



Service Manual

SO-3354

3 HP Automatic Rear Delivery Slide-out
Mount Control Head w/ Vacuum

Installation

1. Drill holes underneath the shelf using a 1/8" drill bit for the #10 wood screws.
2. Secure the slide mount assembly to the shelf with the 4, #10 screws provided.
3. Extend the slide assembly all the way out.
4. Push the screw, Item 1, through the hole in the chassis and thread it into the pivot bushing, Item 2 until it is tight.
5. Slide the washer, Item 3, over the pivot bushing and place the pivot bushing into the hole on the pivot block, Item 4.
6. Mount the utility center housing to the floor as per instructions in the Utility Center Template & Guide.
7. Install master valve assemblies, with filter and regulator, onto the manual shut-off valves. (Pressures are preset at the factory: 80 psi air, 40 psi water).
8. Feed the supply tubings from the umbilical through the 3/4" hole in the utility center housing. Screw in the spiral tubing to act as a strain relief.
9. Connect the supply tubings as shown in the Utility Center Template & Guide.

Final Adjustments

- Check air pressure, adjust to 80 psi if necessary.
- Check water pressure, adjust to 40 psi if necessary.
- Test handpieces for proper function.
- Test syringe for proper pressure and function.

Operation

1. Turn on the master switch located on the left side of the control head.
2. The handpiece is automatically activated when lifted from the holder.
3. Depress the foot control to activate each handpiece. Pressure is shown on the gauge for the handpiece being used.
4. Individual handpiece pressure adjustments are located on the autoblock inside the control head. To adjust the pressure to each handpiece:
 - a. Turn adjustment screw *clockwise* to decrease the handpiece pressure.
 - b. Turn adjustment screw *counter-clockwise* to increase the handpiece pressure.



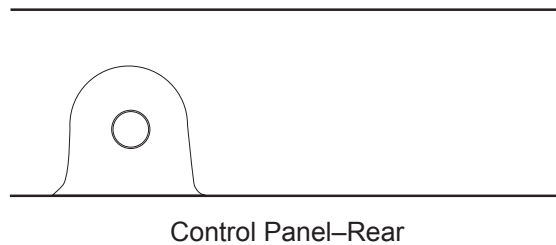
CAUTION

When adjusting the handpiece pressure, do not over-tighten the screws. Damage may result.

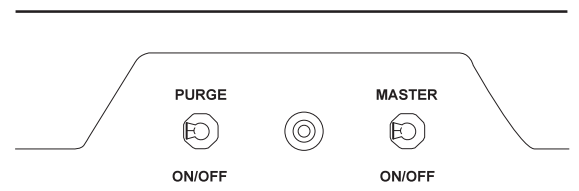
5. Activate the water spray to the handpiece by flipping the toggle for the water located on the right side of the control head.
6. Water coolant flow adjustments are located on the right side of the control head.
7. Arm brake switch is located underneath the control head on the right side. The brake is on when the toggle is positioned towards the rear. Pull the lever forward to release the arm brake, adjust arm to desired location and move lever to the rear to reapply the brake.
8. Air Coolant Adjustment is located on the rear of the control. The flow adjustment valve will reduce the air coolant (chip air) pressure.

Handpiece Purge

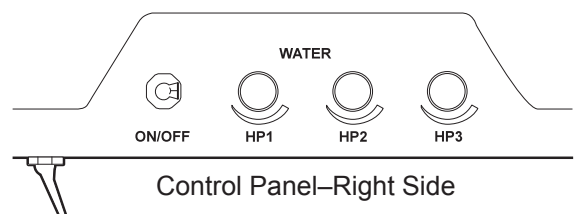
The purge switch, located on the left side of the control head, flushes fresh water through the water coolant system. Guidelines from the Center for Disease Control (CDC) recommends that each handpiece be flushed (purged) 20 to 30 seconds between patients and



Control Panel-Rear



Control Panel-Left Side



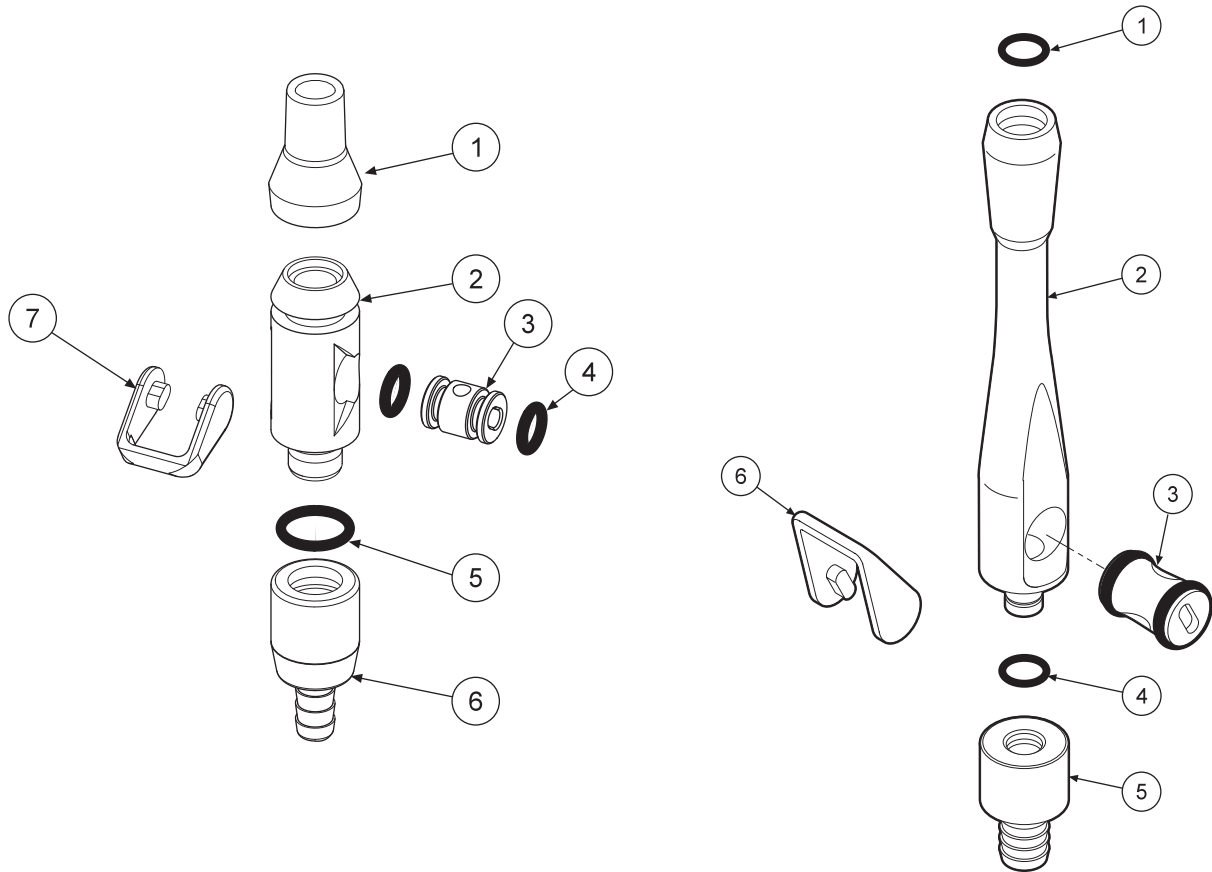
Control Panel-Right Side

Autoclavable HVE & S/E Valves

Maintenance Autoclavable vacuum valves may be autoclaved by steam autoclave or a chemical vapor. Due to the tight clearances and hardness of the anodized surfaces, the valve spool can become jammed or seize in the valve if it is sterilized while contaminated with debris.

Valves can be quickly disassembled for cleaning.

1. Pry one side of the lever and flip it off of the valve. For saliva ejector valves, remove the tip also.
2. Push out the valve spool and clean all the disassembled parts in an ultrasonic cleaner daily. *Rinse thoroughly before putting into autoclave.*
3. Lubricate the O-Rings on the spool with a silicone based lubricant before reassembly.



| ITEM | PART DESCRIPTION | PART NUMBER | QTY |
|------|------------------|-------------|-----|
| 1 | Tip..... | 112-174 | 1 |
| 2 | Body..... | 112-276 | 1 |
| 3 | Spool..... | 112-278 | 1 |
| 4 | O-Ring #10..... | 017-110 | 2 |
| 5 | O-Ring, #12..... | 017-012 | 1 |
| 6 | Swivel..... | 112-177 | 1 |
| 7 | Lever..... | 112-181 | 1 |

| ITEM | PART DESCRIPTION | PART NUMBER | QTY |
|------|--------------------|-------------|-----|
| 1 | O-Ring, #13..... | 017-113 | 3 |
| 2 | Body, Chrome..... | 112-272 | 1 |
| 3 | Spool, Chrome..... | 112-268 | 1 |
| 4 | O-Ring, #13..... | 017-013 | 1 |
| 5 | Swivel..... | 112-170 | 1 |
| 6 | Lever..... | 112-169 | 1 |

AUTOCLAVABLE S/E LEVER VALVE
112-280

AUTOCLAVABLE STANDARD HVE VALVE
112-263

Troubleshooting

Symptom Handpiece lacks power.

