

R/C Soaring

D I G E S T

VOL. 3 No. 1

JANUARY 1986

SAMU

SPAN: 2.58 METERS (101.57")
 FUSELAGE LENGTH: 1.32 METERS (51.97")
 AIRFOIL: EPPLER 214
 ROOT CHORD: 22.5 CM (8.86")
 TOTAL AREA: 56 DM² (868 Sq. IN.)

FLYING WEIGHT:
 FULL FIBERGLASS VERSION:
 1700-2600 Gms (54 - 83 oz.)
 STYROFOAM/BALSA VERSION:
 1850-2800 Gms (59 - 90 oz.)
 WING LOADING:
 30-50 GM./DM² (8.3 - 17.2 oz./sq.ft.)
 ASPECT RATIO: 13.5

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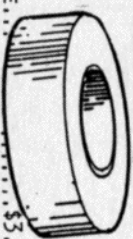
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AT LAST! A WORK CENTER FOR MODEL BUILDERS

- (A) Power Center to Hold Hobby Power Tools
- (B) Extension Work Bench
- (C) Pinable Homesote/Top Over Particle Board
- (D) Pegboard Riser
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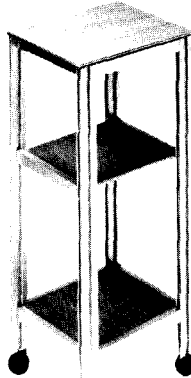
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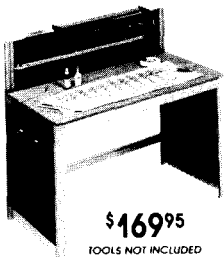
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WE'VE GOT A WINNER, FOLKS! How's that for an upbeat lead-in to the JANUARY ISSUE? BEST PART OF ALL IS THAT IT'S THE LITERAL TRUTH. RCSD HAS HAD A VERY SUCCESSFUL YEAR, CULMINATING WITH THE DECEMBER ISSUE AT A WHOPPING 24 PAGES. NATURALLY, WE CAN'T GUARANTEE THIS KIND OF ISSUE EVERY MONTH (ALTHOUGH YOU HAVE SENT ME ENOUGH MATERIAL TO DO IT) BECAUSE WE HAVE TO KEEP THE COSTS UNDER CONTROL. SUBSCRIPTIONS ARE POURING IN AT AN UNPRECEDENTED RATE, BOTH RENEWALS AND NEW ONES, AND THE OUTLOOK IS VERY HEALTHY. YOU'VE NOTICED WE HAVE MORE ADVERTISERS THAN EVER BEFORE, AND THEY TELL ME YOU'RE BLOWING THEIR DOORS OFF ORDERING THEIR GOODS AND SERVICES. IN PARTICULAR, GEORGE SPARR OF AEROSPACE COMPOSITE PRODUCTS TELLS ME THAT YOU, THE RCSD READERS HAVE RESPONDED TO HIS ADS BETTER THAN ANY OTHER SINGLE USER GROUP. I EXPLAINED THAT TO GEORGE BY THE FACT THAT SOARING PEOPLE ARE AT THE CUTTING EDGE OF TECHNOLOGY BECAUSE WE ARE INTERESTED IN CO-OPERATING WITH NATURE AND SIDESTEPPING HER FORCES BY GUILE RATHER THAN TRYING TO OVERPOWER THEM. THIS MEANS NEW MATERIALS, NEW DESIGNS AND ADVANCED AERODYNAMICS...ALL BEING BROUGHT TOGETHER IN YOUR SAILPLANES.

SPEAKING OF ADVERTISERS, I'D LIKE TO MAKE A FEW SUCCINCT COMMENTS. FIRST OF ALL, MANY OF YOU KNOW THAT I MAKE MY LIVING AS AN ADVERTISING SALES MANAGER FOR AN INTERNATIONAL MAGAZINE. THEREFORE, I HAVE SOME EXPERIENCE ON BOTH SIDES OF THE DESK, AS SOMEONE IN THE BUSINESS AND AS A CONSUMER. SECOND, I WANT YOU ALL TO KNOW THAT NONE OF US IS PERFECT, AND EACH OF US SLIPS UP NOW AND AGAIN - USUALLY INADVERTENTLY. THIS HOLDS TRUE OF BUSINESSES AS WELL AS INDIVIDUALS BECAUSE EVERY BUSINESS IS RUN BY PEOPLE. EVERY ONCE IN AWHILE AN ADVERTISER GETS A BAD NAME THROUGH NO FAULT OF HIS OWN. SOMETIMES IT'S BECAUSE OF A COMMUNICATIONS GAP; OTHER TIMES IT'S BECAUSE OF ILL FORTUNE; AND STILL OTHER TIMES IT'S BECAUSE (LIKE MANY OF US) THAT ADVERTISER HAS TOO MUCH TO FILL A TWENTY-FOUR HOUR DAY, AND TRIES TO CRAM 36 HOURS WORTH OF WORK INTO THAT SHORT DAY. READERS AND CONSUMERS AREN'T GUILTY EITHER. THEY CALL AT ALL HOURS OF THE DAY AND NIGHT, THEY EXPECT NEXT-DAY DELIVERY, THEY PASS BAD CHECKS (RARELY - BUT ONCE IN AWHILE), AND THEY EXPECT PERFECTION WHEN THEY CAN'T PERFORM PERFECTLY THEMSELVES. IN SHORT, WE'RE ALL UNREASONABLE AND UP-TIGHT ON OCCASION. WHAT I'M GETTING AT IS THAT YOU AND I MUST NOT EXPECT THE IMPOSSIBLE. HOWEVER, WHEN AN ADVERTISER USES THESE PAGES TO INTENTIONALLY DEFRAUD MY READERS, I GET BOILING MAD. SO FAR, WE HAVEN'T EVEN HAD THE HINT OF SUCH AN UNSCRUPULOUS BUSINESS ADVERTISER - THANK GOODNESS - BUT IF WE DO, I PROMISE YOU THAT ALL YOU HAVE TO DO IS TELL ME, AND I'LL CAN THAT AD SO FAST YOUR HEAD WILL SWIM. NOT ONLY THAT, I'LL GO TO BAT FOR YOU AND PROMISE HIM THAT I'LL SPREAD THE WORD AMONG OUR READERS TO THE POINT THAT HIS BUSINESS WON'T BE SUPPORTED BY US. I INTEND TO SUPPORT GOOD ADVERTISERS WHO DO THEIR LOYAL BEST TO HELP YOU, AND I INTEND TO WEED OUT THE BAD ONES - PRONTO. LET ME KNOW, BECAUSE I'M YOUR BEST FRIEND AND STRONGEST ALLY. WHEN AN ADVERTISER DOES A SPECIAL FAVOR FOR YOU, GIVES BETTER THAN AVERAGE SERVICE, AND MAKES YOU SATISFIED, I WANT TO KNOW THAT TOO, BECAUSE I'LL PRAISE HIM AND SPREAD THE GOOD WORD IN RCSD. STICK WITH US, READERS; 1986 WILL BE A SMASH-HIT OUT-OF-THE-PARK SUCCESS...ALL BECAUSE OF YOU. HAPPY SOARING

Jim

INTERNATIONAL POSTAL CHALLENGE.....KALE HARDEN

You've all heard or seen information about the International Postal contests that take place at the same time around the world...with each club flying the same tasks and rules - regardless of where they may be and what the weather is like. This is a most interesting idea, and has been very successful for several years. This year, for the first time, the Versmold Club from Germany has WON the contest -- using all tail-less aircraft; yes, that's right - Flying Wing sailplanes! Here's Kale with some photos and results...

