SP-8x10+ User's Guide (preliminary)

10 October 2019

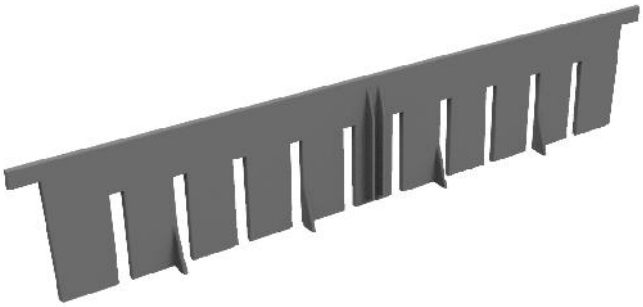
- Daylight safe tray for processing:
  - 1 sheet of 8x10
  - 2 sheets of 5x7 (or 10x13 cm)
  - 2 sheets of 4x10
  - 4 sheets of 4x5 (or 9x12 cm)
  - Any size glass plate smaller than 8x10
- Requires only 500 ml of chemistry.
- Rock/tilt for agitation.
- No complicated frames required; uses hold down tabs mounted on the lid and surface tension of the processing chemistry.

Parts list:

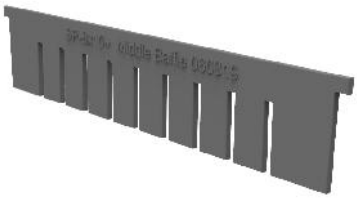
Each SP-8x10+ includes the following. (Note: all parts have their part number molded in.) All parts are black. (We used multicolored 3D renderings because it's easier than trying to photograph black parts.)

Tray (1)
Note the three slots for the baffles.

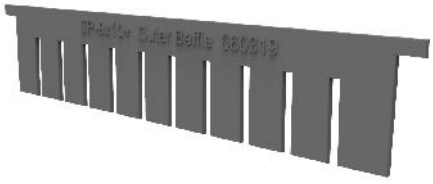
Lid (1)
Note the 12 sets of grooves for the tabs.



Inner Baffle (1)
Fits in the tray, closest to the film and MUST be installed with the extrusions to the inside. If it doesn't seem to fit, you're doing it wrong.



Middle Baffle (1)
Fits between the other two baffles. Too thick to fit anywhere else.



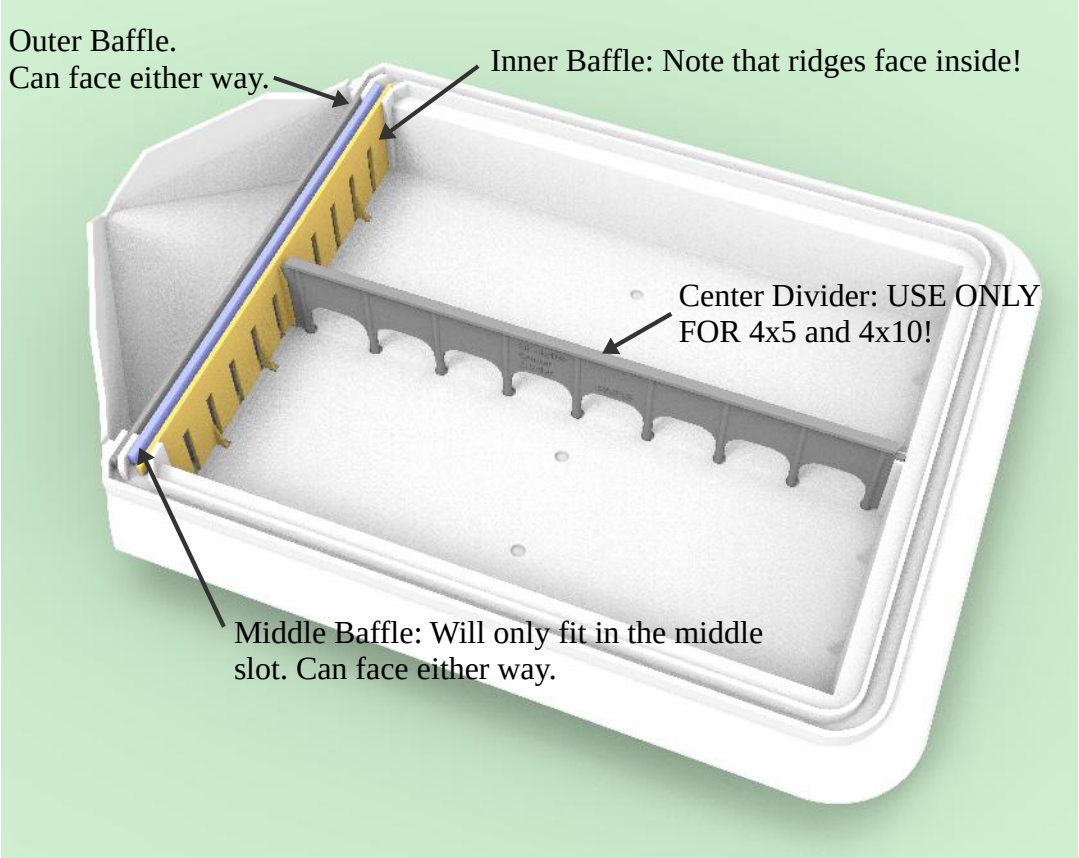
Outer Baffle (1)
Installs nearest the fill/drain spout.

