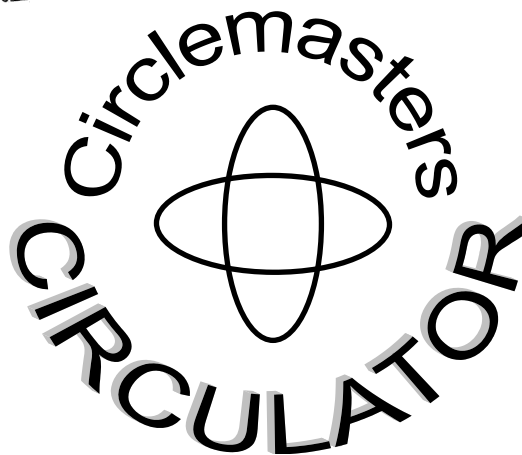


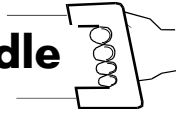
Circulator  
Howard Olson, Editor  
321 10th Street South  
Wisconsin Rapids WI 54494



Newsletter of the Circlemasters Flying Club  
Milwaukee Wisconsin  
Academy of Model Aeronautics Chartered Club # 662

October 2010 Volume 8 issue 10

# At The Handle



If you would like to contribute material, please submit to the address on the cover or contact me at (715) 697-8458 I may be reached via e-mail at [clmodman@wctc.net](mailto:clmodman@wctc.net)

## Ramblings from your editor

Greetings Gentlemen, the *Circulator* is here once again for your reading enjoyment or to start your fireplace with. This month's topics include: The conclusion of the 2010 flying season, the upcoming motion pictures to be shown at the winter meetings. Our very own Secretary Wayne presents the first installment of his new monthly column in this issue and Pete submitted a timeless piece on the Francherized Twister stolen from the August 1987 issue of *Model Aviation*. This article appears a bit disjointed due to problems trying to adapt the article from a photo copy to the newsletter, but it is still worth reading.

First off, the flying season draws to a close. It's been a pretty good summer, and an active one if you attended all of the events that the club was involved with. There was the contest. I'm setting my sights for being there next year. Some obligation always pops up that prevents me from contesting, this year was no exception. Kidventure- Even though I would like to scale back my involvement here, it never lets up, especially since the boss is one of the organizers. Lots of us were there helping out. Kidventure isn't just about the kids. It's worth being there to visit with some of the other guys and gals who show up to work. This time around the weather kept numbers down a little, but by the week's end lots of kiddies got their try at U-control fun. Lisbon- The Lisbon show ends up being more of a fun fly. We have a serious disconnect from the historical reenactment folks over in the rest of the park. Frankly, I don't see hoards of admiring fans going over to see those guys either, so maybe the whole shooting match could use a redo to draw more people, but that's just my observation. I guess we discussed having another club event to replace this one anyway. September's meeting attendees seemed to agree that our interests would be better served by just having a club fun fly with a picnic type setting and only committing to the Lisbon deal on one day next time. The Steam Show- Not too bad of a turn out. Lots of flights put up and a fair number of tractor heads come over to see what all the noise was about. I'm going to guess a dozen or so children showed up to try out the trainers, which is always good. Pete brought up the point that we need to get back to a more formalized airshow presentation. As it is now, guys put up flights as they are ready with no real organization or continuity. We really do need to focus on keeping a flow going to capture the hearts and minds of our spectators. You know, keep the action coming fast and furious with specific demos instead of a disjointed pile of flights with no explanation for the crowd, just getting our own jollies out on the circle. Be warned, this may require planning and preparation, also some practice runs at meetings. The biggie here though is a commitment by members to show up and fly or pit for their chosen part. Not an easy task to arrange. The meetings- This summer was a good one for monthly meetings. I don't recall when we last had so many members showing up and participating. We even managed to draw in a couple of new gluttons for punishment that came to all of the shin digs that were happening. That new kid, I think his name is Alex, soloed at the steam show and his grandpa was there to egg him on. That's great! In general we have had a pretty good summer of control line satisfaction.

