

# **F-15 STRIKE EAGLE™**

## **Operation Manual and Illustrated Parts List**



**MICRO PROSE™**  
*games*

# Notes and Warnings

## FCC WARNING

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**Copyright © 1990 by MicroProse Games, Inc.  
All Rights Reserved.**

Reproduction of any part of this publication by mechanical, photographic, or electronic process, or in the form of audio or video recording is strictly and expressly forbidden. In addition, the document may not be stored in a retrieval system, transmitted, or otherwise copied for public or private use, without express written permission from the publisher.

The game play, computer code/software, all graphic designs, this technical manual, and its accompanying schematic diagrams are protected by U.S. Copyright.

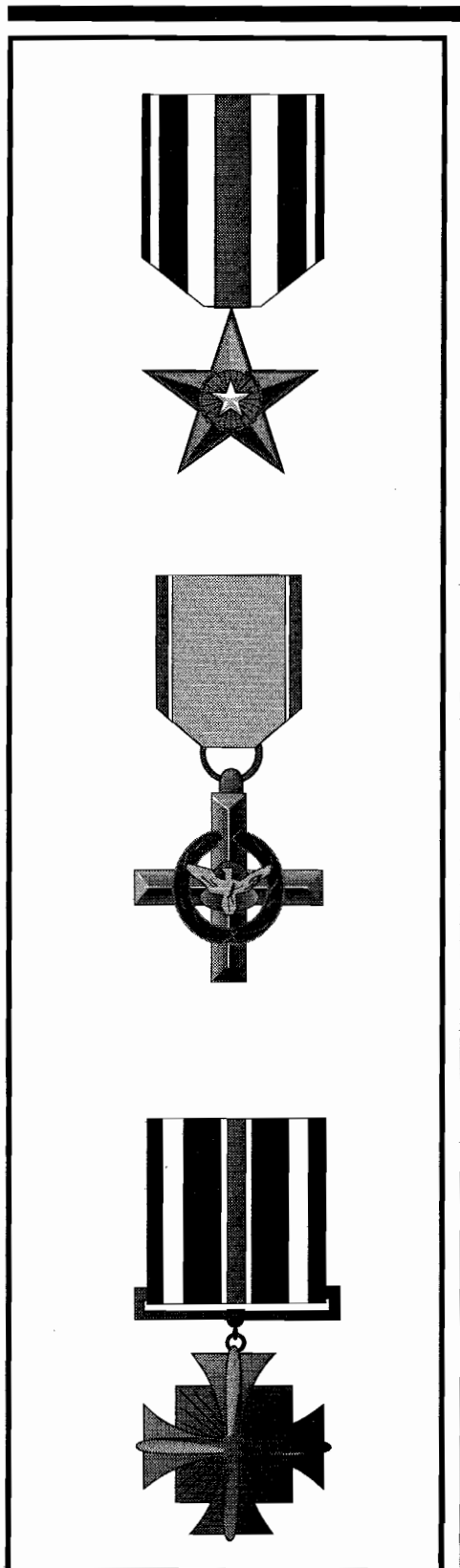
The Copyright Act provides for substantial penalties for those violating federal copyright laws. In such an instance, courts may impound articles believed to be in violation of the copyright while legal action is pending. If Copyright violators are convicted, courts can order destruction of those articles.

In addition, the Act also provides for payment of statutory damages. Violators may also have to pay court costs, attorneys' fees or fines as well as face imprisonment.

MicroProse Game, Inc. will stringently enforce its Copyright against violators. We will use all legal means to immediately halt manufacturing and distribution of any unlawful copies of video games. Those purchasing such unlawful copies risk confiscation of same.

## Changes or Modifications

**The use of non-MicroProse parts or kits, any changes to the game or modification of any circuitry therein, not expressly approved by MicroProse Games, could void the game warranty or your authority to operate this game under FCC rules and regulations. In addition, you may compromise the safety of your game resulting in injury to you or the players.**



## Chapter 1 Set-up and Operation

- 1.1 Set Up and Operation
- 1.2 Control and Switch Location
- 1.3 Marquee Installation
- 1.4 Operator's Options

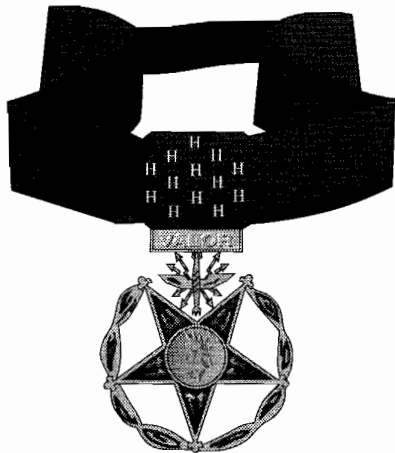
## Chapter 2 Options and Diagnostics

- 2.1 Self Test and Diagnostics Screen
- 2.1 How to Use Menus
- 2.2 Operating Menus (table)
- 2.3 Player Control Test
- 2.4 Diagnostics Menu Screens
- 2.5 Collection Audit Menu
- 2.6 Game Play Statistics
- 2.7 Game Play Options and Utilities
- 2.9 Coin Option Menu
- 2.9 Set Clock and Calendar
- 2.11 Power- Up Diagnostics (table)
- 2.12 Sound Board Diagnostics (table)
- 2.13 Health LED's and Switch Settings
- 2.14 Major Component Location Diagram
- 2.15 Major Component Location Diagram
- 2.16 Notes

## Chapter 3 Maintenance

- 3.1 Maintenance
- 3.1 Joystick Switches
- 3.3 Joystick
- 3.4 Centering Sensor
- 3.5 Optical Encoder
- 3.6 Pivot
- 3.7 Throttle
- 3.8 Monitor
- 3.9 Speakers
- 3.10 Electronics Tray
- 3.11 Changing the Fluorescent Lamp
- 3.12 Notes

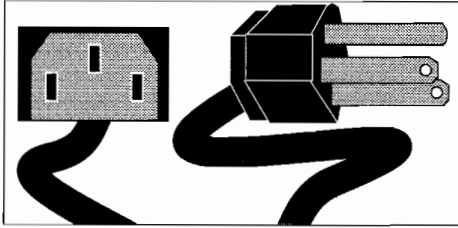
Table of Contents Continued Next Page



## Chapter 4 Illustrated Parts List

- 4.1 Introduction
- 4.2 Cabinet Assembly
- 4.3 Cabinet Assembly Parts List
- 4.4 Front Exploded View
- 4.5 Rear View
- 4.6 Rear View
- 4.7 Electronics Tray
- 4.8 Power Supply and Power Back Plane Board
- 4.9 Power Supply Schematic
- 4.10 Joystick Assembly
- 4.11 Joystick Parts List and Centering PCB Parts List
- 4.12 Throttle
- 4.13 Throttle Assembly Parts List
- 4.14 Marquee Assembly
- 4.15 Host Processor PCB Component Location Diagram
- 4.16 Host Processor PCB Parts List
- 4.17 Host Processor PCB Parts List
- 4.18 Dr. Math PCB Component Location Diagram
- 4.19 Dr. Math PCB Parts List
- 4.20 Dr. Math PCB Parts List
- 4.21 Video Graphics PCB Component Location Diagram
- 4.22 Video Graphics PCB Parts List
- 4.23 Video Graphics PCB Parts List
- 4.24 Sound Board PCB Component Location Diagram
- 4.25 Sound Board PCB Parts List
- 4.26 Sound Board PCB Parts List
- 4.27 Coin Co Coin Door
- 4.28 Coin Co Coin Door Parts List
- 4.29 Wiring Harness and Fuses
- 4.30 Wiring Diagram
- 4.31 Wiring Diagram
- 4.32 Wiring Diagram
- 4.32 Wiring Diagram
- 4.33 Wiring Diagram
- 4.34 Decals
- 4.35 EPROM and PAL Location Chart
- 4.36 Notes
- 4.37 Credits
- 4.38 Warranty

## Safety Checklist



### Connections

The MicroProse game you have purchased has been designed to meet the stringent standards of various safety agencies. However, transportation of the game may result in physical damage or other mechanical compromise to components or connections, that could result in electrical shock or other injuries. Therefore, it is important that you check the following items:

Check **AC power** and **ground** connections. Failure to check these can result in a lethal electrical shock.

**Printed Circuit board, Video display, and Control** connections must also be checked to insure proper operation and safety.

### AC Power



Verify that the game is wired for the proper AC voltage. To do that you must check **both** the voltage selection connectors in the power supply, and the AC voltage selection harness which is located just inside the lower rear access vent (See page 1.1). For safe operation the game should be connected to a grounded three-wire outlet. Inspect the power cord for cuts or other physical damage before connecting it to the outlet.

### Fuses

**Never** operate the game with fuses other than those specified on the power supply or in the parts list.

### Repairs

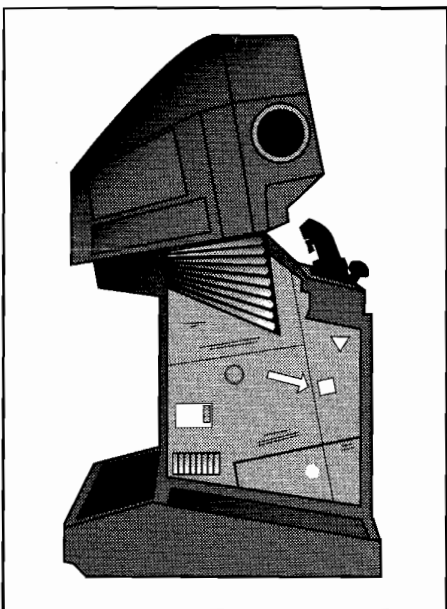
Before attempting any repair disconnect the power to the game. If repair to the video display is attempted, be careful, high voltages continue to exist on the display circuitry and the Cathode Ray Tube (CRT).

---

# NOTES

## Set-up and Operation

To insure proper and safe operation of *F-15 Strike Eagle*<sup>TM</sup> please check the items listed below before applying power. For additional safety items please review the **Safety Checklist** found in the beginning of this manual.

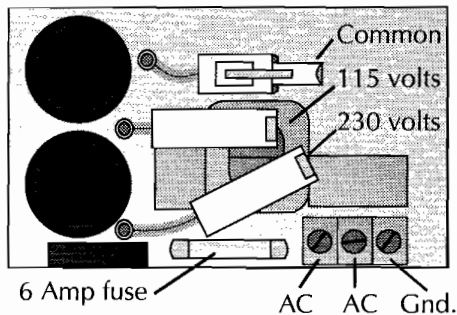
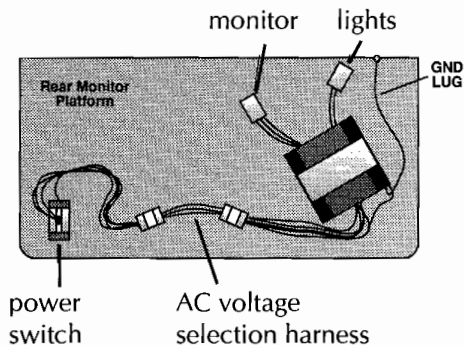


### Connectors

Please check **all** connectors before attempting to apply power to the game. Transportation can result in physical damage or other mechanical compromise to various components of the game.

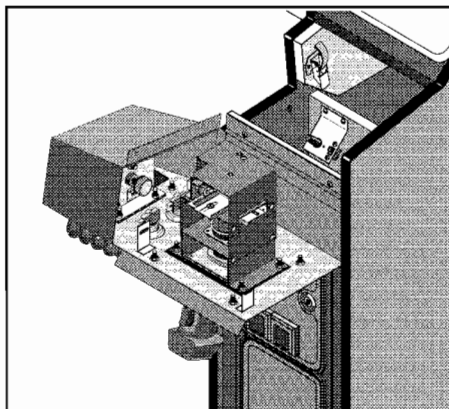
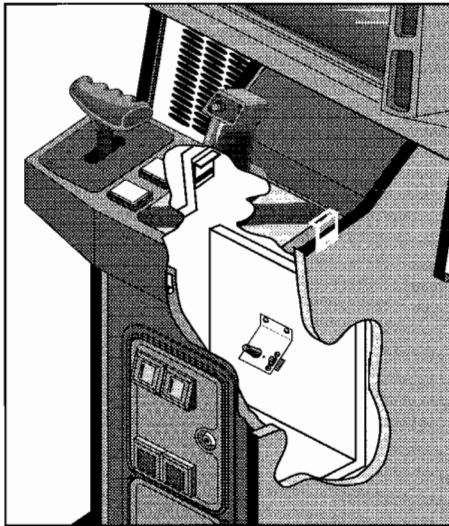
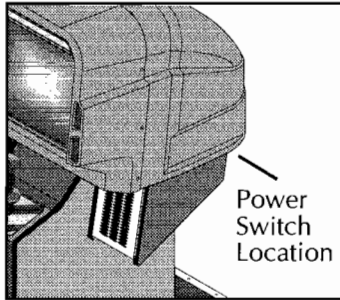
### AC Power

Verify that the game is wired for the proper voltage. To insure that the game is wired for the proper voltage, you must check **both** the voltage selection connectors in the power supply, and the AC voltage selection harness, located just inside the lower rear access vent. For safe operation the game should be connected to a grounded three-wire outlet. Inspect the power cord for cuts or other physical damage before connection to the outlet.



### Power Supply

Verify that the power supply is wired for the correct voltage and that the correct fuses are installed. Check the harness connections to the supply to insure that they haven't come loose.



## Control and Switch location

### Power On/Off Switch

The power on/off switch is located on the bottom of the monitor support platform in the right rear of the game.

### Volume Control

Access to the volume control is through the upper coin door. The control is on a bracket located in the center of the wood panel.

### Self-Test Switch

The self-test switch is located to the right of the volume control on the utility bracket.

### Coin Counter

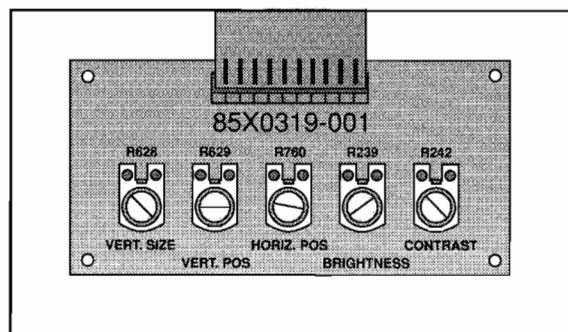
The coin counter is located behind the lower coin door beneath the cash vault.

### Control Panel Latch

To open the control panel you must release the two latches that secure it to the cabinet. To gain access to these, open the upper coin door and reach up to the left and right and release each latch.

### Monitor Control Board

*F-15 Strike Eagle*<sup>TM</sup> has a separate monitor control board that contains the most commonly used controls. This board allows the operator to adjust the monitor while standing in front of the game. To gain access to this control you must open the control panel.



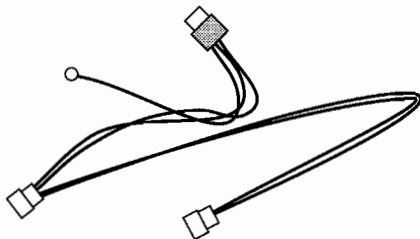
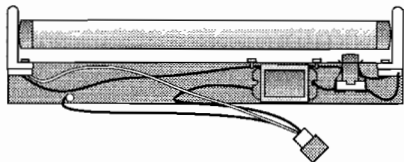
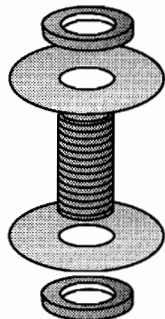
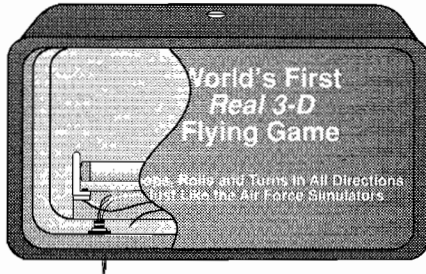




## Top Marquee Installation

The supplemental marquee arrives in a separate box. Use the following steps to install it on the game.

- 1 Carefully unpack the marquee and remove the rear cover by removing 3 screws, one at the top and one at each side.
- 2 Remove the sign plate from the plastic housing.
- 3 Shut off the main power switch.
- 4 Remove the 6 screws that secure the attraction panel, and remove it from the monitor shroud.
- 5 Remove the 2 plugs from the top of the front monitor shroud.
- 6 Remove the nuts and washers from the bottom of the 2 threaded nipples.
- 7 Place the marquee on top of the monitor shroud and insert the 2 threaded nipples through their corresponding holes.
- 8 Firmly tighten the nuts on the lower end of the nipples to secure the marquee to the monitor shroud.
- 9 Thread the lamp wires through the lefthand nipple. Plug the 4 pin connector into the socket.
- 10 Place the sign plate into the marquee housing. Replace the rear cover and secure it with its 3 screws.
- 11 Screw the upper end of the marquee brace into the center of the rear cover of the marquee.



### WARNING



When mating the connector in step 9 be sure that the green, black and white wires connect to the same color wire on the other connector.

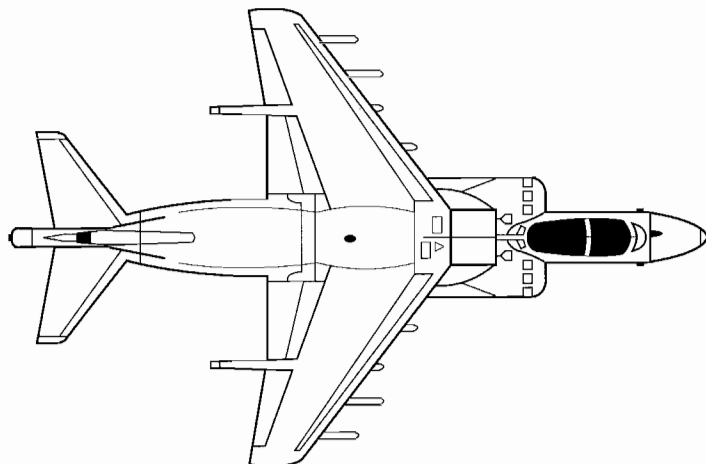


## Operator Options

To check or change options enter self-test by turning the self-test switch on and selecting the **Coin Options** or **Game Play Options and Utilities** screens. Then select the desired sub-menu. To exit self-test turn the self-test switch off.

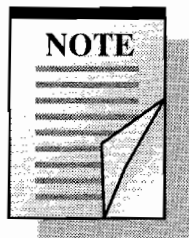
## Game Specifications

Height	70 inches
Width	29 inches
Depth	42 inches
Weight	350 lbs.
Line Voltage	100 VAC +/- 10%
	115 VAC +/- 10%
	230 VAC +/- 10%
Operating Temperature	5° - 37° C (41° - 100° F)
Power Consumption	115 VAC, 260 watts (Typ)
Monitor	Wells-Gardner (K-8000)
DC Voltages	+ 5 VDC
	+12 VDC
	+15 VDC
	- 15 VDC

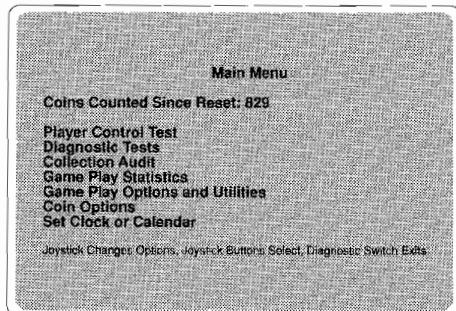


## F-15 Self-Test & Diagnostics Screens

The self-test mode is a series of screens (or “menus”) that enables the operator to check game controls, view game statistics, and make adjustments to the pricing and difficulty. These menus are accessible by moving the self-test switch to the down position (either before power-up or during attract mode).



You may have to press the [START] button after moving the switch down during attract mode.



## How To Use The Menus

The first operator menu is the “Main Menu.” Beneath the “Coins Counted Since Reset” text is a group of seven options. The currently selected option is white, with the remaining options blue. To cycle among the options, move the joystick up or down. Press any button on the joystick to choose the currently selected option.

Underneath the choices of each menu is a brief explanation of the possible actions.



## How To Get Back To Attract Mode

You can instantly exit from any menu to attract mode by moving the self-test switch back to the up position.



## Operator Menu Summary

The following table summarizes the functions of F-15's self-test menus. Items marked with a '☐' should be performed whenever the game is installed on location. Items marked with a '✓' may need to be adjusted, depending on the location.

### Player Control Test

- ☐ Check coin and input switches.
- ☐ Recalibrate throttle limits.  
Check sound volume potentiometer.
- ☐ Check joystick operation/centering.

### Diagnostic Tests

- ☐ Monitor test pattern display.
- ☐ Run sound board test.  
Last system error display.

### Collection Audit

- View coin/time figures.
- View previous coin/time figures.
- View detailed "vend history".
- ☐ Clear coin/time figures.
- ☐ Clear vend history statistics.

### Game Play Statistics

- View general play information.
- View tabulation of games played.
- ☐ Clear game play statistics.

### Game Play Options and Utilities

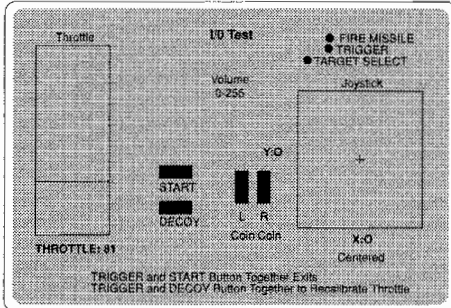
- ✓ Adjust game difficulty setting.
- ✓ Set lives per credit.
- ✓ Set minimum sound volume.
- ☐ Restore factory coin and play settings.
- ☐ Reset high scores.

### Coin Options

- ✓ Set coin(s) for play start.
- ✓ Set coin mechanism multipliers.
- ✓ Set coin(s) for play continue.

### Set Clock and Calendar

- ☐ Adjust battery-backed time settings.



**THROTTLE  
RECALIBRATION**

**VOLUME  
ADJUSTMENT**

**JOYSTICK  
CENTERING**

## The Player Control Test

This screen presents the status of these I/O devices:

**Throttle:** Potentiometer value (with current limits).

**Volume:** Potentiometer value (ranges from 0- 255).

**Switches:** State of panel, coin, and joystick switches.

**Joystick:** Value of X and Y encoders.

**Sensor:** "Centered" text color changes to bright yellow when joystick is detected.

The throttle min and max limits are stored in battery-backed memory. Should they be lost, the throttle would become inoperative. To recalibrate the limits, follow these steps:

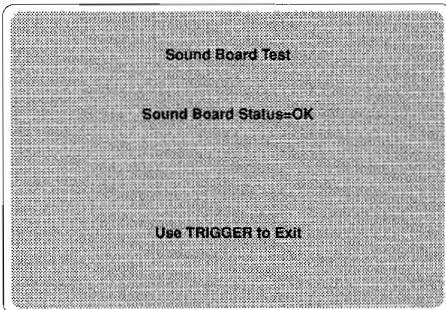
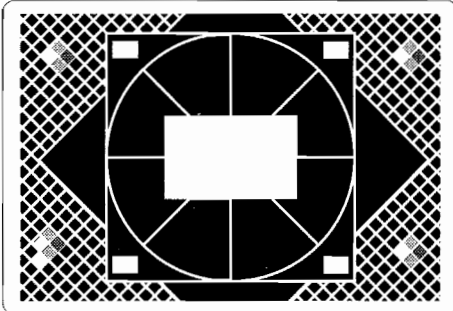
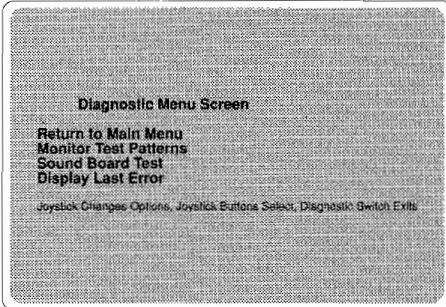
- 1) While viewing the Player Control Test screen, press the joystick trigger and the yellow [DECOY] button simultaneously.
- 2) Move the throttle to its forward and back limits.

The new limits will be stored in battery memory.

The minimum volume level is controlled through software. If the lowest potentiometer setting is too loud for the location, you can adjust the minimum sound level from the Game Play Options and Utilities menu.

The joystick position is read through digital encoders on the X and Y axes. The software considers values -4 to 4 as centered. The encoders do not return an analog value, so the center position (0,0) is established by two methods:

- 1) Upon power-up or board reset, the software initializes the encoders to the center position (regardless of the joystick's position).
- 2) The encoders are centered when the joystick photo-sensor detects the joystick passing in front of it.



## The Diagnostic Menu Screens

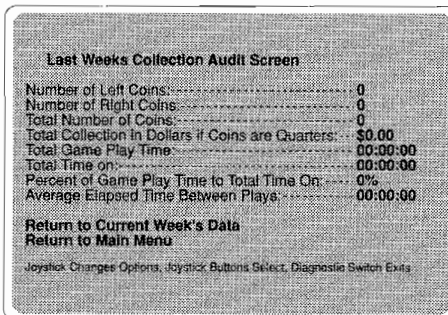
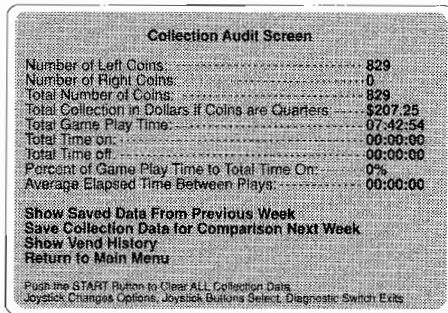
The Diagnostic Menu features these options:

- **Monitor Test Patterns** — displays a grid pattern to assist in convergence, color, and linearity tests. Press the joystick trigger to return to the Diagnostic Menu.
- **Sound Board Test** — runs the power-up diagnostics. Refer to the table on page 2.12 for error code explanation.
- **Display Last Error** — reports the specifics of the last system error. This information is stored in battery-backed memory.



## The Collection Audit Menu

These screens provide a detailed summary of coin and time figures. The following options are available:



Vend History					
	#Games	Avg Game Time	Avg Credit Time	Total Time	
Single-Vend Games	11	00:05:38	00:03:36	00:40:07	
Refit Games					
1 Coin Refit	7	00:03:52	00:02:34	00:27:05	
2 Coin Refit	4	00:04:23	00:02:11	00:17:34	
3+ Total Coins: 59	6	00:08:19	00:01:50	00:50:37	
Continued Games					
1 Continuation	2	00:05:30	00:03:40	00:11:01	
2 Continuation	0	00:00:00	00:00:00	00:00:00	
3+ Total Credits: 5	1	00:10:57	00:02:53	00:10:07	
Games with Refits and Continues					
1 Refit (0 Cont)	0	00:00:00	00:00:00	00:00:00	
2 Refit (5 Cont)	1	00:10:30	00:02:20	00:10:30	
3+ Total Refit, 45 Cont)	15	00:19:43	00:01:40	04:55:53	
Total # of Games: 40	Total Time:	07:42:54	Time/Game:	00:09:2	
Total # Refits:	206	Total # Conts:	97	Time/Cred:	00:01:53

TRIGGER Exits, START Button Clears Values

**CLEARING  
AUDIT FIGURES**

- **Show Saved Data From Previous Week** — displays operator-saved audit data (see the following option).
  - **Save Collection Data for Comparison Next Week** — replaces the saved audit numbers with the current figures.
  - **Show Vend History** — lists games grouped by:
    - Single-Vend Games: no “refits” and no continues.
    - Refit Games: coin(s) used for bonus dollars.
    - Continued Games: credit(s) used to continue.
- Press the [START] button while viewing the Vend History screen to clear these statistics (these numbers are saved separately from the audit data). Press the joystick trigger to return to the Collection Audit Screen.
- Press the [START] button while viewing the Collection Audit Screen to clear the audit numbers. This action clears neither the Vend History figures nor the Game Play Statistics.

## The Game Play Statistics Screens

These screens display useful information on player buying patterns. The following functions are available:

Game Play Statistics	
Average Time per Credit	00:01:53
Total Number of Games	49
Number of Profit Games	295
Number of Continued Games	97
Percentage of Players Adding Credits to Continue Game Play	36%
Number of Pilot Training Plays	35
Number of Intermediate Plays	13
Number of Expert Plays	10
<b>Return to Main Menu</b>	
<b>Games Played By Day and Hour</b>	
Push the START Button to Clear ALL Collection Data	
Joystick Changes Options, Joystick Buttons Select, Diagnostic Switch Exits	

Games Played by Day and Hour						
	Mon	Tue	Wed	Thu	Fri	Sat
MIDNIGHT	0	0	0	0	0	0
1:00 AM	0	0	0	0	0	0
2:00 AM	0	0	0	0	0	0
3:00 AM	0	0	0	0	0	0
4:00 AM	0	0	0	0	0	0
5:00 AM	0	0	0	0	0	0
6:00 AM	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0
10:00 AM	0	0	0	0	0	0
11:00 AM	0	0	0	0	0	0
NOON	0	0	0	0	0	0
1:00 PM	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0
3:00 PM	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0
6:00 PM	0	0	0	0	0	0
7:00 PM	0	0	0	0	0	0
8:00 PM	0	0	0	0	0	0
9:00 PM	0	0	0	0	0	0
10:00 PM	0	0	0	0	0	0
11:00 PM	0	0	0	0	0	0

**CLEARING  
GAME PLAY  
NUMBERS**

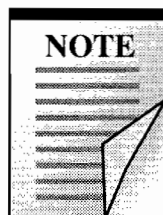
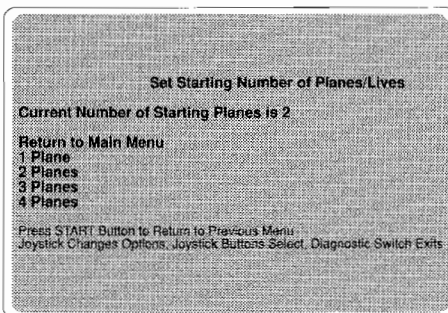
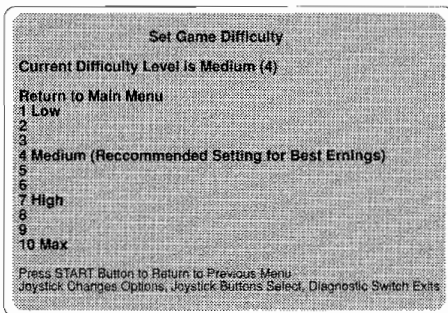
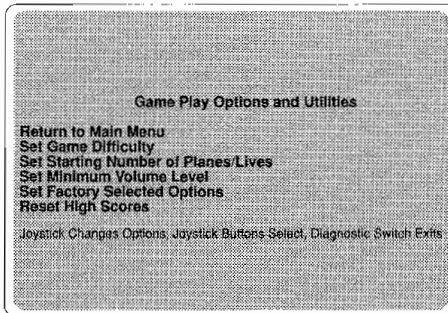
- Games Played By Day and Hour** — displays the number of games played each day and hour. Press the joystick trigger to return to the Game Play Statistics Screen.
- Press the [START] button while viewing the Game Play Statistics Screen to clear the figures. This will also reset the "Coins Counted Since Last Reset" statistic in the Main Menu screen and will clear the Games Played by Day and Hour table.





