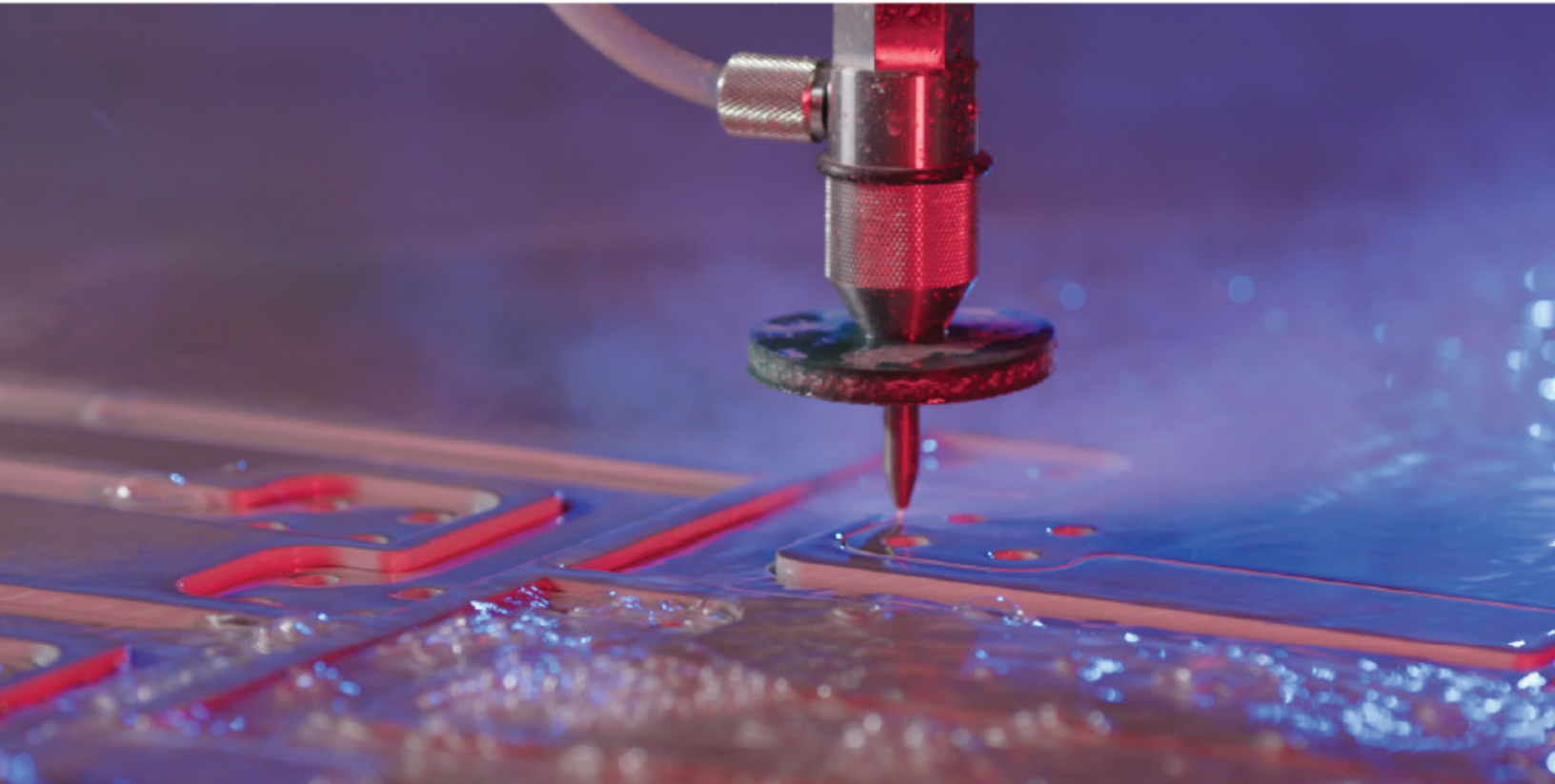




**HYPERTHERM
ASSOCIATES™**



Abrasive Regulator III Instruction Manual



**809030 | REVISION 2
ENGLISH**



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Abrasive Regulator III

Instruction Manual

809030

REVISION 2

ENGLISH

Original Instructions

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For training and education resources, go to the Hypertherm Cutting Institute (HCI) online at www.hypertherm.com/hci.

Hypertherm products are designed and manufactured with a commitment to continuous quality control and safety. Contact a Hypertherm Technical Service Associate for information and support regarding the installation, operation, maintenance, and repair of this equipment.

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Warranty

Waterjet product warranty coverage

Product	Warranty coverage up to
Abrasive regulator	15 months from the ship date, or 12 months from the date of proven installation, whichever occurs first.

Hypertherm's warranty does not extend to defects, failures, damages, deficiencies, or errors that are:

- not reported to Hypertherm within the warranty period; or
- the result of modification, abuse, misuse, noncompliance with the installation or operation instructions, unauthorized repair, inadequate maintenance, neglect, accident, or the use of unapproved parts; or
- the result of normal wear; or
- the result of the system being operated contrary to Hypertherm's instructions or stated limits of rated and normal use

For information about the manufacturer's warranty, refer to the conditions of sale provided when the product was purchased.

Consumable parts are not included in this warranty. Consumable parts include high-pressure water seals, check valves, cylinders, bleed-down valves low pressure seals, high-pressure tubing, and filters.

All third-party components are warranted by the respective manufacturers and are not included in this warranty.

Disclaimer

All product information contained in this manual is believed to be reliable as of the date of publication. The manual could contain technical inaccuracies or typographical errors and can be changed or updated without notice.

Environmental Stewardship

Hypertherm participates in global sustainable practices, protects the global community and natural environmental impacts through active participation to reduce negative ecological impacts.

Safety

This section contains important safety information for the equipment. Careful observance of the safety information can help prevent physical injury, damage to the equipment, and extend the equipment life.

National and Local Safety Regulations

National and local safety regulations shall take precedence over instructions supplied with the product. The product shall be imported, installed, operated, and discarded in compliance with national and local regulations applicable to the installation site.

User Responsibility

The end user is responsible for the safe operation of this equipment.

The safety precautions in this manual are general and all situations cannot be anticipated. Hypertherm Inc. acknowledges that sudden equipment failures, site variability, deficient maintenance, control equipment failure, and other events can cause equipment damage, injuries or death. It is the user's responsibility to identify hazards and take the steps necessary to minimize risk.

Keep these instructions near the equipment. This manual is intended to familiarize the user with the equipment and its parts, operation, and maintenance.

All people who operate or exposed to this equipment must become familiar with this information:

- Applicable safety standards
- The use, limitations, and care of personal protective equipment
- The location of the written hazard communication program and safety data sheets

Equipment Labels

The following safety labels may appear on the equipment. If ignored, physical injury, death, or equipment damage may occur. Read the safety information in the equipment operation guides before installing, operating, or maintaining the equipment.



Wear Eye Protection

High-pressure water can cause eye injuries. Wear approved eye protection when working near this equipment.



