

Harbor Soaring Society  
P.O. Box 1673  
Costa Mesa, CA 92626



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## PLANE RAP

# The News Letter of the Harbor Soaring Society

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**"The Oldest Chartered Soaring Club In the AMA"**  
**Charter # 128**

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### January 1997

- Wed, Jan 8th** HSS General Meeting at Hobby Shack, FV. Group discussion for the R/C Glider Beginner. Bring a friend who is interested in starting out in R/C Soaring!
- Sunday, Jan 12th** First HSS Club Thermal Duration Contest of 1997. The new year starts with a resolution to fly more HSS Contests!

**LAST PLANE RAP ISSUE! RENEW HSS MEMBERSHIP NOW!**

# -HSS Plane Rap-

January 1997

The monthly newsletter of the Harbor Soaring Society, an non-profit organization committed to promoting and improving the enjoyment of R/C soaring in Orange County.

## Harbor Soaring Society Board Members

President: Roger Lackey  
Past President: Matt Forquer  
Vice-President: Lyndon Johansen  
Secretary: Roger Saville  
Treasurer: Steve Hendry  
Contest Director: Rick Briggs  
General Director: Lars Tuohino  
Newsletter Publisher: Will Conrad

## HSS Coordinators

Field Maintenance:  
Dick Pantzer  
Librarian:  
George Azvedo  
Winches:  
Dick Pantzer  
Karl Hawley  
Steve Hendry  
Ross Thomas  
Scorekeepers:  
Maxine Thomas  
Mike Aguirre  
Electric Coordinator:  
Brian Buass  
Slope Coordinator:  
Dave Sanders  
Scale Coordinator:  
?  
Handlaunch Coordinator:  
?  
Club Trainer:  
Roger Saville

HSS is a all volunteer organization.

## RAJA'S RAMBLINGS

How the heck did this happen. I woke up one morning and whammy.. .....I'm the President again. Next Christmas party I think I'll leave the Pete's Wicked Ale to someone else.

Anyway, I'm excited about the coming year. I think we've got a terrific Board to help direct things and with input and participation from all of you 1997 will become a year to remember.

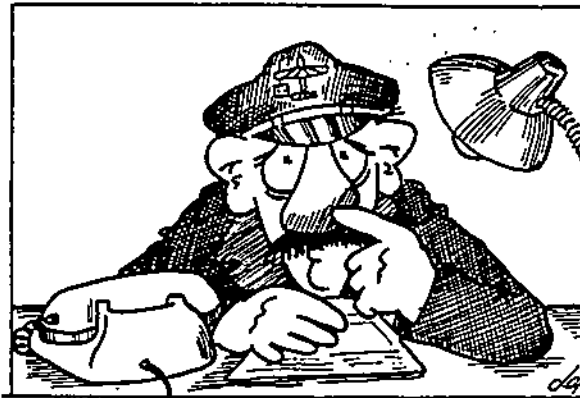
Thank you Matt and your capable board of last year for all your hard work. While I may not have been out at the field as much last year, I heard and saw nothing but good things from your team.

Several issues will need to be addressed this year, the on-field container, the cities plans for the park and increasing participation just to name a few. The board will have met by the time you read this so the planning has already begun. What we will need now is for everyone to contribute with their special talents to insure a successful and fun year of flying. If you take a look to the left you'll see that a diverse group of volunteers has already been assembled but that by no means that the job is done. In making your New Years Resolutions keep a special in mind to help the club become even better than it is.

RAJA

# General Directions

By Lars Tuohino



Cool Holiday Party, eh? Did you ever meet a greater (or lesser) guy than Squatty Short-Flight? While he generally makes a flying pig of himself, he sure knows a great time when he sees it. And HSS was havin' a good time that night! Music by the Johansen family, the "Who is HSS" mixer which Marye Hutch dreamed up, LSF recognition and HSS Awards by Matt Forquer and Mike Agurrie, Roger Lucky's return as HSS President, Santa Hendry's Zoomit kits, HSS doorprizes, Will Conrad's gift to the ladies...great food, drinks, and *soaring gemuetlichkeit*. Thanks to all who joined us at The Barn Steakhouse and especially also Hobby Shack, Brian Buass and Dave Sanders for the kits donated as doorprizes.

