1	80		VOLTAGE REGULATOR, 7812, +12V/1A VR2	901528-04			TO-3
		81						
		82						
		83						
1	1	84		CRYSTAL 16MHZ	900556-02		Y1	
		85						
		86						
2	2	87		SOCKET IC, LOW PROFILE, 24 PIN UA3, UD7	904150-04			
4	4	88		SOCKET IC, LOW PROFILE, 24 PIN UA3, UD7, UD11, UD12	904150-04			
1	1	89		SOCKET IC, LOW PROFILE, 40 PIN UB14	904150-06			
		90						
1	1	91		HEADER ASSY, .100 CENTER J10	903326-07			7 PIN; REMOVE PIN 3 AT ASSEMBLY
2	2	92		HEADER ASSY, DUAL ROW, 100 CENTER J4, 9	903345-25			50 PIN
1	1	93		HEADER ASSY, .156 CENTER J6	903316-09			9 PIN; REMOVE PIN 7 AT ASSEMBLY
1	1	94		HEADER ASSY, POLARIZED, 100 CENTER J11	903331-07			7 PIN; REMOVE PIN 3 AT ASSEMBLY
1	1	95		HEADER ASSY, POLARIZED, 100 CENTER J7	903331-07			7 PIN; ORIENT OMITTED PIN TO PIN 6 POSITION
1	1	96		HEADER ASSY, POLARIZED, 100 CENTER J5	903331-20			20 PIN; ORIENT OMITTED PIN TO PIN 19 POSITION
		97						
1	1	98		HEAT SINK	320268-01			
M/R	M/R	99		HEAT SINK, COMPOUND THERMAL	904907-01			
		100						
6	6	101		RIVET, DOME HEAD, OPEN END	906403-19			
2	2	102		RIVET, DOME HEAD, CLOSED END	906404-04			
		103						
20	20	104		22 AWG BARE WIRE ON TAPE & REEL	903781-01			
		105						
M/R	M/R	106		WIRE, INSULATED, #22 AWG	903755-03			
1	1	107		#30 WIRE WRAP WIRE, RED	903780-01			
1	1	108		BUS WIRE	320086-02			
		109						
1	1	110		IC, 74LS244	901521-13		UB4, UB7, UB9, UB10, UD13, UD14, UE8, UE9, UE10	
1	1	111		IC, 74LS244	901521-13		UB4, UB5, UB7, UB10, UD13, UD14, UE8, UE9, UE10	

REV J 47

DATE 1-30-91

ENGR: M. AMES

CHKD: [Signature]

DATE 1-30-91

APPR: [Signature]

SIZE B

8032080

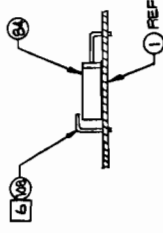
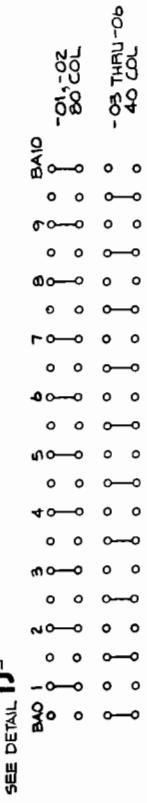
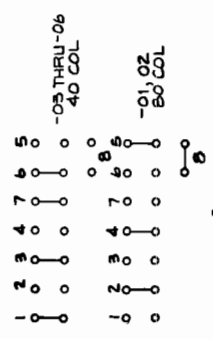
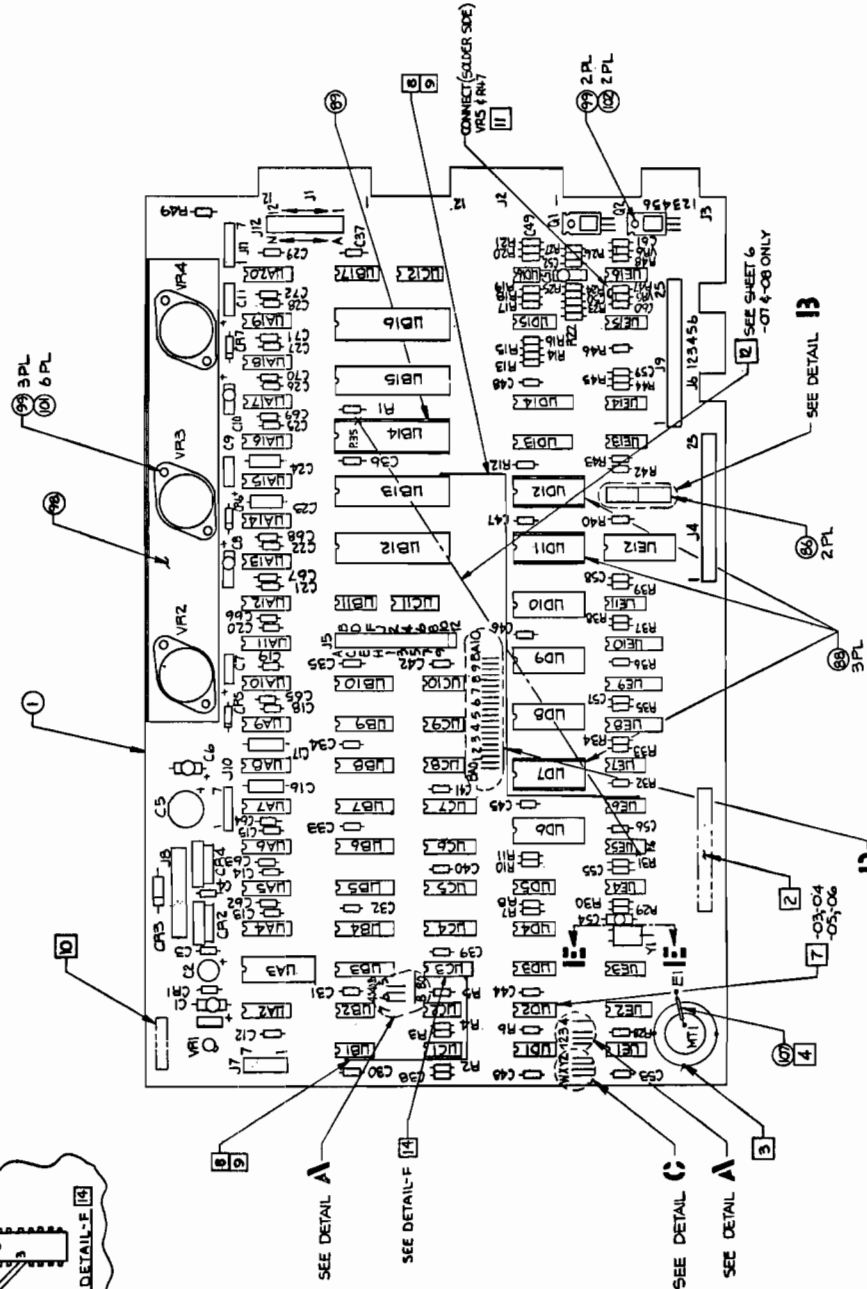
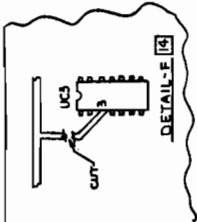
commodore

TITLE: PCB ASSY, UNIV. DYNAMIC PET





REV	DATE	DESCRIPTION	APPROVED
1		SEE SHEET 1	



REV	DATE	DESCRIPTION	APPROVED
1		SEE SHEET 1	

**commodore**  
PCB ASSY -  
UNIV. DYNAMIC PET  
ID: 8032080  
SCALE: 1/1 SHEET 7 OF 7

REVISIONS		DATE	APPROVED
LTR	ISSUE	DESCRIPTION	
A	1	PRODUCTION RELEASE	SM/2/10/77
B	2	REVISED PER ECO 2091	SM/2/10/77
C	3	REV PER ECO 2574	SM/2/10/77
D	4	REVISED PER ECO 2607	SM/2/10/77
E	5	REV PER ECO 2596	SM/2/10/77

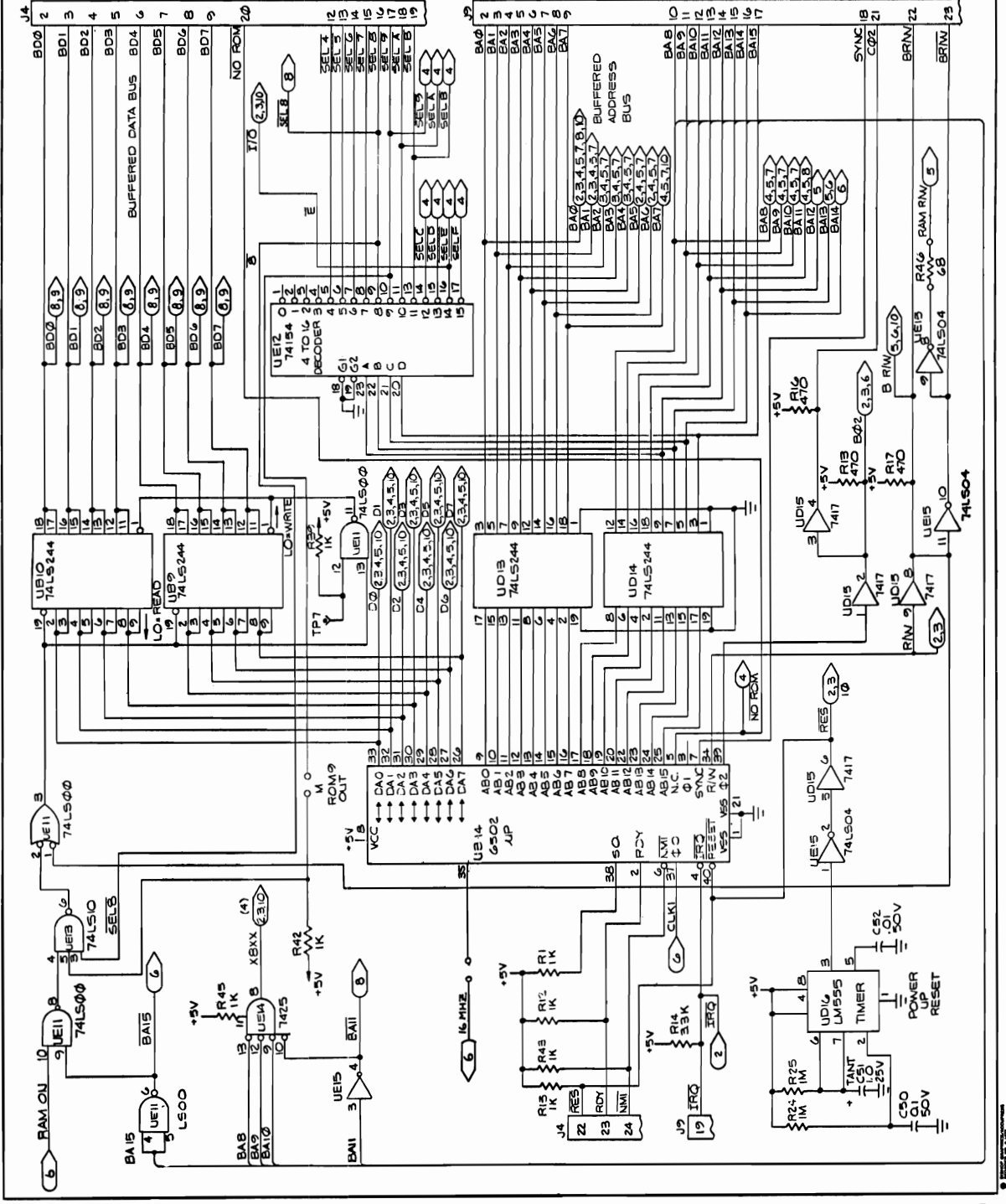
MEMORY EXPANSION

MEMORY EXPANSION

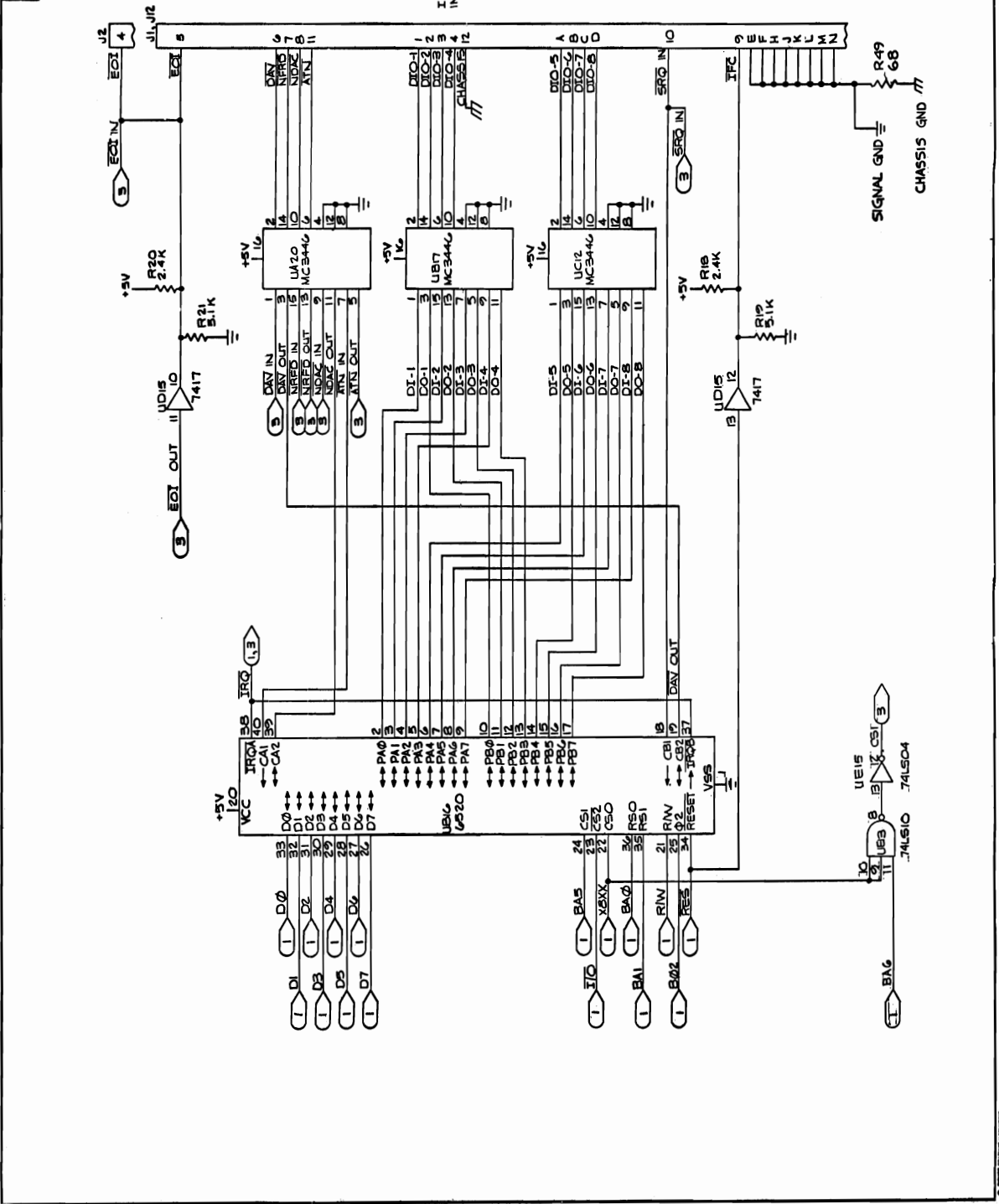
- ALL CAPACITOR VALUES ARE MEASURED IN MICROFARADS.
- ALL RESISTOR VALUES ARE IN OHMS UNLESS OTHERWISE SPECIFIED.
- REFER TO ASSEMBLY DRAWING NUMBER 8032080.

CPU & MEMORY EXPANSION

DESIGNED BY	C. DAVENPORT	DATE	10/77
CHECKED BY	J. W. HARRIS	DATE	10/77
APPROVED BY		DATE	
PROJECT	8032080	SHEET	1 OF 11
camdore LOGIC DIAGRAM UNIVERSAL DYNAMIC PET			



