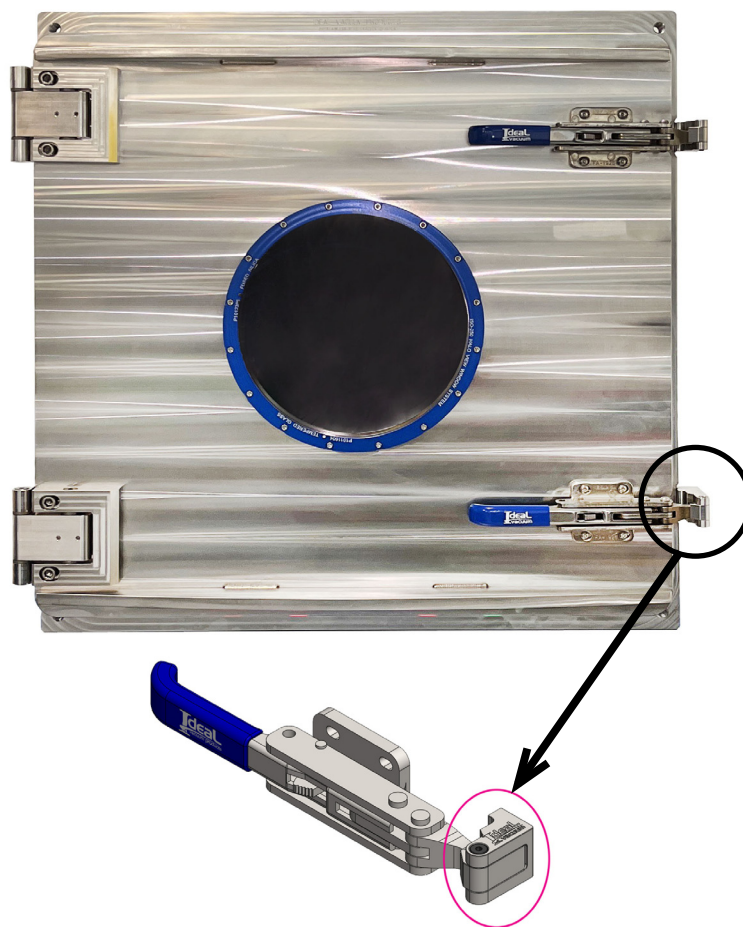




OUR PRODUCTS DEVELOP TOMORROW'S TECHNOLOGIES™

# Service Manual

## Adjustment of Chamber Doors



**For all Aluminum and Stainless Steel Welded Chamber Doors  
with Spring Catches**

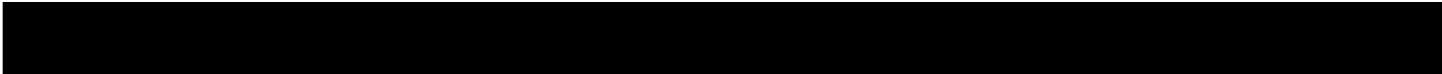
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## CUSTOMER SERVICE AND SUPPORT

If you have any questions concerning the installation or operation of this equipment, or if you need warranty or repair service, please contact us. Customer Service and Technical Support is available weekdays, from 8am-5pm, Mountain Time.

- Phone: (505) 872-0037
- Fax: (505) 872-9001
- Email: [info@idealvac.com](mailto:info@idealvac.com)  
[techsupport@idealvac.com](mailto:techsupport@idealvac.com)
- Web: [idealvac.com](http://idealvac.com)



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# SAFETY



➤ Read this manual, all associated equipment manuals, and any Safety Data Sheets before installing, operating, or servicing this equipment. Failure to follow the warnings and instructions may result in injury or equipment damage.



➤ Keep this manual in a safe location for future reference.

➤ This equipment should only be installed and operated by qualified personnel, wearing appropriate protective equipment including gloves and eye protection.

# INTRODUCTION

Ideal Vacuum welded chambers are inspected and tested prior to shipment. Chamber doors may occasionally require minor servicing to ensure proper sealing and functionality of the chamber. This version 1.0.2 service manual provides step-by-step instructions for the proper adjustment and alignment of chamber door hinges and latches on Ideal Vacuum welded aluminum and stainless steel vacuum chambers with our newer style spring loaded catches (all doors after February 1, 2024). For older doors, [download the version 1.0.1 file](#).

There are three adjustments that may be needed:

- 1. Door Leveling.** The chamber door could become misaligned (sag). This could be due to vibration the chamber experiences in delivery and later transport, or hinge fasteners loosening over time.
- 2. Set the O-Ring Seal Gap.** The door hinges and latches may need to be readjusted occasionally to ensure a good vacuum seal around the chamber door. The seal may develop a small leak due to physical damage or permanent deformation by extended use or temperature.
- 3. Fine Gap Adjustments.** After the O-ring gap seal has been adjusted, fine adjustments may need to be made to eliminate small leaks.

## NOTE

It is easier to make hdoor adjustments with two people.

### Tools Required

3/32" hex wrench	3/16" hex wrench
1/8" hex wrench	5/16" hex wrench
Small piece of paper (used as a thickness gauge)	

O-ring replacement seals are available. Please contact us to order at [techsupport@idealvac.com](mailto:techsupport@idealvac.com) or by phone at (505) 872-0037, weekdays, from 8am-5pm, Mountain Time.

