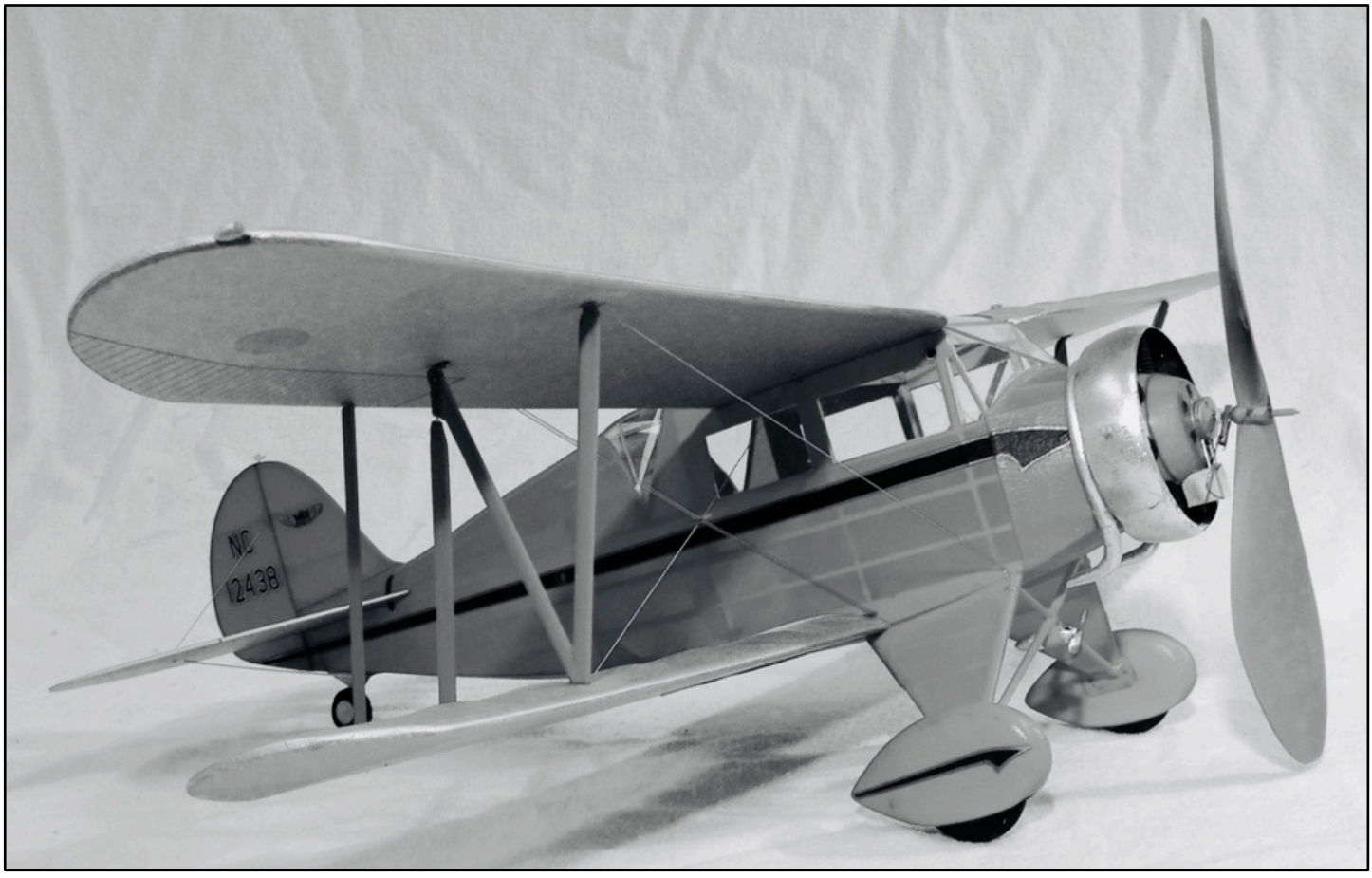
MAX FAX

The Journal of the DC Maxecuters,
The dreaded Potomac Pursuit Squadron #6 of the Flying Aces Club