Possible Causes

- A. Improper supply pressure from compressor (80 psi).
- B. Check handpiece pressure adjustment on unit.
- C. Air filter may be plugged.
- D. Pinched supply tubing.
- E. Defective handpiece gasket at connection with tubing.
- F. Defective handpiece.

Symptom Water coolant does not shut off when foot control is released.

Possible Causes

- A. Adjust air pressure to 80 psi—water pressure to 40 psi.
- B. Foot control is not exhausting.
- C. Defective water relay valve.
- D. Air coolant adjustment located on rear of unit

Symptom More than one handpiece is operating.

Possible Causes

- A. Handpiece is not all the way in the holder.
- B. Improper adjustment on pilot valve in the handpiece holder.
- C. Defective shuttle valve to gauge.

Symptom Insufficient water coolant.

Possible Causes

- A. Adjust coolant flow valve.
- B. Water filter may be plugged.
- C. Handpiece may be plugged.
- D. Pinched supply tubing.
- E. Improper adjustment of water relay valve

Symptom Water coolant is running from handpiece while in the holder.

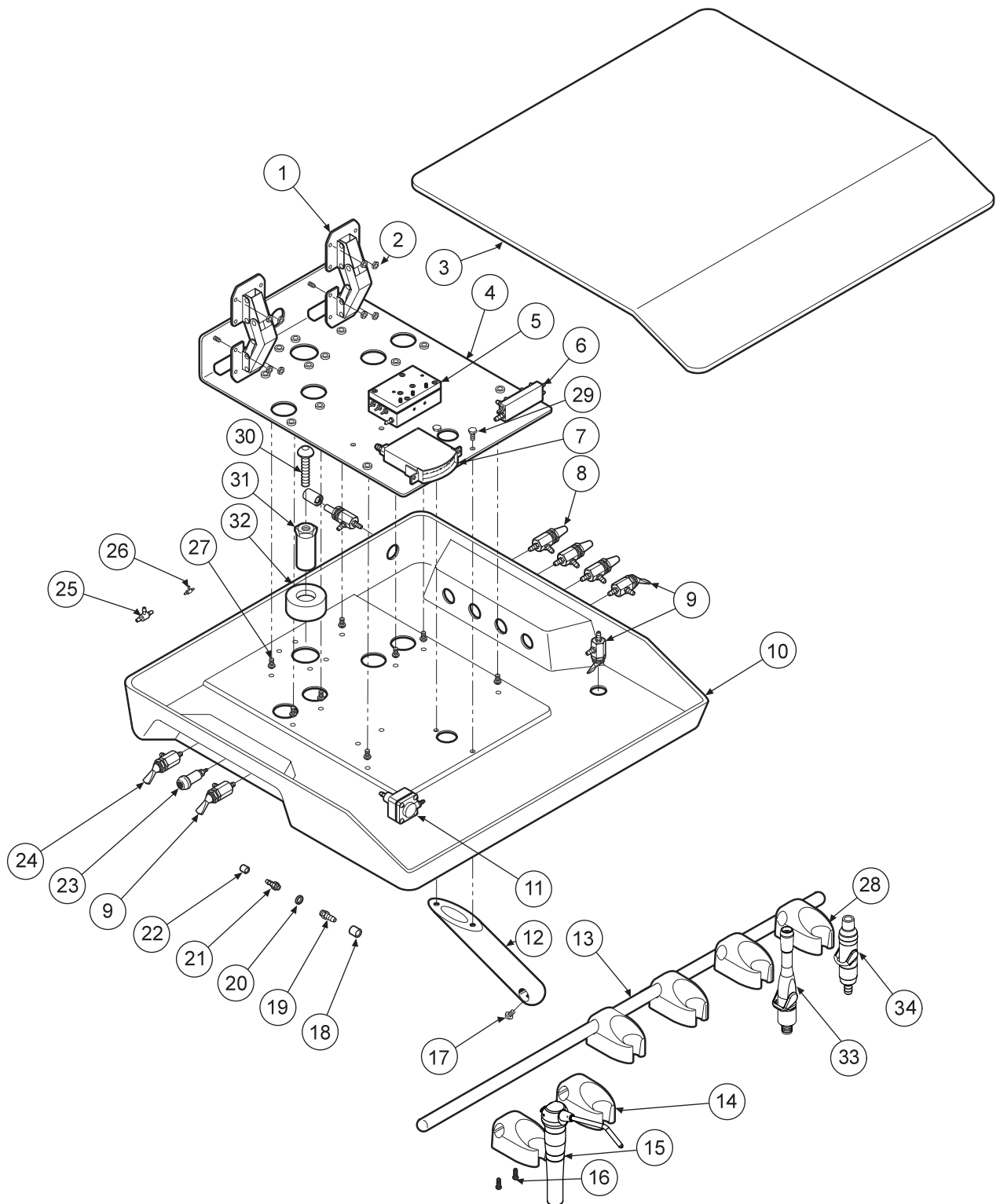
Possible Causes

- A. Water pressure too high.
- B. Air pressure too low.
- C. Handpiece holder out of adjustment.

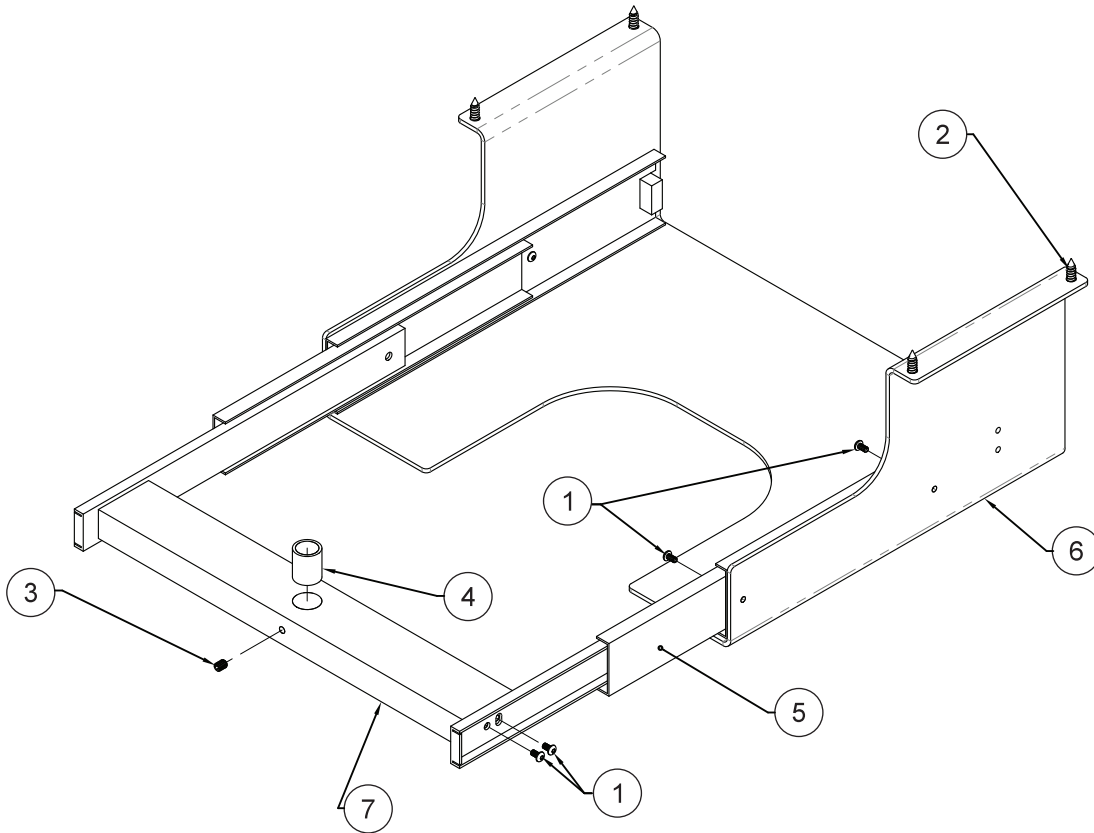
Symptom Water coolant is running continuously.