Center Divider: (1)
Fits in the tray. Use ONLY for 4x5 and 4x10.

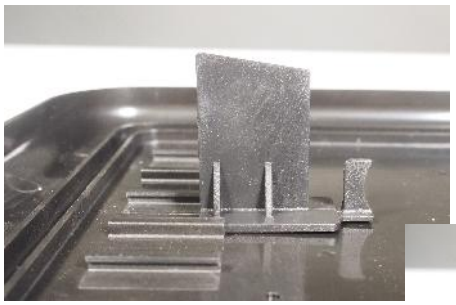
End tabs: (8)
These fit on the ends of the lid and should be installed for all sizes of film.

End tabs: (4)
Fits in the middle of the lid. Use ONLY for 4x5 and 5x7.

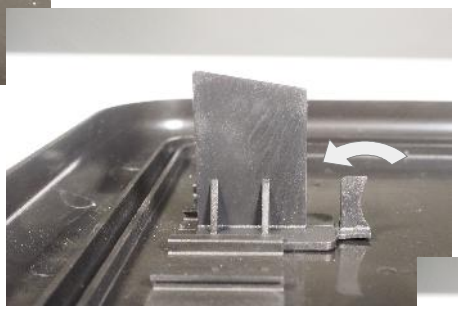
Baffle / Center Divider Installation



Hold down Tab Installation

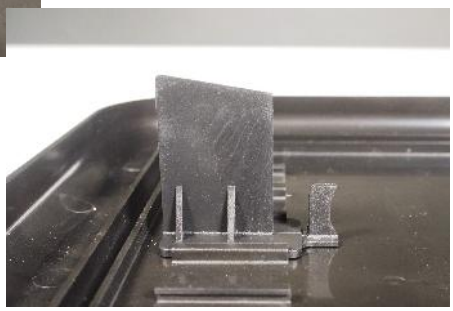


Start by aligning tab in the desired slot and sliding it into place.



