

# Air Venturi

*The Power of Air*

**Carbon fiber tank,  
regulator & fill station with hose**



*Patent numbers:*

6,851,447 • 7,059,343 • 7,051,751

**Fill pressure: 4,500 psi (310 bar)  
Output: 2,900 psi (200 bar)**

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Illustrations and photographs are for demonstration purposes only and may not show the exact item purchased.

**Composite cylinders must be hydrostatically tested every 5 years. Plus, composite cylinders have a maximum life of 15 years from their original hydrostatic test date. ALWAYS make sure your cylinder is within its retest period.**

**Dealers:** *This owner's manual must be given to the retail customer with the tank at the time of purchase. Shooters are advised to keep this manual and associated instructions for future reference by all users of this high-pressure air tank even if it's resold or loaned.*

# Safety system



Your Air Venturi regulator is equipped with an ASTM-compliant high-pressure bottle burst disc required by the Department of Transportation (DOT).

The regulator also has a low-pressure safety burst disk (stamped 5K).

The 5K psi safety burst disk protects you and your gun in the unlikely event the regulator fails.

If the 5K psi safety burst disk vents, it did so for a reason. We recommend you do the following:

1. Disassemble the regulator (see *Service and rebuild procedures*, page 5).
2. Inspect the regulator for contamination and clean it if necessary.
3. Install a new 5K psi burst disc (instructions on page 6).
4. If the 5K psi burst disk vents after rebuild, contact Air Venturi at 216-220-1180.

Your Air Venturi regulator has a safety vent groove and safety snubber

on the stem (see above image). These lifesaving features allow for proper venting of the bottle in the event the regulator is unscrewed from the bottle while it's under pressure.

Always make sure there's no gap between the bottle and the regulator seal. If there IS a gap:

1. STOP!
2. Do NOT fill your system.
3. Do NOT use your system.
4. Place system on ground and wait for it to fully degas.
5. Immediately contact a qualified airsmith or Air Venturi tech support (216-220-1180).

Make sure there's no gap here



# Fill your tank

To fill your carbon fiber tank, connect the tank's fill port to the fill source. **Do NOT fill the tank using the fill station!**



**Do NOT use  
universal fill adapter  
to fill tank!**

**It will damage  
the regulator &  
VOID your warranty!**

*The fill station is used only to fill  
your gun's reservoir!*

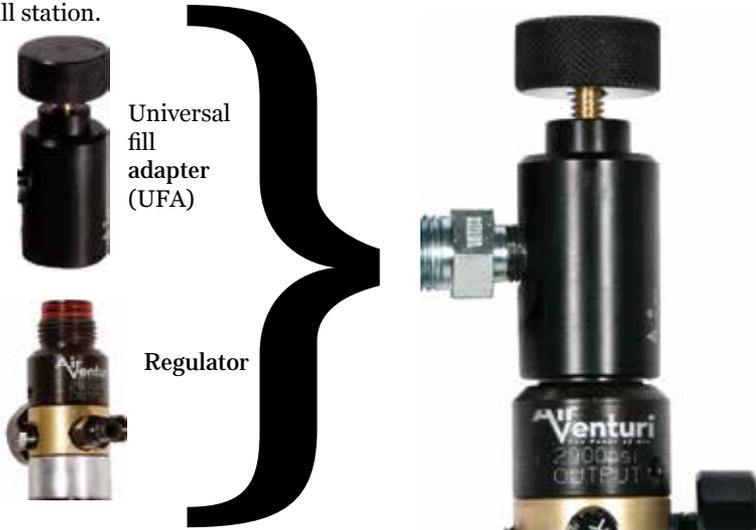


*Fill your carbon fiber  
tank using the tank's  
fill port*

# Connecting

SLOWLY screw in your regulator to the universal fill adapter (UFA) on your fill station.

See *Fill station* directions on pages 9-11.



# Gas types

Your Air Venturi tank, regulator and fill station may be used only with dry, filtered compressed air or nitrogen.

**Never** exceed a pressure rating of 4,500 psi (310 bar).

It's important to keep dirt, oil and water out of your tank, fill station and

regulator. Most regulators fail due to dirt or contamination, so cover the fill nipple when not in use.

