

FUN GAMES INC.

**INSTRUCTION
MANUAL**

JANUARY 1976

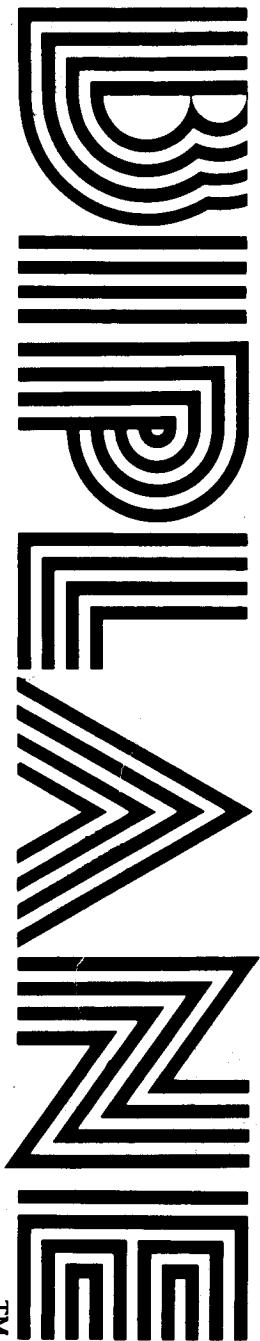


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GENERAL INSTRUCTIONS

INSTALLATION:

Open back of cabinet and MAKE SURE ALL BOARDS ARE PROPERLY SEATED INTO CARD CAGE. Plug into AC Power.

PRICE PER GAME SWITCH:

Located at the top of the memory board is the price per game switch. Up is one coin per game and down is two coins per game.

GAME TIME POT:

Directly below the price per game switch is the game time pot.

WHITE PLANE SHOT RANGE POT:

Directly below the game time pot is the white plane shot range pot. Turning clockwise increases shot range. Range should be adjusted to be equal to black plane range.

VOLUME 2 POT (Location "2"):

Volume for white plane is controlled by the top pot on the *sync* board. Clockwise increases volume.

VOLUME 1 POT (Location "1"):

Directly below the volume 2 pot is the black plane volume. Operates same as volume 2 pot.

NOTE: FOLLOWING CONTROLS ARE FACTORY SET. QUALIFIED TECHNICAL PERSONNEL ONLY SHOULD ADJUST.

NOISE VOLUME:

Location #4 controls shot and boom plane relative volume.

PITCH 2:

Controls pitch of black plane motor.

TONE 2:

Controls tone of black plane motor.

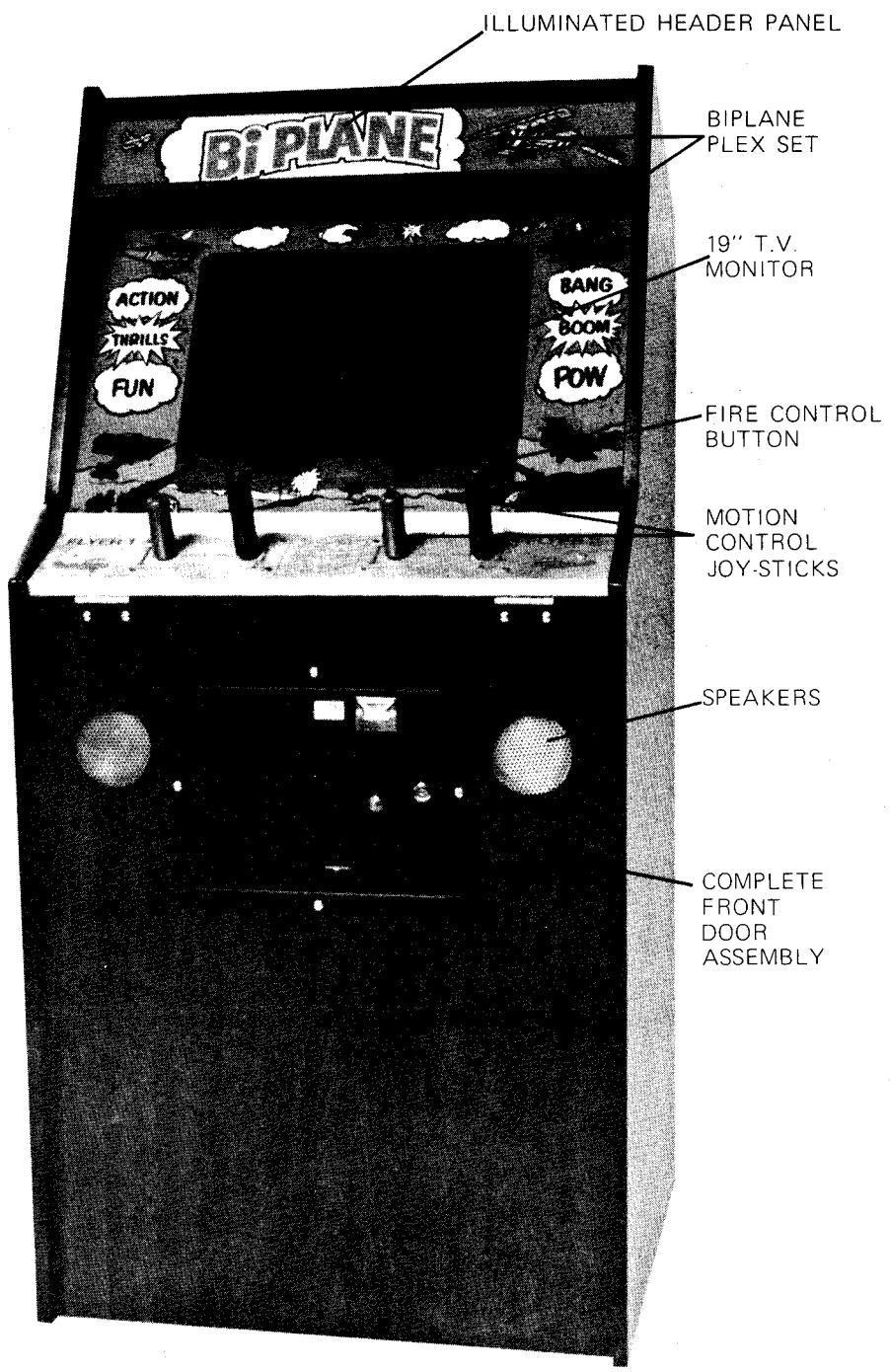
PITCH 1:

Same as pitch 2 for white plane.

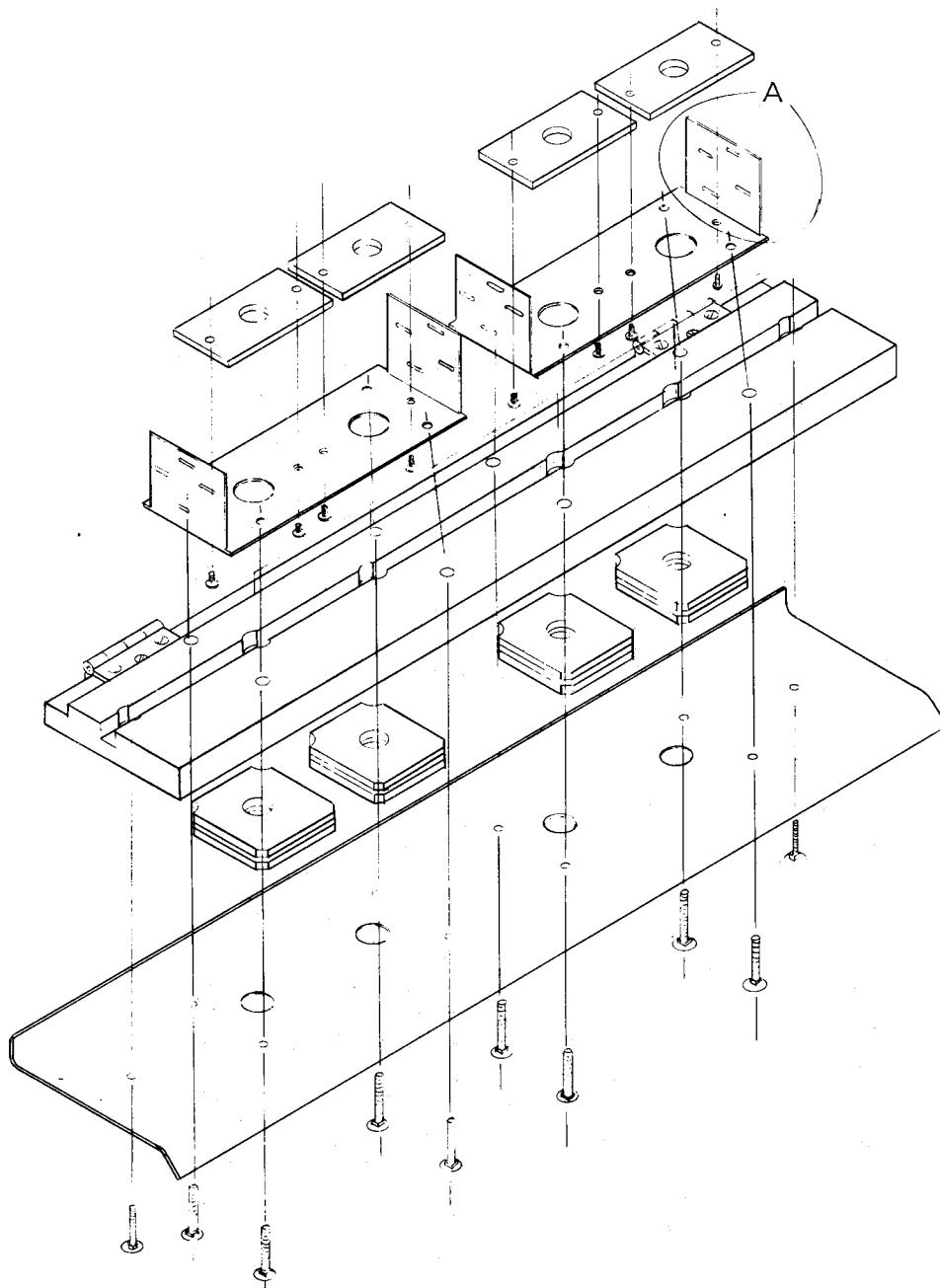
TONE 1:

Same as tone 2 for white plane.

