Screen Repair

For window and door screens

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September, 2021

INSTRUCTION MANUAL

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1.0 PREFACE

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1.1 Motivation

The average window screen lasts around 15 years. That number could be even less if you own a pet or live in an area with large amounts of snow or rain. Chances are, if you own a property with windows, you will have to have the screens replaced at some point. There are several hardware stores that provide this service. However, these stores often charge significantly more than the cost of the materials. This serves as an instructional guide for those who wish to do the screen replacement themselves.

Please note that this guide will mainly focus on window screens, but the same process can be applied to door screens. This guide will address the differences between the two, and any considerations needed for either type.

1.2 Return on Investment (ROI)

If you are replacing less than 4 screens, I recommend bringing it to a hardware store or hiring a professional. Screen repair is an acquired skill. Your first couple attempts will not be perfect. A non-standard shape (traditional screens are square or rectangular) will require even more practice. Furthermore, a small number of screens has a low ROI for materials. Also, consider the cost of time: Your first attempt may take over an hour. Experience can bring that time down to ten minutes.

1.3 Warnings

Repairing a window screen is about as arduous as any other DIY task. **The process involves sharp tools** (Refer to the Tools section for specifics), but their usage is relatively simplistic. If you can safely use both a knife and a screwdriver, then you will be fine.

1.4 Author's background and experience

I have spent three summers doing window and door screen repairs. This work consists of completed repairs on over 100 windows, from traditional rectangle shape to octagonal shape. It also includes repairs for around 25 doors, with about 10 different designs. I cannot claim to have worked on all different models, but I am confident that my experience can be applied to the majority of frames.

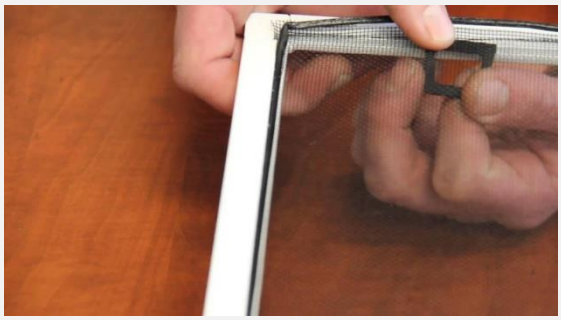
2.0 Removing the Window Frame

2.0 REMOVING THE WINDOW FRAME

It's best to remove the window frame from the window before buying materials because some of the buying decisions for the materials are reliant on the properties of the frame.

This guide will not exhaustively cover the removal process. There are many different models of window frames and door frames. Please consult other guides or YouTube if you are having trouble with this step. However, the diagram below lists a few common methods/accessories for window removal.

2.1 Possible Accessories

Name	Picture	Usage
Pull tabs[1]		Plastic tags on the edge of the frame. Pulling on them opposite the direction of the frame should lift the window frame out.
Spring plungers[2]		Cylindrical spring-supported pins Pulling on them opposite the direction of the frame should lift the window frame out.

2.2 Notes

- Some windows can only be removed from the outside (making multi-story replacements a real pain)
- Sometimes "intuitive design" is not so intuitive. If you are struggling to remove the frame from the window, keep in mind that a screen can still be replaced in-place (without removing the frame) so long as the frame's grooves are visible and accessible. However, this usually requires either a second person to help, or a high dexterity and some practice. I recommend taking the frame out if possible.

3.0 Supplies

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All of the supplies necessary for window screen replacement can be found at the average hardware store. Before going, it is important to examine the screen you are replacing. Check to see if it has accessories like pull tabs or spring plungers. These can fall out or deteriorate as well, so be sure to check that the ones on your window are still in good condition. Sliding screen doors often have a handle that needs to be removed in order to access the screen, so check that you have the proper size screwdriver for it. You will also want to measure the dimensions of the frame. With these considerations out of the way, only the standard materials remain.

3.1 Materials

Fiberglass screen

Most brands support a variety of types: standard fiberglass, clear advantage, insect, extra strength, pet resistant. Standard fiberglass usually has a choice between black and gray while the rest are only available in black. If you're having trouble deciding, the traditional choice is standard fiberglass. Generally, you have options in terms of size. Pick the one that gives your measured window frame a few extra inches. It's also more economical to buy the bulk 25' or even 100' rolls if you're replacing a lot of screens.

Spline

Spline is what binds the screen to the frame. Around the window frame there is a groove, where the spline will be pushed in. You should be able to easily recognize it, as that's where the old spline will be. Use the frame dimensions to estimate the length of spline you should buy. The length should be roughly the size of the perimeter.

Spline comes in multiple widths. There should be a recommended width for the spline associated with your chosen fiberglass listed on the packaging. However, not all window frames have the same standards. If you want to avoid multiple trips and returns, I recommend bringing one of your empty frames (emptying the frame is the first part of the process, listed below) to the store and trying out the different widths there.

There are several ways to discern the correct spline width. The proper width will need a small or moderate amount of pressure to be pushed into the groove. It should not fall out on its own nor should you have to force it into the groove. You can also try measuring the width of the groove, but the measurements are rather fine, and the width is also dependent on the type of screen. For example, a pet resistant screen is going to be much thicker than a standard fiberglass screen. If you find that you have purchased the wrong size spline, return it, and purchase the correct one. It will be very hard or even impossible to replace the screen with the wrong size spline.