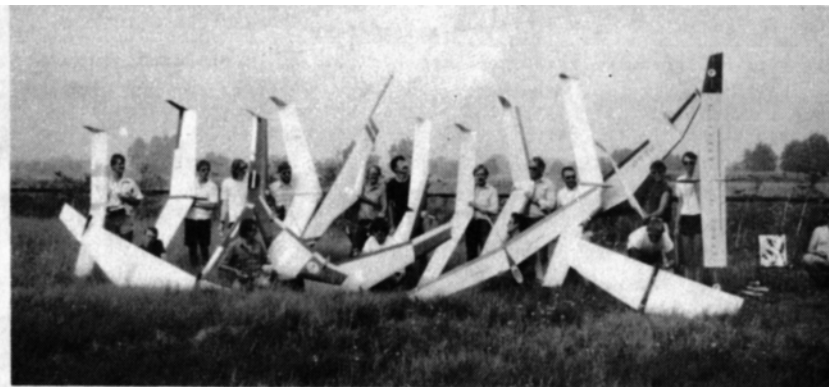
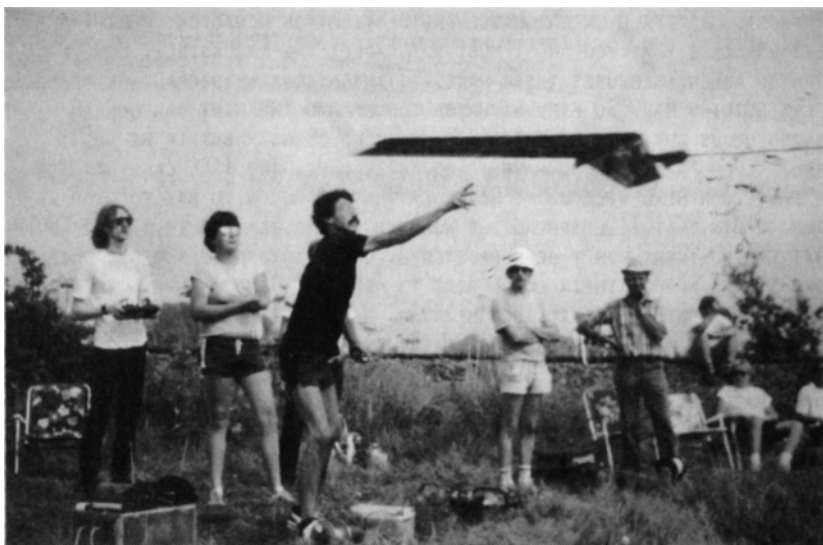
"WELL, OUR SEPTEMBER 1985 POSTAL IS FINISHED, AND THE RESULTS HAVE BEEN RECEIVED, TABULATED, AND MAILED OUT TO THE CLUBS. THIS TIME THERE WERE SEVEN (CLUBS) IN ALL. THE CHILE GROUP APPARENTLY DID NOT PARTICIPATE, AS I RECEIVED NO CORRESPONDENCE FROM THEM. HOWEVER, WE DID GET RESULTS FROM A CANADIAN CLUB WHICH FILLED IN THE GAP LEFT BY CHILE. THE HUGE SURPRISE, AS YOU CAN SEE, IS THE CLUB FROM VERSMOLD, GERMANY. THEY CAME IN FIRST, AND AS YOU MAY RECALL FROM PREVIOUS FOTOS AND CORRESPONDENCE, THEY FLY ONLY TAILLESS MODELS. THAT SHOULD GIVE THAT TYPE OF SAILPLANE (FLYING WINGS) A SHOT IN THE ARM. I ENCLOSE SOME PICTURES FROM THEIR CORRESPONDENT, REINHARD WERNER. THE VERSMOLD CLUB HAD THE LARGEST NUMBER OF CLUB MEMBERS PARTICIPATING, OF ALL THE CLUBS, SO YOU CAN SEE THERE IS A LOT OF ENTHUSIASM THERE. REINHARD SAYS THAT SOME FALLOUT FROM THE POSTAL CONTEST HAS CREATED INTEREST IN F3B FLYING AMONG SOME OF THE CLUB MEMBERS...SIXTEEN OF WHOM COMPTED IN THE CONTEST. THE PELICAN CLUB (FLORIDA) HAD TEN PARTICIPANTS, AND THE SOUTH AFRICAN GROUP HAD FIVE - THE MINIMUM NUMBER ALLOWED.

"A FURTHER NOTE ABOUT THE CONTEST WAS THE FINE SCORE TURNED IN BY GARY JORDAN OF THE BRISBANE, AUSTRALIA GROUP. IT WAS THE HIGHEST SCORE TURNED IN BY AN INDIVIDUAL COMPETITOR, AND HE DID IT WITH HIS RECENTLY-COMPLETED 'CALYPSO' - THE MODEL DESIGNED BY STU BLANCHARD (ENGLAND) AND FLOWN BY HIM TO 4TH PLACE IN THE F3B WORLD CHAMPIONSHIPS IN AUSTRALIA THIS (LAST) APRIL. IT REALLY IS AN EXTRAORDINARY MODEL. PLANS HAVE BEEN PUBLISHED IN THE ENGLISH RADIO MODELER MAGAZINE AND WILL SOON BE PUBLISHED IN THE AUSTRALIAN R/C MODELER MAGAZINE, ALSO. THIS MODEL ALSO WON THE 'AWARD OF MERIT' AT THE WORLD CHAMPIONSHIPS.

"WE ARE NOW CONSIDERING A CHANGE FROM TWO CONTESTS PER YEAR TO ONE. THE WEATHER IN SOME OF THE NORTHERN HEMISPHERE COUNTRIES LIKE ENGLAND MAKE A MARCH CONTEST IMPRACTICAL. (HEY, KALE, WHAT ABOUT THE USA; HAVE YOU EXPERIENCED SOME OF OUR MARCH WEATHER?...JHG). I AM AWAITING COMMENTS FROM THE CLUBS ON THIS PROPOSAL." CHEERS, (SIGNED) KALE.

FINAL STANDINGS: W, GERMANY - 30,410; R, SOUTH AFRICA - 29,187; AUSTRALIA - 29,058; USA - 26,888; ENGLAND - 26,500; CANADA - 25,477; NEW ZEALAND - 23,509.

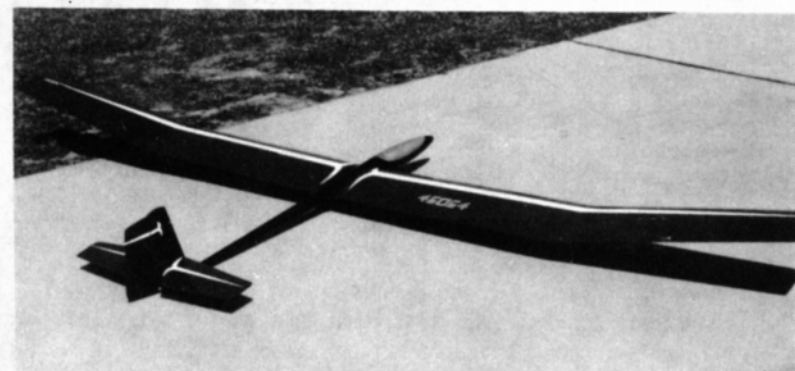
HANS-JUERGEN UNVERFERTH LAUNCHES HIS "PIRX"...AIRBORNE AT LAST



MEMBERS OF THE VERSMOLD CLUB POSE WITH THEIR FLYING-WING SAILPLANES.



ALFONS GABSCH LAUNCHES "SIRENA"...NOTICE THE MR.SPOCK (STAR TREK) FINGERS LAUNCHING METHOD...PROBABLY ACCOUNTS FOR HIS 'FAR OUT' PERFORMANCE!



KALE HARDEN'S EUROPA: FIBERGLASS FUSELAGE W/REMOVABLE NOSE CONE 130" SPAN. EXCELLENT PERFORMER

ARE WE FLYING TOO SLOWLY? ERNIE CURRINGTON*

Ernie Currington is an aero engineer living in Kirkland, Quebec. He reads RCSD and has submitted interesting material for our pleasure and information...things he has learned by applying his engineering knowledge to his favorite sport/hobby of RC Soaring. Here's Ernie...

