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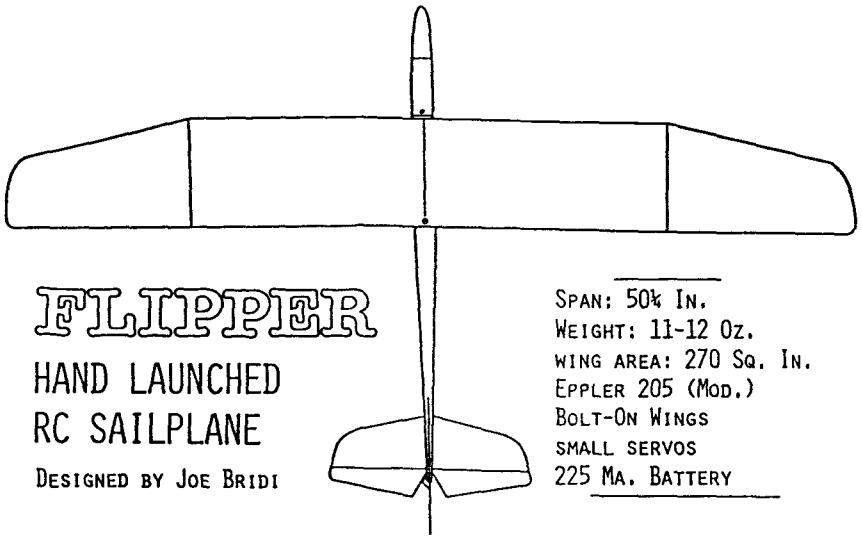
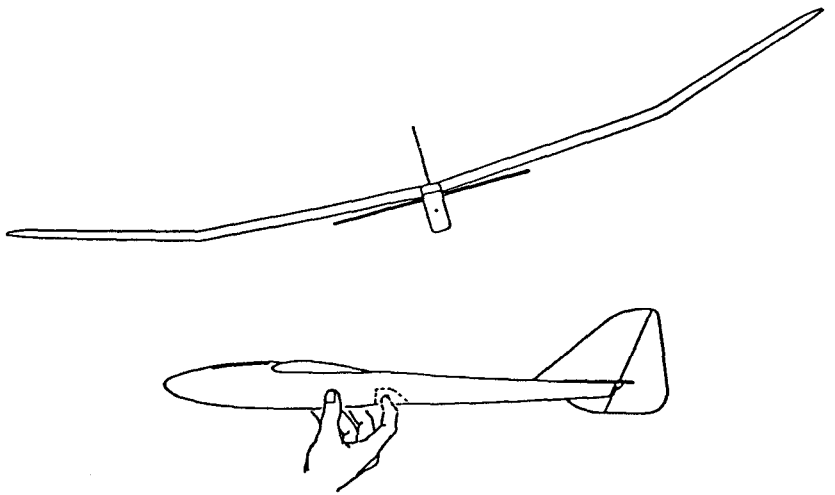


FLIPPER

HAND LAUNCHED RC SAILPLANE

DESIGNED BY JOE BRIDI

SPAN: 50¼ IN.
WEIGHT: 11-12 OZ.
WING AREA: 270 SQ. IN.
EPPLER 205 (MOD.)
BOLT-ON WINGS
SMALL SERVOS
225 MA. BATTERY



Hi Start

EVERYONE SEEMS TO LIKE THE NEW LOGO AND THE LARGER TYPEFACE, OR SO THEY HAVE SAID, SO WE'LL CONTINUE THAT STYLE FOR AWHILE ANYWAY. THANKS TO THOSE WHO HAVE WRITTEN ABOUT THE CHANGES IN RCSD...YOUR COMMENTS ARE VALUABLE TO ME, AND I'LL FOLLOW THE SUGGESTIONS THAT MAKE SENSE FOR A BIGGER AND BETTER SOARING DIGEST. PERHAPS THIS ISSUE WILL GIVE YOU SOME IDEA OF WHAT'S COMING IN FUTURE MONTHS IN TERMS OF CONTENT AND STYLE.

THE MINI AND MAXI MOVEMENT

THERE'S A LOT OF INTEREST THESE DAYS IN TWO ENDS OF THE SOARING 'SCALE' (AHEM)...THE VERY, VERY SMALL...AND THE VERY, VERY LARGE. AT THE SMALL END, YOU HAVE THE GROWING INTEREST IN RC HANDLAUNCH GLIDERS; AND AT THE LARGE END YOU HAVE 1/4-SCALE AND 1/3-SCALE REPLICAS OF THE VARIOUS COMMERCIAL SAILPLANES THAT ARE SO POPULAR AT SOARING SITES AROUND THE WORLD...AND THE NON-SCALE CROSS-COUNTRY TYPES WHICH ARE SEEN IN EVER GREATER NUMBERS IN THE UNITED STATES.

ALTHOUGH CROSS-COUNTRY SOARING IS NOT UNIQUE TO THE U.S., OUR OWN BRAND OF CROSS-COUNTRY SEEMS TO BE. FOR EXAMPLE, IN ENGLAND, THEY FLY SLOPE 'CROSS-COUNTRY' WHERE THE PILOT WALKS (MORE OFTEN RUNS) WITH THE SAILPLANE ON AN OUT-AND-RETURN FLIGHT OF SEVERAL MILES. THIS DEMANDS A SOMEWHAT BETTER PHYSICAL CONDITION ON THE PART OF THE PILOT THAN THE BRAND OF XC FLOWN HERE. TYPICALLY, IN THE U.S., XC DASHES ARE FLOWN IN STRAIGHT LINES OR AROUND CLOSED COURSES WHICH MAY BE SQUARE, TRIANGULAR, ROUND, OR TRAPEZOIDAL...AND THE DISTANCES CAN BE ANYWHERE FROM FOUR OR FIVE MILES TO 100 MILES OR MORE. SOON, THERE WILL BE ATTEMPTS TO EXCEED DISTANCES THAT ONCE SEEMED EXCLUSIVELY THE TERRITORY OF FULL-SCALE SAILPLANES. IN NOVEMBER, SOUTH AFRICA IS HOSTING A XC EVENT.

GROWTH AND INTEREST AT BOTH ENDS OF THE SIZE SCALE IS HEALTHY, AND INDICATES THAT RC SOARING IS, INDEED, VERY MUCH ALIVE AND - WHAT'S MORE - INNOVATIVE. WITH RESPECT TO ALL THINGS IN BETWEEN THESE EXTREMES, YOU CAN FIND PLAIN OLD VANILLA THERMAL/DURATION SOARING IN SIZES FROM TWO-METER, STANDARD, MODIFIED STANDARD, AND OPEN CLASSES...PLUS F3B IN A VARIETY OF SIZES. ON TOP OF THAT, ADD ALL OF THE VARIOUS SLOPE RACES WITH DESIGNS DEVELOPED EXCLUSIVELY FOR THAT TYPE OF FLYING, PLUS A VERY NEW AND MOST INTERESTING DEVELOPMENT: RC SLOPE SCALE...OR RCSS AS IT'S KNOWN. HERE AGAIN WE HAVE A DIVISION BETWEEN PISTON-ENGINED DESIGNS AND PURE JET DESIGNS. USUALLY, THE SCALE IS 'OUTLINE SCALE' WITH SOME POSSIBLE VARIATIONS IN THE AMOUNT OF DETAILING. SPITFIRES ARE LOCKED IN SLOPE COMBAT WITH ME-109S, AND P-51S ARE SEEN WITH FW-190S...ALL OF THEM FLYING VERY WELL WITH AILERON/ELEVATOR CONTROL...AND SOME WITH RUDDER WHICH MAY BE COUPLED OR UNCOUPLED AT WILL.

IN THE JANUARY RCSD, WE PRESENTED A MACCHI MB-339, AND IT RECEIVED FAVORABLE COMMENT, SO WHENEVER FOLKS SEND IN PICTURES AND DESCRIPTIONS OF THEIR NEW RCSS MACHINES, I'LL PRESENT THEM HERE FOR YOUR PLEASURE. INCIDENTALLY, THE JET SCALE DESIGNS ARE VERY, VERY CLEAN AND EXCELLENT FLIERS ON THE SLOPE...AND, OF COURSE, THE SCALE DC-8 JETLINER BOGGLES THE MIND! THE MAIN POINT OF ALL THIS IS FUN, AND IT LOOKS LIKE WE ARE HAVING MORE FUN THAN EVER BEFORE.

HAPPY SOARING,

FLIPPER - HAND LAUNCHED RC SAILPLANE

EVERY ONCE IN AWHILE, YOU FIND SOMETHING THAT REPRESENTS TRUE VALUE, AND WHEN YOU FIND THAT IT IS EVEN BETTER THAN YOU HOPED, IT'S TIME TO TELL THE WORLD. FLIPPER IS SUCH AN ITEM, AND HERE'S HOW IT HAPPENED.

FLIPPER IS A SMALL SAILPLANE DESIGNED AND KITTED BY JOE BRIDI OF BRIDI AIRCRAFT DESIGNS, INC., 23625 PINEFOREST LANE, HARBOR CITY, CALIFORNIA. IT IS CAPABLE OF BEING HAND LAUNCHED (GRENADE LAUNCHED, AS JOE CALLS IT) OR TOWED WITH A HI-START, WINCH OR HAND TOW LINE.

SPAN: 50¾" WING AREA: 270 SQ. IN. BOLT-ON WING
FLYING WT.: 11½ OZ. (APPROX.) EPPLER 205 (MOD.) AIRFOIL
USES MEDIUM TO SMALL SERVOS AND 225-250 MA. POWER SUPPLY

HAVING DECIDED TO GET SOME KIND OF HAND-LAUNCHED GLIDER INTO THE AIR AS SOON AS POSSIBLE, AND HAVING DESIGNED ONE OF MY OWN, I WAS ABOUT READY TO START CUTTING WOOD WHEN I CAUGHT SIGHT OF AN AD IN THE NOVEMBER 1984 ISSUE OF THE SOUTH BAY SOARING SOCIETY SILENT FLYER NEWSLETTER. THE AD WAS RUN BY SHELDON'S HOBBY SHOP, 3152 ALUM ROCK AVENUE, SAN JOSE, CALIFORNIA 95127. TEL.: (408) 251-0787. THE AD SHOWED A PICTURE OF FLIPPER AND AN UNBELIEVEABLE SALE PRICE OF ONLY $11.96 (PLUS $3.00 SHIPPING AND HANDLING). WHAT THE HECK, FOR THAT PRICE I COULD TAKE A CHANCE...AND IF IT WORKED OUT, I COULD ALSO SAVE MYSELF SOME TIME...SO I SENT FOR IT.

FLIPPER ARRIVED IN ABOUT TWO WEEKS PACKED IN A STURDY BOX THAT SURVIVED THE UPS TRIP IN GREAT SHAPE - NARY A DENT OR TEAR - AND THE CONTENTS WERE A JOY TO BEHOLD. RIBS WERE SUPERBLY DIE CUT, BUT LEFT IN THE MOTHER SHEETS. I CHECKED A FEW JUST TO BE SURE, AND THEY FELL OUT CLEANLY WITH NO RAGGED EDGES OR IMPERFECT CUTS. THE PLANS WERE ROLLED AND BEAUTIFULLY INKED. THE DRAWINGS WERE CLEAN AND CLEAR, WITH EVERYTHING YOU NEED TO BUILD THIS SIMPLE LITTLE DESIGN, INCLUDING CALL-OUTS FOR MATERIAL, AND CAREFULLY DETAILED VIEWS. THE INSTRUCTION BOOKLET CONTAINED 4½ PAGES OF INSTRUCTIONS INCLUDING PRE-CONSTRUCTION PLANNING, FUSELAGE CONSTRUCTION (PART 1) WING CONSTRUCTION, FUSELAGE CONSTRUCTION (PART 2) TAIL SECTION CONSTRUCTION, FINAL ASSEMBLY AND FINISHING, AND INITIAL LAUNCHING INSTRUCTIONS.

THE BALSA STRIPS WERE NEATLY BUNDLED WITH RUBBER BANDS, AND A COUPLE OF PACKAGES OF SMALLER PLYWOOD PARTS, BALSA PARTS, DOWELS, AND OTHER GOODIES KEPT EVERYTHING FROM GETTING LOST. THE SHEET FUSELAGE SIDES AND SHEET EMPENNAGE OF 1/16" BALSA LOOKED ACCURATE AND OF UNIFORM QUALITY. IT WAS APPARENT THAT AN EFFORT HAD BEEN MADE TO SELECT THE PROPER WEIGHT WOOD FOR EACH APPROPRIATE PORTION OF THE GLIDER. THERE WAS JUST ABOUT EVERY PIECE YOU COULD IMAGINE CUT TO SIZE AND SHAPE... AND (NATURALLY) I HAD TO COMPARE THEM TO THE PLAN, WONDERING HOW BADLY THEY MIGHT BE MISMATCHED. YOU MAY NOT BELIEVE THIS, BUT EACH PRE-CUT PART WAS A PRECISE FIT AND MATCH TO THE PLAN! THIS WAS SOMETHING VERY UNUSUAL IN MY EXPERIENCE, AND I WOULD HAVE TO SAY THAT BRIDI RANKS UP THERE WITH AIRTRONICS AND PIERCE AERO IN THIS REGARD.

AFTER LOOKING OVER THIS QUALITY MATERIAL AND COUNTING ALL OF THE PARTS, MATCHING THEM AGAINST THE PLAN, AND PRE SORTING THEM INTO NEAT BTACHES FOR EACH CONSTRUCTION PHASE, I BEGAN TO BUILD - STARTING WITH THE FUSELAGE. YOU BUILD FROM ONE SIDE, LAYING IN THE REINFORCING STRIPS OF 1/8" SQUARE BALSA AT TOP AND BOTTOM, PUTTING IN THE FORMERS, AND THEN GLUING IN THE VERTICAL 1/8" SQUARE PIECES. YOU ACTUALLY MOUNT THE SERVOS, RECEIVER, AND BATTERY TO THE FUSELAGE SIDE WITH PIECES OF DOUBLE-STICK FOAM TAPE. I WAS A BIT DUBIOUS ABOUT IT, BUT IT WORKED FINE (SO FAR).

FLIPPER.....CONTINUED

THE FUSELAGE WENT TOGETHER IN AN AFTERNOON, USING CA ADHESIVE (THE VISCOUS VARIETY) AND CA ACCELERATOR, TO COMPLETE PART 1. NEXT, I BUILT THE ONE-PIECE WING, FOLLOWING INSTRUCTIONS EXACTLY, AND IT ALL WENT TOGETHER EASILY AND QUICKLY. THE HARD-BALSA SPARS ARE WEBBED WITH PLYWOOD SHEET OUT TO THE POLYHEDRAL JOINT, AND THERE IS A JOINT REINFORCEMENT OF 1/16" PLYWOOD, AS WELL. YOU BUILD THE WASHOUT INTO THE WING BY BLOCKING UP THE TRAILING EDGE AT THE WINGTIP. THE WING TOOK ONE DAY TO COMPLETE. NEXT, THE TAIL WAS PUT TOGETHER AS FAR AS IT COULD GO, AND THE FUSELAGE (PART 2) FINISHED. THERE WERE NO CONTROL CABLES OR RODS OR LINKS FURNISHED WITH THE KIT, BUT I USED SOME THAT I HAPPENED TO HAVE ON HAND.

AS I BUILT EACH MAJOR ASSEMBLY, I CAREFULLY WEIGHED IT ON THE POSTAL SCALES I USE - MORE TO CHECK ON WHETHER OR NOT THE WHOLE THING COULD POSSIBLY BE BROUGHT IN UNDER THE11½ OUNCES CLAIMED FOR IT. WHEN ALL WAS DONE, IT WEIGHED 8½ OUNCES WITH RADIO INSTALLED BUT BEFORE COVERING. I SELECTED TRANSPARENT RED MONOKOTE FOR THE COVERING BECAUSE I LIKE THE PRODUCT AND COLOR, AND I FELT THAT IT WOULD OFFER MAXIMUM VISIBILITY. HOOKING EVERYTHING UP, AND TESTING THE RADIO, ALL CONTROLS WORKED ACCORDING TO PLAN...BUT I WAS STILL A BIT WORRIED ABOUT BALANCE. WOULD IT BE POSSIBLE TO GETAWAY WITHOUT HAVING TO ADD ANY BALANCE WEIGHT AT NOSE OR TAIL? IF SO, THIS WOULD BE A FIRST IN MY EXPERIENCE. ACTUALLY, WHEN I BALANCED AT THE SUGGESTED SPAR LOCATION, I FOUND IT A BIT TAIL HEAVY - BUT ADDITION OF HALF AN OUNCE OF LEAD IN THE NOSE PUT IT INTO PERFECT BALANCE. NOW FOR THE CRUCIAL WEIGHT CHECK...HAD I BEEN ABLE TO KEEP IT UNDER 11½ OUNCES? GUESS WHAT? IT WEIGHED ONLY 10½ OUNCE READY TO FLY, WITH COVERING, LETTERING AND ALL. I PUT MY NAME AND AMA NUMBER ON THE TRAILING EDGE WITH WHITE TRANSFER LETTERS, AND PLACED THE NAME FLIPPER ON THE NOSE WITH THE SAME LETTERS, THEN COVERED THEM WITH CLEAR TAPE TO KEEP THEM FROM ABRADING OFF DURING THE EXPECTED HARD USE I PLANNED TO GIVE THIS LITTLE GEM. TOTAL CONSTRUCTION TIME: 4 DAYS.

THE ONLY DEPARTURE FROM PLAN THAT I EXERCIZED AT MY DICRETION WAS TO PLACE A SMALL BRACE ACROSS THE FUSELAGE AHEAD OF THE FINGER HOLE...ABOUT WHERE MY THUMB AND THIRD FINGER WOULD GRIP IT (AND POSSIBLY SQUEEZE TOO HARD DURING HAND LAUNCH). I ALSO ADDED A PLYWOOD BRACE AND REINFORCEMENT AT THE TOW HOOK LOCATION, SHOULD I WANT TO USE OTHER THAN HAND LAUNCH. LOOKING BACK ON IT, I COULD HAVE ADDED A SKID UNDER THE NOSE, AHEAD OF THE TOW HOOK (AND MAY DO IT YET) TO TAKE THE SCRUB OF LANDING. THIS WOULD ALSO SERVE TO ELIMINATE THE BALANCE WEIGHT IN THE NOSE.

FLYING WEIGHT OF 10½ OUNCES AT 270 SQUARE INCHES OF AREA, GIVES A WING LOADING OF 5.6 OUNCES PER SQUARE FOOT - A BIT LIGHT, PERHAPS, COMPARED TO THE 9-AND 10-OUNCE PER SQUARE FOOT I'M USED TO; BUT IN THINKING ABOUT IT, I BELIEVE FOR A HAND-LAUNCHED SHIP OF THIS SIZE TO PROPERLY UTILIZE MICRO THERMALS, THE WING LOADING IS JUST ABOUT RIGHT.

THE "GRENADE LAUNCH" JOE SPEAKS ABOUT MYSTIFIED ME UNTIL I READ THE DIRECTIONS...AND SURE ENOUGH, THE THROWING STYLE REMINDS ME OF THE METHOD OF THROWING A GRENADE, SORT OF LOBBING IT WITH A SEMI-STRAIGHT ARM IN AN UPWARD ARC. ACCORDING TO JOE BRIDI, A GOOD THROW COULD GET THIS LITTLE BIRD TO 50 FEET OR SO. WISH ME LUCK: I'M GOING

FLIPPER FLIES!

THE SUN CAME OUT EARLY, AND PROMISED A NICE DAY OF PALE, WINTRY THERMALS...BUT IT WAS NOT TO BE. BY THE TIME I GOT EVERYTHING READY TO GO, CLOUDS HAD COVERED THE SUN WITH A THICK GREY BLANKET, AND SNOW WAS SIFTING DOWN LIGHTLY FROM A LEADEN SKY. I PUT THE PLANE IN THE BACK SEAT OF THE CAR WITHOUT BOTHERING TO REMOVE THE WING...AND IT FIT WITH ROOM TO SPARE; IN FACT, ENOUGH FOR TWO OF THEM. YOUNG TY SAWYER, WHOSE FATHER MANAGES THE SILVER RANCH AIRPARK IN JAFFREY, N.H., HAS BEEN FLYING MY OLD AQUILA. HE WANTED TO SEE FLIPPER, SO - IN SPITE OF THE BAD WEATHER - I TOOK IT OVER TO SHOW HIM, AND MAYBE FOR A TEST GLIDE. HE, BEING YOUNG AND MUSCULAR, HAS A GOOD THROWING ARM - SO BECAME MY LAUNCHING SYSTEM. IN ALL WE HAD THREE GOOD GLIDES, PROVING THAT THE SHIP IS STABLE, EASILY MANEUVERABLE, AND GENTLE AS A FEATHER TO FLY. IN SHORT, IT 'FLEW RIGHT OFF THE BOARD.' NOW I CAN'T WAIT UNTIL WE GET SOME GOOD WARM WEATHER AND SOME THERMAL ACTIVITY. IN FACT, I'D EVEN SETTLE FOR COLD WEATHER AS LONG AS THERMALS EXIST.

ONE COMMENT: I FORESEE FLYING THIS SHIP IN A SERIES OF HAND LAUNCHES, CIRCLES BACK TO THE LAUNCH POINT, AND HAND RETRIEVES...WITH IT NEVER TOUCHING THE GROUND...UNTIL IT 'CONNECTS' AND SPIRALS UP AND AWAY ON ITS FIRST THERMAL FLIGHT. IN FACT, I ALSO FORESEE THE POSSIBILITY OF USING EXTREMELY LIGHT SLOPE LIFT FROM A ROOF OR A TREE LINE. THE WORLD OF MICRO METEOROLOGY CAN TRULY PRODUCE A TEMPEST IN A TEAPOT - AND FLIPPER WILL BE READY.

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COMMENTS FROM A LARGE ISLAND...

MY GOOD FRIEND ERIC MARSDEN, WHO LIVES IN A PLACE CALLED HORNDEAN NOT FAR FROM PORTSMOUTH, ENGLAND HAS OFFERED AN ANSWER TO A QUESTION I HAD ABOUT NOT DESTROYING FORMERS WHEN TRYING TO NOTCH THEM OUT FOR THE STRINGERS. "ONE TRICK IS SIMPLY TO CUT THE FRAME TO 'CORE' SIZE, AND LAY THE STRINGER ON TOP - THE COWARD'S METHOD. OTHERWISE, TAKE DENTAL FLOSS TEASE OUT A FEW STRANDS AND 'ZAP' THEM TO THE BLANK FORMER AROUND THE RIM, THEN CUT NOTCHES. ON BIGGER MODELS, GLUE TISSUE TO THE FACE OF THE FORMER OR MAKE TWO-PLY FROM CROSSED 1/32" SHEET PLY. DO NOT USE A MODEL KNIFE WITH A PREVIOUSLY-USED BLADE. USE A NEW BLADE. FIRST MAKE A CROSSCUT THEN SLICE IN FROM THE EDGE TO THE CROSSCUT. GO AROUND THE ROOT OF ALL NOTCHES WITH A PIECE OF BROKEN-OFF RAZOR BLADE (SLIM & NARROW) BEFORE NOTCHING OUT. THE THIN BLADE REDUCES THE CHANCES OF 'BURSTING' THE WOOD WHEN CUTTING, AND SLICING IN FROM THE EDGE REDUCES OR EVEN ELIMINATES BENDING FORCES WHICH CAUSE BREAKAGE. I'LL BET THIS IS JUST 'GRANNY & EGGS' AGAIN TO YOU, ISN'T IT?"

THANKS FOR THE TIP, ERIC. I'VE PROBABLY SPOILED MORE BULKHEADS AND FORMERS THAN ALMOST ANYONE I KNOW WHEN TRYING TO NOTCH THEM FOR SMALL MODELS WITH 'SOFT' WOOD, OR EASILY-SPLIT WOOD. FINALLY, I GAVE UP AND USED THE SMALL MODELER'S JIG SAW (DREMEL) THAT I HAVE...AND IT WORKS FINE, TOO.

ERIC POSES A QUESTION FOR US: "IF LOW-ASPECT RATIO WINGS WORK SO WELL FOR CHUCK-GLIDER RC TYPES, WHY BOTHER WITH HIGH ASPECT RATIO FOR MODEL WORK? IS IT REALLY WORTH THE CANDLE? AGAIN, IF WITH A FLAT-BOTTOM FRENCH CURVE (ZIP) TYPE OF 'FOIL ONE CAN GET FIVE MINUTES PLUS FROM A HAND LAUNCH...WHY BOTHER WITH PRECISION SECTIONS FROM EPPLER ET AL? ARE THEY REALLY WORTH THE TROUBLE, OR DOES IT ALL DEPEND ON THE SHAPE OF YOUR BRAIN?" ANYONE CARE TO COMMENT?

RC - HLG...Some Views From Here and There

John Lupperger, in a series of articles in the Inland Soaring Society Newsletter (of which he is now editor) wrote some basic policy for RC hand-launch gliders.

"...The basic rules will be that the glider can not span more than 60 inches, but can have any number of functions. Anyone can throw your glider for you, and for a flight to be official, it must end within the grassy area of the field. The first round will be a 1000 point hand launch spot landing. Two attempts will be made with the best one counting. The spot will be the conventional type used at our monthly contests. The second round will be ten-minute slots with the longest flight in each slot receiving 1000 points and all others a percentage of that score. During a slot, you can launch as many times as you want. No penalties will be levied for being in the air when the slot ends."

"If you have never built a hand launch glider you will probably be surprised at how easy they are to build. Some people feel that they are difficult to build because everything is so small and light. This is not necessarily true if you design your ship to be constructed just like its larger counterparts. The only real necessity in radio equipment might be a 250 Ma battery pack, and I have seen some fly very well with a 500 Ma pack. Standard servos can be mounted in line and still keep a very small fuselage shape.. The first thing to decide on is size. Our contest limits the span to 60 inches. However, most of the better flying hand launchers that I have seen are usually about 54 to 58 inches in span. Much smaller than this they tend to be a bit squirrely and too heavily loaded. Much larger and they tend not to carry their momentum on the toss. Planform is the next consideration...polyhedral is probably the best bet. I saw a hand launcher in Palm Springs that flew very well with ailerons, but it demanded every ounce of its pilot's attention. Rudder shape is very important, as there is not much mass in those small wings. You want to be able to turn it on a dime but still be able to keep it under control. Overly large surfaces will only get you in trouble, and balanced rudders are out (they can create a rolling tendency when being thrown). Full-flying stabs or stabs with elevators? There doesn't seem to be much of a trend here. Build whichever is easiest for you.

"These little gliders are not difficult to build. The wood is lighter and the parts are smaller but they build just like their larger counterparts. Weight is a primary concern but since your wood sizes will be smaller, you haven't much to worry about here. Over building is the real killer. Most hand launchers are plenty strong enough with only 1/8" square spruce spars, if they are properly shear-webbed. Stick with 1/16" sheet for the ribs, as 1/32" will distort when you cover. Use the 1/32" sheet for the D tube if your wing has them. Always use plywood for the dihedral braces. The fuselage must be light and very strong...this is the part you grip very tightly when you throw. Most will be made with 1/16" balsa, but 3/32" is acceptable. If you use a finger hole in the bottom, you can probably use fewer bulkheads as this relieves some of the tendency to squeeze. Stringers and triangle stock (in the corners) add a lot of rigidity and should not be overlooked. Make it large enough to fit your radio gear. The tail surfaces must be kept light as there is very little room to move radio gear around to help balance your model. Sheet surfaces are all right but will usually need lightening holes. 1/8" sheet will be very difficult to cover without warping if it has holes cut into it. I think built-up surfaces with geodetic bracing will be easier to cover. You could go to 3/16" in a built-up structure, sand in a little airfoil shape, and not weigh any more than a 1/8" sheet tail. Cover (do not paint) the fuselage. I think the covering type is a matter of preference, but bear in mind that these materials will be difficult to put on without warping various parts of the model. I prefer low-heat coverings such as Solartex. I can cover the tail surfaces without warping them. Also, I think the cloth texture helps out at the very low Reynolds Numbers we are dealing with. Your finished weight should yield a wing loading between 5 and 7 ounces per square foot. Much lower than this and the model won't carry well through the toss. Much higher, and it will be difficult to use low-level thermals.

"Balance and trim your glider like the larger ones, except that you probably will want a little more nose-down attitude. This will help keep up your speed while working low-level lift. Most of us use an overhand throwing technique. Your glider zooms upward and must be caught with a shot of down before it stalls. Too soon and you don't realize the potential, and too late you lose the height in a stall. Practice and perfection of timing is the answer. Bill Northrop suggested we try a technique like we use for free-flight hand launch gliders...holding it

Lupperger (continued)...

with the wings almost perpendicular to the ground, and throwing with almost a sidearm motion, causing the glider to climb in a turn and flatten out as it goes up. There is no stall as the glider uses up its launch energy as it flattens out into the glide. I haven't tried this yet but will let you know how it works...since the possibility of higher launches exists. Don't be fooled by extravagant claims of 100-foot launches...you will probably seldom get your glider over 30 to 50 feet. In searching for lift it's important to keep your speed up...you don't have much altitude or much time to search and locate lift. If you are barely moving, you will be back on the ground before establishing a pattern to find those small, close-to-the-ground thermals. Try to fly in a smooth large circle which will bring your glider back to you. If any lift is encountered, no matter how small, start turning! It doesn't take much to sustain altitude or thermal with a 10 to 15 ounce glider. Keep your speed up as a stall this close to the ground could be disasterous. You must also take into account that these thermals which are only 10 to 30 feet off the deck are extremely small. They may be only a couple of feet across. The only way to stay in somehting this small is to turn sharply and keep your speed up."

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In England, the BARCS Soarer, edited by George Stringwell, had this to say - penned by Neil Webb: "I would like to propose the following rules for the Hand Launched class, with the reasons given after each rule:

1. Model must weigh less than 20 ounces with ballast. Reason: easy to weigh on the field with a simple beam balance, heavy enough not to eliminate the modeler with larger servos.

2. Best four flights out of ten to count as final score. Reason: considering the very small chance of catching lift at 30 to 40 feet, at least one flight in ten should be good.

3. Competitor to be given at least three minutes after switching on RX/TX to decide to launch. Reason: most HLG's have to be partly dismantled to switch on the RX and three minutes is a reasonable, but not too long, time to wait for lift to 'appear' in the launching area."

To be fair, there were opposing viewpoints presented in the same issue of Soarer. One writer complains that there are too many classes which makes competiton costly due to need for a specialized aircraft for each type of event. He sees the HLG events as low-pressure fun-type competition...but feels the 20-ounce weight limit would exclude anyone who desired to launch a larger and heavier model, feeling the choice should be his if he feels he can be competetive. He also says that the 100-inch standard class models outclassed the little fellers in the Radioglide contest under the prevailing conditions; concluding that a good BIG 'un will usually beat a good little 'un. Another writer opines that as soon as another set of rules is required, a special model must be developed to meet them competetively, killing interest and devolving to a tiny class with only four or five interested persons at any contest. The editor says that he is dead set against any restrictions whatsoever on the model to beused, and although the 100S models had the best of it at Radioglide, he can foresee circumstances when the HLG's could hold their own flying to 3-minute maxes under better conditions. Finally, one writer tells of his experiences when he and a buddy went out with their HLG's. His buddy got 1 hr and 30 minutes from his first launch, while the writer himself got a max of 43 seconds after 50 launches...and a sore arm!

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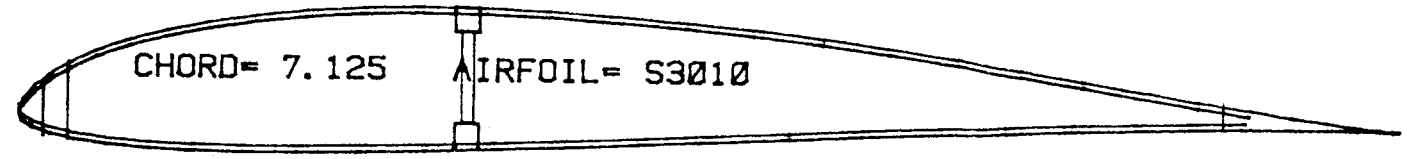
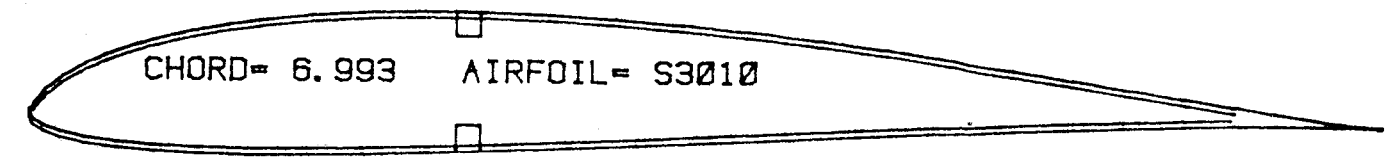
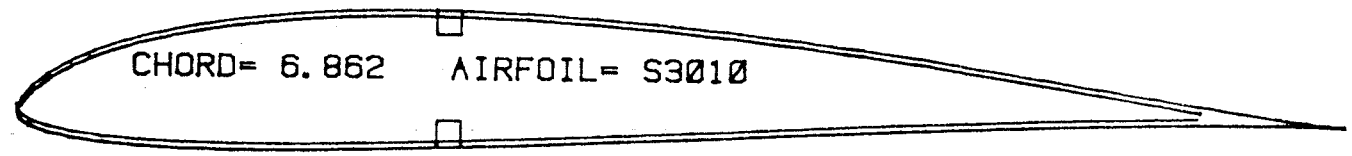
Chris Adams, LSF Level V, and a member of the San Fernando Valley Silent Flyers (California) in absentia...now living in Reno, has written a very instructive monograph on all aspects of RC HLG - beginning with his personal insights on launching. Several issues of the Silent Flyer carried the article series - so I would recommend that you write and ask for the appropriate information. Write to Jim Wichert, 1791 Glenview Avenue, Simi Valley, California 93063, or call (805) 526-3327. Ask for the Chris Adams articles about flying RC HLG's.

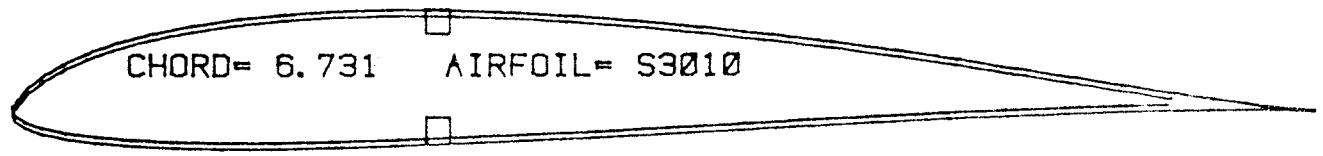
Some highlights include the use of 1/4" pegs in the fuselage for best grip and launch power; the limit of 4 to 5 ounces per square foot of wing loading; the use of the Eppler 193 airfoil; the establishment of a workable set of contest rules; how to throw with maximum chances of success without hurting your arm; what kind of practice you need; and much, much more. Write for it!

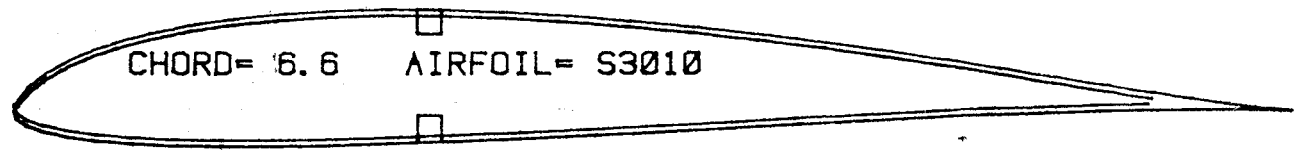
MICHAEL SELIG'S AIRFOIL S3010 FOR SMALL-CHORD WINGS
PARTICULARLY SUITED FOR RCHLG - SUCH AS ZEPHYR ET AL
(FULL SIZE)

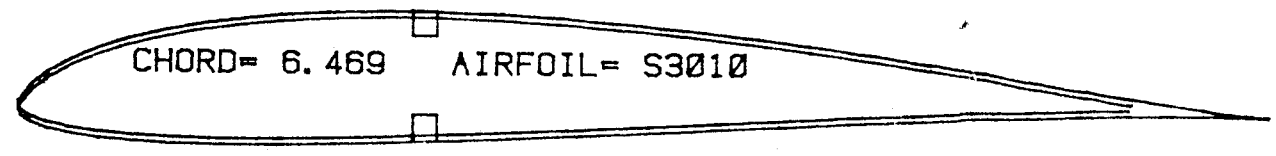


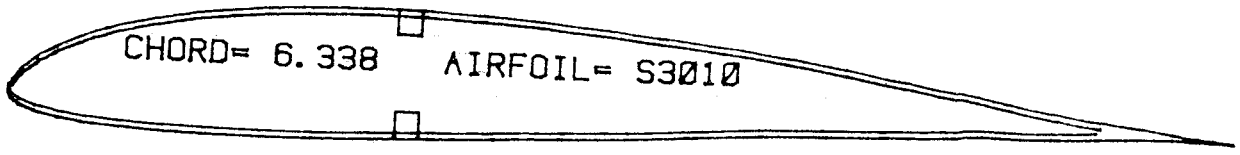


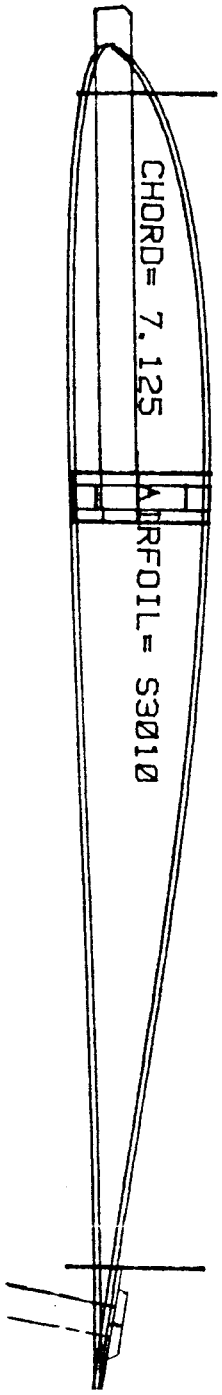


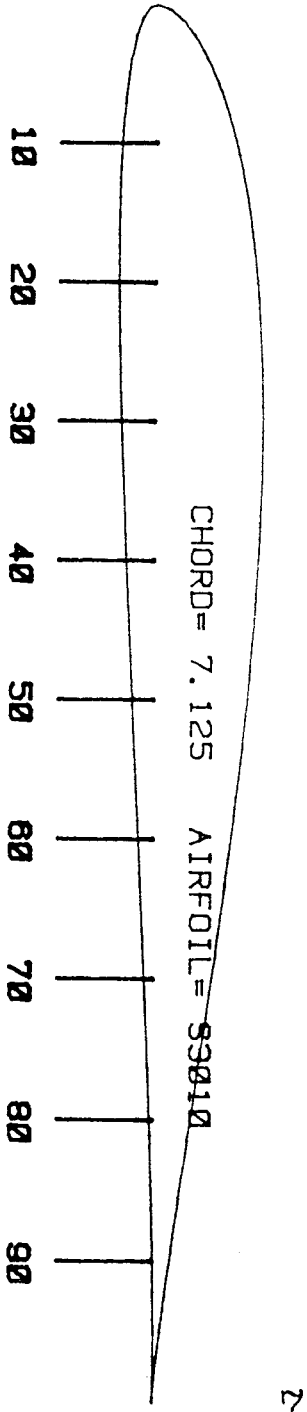












RC HANDLAUNCHED SAILPLANES.....SOME "SOARCES"

FLIPPER - JOE BRIDI DESIGN (SEE ARTICLE THIS ISSUE)
TERCEL - " " " (AVAILABLE FROM SHELDON'S HOBBIES @ $11.96)
FLINGER - LARRY JOLLY DESIGN, AVAILABLE DIRECT, 5501 W. COMO, SANTA ANA, CALIFORNIA 92703...(714) 826-6861...PRICE $29.95
YOU CAN ALSO ORDER PLANS ONLY, WITH INSTRUCTIONS FROM THE ARTICLE, FROM MODEL BUILDER PLANS SERVICE, BOX 10335, COSTA MESA, CA 92627-0132. ASK FOR PLAN #9842. COST $5.00 PLUS $1.25 FOR FIRST-CLASS MAIL. (SEPTEMBER 1984 MODEL BUILDER).
M 52 & LMP 1000 - PRICED AT $25.00 EACH ... GOOD VALUE, INCLUDING ALL HARDWARE. THESE TWO DESIGNS ARE INTENDED FOR THERMAL AND SLOPE (M52) OR ULTRA-LIGHT SLOPE (LMP1000). AVAILABLE FROM LINDSEY MICRO PRODUCTS, 160-A, NORTH FAIRVIEW AVENUE, SUITE 104, GOLETA, CALIFORNIA 93117...(805) 683-2042.
ZEPHYR - APPEARED IN THE MAY 1981 ISSUE OF MODEL AVIATION, AND IS AVAILABLE FROM AMA - MA PLANS SERVICE, (R.C. OWENS DESIGN).