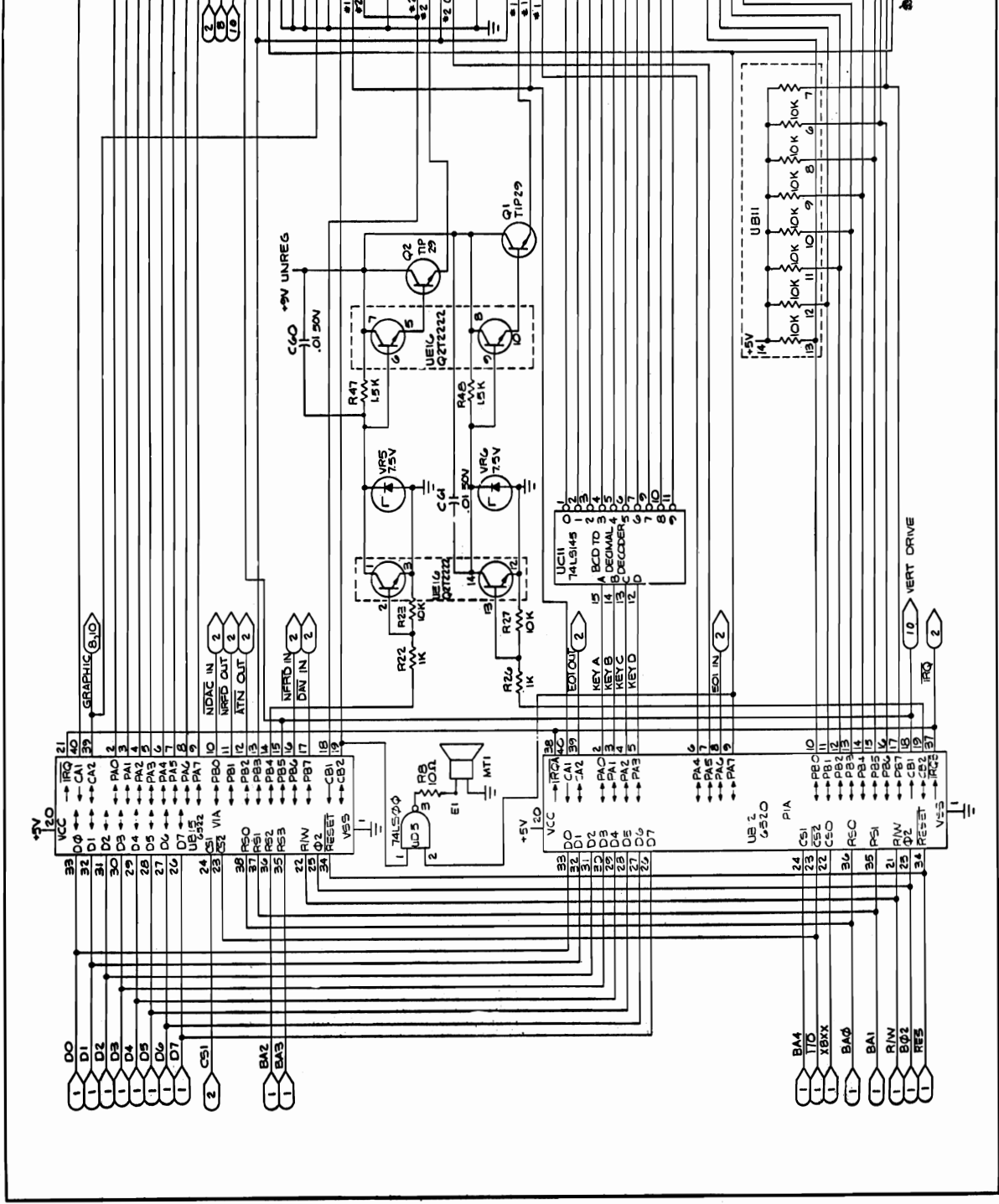
REVISIONS	
DATE	APPROVED



IEEE-488 INTERFACE

COMMODORE  
 LOGIC DIAGRAM  
 DYNASAL  
 DYNAMIC PET  
 SEE B 8032081 E  
 SCALE: NONE SHEET 2 OF 11

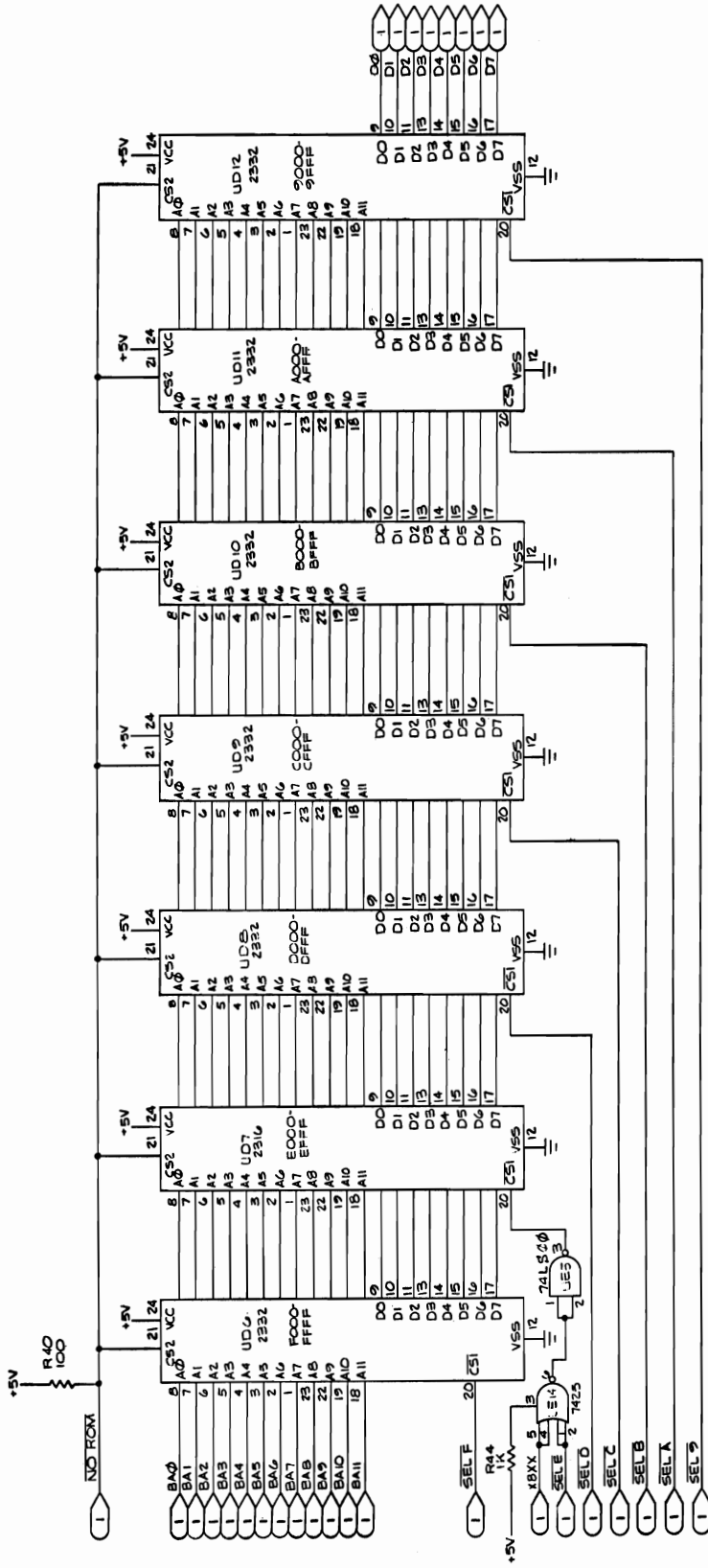
REVOLUTIONS	
DATE	APPROVED



REVOLUTIONS	
DATE	APPROVED

**commodore**  
 LOGIC DIAGRAM  
 UNIVERSAL  
 DYNAMIC PET  
 PART NO. **D 8032081**  
 SCALE NONE | SHEET 3 OF 11

REVISED		DATE	
DESCRIPTION		APPROVED	
SEE SHEET 1			

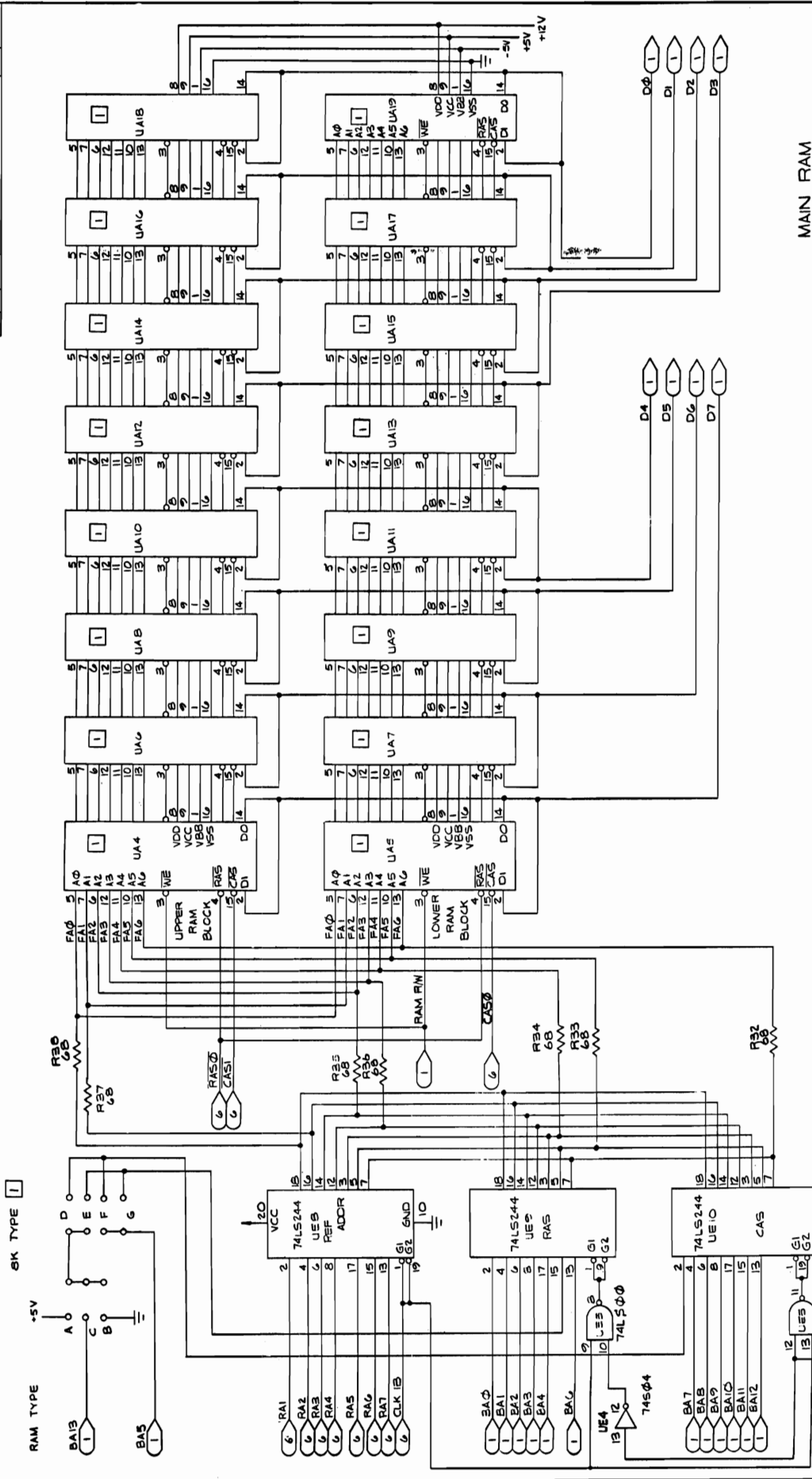


**RAMS**

DATE	BY
ISSUE	
REVISION	
DESCRIPTION	
DESIGNED BY	
CHECKED BY	
DATE	
SCALE	
APP. NO.	
USED ON	
PROJECT	
FIG. NO.	
REV. NO.	
DATE	
BY	
DESCRIPTION	
DESIGNED BY	
CHECKED BY	
DATE	
SCALE	
APP. NO.	
USED ON	
PROJECT	
FIG. NO.	
REV. NO.	
DATE	
BY	
DESCRIPTION	

**commodore**  
 LOGIC DIAGRAM  
 UNIVERSAL  
 DYNAMIC RAM  
 ID: 8032081 E  
 BOARD NUMBER: SHEET 4 OF 11

REV	DATE	DESCRIPTION	APPROVED
1		SEE1 SHEET 1	



REV	DATE	DESCRIPTION	APPROVED
1		SEE1 SHEET 1	

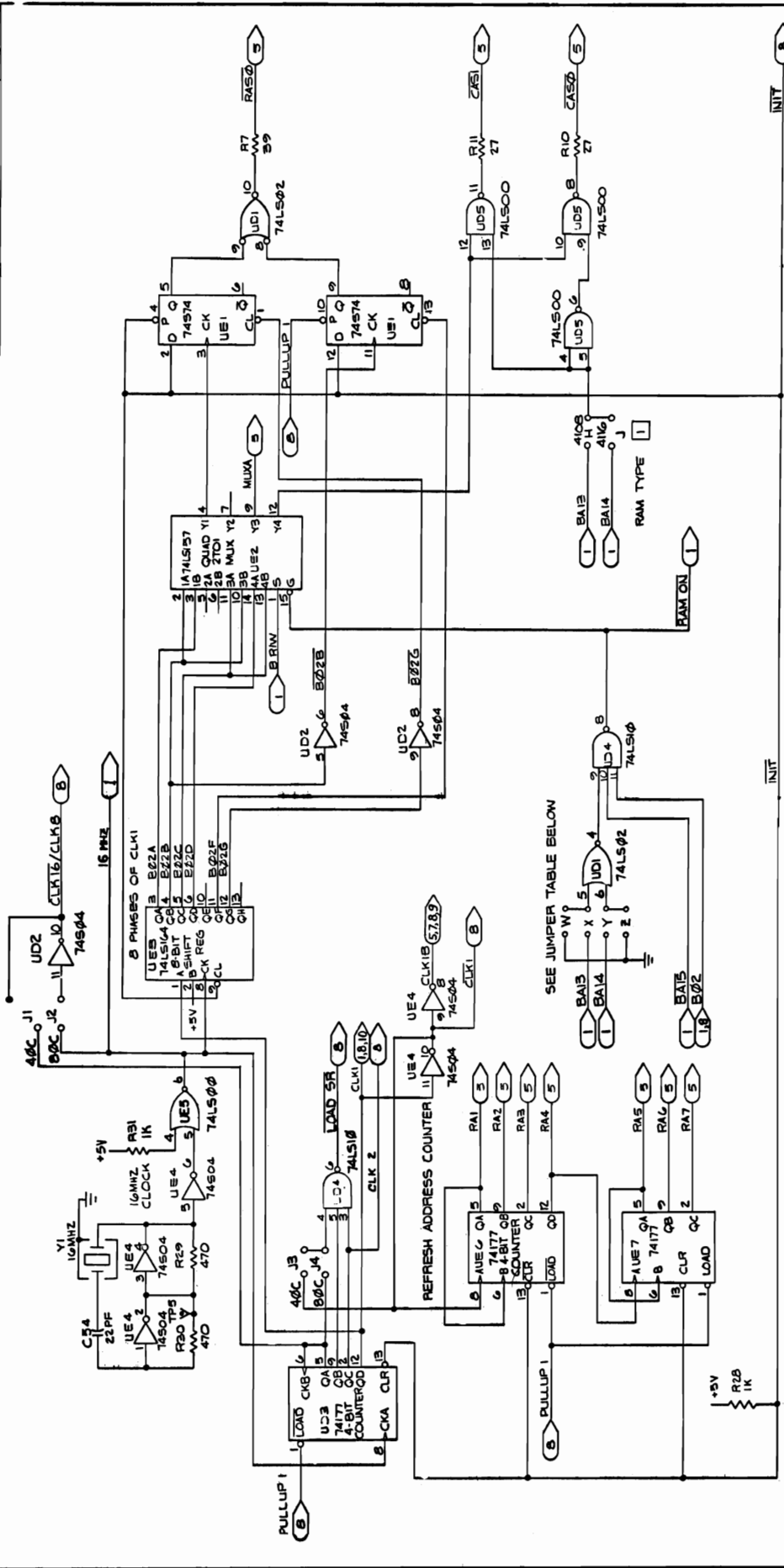
**MAIN RAM**

commodore  
 LOGIC DIAGRAM  
 UNIVERSAL  
 DYNAMIC PET

DATE: 8032081E  
 SHEET 5 OF 11

REV	DATE	APPROVED
1		

REVISIONS	DESCRIPTION
1	SEE SHEET 1



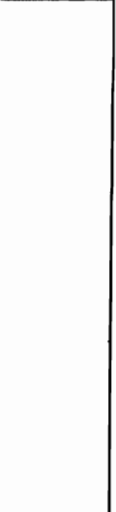
JUMPER TABLE

MEMORY JUMPERS

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

MASTER TIMING

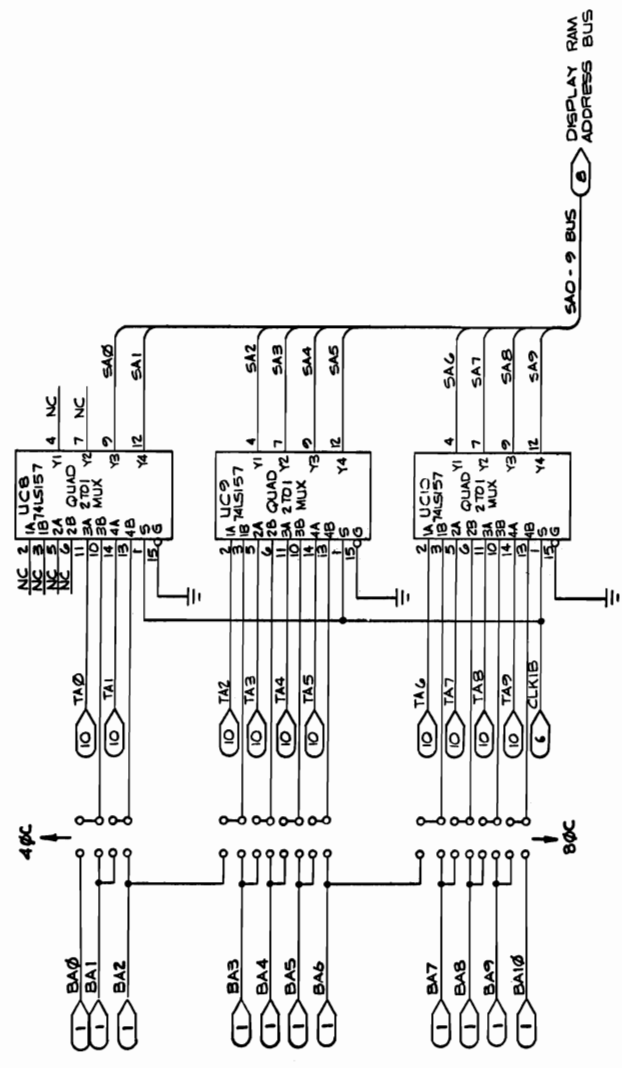
PARAMETER	UNIT	MIN	TYP	MAX
SETUP TIME	ns			
HELD TIME	ns			
RECOVERY TIME	ns			
DELTA T	ns			
DELTA D	ns			
DELTA E	ns			
DELTA F	ns			
DELTA G	ns			
DELTA H	ns			
DELTA I	ns			
DELTA J	ns			
DELTA K	ns			
DELTA L	ns			
DELTA M	ns			
DELTA N	ns			
DELTA O	ns			
DELTA P	ns			
DELTA Q	ns			
DELTA R	ns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



REV	DATE	APPROVED
1		

COMMODORE  
LOGIC DIAGRAM  
UNIVERSAL  
DYNAMIC PET  
REV D B032081 E  
SCALE NONE SHEET 6 OF 11

REVISEMENTS		DATE	APPROVED
1	SEE SHEET 1		



DISPLAY ADDRESS MUX

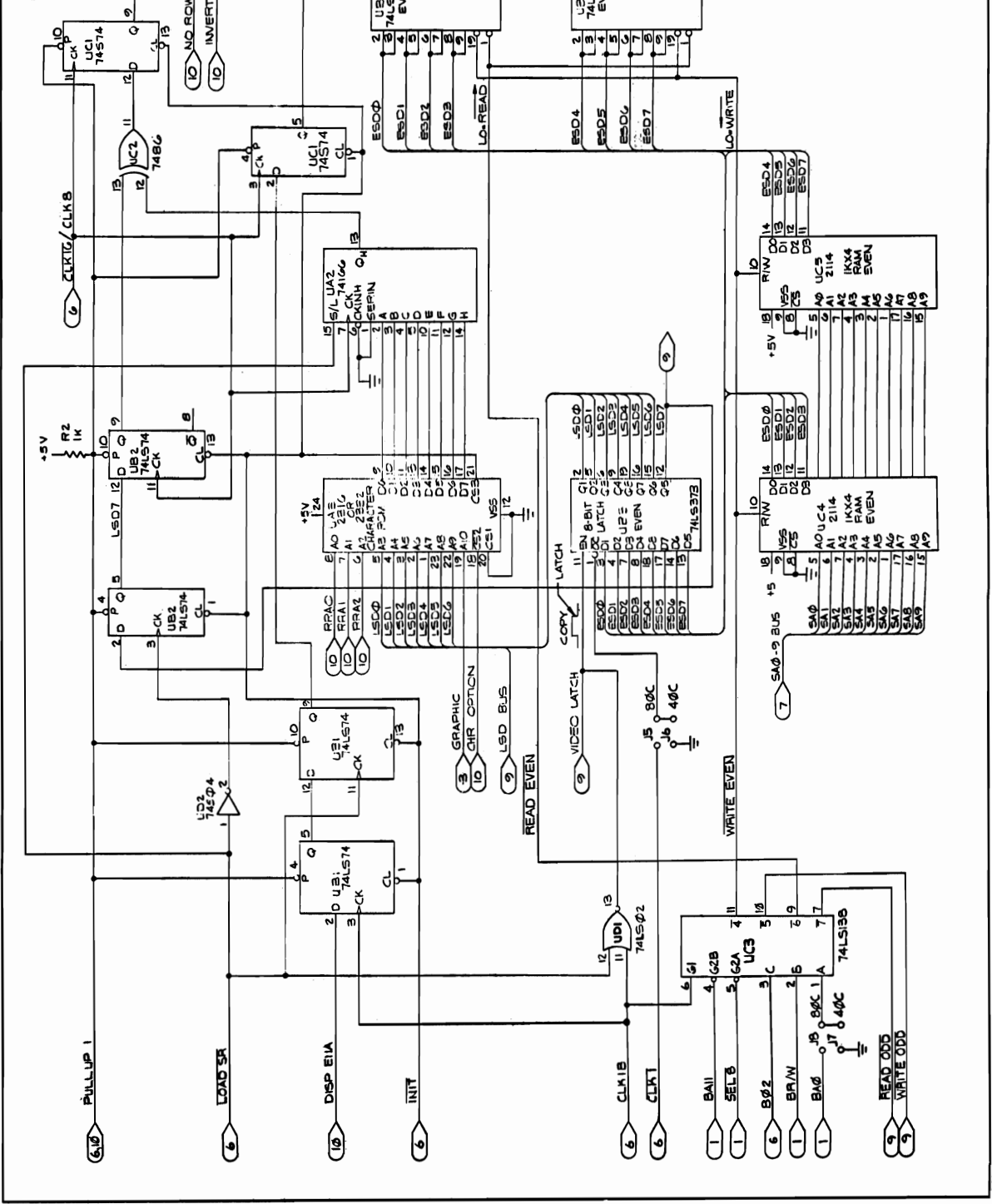
REVISED BY	DATE	APPROVED
COMMADORE		

LOGIC DIAGRAM  
UNIVERSAL  
DYNAMIC RET.

