

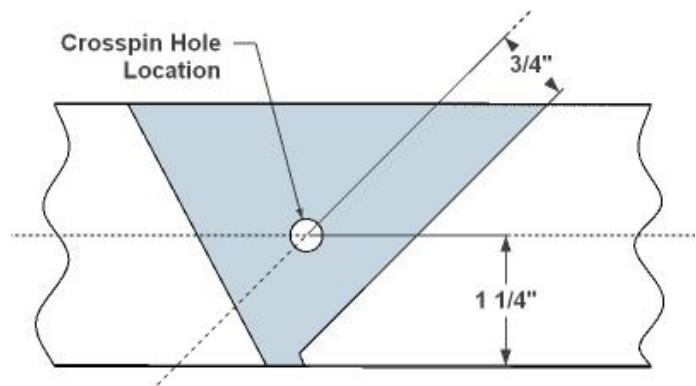
Wood Plane Plan of Procedure

*An outline of the procedure in Making & Mastering Wood Planes by David Finck.
Page numbers refer to the book.*

Materials

Plane body	(plane blade width +1¼") x 2½" x (plane length +1") hardwood
Blade	Wood-plane blade (Hock)
Cross-pin	½" square hardwood
Wedge	¾" x (plane blade width) x 10" hardwood
Dowels	4 – 5/16" or 3/8" x 1" dowels

1. Square up the plane body stock. Mark it so it can be reassembled in the same orientation after resawing. Resaw into three pieces, with the center piece 1/8 – 3/16" wider than your blade. Joint/plane the pieces as necessary to achieve smooth faces. When done the midsection should be 1/16 – 3/32" wider than the blade and the cheeks should be about 5/16" thick. (p. 23)
2. On the center section, lay out the cuts for the blade ramp and throat opening. The blade ramp is typically 45 degrees and the throat cut is 62 degrees from the plane bottom. Lay out the cuts so the mouth of the plane is about 1/3 back from the front of the plane. (p. 74)
3. Make the ramp and throat cuts. A chopsaw works best, but a bandsaw will also work to get a rough cut. Check the ramp to ensure it is absolutely flat and square to the sides of the block. Fix as necessary using a block plane or disc sander. Create a 1/8" chamfer at the bottom of the ramp. (picture below and p. 82)
4. Place the front and back blocks on the right cheek in their approximate final position and use another block of wood to align the parts along the bottom of the plane. Place the blade in position on the ramp and position the parts so the cutting edge of the blade hits the front block about 1/8" up from the bottom. Mark the position of the parts on the cheek by drawing a sharp pencil line along the ramp and throat. (p. 84)
5. Mark out and rout the slot for the chipbreaker screw head in the rear block. (p. 89)
6. On a flat surface, position both cheeks and the front and back blocks together in their final positions (as marked in the previous step) and clamp together using one clamp at each end. Position the clamps so the alignment dowels can be drilled. On a drill press, drill for the four dowels, one in each upper corner. (p. 85)
7. Tap a dowel into each hole. Trim the dowels flush with the cheeks. Disassemble the parts. (p. 87)
8. Next, locate the cross-pin holes. On the right cheek, measure perpendicular from the ramp line and draw a line parallel to the ramp. Draw another line parallel to the sole of the plane, 1¼" up. The cross-pin hole will be located at the intersection of these two lines. Drill a 5/16" hole on the drill press. Then, assemble the plane parts with the dowels in place and drill the other cheek hole, using the first hole as a guide. (p. 88)



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9. Cut the cross-pin to length, about 1/16" shorter than the width of the plane body (all three parts together). Cut the tenons and then slightly round the ends. Shape the cross-pin to create a D-shaped cross section. Make a small chamfer around the edge of the holes in the plane body to give it a finished look. (p. 93)
10. Glue up the plane parts. Don't forget the cross-pin! Use cauls on each side and an alignment block on the bottom to ensure everything is in aligned. (p. 98)
11. The wedge will be made in two steps. Start by tapering one face of the wedge material so that the tip is about 1/2" thick and the taper is a 1:8 ratio. After tapering, fit the wedge in the plane body (without the blade in place), tweaking the taper as necessary to get good, even contact with the cross-pin. (p. 100)
12. Place the blade in place on the ramp and, from the bottom of the plane, mark where the blade hits the front block. Remove the blade and gently tap the wedge in place to tension the body. Using a jointer set for a fine cut, remove material from the plane bottom until the blade mark is about 1/32" up from the bottom. Check your progress carefully to ensure the bottom does not get angled. (p. 104)
13. Smooth the bottom of the plane by rubbing it on sandpaper placed on a flat reference surface (jointer table or granite surface plate). Hold the plane in such a way as to ensure even pressure. As before, the wedge should be installed during this process to keep the plane body tensioned. (p. 104)
14. The final adjustment of the throat opening is done by filing the front block. Carefully file the front block to adjust the throat opening until the blade almost fits through the mouth, but not quite. Final filing will be done when the wedge is complete. (p. 105)
15. Draw the wedge profile on the side of the temporary wedge. The shape shown works well. Use the blade & chipbreaker assembly to help determine the thickness. Cut the front & top shape of the wedge using a bandsaw, but don't cut it to final length until it is fitted correctly; that will give you something to hang on to (remember – you are starting with a long piece of wood). Shape to fit using a spindle sander, disc sander, and/or file. Note that you may need to cut a shallow clearance hole on the underside of the wedge to clear the end of the chipbreaker screw. (p. 107)
16. In order to do the final fitting of the wedge, you may have to cut off part of the top of the plane. This will be necessary in order to tap the back of the blade with your hammer. On one of the cheeks, draw where the back edge of the blade sits. Make a scoop cut on the bandsaw, removing material so about 1/4" of the blade sticks up above the plane body. (p. 110)
17. Install the blade and wedge and check the mouth opening again. Carefully file the front block so the blade barely fits through the mouth. (p. 110)
18. Cut the wedge to length and shape the back end of the wedge. An upswept wedge is easier to hit with the hammer than a flat wedge. (p. 110)
19. The plane should now be ready to take shavings. Set it up with a sharp blade by placing the plane on a flat wood surface. Put the blade in place and set the wedge in place between the cross-pin and blade. Gently tap the wedge in place. Feel for the blade protrusion, and tap the blade and/or back of the plane body to adjust. Try it out on the edge of a board and adjust as necessary. (p. 111)
20. Shape the plane using a bandsaw, rasps, and files to suit your grip. (p. 114)
21. Go make shavings!

