TABLE OF CONTENTS

1

GETTING STARTED

GAME PACKAGE CONTENTS

(1)	Printed Circuit Board (PCB) Assembly
(1)	Connecting Wire Harness (JAMMA)
(1)	Trackball Assembly w/Metal Plate
(1)	Trackball Cable Assembly
(3)	Button Assemblies
(1)	Marquee Styrene
(1)	Marquee Plexiglas
(1)	Control Panel Overlay
(1)	Set of Function Labels
(1)	Manual

RECOMMENDED TOOLS AND SUPPLIES

- Phillips and Slotted Screwdrivers
- Socket Set
- Wire Cutters and Strippers
- Pliers or Channel Locks
- Electric Drill with 3/32", ¼", and 7/16" Bits
- Chassis or Sheet Metal Punch
- Small File
- Razor Knife and Sharp Blades
- Straight Edge
- Staple Gun and Staples
- Soldering Iron and 60/40 Resin Core Solder
- Vacuum Cleaner
- Assorted Fastening Hardware
- Heat Shrink Tubing (3/32", 1/8", and 3/16")
- Masking Tape
- or 4" Wire Ties

**IF YOU DO YOUR OWN PAINTING,
YOU'LL NEED THESE PAINT SUPPLIES:**
- Air Brush or Paint Sprayer
- Paint Roller and Pan
- Paint Brush
- Paint (and Primer)
- Sandpaper

2

INSTALLATION PREPARATION

BEFORE YOU START.....
1. Check to see if all the needed parts have been included in your kit (See **GAME PACKAGE CONTENTS** .)
2. Do you have the necessary tools? (See **RECOMMENDED TOOLS AND SUPPLIES**.)
3. Do not work with any part of the system plugged in (lights, monitor, or power supply).

THE CABINET

POWER REQUIREMENTS

Make sure the game you have chosen to convert is able to supply all the required voltages for GOLDEN TEE '97.

+5 VDC	**5 amps**
+12 VDC	**2 amps**
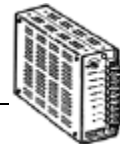
WARNING!!!

The output level of many "regulated" switching power supplies actually vary with load. For this reason, the power supply from an old game may not be correctly adjusted for GOLDEN TEE '97. This makes the existing power supply inappropriate and hazardous to your new game. Therefore, it is very important to adjust the +5 VDC supply WITHOUT connecting the PCB, then readjusting it later, after the PCB has been installed. Measure power on the PCB, on an I.C.. Damage will occur if the power supply is outside the acceptable limits (between 4.8 and 5.5 VDC.)

MONITOR REQUIREMENTS

GOLDEN TEE '97 requires a monitor in a horizontal mount raster scan with negative composite SYNC. It can be difficult to change the monitor from vertical to a horizontal unit, therefore, installation will be easier if you choose a horizontal mount cabinet.

CABINET SELECTION

You can choose either a new cabinet or a used cabinet for your GOLDEN TEE '97 game. Reusing a cabinet is by far the most cost-effective way to maximize the return of your initial investment. In either case, all you need to provide is the cabinet with a power supply and monitor. We provide the rest. The end result is a new game at a very low cost.
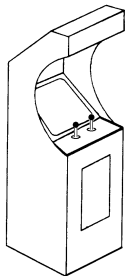
NOTE:

It is recommended that a large control panel with a 25" monitor, like those on a 4-player cabinet, be used for your GOLDEN TEE '97.

When selecting a cabinet, keep this in mind:
A cabinet with a 25" monitor and a large control panel will allow you to mount the trackball farther from the monitor. This prevents players hands from hitting the monitor glass when rolling the trackball forward, and will earn better than a smaller control panel with a smaller monitor.

PREPARING A USED CABINET FOR GOLDEN TEE '97

1. Remove the following from the cabinet:
   - Main Logic Board(s)
   - Control Panel
   - Monitor Plexiglas
   - Marquee
   - Cabinet Graphics

2. Thoroughly clean out your cabinet. Remove all the old buttons, joysticks and wires from the control panel. **DO NOT** remove monitor and speaker wires.
3. Remove the old graphics and adhesive from the control panel, and the side of the cabinet. Remove adhesive with solvent.
4. For a fresh look, painting is highly recommended. Spray painting gives a better finish, but if an air brush or paint sprayer is unavailable, a roller is second best. Remember to cover all exposed surfaces not to be painted.

5. Remember, spending time on the cabinet's appearance (i.e., marquee, control panel, and cabinet graphics) will raise your profits with the introduction of a new

game package, especially if the cabinet looks clean and new.
6. The "new game look" should always apply to the inside of your game as well. A few wire ties and shrink tubing on your harness, some fastening hardware on your subassemblies, and a sweep with the vacuum cleaner will ensure that glitches do not occur.

THE CONTROL PANEL

Mounting the trackball correctly and securely is very important for the profitability of your new game. Follow these instructions carefully for mounting the trackball to: 1) a metal control panel; 2) a wooden control with routing; 3) or a wooden control panel without routing. (Refer to template inserts which came with your new kit.)

NOTE:

Installing the trackball as far away from the monitor as possible will prevent players hands from hitting the monitor glass when rolling the trackball forward.
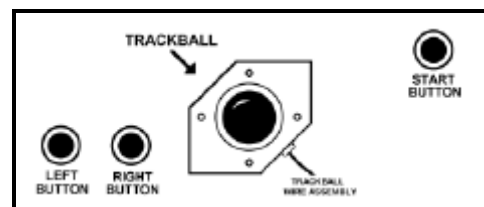
CONTROL PANEL LAYOUT
(TRACKBALL MUST BE CENTERED ON THE CONTROL PANEL)

TRACKBALL PREPARATION

When making the hole for the trackball, follow the instructions, starting on the right, for the type of control panel you will be using.

NOTE:

When installing the trackball, make sure the trackball is in the right orientation. (Refer to picture below.)

TRACKBALL ORIENTATION
(NOT DRAWN TO SCALE)

IMPORTANT!:

The supplied trackball comes equipped with a grounding cable. This cable *must be* connected to field ground to protect the trackball P.C. boards from becoming damaged by electro-static discharge.

To mount trackball to a metal control panel use TRACKBALL MOUNTING TEMPLATE #1

1. Fill any existing holes in the metal control panel.
2. Place and secure *TEMPLATE #1* to your control panel in the desired location.

    NOTE: The trackball should be as far away from the monitor as possible.

3. Carefully drill the holes for the ball and the mounting bolts using the template as a guide.
4. Remove template and file down any rough edges.
5. See **THE GRAPHICS OVERLAY** section on page 6 on how to install the graphics.
6. Mount trackball under the metal control panel using the four carriage bolts.

    NOTE: Be sure the trackball is mounted as shown in the diagram on page 4.

    NOTE: Do not over-tighten the trackball. It will warp and cause the trackball to not operate correctly.

    NOTE: The supplied metal plate is not needed with metal control panels.

    NOTE: Be sure to mount the trackball so as much of the ball is exposed as possible.

7. Securely fasten the trackball grounding wires to Field Ground in your cabinet. This step is important in reducing static buildup and discharge caused by the trackball.
8. If using Plexiglas on your control panel, it is highly recommended that a 3-1/2" hole be cut in the Plexiglas for the trackball. This allows for players to use the full height of the trackball. Carefully file and smooth the edges of the hole in the Plexiglas so players do not cut their hands when playing.

To mount trackball to a wooden control panel with routing capability use TRACKBALL MOUNTING TEMPLATE #2

1. Fill any existing holes in the wooden control panel.
2. Place and secure *TEMPLATE #2* to your control panel in the desired location.

   NOTE: The trackball should be as far away from the monitor as possible.

3. Carefully cut the hole for the trackball in the shape indicated on the template.
4. Drill the mounting holes indicated.
5. Next route out the shaded area indicated on *TEMPLATE #2*, 1/16" deep. Use a 1/2" Rabbiting Bit for best results. This is so the supplied metal plate will be flush with the control panel surface.
6. Remove template and file down any rough edges.
7. See **THE GRAPHICS OVERLAY** section on page 6 on how to install the graphics.
8. Mount trackball to the metal plate using the four carriage bolts supplied. Then mount the metal plate to the wooden control panel.

   NOTE: Be sure the trackball is mounted as shown in the diagram on page 4.

   NOTE: Do not over-tighten the trackball. It will warp and cause the trackball to not operate correctly.

   NOTE: Be sure to mount the trackball so as much of the ball is exposed as possible.

