TPC

PATIENT CHAIRS

HYDRAULIC PATIENT CHAIR

Mirage2.0

Installation, Operation & User Manual

Models 4000-2.0 (steel base) and 4000-2.0-CB (cast aluminum base)



DOCUMENT
Part No. `M4000-2.0-MAN-001`
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How to read this manual

Read the safety section before installing or operating the chair. Notices in this manual mean the following:

⚠ **WARNING** Risk of injury to people or damage to the chair. Follow exactly.

ⓘ **NOTE** Information that makes the job easier or the result more reliable.

1 Numbered steps are done in order.

Service sections

Sections 06 and 07 are for authorized service technicians. Service by unauthorized technicians may void the warranty.

Technical support

(800) 560-8222

Have the serial number from the product label (left side cover) ready when you call.

SECTION 01

Safety information

Read all safety information before installing or operating the chair. Keep this manual with the chair for future reference.

⚠ **WARNING** Any action not recommended by the manufacturer may cause injury or electric shock.

Safety labels on the chair

Product identification label

LOCATION
Left side cover

SHOWS
Manufacturer, serial number and date of manufacture

Risk class symbol

LOCATION
Left side cover

SHOWS
Product classification and safety rating



Fig. 1 Product identification and risk class labels, left side cover.

Main grounding point

LOCATION
Front left of the steel base frame, under the plastic base cover

Fuse label

LOCATION
Under the pump cover, front left of the chair frame

RATING
10 A, 250 V, 5 × 20 mm glass fuse

Weight and patient safety

650 lb
Maximum weight capacity. Exceeding it may damage the chair.

1 patient
Never allow more than one person in the chair at a time.

3 min
Maximum continuous operation. Let the chair rest between cycles.

Seated only
Never stand on any part of the chair.

SAFETY, CONTINUED

Precautions

Electrical safety

⚠ **WARNING** Keep liquids away from electrical connections. Most control switches are not hermetically sealed. A wet switch can activate on its own or short out and damage system components.

- Never spray disinfectant directly at or into switches and controls.
- Do not saturate the cloth. Keep switches dry at all times.
- Do not operate the chair near flammable liquids.
- Spray cleaning solution onto a cloth first, then wipe the controls.
- Disconnect the main power cord before checking fuses.

Installation and handling

- The chair is heavy. Use at least two people and proper lifting technique.
- Move the chair only with an approved pallet jack or forklift.
- Lift only by the supplied lift handles. Never lift by the armrests.
- Do not attempt to move stacked chairs.

Storage and transportation

- Store upright on the pallet, never on its side.
- Store in a cool, dry place, below 130 °F (54 °C).
- Stack no more than five packaged chairs.
- Move only with an approved pallet jack or forklift.

Operational safety

- Only authorized service technicians should service TPC equipment. Unauthorized service may void the warranty.
- Before running auto limit procedures, move delivery unit arms and the operatory light out of the chair's path.
- Before using any automatic function, make sure the space around the chair is clear.
- Any switch on the foot control or touchpad stops chair motion.

SECTION 02

Product overview

The Mirage 2.0 is a hydraulic patient chair for dental procedures. It offers programmable preset positions, adjustable motion limits and hydraulic speed controls. Instead of mechanical limit switches, it senses position electronically with potentiometers.

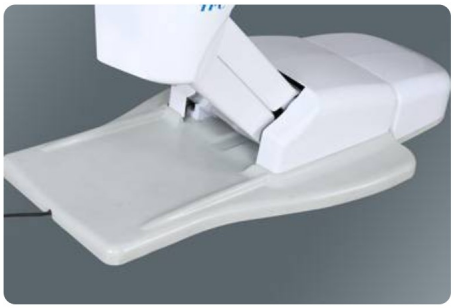


Fig. 2 Cast aluminum base, model 4000-2.0-CB



Fig. 3 Steel base with cover, model 4000-2.0



Fig. 4 Double-articulating, dual-axis headrest

Key features

- ✓ **Hydraulic operation**
  Smooth, quiet movement with adjustable speeds
- ✓ **Programmable motion limits**
  Custom travel range for the base and backrest
- ✓ **Preset positions**
  Two presets on the foot control (three on the optional touchpad), auto return and last-position memory
- ✓ **Articulating headrest**
  Adjustable height and angle on a friction mount
- ✓ **Electronic position sensing**
  Potentiometers on the base and backrest for precise control
- ✓ **Auto limit calibration**
  Automated setup procedure
- ✓ **Safety plate**
  Stops movement if an object is caught under the chair
- ✓ **Rotating armrests and 30° swivel**
  Easy patient entry and exit, open access

Major components

- Hydraulic pump and cylinder system
- Hydraulic flow control valves TV1–TV4
- 12 V AC transformer and power system
- Foot control and optional touchpad
- Safety plate under the cantilever cover
- Main PCB (printed circuit board) with control circuitry
- Base and backrest potentiometers for position sensing
- Upholstered seat, backrest and headrest
- Rotating armrests

