OUR PRODUCTS DEVELOP TOMORROW'S TECHNOLOGIES™

Service Manual

Adjustment of Chamber Doors

For all Aluminum and Stainless Steel Welded Chamber Doors with Set Screw Catches

SM-AWCD-05142024 - V1.01.1

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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

techsupport@idealvac.com

Web: idealvac.com

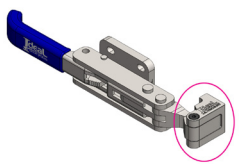
LATCH CATCH UPGRADE OFFER

For customers with the old style (setscrew type) latch catches, we offer an upgrade to our improved Gen 2 spring loaded catch system. The newer style catches are a direct replacement for older style catches on all stainless steel, aluminum, or acrylic doors. They make chamber door adjustments easier and are more reliable.

New catches are available to any customer who requests them for the cost of shipping only. Please know your chamber part number when you contact your IVP representative. This offer is non-expiring.

For 12” or 16” chambers, request a quantity of part number P1013550 equal to the number of catches on the chamber door.

For 20”, 24” or 28” chambers, request a quantity of part number part number P1013551 equal to the number of catches on the chamber door.



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 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 chambers.

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.

NOTE	**It is easier to make hinge leveling adjustments with two people.**

2. **Set the O-Ring Seal Gap.** The door hinges and latches may need to be readjusted occessionally 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.

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 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

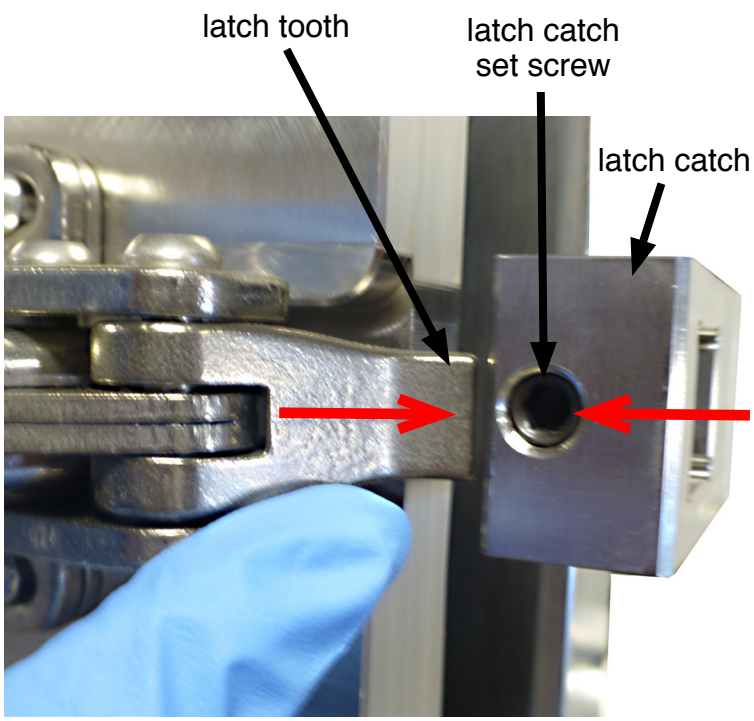
1. LEVEL THE DOOR

The chamber door will need to be realigned (leveled) if:

- The distance between the top of the chamber door and the top of the chamber door frame is not equal across its length.
- The latch tooth is not centered on the latch catch set screw.
- The latch, when open, does not clear the latch catch.