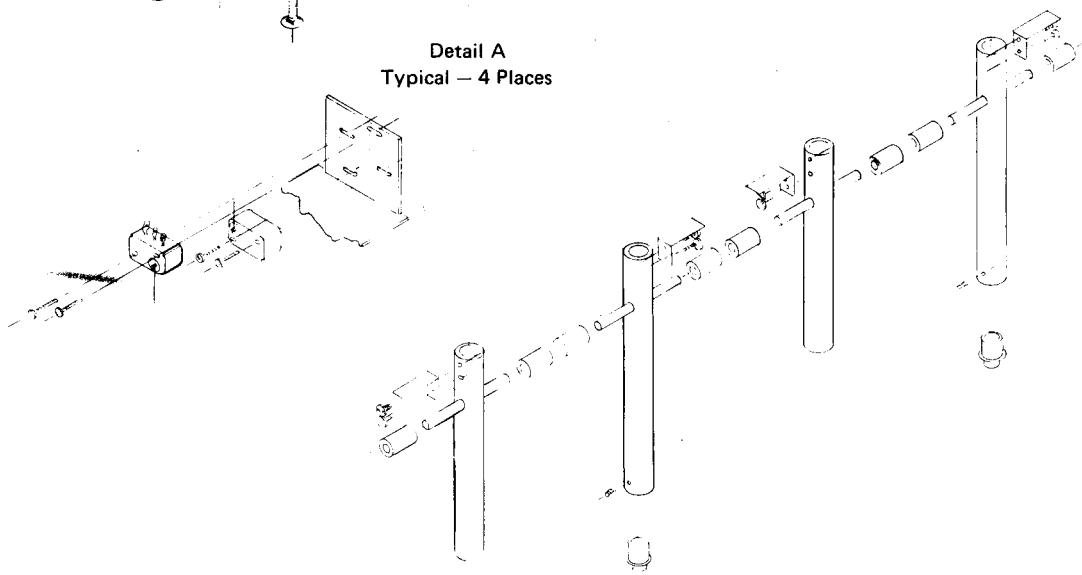
NOTE: BE SURE ALL BOARDS ARE PROPERLY SEATED, INCLUDING INTERCONNECT BOARDS IN HARNESS CONNECTOR.

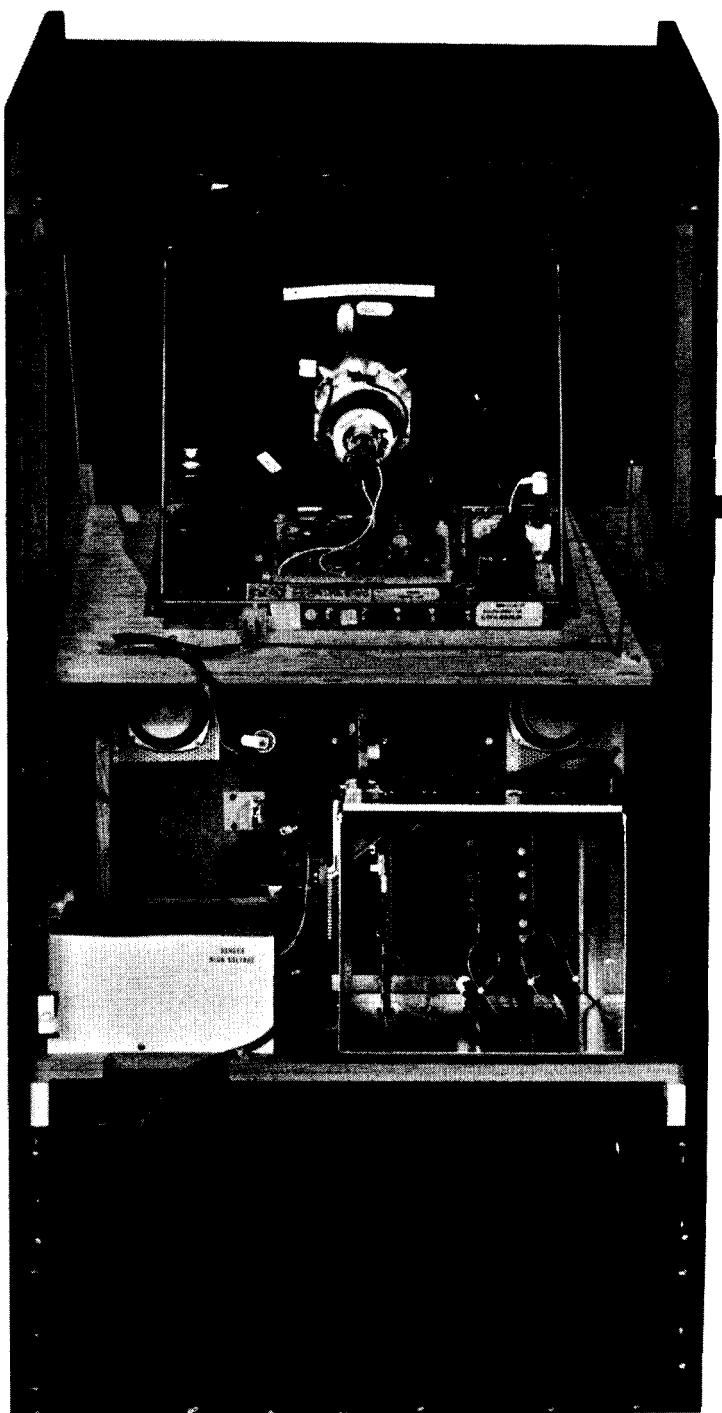


AND DESCRIPTION

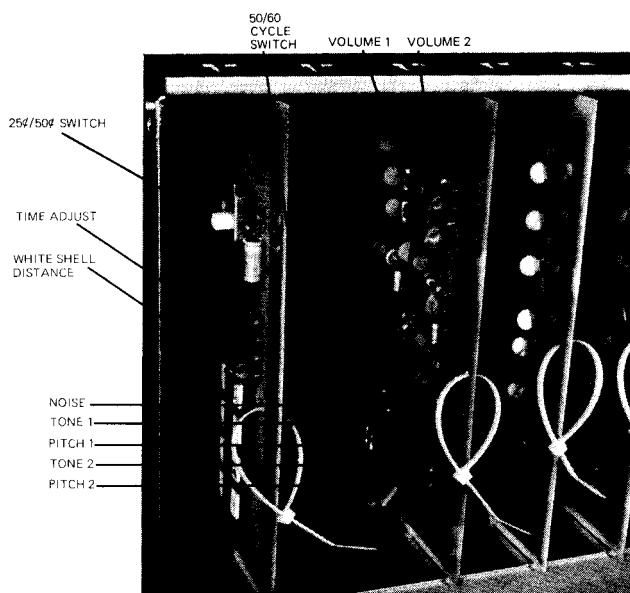
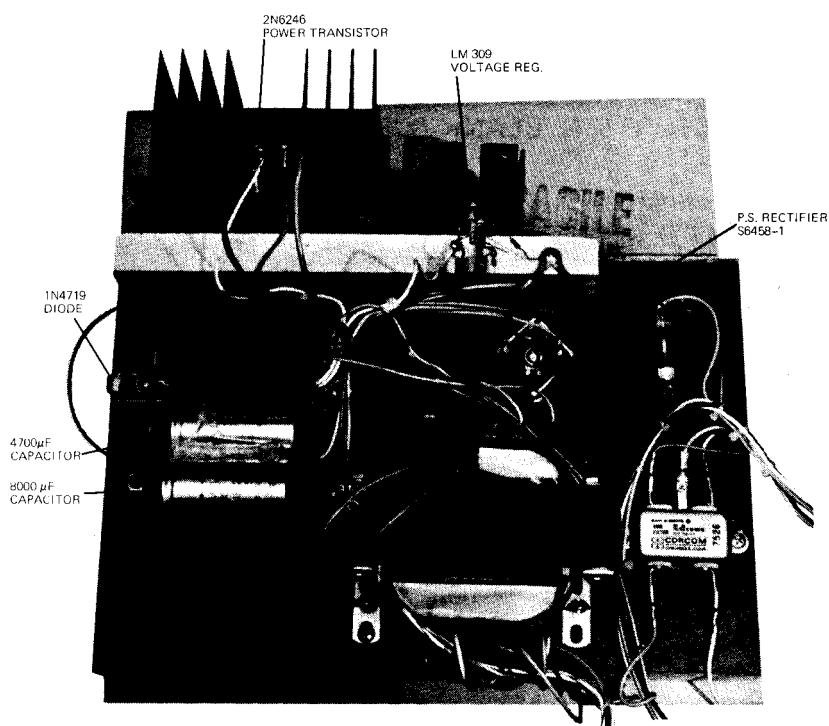


Detail A
Typical — 4 Places





COMPONENTS AND DESCRIPTION



TROUBLESHOOTING

TROUBLESHOOTING GUIDE

AUDIO

1. Check speakers and connections
2. Adjust audio controls on synch board
3. Change synch board

VIDEO (RIPPLE, DISTORTION, BLANK SCREEN)

1. Measure +5V
2. Check interlock switches
3. Shorted diode in P.S. rectifier
4. Change synch board

VIDEO (SHAKE)

1. Adjust T.V. controls
2. Change crystal/4024 I.C. on synch board

MOTION

1. Check control panel switches
2. Switch motion boards – if problem persists on same side (ie. black or white plane)
change memory board

SCORING

1. Change memory board

Important: Severe damage will occur if any board but the synch board is inserted in synch board socket.

1. Check control panel switches
2. Switch motion boards – if problem persists on same side (i.e., black or white plane) change memory board

