

# TPC



# Mirage 2.0 Hydraulic Patient Chair



## Installation, Operation & User Manual

**TPC**

851 S. Lawson St.

City Of Industry, CA 91748

P626-810-4337 Fax 626-810-4245



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The dental chair is marked with a product identification label including manufacture, serial number and date of manufacture. This label is located on the left side cover of the dental chair.



The dental chair is marked with a Risk Class symbol. This label is located on the left side cover of the dental chair.



The dental chair is marked with a main electrical grounding point symbol. This label is located on the base of the chair.

# TPC



**The dental chair is marked with a main electrical grounding point symbol. This label is located on the front left side of the dental chair steel base frame, under the plastic cover.**



The fuse is a 10-amp Fuse,5x20mm

**The dental chair is marked with a fuse label symbol. This label is located under the pump cover on the front left side of the chair frame.**



## Transportation / Storage Information

- Do not store the dental chair in temperatures exceeding 130 degrees.
- Do not store the dental chair on its side. Always store upright on pallet.
- Do not stack more than 5 packaged chairs at a time on top of each other.
- Use approved pallet jack or forklift to move the dental chair.
- Do not attempt to move stacked dental chairs.
- Only store the dental chair in dry cool place.



## Dental Chair Installation Instructions

1. Remove the plastic covers from the base of the dental chair.  
Slide the back cover straight back to remove it from the chair base.



2. Remove the 4 shipping bolts that secure the chair to the pallet.  
Two are up front and two are towards the back of the chair.



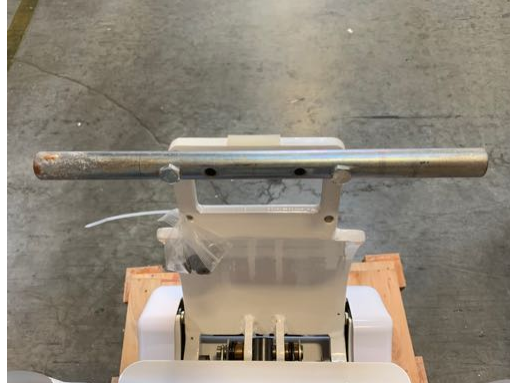
3. Remove the lift handles from the pallet. Install on the threaded hub on each side of the chair. These are going to be used as a lift point. **Do-not use the chair armrest as lift points.**



4. After the chair is placed in the installation location, Install the leveling lugs in the holes that were used to secure the chair to the pallet. These will be used to level the chair base in the event the floor is not level.



5. Remove the lift handles from the backrest mount by removing the two 14mm bolts.



6. Secure the backrest support to mounting hub using the (4) 6mm Allen bolts. You don't need to remove the plastic cover. Gently slide the backrest hub between the plate and the plastic cover.



## Installing Dental Chair Upholstery

1. Open the bolt package included in your upholstery box.
2. Locate the nuts and bolts shown in figure 1.
3. Attach the nuts to the bolts and place them in the backrest frame as shown in figure 2. Adjust the nut so that the head of the bolt and the back of the nut can slide up and down with little resistance in the back rest frame.
4. Once the space is adjusted remove the bolts with the nuts still attached and try to keep the spacing the same.
5. Place the bolts into the backrest as shown in figure 3
6. Slide the upholstery into the backrest bracket. Press gently on the backrest upholstery side so that all four bolts align properly. Once aligned apply pressure to the top of the upholstery and lock it into place. Figure 4



Figure 1

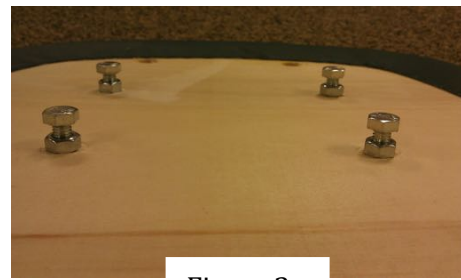


Figure 3



Figure 2



Figure 4



7. Take the seat cushion out and place it upholstery side down.
8. Locate the rivet insert holes to mount the seat cushion hardware.
9. Use the Allen screws, lock washers and washers shown in figure 1 to attach the s-bracket shown in figure 2 to the upholstery
10. Mount the s bracket as shown in figure 3.
11. Attach the two supplied Allen screws to the chair seat cushion frame shown in figure 3.