### Chamber O-Ring Replacements

Chamber Size	Part Number
12" x 12" x 12"	P1012686
16" x 16" x 16"	P1012687
20" x 20" x 20"	P1012688
24" x 24" x 24"	P1012689
28" x 28" x 28"	P1012690

## 1. LEVEL THE DOOR

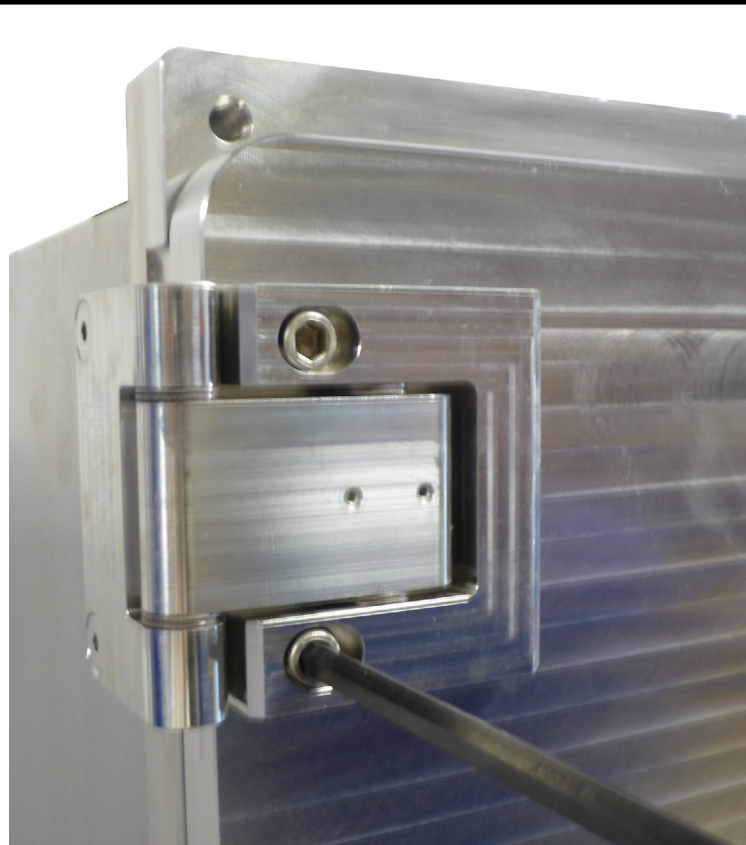
## STEP 1



The chamber door needs to be realigned (leveled) if the distance between the top of the chamber door and the top of the door frame is not equal across its length.

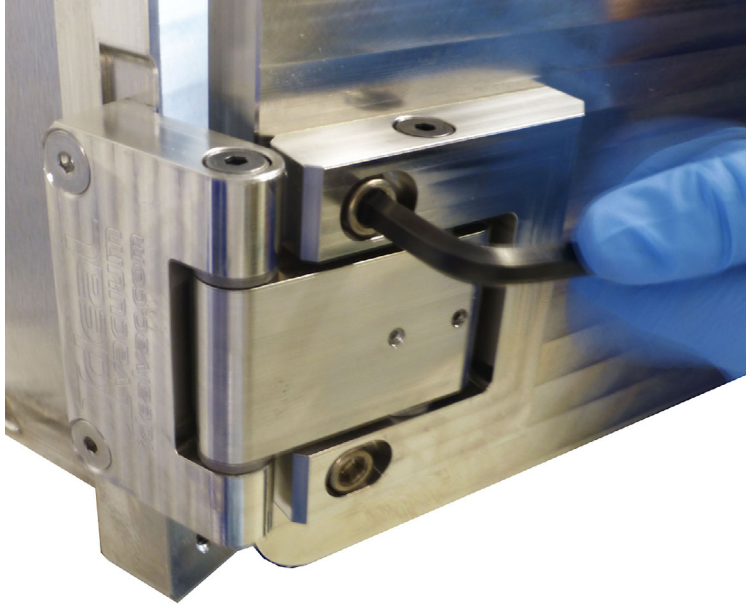
## STEP 2

Use a 5/16" hex wrench to loosen the lower screw of the top hinge 1 full turn.



### STEP 3

Use a 5/16" hex wrench to loosen the upper screw of the bottom hinge 1 full turn.