Wear Ear Protection

Prolonged exposure to noise can cause permanent hearing loss. Wear approved hearing protection and control exposure time when operating or working near this equipment.



Wear Gloves

High-pressure water can cause severe cuts or lacerations, abrasions, and punctures. Wear approved hand protection when operating or working near this equipment. Precision parts have sharp corners or edges. Wear protective gloves when handling parts.



Respiratory Protection

Some materials can produce airborne contaminants or suspended particles when cut. Wear approved respiratory protection.



Read Manual

Read the equipment operator's guide for specific operator instructions and additional safety requirements. Do not attempt to operate this machine until all safety precautions and operating instructions are read and understood.



Mandatory Action

This symbol identifies a mandatory action.



Prohibited Action

This symbol identifies a prohibited action.

Safety Precautions

Always observe the following safety precautions while operating or servicing the equipment. Carefully operated, the equipment is a safe tool. When operated carelessly, serious injury can result. Never make unauthorized alterations to the equipment or components.

Lockout/Tagout Procedure

Hypertherm recommends the implementation of practices and procedures to shut down equipment, isolate it from its energy source(s), and prevent the release of potentially hazardous energy while maintenance and servicing activities are being done.

Safety Legend

The following safety signal word panels and paragraph notifications may appear throughout this and other documentation. Each provides safety issue identification and recommended actions to prevent the hazard. Be alert! Follow the recommended safety actions and precautions to prevent injury or damage to the equipment.

⚠ WARNING

Identifies a hazardous situation which, if not avoided, could result in death or serious injury.

⚠ CAUTION

Identifies a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

Used to address practices not related to personal injury.

Note

Used to provide supplementary information, emphasize a point or give a tip for easier operation.

Terminology

Some terms could be relevant to other products.

Abrasive

Fine mesh particles, typically garnet, used in the waterjet cutting process

Abrasive delivery pot

Where abrasive is held before it goes to the abrasive regulator

Bar

A unit of pressure; 1 bar equals 100 kPa or 14.5 psi or 100,000 N·m²

Control knob

A device used to adjust the abrasive flow rate to the cutting head

Fitting

A coupling, valve or gauge that stops, regulates, or directs the flow of water in a hose or a tube

Flow rate

Measure in grams per minute 1 g/min = 0.0022 lb/min, or pounds per minute 1 lb/min = 453.6 g/min

High-pressure water

Water pressurized by an intensifier pump for cut or pierce modes

Hose

A flexible hollow cylinder dimensions is based on the inside diameter (ID)

Inside diameter

The diameter measurement of the inside of a cylinder

ISO

The International Organization of Standardization is an independent membership organization that develops voluntary standards

kPa

A kilopascal is a unit of pressure; 1 kPa equals 0.01 bar or 0.15 psi or 1,000 N·m²

Low-pressure water

Water not pressurized by the intensifier pump

NPT

National pipe thread taper, a common United States standard for tapered threads that are sold directly to end users

OEM

An original equipment manufacturer of machines that include Hypertherm products that are sold directly to end users

Outside diameter

The diameter measurement of the outside of a cylinder

psi

Pound-force per square inch in a unit of pressure; 1 psi equals 0.07 bar or 7 kPa or 6,894 N•m²

Regulator

The abrasive regulator

SAE

SAE International is a professional associations of engineers and technical experts that coordinates the development of technical standards based on best practices in the aerospace, commercial vehicle, and automotive engineering; SAE Code 61 fittings are designed for 207 bar or 20,684 kPa (3,000 psi) applications SAE Code 62 fittings are designed for 414 bar or 41,369 kPa (6,000 psi) applications

Tube

A flexible hollow cylinder; dimensions are based on its outside diameter (OD); the inside diameter (ID) depends on the thickness of the tube




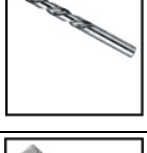
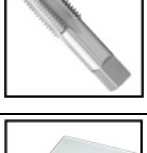



Valve

A device used to control the rate of flow in a hose or a tube

Required Tools

These tools are required to do the procedures described in this document.

Customer Supplied Tools

Icon	Tool	Size(s)
	Ball-end hex wrench	9/64 in., 3/32 in., 3/16 in.
	Pin gauge	0.038 in.
	Cordless drill	
	Drill bit	0.201 in.
	Tap	1/4 in.-20
	Scale	
	Clean, dry, compressed air	
	Clean water	
	Empty container	1 quart

Icon	Tool	Size(s)
	Stopwatch	

Product Description

The abrasive regulator is positioned above the waterjet nozzle and receives material from a separate abrasive pot. The abrasive material is collected, then flows through the metering aperture to the waterjet nozzle. The abrasive flow rate is controlled by the control knob that is marked with numbers 1-10. The abrasive flow rate can be adjusted during the machining process.

NOTICE

Do not block the vent or let air pressure increase in the abrasive regulator. A hose is attached to the vent and put in the catcher tank to prevent equipment damage.

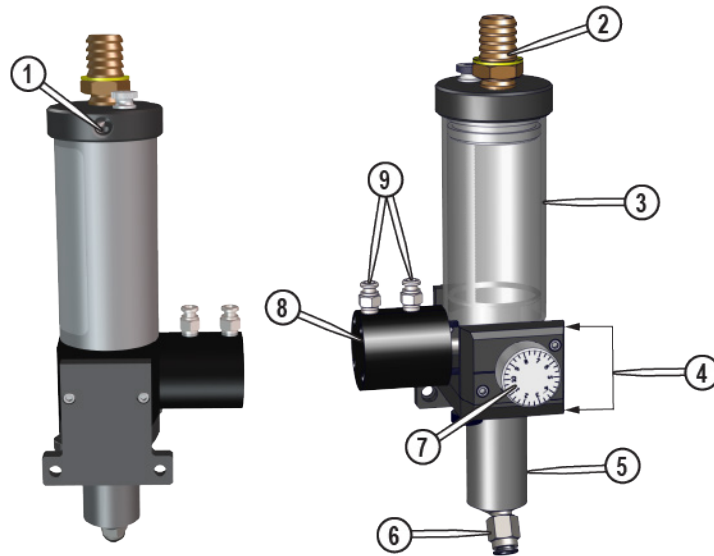





Figure 1

- | | | |
|--------------------|---------------------------|---------------------------|
| [1] Vent | [4] Regulator body | [7] Control knob |
| [2] Feed hose barb | [5] Regulator base | [8] Air cylinder |
| [3] Acrylic tube | [6] Delivery tube fitting | [9] Air cylinder fittings |

Operation

Safety

	Refer to the instruction manual. Read and understand all the safety guidelines in this manual.
	Examine and clean the regulator regularly and make repairs immediately.
	Keep the work area clean and free of fluid spills.

This section gives information to operate the abrasive regulator.

Before operation:

- [Examine the regulator](#)
- [Operate the regulator](#)
- [Adjust the flow rate](#)
- [Suggested set points](#)
- [Adjust the regulator for new abrasive](#)

Examine the Regulator

NOTICE

All maintenance work must be done by approved personnel to prevent damage to the equipment.

