CABINET MOUNT DELIVERY

MS3000-2.0

Installation, Operation & User Manual

Mirage 2.0 cabinet mount side delivery unit on an asepsis flex arm · Installation, operation and adjustments



DOCUMENT

MS3000-2.0 User Manual · Version 2.0
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How to read this manual

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

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

Technical support

(800) 560-8222

Monday to Friday, 8:00 AM to 5:00 PM Pacific.

SECTION 01

Features and specifications

The MS3000-2.0 is a Mirage 2.0 side delivery unit on an asepsis flex arm. The arm mounts to the wall or cabinetry on a 2" diameter wall bracket, so the unit head swings in beside the patient chair.

Features

- Asepsis 3-handpiece automatic selection with bottle system
- 3-way syringe with quick-change autoclavable tip
- Master on/off toggle
- Air / water pressure adjustment for each handpiece
- Pressure gauge
- Non-retracting water / air coolant adjustment and purge
- Asepsis handpiece tubing
- Asepsis flex arm with 9" rigid arm and pneumatic brake
- 2" diameter wall bracket
- Wet/dry foot control

Specifications

Model	MS3000-2.0
Unit head	16¼" wide × 18" deep
Arm	27" flex arm, 9" rigid arm
Overall reach	33½"
Wall bracket	2" diameter post
Packed size and weight	17" × 21" × 51" · 60 lb

Options

H7660	Illumination system, ISO C (6-pin): tubing, control box
H7000	Illumination system, ISO B (5-hole): tubing, control box, bulb
A800N	Advance 800 piezo scaler, built in

Options are not factory-installed unless specified on the purchase order.

GETTING STARTED

In the box and before you install

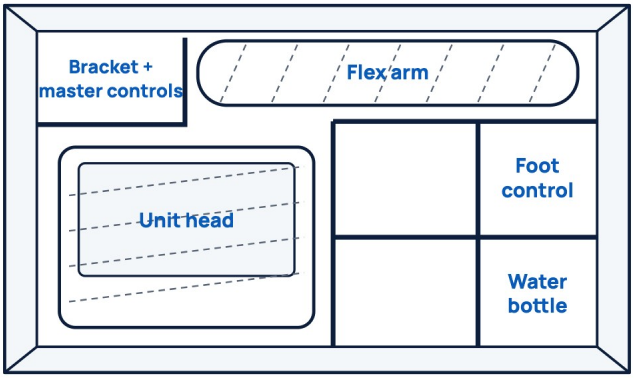


Fig. 1 MS3000-2.0 as packed

In the box

- Delivery unit head on the flex arm, with handpiece tubing
- Wall mounting bracket
- Lag bolts (4)
- Cosmetic ring for the bracket post
- 3-way syringe
- Water bottle
- Wet/dry foot control
- Air and water master controls

⚠ **IMPORTANT** Metal studs will not hold the wall bracket. If the wall or cabinet backing has metal studs, strengthen it with wood framing before you start. The lag bolts must be screwed into wood framing.

Tools you need

- Socket wrench with a 5/8" socket for the lag bolts
- Drill with a pilot bit for the lag bolts
- Level
- Tape measure
- 4 mm hex key (arm Allen screw)
- Allen wrenches (head leveling)
- 8 mm Allen wrench (arm tension spring)

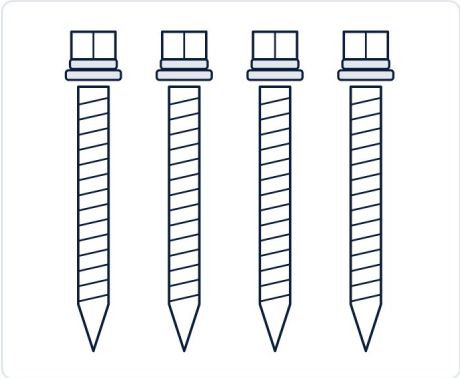
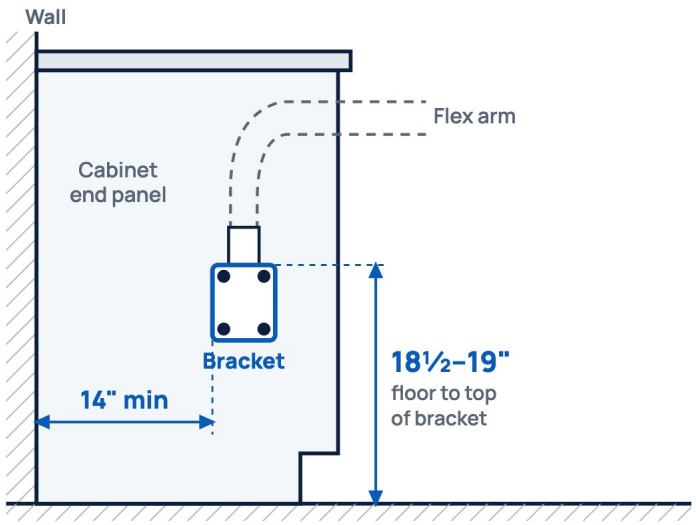


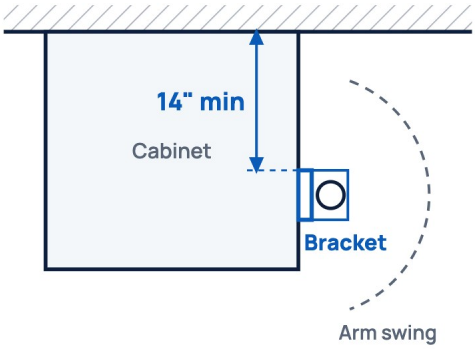
Fig. 2 The four supplied lag bolts with lock washers and flat washers

SECTION 02

Mount the bracket



SIDE VIEW · cabinet end panel



TOP VIEW

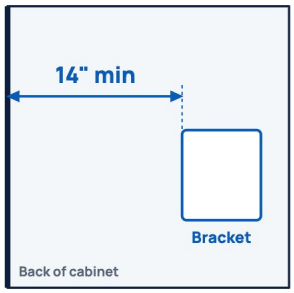


Fig. 3 At least 14" from the back of the cabinet

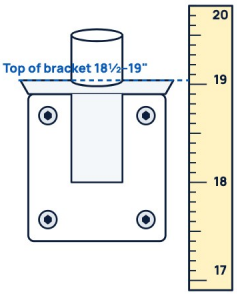


Fig. 4 18½–19" from the floor to the top of the bracket

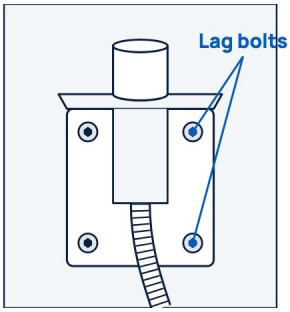


Fig. 5 Bracket fastened with the four lag bolts

1 Choose the location

Mount the bracket on the cabinet end panel with its top **18½–19"** from the floor. Allow at least **14"** from the back of the cabinet (or the wall) to the inner edge of the bracket, so the unit head can swing clear of the wall and cabinetry.

2 Fasten the bracket

Fasten it with the four supplied lag bolts, driven into wood framing.

3 Level the bracket

Level it front to back and side to side with the leveling set screws on the mounting plate. A bracket that is not level makes the arm drift.

INSTALLATION

Install the rigid arm

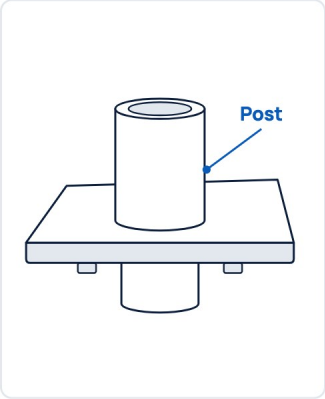


Fig. 6 Bracket post

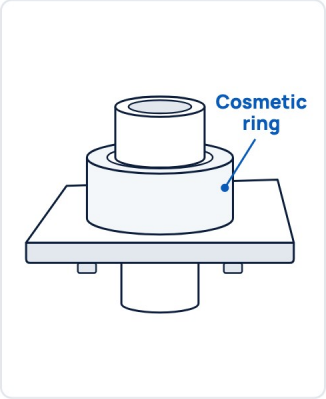


Fig. 7 Cosmetic ring on the post

4 Fit the cosmetic ring

Slide the cosmetic ring onto the post. It covers the seam where the arm meets the bracket.

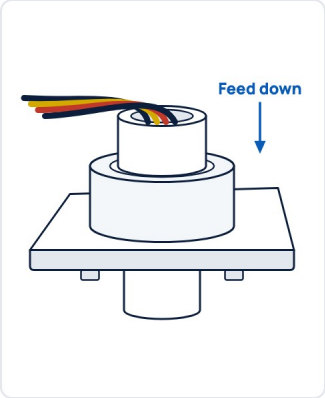


Fig. 8 Tubing through the post

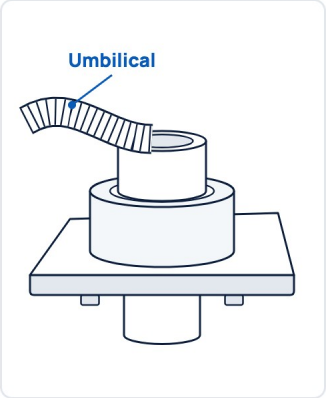


Fig. 9 Umbilical into the post

5 Feed the tubing through

Guide the umbilical tubing and wires down through the bracket post, then feed the corrugated conduit in after them. Do not kink or pinch the lines.

