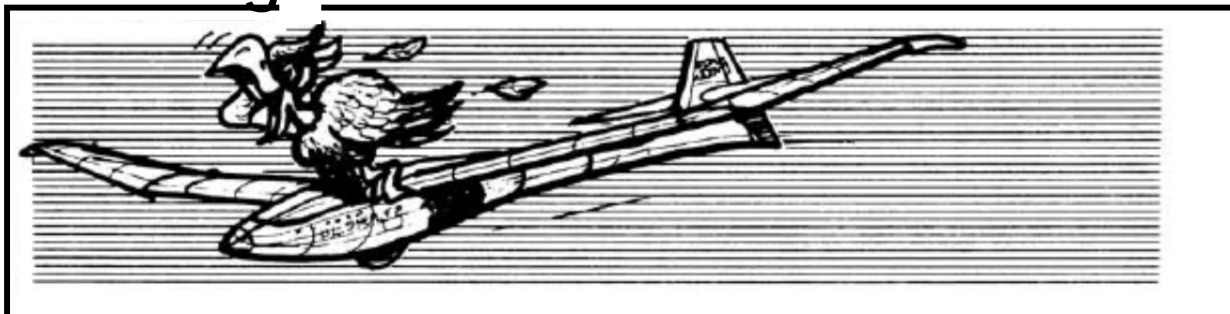




President: John Barr Contest Dir: Eber Graham Equipment Manager: Major Anderson
Vice President: Frank Corsaro Treasurer: Bruce Aveson (acting)

Soaring



Keith Kindrick Nov - Dec 2015

We have a new president in town!

John Barr has graciously agreed to lead us into the 2016 season. John is a terrific guy and will always lend a helping hand. Please support John when he asks for your help. It's our club and we all need to pitch in. Help keep SWSA Great! See the Field rules Page 4

Club Officers and Dues for 2016

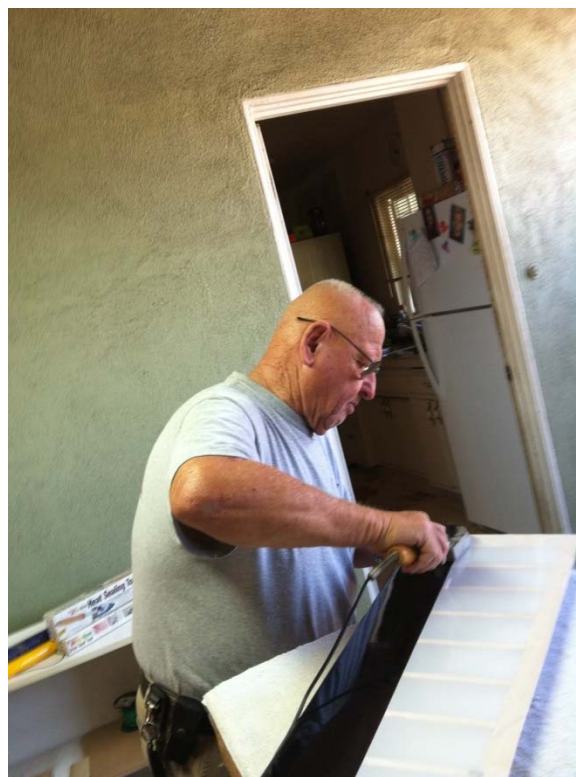
Recently Club Officers were chosen for next year. At present we do not have a Secretary or a Treasurer. If you would be willing to serve, or know someone else who would step forward please contact any board member.

Annual Club dues renewal at \$48.00 and are due on Dec. 1st. Bring them to the field, or you can write a check and mail it. If you chose mail make the check payable to Bruce Aveson and mail it to: 325 No. Lyall Ave. West Covina, Cal. 91790

3m Gnome

I have a few more pictures of the project. Unfortunately they did not come with a

summary of what is going on with the Harvey and Major team. I'm sure you guys can figure it out.





New from NAN Models

Here is something new to think about for the 2016 season. NAN Models has a new fuselage for their Shadow model. Shadow's airfoil (modified HN507) has a faster envelope and "prefers" (or performs better in) windier conditions than the X2 or X3. Keep looking for this new offering in 2016.





Tail group is completely removable. This is a very nice touch!