Figure 1



Figure 2



**Incorrect: Mounting the S-bracket this way will damage the upholstery frame. Damage will occur. Notice that the bracket is hanging over the upholstery.**



Figure 3

**Correct: Notice that the S-bracket is flush with the end of the upholstery.**

12. Insert the chair seat cushion into the seat pan bracket notch shown in figure 1. You will notice that the seat pan is notched so that the bracket can slide into place and not move from left to right.
13. locate the Allen screws, lock washer and washers shown in figure 2
14. Once the bracket is securely in place you may fasten the toe of the upholstery to the frame as shown in figure 3.
15. Attach the headrest upholstery to the headrest stem as shown in figure 4. Be sure to use the counter sunken Phillip head screws shown in figure 3. Don't over tighten the screws.



Figure 1

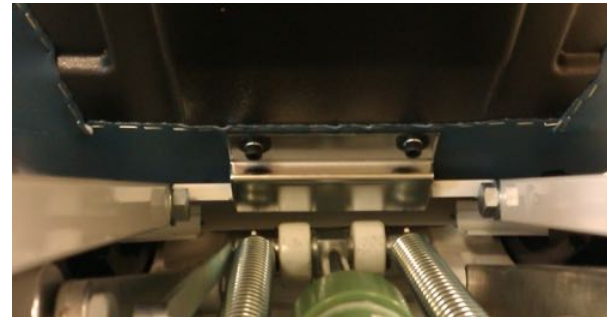


Figure 1.1



Figure 2



Figure 3

1. Place the plastic cover over the headrest cushion.



2. Attach the headrest cushion to the headrest stem using 3 (2.5MM) Allen screws. Bag (E)



## Overview of foot control operations

### 1. Seat Height Adjustments

- To raise, press down on upper area of the foot control.
- To lower, press down on the lower area of the foot control.

### 2. Backrest Adjustments

- To raise, press down on right side of the foot control.
- To recline, press down on left side of foot control.

### 3. Preset Operation

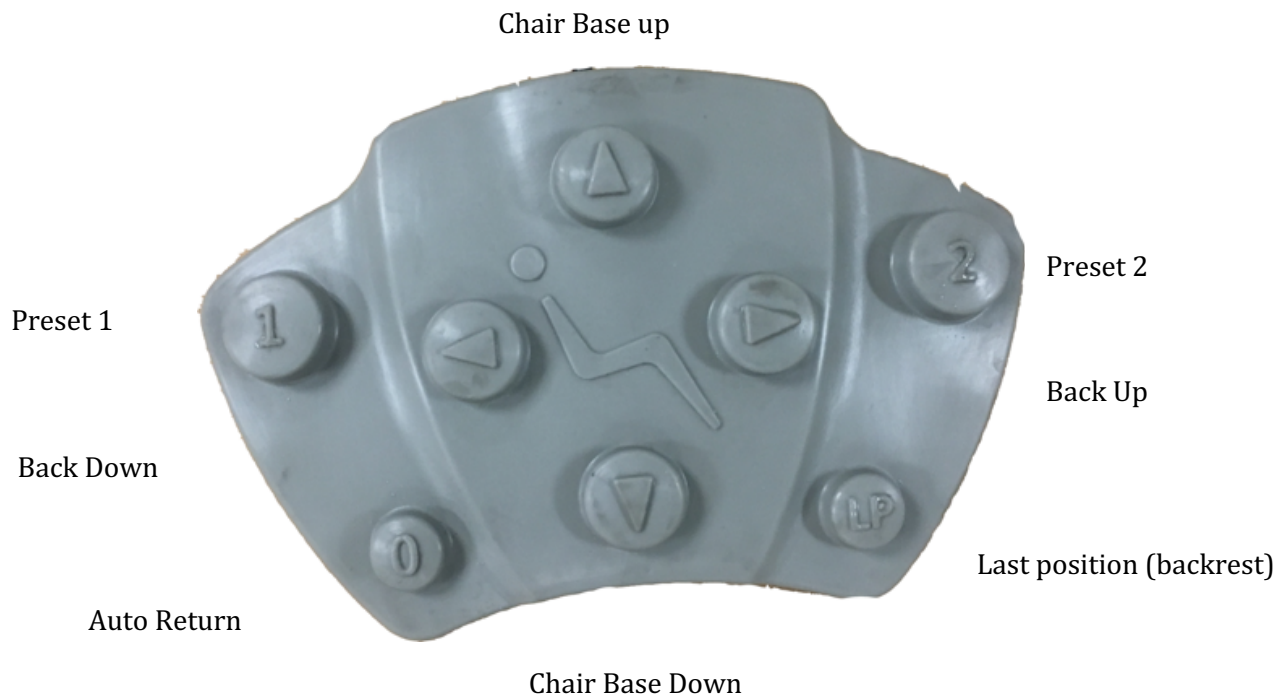
- Manually move the chair to the desired position. Press and hold the pre-set switch (#1, or #2) on the foot control to program. After 5 seconds you will hear a confirmation beep.

