

8050 FLOPPY DISK

ALIGNMENT DISKETTE

Below are listed some items that have been corrected in the factory, but may still exist in the field:

1. Plastic standoffs that mount the drive should be 0.375 inches. Some machines have 0.500 inch standoffs. These can be detected by observing if there is interference between the disc bezel and the sheet metal of the cabinet. If there is interference, change to shorter standoff.

NOTE: Use only three (3) screws, with 3 flat washers, (2 in rear, 1 in front) to secure the drive to the base. Using 4 screws will throw drive out of alignment.

Drive Belts

Drive belts should have "shiny" or "black" side "in", ie: contact side.

Door Switch

Insure when closing door the motor spins screwing disc into hub. If switch is loose or adjusted wrong, disc will not be centered onto hub.

Test/Demo Disc

Make sure diskettes are inserted and door closed. If door is not closed while formatting, a "21" error will be reported.

Loading a Diskette

Do not "play" with door. Insert diskette and firmly close door. Do not tease it like 2040/3040.

Alignment

Before aligning a drive, check with a Test/Demo diskette.

Can you read on both drives? y/n

N - Check drive speed 200 Miliseconds/Rev. y/n

N - Adjust drive speed to 200 Miliseconds/Rev. Recheck if you can read Diskette.

Y - Copy demo diskette from 0 1. Can you read new diskette on both drives? y/n

N - Check drive speed 200 Miliseconds/Rev

Y - You have eliminated the drives as a problem.

COMPTON

ENGINEERING
CHANGE ORDER

ECO NO. 1773
RELEASE DATE 2/2/73

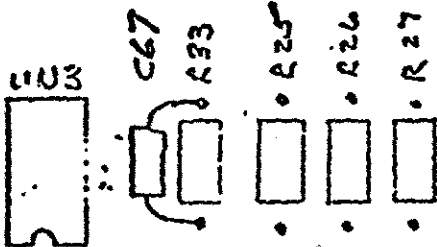
SIZE 2 1/2	DOCUMENT NO. 845442	CUR. REV F	NEW REV G	TITLE : P.C.B ASSY FLOPPY DIGITAL
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USED ON (MODEL) 8454	ECO TYPE <input checked="" type="checkbox"/> REGULAR <input type="checkbox"/> RECORD CHANGE <input type="checkbox"/> TEMPORARY	REASON FOR CHANGE : FIX RICE CONDITION FROM GER FOM (4K6) AND RIPPLE ENERGY (4K5)
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CHANGE DISPOSITION	REMARKS OR INSTRUCTIONS	EFFECTIVITY
<input type="checkbox"/> USE AS IS		AS OF SIGL OFF DATE OF THIS E.C.O
<input checked="" type="checkbox"/> REWORK PARTS		
<input type="checkbox"/> SCRAP PARTS		
<input type="checkbox"/> RETURN TO INVENTORY		

DESCRIPTION OF CHANGE :

ADD 200pF (P/N 944462-44) AS SHOWN BELOW.



**REFERENCE
COPY**

REWORK INSTRUCTIONS:

SOLDER LEADS OF C67 TO
LEADS OF R33 AS SHOWN ABOVE.

DRAFTER/DATE	ENG/DATE	PROD. CONT/DATE	APPROVAL/DATE	DOC. CONTROL/D
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MICROPOLIS DRIVE ALIGNMENT

Radial head alignment of the 8050 Micropolis drive unit is accomplished in the same general manner as for the 2040 Shugart drive - i.e: the stepper is positioned to the alignment track, and the head is then adjusted for correct lobe amplitudes of the "cat's eye" pattern.

The essential difference between the 8050 and the 2040 is the higher track and bit density of the 8050. This higher density makes adjustment quite difficult and, as such, re-alignment of the 8050 drive should not be attempted unless absolutely necessary and only if the technician is thoroughly familiar with head alignment procedures and pitfalls.

Following is the procedure for alignment of the 8050
Micropolis drive unit:

A. The following tools will be required:

- a). Commodore 8050 Alignment Disk.
- b). Formatted 8050 Disk Named "AC".
- c). #2 Phillips Screw Driver.
- d). 3/32 and 7/64 Hex Socket Wrenches.
- e). 1/4 inch Open End Wrench.
- f). Dual Channel Oscilloscope.

B. Remove the drive from the system case, noting the location of the mounting screws. (If drive 0 is to be re-aligned, remove first the analog board and head shield board).

C. Fabricate and connect extension cables for the drive signals (stepper, drive, door switch and head).

D. Load the program "Microp Adjust" into the PET computer.

E. Attach two oscilloscope probes, differentially added at 20 MV/CM, to test points TP1 and TP2 on the analog board. Sync the scope (AC, positive going edge) at pin 21 of UK3 on the digital board.

F. Run the adjustment program, following carefully all procedures as listed on the computer screen.

G. Following are notes on some of the test steps:

1). Step 1 - If this drive is to be checked only, this step should be skipped. This will allow verification of alignment without disturbing the setting of the collar.

2). Step 2 - The door switch adjustment is very critical as this switch runs the drive motor while the disk is being seated. If the motor does not run sufficiently, the disk will be misaligned.

3). Step 4 - The belt test checks for spindle speed variation between two successive revolutions caused by belt slippage. This slippage has caused formatting errors. Check for the "Black/Shiny" side of belt "in". If it is not, correct same belt and retest. If it still fails, replace belt and retest.

4). Step 6 - In this step, if the lobe height differential is and remains within 20% after any hysteresis step, the drive has acceptable alignment. If the differential exceeds 20%, then the drive should be re-aligned.

Due to the variances between alignment disks, re-alignment of a drive must be done to the accuracy directed in this step. Failure to do so will result in the destruction of valuable data when writing on either misaligned drives or disks.

The stepper limit plate must be removed to gain access to the left stepper mount screw. This plate must be re-instated at a distance of $1/16 \pm 1/32$ inch after alignment.

The object of alignment is to obtain balanced lobe height differentials after each hysteresis step

(i.e: not only must the differential be less than 15%, but the differential must "change sides" and have the same absolute value (within 5%) after each hysteresis step). For example, if the values after an hysteresis step are left lobe 7cm and right lobe 6.5cm (differential = 7.1%), then after the next successive hysteresis step the lobes must have a differential height of -12% to - 2% (right lobe higher).

This step must be reiterated sufficiently (including "bumping" to normalize the mechanics) to insure correct alignment.

Note that when the stepper screws are tightened, the alignment will shift approximately 5% (left lobe will be an additional 5% higher than right after the screws are tightened). The alignor must compensate for this by making the left lobe slightly lower before tightening the screws.

5). Step 8 - Hold the collar against the stop during tightening. This is critical to the correct location of Track 1.

6) Step 9 - The "AC" Disk is a formatted 8050 disk that will verify that the drive can read and write on a standard disk. This disk should be formatted on a known good alignment drive.

SUMMARY OF DRIVE 0

NUMBER OF PASSES: 3
TOTAL ERRORS= 0
COUNTABLE ERRORS= 0
FIRST PASS RETRIES= 0

SUMMARY OF DRIVE 1

NUMBER OF PASSES: 1
TOTAL ERRORS= 19
COUNTABLE ERRORS= 3
FIRST PASS RETRIES= 22

TRACK	ERRORS	1ST RETRIES
4	8	0
15	9	9
32	2	13

ERROR TYPE (2-16): 0 17 0 0 0 0 0 0 0 0 0 0 0 0 2

ERROR TIME: 19

RECOVERY COUNT:
16 0 0 0 1 0 0 0 0 2

OK BY ME.
CJET

SOFT ERROR TEST

I). INTRODUCTION

The soft error test exercises a disk system for a prolonged interval to check for errors. The program runs both 2040 (any DOS version) and 8050 systems from any computer.

In addition to the soft error tests, the program also tests disk quality, drive speed, belt quality and provides an error log reader.

All descriptions following are applicable to both 2040 and 8050 systems unless otherwise noted:

II). SOFT ERROR TESTS

A). GENERAL.

The soft error test is designed to verify the operational quality of a disk system. In it's longest form - used for factory burn-in, the test formats a disk in each drive, lays down a worst case pattern and then reads the pattern, stepping track to track in both directions, for 500 passes on each drive. The program keeps a log on each disk of the number of passes and the number, location, type and time of errors.

The long test requires about 8 hours on 8050 and 6 hours on the 2040. Shorter versions, with and without formatting, are included to provide a faster verification of a system's operation.

The program runs completely free of the IEEE bus (to facilitate multiple systems testing) on device address 8.

B). ERROR STATUS INDICATION

During program run time, error and status indication is presented through the error and drive LED's as follows:

- 1). Error LED off and drive LED's off: Test not running.
- 2). Error LED off, one drive LED blinking evenly at high speed: The drive is formatting - this takes approximately five minutes/drive.
- 3). Error and drive LED(s) blinking evenly at high speed: The drive(s) either were unable to complete the formatting procedure, or were unable to write/read the log. This condition is due to either a bad (scratched) disk, inoperative system, or (formatting only) a bad belt.

4). Error LED off, one drive LED blinking randomly at medium to high speed: The drive is writing or reading the disk. If the random blinking slows occasionally, the drive is most likely making errors (which will be indicated later).

5). Error LED and drive LED(s) blinking slowly: The drive(s) has made an excessive number of errors on the first pass of the test. This is most likely due to a bad disk. (Refer to Para III D).

6). Error LED blinking slowly, drive LED steady on: The system is indicating errors made on that drive. Errors are counted out after each pass on each drive. The error blinking is truncated to a maximum of 16 to speed up the test. (All errors made are recorded on the log track).

7). Error LED off, both drive LEDs blinking slowly: The test has come to a normal end (with or without errors). To restore normal operation, turn primary power off and then on.

III). ERROR LOG READ AND INTERPRETATION.

Typing "0" or "1" will read the log on the respective drive. (If a printer is connected, the program will print out the log data automatically). In the event an error is made in reading the log, the program will do two additional tries before giving up. The error message on the PET screen shows the type of error. (Ref. Para III F).

Following is the interpretation of the log:

A). Number of passes: Total passes on the drive for this test.

B). Total errors: Total errors made during test. The "total errors" count is incremented only once for each error, regardless of how many retries are required for recovery.

C). Countable errors: The number of errors that required more than one retry to recover.

D). First pass retries: Determined for the first pass only, this count shows the total retries made minus the

first retries that were successful. (Obtained by multiplying the recovery counts by their respective position, disregarding the first position). This value is a measure of disk quality in that it shows how many stumbles (beyond the first) were made during the first pass of the test. If this count exceeds 5, the disk is declared bad and the test is aborted.

E). Track, error, retries: This matrix print will show a bad disk if a large majority of errors are on one track (or two adjacent tracks).

F). Error type: This shows how many of each type of error has occurred. The error types are:

- #2 - Block header not found
- #3 - No sync
- #4 - Data block not present
- #5 - Checksum error in data block
- #6 - Not used
- #7 - Verify error
- #8 - Write with write protect on
- #9 - Checksum error in header block
- #10 - Data overlay into next header
- #11 - Disk ID mismatch

#12 - 15 not used

#16 -- Decode error

G). Error time: This shows how many errors per 100 passes, modulo 100.

H). Recovery count: How many retries it took to recover errors (a maximum of ten recovery attempts are made for each error).

At the fifth recovery attempt on an 8050, the head is hysterisis stepped 1/4 track in an attempt to recover a misaligned data block.

IV). DRIVE TESTS

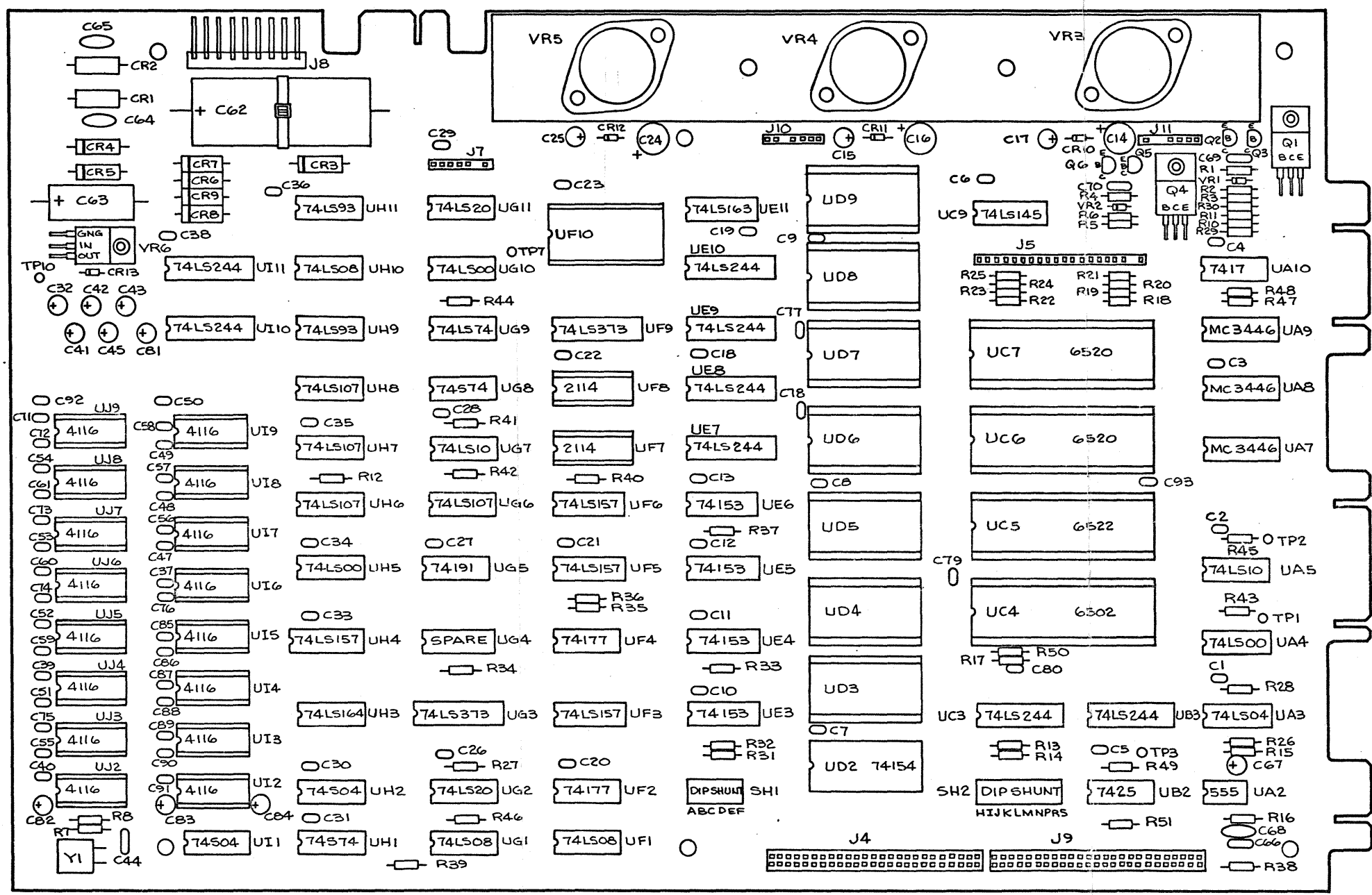
Prior to starting a test, the drive speed and belt should be checked by typing "D" followed by "0" or "1". These functions are implemented for the 8050 system only at this time.