## Storage Container

Guess what soaring club now has the legal right to put a storage container by the fence at Fairview Park? Call it another goal for HSS! Now we just got to figure which box configuration to get, build a rock foundation per Costa Mesa spec, buy a lock, and call for delivery! This is the part I need help with. I'll admit to alot of things but *an injuneer I is not*. I need to turn the ball over to someone/group that is on top of those subjects otherwise it will sit undone. Who wants to help?

## Beginners at HSS

This is the time of year that Santa drops off those new Explorers and EZ Answers under the holiday tree. So keep your eye out and help out however you can in a positive way. This hobby needs new members or it will disappear soon. Remember the first thrill you had wasn't with the latest equipment done the "right" way, but with the first rush of watching something you assembled twitch when you moved the stick the first time. Make that the moment they remember! Then probably the nicest thing is the first time to go home with the plane in one piece so that the nighttime imagination then can really take off... If you don't wish to help them then direct them to someone who can. January's HSS meeting is dedicated to the beginner. Come to the January HSS meeting with a smile.

## What's Important To HSS?

This was the last question on the membership renewal application, but don't let your thoughts linger too long on it because the most important thing to do is to pay your membership dues ASAP! Just doing so supports everything we are doing at HSS. Don't delay, do it today!

*"HSS Is Orange County R/C Soaring"*

The following article has been copied from the "TORREY PINES GULLS" newsletter.  
I hope you find it informative! Will Conrad - Publisher

## Internet Connection

The Internet Connection is a column that brings some of the more interesting "postings" that appear in various formats on the Internet, one such format being the Radio Control Soaring Exchange (RCSE). I hope you find this column interesting and informative.

### Editors Note:

Don Ayers lives and flies in Pacific Palisades, CA. When he is not f

lying at the local slope site, Don enjoys designing planes and airfoils on his computer. He recently designed four new "sport" airfoil sections, which were published in the September 96 issue of SAILPLANE MODELER magazine (Vol.2 No.1.). Don wrote this piece in response to a question posed to the readership of RCSE, an internet list server focusing on radio controlled sailplanes, regarding the use of dive tests to "tune" C.G. location.

After reading it I thought that you too might like to learn a thing or two as did I. So, with Don's permission, I present this to you for your reading pleasure and edification.



### *Dive Testing, C. G., and Balance in Laymen's Terms.*

Don Ayers

It is "normal" to have the C.G. too far forward because kit manufacturers think that extra stability is better for a new plane/new flyer than a "neutrally balanced" plane. But, just because it is "normal" to specify a nose-heavy C.G., this doesn't mean it is a good idea for everyone, or the best place to balance your plane!

Let's imagine that your glider's wing produces all of its lift at a single point. Then, hang the glider from a string attached at this point. If the C.G. is also located at this point, then the plane will hang level. If the C.G. is located forward of this point, then the plane will hang nose-down, and vice-versa for a C.G. aft of this point.

When sitting on your workbench, the plane will balance level when supported from underneath on the C.G. However, in flight, the plane balances on the center of lift, which is where we attached our imaginary string. The "up" force is centered on our string, and the "down" force is centered on the C.G.

Simply put, if the area of the plane forward of the center of lift weighs more than the area aft of this point, the plane will "tip down" unless the tail produces a down force equalizing the extra weight of the forward area.

The distance between the C.G. and the center of lift

locations is called the "static margin". The larger the static margin, the more nose-heavy the plane, and the more down-load required by the tail to maintain level balanced flight. Since the airspeed of the plane will determine the amount of down force created by the tail, a nose-heavy plane "wants" to maintain a specific airspeed which results in level flight, and at each elevator trim selected.

