

Every handplane needs a tune-up

BY TOMMY MACDONALD

When I was introduced to handplanes as a working carpenter, I thought they would be ready to use out of the box. Most aren't. They need a good going over, not to mention sharpening and honing. So I got frustrated pretty quickly and just went back to my old standby: the random-orbit sander. Later, when I was a student at North Bennet Street School, I bought my first expensive new plane and made the same mistake again. That's when I learned that every handplane needs an overhaul, if only a mild one. It's the same with a new jointer, a new tablesaw, or any other piece of machinery. The great thing is that this tune-up only needs to be done once, and it pays off for many years.

Clean and deburr the parts

You'll encounter the first problem when you unwrap your new plane and find it covered with a liberal coat of oil, intended to protect it from rust during shipping. Any clean rag will do for wiping it off, but you don't have to remove all of it. A light coat will go on protecting the tool. Do take the plane completely apart: The lever cap, chipbreaker, plane blade, and even the frog need to be disassembled and wiped down. Inside you'll also usually find some metal shavings left over from machining. These are a bigger problem than the oil, since they can seriously affect the performance of the plane.

A lot of people know you need a razor-sharp blade for good performance, but you also need continuous, flat contact between the bed of the plane, the frog, the blade, the chipbreaker, and the lever cap. Planing creates a lot of pressure, and if anything is between the parts and breaks that connection, the blade will rock and vibrate, and you'll get chatter. So while all the parts are separate, feel for sharp areas and small metal burrs, and hit them with a fine file. And watch out: Very old planes might even have paint between these mating surfaces, left over from a bad rehab job. Remove it.



Take it apart and clean it



Oil, debris, and small burrs. Take the plane completely apart. On most new planes, you'll find a generous coat of oil, and most of that should go. Any cotton rag will do. Wipe off any other debris, too. Then feel around for small burrs that might interfere with the contact between all the important milled surfaces. Hit those with a fine file.

Flatten the sole



Check it first. If you see light under your straightedge, you've got a major problem. On a flea-market find, it's worth an hour or two of sanding to level a warped sole, but a new plane should be sent back.

Last, look for major defects in machining or grinding. If the frog rocks noticeably even after you clean and deburr it, return the tool.

Tune the sole

Next, move to the sole. That is the final link in the connection between the blade and the wood, so it has to be mostly flat, especially around the mouth and roughly three-quarters of the way across the bottom. Check with a straightedge. If you see light beneath it, you have a lot of work to do, and you should consider sending the plane back, or putting it back down on the flea-market table. You could be in for as much as a half-day of sanding—not fun. But here's how to do that without making the problem worse, or ruining a sole that is good to start with.

Invest in a good straightedge; you'll need it as a woodworker. Use it to find a flat surface in your shop for jobs like flattening the sole of a plane or the back of a chisel. It could be on the tablesaw, workbench, jointer table, or wherever. Then clamp or stick sandpaper down flat on that surface (see photo, top right). Go with cloth-backed 80-grit paper, the kind used for sanding belts. It's rough enough to handle heavy work if needed, but leaves scratches that you can live with. And the cloth body will hold up longer and stay flatter than paper will.

The first step is to make lines on the bottom of the plane with a permanent marker to keep track of your progress. The very first swipe will tell you how much work you have to do. Be sure to stick with