The belt is checked by measuring the period difference between two successive revolutions. This value is measured twenty times. If any one value is greater than 0.5 MS or if two or more are greater than 0.4 MS, the belt is considered bad and should be replaced. (A

typical belt will have a maximum value of 0.3 MS).

This test is necessary as the format program requires a constant speed for correct positioning of the sectors.

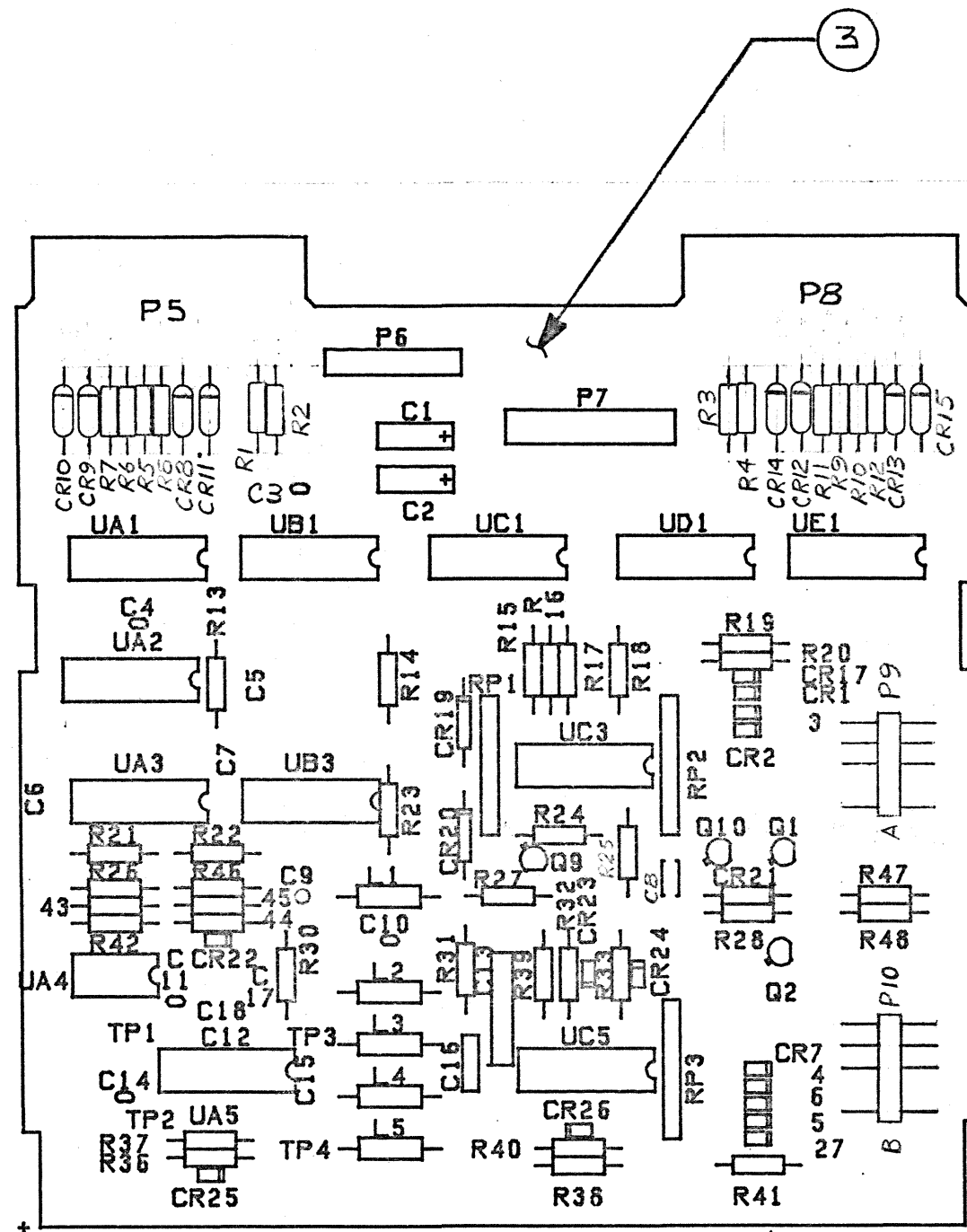
LTR		ZONE		REVISIONS		DATE	APPROVED
				DESCRIPTION			



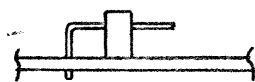
UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS X .XX .XXX ± ± ± ±	DRAWN BY:	DATE:	commodore
	CHKD:		
	ENGR:		
	APPR:		
MATERIAL:	USED ON:	NEXT ASSY:	SIZE C
FINISH:			SCALE
			SHEET
			OF

REVISIONS

LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



DRAWING NO.	TITLE	CURRENT REV
320815	FABRICATION DWG	H
320815	ARTWORK	H
320816	SCHEMATIC	D

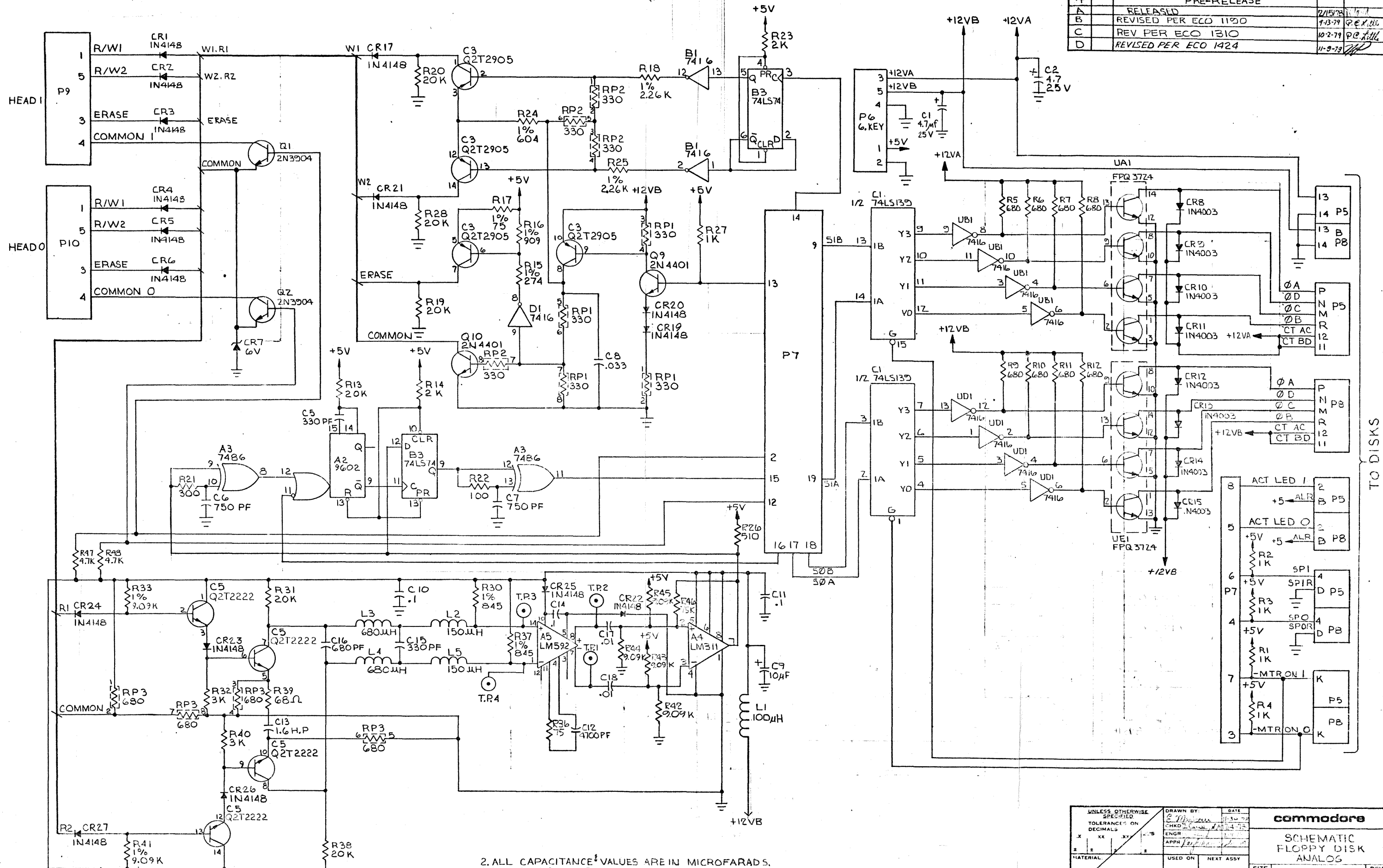


VIEW A-A
2 PL

- 01 SHOWN

UNLESS OTHERWISE SPECIFIED TOLERANCES ON: DECIMALS .X .XX .XXX <'S ± ± ± ±	DRAWN BY: J. SCOTT	DATE 9-11-79	commodore	
	CHKD: P.C. Little	9-13-79		
MATERIAL:	USED ON	NEXT ASSY	SIZE B	REV L
FINISH:		320803	320817	
			SCALE 1/1	SHEET 4 OF 4

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
I		PRE-RELEASE		
A		RELEASED	7/15/78	
B		REVISED PER ECO 1120	1-13-79	P.C. Hill
C		REV PER ECO 1310	10-2-79	P.C. Hill
D		REVISED PER ECO 1424	11-9-79	

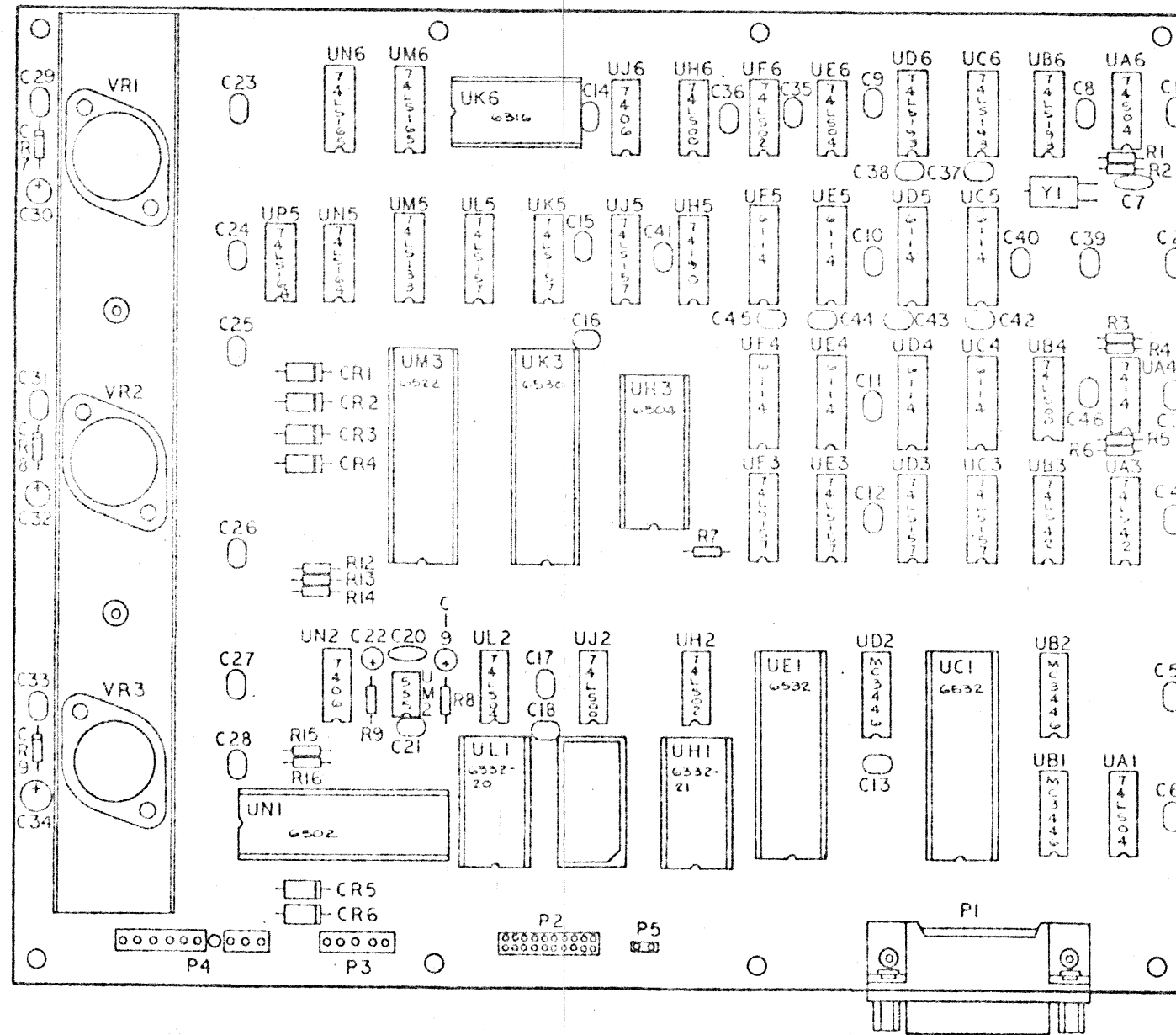


2. ALL CAPACITANCE VALUES ARE IN MICROFARADS.
 1. ALL RESISTANCE VALUES ARE IN OHMS, 1/4 W, ±5%.
 NOTES: UNLESS OTHERWISE SPECIFIED—