Drone Registration Rules Are Announced by F.A.A

The Federal Aviation Administration on Monday announced new rules that will require nearly all owners of remote-controlled recreational drones to register in a national database, an attempt by the agency to address safety fears about the machines. Use the link below:

<https://www.faa.gov/uas/registration/>

The F.A.A. will introduce the website for registration on Dec. 21; registering will be free for the following 30 days. After that period, the fee for each individual drone user will be \$5 for a three-year certificate of registration. Anyone who owned a drone before Dec. 21 will be required to register a machine that weighs between half a pound and 55 pounds by Feb. 19, 2016.

People who get a drone after Dec. 21, which includes anyone who gets a drone for Christmas, will be required to register before their first flight. There will be an option for owners to register by paper and the rules only apply to those over the age of 13, though children are permitted to fly under their parent's registration.





Breaking News You need to know from the SWSA Leadership Team

Academy of Model Aeronautics **Member Communication**



Monday, December 14, 2015

AMA and the FAA Registration Process

Today the FAA announced plans for a model aircraft registration process to begin next week. [AMA was a member of the task force that helped develop recommendations for this registration rule and argued throughout the process that registration makes sense at some level but only for those operating outside the guidance of a community-based organization or flying for commercial purposes.](#)

Unfortunately, the new FAA registration rule does not include our advice. The rule is counter to Congress's intent in the Special Rule for Model Aircraft and makes the registration process an unnecessary burden for all of our members who have been operating safely for decades.

While we are disappointed with the new registration rule and still maintain that AMA members should be exempt from registration, the rule is being implemented over AMA objections. Therefore, we want to provide you with important information about the registration rule and how AMA members can comply with the new federal requirements:

[All aircraft that are flown using a ground control system, such as a transmitter, are required to participate. This includes fixed-wing aircraft, not just multirotors or drones.](#)

- Any pilot flying models weighing between .55 pounds (or 250 grams) and 55 lbs is required to register.
- [You will not be required to register every aircraft individually.](#) You only need to register yourself and can affix one registration number to all your aircraft.
- You must mark all aircraft with your registration number. The number can be inside the aircraft, such as a battery hatch - but should not require tools to access.
- [The FAA plans to launch the online registration website on Monday, December 21.](#)
- [There is a \\$5 fee to register, which is waived if you register within the first 30 days.](#)
- You only need to register once every 3 years.

We are still working out the logistics for this process. Some details are still being discussed, including:

- We are seriously discussing with the FAA a system where your AMA number could be used as your federal registration number as well. At this point, this is only a proposal and details are not yet finalized.
- At this time, AMA members will not automatically be registered when the registration website launches next week. However, we are in conversations with the FAA about the best way to streamline the registration process for AMA members going forward.

This is an ongoing process and we will continue to provide updates on the registration rule. Stay tuned to modelaircraft.org/gov, social media and your email for the latest news on the registration process.

Thank you,

AMA Government Relations and Advocacy Team



Rules for use of SWSA Fish Canyon flying field

1. The gate must be closed at all times per Corps of Engineers. It is not necessary to lock the gate while operations are being conducted but the lock should be attached to the chain to prevent its loss.
2. The lock combination will be provided to current SWSA members only. Reset the lock to "0-0-0-0" after each use.
3. Membership in the AMA is required of all flyers. Introductory pilots will be allowed to fly with an instructor once the proper paperwork has been completed.
4. Operations at the field are limited to daylight hours only.
5. All use of this field is at the sole risk of each person entering the gate.
6. Electric sport planes will normally take off and land from the northwest corner of the field, adjacent to the winch lines. Electric sailplanes (ALS type) may launch and land in the glider area.
7. Electric operations will be allowed if proper precautions are employed.
8. The glider winches will be in operation on weekends and most Holidays until 12:30 PM. This will allow electric flyers weekend flying access. The exception to this will be on scheduled contest days when the Contest Director will have control of the field. Contests are typically the second Sunday of each month, plus annual SC2 contests.
9. Electric and glider pilots will be responsible for making sure it is safe to takeoff or launch by checking operations in the other area. A signaling device will be used, when available, to alert others of takeoff or launch.
10. Frequency control for sport flying operations with 72 MHz equipment will be by adding your labeled clothes pin to a frequency pole or your SWSA card to the frequency board. Guest flyers will fill out a card and place it on the pole or board. A frequency control box will be used during contests when 72 MHz equipment is used by contestants along with a transmitter impound area.
11. Parking will be along the perimeter of the field. There will be no parking in the glider approach area at the East end of the field, beyond the winch turn around area at the West end or next to the winches. All cars parked on the field are there at the driver's risk.
12. Gasoline or glow powered motors are not allowed on the field at any time.
13. All AMA safety rules, with the exception of altitude limitations, will be observed.
14. All trash, including cigarette butts, must be removed from the field each day. If you carry it in, carry it out.

Additional rules for FPV Flyers

1. No "buzzing" of homes, workers or live stock.
2. No flying adjacent to or around power lines.
3. Avoid any flying that would be a likely cause of complaint from home owners or local residents.



'World's fastest' 3-D printed drone takes flight

[Jenny Cosgrave](#) Writer / Producer, CNBC.com

What is believed to be world's first jet-powered 3-D printed drone, capable of reaching speeds in excess of 150 miles per hour, was on display for the first time at the Dubai Airshow on Monday.

The unmanned aerial vehicle (UAV) is the most complex drone of its kind, according to the group, with over 80 percent of its design made with printed materials including metal, nylon and a UV-resistant thermoplastic.

The drone weighs in at 15 kilograms and has a wingspan of 3 meters, according to Stratasys, which developed the drone with Aurora Flight Sciences. The 3-D printing firm aims to prove to the airline industry how this type of manufacturing can trump traditional methods.

"This is a perfect demonstration of the unique capabilities that additive manufacturing can bring to aerospace," Stratasys' Aerospace & Defense business Development Manager, Scott Sevcik, told CNBC at the airshow.



Courtesy of Stratasys
Aurora Flight Sciences' high-speed UAV.

"Overall, the technology saw us cut the design and build time of the aircraft by 50 percent," he said.

The worldwide market for 3-D printers and associated materials and services is set to reach \$5.2 billion by 2015, climbing from \$3.3 billion last year, according to data released by analysis firm Canalys earlier this year. This is a 56 percent increase in 12 months. By 2019, the market is expected to boom to \$20.2 billion, the group said.

As well as unveiling the drone at this year's show, French plane-maker Airbus used a Stratasys 3-D printing system to produce more than 1,000 flight parts for its A350 XWB aircraft, which was completed at the end of last year.

Airbus said the printed material is flame, smoke, and toxicity compliant for the aircraft's interior and the lighter parts "substantially reduce production time and manufacturing costs."

Rocket manufacturer United Launch Alliance also announced this year its plans to incorporate flight ready, 3-D printed components.

"Whether by air, water, or on land, lightweight vehicles use less fuel. This enables companies to lower operational costs, as well as reduce environmental impact," Sevcik said



Silent Wings Soaring Association

December 2015



If you have any events let me know



Yearend picture of the Flyers of the year for 2015. Eber assures us we will all be hunted. Yikes!



Let's ALL Fly!

That is it for this month.

Thermals to all ~ Keith

Take a look back in time during the golden years of sailplane design with **STOP THAT SAILPLANE** by the master of sailplanes Dave Thornburg.

This is **CLASSIC** information located at the end of this newsletter.



THAT SAILPLANE!

By DAVE THORNBURG . . . Full down elevator isn't the only way to get your bird into the center of the circle, as our resident Glider Guru shows. A 3rd servo may be the best investment you'll ever make!

• I was timing for Rick Pearson at the '76 LSF Tournament in Santa Rosa, on the flight when his Sailaire spoilers failed to open. The ground turbulence that morning was surprisingly desert-like . . . the air close to the ground was warm and jumpy and as full of holes as a hippie T-shirt . . . and a lot of good pilots had already fallen short about halfway through a "normal" landing pattern. Rick Pearson is one of those crafty types: he watches boobs like Thornburg, and he learns from their mistakes. Rick Pearson had no intention of landing short. He came in low and hot and clean, and at the very last minute he pulled full spoilers.

And nothing happened . . . his spoiler servo had died.

I was too busy counting him down to notice, but I gathered from his blood-curdling shout and the way he backed over me that something was amiss. So I glanced up from the stopwatch. Here came an eight-pound airplane, cutting a 150-inch slice out of the smog at an altitude calculated to prune the Thornburg family tree. *This will not do*, I thought, dropping gracefully to earth. (Rumors that I fainted are false and malicious gossip, started, no doubt, by the people who had to throw water on me afterwards.)