PARTS LIST

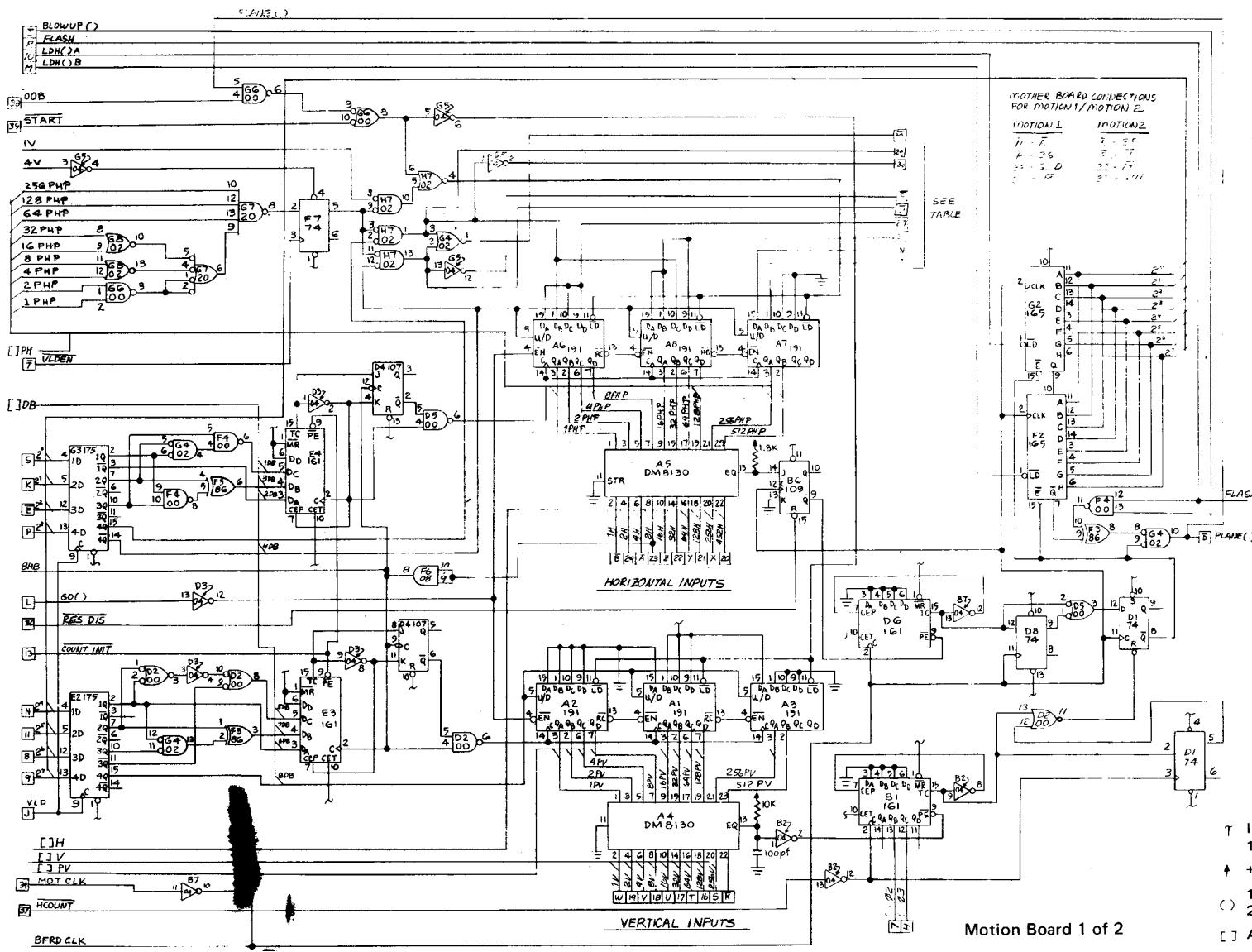
PART #	DESCRIPTION	UNIT PRICE
300-200	Power Supply	75.00
500-206	Mother Board	75.00
500-201	Motion Board	250.00
500-202	Synch Board	250.00
500-204	Memory Board	250.00
500-200	Set of PC Boards w/Cage	750.00
600-200	Control Panel	75.00
400-100	Coin Door Assembly	55.00
34-64581	P.S. Rectifier	10.29
36-LM309	P.S. Voltage Regulator	3.54
42-0019	19" Monitor, Motorola	295.00
41-5006	Speakers	5.70
46-0051	Switch, Cherry, E51	2.82
46-0903	Fire Button, Switch	1.59
47-0001	Coin Counter	9.72
82-0001	P.S. Transformer	42.75
35-14318	Crystal 14.318 MHZ	5.04
37-4024	4024 I.C.	6.69
32-2N6246	2N6246 Power Transistor	3.69