THE PURPOSE BEHIND THIS NOTE IS TO DEMONSTRATE MY BELIEF THAT SOME RC SAILPLANE FLIERS (INCLUDING ME) ARE FLYING IN A HAZARDOUS AREA WHEN WE CHASE THAT NEBULOUS POINT - MINIMUM SINK. HOW MANY TIMES WHEN WE ARE FLYING - FAT, DUMB, AND HAPPY - DO WE FIND THAT SUDDENLY, WITHOUT WARNING, THE SAILPLANE STALLS?

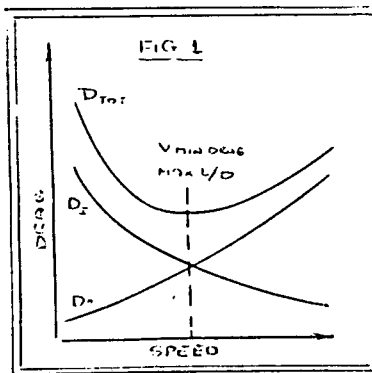
BEFORE GETTING INTO THE MEAT OF THE MATTER, LET ME SAY THAT I HAVE NOT SEEN ANY DISCUSSION OF THIS IN ANY AERODYNAMIC TEXT BOOKS OR REPORTS. THEY MAY BE THERE, BUT I HAVE NOT SEEN THEM. IT IS, HOWEVER, PART OF THE 'FOLK LORE' OF FULL-SIZE DESIGN PRACTICE WHERE A MINIMUM VALUE IS PLACED ON SPEED (ABOVE STALL).

LET US START BY TALKING ABOUT DRAG: IN OUNCES, POUNDS, BAGS OF COAL, ETC. --NOT DRAG COEFFICIENTS. DRAG ARISES FROM A NUMBER OF CAUSES BUT MAY BE DIVIDED INTO TWO MAJOR ELEMENTS:

1. PROFILE DRAG (D_0) WHICH INCREASES WITH SPEED SQUARED
2. INDUCED DRAG (D_1) WHICH DECREASES WITH SPEED SQUARED

THESE ARE SHOWN IN FIGURE 1, AND - WHEN ADDED TOGETHER - FORM THE TOTAL DRAG, AS SHOWN. THE TOTAL DRAG CURVE IS TYPICALLY OF PARABOLIC SHAPE, AND HAS A MINIMUM WHERE $D_0 = D_1$. THIS POINT IS ALSO AT A SPEED FOR MAXIMUM GLIDE RATIO - L/D_{MAX} . THIS IS ALSO THE MINIMUM DRAG SPEED: V_{MD} .

NOW LET US CONSIDER AN R/C SAILPLANE, TRIMMED FOR STEADY LEVEL FLIGHT, STICK FIXED, HANDS OFF, AT POINT 'A'. IF IT MEETS AN ACCELERATING DISTURBANCE, ITS TENDENCY TO SPEED UP WILL BE RESISTED BY THE SAILPLANE WANTING TO 'CLIMB' THE DRAG CURVE. IF IT MEETS A DECELERATING DISTURBANCE, ITS TENDENCY TO SLOW DOWN WILL BE RESISTED BY THE SAILPLANE WANTING TO 'DESCEND' THE DRAG CURVE. IT IS THEREFORE IN GENERAL EQUILIBRIUM.



W/SQ.FT.	6.35	8.0	10.0
V_{STALL} FPS	16.7	19.7	21.0
MIN SINK			
V_{FPS}	17.40	20.0	22.0
MARGIN	4.2%	7.0%	9.1%
$V_{MIN DRAG}$ FPS	1.20	1.30	1.45
MIN DRAG			
V_{FPS}	19.60	20.81	23.51
MARGIN	11.4%	11.2%	11.7%
V_{STALL} FPS	1.22	1.32	1.43

WHEN WE CONSIDER THE SAILPLANE AT POINT 'B'; I.E., BELOW V_{MD} , AN ACCELERATING DISTURBANCE IS STRENGTHENED BY THE SAILPLANE WANTING TO 'DESCEND' THE CURVE. UNDER SOME CIRCUMSTANCES, I BELIEVE THAT IT CAN 'ROLLER-COASTER' DOWN THE CURVE TO A POINT ABOVE V_{MD} . THIS ISN'T TOO BAD, HOWEVER, COMPARED WITH THE EFFECTS OF A DECELERATING DISTURBANCE.

CURRINGTON'S DRAG (CONTINUED).....

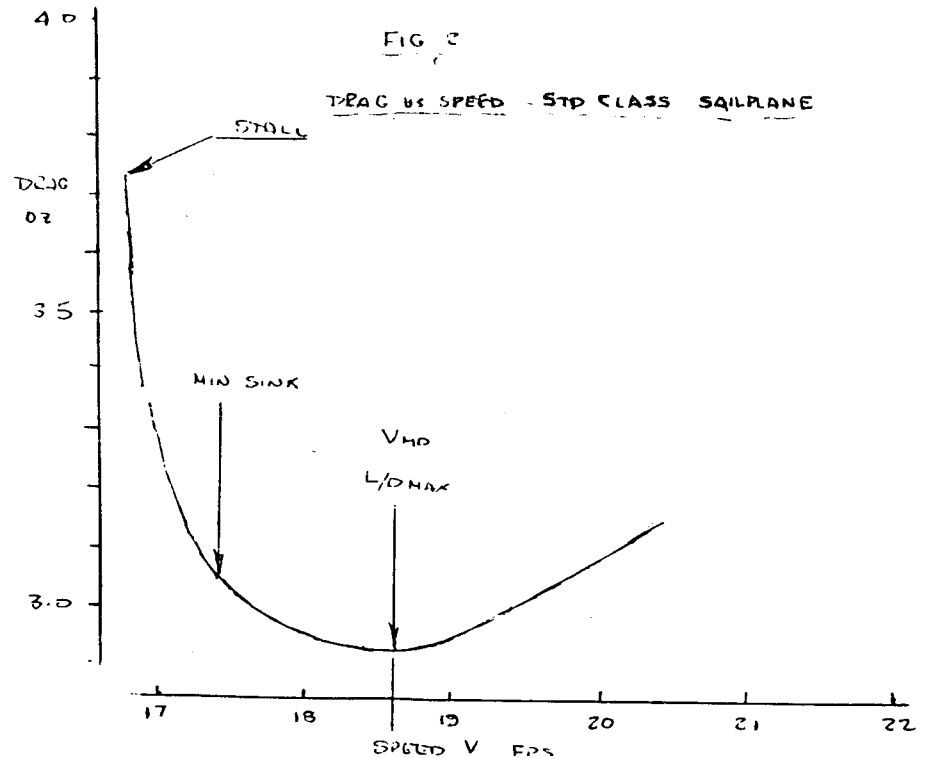
HERE, ITS TENDENCY TO SLOW DOWN IS STRENGTHENED BY IT WANTING TO 'CLIMB' THE CURVE AND DECELERATE MORE; TO WIT: "HE WHO STALLETH, FALLETH."

FIGURE 2, SHOWS THE CALCULATED DRAG VS. SPEED FOR A TYPICAL STANDARD CLASS SAILPLANE - TAKEN FROM MARTIN SIMONS' ARTICLE IN SOARTECH I - I.E., 1,000 SQUARE INCHES, 6.35 OZ./SQ.FT., EPPLER 193. THIS DATA HAS BEEN EXPANDED, USING SIMONS' PROGRAM AND DATA, IN TABLE 1, TO SHOW THE EFFECTS OF WING LOADING. LOOKING AT THESE NUMBERS, IT WILL BE SEEN THAT AT $W=6.35$ OZ./SQ.FT., THE MARGIN BETWEEN $V_{MIN. SINK}$ AND STALL IS ONLY 4.2%. FLIGHT AT $V_{MIN. DRAG}$, HOWEVER, GIVES A MARGIN OF 11.4%. THIS IS, OF COURSE, AT THE EXPENSE OF SINK RATE...BUT ONLY A DIFFERENCE OF 0.8 FPS, OR 10 SECONDS IN 500 FEET. IT IS INTERESTING TO NOTE THAT THE MARGINS INCREASE AS W (WING LOADING) INCREASES, BUT THE CHANGE IN SINK RATE IS ONLY MINOR.

