

AMERICAN LASER GAMES

Operation Manual for *Fast Draw Showdown*

Version 1.40
May 25, 1995

Herr Interactive
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AMERICAN LASER GAMES

STATEMENT OF LIMITED WARRANTY

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If any portion of the System fails to be in good working order during the Warranty Period, and if American Laser Games is notified within this time, American Laser Games shall have the option of repairing or replacing the failing portion of the System. Service parts and replacement products, if any, will be furnished on an exchange basis. Customer shall pay for all shipping charges and any duties and taxes for parts returned to American Laser Games. American Laser Games will pay for shipping charges for the repaired or replaced material. All replaced parts and products become the property of American Laser Games. Parts & products which have been tampered with are excluded from any warranty.

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American Laser Games

Thanks for purchasing *Fast Draw - Showdown*. We appreciate your business.

The following information should help you assemble the rail tubes and make initial setup adjustments. Assembly instructions for the pedestal rail tubes and marquee plus several pages which show the SERVICE menu screens for game setup are included.

First, inspect the game for any shipping damage and if any is apparent, file a claim with the shipping company. Open the lower equipment bay door lock using the key provided. Inspect for loose wires or any shipping damage. Look for the laser disk underneath the equipment drawer. The RAM/ROM card should be found in the same plastic bag that this manual was in.

The orange rail tubes, holster box, gun, marquee box, and associated hardware are shipped in a separate box and are to be assembled on site. The exploded drawing which follows shows how these items are to be assembled. Detailed instructions for rail tube assembly and marquee installation appear on the following pages.

After installation of the rail tubes and marquee box is complete, locate the RAM/ROM card in the plastic bag above the laser player. Plug the RAM/ROM card onto the A-500 Electronics Main Board as shown in Figure 1. Double-check all connections on the A-500 main board and on the TAOS board. Be sure the 9-pin D-type extension cable from the rail tubes is connected to J12 on TEWA Board-A (see Figure 1).

Plug the game into a 120 volt AC 60Hz power source. Locate the game power switch on top of the game cabinet and press the pushbutton to apply power to the game. Make sure the disk player POWER switch is pressed (ON). Press the OPEN/CLOSE button on the disk player and a tray for the disk should slide open. For best video quality, the monitor may require degaussing after shipping or a change of orientation.

Remove the laser disk from its jacket and install it in the player, shiny side down, white side up. Avoid making fingerprints on the disk...handle by the edges. Again press the disk player OPEN/CLOSE button and the tray with disk should slide back inside the player.

After about a minute, the ATTRACT video/audio should begin playing. The game should now be ready for play. The game has been pre-configured for 50 cent play with 4 draws per play. However, you can adjust these settings and the possible settings are illustrated on the following "menu screens." In *Fast Draw - Showdown* the gun must remain in the holster until the DRAW message appears on the screen.

If you have questions or need assistance with game assembly or setup, phone ALG at (505) 880-1718 and ask for Dan Montañó or Bill Danclovic in Customer Support.

Game Operation

Fast Draw Showdown is a highly competitive game where players can test their fast draw speed and accuracy against professional gunfighters, the clock, and each other. The player may select from three skill levels at the beginning of a game; *Deputy*, *Sheriff*, and *Marshall* with *Deputy* being easiest and *Marshall* being most difficult.

The player is permitted to draw as soon as DRAW appears on the screen. If the player draws the gun before DRAW appears on the screen, a FOUL will be declared. Two free "FOULS" are allowed per game without penalty. After two, the player will be penalized one draw. The gun must be FULLY in the holster prior to each draw. If it is not, the player will be reminded to "Put it back in the holster!" Two "out-of-holster" slip-ups are allowed per game without penalty. After two, a FOUL is declared and the player will be penalized one draw.

Two time values appear at the bottom of the screen for each draw. The left-hand time is the gunfighter's time and therefore is "the time to beat." The player's time appears on the right-hand side of the screen. Initially, "?????" will be displayed. When/if the player outdraws the gunfighter, the "?????" will be replaced with the player's time. If the player's shots don't fall close to the gunfighter (inside the hit zone), the "?????" will remain.

After each draw, a screen appears which displays the player's results. Results consist of the player's draw time, FOULED, or LOST. A player's best time is used to determine if the player can put his initials on high-score screens. There are 3 high-score screens. Separate screens of the Top Ten players are available for each skill level (*Deputy*, *Sheriff*, and *Marshall*). The top 25 players are tracked for each skill level and a player's ranking is displayed if his performance is #11 through #25. However, players who rank #11 through #25 are not permitted to enter their initials.

If a player's best draw time during a game is faster than at least one time on the high-score screen, he will get to put his initials into the appropriate high-score screen...the *Best Deputies* high score screen if he was playing at the *Deputy* skill level, etc.

If a player outdraws all gunfighters (as determined by the DRAWS setting), he is rewarded with a BONUS DRAW. This BONUS DRAW is against the fastest gunfighter, Wes Flowers. The difficulty of the BONUS DRAW can be adjusted using the BONUS DELAY setting described below.

To adjust game difficulty, 4 settings are available on the Coin Info service screen. *Deputy Delay*, *Sheriff Delay*, *Marshall Delay*, and *Bonus Delay* adjust the time delay between DRAW appearing on the screen and the gunfighter's actual draw. Adjusting these values to be larger allows more time for the player to anticipate the gunfighter's draw and therefore makes the game a bit easier. Default values for these delays are shown on the service menu screens later in this manual.

Some gunfighters must be shot twice. If the player makes the 1st shot but misses the 2nd shot, the draw is considered as LOST. Some scenes involve 2 gunfighters and when this occurs, the first time that is displayed is the faster of either gunfighter's *first* draw...although which gunfighter draws first is random.. This prevents the player from knowing in advance which gunfighter will draw first. The 2nd time displayed is the actual time for the remaining gunfighter's 2nd draw. If a player outdraws both gunfighters, the faster of the player's two draws will be used to determine if he qualifies for a high-score screen.

Ticket or card dispensers are supported. Dispenser operation can be checked on the SWITCH TEST screen under the HARDWARE TESTS service menu. See the menu screens later in this manual for details of how tickets are awarded. SHOT TICKETS are dispensed when earned...SHOT CARDS (if any) at the end of a game. FIRST TICKETS/CARDS are dispensed at the end of a game.

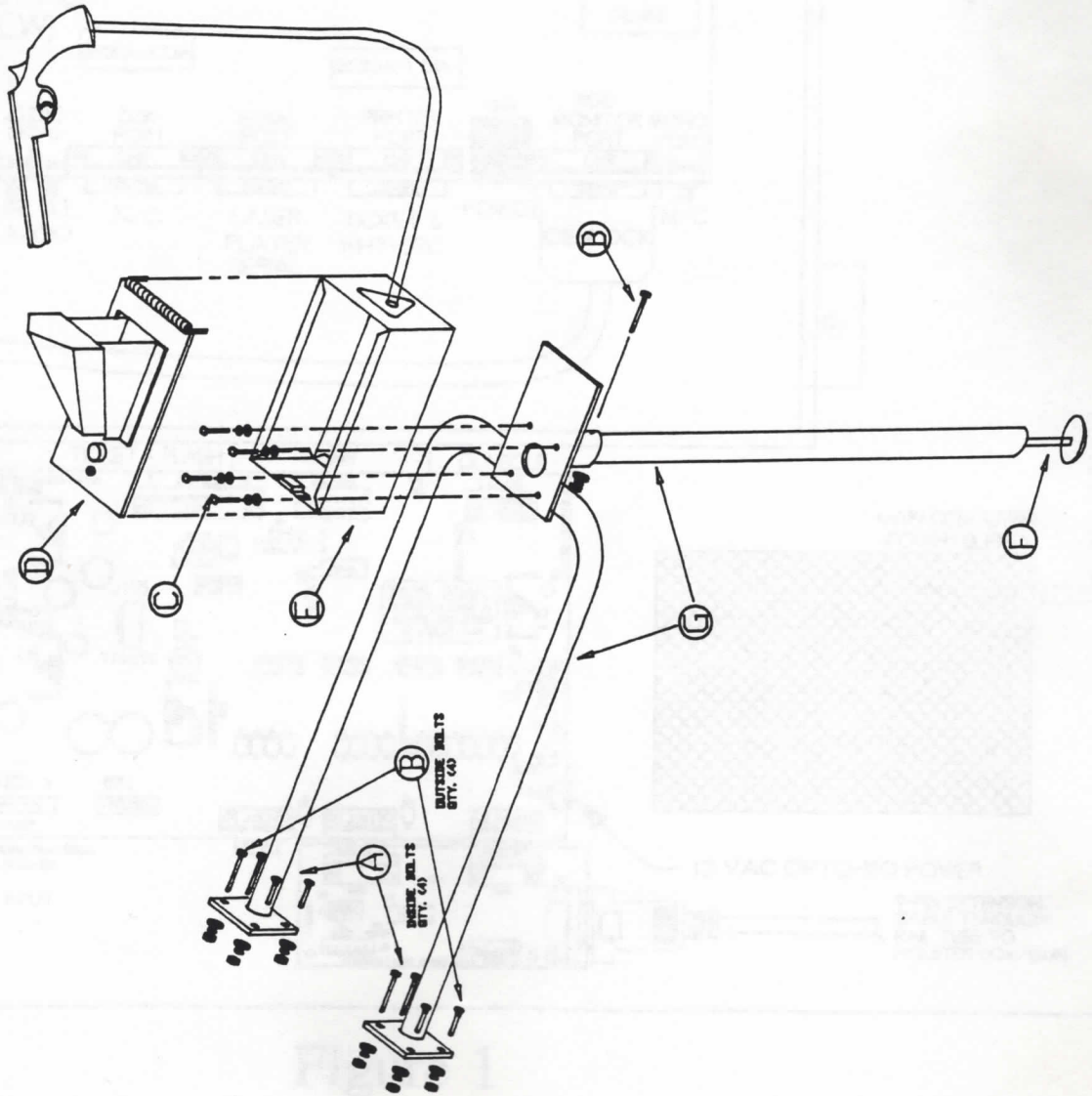
FAST DRAW SHOWDOWN

PARTS CHART

FOR RAIL TUBES AND HOLSTER BOX
(TUBES WITH INSERTS @ HOLSTER BOX)