PRICE LIST

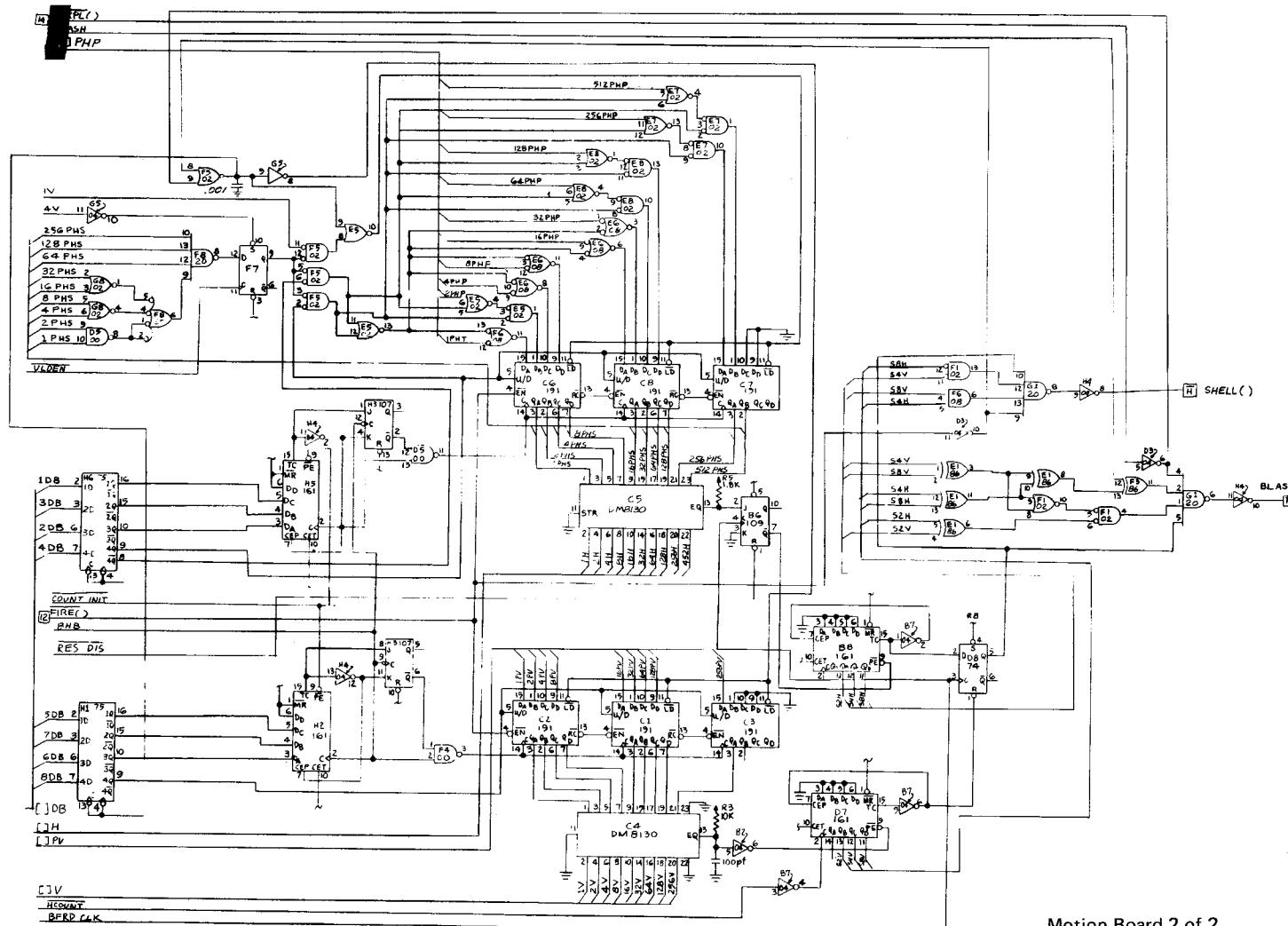
Minimum Order - \$25.00

SCHEMATICS

10



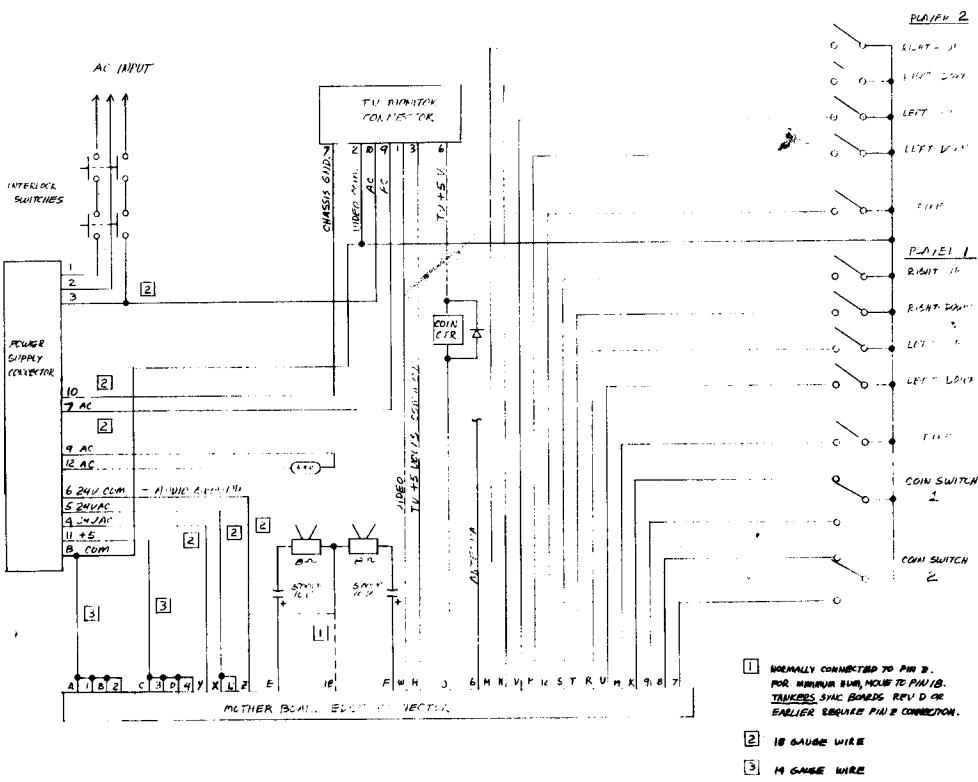
Motion Board 1 of 2



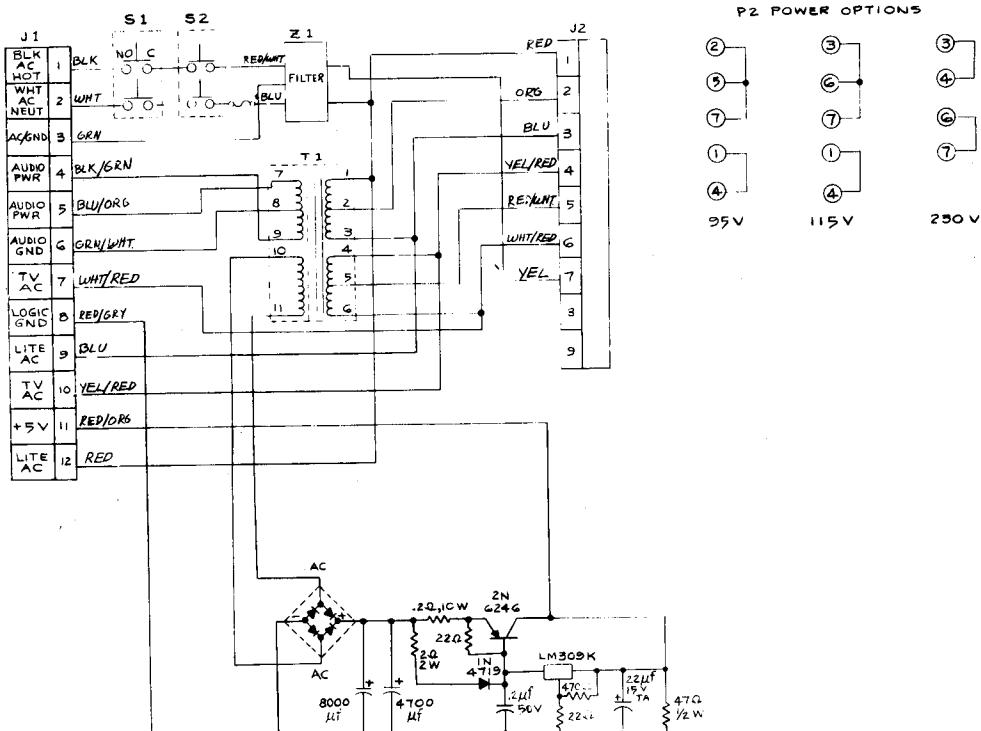
Motion Board 2 of 2

SCHEMATICS

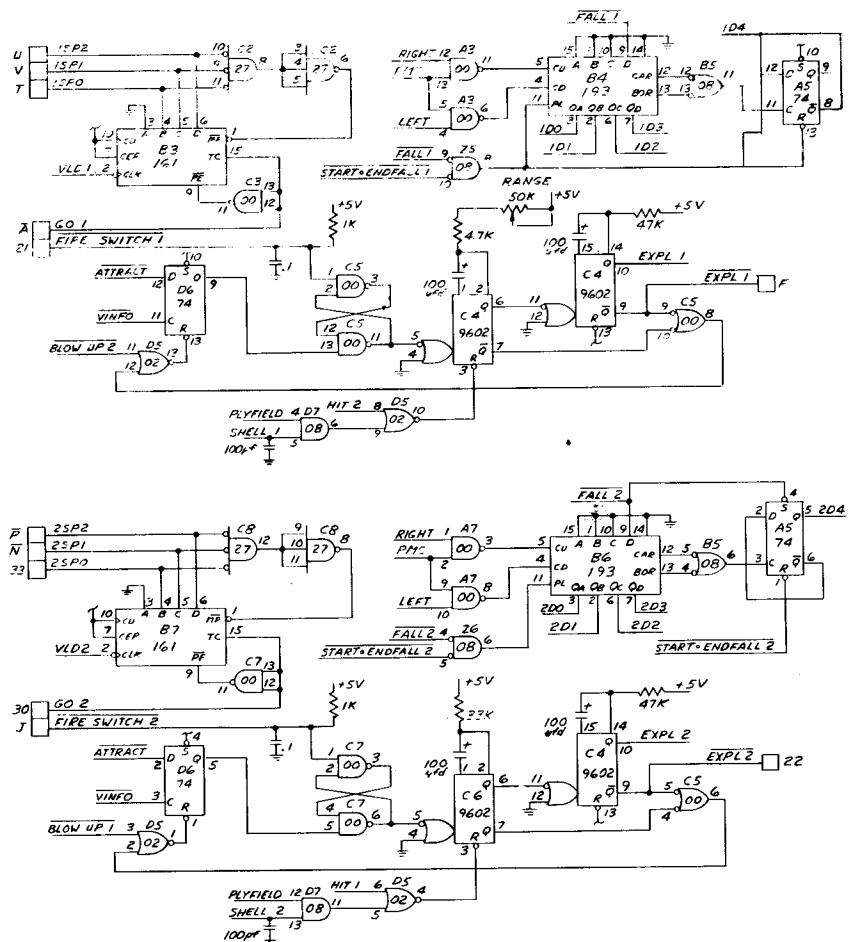
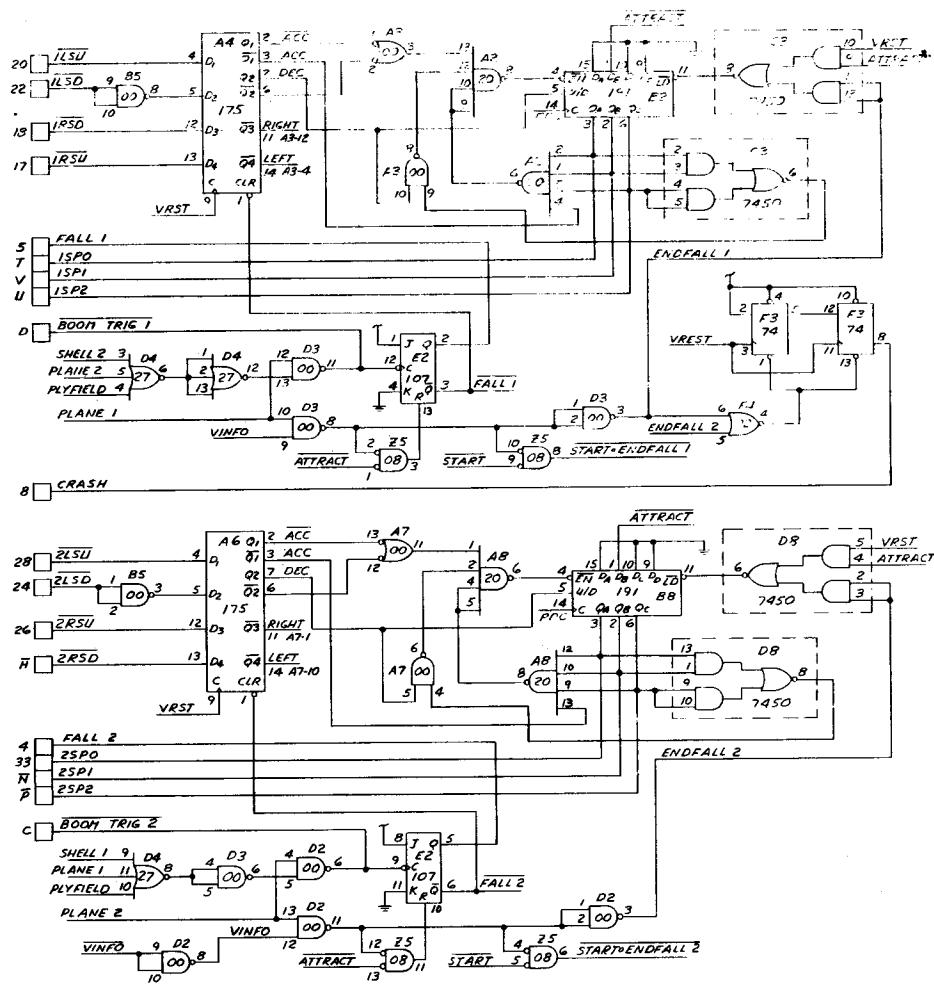
SCHÉMATIQUES