PRODUCT OVERVIEW, CONTINUED

Technical specifications

Electrical and control

Input voltage	110–120 V AC (220 V model available)
Control power	12 V AC transformer
Fuses	Two 10 A, 250 V, 5 × 20 mm glass
Control system	Electronic, potentiometer position feedback
Potentiometer	**RV245YN**
Duty cycle	3 minutes maximum continuous operation
Emergency stop	Any switch stops motion

Hydraulics

Lift mechanism	Hydraulic, cantilever type
Hydraulic fluid	AW32 hydraulic oil, clear
Speed control	Flow control valves TV1–TV4

Chair

Models	`4000-2.0` steel base `4000-2.0-CB` cast aluminum base
Weight capacity	650 lb maximum
Seat height	15.5" initial, 15" lift stroke
Backrest recline	0° (horizontal) to 70°
Seat tilt	10°–20°, synchronized with backrest
Chair swivel	30° left / 30° right, with lock
Positions	2 programmable (3 with touchpad), auto return, last position
Headrest	Double-articulating, dual-axis
Warranty	5-year limited

Shipping cartons

Carton	L × W × H (in)	Weight
Chair	44 × 29 × 34	**340 lb**
Cushion	51 × 24 × 10	**35 lb**

Specifications are subject to change without notice. See page 8 for the installed footprint.

SECTION 03

Installation

Unpack the chair on its pallet, remove the shipping hardware, then move it into place. Read the handling precautions on page 4 first.

STEP 3.1

Remove the base covers

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

> **NOTE** The base cover is held to the steel base by magnets. It pulls off without tools.



Fig. 5 Back cover slid off the chair base

STEP 3.2

Remove the shipping bolts

Four (4) shipping bolts secure the chair to the pallet.

1. Remove the two bolts at the **front** of the chair.
2. Remove the two bolts at the **rear** of the chair.

> **NOTE** The shipping bolts are not reused. Keep the holes clear: the leveling lugs install into them (page 9).



Fig. 6 Base on the pallet, covers off

STEP 3.3

Install the lift handles

1. Remove the lift handles from the pallet packaging.
2. If they are not already fitted, thread a handle onto the hub on each side of the chair.
3. Use only these handles as lift points during installation.

⚠ **WARNING** Never lift the chair by its armrests. They are not designed to carry the chair's weight.



Fig. 7 Lift handles as packed



Fig. 8 Threaded hub

STEP 3.4

Move the chair into place

Using an approved pallet jack, forklift or floor dolly, carefully move the chair to its final location.

LEAVE CLEARANCE FOR

- Full range of chair motion
- Operatory light
- Patient entry and exit
- Delivery unit arms
- Staff movement

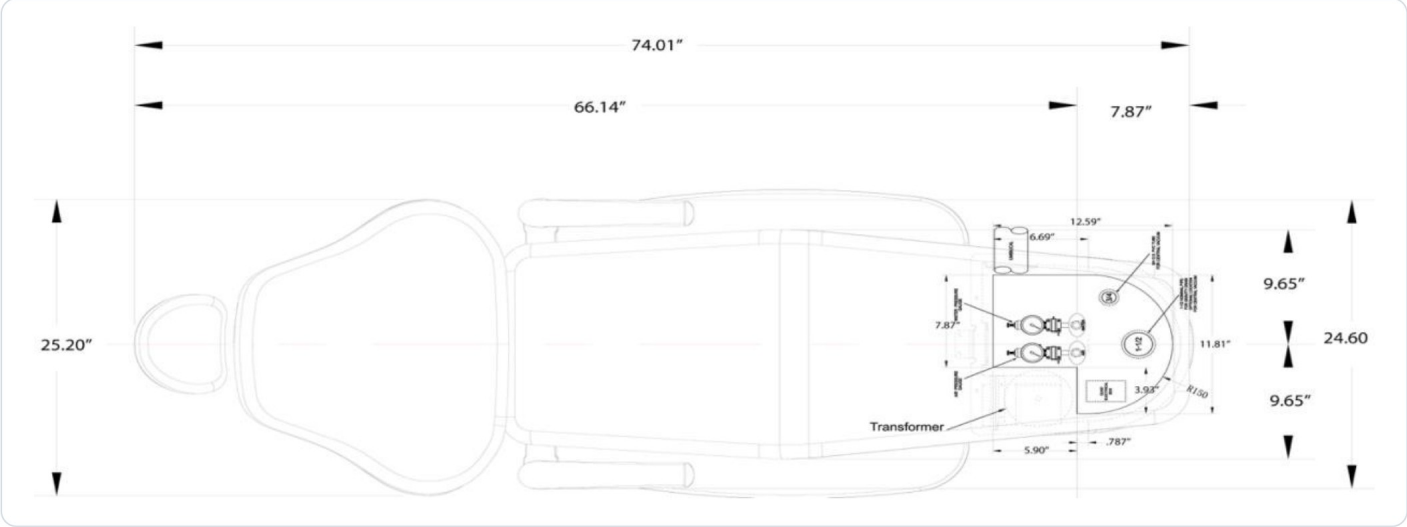


Fig. 9 Installed footprint, top view. Overall length 74.01", width 25.20", with utility box and transformer locations. Dimensions in inches.