November marks the return to indoor meetings over at the Tetzlaff pad. As we did last year, we will have some form of entertainment before the meetings during the winter months. What we need to do now, is establish who is bringing what ( or whom ) to entertain us. Just remember, what happens in Dan's shop, stays in Dan's shop.

As promised, our illustrious Secretary Wayne starts his new column this month. Hats off to Wayne for giving this a go. Just don't expect him to make you coffee or take dictations on your lap.

On a final note: I just received the new *Model Aviation* on the mail this past week. There were actually two control line columns to read before using it to seed the recycling bin. That hasn't happened in a while.

See you at the meeting. Get your arse to the park and fly while we can.

Love,

Howard

**CIRCLEMASTERS FLYING CLUB  
NG MINUTES FOR SEPTEMBER 2010**

The monthly meeting of the Circlemasters Flying Club was held at the Sussex Village Park Flying Field on Saturday September 4th. It was a windy day for flying but another fine day for a meeting with a good turnout of members.

\*

**MEMBERS PRESENT:** Wayne Schmidt, Len Dopke, Jason Nettshiem, Dan Tetzlaff, Ralph Kohn, Don Adriano, Howard Olson, Pete Mick, Mike Strand and new member Dennis Biggie.

\*\*\*\*\*

The meeting was brought to order at 1:01 PM by Pres. Jason. He began by asking the members if all had received the August newsletter and had taken the time to read the minutes of that meeting. All present had received the newsletter and in fact had diligently read those minutes. Jason asked if there were any additions or corrections to the minutes. There were none and the minutes were approved as published.

The treasurers report was given by club treasurer Ralph Kohn. He reported on the current financial status of the club noting all recent transactions. He added that he has received the dues from new member Dennis B. And asked the members to approve the application of those funds toward next years dues. This request was approved by the members present. A motion to accept the treasurers report was made by Dan and was seconded by Don.

**REPORTS AND ANNOUNCEMENTS:**

Jason reported that he was contacted by a lady who was wishing to sell an R/C ARF-Trainer her husband received but never completed due to his cancer. She told Jason that she would like to sell the \$150.00 airplane for \$75.00. Contact Jason if you are interested.

**OLD BUSINESS:**

Pete began a discussion regarding the recent Lisbon Heritage Weekend. He indicated that there was very few people who ventured up to the flying field area and considering the effort and the amount of driving put in by many members it seemed a waste of time. Pete suggested the club cancel this event or only participate for one day. Another suggestion was to have a club Fun Fly Sunday. Further discussion on this subject will be held during the winter meetings. Another point of discussion, to be brought up at a winter meeting, was the suggestion by Pete that during flying demonstrations we present an organized flying event.

**NEW BUSINESS:**

A discussion was begun regarding the club charity, Make-A-Wish. This event will be held next weekend here at the Sussex Village Park and it was voted to have Jason present a check in the name of the club at this event. Since there was no further business Pete called for a motion to adjourn the meeting. A motion was made by Dan and was seconded by Mike. The meeting was adjourned at 1:33 PM.

Submitted by:  
Wayne M. Schmidt, Secretary





## The #1 Name in Model Grade Balsa Wood

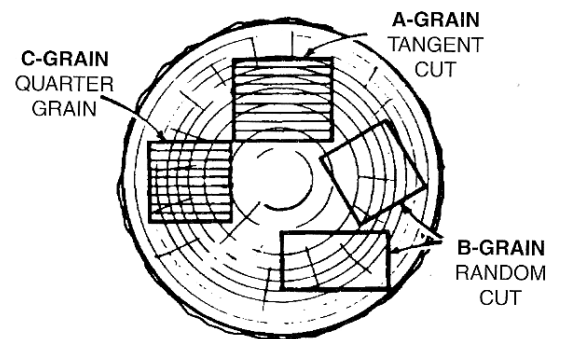
Since 1951 SIG has been providing model builders with the largest assortment of premium grade balsa wood available. More NATIONAL CHAMPIONS use SIG BALSA than any other brand! SIG BALSA is available in hobby shops all over the country.