THIS SLIGHT REDUCTION IN CRUISE PERFORMANCE IS, I BELIEVE, ONLY A SMALL PRICE TO PAY TO AVOID A SUDDEN, UNPREDICTABLE STALL THAT COULD COST MUCH MORE. ALSO, FLYING AT THIS HIGHER SPEED AND L/D WILL GIVE A BETTER CHANCE OF GETTING AWAY FROM A CASE OF THE GALLOPING SINKIES, AND WITH LESS LOSS OF HEIGHT.

YES, I BELIEVE WE DO TEND TO FLY TOO SLOWLY, AND WHEN WE HAVE FOUND WHAT WE CONSIDER TO BE OUR BEST THERMALLING SPEED, WE SHOULD JACK IN A NOTCH OR TWO OF DOWN TRIM.

I WOULD LIKE TO HAVE COMMENTS OR SUGGESTIONS. IF I AM RIGHT, MAYBE WE HAVE ALL LEARNT SOMETHING; IF I AM WRONG, THEN I WILL HAVE LEARNT.
*E.G. Currington, 12 Caribou Crescent, Kirkland, Quebec H9J 2H8 Canada





SLOPE SCALE - JET VERSION - FROM ENGLAND.....HOWARD METCALF

MOST OF US HAVE BEEN AWARE FOR SOME TIME THAT THERE IS A MOVEMENT AMONG SLOPE SOARING PILOTS IN ENGLAND (AND ELSEWHERE, TOO) TO BUILD FOAM SLOPE SOARERS TO JET SCALE. THERE HAVE BEEN RECIPROCATING-ENGINE SOARERS (WITHOUT THE ENGINES OF COURSE) AS WELL. POPULARITY HAS BEEN PUBLICIZED IN VARIOUS SOARING COLUMNS, INCLUDING THIS ONE. AMONG THE FAVORITES ARE THE MIG-15, THE SABER F-86, THE MACCHI 339, THE ME-109, THE SPITFIRE, A HAWKER HUNTER, AND NOW THE PHANTOM F-4.

ERIC MARSDEN, ONE OF MY ENGLISH CORRESPONDENTS, LONG-TIME FRIEND, AND AVID AEROMODEL ENGINEER, HAS SENT US A PHOTO IN COLOR OF THE F-4 PHANTOM BUILT BY HOWARD METCALF. I WISH WE COULD RUN IT IN COLOR FOR YOU TO SEE, BUT THAT'S IMPOSSIBLE...SO HERE IT IS IN BLACK & WHITE.

SPECS AS FOLLOWS (COURTESY ERIC):

THE MODEL HAS AN ABS PLASTIC FUSELAGE FURNISHED IN TWO HALVES, AND A 30-INCH SPAN WING. THE DRAWINGS SHOW A Balsa WING, BUT TWO DIFFERENT FOAM WINGS ARE AVAILABLE: VENEERED WHITE FOAM, AND UN-VENEERED BLUE FOAM, BOTH LESS THE Balsa LEADING AND TRAILING EDGES. THE CRAFT FLIES WELL ON A COX 09 AND WOULD PROBABLY FLY ON AN 051 AS WELL...BUT, IT GETS 1 MINUTE IN STILL AIR FROM A STANDARD BUNGEE LAUNCH, AND HAS EVEN PICKED UP THERMALS! CAN YOU IMAGINE WHAT IT WOULD DO ON THE SLOPE IN A GOOD BREEZE?

BY NOW, YOU HAVE REALIZED THAT THIS SHIP IS AVAILABLE (OR SOON WILL BE) IN KIT FORM. THE PHOTO SHOWS THE FINAL PROTOTYPE FROM WHICH THE KIT HAS BEEN PRODUCED. I HOPE TO GET ONE HERE TO TRY OUT, AND WILL LET YOU KNOW HOW IT GOES...AND WHERE TO GET IT. THIS COULD BE MORE FUN THAN WE'VE HAD IN 'YONKS' AS THE ENGLISH HAVE BEEN KNOWN TO SAY. STAY TUNED TO RCSD FOR FURTHER NEWS.

* * * * *

SUPERWINGS UPDATEJIM GRAY

I HAVE SPOKEN WITH WAYNE CUSTER RECENTLY ABOUT HIS BACK-ORDER SITUATION, AND HE EXPLAINS IT THIS WAY: THERE HAS BEEN AN OVERWHELMING NUMBER OF ORDERS RECEIVED IN THE PAST MONTH OR SO, AND THE BACKLOG IS GROWING DAILY. HE PLANS TO DEVOTE AT LEAST FOUR HOURS EVERY DAY TO GET CAUGHT UP. REMEMBER, THIS IS A HOBBY BUSINESS, AND NOT A FULL-TIME REGULAR JOB AT PRESENT, BUT WAYNE EVENTUALLY PLANS TO PHASE OUT OF HIS REGULAR JOB AND DEVOTE ALL HIS ENERGIES TO SERVING THE HOBBY WORLD. MEANWHILE, BE PATIENT, AND EXPECT A DELAY ON ORDERS OF UP TO SEVERAL WEEKS. PLEASE ALLOW TIME FOR YOUR CHECKS OR MONEY ORDERS TO CLEAR YOUR BANK AFTER SUPERWINGS PUTS THEM THROUGH AND SHIPS THE ORDER WHEN THEY CLEAR. THIS SHOULD TAKE ABOUT THREE WEEKS, MAXIMUM. ONE OF THE PROBLEMS IS THAT SO MANY ORDERS HAVE BEEN FOR CUSTOM-CUT FOAM WING CORES, AND THESE TAKE CONSIDERABLY LONGER TO SET UP AND PRODUCE THAN THE STANDARD, OFF-THE-SHELF CORES.

PLEASE NOTE ALSO THAT THE SUPERWINGS CATALOG, SHOWS PRODUCTS ORIGINALLY SOLD BY HY JOHNSON IN CALIFORNIA. WAYNE BOUGHT PART OF THE BUSINESS (THE FOAM CORES PART) AND VIKING MODELS BOUGHT PART (THE SMALL FORMED ACCESSORIES AND CANOPIES). WHEN YOU ORDER YOUR CORES, PLEASE MAKE SURE THAT THE ORDER AND CHECK GOES TO WAYNE CUSTER AT SUPERWINGS IN MICHIGAN, AND NOT TO THE OLD CALIFORNIA ADDRESS OR THE VIKING MODELS ADDRESS. MANY OF YOUR ORDERS HAVE GONE TO THE WRONG PLACE, IT SEEMS. 'NUFF SAID.

JERRY SLATES AT VIKING MODELS HAS HIS OWN SERIES OF SAILPLANES AND FUSELAGE KITS AVAILABLE, AND SOMETIMES IMPORTED VENEERED CORES FROM ENGLAND.