## Game Play Options & Utilities Menu

These menu items provide the following functions:

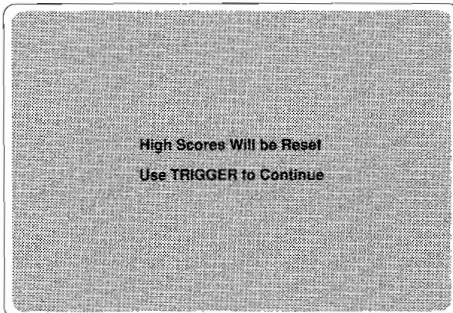
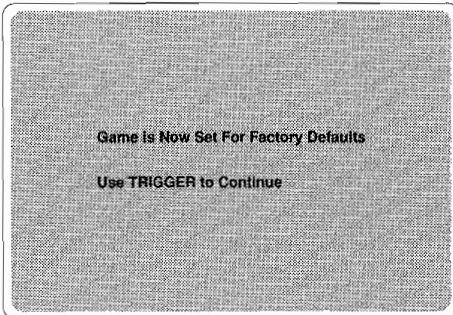
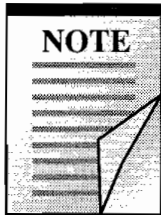
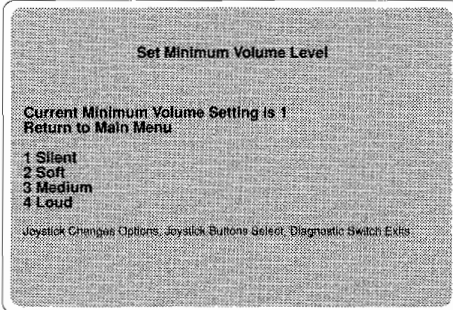


- **Set Game Difficulty** — enables adjustment of the game's overall difficulty to suit the location. The factory setting is 4 (Medium).

This setting affects the missile frequency, missile tracking, fuel consumption, the "bonus dollars" per mission completion and the bonus dollars per coin.

- **Set Starting Number of Planes/Lives** — allows you to change the starting number of planes per play. The factory setting is 2 planes.

Players who choose the Beginner mission can't lose their plane on the initial stage, so they must score a certain number of points to keep playing on the first credit.



- **Set Minimum Volume Level** — enables you to lower the minimum volume threshold. The factory setting of 2 (Soft) ensures a minimum threshold that is just audible in most game centers.

The Minimum Volume Level setting does not affect the loudest sound level attainable.

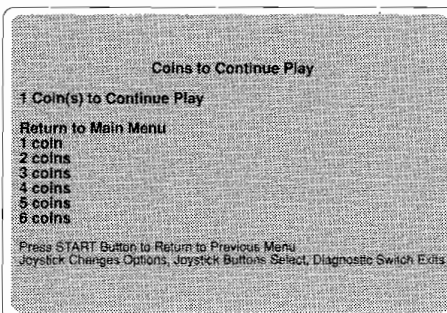
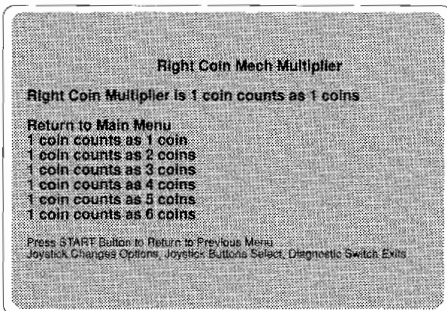
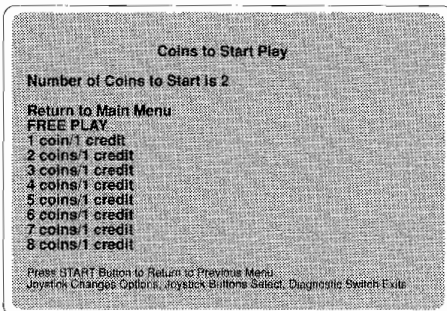
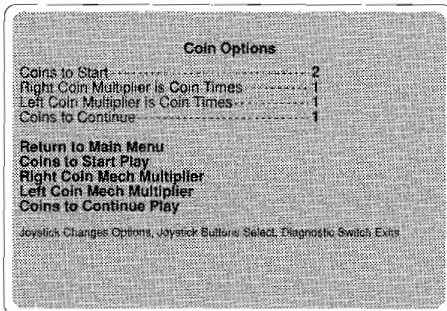
- **Set Factory Selected Options** — restores the factory defaults on the above play settings and the coin options (see next page).

- **Reset High Scores** — resets the high scores listings to lower factory scores.

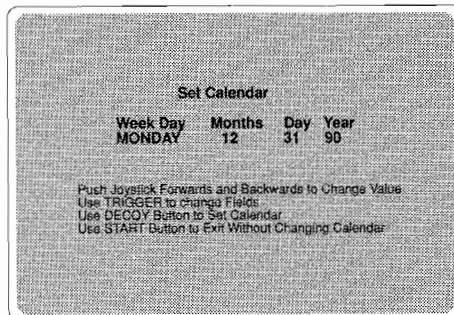
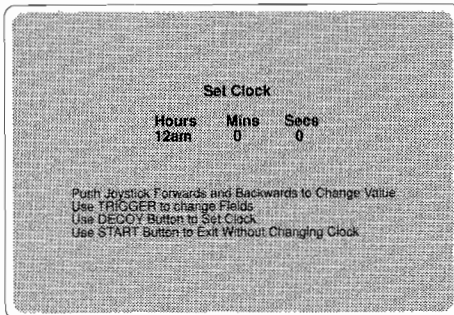
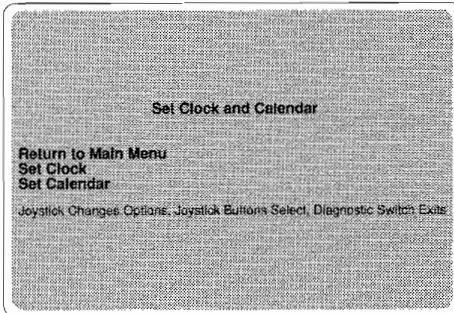


## The Coin Options Menu

These menu items allow you to adjust the following options:



- **Coins to Start** — enables you to set the number of coins per credit from free play to 8. The factory setting is 2 coins.
- **Right Coin Multiplier** — allows you to change the value of coins that pass through the right coin slot. Factory setting is 1 for 1.
- **Left Coin Multiplier** — allows you to change the value of coins that pass through the left coin slot. Factory setting is 1 for 1.
- **Coins to Continue Play** — enables you to set the number of coins required for the purchase of one additional plane (life). The factory setting is 1 coin.



## The Set Clock and Calendar Menu

The battery-backed internal clock and calendar keeps accurate time whether or not the game is on (or even plugged in). Should the battery fail or battery-backed memory become corrupted, the following items will enable you to reset the time-keeping:

- **Set Clock** — select this item to check/reset the internal clock time. If the clock needs resetting, follow these steps:
  - Move the joystick up or down to change the hour setting.
  - Press the trigger when the hour is correct.
  - Continue this process for the minutes and seconds.

Press the yellow [DECOY] button to set the clock to the new time, or press the [START] button to exit without changing the time.

- **Set Calendar** — choose this item to check/reset the internal calendar setting. If the calendar needs changing, follow these steps:
  - Move the joystick up or down to change the week day.
  - Press the trigger when the week day is correct.
  - Continue this process for the month, day and year.

Press the yellow [DECOY] button to store the new setting, or press the [START] button to exit without changing the calendar.



## Power-Up Diagnostics

Upon power-up, the firmware runs several tests to ensure each coprocessor is functional. The following table summarizes these tests:

68000 sram	64k Static RAM
68000 rom checksums	512k EPROMs
68000 Shared memory	256k dual-port memory
Am29000 present	68000/29000 communication
Am29000 Shared memory	Access to host-board shared memory
MAC system	DrMath multiplier
Pipeline	DrMath 3-D graphics
TI Vram A	VGB video RAM
TI Vram B	VGB video RAM
TI Dram	VGB RAM
CLUT	VGB RAM
TI UART	VGB RS-232 interface
TI Eprom A	VGB EPROM U121, U124, U130, U133
TI Eprom B	VGB EPROM U97, U101, U108, U114

### Download Note

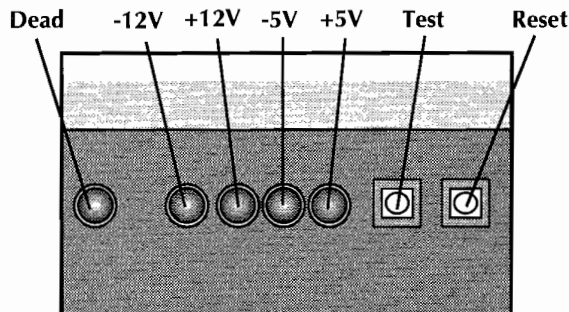
The game's 3-D objects are stored in a compacted form on ten EPROMS. The software must "download" the 3-D objects into RAM before the game can be played (a process that takes around five minutes). To reset the game without having to wait through the download, press the reset switch on the Host board. This small switch is located on the upper-left of the outermost PCB.

## Sound Board Diagnostics Test

The sound board runs through its self-test immediately after power-up. To verify the sound board status, run the Diagnostics-menu Sound Board test. If a component fails, an error code is returned describing the problem. The following table lists which components failed for each error code.

ERROR CODE	NEC7759	YM2151	ROM	RAM
65				bad
66			bad	
67			bad	bad
68		bad		
69		bad		bad
70		bad	bad	
71		bad	bad	bad
72	bad			
73	bad			bad
74	bad		bad	
75	bad		bad	bad
76	bad	bad		
77	bad		bad	bad
78	bad	bad	bad	
79	bad	bad	bad	bad

For Location of The Above Components See Page 2.15



Sound Board



# Health LEDs and Switch Settings

## Host Processor Board Health LED

The Host Processor board has one health LED which toggles while running the game loop and attract loops. This light will not appear during system diagnostics and download.

**Dip Switch settings:** The Host Processor board has an 8-position DIP switch. **For normal game operation all switches should be set to the on position.** Other functional settings of this switch are as follows:

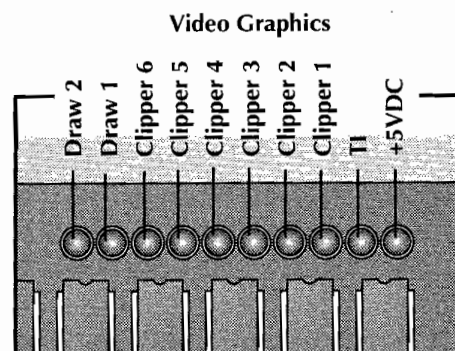
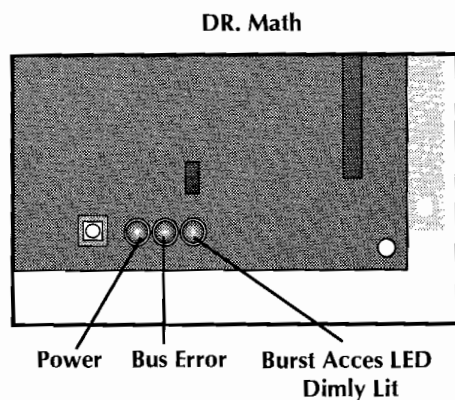
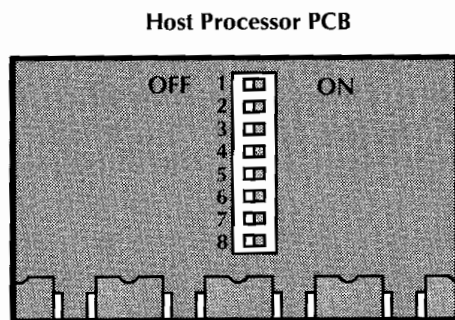
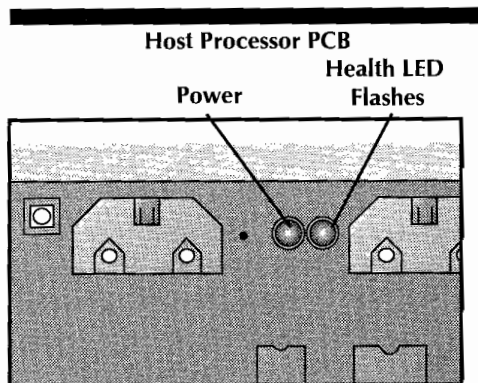
SW1 - Monitor mode. On system start-up the Host Processor will run its monitor program. This mode can be terminated only by resetting the machine. An RS-232 terminal is required to see the output of the Monitor.

SW3 - Manufacturing Tests.

SW4 - Burn-in Tests. The system performs looping burn-in tests.

SW5 - Dr. Math Monitor Mode. Setting this switch puts the Dr. Math board into its resident monitor. An RS-232 terminal must be connected to the Dr. Math board to see the output.

SW6 - Shared Memory Handshake Test.

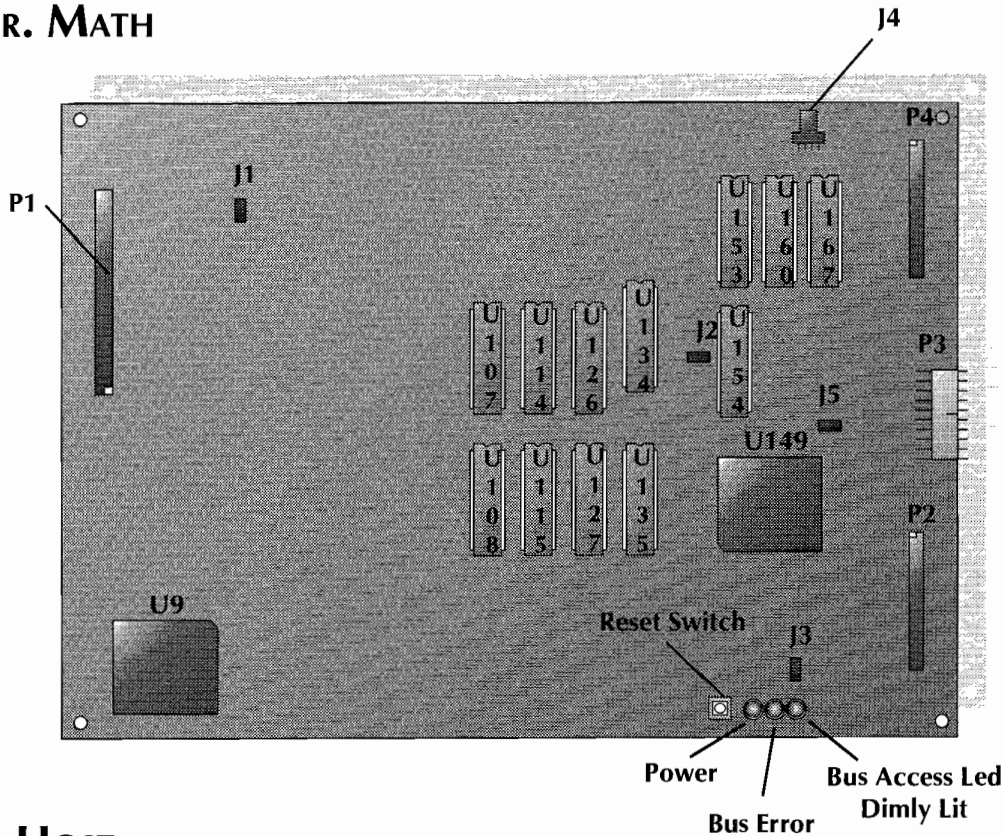


## Video Graphics Health Lights

The Dr. Math board toggles the health lights on the Video Graphics board every time an End of Frame (EOF) is sent down the pipeline. A flashing EOF health toggle represents frame requests originating from the Host Processor and is considered a good thing. No flashing lights can indicate a clogged pipeline or a Dr. Math failure.

# Major Component Location Diagram

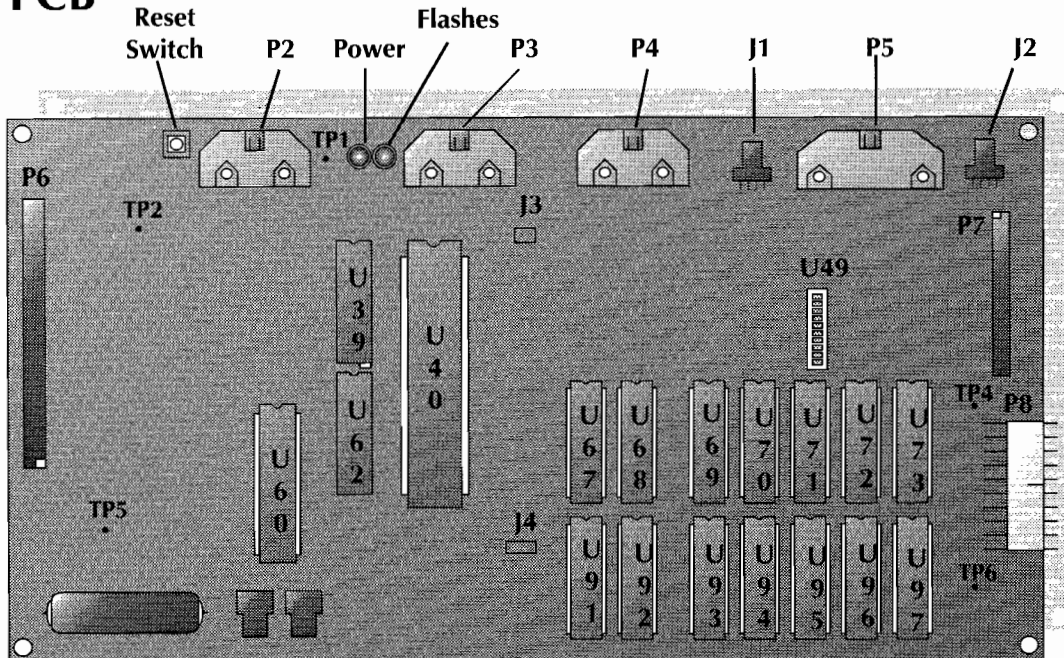
DR. MATH



## PARTS

U9	135-29000-516
U149	130-00323-510
U107	110-00001-X24
U108	110-00001-X20
U114	110-00001-X23
U115	110-00001-X19
U126	110-00001-X25
U127	110-00001-X21
U134	110-00001-X22
U135	110-00001-X18
U153	110-00001-X14
U154	110-00001-X15
U160	110-00001-X17
U167	110-00001-X16

HOST  
PROCESSOR  
PCB



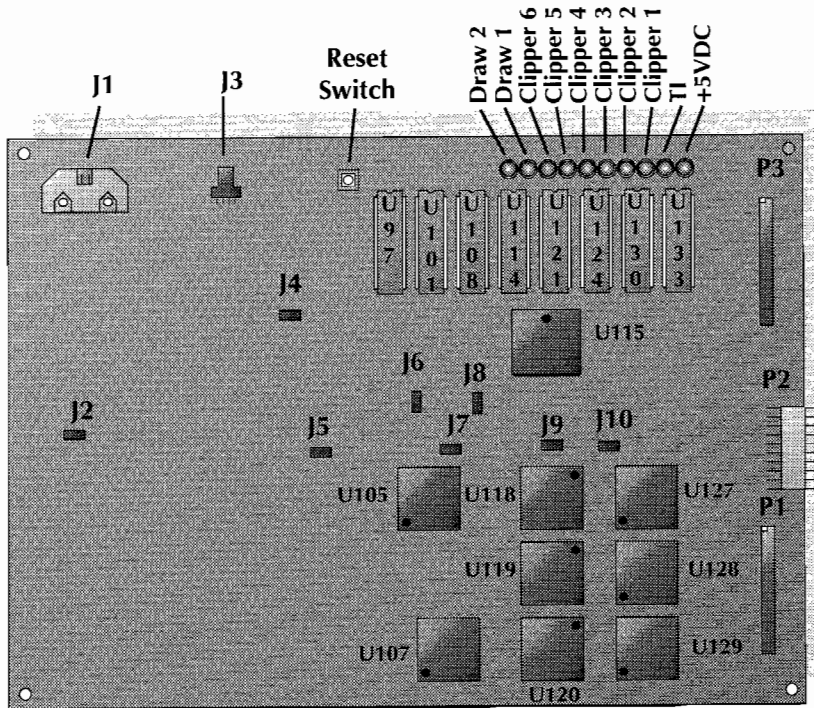
## PARTS

U67	110-00001-X00
U68	110-00001-X02
U69	110-00001-X04
U70	110-00001-X06
U71	110-00001-X08
U72	110-00001-X10
U73	110-00001-X12
U91	110-00001-X01
U92	110-00001-X03
U93	110-00001-X05
U94	110-00001-X07
U95	110-00001-X09
U96	110-00001-X11
U97	110-00001-X13



# Major Component Location Diagram

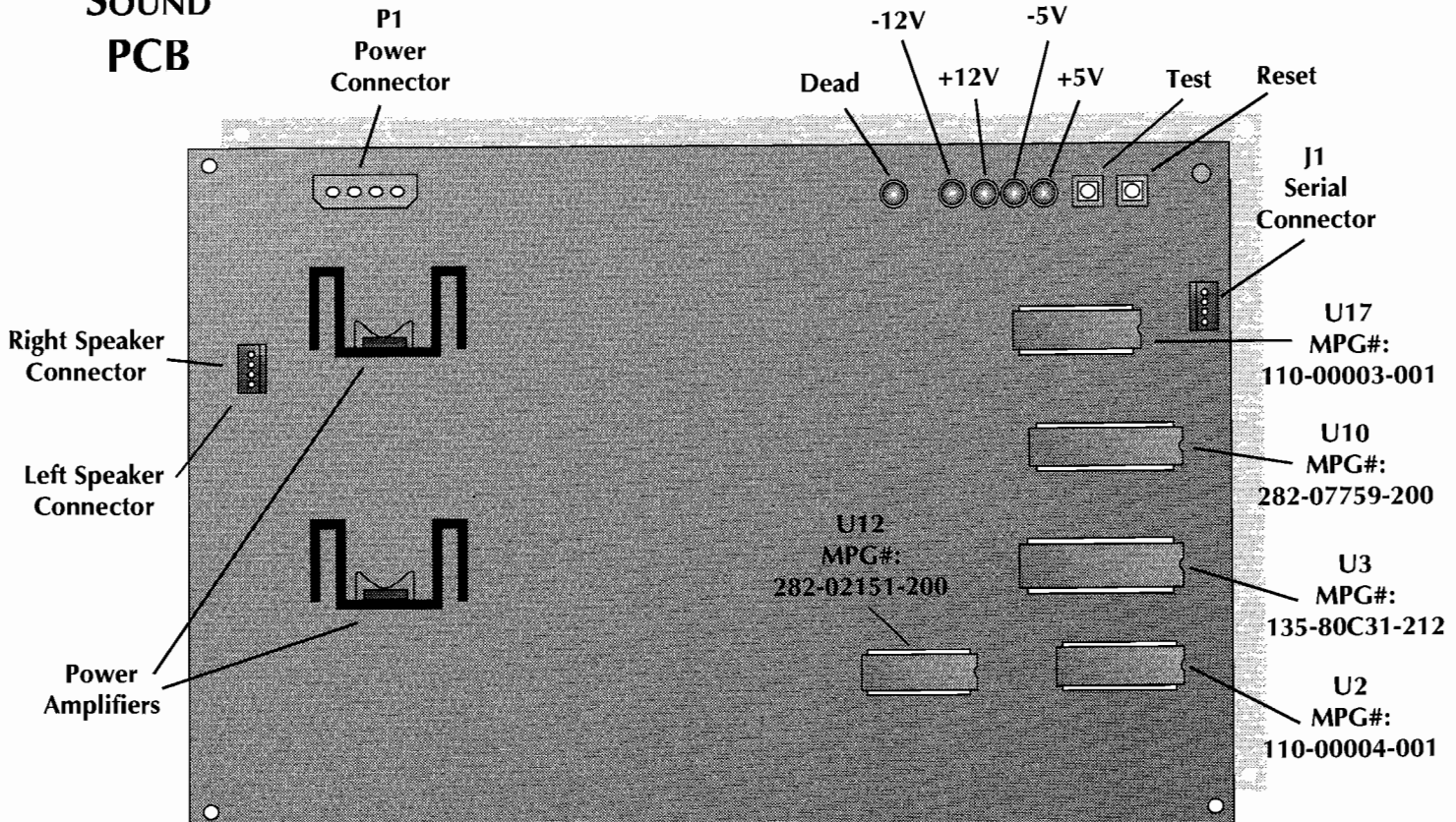
## VIDEO GRAPHIC PCB



### PARTS

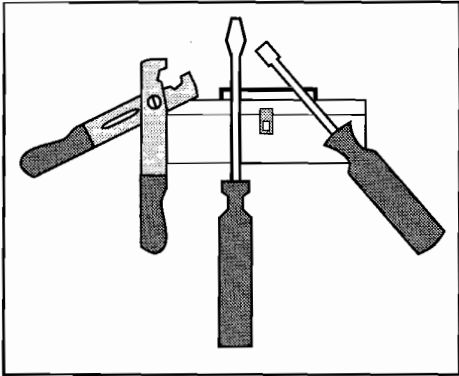
U97	110-00002-X04
U101	110-00002-X01
U108	110-00002-X02
U114	110-00002-X03
U121	110-00002-X06
U124	110-00002-X05
U130	110-00002-X07
U133	110-00002-X08
U115	135-34010-440
U105	100-TB001-340
U107	100-PK001-320
U118	100-MW001-320
U119	100-MW001-320
U120	100-MW001-320
U127	100-MW001-320
U128	100-MW001-320
U129	100-MW001-320

## SOUND PCB



---

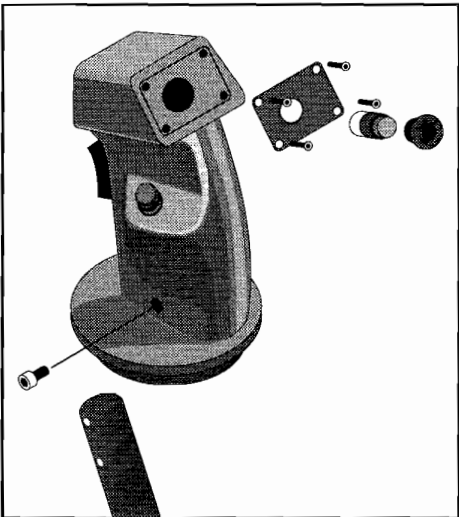
# NOTES



## Maintenance

The following sections give detailed instructions in disassembling and reassembling the various parts of the game. The sections are arranged in the general order that they are encountered in the disassembly process. Because some steps in the complete disassembly sequence are not necessary to reach a particular part they are located under their own headings.

Before beginning a repair, please read the entire procedure to familiarize yourself with the process. Also, make sure that you have all of the required tools at hand. When you reach the point in the disassembly procedure where you have removed the defective part, please skip ahead to the appropriate point and follow the reassembly instructions.



## 1. Joystick Switches

Open the coin door and release the spring latches that secure the control panel. It may be necessary to feed the wiring harness up through the joystick support tube to allow the switches to be removed from the grip.

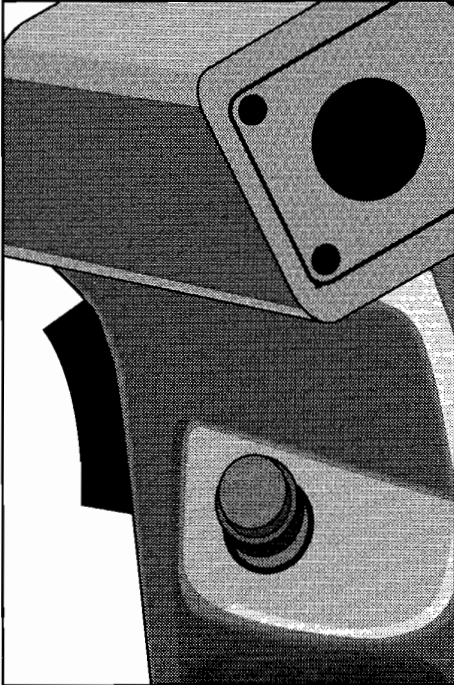
### Trigger Switch

#### Disassembly:

- 1 Insert a flat bladed screwdriver behind the plastic trigger and carefully pry the switch out of the grip. Note carefully the position of the two wires as you pull the switch out.
- 2 Pull the two wires out of the switch.

#### Assembly:

- 3 Using a pair of needle nosed pliers, grasp the wires near their tips and insert them into the appropriate holes in the switch. They should slide in and be secured by spring loaded tabs inside the switch.



- 4 Bend the wires out through the slots at the side of the switch and run them down the sides toward the back of the switch.
- 5 Holding the wires against the sides of the switch, insert the switch into the grip. The wires should fit snugly in channels beside the switch without getting pinched.

### Lower thumb switch

#### Disassembly:

- 1 Loosen the set screw in the rear of the grip.
- 2 Grasping the small notches in the side of the red button, slide the switch out of the grip.
- 3 Remove the electrical tape and unsolder the 4 wires from the switch.

#### Assembly:

- 4 Solder the 4 wires to the switch and individually wrap the connections in electrical tape.
- 5 Slide the switch into the grip and tighten the set screw.