### BALSA GRAIN I.D. CHART

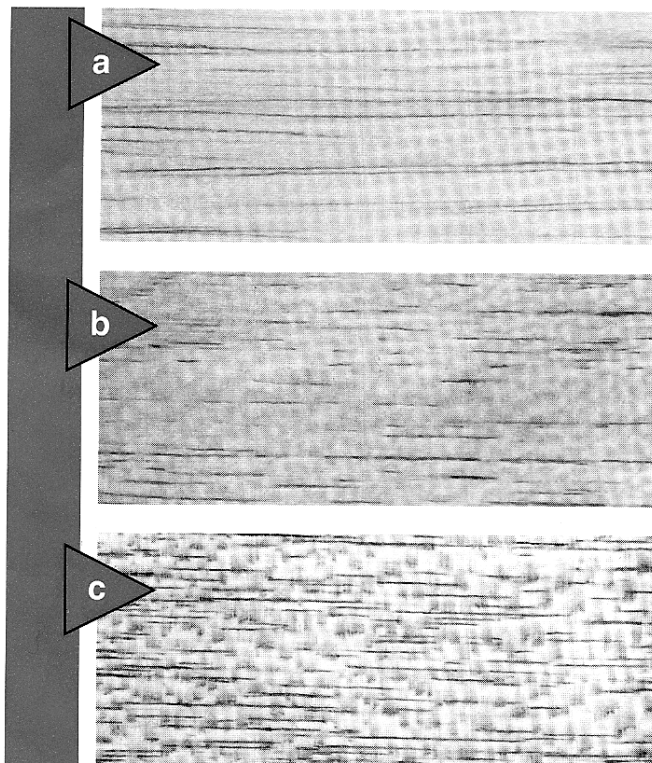
Here's an informative BALSA GRAIN I.D. CHART that will help make you a smarter model airplane builder. (Send a large SASE for even more valuable information on the characteristics of balsa wood.)

In selecting balsa sheets for use in your model, it is important to consider the way the grain runs through the sheet as well as the weight of the sheet. The grain direction actually controls the rigidity or flexibility of a balsa sheet more than the density does. For example, if the sheet is cut from the log so that the tree's annular rings run across the thickness of the sheet (A-grain, tangent cut), then the sheet will be fairly flexible edge to edge. In fact, after soaking in water some tangent cut sheets can be completely rolled into a tube shape without splitting. If on the other hand the sheet is cut with the annular rings running through the thickness of the sheet (C-grain, quarter grain), the sheet will be very rigid edge to edge and cannot be bent without splitting. When the grain direction is less clearly defined (B-grain, random cut), the sheet will have intermediate properties between A and C grain. Naturally, B-grain is the most common and is suitable for most jobs. The point to bear in mind is that whenever you come across pure A-grain or C-grain sheets, learn where to use them to take best advantage of their special characteristics. The following chart illustrates the 3 basic grain types for sheet balsa and lists the most appropriate uses for each.

#### LEARN HOW TO IDENTIFY ALL THREE GRAIN TYPES



CROSS-SECTION OF BALSA LOG



**A-GRAIN** sheet balsa has long fibers that show up as long grain lines. It is very flexible across the sheet and bends around curves easily. Also warps easily. Sometimes called "tangent cut".

**DO:** Use for sheet covering rounded fuselages and wing leading edges, planking fuselages, forming tubes, strong flexible spars, HL glider fuselages.

**DON'T:** Use for sheet balsa wings or tail surfaces, flat fuselage sides, ribs, or formers.

**B-GRAIN** sheet balsa has some of the qualities of both type A and type C. Grain lines are shorter than type A, and it feels stiffer across the sheet. It is a general purpose sheet and can be used for many jobs. Sometimes called "random cut".