### 4. Automatic Return

Momentarily press 0 switch on foot control to activate chair to return to normal position.

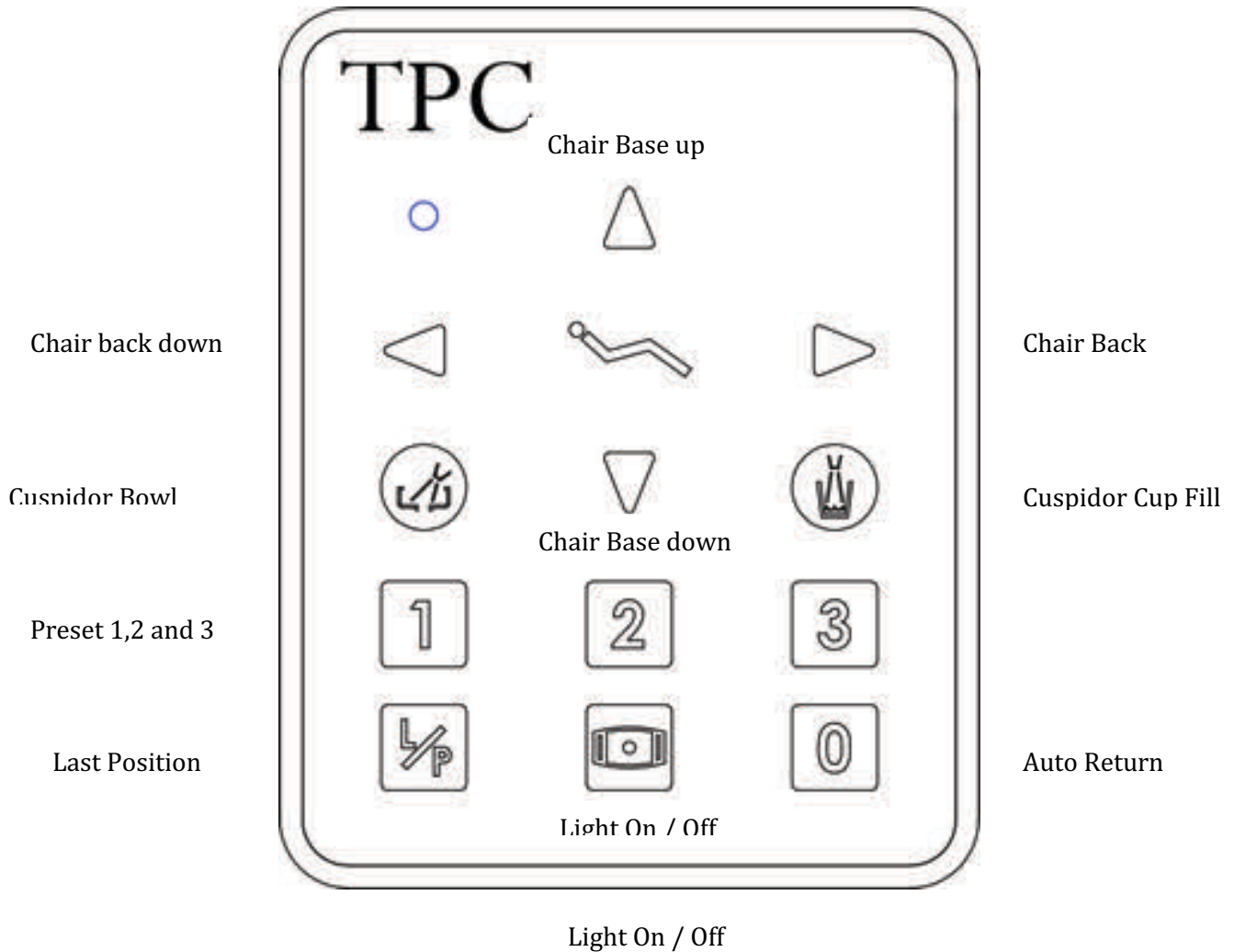
### 5. LP Last position

By pressing the (LP) last position button the chair backrest will travel to the last position.





## Overview of optional touchpad controls



A safety plate is provided under the cantilever cover to stop motion of chair when object is accidentally caught underneath.



## **Armrest Rotation**

Either armrest can be rotated outward by grasping the end portion of armrest, pulling upward and turning.



## **Headrest Adjustments**

Height of headrest can be adjusted simply by pulling headrest up or down due to friction mount incorporated in backrest. Angle of articulating headrest can be changed by releasing slide bar on headrest stem



## **Function**

The Mirage Hydraulic Patient Chair does not use conventional mechanical or mercury limit switches. Motion of the chair base and backrest move variable resistances (potentiometers) making it possible for the control circuitry to continuously know the exact position of the base and backrest, not only when they hit the end of their travel. Adjustments for all four actions (seat raise/lower, backrest raise/recline) are located on the control PCB.

## **Adjustment**

To set a specific limit for the mirage operatory chair, perform the following instructions. Remove the pump cover from the chair. Locate the slider switch labeled S1. The switch is located on the lower left corner of the main PCB board. This will put the chair into service mode. Use the touch pad or foot control to move the chair to the desired position. See below for detailed instructions on setting each limit. A diagram of the PCB board is on the following page.

### **Seat Lower Limit**

Using the manual controls, set seat height to the position where the lower limit is set. Press Lift DO on the main PCB board to program. Reset the Slide Switch on PCB to the “off” position. Use the touch pad or foot control to move the chair up, and then use the lift down on the touch pad or foot control to verify that the new limit is set.

### **Seat Height Limit**

Using the manual controls raise the seat height fully. At the physical top of travel, the motor will continue to run, but upward motion will stop (oil bypass channel has opened in cylinder). Lower the seat height slightly from this point and press LIFT UP button on Control PCB. Reset the Slide Switch on PCB board to the “off” position. Then use the touch pad or foot control to lower the chair, raise the chair and verify the desired height limit is set.

