

# Section 4

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## Player Panel Switches

The player panel switches are electromechanical devices that interact between the player and the processor board. Each player panel switch illuminates whenever its function is available, both during game play and the diagnostic mode. IGT machines may use both Starpoint and IGT player panel switches.

This section is organized as follows:

- **Section 4.1, Switch Routine Maintenance** – describes inspection and maintenance procedures for both types of switches.
- **Section 4.2, Switch Adjustments** – covers adjustment procedures for both types of switches for correct operation.
- **Section 4.3, Switch Removal** – describes removal procedures for both types of switches from the top panel or machine door.
- **Section 4.4, Switch Disassembly and Assembly** – covers disassembly and assembly procedures for both types of switches.
- **Section 4.5, Switch Installation** – details installation procedures for both types of switches into the top panel or machine door.
- **Section 4.6, Switch Functional Verification** – covers testing of switch electrical inputs and outputs.



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## 4.1 Switch Routine Maintenance

Periodic maintenance of each player panel switch is recommended to ensure optimum performance and aesthetic quality.

### 4.1.1 General Cleaning

1. Clean the surface of each lens cap using a cloth soaked with a mild glass or plastic cleaner.
2. Wipe dry using a lint-free cloth.

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**Note:** Do not use cleaners or solvents that contain chemicals capable of dissolving or fogging plastic, such as Acetone.

Always wear eye protection when using strong cleaning solvents or compressed air.

Do not use hand tools to install switches, as over-tightened switches will bind.

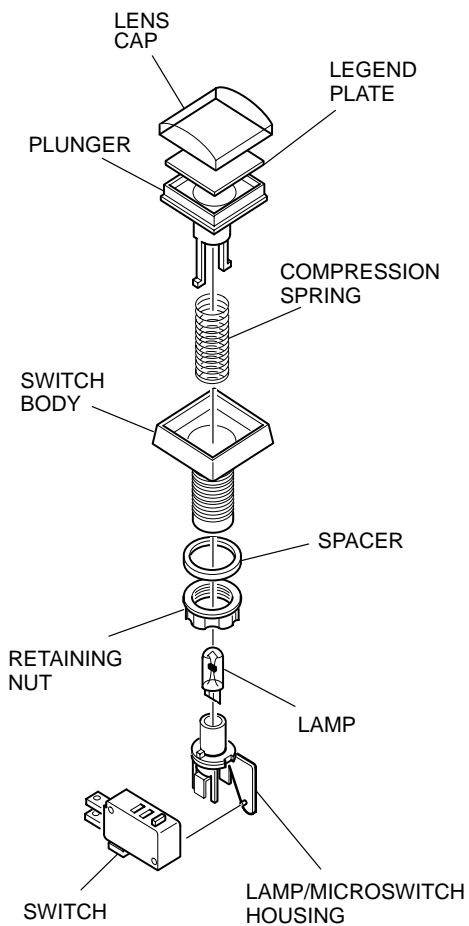
Make sure the machine is completely turned off before performing any cleaning procedure.

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### 4.1.2 Switch Inspection

1. Inspect the lens cap area of the switch for aesthetic quality and proper seating in the switch body; see Figures 4-1 and 4-2.
2. Confirm that the plunger moves freely, without binding, by repeatedly pressing down on the lens cap, both in the center and around the edges.
3. Make certain each switch body is properly mounted in the player panel and that its retaining nut is finger-tight only.
4. Confirm that all wire connections are secure and that all wires are in good condition.
5. Confirm that the legend plate does not have any rough edges that may cause the switch to bind.

