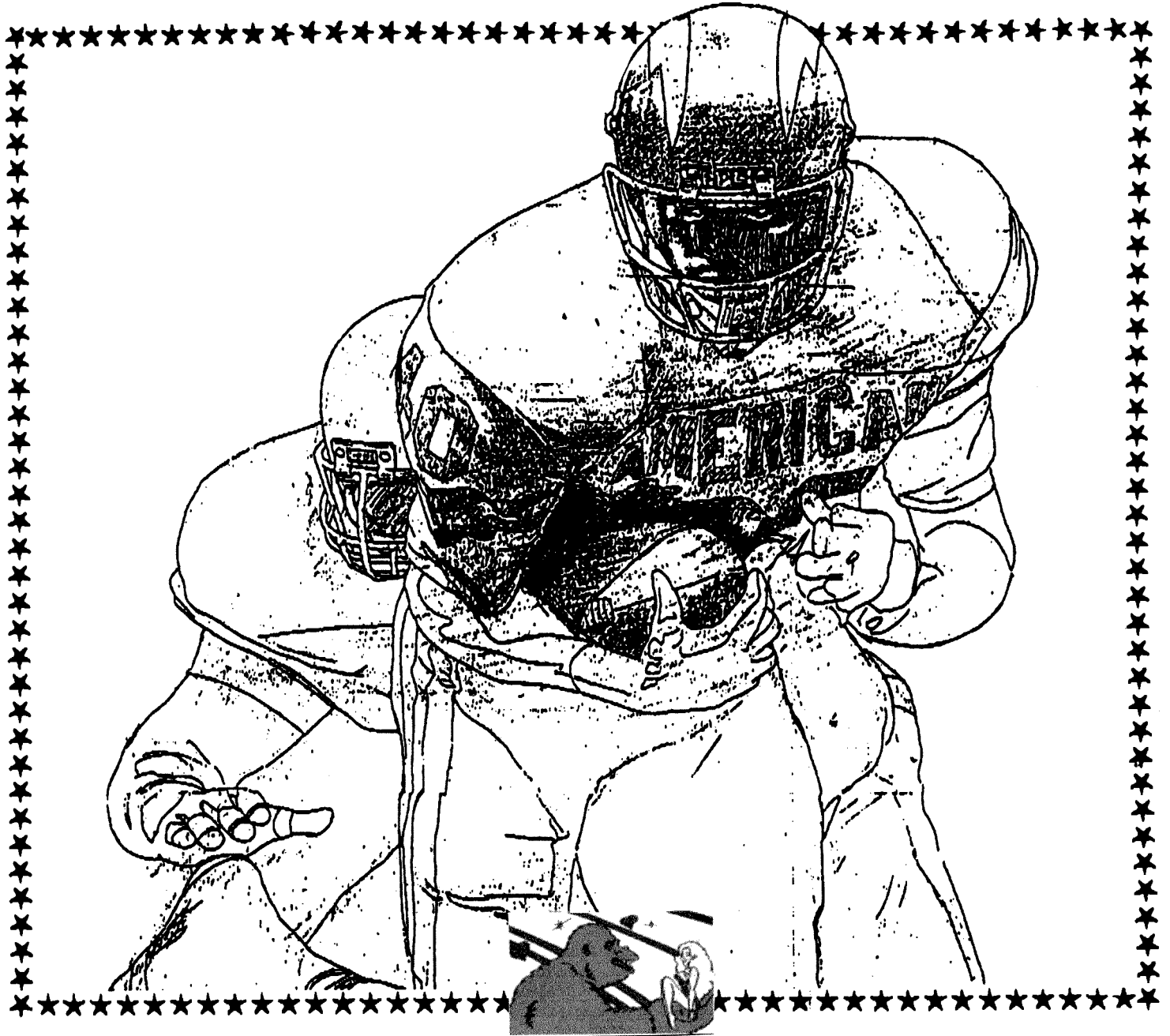


# **TOUCHDOWN FEVER INSTRUCTION MANUAL**



**VERTICAL MONITOR CONVERSION KIT**

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# I. GAME PACKAGE CONTENTS

- 1 - Main Printed Circuit Board (PCB) Assembly
- 1 - PCB Shield (F.C.C. Compliance)
- 1 - Monitor Card
- 2 - Side Graphic Decals
- 1 - Marquee
- \*1 - SNK Wire Harness
- \*1 - Joystick Assembly Package Includes:
  - 2 - SNK Rotary Joysticks (Free Spin Unnotched Type)
  - 2 - Rotary Wire Harness Connectors
  - 1 - Knob Setting Tool
  - 6 - Control Buttons
    - 2 - Run Buttons (with metal switch plates)
    - 2 - Pass Buttons
    - 2 - 1 or 2 Player Start Buttons
- \*1 - Control Panel Overlay
- \*1 - Instruction Manual

\* Cocktail Version Kit Contains Two Each.