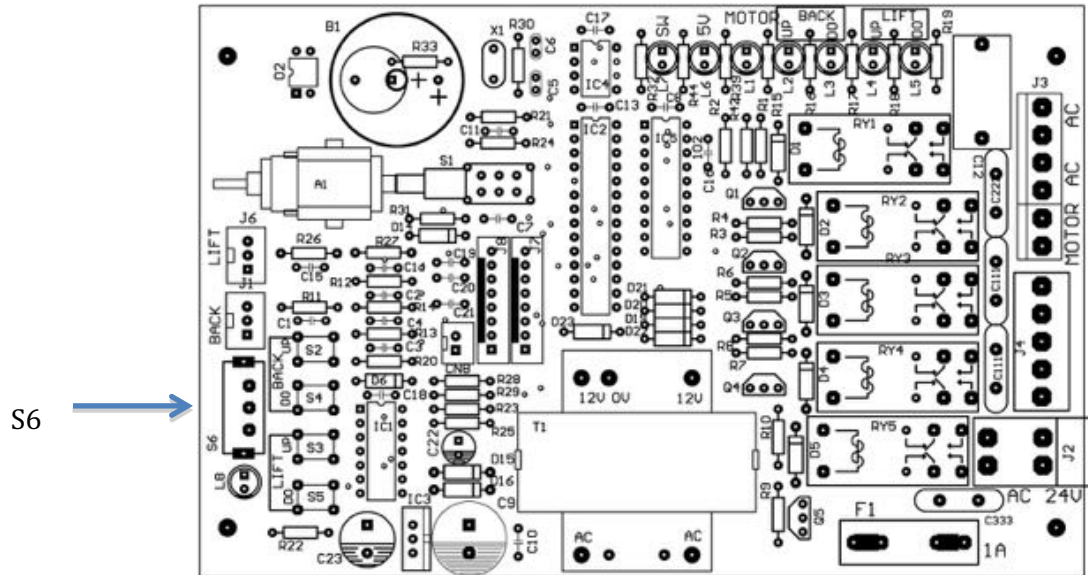
### **Backrest Recline Limit**

Using the manual controls, Recline the backrest fully. Raise the backrest slightly from this point and press the BACK DN button on the main PCB board. Reset the Slide Switch on PCB board to the “off” position. Then raise the back rest and then lower it to verify the desired setting is set.

### **Backrest Up Limit**

Using the manual controls, raise the backrest fully. Then lower the backrest slightly from this point. Press the backup button on the main PCB