



## Seabee Window Replacement for Dummies

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For many years I've flown my good friend's Seabee and lamented the hazy view through the cataracts of crazing, paint overspray and a general yellowing patina. The aircraft had several original windows and spent nearly 40 years in a Minneapolis garage before being brought back to life in Duluth, Minnesota by Don Macor. It's a lovely, 1400 hour total-time, corrosion-free example with a fantastic B9F Richie Brumm engine with original paint scheme and interior. The only obvious mods are the splates and inboard wing fences.

After acquiring the aircraft from my friend, I decided to splurge and buy the entire set of windows from Great Lake Aero Products, Inc. They offer a discount for the entire package and more if you have you're A&P/IA order it. They told me they have the original tooling for the windows from Republic and the compound curves did fit very nicely.

A friend of mine is restoring a 1947 Spartan trailer that has the exact same window seal. My window installer friend said they've seen this in some vintage cars as well, so hopefully it won't go out of production. If it did, we'd have to do a flush installation with screws and sealant, which looks great, but is much more time consuming and not historically correct.

I'm an A&P, but have little practical experience and instead went to work as a pilot many years ago. If I can do it, you can too!

Republic had a one paragraph instruction letter for installation that you can find on the *International Republic Seabee Owner's Club* website ([www.republicseabee.com](http://www.republicseabee.com)) . This is my version in greater detail:

Tools needed (photos included below):

- Automotive window seal installation tool (very durable plastic pry-tool available at body shops).
- Locking strip installation tool. Looks like a screwdriver with a special tip. It's no longer made, so you'll have to search for one to borrow. They are out there and you will need one. There is a plan to build one on the Seabee website. Professional window installers will have something similar, or if you're lucky, an original!
- King Size Sharpie with 1/4" tip (be sure to measure it).
- Wet erase marker (Expo brand makes them as well as dry erase markers).
- Cutting tool: either a fine tooth band saw or cutoff tool. I tried both and liked the Dremel Saw-Max with 3" metal cutoff wheels. No reciprocating saws!
- 4" belt sander with 80 grit belt.
- Palm sander with 80 grit discs.
- Compressed air to blow off the abrasive plastic debris.
- Dawn dish soap in a squirt bottle.
- Hose cutter.



First, take a hook tool and pull out the locking strip from your first window – mine came out in many brittle pieces. The easiest to begin with, in my opinion, is the skylight. I replaced it with the tinted version and opted not to install air vents. Push it out and pull the old seal off. I used a de-burring tool to clean up the opening and remove some sharp edges.

Next, position the new window over the opening and have a helper push down on the window just enough to make contact on the entire perimeter. The windows are cast about 2" oversized, so be sure to center the curvature where it most easily fits your window frame.

Take your 1/4" tipped Sharpie and hold it perpendicular to the window frame. Slowly trace a 1/4" thick line all the way around on your new window. You'll need to peel back a few inches of the protective paper because there are too many wrinkles to get a good line for cutting. The Dremel Saw-Max has a plastic fence and won't scratch the plastic. If you mess up, an alcohol swab will remove the Sharpie ink.

Now you're ready to cut along the inside of the 1/4" line. The seal is 5/16" thick between the frame and glass, so you have an extra 1/16" for subtractive sculpting.

Good luck cutting!

How'd you do? Hopefully you didn't need to order another window!

I'm not sure which is more precarious, the saw or a runaway sander.

The metal cutoff wheels don't last long, so have one for each window. They're very cheap and sold in a three-pack for this particular saw.

There will be plastic slag to pick off the cut line. Clean up the entire cut with your palm sander and blow it off with compressed air.

Now is the moment of truth: hold it in the frame and see how it fits in the opening without the seal. Do you have an even gap all the way around? This is a good starting point.

Install your new window seal and cut it slightly long, then push both joining ends apart so they butt up under preload. This will assure a tight joint. There is no sealant used.

Now try and fit the window in the seal. It won't fit the first time or the second time, or the third time... Enjoy a beverage and contemplate life.

Each window seems to have a preferred starting point. Just be patient and work it in with the window seal plastic tool from the auto body shop and be sure to use lots of soapy water! This is where you will start to see tight areas that need to be sanded. The hardest windows to fit are the two front pieces and will take a helper to keep pressure on the opposing side as you work the seal around the edge. I found the forward lower corner to be the best starting point and seating the lower long edge first.



The belt sander is your primary tool for sculpting after the primary cut. Use your palm sander to clean it up and make minor modifications.

Take your wet erase marker and draw lines and make notes where you need to trim with the belt sander. Not too much! I finished each trimmed area with the palm sander to clean it up as well as make a very slight bevel by tipping the palm sander a few degrees to the edge. Try and fit it again. And again... Eventually it will fit and you will fly again!

The corners will look tight, but if you can run your window seal tool through the locking track it's probably fine. Take a look to see if the installed window is standing out too far from the frame in any spot. If this happens, the window is tight in that area. Mark that area and trim again.

Once the window looks uniform in the seal, it's time to install the locking strip with great satisfaction! This tool is really neat and there is no way to install the strip without it. I have no idea why it's no longer available as they still make the seal.

Soap up the seal track where the lock strip will be fed. I used pure dish soap at this point. Offset the starting point of the lock strip from the window seal joint.

The tool is pushed with the lock strip fed through the front of the tool. The lock strip has a profile that matches the tool and it only goes in one way. The same profile is cast in the seal. The outer edge of the tool fits in the seal track like a plow. If the tool pops out (it will), keep going and use your plastic install tool to gently work it in the lock strip. Cut it long and butt it up at the joining ends as you did with the window seal.

Time to clean your window with fresh water and bare hands, then your favorite window cleaner and a clean micro fiber towel.

You'll be so happy when this exercise is over because 1) you can see; 2) your plane looks fantastic; 3) you saved a ton of money, and, 4) Nobody will do this job for you, so you had to do it!

The two-part seal is available from CL Laurence (<http://www.crlaurence.com/>). 50 feet will do all the windows and skylight. Most auto glass installers have an account with them. Pick your local favorite – they don't sell to the public. If you're lucky, maybe they have the special lock strip tool.

Main seal PN: AS1179

Locking strip PN:AS937

Out of production lock strip installation tool PN: 201-1195.



From top to bottom: King Size Sharpie; wet erase marker; window install tool; rare locking strip installation tool. Note profile of head for both seal track and lock strip.



Dremel Saw-Max with extra metal cutoff wheels.