

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



## FIRST CLASS MAIL

WILL CONRAD  
9359 SHRIKE AVE  
FOUNTAIN VALLEY , CA 92708



### (The Soaring) Society Column

President:	George Joy	(714) 556-6385
Vice Pres:	Rich Garner	(714) 526-6734
Secretary:	Dave Nemecek	(714) 839-4317
Treasurer:	Frank Chasteler	(714) 545-2185
Contest Coord:	Ross Thomas	(714) 638-0705
General Dir:	Jared Stalls	(714) 722-1846
News Letter Ed:	Bob Sliff	(714) 895-1203

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

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May 1990

Volume 27 Number 5

**May Club Meeting:** The May club meeting will be held on Wednesday, May 2, 1990, 7:30 pm at the Consolidated Water District Office, 1965 Placentia Ave., Costa Mesa, Ca. The Monthly club contest will be on May 6th, field conditions permitting.

Cliff Wierick, from Airtronics, will be the guest speaker. He will be speaking about radios and frequencies for 1991. Bring your questions.

**June Club Meeting:** The June club meeting will be held on Wednesday, June 6, 1990 at 7:30 pm at the Water District Office.

## HSS APRIL 90 MEETING MINUTES

The Meeting was called to order by the President at 7:30 P.M.

1. **New Faces:** Kirt Newring was introduced to club members.
2. Dave Nemecek has volunteered to fill the secretary position. The board has approved his offer and he will now be our new secretary. Thanks Dave!
3. Frank Chasteler read the Treasurer's report and it was approved by members present.
4. Contest Coordinator, Ross Thomas, is still looking for CD's for our monthly contests. Please see Ross if you are interested.
5. There is a change for last month's minutes. Change Bill Morrey to Morrey Smith, this change was approved by the members present.
6. V.P. Rich Garner commented about winch safety. When you are working on a winch make sure you unplug the foot pedal.
7. Rich also reported on the Master's contest held at SWSA in March.
8. **\*Note:** Rich has all of the club's videos plus some that aren't listed. See him if you would like to check them out.
9. The Pasadena Soaring Festival will be on the 27th and 28th of April.

### Old Business:

1. Frank Chasteler reported that all of our carpet at the field will be removed. It was noted that in Phase II there will be grass in our landing areas. (Refer to areas B, D, and the Impound area on the "General Field Rules" map.)
2. Will Conrad reported on the Scouting program; no prospective scouts showed up at the first meeting.
3. George Joy gave a report on the Board Meeting. There will be vinyl fabric panels in the Impound area for our radios after the carpet is removed.
  - a) He also read a letter from the city stating that our proposal for a storage facility is not acceptable. Later, in Phase II, there may be a facility for some storage.
  - b) Our field committee will look into getting a key to the school's restrooms for our weekend use.
4. An addition to the field safety rules in regards to flying in the vicinity of full sized aircraft was approved.
5. With the addition of Club Policies appended to our Constitution and Bylaws, submissions can be made at any time. If you wish to submit any proposed Policies, please do so in writing to any board member.
6. A club policy regarding Lifetime Membership or commendations was discussed and the board will consider the requirements for these. The basics will be that any member can submit his proposal in writing to any board member. The Board will then consider the proposal and make a ruling.
7. Radio Impound Rules. Rule number 1 has been changed slightly, and a twelfth rule has been added. A motion was made to approve these changes in the radio and field rules. This motion was approved by members present.

New Business: None.

A motion was approved to adjourn the meeting at this time.

Jared "Tip" Stalls, Acting Secretary.

## THE HSS VIDEO LIBRARY

**The following club owned videos are available for viewing.**

Name .....	Comment .....	Rating (0-5)
Saber Jet .....	F-86 History/shoot-em-ups ..	4
Striking Back .....		4
Foam, Fiberglass, Flight .....		4
First Flight .....		0
Monokote 1 & 2 .....	Interesting .....	3
MIG Killers .....		3
Hook Down, Wheels Down .....	NAVY Aviation Hist .....	4
F3E USA Team Selection 1988 .....	Elect flight .....	none
Dawn Patrol .....	WWI Movie .....	4
Thunderbolt, Flight For The Skys .....	WWI Air Combat .....	5