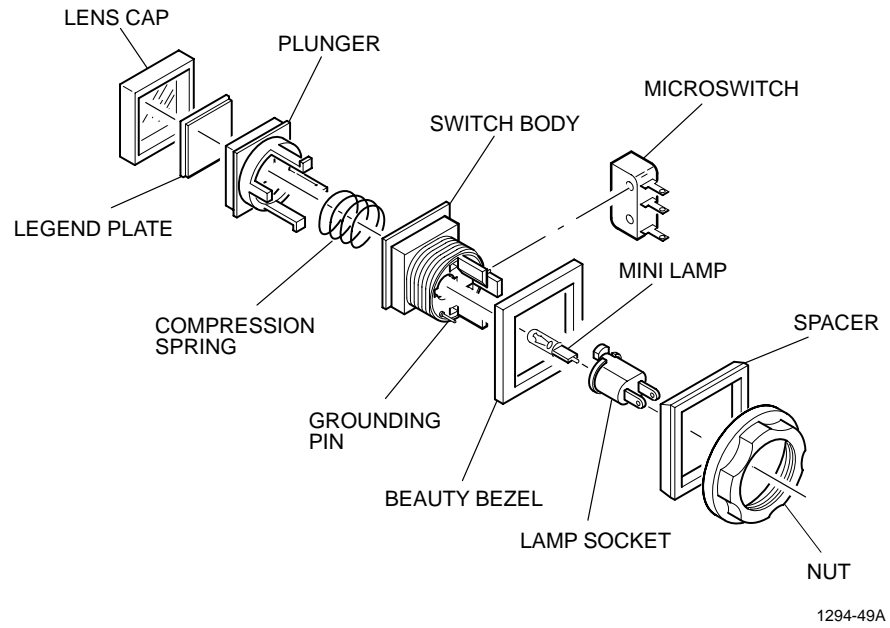




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**Figure 4-1. Starpoint Switch Components.**





**Figure 4-2. IGT Switch Components.**

### 4.1.3 Precision Cleaning

Perform the following procedures for each player panel switch; see Figures 4-1 and 4-2.

#### *Plunger*

1. Clean the plunger spring with alcohol, using a stiff, short-haired brush.
2. Clean the plunger sides and tabs, the lens cap and the legend plate with warm soapy water using a stiff, short-haired brush.
3. Rinse thoroughly with clean water and dry each part using compressed air (not to exceed 60 psi).

#### *Switch Body*

1. Clean the outer rim and the inner areas of the switch body with warm soapy water, using a stiff, short-haired brush.
2. Rinse thoroughly with clean water and dry each part using compressed air (not to exceed 60 psi).



### *Microswitch*

1. Clean the microswitch terminals and actuator with alcohol using a stiff, short-haired brush. Always direct the brush strokes away from the switch to avoid contaminating the internal switch contacts.
2. Dry the switch using compressed air (not to exceed 60 psi).
3. If the internal switch contacts are sticky or dirty, replace the microswitch.

### *Lamp and Socket*

1. Clean the internal contacts and external terminals of the socket and the lamp contacts with alcohol, using a stiff, short-haired brush.
2. Dry the socket and lamp using compressed air (not to exceed 60 psi).

### *Hardware*

1. Clean the retaining nut, beauty bezel and spacer with warm soapy water, using a stiff, short-haired brush.
2. Rinse thoroughly with clean water and dry each part using compressed air (not to exceed 60 psi).



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## 4.2 Switch Adjustments

The player panel switch does not require any routine operational adjustments. However, use the following procedures occasionally to optimize switch reliability.

1. Make certain the lamp fits securely into the lamp socket and that both sets of contacts properly engage. Carefully bend the lamp contacts slightly away from the flat part of the lamp (perpendicular) to help make a better connection upon inserting the lamp.
2. Be sure that the microswitch and the lamp socket are properly attached to the switch body.
3. Check to see that the lens cap and legend plate fit properly on the plunger and that the plunger moves freely without binding within the switch body.
4. Make certain the switch retaining nut is finger-tight only. If the plunger does not move freely after installation or cleaning, the switch retaining nut may be too tight.



