

APRIL, 1992

*The Harbor Soaring Society Newsletter*

Vol. 29 No. 4

## MARCH HSS MONTHLY CONTEST

by Brett Young

Sunday morn dawned nice and blue  
 But the field was deep in goo  
 Predawn showers had dumped an inch of rain  
 MUD - everywhere - what a pain!  
 And especially hard to take -  
 In the middle of our field ... a lake!  
 The final verdict, not hard to guess -  
 "Shall we cancel the March contest?" YES!

### F.Y.I.

(Editor's note: OK, you've asked for it so here it is, each month we will present a collection of fact, rumor, innuendo, and whatever else will fit. Send your contributions to the editor by the 15th. of the month.)

Attention recent members: if you haven't received your name badges, see Frank Chasteler at your earliest convenience. . . Gordon Poulson and Dick Pantzar will hold a winch line-breaking contest. Date and time to be announced. . . Andy Sanders and Curt Nehring were spotted recently working on a new dive test for their planes, ask them for your personal demonstration. (Scuba gear is optional). . . Any one interested in a club logo shirt or jacket, see Frank Chasteler. Let

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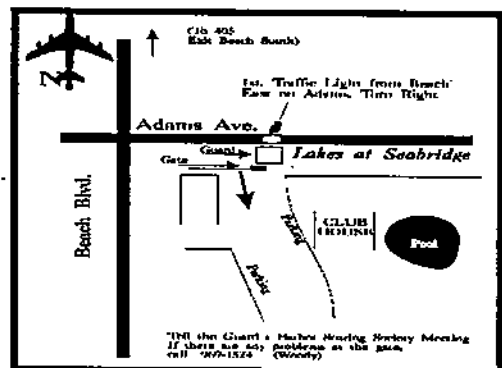
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The Harbor Soaring Society newsletter is published monthly. Editorial comments and articles are welcomed. Please provide all material for consideration by the 15th. of the month prior to publication. Wordprocessed material is appreciated (any major IBM compatible disk format and program). Handwritten material must be clear and legible. The editor reserves the right to edit all material. Submissions should be made to John Ostrowski in person or by mail to: 8902 Lawrence Ave. Westminster, CA 92683.

### MEETING LOCATION

You will need to check in at the gate. Tell the guard you are there for the HSS meeting. If there are any problems, call 969-1524



him know if you would be willing to provide your own shirt. . . Norm Kutch has announced his intention to become the first person to circumnavigate Lake Fairview in a Kayak. Date and time to be announced. . . Brian Tinkler has a bit of interesting news for those of you with computers. A remote bulletin board system (RBBS) called Slope Tech. You can reach it at (310) 886-0924. Settings are 1200-N-8-1. If you try it let know how it is. . . Ask Pete Young why you should never fly a sailplane after selling it.

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## MARCH MEETING MINUTES

By Woody Grosvenor

The meeting started at 7:40 P.M. with Dick Johnson taking over for Ben Clerx. Frank Chasteler gave the treasurer's report with an update on retriever modifications (three to date) plus expenditures and income. The report was accepted as read. A winch turnaround of a more permanent type was discussed. Ross mentioned he was making an iron type that would be more permanent and below ground level.

A discussion was held on the upcoming contest and there was concern about the expected rain and the size of the lake increasing. Will Conrad said he vaguely remembered Frank draining the lake years ago. Frank said this was not a complete fix. Frank also mentioned it has taken as much as four foot long stakes to hold the turnaround when the ground is soft. It was agreed that the contest was still on and would only be cancelled if it rained.

Ross Thomas talked about the different types of contests and asked for ideas. Norm Kutch also suggested moving the club contest to a slope if the contest could not be held at Estancia. Pete Young talked about the specifics of the upcoming contest. John Ostrowski asked for a big thank you to Pete and Bret Young for their excellent job on the club newsletter. Dave Nemecek asked if the dirt piles could be moved to allow better winch access. Frank said it would be too expensive now but may be possible later (during Phase 2 of the park development). Pete Young promised a kit review on the Spirit 100 for the next newsletter.

Will asked why the SC<sup>2</sup> contest was scheduled for July. Ross explained that temperatures were cooler here at that time of the year than at some of the other contest fields. Ross commented he would have a new awning at the contest and Frank would bring a club awning. A motion was passed to recover the club awning.

