

DIY Aircraft Jacks

After seeing this YouTube video on how to build an aircraft jack, I decided to try it: <https://www.youtube.com/watch?v=6WgEUDuZIUa&feature=youtu.be>

I looked at several similar designs on CSO Beech <http://www.csobeech.com/floor-jack.html> but liked this one better because it was all steel, but would not require a welder or welding expertise. I did make a few changes to the design:

- I used a piece of 4" steel pipe to make the collar because I did not have ready access to the 3.5" box tubing used by the original poster,
- I used the Superstrut 90° 4-hole channel brackets instead of the Superstrut 2-hole brackets,
- I decided to purchase Bogert jack extensions rather than drill the top of the jack ram as described in the video, and
- I added 1 1/8" split-ring clamps on each jack as a safety device should the jack lose pressure.
- I made some holders for the jack handles and the hex wrenches for the split-ring clamps with some PVC pipe and zip ties to the jack frame.

Home Depot carried all of the materials I needed except for the 4" steel pipe and the split-ring clamps and hex tools for the clamps, which I had to order on-line. You will need a heavy-duty vise to flatten the conduit tubing, a drill press, and an electric angle grinder with 4 1/2" grinding disks to cut the Superstruts channels, conduit, and the 4" steel pipe. Here is the finished product.



Figure 1. The Bogert Jack Extension



Figure 2. Base Showing 4-hole Superstrut Brackets



Figure 3. The Finished Product.



Figure 4. Shows 4" Pipe Collar and Attachment of Support Brackets.

I ordered the 4" ID steel pipe from Metal Depot since they permitted sales of one-foot lengths. I ordered 4" SCH 40 (4.50 OD X .237 wall) A-500 ERW Structural Steel Pipe. I cut two sections of the pipe about 1.5 inches for the jack collars with an angle grinder. I drilled eight equally spaced 3/8" holes around the collars. I used a drill press and spaced the holes 3/4" from the top of the collars. Four of the holes were used to connect the conduit support bars and the other four holes for 3/8 inch bolts used for setscrews. The setscrews keep the top of the jack centered in the collar. I initially considered just threading the pipe for the screws but since I bought structural steel pipe, I thought that it

would be too hard to thread so I just used nuts inside the pipe. I also used some 1" PVC pipe with caps as a holder for handles. I attached these to the jack with zip ties.

The Bogert jack extensions just slip over the top of the Harbor Freight jacks. I used some nylon tubing from Home Depot's plumbing department as a spacer since the Bogert jack extensions are designed for eight-ton jacks with a 1.25" ram, whereas the Harbor Freight three-ton jack has a 1" ram. The tubing had a 1" ID and 1.25" OD that was perfect. This keeps the jack extension centered over the jack ram.

As a safety device, I added two 1-1/8" Double Split Steel Clamping Shaft Collars [\(2\) 1-1/8" DOUBLE SPLIT STEEL NEW CLAMPING SHAFT COLLAR BLACK OXIDE SC112D | eBay](#) with two Allen 57510 3/16" Plas-t-key T Handle [Allen 57510 3/16" Plas-t-key T Handle Hex 2pc USA for sale online | eBay](#)

Disclaimer: I made this for my own use and it may not be a suitable design for your aircraft.

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