

GPD Global[®]

Precision Dispensing Systems



Kit Installation Procedure

PN 22200610

for

Hardened Cylinder Upgrade

P/N 22293261

Procedure Updated 10/12/2015





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Safety Guidelines

The described fluid applicator and controller are resources for use in industrial environments.

GPD Global products are manufactured according to currently valid engineering standards and are operationally safe. Hazards may arise if handled improperly by unqualified personnel. It is recommended that operating personnel thoroughly review these operating instructions.

	CAUTION!	AVERTISSEMENT!
	<i>The connecting cables may only be removed or attached when the NCM5000 controller is not delivering voltage to the Jet. To insure this, turn off the main power switch on the front of the NCM5000 controller.</i>	<i>Les câbles de connexion ne peuvent être retirés ou attachés que lorsque que le contrôleur NCM5000 ne délivre pas de tension à la valve. Pour cela, éteignez l'interrupteur principal sur la face avant du contrôleur NCM5000 .</i>
	<i>Be sure to use only the main input power cord supplied with the unit. The power cord supplied with the unit supports 100/120V in the USA. If you are planning to use the unit in countries using 220/240V, please replace the main power cord with an approved TUV power cord rated for 220/240V. GPD Global can supply the appropriate power cords.</i>	<i>Veillez à n'utiliser que le cordon d'alimentation d'entrée principale fournie avec l'appareil. Ce cordon supporte le 100/120V pour les USA. Si vous avez l'intention d'utiliser l'appareil dans les pays utilisant du 220/240V, veuillez le remplacer par un cordon d'alimentation homologué TUV nominale de 220/240V. GPD Global peut fournir les cordons d'alimentation appropriés.</i>
	<i>Qualified personnel are persons who, due to their training, expertise and instruction, as well as their knowledge of relevant standards, provisions, accident prevention regulations and operating conditions, have been authorized by the person responsible for safety of the system to perform the required tasks and, in the process, can identify and prevent potential risks (definitions for specialists according to the VDE 105 or ICE 364).</i>	<i>Un personnel qualifié est une personne spécialisée qui par sa formation, son expertise ainsi que ses connaissances en normes et règlements de prévention des accidents a été autorisées par la personne responsable de la sécurité du système a exécuter les tâches requises, identifier et prévenir les risques potentiels (les définitions des spécialistes selon la norme VDE 105 ou ICE 364).</i>
	<i>Shock Hazard. There are no user-serviceable components under the cover. Main voltages ranging from 100 to 240 VAC are inside. Disconnect the power cord and contact GPD Global if there is any desire to remove the cover.</i>	<i>Risque de choc. Il n'existe aucun composant réparable par l'utilisateur sous les boîtiers. Les tensions d'alimentaion allant de 100 à 240 VAC sont à l'intérieur. Débranchez le cordon d'alimentation et contactez le service clientèle de GPD Global s'il y a un besoin d'ouvrir les boîtiers.</i>

1. Required Tools and Parts

This document describes the installation procedure for the Hardened Cylinder Upgrade Kit for the GPD Global NCM5000 Jet. This procedure replaces the standard air cylinder with a hardened tip air cylinder and replaces the standard heater block with a Hard Hammer heater block.

1.1 NCM5000 Hardened Cylinder Upgrade Kit



Parts List:

- 1 - Hard Hammer heater block with bushing
- 8 - Four-inch cable ties (5)
- 6 - Hardened hammer air cylinder
- 2 - New top cover
- 3 - New (longer) top cover screws (2)
- 5 - New (longer) nozzle plate screws (2) with 2 washers each (4)
- 4 - New (longer) heater block screws (2)
- 7 - Rheolube

1.2 Required Tools

NCM5000 Pump Maintenance Tool Kit (P/N 22290042)



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Item	Description	Qty
1	Gap Setting Tool	1
2	Solenoid Torque Tool	1
3	Loctite	1
4	Hex Driver, 5/64	1
5	Hex Wrench, 0.050	1