**DO:** Use for flat fuselage sides, trailing edges, wing ribs, formers, planking gradual curves, wing leading edge sheeting.

**DON'T:** Use where type A or type C will do a significantly better job.

**C-GRAIN** sheet balsa has a beautiful mottled appearance. It is very stiff across the sheet and splits easily. But when used properly, it helps to build the lightest strongest models. Most warp resistant type. Sometimes called "quarter grain".

**DO:** Use for sheet balsa wings and tails, flat fuselage sides, wing ribs, formers, trailing edges. Best type for HL glider wings and tails.

**DON'T:** Use for curved planking, rounded fuselages, round tubes, HL glider fuselage, or wing spars.

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# Control Line

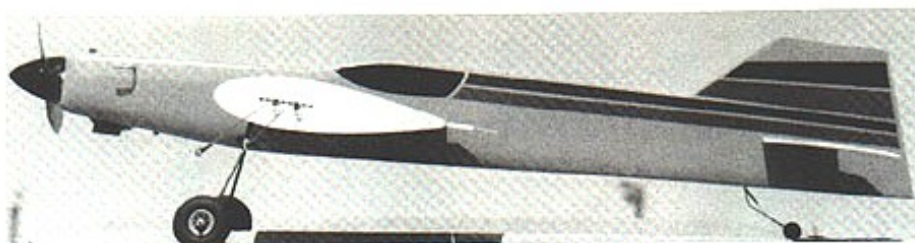
## Aerobatics Ted Fancher

HI, GROUP! Probably the most consistent complaint I receive on my monthly musings is that the material I cover is too "high-tech." While I don't feel that the CL Stunt column should be considered a beginner's forum, there is nonetheless a lot of merit to those complaints.

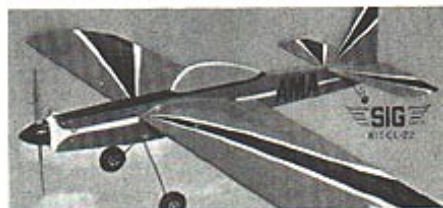
In response, I have undertaken a project which I at first thought would be a pain in the neck but which has proven to be both enjoyable and educational. I built me a Sig Twister!

Most of this and the next two columns will be a fairly detailed coverage of my experiences dealing with Stunt from the viewpoint of a beginner. Using only commercially available supplies and trying to limit a nearly uncontrollable urge to "make things better," I'm going to build, finish, and flight-trim a profile Stunter appropriate for anyone from a beginning pilot (not a rank novice) to an Intermediate or new Advanced flier.

If I've had any luck at all with the Instamatic, several pictures should accompany the columns.



A "Fancherized" Sig Twister. Note lengthened aft fuselage, reshaped rudder and top deck. Mods add to more modern appearance, help define sides of square maneuvers.



The stock Sig Twister for comparison.

Ted's very simple adjustable lead-out guide was stolen from Bob Gieseke. Neat covering of flat wing tip obtained by covering it first before doing top and bottom surfaces.

These will help illustrate some of the techniques and features.

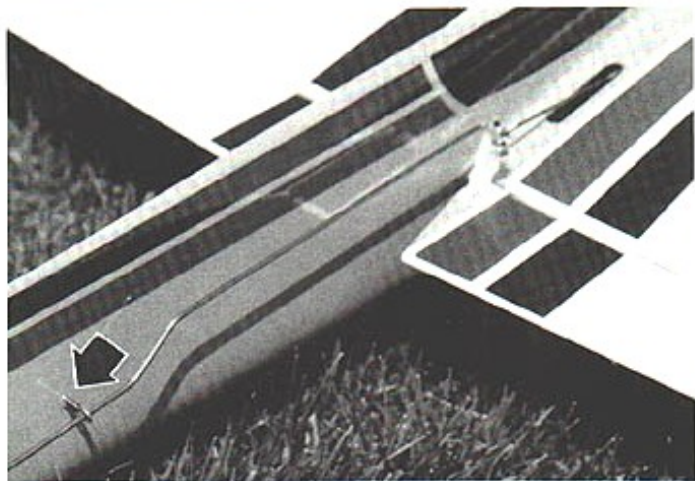
Let's get the hardware out of the way first. I chose the Sig Twister, kindly donated by Mike Pratt and Sig. I used both a Merco .35 engine from Tom Dixon and a box-stock OS .40FP, and I used a Taffinder four-ounce profile tank, modified for uniflo.