### STEP 4

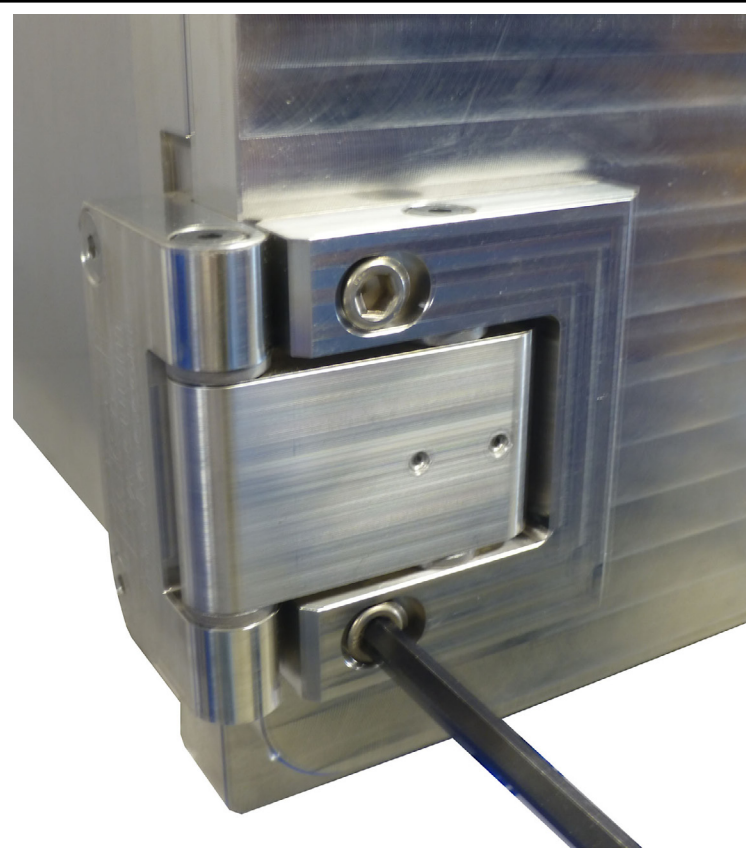


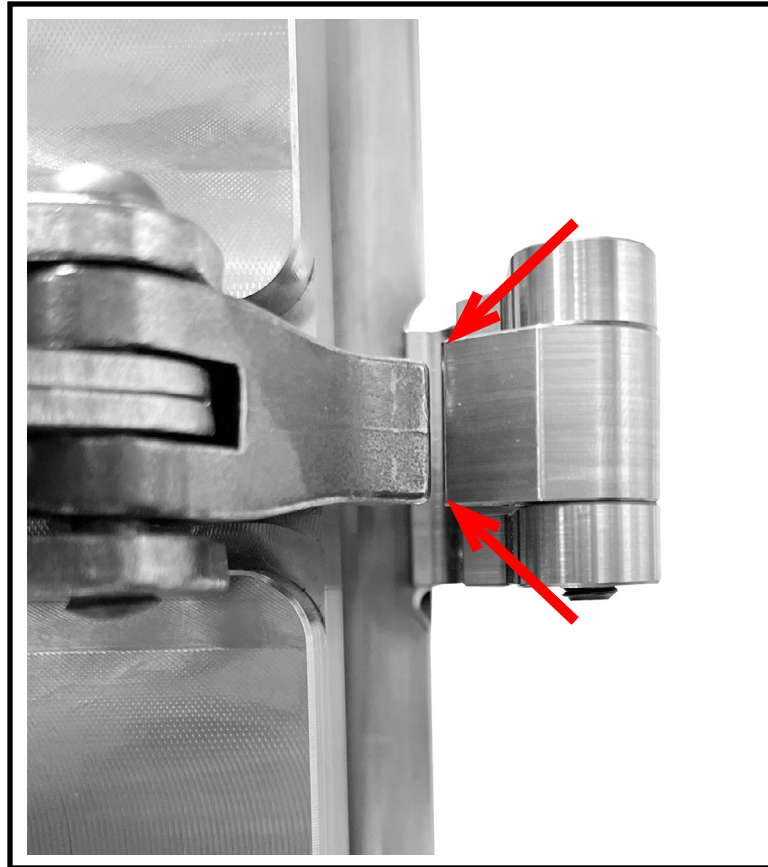
**The chamber door is heavy and the right side will drop when the lower hinge bolt is released. Reposition the door with two people.**

Open the door.

While someone holds the latch side of the door, loosen the lower screw on the bottom hinge.

This will release the door and allow it to be repositioned.

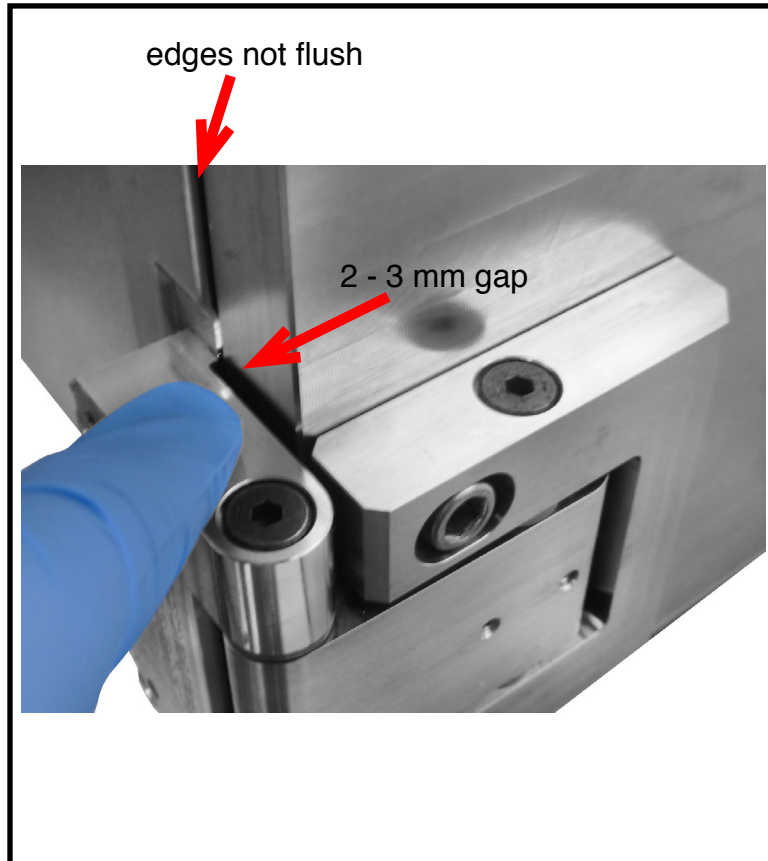




## STEP 5

Hold the door so that both the upper and lower latches are centered as much as possible on the door catches.