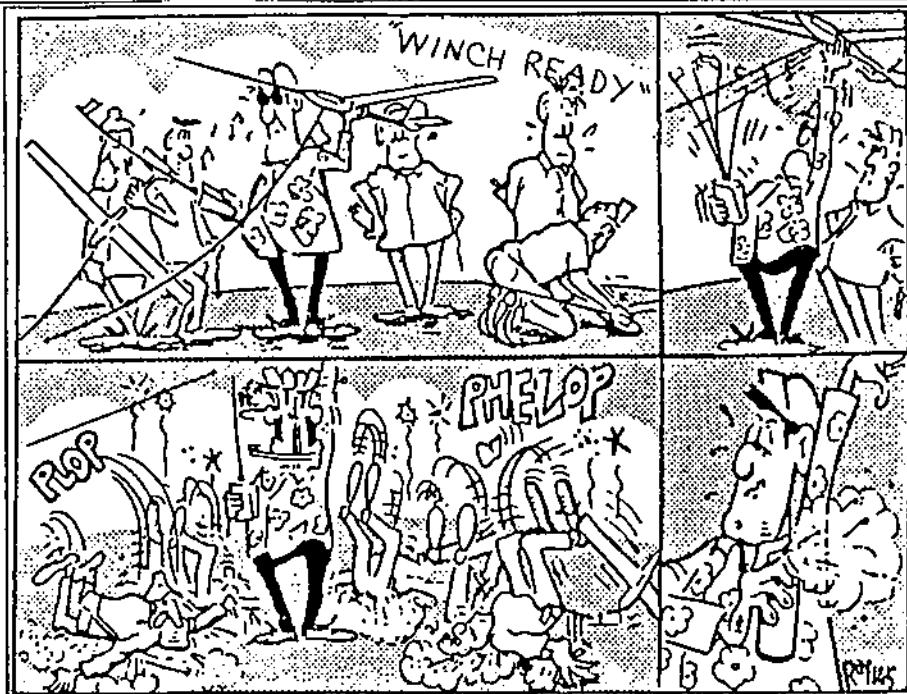
More tapes are being added all the time. All tapes are in VHS format. For information about the tapes ask at the next meeting. (ed.)

## HSS 1990 CONTEST SCHEDULE

MAY 6 .....	HSS CLUB CONTEST*
MAY 19-20 .....	ASTRO FLIGHT ELEC. CHAMPS
MAY 27 .....	SULA SC2 CONTEST
JUNE 1-3 .....	F3E TEAM SELECTION FINALS
JUNE 10 .....	HSS CLUB CONTEST*
JUNE 17 .....	PSS SC2 CONTEST
JULY 1 .....	SC2 LEE RENAUD CONTEST
JULY 7 & 8 .....	DAVENPORT SLOPE RACE
JULY 8 .....	HSS CLUB CONTEST*
JULY 29 .....	TOSS SC2 CONTEST
AUG 5 .....	HSS CLUB CONTEST*
AUG 26 .....	NCC SC2 CONTEST
SEP 9 .....	HSS CLUB CONTEST*
SEP 30 .....	HSS SC2 CONTEST
OCT 14 .....	HSS CLUB CONTEST*
OCT 28 .....	SWSA SC2 CONTEST
NOV 11 .....	HSS CLUB CONTEST*
NOV 18 .....	DUST SC2 CONTEST
DEC 2 .....	TORREY PINES SC2 CONTEST
DEC 9 .....	HSS CLUB CONTEST*

### THE MAY CLUB THERMAL CONTEST, JARED STALLS, CD.

The event will be a 15 minute ADD-EM-UP, no flight over 7 minutes, landing on the exact minute  
 Landings will be 0 to 100 points, but a half circle towards the pilot.  
 Pilots meeting at 8:45 with first flight at 9:00.  
 Open flight order.



One Hot Day On the Flight Line  
 (Thanks to the White Sheet!)

## Harbor Soaring Society

### April Monthly Contest Results

#### Open Division

	Name	Actual Score	Normal Score	Class	Trophy
1	JOY, G	2,930.0	1,000.0	E	E-1
2	GARNER, R	2,901.0	990.1	E	E-2
3	GERBIN JR, R	2,884.0	984.3	E	E-3
4	WHITE, L	2,876.0	981.6	E	
5	SANDRONI, H	2,868.0	978.8	A	A-1
6	HENDRY, S	2,857.0	975.1	A	A-2
7	DURHAM, J	2,851.0	973.0	E	
8	STOWERS, R	2,826.0	964.5	G	
9	NEMECEK, D	2,758.0	941.3	A	
10	STALLS, J	2,757.0	941.0	A	
11	BRANDT, D	2,753.0	939.6	E	
12	THOMAS, R	2,751.0	938.9	E	
13	ZINK, D	2,719.0	928.0	E	
14	AMIES, J	2,679.0	914.3	A	
15	STOWERS, T	2,634.0	899.0	G	
16	FINK, S	2,608.0	890.1	A	
17	KUTCH, N	2,509.0	856.3	A	
18	LONG, D	2,496.0	851.9	G	
19	HENDRY, M	2,461.0	839.9	S	S-1
20	COLLETT, M	2,316.0	790.4	S	S-2
21	JOY, B	2,263.0	772.4	S	
22	ANDERSON, V	2,216.0	756.3	S	
23	PARSONS, J	2,091.0	713.7	S	
24	BUZOLICH, N	2,028.0	692.2	S	
25	CHASTELER, F	2,028.0	692.2	E	
26	STOVALL, L	2,001.0	682.9	S	
27	LAWHEAD, G	1,824.0	622.5	S	
28	GIBBS, D	1,684.0	574.7	A	
29	GERMANE, B	1,462.0	499.0	S	
30	CONRAD, W	WITHDREW			
31	DE ROCCO, C	WITHDREW			

### Yearly Standings - Open Division Through April

	Name	Score	Average	Contests
1	ZINK, D	2,913.7	971.2	3
2	HENDRY, S	2,860.2	953.4	3
3	NEMECEK, D	2,833.6	944.5	3
4	WHITE, L	2,795.8	931.9	3
5	STALLS, J	2,754.3	918.1	3
6	KUTCH, N	2,696.1	898.7	3
7	HENDRY, M	2,692.5	897.5	3
8	THOMAS, R	2,622.4	874.1	3
9	JOY, G	2,559.3	853.1	3
10	GIBBS, D	2,479.6	826.5	3
11	BUZOLICH, N	2,240.2	746.7	3
12	STOVALL, L	2,141.4	713.8	3
13	PARSONS, J	2,137.4	712.5	3
14	GERMANE, B	1,981.9	660.6	3
15	GARNER, R	1,959.8	979.9	2
16	MARTIN, T	1,947.1	973.6	2
17	SLIFF, B	1,946.4	973.2	2
18	DURHAM, J	1,942.3	971.2	2
19	SANDRONI, H	1,939.9	970.0	2
20	PANTZAR, D	1,891.1	945.6	2
21	CRON, A	1,855.1	927.6	2
22	FINK, S	1,851.9	926.0	2
23	RICHARDSON, P	1,845.7	922.9	2
24	AMIES, J	1,802.5	901.3	2
25	COLLETT, M	1,706.6	853.3	2
26	CHASTELER, F	1,674.8	837.4	2
27	JOY, B	1,631.3	815.7	2
28	ANDERSON, V	1,581.1	790.6	2
29	LUPPERGER, J	1,000.0	1,000.0	1
30	RITSCHKE, G	998.3	998.3	1
31	BRATRUD, R	995.2	995.2	1
32	LAMPRECHT, D	993.2	993.2	1
33	GERBIN JR, R	984.3	984.3	1
34	BRANDT, D	939.6	939.6	1
35	MAHER, M	909.7	909.7	1
36	LAWHEAD, G	622.5	622.5	1
37	LOWERY, R	544.4	544.4	1
38	CONRAD, W	WITHDREW		1
39	DE ROCCO, C	WITHDREW		1

### April Monthly Contest Results

#### 2 Meter Division

	Name	Actual Score	Normal Score
1	DURHAM, J	2,888.0	1,000.0
2	WHITE, L	2,810.0	973.0
3	LONG, D	2,614.0	905.1
4	HENDRY, S	2,566.0	888.5
5	COLLETT, M	2,379.0	823.8
6	FINK, S	2,223.0	769.7
7	PARSONS, J	2,222.0	769.4
8	STOVALL, L	2,146.0	743.1
9	BUZOLICH, N	1,968.0	681.4
10	THOMAS, R	1,843.0	638.2
11	ANDERSON, V	1,758.0	608.7
12	KUTCH, N	1,653.0	572.4
13	JOY, B	1,580.0	547.1
14	JOY, G	1,553.0	537.7
15	ZINK, D	WITHDREW	

### Yearly Standings - 2 Meter Division Through April

	Name	Score	Average	Contests
1	WHITE, L	2,736.4	912.1	3
2	PARSONS, J	2,569.0	856.3	3
3	JOY, G	2,513.9	838.0	3
4	THOMAS, R	2,506.2	835.4	3
5	ANDERSON, V	2,446.5	815.5	3
6	STOVALL, L	2,417.3	805.8	3
7	BUZOLICH, N	2,194.0	731.3	3
8	KUTCH, N	2,076.4	692.1	3
9	DURHAM, J	2,000.0	1,000.0	2
10	STALLS, J	1,947.0	973.5	2
11	MARTIN, T	1,879.5	939.8	2
12	RICHARDSON, P	1,865.5	932.8	2
13	HENDRY, S	1,865.0	932.5	2
14	HALL, H	1,856.7	928.4	2
15	SLIFF, B	1,775.8	887.9	2
16	COLLETT, M	1,738.1	869.1	2
17	FINK, S	1,726.0	863.0	2
18	JOY, B	1,485.3	742.7	2
19	LAMPRECHT, D	954.0	954.3	1
20	HENDRY, M	935.8	935.8	1
21	LUPPERGER, J	889.8	889.8	1

**Note:** Matt Hendry will now move up to Advanced class with a first in Sportsman class.

SOUTHERN CALIFORNIA SOARING CLUBS  
 RESULTS OF ISS (SC)2 CONTEST OF 04/22/90  
 CONTEST DIRECTOR - MARK HIGGENBOTHAM

PL	NAME	CLUB	CLASS	SCORE	NORMALTROPHY
1	WURTS,JOE	TOSS	EXPERT	2945.4	E-1
2	VICKERS,DON	SULA	EXPERT	2920.4	E-2
3	SLIFF,BOB	HSS	EXPERT	2875.6	E-3
4	HENDRICKSON,ERIC	TOSS	EXPERT	2866.7	E-4
5	MORAN,MILES	TOSS	EXPERT	2866.1	E-5
6	SHELBY,RICH	SWSA	EXPERT	2846.9	S-1
7	HOLLEY,MARY	SWSA	SPORTS	2813.6	S-1
8	STAFFORD,IRV	NCC	EXPERT	2811.4	S-1
9	RAYMOND,KEN	NCC	EXPERT	2806.9	S-2
10	OLSEN,PETE	SWSA	SPORTS	2799.9	S-2
11	BILLMAN,TODD	PSS	EXPERT	2797.6	S-2
12	GARNER,RICH	HSS	EXPERT	2797.2	S-2
13	FINKENBINDER,KEITH	NCC	EXPERT	2794.6	S-2
14	MEIENBERG,KEN	NONE	EXPERT	2793.9	S-2
15	SCHWEMMER,KEITH	NCC	SPORTS	2751.9	S-3
16	CLIFTON,GLENN	SWSA	SPORTS	2751.7	S-3
17	PETERSEN,JES	SWSA	SPORTS	2743.9	S-3
18	JENKINS,HARVEY	SWSA	EXPERT	2725.2	S-3
19	SADORF,STAN	ISS	SPORTS	2723.7	S-3
20	STALLJARED	HSS	EXPERT	2721.3	S-3
21	SNEDDEN,JERRY	ISS	SPORTS	2720.3	S-3
22	LUPPENGER,JOHN	HSS	EXPERT	2713.1	S-3
23	THOMAS,ROSS	HSS	EXPERT	2699.1	S-3
24	TILLMAN,NORM	NCC	EXPERT	2695.7	S-3
25	BRANDT,DENNIS	HSS	EXPERT	2678.6	S-3
26	PERKINS,DARYL	PSS	EXPERT	2678.3	S-3
27	GIBBS,DUANE	HSS	SPORTS	2666.5	S-3
28	LONG,DICK	SULA	SPORTS	2664.4	S-3
29	SMITH,MIKE	NCC	EXPERT	2647.0	S-3
30	JOY,BRYAN	HSS	SPORTS	2642.2	S-3
31	FINK,STEVEN	SULA	SPORTS	2640.5	S-3
32	BOTNIK,VINCENT	ISS	SPORTS	2631.1	S-3
33	VAN GUNDY,DON	TPG	SPORTS	2630.7	S-3
34	GLASS,ROBERT	PSS	SPORTS	2612.2	S-3
35	MARTIN,TONY	HSS	EXPERT	2603.3	S-3
36	DOUGLAS,IAN	ISS	EXPERT	2551.8	S-3
37	BROWN,GARY	ISS	SPORTS	2547.2	S-3
38	CHASTELLER,FRANK	HSS	EXPERT	2490.2	S-3
39	DOIG,AL	NCC	EXPERT	2475.7	S-3
40	PETTEN,MICHAEL	SWSA	SPORTS	2454.9	S-3
41	SCHULER,MICHAEL	DUST	SPORTS	2451.7	S-3
42	LARSEN,ORLA	DUST	SPORTS	2445.8	S-3
43	PUCHALSKI,MARK	SULA	SPORTS	2423.4	S-3
44	BUTOVICH,DAVID	PSS	SPORTS	2415.3	S-3
45	FINK,DAN	NONE	EXPERT	2408.5	S-3
46	PARSON,JIM	HSS	SPORTS	2376.0	S-3

47	SHELBY,CLAUDETTE	ISS	SPORTS	2365.6	803.2
48	HENDRY,STEVE	HSS	SPORTS	2351.4	798.3
49	WILKINS,DAVE	ISS	SPORTS	2348.5	797.3
50	SANDRONI,HUGO	SULA	SPORTS	2330.4	791.2
51	GOLDSMITH,BOB	TOSS	SPORTS	2306.4	783.1
52	BRUCE,JOHN	SUSA	SPORTS	2301.7	781.5
53	SILVA,MANNY	ISS	SPORTS	2301.2	781.3
54	JOY,GEORGE	HSS	EXPERT	2301.0	781.2
55	VAN GUNDY,SUE	TPG	SPORTS	2300.4	781.0
56	McCOLGANDON	SWSA	SPORTS	2292.9	778.5
57	WEISMAN,EDGAR	TOSS	SPORTS	2261.5	767.8
58	BLUESOE,RICH	TPG	EXPERT	2238.4	760.0
59	HIGGENBOTHAM,MARK	ISS	EXPERT	2199.1	746.6
60	SCHIEDER,STEVE	TPG	SPORTS	2195.2	745.3
61	HALL,DAVID	DUST	SPORTS	2186.4	742.3
62	CHASTELLER,TOM	HSS	EXPERT	2162.7	734.3
63	INGEBERTSON,GORDON	SWSA	SPORTS	2134.2	724.6
64	ANDERSON,GARY	TPG	SPORTS	2092.5	710.4
65	CRON,AL	HSS	EXPERT	2090.3	709.7
66	RODRIGUEZ,JOE	ISS	SPORTS	2086.6	708.4
67	ROHOLT,CHRIS	ISS	SPORTS	2086.3	708.3
68	OTHON,MIKE	ISS	SPORTS	2081.0	706.5
69	RITCHIE,TODD	PSS	SPORTS	2065.2	701.2
70	BAUDER,KEVIN	ISS	SPORTS	2052.4	696.8
71	MEIER,JOE	ISS	SPORTS	1890.0	641.7
72	LUEKEN,JIM	NCC	EXPERT	1593.1	540.9
73	HATCH,JOEY	DUST	SPORTS	1386.7	470.8
74	RITTER,CHRIS	DUST	SPORTS	1338.9	454.6
75	AVESON,BRUCE	SWSA	EXPERT	872.2	296.1
76	BITZBERGER,JOHN	SWSA	SPORTS	229.4	77.9
77	DANRICH,DAN	HSS	SPORTS	0.0	0.0

MARY HOLLEY and PETE OLSEN advance to EXPERT class.

SOUTHERN CALIFORNIA SOARING CLUBS  
 RESULTS OF ISS (SC)2 CONTEST OF 04/22/90

TEAM SCORES

SWSA 11	NCC 8	HSS 16	TOSS 5	SULA 6	ISS 14	PSS 5	TPG 5	DUST 5	MRCSS 0	ELDOR 0
954.5	976.3	1000.0	991.5	924.7	949.8	893.2	832.4			
953.0	949.7	973.3	904.6	923.6	909.3	781.0	830.4			
948.8	923.9	973.1	896.5	893.3	886.9	760.0	742.3			
934.3	921.1	783.1	822.8	866.4	820.0	745.3	470.8			
3790.6	3771.0	3729.5	3615.4	3608.0	3566.0	3179.5	2875.9	0000.0		

## 94141 MICRO SERVO PRODUCT RELEASE

Airtronics' powerful 94141 Precision High Torque Ball Bearing Micro Servo is the strongest servo, of its size and weight, ever produced. The 94141 is compactly designed and engineered to provide maximum torque in space restrictive R/C modeling car and aircraft applications.

Compatible with all Airtronics radio systems, the 94141 Micro Servo is well suited for all types of R/C aircraft. Its small size and extreme light weight make it ideal for use with Sailplane flaps and ailerons, Formula One Pylon Aircraft, and Electric R/C Cars.

The 94141 is ruggedly constructed with a Metal Output Gear coupled with a durable Metal and Molded Gear Train. Its fiber reinforced case features unique side mounting brackets that allow for easy horizontal servo placement inside sailplane and power aircraft wing structures.

Equipped with a Standard sized Servo Arm, the powerful 94141 features a Precision Ball Bearing Supported Output Shaft, a High Quality Coreless Motor,

and incorporates Airtronics' advanced Electronic Componentry.

No comparably sized, lightweight servo matches the superior strength, high torque, or powerful performance of Airtronics' 94141 Precision High Torque Ball Bearing Micro Servo.

### 94141 Specifications:

**Part Number:** 94141

**Description:** Precision High Torque Ball Bearing Micro Servo

**Dimensions:** L: 1.37" W: 0.60" H: 1.27"

**Torque:** 45 oz./in.

**Transit Time:** 0.25 sec. for 60° rotation

*For more information about Airtronics' high quality R/C systems, aircraft kits and accessories, please call or write:*

*Airtronics Inc. 11 Autry, Irvine, CA 92718 (714) 830-8769*

AMA Charter 2804

California Slope Racers

July 7&8, 1990

## INTERNATIONAL SLOPE RACE

High Performance R/C Sailplanes

DAVENPORT, CA

Big Creek Site \* 15 miles north of Santa Cruz

Ray Kuntz, CD (213) 645-4269 : Daryl Perkins, ACD (818) 358-8707

July 7&8, 1990

International Slope Race

Registration form

(Advance Registration Only)

Name \_\_\_\_\_ AMA# \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Telephone ( ) \_\_\_\_\_

Frequency #1 \_\_\_\_\_ Frequency #2 \_\_\_\_\_ Deadline: June 25

Entry Fee \$25.00 Make checks payable to Ray Kuntz, CD.