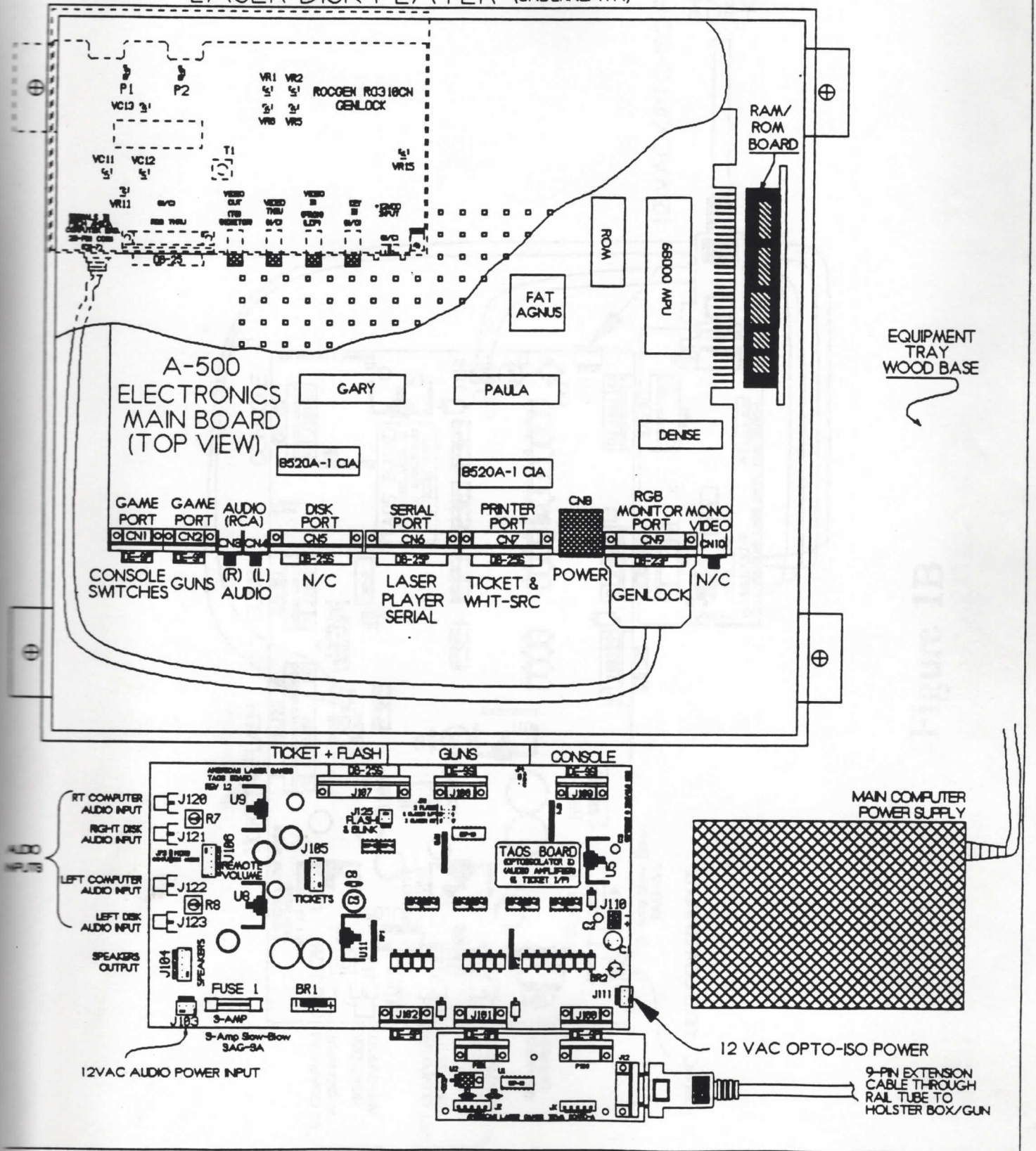
QUANTITY	ITEM	ACTUAL SIZE DRAWING
(4)	(C)	<p>1/4"-20 x 2" LONG HEX HEAD</p> <p>BLACK</p>
(5)	(B)	<p>5/16"-18 x 2-1/2" LONG HEX HEAD</p> <p>4 BLACK</p>
(4)	(A)	<p>1/4"-20 x 2" LONG CARRIAGE BOLT</p> <p>4 BLACK</p>
(1)	(F)	<p>3/8"-16 x 3" LEVELER</p> <p>BLACK</p>
(1)		

25' FASTDRAW
PEDESTAL
ASSEMBLY



- Ⓐ 1/4"-20 X 2" BLACK CARRIAGE BOLTS (QTY. 4)
WITH BLACK LOCK & FLAT WASHERS & NUTS (QTY. 1 EACH)
- Ⓑ 5/16"-18 X 2-1/2" HEX HEAD BOLTS (QTY. 5)
WITH BLACK LOCK & FLAT WASHERS & NUTS
- Ⓒ 1/4"-20 X 2" BLACK HEX HEAD BOLTS (QTY. 4)
WITH FLAT & LOCK WASHERS (QTY. 4)
- Ⓓ JUNCTION BOX COVER
- Ⓔ JUNCTION BOX
- Ⓕ 3/8"-16 X 3' LEVELER
- Ⓖ PIPE PEDESTAL

EMI BOX WITH MAIN COMPUTER BOARD & (ROCGEN) GENLOCK LASER DISK PLAYER (UNDERNEATH)



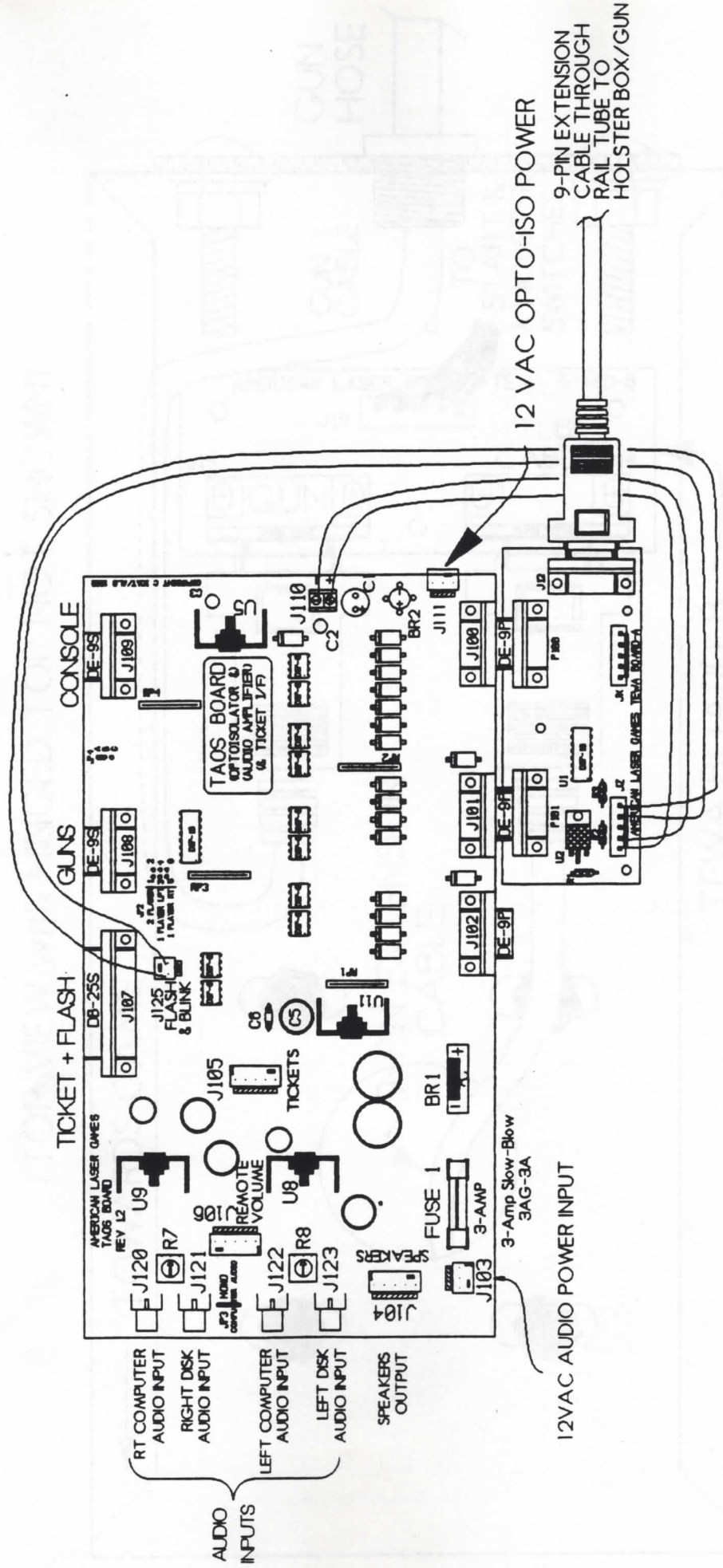


Figure 1B

GUN/HOLSTER BOX

(TOP VIEW with HINGED TOP NOT SHOWN)

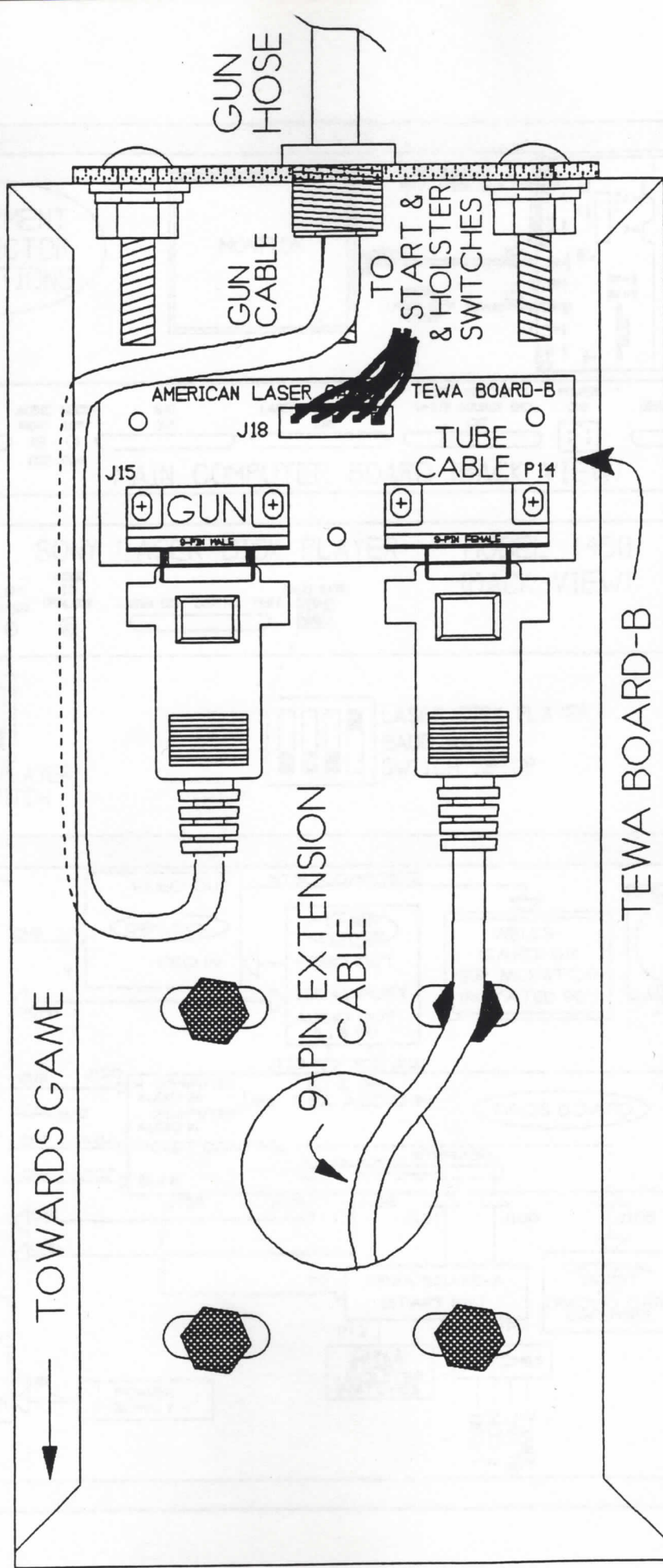
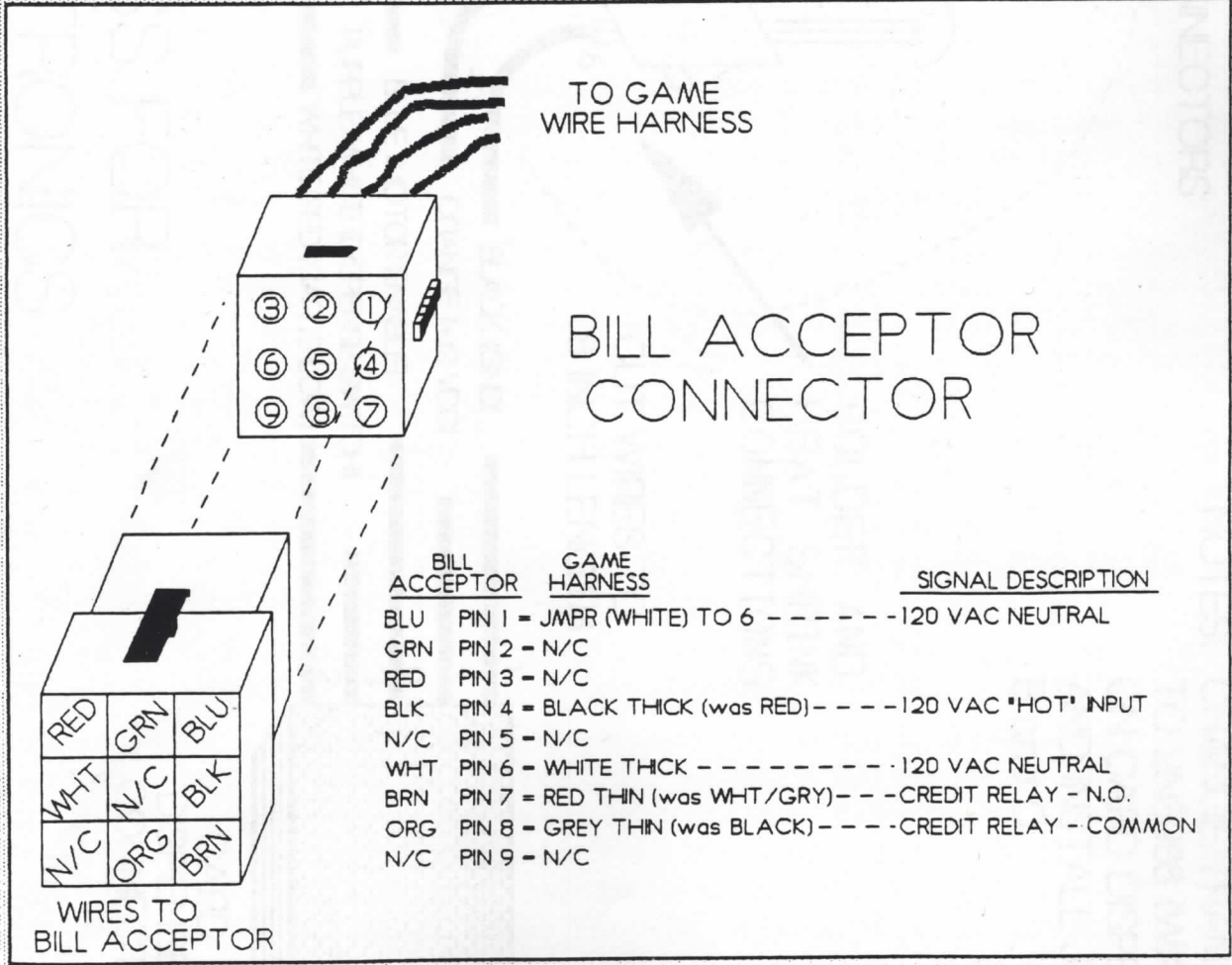
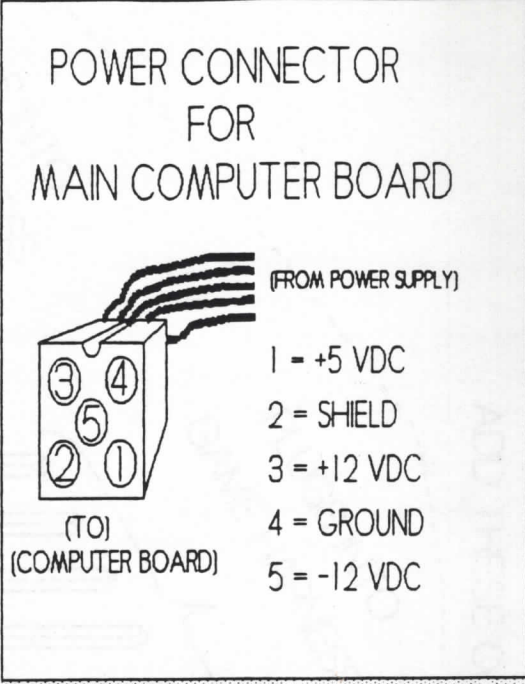
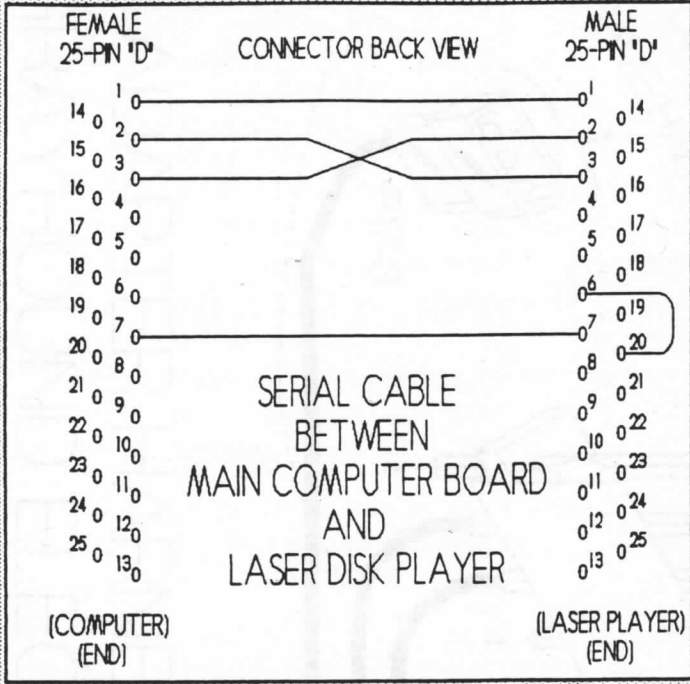


