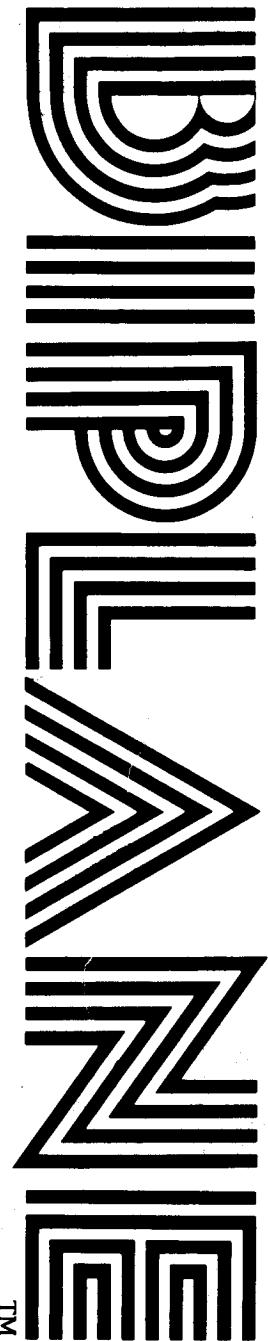


**FUN GAMES INC.**

**INSTRUCTION  
MANUAL**

JANUARY 1976



# TABLE OF CONTENTS

General Instructions .....	3
Components and Descriptions .....	4 thru 7
Trouble Shooting.....	8
Price List .....	9
Motion Board Schematics .....	10 & 11
Cabinet Interconnection Schematic .....	12
Power Supply Schematic .....	12
Memory Boards Schematics .....	13, 14 & 15
Sync Boards Schematics .....	16, 17 & 18
Warranty .....	19

# 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.

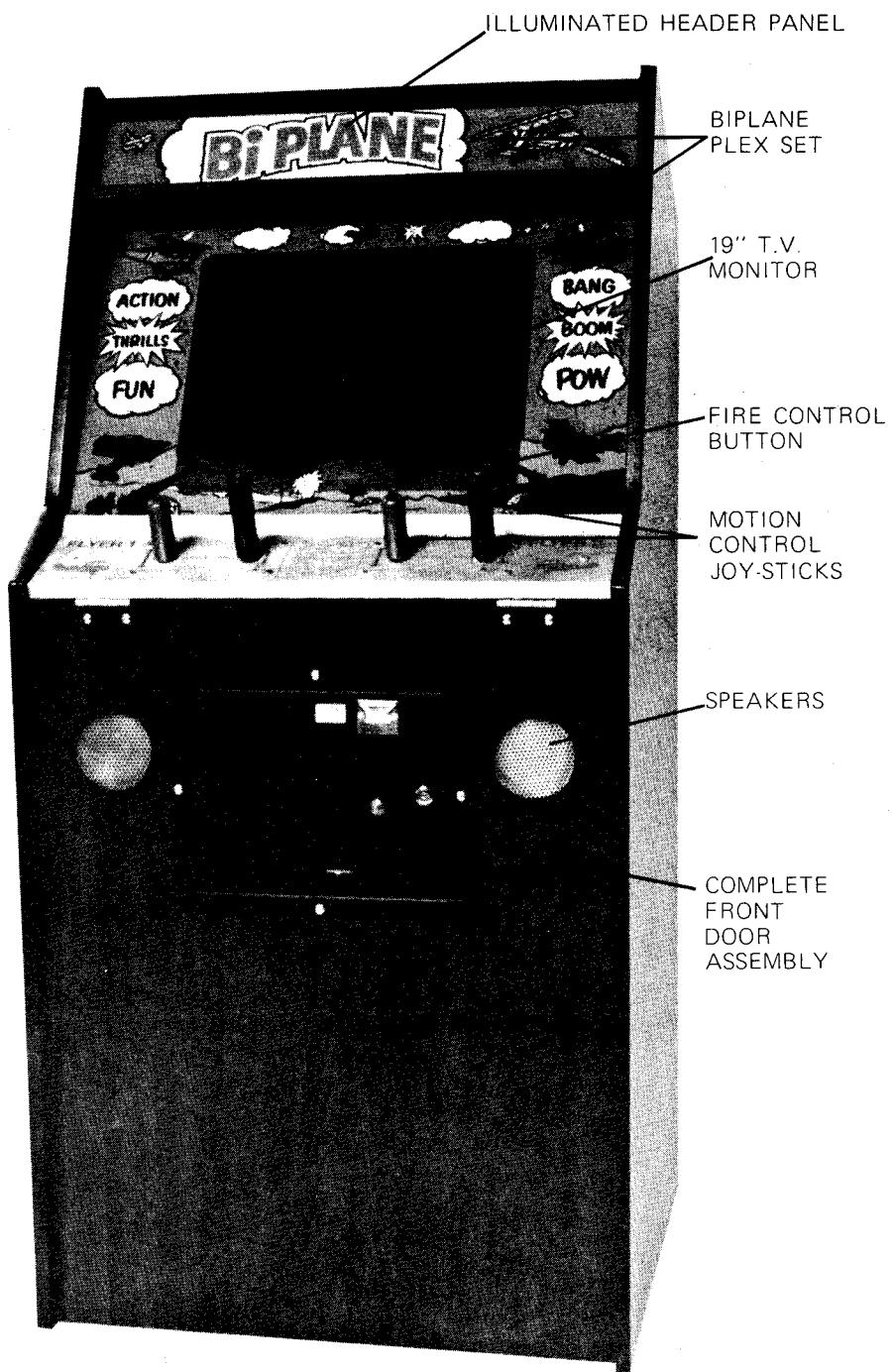
## PITCH 1:

Same as pitch 2 for white plane.

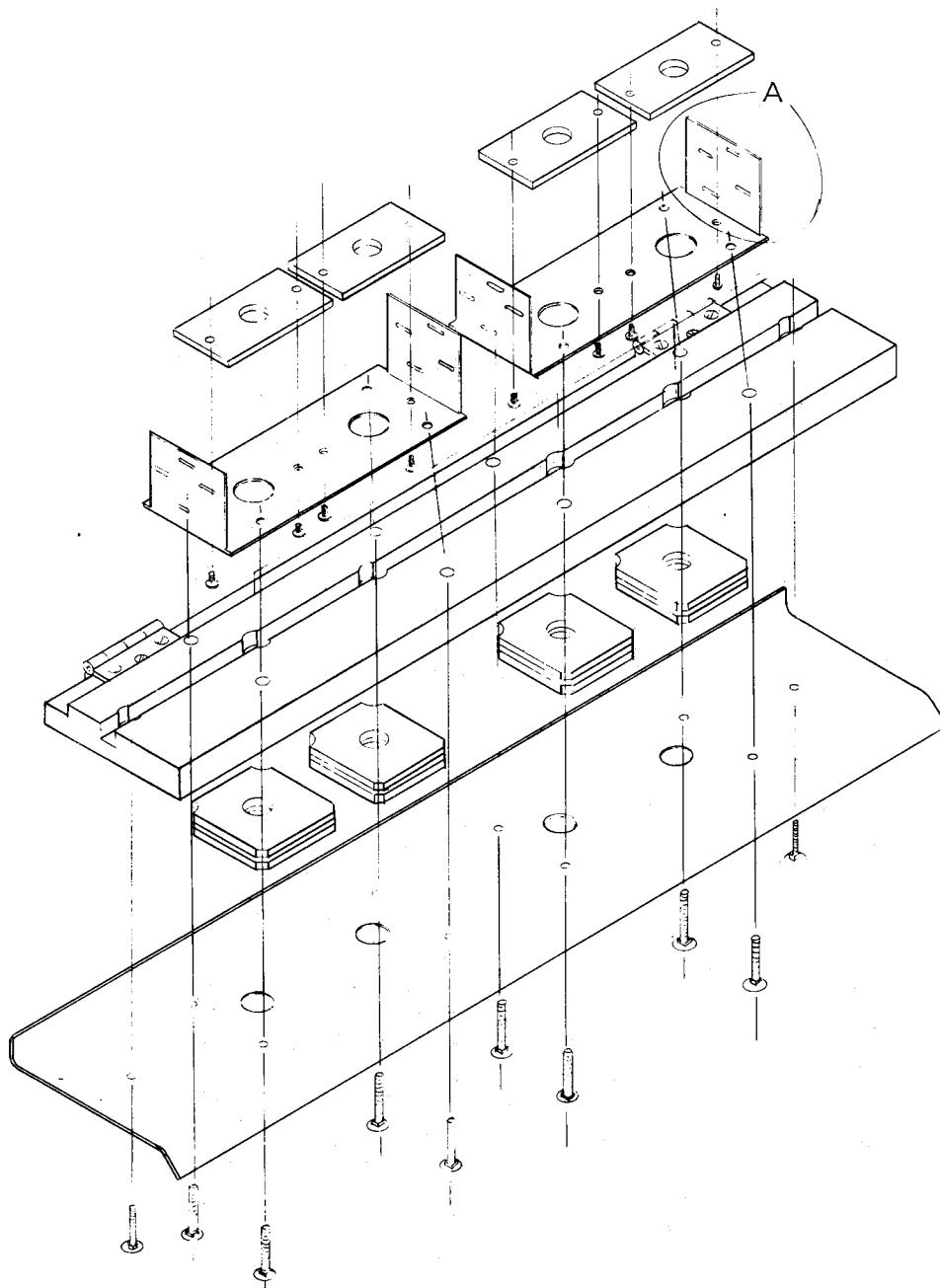
## TONE 1:

Same as tone 2 for white plane.

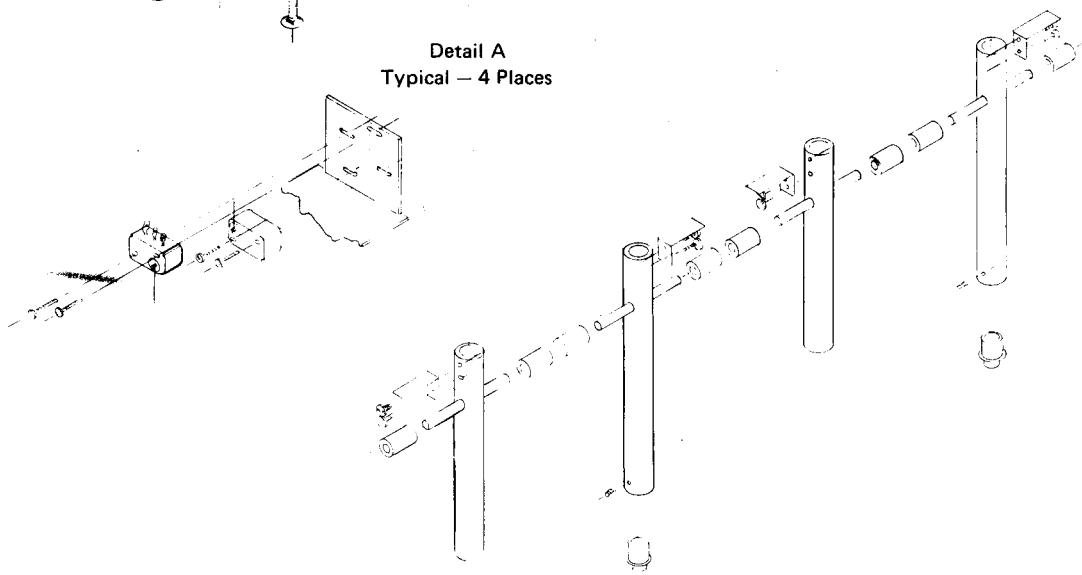
NOTE: BE SURE ALL BOARDS ARE PROPERLY SEATED, INCLUDING INTERCONNECT BOARDS IN HARNESS CONNECTOR.