STEP 3.5

Level the chair

1. With the chair in its final location, find the leveling lug holes. These are the holes the shipping bolts came out of.
2. Install a leveling lug in each hole.
3. Adjust each lug to compensate for uneven flooring.
4. Check the base with a level.
5. Press on different areas of the base to confirm it does not rock.

NOTE Every leveling lug must be firmly on the floor before you finish the installation.



Fig. 10 Leveling lugs, packed with the chair



Fig. 11 Leveling lug hole in the base

STEP 3.6

Install the backrest support

1. Remove the lift handles from the backrest mount by taking out the two (2) 14 mm bolts.
2. Slide the backrest hub between the mounting plate and the plastic cover until it is fully seated.
3. Tighten all bolts, then move the backrest through its full range to confirm smooth motion.

CAUTION Do not overtighten the bolts. Excess torque can damage the mounting hub or restrict backrest movement.



Fig. 12 Backrest mount



Fig. 13 Mounting plate

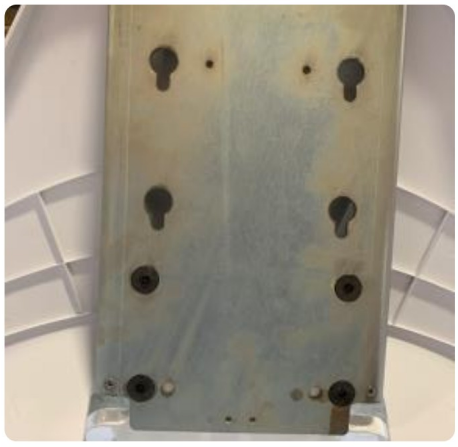


Fig. 14 Hub seated and bolted

STEP 3.7

Connect power

1. Locate the main power cord (rated for 120 V AC).
2. Make sure the main power switch on the chair base is **OFF**.
3. Plug the cord into a properly grounded outlet.
4. Turn the main power switch **ON** (up position). The switch lights when power is on.
5. If the switch does not light, check the two 10 A fuses (below).



Fig. 15 Grounded 3-prong plug

FUSES

Checking and replacing fuses

> ⚠ **WARNING** Unplug the main power cord before checking or replacing fuses.

- **Location:** fuse holders beside the main power switch on the chair base.
- **Fuse type:** two 10 A, 250 V, 5 × 20 mm glass fuses.
- If a new fuse blows immediately, there is a short in the wiring. Stop and contact a service technician or TPC technical support at **(800) 560-8222**.



Fig. 16 Main power switch (lit = on) and fuse holders

SECTION 04

Upholstery installation

Install the backrest upholstery first, then the seat cushion and headrest. Work on a clean, protected surface so the upholstery is not scratched.

STEP 4.1

Install the backrest upholstery



Fig. 17 Bolts and nuts



Fig. 18 Backrest frame



Fig. 19 Hardware on the upholstery back



Fig. 20 Bracket

1. Locate the bolts and nuts (Fig. 17).
2. Thread a nut onto each bolt, then insert the assembled hardware into the backrest frame (Fig. 18).
3. Adjust the nuts until the bolt heads and the backs of the nuts slide up and down in the frame smoothly, with minimal resistance.
4. When the spacing is right, remove the bolts from the frame with the nuts still on them. Do not change the spacing.
5. Slide the backrest upholstery into the backrest bracket, making sure the metal **[TPC: complete this step — the original text ends here]**.

> **NOTE** Keeping the same nut spacing when you reassemble ensures smooth operation and correct alignment of the backrest.

STEP 4.2

Prepare the seat cushion

1. Take the seat cushion out of its packaging.
2. Place it upholstery side down on a clean, protected surface.
3. Check that the S-bracket is mounted flush with the end of the upholstery, as shown below.

⚠ **CRITICAL** An S-bracket that overhangs the edge of the upholstery will cause damage and can lead to structural failure.

INCORRECT



Fig. 21 Bracket overhangs the upholstery edge

- Bracket extends past the upholstery frame
- Will damage the chair

CORRECT



Fig. 22 Bracket flush with the upholstery edge

- Flush with the end of the upholstery, no overhang
- Aligned with the upholstery frame edge

STEP 4.3

Insert the seat cushion

1. Insert the S-bracket into the notch in the seat pan bracket (Fig. 23).
2. Slide the cushion fully into position. The notch keeps the seat from shifting side to side.