Mail Registration form to: Ray Kuntz 6570 West 84th St. Los Angeles, CA 90045

# COMPOSITE MOLDING TECHNIQUES FOR SAILPLANE FUSELAGES AND CONTROL SURFACE ACCESSORIES

by E.S. Popko & J.G. Smith

Extracted from Soar Tech No. 5, Jan 1986

## Part 4

### REFINING THE MOLD.

Several refinements at this point can increase the quality of lay ups. Locate at least six pins around the lip for alignment and open the mold in as many places as possible to gain access to the interior.

There are two basic techniques for joining the halves of your lay up. In the first one, the fuselage halves are joined while they are still in the mold. In the second, the halves are removed from the mold and then joined. If you think you will ever try the first one, drill alignment holes before going further.

Put your plug back into the mold and rubber band the mold halves together. The plug will force the molds into exact alignment. Locate one pin at the nose and one near the tail. Locate four more along the sides. Use a Dremel Moto-tool and a small drum sander to flatten an area around the pin hole. At each location, drill a 3/16" hole completely through the lips. From 3/16" music wire, cut 1" long pins for each location. Chamfer the pin ends to make them easier to insert in the alignment holes but do not glue them in. If they are removable, it will make lay ups a lot easier.

You must be able to get a long handled brush to all parts of the join-line from inside the mold. Grind the end of the mold off so that the rear end is completely open. In most designs, you will be opening the back of the vertical fin. Use a Moto-tool, coping saw, and drum sander to open the canopy and hatches if there are any. Once you have made the openings, file the edges smooth.

### POLISHING THE MOLD.

The mold is almost complete. Use 400 to 600 grit wet-and-dry sandpaper with water and *lightly* smooth out areas. Do not apply too much pressure, over-sand, or sand through the Gel-coat. When you have finished, use automobile rubbing compound to polish the entire mold. Polish small areas at a time by using a soft cloth and circular strokes. Avoid electric buffing wheels - they leave highly polished pits and valleys. Since Gel-coat is very hard, it will polish to a high gloss. You should expect the polyester resin to polish up too.

## **\*\*STEP 3 - BASIC LAY UP\*\***

### MOLDING RELEASE.

Before laying up a fuselage, apply several thin coats of paste wax to the interior surface of the molds. Let each coat dry thoroughly and buff them to a high gloss. Now coat the inner surface and lip with PVA. The PVA and wax will protect your mold and insure that the lay ups will always separate. If the PVA puddles, do not wipe it up. The concentration of PVA alcohol will dissolve the wax undercoat and if you wipe the PVA up, you will surely remove dissolved wax and expose the mold to direct contact with the lay up resin.

### LAYING UP THE FIRST LAYER.

Cut two strips of six ounce fiberglass cloth about 3 inches longer and wider than the fuselage. If you think you are going to be making several fuselages, it's best to make a cardboard template of the profile of your fuselage and use it as a guide when you are cutting the fiberglass cloth.

Place two ounces of polyester resin in one mixing cup, and four ounces in another. Catalyze the two ounce cup and then add Cab-O-Sil filler. Some mold makers prefer to use balloons instead, your choice. Stir the mixture until it forms a thick paste. The consistency should be trowelable but not pourable. Now catalyze the other cup of resin.

With a small paddle of balsa, trowel Cab-O-Sil into all the tight corners and sharp contours. Look for areas where the cloth is not likely to lay perfectly flat against the mold. Wing fillets, sharp corners near the stabilizer, and the tip of the nose are likely places. Trowel in such a way that you do not trap air bubbles in the mix. If you are working with disposable gloves, apply the Cab-O-Sil with your finger tips. Try to use

as little Cab-O-Sil as possible.

Load a 1" brush with resin and coat the rest of the molding surface. Avoid painting a lot of resin over the Cab-O-Sil, it will only dissolve it away. Take one of the cloth strips and lightly stretch it lengthwise over the long axis of the mold. Lower it into the mold and use your brush to dab it against the mold. Dab so as not to entrain air bubbles or cause the cloth to wrinkle. Press the cloth near the edges of the mold. Paint a little resin over the Cab-O-Sil areas to sculpt them and make the transitions from fillers to cloth less noticeable. Apply resin wherever the cloth looks dry. Trim the excess cloth from the edges of the mold.