If you use compressed air, make sure the compressor providing that air is equipped with **WORKING** filters and moisture separators.

## **WARNINGS:**

**Use only dry, filtered compressed air or nitrogen in your tank. Use no other gas, including oxygen, which can cause a fire or explosion that may result in serious injury or death.**

**Use diver's silicone grease in your gun. Any other type of grease will void the warranty.**

**When filling the compressed air tank, the compressed air must NOT contain oil, water or any other contaminant.**

# Service & rebuild your regulator

If you aren't comfortable disassembling the regulator, bring it to a qualified airsmith or call Air Venturi at 216-220-1180).



## WARNING:

Before you degas your tank, put on gloves and eye and hearing protection and point the tank in a safe direction.

Reference the parts list on page 15.

You'll need the following tools:

- 10-32 threaded screw, 2" to 4" long
- 3/32" hex wrench

**Before disassembly, fully degas your tank:**

- Point bottle away from all people and animals.
- Depress the pin valve until no air remains degases.

**To disassemble the regulator:**

1. Unscrew the bonnet from the gas distribution system to access all internal parts

**Do not apply heat to remove the bonnet! If it won't come off, depress the pin valve to completely exhaust any trapped gas.**

2. After separating the bonnet from the gas distribution system, remove the piston spring pack, shims, and output pin valve.

**Do not use tools to remove the piston spring pack, as it may damage the piston. Firmly grip the end of the piston and wiggle it while pulling.**

3. Clean the inside of the regulator body and bonnet with a cotton swab.
4. Before reassembling the regulator, lightly lubricate the piston o-ring with silicone diver's lube.
5. Reinstall the output pin valve and spring.
6. Carefully push the piston assembly into the piston bore in the bonnet. The piston must be properly seated in the bonnet before proceeding further.
7. Reinstall the Belleville springs and shim). Do not apply excessive torque when screwing together the bonnet and gas distribution system. Using a 3/32" hex wrench, insert and securely tighten the two 10-32 bonnet screws.

Contact Air Venturi (216-220-1180) for replacement parts to service and rebuild your regulator.

# Low-pressure burst disk replacement

If you aren't comfortable replacing the burst disk, bring it to a qualified airmsmith or call Air Venturi at 216-220-1180.



## WARNING:

Serious personal injury or death may result from improper disk replacement. It's essential that you replace failed disks with exact replacements. ASTM unified burst disks have the pressure identification stamped on the head of the unified disks. Some may have the pressure identifier on the side of the unified disk. **The correct low-pressure burst disk for your Air Venturi 4500 psi tank is rated 5000 psi. Do not replace it with a disk with any other rating!**

### You'll need the following tools:

- 3/8" box wrench
- 3/8-24-UNF-2B go/no-go gauge
- Inch-pound torque wrench

An ASTM-compliant unified burst disk is used on your Air Venturi regulator. Burst disks are required by the U.S. Dept. of Transportation (DOT) and Transport Canada (TC).

For your 4500 psi Air Venturi carbon fiber tank, there's a 7500 psi high-pressure burst disk rated for N2/HPA storage bottles.

### How to replace your unified burst disk assembly:

1. Unscrew (turn counterclockwise) the failed unit and discard it. **These are not serviceable and have no further use.**
2. Visually inspect the female port for damage or debris. If you find debris, blow it out. **If the port is damaged, do NOT replace the disk.**

Call Air Venturi (216-220-1180) for assistance or contact a qualified airmsmith. We recommend that the female port be checked with a 3/8-24-UNF-2B go/no-go gauge (available at industrial supply stores or [www.mscdirect.com](http://www.mscdirect.com)).

3. Screw in the new replacement unit. Using an inch-pound torque wrench, torque it to a minimum of 55 inch-pounds and maximum of 95 inch-pounds.
4. If the burst disk assembly does not seal at 95 inch-pounds, call Air Venturi at 216-220-1180 or have it inspected by a qualified airmsmith.



Contact Air Venturi at 216-220-1180 for OEM replacement parts to service and rebuild your regulator.

