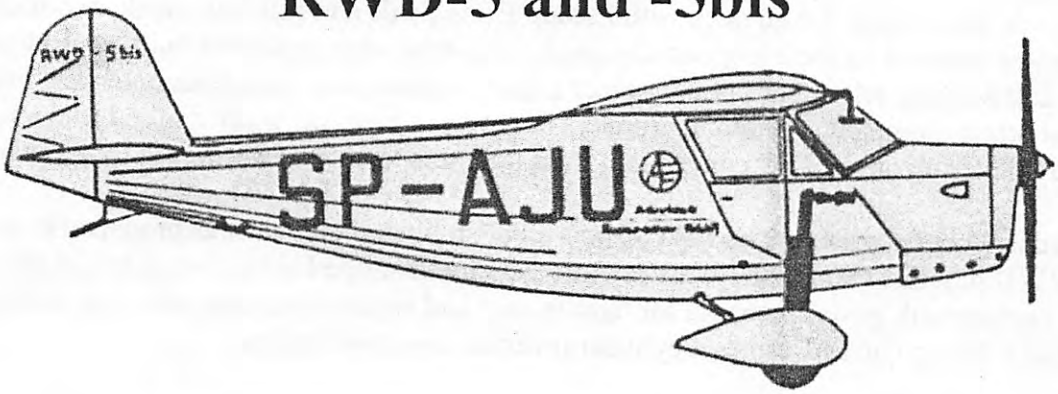
CROSSWINDS

No. 132

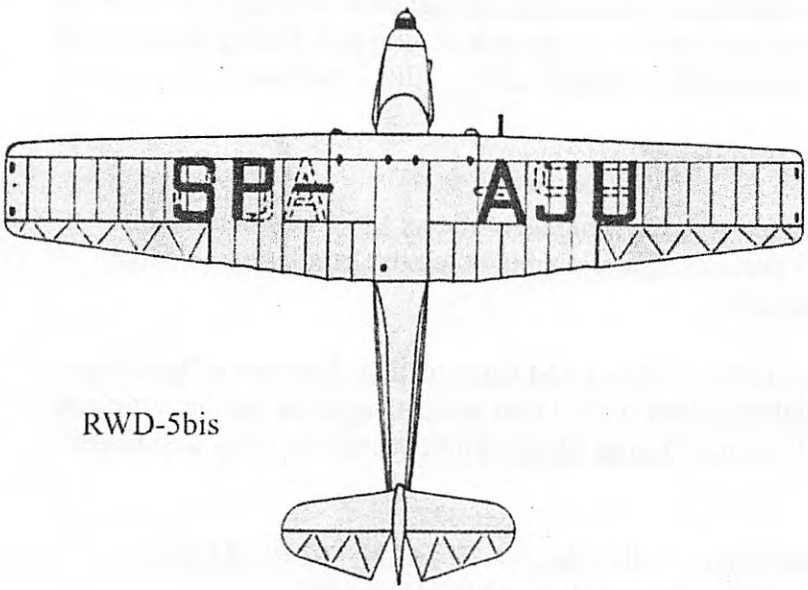
CLEVELAND FREE FLIGHT SOCIETY

RWD-5 and -5bis



CROSSWINDS
RUSS BROWN
4909 N. SEDGEWICK
LYNDHURST, OH 44124

CLEVELAND FREE FLIGHT SOCIETY



RWD-5bis

RWD-5 BIS



Great designers thinking alike merge here with discovery, design and drafting of the rare RWD-5 award winning high wing cabin Golden Age civil type. FAC kanone leader Grodon Roberts from Storkville Sector introduced the peanut Polish RWD-5 in Crosswinds No.85. Mike Zand lead the R&D of this uncommon aircraft with beauty and duration potential. Fresh off the top of the stack of great plans by Mike Isermann in iron bent brand Lone Star Sector, we go deep with Pseudo Dime Scale and full FAC Scale two foot wingspan size plans. Mike was inspired by the exceptionally clean sharp nose with cantilever built no strut wing and tail surfaces. D.I.Y. add wingtop aileron horns and rudder cables. Added color completes color and marking options for -5's in bright (some b&w photo interpreters might say silver-ish) white and red trim vs. silver -5bis with black SP-AJU lettering on the X-C conversion. Add lightness to color covering for long range.

Air Marshall Gordon Roberts writes: "The RWD-5 was a Polish light plane that was produced in some numbers (over 20 by the RWD scholars team at the Warsaw Aerodynamic Institute L.D.W. workshop at the new 1930 Warsaw-Okecie Factory with government aid for tight money and engine loan) and was used in the main by flying clubs. It had a 105hp Cirrus Hermes 4 cylinder inverted air-cooled engine.

The 5bis was a long range modification which was flown across the South Atlantic May 7, 1933, breaking the FAI world distance record for aircraft up to 450 kg weight. Modifications included eliminating the right rear door and windows, and putting in a large fuel tank instead of a seat. The long exhaust pipe was taken off and the landing gear was strengthened. Thus this airplane, although virtually unknown, has a substantial record of achievement and deserves better than total obscurity. Although the plan is for the -5bis, the 3v will enable the modeler to make the RWD-5 with its nice color scheme (and 3% longer wing at 34' 5.5" vs. 33' 6" of the -5bis, translating to an extra .35" on each tip @ 24.4" wingspan, 25.1" wingspan total – Picky picky but precise editor).

Michael Zand's father, Dr. Stephen J. Zand, knew the R in RWD. For completeness; R is for Rogalski, W is Wigura, and D is Drzewiecki. There RWD partnership produced quite a long line of aircraft including the RWD-8, a beautiful parasol 2 seat trainer with a 110 hp Walter Junior engine, and they went up to at least the RWD-23 before the war. See Crosswinds No 85 for more on R's escape to Rumania and Turkey after 9/1/39, and aid by the Zands to reach USA Gannon University by Mrs. Helen S. Zand, Mike's mother.

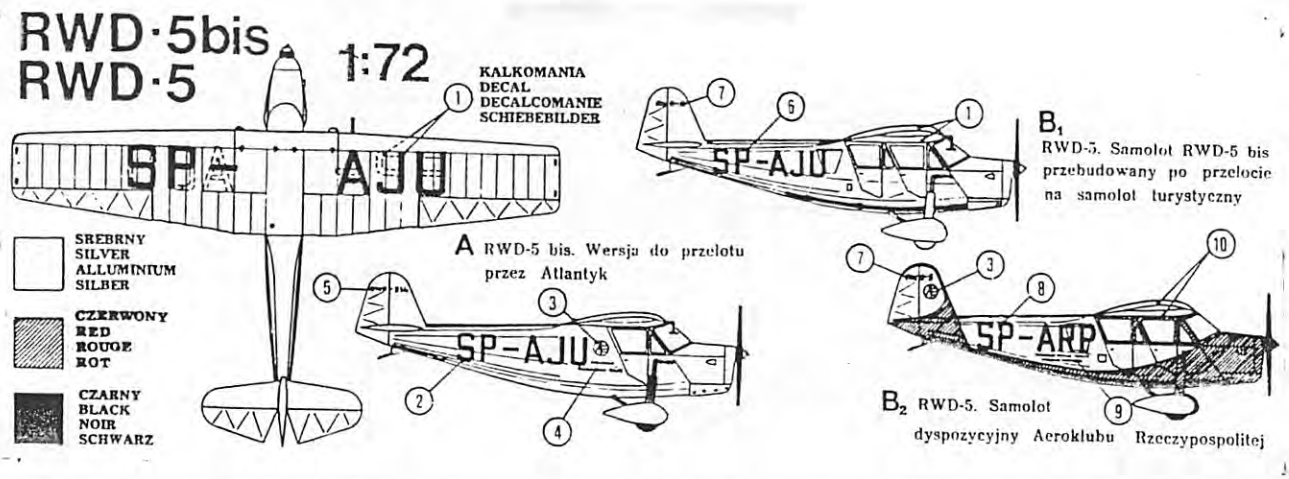
Isermann is immersed with Crosswinds designer volunteers.

Immediate re-ordering of the must build lists for Golden Age Civil models follows Mike Isermann's dual contribution. We are really pleased to pile on RWD perfection, and double notch the Iron Kreuz of Mike. Clear the building board and cut balsa, or fish for history!

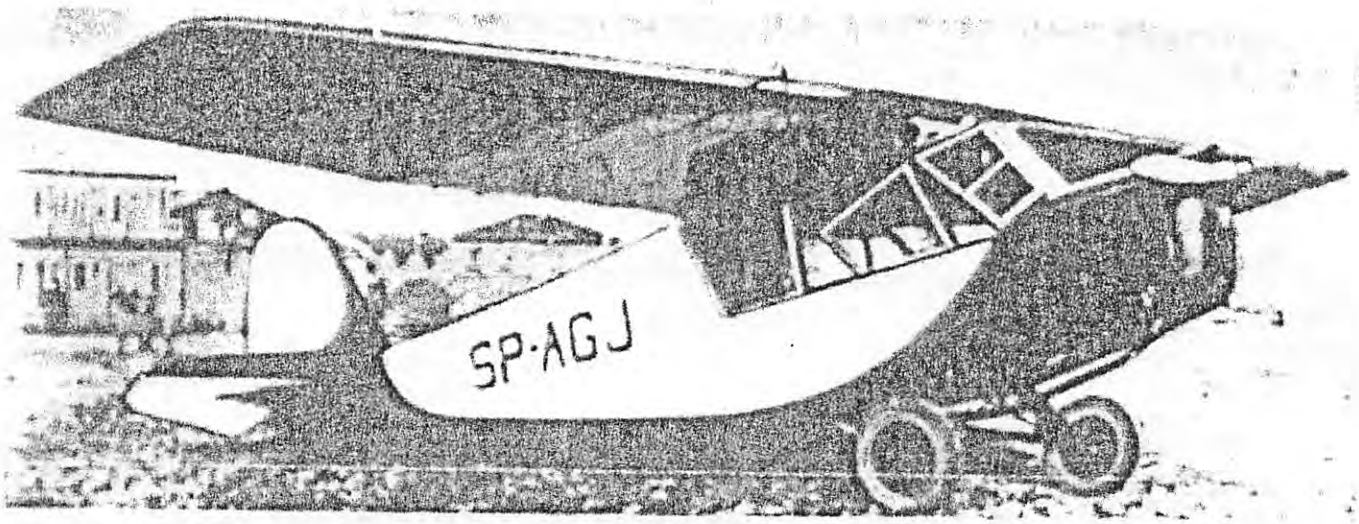
Basic building text by Mike is vital reading before a rush to building and crash testing. Builders of the -5bis have the option of eliminating rear windows and right side door lines. Light weight covering can be rattle can finished with Krylon, Workable Fixative, Preserve It, or use Design Master Floral Spray for color and finish combined, and line before covering.

Known registries include SP-AGJ, -AJA, -AJB, -AJK, -AJP, -AJU -5bis, -AJZ, -ALN, -ALR, -ALS, -ALT, -ALU, -ALW, -ALX, -ALY, -ALZ, -AMU, -ANF, -ANP, -ARP, -LOT, and SP-BGX in 1937.

Russ Brown



I know this has happened to you before. You just never know when an aircraft will reach out and grab you with the "Build Meee" grip, unable to get it out of your mind until you respond in some form or fashion. For me, the response is to build or draw. Well guess what! I liked this plane more than just once!!! Not really sure why? However, I do hope you find this little Polish job to be worth a look and consider and adding one to your stable. It's not a hard build and it promises to be worth your while.

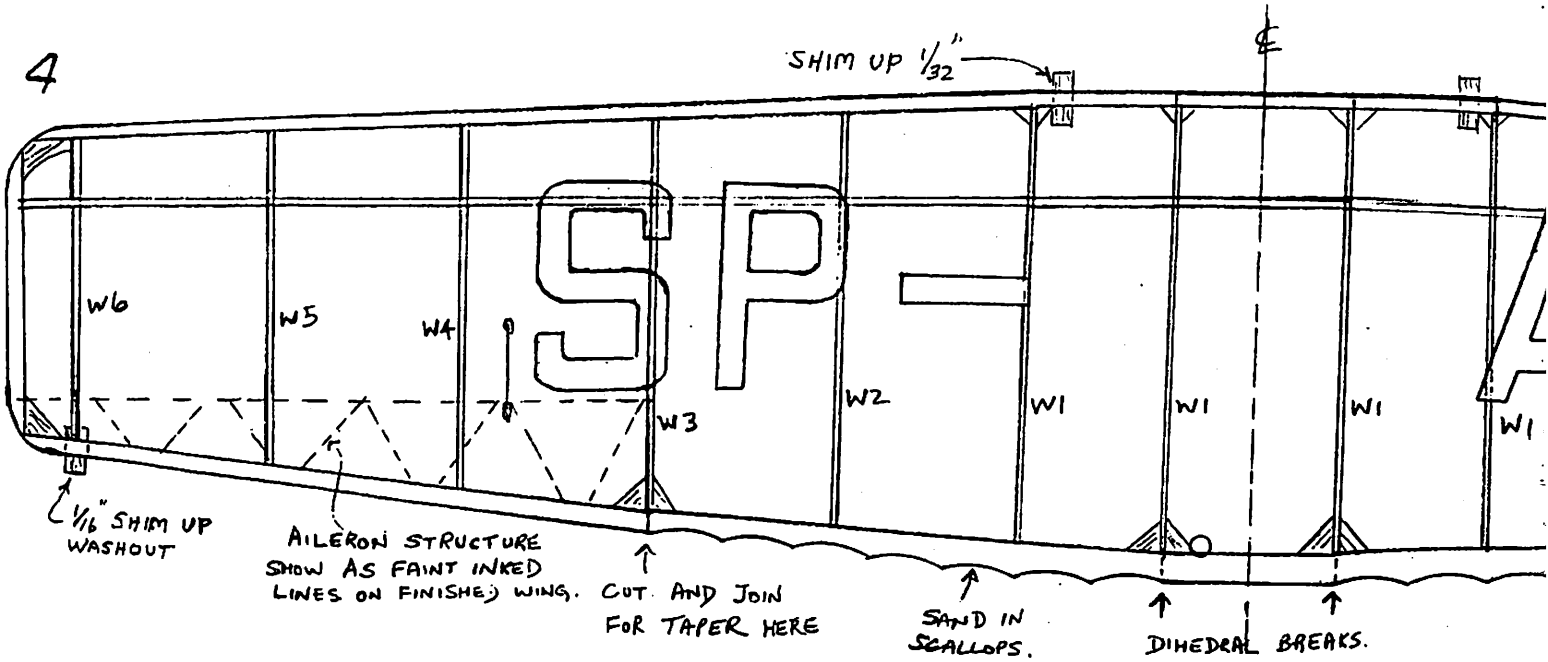


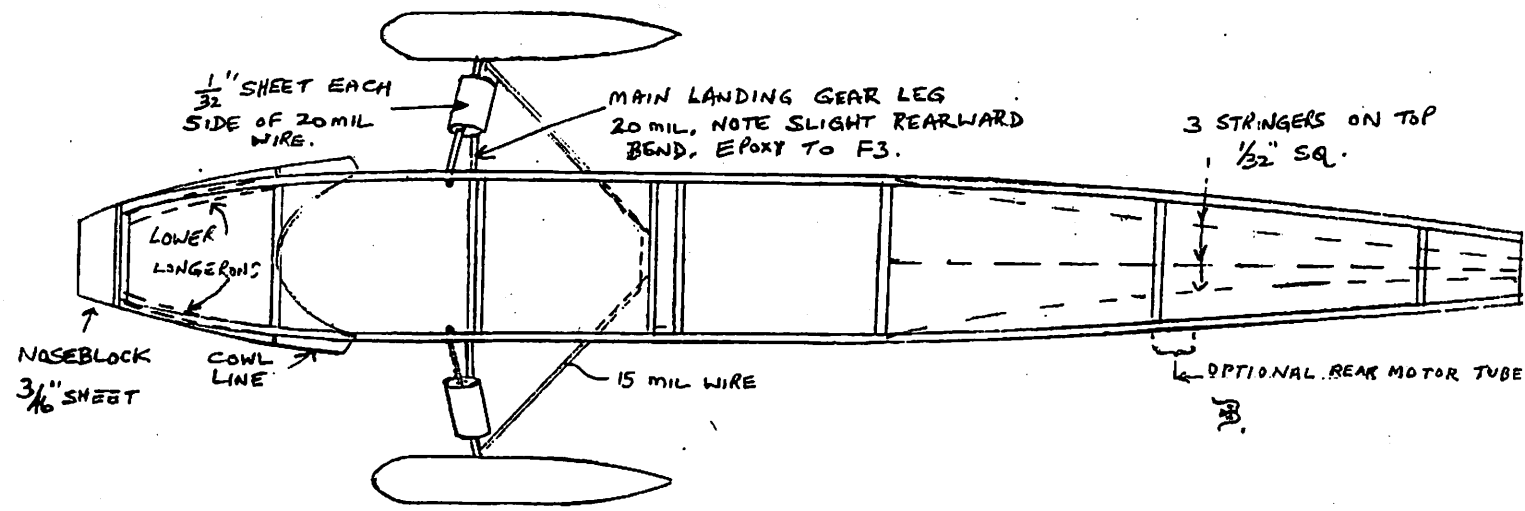
Samolot RWD-5, prototyp

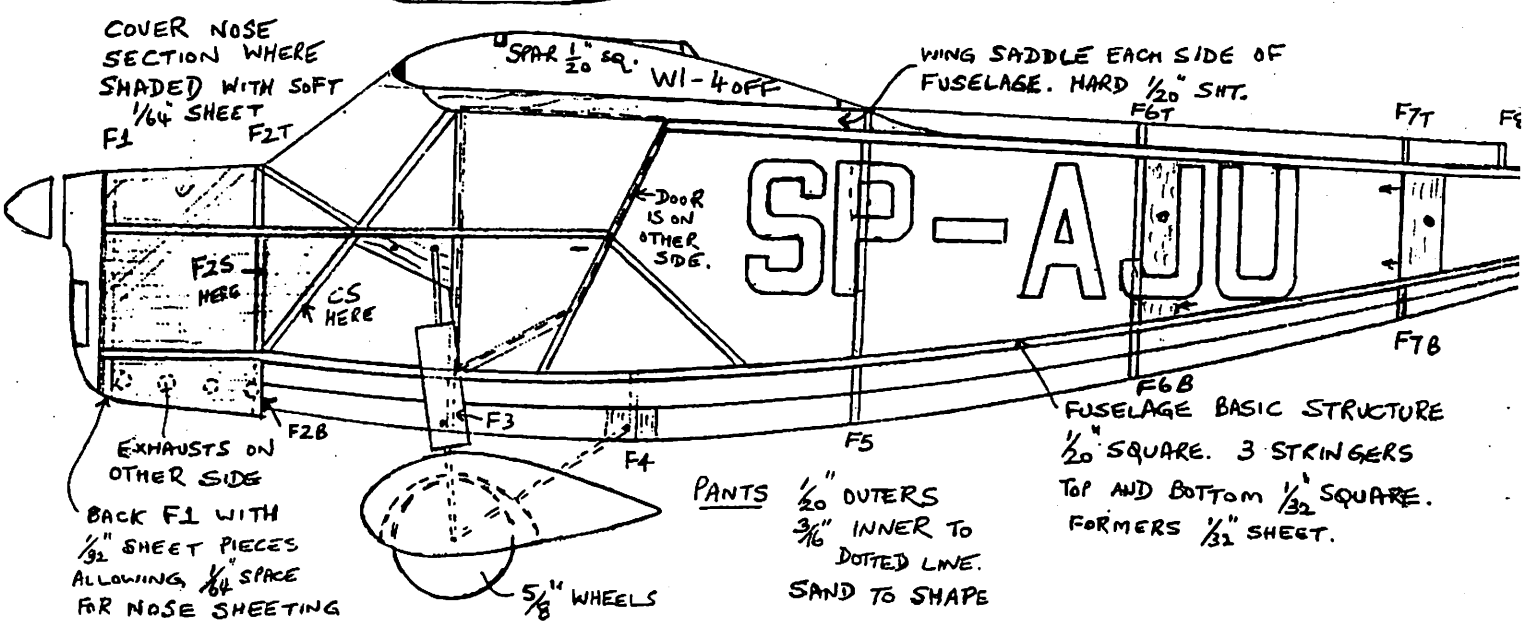
What's more, the RWD-5 is not any harder to trim than any other high winger. The fact that the RWD-5's slipstream is fairy clean for a fixed gear arrangement plays favor to its performance potential. Most of the time if you set the plane up properly at the onset it should just about fly off the board. These days, there are 9 key factors I consider as I build and finish out a model to ensure minimal effort is expended during the trimming process. You would be surprised how many times I have seen more than half of these basic modeling rules overlooked on model airplanes. And many of then have been my airplanes!!! You are likely to know this already but the question is, "do you pay attention to each of them as you build?"

Here they are:

Decalage helps define the airplane's cruising or "trimmed" angle of attack. Decalage defines the relationship between the wing and stabilizer with regards to positive and negative incidence. Well configured decalage will encourage a positive climb and will influence the way your airplane "sits" in the air. In most cases I prefer to start with 2 degrees positive in the wing and 1 degree negative in the stabilizer. This gives me a good climbing characteristics and a nice cruise. You are looking for that slightly upward "nose into the wind" attitude during the power portion of the flight that is typical of well trimmed high wings. Spend some time working with the decalage and your RWD-5 will fly with the best of them.







RWD - 5 bis

DESIGNED BY GOR
FOR "CROSSWINDS"



SP-AJA c/n 58 *Kolejarz I*, one of the two initial production RWD 5s, photographed early in 1933.

Dihedral is all-important to the spiral stability of a model airplane. Coupled with a properly sized vertical stabilizer (which the RWD-5 has) the plane will reliably track in any direction you wish it to go. Because the RWD-5 has a tapered wing from root to tip, minimal dihedral input is not needed to achieve stable flight. The taper itself acts as dihedral. I added ¼ inch to both wings for good measure. Call it a well educated gut feeling. Make sure you do not add to much dihedral because it could have the inverse affect where spiral stability is concerned. Big rubbers and excessive dihedral will often produce instability, so be careful!

Down and right thrust is often the only adjustment needed to trim a high wing model. The RWD-5 fits this category like a glove. Two degrees down and two degrees right is always a good place to start. Play with the right thrust to open or close your climb pattern. Work with the down thrust until RWD-5 jumps from your hand. Like all high wingers, this bird is a right/right flyer, so don't fight it.

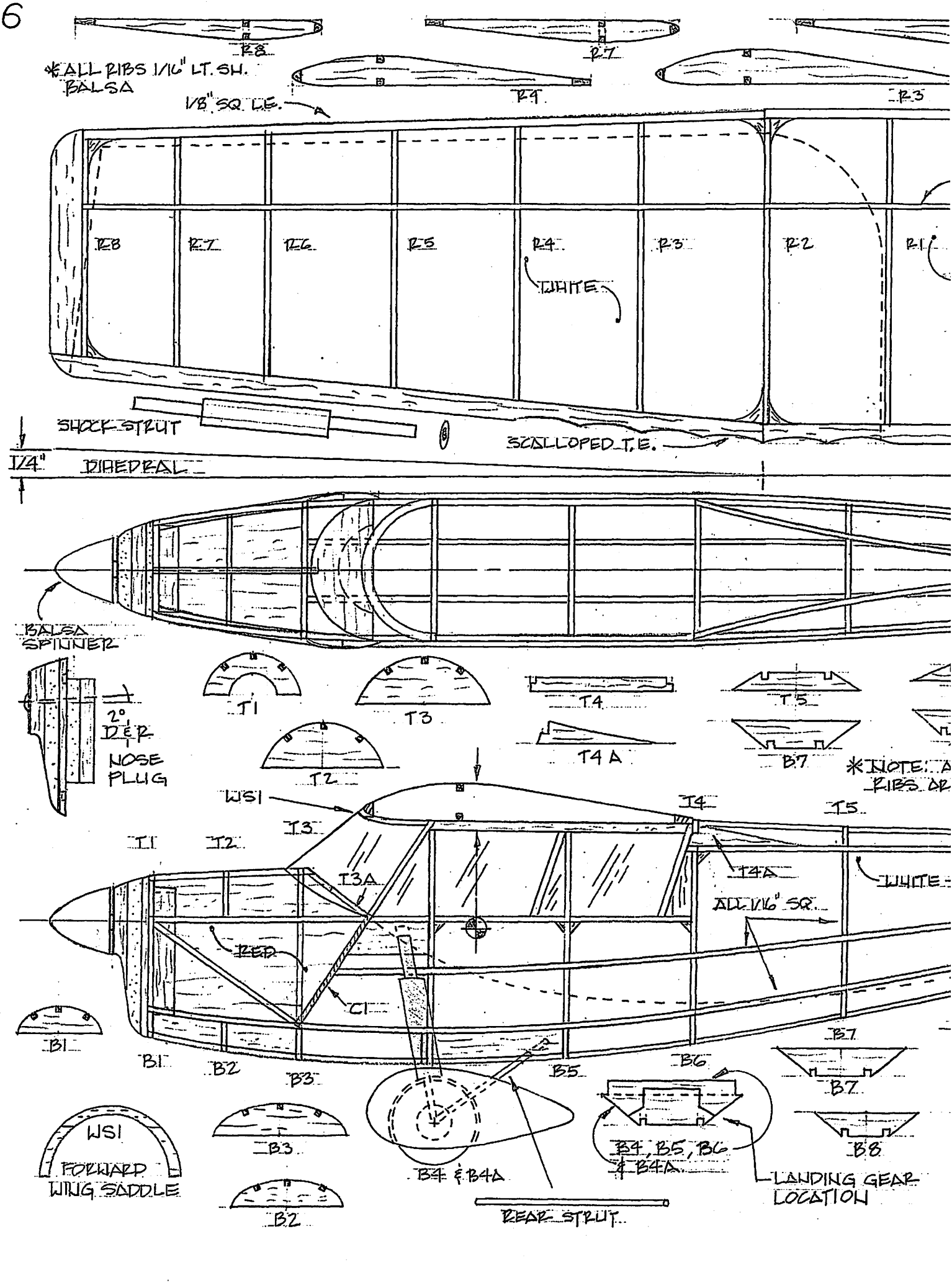
Flying surface alignment is critical to your plane flying off the board. If you fail to align surfaces properly you will build in flight characteristics that will have to be trimmed out of the flight profile compounding and existing problems that are inherent to the design. Some may add unwanted drag and others may set the plane in strange positions during flight detracting from its scale appearance in the air. Be sure to square up centerlines and eliminate skewed alignments when attaching your flying surfaces to the fuselage. You will be starting with a clean canvas reducing your trimming efforts.

Washout in wingtips is not an option on a model airplane. I believe it's a must. It ensures recovery when a plane is bumped around in the wind and it helps a plane recover from forward and tip stalls. This is one of those aerodynamic rules that help an unmanned plane remain stable throughout the flight. Without it you run the risk of finding the ground at speeds that will be detrimental to your model's structure. However, it is not as critical on a high wing aircraft because the vertical CG axis is located well below the thrust line, but I would put in about 3/32" in each tip for good measure. At a minimum, it will help ensure sound roll stability.

Locating **Center of Gravity** seems to be the most common mistake modelers make. It is the black magic of our hobby. If you can set up a plane with the correct CG you are golden! The RWD will have a CG location at approximately 30 to 33 percent of the forward wing cord. Place ballast in the nose to set the CG a 30 to 33 percent and you should be pleased with the plane's power and glide characteristics.

Peg Location has a substantial affect on G.C. because rubber motor lengths change and they never seem to rest in the same position after the motor run has wound down. When the nose moment is used to measure and place the motor peg aft the C.G. you can generally say you have placed the peg in the optimal position. However, tail moment and nose assembly weight must be considered as well. These factors may allow you to place the motor peg further back as was done with the RWD-5. In the end, equal distances fore and aft the CG are the most dependable positions but can have an adverse affect on complete motor runs. I usually choose to push the peg back so I can stuff a longer motor.

Motor Size (length and cross section) will influence your model's climbing ability, duration and flight pattern. Under powering by using a small cross section will lead to short fights that fail to take advantage of the trimming adjustments you have made. Overpowering your plane will negate your trim settings and could be detrimental to your model's well-being. Carefully match your motor cross section and length to the flight characteristics you want to see and you will be pleased with your model's performance.
I recommend using four stands of 1/8" to power the 24 inch span RWD-5.


R8
R7
R4
R3
*ALL RIBS 1/16" LT. SH. BALSA
1/8" SQ. L.E.
R8
R7
R6
R5
R4
R3
R2
R1
WHITE
SHOCK STRUT
SCALLOPED T.E.
1/4" DIHEDRAL
BALSA SPINNER
2° D.T.
NOSE PLUG
T1
T3
T4
T5
T2
T4A
B7
*NOTE: A
RIBS AR
WS1
T1
T2
T3
T3A
T4
T5
T4A
WHITE
ALL 1/16" SQ.
RED
C1
B1
B1
B2
B3
B5
B6
B7
B7
B3
B4 & B4A
B4, B5, B6 & B4A
B8
WS1
FORWARD WING SADDLE
B2
REAR STRUT
LANDING GEAR LOCATION

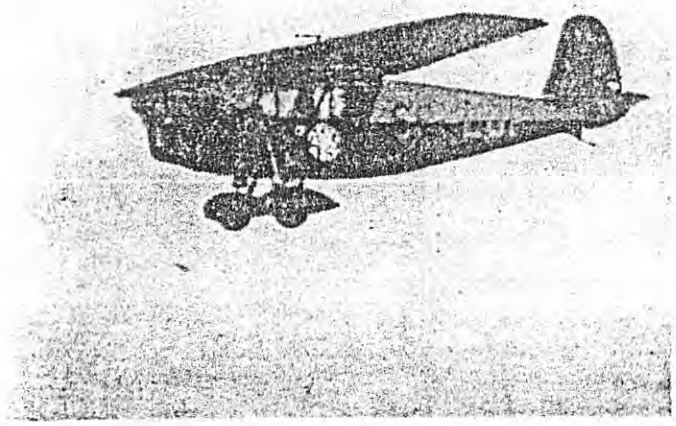


A production RWD 5, SP-ARP c/n 68, used as an executive aircraft by the Aeroclub of The Polish Republic.

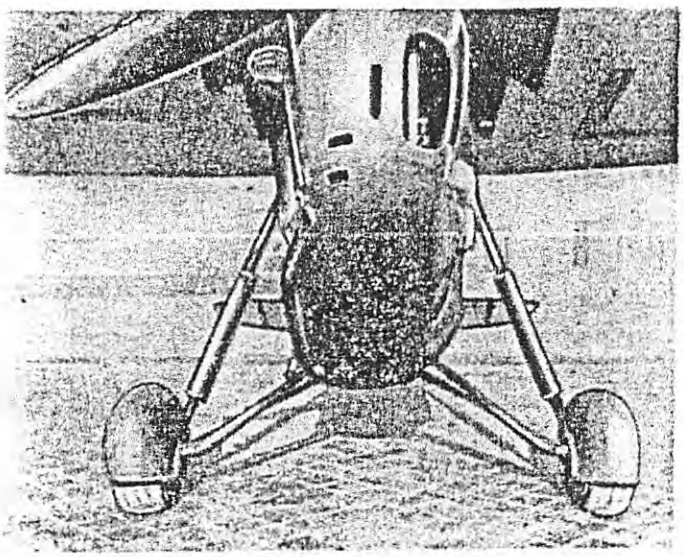
And finally, **Flying Surface Warps** are one of the most common killjoys of the hobby. They are like little Gremlins. They creep in without warning and completely screw up a perfectly trimmed model. You almost always discover them once you get to the flying field and there is not a steam kettle within 50 miles. Results vary where remedies and build techniques are concerned; however, one sure way to eliminate warps is to build like Mike Midkiff. (grin) They don't call him "Iron Mike" because he works in a steel mill! All kidding aside, you can't argue with someone who has over 100 Kanones to his credit! And where fidelity of flight is concerned, Mike has few equals. Building in strength wherever possible is a viable option. But for me, the closest I have come to eliminating warps is to "cure" my flying surfaces in the desired position by pinning down each wing for two to three weeks in the garage where temperatures and humidity fluctuate constantly. This seems to tame the frames urge to warp.

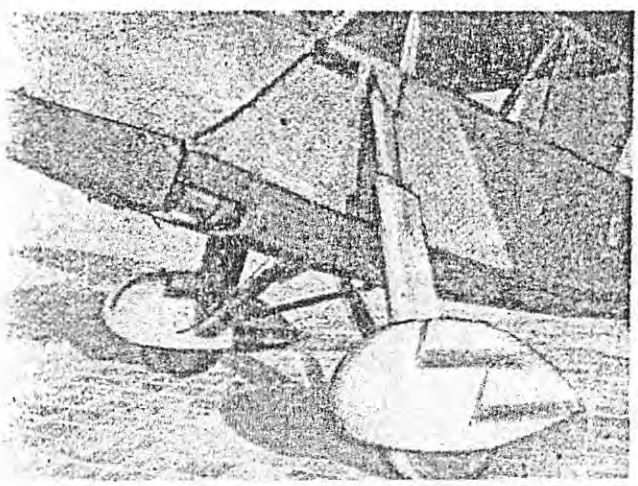
I wish you luck with the RWD-5 bis and hope you find these simple little tips helpful or at least laughable. After all, I'm just a simple-minded Texan who builds and flies by the seat of my plants. But, there is one thing I know for sure, if you get these things right, you will be well on your way to a good flying model airplane.

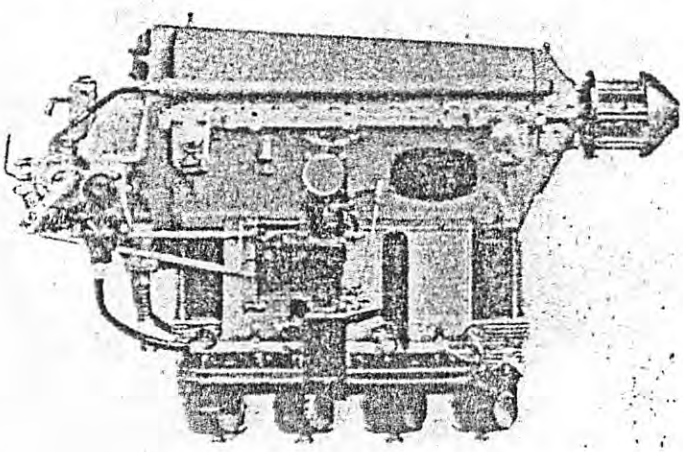
OOS, Mike

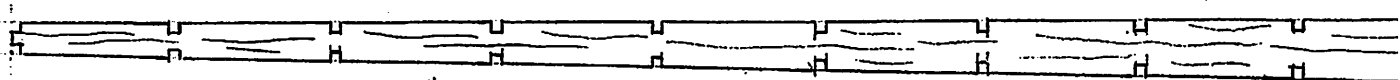


SP-LOP w locie — charakterystyczny podwyższony statecznik pionowy

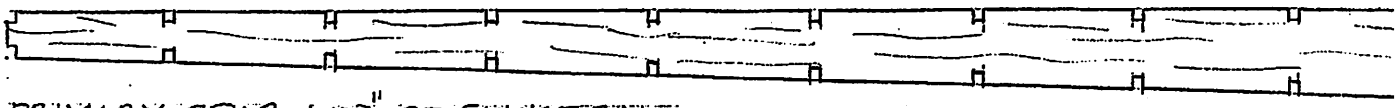






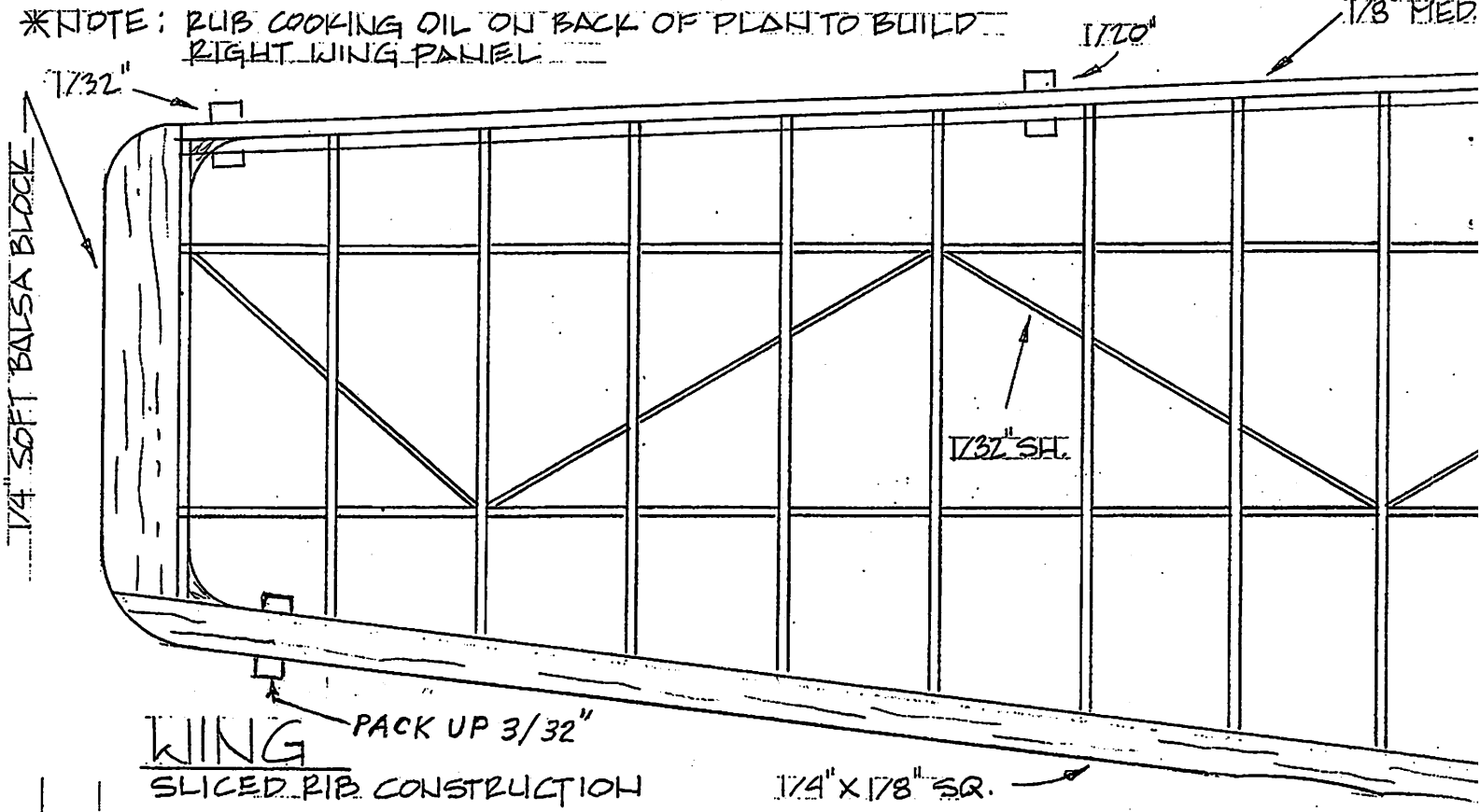


SECONDARY SPAR 1/20" SQ SHEET BALSA



PRIMARY SPAR 1/20" SQ SHEET BALSA

*NOTE: RUB COOKING OIL ON BACK OF PLAN TO BUILD RIGHT WING PANEL



WING

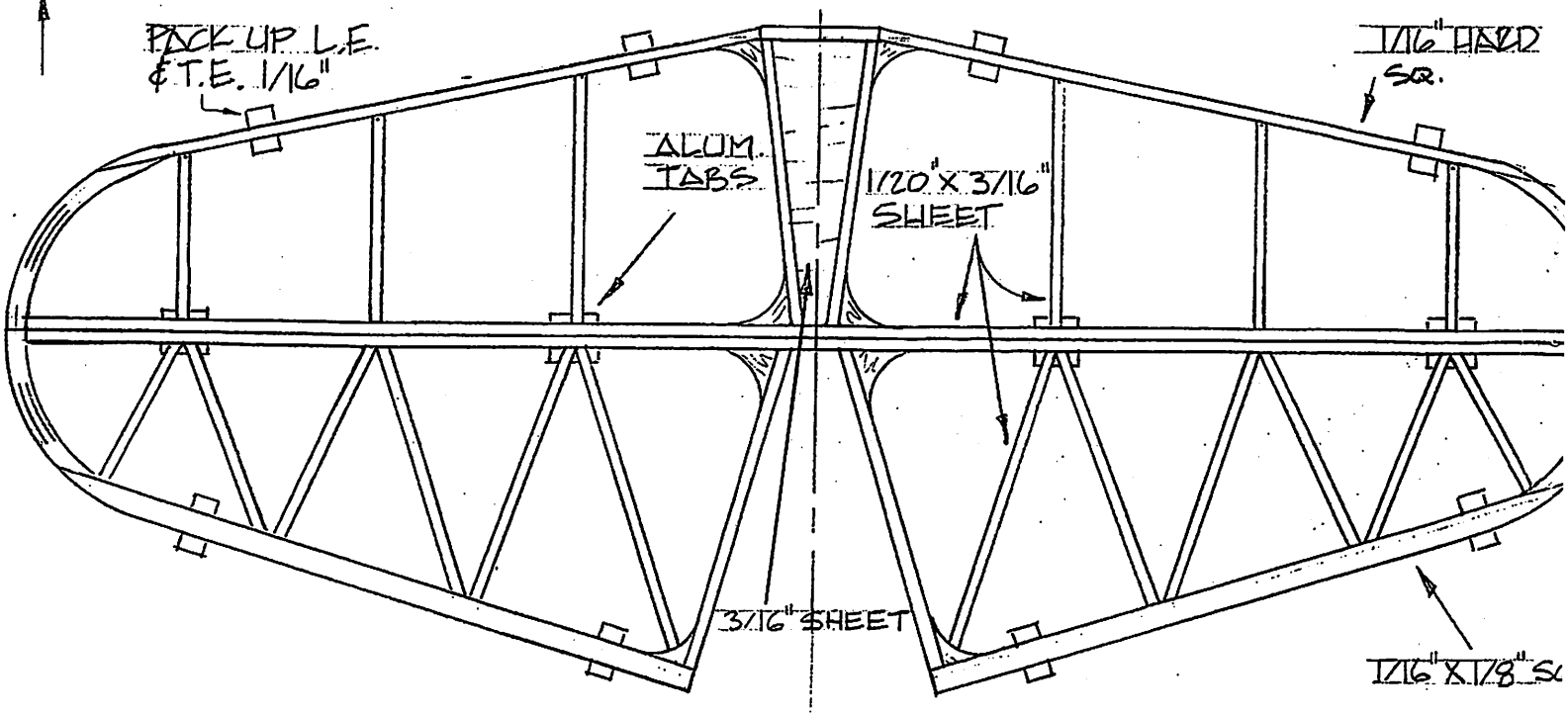
SLICED RIB CONSTRUCTION



SCRAP GUSS

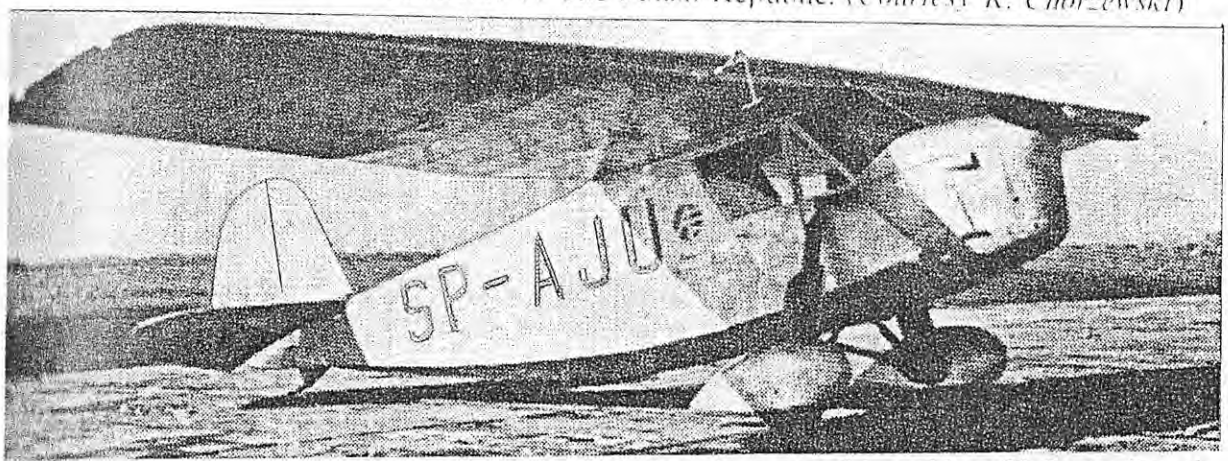
3/8"

