



# ASI

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## Technical Guideline

**Micro Irrigation  
Troubleshooting & Component Revisions**

**TG-90-2741.1  
(S,D,T)**

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### PURPOSE

This guideline provides primary troubleshooting and a chronological identification of instruments versions.

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## WARNINGS



**WARNING!** Only qualified personnel should service or repair this device. This device should only be serviced/repared by a qualified service technician who is proficient in the repair of electromechanical dental equipment and who understands the complexities and risks of working within the device and observes proper safety precautions.



**WARNING – Compressed Air.** The compressed air system that operates this unit is under pressure. Compressed air can propel dust or loose particles and can cause bodily injury or damage. Always turn the system off and bleed off air pressure before attaching or removing air lines or accessories or servicing this unit. All air lines should be periodically inspected and replaced if worn or damaged. If an outside compressed air supply is used to power this unit, the air supply must be regulated to 80 psi or below. Excessive air pressure could cause certain components to rupture.



**WARNING – Electrical Voltage.** This system is powered by high voltage electricity. Like any other electrically powered device, if it is not used properly, it can cause electrical shock. Always plug the power cord into an electrical outlet with adequate fuse protection and proper grounding. In the event of a short circuit, grounding reduces the risk of shock by providing an escape wire for the electric current. Improper grounding of the unit can result in a risk of electric shock. Always unplug the unit before doing any service or repair to the unit.



**CAUTION!** The irrigation system may contain chemicals that are caustic or corrosive. Always verify with the operator of the system to determine which chemicals they are using within the system. Always follow workplace safety protocols when doing maintenance or service of the system including the wearing of face mask, eye protection and gloves for proper protection of exposed skin, breathing and eyes.



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### GENERAL INFORMATION

#### Installed Configuration



### THEORY OF OPERATION

The bottle is connected to a source of compressed air that is regulated with a maximum pressure of 23 psi. The regulated compressed air flows to a toggle valve that when moved to the on position allows the air into the bottle reservoir through tubing attached to the bottle cap head. The air pressure in the bottle pushes the solution from the bottle into the pick-up tube and out through handpiece tubing to the handpiece. The handpiece has a push button valve similar to a dental air/water syringe that when pressed opens the valve and allows solution to flow out the end of the handpiece.

The end of the handpiece includes a luer type connection. This allows irrigation needles/cannulas provided by others to be attached to the handpiece. A flow control valve knob located on the dental unit allows the dentist to change the rate of drip of solution from a slow to steady drip rate.

### TECHNICAL NOTES

- Tubing should rarely require replacement unless damaged.
- The most common issues are at the valves of the handpiece, Valve/Irrigator (Button) (PN 95-0192W) and Connector Valve, Standard Irrigation (PN 95-0234). Following preventative maintenance will avoid issues and extend life-cycle of parts.



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## TROUBLESHOOTING

### Leaking solution from bottom of handpiece is identified:

- Detach the handle from the handpiece body. Check O-Ring on the Connector Valve to ensure it is not damaged or cracked. Soak connector in warm water and repeatedly press valve to break up dried solution build-up. (Fig. 1)



Fig. 1

### Irrigation handpiece drips out the end or button sticks

- Flush lines with water and soak handpiece. Press button to break up crystals. Follow ASI's Preventative Maintenance Guideline, "Micro and Active Irrigation Preventative Maintenance Guideline", TG-PM-0002.
- Use Irrigator Rinse Cup. (PN 95-0283)
- O-Rings in valve are worn or internal spring valve has reached its product life. Replace button irrigator/valve (PN 95-0192 R, O, G, W), (Negative Sonic IrriVac, PN 95-0245{N}, 95-0245{P}). Use 11/32" nut driver to replace.