A. CHECK DOOR REVEAL

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

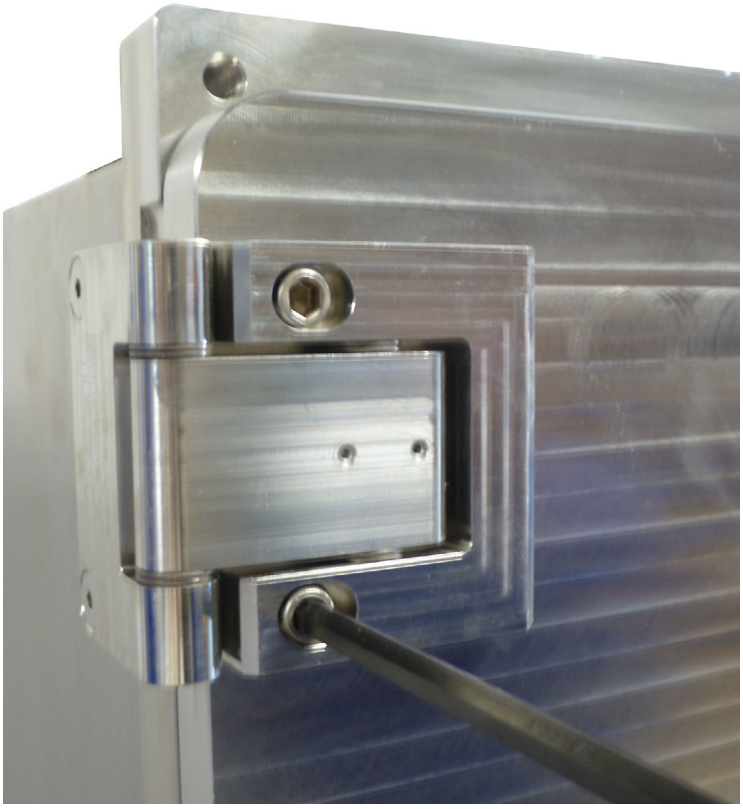


B. CHECK LATCH CENTER

The latch tooth should be centered on the latch catch set screw.

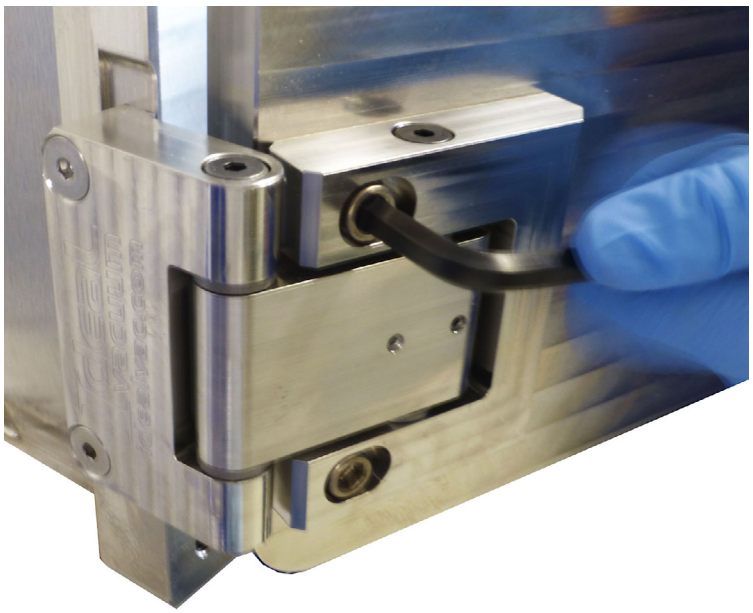
C. CHECK LATCH CLEARANCE

When the latch is open, there should be minimum clearance between the latch tooth and the latch catch (≤ 1mm).



STEP 1

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



STEP 2

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

STEP 3

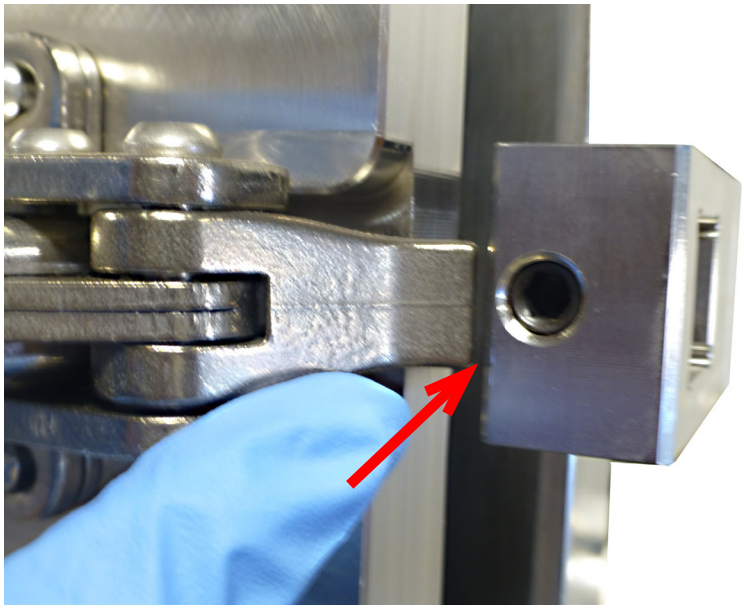
⚠ CAUTION

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.