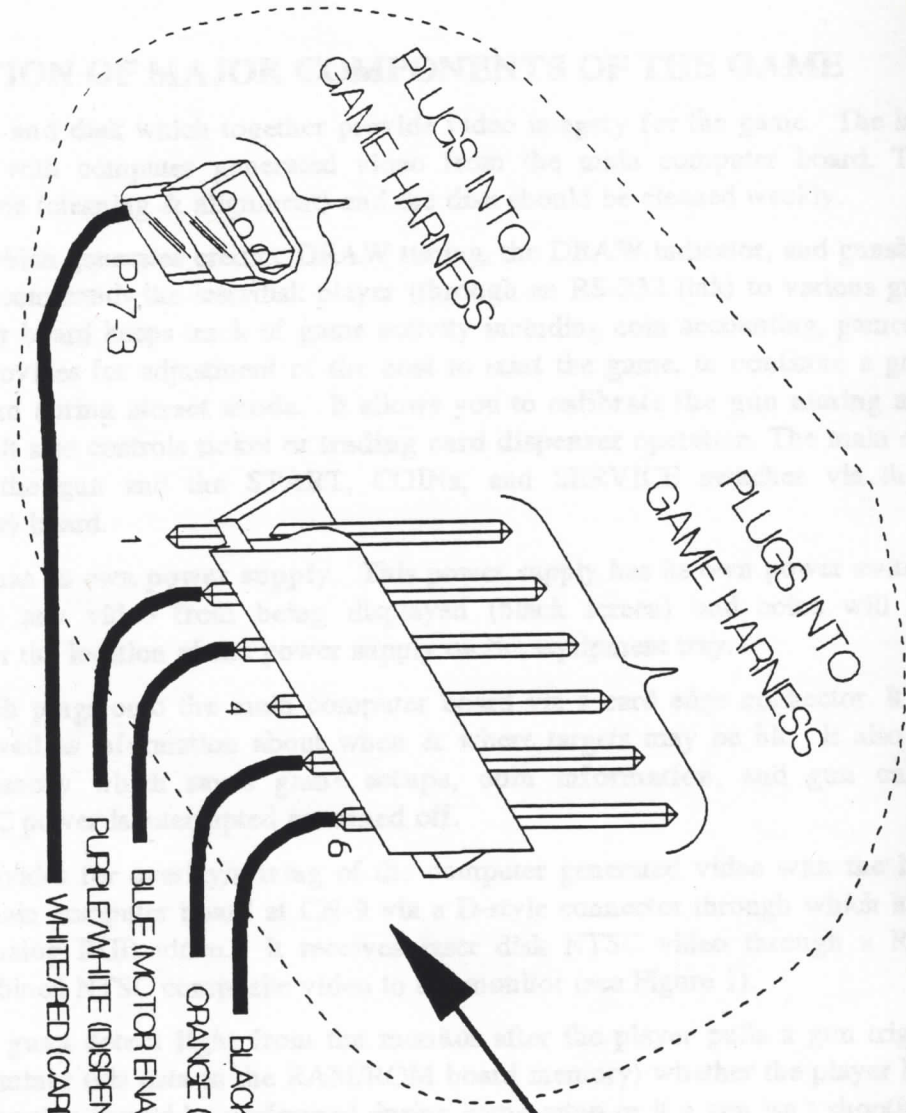
Figure 2



33" FAST DRAW SHOOTOUT GAME

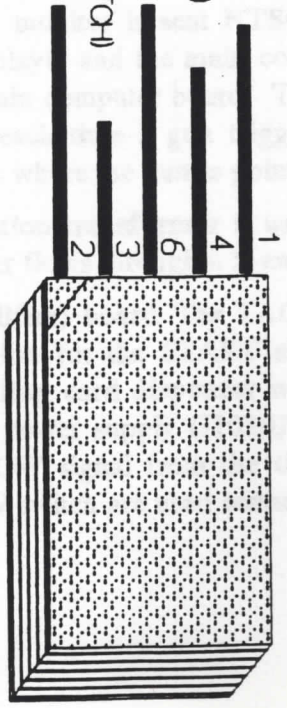
ADD THESE CONNECTORS

NOTES: CHANGE TRANSISTOR
TO 2N3906 (WAS 2N2222)
ON CARD DISPENSER
AND INSTALL JUMPERS
B and C



SOLDER AND HEAT SHRINK CONNECTIONS

BLACK (GND)
ORANGE (+12 VDC)
BLUE (MOTOR ENABLE)
PURPLE/WHITE (DISPENSE SWITCH+)
WHITE/RED (CARDS LOW)



ADAPTER HARNESS FOR GRAYHOUND ELECTRONICS CARD DISPENSER

DESCRIPTION OF MAJOR COMPONENTS OF THE GAME

A **laser disk player (LDP) and disk** which together provide video imagery for the game. The laser disk player video is combined with computer generated video from the main computer board. The LDP requires periodic maintenance (cleaning & alignment) and the disk should be cleaned weekly.

A **main computer board** which generates credits, DRAW timing, the DRAW indicator, and gunshot video plus gunshot audio. It also commands the laserdisk player (through an RS-232 link) to various gunfighter scenes. The main computer board keeps track of game activity including coin accounting, games played, and game times. It also provides for adjustment of the cost to start the game, to continue a game, and how often the audio is heard during attract mode. It allows you to calibrate the gun aiming and run a variety of hardware tests. It also controls ticket or trading card dispenser operation. The main computer board also interfaces to the gun and the START, COINS, and SERVICE switches via the TAOS (optoisolator/audio amplifier) board.

The main computer board has its own **power supply**. This power supply has its own power switch which if turned off will prevent any video from being displayed (black screen) and coins will NOT be recognized. See Figure 1 for the location of the power supply on the equipment tray.

A **RAM/ROM board** which plugs onto the main computer board via a card edge connector. It contains software for the game as well as information about when & where targets may be hit. It also contains **battery-backed RAM memory** which saves game setups, coin information, and gun calibration values...even when main AC power is interrupted or turned off.

A **genlock unit** which provides for overlay/mixing of the computer generated video with the laser disk video. It connects to the main computer board at CN-9 via a D-style connector through which it receives the computer generated analog RGB video. It receives laser disk NTSC video through a RCA-style connector and outputs combined NTSC composite video to the monitor (see Figure 1).

Game playing guns. The guns detect light from the monitor after the player pulls a gun trigger. The main computer board determines (via data in the RAM/ROM board memory) whether the player has hit or missed the target. Gun calibration should be performed during game setup or if a gun isn't shooting where it's aimed, if a gun is replaced, or if the RAM/ROM card or EPROMs are replaced. (see *Service Screens* at the back of this manual for details on gun calibration)

Color video monitor. The monitor is sent NTSC video from the genlock. This video is the combined video from the laser disk player and the main computer board. The video is combined in the genlock which is attached to the main computer board. The main computer board drives the screen a bright white for a single video frame each time a gun trigger is pulled. The gun detects this flash and the main computer board determines where the gun is pointed.

A **universal-voltage isolation transformer** is used to provide isolated 120 VAC 60Hz power to all parts of the game. All AC power flows through a **5-amp slow-blow fuse**.

TAOS (optoisolator/amplifier) board. The TAOS board, provides electrical isolation and electrostatic discharge (ESD) protection for the START switch and the gun. It also provides an optional ticket dispenser or optional trading card dispenser with a MOTOR START signal and +12VDC & GROUND derived from the AUDIO power supply (J103/U11). The TAOS board receives a ticket NOTCH SENSE signal and a TICKETS LOW signal from the ticket dispenser unit. For a card dispenser, a DISPENSE switch and a CARDS LOW switch are used instead. The ticket (or card) dispenser connects at J105.