Inspect the entire Contents of your game package to assure it is complete and in satisfactory condition. If any damages have occurred during shipment, please notify your SNK distributor immediately.

## II. WARNINGS AND NOTICES

### F.C.C. WARNINGS:

The PCB shield supplied with this game package must be utilized and terminated to ground at the time of installation of the PCB. This is required in order to comply with the limits for a class A computing device pursuant to subpart J of part 15 of F.C.C. rules. These rules are designed to provide reasonable protection against harmful interference to radio communications when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause RF interference in which case the user at his or her own expense will be required to take whatever measures necessary to correct the interference.

SNK recommends that the control panel be grounded and a grounded 3 wire outlet to be used for supplying power. These steps will assure a clear picture.

### WARNING:

**Do not attempt to troubleshoot or repair** the PCM if it is found to be faulty or your **warranty may be voided** and repair charges will be more costly. Always contact an authorized SNK service technician to troubleshoot your PCB problems.

**DO NOT SOLDER the control buttons or the rotary joysticks** or they will malfunction and the **warranty will be voided**. SNK recommends the use of crimp lags only on all controls.

Whenever you change parts or insert/disconnect the edge connector, always check to make sure the power is off! After you are sure the power is off, **wait** approximately 10 seconds before proceeding to remove the edge connector to allow time for the power supply to discharge.

SNK recommends a **12 volt coin counter** be connected to the +12 volt line only. Do not use a +6 volt coin counter. A +6 volt coin counter will cause a voltage drop on the +5 volt line which could cause the game to function improperly or cause possible IC damage.

Always use caution to stay clear of the high voltage sections to avoid the possibility of electric shock.

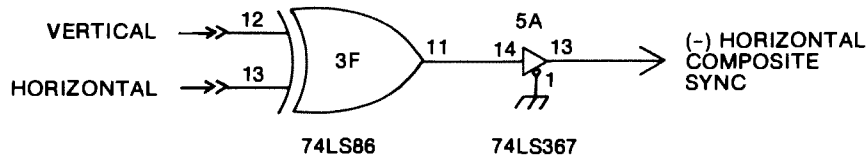
### NOTICE:

Specifications and modifications may be changed without advance notice or warning.

# III. REQUIREMENTS

## A. MONITOR:

This game requires a **Vertically Mounted Raster Scan** type monitor with composite sync. If your monitor is one which requires separate syncs, they may be found at the sync combination chip (IC #3F, 74LS86) on the BOTTOM PCB.



## B. POWER SUPPLY:

SNK recommends the use of a switching type power supply with minimum current ratings as stated below:

<u>Voltage</u>	<u>Current</u>
+12 VDC	1 Amp
+ 5 VDC	8 Amps
- 5 VDC	1 Amp
Ground	

## C. PCB SPECIFICATIONS:

### Operating Requirements

Voltage - +5.00 volts to 5.10 volts D.C., -5VDC, +12VDC.

Amperage - 7.5 amps

Power - 38.5 watts

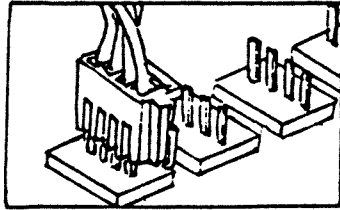
Temperature - 0° - 30° C or 32° - 100° F