Possible Causes

- A. Purge switch is on (on applicable systems).
- B. Water pressure too high.
- C. Handpiece holder out of adjustment.
- D. Defective water relay valve.

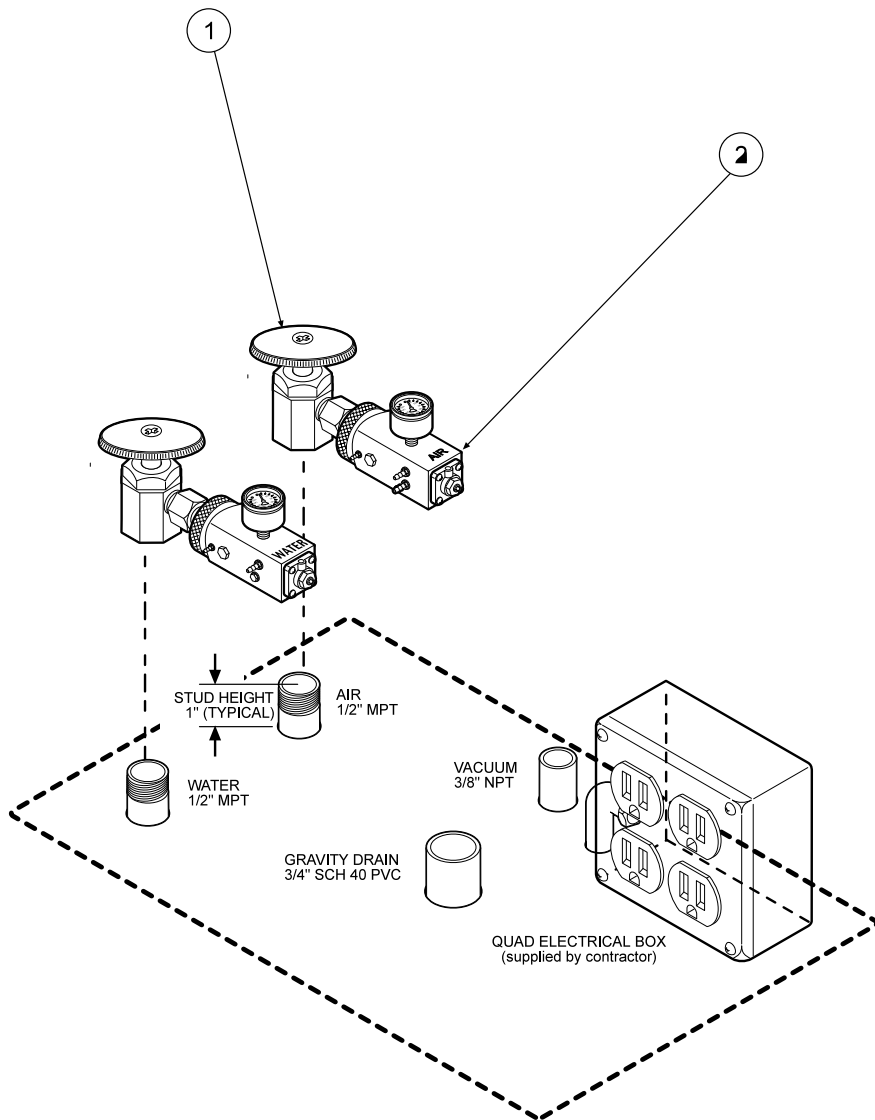


| ITEM | PART DESCRIPTION | PART NUMBER | QTY | ITEM | PART DESCRIPTION | PART NUMBER | QTY | ITEM | PART DESCRIPTION | PART NUMBER | QTY |
|------|---------------------------|-------------|-----|------|----------------------|-------------|-----|------|-----------------------|-------------|-----|
| 1 | Hinge | 107-083 | 2 | 12 | Holder Bar Mount | 107-007 | 1 | 23 | Indicator | 026-020 | 1 |
| 2 | Hex Nut 6-32 | 002-004 | 8 | 13 | Holder Bar 16" | 107-075 | 1 | 24 | Momentary Valve | 120-005 | 1 |
| 3 | Cover | 107-112 | 1 | 14 | Automatic Holder | 122-200 | 3 | 25 | Shuttle Valve | 014-012 | 1 |
| 4 | Chassis | 107-110 | 1 | 15 | Syringe | 113-400 | 1 | 26 | Plastic Tee, 1/16" | 022-033 | 1 |
| 5 | Automatic Handpiece Block | 125-030 | 1 | 16 | Screw, 8 x 1/2" | 001-018 | 8 | 27 | Screw, 8-32 x 3/8" | 001-151 | 4 |
| 6 | Handpiece Manifold | 023-001 | 1 | 17 | Screw, 10-32 x 3/8" | 001-070 | 1 | 28 | Syringe Holder | 141-200 | 3 |
| 7 | Gauge | 026-003 | 1 | 18 | Ferrule, 1/4" | 117-008 | 2 | 29 | Screw, 10-32 x 1/2" | 001-166 | 2 |
| 8 | Needle Flow Valve | 121-000 | 4 | 19 | Barb, 10-32 x 1/8" | 022-010 | 4 | 30 | Screw, 1/4"-20 x 1" | 001-103 | 1 |
| 9 | 3-way Toggle Valve | 120-000 | 3 | 20 | Plastic Washer, 1/4" | 003-001 | 13 | 31 | Pivot Adapter Bushing | 105-163 | 1 |
| 10 | Base | 107-113 | 1 | 21 | Barb, 10-32 x 1/16" | 022-009 | 9 | 32 | Pivot Spacer | 105-164 | 2 |
| 11 | Water Relay Valve | 123-000 | 3 | 22 | Ferrule, 1/8" | 117-007 | 32 | 33 | HVE Valve | 112-263 | 1 |
| | | | | | | | | 34 | Saliva Ejector Valve | 112-280 | 1 |