A regular examination for wear helps the abrasive regulator to maintain constant abrasive material flow.

- Examine for leaks, deterioration, damage, or other conditions that can stop operations.
- Make sure all connections, fasteners, locked devices, hoses, and fittings are safely attached.
- Contact Hypertherm for replacement decals and make sure all operational and instructions are present and legible.

Operate the Regulator

CAUTION

All operators must wear applicable personal protective equipment when operating the equipment to prevent injury.

The abrasive regulator is air operated. Air is usually supplied by a 2-position, 4-way solenoid valve. When air goes into the cylinder's outer connection, the gate opens to permit the flow of abrasive material to the waterjet nozzle. When air goes into the cylinder's inner connection, the gate closes, and the abrasive flow stops. Refer to [Connect the Abrasive Regulator to the Solenoid Valve](#) section.

Adjust the Flow Rate

⚠ CAUTION

All operators must wear applicable personal protective equipment when operating the equipment to prevent injury.

The control knob settings range from 1 through 10 in 1/3 increments. Use the chart to set the abrasive flow rate. The chart is based on 80-mesh alluvial abrasive. Flow rates can vary because of grit size.

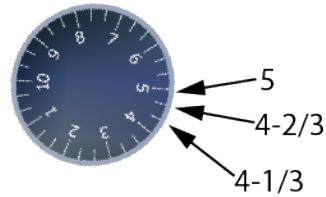


Figure 2

Control knob setting	Grams per minute (g/min)	Pound per minute (lb/min)
1/3	0	0
2/3	11	0.025
1	34	0.075
1-1/3	45	0.1
1-2/3	57	0.125
2	68	0.15
2-1/3	82	0.18
2-2/3	91	0.2
3	113	0.25
3-1/3	136	0.3
3-2/3	159	0.35
4	181	0.4
4-1/3	204	0.45
4-2/3	227	0.5
5	263	0.58
5-1/3	295	0.65
5-2/3	327	0.72
6	363	0.8
6-1/3	399	0.88

Control knob setting	Grams per minute (g/min)	Pound per minute (lb/min)
6-2/3	431	0.95
7	476	1.05
7-1/3	522	1.15
7-2/3	567	1.25
8	626	1.38
8-1/3	680	1.5
8-2/3	735	1.62
9	771	1.7
9-1/3	816	1.8
9-2/3	871	1.92
10	998	2.2

Suggested Set Points

Below is the suggested abrasive regulator set points for 80-mesh alluvial. Refer to [Adjust the Regulator for New Abrasive](#) for how to set other abrasive types.

Nozzle orifice and mixing tube sizes	0.010/0.030	0.011/0.030	0.012/0.030	0.014/0.040	0.016/0.040
Control knob setting	5-1/3	5-2/3	6	7-1/3	7-2/3

Adjust the Regulator for New Abrasive

⚠ CAUTION

All operators must wear applicable personal protective equipment when operating the equipment to prevent injury.

The abrasive regulator is set at the factory for 80-mesh alluvial. Follow these steps to adjust the regulator for other types of abrasives.

Note

Calibrate the control knob when using other abrasive materials and after maintenance activities. Refer to [Calibrate the Control Knob](#) section.

1. Weigh the empty container.
2. Set the control knob to the necessary flow rate. Refer to [Adjust the Flow Rate](#) table.
3. Disconnect the delivery tube from the regulator.
4. Put the delivery tube into the container. Open the regulator for 1 minute, then close it.
5. Turn the control knob clockwise to open the regulator.
6. Weigh the filled container.



7. Subtract the weight of the empty container from the filled container.
8. Turn the control knob clockwise (increase) or counterclockwise (decrease) the flow rate. Refer to [Adjust the Flow Rate](#).
9. Repeat this process until the flow rate is satisfactory.

Preventive Maintenance

NOTICE

All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.






Hypertherm products are designed and manufactured with a commitment to continuous quality control and safety. Contact a Hypertherm Technical Associate or an OEM for information about the installation, operation, maintenance, and repair of this equipment.

Hypertherm Inc. recommends preventive and scheduled maintenance for all equipment. High-quality equipment that is maintained on a schedule lasts longer than equipment not regularly maintained. This maintenance includes adjustments, cleaning, lubrication, repairs, and replacement of parts.

Benefits of Preventive Maintenance

- Improves reliability
- Extends the equipment life and decreases the frequency of replacement
- Contributes positively to reputation and profits
- Gives traceability through records

Safety

	Refer to the instruction manual. Read and understand all the safety guidelines in this manual.
	Follow all safety requirements and applicable safety laws and regulations.
	Coordinate preventive maintenance and repair activities with operations and safety staff.
	Examine and clean the equipment regularly and make prompt repairs.
	Repair or replace parts identified in the preventive maintenance schedule or if the part show signs of deterioration, corrosion, or damage.

Tips

- Keep the work area clean and free of fluid spills. Use catch basin under areas where water or abrasive can spill during maintenance or repair procedures.
- Keep accurate maintenance records.
- Keep parts available when required.
- Follow local protocols for recycling or disposal of parts and materials. Refer to [Recycling and End of Product Life](#) section.

Preventive Maintenance Schedule

CAUTION

All operators must wear the applicable personal protective equipment when operating, maintaining, or servicing the equipment to prevent injury.

NOTICE

All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.

Use the following maintenance activities and schedules to develop a satisfactory equipment maintenance program. Reference documents and videos provide instructions for performing the specific task.

Note

- The expected life of components varies based on specific use cases and environmental conditions.
- The hours listed in this schedule for recommended maintenance are NOT warranty hours.

Task	Frequency	Reference
Examine the aperture plate for flow rate	Weekly	Calibrate the control knob
Examine the exit plate for flow rate	Weekly	Calibrate the control knob
Examine the gate and cylinder	As required	Disassemble the regulator and Assemble the regulator

Replace the Worn Plates

NOTICE

All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.

Inspect the parts and replace if damaged.

Disassemble the Regulator

To disassemble the abrasive regulator, remove the external retaining rings, compression springs, flat washers, gate and air cylinder, aperture plate and exit plate, if needed.

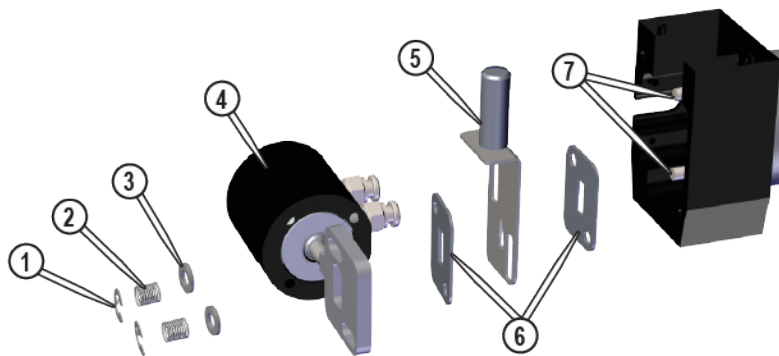


Figure 3

- [1] External retaining rings
- [2] Compression springs
- [3] 1/4 in. flat washers
- [4] Gate and air cylinder
- [5] Aperture plate
- [6] Exit plates
- [7] Guide studs

Do these steps to disassemble the abrasive regulator.

