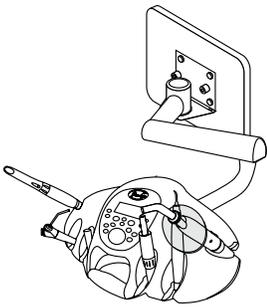


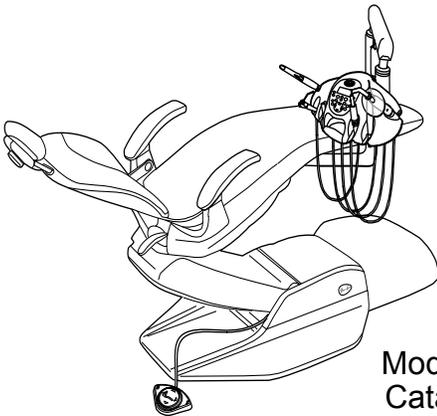
Model: SCT30
Catalog: 3100, 3105
PMU Mounted



Model: SDW30
Catalog: 3600
Wall Mounted



Model: SDC30
Catalog: 3610
Cabinet Mounted



Model: SET30
Catalog: 3120
Ellipse Chair Mounted

Spirit 3000 Dental Units

Installation Instructions

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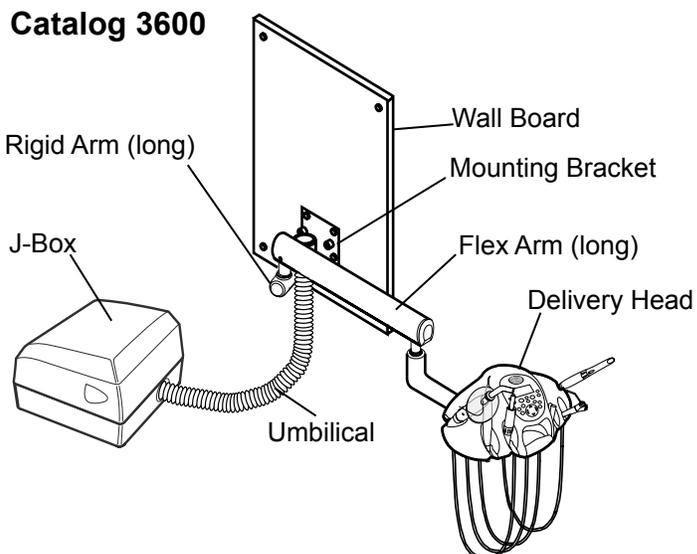
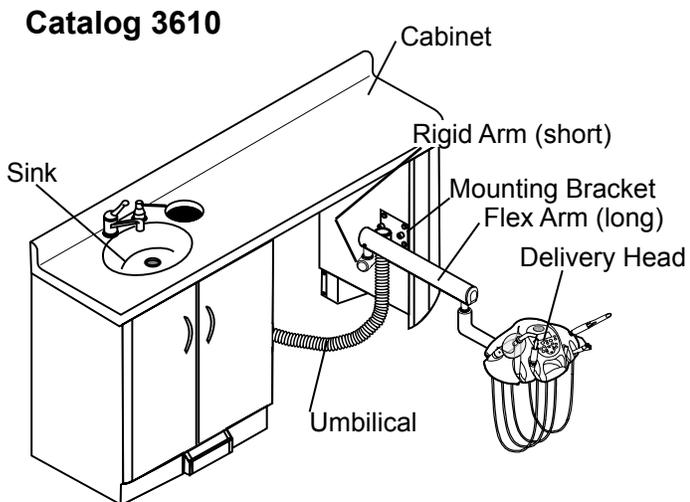
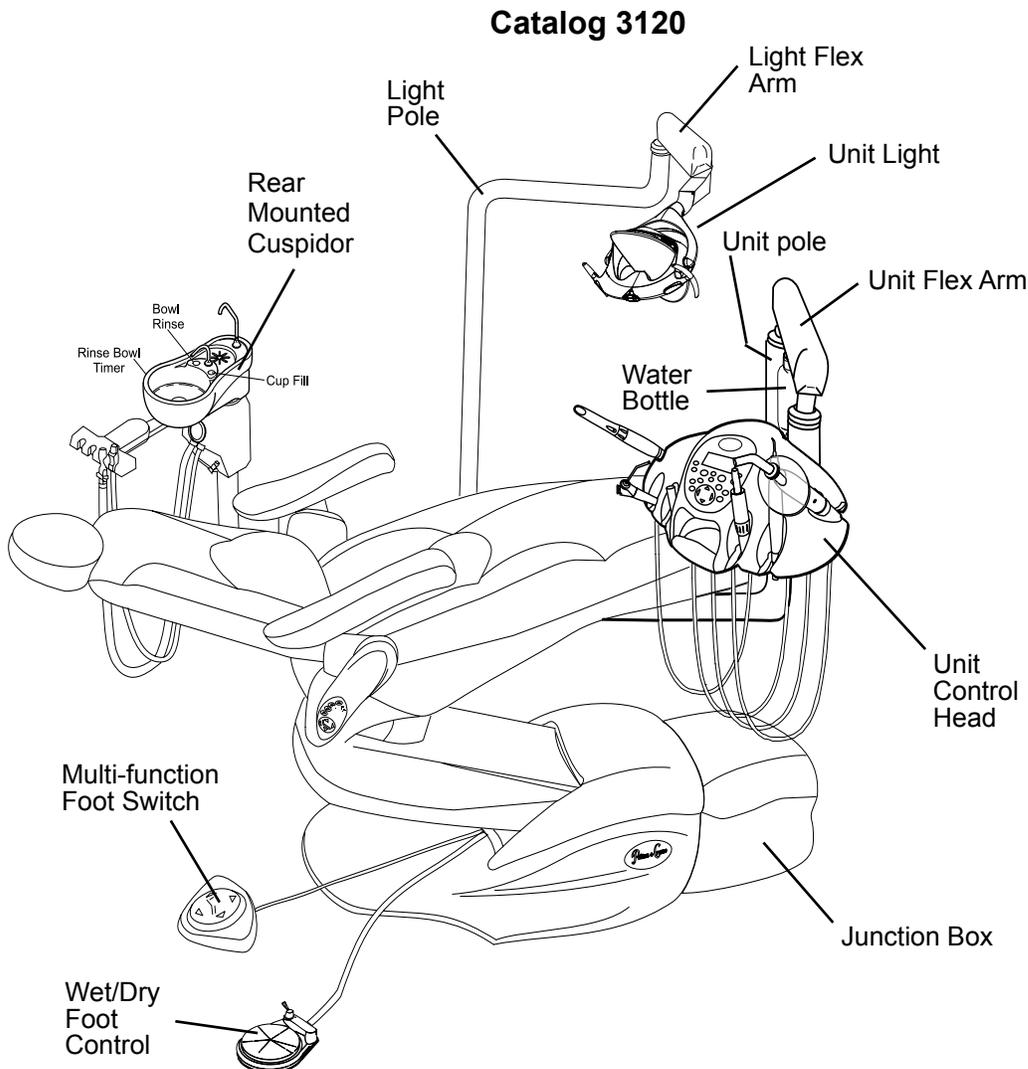
	<p>CAUTION: Federal law restricts this device to sale by or on the order of a dentist.</p>
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Technical Support

Technical assistance is available Monday through Friday,
8:00 am to 8:00 pm (Eastern Standard Time).

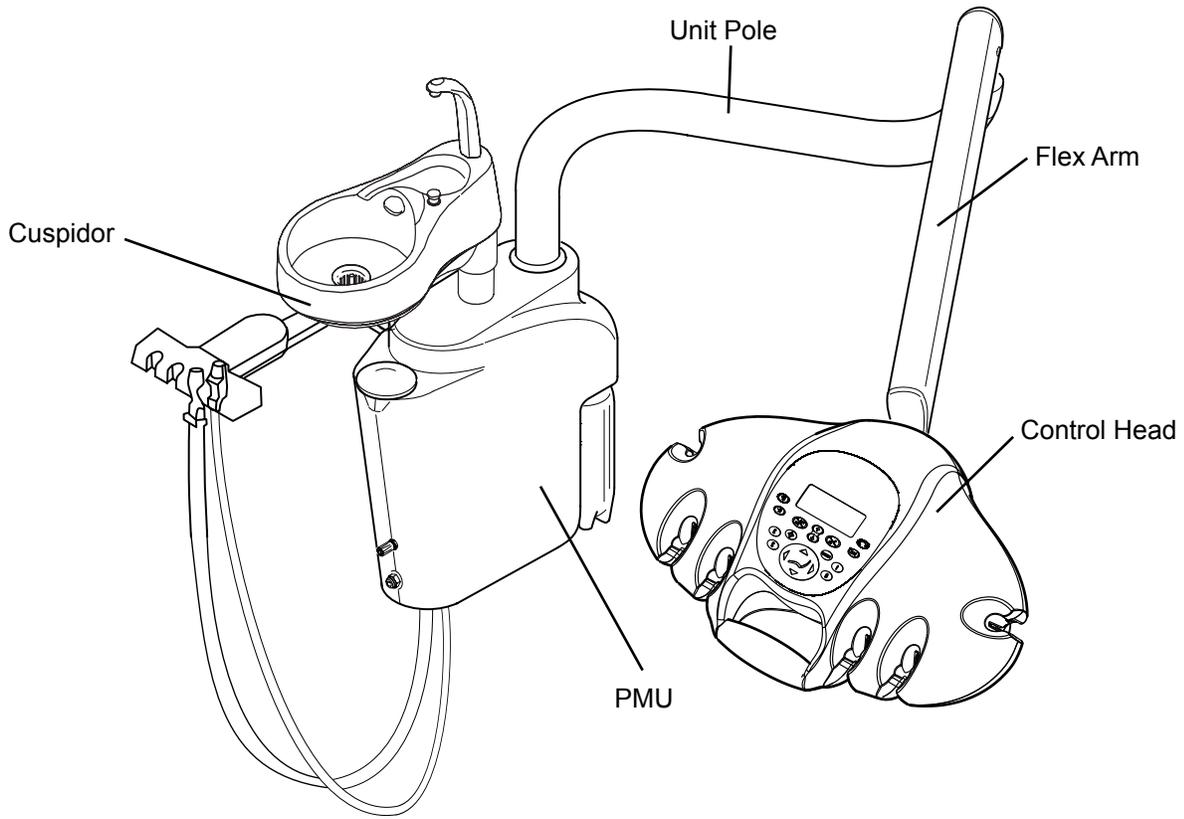
<p>Phone: 800-659-5922 Fax: 800-659-7255</p>
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SPIRIT 3000 UNITS OVERVIEW

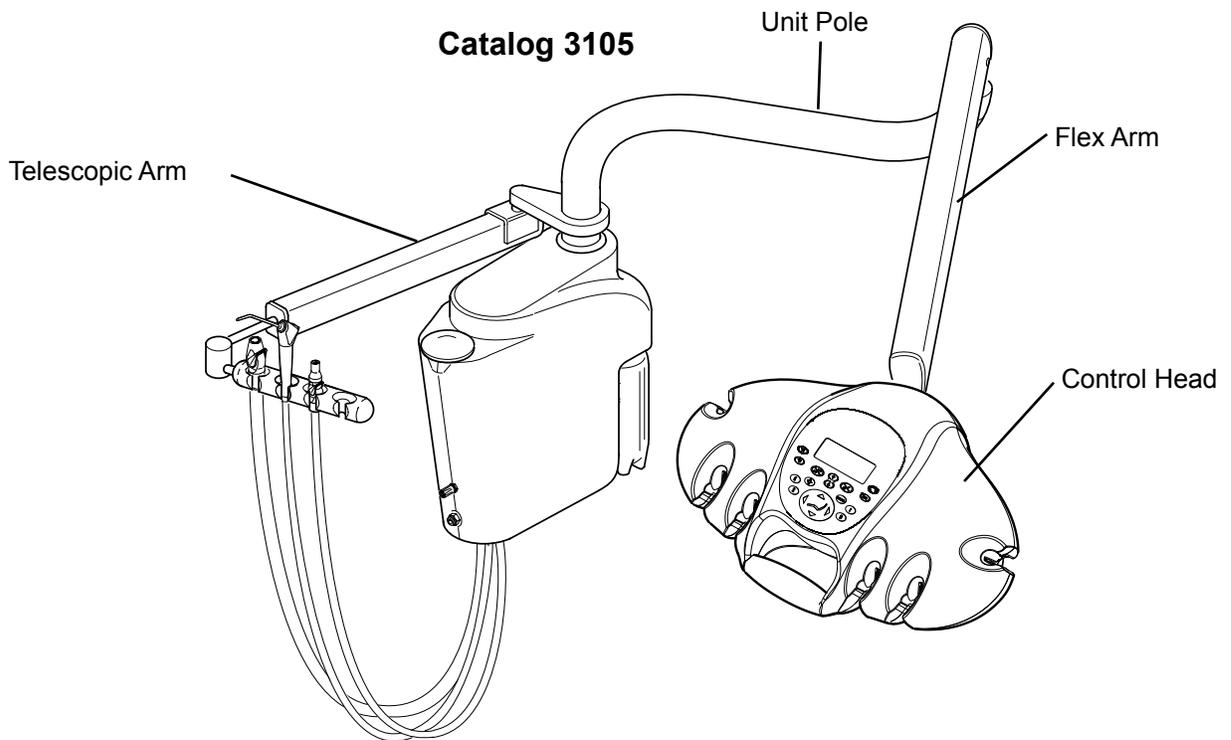


SPIRIT 3000 UNITS OVERVIEW

Catalog 3100



Catalog 3105



GENERAL INFORMATION

Definition of Symbols

The following symbols and terms may be used throughout this manual and your equipment:

 **WARNING:** Failure to carefully follow the described procedure may result in damage to the equipment and/or injury to the patient/operator.

 Risk of electrical shock present. Make sure power is disconnected before attempting this procedure.

-  See operating instructions.
-  (AC) Alternating current.
-  Protective earth (Ground)
-  Manufacturing Date
-  Manufacturing Place
-  Waste Electrical and Electronic Equipment.
-  Type B Applied part.

 Conforms with the Essential Requirements of the European Medical Device Directive 93/42/EEC for Class I Devices.

 Conforms with the Essential Requirements of the European Medical Device Directive 93/42/EEC for Class IIa Devices.

 Indicates conformity to General Requirements for Safety is certified by Intertek Testing Services.

 General mandatory action required, important to follow instruction. Not a caution.

 Warning, strong magnetic field.

 Off

 On

 Light Switch

 European Authorized Representative

 USB Port

 **Authorized Representative:**
Kaltenbach & Voigt GmbH
Bismarckring 39
88400 Biberach
Germany



Product Disposal

Contact your local authorized dealer for proper disposal of the device to ensure compliance with your local environmental regulations.

Interference with Electromedical Devices

To guarantee the operational safety of electromedical devices, it is recommended that the operation of mobile radio telephones in the medical practice or hospital be prohibited.

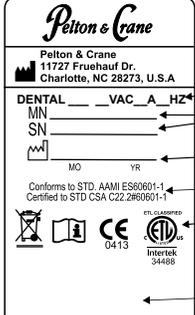
Strong EMI sources such as electro surgery units or x-ray units may affect performance. If performance problems occur, move the unit to another electrical circuit or physical location.

Incompatible Units or Accessories

Incompatible Units or Accessories: To guarantee the operational safety and function of this device, the use of unapproved units or accessories is not advised. Doing so could result in potential hazard. Using accessory equipment not complying with the equivalent safety requirements of this equipment may lead to a reduced level of safety of the resulting system. Connecting electrical equipment to multiple socket outlets effectively leads to creating an ME SYSTEM, and can result in a reduced level of safety.. All configurations shall comply with the system standard IEC 60601-1-1 or IEC 60601-1:2005

Product Identification

This product can be identified by its product label. This label states the unit model and serial number, electrical specifications, manufacture date and safety classification. Note the **SAMPLE** label shown below.



Pelton & Crane
Pelton & Crane
11727 Fruehauf Dr.
Charlotte, NC 28273, U.S.A

DENTAL ___ VAC_A_HZ*
MIN _____
SN _____
MO _____ YR _____

Conforms to STD. AAMI ES60601-1
Certified to STD CSA C22.2#60601-1

    
0413 Intertek 34488

Product Name and Electrical Rating
Model and Serial numbers
Date of Manufacture IEC Type and Duty Cycle
Safety Standard Information
Certification Mark and other Symbols when Applicable
Extra Standards information IEC PROTECTION CLASS Label Part Number

Working Environment

The unit is to be used in an office environment only.

Recommended working condition is:

Ambient Temperature: 68°F to 76°F (20°C to 25°C)

Relative Humidity: 20% to 60% non-condensing

Atmospheric Pressure: 13.1 to 15.3 PSI (900 to 1060hPa)

 **WARNING:** It is not safe to use the unit where there is flammable gas or other hazardous material. Such materials can easily catch fire resulting loss of lives and heavy property damages

Storage Conditions: The device is appropriately packaged in a box. If product is to be stored before installation, storage and handling instructions in the packaging should be adhered to. Handling and storage conditions are marked on the box.

Temperature: -4°F to 122°F/ -20°C to 50°C

Relative Humidity: 10% to 90%

If the device is not to be used for some time, ensure the water line is disinfected and flushed with air before the master switch is switched off.