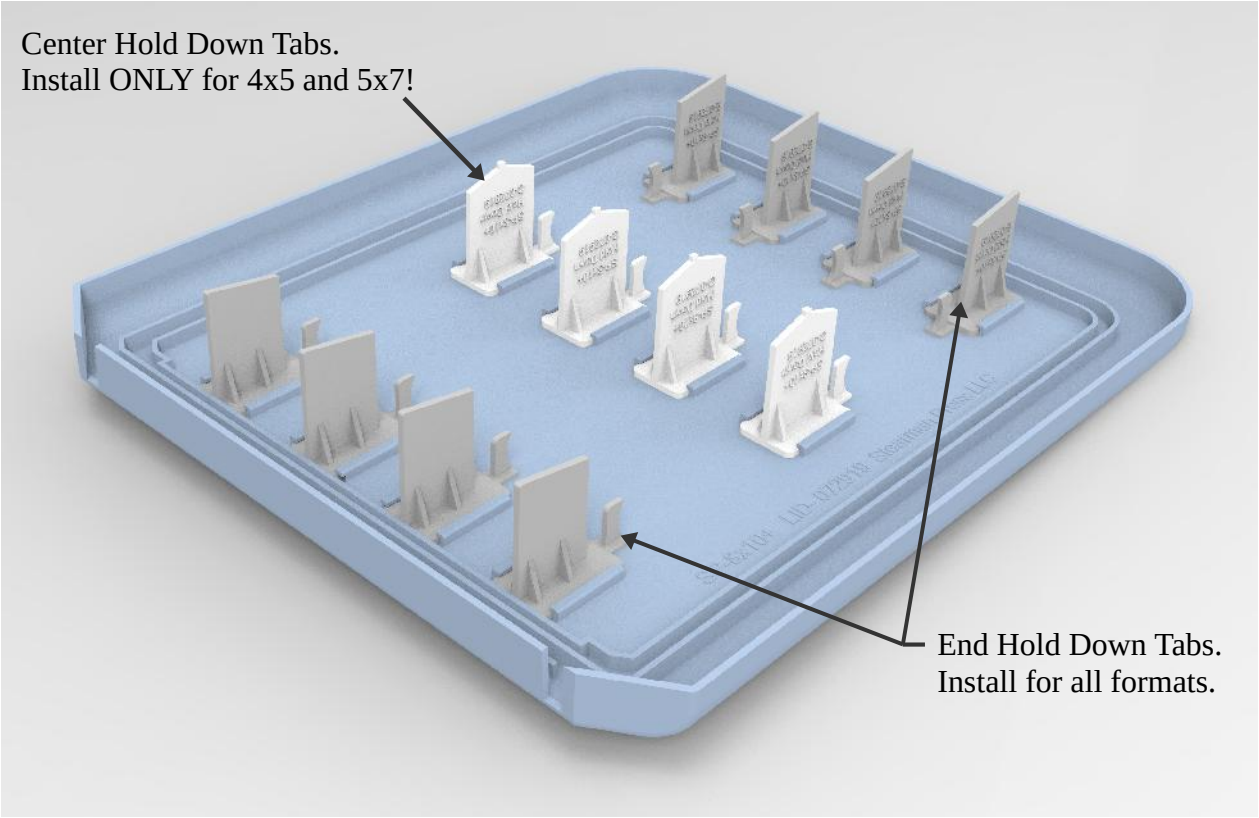
The release lever will flex slightly forward.

It will “snap” into place when the tab is properly installed as shown below.



To Remove: gently squeeze the release lever toward the body of the hold down tab and slide the tab out of the slot.

Hold Down Tab Configuration



Theory of Operation (we won't bore you, promise.)

Film sinks

Not too surprising since film has a density of around 1.5 g/cm^3; water has, by definition, a density of 1.0 g/cm^3, so film will sink. (Photo chemistry is pretty close to 1.0.)

Wet film is flat film

All the film we've seen will lay flat when wet. Even twenty year old sheets with curly edges flatten right out. This means that once the film is submerged, it will lay flat and stay submerged. By filling the tray with plain water (pre-wetting), we force the film to flatten out.

Surface tension is our friend

When we drain the liquid, the surface tension of the liquid trapped under the film will cause it to stick to the bottom of the tray. Now when we add the developer, it will flow evenly across the face of the film. The SP-8x10+ has a special texture on the bottom of the tray to increase the surface tension.

Of course, you need to make sure the film stays under water in the beginning. Ansel did this by pushing it down with his finger tips, we designed a system of removable hold down tabs as shown in Figure 1. This is cutaway view of a 5x7 sheet.

