Mirage Model 4000

Hydraulic Patient Chair

Limit Arm Installation

TPC

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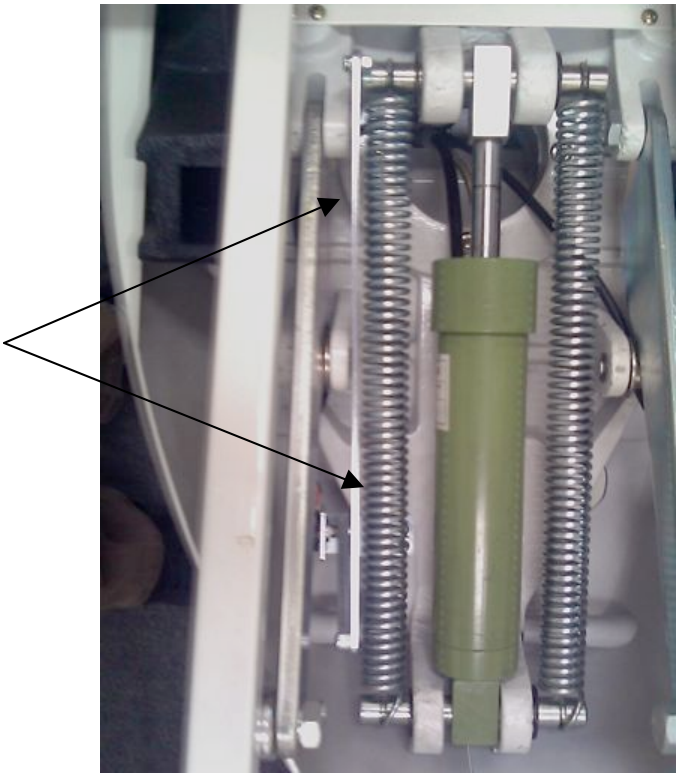
Caution! Protect your eyes and body parts when working in this area of the dental chair. Most of the time the potentiometer arm replacement, is due to the arm wrapping around the return

springs of the dental chair. If you potentiometer arm is looped in with the spring use extra caution when removing it. As the spring can come loose and cause injury.

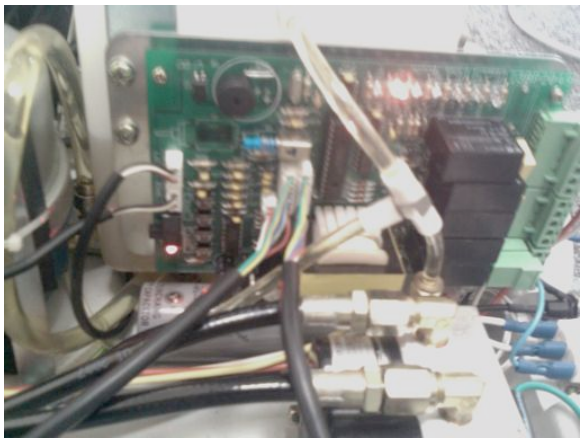
1. Remove the seat cushion from the dental chair. To do this, remove the two Allen screws.

2. Locate the potentiometer arm to be replaced. This arm runs parallel to the hydraulic return springs on the left side of the chair if you are looking into it from the toe.



3. Locate the main PCB board under the pump cover of the chair. Place the chair in service mode by switching S6 down. When this happens the LED below the switch will

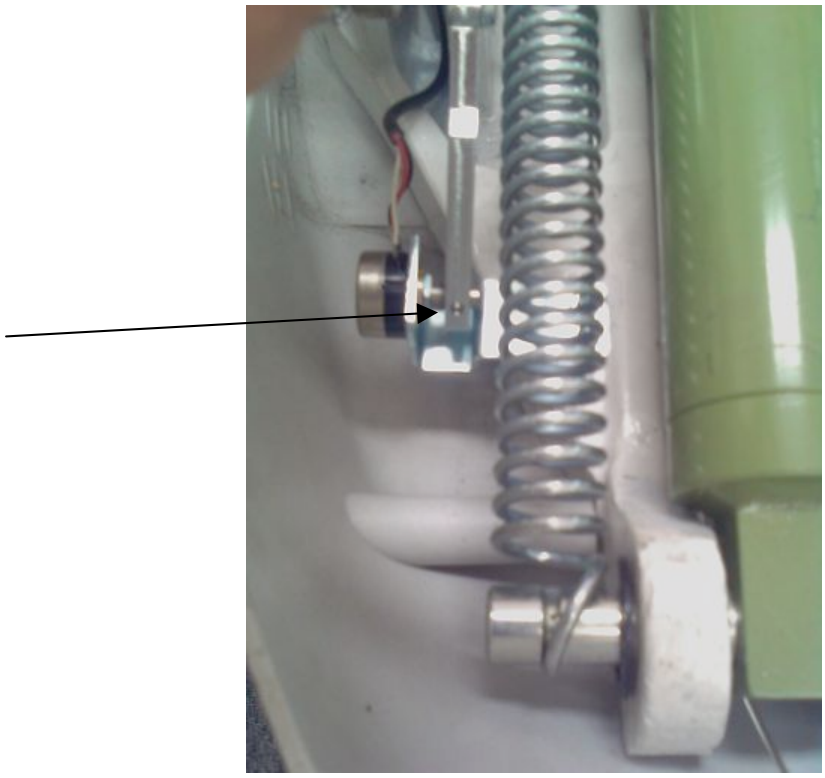
illuminate. We are using service mode because if there is damage to the arm the chair will not sense its position and the chair back probably does not move.