Fig. 23 Seat pan notch

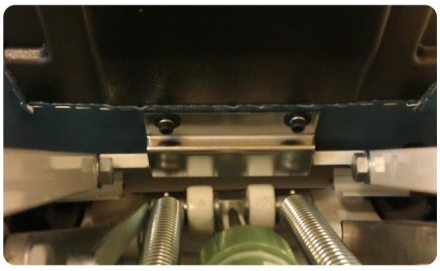


Fig. 24 Bracket engaged in the notch

STEP 4.4

Secure the seat cushion

1. Locate the Allen screws, lock washers and flat washers (Fig. 25).
2. With the S-bracket seated in the notch, fasten the toe (front) of the upholstery to the frame with these fasteners (Fig. 26).
3. Tighten all fasteners securely.
4. Check that the seat cushion does not move or shift.



Fig. 25 Allen screws and washers



Fig. 26 Seat toe fastened to the frame

STEP 4.5

Install the headrest stem

1. Insert the headrest stem into the mounting point on the backrest.
2. Set the headrest to a suitable starting height and angle.

STEP 4.6

Attach the headrest cushion

1. Place the plastic cover over the back of the headrest cushion (Figs. 27–28).
2. Attach the cushion to the headrest stem (Fig. 29) with the three countersunk Phillips-head screws.

> ⚠ **CAUTION** Do not overtighten the headrest screws.



Fig. 27 Cushion back



Fig. 28 Plastic cover



Fig. 29 Headrest stem

BEFORE FIRST USE

Final checks

Complete every item before the chair is used with patients.

CHECK 1

Visual inspection

- [ ] All upholstery is properly seated
- [ ] No gaps or misalignment
- [ ] All hardware is tight

CHECK 2

Functional test

- [ ] Seat gives proper support when sitting
- [ ] Backrest moves through its full range without binding
- [ ] Headrest moves up and down smoothly
- [ ] Armrests rotate freely

CHECK 3

Safety

- [ ] No sharp edges are exposed
- [ ] All mounting bolts are secure
- [ ] Upholstery covers all frame edges

CHECK 4

Initial hydraulic function test

Run each chair function on its own and listen to the hydraulics.

- [ ] Base up
- [ ] Base down
- [ ] Backrest up
- [ ] Backrest down
- [ ] Operation is smooth and controlled
- [ ] No squealing or unusual noise

NOTE Squealing or uneven movement usually means low fluid or air in the system. See Hydraulic fluid, page 25.

NOTE Motion limits are set at the factory. To change them, see Motion limits, page 19.

Installed by _____

Date _____

Chair serial number _____

SECTION 05

Operation

The foot control gives hands-free operation and is the main control during procedures. The chair moves only while a button is pressed. Release it to stop.

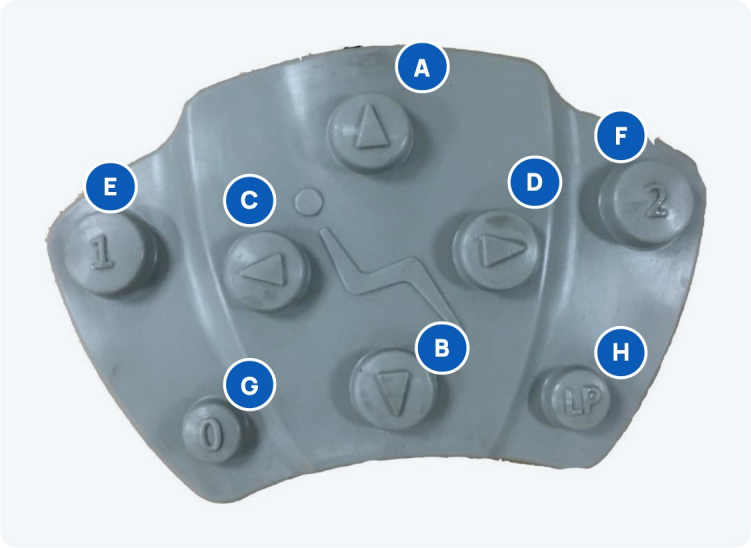


Fig. 30 Foot control buttons

- **A** Chair base up · top
- **B** Chair base down · bottom
- **C** Backrest down (recline) · left
- **D** Backrest up · right
- **E** Preset 1
- **F** Preset 2
- **G** Auto return · "0"
- **H** Last position · "LP"

Seat height

Raise	Press the top button (A).
Lower	Press the bottom button (B).

The seat moves smoothly while the button is held. Release at the height you want.

Backrest

Raise	Press the right button (D).
Recline	Press the left button (C).

The backrest moves smoothly while the button is held. Release at the angle you want.