# Fill check-valve

If you aren't comfortable replacing the fill check-valve, bring it to a qualified airmsmith or call Air Venturi at 216-220-1180.

Before you degas your tank, put on gloves and eye and hearing protection and point the tank in a safe direction.

Your fill check-valve requires periodic inspection. If it's leaking or you notice damage on the exterior, replace it.

Refer to the parts list on page 15.

You'll need the following tool to replace your fill check-valve:

- 7/16" wrench
  - 1/8-27-NPT go/no-go gauge
1. Completely degas your tank by depressing the pin valve.
  2. Using a 7/16" wrench, remove the old fill check-valve assembly.
  3. Remove any old sealant and debris from the port.
  4. Inspect the 1/8" NPT female fill check-valve port threads on the gas distribution body. Use your go/no-go gauge (available at indus-

trial supply stores or [www.msc-direct.com](http://www.msc-direct.com)) to check the threads.

**If threads are damaged or worn, STOP! Do NOT use your regulator. Contact a qualified airmsmith or call Air Venturi at 216-220-1180.**

5. A thread sealant has already been applied to the threads on your OEM fill check-valve. Do not use any additional sealant or PTFE tape.
6. Make sure the strut is inserted into the fill check valve as shown in the image below. The new assembly should then be screwed into the regulator. Turn it until hand-tight and then tighten it an additional 1-1/2 turns. **Do not exceed 100 inch-pounds of torque to seal. If it still leaks, contact a qualified airmsmith or Air Venturi at 216-220-1180.**



The strut in your fill check-valve has a groove across one end. This is essential for proper gas flow. When replacing the check-valve, always replace the entire unit. Use only OEM products to maintain the system's integrity.



## WARNING:

Never inject oil into the regulator through the full check-valve or allow oil to enter the bottle. Oil droplets ignite during the fill process and can lead to injury or death.

Contact Air Venturi at 216-220-1180 for OEM replacement parts to service and and replace your fill check-valve.

# Fill station

Before using your fill station, put on gloves and eye and hearing protection.

1. Universal fill adapter (UFA)
2. UFA knob
3. Hose
4. Vent station
5. Vent knob
6. Quick-disconnect
7. Vent hole

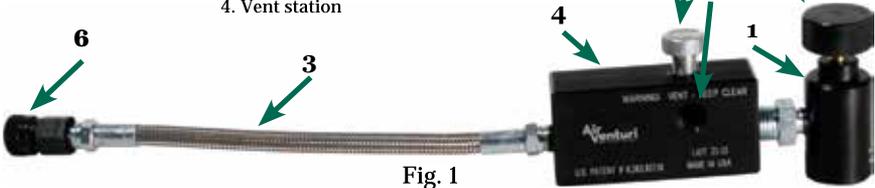


Fig. 1

**Do not use petroleum or petroleum-based products in or on the fill station or a precharged pneumatic airgun (PCP). Petroleum may cause fire or explosion and result in injury or death.**

Refer to fig. 1, above.

Your fill station has a universal fill adapter (UFA) on the input side and

connects to your Air Venture high-pressure regulator.

The vent hole has 1/8" NPT threads and can be attached to a vent hose or muffler, if you would like to reduce the sound that accompanies venting the air in the line after you're done filling the gun.

**Do NOT over-tighten the vent knob (part 5, fig. 1), as this may damage the seal. Turn the knob enough to stop the release of gas.**

## WARNINGS:

On the back of the fill station is a vent hole. For safety reasons, the vent hole (part 7, fig. 1) must be directed AWAY from the operator and bystanders.

The hose, fittings and mufflers must have a minimum working pressure of 3000 psi. Do not use a sintered bronze muffler, which is rated to only 125 psi!

Never operate the PCP fill station unless a PCP air gun is attached to the fill adapter at the end of the fill hose. Operating the fill station without a PCP airgun attached to the fill adapter will cause the hose to whip and may cause injury.

Compressed air rushes out of the vent hole (part 7, fig. 1) when relieving pressure from the fill hose. Use caution in directing the venting air.

Do NOT disconnect the hose under pressure, as it may damage the hose fitting and result in injury to the operator.

# Fill station *continued*

Before using your fill station, put on gloves and eye and hearing protection.