UNLESS OTHERWISE SPECIFIED TOLERANCES ON DECIMALS X XX XY X.S	DRAWN BY: <i>C. Hill</i>	DATE: <i>11-30-79</i>	commodore
	CHKD BY: <i>P.C. Hill</i>	DATE: <i>11-24-79</i>	
ENGR: <i>P.C. Hill</i>	APPR: <i>P.C. Hill</i>		SCHEMATIC FLOPPY DISK ANALOG
MATERIAL:	USED ON: 320817	NEXT ASSY:	
FINISH:			SIZE D 320816 REV D
			SCALE SHEET OF 1

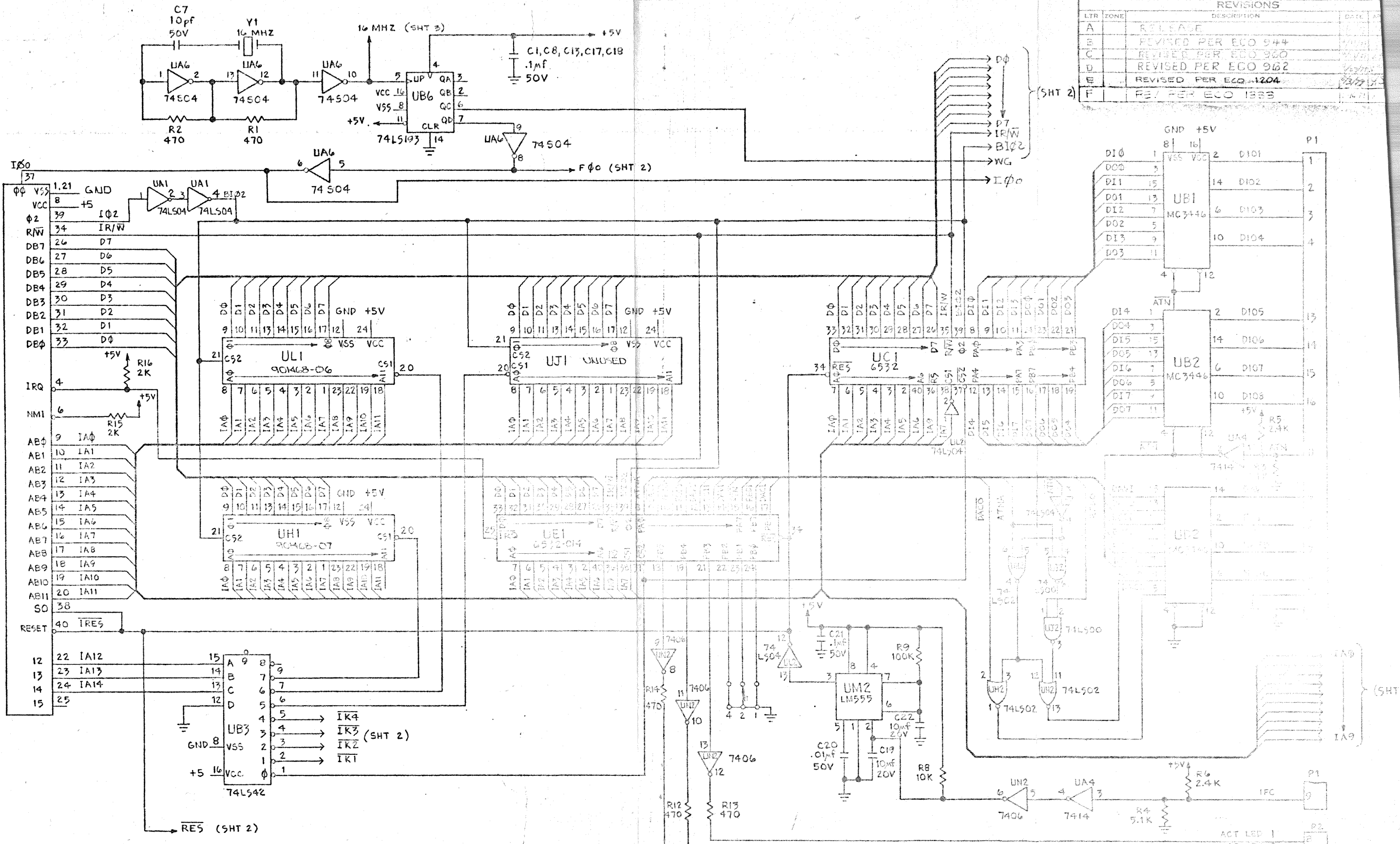
REVISIONS

LTR	ZONE	DESCRIPTION	DATE	APPROVED



UNLESS OTHERWISE SPECIFIED TOLERANCES ON DECIMALS X XX XXX 0.5	DRAWN BY	DATE	commodore
	CHKD		
	ENGR		
	APPH		
MATERIAL	USED ON	NEXT ASSY	SIZE
FINISH			C
			SCALE
			SHEET OF

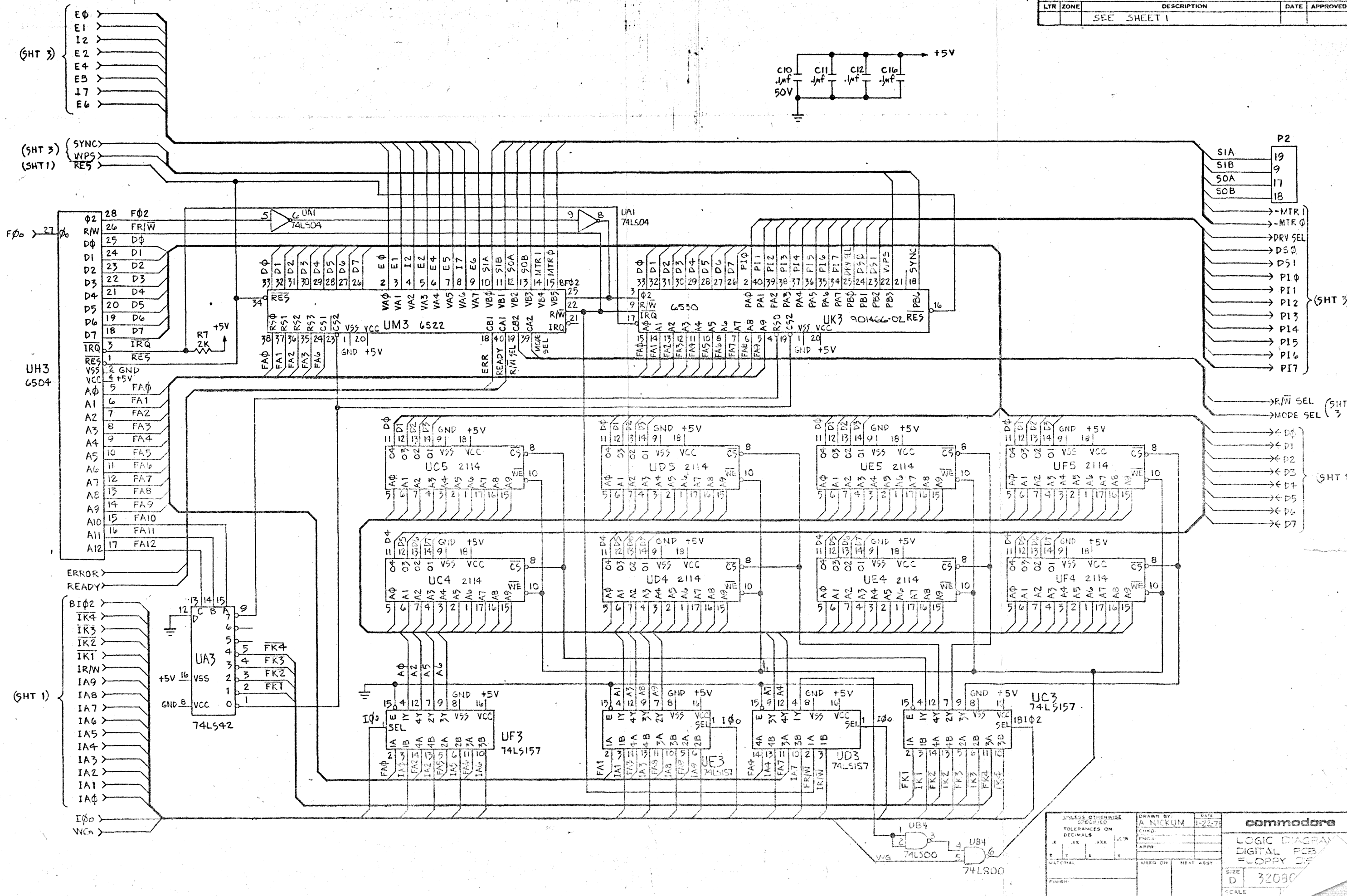
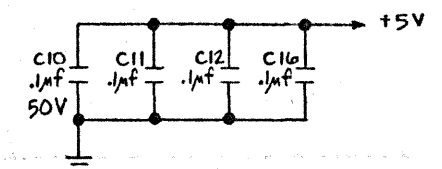
REVISIONS		
LTR	ZONE	DESCRIPTION
A		RELEASE
B		REVISED PER ECO 944
C		REVISED PER ECO 980
D		REVISED PER ECO 982
E		REVISED PER ECO 1204
F		REV PER ECO 1333



UNI
6502

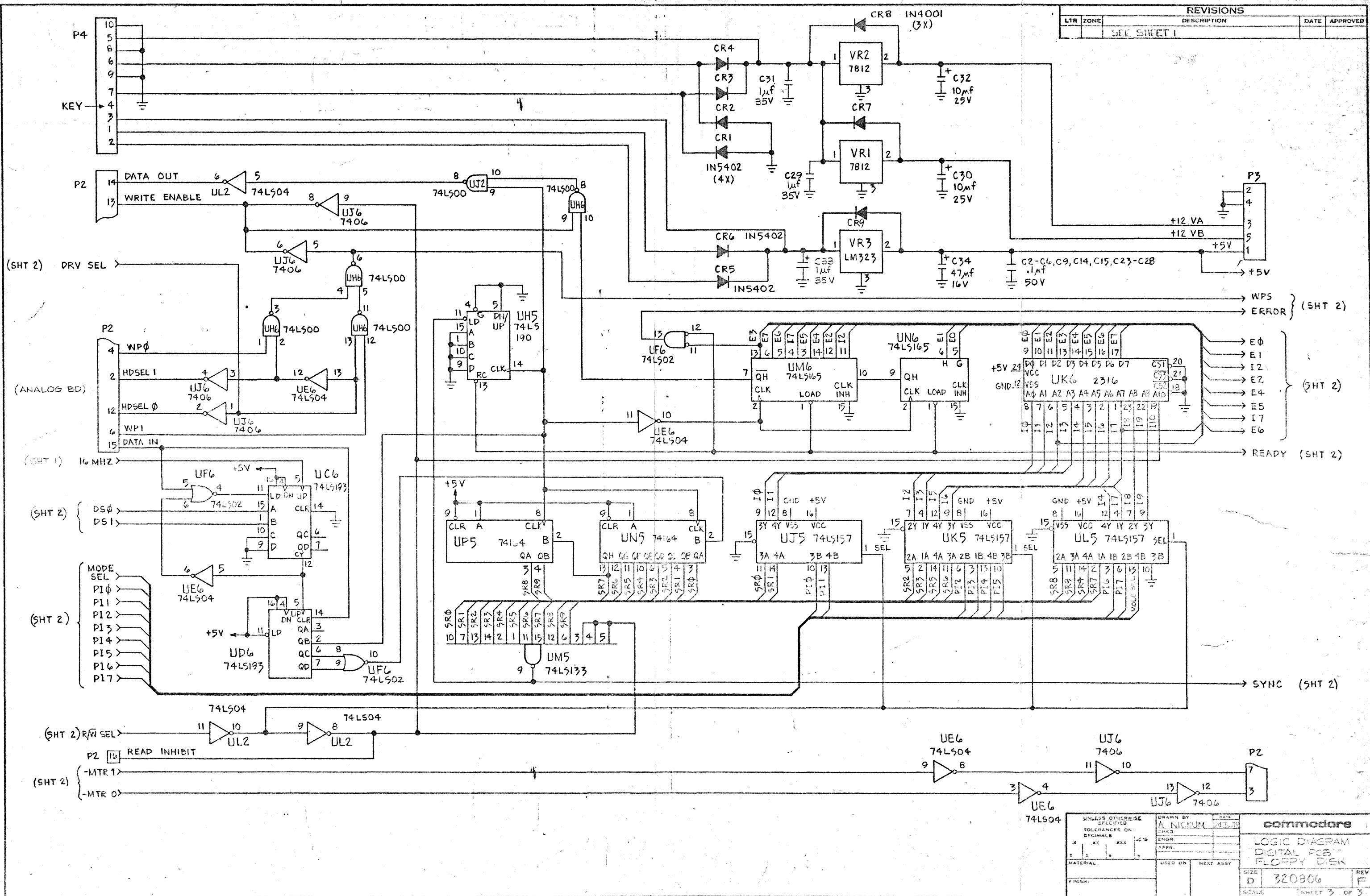
NOTES:
1. RESISTORS ARE 1/4W, 5% UNLESS OTHERWISE SPECIFIED.
VALUES ARE EXPRESSED IN OHMS.