The TAOS board also provides audio amplification for the laser disk player and computer outputs. Audio amp power is derived from the universal-voltage transformer connecting at J103. RCA-style inputs are provided for left and right audio signals from the laser disk player and the computer board. Jumper (JP3) on the TAOS board straps the left & right computer audio together so only one computer audio cable is needed. Both computer audio channels are driven and either computer audio output may be used, but it is best if only one is used because there is a slight phase shift between channels. Two pots (R7 and R8) on the TAOS board provide adjustable balance between the computer audio and the laser disk player audio. The TAOS board connects at J104 to a pair of speakers mounted in the game cabinet.

A remote volume potentiometer is mounted near the SERVICE switch and connected to the TAOS board at J106 to provide overall loudness adjustment. It affects both laser player and computer audio. The remote volume control must be present...no audio will be heard without it.

Switches. These consist of the left and right COIN ACCEPTOR switches, the START switch, and the SERVICE switch. A bill acceptor may also be wired in parallel with the coin switches. These switches are read by the main computer board through the TAOS (optoisolator/amplifier) board.

Ticket or trading card dispenser (optional) The ticket or card dispenser provides for operator-adjustable ticket/card dispensing. The dispenser is controlled by the main computer board and driven through the TAOS (optoisolator/amplifier) board. A "low tickets" (or "low cards") LED indicator is provided to warn the operator to load more tickets/cards. A "call manager" message is then displayed followed by a "tickets owed" message. Also, a feed tickets function is provided to help with loading new tickets or checking dispenser operation. The ticket bin is designed for fan-fold tickets. The ticket mechanism requires tickets with a notch at the edge of each ticket perforation.

A ventilation/cooling fan with dust filter is provided on the game. The fan and filter are located on the rear of the cabinet. The filter is important to prevent wear or failure of the laser disk player. The filter should be cleaned periodically to ensure sufficient airflow for cooling. Remove the filter metal cover, rinse the filter in water, let it dry, and replace the filter and the metal cover.

TAOS Opto-isolator/Audio-Amplifier and TEWA-A & TEWA-B Boards

The TAOS board provided audio amplification and optoisolator/ESD protection functions for the game.

The TAOS board receives 12 VAC audio amplifier power at J103 from the universal-voltage transformer. It also receives 12 VAC optoisolator/logic power at J111 from a separate winding of the universal-voltage transformer.

Only one audio input cable from the main computer board is needed/used because the TAOS board provides a jumper (JP3) to strap the left & right computer audio channels together. The TAOS board provides a connector (J106) for a *remotely-mounted potentiometer to adjust overall audio volume*. (See schematics for wiring details). The remote volume control is a *standard audio-taper dual pot* with a full-scale value between 10K and 100K ohms (the full-scale value is non-critical).

The TAOS board accepts audio inputs from the Laser Disk Player and the Main Computer Board. Two potentiometers on the TAOS board (R7 & R8) adjust the BALANCE between the Laser Disk Player audio and the Main Computer Board audio. The audio portion of the TAOS board also provides approximately 8-watts/channel of amplification for driving a pair of 8 ohm speakers.

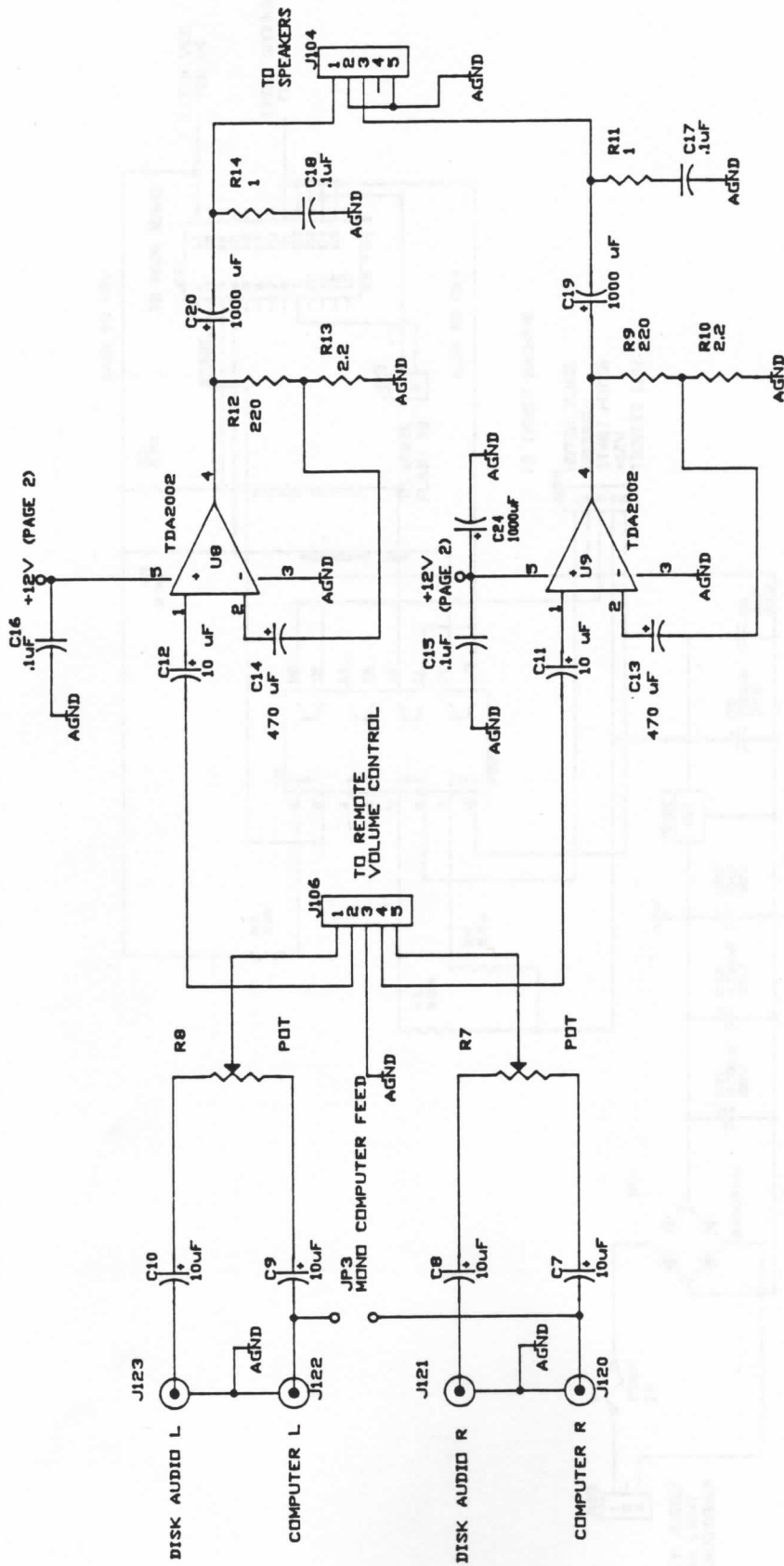
The TAOS board provides an additional 9-pin "D"-style connector (J102) for a 2nd gun. Multiplexing for the 2nd gun is also provided. However, J102 is not used with the *Fast Draw Showdown* game. Connector (J105) is provided for interfacing with a ticket or card dispenser.

TAOS board jumper JP2 sets 1-player or 2-player operation. For *Fast Draw Showdown* games which are single-player games, this jumper should be in either the 2-PLAYER or 1-PLAYER RT position. The PC board silkscreen shows 2-PLAYER, 1-PLAYER LFT, and 1-PLAYER RT jumper positions for JP2.

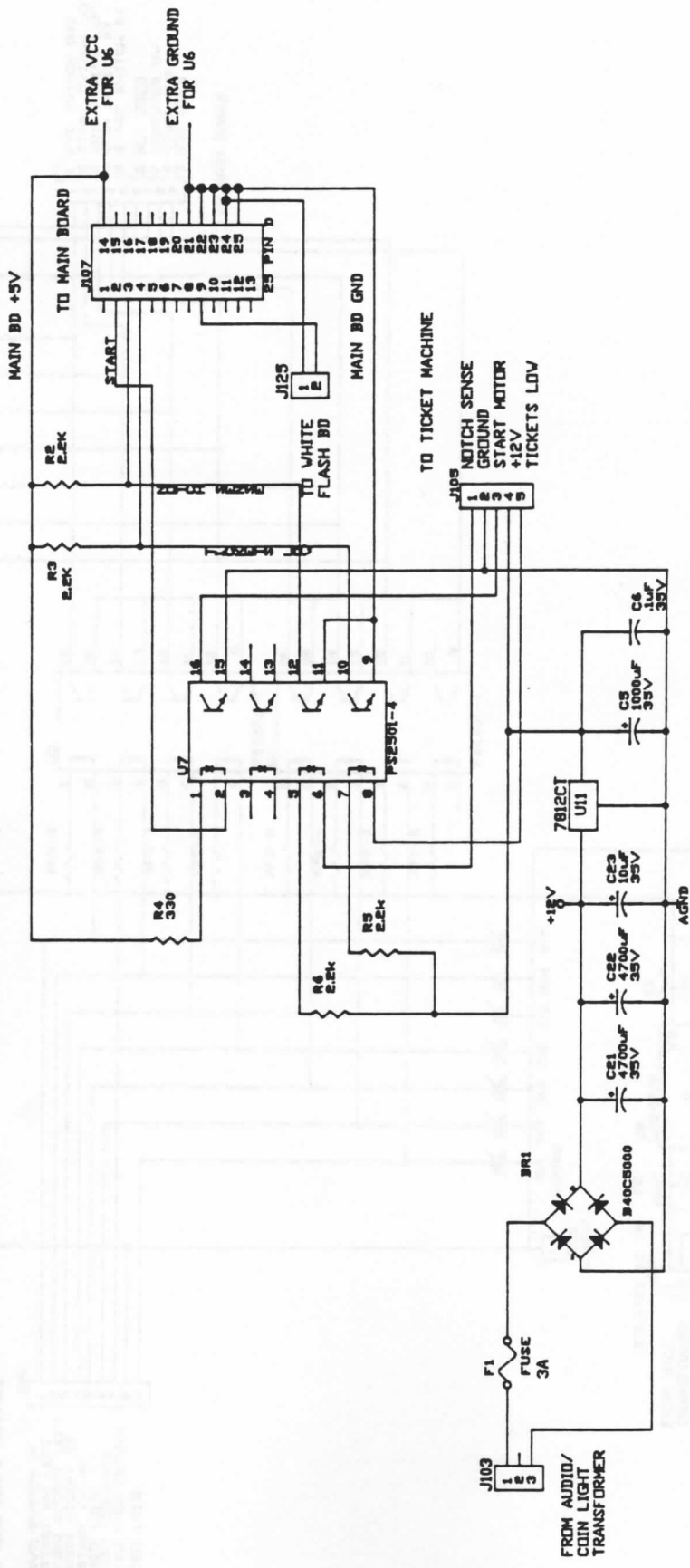
Please refer to the TAOS board schematics and the COMPONENT & CONNECTOR LOCATIONS IN EQUIPMENT TRAY diagram in this manual for additional details.

The TEWA-A board provides easy cable connections and boost/optoisolation for the blinking game START button. TEWA-A connects to TAOS connectors J100 and J101. A 15 ft. 9-pin extension cable connects to J12 and is routed through the orange rail tubes to the gun/holster box where it connects to the TEWA-B board. The boost is via a low-cost, common LM317 voltage regulator. The quad optoisolator used is the same as is used on the TAOS board. Only one of the 4 optoisolators is actually used.