1. Remove the **thumb screws** [2] from the bottom of the **abrasive regulator body** [1].

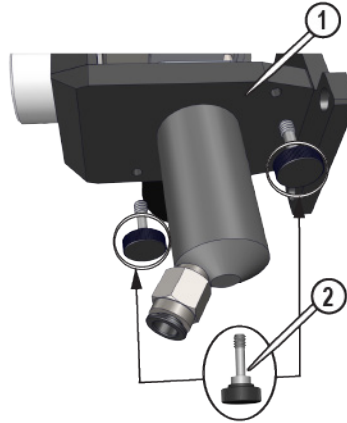


Figure 4

2. Remove the **regulator base** [1].

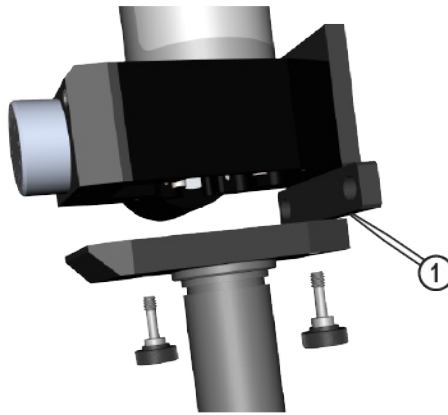


Figure 5

3. Remove the two **socket-head cap screws** [2] from the **control knob mounting plate** [1].

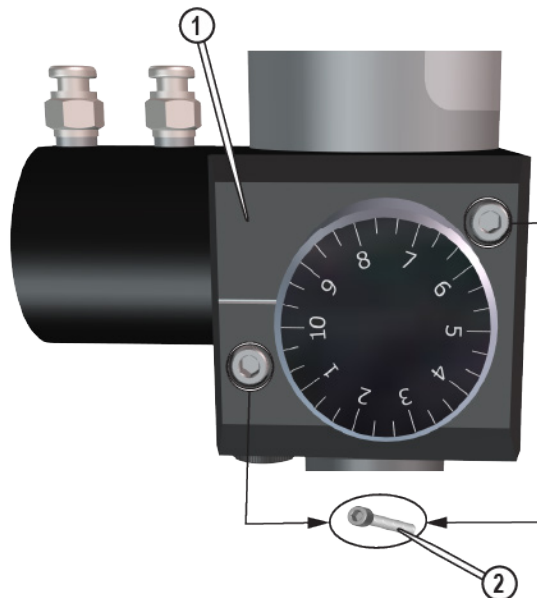


Figure 6

4. Remove the **control knob** [2] and the **set screw** [1] from the **control knob mounting plate** [3].

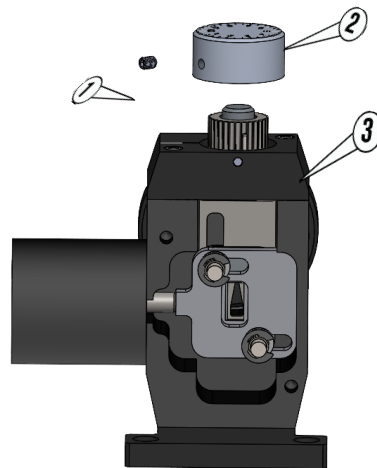
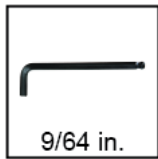


Figure 7

5. Turn the **control knob mounting plate** [1] counterclockwise on the **regulator body** [2].

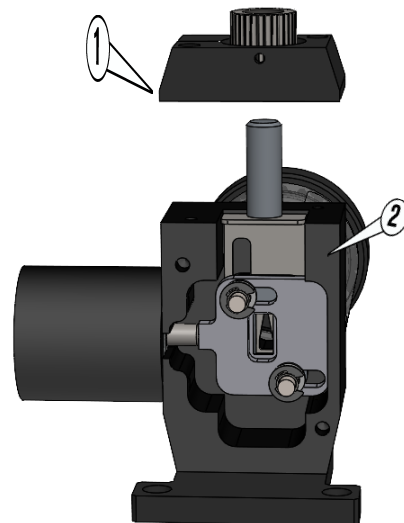


Figure 8

6. Remove the **external retaining ring** [2], **spring** [3], and **washer** [4] from both **guide studs** [1].

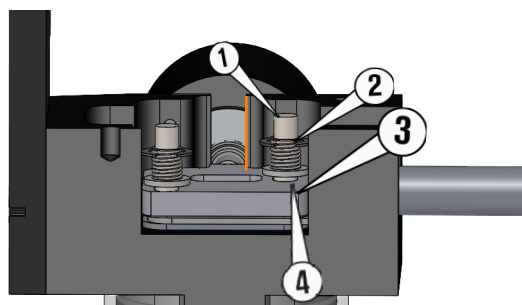


Figure 9

- Remove the four **socket head cap screws** [1] from the **air cylinder body** [2].

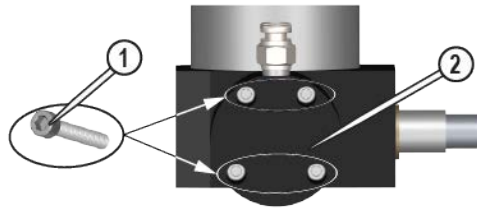
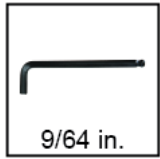


Figure 10

Assemble the Regulator

To assemble the abrasive regulator, attach the external retaining rings, compression springs, flat washers, gate and air cylinder, aperture plate and exit plate, if needed.



Before abrasive regulator assembly, clean the parts with compressed air to remove dirt and other contaminants.

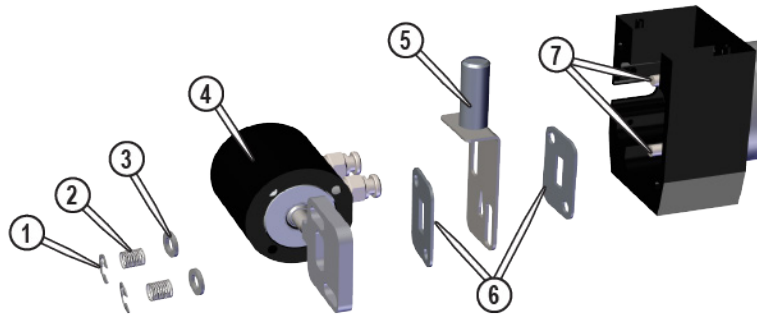


Figure 11

- [1] External retaining rings [4] Gate and air cylinder [7] Guide studs
- [2] Compression springs [5] Aperture plate
- [3] 1/4 in. flat washers [6] Exit plates

Do these steps to assemble the abrasive regulator.