Other Tools	
#1 Phillips screwdriver	
#2 Phillips screwdriver	
3-mm hex wrench	
150-mm adjustable wrench	
13-mm open end wrench	

2. Install the Air Cylinder and Heater Block

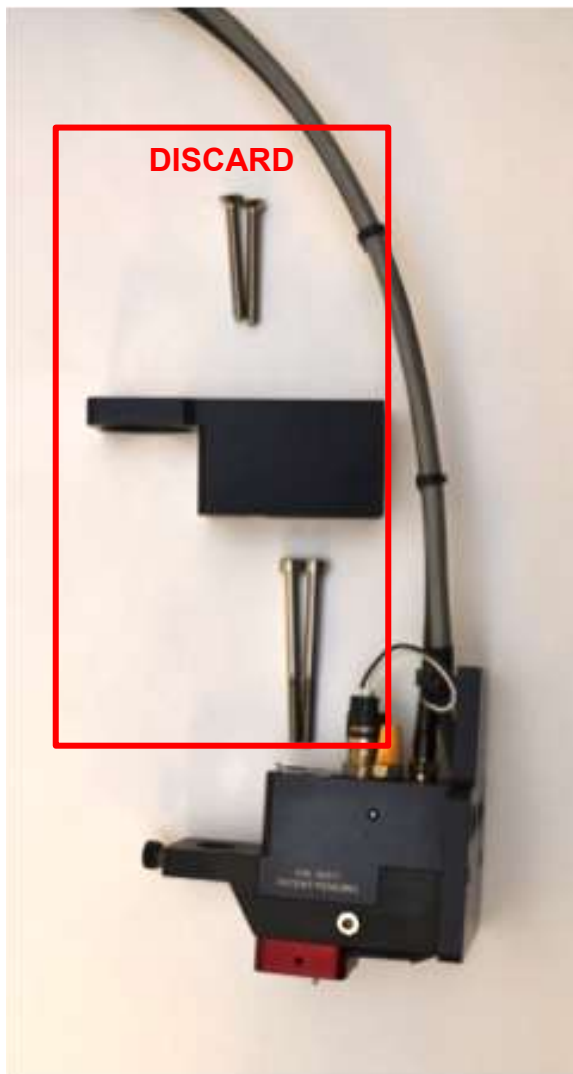
This section describes the procedure for installing the hardened tip air cylinder and the Hard Hammer heater block. After installing the parts and reassembling the jet, continue to Section 3 and set the hammer gap.

2.1 Disassemble the Jet

2.1.1 Remove the Top Cover

Remove and discard (using tool specified):

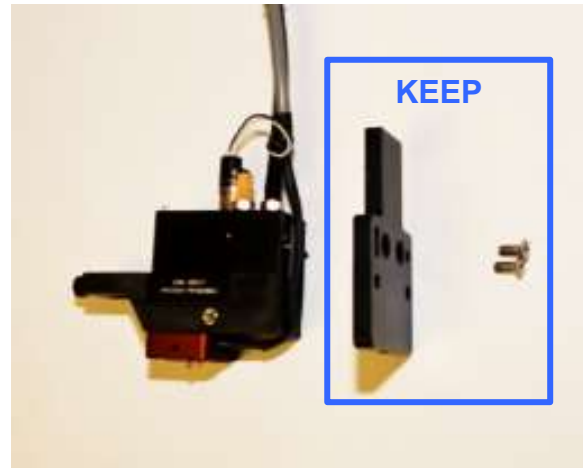
- The two screws securing the top cover (#2 PH) and the top cover
- The two screws securing the nozzle plate