NOTE During any automatic movement (preset, auto return or last position), pressing any switch stops the chair.

OPERATION, CONTINUED

Presets and automatic positions

Program a preset position

1. Move the chair to the position you want using the foot control.
2. Press and hold the preset button (1 or 2).
3. Keep holding for 5 seconds.
4. A confirmation beep sounds when the position is saved.

NOTE Presets cannot be saved while the chair is in service mode. Switch S6 on the main PCB must be in the normal position.

Recall a preset

Press the preset button briefly. The chair moves to the saved position.

1 **Preset 1**
Typically the examination position

2 **Preset 2**
Typically the treatment position

3 **Preset 3**
Additional custom position, optional touchpad only

0 BUTTON "0"

Auto return

1. Press the "0" button briefly.
2. The chair returns automatically to the programmed upright exit position.

Use it for quick patient entry and exit.

LP BUTTON "LP"

Last position

1. Press the "LP" button.
2. The backrest returns to where it was before auto return was used.

Use it to get back to the working position after the patient sits up.

OPERATION, CONTINUED

Optional touchpad

Chairs fitted with the TP-2005 touchpad have the controls below. Movement buttons work while held; preset and automatic buttons need only a brief press.

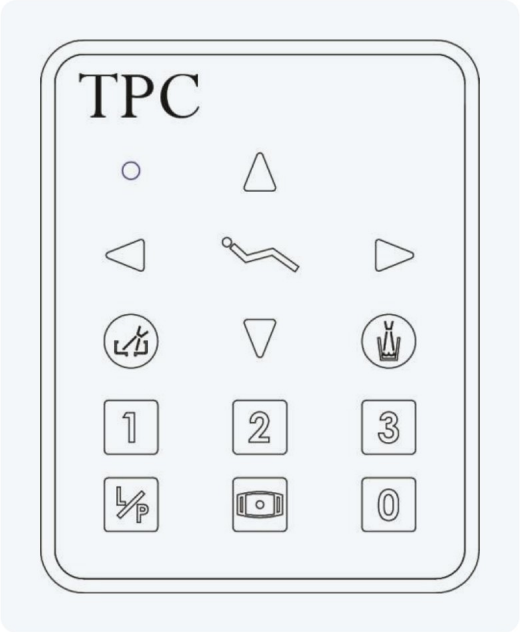


Fig. 31 Touchpad layout, rows numbered top to bottom

ROW 1	▲ **Chair base up.** Raises the chair base.
ROW 2	◀ **Back down** reclines the backrest. ▶ **Back up** raises it.
ROW 3	▼ **Chair base down** (center). **Cuspidor bowl rinse** (left) and **cup fill** (right), if equipped.
ROW 4	**Presets 1, 2 and 3.** Recall saved positions. Program them the same way as on the foot control (page 16).
ROW 5	**Last position** (left), **light on/off** (center, if equipped) and **auto return "0"** (right).

Hold to move

- Chair base up / down
- Backrest up / down

Release to stop at the height or angle you want.

Press once

- Presets 1, 2, 3
- Auto return and last position
- Light, bowl rinse and cup fill (if equipped)

NOTE If the chair is on but the touchpad does not respond, check its connection. See Troubleshooting, page 27.

OPERATION, CONTINUED

Armrests, headrest and swivel

Rotate an armrest

1. Grasp the end of the armrest firmly.
2. Lift it slightly to release the lock.
3. Turn it outward to the position you want and let go. It locks every 90°.

Each armrest rotates on its own, for patient entry and exit or better access during procedures.



Fig. 32 Lift



Fig. 33 Rotate

Headrest height

A friction mount in the backrest holds the headrest in place. No tools or release needed.

- Pull up to raise.
- Push down to lower.

Headrest angle

1. Find the slide bar on the headrest stem.
2. Release it (pull or slide, depending on model).
3. Set the angle, then re-engage the slide bar to lock.



Fig. 34 Headrest

Swivel the chair

The chair rotates up to 30° to the left or right. The lock lever is at the rear of the chair.

1. Pull the lock lever to the **right** to unlock.
2. Rotate the chair to the position you want.
3. Pull the lever to the **left** to lock.



Fig. 35 Lock lever

SECTION 06 SERVICE TECHNICIANS

Setting chair motion limits

The Mirage 2.0 does not use mechanical or mercury limit switches. Potentiometers on the base and backrest tell the control board the exact position at all times, not only at the end of travel. That lets you set precise, custom limits.

What you can set

All four limits are set from the main PCB:

- Base up and base down
- Backrest up and backrest down

Use auto limit (page 20) for a fast setup, or manual limit mode (page 21) to set each limit yourself.

Before you start

- Clear the chair's path of all obstructions.
- Move delivery unit arms and the operatory light out of the way.
- Have a way to reach the main PCB (under the pump cover).

