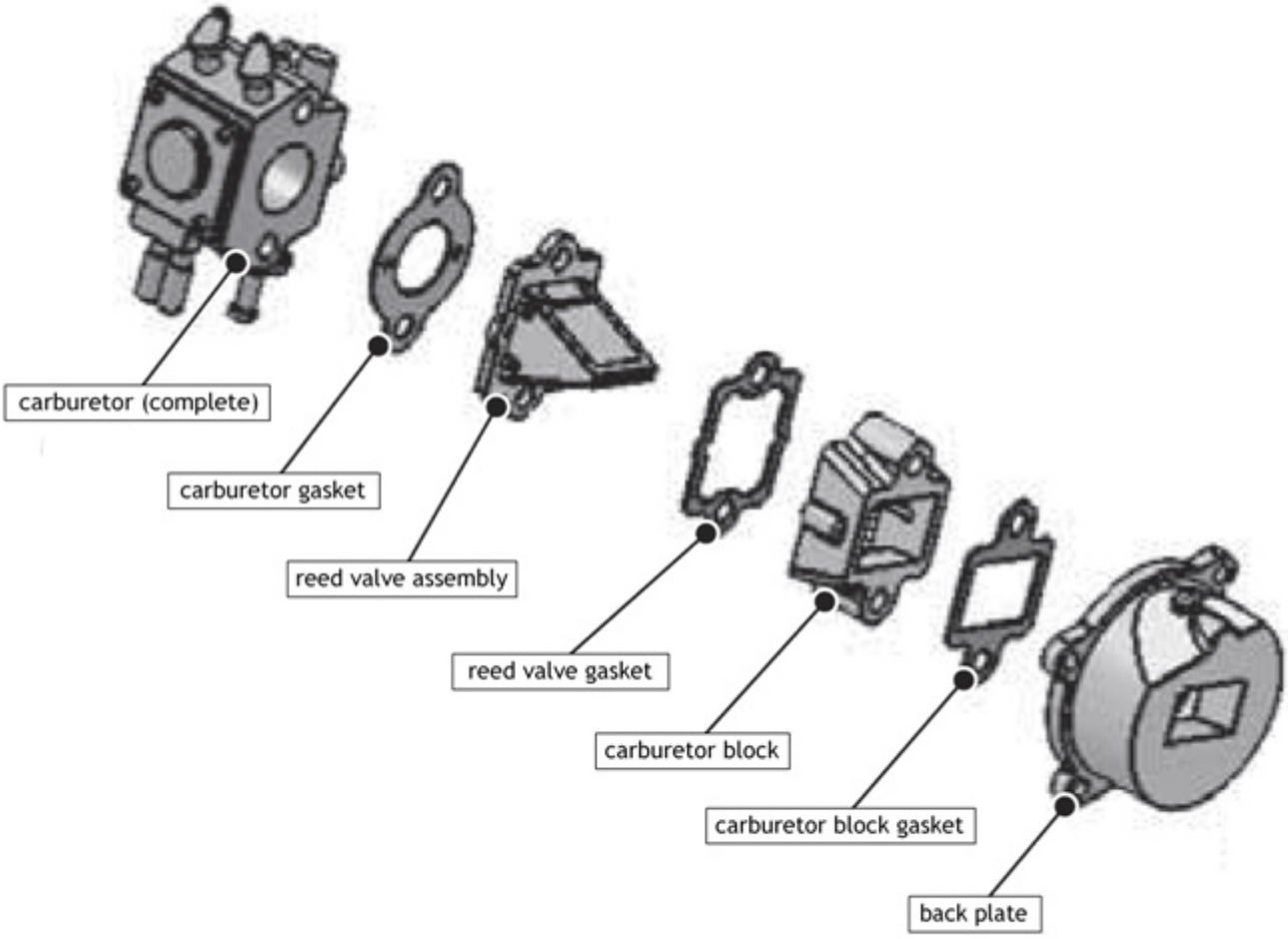
DLE 20: Gasket and reed surface lapping

When I contacted Frank Bowman to order one of his custom piston rings for my DLE 20, I learned that the gasket and reed surfaces between the carburetor and back plate would benefit from lapping. The combination of the new Bowman ring and the reed block mod have made the engine smoother and more powerful. To the shop!



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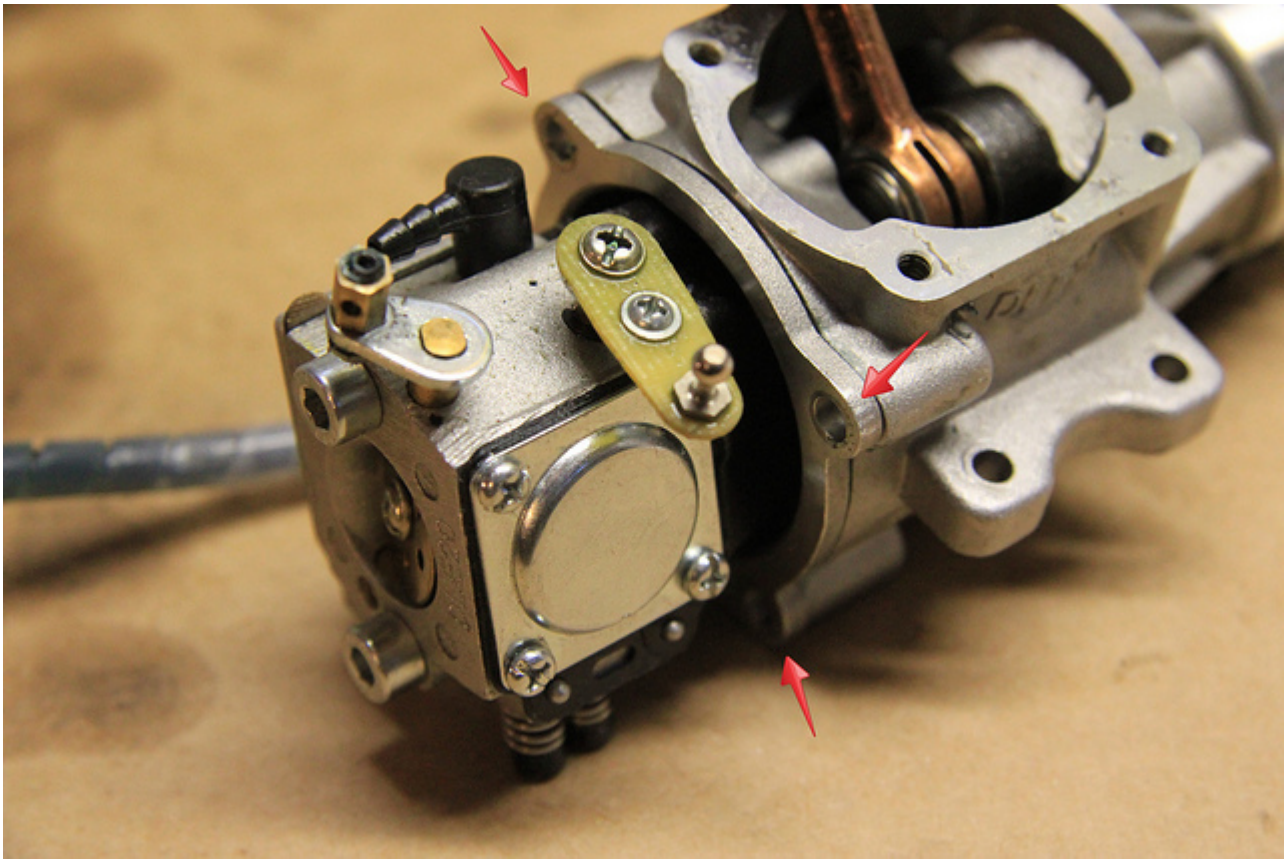
For the purposes of this modification I will refer to the above components jointly as the **intake assembly**.

Lapping is the process of smoothing a flat surface remove undulations and imperfections. According to Frank, many Chinese engines suffer from a lack of quality in this area resulting in hard starting and rough running. With the engine already out of the plane for the piston ring installation, it was a great time for this mod. To the shop!

Remove the back plate

For these steps it's assumed that the engine is already out of the plane

Remove the bolts that secure the back plate to the crankcase:



The cylinder head is removed in this photo. That's not part of this modification

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Ease the intake assembly out of the crankcase:

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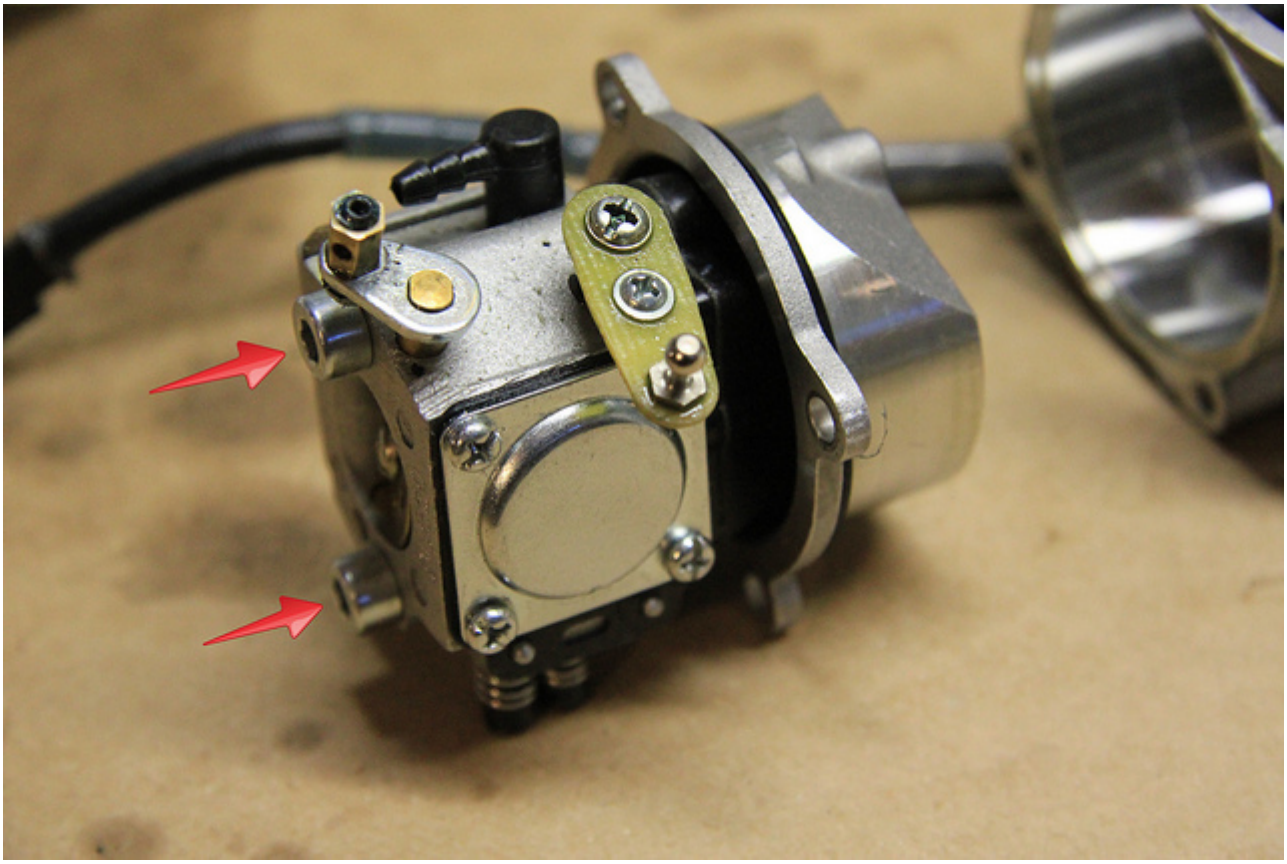
Separate the carburetor from the back plate

Remove the two bolts that join the carburetor to the back plate:



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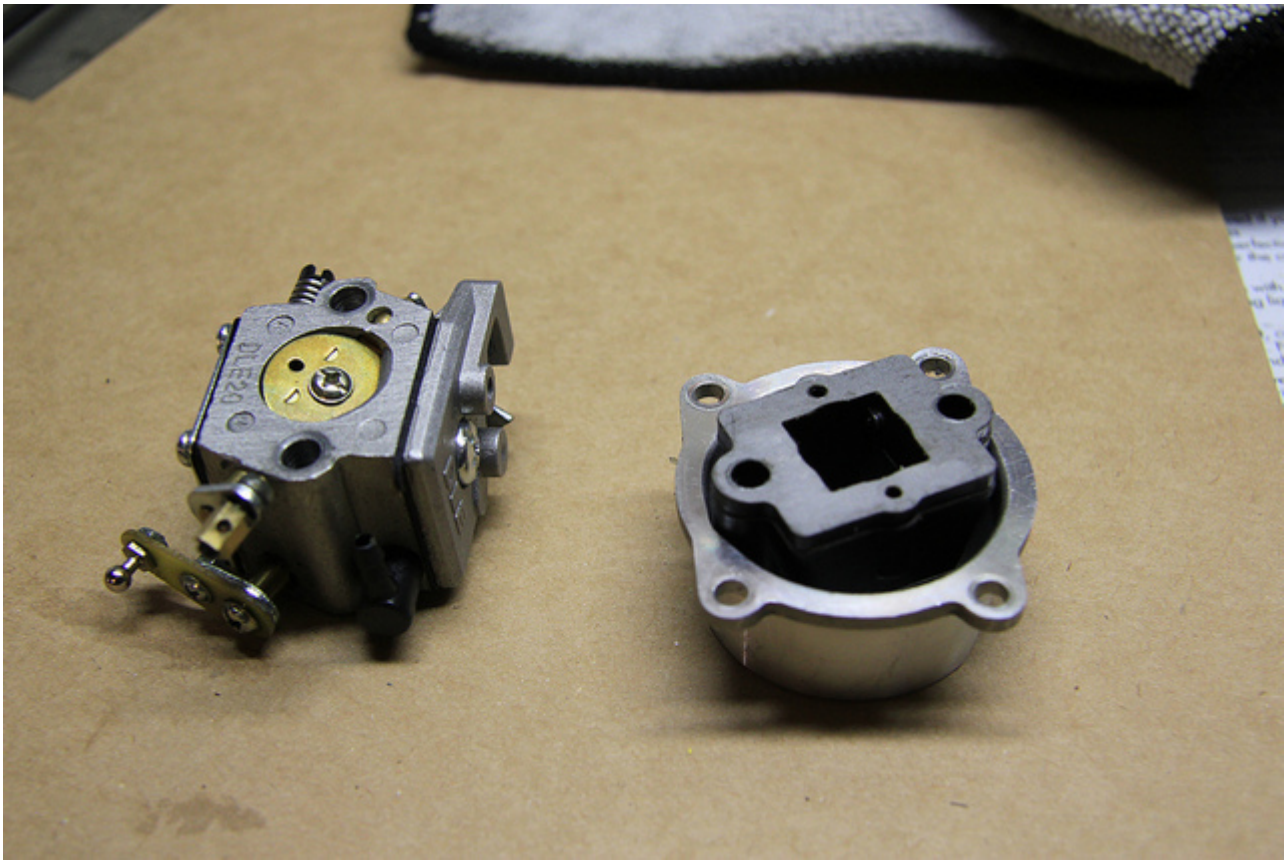
Separate the two halves:



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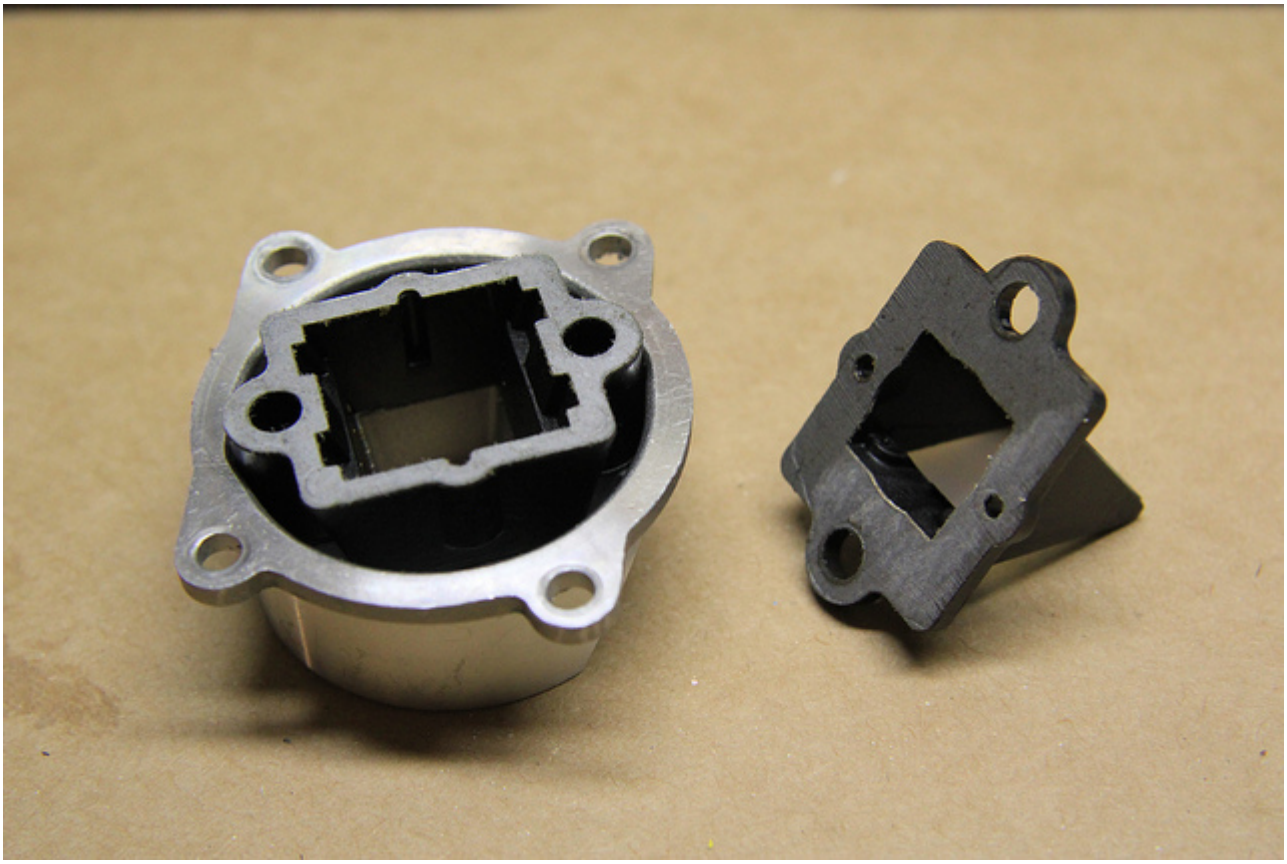
Remove the reed valve assembly

Remove the reed valve assembly:



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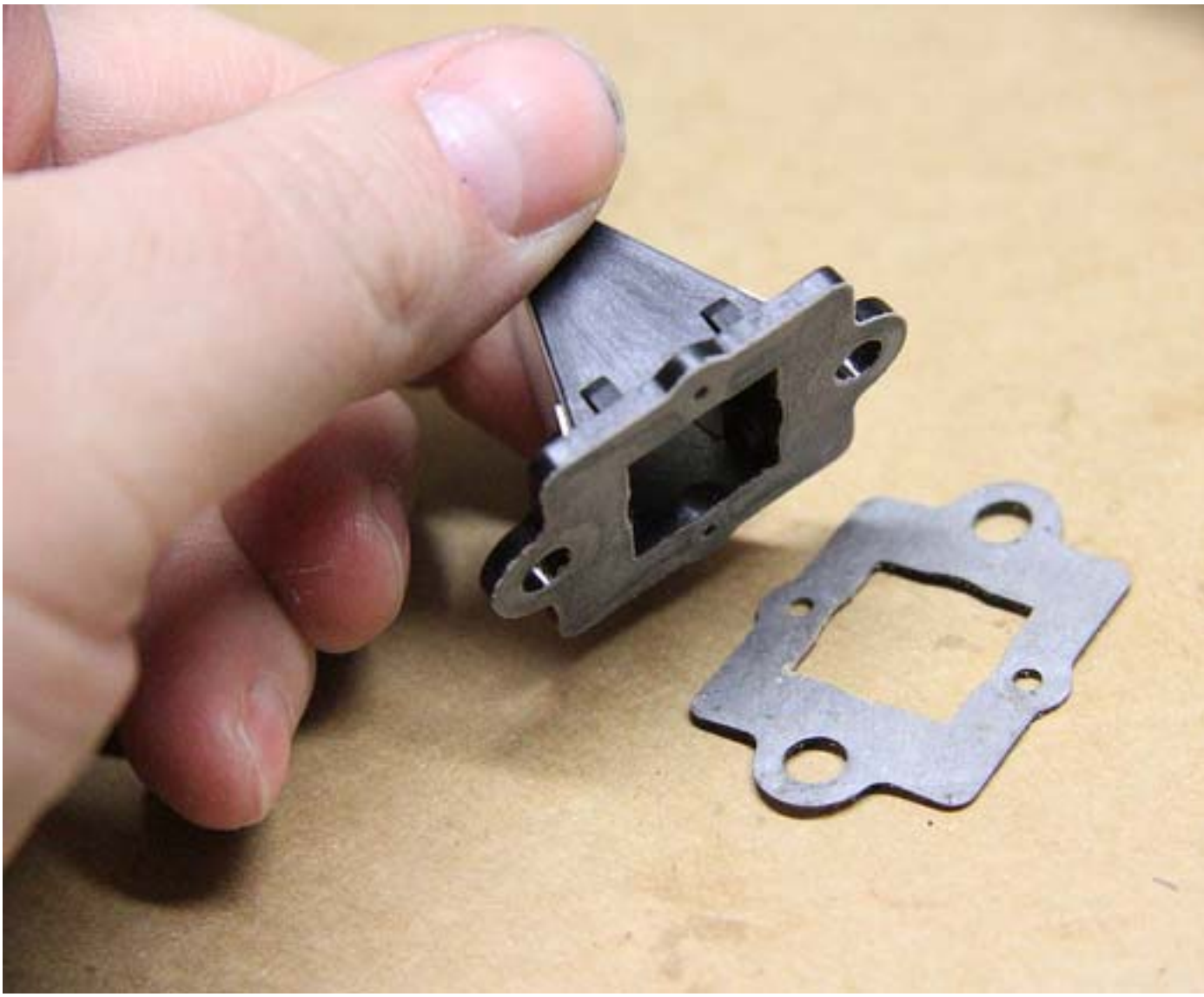
Gently remove the carburetor gasket from the back of the reed valve assembly:



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Lap the gasket surface of the reed valve assembly

Tape a small sheet of 320 grit sandpaper to a very flat surface:

Clean, thick glass is ideal

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Gently lap the rear gasket surface of the reed valve assembly:

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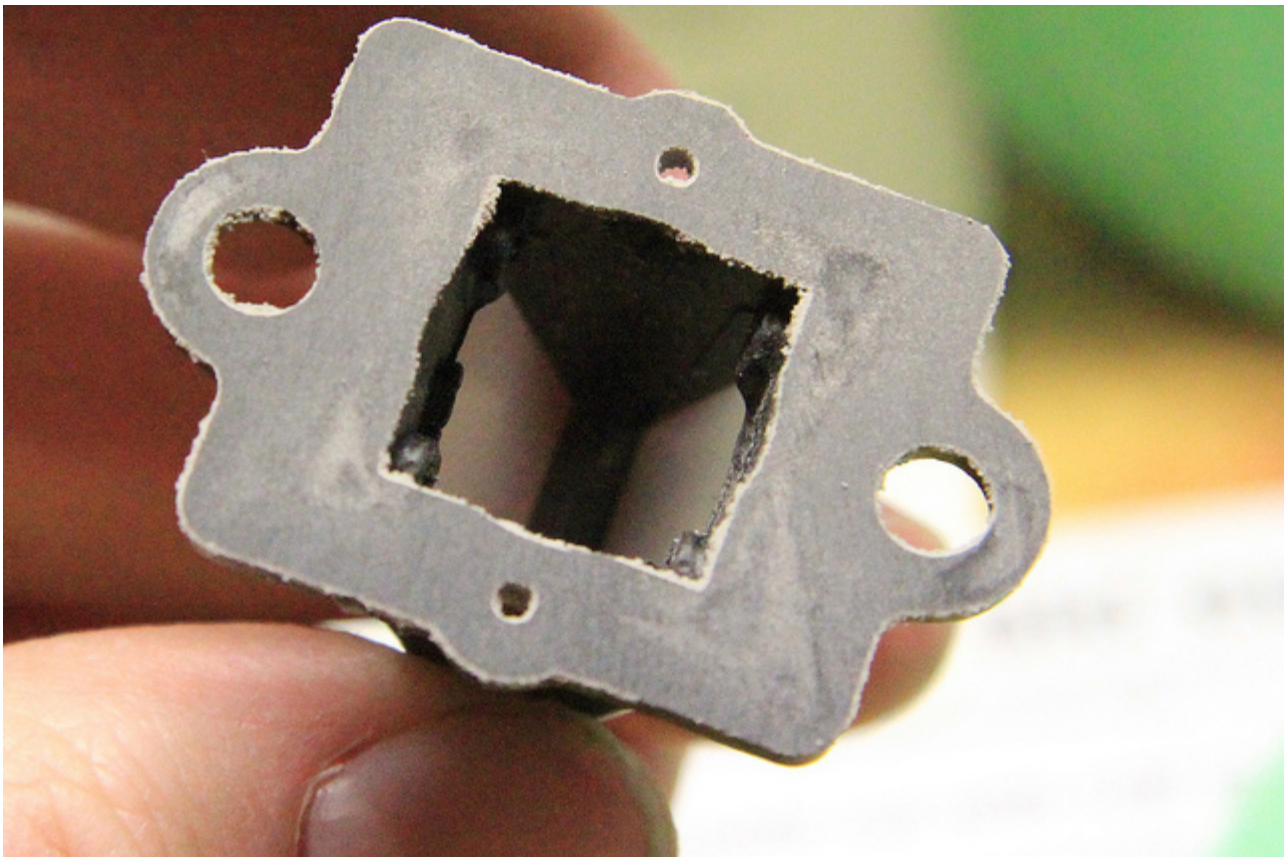
Check the surface periodically:



Note the darker areas; they are still recessed from the rest of the gasket surface

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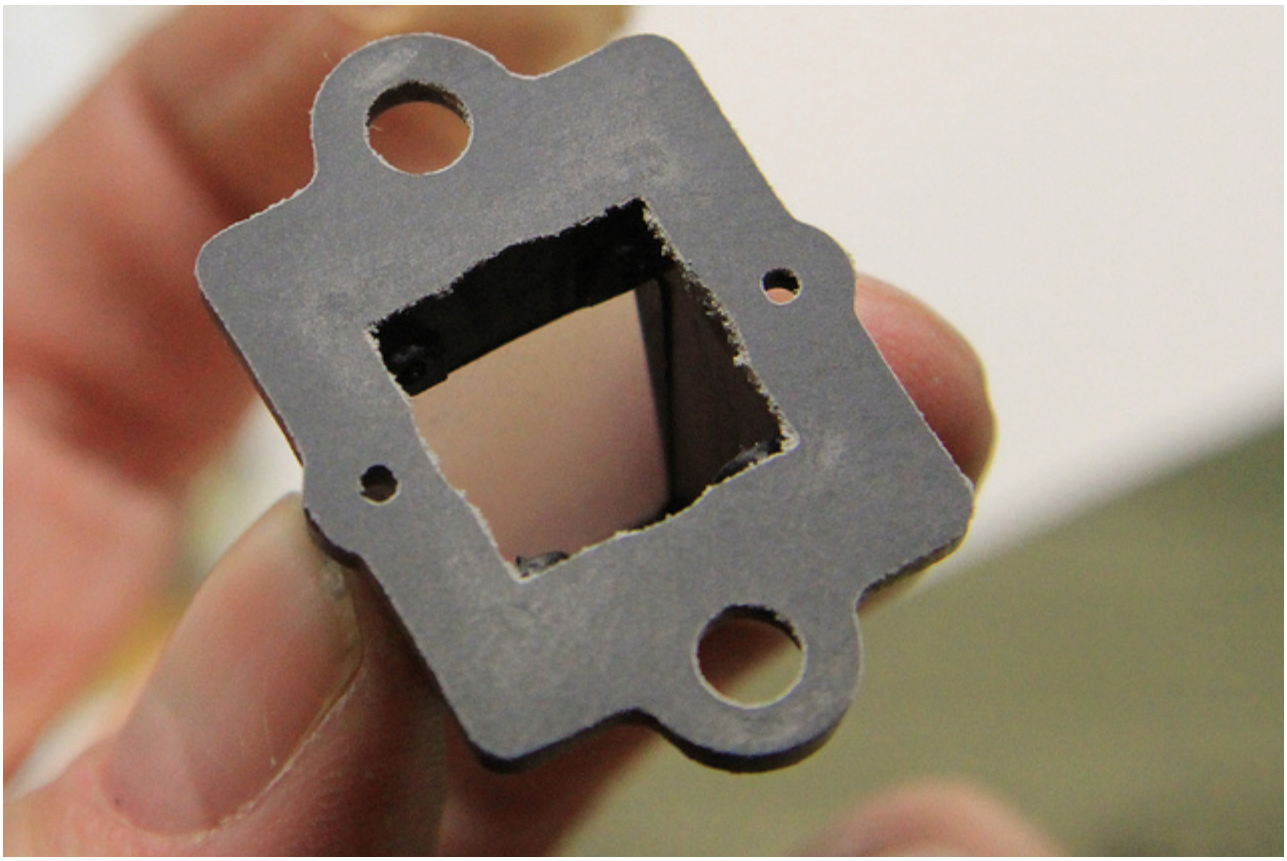
Complete the lapping:



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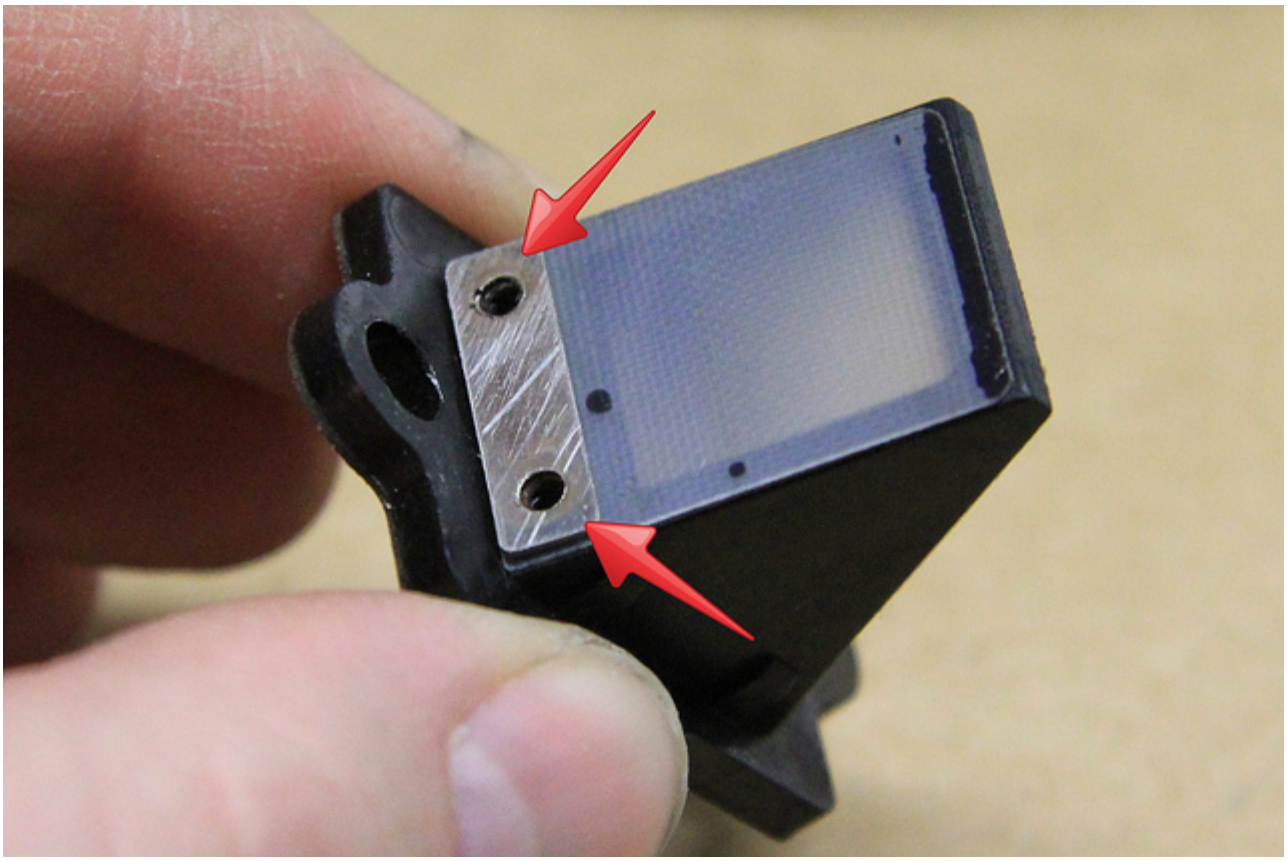
Remove the reed

Remove the two small screws holding the metal plate and the reed to the reed valve assembly:



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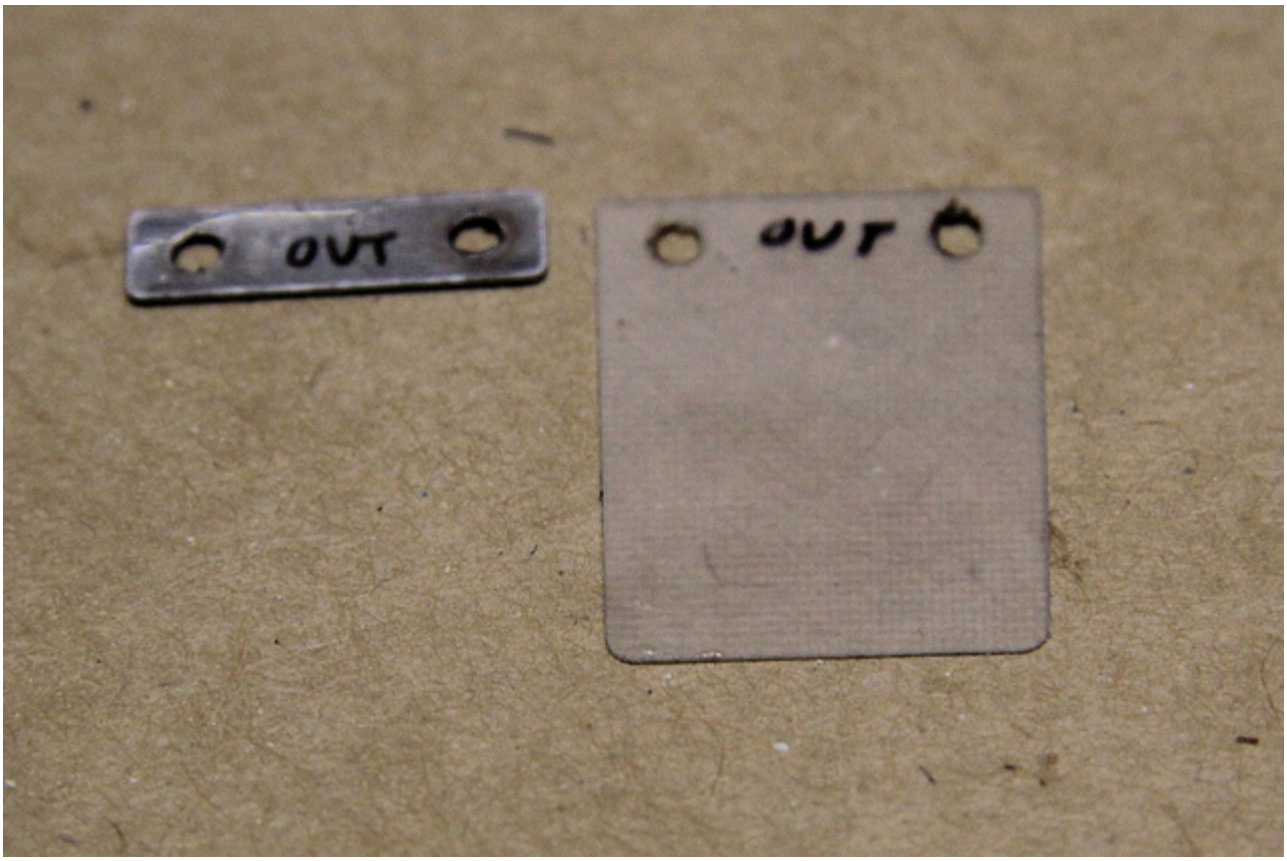
Mark the metal plate and reed for orientation:



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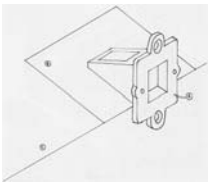
Lap the reed valve assembly