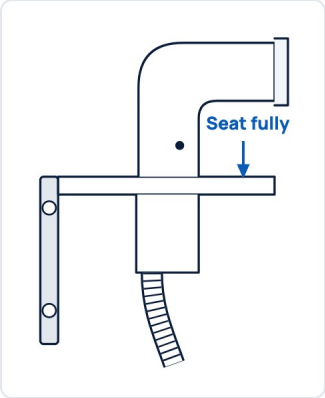


Fig. 10 Arm seated in the bracket

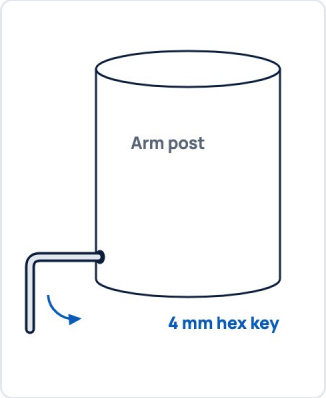


Fig. 11 Tighten the Allen screw

6 Seat the arm and lock it

Lower the flex arm post into the bracket until it is fully seated. Tighten the Allen screw at the bottom of the post with a **4 mm hex key**.

INSTALLATION

Check for level

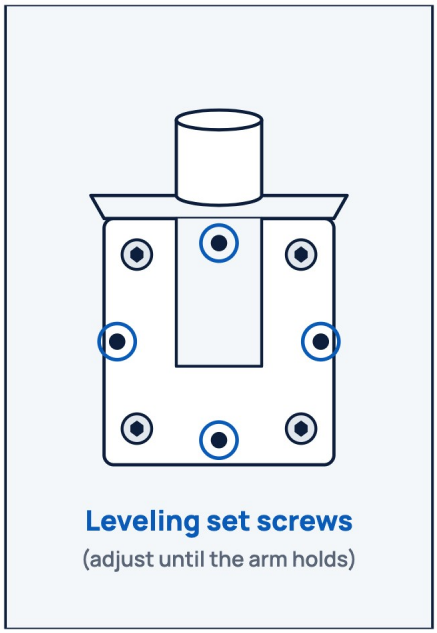


Fig. 12 Leveling set screws on the mounting plate

7 Make sure the arm stays put

With the arm installed, move the unit head to several positions and let go. It should stay where you leave it.

If the arm drifts, the bracket is not level. Adjust the leveling set screws on the mounting plate until the arm holds its position.

NOTE Arm tension adjustments (page 15) are only a temporary fix for a drifting arm. Always level the bracket first.



Fig. 13 4 mm hex key for the arm Allen screw

INSTALLATION

Tubing connections

The tubing connections are the same as on the Mirage 2000-2.0 delivery units. Every line is color-coded and the fittings are keyed to connect one way only: match each color at both ends.

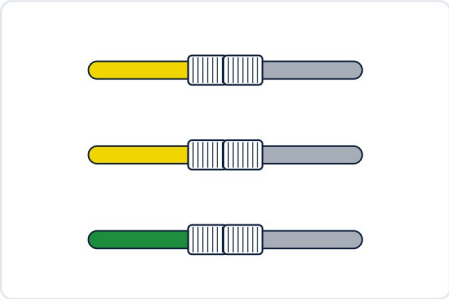


Fig. 14 Foot control tubing

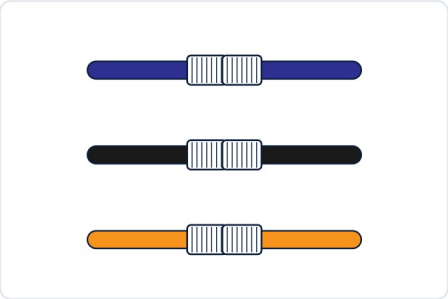


Fig. 15 Blue, black and orange connectors

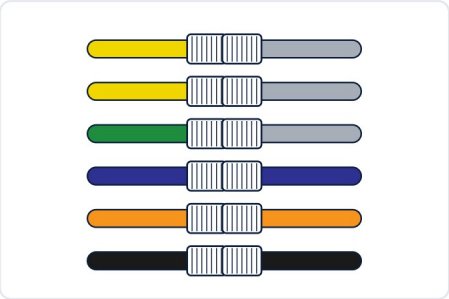


Fig. 16 All connections made

Foot control

Yellow / grey (1)	Yellow line **supplies** the foot control. From the air supply → to the foot control inlet port.
Yellow / grey (2)	Yellow line **returns** from the foot control. From the foot control → to the main block in the flex arm.
Green / grey	Green line carries **signal air** to the water relay in the unit head. It switches handpiece water on and off from the foot control.

Unit head

Blue / blue	**Water supply** from the water master control to the unit head. Carries the operating water used at the handpieces.
Orange / orange	**Signal air return** from the master switch. Returns the air signal when the master switch is off.
Black / black	**Signal air supply** to the master switch. Delivers the air signal that activates it.

