

TPC

Mirage Model 4000

Mirage Model 3000

Hydraulic Patient Chair



Installation, operation & User Manual

TPC

851 S. Lawson St.

City Of Industry, CA 91748

P626-810-4337 Fax 626-810-4245



Important! It's IMPERATIVE that you read this page before continuing.

All patient chairs are pre-wired with low voltage wiring.

- All patient chairs are pre-wired with touch pad control cables.
- Patient chairs that are used for radius unit “swing mount”, are pre plumed with all the required tubing to make your installation more convenient.
- If your installation requires the installation of a touch pad DO-NOT install the upholstery seat cushion till after your touch pad is installed. Failure to do so will result in double work.
- If at any time you have questions regarding your installation please don't hesitate to contact TPC toll free @ 800-560-8222 or via E-mail @ service@tpcdental.com



Table on Contents:	Page
GENERAL INFORMATION	3
Transportation / Storage Information	3
Unpacking and Inventory	4
Installation and coordination	5
Operation instructions	7
Overview of controls	8
Motion Limit Controls	10
Main PCB Board	11
Adjusting main flow control block	12
Replacement Parts List	13
CLEANING & DISINFECTING GUIDE	17
Warranty	18
TROUBLE SHOOTING GUIDE	19



GENERAL INFORMATION

The dental chair is marked with a product identification label including manufacture, serial number and date of manufacture.

This label is located on the front lower left cover under the seat cushion.

The dental chair is marked with a caution symbol. This label is located on the front of the dental chair base next to the main power switch.

The dental chair is marked with a Risk Class symbol. This label is located on the front of the dental chair base next to the main power switch.

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

Model: Mirage Chair -4000
Serial No: M4000-8675309-11
Rated Voltage: 120V-60Hz ~
Rated Current: 6A
Classification: ⚡
Mode of Operation: 1 min
Cool down period: 10 min
Manufactured: 1-2011
TPC
851 S. Lawson St.
City of Industry, CA. 91748
Reference owner's manual ⚠



Replacement Fuse is: 5X20MM 10Amp

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.



Mirage Model 4000 unpacking instructions

Place the chair carton close to the planned area that you wish to install the dental chair. Do not turn the carton on its side as oil will drain out of the tank reservoir. Damage may occur if the chair is tipped over. Remove all the staples fixing the carton to pallet, or cut the carton just above the staple line, and remove Carton. Figure 1



Remove the pump cover from the chair base. To remove the pump cover you must first remove the three safety screws. Once screws are removed lift up on the cover to remove it. Figure 2



Loosen and remove the two packing screws holding the chair to the pallet. Figure 3

When lifting the dental chair use extreme caution. The chair weight is approximately 310 LBS. Always use at least two people when attempting to lift the dental chair. See image below for use of proper lift points. Never lift the dental chair via the arm rests.



Upper lift location



Lower lift location



Mirage Model 4000 Installation instructions

Once the chair is in the desired location remove the 4 bolts shown in the image to the right. Place the lift bar in a safe place for future use.



Once the bolts are removed your backrest bracket should look similar to the one shown to the right.



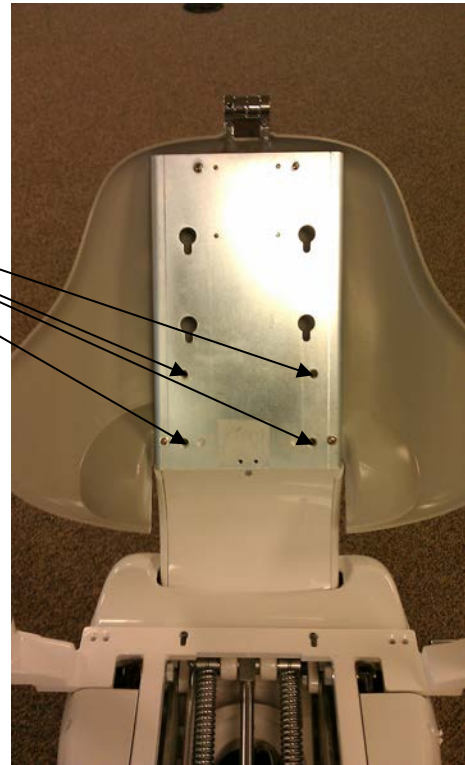
Slide the backrest bracket into place. Make sure when you slide the bracket into place, you don't damage the plastic backrest cover by forcing it or twisting it. You may loosen the screws that attach the backrest cover to the plate if you would like.



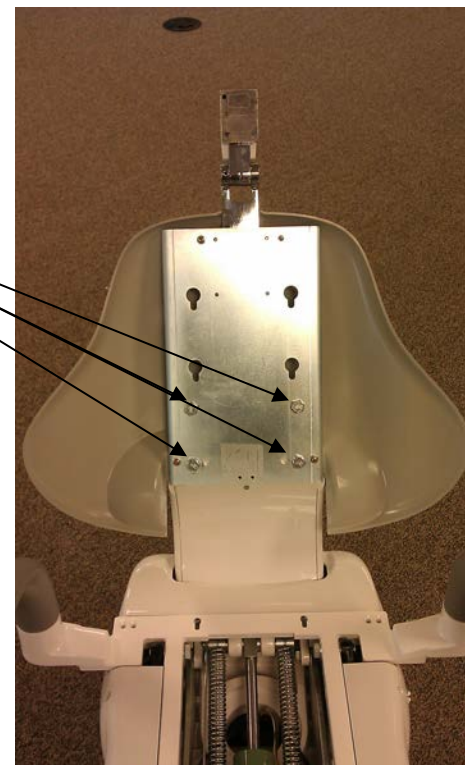
TPC

Once the backrest is in place, the 4 bolt holes should be aligned.