Place the reed valve assembly one the sandpaper with the rear lip hanging down



I forgot to take a picture - hence the drawing

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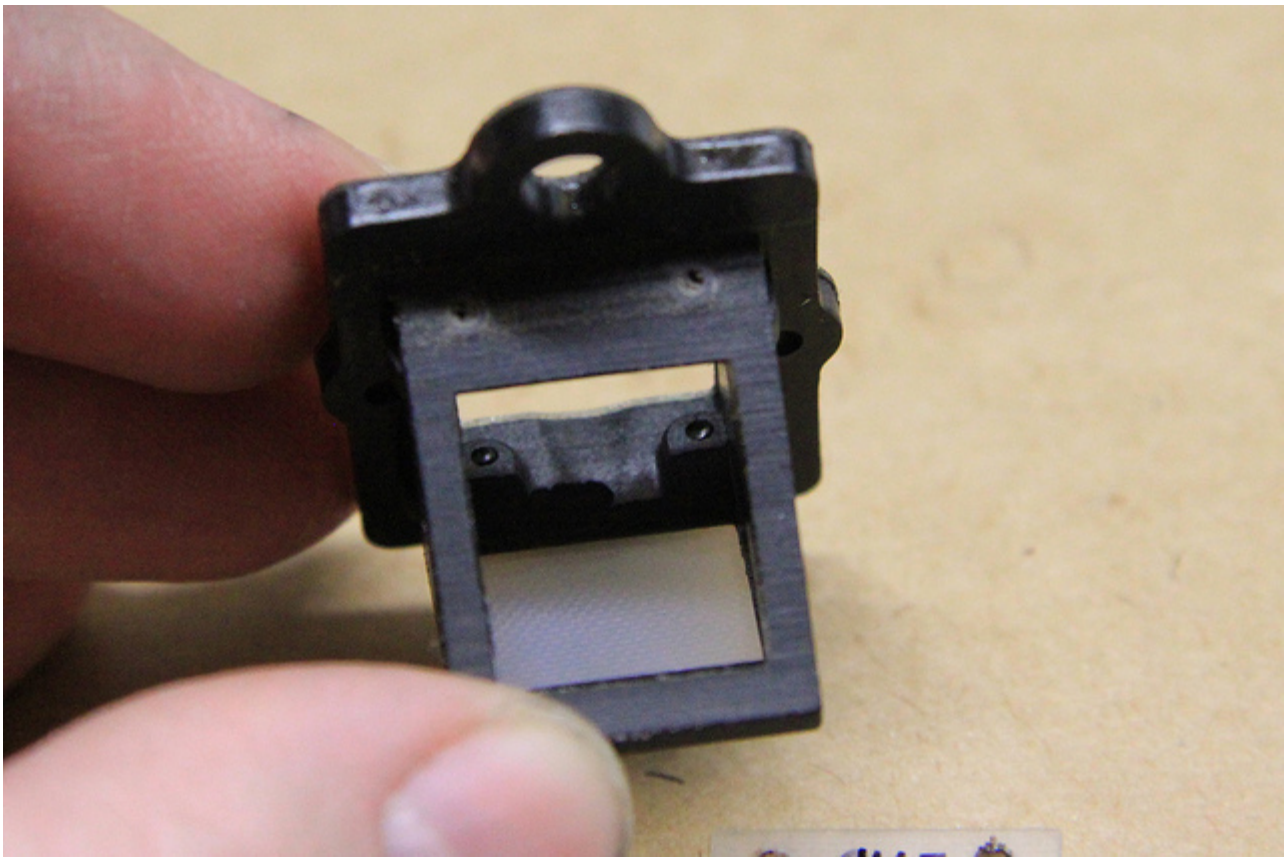
Move the reed valve assembly back and forth along the edge of the sandpaper until lappinging is complete:



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If there are any burrs on the back side of the metal plate, lap that as well. *Mine were fine.*

Clean the reed valve assembly thoroughly.

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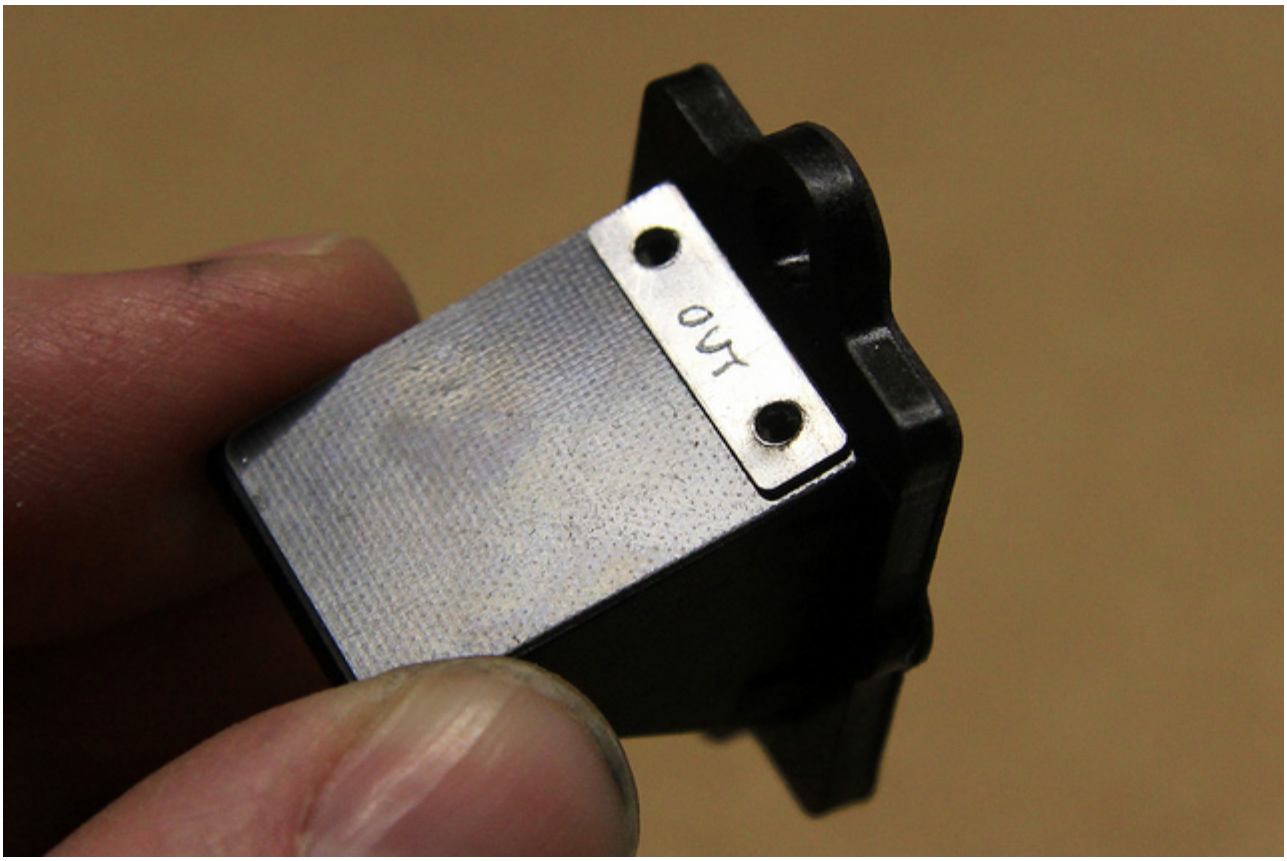
Reinstall the reed

Replace the reed and the metal plate on the reed valve assembly:



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Gently reinstall the screws.

Repeat the process for the other reed.

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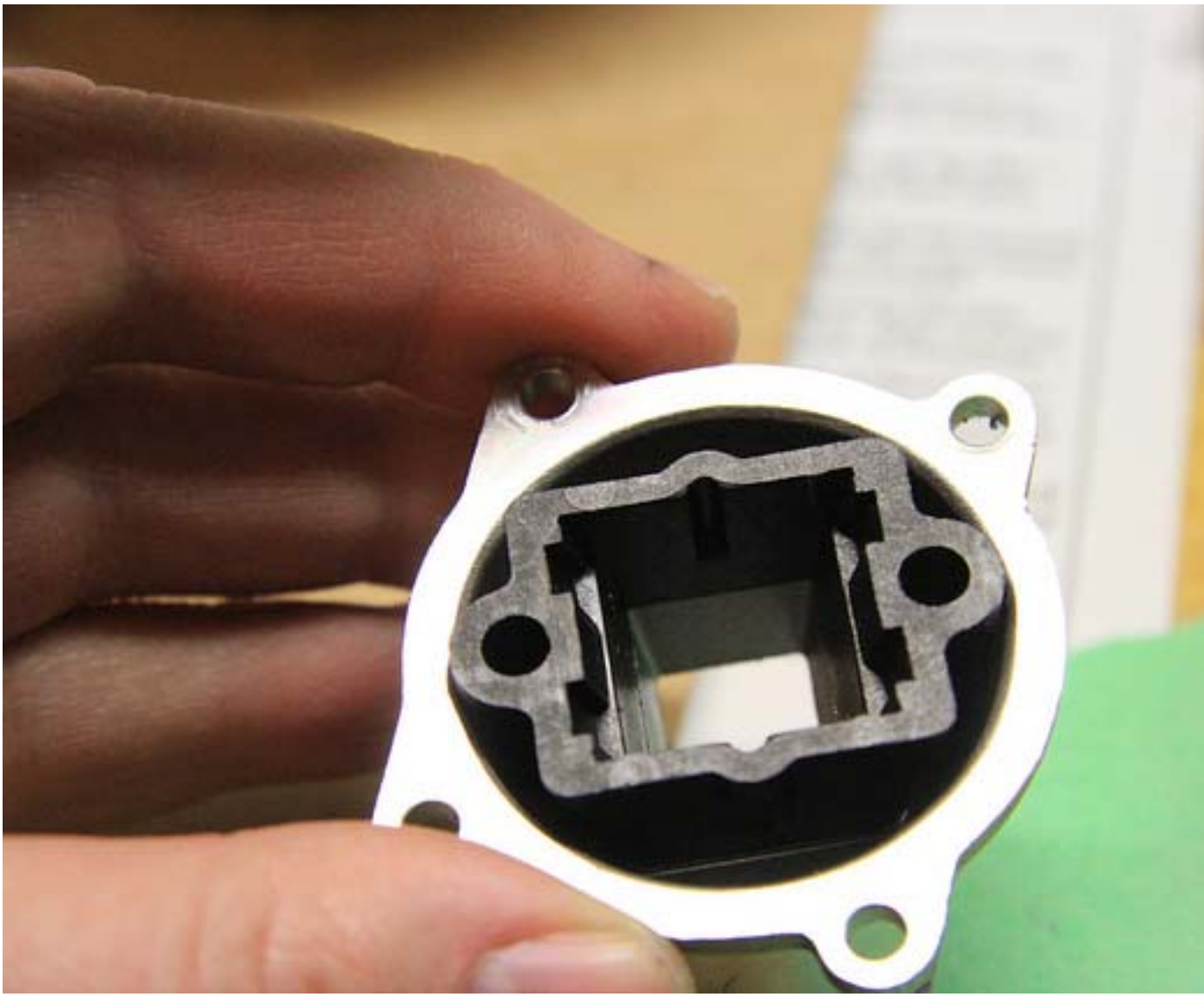
Lap the the carburetor block

Gently remove the reed valve gasket from the back of the carburetor block:



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Place the back gasket surface on the sandpaper:

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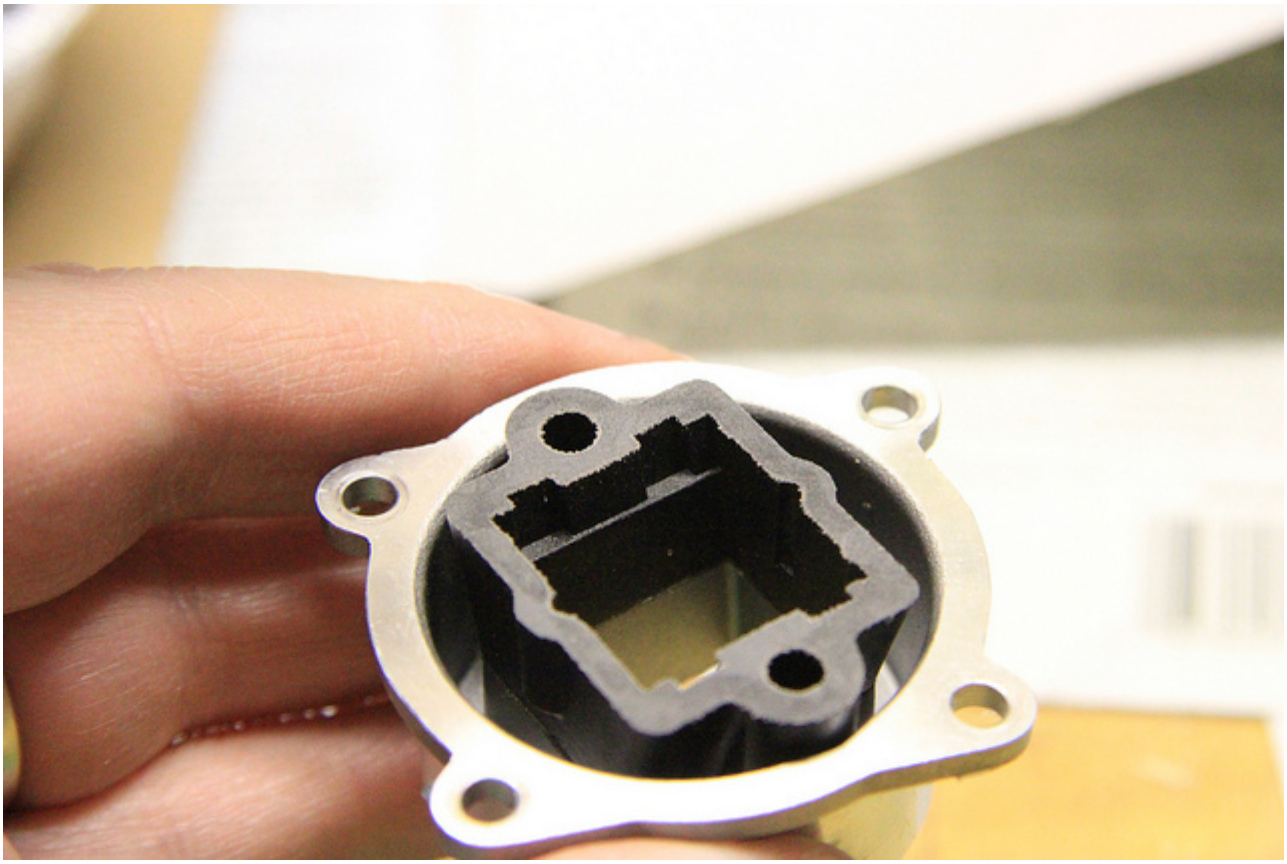
Lap the back gasket surface of the carburetor block, checking progress periodically:



I left the carburetor block in the back plate but that's not necessary

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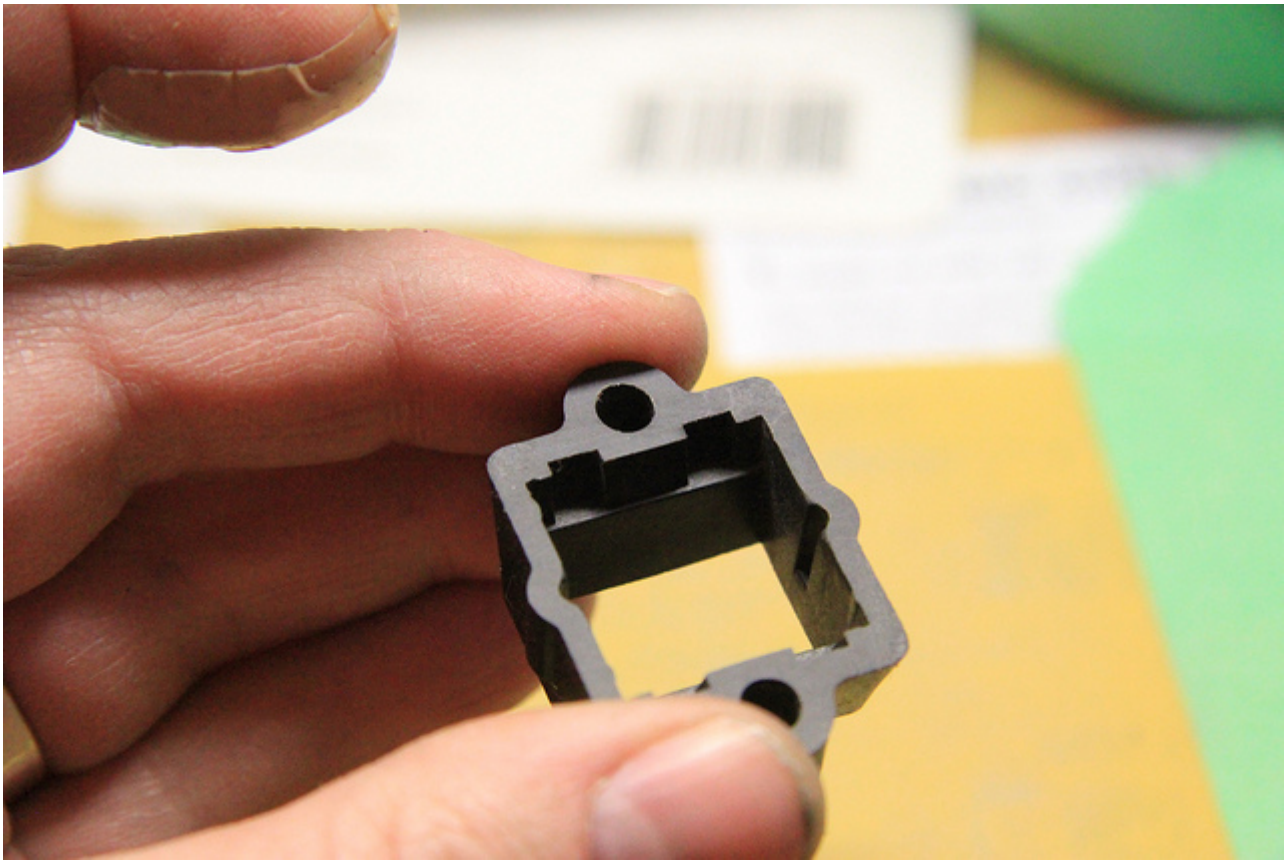
Complete the lapping:



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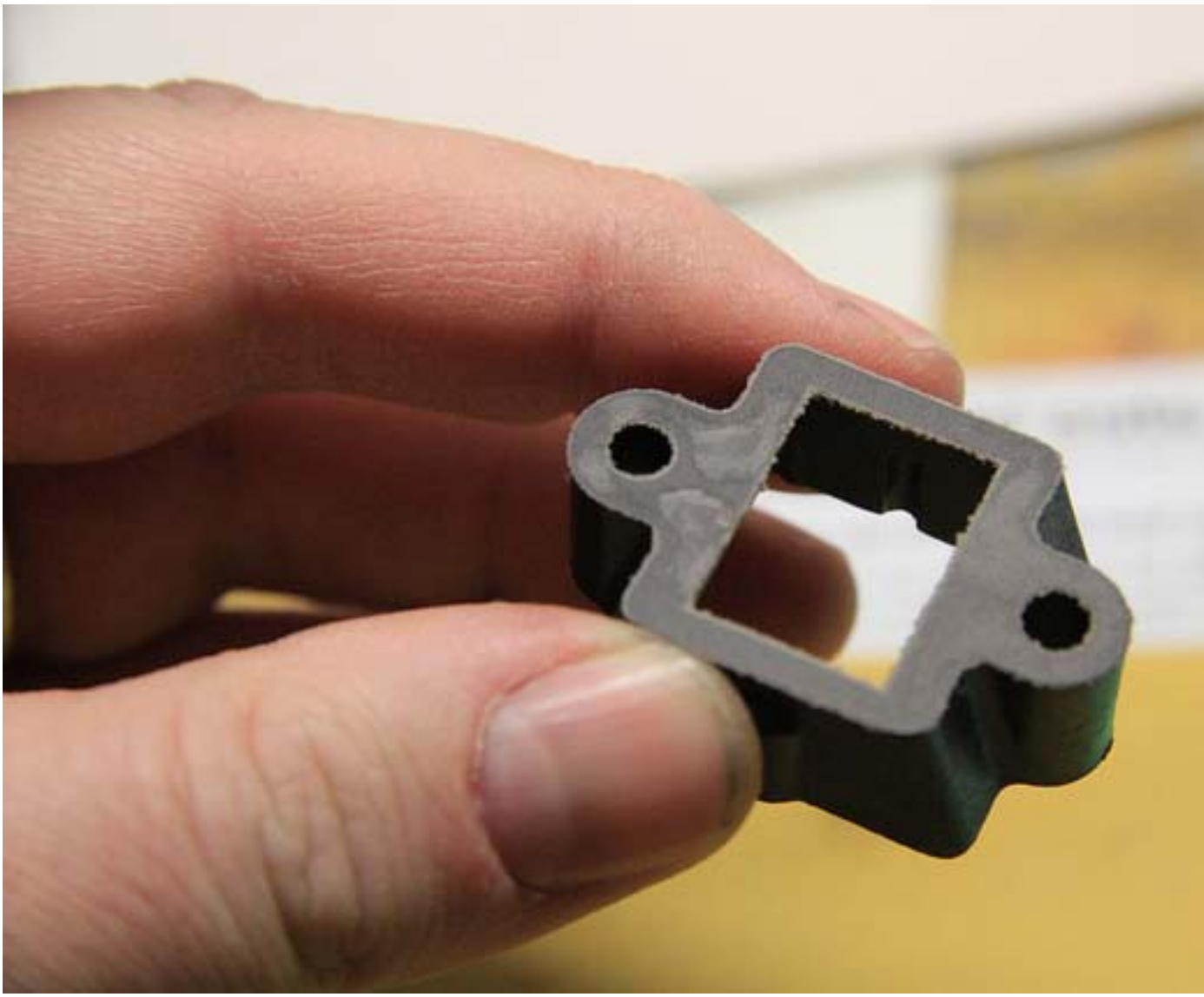
Repeat the process for the front gasket surface:



Clean the carburetor block thoroughly.

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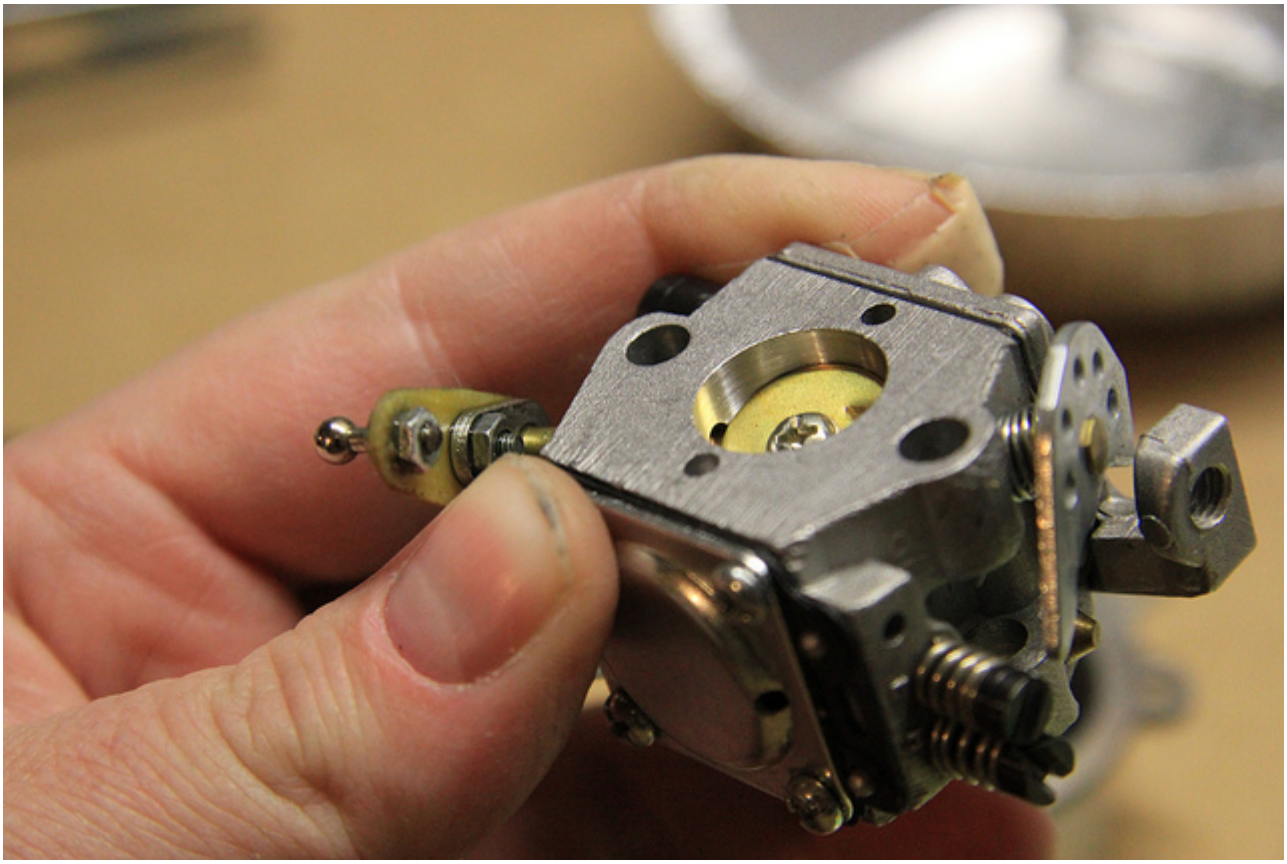
Lap the carburetor gasket surface