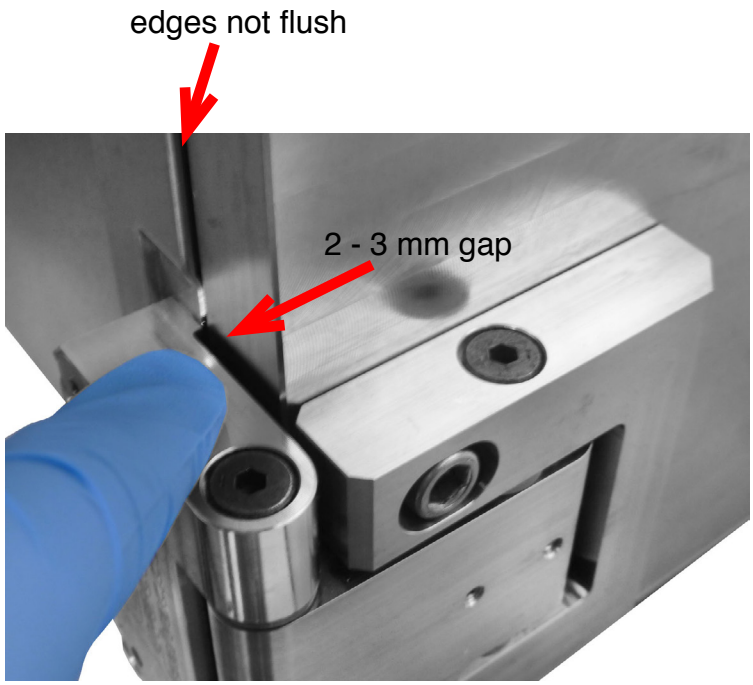
This will release the door and allow it to be repositioned.



STEP 4

Hold the door so that the space between the bottom corner of the bottom latch tooth and the latch catch is minimized.

Note: the latch may not be completely horizontal. That will be corrected in later steps.



STEP 5

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 6

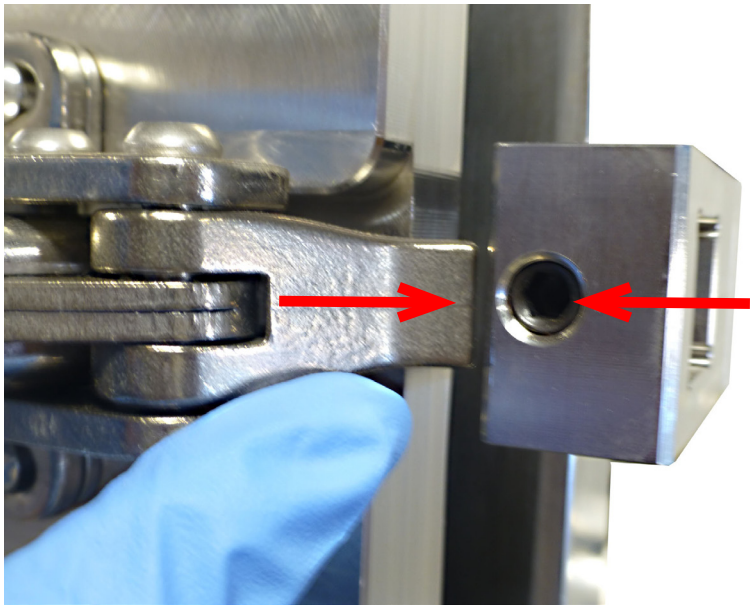
While holding the door in position, tighten the bottom hinge lower screw (only).

Use a 5/16” hex wrench.

STEP 7

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.

This will again release the door and allow further repositioning.