Fortunately, the Sailaire didn't kill anyone of importance, although a couple of hasty religious conversions were reported from over by the winches, where the ship finally came to rest. But the incident served to point out the biggest single drawback to the use of glidepath devices; *they're worse than worthless if they fail*. Of course, the same argument applies to almost anything . . . captive towhooks, birth-control devices, fourth-year med students . . . they're all worse than worth-

less if they fail.

Let's assume that they seldom fail. Let's assume that they're always installed with care, thoroughly checked out before contests, serviced regularly, and never, never left unhooked. The question still remains: *are they worth the trouble?*

Yep.

They're the best substitute I know for hours and hours of landing practice . . . practice in judging the wind direction and velocity and stability; practice in estimating glidepath in a dozen different air conditions, from booming lift to molasses-sink; practice in estimating just how far your plane is going to slide on any particular landing surface at whatever groundspeed with which you happen to come into the circle. To make all of these estimations correctly, and pull off a 96-point landing with your two-channel ship, is an admirable talent . . . like being able to divide six-decimal numbers in your head. But people who haven't a natural bent for it, or don't

want to practice for years, can't be blamed for buying a six-digit pocket calculator . . . or a spoiler servo.

Unfortunately, the big drawback to most spoiler designs is that they don't lend themselves to retrofitting . . . if they weren't built into the wing from the beginning, they're difficult to install later. So in addition to the three wing-mounted spoilers, we'll talk about some fuselage-mounted devices as well, because they are much easier to retrofit on an old glider.

Figure 1 shows a bottom-surface spoiler. In installation and effectiveness it really isn't that different from the conventional top-surface spoiler featured in most U.S. kits. Toss out a bottom-surface spoiler at high speeds and it will pitch your nose upwards, which is a pleasant change . . . conventional spoilers usually pitch the nose down. The bottom spoiler has this disadvantage: if you land with it deployed, you may damage it. But it has one advantage that many folk feel makes it

FIG. 1

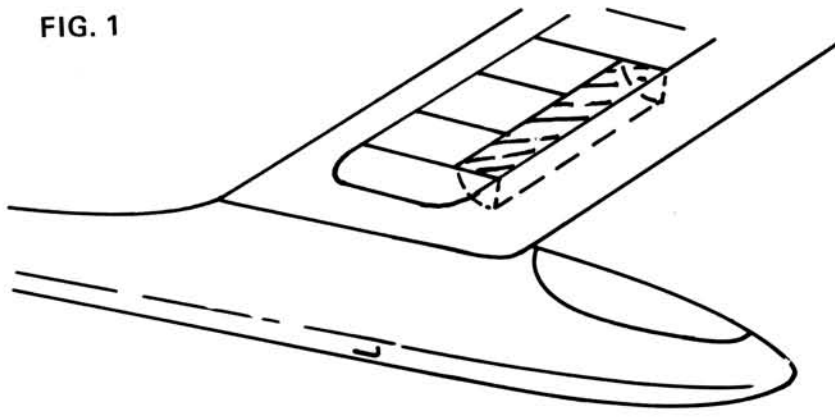
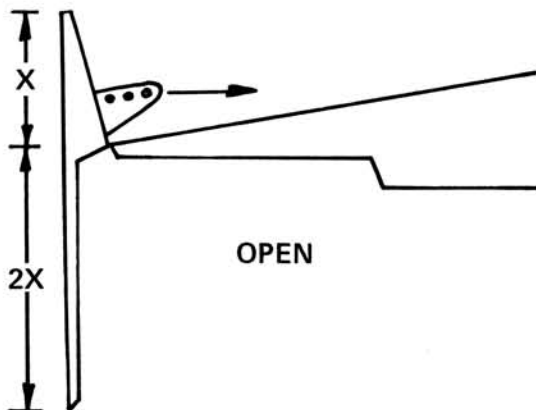