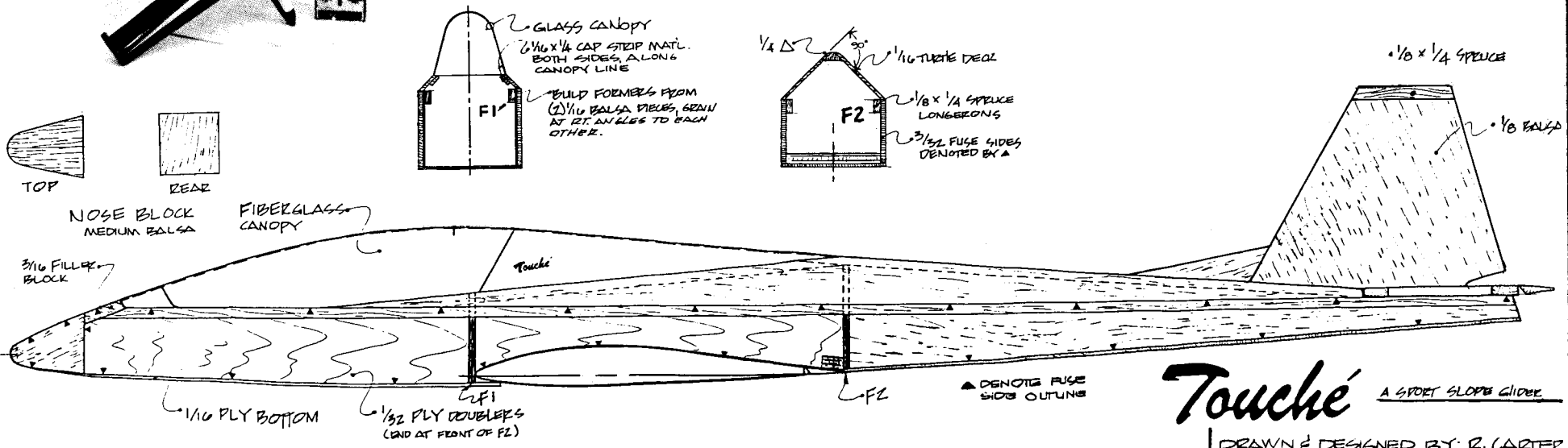
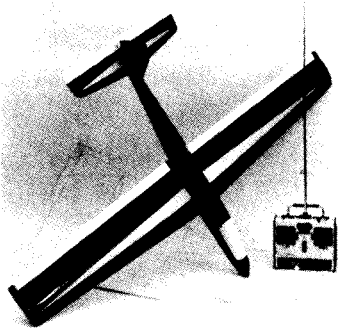
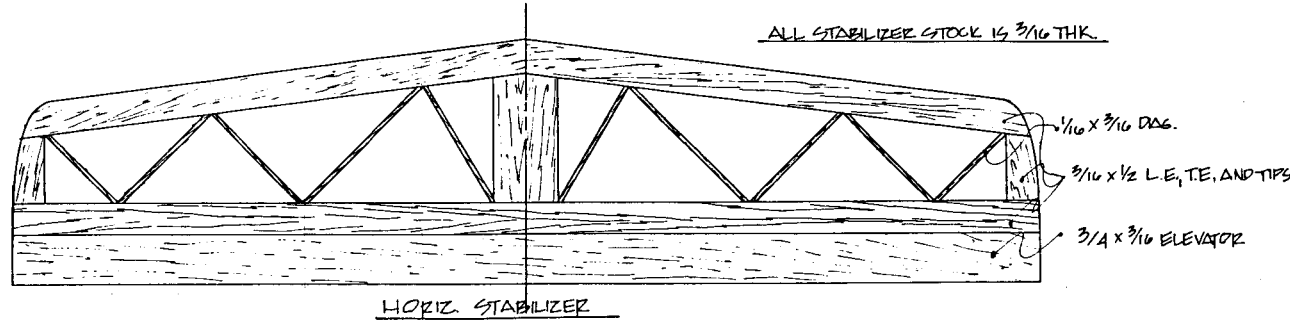
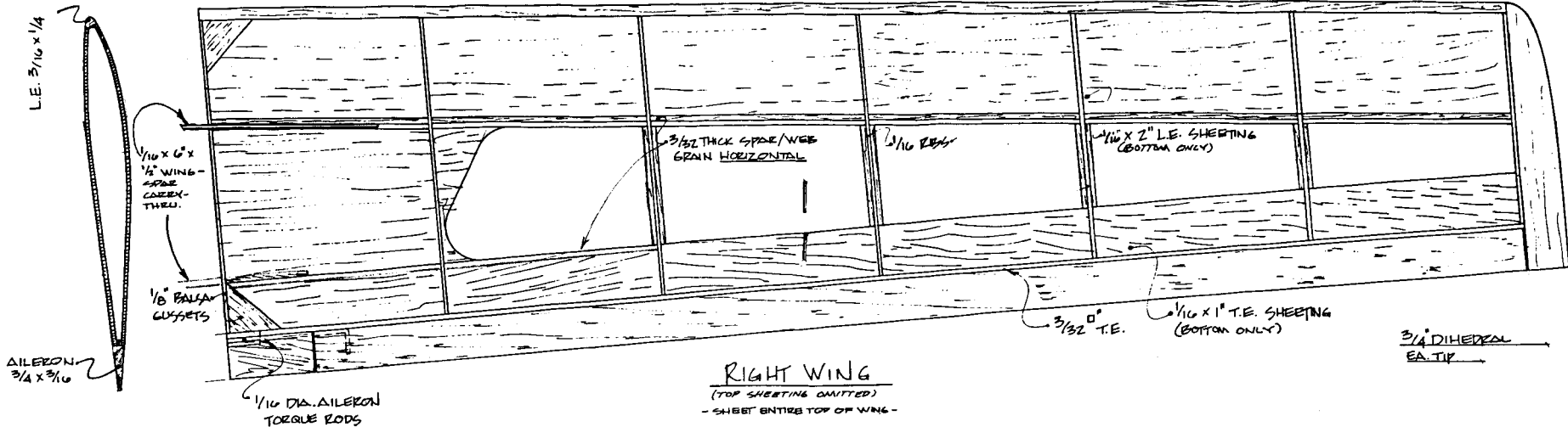
APOLOGY IN ORDER:.....LB-3 GENEALOGY.....JIM GRAY

A COUPLE OF ISSUES AGO, I PRESENTED A DRAWING AND BRIEF DESCRIPTION OF AN AUSTRALIAN SAILPLANE CALLED THE LB-3, AND WRONGLY CREDITED THE DESIGN TO MY GOOD FRIEND AND AUSSIE CORRESPONDENT, BRUCE ABELL. NOW, I WANT YOU TO KNOW THAT IT WAS, INDEED, BRUCE WHO SENT ME THE INFO, BUT IT'S RECENTLY BEEN UPDATED WITH A TAPE AND A SET OF SPECS AND THREE-VIEWS. THE SAILPLANE LB-3 BELONGS TO PHIL BIRD, HIGH-SCORING MEMBER OF THE AUSTRALIAN F3B TEAM AT THE 1985 WORLD RC SOARING CHAMPIONSHIPS. THE DESIGN IS PARTLY PHIL'S AND PARTLY THAT OF ANOTHER GOOD FLIER AND DESIGNER, ALAN LOWE. IT'S ALSO PARTLY A PRODUCT OF SOME OTHER INGENIOUS AUSSIE BRAINS AND SKILLS...ALL OF WHICH MAKES ME A BIT ASHAMED OF NOT HAVING MY FACTS STRAIGHT IN THE FIRST PLACE. SORRY, MATES, BUT I PROMISE YOU THAT "SHE'LL BE RIGHT."

IN THE NEXT ISSUE, I'LL PRESENT THE LB-3 STORY AS TAKEN FROM A TAPED INTERVIEW, COURTESY OF BRUCE ABELL. WHEN YOU SEE IN PRINT "OWTHEBLOODY-ELLAREYA" YOU'LL KNOW WE'VE STARTED THE AUSSIE STORY...F3B/LB-3.

* * * * *

COVER: GOOD THERMAL PERFORMER AND EXCELLENT SPEED MACHINE
 CHARACTERISTICS: SAMUN SUITABLE FOR F3B CONTEST FLYING. THREE FLAP POS-
 ITIONS: -6 DEGREES FOR PENETRATION; 0 DEGREES FOR
 THERMALLING AND CRUISING; +7 DEGREES FOR LAUNCHING.
 THE SHIP IS VERY SIMPLE TO FLY, BUT WITH THE VARIABLE BALLAST AND
 FLAP ACCOMMODATIONS, PLUS THE E214 AIRFOIL, IT IS AN EXTREMELY
 CAPABLE MACHINE FOR ALMOST ALL POSSIBLE SOARING NEEDS.