2.1.2 Remove the Mounting Plate

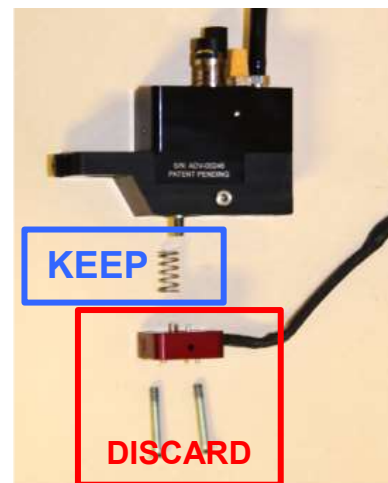
Remove and set aside:

- The two screws securing the mounting plate
- The mounting plate



2.1.3 Remove the Heater Block

Remove and discard the two screws securing the heater block (#1 PH). Remove and set aside the jet spring. Disconnect the jumper, cut the cable ties, and discard the heater block.



3.1 Disassemble the Jet, cont'd.

2.1.4 Remove the Spacer

Remove and set aside the spacer screws (#1 PH), the shoulder bolt (5/64" hex), the nylon spacer, the automatic shutoff spring, and the lever.



2.1.5 Loosen the Air Cylinder Locking Screw

Use the 5/64" hex driver to loosen the set screw that locks the main drive air cylinder in place.



2.1.6 Remove the Air Cylinder

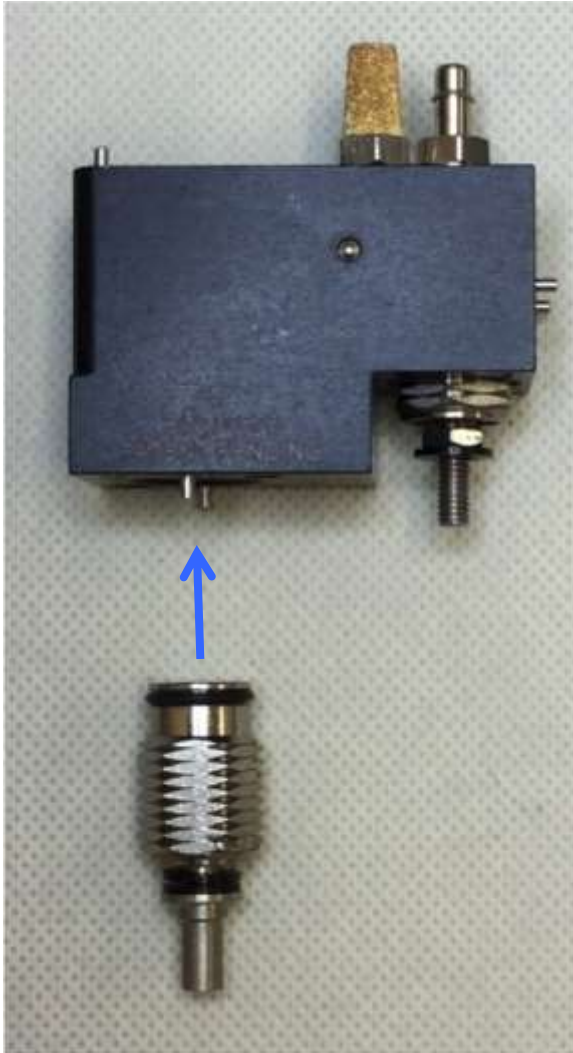
Use the 13-mm wrench to remove the air cylinder; discard.



2.2 Install the New Air Cylinder

2.2.1 Install the Air Cylinder

Install the new air cylinder, using the 13-mm wrench to tighten.



2.2.2 Tighten the Air Cylinder Locking Screw

Tighten the set screw, locking the cylinder in place until it hard stops.



2.2.3 Assemble the Spacer

Locate the spacer screws, shoulder screw and nylon spacer, lever and the automatic shutoff spring that were set aside.



3.3 Install the New Air Cylinder, cont'd.

2.2.4 Check the Lever Assembly

Observe the orientation of the lever and washers as shown at right:

- The bore in the lever faces the shutoff spring.
- There are two washers on the air cylinder above the lever
- There is one washer on the shutoff cylinder below the lever.