⚠ **WARNING** Both yellow/grey sets look the same. Track each one by direction and function. If they are reversed, air purges out of the foot control disc.

INSTALLATION

Connect the master controls

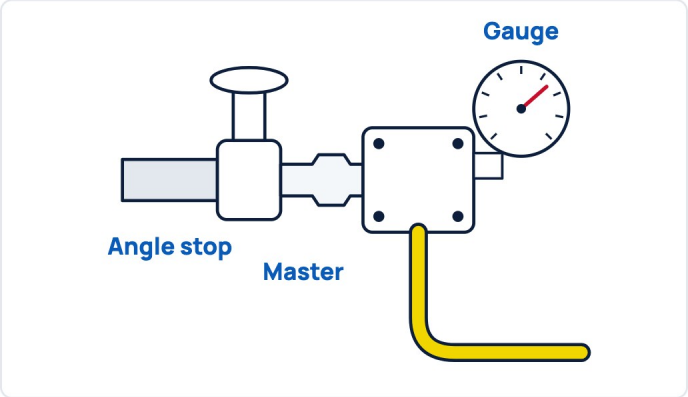


Fig. 17 Master control at the angle stop

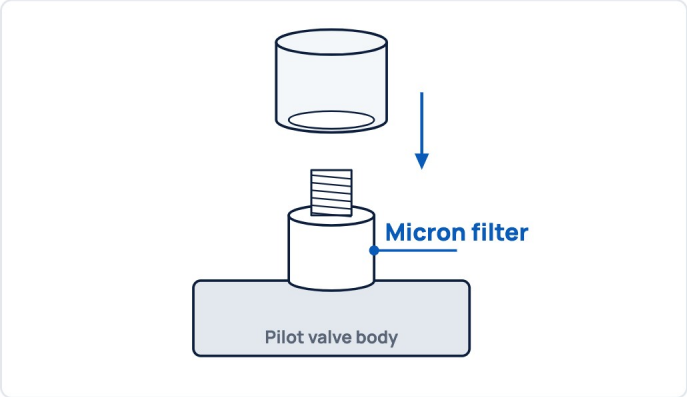


Fig. 18 Micron filter in the pilot valve body

Connect

1. **Purge the supply lines.** Before connecting, briefly open the air and water supplies into a container or drain to flush out debris that can damage valves or clog filters.
2. **Connect at the junction box.** Attach the air and water master controls to a suitable angle stop, usually inside the junction box. Make sure the connections are secure and leak-free.

Set the regulators

Air master	Water master
80 PSI	**40 PSI**

3. Loosen the lock nut on the mini regulator.
4. Turn the knob clockwise to increase pressure, counterclockwise to decrease.
5. Tighten the lock nut once the pressure is set.

MICRON FILTER A replaceable micron filter inside the pilot valve body catches fine particles in the air line. Replace it periodically as routine maintenance.

INSTALLATION

Bottle pressure and low-voltage power

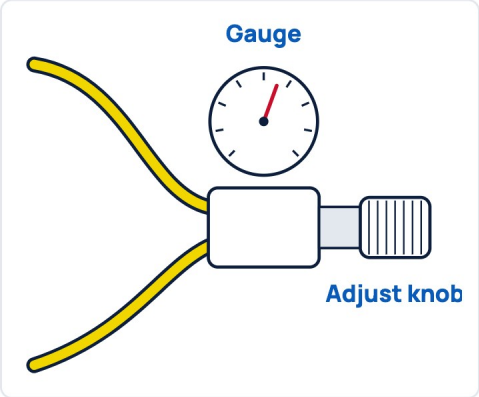


Fig. 19 Water bottle mini regulator in the unit head

Set the water bottle pressure

1. **Open the unit head cover.** Remove the perimeter thumb screws and lift off the top cover.
2. **Locate the mini regulator** that feeds the water bottle.
3. **Set the regulator to 35 PSI.**
4. **Tighten the lock nut,** if fitted, so the setting cannot drift.

⚠ **WARNING** Never exceed 40 PSI. Higher pressure can cause leaks or damage the bottle.

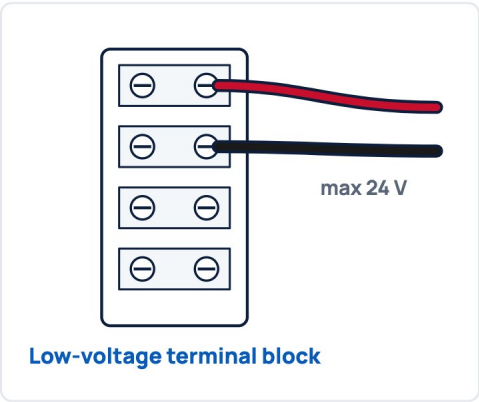


Fig. 20 Low-voltage terminal block in the unit head

Low-voltage power terminal

The umbilical has a pre-run low-voltage wire that can be connected in the junction box. It powers the unit head and supports 24 V AC low-voltage devices.

