



areola

Recoater Blade Replacement / Alignment

Recoater Blade Replacement / Alignment Overview



A recoater blade is an essential component of a PBF-LB machine. It is responsible for spreading even layers of metal powder to ensure a correct build. Occasionally, a recoater blade crashes or gets damaged, following which it needs to be checked and/or replaced to ensure consistency in metal powder spreadability.

This scenario focuses on the EOS M400-4 PBF-LB machine. However, the general principles outlined in this storyboard are applicable to all PBF-LB machines.

Recoater Blade alignment to focus on the alignment of a recoater blade including:

- Location of a recoater blade housing
- Process of aligning recoater blades



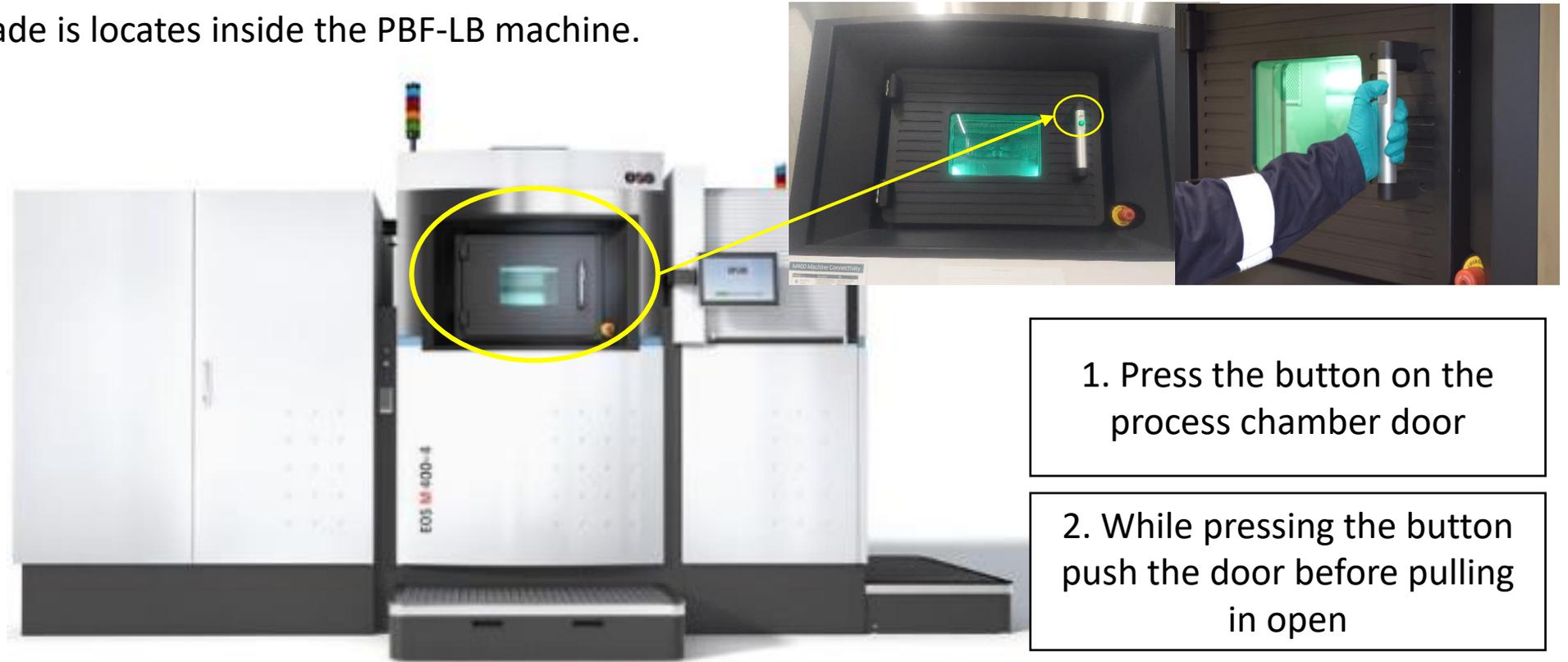
EOS M400-4

Recoater Blade Replacement / Alignment

Step 1 – Location of the Recoater Blade



The recoater blade is located inside the PBF-LB machine.



EOS M400-4 Build Chamber

1. Press the button on the process chamber door

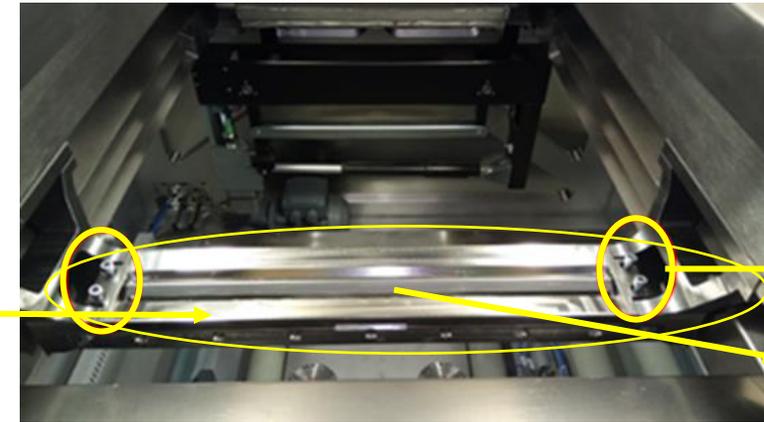
2. While pressing the button push the door before pulling in open