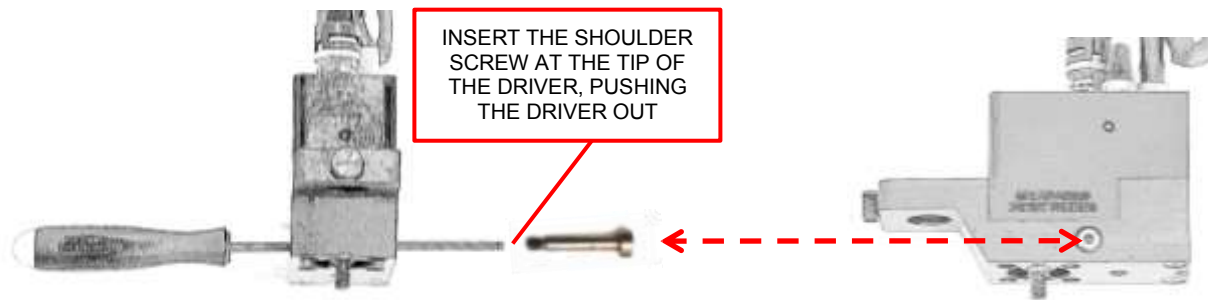
Proper positioning is critical.

Install the spacer screws and assemble as shown in 2.2.3.



2.2.5 Align the Lever with the Shoulder Screw

Use a 5/64-in hex driver (or tool of similar diameter) to line up the hole in the lever with the hole for the shoulder screw.



2.2.6 Install the Shoulder Screw

- Apply a light coating of Loctite 222 to the shoulder screw tip and quickly wipe off any excess.



Do not allow Loctite from the screw tip to transfer to the lever!

- Use the 5/64-in hex driver to tighten the shoulder screw.
- Do not over-tighten the shoulder screw.
- Verify that the lever moves freely before and after tightening the screw.

2.3 Install the New Heater Block

2.3.1 New Hard Hammer Heater Block

The new Hard Hammer heater block comes with the bushing and heater bore installed and greased with Rheolube.



2.3.2 Verify the Bushing Hole

Alignment Verify that the heater block weep holes are aligned with the bushing holes.



2.3.3 Grease the Air Cylinder Tip

Apply a thin coating of Rheolube to the tip of the air cylinder.



2.3.4 Install the Jet Spring

Locate the jet spring that was set aside and position it on the air cylinder tip.



2.3.5 Attach the Heater Block

Use the new (longer) screws supplied. The cylinder tip should be visible through the weep holes.

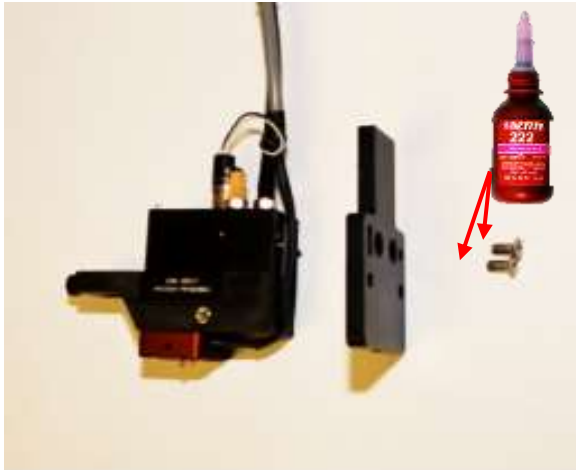


2.4 Reassemble the Jet

2.4.1 Install the Mounting Plate

Locate the screws and mounting plate that were set aside. Apply Loctite 222 to the tips of the screws. Install as shown in the diagram below.

Take care that the cable is not pinched between the mounting plate and manifold.