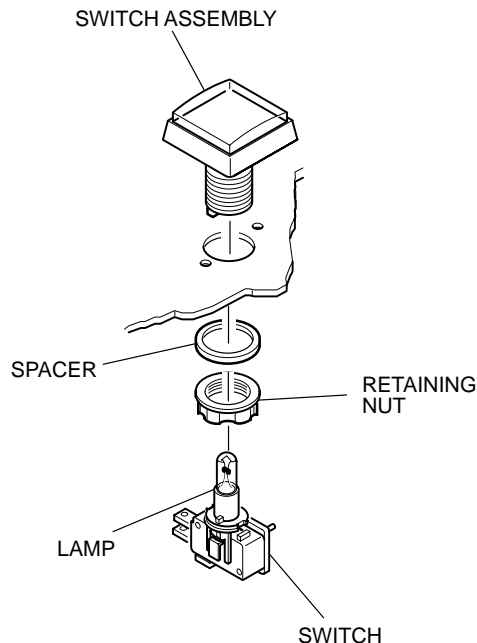
## 4.3 Switch Removal

This procedure describes the removal of Starpoint and IGT player panel switches.

It is not necessary to remove the entire switch body from the player control panel for minor cleaning or to replace the lamp. In these instances, refer to the partial removal procedure that follows. Refer to the complete removal procedure to remove the entire player panel switch. The switch installation procedure follows the switch disassembly and assembly sections.

### 4.3.1 Starpoint Switch Removal

1. Open the top panel or machine door and turn the **power off**.
2. Disconnect all wires from the back of the switch assembly. See Figure 4-3 and proceed as follows.
  - a. **Partial Removal:** Grasp the microswitch and pull straight out to disengage the lamp/switch housing from the switch body.
  - b. **Complete Removal:** After completing the partial removal procedure, remove the plastic retaining nut and spacer that fasten the switch assembly to the player panel. Lift the switch assembly away from the front of the panel.



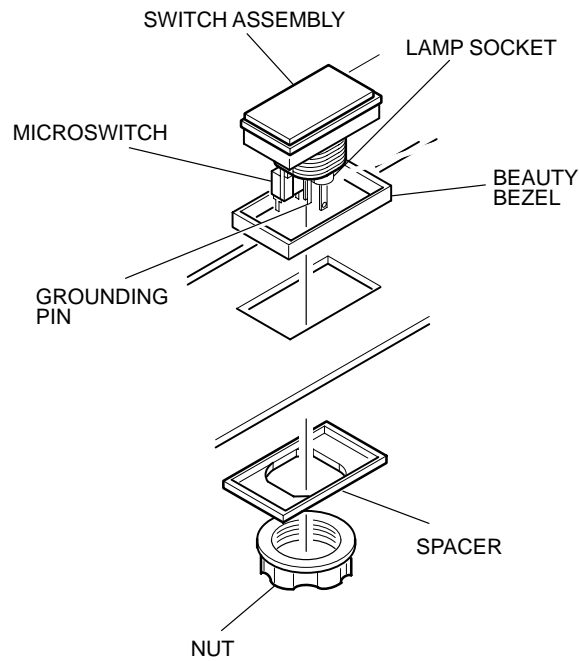
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**Figure 4-3. Starpoint Switch Removal.**



## 4.3.2 IGT Switch Removal

1. Open the top panel or machine door and turn the **power off**.
2. Disconnect all wires from the back of the switch assembly. See Figure 4-4 and proceed as follows.
  - a. **Partial Removal:** Refer to the specific procedures that follow in Section 4.4 to remove the lamp, plunger or microswitch.
  - b. **Complete Removal:** From the underside of the panel, unscrew and remove the nut and spacer that fasten the switch assembly to the player panel. Lift the switch assembly and beauty bezel away from the front of the player panel.



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**Figure 4-4. IGT Switch Removal.**



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## 4.4 Switch Disassembly and Assembly

The following procedure describes how to completely disassemble and assemble a player panel switch. See Figures 4-1 and 4-2 for details.

### 4.4.1 Lamp

The lamp consists of a socket and a wedge lamp. It is not necessary to remove the entire player panel switch from the top panel to disassemble the lamp assembly.