Editor: Dave Mitchell 2022-3



WACO QDC / ARONSTEIN I-5 FALCON

DON MYERS MEMORIAL MEET TUCKAHOE FIELD July 6-7 2022

Jerry Litschi, Jim Smith and the **Tuckahoe Free Flight Club** hosted flyers from around the Mid-Atlantic and Northeast for a weekend contest at their amazing sod farm field. Several Maxecuters made their way up for the event, joining the local Jersey fliers for some FF fun. Constant strong winds both days made for a challenging contest; when you could get a model away safely, you were in for a long chase! Despite all that, participation was pretty good and a fine time was had by all!

The wind rarely let up; at least it was constant directionally. The Avenger is sitting in the incoming footsteps from a previous retrieval, exactly in line with the outgoing line of retrieval....

Tuckahoe regular Tony Perrotta had his EasyBuilt 1/2 AWake flying very well, despite his protestations that he didn't know what he was doing...sandbagger! Haaaaw...

Matt King had his XCG-17 towline glider out. Teething problems at launch resulted in a bunged up nose, but it showed promise!

WWII Mass Launch. Everyone seems to be wondering what DM is going on about. Nevermind... look at that field!

Julie Farrell holds Wally's Mitsubishi 1MF1, a beauty built from plans by Tom Hallman. Wally won the GA Bipe event with it .

MAXFAX 2022-3

This issue will test the premise that a picture - or a plan- is worth a thousand words. A combination of things conspired to take up a great deal of my time since the last issue, and as a result I'm going to lean on a couple of multi-page plans dug up from the history bins to fill the pages.

The first is a nifty **I-5 Falcon Bostonian** from the creative pen of **Dave Aronstein**. Dave drew this way back in 1990; I'm not sure if it was ever published. At some point the plan found its way to **Frank Rowsome's** files, and there it lay, waiting for a chance to see the light again. That time has come! If Bostonian is not flown much in your area, build one anyway--it qualifies for FAC Embryo Endurance!

Our second plan--finally-- is for my 24" **Waco QDC**. I built this model back in 2010 and it served me well for several years in FAC Scale competition before getting busted up in my basement by a careless electrician. I had produced an incomplete and reduced-scale plan for the 2012 NFFS Symposium, but had never gotten around to properly brushing it up and formatting it full-scale for the MaxFax. When I realized I wasn't likely to be getting much fresh building done this summer, I got motivated to patch the QDC up in time for the **Tuckahoe Field** meet last July. Despite the rough winds at that meet, the QDC showed it hadn't lost its form; it was time to unearth the plans and clean them up. The QDC's construction is not particularly straightforward, which is part of the reason the plans took so long to finish. But if you're game to give it a try, I think you'll find it a rewarding build.

To round out the issue, **Glen Simpers** provides us with the results of a neat airfoil performance experiment that he conducted on an old **Bill Bell** model, and **Pete Kaiteris** shows how to cobble up a home-brew custom towline glider winch. Thanks guys!

-Dm

Jack Kacian left us July 12, after a long battle with Parkinson's Disease. I won't pretend to have known Jack long nor even particularly well, but the time that we did share on the field and during the BS sessions at Geneseo will be with me forever; sometimes you just know you are in the presence of a special person, and Jack was like that. Spirited, inspiring, humble, brilliant, flying a rubber powered Wright Flyer on the one hand, an immaculate 6" foam GeeBee R on the other, and everything in-between. Pilot, modeler, maker, musician...if it involved creative imagination and pushing the envelope, you'd find Jack with his hand in the game. I'm afraid they broke the mold; if he were around still, he'd doubtless make a new one. Rest in peace, Jack.

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PUBLISHING DATES - Four issues of MaxFax are sent each year, one each quarter, but since this is a volunteer publication nothing is guaranteed except that four issues will be sent to all members.