The hardware package included with the kit was used with the exception of the bellcrank, for

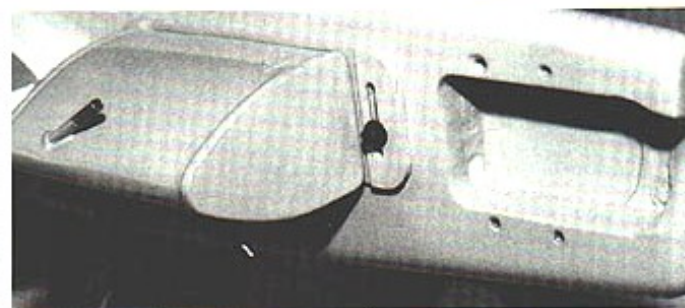
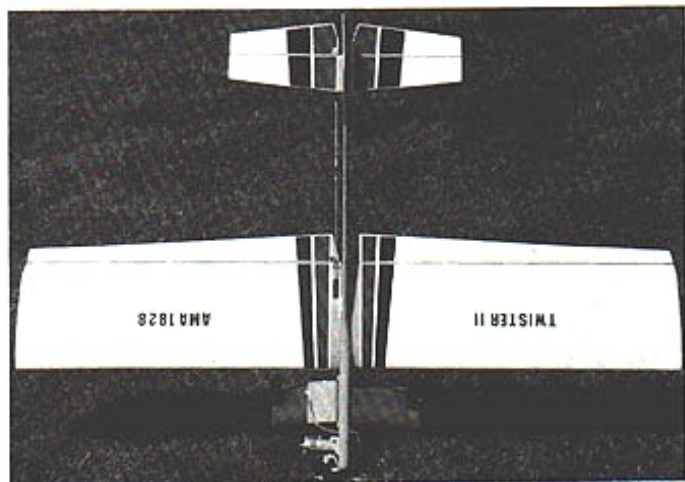


which I substituted a Fancher Circular Crank to which I am partial. (There is *no* significant value in doing so at the beginner level, and I don't necessarily recommend it. I wasn't even going to mention it except that my fancy bellcrank caused some problems in the initial test flights, and I didn't want you to think it was the fault of the perfectly adequate Sig bellcrank. More on that later.)

*Continued on page 159*

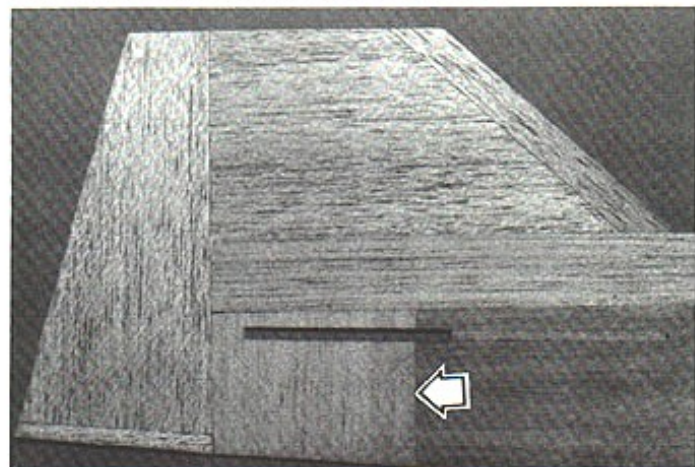


Z-bend in elevator pushrod (L) allows adjustment of pushrod length to trim elevator/flap neutrals. Arrow points to mandatory pushrod guide—it keeps pushrod from bending under airloads. Guide is made from half of a Perfect line clip wrapped with copper wire and epoxied in place. Simple, effective trim scheme (R) cut from MonoKote trim sheets with aid of thin cardboard templates to assure symmetry.