DIHEDRAL

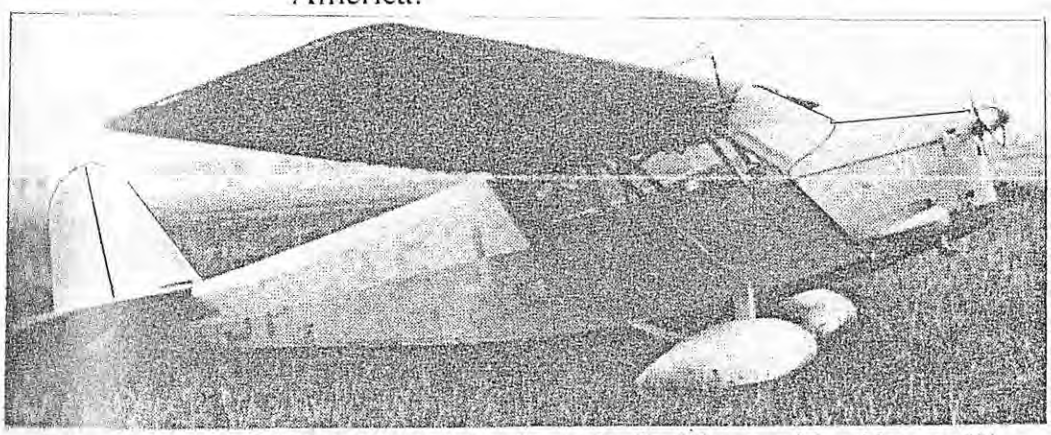




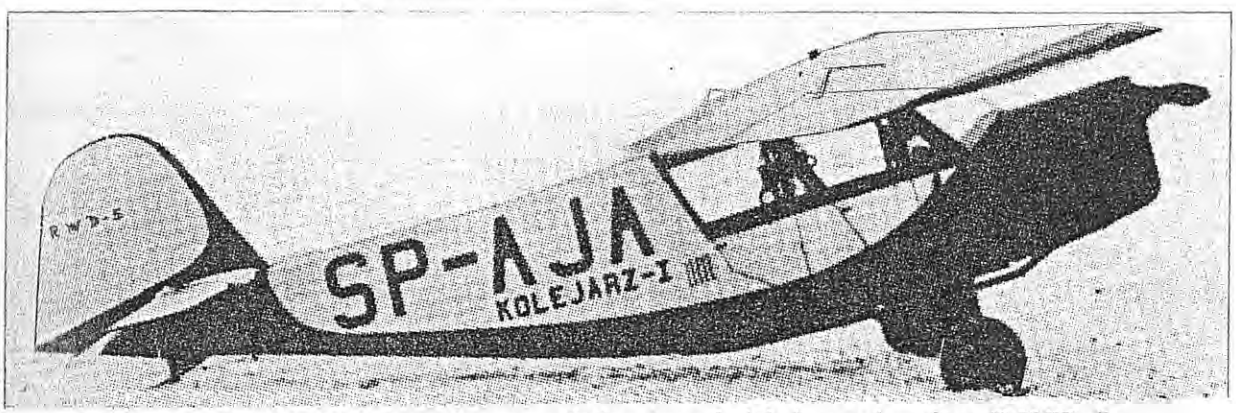
A production RWD 5, SP-ARP c/n 68, used as an executive aircraft by the Aeroclub of The Polish Republic. (*Courtesy K. Chorzewski*)



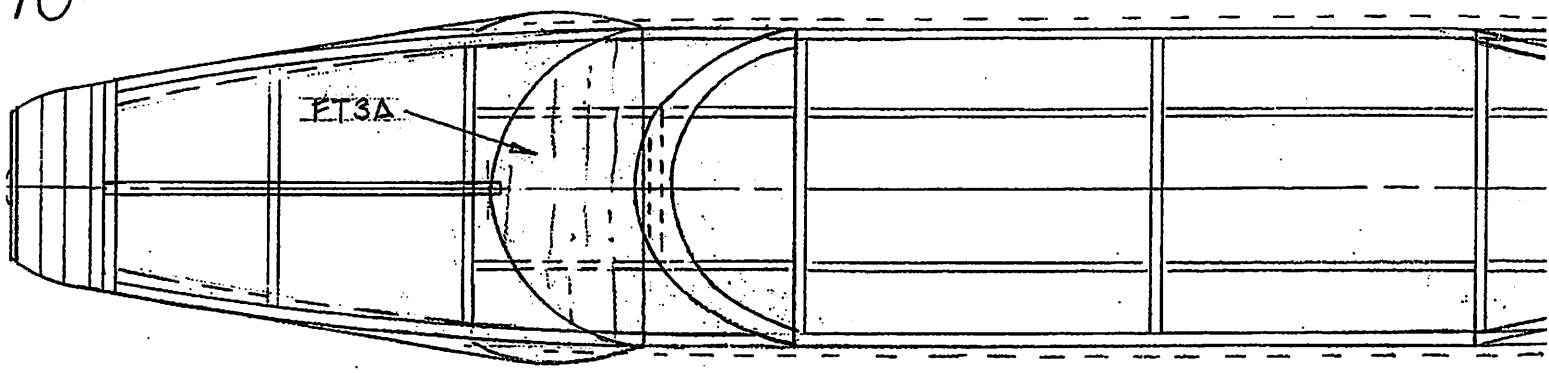
Skarżyński's RWD 5bis, SP-AJU c/n 67, before its record-breaking flight to South America.

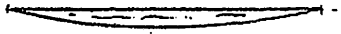


First prototype RWD 5, SP-AGJ c/n 34, in its final form, with a Hermes IV engine, standard windscreen and Dunlop wheels, photographed in France in 1934.

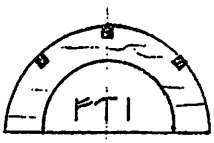


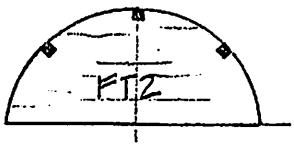
SP-AJA c/n 58 *Kolejarz I*, one of the two initial production RWD 5s, photographed early in 1933.

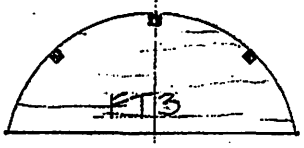


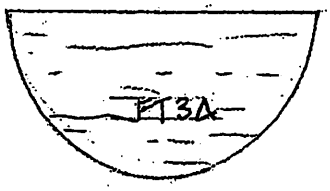


COWL FORMER (2)

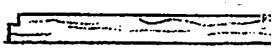




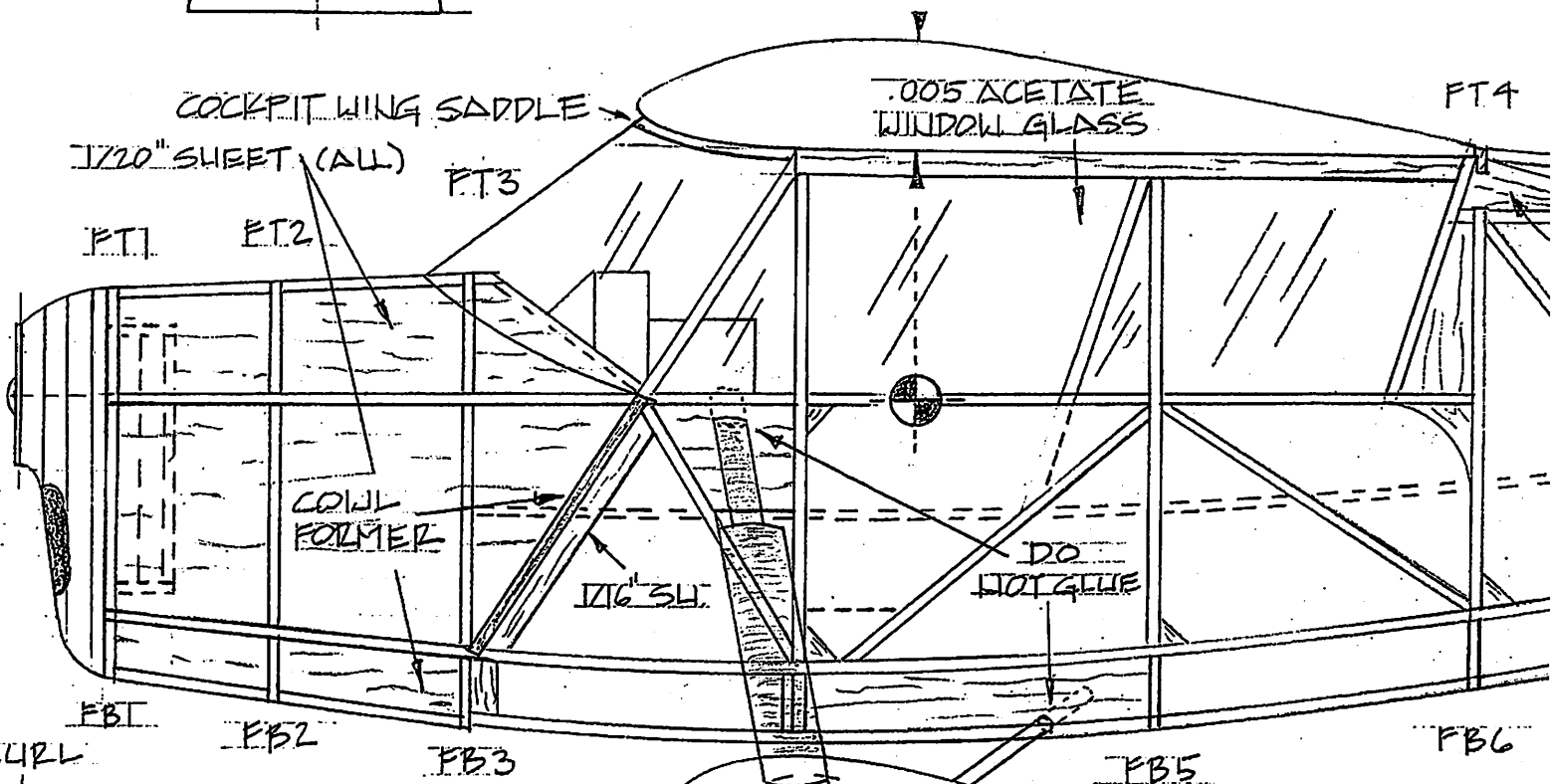


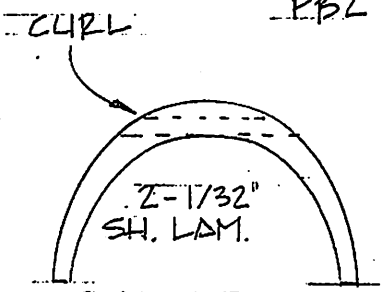


FT4



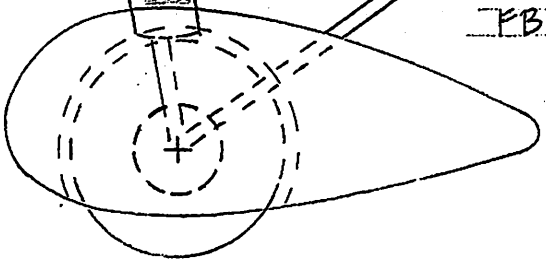


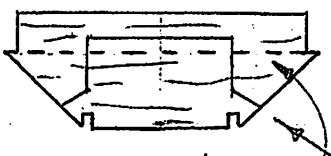




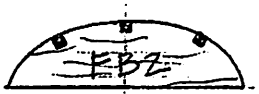
FORWARD COCKPIT WING SADDLE

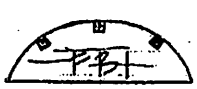
BUILD WHEEL PANTS FROM BLUE FOAM

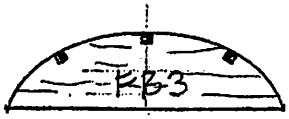


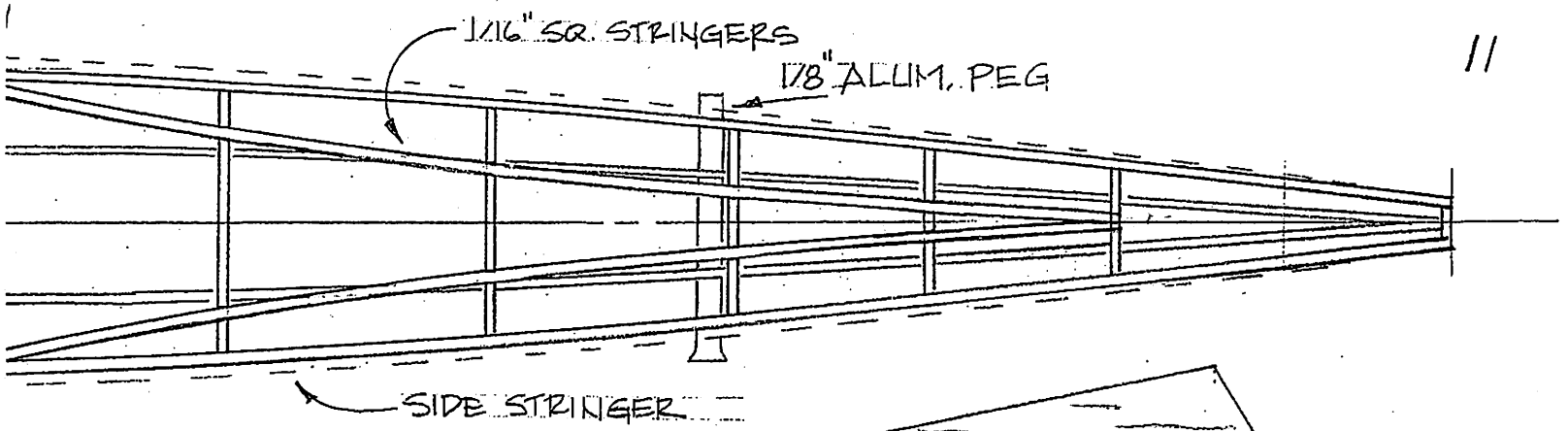


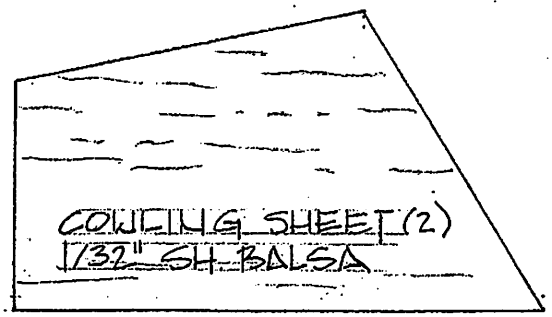
FB4, FB5 & FB6 MAKE 2 FB4'S FOR LANDING GEAR SANDWICH