Cabinet Interconnections



Power Supply

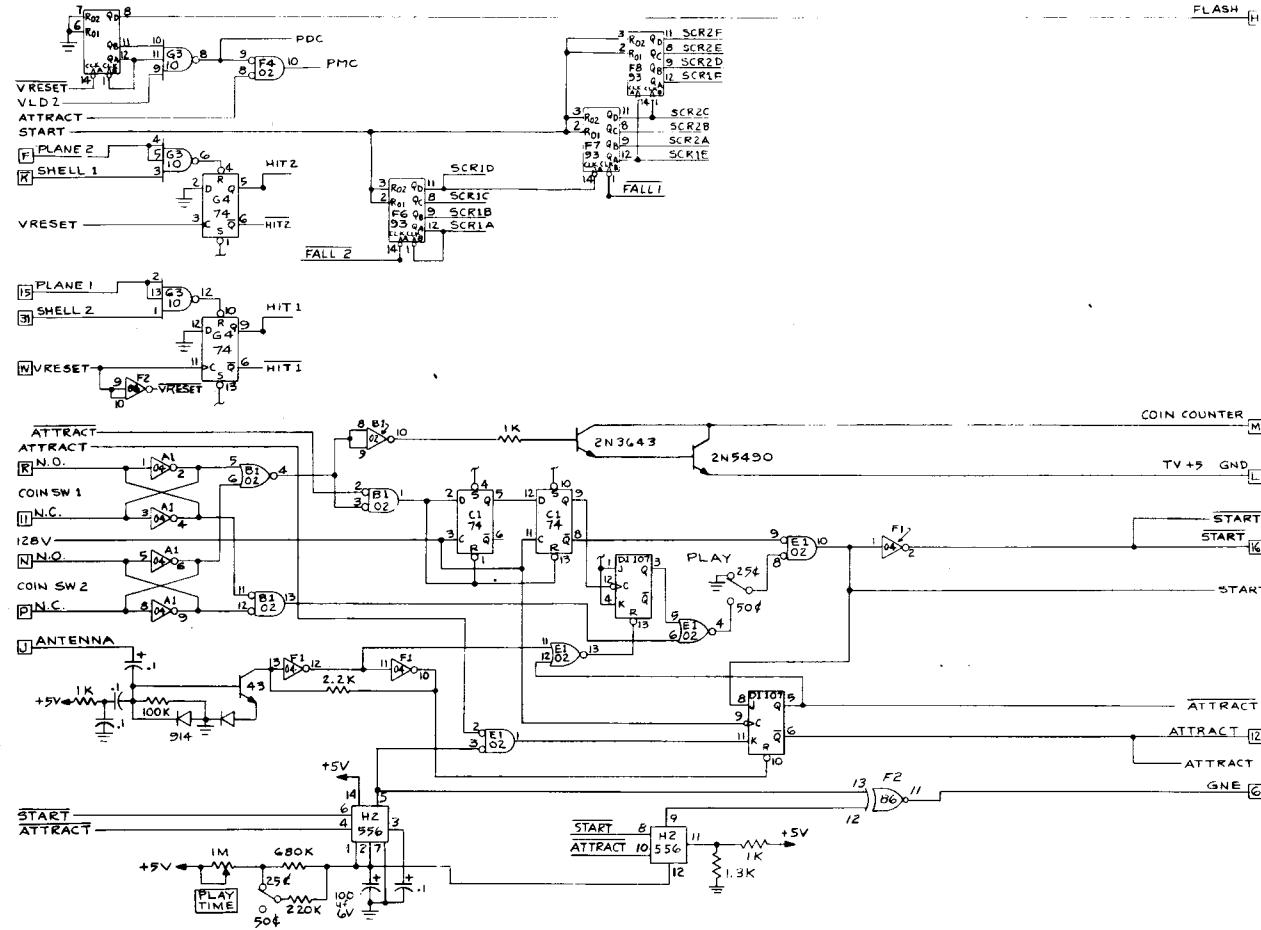


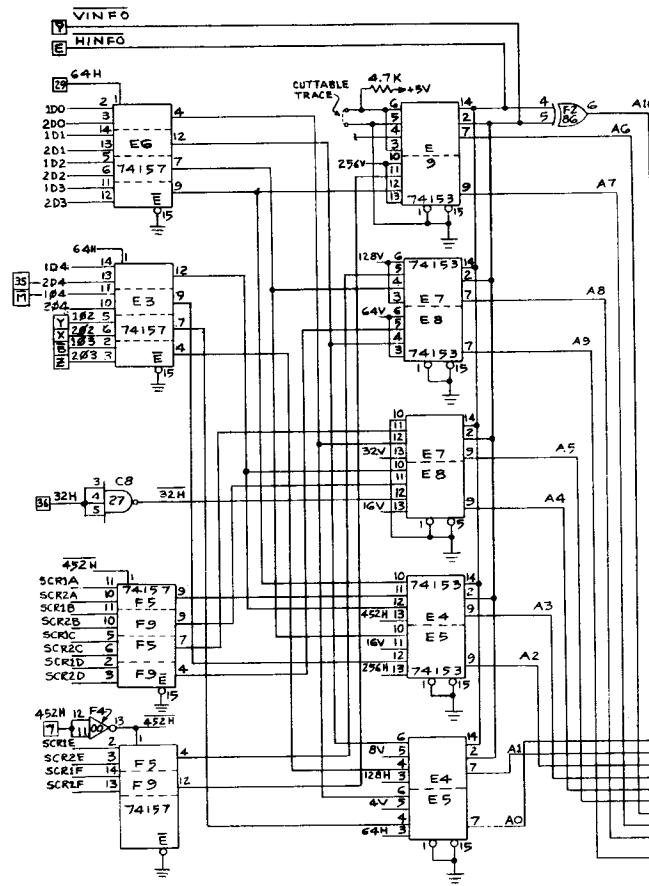
Memory Board 1 of 3

SCHEMATICS

SCHEMATICS

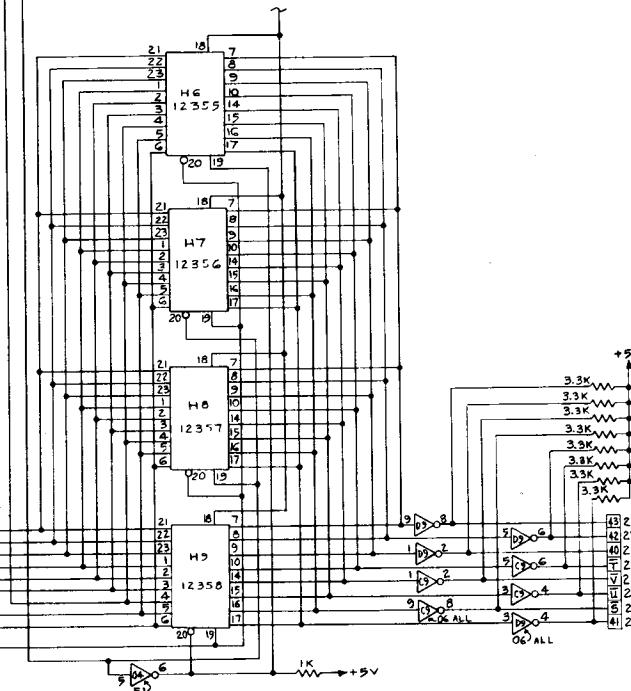
14





V And H Input Pin Assignments

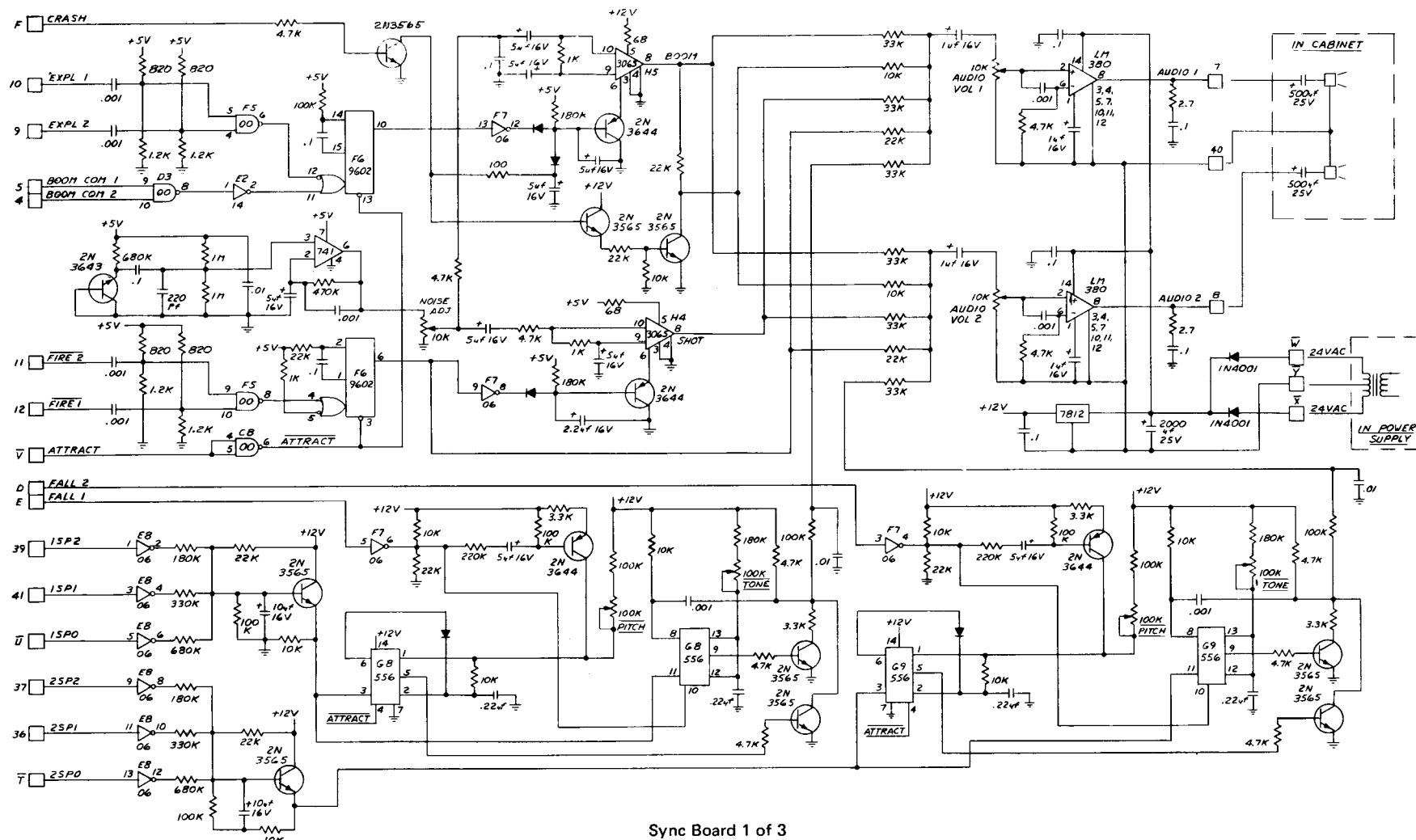
$4V - \bar{W}$	32H - 36
$8V - \bar{D}$	64H - 29
$16V - 8, \bar{X}$	128H - \bar{E}
$32V - 13$	256H - 13
$64V - 38$	452H - 7
$128V - 14$	
$256V - 39$	