Inspect the carburetor gasket surface



Mine was very rough

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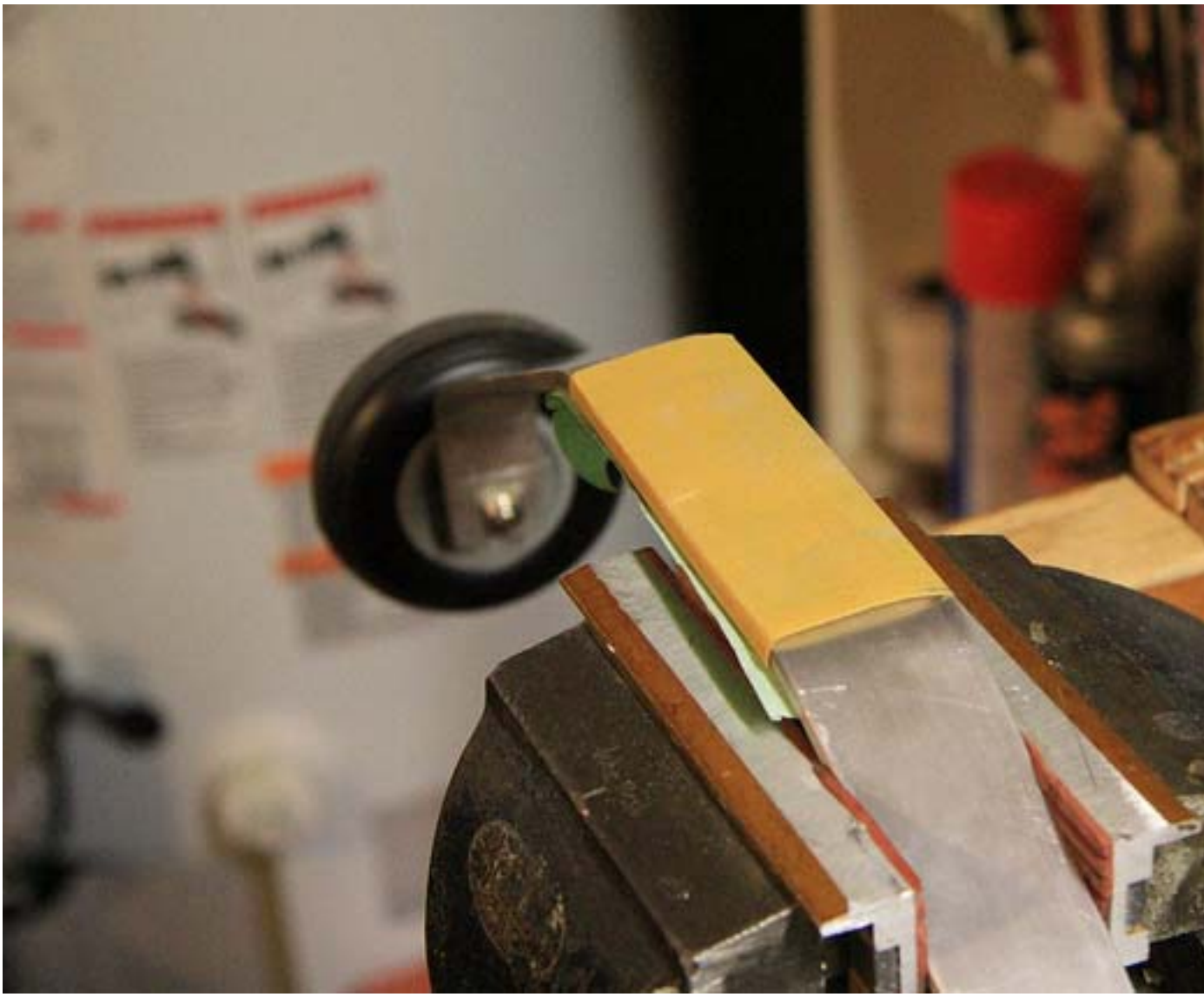
Note that the arms at the end of the throttle shaft will prevent you from lapping the carburetor gasket surface on the sandpaper you've been using until now. You can choose to remove the throttle assembly or you can find a flat surface that's narrower than the distance between the two arms. I did the latter:



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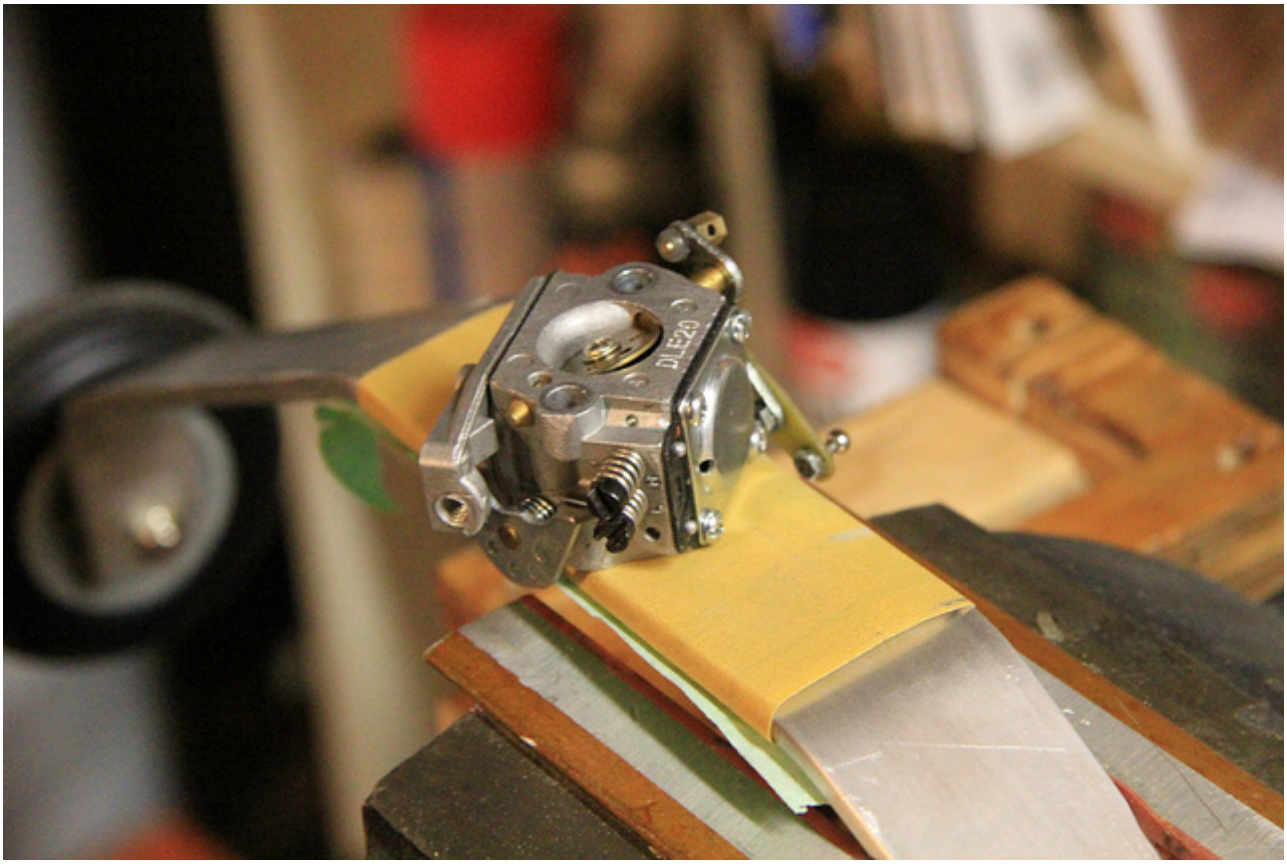
Be sure to exert constant, light pressure on one of the throttle arms to keep the throttle plate closed - this will keep the sanding debris out of the carburetor. Lap the carburetor gasket surface:



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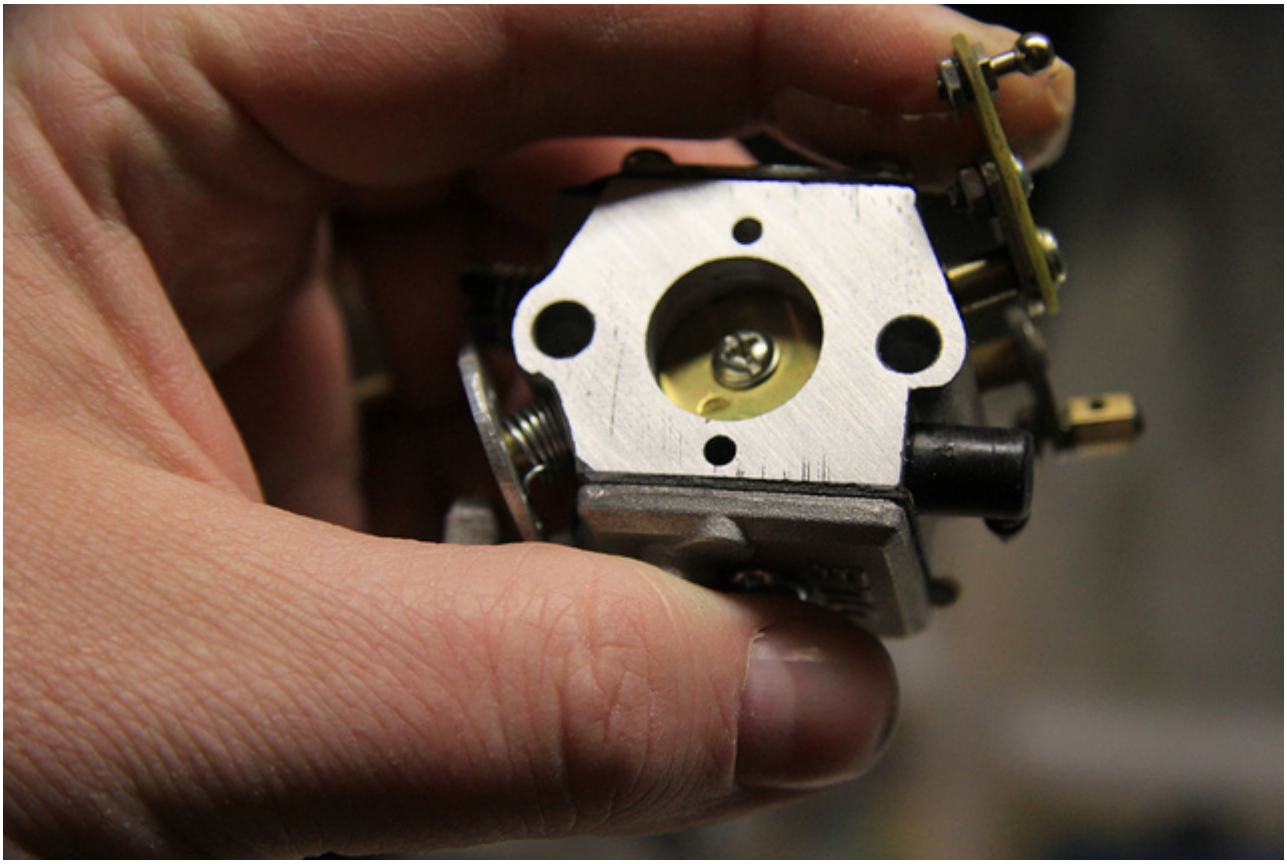
Check the surface periodically, remembering to keep the throttle closed:



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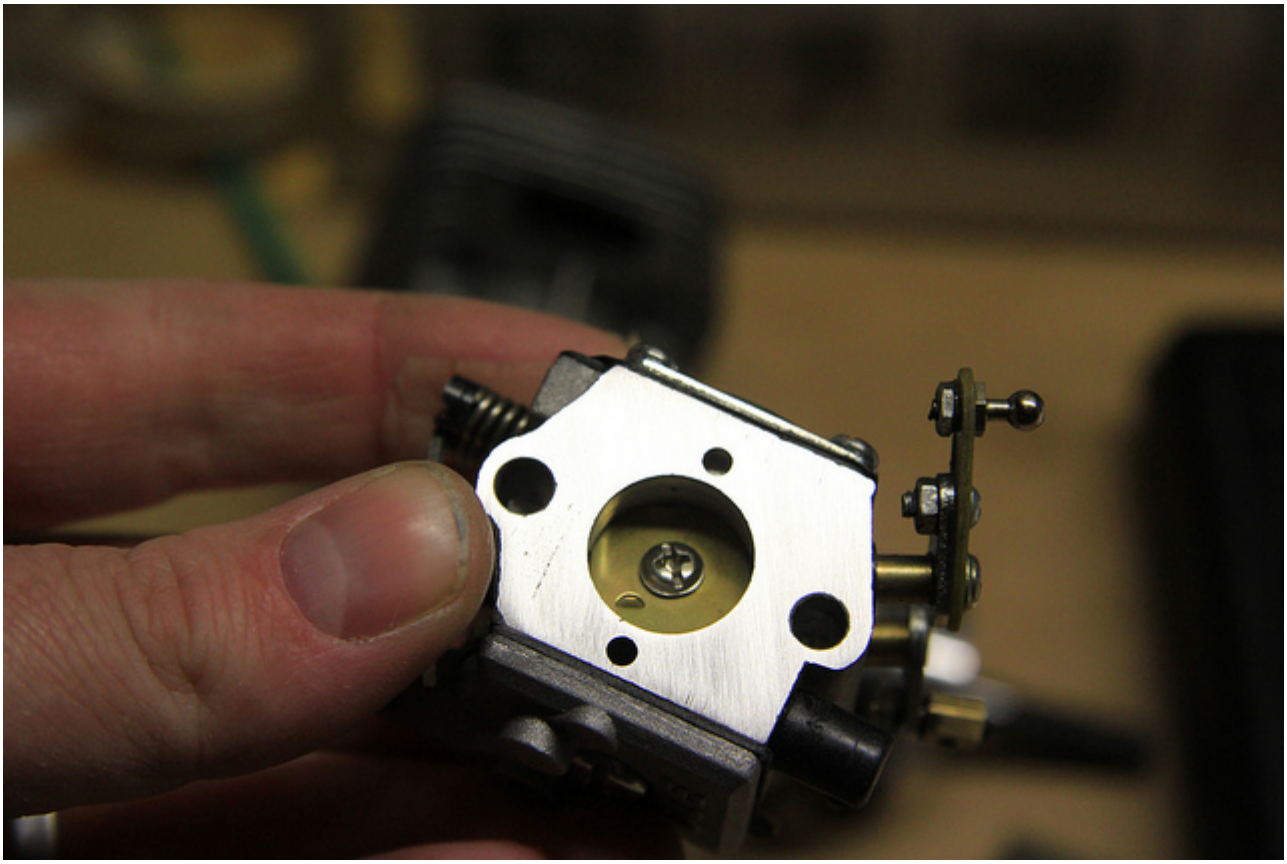
Complete the lapping:



There are still some small imperfections but it's a big improvement

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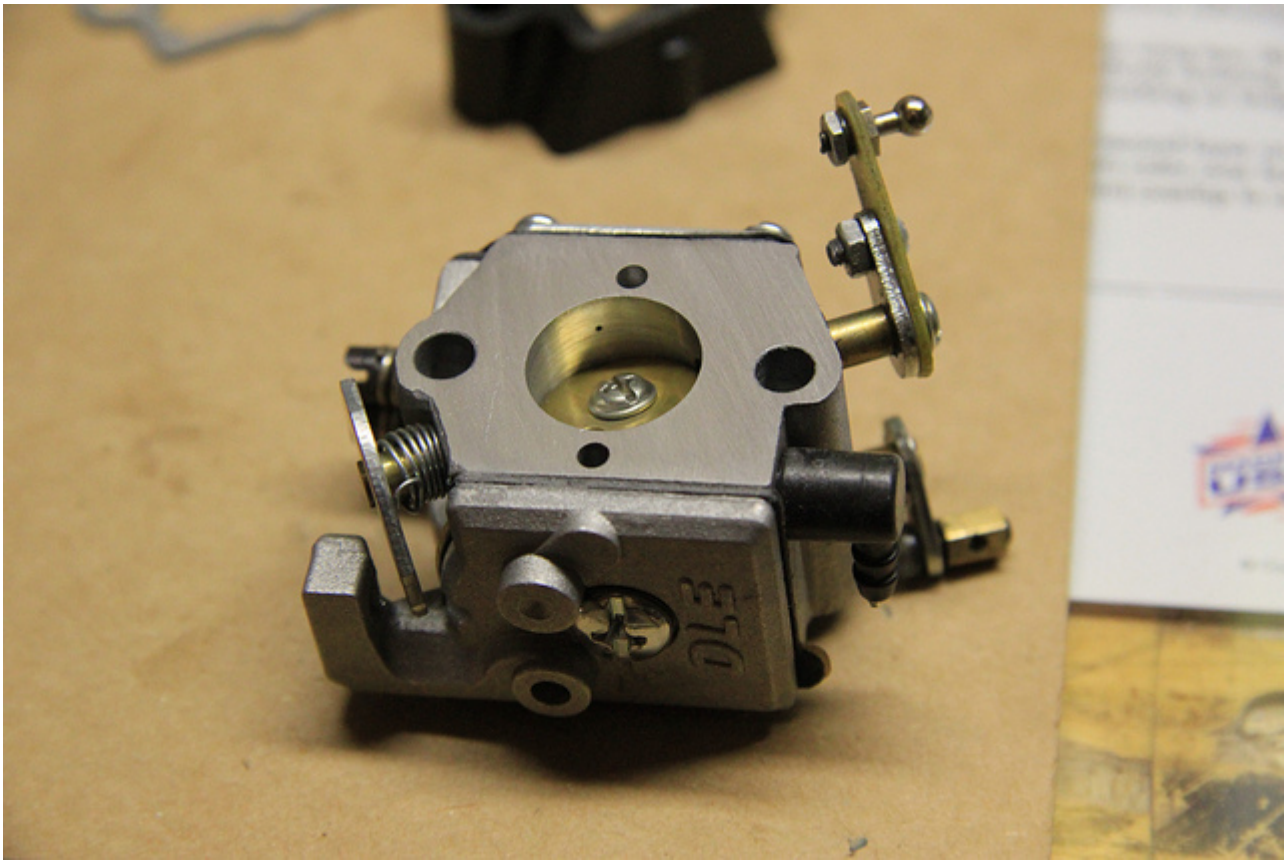
Clean the carburetor gasket surface thoroughly:



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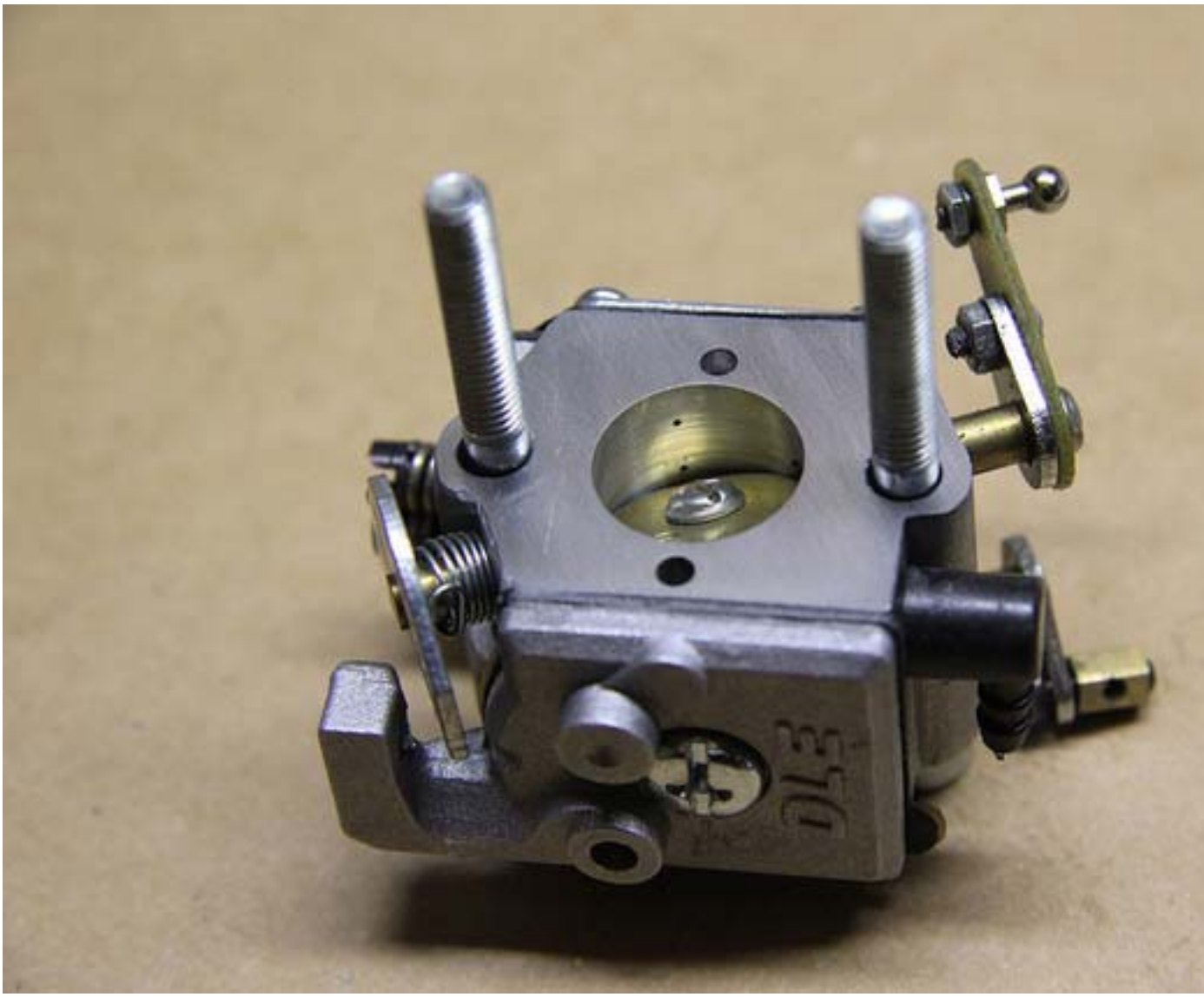
Reassemble the intake assembly

Insert the two long bolts through the carburetor:



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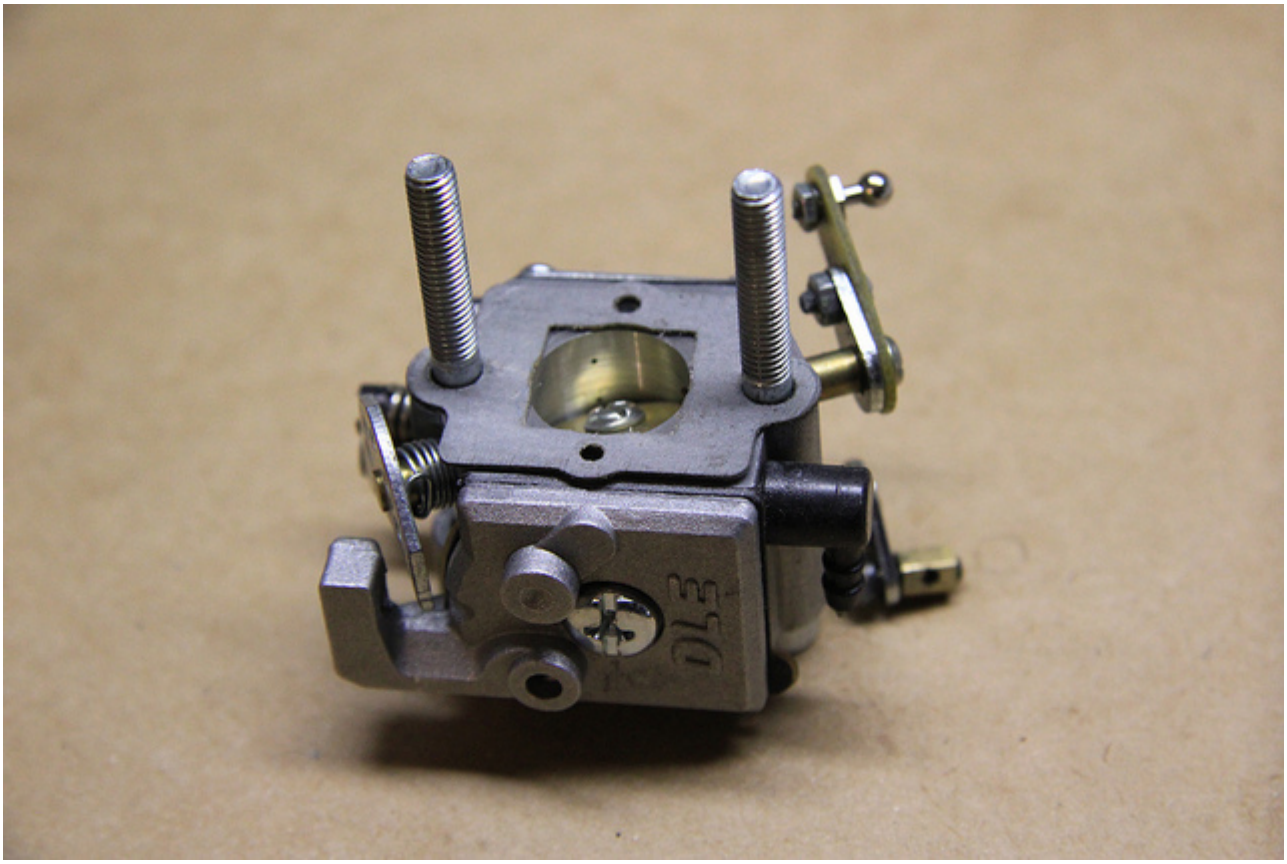
Add the carburetor gasket:



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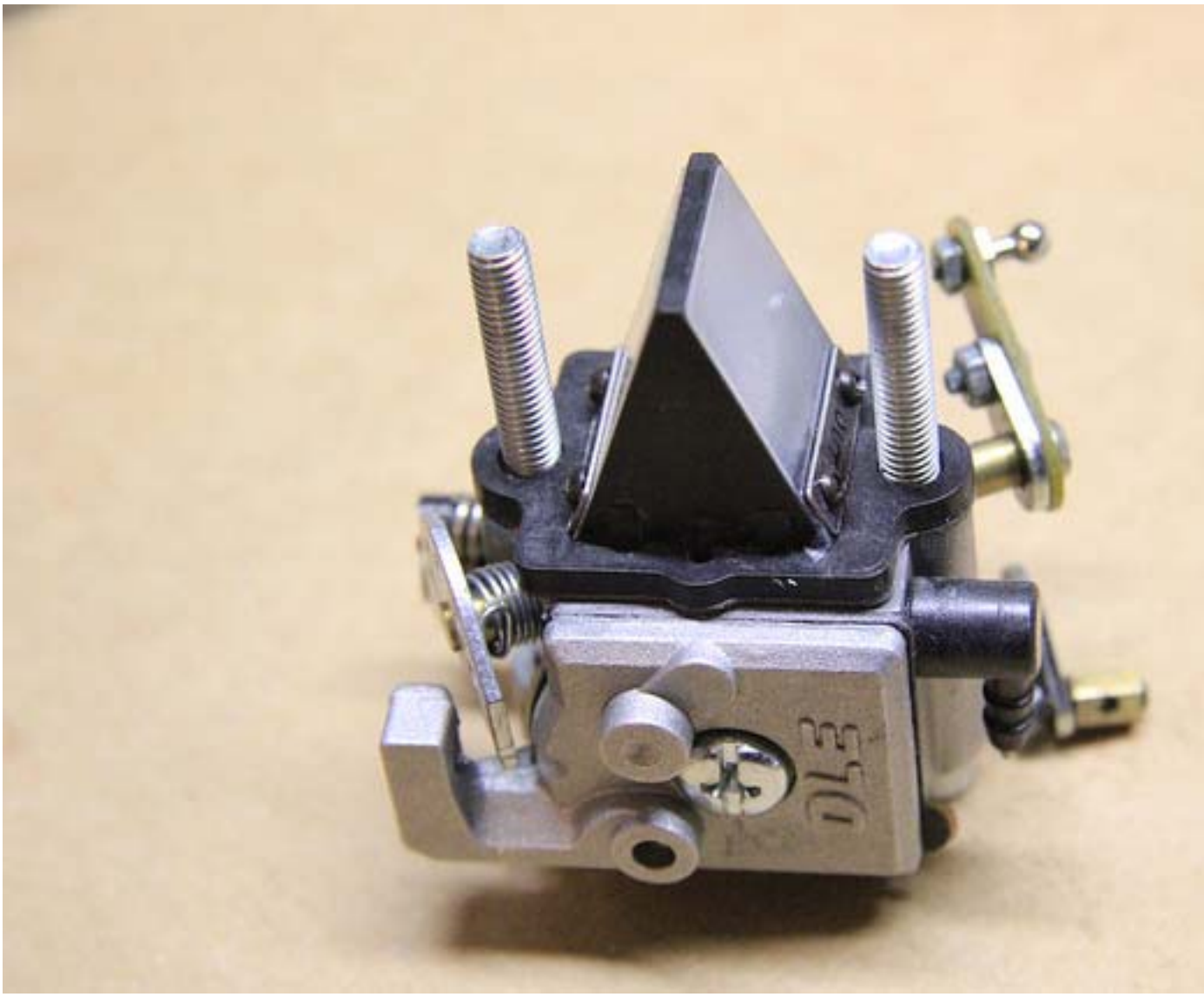
Follow with the reed valve assembly:



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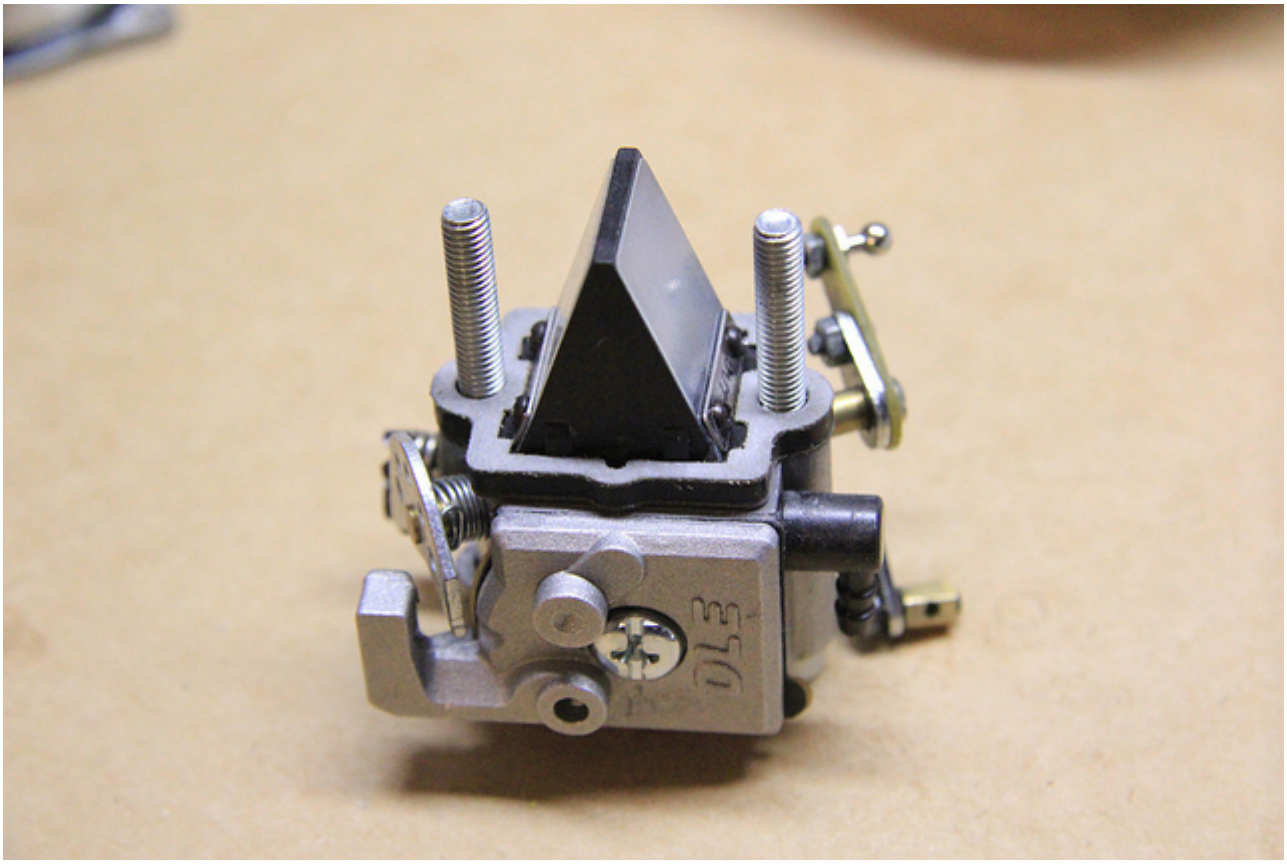
Reed valve gasket next:



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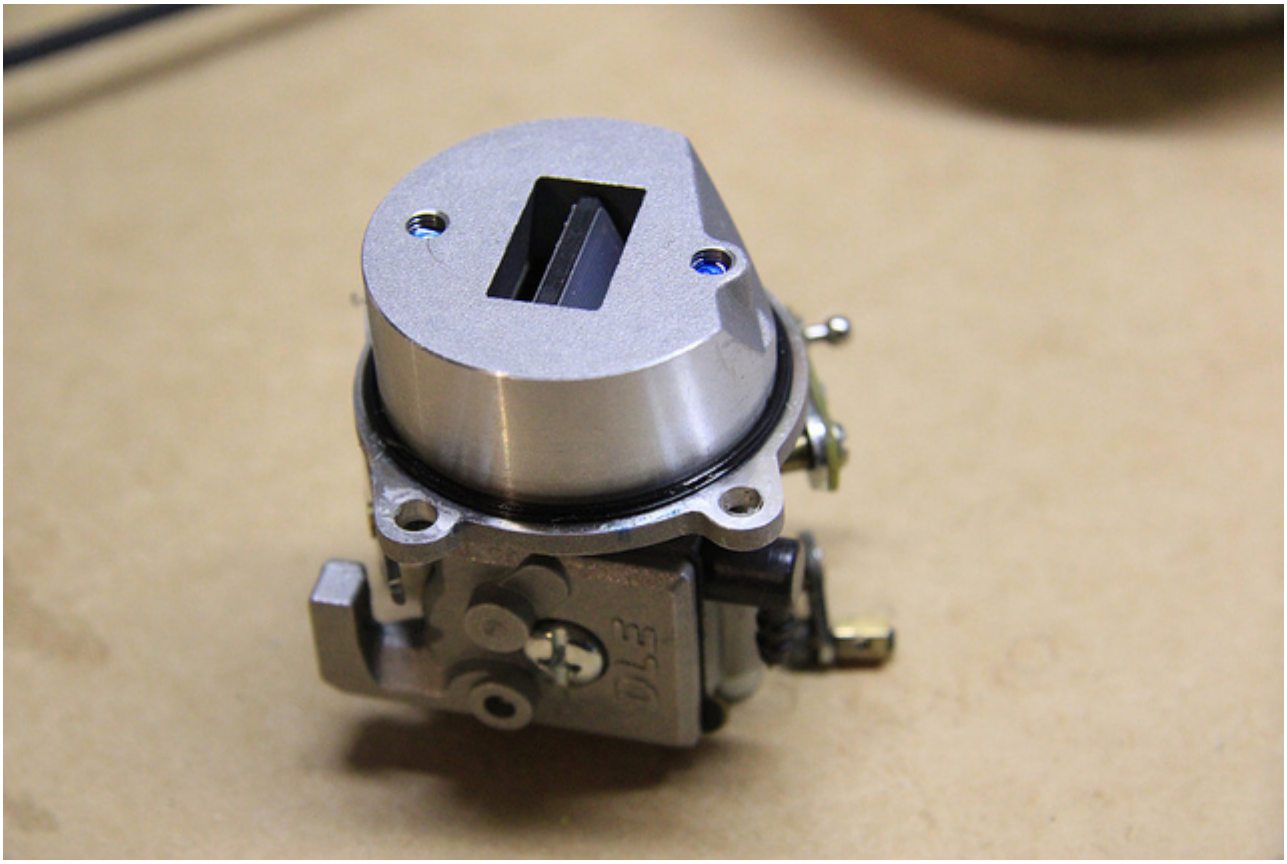
Add the carburetor block.

Next, add the carburetor block gasket.

Finally, add the back plate.

Apply thread lock to the end of the bolts and tighten firmly (do not use excessive force):



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Ease the back plate into the crankcase.

Apply thread lock on the four back plate bolts and tighten the bolts in a cross pattern. Do not use excessive force: