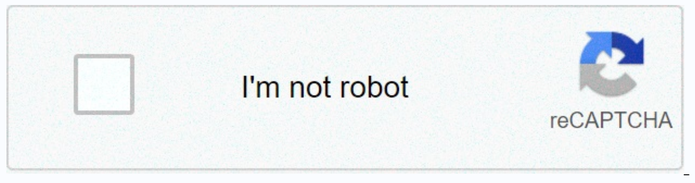

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Stanley block plane assembly diagram

Stanley Bailey #9-1/2, c. 1952-55 ~ one of the most popular block aircraft of all time As a follow-up to an earlier post on the configuration and development of over-the-counter plans, this will focus exclusively on block aircraft. Some of the information is taken directly from that post, so if you've read it, it might seem familiar. To set up those lock plans... Unsurprisingly, so many modern woodmoms, especially those accustomed to connecting and reproducing power tools, avoid anything that requires sharpness, let alone tune in and flutter to make it work properly. But the fact is, whether they are 100 years old or brand new, practically all aircraft benefit from a certain degree of tussle to bring them to their full potential. Fortunately, this is not a difficult pro proposal, and it actually helps to better understand how the tool works and how to get the most out of it. The following are the basic steps for setting up and tussing a lock plan for use. Block aircraft tend to be less complicated than over-the-counter aircraft, but there are still many variants, both new and used. I'm intentionally keeping it pretty generic, so you may need some interpretation when applying the concepts to the tool in front of you. But don't worry, there are no tool police workshops and garages. Feel free to skip a ride if you don't think it's relevant or necessary. Step 1 - Soles need to be saved, they are not a stickler when it comes to flattening the sole of an airplane. After owning hundreds of them and using dozens of aircraft over the years, it is quite rare to come across one with a sole so deformed, cupted or bent that it is unusable. If it happens to you on one that is really unusable, my advice is to return it, sell it or throw it away. The only possible exceptions are block planes, which are quite easy to flatten due to their smaller size. Over-the-counter aircraft are much more difficult, especially larger ones. You can take them to a mechanical workshop and have them milled or lapped flat, but forget to try to flatten them yourself with sandpaper unless the problem is much less. The sole of this plane has been hand-lapped using a granite surface plate If you decide to flaps the flat sole of your plane, you will need a dead flat substrate. The cast iron bed of a table saw or ginning machine works well, or if you don't have one available and want to keep it cheap, a piece of granite surface plate of 12 x 12 or larger will work for block tops. Just make sure to retract the blade and tension the cap leverage as I would in real use. This puts the correct stress on the body of the plane. I start with 60 grit and progress up to about 320. The removal of high points (convexity) is more critical than low points (concaveness). Keep in mind that you don't even need the whole dead apartment. As long as you have smooth contact to your toe, around your mouth, and to your heel, the it will work well. Vintage aircraft often have raised dings from bouncing in tool boxes, especially along edges, toes or heels. A flat mill file does a very quick job of these minor problems. Finally, some woodmoms will thread a very small 45-degree chamfer along each edge of the sole. This is completely optional, but helps prevent involuntary heels when using the plane if you point it slightly. I've seen some mid-20th-century Stanley planes that seem to have been made that way in the factory. Step 2 – Flatten 'dem frogs The hole in the iron straddles the side adjustment pivot disc and leans against the small frog where it lanes at the small pivots on the height adjustment lever mechanism The block planes generally do not have removable frogs like bench tops, but there are some exceptions, mainly on some of the special, low-angle planes where part of the frog moves with iron when adjusting the cutting depth. Either way, the frog function is the same on all planes. It provides a secure platform on which iron is supported. In order for the top to shave the wood correctly, there must be no movement (oscillation, play, rocking, etc.) to the iron. It must be firmly seated against the frog, so the frog's face must be as flat and safe as possible. This platform on most block aircraft is often very small, especially when compared to over-the-counter aircraft. Click on the photo on the right and you can see that the frog is less than 1/2 square inch. Since the frog on your locking plane is generally not removable, you just need to retouch the seat with a solid sanding block to make sure it's flat. In addition, since the sloping flat area behind the mouth on the base of the plane provides much of the forward support for the iron, it must also be flat. Unfortunately, it is difficult to reach, and since you do not want to enlarge your mouth at all, just a touch using a small piece of angled wood with fine sandpaper wrapped around it is how much you want to take it. Thankfully, this is all you usually need to remove the old crud. A quality dremel or flexible shaft tool with a metal wheel brush will work even if the problem is limited to dirt and light corrosion. Finally, as on the bench top, clean the wires all over the hardware and add some light oil to help delay moisture and rust. Step 3 - Lever caps (This is not a drinking game ...) Only the front edge to the bottom of the lever cap at the bottom of the photo should be flattened. This photo, taken