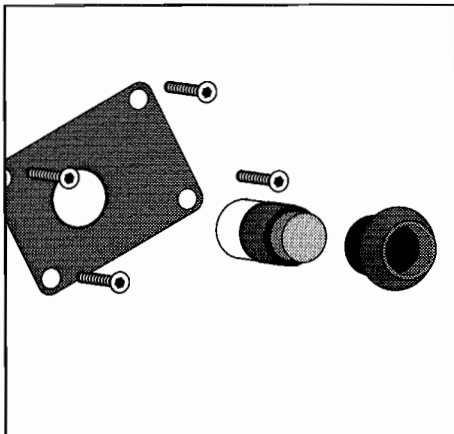
### Upper thumb switch

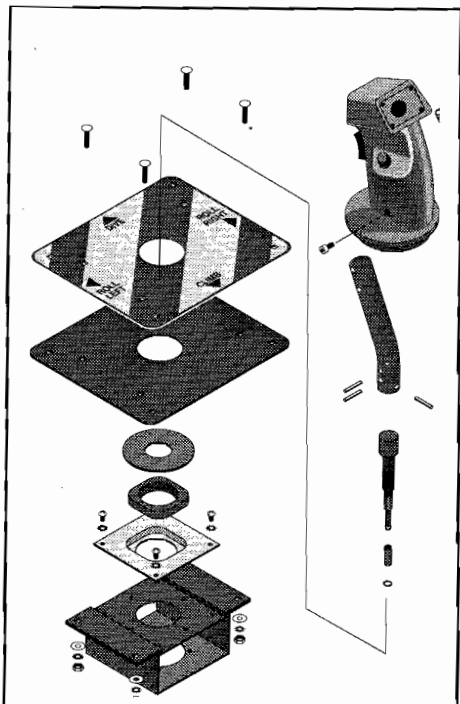
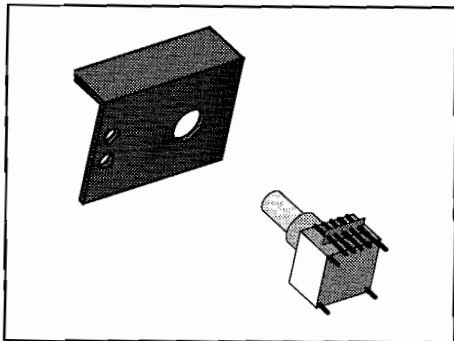
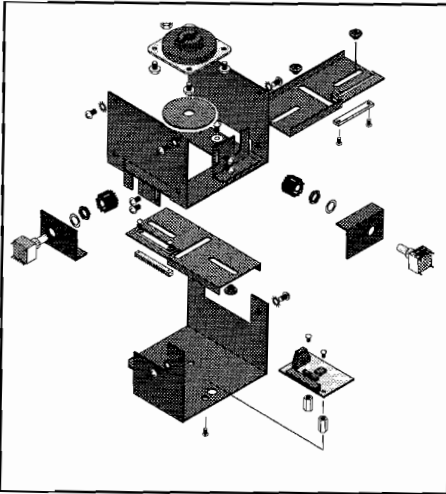
#### Disassembly:

- 1 Remove the 4 screws that hold the switch mounting plate to the grip and remove the plate.
- 2 Remove the electrical tape and unsolder the 4 wires from the switch.
- 3 Unscrew the silver ring nut from the switch and slide the switch out of the switch bezel and mounting plate.

#### Assembly:

- 4 Insert the switch into the switch bezel and tighten the silver ring nut against the back of the mounting plate.
- 5 Solder the 4 wires to the switch and individually wrap the connections in electrical tape.





- 6 Insert the mounting plate so the switch is on the left side of the grip and screw the plate in place.

## 2. Joystick

- 1 Open the coin door, release the spring latches that secure the control panel and tilt the control panel toward you to expose the joystick mechanism.

**At this point the optical encoders can be removed and replaced without further disassembly of the joystick. This procedure is covered in section 4.**

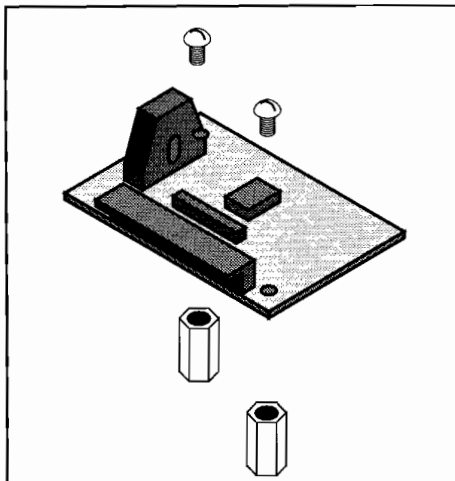
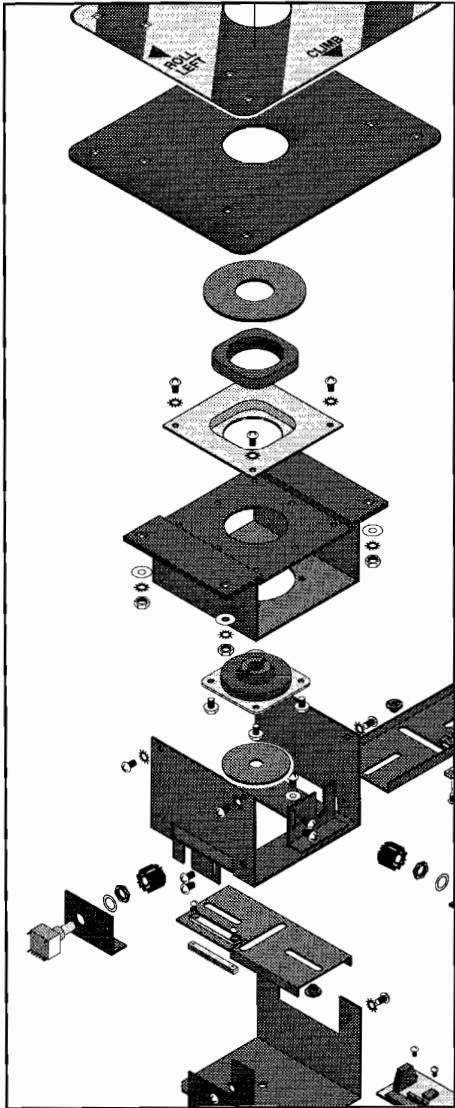
- 2 Remove the centering sensor mounting bracket from the position sensor assembly
- 3 Remove the 7 pin connector from the centering sensor.

**Optional - See section 3 for disassembly of centering sensor.**

- 4 Remove the 5 pin connectors from the optical encoders.
- 5 Remove 4 screws that hold the optical encoder assembly to the pivot assembly.
- 6 Slide the optical encoder assembly further on to the pivot assembly to expose the snap ring on the end of the joystick shaft.
- 7 Remove the snap ring and the bushing from the end of the joystick shaft.
- 8 Slide the optical encoder assembly off the pivot assembly

**Optional - See section 4 for disassembly of the optical encoder assembly.**

- 9 Remove the 4 carriage bolts that attach the pivot assembly to the joystick bezel and slide the joystick assembly up through the bezel, removing the joystick from the control panel.
- 10 Remove the lock nut from the lower end of the joystick shaft and slide the shaft out of the rubber pivot bushing, feeding the wiring bundle through the limit bumper.



**Optional - See section 5 for disassembly of the pivot assembly.**

- 11 Using a drift and hammer, drive the 2 roll pins out of the support tube.
- 12 Slide the joystick shaft out of the tube.

**Before proceeding further, follow the steps in section 1 to remove the switches from the grip.**

- 13 Remove the 2 socket head screws from the left side of the joystick grip and slide the grip off the support tube.
- 14 Pull the wiring harness out of the support tube.
- 15 Disconnect the wires from all three switches and slide the wire harness out of the support tube, being careful not to tear the insulation.

**Assembly is the reverse of removal.**

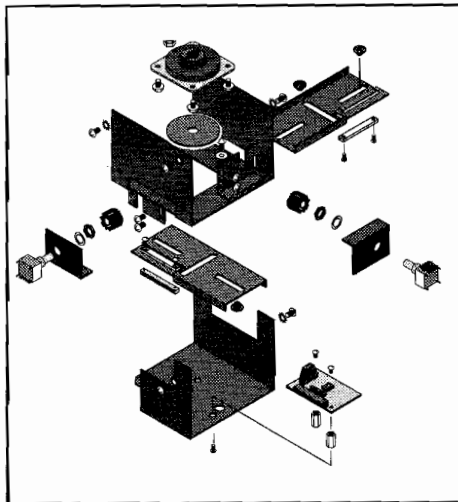
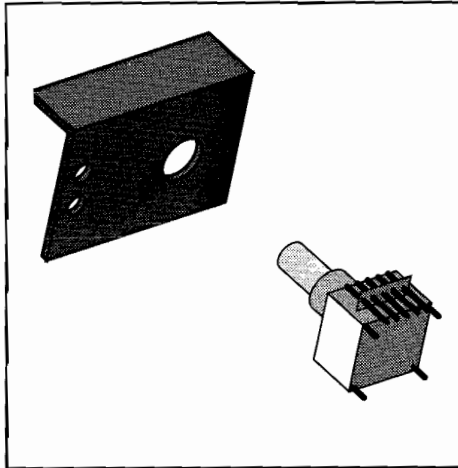
## 3. Centering sensor

**Disassembly:**

- 1 Remove the sensor circuit board from the 2 support legs.
- 2 Unsolder the 3 wires from from the center detect PCB.
- 3 Remove the support legs from the sensor mounting bracket.

**Assembly:**

- 4 Screw the support legs to the sensor mounting bracket.
- 5 Re-solder the 3 wires to the center detect PCB. Red wire to the hole marked "+5v ", Black to "Gnd " and white / yellow to "Out."
- 6 Screw the sensor circuit board to the support legs with the black plastic optical sensor positioned at the middle of the sensor mounting bracket and facing up toward the bottom of the joystick shaft.



## 4. Optical encoders

### Disassembly:

- 1 Remove the 2 screws that hold the encoder mounting plate to the encoder support bracket.
- 2 Slide the encoder mounting plate out from behind the support bracket.
- 3 Loosen the set screw in the encoder gear and remove the gear from the shaft.
- 4 Remove the nut and lock washer from the encoder and slide the encoder out of the mounting plate. Although the hole in the mounting plate is not threaded, it may help to “unscrew” the encoder as you remove it.

**If you are replacing an optical encoder, move to step 13 to install the new encoder and reassemble the optical encoder assembly.**

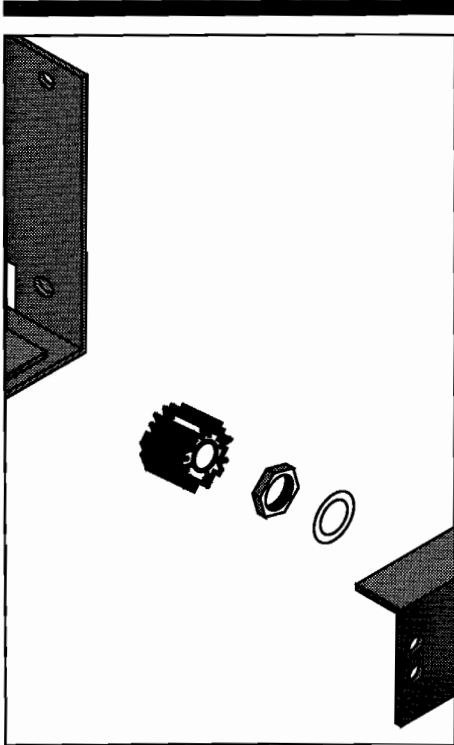
**Repeat steps 1 through 4 for the other encoder.**

- 5 Hold the 2 slider support bushings with a pair of pliers and remove their screws.
- 6 Pull the bushings out of the support bracket, releasing the slider.
- 7 Remove the rack from the slider.

**Repeat steps 5 though 7 for the other slider.**

### Assembly:

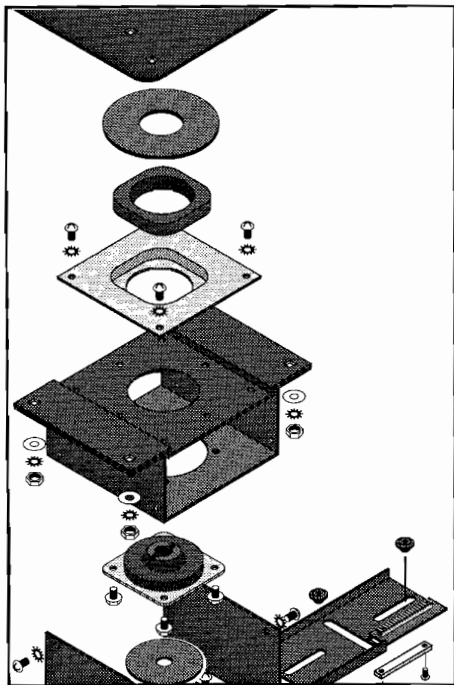
- 8 Mount the rack on the slider.
- 9 Insert the 2 slider screws through the holes in the support bracket and hold them there.
- 10 Place a flat washer over the screw closest to the encoder mount for that slider.
- 11 Place the slider over the screws with the rack next to the encoder mount and start the bushings into the screws.
- 12 Hold the bushings with pliers and tighten the screws, making sure that the bushings seat in the holes in the support bracket.



**Repeat steps 8 though 12 for the other slider.**

- 13 Insert the encoder into the mounting plate.
- 14 Place the lock washer and nut on the encoder shaft and tighten the nut.
- 15 Slide the gear onto the encoder shaft as far as possible. The end of the gear with the set screw should be closest to the encoder housing. The rotational position of the gear is not important.
- 16 Slide the mounting plate behind the support bracket and insert the 2 screws. Position the gear so that its teeth are fully engaged and run smoothly in the rack.
- 17 Tighten the screws and check the operation of the rack again. Make sure that the set screw does not bind in the rack.
- 18 Plug the 5 pin connector into the encoder. The connector with the green wire goes on the left/right encoder. The yellow wire goes to the up/down encoder.

**Repeat steps 13 though 18 for the other encoder.**



## 5. Pivot

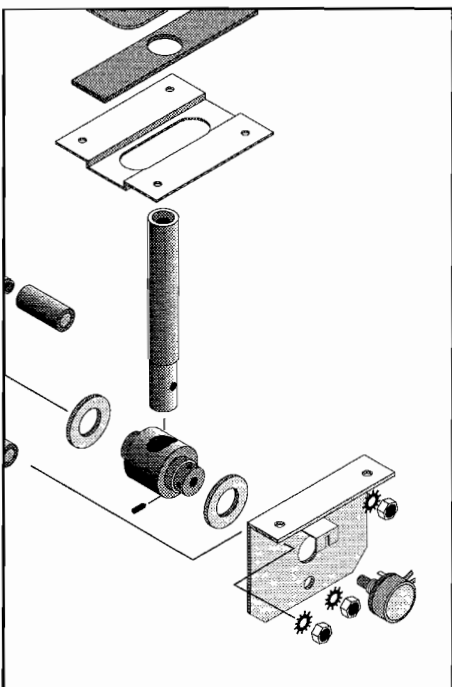
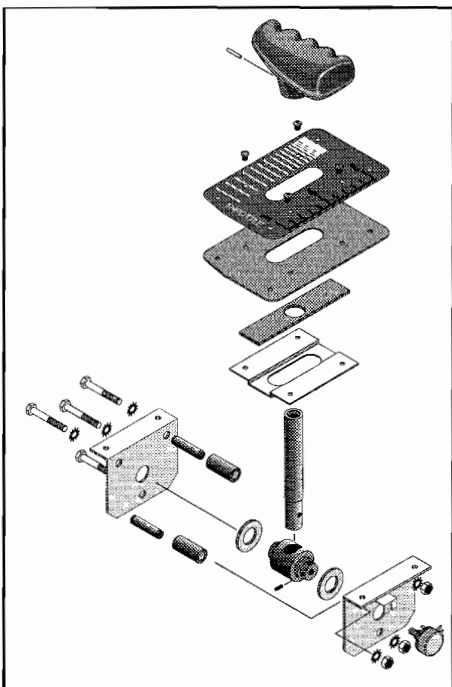
### Disassembly:

- 1 Remove the pivot bushing from the pivot mounting bracket.
- 2 Remove the limit bumper plate from the pivot mounting bracket and pry the limit bumper from the plate.

### Assembly:

- 3 Place the rubber bumper in the limit bumper plate with the narrow diameter at the bottom of the depression.
- 4 Attach the limit bumper plate to the pivot mounting bracket.
- 5 Mount the pivot bushing on the pivot mounting bracket. The slots in the end of the bushing face the





limit bumper and are parallel to the grommet mounting bracket.

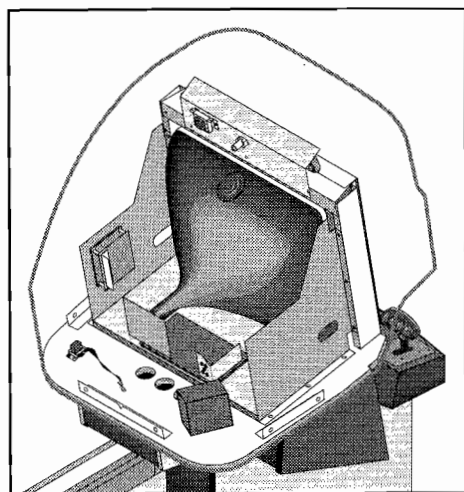
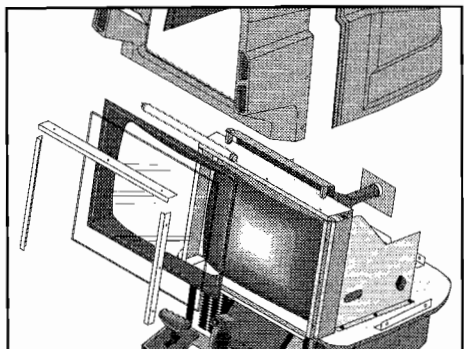
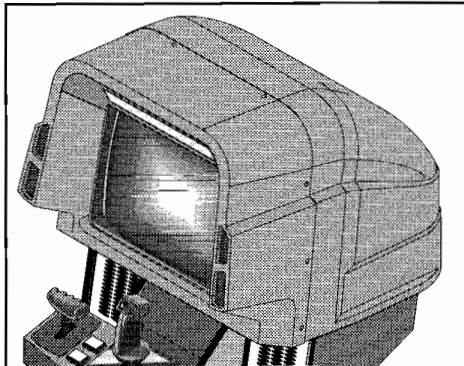
## 6. Throttle

### Disassembly:

- 1 Open the coin door, release the latches that secure the control panel and tilt the control panel toward you to expose the throttle mechanism.
- 2 Unplug the wiring harness from the throttle assembly.
- 3 Remove the potentiometer by loosening the set screw in the right end of the throttle pivot shaft.
- 4 Remove the bolt in the left end of the throttle pivot shaft and slide the throttle handle out.
- 5 Remove the 4 screws that hold the throttle pivot support brackets to the throttle trim plate.
- 6 Lift the throttle pivot assembly off the trim plate and remove the sliding throttle bezel and its retainer plate.
- 7 Remove the 3 silver bolts that connect the left and right throttle pivot support brackets
- 8 Separate the pivot support brackets, removing the throttle pivot and the limit bumpers.
- 9 Remove the 2 nylon washers from each end of the throttle pivot.

### Assembly is the reverse of disassembly.

**NOTE:** The stiffness of the throttle handle is adjusted by tightening or loosening the center of the 3 bolts that connect the left and right throttle pivot support brackets. This bolt should be adjusted so that when the control panel is in the open position, the throttle handle stays securely in position and is not pulled down by its own weight.

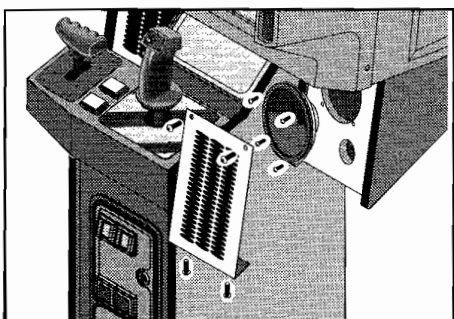
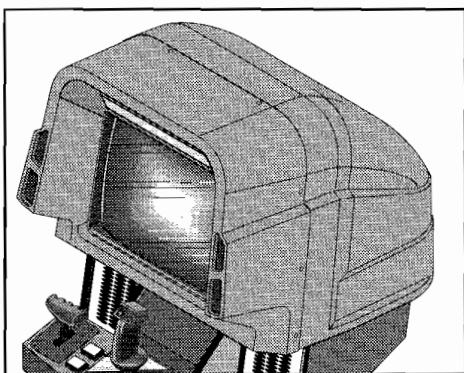
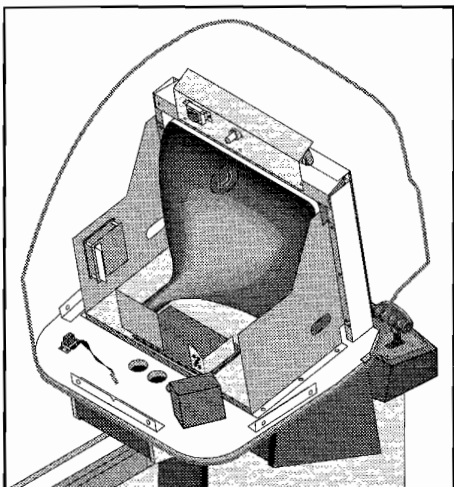
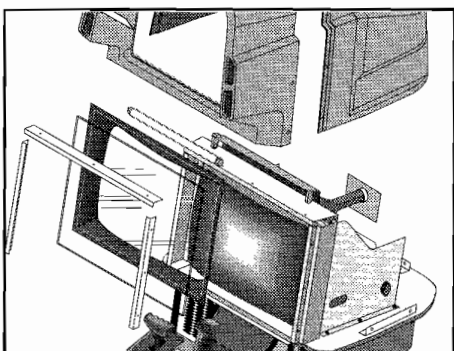


## 7. Monitor

**NOTE:** If you have installed the top marquee you will have to disconnect its wiring harness before you remove the front monitor shroud.

### Disassembly:

- 1 Remove the screws holding the front and rear halves of the monitor shroud to each other.
- 2 Remove the screws holding the monitor shroud to the monitor support platform.
- 3 Carefully lift the rear half of the monitor shroud off the base and place it rightside up on a flat surface.
- 4 Remove the front half of the shroud in the same manner.
- 5 Remove the three screws from one of the two brackets at the side of the safety glass. The safety glass can be removed from either side of the unit by sliding it out of the front of the monitor bracket. Be careful not to let the bottom edge of the glass slip off its support.
- 6 Remove the ribbon cable from the monitor circuit board.
- 7 Unplug the wiring harness at the transformer at the right rear of the monitor assembly and at the fluorescent light fixture above the monitor.
- 8 Unfasten the cable ties that secure the light fixture wiring harness to the monitor assembly.
- 9 Remove the three screws that hold the light fixture to the top of the monitor assembly and remove the light fixture.
- 10 Remove the four nuts that hold the monitor assembly to the monitor support platform.
- 11 Stand in front of the game. Grasp the monitor assembly by the hand cutouts in the metal side panels. Tilt the monitor toward you and lift it off the support platform. Gently lower it to the floor, being careful not to bump the circuit board on the back of the picture tube.



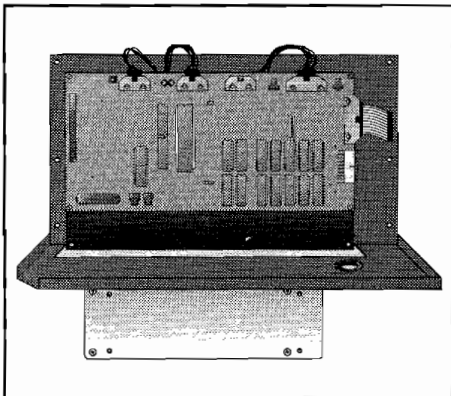
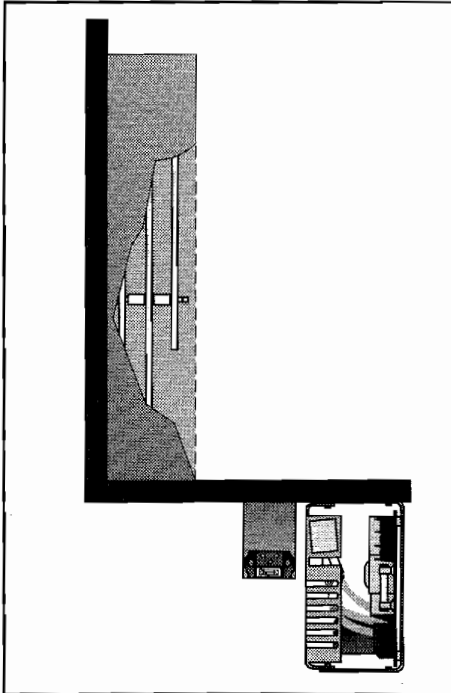
### Assembly:

- 12 Stand in front of the monitor. Grasp it by the hand cutouts in the metal side panels and lift it off the floor. Gently place it on the support platform, being careful not to bump the circuit board on the back of the picture tube. Make sure that the 4 bolts that secure the monitor assembly to the support platform extend through the holes in the metal brackets.
- 13 Tighten the nuts that secure the monitor assembly.
- 14 Place the light fixture on top of the monitor assembly and secure it with the three sheet metal screws.
- 15 Plug in the wiring harness at the transformer and at the light fixture.
- 16 Secure the light fixture wires to the monitor assembly with cable ties.
- 17 Plug the ribbon cable into the monitor circuit board.
- 18 Place the plastic monitor bezel in the frame at the front of the monitor.
- 19 Carefully slide the safety glass in from the side of the game, making sure that it does not slip off its support. Secure the safety glass bracket to the monitor frame with its 3 screws.
- 20 Carefully place the front half and then the back half of the monitor shroud on the monitor support platform and secure them loosely with their screws.
- 21 Insert and tighten the screws that hold the two shrouds to each other and then tighten the screws into the monitor platform.

## 8. Speakers

### Disassembly:

- 1 Remove the 4 bolts that hold the metal speaker grill to the speaker cabinet. Remove the grill.
- 2 Remove the 4 screws that attach the front of the



speaker cabinet. Pull the speaker mounting board away from the speaker cabinet and unplug the speaker wire.

- 3 Remove the 4 nuts from the speaker and remove it from the mounting board.

**Repeat the same procedure for the other cabinet.**

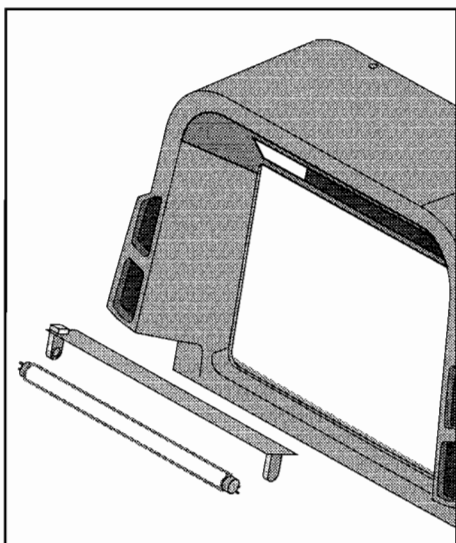
**Follow these steps in the reverse order to reassemble the speaker cabinet.**

## 9. Electronics Tray

### Removal:

The 3 main circuit boards are mounted vertically on the upper part of the tray. The power supply is suspended under the horizontal part of the tray. The sound board is mounted on the inside of the cabinet on the right side when viewed from the rear. The electronics tray can be removed from the game as a unit.

- 1 Turn off the power switch, unplug the power cord and open the rear door of the game.
- 2 Unplug the 2 wiring harnesses that connect the main circuit boards to the sound board.
- 3 Begin to slide the tray out the back of the cabinet. Watch carefully for the other cables that need to be unplugged. Some of the connectors at the top of the circuit boards may be easier to disconnect after they are clear of the cabinet. There is a large wiring harness at the front of the boards that leads into the coin collection area. This needs to be unplugged before the tray is more than half way out.
- 4 Continue to slide the tray out and unplug connectors as you go. Make sure all the cables are unplugged before you completely remove the tray from the cabinet.
- 5 Carefully pry the power connector from the edge of the circuit board stack. Leave the connector attached to the power supply cables.



- 6 Remove the RF shield from the circuit board stack.
- 7 Remove the 6 bolts that run through the posts at the corners of the circuit boards and lift the circuit board stack off the electronics tray.

**Replacement is the reverse of removal.**

## 10. Changing the fluorescent lamp

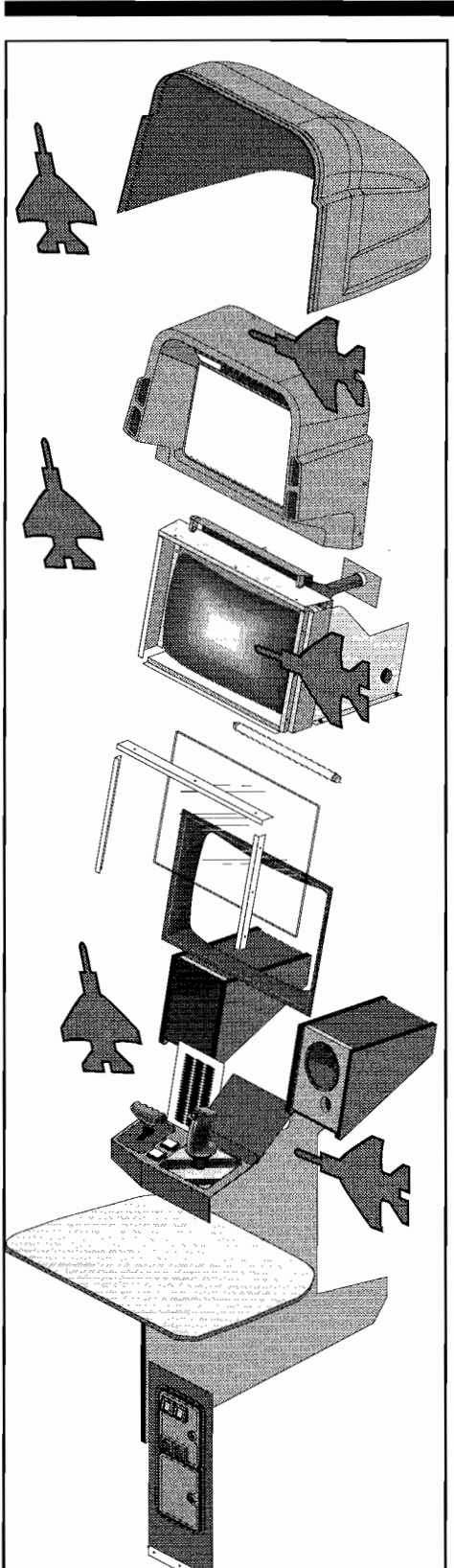
### Removal:

- 1 Remove the 6 screws that secure the attraction panel and remove it from the monitor shroud.
- 2 Gently twist the lamp 1/4 turn in either direction and pull it down to remove it from the sockets.
- 3 Slide the lamp to the left or right until the end can be passed out of the opening in the shroud.