Humidity - 95% relative

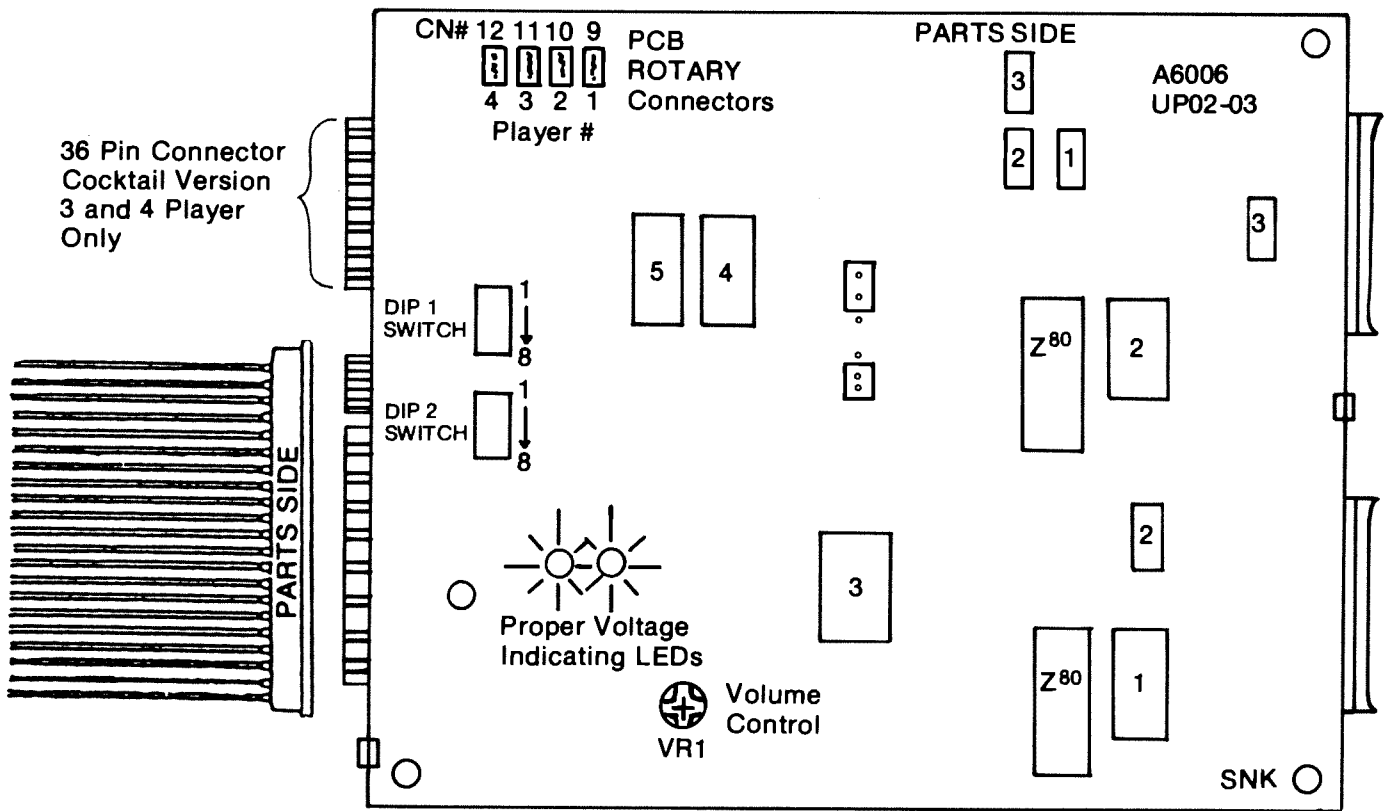
The 5 volt supply draws about 7.5 amps on this PCB design and the power supply should be adjusted. When the voltage is correct, both LEDs will be lit. If only one LED is lit the 5 volt supply must be adjusted. Replace the power supply with one of a higher current rating if the voltage does not indicate 5 volts.

# D. PCB LAYOUT

To Joystick Encoder



## TOUCHDOWN FEVER TOP PCB LAYOUT



# IV. INSTALLATION PROCEDURES

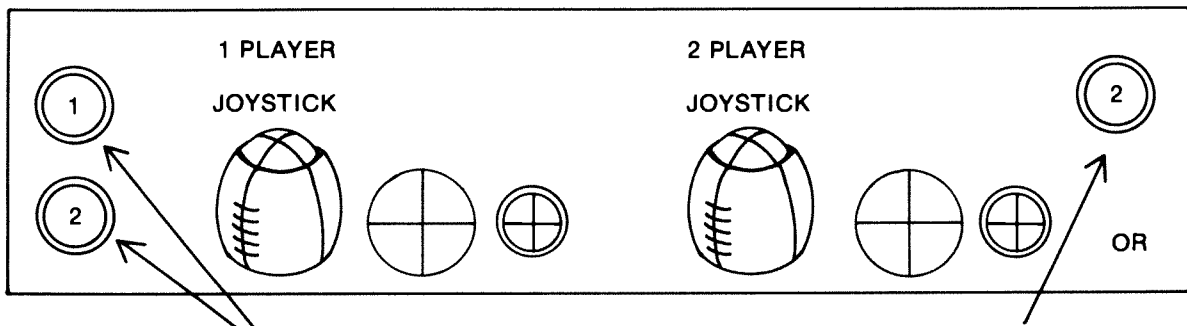
## A. PLACEMENT OF PCB:

Before mounting PCB, make certain that the wire harness has sufficient "slack/play" between both joystick rotary connectors and the PCB connections. (See Page #5) Mount all four corners of the PCB to assure stability. Allow room for the PCB shield away from the power supply section. Before mounting please check wire harness layout.

## B. WIRE HARNESS LAYOUT:

Mark it, PARTS SIDE in order not to reverse connection which may cause damage to the PCB and/or power supply. Layout your wire harness from one and two player control panel to the PCB edge connector to assure that it is long enough. Remember that the voltage of an intermediate wire harness decreases by contact resistance, so please CONNECT ALL OF THE WIRES PROVIDED FOR THE SUPPLY VOLTAGES AND GROUNDS in order to assure sufficient voltage and to avoid contact burning on the PCB.

## C. CONTROL PANEL CONFIGURATION



POSSIBLE 1 AND 2 PLAYER START CONTROL BUTTON LOCATIONS

Control Button A is for RUN.