before flattening, shows the edge is a little rough, which will compromise wire contact with the iron. Block aircraft do not have hooded irons, so the lever cap plays a more important role. Use coarse sharp stone or bring a fine file to the back side and remove any rough spots, paying close attention to the main contact edge. This is more on block tops with caped cast iron lever caps, such as the old Stanley 9-1/2. The back sides of these caps are notoriously rough and unfortunately Japanese. You don't need to remove all japanning, but you want to get a smooth contact line in front where you touch the iron along the front edge. Thread it smoothly and give it a couple of swipes on your 1000 grain stone. If your aircraft uses one of the nickel-plated nocquer-style lever caps, flatten the bottom of the front edge in a similar way. Step 4 - I Pity the Fool Who Don't Sharpen His Tool! The iron was sharpened with a small secondary bevel from 2 to 3 degrees added (the dark line on the edge itself) The simple fact is that, even with brand new tops, the irons require final licking before use. This is not due to a certain lack of attention on the part of producers. Irons are provided in this way on purpose, since the manufacturer has no way of knowing what you will use the plane for and subsequently how the iron should be refined. You may want a perfectly straight edge if you are working on the joinery, or it may be cambered (with a slight radius) to smooth out small areas of surface. It's up to you, but if you don't do anything else in terms of fine-tunging or preparing your plane for use, at least take the time to sharpen it properly. Don't skip this passage! Sharpen the iron. Once again, sharpen the iron! Sharpen it, I say! Since sharpening is such an expansive topic per se, I will leave the specific details for other posts. What you need to know in the context of tuning, however, is that any plane, new or old, requires initial sharpness and refinement. At the very least, the new irons must have their beveled side refined flat and polished to at least 4000 grains and preferably 8000 grains. It is not necessary to agitate with the entire surface; only the first ones from 1/8 to 1/4 along the cutting edge will do so. It is also necessary to put a final lens on the beveled edge itself. It may look sharp, but it needs to be refined, once again, to at least 8000 grains. The goal is to bring the cutting edge as close as possible to a radius of zero degrees. Sharpening is too often the puzzle that dissuades woodmoms from trying hand tools. This is regrettable, because it requires little monetary investment to get started, is not particularly difficult to learn and can be achieved rather quickly with surprisingly good results. For detailed information on sharpening, I recommend investing in one of the pending books on the subject of Ron Hock or Leonard Lee. Chris Schwarz has also written a series of fantastic articles about sharp irons. Step 5 - Final adjustments that you're done tuning in and sharpening your plane, it's time to put it all back together and adjust it for use. I hope you have a better understanding of what each party does how they all work together. This will make the adjustment for use and, during use, more intuitive and fluid. Some points of reflection... The adjustable mouth plate on Stanley #9-1/2. The opening of the mouth is adjusted by loosening the knob and rotating the eccentric lever of the throat to the left or right (to open or close the mouth). While the frog's position on the bench tops is adjustable, which means you can move if forward to reduce the size of the mouth opening or backwards to increase the size of the opening, many (but not all) locking planes have adjustable mouths. Use a larger mouth opening for thicker cuts and a smaller mouth opening for fine chips. For details on this please see my post on adjustable mouth plans. Holding the plane upside down and looking at the sole at a low angle, lower the iron until it begins to appear through the mouth - just a whisper. Note that it is not unusual that there is quite a bit of slope in the wheel that lowers and lifts the iron, as much as a full lap or two. Turn it around until you start feeling resistance. Make the necessary lateral adjustments using the side adjustment lever if the plane has one (some do and others do not). If yours does not, just touch the side of the iron with a small hammer to align it correctly. I use a brass hammer not to swallow the edge of the iron, but what you use is up to you. Turn it upright and take a test pass on a piece of waste wood. If the plane digs, step back from the depths. If it misses altogether, lower the iron a little. You'll quickly have a mind for when it's right, as evidenced by the rewarding thwack sound a plane makes when cutting a perfect curl. Tuning a manual plan is not a difficult effort. Once practiced, the whole process can be done in about half an hour, even less depending on the tool. Rather than viewing it as an unpleasant job, I actually like it, especially later in the evening when the dust has settled and the world is quiet. Pour a size (or two) of your favorite Kentucky brown, put on some favorite music, and get on your work bench. Stanley Bailey #18, c. 1936-42 *** The tools shown in the photos were returned to functional conditions by Virginia Toolworks using museum-quality archival preservation techniques. Sharpened and tuned for use, each tool is fully tested and adjusted until perfect. Perfect.