STEP 8

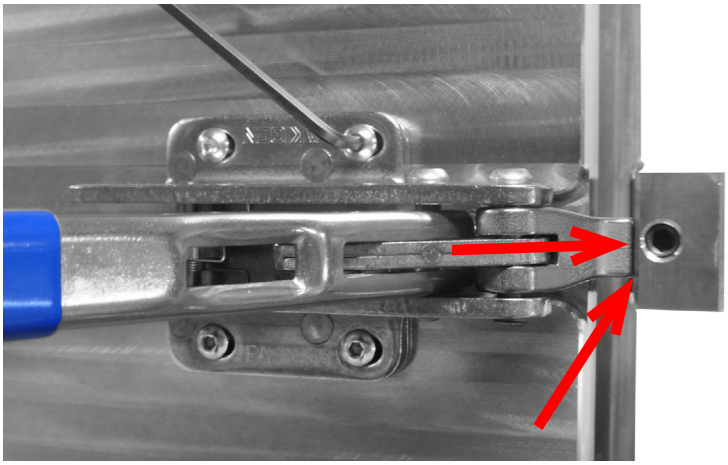
Hold the door positioned so that the top latch tooth is centered (or close to centered) on the latch catch set screw and there is minimal distance between the latch tooth and latch catch.

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 chamber door frame should be the same across its length.

The door is leveled.



STEP 9

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

However, if, after leveling the door, latch position adjustments are needed:

Open the latch.

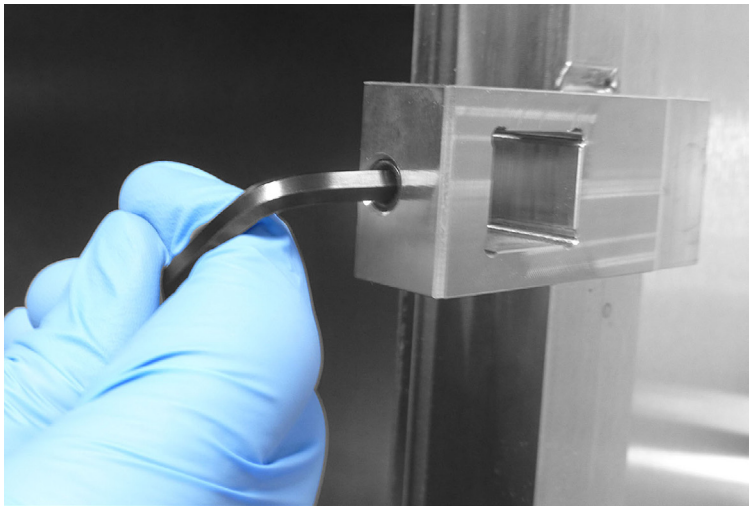
Use a 1/8” hex wrench to slightly loosen the four latch screws which hold it onto the door.

Slide the latch left and right to minimize the clearance between the latch tooth and the latch catch, as well as to center the latch tooth with the catch set screw.

Tighten the latch screws.

2. SET THE O-RING SEAL GAP

Re-gapping the O-ring seal 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.

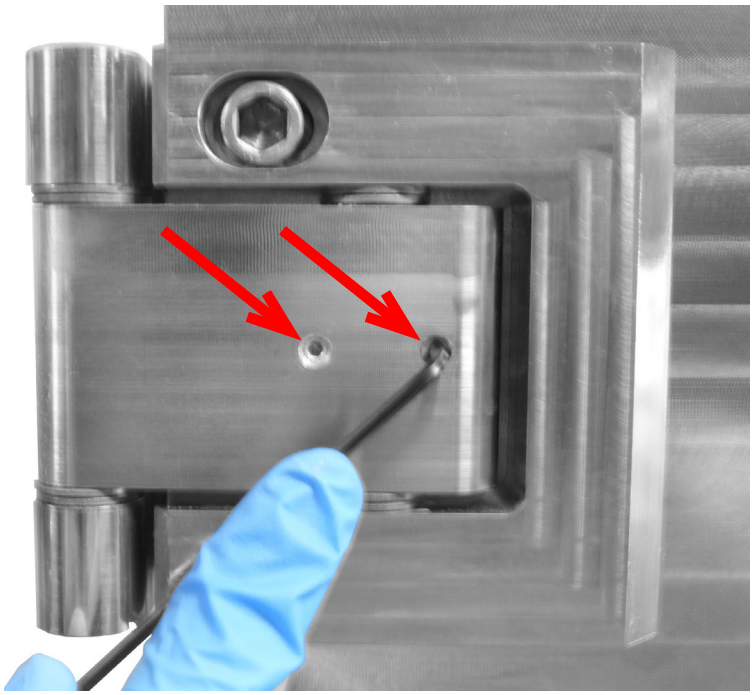


STEP 10

Open the chamber door.