board. Reset the Slide Switch on PCB board to the “off” position. Then use the foot control disc to lower the backrest. Raise the backrest to verify the desired height limit is set.

## Main PCB Board



### Auto Limit Function:

The Mirage 2.0 dental chair PCB can perform an auto limit function. To perform this procedure slide “S6” to the “ON” position by sliding it down.

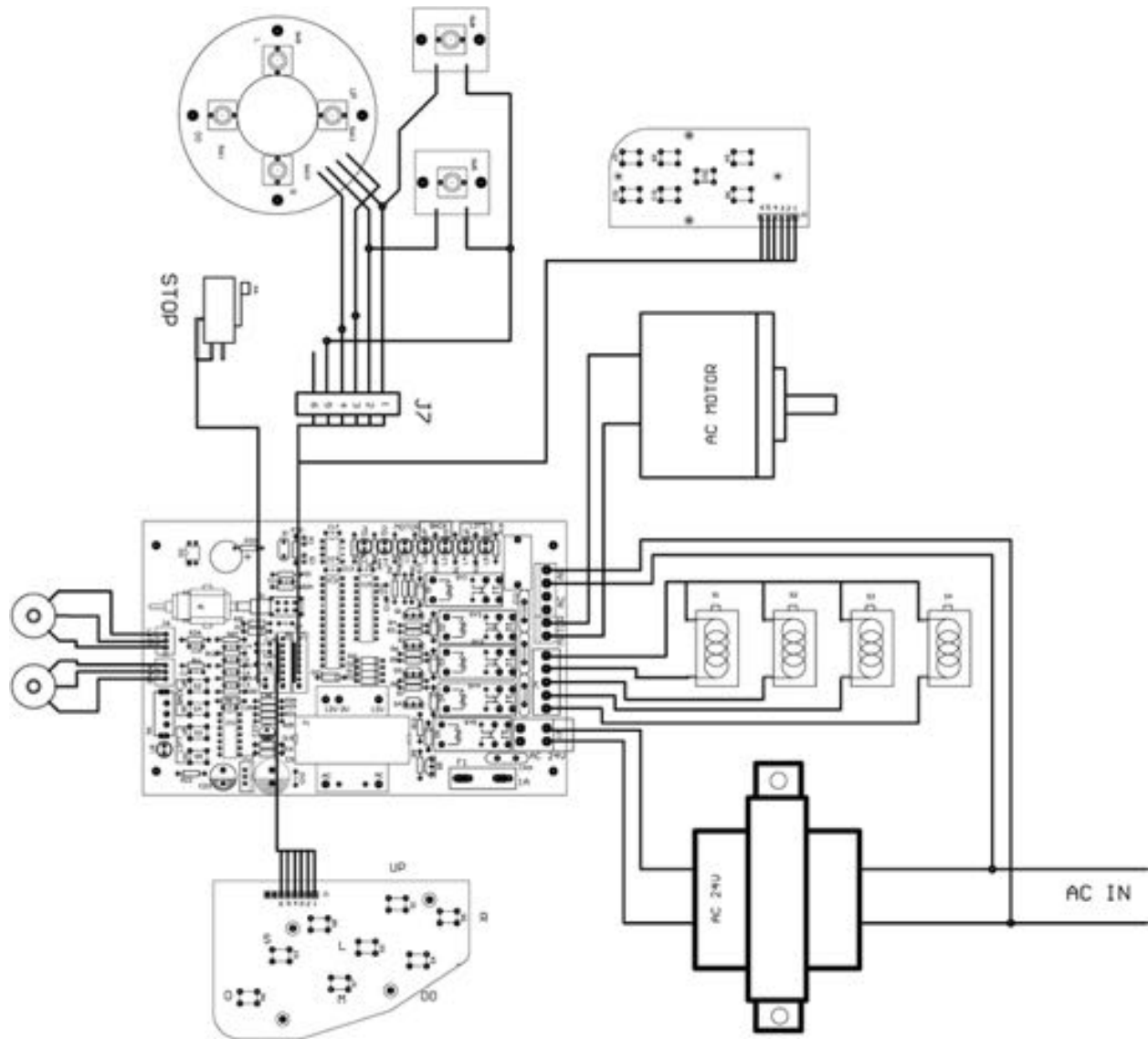
Verify there are no obstructions around the dental chair. This includes the delivery unit arms and operatory light.