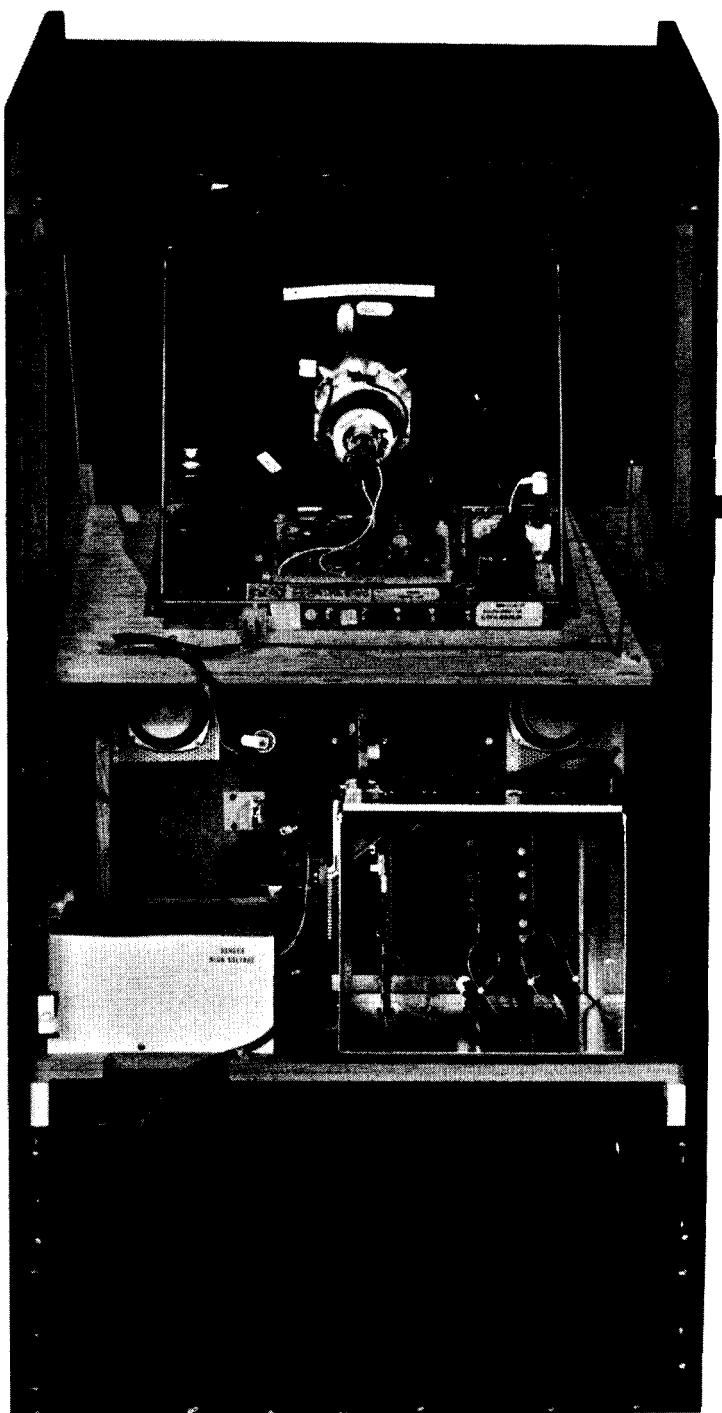


# AND DESCRIPTION

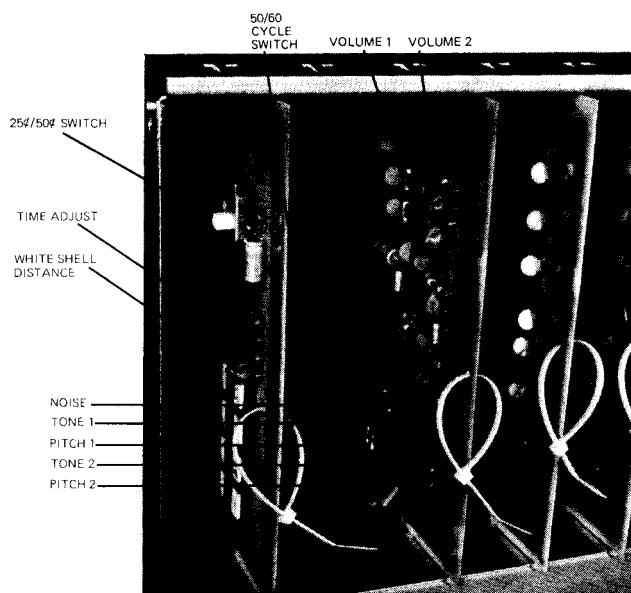
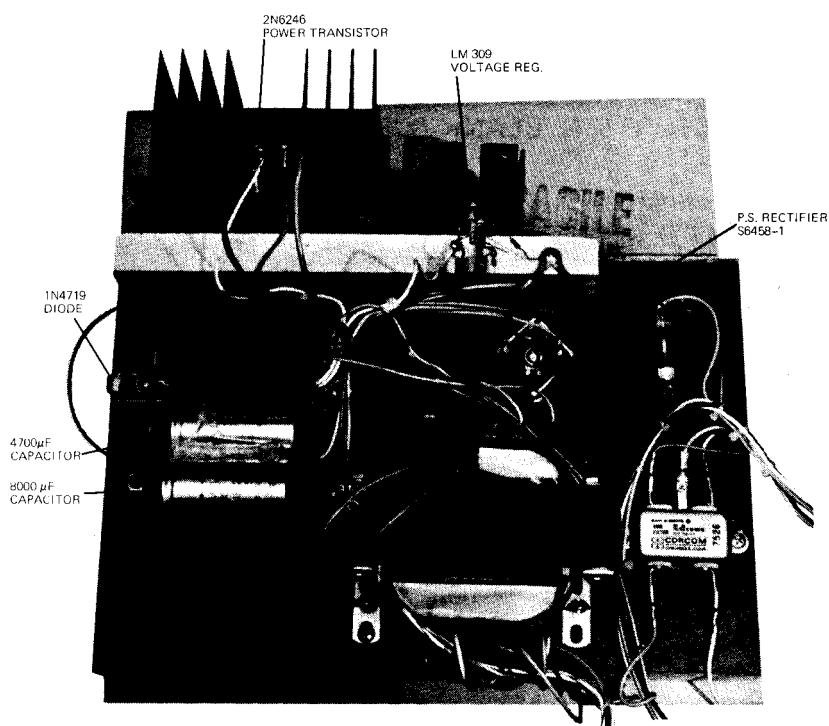


Detail A  
Typical — 4 Places





# 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**

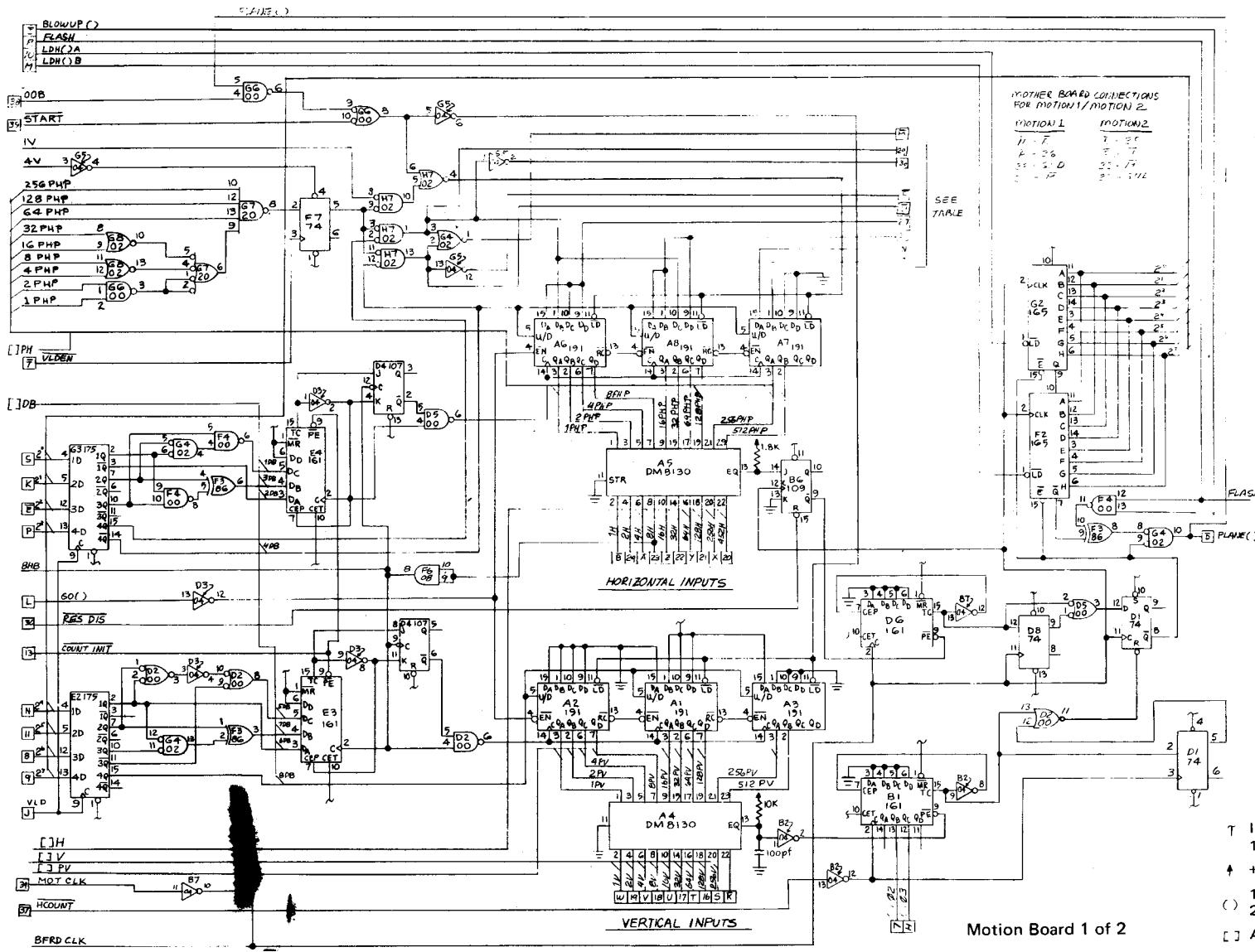
<b>PART #</b>	<b>DESCRIPTION</b>	<b>UNIT PRICE</b>
300-200	Power Supply	75.00
500-206	Mother Board	75.00
500-201	Motion Board	250.00
500-202	Synch Board	250.00
500-204	Memory Board	250.00
500-200	Set of PC Boards w/Cage	750.00
600-200	Control Panel	75.00
400-100	Coin Door Assembly	55.00
34-64581	P.S. 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

