

Presenting – Franken-Tow!

Here is my take on a CSOB towbar for my 1960 Debonair. I started off cloning the already-excellent example at <https://www.csobeech.com/CSOB-towbar.html>, then ended up modifying some parts of it and making some changes. As far as cost goes, I came in well-under \$100 due to some fortuitous freebies:

- Towbar – already had one
- Winch – 2500 lb. Harbor Freight winch, free from a friend. He had one laying around that turned out not to work out for a project he had in mind. If I'd had to buy it, would have been about \$60 on sale.
- Lightweight emergency usb jumpstarter – obtained free in a promo from Lightspeed.
- Various hardware, I went with M6 metric nuts and bolts and screws. Aluminum 1/8" bar stock for spacers. Conduit clamps, brackets, various washers etc. Most expensive were the high-quality soft rubber casters, which I removed the wheels from, those set me back about \$18 each, but total well-south of \$50.

Here is a breakdown of the process, mostly in pictures. I did start with cheaper plastic wheels, so showed those in the pictures, but ended up using the pricey rubber wheels and didn't take new pictures. You'll get the idea...

Start off with a winch and disassemble it down to its components:



Split the wheels in half with a bandsaw – don't forget to account for the width of the blade. If you get the rubber caster wheels with the bearing, you will need to saw both sides just up to the bearing, then you can tap it out with a hammer. You end up with the wheel halves, which you'll drill for long bolts to attach to the spindle. So far, sticking with the original design...



Assemble on the spindle with some tape to hold everything together while you drill through the assembly. I then cut some spacers to slide over the bolts to keep the wheels rigid – you can see I haven't added the last one in this picture to go over the threaded portion. The bolts I think are Grade 5 3-1/2" (everything else is M6).



And now, it looks like this. Keep in mind, I did all this over again when I decided the soft rubber wheels would work better. You may need to grind the bolt heads and nuts down for clearance.

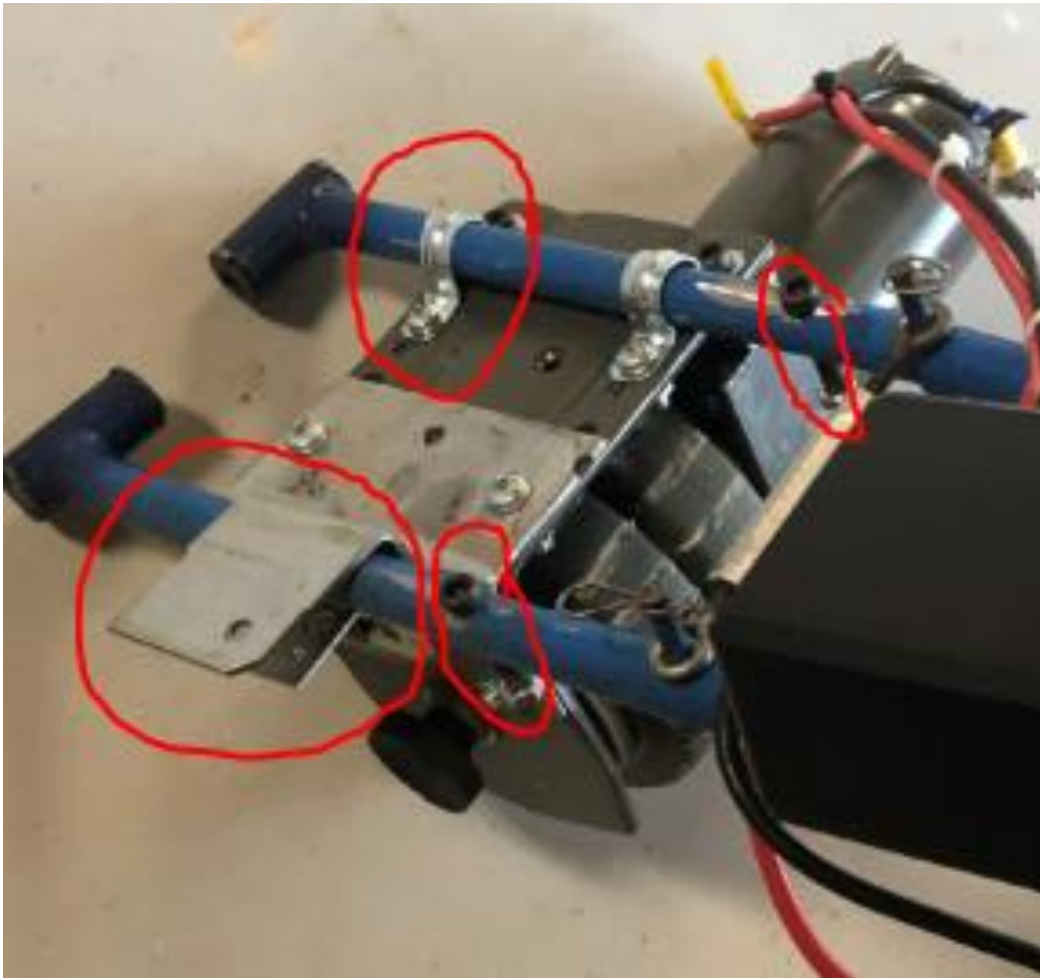


Now, as the other article mentions, now the diameter of the wheels is larger than that of the spindle with cable, the frame needs to be offset to accommodate, and the axle hole will need to come down – this necessitated cutting the frame. Not having access to a welder, I elected to use a metal bracket. I may take it all to have welded now that I know it works. I just cut the frame with a dremel, and added about ½” worth of spacers to clear the wheels and the bracket to bring the axle hole down:



Now, rather than using aluminum U-channel to mount the bar, I diverged a little bit here because I wanted to solve for two problems: 1) being able to hold tension against the nose tire, while still allowing it to move back and forth for mounting ease and 2) being able to hold clamping force against the nose gear pins also while being able to open and close the “jaws” for mounting.

For problem #1 I mounted one side of the bar rigidly to the top of the frame with ½” conduit clamps. I mounted the other side in a “floating” L-bracket pair. At this point, I mounted it on the nosewheel and noted where the wheels sat for best results. I drew a line and drilled holes for the bolts you see as “pins” – this is so that the frame cannot slide too far back as the wheel tries to walk itself down the nose tire, and instead locks it in place. They just slide in and out so they can be removed for mounting if clearance is tight.



For problem #2, I ditched the weak spring that provides the clamping force, and installed a turnbuckle:



One side is permanently installed with a cotter-pin, and the other has a removable pin. Simply remove that side of the turnbuckle, and attach to the nosewheel pins. Put it back on and turn it to desired tension – now it won't pop off while turning the nose!

Power comes from a ridiculously light FREE power supply that I got as a promotion. It also has a high brightness "headlight" mounted in front in case you have to do this in the dark. No idea about longevity, it is chargeable but only designed for a quick start of a dead car battery. It should have enough to move in and out of the hangar, but I wouldn't suggest moving it across the ramp or anything – I might investigate instead wiring up to connect directly to the battery in the plane.



Mounting hardware is large tie-wraps and a hose clamp. And here is the finished project! I may strip it down and paint it, and maybe add some handlebar grips to it just for fun:



There you have it, another take on the CSOBeech towbar, for less than \$100, and no welding required. I can tow it out of the hangar, put it back on the charger, then use it to get back inside! If the battery dies, I can still use it as a conventional towbar. The middle pin still comes out so it can be broken down for travel.