9. Securely fasten the trackball grounding wires to Field Ground in your cabinet. This step is important in reducing static buildup and discharge caused by the trackball.
10. If using Plexiglas on your control panel, it is highly recommended that a 3-1/2" hole be cut in the Plexiglas for the trackball. This allows for players to use the full height of the trackball. Carefully file and smooth the edges of the hole in the Plexiglas so players do not cut their hands when playing.

To mount trackball to a wooden control panel without routing capability use TRACKBALL MOUNTING TEMPLATE #3

1. Fill any existing holes in the wooden control panel.
2. Place and secure *TEMPLATE #3* to your control panel in the desired location.

   NOTE: The trackball should be as far away from the monitor as possible.

3. Carefully cut the hole for the trackball in the shape indicated on the template. The trackball should fit the hole shape exactly.
4. Drill the mounting holes as indicated.
5. Remove template and file down any rough edges.
6. Using the *TRACKBALL ORIENTATION TEMPLATE*, cut a 3" hole in the Plexiglas overlay to fit over the trackball. Be sure to include holes for the buttons, and all of the mounting bolts.
7. See **THE GRAPHICS OVERLAY** section on page 6 on how to install the graphics.
8. Insert the trackball into the newly cut hole. Place Plexiglas overlay on top of the control panel. Place the supplied metal plate <u>*under*</u> the trackball and use the carriage bolts to secure it to the control panel. The metal plate below and the Plexiglas above will secure the trackball assembly into position.

   NOTE: Be sure the trackball is mounted as shown in the diagram on page 4.

   NOTE: Do not over-tighten the trackball. It will warp and cause the trackball to not operate correctly.

   NOTE: Be sure to mount the trackball so as much of the ball is exposed as possible.

9. Securely fasten the trackball grounding wires to Field Ground in your cabinet. This step is important in reducing static buildup and discharge caused by the trackball.

BUTTON PREPARATION

1. When making the holes for the buttons, **DO NOT use the Function Labels to outline any new holes**. The Function Labels are designed to fit right over the buttons when installed on the control panel. If the labels are used as a template the holes will be too big, and the buttons will fall through. Instead, use the labels as a guide to where you want to drill your new holes, and then cut a 1-1/8" hole in the center of where the labels are to be placed. **DO NOT stick the labels to the panel at this time.**
2. Drill or punch the holes marked for buttons or bolts. Use a chassis or sheet metal punch for best results on button holes.
3. Use a file to smooth any rough edges on the holes.
4. Fill any old and unused holes with wood, resin, or a metal plate.
5. It is recommended that you cover your control panel with Plexiglas. Now would be a good time to cut it to fit while the dimensions and tools are at hand.

THE GRAPHICS OVERLAY

GOLDEN TEE '97 comes equipped with graphics that will accommodate a variety of existing game cabinets.

CONTROL PANEL OVERLAY INSTALLATION

1. Make sure the control panel is clean and free from dust, grease, metal filings, and sawdust. The background overlay provided with the game is oversized to accommodate most control panel sizes. Center the background overlay on the control panel surface. Be sure to leave enough excess material above and below the control panel in order to trim it evenly.
2. Remove the protective backing from the background overlay. Center the background overlay over the control panel and place down gently, making sure to keep it square. Using your hands, press down firmly, starting from the center and smooth the background overlay outward, making sure all bubbles have been pressed out for a clean, flat surface.

3. Using a sharp razor knife, trim any excess from the background overlay. Carefully pierce through the overlay above each control panel hole that you have marked. Cut out material covering the pre-drilled holes with the razor knife. Be sure to cut the background overlay above each hole and trim cleanly and evenly.

FUNCTION LABELS OVERLAY INSTALLATION

Line up the supplied function labels with the corresponding control panel holes. Remove the backing and carefully press into place. Be sure they are straight. Attach the **HOOK/SWING reference diagram** above the trackball label. If your control panel is too narrow to fit the reference diagram, mount the diagram under the monitor glass on the bezel. Refer to the diagrams below.
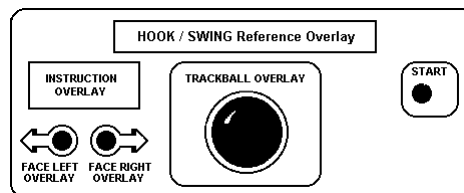
FUNCTION LABEL LAYOUT #1

or put the **HOOK/SWING Reference diagram** on the bezel
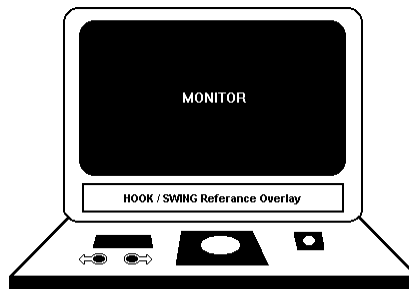
FUNCTION LABEL LAYOUT #2

MARQUEE INSTALLATION

If your cabinet needs a new marquee glass, determine the correct size and cut the Plexiglas (supplied) to fit. Using the old marquee glass as a template, center the Plexiglas on your new marquee graphics, making sure that all the printed images will be visible. Using a razor knife, score the new marquee deeply, following the edges of the old glass. Carefully break off the styrene. Be sure the light behind the marquee works and that the glass is clean on both sides. Now install the marquee graphics and glass securely.

WIRING AND HARDWARE ASSEMBLY

REMEMBER! DO NOT WORK WITH ANY PART OF THIS SYSTEM PLUGGED IN (Lights, Monitor, or Power Supply).

> **NOTE:**
>
> All switch wires used in this game need to be wired to the normally open connection on the switches. Each switch requires a ground wire on the common connector and the appropriate control or switch wire on the other normally open connector of the switch.

CONTROL PANEL ASSEMBLY

1. Install the trackball and buttons on the control panel by following the detailed instructions beginning on page 2. The two red buttons are used for FACE LEFT and FACE RIGHT. The white button is used as the START button. NOTE: If you want your new game to earn money, you must install the trackball correctly.
2. If you are using Plexiglas for added protection, don't forget to place it on the panel before inserting the buttons.
3. Wire the trackball and buttons using the JAMMA Harness Connection table on page 26. Connect the trackball using the supplied trackball cable into PLAYER 1 on the PCS.

> **IMPORTANT!:**
>
> The supplied trackball comes equipped with a grounding cable. This cable *must be* connected to field ground to protect the trackball P.C. boards from becoming damaged by electro-static discharge.

PRINTED CIRCUIT BOARD (PCB)

Mount the PCB to the side of the cabinet with the connector toward the top of the drawer. This will keep the wire harness from slipping off due to vibration. Mark and drill pilot holes (3/32") onto the cabinet side, being careful not to drill through to the outside. Attach the PCB standoffs to the cabinet using wood screws and spacers, snug but not too tight or the board may warp or crack. Be sure the board is not being flexed in any way.

WIRE HARNESS

1. If you are installing GOLDEN TEE '97 into a Dynamo cabinet with a pre-installed JAMMA harness, you will notice that it does not have a wire for the test switch. You will have to add a contact to the edge connector at the proper position (position 15). Some cabinets (Dynamo included) have only one coin switch input and the coin switches are wired together. Connect the designated wires to the coin switches separately.
2. Attach the wire harness connector to the PCB. Be sure it is mounted correctly.

> **WARNING!!!**
>
> Make sure you have identified PIN 1 on the connector before powering up. Plugging the JAMMA connector in backwards will cause damage to the PCB.

3. It is best to use connectors (not supplied) whenever joining a set of harness wires to a subassembly. If you choose to solder wires together, follow this procedure:
    *   Strip off about ½" of insulation from the wire.
    *   Slide a piece of heat-shrink tubing over the end.
    *   Do not leave a lot of excess wire spooled up in your cabinet. Cut the wires to the length you need plus a few extra inches. Leave enough for proper cable dressing. Do not make it stretch across the inside of the cabinet.
4. Solder the new wire to the original wire. Use a straight in-line splice.

POWER WIRES

1. Connect the wires that are designated for your power supply. You will need a supply of +5 vdc, and +12 vdc. The +5 vdc must be regulated to within 5% (+ or - 0.25) . The +12 vdc may be unregulated but should not stray too far or the sound may be affected. If the cabinet's supply does not provide these voltages, it will have to be replaced. A switching-type supply is recommended.
2. You will notice that you have more than one wire for each voltage. Use all wires supplied on the harness. This will ensure better power transmission and prevent overloading of the edge connector pads.
3. Tin all power supply wires before connecting them to the power supply. Loose strands may short out the supply. For best results, connect spade lugs to the ends of the power wires and attach to the screw terminals of the power supply.

MONITOR WIRES

You will be connecting the RED, GREEN, and BLUE video drives along with the composite SYNC and video GROUND wires.