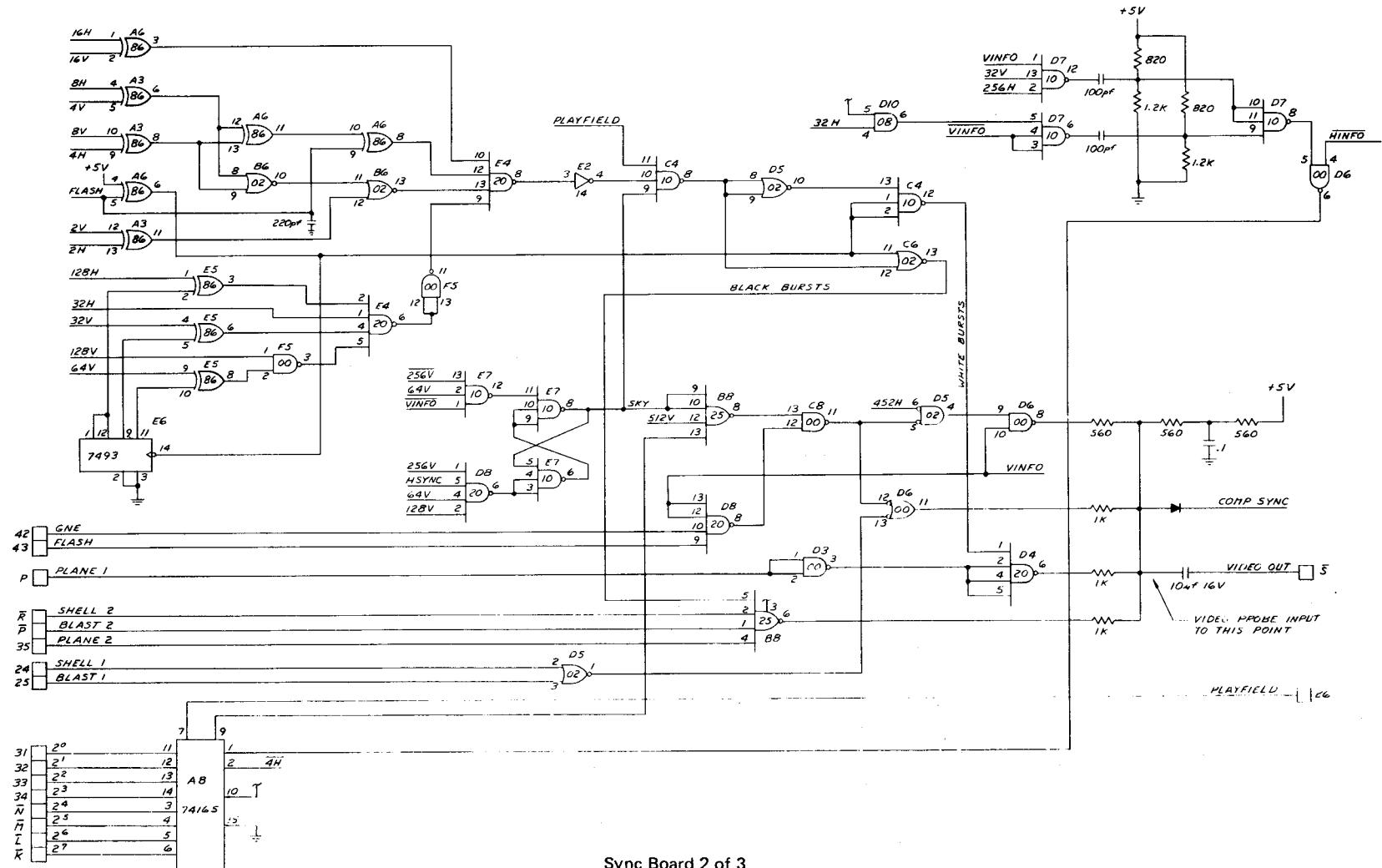


Memory Board 3 of 3

SCHEMATICS

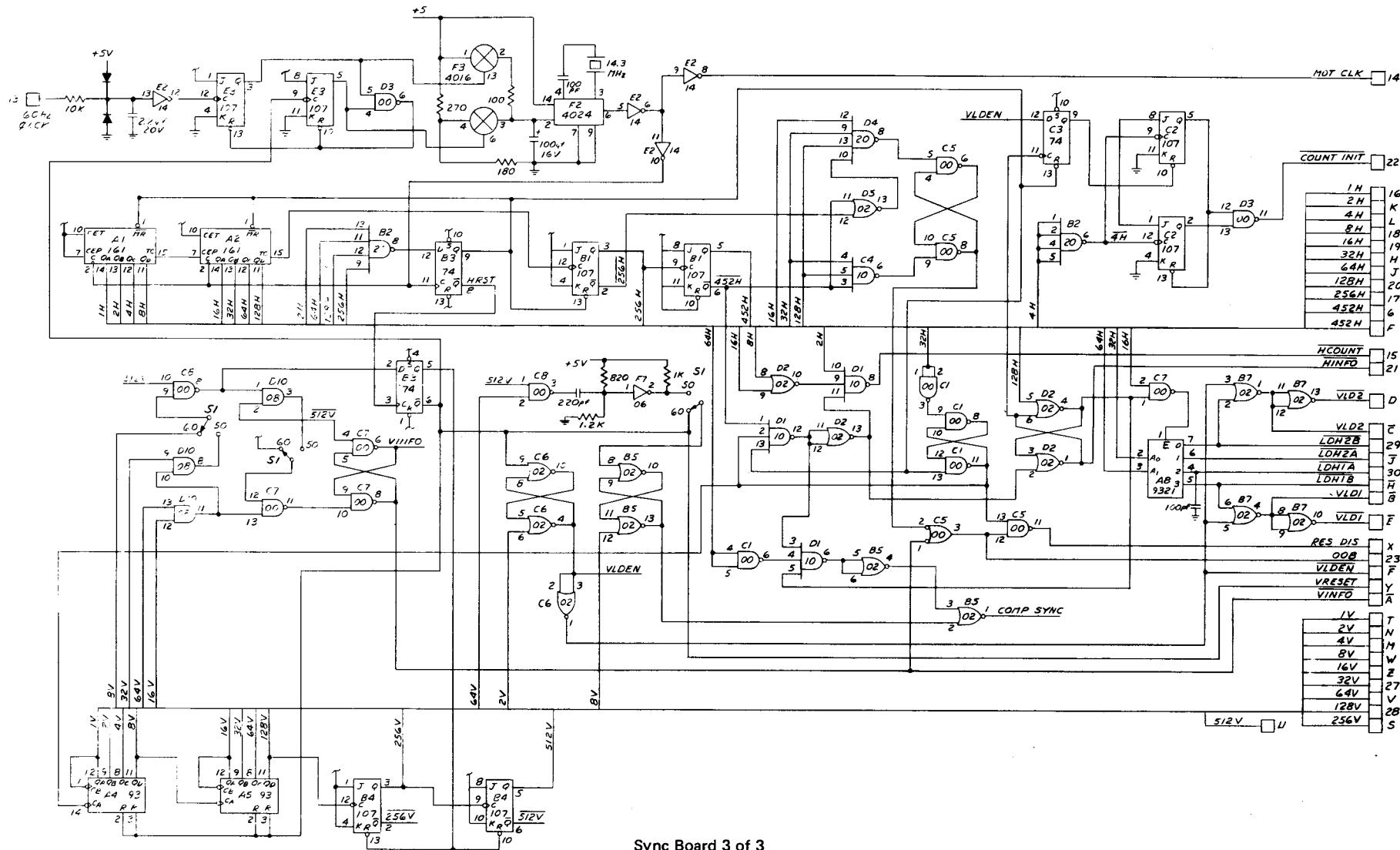
SCHEMATICS





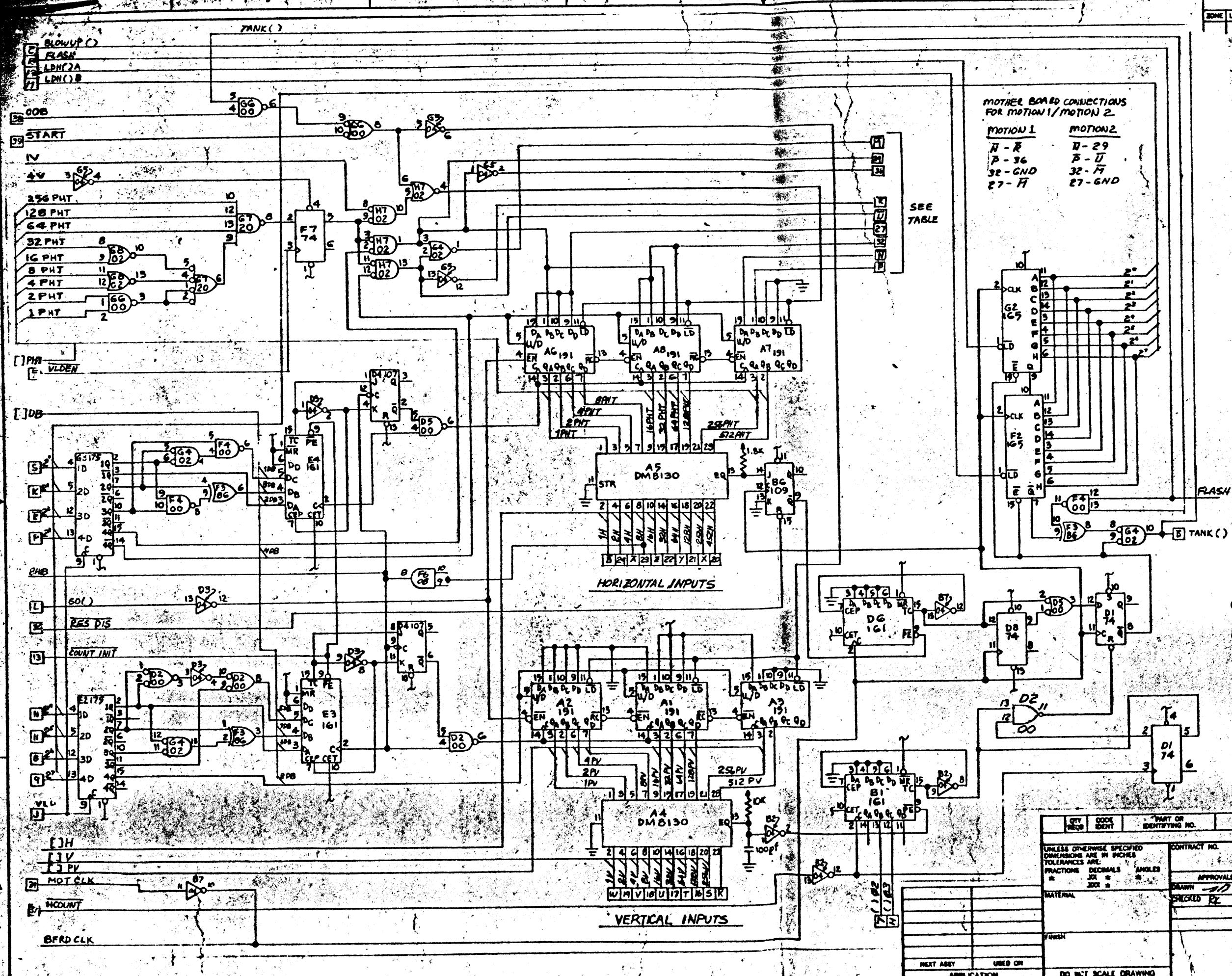
SCHEMATICS

SCHEMATICS

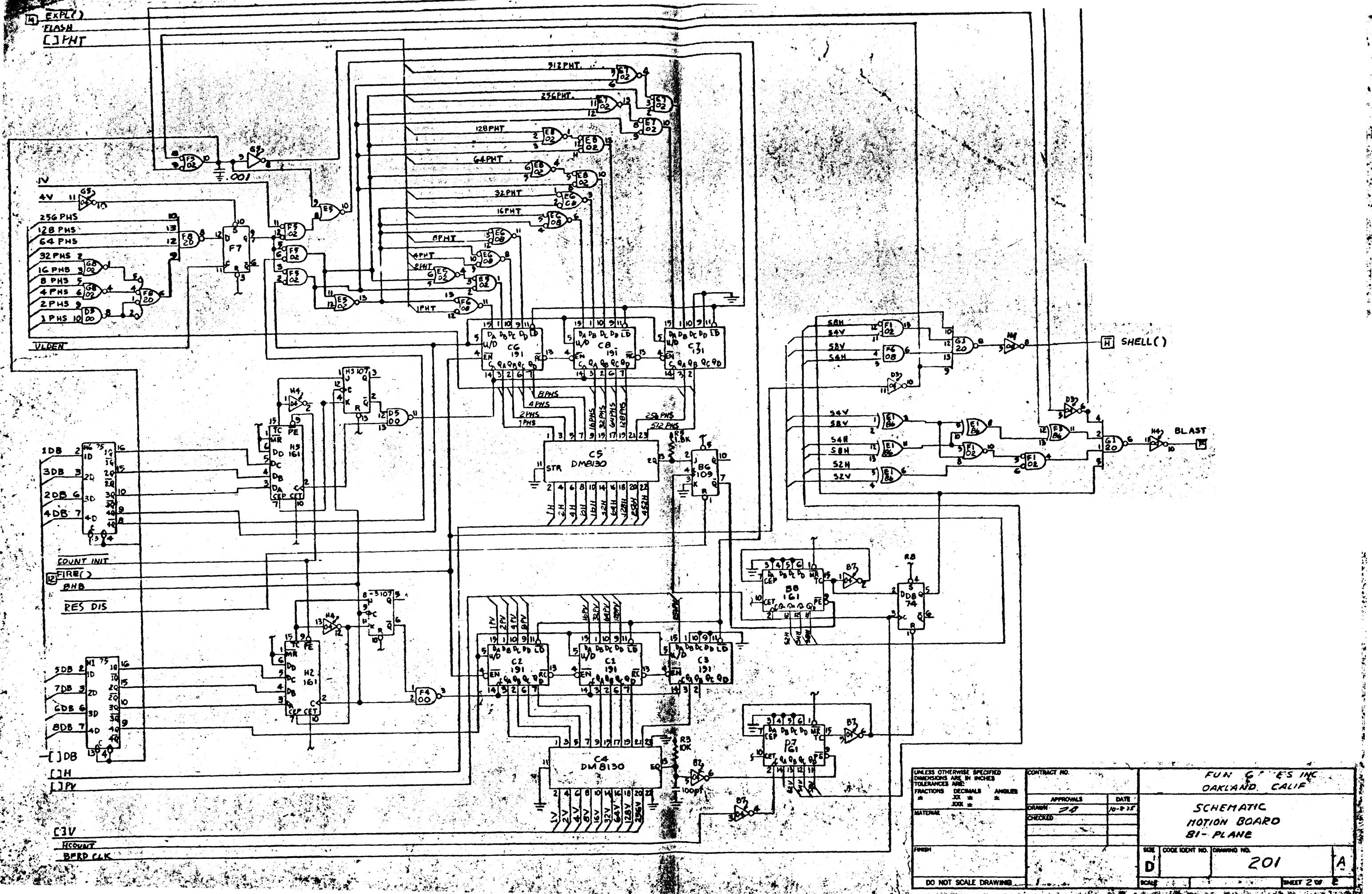


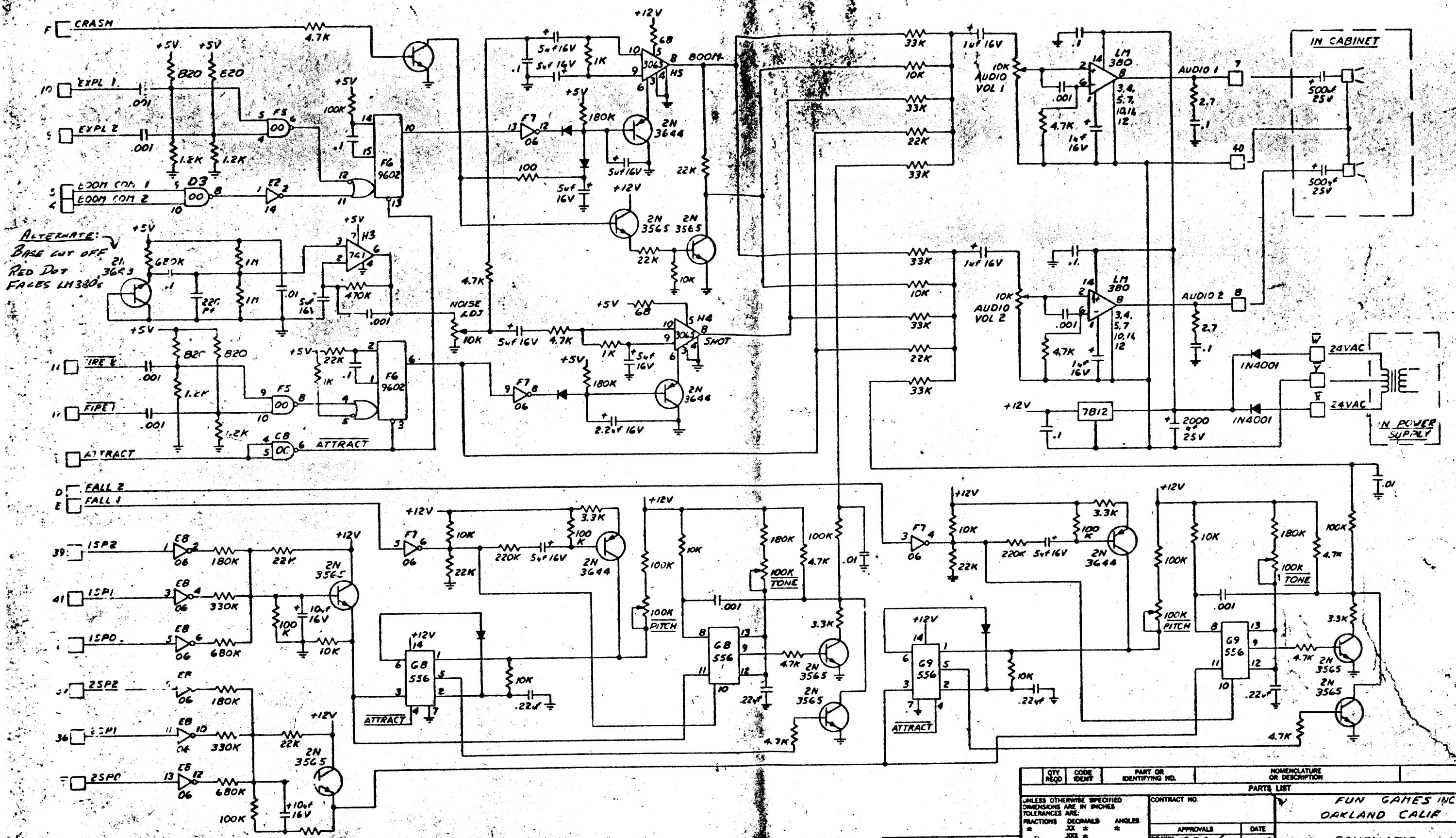
FUN GAMES INC.

8410 AMELIA ST., OAKLAND, CA 94621 (415) 568-5225



ZONE	LTR	DESCRIPTION	SIZE	APPROVED
FLASH				
NK()				
SYMBOLS				
↑ INDICATES PULL UP TO +5 THRU 1K RES				
+5				
() " 1 FOR BOARD ONE				
2 FOR BOARD TWO				
[] " ALL SIGNALS OF SIMILAR NAME				
NOMENCLATURE OR DESCRIPTION				
PARTS LIST				
I NO.		FUN GAMES INC OAKLAND CALIF		
APPROVALS	DATE			
AD	10-7-75			
PK	10-8-75			