GENERAL SAFETY SUMMARY

Please read the safety warnings and instructions before using the device. The manufacturer's liability is applicable only if the device is used in compliance with the directions and safety warnings provided in this manual. Safety warnings are spread throughout the manual.

 <p>WARNING: This product is intended for use by trained dental professionals only.</p>	 <p>WARNING: This product must be disinfected before use. Failure to disinfect may promote contamination.</p>
 <p>WARNING: A dental unit may include magnets in the construction of the device which may temporarily affect the function/programming of some implantable pacemakers or defibrillators. If the implanted device is programmed to respond to a magnet, people who have these type of devices should avoid dental units with magnets.</p>	 <p>WARNING: Dental instruments and accessories are sharp - use care when near the dental unit. Remove sharp tips when not in use to prevent injury.</p>
 <p>WARNING: To avoid risk of electric shock, this equipment must be connected only to supply mains with protective earth. Do not position unit in such a way that it is difficult to unplug.</p>	 <p>WARNING: Failure to return handpieces to proper location could result in alternate or additional handpieces operating without notice.</p>
 <p>Ensure that the J-box, delivery head and PMU covers are in place before operating the dental system. Failure to follow instructions may cause electric shock or other injuries.</p>	 <p>WARNING: Proper personal protective equipment (PPE), including, but not limited to, gloves and eye protection, must be used when operating the dental unit. Failure to use protective equipment can expose operator and patient to cross-contamination.</p>
 <p>WARNING: Power cords and their associated parts cannot be substituted without increased risk of electric shock or fire. We recommend the use of authorized replacement parts only! Power cords must be installed by qualified personnel. Make sure all service loops, strain reliefs, and cord guards are in place and that line, neutral and ground wires are secured.</p>	 <p>WARNING: Failure to install the syringe tip correctly can result in injury or damage. Refer to the documentation that came with the syringe for full instructions on proper installation and use.</p>
 <p>WARNING: No unauthorized modification of this equipment is allowed. Failure to comply with, will void the warranty</p>	 <p>WARNING: Only authorized service technicians should install and service this equipment. Use of other than authorized technicians will void the warranty.</p>
 <p>Refer to the Installation Instructions, Use & Care manual and accessory manufacturer's literature to install and operate safely.</p>	 <p>WARNING: Use a licensed electrician for all wiring.</p>
 <p>WARNING: Federal law restricts this device to sale by or on the order of a dentist.</p>	 <p>WARNING: Failure to disinfect equipment between patients could expose user/patient to cross contamination and bio-burden/bio-contamination.</p>
	 <p>Use only Pelton and Crane replacement parts. All repairs should be performed by authorized Pelton & Crane Dealers or their representatives.</p>

The dental unit complies with IEC/EN 60601-1 third edition.

As manufacturers of electro-medical products we can assume responsibility for safety-related performance of the equipment only if maintenance, repair and modifications are carried out only by Pelton & Crane or agencies we have authorized for this purpose, and if components affecting safe operation of the unit that may be needed are replaced with original parts.

We suggest that you request a certificate showing the nature and extent of the work performed, from those who carry out such work, and specify that the certificate show any changes in rated parameters or working ranges, as well as the date, the name of the firm and a signature.

TECHNICAL DESCRIPTION

Intended Use - Dental Unit

Indications for Use:

The Spirit Dental Operative Units are intended to supply power to and serve as a base for other dental devices and accessories by providing air, water, vacuum and low voltage electrical power to hand held dental instruments. The Spirit Dental Operative Units are intended for use by professional dental practitioners in providing treatment to dental patients in a dental operatory.

Product Description:

The Spirit Dental Operative Units serves as a base that includes components to deliver air, water, electrical

power, and vacuum to dental handpieces, instruments, and accessories. The controls are contained in a Doctor's Unit, an Assistant's Unit, and a Cuspidor. Additional parts include mount arms, foot control, and a junction box that houses a power supply and air/water regulators. Various Handpieces and accessories can be added to the Spirit Dental Operative Unit which Pelton & Crane does not manufacture but does provide a means to connect them into the Spirit Dental Operative Units. These include, but not limited to, pneumatic handpieces, electric motors with handpieces, scalers, intra-oral cameras, curing lights, air/water syringes, SE and HVE vacuum instruments.



The dental delivery system is classified as Class 1 device under rule FDA CFR 21, Class II device under Health Canada guidelines and a Class IIa device under rule 11 of the MDD 93/42/EEC of Annex IX.

0413

Air and Water Supply Requirements	Electrical Specifications	IEC Medical Device Classification									
<p>Air Quality: Dry, clean and oil free Pressure: 80-100 psi (5.5 - 7.0 bar)</p> <p>Water Quality: Water must meet EPA requirements for municipal water.</p> <p>Hardness: 6.5 - 8.5 pH We recommend water treatment for very hard water to minimize mineral deposits in the water line fittings and valves. We do not recommend the use of distilled water as it is known to corrode components.</p> <p>Pressure: 40-80 psi (2.75-5.5 bar)</p>	<table border="1"> <thead> <tr> <th>Volts</th> <th>Cycles</th> <th>Amps</th> </tr> </thead> <tbody> <tr> <td>115 VAC</td> <td>60 HZ</td> <td>3 A ~</td> </tr> <tr> <td>230 VAC</td> <td>50/60 HZ</td> <td>1.5 A ~</td> </tr> </tbody> </table> <p>All fuses are labeled at point of use. Replace fuses only with type and rating as indicated.</p>	Volts	Cycles	Amps	115 VAC	60 HZ	3 A ~	230 VAC	50/60 HZ	1.5 A ~	<p>Classification: I Type: B Operation Mode: Continuous Splash Protection: IPX0</p>
Volts	Cycles	Amps									
115 VAC	60 HZ	3 A ~									
230 VAC	50/60 HZ	1.5 A ~									

Handpiece Compatibility

This delivery system is designed to be compatible with air driven handpieces that conform to ISO 13294 and electric handpieces that conform to ISO 11498.

For the air driven handpieces, tubing is available in 4-hole Midwest tubing. For electric handpieces, dental units will be equipped with an "E-type" coupler and cordset.

The end user will have specified the preferred type prior to ordering from the factory. It is the responsibility of the end user to procure appropriate handpieces for use with this delivery system. Certain countries may have particular regulations regarding which handpieces are acceptable for use; e.g. countries in the European Union require handpieces which meet the requirements of the Council Directive 93/42/EEC. See your local dealer for additional information.

The manufacturer will supply, upon request, circuit diagrams, component parts list, descriptions and other information needed to assist service technicians in repairing or servicing the dental unit.

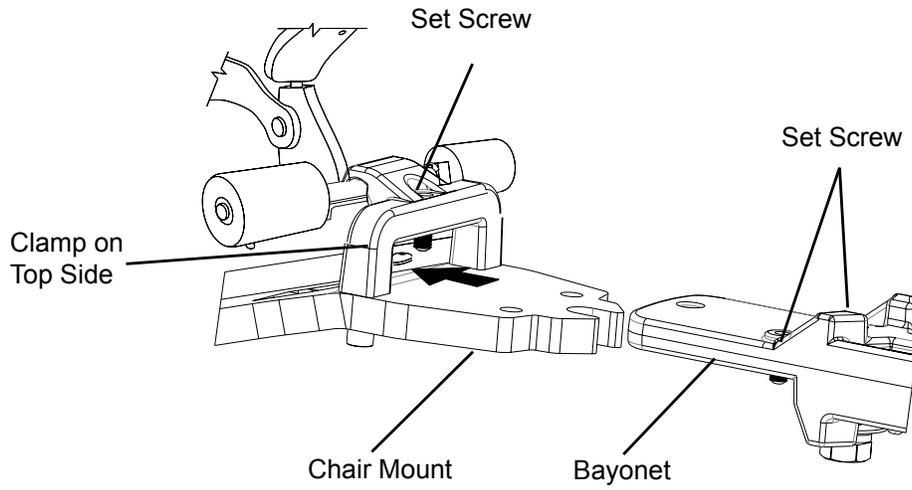
Refer to handpiece manufacturer's manual for safe and functional operations of the accessory.

Incompatible Units or Accessories:

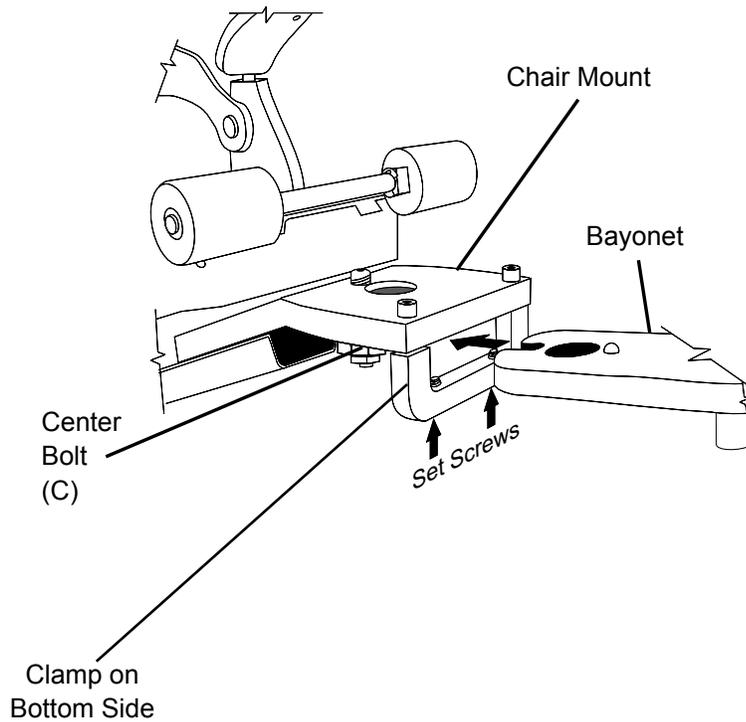
To guarantee the operational safety and function of the device, the use of approved units or accessories is not advised. Doing so could result in potential hazard. Using accessory equipment, not complying with the equivalent safety requirements of this equipment may lead to a reduced level of safety of the resulting system. Connecting electrical equipment to a multiple socket outlet effectively leads to creating a ME system and can result in a reduced level of safety. All configurations shall comply with the system standard IEC60601-1-1 or IEC60601-1-1:2005.

SPIRIT ELLIPSE DELIVERY SYSTEM - DETERMINE YOUR STYLE

PREMIER STYLE



CLASSIC STYLE



SPIRIT ELLIPSE DELIVERY SYSTEM INSTALLATION - PREMIER STYLE

Figure 1

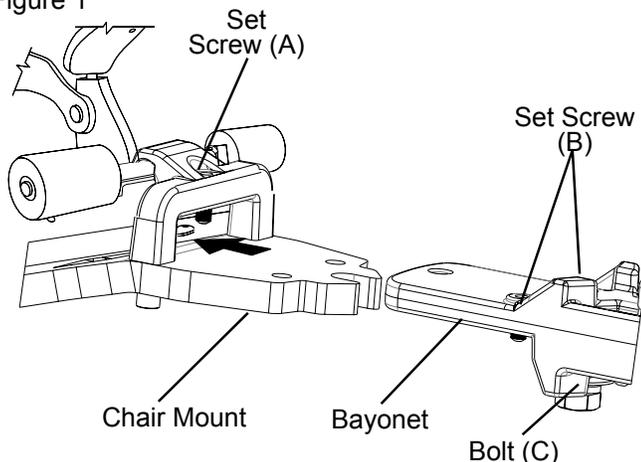


Figure 2

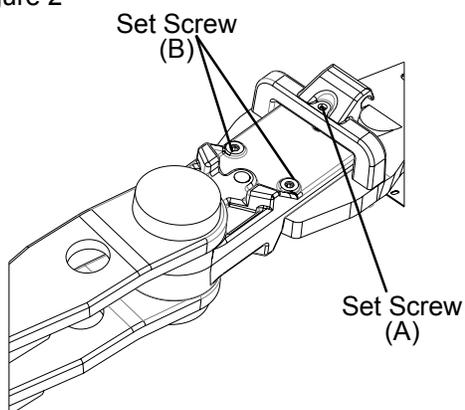


Figure 3

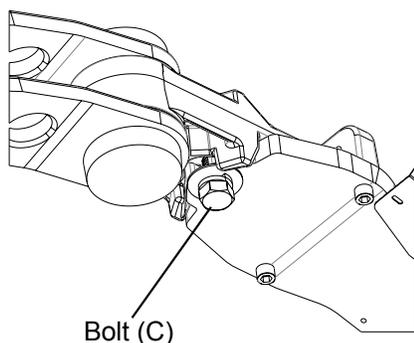
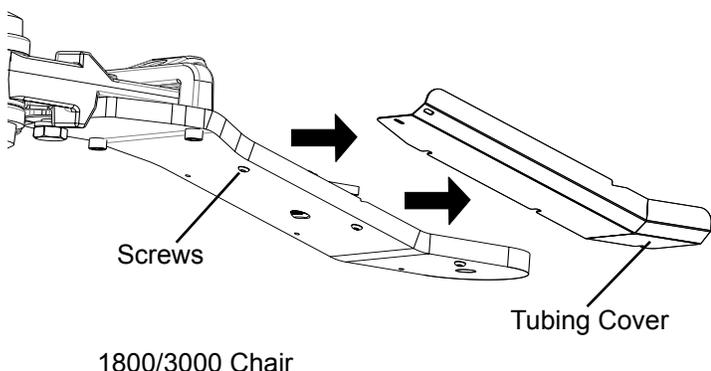
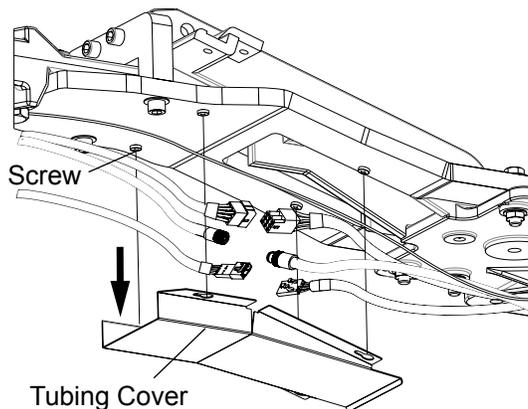


Figure 4



1800/3000 Chair



1700 Chair

POLE LEVELING ADJUSTMENT

1. Begin by setting up the chair in its final location. Remove poles and arm from shipping box. Leave the strapping tape in place on the flex arm for now.
2. Take the lower ellipse pole and insert bayonet end into the chair mount until fully engaged (Figure 1). Set screws should be seated in chair mount holes and lower ellipse pole will be supported on its own.
3. Attach levels on vertical posts, 90 degrees apart so they will measure front to rear leveling and side to side leveling. Use a hex tool to adjust front set screw (A) to level the posts from front to back (Figure 2). Adjust the side set screws (B) to level the posts from side to side. When the post is level in both directions, tighten bolt (C) to secure the unit to the chair mount (Figure 3) (Make sure pole is still level after tightening bolt).
4. Remove all remaining packaging and inspect the unit for damage.
5. Carefully unbundle and unpackage hand pieces. Attach and hang hand pieces in appropriate slots.
6. Loosen the screws using a Phillips screw driver and slide out the tubing cover from the underside of the chair mount (Figure 4).

WARNING: Before making any connections, be sure all power has been disconnected. Making connections while chair or unit is connected to power source may result in equipment damage or injury.

WARNING: All lines are intended for low voltage use only. Use of this line is at the discretion of the end user.