Uniflow-ized Taffinder profile tank mounts on plywood tray; bolt/slot scheme allows moving tank up/down to get proper engine runs. Look at thickness of fuselage evident in engine cutout area. A 1/4-in. sheet balsa "tripler" has been glued to inboard side of nose to add rigidity and to strengthen wing-to-fuselage joint.

Fuselage lengthened three inches by butt-glued balsa sheet (arrow). Note grain direction in restyled fin and rudder for strength.



When the two ends of the tube meet, glue them together. Be sure to make the tubing ends fit properly. Lightly sandpaper the entire tire to get an even, flat finish. The wheel is now ready for painting, if required, and installation on your model.

While writing this item up, I thought of another possible solution to finding a suitable "tire" for wheels of moderate size: Go to a store that sells vacuum cleaner parts. A suitable tire might be fashioned from the round rubber belts used in many models of vacuum cleaners for driving the carpet-cleaning brush. If the wheel you make is in the three-to-four-inch-diameter size, you just might find an appropriately sized belt.

**Documentation** is something that most Scale modelers are interested in, and any information that comes their way is always welcome. Cam Martin (Virginia Beach, VA) sent me a note about a book he came across that he felt might be worth mentioning in the column. The book is called *The Great Aircraft Collections of the World* by author Bob Ogden and is a 1976 publication.

While the contents of the book are not directly usable for Scale documentation purposes, it does list the names of museums and large aircraft collections around the world. A typical museum or collection profile contains the name of the collection, its geographic location, and a list of the planes in the collection. The book does not give specifics about archival services that might be available at the various museums, so it appears that you would have to do a little work with pen in hand.

Another approach to using the resources of a museum might be to contact a friend or acquaintance in a city at, or near, a particular collection and ask them to investigate (get data, pictures, etc.) the subject planes in which you are interested. Cam indicates that the book is available in the Walden Books chain for \$14.95.

While on the subject of books, just recently I was looking through Zenith Aviation Books' 1987 catalog and discovered that the original *Profile* series of pamphlets, published in England and out of print for more than six years, is once more becoming available. Contents of each new pamphlet is the same as the originals in format, text, and color centerfolds.

At the present time, *Profiles* are available for about 40 of the most popular aircraft (too many for me to list here) of which we build models. The entire series of over 300 titles is expected to be reprinted in the future. Those now available are listed in Zenith's catalog at a price of \$2.99 each.

If you wish to obtain a free copy of Zenith's latest catalog, write to Zenith Aviation Books, P.O. Box 1/MA067, Osceola, WI 54020. This is only a catalog you will not be sorry you see for, as it lists over 3,000 books and videotapes on our favorite subject—aviation.

Please send all correspondence—especially photos—relating to *CL Scale* to Bill Boss, 706 269th Street, New Hyde Park, NY 11040.

## CL Aerobatics/Fancher

Continued from page 61

The covering for the wing and tail is Sig's new Supercote, and the fuselage was painted with Pactra Formula U polyurethane from a spray can. Trim colors are Top Flite MonoKote trim sheets—"sticky MonoKote." I used Du-Bro 2.25-in. wheels and wheel retainers, Du-Bro large pinned nylon hinges, and a Carl Goldberg two-inch spinner.

I also made liberal use of a new product called Fast Threads from Ohio Superstar. These terrific

little gadgets are threaded brass inserts in all the popular threads (use 4 - 40s on this project). They do the same job as blind mounting nuts except they are inserted from the visible side. They can literally be inserted anywhere at any time.