Press and hold “S2” (Back UP) button. When this button is initially pressed the board will tone. Keep this button held in for 5 seconds. When you hear the second beep the chair will begin to move in its own. You may release the button when the chair begins to move.

The chair will go through two complete cycles of movement. The first cycle is the maximum travel of the chair. The second cycle will deduct about 10% of the first measured movement from cycle 1. Once this procedure is complete the chair will sit in an exit position with the base down and the backrest up. The board will continue to beep when this procedure is complete. Slide “S6” to the off position.

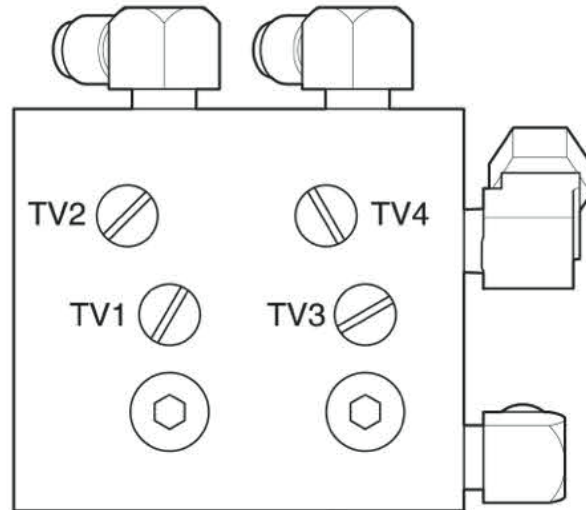
During this process if the chair short travels, this indicates that there is a problem reading the resistance of the potentiometers to the main PCB. Or the safety plate is being engaged. You will need to check the potentiometer set screws for the backrest and seat base and try the process again. You can disconnect the safety plate from the main PCB board during this process and re connect when complete if necessary.

## Wiring schematic



## Operating Speed Controls

Operating speeds are preset at factory but can be changed if desired.



- TV1 = Base up flow control
- TV2 = Base down Flow Control
- TV3 = Back up flow control
- TV4 = Back down flow control

When adjusting the flow control valves counterclockwise turns will open / increase flow. Turning the valve clockwise will close the valve and decrease the flow.

Don't open or close a flow control valve completely. Its best to adjust in quarter turn rotations only.

## Main Power Switch and fuse location

When the main power switch is illuminated the power is "ON". If the switch is not illuminating and is in the UP position "On" Check the two 10 Amp fuses to the right of the switch. Disconnect the main power cord when checking the fuses. These fuses are 10Amp 250v 5X20mm glass fuses. Replace if necessary. If a fuse blows immediately, this indicates there is a short in the wiring. Contact a service technician or call TPC technical support.