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#### No flow or low pressure of irrigating solution

- Verify flow control is open.
- Line may be clogged from dried solution. Run warm water through bottles and lines and soak to see if build-up dissolves. (See ASI's Preventative Technical Guideline TG-PM-0002 and view ASI's "Preventative Maintenance for Irrigation" video). If issue does not resolve, bottle(s) are not sealing. Replace Gasket 38MM - Pressure Head (PN 95-0156) and Bottle / White 8 oz. (PN 95-4027) 2005 and after.
- No pressure reading on gauge, check yellow tubing to bracket, ensure air is being supplied. Check tubing connection to gauge. Replace Gauge if air is being supplied.
  - Gauge, Pressure (0-60psi) (PN 95-0266, for systems sold 05/2005 and later)
  - Gauge, Pressure (0-60psi) (PN 95-0145, for systems sold before 05/2005)
- Check pressure on bracket. If pressure is below 10 psi or at zero, replace Regulator Assembly - Inline Check Valve. (PN 95-0223)
- Check tubing connections on Micro Irrigation Bracket. Loose tubing connections to the pressure heads, gauge can sometimes cause low pressure to the Irrigator. If tubing connections are secure, isolate pressure head to troubleshoot if part is failing. Replace if necessary. Replace Pressure/Irrigation System. (PN 95-0153)

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#### No pressure on gauge of irrigator bracket

- Check toggle is switched to the "ON" position.
    - Verify bottle(s) are tight to pressure heads. If audible leak from pressure, replace (95-0156; 95-4027L-X)
  - Verify tubing connections to gauge, pressure heads are secured to barbs. If tubing is connected properly, check main air tubing to bracket is flowing to bracket. If air is being supplied, check Regulator Assembly - Inline Check Valve (22-23psi), On/Off Relieving Toggle, and Gauge, Pressure (0-60psi). Isolate non-functioning part. Replace, if needed:
    - Gauge, Pressure (0-60psi) (PN 95-0266)
    - On/Off Relieving Toggle (PN 95-0259)
    - Regulator Assembly - Inline Check Valve (22-23psi) (PN 95-0223)
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#### Leaking solution from bottom of handpiece

- Check Connector Valve and O-rings.
  - Standard Micro Irrigator The connector has a spring loaded valve. Verify function if there is dried solution build-up by soaking, depress valve to break up dried solution. See *Technical Note - Maintenance, Connector Valve*. Replace, if needed. (PN 95-0234)
  - Check for damaged or cracked O-ring, 9mm. Replace if, needed. (PN 95-4034)
  - Active Irrigator The connector has 5mm O-rings. Replace if needed. (PN 95-4035)
- Standard Irrigators. Remove and slide down the white handle (metal coupler for hourglass design). Check tubing is secure to barb of connector valve.

For newer design of Irrigators. If tubing has softened or loosened, cut tubing back 1/4", creating clean end of tubing and secure to barb. If tubing is hardened or past product life-cycle, replace. (PN 95-0115 -or- PN 95-0115L).

- Active, IrriVac Irrigators, replace (PN 95-0243, 95-0243L, 95-0257, 95-0257L, 95-0256, 95-0256L, 95-0255, 95-0255L)

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#### Leaking from jacket of tubing on active irrigators, IrriVac near strain relief

- The internal tubing (Red, Green, or Orange) does not have a solid connection to the barb of the connector valve. Secure tubing to barb. Replace, if needed. (PN 95-0243, 95-0243L, 95-0257, 95-0257L, 95-0256, 95-0256L, 95-0255, 95-0255L)

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#### Active Irrigation - handpiece or instrument does not vibrate, solution is flowing

- Verify the lock-out lever on side of the holder is pointing straight down to the floor.
  - Orbiter is frozen with dried solution. Soak handpiece, (See TG-PM-0002 and Preventative Maintenance for Irrigation video). (Irrigator Rinse Cup PN 95-0283)
  - If soaking does not resolve, check for cracked or damaged O-Rings. Replace Sonic Orbiter Assembly, if needed. (PN 95-4045)
  - If damage to orbiter is identified, replace Active Orbiter Assembly. (PN 95-4046)
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#### No pressure on gauge of irrigator bracket