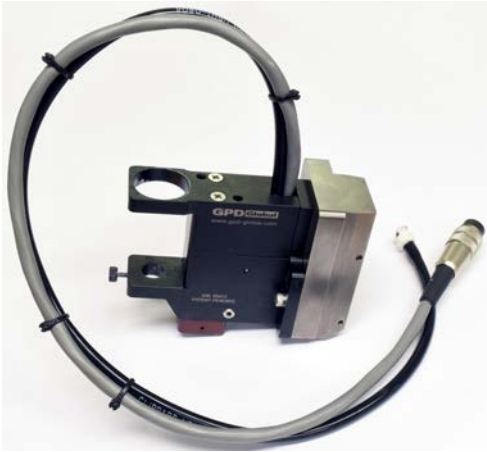
2.4.2 Install the New Cover

Locate the new top cover and new (longer) top cover screws. Install as shown in the attached photo. Apply Loctite 222 to the tips of the screws that secure the top cover.



2.4.3 Attach Heater Block Cable Ties

Secure the cable ties and connect the jumper.



Continue to the next section—Set the Hammer Gap.

3. Set the Hammer Gap

3.1 Using the Gap Micrometer

This procedure measures the NCM5000 Jet hammer gap. Since jet hammer gap is a component of drop velocity, it is important to maintain the preferred gap. Setting the gap is the final step of routine jet maintenance, or if the jet, air cylinder, solenoid, return spring or exhaust muffler has been replaced.

The following equipment is required:

- Gap Micrometer
- 0.050-inch hex wrench (stored in Gap Micrometer)
- 3-mm hex wrench
- NCM5000 controller

The GPD Global NCM5000 Pump Maintenance Tool Kit (P/N 22290042) contains all of the necessary tools for this procedure .

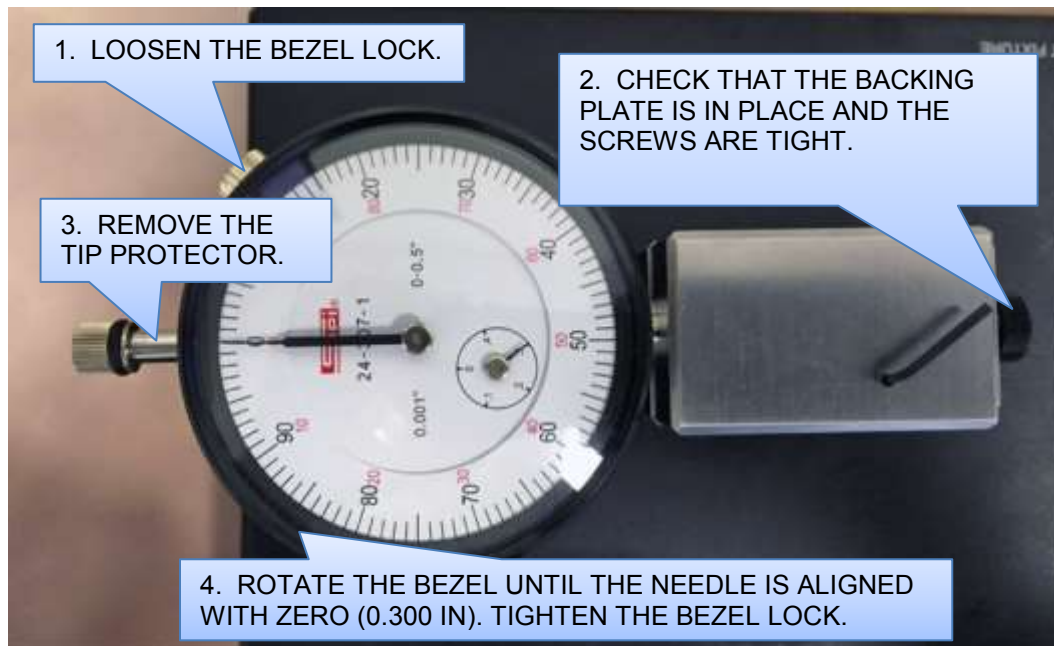


The Gap Micrometer tool is a sensitive calibration tool for maintaining the NCM5000 Jet. The polyurethane spacer protecting the tip should remain in place at all times except for calibrating the tool to zero and taking the gap measurement.