FIG. 2

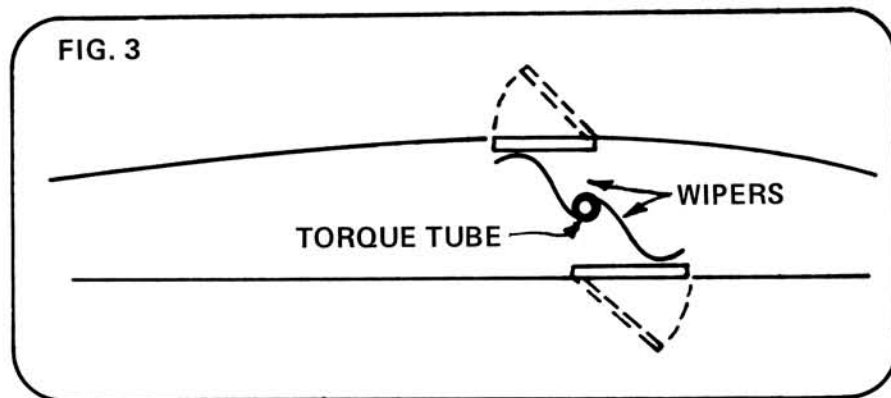


CLOSED



OPEN

FIG. 3



worth the risk: it is potentially a bit "cleaner" aerodynamically. Because it resides (lurks? I get tired of the same old verbs. . .) on the bottom of the wing, it's in a slower air stream than it would be on top, so it probably causes less airfoil disruption (i.e., drag) at high speeds, when it's supposedly in the undeployed state.

Herb Semmelmeier used bottom-surface spoilers on his "Elliptical" (see February 1979 *MB*, p. 50). After much experimenting, he arrived at the figures of 3.9% to 4.2% of total wing area, and an aspect ratio of five or six to one for the spoiler size and shape. This works out to something near 1.25 by 7.5 inches per spoiler, for a 950 square inch model. An additional bonus Herb gets with this type spoiler is a bit higher launch when they are deployed to only about 10° (Herb's spoilers are hinged at 60° chord, much farther rearward than usual). Normal deployment for drag purposes is 35-45°.

I might as well confess that I built a set of these spoilers into one of my "Bird of Time" models, just to see what they'd do. Made them far too wide (1-7/8 inches). They threw the nose up violently when deployed at high speeds. Of course, my personal Birds are much more pitch-sensitive than normal, because I insist on running such ridiculously rearward CG's. If I were doing it again, I'd make them 12 by 1.25 inches, and I'd darn sure move them forward to the 40% chord point . . . Herb can live with 60%, but I just can't.

Figure 2 shows my favorite glidepath device, a trailing edge dive brake. I first saw these creatures in London in 1972: a chap out at Ivinghoe Beacon (a slope site) used them to good advantage to land his 100 inch floater in between the two or three dozen baby carriages ("prams," in English English) that always seemed to materialize atop the Beacon whenever anyone started into a landing pattern. The Dave Hughes *Soaring* book (p. 148) attributes the original idea to the Norwegians. (Followers of *FAI Pattern* are familiar with this device as used by World Champ Hanno Prettnner over the past few years. wcn) I used them on a series of T-tailed sport planes built back in Albuquerque . . . 99 inch ships with genuine Eppler 387 airfoils and relatively low (6-7 oz.) wing loadings . . . and they would STOP those airplanes dead! No

radical pitch changes, either . . . but in those days I was flying more conventional (30-35%) CG locations. Whether they would blank the stabilizer on low-stab designs, I can't say. My guess would be that if the plane has a conservatively large (15% or more) stab area, and a normal CG, stab blanking isn't likely to be much of a factor. Although it would still serve as an acceptable excuse for missing a landing.

I placed my dive brakes right at the wing roots, for easy servo hookup, and made them about 6 inches long by 2-1/4 inches wide. The best proportion for avoiding the usual spoiler-on/spoiler-off pitch change seemed to be around 2:1. That is, twice as much flipper below the wing as above.

Looking at the drawings now, I can't imagine why it never occurred to me to try hinging the brake on the *bottom* of the wing rather than the top, as shown. That way, the device would resemble a normal flap or aileron from underneath, and the vulnerable front edge of it would then be on *top* of the wing, safe from landing damage. As I said, I don't know why I never tried this. Maybe somebody out there has?

The final wing-mounted spoiler in our roundup is simply a conventional spoiler on top, with another one just like it down under. LeMon Payne used this system on the Legionnaires he flew in the last World Champs. Properly set up, they cause little or no pitch change when deployed. Of course, they're twice the

trouble to build and maintain, but some folk (me included) will go to any length to avoid violent pitch changes . . . especially when your ship is two feet off the deck and just screaming across the far edge of the landing circle!

John Rimmer, of Victoria, Texas, has given this top-and-bottom spoiler system a new twist: he activates them via a torque tube and two wipers (see Figure 3). This necessitates hinging one of the spoilers backwards . . . i.e., mouth into the breeze . . . but John says it shuts tight with no problems, at least on the lightweight ships he designs and flies.