Use a 3/16” hex wrench to unscrew the latch catch set screws 1 full turn on both latches.

Close the door. The latches should be loose.

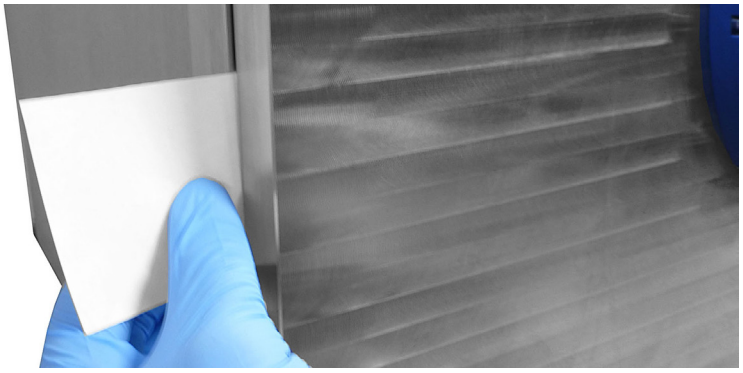


STEP 11

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.

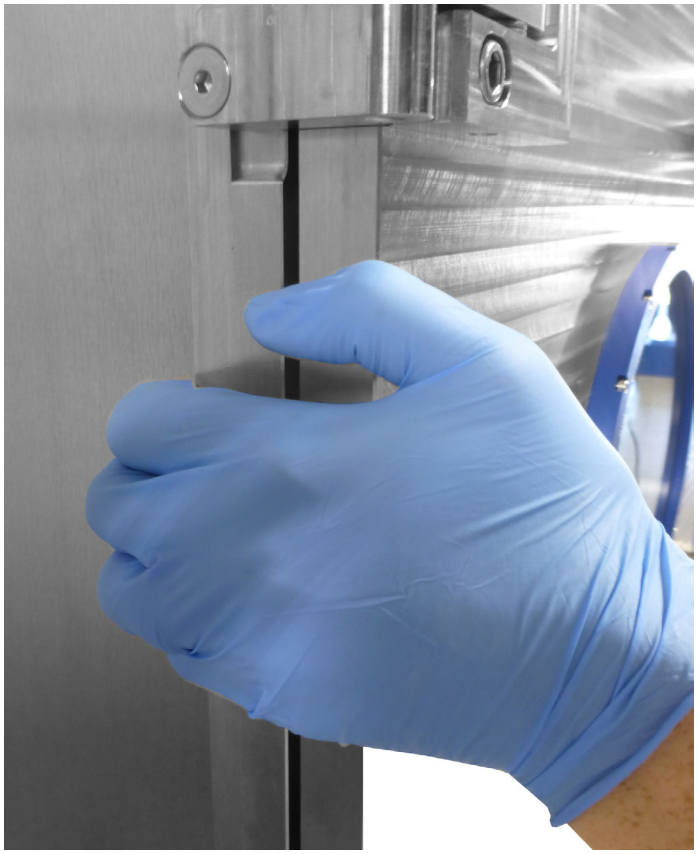


STEP 12

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

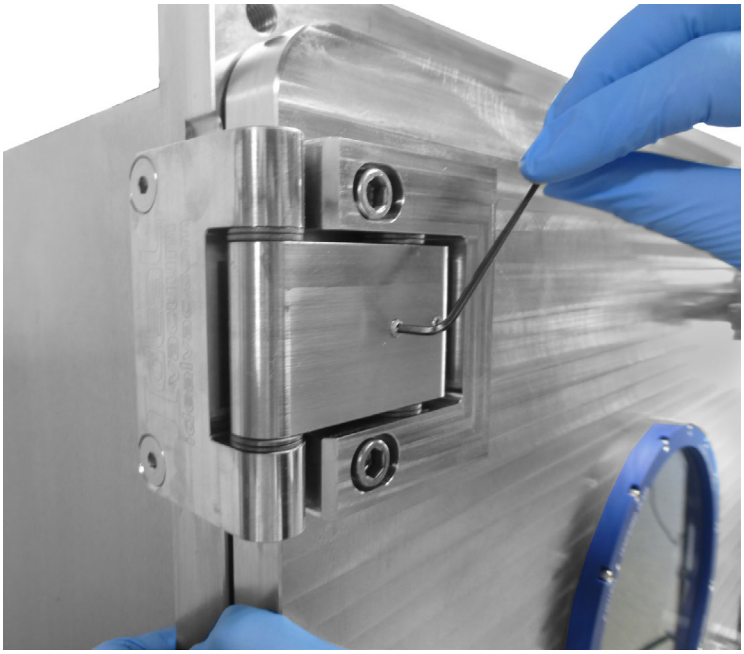
The paper should fit, and there should be a small gap between the door and seal all the way around the chamber.