Use the lock washer and bolts from step 1 to fasten the bracket in place.



Insert and tighten the 4 bolt with the lock washers in place. Be sure not to over tighten the bolts





Installing the 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 are able to 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 M8X1.25



Figure 3



Figure 2



Figure 3

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



M6X1.0

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.



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

1. 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.
2. locate the Allen screws , lock washer and washers shown in figure 2
3. Once the bracket is securely in place you may fasten the toe of the upholstery to the frame as shown in figure 3.
4. 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 5. Don't over tighten the screws.



Figure 1

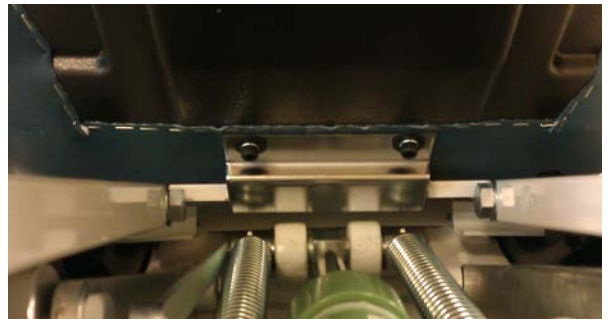


Figure 1.1



Figure 3

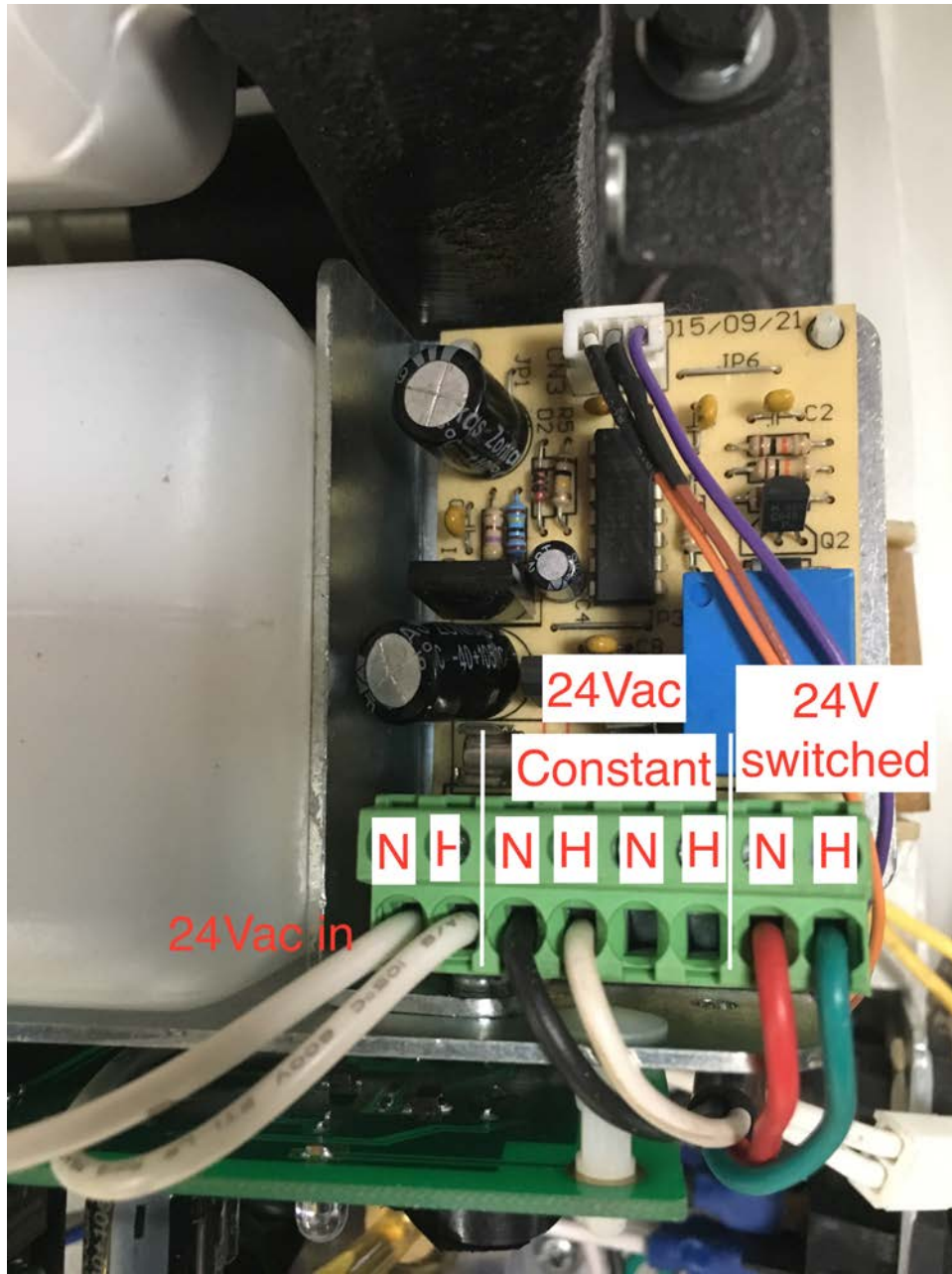


Figure 5 10-24



Chair touchpad Remote PCB configurations

The Mirage chair has a pre-installed 24V AC transformer that can be controlled using the optional TP2005 touch pad. This touch pad will give the user the ability to turn any of our LED operatory lights on or off. It will also allow the user to control the water functions on the optional Cuspidor. If no light control is desired, you can connect the green and red wires (24v switched) to the (24v constant) terminals.