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**Note:** Be sure to use the correct 14 volt replacement lamp in Vision machines.

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#### *Starpoint Switch*

#### Lamp Disassembly

1. With the machine **power off**, disconnect all wires from the back of the switch assembly, noting wire colors and positions.
2. Grasp the microswitch and pull straight out to disengage the lamp/switch housing from the switch body.

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**Caution:** Do not use pliers to remove the lamp. The glass may shatter, causing potential injury.

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3. Carefully pull the lamp straight out from the lamp socket using only your fingers.

#### Lamp Assembly

1. Position the lamp/switch housing in the switch body so that the plunger tabs align with the cutouts in the base of the lamp socket. Press the assembly firmly to snap it into place.
2. Connect the wires to the back of the lamp socket as noted during lamp disassembly or refer to the wiring diagram in the appropriate electronic diagrams and parts manual.



## IGT Switch

### Lamp Disassembly

1. With the machine **power off**, disconnect the two wires from the back of the lamp socket, and the green ground wire from the switch housing.
2. Turn the lamp socket 1/4 turn (90 degrees) using needle-nose pliers and pull the lamp socket out from the switch housing.

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**Caution:** Do not use pliers to remove the lamp. The glass may shatter, with the potential to cause injury.

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3. Carefully pull the mini-wedge lamp straight out from the lamp socket using only your fingers.

### Lamp Assembly

1. Position both leads on the mini-wedge lamp so that each lead is bent toward the flat area on opposite sides of the lamp. Align the flat area on the lamp with the slotted opening in the lamp socket and carefully insert the lamp into the socket.
2. Align the two plastic tabs on the lamp socket with the notches and socket opening in the switch housing and insert the lamp socket into the switch housing. Use needle-nose pliers to turn the lamp socket 1/4 turn (90 degrees) and lock the lamp socket into place.
3. Connect the two wires to the back of the lamp socket (wire positions are interchangeable) and the green ground wire to the switch housing.



## 4.4.2 Microswitch

The microswitch is a self-contained, removable unit on the underside of the player panel switch assembly.

### *Starpoint Switch*

#### **Microswitch Removal**

1. With the machine **power off**, disconnect all wires from the back of the switch assembly, noting their wire colors and positions.
2. Grasp the microswitch and pull straight out to disengage the lamp/switch housing from the switch body.
3. Position the lamp/switch housing as shown in Figure 4-1. Grasp the switch with your fingers or needle-nose pliers. Carefully bend the longest point of the lamp/switch housing away from the microswitch and rotate the microswitch forward and down, just enough to disengage the switch from the housing. Continue rotating the switch until it is completely free from the housing.

#### **Microswitch Installation**

1. Align the microswitch and the lamp/switch housing as shown in Figure 4-1. Tilt the microswitch forward and down. Insert the rear housing post into the corresponding slot in the microswitch, rotate the microswitch upward and snap the remaining housing post into the slot in the microswitch.
2. Carefully bend the longest point of the lamp/switch housing away from the microswitch enough to move the microswitch up into position. Adjust the microswitch until the two tabs on the retaining flanges capture the switch.
3. Position the lamp/switch housing in the switch body so that the plunger tabs align with the cutouts in the base of the lamp socket. Press the assembly firmly to snap it into place.
4. Connect the wires to the back of the microswitch as noted during removal.



## IGT Switch

### Microswitch Removal

1. With the machine **power off**, disconnect the two wires from the back of the microswitch.
2. Hold the microswitch with your fingers or needle-nose pliers and tilt it back, away from the two switch retaining flanges until the two tabs on the flanges release the switch. **Do not** grip the switch too tightly; the switch's plastic casing may break.
3. Pull the microswitch straight out from the switch housing.

### Microswitch Installation

1. Align the switch actuator with the white plunger located between the switch retaining flanges on the switch housing.
2. Bend back the outer retaining flange and insert the microswitch between the outer flange and the two tabs on the two inner retaining flanges. Adjust the microswitch until the two tabs on the retaining flanges capture the switch.
3. Push down on the player panel switch to verify the microswitch fits correctly in the housing. The switch actuator should click both when pushed down and when released.
4. Connect the two wires to the back of the microswitch.