DATE: 8032081 E  
SCALE: NONE SHEET 7 OF 11



REV	DATE	DESCRIPTION
1		REVISED
2		SEE SHEET 1



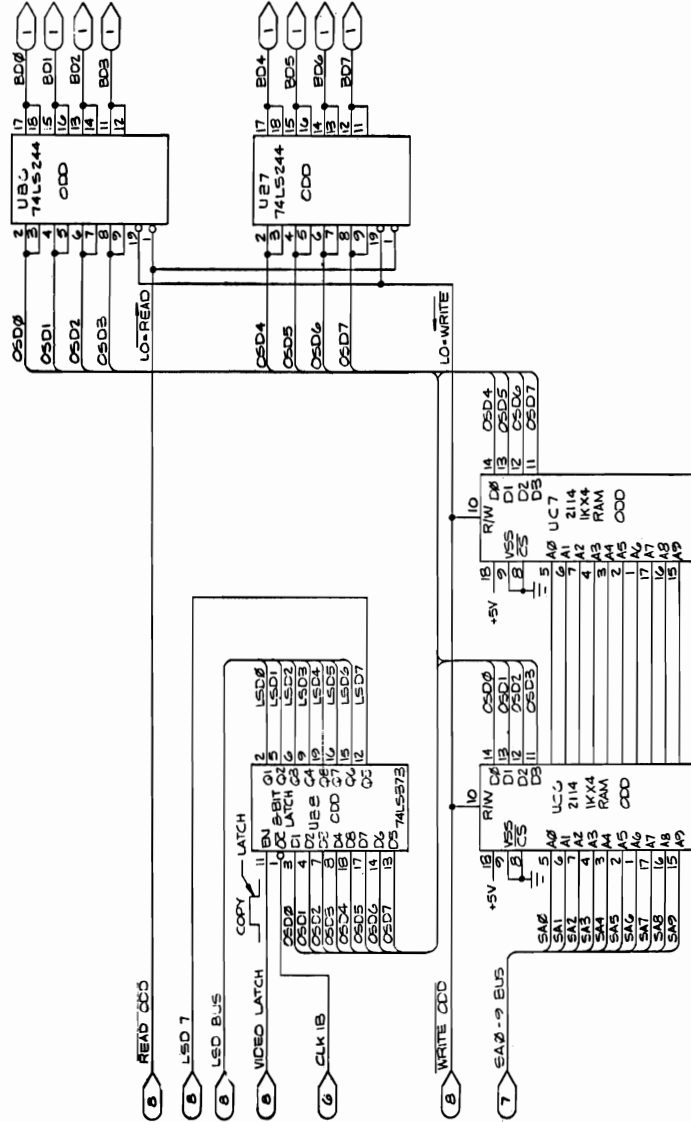
**DOT GEN & EVEN DISPLAY RAMS**

DESIGNED BY: \_\_\_\_\_  
 CHECKED BY: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 SHEET 6 OF 11

COMMERCIAL  
 UNIVERSAL  
 DYNAMIC PET

8032081

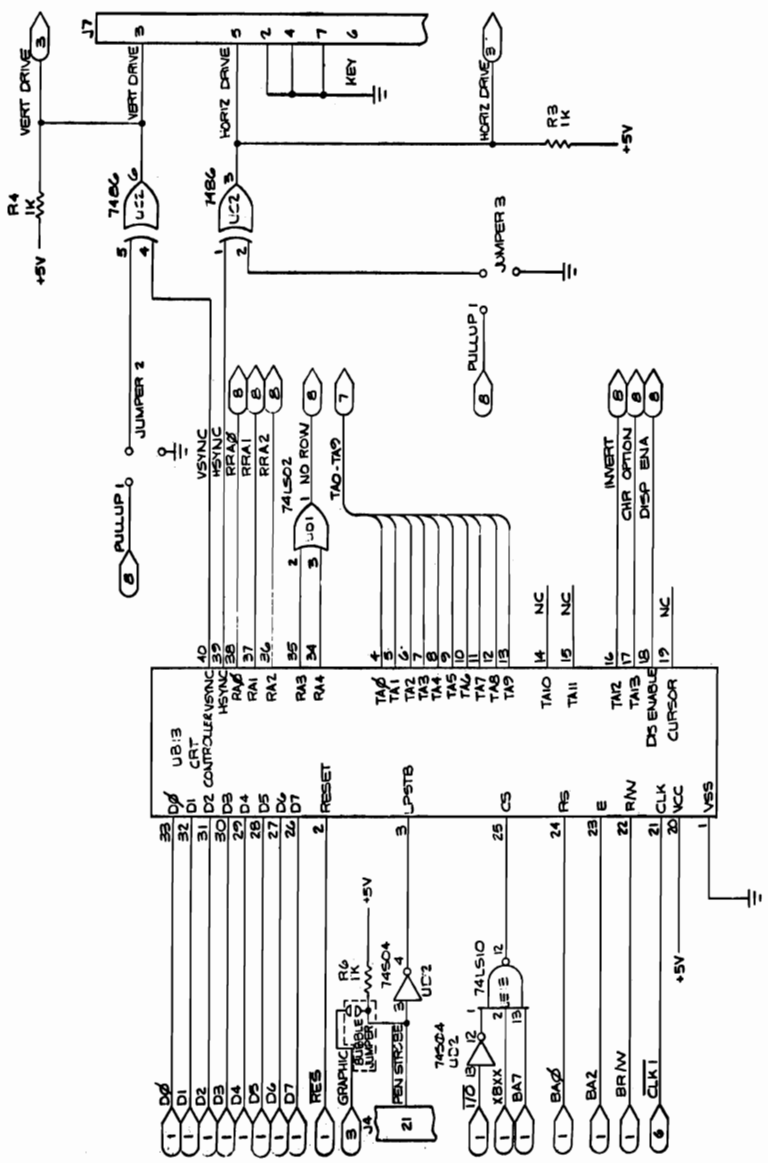
REVISIONS		DATE	APPROVED
1	SEE SHEET 1		



ODD DISPLAY RAMS

DATE	REV	DESCRIPTION

commadore  
 LOGIC DIAGRAM  
 UNIVERSAL  
 DYNAMIC PET  
 D. BOZLOB  
 SCALE NONE | SHEET 7 OF 11



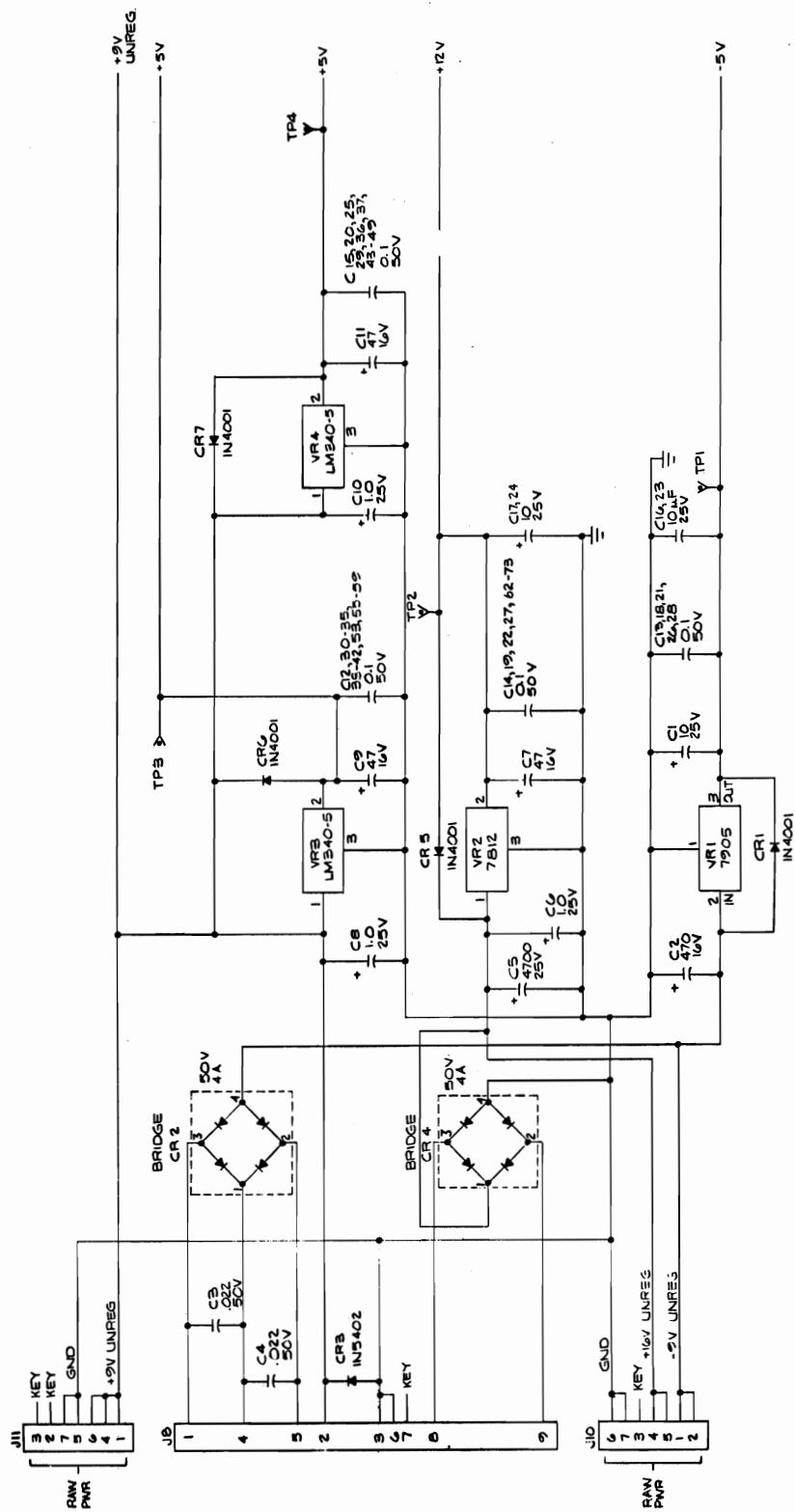
CRTC AND SYNC BUFFERS

DATE	
APPROVED	
BY	
DESCRIPTION	
SEE: SHEET 1	

commodore  
LOGIC DIAGRAM  
UNIVERSAL  
DYNAMIC PET

REV  
D 8032081 E  
REVISIONS | SHEET 10 OF 11

REVISIONS		DATE	APPROVED
LTR	DATE	DESCRIPTION	SEE SHEET 1



VOLTAGE REGULATOR

DESIGNED BY		DATE
COMMODORE	LOGIC DIAGRAM	
UNIVERSAL	DYNAMIC	
PET	REV	
D. BOBZOB	REV	
BOBZOB	SHEET II	OF II



PART NO.		DESCRIPTION	REVISIONS		
LTR	ZONE	DESCRIPTION	DATE	APPROVED	
A		PRODUCTION RELEASE	8/24/80	[Signature]	
B		REV PER ECO 1935	2/5/81	[Signature]	
C		REV PER ECO 2028	2/29/81	[Signature]	
D		REV PER ECO 2284	10/16/81	[Signature]	
E		REV. PER ECO 2777	8-15-82	[Signature]	

PART NO.	DESCRIPTION
8032051-01	POWER SUPPLY ASSY, 8032 117V UL

- 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:

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

QUANTITY REQD PER PART / DASH NO.		QTY	REF	PART NUMBER	DESCRIPTION	REF DES	REMARKS	NOTES	
		1	D	8032043-02	CHASSIS,POWER,UNIVERSAL				
		1	C	320902-01	TRANSFORMER	TI		SEE NOTE <input checked="" type="checkbox"/> FOR SUBSTITUTE	
		6	B	900102-01	CAPACITOR 23,000 MFD	CI			
		8	B	903467-03	FILTER POWER CONNECTOR				
		11							
		12							
		13							
		14	B	320289-01	DYNAMIC PET POWER HARNESS				
		15							
		16	B	903557-04	FUSE,125V SLO-BLO 1.6A	FI			
		18							
		19							
		20	B	903611-03	FUSE HOLDER	XFI			
		21	B	904507-01	SWITCH,ROCKER	SWI		FOR SUBSTITUTE SEE NOTE <input checked="" type="checkbox"/>	
		22							
		23							
		24							
		25	B	320479-02	TUBE,SHRINKABLE				
		26	B	320478-01	TUBE,SHRINKABLE				
		27	B	320059-01	LEAD WIRE (BLACK)				
		28							
		30	B	903612-02	FUSECARRIER				
		31	B	906630-03	SCREW,FAN HEAD,#10-32 X.250 LG				
		32	B	905650-03	WASHER,LOCK,INT TOOTH #10				
		33							
		34	C	320925-05	GROUND CABLE ASSY				
		35	B	906600-06	SCREW FAN HEAD #4-40 X.438 LG				
		36	B	905970-05	NUT KEPS #4-40				
		37							
		TITLE: POWER SUPPLY ASSY, 8032			DRAWN BY: K.CHRISTENSEN		DATE: 4/21/80	ENGR: N.P.	REV: E
		commodore			CHKD: N.P.		DATE: 8-19-81	APPR:	SIZE: B
								8032051	SHT: 2/3

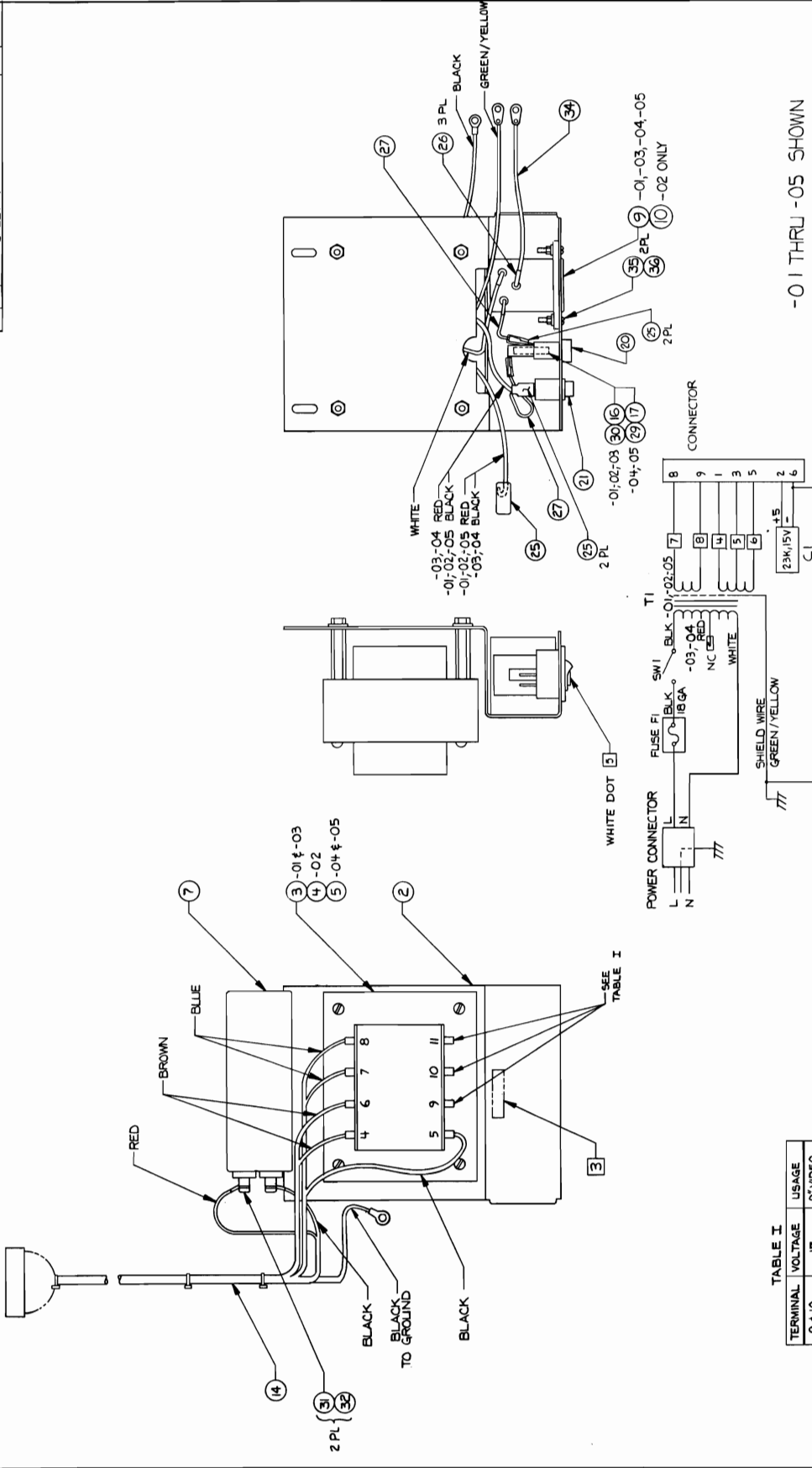


TABLE I

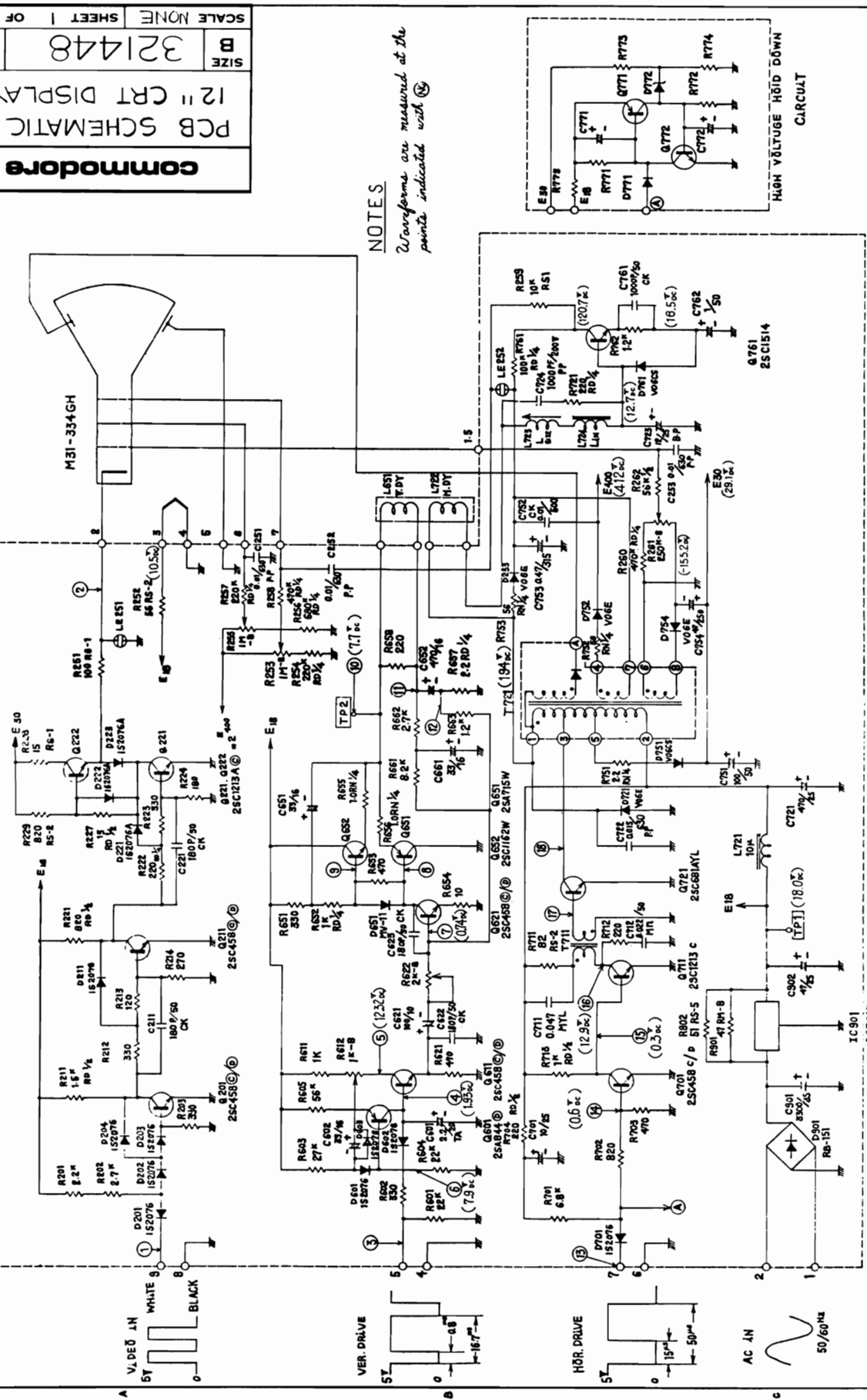
TERMINAL	VOLTAGE	USAGE
9 & 10	15	9" VIDEO
9 & 11	21	12" VIDEO