SPEAKER WIRES

Connect the speaker wires paying attention to their polarity.

> **NOTE:**
>
> If your cabinet has two speakers, connect both. If they are 8 or 16 ohm speakers, connect them in parallel, if they are 4 ohm, connect them in series.

> **NOTE:**
>
> Examine the speaker carefully. Is it really up to the high standards you wish to maintain at your location? Unfortunately, many arcade speakers are inadequate for reproduction of good game sounds. Remember, this is not just a video game -- it is a video/audio game investment. Far more effort was put into the sounds of this game than is put into most other arcade games. If the speakers are not up to it, replace them. A small investment in good speakers can make a world of difference in profits. Competent and reasonably priced speakers can be obtained from stores such as Radio Shack.

Position speakers as far from the monitor as possible. If placed too close, the speaker's magnet may deflect the monitor and cause strange coloration, which can usually be corrected by degaussing the monitor. Make sure everything else in the cabinet is attached securely for the same reason.

SYNC

This is the recommended approach for a Wells-Gardener monitor and should work with some others as well.

If your monitor does not have a composite SYNC input but has separate horizontal and vertical SYNC inputs, try connecting the composite SYNC signal from the PCB to the negative horizontal SYNC signal on the monitor. This should produce a satisfactory result, although some adjustment of the monitor's SYNC controls may be necessary.

COIN DOORS, TEST SWITCH, SERVICE BUTTON, AND VOLUME CONTROL PANEL

1. Wire the coin doors and the test / service switch(es) as per the **JAMMA Harness Connection** table on page 26.
2. Connect the door lamps to the +12 vdc supply. Some games have separate power supply outputs for the lamps.
3. Install a test switch somewhere convenient inside the coin door area. This switch allows you to enter adjustables, run diagnostics, and see or clear audits. Make it readily accessible through the coin door. Wire it to the Test wire on the JAMMA Harness.
4. Install a service switch (not included) somewhere convenient inside the coin door area. This switch allows you to give credits to players without affecting the game's credit audits or coin meters. Example: A player puts in a coin and gets no credit, the operator can then push the service button and a credit is given to the player without affecting the game's audits and coin meter.
5. GOLDEN TEE '97 has the ability to adjust volume at any time during a game. Install 2 push button switches (not included) inside the coin door for easy access. Connect the switches to the JAMMA harness. Refer to the JAMMA Harness Connection diagram on page 26.
6. GOLDEN TEE '97 is also capable of running a Mars Light or other external signal, which will be activated if the game is running a special Hole-In-One contest.

MARS LIGHT HOOKUP

Equipment required:
A MARS light police beacon and a 3 amp 120 volt AC solid state relay with a 2.5 to 8 volt control line.

1. Connect a wire from PIN 2 of the sound boards ticket connector to the positive control line of the relay.
2. Connect a wire from PIN 3 of the sound boards ticket connector to the negative control line of the relay.
3. The hot AC line in should connect to one side of the light and the return should connect to the AC input of the relay.
4. From the AC output of the relay, connect a wire to the other side of the light.
5. The hole-in-one contest is turned on in the *Operator Adjustables* in order for the light to activate when a hole-in-one is made.

> **NOTE:**
>
> Mars Light will only work for sound PROMS 1.0 and above.

FINAL CHECK

1. Check the game inside and out for any imperfections. Secure any loose wiring or fastening hardware.
2. Make sure the coin door is tight and the coin mechs are well adjusted.
3. Make sure all assemblies are firmly attached. Anything that is not mounted securely will rattle when the game is played. This game makes use of low-frequency sounds which can cause any loose joints to rattle.

3

INITIAL START-UP

1. Attach JAMMA Harness. Plug in the game and turn it on.

> **WARNING!!!**
>
> Make sure the harness is plugged in correctly. Damage to PCB will occur if JAMMA connector is plugged in wrong.

2. Look and smell for smoke (TURN IT OFF IMMEDIATELY IF ANY IS NOTICED).

> **NOTE:**
>
> Use the Voltage Test screen to adjust your power supply. When the screen says "Voltage OK", your power supply is properly adjusted to 5.2 volts on the PCB. Adjust the +5 Volt supply so that you read 5.2 Volts across an I.C. on the circuit board. If measured at the power supply, the reading will be higher at the power supply outputs.

3. Make sure the green and yellow LED on the PCB is flashing. If not, something is wrong, turn off the game.
4. Listen for sound. Sounds should be heard in the attract mode.
5. If you do not hear any sounds and the yellow LED is flashing, try turning up the volume and check the speaker connections. Dropping a coin through a coin switch should cause a sound.
6. How is the picture? Is it centered or is it too bright or too Is it in focus? Adjust your monitor to get the best picture possible.

> **NOTE:**
>
> Check your monitor manual to make adjustments. Some test patterns are available through the game's system tests by pressing the Test switch. Use them when making any adjustments. (See SYSTEM TESTS information on page 17. Proper monitor adjustment is very important.)

7. Try all coin switches. Drop quarters or tokens through to check the coin mechs. Make sure the game is adding credits. You can use the Player Control Tests by pressing the test switch and entering the *SYSTEM TEST MENU*. Do all of the controls work? Try playing the game with the volume up and listen for rattling as you play. Tighten anything that is making noise.
8. Upon initial power-up, the game will initialize to factory default settings. These settings affect game elements such as number of credits per coin, difficulty settings, etc. The *OPERATOR ADJUSTABLES MODE* section will describe how to alter these settings and view the system audits or run system tests.

4

DIP SWITCH SETTINGS

The main dip switches can be found on the PCB near the JAMMA (SW1).

> **Dip switch 4 (ON):** Always "ON" (DEFAULT)
> **Dip switch 4 (OFF):** *** NOT USED ***
> **Dip switch 3 (ON):** Normal Mode (DEFAULT)
> **Dip switch 3 (OFF):** Cocktail Mode (must be set for cocktail)
> **Dip switch 2 (ON):** One Trackball (DEFAULT)
> **Dip switch 2 (OFF):** Two Trackballs
> **Dip switch 1 (ON):** Normal Game Play (DEFAULT)
> **Dip switch 1 (OFF):** Operator Mode Menu

There are also dip switches near the green LED (SW2). Switches #1 and #2 must be "ON" and switches #3 and #4 should be "OFF".

COCKTAIL MODE

Golden Tee Golf supports a screen-flip option that is suitable for most cocktail-style cabinets. To activate the screen flip, make sure Dip Switches 2 and 3 are set to OFF. You will need two sets of controls for this option to work correctly.

GAME PLAY.

When coins are inserted and one of the two START buttons are pressed, the screen will automatically orient itself to that side. For multi-player games, players 1 and 3 share a side, and players 2 and 4 share the opposite side.

OPERATOR MODE

To enter the **OPERATOR MODE**, press the Test button located inside the coin door. The screen will automatically orient itself to the left set of controls.

PLAYER CONTROL TESTS

Two Player Control Tests have been added to the **SYSTEM TEST MENU**. Player One Controls will test the controls on the left side of the cabinet. Player Two Controls will test the controls on the right side of the cabinet.

5

OPERATOR MODE

To enter the *OPERATOR MODE MENU*, press the Test Button, located just inside the coin door. When the Test Button is pressed or DIP Switch 1 is flipped on SW1 to the "OFF" position, the screen displays the *OPERATOR MODE MENU.*

> **NOTE:**
>
> If you used DIP switch 1 to enter the *OPERATOR MODE MENU*, you will need to flip DIP switch 1 back to the ON position in order to return to the game.

> **GOLDEN TEE '97 V1.00**
>
> TRACKBALL UP TO MOVE UP
> TRACKBALL DOWN TO MOVE DOWN
> PRESS START TO CHOOSE
>
> **OPERATOR MODE MENU**
>
> EXIT
>
> VOLUME SETTINGS
>
> OPERATOR ADJUSTABLES MENU
>
> GAME AUDITS MENU
>
> LEADER BOARD MENU
>
> SYSTEM TESTS MENU
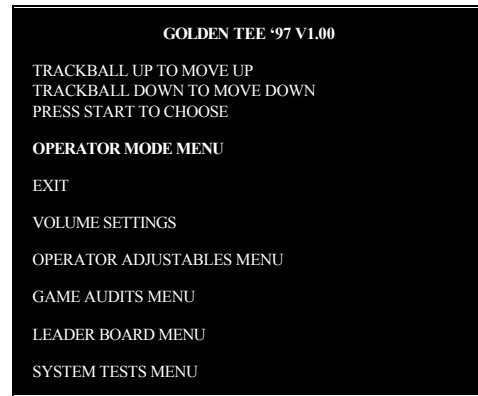
OPERATOR MODE MENU

The OPERATOR MODE MENU allows you to enter into four different areas:

VOLUME SETTINGS is used to adjust the volume of your game for your location.

