Mirage 2.0

Swing Mount Dental Delivery Unit

Model 2.0 Installation Instructions

3500-2.0 / 3550-2.0

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Table of Contents

Parts List is available online (Parts List)

Unpacking and Inventory

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

Flex Arm Box (largest box 3550)	**Rear Vac Pack (3550)**
Delivery unit flex arm	Rear suction bracket
Silicone Skid pad	HVE / SE valves with tubing
Water bottle	Solids Collector
Radius Chair Bracket	Rear Swing mount cover
Wet Dry Foot Control	Rear Swing Mount Cover
Air / Water Master Controls	Two replacement TPC Labels for side covers
	Zip ties / Tubing fasteners / Hardware
Swing Mount Light post (LP100-2.0)	
Lower swing arm	
Upper straight arm	
Bearing assembly hardware kit	

Separate Junction Box (for use with chairs that don't have an integrated pump cover/junction box)

- Junction box cover — J Box Template for Non TPC chairs. (Here)
- Junction box frame — J Box Template for TPC chairs. (Here)

Need Help? If at any time you have questions regarding your installation, please don't hesitate to contact TPC toll-free at 800-560-8222 or via email at service@tpcdental.com

TPC

Installation Instructions

• Assemble the swing mount chair bracket. An assembly diagram is located inside the chair bracket box.

• Check **for level** in **all directions** (front-to-back and side-to-side) to ensure the char bracket is not tilted. Make small adjustments to the leveling Allen set screws on the bracket.

• Once level, **secure the set screws** and the bolts on the adaptor cup.

- **Mount the delivery unit swing arm:**

  - Install a washer, bearing washer on the top of the swing bracket hub.
  - Place the **swing mount arm** into the **center opening** on the **bracket hub.**
  - Install a washer, bearing washer, and then the spanner nut on the swing bracket hub.

  - **Route the Tubing**

    - First, pass the tubing through the access hole in the chair frame cover.
    - Guide the tubing below the lower right roller, then into the center opening on the chair.
    - Remove the upper cantilever cover for access to the mounting channel of the cantilever.
    - Route the tubing along the right side of the frame. Use the cable holder to secure the tubing. The tubing should move freely. (Don't over-tighten the cable holders)
    - Then, continue routing the tubing into the junction box.
    - Make sure the tubing is not pinched or twisted when completing this step.

✅ **Double-Check:**

- Tubing is free and properly routed.
- The arm is stable and secure after mounting.

• Installing the optional (LP-100-2.0) Swing Mount light post:

- Install a washer, bearing washer on the bottom of the swing bracket hub.
- Mount the lower part of the swing mount light post into the lower hub.
- Install a washer, bearing, and washer spanner nut on the bottom of the swing bracket hub.
- Using the spanner nut wrench, tighten the spanner nut. Don't over-tighten the spanner nut. There should not be any up and down movement in the assembly.
- Secure the spanner nut in place by tightening the set screws.
- Run the low-voltage wire using the same path as the delivery unit umbilical.

✅ **Double-Check:**

- Tubing is free and properly routed.
- The arm is stable and secure after mounting.

Route the Wet/Dry Foot Control Tubing

Run the Tubing into the Junction Box

Make sure each tube is correctly identified and routed according to its function:

Tubing Connections and Functions:

1. **Yellow / Grey Tubing (First)**
   - Yellow Line:
     → Supply the foot control from the master control
     → Source: J-Box
     → Destination: Foot control inlet port
2. **Yellow / Grey Tubing (Second)**
   - Yellow Line:
     → Supply FROM the foot control
     → Destination: Main Block flex arm

     ⚠ Even though both sets are Yellow/Grey, track them carefully based on their direction and function. They are keyed to connect in only one direction. If the tubing is reversed, air will be purged out of the foot control disc.

3. **Green / Grey Tubing**
   - Green Line:
     → Signal air to the water relay in the unit head
     → Used to control the water on / off function from the foot control

Connect Tubing (Final Tubing Connections)

Connect the following color-coded tubing exactly as shown in your diagram, paying close attention to the tubing colors and their functions:

Tubing Connections and Their Functions:

1. Blue / Blue Tubing
    - Blue Line:
        → Water supply from the water master control to the unit head routing valve
        → Carries operational water used at the handpiece or utility head

2. Orange / Orange Tubing
    - Orange Line:
        → Signal air return from the master switch
        → This returns the air signal once the master switch is released/off

3. Black / Black Tubing
    - Black Line:
        → Signal air supply to the master switch
        → Delivers the air signal to activate the master switch

* A complete plumbing schematic is at the end of this manual*

Connect & Configure Master Controls

- Before connecting the master controls, purge both air and water supply lines to remove:
  - Debris
  - Dust
  - Any contaminants that could damage valves or clog filters
- You can do this by briefly turning on the supply to flush out each line into a container or drain.