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



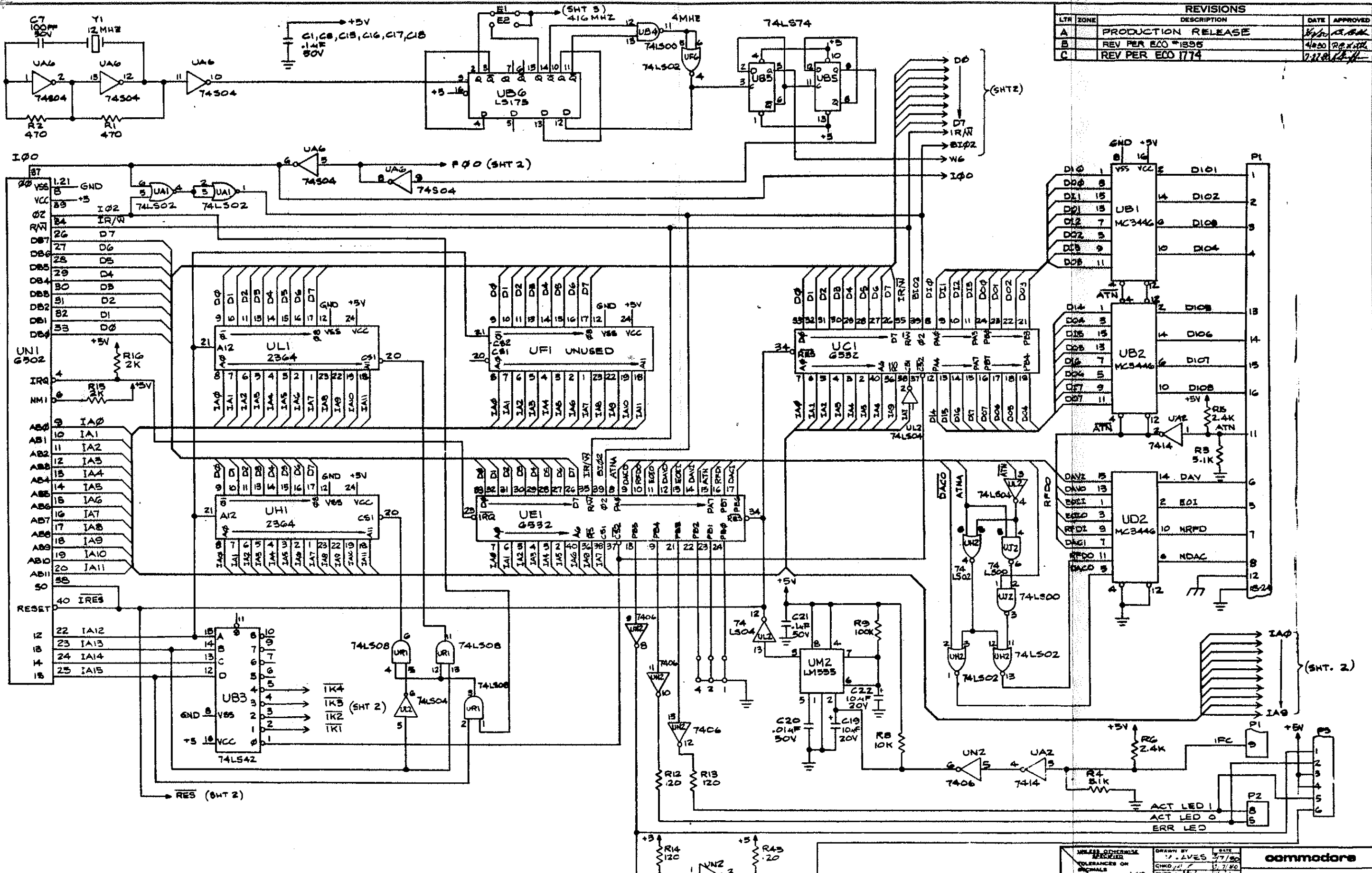
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	ENGR:	APPR:	
MATERIAL:	USED ON:	NEAT ASSY:	LOGIC DIAGRAM DIGITAL PCB FLOPPY CS
FINISH:			SIZE D 32080
			SCALE

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



UNLESS OTHERWISE SPECIFIED		DRAWN BY		DATE	
TOLERANCES ON DECIMALS		A. NICKUM		4/1/78	
X .XX		ENGR			
MATERIAL		APPR			
FINISH		USED ON		NEXT ASSY	
LOGIC DIAGRAM			commodore		
DIGITAL PCB					
FLOPPY DISK					
SIZE	D	320806	REV	F	
SCALE	SHEET 3 OF 3				

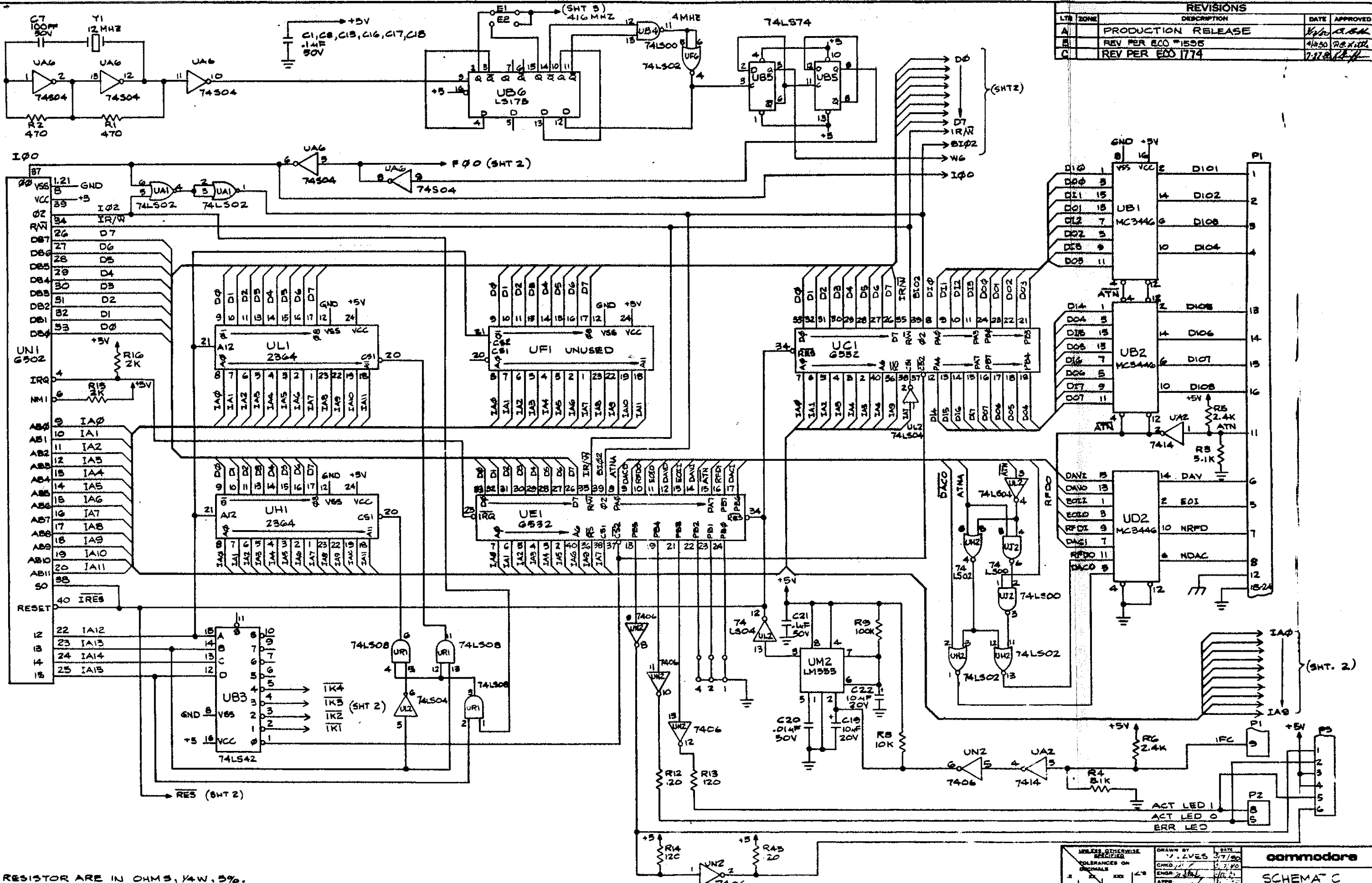
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A		PRODUCTION RELEASE	8/20/80	ASB
B		REV PER ECO #1896	4/20/80	REX
C		REV PER ECO #774	7/28/80	REX



1. RESISTOR ARE IN OHMS, 1/4W, 5%.
 NOTES; UNLESS OTHERWISE SPECIFIED:

UNLESS OTHERWISE SPECIFIED TOLERANCES ON SIGNALS		DRAWN BY: J. AVES CHECKED BY: J. AVES ENGINEER: J. AVES APPR: J. AVES	DATE: 5/7/80 SIZE: D SHEET: 1 OF 3
MATERIAL:		USED ON: 8050 NEXT ASSY: 8050002	COMMODORE SCHEMATIC FLOPPY, DIGITAL SIZE: D PART: 8050001 REV: C

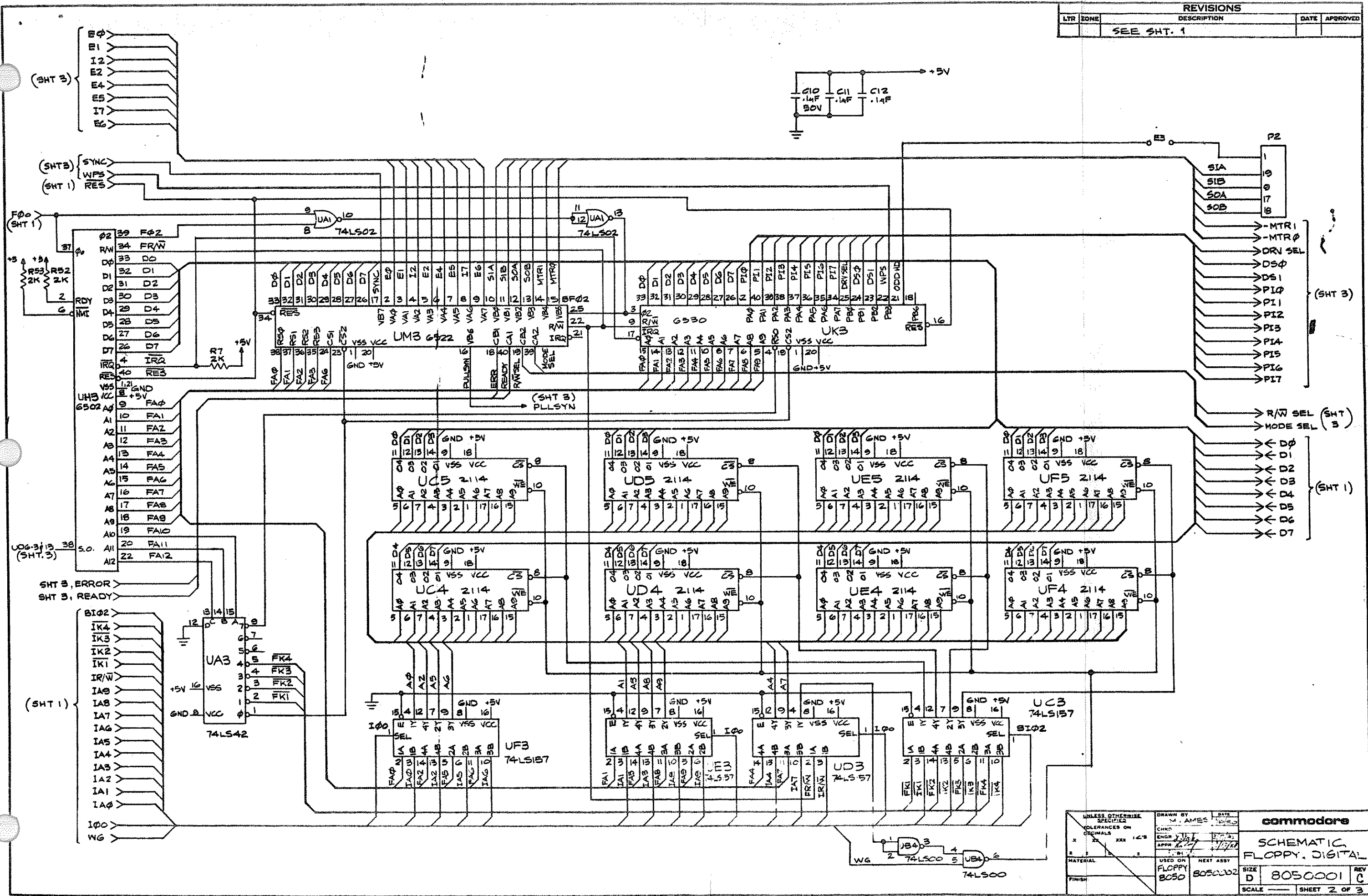
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LTB	ZONE	DESCRIPTION	DATE	APPROVED
A		PRODUCTION RELEASE	8/1/80	AKK
B		REV PER ECO #1595	4/20/80	AKK
C		REV PER ECO #1774	7/22/80	AKK