Terminal block	**Unit head, factory-installed**
Maximum	**24 V AC/DC**

SECTION 03

Master switch, coolant and flush

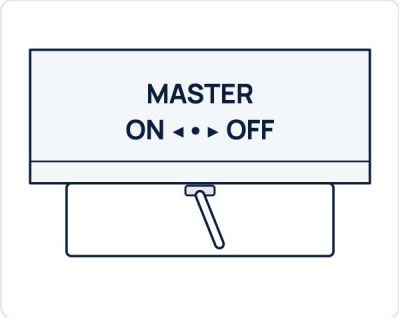


Fig. 21 Master on/off toggle

Master on/off toggle

The toggle switches the master pilot valves in the junction box. **On** lets air and water through to the delivery unit. **Off** shuts the supply lines for safety or maintenance.

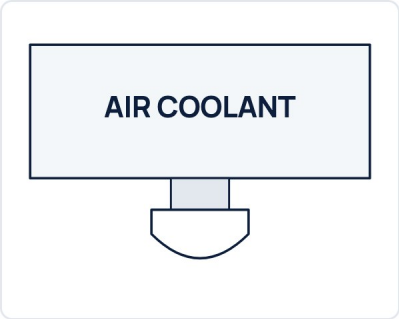


Fig. 22 Air coolant valve

Air coolant spray pattern

1. Make sure the air coolant valve is open.
2. Run the high-speed handpiece with water on and watch the air/water spray.
3. Open the valve further for more spray; close it partly for less.

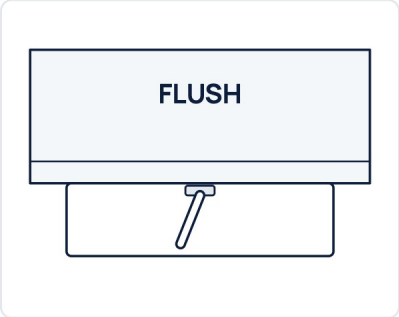


Fig. 23 Flush toggle

Flush the handpiece tubing

1. Hold all handpiece tubing ends over a basin or container.
2. Turn the flush toggle on to run water through all three handpiece lines at once.
3. Turn the toggle off to stop.

Flush regularly to clear debris and stagnant water. Before a long period without use, flush until all the water is out of the lines.

OPERATION

Water system

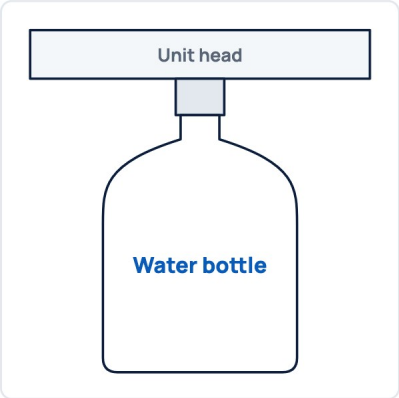


Fig. 24 Water bottle under the unit head

Fill the water bottle

1. Fill with **distilled water only** to prevent mineral build-up.
2. Fill to the recommended level.
3. Turn the bottle clockwise onto the cap under the unit head until secure. Do not over-tighten; that can damage the cap threads or gasket.

Check the cap gasket regularly and replace it if worn or damaged. A good seal prevents leaks and holds system pressure.



Fig. 25 Bottle OFF / ON switch



Fig. 26 City / bottle water source switch

Bottle on/off and water source

ON / OFF	Turns the pressure supply to the water bottle on and off. Install the bottle and set the regulator (page 10) before turning it on.
BOTTLE / CITY	Chooses bottled water or city water. Use bottled water when city water quality is uncertain.

Both switches are under the front edge of the unit head. Confirm the settings during setup and maintenance.

⚠ **WARNING** Set the bottle to 35 PSI and never exceed 40 PSI, or the bottle may be damaged.

OPERATION

Handpieces and syringe

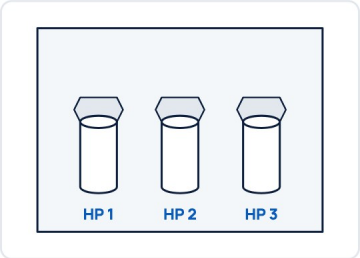


Fig. 27 Handpiece water knobs

Water flow

Each handpiece has its own water knob. Turn it clockwise to decrease flow, counterclockwise to increase. Adjust gradually and check each handpiece separately.