SPIRIT ELLIPSE DELIVERY SYSTEM INSTALLATION - PREMIER STYLE POLE LEVELING ADJUSTMENT

Figure 5

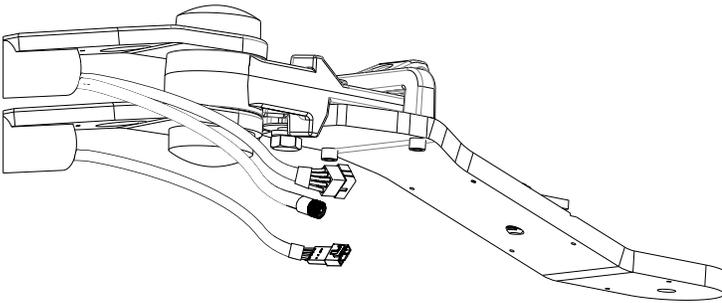


Figure 6

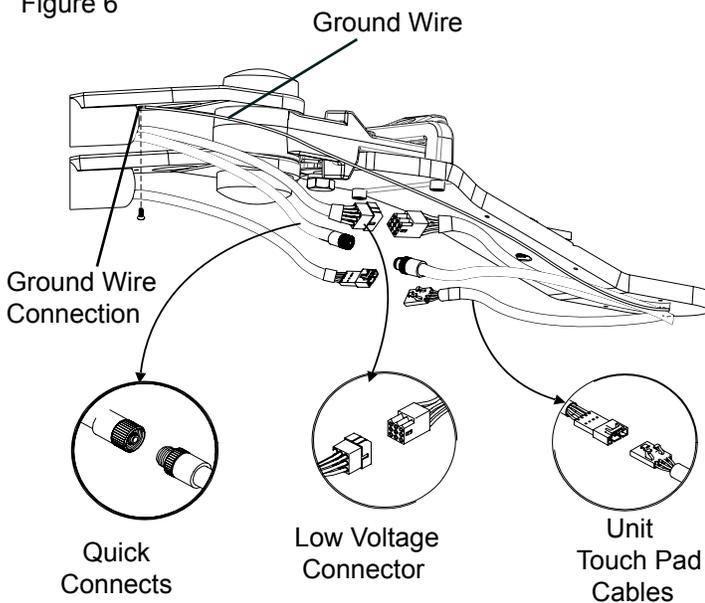
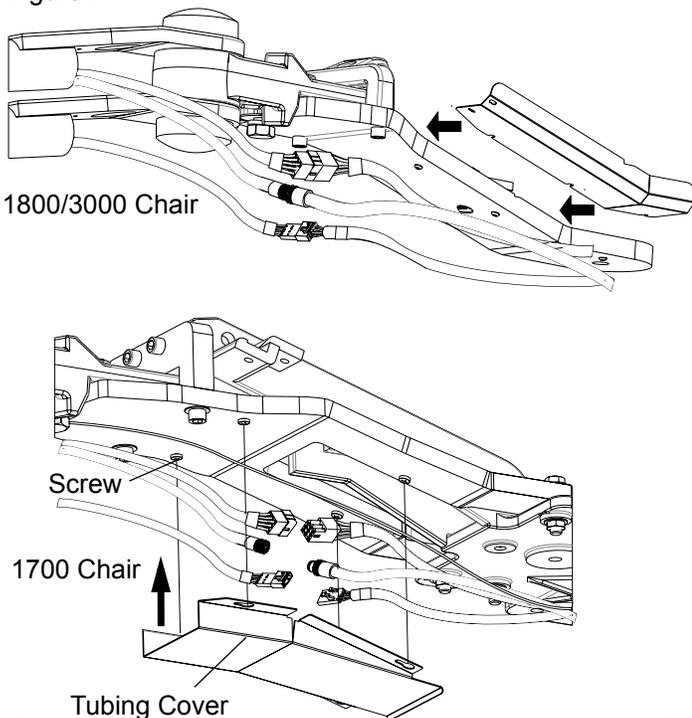


Figure 7



7. Install supplied cable braid sleeving over existing cables.

8A. UNIT WITHOUT WATER BOTTLE: Connect cables and plumbing lines from ellipse unit to chair (Figure 6). Match tubing by colors and numbers and screw connectors together until tight. Match electrical cables by type.

8B. UNIT WITH WATER BOTTLE: Make the same connections as described in 8A, but notice that there will be two extra 1/8" blue tubes that form a loop at the connection point. This is to allow output from the routing toggle (1/8" blue) to connect with the control head (also 1/8" blue). Also note that there will be an extra 1/8" transparent green on the unit side that will not be used at this time. Install the water bottle with the quick disconnect adapter by first aligning the adapter slot and manifold pin. Then push the bottle up and twist clockwise. Check that bottle is tight. (Note: bottle with cap is a spare bottle).

9. Connect the unit touch pad and low voltage cables (Figure 6). Depending on the options ordered with the unit there may be other electrical connections such as S-video or camera power. These connections should be made with their mating connectors. As with all electrical connections, care should be taken for proper alignment to prevent damage and ensure proper electrical contact.

10. Connect ground wire to bayonet as illustrated (Figure 6).

11. NOTE: If your package includes an ellipse-mounted light, please refer to the Light Installation Instructions to install the light at this time. After light is installed, remove lower truss cover and pump cover and route electrical cable through existing bundle and through umbilical tube as needed. Properly replace and secure all covers when finished.

12. Once all connections are made, put on cable braid sleeving over visible bundles and push any excess lines and cables back into poles. Rotate ellipse poles to their worst case position(s) and make sure cables have enough slack to move properly with rotations.

13. Replace tubing cover and tighten the screws that were loosened earlier (Figure 7).

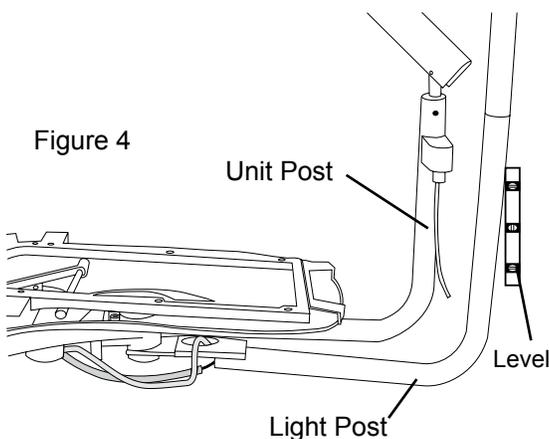
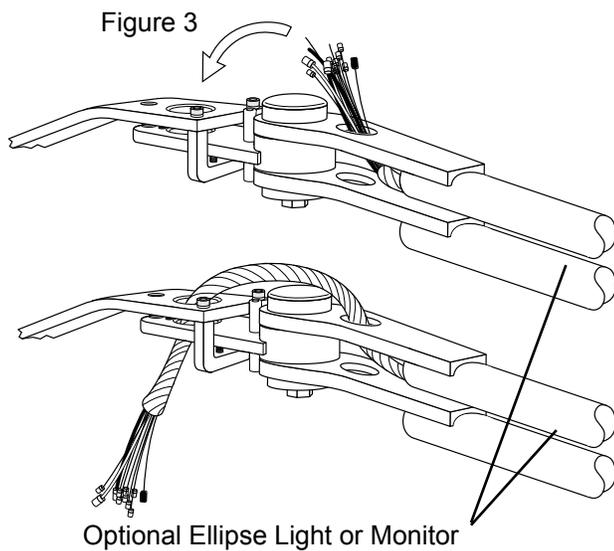
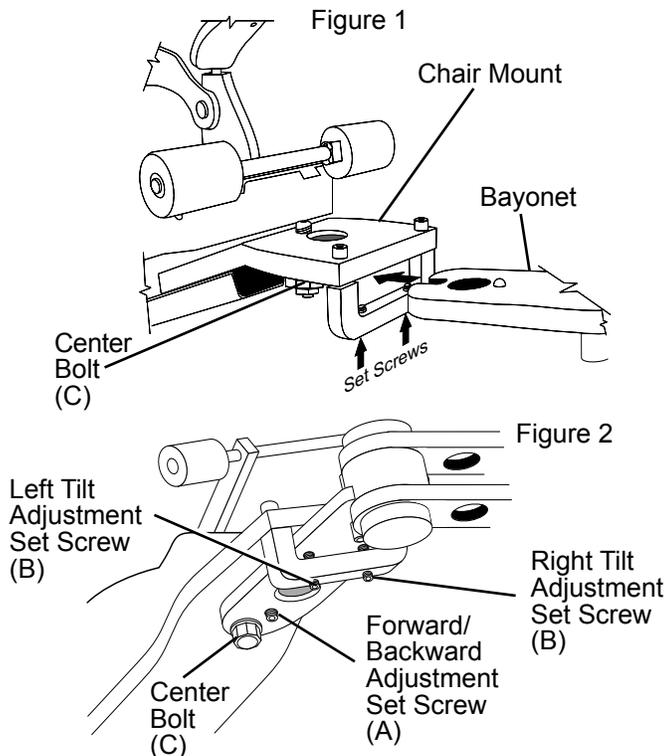
14. Properly connect all electrical lines and plumbing lines at junction box at foot of the chair. Match tubing by colors and numbers and cables as labeled. Once connections are made, install cover onto junction box.

SPIRIT ELLIPSE DELIVERY SYSTEM INSTALLATION - CLASSIC STYLE

Pole Leveling Adjustment

NOTE: These instructions are oriented when facing the chair.

1. Begin by setting up the chair in its final location. Unpack the Ellipse lower unit pole with flex arm and prepare it for installation. Leave the strapping tape in place for now.
2. Remove unit from box. Leave unit bundled together and insert bayonet into chair mount. See figure 1.
3. Take the hardware kit out from the packaging box and locate the bearings and washers for the ellipse pole mount.
4. Place the thrust washers on top and bottom of the needle bearing. Place sandwiched bearing on bayonet end.
5. Position centering washer using the threaded hole as the center. Repeat same procedure for the ellipse end. Refer to Figure 2 for details of the sub assembly.
6. Mount the pole with the bayonet using the bolt provided. Tighten the bolt with 15/16" torque-wrench to 26-30 lbs./ft. Mounting bolt must give adequate resistance through entire pole swing range of motion.
7. Snap on cap over bolt head and unit arm washer.
8. The mounting arm has been leveled at the factory. Because of uneven flooring, it may again be necessary to level the arm. Once the unit pole and or light pole are installed, use a level to ensure the poles are vertical. If leveling is necessary, use the following procedure:
9. Use the 3/8" screw on the bottom of the bayonet (A) to level the post from front to rear. Use the two set screws (B) to level the post side to side. When the posts are level, tighten bolt (C) to secure the unit to the chair mount. See figures 3 and 4.
10. Route tubings as shown in illustration. See figure 5.
11. Connect electrical lines and plumbing lines at junction under mount and install cover with supplied screws.



WARNING: Before making any connections, be sure all power has been disconnected. Making connections while chair or unit is connected to power source may result in electrical shock or equipment damage.

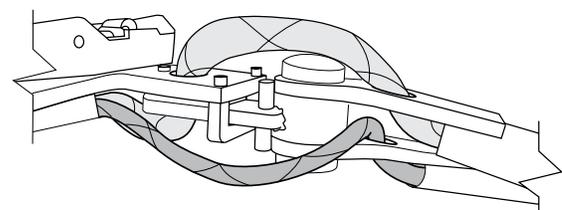
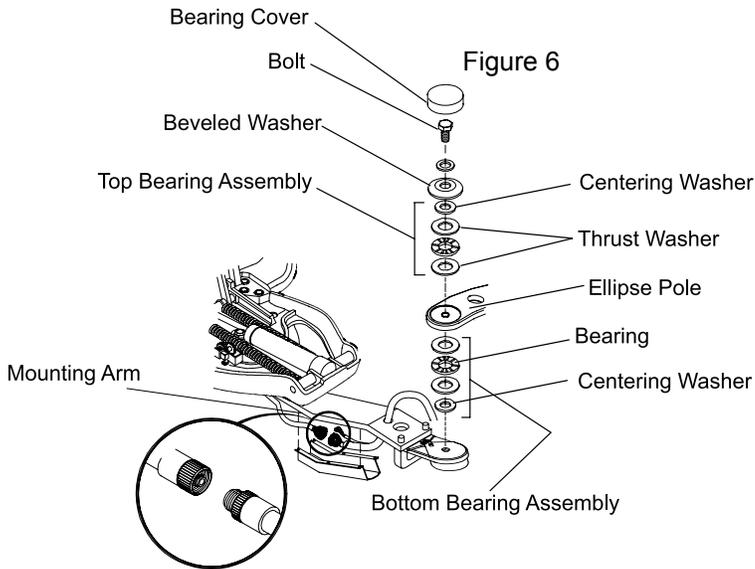


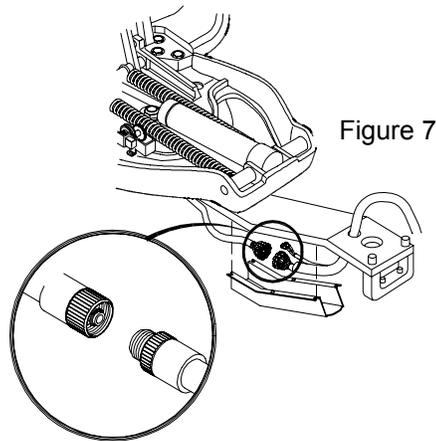
Figure 5

SPIRIT ELLIPSE DELIVERY SYSTEM INSTALLATION - CLASSIC STYLE POLE LEVELING ADJUSTMENT



NOTE: Connect tubings by numbers and cables as labeled as in the instructions below. Figure 6 shows installation of an ellipse pole into a chair mount.

11. Route the unit umbilical through the holes in the mounting arm as shown (see figure 3, page 11). If the unit will not have a water bottle, continue by attaching the quick connects from the unit umbilical to the corresponding quick connects from the junction box umbilical. Match tubing by color and screw together connectors until tight. See figure 7. If the unit does have a water bottle, make the same connections as described but notice that there will be two extra 1/8" blue tubings that form a loop at the connection point. This is to allow output from the routing toggle (1/8" blue) to connect with the control head (also 1/8" blue). Also note that there will be an extra 1/8" transparent green on the unit head side that will not be used at this time. Next install the water bottle by threading it onto the cap mount.



12. Connect the unit touch pad cables. See figure 8. Connect the low voltage wiring 8-pin connector. Depending on the options ordered with the delivery system there may be other electrical connections such as s-video or camera power. These connections should be made with their mating connectors. As with all electrical connections care should be taken for proper alignment before inserting mating connector to prevent damage and to ensure proper connections. Ensure all tubings and cables are covered with snake skin as in figure 9.

NOTE: If this package includes a unit-mounted light, please refer to the LFIISE or HLS/HL3S Installation Instructions to install the light at this time. When completed, return to this point of the unit installation procedure.

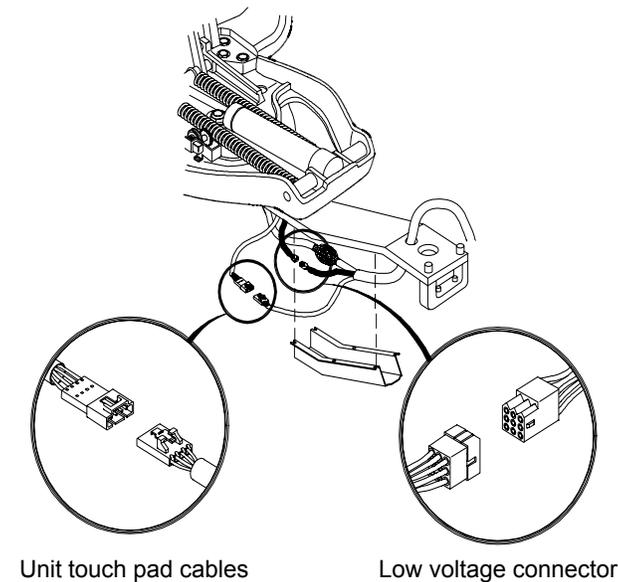


Figure 8



WARNING: This line is intended for low voltage use only. Use of this line is at the discretion of the end user.

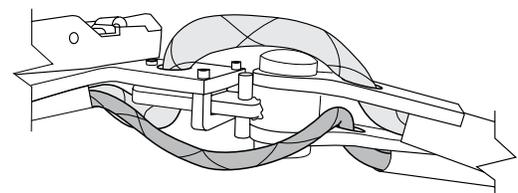


Figure 9

SPIRIT POST-MOUNTED DELIVERY SYSTEM INSTALLATION

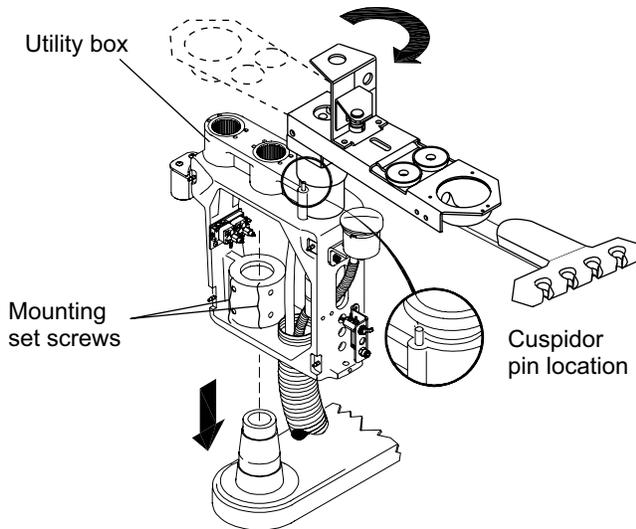


Figure 1A (External Umbilical)

1. Locate the post-mounted utility center (PMU) in the delivery system box. Remove all items from box and remove packaging materials and tape from unit. Remove the two side covers from the utility center by pulling with both hands from the bottom, then the sides. (Note that one side cover is attached using ball studs and receivers, while the other is held in place by magnets.) Using a 3/16" hex driver, ensure that mounting set screws in the utility center are backed out enough to allow the mounting collar to pass freely over the unit mount hub (see figure 1A).