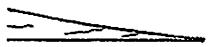


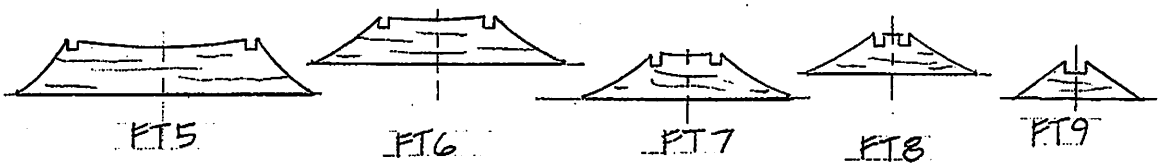


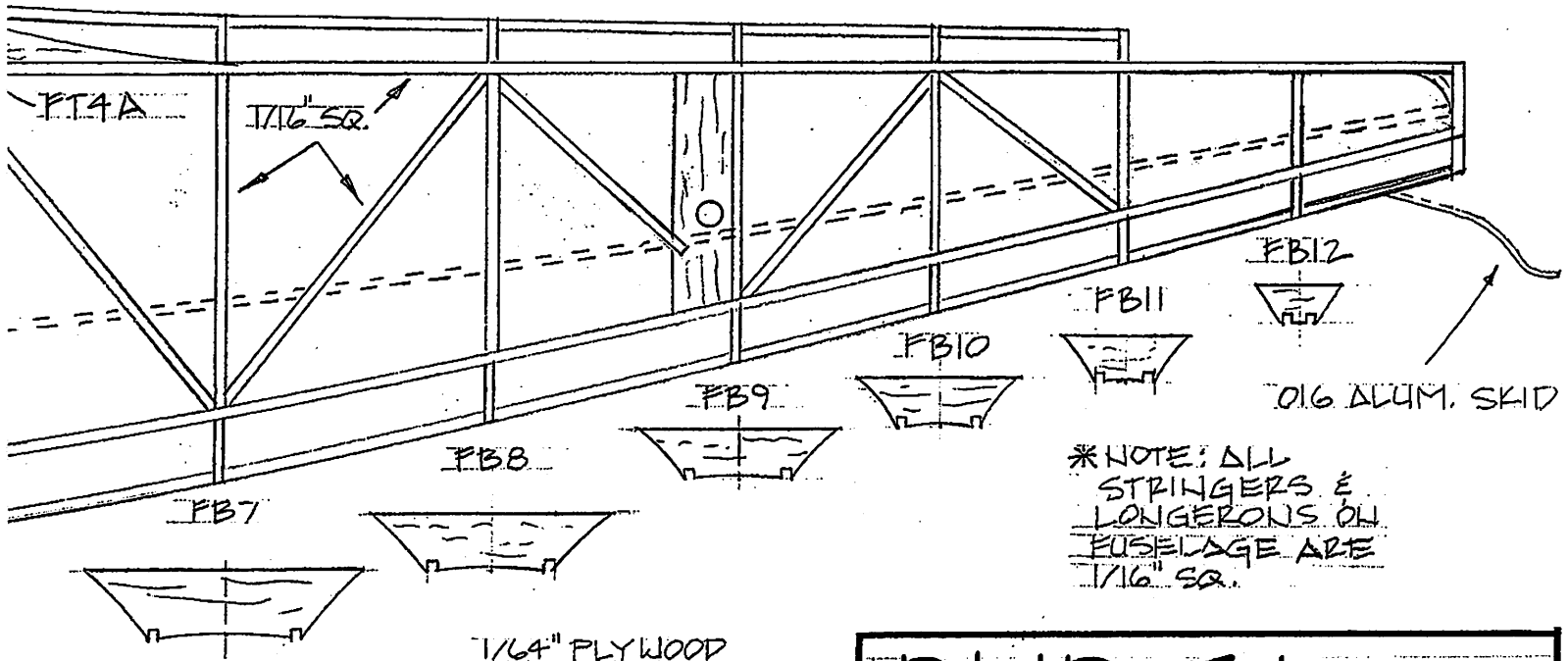




*NOTE: ALL FUSELAGE FORMERS ARE 1/20" LT. SH.







*NOTE: ALL STRINGERS & LONGERONS ON FUSELAGE ARE 1/16" SQ.

LANDING GEAR LOCATION

.040 STYRENE VACUFORMED SPINNER

RWD-5 bis

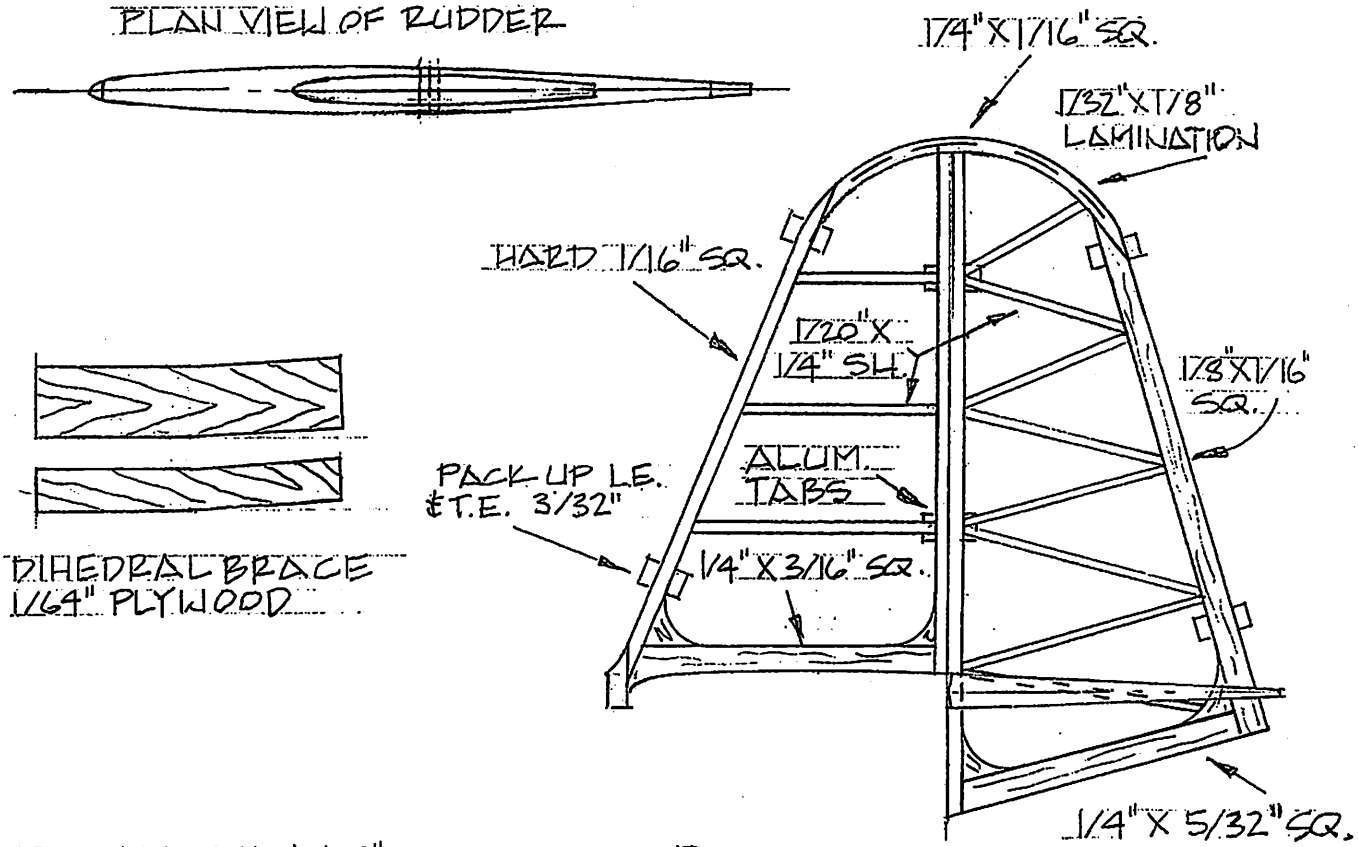
POLISH LIGHT PLANE

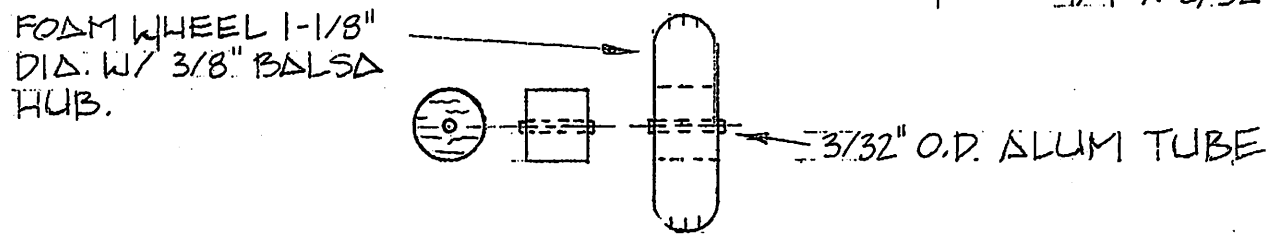
1933 GOLDEN AGE / 24.4 INCH SPAN

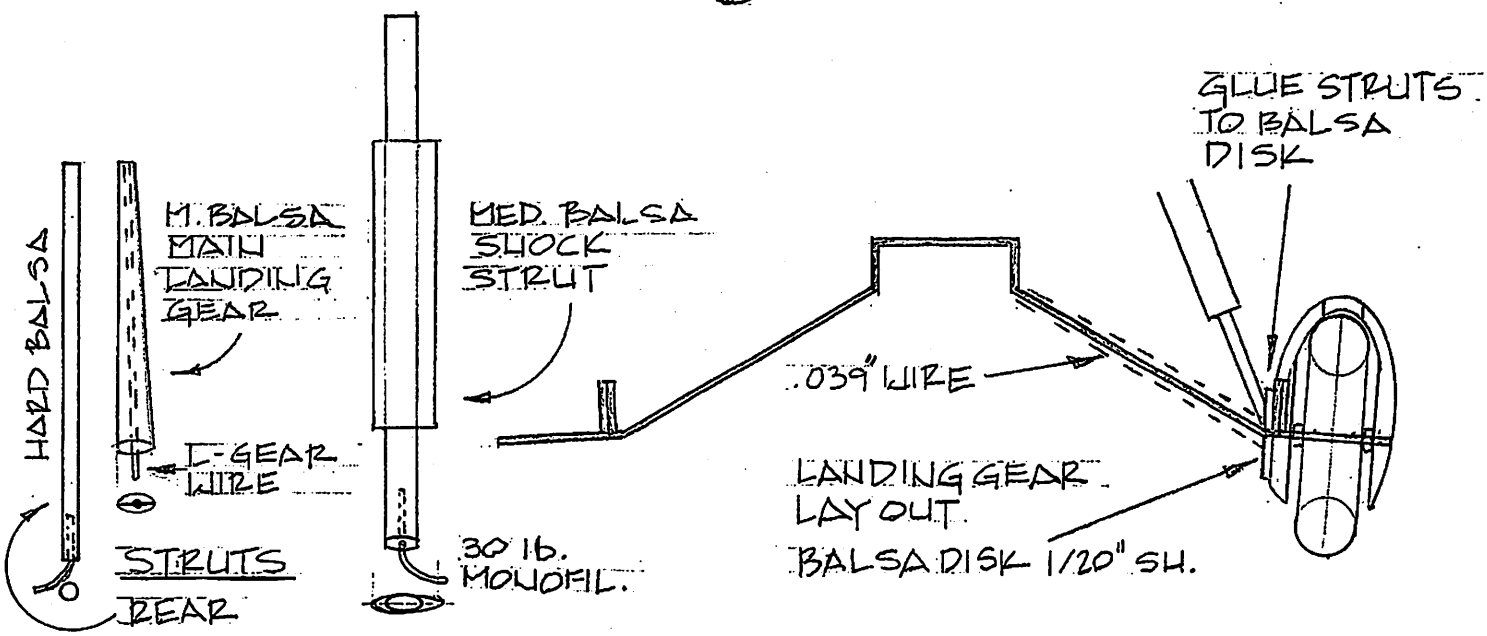
DATE: 10/25/09

DRAWN BY: MICHAEL ISERMANN

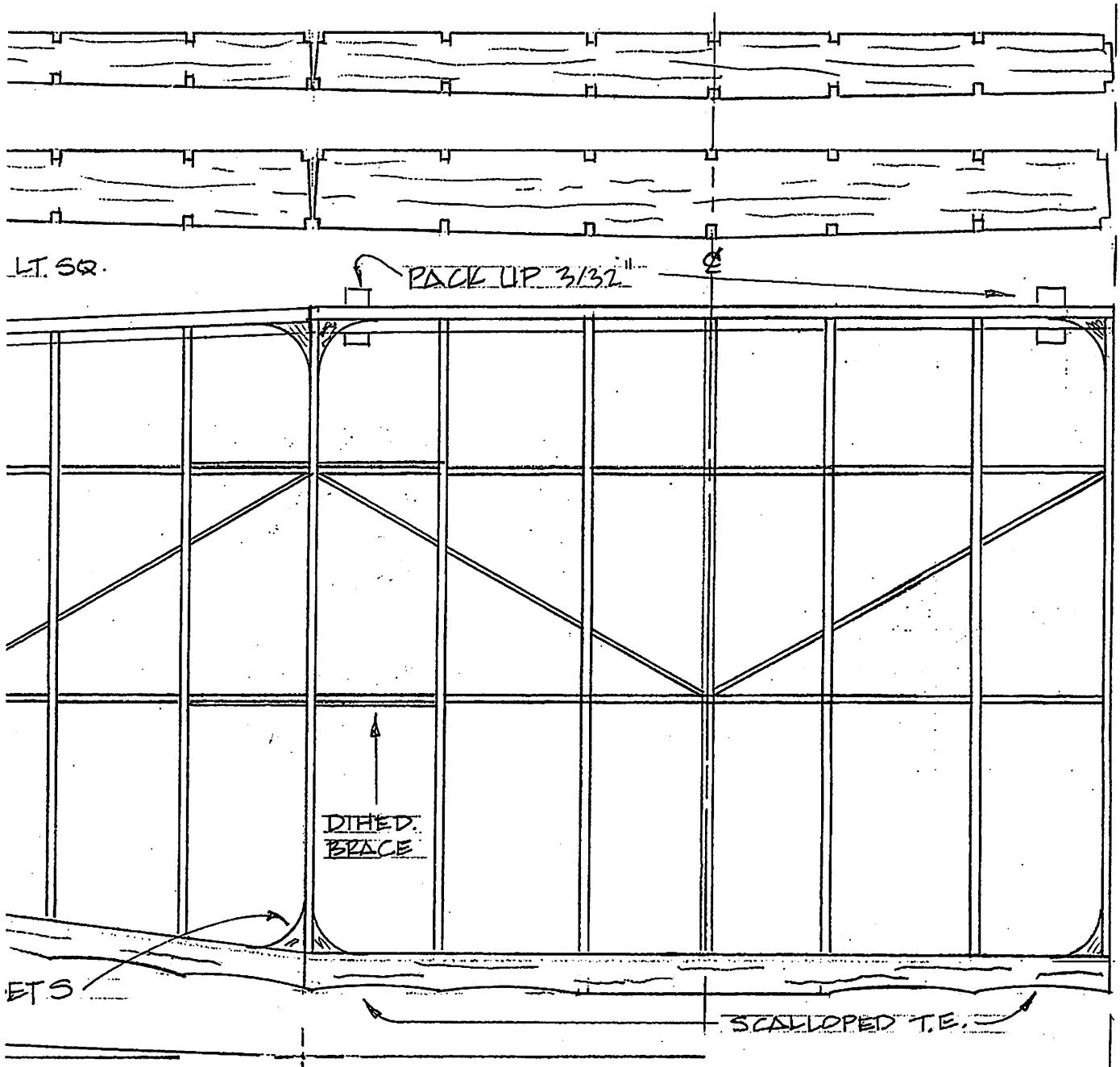
Iron Kreuz Model Plans


PLAN VIEW OF RUDDER
1/4"X1/16" SQ.
1/32"X1/8" LAMINATION
HARD 1/16" SQ.
1/20"X 1/4" SH.
1/8"X1/16" SQ.
ALUM. TABS
PACK UP L.E. & T.E. 3/32"
1/4"X3/16" SQ.
1/4"X 5/32" SQ.
DIHEDRAL BRACE 1/64" PLYWOOD