-01 THRU -05 SHOWN

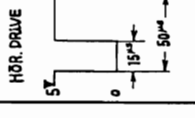
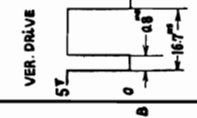
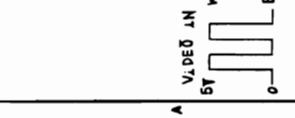
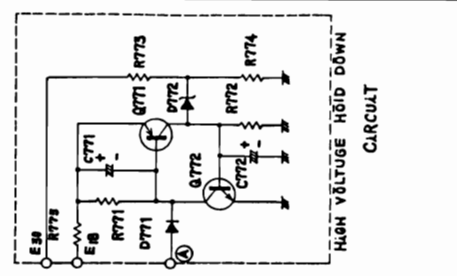
WIRING DIAGRAM



BASIC CIRCUIT DIAGRAM (CDU-B80-CMD 12)




NOTES  
 Waveforms are measured at the points indicated with Ⓢ



321450

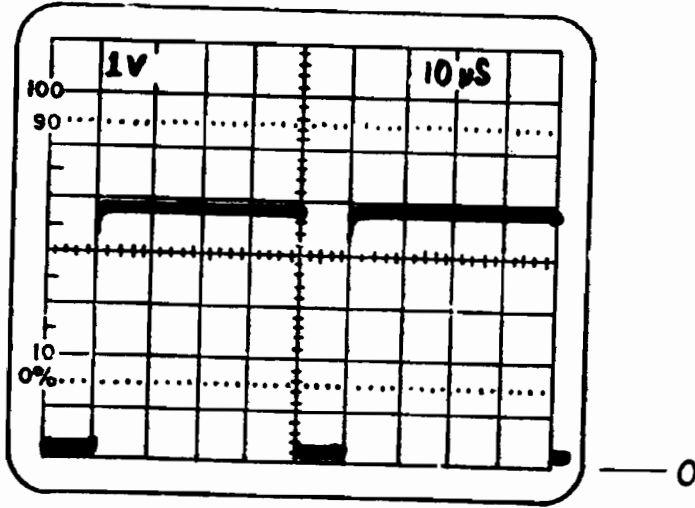
REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
A		PRODUCTION RELEASE	12/24/80	<i>[Signature]</i>

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

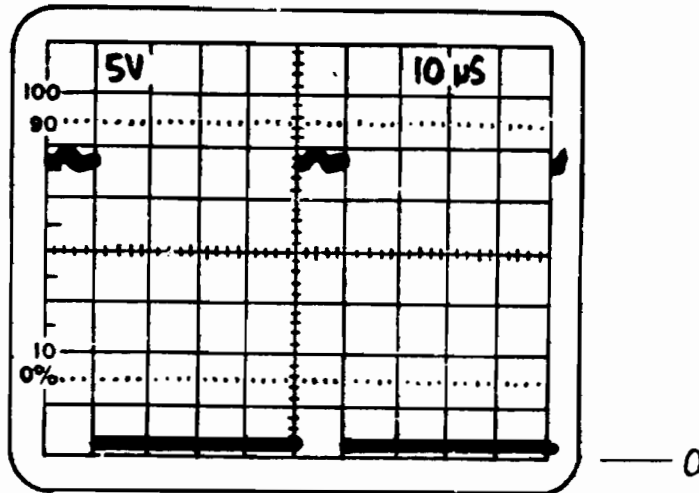
DRAWN BY: <i>Martin</i> CHD: <i>[Signature]</i> ENGR: <i>[Signature]</i> PROB: APPD: INC:	DATE 12-5-80 12/9/80 12/29/80	 TITLE: PCB WAVEFORMS 12" CRT DISPLAY	SIZE <b>A</b>	DWS NO. 321450	REV <b>A</b>
RELEASE DATE		SHEET 1 OF 10			

VIDEO (1/1)

1



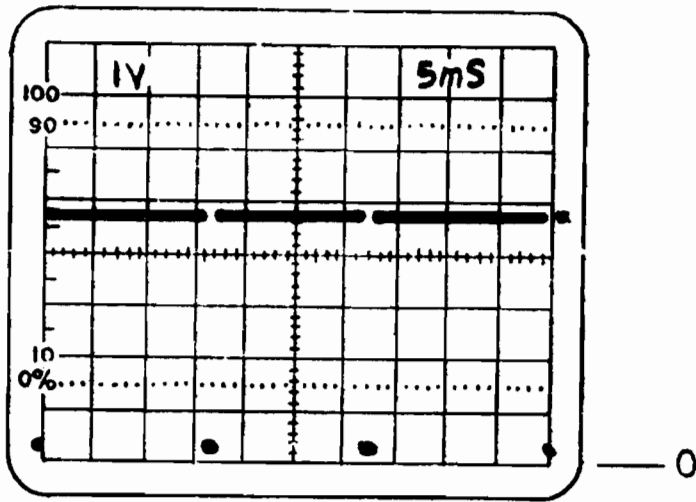
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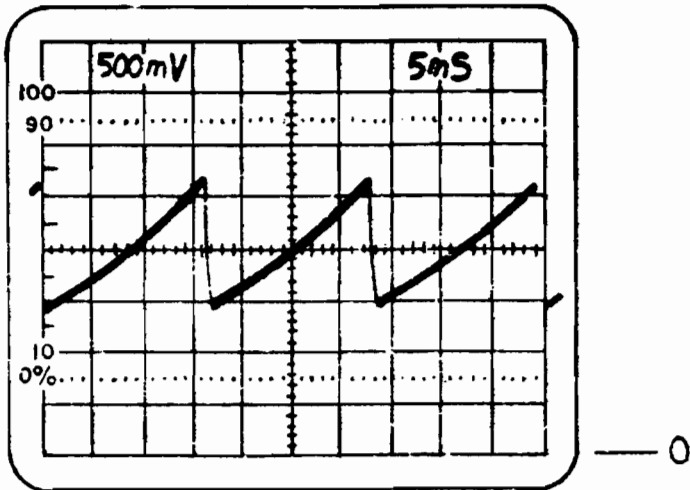
<b>commodore</b>		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE <b>A</b>	<b>321450</b>	REV <b>A</b>
SCALE NONE	SHEET 2	OF 10

VERTICAL (1/3)

3



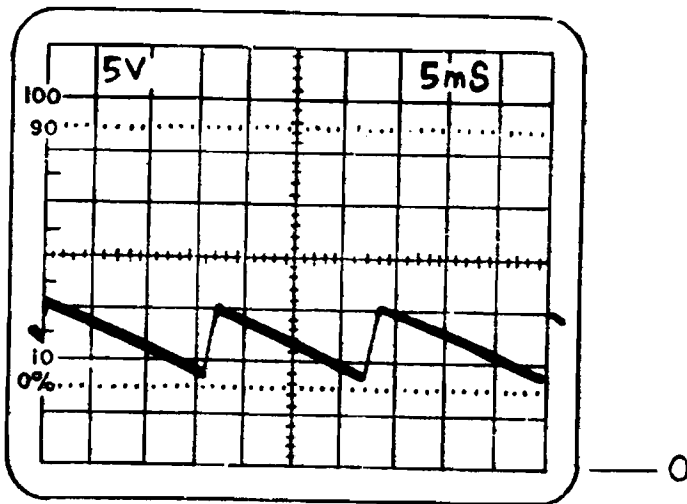
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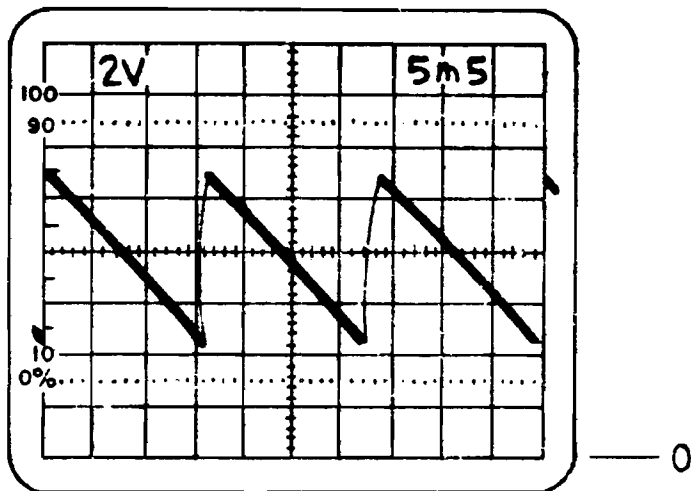
<b>commodore</b>		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE <b>A</b>	<b>321450</b>	REV <b>A</b>
SCALE NONE	SHEET <b>3</b>	OF 10

VERTICAL (1/3)

5



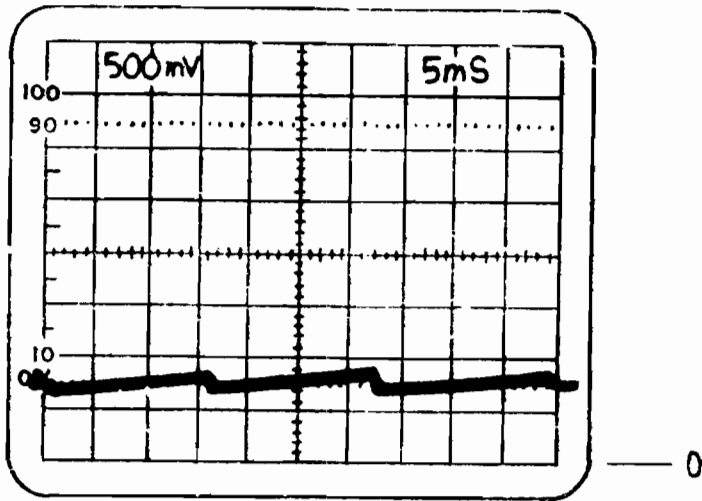
6



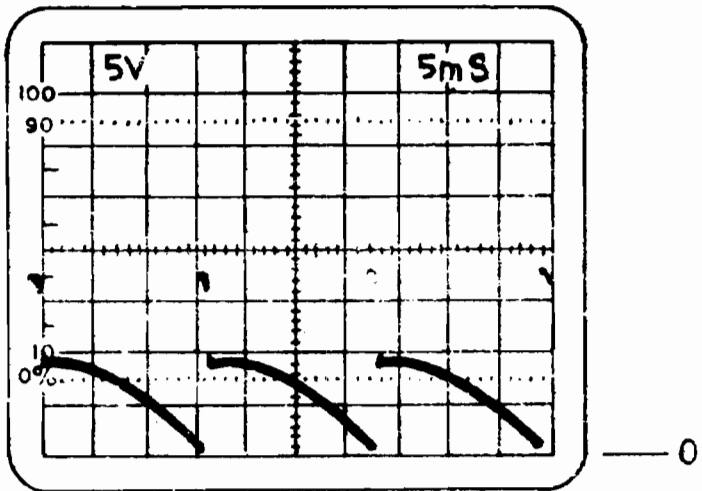
<b>commodore</b>		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE <b>A</b>	<b>321450</b>	REV <b>A</b>
SCALE NONE	SHEET 4	OF 10

VERTICAL (2/3)

7



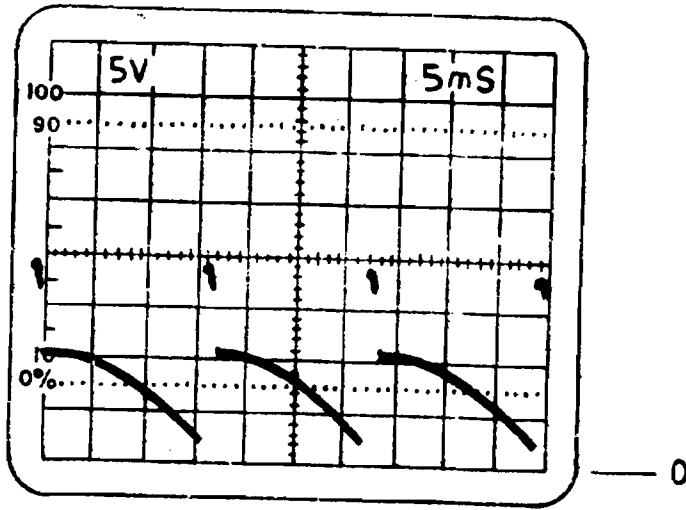
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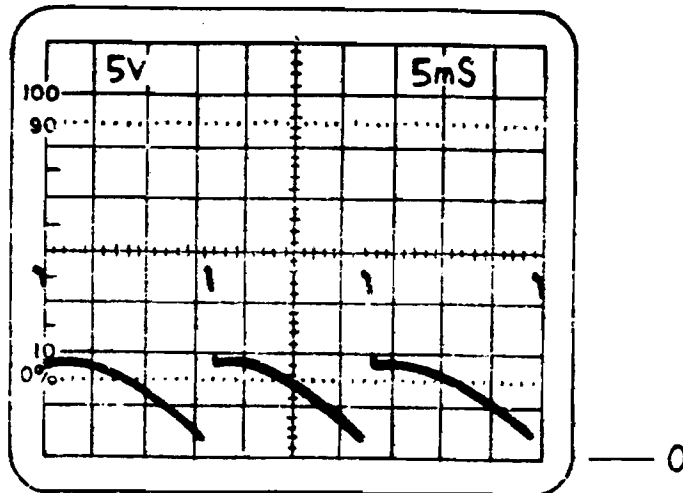
<b>commodore</b>		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE <b>A</b>	<b>321450</b>	REV <b>A</b>
SCALE NONE	SHEET 5	OF 10

VERTICAL (2/3)

9



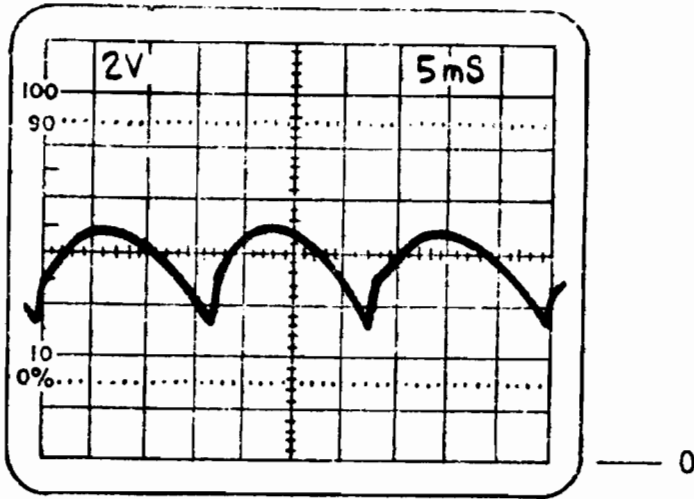
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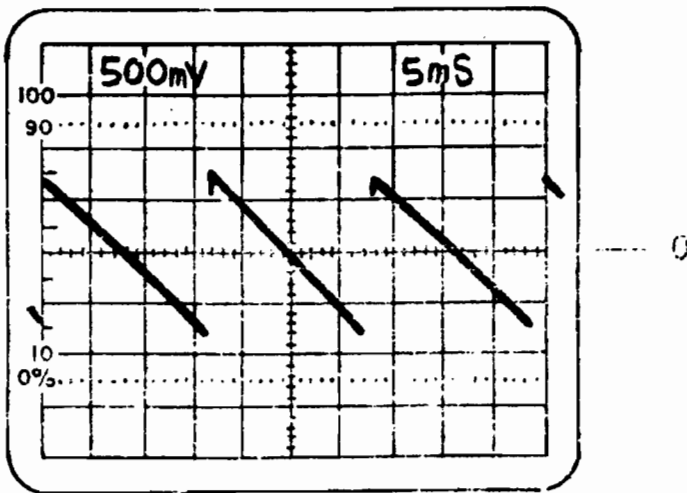
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PCB WAVEFORMS 12" CRT DISPLAY		
SIZE <b>A</b>	<b>321450</b>	REV <b>A</b>
SCALE <b>NONE</b>	SHEET <b>6</b>	OF <b>10</b>

VERTICAL (3/3)

11



12

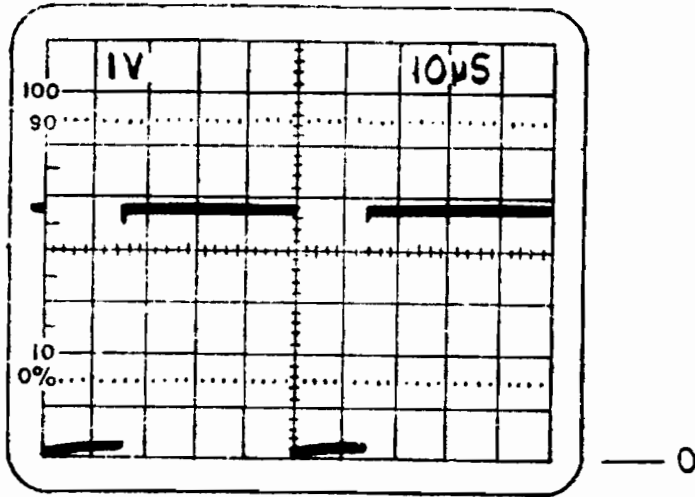


<b>commodore</b>		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE	321450	REV
A		A
SCALE NONE	SHEET 7	OF 10

