

## Shop Mobility Making Large Objects Movable

by Rick Girard

I don't know about you but I never have enough space in my hangar. It seems like something always has to be moved to make room for the latest project and since I often don't have help when I need it I turn to man's second oldest invention, the wheel.

Lately, I've been working on an airplane in my hangar and I've needed to move things around a lot. Two of the tasks involved the empennage and the wings, repairing and recovering a horizontal stabilizer and restoring the holes in the spar carry through. The aircraft is an E-LSA and neither the tail nor the wings are particularly heavy, but they are just "plane" unwieldy. I needed help and I needed it quickly so I turned to a favorite second tier aircraft supplier, Harbor Freight Tools for mover's dollies. These are flat pallets with full swiveling casters at all four corners that come in small and large sizes (item nos. 93888 and 39757 respectively) and each is rated for a 1000lb. load. Even better, both are regular items in HFT's sale fliers.



The tail boom dolly in service

My first project was a tail boom dolly. In addition to the small mover's dolly, I used four pieces of 3/4" plywood, two sized 12" X 24" and two 15" X 18", two pieces of 2" X 2" lumber 12", and a piece of carpet about 12" X 30". The only instruction specific to this project is to remove the carpet covering the dolly's two rungs, otherwise the picture should suffice to show how it's put together.

The second project, the wing rack, used two of the large dollies. In addition, I used two 10 foot 2 X 4's (adjust for your length of wings), three 8 foot 2 X 4's and some scrap carpet for padding (or other material that will prevent scrapes or punctures, I used 1/8" polyethylene foam sheeting that I found at the Yard Store). All wood joints are made using Elmer's Carpenters Cement and decking screws. Predrill and countersink all holes so screw heads can't snag and damage your wings. Smooth all edges and cover all surfaces that will touch the wings with carpet or some other kind of padding.

Remove the staples and peel back the carpet on the dolly's rungs. Don't remove it completely, it can be reused.

The frame of the wing dolly is made by attaching a dolly to each end of a 10' 2 X 4 oriented vertically.



The complete wing dolly ready to cover with padding

Cut two uprights from the 8 foot 2 X 4's to 72" and retain the drops for braces. Make four 8" braces for the uprights with 45° angles cut across the 2" inch side of the 2 X 4. Make two 24" braces for the uprights from the remaining 2 X 4. Cut the ends at 45° across the 4" side.

Attach two of the 8" braces to each side of the uprights making sure the bottoms of all three are coplanar. Attach the upright assemblies in the center of the outboard cross piece of each dolly.

Attach a 24" brace from the inboard edge of each upright to the inboard cross piece of each dolly.



Wings on the dolly, ready to roll

The structure is done, all that's left is to attach the padding to make sure that nothing can harm the wings as they are going on or coming off. I moved the dolly and wings into the wing bay of my hangar and I'm ready to go to work on the fuselage. The best part of this project is the cost. All the lumber, the three mover's dollies, and the hardware came to less than \$50. A small price to pay for single handed mobility.