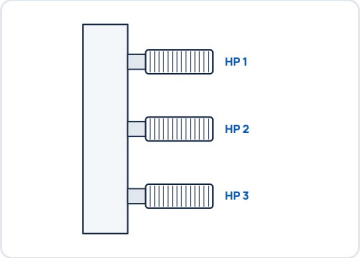


Fig. 28 Drive air adjustment

Drive air pressure

1. Loosen the stop nut on the adjustment knob.
2. Turn the knob counterclockwise to increase drive air, clockwise to decrease.
3. Tighten the stop nut.

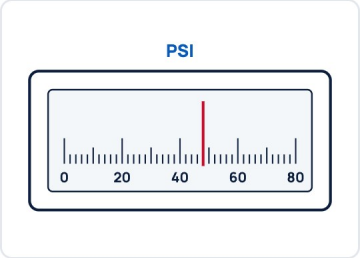


Fig. 29 Handpiece pressure gauge

Pressure gauge

The handpiece gauge is on the lower left of the instrument head. It reads only while the foot control is pressed **and** a handpiece is running.



Fig. 30 Syringe adjustment knobs under the instrument head

3-way syringe

- Two knobs under the instrument head: **right is water, left is air**.
- Turn clockwise to decrease pressure, counterclockwise to increase.
- Adjust gradually and test the syringe after each change.

OPERATION

Foot control and exhaust



Fig. 31 Disc foot control with wet/dry switch

Foot control and wet/dry switch

1. **Press the disc** to send air to the main block and drive the handpiece. The variable speed foot control runs the handpiece faster the further you press.
2. **Move the wet/dry switch to the right** to turn on water to the handpiece tubing for cooling and irrigation.

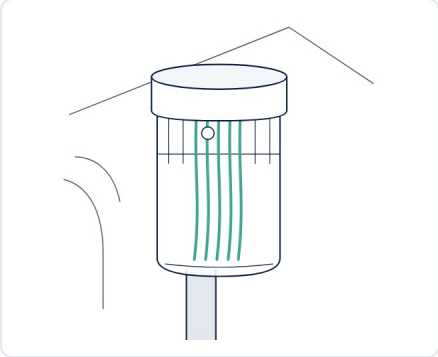


Fig. 32 Exhaust particulate collector

Exhaust particulate collector

Collects particulates from the handpiece exhaust line, keeping debris away from the operatory and the equipment.

SECTION 04

Flex arm tension

Three tension set screws on the flex arm set the drag at each pivot. The spring that carries the weight of the unit head is covered on page 16.