- Align the **bottom exit plate** [2] holes with the **guide studs** [1], then move the **bottom exit plate** [2] down until it touches the **regulator body** [3].

Note

Point the bottom exit plate with the words this side up in the regulator body direction and this end forward in the control knob direction.

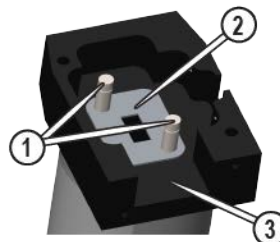


Figure 12

- Align the **aperture plate** [2] slots with the **guide studs** [1] until it touches the **bottom exit plate** [3].

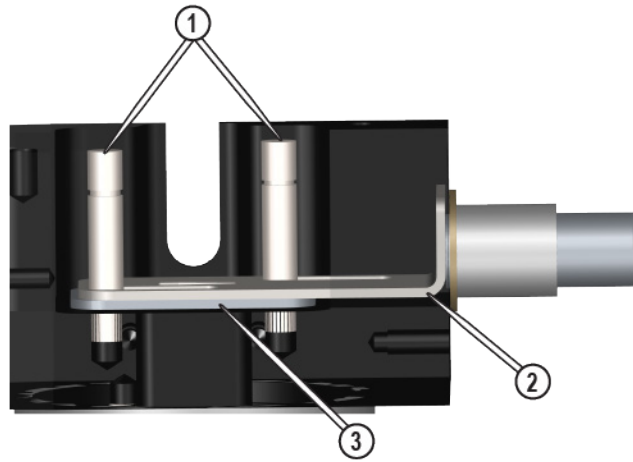


Figure 13

- Align the top **exit plate** [2] holes with the **guide studs** [1] until it touches the aperture plate.

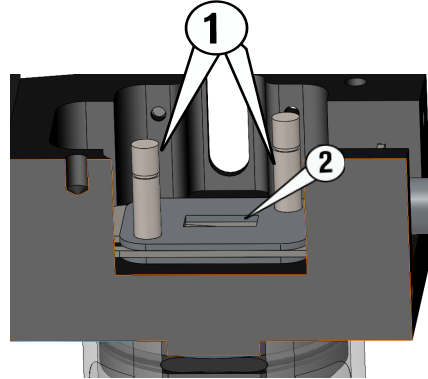


Figure 14

Note

Lower the top exit plate with the words this side up in the regulator body direction and this end forward in the control knob direction.

- Install the **gate** [2] and **cylinder** [1].

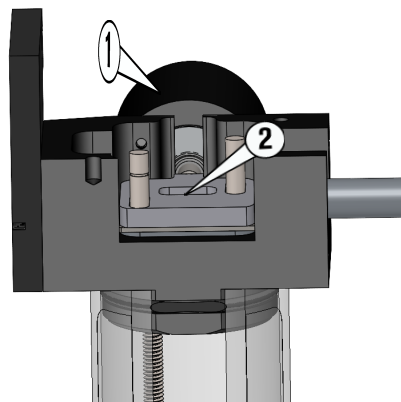


Figure 15

- Put a **washer** [4], **spring** [3] and **external retaining clip** [2] on each **guide stud** [1].

Note

Put the washers on the guide studs with the flat side down and install the external retaining rings on the guide stud slots.

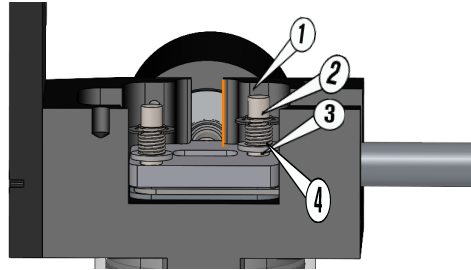


Figure 16

- Install and tighten the **socket-head cap screws** [1] into the **air cylinder body** [2].

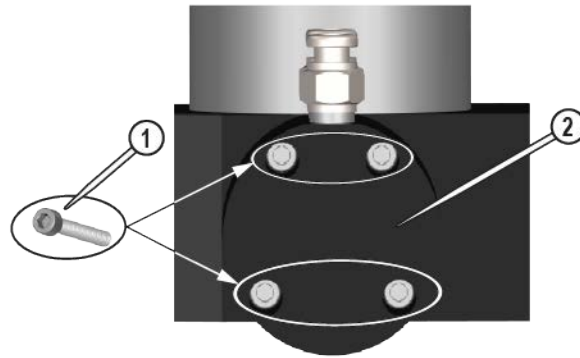
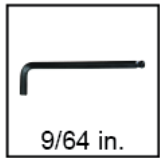


Figure 17

- Turn the **control knob mounting plate** [1] clockwise on the **regulator body** [2].

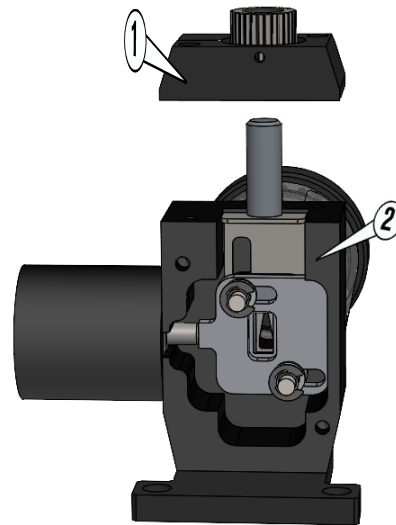


Figure 18

8. Install the **control knob** [2] and the **set screw** [1] on the **control knob mounting plate** [3].

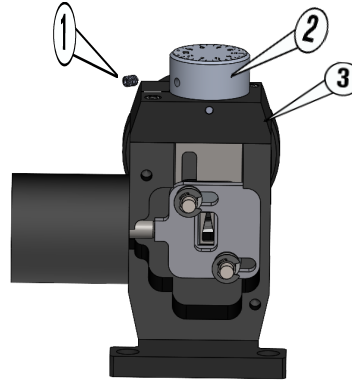


Figure 19

9. Install the **control knob mounting plate** [1] on the **regulator body** [2] and tighten the **socket-head cap screws** [3].

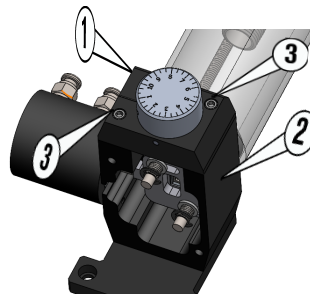


Figure 20

10. Blow compressed air into the **first air cylinder fitting** [1] and into the **second air cylinder fitting** [2] to make sure the **gate** [3] operates.

