



One of my soldered joints with way too much solder, but it can be Dremeled out.



This is my Dremel vise with a 1/8-inch round bar clamped into the vise, ready to be drilled.



All of the scratch-built parts and hood ready to be primed.

Living just northwest of Dyersville, Iowa, in the heart of farm country and farm toy replica country, Chuck Steffens has found a niche in the toy world, building high-detailed replicas in his spare time. He shares his experiences with Toy Farmer readers, hoping to lead other collectors to personalize one of their own tractors. Comments or suggestions can be directed to [csteffens@wildblue.net](mailto:csteffens@wildblue.net).



## Customizing John Deere 4320 - Part II

**W**elcome to another edition of "Down to Details." Last time we were together, we were starting to convert the John Deere Precision 4320 into a narrow-front farmstock puller. I know not everyone wants to build farmstock pullers, but the information shared here can be used on many different 4320 projects that may be more or less intricate.

When we left last time, the 4320 was back on all four wheels. It may have been a long way from complete, but at least it looked like a tractor again. This month, we focus on the additional details of the build.

To refocus on the build, I wanted to build the 4320 with a narrow front end and 4020-style fenders; remove the precleaner; and add a chrome pipe, weight brackets and rear wheelie bars.

So, while I plug in my soldering iron to warm up, let's focus on the precleaner removal. In the last segment, I showed removing the hood and the precleaner, but we are now left with a large hole in the hood. A person could just fill the hole with body filler, but with filler that deep, there is a good chance it could crack or shrink and leave an ugly spot on the hood later.

To help this problem, I often use a screw or bolt with a countersunk head and drill the hood slightly, giving the hood a nice matting surface to match the screw. In this case, I use a regular drywall type of screw that fits through the original screw hole that held the precleaner and which has a large enough head to fill the hole. With the screw pulled tight to the hood, I then cut the excess screw length flush on the underside of the hood. I then grind the head of the screw flush with the top side of the hood, filling the hole. Now I only need a small amount of filler to fill in the final details.

With the precleaner hole now filled, I know I am going to have to repaint the hood. Repainting these John Deere hoods can be a little challenging if you want to save the side emblems. So I had my local sign/decal shop make new side emblem decals that actually look better than the original casted and painted emblems on the hood. I use

my 2-inch angle die grinder to grind the original side emblems off of the hood and the hood can be put aside for now.

Wanting to make this a puller, it is time to start building the weight brackets and wheelie bars. This part of the build can be a matter of personal preference or an exact replica of the real model. For this build, it is going to be a personal preference. First, I start with the front weight bracket.

If you remember, when the original front weights and bracket were removed, it left two large holes in the frame rails of the tractor. So, one of my goals is to cover those holes with the new weight bracket.

First, I measure to find the length of material it will take to cover those holes. Using my caliper, I make a piece of 0.25x0.062 brass flat stock, adding an extra 1.5 inches to this length for later use. With the brass marked, I use my band saw to cut the pieces to length. I then go back to my first mark and cut here as well, but I don't cut all the way through the piece this time. Instead, I stop about 10 percent from the edge and then cut a small triangle notch in the brass stock, giving the material room to bend and strength to stay together. With both pieces of brass cut, I bend both to match. I then solder the bent splice and get ready to mount them to the tractor.

With both pieces soldered, I use my caliper to mark the center line of the strip and make a mark 0.100 inch from the edge and then another toward the front. With these marks, I use my spring-loaded center punch and follow with a 0.052 drill bit. With all four holes drilled, I use casting holes on the tractor frame as reference marks to drill the frame and have each side match.

After the frame is drilled, I drill the brass out to 0.060 inch and tap the frame with an 0-80 tap and finally bolt the brass to the frame of the tractor. With the brass pieces bolted into place, I use my caliper to make sure things are true and square. I then measure the distance between the new weight bracket arm and cut a piece of 1/4-inch brass strip to fit between the brackets

to be soldered into place perpendicular to the tractor so the weights can be hung on the bracket. I carefully solder the bar between the bracket.

I decide to make a filler plate to fill the void area between the bracket and the tractor. This was done using some 0.5x0.032 flat stock with a little shaping to match the front of the tractor. It's soldered into place, adding both eye appeal and additional strength to the bracket.