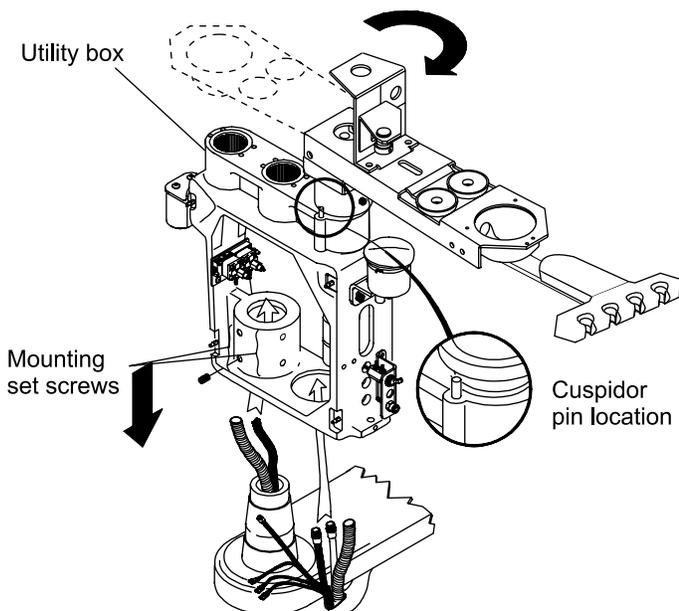


Figure 1B (Internal Umbilical)

2. Install the utility center to the unit mount bracket as shown in figure 1A. Verify that the utility center is properly positioned with the water bottle to the front, the PMU aligned parallel to the chair rail and the cuspidor oriented towards the chair's backrest. If an internal umbilical system is to be installed, refer to figure 1B. Be careful to avoid pinching the tubing and cables coming up out of the chair mounting bracket hub. Snug mounting set screws to hold in place. Place (2) levels (at 90 degrees to each other) on top of pole holes. Level unit and tighten mounting set screws securely.
3. Install the cuspidor 1/4" stop pins at this time (located in hardware kit with the stainless steel tray). Insert two pins into machined holes on utility center casting. (Note that all the stop pins used in the utility center casting are of the larger diameter.)

SPIRIT POST-MOUNTED DELIVERY SYSTEM INSTALLATION

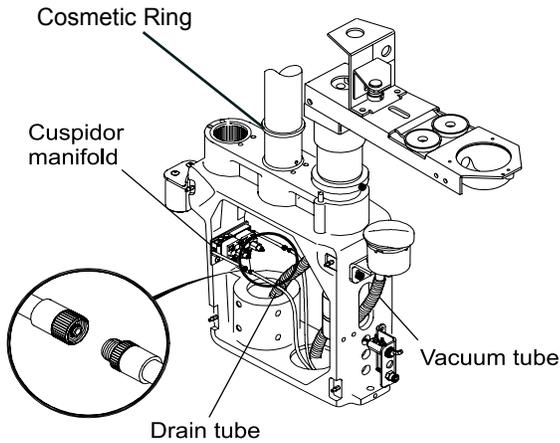


Figure 2 (Internal Umbilical)

4. Follow the next three steps for an internal umbilical system only:

- a. Route the remaining tubings and cables out from under the chair bracket and up through the opening in the bottom of the utility center casting (figure 1B).

- b. Connect the 1/4" blue and yellow tubing to the corresponding tubing coming from the cuspidor manifold (see figure 2).

- c. Connect one of the 5/8" I.D. tubes to the matching sized port of the vacuum canister, and the other tube to the cuspidor drain. Either tube may be used for either purpose, provided the correct end is connected in the junction box. Make sure clamps are used on drain tubes. (Clamps are not necessary on vacuum tubes.)

NOTE: If this package includes a unit-mount light, please refer to the LFIS or HLS/HL3S Installation Instructions to install the light at this time. (Make sure that cosmetic ring is installed over pole in the proper orientation before installing pole into unit mount). When completed, return to this point of the unit installation procedure.

5. If equipped, locate the telescoping assistant's arm assembly from the delivery system box. Lower the arm assembly over the swivel collar as shown in figure 3.

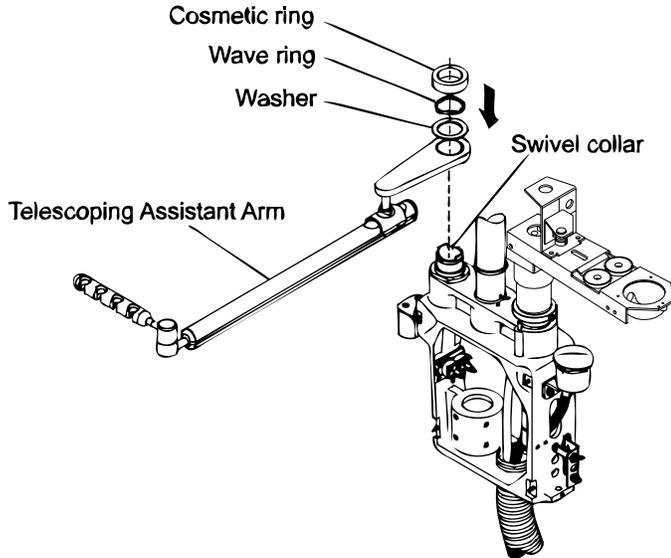


Figure 3

SPIRIT POST-MOUNTED DELIVERY SYSTEM INSTALLATION

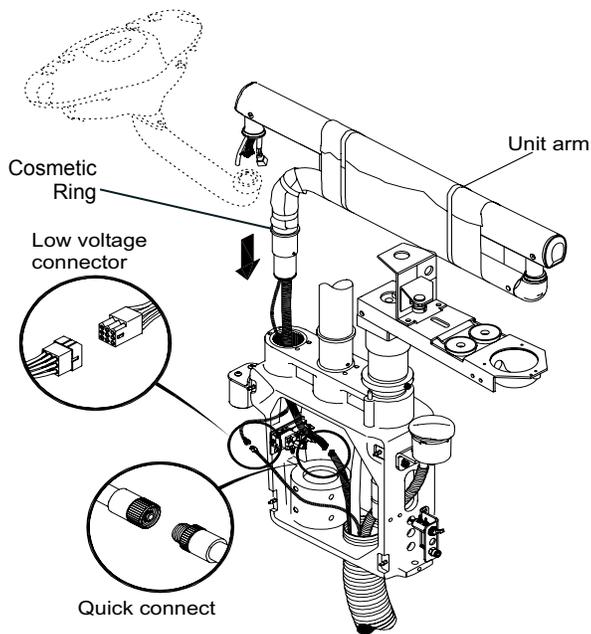


Figure 4

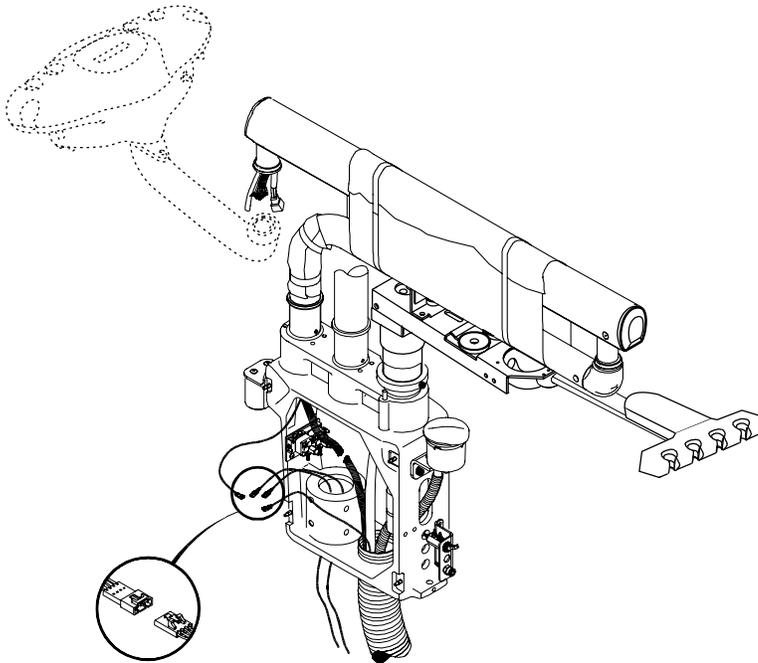
6. Locate the unit arm assembly. (Keep unit arm tied together with original shipping package tape). Install cosmetic ring over pole in the proper orientation before inserting pole into unit mount. Position the unit arm assembly over the utility center as shown in figure 4. Route the unit umbilical tubing into the utility center and install the pole so that it is fully seated.

7. Connect unit umbilical quick connects to the main umbilical quick connects. Match tubing by color and numbers, then screw together connectors until tight. (Refer to plumbing system diagram at the end of this document for further information.)

NOTE: If a water bottle is to be installed, leave the 1/8" transparent green and 1/8" blue tubings disconnected for now.

8. Connect the low voltage wiring 8-pin connectors (see figure 4).

SPIRIT POST-MOUNTED DELIVERY SYSTEM INSTALLATION



Touch pad cables

Figure 5

NOTE: This line is intended for low voltage use only. Use of this line is at the discretion of the end user.

9. Locate the two unit touch pad cables inside the utility center and connect as shown in figure 5. Depending on the options ordered with the delivery system there may be other electrical connections such as s-video or camera power. These connections should be made with their mating connectors. As with all electrical connections care should be taken for proper alignment before inserting mating connector to prevent damage and to insure proper connections.

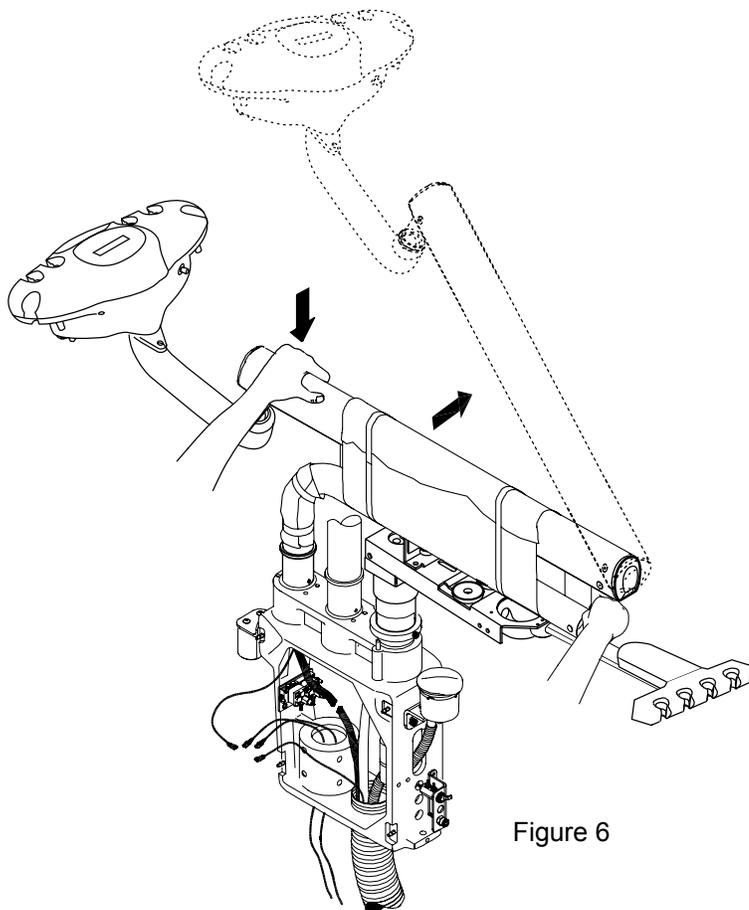


Figure 6

WARNING: The flex arm is a spring loaded device. Apply downward pressure on the arm when removing shipping material and relieve the spring tension slowly.

10. Carefully remove the shipping tape and material while providing pressure on the spring loaded flex arm. Slowly bring the flex arm into its upward position as shown in figure 6. (Rotate arm in the best direction to minimize any cable twisting or pinching). Locate smaller 3/16" stop pins from the hardware kit and install in flex arm elbow. Move unit through entire range of motion and verify stop pins in front elbow are set so the head never bumps into its own arms.

SPIRIT POST-MOUNTED DELIVERY SYSTEM INSTALLATION

11. Verify proper leveling of system. Swivel pole to position #1 and place a level on the unit post's vertical section as shown in figure 7.

Swivel post 90 degrees to position #2. Verify that unit arm assembly is also level and performs properly. Adjust mounting set screws and poles as needed. Fully tighten the eight set mounting screws once a proper level has been accomplished.

12. Locate and install the HVE and SE at this time. Install the vacuum utilities on the vacuum canister as shown in figure 8. Hang the vacuum utilities on the holder bar.

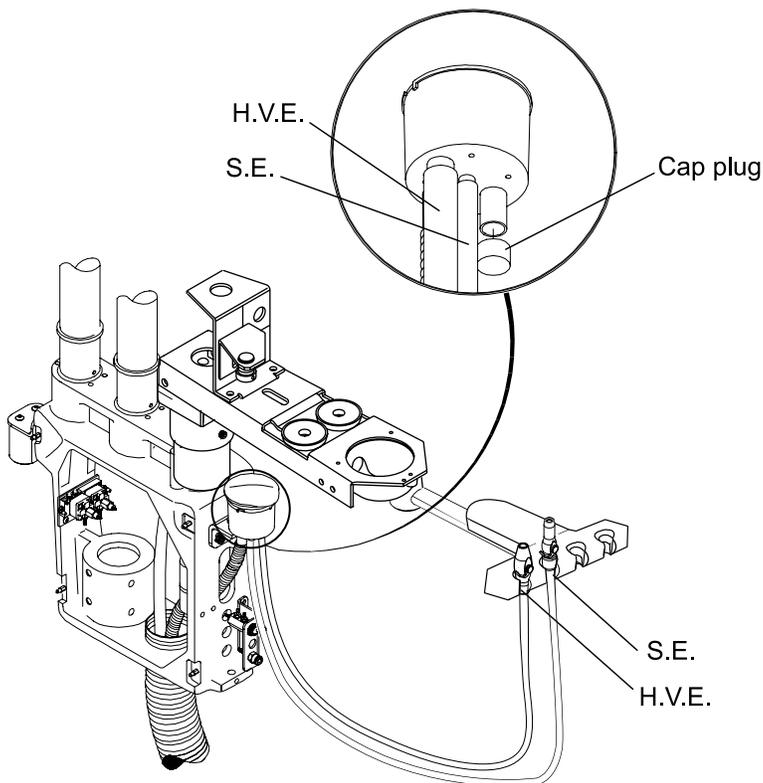
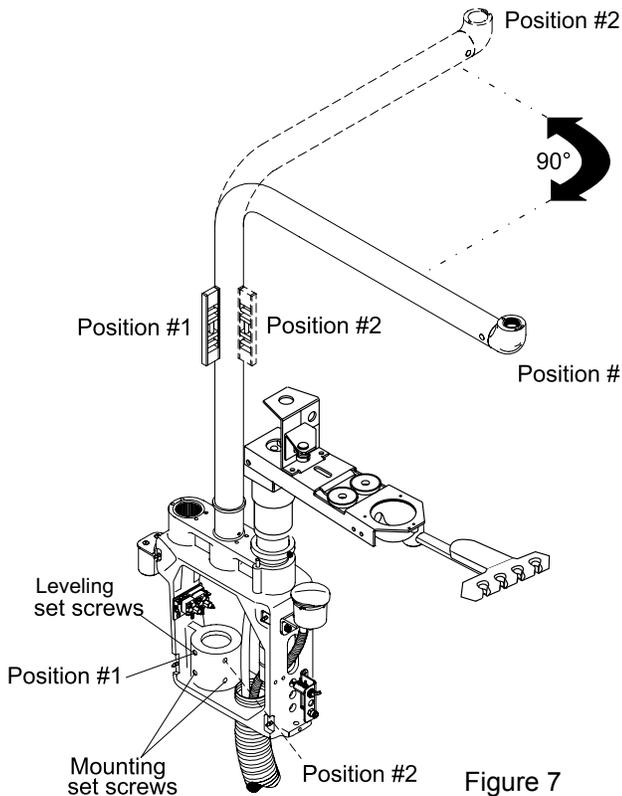


Figure 8

SPIRIT POST-MOUNTED DELIVERY SYSTEM INSTALLATION

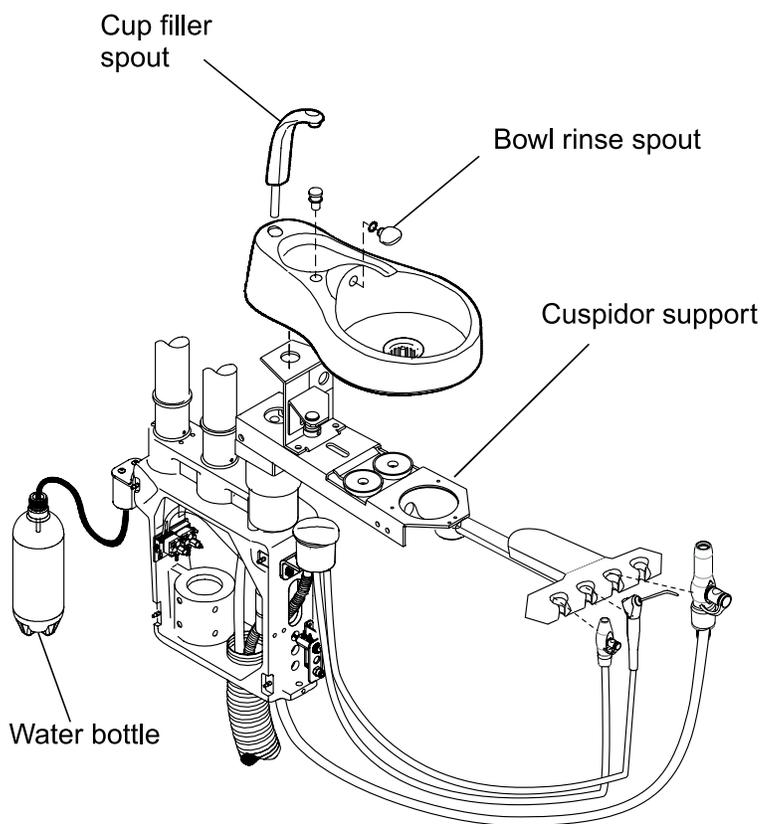


Figure 9

13. Locate the cuspidor bowl (if included) and position it over the cuspidor support as shown in figure 9. Before installing, connect the 1/4" blue tubing from the cuspidor support to the back of the bowl rinse spout. Press the bowl into place over the support, making sure the bowl studs are firmly seated in the grommets. Attach the drain, bowl rinse and cup filler spouts to the bowl assembly. Insert in hole and slightly rotate until fully seated.
14. Locate the fresh water bottle and install it in the quick disconnect on the utility center as shown in figure 9.
15. Carefully route all cable lines inside unit and properly replace all covers.
16. Refer to pages 23-28 for junction box connection details.