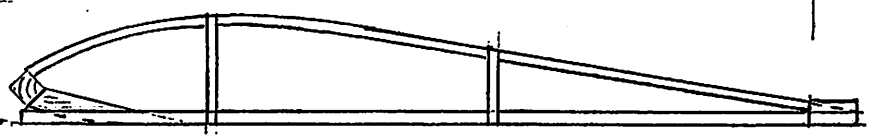

FOAM WHEEL 1-1/8" DIA. W/ 3/8" BALSA HUB.
3/32" O.D. ALUM TUBE


GLUE STRUTS TO BALSA DISK
HARD BALSA
M. BALSA MAIN LANDING GEAR
MED. BALSA SHOCK STRUT
L-GEAR WIRE
.039" WIRE
STRUTS REAR
30 lb. MONOFIL.
LANDING GEAR LAY OUT
BALSA DISK 1/20" SH.

RWD-5 bis

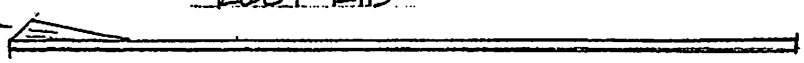


SAND TO THE DESIRED PHILLIPS ENTRY



ROOT RIB

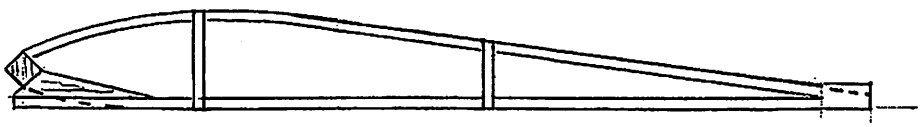
1/16" SHEET



TYPICAL SLICED RIB BASE



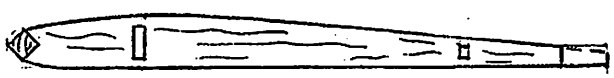
3-1/32" X 1/8" SQ. LAMINATIONS



DIHEDRAL BREAK RIB

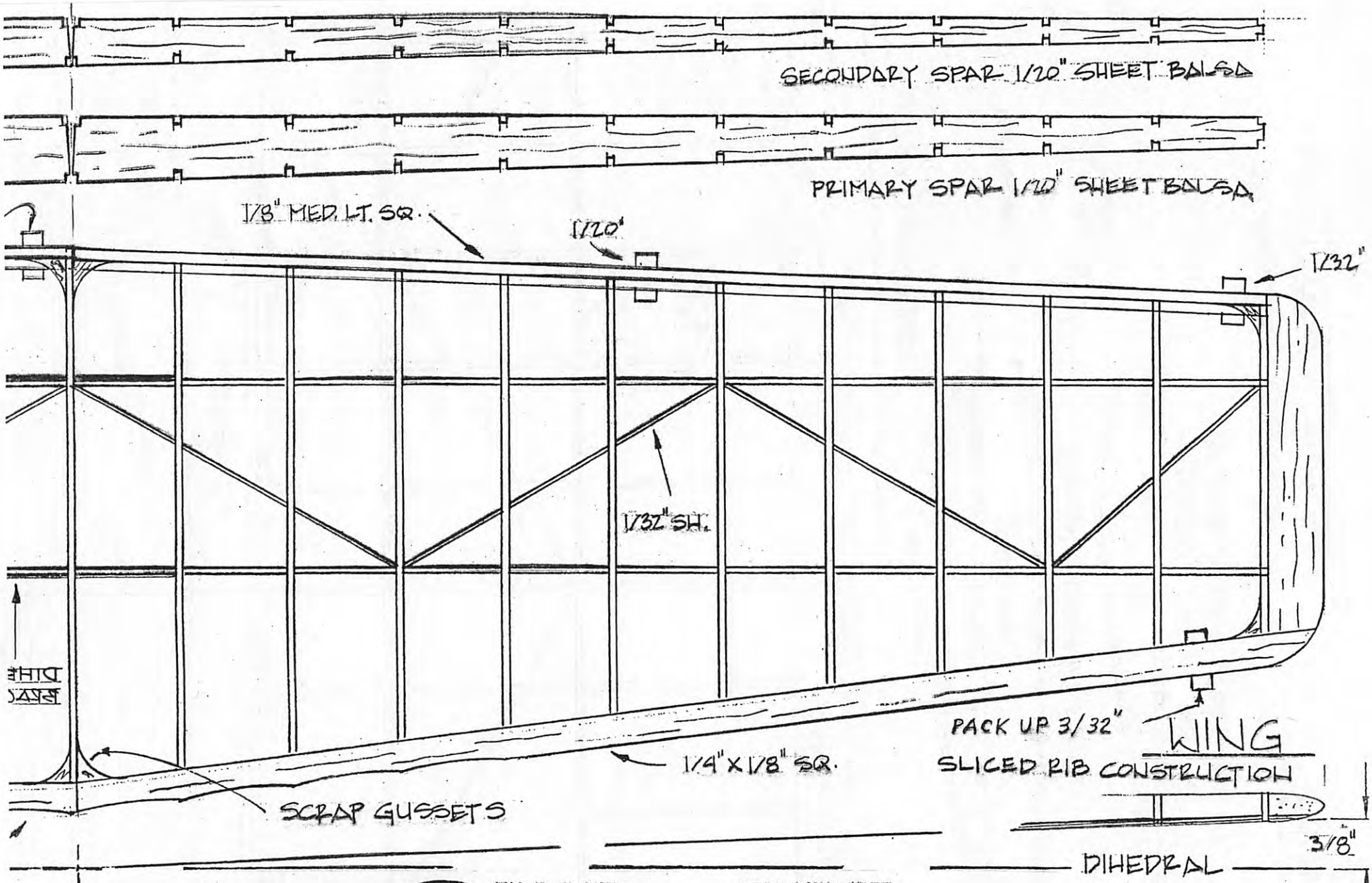
*NOTE: ALL RIB STRIPS 1/16" SQ.

TIP RIB 1/16" LT. BALSA SHEET



R.

RWD-5 bis



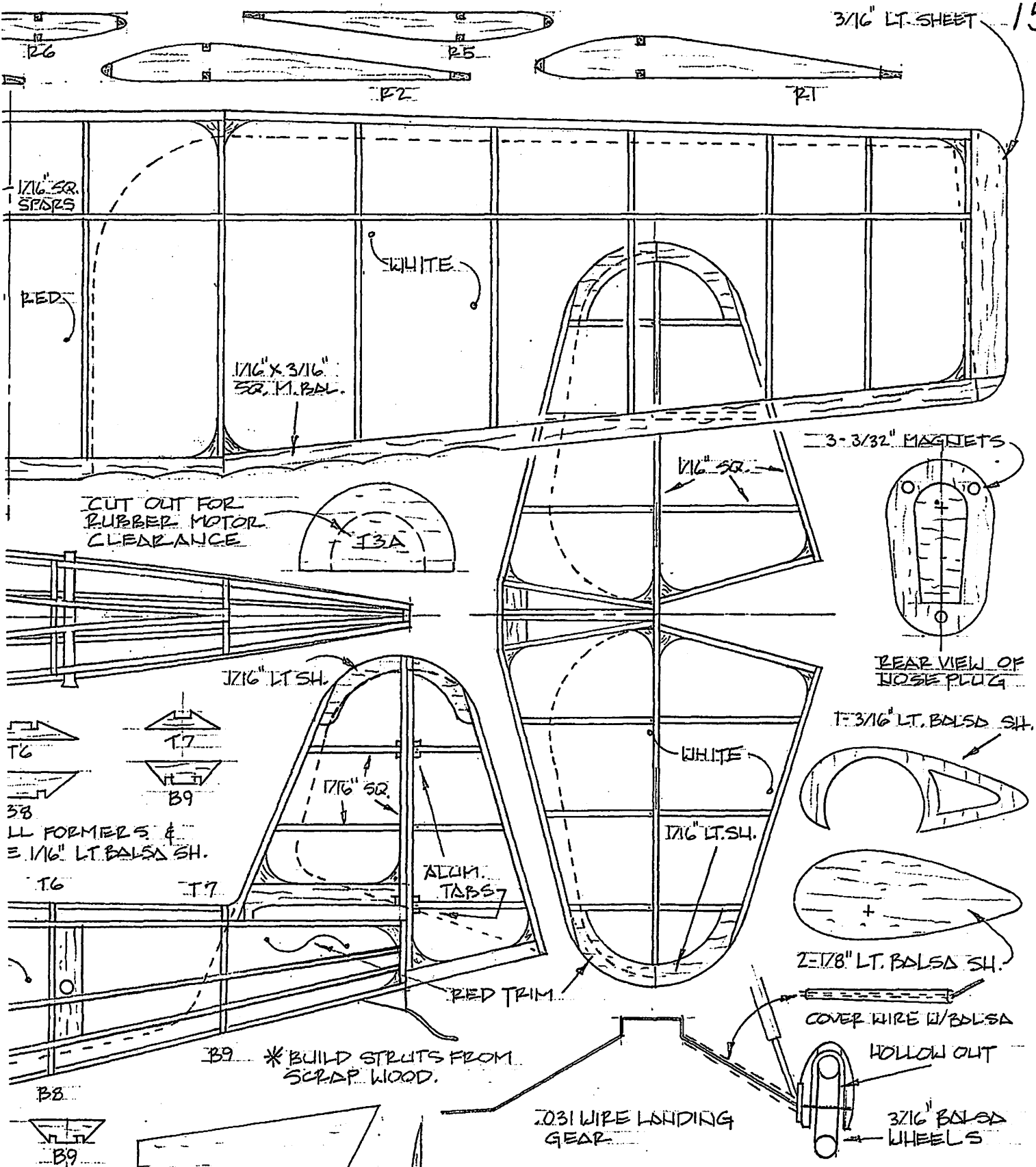


RWD-9. One of the most important Polish successes was the brilliant winning of the "III Challenge de Tourisme International" in 1932 by Zwirko, with Wigura as passenger, on the RWD-6. Improved machine, evolved from successful RWD-6 design, designated RWD-9, was prepared for the "IV Challange," held in 1934. The aircrafts was powered either by a nationally developed Nowkunski's 300 hp GR-760 geared radial, or by a Czech 220 hp Walter "Bora" radial, and eight (four with GR-760 and four with "Bora" engines) were completed. The GR-760 powered RWD-9s achieved still more spectacular victory in 1934 Challenge, for the aircraft, piloted by Bajan and Plonczynski, gained first and second place in final classification in face of strong competition from many European countries, especially Germany and Italy. The Polish team, flying six RWD-9s and six PZL-26s gained the highest team-score. Two "Bora" equipped RWD-9s were entered by Czechoslovakia. Span 38', 2". Max. speed 174 mph.

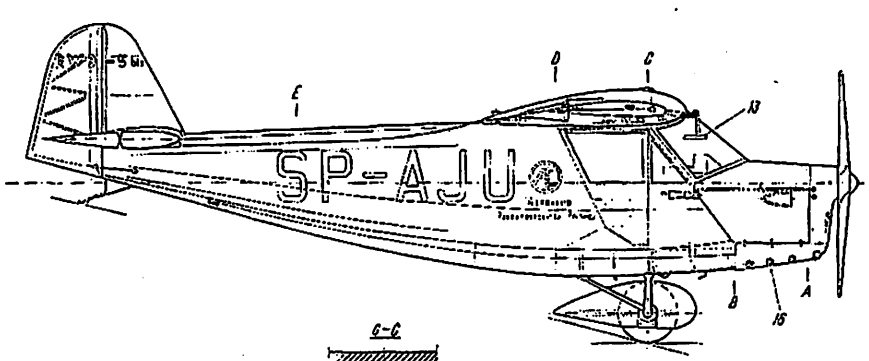
RWD-13. Most popular Polish tourer of the pre-war years, the RWD-13, won an excellent reputation and gained many leading places in international touring contests. It was exported to several countries. The design was evolved from an earlier machine, RWD-5, the special long-range version RWD-5bis was flown 2225 miles by late Group Cpt. St. Skarzynski across the South Atlantic on May 7/8, 1933, thus establishing a distance record for light single-seaters. The RWD-13 three-seat cabin monoplane powered by 130 hp Walter Major, flew first at the beginning of 1935. Some 200 were built; two still fly in Poland and Palestine. An ambulance RWD-13s, was also manufactured for home use and export. Span 37', 8". Max. speed 130 mph. The RWD-15, a larger four-seat development with 205 hp Gipsy-Six engine, and RWD-2, essentially a nose-wheel version of the RWD-13, were derived from the basic RWD-13 design, and tested before the war. RWD-15 was already in production and one machine was registered in USA.