Why? Because at lower-than-trim airspeeds, which create insufficient aerodynamic down-load on the tail, the nose will drop, so the plane dives & speeds up until the air pushes the tail down sufficiently that a level balanced flight attitude is achieved.

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*"the most in-depth and informative disertation on balance and CG's I've ever read".*

*. Daryl Perkins*

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At higher-than-trim air-speeds, which create excessive aerodynamic download on the tail, the tail will be pushed down, so the plane climbs and slows down until the tail's down force is reduced to the same correct amount for that elevator trim setting, and level flight is achieved.

With a nose-heavy glider, all of this balancing of forces and speeds occurs automatically without any input from the pilot. If the plane is excessively nose heavy, and a large download is required by the tail, then the plane may oscillate up and down, or "porpoise", as it desperately tries to equalize all of the strong forces necessary for level flight in changing air conditions!

When the tail is set to the high

negative angle of attack required to offset an excessively nose-heavy C.G., each tiny gust of wind will add to the tail's download and significantly depress the tail, causing a climb. This in turn slows the airspeed, decreasing the force on the tail; the nose then drops, increasing airspeed, and the process repeats ad nauseam.

The pilot must cancel this perpetual "porpoising" by counteracting the dives & climbs with the elevator, and carefully maintaining a level flight attitude, until the next airspeed change is encountered.

However, as a smaller static margin is selected, and your glider becomes less "nose heavy", a wider range of airspeeds is possible at each elevator trim setting without the plane diving or climbing! This is particularly important on a beginner's "floater" plane. With a supposedly "conservative" nose-heavy C.G., the plane may be nearly impossible to fly simple "figure 8s" in typical conditions without severe up & down pitch changes, which will be frustrating and counter-productive to the new pilot.

So, the instructor should test-fly the beginner's plane, and adjust the C.G. until "figure 8s" can be easily performed without wild pitch changes caused by headwind/crosswind/tailwind transitions or speed changes resulting from rolling in and out of turns.

If a glider is balanced "neutrally" so that the C.G. and the center of lift are in the same location, then no download is required by the tail surfaces. The plane flies like an arrow, with the tail feathers producing no significant forces.

However, in real life, nothing is this simple! Depending on many design factors, even when a plane's C.G. is moved as far aft as possible for controllable flight, the center of lift *"MAY"* appear to shift aft as the airspeed increases, which then requires a

down load on the tail plane to maintain level flight, just as if the plane was nose heavy! Due to this apparent shifting of the location of the sum of lift forces as speed increases, it may be impossible to select one C.G. position which is truly neutral at all speeds.

So, to put all of this in a practical form, the more weight placed in front of the center of lift, the more down-load is required of the tail to maintain level flight. If the weight is excessive, then a single airspeed and level attitude may be difficult to maintain, as changing wind directions and

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***If the C.G. and the center of lift are in the same spot, the plane is considered "neutral", and a wide range of air speeds are possible with a single elevator trim setting.***

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gusts will have a significant effect on the negative angle-of-attack negative-lifting tail, as compared to a neutral "weightless" tail which requires no negative A.O.A. (angle of attack) at all.

If the C.G. and the center of lift are in the same spot, the plane is considered "neutral", and a wide range of air speeds are possible with a single elevator trim setting. However, it is now the pilot's responsibility to maintain the desired flight attitude, as the plane will not automatically pull out of dives or ease out of climbs, since the "neutral" tail plane is no longer strongly affected by airspeed changes. "Hands-off" stable flight has disappeared!

Lastly, if the plane is "truly" "tail-heavy" (most never are), it will be uncontrollable, and will require wild elevator inputs to raise & lower the heavy tail prior to the inevitable hard landing/crash!