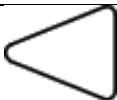



Mirage Model 4000 operation instructions

Please take time out to read the features and to familiarize yourself with the chair.





Overview of Foot Control

Seat Height Adjustments To raise, press down on upper area of touch pad	
Seat Height Adjustments To lower, press down on the lower area of touch pad	
Backrest Adjustments To raise, press down on right side of touch pad.	
Backrest Adjustments To recline, press down on left side of touch pad.	
Preset Operation <ul style="list-style-type: none">- Momentarily press preset switch (#1, #2 or #3) on touch pad.- To program a preset position 1, 2 or 3. Move the chair to the desired position. Once in position, press and hold the preset 1, 2 or 3. When the board programs the new position, you will hear a second tone. Release button once the second tone is heard.	
Automatic Return Press "0" switch on the touchpad to return to exit position.	
Last position L/P backrest will move to its last position that it was placed in.	



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

- Momentarily press preset switch (#1, or #2) on the foot control.

4. Adjusting Preset

The preset mode is factory installed but can be changed at your convenience as shown below. Set backrest angle and seat height to desired position using the foot control or touchpad. Press and hold the preset position 1 or 2 on foot control. You will hear an initial tone when the button is pressed. After about 5 seconds you will hear a confirm tone. Now that preset position is programmed.

5. Automatic Return

Press “0” switch on the touchpad to return to exit position.









6. Last position L/P

When the LP button is pressed, the backrest will move to its last position that it was placed.