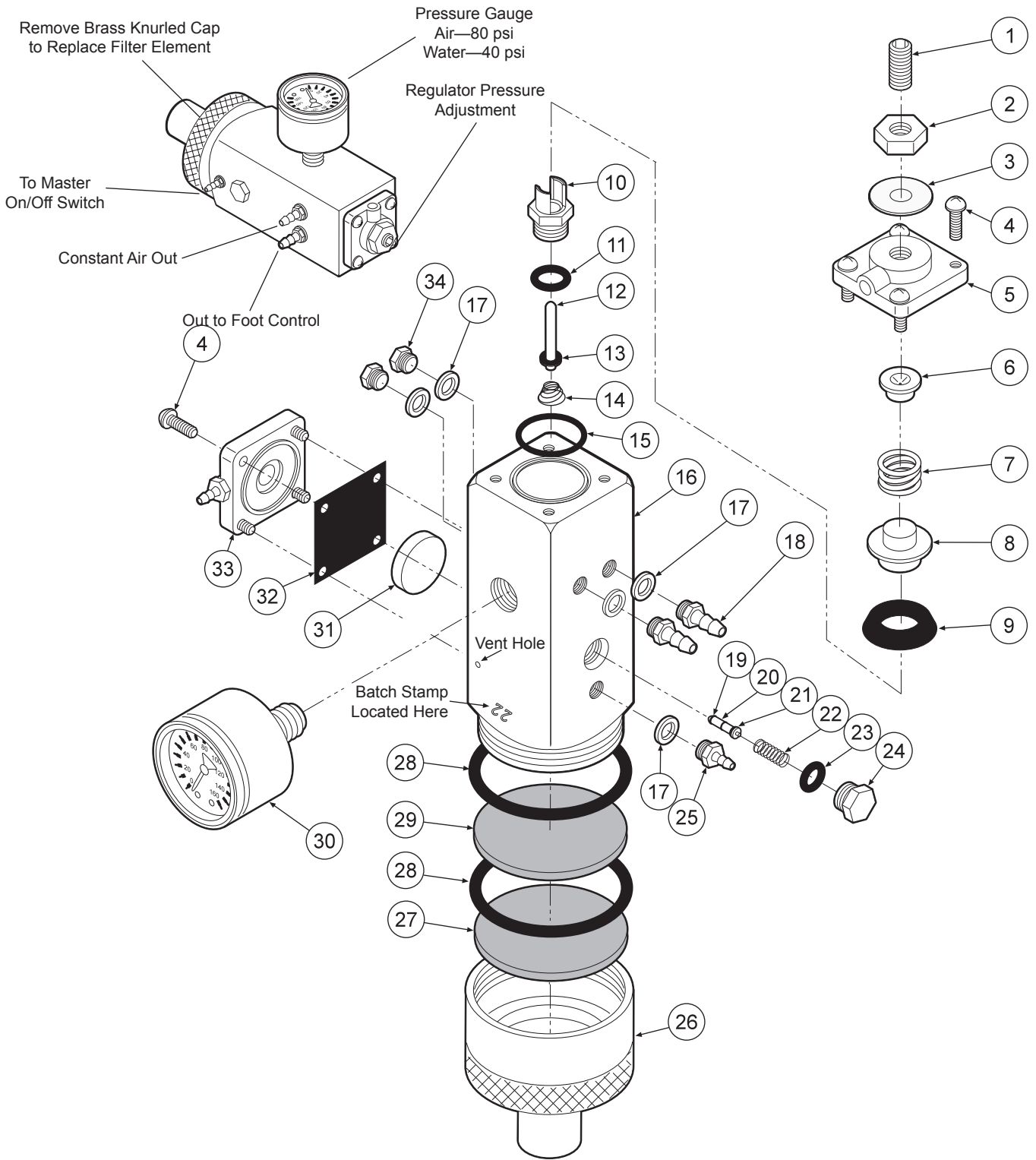


| ITEM | PART DESCRIPTION | PART NUMBER | QTY | ITEM | PART DESCRIPTION | PART NUMBER | QTY |
|------|-------------------------|-------------|-----|------|------------------|-------------|-----|
| 1 | Screw 8-32 x .25 | 001-149 | 8 | 6 | Slide Bracket | 105-261 | 1 |
| 2 | Screw #10 x .625 | 001-167 | 4 | 7 | Pivot Block | 105-262 | 1 |
| 3 | Set Screw, 10-32 x 1/4" | 005-026 | 1 | | | | |
| 4 | Bearing | 013-404 | 1 | | | | |
| 5 | Drawer Slide | 105-162 | 2 | | | | |

UNDERSHELF SLIDE MOUNT ASSEMBLY
105-260



| ITEM | PART DESCRIPTION | PART NUMBER | QTY |
|------|--------------------------------|-------------|-----|
| 1 | Manual Shut-off Valves..... | 020-022 | 2 |
| 2 | Master Shut-off Valve Kit..... | 127-012 | 1 |



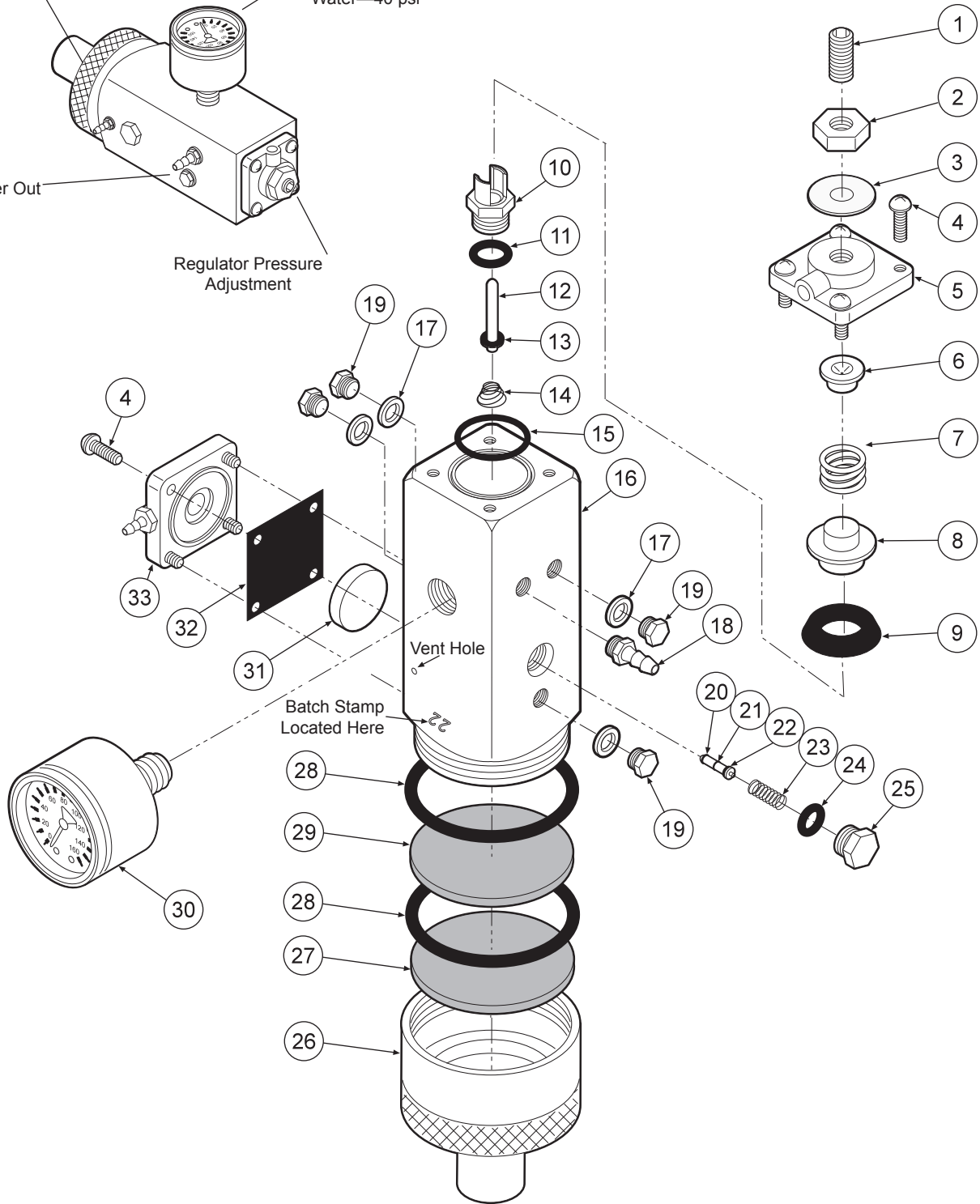
| ITEM | PART DESCRIPTION | PART NUMBER | QTY | ITEM | PART DESCRIPTION | PART NUMBER | QTY | ITEM | PART DESCRIPTION | PART NUMBER | QTY |
|------|--------------------------|-------------|-----|------|----------------------|-------------|-----|------|----------------------------|-------------|-----|
| 1 | Set Screw, 1/4-20 x 5/8" | 005-024 | 1 | 13 | O-Ring, 004 | 017-104 | 1 | 24 | Plug | 020-026 | 1 |
| 2 | Jam Nut, 1/4-20 | 002-006 | 1 | 14 | Spring | 008-028 | 1 | 25 | Barb, 10-32 x 1/16" | 022-009 | 1 |
| 3 | Washer | 003-015 | 1 | 15 | O-Ring | 017-018 | 1 | 26 | Cap Inlet | 127-041 | 1 |
| 4 | Screw, 6-32 x 3/8" | 001-041 | 8 | 16 | Body | 127-040 | 1 | 27 | Filter Element, 100 Micron | 119-005 | 1 |
| 5 | Cap | 127-033 | 1 | 17 | Plastic Washer, 1/4" | 003-001 | 5 | 28 | O-Ring, 018 | 017-022 | 2 |
| 6 | Spring Seat | 127-043 | 1 | 18 | Barb, 10-32 x 1/8" | 022-010 | 2 | 29 | Filter Element, 35 Micron | 119-004 | 1 |
| 7 | Spring | 008-008 | 2 | 19 | O-Ring, 001 | 017-501 | 2 | 30 | Gauge | 026-001 | 1 |
| 8 | Cup Seat | 127-044 | 1 | 20 | Stem | 127-045 | 1 | 31 | Piston | 123-014 | 1 |
| 9 | Cup Seal | 017-200 | 4 | 21 | O-Ring, 003 | 017-103 | 1 | 32 | Gasket | 127-031 | 1 |
| 10 | Seat | 127-026 | 3 | 22 | Spring | 008-040 | 1 | 33 | Cap | 123-030 | 1 |
| 11 | O-Ring, 008 | 017-008 | 2 | 23 | O-Ring, 007 | 017-007 | 1 | 34 | Plug | 001-001 | 2 |
| 12 | Stem | 127-024 | 1 | | | | | | | | |