⚠ **CAUTION** Do not run the chair in service mode longer than necessary. In service mode the chair can travel past its limits and damage the frame or plastic covers. Presets and auto return do not work in this mode.

PROCEDURE 6.1

Enter and exit service mode

1. Remove the pump cover to reach the main PCB.
2. Find switch **S6** on the PCB (Fig. 36).
3. Slide **S6 down** to enter service mode.
4. Confirm LED **L8**, just below the switch, is lit.
5. When finished, slide **S6** back **up** to the normal position. **L8** turns off.

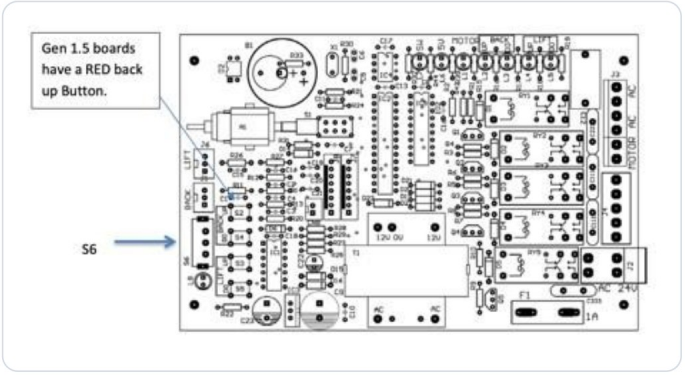


Fig. 36 Main PCB. Arrow marks switch S6. On Gen 1.5 boards the Back Up button (S2) is red.

PROCEDURE 6.2

Auto limit programming

The chair finds its own travel range and sets all four limits automatically.

1. Enter service mode: **S6** down, **L8** lit (page 19).
2. Find the Back Up button **S2** on the main PCB.
3. Press and hold **S2**. The board beeps once right away.
4. Keep holding for 5 seconds until a second beep sounds and the chair starts to move.
5. Release **S2** as soon as movement begins.
6. Let the chair complete two full cycles. It then stops and beeps repeatedly.
7. Slide **S6** back up to the normal position. **L8** turns off.

What the chair does

Cycle 1 Maximum travel



Cycle 2 About 10% less



After both cycles the chair stops and beeps repeatedly. That is the signal to exit service mode.

⚠ **WARNING** The chair moves on its own during this procedure. Keep people, delivery unit arms and the operatory light clear of its full range.

If the procedure stops with an error

Any error	Check the potentiometers before trying again (page 22).
Error during base movement	Inspect the base potentiometer.
Base moves up and down rapidly	Remove any obstruction under the chair, or disconnect the safety plate for the procedure (page 23).
Chair stops short of full travel	See Troubleshooting auto limits, page 23.

PROCEDURE 6.3

Manual limit mode

Set any one limit by hand. Each limit is set the same way: enter service mode, move to the end of travel, back off slightly, then store the position with the matching button on the main PCB.

Backrest down limit

BACK DOWN

1. Slide **S6** down to enter service mode.
2. Recline the backrest fully.
3. Raise it slightly from that position.
4. Press **Back Down** on the PCB.
5. Slide **S6** back up to normal.
6. Raise and lower the backrest to check the limit.

Backrest up limit

BACK UP · S2

1. Slide **S6** down to enter service mode.
2. Raise the backrest fully.
3. Lower it slightly from that position.
4. Press **Back Up** on the PCB.
5. Slide **S6** back up to normal.
6. Lower and raise the backrest to check the limit.

Base down limit

BASE DOWN

1. Slide **S6** down to enter service mode.
2. Lower the base fully.
3. Raise it slightly from that position.
4. Press **Base Down** on the PCB.
5. Slide **S6** back up to normal.
6. Raise and lower the base to check the limit.

Base up limit

BASE UP

1. Slide **S6** down to enter service mode.
2. Raise the base fully.
3. Lower it slightly from that position.
4. Press **Base Up** on the PCB.
5. Slide **S6** back up to normal.
6. Lower and raise the base to check the limit.

NOTE Backing off slightly from the end of travel before storing a limit reduces wear on the hydraulic system. Make sure no limit lets the chair touch the delivery unit or light.

PROCEDURE 6.4

Potentiometer inspection

Inspect the potentiometers when auto limit errors out or the chair stops short. Both use model **RV245YN**.

Base potentiometer



Fig. 37 Location



Fig. 38 Collar

1. Remove the pump cover.
2. Standing behind the chair, find the potentiometer on the right side, just above the base.
3. Check that the set screws on the collar are tight. If loose, re-center the potentiometer to its middle position and tighten them.