### 4.4.3 Plunger

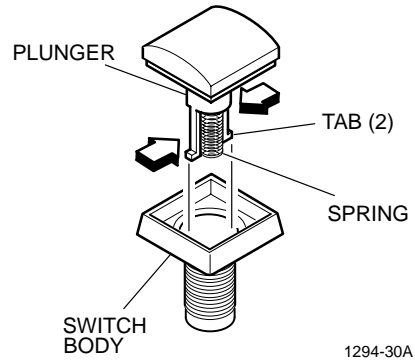
The plunger assembly consists of a lens cap, legend plate, plunger and compression spring.

#### Disassembly

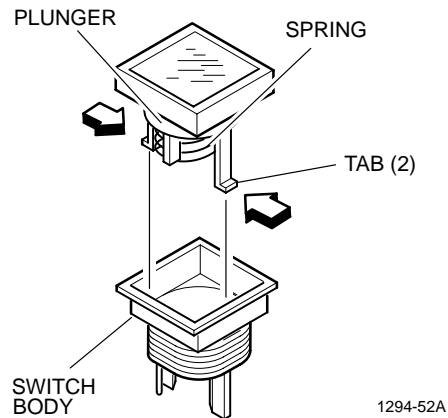
See Figures 4-5 and 4-6, Plunger Disassembly.

1. Remove the player panel switch assembly using the procedure in Section 4.3.
2. Squeeze the two white plunger tabs together and push the plunger up through the cylindrical area of the switch body.

3. Use the eraser end of a pencil or another soft, blunt, cylindrical object to push the plunger assembly up and out of the switch body from underneath the top panel.
4. Carefully insert the tip of a flat-blade screwdriver or knife between the edge of the lens cap and the lip on the plunger. Gently rotate the blade until the lens cap separates from the plunger.



**Figure 4-5. Starpoint Plunger Disassembly.**



**Figure 4-6. IGT Plunger Disassembly.**



## Assembly

1. Place the legend plate onto the plunger and fit the lens cap over the legend plate and onto the plunger, squeezing the two together until they snap into place.
2. Install the compression spring between the tabs on the back of the plunger. Compress the spring against the bottom of the plunger and use needle-nose pliers to lightly squeeze the two longer opposing tabs toward each other until they capture the spring.
3. Align the two plunger tabs with the holes in the switch housing and carefully insert the plunger tabs into the cylindrical area of the switch housing. Push the plunger completely into the switch housing until the plunger tabs protrude from the back of the housing. Verify that the compression spring is not crooked.
4. Press and release the plunger several times to confirm that the plunger moves freely within the switch housing. If the plunger sticks or does not return, repeat the disassembly and assembly steps or replace the switch assembly.
5. Reinstall the switch as described in Section 4.5.



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## 4.5 Switch Installation

If the entire switch was removed from the player control panel, proceed as follows.

1. Insert the switch assembly through the appropriate hole in the player control panel. Be sure the legend plate is oriented correctly.
2. Hold the switch assembly in place and fasten the switch to the player panel with the plastic spacer and retaining nut. Tighten the retaining nut finger-tight only.
3. Confirm that all switch components are installed properly, including the microswitch and lamp housing.
4. Confirm that the switch moves freely after installation. If the plunger sticks or has limited movement, the retaining nut may be too tight.
5. Connect the wires to the microswitch and lamp socket. Refer to the appropriate electronic diagrams and parts manual for correct pinouts and wire colors.
6. Turn the **power on**; close and lock the top panel or machine door.



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## 4.6 Switch Functional Verification

Refer to the related machine specific game software manual for information about using the input tests and output tests.

- **Inputs** - to verify correct operation of the microswitches
- **Outputs** - to verify correct operation of the switch lamps