Connect to the Junction Box

- Connect the air and water master controls to a suitable angle stop (usually found inside the junction box).
- Ensure secure, leak-free connections.

Micron Filter

- Note: A replaceable micron filter is located inside the pilot valve body.
  - This filters fine particles from the air line, protecting sensitive components.
  - Replace this filter periodically as part of regular maintenance.

Set Regulator Pressures

- **Air Master Regulator**:
  → Set to 80 PSI
- **Water Master Regulator**:
  → Set to 40 PSI

🔧 **To Adjust the Regulators:**

1. Loosen the lock nut on the mini regulator.
2. Turn the adjustment knob:
   - Clockwise = Increase pressure
   - Counter-clockwise = Decrease pressure
3. Once the desired pressure is reached:
   - Tighten the lock nut to secure the setting.

Set the Water Bottle Pressure

Procedure:

Open the Unit head cover. Remove all perimeter thumb screws to detach the top cover.

- Locate the mini regulator that controls pressure to the water bottle.

Adjust the Mini Regulator

- Turn the adjustment knob to set the pressure:
  - Set to 35 PSI
  - ⚠ Do not exceed 40 PSI — exceeding this may cause leaks or damage the bottle.

Secure the Setting

- If the regulator has a lock nut, tighten it after adjustment to prevent unintentional pressure changes.

Low Voltage Power Terminal Setup (Unit Head)

Power Connection Overview:

- The unit umbilical has a pre-run low-voltage wire that can be connected in the junction box.
    - Powering the unit head
    - Supporting 24VAC low-voltage devices

Light Port Function

- The light port on the Main PCB board allows on/off control of an LED operatory light.
- This enables remote control of the light via the touchpad.

Touchpad Requirement (TP2005)

- To control the light remotely, a TP2005 Touchpad is required.
    - This touchpad sends signals through the light port to toggle the light on/off.
    - Must be wired correctly into the low-voltage circuit.

Install and connect the Touchpad Harness

Connect to the Main PCB

- Locate the main PCB (Printed Circuit Board) inside the Pump cover of the dental chair.
- Locate the wire harness in the umbilical bundle.
- Connect the touchpad harness securely to its designated port on the PCB.
- This connection allows the TP2005 touchpad to control functions like LED light ON/OFF.
- This connection links the chair PCB to the unit PCB, enabling:

    - Touchpad control of chair functions
    - Remote activation of LED lights and other features .

Mirage 1.0 – 2.0

Adjusting the Flex Arm Tension

Tension Set Screws:

- There are three tension set screws located on the delivery unit flex arm.
- These screws control the drag (resistance) at the arm's pivot points.

🛠️ **Adjustment Procedure:**

1. **Check the Unit Level**
   - Confirm the delivery unit is properly leveled first.
   - If the unit is level but still drifts or moves unintentionally, proceed to adjust tension.
2. **Adjust the Tension Set Screws**
   - Turn each set screw slightly to increase or decrease drag on the pivot.
   - Turn clockwise to tighten (increase drag)
   - Turn counterclockwise to loosen (decrease drag)
3. **Avoid Over-Tightening**
   - Do not over-tighten these screws — excessive force can:
     - Damage the arm mechanism
     - Cause stiffness or binding
4. **Test After Adjustment**
   - Move the arm through its range of motion.
   - Check if it holds position without drifting.
5. **If Drift Persists**
   - Re-check and re-level the delivery unit utility center — tension adjustment alone won't fix a leveling issue.

✅ Final Tip:

- Adjust small increments at a time to find the right balance between smooth movement and holding position.

Unit Arm

Unit Head

Spring Arm

Adjusting the Level of the Instrument Head

🛠 **Adjustment Procedure:**

1. **Loosen the 4 Allen Bolts**
   - Locate the **four Allen bolts** securing the instrument head.
   - Use the appropriate Allen wrench to **loosen** these bolts just enough to allow movement.
2. **Adjust the Smaller Allen Set Screws**
   - Find the **smaller Allen set screws** designed for fine adjustment.
   - Turn these screws to **level the instrument head**:
     - Turning one side up or down will tilt the head accordingly.
   - Adjust until the instrument head is perfectly level.
3. **Secure the 4 Allen Bolts**
   - Once level, **tighten the 4 Allen bolts** firmly to lock the instrument head in place.
   - Avoid over-tightening to prevent stripping bolts or damaging components.

✅ Tips:

- Make small adjustments and check the level frequently.
- Use a spirit level or a digital level app for accuracy.
- Ensure no cables or tubing interfere with the adjustment.

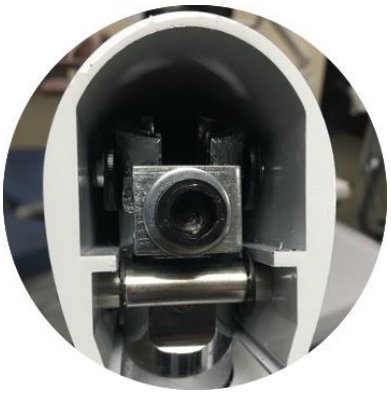
Adjusting Spring Arm Tension Inside the Flex Arm

🛠 **Procedure:**

1. **Remove the Back-End Cap**
    - Carefully remove the back-end cap of the flex arm to expose the spring tension adjustment area.
    - Keep the cap and any fasteners safe for reassembly.
2. **Adjust the Spring Tension Allen Bolt**
    - Locate the Allen bolt inside the flex arm spring assembly.
    - Turn the bolt:
        - Clockwise to increase tension (makes the arm stiffer)
        - Counterclockwise to decrease tension (makes the arm easier to move)
3. **Find the Ideal Tension**
    - The goal is a floating, level arm when the delivery unit master switch is OFF.
    - This means the arm should hold position without drifting but also move smoothly when adjusted.
4. **Reinstall the Back-End Cap**
    - Once the tension is set, replace the back-end cap securely.

✅ Tips:

- Make small incremental turns to avoid over-tensioning.
- Test arm movement frequently during adjustment.
- If unsure, contact the manufacturer for specs of the tension range.



Junction Box Connections

Clearing Supply Lines

Before making any connections in the junction box, be sure to purge the supply lines. If there is any debris in the air line, it will collect on the micron filter. Verify the line is clear.

Connecting Master Controls

- Air master control - Identified by the large yellow tubing that exits the back end of the master control valve
- Water master control - Identified by the large blue line that exits the back of the master control valve

Setting Pressures

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: The master on / off switch must be turned to the on position.

- **Air pressure** should read approximately 80 PSI
- **Water pressure** should read 40 PSI

Step 24: Final Adjustments

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

Post Mount Utility Center Adjustments (PMU)

Main Adjustments

Two main adjustments can be made in the PMU:

Assistant's Side Syringe Block Adjustments:

- Turning the screw counterclockwise 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 counterclockwise to decrease the air pressure
- Turn the knob clockwise to increase pressure
- **Do not allow more than 40 PSI of air pressure to supply the bottle**

Tension Adjustments

Flex Arm Tension

In situations where you need to add tension to the delivery unit's flex arms, please refer to 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 it's plumb. If the light post is not level, make the proper adjustments by re-leveling the unit.

Tension Spring Adjustment

If you need to adjust the tension spring in the flex arm, follow the procedure below:

- Remove the flex arm cap cover
- Use an 8 mm Allen wrench on the adjustment bolt
- Turn clockwise to increase the tension
- Turn counterclockwise to decrease tension
- **Only adjust in half-turn increments**

Delivery Head Leveling Adjustments

If you need to level the unit head or adjust the tilt, use the following adjustments:

Leveling the Unit Head:

- Loosen the 4 Allen screws that attach the unit head to the short control arm (see image)
- Once the screws are loose, use the 4 adjustment screws in the center on each side to level the head and front to back and side to side.

Adjusting the Unit Head Tilt:

Operation Instructions

Master Controls ON/OFF Toggle

- The **master control toggle** switches the **master pilot valves** located inside **the junction box** between the **ON and OFF** positions.
- When toggled **ON,** the pilot valves allow air and water flow to the delivery unit systems.
- When toggled **OFF,** the pilot valves shut off supply lines, disabling system functions for safety or maintenance.

Operating the Brake System Release

1. **Press and Hold the Button**
   - Press and hold the brake release button to **release air pressure** in the brake system.
   - This will allow you to freely move or adjust the arm.
2. **Adjust the Arm Position**
   - While holding the button, move the arm to the **desired position.**
3. **Release the Button to Lock**
   - Once the arm is positioned correctly, **release the button.**
   - The air pressure will re-engage, and the arm will **lock securely** in place.
4. **Selecting the right or left handle brake button**
   - Swing mount units have two brake handles.
   - Use the switch on the left side of the unit head to select which break button will be operated.

Adjusting the Air Coolant Spray Pattern

1. **Ensure the Air Coolant Valve is Open**
   - Make sure **the air coolant valve** is open to allow airflow.
2. **Activate the High-Speed Handpiece**
   - Run **the high-speed handpiece** with the **water turned on.**
3. **Observe the Spray Pattern**
   - You should see a **spray pattern** of air and water cooling the handpiece.
4. **Adjust the Valve**
   - **Open** the air coolant valve more to **increase** the spray intensity.
   - **Close** the valve partially to **decrease** the spray.

Flush Valve Operation

1. **Toggle the Flush Valve**
   - Press or toggle the flush valve button to **flush water through all three handpiece tubings** at the same time.
2. **Catch the Water**
   - Place all handpiece tubing ends into a **capture basin** or suitable container to collect the flushed water.
3. **Stop Flushing**
   - **Release the button** to stop the water flow through the handpieces.

☑ Tips:

- Use this flushing process to clear debris or stagnant water from handpiece lines.
- Regular flushing helps maintain hygiene and equipment performance.
- If the unit is not going to be used for an extended period, it's recommended that you flush all the water out of the lines. To do this, operate the flush till all the water is expelled from the system.

Filling and securing the water bottle

1. **Use Only Distilled Water**
   - Fill the bottle **only with *distilled water*** to prevent mineral buildup and ensure equipment longevity.
2. **Fill the Bottle**
   - Fill the bottle to the recommended level.
3. **Secure the Bottle to the Cap**
   - Turn the bottle **clockwise** to screw it onto the bottle cap securely.
   - **Do not over-tighten**, as this can damage the bottle cap threads or gasket.

☑ Tips:

- Check the gasket regularly for wear or damage. Replace if worn or damaged.
- Proper sealing prevents leaks and maintains system pressure.

Activating Bottle Pressure

- This control **activates the pressure supply to the bottled water system**, enabling water flow from the bottle.
- Ensure the bottle is properly installed and the pressure regulator is set before turning on.

Selecting the Water Source

- Choose between **City Water** or **Bottled Water** as the water supply source.
- Ensure the selector valve or switch is set to the desired source before operating the system.

☑ Tips:

- Use **bottled water** when city water quality is uncertain or as recommended.
- Confirm the correct setting during setup and maintenance.

Adjusting Water Flow to Handpiece Tubing

- Each **handpiece** has its own **water adjustment knob**.
- To **decrease water flow**, turn the knob **clockwise**.
- To **increase water flow**, turn the knob **counterclockwise**.

☑ Tips:

- Adjust flow gradually for optimal cooling and patient comfort.
- Check each handpiece separately to ensure proper water delivery.

Adjusting Handpiece Drive Air Pressure

1. **Loosen the Stop Nut**
   - Before adjusting, **loosen the stop (lock) nut** on the adjustment knob to allow movement.
2. **Adjust the Drive Air Pressure**
   - Turn the **HP adjustment knob counterclockwise** to **increase** the drive air pressure.
   - Turn the knob **clockwise** to **decrease** the drive air pressure.
3. **Secure the Lock Nut**
   - After achieving the desired pressure, **tighten the stop nut** to lock the adjustment knob in place.

Handpiece Pressure Gauge

- The **HP (Handpiece) pressure gauge** is located on the **lower left side** of the instrument head.
- To get a **pressure reading**, both the **foot control** must be engaged, and an **active handpiece** must be in use.
- Without these, the gauge will not display the pressure.

☑ Tips:

- Use the gauge to monitor and adjust handpiece drive air pressure for optimal performance.
- Ensure the foot control and handpiece are functioning properly to get accurate readings.

Handpiece Exhaust Particulate Collector

- This component **collects all exhausted particulates** coming from the **handpiece tubing exhaust line**.
- It helps maintain cleanliness and prevents debris from contaminating the surrounding area or equipment.

Operating the Operatory Light

1. **Activate Light Using Touchpad**
   - Press the **light button** on the touchpad to turn the operatory light **ON** or **OFF**.
2. **Initial Toggle Switch (If needed)**
   - In some setups, you must first **toggle the main light switch ON** before the touchpad can control the LED operatory light. The lights will remember the last mode they were left in.

☑ Tips:

- Confirm the main light switch position if the touchpad light button doesn't respond.
- Use the touchpad for convenient remote light control during procedures.

Operating Foot Control and Wet/Dry Switch

1. **Activate Air Pressure**
   - **Press down on the foot control disc** to supply **air pressure to the main block**.
   - This engages the air drive for the handpiece.
2. **Turn On Water Supply**
   - Toggle the **wet/dry switch to the right** to **turn on the water supply** to the handpiece tubing.
   - This enables water flow for cooling and irrigation.

Water Quick Connect Location

- For **swing mount units**, this quick connect is found **under the rear swing mount 4-position suction holder**.

☑ Tips:

- Use the quick connect for easy water line attachment or detachment during installation or maintenance.

Adjusting the Water Bottle Regulator

1. **Locate the Regulator**
   - The **water bottle regulator** is located inside the **delivery unit head**.
2. **Release the Stop Nut**
   - Before adjusting, **loosen the stop nut** on the adjustment knob to allow movement.
3. **Adjust the Pressure**
   - Turn the knob **clockwise** to **increase** water bottle pressure.
   - Turn the knob **counterclockwise** to **decrease** pressure.
4. **Pressure Limit**
   - **Do not exceed 40 PSI** on the water bottle system to avoid damage.
5. **Secure the Stop Nut**
   - After adjustment, **tighten the stop nut** to lock the knob in place.

☑ Tips:

- Use a pressure gauge if available to monitor settings accurately.
- Adjust gradually and test the water flow after changes.

Warning: Do not exceed 35 PSI or damage to the bottle may occur.

Syringe Pressure Adjustments

Assistant's Side Syringe

- Located at the bottom of the assistance arm.
- Use a **flat-head screwdriver** to adjust pressures:
  - **Turn clockwise** to **decrease** pressure
  - **Turn counterclockwise** to **increase** pressure
- **Line colors:**
  - **Blue line side:** Water pressure
  - **Clear or yellow line side:** Air pressure

Doctor's Side Syringe

- Located **under the instrument head**.
- Two adjustment knobs:
  - **Right side:** Water pressure
  - **Left side:** Air pressure
- Adjust with a screwdriver, turning clockwise to decrease and counterclockwise to increase pressure.

☑ Tips:

- Adjust pressures gradually and test the syringe function after changes.
- Proper syringe pressure ensures effective air and water delivery.

Assistance Side Syringe

Dr. Side Syringe

Solids Collector Trap

Location: On top of the assistance arm cover.

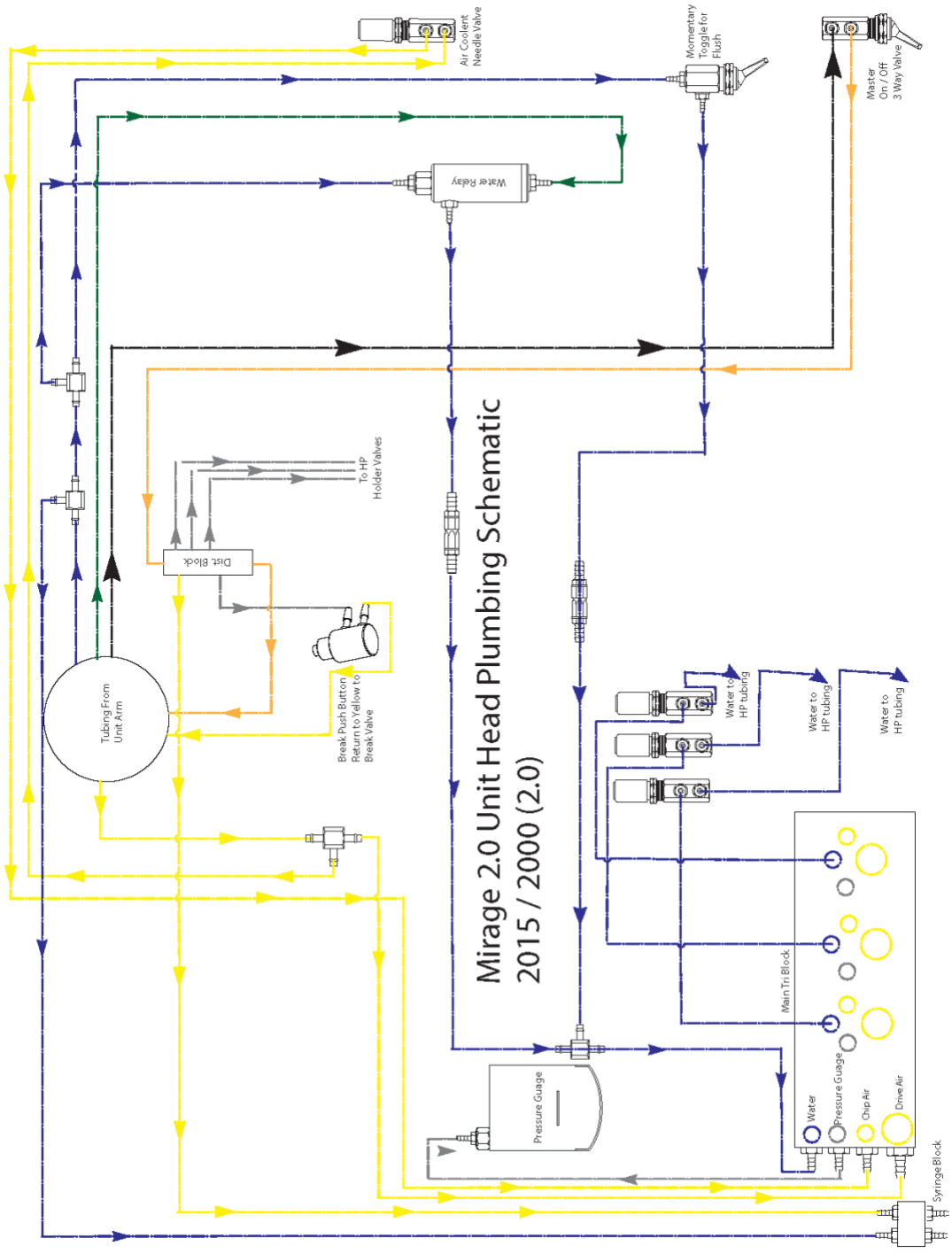
Before Removing the Lid:

1. **Turn off** the vacuum system.

To Change the Solids Collector Trap:

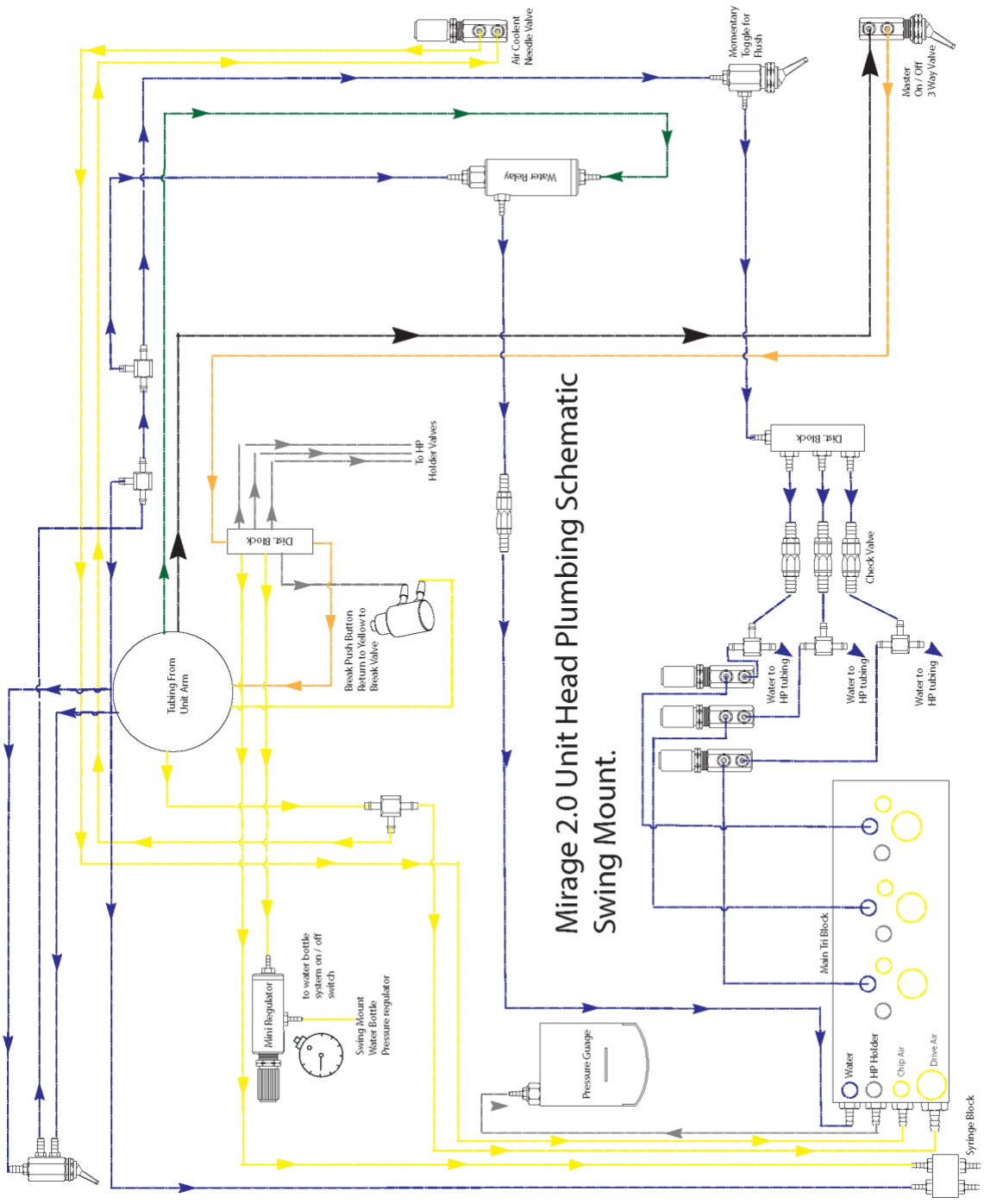
1. **To remove the cap:** Grasp the cap with one hand.
2. Turn it **¼ rotation.**
3. Gently **lift the cap off.**
4. **Lift** the trap out of the solid's collector canister.
5. **Place** a new trap into the solid's collector canister.
6. **Inspect the O-ring** on the top cap to ensure it is intact and seated properly.
7. **Reinstall** the cap.

Tubing Diagram Unit

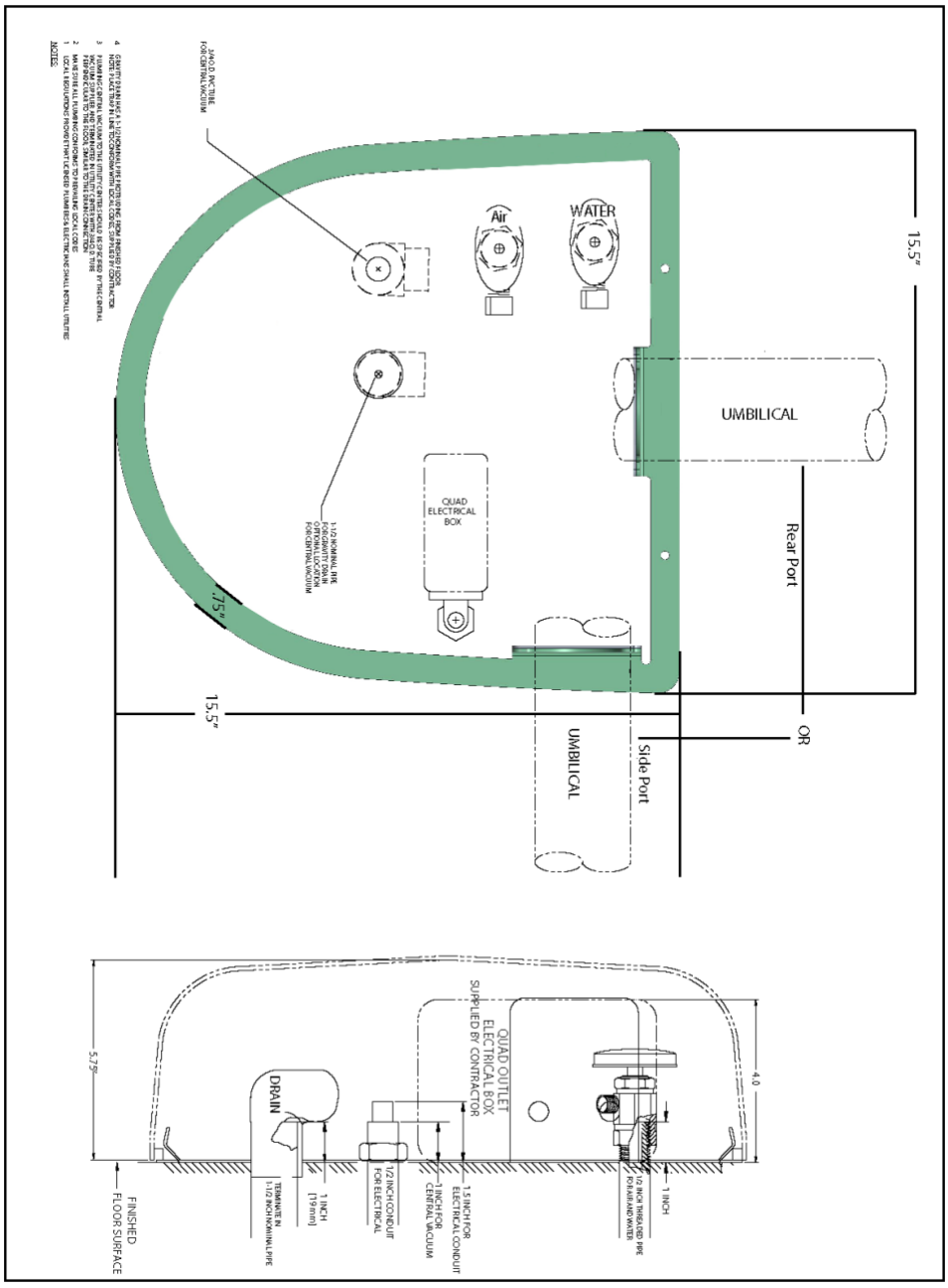


Head

(Flush Bypass)



Junction Box Template



WARRANTY INFORMATION

TPC 5 Year Limited Warranty

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

Coverage Periods

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5 Year Warranty Coverage:

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

1-Year Warranty Coverage:

- Upholstery
- Armrests
- Plastic Components
- Handpiece Tubing / Syringe Tubing
- 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.

What is NOT Covered

This guarantee does not cover:

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

Shipping Damage Claims

All claims against the freight carrier must be initiated at the time damaged items are received. Filing the claim is the responsibility of the customer.

Service Requirements

⚠ **IMPORTANT:** Only authorized service technicians should attempt to service TPC equipment. Service performed by unauthorized technicians may result in a voided warranty.

Product Modifications

TPC continuously improves its products and reserves the right to make modifications without prior notification. TPC is not obliged to modify previously manufactured items.

Contact Information

For additional information, contact your TPC dealer

For technical support, contact:
TPC Dental
Phone: 800-560-8222
Email: service@tpcdental.com
Web: www.tpcdental.com

Troubleshooting:

1. Water is flowing out of all three handpieces when in the HP holder

- *Cause:*
  - Flush Valve Activated
  - Flush Valve Damaged
- *Solution:*
  - Turn the Flush Valve
  - Replace Flush Valve

---

2. When I use one handpiece, water leaks out of another HP position

- *Cause:*
  - Check Valve Failed
  - HP Holder Valve pressure is neutral
- *Solution:*
  - Replace Check Valve
  - Check and verify the HP holder valves are tied into the return of the master switch and not the 3-Way syringe

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3. Water is leaking from the exhaust jar on the bottom of the unit

- *Cause:*
  - Water is leaking into the exhaust line in the HP tubing
  - Water in the supply air
- *Solution:*
  - Check the HP gasket
  - Tighten the HP nut to the HP
  - Check the compressor for moisture

---

4. Air is purging out of a handpiece position that is in its holder when I'm using a different handpiece

- *Cause:*
  - HP tubing is not in the proper holder location
  - The Main Block Diaphragm is damaged
- *Solution:*
  - Place the HP tubing in the correct holder
  - Replace the Main Diaphragm on the Block

---

5. The water from my HP is a stream and not spraying

- *Cause:*
  - Chip Air adjustment closed

- *Solution:*
    - Open chip air adjustment

---

6. Water from my 3-way syringe is very low

- *Cause:*
    - Low water pressure
    - Buttons have built debris on O-rings
- *Solution:*
    - Increase water pressure
    - Remove, clean, or replace buttons

---

7. When I use a HP position, the air pressure drops quickly

- *Cause:*
    - The Main Regulator in the junction box has failed or is below 80 psi
    - Pinched line
- *Solution:*
    - Replace the Main Air Pressure Regulator, adjust the air pressure if it's below 80 psi
    - Check plumbing for pinched air line

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8. My unit arm squeaks when I try to move it

- *Cause:*
    - Brake button stuck
    - Brake pads on the brake are misaligned
    - Pinched line
- *Solution:*
    - Check and see if the air purges when the brake button is pressed
    - Realign brake pads
    - Pinch the supply line to the brake push button. See if the brake frees up

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9. Water bottle leaks air

- *Cause:*
    - The water bottle gasket is damaged or missing
- *Solution:*
    - Inspect the water bottle gasket. Replace if needed or missing

10. The HP will not cut, but sounds like it is at the correct rpm

- *Cause:*
  - Pinched air line
  - Bad handpiece
- *Solution:*
  - Check for pinched lines from the master control to the foot control, then to the main control block
  - Check the Handpiece in another position or another delivery unit

---

11. The suction is low to the HVE, SE valves

- *Cause:*
  - The solids trap is full
  - Clog on the main suction line or canister
- *Solution:*
  - Check and replace the solids trap if it's full
  - Clear the obstruction or replace the main suction line

---

12. The silicon jacket is torn on the handpiece tubing

- *Cause:*
  - Chemical exposure
  - Excessive pulling on the coupling
- *Solution:*
  - Replace the tubing
  - Be gentle when pulling on the silicone jacket against the coupling

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