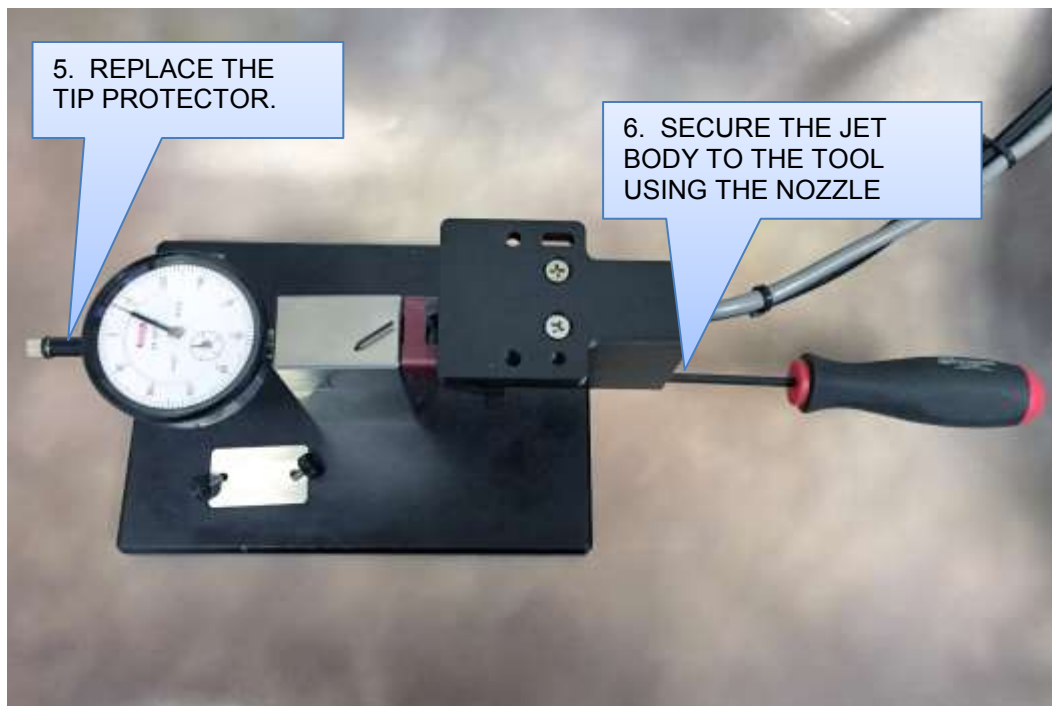
3.2 Zero the Gap Micrometer

Before taking a measurement, the Gap Micrometer must be calibrated to zero.