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 13

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



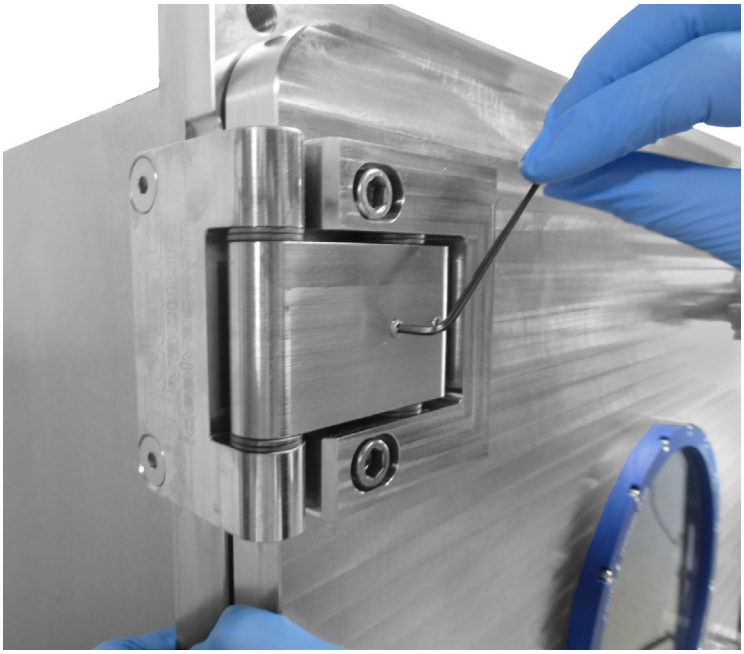
STEP 14

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 15

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.

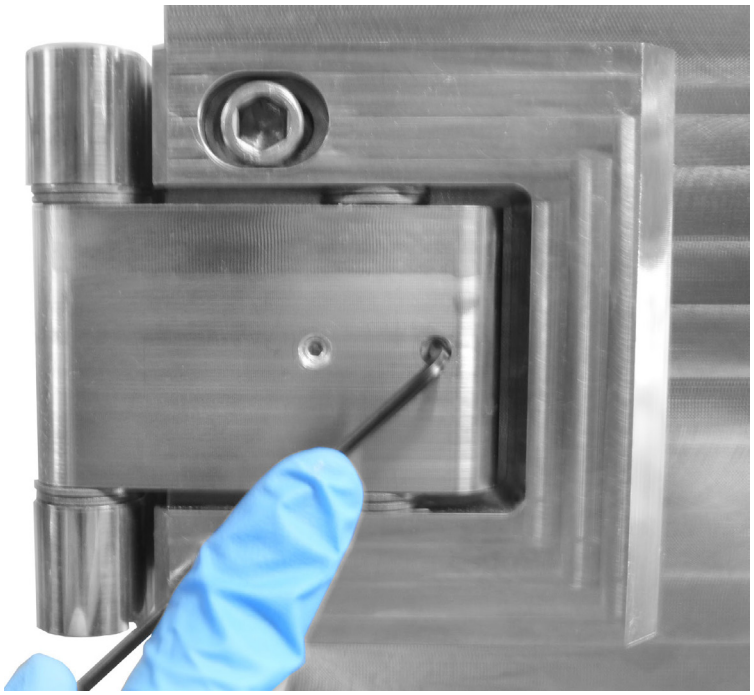


STEP 16

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 17

Close the chamber door.