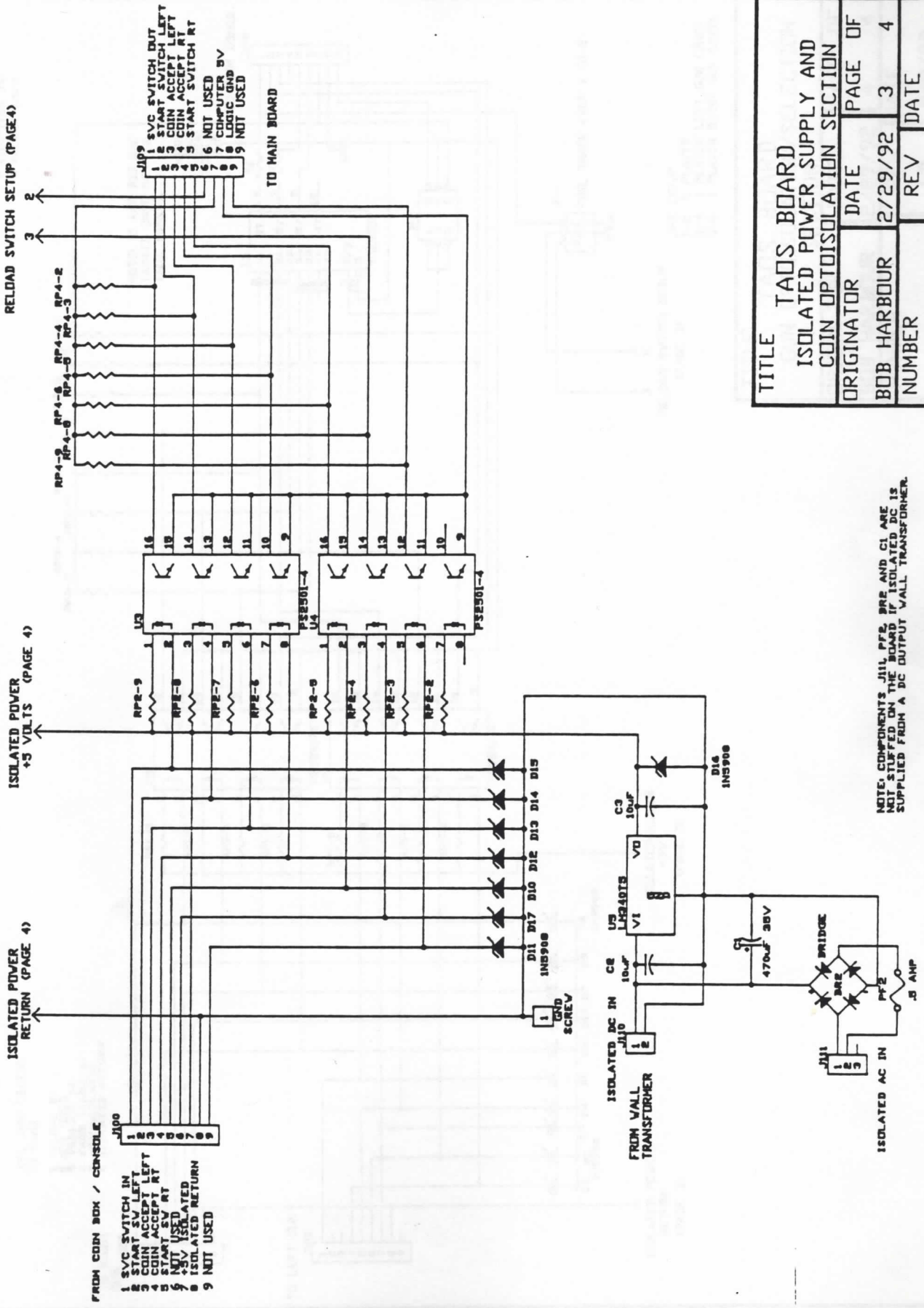
The TEWA-B board simply provides easy connection for the illuminated START switch, the holster magnetic reed switch, the gun cable, and the 15 ft. 9-pin extension cable which comes through the orange rail tubes.



TITLE TAOS BOARD			
AUDIO AMPLIFIER SECTION			
ORIGINATOR	DATE	PAGE	OF
BOB HARBOUR	2/29/92	1	4
NUMBER	REV	DATE	
	1.2	9/8/92	



TITLE		TADS BOARD	
12 VOLT POWER SUPPLY AND		TICKET MACHINE INTERFACE SECTION	
ORIGINATOR	DATE	PAGE	OF
BOB HARBOUR	2/29/92	2	4
NUMBER	REV	DATE	
	1.2	9/8/92	



NOTE: COMPONENTS J111, P12, B12 AND C1 ARE NOT STUFFED ON THE BOARD IF ISOLATED DC IS SUPPLIED FROM A DC OUTPUT WALL TRANSFORMER.

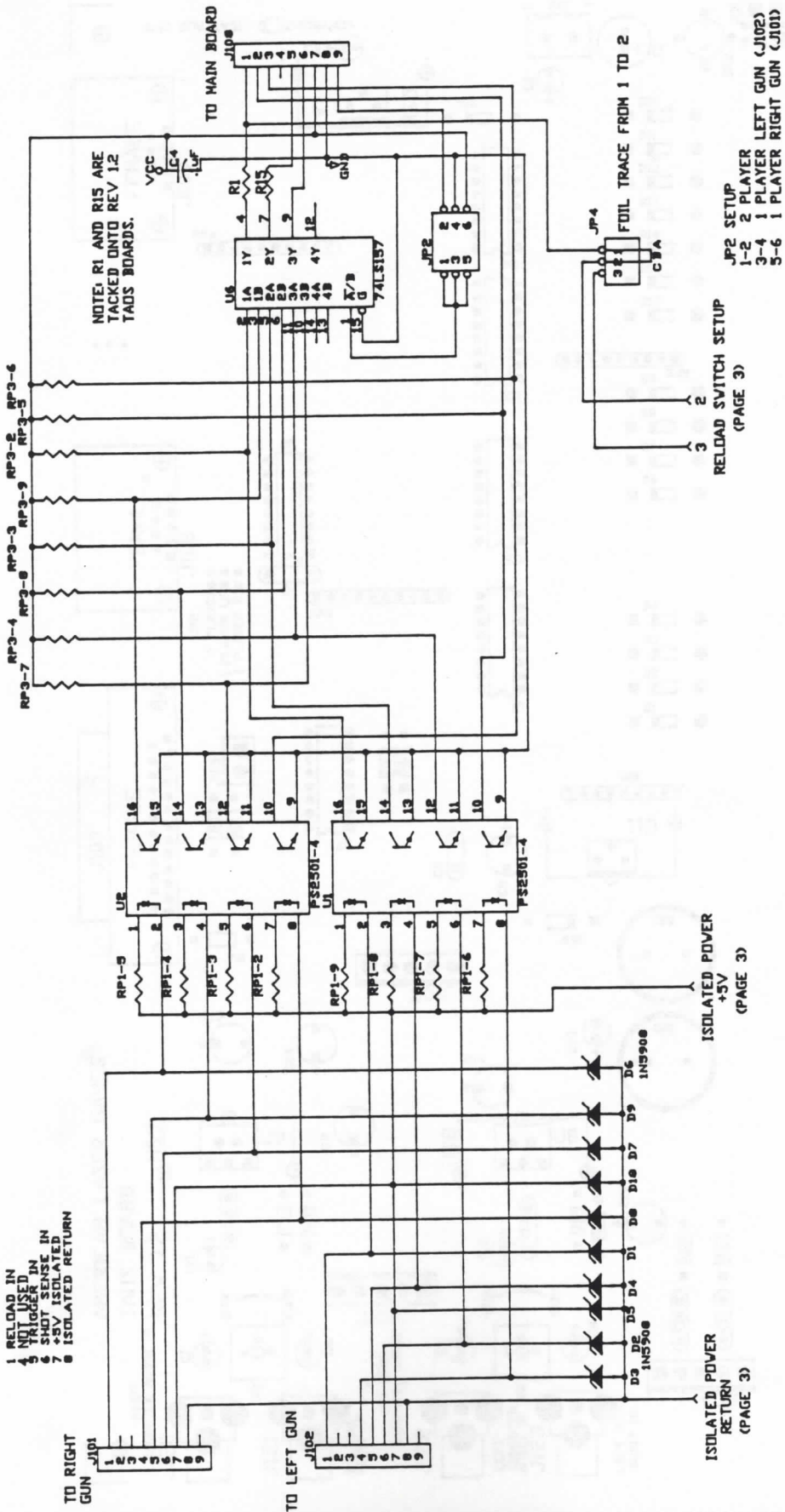
TITLE TADS BOARD ISOLATED POWER SUPPLY AND COIN OPTOISOLATION SECTION			
ORIGINATOR	DATE	PAGE	OF
BOB HARBOUR	2/29/92	3	4
NUMBER	REV	DATE	
	1.2	9/8/92	

J108 LEGEND

- TO GAME BD INPUT
- 1 RELOAD OUT
- 2 TRIGGER OUT
- 3 SHOT SENSE OUT
- 4 LOGIC GND
- 5 COMPUTER 5V
- 6 SELECT A/B

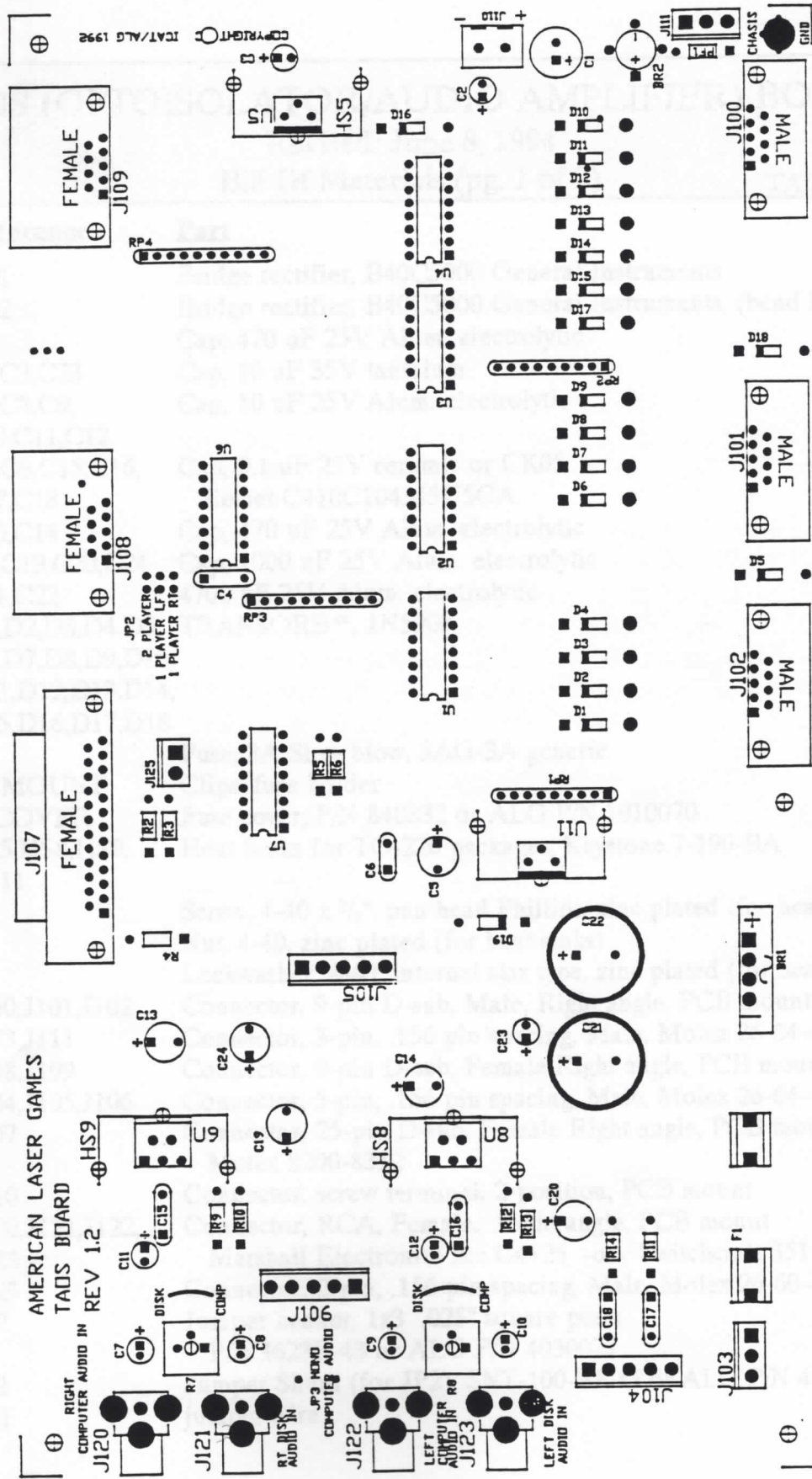
J101, J102 LEGEND

- TO GUNS
- 1 RELOAD IN
- 2 TRIGGER IN
- 3 SHOT SENSE IN
- 4 +5V ISOLATED
- 5 ISOLATED RETURN



TITLE		TADS BOARD	
SECTION		GUN OPTOISOLATION/SELECTION	
ORIGINATOR	DATE	PAGE	OF
BOB HARBOUR	2/29/92	4	4
NUMBER	REV	DATE	
	1.2	9/8/92	