Backrest potentiometer

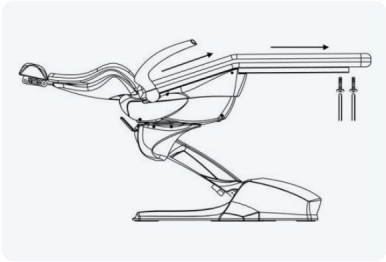


Fig. 39 Location

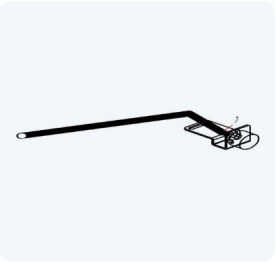


Fig. 40 Linkage

1. Remove the seat cushion.
2. Standing behind the chair, find the potentiometer on the right side, next to the return spring.
3. Check that the set screws on the collar are tight. If loose, re-center the potentiometer to its middle position and tighten them.

Measure resistance

Unplug the chair. Set a multimeter to ohms (Ω) and measure across the potentiometer wires:

WIRES	READING	MEANING
○ White – ● Red	**1 kΩ**	Fixed, end to end
● Black – ○ White	**0–1 kΩ**	Changes as the wiper turns
● Black – ● Red	**0–1 kΩ**	Changes as the wiper turns

Turn the wiper to check the value changes smoothly. If readings are correct at the potentiometer, measure again at the PCB connector to rule out a damaged wire harness.

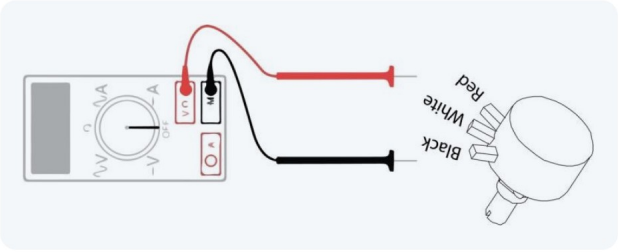


Fig. 41 Multimeter connected to the potentiometer

MOTION LIMITS, CONTINUED

Troubleshooting auto limits

If the chair stops short of its full travel during auto limit programming, there is a problem. Check these three causes in order.

CAUSE 1

Potentiometer

The PCB cannot read the potentiometer resistance correctly.

- Check the set screws on the backrest and base potentiometers.
- Make sure both are securely mounted and connected.

CAUSE 2

Safety plate engaged

Something may be triggering the safety plate.

- Check under the chair for obstructions.
- Make sure the safety plate moves freely.

CAUSE 3

Wiring

A connection to a potentiometer may be faulty.

- Check every wire connection to the potentiometers.
- Look for loose or damaged wires.

If the problem persists

1. Temporarily disconnect the safety plate from the main PCB and run the auto limit procedure again.
2. Reconnect the safety plate as soon as the procedure is complete.
3. If the problem continues, contact TPC technical support at **(800) 560-8222**.

Tips for setting limits

Patient comfort
Set limits that position your patients comfortably.

Equipment clearance
Make sure no limit lets the chair touch the delivery unit or light.

Safety margin
Stop a little short of the physical maximum to reduce hydraulic wear.

Test thoroughly
Afterwards, test every chair function from each control.

SECTION 07 SERVICE TECHNICIANS

Hydraulic speed adjustment

Four flow control valves on the hydraulic block set the speed of each chair movement. Speeds are set at the factory and can be adjusted to suit your preference.

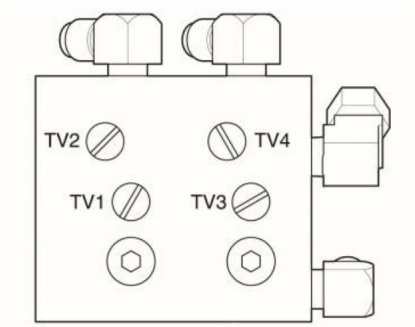


Fig. 42 Hydraulic block, valves TV1–TV4

TV1	Base up
TV2	Base down
TV3	Backrest up
TV4	Backrest down

↺ Counterclockwise

Opens the valve. More flow, **faster** movement. Useful for quick entry/exit positioning.

↻ Clockwise

Closes the valve. Less flow, **slower** movement. Smoother and more comfortable for patients.

Adjust a valve

1. Remove the pump cover and find the hydraulic block with the four valves.
2. Pick the valve for the movement you want to change (TV1–TV4).
3. Turn it one **quarter turn** only.
4. Refit the pump cover temporarily and test the movement. Repeat until the speed is right.

⚠ **CAUTION** Never open a valve fully: it causes jerky, uncontrolled movement. Never close a valve fully: it stops movement and strains the motor. Keep changes small and test after each one.

Lost track of the settings? Contact TPC technical support at (800) 560-8222 for the factory defaults.

HYDRAULIC SYSTEM, CONTINUED

Hydraulic fluid

Use only AW32 hydraulic oil (clear). Always lower the base and recline the backrest fully before checking or filling, so both cylinders have drained back into the reservoir.