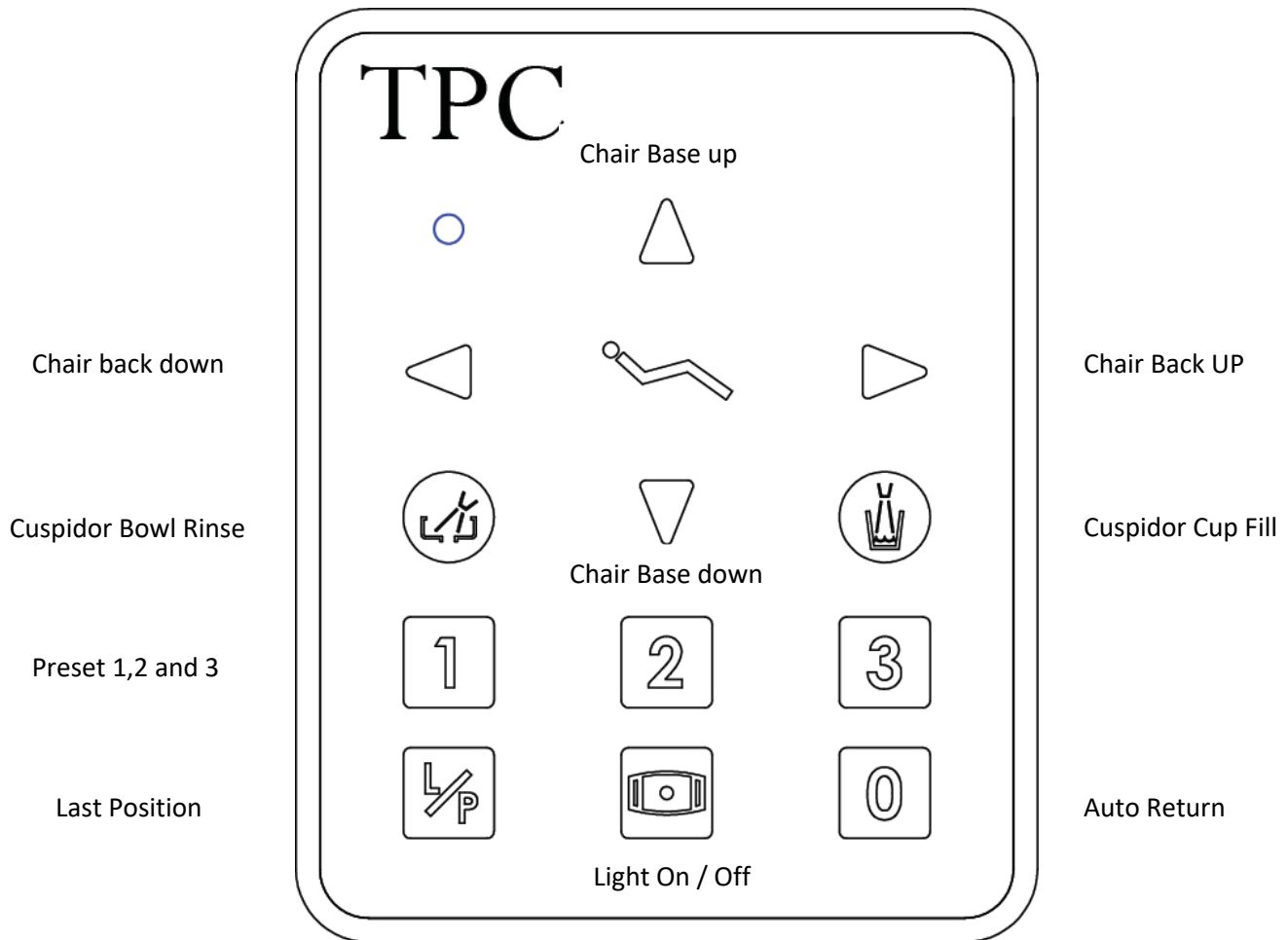


Overview of optional touchpad controls

<p>Seat Height Adjustments</p> <p>To raise, press down on upper area of touch pad</p>	
<p>Seat Height Adjustments</p> <p>To lower, press down on the lower area of touch pad</p>	
<p>Backrest Adjustments</p> <p>To raise, press down on right side of touch pad.</p>	
<p>Backrest Adjustments</p> <p>To recline, press down on left side of touch pad.</p>	
<p>Preset Operation</p> <p>- Momentarily press preset switch (#1, #2 or #3) on touch pad.</p>	<div>1</div> <div>2</div> <div>3</div>
<p>Automatic Return</p> <p>Press "0" switch on the touchpad to return to exit position.</p>	0
<p>Last position L/P</p> <p>backrest will move to its last position that it was placed in.</p>	
<p>Light On / Off</p> <p>Press once to turn the light on. Press again to turn the light off</p>	
<p>Cuspidor Bowl Rinse</p> <p>Press to activate water flow to the cuspidor bowl rinse spot.</p>	
<p>Cuspidor Cup Fill</p> <p>Press to activate the timed cup fill. See unit instruction on programming cuspidor timing.</p>	



Overview of optional touchpad controls





6. Safety Plate

Safety plate is provided below base link cover to stop motion of chair when object is accidentally caught underneath.



7. Armrest Rotation

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



8. Chair Rotation

To swivel chair, release lock lever located on rear of dental chair. Pull lever to the right to release lock. This allows chair to swivel to the right (30 degrees) and to the left (30 degrees). To lock swivel, pull lever to the left.



9. 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 back.



10. Automatic Motion

Automatic motion activated either by automatic return switch or preset switch, can be cancelled at any time by depressing any control switches.



Motion Limit Controls

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 limit for the Mirage operatory chair, perform the following instructions. Remove the pump cover from the chair. Locate the slider switch labeled S6. See figures on next page for locating switch (S6). This will put the chair into service mode. Using the touch pad or foot control, move the chair to the desired position. See below for detailed instructions on setting each limit.

Auto Limits

Auto limits can be performed on Gen 1.5 and Gen 2.0 boards. Turn service mode switch (S6) on. Press and hold the backrest up button on the main PCB (S2). The board will beep when this button is pressed. Holding the button for 5 seconds will start the auto limit process. Once the chair begins to move, release the button. The chair will go through two cycles, Base up, Base down, Backrest up, Backrest down. When complete, the chair will sit in an exit position and the board will continue to beep. Turn (S6) off to complete the process. Test chair movement to verify limits have been adjusted. If auto limits fail, the potentiometers need to be inspected.

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. Slide (S6) Switch on PCB to 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. Slide (S6) Switch on PCB to 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.

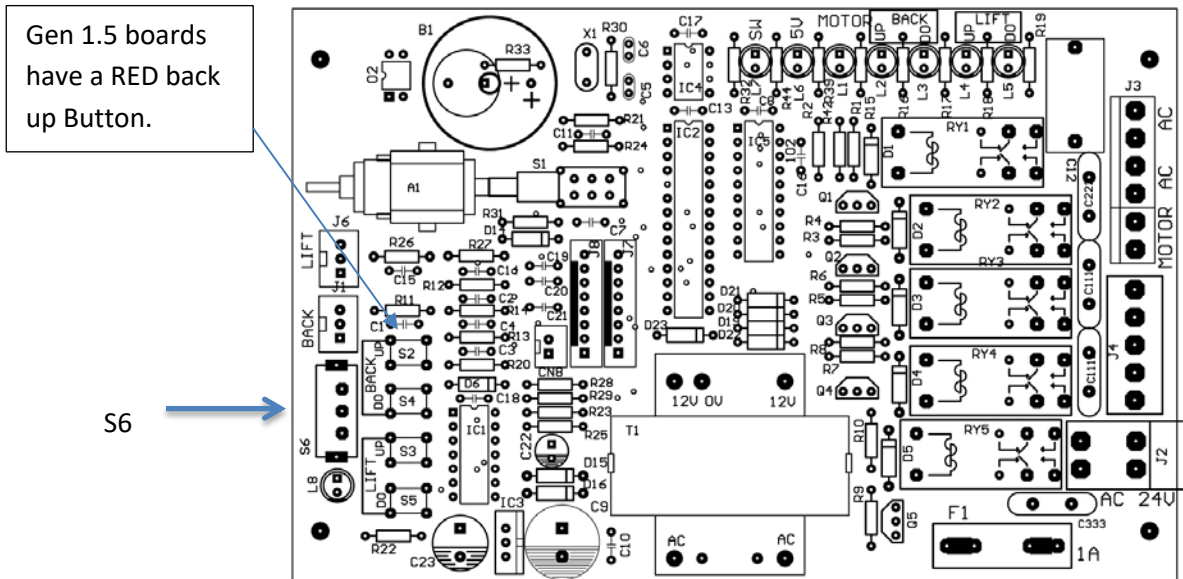
Backrest Recline Limit

Using the manual controls, Recline the backrest fully. Raise the backrest slightly from this point and press the BACK DO button on the main PCB board. Slide (S6) Switch on PCB to off position. Then raise the back rest and then lower it to verify the desired setting is set.