Name	Picture
Fiberglass screen mesh[3]	
Spline[4]	

3.2 Tools

Name	Picture	Description
Spline roller[5]		Spline rollers usually offer a choice between wooden/metal or plastic. I prefer the plastic ones because they are duller, so you are less likely to cut the screen when your hand slips.
Utility Knife[6]		The utility knife should have a sharp blade.
Pick (or screwdriver)	 	This should be able to fit in the groove of the window frame, as it is used to remove the old spline.

3.3 Optional Supplies

There are a few optional things you may want to pick up. Using gloves and/or a mask can help prevent irritation from the old fiberglass. Gloves also serve as a minor layer of protection against the sharp tools you'll be using. Gardening gloves have worked well for me. Also, you may want knee pads for comfort.

4.0 REPLACING THE SCREEN

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4.1 Finding a workspace

Find flat ground with enough space to place a screen down and still walk around it. The best options are outdoors or in a garage due to the aforementioned effect of the old fiberglass.

4.2 Removing the old screen

1. Find the corner of the frame where the spline is cut.

A corner with cut spline

2. Beginning from this corner, use your pick or screwdriver to wedge or lift the old spline out. Depending on how old the spline is, it may break multiple times during this process. Patience and caution are key: rushing increases the chance of the spline breaking and/or you stabbing yourself with the pick.

3. Removing the old spline[7]

4. Once all the spline is out, pull the screen off the frame.

5. **(Optional)** Wipe down or wash off the old frame.

4.3 Installing the new screen

1. Place the empty frame flat on the ground, with the grooves facing up.

2. Unroll the new screen over top, giving a margin around the frame of at least an inch or two.

3. Cut the fiberglass sheet from the roll with the utility knife.

4. If your screen had any pull tabs, now is the time to put them in, between the screen and the frame. Place them in the groove between the frame and the screen

5. At this point, get your spline roller ready. You'll notice that there are two wheels on it (pictured below). One has a rounded edge while the other has a groove in the middle. The wheel with the groove is used for pushing the spline into the frame's groove.


Wheel with groove


Rounded wheel

6. Start at a corner of the frame and push the end of the spline into the groove with the fiberglass screen between the spline and the frame.

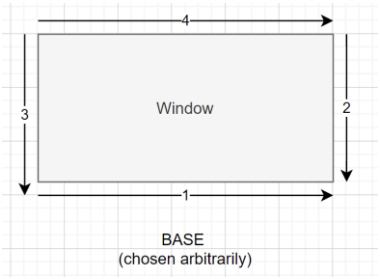
7. Continue feeding the spline into the groove and pushing the spline in with the roller. If you are having trouble with this step, flip the spline roller around and use the rounded edge to press only the fiberglass screen into the frame's groove (this is especially helpful with thicker screens like the pet resistant one) and then try pushing in the spline once more. Once again, patience is key. If you have spring plungers, you will need to cut the spline to go around them in the frame.


Pushing spline into the groove[8]

8. Once you've reached the corner, cut the spline with the utility knife, and push the tail end of the spline into the groove. I will refer to this first completed segment as the base from here on out.

9. Pause here to examine the flexibility of the frame. The easiest way to test the strength is by trying to push the two widest edges closer to each other. If there is more than a little give, the frame should be treated as weak. This step is important because the most difficult part of replacing a screen is keeping the screen taut without stretching the frame. If the screen isn't taut, it doesn't look good. If the frame is stretched, then it won't fit back in the window. On stronger frames, keeping the screen taut is the only issue. On weaker frames, you will need to find a balance. If you struggle with finding this balance, then you can try keeping the frame inside the window as mentioned in the beginning of the manual. Some people suggest putting a heavy object like a brick in the center of the screen. Personally, I have not found this to help, but feel free to try it for yourself. Unfortunately, most window frames are weak. However, most door frames are strong.

10. Start the next corner on an edge adjacent to the base, but at the opposite end. Wherever you start, you'll want to hold the screen past the edge opposite of the base, pulling lightly. Before you try to push any spline in, I recommend getting the approximate length of spline lined up and in position for the groove you're about to work on. With one hand keeping the screen taut, push the spline in with the roller. Repeat the process for the remaining edges. An example ordering is shown below.



11. When you've finished all four edges, stand the screen up and check to see that the frame is not being bent and that the screen is taut. If your frame is weak and you pulled the screen too tightly, the frame won't lay flat. You can try to amend any mistakes by partially removing the spline from any edge with the pick and re-splining. If that's not successful, then you will want to remove all spline and try again (the screen and spline can be reused).

12. Once again place the screen down flat with the grooves facing up. Use the utility knife to trim the excess screen off. **Take your time and be extra cautious. A mistake here may force you to start over from the beginning, and it could cost you your materials.**

13. Place the screen back in the window. If you struggle with this step, consult the guide you used for removing the screen.

5.0 RESOURCES

Image Links

[1]https://www.youtube.com/watch?v=Il-mqqRQpJY

[2]https://www.youtube.com/watch?v=5xRJgRVhScM

[3]https://i5.walmartimages.com/asr/fca5da19-92c4-4657-a2aa-ba2ec51c4590_1.020e467ac216f4d64ffc7a3671ef6e10.jpeg

[4]https://www.homedepot.com/p/Phifer-0-140-in-x-100-ft-Black-Spline-3033397/100573957

[5]https://m.media-amazon.com/images/I/41uLFJgKdRL._AC_SS450_.jpg

[6]https://www.stanleytools.com/products/hand-tools/knives-blades/utility-knives/6-in-classic-99-retractable-utility-knife/10-099

[7]https://www.wirescreen.org/technology/replace-old-window-screen.html

[8]https://www.diynetwork.com/how-to/rooms-and-spaces/doors-and-windows/how-to-build-a-window-screen-replacement