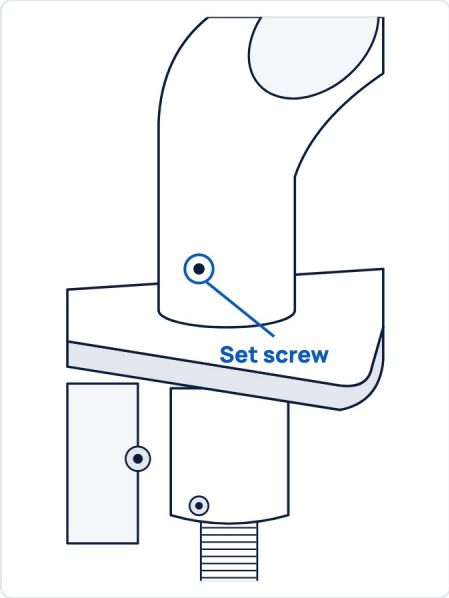


Fig. 33 Bracket hub set screw

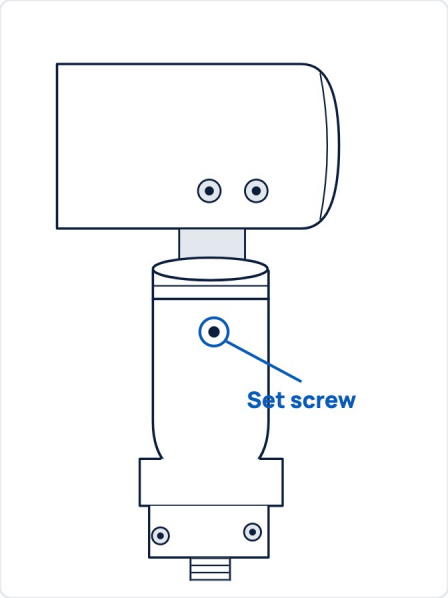


Fig. 34 Flex arm to rigid arm joint set screw

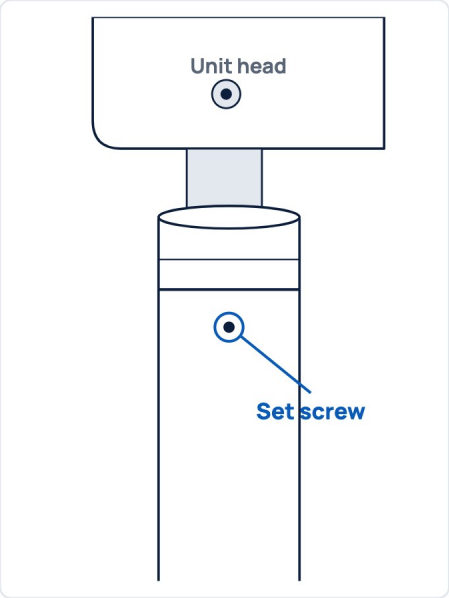


Fig. 35 Unit head set screw

Adjust the tension set screws

1. **Confirm the wall bracket is level** (page 7). Adjust tension only if a level arm still drifts.
2. **Turn each set screw a little at a time:** clockwise to add drag, counterclockwise to reduce it.
3. **Test.** Move the arm through its full range and check that it holds position without drifting.

⚠ **CAUTION** Tension is only a temporary fix for a drifting arm. Do not over-tighten the set screws: too much force can damage the arm mechanism or make it stiff and bind.

ADJUSTMENTS

Unit head leveling and spring tension



Fig. 36 Unit head mounting bolts and leveling screws

Level the unit head

1. **Loosen the four Allen bolts** that attach the unit head to the short control arm, just enough to allow movement.
2. **Turn the four smaller leveling set screws** (one in the center of each side) to level the head front to back and side to side.
3. **Retighten the four Allen bolts** firmly once the head is level. Do not over-tighten.

- Make small adjustments and check level often.
- Use a spirit level or a digital level app.
- Keep cables and tubing clear while you adjust.

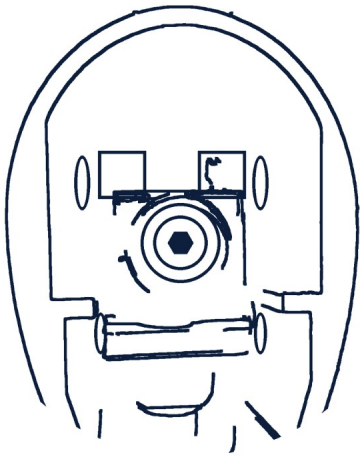


Fig. 37 Spring tension bolt in the flex arm

Adjust the spring tension

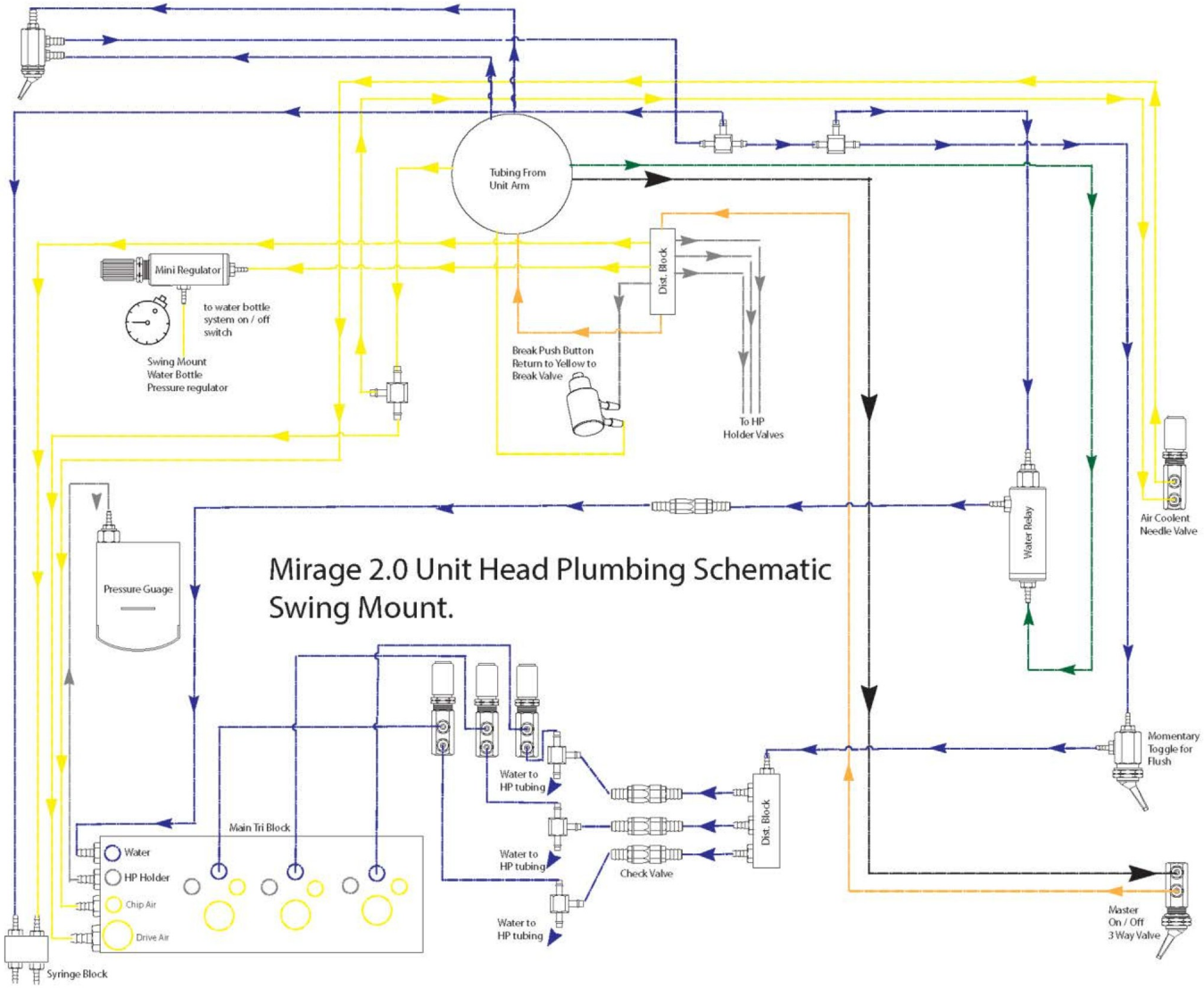
The spring inside the flex arm carries the weight of the unit head. Adjust it if the head drifts up or down on its own.