The angle of the tabs will force the film to stay under the solution without touching the emulsion. The tabs also allow the film to slide around, improving agitation.

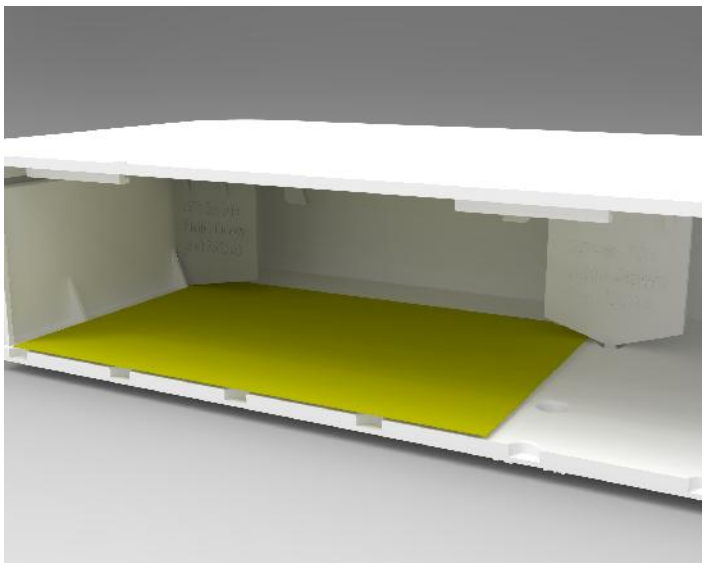


Figure 1: hold down tabs

The hold down tabs perform several functions:

1. They hold the film down as you fill the tray with liquid, making sure the entire surface is wetted.
2. They keep the film under the solution during agitation, especially if you get a bit aggressive.
3. They keep smaller sheets (5x7 and 4x5) separate from each other. Note that 4x5 and 4x10 also uses a divider in the long dimension.

Now for a few tricks:

1. Be sure to configure the tray lid *before* loading your film. See the configuration illustration.
    - For 4x5 and 5x7, you'll need to include the center row of hold down tabs.
    - For 4x5 and 4x10 you'll need the center divider.
    - *Obviously, do not use the center row of hold down tabs for 4x10 or 8x10*!
2. Loading the film:
    a. We've found it helps to *taco* your film (especially 5x7 and larger) before loading it. Nothing extreme, just fold it gently like a taco (emulsion side in) and hold it for 10-20 seconds. This adds just a little curve and helps the liquid flow under the film faster.
    b. 8x10 - Just drop it in place. The spacers at either end of the tray will keep it far enough from the edge to avoid the tips of the hold down tabs.
    c. 5x7 - (Be sure to install the center tabs) Position one sheet against the top inside of the tray; the other against the inside of the Inside Baffle.

    Locate the recess holes for the center tabs with your finger and make sure the sheets of film are not covering them!
3. Pre-soak: after loading the film and putting on the lid, just push the front of the tray down until the front edge touches the bench and then add 500ml of water.
4. Slosh the water around for 30-60 seconds and then drain it. The film will now be stuck to the bottom of the tray and ready for developer.
5. Agitation: there are several options. You'll need to experiment and see what works best for you.
    a. Just lift on side of the tray and then let it back down. Repeat randomly.
    b. Pickup the tray with both hands by gripping the curved lip. Tilt the tray in a circle as if you're panning for gold (you're actually panning for silver). Don't get too wild.
    c. Push the side of the tray down until the edge touches the bench, (rocking on the two side feet) and slowly release.

6. To empty the tray, grip the side flanges with both hands and pour out the liquid.
7. To refill, we recommend pressing the fill/drain spout down, or lifting the back of the tray slightly, while adding solution. This helps ensure the liquid flows evenly over the surface of the film.

We're still experimenting to understand the effect of agitation vs contrast etc. We'll publish more data as soon as it's available.

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