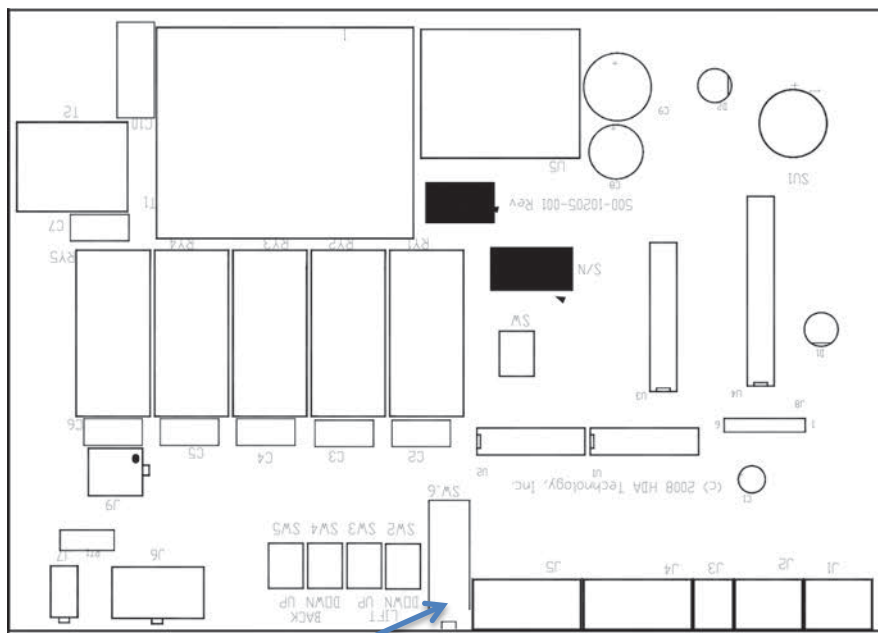
Backrest Up Limit

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. Slide (S6) Switch on PCB to “OFF” position. Then use the foot control disc to lower the backrest. Raise the backrest to verify the desired height limit is set.