OPERATOR ADJUSTABLES is used for customizing your game for your location. Some of the features in Operator Adjustables are number of coins per game, sounds on or off when no one is playing, difficulty settings, etc.

GAME AUDITS allows you to check your game's overall earnings, game times, game scores, etc. The Audits can be reset through this menu as well.

LEADERBOARD MENU is used to display or clear the players names that are posted during a given tournament.

SYSTEM TESTS verifies the operation of the hardware, controls, and monitor through easy and automatic procedures accessed through these menus.

Menu items can be highlighted using the trackball or FACE LEFT and FACE RIGHT buttons. When using the trackball, menu items are highlighted by rolling the trackball up or down. To select a highlighted item, press the START button.

To exit any of these tests and return the game to its normal state, use the trackball or FACE LEFT and FACE RIGHT button to highlight the line that says EXIT, and press the START button.

COLOR KEY NOTE:

For easy identification, all test screens have been color coded. Items displayed in GREEN are the Menu titles. This is the name of the menu that is currently displayed. Items appearing in YELLOW are the menu's instructions. The BLUE items are choices available in this menu. The WHITE item is the selection that is currently highlighted. If RED is ever displayed, there is a problem with that item and it should be corrected.

VOLUME SETTINGS

The *VOLUME SETTINGS* screen is used to adjust the sounds that are heard during game play.

```
TO EXIT PRESS START




MOVE TRACKBALL RIGHT TO INCREASE VOLUME
MOVE TRACKBALL LEFT TO DECREASE VOLUME
```
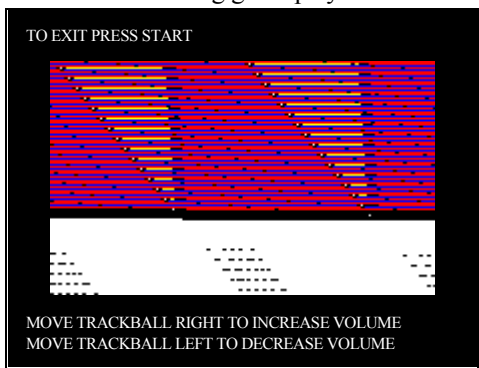
VOLUME SETTINGS SCREEN

When this screen appears, music will play. Move the trackball to the right to increase the game's sounds and music. Rolling the trackball to the left will make the game sounds softer. When you have adjusted the sounds to the appropriate volume, press the START button to exit back to the main menu.

The volume can also be set using optional volume up/down push button switches. See page 8 for more information on this feature.

OPERATOR ADJUSTABLES

The *OPERATOR ADJUSTABLES MENU* is accessed through the *OPERATOR MODE MENU*. From the *OPERATOR MODE MENU,* roll the trackball down or up to highlight the words *OPERATOR ADJUSTABLES MENU* which will then appear in purple letters. Now press the START button, and the *OPERATOR ADJUSTABLES MENU* will appear on the screen.

```
GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

OPERATOR ADJUSTABLES MENU

EXIT ADJUSTABLES

GAME MODE SELECTION

GAME RESETS

ATTRACT MODE SOUNDS

CREDITS AND COIN DOOR SETTINGS

DELAY TIME ADJUSTMENT

COIN DOOR PROTECTION MENU

SKILL LEVEL ADJUSTMENT

HOLE IN ONE CONTEST MODE
```
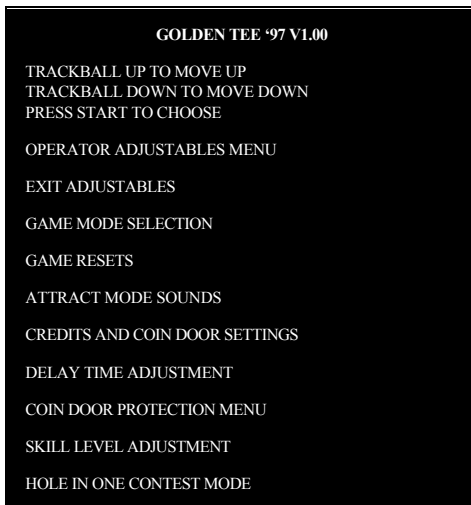
OPERATOR ADJUSTABLES MENU

As you can see, there are many possible customizing procedures that you can control. Below is a brief description of each adjustable function and what the screen looks like when displayed. Remember, to select an item from any menu, using the trackball to highlight the item in purple, and then press the START button.

GAME MODE SELECTION

This menu allows you to place the game in standard Coin Mode, or choose Free Play.

```
GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

GAME MODE SELECTION

COIN MODE

FREE PLAY
```
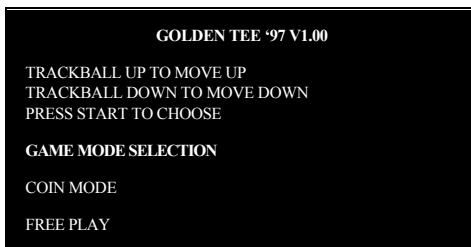
GAME MODE SELECTION SCREEN

In **COIN MODE**, the game will only work if coins are deposited into the game.

In **FREE PLAY**, coins are not needed for play, and the START button is always active.

GAME RESETS

The *GAME RESETS* menu will cancel or zero out any custom features or bookkeeping figures that are no longer wanted.

```
          GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

GAME RESETS

EXIT RESETS

RESET ALL TO FACTORY SETTINGS

RESET HIGH SCORES ONLY

RESET AUDITS ONLY
```

GAME RESETS MENU

RESET ALL TO FACTORY SETTINGS will change the game back to the way the game was preset when new. Any custom features such as Free Play and Skill Levels will be changed back to the original settings set at the factory.

RESET HIGH SCORES ONLY is used to erase all of the high scores stored in memory.

RESET AUDITS ONLY is used when all of your bookkeeping and statistics have been gathered from the Audits section, and are no longer needed. If you like to gather all of your accounting information each week, or after each collection, it is a good practice to reset all of the audits so your coin count will match the audit information.

ATTRACT MODE SOUNDS

This menu is used to adjust the sounds that are heard while no one is playing the game.

```
          GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

ATTRACT MODE SOUNDS

ALL ATTRACT MODE SOUNDS ON

OCCASIONAL ATTRACT MODE SOUNDS

ALL ATTRACT MODE SOUNDS OFF
```
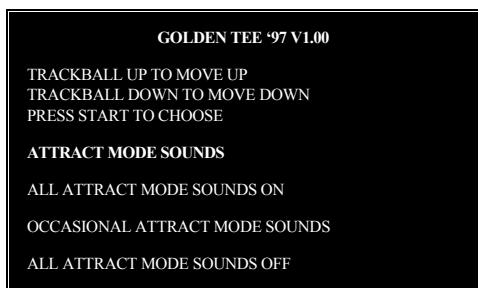
ATTRACT MODE SOUNDS MENU

ALL ATTRACT MODE SOUNDS ON will play sounds during every attract cycle.

OCCASIONAL ATTRACT MODE SOUNDS plays sounds about every ten to twelve times the attract mode is repeated.

ALL ATTRACT MODE SOUNDS OFF will not allow any sounds to be played during the attract mode.

CREDITS AND COIN DOOR SETTINGS

This menu allows you to change the number of coins needed to play GOLDEN TEE '97.

```
              GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

CREDITS AND COIN DOOR SETTINGS

EXIT CREDITS AND COIN DOOR SETTINGS

DOOR 1 COIN VALUE                     1

DOOR 2 COIN VALUE                     1

DOOR 3 COIN VALUE                     1

COINS NEEDED FOR ONE CREDIT      2

HOLES PLAYED PER CREDIT          3

COINS NEEDED TO PLAY 18 HOLES       10

TO CHANGE VALUES
MOVE TRACKBALL LEFT TO DECREASE
MOVE TRACKBALL RIGHT TO INCREASE
```

CREDIT AND COIN DOOR SETTING SCREEN

You can set each door to different coins values by highlighting : **DOOR 1 COIN VALUE** for coin door 1, **DOOR 2 COIN VALUE** for coin door 2, etc.. Moving Trackball left or right will change the number of credits that each coin represents.

COINS NEEDED FOR ONE CREDIT..... To award a game credit, the player will need to insert an adjustable number of coins.

HOLES PLAYED PER CREDIT..... This defines the number of holes the player is given for each credit. This value can range from 1 to 3 holes.