Water Bottle Installation

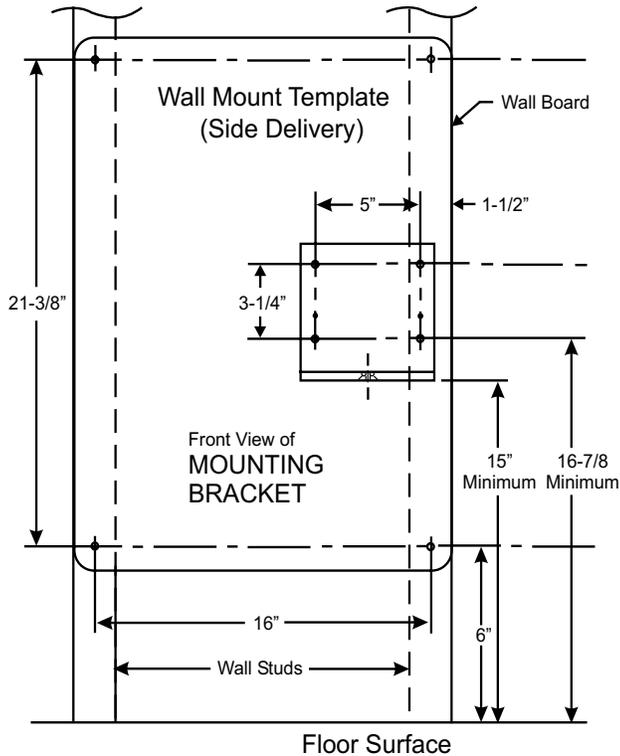
The 3000 Dental Units come with 2 x 750 ml detachable water bottles. Bottle is screwed in tightly into the bottle adapter with hand. Adapter may be mounted into PMU (See Above), ellipse pole or cabinet panel. Ensure the bottle is fitted with a gasket in between. The bottle and water tubing need to be disinfected prior to use of equipment. Refer to Use & Care Manual page for disinfecting procedures.



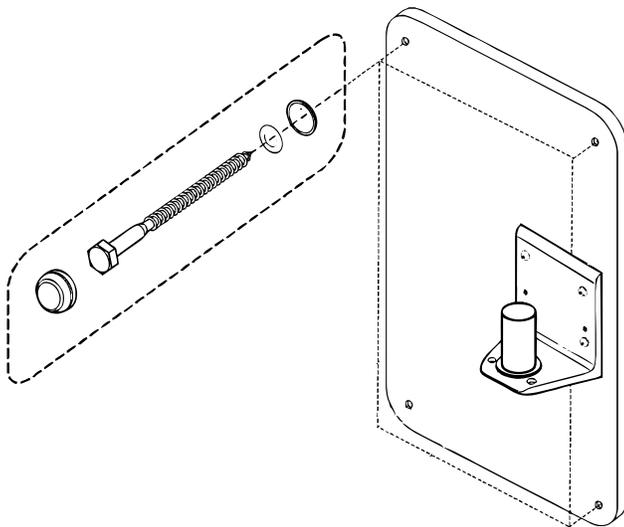
WARNING: Failure to disinfect the new bottle and tubing may promote contamination.

WALL MOUNT INSTALLATION

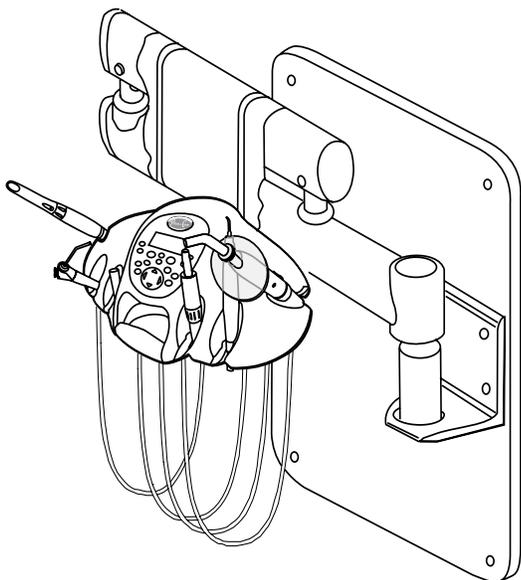
NOTE: The wall board installation template over the located studs with the lower hole centers marks 6" from the floor.



1. Position wall board installation template over the located studs with the lower hole centers marks 6" from the floor.
2. Position level over template. Using the centerlines, verify that marks are level. Mark holes using an awl or scribe by piercing the wall through the template.
3. Drill 1/4" diameter holes 2 1/2" deep in the wall at the four marked positions.
4. Locate the wall board hardware kit. Insert the 3/8" lag bolt into the 3/8" flat washers and the 3/8" dish washers. Ensure that bolt heads fit inside the concave depression in the washer. The wall board comes with four prong 3/8-16x9/16" T-nuts (4 pcs.)
5. Using a 9/16" wrench, mount the wallboard to the pre-drilled wall using the lag bolts and washers. Tighten bolts securely to wall. Snap the bolt head covers (supplied in hardware kit) on to the dish washer flanges.
6. Locate the mounting plate in packaging. Remove the four 3/8-16 x 1 1/4" hex hd. bolts, 3/8" lockwashers, dish washers and the caps from packaging. Line up holes in the mounting plate with the T-nuts in the wall board. Using a 9/16" wrench, fasten mounting plate to the wall board with the four button head screws and washers. Tighten securely. Recheck mounting bracket level.

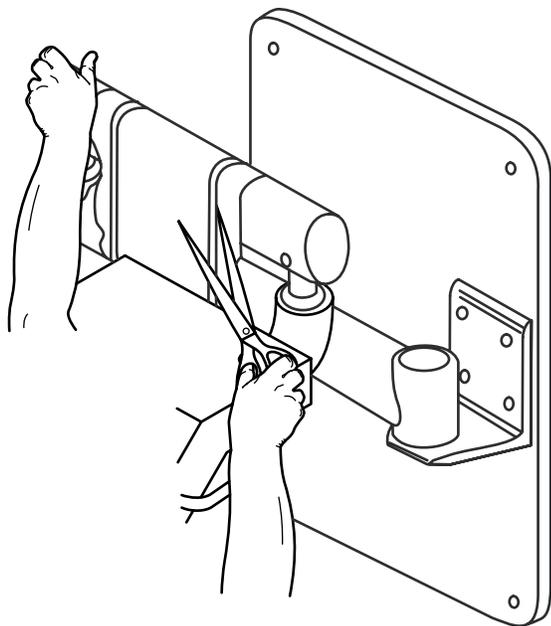


WALL MOUNT INSTALLATION (CONT'D)



WARNING: The delivery system comes packaged with the arm strapped down. Leave strap secured on the arm while installation procedures are performed. After installation, take extreme caution when removing the strap. The arm is spring loaded and will spring up once strap is removed. Press down on arm when strap is being cut!

7. Remove delivery system from package. Leave strapping tape that is holding arm intact.
8. Remove the tape from the mounting plate pin. Slowly lower unit's arm onto the mounting plate pin making sure that it is fully seated.
9. Carefully remove the shipping tape and material while keeping pressure on the spring-loaded unit flex arm. Slowly bring flex arm into its upward position.
10. Install the water bottle manifold close to the J-box. Refer to pages 23-28 for details of junction box connections



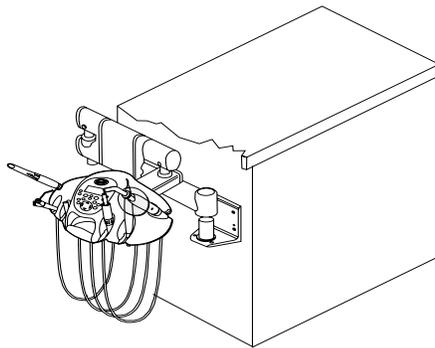
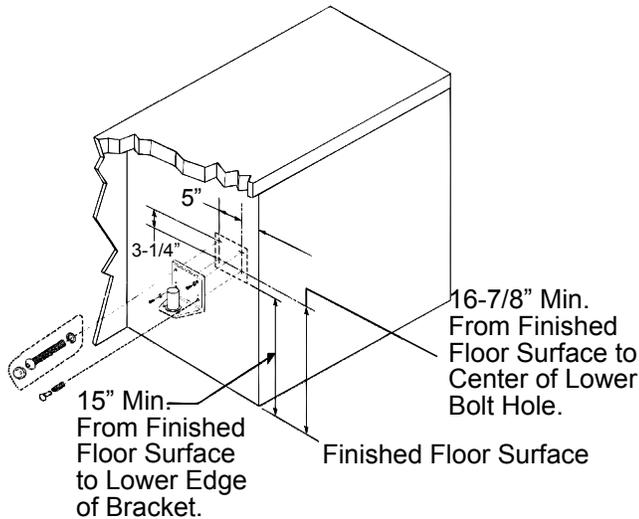
CABINET MOUNT INSTALLATION



WARNING: Before proceeding with installation, be sure that the cabinet is level and properly anchored to the floor to prevent tipping.



WARNING: The delivery system comes packaged with the arm strapped down. Leave strap secured on the arm while installation procedures are performed. After installation, take extreme caution when removing the strap. The arm is spring loaded and will spring up once strap is removed. Press down on arm when strap is being cut!

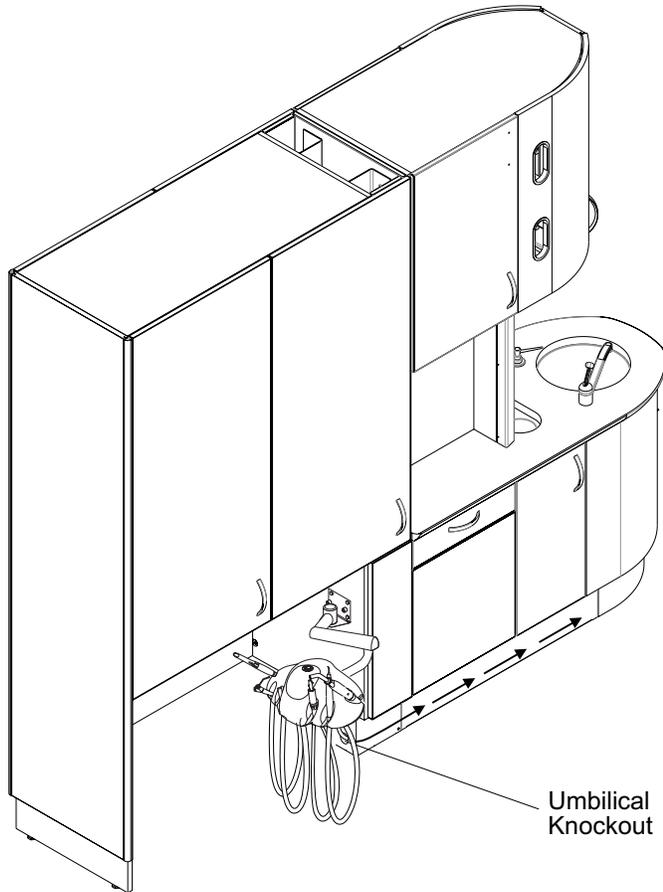


Installation of the cabinet mount unit will vary depending on the type of cabinet that will host it. On cabinets other than Pelton & Crane, the technician will need to provide the applicable hardware and fasteners to accommodate the installation.

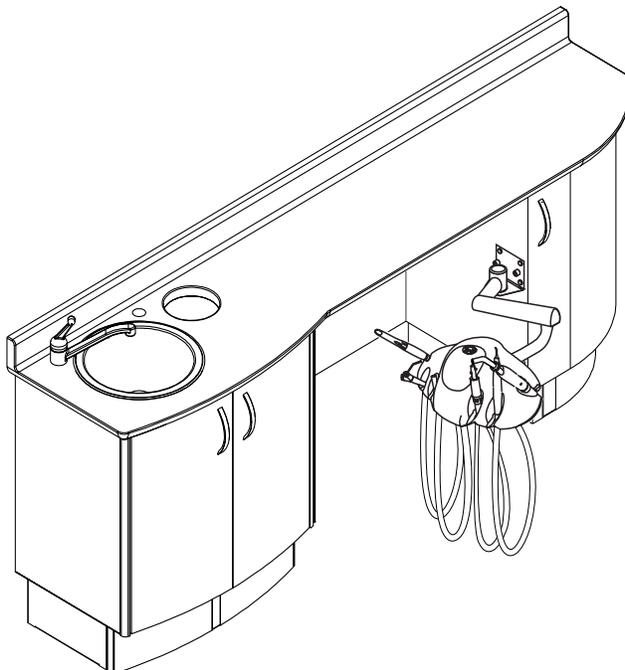
Supplied with this particular installation are two 3/8-16 x 1 1/4" and two 3/8-16 x 2 1/2" button head screws, four 3/8" washers, fender and dish washers, white nylon caps to secure the mounting plate to the cabinet.

1. If the cabinet has not been pre-drilled, it will be necessary to do so at this time. Locate the mounting plate template supplied in literature kit or the full size template. Determine hole locations according to the dimensions shown, keeping in mind the clearance necessary from the edge and underside of the cabinet surfaces.
2. Position level over template. Using the centerlines, verify that marks are level. Mark holes using an awl or scribe by piercing the cabinet wall through the template.
3. Drill 13/32" diameter holes in the cabinet wall at the four marked position.
4. Locate the mounting plate. Line up holes in the mounting plate with the holes drilled in the cabinet wall. Secure the mounting plate to the wall using the supplied fasteners.
5. Remove delivery system from package. Leave strapping tape that is holding arm intact.
6. Remove the tape from plastic washer on mounting plate pin. Slowly lower unit's flex arm onto the mounting plate pin making sure that it is fully seated.
7. Install the water bottle underneath the sink and connect tubings to the utility center.
8. Connect the touchpad cable from the umbilical to the under floor cable that runs into the chair.
9. Carefully remove the shipping tape and material while keeping pressure on the spring-loaded unit flex arm. Slowly bring flex arm into its upward position.
10. Install the optional water bottle to the threaded pressure cap.

CENTER ISLAND WITH SIDE DECK



1. Route umbilical through umbilical knockout hole in the cabinet sub-base and follow path indicated by the arrows shown at left to the utilities.
2. Make the connections at the utilities matching crops and labels.
3. Route the foot control tubing under flooring to the chair.