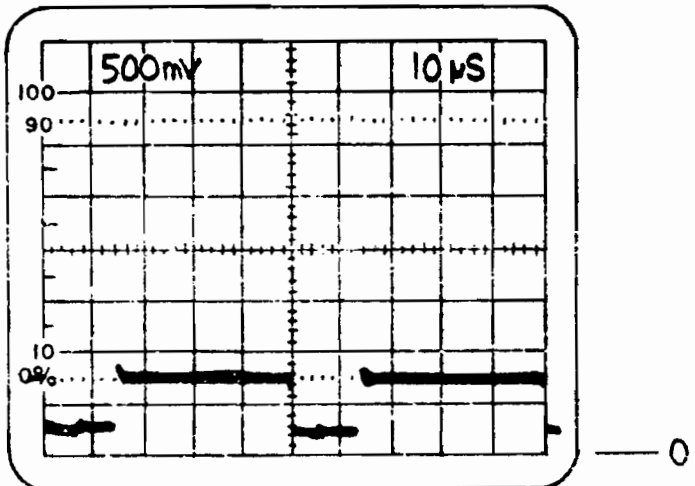


# HORIZONTAL (1/2)

13



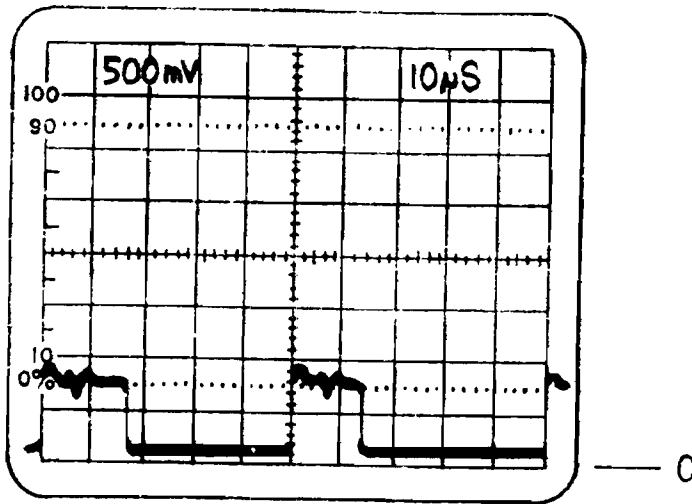
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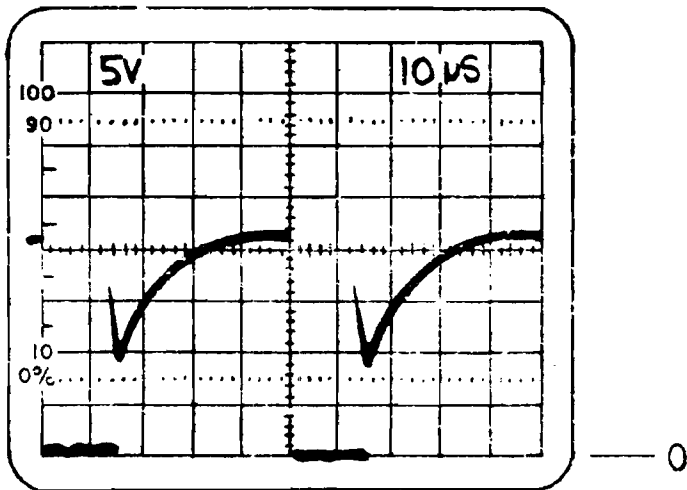
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PCB WAVEFORMS 12" CRT DISPLAY		
SIZE <b>A</b>	<b>321450</b>	REV <b>A</b>
SCALE NONE	SHEET 8	OF 10

HORIZONTAL (1/2)

15



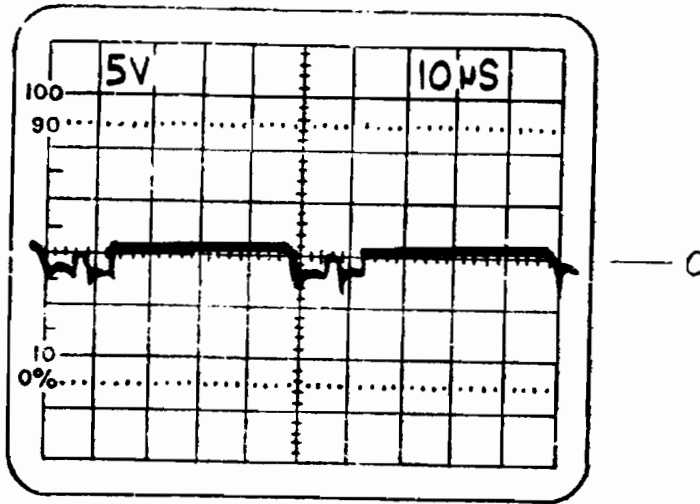
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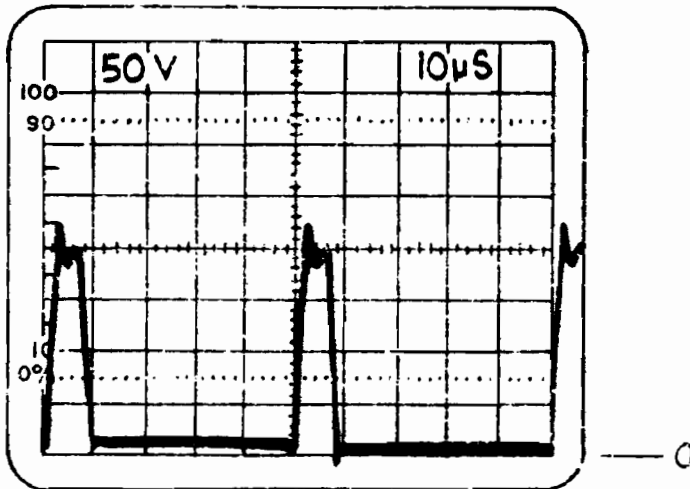
<b>commodore</b>		
PCB WAVEFORMS 12" CRT DISPLAY		
SIZE <b>A</b>	<b>321450</b>	REV <b>A</b>
SCALE NONE	SHEET 9	OF 10

HORIZONTAL (2/2)

17



18




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

321447

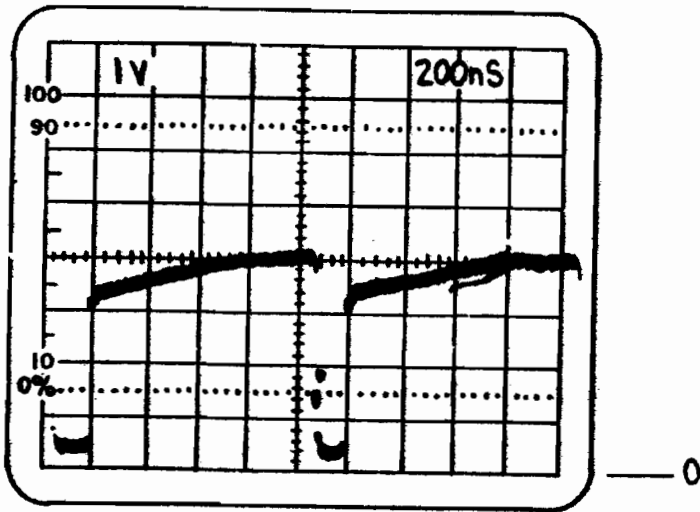
REVISIONS			
LTR	ZONE	DESCRIPTION	DATE
A		PRODUCTION RELEASE	12/29/80

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

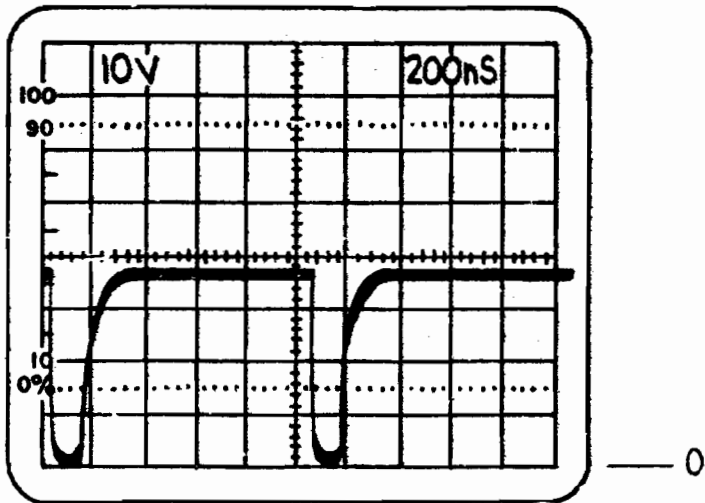
DRAWN BY: <i>[Signature]</i>	DATE: 12-7-80	
CHKD: <i>[Signature]</i>	12/9/80	
ENGR: <i>[Signature]</i>	12/29/80	
PROD:		TITLE: PCB WAVEFORMS 9" CRT DISPLAY
APPD:		SIZE: A
APPD:		DWG NO. 321447
		REV: A
	RELEASE DATE	SHEET 1 OF 10

VIDEO (1/1)

①



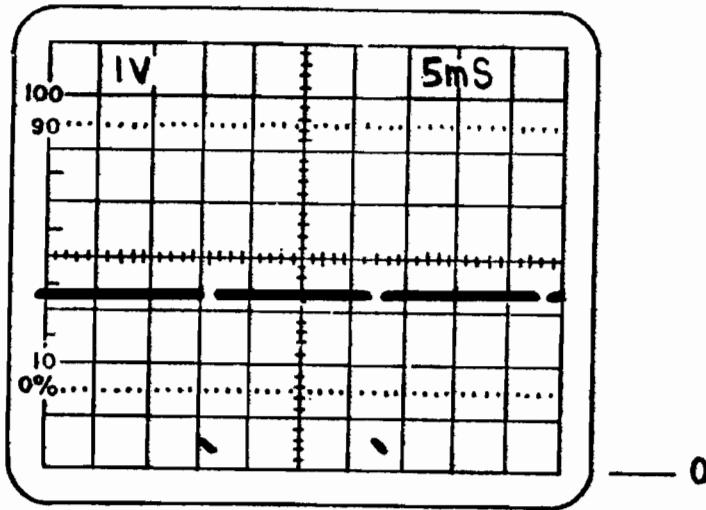
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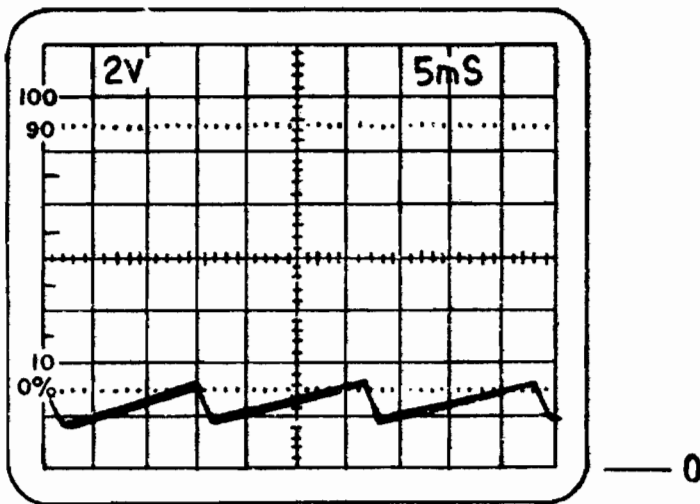
<b>commodore</b>		
PCB WAVEFORMS		
9" CRT DISPLAY		
SIZE <b>A</b>	<b>321447</b>	REV <b>A</b>
SCALE NONE	SHEET 2	OF 10

VERTICAL (1/3)

3



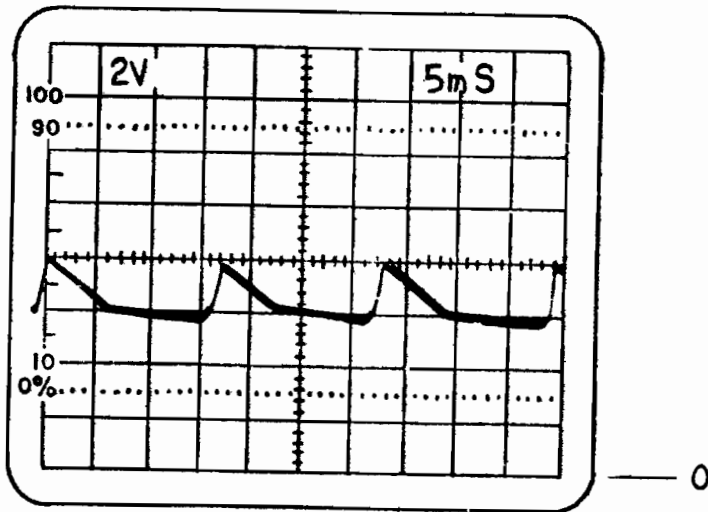
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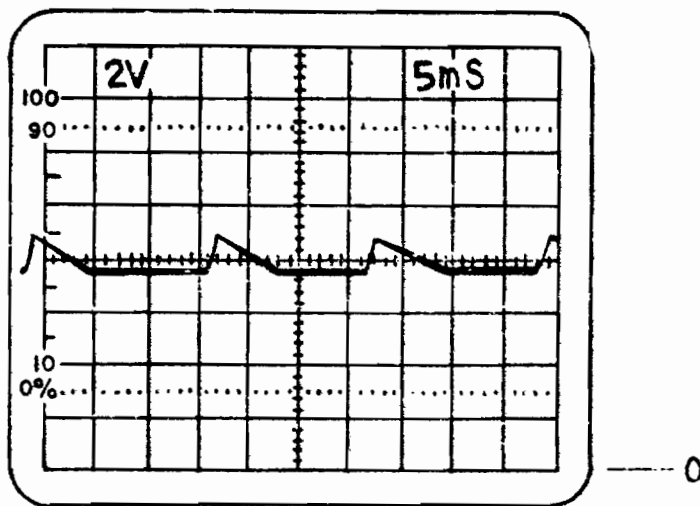
<b>commodore</b>		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE	321447	REV
A		A
SCALE NAME	SHEET 3 OF 10	

VERTICAL (1/3)

5



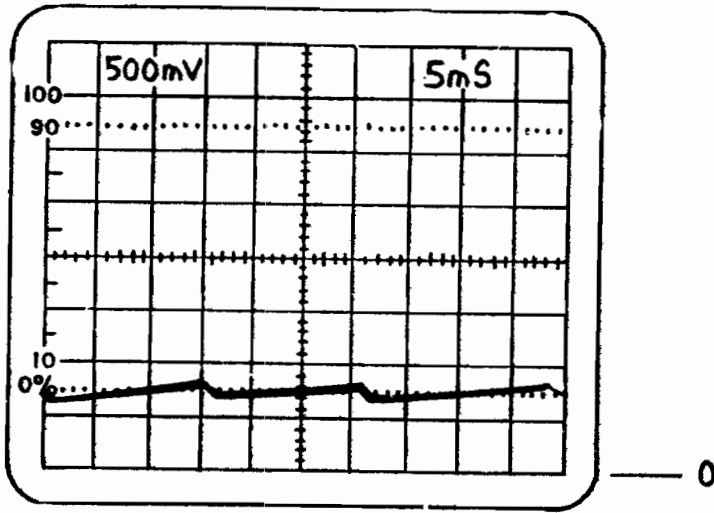
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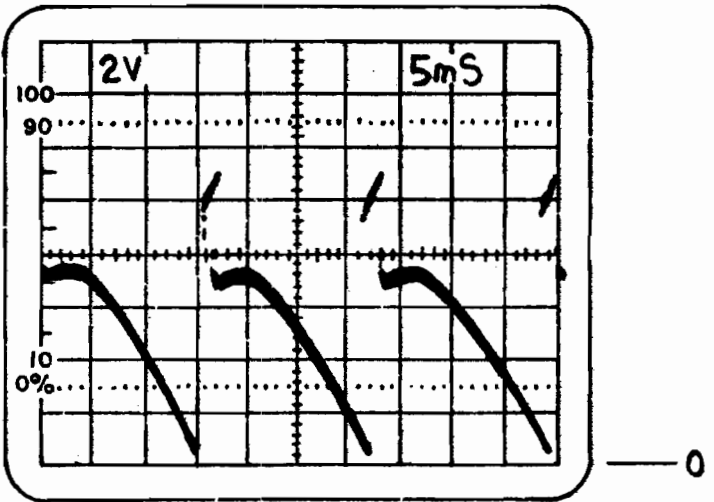
<b>commodore</b>		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE A	321447	REV A
SCALE NONE	SHEET 4	OF 10

# VERTICAL (2/3)

7



8

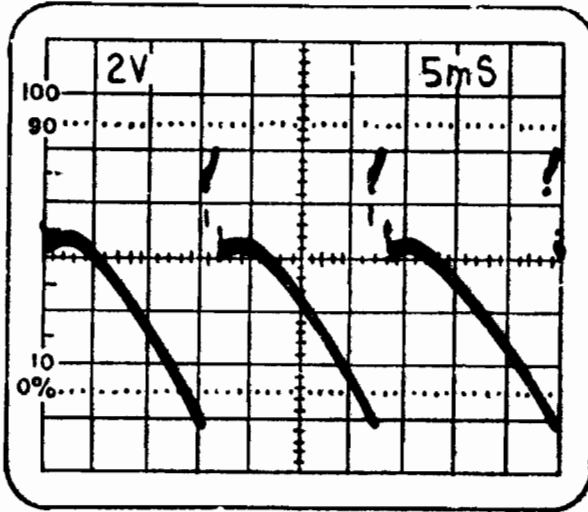


<b>commodore</b>		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE	321447	REV
A		A
SCALE	NONE	SHEET 5 OF 10



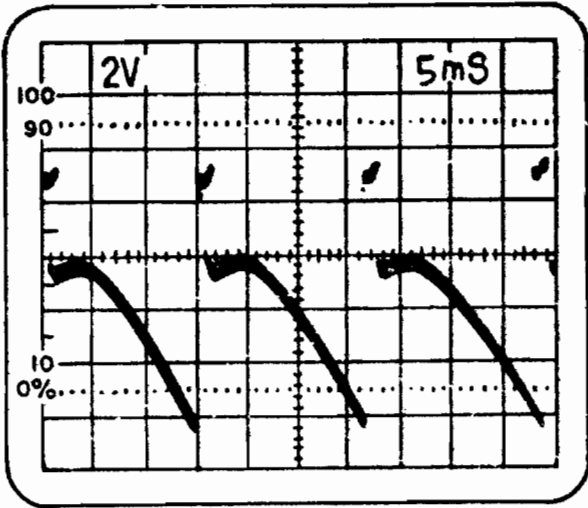
VERTICAL (2/3)