---

# NOTES

# CHAPTER FOUR



This chapter contains illustrations and parts lists of the assemblies used in this game. We hope the illustrations will eliminate confusion when ordering parts and thus reduce any down-time you might experience.

## Inside this chapter:

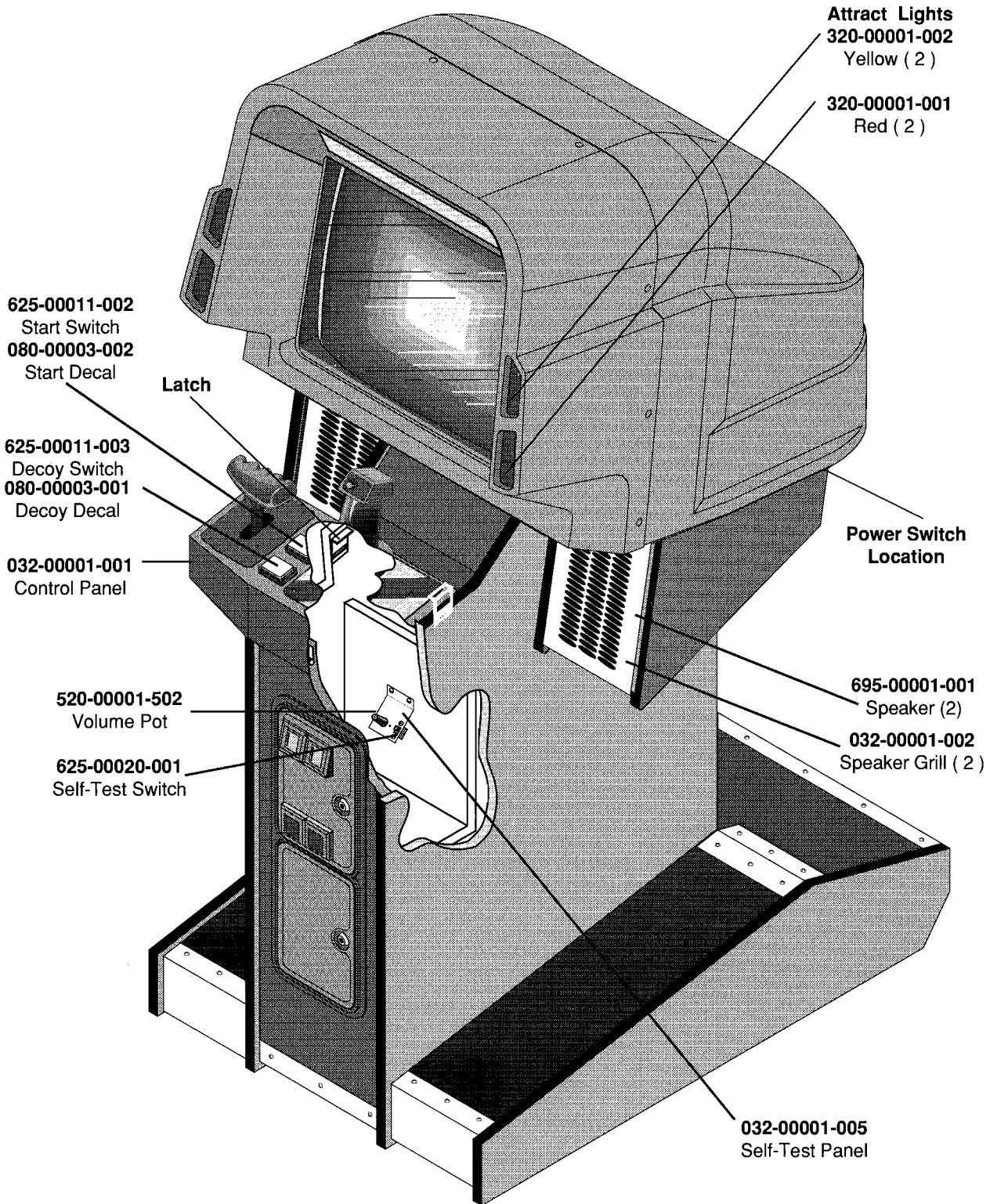
- Illustrations of all major assemblies
- Component Location Diagrams for all boards
- Parts list for all boards
- List of all fuses
- List of harnesses
- List of decals
- Wiring Diagrams
- Warranty information
- EPROM and PAL Location Chart

For further assistance please contact your distributor or:

MicroProse Games, Inc.  
180 Lakefront Dr.  
Hunt Valley, MD 21030  
301-771-3470  
Monday - Friday, 8:30 - 5:30 pm Eastern Time

*F-15 Strike Eagle*<sup>TM</sup> was designed and manufactured in the United States.

# Cabinet Assembly





## Cabinet Assembly Parts List (4.2)

Part No.	Description	Quantity
032-00001-001	Control Panel	1
032-00001-002	Speaker Grill	2
032-00001-005	Self-Test Panel Diagnostic Contol	1
032-00002-003	Rear Metal Vent	1
032-00002-004	Rear Access Cover	1
080-00003-001	Decoy Decal	1
080-00003-002	Start Decal	1
320-00001-001	Attract Lights (Red)	2
320-00001-002	Attract Lights (Yellow)	2
520-00001-502	Volume Pot	1
625-00020-001	Self-Test Switch	1
625-00011-002	Start Switch	1
625-00011-003	Decoy Switch	1
695-00001-001	Speaker	2

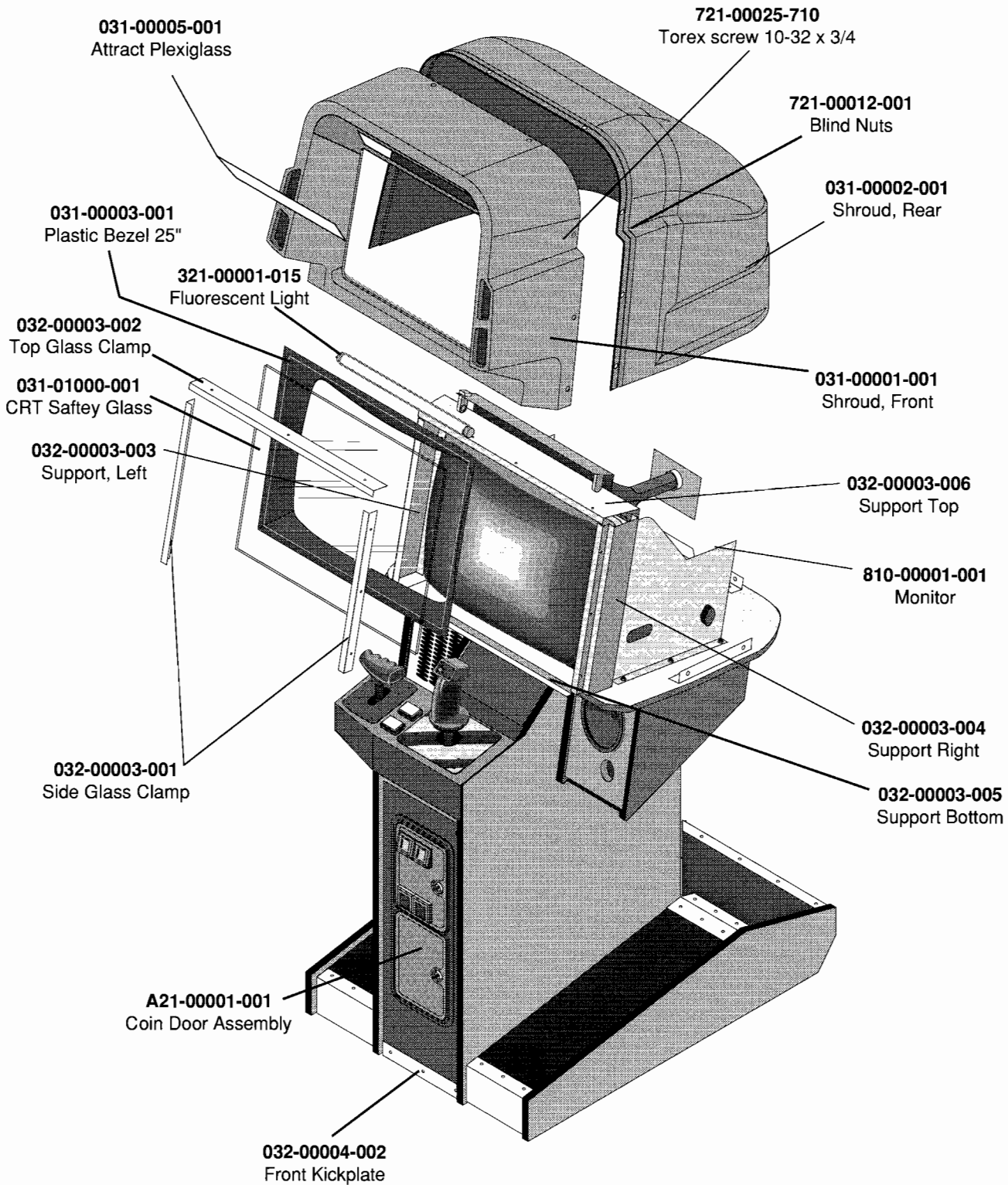
## Front View Parts List (4.4)

Part No.	Description	Quantity
A21-00001-001	Coin Door Assembly	1
031-00001-001	Shroud, Front	1
031-00002-001	Shroud, Rear	1
031-00003-001	Plastic Bezel 25"	1
031-00005-001	Attract Plexiglass	1
031-01000-001	CRT Safety Glass	1
032-00003-001	Side Glass Clamp	2
032-00003-002	Top Glass Clamp	1
032-00003-003	Support, Left	1
032-00003-004	Support, Right	1
032-00003-006	Support, Top	1
321-00001-015	Fluorescent Light	1
810-00001-001	Monitor	1
032-00003-005	Support bottom	1

## Rear View Parts List (4.5)

Part No.	Description	Quantity
A10-10001-001	Deflection PCB	1
A10-10001-002	Neck PCB	1
A10-10001-003	Power Supply	1
A18-00002-002	Fan Harness	1
A18-00003-004	100v AC Voltage Selection Harness	1
A18-00003-005	120v AC Voltage Selection Harness	1
A18-00003-006	240v AC Voltage Selection Harness	1
030-00005-001	Door	1
032-00002-001	Side Shroud Mounting Bracket	2
032-00002-002	Back Shroud Mounting Bracket	1
032-00002-005	Switch Mounting Bracket	1
032-00003-003	Left Support	1
032-00003-006	Top Support	1
032-00004-004	Back Kickplate	1
625-00003-002	Power Switch	1
626-00001-001	Fluorescent Starter	1
690-00001-012	Fan	1
691-00001-001	Grill	3
696-00001-001	Transformer	1
751-00001-001	Power Cord	1
770-00001-002	Key	1
770-00100-001	Caster	2

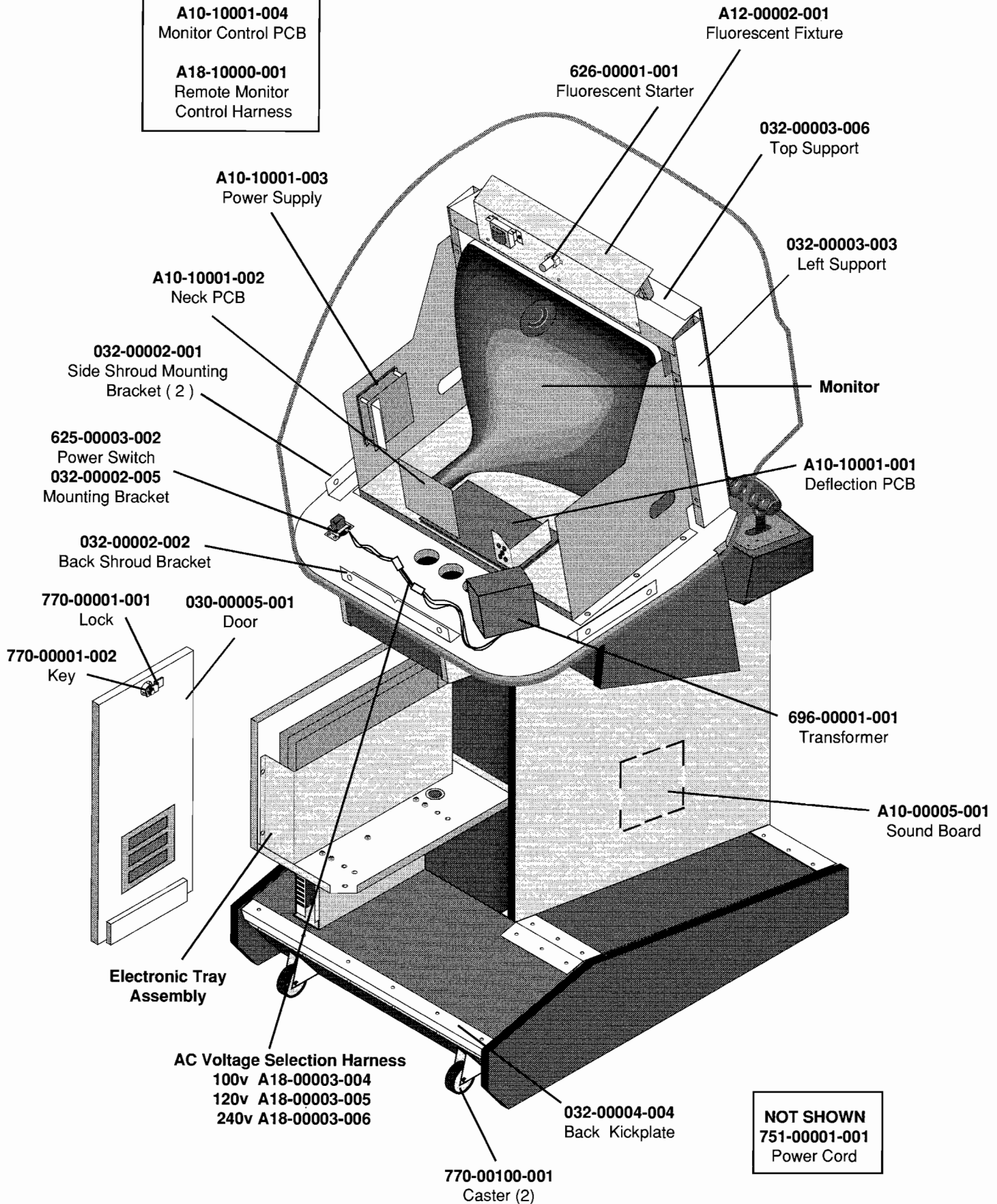
# Front Exploded View



# Rear View

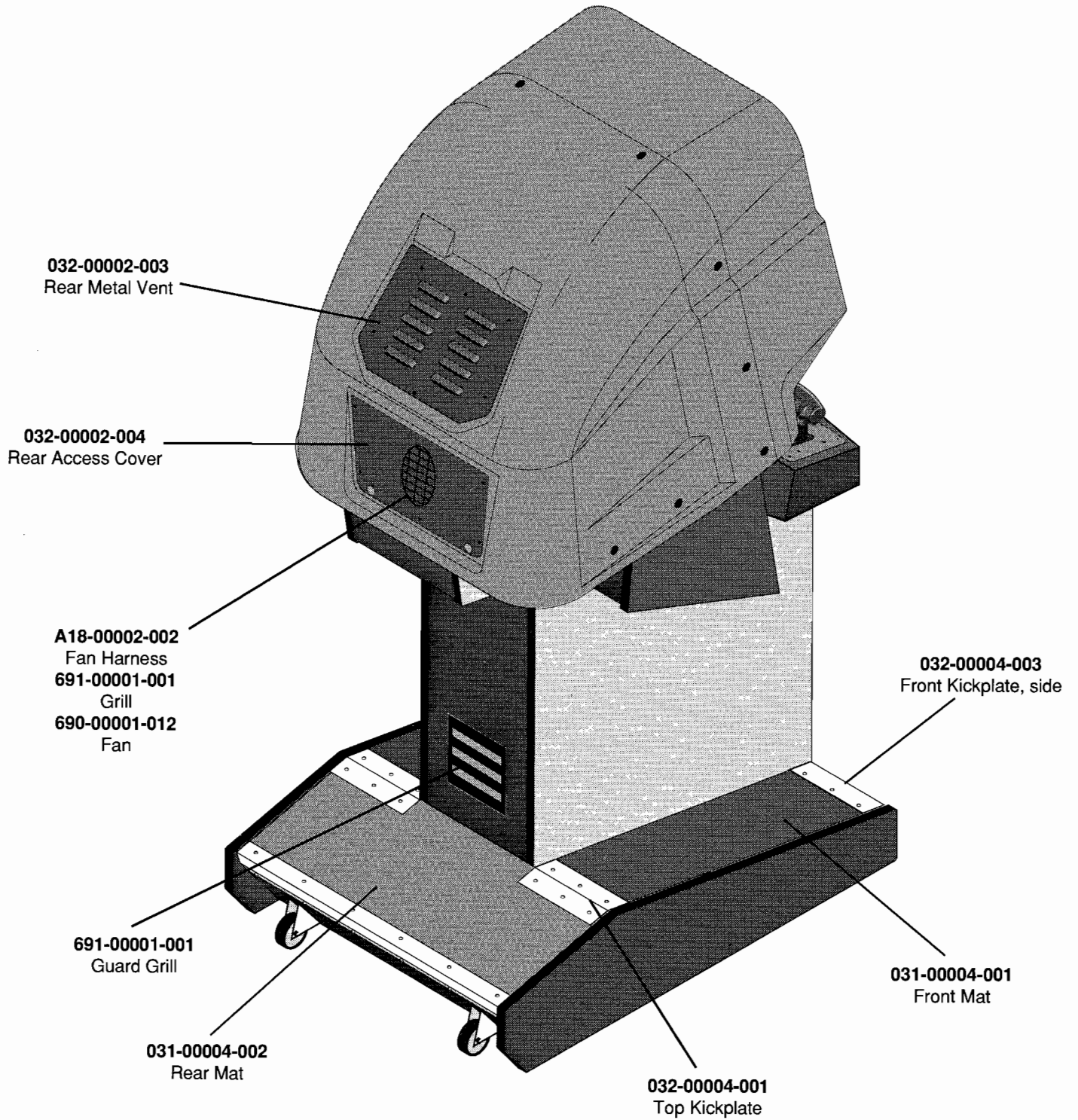
**NOT SHOWN**  
**A10-10001-004**  
 Monitor Control PCB

**A18-10000-001**  
 Remote Monitor  
 Control Harness

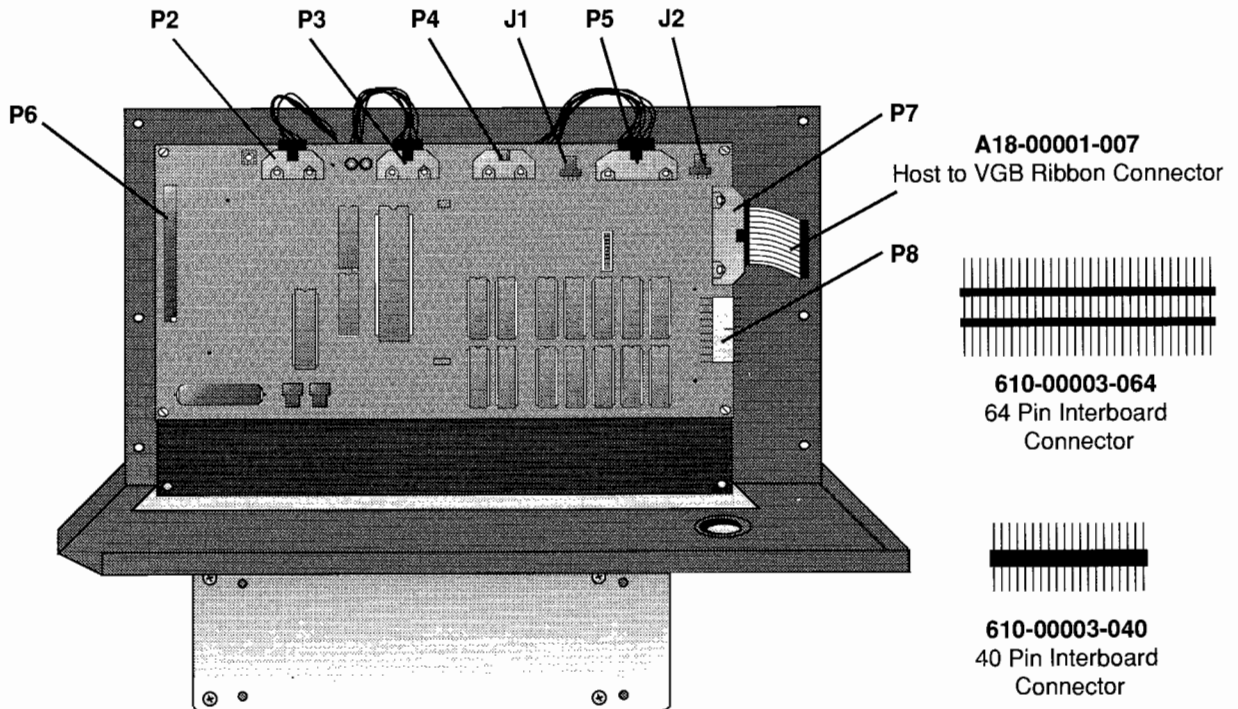
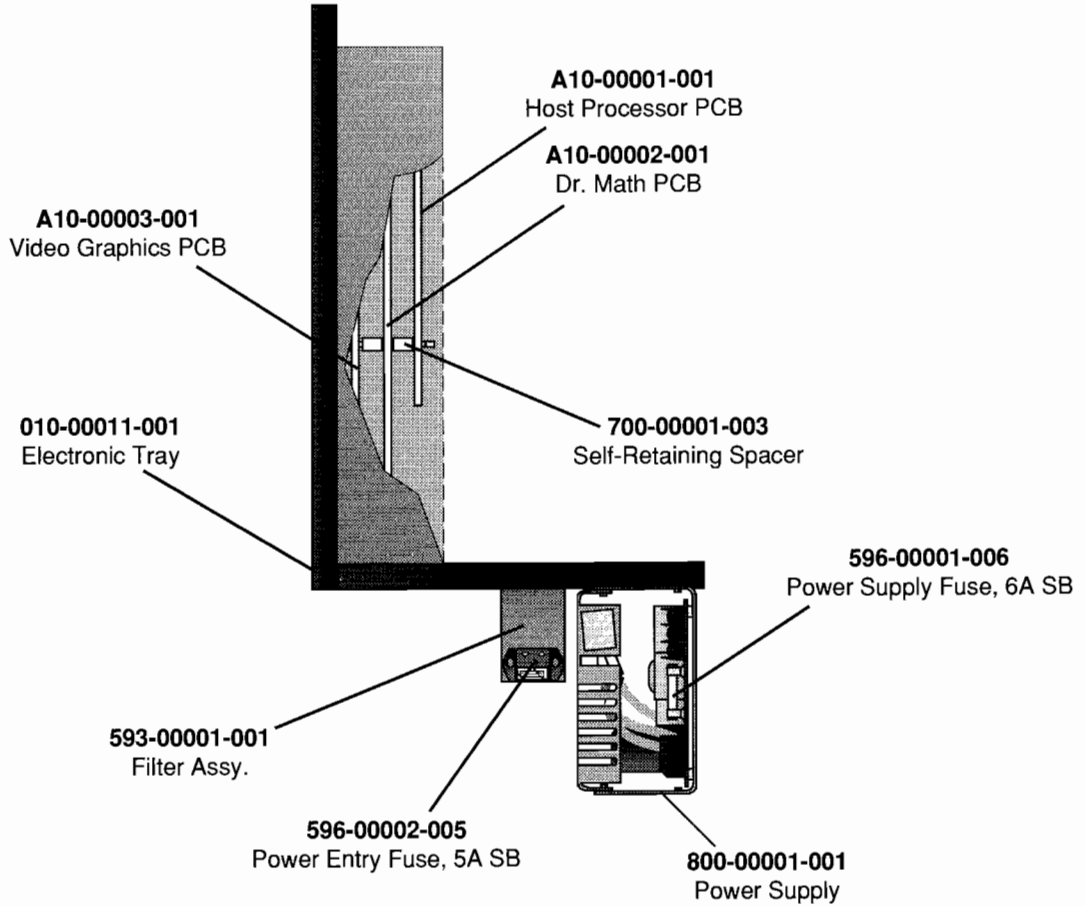


**NOT SHOWN**  
**751-00001-001**  
 Power Cord

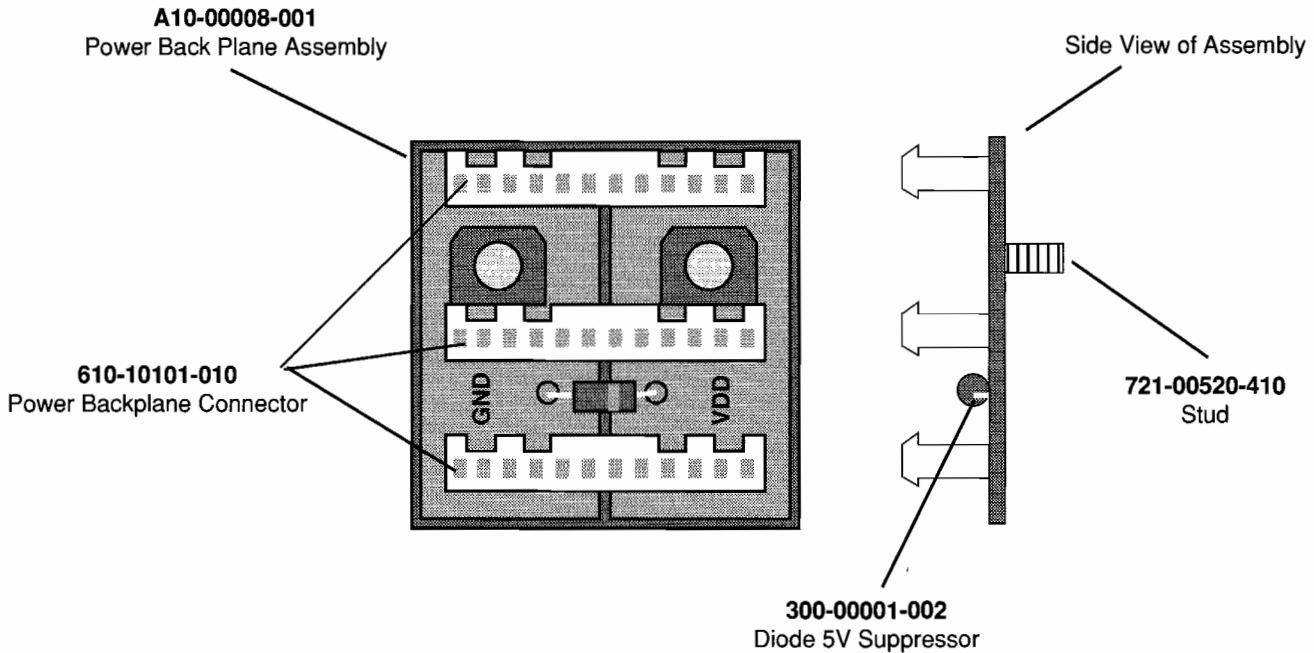
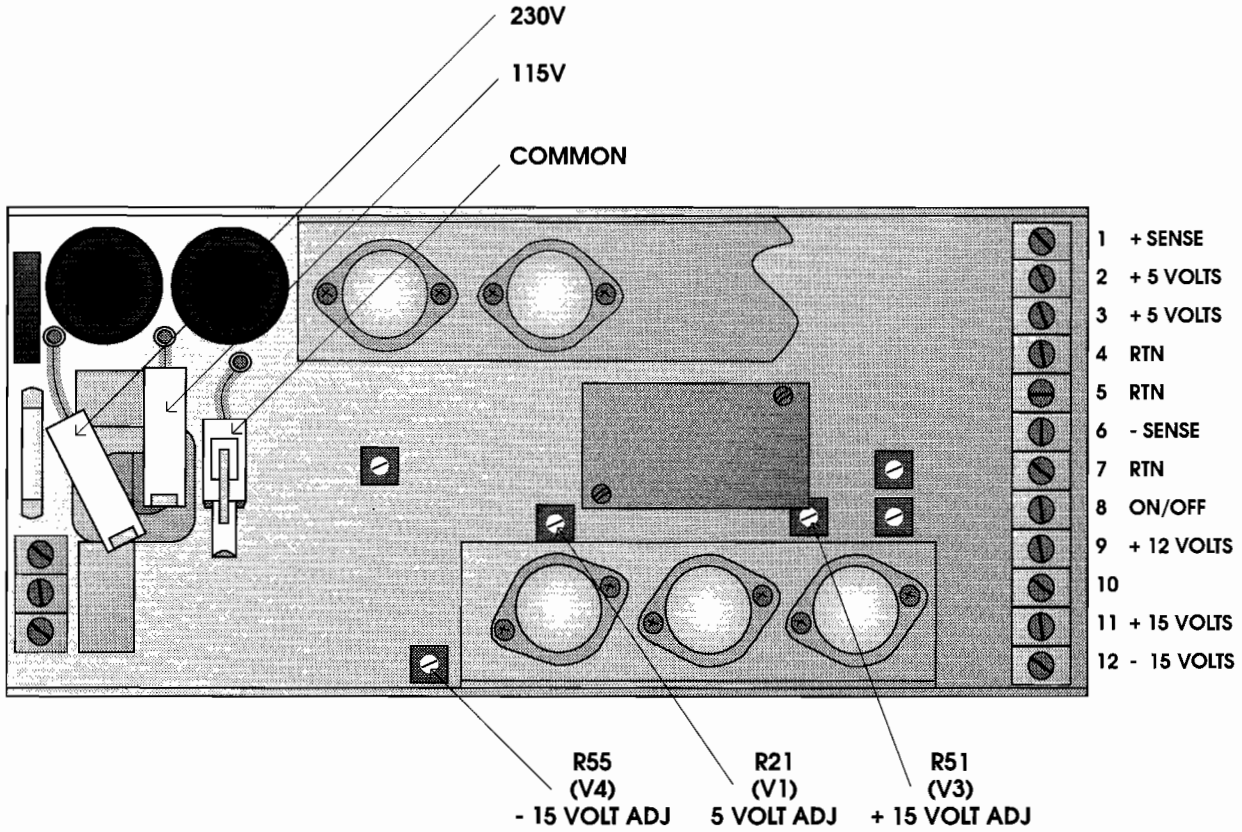
# Rear View