SPAN: 50.0" • AREA: 293.75" • WEIGHT: 16-20 OZ. • FUNCTIONS: AILERON & ELEVATOR

Touche' A SPEED SLOPE GLIDER

DRAWN & DESIGNED BY: R. CARTER
DATE: 8-24-84

TOUCHE'.....A NEW SAILPLANE FOR SPORT AND SLOPE....RON CARTER

Recently, we've had the pleasure of RC Design and Development (Super Spoilers) coming into RCSD as an advertiser, and - indirectly - you've met Ron Carter because he is RC Design and Development. Just a month ago Ron asked me if I would be interested in featuring one of his new designs in an up-coming issue of RCSD. I said yes, and the results are right here. Folks, I give you Ron Carter of Provo, Utah.

HAVE YOU EVER HAD A "DESIGN ATTACK?" IT IS KIND OF LIKE A "BIG MAC ATTACK." WHEN ONE OF THESE HITS, MY JOB RESPONSIBILITIES, MY SOCIAL AND BUSINESS COMMITMENTS, AND MY SANITY GO RIGHT OUT THE WINDOW UNTIL I HAVE SPENT AN HOUR OR SO DRAWING THE NEXT GREAT WORLD-BEATER SLOPE RACER, OR AN ASW-23, OR...OR, ETC.

THE TOUCHE' IS THE RESULT OF SUCH A "DESIGN ATTACK", AND TOOK ABOUT THREE LUNCH HOURS TO COMPLETE THE DESIGN. ITS ONLY UNIQUE QUALITY IS THAT I FINISHED THE PLANS AND ACTUALLY BUILT ONE!

AS YOU CAN SEE, THE TOUCHE' BUILDS FAST AND SIMPLE, AND IT FLIES THAT WAY, TOO. THE TOP OF THE WING IS FULLY SHEETED -- THE IDEA BEING TO DETER LOW-SPEED SEPARATION AND STALL, AND IT WORKED! THE FUSELAGE IS A BASIC BOX PLUS A 45-DEGREE TURTLEDECK. THE CANOPY CONSISTS OF TWO LAYERS OF GLASS: ONE OF 6-OZ. CLOTH AND THE OTHER 4/5-OZ. CLOTH OVER A SIMPLE BLUE FOAM MOLD. I USED EPOXY (TAP 4 IN 1), THEN SANDED AND PRIMED, SANDED AND PRIMED, AND PAINTED IT FOR A BEAUTIFUL FINISH AND A REAL FOCAL POINT OF THE DESIGN. ONE BENEFIT OF THE CANOPY DESIGN IS THAT YOU CAN ACCESS ALL THE RADIO EQUIPMENT WITHOUT REMOVING THE WING AS IS REQUIRED ON THE TYPICAL LOW WINGERS.

FLYING THE TOUCHE' IS A LOT OF FUN. OUR LOCAL SLOPE SITE HAS A SMOOTH, 300-FOOT HIGH RIDGE WITH A ROCK QUARRY CUT OUT AT ONE END. FLYING BELOW WAIST LEVEL, PARALLEL TO THE SLOPE, AND THEN DIVING INTO THE "PIT" AND DOING ROLLS AND LOOPS AT EYE LEVEL IS REALLY THRILLING. DIVING INTO THE "PIT" AND PULLING UP HARD OVER THE RIM AND THEN LEVELLING OUT ALONG THE RIDGE IS ALSO EXCITING.

THE AIRFOIL ON THE TOUCHE' IS 11 PERCENT AT THE ROOT AND 15 PERCENT AT THE TIP, ALLOWING FOR REAL GOOD NOSE-HIGH SLOW FLIGHT FOR LANDINGS. THE AILERONS HAVE NEVER LET ME DOWN, AND REMAIN EFFECTIVE RIGHT UP TO THE STALL.

AS FAR AS TECHNICALITIES IN THE DESIGN, MOMENTS, AREAS, ETC., ARE CONCERNED, I USED THE T.L.A.R. (THAT LOOKS ABOUT RIGHT) METHOD. HONEST, IF IT LOOKS GOOD, IT SHOULD FLY ABOUT THE SAME -- THAT IS, AS LONG AS THE DESIGNER KNOWS THE RULES OF GOOD DESIGN.

SO, NEXT TIME YOU HAVE A "DESIGN ATTACK", FOLLOW IT THROUGH TO COMPLETION. THE BUILDING IS THE PART THAT REQUIRES PERSISTENCE AND DETERMINATION.

EDITORS NOTES:

IT LOOKS LIKE RON HAS A WINNER HERE, AND RCSD WOULD LIKE TO MAKE IT EASY FOR YOU TO BUILD IT. SO FAR, WE HAVEN'T PRODUCED A FULL-SIZE SET OF PLANS FROM RON'S DRAWINGS, BUT IF THE INTEREST IS GREAT ENOUGH, WE MAY JUST MAKE THEM AVAILABLE TO ANYONE WHO WRITES. THEY WON'T COST MUCH...AND THE SMALL AMOUNT RCSD WILL ASK GOES MOSTLY TO RON. PLEASE WRITE AND LET ME KNOW IF WE SHOULD RESERVE A FULL-SIZE SET OF PLANS FOR YOU. (JIM G.)

CUMIC CONSTRUCTION REVISITED.....CLYDE WHITE AND LEE MURRAY

In a recent issue, Lee Murray wrote about his experience building an Airtronics CUMIC sailplane. Then, he received a letter from Clyde White, who added his own experiences and observations gleaned from his construction of a CUMIC. Here they are, as presented in Lee's letter to RCSD on the subject.

Dear Jim,

Thanks for passing on the letter from Clyde White regarding the Cumic construction article. Clyde has a few good suggestions and alternate methods of construction that would be worth sharing. I appreciated his note and your passing it on. It makes me realize that someone is listening and that the time in writing the article was possibly worth it. When I saw Bob Renaud at the Chicago Hobby show, he also mentioned that the information was useful and some changes are being made. I sent Bob a rough copy in advance.

As for the construction comments, here is what Clyde suggested:

Drilling Wing Pin Hole

Clyde makes a 1/4" balsa former with the 1/4" hole drilled in it. The former is tacked onto the canopy cut out flange of the fuselage. (see illustration 1) The wing is aligned and held in place using rubber bands and clothes hanger wire hooks. The drill is actually 1/4" brass tubing with a sharp edge. The hole is made by hand turning the tubing.

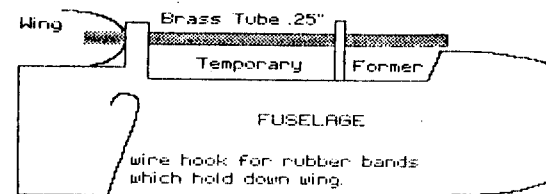
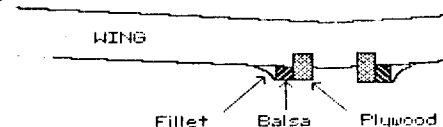


ILLUSTRATION 1

Attaching Top Leading Edge Sheeting on Wing

A smooth coat of aliphatic resin is added on top of the spar, all rib tops and corresponding parts of sheeting and allowed to dry. The balsa sheet is positioned on the leading edge and ironed in place using a hot sealing iron as is used with Mono-Kote (high temperature setting). The sheet is first attached to the spar and then worked down to the spruce leading edge piece. The dry aliphatic resin forms a bond under the heat.

ILLUSTRATION 2



Wing Saddle

A cleaner wing saddle is made by first adding balsa outside of ply saddle members and sanded to the fuselage contour. A small wing fillet is made using 3M filler and a damp finger. Clyde hardens the fillet by wiping on thin Zap. This doesn't require sanding. (see illustration 2)

Spoiler Control

Clyde used a steel cable a clevis and a control horn to get positive opening and closing of the spoilers.

HEIDI'S WING CONSTRUCTION...HELMUT LELKE(AS TOLD TO BOB RONDEAU)

LAST MONTH IN THE FIRST PART OF THIS ARTICLE, HELMUT ANSWERED MY QUESTIONS ABOUT HIS MODELING BACKGROUND, FLYING TECHNIQUE, AND EXPERIMENTS WITH THE ELECTROSTATIC AUTOPILOT THAT LED TO THE DEVELOPMENT OF HIS UNUSUAL GLIDER. THERE IS ONE QUESTION I DIDN'T INCLUDE, BECAUSE I THOUGHT IT WOULD MAKE A GREAT ARTICLE BY ITSELF. HERE IT IS...