9



— 0

10

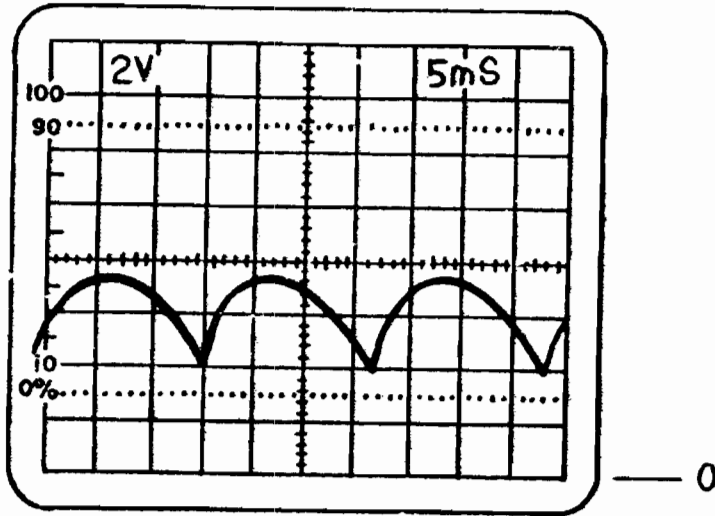


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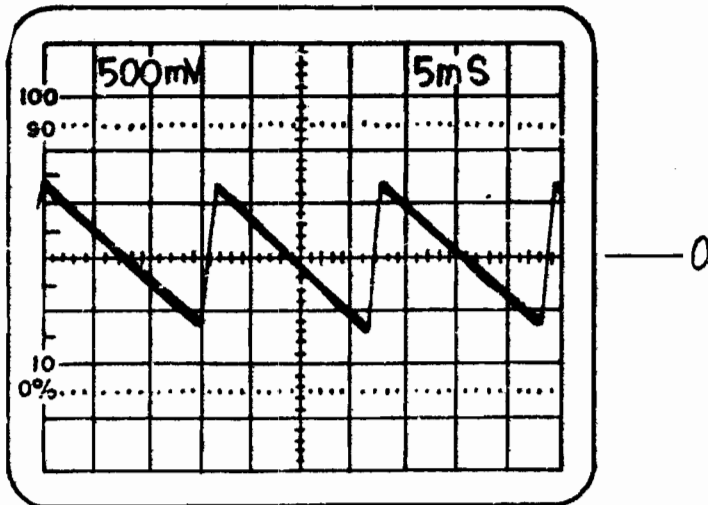
<b>commodore</b>		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE	321447	REV
A		A
SCALE NONE	SHEET 6	OF 10

VERTICAL (3/3)

11



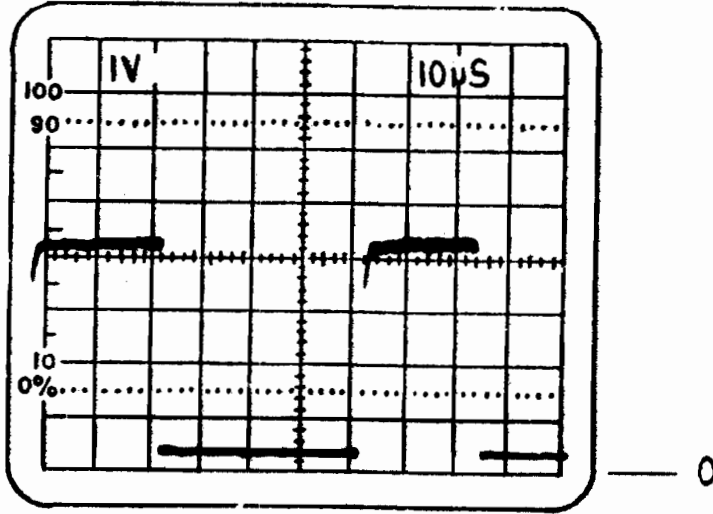
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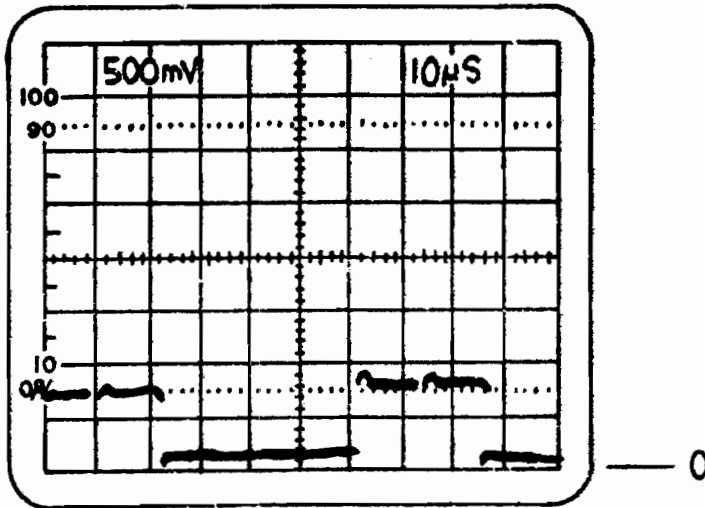
<b>commodore</b>		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE A	321447	REV A
SCALE NONE	SHEET 7	OF 10

HORIZONTAL (1/2)

13



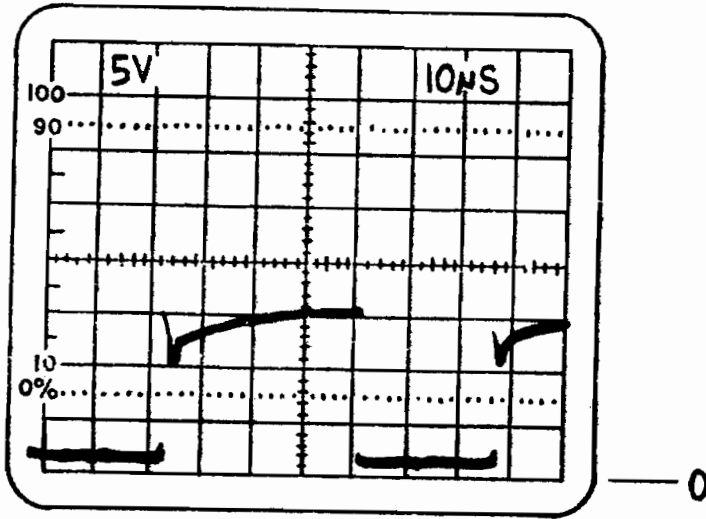
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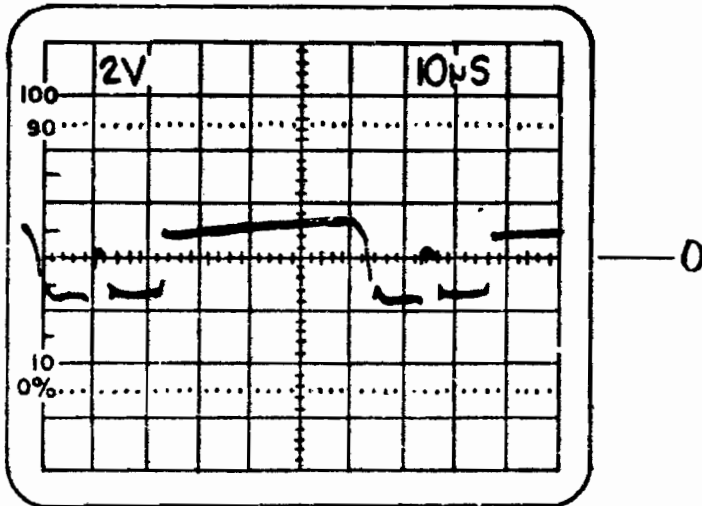
<b>commodore</b>		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE A	32447	REV A
SCALE NONE	SHEET 8	OF 10

HORIZONTAL (1/2)

15



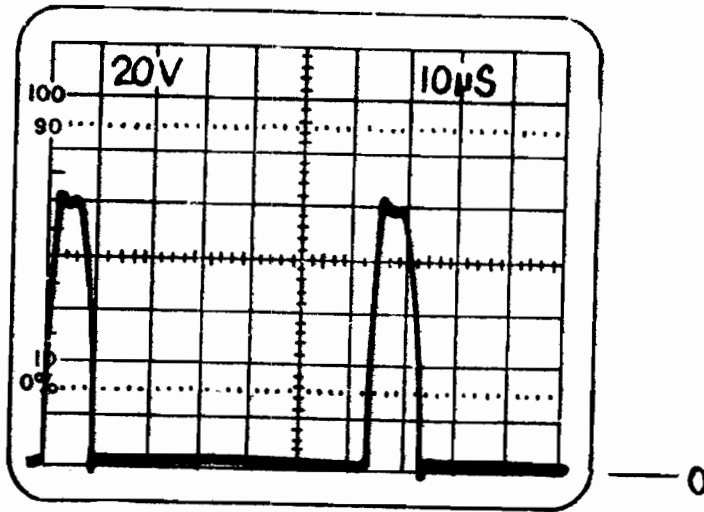
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<b>commodore</b>		
PCB WAVEFORMS 9" CRT DISPLAY		
SIZE	321447	REV
A		A
SCALE NONE	SHEET 9	OF 10

HORIZONTAL (1/2)

17



<b>commodore</b>		
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

<b>commodore</b>	TITLE	DYNAMIC PET PC BOARD ASSY		DRAWN BY	G. CARROLL	DATE	1-16-79	ENGR D. GARLD	1-18-79	SIZE	1-11-14	DRAWING NUMBER	320351
				CHKD	B. SEILER			APPR	T. WATA	B		SHEET	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		
1	1	1	1	1	1	1	1	1	1	1	1	14						
3	3	3	3	3	3	3	3	3	3	3	3	15	B	901525-09	74574 FLIP-FLOP	UH1,UG8,UB9		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	UF5,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	901521-25	74LS164 8-BIT PARALLEL COUNTER	UF6,UA4		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.	UE11		
8	8	8	8	8	8	8	8	8	8	8	8	29	B	901521-13	74LS244 BUFFER	UF3,UC3		
1	1	1	1	1	1	1	1	1	1	1	1	30	B	901522-26	74LS153 DATA SELECTOR MULTIPLEX.	UE7,UE8		
2	2	2	2	2	2	2	2	2	2	2	2	31	B	901521-29	74LS373 OCTAL D-TYPE LATCH	UE9,UE6		

TITLE: **COMMODORE DYNAMIC PET P.C. BOARD ASSEMBLY**  
 DRAWN BY: \_\_\_\_\_  
 CHECKED: \_\_\_\_\_  
 DATE: \_\_\_\_\_  
 SCALE: \_\_\_\_\_  
 SHEET NO: **320351** OF **2**

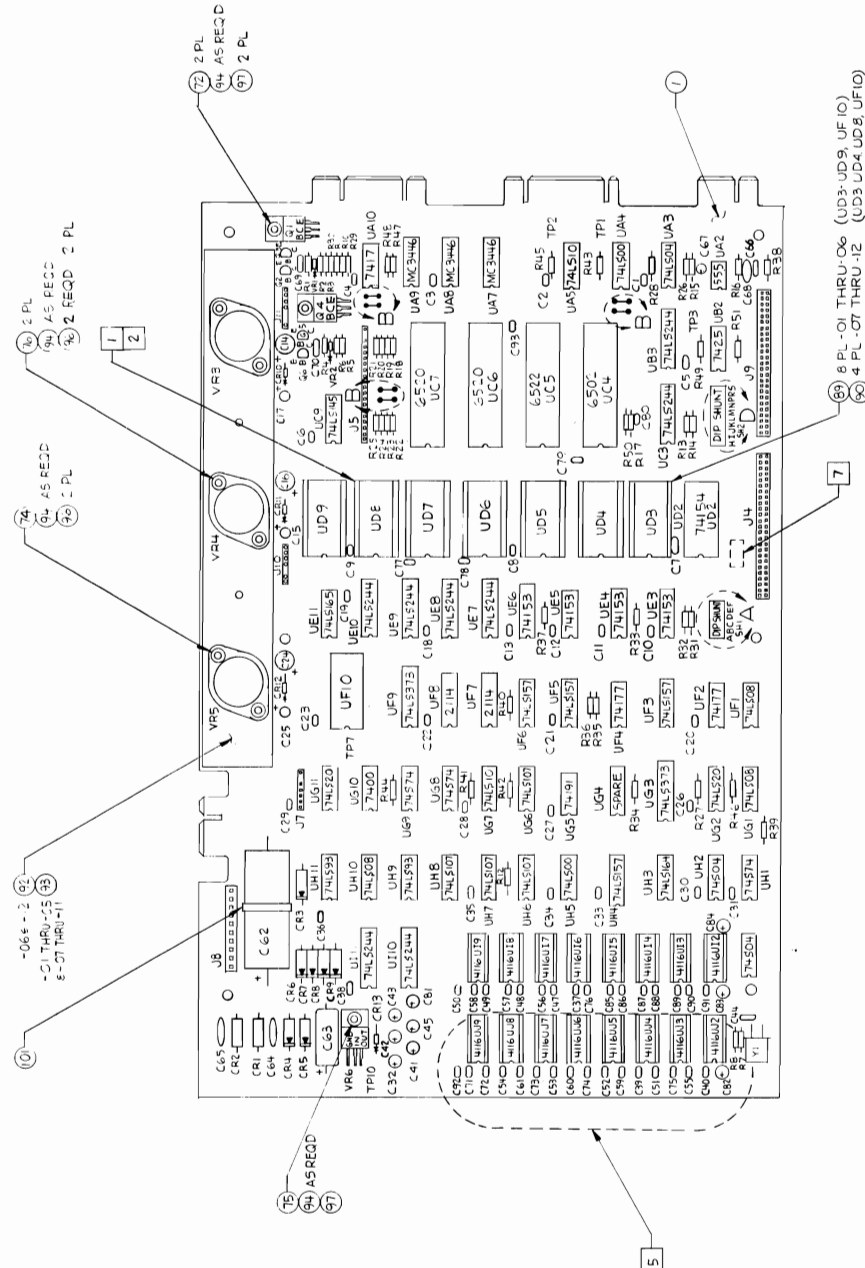
QUANTITY RECD PER PART / DASH NO.		8	PART NUMBER	DESCRIPTION	REF DES	RENO	NOTES										
12	11							10	9	9	9	9	8	7	6	5	4
12	11	10	9	9	9	9	9	8	7	6	5	4	3	2	1	UF1-UB	400 NSEC
2	2	2	2	2	2	2	2	B	901453-02	1C RAM 4K STATIC	UF1-UB					UF1-UB	SEE ITEM 108 OR 109 FOR SUBSTITUTE
-	8	8	8	-	8	8	8	B	901470-01	4116 RAM 16K DYNAMIC	UIZ-UI9					UIZ-UI9	
-	8	8	8	-	8	8	8	B	901470-01	4116 RAM 16K DYNAMIC	UIZ-UI9					UIZ-UI9	
1	1	1	1	1	1	1	1	B	901447-10	6316-004 ROM (CHAR. GEN.)	UF10					UF10	
-	-	-	-	-	-	-	-	B	901447-24	6316-011 ROM (E000-E1EE)	UD8					UD8	
-	-	-	-	-	-	-	-	B	901465-01	6372-007 ROM (E000-C1FF)	UD6					UD6	
-	-	-	-	-	-	-	-	B	901465-02	6372-008 ROM (D000-D1FF)	UD1					UD1	
-	-	-	-	-	-	-	-	B	901465-03	6372-009 ROM (E000-F1FF)	UD9					UD9	
-	-	-	-	-	-	-	-	B	901474-01	6316-024 ROM (CHAR. GEN.)	UD8					UD8	
1	1	1	1	1	1	1	1	B	901523-01	LM555 TIMER	UA7					UA7	
3	3	3	3	3	3	3	3	B	901524-01	MC 3446 INTFC BUS	UA7-UA9					UA7-UA9	
3	3	3	3	3	3	3	3	B	900010-36	CAPACITOR CERAMIC 0.01UF 50V	C66-C69,70					C66-C69,70	
2	2	2	2	2	2	2	2	B	900010-37	CERAMIC 0.02UF 200V	C64,65					C64,65	
1	1	1	1	1	1	1	1	B	900150-07	POLY. FILM 0.1 UF 100V	C68					C68	
1	1	1	1	1	1	1	1	B	900010-47	CERAMIC 22PF 200V	C44					C44	
1	1	1	1	1	1	1	1	B	900101-38	ELECT. 470UF 16V	C63					C63	
3	3	3	3	3	3	3	3	B	900100-33	ELECT. 47UF 16V	CA,16,24					CA,16,24	
1	1	1	1	1	1	1	1	B	900101-40	ELECT. 4700UF 25V	C62					C62	
5	5	5	5	5	5	5	5	B	900020-01	DIPPED CERAMIC 0.1UF 50V	C1-C13					C1-C13	
4	4	4	4	4	4	4	4	B	900402-13	TANT. 1.0UF 25V	C18-C23					C18-C23	
9	9	9	9	9	9	9	9	B	900108-31	CAPACITOR, ELEC. LOW LEAKAGE 10UF 25V	C26-C31					C26-C31	
4	4	4	4	4	4	4	4	B	900750-01	DIODE IN4001 1A/50V	C33-C40					C33-C40	
9	9	9	9	9	9	9	9	B	900153-01	IN540Z 3A/200V	C47-C61					C47-C61	
2	2	2	2	2	2	2	2	B	900941-01	ZENER 7.5	C71-C80					C71-C80	
5	5	5	5	5	5	5	5	B	900750-05	DIODE IN4005	C85-C93					C85-C93	
2	2	2	2	2	2	2	2	B	901550-69	RESISTOR 1/4W 5% 1.5K OHMS	C15,17,25,67					C15,17,25,67	
10	10	10	10	10	10	10	10	B	901550-70	" " 10K OHMS	C32,41,42, 43,45,					C32,41,42, 43,45,	
4	4	4	4	4	4	4	4	B	900750-01	DIODE IN4001 1A/50V	C81-C84					C81-C84	
9	9	9	9	9	9	9	9	B	900153-01	IN540Z 3A/200V	CR10-13					CR10-13	
2	2	2	2	2	2	2	2	B	900941-01	ZENER 7.5	CR1-9					CR1-9	
5	5	5	5	5	5	5	5	B	900750-05	DIODE IN4005	VR1,2					VR1,2	
2	2	2	2	2	2	2	2	B	901550-69	RESISTOR 1/4W 5% 1.5K OHMS	CR10-13					CR10-13	
10	10	10	10	10	10	10	10	B	901550-70	" " 10K OHMS	R1, R4					R1, R4	
								B			R2, R6					R2, R6	
								B			R18-R75					R18-R75	