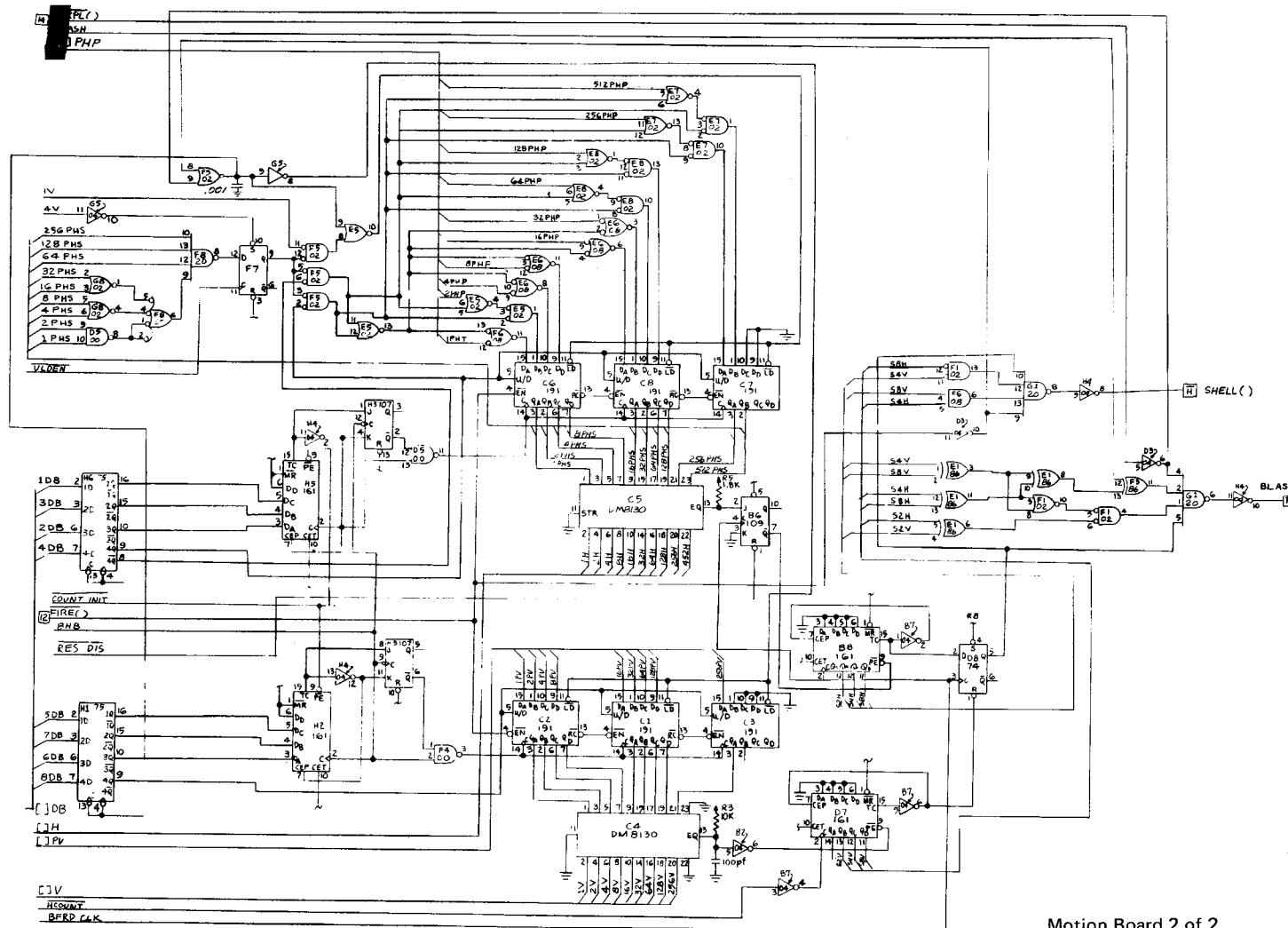
**Minimum Order - \$25.00**

# SCHEMATICS

10



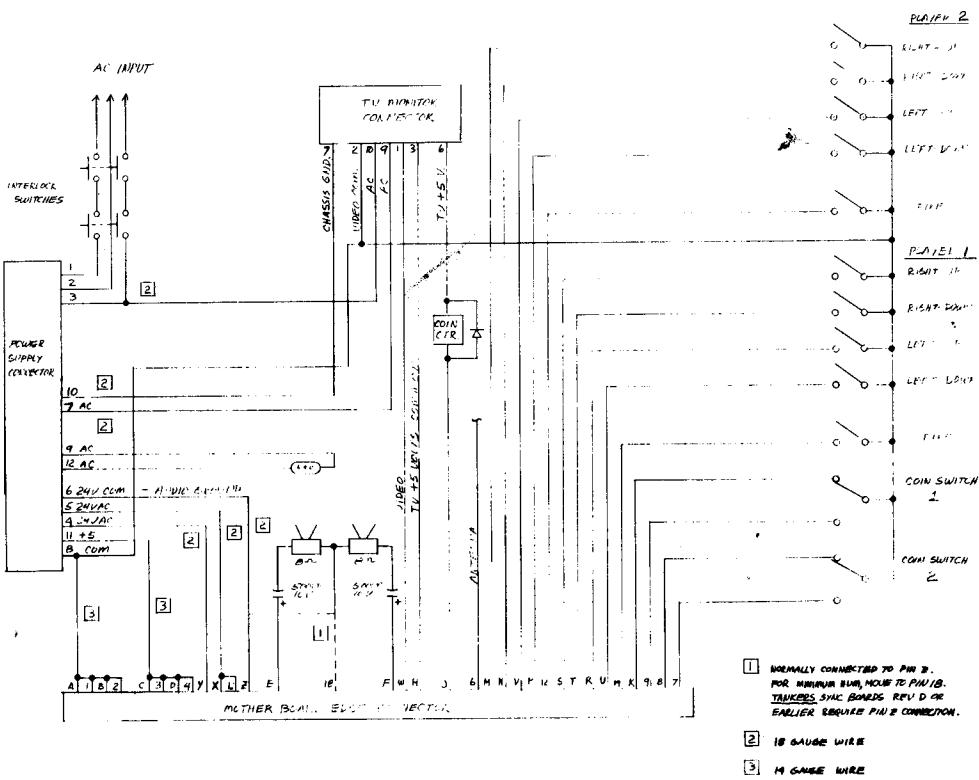
Motion Board 1 of 2



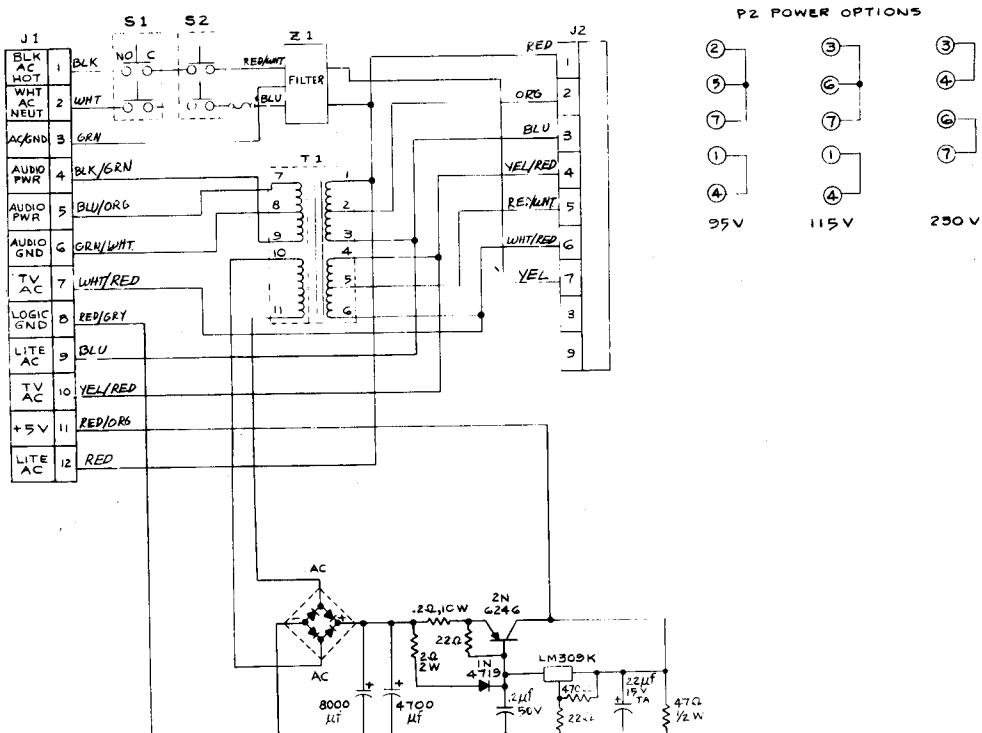
Motion Board 2 of 2

# SCHEMATICS

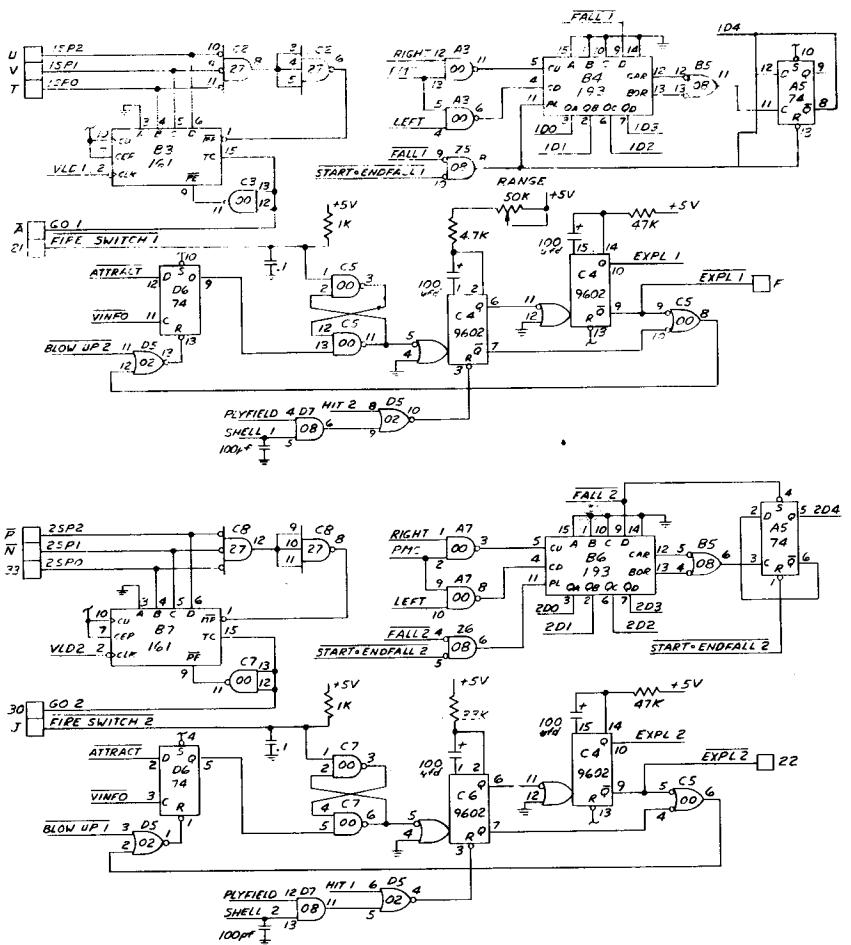
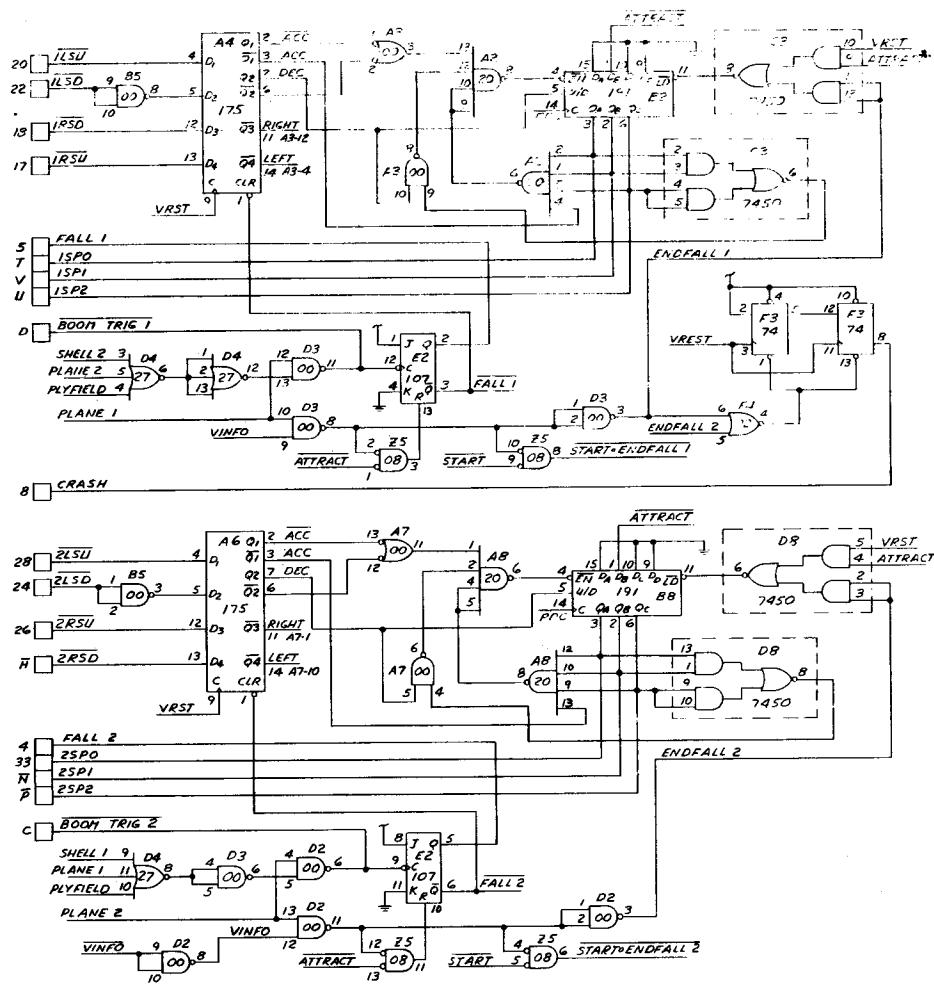
# SCHHEMATICS