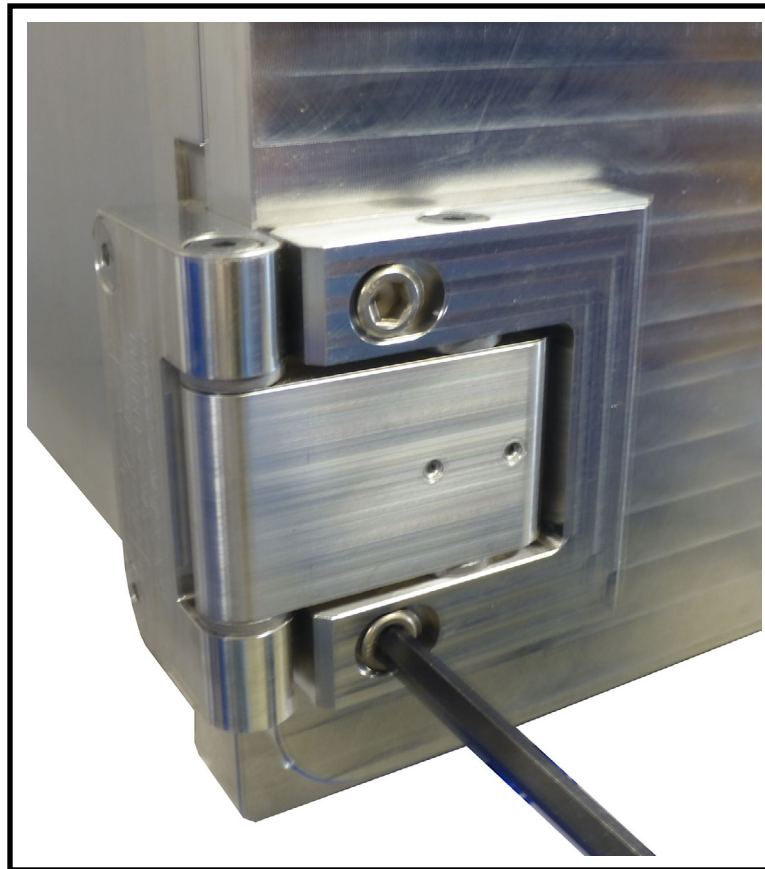
**Note:** the gap between the latches and door catches may be too wide or even overlap. This will be corrected in later steps.



## STEP 6

There should be a small gap (approximately 2 - 3mm) between the side of the bottom hinge and the side of the door when the latch is close to the catch.

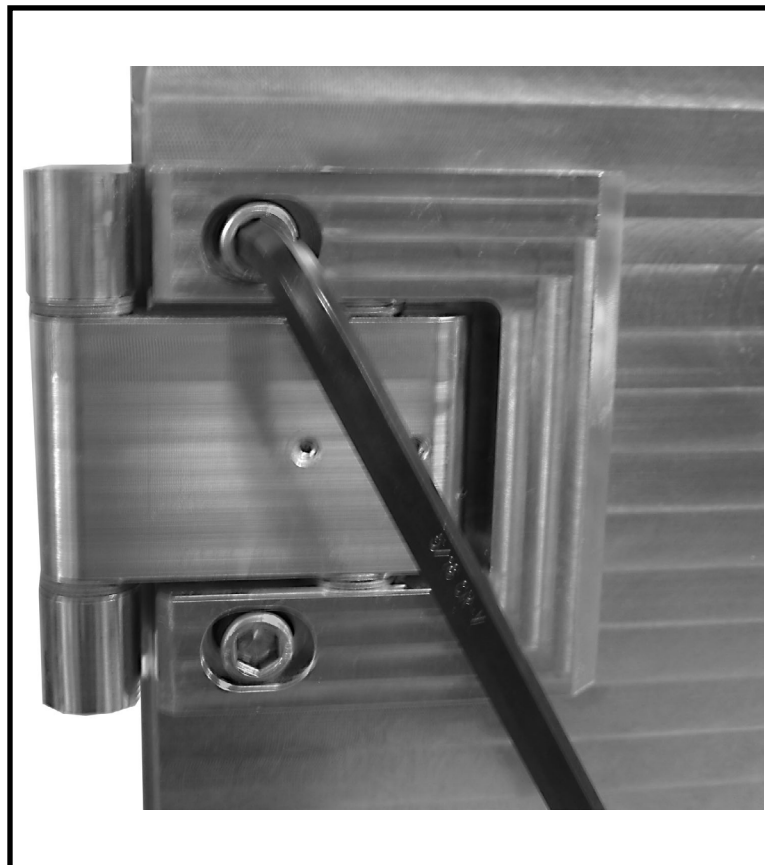
Also, the door should be slightly to the right of flush with the left side of the chamber door frame.



## STEP 7

While holding the door in position, tighten the bottom hinge lower screw (only).

Use a 5/16" hex wrench.



## STEP 8

With the door still open and while someone continues to hold the latch side of the door, loosen the upper screw on the top hinge.