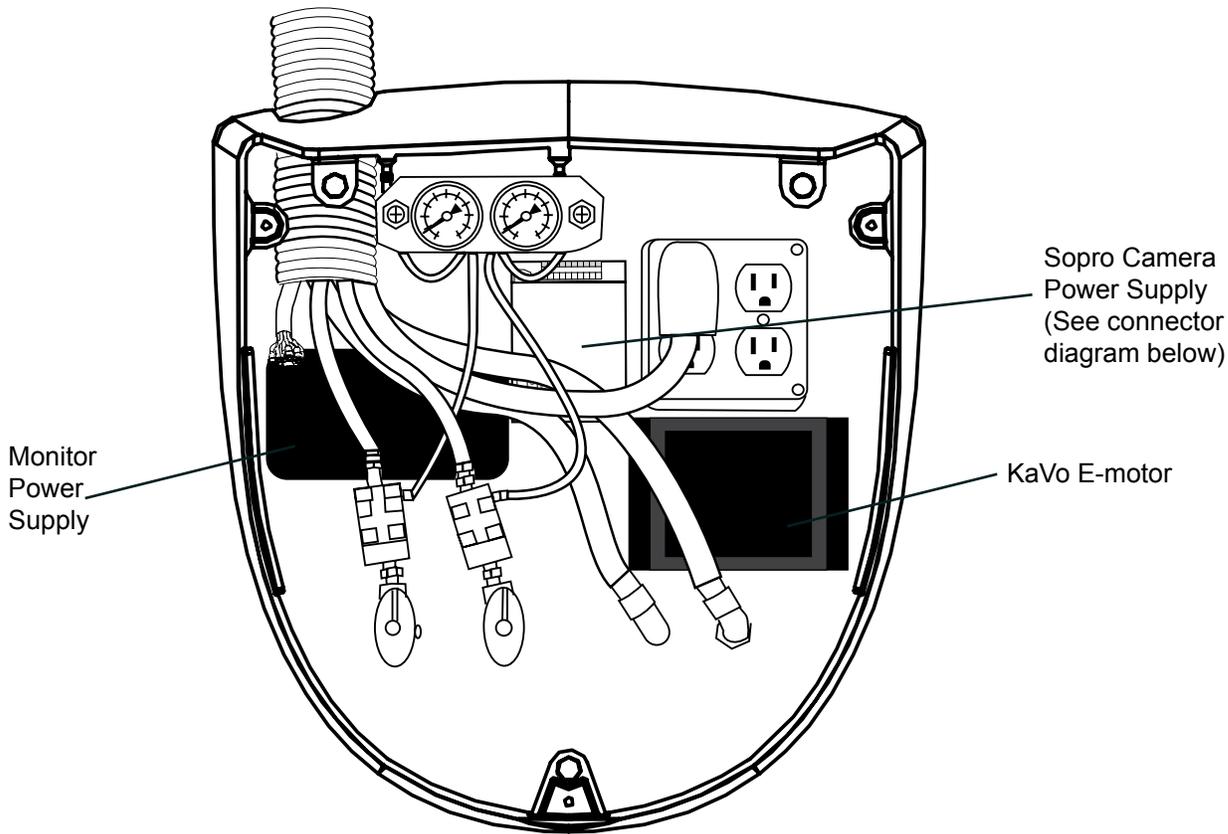


Cabinet mount only:

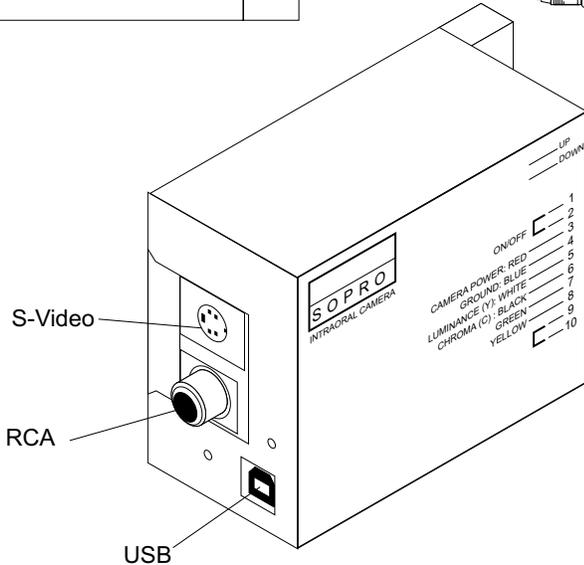
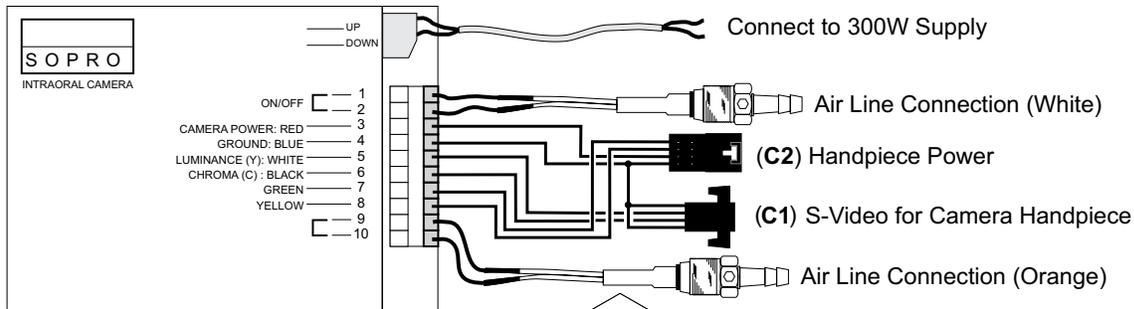
Mount bracket with regulators and gauges directly inside the cabinet where the office plumbing connections reside. Make sure there will be enough length for the tubing coming from the shut-off blocks to reach this bracket. It may also be necessary to disconnect and reroute the foot control tubing so that it exits the cabinet through the proper opening.

Refer to pages 23-28 for junction box connection details.

RECOMMENDED JUNCTION BOX INSTALLATION



Sopro Camera Connections



Terminal #	Wiring
1	Air/ELE
2	Air/ELE
3	Red C2
4	Black C2,1
5	C1-3
6	C1-4
7	Green C2
8	White C2
9	Air/ELE
10	Air/ELE

JUNCTION BOX INSTALLATION - GENERAL NOTES

- Local regulations may require that licensed plumbers and electricians install utilities.
- Make sure all plumbing conforms to prevailing local codes.
- Use the junction box template to determine floor locations for connections.

AIR:

- 1/2" pipe N.P.T. protruding 1" from floor or wall. Supplied by contractor.
- Manual air shut-off valve supplied by dental dealer to be installed by contractor.
- Air supply pressure 80 psi, minimum and 105psi maximum. Air should be clean and dry.
- Air plumbing should be flushed clean before making final connections to dental equipment

WATER:

- 1/2" pipe N.P.T. protruding 1" from floor or wall. Supplied by contractor.
- Manual water shut-off valve supplied by dental dealer to be installed by contractor.
- Water supply pressure 40 psi, minimum and 80psi maximum. Water should be potable.
- Water plumbing should be flushed clean before making final connections to dental equipment. Refer to Use & Care Manual for details.

ELECTRICAL:

- 1/2" conduit and box with quad or equal receptacle supplied by contractor.
- Wire box as per code with top of the box no higher than 4 1/2" above finished floor.

Voltage:
115 Volts AC or
230 Volts AC

CENTRAL VACUUM:

Plumbing up to utility center should be specified by central vacuum supplier and terminated in junction box with 5/8" OD tube perpendicular to floor, similar to drain connection.

GRAVITY DRAIN:

5/8" OD tube protruding 1" from finished floor.

NOTE: Place trap in line and use vented fitting to conform with local codes. Supplied by contractor. Floor mounting only.

1. Prior to junction box installation it will be necessary to flush out the office plumbing. Connect a hose to the water line and flush into a drain or pail. This will prevent debris getting into unit lines. Flush the air line also.
2. Locate the junction box template and refer to figure 1 for general layout. Place the junction box base over the office plumbing with the umbilical entering the enclosure on the properly configured side. Next install the master shut-off valves. Using a 5/8" wrench, install the air and water shut-off blocks onto the master valves. Tighten the compression nuts securely.
3. If it is necessary to shorten the umbilical, carefully shorten the outer sheathing, gravity drain, and vacuum tubing as required.

Junction Box Installation

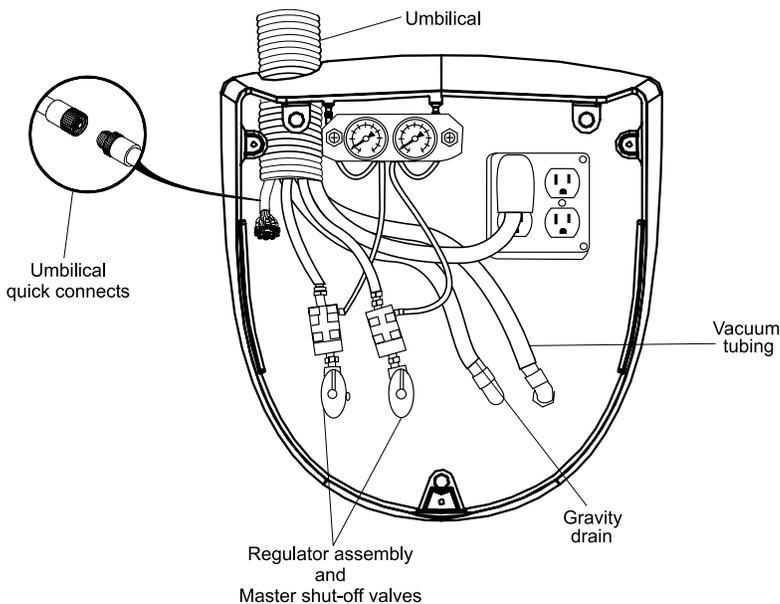


Figure 1

JUNCTION BOX UTILITY CONNECTIONS

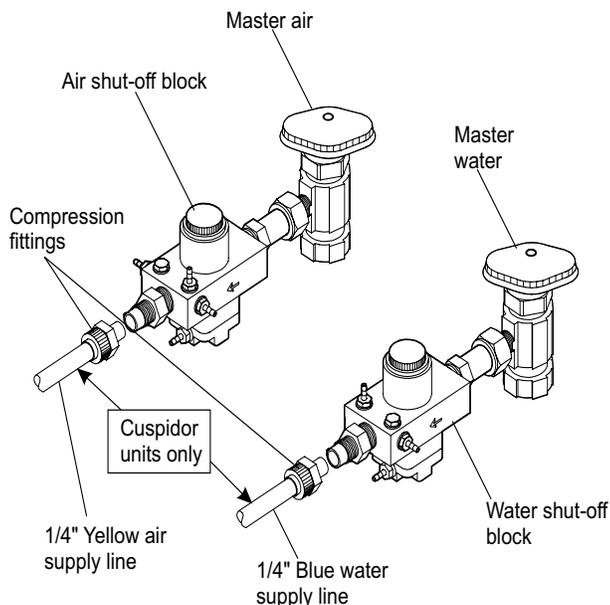


Figure 2

WARNING: Before making any connections, be sure all power has been disconnected. Making connections while chair or unit is connected to power source may result in equipment damage or injury.

1. Locate the control head rainbow tubing coming from the unit umbilical (it will be enclosed in a braided sheath). Connect the tubing to the corresponding bundle of tubing coming from the air and water shut-off blocks. Match tubing by color and number and twist connectors until tight. If a wet/dry foot control will be connected at this location, make the additional connections shown in figure 3.
2. If a cuspidor will be present, install the gravity drain fitting and tubing onto the office plumbing. On all units, connect the vacuum tubing to the office vacuum fitting. Make sure an air tight connection exists by using the included locking clamp.
3. (Cuspidor units only) Remove the compression fittings on air and water shut-off blocks using a 7/16" wrench (figure 2). Install the 1/4" air and water supply tubing onto compression fitting. Reinstall fitting and tighten securely.
4. Mount the junction box base to the floor using correct screws for mounting surface.

Refer to the Final Tests and Adjustments section of the unit Use & Care Manual before opening master valves and connecting electrical power cord.

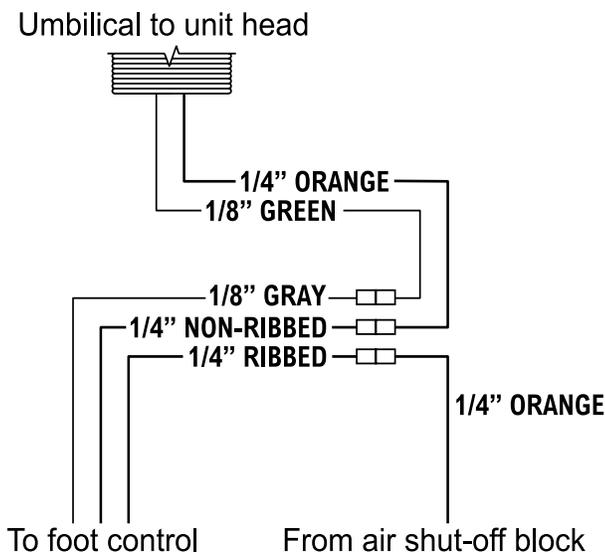


Figure 3

WARNING: To prevent possible injury, ensure that all covers are installed before operating or after servicing the equipment.

NOTE: Refer to the Electrical and Plumbing Diagrams on pages 33, 34 and 35 for details.

OPTIONAL EQUIPMENT INSTALLATION



WARNING: Placing the handpieces in the wrong holder may cause injury to the user and/or patient. Ensure the handpiece is seated in the correct holder.



WARNING: Use only KaVo iNTRAMACTIC LUX KL-703 motor

Before connecting optional equipment be certain all power is disconnected to the chair.

Optional Acteon Sopro 717 Camera

1. Place the supplied docking station in the junction box (as shown in figure 4).
2. Connect the 4-pin connector to the corresponding umbilical connector, which feeds power to the handpiece (as shown in figure 2).
3. Connect the s-video connector to the s-video in the umbilical marked for the camera handpiece (as shown in figure 2).
4. Connect the camera output to the supplied monitor or an external device (monitor or PC) using the RCA, s-video, or USB output.
5. Connect the docking station supply lines to the 24VAC electric motor tap on the 300 watt power supply PCB (as shown in figure 3).

Optional USB Port

1. The USB cable is a continuous cable from the 3000 unit head to the chair base. Connector shall be made via dealer supplied hardware (as shown in figure 1).

Optional KaVo TLC E-motor

1. Place the KaVo transformer in the junction box (as shown in figure 4).
2. Connect the transformer with the corresponding connector from the 8-conductor cable. An intermediate cable is installed in the j-box umbilical.
3. Plug the supply cord into the transformer.
4. Plug the supply cord into the dealer-supplied receptacle after all connections are complete.

Optional Scaler

1. It may be necessary to make power connections for the scaler to the supplied 300 watt power supply PCB. Depending on the shipping methods, these connections may not have been made in the factory.

2. Connect the blue and orange supply lines from the 8 conductor cable to the terminal strip at the flaps designated "scaler" feed and return (24 VAC taps) (as shown in figure 3).

Optional Curing Light

1. It may be necessary to make power connections for the curing light to the supplied 300 watt power supply PCB. Depending on the shipping methods, these connections may not have been made in the factory.
2. Connect the green and yellow supply line from the 8 conductor cable to the terminal strip at the taps designated "auxiliary" feed and return (24 VAC taps) (as shown in figure 3).

Optional Light Source

1. It may be necessary to make power connections for the optional light source to the supplied 300 watt power supply PCB. Depending on the shipping methods, these connections may not have been made in the factory.
2. Connect the brown and white supply lines from the 8 conductor cable to the terminal strip at the taps designated "fiber optic" feed and return (9 VAC taps) (as shown in figure 3).