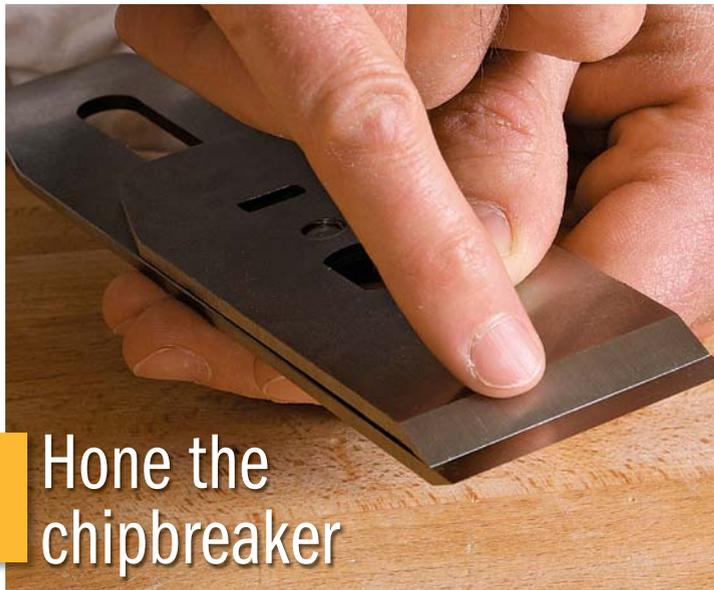
How to flatten any plane. If the sole needs work, start by making some marks across it with a Sharpie, and then clamp part of an 80-grit sanding belt to a flat surface in your shop. To keep the sandpaper tight and flat, clamp it under wood blocks as shown and then tap them apart. When sanding, concentrate most of the pressure on your back hand, as low as possible on the plane to keep it level. Use the lines to track your progress (1) and stop when they disappear (2).



Break the edges



Light filing. Use a smooth mill file to break the edges, filing away from the sole (left). Do the inside of the mouth too (above), but very lightly so you don't widen it. Then check again for little burrs inside the plane.



Hone the chipbreaker

Critical contact. If there are any gaps where the chipbreaker meets the blade (above), chips will find them, jamming the mouth. So hone the underside (right), making sure you maintain its negative angle for a tight seam with the blade.



light pressure throughout for even results, and keep the plane level. The critical area is all around the mouth, but you can compromise a bit at the last quarter of the sole, near the heel.

You don't need to switch to a finer grit to polish the bottom. The 80-grit scratches won't affect planing at all. Overall flatness is what counts. Before you move on, break all the edges of the sole with a fine file and then sandpaper.

Fine-tune the chipbreaker

The chipbreaker does two important jobs: It presses down on the blade right where it counts, eliminating chatter. And its beveled or curved top edge forces the chips to curl and break, as its name says, which stops little splits from running ahead of the blade and creating tearout. But it won't do either job unless it meets the blade perfectly. So, providing that the back of the blade is flat and polished (see "A Visit to the Sharpening Doctor," *FWW* #206), you are ready to tune the chipbreaker. Start with the top edge, polishing it on your honing stones or with sandpaper so chips glide over it smoothly.

The underside is the key part, so do it last. The area under the tip is milled at an angle so it meets the plane blade with a knife edge, and you usually can stick with that original milled angle, keeping the area near the tip flat on your honing stones with the rest of the chipbreaker hanging off.

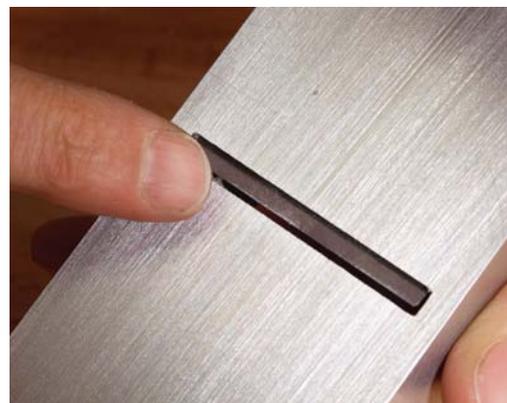
Now attach the chipbreaker to the blade, put both in the plane, and get planing! You want to get the tip of the chipbreaker roughly $\frac{1}{32}$ in. from the tip of the blade. Pop the assembly into the plane, and put in the lever cap.

Finally, you might need to adjust the frog, closing the mouth of the plane, to help prevent tearout. Your plane is now operational, and it should stay that way for years. □

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Adjust the mouth last

Fine-tune the frog. That changes the mouth opening (far right). This Bedrock-style plane is the most convenient, allowing you to adjust the frog while the blade is in place.



Good gap. For most work, you are looking for a $\frac{1}{16}$ -in. opening ahead of the blade. If you get tearout, try making the mouth tighter and taking finer shavings.