

# THE FAC JET CATAPULT SCALE SURPRISE

by Mike Nassise

An article published in the November 2011 issue of *Tailspin*, The New England Flying Aces News, Mike Nassise, editor

This past May, Bay State Squadron clubsters decided to add a few new events to their monthly Mini Meet schedules. The events added were Flying Aces Sport Rubber, Pinkham Field Stick, and FAC Jet Catapult Scale. All are recognized by the Flying Aces Club as legitimate competition events for which kanones may be awarded. Flying Aces Sport Rubber and Pinkham Field Stick are found in the *Pinkham Field Flyers Handbook*, while FAC Jet Catapult Scale is, of course, from the official *FAC Rule Book*. To everyone's delight, the new additions were found to be great competitive events, and much more challenging to fly successfully than we ever expected. This was particularly true in the case of FAC Jet Catapult Scale, an event everyone of us thought would be as easy as taking candy from a baby.

Three aspects of the Jet Catapult event made themselves readily apparent as soon as we got involved with it. (1) It's a perfect event for small field flying which, with a few exceptions, is all that we are left with here in New England. (2) The all-balsa profile type models used in the event are easy and quick to build, and great fun to decorate with authentic looking paint schemes and markings. (3) The nifty looking little ships can leave you literally talking to yourself before you get them trimmed out and flying properly. Here are a few things I've learned about jet catapult gliders in the relatively short time I've been building and flying this type of model.

As far as selecting a subject to model is concerned (I've built four jet gliders so far), I feel that the more the model's planform resembles that of a non-scale catapult glider (AMA type) the more likely it is to perform well. That is to say, if the subject aircraft selected has a relatively short nose moment and a long tail moment (just the opposite is true with most modern jet aircraft) it will probably fly better. For example, a jet catapult BAC Jet Provost is a better choice than a jet catapult Chance Vought F8 Crusader. Which brings us to another of my observations, gliders with non-swept back wings like the Bell P-59 Airacomet and Republic F-84 Thunderjet are usually much better choices than those with highly swept back wings such as the McDonnell F-101 Voodoo or Mig-17. The location of the horizontal stabilizer is another consideration that requires attention. High stab locations on the vertical stabilizer or, worse yet, T-Tails, can produce nasty trimming challenges and are best avoided.

When designing/building your model, I've found that certain incidence settings for the flying surfaces yield better results than others. Many experienced clubsters go with the traditional zero/zero arrangement, but I like to set the horizontal stab at -0.5 degrees and the wing at 0 degrees, and then gently bend down elevator if the ship insists on looping when launched. I adjust the transition at the top of the climb by bending in just a touch of left or right rudder, preferably on its lower end, so that the model achieves a smooth entry into a circular glide pattern. Naturally, I must first determine whether the model wants to fly left or right by launching it, first banked to the left, and then to the right. I observe which way the model wants to go, then bend in the rudder adjustment to suit this observed behavior. **Before you do these banked launch tests, however, be sure the model balances level at its CG.** This is easily done for jets that have very little sweep back in their wing planform (i.e. McDonnell FH-1 Phantom), but it can get tricky for those that are highly swept back (i.e. LTV A-7 Corsair II). In this issue of *Tailspin* you'll find an article by Jerry Neuberger that clearly explains how to locate the CG point on the later. (Ed Note: See next month's exciting issue of the PFFT rag!)

Dihedral is another factor important to the success of your model in my opinion, less does not yield more when it comes to dihedral. I like to put in about 1.25" at each tip in my gliders, which generally have a wingspan of about 12". I find that this amount of dihedral gives me good stability without looking excessively nonscale. For me, a good flight pattern involves a fairly straight nose up climb out at approximately 70 degrees with the model banking wide to the left or right as its speed falls off. The model should then glide flat in wide circles until it is once again on the ground. Obviously, calm air is best when you're trying to trim out your glider. Don't expect long soaring flights with your first model. As mentioned earlier, trimming out a catapult glider can be a frustrating experience. Patience and perseverance are needed to get them to perform satisfactorily. You'll be doing very well if you get 20 to 25 second flights at the start.

Finally, I'm not a believer in building jet catapult gliders so that they are capable of surviving all mishaps. Thick fuselages, plywood nose doublers, spruce wing leading edges, etc. do not make good gliders! Resist the urge to build your airplane strong enough to fly over an asphalt parking lot. For me, 3/32" thick fuselages, 1/16" sheet wings and vertical stabs, and 1/32" or 1/20" horizontal stabs are more than adequate. If your model gets broken, fix it or build another one. It doesn't take long to do either job. Most importantly, get out there and have some fun. Take from me, jet catapult gliders are a hoot, but there is a steep learning curve involved.