OPTIONAL EQUIPMENT INSTALLATION

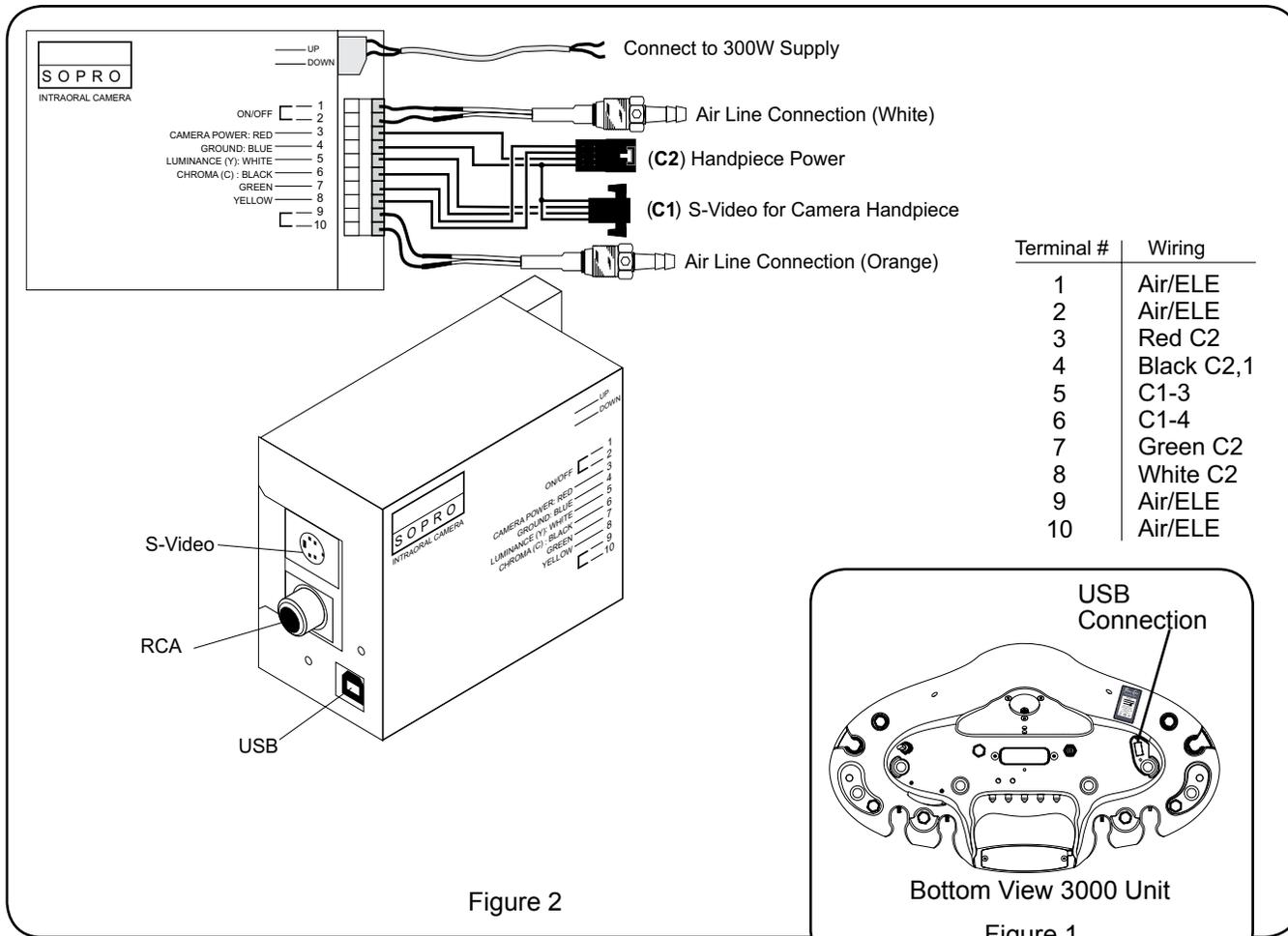


Figure 2

Figure 1

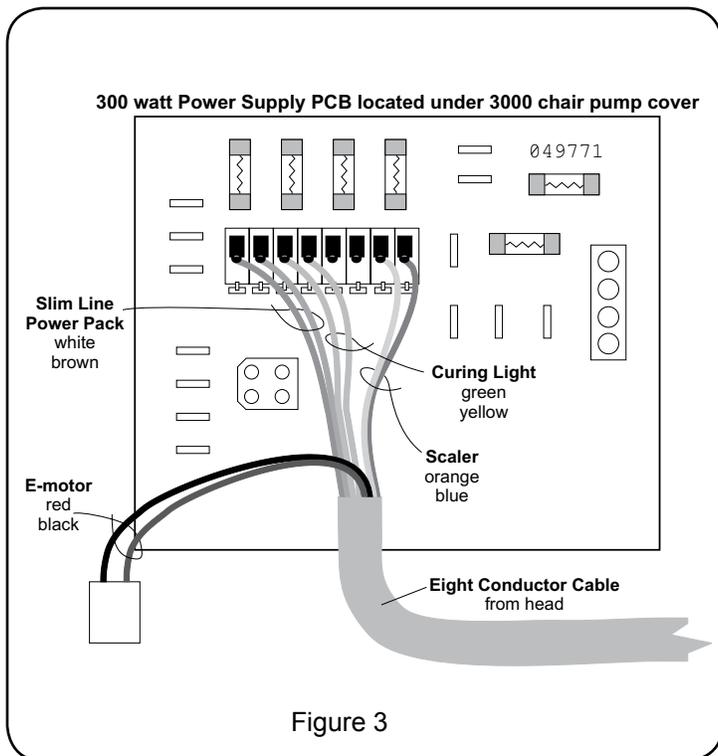


Figure 3

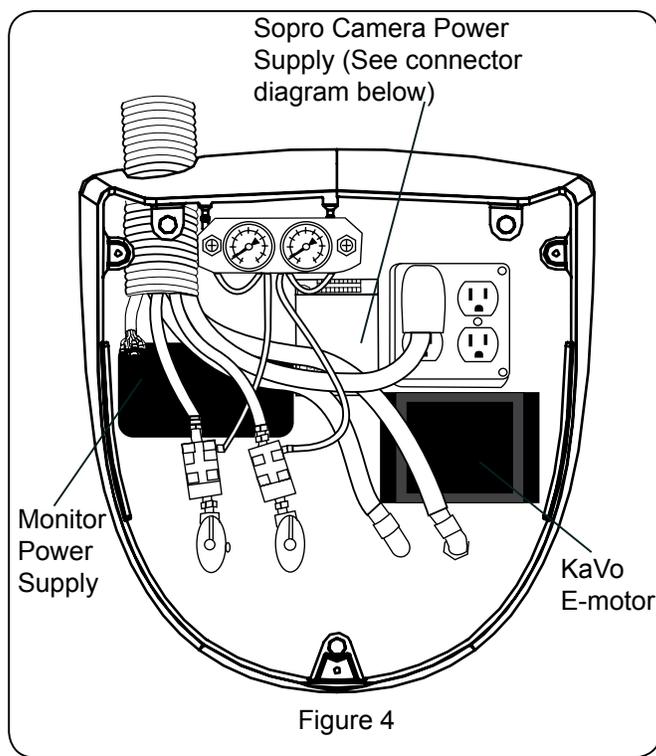
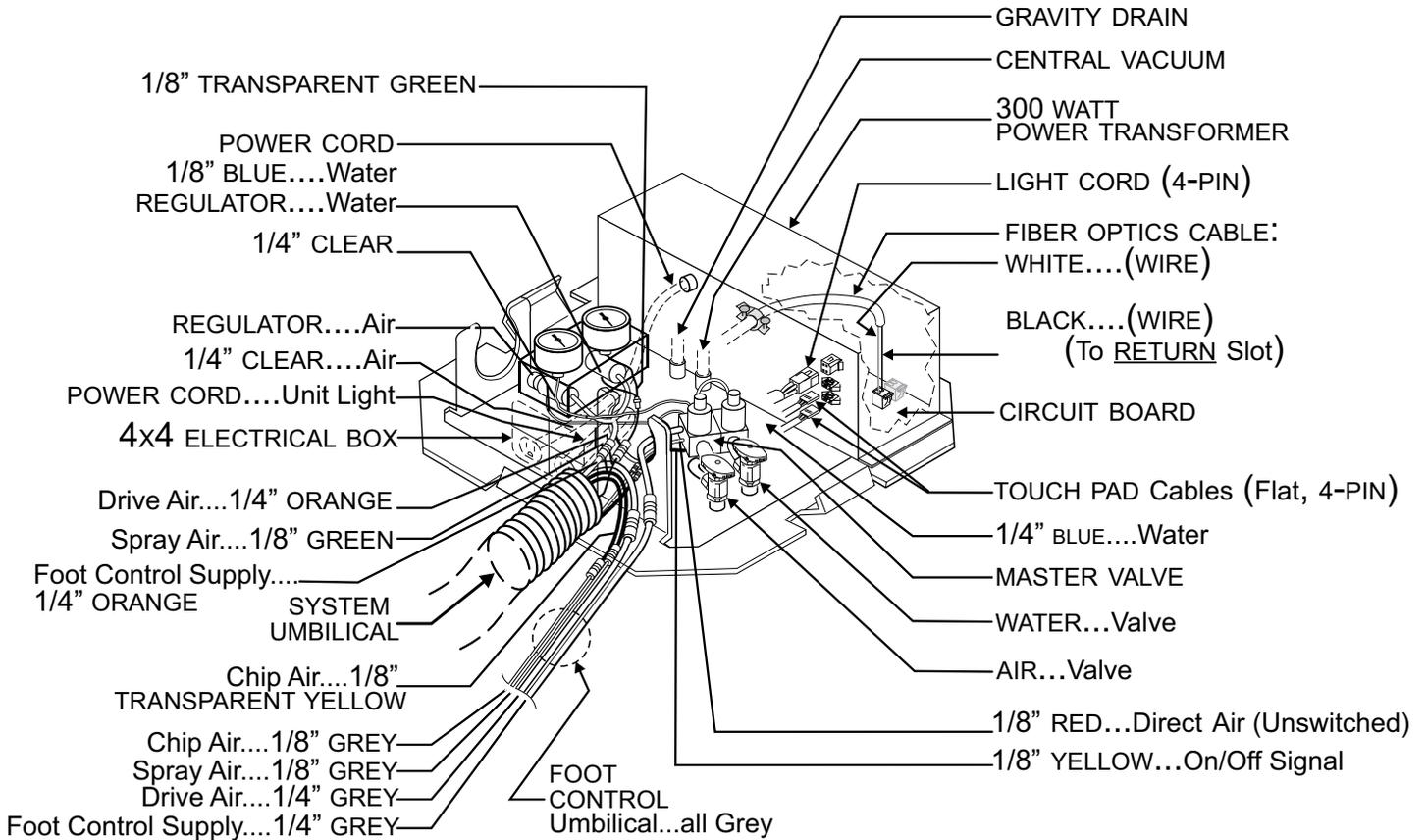


Figure 4

Recommended Junction Box Layout

JUNCTION BOX INSTALLATION



1. Prior to junction box installation it will be necessary to flush out the office plumbing. Connect a hose to the water line and flush into a drain or a suitable container. This will prevent debris getting into unit lines. Flush the air line also.
2. Locate the junction box template for general layout. Place the junction box frame over the office plumbing with the umbilical entering the enclosure on the properly configured side.

 Note: If unit is equipped with a power supply box, see template for proper orientation inside the junction box.

 Next, install the master shut-off valves. Using a 5/8" wrench, install the air and water shut-off blocks onto the master valves. Tighten the compression nuts securely.

 Note: It is recommended that the junction box power supply installed after the junction box installation to improve access to plumbing connections.
3. It is necessary to shorten the umbilical, shorten only the outer, gravity drain, and vacuum tubing as required. Remove the umbilical retainer and carefully shorten the tubings. Reinstall the umbilical retainer when done.
4. Locate the control head rainbow tubing coming from the unit umbilical (it will be enclosed in a braided sheath). Connect the tubing to the corresponding bundle of tubing coming from the air and water shut-off blocks. Match tubing by color and twist connectors until tight. If a foot control will be connected at this location, make the additional connections.
5. If a cuspidor will be present, install the gravity drain fitting and tubing onto the office plumbing. On all units, connect the vacuum tubing to the office vacuum fitting. Make sure an air tight connection exists by using the included locking clamp.
6. Cuspidor units only: Remove the compression fittings on air and water shut-off blocks using a 7/16" wrench. Install the 1/4" air and water supply tubing onto compression fitting. Reinstall fitting and tighten securely.
7. Install the umbilical into the junction box frame remaining notch.
8. Mount the junction box frame to the floor using correct screws for mounting surface.
9. After completing final adjustments, reinstall the junction box power supply and mount it to the junction box base using four #10 bolts.

 Optional:
 If a light is to be installed, plug the light cord's square four-pin connector into the matching receptacle on the power supply enclosure. Next, connect the one or more touch pad cables to the matching receptacles below the light cord connection. (The touch pad cable has a flat, four-pin connector.)

 Refer to the Final Tests and Adjustments section of this manual.

FUSE INFORMATION

Fuse details are shown in the table below:

Fuse Identity	Voltage(VAC)	Amps	Speed	Braking Capacity
F1	250	4	Fast Acting	35A @ 250V
F2	250	4	Fast Acting	35A @ 250V
F3	250	4	Fast Acting	35A @ 250V
F4	250	10	Time-lag	35A @ 250V
F5	250	3.15	Time-delay	35A @ 250V
F6	250	3.15	Time-delay	35A @ 250V
F5*	250	1.6	Time-delay	35A @ 250V
F6*	250	1.6	Time-delay	35A @ 250V

F5* & F6* are for 230VAC units.

FINAL ADJUSTMENTS

Unit Flex Arm Tension Adjustment Spring Tension

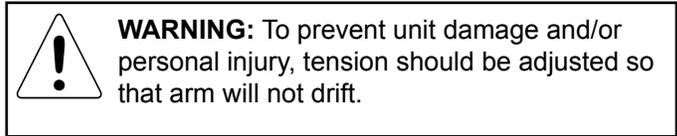
NOTE: Before adjusting front flex arm bolt, loosen the smaller set screw. After adjustment is complete, re-tighten.

The flex arm has been set at the factory for normal operating weight. If the arm drifts during use it will be necessary to adjust the flex arm tension using the following procedure:

1. Remove the flex arm end caps by pulling off.
2. Using a 3/16" hex wrench, adjust the correct tension bolt as indicated. Spring tension is increased by turning the rear flex arm bolt counter clockwise. Spring tension is decreased by turning the front flex arm bolt clockwise.
3. When spring tension is properly set, reinstall the end caps.

Swivel Tension

1. Using a 3/32" hex wrench, slowly turn the screw counterclockwise to increase spring tension until the desired amount of tension is found; reversing the direction will lower the amount of tension on the arm.



Unit Head Leveling Adjustment

If the tray or unit head is not level (front-to-back) it may be necessary to adjust the front knuckle of the unit flex arm. Check the level reading by fully extending the unit pole, flex arm and head in the same direction (as stop pins permit). Place a level in the orientation shown, either on a tray or directly on top of the unit head - whichever is intended to be the supporting platform. While leaving the arms fully extended, make the adjustment as follows:

1. Remove the flex arm end cap closest to the unit head.
2. Using a 3/32" hex wrench, loosen the smaller set screw on the left side of the knuckle.
3. Adjust the larger set screw in the middle of the knuckle while observing the reading on the level. Continue turning until surface is level.
4. Re-tighten the smaller set screw.
5. Replace the end cap.

Drag Tension

Drag tension works in unison with spring tension to provide controlled and regulated movement of the arm. Adjust the arm's drag tension using the following procedure:

1. Remove the bottom cover by popping it off and access the drag tension set screw.
2. Using a 3/32" hex wrench, turn the set screw clockwise to increase drag tension; counterclockwise to decrease.
3. Raise and lower the arm several times to ensure the correct amount of drag tension and adjust if necessary.
4. Reinstall bottom cover.

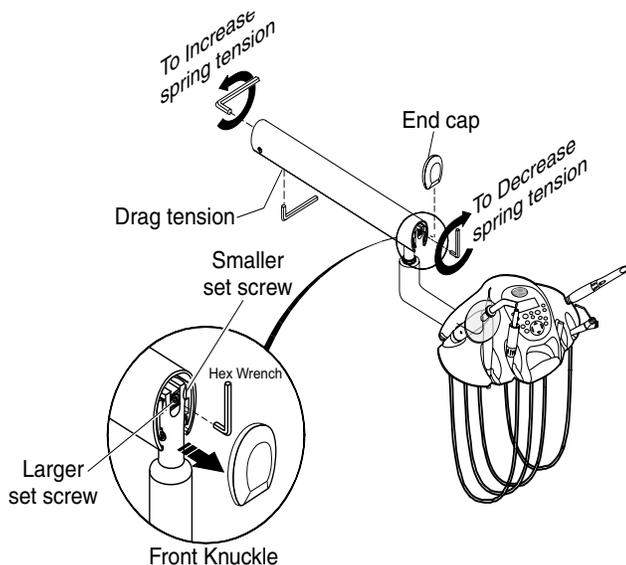


Figure 1

FINAL ADJUSTMENTS

Spirit Control Head / Junction Box

1. Check to see that the master on/off toggle is in the “off” position. Turn on the manual air and water valves located in the junction box. Make a visual and audible inspection for leaks.
2. Turn the master on/off toggle to the “on” position and make a careful inspection for leaks in the following areas:
 - A. Junction box
 - B. Utility center (if applicable)
 - C. Control head; tubing and quick-connects
 - D. Any other intermediate connections.
3. Check air and water pressure on junction box gauges. The gauges must read:
 - A. Air 75 - 80 PSI
 - B. Water 35 - 40 PSI.
7. Locate the air flow controls on the control head to adjust handpiece air. Install handpiece onto connector and activate foot control while observing reading on drive air pressure gauge. Adjust handpiece pressure to manufacturer’s requirements.
8. Check the water spray pattern of each handpiece. Ensure the foot control water toggle is flipped towards the blue dot. Counterclockwise rotation of the water control valve increases water flow.
9. Counterclockwise rotation of the coolant air control valve increases the air flow.
10. This completes testing of the control head. Install the tray and pad onto the assembled swivel tray (if applicable).



CAUTION: Dental unit is supplied with pressurized air by air compressors that can output up to 125 PSI. Ensure the recommended settings are not exceeded.

Turn air regulator knob clockwise to increase pressure and counterclockwise to decrease. For an accurate reading from the gauge, bleed off the air pressure by using the air syringe button. Adjust air pressure regulator knob in half turn steps.

4. Check the flow of air and water from the syringe and check the spray pattern. Hold the handpiece tubings over a suitable receptacle and activate the flush toggle on the control head. A steady stream of water should flow from the tubings.
5. Ensure that the handpieces to be installed have the proper connectors for the supplied tubings.
6. Install the connectors onto the handpieces and place each handpiece in its appropriate holder.



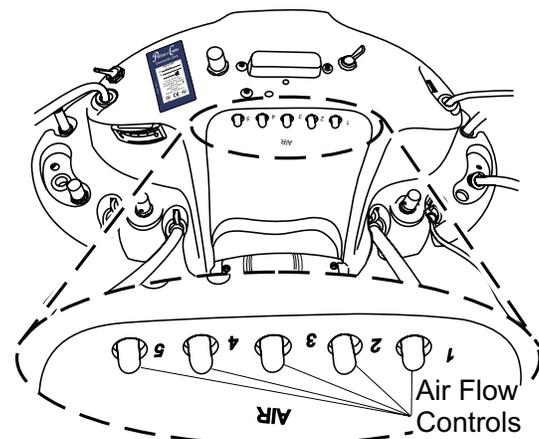
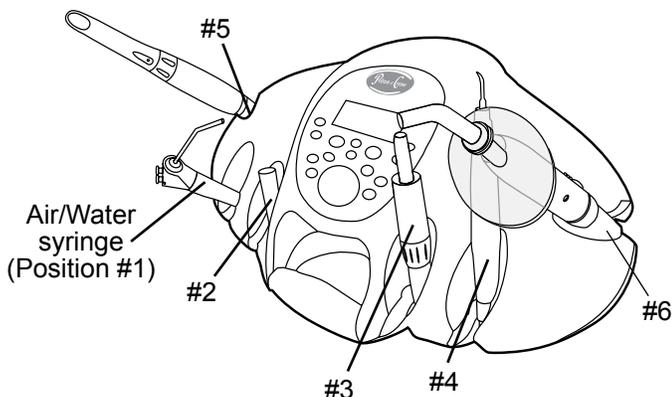
WARNING: Avoid running handpieces for extended periods longer than what is necessary to check pressure. Extended running with no load can damage the handpiece. No handpiece should ever be run without a burr in the chuck. After operating handpieces, ensure that they are returned to their original hanger.