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THE ABOVE LISTING IS BY NO MEANS COMPLETE OR COMPREHENSIVE. MANY OF THE 2-METER DESIGNS ARE CAPABLE OF HAND-LAUNCHING, AND OFFER GOOD PERFORMANCE IN THAT MODE OF FLIGHT. LATELY, I'VE SEEN A NUMBER OF NEW 2-METER DESIGNS IN THE VARIOUS MAGAZINES. FOR EXAMPLE, LITTLE SCORPION FROM FOX MODELS, 115 N. THORNWOOD, DAVENPORT, IOWA 52822. FOAM WINGS, T-TAIL, EPPLER 193, FOR THREE CHANNEL RADIO. HAS SPOILERS. THE PROPHET FROM DAVEY SYSTEMS, ONE WOOD LANE, MALVERN, PA 19355 IS A WELL-KNOWN COMPETITOR AND EXCELLENT FLIER. THE CRAFTAIR DRIFTER II AND FREEDOM DESIGNS WOULD BE GOOD CANDIDATES, AS WOULD THE MIDWEST SOARER AND SILENT SQUIRE DESIGNS. YOU COULD DO WELL WITH CARL GOLDBERG'S GENTLE LADY, TOO, OR THE TOP FLITE METRICK. THEN, THERE'S THE SIG RISER, THE AIRTRONICS SAGITTA 600 OR THE OLY 650. CONSIDER ALSO BOB MARTIN'S TWO TEE, OR THE KATIE II. YOU MIGHT HAVE A LOOK AT THE HOUSE OF BALSA CLAN SUCH AS THE "2 X..." SERIES, OR MARK'S MODELS MINI BIRD OF TIME - A GREAT FAVORITE, OR THEIR RO-8, WINDWARD OR WANDERER. THE PIERCE ARROW IS A BEAUTY. A COUPLE OF NEW ONES FROM SHL ARE THE FLAMINGO AND THE ALBATROSS. OH YES, BRIDI DESIGNS ALSO HAS THE WINDSURFER AND EZ-1 SAILPLANES THAT MIGHT INTEREST YOU.

THE POINT IS THAT THERE ARE DOZENS OF POSSIBLE DESIGNS THAT WOULD MAKE GOOD HAND-LAUNCHED SAILPLANES...JUST CONSULT THE HOBBY SHOP LISTINGS IN THE VARIOUS MAGAZINES FOR PRICES.

IN GENERAL, HAND-LAUNCHED SAILPLANES TEND TO HAVE SPANS BETWEEN ABOUT 50 INCHES AND 60 INCHES, WEIGH BETWEEN ABOUT 10 AND 16 OUNCES (WITH RADIO INSTALLED) AND UTILIZE SOME OF THE NEWER AIRFOILS LIKE THE EPPLER 205 OR 193. THEY NEED MINI SERVOS AND USUALLY 225 MAH BATTERIES. YOU CAN FIND DIFFERENT 'RULES' IN OPERATION FOR THE VARIOUS H-L RC CONTESTS. FOR EXAMPLE, YOU MAY BE GIVEN TEN LAUNCHES IN A SPECIFIC TIME, AND YOUR CUMULATIVE SCORE IN SECONDS OF FLIGHT TIME FOR THE 10 LAUNCHES WILL BE YOUR SCORE FOR THE 'ROUND'.

TO ME, THE BIGGEST ATTRACTION IS THE OPPORTUNITY TO GET GOOD SOARING FLIGHTS FROM TINY FIELDS...AREAS TOO SMALL TO LAY OUT YOUR HI START, YET LARGE ENOUGH TO BREED THERMALS, AND ADEQUATE TO LAND YOUR SAILPLANE. FINALLY, THE EASE OF CARRYING THE SHIP TO THE FIELD AND HOME AGAIN MAKES HLRCG AN ATTRACTIVE PROPOSITION. TRY IT, YOU'LL LIKE IT!

MORE "SOARCES" FOR HLRCG... (THANKS LEE MURRAY)

KRAFTKIT IERCEL; MIDWAY MODEL COMPANY GNOME; WHISPER, FROM THE AUGUST 1984 MODEL BUILDER BY RANDY WRISLEY; AND SUNBIRD FROM THE APRIL 1980 MODEL BUILDER, BY DAVE THORNBURG.

ARTICLES HAVE APPEARED ON THE FIRST INLAND SOARING SOCIETY HAND-LAUNCH RC CONTESTS IN RC MODELER (AL DOIG) NOVEMBER 1984, AND IN MODEL BUILDER (BILL FORREY) SEPTEMBER 1984.

JOHN LUPPERGER HAS WRITTEN SEVERAL ARTICLES ON THE SUBJECT THAT APPEARED IN THE INLAND SOARING SOCIETY OF SOUTHERN CALIFORNIA NEWSLETTER. THESE ARE REPRODUCED IN PART RIGHT HERE IN THIS ISSUE.

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"SOARCES" FOR SPORT SCALE SAILPLANES - BIBLIOGRAPHY BY STEVE MOSKAL.

SINCE SO MANY OF US ARE TAKING A NEW LOOK AT SCALE SAILPLANES, IT WOULD BE WORTHWHILE FOR US TO CONSIDER THESE VALUABLE SOURCES OF INFO ABOUT DESIGN, COLOR, DIMENSIONS, SHAPES, OWNERS, DATES OF FLIGHTS, WHERE THE ORIGINALS ARE NOW LOCATED, ETC. AS MENTIONED BEFORE, IT SEEMS THAT INTEREST IN 'SCALE' AND IN HLRCG IS REALLY UP, SO READ AND ENJOY.

NON-COMPREHENSIVE SPORT SCALE SAILPLANE BIBLIOGRAPHY

by
Steve Moskal
LaGrange, Illinois
November, 1984

Books

Jane's All the World's Aircraft. London: Jane's Yearbooks, Annual
Best way to gather 3-views of latest aircraft with a small section on sailplanes in each volume plus an index to all volumes.

SSA Membership Handbook. Santa Monica, CA: Soaring Society of America, Annual.
Often the best resource is the pilot who actually flew the ship - often a friendly person who will share rare photos with you if you approach him/her courteously. Also a good reference collection of leads via associations affiliated with SSA (1-26 Association) and a compendium of all kinds of data on full size soaring achievement.

Coates, Andrew. Jane's World Sailplanes and Motor Gliders. np: Ziff-Davis, 1978.
Excellent 3-views and specs, but photos are B&W only. Majority of aircraft are modern (post-1950).

Ellison, Norman. British Gliders and Sailplanes: 1922-1970. np: Barnes & Noble, 1971.
Beautiful 3-views and specs, but no photos. Subtitle indicates the scope of types covered.

Lambie, Jack. Building and Flying Sailplanes and Gliders. Blue Ridge Summit, PA: Tab Books, 1980.
Contains many 3-views and specs of modern ships plus some personal observations from a soaring pilot who flew many of the types discussed. Emphasis is on homebuilts, but any soaring modeler will find usefull tips.

Zaic, Frank. Model Glider Design.. Northridge, CA: Model Aeronautics Publications, 197(?).
Reprint of 1944 original with some 3-views of "Golden Age" sailplanes.