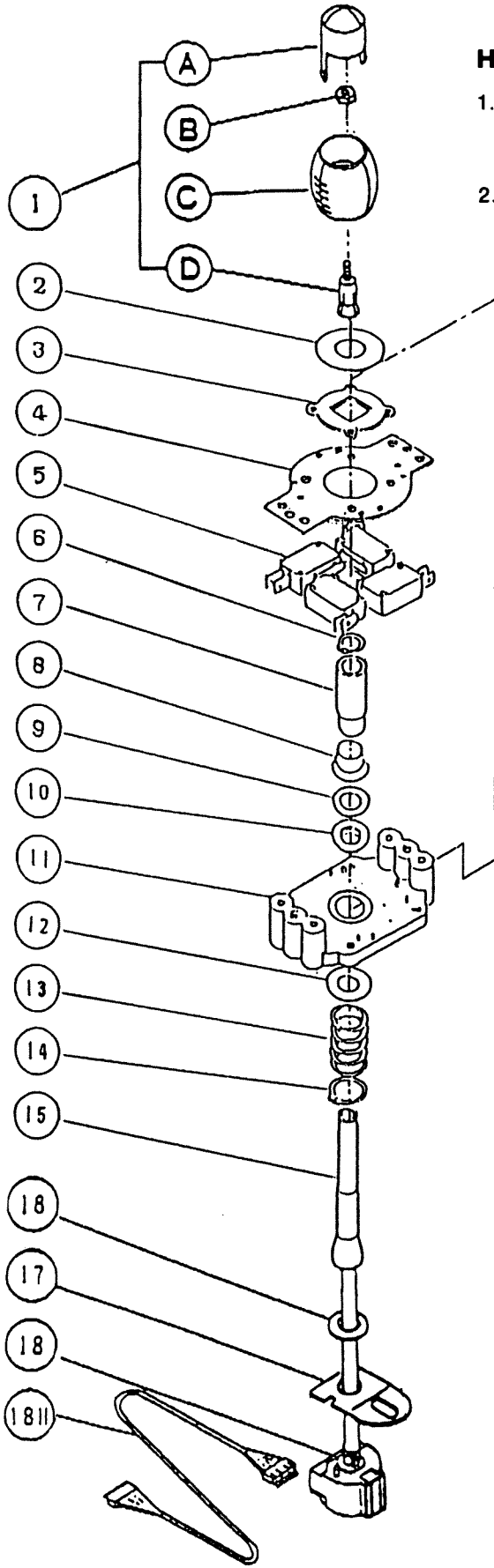
Control Button B is for PASS.

**NOTE: DO NOT SOLDER CONTROLS**

## D. POWER UP CHECKLIST

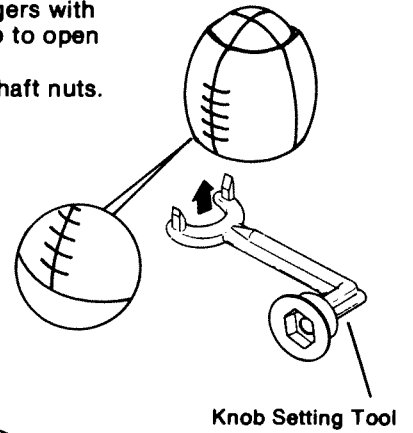
1. Make sure that the Main Wire Harness is wired properly to the Power supply by measuring it with a volt meter.
2. Allow the Power Supply to discharge the voltage for about 10 seconds before connecting or disconnecting the edge connector.
3. Use crimp lugs on all CONTROLS and ROTARY JOYSTICKS and only solder other connections.
4. Ground all ground wires and the control panel.
5. Adjust the Power Supply and the Monitor.
6. Check all Controls and set the Dip Switches.
7. Secure the Main Wire Harness with wire ties.

# E. LS40 - 24 JOYSTICK ASSEMBLY DIAGRAM



## HOW TO REMOVE KNOB OF JOYSTICK ASSEMBLY.

1. Insert "fingers" of joystick tool under knob. Make sure to align fingers with stiches on the knob. Push up to open top cap.
2. Use hex wrench to remove shaft nuts.