RCSO: "WHY DO YOU USE AN EPPLER 205 AIRFOIL? CAN YOU DESCRIBE YOUR WING-BUILDING METHOD?(I'VE HEARD YOU MENTION A ROUTER???)"

H.L.: "THE EPPLER 193 USED TO BE MY AIRFOIL CHOICE UNTIL I DISCOVERED THE E-205. THE TWO AIRFOILS HAVE ESSENTIALLY THE SAME AERODYNAMIC CHARACTERISTICS, BUT THE DIFFERENCE LIES IN THE FACT THAT THE E-205 HAS A FLAT BOTTOM AFT OF THE HIGH POINT WHICH LENDS ITSELF TO MY BUILDING TECHNIQUE.

"ALL FLYING SURFACES, INCLUDING THE WING, STAB AND FIN ARE MACHINED WITH A ROUTER USING A 3/4" CARBIDE BIT AS FOLLOWS:

"THE BASIC WING STRUCTURE IS GLUED UP OVER THE PLAN. THE VARIOUS COMPONENTS SUCH AS LEADING EDGE, RIBS, SPAR, AND TRAILING EDGE, ARE SHOWN IN THE CROSS-SECTIONAL VIEW (FIGURE 1). THE BOTTOM IS MACHINED FIRST BY TAPING THE WING STRUCTURE DOWN TO THE BUILDING BOARD (BOTTOM UP) WITH DOUBLE-FACED TAPE. THE LOWER PROFILE IS THEN ROUTED TO THE PROPER FINAL SHAPE USING A ROUTER JIG WHICH DEFINES THE BOTTOM SHAPE OF THE E-205.

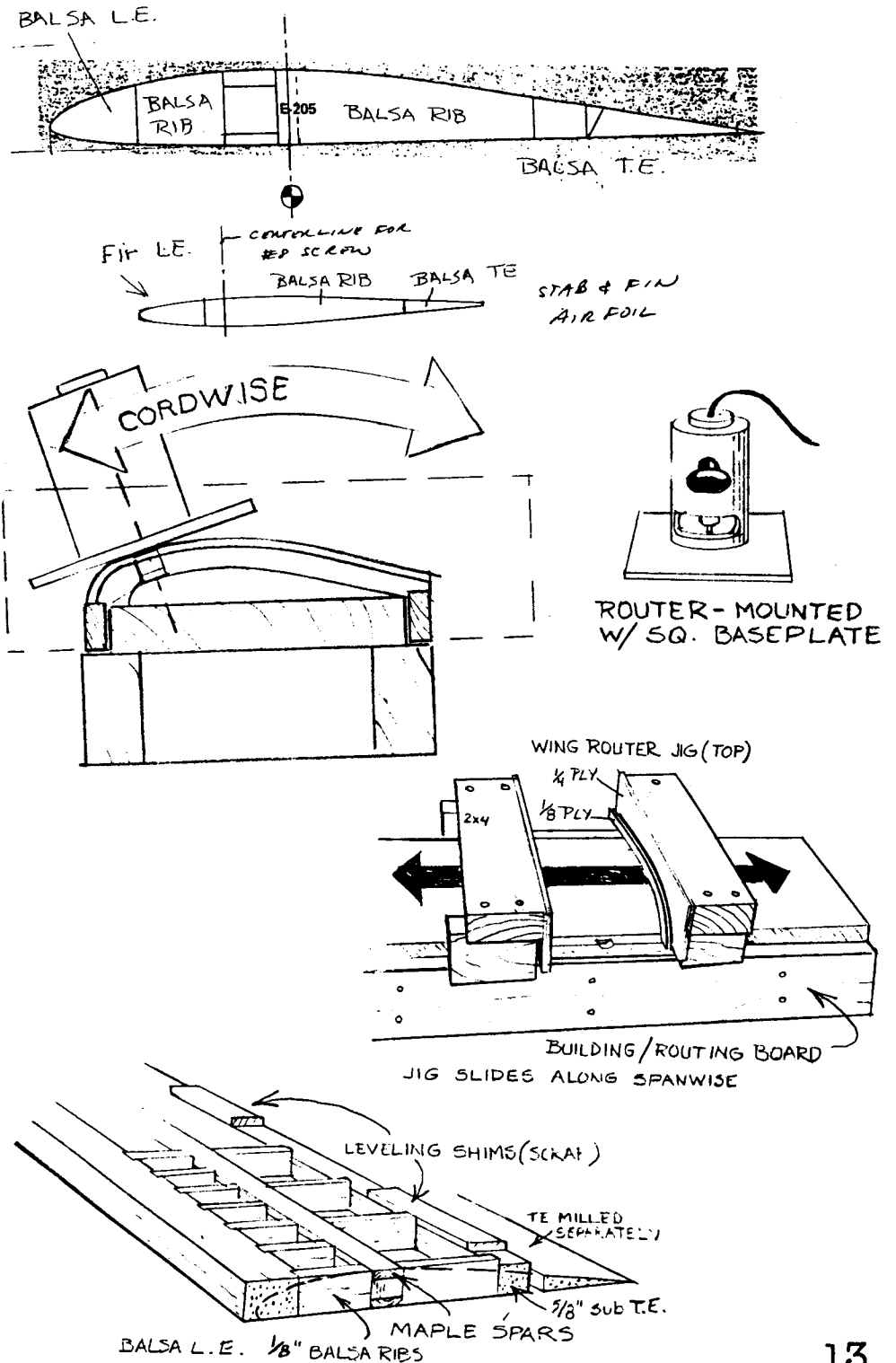
"THIS JIG CAN BE SLID THE FULL LENGTH OF THE BUILDING BOARD, AND THE ROUTER IS MOVED CHORDWISE WITH EACH PASS (FIGURE 2).

"THE WING IS THEN FLIPPED OVER AND RE-TAPED TO THE BUILDING BOARD, AND THE UPPER PROFILE IS THEN SHAPED WITH A SECOND JIG SHAPED TO DEFINE THE TOP OF THE E-205. BEFORE THE JIG WILL FIT, HOWEVER, I HAVE TO CHAMFER THE TOP LEADING EDGE WITH ANOTHER SIMPLE JIG. SEVERAL PASSES ARE REQUIRED AS ONLY A SMALL AMOUNT OF WOOD SHOULD BE REMOVED WITH EACH PASS.

"THE LEADING EDGE, SPAR AND TRAILING EDGE ARE DONE WITH SPANWISE PASSES, WHILE THE 1/8" RIBS ARE MILLED WITH CHORDWISE PASSES. THE CARBIDE BIT CUTS EVENLY THROUGH BOTH THE Balsa AND THE MAPLE, AND THE WHOLE MILLING PROCESS TAKES ONLY A FEW MINUTES - WITH ONLY A LIGHT SANDING AND ROUNDING THE TIPS REQUIRED BEFORE COVERING.

"THE SAME AIRFOIL SECTION IS USED FOR THE STAB AND THE FIN. THESE SURFACES ARE MILLED TO FINAL SHAPE WITH THE ROUTER, BUT BECAUSE OF THEIR SYMMETRICAL SHAPE, A SINGLE JIG IS USED FOR BOTH SIDES. THE BASIC TAIL SURFACE STRUCTURE IS SHOWN IN FIGURE 3. THE LEADING EDGE IS MADE OF FIR WHICH GIVES IT STRENGTH AND PROPER BALANCE TO IMPROVE FLUTTER RESISTANCE. THE BALANCE POINT OF FIN AND STAB IS AT APPROXIMATELY THE 25% (OF CHORD) POINT."

ONE THING HELMUT MENTIONED WAS THE NEED TO START WITH A FLAT STRUCTURE OF EVEN THICKNESS. HE ACHIEVES THIS BY FIRST BUILDING ON A FLAT BOARD AND THEN PLANING DOWN THE TOP TO A CONSISTENT THICKNESS (APPROX. 1"). AS SOME OF THE STOCK USED IS LESS THAN 1" THICK, HE GLUES SCRAP WOOD TO THESE AREAS BEFORE PLANING. THE JIG HE USES FOR THIS OPERATION IS THE SAME JIG USED TO PREPARE THE BUILDING BOARD SURFACE.