Why choose the Twister? The range of kits appropriate for this project is narrow but of a uniformly high quality both in materials and performance. I narrowed the field down to the Top Flite Tutor and Sig's Banshee and Twister.

The Tutor is the more modern of the three in design, but I opted against it for a couple of reasons. The wing is smaller than I would prefer, and the leading-edge planking and the tapered planform make it a decidedly more complex building project. It's certainly within the range of most, but the chance of building a tapered wing crooked always exists, and that can wreak havoc with a Stunter.

Between the very similar Banshee and Twister, I chose the latter because of its simplicity—primarily the squared versus rounded wing tips, and its shorter nose (if you do build a Banshee, whack off 1 1/2 in. to avoid a bunch of tail weight). And, frankly, I find it more appealing. . . and I'm the guy who has to look at it all the time!

Although Sig wraps all its kits in clear plastic so you can't check out the contents, I wouldn't be concerned about buying the kit sight unseen. Sig is famous for its balsa, and it isn't about to risk that reputation by putting lousy wood in the kits.

The only wood I found inappropriate was the 1/8 in. balsa flaps. They were much too soft. Flaps should be very resistant to twisting, especially if you plan to cover them with plastic material which won't stiffen them at all. I picked up a sheet of firm but light 1/8 in. for a buck or so, from which I made both the flaps and the redesigned rudder. (More on that rudder in a bit.)

This is a good time to mention that the Sig Lite-Ply used for fuselage doublers is too soft for mounting an engine directly. It will compress as the mounting bolts are tightened, resulting in an occasional loose engine. Either substitute regular 1/8-in birch plywood or add 1/8-in aluminum or birch plywood pads on top of the kit doublers. I didn't, and I wished that I had.

I also replaced the 1/4-in.-square balsa wing spars with spruce. If you intend to cover your Twister or Banshee (or similar unsheeted, open-framework wing) with silkspan and paint, then the balsa is adequate. If you expect to use plastic covering, however, you will find that it adds almost no rigidity to the wood framework. The spruce spars will stiffen things up a bit and also add that little bit extra which comes in handy if you should inadvertently land prematurely.

**Modifications.** Aha! You knew Fancher couldn't resist, didn't you? Besides which, you've probably noticed that my Twister looks a bit different from the one pictured on the box.

I've incorporated two kinds of changes: those which I think everyone should make to the basic kit, and those that would appeal to fliers who demand more up-to-date performance.

In the area of desirable modifications, the most striking change is the use of a "fastback"-style aft fuselage and low-profile rudder rather than the stock bubble canopy and tall rudder. The canopy style is a matter of taste, but I feel the swept rudder profile is important for beginners or for any modeler who must fly off grass. The tall rudder is very vulnerable to damage in any kind of inverted incident or landing flip over. It not only will break off easily itself, but it can also apply leverage to break the entire fuselage. By lowering its profile and sweeping it back you nearly eliminate the problem and still have ar

attractive airplane. I've landed mine upside down several times to date with zero damage.

Less noticeable but equally valuable is the addition of a 1/4-in. balsa "tripler" on the inside of the nose applied over the Lite-Ply doubler. Profiles are notorious for being subject to engine vibration, and the wing/fuselage joint at the leading edge provides an almost guaranteed stress crack. The additional area in this high-stress joint pays big dividends. Balsa sheet up to 1/2-in. thick is actually preferable.

The plans do not show a fairlead on the flap-to-elevator pushrod. You need one! If you don't, air loads on the elevator when applying Up control (pushing on the pushrod) will most likely cause the pushrod to flex, resulting in a reduction or loss of control. A simple fairlead can be made from either a cotter pin or one half of a Perfect-style line connector epoxied into the fuselage halfway between the flaps and elevators.

**Performance-improving modifications** to the stock design include the following changes which have proven successful on my prototype.

First, the tail has been moved aft three inches! The Twister was designed some time ago when the prevailing school of thought was that short-coupled ships were the way to go for tight cornering. More recent thinking has shown that not only are short tails not better but that they may, in fact, be detrimental.