PARTS NO.	PARTS NAME
LS40- 1	Knob
A	Cap
B	Knut (M6)
C	Knob (Main Body)
D	Fastener
LS40- 2	Lever mask
LS40- 3	Main guide
LS40- 4	Micro Switch Plate
LS40- 5	Micro Switch
LS40- 6	90 C-Clip
LS40- 7	Spacer (B)
LS40- 8	Spacer (A)
LS40- 9	Washer (small)
LS40-10	Shaft Holder
LS40-11	Shaft Holder Stand
LS40-12	Washer (large)
LS40-13	Spring
LS40-14	120 C-Clip
LS40-15	Shaft
LS40-16	Star Washer
LS40-17	Rotary Switch Installation Plate (SUS)
LS40-18	Rotray Switch
LS40-18H	Harness
LS40-19	Rotary Switch Stopper
LS40-20	Stand
LS40-21	Steel Base
LS40-22	Knob setting tool
LS40-24	Complete Assembly



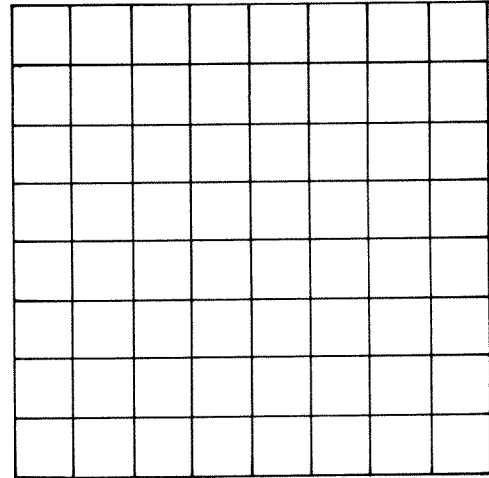
# V. DISPLAY TEST MODE

## A. SELF ROM CHECK

The memories are automatically self checked whenever power is applied. To enter the test mode, hold the test switch on when the power is turned on until PICTURE 0 is displayed. Press the test switch to continue the display tests or reapply power to start the game.

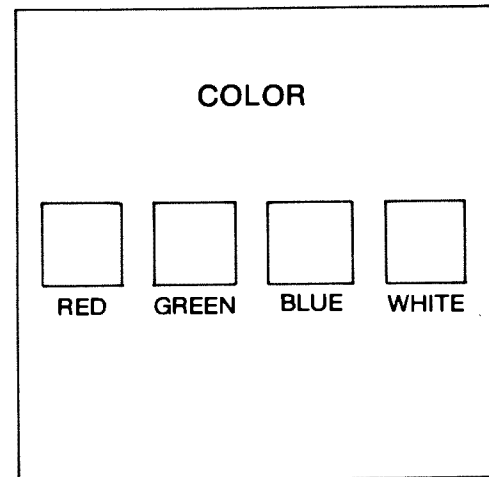
## B. PICTURE 0 - CROSS HATCH

Adjust the monitor for a SQUARE PATTERN throughout the display and on the edge of the monitor.



## C. PICTURE 1 - COLOR TEST

Assures that the correct colors are properly wired to the monitor.



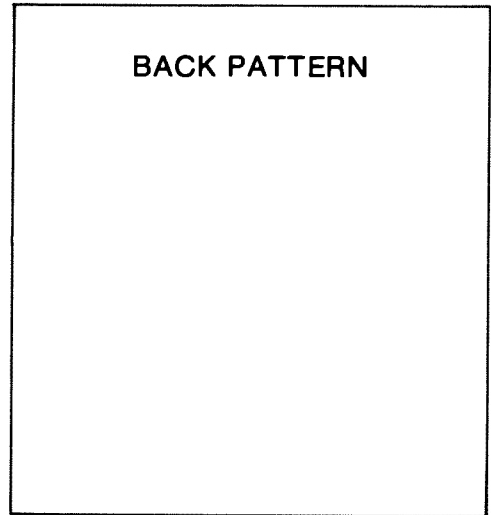
## D. PICTURE 2 - CONTROL TEST

As a lever or switch turns on, 0 on the monitor will change to 1. Turning the joystick dial clockwise increments the LEVER DIAL by one. Turning the joystick dial counter-clockwise decrements the LEVER DIAL by one. Insert coin and confirm that the COIN change from a 0 to 1. The service switch can also be checked here.

LEVER				
	P1	P2	P3	P4
UP	0	0	0	0
DOWN	0	0	0	0
LEFT	0	0	0	0
RIGHT	0	0	0	0
KNOB	XX	XX	XX	XX
PUSH 1	0	0	0	0
PUSH 2	0	0	0	0
START	0	0	0	0
START 5	0	DIP 1	X X X X X X X X	1 2 3 4 5 6 7 8
SERVICE	0	DIP 2	X X X X X X X X	
COIN 1	0			
COIN 2	0			

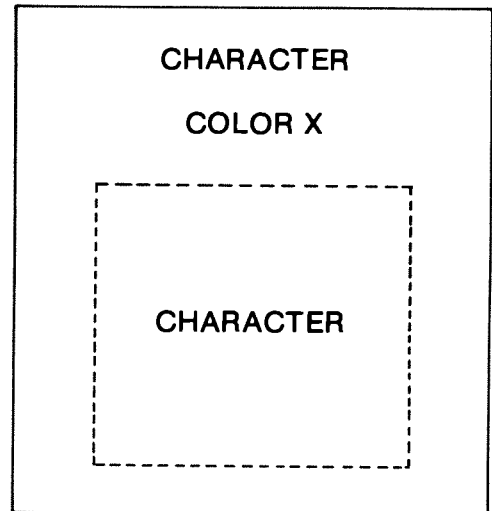
### **E. PICTURE 3 - BACKGROUND CHECK**

Depress one player control buttons A or B to shift the Background Pattern.



