

# ***TPC***

## **Mirage Model 4000**

## **Mirage Model 3000**

# **Hydraulic Patient Chair**



## **Installation, Operation & User Manual**

**TPC**

851 S. Lawson St.

City of Industry, CA 91748

Phone 626-810-4337 Fax 626-810-4245



**Important!** It's IMPERATIVE that you read this page before continuing. Failure to do so will result in wasted time during your installation...

- 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 “swing mount delivery”, are pre plumed with tubing to make your installation process easier.
- 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 ext 103 or via E-mail @ [service@tpcdental.com](mailto:service@tpcdental.com)



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## 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.

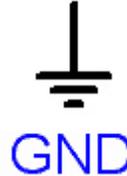
The dental chair is marked with a caution symbol. This label is located on the front of the dental chair base next to the main power switch.

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: X  
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 



The fuse is a 6 amp time lag, Fuse, 3AG, 1 1/4" L x 1/4" Dia. (31.8mm x 6.4mm)

## 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.

# TPC

## Mirage Model 4000 unpacking instructions

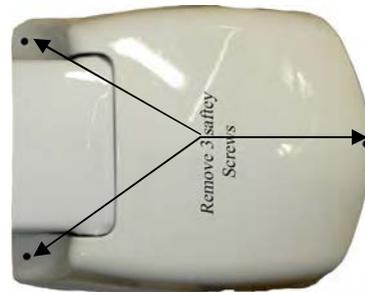
Place the chair carton close to the planned area that you wish to install the dental chair. Do not turn the carton on its side as oil will drain out of the tank reservoir. Damage may occur if the chair is tipped over. Remove all the staples securing the carton to pallet, or cut the carton just above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

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

Figure 2



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

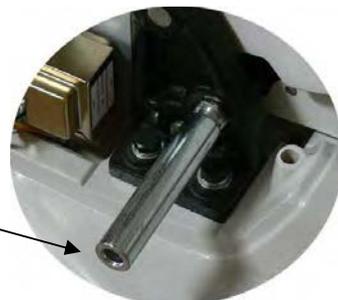
Figure 3



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

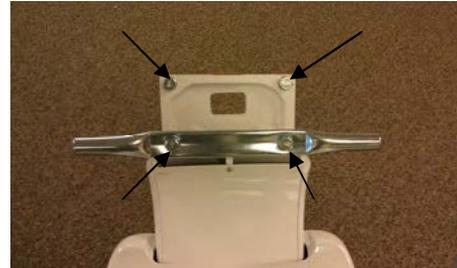


Lower lift location



## 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.



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Once the backrest bracket 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 bolts 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 backrest bracket.
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 seat back cushion side so that all four bolts align properly within the backrest bracket. 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

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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 Allen screws (included) 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.



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

Figure 3

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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 sunk Phillip head screws shown in figure 5. Don't over tighten the screws.



Figure 1



Figure 1.1



Figure 2



Figure 3



Figure 4



Figure 5



## Mirage Model 4000 operation instructions

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





## Overview of foot control operations

### 1. Seat Height Adjustments

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

### 2. Backrest Adjustments

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

### 3. Preset Operation

- Momentarily press pre set 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. 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

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

### 1. Seat Height Adjustments

- To raise, press down on upper area of touch pad.
- To lower, press down on the lower area of touch pad.

### 2. Backrest Adjustments

- To raise, press down on right side of touch pad.
- To recline, press down on left side of touch pad.

### 3. Preset Operation

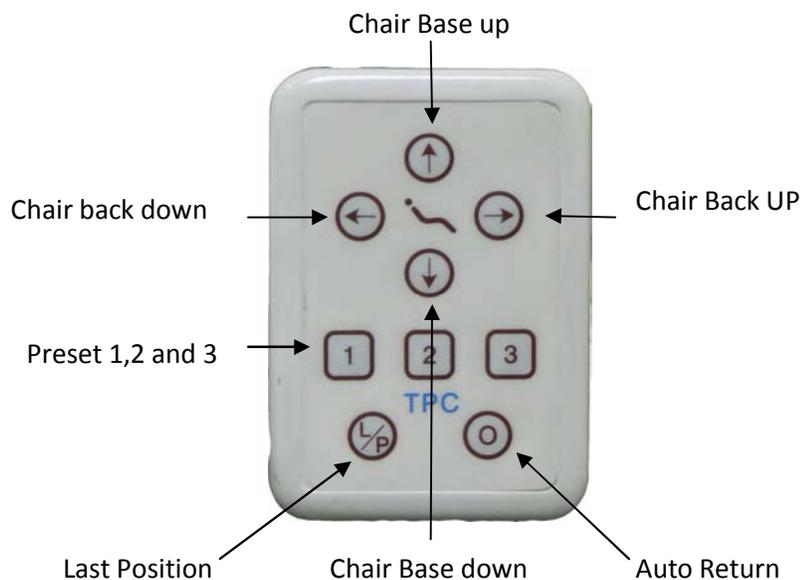
- Momentarily press pre set switch (#1, #2 or #3) on touch pad.

### 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 touch pad. Press preset position 1, 2 or 3 on touch pad and hold down. You will hear an initial tone. After about 5 seconds you will hear a confirm tone. Now that preset position is programmed.

### 5. Automatic Return

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





## 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.

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## 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 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 manual 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 Normal. 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 Normal. Then use the touch pad or foot control to lower the chair, raise the chair and verify the desired height limit is set.

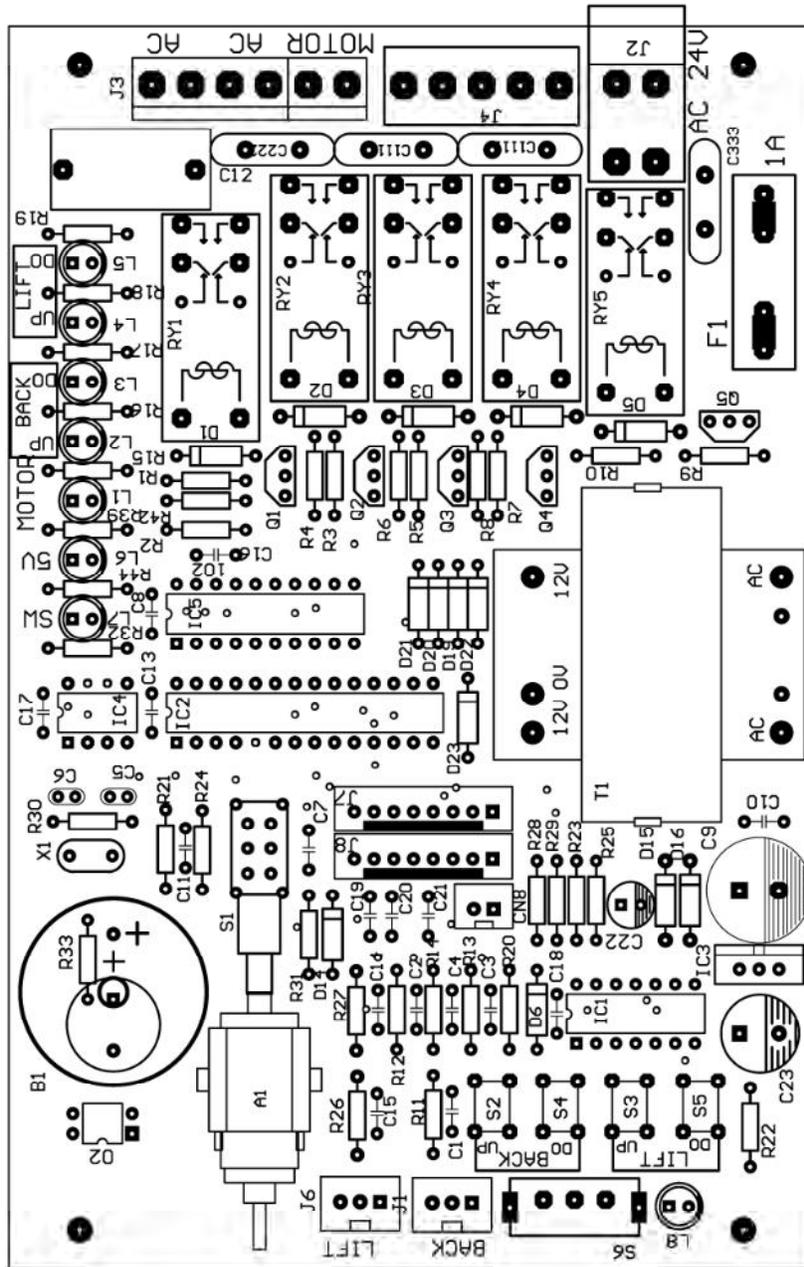
#### **Backrest Recline Limit**

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 Normal. Then raise the back rest and then lower it to verify the desired setting is set.

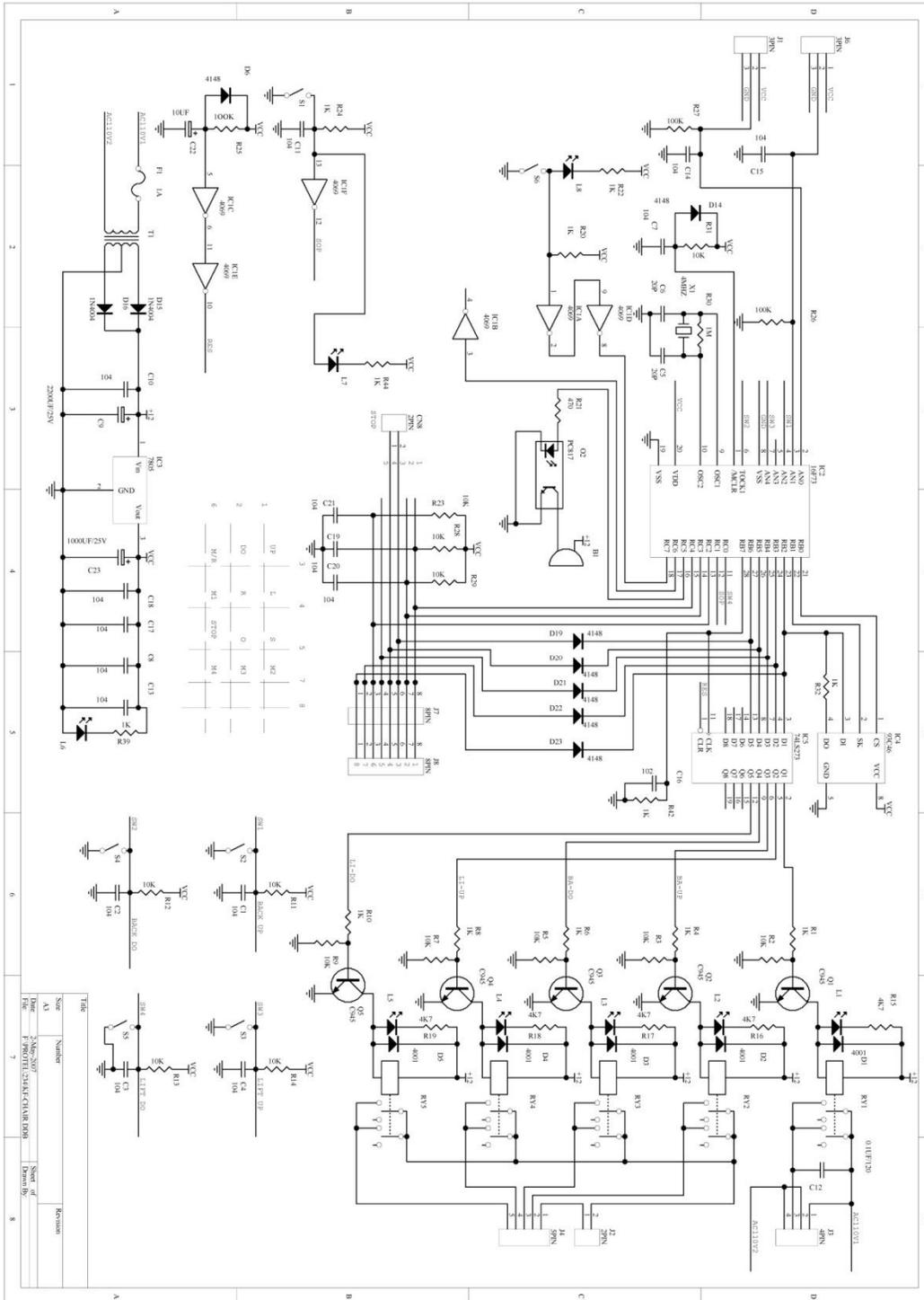
#### **Backrest up Limit**

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 Normal. Then use the foot control disc to lower the backrest. Raise the backrest to verify the desired height limit is set.

