

Slider door hinge extension tutorial:

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This is a step by step guide to how I do slider hinge extensions. It isn't the only way to do it but this way works well for me and I'm sticking with it. I had some basic tools to do this.... Grinder with cut-off wheel and flap wheel, ruler, punch, angle finder, welder. In a later post, I will show how to install the hinge in the door. For now, we'll just modify the hinge.

I typically start with a new hinge. Ford part number F2UZ-1526800-A



Step 1:

Mount the base of the hinge to something sturdy and set it at a 15 degree angle. My crude jig is just a plate with a piece of angle welded to it.



Make note of the distance from the table surface to the top surface of the hinge base. This one is just under 6" for example.



Step 2:

Mark a line across the base of the hinge parallel to the table and $\sim 0.25''$ below the bottom of the pivot.



Step 3:

Make a mark above the line (far enough above the line to be away from the kerf of the cut-off wheel). I put this mark as far right as I can while still being on a flat portion of the hinge.



Step 4:

With your ruler, make another mark on the other side of the line to the left. The amount you are marking here is the amount you want to extend the hinge. I'm making a $2.75''$ extension here so my mark is $2.75''$ from the first mark.



Step 5:

Cut the hinge base into two pieces. Be careful to not cut away your marks.



I also cut away some of the excess at this point and I make a small relief cut in the top piece and bend it into the shape of the base.



Step 6:

Mount the base on your plate again and set back to 15 degree. Now move the top piece into position and tack weld. You'll need to check that the height of the hinge is the same and that the swing arm swings in a flat plane.



Step 7:

Because of the shape of the door, the hinge has to be “flattened” out a little. Looking at an end view of the hinge, you’ll see that the pivot is offset from the mounting face. Since the pivot is moving back so far in the door, the face of the hinge essentially has to be flat. So when tack welding the two pieces together, imagine that you’ll be mounting this to a flat surface. It takes very little movement to get this right so don’t over do it.



Step 8:

Weld it up. I put some additional material on the back side to stiffen the base as well. You can box it all in if you want, just make sure there is clearance for the bolts.



One note about welding these... the more of the cad plating you can get off, the better it is going to weld.

Just before welding it all up, I actually remove the pivot pin and separate the two pieces. I use a 3/8-16 grade 8 bolt in place of the pin afterwards so that means that the base will need to be drilled out and the bushings as well. I don't have very good luck with drilling out the bushings so I just got new bushings off of McMaster.com that work for the 3/8 bolts.

Step 9:

Mark the hinge swing arm parallel to the bearings and through the hole.



Cut along this line and keep your cut as straight as possible.



Step 10:

Cut a piece of material to fit between the hinge parts. I use a 2"x1/4" material and I make my cuts at 70 degrees. The length of this piece is the amount that you moved the hinge pivot before.



Step 11:

Weld this piece in very well. The most critical part of this step is to make sure that the large wheel is perpendicular to the flat section of the swing arm.



Step 12:

I like to cut away a small sliver of material like this after I get the arm welded. This helps with the amount of cutting needed on the door. If you leave this chunk in, you'll have to cut deeper into the door. It isn't much, but it helps.



Step 13:

Now I cut a piece of material in roughly the shape of the inside of the swing arm and weld it in. This serves as reinforcement. I also weld a near vertical flange along the outside of the swing arm (following the flange already there on the arm). There is a height limit to this though. Before slamming your door shut, you'll have to watch that you have enough clearance for this flange.



Step 14:

Clean up all the welds and paint your modified hinge.



Here is what the modified hinge looks like compared to the stock hinge....



Now the installation process....

STEP 1:

Remove the sliding door inner door panel. On cargo vans without the window trim molding, this is pretty easy, just unscrew the panel and lift it off the door. With a passenger van, you must first remove the trim around the window (which requires unscrewing the window latches). The trim panel is snapped into place so just get your fingers behind the plastic and pull.