UPCOMING EVENTS:

Maxecuters ZOOM meetings

Occasional Tuesdays at 11:30am, hosted by Carl Hampton. Check your e-mail for notices. To receive an invitation, E-mail Carl at: **champton3@cox.net**

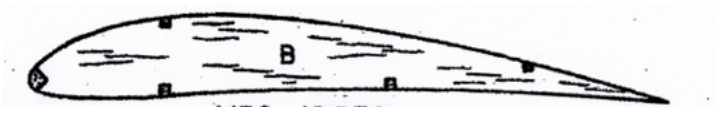
AIRFOIL GLIDE TESTS Glen Simpers

Bill Bell was a great craftsman of model airplanes. As a testament to his ability his large rubber scale biplane Martin bomber is in the Glenn L. Martin Maryland Aviation Museum in Middle River, MD. With his passing I came in possession of his 26" wingspan Lincoln APK-5 from a Hurst Bowers plan (Max Fax July 1984). The Lincoln is a nice high wing airplane with somewhat complicated shock-absorbing landing gear and exposed engine cylinders. The wing was constant chord giving lots of wing area.

Patching the ancient tissue, I used it for years to let kids try their hand at winding and flying an airplane. This was great fun but the model was a bit delicate for the too tightly squeezing hands, the energetic launches, and the unfamiliar handling or running retrieval. During the times I flew Bill's Lincoln the model put in reliable stable flights. Using the amount of rubber that Bill had used I was able to get consistent 45 sec. flights from the model without putting in a long motor or winding to the max. Repairing the broken longerons and torn tissue, I repurposed it to run some airfoil glide tests.

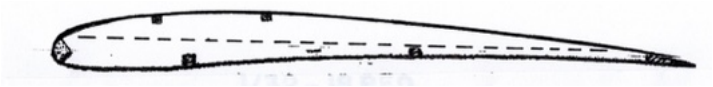
Being a large model with scale engine details, struts, and shock absorbing landing gear it was very representative of the type of models an FAC flier might build. I used it to try to understand the effect the airfoil has on the glide of a model. Taking off the nose block and propeller I replaced them with an equivalent weight (figure 1). This eliminated the complicating factor of a freewheeling prop. Patching the tissue, I then trimmed the model to fly straight from a shoulder-level launch with a nice glide. My thinking was that I could glide the model, see how far it glided and then change the airfoil and repeat. All glides were inside a gym. While not that scientifically rigorous it was a fun project. The grant request for full instrumentation to do better is still working its way through the NACA bureaucracy.

The original airfoil was 12.5% thick, had some Phillip's entry unsweep at the lower leading edge, a slightly rounded leading edge, and 1/16" under camber in the lower center of the wing (figure 2). I launched each flight as best I



could from a shoulder height at a speed that approximated the normal glide speed. Any launches that were poor from too slow a speed, too fast a speed, or released at a poor angle were eliminated. Averaged over the eight good launches the model with original airfoil glided 24.9 ft. Flights ranged from as short as 22 ft. to 27 ft. at the most. The model glided with a fairly steep angle and came down on the floor with a pronounced 'clump'.

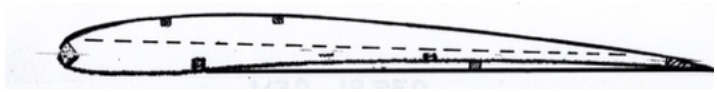
Next, I modified the airfoil. I removed the top tissue and cut off the tops of all the airfoils to the level of the leading and trailing edge. I then created an 8.5% airfoil sort of like the top portion of a Drela AG-37. I left the bottom of the airfoil alone (figure 3). This airfoil featured a spar at the



high point and one about halfway between the high point and the leading edge. Out of 22 acceptable launches the Lincoln glided an average of 31.2 ft. This distance was an 22.5% improvement over the original airfoil. Flights ranged from a short flight of 27 ft. to as long as 35 ft. The distribution was somewhat grouped with a number of flights around 28 ft. and a second grouping of more than more 33 ft.