Cabinet Interconnections



Power Supply

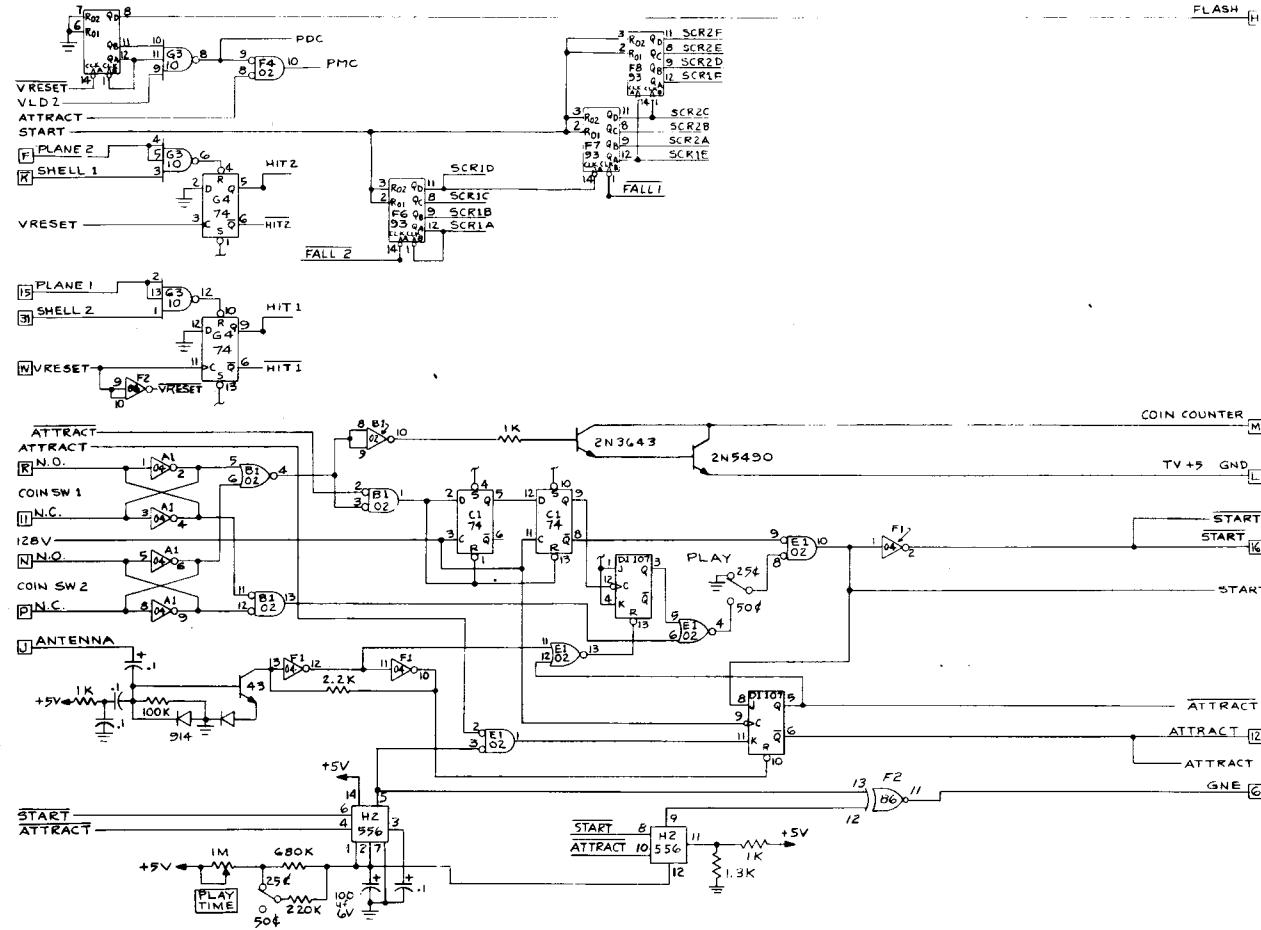


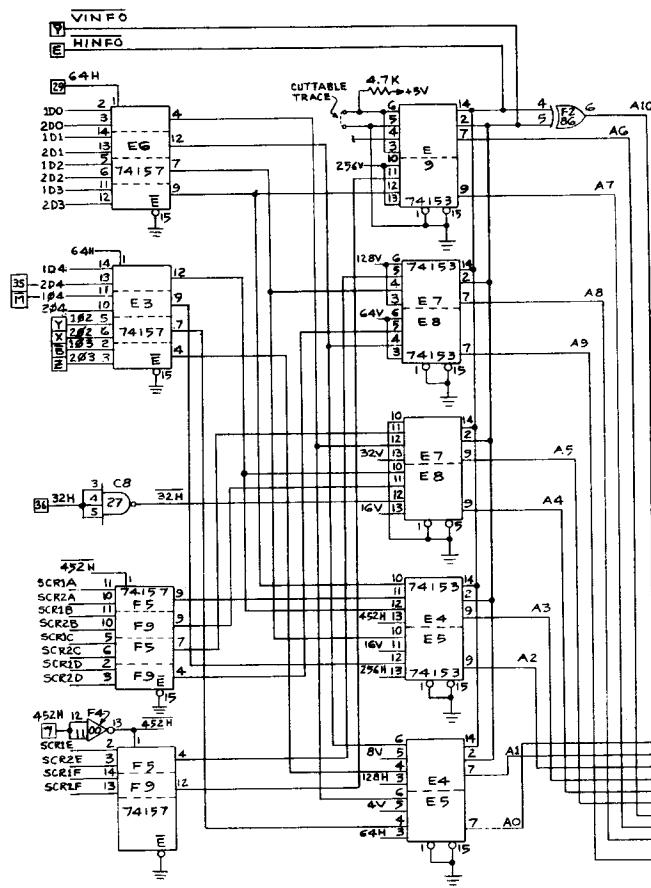
Memory Board 1 of 3

# SCHEMATICS

# SCHEMATICS

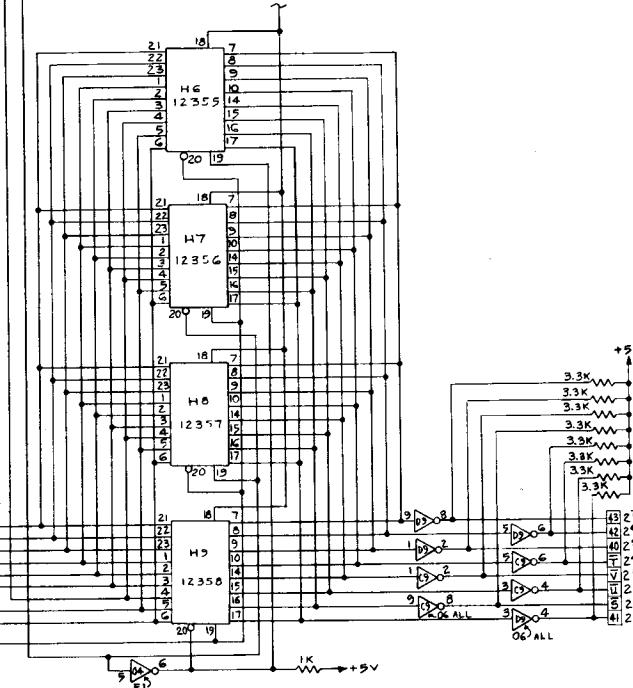
14





#### V And H Input Pin Assignments

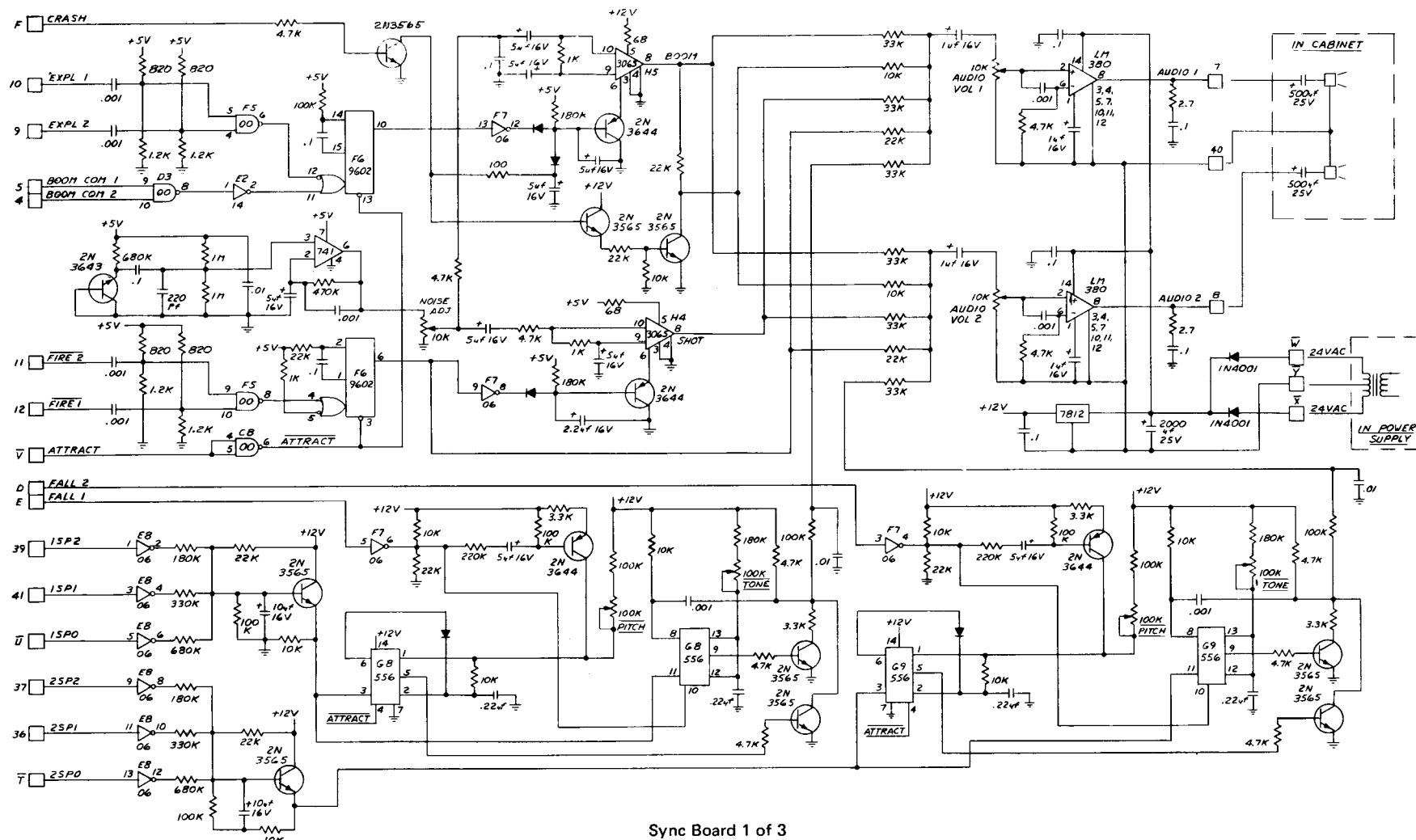
4V – W	32H – 36
8V – D	64H – 29
16V – 8, X	128H – E
32V – 13	256H – 13
64V – 38	452H – 7
128V – 14	
256V – 39	