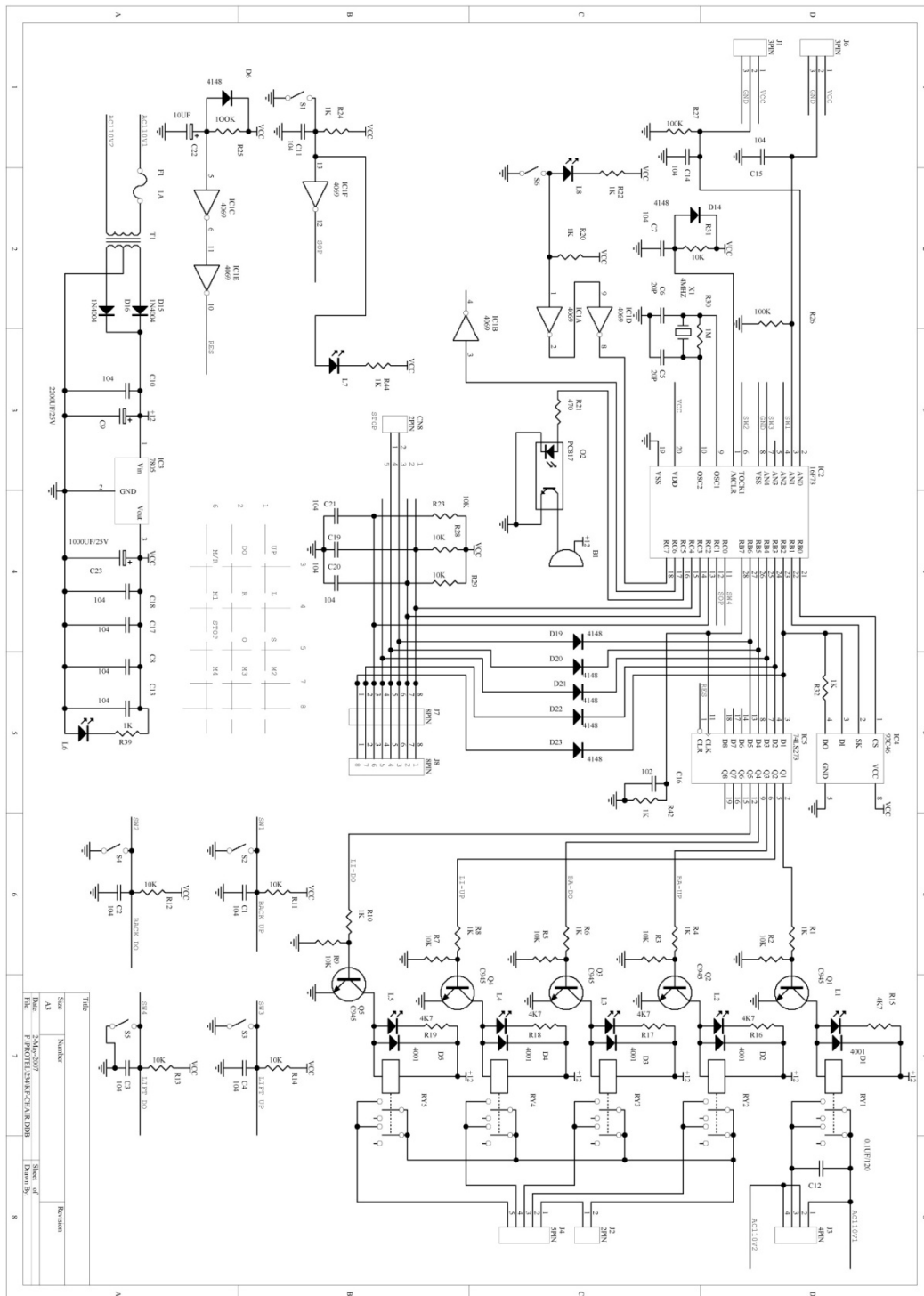
Main PCB Board Gen 1 / Gen 1.5



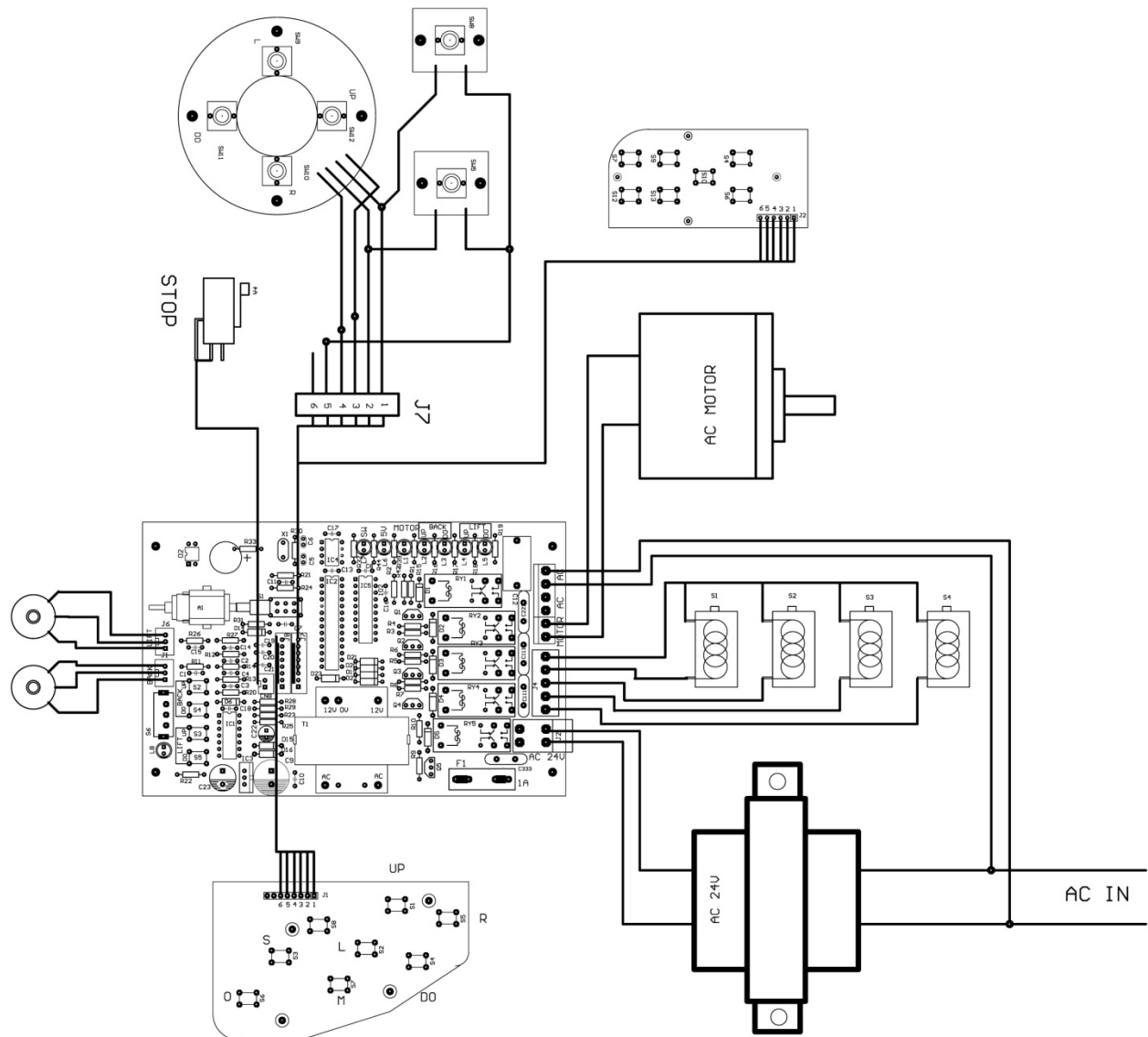
Main PCB Board Gen 2



Wiring schematic 1

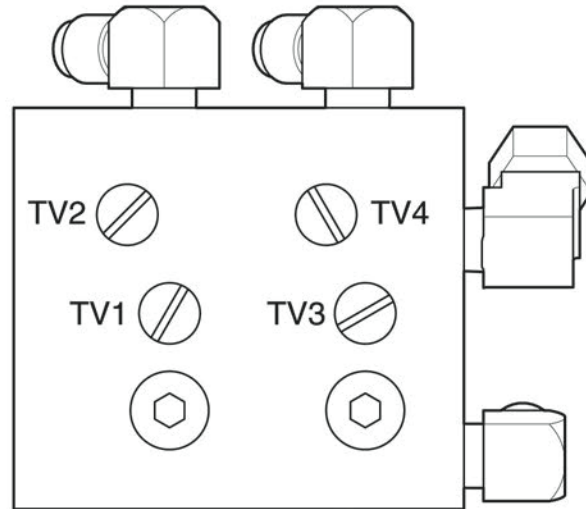


Wiring schematic



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

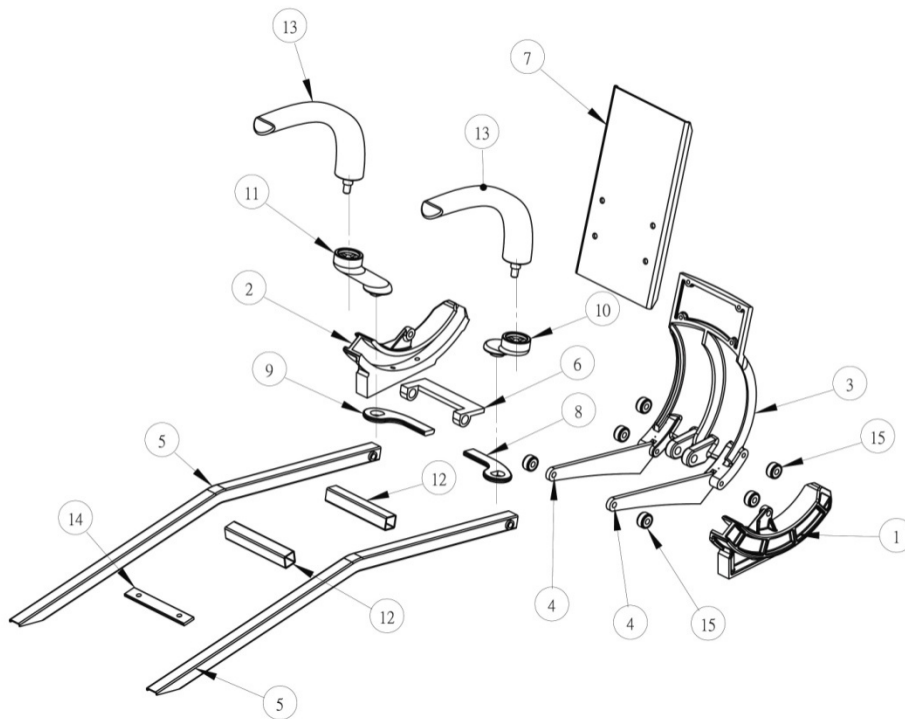