RETROFIT DEVICES

The unlikely-looking device in Figure 4 is something I came up with for slowing down airplanes that don't have built-in spoilers. It isn't very clean, in the closed position, but I found it a great help in making the transition back to three-channel flying after years of rudder-and-elevator only. I made mine from 1/16 wire and 1/16 plywood . . . double-stick tape on either side of the servo held it all together. Toughest act was to stick the flippers to the wire: silk and dope "bandaids" was my solution. The entire gizmo slides into the open fuselage bay underneath the wing, with the axle protruding through 1/16 slots cut through the wing saddle. In the closed position, the spoiler blades lie flat against the bottom surface of the wing . . . bend them to the proper dihedral angle by trial and error. Deployed, they rotate down 45-60°, much like the bottom-surface spoilers shown in Figure 1. If you build one of these creatures, don't show it to anyone, unless you're prepared for a volley of wisecracks ("It'll never fly, it ain't got no back wing," etc., etc.). Where you position the axle along the chord depends a lot on your particular airfoil . . . start at about the 10% point and experiment from there.

Take a good look at Figure 5. Herb (where have I heard that name. . .) Semmelmeier has been thinking again, and here's his latest thought for glide-path control. It's a fuselage-mounted dive brake with a lot of advantages. First, of course, is that it can be retrofitted

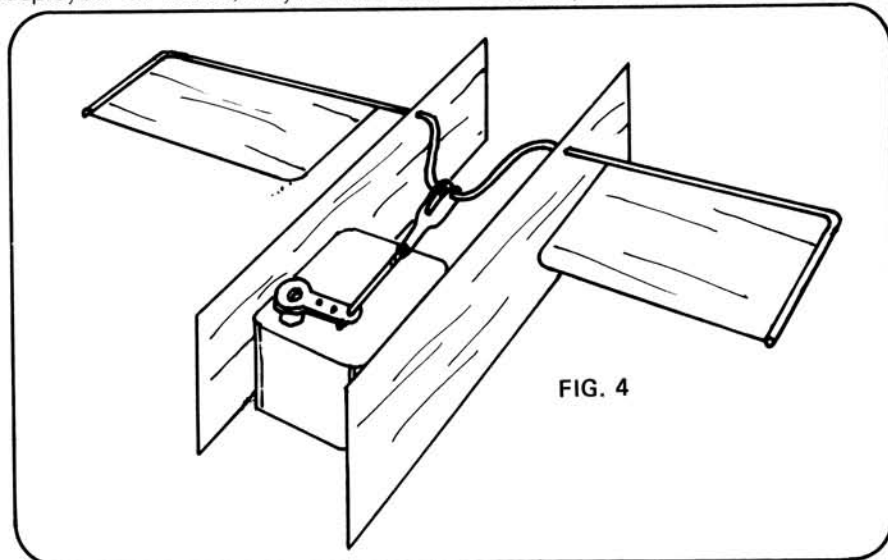
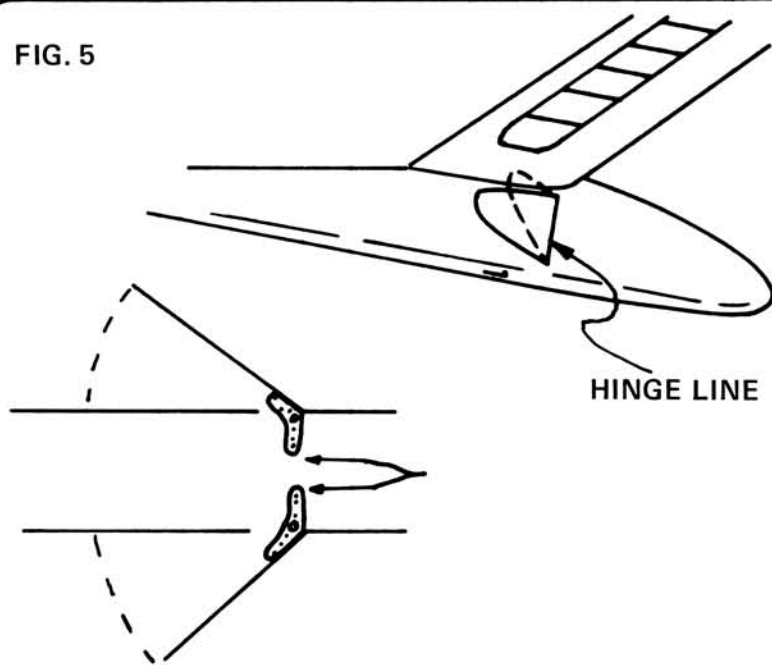