SPORT SCALE SAIPLANE BIBLIOGRAPHY (CONTINUED).....

Magazines

Bungee Cord. Vintage Sailplane Association: Scott Airpark, Lovettsville, VA 22080.
Annual subscription of $10 includes membership in VSA, an association interested in the preservation and operation of vintage motorless aircraft. Sporadic publication. Possibility of making contact with the builders and fliers of vintage ships. 3-views and photos, no color.

Flug & Modell Technik.
German-language modeler's magazine with vast selection of plans for primarily German sailplanes. Illustrated plans list is available for reasonable charge.

Model Builder
Plans for Blanik L-13, Bowlus Baby Albatross, and Briegleb BG-12. Flap afficionados take note: Blanik and Briegleb were flapped.

Model Airplane News
Plans for Schweizer TG-2.

Model Aviation
Plans for Schweizer TG-3, and Ibex.

Radio Control Modeler
Plans for Northrop Primary, Minimoa, Slingsby Skylark 3, and Slingsby T-53.

Scale RC Modeler
You must scan each issue since the plans must be acquired direct from the author of the article. Best design in recent years came from the noted German(?) designer D. Draheim on a museum scale model of the Rheier. No nuts & bolts construction details in text.

Soaring
Since 1937, journal of the Soaring Society of America. Good source of specs and 3-views of vintage and modern types. Especially valuable are the issues devoted to the SSA Sailplane Directory - specs and photos (B&W) of every saiplane a motorglider active in the U.S.; it last appeared as the 11/83 issue.

Miscellaneous

Manufacturers' promotional literature.
It's always possible to get gorgeous color shots of current ships in production by writing the maker or approaching a dealer.

Calendars.
Soaring's annual calendar is the easiest one to obtain and hoard for its outstanding color shots. Mostly modern types but some vintage restored subjects have appeared in recent years.

Museums.
National Soaring Museum on Harris Hill in Elmira, NewYork has been the official SSA Repository, Library and Archives. Their film library of B&W and color films on a variety of subjects may be rented for a nominal charge considering the scarcity of film on soaring.
The museum address is Harris Hill, R.D. #3, Elmira, New York 14903-9319 tel. (607) 734-3128 Shirley Sliwa is the Director, and has stored and displayed such landmark ships as the DuPont Minimoa, Bowlus Super Albatross, and the Schweizer 1-29.

NAT'S NOTES...FROM JEFF TROY, CD. c/o ALLIED HOBBIES, Y-12 K.O.P. PLAZA KING OF PRUSSIA, PA 19406

AS YOU KNOW, JEFF TROY, EX-PREXY OF THE VALLEY FORGE SIGNAL SEEKERS HAS BEEN APPOINTED COMPETITION DIRECTOR OF THE 1985 NAT'S RC SOARING EVENTS. IN A RECENT LETTER TO ME, JEFF HAD THIS TO SAY:

"I'M AT NAT'S HEADQUARTERS IN CHICOPEE (NEAR SPRINGFIELD, MA) RIGHT NOW, AND I THOUGHT I'D LET YOU KNOW THAT THE SMITH & WESSON SITE HAS BEEN APPROVED. AMA IS WORKING VERY HARD TO MAKE EVERYTHING RIGHT. VINCE MANKOWSKI AND ROMAN POLASKI ARE A COUPLE OF SPARK PLUGS. I HAVE EVERY CONFIDENCE THAT THE '85 WESTOVER EVENTS WILL BE SPECTACULAR. SMITH & WESSON IS THE SAME SITE USED IN '83, AND A MORE PERFECT LOCATION COULD BE FOUND ONLY IN A DREAM.

"ALMOST ALL OF THE KEY PEOPLE RUNNING THE SOARING EVENTS ARE MEMBERS OF VALLEY FORGE (SIGNAL SEEKERS). WE KNOW EACH OTHER, THE EQUIPMENT, AND WE WORK WELL TOGETHER. YOU COULD ASSIST ME (IF IT MEETS WITH EDITORIAL POLICY) BY ASKING VOLUNTEERS TO CONTACT ME AT THE ABOVE ADDRESS IF THEY ARE INTERESTED IN PART-TIME RELIEF WORK AT THE CONTEST. AMA WILL PROVIDE A FREE 1986 FULL MEMBERSHIP TO WORKERS PUTTING IN FOUR FULL DAYS. EVEN A CLUB WITH 255 MEMBERS CANNOT PROVIDE ENOUGH PEOPLE TO RUN AN EVENT THIS FAR FROM HOME...AND FOR SO MANY DAYS. ANY HELP YOU COULD GIVE ME THROUGH MAN OR RCSD WOULD BE KIND INDEED!

"I'LL KEEP YOU POSTED ON FURTHER NAT'S DEVELOPMENTS, BUT IT LOOKS LIKE AMA IS DOING IT RIGHT THIS TIME AROUND."

GOOD NEWS, JEFF, AND I THINK ALL OF THOSE WHO ARE INTERESTED IN HAVING AN RC SOARING NATS RUN PROPERLY WILL BE GLAD TO HEAR OF PROGRESS.

BY THE WAY, SPEAKING OF THE VALLEY FORGE SIGNAL SEEKERS, CONGRATULATIONS ARE IN ORDER TO TED DAVEY, THEIR NEW PRESIDENT. GOOD WORK, AND GOOD LUCK TED.

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ARTICLES NEEDED FOR RC SOARING DIGEST...

ALTHOUGH WE HAVE A GIANT BACKLOG OF MATERIAL FROM CLUB NEWSLETTERS, THERE IS ALWAYS A NEED FOR UP-TO-DATE DIRECT CONTRIBUTIONS OF INTEREST. THESE INCLUDE THE FOLLOWING CATEGORIES:

HOW-TO TIPS ON DESIGN, CONSTRUCTION, FLYING, CONTESTS, ETC.

PRODUCT AND KIT REVIEWS.

NOVICE ARTICLES FOR THE BEGINNER OR INTERMEDIATE FLIER, SUCH AS: CHOICE OF EARLY MODELS; INITIAL OUTFIT TO GET STARTED; FILM APPLICATION; OTHER COVERING; FINISHING; THE TOOL KIT; PREFLIGHT; AIRFOILS; DO'S AND DONT'S; FINDING COMPETITION; BALLAST, C.G. AND TRIM; CLUBS; RC GEAR AND CONSIDERATIONS; THE FIRST FLIGHT; TROUBLE-SHOOTING; CONSTRUCTION NOTES ON HINGES, WASHOUT, SHAPING, FIBERGLASS, SPOILERS, GLUE & CEMENT, ETC.

PHOTOGRAPHS, THREE-VIEWS, SKETCHES, AND DRAWINGS. PLANS, TOO.

ARTICLES ON HOW TO CARRY OUT PERIODIC INSPECTIONS AND MAINTENANCE FOR RADIOS, BATTERIES, HI START OR WINCHES, ETC.

HOW ABOUT SOMEONE DOING AN ARTICLE ABOUT WING TIPS OF THE VORTEX CANCELLING VARIETY? WHICH ARE THE BEST TO USE? WHAT ABOUT TIP SHAPES LIKE DROP TANKS, FINS, PLATES, WINGLETS, ETC.?

WHO WOULD LIKE TO START AN ARTICLE ON DESIGNING A SCALE MODEL OF A FAMOUS SAILPLANE...TALKING ABOUT SCALE FACTOR, WHAT TO INCLUDE, WHAT MATERIALS ARE BEST, HOW TO RESEARCH THE FULL-SIZE MACHINE, WHERE ARE INFO SOURCES, ETC., ETC. ALSO, HOW TO MAKE IT LOOK LIKE ITS BIG BROTHER, AND WHETHER OR NOT 'SCALE' AIRFOILS SHOULD BE USED IN A MODEL.

THE PRESTIGE IS GREAT BUT THE PAY IS NIL...SO HOW ABOUT IT?

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SLOPE SOARING SITE INFORMATION NEEDED...