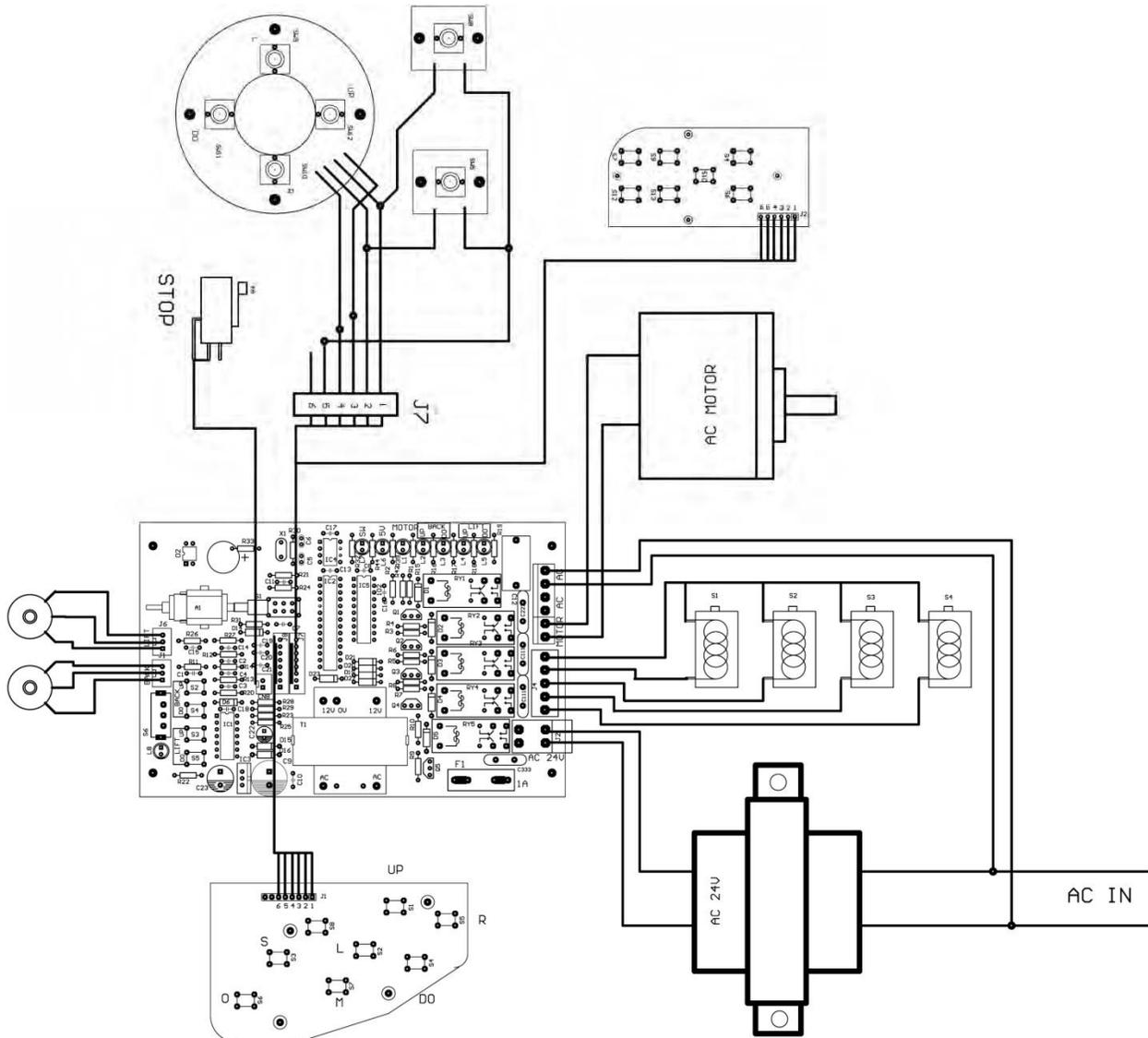
## Main PCB Board



## Wiring schematic 1

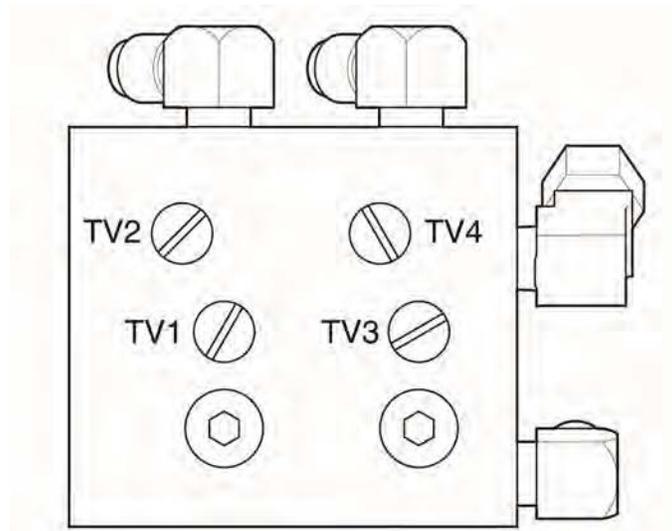


## Wiring schematic



## Operating Speed Controls

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

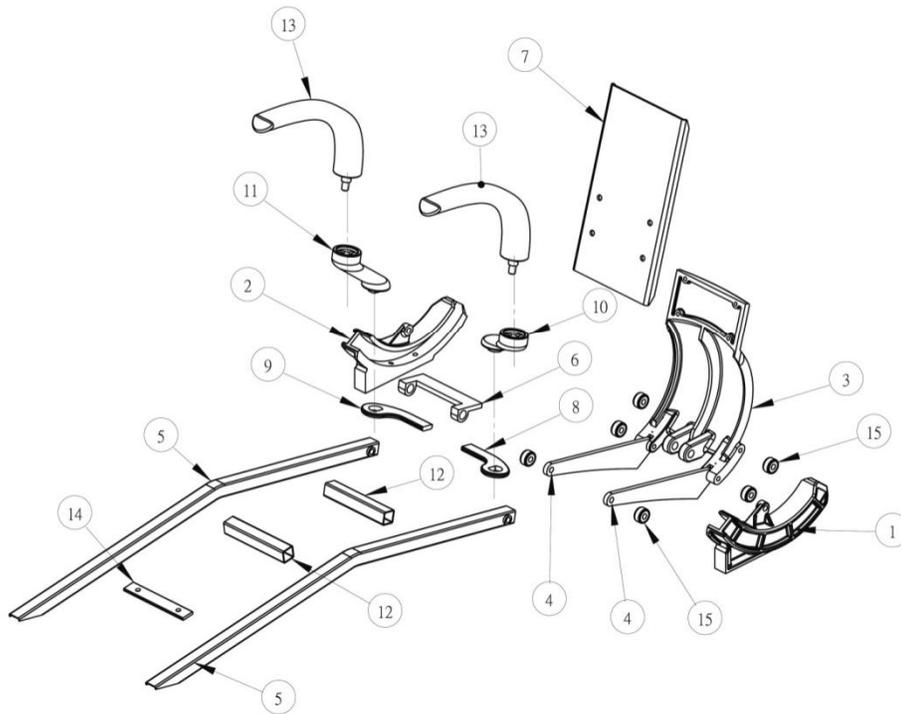


- TV1 = Base up flow control
- TV2 = Base down Flow Control
- TV3 = Back up flow control
- TV4 = Back down flow control

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

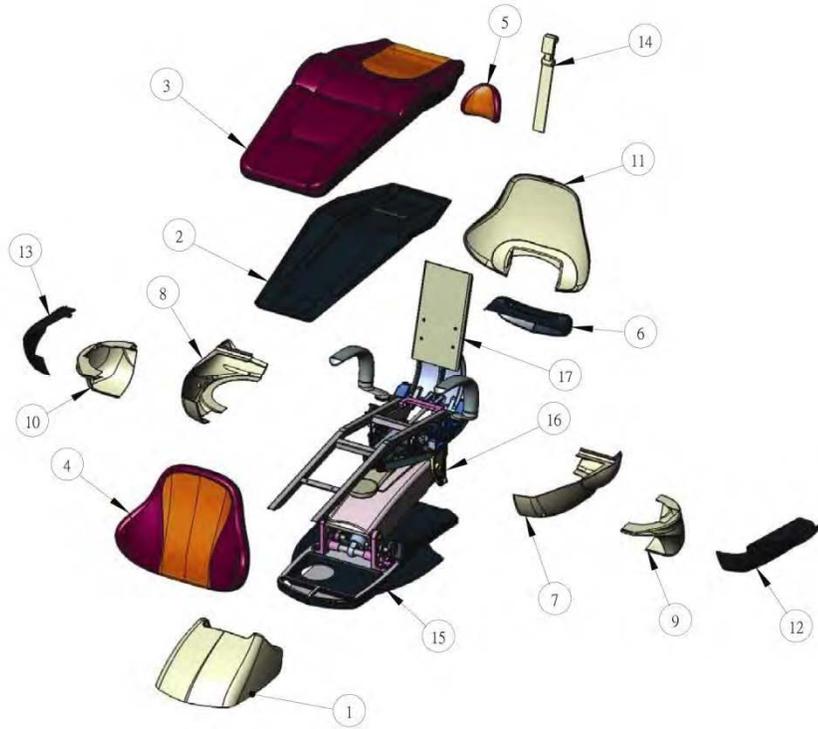
Don't open or close a flow control valve completely. Its best to make adjustments in quarter turn rotations only.

## Mirage Model 4000 Replacement parts list



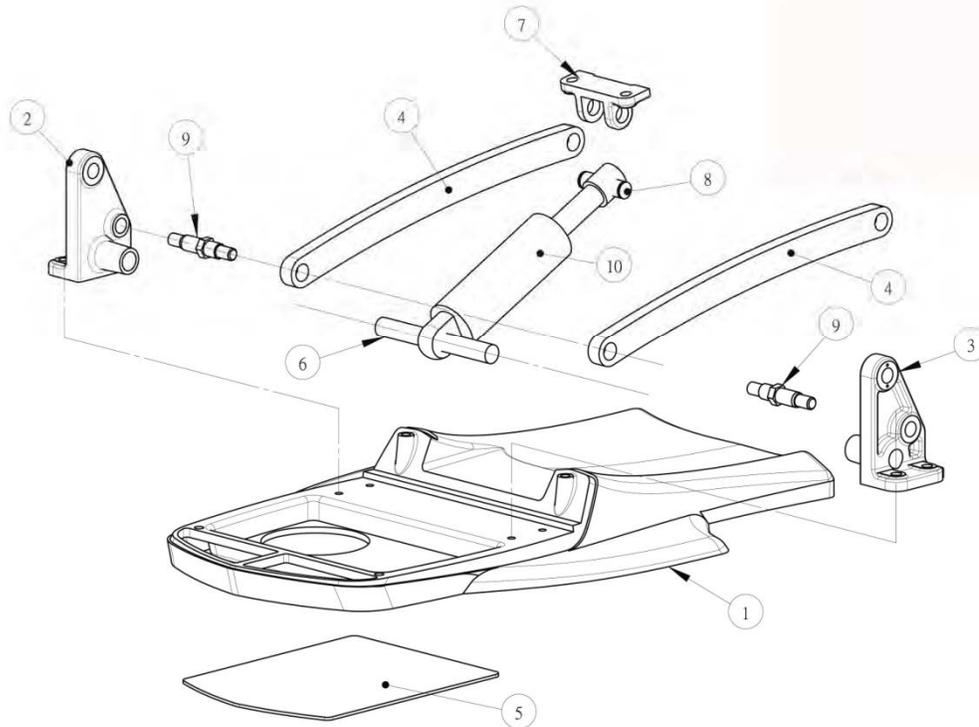
NO.	Description	Part Number
1	Roller Base L	M4000-008A
2	Roller Base R	M4000-009A
3	Cast Back Roller	M4000-010A
4	Back Flange	M4000-011A
5	Cushion Frame	M4000-012A
6	U Bracket	M4000-022
7	Backrest Frame	M4000-025
8	Arm Rest flange 1	M4000-028
9	Arm Rest Flange 2	M4000-28A
10	Arm Rest Bracket L	M4000-029
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

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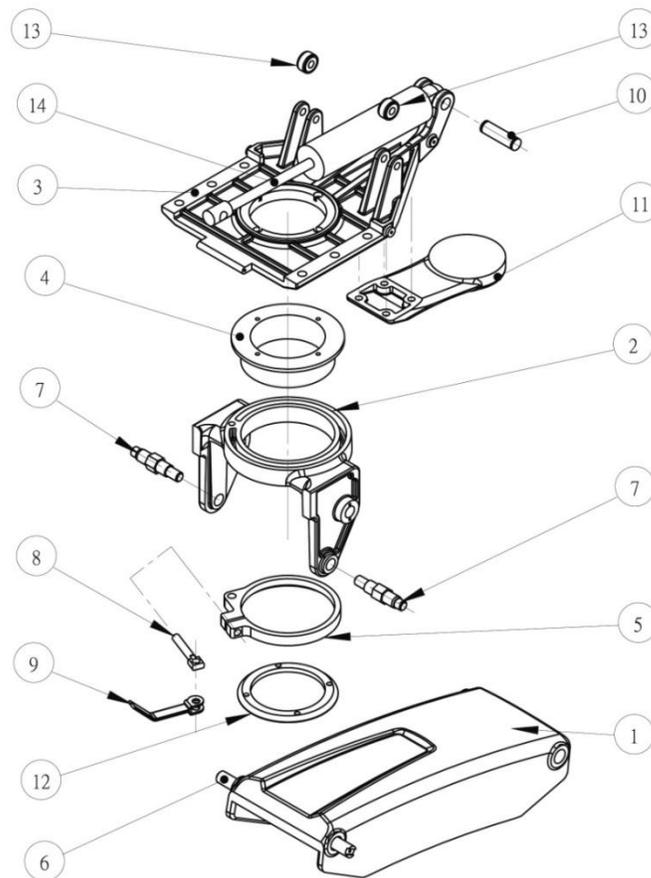
NO.	Description	Part Number
1	Pump Cover	M4000-015
2	Cushion cover/B	M4000-023
3	Bottom Cushion	M4000-024
4	Backrest Cushion	M4000-026
5	Head Rest	M4000-027
6	Rear Flange Cover	M4000-030
7	L Side Cover	M4000-031
8	R Side Cover	M4000-031A
9	Rear L side Cover	M4000-032
10	Rear R Side Cover	M4000-032A
11	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

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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

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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 easly.	Screw is loose that holds assembly together	Tighten screw

### Mirage Model 4000 Don'ts

- Don't exceed the minimum 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 all electrical components.