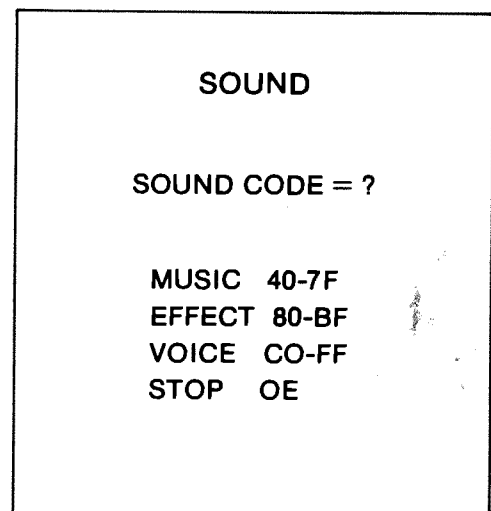
### **F. PICTURE 4 - CHARACTER TEST**

Confirm that the Characters are displayed on the monitor. There are 16 different colors of characters that will be displayed 0 thru F automatically.



### **G. PICTURE 5 - SOUND CHECK**

Set up the sound Code ("?" ) to 40-7F, 80-BF or CO-FF by moving the joystick. The music, special effects or voice will activate when you press One Player Run Button. If you want to stop the sound, set the Code to OE and press the One Player Run Button.



# VI. GAME OPERATION

## A. HOW TO PLAY

The unnotched rotary joystick controls the movement of the player and the direction of the pass. Players can break free of tacklers by shaking the joystick when tackled.

Over 100 formations are programmed providing intense action for the player.

Players can kick extra points after a touchdown or try to pass/run for 2 point safety. Players may also attempt a field goal on a 4th down within the 10 yard line.

Upon defeating the computer, the player is awarded bonus time toward the next game played (kit version only). Bonus time is awarded for 1st downs and touchdowns.

Coin-up continue feature allows you to receive additional time by inserting extra coins and depressing the 1 or 2 player start buttons after initial start of game.

## B. GAME STYLE

Touchdown Fever is offered as a 2 player cooperative vertical kit or a 4 player standup cocktail version.

This instruction manual provides technical information and dipswitch settings for both versions.

**FIGURE 10**

COCKTAIL VERSION

DIP SWITCH 2			UPRIGHT VERSION				
6	7	8	1p vs Comp	2p vs Comp	1p vs 2p	2p vs 1p	2p vs 2p
OFF	OFF	OFF	1:00	1:10	2:00	2:10	3:00
ON	OFF	OFF	1:10	1:20	2:10	2:20	3:10
OFF	ON	OFF	1:20	1:30	2:20	2:30	3:20
ON	ON	OFF	1:30	1:40	2:30	2:40	3:30
OFF	OFF	ON	1:40	1:50	2:40	2:50	3:40
ON	OFF	ON	1:50	2:00	2:50	3:00	3:50
OFF	ON	ON	2:00	2:10	3:00	3:10	4:00
ON	ON	ON	2:10	2:20	3:10	3:20	4:10