**The universal fill adapter vents gases stored under pressure. Make sure the valve vent knob (part 5, fig. 1) is CLOSED (turn fully clockwise) BEFORE connecting to a high-pressure compressed air bottle!**

Refer to fig. 1 on page 9.

1. Close the vent station (part 4, fig. 1) by fully turning the vent knob (part 5, fig. 1) in a clockwise direction. Do NOT over-tighten!
2. Turn the UFA knob (part 2, fig. 1) counterclockwise until it stops. Screw the UFA (part 1, fig. 1) onto your high-pressure air bottle regulator. **Be sure all components are clean and dry! Hand-tighten only. Do NOT use tools to tighten!**

Besides referring to fig. 1 (page 9), also reference fig. 2 (below) for steps 3-6.

3. Make sure your airgun has a 1/8" male quick-disconnect fill adapter.
4. Pull back the sleeve/collar on the quick-disconnect (part 6, fig. 1).

5. Connect the fill station female quick-disconnect (part 6, fig. 1) to the fill nipple on your airgun.
6. The sleeve/collar must snap back down over the fill nipple and be secure before filling your airgun! Do NOT force it on. If it does not fit properly, do not fill your airgun.
7. Once the quick-disconnect adapter has been securely attached to your airgun's fill port, do NOT let the fill station, air system or airgun hang or dangle by any component. Support the fill station, airgun and air system.
8. To start filling your airgun's reservoir, slowly turn the UFA knob (part 2, fig. 1) in a clockwise direction. You should hear the airgun filling with air. A complete fill should take about 1 minute. Fill your airgun to the psi according to directions of the gun's manufacturer.



Fig. 2

# Fill station *continued*

Before using your fill station, put on gloves and eye and hearing protection.

9. Check your airgun's pressure gauge (manometer). It should show a pressure equal to the output pressure of the bottle's regulator pressure...typically, 3000 psi. Do not over-pressurize your airgun. Always check your airgun's manual for the correct pressure.\*
10. After you're done filling your airgun, turn the UFA knob (part 2, fig. 1) counterclockwise until it stops.
11. Bleed the pressure from the fill hose by slowly turning the vent knob (part 5, fig. 1) counterclockwise. **See warnings below!**
12. Disconnect the quick-disconnect from your gun. If it doesn't open easily, make sure the fill station is vented and no air is in the fill station.
13. Disconnect the UFA from the high-pressure air bottle.

*\*Note: Small pressure gauges found on airguns and fill bottles may not agree with each other. Generally speaking, most shooters trust the gauge reading on the fill bottle more than the smaller one on the airgun.*

## **WARNINGS:**

Compressed air will rush out of the vent hole (part 7, fig. 1, page 9) when relieving pressure from the fill hose. Use caution in directing the venting air. Always wear gloves and eye and hearing protection when operating your fill station.

Do NOT disconnect the hose if it's under pressure. Disconnecting the hose while under pressure could cause damage to the hose fitting and injury to the operator.

# **WARNINGS:**

Not a toy. Adult supervision required. Misuse or careless use may cause serious injury or death.

Use only dry, filtered compressed air or nitrogen in your tank. Use no other gas, including oxygen, which can cause a fire or explosion that may result in serious injury or death.

Use diver's silicone grease where lubrication is indicated in this manual. Any other type of grease will void the warranty and may be flammable or explosive.



Do **NOT** exceed maximum fill pressure of 310 bar/4,500 psi at room temperature!

Use only dry, filtered compressed air or nitrogen in this tank. Use no other gases—including oxygen, which can cause a fire or explosion that may result in serious injury or death.

If you suspect that your carbon fiber (composite) cylinder has been heated to temperatures of 132.8° F/ 56° C or more, it must be hydrostatically retested and fully requalified before further use. Composite cylinders exposed to or with evidence of exposure to heat in excess of 161.6° F/ 72° C must be condemned and removed from service.

When filling the compressed air tank, the compressed air must NOT contain oil, water or any other contaminant.

Compressed air tanks must NEVER be opened or modified mechanically by unauthorized specialists.

The compressed air tank must be protected from forceful impacts.