Check the gap between the side of the top hinge and the side of the door. It should be the same gap as for the lower hinge.

Tighten both upper hinge screws.

The door should now be leveled and the distance between the top of the chamber door and the top of the door frame should be the same across its length.



## STEP 9

It is not normally necessary to make fine latch adjustments after leveling the door as the latches have been preset at the factory.

If, after leveling the door, latch position adjustments are needed, follow these steps:

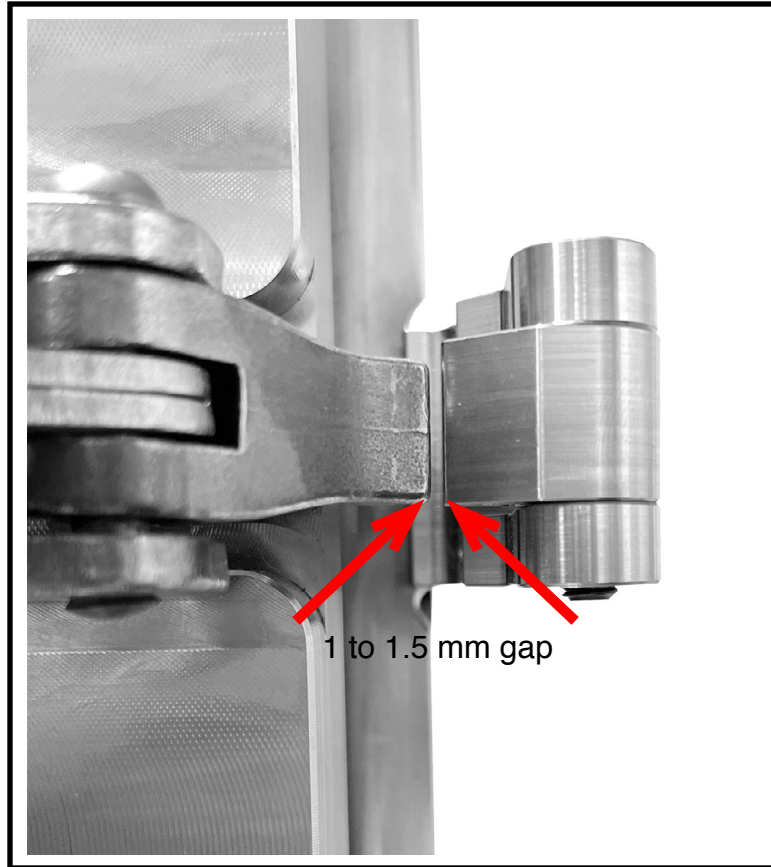
Open the top latch and position it so that the latch tooth is at its nearest distance to the door catch tooth.



## STEP 10

Use a 1/8" hex wrench to slightly loosen the four latch screws which hold it onto the door.





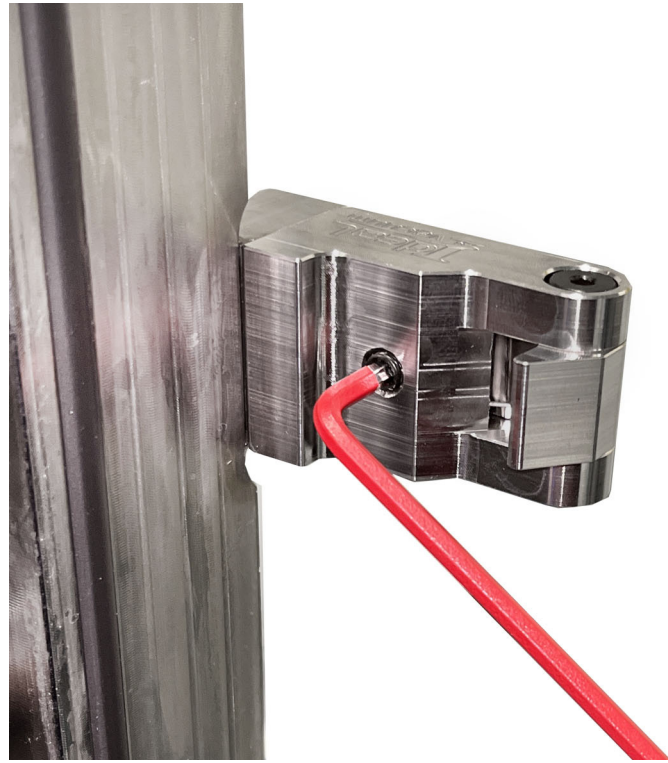
## STEP 11

With the latch screws loosened, slide the latch left and right to minimize the clearance between the latch tooth and the door catch, as well as to center the latch tooth with the door catch.

When the latch is open, there should be a 1 to 1.5mm gap between the latch tooth and the latch catch.

Tighten the latch screws.