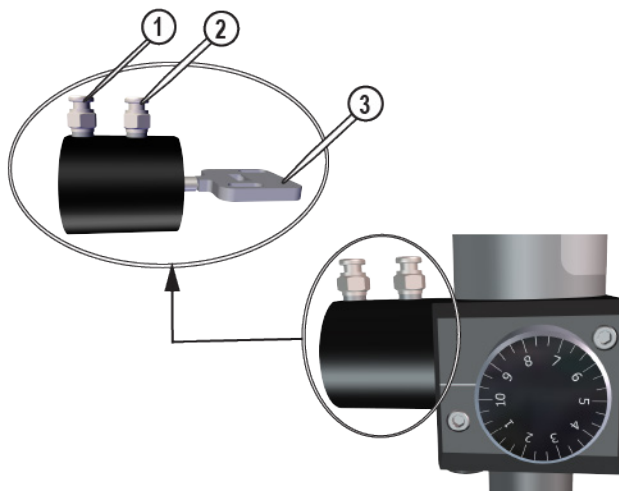


Figure 21

Calibrate the Control Knob

NOTICE

All preventive maintenance work must be done by approved personnel to prevent damage to the equipment.

Calibrate the control knob to use with other abrasive materials and after maintenance is performed.

1. Turn the **control knob** [1] clockwise to sufficiently open the **aperture plate** [2].

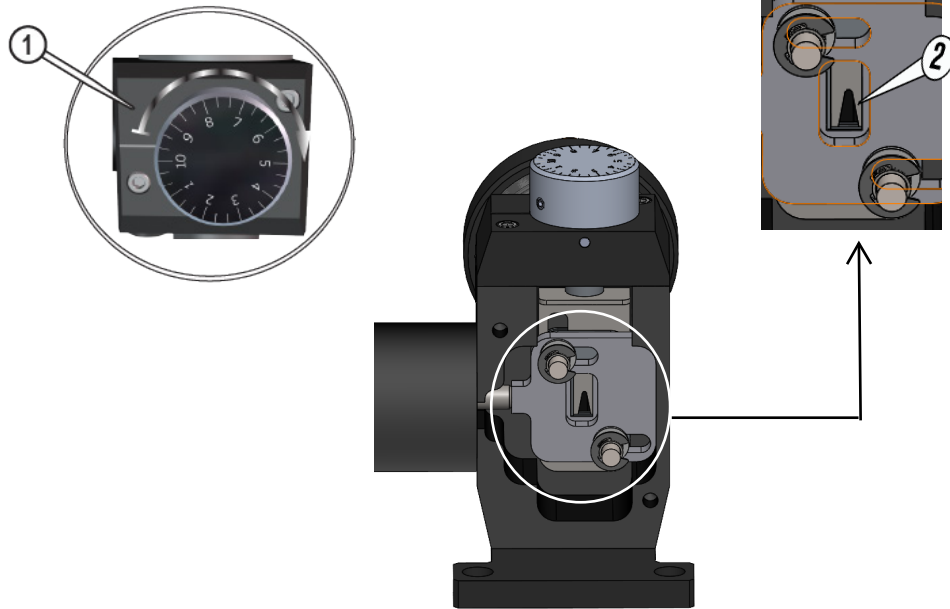


Figure 22

2. Turn the **control knob** [1] counterclockwise to close the **metering aperture** [2] on the **gauge pin** [3].



Figure 23

4. Turn the **control knob** [1] slightly clockwise to release the **gauge pin** [2]. Remove the **gauge pin** [2].



Make sure the control knob does not move when the gauge pin is out.

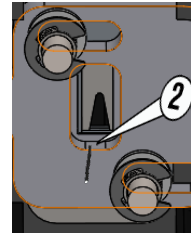
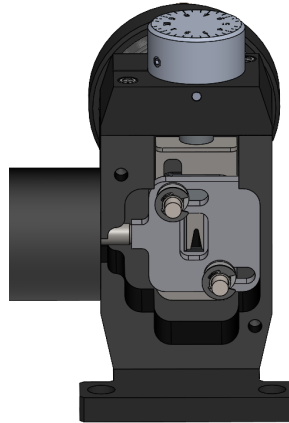
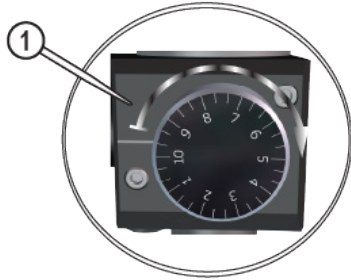


Figure 24

4. Loosen the **control knob set screw** [1].

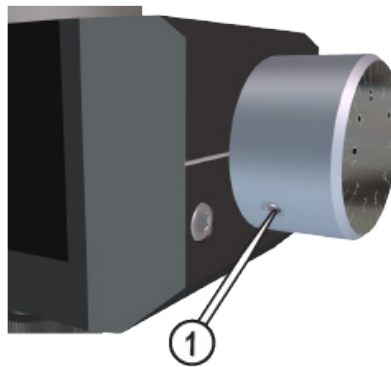
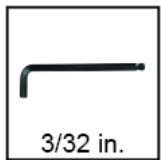


Figure 25

5. Rotate the **control knob** [1] to align with the **number 1** [2] on the **control knob mounting plate white line** [3].

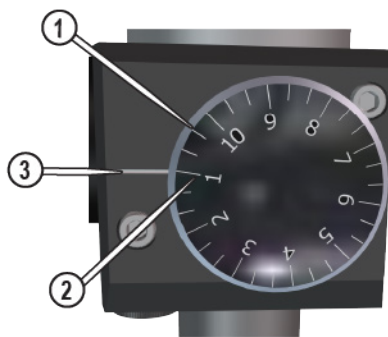


Figure 27

6. Tighten the **control knob set screw** [1].

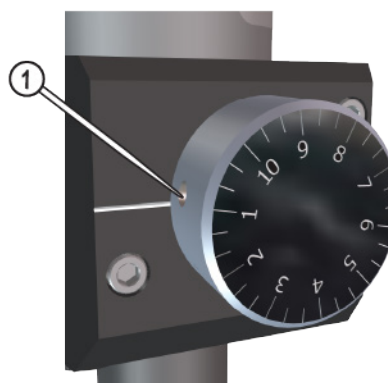
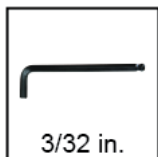


Figure 28

7. Align the **regulator body** [1] with the **regulator base** [2] and tighten the **thumb screws** [3] by hand.

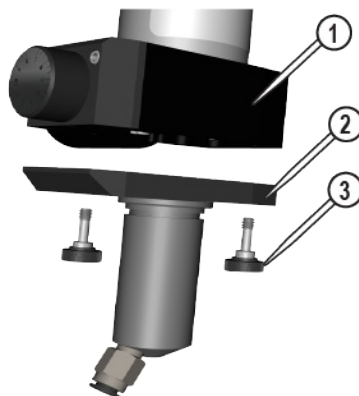


Figure 29

Parts Lists

Genuine Hypertherm parts are the factory-recommended replacement parts for the abrasive regulator. The Hypertherm warranty does not cover damage caused by using non-genuine Hypertherm parts.

To order parts, contact the original equipment manufacturer (OEM) or Hypertherm Inc. with the part number and quantities.