Compressed air tanks are NOT intended for transport of other gases.

Disconnecting the fill hose from your gun without first bleeding the air may result in injury from hose whip as a result of pressure in the fill hose.

# General maintenance

**ALWAYS** keep the universal fill adapter clean and dry.

**ALWAYS** keep the threads of the valve body and cylinder free from oil, dirt and other contaminants. You may wipe these with a clean dry cloth if required.

**NEVER** overfill or have your cylinder filled beyond its rated capacity. Overfilling may result in property damage, personal injury or death.

**NEVER** tamper with or alter the cylinder valve, safety relief device or other cylinder attachments.

**NEVER** use this cylinder for applications other than charging your airgun.

**NEVER** use caustic paint strippers or corrosive cleaners, which will damage the cylinder.

**NEVER** use heat-activated paint (such as baked enamel or powder coating) on your cylinders. Use only air-drying paint.

**NEVER** use lubrication, Teflon tape or thread-locking compound.

**NEVER** alter or modify the cylinder in any way.

**NEVER** try to restrict the flow of air from your unit by using your hand to cover a port or leak. High-pressure air can cause serious physical injury if directed against the surface of your skin.

Improper use, filling, storage, disposal or failure to follow instructions may result in property damage, serious injury or death.

Periodically check the UFA and fill hose for thread integrity, cracks or other wear. Immediately replace any suspect part.

# Troubleshooting

In the unlikely event your tank malfunctions, DO NOT attempt to fix the problem yourself. Please call Air Venturi so we can address any issues or have you return the tank for repair.

**Air Venturi service line: 216-220-1180**

# Warranty

Your Air Venturi carbon fiber tank, regulator and fill station are manufactured to the highest possible standards, using the finest materials to give a lifetime of service. In the unlikely event there are any defects in materials or workmanship in the first twelve (12) months after retail purchase, we will repair or replace the defective items under warranty.

**Note—The warranty will be invalid if:**

- Any items have been incorrectly disassembled, reassembled or maintained.
- The universal fill adapter (UFA) has been used to fill the tank with gas.
- The unit has not been properly lubricated or the wrong lubricant has been used.
- Parts other than original equipment manufacturer parts have been used.
- The unit has been abused, misused or improperly stored.
- The original purchase receipt cannot be presented.

**Note—The warranty does NOT cover:**

- Any damage or faults caused by owner misuse, action or inaction.
- Use of the universal fill adapter (UFA) to fill the tank with gas.
- Shipment damage to or from Air Venturi.

This warranty is in addition to your statutory rights. Retain your sales receipt as proof of purchase.

**Composite cylinders must be hydrostatically tested every 5 years. Plus, composite cylinders have a maximum life of 15 years from their original hydrostatic test date. ALWAYS make sure your cylinder is within its retest period.**

The date of manufacture is listed on the label that is permanently attached to the back of your cylinder. The date follows the text **M4625** and is listed in a month-and-year format. For example, if your cylinder reads **M4625 10@13**, that means your cylinder was manufactured October 2013, requiring its first retest on or before October 2018 and again on or before October 2023. The last date your cylinder would be usable would be October 2028, which is the end of the 15th year. At that time, the cylinder would have to be replaced. The retesting required can be performed by many scuba dive shops. If you require assistance finding a service provider, contact Air Venturi customer service. Your fill valve does not require any retesting.

# Parts list

1. Tank o-rings (part AV-NJ004) x 2
2. Bonnet
3. Bonnet screws x 2
4. Ball valve seat
5. Ball
6. Pin valve spring
7. Piston o-ring
8. Piston & spring pack
9. Piston o-ring
10. Regulator seat
11. Thin pressure adjustment shims (number of shims may vary)
12. Thick pressure adjustment shims (number of shims may vary)
13. Belleville springs and shim
14. Low-pressure burst disk (part AV-NJ005)
15. High-pressure burst disk (part AV-NJ006)
16. Gas distribution body
17. Gauge (part AV-00030)
18. Fill valve (part AV-NJ007)
19. Restrictor



# Air venturi

*The Power of Air*

Air Venturi  
5135 Naiman Parkway  
Solon, OH 44139  
216-220-1180