Remove Brass Knurled Cap to Replace Filter Element

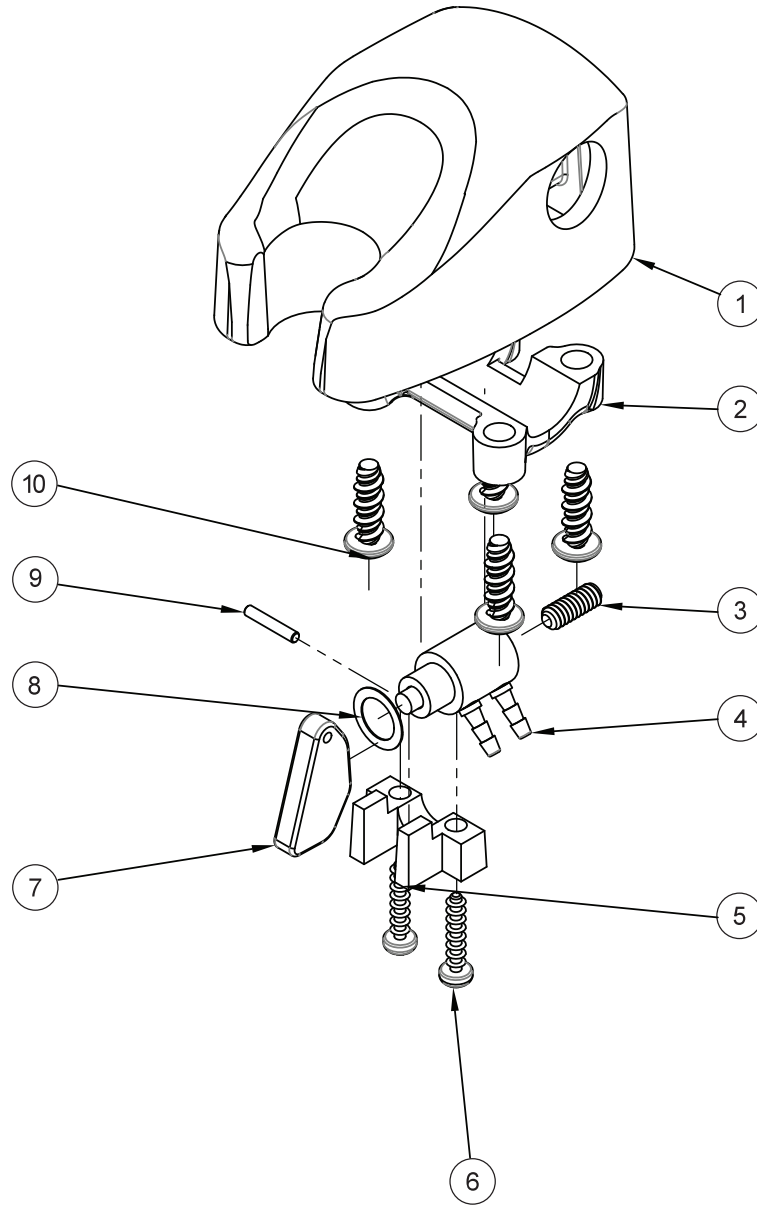
Pressure Gauge
Air—80 psi
Water—40 psi

Water Out

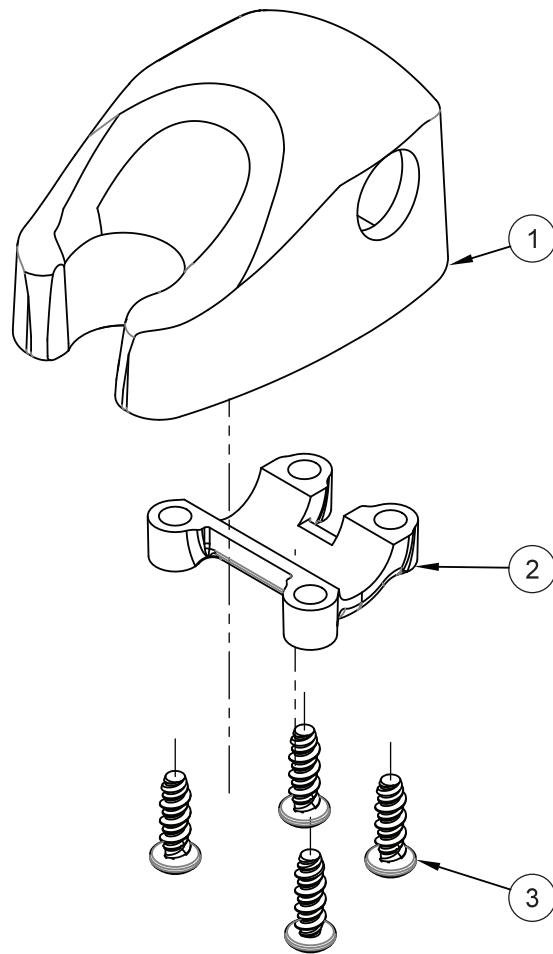
Regulator Pressure Adjustment



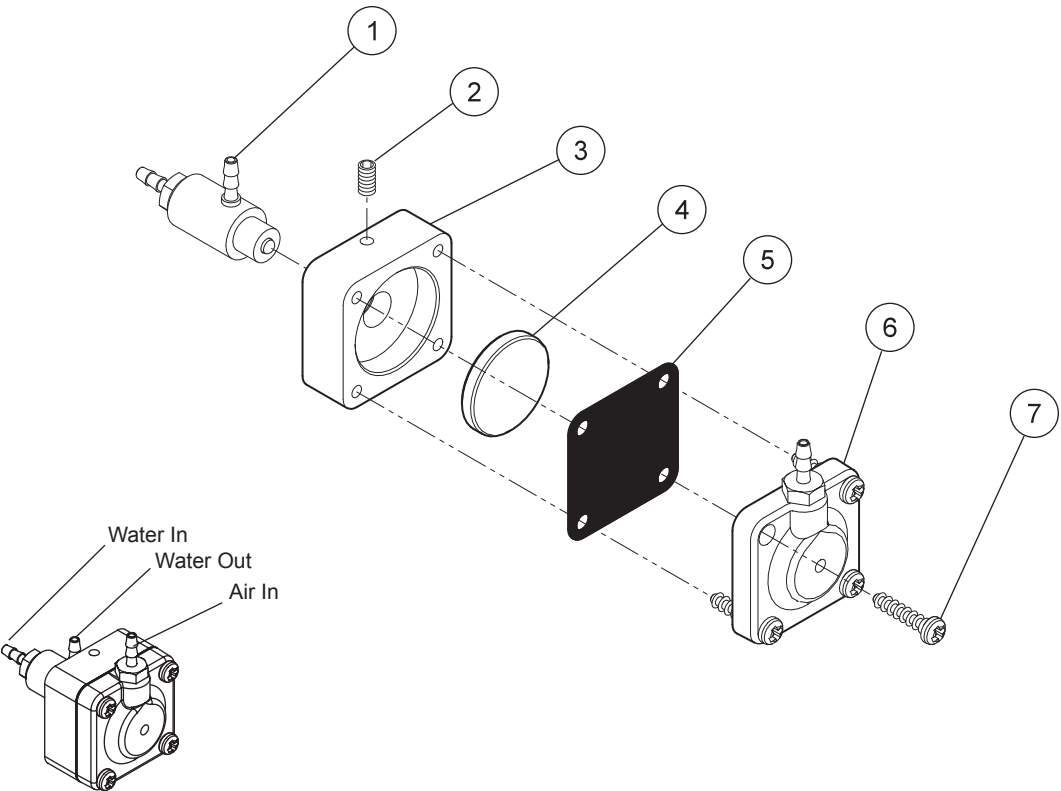
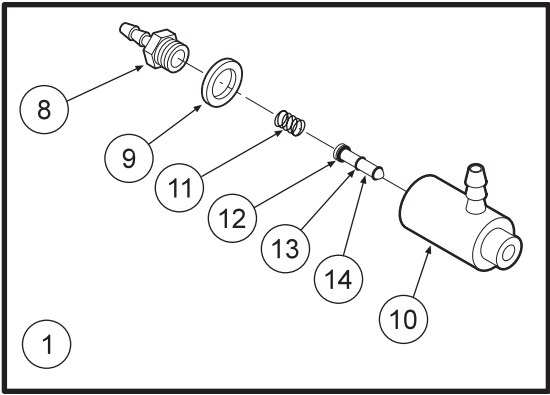
| ITEM | PART DESCRIPTION | PART NUMBER | QTY | ITEM | PART DESCRIPTION | PART NUMBER | QTY | ITEM | PART DESCRIPTION | PART NUMBER | QTY |
|------|---------------------------|-------------|-----|------|----------------------|-------------|-----|------|----------------------------|-------------|-----|
| 1 | Set Screw, 1/4"-20 x 5/8" | 005-024 | 1 | 12 | Stem | 127-024 | 1 | 23 | Spring | 008-040 | 1 |
| 2 | Jam Nut, 1/4"-20 | 002-006 | 1 | 13 | O-Ring, 004 | 017-104 | 1 | 24 | O-Ring, 007 | 017-007 | 1 |
| 3 | Washer | 003-015 | 1 | 14 | Spring | 008-028 | 1 | 25 | Plug | 020-026 | 1 |
| 4 | Screw, 6-32 x 3/8" | 001-041 | 8 | 15 | O-Ring | 017-018 | 1 | 26 | Cap Inlet | 127-041 | 1 |
| 5 | Cap | 127-023 | 1 | 16 | Body | 127-040 | 1 | 27 | Filter Element, 100 Micron | 119-005 | 1 |
| 6 | Spring Seat | 127-043 | 1 | 17 | Plastic Washer, 1/4" | 003-001 | 1 | 28 | O-Ring, 018 | 017-022 | 2 |
| 7 | Spring | 008-008 | 1 | 18 | Barb, 10-32 x 1/8" | 022-010 | 1 | 29 | Filter Element, 35 Micron | 119-004 | 1 |
| 8 | Cup Seat | 127-044 | 1 | 19 | Plug | 001-001 | 4 | 30 | Gauge | 126-001 | 1 |
| 9 | Cup Seal | 017-200 | 1 | 20 | O-Ring, 001 | 017-501 | 2 | 31 | Piston | 123-014 | 1 |
| 10 | Seat | 127-026 | 1 | 21 | Stem | 127-045 | 1 | 32 | Gasket | 127-031 | 1 |
| 11 | O-Ring, 008 | 017-008 | 1 | 22 | O-Ring, 003 | 017-103 | 1 | 33 | Cap | 123-012 | 1 |



