

# Attaching Landing Gear With Magnets

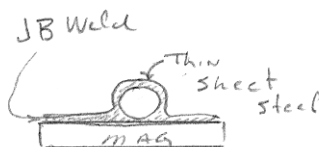
By George White

I've never been particularly happy with the method by which I attached the landing gear to my Jimmy Allen Parasol — and most especially the fact that it was not removable. I've made a pact with myself that in the future, I will endeavor to have the landing gear on all my models removable. Packing and transporting models with landing gear attached is just too much hassle.

I've built (rebuilt from crash damage would be more correct) a couple of old time rubber models using the method describe by Herb Kothe in the January 2003 issue of this exciting rag. Herb uses the peg-in-tube method together with rubber bands. That works well, but it still has rubber bands hanging out in the wind (not that they hurt Herb's performance as a contest champion).

After ordering a batch of Forcefield magnets as describe in the March/April 04 issue, I decided to give them a try on the Parasol. I first made a platform of 1/32 ply which is to be attached to the inside of the bottom longerons and extends 1.25" aft of the point at which the gear exits the fuselage. As you can see from the photo, I formed the gear wire to give a 7/8" horizontal component extending aft which would be parallel with the bottom of the fuselage. Although I probably could have used the 1/8" X1/16" magnets, my propensity to overbuild got the best of me and I used 1/4"X1/16" magnets. I CA'd one magnet to the LG platform at each of the corner points where the LG wire entered the fuselage, and CA'd another to the LG wire. One magnet on each corner would have held the gear in place, but the force of two magnets attracting each other seemed better.

These magnets are so strong that neither CA glue nor 30 minute epoxy would keep the magnet attached to the LG wire from pulling itself off the wire. I was tempted to use some low temperature silver solder, but when I contacted the Wondermagnet folks they said that the magnets will lose their magnetism at 300°, so I scrapped that idea. I finally formed a thin sheet steel saddle surrounding the wire flared out over the surface of the magnet, then used JB Weld epoxy to glue the thing together as shown here. It's held up under several down-wind landings and I've used the technique on another model.



The general scheme is for the LG to be able to rotate aft on impact, pulling the magnets apart. To prevent the LG from sliding aft instead of rotating, I built a pair of slotted holders using basswood. I found that a piece of 1/8" basswood plus one thickness of 1/64" ply exactly matches the thickness of the two magnets, thus allowing the magnets to remain flat against each other. One picture shows the LG wire rotated aft, and the other shows it in its normal flying position. I really can't say how much weight I added or saved on this method. The four magnets weighed a total of 1.36 gm, which I suspect is less than soldered pegs, tubes and rubber bands using Herb's method.

This breakaway method seems particularly useful when the LG is heavily faired as is the JA Parasol, and you don't want much flexing.



I've since learned that there is no need for a slot to hold the rear of the gear wire. In fact a quartering downwind landing will tend to break the slot. A simple piece to prevent the gear from shifting aft is enough. I've also learned that the 1/8"X1/16" magnets hold the gear just as well, and that it is possible to accomplish this set-up with less weight than that shown here.