TAOS BOARD COMPONENT LOCATOR (Rev. 1.2)



TAOS (OPTOISOLATOR/AUDIO AMPLIFIER) BOARD

Revised: June 8, 1994

Bill Of Materials (pg. 1 of 2)

TAOS Rev. 1.2

Qty.	Reference	Part
1	BR1	Bridge rectifier, B40C5000 General Instruments
1	BR2	Bridge rectifier, B40C5000 General Instruments, (bend leads)
1	C1	Cap, 470 uF 25V Alum. electrolytic
3	C2,C3,C23	Cap, 10 uF 35V tantalum
6	C7,C8,C9, C10,C11,C12	Cap, 10 uF 25V Alum. electrolytic
6	C4,C6,C15,C16, C17,C18	Cap, 0.1 uF 25V ceramic or CK05 Kemet C410C104M5U5CA
2	C13,C14	Cap, 470 uF 25V Alum. electrolytic
4	C5,C19,C20,C24	Cap, 1000 uF 25V Alum. electrolytic
2	C21,C22	4700 uF 25V Alum. electrolytic
18	D1,D2,D3,D4,D5, D6,D7,D8,D9,D10, D11,D12,D13,D14, D15,D16,D17,D18	TRANSORB™, 1N5908
1	F1	Fuse, 3A Slow blow, 3AG-3A generic
2	F1 MOUNT	Clips, fuse holder
1	F1COVER	Fuse cover, P/N 840832 or ALG P/N 1010070
4	HS5,HS8,HS9, HS11	Heat Sinks for TO-220 packages, Keystone 7-190-BA
4	---	Screw, 4-40 x 3/8", pan head Phillips, zinc plated (for heat sinks)
4	---	Nut, 4-40, zinc plated (for heat sinks)
4	---	Lockwasher, 4-40, internal star type, zinc plated (for heat sinks)
3	J100,J101,J102	Connector, 9-pin D-sub, Male, Right angle, PCB mount
2	J103,J111	Connector, 3-pin, .156 pin spacing, Male, Molex 26-64-4030
2	J108,J109	Connector, 9-pin D-sub, Female Right angle, PCB mount
3	J104,J105,J106	Connector, 5-pin, .156 pin spacing, Male, Molex 26-64-4050
1	J107	Connector, 25-pin D-sub, Female Right angle, PCB mount, Molex 8200-8352
1	J110	Connector, screw terminal, 2-position, PCB mount
4	J120,J121,J122, J123	Connector, RCA, Female, Right angle, PCB mount Marshall Electronics Inc C4426 -or- Switchcraft 3517PC
1	J125	Connector, 2-pin, .156 pin spacing, Male, Molex 26-60-4020
2	JP2	Jumper header, 1x3 .025" square posts P/N 3623B-43 or ALG P/N 4030027
1	JS2	Jumper Shunt (for JP2), SNT-100-BK-G or ALG P/N 4030045
1	PF1	jumper wire

TAOS (OPTOISOLATOR/AUDIO AMPLIFIER) BOARD

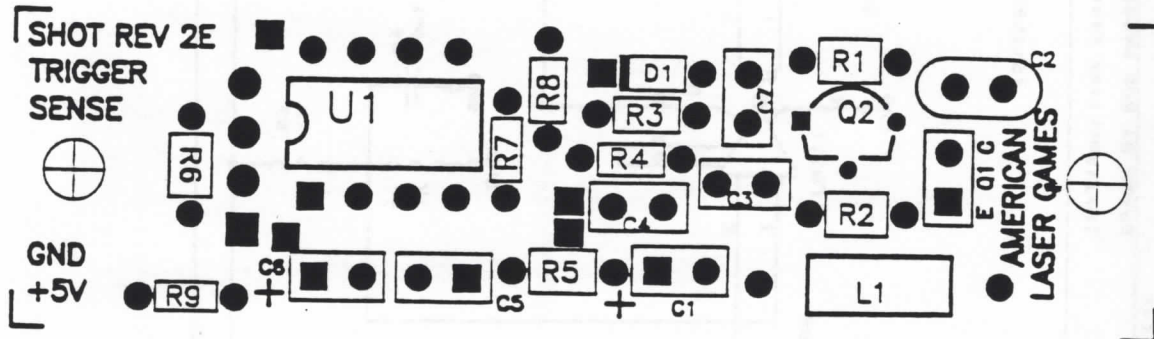
Revised: June 8, 1994

Bill Of Materials (pg. 2 of 2)

TAOS Rev. 1.2

Qty	Reference	Part
2	RP1,RP2	Resistor pack, SIP, 330 OHM x 9, Dale 9X-1-331
2	RP3,RP4	Resistor pack, SIP, 4.7K x 9, Dale 09A1-472G
0	R1	-deleted-
4	R2,R3,R5,R6	Resistor, 2.2K 1/4 watt, generic, (Red, Red, Red, Gold)
1	R4	Resistor, 330 Ohm 1/4 watt, generic, (Org, Org, Brown, Gold)
2	R7,R8	Potentiometer, 10K PCB mount, Bourns 3386P-103T (preferred) Bourns 3386P-103 (alternate)
2	R9,R12	Resistor, 220 Ohm 1/4 watt, generic, (Red, Red, Brown, Gold)
2	R11,R14	Resistor, 1 Ohm 1/4 watt, generic, (Brown, Blk, Gold, Gold)
2	R10,R13	Resistor, 2.2 Ohm 1/4 watt, generic, (Red, Red, Gold, Gold)
2	R15,R16	Resistor, 100 ohm, 1/4 watt, 5%, generic (Brown, Blk, Brown, Gold) (for backside jumpers...ECNs related to cross-channel RELOAD)
5	U1,U2,U3,U4,U7	Optocouplers, PS2501-4/TLP621-4 (quad) or TLP621-2 (dual) PS2501 = <i>NEC</i> TLP621-x = <i>Toshiba</i>
1	U5	Voltage regulator, LM340T5 or MC7805CT
1	U6	Data selector, generic, 74LS157 OR 74HCT157
2	U8,U9	Audio amplifier, (<i>SGS</i>)TDA2002 or (<i>National</i>)LM2002
1	U11	Voltage regulator, (<i>Nat'i.</i>)LM340T12 or (<i>Motorola</i>)MC7812CT
1		Bare Printed Circuit Board from SND_OPT2 1.2 REV artwork

GUN SHOT BOARD COMPONENT LOCATOR



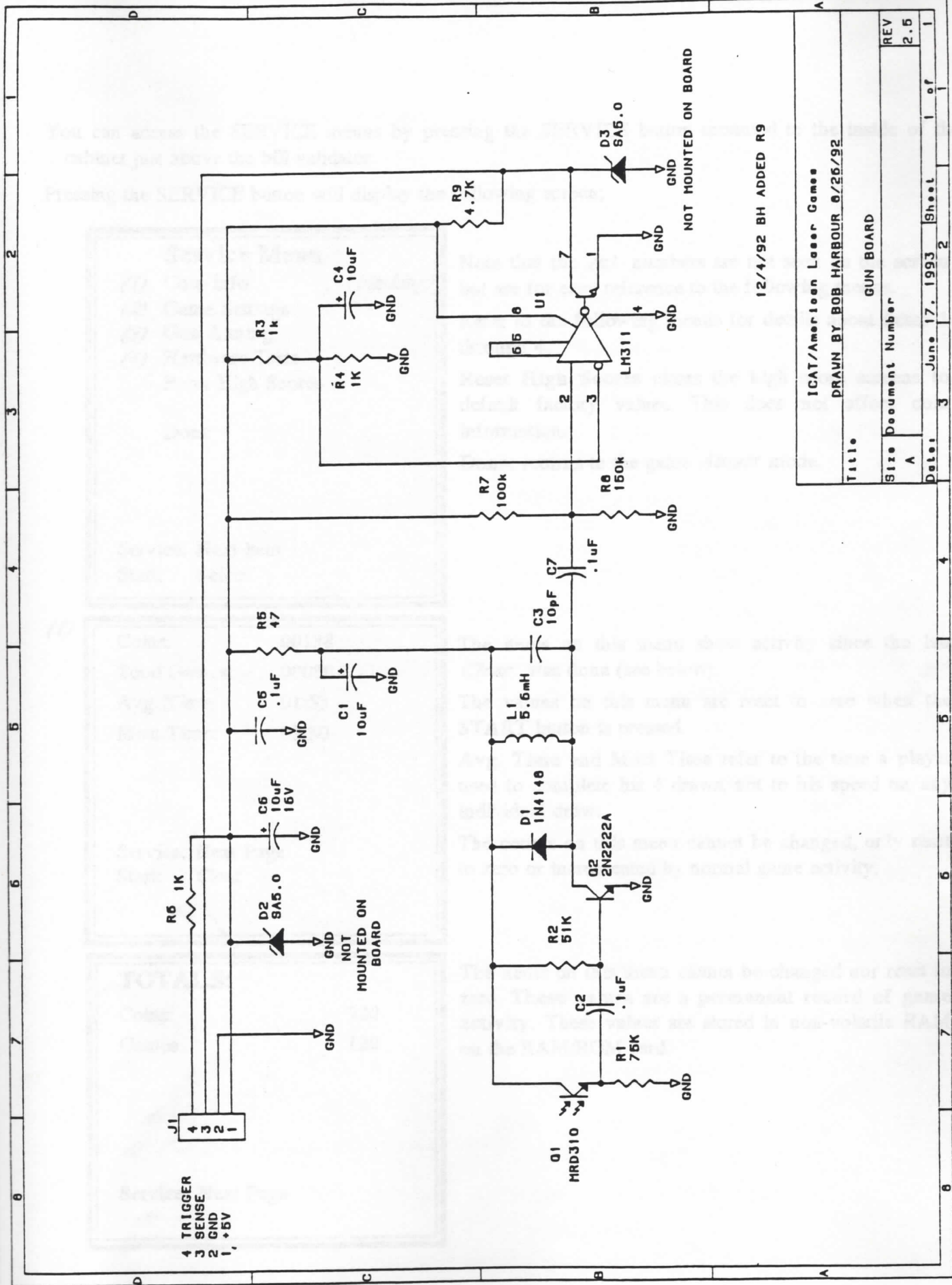
D2 and D3 mount above U1 (after U1 is inserted)

GUN SHOT BOARD

Revised: June 17, 1993

Bill Of Materials

Item	Quantity	Reference	Part
1	3	C1,C4,C6	10 uF 16 volt or greater tantalum capacitor
2	3	C2,C5,C7	0.1 uF ceramic capacitor
3	1	C3	10 pF ceramic disk capacitor
4	1	D1	1N4148 diode
5	2	D2,D3	SA5.0 Transorbs
6	1	J1	4 pin, 0.1 inch center, rt. angle header
7	1	L1	5.6 mH inductor
8	1	Q1	MRD-310 phototransistor (Motorola)
9	1	Q2	2N2222 NPN transistor
10	1	R1	75K 1/8 watt resistor
11	1	R2	51K 1/8 watt resistor
12	1	R3,R4,R6	1K ohm 1/8 watt resistor
13	1	R5	47 ohm 1/8 watt resistor
14	1	R7	100K ohm 1/8 watt resistor
15	1	R8	150K ohm 1/8 watt resistor
16	1	R9	4.7K ohm 1/8 watt resistor
17	1	U1	LM-311 comparator IC
18	1		Bare printed circuit board



12/4/92 BH ADDED R9

NOT MOUNTED ON BOARD

ICAT/American Laser Games	
DRAWN BY BOB HARBOUR 0/26/92	
Title	GUN BOARD
Size	Document Number
A	
Date:	June 17, 1993
Sheet	1 of 1
REV	2.5

You can access the SERVICE menus by pressing the SERVICE button mounted to the inside of the cabinet just above the bill validator.