When adjusting the flow control valves counterclockwise turns will open / increase flow.

Turning the valve clockwise will close the valve and decrease the flow.

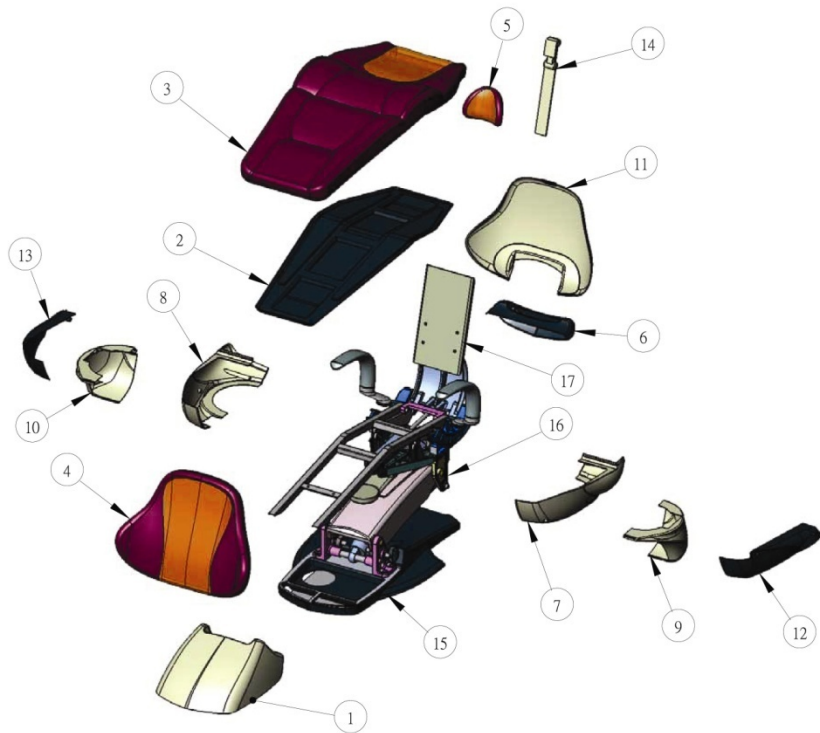
Don't open or close a flow control valve completely. Its best to make adjustments in quarter turn increments only.



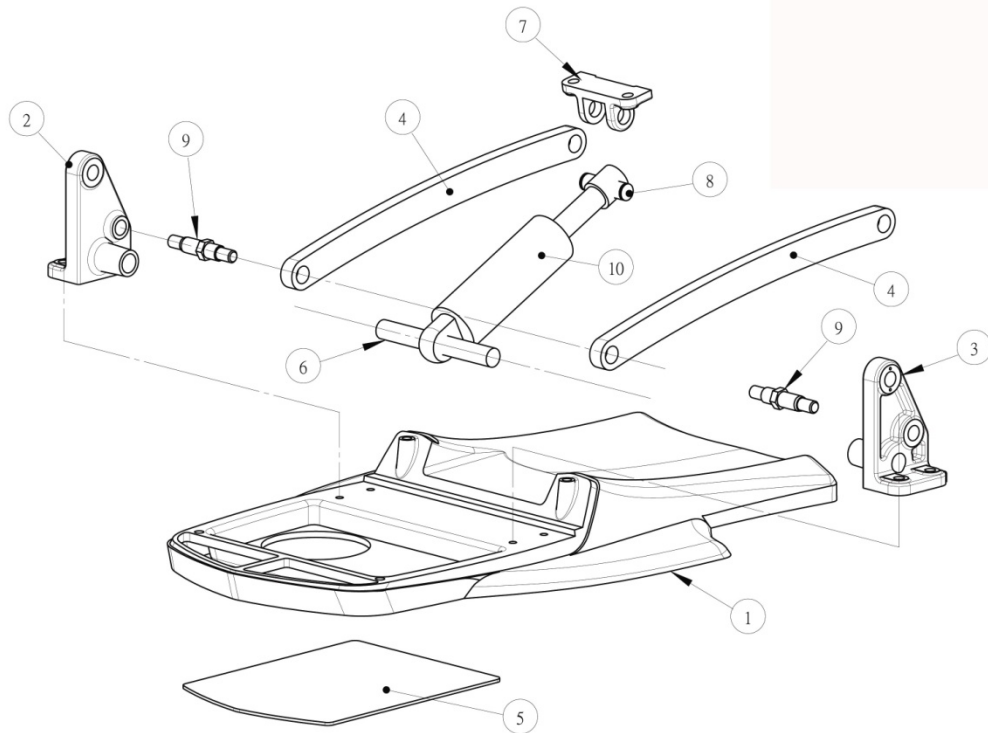
Mirage Model 4000 Replacement parts list