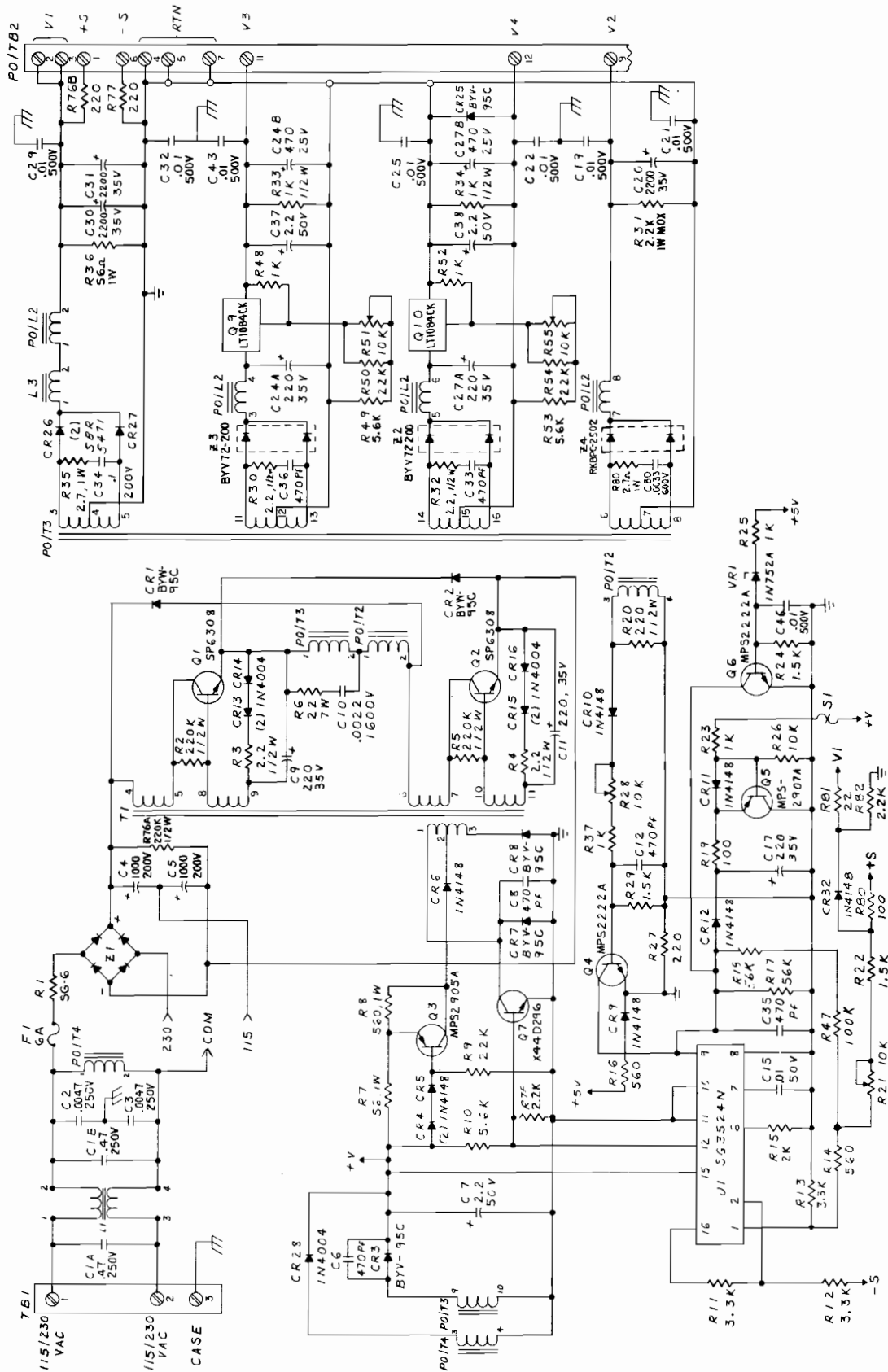
# Electronics Tray



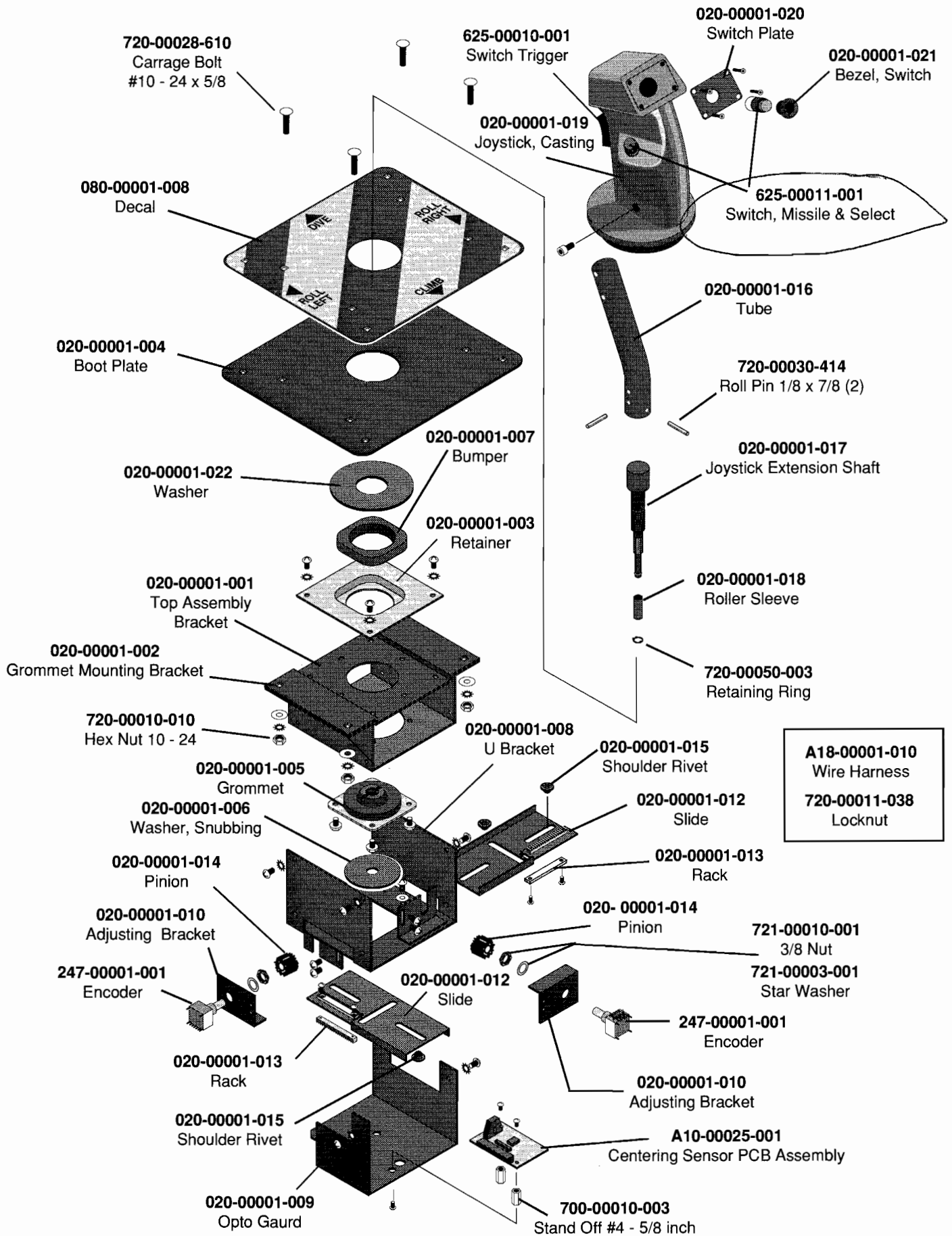
# Power Supply and Power Back Plane Board



# Power Supply Schematic



# Joystick Assembly P/N A20-00001-001





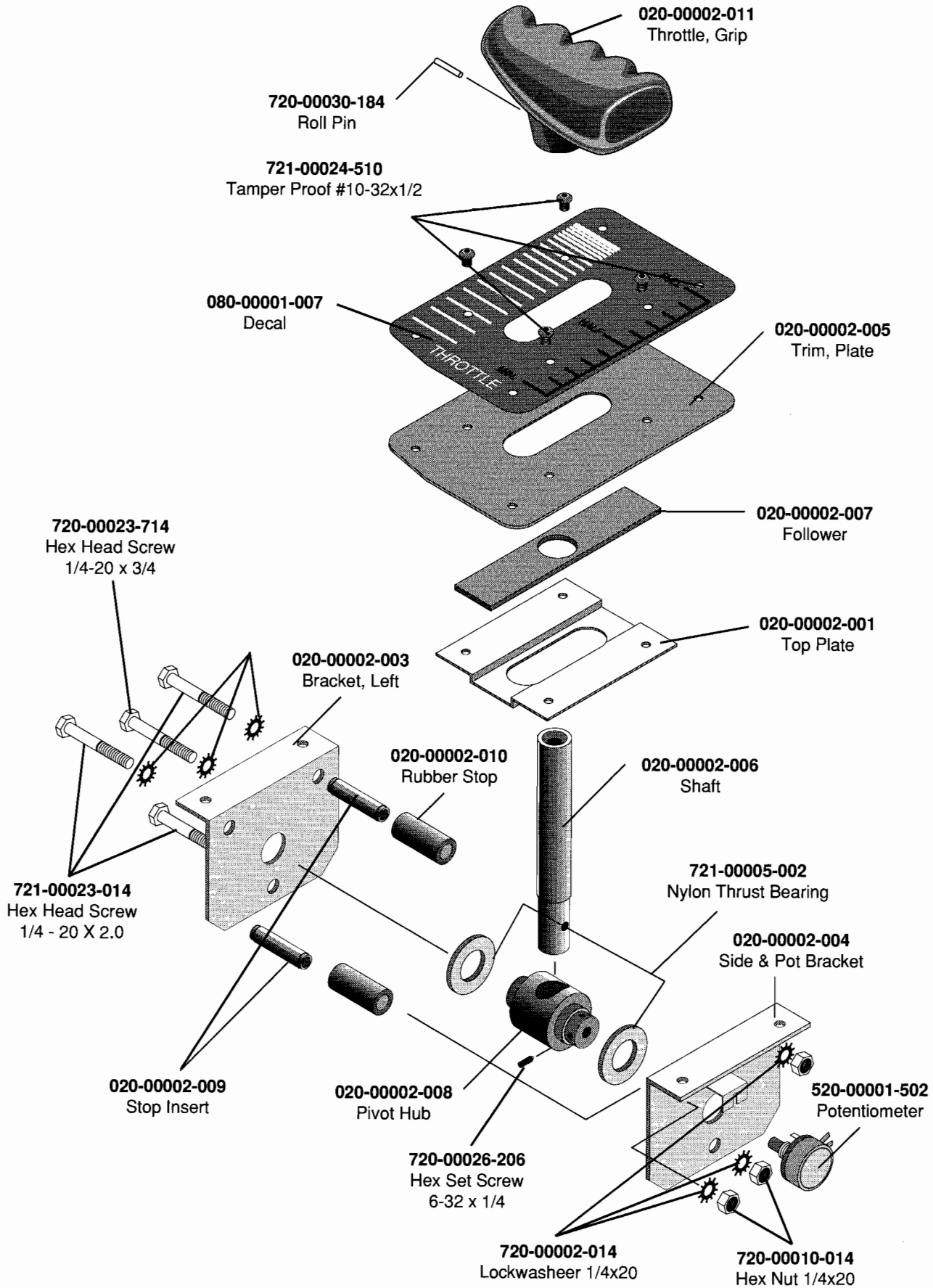
# Joystick Assembly Parts List

Part No.	Description	Quantity
A10-00025-001	Centering PCB	1
020-00001-001	Top Assembly Bracket	1
020-00001-002	Grommet Mounting Bracket	1
020-00001-003	Retainer	1
020-00001-004	Boot Plate	1
020-00001-005	Grommet	1
020-00001-006	Washer, Snubbing	1
020-00001-007	Bumper	1
020-00001-008	U-Bracket	1
020-00001-009	Opto Guard	1
020-00001-010	Adjusting Bracket	2
020-00001-012	Slide	2
020-00001-013	Rack	2
020-00001-014	Pinion	2
020-00001-015	Shoulder Rivet	4
020-00001-016	Tube	1
020-00001-017	Shaft, Extension	1
020-00001-018	Roller Sleeve	1
020-00001-019	Joystick, Casting	1
020-00001-020	Plate, Missile Switch	1
020-00001-021	Bezel, Switch	1
020-00001-022	Washer	1
080-00001-008	Decal, Top Plate	1
247-00001-001	Encoder	2
625-00010-001	Switch, trigger	1
625-00011-001	Switch, missile and select	2
700-00010-003	Stand off 5/8 " #4 screw	2
720-00001-006	Washer, flat #4	4
720-00002-006	Lock washer #4	4
720-00002-008	Lock washer #8	11
720-00002-010	Lock washer #10	8
720-00010-010	Hex nut #10-24	4
720-00011-038	Locknut 3/8	1
720-00020-204	Screw, pan head #4 x 1/4	4
720-00020-406	Screw, pan head #6-32 x 3/8	8
720-00020-408	Screw, pan head #8-32 x 3/8	11
720-00022-204	Flat head socket cap screw #4 x 1/4	4
720-00023-410	Screw, hex head #10-32 x 3/8	4
720-00024-414	Screw, tamper proof #1/4-20 x 3/8	2
720-00026-504	Set screw #4 x 1/2	3
720-00028-610	Carriage Bolt #10-24 x 5/8	4
720-00030-414	Roll pin 1/8 x 7/8	2
720-00050-003	Retaining Ring	1
721-00001-001	Screw, round head #5-40 x 3/16	4
721-00001-002	Lock washer #5	4

## Centering PCB Parts List

Designator	Description	MPG Part No.
	Centering PCB Assembly	A10-00025-001
C1	Cap, Tantulum, 10 uF	421-00032-106
C2	Cap, Ceramic, 0.1uF	402-00382-104
D1	LED w/Res	305-00003-002
Q1	Voltage Comparitor	280-00002-200
R1	Resistor, 4.7K $\Omega$	503-00002-472
R2, R5	Resistor, 22K $\Omega$	503-00002-103
R4	Resistor, 22K $\Omega$	503-00002-223
R6	Resistor, 10 $\Omega$	503-00002-100
U1	Sensor	297-00100-001

# Throttle Assembly P/N A20-00002-001



# Throttle Assembly

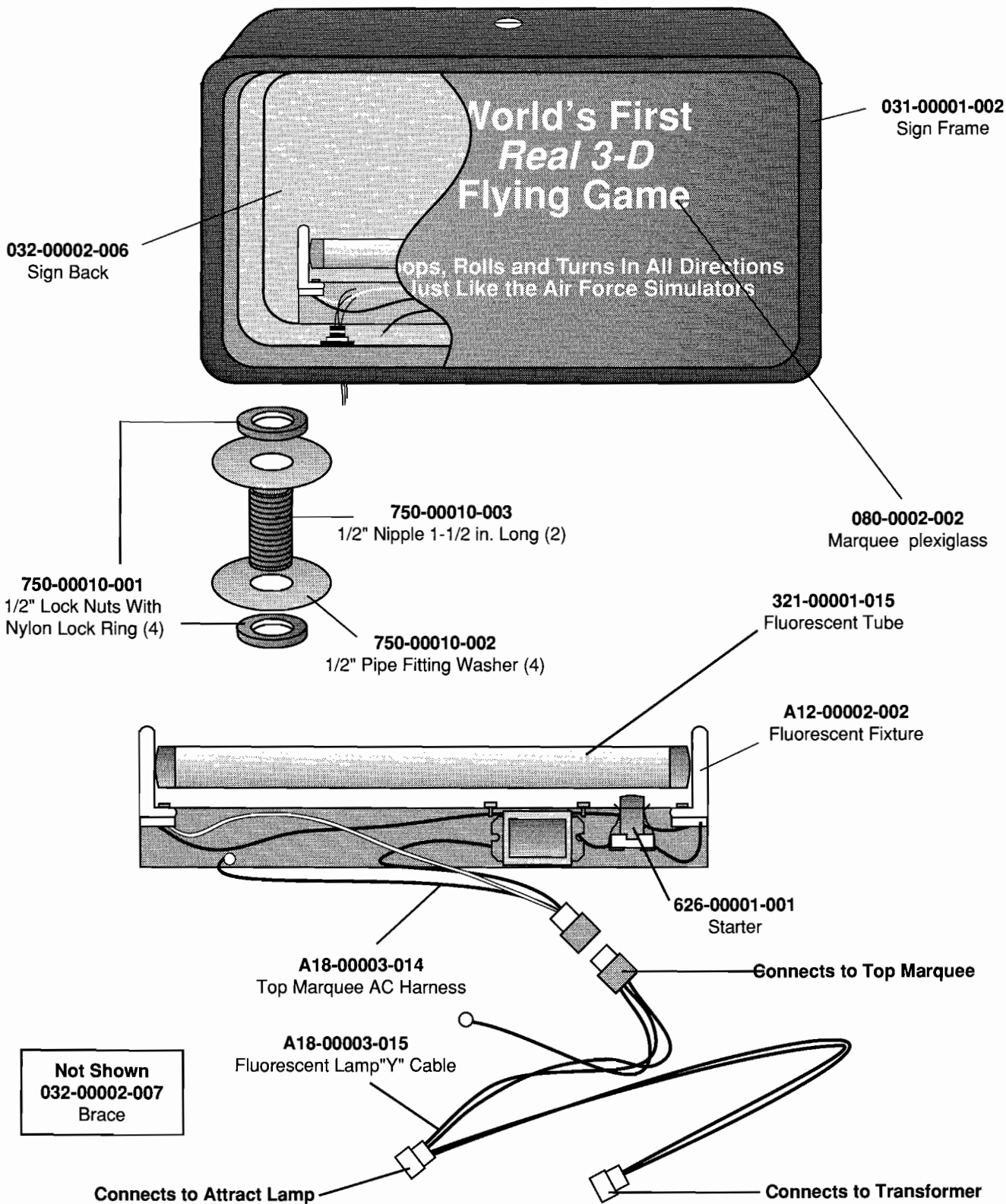
## A20-00002-001

MPG Part No.	Description	Quantity
020-00002-001	Top Plate	1
020-00002-003	Bracket, Left	1
020-00002-004	Side and Pot Bracket	1
020-00002-005	Trim plate	1
020-00002-006	Shaft	1
020-00002-007	Follower	1
020-00002-008	Pivot hub	1
020-00002-009	Stop Insert	2
020-00002-010	Rubber Stop	2
020-00002-011	Throttle grip	1
080-00001-007	Decal, throttle	1
520-00001-502	Potentiometer	1
720-00002-014	Lock washer 1/4	6
720-00010-014	Hex nut 1/4-20	3
720-00023-714	Hex Head screw 1/4-20 x 3/4	1
720-00026-206	Hex socket screw 6-32 x1/4	1
720-00030-184	Roll pin 1/8 x 1 1/4	1
721-00005-002	Thrust bearing, Nylon	2
721-00023-014	Hex Head screw 1/4-20 x 2.0	3
721-00024-510	Tamper proof screw 10-32 x 1/2	4

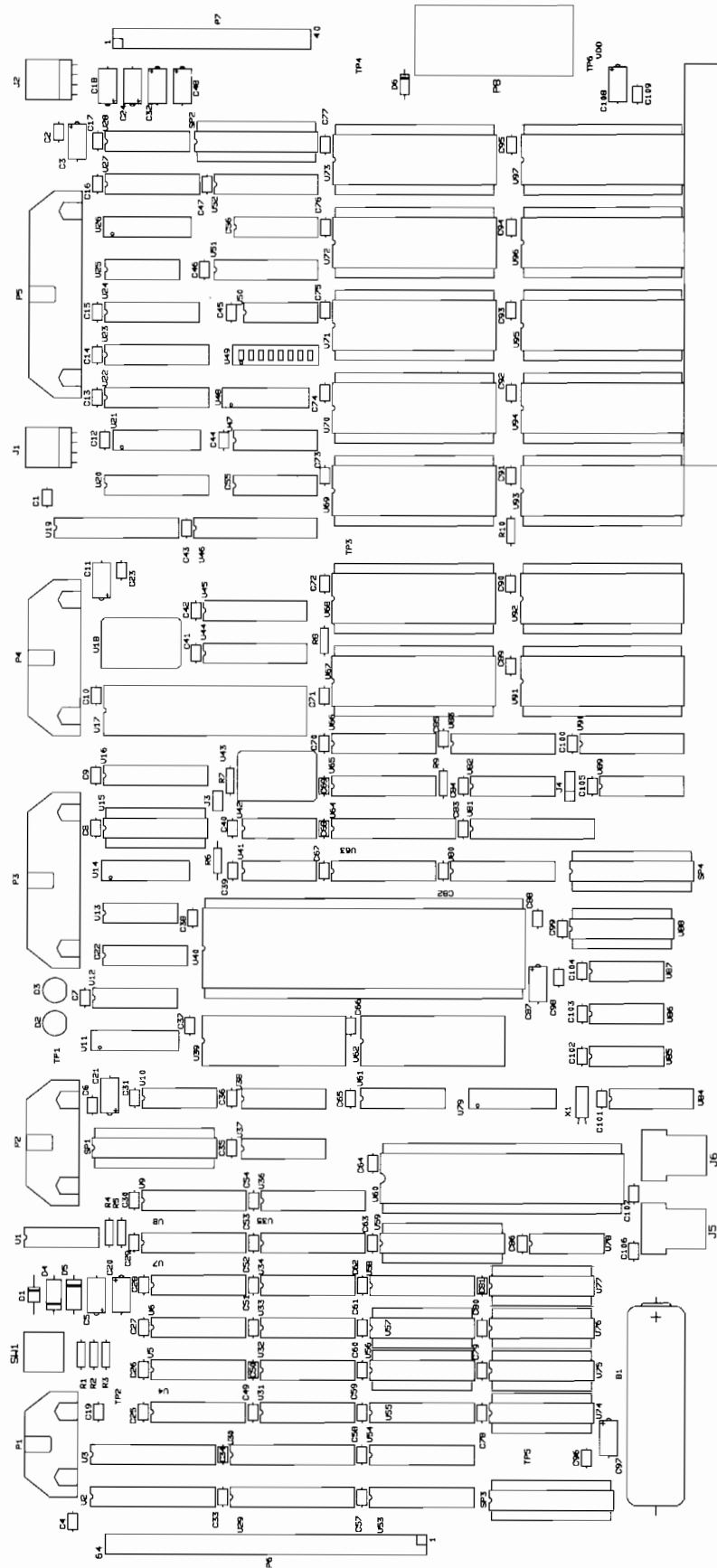
## Marquee Assembly

Part No.	Description	Quantity
A12-00002-002	Fluorescent Fixture	1
031-00001-002	Sign Frame	1
032-00002-006	Sign Back	1
032-00002-007	Brace	1
080-00002-002	Marquee plexiglass	1
321-00001-015	Fluorescent Tube	1
626-00001-001	Starter	1
750-00010-001	1/2" Lock Nuts With Nylon Ring	4
750-00010-002	1/2" Pipe Fitting Washer	4
750-00010-003	1/2" Nipple 1-1/2 in. long	2