## 2. ADJUST O-RING COMPRESSION STEP 12



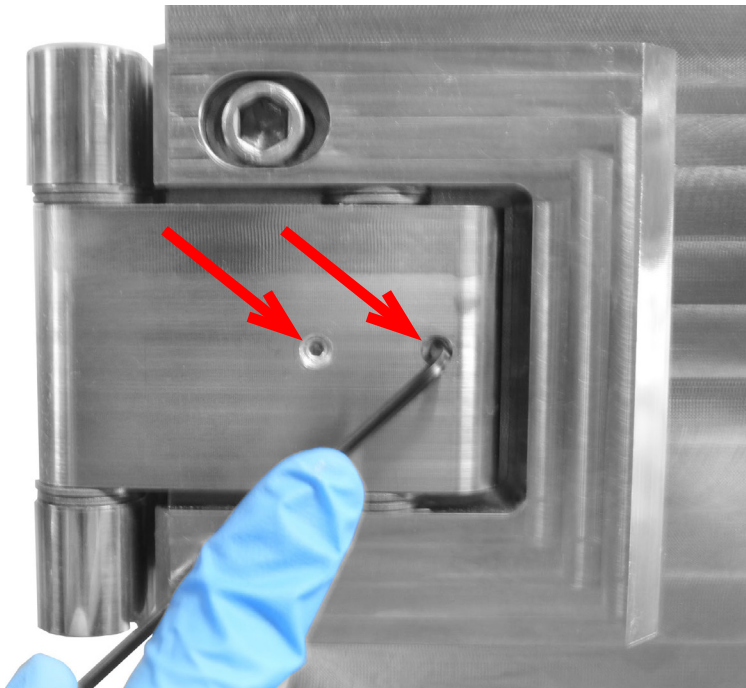
Adjustment of the O-ring compression may occasionally be necessary to ensure a good vacuum seal around the chamber door. Deformation or damage to the O-ring could cause a leak which, if not addressed, will result in poor vacuum performance.

Open the chamber door.

Use a 3/16" hex wrench to unscrew the door catch set screws. Loosen 1 full turn on each catch.

Close and latch the door. The latches should be loose.

## STEP 13



Use a 3/32" hex wrench to unscrew the four small set screws on the hinge faces (2 on each hinge).

Unscrew each set screw by 2 full turns.

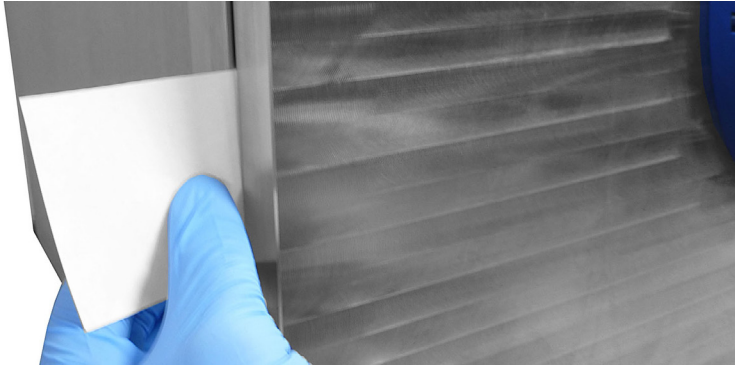
The door should be loose all around.

## STEP 14

Insert a small piece of paper between the door and O-ring seal and slide it all around the chamber behind the door.

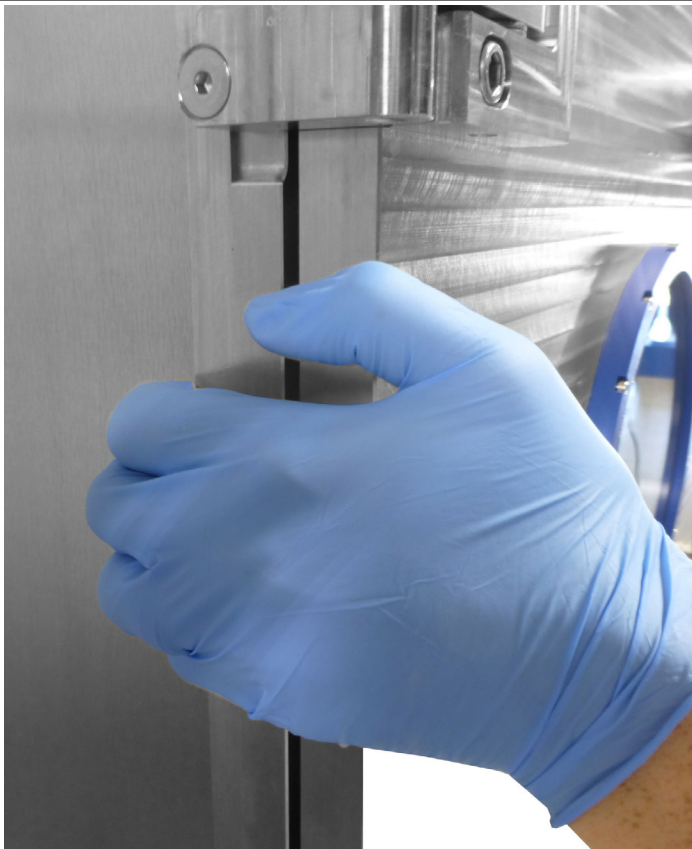
The paper should fit, and there should be a small gap between the door and seal all the way around the chamber.

If the door is still tight and there is no gap in any area, loosen the nearest hinge or latch set screw(s) until there is a gap all around.