1. RESISTOR ARE IN OHMS, 1/4W, 5%.
 NOTES; UNLESS OTHERWISE SPECIFIED:

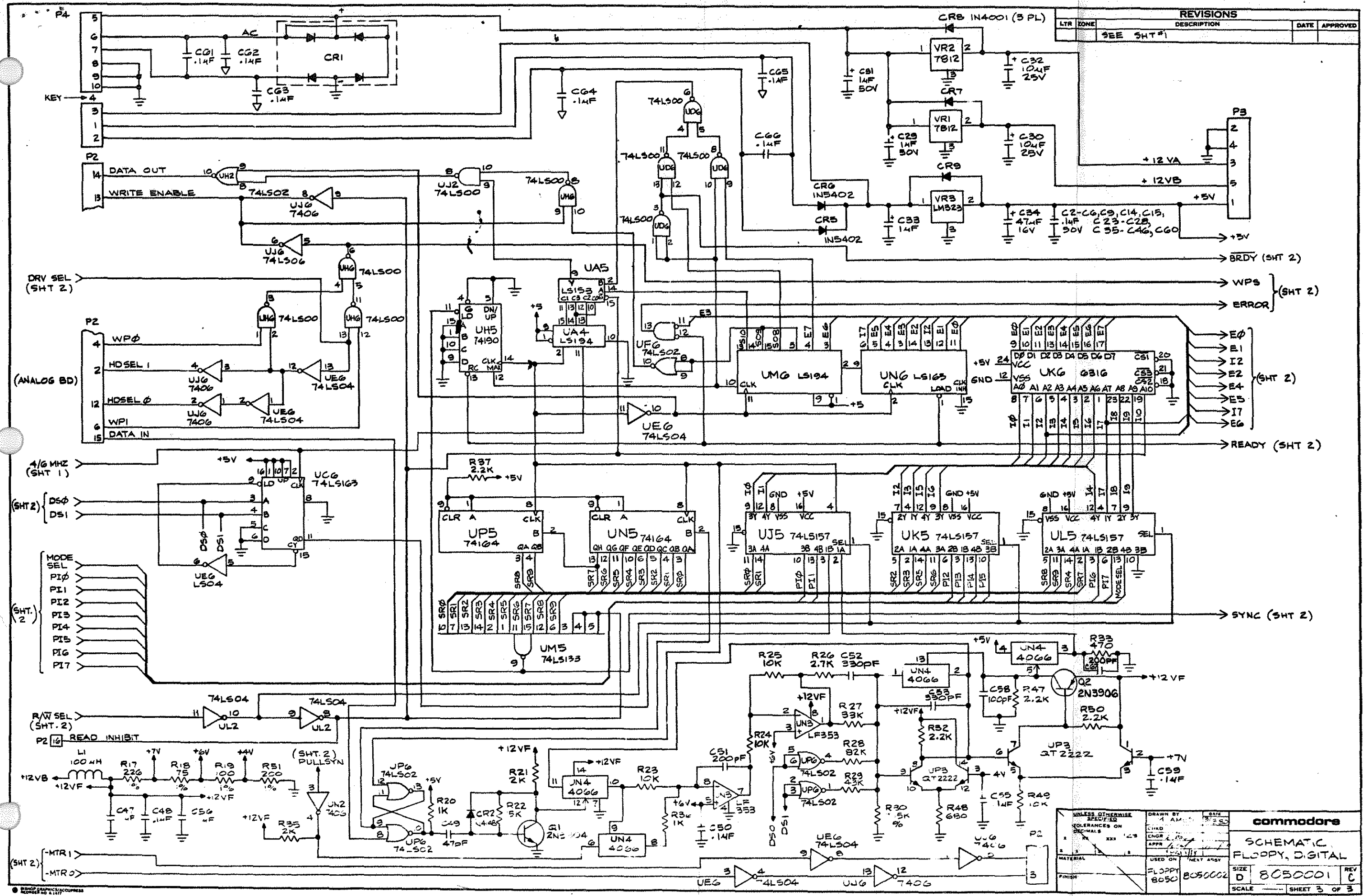
DESIGNED BY	DATE	cammodore
DRAWN BY	3/7/80	
CHECKED BY	3/7/80	SCHEMATIC FLOPPY, DIGITAL
ENG'D BY	3/7/80	
APPROVED BY		SIZE D 8050001
MATERIAL	USED ON FLOPPY 8050	NEXT ASSY 8050002
FORM		SCALE SHEET 1 OF 3

REVISIONS				
LYR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHT. 1		



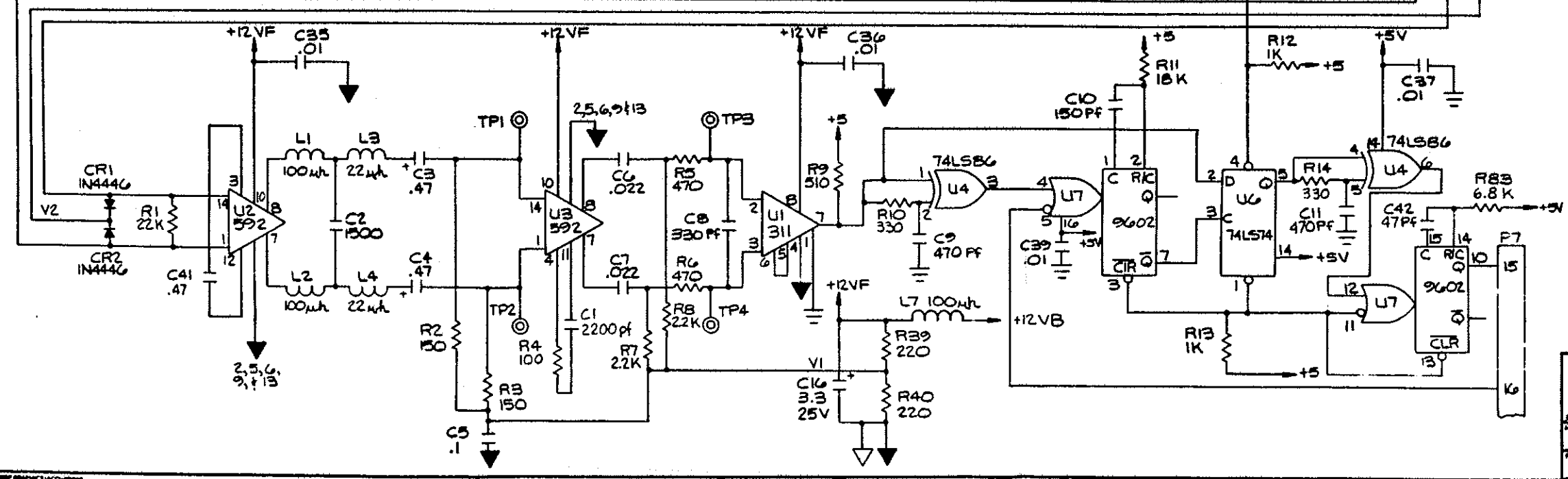
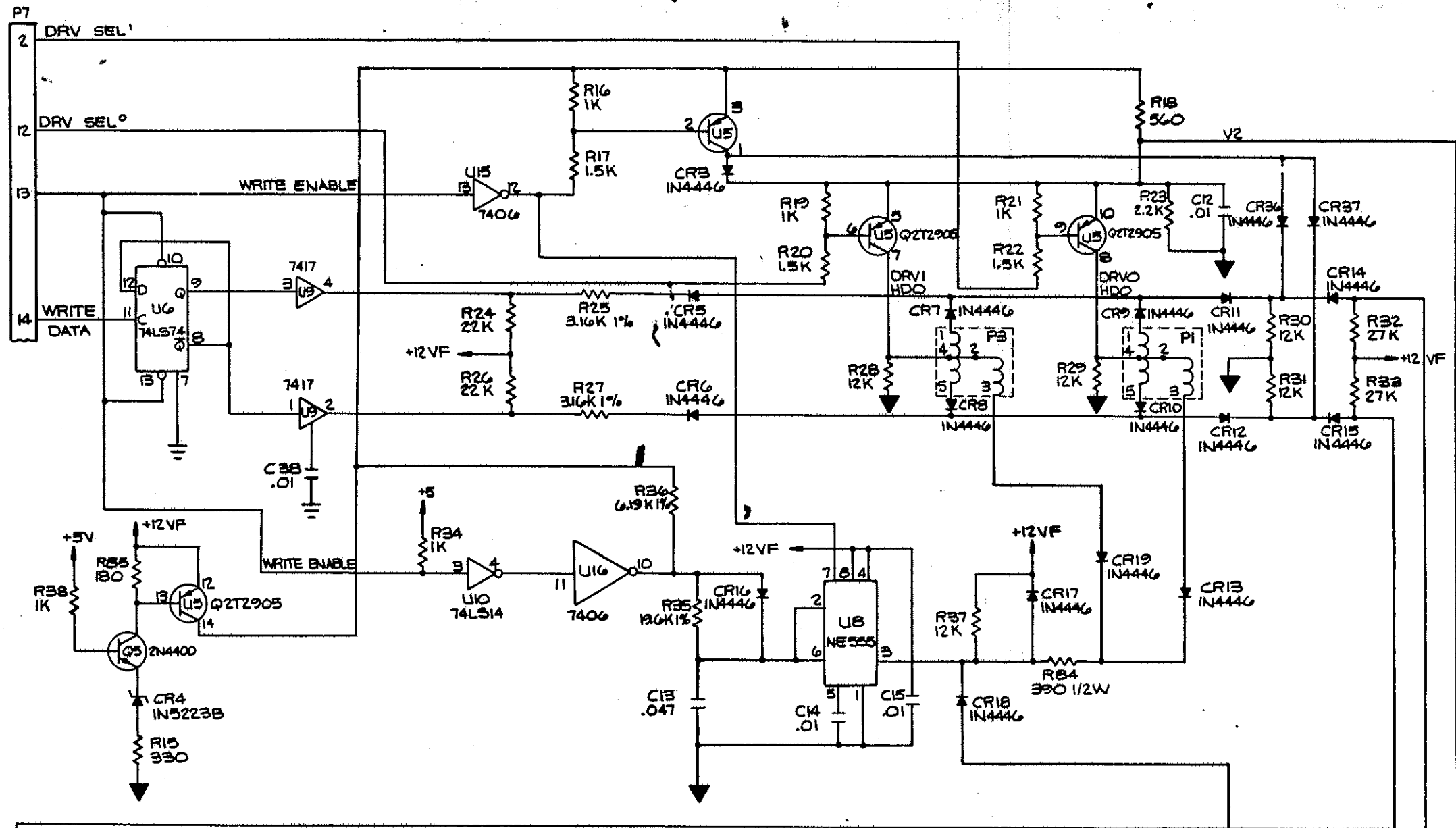
UNLESS OTHERWISE SPECIFIED TOLERANCES ON DECIMALS ARE: X .1% Y .5% Z .1% MATERIAL FINISH	DRAWN BY M. AMES	DATE 10/80	commodore SCHEMATIC FLOPPY, DIGITAL SIZE D 8050001 REV C SCALE SHEET 2 OF 3
	CHKD ENGR Y. J. [Signature]	APPD [Signature]	
	USED ON FLOPPY 8050	NEED ASSY 8050002	

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHT #1		



UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS ARE:		DRAWN BY	DATE
FRACTIONS .10% DECIMALS .5%		1 AM	3/280
MATERIAL		USED ON	NEXT ASSY
FINISH		8050	8050002
commodore		SCHEMATIC FLOPPY, DIGITAL	
SIZE D		8050001	REV C
SCALE		SHEET 3 OF 3	