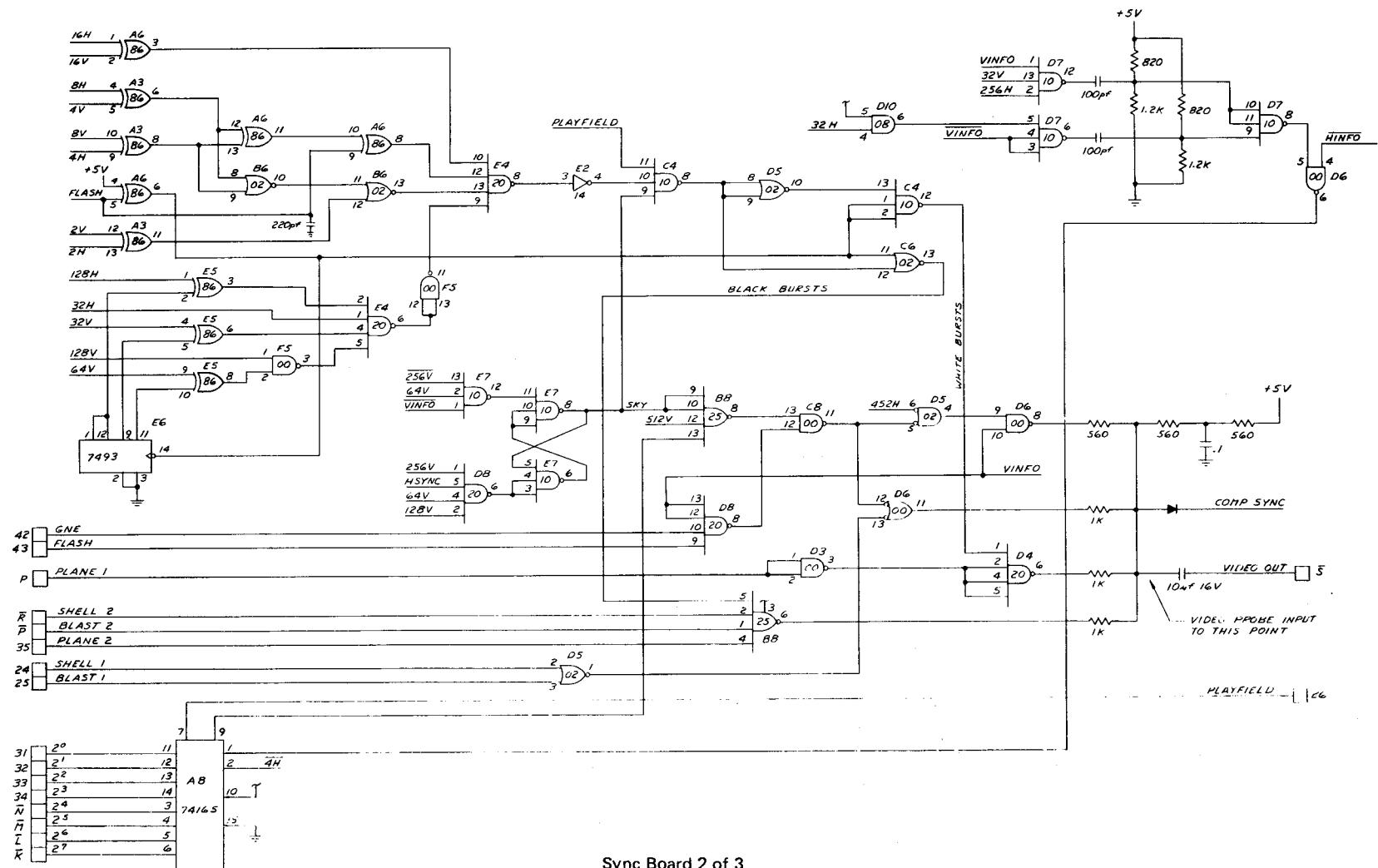
Memory Board 3 of 3

# SCHEMATICS

# SCHEMATICS

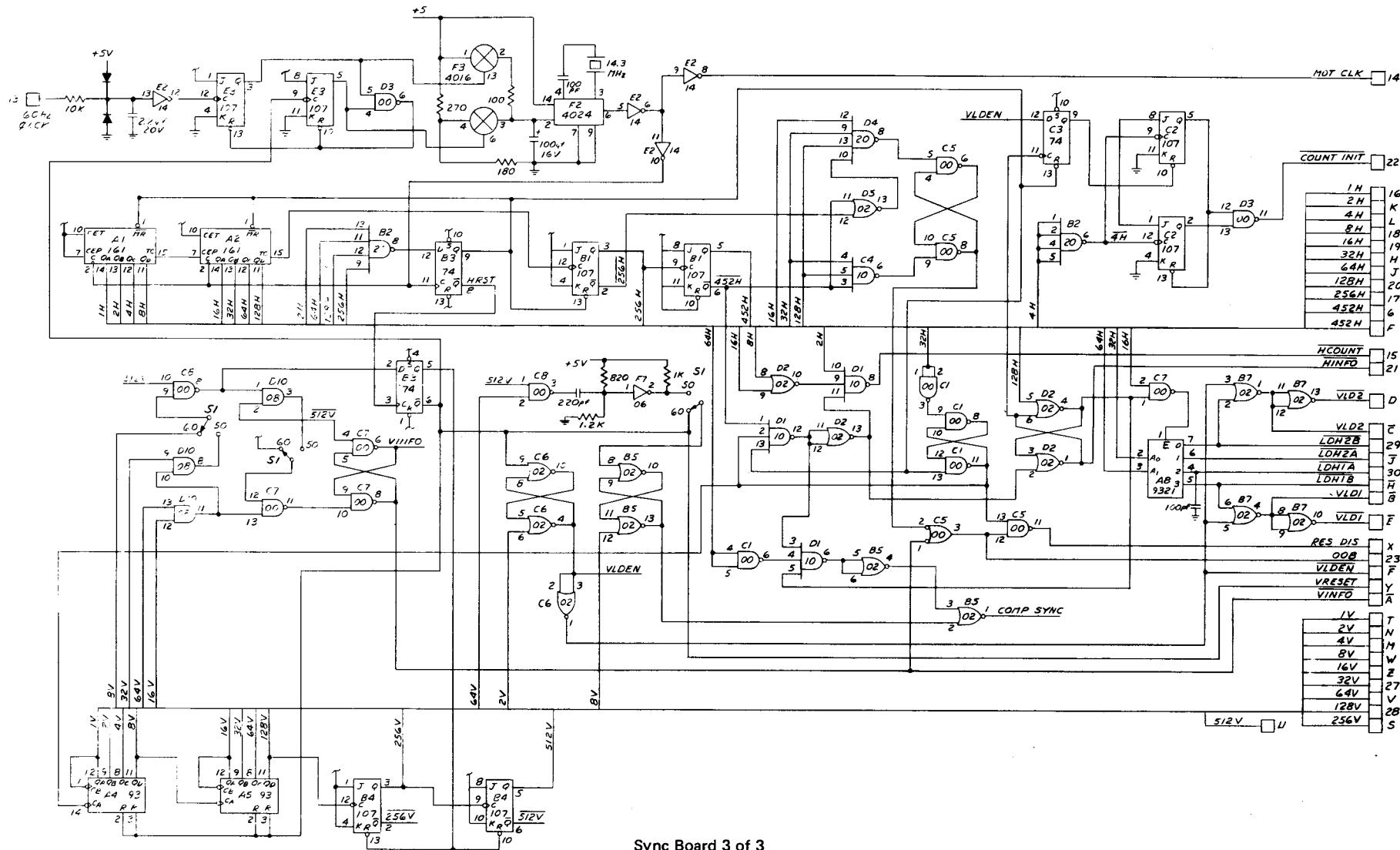


Sync Board 1 of 3



# SCHEMATICS

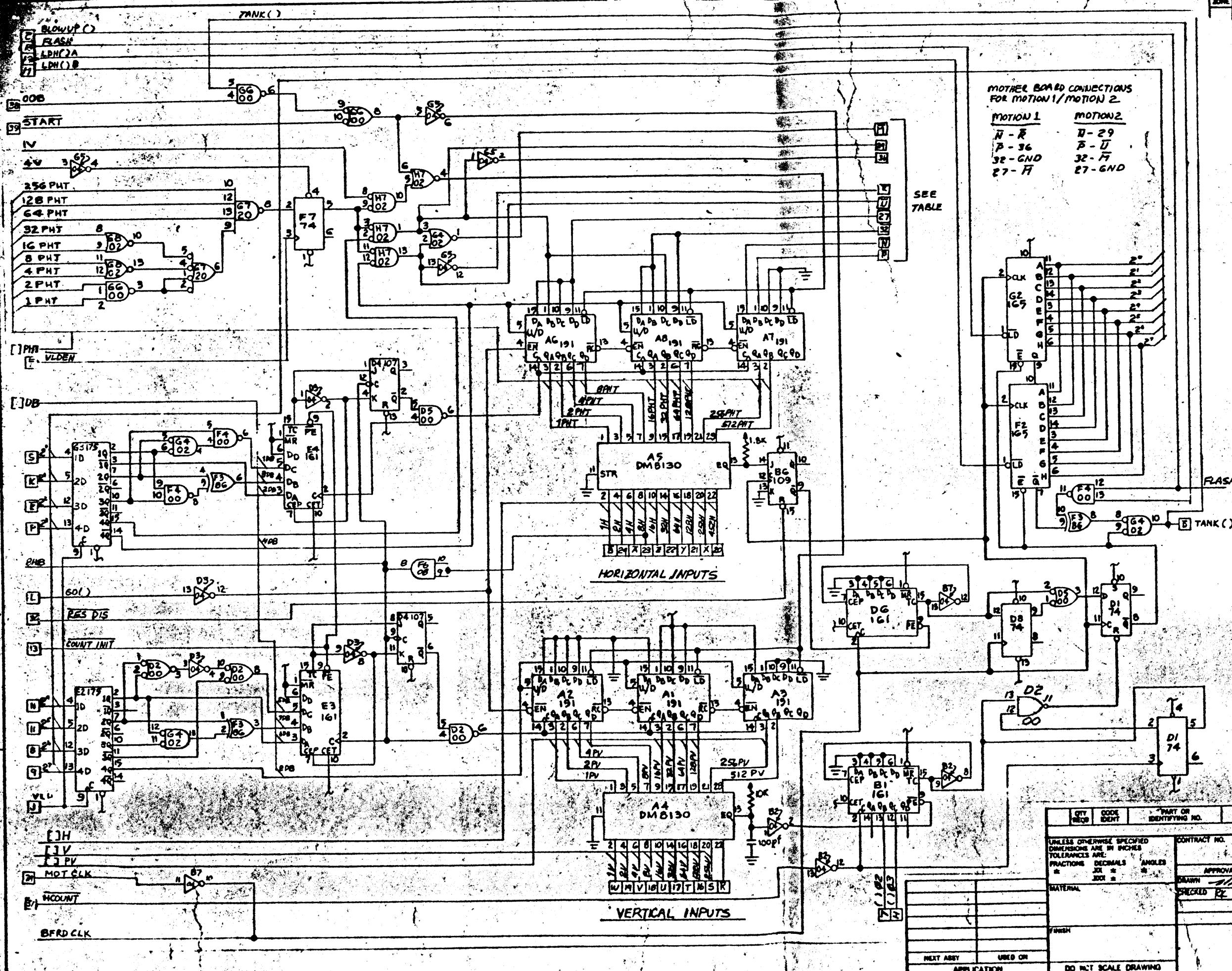