PROCEDURE 7.2

Check the fluid level

1. Lower the base fully and recline the backrest fully.
2. Remove the pump cover.
3. Find the hydraulic reservoir.
4. Check the fluid is at the **FULL** mark. If it is low, add fluid (right).
5. Refit the pump cover securely.

Signs of low fluid

- Squealing while the motor runs
- Jerky or inconsistent movement
- Slower than normal operation
- The chair sinks when parked
- Fluid below the FULL mark

⚠ **CAUTION** Refill right away. Running with low fluid can damage the pump.

PROCEDURE 7.3

Add hydraulic fluid

1. Lower the base fully and recline the backrest fully.
2. Remove the pump cover.
3. Clean around the reservoir cap.
4. Remove the cap carefully.
5. Add AW32 oil slowly until it reaches the **FULL** mark.
6. Refit the cap securely and wipe up any spills.
7. Refit the pump cover.
8. Run the chair through its full range several times to work out air bubbles.

ⓘ **NOTE** Squealing or uneven movement right after filling usually means air is still in the system. Cycle the chair a few more times.

HYDRAULIC SYSTEM, CONTINUED

Safety plate

A safety plate under the cantilever cover stops the chair if an object is caught underneath it.



Fig. 43 Safety plate under the cantilever cover

How it works

1 · OBJECT CAUGHT

Plate is pushed up

Something lodged under the chair base lifts the safety plate.

2 · SWITCH TRIPS

All movement stops

The safety switch stops the chair and raises the base about 1".

3 · LOCKED OUT

Beeps, no movement

The chair beeps when controls are pressed but will not move until cleared.

Clear the safety plate

1. Check under the chair for obstructions.
2. Remove anything caught underneath.
3. Make sure the safety plate returns to its normal position.
4. Test the chair. It should now operate normally.

NOTE If auto return lowers the chair and then raises it a short distance, the safety plate is being triggered. Clear the area around the base.

NOTE The plate can also interrupt auto limit programming. See page 23.

SECTION 08

Troubleshooting

Work through the causes in order. If a problem persists, call TPC technical support at (800) 560-8222.

PROBLEM	POSSIBLE CAUSE	SOLUTION
Chair does not move up or down, and makes no sound	No power Power switch off Blown fuse Failed transformer	Check the power source and outlet Turn the main power switch on Check and replace fuses (page 10) Check transformer output (should be 12 V AC)
Chair will not move, but beeps when controls are pressed	Safety plate engaged Limit memory erased	Check and clear the safety plate (page 26) Reprogram the motion limits (page 19)
Squealing noise when the motor runs	Low hydraulic fluid	Refill the reservoir (page 25)
Chair does not go high or low enough	Limits not set correctly	Reprogram the motion limits (page 19)
Cannot program presets 1, 2 or 3	Chair is in service mode	Slide S6 on the main PCB up to the normal position
Auto return (“0”) lowers the chair, then raises it a short distance	Safety plate is being triggered	Check the safety plate and clear the area around the base
Chair is on, but the touchpad does not respond	Touchpad not connected Touchpad damaged	Connect the touchpad Replace the touchpad
Headrest does not hold its position	Loose set screws in the backrest	Tighten the set screws
Armrest moves too easily	Loose screw in the armrest assembly	Tighten the screw
Chair sinks when parked, or moves jerkily	Low hydraulic fluid or air in the system	Refill and cycle the chair to purge air (page 25)

SECTION 09

TPC 5-year limited warranty

All TPC products are guaranteed to be free from defects in workmanship and materials under the following terms.

5 years

- Main drive motors and parts
- Main chair PCB (circuit board)
- Transformer
- Major cast components

1 year

- Upholstery
- Armrests
- Plastic components
- All other parts and components

What is covered

TPC will repair or replace any defective part at no charge during the applicable warranty period. All parts must be returned to TPC for inspection and warranty verification.

Shipping damage claims

Claims against the freight carrier must be made when the damaged items are received. Filing the claim is the customer's responsibility.

What is not covered

- × Normal wear or stains on surface finishes
- × Damage from improper installation
- × Damage from misuse or accidents
- × Damage during shipping and handling
- × Labor charges for installation or removal
- × Shipping charges to or from TPC

WARRANTY, CONTINUED

Service and usage requirements

⚠ **IMPORTANT** Only authorized service technicians should service TPC equipment. Service by unauthorized technicians may void the warranty.

To keep warranty coverage

- Do not exceed the 650 lb maximum weight capacity.
- Allow only one patient in the chair at a time.
- Never stand on the chair.
- Do not operate the chair near flammable liquids.
- Do not exceed 3 minutes of continuous operation.
- Keep liquids away from electrical components.

Product modifications

TPC continually improves its products and may change them without notice. TPC is not obliged to modify previously manufactured products.

Mirage2.0

For more information, contact your TPC dealer.

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