Hypertherm Waterjet
309 5th Avenue NW
New Brighton, MN 55112 USA
+1 866-566-7099
+1 651-294-8620 fax

Replacement Parts

Part Number	Description
1-11411	Exit plate
1-11414	Aperture regulator assembly
1-12251	Acrylic tube
1-11751	Thumb nut
1-11126	Compression spring
1-12257	1/4 in. flat washer
1-12529	1/4 in. x 3/8 in. delivery tube fitting
1-13128	1/2 in. NPT x 3/4 in. hose barb fitting
1-12736	1/8 in. NPT x 1/4 in. tube str
1-13615	3/8 in. OD x 1/4 in. ID delivery tube (9.53 mm OD x 6.35 mm ID tubes)
1-19607	Abrasive regulator maintenance kit
1-11126	2 x Spring
1-11411	2 x Exit plate
1-19363	2 x E-clip
1-12257	2 x Washer
1-11414	1 x Aperture plate

Troubleshooting

NOTICE

All maintenance work must be done by approved personnel to prevent damage to the equipment.



Refer to the instruction manual. Read and understand all the safety guidelines in this manual.

The Abrasive Does Not Flow

If the abrasive material does not flow, check for moisture in the abrasive material or for too much air in the abrasive feed hose.

Clean and Dry the Regulator

CAUTION

All operators must wear the applicable personal protective equipment when operating, maintaining, or servicing the equipment to prevent injury.

NOTICE

All maintenance work must be done by approved personnel to prevent damage to the equipment.

Note

Prevent humidity in the abrasive material with an air dryer on the air supply.

1. Make sure to examine the **vent hole** [1], **regulator base** [2], and **delivery tube** [3] for blockage.

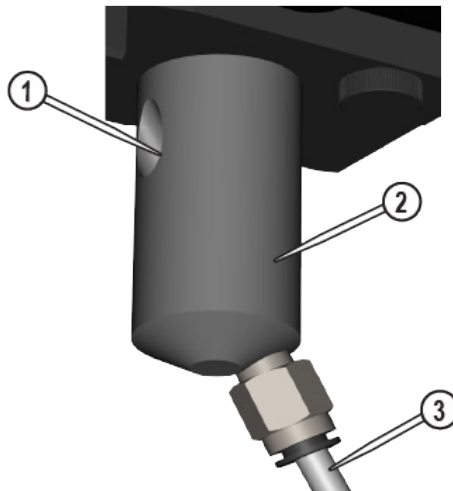


Figure 30

When the waterjet nozzle is clogged, water moves into the delivery tube, blocks the abrasive regulator, and is released through the vent hole.



Before unclogging the abrasive regulator, make sure the nozzle is not blocked. Refer to the cutting head manufacturer's instructions.

2. Follow the abrasive pot manufacturer's instructions to stop abrasive delivery to the abrasive regulator.
3. Disconnect the delivery tube from the waterjet nozzle.
4. Remove the front **thumb screw** [1] on the regulator base by hand.
5. Loosen the rear **thumb screw** [2] on the regulator base until the base can be lowered and turned by hand.

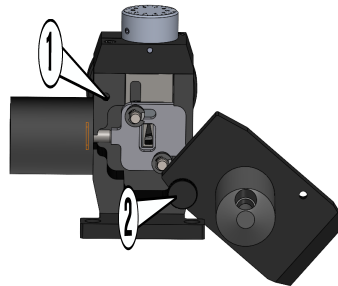


Figure 31

6. Dry the delivery tube and the regulator base with compressed air.



7. Dry the aperture assembly with compressed air.



8. Remove the **thumb nut** [1], **top cover** [2], and **acrylic tube** [3] from the **regulator body** [4]

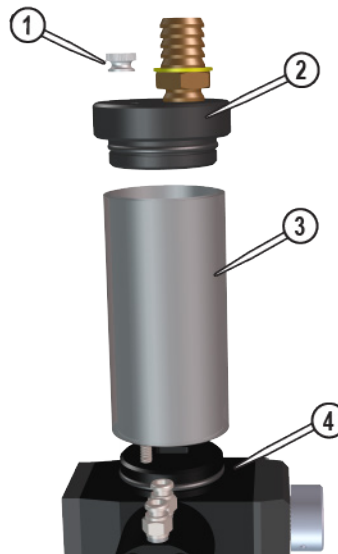
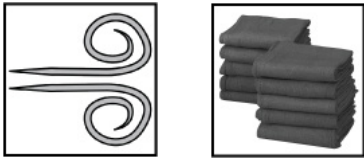


Figure 32

9. Use clean dry air to remove abrasive material from inside the acrylic tube.



Do not use soap, detergent, or solvents.

10. Install the **thumb nut** [1], **top cover** [2] and, **acrylic tube** [3] on the **regulator body** [4].

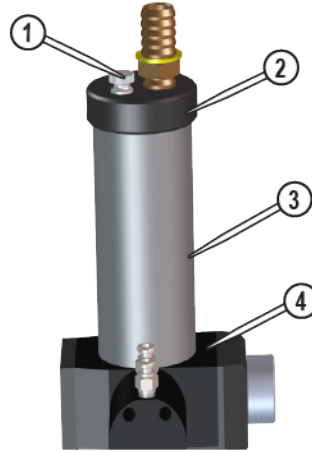


Figure 33

11. Align the **regulator base** [1] with the **regulator body** [2].

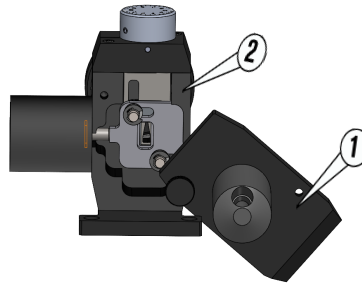


Figure 34

12. Tighten the **front** [1] and **rear** [2] thumb screws on the **regulator base** [3] by hand.

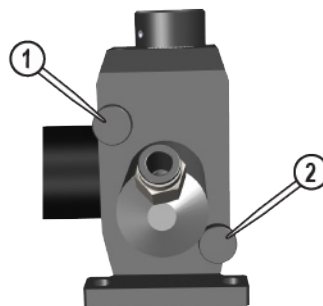




Figure 35

13. Connect the delivery tube to the waterjet nozzle.

Installation

	Refer to the instruction manual. Read and understand all the safety guidelines in this manual.
	Keep the work area clean and free of fluid spills.

Hypertherm products are designed and manufactured with a commitment to continuous quality control and safety. Contact Hypertherm Technical Service Associate for information and support regarding the installation, operation, maintenance, and repair of this equipment.

Buyers Obligations

The buyer is responsible for these obligations:

- Cooperate with Hypertherm and the Hypertherm original equipment manufacturer (OEM) for the equipment installation
- Research and comply with all local codes
- Make all connections to the equipment

Requirements

Location

The abrasive regulator is attached vertically to the Z-axis plate above the waterjet nozzle a maximum 1.83 m (6 ft.) from the floor. This keeps the abrasive regulator out of the spray-back area from the waterjet nozzle and in reach to adjust the flow rate.