REVISIONS			
LTR	DATE	DESCRIPTION	DATE APPROVED
A		PRODUCTION RELEASE	10/10/83
B		REV PER ECO 1833	10/20/83



2. ALL CAPACITOR VALUES ARE IN MICROFARADS AND ARE 50 VDC.

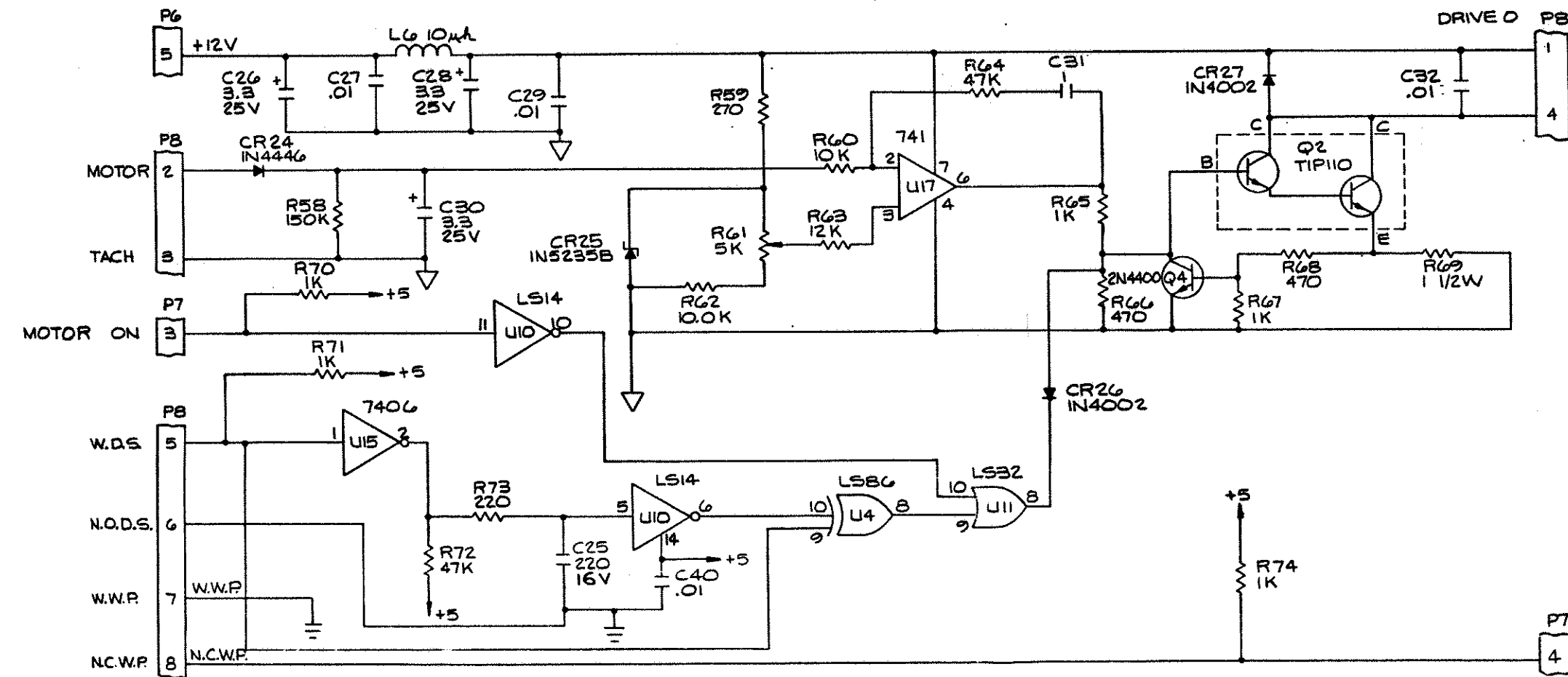
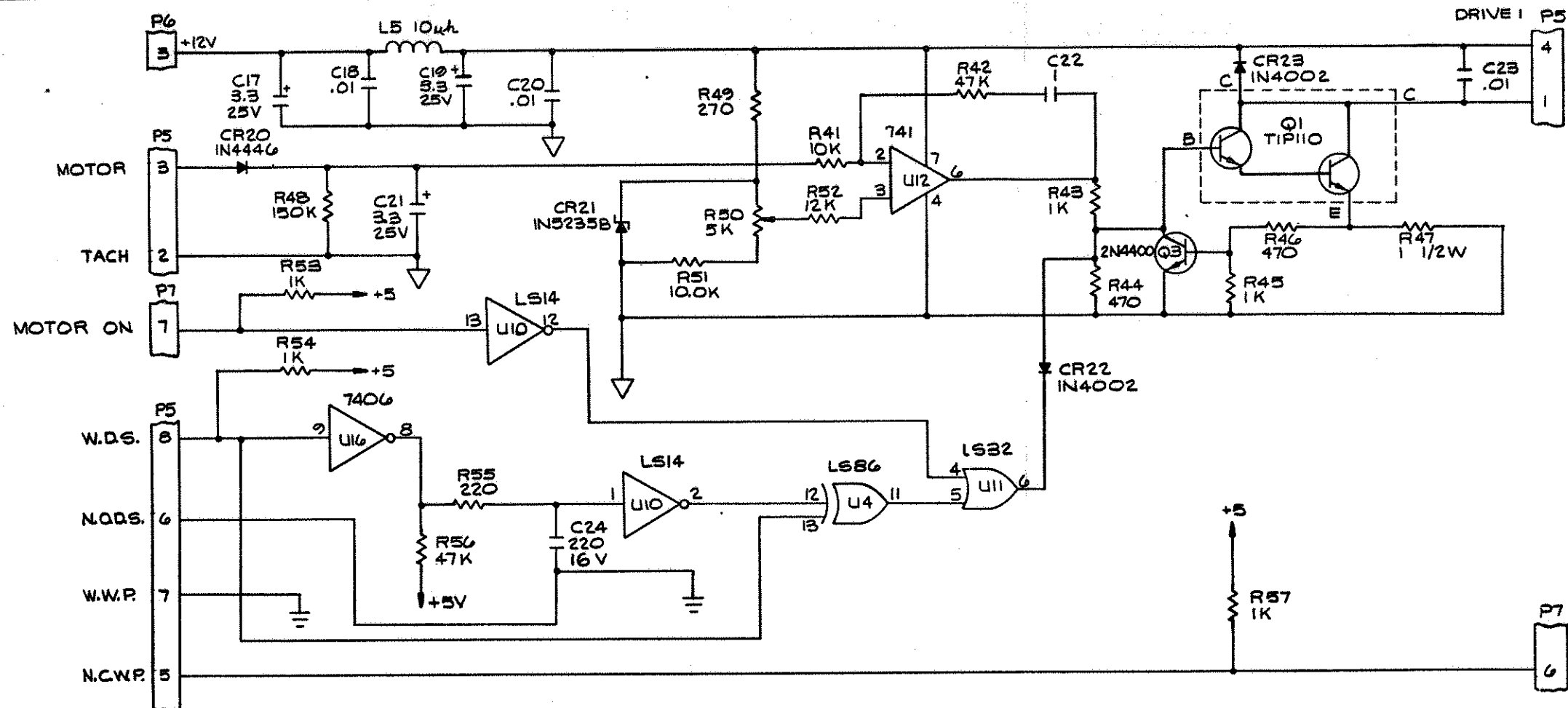
1. ALL RESISTOR VALUES ARE IN OHMS ±5% & ARE 1/4 WATT.

NOTES - UNLESS OTHERWISE SPECIFIED:

UNLESS OTHERWISE SPECIFIED: DIMENSIONS IN DECIMALS MATERIAL	DRAWN BY C. DANIEL CHKD ENGR APPD	DATE 10/10/83	COMMODORE SCHEMATIC DIAGRAM FLOPPY ANALOG SIZE D 8050005 SCALE NONE SHEET 1 OF 3
USED ON	NEXT ASSY	REV B	

REVISIONS

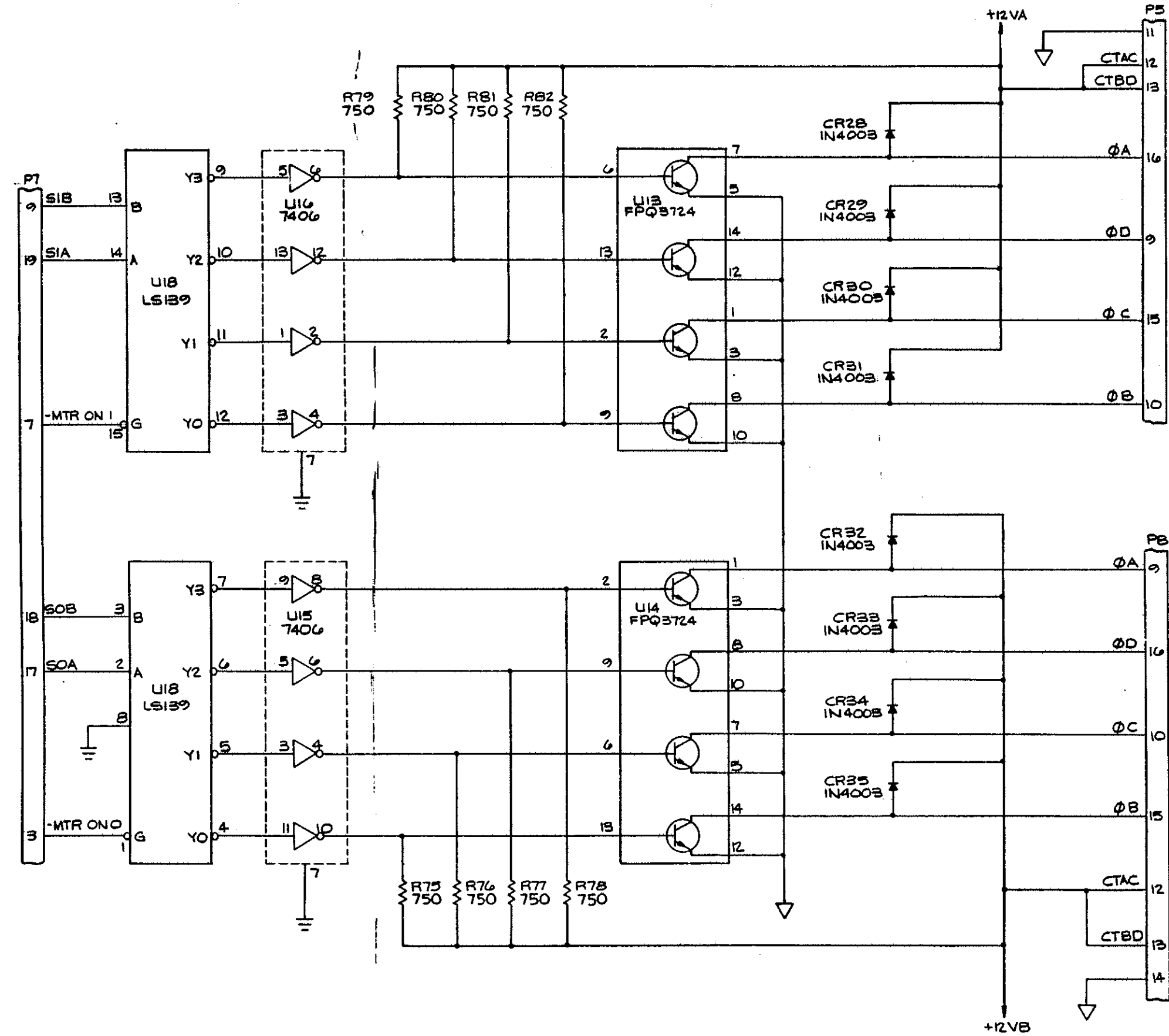
LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



UNLESS OTHERWISE SPECIFIED TOLERANCES ON DECIMALS 1/2 1/4 1/8 1/16 1/32 1/64	DRAWN BY: C. DANIELE	DATE: 3-80	commodore
MATERIAL:	ENGR:	APPR:	SCHEMATIC DIAGRAM FLOPPY ANALOG
FINISH:	USED ON:	NEXT ASSY:	
SIZE D 8050C05			REV B
SCALE NONE			SHEET 2 OF 3

REVISIONS

LTR	ZONE	DESCRIPTION	DATE	APPROVED
		SEE SHEET 1		



<p>UNLESS OTHERWISE SPECIFIED TOLERANCES ON DECIMALS</p> <p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40</p>	<p>DRAWN BY G. CANIELE</p> <p>CHKD 12/7</p> <p>ENGR 12/7</p> <p>APPR. BY</p>	<p>DATE 5/6/80</p> <p>3/6/80</p> <p>3/7/80</p>	<p>commodore</p> <p>SCHEMATIC DIAGRAM FLOPPY ANALOG</p> <p>SIZE D 8050005</p> <p>SCALE NONE SHEET 3 OF 5</p>
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PART NO.	DESCRIPTION
8050002-01	P.C.B. ASSY, FLOPPY, DIGITAL

LTR		ZONE	DESCRIPTION	DATE	APPROVED
A			PRODUCTION RELEASE	3/20/80	<i>[Signature]</i>
B			REV PER ECO 1596	4/19/80	<i>[Signature]</i>
C			REV PER ECO 1600	4/19/80	<i>[Signature]</i>
D			REV PER ECO 1688	4/19/80	<i>[Signature]</i>
E			REV PER ECO 1747	7/9/80	<i>[Signature]</i>
F			REV PER ECO 1756	7-21-80	<i>[Signature]</i>
G			REV PER ECO 1773	7-21-80	<i>[Signature]</i>