## **Mirage 2.0 Patient Chair – Care and Maintenance**

No maintenance is required except normal care and cleaning.  
Clean vinyl upholstery and plastic components with mild soap and water.

Barrier covers should be used on chairs for asepsis.  
Surface disinfecting chemical will eventually cause some discoloring of upholstery.

### **Suggested Disinfectant Application**

Clean dirt and stains with mild soap and water.  
Moisten an applicator with disinfectant; mildly wipe the material with the disinfectant.  
Do not allow the disinfectant to soak in or dry on the surface; wipe off with soap and water.

### **PLEASE KEEP LIQUIDS AWAY FROM ELECTRICAL CONNECTIONS!**

Most electrical control switches ARE NOT hermetically sealed.  
When a switch gets wet, it can self-activate, or perhaps short out and damage other system components. Keep switches dry. Avoid costly equipment damage or failure. Avoid downtime by following these guidelines:

Please DO NOT spray disinfectants directly at or into electrical switches and controls.  
Spray these solutions onto a cloth and wipe down the control surfaces. Be careful not to saturate the cloth.

- Any action not recommended by the manufacture may cause risk of injury or shock!  
**FOR ADDITIONAL INFORMATION CONTACT YOUR TPC DEALER**



## Mirage Model 4000 Troubleshooting

Problem	Cause	Solution
Dental Chair does not move up or down. Chair makes no sound.	No power Blown fuse Power switch off Blown transformer	Check power source Check fuse Check power switch Check transformer voltage 12vac
Dental Chair will not move, but makes a beep sound when controls are pressed	Safety switch plate Limit switch memory erased	Check safety plate Re-program limit switches. Refer to motions of limit controls
Chair makes noise when motor is running. Squealing	Chair is low on hydraulic fluid	Re-fill hydraulic reservoir
Dental Chair does not go low or high enough	Program limits	Re program limit switch settings
Unable to program preset position 1, 2 and 3	Chair is in program mode and not operational mode.	Put chair in normal operation mode. Change SW1 on Main PCB
When I auto return the chair with button 0 the chair goes down and then raises about 3” once its down	Safety switch is being tripped.	Check safety switch and area around chair base.
My chair is on but there is no control out of the touch pad	Touch pad is not connected Touch pad is burnt out	Connect touch pad Replace touch pad
My head rest does not stay in the position that I put it in	Set screws in backrest are loose.	Tighten set screws
Chair arm rest moves very easly.	Screw is loose that holds assembly together	Tighten screw



### Mirage Model 4000 Don'ts

- Don't exceed the maximum weight capacity of 650 lbs. or damage may occur.
- Don't let more than one patient sit in the chair at one time.
- Don't stand anywhere on the dental chair.
- Don't operate the dental chair around any flammable liquids.
- Don't exceed the maximum mode of operation time "3 min".
- Keep liquids away from electrical components.

## TPC 5 YEAR LIMITED WARRANTY

### **Warranty Information**

All of our products sold are guaranteed to be free from defects in workmanship and materials for a 1 year from date of purchase, unless otherwise stated. TPC will repair or replace any defective part at no charge. TPC will not be responsible for labor charges or shipping charges to / from the TPC facility. This guarantee does not cover normal wear or stains on surface finish. The guarantee does not cover damage resulting from improper installation, misuse or accidents incurred in shipping and handling. All claims against the freight carrier must be initiated at the time the damaged items are received. The claim is the responsibility of the customer. We are improving our products on a continuous basis. We reserve the right to make modifications without the need for prior notification and are not obliged to modify previously manufactured items. Main drive motors parts are covered under the 5 year warranty. Main chair PCB, transformer are also covered under a 5 year warranty. Major cast components are covered under the TPC limited 5 year warranty. Upholstery, arm rests and any plastic components are covered under a 1 year warranty. Only authorized service technicians should attempt to service TPC equipment. Service performed by any unauthorized technicians may result in a voided warranty.