Pressing the SERVICE button will display the following screen;



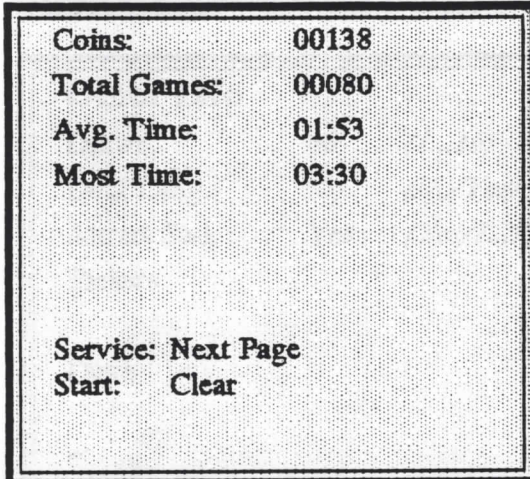
Note that the (n) numbers are not seen on the screen but are for easy reference to the following menus.

Refer to the following menus for details about items 1 through 4.

Reset High Scores clears the high score screens to default factory values. This does not affect coin information.

Done: returns to the game *Attract* mode.

(1)

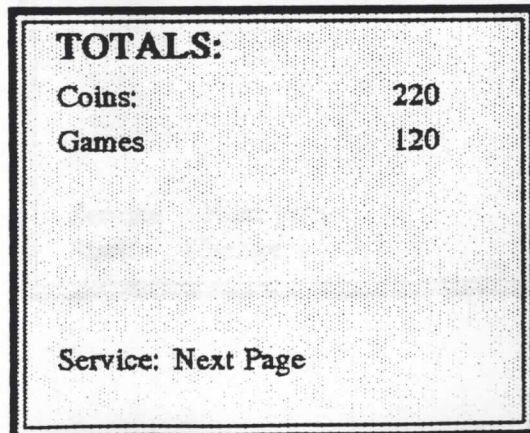


The items on this menu show activity since the last *Clear* was done (see below).

The values on this menu are reset to zero when the **START** button is pressed.

Avg. Time and **Most Time** refer to the time a player used to complete his 4 draws, not to his speed on any individual draw.

The counts on this menu cannot be changed, only reset to zero or incremented by normal game activity.



The items on this menu cannot be changed nor reset to zero. These values are a permanent record of game activity. These values are stored in non-volatile RAM on the RAM/ROM card.

(2)

Coin Info		
Coins/Tick:	2	<= (blinking) (0...8)
Credits/Tick:	1	(1...8)
Deputy Delay:	09	(00...99 by 3's)
Sheriff Delay:	09	(00...99 by 3's)
Marshal Delay:	21	(00...99 by 3's)
Bonus Delay:	15	(00...99 by 3's)
Done		
Service: Next Item		
Start: Change		

Default settings are shown at left with the (range).

Coins Per Tick: 0 = FREE game play

Credits Per Tick: No. of "game plays"

Deputy Delay: The amount of time ($1/100$ sec.) between the DRAW signal on screen and the gunfighter drawing his gun. The larger this number, the more time a player has to react and therefore the easier it is for the player to outdraw the gunfighter. This delay is most important on the Marshal skill level.

Sheriff Delay: Same as Deputy Delay but applies to the *Sheriff* skill level.

Marshal Delay: Same as Deputy Delay but applies to the *Marshal* skill level. More delay is given as the default because some *Marshall* gunfighters are *very* fast!

Bonus Delay: Delay during BONUS DRAWS.

Other Info		
Draws:	06	(1...10)
Dual Lang.:	No	(No/Yes)
Attract Snd.	Yes	(Yes/1...9)
Tickets		
Done		
Service : Next Item		
Start: Change		

Draws: Sets the number of draws a player gets per CREDIT. The factory default is 6 draws.

Dual Lang.: Allows use of a dual language laser disk. If your disk is dual language, selecting YES will allow the player to select his preferred language by shooting at an appropriate flag. However, if the disk is *not* dual language, then you should select NO, otherwise the screen may go black immediately after the START button is pressed.

Attract Snd: Selecting YES allows the audio to play *every* time through the ATTRACT section. Other values (1...9) silence the audio during some passes through the ATTRACT section. For example, selecting 5 plays the audio 1 out of 6 passes through the ATTRACT section.

Tickets: Advances to a separate menu for adjusting ticket dispenser operation.

Done: Exits to the main menu.

Ticket Info

Avg. Tkts: 00009
Most Tkts: 00018
Tot. Tkts: 00269
Clear Totals <= (blinking)
Done

Service: Next item
Start: Select

This menu reports ticket or card statistics. Average and Most Tickets indicate the tickets awarded per credit used.

Total Tickets indicates the total number of tickets awarded since Clear Totals was last selected.

Note: This Ticket Information is *not* cleared when the *Coin Information* is cleared...Ticket information can only be cleared using the Clear Totals selection on this menu.

Ticket Control

Use Tickets Yes <Yes/No>
Adjust Tickets <Next Menu>
Feed A Ticket
Done

Service: Next item
Start: Select

Use Tickets selects whether any dispenser (ticket or card) will be active. Select Yes to activate.

Selecting Adjust Tickets displays the Ticket Payout menu (see below) which controls how tickets are awarded.

Selecting Feed A Ticket causes one ticket or one card to be dispensed. This function is useful for testing the dispenser hardware operation or threading new tickets into the ticket dispenser mechanism.

Done returns to the Ticket Info menu.

Ticket Payout

Giving *Tickets* <Tickets or Cards>
First Tickets: 0 <0...9>
Shot Tickets: 1 <0...9>

	Top 5	#1	
Deputy	3	5	<0...9>
Sheriff	3	5	<0...9>
Marshall	3	5	<0...9>
Shot Bonus Guy	3		<0...9>

Done

Service: Next item
Start: Change

This menu controls how tickets or cards are dispensed. Cards are not dispensed until the end of the game, but SHOT TICKETS are dispensed as earned. Default *ticket* values are shown. For *cards*, the defaults are a value of 1 for FIRST TICKETS, 3 for SHOT BONUS GUY, and values of 0 for all else.

Giving *Tickets* or Giving *Cards* tells the software what hardware is installed so it's properly driven.

First Tickets controls the number of tickets/cards given for each CREDIT used.

Shot Tickets controls the number of tickets/cards given for each gunfighter which the player outdraws.

Tickets/cards are awarded when a player is quick enough to earn a spot on the *Best Deputies*, *Super Sheriffs*, or *Master Marshalls* screens. More tickets are given for earning the #1 spot on the screens than for being in the Top 5. Extra tickets/cards are given for winning the BONUS DRAW.

(3)

To calibrate
Gun: Hold
START. Aim at
the spot
and shoot

O

Service: Done

Select this menu to calibrate where the gun shoots. Aim at the O and then tap the START button.

After calibration the gunshot *splotch* should overlay the O...within your ability to point the gun accurately at the O. Slight jumping (1") of the splotch is normal.

Gun calibration data is stored in non-volatile RAM on the RAM/ROM PC card. Perform gun calibration whenever a gun is replaced or the RAM/ROM is replaced or updated.

Be sure the gun lens is clean and not smudged or dusty.

Verify gun calibration by shooting around the screen borders. Balance gun calibration side-to-side and top-to-bottom. You should be able to shoot as far left as right and as far up as down. If not, recalibrate.

If you have trouble shooting at the extreme left edge of the screen, try calibrating *slightly* to the right of the O target. Similarly, to be able to shoot lower on the screen, try calibrating *slightly* above the O target.

HARDWARE TESTS

(Color Bars)

(Convergence Grid)

(Audio Test)

(Switch Test)

(ROM Test)

(Laser Player Test)

(Laser Disk Test)

The first hardware test is a Color Bars screen. It is useful for adjusting monitor colors. The color bars originate from the laser disk, not the computer board.

A second screen shows a convergence grid which is useful examining and adjusting monitor convergence.

The third screen is an audio test. Tones are generated by the main computer board and output on its CN3 and CN4 RCA jacks. Only the CN3 output is needed and used. The screen shows AUDIO TEST 0/AUDIO TEST 1/AUDIO TEST 2/AUDIO TEST 3 in sequence. The tone will be heard only during AUDIO TEST 1 and AUDIO TEST 2 when CN3 is used.

The SWITCH TEST is described on the next page.

The ROM Test performs a checksum of the EPROMs on the RAM/ROM PC card. If an error is detected, ROM CHECKSUM FAILURE will be displayed. If you see this message, reseal the EPROMs and check the seating of the RAM/ROM card on the computer board.

The Laser Player Test and the Laser Disk Test are described on the following page.

(4)

Switch Test

Coins/BillVal	OPEN
SERVICE	OPEN
START	OPEN
Holster	CLOSED
Trigger	OPEN
Low Tick	OPEN
Dispense	CLOSED

Service: Next Page

This menu provides for easy troubleshooting of all game switches and associated cabling.

Coins/Bill Val: closes momentarily as coin falls past either switch or as the bill validator relay closes.

SERVICE: pushed = closed. Press *last* because pressing the SERVICE switch exits this menu.

START: pushed = closed

Holster: CLOSED when gun is in the holster. OPEN when the gun is partially or fully out of the holster. **Holster** indicates whether the magnetic reed switch (inside the holster) detects the magnet inside the gun.

Trigger: pulled = closed

Low Tick reports the status of the ticket/card hopper switch.. CLOSED indicates "low tickets/cards".

Dispense reports the status of the ticket notch sensor or the card dispenser switch. CLOSED indicates "card in position" or "notch sensed".

SPEED TEST:	0024
Disk Size:	54001
Seek Time:	0220
Max Seek	0228
Min Seek	0190
Avg. Seek	0210
Errors:	0000
No Errors	

Service: Next Test

This **Laser Player Test** checks the performance of the player by repeatedly commanding the player from Frame 0 (inner track) to Frame 54001 (outer track) and keeping statistics on the time required and displaying errors that occur. Maximum seek time should be 240 counts or less. If only 1 or 2 Max Seek counts above 240 are seen during this test, no serious problem is indicated. Minimum seek time counts below about 175 are unreasonable. Average Seek counts are most relevant and should not be above 240.

This test should be run for at least 30 minutes. If the counts seen are outside the values mentioned above or Errors are frequently seen, the player probably needs cleaning and calibrating. Alignment & calibration is needed at 5,000 hours of operation. The laser has a lifetime of 10,000 hours.

Laser Disk Test (Surface Scan)

Scan	0009
Scene	060
Errors	0000

Service: Stop Test

This test performs searches to all the branch locations on the disk. Once the player reaches the commanded Frame, a request for the current frame number is done. If the desired frame is unreadable from the disk, an error is logged.

The **Scan** value indicates the number of cycles of this test which have been performed. A scan cycle consists of 203 scenes. This test should be run for at least 1/2 hour.

The **Scene** value indicates which scene is currently being observed. If errors consistently occur on/near a particular scene, the disk may be scratched, marred, or dirty. Use Novus #1 or #2 cleaner/polisher on the disk with a soft, clean cloth, always wiping from the disk center outward.

For local Novus distribution, contact:

Novus, Inc, 10425 Hampshire Ave. South, Minneapolis, MN 55438 Phone: 1-800-548-6872

TROUBLESHOOTING

Here is a list of commonly found problems and their possible solutions.

* CAUTION *

Many of the components found in the game electronics are extremely static sensitive. Exposure to static electricity may cause permanent damage or result in significantly shorter product life span. When working on the game, always wear a static bracelet that is properly grounded.

Gun won't shoot at left edge of screen:

Check gun calibration. You should balance shooting performance at the screen borders during gun calibration ... don't merely calibrate at the target in the screen center. See important details described in the service menu pages which follow this troubleshooting section. Check that the gun lens is clean. Check that monitor brightness is high, but not washed out.

Screen flashes when trigger is pulled but no shot is made.

Video intensity has been adjusted too low or gun wiring may be bad (see gun wiring diagram). Other likely causes include a bad or shorting gun shot board, a bad optoisolator (TAOS) board/power supply, or a bad main electronics board. Check shot board 4-pin connector & photodetector leads.

Erratic gun shot placement.

Replace transistor Q2 (2N2222) on gun shot board. Check that the monitor video intensity is bright. Old monitors where the video intensity has deteriorated may exhibit somewhat erratic shot placement. Also, check for dirty or cracked gun lens. Strong sunlight may possibly affect the shot placement.

No gun shot sound.

Check that the RCA cable is connected between the audio output of the main electronics board and either J120 or J122 audio input on the TAOS (opto-amplifier) board. Check the remote volume control near the SERVICE switch and the volume potentiometers R8 & R7 on the TAOS (opto-amplifier) board. Check that the J3 (mono computer feed) jumper is installed on the TAOS board. Check for wiring shorts inside the gun or shorts on/near the gun shot board.