# VII. OPTIONAL SETTINGS

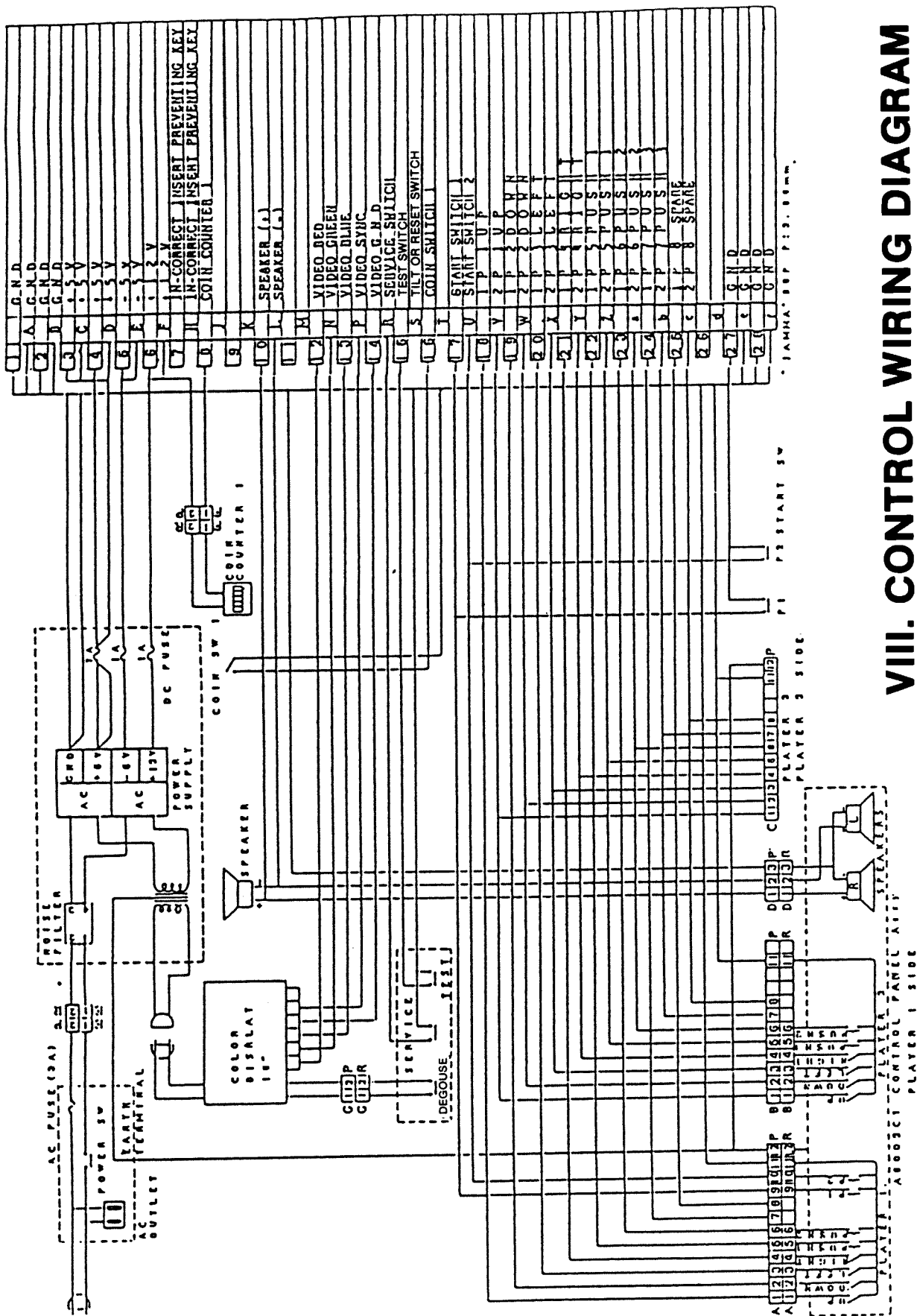
## DIP SW NO. 1

ITEM	SPECIFICATION	1	2	3	4	5	6	7	8
GAME PLAY	CONTINOUS PLAY	<b>OFF</b>	COIN-UP CONTINUE						
	NO CONTINOUS PLAY	ON							
GAME STYLE	UPRIGHT		OFF						
	TABLE		ON						
BONUS TIME FOR FIRST DOWNS	EVERY 8 1st DOWNS			OFF	OFF				
	EVERY 6 1st DOWNS			ON	OFF				
	EVERY 4 1st DOWNS			OFF	ON				
	EVERY 1st DOWN			ON	ON				
COIN 1	1 COIN 1 PLAY					OFF	OFF		
	2 COIN 1 PLAY					ON	OFF		
	3 COIN 1 PLAY					OFF	ON		
	4 COIN 1 PLAY					ON	ON		

## DIP SW NO. 2

ITEM	SPECIFICATION	1	2	3	4	5	6	7	8
LEVEL OF DIFFICULTY	EASY	OFF	OFF	LEVEL 1					
	NORMAL	<b>ON</b>	<b>OFF</b>	LEVEL 2					
	HARD	OFF	ON	LEVEL 3					
	DIFFICULT	ON	ON	LEVEL 4					
ATTRACTION SOUND	WITHOUT SOUND			OFF	OFF	DEMO SOUND OFF			
	WITH ATTRACTION SOUND			<b>ON</b>		DEMO SOUND ON			
MODE	NEVER FINISH GAME PLAY			OFF	ON	CONTINIOUS PLAY			
	STOP VIDEO DISPLAY			ON	ON				
PLAYING TIME	SEE FIGURE 10	std. setting					<b>OFF</b>	<b>OFF</b>	<b>OFF</b>
DISPLAY	NORMAL PICTURE								OFF
	INVERSE PICTURE								ON

**NOTE:** Bold face suggests factory recommended settings.



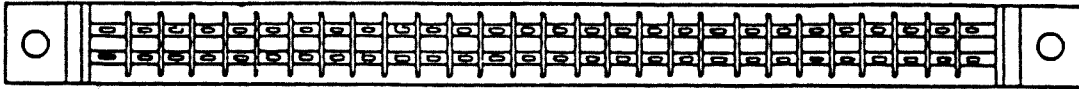
# VIII. CONTROL WIRING DIAGRAM

# IX. MAIN HARNESS CONNECTIONS

## CONNECTOR CR7E - 56 DA - 3.96 E (HIROSE)

(1)