Onto our next item of modification—the drawbar. Most pulling tractors have a shortened drawbar that helps prevent drawbar height when the front of the tractor comes off the ground.

To build the new drawbar, I first remove the drawbar from the 4320. On the 4320, Ertl built the drawbar much like the drawbar of a real tractor, but the mounting is a little different. First, I get behind the mounting block, holding the drawbar in place, and the mount and drawbar come free from the yoke assemble. But there is so much glue on the mounting pin that the block will not come free from the drawbar. Knowing this pin can be a bit fragile, I use one of my old tricks—a soldering iron.

I place the heated soldering iron on the pin and around the glue. This added heat frees the glue and the drawbar comes free from the block. We are onto building the new drawbar.

I narrow a piece of 0.25x0.062 flat stock brass about 0.050 inch on each side, except at the hook point. At the hook point, I want it to be wider to look like a hitch. With the drawbar narrowed, I slip it into place and mark my hole for the mounting block and proceed to drill it to the correct diameter. On the hook side, it gets a little more complicated. Here, I use my spring-loaded center punch and make three spots in a row on the center line of the hook area and drill these three spots. I then use a 0.050 carbide end mill in my Dremel and shape the hook area into a nice oval-shaped hitch.

We are getting close. The last items are the wheelie bars and rear weight bracket. First, the sway block on the tractor will need to come off, but that isn't anything my 2-inch angle die grinder can't fix.

When building the wheelie bars, I bend 1/8-inch solid round bars at a soft 70-degree angle. With this bend, I drill one end and bolt it to the tractor and solder the others. I am sure most

of you wonder how I can successfully drill the side of a 1/8-inch round bar, so I am going to share a secret here. The secret to drilling the side of bar stock is in my Dremel vise, which has a nice V-shaped jaw that works great for holding round stock. So, I drilled the vise jaw so I can clamp a round bar into the vise, and it has worked great!

Next, I build a lower support bar and solder it to the top bars, making sure they are matching and set correctly. Once the lower bar and top bar are soldered, I build the support bar to go from the front of the top bar to the back of the bottom bar, being careful to keep everything true and matching between sides. Once these are soldered together, I trim the excess length from the top bar and mount the pad on the bottom of it, making sure both are exactly the same using some solder again.

I want to add a rear weight bracket to the wheelie bars, adding extra strength and giving me another point to bolt the wheelie bars to the tractor. To start this, I again use some 1/2-inch flat stock and hold it in place on the lower wheelie bar, right next to where the sway block was. I solder the bar and the flat stock together. Next, I slide a piece of 0.25 x 0.032 flat stock between the weight bracket and the sway block mount and solder these together, giving myself a spot to drill and bolt the weight bracket to the tractor.

Here, I am going to give you a few tips on soldering. Quite often, people ask me how to solder. The simple answer is to practice. There is no 100 percent correct answer other than that.

My best advice is to use good solder. I use a rosin core 60/40 solder, like that offered by Kester. It may cost a little more, but it is worth it. Next, have a clean surface. Nothing ruins any type of solder/welded joint faster than dirt or contamination.

Next is heat. I use a combination of an 80-watt Weller soldering iron and



The beginning of the front weight bracket, with the notch cut out and bent, ready to be soldered.

an LP handheld torch to get my heat. You need to control your heat and keep a good eye on how far the heat travels. I have seen too many people try to do the type of soldering these projects need, but go about it like they are soldering plumbing lines in a house. They use way too much heat and things go badly.

I always use way more solder than is needed. Some people try to make the perfect solder joint, which usually leads to parts falling apart. I tend to use excess solder, but I always use this excess solder as a filling agent much like body filler. I use my Dremel to shape the excess solder and still have the strength the joint needs.

All in all, I can't express the fact that nothing replaces practice. Sometimes, your greatest lessons come from your biggest mistakes. If this happens on a practice piece, it is better than on the item you want to solder correctly.

Well, I am now going to take the tractor apart, clean it, prime some parts, add some color and finally reassemble my little 4320 project. I hope you were able to learn some tricks with this project and will be able to use them on a project of your own. Also, don't forget that parts for this project and many more are now available at [www.chuckysprecisionspullersandparts.com](http://www.chuckysprecisionspullersandparts.com), along with featured articles from the past. TF

The John Deere Precision 4320 converted into a puller.