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## Mirage Dental Delivery Unit Model 2000 / 2015 Installation Instructions



**TPC**

851 S. Lawson St.

City Of Industry, CA 91748

P626-810-4337 Fax 626-810-4245

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[www.tpcdental.com](http://www.tpcdental.com)



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## Unpacking and Inventory

Each Mirage delivery unit will contain the following items in each box.

1. Flex arm box. This is the largest box that you will receive with the delivery unit.
    - Delivery unit flex arm
    - Assistance arm
    - Light post
    - Foot control
    - Stainless steel tray
    - Cosmetic beauty ring
  
  2. Post mount utility center
    - Utility center
    - Junction box (frame & cover)
    - Master controls attached to the umbilical
    - Misc beauty rings and quick connects
    - HEV/SE valves with tubing
    - Water Bottle (750 ml)
  
  3. Optional 2000-C Cuspidor
    - Cuspidor
    - Cup fill spout
    - Bowl rinse spout
    - Cuspidor bowl strainer
    - 2 fastening screws
- 
- 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](mailto:service@tpcdental.com)

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## Installation Instructions.

1. Locate the four mounting bolts that were included with your dental chair. These bolts are attached to all model 4000 dental chairs. See image below for the location.



2. Remove the mounting bolts and mount the bracket as shown in the image below.



3. Leveling Chair bracket.
  - The chair bracket has a total of 8 set screws.
  - Use the lower set screws to adjust the PMU left, right, front and back. This will make large adjustments to the tilt of the post that is inserted into the bracket cup.
  - Use the upper set screws to make fine adjustments and lock the post in place.
  - Once the post is level you may fasten the set screws tightly to ensure the post stays level. If your post is not level your unit will not be level and the flex arm will drift.

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- Loosen the 8 leveling set screws, and then place the PMU (Post mount utility center) in the cup of the chair bracket. Figure1 Shown in the image below. Center the mounting post in the cup. Also verify if the PMU is aligned straight with dental chair armrest. Then proceed to tighten the set screws.



- Verify the PMU is level before tightening the set screws on chair bracket. There are 8 set screws that will be used for leveling. If the PMU is not level the unit arms may drift. Small adjustments to the set screws will level the PMU. Level the PMU in the following directions. (left to right and front to back).



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6. Place the assistant's suction arm on the PMU as shown in the image below. If the arm is not level use the leveling screw shown below (right) to adjust its angle.



Turning this screw clockwise will raise the angle of the arm. Turning counter clockwise will lower the angle of the arm.



7. Remove the PMU side cover. To remove it, pull on the lower lip to detach its magnetic connection. Place it out of the way to ensure it does not get damaged. This side cover will remain detached until the end of the installation.

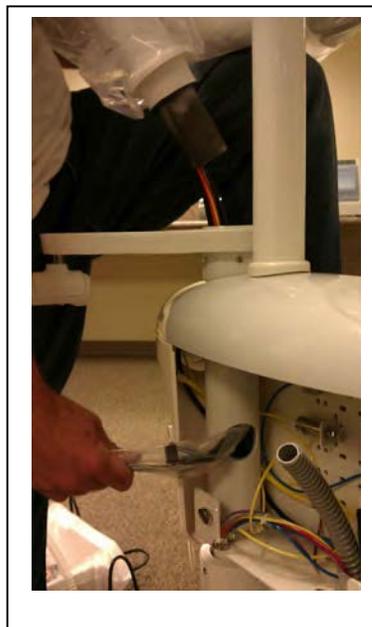


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8. If you are installing a post mounted light insert it as shown in the images below. Make sure you place the cosmetic ring over the light post before inserting. Tighten the set screw to secure the light post in place.

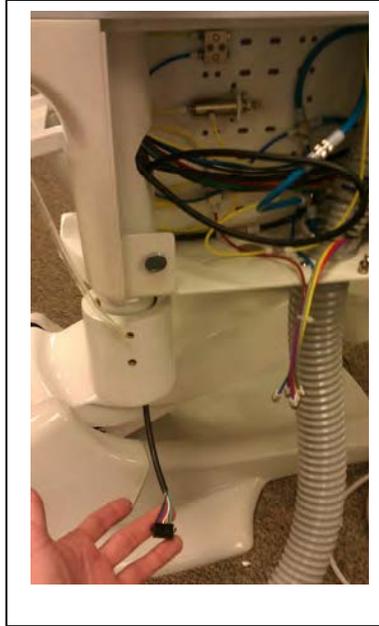
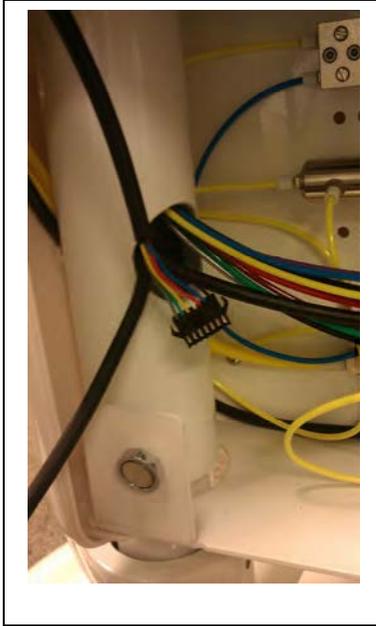


9. Take the delivery unit flex arm out, and place the additional cosmetic ring on it as shown below. Once in place, take all lines and feed it through the bushing assembly as shown. Verify that the arm seats completely down in the bushing assembly. Lower the cosmetic ring to cover the seam between the assistant's arm and the delivery unit flex arm.

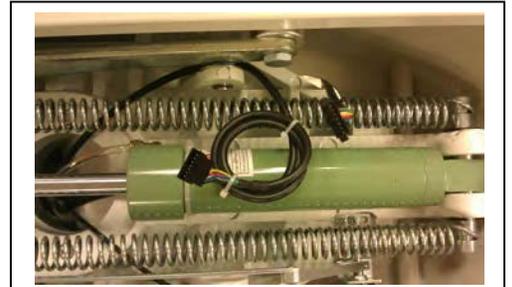
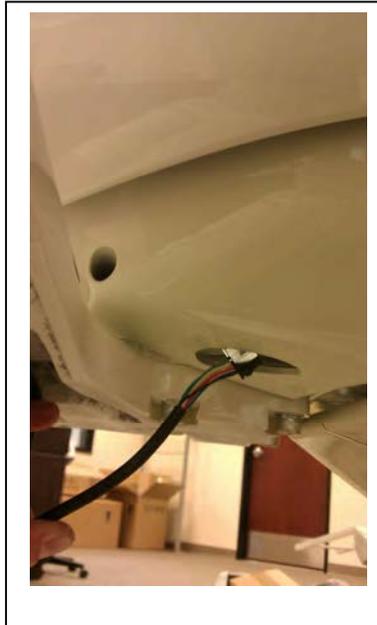


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10. You may now remove the plastic from the bundle of tubing that you fed through in the previous step. Take the touch pad wire shown below and feed it through the chair bracket as shown.

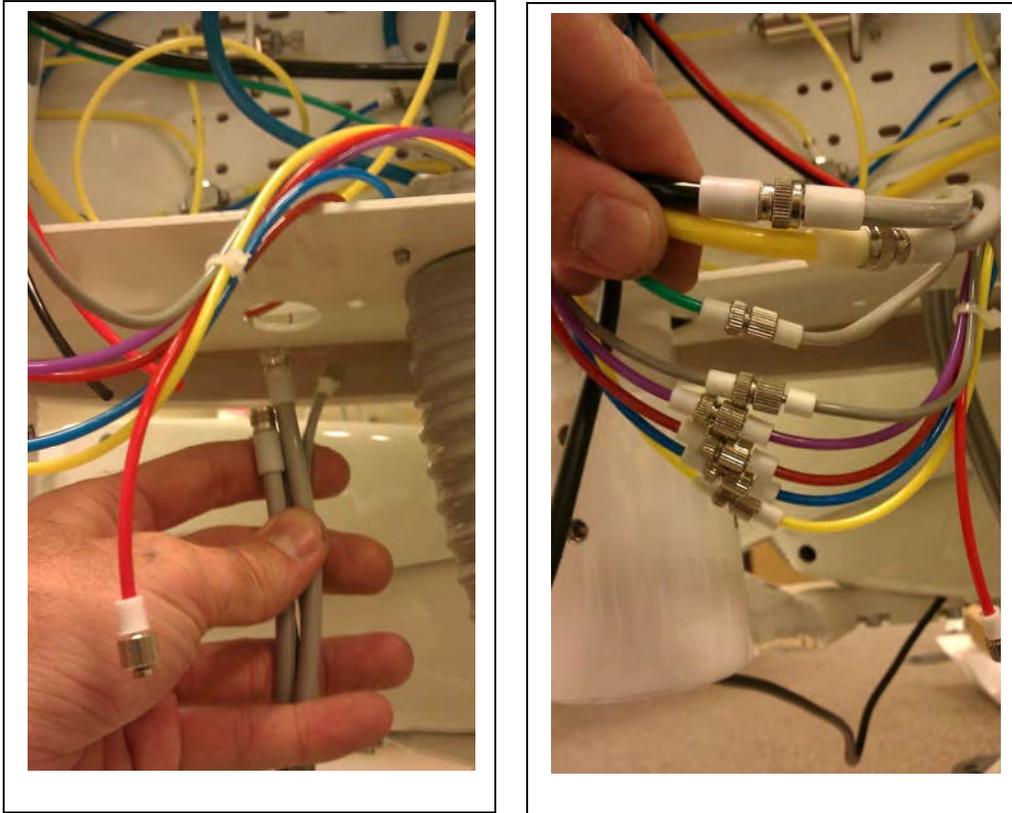


11. Route the touch pad cable along the chair bracket channel. Then feed it through the "cut out" in the plastic shroud. Connect the touchpad wire and place it aside as shown.



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12. Take the delivery systems foot control and feed it through the bottom of the PMU. Make the following connections from your foot control to the tubing within the PMU side box.



## 13. Tubing connections

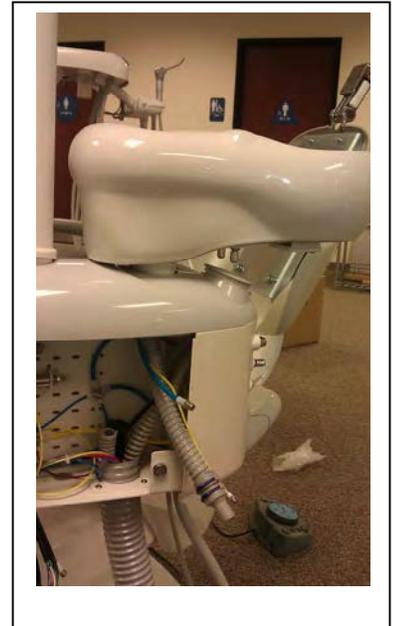
- Grey female from foot control to Black supply to the flex arm.
- Grey male from foot control to Yellow supply from Umbilical.
- Green female from foot control to Green male from the flex arm.
- Grey female from umbilical to Grey male from the flex arm.
- Purple female from umbilical to Purple male from the flex arm.
- Dark Red female from umbilical to Dark Red male from the flex arm.
- Blue female from umbilical to Blue male from the flex arm.
- Yellow female from umbilical to Yellow male from the flex arm.
- You will have two spare lines available the event of a tubing failure.