| ITEM | PART DESCRIPTION | PART NUMBER | QTY |
|------|-------------------------------|-------------|-----|
| 1 | Molded Body..... | 122-201 | 1 |
| 2 | Clamp | 122-104 | 1 |
| 3 | Set Screw, 6-32 x 3/8"..... | 005-012 | 1 |
| 4 | Valve Cartridge..... | 122-031 | 1 |
| 5 | Molded Clip..... | 122-102 | 1 |
| 6 | Screw, 4 x 1/2"..... | 001-019 | 2 |
| 7 | Handpiece Actuator Lever..... | 122-103 | 1 |
| 8 | Washer..... | 003-004 | 1 |
| 9 | Pin, 1/16"x3/8" Dowel..... | 009-010 | 1 |
| 10 | Screw, 8-18 x 1/2"..... | 001-267 | 4 |

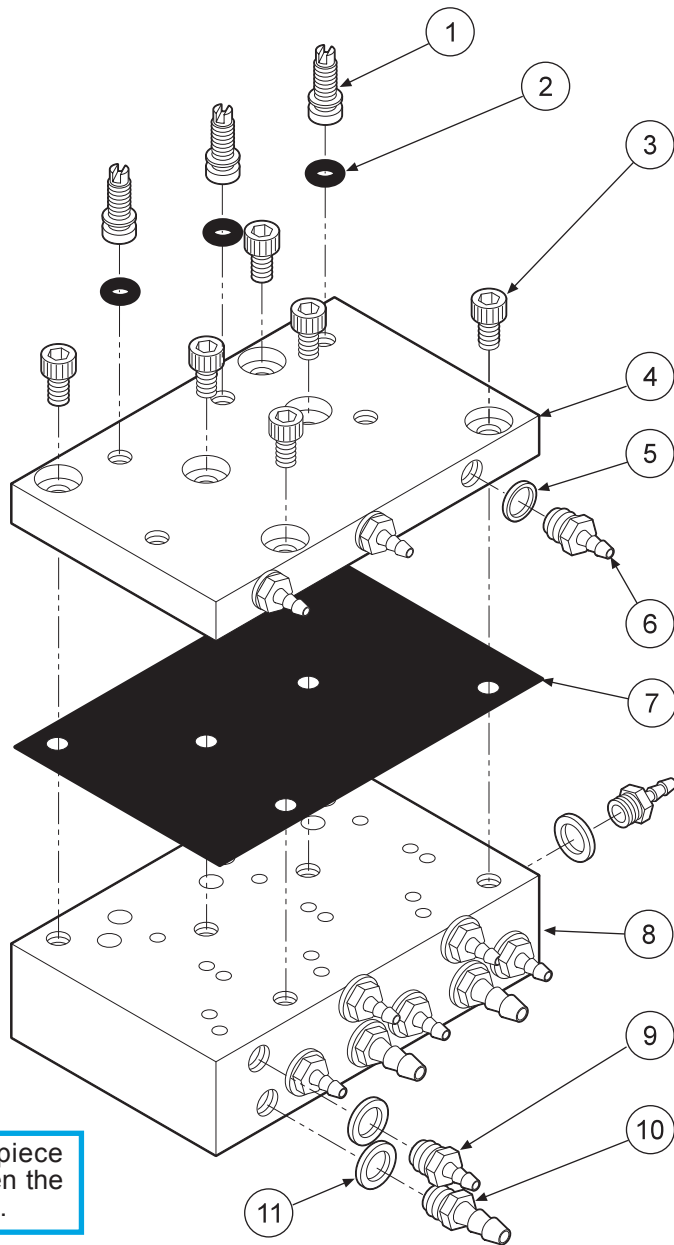


| ITEM | PART DESCRIPTION | PART NUMBER | QTY |
|------|-------------------------|-------------|-----|
| 1 | Molded Body..... | 141-201 | 1 |
| 2 | Clamp | 122-204 | 1 |
| 3 | Screw, 8-32 x 1/2"..... | 001-267 | 4 |



Water Relay Valve 123-000

| ITEM | PART DESCRIPTION | PART NUMBER | QTY |
|------|------------------------------|-------------|-----|
| 1 | Cartridge Body Assembly..... | 123-018 | 1 |
| 2 | Set Screw, 4-40 x 5/8"..... | 005-028 | 1 |
| 3 | Body..... | 123-013 | 1 |
| 4 | Piston..... | 123-014 | 1 |
| 5 | Diaphragm..... | 127-031 | 1 |
| 6 | Cap..... | 123-012 | 1 |
| 7 | Screw, #6 x 1/2"..... | 001-267 | 4 |
| 8 | Barb, 10-32 x 1/16"..... | 022-009 | 1 |
| 9 | Plastic Washer, 1/4"..... | 003-001 | 1 |
| 10 | Valve Body..... | 123-017 | 1 |
| 11 | Spring..... | 008-011 | 1 |
| 12 | O-Ring, 002..... | 017-502 | 1 |
| 13 | O-Ring, 001..... | 017-501 | 2 |
| 14 | Stem..... | 123-015 | 1 |



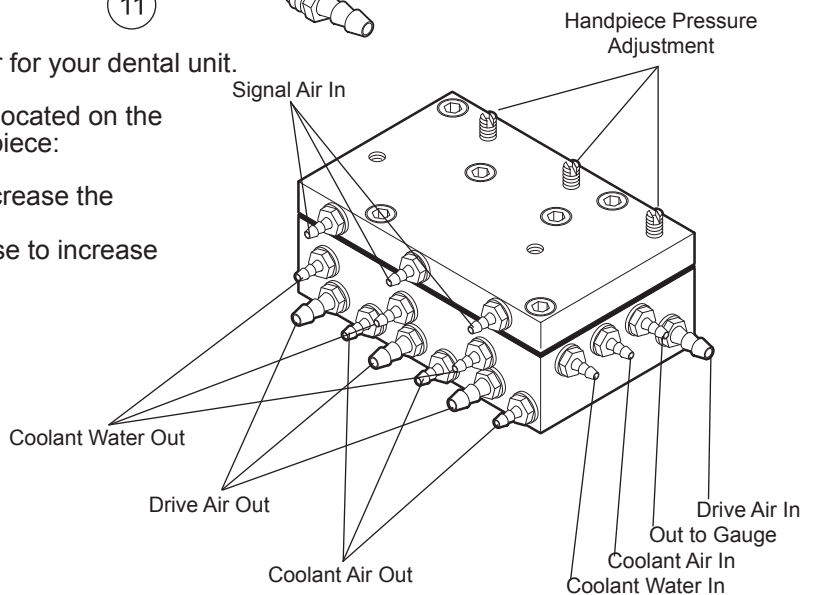
CAUTION
When adjusting the handpiece pressure, do not over-tighten the screws. Damage may result.