# Marquee Assembly



# Host Processor PCB P/N A10-00001-001

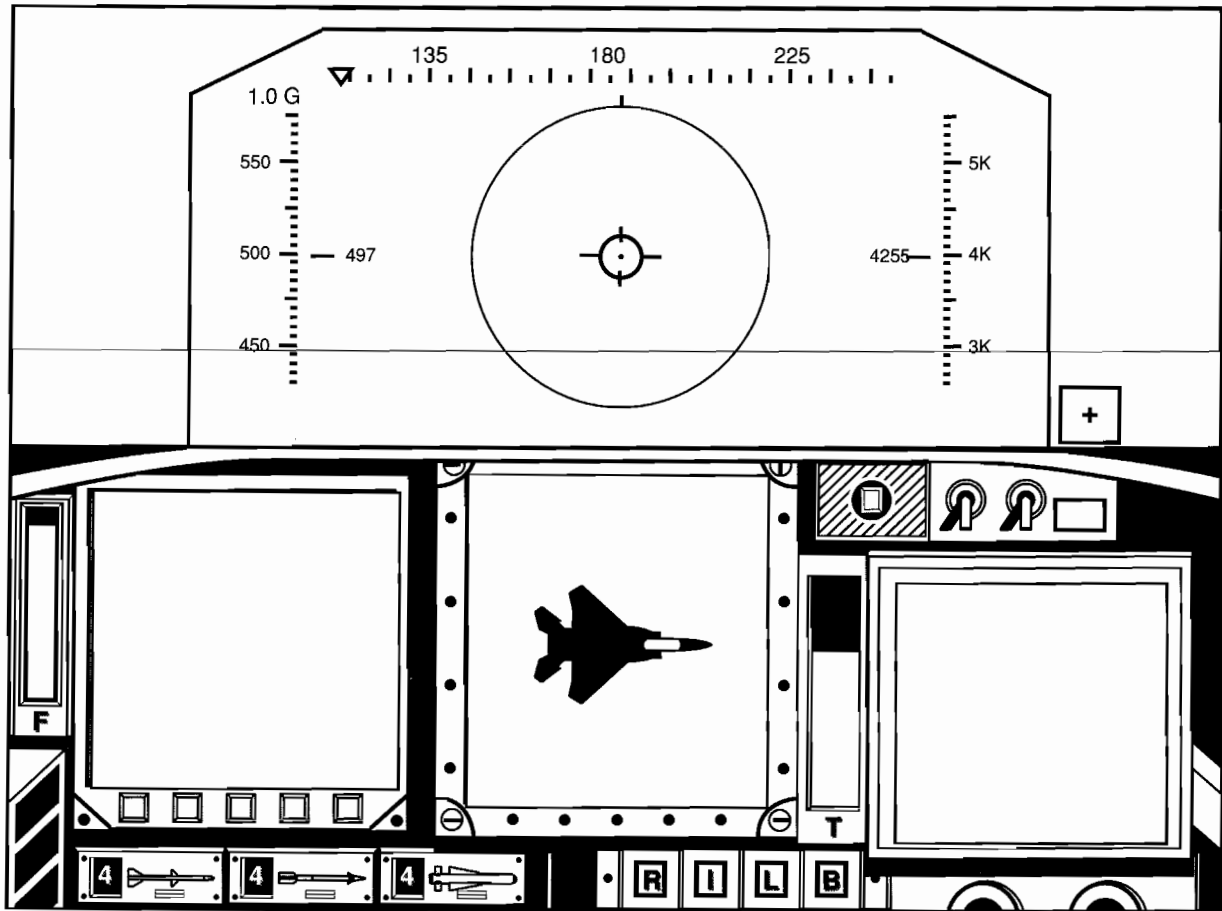


# Host Processor PCB Parts List

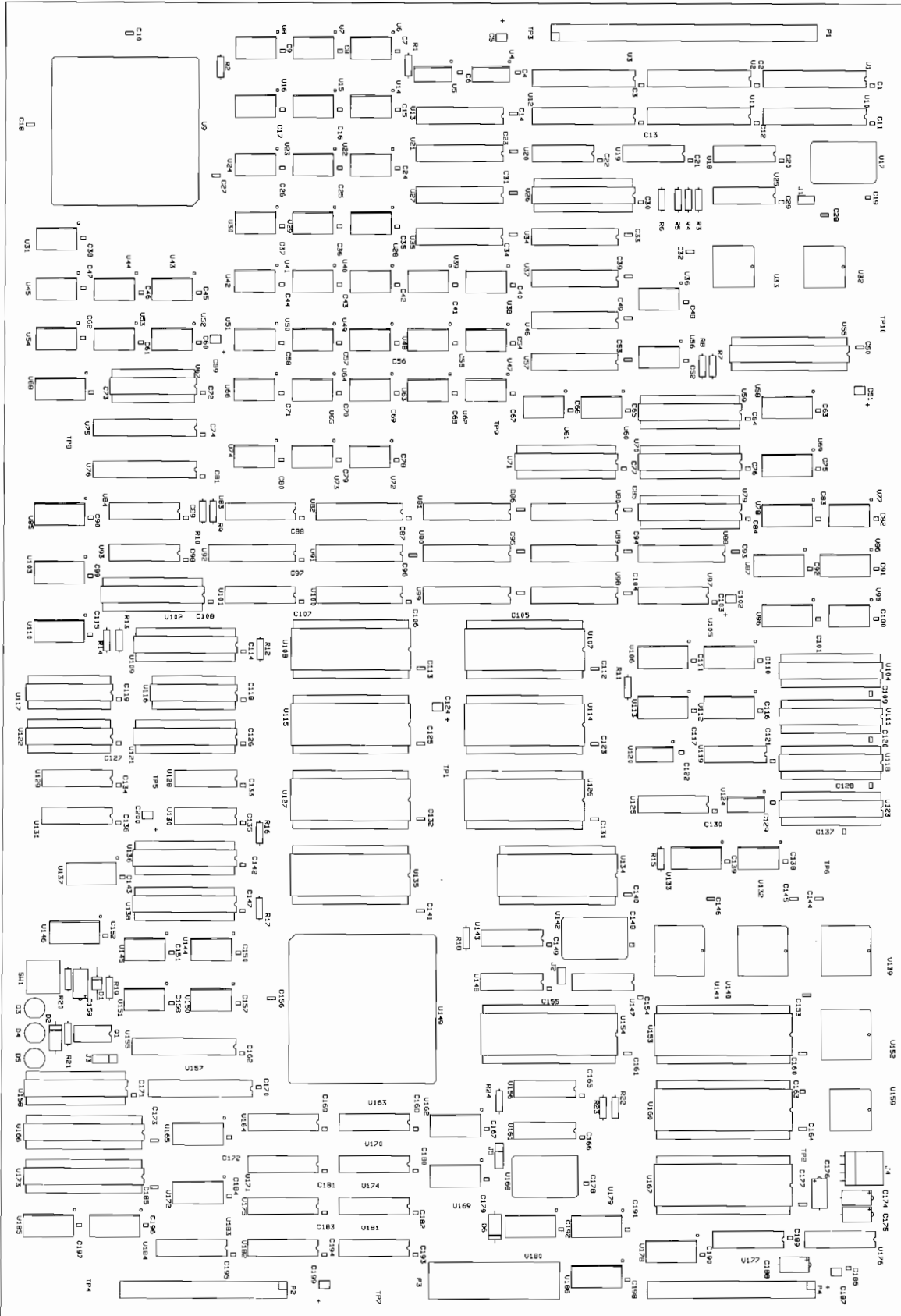
Location	Description	Part Number	Location	Description	Part Number
B1	LITHIUM BATTERY,3 VOLT	390-00001-001	R12	RESISTOR,2%MF,470Ω	503-00002-471
C1,C2	CAPACITOR,AX/CER,0.1μF	402-00382-104	RP100-103	RESISTOR,SIP,1KΩ	501-10008-102
C3	CAPACITOR,AX/TANT,15μF	422-00052-156	SW1	PB SWITCH	625-00002-001
C4	CAPACITOR,AX/CER,0.1μF	402-00382-104	TP1-TP5	TEST PIN	710-00001-001
C5	CAPACITOR,AX/TANT,3.3μF	422-00062-335	TP6	TEST PIN	710-00001-002
C6-C9	CAPACITOR,AX/CER,0.1μF	402-00382-104	U1	VOLT COMPARER,14 DIP	280-00003-200
C10	CAPACITOR,AX/CER,0.33μF	402-00382-334	U2,U3	9-BIT BUS DRIVER	235-00005-200
C11	CAPACITOR,AX/TANT,15μF	422-00052-156	U4-U7	DRAM,100NS	220-00001-210
C12-C17	CAPACITOR,AX/CER,0.1μF	402-00382-104	U8,U9	SN74ALS245AN,OCTBIDBUFR	200-00245-200
C18	CAPACITOR,AX/TANT,1μF	422-00072-105	U10	SN74ALS30AN,8IN NAND	200-00030-200
C19	CAPACITOR,AX/CER,0.1μF	402-00382-104	U11	RESISTOR,SIP,1KΩ	501-00032-102
C20	CAPACITOR,AX/TANT,3.3μF	422-00062-335	U12	SN74LS148N,8:3ENCODER	202-00148-200
C21	CAPACITOR,AX/TANT,15μF	422-00052-156	U13	RESISTOR,SIP,470Ω	501-00022-471
C22A,C22B	CAPACITOR,DIPx4,.1μF	403-00003-104	U14	RESISTOR,SIP,1KΩ	501-00031-102
C23	CAPACITOR,AX/CER,0.1μF	402-00382-104	U15	PAL	120-00001-000
C24	CAPACITOR,AX/TANT,1μF	422-00072-105	U16	SN74ALS244AN,OCTBUFR	200-00244-200
C25-C28	CAPACITOR,AX/CER,0.33μF	402-00382-334	U17	DUART	240-00003-200
C29-C31	CAPACITOR,AX/CER,0.1μF	402-00382-104	U18	DIP OSCILLATOR,3.6864M	290-00002-003
C32	CAPACITOR,AX/TANT,1μF	422-00072-105	U19	9-BIT BUS DRIVER	235-00005-200
C33-C36	CAPACITOR,AX/CER,0.1μF	402-00382-104	U20	SN74ALS374N,OCTALDFLOPS	200-00374-200
C37,C38	CAPACITOR,AX/CER,0.33μF	402-00382-334	U21	RESISTOR,SIP,1KΩ	501-00031-102
C39-C47	CAPACITOR,AX/CER,0.1μF	402-00382-104	U22,U23	SN74ALS244AN,OCTBUFR	200-00244-200
C48	CAPACITOR,AX/TANT,1μF	422-00072-105	U24	LAMP DRIVER	279-00001-200
C49-C52	CAPACITOR,AX/CER,0.33μF	402-00382-334	U25	RESISTOR,SIP,470Ω	501-00022-471
C53,C54	CAPACITOR,AX/CER,0.1μF	402-00382-104	U26	RESISTOR,SIP,1KΩ	501-00031-102
C55A,C55B	CAPACITOR,DIPx4,.1μF	403-00003-104	U27	LAMP DRIVER	279-00001-200
C56A,C56B	CAPACITOR,DIPx4,.1μF	403-00003-104	U28	RS232 DRIVER	235-00001-200
C57-C63	CAPACITOR,AX/CER,0.1μF	402-00382-104	U29,U30	9-BIT BUS DRIVER	235-00005-200
C64	CAPACITOR,AX/CER,0.33μF	402-00382-334	U31-34	DRAM,100NS	220-00001-210
C65	CAPACITOR,AX/CER,0.1μF	402-00382-104	U35,U36	SN74ALS245AN,OCTBIDBUFR	200-00245-200
C66	CAPACITOR,AX/CER,0.33μF	402-00382-334	U37	SN74ALS175N,QUADDFLOPS	200-00175-200
C67-C70	CAPACITOR,AX/CER,0.1μF	402-00382-104	U38	SN74ALS257N,2:1MUX	200-00257-200
C71-C77	CAPACITOR,AX/CER,0.33μF	402-00382-334	U39	SRAM,120NS	221-00003-212
C78-C86	CAPACITOR,AX/CER,0.1μF	402-00382-104	U40	MICROPROCESR,16MHz	135-68000-216
C87	CAPACITOR,AX/TANT,15μF	422-00052-156	U41	SN74AS1004AN,HEXINERT	201-01004-200
C88	CAPACITOR,AX/CER,0.1μF	402-00382-104	U42	SN74AS74N,DUALDFLOPS	201-00074-200
C89-C95	CAPACITOR,AX/CER,0.33μF	402-00382-334	U43	DIP OSCILLATOR,32MHZ	290-00001-032
C96	CAPACITOR,AX/CER,0.1μF	402-00382-104	U44,U45	SN74AS244N,OCTBUFR	201-00244-200
C97	CAPACITOR,AX/TANT,15μF	422-00052-156	U46	9-BIT BUS DRIVER	235-00005-200
C98-C107	CAPACITOR,AX/CER,0.1μF	402-00382-104	U47	SN74ALS138N,3:8DEMUX	200-00138-200
C108	CAPACITOR,AX/TANT,15μF	422-00052-156	U48	RESISTOR,SIP,1KΩ	501-00032-102
C109	CAPACITOR,AX/CER,0.1μF	402-00382-104	U49	8-POS DIP SW	625-00001-208
D1	DIODE	300-00002-003	U50	SN74ALS32N,QUAD2INOR	200-00032-200
D2,D3	LED W/RES,RED	305-00003-002	U51	SN74AS244N,OCTBUFR	201-00244-200
D4	DIODE,ZENER	301-00002-033	U52	SN74ALS244AN,OCTBUFR	200-00244-200
D5	DIODE,ZENER	301-00002-047	U53,U54	SN74ALS2541N,OCTINVDVR	200-02541-200
D6	DIODE,ZENER,5V	300-00001-002	U55	SN74ALS244AN,OCTBUFR	200-00244-200
D7-D11	DIODE	300-00002-003	U56	PAL	120-00001-004
J1,J2	MOLEX 4-PIN,.100"	610-00601-004	U57	PAL	120-00001-003
J3	2-PIN JUMPER,.100"	610-00002-002	U58	SN74AS244N,OCTBUFR	201-00244-200
J4	3-PIN JUMPER,.100"	610-00002-003	U59	PAL	120-00001-001
J5,J6	FIBER OPTIC RCVR	240-00004-001	U60	MPPERIPHERL	130-68901-204
P1	2x3 HEADER,.100"	610-00800-006	U61	SN74ALS257N,2:1MUX	200-00257-200
P2	2x5 HEADER,.100"	610-00800-010	U62	SRAM,120NS	221-00003-212
P3	2x10 HEADER,.100"	610-00800-020	U63	SN74AS244N,OCTBUFR	201-00244-200
P4	2x8 HEADER,.100"	610-00800-016	U64	9-BIT BUS DRIVER	235-00005-200
P5	2x13 HEADER,.100"	610-00800-026	U65	SN74AS244N,OCTBUFR	201-00244-200
P6	2x32 HEADER,.100"	610-10100-064	U66	A/D CONVERTER	246-00001-200
P7	2x20 HEADER,.100"	610-00900-040	U67	EPROM,300NS	110-00001-000
P8	MOLEX 10-PIN,.156"	610-10600-010	U68	EPROM,300NS	110-00001-002
R1	RESISTOR,2%MF,82Ω	503-00002-820	U69	EPROM,300NS	110-00001-004
R2	RESISTOR,2%MF,1KΩ	503-00002-102	U70	EPROM,300NS	110-00001-006
R3	RESISTOR,2%MF,100KΩ	503-00002-104	U71	EPROM,300NS	110-00001-008
R4	RESISTOR,JUMPER,0Ω	503-00001-000	U72	EPROM,300NS	110-00001-010
R6	RESISTOR,2%MF,18Ω	503-00002-180	U73	EPROM,300NS	110-00001-012
R7-R10	RESISTOR,2%MF,1KΩ	503-00002-102	U74	PAL	120-00001-002
R11	TEMP SENSOR,500Ω	508-00001-501	U75	PAL	120-00001-005

# Host Processor PCB Parts List

Location	Description	Part Number	Location	Description	Part Number
U76	PAL	120-00001-007	U94	EPROM,300NS	110-00001-007
U77	PAL	120-00001-006	U95	EPROM,300NS	110-00001-009
U78	SN74LS393N,QUADCOUNTR	202-00393-200	U96	EPROM,300NS	110-00001-011
U79	RESISTOR,SIP,1K $\Omega$	501-00032-102	U97	EPROM,300NS	110-00001-013
U80	SN74AS244N,OCTBUFFR	201-00244-200	UX15	SOCKET	600-00001-320
U81	9-BIT BUS DRIVER	235-00005-200	UX40	SOCKET	600-00001-964
U82	QUAD DECODER	246-00002-200	UX56,UX57	SOCKET	600-00001-320
U83	SN74ALS244AN,OCTBUFFR	200-00244-200	UX59	SOCKET	600-00001-324
U84	R/T CLOCK	291-01215-200	UX60	SOCKET	600-00001-648
U85	SN74ALS04BN,HEXINVERTR	200-00004-200	UX67-UX73	SOCKET	600-00002-632
U86	SN74ALS11AN,TRI3INAND	200-00011-200	UX74-UX77	SOCKET	600-00001-320
U87	SN74ALS04BN,HEXINVERTR	200-00004-200	UX88	SOCKET	600-00001-320
U88	PAL	120-00001-008	UX91-UX97	SOCKET	600-00002-632
U89	QUAD DECODER	246-00002-200	X1	CRYSTAL,32KHz	290-00004-32K
U90	SN74ALS244AN,OCTBUFFR	200-00244-200		SPACER,.75"	700-00001-003
U91	EPROM,300NS	110-00001-001		SHUNT	715-00001-001
U92	EPROM,300NS	110-00001-003			
U93	EPROM,300NS	110-00001-005			



# Dr. Math PCB P/N A10-00002-001





# Dr. Math PCB Parts List

Location	Description	Part Number
C1-C4	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C5	CAPACITOR,TANT,15μF	420-00002-156
C6-C9	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C10	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C11-C13	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C14	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C15-C17	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C18	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C19-C22	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C23	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C24-C26	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C27,C28	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C29,C30	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C31-C34	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C35-C38	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C39	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C40-C48	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C49,C50	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C51	CAPACITOR,TANT,15μF	420-00002-156
C52	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C53	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C54-C58	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C59	CAPACITOR,TANT,15μF	420-00002-156
C60-C84	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C85,C86	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C87-C92	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C93-C96	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C97-C101	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C102	CAPACITOR,TANT,15μF	420-00002-156
C103	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C104,C105	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C106-C111	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C112,C113	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C114-C122	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C123	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C124	CAPACITOR,TANT,15μF	420-00002-156
C125	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C126-C130	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C131,C132	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C133-C139	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C140,C141	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C142,C143	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C144-C146	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C147-C152	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C153	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C154,C155	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C156	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C157,C158	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C159	CAPACITOR,AX/TANT,3.3μF	422-00062-335
C160,C161	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C162,C163	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C164	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C165-C172	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C173	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C174-C176	CAPACITOR,AX/TANT,1μF	422-00072-105
C177	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C178-C184	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C185	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C186	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C187	CAPACITOR,TANT,15μF	420-00002-156
C188	CAPACITOR,AX/TANT,1μF	422-00072-105
C189-C198	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C199,C200	CAPACITOR,TANT,15μF	420-00002-156
C201	CAPACITOR,AX/CER,,1μF	402-00382-104
D1	DIODE	300-00002-003
D2	DIODE,ZENER,3.3V	301-00002-033
D3-D5	LED,RED	305-00003-002

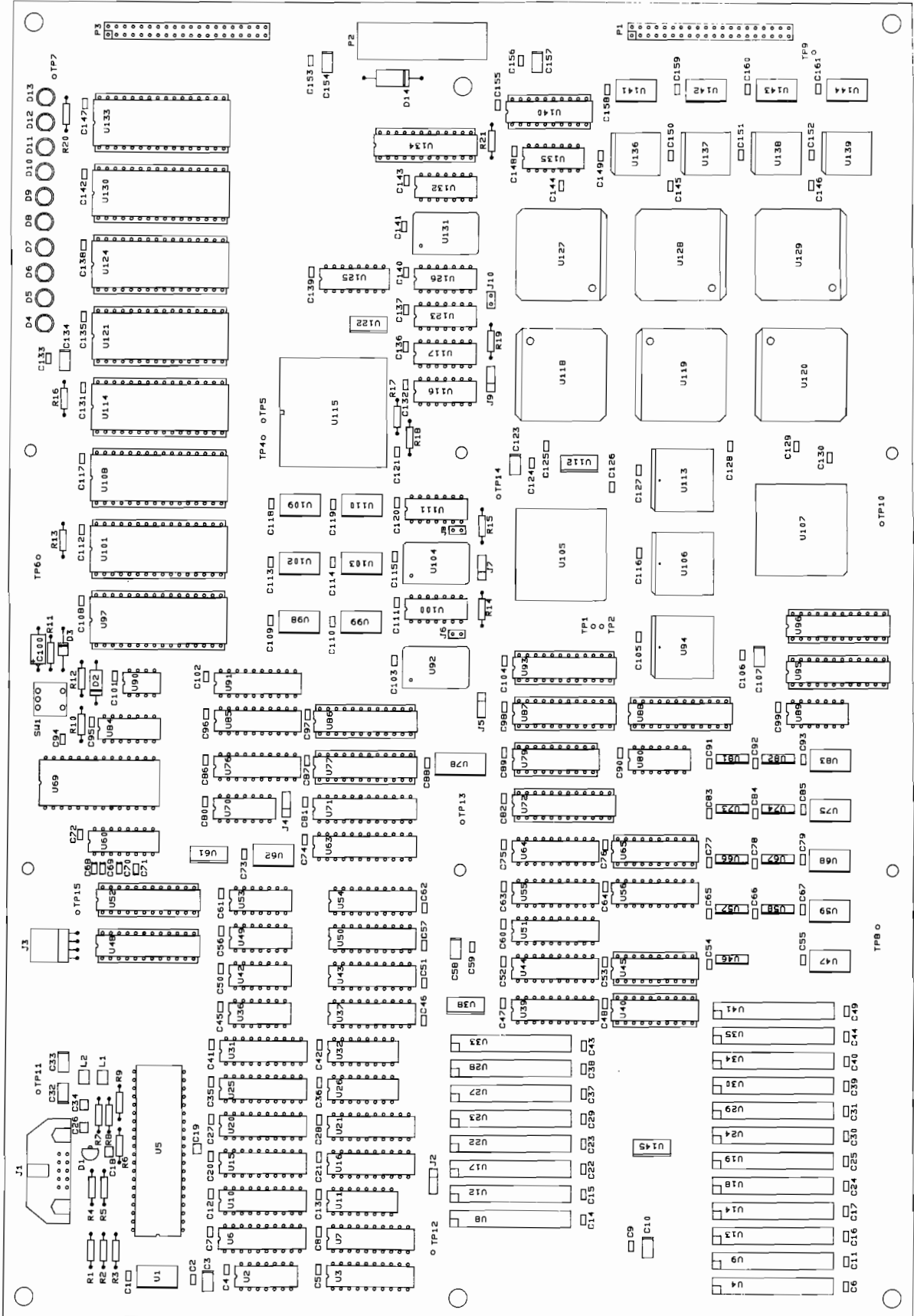
Location	Description	Part Number
D6	DIODE,ZENER	300-00001-002
J1,J2	2-PIN JUMPER,,100"	610-00002-002
J3	3-PIN JUMPER,,100"	610-00002-003
J4	4-PIN MOLEX,,100"	610-00601-004
J5	3-PIN JUMPER,,100"	610-00002-003
P1	2x32 HEADER,,100"	610-10100-064
P2	2x20 HEADER,,100"	610-10100-040
P3	MOLEX 10-PIN,,156"	610-10600-010
Q1	VOLT COMPARER	280-00002-200
R1	RESISTOR,2%MF,1KΩ	503-00002-102
R2	RESISTOR,2%MF,560Ω	503-00002-561
R3	RESISTOR,2%MF,10Ω	503-00002-100
R4,R5	RESISTOR,2%MF,1KΩ	503-00002-102
R6	RESISTOR,2%MF,10KΩ	503-00002-103
R7,R8	RESISTOR,2%MF,560Ω	503-00002-561
R9,R10	RESISTOR,2%MF,1KΩ	503-00002-102
R11,R12	RESISTOR,2%MF,10Ω	503-00002-100
R13,R14	RESISTOR,2%MF,560Ω	503-00002-561
R15	RESISTOR,2%MF,10Ω	503-00002-100
R16	RESISTOR,2%MF,560Ω	503-00002-561
R17	RESISTOR,2%MF,10Ω	503-00002-100
R18	RESISTOR,JUMPER,0Ω	503-00001-000
R19	RESISTOR,2%MF,1KΩ	503-00002-102
R20	RESISTOR,2%MF,100KΩ	503-00002-104
R21	RESISTOR,2%MF,82Ω	503-00002-820
R22	RESISTOR,2%MF,10KΩ	503-00002-103
R23,R24	RESISTOR,2%MF,10Ω	503-00002-100
R25	RESISTOR,2%MF,1KΩ	503-00002-102
SW1	PB SWITCH	625-00002-001
TP1-TP10	TEST PIN	710-00001-001
U1	10-BIT BUFFER	235-00006-200
U2,U3	9-BIT BUS DRIVER	235-00005-200
U4,U5	PULRESPAK,1KΩ	502-00001-102
U6-U8	SN74AS244DW,OCTBUFFERS	201-00244-100
U9	MICROPROCESSOR,16MHz	135-29000-516
U10	10-BIT BUFFER	235-00006-200
U11,U12	9-BIT BUS DRIVER	235-00005-200
U13	DRAM,120NS	220-00002-212
U14-U16	SN74AS244DW,OCT BUFFERS	201-00244-100
U17	OSCILLATOR,24MHz	290-00001-024
U18	SN74AS74N,DUAL DFLOPS	201-00074-200
U19	SN74AS1004AN,HEXINVDIVRVS	201-01004-200
U20	SN74ALS1010N,TRI3INNAND	200-01010-200
U21	DRAM,120NS	220-00002-212
U22-U24	SN74AS244DW,OCTBUFFERS	201-00244-100
U25	SN74AS1004AN,HEXINVDIVRVS	201-01004-200
U27	DRAM,120NS	220-00002-212
U28-U31	SN74AS244DW,OCTBUFFERS	201-00244-100
U32	CADM	130-95C85-412
U33	CADM	130-95C85-412
U34,U35	DRAM,120NS	220-00002-212
U36	SN74AS244DW,OCTBUFFERS	201-00244-100
U37	DRAM,120NS	220-00002-212
U38	SN74AS373DW,OCTD-LATCHES	201-00373-100
U39	SN74AS373DW,OCTD-LATCHES	201-00373-100
U40-U42	SN74AS244DW,OCT BUFFERS	201-00244-100
U43,U44	SN74AS245DW,OCT BI BUFFER	201-00245-100
U45	SN74AS244DW,OCT BUFFERS	201-00244-100
U46	DRAM,120NS	220-00002-212
U47,U48	SN74AS373DW,OCTD-LATCHES	201-00373-100
U49-U51	SN74AS244DW,OCT BUFFERS	201-00244-100
U52,U53	SN74AS245DW,OCT BI BUFFER	201-00245-100
U54	SN74AS244DW,OCT BUFFERS	201-00244-100
U55	MICROSEQUENCER	130-00448-220
U56	SN74AS244DW,OCT BUFFERS	201-00244-100
U57	DRAM,120NS	220-00002-212
U58	9-BIT BUS REGISTER	235-00004-100

# Dr. Math PCB Parts List

Location	Description	Part Number
U59	PAL	120-00001-020
U60-U63	SN74AS373DW,OCTD-LATCHES	201-00373-100
U64-U66	SN74AS244DW,OCT BUFFERS	201-00244-100
U67	PAL	120-00001-024
U68	74F269SC,DECADEU/DCNTR	203-00269-100
U69	9-BIT BUS REGISTER	235-00004-100
U70	PAL	120-00001-010
U72-U74	SN74AS244DW,OCT BUFFERS	201-00244-100
U75,U76	10-BIT REGISTER	235-00003-200
U77	SN74AS244DW,OCT BUFFERS	201-00244-100
U78	74F269SC,DECADE U/D CNTR	203-00269-100
U79	PAL	120-00001-009
U80,U81	DRAM,120NS	220-00002-212
U82	SN74ALS2540N,OCTINVDVR	200-02540-200
U83	SN74AS258N,QUAD2:1MUX	201-00258-200
U84	SN74AS175N,QUAD DFLOPS	201-00175-200
U85	74F269SC,DECADE U/D CNTR	203-00269-100
U86	9-BIT BUS REGISTER	235-00004-100
U87	9-BIT BUS REGISTER	235-00004-100
U88-U91	DRAM,120NS	220-00002-212
U92	SN74ALS2540N,OCTINVDVR	200-02540-200
U93	SN74AS258N,QUAD2:1MUX	201-00258-200
U95	SN74AS244DW,OCT BUFFERS	201-00244-100
U96	9-BIT BUS REGISTER	235-00004-100
U97	SN74ALS138N,3:8 DEMUX	200-00138-200
U98,U99	DRAM,120NS	220-00002-212
U100	SN74ALS2540N,OCTINVDVR	200-02540-200
U101	SN74AS258N,QUAD2:1MUX	201-00258-200
U102	PAL	120-00001-019
U103	74F269SC,DECADEU/DCNTR	203-00269-100
U104	PAL	120-00001-015
U105,U106	9-BIT BUS REGISTER	235-00004-100
U107	EPROM,90NS	110-00001-024
U108	EPROM,90NS	110-00001-020
U109	RAMADLDA,15NS	120-00001-018
U110	74F269SC,DECADE U/D CNTR	203-00269-100
U111	DPSRAMA,15NS	120-00001-014
U112,U113	9-BIT BUS REGISTER	235-00004-100
U114	EPROM,90NS	110-00001-023
U115	EPROM,90NS	110-00001-019
U116	PAL	120-00001-123
U118	PAL	120-00001-011
U119	SN74AS1004AN,HEXINVDRIVRS	201-01004-200
U120	PULRESPAK,1KΩ	502-00001-102
U121	PAL	120-00001-021
U122	PAL	120-00001-022
U124	PULRESPAK,1KΩ	502-00001-102
U125	F74F169PC,4-BIT U/D CNTR	203-00169-200
U126	EPROM,90NS	110-00001-025
U127	EPROM,90NS	110-00001-021
U128	SN74LS393N,DUAL4-BITCNTR	202-00393-200
U129	SN74AS258N,QUAD2:1MUX	201-00258-200
U130	SN7407N,HEXOCDRIVERS	206-00007-200
U131	SN74AS258N,QUAD2:1MUX	201-00258-200
U132	SN74AS244DW,OCTBUFFERS	201-00244-100
U133	74F269SC,DECADEU/DCNTR	203-00269-100
U134	EPROM,90NS	110-00001-022
U135	EPROM,90NS	110-00001-018
U136	PAL	120-00001-017
U137	9-BIT BUS REGISTER	235-00004-100
U138	PAL	120-00001-016
U139-U141	DPRAM,45NS	222-00003-445
U142	OSCILLATOR,32MHz	290-00001-032

Location	Description	Part Number
U143	SN74ALS04BN,HEXINVERTR	200-00004-200
U144,U145	SN74AS244DW,OCTBUFFERS	201-00244-100
U146	9-BIT BUS REGISTER	235-00004-100
U147	SN74AS74N,DUAL DFLOPS	201-00074-200
U148	SN74AS08N,QUAD2INAND	201-00008-200
U149	MAC IC,10MHz	130-00323-510
U150,U151	SN74AS244DW,OCT BUFFERS	201-00244-100
U152	DPRAM,45NS	222-00003-445
U153	EPROM,150NS	110-00001-014
U154	EPROM,150NS	110-00001-015
U155	10-BIT BUFFER	235-00006-200
U156	SN74AS1004AN,HEXINVDRIVRS	201-01004-200
U157	10-BIT BUFFER	235-00006-200
U159	UART	240-00001-400
U160	EPROM,150NS	110-00001-017
U161	SN74AS74N,DUAL DFLOPS	201-00074-200
U162	9-BIT BUS REGISTER	235-00004-100
U163,U164	SN74AS153N,4:1 DATA MUX	201-00153-200
U165	9-BIT BUS REGISTER	235-00004-100
U166	MICROSEQUENCER	130-00448-220
U167	EPROM,150NS	110-00001-016
U168	OSCILLATOR,20MHz	290-00001-020
U169	9-BIT BUS REGISTER	235-00004-100
U170,U171	SN74AS153N,4:1 DATA MUX	201-00153-200
U172	9-BIT BUS REGISTER	235-00004-100
U173	MICROSEQUENCER	130-00448-220
U174,U175	SN74AS153N,4:1 DATA MUX	201-00153-200
U176	RS-232 DRIVER	235-00001-200
U177	F74F169PC,4BITU/DCNTR	203-00169-200
U178-U180	74F269SC,DECADE U/D CNTR	203-00269-100
U181-U183	F74F169PC,4BITU/DCNTR	203-00169-200
U184,U185	74F269SC,DECADE U/D CNTR	203-00269-100
U186	9-BIT BUS REGISTER	235-00004-100
UX9	169-PIN PGA SOCKET	601-00002-169
UX55	3x28-PIN SOCKET	600-00001-328
UX59	3x24-PIN SOCKET	600-00001-324
UX67	3x20-PIN SOCKET	600-00001-320
UX70	3x24-PIN SOCKET	600-00001-324
UX79	3x24-PIN SOCKET	600-00001-324
UX102	3x24-PIN SOCKET	600-00001-324
UX104	3x24-PIN SOCKET	600-00001-324
UX107,108	6x28-PIN SOCKET	600-00001-628
UX109	3x24-PIN SOCKET	600-00001-324
UX111	3x24-PIN SOCKET	600-00001-324
UX114,115	6x28-PIN SOCKET	600-00001-628
UX116,117	3x20-PIN SOCKET	600-00001-320
UX118	3x24-PIN SOCKET	600-00001-324
UX121	3x24-PIN SOCKET	600-00001-324
UX122	3x20-PIN SOCKET	600-00001-320
UX126,127	6x28-PIN SOCKET	600-00001-628
UX134,135	6x28-PIN SOCKET	600-00001-628
UX136	3x24-PIN SOCKET	600-00001-324
UX138	3x24-PIN SOCKET	600-00001-324
UX149	169-PIN PGA SOCKET	601-00002-169
UX153,154	6x32-PIN SOCKET	600-00003-632
UX160	6x32-PIN SOCKET	600-00003-632
UX166	3x28-PIN SOCKET	600-00001-328
UX167	6x32-PIN SOCKET	600-00003-632
UX173	3x28-PIN SOCKET	600-00001-328
	SHUNT	715-00001-001
	SPACER,.750"	700-00001-003