Recoater Blade Replacement / Alignment

Step 1 – Location of the Recoater Blade

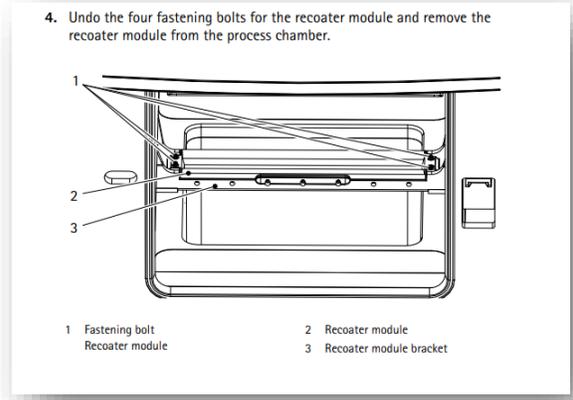


EOS M400-4 Build Chamber



EOS M400-4 Recoater Blade Housing

Two M5x16 hex screws on each side
Recoater Blade Housing



Recoater Blade Replacement / Alignment

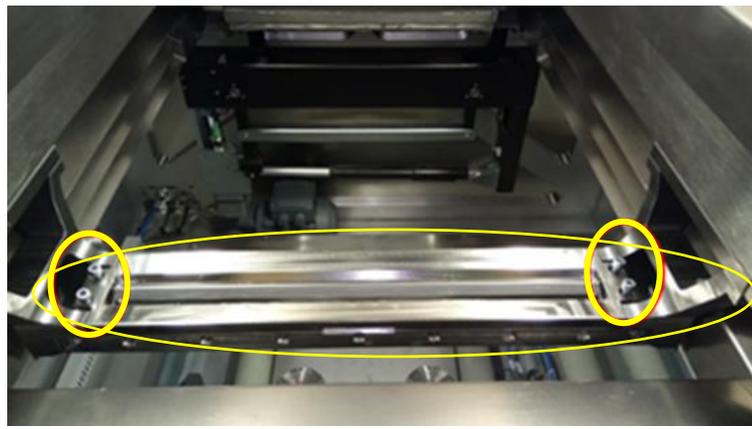
Step 2 – Removing Recoater Blade Housing from the Build Chamber



To carry out the recoater blade replacement / alignment operation, the recoater blade housing needs to be removed from the EOS M400-4 build chamber first.

1. Use Allen key to remove two M5x16 hex screws on each side of the recoater arm

2. Remove recoater blade housing from machine and place it on a flat surface



EOS M400-4 Recoater Blade Housing



EOS M400-4 Recoater Blade Housing on a Flat Surface

Recoater Blade Replacement / Alignment

Step 3 – Removing and Inspecting Recoater Blade



Once the recoater blade housing is removed from the machine, the recoater blade can be inspected for damage and nipping. If any damage is visible, blade needs to be replaced.

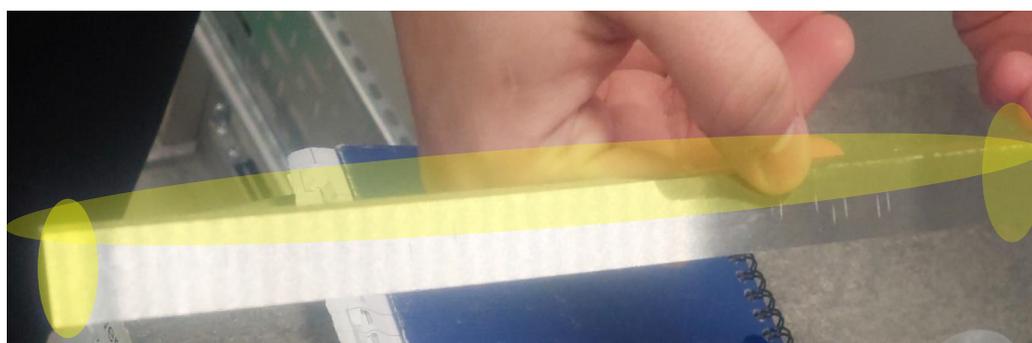
1. Use an Allen key to remove all bolts on the side of a recoater blade housing to remove blades

2. Inspect the bottom part of a blade, where the powder is spread as well as around areas where blade was tight to the housing and were bolted up to hold blade in place

M400 steel recoater blade is sharp, caution needs to be taken when removing and handling the recoater blade.
In some cases residue powder can be found on a blade 



Bolt removal from the EOS M400-4 Recoater Blade Housing



Inspection of a recoater blade

Recoater Blade Replacement / Alignment

Step 4 – Blade Height Set Up



Once the recoater blade is inspected or replaced it can be placed back into the recoater blade housing and height is set up for 1 or 2 blade configuration.