COINS NEEDED TO PLAY 18 HOLES..... To play an entire 18 holes at a reduced cost to the player, you can set this value to something less than the cost of buying holes as described above. The default is 10 coins for 18 holes. This is a savings of 2 coins, at a rate of 2 coins for 3 holes. The player will need to insert all 10 coins at the start of a game to take advantage of this.

DELAY TIME ADJUSTMENT

This option allows for changing the delay of game time.

```
            GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

DELAY TIME ADJUSTMENT

EXIT DELAY TIME ADJUSTMENT

DELAY OF GAME TIMEOUT        0:25

DELAY OF GAME TIMEOUT        ON/OFF

TO CHANGE VALUES
MOVE TRACKBALL LEFT TO DECREASE
MOVE TRACKBALL RIGHT TO INCREASE
```

BUTTON CONFIGURATIONS SCREEN

DELAY OF GAME TIMEOUT (1).....The game will give the player a penalty stroke if they have not swung the club after this amount of time.

DELAY OF GAME TIMEOUT (2).....The timeout can be disabled by selecting "OFF" - The default is "ON". We recommend leaving this "ON" so the game will return to the attract mode if a player walks away from a game in progress. After 3 successive timeouts the game will end for that player. This allows for players to drop out of three or four player games.

SKILL LEVEL ADJUSTMENT

GOLDEN TEE '97 allows for changing the level of skill needed to play the game. This feature is good for locations with younger or novice players who are less skilled at the game, or expert or accomplished players who demand a greater challenge.

```
            GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

SKILL LEVEL ADJUSTMENT

SKILL LEVEL 1          - EASIEST

SKILL LEVEL 2

SKILL LEVEL 3

SKILL LEVEL 4

SKILL LEVEL 5          - HARDEST
```

SKILL LEVEL ADJUSTMENT SCREEN

To set the game to an easy skill level, highlight... **SKILL LEVEL 1 - EASIEST.**

To set the game to a difficult skill level, highlight... **SKILL LEVEL 5 - HARDEST**.

SKILL LEVEL 2, **SKILL LEVEL 3**, and **SKILL LEVEL 4** are settings between the easiest and hardest levels. Sometimes it is best if the skill level is adjusted gradually over a period of time.

HOLE IN ONE CONTEST MODE

The **HOLE IN ONE CONTEST MODE** can be used if your location wants to give away prizes for a hole-in-one.

```
            GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

HOLE IN ONE CONTEST MODE

NO HOLE IN ONE CONTEST

HOLE IN ONE CONTEST      - WIN IMMEDIATELY

HOLE IN ONE CONTEST      - QUALIFY TO WIN
```

HOLE IN ONE CONTEST MODE SCREEN

Setting the **HOLE-IN-ONE CONTEST "ON"** will cause a loud siren and fanfare to go off if a hole-in-one is made. The hole-in-one message can be altered depending on your type of contest.

NO HOLE IN ONE CONTEST will keep the fanfare and screen message OFF, if you are not running your own contest.

> **NOTE:**
>
> If you are not running your own contest, keep this item selected to OFF. Players become confused and disappointed if this mode is accidentally left ON.

HOLE IN ONE CONTEST - WIN IMMEDIATELY will display a "YOU HAVE WON" message.

HOLE IN ONE CONTEST - QUALIFY TO WIN will display a "YOU HAVE QUALIFIED" message.

> **NOTE:**
>
> The fanfare lasts about 1 minute and 30 seconds. You can cancel the fanfare at any time by pressing START button.

COIN DOOR PROTECTION MENU

Golden Tee '97 comes equipped with software to help avoid coin stringing. If you wish to activate this software, highlight **COIN DOOR PROTECTION** and move the trackball to the right until the word YES appears. The coin protection software is now activated.

```
                GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

COIN DOOR PROTECTION MENU

EXIT COIN DOOR PROTECTION

COIN DOOR PROTECTION               NO

MAXIMUM PULSE WIDTH COUNT          20

GOOD COIN CLEAR COUNT              5

RESET COIN DOOR ALARM COUNTS

COIN DOOR 1 ALARM COUNT            0

COIN DOOR 2 ALARM COUNT            0

COIN DOOR 3 ALARM COUNT            0

TO CHANGE VALUES
MOVE TRACKBALL LEFT TO DECREASE
MOVE TRACKBALL RIGHT TO INCREASE
```

COIN DOOR PROTECTION MENU

COIN DOOR PROTECTION is implemented by monitoring the coin switch pulse width. A pulse longer than the **MAXIMUM PULSE WIDTH COUNT** sets the game alarm counter. Each count represents about 4 milliseconds.

If two game alarms occur then the game halts and displays a coin failure message. Any unused credits in the game are cleared.

A count of good coin drops is kept and each time the **GOOD COIN CLEAR COUNT** is reached the game alarm counter is cleared. This allows an occasional coin switch glitch to be tolerated.

A count of all switch alarms for each coin door is also kept. These counters can be cleared by selecting **RESET COIN DOOR ALARM COUNTS**.

> **NOTE:**
>
> Coin mechanisms and bill acceptors vary widely. Test your game thoroughly with the coin protection ON to make sure the software is compatible with your hardware.

GAME AUDITS

The *GAME AUDITS MENU* will supply you with a detailed accounting of helpful and informative bookkeeping and statistics. To enter the *GAME AUDITS MENU*, first go to the *OPERATOR MODE MENU* by pressing the test switch located just inside the coin door of the cabinet or flip DIP switch 1 on SW1 to the OFF position on the PCB. From the *OPERATOR MODE MENU*, roll the trackball down or up to highlight the words *GAME AUDITS MENU* which will then appear in purple letters. Now press the START button, and the *GAME AUDITS MENU* will appear on the screen.

```
                GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

GAME AUDITS MENU

EXIT AUDITS

DISPLAY COIN AUDITS

DISPLAY GAME SELECTION AUDITS

NUMBER OF GOLFERS AND HOLES PLAYED

PINE CREEK AUDITS

CORAL RIDGE AUDITS

RED SANDS AUDITS

DISPLAY HARDWARE AND ITS

RESET AUDITS
```

GAME AUDITS SCREEN

DISPLAY COIN AUDITS

When you choose to review the coin audits, the *DISPLAY COIN AUDITS* screen will appear.

```
                GOLDEN TEE '97 V1.00
PRESS START TO EXIT

DISPLAY COIN AUDITS

COIN DOOR 1 COINS               XX

COIN DOOR 2 COINS               XX

COIN DOOR 3 COINS               XX

TOTAL COINS                     XX

GAMES STARTED                   XX

SECONDS PER COIN                XX
```

DISPLAY COIN AUDITS SCREEN

DISPLAY GAME SELECTION AUDITS

This menu will show the audits for each game selection.

```
                GOLDEN TEE '97 V1.00

PRESS START TO EXIT

DISPLAY GAME SELECTION AUDITS

STROKE GAMES                   XX

SKINS GAMES                    XX

PINE CREEK COURSE              XX

CORAL RIDGE COURSE        XX

RED SANDS  COURSE             XX

FORWARD ONLY STROKES         XX
```

DISPLAY GAME SELECTION AUDITS SCREEN

NUMBER OF GOLFERS AND HOLES PLAYED

This menu displays how many games were played by 1, 2, 3, or 4 players and how may holes were played during a game.

```
                GOLDEN TEE '97 V1.00

PRESS START TO EXIT

NUMBER OF GOLFERS AND HOLES PLAYED

TOTAL 1 GOLFER GAMES           XX

TOTAL 2 GOLFER GAMES           XX

TOTAL 3 GOLFER GAMES           XX

TOTAL 4 GOLFER GAMES           XX

TOTAL 1-8 HOLE GAMES           XX

TOTAL 9-17 HOLE GAMES          XX

TOTAL 18 HOLE GAMES            XX

TOTAL FULL GAMES STARTED       XX
```

NUMBER OF GOLFERS AND HOLES PLAYED SCREEN

PINE CREEK AUDITS

This menu displays the audits for the Pine Creek course.

```
                GOLDEN TEE '97 V1.00

PRESS START TO EXIT

PINE CREEK AUDITS

TOTAL GAMES                        XXX

TOTAL HOLES PLAYED                 XXX

AVERAGE HOLES PER GAME             XXX

TOTAL STROKES                      XXX

TOTAL PUTTS                        XXX

TOTAL WATER OR UNPLAYABLE BALLS    XXX

TOTAL OUT OF BOUNDS SHOTS          XXX

TOTAL DELAY OF GAMES               XXX
```