# SCHEMATICS

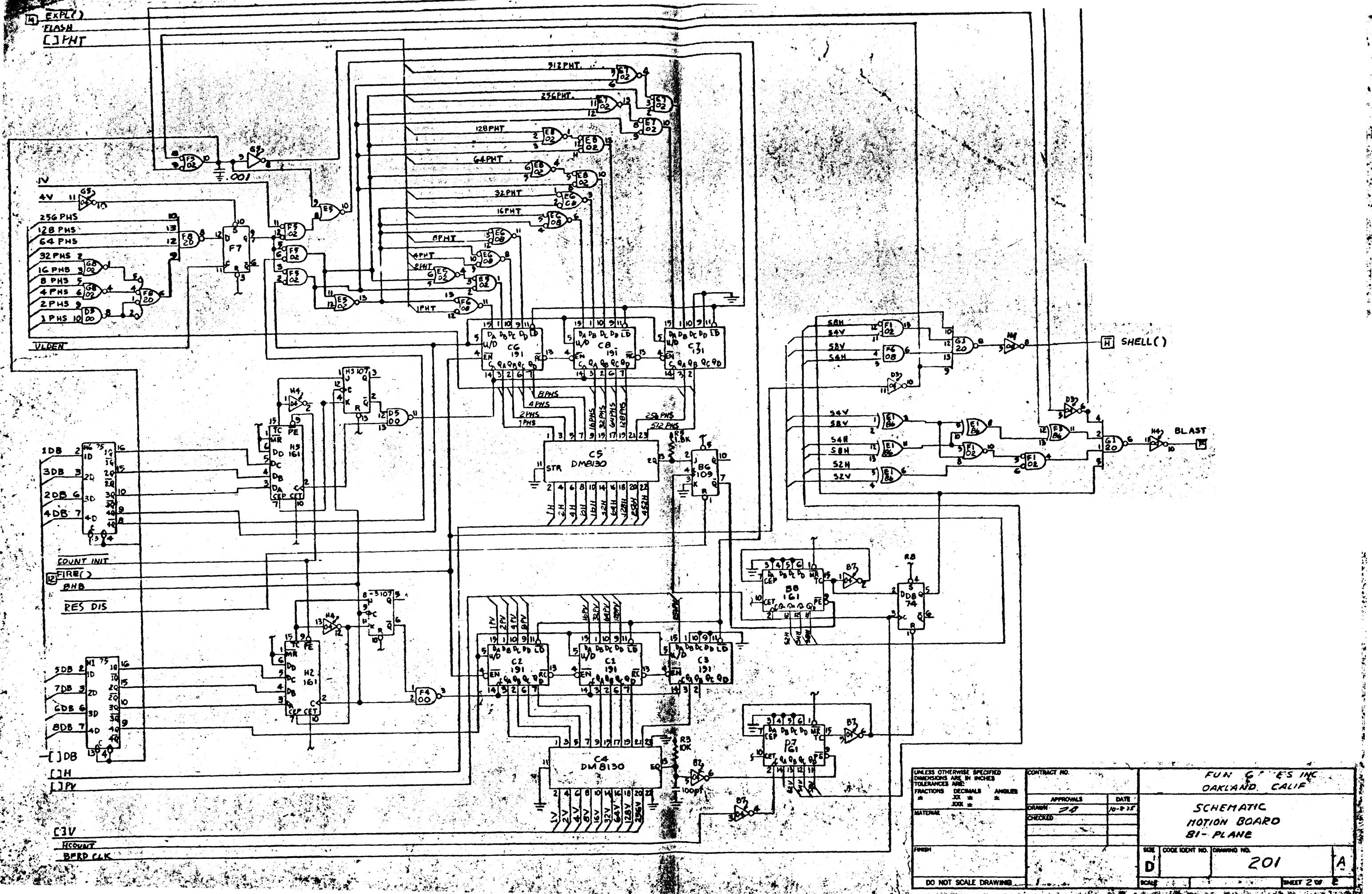


**FUN GAMES INC.**

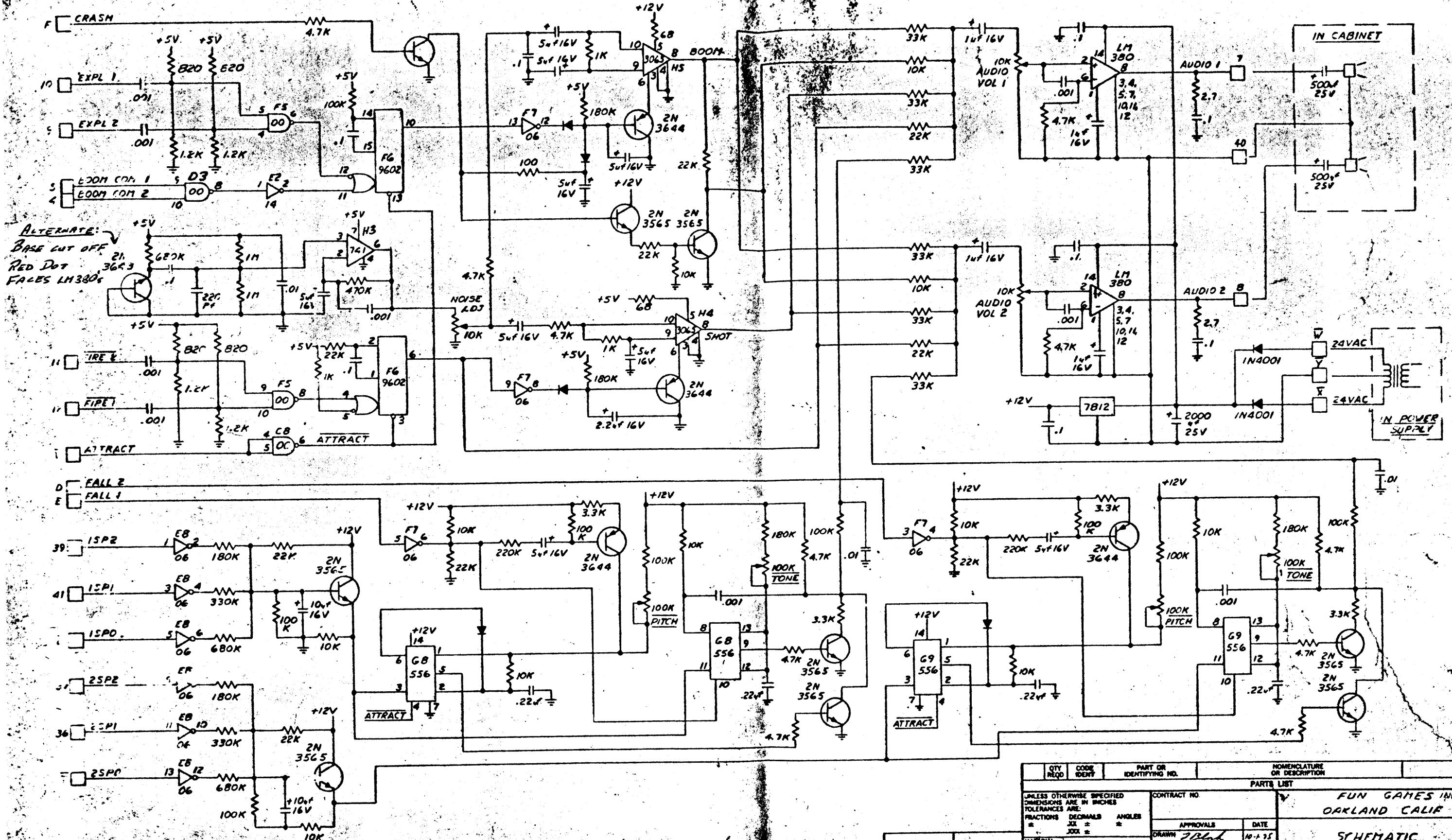
8410 AMELIA ST., OAKLAND, CA 94621 (415) 568-5225