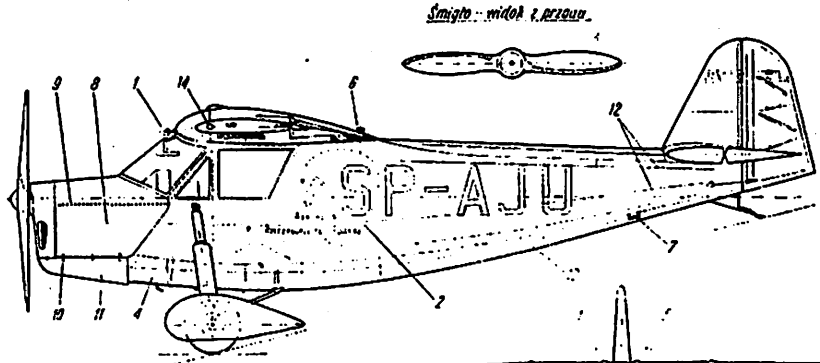


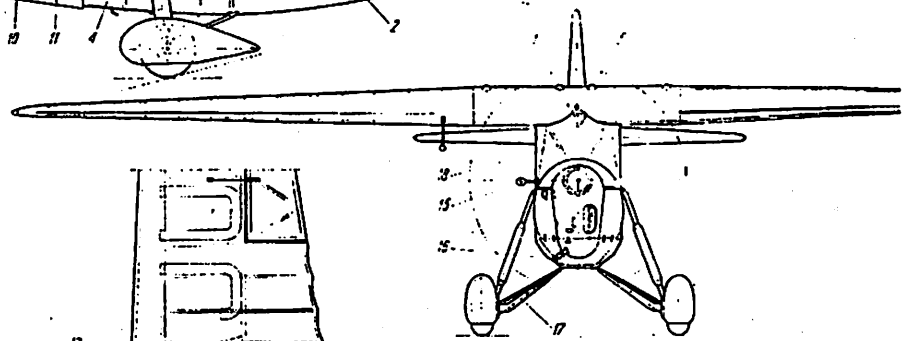
14

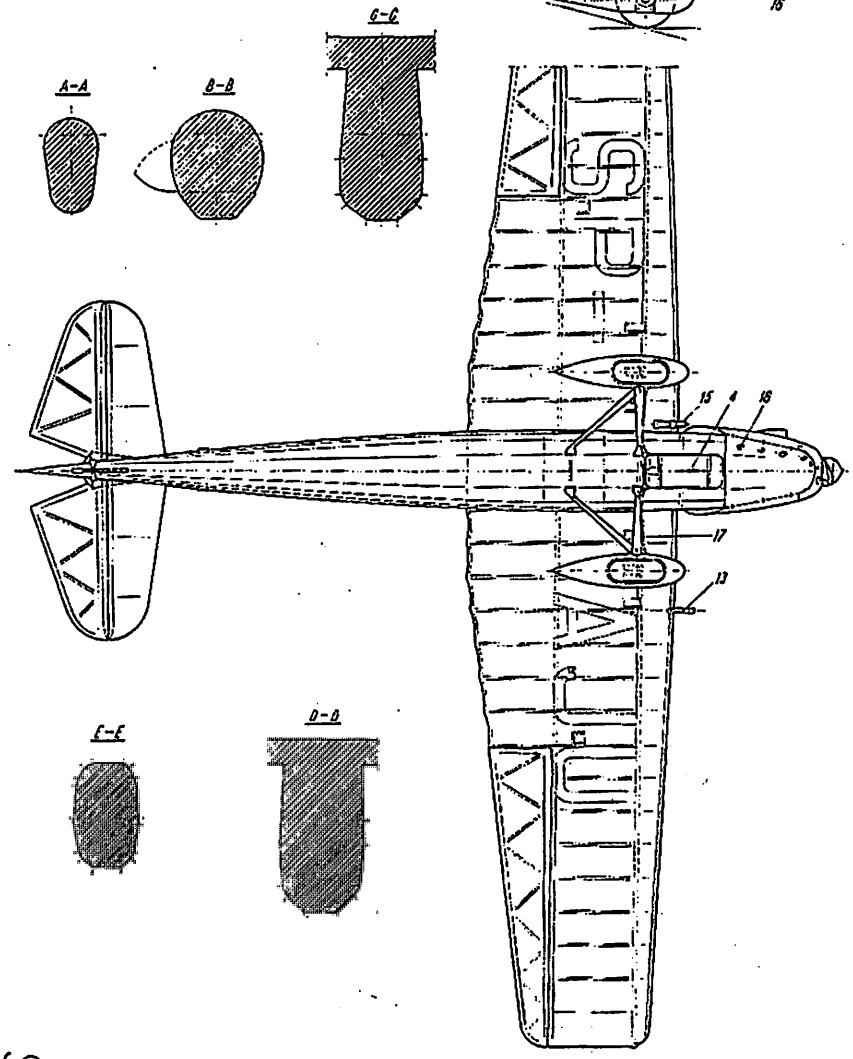


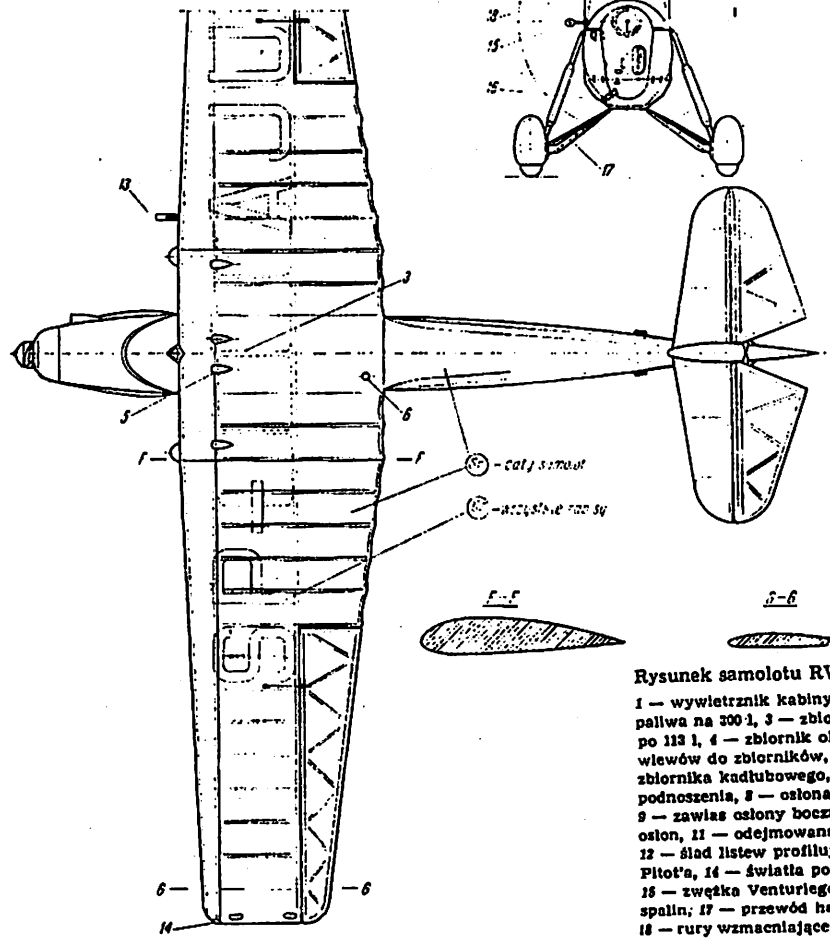
POLISH RWD-5 bis LT. PLANE	
PSEUDO DIME SCALE	
SPAN: 16"	DESIGNED BY: M.H. ISERMANN
Iron Kreuz Model Plans	DATE: 11/14/09
	FINISHED WEIGHT: 13 GM





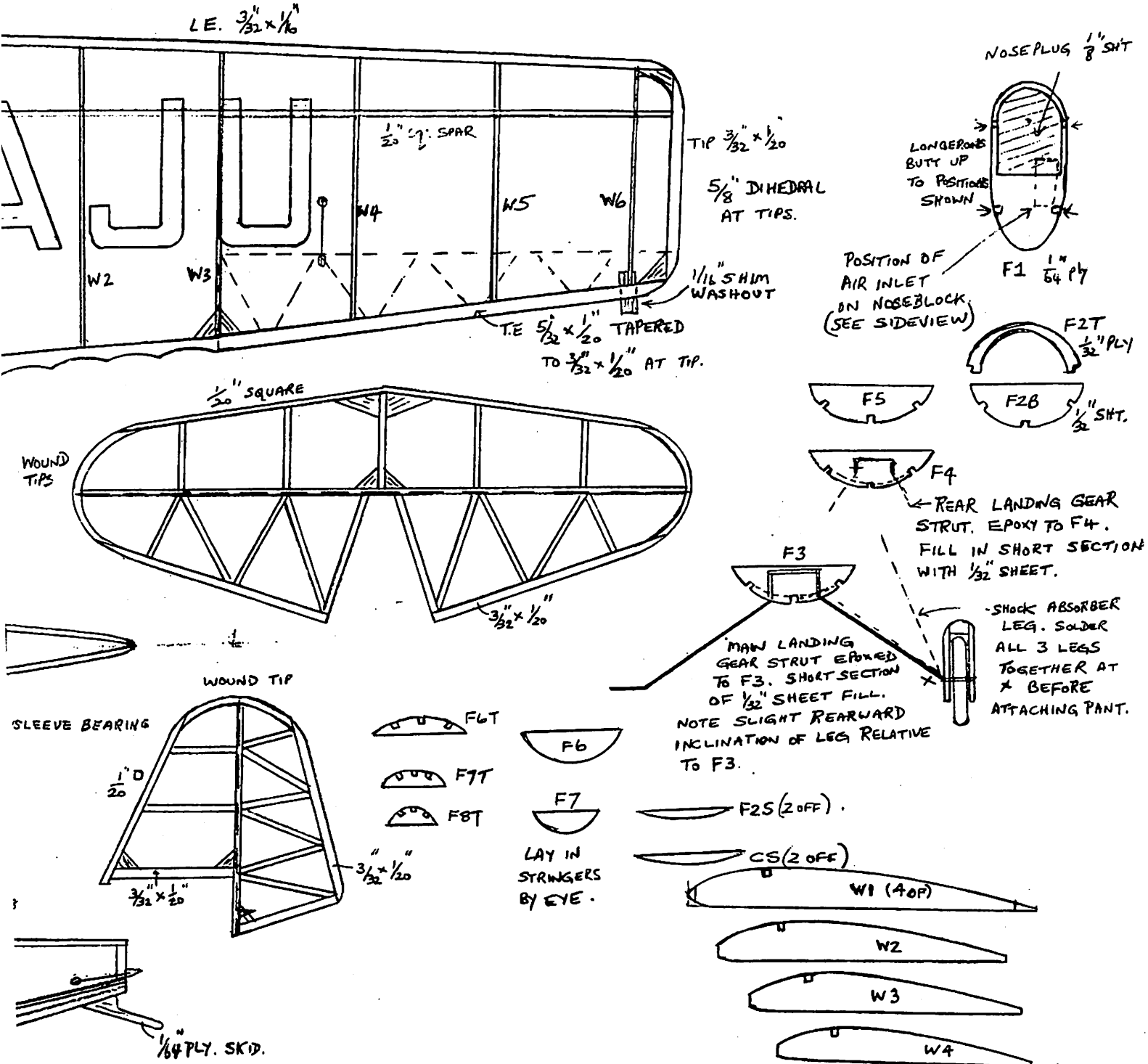






Rysunek samolotu RWD-5bis

1 — wywietrznik kabiny, 2 — zbiornik paliwa na 300 l, 3 — zbiorniki paliwa po 113 l, 4 — zbiornik oleju, 5 — osłony wlewów do zbiorników, 6 — wlew zbiornika kadłubowego, 7 — uchwyt do podnoszenia, 8 — osłona boczna, 9 — zawias osłony bocznej, 10 — zamki osłon, 11 — odejmowana osłona dolna, 12 — ślad listew profilujących, 13 — rurka Pitot'a, 14 — światła pozycyjne, 15 — zwężka Venturiego, 16 — wylot spalin, 17 — przewód hamulcowy, 18 — rury wzmacniające (wewnątrz kabiny)



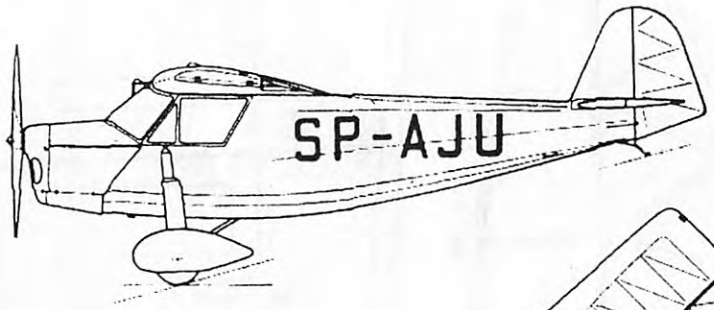
PROPELLER 6" TERN AERO SCRAPED FOR BALANCE. FROM SHORTY'S BASEMENT

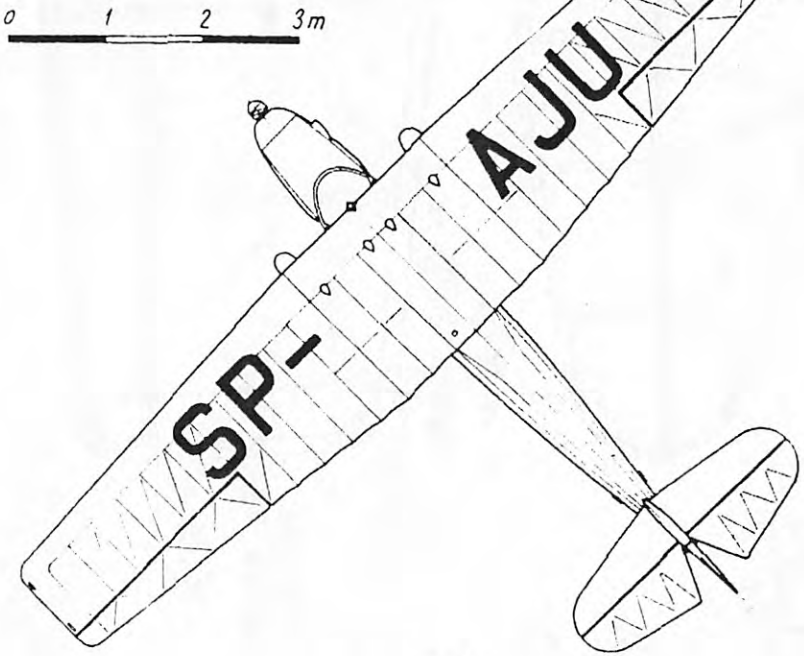
POWER TRY AN 18" LOOP OF 0.080" TAN II.