14. There is also two additional lines that will be left unused if you are not installing the optional 2000-C cuspidor. One large water supply line and a small yellow air supply line that has a cap on it.

# TPC

## Optional Cuspidor Installation

If you are installing the optional 2000-C cuspidor, remove the Cuspidor housing cover as shown. To install the cuspidor, slide the cuspidor into the cuspidor bushing housing. Make sure the cuspidor is completely seated in the bushing.



15. Take the cup fill and bowl rinse spout and insert them into the corresponding sockets. When inserting the spouts into the sockets make note of the notches in the cuspidor socket and the spouts that are being inserted into them. They will only seat properly one way. Do not remove the Teflon tape that is wrapped around the spouts. See images below. Place the cuspidor strainer in the bowl.



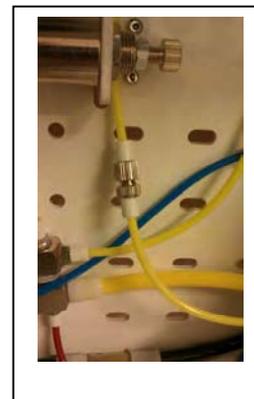
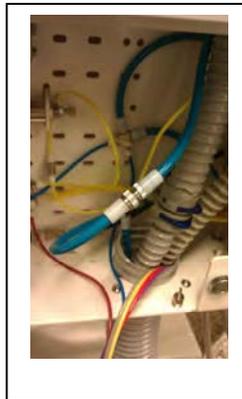
# TPC

## Cuspidor Plumbing Connections

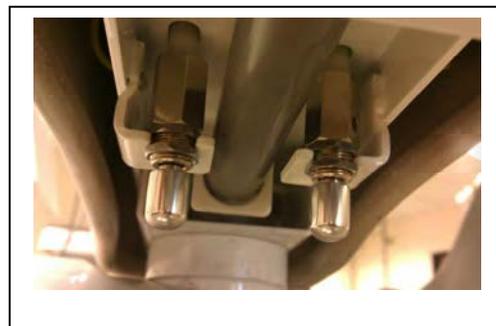
16. Connect the drain line. Remove the blue locking tab to separate the quick connect from the junction. Insert the removed end into the drain line tubing. Connect the two ends together and replace the locking clip.



17. Remove the cap from the large water supply line, Connect the water supply line to the cuspidor. Remove the cap from the signal air line, then connect it to the cuspidor.



18. The 2000C cuspidor possesses timing adjustments. In the event that you need to make adjustments, the timing pressure release valves are located on the bottom of the cuspidor. These adjustments will shut off the water flow so that you may fill a specified cup size, or bowl rinse cycle time.

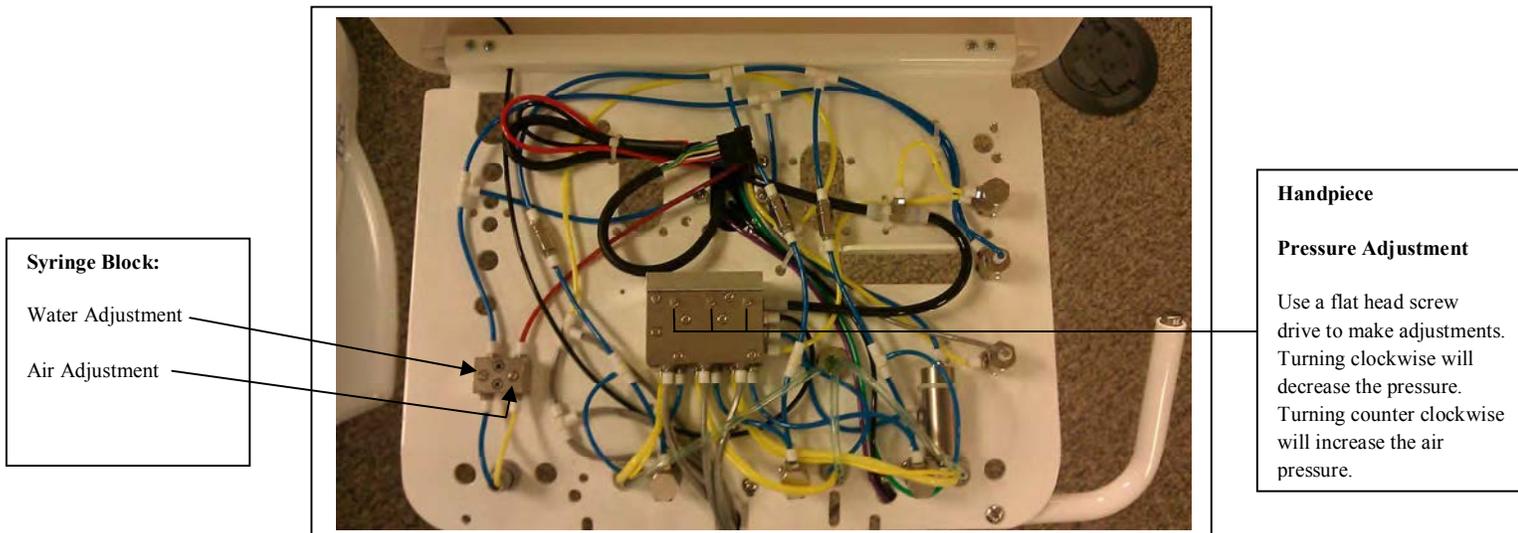


## Junction Box Connections

19. Before making any connections in the junction box, be sure to clear the supply lines. If there is any debris in the air line it will collect on the micron filter. Verify the line is clear.
20. Once the lines are verified and cleared, you may connect the master controls. The master controls are similar looking. One is for the Air which is identified by the large yellow tubing that exits the back end of the master control valve. The master control for the water line is identified by the large blue line that exits the back of the master control valve.
21. Once the connections are made you may open the angle stops or equivalent shut off valve. Once the valve is open you may check the master control gauges and verify that the pressures are set accordingly. Air pressure should read approximately 80 PSI. Water pressure should read 40 PSI.



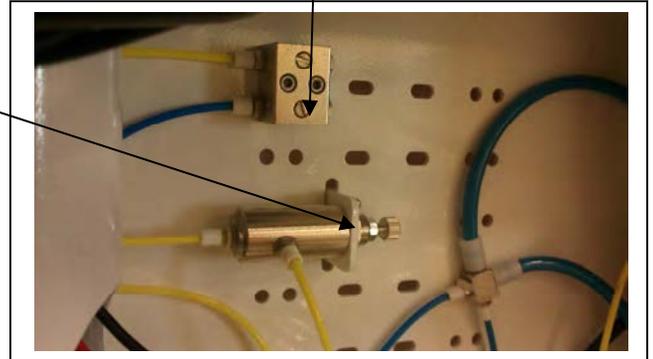
22. Once air and water pressure are set, you may now make adjustments to the syringe blocks if necessary. Also check your handpiece pressure and adjust accordingly.



# TPC

## Post mount utility center adjustments (PMU)

1. There are two main adjustments that can be made in the PMU.
  - Assistant's side syringe block adjustments  
Turning the screw counter clockwise will increase the air / water pressure.  
Turning the screw clockwise will decrease the air / water pressure.
  - Water bottle pressure adjustments  
Loosen the lock nut, then turn the knob counter clockwise to decrease the air pressure. Turn the knob clockwise to increase pressure.  
DONT allow more then 40PSI of air pressure to supply the bottle.



## Tension Adjustments

2. In a situation that you need to add tension to the delivery unit flex arms please see the following locations. NOTE: tension adjustments are only a temporary fix for drifting arms. If your arms are drifting first verify the PMU is level. Check the light post to verify its plum. If light post is not level make the proper adjustments by re-leveling the unit.



## Tension spring adjustment

3. If you need to make adjustments to the tension spring in the flex arm follow the procedure below.
  - Remove the flex arm cap cover.
  - Use a 3/8" ratchet with 2" extension
  - Turn clockwise to increase the tension
  - Turn counter clockwise to decrease tension.
  - Only make adjustments in half turn increments.



## delivery head leveling and tilt adjustments

4. If you need to level the unit head or adjust the tilt use the following adjustments.
  - Loosen the 4 Allen screws that attach the unit head to the short control arm. See image. Once the screws are loose, use the two adjustment screws in the center on each side to level the head.



- To adjust the unit head tilt, remove the flex arm end cap closest to the delivery unit head. Loosen the stop nut, and using an Allen wrench turn the adjustment screw clockwise to increase the tilt of the delivery unit head. Turn the adjustment screw counter clockwise decrease the tilt.

\*Stop Nut

\*Adjustment Screw





## Tubing and connections

### **Junction Box**

1. Yellow 6 X 4 Air Supply line
2. Blue 6 X 4 Water Supply line
3. Grey Master Switch Supply
4. Yellow Master switch return
5. Purple Air brake supply
6. Red Spare

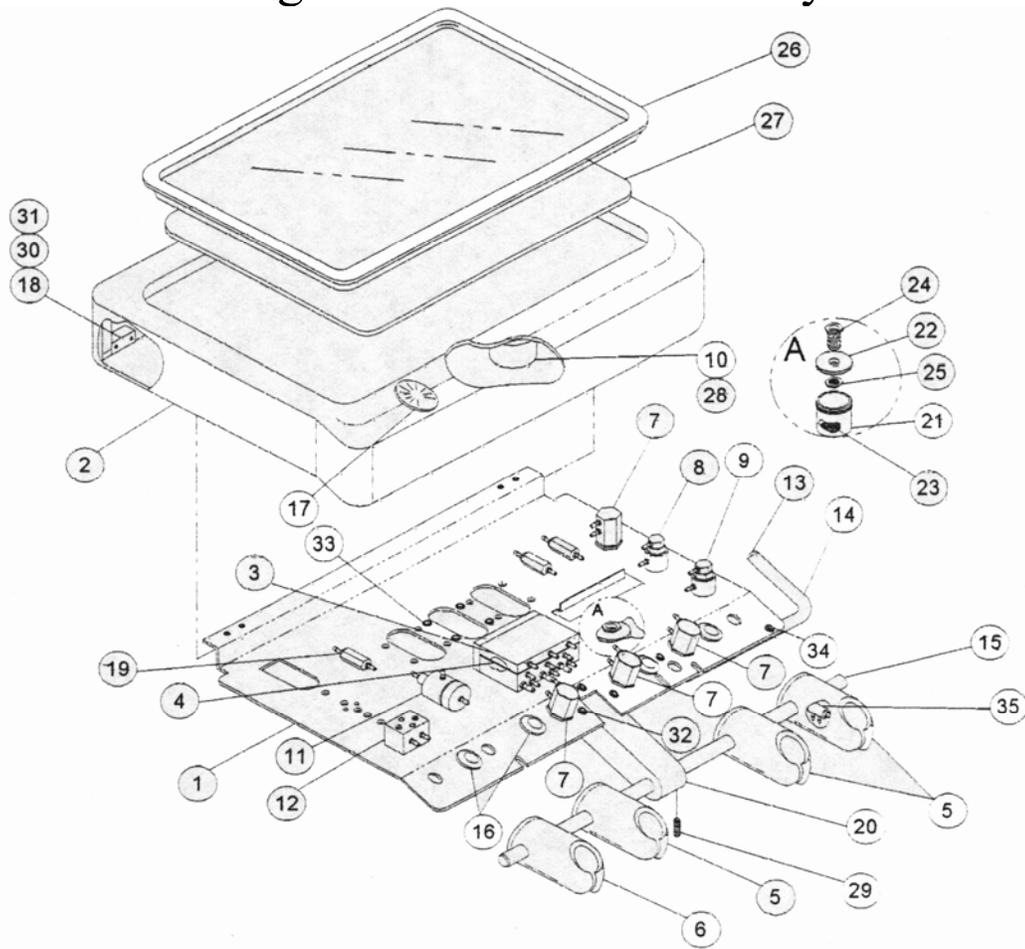
### **Post mount utility center (from umbilical to delivery unit arm)**

1. Yellow 6 X 4 Supply line T to unit head.
2. Black 6 X 4 from output from foot control
3. Small Yellow / Small Yellow Master Switch return
4. Small Gray / Small Gray supply line to master switch
5. Small Purple / Small purple Supply to break
6. Small Blue / Small blue water supply line
7. Small burgundy Spare line
8. Small Green / Gray (wet dry toggle from F.C)
9. Small Black Spare (to flex arm)
10. Small Red Spare (to flex arm)