### LAYING UP THE SECOND LAYER.

The first layer should be completely saturated with resin. Low spots in the mold may even have puddles. Place the second strip over the first one lightly stretching it and lowering it into the mold as before. Clean the brush in acetone and begin dabbing the second layer against the first. Do not add any more resin unless there are dry spots. Let this layer soak up the excess from the first. Squeegee the resin through and press out any visible air bubbles. Do not press the cloth too much over the Cab-O-Sil. It will only squeeze it out. Dab your brush back-and-forth along the mold constantly pushing the cloth against the mold and pressing air bubbles out. Apply resin only if you find dry areas. Always keep your brush clean and dry to absorb as much resin as possible.

Excess resin increases the weight and decreases the overall strength. If the resin continues to puddle there is too much. Lay strips of paper kitchen towels over the area and drink up the excess. When the towel saturates, lift it out and discard it; repeat if

necessary. The surface of the second layer should look dull-grey, like wax paper. It should be free of air bubbles too. If it shines, there is still too much resin. If it has light-colored areas under the cloth, there are still air bubbles.

Continue dabbing the against the mold until you are sure that the cloth is following the contours perfectly. If there are small areas that keep pulling away from mold, you can cut the cloth to relieve any gathering tendencies or you can rub a bit of Cab-O-Sil mix through the cloth. Since Cab-O-Sil is thick, it acts like a paste and sticks the cloth to the mold.

When you are sure that all the resin is removed and the cloth is completely stuck to the mold, scoop off any resin or Cab-O-Sil that oozed onto the lip. Be sure the alignment pin holes are clean too. Put the mold aside to cure; you will be able to trim it in two hours.

Follow the same procedure for the second fuselage half. You will notice that you are able to do this one much quicker. With a little experience, you should be able to do the complete lay up procedure for two fuselage halves in two hours.

#### TRIMMING.

Within four hours of lay up, you should trim the excess cloth from the edges of the mold. The resin is still "green" (not totally cured) but it makes the cloth stiff enough to trim. If you wait till the resin is completely cured, you will have to grind the cloth off at great risk to your mold so do not delay in completing this step.

Use a new single edge razor blade for each fuselage half. Cut from the inside toward the outside. Although it might appear more convenient to trim from the outside, the cutting pressure against the fiberglass will push the cloth away from the molding surface. Since the resin is still green at this point, the fuselage edge might cure distorted, thus making it impossible to join it to the other half.

Use long cutting strokes and cut parallel to the lip. The mold lip is a good guide for trimming but avoid cutting into it. The cut cloth edge should have a clean white-line appearance to it. Once the lay up cures completely, you can remove it from the mold and lightly block-sand it to remove any irregularities. One thing you might do after your first lay up is to mark the backing rib or base to indicate the areas that should get Cab-O-Sil in the future.

#### REMOVING THE LAY UP.

The safest and easiest way to remove lay up is to slide long narrow strips of balsa between it and the mold. Balsa is soft and will not gouge into the Gel-coat or scratch the surface of the lay up. Gently push the lay up away from the mold lip. Start at the mid-points of the fuselage and wedge in 1/16" x 1/4" balsa capstrips. Slide the strips around to free as much of an area as possible. Try the same technique at 3 or 4 other places. You can tell by the color of the fiberglass if it has separated from the molding surface or not.

#### ADVANCED LAY UP TECHNIQUES.

Two layers of 6 ounce cloth are strong enough for most applications but for some competition designs, you may want additional strength or special weight distributions. The following techniques should be explored once you have mastered the basic one we have just described.

#### Carbon fiber

Adding carbon fiber tow in between layers of fiberglass cloth significantly increases the longitudinal strength of the fuselage with only minor increases in weight. Standard carbon tow is untwisted and unwoven strands of carbon that look like mat-black cloth ribbon. Tow is much stronger than fiberglass in tension and when laminated between layers of cloth, it will form a monolithic reinforcement. To apply it, simply cut a piece as long as your fuselage and lay it over the first layer of 6 ounce cloth and down the long axis of your fuselage. The resin will soak through it and the second layer of cloth will structurally integrate it inside the fuselage wall. One word about cutting tow - it can be messy if you don't prevent the ends from unraveling. We have found that taping the tow before you cut it helps a lot. Put masking tape across the tow at your cut-line and then cut through the middle of the tape. This keeps the fibers together and there is no unraveling.

A single 1/2" to 1" strip running the entire length of the fuselage is enough. Do not try to cover everything with it. Carbon is an electrical conductor and excessive amounts can block out or distort signals to your RC receiver if the antenna is inside the fuselage. (See Appendix A--HSS Jan 90 issue--for special notes on avoiding these problems.)