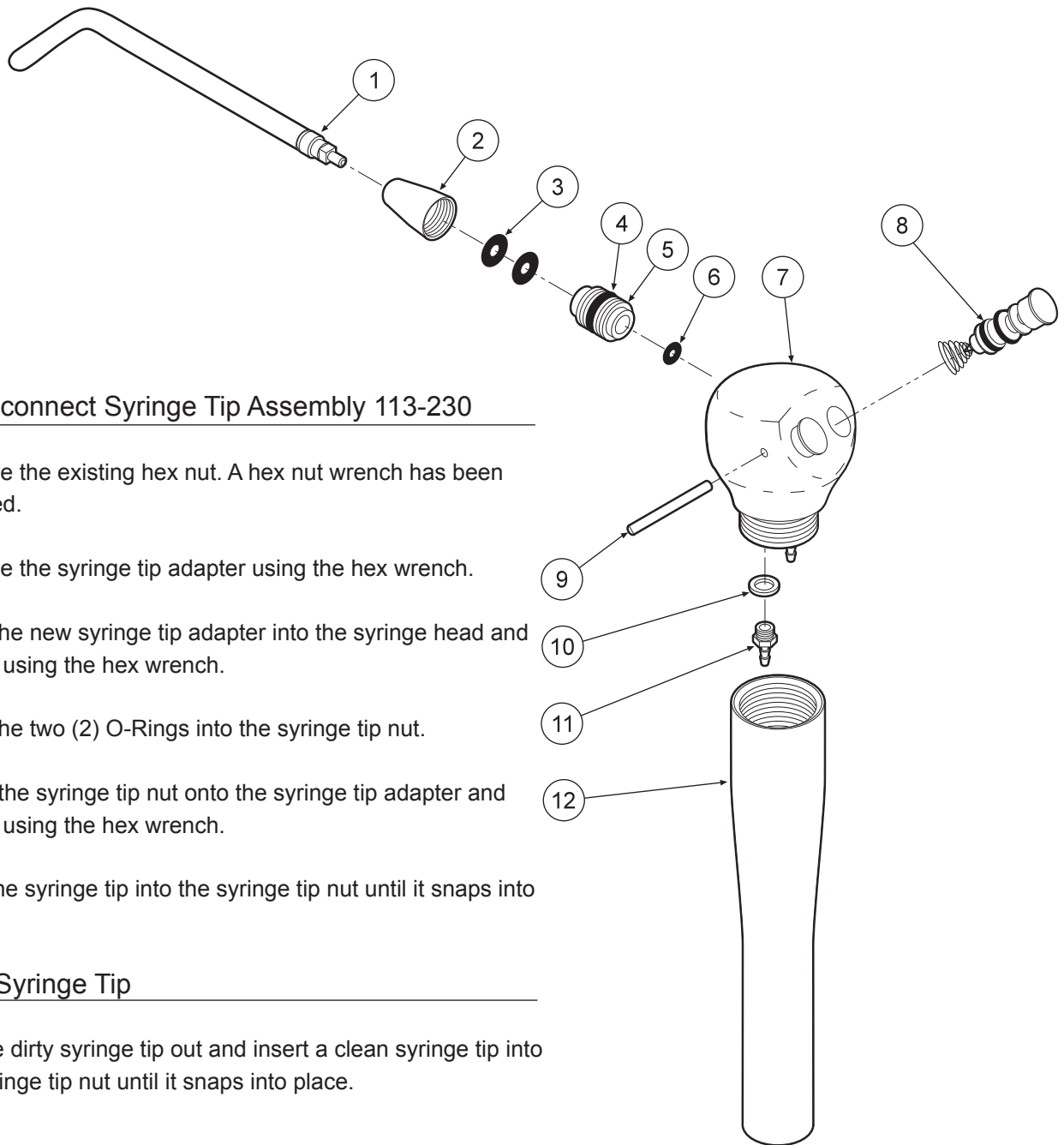
The automatic control block is the control center for your dental unit.

Individual handpiece pressure adjustments are located on the autoblock. To adjust the pressure to each handpiece:

- a. Turn adjustment screw clockwise to decrease the handpiece pressure.
- b. Turn adjustment screw counter-clockwise to increase the handpiece pressure.

| ITEM | PART DESCRIPTION | PART NUMBER | QTY |
|------|-----------------------------------|-------------|-----|
| 1 | Adjusting Stem..... | 125-023 | 3 |
| 2 | O-Ring, 021..... | 017-021 | 3 |
| 3 | Screw, 6-32 x 1/4"..... | 001-131 | 7 |
| 4 | Cap..... | 125-032 | 1 |
| 5 | Plastic Washer, 8-32 x 1/16"..... | 003-030 | 3 |
| 6 | Barb, 8-32 x 1/16"..... | 022-040 | 3 |
| 7 | Diaphragm..... | 125-016 | 1 |
| 8 | Body..... | 125-031 | 1 |
| 9 | Barb, 10-32 x 1/16"..... | 022-009 | 9 |
| 10 | Barb, 10-32 x 1/8"..... | 022-010 | 4 |
| 11 | Plastic Washer, 1/4"..... | 003-001 | 13 |





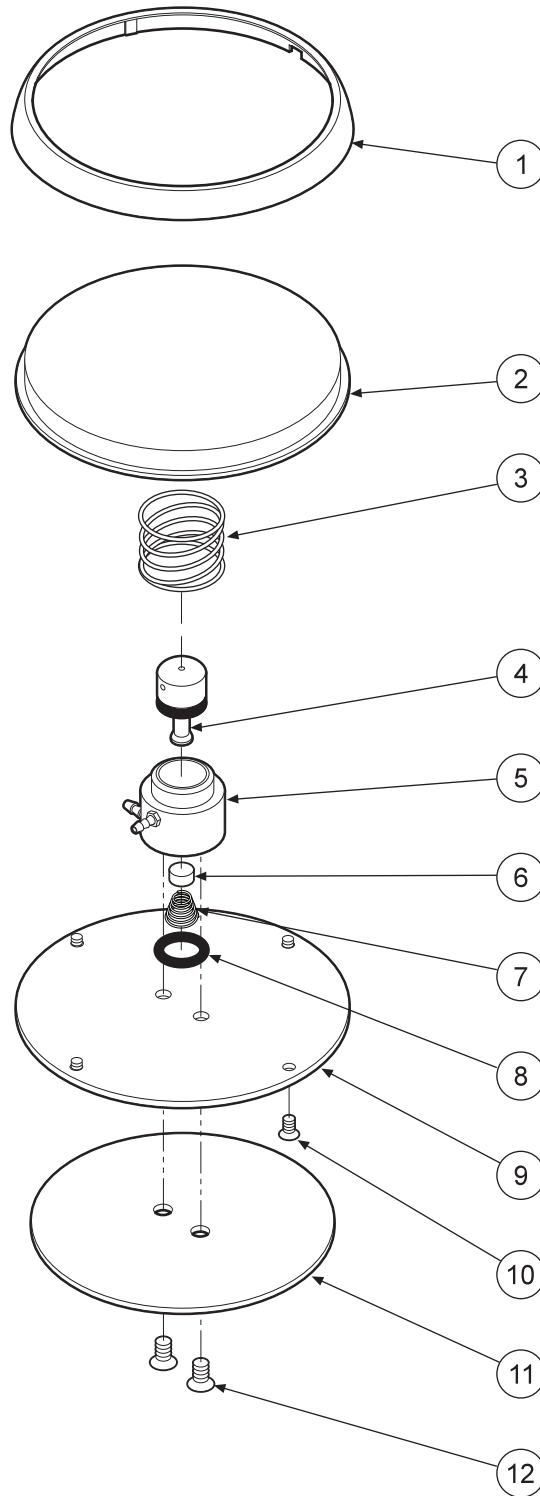
Quick-disconnect Syringe Tip Assembly 113-230

1. Remove the existing hex nut. A hex nut wrench has been provided.
2. Remove the syringe tip adapter using the hex wrench.
3. Insert the new syringe tip adapter into the syringe head and tighten using the hex wrench.
4. Place the two (2) O-Rings into the syringe tip nut.
5. Screw the syringe tip nut onto the syringe tip adapter and tighten using the hex wrench.
6. Push the syringe tip into the syringe tip nut until it snaps into place.