# Mirage Delivery System Diagrams and part numbers

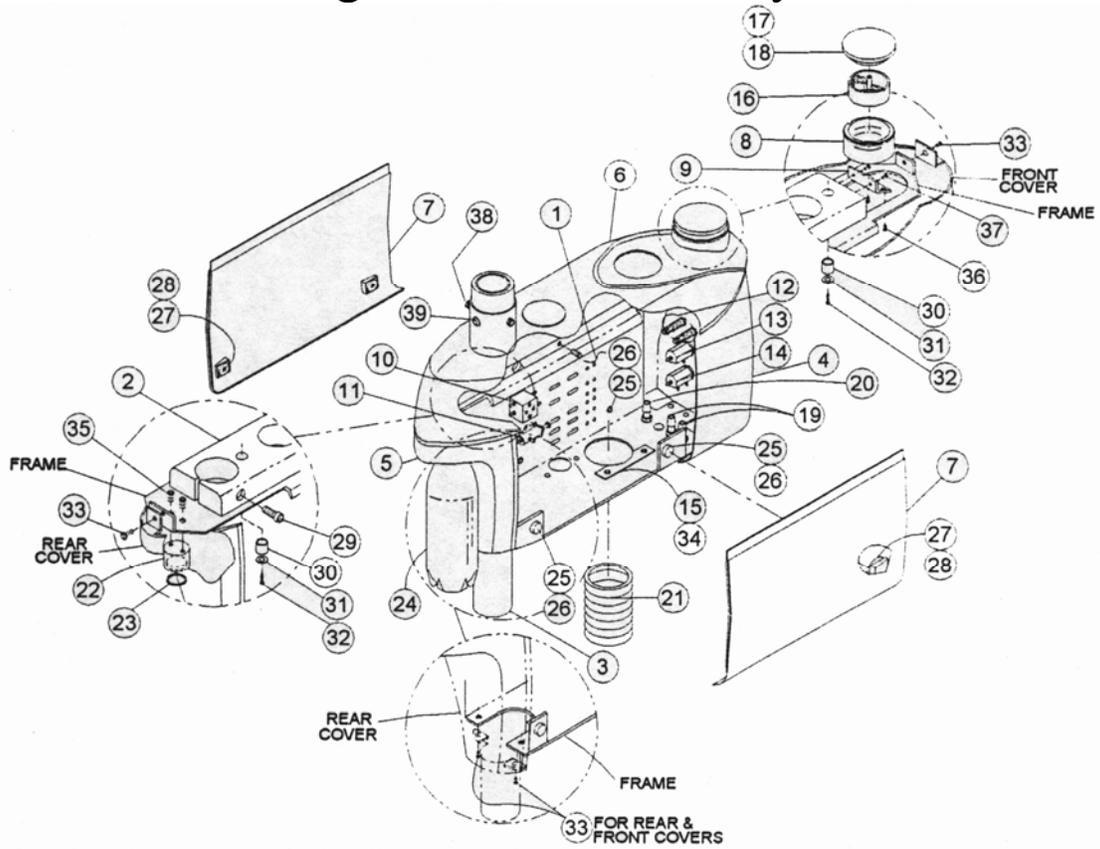


# Mirage Sector Head Assembly



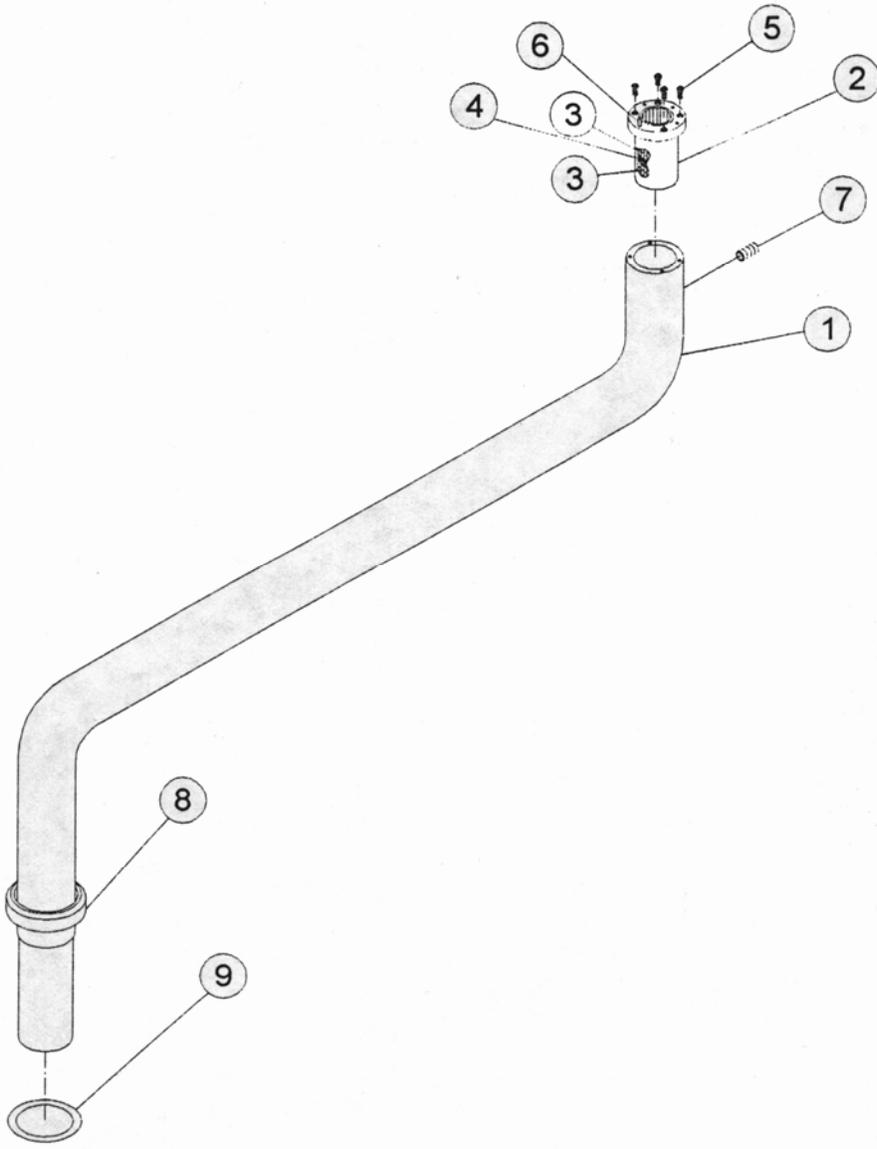
<u>Item</u>	<u>Part Number</u>	<u>Description</u>	<u>Price\$</u>
1	52001	Plate Base	\$100.00
2	52002	Cover- Control Head	\$100.00
3	52003	Hand piece Control Block	\$91.50
4	52004	Tri-Block Diaphragm	\$16.00
5	52005	Holder Asepsis (Cover)	\$15.00
	52005-C	Asepsis Holder Complete	\$30.00
6	52006	Holder Syringe (Cover)	\$15.00
	52006-C	Syringe Holder Complete	\$25.00
7	52007	Valve-Flow Control Needle	\$16.00
8	52008	Push Button Momentary	\$17.00
9	52009	On/Off Toggle 3-Way	\$19.90
10	52010	Weight, Cover	\$12.00
11	52011	Water Relay	\$33.00
12	52012	Syringe Block Assembly	\$19.90
13	52013	Break Push Button	\$10.00
14	52014	Handle, Right	\$25.95
15	52015	Bar Holder	\$26.95
16	52016	Grommet	\$1.95
17	52017	Gauge-Pressure	\$13.00
18	52018	Hinge	\$3.95
19	52019	Check Valve	\$12.00
20	52020	Rod Holder Support	\$19.95
21	52021	Oil Jar	\$1.95
22	52022	Cap-Oil Jar	\$.95
23	52023	Oil Pad	\$Use Gauze
24	52024	Hex Screw-Oil Jar	\$1.95
25	52025	Hex Nut Oil Jar	\$.95
26	52026	Stainless Steel Tray	\$30.00
27	52027	Non Slip Pad	\$3.00
28	52028	Screw, Button Head	\$.95
29	52029	Screw, Set Socket	\$.95
30	52030	Screw, Button Head	\$.95
31	52031	Screw, Button Head	\$.95
32	52032	Screw, Button Head	\$.95
33	52033	Screw, Button Head	\$.95
34	52034	Screw, Button Head	\$.95
35	52035	N.C. Valve	\$8.20
36	52036	Hand Piece Tubing W/ Coupler	\$24.00
37	52038	Syringe Tubing	\$.70 Per Foot

# Mirage Post Mount Utility Box



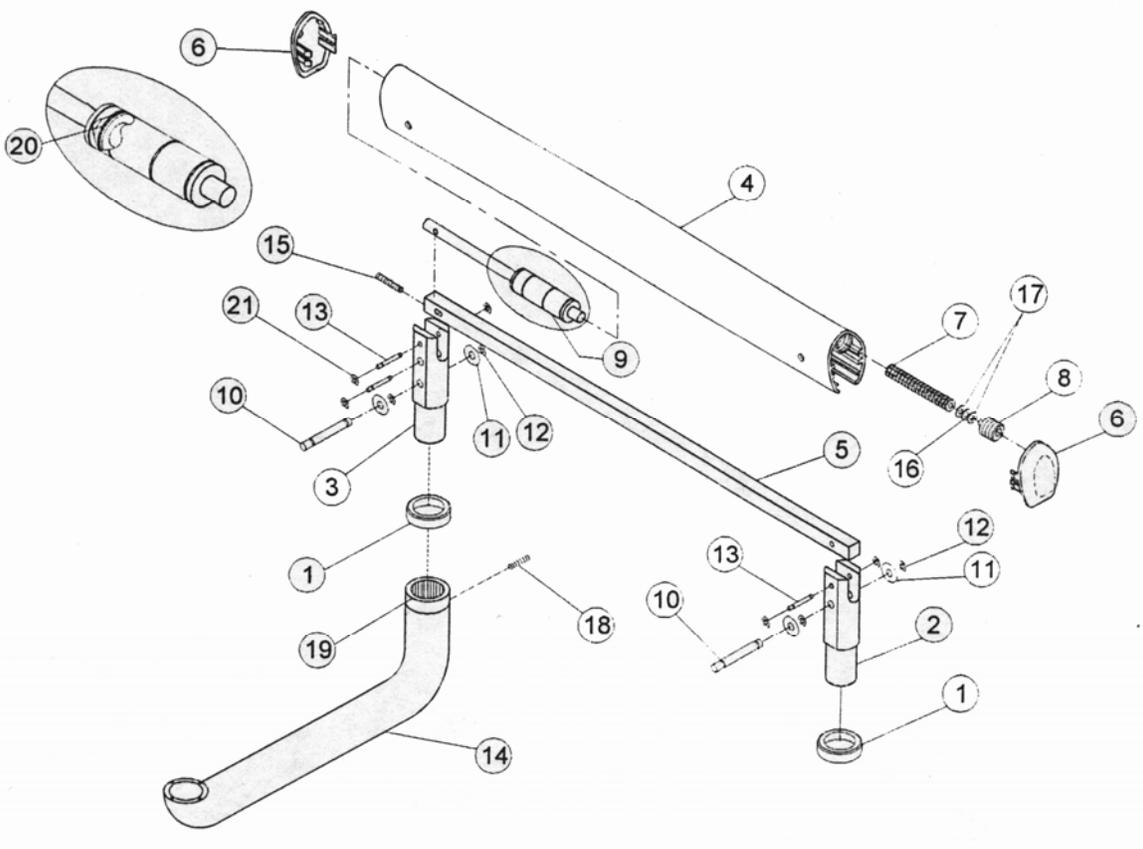
Item	Part Number	Description	Price\$
1	53001	Frame, PMU	\$95.00
2	53002	Support Plate –Clamp	\$89.60
3	53003	Support Post	\$99.00
4	53004	Front Cover	\$30.00
5	53005	Rear Cover	\$30.00
6	53006	Top Cover	\$60.00
7	53007	Side Cover	\$60.00
8	53008	Solids Collector body	\$33.90
9	53009	Bracket, Solids Collector	\$3.95
10	53010	Syringe Block Assembly	\$19.90
11	53011	Water Bottle Air Regulator	\$25.20
12	53012	Q.D. Outlet W/Shutoff	\$14.00
13	52007	Flow Control Needle Valve	\$16.00
14	53014	Toggle, Selector Valve	\$14.20
15	53015	Umbilical Retainer Bracket	\$3.95
16	53016	Trap Solids Collector	\$1.95
17	53017	Cap, Solids Collector	\$3.00
18	53018	O-Ring Solids Collector	\$.60
19	53019	HVE Connector	\$14.95
20	53020	SE Connector	\$14.95
21	53021	Umbilical (Per Foot	\$4.70
22	53022	Bottle Cap Assembly	\$25.00
23	53023	Gasket Water Bottle	\$2.80
24	53024	Water Bottle	\$6.30
25	53025	Magnet	\$2.95
26	53026	Screw Magnet	\$.95
27	53027	Plate Magnet	\$REF Part # 7
28	53028	Screw Plate Magnet	\$REF Part #7
29	53029	Screw, Clamp Mount Allen	\$1.95
30	53030	Spacer, Top Cover	\$.50
31	53031	Washer, Top Cover	\$.15
32	53032	Screw, Top Cover	\$.25
33	53033	Screw, Rear/Front Cover	\$.25
34	53034	Screw, Bracket – Umbilical	\$.25
35	53035	Screw, Bottle Cap Assembly	\$.25
36	53036	Screw, Solids Collector	\$.25
37	53037	Screw, Bracket-Solids Collector	\$.25
38	53038	Screw, Set Socket, Post	\$.25
39	53039	Screw, Pan Head, Post	\$.25
40	53040	Light Post Not Shown	\$140.00
41	53041	4 Position Suction Holder	\$44.40
42	53041-arm	Tele Arm Only	\$75.00
43	53041-C	Complete Tele Arm W/ 4 pos Holder	\$200.00