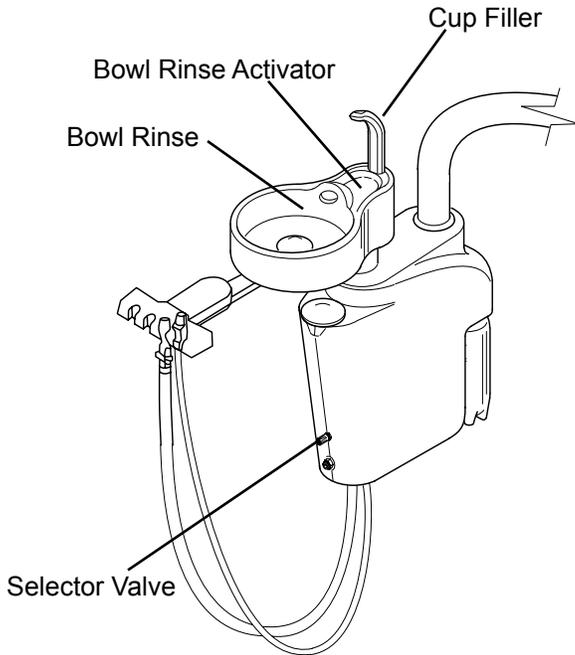
WARNING: When installing and using instruments and attachments, refer to all manufacturer’s instructions and recommendations before operating instruments.



WARNING: Do not activate syringe while tip is in direct contact with skin.



CUSPIDOR CUP FILL & BOWL RINSE ADJUSTMENT



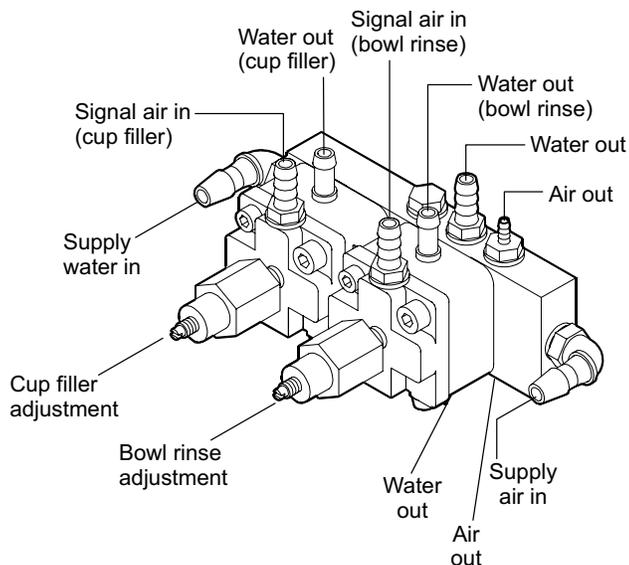
The cuspidor relay valve controls the timing of the cup filler and bowl rinse functions. This valve is located in the utility center, where it is mounted to the regulator gauge bracket. The run time of each of these functions can be tested and adjusted as follows:

Cuspidor Cup Fill

1. Place cup on cuspidor under spout to check water flow.
2. Pull cup filler spout to activate water flow.
3. Water should fill the cup between 1/3 to 2/3 full (approximately two ounces).
4. If the water level is less than 1/3 cup, using a flat blade screwdriver, rotate cup filler valve clockwise approximately 1/4 turn.
5. If the water level is greater than 2/3 cup, rotate the cup filler valve counterclockwise approximately 1/4 turn.
6. Repeat steps 1 through 5 above until cup is filled between 1/3 to 2/3 full (approximately two ounces).
7. Check the cup filler function for no more than one drop after shut-off.
8. Pull cup filler spout to activate water flow and push cup filler spout to deactivate water flow.

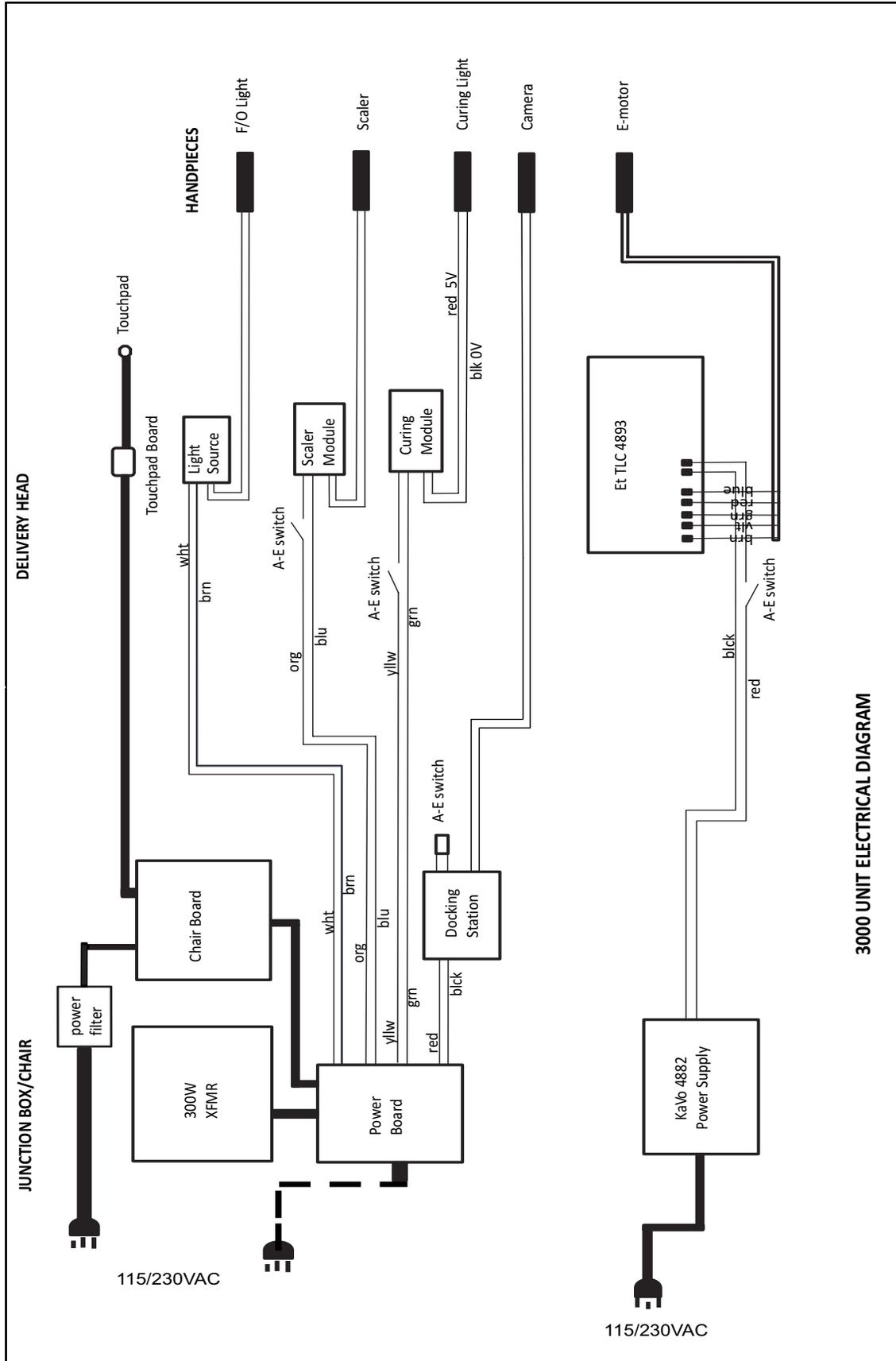
Bowl Rinse

9. Press the bowl rinse button to activate the bowl rinse flow.
10. If equipped with the timed bowl rinse feature, the rinse time should be between 20 and 30 seconds.
11. If the bowl rinse time is greater than 30 seconds, using a flat blade screwdriver, rotate the bowl rinse valve clockwise approximately 1/4 turn.
12. If the bowl rinse time is less than 30 seconds, rotate the bowl rinse valve counterclockwise approximately 1/4 turn.
13. Repeat steps 9 through 12 until bowl rinse time is between 20 and 30 seconds. For units equipped with the timed bowl rinse feature, 25 to 35 seconds for remote timed rinse.
14. Make sure water flows in a circular motion.



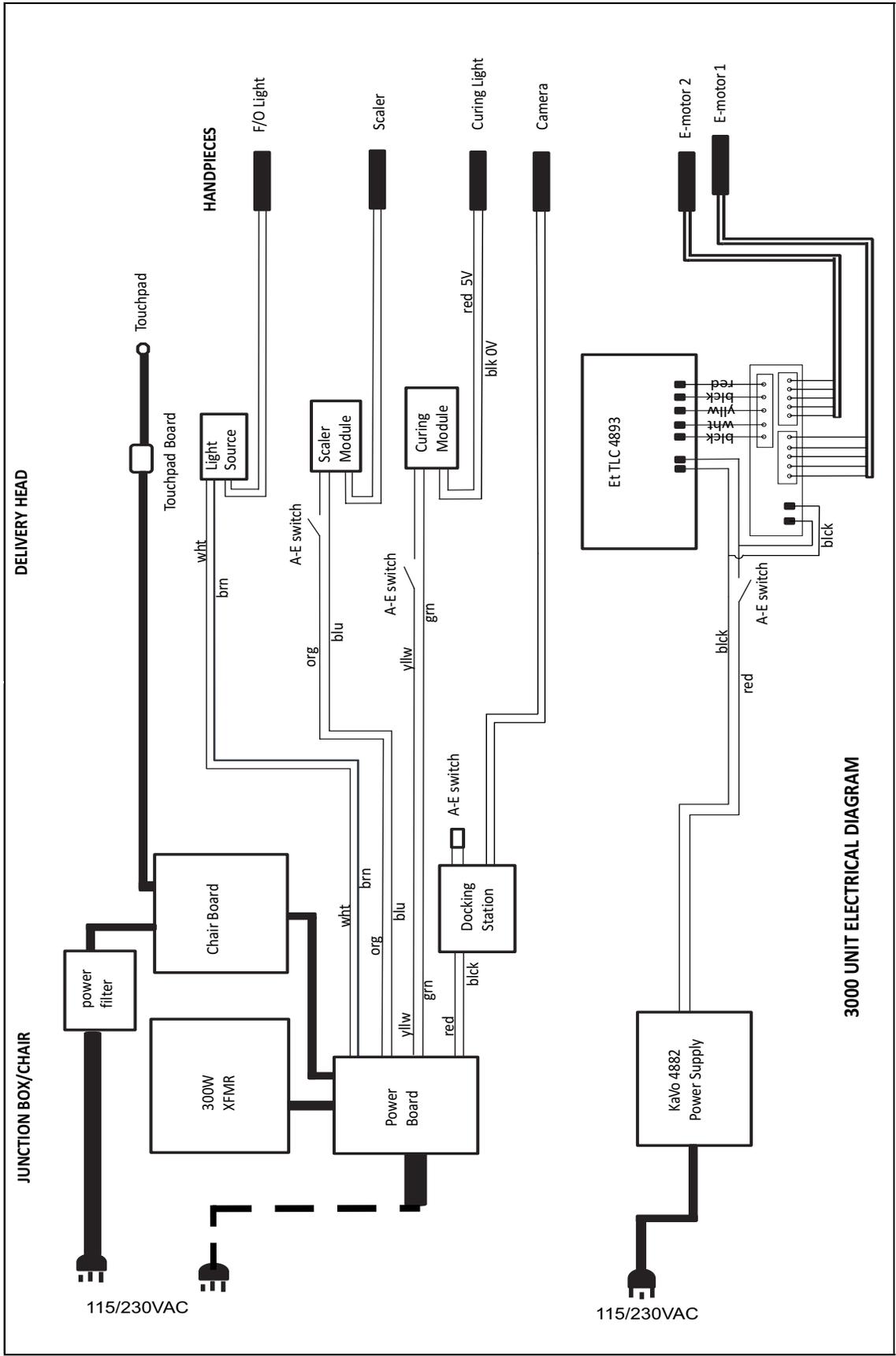
Cuspidor Relay Valve

3000 UNITS ELECTRICAL DIAGRAM



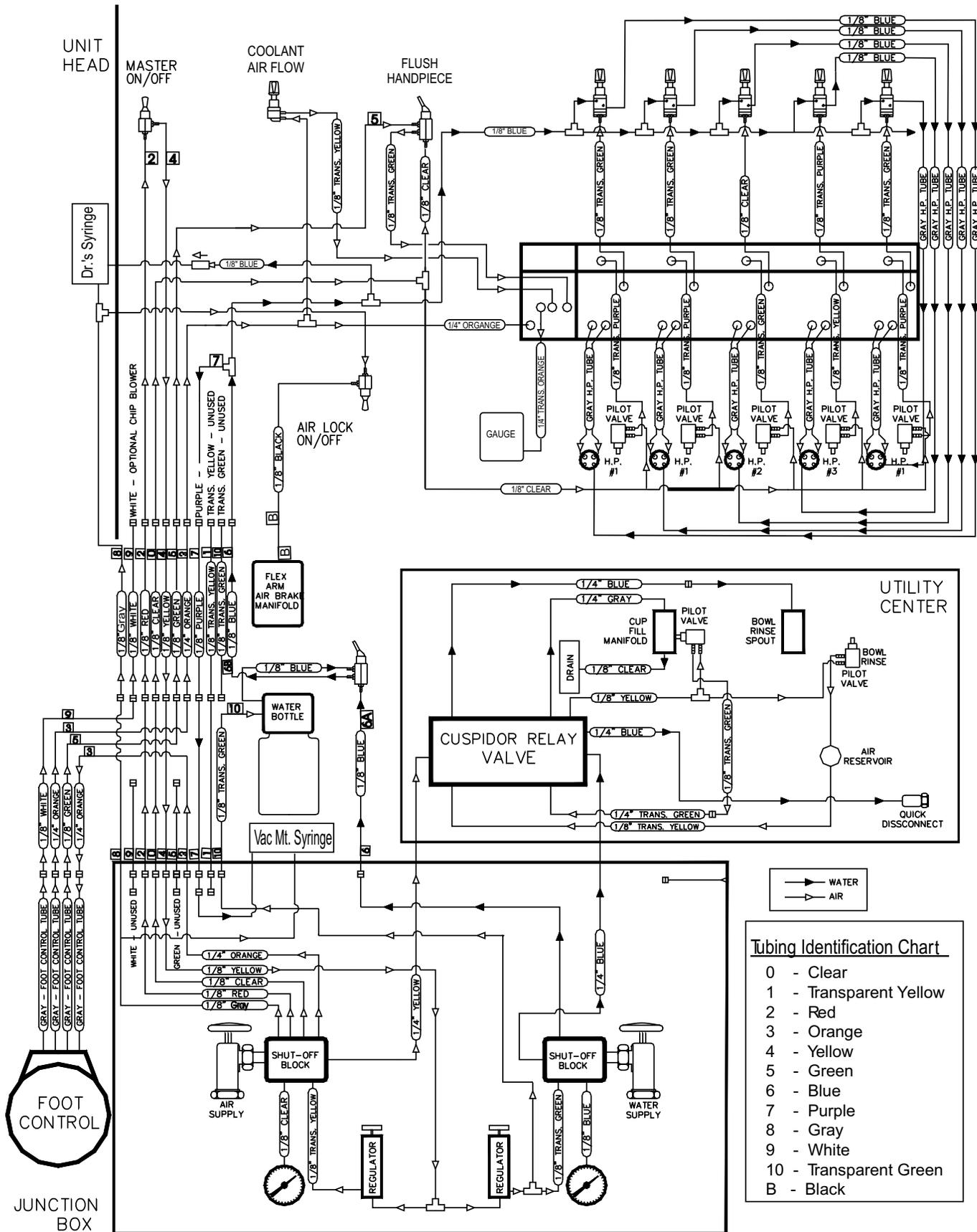
3000 UNIT ELECTRICAL DIAGRAM

3000 UNITS ELECTRICAL DIAGRAM - DUAL MOTOR OPTION



DELIVERY SYSTEM PLUMBING DIAGRAM

The diagram below is for general reference. For plumbing information related to a specific accessory, contact pelton Technical Support at 800-659-5922



DELIVERY SYSTEM INSTALLATION AND SERVICE CHECKLIST

Verify the following after installation or servicing of the unit:

- All manuals are present.
- All labels are present and legible.
- No mechanical damage on new installations.
- The unit is connected to the correct power source and receptacles/plugs meet medical standard requirements.
- The unit is setting on a level surface.
- All air/water connections are properly attached.
- When the master switch is “on” all air and water is available. When the master switch is “off” and the system pressure is bled down, the air and water stop flowing.
- If applicable, the covers are closed and fasteners tightened (take care not to pinch tubing or wires).
- When depressing the touchpad (if applicable), the unit/chair functions properly.
- While running the unit there is no water or air leaking from the tubing.
- The unit passes a high pot test.
- All terminals are connected securely.
- The unit passes a ground continuity test.
- The internal wiring is in good shape and not frayed.

Pelton & Crane

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We reserve the right to make any alterations which may be due to any technical improvements.



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