SCHEMATIC MOTION BOARD BI-PLANE				
SIZE	CODE IDENT NO.	DRAWING NO.		
D		201	A	
SCALE				
SHEET 1 OF 2				



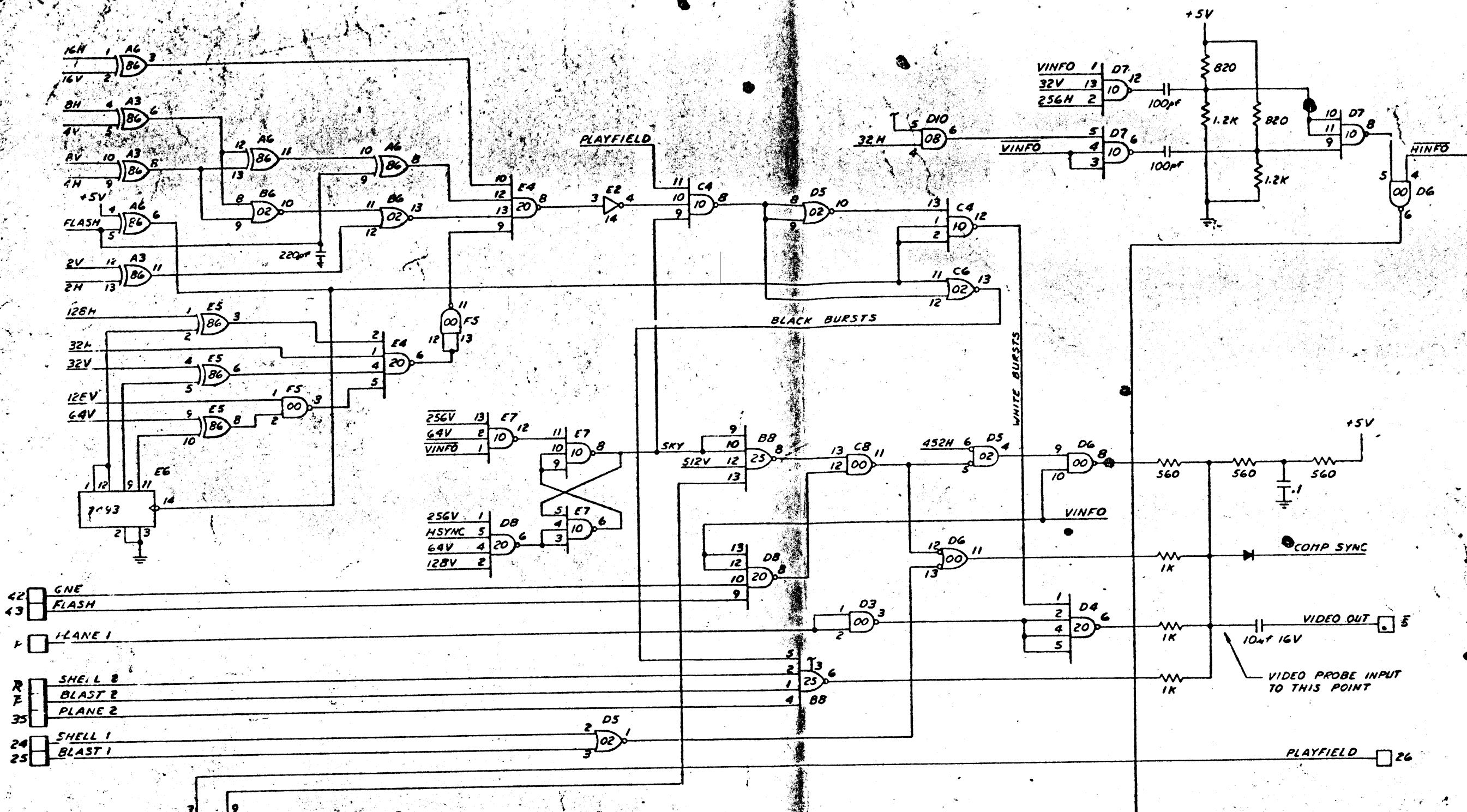


2. ALL RESISTORS ARE IN OH
1/4 W. 5% CC
3. ALL DIODES ARE IN 914

NOTE: UNLESS OTHERWISE NOTED

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION		
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES		CONTRACT NO.	V FUN GAMES INC ORLAND CALIF		
$\frac{1}{8}$ $\frac{1}{16}$ $\frac{1}{32}$ $\frac{1}{64}$ $\frac{1}{128}$		APPROVALS	DATE	SCHEMATIC SYNC BOARD B1 - PLANE	
		DRAWN JBLK	10-1-75		
		CHECKED RK	10-22-75		
MATERIAL				SIZE	CODE IODC NO.
				DRAWING NO.	
FINISH				D	202
ON	DO NOT SCALE DRAWING		SCALE	A	
				SHEET / OF 3	