1. **Remove the flex arm end cap** to expose the spring adjustment bolt. Keep the cap and fasteners.
2. **Turn the bolt with an 8 mm Allen wrench** in half-turn increments only: clockwise for more tension, counterclockwise for less.
3. **Aim for a floating, level arm** with the master switch off: it holds position but still moves smoothly.
4. **Refit the end cap.**

SECTION 05

Unit head plumbing schematic

The MS3000-2.0 uses the same unit head plumbing as the Mirage 2.0.



Air · Water · Water relay signal · Signal air supply to master · Signal air return from master · Holder valve lines

SECTION 06

Troubleshooting

	PROBLEM	CAUSE	SOLUTION
01	**Water flows from all three handpieces while they are in the holders**	Flush toggle left on Flush valve damaged	**Turn off the flush toggle** **Replace the flush valve**
02	**Using one handpiece, water leaks from another handpiece position**	Check valve failed Holder valve pressure is neutral	**Replace the check valve** **Check that the holder valves are tied into the master switch return, not the 3-way syringe**
03	**Water leaks from the exhaust jar under the unit**	Water leaking into the exhaust line in the handpiece tubing Water in the supply air	**Check the handpiece gasket and tighten the handpiece nut** **Check the compressor for moisture**
04	**Air purges from a holstered handpiece while another is in use**	Tubing not in its proper holder Main block diaphragm damaged	**Place the handpiece tubing in the correct holder** **Replace the main diaphragm on the block**
05	**Handpiece water is a stream, not a spray**	Chip air adjustment closed	**Open the chip air adjustment**
06	**Water from the 3-way syringe is very low**	Low water pressure Debris built up on the button O-rings	**Increase the water pressure** **Remove, clean or replace the buttons**

SUPPORT

Troubleshooting, continued

	PROBLEM	CAUSE	SOLUTION
07	**The flex arm drifts**	Wall bracket not level	**Level the bracket with the leveling set screws (page 7)**
		Arm tension too low	**Adjust the tension spring in half-turn increments (page 16)**
08	**Air pressure drops quickly when a handpiece runs**	Main regulator in the junction box failed or set below 80 PSI	**Replace the main air regulator, or adjust it to 80 PSI**
		Pinched line	**Check the plumbing for a pinched air line**
09	**The water bottle leaks air**	Bottle gasket damaged or missing	**Inspect the gasket; replace it if damaged or missing**
10	**Handpiece will not cut, but sounds like it is at the correct rpm**	Pinched air line	**Check for pinched lines from the master control to the foot control, then to the main control block**
		Bad handpiece	**Try the handpiece in another position or another delivery unit**
11	**Silicone jacket torn on the handpiece tubing**	Chemical exposure	**Replace the tubing**
		Excessive pulling on the coupling	**Be gentle when pulling the silicone jacket against the coupling**

Technical support

Monday to Friday, 8:00 AM to 5:00 PM Pacific

(800) 560-8222

service@tpcdental.com

SUPPORT

TPC 5-year limited warranty

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

5-year coverage

- Main block
- Metal arms, bearing assemblies and holder bars
- Transformers
- Electrical wiring
- Internal delivery unit tubing
- Major cast components
- Brake assemblies
- All internal valving

1-year coverage

- Plastic components
- Handpiece and syringe tubing
- All other parts and components

What is covered

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

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 for installation or removal
- Shipping to and from TPC

Shipping damage claims

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

Product changes

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

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

TPC

TECHNICAL SUPPORT

(800) 560-8222

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