(28)



(A)

(f)

Color Key: Stripe / Background

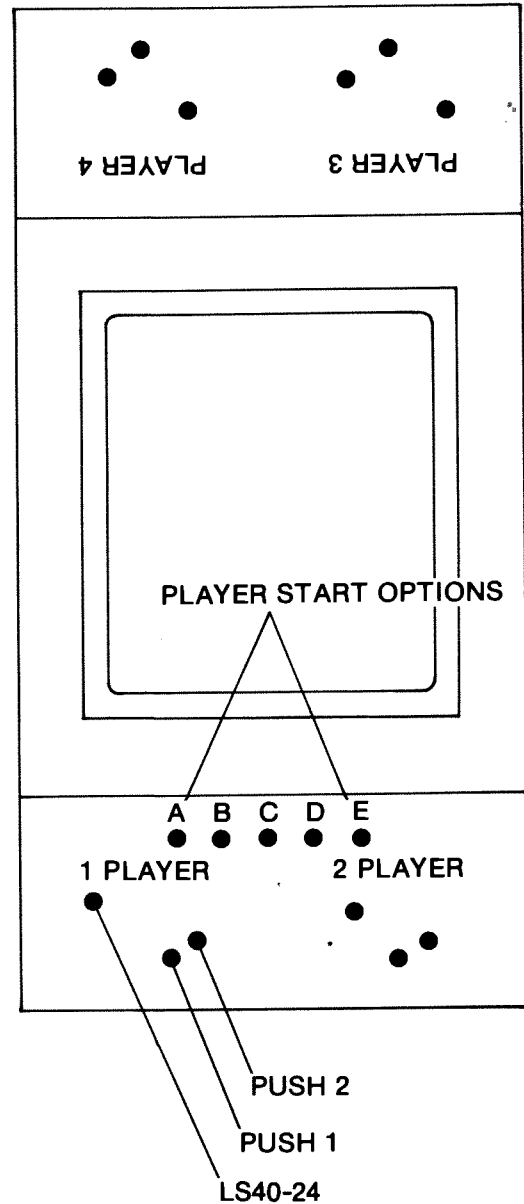
WIRE COLOR	SOLDER SIDE	PIN NAME PIN #		PARTS SIDE	WIRE COLOR
BLACK	Ground	A	1	Ground	Black
BLACK	Ground	B	2	Ground	Black
RED	+5VDC	C	3	+5VDC	RED
RED	+5VDC	D	4	+5VDC	RED
GREEN	-5VDC	E	5	-5VDC	GREEN
YELLOW	+12VDC	F	6	+12VDC	YELLOW
	KEY	H	7	KEY	
		J	8	Coin Counter 1	BROWN
		K	9		
WHITE	Left Speaker -	L	10	Right Speaker +	
		M	11		
GREEN	Video Green	N	12	Video Red	PINK
GRAY/WHITE	Video Sync	P	13	Video Blue	LIGHT BLUE
VIOLET	Service Switch	R	14	Video Ground	BLACK
		S	15	Test Switch	ORANGE
		T	16	Coin Switch 1	VIOLET/WHITE
WHITE/BLACK	Start Option B	U	17	Start Option A	BLACK/WHITE
BROWN/BLACK	2P Control 1 UP	V	18	1P Control 1 UP	WHITE/BROWN
RED/BLACK	2P Control 2 DOWN	W	19	1P Control 2 DOWN	WHITE/RED
ORANGE/BLACK	2P Control 3 RIGHT	X	20	1P Control 3 RIGHT	WHITE/ORANGE
YELLOW/BLACK	2P Control 4 LEFT	Y	21	1P Control 4 LEFT	WHITE/YELLOW
GREEN/BLACK	2P Control 5 PUSH 1	Z	22	1P Control 5 PUSH 1	WHITE/GREEN
BLUE/BLACK	2P Control 6 PUSH 2	a	23	1P Control 6 PUSH 2	WHITE/BLUE
		b	24		
		c	25		
		d	26		
BLACK	Ground	e	27	Ground	BLACK
BLACK	Ground	f	28	Ground	BLACK

# X. COCKTAIL VERSION (4 PLAYER)

Cocktail version uses 5 start option control buttons.

36 Pin

SOLDER SIDE	PIN #	PARTS SIDE
	A	1
	B	2
	C	3
	D	4
	E	5
	F	6
Start Option D	H	7 Start Option C
4P UP	J	8 3P UP
4P DOWN	K	9 3P DOWN
4P LEFT	L	9 3P LEFT
4P RIGHT	M	10 3P RIGHT
4P PUSH 1	N	12 3P PUSH 1
4P PUSH 2	P	13 3P PUSH 2
	R	14
	S	15 Start Option E
GND	T	16 GND
GND	U	17 GND
GND	V	18 GND



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