PINE CREEK AUDITS SCREEN

CORAL RIDGE AUDITS

This menu displays the audits for the Coral Ridge course.

```
                GOLDEN TEE '97 V1.00

PRESS START TO EXIT

CORAL RIDGE AUDITS

TOTAL GAMES                        XXX

TOTAL HOLES PLAYED                 XXX

AVERAGE HOLES PER GAME             XXX

TOTAL STROKES                      XXX

TOTAL PUTTS                        XXX

TOTAL WATER OR UNPLAYABLE BALLS    XXX

TOTAL OUT OF BOUNDS SHOTS          XXX

TOTAL DELAY OF GAMES               XXX
```

CORAL RIDGE AUDITS SCREEN

RED SANDS AUDITS

This menu will display the audits for the Red Sands course.

```
                GOLDEN TEE '97 V1.00

PRESS START TO EXIT

RED SANDS AUDITS

TOTAL GAMES                        XXX

TOTAL HOLES PLAYED                 XXX

AVERAGE HOLES PER GAME             XXX

TOTAL STROKES                      XXX

TOTAL PUTTS                        XXX

TOTAL WATER OR UNPLAYABLE BALLS    XXX

TOTAL OUT OF BOUNDS SHOTS          XXX

TOTAL DELAY OF GAMES               XXX
```

RED SANDS AUDITS SCREEN

DISPLAY HARDWARE AUDITS

This screen displays the number of times the voltage has read OK, Low, or High during the initial power-up or play of the game.

```
GOLDEN TEE '97 V1.00

PRESS START TO EXIT

DISPLAY HARDWARE AUDITS

POWER ON POWER UPS          0

RESET POWERUPS              0

VOLTAGE OK POWERUPS         0

VOLTAGE LOW POWERUPS        0

VOLTAGE HIGH POWERUPS       0

VOLTAGE OK GAMES            0

VOLTAGE LOW GAMES           0

VOLTAGE HIGH GAMES          0
```

RESET AUDITS

This menu will reset your audits.

```
GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

RESET AUDITS

NO RESET AUDITS

RESET AUDITS
```

RESET AUDITS SCREEN

If you wish to set all of the game audits (described above) back to zero, highlight **RESET AUDITS** from this menu and press the START button. The screen will briefly display *AUDIT RESET*.

If you change your mind and decide not to reset the audits to zero, highlight **NO RESET AUDITS** and you will exit this screen without making any changes.

LEADER BOARD MENU

The factory default for Golden Tee '97 displays pre-set initials and scores on the leaderboard, which allows for a sense of competition and improvement to the player. If you are going to run your own league or tournaments, you may wish to delete these placeholders so only real players are displayed on the leaderboard.

```
GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

LEADERBOARD MENU

EXIT LEADERBOARD MENU

DISPLAY LEADERBOARD MENU

CLEAR LEADERBOARD MENU
```

LEADER BOARD MENU

To view the various course leaderboards, highlight **DISPLAY LEADER BOARD MENU**.

To clear all of the scores and names in the various course leader boards, select **CLEAR LEADER MENU**.

DISPLAY LEADER BOARD MENU

```
GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

EXIT LEADERBOARD MENU

DISPLAY PINE CREEK LEADERBOARD MENU

DISPLAY CORAL RIDGE LEADERBOARD MENU

DISPLAY RED SANDS LEADERBOARD MENU
```

DISPLAY LEADERBAORD MENU

Select the course you wish to look at, and press the START button. The screen will stay on until you press START again to exit. You can use this information to determine your tournament or league winners. The Longest Drive has been included on this screen for use as tie breakers.
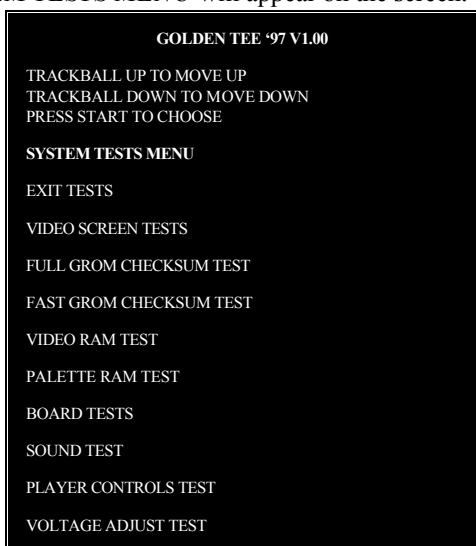
CLEAR LEADER BOARD MENU

```
              GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

EXIT LEADERBOARD MENU

CLEAR PINE CREEK LEADERBOARD MENU

CLEAR CORAL RIDGE LEADERBOARD MENU

CLEAR RED SANDS LEADERBOARD MENU
```

CLEAR LEADERBAORD MENU

When selecting an in-house tournament, you should clear all of the names and scores from the course you wish to play on. Highlight the course leaderboard and press START. All of the initials and scores will be cleared, and the leaderboard will be empty. Players who complete an 18 hole course on the cleared course will have their statistics saved on the leaderboard until it is cleared again.

SYSTEM TESTS

GOLDEN TEE '97 has been inspected and tested at the factory, and most likely the game will be in perfect working order when you plug it in. If you are experiencing any problems with the game, the *SYSTEM TESTS MENU* is a good place to start when tracking down the problem. To enter the *SYSTEM TESTS MENU*, first go to the *OPERATOR MODE MENU* by pressing the test switch located just inside the coin door of the cabinet, or set DIP Switch 1 on SW1 on the PCB to the OFF position. From the *OPERATOR MODE MENU*, roll the trackball up or down until the word *SYSTEM TESTS MENU* appears in purple letters. Now press the START button, and the *SYSTEM TESTS MENU* will appear on the screen.

```
              GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

SYSTEM TESTS MENU

EXIT TESTS

VIDEO SCREEN TESTS

FULL GROM CHECKSUM TEST

FAST GROM CHECKSUM TEST

VIDEO RAM TEST

PALETTE RAM TEST

BOARD TESTS

SOUND TEST

PLAYER CONTROLS TEST

VOLTAGE ADJUST TEST
```

SYSTEM TESTS MENU

VIDEO SCREEN TESTS

You can test your monitor and adjust colors by choosing *VIDEO SCREEN TESTS* and pressing the START button.

```
              GOLDEN TEE '97 V1.00

VIDEO SCREEN TEST

TO VIEW VIDEO TEST SCREENS
PRESS FACE LEFT OR RIGHT BUTTONS
PRESS START AT ANY SCREEN TO EXIT

FOLLOWING SCREENS ARE AVAILABLE

COLOR ADJUSTMENT
SCREEN GRID PATTERN
RED SCREEN
GREEN SCREEN
BLUE SCREEN
WHITE SCREEN
```

VIDEO SCREEN TEST MENU

When the FACE LEFT or FACE RIGHT buttons are pressed, the screen changes to display a grid of colored rectangles. Use these colors as a guide and adjust your monitor so they look as good as possible. This test can be exited at any time by pressing the START button.

FULL GROM CHECKSUM TEST

Choose *FULL GROM CHECKSUM TEST* from the *SYSTEM TEST MENU* to test the Graphics chips on the PCB. This test performs a complete test of the Graphics ROM's. While the test is in progress the following message is displayed:

```
FULL GROM CHECKSUM TEST - 15 SEC TO FINISH
```

FULL GROM CHECKSUM TEST SCREEN
(TEST IN PROGRESS)

When the test is completed the GROM Test Screen is displayed.

```
              GOLDEN TEE '97 V1.00

FULL GROM CHECKSUM TEST

GROM    CHECKSUM   STAT     GROM      CHECKSUM   STAT
GRMA_0 XXXXXX      GOOD GRMB_0   XXXXXX    GOOD
GRMA_1 XXXXXX      GOOD GRMB_1   XXXXXX    GOOD
GRMA_2 XXXXXX      GOOD GRMB_2   XXXXXX    GOOD
GRMA_3 XXXXXX      GOOD GRMB_3   XXXXXX    GOOD

GRMC_0 XXXXXX      GOOD PROM0    XXXXXX    GOOD
GRMC_1 XXXXXX      GOOD PROM1    XXXXXX    GOOD
GRMC_2 XXXXXX      GOOD PROM2    XXXXXX    GOOD
GRMC_3 XXXXXX      GOOD PROM3    XXXXXX    GOOD

FULL GROM CHECKSUM TEST:   (PASSED or FAILED)

PRESS START BUTTON TO EXIT
PRESS LEFT BUTTON TO LOOP TEST
```

FULL GROM CHECKSUM TEST SCREEN
(TEST COMPLETED)

1. If all checksums are shown in blue, the test passed and your game is in good working order.

2. If any checksums are bad, they will be displayed in red text on this screen. This means that the GROM is defective and needs to be replaced. Call your distributor or the Incredible Technologies, Inc. Service Department for further help.
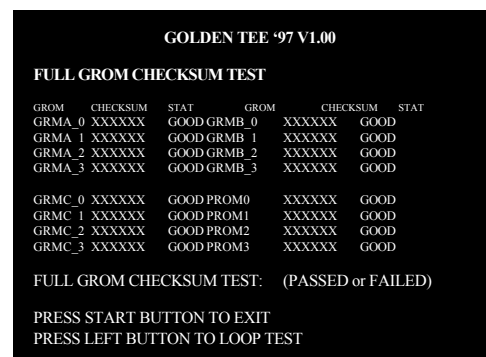3. To exit this test, press the START button.