LETTER FROM MAINE...IT'S A STATE, AND A STATE OF MIND, AS WELL.

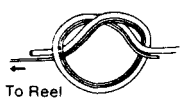
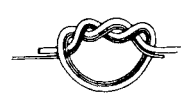






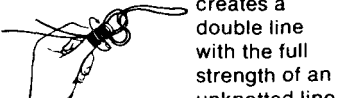
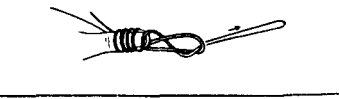
RICHARD HALLETT OF PITTSFIELD, MAINE ASKED ME SOME QUESTIONS WHICH I FOUND IT DIFFICULT TO ANSWER...IN FACT, IMPOSSIBLE. I'LL PRESENT THEM HERE FOR YOU TO ANSWER, EITHER DIRECTLY OR THROUGH THESE PAGES. WRITE TO DICK AT 65 SOMERSET AVENUE IN PITTSFIELD, MAINE 04967. HE ASKS: WHAT IS THE PERMITTED LINE LENGTH TO TURNAROUND BY F3B RULES? WHAT IS THE CHINESE HAND TOW, HOW DOES IT WORK, AND CAN ANYONE DESCRIBE THEIR VERSION OF IT AS USED AT THE WORLD CHAMPS? WHERE CAN I GET THE PLANS FOR A MONARCH C SAILPLANE, AS SHOWN ON THE COVER OF A RECENT RCSD?

WELL, RICHARD, LET'S HOPE SOMEONE OUT THERE CAN HELP. HOW 'BOUT IT, READERS?

NOW, RICHARD IS GOING TO GIVE US SOME ANSWERS, OR AT LEAST AN ANSWER TO A PROBLEM MANY OF US HAVE HAD WITH KNOTS. HE SAYS THAT THE TYPICAL BLOODKNOT USED TO TIE MONOFILAMENT LINE JUST AIN'T AS GOOD AS IT SHOULD BE, SO HE HAS SUBMITTED SOME KNOT DRAWINGS COURTESY OF THE E.I. DUPONT COMPANY. LOOK THEM OVER, AND SEE WHICH ONE(S) YOU LIKE. IF YOU PICK THE ONE CALLED UNI-KNOT, YOU'LL BE RIGHT. DICK CLAIMS IT'S THE BEST HE'S SEEN YET FOR OUR MONO LINES. TRY IT, AND LET ME KNOW HOW YOU LIKE IT.


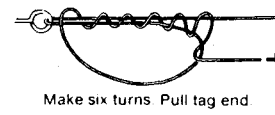
Proper Knots To Use

Use of the right knot, tied properly, can greatly reduce the loss of fish and terminal tackle. The exceptional knot strength of STREN can compensate to some extent for a poorly tied knot, but it is no substitute for a sound knowledge of knot tying. Always draw knots up as tightly as possible to avoid slippage. Cut monofilament, don't try to break with your hands.

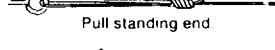
<p>SURGEON'S KNOT good for joining two lines of unequal diameter, such as shock leader to line.</p>  <p>To Reel</p>  <p>Trim Close</p>  <p>Pull all four ends uniformly to draw knot tight.</p>	<p>PALOMAR KNOT used to tie hooks, swivels, lures to line.</p>   	<p>SPIDER HITCH creates a double line with the full strength of an unknotted line.</p>    
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UNI-KNOT

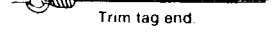
The basic uni-knot is used to tie line to the eye of a hook, swivel or lure.

Make six turns. Pull tag end.

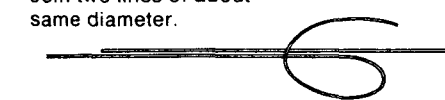


Pull standing end.

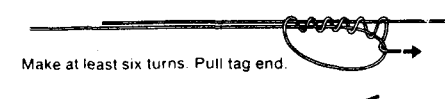


Trim tag end.

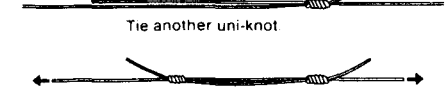
Join two lines of about same diameter.



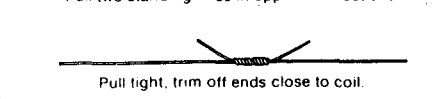
Make at least six turns. Pull tag end.



Tie another uni-knot.

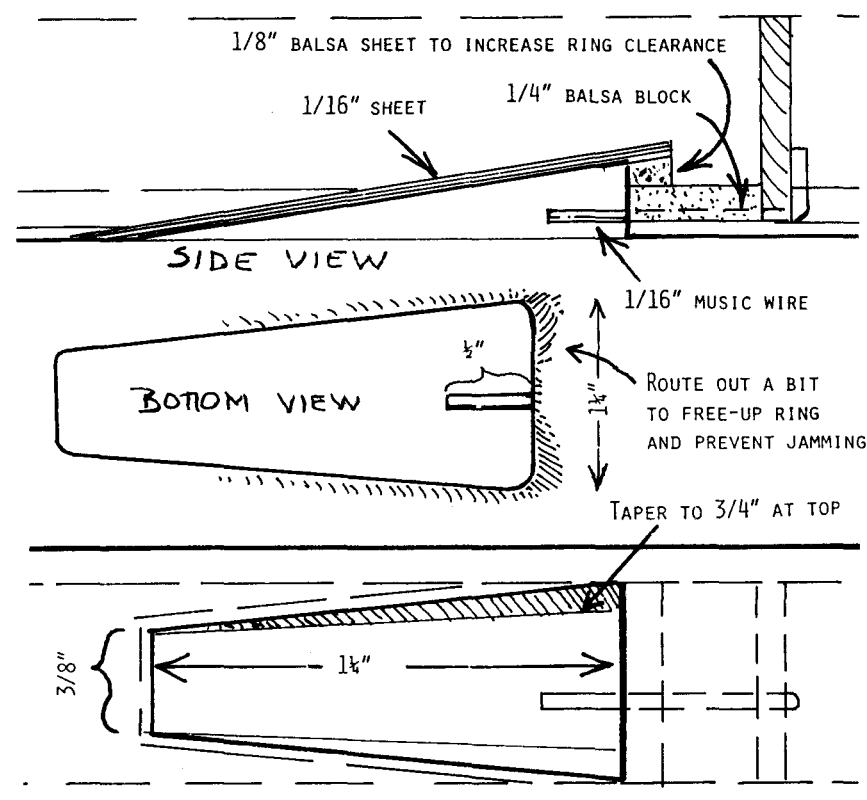


Pull two standing lines in opposite directions.



Pull tight, trim off ends close to coil.

Ty's towhook *Ty Sawyer*



1/8" BALSA SHEET TO INCREASE RING CLEARANCE

1/16" SHEET

1/4" BALSA BLOCK

SIDE VIEW

1/16" MUSIC WIRE

ROUTE OUT A BIT TO FREE-UP RING AND PREVENT JAMMING

TAPER TO 3/4" AT TOP

3/8"

1 1/4"

1/2"

BOTTOM VIEW

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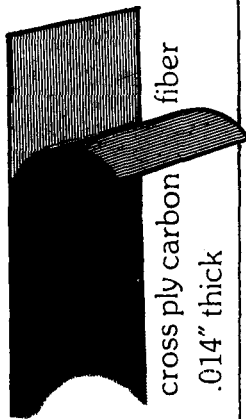
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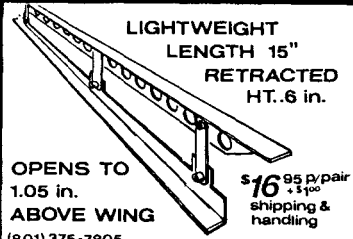
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