# Video Graphics PCB P/N A10-00003-001



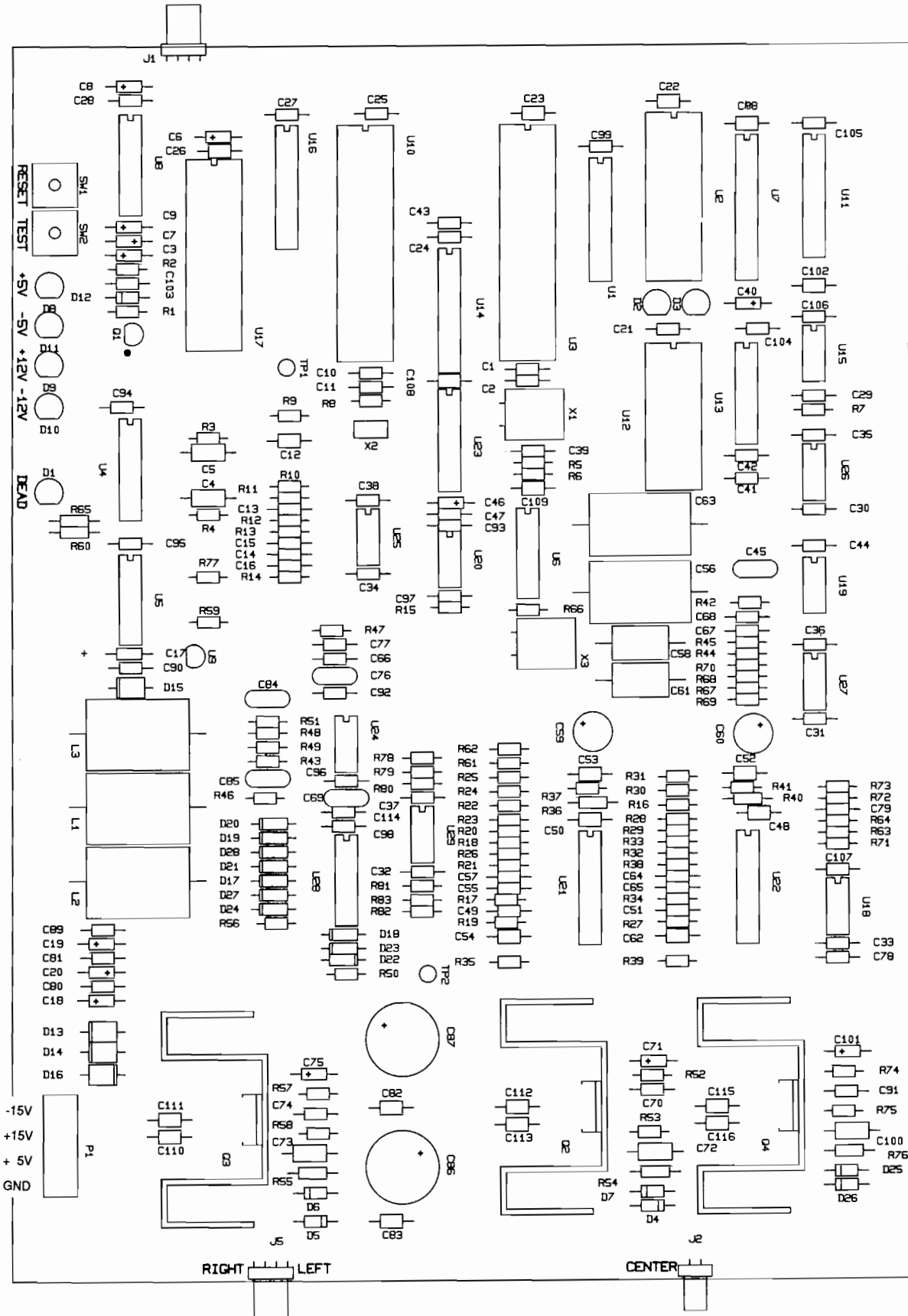
# Video Graphics PCB Parts List

Location	Description	Part Number	Location	Description	Part Number
C1,C2	CAPACITOR,CERAMIC,0.1μF	401-01000-104	C148	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C3	CAPACITOR,TANT,15μF	420-00002-156	C149-C152	CAPACITOR,CERAMIC,0.33μF	401-02000-334
C4,C5	CAPACITOR,CERAMIC,0.1μF	401-01000-104	C153	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C6	CAPACITOR,CERAMIC,0.33μF	401-02000-334	C154	CAPACITOR,TANT,15μF	420-00002-156
C7-C9	CAPACITOR,CERAMIC,0.1μF	401-01000-104	C155,C156	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C10	CAPACITOR,TANT,15μF	420-00002-156	C157	CAPACITOR,TANT,15μF	420-00002-156
C11,C12	CAPACITOR,CERAMIC,0.33μF	401-02000-334	C158-C161	CAPACITOR,CERAMIC,0.1μF	401-01000-104
C13	CAPACITOR,CERAMIC,0.1μF	401-01000-104	D1	DIODE,ZENER,1.2V	301-00001-012
C14-C17	CAPACITOR,CERAMIC,0.33μF	401-02000-334	D2	DIODE,ZENER,3.3V	301-00002-033
C18,C19	CAPACITOR,CERAMIC,0.1μF	401-02002-104	D3	DIODE	300-00002-003
C20	CAPACITOR,CERAMIC,0.33μF	401-02000-334	D4-D13	LED,RED	305-00003-002
C21	CAPACITOR,CERAMIC,0.1μF	401-01000-104	D14	DIODE,ZENER,5.0V	300-00001-002
C22-C25	CAPACITOR,CERAMIC,0.33μF	401-02000-334	J1	2X5 HEADER,.100"	610-00800-010
C26	CAPACITOR,CERAMIC,0.1μF	401-02002-104	J2	3-PIN JUMPER,.100"	610-00002-003
C27	CAPACITOR,CERAMIC,0.33μF	401-02000-334	J3	MOLEX 4-PIN,.100"	610-00601-004
C28	CAPACITOR,CERAMIC,0.1μF	401-01000-104	J4,J5	3-PIN JUMPER,.100"	610-00002-003
C29	CAPACITOR,CERAMIC,0.33μF	401-02000-334	J6	2-PIN JUMPER,.100"	610-00002-002
C30,C31	CAPACITOR,CERAMIC,0.33μF	401-02000-334	J7	3-PIN JUMPER,.100"	610-00002-003
C32	CAPACITOR,TANT,10μF	420-00162-106	J8	2-PIN JUMPER,.100"	610-00002-002
C33	CAPACITOR,TANT,33μF	420-00163-336	J9	3-PIN JUMPER,.100"	610-00002-003
C34	CAPACITOR,CERAMIC,0.01μF	401-02002-103	J10	2-PIN JUMPER,.100"	610-00002-002
C35	CAPACITOR,CERAMIC,0.33μF	401-02000-334	L1,L2	FERRITE BD,75 Ω	595-00001-100
C36	CAPACITOR,CERAMIC,0.1μF	401-01000-104	P1	2x20 CONNECTOR,.750"	610-10103-040
C37-C40	CAPACITOR,CERAMIC,0.33μF	401-02000-334	P2	MOLEX 10-PIN,.156"	610-10600-010
C41,C42	CAPACITOR,CERAMIC,0.1μF	401-01000-104	P3	2x20 HEADER,.100"	610-00900-040
C43,C44	CAPACITOR,CERAMIC,0.33μF	401-02000-334	R1-R3	RESISTOR,1%MF,10KΩ	503-00001-103
C45	CAPACITOR,CERAMIC,0.1μF	401-01000-104	R4-R6	RESISTOR,1%MF,75Ω	503-00001-750
C46	CAPACITOR,CERAMIC,0.33μF	401-02000-334	R7	RESISTOR,1%MF,15Ω	503-00001-150
C47,C48	CAPACITOR,CERAMIC,0.1μF	401-01000-104	R8	RESISTOR,1%MF,549Ω	503-00001-551
C49	CAPACITOR,CERAMIC,0.33μF	401-02000-334	R9	RESISTOR,1%MF,10KΩ	503-00001-103
C50	CAPACITOR,CERAMIC,0.1μF	401-01000-104	R10	RESISTOR,2%MF,1KΩ	503-00002-102
C51	CAPACITOR,CERAMIC,0.33μF	401-02000-334	R11	RESISTOR,2%MF,10KΩ	503-00002-103
C52-C56	CAPACITOR,CERAMIC,0.1μF	401-01000-104	R12	RESISTOR,2%MF,82Ω	503-00002-820
C57	CAPACITOR,CERAMIC,0.33μF	401-02000-334	R13	RESISTOR,2%MF,10KΩ	503-00002-103
C58	CAPACITOR,TANT,15μF	420-00002-156	R14,R15	RESISTOR,2%MF,10Ω	503-00002-100
C59-C61	CAPACITOR,CERAMIC,0.1μF	401-01000-104	R16	RESISTOR,2%MF,10KΩ	503-00002-103
C62	CAPACITOR,CERAMIC,0.33μF	401-02000-334	R17-R19	RESISTOR,2%MF,10Ω	503-00002-100
C63	CAPACITOR,CERAMIC,0.1μF	401-01000-104	R20	RESISTOR,2%MF,10KΩ	503-00002-103
C65-C67	CAPACITOR,CERAMIC,0.1μF	401-01000-104	R21	RESISTOR,2%MF,10Ω	503-00002-100
C68,C69	CAPACITOR,TANT,1μF	420-00060-105	SW1	PB SWITCH	625-00002-001
C70,C71	CAPACITOR,TANT,1μF	420-00060-105	TP1,TP2	TEST PIN	710-00001-001
C72-C80	CAPACITOR,CERAMIC,0.1μF	401-01000-104	TP4-TP15	TEST PIN	710-00001-001
C81	CAPACITOR,CERAMIC,0.33μF	401-02000-334	U1	SN74ALS244ADW,OCT BUFFERS	200-00244-100
C89	CAPACITOR,CERAMIC,0.1μF	401-01000-104	U2	SN74ALS04BN,HEXINVERTERS	200-00004-200
C95-C99	CAPACITOR,CERAMIC,0.1μF	401-01000-104	U3	SN74AS574N,OCT REGISTER	201-00574-200
C100	CAPACITOR,AX/TANT,3.3μF	422-00062-335	U4	VRAM,120NS	222-00006-612
C101-C104	CAPACITOR,CERAMIC,0.1μF	401-01000-104	U5	VIDEO DAC,30MHz	245-00001-230
C105	CAPACITOR,CERAMIC,0.33μF	401-02000-334	U6	SN74AS374N,OCT REGISTER	201-00374-200
C106	CAPACITOR,CERAMIC,0.1μF	401-01000-104	U7	SN74ALS541N,OCT DRIVERS	200-00541-200
C107	CAPACITOR,TANT,15μF	420-00002-156	U8,U9	VRAM,120NS	222-00006-612
C108	CAPACITOR,CERAMIC,0.33μF	401-02000-334	U10	SRAM,35NS	221-00002-235
C109-C111	CAPACITOR,CERAMIC,0.1μF	401-01000-104	U11	SN74AS157N,QUAD 2:1 MUX	201-00157-200
C112	CAPACITOR,CERAMIC,0.33μF	401-02000-334	U12-U14	VRAM,120NS	222-00006-612
C113-C115	CAPACITOR,CERAMIC,0.1μF	401-01000-104	U15	SRAM,35NS	221-00002-235
C116,C117	CAPACITOR,CERAMIC,0.33μF	401-02000-334	U16	SN74AS574N,OCT REGISTER	201-00574-200
C118-C120	CAPACITOR,CERAMIC,0.1μF	401-01000-104	U17-U19	VRAM,120NS	222-00006-612
C121	CAPACITOR,CERAMIC,0.33μF	401-02000-334	U20	SRAM,35NS	221-00002-235
C123	CAPACITOR,TANT,15μF	420-00002-156	U21	SN74ALS541N,OCT DRIVERS	200-00541-200
C125-C131	CAPACITOR,CERAMIC,0.33μF	401-02000-334	U22,U23	VRAM,120NS	222-00006-612
C132,C133	CAPACITOR,CERAMIC,0.1μF	401-01000-104	U24	VRAM,120NS	222-00006-612
C134	CAPACITOR,TANT,15μF	420-00002-156	U25	SRAM,35NS	221-00002-235
C135	CAPACITOR,CERAMIC,0.33μF	401-02000-334	U26	SN74AS157N,QUAD 2:1 MUX	201-00157-200
C136,C137	CAPACITOR,CERAMIC,0.1μF	401-01000-104	U27-U30	VRAM,120NS	222-00006-612
C138	CAPACITOR,CERAMIC,0.33μF	401-02000-334	U31	SN74AS374N,OCT REGISTER	201-00374-200
C139-C141	CAPACITOR,CERAMIC,0.1μF	401-01000-104	U32	SN74AS157N,QUAD 2:1 MUX	201-00157-200
C142	CAPACITOR,CERAMIC,0.33μF	401-02000-334	U33-U35	VRAM,120NS	222-00006-612
C143	CAPACITOR,CERAMIC,0.1μF	401-01000-104	U36	SN74AS32N,HEX 2-IN'OR'	201-00032-200
C144-C147	CAPACITOR,CERAMIC,0.33μF	401-02000-334			

# Video Graphics PCB Parts List

Location	Description	Part Number	Location	Description	Part Number
U37	DRAM,120NS	220-00002-212	U101	EPROM,150NS	110-00002-001
U38	PULRESPAK,10KΩ	502-00001-103	U102,U103	SN74ALS245ADW,OCTXCVR	200-00245-100
U39	SN74ALS2541N,OCT DRIVER	200-02541-200	U104	OSCILLATOR,40MHz	290-00001-040
U40	PAL	120-00002-007	U105	DRAW2 ASIC,40MHz	100-TB001-340
U41	VRAM,120NS	222-00006-612	U106	DPSRAM,35NS	222-00002-435
U42	SN74ALS04BN,HEXINVERTERS	200-00004-200	U107	DRAW1 ASIC,20MHz	100-PK001-320
U43	DRAM,120NS	220-00002-212	U108	8EPROM,150NS	110-00002-002
U44	SN74ALS273N,OCT REGISTERS	200-00273-200	U109,U110	SN74ALS245ADW,OCTXCVR	200-00245-100
U45	PAL	120-00002-001	U111	SN74AS1004AN,HEX INVDRVRS	201-01004-200
U46	SN74AS253DW,DUAL 4:1 MUX	201-00253-100	U112	PULRESPAK,10KΩ	502-00001-103
U47	SN74AS244DW,OCT BUFFERS	201-00244-100	U113	DPSRAM,35NS	222-00002-435
U49	SN74ALS04BN,HEXINVERTERS	200-00004-200	U114	EPROM,150NS	110-00002-003
U50	DRAM,120NS	220-00002-212	U115	68PLCCGSP,40MHz	135-34010-440
U51	SN74ALS273N,OCT REGISTERS	200-00273-200	U116	SN74AS74N,DUAL DFLOPS	201-00074-200
U53	SN74ALS74N,DUAL DFLOPS	200-00074-200	U117	SN74AS1004AN,HEX INVDRVRS	201-01004-200
U54	DRAM,120NS	220-00002-212	U118-U120	CLIPPER ASIC,20MHz	100-MW001-320
U55	SN74ALS273N,OCT REGISTERS	200-00273-200	U121	EPROM,300NS	110-00002-006
U56	PAL	120-00002-011	U122	PULRESPAK,10KΩ	502-00001-103
U57,U58	SN74AS253DW,DUAL 4:1 MUX	201-00253-100	U123	SN74LS393N,DUAL 4-BIT CTR	202-00393-200
U59	SN74AS244DW,OCT BUFFERS	201-00244-100	U124	EPROM,300NS	110-00002-005
U60	RS-232 DRIVER,	235-00001-200	U125	SN74ALS157N,QUAD2:1MUX	200-00157-200
U61	PULRESPAK,10KΩ	502-00001-103	U126	SN74AS1004AN,HEX INVDRVRS	201-01004-200
U62	SN74ALS244ADW,OCT BUFFERS	200-00244-100	U127-U129	CLIPPER ASIC,20MHz	100-MW001-320
U63	10-BITL ATCHES	235-00008-100	U130	EPROM,300NS	110-00002-007
U64	SN74ALS273N,OCT REGISTERS	200-00273-200	U131	OSCILLATOR,20MHz	290-00001-020
U65	PAL	120-00002-010	U132	SN74LS14N,HEX STINVERT	202-00014-200
U66,U67	SN74AS253DW,DUAL 4:1 MUX	201-00253-100	U133	EPROM,300NS	110-00002-008
U68	SN74AS244DW,OCT BUFFERS	201-00244-100	U135	SN74LS14N,HEX STINVERT	202-00014-200
U69	UART	240-00002-200	U136-U139	FIFO,50NS	222-00004-450
U70	SN74ALS08N,HEX2-IN'AND'	200-00008-200	U140	PAL	120-00002-006
U71	9-BIT XCVR	235-00005-200	U141-U144	SN74AS244DW,OCT BUFFERS	201-00244-100
U72	PAL	120-00002-004	U145	PULRESPAK,10KΩ	502-00001-103
U73,U74	SN74AS253DW,DUAL 4:1 MUX	201-00253-100	UC72	24-PIN SOCKET,.300"	600-00001-324
U75	SN74AS244DW,OCT BUFFERS	201-00244-100	UC77	24-PIN SOCKET,.300"	600-00001-324
U76	SN74ALS373N,OCT LATCHES	200-00373-200	UC86,UC87	24-PIN SOCKET,.300"	600-00001-324
U77	PAL	120-00002-008	UC93	24-PIN SOCKET,.300"	600-00001-324
U78	9-BIT LATCH	235-00004-100	UX40	20-PIN SOCKET,.300"	600-00001-320
U79	PAL	120-00002-005	UX45	20-PIN SOCKET,.300"	600-00001-320
U80	SN74AS04N,HEX INVERTER	201-00004-200	UX65	20-PIN SOCKET,.300"	600-00001-320
U81,U82	SN74AS253DW,DUAL 4:1 MUX	201-00253-100	UX79	20-PIN SOCKET,.300"	600-00001-320
U83	SN74AS244DW,OCT BUFFERS	201-00244-100	UX97	32-PIN SOCKET,.600"	600-00002-632
U84	SN74LS14N,HEX STINVERT	202-00014-200	UX101	32-PIN SOCKET,.600"	600-00002-632
U85	SN74ALS373N,OCT LATCHES	200-00373-200	UX108	32-PIN SOCKET,.600"	600-00002-632
U86	PAL	120-00002-009	UX114	32-PIN SOCKET,.600"	600-00002-632
U87	PAL	120-00002-003	UX115	68 PLCC SOCKET	602-00001-068
U89	SN74AS1034AN,HEX DRIVER	201-01034-200	UX121	32-PIN SOCKET,.600"	600-00002-632
U90	VOLT COMP	280-00002-200	UX124	32-PIN SOCKET,.600"	600-00002-632
U91	SN74ALS373N,OCT LATCHES	200-00373-200	UX130	32-PIN SOCKET,.600"	600-00002-632
U92	OSCILLATOR,50MHz	290-00001-050	UX133	32-PIN SOCKET,.600"	600-00002-632
U93	PAL	120-00002-002	UX140	20-PIN SOCKET,.300"	600-00001-320
U94	DPSRAM,35NS	222-00002-435		SPACER,.750"	700-00001-031
U97	EPROM,150NS	110-00002-004		SHUNT	715-00001-001
U98,U99	SN74ALS245ADW,OCTXCVR	200-00245-100			
U100	SN74AS1004AN,HEX INVDRVRS	201-01004-200			

# Sound PCB P/N A10-00005-001



# Sound PCB Parts List

Location	Description	Part Number	Location	Description	Part Number
C1,C2	CAPACITOR,AX/CER,22pF	402-00195-220	D13	DIODE,ZENER,5V	300-00001-002
C3	CAPACITOR,AX/TANT,10μF	422-00072-106	D14	DIODE,ZENER,15V	300-00001-005
C4,C5	CAPACITOR,AX/CER,,22μF	402-00285-224	D15	DIODE,ZENER,5V	300-00001-002
C6-C9	CAPACITOR,AX/TANT,1μF	422-00072-105	D16	DIODE,ZENER,15V	300-00001-005
C10,C11	CAPACITOR,AX/CER,220pF	402-00195-221	D17-D24	DIODE,SCHOTTKY	302-00002-001
C12	CAPACITOR,AX/CER,,1μF	402-00285-104	D25,D26	DIODE,RECTIFIER	302-00001-001
C13	CAPACITOR,AX/CER,,022μF	402-00285-223	D27,D28	DIODE,SCHOTTKY	302-00002-001
C14	CAPACITOR,AX/CER,220pF	402-00195-221	J1	4-PIN MOLEX,,100"	610-00102-004
C15	CAPACITOR,AX/CER,,022μF	402-00285-223	J2	2-PIN MOLEX,,100"	610-00102-002
C16	CAPACITOR,AX/CER,,01μF	402-00285-103	J5	4-PIN MOLEX,,100"	610-00102-004
C17	CAPACITOR,AX/TANT,1μF	422-00072-105	L1-L3	INDUCTOR,250μH	590-00001-001
C18-C20	CAPACITOR,AX/TANT,10μF	422-00072-106	P1	4-PIN POWER CON,,200"	610-00300-004
C21	CAPACITOR,AX/CER,,1μF	402-00382-104	Q1	TRANSISTOR,PNP	310-00001-001
C22,C23	CAPACITOR,AX/CER,,33μF	402-00382-334	Q2-Q4	AUDIO POWER AMP	282-02030-600
C24,C25	CAPACITOR,AX/CER,,1μF	402-00382-104	R1	RESISTOR,1%MF,1.00KΩ	503-00001-102
C26	CAPACITOR,AX/CER,,33μF	402-00382-334	R2	RESISTOR,1%MF,8.25KΩ	503-00001-822
C27-C38	CAPACITOR,AX/CER,,1μF	402-00382-104	R3,R4	RESISTOR,1%MF,100KΩ	503-00001-104
C39	CAPACITOR,AX/CER,22pF	402-00195-220	R5,R6	RESISTOR,1%MF,301 Ω	503-00001-301
C40	CAPACITOR,AX/TANT,10μF	422-00072-106	R7	RESISTOR,1%MF,274Ω	503-00001-001
C41,C42	CAPACITOR,AX/CER,2200pF	402-00295-222	R8	RESISTOR,1%MF,100KΩ	503-00001-104
C43,C44	CAPACITOR,AX/CER,,1μF	402-00382-104	R9	RESISTOR,1%MF,1.00KΩ	503-00001-102
C45	CAPACITOR,RAD/CER,1μF	400-00281-105	R10	RESISTOR,1%MF,100KΩ	503-00001-104
C46	CAPACITOR,AX/TANT,1μF	422-00072-105	R11	RESISTOR,1%MF,1.30KΩ	503-00001-132
C47	CAPACITOR,AX/CER,,01μF	402-00285-103	R12	RESISTOR,1%MF,12.1KΩ	503-00001-123
C48	CAPACITOR,AX/CER,,1μF	402-00285-104	R13	RESISTOR,1%MF,1.30KΩ	503-00001-132
C49	CAPACITOR,AX/CER,,01μF	402-00285-103	R14	RESISTOR,1%MF,6.19KΩ	503-00001-612
C50	CAPACITOR,AX/CER,,1μF	402-00285-104	R15	RESISTOR,1%MF,5.11KΩ	503-00001-512
C51	CAPACITOR,AX/CER,,01μF	402-00285-103	R16	RESISTOR,1%MF,1.00KΩ	503-00001-102
C52-C54	CAPACITOR,AX/CER,,1μF	402-00285-104	R17-R19	RESISTOR,1%MF,536Ω	503-00001-541
C55	CAPACITOR,AX/CER,,01μF	402-00285-103	R20	RESISTOR,1%MF,16.5KΩ	503-00001-163
C56	CAPACITOR,POLYFILM,6800pF	430-00002-682	R21	RESISTOR,1%MF,10.0KΩ	503-00001-103
C57	CAPACITOR,AX/CER,,01μF	402-00285-103	R22	RESISTOR,1%MF,1.00KΩ	503-00001-102
C58	CAPACITOR,POLYFILM,1300pF	430-00001-132	R23	RESISTOR,1%MF,5.11KΩ	503-00001-512
C59,C60	CAPACITOR,RAD/TANT,47μF	421-00020-476	R24	RESISTOR,1%MF,2.15KΩ	503-00001-212
C61	CAPACITOR,POLYFILM,1300pF	430-00001-132	R25	RESISTOR,1%MF,5.11KΩ	503-00001-512
C62	CAPACITOR,AX/CER,,1μF	402-00285-104	R26	RESISTOR,1%MF,10.0KΩ	503-00001-103
C63	CAPACITOR,POLYFILM,6800pF	430-00002-682	R27	RESISTOR,1%MF,536Ω	503-00001-541
C64,C65	CAPACITOR,AX/CER,,01μF	402-00285-103	R28	RESISTOR,1%MF,5.11KΩ	503-00001-512
C66	CAPACITOR,AX/CERA,100pF	402-00195-101	R29	RESISTOR,1%MF,16.5KΩ	503-00001-163
C67	CAPACITOR,AX/CER,,01μF	402-00285-103	R30	RESISTOR,1%MF,2.15KΩ	503-00001-212
C68	CAPACITOR,AX/CER,,001μF	402-00295-102	R31	RESISTOR,1%MF,5.11KΩ	503-00001-512
C69	CAPACITOR,RAD/CER,1μF	400-00281-105	R32	RESISTOR,1%MF,10.0KΩ	503-00001-103
C70	CAPACITOR,AX/CER,,001μF	402-00295-102	R33,R34	RESISTOR,1%MF,536Ω	503-00001-541
C71	CAPACITOR,AX/TANT,10μF	422-00072-106	R35	RESISTOR,1%MF,825Ω	503-00001-831
C72,C73	CAPACITOR,AX/CER,,22μF	402-00285-224	R36	RESISTOR,5%MF,1.5MΩ	503-00005-155
C74	CAPACITOR,AX/CER,,001μF	402-00295-102	R37	RESISTOR,1%MF,43.2KΩ	503-00001-433
C75	CAPACITOR,AX/TANT,10μF	422-00072-106	R38	RESISTOR,1%MF,10.0KΩ	503-00001-103
C76	CAPACITOR,RAD/CER,1μF	400-00281-105	R39	RESISTOR,1%MF,825Ω	503-00001-831
C77	CAPACITOR,AX/CERA,100pF	402-00195-101	R40	RESISTOR,5%MF,1.5MΩ	503-00005-155
C78,C79	CAPACITOR,AX/CER,,01μF	402-00285-103	R41	RESISTOR,1%MF,43.2KΩ	503-00001-433
C80,C81	CAPACITOR,AX/CER,,1μF	402-00382-104	R42,R43	RESISTOR,1%MF,33.2KΩ	503-00001-333
C82,C83	CAPACITOR,AX/CER,,1μF	402-00285-104	R44	RESISTOR,1%MF,274KΩ	503-00001-274
C84,C85	CAPACITOR,RAD/CER,1μF	400-00281-105	R45	RESISTOR,1%MF,47.5KΩ	503-00001-473
C86,C87	CAPACITOR,RAD/TANT,1000μF	410-00002-108	R46	RESISTOR,1%MF,16.5KΩ	503-00001-163
C88	CAPACITOR,AX/CER,,33μF	402-00382-334	R47,R48	RESISTOR,1%MF,33.2KΩ	503-00001-333
C89,C90	CAPACITOR,AX/CER,,1μF	402-00382-104	R49	RESISTOR,1%MF,16.5KΩ	503-00001-163
C91	CAPACITOR,AX/CER,,001μF	402-00295-102	R50	RESISTOR,1%MF,5.11KΩ	503-00001-512
C92-C99	CAPACITOR,AX/CER,,1μF	402-00382-104	R51	RESISTOR,1%MF,33.2KΩ	503-00001-333
C100	CAPACITOR,AX/CER,,22μF	402-00285-224	R52	RESISTOR,1%MF,1.00KΩ	503-00001-102
C101	CAPACITOR,AX/TANT,10μF	422-00072-106	R53	RESISTOR,1%MF,10.0KΩ	503-00001-103
C102	CAPACITOR,AX/CER,,1μF	402-00285-104	R54,R55	RESISTOR,5%MF,1Ω	503-00005-010
C103	CAPACITOR,AX/CER,,01μF	402-00285-103	R56	RESISTOR,1%MF,5.11KΩ	503-00001-512
C104-116	CAPACITOR,AX/CER,,1μF	402-00382-104	R57	RESISTOR,1%MF,1.00KΩ	503-00001-102
D1-D3	LED,RED	305-00003-002	R58	RESISTOR,1%MF,10.0KΩ	503-00001-103
D4-D7	DIODE,RECTIFIER	302-00001-001	R59	RESISTOR,1%MF,5.11KΩ	503-00001-512
D8-D11	LED,RED	305-00003-002	R60	RESISTOR,2%MF,680Ω	503-00002-681
D12	DIODE,SIGNAL	300-00002-003	R61,R62	RESISTOR,1%MF,5.11KΩ	503-00001-512

# Sound PCB Parts List

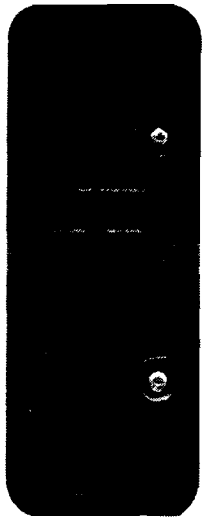
Location	Description	Part Number	Location	Description	Part Number
R63,R64	RESISTOR,1%MF,33.2K $\Omega$	503-00001-333	U11	PAL	120-00003-001
R65	RESISTOR,2%MF,680 $\Omega$	503-00002-681	U12	MUSIC SYNTH	282-02151-200
R66	RESISTOR,1%MF,5.11K $\Omega$	503-00001-512	U13	STEREO DAC	282-03012-200
R68	RESISTOR,1%MF,33.2K $\Omega$	503-00001-333	U14	D/A CONVERTER	245-00003-200
R70-R73	RESISTOR,1%MF,33.2K $\Omega$	503-00001-333	U15	DUAL OP AMP	282-00072-200
R74	RESISTOR,1%MF,1.00K $\Omega$	503-00001-102	U16	OCTAL D-FLOPS	200-00373-200
R75	RESISTOR,1%MF,10.0K $\Omega$	503-00001-103	U17	EPROM,300NS	110-00003-001
R76	RESISTOR,5%MF,1 $\Omega$	503-00005-010	U18	DUAL OP AMP	282-00072-200
R77	RESISTOR,1%MF,5.11K $\Omega$	503-00001-512	U19	NOISE GEN	282-05437-200
R78	RESISTOR,1%MF,33.2K $\Omega$	503-00001-333	U20	DUAL OP AMP	282-00072-200
R79	RESISTOR,1%MF,165K $\Omega$	503-00001-174	U21,U22	MUSIC VOICE	282-02047-200
R80,R81	RESISTOR,2%MF,1M $\Omega$	503-00002-105	U23	8 CHANS/HOLD	282-02300-200
R82	RESISTOR,1%MF,33.2K $\Omega$	503-00001-333	U24-U27	DUAL OP AMP	282-00072-200
R83	RESISTOR,1%MF,165K $\Omega$	503-00001-174	U28	DUAL DIG POTS,50K $\Omega$	282-01267-200
SW1,SW2	PB SWITCH	625-00002-001	U29	DUAL OP AMP	282-00072-200
TP1,TP2	TEST PIN	710-00001-001	UX2	28-PIN SOCKET,.600"	600-00001-628
U1	OCTAL D-FLOPS	200-00373-200	UX3	40-PIN SOCKET,.600"	600-00003-640
U2	EPROM,300NS	110-00004-001	UX11	20-PIN SOCKET,.300"	600-00001-320
U3	MICROPROCESSOR,12MHz	135-80C31-212	UX17	32-PIN SOCKET,.600"	600-00003-632
U4	DUAL ONE-SHOT	202-00123-200	X1	OSCILLATOR,11.06MHz	290-00003-011
U5	QUAD 2-IN NAND	202-00000-200	X2	CER RESONATOR,640KHz	290-00005-640
U6	HEX INVERTORS	200-00004-200	X3	SNDXTAL,3.58MHz	290-00003-003
U7	SRAM,45NS	221-00004-245			
U8	RS-232 DRIVER	235-00001-200		CLIP,HEATSINK	790-00001-002
U9	NEG. 5V REG	281-07905-001		HEATSINK	790-00001-001
U10	SPEECH GEN	282-07759-200			