1. Place the blade back into the recoater blade housing and let it drop down, so the blades are in the highest possible position

2. Place recoater blade housing into set up fixture, to set the blade heights for either single or double sided recoating (front two holes for single sided recoated, rear holes for double sided recoating)

3. Attached the recoater blade housing securely with the recoater housing bolts



EOS M400-4 Recoater Blade Housing



EOS M400-4 Recoater Blade Set up Fixture

Recoater Blade Replacement / Alignment

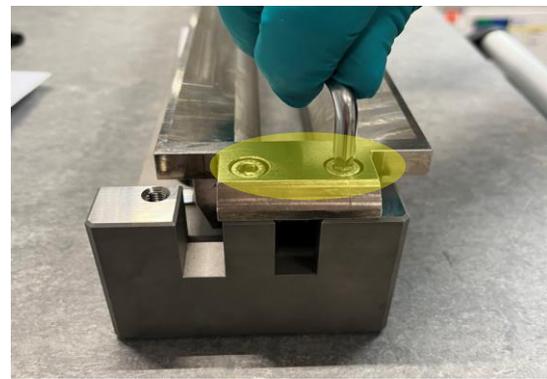
Step 4 – Blade Height Set Up



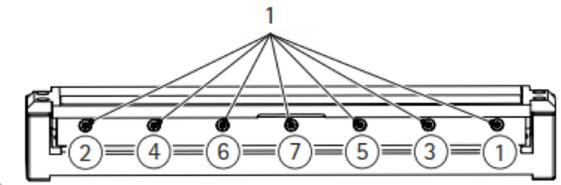
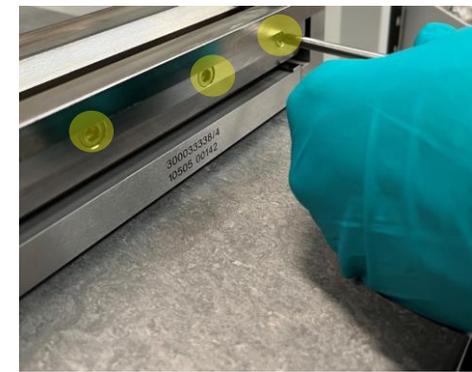
4. The bolts holding the blades (on both sides) are then released and the blades drop onto the fixture, setting the correct blade height

4. The blade is then fixed at that height by retightening the bolts to hold the blade from the outside to the middle bolt. Outer ones first then middle ones

5. This process is repeated for the second blade on the other side of the recoater blade housing



Bolts on EOS M400-4 Recoater Blade Housing



Fastening bolts (tightening sequence)

[EOS M 400 / EOS M 400-4
Recoater adjustment fixture –
Operating Instructions section 1.7]

EOS M400-4 Fastening Bolts Sequence

Recoater Blade Replacement / Alignment

Step 5 – Placing Recoater Blade Housing Back to Position in the Machine



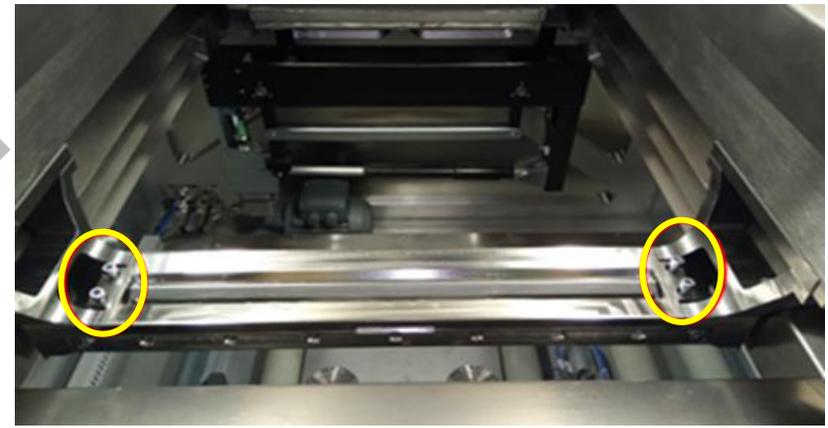
Once the recoater blade is aligned, the recoater blade housing can be installed back into the EOS M400 machine, ensuring orientation of the blades is correct (serial number faces towards you).

1. Remove recoater blade housing from the set up fixture and install it back into the machine

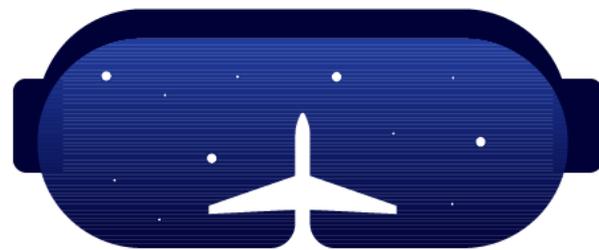
2. Use Allen key to tighten two M5x16 hex screws on each side of the recoater arm



Serial Number on a Recoater Blade Housing



Bolts on EOS M400-4 Recoater Blade Housing



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