Check that the 9-pin connector on the gun is connected to J15 on the TEWA-B board and that the TEWA-A board is firmly connected to the TAOS board. Check that the 9-conductor ribbon cable is good/connected between J108 on the TAOS board and the "GUN" input (CN2) on the main computer board. Measure the voltage (5 VDC) across TAOS C3 to ensure that +5 VDC for the gun is being generated. Also check for +5VDC across TEWA-A J12 pins 7 & 8 and TEWA-B J15 pins 7 & 8. Check continuity on the 9-conductor extension cable running through the orange railtubes.

Monitor appears dead.

Check that the computer board power supply is switched ON. Check that the monitor power connector has not become disconnected. Check the AC power fuses. Check power at the outlet with an AC voltmeter. Confirm that the monitor has a video signal by connecting a video cable directly from the laser disk player to the monitor. If normal-looking video appears, the monitor & LDP are most likely OK. Reconnect the game video cables and attempt to access the service screens by pressing the SERVICE switch inside the coin door. If you saw LDP video earlier but cannot see normal service screens here, the problem is most likely the genlock or possibly the motherboard. Reseat the socketed ICs on the motherboard or replace the genlock. If the monitor appears dead for both of the above tests, it may be dead or else the LDP is not outputting video. Connect a known-good NTSC video source to the monitor and check the monitor. If it still appears dead, check all monitor cables. Connect the genlock output to a known-good monitor.

No picture on monitor.

Check brightness and contrast controls. Check that the video cable from the genlock is connected between video out of the genlock and video in of the monitor. If screen is purple/pink, check the cable between the LDP and the genlock.

No video text displayed.

Check to see that the genlock module is properly connected to the twenty three pin 'D' connector on the main computer board. The main computer board may also be at fault. Reseat the socketed ICs on the main computer board. Wiggle video cables at each end to check for bad connections.

Main electronics board does not turn on.

Check that the power supply is switched ON, and that the game & power supply power cords are both plugged in. Check if the game AC fuse is blown. Check power at the outlet with an AC voltmeter. Check the power supply output plug with a DC voltmeter.

START or SERVICE pushbutton switch or Coin Mechanism doesn't respond.

Check that the TEWA-A board is firmly plugged into the J100 nine (9) pin connector on the TAOS (opto-amplifier) board. Check that the nine (9) pin 'D' type ribbon cable is connected between the main electronics board CN-1 connector and the TAOS board at J109. Check continuity of the 15 ft. 9-pin extension cable with an ohm meter. Check continuity of the ribbon cable with an ohm meter. Check for switch closure with an ohm meter. Check that the cable is properly connected to the START or SERVICE push-button or Coin Mechanism switch (I.E. Common and Normally Open contacts). If START switch, also check that there are credits to play on the machine. Check that the output of TAOS voltage regulator U5 is 5 VDC within about 150 mV. This can be measured across capacitor C3.

Game RESETS (white screen "hash") during game play or attract mode.

The laser player may need maintenance. Clean the disk, player lenses, and lubricate the optics head slide shaft...refer to the ALG service note on LDP maintenance. Check the LDP performance under HARDWARE TESTS in the SERVICE menu. Optics may be in need of alignment by an authorized Sony repair shop (need every 5,000 hours). Also check that the serial cable is properly wired & connected at both ends...see diagram earlier in this manual.

Video game score appears to have a shadow.

A Rocgen genlock may be missing the 3.3K/4.7K ohm resistor on the P1 jumper.

Fuse F1 on the TAOS board keeps blowing...loud audio buzz.

Check that the coin light wires are not shorting to ground at any location.

Laser disk player does not turn on.

Check that the power cord is plugged in. Check that the front panel power switch is depressed. Check if the player fuse is blown. Check power at the outlet with an AC voltmeter.

No laser disk video.

Check that the laser disk is inserted into the machine properly, the shiny side must face down. Check that BNC to RCA cable is properly connected between the laser disk player video output and the genlock video input. If this is not the problem, here is a simple test to determine in what area the problem lies. Disconnect the serial cable from the back of the laser disk player. Temporarily move the cable at the genlock VIDEO IN to VIDEO THRU so video bypasses the genlock. Switch the power to the laser disk player off and then on again. If you now have video the genlock or main board is at fault. If you still don't have video connect the video output from the laser disk player to a known good monitor. If you still don't have video then the laser disk player is bad, if you do have video then the internal monitor is likely to be at fault.

No laser disk sound

Check that the RCA cables are connected to the laser disk player right and left audio outputs. Check that the other ends of the RCA cables are connected to J123 (left) & J123 (right) audio inputs on the TAOS board. Check the remote volume control near the SERVICE switch and the volume potentiometers R8 & R7 on the TAOS board. Check that the volume control is properly plugged in at TAOS J108. Finally, check the audio outputs of the laser disk player with an oscilloscope or by connecting the laser disk audio outputs to a known good audio amplifier/speaker system.

Laser disk player not responding.

Check that the serial cable is properly connected between the laser disk player and the electronics main board. Check the video disk for scratches and excessive dirt build up. Clean if necessary. Check the laser optics in the laser disk player for dirt or dust build up. Clean if necessary. Align optics at 5,000 operational hours & replace the optics block at 10,000 operational hrs.

Laser disk player not on external C.P.U. control.

Check to see if the serial cable is properly connected between the laser disk player and the electronics main board. The cable may be faulty so check serial cable continuity with an ohm meter to insure that the wiring is in compliance with the diagram shown earlier in this manual.

Screen says 'LASER DISK OUT OF FOCUS'

The serial cable between the laser disk player and the main electronics board is broken or not connected. The laser disk player may also be at fault. Test the serial cable for opens and shorts with an ohm meter, refer to the serial cable wiring diagram for the wiring list. Try turning the laser disk player off and then on to reset the laser disk player internal microprocessor. Check that a disk is in fact inserted in the player and the shiny side is down (white side up).

White images or text outlined by red, green, or blue.

Check the convergence controls on the monitor and adjust if necessary.

Too few or many credits per game.

Check and adjust COINS PER TICK or CREDITS PER TICK or CONTINUE COINS in the service mode.

The gun shoots in GUN AIMING mode but not in normal game play.

The RELOAD mercury switch inside the gun has been installed upside down or the RELOAD wire has shorted to GND. The condition of the mercury switch is ignored in GUN AIMING mode but is monitored during game play.

Screen flashes continuously as is trigger is being pulled.

Check if the gun TRIGGER signal is shorted to ground...perhaps on the backside of the gun shot board, elsewhere inside the gun, at the gun cable 9-pin "D" connector, anywhere along the gun cabling, or possibly between TAOS J-108 and the main computer board CN-2 connector.

Shot "splotch" appears at the same spot no matter where the gun is aimed.

The "shot sense" output signal from the gun shot board may be shorting to ground ... or the LM-311 IC on the gun shot board may be "fried." Inspect the backside of the gun shot board, elsewhere inside the gun, at the gun cable 9-pin "D" connector, anywhere along the gun cabling, or possibly between TAOS J-108 and the main computer board CN-2 connector.

Both English & Japanese soundtracks are heard.

A dual language disk is installed, but the RAM/ROM version does not support a dual language disk. The solution is to get a RAM/ROM version which supports dual language disks. Call A.L.G. for version information.

Ticket Dispenser won't operate

Check that tickets are present and the LOW TICKET switch is open (LOW TICKET LED is OFF). Check that +12VDC is present at the ticket machine connector, P112 pin 5. If it is absent, suspect the LM340-T12 voltage regulator mounted near the TAOS board but screwed to the wood floor of the equipment tray. Check that P112 pin 6 is at ground. Check that the signal at P112 pin 3 pulses low for at least 50 milliseconds when a ticket is expected to be dispensed (see TICKETS in the SERVICE menu). If any of the above tests fail, then the TAOS opto-amplifier board is likely at fault. If partial tickets are being dispensed, check the alignment of the photodetector in the ticket dispenser mechanism. If all the above checks out OK, then the ticket dispenser mechanism is most likely at fault.

Loses accounting information.

Battery built into the RAM chip on the RAM/ROM board is low or RAM chip is faulty. RAM/ROM board is not securely connected to the main electronics board. Defective RAM/ROM board.

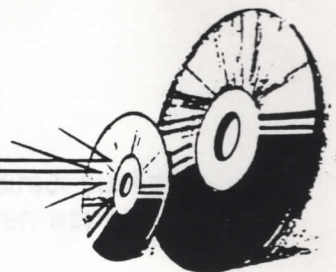
Video jumps or is scratchy.

Check the video disk for scratches and excessive dirt build up. Clean if necessary. Check the laser optics in the laser disk player for dirt or dust build up. Clean if necessary. Check for intermittent video cables by wiggling each video cable at each end while watching video.

Screen flashes different colors and does not continue.

Check to see if the laser disk player is turned on and connected to the electronics main board serial port. Check to see that the serial port baud rate on the laser disk player is set correctly (refer to diagram for proper laser disk switch settings). Check that the video cable from the laser disk player to the genlock is good and is properly connected to the genlock.

3M Optical Recording Videodisc Technical Bulletin



Bulletin 001

January 1992

VIDEO DISC CARE AND HANDLING

The 3M manufactured LaserDisc (formerly LaserVision) format videodisc is a sturdy, compact, portable, read-only format for information storage. Although the video information is protected by a layer of extremely durable plastic, the disc is not totally impervious to all forms of wear and tear. However, it is much more resistant to everyday stresses than most other information media. 3M warrants the playability of the discs from manufacturing defects for a period of 5 years (see attached warranty). Under reasonable storage and handling, one should expect the disc to remain functional beyond 5 years. Conversely, the useful life of an optical disc can be shortened by excessive scratches, contaminations and unfavorable environmental conditions.

Handling

One should handle the LaserDisc as you would a vinyl record; that is, by the edges and center hub area. Avoid touching the program area as this will deposit body oils on the disc that will attract and hold dust along with other contaminants. Also, avoid rubbing the disc across the player tray when loading and unloading the videodisc.

Storage

Remove any shrink wrap surrounding the disc jacket. The disc should be kept in the protective jackets when not in use. The practice of discarding the liner for ease of physical accessibility to the disc is highly discouraged. Sliding the unprotected disc into and out of the cardboard jacket will cause scratches which deteriorate disc playback quality.

To prevent the disc from warping, store as close to 90° vertical or 0° horizontal as possible. Whenever possible, store in a vertical position with equal side pressure. With this in mind, shrink-wrapping items along with the disc (books, floppy discs, etc.) is strongly discouraged. If discs are to be stored horizontally, it is recommended that they be stacked no more than 10-12 high.

In addition, avoid exposing the videodisc to high temperatures or direct sunlight for prolonged periods. Also, avoid storing the disc inside the player, especially in older versions with only a center hub for support.

Temperature and Humidity

For best results, maintain the disc under cool and dry conditions (defined as a typical air conditioned office environment; less than 75° F [24° C] and 60% RH). At these conditions, 3M has several customers that yield consistent delivery results from multiple year running situations. In addition, the temperatures inside a typical, properly ventilated player after several hours of continuous use can be as hot as 105° F (41° C).

If ideal storage conditions are not possible, additional precautions should be taken:

- 1) Limit the disc storage temperature between 50° to 115° F (10° - 46° C), with less than 80% RH.
- 2) Limit the maximum rate of disc exposure temperature change to be about 35° F (19° C) per hour.
- 3) Store discs properly to prevent warping.
- 4) Pre-condition the disc for a minimum of 48 hours in the disc player environment, if significantly different from storage area environment.

Cleaning

Periodically the disc may need to be cleaned and several commercial cleaners exist. Presently 3M uses cleaners / polishes manufactured by Novus. For light cleaning and anti-static treatment, 3M uses Novus #1 spray. For heavier cleaning and light scratch removal, 3M uses Novus #2 polish. Use a soft clean cloth to apply the cleaner. For local Novus distribution information contact:

Novus, Inc.
10425 Hampshire Avenue South
Minneapolis, MN 55438
1-800-548-6872

General Information:

Please contact 3M Optical Recording's Technical and Customer Service at:

1-800-336-3636 or at 1-715-235-5567.