FIG. 4

FIG. 5



without too much ripping and tearing. Second, it cleans up the wing airfoil; people are someday going to discover the importance of this, as we become more performance-oriented in the sport. Third, it concentrates the spoiler "mass," in both open and closed modes; everyone who's flown wing-mounted spoilers has noticed the sense of heaviness they give your wings when they're open. Herb claims this device eliminates that heavy-winged, sluggish feel on the rudder. Admittedly, these spoilers aren't quite as effective as a wing-mounted spoiler; they don't "spoil" wing lift as much as simply induce drag. But Herb feels that the added maneuverability they give makes up for it. "Besides," Herb says, "it's neat to kick them open when the plane's coming right toward you and watch the fuselage swell up like a toad."

Herb is one of those rare folk who tackle any problem very carefully and logically, taking copious notes and making changes slowly, methodically, one at a time. He spent hours flying three different airplanes with pieces of cardboard taped in place to simulate

these flippers, so when he tells me to hinge them 5-10% back from the leading edge to get minimum pitch change, I'm willing to do it without too much argument. In fact, I'm doing it in my next plane.

Two other glidepath devices are worth passing mention. One of these is a "drag chute," a parachute that's deployed at the end of the flight just like some full-scale sailplanes do. Whenever I mention that I've played with drag chutes in the past, and I'm thinking about doing so again, somebody always brings up reliability: "They fail too often, and just when you need them most." Try telling that to your Uncle Bork, the skydiver! A parachute is just as reliable as the person who packs it. Find out how your chute works best, and pack it that way every time, and you won't have any trouble with reliability.

Which is a good thing, because drag chutes will give you headaches enough in other ways. If you pack them and strap them outside the fuselage, they cause beaucoup drag. Put them inside a trapdoor, and the cutout weakens your fuselage. Fasten them to the tail of the

plane (which seems like the logical place) and they'll open out and relieve you completely of the pilot function: you won't be able to steer the ship at all! (They have to be fastened very close to the CG, and as high on the fuselage as possible, so that they exert their drag in approximately the same vertical and horizontal planes as the airplane's total drag component.) If you make their tether line too long, or fail to put a large enough hole in their center, they will whip about like a cow's tail back there, and usually manage to snag on a tall weed about fifty feet downwind of the landing circle. And, of course, they're as irrevocable as suicide: once you throw the switch, there's no turning back, so if you hit unexpected down air on the final...

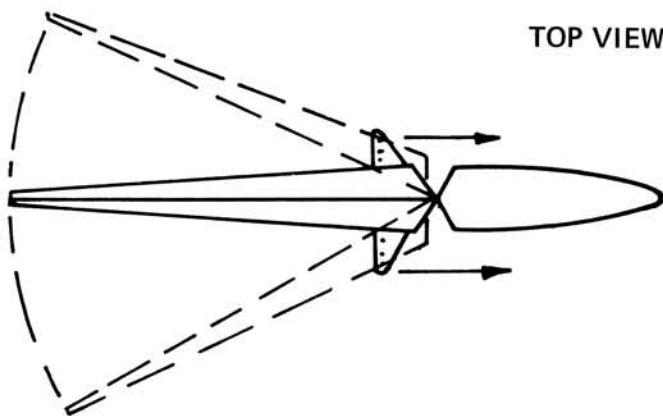
For all their faults, I get a perverse satisfaction out of playing with drag chutes. They're a real novelty on the field, definitely not recommended for the serious competitor, but a lot of fun for those folk whom *Aeromodeller* calls

Continued on page 90



Joe McClaran's original "Split Tee" design that he flew at the 1975 LSF Tournament at Mile Square Park in So. Cal. Features the dive brake/spoiler shown in Fig. 6 below. Joe reports that at less than full separation, there is still directional control. Photo by Taylor Collins.

TOP VIEW



SLIDING SERVO

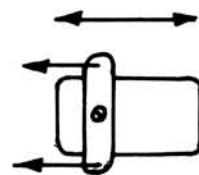


FIG. 6