2. IDENTIFY WITH COMMODORE PART NO. 8050002 & APPLICABLE DASH NO. LOCATE APPROX AS SHOWN.

1. SHEET 5 OF 5 SIZE D
ASSY DWG

NOTES-UNLESS OTHERWISE SPECIFIED:

commodore	TITLE: P.C.B. ASSY, FLOPPY DIGITAL	DRAWN BY: <i>[Signature]</i>	DATE: 12/1/79	ENGR: <i>[Signature]</i>	SIZE: B	DRAWING NUMBER: 8050002
		CHKD: <i>[Signature]</i>	3/20/80	APPR: <i>[Signature]</i>		

© BISHOP GRAPHICS/ACCUPRESS
REORDER NO. A-7849

QUANTITY REQD PER PART / DASH NO.										ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BENT	NOTES	
										01							
										1		8050001	SCHEMATIC - FLOPPY, DIGITAL				
										2							
										3		8050003	PC FABRICATION - FLOPPY, DIGITAL				
										4							
										5		901435-01	LSI 6502 MPU	UN1, UH3			
										6		901437-01	LSI 6522 VIA	UM3			
										7		901483-03	LSI 6530 PIA	UK3			
										8		901458-01	LSI 6532 PIA	UC1, UE1			
										9		901467-01	LSI 6316 ROM	UK6			
										10		901482-03	LSI 2364 ROM	UL1			
										11		901482-04	LSI 2364 ROM	UH1			
										12		901453-03	LSI 2114 RAM	UC4, UC5, UD4, UD5, UE4, UE5, UF4, UF5			
										13							
										14		901523-01	IC LM555 TIMER	UM2			
										15		901523-10	IC LF 353	UN3			
										16		901524-01	IC MC3446 BUS INTERFACE	UB1, UB2, UD2			
										17		901502-01	IC MC4066 CMOS SWITCH	UN4			
										18		901521-03	IC 74LS08	UR1			
										19		901521-01	IC 74LS00 QUAD NAND	UB4, UD6, UH6, UJ2			
										20		901521-21	IC 74LS02 QUAD NOR	UA1, UF6, UH2, UP6			
										21		901525-01	IC 74S04 HEX INVERTER	UA6			
										22		901521-02	IC 74LS04 HEX INVERTER	UE6, UL2			
										23		901522-06	IC 7406 HEX INVERTER BUFFER	UJ6, UN2			
										24		901522-19	IC 7414 QUAD SCHMITT TRIGGER	UA2			
										25		901521-17	IC 74LS42 1-OF-10 DECODER	UA3, UB3			
										26		901521-06	IC 74LS74 DUAL D FLIP FLOP	UB5			
										27		901521-15	IC 74LS133 13-INPUT NAND	UM5			
										28		901521-25	IC 74LS153 DUAL 4-INPUT MUX	UA5			
										29		901521-11	IC 74LS157 QUAD 2-INPUT MUX	UC3, UD3, UE3, UF3, UJ5, UK5, UL5			
										30		901522-27	IC 74164 SI PO REG	UN5, UP5			
										31		901521-12	IC 74LS165 PI SO REG	UN6			
										32		901522-16	IC 74190 UP/DOWN DEC COUNTER	UH5			
										33		901521-33	IC 74LS163 UP/DOWN COUNTER	UC6		ITEM 36 MAY BE USED AS A SUBSTITUTE	
										34		901521-34	IC 74LS175 QUAD D FLIP FLOP	UB6			
										35		901521-35	IC 74LS194 4-BIT UNIV. COUNTER	UA4, UM6			
										36		901521-36	IC 74LS161 COUNTER		UC6		
										37							

commodore

TITLE: PCB. ASSY, FLOPPY, DIGITAL

DRWN BY: J. P. [Signature]
CHKD: [Signature]

DATE: 12/15/81
3/20/82

ENGR: [Signature]
APPR: [Signature]

DATE: [Signature]

SIZE: C

8050002

REV: G

SHT: 2/5

PART / DASH NO.										ITEM	QTY	PART NUMBER	DESCRIPTION	REF DES	BEN	NOTES
										1	38	902550-01	TRANSISTOR QUAD NPN,Q2T2222	UP3		
										1	39	902658-01	TRANSISTOR 2N3904	Q1		
										1	40	902707-01	TRANSISTOR 2N3906	Q2		
											41					
										2	42	901528-04	VOLTAGE REGULATOR 7812 +12V/1.5A	VR1,VR2		
										1	43	901528-01	VOLTAGE REGULATOR LM323 +5V/3A	VR3		
											44					
										1	45	900556-03	CRYSTAL 12 MHZ	Y1		
											46					
										1	47	900755-02	RECTIFIER, FULL WAVE BRIDGE	CRI		ITEM 48 MAY BE USED AS A SUB.
										S	48	900755-03	RECTIFIER, FULL WAVE BRIDGE			CRI
										2	49	900753-01	DIODE 1N5402 3A / 200V	CR5,CR6		
										3	50	900750-01	DIODE 1N4001 1A / 50 V	CR7,CR8,CR9		
										1	51	900850-01	DIODE 1N4148	CR2		
										49	52	900461-28	CAPACITOR, CERAMIC AXIAL .1uF	C1-6, C8-10, C21, C23-28, C35-48, C50, C55, C56, C59-66		
										2	53	900462-44		200 pF	C51, C67	
										1	54	900461-16		.01uF	C20	
										1	55	900462-29		47 pF	C49	
										2	56	900462-49		330 pF	C52, C53	
										2	57	900463-04	CAPACITOR, CERAMIC AXIAL .100 uF	C7, 58		
										3	58	900110-07	CAPACITOR, LOW LEAK, ELEC 1uF 50V	C29, C31, C33		SEE ITEM 74 FOR SUBSTITUTE
										1	59	900101-37	CAPACITOR, ELECTROLYTIC 47uF 16V	C34		
										2	60	900109-03	CAPACITOR, LOW LEAK. 10uF 20V	C19, C22		
										2	61	900101-04	CAPACITOR, ELECTROLYTIC 10uF 25V	C30, C32		
										1	63	901301-01	CHOKE RF SHIELDED 100 uH	L1		
											64					
										3	65	901550-58	RESISTOR 1/4 W ±5% 470 Ω	R1, R2, R33		
										1	66	901751-17	RESISTOR 1/4 W ±1% 7.15K Ω	R30		
										1	67	901751-09		75 Ω	R18	
										1	68	901751-18		100 Ω	R19	
										1	69	901751-19		226 Ω	R17	
										1	70	901751-20	RESISTOR 1/4 W ±1% 200 Ω	R51		
										2	71	901550-01	RESISTOR 1/4 W ±5% 1K Ω	R20, 36		
										2	72	901550-03	RESISTOR 1/4 W ±5% 5.1K Ω	R3, R4		
										1	73	901550-07	RESISTOR 1/4 W ±5% 100K Ω	R9		
										8	74	900101-35	CAP, ELECTROLYTIC 1uF 25V			SUBSTITUTE FOR ITEM 58. C29, C31, C33

commodore

TITLE: P.C.B. ASSY, FLOPPY, DIGITAL

DRWN BY: J. Palomares
CHKD: J.M.V.

DATE: 12/11/78
ENGR: P. Ruff
APPR: P. Ruff

DATE: 3/29/80
SIZE: B

8050002

REV: G
SHT: 3/5

QUANTITY / HEAD PER PART / DASH NO.										ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BENC	NOTES	
										1	75	B	901550-99	RESISTOR 1/4 W ±5% 43K Ω	R29		
										4	76	B	901550-18	2.2K Ω	R32,R17,R37		
										5	77	B	901550-20	10K Ω	R8,R23,R24,R25,R49		
										7	78	B	901550-53	2K Ω	R15,R16,R7,R21,R35,R53,R52,		
										4	79	B	901550-75	120 Ω	R45,R12,R13,R14,		
										2	80	B	901550-85	2.4K Ω	R5,R6		
										1	81	B	901550-26	15K Ω	R22		
											82						
										1	83	B	901550-06	33K Ω	R27		
										1	84	B	901550-23	2.7K Ω	R26		
										1	85	B	901550-95	RESISTOR 1/4 W ±5% 82K Ω	R28		
										1	86	B	901550-31	RESISTOR 1/4 W ±5% 680 Ω	R43		
										1	87	B	904150-01	IC SOCKET 14 PIN	X11N4		
										3	88	B	904150-04	IC SOCKET 24 PIN	XUHI,XUK6,XULI	ITEM 90 MAY BE USED AS A SUB.	
										6	89	B	904150-06	IC SOCKET 40 PIN	XUC1,XUE1,XUH3,XUK3,XUM3,XUN1	ITEM 91 MAY BE USED AS A SUB.	
										5	90	B	904153-03	IC SOCKET 24 PIN			
										5	91	B	904153-05	IC SOCKET 40 PIN			
										1	92	B	903206-01	CONNECTOR RT ANGLE IEEE-488	P1		
										1	93	B	903344-10	HEADER DUAL IN LINE, 20 PIN, 100 SPACE	P2		
										1	94	B	903316-05	HEADER .156 CENTER 5 PIN	P3		
										1	95	B	903316-03	HEADER .156 CENTER 3 PIN	P4		
										1	96	B	903316-06	HEADER .156 CENTER 6 PIN	P4		
										1	97	B	903326-06	HEADER .100 CENTER 6 PIN	P5		
											98						
										1	99	C	320268-01	HEAT SINK			
										A _R	100	B	904907-01	HEAT SINK COMPOUND THERMAL			
											101						
										6	102	B	906403-19	RIVET DOME HEAD OPEN END			
										2	103	B	906403-03	RIVET DOME HEAD OPEN END			
											104						
										1	105	B	320176-05	WIRE JUMPER 22 GA	E1		

commodore

TITLE: P.C.B. ASSY, FLOPPY, DIGITAL

DRWN BY: *[Signature]*
CHKD: *[Signature]*

DATE: 12/18/76

ENGR: *[Signature]*
APPR: *[Signature]*

DATE: 12/18/76

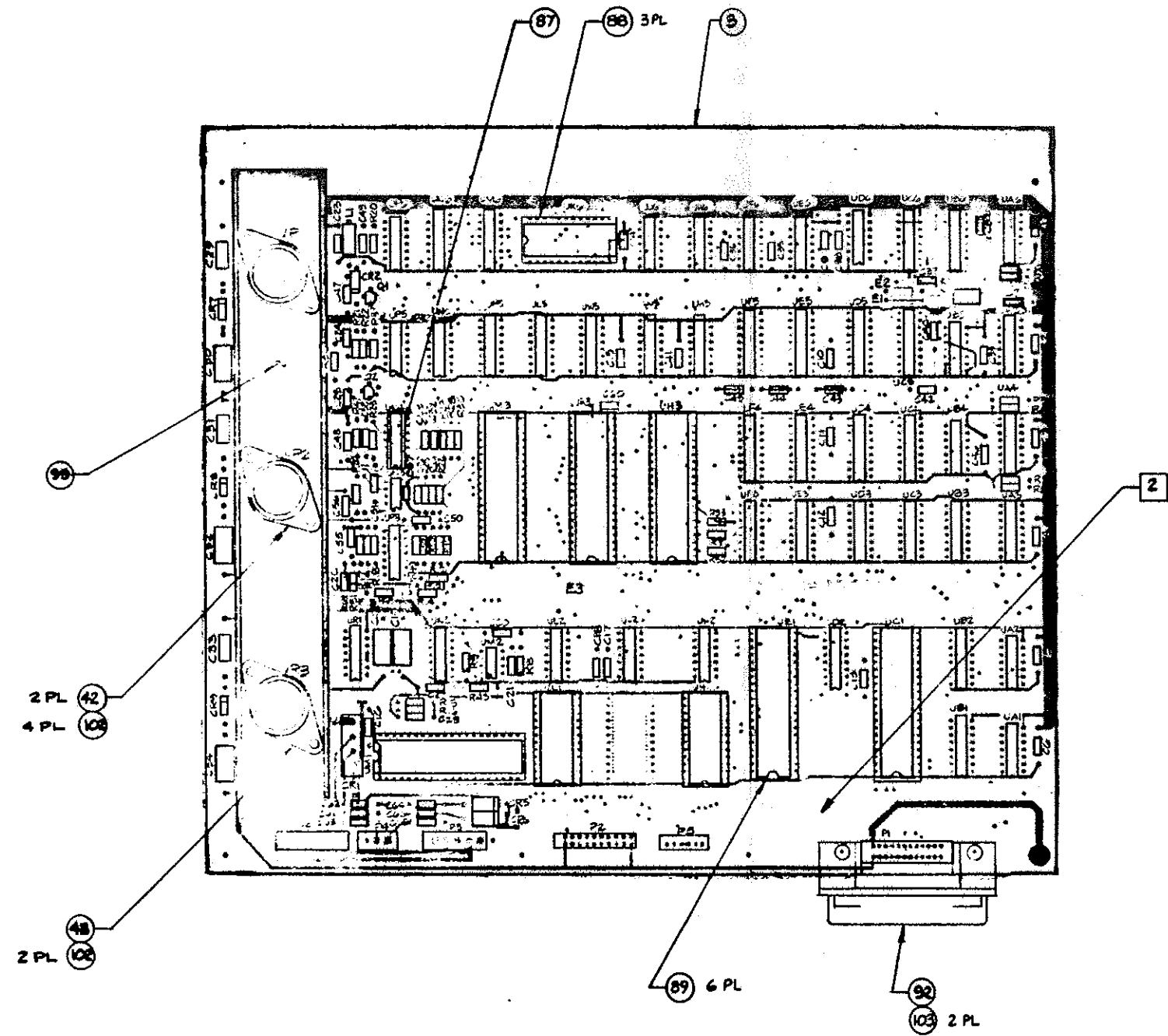
SIZE: B

8050002

REV: G

SHT: 4/5

REVISIONS				
LTW	SCHE	DESCRIPTION	DATE	APPROVED
		SEE SHT #1		



-01 SHOWN

UNLESS OTHERWISE SPECIFIED TOLERANCES ON DIMENSIONS FRACTIONS DECIMALS ANGLES .125 .001 .010 .015 .001 .001 .010 .015	DRAWN BY: M. AMES DATE: 5/3/80 CHECKED BY: [Signature] ENGR: [Signature] APPR: [Signature] USED ON: FLOPPY PART NO: 8050010	commodore P.C.B. ASSY. FLOPPY DIGITAL SIZE D 8050002 SCALE NONE SHEET 5 OF 5
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PART NO.	DESCRIPTION
8050006-01	PCB ASSY - FLOPPY ANALOG