ZONE	LTR	DESCRIPTION	NAME	APPROVED
------	-----	-------------	------	----------





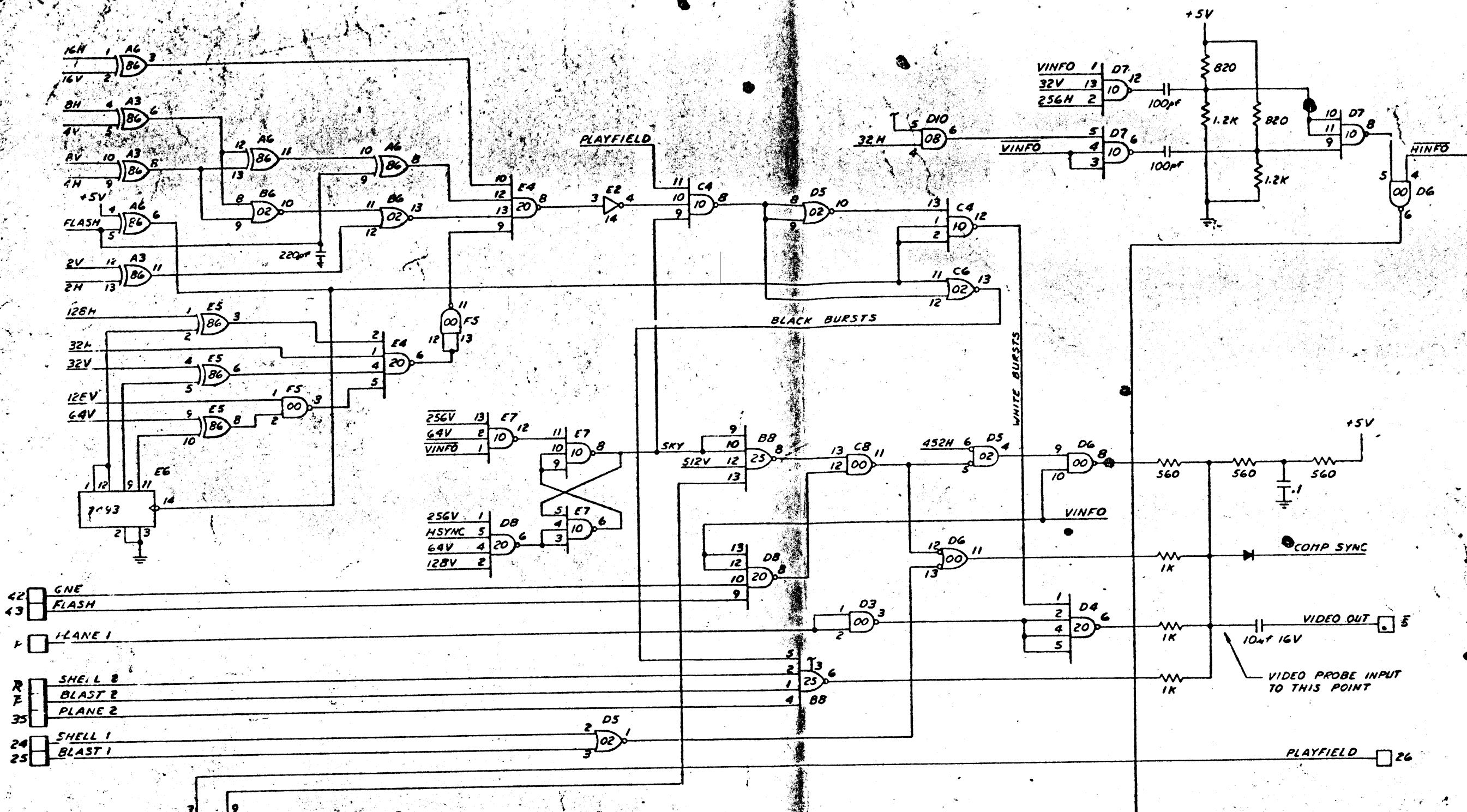
ZONE	LTR	DESCRIPTION	DATE	APPROVED
------	-----	-------------	------	----------



QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± JXX = ± JXX = ± JXX = ±				CONTRACT NO.
DRAWN BY <u>Frank</u> DATE <u>10-1-75</u>				APPROVALS
CHECKED BY <u>RK</u> DATE <u>10-20-75</u>				MATERIAL
MAILED BY <u>Frank</u> DATE <u>10-1-75</u>				SIZE CODE IDENT NO. DRAWING NO.
FINISH				D 202 A
NEXT ASSEMBLY USED ON APPLICATION DO NOT SCALE DRAWING				SHEET 1 OF 3