IF ANY OF YOU READERS HAPPEN TO KNOW OF SOME SLOPE SOARING SITES THAT WOULD BE GOOD FOR BADGE LEGS; I.E., LSF 4-AND 8-HOUR DURATION ACHIEVEMENTS, RCSD WOULD REALLY LIKE TO KNOW ABOUT THEM. I'LL BE HAPPY TO PRINT WHATEVER I GET,

ANOTHER MATTER OF INTEREST WOULD BE AN ARTICLE ABOUT SOARING OVER BODIES OF WATER. IS LIFT TO BE FOUND? IF SO, WHAT KIND, AND WHEN? WHAT KIND OF VEHICLE TO FOLLOW THE GLIDER IS BEST? WHAT ARE THE CHANCES OF SUCCESS ON CROSS-COUNTRY FLIGHTS FOLLOWING A SHORELINE WITH POSSIBLE SLOPE LIFT ALONG IT? SOME LARGE LAKES WOULD REALLY QUALIFY FOR THIS.

RCSD NEEDS YOUR INPUT.

QUARTER-SIZE ASK-18...GERRY KNIGHT'S DELIGHT

SINCE WE'RE GOING TO TALK A LITTLE ABOUT SCALE SAILPLANES, LISTEN TO WHAT GERRY KNIGHT, 360 BUNTING ROAD, ST. CATHERINES, ONTARIO L2M 7L6, CANADA HAS TO SAY:

"I'VE BEEN FLYING MY 1/4-SCALE ASK-18 FOR 12 MONTHS OR SO, AND HAVE HAD MUCH SUCCESS WITH IT FLYING FROM THE FLAT. I HAVE TO LAUNCH WITH THE WIND AND R.O.G., AS IT IS TOO BIG TO HANDLE OTHERWISE. IT THERMALS WELL AND IS SUPERB IN THE AIR...BOTH TO CONTROL AND TO LOOK AT. THE MODEL IS SCRATCH-BUILT FROM PLANS DRAWN BY CLIFF CHARLESWORTH IN ENGLAND. (41 SPRING ROAD, FROME, SOMERSET BA11 2JN ENGLAND)YOU MAY MENTION MY NAME IF YOU WRITE TO HIM. HE HAS PLANS AND CANOPIES FOR BOTH THE ASK-18 AND THE ASK-13, WHICH HE SAYS IS A SUPER FLIER ON EITHER THE SLOPE OR ON THE FLAT.

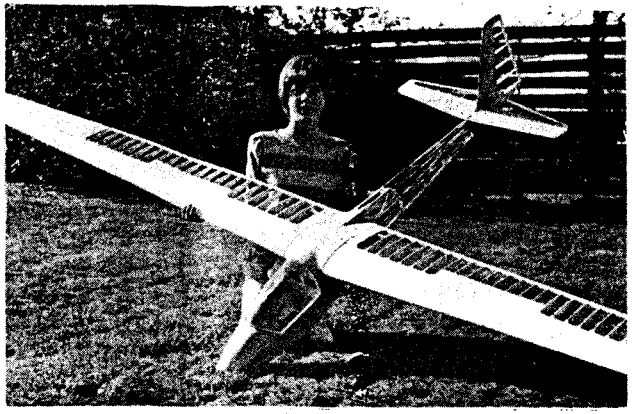
"LAUNCHING THE K-18 IS A BREEZE. I HAVE A GOOD WINCH MAN WHO JUST TAKES UP THE SLACK, WITH MYSELF ON THE WINGTIP AND HOLDING THE RADIO WITH THE OTHER HAND. A RUN OF ABOUT 20 FEET FROM A STANDING START GETS THE PLANE AIRBORNE. THERE IS NO VEERING FROM SIDE TO SIDE AT THE START - JUST A NICE STRAIGHT PULL UP INTO A STEADY CLIMB.

"YOU CAN ALSO GET THE PLANS FROM RADIO CONTROL MODELLER & ELECTRONICS (BRITISH MONTHLY MAG). INCIDENTALLY, CHARLESWORTH HAS SEVERAL OTHER LARGE SAILPLANE PLANS, AMONG THEM BEING A 1/4 SCALE GRUNAU BABY AND A 1/3 SCALE HUTTER H-17, AS WELL AS THE ASK-13.

"THE ASK-18 TOOK ME ABOUT 10 MONTHS OF BUILDING, POKING ALONG FOR ABOUT 2-3 HOURS IN THE EVENINGS. COSTWISE, I REALLY COULDN'T SAY WHAT THE PROJECT COST WAS, AS I USED SOME ALREADY PURCHASED MATERIALS, AND HAD TO BUY WHAT I NEEDED WHEN I NEEDED IT OVER A LENGTHY TIME PERIOD. I WOULD THINK THAT, REALISTICALLY, IT COULD BE BUILT FOR ABOUT $150 U.S. LESS RADIO. THE MODEL COULD BE BUILT BY ANY EXPERIENCED BUILDER, BUT IT CERTAINLY ISN'T FOR THE NOVICE. BECAUSE IT IS ALL WOOD AND FABRIC, THE BUILDING IS ENJOYABLE. THE ONLY REINFORCING I DID WITH FIBERGLASS WAS IN THE NOSE AREA BACK TO THE WING T/E. RIGHT UP FRONT I GLASSED INSIDE AND OUT FOR STRUCTURAL INTEGRITY. THE ONLY MODIFICATION I MADE OVER THE PLAN WAS IN THE WAY I BUILT THE WINGS. CHARLESWORTH BUILT THE SPARS IN A COMPLETE UNIT, AND ADDED HALF-RIBS. I OPTED TO MAKE FULL RIBS & SHEAR WEBBING IN BETWEEN. THE WINGS SEEM TO BE STRONG ENOUGH AS I HAVE DONE SOME AEROBATICS WITH NO DAMAGE. ALSO, HE USED A STEEL PLATE JOINER IN THE CENTER SECTION, WHILE I USED PARALLEL WING RODS AT THE SPAR. HE GIVES THE OPTION OF A THREE-PIECE WING OR A TWO-PIECE WING, AND I CHOSE THE LATTER...AND CAN STILL GET EVERYTHING IN MY CITATION HATCHBACK WITH THE REAR SEAT DOWN. ALSO, ONE CAN EITHER SHEET IN THE REAR FUSELAGE OR USE A FABRIC, WHICH IS SCALE; THE CHOICE IS THERE. I FOUND THAT THERE WASN'T SUFFICIENT STRUCTURAL MATERIAL TO STIFFEN THE REAR FUSELAGE WHEN USING SOLARTEX®, SO HAD TO USE ADDITIONAL GEODETIC BRACING TO MAKE THE REAR END SAFE.

"I USED A MULTIPLEX RADIO WITH 5 CHANNELS FOR RUDDER, ELEVATOR, AILERONS, SPOILERS, AND RELEASABLE TOWHOOK BOTH IN THE NOSE AND UNDER THE FUSELAGE. FLYING THE K-18 IS AN EXHILIRATING FEELING. ONCE AIRBORNE AND FREE OF THE TOWLINE IT IS A REAL DREAM TO FLY. AVERAGE WINCH LAUNCHES PUT IT UP ABOUT 300-400 FEET ON A GOOD DAY. I'M SOLD ON THE 'BIGGIES.'"

GERRY SAYS HE'LL BE GLAD TO CORRESPOND WITH ANYONE WHO HAS MORE QUESTIONS ABOUT THE ASK-18, ALTHOUGH IT MAY TAKE AWHILE AS HE IS ON A TOUR OF EUROPE FOR AN EXTENDED PERIOD ON BUSINESS. MAIL WILL BE FORWARDED.



TOP: IN SPRING 1983 TINA KNIGHT (AGE 12) POSED WITH 'BAREBONES' ASK-18 NOTE BEAUTIFUL DETAILS.

MIDDLE: THE 4-METER SPAN IS QUITE OBVIOUS WHEN COMPARED TO TINA.

BOTTOM: UP AND AWAY...ASK-18 IS A MAJESTIC SIGHT AS IT SOARS OVERHEAD. EASY ON THE EYES AND EASY ON THE CONTROLS. HAS MANY NEARLY O.O.S. FLIGHTS.

SCRATCHBUILT FROM CLIFF CHARLESWORTH PLANS, THE SHIP WILL SOON HAVE A SCALE PIPER SUPERCUB FOR TOWING, A LA FULL SIZE.

OTHERS IN CLUB A-BUILDING.