# Mirage Ridge Arm Assembly



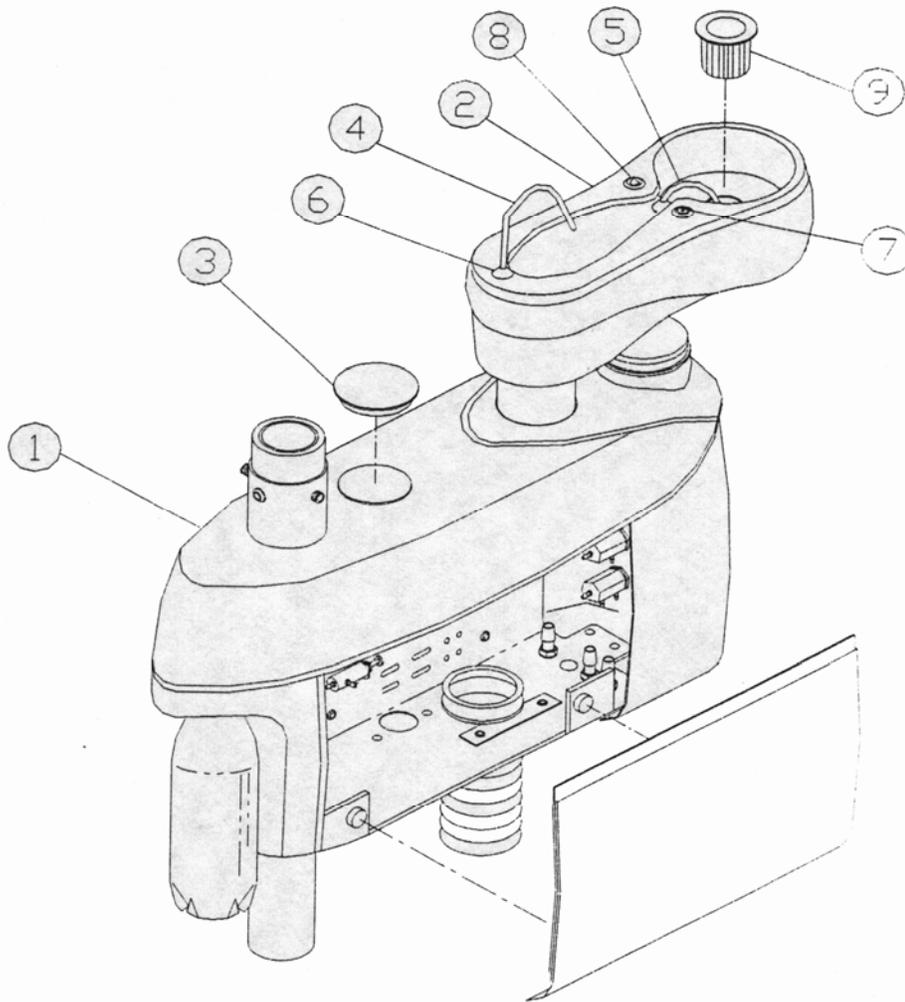
Item	Part Number	Description	Price\$
1	54051	Ridge Arm	
2	54052	Bushing	
3	54053	Bearing	
4	54054	Friction Spacer	
5	54055	Cap Head Screw	
6	54056	Pin, Rotation Stop	
7	54057	Friction Set Screw	
8	54058	Bezel	
9	54059	Washer	

# Mirage Flex Arm Assembly



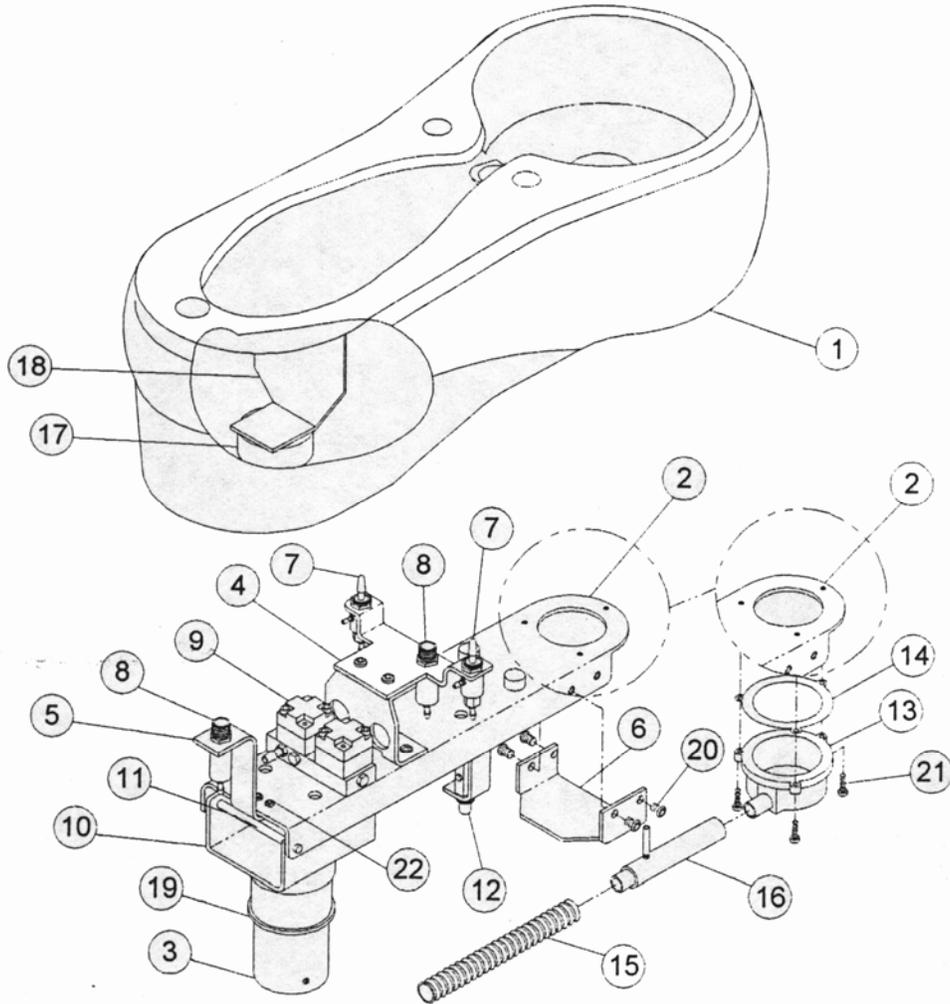
Item	Part Number	Description	Price\$
1	54001	Bezel	\$4.95
2	54002	Elevation Knuckle	\$20.00
3	54003	Control Knuckle	\$20.00
4	54004	Cover Flex Arm	\$100.00
5	54005	Stabilizer Bar	\$44.95
6	54006	End Cap, Flex Arm	\$19.00
7	54007	Spring Compression	\$45.95
8	54008	Tensioning Screw Cap	\$15.00
9	54009	Air Break	\$100.00
10	54010	Long Pin, Stabilizer	\$3.95
11	54011	Washer (PKG 10)	\$11.00
12	54012	Retainer (PKG 10)	\$3.00
13	54013	Short Pin	\$2.95
14	54014	Control Arm	\$100.00
15	54015	Leveling Screw	\$1.95
16	54016	Washer (PKG 10)	\$11.00
17	54017	Washer (PGK 10)	\$11.00
18	54018	Set Screw	\$.95
19	54019	Bearing	\$45.95
20	54020	O-Ring Air Break	\$NA See #9
21	54021	Retainer, Small (PKG 10)	\$3.00

## Mirage Cuspidor – Post Assembly



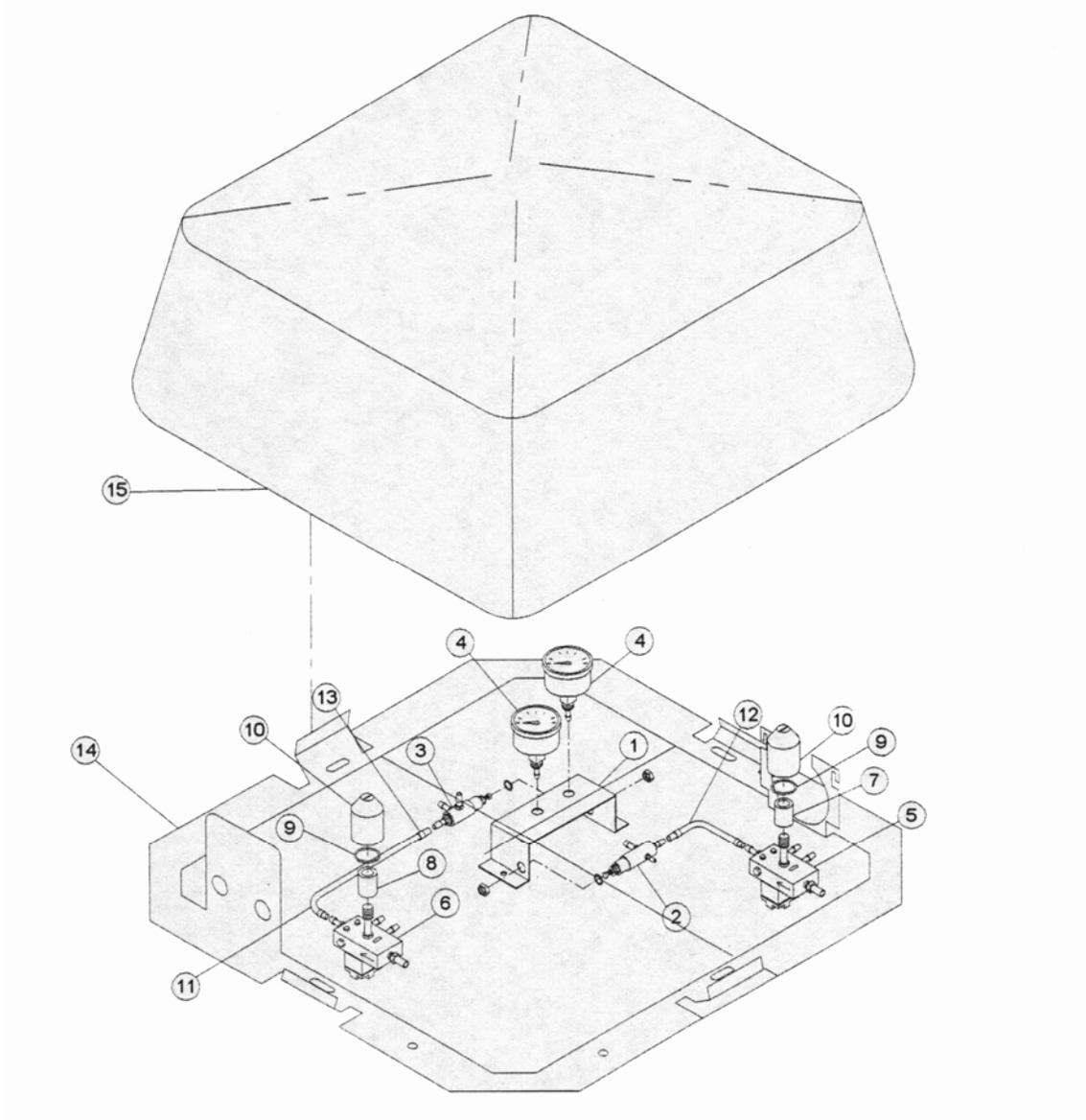
Item	Part Number	Description	Price\$
1	53000	Post Mount Box Sub-Assembly	\$1,300.00
2	53050	Cuspidor Sub-Assembly	\$300.00
3	53051	Cap, Top Cover	\$5.00
4	53052	Cup Fill Spout	\$30.00
5	53053	Bowl Rinse Spout	\$30.00
6	53054	Bezel, Spout	\$6.00
7	53055	Cup Fill Boot	\$5.00
8	53056	Bowl Rinse Boot	\$5.00
9	53057	Bowl Strainer	\$8.30
10	53058	Cuspidor Cove Cap	\$10.00
11	53059	Cuspidor Locking Screws X2	\$4.95