FAST GROM CHECKSUM TEST

Choose *FAST GROM CHECKSUM TEST* from the *SYSTEM TEST MENU* to test the Graphics chips on the PCB. This test performs a complete test of the Graphics ROM's. While the test is in progress the following message is displayed:

```
                  FAST GROM CHECKSUM TEST
```

FAST GROM CHECKSUM SCREEN
(TEST IN PROGRESS)

When the test is completed the GROM Test Screen is displayed.

```
                  GOLDEN TEE '97 V1.00

      FAST GROM CHECKSUM TEST

      GROM    CHECKSUM   STAT    GROM      CHECKSUM   STAT
      GRMA_0 XXXXXX   GOOD GRMB_0   XXXXXX   GOOD
      GRMA_1 XXXXXX   GOOD GRMB_1   XXXXXX   GOOD
      GRMA_2 XXXXXX   GOOD GRMB_2   XXXXXX   GOOD
      GRMA_3 XXXXXX   GOOD GRMB_3   XXXXXX   GOOD

      GRMC_0 XXXXXX   GOOD PROM0    XXXXXX   GOOD
      GRMC_1 XXXXXX   GOOD PROM1    XXXXXX   GOOD
      GRMC_2 XXXXXX   GOOD PROM2    XXXXXX   GOOD
      GRMC_3 XXXXXX   GOOD PROM3    XXXXXX   GOOD

      FULL GROM CHECKSUM TEST:    (PASSED or FAILED)

      PRESS START BUTTON TO EXIT
      PRESS LEFT BUTTON TO LOOP TEST
```

FAST GROM CHECKSUM TEST SCREEN
(TEST COMPLETED)

1. If all checksums are shown in white, the test passed and your game is in good working order.
2. If any checksums are bad, they will be displayed in red text on this screen. This means that the GROM is defective and needs to be replaced. Call your distributor or the Incredible Technologies, Inc. Service Department for further help.
3. To exit this test, press the START button.

VIDEO RAM TEST

This test performs a complete test of the Graphics video RAM. The video RAM is tested in two pages. The following message will be displayed as each page is tested.

```
              RUNNING VIDEO PLANE A/B.  FIRST PAGE
```

When the test is completed the results will be displayed as follows.

```
                  GOLDEN TEE '97 V1.00

      VIDEO RAM TEST

      VIDEO PLANE A PAGE 0 STATUS       = 0000

      VIDEO PLANE A PAGE 1 STATUS       = 0000

      VIDEO PLANE B PAGE 0 STATUS       = 0000

      VIDEO PLANE B PAGE 1 STATUS       = 0000

      U32  GOOD   U35  GOOD   U30  GOOD   U31  GOOD

      VIDEO RAM TEST [PASSED or FAILED]

      PRESS START BUTTON TO EXIT
      PRESS LEFT BUTTON TO LOOP TEST
```

VIDEO RAM TEST SCREEN

1. If the game passes this test, zeros will be displayed in white along with a VIDEO RAM TEST PASSED message.
2. If the test fails, a non-zero status and VIDEO RAM TEST FAILED message will be displayed in red. Call your distributor or the Incredible Technologies, Inc. Service Department for further help.
3. To exit this test, press the START button.

PALETTE RAM TEST

```
                  GOLDEN TEE '97 V1.00

      PALETTE RAM TEST

      PALETTE TEST STATUS       = 0000

      PALETTE STATUS

      RED  GOOD     GREEN  GOOD     BLUE  GOOD

      PALETTE RAM TEST (PASSED or FAILED)

      PRESS START BUTTON TO EXIT
      PRESS LEFT BUTTON TO LOOP TEST
```

PALETTE RAM TEST SCREEN

BOARD TESTS

This test will perform all of the system's tests at one time.

```
PROGRAM MEMORY U45-U48 (GOOD or BAD)

PALETTE RAM TEST

RED  GOOD     GREEN  GOOD     BLUE  GOOD
PALETTE RAM TEST (PASSED or FAILED)

VIDEO RAM TEST

U32  GOOD    U35  GOOD    U30  GOOD    U31  GOOD
VIDEO RAM TEST [PASSED or FAILED]

GROM TEST

GROM     CHECKSUM   STAT      GROM        CHECKSUM    STAT
GRMA_0 XXXXXX     GOOD GRMB_0    XXXXXX     GOOD
GRMA_1 XXXXXX     GOOD GRMB_1    XXXXXX     GOOD
GRMA_2 XXXXXX     GOOD GRMB_2    XXXXXX     GOOD
GRMA_3 XXXXXX     GOOD GRMB_3    XXXXXX     GOOD

GRMC_0 XXXXXX     GOOD PROM0     XXXXXX     GOOD
GRMC_1 XXXXXX     GOOD PROM1     XXXXXX     GOOD
GRMC_2 XXXXXX     GOOD PROM2     XXXXXX     GOOD
GRMC_3 XXXXXX     GOOD PROM3     XXXXXX     GOOD

FAST GROM CHECKSUM TEST    (PASSED or FAILED)

! ! ! BOARD TEST (PASSED or FAILED) ! ! !
```

BOARD TESTS SCREEN

SOUND TESTS

Choose *SOUND TEST* from the *SYSTEM TEST MENU* to test the sounds and speakers in the game. The sound section also controls the coin meter, and you can test it from this section as well.

```
GOLDEN TEE '97 V1.00

TRACKBALL UP TO MOVE UP
TRACKBALL DOWN TO MOVE DOWN
PRESS START TO CHOOSE

SOUND TESTS

EXIT

COIN METER TEST

TEST ALL SOUND ROMS

SROM0 - BROKEN GLASS

SROM1        - FABULOUS SHOT !

HOLE IN ONE EVENT

MUSIC
```

SOUND TESTS SCREEN

To test the coin meter, choose *COIN METER TEST* from this menu. If everything is working properly, the meter should increment each time the START button is pressed while this line is highlighted.

CONTROL PANEL TEST

When *CONTROL PANEL TEST* is selected, the screen will display a diagram of a typical GOLDEN TEE '97 control panel. The controls are highlighted on the diagram when the controls are active. Test all of the controls, including coin test and service switches. Press FACE LEFT and FACE RIGHT together to exit this test.
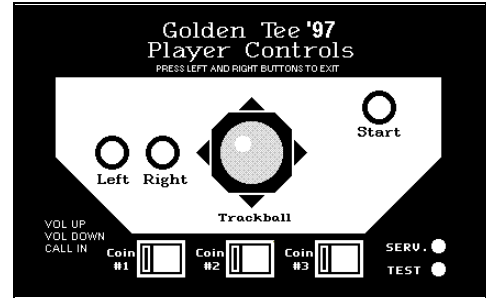
CONTROL PANEL TEST SCREEN

> **NOTE:**
>
> For cabinets with 2 sets of player controls, two separate player control tests will appear in the SYSTEM TESTS MENU.

VOLTAGE ADJUST TEST

When the VOLTAGE ADJUST TEST is selected, the screen will display the history of how the voltage has been and how the current voltage is now. Adjust your voltage until you read voltage is OK.

```
GOLDEN TEE '97 V1.00

PRESS START TO EXIT

VOLTAGE HISTORY IS SET TO OK ON EXIT

VOLTAGE ADJUST TEST

HISTORY:

        VOLTAGE HAS BEEN OK

RIGHT NOW:

        VOLTAGE IS OK
```

VOLTAGE ADJUST TEST SCREEN

APPENDIX A

GENERAL TROUBLESHOOTING

NOTE:

The 5 Volt setting on the power supply *must be* set to 5.2 Volts on the circuit board (I.C.). Use the Voltage Adjust Test screen, on page 19, to help you adjust your power supply. When the test screen reads VOLTAGE OK, your power supply is properly adjusted.

IMPORTANT!:

The supplied trackball comes equipped with a grounding cable. This cable *must be* connected to field ground to protect the trackball P.C. boards from becoming damaged by electro-static discharge.