Norm made a motion for the club to purchase a winch and retriever for club use. The winch and retriever would be owned by the club and used by club members on a check-out basis. Will suggested tabling this idea and letting the board talk it over. The motion to table did not pass. Norm's motion

was amended to permit Norm to check out different winches and report at the next club meeting. The motion passed.

Curt Nehring mentioned that he would like to see shirts and jackets made for the club with the club logo, etc. screened on them. It was recommended that Dick Pantzar be used to do this if possible. Norm suggested getting the screens and making up our own shirts. Andy Sanders suggested bringing the screens to a meeting and making the shirts, etc. at the meeting. Dave Nemecek suggested going ahead with that idea and Frank said he would check out what could be done.

The meeting was adjourned at 8:30 P.M.

Don Edberg took over with a talk on new types of retrievers and a video presentation on the dangers of flutter in aircraft.

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## STRUCTURAL ANALYSIS FOR BEGINNERS

by Ben Clerx

John Ostrowski's excellent article on "Building a Strong Paragon" (March Plane Rap) made me think a bit about model airplane structures (which are the same as full-scale aircraft structures, bridges, cars, etc. in that they support loads).

No, this article doesn't require you to be an engineer or math major -- just a little common sense, a few tips, and learning to recognize "stress multipliers:" areas in construction that change from one type of material to another or any other major transition in the structure.

If you are building a Paragon, follow John's article. If you are building a Sagitta or Falcon or something else, talk to someone who has built one. They probably have a few tips (that's what model airplane clubs are for). Although most popular kits are well designed, some can be strengthened and improved. Take a look at the plans to see if you can spot areas in the structure that concentrate stress (flight and landing loads) in a relatively small area:

- o Strong wing center sections will have plywood doublers on the front and back sides of the spar and typically extend out about 8 inches. Make certain that the front and back doublers don't end at the same point. One of the doublers should be a few inches longer than the other to spread out the load.
- o Where plywood shear webs end and balsa webs start can be a source of failure. Extending the plywood webs out further on the wing doesn't add much weight. Another solution is to use thicker balsa.

## PILOT OF THE MONTH

(Editor's note: This month's pilot has requested that his name be kept a secret to protect his status in the F.B.I.'s witness protection program - he was instrumental in exposing the ring leaders of the infamous "balsa undercut ring" and fears for his life. We are honoring his request.)



- o Most built-up wings have shear webs that end at some point with the remaining 12 inches of wing tip having open spar bays (no shear webs). Although it may be plenty strong for flight loads, don't forget about landing loads (everybody eventually lands on a wing tip). Extend shear webs all the way out to the wing tip to reduce tip damage on landings.
- o Foam wings often have a strip of carbon fiber sandwiched between the upper and lower spar, and the balsa wing skin. Don't end the carbon fiber at the end of the spar (stress concentration). Run it out well past the end of the spar. The original Falcon 880 runs the carbon fiber a couple of inches beyond the spar, which still tends to concentrate tip loads in a small area. I suggest extending the carbon fiber at least 10 inches past the end of the spar, and perhaps even extend the upper piece a couple inches more than the lower piece for a smooth load transition.
- o Wood joints should be spliced at an angle instead of butt-joined wherever possible.
- o Brass tubes in wings (that accept the steel wing joiner rod) should be glued in with slow-cure epoxy, doubled on both sides with plywood doublers that have staggered length and wrapped with kevlar thread and epoxy.
- o Plywood fuselage doublers usually end just aft of the wing trailing edge. There is no law that says the left doubler can't be a couple of inches longer than the right one to avoid concentrating the tail boom stress at one point.
- o Add a plywood doubler or carbon fiber on the tailboom near the base of the rudder (fin) leading edge to prevent landing damage, particularly on t-tailed aircraft.
- o Servo cutouts in wings cause weak spots. Strengthen the surrounding area and make the cutouts round instead of square if possible.

The above examples are given to help you spot areas that concentrate stress. The object is to have a smooth transition from wing root to tip, wing root to nose, and wing root to tail. Also remember most sailplanes require useless nose ballast for c.g. control. Why not replace half that weight with a couple of layers of glass cloth in the nose, particularly at the forward end and aft corners caused by the canopy cutout -- it could save a broken nose next time you hit a gopher hole or make that 100 point landing. If this is your first or second plane, bring the kit to the field or club meeting for a few suggestions, it will be well worth your time.