# Mirage Cuspidor Assembly



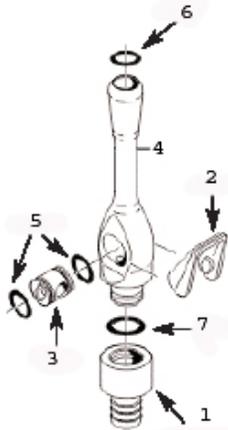
<u>Item</u>	<u>Part Number</u>	<u>Description</u>	<u>Price\$</u>
1	53071	Cuspidor	\$100.00
2	53072	Chassis	\$50.00
3	53073	Pivot Tube	\$10.00
4	53074	Valve Bracket	\$5.00
5	53075	Bracket, Socket Cup Fill	\$2.00
6	53076	Bracket, Bowl- Socket	SEE NO.4
7	53077	Control Valve	\$19.00
8	53078	Socket Spout	\$12.00
9	53079	Block	\$33.00
10	53080	Bracket Pivot Mount	\$10.00
11	53081	Pin	\$1.00
12	52007	Needle Valve	\$16.00
13	53083	Socket Bowl	\$5.00
14	53084	Gasket	\$10.00
15	53085	Drain Line	\$1.98 Per Ft
16	53086	Vent Tube Assembly	\$4.00
17	53087	Magnet	\$20.00
18	53088	Bracket Magnet	\$5.00
19	53089	Washer	\$1.00
20	53090	Screw, Bracket Mount Allen	\$.40 Each
21	53091	Screw, Socket Mount Philips	\$.40 Each
22	53092	Screw, Bracket Cup Fill Allen	\$.40 Each

# Mirage Utility Box Assembly



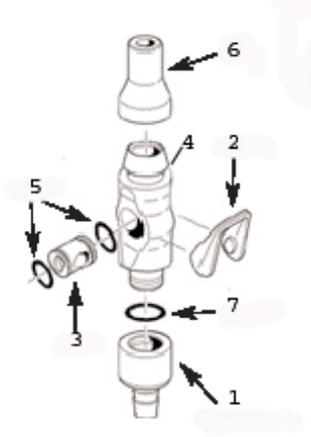
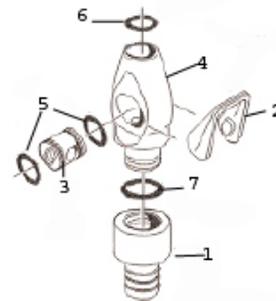
<u>Item</u>	<u>Part Number</u>	<u>Description</u>	<u>Price\$</u>
1	53101	Bracket	\$12.00
2	53102	Air Regulator	\$25.20
3	53103	Water Regulator	\$25.20
4	53104	Pressure Gauge	\$13.00
5	53105	Air Pilot Valve	\$44.00
6	53106	Water Pilot Valve	\$44.00
7	53107	Air Filter	\$2.00
8	53108	Water Filter	\$2.00
9	53109	O-ring	\$2.80
10	53110	Dome Nut	\$5.00
11	53111	¼" Water Line	\$.48/FT
12	53112	¼" Air line	\$.48/FT
13	53113	Sleeve Clamp (PKG 10)	\$1.90
14	53114	Frame, Utility Box	\$40.00
15	53115	Cover, Utility Box	\$60.00
16	53116	Foot Control W/SW	\$80.00
17	53117	Foot Control W/O SW	\$50.00
18	53118	F.C. Wet/Dry Toggle SW	\$1.00
19	53119	J-Box Master Controls Complete	\$195.00

# Suction Components



Model 2000HVE			
No.	Part Number	Description	Price
1	HVEBC	Base Connector	\$10.00
2	HVELV	Lever	\$5.00
3	HVEVS	Valve Spool	\$7.00
4	2000HVE	HVE Complete	\$24.00
5	57392	O-ring	\$1.00
6	67392	O-ring	\$1.00
7	77392	O-ring	\$1.00

Model 2000HVE Short			
No.	Part Number	Description	Price
1	HVEBC	Base Connector	\$10.00
2	HVELV	Lever	\$5.00
3	HVEVS	Valve Spool	\$7.00
4	2000HVE	HVE Complete	\$24.00
5	57392	O-ring	\$1.00
6	67392	O-ring	\$1.00
7	77392	O-ring	\$1.00



Model 2000HVE			
No.	Part Number	Description	Price
1	SEBC	Base Connector	\$10.00
2	SELV	Lever	\$5.00
3	SEVS	Valve Spool	\$7.00
4	2000SE	Saliva Ejector	\$24.00
5	57392	O-ring	\$1.00
6	SE672-5	O-ring 5PK	\$5.00
7	77392	O-ring	\$1.00



# **TPC**

## Lucent Operator Dental Light



## Operation and service manual

**TPC**

851 S. Lawson St.

City Of Industry, CA 91748

P626-810-4337 Fax 626-810-4245

[www.tpcdental.com](http://www.tpcdental.com)



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**Technical Assistance is available Monday through Friday, 8:00 Am to 5:00 PM PST.**

# TPC

## General Information:

### Definitions of symbols

 <p>CAUTION! Electrical shock hazard inside</p>	<p>Risk of electrical shock present. Make sure power is disconnected before attempting this procedure.</p>		<p>Type B equipment (Protected against electrical shock)</p>
	<p><b>Caution:</b> Failure to carefully follow the described procedure may result in damage to the equipment or operator.</p>		<p>Dangerous Voltage</p>
	<p>AC (Alternating Current)</p>		<p>Off</p>
	<p>Protective earth (Ground)</p>		<p>On</p>

Model: L800 Lucent Dental Light  
 Serial No: L800-8675309  
 Input Voltage: 120V ~ 60Hz  
 Current: 1A  
 Warning: RISK OF FIRE - CLASS 1  
 Replace fuse as marked   
 1A Fuses  
 Manufactured: 7-2009  
**TPC**  
 Reference Owner's Manual   
 18525 E. Gale Ave.  
 City Of Industry, CA 91748

# TPC

## Operatory Light Installation

- The Lucent Operatory Light is designed to fit into the top end of a chair or floor mounted post. The size of the included bushing is 1 11/16". For all other light post sizes you will need to obtain an additional light post adaptor bushing.



- Insert the end of wire through the silver light bushing.



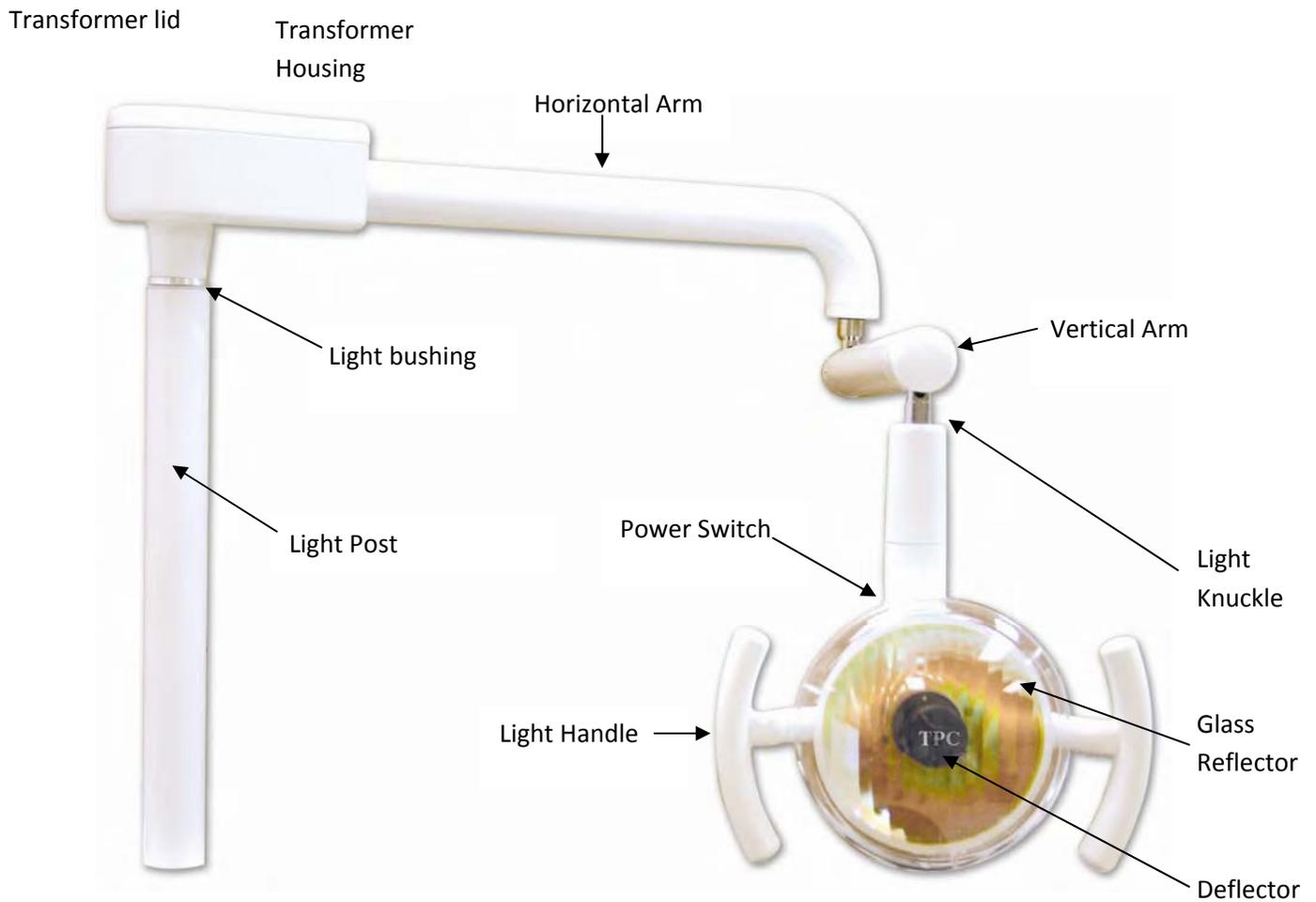
- Place the end of the wire through the light post and insert the light bushing into the light post and press down to insure proper seating of the bushing.



- Connect the wires to the corresponding terminals on the plug. Or hard wire the connections using the included wire nuts.

# TPC

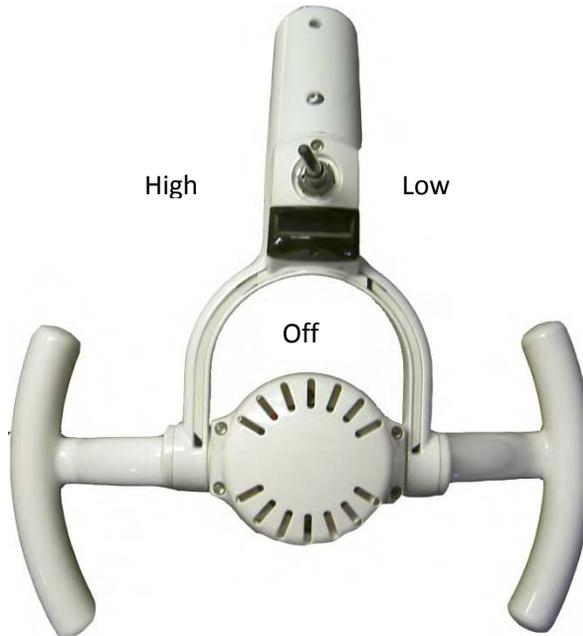
## Overview of components:



# TPC

## Operating Instructions

- Move power switch to the left to set the light to high intensity. Move the power switch back to the center position to turn it to the off position. Move the power switch to the right to right to turn it to low intensity.



- To adjust the position of the light, place your hand on the light handle and move it to the desired location. You can move the light head up and down and left and right. When turning the light head left and right it will stop, don't force any further movement of the light head as damage may occur.
- To bring the light closer to the patient or desired illuminated location pull down on the light handle to move the vertical arm. Once the light is in the desired location I will stay in that positions until you move it back.

# TPC

## Light Head adjustment

- If you experience a downward drift with your operatory light head please follow the following procedure below.
- Remove the nut cover shown in the image below. Tighten both retaining nuts on side of the light head. See images below. To tighten the nuts turn them clockwise. Do not over tighten the nuts as damage may occur.



Tension Nut

## Vertical Arm adjustment

- If you experience a downward drift with your operatory lights vertical arm please follow the producer below.
- Remove the end cap cover on the end of the vertical arm closest to the light head. This requires a small Phillips screw driver.
- Turn the nut located at the end of the light arm to adjust the tension.
- Turn the nut clockwise to increase the tension. Turn the nut counter clockwise to decrease the tension.
- If your vertical light arm drifts down then you need to increase the tension. If the vertical light arm drifts back up you need to decrease the tension.