VIDEO PROBLEMS

Symptom	Probable Cause	Solution
No picture	Check Dip switches.	SW1-Dip switches, 1 thru 4 must be "ON".
		SW2-Dip switches 1 and 2 must be 'ON', and 3 and 4 must be 'OFF'
	Bad connections	Make sure there are good connections from the board's video outputs to the monitor's video inputs.
	Monitor	Make sure the monitor is operating correctly. (Check it with another compatible logic board.)
	JAMMA harness connected improperly	Identify Pin 1 on the JAMMA connector and on the PCB. If installed incorrectly, damage to the PCB may have occurred.
Scrambled Picture	Missing sync connection or misadjusted monitor	Check the sync connection - Adjust monitor
Missing colors or a washed out color	Bad video connections	Check the video red, green, and blue connections.
Bright, blurry, or rolling picture	Misadjusted monitor	Adjust the monitor, not the board. (Refer to your monitor manual.)
Picture too large, too small, or off center	Misadjusted monitor	Adjust the monitor, not the board. (Refer to your monitor manual.)
Video image is flipped	Misadjusted Monitor	Reverse the monitor's convergence wires or flip the monitor 180º. (Refer to your monitor manual.)
Bad images in picture	Bad GROM	Do GROM test. Check IC pins to make sure none are bent over.
Diagonal white lines	GND problem	Earth and Logic GND's should be connected at the power supply.

SOUND PROBLEMS

Symptom	Probable Cause	Solution
No Sound	+12v power supply is bad	Try another +12v power supply.
	Bad connection to the board	Check for +12v power on the board.
		Check for +5v power on the board.
		Check the volume setting in the OPERATORS ADJUSTABLE section of the Operators Mode.
		Check the speaker connections.
	JAMMA harness connected improperly	Identify Pin 1 on the JAMMA connector and on the PCB. If installed incorrectly, damage to the PCB may have occurred.
	Miscellaneous	Make sure the sound status light is flashing on the board.

CONTROL PROBLEMS

Symptom	Probable Cause	Solution
Buttons do not work or are partly inoperable. Or the selections keep scrolling on Operator Mode menus.	Switches not properly connected	Make sure that the common post of the switch is connected to ground.

Make sure each individual switch is working by doing the Control Panel Test found in the SYSTEM TESTS section.

Make sure that the signal wire for that particular switch is connected to the normally open post of the switch. |
| | JAMMA harness connected improperly | Identify Pin 1 on the JAMMA connector and on the PCB. If installed incorrectly, damage to the PCB may have occurred. |
| Coin counter not working | Miscellaneous | Make sure that the signal wire has a connection from the switch to the board.

Make sure +12v is hooked up to the counter.

The signal wire is not connected to coin counter. (Check continuity).

Verify that the counter is good. |
Trackball mounted correctly but is swinging 45° out of line	SW1-Dip switch 3, found near the JAMMA, is not "ON"	Make sure SW1-Dip switch 3 is "ON".
In a two or more player game, controls only work for players 1 and 3	SW1-Dip switch 2, found near the JAMMA, is in the "OFF" position	SW1-Dip switch 2 must be in the "ON" position for cabinets with one set of player controls.
Trackball does not work	No +5 voltage	Bad inductor(L7) or bad connection to trackball.

IMPORTANT!:

The supplied trackball comes equipped with a grounding cable. This cable *must be* connected to field ground to protect the trackball P.C. boards from becoming damaged by electro-static discharge.

POWER-UP PROBLEMS

Symptom	Probable Cause	Solution
No reaction when game is turned on	Voltage to high	Power supply is too high. Power should be between +5v & 5.2v. (Measured on the circuit board).
		Cabinet is not connected to earth ground. (All metal should be connected to the earth ground).
		Short between power and ground. Check for foreign material.
		Disconnect the harness and measure the resistance between power and ground. It should read around 600 ohms. (0 ohms is a dead short).
		Make sure the harness is not shorting to anything, such as bare or frayed wires shorting out each other or hitting bare metal.
	No power from the power supply	Replace power supply.
	Power supply	Power supply too low. (Should ideally be between +5v & +5.2v). (Measured on the circuit board).
	Short on the board	Check for loose or foreign material on the board.
	JAMMA harness connected improperly	Identify Pin 1 on the JAMMA connector and on the PCB. If installed incorrectly, damage to the PCB may have occurred.
	Open on socketed IC's	Check for bent pins on socketed parts.
		Make sure that all IC's are seated in their sockets properly.
Screen flashes repeatedly	+5v setting too low	Check voltage. (Measured on the circuit board).
	SW2 Dip switches near the green LED may not be set correctly.	Make sure SW2-Dip switch #1 and # 2 are "ON", and #3 and #4 are "OFF".

MISCELLANEOUS PROBLEMS

Symptom	Probable Cause	Solution
Green L.E.D. not blinking	Program not running	Make sure all socketed I.C.'s are seated correctly. Look for bent pins.
	Bad connections	Make sure you have continuity from PCB to power supply.
	Loose pin on ASIC (U1)	Call Incredible Technologies, Inc.
Operator adjustables keep changing	Low battery voltage	Battery should be 2 to 3 volts.
	Bad static RAM (U50)	Replace.
Sounds bad	Miscellaneous	Check the speaker connections.
Game comes up in Test Mode	Dip Switch 1 is "OFF"	Make sure SW1-Dip Switch 1, near the JAMMA, is in the "ON" position.
Trackball mounted correctly but is swinging 45º out of line.	SW1-Dip switches are not all "ON".	Make sure the SW1-Dip switches are all "ON".

APPENDIX B

JAMMA HARNESS CONNECTION

JAMMA HARNESS CONNECTION

WIRE COLOR	SOLDER SIDE			PARTS SIDE	WIRE COLOR
Black	GND	A	1	GND	Black
Black	GND	B	2	GND	Black
Red	+5 vdc	C	3	+5 vdc	Red
Red	+5 vdc	D	4	+5 vdc	Red
		E	5		
Orange	+12vdc	F	6	+12 vdc	Orange
KEY		H	7	KEY	
		J	8	Coin Counter	Red-Green
		K	9		
Yellow-Green	Left Speaker (-)	L	10	Left Speaker (+)	Yellow-Red
		M	11		
Green-Black	Video Green	N	12	Video Red	Red-Black
White	Video Sync	P	13	Video Blue	Blue-Black
Orange-Black	Service	R	14	Video GND	White-Black
		S	15	Test	Blue
Green-Blue	Coin2	T	16	Coin 1	Red-Blue
		U	17	Start 1	Red-White
		V	18		
		W	19		
		X	20		
		Y	21		
		Z	22	Player Face Left	Brown-White
		a	23	Player Face Right	Yellow-White
Orange-Yellow	Volume Down	b	24	Volume Up	Orange-White
		c	25	Coin 3	Gray-White
		d	26		
Black	GND	e	27	GND	Black
Black	GND	f	28	GND	Black

TRACKBALL CABLE CONNECTION

Memory Board Connector		Trackball Connector
PIN WIRE #6 - Black	⇒	PIN WIRE #1 - Black
PIN WIRE #1 - Red	⇒	PIN WIRE #2 - Red
PIN WIRE #2 - Yellow	⇒	PIN WIRE #3 - Yellow
PIN WIRE #3 - Green	⇒	PIN WIRE #4 - Green
PIN WIRE #5 - Blue	⇒	PIN WIRE #5 - Blue
PIN WIRE #4 - Purple	⇒	PIN WIRE #6 - Purple

NOTE: REMEMBER TO CONNECT THE TRACKBALL CABLE TO JP7.

APPENDIX C

I/O and JAMMA SCHEMATIC

APPENDIX D

WARRANTY INFORMATION

If the original purchaser discovers any physical defect in the media (disk, EPROM, tape) on which the software is distributed or in the documentation, which in the opinion of Incredible Technologies, Inc. (IT) prevents the product from being used as reasonably intended, IT will replace the media or documentation at no charge. The purchaser must return the item to be replaced, with proof of purchase, to IT within 90 days after taking delivery of the software.

IT warrants to the original purchaser that the hardware product is in good working condition for a period of 90 days from taking delivery of the product. Should this product, in IT's opinion, malfunction within the warranty period because of a defect in design, materials, or workmanship, IT will repair or replace this product without charge under the terms as follows. Replacement of either the hardware product or its component parts will be only on an exchange basis. Any replaced parts or components become the property of IT. This warranty does not apply to those products which have been damaged due to accident, abuse, improper installation, natural disaster, or unauthorized repairs or modifications.

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