Occupation: Professional, expert consultant specializing in spin-doctoring.

Started flying R/C sailplanes: In the old days, with a dude named Lilienthal, off of sand dunes.

First R/C sailplane: I'll let you know when I get one.

Favorite part of the hobby: Toss up between humiliating pilots at contests and developing creative ways to cause radio interference.

Goal for 1992: Break the winch line more often than Gordon Poulsen or Dick Pantzar.

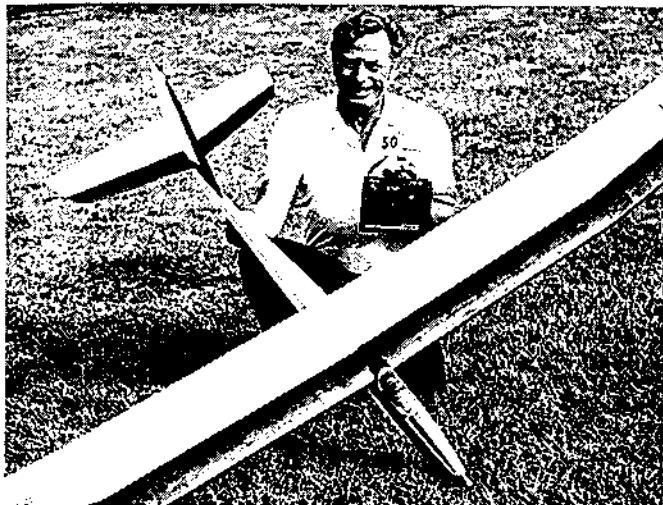
Current R/C sailplanes: A full-house, flaps and ailerons Paragon for competition, a molded-composite Wander for slope racing and a polyhedral Synergy for fun-flying.

Greatest flying strength: Probably a kevlar and brass covered carbon fiber rod.

Advice for beginning pilots: Do it your way, crash often, get discouraged and sell me all of your radio equipment cheap.

## KIT REVIEW - GREAT PLANES' SPIRIT 100

by Curt Nehring



Just recently, Ross Thomas and I completed a project and article for Bill Forrey and Model Builder Magazine. A Paul Carlson design, distributed by Great Planes, the Spirit 100 is a 100" standard class, all wood glider with 946 sq in, a flying weight of 50 to 65 ounces, and wing loading at approximately 8 - 10 oz per sq ft. The box contains "two" wing kits: a SD3010 polyhedral version with spoiler option, and a SD7037 aileron/flap configuration with CROW capability. We chose the latter.

Packaging is excellent, with wood stacked and rubberbanded, and miscellaneous hardware sealed in handy packets. The plans are printed on one large, detailed sheet. A 56 page instruction booklet contains thorough assembly explanations, interesting tips, and techniques on thermalling. A vacuum formed cockpit and clear canopy are also provided for the builder trying for that semi-scale appearance.

The tail is assembled from various lengths of 1/4" square balsa stock and is ready to sand in about an hour. The rudder is built up in the same fashion as the vertical stabilizer, but the elevator is pre-tapered solid balsa. Completed, the structure is extremely rugged.

The wing is two-piece. The inboard panels are D-tubed while the tips are a more traditional open construction. Aileron and flap stock is also pre-tapered and only requires a minimal amount of sanding. Compartments are built into each wing to house aileron and flap servos, sealed by 1/16" ply hatches. Basswood is used for spar material, cap strips are eliminated from the design, and the wing joiner is a functional yet rather

odd-looking thing featuring a pre-angled piece of aluminum sandwiched between several plywood laminations.

The fuselage is 'inter-locking jigsaw' technology integrated with a liberal application of doublers and triplers strategically placed from nose to tail. Interior dimensions are roomy, able to accommodate standard servos and a large ballast box included in the kit. Although the finished fuselage is quite substantial, we'd probably encourage taking the time to fiberglass it to take the sacrificial hammering of contest landings.

Ross made the first flight, a non-flap assisted launch followed by a light zoom. Shortly after turning upwind, the Spirit encountered some massive lift. Ross spent some time trimming the ship then re-entered the thermal and "sky-ed out" a few minutes later. The glider seemed well-behaved and refused to tip stall.

A few minutes later, a local police helicopter appeared approximately 2000 feet below us and although Ross did his best to fly stealthily, the Spirit was spotted, followed by the now-familiar "bullhorn" request to reduce our altitude. Ross applied full CROW, holding some down elevator, allowing the glider to descend most gracefully in what seemed to be almost slow motion. In less than two minutes, we were on the ground, having completed the first successful flight, about 15 minutes long.

Since that initial flight, several pilots have flown the Spirit and all seem to comment on how easily she flies. In my opinion, it flies with a bit more speed than my LJMP Pantera (E205 vs. SD7037?) and handles with more agility due to the aileron configuration. Stalls are gentle; the Spirit will just kind of "mush", with absolutely no tendency to tip stall. Here again, SPEED is the key. However, this sailplane slows to a creep when applying flap (or CROW) on final approach.

Great Planes has gone to some lengths in designing a quality standard class glider for a reasonable cost, while introducing the R/C soaring enthusiast to features that are rapidly becoming the criterion in modern performance parameters.

The Spirit 100 retails for \$99.95, but can be ordered through Tower Hobbies for \$69.99. Rumor has it that Bob Sliff has a 'connection', so try giving him a call at Hobby Horn - (714) 893-8311!! For additional information, contact Great Planes at PO Box 788, Urbana, IL 61801.

## POSTSCRIPT - POSTMORTEM!

By Pete Young/Associate Editor

Curt and Ross did a terrific job on their Spirit 100, and I was especially interested in their Vision setup. I have been flying

my Spirit 100 with poly/spoiler and flap/aileron wings, controlled by a standard Futaba non-computerized radio - the Spirit is very forgiving and flies well despite my "all thumbs" mixing. Although I flew Ross' plane just briefly, it flew much smoother and with much less effort with the following mixes: coupled aileron and rudder, landing flap/elevator compensation, and down-going flap to up-elevator in thermal flight.

Regretfully, and as witnessed by several HSSers three weeks ago, Curt's and Ross' Spirit suffered catastrophic wing failure during a hard zoom launch. This is the second Spirit 100 wing failure that I am aware of - Mort Sherman of North County Clouds reported a similar fate in the last NCC newsletter.

The problem is an abrupt mid main-panel stress riser at the termination of the plywood wing doublers, a structural design shortcoming. Curt has informed Great Planes of the incident, and it will be interesting to see if Great Planes takes corrective action. Curiously, in his Model Builder product review, Bill Forrey severely critiqued the 2 meter Spirit review for the 2M's similar stress riser lashup - a generic design flaw!

Curt is rebuilding the Spirit, extending the kit's ply doublers a few bays and adding carbon fiber reinforcement. With these modifications, their Spirit should be capable of Gnome-like launches!

After talking with Curt, I have retro-fitted the following mod to my Spirit wings. My launches are much less aggressive than Ross', but I wanted to eliminate the stress risers. Entering from the bottom of the wing panel, I removed two rearward facing shear webs and filled the previously hollow spar cavity with hard balsa, 2 bays worth. New shear webs were then fitted, and the Monokote replaced. This should help - stay tuned!

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## PATCHING GLASS AND EPOXY FUSES

by Pete Young

After two years of continuous contest flying, Brett's LJMP Meteor fuselage was beginning to show signs of wear. At first, we ignored the warning signs, but they don't get better with time: fatigue cracks develop ahead of and behind the wing junctions, caused by many spot landings! "Quick and dirty" fixes were tried with absolutely no success - concoctions of 5 minute epoxy, c/a, microballoons, Kevlar, and fiberglass. The only solution left untried was to overwrap the entire fuselage with an "Ace bandage" of fiberglass or Kevlar, and the results look as ugly as it sounds.

After consulting with other members of the Capital Area Soaring Association, we implemented the following solution. Using a Dremel drum sander, we ground out the offending fatigued areas. I have to admit, grinding sizable holes in the fuselage makes you stop and think before you act!

The resulting openings, ellipsoid or oval shaped, should have bevelled edges through the epoxyglass skin. All fatigued material should be removed! Several layers of three to four ounce fiberglass cloth should then be applied using slow-cure 2 part epoxy, not c/a. To ease final sanding, I mixed microballoons into the final layups.

After the epoxy has cured, the patched areas are sanded to remove excess glass and epoxy, taking the final surface down to the original contours of the fuselage. After priming and painting, the patched areas are indistinguishable from the surrounding areas! Furthermore, the patched areas did not develop any fatigue cracks in over two more years of flying! Now if only our Meteor hadn't mid-aired Frank's Legend last fall...

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## APRIL CONTEST

Contest Director: Pete Young  
Location: Fairview Park, Costa Mesa  
Date: April 5, 1992

Format: 3 rounds, 15 minute add-'em-up, 9 minute maximum flight time, 2 minute minimum flight time. Whole minute scoring only. Flight order will be determined by the CD at the contest.

Landings: runway center line scored at 100 pts.

Time: Pilot's meeting at 8:45 A.M., First round at 9:00 A.M.



## SETTING UP THE AIRTRONICS VISION 8SP

by Tim Renaud

continued from last month

Change the number in the adjustment until one of the ailerons moves the desired amount when you flip the Flight Mode Switch to the Reflex position. With the Switch still in the Reflex position, go back to the Menu item which will adjust the amount of Camber mixed into the other aileron and adjust it until the second aileron moves the same amount as the first. Then go and adjust the amount of Camber mixed into the flaps until the entire trailing edge moves the same amount when the Flight Mode switch is activated. Go down the items in the Mixer Gains Group and set up any other mixing you wish to use.

The final portion of the setup is the Presets and Dual Rates, which are fairly straightforward. The biggest word of caution here is if you don't plan to use it ZERO IT OUT. If there is a zero value in any Preset you don't plan to use, you avoid the danger of an unfamiliar switch getting bumped and causing wild trim changes in your plane. Surprises like that none of us need, so zero the ones you aren't using. The same goes for the dual rates. When I'm first testing a plane, I usually set the Rates to about 75% so that I will be able to calm things down if the controls prove too sensitive on the test flights. But once I have determined the proper amount of throw, I use my throw adjustments to set the throws and get the Dual Rates back to 100%. That way if the Rate switches have been accidentally bumped you won't get any nasty surprises.

To give you an idea of what I am currently using for thermal flying, the following are the Vision features which I use for my Legend. 2A 2F E R Template, Side Spoiler, Landing Mode Disable Camber, Landing Mode Go to Hi Aileron/Rudder Mixing, Launch Mode Go to Hi Aileron/Rudder Mixing, Aileron/Rudder Mix 1, Aileron/Flap Mixing, Crow Mixing, Camber Mixing, Up Elevator to Camber Mixing, Flap to Elevator Mixing, Camber Reflex Preset, Camber Launch Preset and Flap Launch Preset. If it isn't mentioned on this list, I'm not currently using it. I haven't given any values or surface settings since those will vary from plane to plane depending on the design and the mechanical settings of the linkages.

Hopefully going through the sequence outlined above will make it a bit easier for the new Vision owner to set up his plane and perhaps help any Vision user from falling into some of the traps that are hidden in the Vision program. If you hit a wall and get stuck, the best approach is to backtrack through the program and look for one of the automatic functions which is either turned on or off. And when all else fails, call the manufacturer!

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## CONTEST CALENDAR

April 5	HSS Club Contest CD: Pete Young
April 26	SC2 D.U.S.T. (Indio)
May 2 - 3	Astro-Flight Electric Champs HSS Host Club
May 17	HSS Club Contest CD: Curt Nehring
May 31	SC2 N.C.C.
June 7	I.S.S. Hand-Launch Contest
June 14	HSS Club Contest
June 28	SC2 T.P.G.
July 5	HSS Club Contest
July 26	SC2 H.S.S.
August 9	HSS Club Contest
August 16	SC2 P.S.S.
September 6	HSS Club Contest
September 27	SC2 I.S.S.
October 3- 4	Visalia Fall Soaring Fest.
October 11	HSS Club Contest
October 25	SC2 S.W.S.A.
November 8	HSS Club Contest
November 22	SC2 T.O.S.S.
December 6	HSS Club Contest

### APRIL SC<sup>2</sup> CONTEST

As of the publication of this newsletter, DUST had not provided any information on the April contest. Club members are encouraged to check with the club competition coordinator or DUST for details on the April 26 contest.