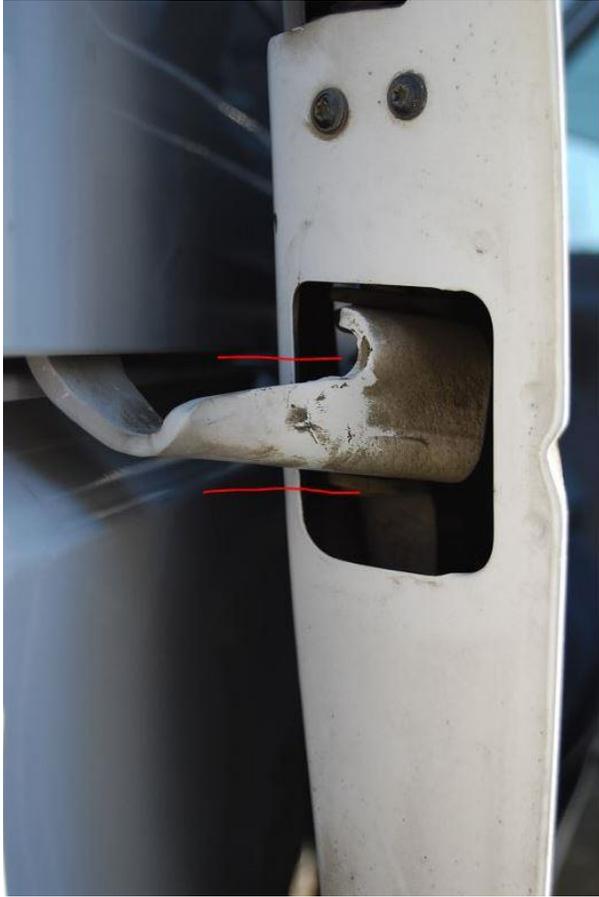
STEP 2:

Once the panel is off, you'll see the hinge and its four (4) bolts. Do not take them off yet. Before you unbolt the hinge, you'll need to mark the location of the hinge swing arm relative to the hole in the back of the door. You'll be cutting out a portion of the door where the new hinge swing arm will travel. Looking at the door from the back, I typically make a mark 1/4" above and 1/4" below where the stock hinge arm sits within that door opening.

Picture of the hinge mounted in the door:



Mark the location of the swing arm in the opening:



STEP 3:

To remove the stock hinge, you'll need to support the bottom of the door with a jack stand or something. Open the door just enough that the hinge starts to move down the track but not so much that you can't get to the bolts from the inside. With the door supported, remove the hinge bolts. Next, from the outside, grab the bottom of the door and lift it off the support. Take the hinge in the other hand and maneuver it out of the door and slide it out of the way. This requires some moving of the door up and down to snake the hinge out so make sure the stand is not in the way. Put the door back on the stand and remove the hinge from the track. The stock hinge can be taken out of the track by moving it all the way forward in the track and rotating it out or by moving it all the way to the back and out the end.



STEP 4:

With the hinge gone, the back of the door can swing out away from the van so you can work on the relief cut at the back. I make sure the stand is sturdy and supporting the door well. The farther forward the door is, the more it swings out. You can easily get between the van and the door with lots of room to work if you get the door in the right spot.



STEP 5:

Using the marks you made previously, extend those marks forward roughly the same amount as the hinge is being extended. Cut away the material between the marks. Cutting the relief in the door is sometimes a trial and error process. You have to cut enough so that the hinge swings without obstruction but not so much that you have a gaping hole in the door. To test that you have the cut right, mount the base of the hinge in the door using the paint circles to line up the bolts. Then install the swing arm and see if it fully rotates in the door. When the hinge is able to rotate freely and it is not obstructed by the door sheetmetal, remove the hinge arm and put it in the door track.





STEP 6:

Because of the shape of the new hinge, it will not go into the door in one piece. That is why I use new bolt so it can be assembled in two pieces.

You now should have the hinge base installed and snugged down (it may need adjustment so don't fully tighten yet), the hinge arm should be in the track and the door has been cut to accept the hinge swing motion. The next step is to assemble the hinge bolt.

To do this, maneuver the door and the hinge arm so that the holes line up and put the bolt in. Tighten the bolt down.

At this point, the door should be in roughly the same alignment that the stock hinge was. From here on, it is important to be careful and not force things as you could damage your door or paint.

Take the support out from under the door and move the door back all the way to check that it clears the tire. Then when shutting the door, GO SLOW... first check that the rear latch is lining up with the door striker. If it is, gently push the door closed.

Door latch centered over striker:



If the door doesn't line up with the striker, you may need to adjust it. Moving the hinge down in the door moves the whole door UP. Moving the hinge up in the door moves the whole door DOWN.

If you have the vertical alignment good, check that the gap on the back of the door matches that of the front. You want to close your front door slowly because if the sliding door is too far forward, they will hit and cause damage.

Signs that the hinge is not adjusted correctly:

- The door is hard to close
- The door POPS open
- The door gaps are not even
- The door "drops" when it is opened

Correcting any of these things takes a little thought and common sense. If the door is hard to close, it is not lining up with the strikers very well or the hinge is too far back in the door causing it to bind. When the door POPS open, the hinge is too far back in the door. When gap in the back of the door is small, the hinge is too far forward. if the gap is large, the hinge is too far back. If the door "drops" when you open it, the hinge is too high in the door...

What you're looking for is that the door latch is centered over the rear striker and that the front/back gaps are even.

STEP 7:

Reassemble the door panel and enjoy your new fully opening door.