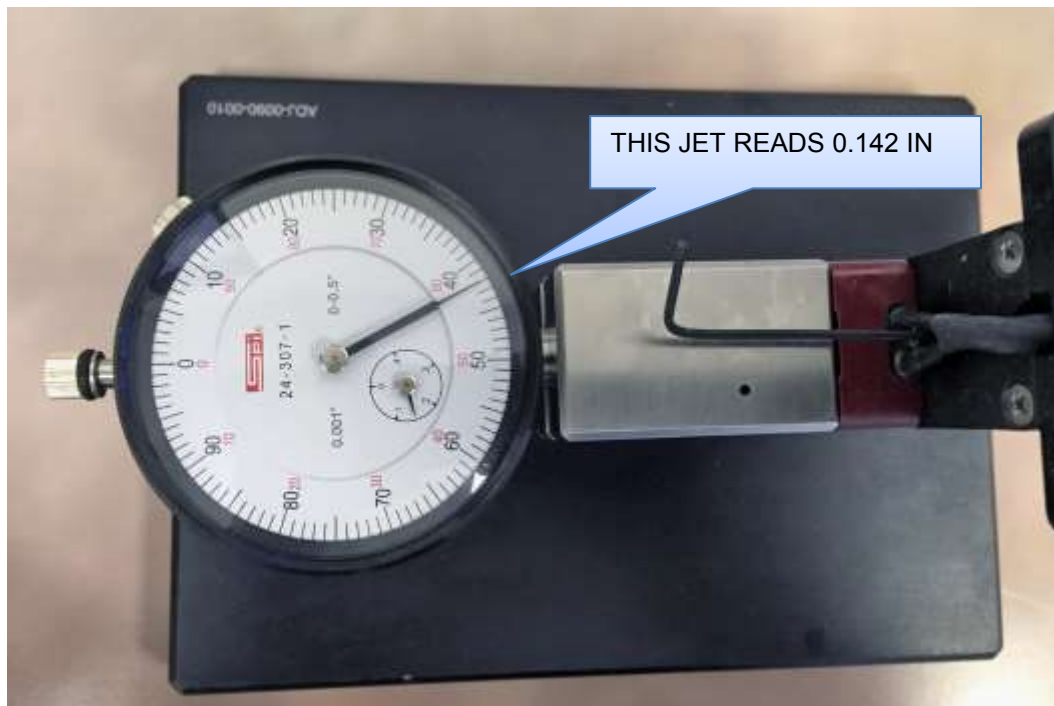
3.3 Attach the Jet

With the backing plate facing up, attach the jet.



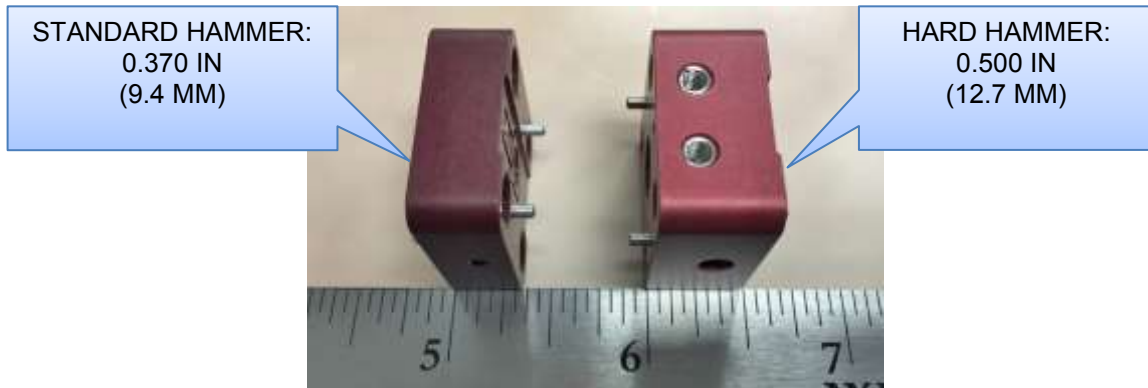
3.4 Measure the Hammer Gap

Connect the jet to a controller. Turn on the controller and “OPEN” the jet. Remove the tip protector.



3.5 Adjust the Hammer Gap

Use the picture below to identify the type of hammer on your jet. The Standard Hammer heater block (left) is thinner than the Hard Hammer heater block (right).



The table below lists preferred gap values based on jet and hammer type.

Configuration	Hammer Gap		
	Standard	Hard	Soft
Standard Jet w/ Standard Hammer	0.142 in	0.110 in	0.148 in
Standard Jet w/ Hard Hammer	0.138 in	0.120 in	0.148 in
PUR Jet	0.135 in	0.110 in	0.148 in

If an adjustment is necessary, rotate the hex wrench until the hammer gap is at the preferred value.

Cycle the jet several times and validate that the hammer gap is stable. A tolerance of ± 0.0005 inch is acceptable.

Remove the jet and replace the tip protector on the Gap Micrometer tool.

The jet is ready to use.