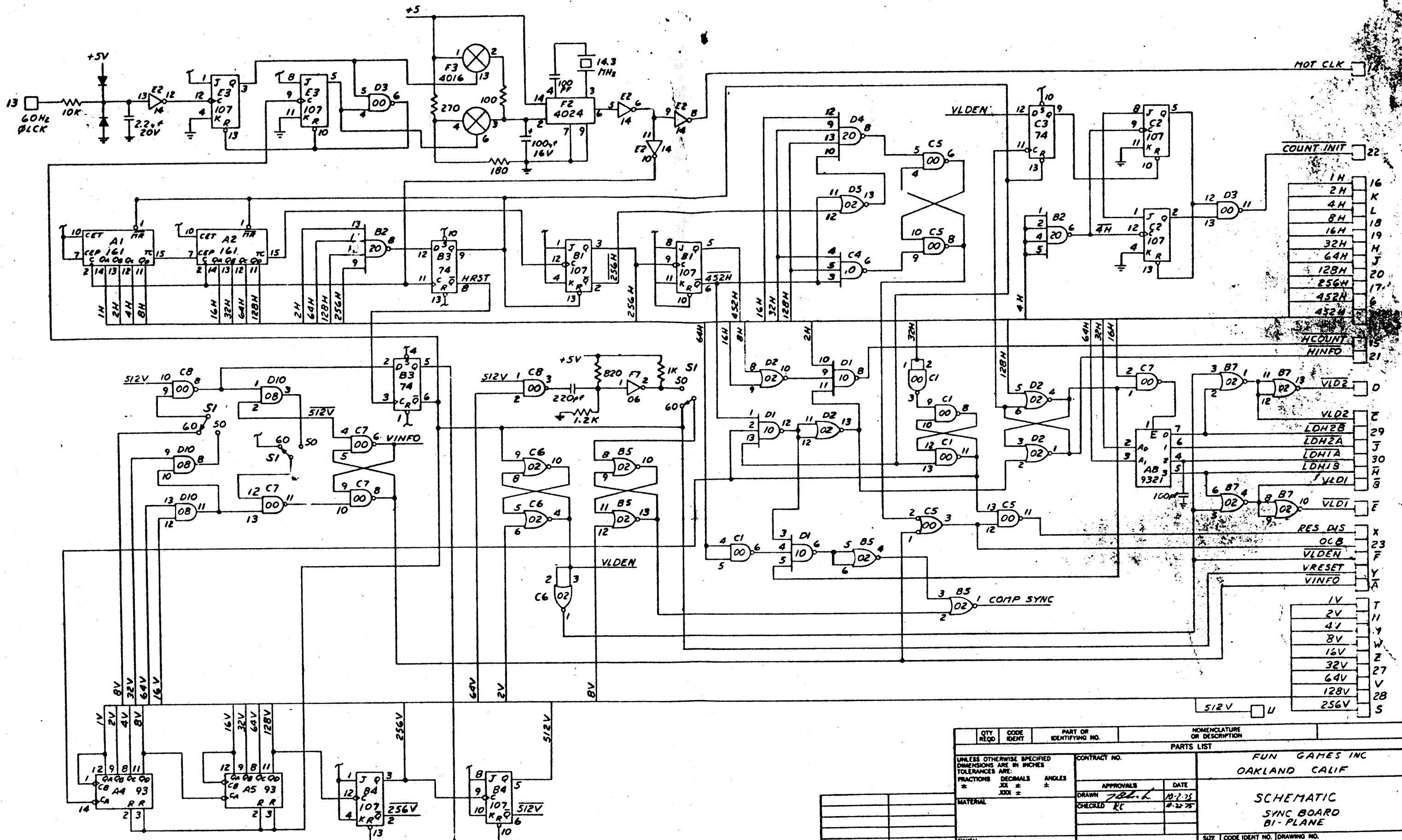
SCHEMATIC  
SYNC BOARD  
BI-PLANE

ZONE	LTR	DESCRIPTION	DATE	APPROVED
------	-----	-------------	------	----------

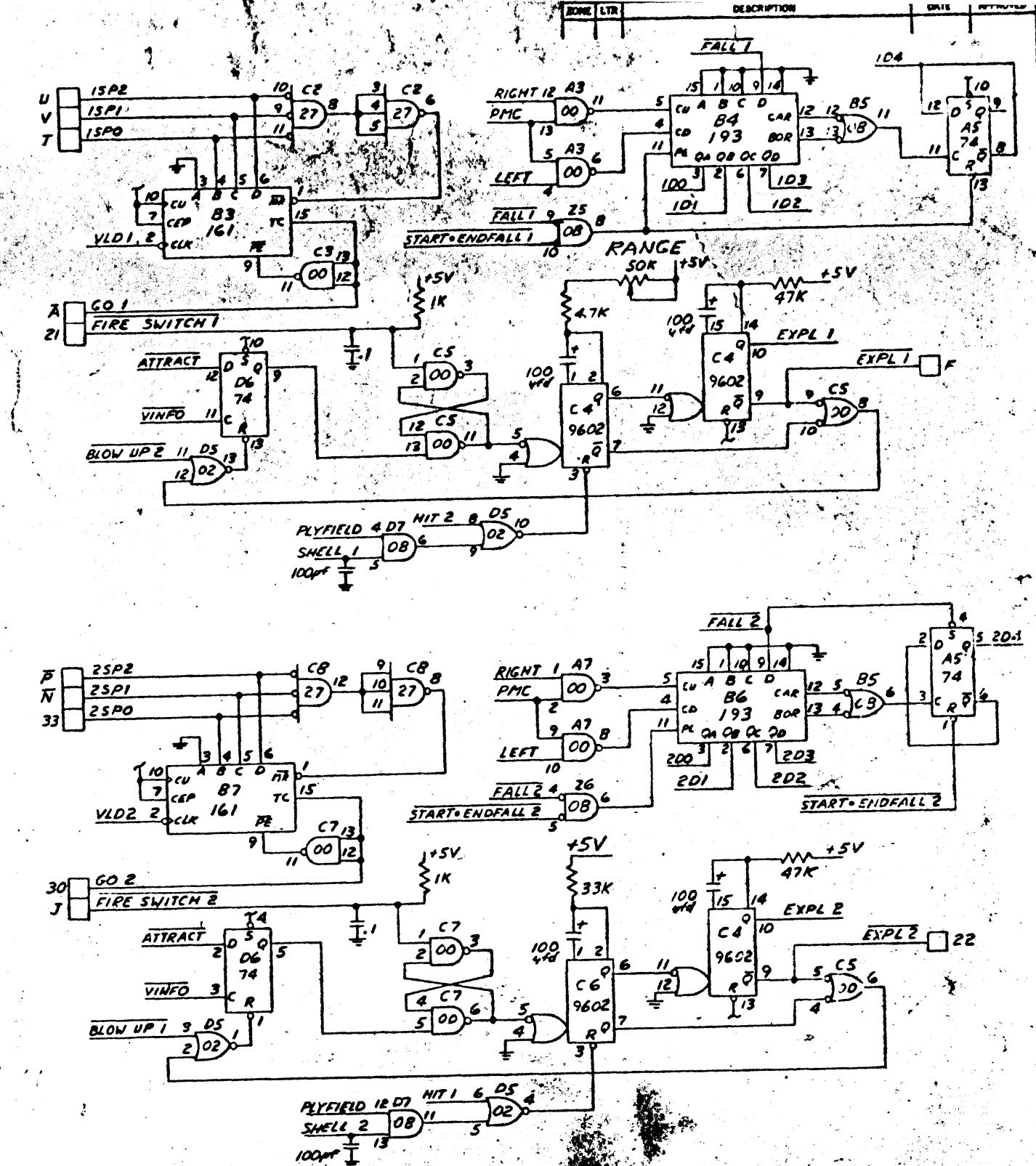
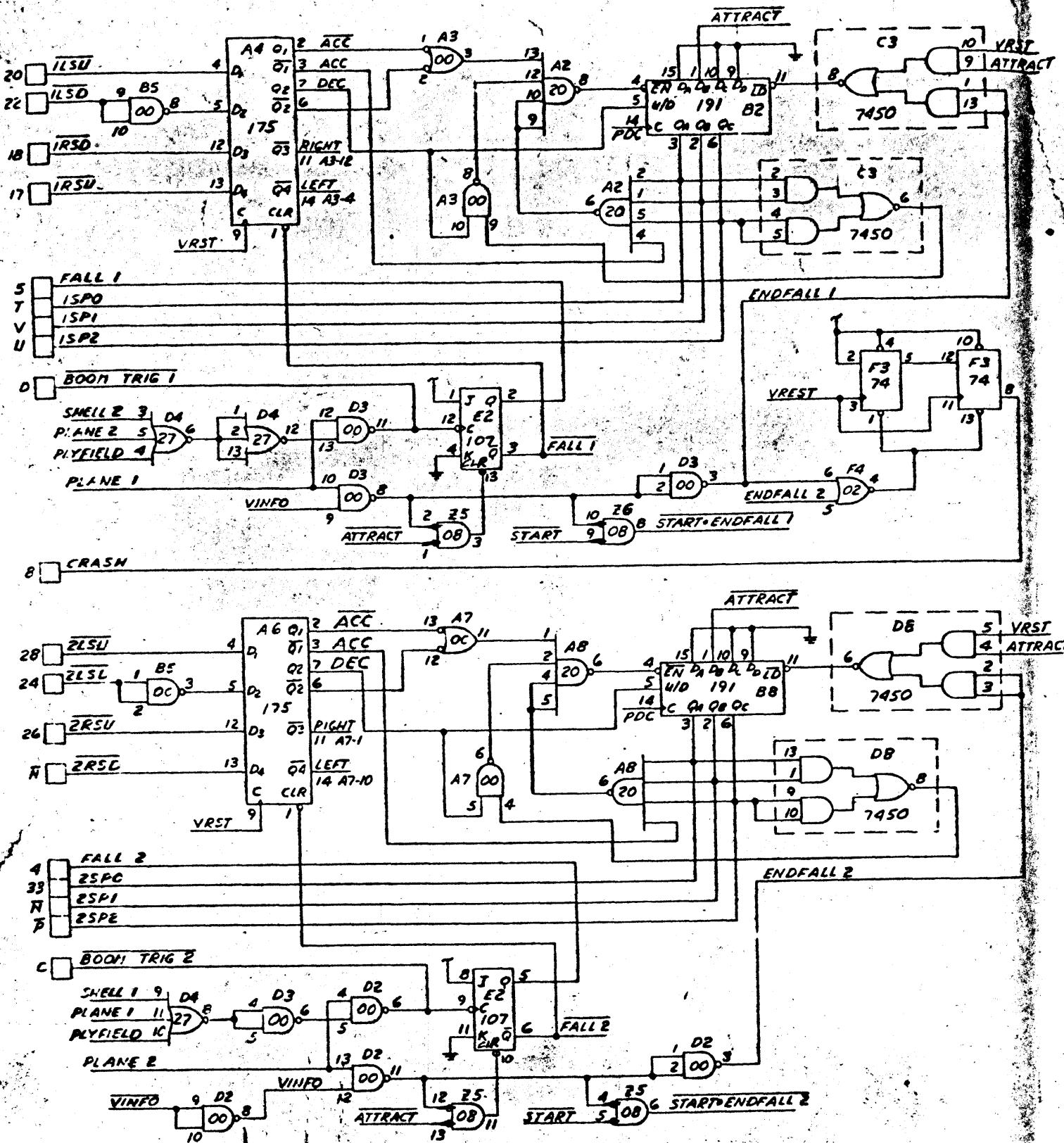


QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	DESCRIPTION
<b>PARTS LIST</b>			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES ± .001 ± .001 ± .001			CONTRACT NO.
MATERIAL:			APPROVALS DATE
FINISH:			DRAWN 9-25-85
MATERIAL:			CHECKED RL 10-22-85
APPLICATION:			DO NOT SCALE DRAWING
SCHEMATIC SYNC BOARD BI-PLANE			
2	D	202	2
1			1

ZONE	LTR	DESCRIPTION	DATE	APPROVED
------	-----	-------------	------	----------

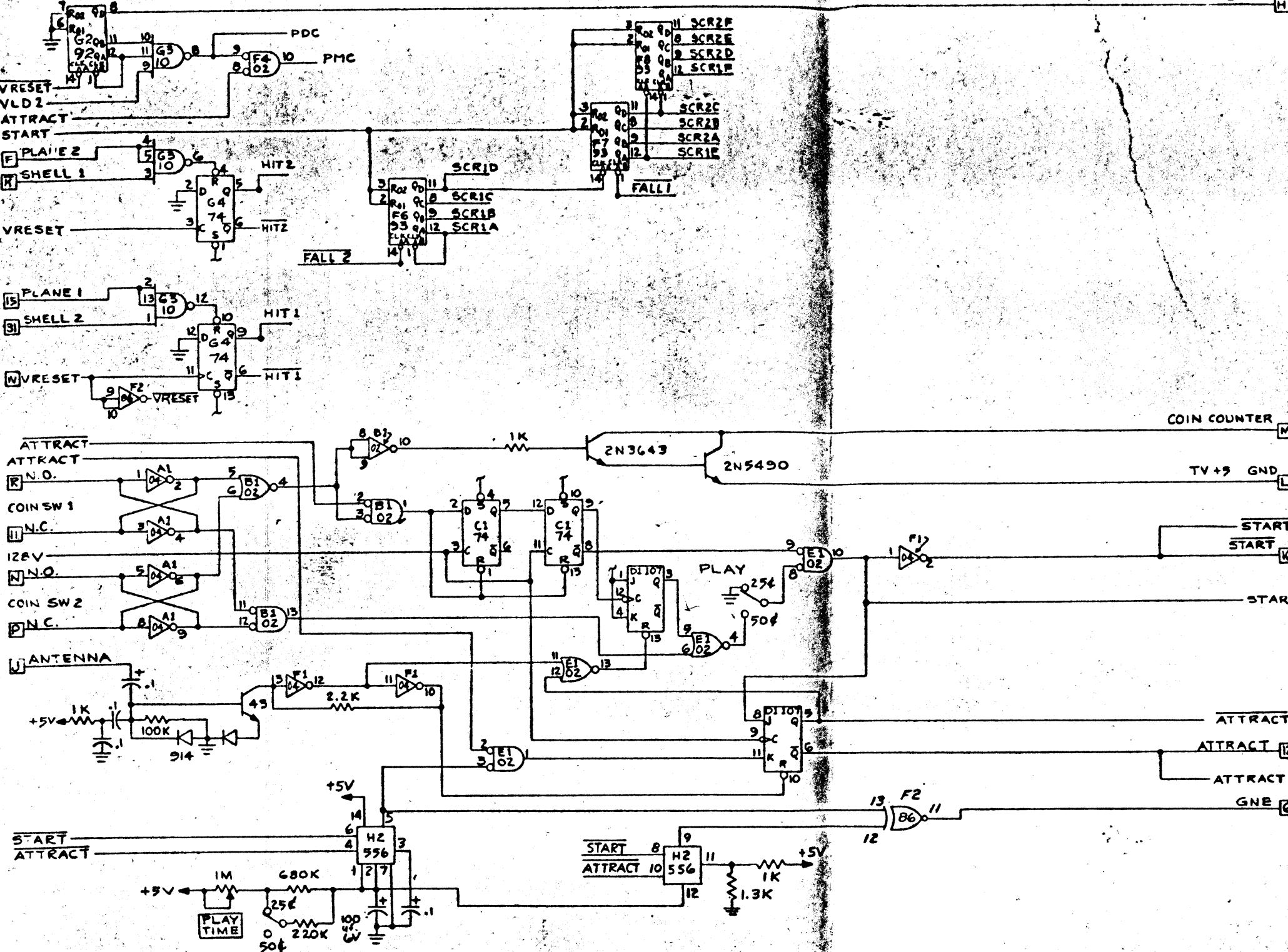


QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION	
PARTS LIST		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: DECIMALS      FRACTIONS      ANGLES ± JXX =      ± XXXX =      ±		
CONTRACT NO.		FUN GAMES INC OAKLAND CALIF		
APPROVALS		DATE		
DRAWN 702-L		10-2-75		
CHECKED RC		10-2-75		
MATERIAL				
FINISH				
NEXT ASSY		USED ON		
APPLICATION		DO NOT SCALE DRAWING		
SIZE D		CODE IDENT NO. 202 DRAWING NO.		
SCALE		SHEET 3 OF 3		



ZONE	LTR	DESCRIPTION	DATE	APPROVED
------	-----	-------------	------	----------

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 ±   JX =   ±   JXX =			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