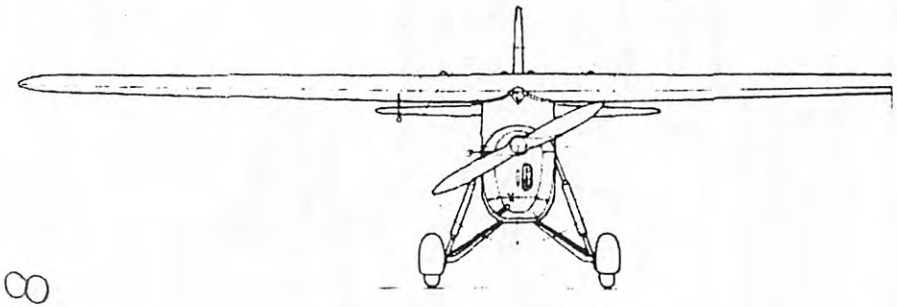
COVER GANPI TISSUE. ONE THIN COAT OF CLEAR DOPE. MIST ON ALUMINUM DOPE VERY THINLY. BLACK SP-AJU. OR ESAKI SILVER TISSUE FROM SHORTY'S

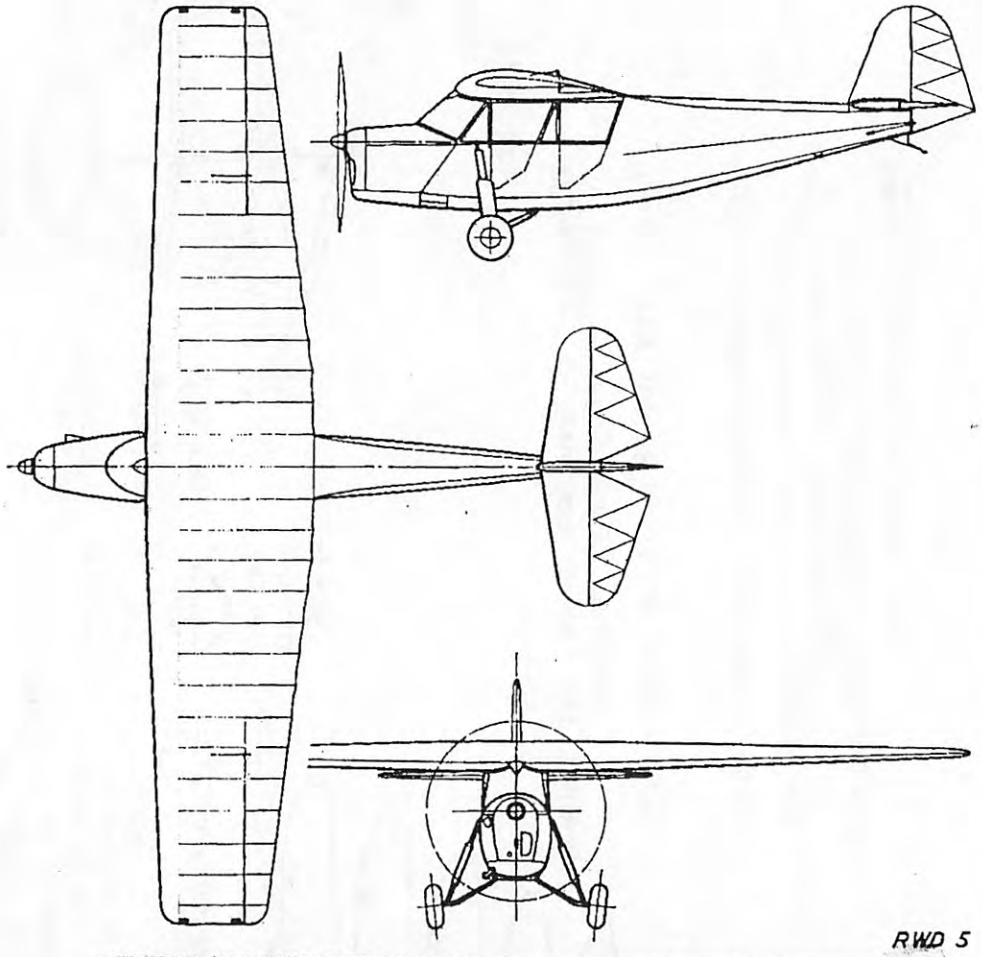
WEIGHT AIM AT 10 GRAMS MAX.

JON ROBERTS
2/95

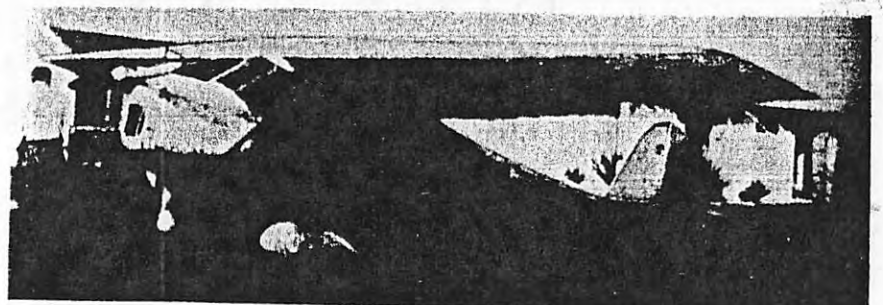








RWD 5



This historic photograph shows the RWD 5bis SP-AJU at Macció in Brazil after its South Atlantic crossing.

SP-LOT SP-LOT

SP-AJU SP-AJU

SP-ARP SP-ARP

SP-AJU RWD-5bis

AEROKLUB
RZECZPOSPOLITEJ POLSKEJ

SP-AJU RWD-5bis

AEROKLUB
RZECZPOSPOLITEJ POLSKEJ

SP-AJU RWD-5

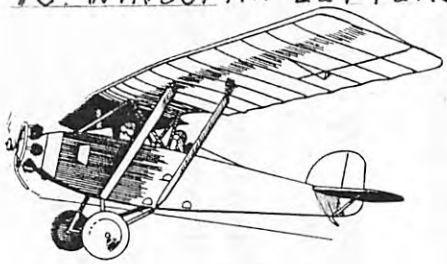
AEROKLUB RZECZPOSPOLITEJ POLSKEJ
WARSZAWA VARSOVY

SP-AJU RWD-5

AEROKLUB RZECZPOSPOLITEJ POLSKEJ
WARSZAWA VARSOVY

SP-ARP SP-LOT SP-ARP SP-LOT

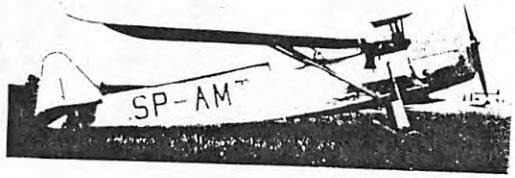
13" WINGSPAN LETTERS. ENLARGE 1.23X FOR 16" DIME & 1.88X FOR 24.4" WINGSPAN SIZE.



Wigura and Rogalski lightplane designed by M. M. Wigura and Rogalski at the Warsaw Polytechnic College in 1928. Engine 45-hp Anzani. Span 32' 9". Length 19' 6".

RWD-2. Designed by students of Warsaw Polytechnic Rogalski, Wigura and Drzewiecki, the RWD-2 two-seat light tourer, equipped with a 40 hp Salmson radial, was a more powerful development of the earlier RWD-1 of 1928. Flew in 1929. In late summer that year the prototype made a Round-Europe Tour covering 2700 miles; on Oct. 16th, 1929 it established a World Height Record for aircraft of its class, 12,136 ft. This was the first FAI-recognized international record set by a Polish designed and registered machine. The 104 hp Hermes powered the development model. RWD-4 and RWD-2 were produced in limited numbers and machines of both types took part in the 1930 "Challenge." The RWD-3, with 80 hp Genet radial, was derived from basic RWD-2 design to the order of the Department of Aviation, and was originally intended as a liaison machine—three were built. One machine, developed for a record purposes and known as the RWD-7, raised on Sept. 30th, 1932, the World Height Record for two-seaters weighing less than 617 lb. to 18,370 ft.





DWL-Produced RWD-8. The RWD-8 two-seat trainer, which flew first in 1937 with a Cirrus engine, was Poland's most produced aircraft and some 700 were completed in the years 1933-38. The machine became standard equipment for Polish aeroclubs and flying schools, and Czechoslovakia, Estonia and Yugoslavia acquired licences for its manufacture. Several RWD-8s were delivered to the Polish Air Force, and, armed with light gun over the rear cockpit, were used during the war as liaison aircraft. Two machines are still flying in Palestine. Due to limited production capacity of the DWL (formerly known as RWD works), RWD-8 was also produced by PZL, and the PZL version differed in minor details—mainly undercarriage—from the original model. A modified machine, RWD-8a, with fuel tanks in wing center-section was also built. A 110 hp PZInz Junior in-line engine was fitted as standard, but one machine was powered by Nowkunski's 110 hp G-564 radial. Span 36'. Max. speed 109 to 115 mph. A new machine, evolved from RWD-8, the RWD-17 fully aerobatic trainer, flew at the end of 1937.

20

CLEVELAND FREE FLIGHT SOCIETY

ANNUAL

INDOOR CONTEST & RECORD TRIALS

A.M.A. SANCTIONED

Saturday, April 24, 2010
Kent State University Field House



7:30 AM – Building opens (test flying)

AMA Events

8:00 – 11:00
1. Hand Launch Glider
2. Standard Class Catapult Glider
3. Unlimited Catapult Glider

8:30 – 5:30
4. EZB – scoring is best of five officials
5. F1L (1.2 gram EZB)
6. Limited Penny Plane
7. Mini Stick – best of 5 officials, 20 sec minimum

9:00 – 3:00
8. Seven Gram Bostonian – AMA rules

FAC Events

9:00-4:30
9. GHQ Peanut Scale -3 flight total + scale points
10. Comet Old Time Plan/Kit Scale – 3 flight total
11. Golden Age Civil Scale – 3 flight total
12. Dime Scale - 3 flight total
13. No Cal Profile Scale 3 flight total - 6.2 grams
14. WW II Combat – 12:30 PM
15. Phantom Flash - best 3 of 6 ROG, 120 sec max. Mass launch tie breaker.

The building will remain open from 5:00PM to 6:00PM for **AMA Record Trials**

FYI:

- All events are J S O combined
- Steering of models as per AMA rulebook
- Entry Fees: Open - $30.00 Junior - $2.00
- Very Important - You must provide your own table and chair
- No Indoor RC flying permitted during the contest
- All Flyers must have a valid AMA license.
- AMA events: see rule book for information
- FAC events will use the 2010 FAC rules.

Awards

Prizes will be awarded for 1st place in each event that there are 3 flyers with official flights. There will also be certificates. There must be 3 official flyers in an event to win a prize, earn a FAC Kanone, or receive a certificate.

Contest Directors:

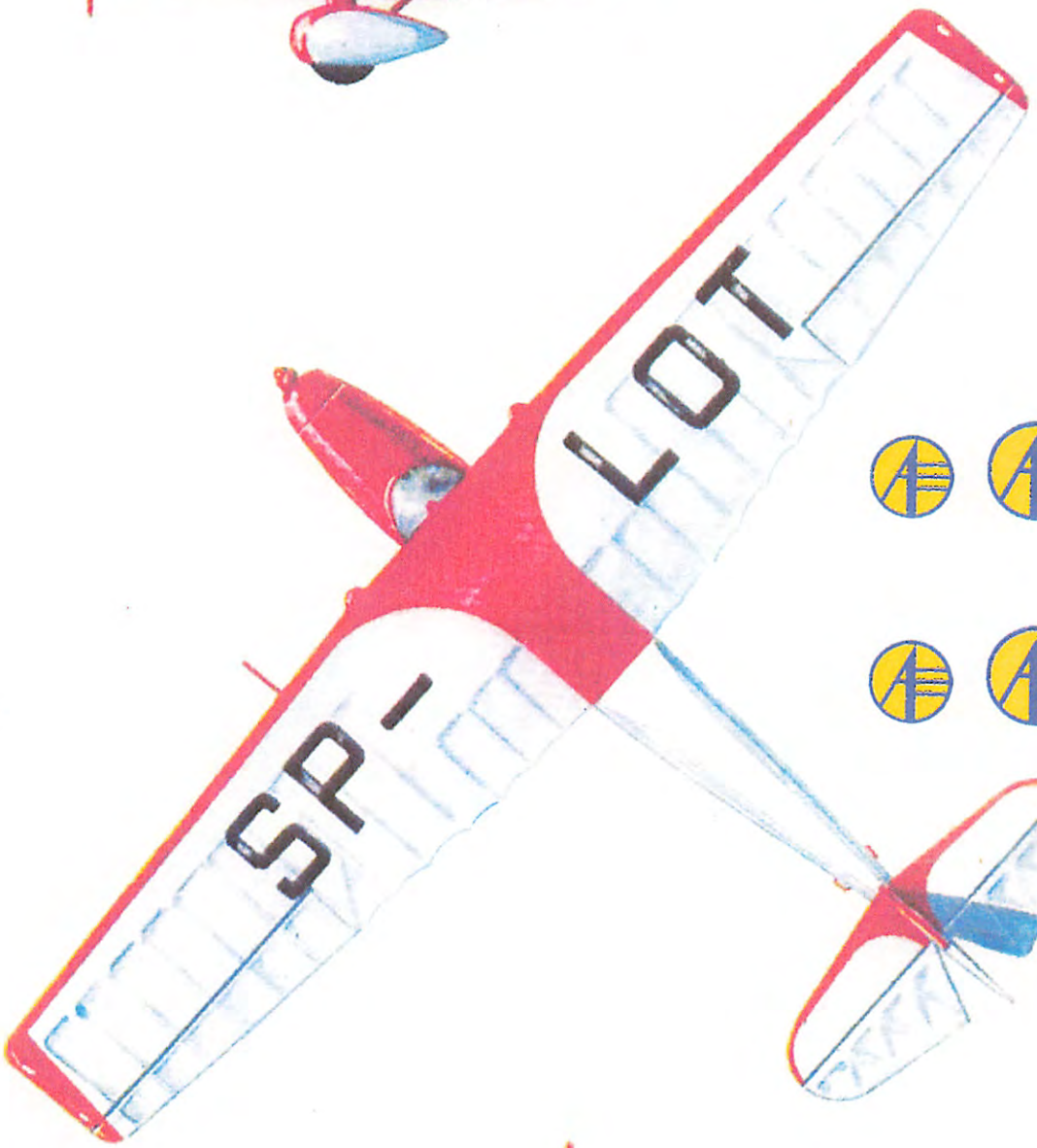
Michael C. Zand
5308 East Ash Road
Independence, OH 44131
216-524-3480 imzand@hotmail.com

Don Slusarczyk
868 Eaglewood Dr.
Willoughby, OH 44094
440-918-0290 don@slusarczyk.com

OUTDOOR CFFS EVENTS AT L.C.C.C SUNDAYS 9 am - 5 pm are 3/23, 6/6, 7/25, 8/15, 9/19, & 10/10
EVENTS ARE LIKE 2009, ADDING JET CAT SCALE FAC GLIDER.

CROSSWINDS readers with the dreaded **RED X** at renewal code 132 or lower can send **$18 per year** to: Russ Brown 4909 N. Sedgewick, Lyndhurst, OH 44124 USA


SP-LOT


SP-LOT