# TPC

## Light Bulb Replacement Instructions.

1. Locate the rear cover to the operatory light and remove the 4 Allen screws with a 3/32 Allen wrench.



2. Locate the tension spring retainer. Once you locate it press it in and rotate it counter clockwise. These will UN lock the retaining spring that holds in the light bulb.

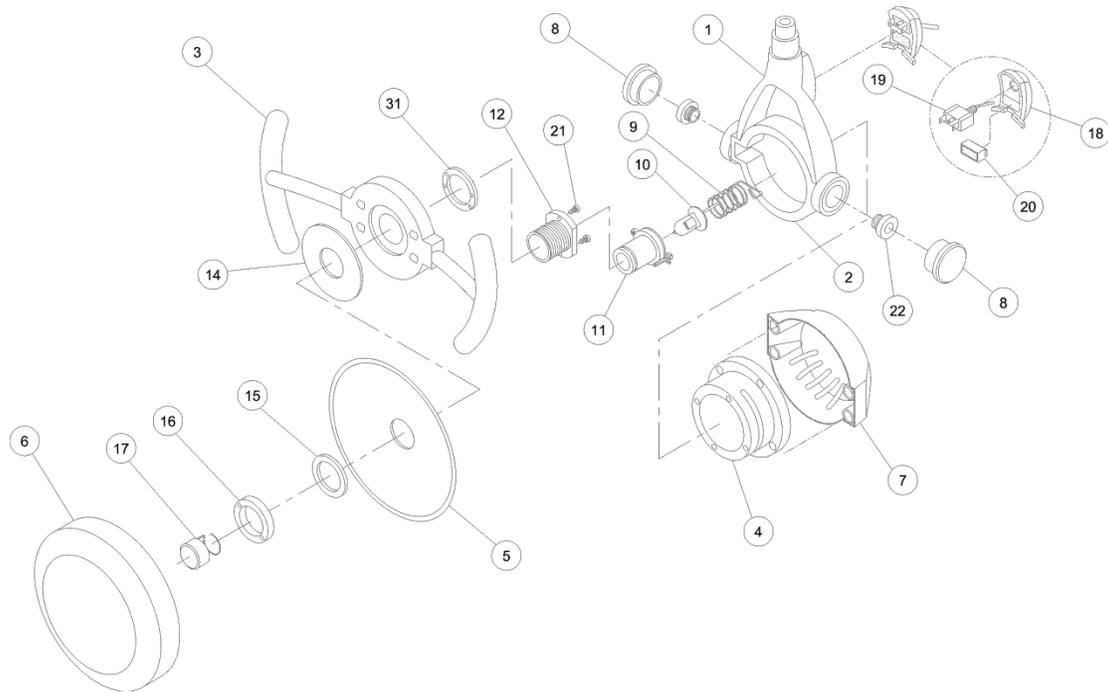


3. Remove the wire that connects the light bulb to the wiring harness "the red wire". Replace the light bulb with replacement light bulb part number P709 or similar. Halogen lamp 12 Volts 55 Watts.



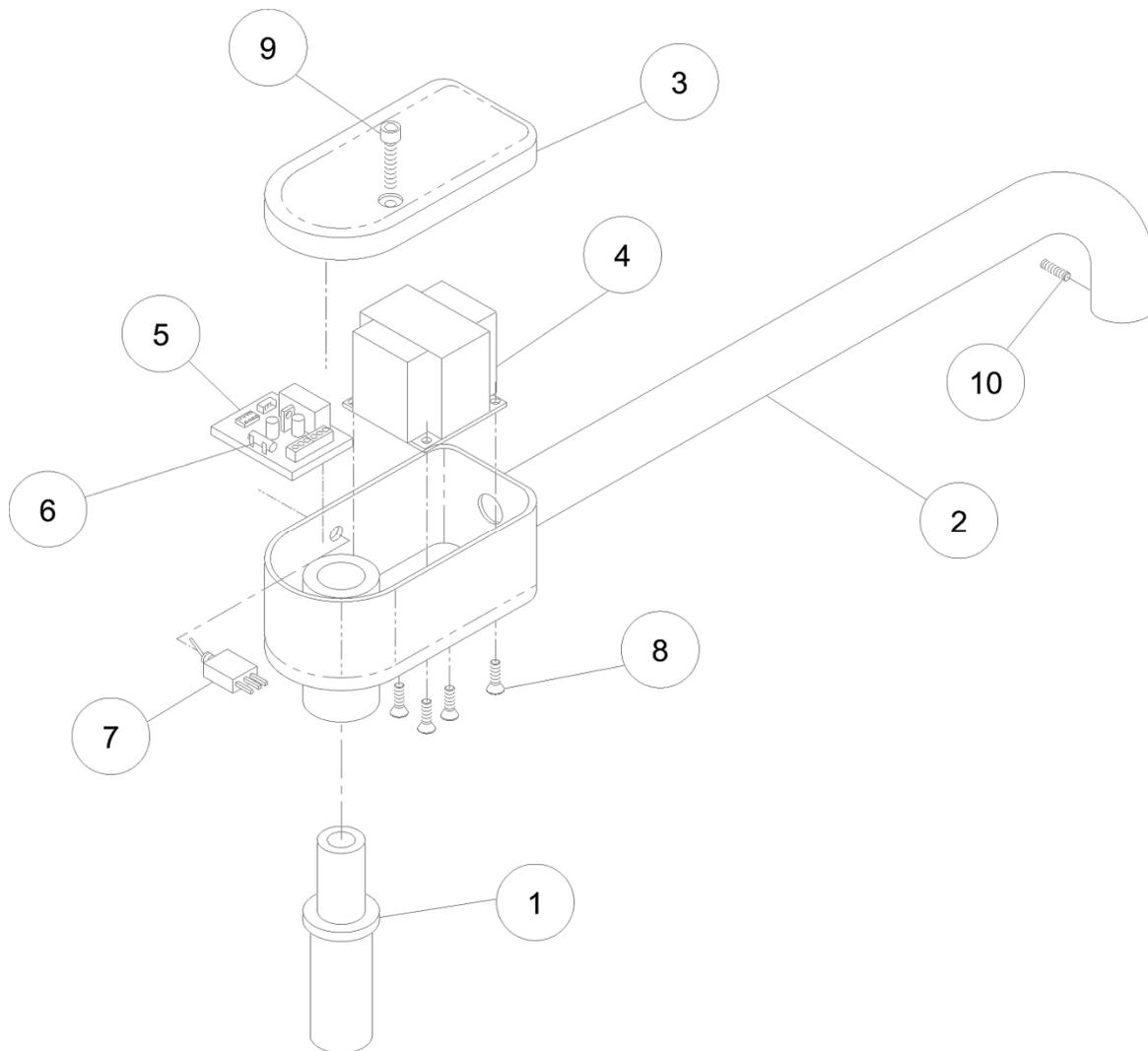
# TPC

## Replacement Parts List

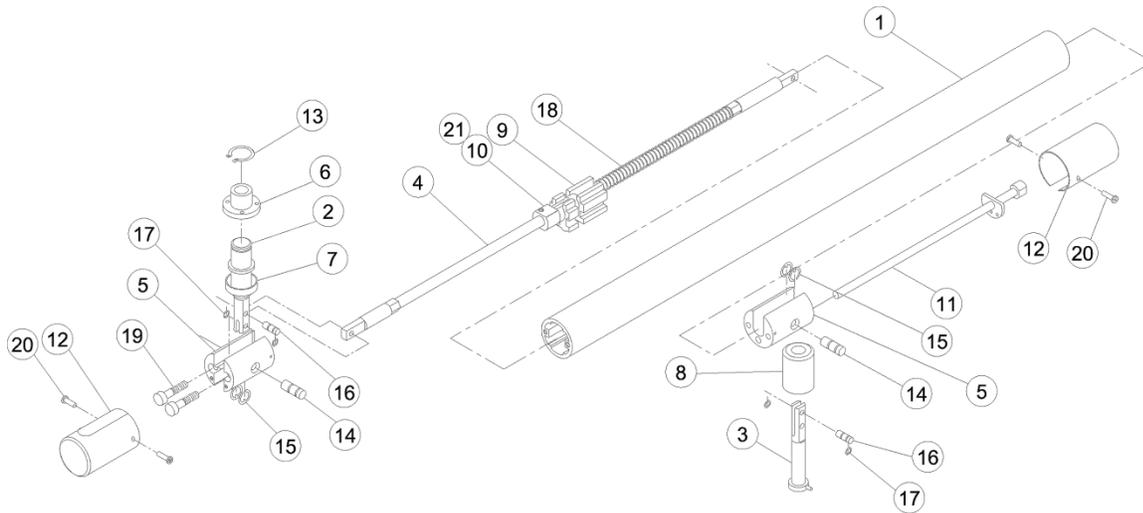


Item	Part	Number Description
1	56051	Yoke
2	56052	Support Yoke
3	56053	Handle Frame
4	56054	Socket Bushing
5	56055	Reflector
6	56056	Shield
7	56057	Rear Cover
8	56058	Tension Covers
9	56059	Light Bulb Tension Spring
10	P709	Light Bulb
11	56061	Light bulb Socket
12	56062	Reflector Holder Bushing
13	56063	Washer
14	56064	Rubber Grommet
15	56065	Large Washer
16	56066	Round Nut
17	56067	Deflector
18	56068	Cover, Switch
19	56069	Power Switch
20	56070	Sensor PCB
21	56071	Screw
22	56072	Light Head Wire Harness

# TPC



<u>Item</u>	<u>Part Number</u>	<u>Description</u>
1	56001	Light Bushing
2	56002	Rigid Arm
3	56003	Cover, Transformer
4	56004	Transformer
5	56005	PCB Board
6	56006	Fuse
7	56007	Switch
8	56008	Screw X 4
9	56009	Transformer Cover Screw
10	56010	Set Screw



Item	Part Number	Description
1	56021	Cover Flex Arm
2	56022	Knuckle, Rigid Arm
3	56023	Knuckle, Head
4	56024	Spring Rod
5	56025	Extension Support
6	56026	Bushing
7	56027	Bezel
8	56028	Bushing
9	56029	Block Spring Tensioner
10	56030	Friction Block
11	56031	Tensioner Rod
12	56032	End Cap Cover
13	56033	Retainer Ring
14	56034	Long Pin
15	56035	Retainer Ring Small
16	56036	Short Pin
17	56037	Retainer Ring Small
18	56038	Spring
19	56039	Screw Cap Head Socket
20	56040	Screw, End Cap
21	56041	Friction Screw



## Cleaning and disinfecting guide

**Table 1**

\*The Manufacturer makes no representation as to the disinfectant efficacy of these products. We make no warranty expressed or implied that these disinfectants will not damage the surface finishes. Damage and discoloration of the surface finishes are not covered under the warranty. Iodophor-based disinfectants will cause yellow staining on many surfaces. Regular washing with soap and water will minimize this staining. Iodophor neutralizers such as Promeddyne are also available.

<p><b>Unacceptable Disinfectants</b>          These disinfectants <b>will harm</b> the surface finishes of dental equipment and are not recommended.  <b>Use of these products will void your warranty.</b>          Chemical Composition / Trade Names          Strong Phenols / Lysol, Lysol 2, Lysol Phenol-Alcohol Professional, Coe Foam, Coe combinations Spray Pump, Vitaphene, Omni II          Sodium Hypochlorite / Clorox, Ajax, Purex Household Bleach          Alcohol          Household Cleaners</p>	<p><b>Conditionally Acceptable Disinfectants</b>          These disinfectants have been found to be the <b>least harmful</b> to the equipment surfaces by our test methods.          Chemical Composition Trade Names          Iodophors Biocide, Aseptic-IDC, Wescodyne, SD5, Promeddyne, Iodo-Five          Mild Phenols Procide ES, Asepti-Steryl Aerosol          Glutaraldehyde / Sterall Spray, Coldspor Phenol Sprays          Synergized Super Dis-cide, Cavicide, Kleenaseptic          Quat          Phenol/Water Sprays Top-Cide, Sporidicin Pump Spray          Birex se</p>
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## 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. Light bulbs are not covered under any type of warranty. Only authorized service technicians should attempt to service TPC equipment. Service performed by any unauthorized technician may result in a voided warranty.

# TPC

## Troubleshooting Guide.

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Light does not illuminate	No power to light	Check power
	Light bulb has expired	Replace light bulb
	Transformer is expired	Replace transformer
Only high or low function works	Secondary windings on transformers are expired	Replace transformer
	Main power switch is bad	Replace main power switch
Light turns on and off then the light head is moved	Short or open in power line from transformer.	Check each power line for short or open. Then replace.
Light head drifts down	Light head tension springs are loose	Tighten light head spring nuts.
Vertical arm drifts up or down	Vertical arm tension spring needs to be adjusted	Adjust vertical arm tension.
Light drifts from left to right	Light post is not level	Level light post.