A very quick explanation and

instructions for the "dive test":

This test is simply intended to perform a wide speed envelope on a glider, and evaluate any resulting changes in horizontal stabilizer loading as speed changes. Since our gliders are non-powered, the only practical way to change speeds significantly is by diving and climbing. We are ignoring any theoretical lift/gravitational vector changes caused by different flight attitudes.

The dive test is best performed when there is above-average lift. On marginal days, you will find it difficult to trim for a medium-speed glide, since this results in altitude loss; plus, the dive test may require more altitude loss than is desired to keep the plane in the lift band.

First, trim your glider for hands-off medium-speed level flight. If you are flying on a slope, this would be the speed which keeps your plane at eye-level with no elevator inputs required to maintain altitude. For example, let's call this 20 mph. Fly around for a few minutes at eye level until you are positive you have found the best "hands-off" trim.

Second, hold back on the elevator stick (do not re-trim!) to maintain an efficient slow climbing flight, and obtain the maximum altitude possible.

Third, orient the plane directly into any prevailing headwind, while holding up-input on the elevator. "Hover" the plane in a spot that allows you to see the angle of the forthcoming dive.

Fourth, push the elevator down, and hold the glider in a dive, between 30 & 45 degrees, for several seconds, until the estimated airspeed is at least double (40 mph) that of the previously-set trim speed; triple (60 mph) is even better.

Fifth, briefly and smoothly release the elevator stick, and watch the glider for any tendency

*I consider a plane's C.G. perfect when an extended 45 degree dive results in a very slow "hands-off" pull-out at very high speed.*

to pull sharply out of the dive (nose-heavy), maintain the same dive angle (neutral), or tuck-under to a higher dive angle (tail-heavy). Bring the glider in for a landing, and make any appropriate changes to the C.G. to achieve the desired result; re-test until the performance matches your goal.

For those who are overly-concerned about the vector of the plane during the dive affecting the result, you can first pull out of the dive into high-speed level flight, and then release the stick and observe the results as above. Remember, we are only trying to

examine the forces on the tail plane at a wide range of airspeeds, not throw the "monkey wrench" of gravitational vectors into the test!

I consider a plane's C.G. perfect when an extended 45 degree dive results in a very slow "hands-off" pull-out at very high speed. If the plane shows NO tendency to pull out, this could still mean that it may tuck-under unexpectedly when speed exceeds your maximum tested speed. This can be disastrous!

Many dive tests \*apparently show\* the glider to be very nose-heavy, when it performs a nice "hands-off" inside loop at the base of the high-speed dive! Just remember that if you have mistakenly pre-set a "slow-flight" rather than a "quick-flight" elevator trim at the start of the dive test, you will not achieve any useful results, since a plane

trimmed for slow flight will likely loop out of any dive possible, regardless of the C.G. location. You may want to skip the test, and re-try on a better lift day when a fast trim can be easily pre-set on the elevator.

Sorry this is so long! I hope I have helped explain in layman's terms why the C.G. location is important on a glider, why it affects flight as it does, and how to evaluate and adjust the C.G. by using the dive test. My apologies to you aeronautical engineers, for any poetic license employed in my attempt to simplify a complicated phenomenon!

Good Flying!

Don Ayers

15237 Sunset Blvd. #70

Pacific Palicades, CA 90272

December Classic Contest

	NAME	SCORE	NORMALIZED	PLACE
1	ROSS THOMAS	1710	1000	1 ST.
2	BOB SLIFF	1125	658	2 ND.