REVISIONS				
LTR	ZONE	DESCRIPTION	DATE	APPROVED
A		PRODUCTION RELEASE	3/1/80	B. Robbins
B		REV PER ECO 1614	4-15-80	P.C. Little
C		REV PER ECO 1642	5-12-80	K. Bliffin
D		REV PER ECO 1834	8-28-80	K. Bliffin

2 IDENTIFY WITH COMMODORE PART NO. 8050006 & APPLICABLE DASH NO. LOCATE AS SHOWN.

1. SHEET 5 OF 5 SIZE D
ASSY DWG

NOTES - UNLESS OTHERWISE SPECIFIED:

commodore	TITLE: PCB ASSY - FLOPPY ANALOG	DRAWN BY: <i>J. Valore</i>	DATE: 3/1/80	ENGR. <i>J. Valore</i>	3/1/80	SIZE: B	DRAWING NUMBER: 8050006
		CHKD: <i>J. Valore</i>	3/1/80	APPR: <i>(Signature)</i>			

PART / DASH NO.		ITEM	QTY	DS	PART NUMBER	DESCRIPTION	REF DES	BEN	NOTES
REF	01	1			8050005	SCHEMATIC-FLOPPY ANALOG			
		2							
1		3			8050007	PCB- FLOPPY ANALOG			
		4							
16		5			900461-28	CAP, CER, Z5U .1 μ f, 50V, -80-20	C12,14,15,18,20,23,27,29,32,35-40,C5		
1		6			900462-29	COG 47 pf \pm 5%	C42		
1		7			900463-10	X7R 330pf \pm 10%	C8		
2		8			900463-12	X7R 470pf	C9,11		
1		9			900463-18	X7R 1500pf	C2		
2		10			900463-22	X7R, .022 μ f	C6,7		
1		11			900463-36	X7R, .047 μ f \pm 10%	C13		
1		12			900462-69	COG 2200 pf 50V \pm 5%	C1		
3		13			900464-36	CER Z5U .47 μ f 50V \pm 20%	C3,4,41		
2		14			900020-05	MONOLITHIC 1 μ f 50V \pm 10%	C22,31		
2		15			900100-18	ELECTROLYTIC, 220 μ f 16V	C24,25		
1		16			900462-41	CER COG 150pf 50V, 10%	C10		
7		17			900402-11	CAP, DIPPED TANT, 3.3 μ f, 25V, 5%	C16,17,19,21,26,28,30		
		18							
		19							
4		20			900750-02	DIODE IN4002	CR22,23,26,27		ITEM 25 MAY BE USED AS A SUBSTITUTE
8		21			900750-03	IN4003	CR28-35		
22		22			900850-17	IN4446	CR1-3,5-20,24,36,37		
1		23			900948-03	IN5223 B	CR4		
2		24			900948-15	DIODE IN5235 B	CR21, 25		
5		25			900750-05	DIODE IN4005			
		26							
2		27			901301-05	CHOKE RF SHIELDED 10 μ h	L5,6		
3		28			901301-01	CHOKE RF SHIELDED 100 μ h	L1,2,7		
2		29			901301-06	CHOKE RF SHIELDED 22 μ h	L3,4		
		30							
		31							
3		32			902658-03	TRANSISTOR 2N4400	Q3,4,5		
2		33			902742-01	TRANSISTOR TIP110	Q1,2		
		34							
		35							
		36							
		37							

commodore

TITLE: ASSY FLOPPY ANALOG

DRWN BY: M.L. KIRSEY
CHKD: J.M. L.

DATE:

ENGR:

DATE:

SIZE:

B 8050006

REV:

SHT:

D 2/5

APPR:

QUANTITY REQD PER PART / DASH. NO.										ITEM	DS	PART NUMBER	DESCRIPTION	REF DES	BEND	NOTES	
										01							
										2	38	901600-36	RES, FIXED, 1 Ω , 1/2 W, 5%	R47,69			
										1	39	901550-49	↑ 100 Ω , 1/4 W, 5%	R4			
										2	40	901550-89	150 Ω ↑	R2,3			
										1	41	901550-100	↑ 180 Ω	R85			
										4	42	901550-52	220 Ω	R39,40,55,73			
										2	43	901550-76	270 Ω	R49,59			
											44						
										3	45	901550-14	330 Ω , 1/4 W	R14,15,10			
										1	46	901600-37	390 Ω , 1/2 W	R84			
										6	47	901550-58	470 Ω , 1/4 W	R5,6,44,46,66,68			
										1	48	901550-38	510 Ω	R9			
										1	49	901550-30	560 Ω	R18			
										8	50	B 901550-88	750 Ω	R75-82			
										17	51	901550-01	1K	R12,13,16,19,21,34,38,43,45,53,54,57,65,67,70,71,74			
										3	52	901550-69	1.5K	R17,20,22			
										3	53	901550-18	2.2K 5%	R7,8,23			
										2	54	901751-21	3.16K 1%	R25,27			
										1	55	901751-22	6.19K 1%	R36			
										4	57	901550-20	10K 5%	R41,51,60,62			
										7	58	901550-11	12K 5%	R28-31,37,52,63			
										1	59	901550-55	18K 5%	R11			
										1	60	901751-23	19.6K 1%	R35			
										3	61	901550-12	22K 5%	R1,24,26			
										2	62	901550-15	27K	R32,33			
										4	63	901550-22	47K	R42,56,64,72			
										2	64	901550-16	RES, FIXED, 150K, 1/4 W, 5%	R48,58			
										1	65	901550-04	RES. FIXED, 6.8K, 1/4 W, 5%	R83			
										2	66	902262-03	POTENTIOMETER, 5K	R50,61			
											67						
											68						
										2	69	901523-08	IC 592	U2,3			
										1	70	901523-04	↑ 311	U1			
										2	71	901523-11	↓ 741	U12,17			
										1	72	901510-01	↓ 9602	U7			
										1	73	901523-01	IC NE555	U8			
											74						
											75						

commodore

TITLE: ASSY FLOPPY ANALOG

DRWN BY: W.L. KELSEY
CHKD: W.L.

DATE: ENGR: APPR:

DATE: SIZE: B

8050006

REV: D SHT: 3/5

PART / DASH NO.										QTY	ITEM	QTY	PART NUMBER	DESCRIPTION	REF DES	REF	NOTES
										2	76	1	901522-06	IC 7406	U15,16		
										1	77	1	901521-30	74LS14	U10		
										1	78	1	901522-01	7417	U9		
										1	79	1	901521-31	74LS32	U11		ITEM 86 MAY BE USED AS A SUBSTITUTE
										1	80	1	901521-06	74LS74	U6		ITEM 87 MAY BE USED AS A SUBSTITUTE
										1	81	1	901521-32	74LS86	U4		ITEM 83 MAY BE USED AS A SUBSTITUTE
										1	82	1	901521-18	IC 74LS139	U18		
										S	83	1	901522-18	IC 7486			U4
										1	84	1	902551-01	TRANSISTOR PACK Q2T2905	U5		
										2	85	1	902552-01	TRANSISTOR PACK FPQ3724	U13,14		
										S	86	1	901522-29	IC 7432			U11
										S	87	1	901522-22	IC 7474			U6
										2	88	1	902905-01	HEAT SINK	Q1,2		
										2	89	1	906610-03	SCREW 6-32/3/8			
										2	90	1	905650-04	WASHER LOCK			
										2	91	1	905950-02	NUT 6-32 HEX			
											92						
											93						
										1	94	1	903344-10	HEADER DUAL ROW 20 PIN	P7		
										2	95	1	903343-16	HEADER RT ANGLE 16 PIN	P5,8		
										1	96	1	903316-05	HEADER ASSY 5 PIN	P6		
										2	97	1	903333-05	HEADER, STR. POST 5 PIN	P1, P3		

commodore

TITLE: ASSY FLOPPY ANALOG

DRWN BY: M. L. KELSEY
CHKD: M. L. KELSEY

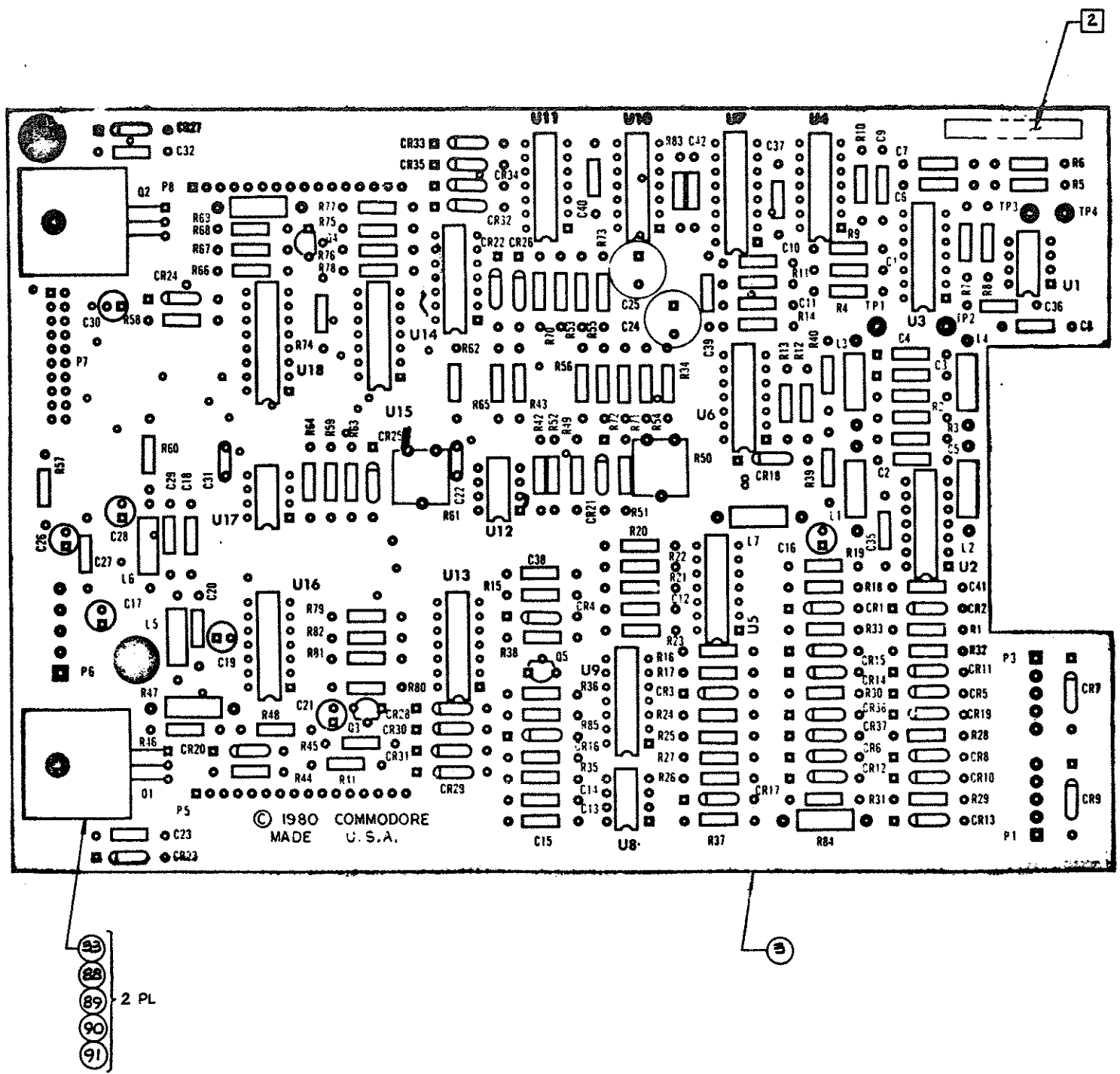
DATE: ENGR: APPR:

DATE: SIZE: B

8050006

RFV: D SHT: 4/5

REVISIONS			
LTR	ZONE	DESCRIPTION	DATE APPROVED
		SEE SHT #1	



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MADE U.S.A.

88
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2 PL

-01 SHOWN

UNLESS OTHERWISE SPECIFIED	DRAWN BY V. AVES	DATE 3-1-80	commadore	
TOLERANCES ON DECIMALS	CHKD ENGR			
	APPR		SIZE D	REV D
MATERIAL	USED ON	NEXT ASSY	SCALE 2/1	SHEET 5 OF 5
FINISH	FLOPPY 8050	3050C11		