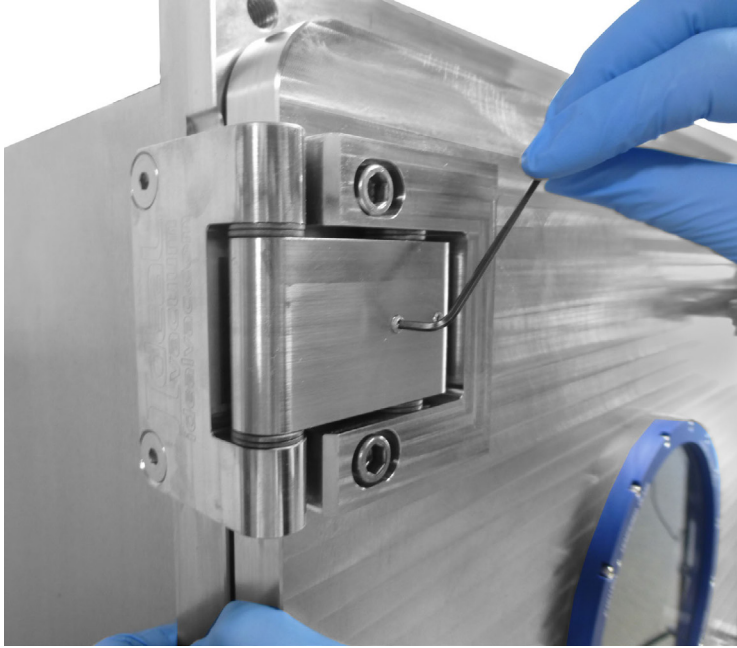


## STEP 15

With the door latched, grasp and squeeze the door and chamber door frame tightly together below the top hinge.

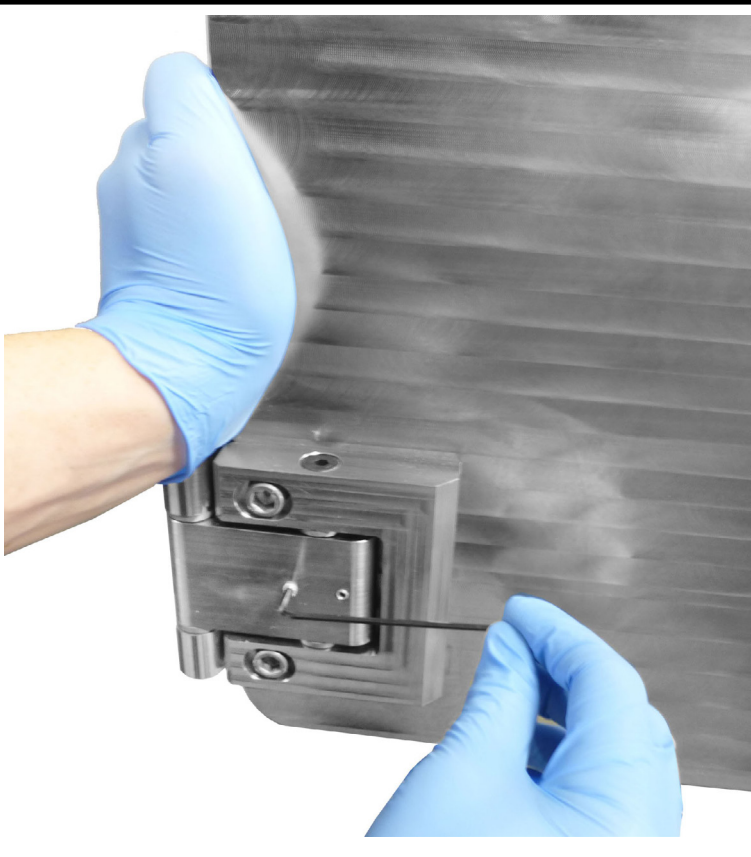


## STEP 16



While the door is held tightly against the chamber door frame, tighten the **OUTSIDE** top hinge set screw until it makes contact with the door plate.

## STEP 17



Grasp and squeeze the door and chamber face frame tightly together above the bottom hinge.

Tighten the **OUTSIDE** bottom hinge set screw until it makes contact with the door plate.

## STEP 18

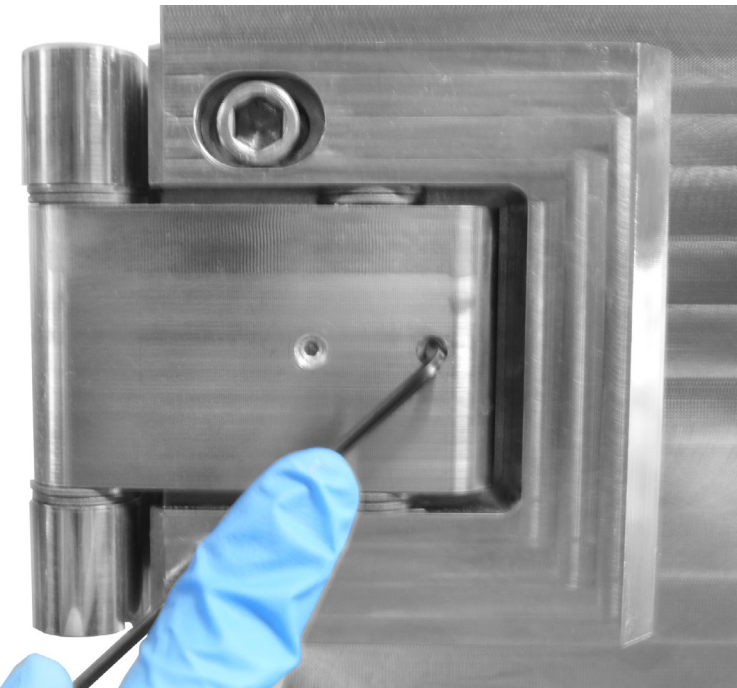


Open the chamber door.