- Check toggle is switched to the "ON" position.
- Verify bottle(s) are tight to pressure heads. If audible leak from pressure replace. (PN 95-0156; PN 95-4027L-X)
- Verify tubing connections to gauge, pressure heads are secured to barbs. If tubing is connected properly, check main air tubing to bracket is flowing to bracket. If air is being supplied, check Regulator Assembly- Inline Check Valve (22-23psi), On/Off Relieving Toggle, Gauge, Pressure (0-60psi). Isolate non-functioning part. Replace, if needed:
  - Gauge, Pressure (0-60psi) (PN 95-0266)
  - On/Off Relieving Toggle (PN 95-0259)
  - Regulator Assembly- Inline Check Valve (22-23psi) (PN 95-0223)

#### Metal coupler will not unthread from hourglass micro irrigator handpiece body

- Soak the handpiece past the coupler overnight in warm water to break up dried solution. Untighten coupler. Replace handpiece, if necessary, or upgrade to current Micro Irrigator Handpiece without metal coupler. (PN 95-0271; PN95-0115 -or- PN95-0115L)

#### Identifying handpiece version

- Handpiece/Micro Irrigator (PN 95-0154) on systems 08/2006 and prior. No valves. Tubing/Irrigator Handpiece/Articulating (Pharmed) (PN 95-0155). Locking Luer tips. *Obsolete, Upgrade Recommended.* (Fig. 2)



Fig. 2

- Handpiece/Micro Irrigator (PN 95-0270) on systems 09/2006 through 02/2008. Two valves Valve/Irrigator (Button) (PN 95-0192W) and Connector Valve, Standard Irrigation (PN 95-0234). Locking Luer tips. Metal coupler. *Obsolete, Upgrade Recommended.* (Fig. 3)



Fig. 3





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- Handpiece/Micro Irrigator (PN 95-0271), on systems 03/2008 through 01/2001. Two valves Valve/Irrigator (Button) (PN 95-0192W) and Connector Valve, Standard Irrigation (PN 95-0234). Locking Luer tips. Plastic white handle/nut. *Obsolete, Upgrade Recommended.*

- Handpiece/Micro Irrigator (PN 95-0271) [07/22/13-Present]. Two valves. Valve/Irrigator (Button) (PN 95-0192W) and Connector Valve, Standard Irrigation (PN 95-0234). Slip Luer tips. Plastic white handle/nut. *Obsolete, Upgrade Recommended.* (Fig. 4)



Fig. 4

- Handpiece Active Irrigator - Positive (PN 95-0325) (11/19/14-Present) Two valves. Irrigator Valve - Replacement, Active IrriVac (PN 95-0245[P]) and Connector Valve, Active Irri-Vac Positive (PN 95-0225). Active Orbiter Assembly (PN 95-4045). Active Irrigation Nose Cones (PN 95-3026R, G or O). Slip Luer tips. Plastic white handle/nut. (Fig. 5)
- Handpiece Active Irrigator - Negative (PN 95-0325) Two valves. Irrigator Valve - Replacement, Active IrriVac, (PN 95-0245[N]) and Connector Valve, Active Irri-Vac, (PN 95-0226). Active Orbiter Assembly (PN 95-4045). Active Irrigation Nose Cones (PN 95-3026R, G or O). Slip Luer tips. Plastic white handle/nut.
- Handpiece Active Irri-Vac Standard Irri-Vac (PN 95-0227)



(Fig. 5)





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#### Irrigation Bracket

- (06/13/13-Present) For irrigation systems, upgrades are available for newer version of bracket systems. (Fig. 6)
  - Single Solution (PN 95-0116S)
  - Dual Solutions (PN 95-0116D)
  - Triple Solution (PN 95-0116T)



(Fig. 6)

#### MAINTENANCE

Use ASI's Preventative Maintenance Guideline TG-PM-0002, "Micro and Active Irrigation" and/or "Irrigation Support" video at <http://asimedical.net/support/>.