Simply stated, the longer tail is more powerful since it is further from the center of gravity (CG). Since it is more powerful it not only changes the attitude of the airplane more positively but also stabilizes it better in level flight. This results in a ship which maneuvers crisply when asked and which stops turning immediately when controls are neutralized, a concise description of the "perfect" Stunt corner.

An added benefit is that since the tail is more powerful, the CG can be located further forward without sacrificing cornering potential. This improves line tension, stability, and tracking in consecutive maneuvers. The CG on my prototype is a full one inch forward of that shown on the plans, and it flies very "brisk" corners. Try it, you'll like it!

I lengthened the tail by butt-joining a three-inch piece of sheet balsa using slow-setting CyA glue. The resulting joint is stronger than the wood. Fill the old stabilizer slot with scrap and cut out a new one.

The tank-mounting system is worthy of attention. As we discussed in June's column, Stunt engines run a little weirdly on profiles, and some means of adjusting the tank height is important.

My system consists of a cradle to which the tank is attached (using double-sticky servo-mounting tape). At the front and back of the

cradle are vertical grooves about 1/8 in. by one inch through which short 4 - 40 bolts attach the tank/cradle to the fuselage, using the threaded inserts described earlier. By simply loosening the screws the tank can be raised or lowered, after which the screws should be retightened. This system is effective, simple to use, and sanitary in appearance.

While checking out the fuel system, notice that the Taffinder tank has been modified to a uniflow feed. This was done without opening the tank. The stock fill-tube was removed and the hole covered with tin. An ice pick was then used to poke a hole in the tank about 1/2 in. forward of the outside rear corner, and a 1/8-in. copper tube was soldered in place so that it just enters the tank, ending about 3/8 in. forward of the fuel pickup tube.

For those of you unfamiliar with the uniflow principle, a future column will deal with it at length. Suffice it to say at this point that a system as described will result in an engine run which is remarkably consistent from beginning to end, as opposed to a conventional "suction" system which characteristically runs progressively leaner as the tank empties. To function properly, the overflow tube must be sealed for flight, and the exterior end of the uniflow tube must be to the inside of the tank. (Note on my prototype that a tube is solidly epoxied through the fuselage with a flexible line connecting it to the uniflow tube on the tank proper.)

Notice the simple, adjustable lead-out guide. I used 1/8-in. balsa wing tips and inset a piece of basswood into which I had cut a two-inch-long groove wide enough for the lead-out cable to pass. Into this groove I drilled 1/8-in. holes every quarter inch in which the brass guides are inserted. To adjust, simply pull out the brass tube, move the lead-out to the desired location, and reinsert the tube. The tubes should either be a snug fit or be inserted with a small drop of model cement to secure them.

If you wish to install your lead-outs permanently, the location as shown on the plan is very close to correct when used with the more forward CG allowed by the longer tail. If you are building your Twister with the stock tail moment and plan on using the CG shown on the plans, I would suggest that you lengthen the forward lead-out holes on the ribs to allow the forward lead-out to be located just aft of the spar. The aft lead-out is just fine as shown.

In the olden days it was considered gospel to have the front lead-out on the CG. Experience (and science) has proven this ain't appropriate. Proper lead-out location must provide for the natural sweep of the lines caused by their drag.

Next month we'll talk about some construction techniques and how to make that profile look "spiffy."

*Ted Fancher, 158 Flying Cloud Isle, Foster City, CA 94404.*

## ~~Can Navy Carrier/Perry~~ Continued from page 62

closely to control exhaust-gas leakage when the slide is closed. The interior of the exhaust stack should be slotted to receive the slide.

An alternative to installing the slide in the exhaust stack is to construct a track for the slide which can be bolted to the exhaust stack using the fittings provided for attaching a muffler. I plan to describe such an installation in my next column.

Recessed exhaust engines present a different problem for installing an exhaust restrictor. Because

*Continued on page 162*