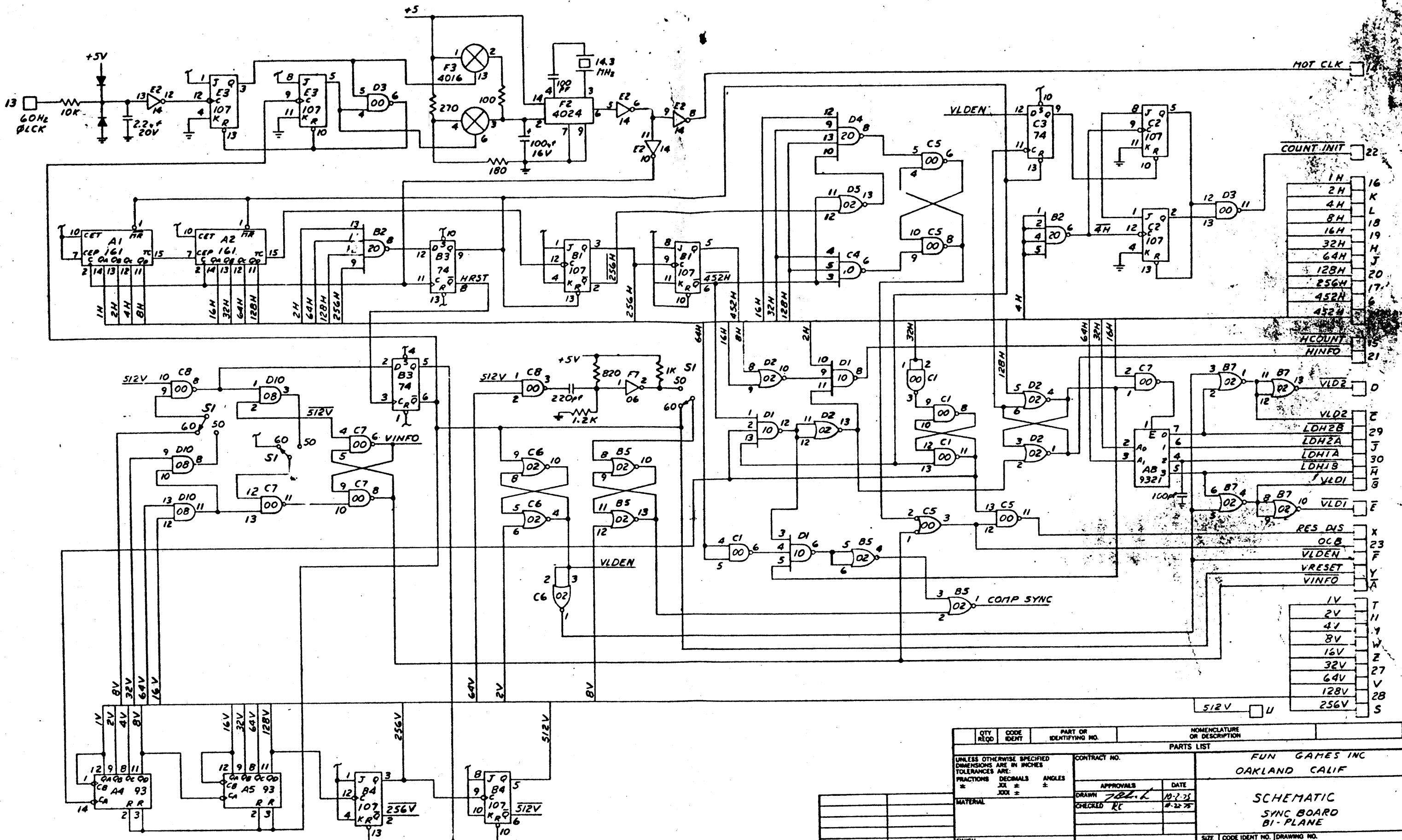
ZONE	LTR	DESCRIPTION	DATE	APPROVED
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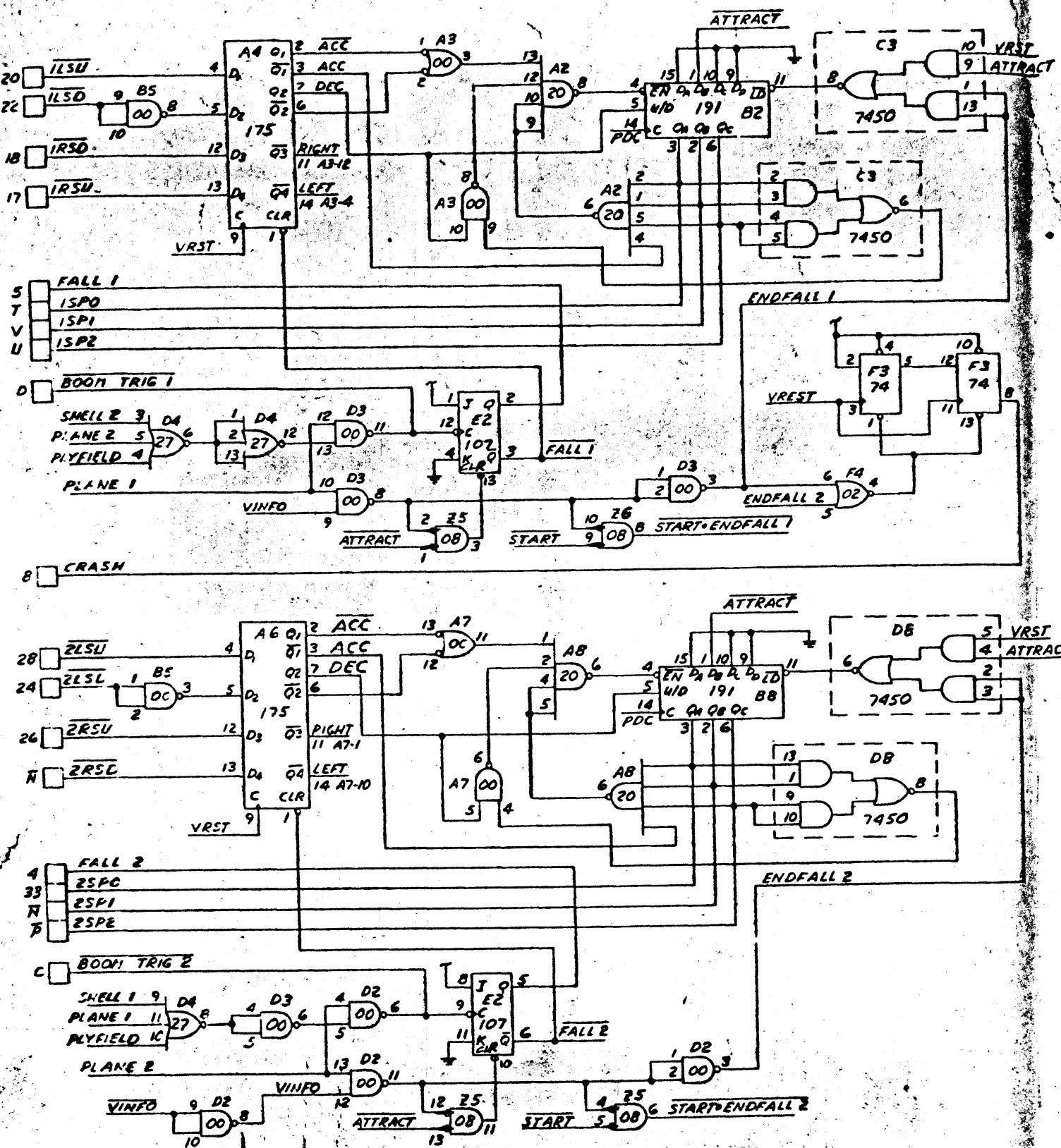
QTY REQ'D	CODE IDENT	PART OR IDENTIFYING NO.	DESCRIPTION
PARTS LIST			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± .001 ± .001 ± .001		CONTRACT NO.	
MATERIAL		APPROVALS	DATE
FINISH		DRAWN	9-25-85
METHOD		CHECKED	10-22-85
APPLICATION		REVISED	1
NOTES		DO NOT SCALE DRAWING	
DRAWING NO.		202	1
CODE IDENT NO.		202	1
DATE		10-22-85	1
SHEET		2 of 3	1

RUN GAMES INC
OAKLAND CALIF

SCHEMATIC
SYNC BOARD
BI-PLANE

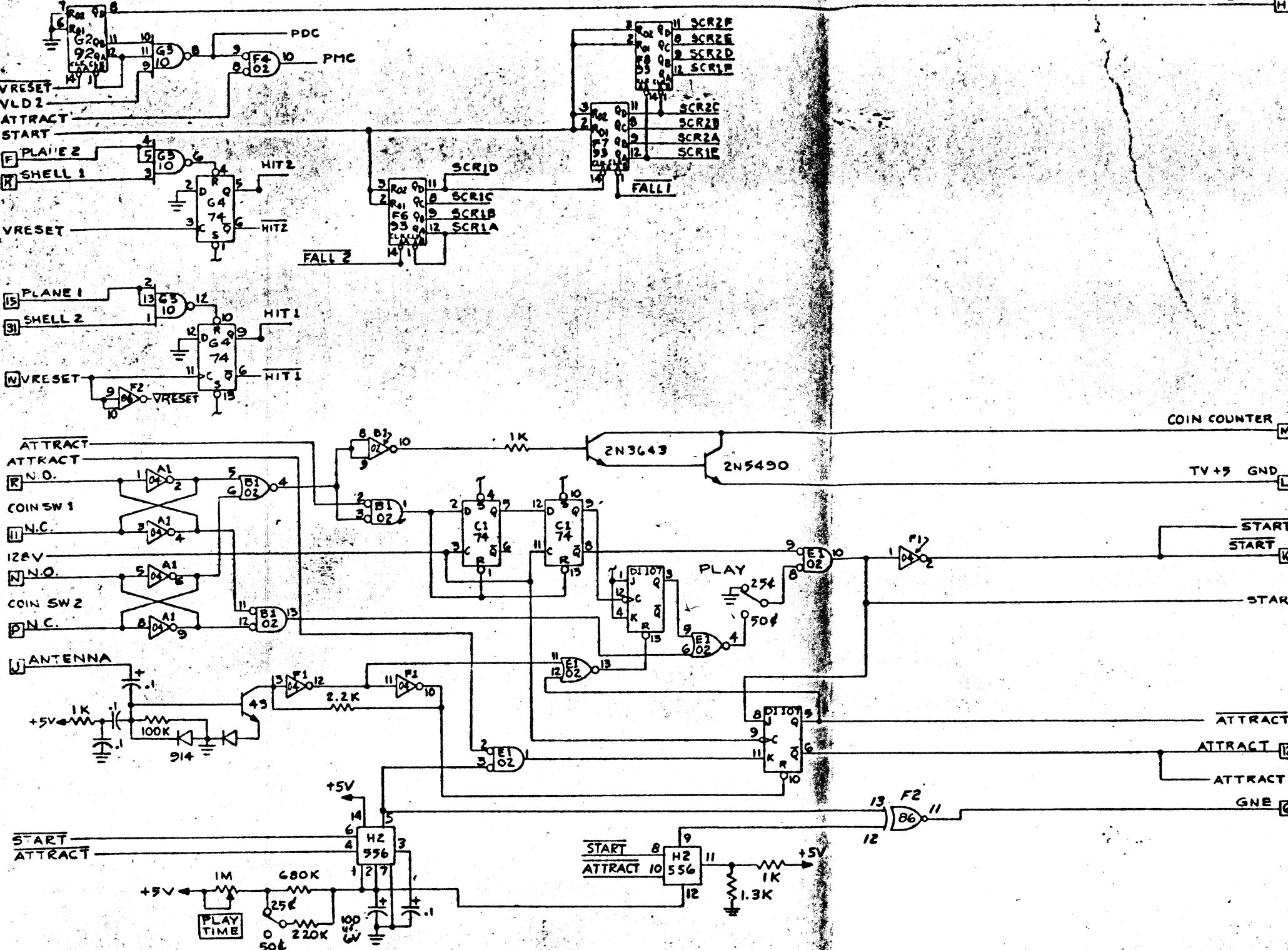


QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION		
PARTS LIST					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES * . ± JXX ± JXX ±		CONTRACT NO.	FUN GAMES INC OAKLAND CALIF		
MATERIAL		APPROVALS	DATE	SCHEMATIC SYNC BOARD BI-PLANE	
		DRAWN <i>Jeb-L</i>	10-7-75		
		CHECKED <i>RE</i>	8-22-75		
FINISH			SIZE	CODE IDENT NO.	DRAWING NO.
			D		202
DO NOT SCALE DRAWING			SCALE		SHEET 3 OF 3



ZONE	LTR	DESCRIPTION	DATE	APPROVED
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FLASH H



QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	
PARTS LIST			CONTRACT NO.	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES ± .0X ± ± .00X ±			APPROVALS DATE	
MATERIAL			DRAWN 7-22	14-8-75
FINISH			CHECKED RZ	ROUTE
NEXT ASSY			USED ON	
APPLICATION			DO NOT SCALE DRAWING	

FUN GAMES INC.
OAKLAND CALIF.

SCHEMATIC
MEMORY BOARD
BI-PLANE

SIZE CODE IDENT NO. DRAWING NO.
D 204 A

SCALE SHEET 2 of 3

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

VH INPUT PIN ASSIGNMENT