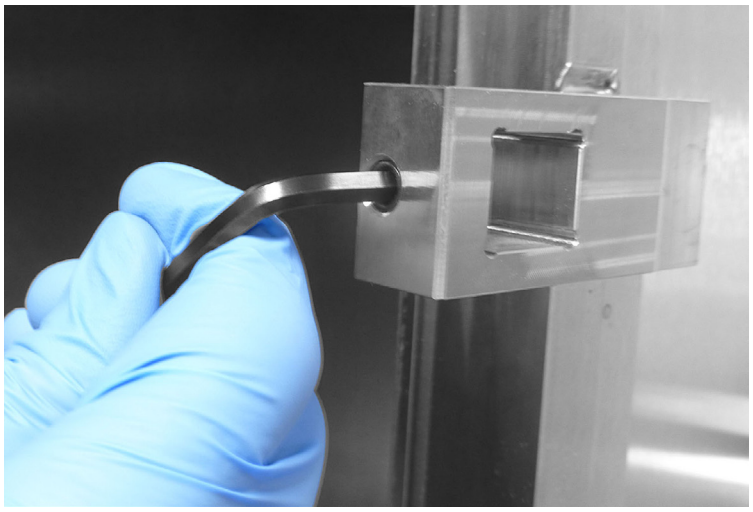
Tighten both of the INSIDE hinge set screws until they make contact with the door plate.

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 18

Open the top latch.



STEP 19

NOTICE

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

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

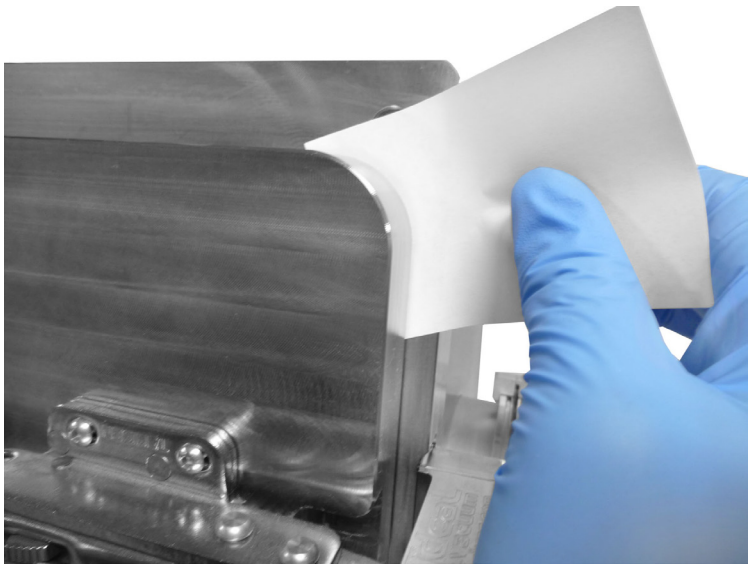
Repeat opening and tightening the set screw until the latch barely requires some pressure on the handle to snap it closed.

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

Repeat Steps 18 and 19 for the bottom latch.

3. FINE GAP ADJUSTMENTS

Perform these fine gap procedures only after you have completed the Steps in Chapter 2, page 11, Setting the O-Ring Gap.



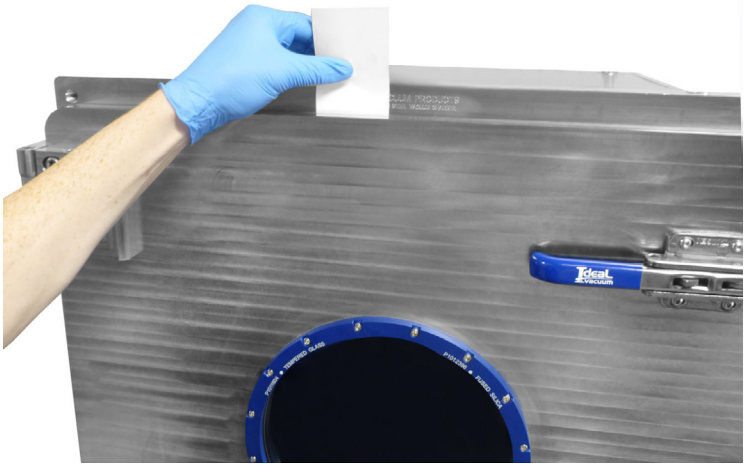
STEP 20

If the chamber is not pumping down properly or has a leak during use, begin at Chapter 2, page 11, Setting the O-Ring Gap. Perform these fine gap adjustments only after Chapter 2 procedures have been completed.

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 21

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 latch 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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