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## VIDEO LIBRARY

RC Video Magazine (Vol. 7 - 1986)  
Striking Back \*\*\*\*  
Foam, Fiberglass, Flight \*\*\*\*  
Tournament of Champions (1988)  
Monokote 1&2, Interesting \*\*\*  
MIG Killers \*\*\*  
Hook Down, Wheels Down, Naval Aviation history \*\*\*\*  
F3E Bridgeman's Plane  
Electric Flight  
Dawn Patrol, WWI movie \*\*\*\*  
Thunderbolt, Fight for the Skys, WWI air combat \*\*\*\*\*  
F3E USA Finals, June 22, 1988

Number of \* indicates reviewer's opinion of the tape. More tapes are being added all the time. All tapes are VHS format. Ask at the club meeting for information on borrowing a tape.

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## SWAP SHOP

Two Airtronics Vanguard 6 channel FM transmitters (1991 gold) with dual-rate settings. Includes matching receiver crystals. No receivers or servos. \$55 each O.B.O. Call John (714) 847-4871.

Oly II, ready to fly, \$175, Includes Futaba radio NOT 1991 but can be converted. Can be converted to electric flight. Ready to install Astro Flight 05 geared system. Bonsai, Aileron trainer. Install your radio and go. \$20. Call Brian Tinkler (714) 898-0167

14 ft. original -design sailplane, rudder/elevator/wingeron controlled, \$240. Complete, ready to fly with Futaba 4-channel Conquest TX (1991 gold), RCD receiver; \$150 less radio. Call Pete (714) 892-3473

WANTED: Used Pantera, Cumic + or Sagitta 900 (polyhedral version), less radios. FOR SALE OR TRADE: Partially built Bob Martin Coyote slope plane, \$50 or trade for used 2M Gnone or Sagitta 600. Call Curt (714) 592-2105

Place your ad in Swap Shop for the low, low price of FREE to H.S.S. members. Send your written ad to the editor at 8902 Lawrence Ave. Westminster, CA 92683 by the 15th. of the month. Ads must be renewed on a monthly basis.

## EDITOR'S NOTES

For those of you wondering why the newsletter looked a little different for the past two months, I had back surgery in January and could not sit at a computer keyboard. During that time Pete Young, who does most of the typing for the newsletter normally, took over and produced two outstanding issues. It takes a great deal of time and effort to produce a newsletter with as much editorial content as we have. Pete is to be roundly commended for a job more than well done.

*Caveat Emptor* is a phrase that has been on my mind lately. I've had two rather disappointing experiences with sailplane kit manufacturers recently that should be commented on. I realize that most of the manufacturers in our hobby are garage-style operations but even that does not excuse some behaviors. Several months ago I ordered a Falcon 880 kit from Flite Lite Composites, even sending a check. The order was placed in August, the check cashed in November and the kit delivered, under threat of a mail fraud complaint, in January. I thought that was pretty bad for a company that regularly advertises its products until I got a phone call from Weston Aerodesigns a couple of weeks ago telling me that a Fun I ordered last March was almost ready! Eleven months for delivery? Give me a break. I guess there are two points I want to make here. First, if you are a kit manufacturer, don't advertise what you can't deliver. All you are doing is tying up peoples' money and trashing your own reputation. Second, if you are going to order a kit, get some info on the product, get a firm delivery time and demand they meet it. The only way we can insure responsibility among manufacturers is to demand it. For myself, it will be a very long time before I deal with either of those companies again.



Ben suddenly realized why noone else could find any thermals!

(photo by George Clarke)



**THE OLDEST CHARTERED  
SOARING CLUB  
IN THE  
A.M.A.**



**CHARTER # 128**

## APRIL MEETING

**DATE: WEDNESDAY, APRIL 1,  
1992 AT 7:30 P.M.**

**LOCATION: CLUBHOUSE AT  
LAKES AT SEABRIDGE CON-  
DOS. SEE MAP AND INSTRUC-  
TIONS INSIDE.**

**TOM PILS FROM TPP PROD-  
UCTS WILL DISCUSS HIS NEW  
SAILPLANE KITS.**



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