Air

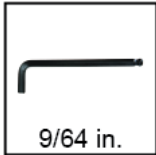
The recommended air pressure is 4–6 bar or 441–552 kPa (60–80 psi).

Attach the Abrasive Regulator to the Cutting Table

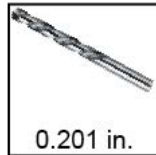
NOTICE

All maintenance work must be done by approved personnel to prevent damage to the equipment.

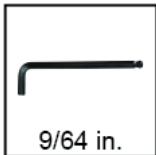
1. Remove the **mounting plate** [1] from the abrasive regulator (Figure 36).



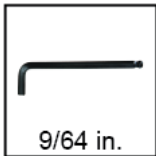
2. Use the **mounting plate** [1] as a template to position and drill two holes on the mounting surface (Figure 36).
3. Tap the holes in the mounting surface.



4. Replace the **mounting plate** [1] on the regulator (Figure 36).



5. Install the abrasive regulator to the mounting surface above the waterjet nozzle with two 1/4 in-20 socket-head cap screws.



6. Connect the delivery tube to the **tube fitting** [2] (Figure 36).

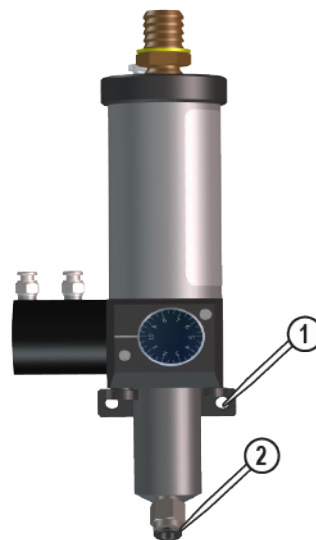


Figure 36

Connect the Abrasive Regulator to the Solenoid Valve

⚠ CAUTION

All operators must wear the applicable personal protective equipment when operating, maintaining, or servicing the equipment to prevent injury.

NOTICE

All maintenance work must be done by approved personnel to prevent damage to the equipment.

Note

The diagram shows a 2-position 4-way air solenoid valve in the typical position. Refer to the air solenoid valve manufacturer's instructions to connect the air solenoid valve to the abrasive regulator.

1. Connect the air lines to the **open** [1] and **close** [2] air cylinder fittings.

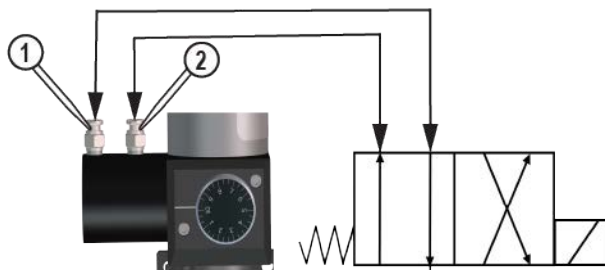


Figure 37

2. Make sure the **air supply** [2] is connected and the **vent** [1] is not blocked.

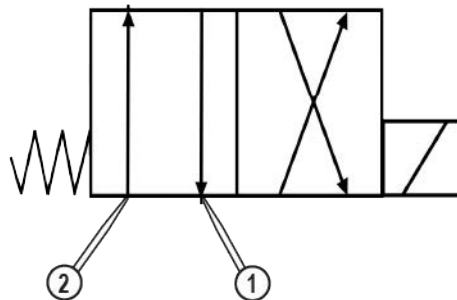


Figure 38

3. Use compressed air to **open** [1] and **close** [2] the **air cylinder** [3].

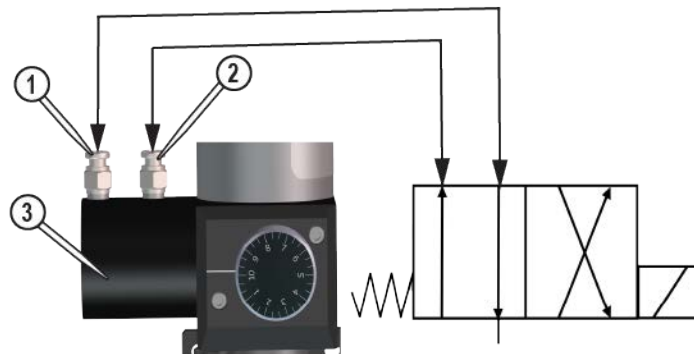



Figure 39

4. Make sure the abrasive regulator operates properly.

Connect the Abrasive Regulator to the Abrasive Pot

NOTICE

All maintenance work must be done by approved personnel to prevent damage to the equipment.

	Make sure the abrasive feed hoses have minimal elevation changes. Do not install the abrasive feed hose higher than 3.05 m (10 feet) above the floor.
---	---

1. Attach the abrasive feed hose to the barb fitting on the top of the regulator with a hose clamp.

Note



Make sure the abrasive feed hose is between 15.24 cm (6 in.) and 0.61 m (2 ft.) above the abrasive regulator to supply a balanced flow rate.

2. Refer to the abrasive pot manufacturer's instructions to attach the abrasive feed hose to the abrasive pot.

Install Multiple Abrasive Regulators

NOTICE

All maintenance work must be done by approved personnel to prevent damage to the equipment.

	Use one abrasive regulator for each waterjet nozzle.
	When feeding multiple abrasive regulators from one abrasive pot, make sure the path to each abrasive regulator is the same length for each abrasive regulator to receive the same abrasive material amount and flow rate.

1. Install an abrasive feed hose from the abrasive pot near the abrasive regulators. Use a three-way fitting between the abrasive feed hose, the abrasive pot, and the abrasive regulators.
2. Adjust the abrasive pot pressure to deliver the same abrasive flow rate to both abrasive regulators. Refer to the abrasive pot manufacturer's instructions.

Do the First Start-up

NOTICE

All maintenance work must be done by approved personnel to prevent damage to the equipment.

1. Make sure the abrasive regulator is installed correctly and all the abrasive feed hose connections are tight.
2. Setup and fill the abrasive pot. Refer to the abrasive pot manufacturer's instructions.
3. Make sure the abrasive regulator is closed.
4. Let the abrasive regulator fill with the abrasive material.

Note

This procedure can take 15 minutes to remove the air from the abrasive feed hose and fill the abrasive regulator. Abrasive material can feed the pot unevenly until the air in the abrasive feed hose is replaced. For longer delivery lengths, increase the abrasive pot pressure. Refer to the abrasive pot manufacturer's instructions to adjust the abrasive pot pressure.

5. Disconnect the delivery tube from the abrasive regulator base.
6. Open and close the abrasive regulator to make sure the abrasive material exits the abrasive regulator. Refer to [Connect the Abrasive Regulator to the Solenoid Valve, Step 3](#).
7. Attach the delivery tube to the abrasive regulator delivery tube fitting.

Recycling and End of Product Life

At the end of the life of the product or its parts, recycle or discard of materials and parts using an environmentally satisfactory method and in accordance with local regulations.