Replace Syringe Tip

1. Pull the dirty syringe tip out and insert a clean syringe tip into the syringe tip nut until it snaps into place.

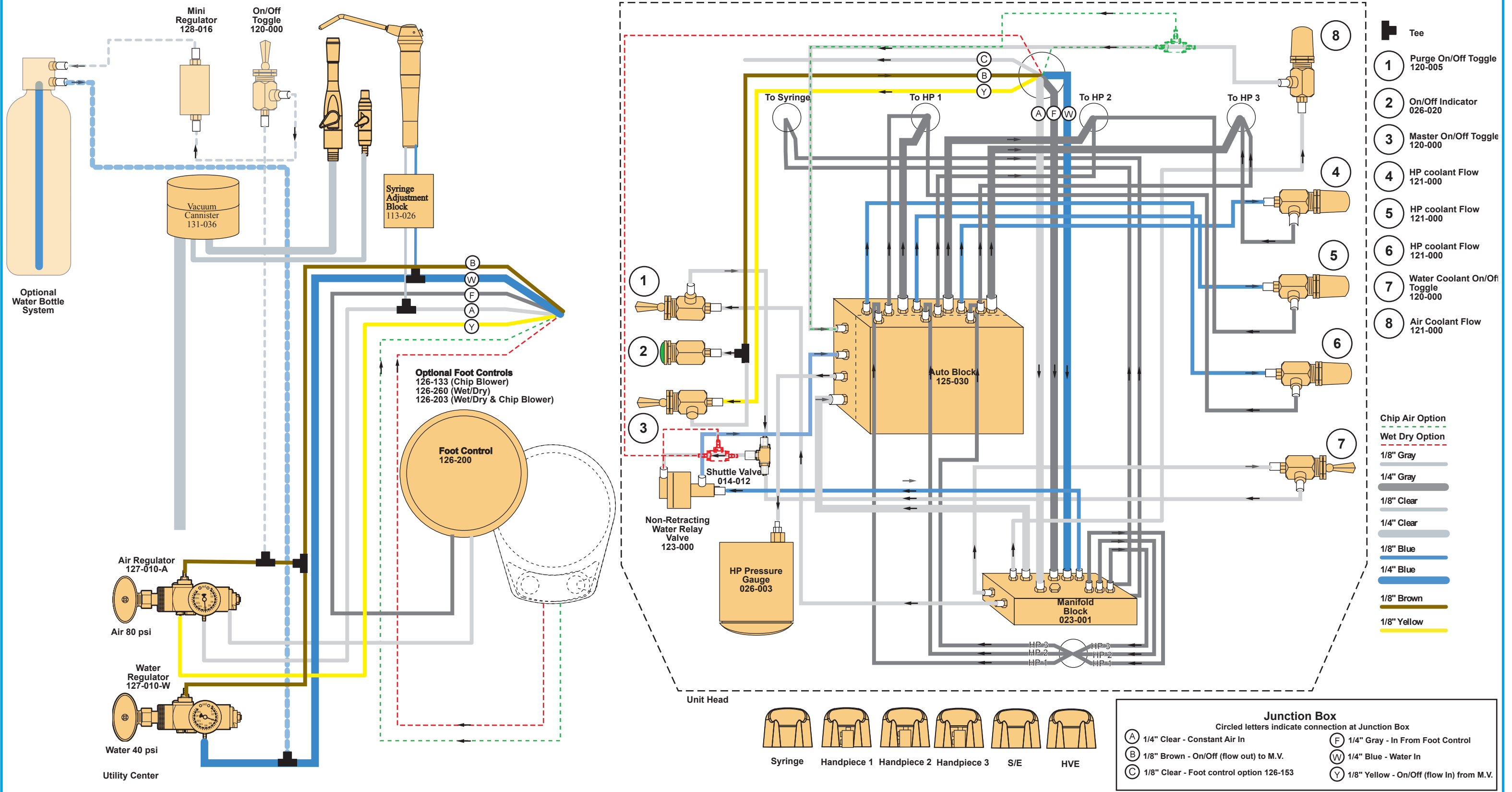
| ITEM | PART DESCRIPTION | PART NUMBER | QTY |
|------|---------------------------------|-------------|-----|
| 1 | Syringe Tip | 113-030 | 1 |
| 2 | Syringe Tip Nut..... | 113-402 | 1 |
| 3 | O-Ring, 006 | 017-006 | 2 |
| 4 | O-Ring, 228-040..... | 017-023 | 1 |
| 5 | Syringe Tip Adapter..... | 113-227 | 1 |
| 6 | O-Ring, 003 | 017-003 | 1 |
| 7 | Syringe Head..... | 113-405 | 1 |
| 8 | Syringe Button Repair Kit | 113-403 | 2 |
| 9 | Pin, Syringe Cartridge | 113-008 | 1 |
| 10 | Plastic Washer, 8-32..... | 003-030 | 2 |
| 11 | Barb, 8-32 x 1/16" | 022-040 | 2 |
| 12 | Syringe Handle..... | 113-236 | 1 |



| ITEM | PART DESCRIPTION | PART NUMBER | QTY |
|------|----------------------------------|-------------|-----|
| 1 | Ring..... | 126-202 | 1 |
| 2 | Cover..... | 126-201 | 1 |
| 3 | Spring..... | 008-005 | 1 |
| 4 | Stem (Includes 017-012 o-ring).. | 126-005 | 1 |
| 5 | Body..... | 126-004 | 1 |
| 6 | Poppet..... | 126-006 | 1 |
| 7 | Spring..... | 008-006 | 1 |
| 8 | O-Ring, 013..... | 017-013 | 1 |
| 9 | Baseplate..... | 126-003 | 1 |
| 10 | Screw, 4-40 x 1/4"..... | 001-005 | 4 |
| 11 | Rubber Pad..... | 126-007 | 1 |
| 12 | Screw, 6-32 x 1/4"..... | 001-004 | 2 |



IC Automatic Handpiece Control SO-3354

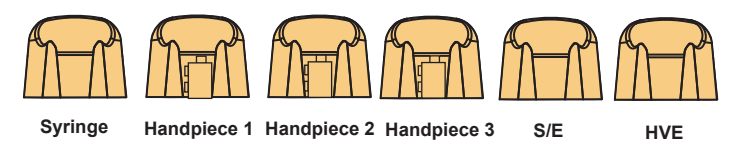


- Tee
- 1** Purge On/Off Toggle 120-005
- 2** On/Off Indicator 026-020
- 3** Master On/Off Toggle 120-000
- 4** HP coolant Flow 121-000
- 5** HP coolant Flow 121-000
- 6** HP coolant Flow 121-000
- 7** Water Coolant On/Off Toggle 120-000
- 8** Air Coolant Flow 121-000

- Chip Air Option
- Wet Dry Option
- 1/8" Gray
- 1/4" Gray
- 1/8" Clear
- 1/4" Clear
- 1/8" Blue
- 1/4" Blue
- 1/8" Brown
- 1/8" Yellow

Junction Box
Circled letters indicate connection at Junction Box

| | |
|---|---|
| A 1/4" Clear - Constant Air In | F 1/4" Gray - In from Foot Control |
| B 1/8" Brown - On/Off (flow out) to M.V. | W 1/4" Blue - Water In |
| C 1/8" Clear - Foot control option 126-153 | Y 1/8" Yellow - On/Off (flow in) from M.V. |



WARRANTY

BDS warrants its product to be free of defects in material and workmanship for SEVEN FULL YEARS from the date of purchase on all units. Auto-blocks and standard foot controls are covered by a LIFETIME warranty when factory installed as part of a complete dental system. Upholstery has a TWO YEAR warranty and does not cover normal wear, stains, cuts or tears. Our LED lights have a FIVE year Warranty and our halogen light has a ONE year Warranty. Operatory chair motors feature a TEN year warranty. All warranty is limited to repair or replacement by BDS. Products returned to the factory and determined to be defective will be repaired or replaced free of charge at discretion of BDS. The warranty does not cover light bulbs, electrical components and trimmed or installed tubing. BDS reserves the right to void all warranties if any product is installed by other than an authorized technician. BDS' warranty does not cover damage to any surface finish, including but not limited to, discoloration or abrasion from cleaners, disinfectants or light sources. No claim for labor or consequential damages will be allowed. Return items must include a copy of the invoice or packing slip as proof of purchase.

**Beaverstate Dental Inc.
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503-538-8756
503-538-2845 Fax
www.beaverstatedental.com**