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

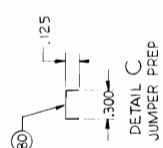


REV	QTY	REQD	PER	PART	DASH	NO.	REF	DES	DESCRIPTION	REF	DES	BEND	NOTES
12	11	09	08	07	06	05	04	03	02	01			
14	14	14	14	14	14	14	14	14	14	14	14	14	14
2	2	2	2	2	2	2	2	2	RESISTOR 1/4W 5% 1K OHMS	R3, R5, R12, R1A, R27, R40, R42, R46, R49, R51 R15, R16 R10, R48			
2	2	2	2	2	2	2	2	2	1M				
2	2	2	2	2	2	2	2	2	2.7K				
2	2	2	2	2	2	2	2	2	3.3K				
2	2	2	2	2	2	2	2	2	3.9				
2	2	2	2	2	2	2	2	2	4.7K				
2	2	2	2	2	2	2	2	2	6.8				
2	2	2	2	2	2	2	2	2	5.1K				
2	2	2	2	2	2	2	2	2	RESISTOR 1/4W 5% 270 OHMS	R7, R8			
2	2	2	2	2	2	2	2	2	TRANSISTOR NPN 2N3904	Q3, Q6			
2	2	2	2	2	2	2	2	2	" NPN 2N4401	Q7, Q5			
2	2	2	2	2	2	2	2	2	TRANSISTOR NPN 1N719	Q1, Q4			
2	2	2	2	2	2	2	2	2	VOLT. REG. 7812 +12V / 1A - TO-3	VR5			
2	2	2	2	2	2	2	2	2	" " 7805 -5V / 1A - TO-220	VR6			
2	2	2	2	2	2	2	2	2	VOLT. REG. LM 340-5 +5V 1.5A TO-3	VR3, VR4			FOR SUBSTITUTE SEE ITEM 77
2	2	2	2	2	2	2	2	2	VOLT. REG. LM 323	VR3, VR4			SUBSTITUTE FOR ITEM 76
2	2	2	2	2	2	2	2	2	DIP SHUNT 10 PACK	SHZ			16
2	2	2	2	2	2	2	2	2	DIP SHUNT 6 PACK	SH1			6
2	2	2	2	2	2	2	2	2	JUMPER	SH1, SH2			6
2	2	2	2	2	2	2	2	2	HEADER ASSY. POLARIZED (100) 20 PIN	J5			SEE ITEM 117 FOR SUBSTITUTE
2	2	2	2	2	2	2	2	2	" POLARIZED (100) 7 PIN	J11			SEE ITEM 118 FOR SUB. PIN 2 OMITTED, REMOVE PIN 3 AT ASSY
2	2	2	2	2	2	2	2	2	(100) 7 PIN	J10			SEE ITEM 119 FOR SUB. REMOVE PIN 3 AT ASSY
2	2	2	2	2	2	2	2	2	POLARIZED (100) 7 PIN	J7			SEE ITEM 120 FOR SUB. ORIENT OMITTED PIN TO POSITION
2	2	2	2	2	2	2	2	2	HEADER ASSY (156) 9 PIN	J8			SEE ITEM 121 FOR SUB. REMOVE PIN 7 AT ASSY
2	2	2	2	2	2	2	2	2	HEADER ASSY. POST, STRAIGHT, DUAL ROW, 100 CENTERS, J4, J9	J4, J9			50 PIN
4	4	4	4	4	4	4	4	4	IC SOCKET 24 PIN	UD3-UD9, U10			SEE ITEM 90 FOR SUBSTITUTE
5	5	5	5	5	5	5	5	5	IC SOCKET 24 PIN	UD3-UD9, U10			SUBSTITUTE FOR ITEM 89
TITLE: DYNAMIC PET P.C. BOARD ASSEMBLY													REV: 370 351
DATE: _____													SHEET: 3
DRAWN BY: _____													APPR: _____
CHKD: _____													ENG: _____





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 108
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
6 PIN	DETAIL A SH1
10 PIN	DETAIL A SH2

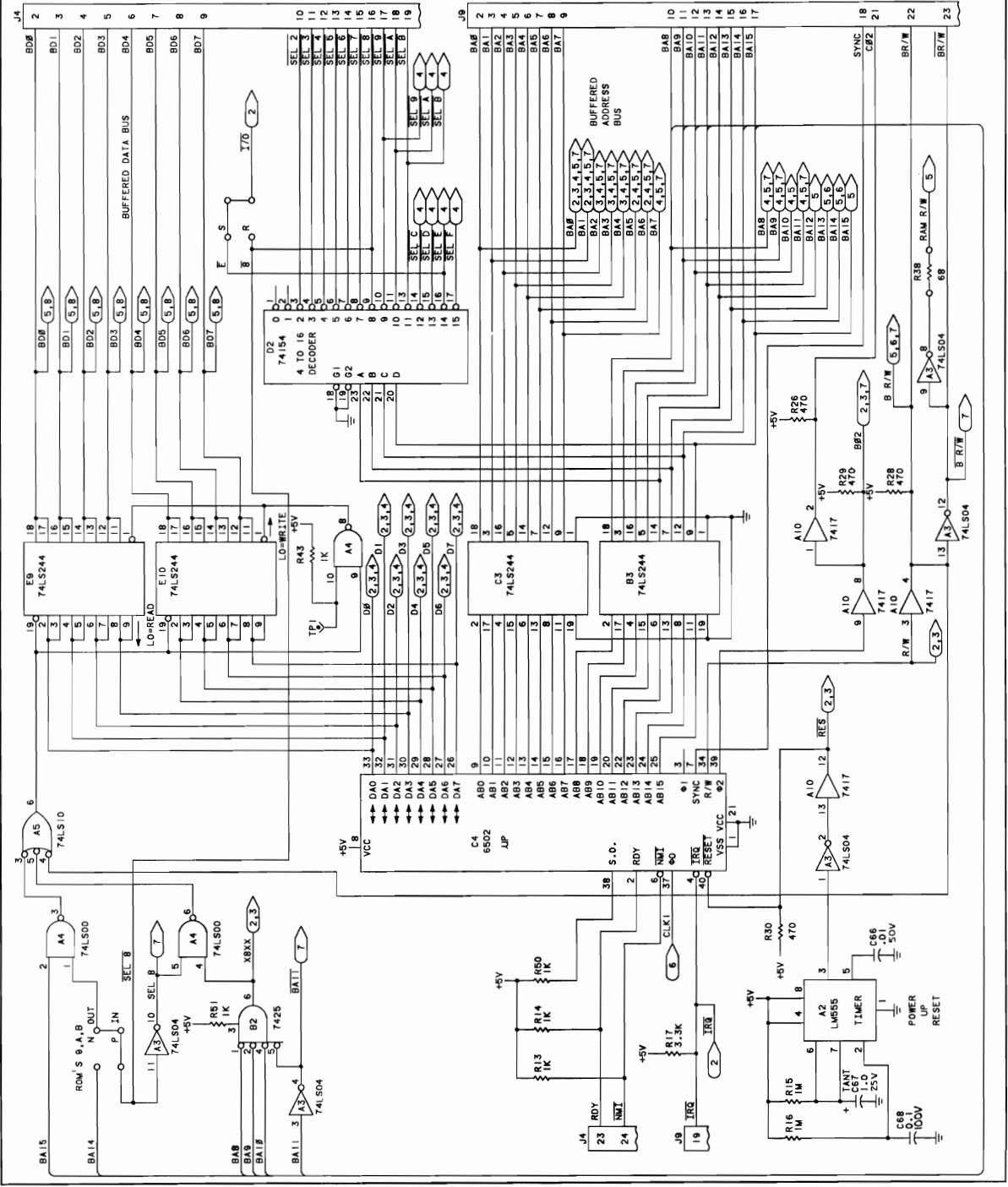


commodore  
 DYNAMIC PET  
 P.C. BOARD ASSY  
 320351  
 320465  
 SCALE: FULL SHEET 1 OF 6

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

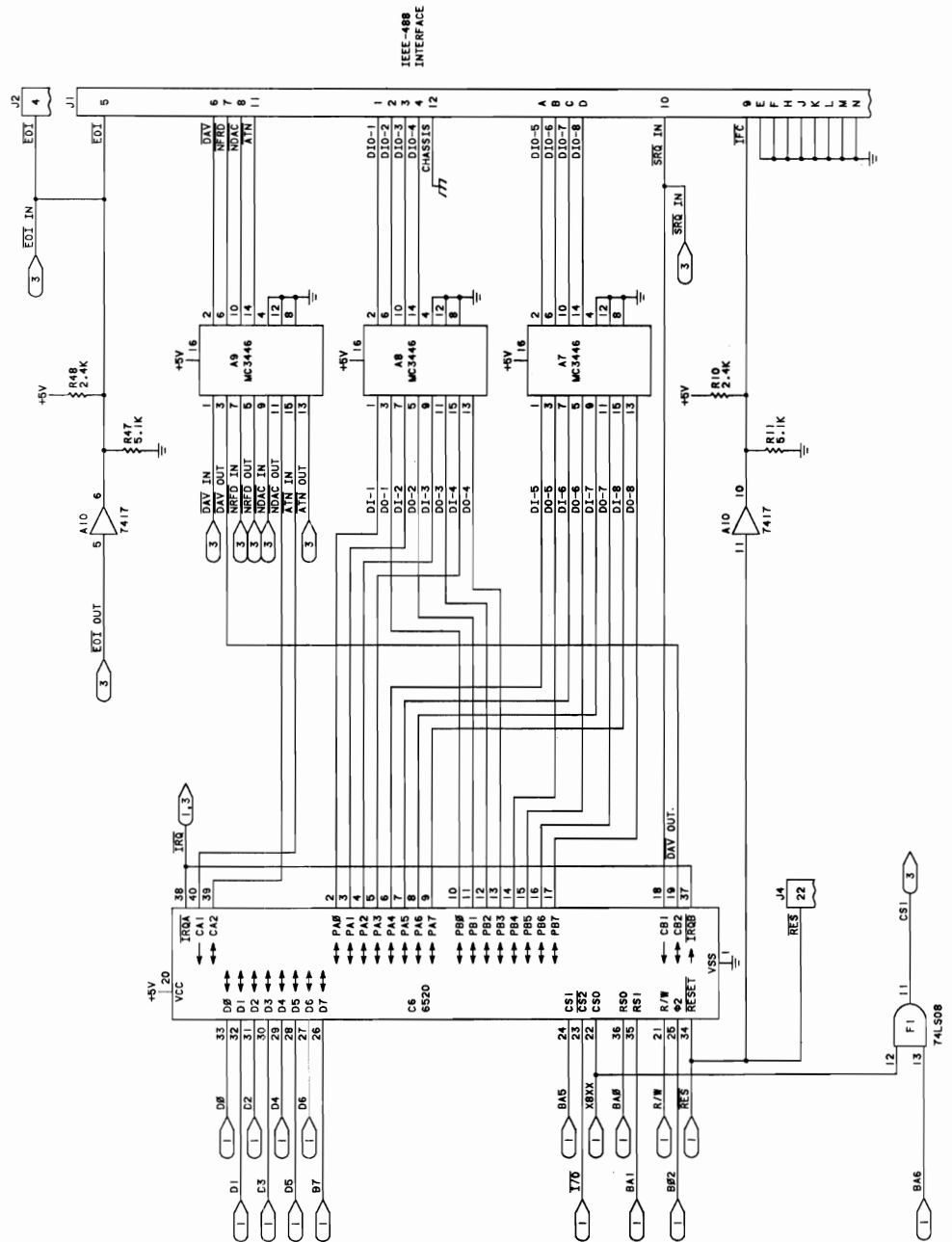
MEMORY EXPANSION



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
LTP	ISSUE		
SEE SHEET 1			

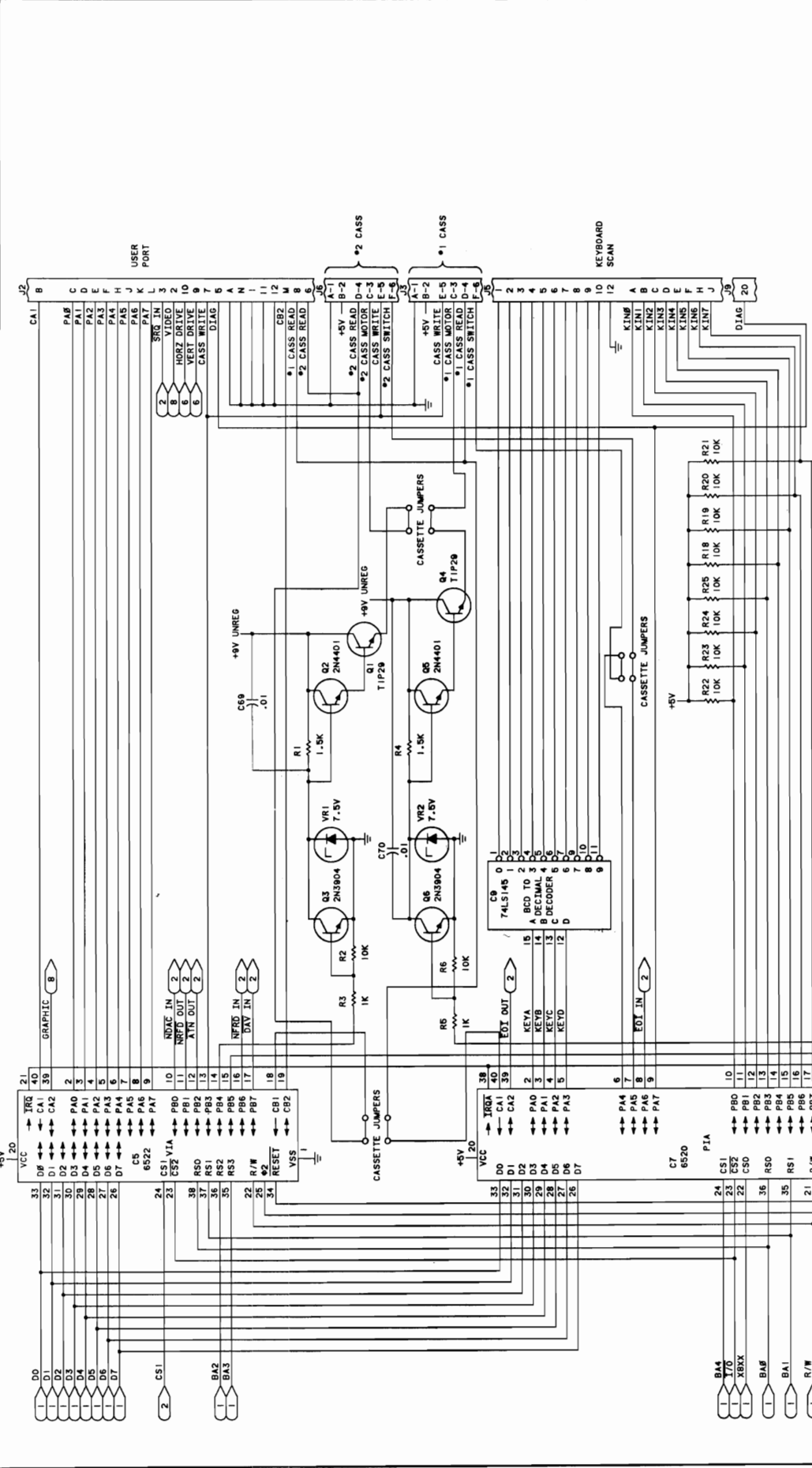


IEEE-488  
INTERFACE

DESIGNED BY		DATE	SCALE	SHEET 2	OF 9
UNIVERSITY MICROFILMS	INTERNATIONAL				
DRAWN BY					
CHECKED BY					
APPROVED BY					
USED ON					
PART NO.					
MATERIAL					
TITLE					
PART NO.					
SCALE					
SHEET 2					
OF 9					

commodore  
LOGIC DIAGRAM  
DYNAMIC PER  
IEEE-488 INTERFACE  
PART NO. 320349  
SCALE  
SHEET 2 OF 9

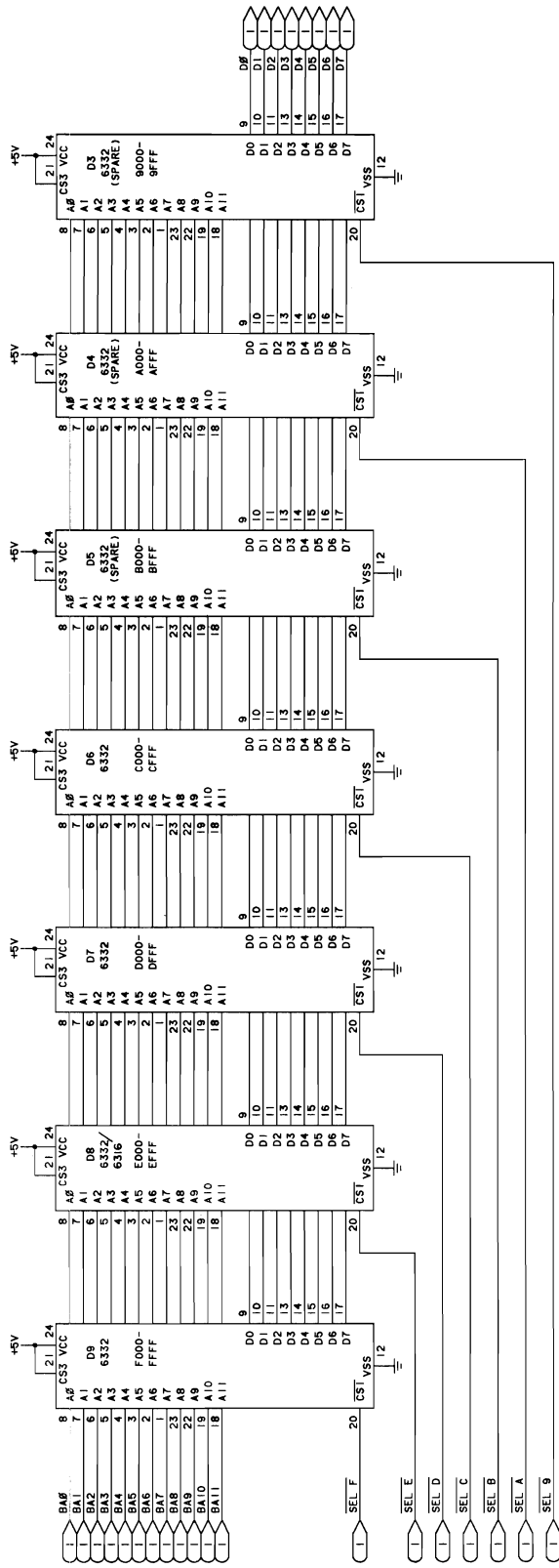
REVISIONS		DATE	APPROVED
1	DESCRIPTION		
2	SEE SHEET 1		