Tighten each OUTSIDE hinge set screw an additional 1/4 turn.

**Note:** The OUTSIDE hinge set screw sets the amount of pressure the door exerts on the O-ring seal (i.e., how much the O-ring is compressed).

## STEP 19



Close the chamber door.

Tighten both of the INSIDE hinge set screws until they make contact with the door plate.

Tighten each INSIDE hinge set screw an additional 1/8 turn.

**Note:** The INSIDE set screw locks the hinge in place. If overtightened, this set screw will decrease the door's pressure on the O-ring and impair the door's ability to make a good vacuum seal.

## STEP 20

Open the top latch.



## STEP 21

### NOTICE

**Do not adjust latch compression while the latch is closed. It will damage the latch tooth.**

Tighten the door catch set screw 1/4 turn. Close the latch.

Repeat opening and tightening the set screw until the latch barely requires some pressure on the handle to snap it closed.

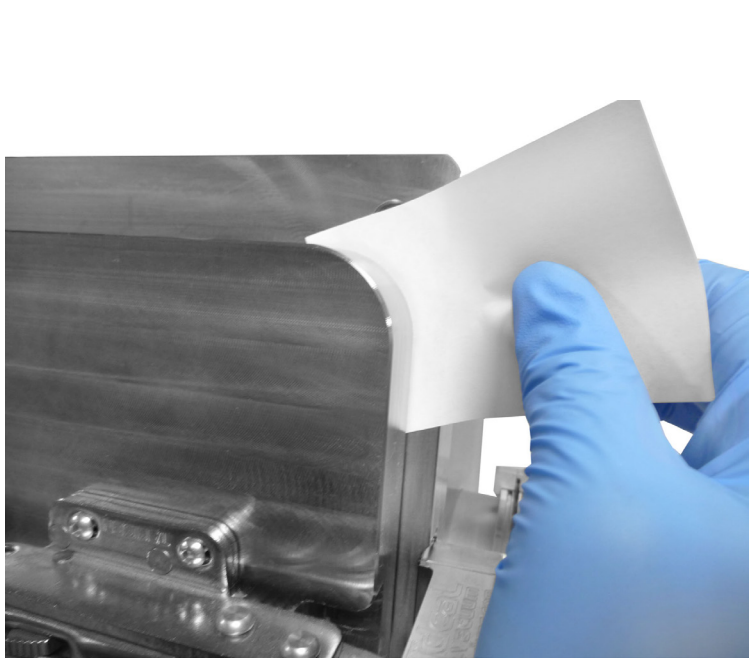
Open the latch once again, tighten the set screw another 1/4 turn. The latch now has the proper latching compression.

Repeat Steps 20 and 21 for the bottom latch.



### 3. FINE GAP ADJUSTMENTS

#### STEP 22



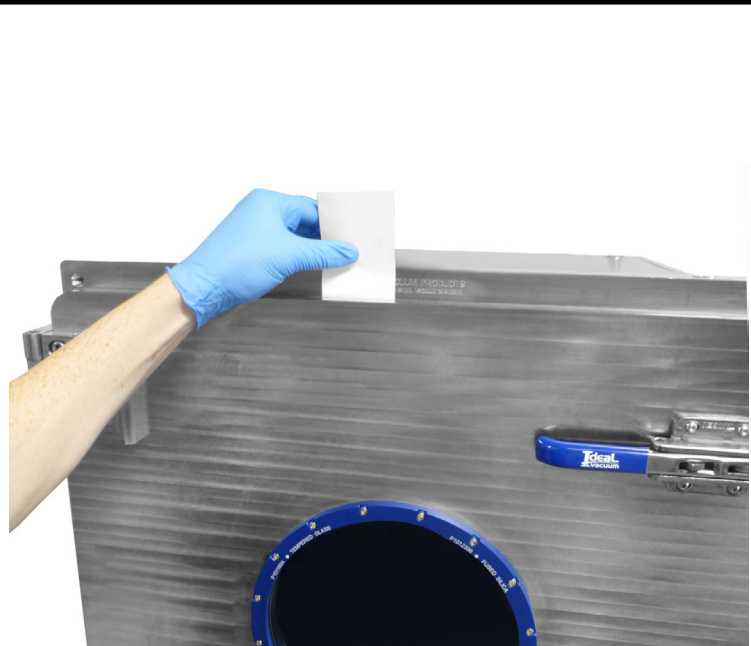
Perform these fine gap procedures only after you have completed Section 2 - Setting the O-ring gap.

Get a fresh piece of paper to test O-ring engagement all around the door.

Start at the top latch corner of the chamber and work your way all around the chamber door.

If the paper does not slide between the door and O-ring seal, the gap is correct.

#### STEP 23



If there is a gap anywhere, the nearest corner must be tightened.

If the gap is near a latch, open just the latch closest to the gap. Tighten the door catch set screw by 1/4 turn. Close the latch and recheck the gap. Repeat as necessary.

If the gap is near a hinge, open the door, tighten the OUTSIDE hinge set screw 1/8 turn, close the door and recheck the gap. Repeat as necessary.

**NOTE: Do not move the INSIDE set screw. It will open the gap.**

If the gap is midway between a latch and hinge, between both hinges, or between both latches, tighten both sides equally, recheck the gap, and repeat as necessary.



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