#### Milled Fibers

Milled fibers are short lengths of continuous filament yarn which have been hammermilled into small, soft pellets of filamentized glass. When mixed with resin, they act like a fibrous thickener but with considerably more strength than using Cab-O-Sil alone. Milled fibers are very effective reinforcement for high-stress areas like tow hooks, the nose, and wing rods. It's best used with a little Cab-O-Sil since it alone can not achieve the high degree of thickness that Cab can. The combination of milled fibers and Cab is very effective in preventing hair-line cracks and preserving the molding form where standard cloth won't reach.

#### Gel-Coat

Some designers prefer to use pigmented resin rather than to depend exclusively on a final painted finish. You can apply an even coat of pigmented Gel-coat to the inside of the mold before you begin any lay up. After the coat cures, you can then follow the standard procedure for lay up and the final result will be a glossy, deeply pigmented finish. Gel-Coat has several disadvantages, however. It must be applied thickly to obtain opacity of the color. This results in unnecessary weight. It's more brittle than polyester and thus, more prone to shatter or delaminate from the cloth in hard landings.

#### Multi-Weight Lay Up

Most sailplane designs require some additional nose weight to achieve proper aerodynamic balance. Instead of adding dead weight like lead, try adding more cloth to the nose areas and less to the tail sections. This combination reduces the need for ballast while adding strength to the areas most needing it. A common lay up sequence is to use one layer of 3/4 ounce cloth followed by a 6 ounce backup. Adding carbon fiber tow between layers makes up some of the stiffness lost to the lighter weight cloth. Two more six ounce layers of cloth can be added to the nose area for extra strength and weight.

*To be continued next month!*

*\*\*\* (Next month--Joining the fuselage halves.) \*\*\**



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# LEE RENAUD MEMORIAL (SC)2 CONTEST

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## HARBOR SOARING SOCIETY & AIRTRONICS - SPONSORS

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Date: July 1, 1990

Place: Mack Freed Memorial Field (Fairview Park)

Registration @ 8:00 am; Pilots Meeting @ 8:45 am.

### THREE CLASSES OF PILOTS:

Youth, Sportsman, and Expert

Classes are defined as follows: Youth is any flyer with Youth AMA membership; Sportsman is any flyer who has not place twice in any SC2 contest; Expert is any flyer who doesn't fit in the other two classes.

MEDALLIONS will be awarded thru third place in each class.

### THREE ROUNDS OF SOARING

Rounds 1, 2, & 3 -- contestant may fly his choice of:

3 min: 700 flight points, 300 landing points OR

5 min: 800 flight points, 200 landing points OR

7 min: 900 flight points, 100 landing points.

Standard landing circle.

CONTEST DIRECTOR: FRANK CHASTELER (714) 545-2185

H.S.S. PRESIDENT: GEORGE JOY (714) 566-6385

ENTRY FEE: \$6.00. Raffle prizes to contestants include a CUMIC+.

**100% OF PROCEEDS GO TO THE A.M.A. LIBRARY FUND IN LEE'S NAME.**

The following AMA rules will be waived:

5d - two contestants may fly the same model.

7.2a - no relaunch due to collision in flight.

7.2c - relaunch due to launch system malfunction must be declared within 10 sec.

# The SOARING UNION of LOS ANGELES

Hosts the second SC2 Contest for 1990

May 27, 1990

In accordance with SC2 Contest Rules:

a) CD: Steve Addis (213) 835-7631

Pres: Jerry Fedelleck (213) 632-0108

Rep: Don Vickers (818) 792-5612

b) SULA The SOARING UNION of LOS ANGELES

c) SULA FIELD: University of California, Dominguez Hills, Carson, Ca. Corner: Victoria Blvd and Avallon Blvd

d) EVENTS: 3 ROUNDS: 20 minute Add-em-Up.

No flight over 8 minutes.

A working time of 10 min will be allotted for each group of flyers.

Groups will be set up by frequency.

All groups will be called up.

All flight points stop at the end of the

Working time. Zero landing points, if the Landing is made after the Working ends.

LANDINGS: Standard 25' radius circle.

e) May 27, 1990

f) SCORING: 2700 Flight points possible.

2.25 pts/sec on flights under 8 min.

5.00 pts/sec penalty when over 8 min.

Landing: Standard 100 point tape.

g) Standard 12V SULA-RAHM Winches w/ retrievers

h) 850-900 ft to Turn-Around, depending on direction of the launching set up.

i) Landing Areas: dirt, stubble, or grass depending on the location of the circles.

j) Special Rules: SULA Field Rules will be covered at the Pilots Meeting.

--Plaques will be awarded to 1st thru 5th overall, and to 1st thru 3rd for the next Sportsman class flyers in order.

Other information: FEE: \$6.00

Sign-In: 8:00-9:00 am.; Pilots Meeting: 9:00 am.; First flight group launches at 9:15 am.