DESIGNER	DATE
CHECKED	
APPROVED	
USED ON	NET 350
MATERIAL	

**commodore**  
 LOGIC DIAGRAM  
 DYNAMIC PET  
 CASSETTE & KEYBOARD  
 PART NO. 320349  
 SCALE 1:1 SHEET 3 OF 8

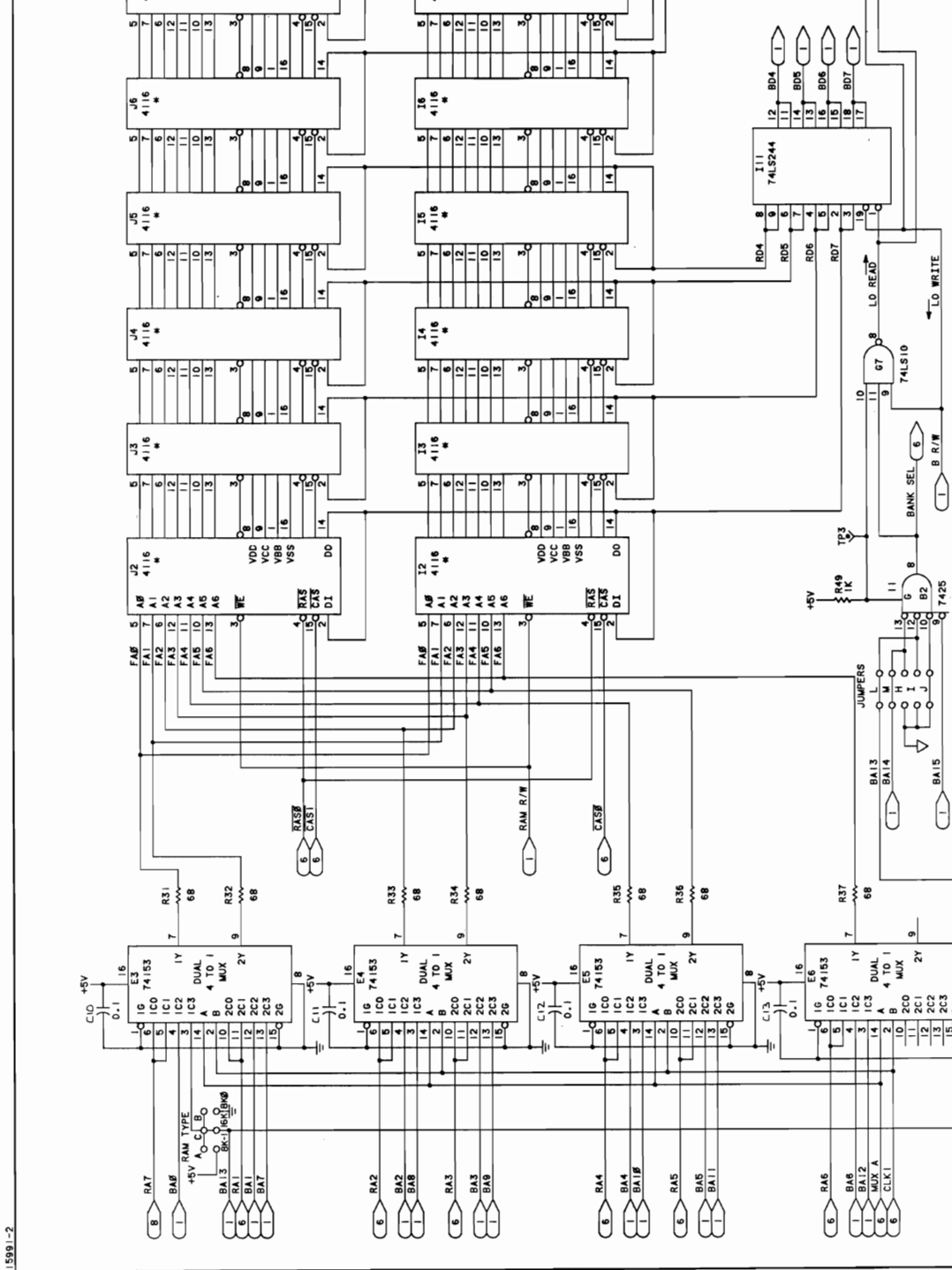
LYR ZONE	REVISIONS
	DESCRIPTION
	DATE
	APPROVED
	SEE SHEET 1



DESIGNED BY	DATE
CHECKED	
APPROVED	
USED ON	NET USE
MATERIAL	
SCALE	SHEET 4 OF 9
REV	E
SIZE	D
320349	

**commadore**  
 LOGIC DIAGRAM  
 DYNAMIC PET  
 ROMS

REVISIONS	
LTR	DATE
1	SEE SHEET 1



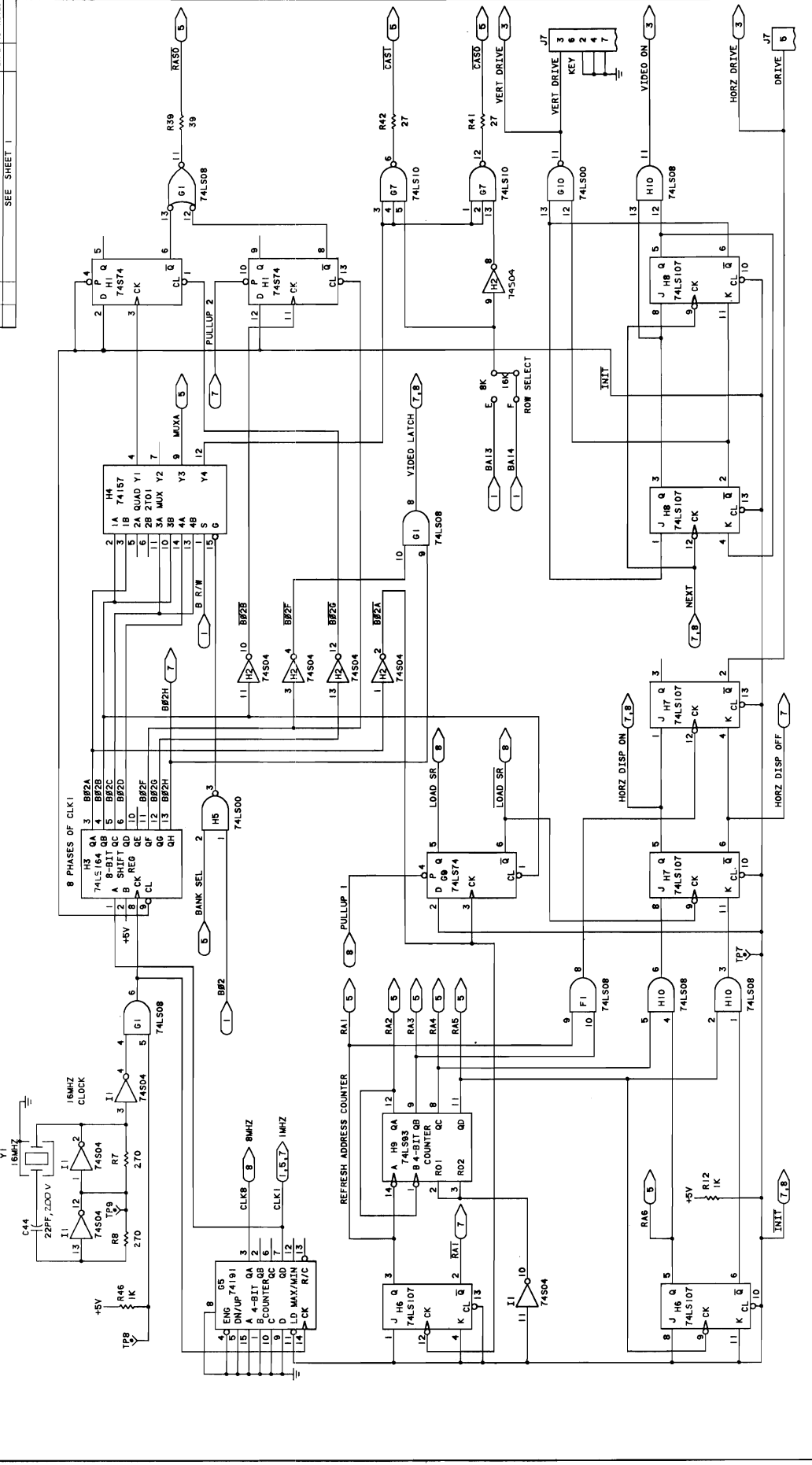
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UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED	UNLESS OTHERWISE SPECIFIED

commodore			
LOGIC DIAGRAM			
DYNAMIC PET			
RAMS			
REV	DATE	SCALE	SHEET
E	3.20.349		3 OF 3

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



REVISIONS	
REV.	DATE
1	SEE SHEET 1
2	APPROVED



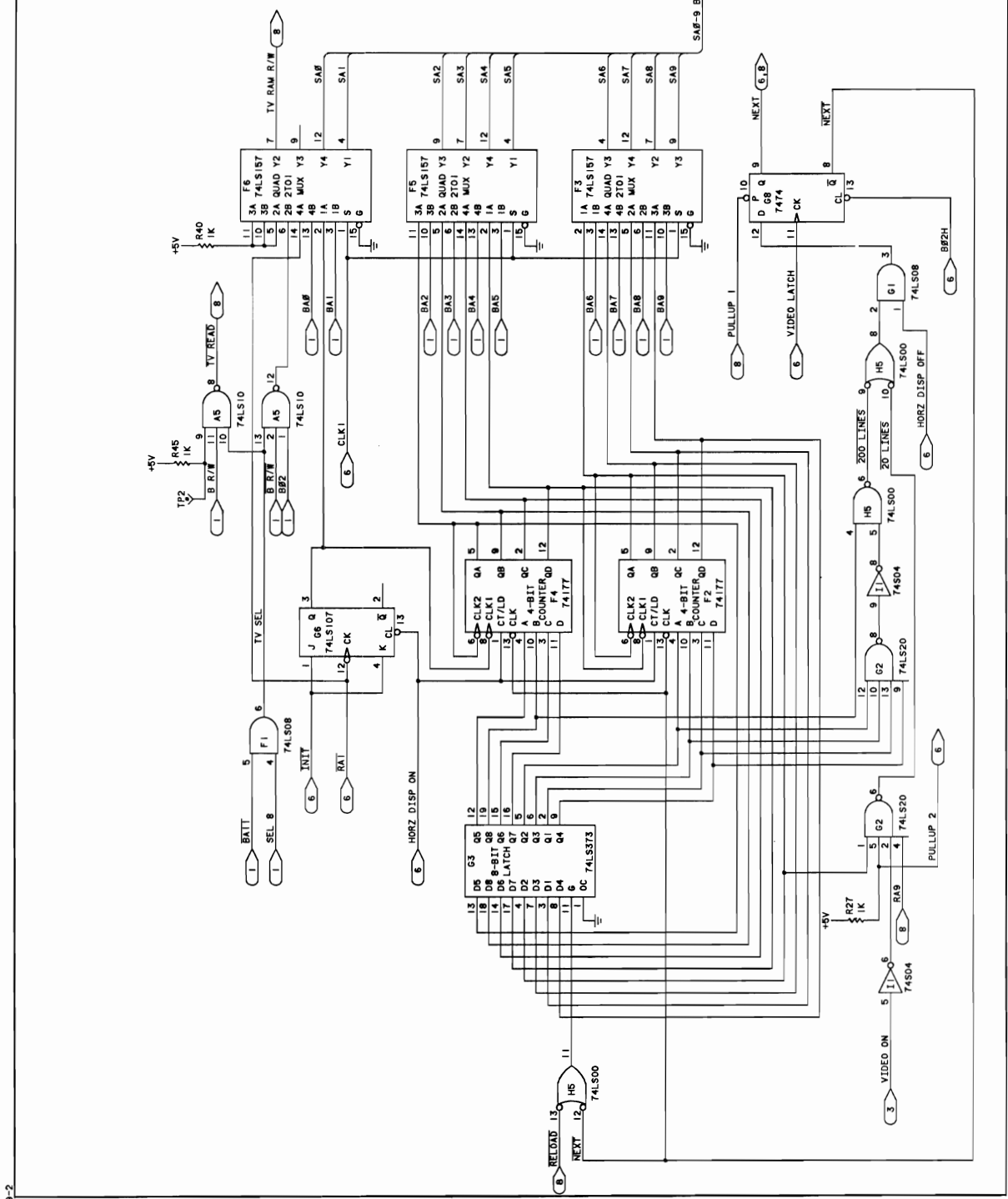
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TITLE:		SHEET NO.:	
PROJECT NO.:		SHEET 6 OF 9	
DRAWING NO.:		SCALE:	
REV. NO.:		REVISION:	
REV. 1:		REV. 1: LOGIC DIAGRAM	
REV. 2:		REV. 2: DYNAMIC PET	
REV. 3:		REV. 3: MASTER TIMING	
REV. 4:		REV. 4: E	
REV. 5:		REV. 5: 320349	
REV. 6:		REV. 6: D	

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LOGIC DIAGRAM  
DYNAMIC PET  
MASTER TIMING

DATE: 1987.06  
REV. 6 OF 9

REV. NO.	DESCRIPTION	DATE	APPROVED
1	SEE SHEET 1		

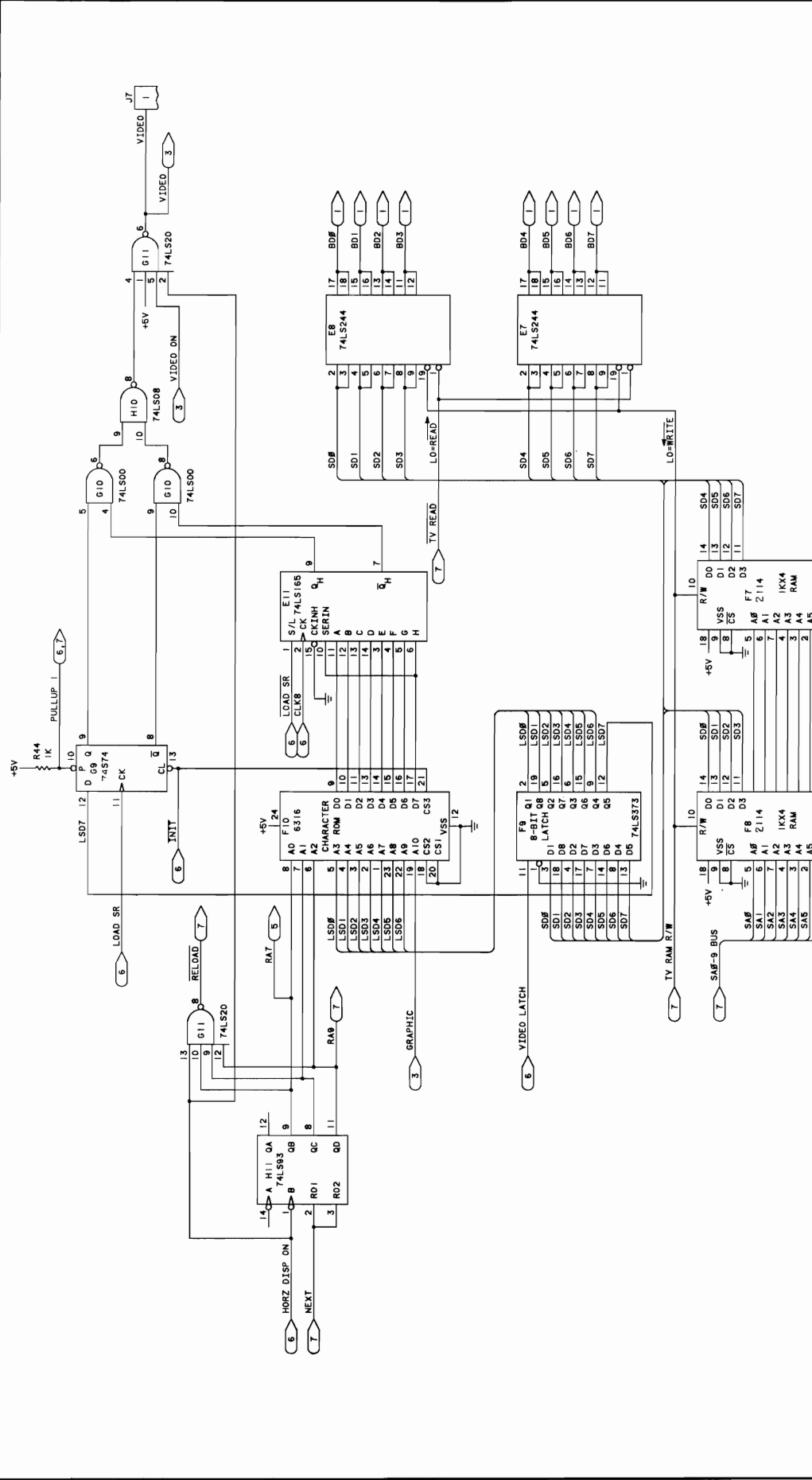


DESIGNED BY	DATE
CHECKED BY	DATE
APPROVED BY	DATE
USED ON	PROJECT
PRINTED	SCALE

**COMMADORE**  
 LOGIC DIAGRAM  
 DYNAMIC PET  
 DISPLAY LOGIC  
 SIZE D 320349 REV E  
 SCALE SHEET 7 OF 9

7/15989-2

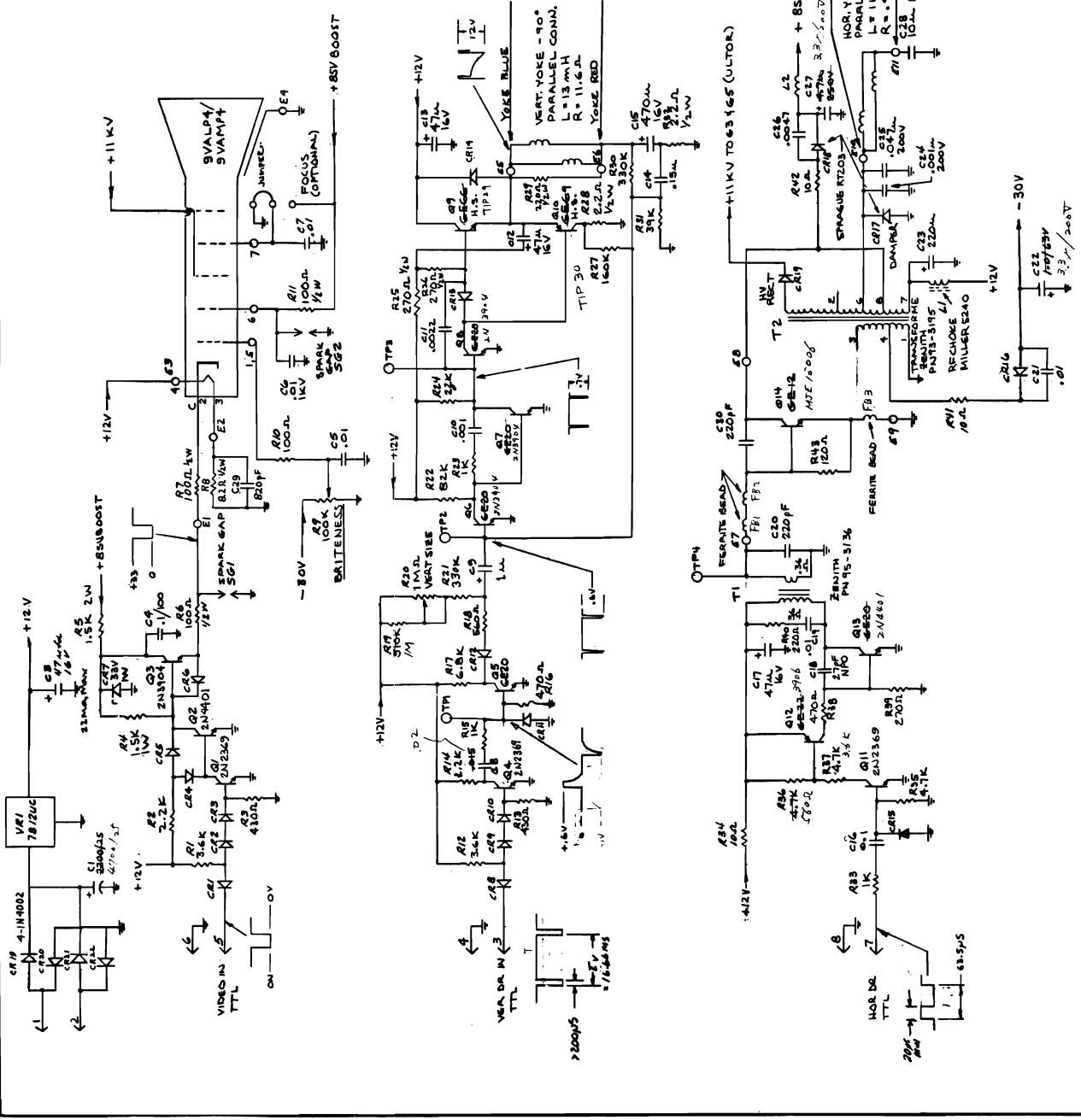
REVISIONS	
LYR ZONE	DESCRIPTION
	SEE SHEET 1
	DATE
	APPROVED



DESIGNED BY	
CHECKED BY	
APPROVED BY	
DATE	
SCALE	
SHEET	B OF 9
REV	E
SIZE	D
LOGIC DIAGRAM	
DISPLAY RAMS	
320349	

15980-2

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- 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.

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