4. You may need to remove the side cover of the dental chair to detach the arm from the hydraulic pin. You may skip this step if you have a Phillips head driver with a 90 degree bend on it.

5. Remove the screw from the hydraulic pin if you can't see the screw recline the backrest to approximately a 45 degree angle. Keep alert and watch for anything that may obstruct the arm movement such as the return springs. If the screw is already removed or sheared off then attempt to remove the sheared screw from the hydraulic pin.

6. Remove the set screw that attaches the opposite side of the potentiometer arm to potentiometer.

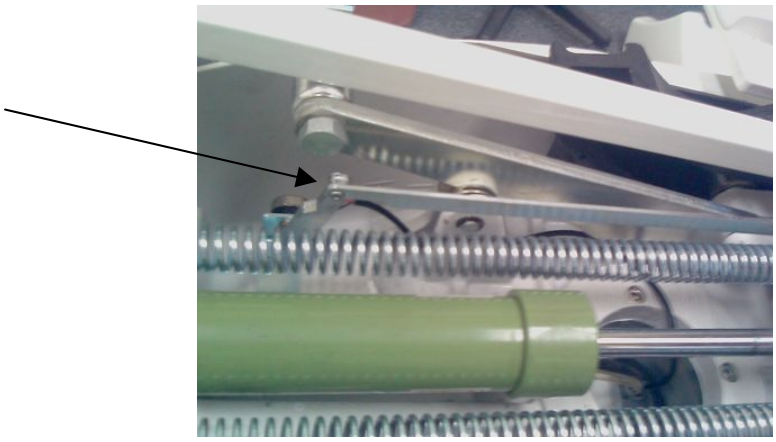


7. Remove Arm. Depending on the condition of the arm you may need to also remove the potentiometer bracket to remove the arm.

8. Once removed, place the new arm in the chair. Re-attach the screw that was removed in step 5. This screw attached the arm to the hydraulic pin.

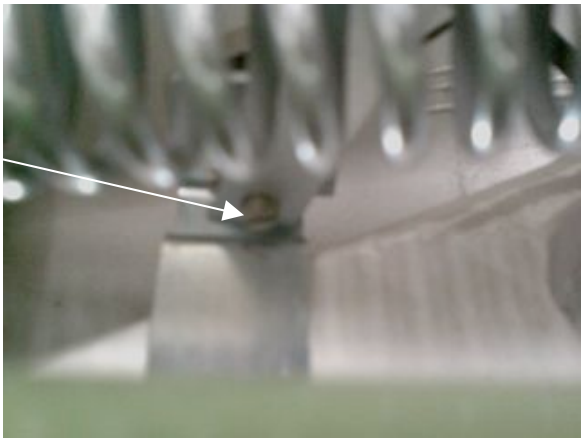
9. Place the opposite side of the potentiometer arm back on the potentiometer. Do not tighten the set screw at this time.

10. Make sure to observe the movement of the arm while performing this step. The arm has a pivot point that should always pivot up NOT DOWN.



11. Watch for any obstructions to the arm. Also make sure the potentiometer does not over turn it self. This will be able to be determined when the arm travels but the notch on the opposite side of the pot does not move.

12. A good way to determine the location and settings is as follows. Use the foot control to move your backrest all the way back. Then move the backrest all the way up. Then drop your backrest to where it looks to be in a center position. Not all the way up and not all the way down. Then turn the potentiometer all the way in one direction then to the other. Then turn it to locate the center position.



13. Now you may tighten the set screw back on the potentiometer.

14. Now move the backrest up and down several times to ensure the there are no obstructions and the arm will move freely. After this is completed you will need to set the new limits for the backrest.

Setting the new limits

1. 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.

2. 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 and slide it down. Once the switch is activated the led below the switch will be illuminated. The switch is located on the left side 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. There is a PCB board diagram on 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 touc pad or foot control to move the chair up, and then use the lift down on the touch pad 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 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