December Open Contest 96

	NAME	CLASS	SCORE	NORMALIZED	PLACE
1	BEN CLERX	MASTER	2095	1000	1 ST. MASTER
2	MATT FORQUER	MASTER	2083	994	
3	LARRY TUOHINO	ADVANCED	2082	994	1 ST. EXPERT
4	TOM VINCENT	EXPERT	2081	993	2 ND. EXPERT
5	MIKE AGUIRRE	MASTER	2078	992	
6	STEVE HENDRY	EXPERT	2071	989	3 RD. EXPERT
7	FRANK CHASTLER	GUEST	2071	989	
8	ROGER LACKEY	MASTER	2053	980	
9	ROSS THOMAS	EXPERT	2051	979	
10	BILL DUNCAN	EXPERT	2002	956	
11	RICK BRIGGS	EXPERT	1984	947	
12	ROGER SAVILLE	ADVANCED	1966	938	1 ST. ADVANCED
13	ERIK MARCUSSEN	EXPERT	1942	927	
14	LARRY ENGER	EXPERT	1894	904	
15	JIM PARSONS	EXPERT	1894	904	
16	NORM KUTCH	EXPERT	1831	874	
17	WILL CONRAD	EXPERT	1768	844	
18	STEVE SCHUPAK	SPORTSMAN	1505	718	1 ST. SPORTSMAN
19	KARL HAWLEY	SPORTSMAN	968	462	2 ND. SPORTSMAN
20	CHRIS KENYON	SPORTSMAN	432	206	

	NAME	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	TOTAL
1	MIKE AGUIRRE	0	1000	0	1000	1000	1000	0	998	999	1000	1000	992	8989
2	MATT FORQUER	986	964	0	948	990	985	0	992	988	992	0	994	8839
3	ERIK MARCUSSEN	0	823	987	958	918	923		0	958	935	963	927	8392
4	RICK BRIGGS	1000	998	0	889	769	972	806		979	967		947	8327
5	STEVE HENDRY	0	0	0	979	954	869	905	945	844	921	916	989	8322
6	ROSS THOMAS	938	873	865	979	0	847	0	866	932	0	995	979	8274
7	BILL DUNCAN	752	0	935	981	0	806		835	970	993	856	956	8084
8	LARRY TUOHINO	945	882	895	839	800			921	973	0	740	994	7989
9	DAVE NEMECEK	924	848	990	833	620	957	1000			891	894		7957
10	TOM VINCENT	944	949	954	948	972				978				7671
11	NORM KUTCH	806	958	855	903	0	787		626		661	987	874	7457
12	ROGER SAVILLE		365	522	666	0	700		804	773	729	714	938	6211
13	JOE RODRIGUEZ	960	990	1000	920		966		960					5796
14	ROGER LACKEY	824						774	1000		930	997	980	5505
15	WILL CONRAD	655	648	757	892		851				744		844	5391
16	JIM PARSONS	677	568			618	761		845		804		904	5177
17	DAN FINK		686	550	960	616	673			991		376		4852
18	NICK BUZOLICH	637		792	677				880	934		821		4741
19	GEORGE AZVEDO	719	605	938		658	659		743			0		4322
20	AL CRON	644	576		847	633				922				3622
21	PAT STOKER	890	804		884	776								3354
22	LARRY ENGER		689		772		962						904	3327
23	BEN CLERX		975							1000			1000	2975
24	DON RAMSEY	670			873	573						794		2910
25	BOB POPE		756	853	707				530					2846
26	RANDY BRATRUJ				925		929		906					2760
27	DENNIS BRANDT		883	875						971				2729
28	STEVE SCHUPAK							223		850		908	718	2699
29	DICK PANTZAR		383		786		852		489					2510
30	BOB SLIFF	744	902	785										2431
31	CHRIS KENYON							302	493	863	460		206	2324
32	KARL HAWLEY							304			851	567	462	2184
33	ERIC THORNTON	900	513											1413
34	GORDON RITSCHKE		466		704									1170
35	DON EDBERG	925												925
36	RANDAL HOLZAPPLE		884											884
38	MARK NAVARRE										832			832
39	MARK PUCHALSKI										697			697
40	CHARLIE NEUMANN						234							234

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Hand Launch Gnome Kits at \$30.00 each. Updated kits available NOW.