# Coin Co Coin Door



## 2822-208 GAME DOOR



FRONT VIEW

### OVERALL DIMENSIONS

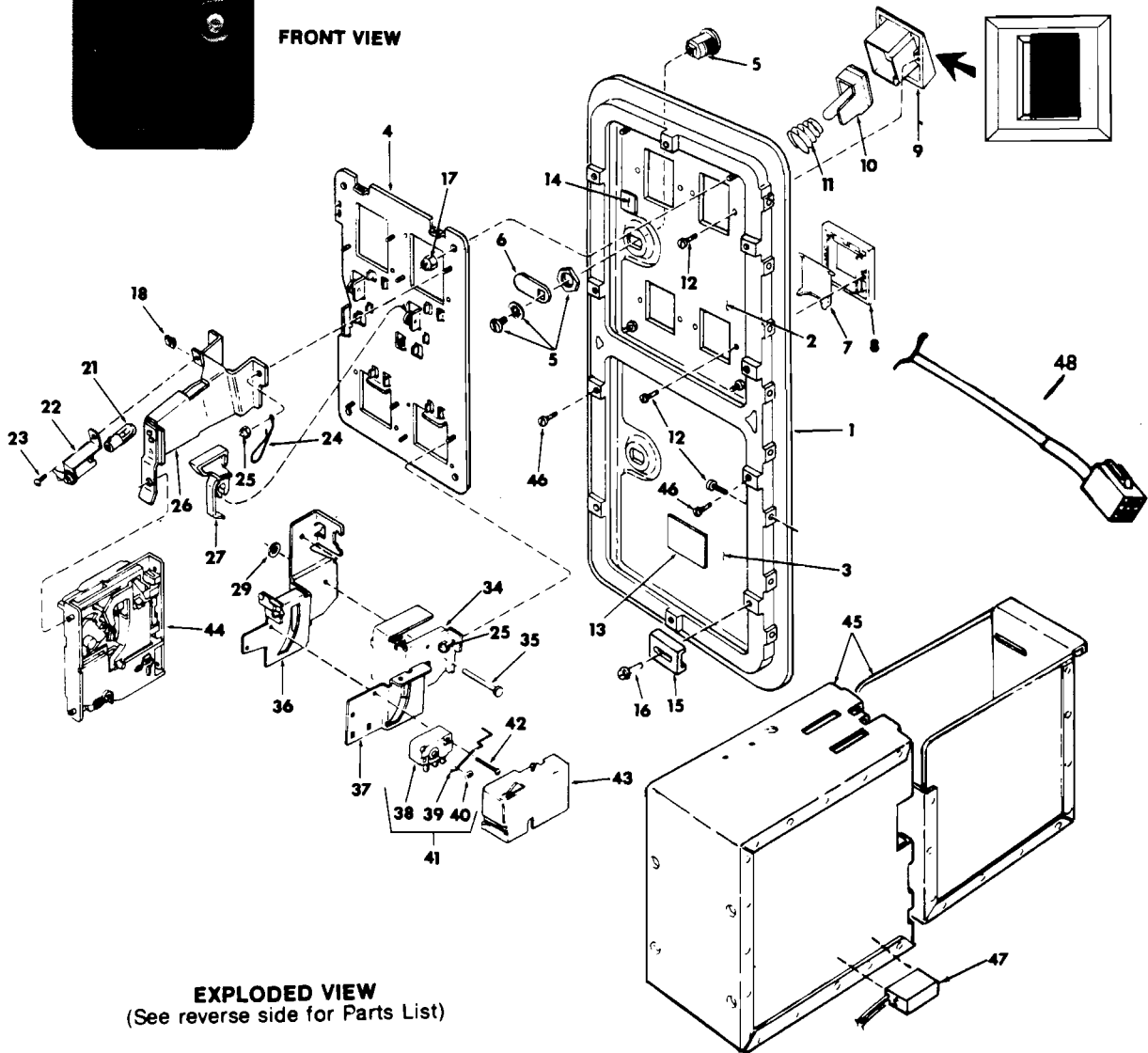
Height .....	20-7/8-Inches
Width .....	7-7/8-Inches
Depth .....	4-1/2-Inches
Depth With Attached Cashbox .....	9-3/4-Inches

### RECOMMENDED CABINET OPENING

Height .....	19-7/8-Inches
Width .....	7-1/4-Inches
Corner Radius .....	1-Inch

### SHIPPING WEIGHT

Without Cashbox .....	14 pounds
With Cashbox .....	20 pounds



**EXPLODED VIEW**  
(See reverse side for Parts List)

# Coin Co Coin Door Parts List

## 2822 SERIES GAME DOOR PARTS LIST

Index No.	Part No.	Description	Index No.	Part No.	Description
1	905640	Coin Door Frame	23	110-4-6	Screw
2	404696-2	Coin Door	24	904722	Wire Key Holder
3	404696	Service Door	25	400-4	Nut
4	404697-1	Coin Door Inner Panel	26	404645	Coin Inlet Chute Assembly
5	404767	7/8-Inch Flat Key Lock	27	904583-1	Coin Return Lever
6	905651-2	CAM, Lock	28	108B5-4	Screw
7	905484	Coin Return Door	29	904936	A.P.F. Bar Keeper
8	904590-2	Coin Return Bezel			
9	905425-4	Coin Inlet Bezel (1.000 Coin Diameter)			
10	404604	Button Assembly			
	905423-1	Button Cover (Not Illustrated)			
	905424-3	Button (only) (Not Illustrated)			
	904703	25¢ Decal (Not Illustrated)	34	904598-1	Coin Return Box
	904778	Token Decal (Not Illustrated)	35	904935	A.P.F. Bar
11	903494	Spring	36	404601	Switch and C.R.E.M. Bracket
12	909913	Screw	37	904701	Coin Chute
13	906030	Identification Label	38	904845	Coin Switch
14	904822	Slam Switch Insulation	39	904710-1	25¢ Switch Wire
15	905658-2	Mounting Clip, Slide	40	900651	Switch Wire Retainer
16	328-10-8	Screw	41	404353	25¢ Coin Switch Assembly
17	400-8	Nut	42	100-4-12	Screw
			43	904762-1	Switch Cover
			44	5301-13	25¢ NORYL Acceptor
21	904716-1	Lamp (12volt)	45	406953	Cashbox and Enclosure Assembly
				406918	Cashbox Enclosure (Optional)
				406917	Cashbox (Optional)
			46	909913-3	Screw (Optional)
			47		
				909966-6	Counter (Optional ) (12 vdc)
22	904717	Lamp Socket	48	404700-1	Harness



**COIN ACCEPTORS, INC.**  
 300 HUNTER AVE.  
 ST. LOUIS, MISSOURI 63124  
 800-325-2646 IN MISSOURI 314-725-0100  
**COIN ACCEPTORS, CANADA**  
 237 FINCHDENE SQUARE  
 SCARBOROUGH (TORONTO), ONTARIO M1X 1B9

COINCO PUBLICATION NO. 906127-1 Rev. 1 7/90  
 Printed in U.S.A.

# Wiring Harnesses

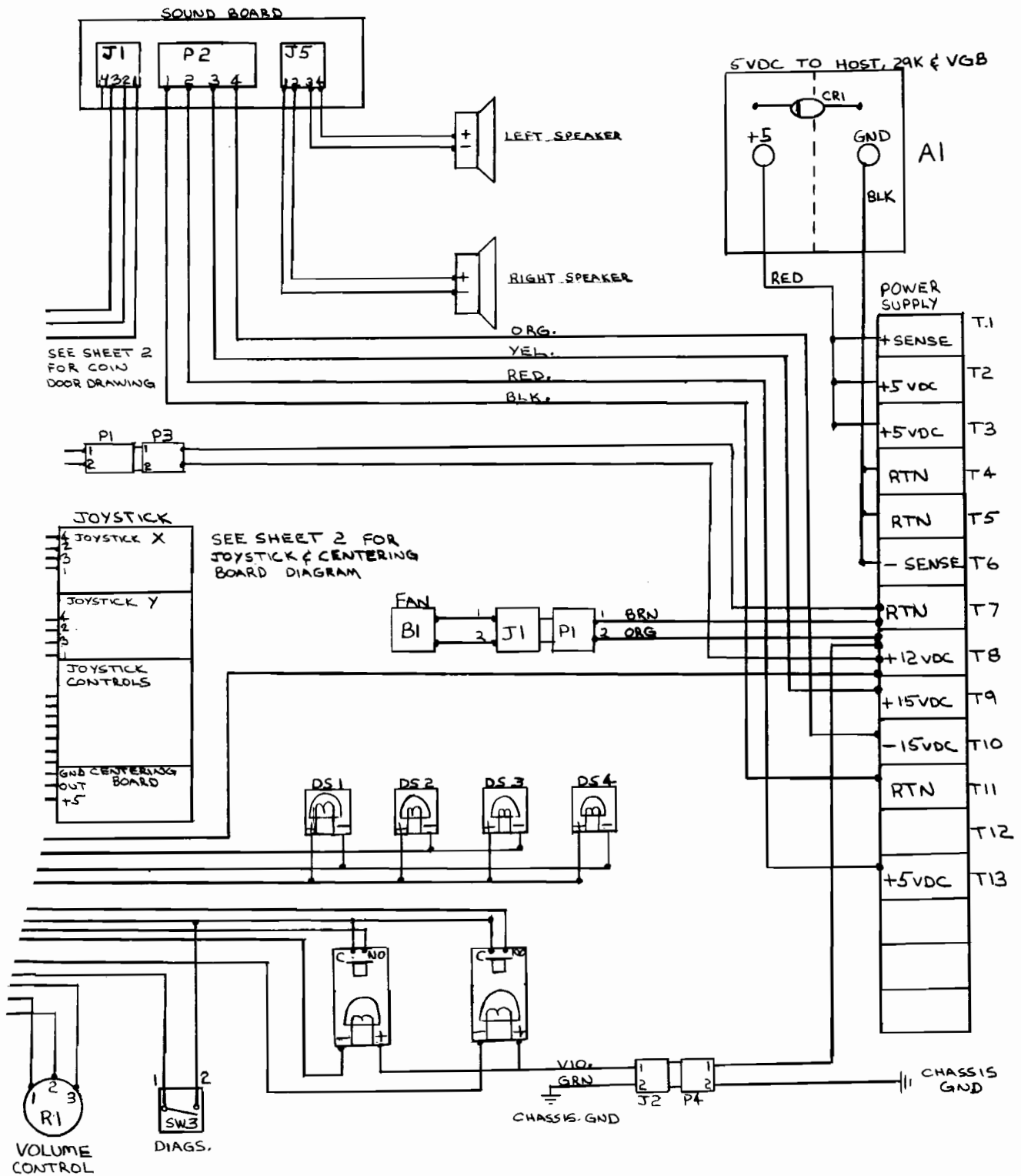
Part No.	Description
A18-00001-002	Joystick cable - Host to Joystick connector
A18-00001-003	Panel control harness
A18-00001-004	Coin door cable
A18-00001-005	Throttle/panel cable
A18-00001-006	RS-232 cable #1
A18-00001-007	Host to VGB ribbon cable
A18-00001-008	Left speaker cable
A18-00001-009	Throttle harness
A18-00001-010	Joystick harness
A18-00001-011	Right speaker cable
A18-00001-012	Y - Joystick cable
A18-00001-013	X - Joystick cable
A18-00002-001	DC - Power harness
A18-00003-002	AC - input harness
A18-00003-003	AC -Tray to cabinet top
A18-00003-004	AC - Voltage Selection harness- 100v
A18-00003-005	AC- Voltage Selection harness - 120v
A18-00003-006	AC- Voltage Selection harness - 240v
A18-00003-008	Bill Acceptor harness
A18-00003-010	Display cable
A18-00003-013	Shroud Lamp harness
A18-00003-014	AC- Marquee harness
A18-00003-015	Fluorescent Light "Y" Cable

# Fuses

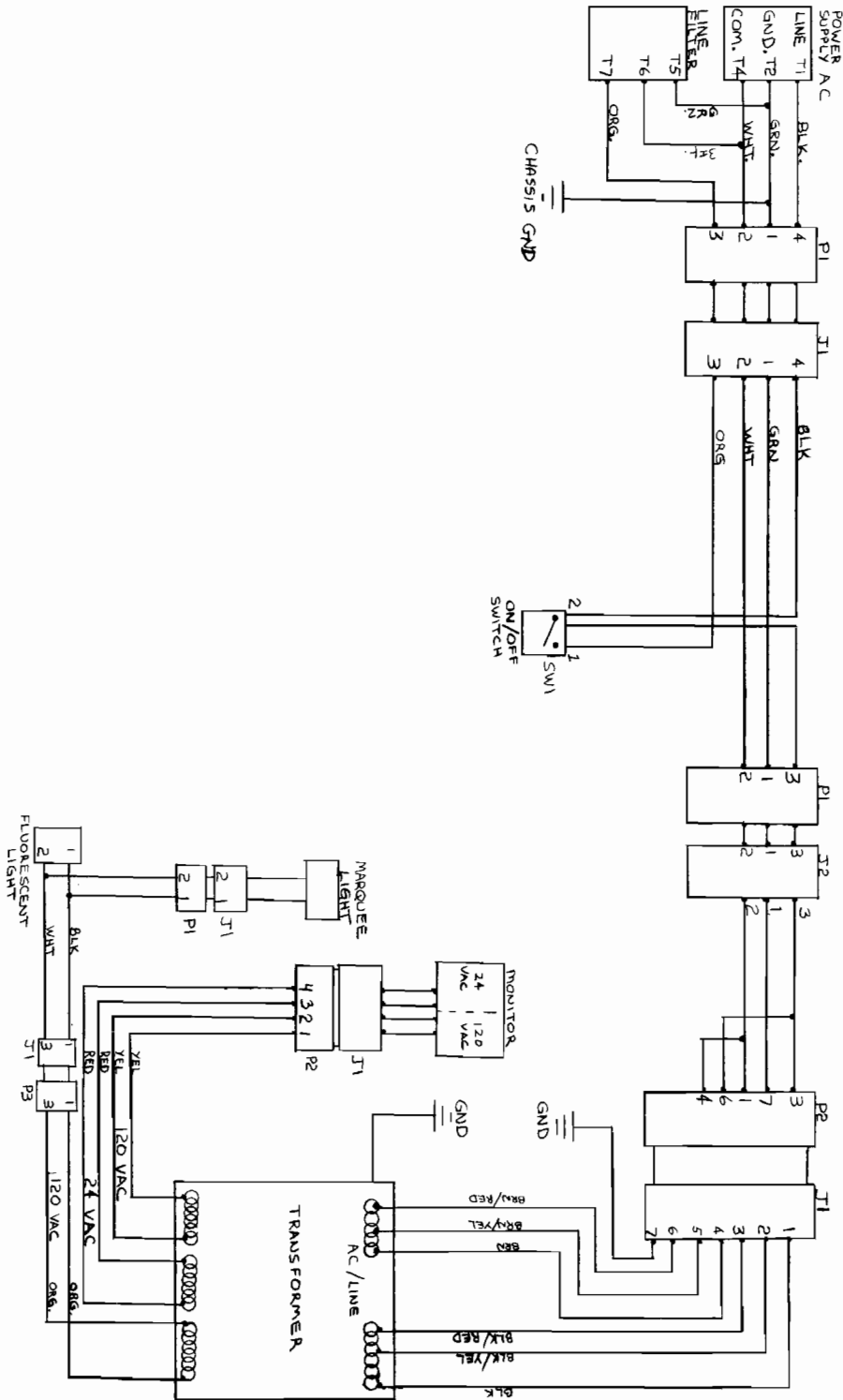
Part No.	Description
596-00001-006	Switching Power Supply 6A SB
596-00002-005	Power Entry Module 5A SB
596-00003-150	Monitor Power Supply 1.5A SB



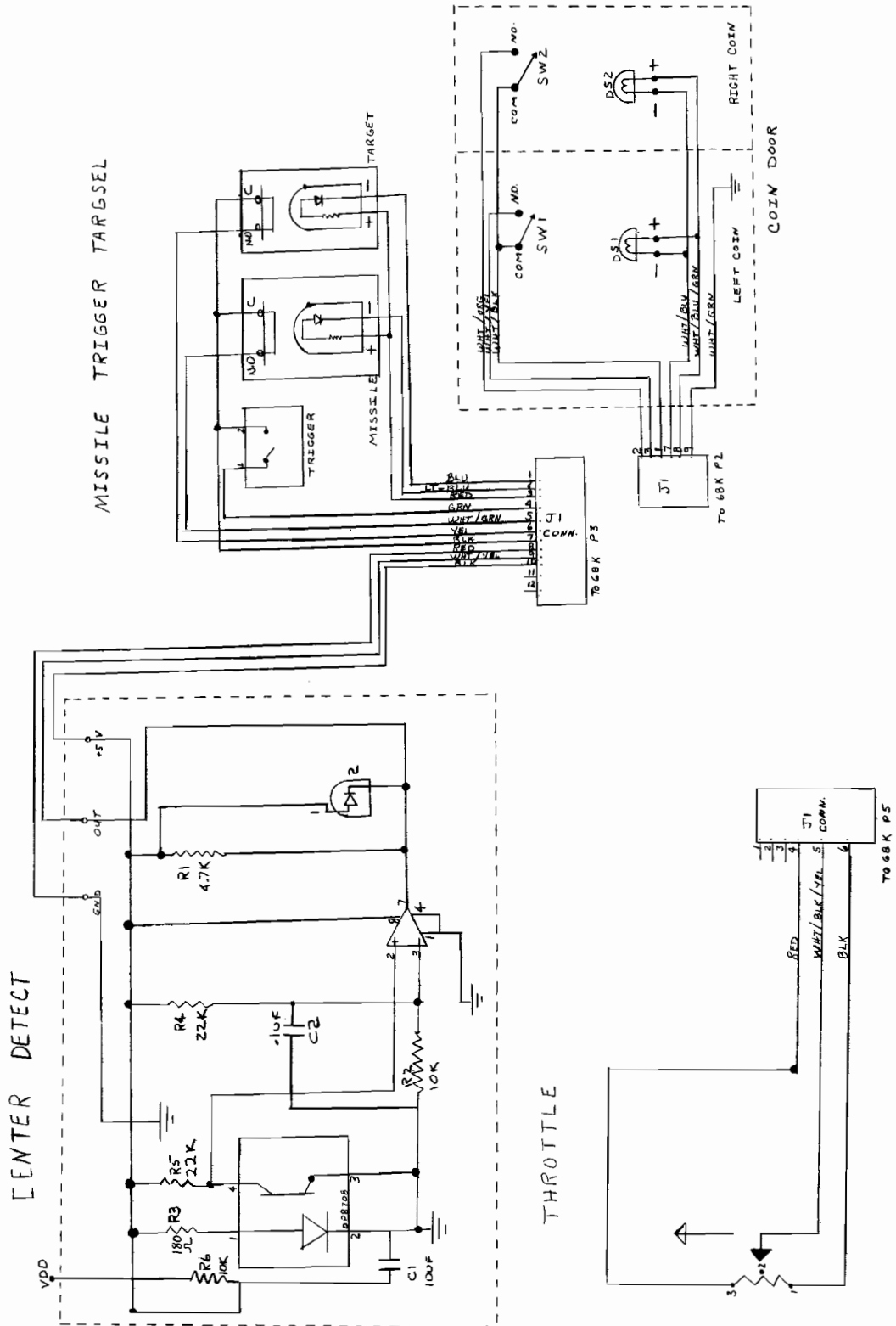
# F-15 Strike Eagle Wiring Diagram



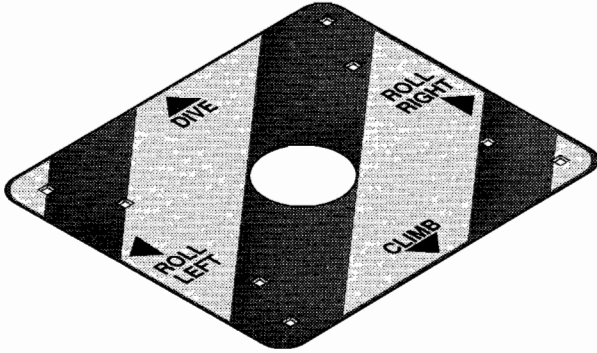
# F-15 Strike Eagle Wiring Diagram



# F-15 Strike Eagle Wiring Diagram



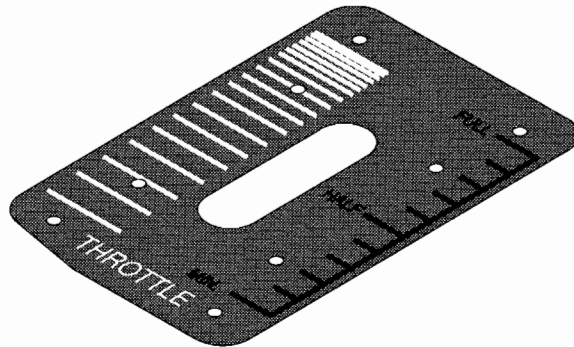
# F-15 Strike Eagle Decals



080-0001-008  
Joystick Decal



080-00001-006  
F-15 Patch Decal



080-0001-007  
Throttle Decal



080-00003-002  
Start Decal



080-00003-001  
Decoy Decal



# EPROM and PAL Location Chart

Part Number	Board	Loc.	Device	Part Number	Board	Loc.	Device
110-00001-000	Host	U67	EPROM	120-00001-000	Host	U15	GAL
110-00001-001	Host	U91	EPROM	120-00001-001	Host	U59	GAL
110-00001-002	Host	U68	EPROM	120-00001-002	Host	U74	GAL
110-00001-003	Host	U92	EPROM	120-00001-003	Host	U57	GAL
110-00001-004	Host	U69	EPROM	120-00001-004	Host	U56	GAL
110-00001-005	Host	U93	EPROM	120-00001-005	Host	U75	GAL
110-00001-006	Host	U70	EPROM	120-00001-006	Host	U77	GAL
110-00001-007	Host	U94	EPROM	120-00001-007	Host	U76	GAL
110-00001-008	Host	U71	EPROM	120-00001-008	Host	U88	GAL
110-00001-009	Host	U95	EPROM	120-00001-009	Dr. Math	U79	PAL
110-00001-010	Host	U72	EPROM	120-00001-010	Dr. Math	U70	PAL
110-00001-011	Host	U96	EPROM	120-00001-011	Dr. Math	U118	PAL
110-00001-012	Host	U73	EPROM	120-00001-014	Dr. Math	U111	PAL
110-00001-013	Host	U97	EPROM	120-00001-015	Dr. Math	U104	PAL
110-00001-014	Dr. Math	U153	EPROM	120-00001-016	Dr. Math	U138	PAL
110-00001-015	Dr. Math	U154	EPROM	120-00001-017	Dr. Math	U136	PAL
110-00001-016	Dr. Math	U167	EPROM	120-00001-018	Dr. Math	U109	PAL
110-00001-017	Dr. Math	U160	EPROM	120-00001-019	Dr. Math	U102	PAL
110-00001-018	Dr. Math	U135	EPROM	120-00001-020	Dr. Math	U59	PAL
110-00001-019	Dr. Math	U115	EPROM	120-00001-021	Dr. Math	U121	PAL
110-00001-020	Dr. Math	U108	EPROM	120-00001-022	Dr. Math	U122	PAL
110-00001-021	Dr. Math	U127	EPROM	120-00001-024	Dr. Math	U67	PAL
110-00001-022	Dr. Math	U134	EPROM	120-00001-123	Dr. Math	U116	PAL
110-00001-023	Dr. Math	U114	EPROM	120-00002-001	Video Graphics	U45	PAL
110-00001-024	Dr. Math	U107	EPROM	120-00002-002	Video Graphics	U93	PAL
110-00001-025	Dr. Math	U126	EPROM	120-00002-003	Video Graphics	U87	PAL
110-00002-001	Video Graphics	U101	EPROM	120-00002-004	Video Graphics	U72	PAL
110-00002-002	Video Graphics	U108	EPROM	120-00002-005	Video Graphics	U79	PAL
110-00002-003	Video Graphics	U114	EPROM	120-00002-006	Video Graphics	U140	PAL
110-00002-004	Video Graphics	U97	EPROM	120-00002-007	Video Graphics	U40	PAL
110-00002-005	Video Graphics	U124	EPROM	120-00002-008	Video Graphics	U77	PAL
110-00002-006	Video Graphics	U121	EPROM	120-00002-009	Video Graphics	U86	PAL
110-00002-007	Video Graphics	U130	EPROM	120-00002-010	Video Graphics	U65	PAL
110-00002-008	Video Graphics	U133	EPROM	120-00002-011	Video Graphics	U56	PAL
110-00003-001	Sound	U17	EPROM	120-00003-001	Sound	U11	PAL
110-00004-001	Sound	U2	EPROM				

## Revision Level Explanation

Example: **110-00002-005**

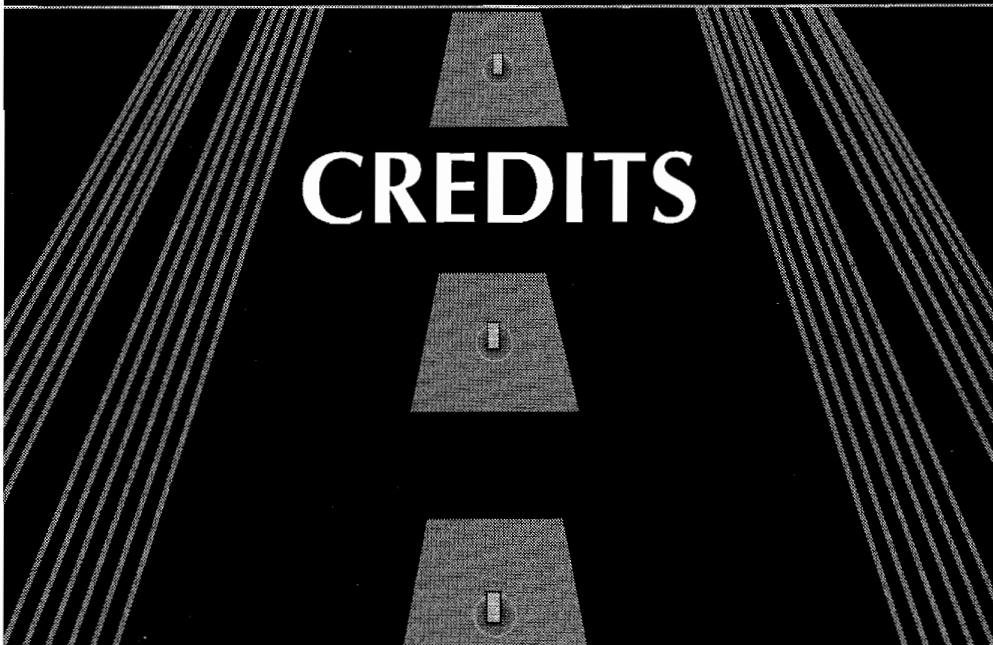
Revision Level

The software revision level is the MSB of the part number modifier. That means that part number 110-00002-105 would replace the above number and would be installed in the same location on the board.

# NOTES



● Frank Becker	.....	Editor
● Cheri Glover	.....	Designer and Illustrator
● Regan Cheng	.....	Technical Illustrator
● Troy Dawson	.....	Editorial Assistant
● Jamie Stotz	.....	Technical Assistant
● Gilbert Goodman	.....	Parts Specialist
● Amarjit Sahni	.....	Mechanical Engineer
● Barbra Bents	.....	Contributing Artist
● Murray Taylor	.....	Contributing Artist
● Juanita Bussard	.....	Contributing Artist
● John Emory	.....	Front Cover Design
● David Martin	.....	Front Cover Art



**MICRO PROSE™**  
*games*

## Warranty

Seller certifies that its printed circuit boards and parts thereon, and power supplies are free from defects in material and workmanship under normal operation for a period of ninety (90) days from date of shipment. Seller also certifies that its mechanical controls, (e.g. joysticks), and video displays are free from defects in material and workmanship under normal operation for a period of sixty (60) days from date of shipment. No other component or part thereof is warranted.

Sellers sole liability in the event a warranted part described above fails shall be, at its option, to replace, repair, or issue credit to the buyer for such products returned prepaid to sellers designated service center during the warranty period.

Should Seller determine, by inspection or ancillary information, that the product failure was caused by accident, misuse, neglect, alteration, improper repair, installation or testing, said warranty is void. In addition, use of non MicroProse Games parts may void warranty.

Under no circumstance is Seller liable for loss of profits, loss of use, or other damages.

This shall be the exclusive written warranty of the original purchaser expressed in lieu of all other warranties expressed or implied and shall under no circumstance extend beyond the period of time listed above.

**MICRO PROSE**<sup>TM</sup>  
*games*