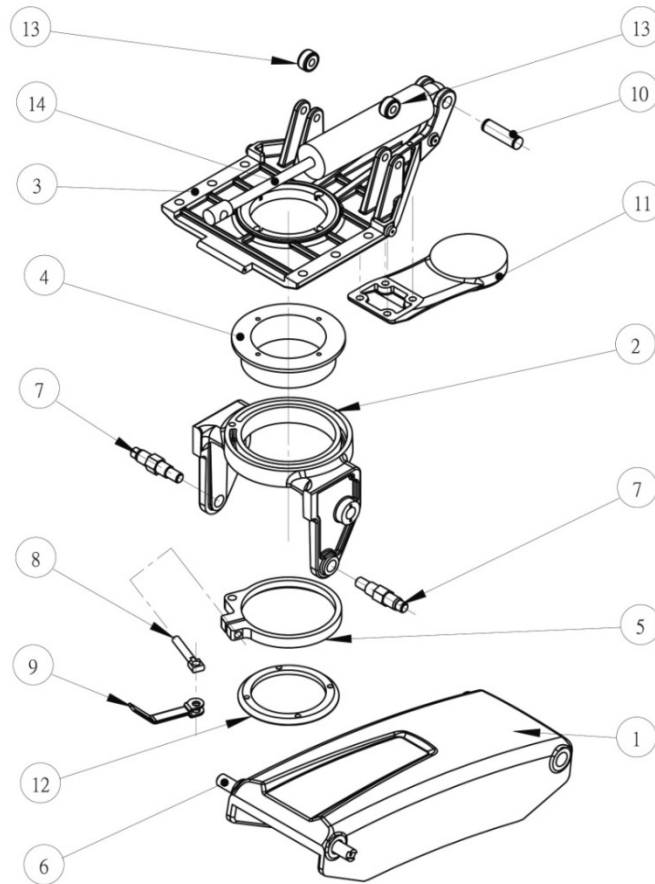
NO.	Description	Part Number
1	Roller Base L	M4000-008A
2	Roller Base R	M4000-009A
3	Cast Back Roller	M4000-010A
4	Back Flange	M4000-011A
5	Cushion Frame	M4000-012A
6	U Bracket	M4000-022
7	Backrest Frame	M4000-025
8	Arm Rest flange 1	M4000-028
9	Arm Rest Flange 2	M4000-28A
10	Arm Rest Bracket L	M4000-029
11	Arm Rest Bracket R	M4000-029A
12	Cross Support	M4000-041
13	Arm Rest	M4000-042
14	Cross Support Bolt	M4000-043
15	Rollers	M4000-12ZZ



NO.	Description	Part Number
1	Pump Cover	M4000-015
2	Cushion cover/B	M4000-023
3	Bottom Cushion	M4000-024
4	Backrest Cushion	M4000-026
5	Head Rest	M4000-027
6	Rear Flange Cover	M4000-030
7	L Side Cover	M4000-031
8	R Side Cover	M4000-031A
9	Rear L side Cover	M4000-032
10	Rear R Side Cover	M4000-032A
11	Backrest Cover	M4000-033
12	Lower L Cover	M4000-034
13	Lower R Cover	M4000-034A
14	Head Rest Stem	M4000-01
15	Cast Base	M4000-A
16	Cantilever Cast	M4000-B
17	Back Rest Base	M4000-C



NO.	Description	Part Number
1	Cast Base	M4000-001
2	R Arm Support	M4000-002
3	L Arm Support	M4000-003
4	Arm	M4000-006
5	Bottom Base Cover	M4000-016
6	Bottom Pump T	M4000-017
7	Top Pump Arm	M4000-018
8	Top Pump T	M4000-019
9	Connecting Rod	M4000-036
10	Hydraulic Pump	M4000-HYD



NO.	Description	Part Number
1	Cantilever	M4000-004
2	Rotator Base	M4000-005
3	Rotator Top	M4000-007
4	Rotator Insert	M4000-020
5	Break Clamp	M4000-021
6	Cantilever Rod	M4000-035
7	Cantilever Pins	M4000-037
8	Break Clamp Rod	M4000-038
9	Break Clamp Arm	M4000-039
10	Hydraulic Pin	M4000-040
11	Bracket Base	M4000-044
12	Insert Base Connector	M4000-045
13	Rollers Seat Pan	M4000-RSP
14	Hydraulic Piston	M4000-HYD



Mirage Hydraulic 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.
Simply 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



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 hydraulic pumps and hydraulic parts are covered under the 5 year warranty. Main chair PCB, transformer and solenoids 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.



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 pre set 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 easley.	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.