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**DON'T FORGET-**

IMS Show at the Pasadena Center - 300 E. Green St. Open- Friday Jan. 17th-12 Noon to 6 PM- Sat. Jan. 18th-10AM- 6PM- Sun Jan. 19th 10AM to 5PM. Admission \$7.00

# BE THERE!

**JANUARY 12TH MONTHLY CONTEST  
BRING ALL AIRCRAFT READY TO FLY!**

**UNLIMITED**

**CLASSIC**

**2 METER**

**SEE YOU THERE!**



**HSS CURRENT MEMBER RENEWAL APPLICATION**

**Harbor Soaring Society**

AMA Chartered Club #128  
PO Box 1673  
Costa Mesa, CA 92628

I understand that by re-applying for full membership in the Harbor Soaring Society, I must be a current member of the AMA.

*(Please Print)*

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
CITY \_\_\_\_\_  
STATE \_\_\_\_\_  
ZIP \_\_\_\_\_  
HOME PH. ( ) \_\_\_\_\_  
WORK PH. ( ) \_\_\_\_\_  
AMA # \_\_\_\_\_  
DATE OF BIRTH \_\_\_\_\_  
(PROOF REQUIRED TO RECEIVE HSS MEMBERSHIP CARD)

*Optional Info:*

PRIMARY R/C FREQUENCIES \_\_\_\_\_  
E-MAIL ADDRESS \_\_\_\_\_  
SPECIALS SKILLS \_\_\_\_\_  
LSF LEVEL \_\_\_\_\_  
YEARS in HSS \_\_\_\_\_  
OCCUPATION \_\_\_\_\_

*Annual Dues attached:*

SENIOR MEMBER.....(17 years and older) = \$20.00  
JUNIOR MEMBER.....(16 years and under) = \$10.00  
FAMILY MEMBER.....(At same address) = \$ 5.00

A signature is required by all Harbor Soaring Society members, agreeing to comply with the current AMA Safety Code and the current HSS General Field Rules and Field Safety Rules.  
The undersigned attests that: I will operate my model using only radio control frequencies currently allowed by the FCC. Further, any transmitter that I use at any designated HSS flying field must have a certified R/C-AMA gold sticker affixed indicating that it was manufactured or modified for operations at 20 Khz frequency separation. I understand that my failure to comply with the above restrictions will result in nullification of liability coverage for damages caused or claimed.

SIGNATURE \_\_\_\_\_  
TOTAL DUES OWED AND ATTACHED \$ \_\_\_\_\_  
SIGNATURE OF CLUB OFFICER RECEIVING APPLICATION \_\_\_\_\_  
DATE \_\_\_\_\_

**-PLEASE COMPLETE THE OPTIONAL SURVEY ON THE OPPOSITE SIDE-**

*"HSS Is Orange County R/C Soaring"*

## HSS 1997 Member Survey

The following survey helps insure HSS stays focused on the needs and concerns of club members. Completion is not required for renewal of HSS membership (other side of this page). Answer as much or as little as you wish. Send in a photocopy if you wish to remain anonymous. But please take a moment to complete!

1. How long have you been actively flying R/C model gliders? \_\_\_\_\_
2. Are you a "competition oriented" flyer? (yes, no, or.....) \_\_\_\_\_
3. In general, what kind of R/C glider flying are you interested in? (check one box per category)

Thermal for Fun	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thermal Contests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slope for Fun	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slope Contests	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Scale Gliders	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Handlaunch	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electric Soarers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Electrics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
(Un)Power Slope Scale (PSS)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Slope Combat	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

↑ Primary Interest  
 ↑ Secondary Interest  
 ↑ Would like to try  
 ↑ No Interest at all

4. What other hobbies do you have? \_\_\_\_\_
5. What was for you the "best of HSS" in 1996?
6. What was for you the "worst of HSS" in 1996?
7. What could be done to improve the flying field?
8. What could be done to improve the newsletter or club meetings?
9. What could be done to improve contests?
10. Finally, overall, what should be important to the club?