Comparing these two airfoils the 8.5% airfoil had noticeably less drag. The broader range and two groupings of results for the thinner airfoil indicates that the model is somewhat more sensitive to the exact way it was launched. For a real life FAC model this would mean that the thinner airfoil might be more demanding to trim but would reward the modeler with less drag both while under power and during glide.

The airfoil was again modified to remove the under camber completely. A new 1/16" spar was added at the deepest spot of the undercamber so that from the beginning of the Phillip's entry to the trailing edge the bottom was flat (figure 4). Without undercamber the average of 22 flights



was 30.9 ft. over a range from as short as 27 ft. to as long as 35 ft. This compared to an average glide of 31.2 ft. with the 1/16" undercamber airfoil. I did not consider this difference as significant.

The conclusion I draw from these glide tests is that changing the thickness of the airfoil from 12.5% to 8.5% was a significant reduction in the overall airplane drag (22.5%). Even with the Lincoln's inherent drag from the many landing gear elements, wing struts, and engine details the wing thickness was a key component to drag. In comparison the impact of modest undercamber was not important.

The late, great Bill Bell

-GS

TOP VIEW

TOP ONLY

CLEAR

TOP ONLY

2° DOWN
2° RIGHT

TILT ROOT RIBS IN ACCORDING TO DIH. GUIDES. (RIGHT≠LEFT)

WING

BOTTOM ONLY

L. CANARD

1.25" DIH.

R. CANARD

.75" DIH.

1" 1"

STAB

.025 BLADE: FORM ON A 9.5" PLASTIC PROP

I-5 FALCON

A BOSTONIAN BY DAVID ARONSTEIN 1990

FIN 1/20 X 1/16

RIBS 1/16

WING

CANARD

GUSSETS

CLEAR

DOWEL

3/16 BALSA HUB

STAB

A

B

C

UNSUPPORTED TISSUE

PLUG, DON'T GLUE, BLADES INTO HUB, SO PITCH IS ADJUSTABLE.

1/16 ALUM. BUSHING/ FREE-WHEELER

A

1/32 'CHIN'

B

C

ALSO QUALIFIES FOR FAC EMBRYO!

ALL WOOD 4 LB/FT

1/16 UNLESS NOTED.

COVER ALL PARTS BOTH SIDES. WING & CANARD HAVE UNDERCAMBER.

TURN RIGHT.

SOME WEIGHT ON RIGHT CANARD TIP MAY BE NEEDED.

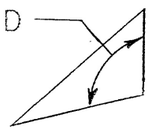
WEIGHT 6 GM
BALLAST 1 GM

3RD BOSTONIAN
1990 INDOOR NATS
3:50 & 3:59

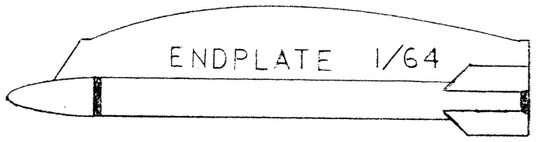
46" LOOP
.095 TAN FAI RUBBER
3600 WINDS

ALSO QUALIFIES FOR FAC EMBRYO!

TILT TIP RIB OUTWARD



1" DIHED.



I-5 FALCON
2 OF 2

STAB AREA 14.875 □"
PROJ. CANARD AREA 8.875 □"

5/16" hard balsa
Face front and
back w/ 1/64" ply

Add 1/2" deep nose
plug. Plug MUST
be a tight fit to
former "A"

NB

3/16" balsa
Face front
+
w/ 1/64" ply

A

ECA

1 2 3 4 5 6 7

3/8" balsa
+
B

D top

Temporary brace remove
after D top is glued in place

D

C

Wing strut - true length
1/16" x 5/32" hard balsa
Two req.

11/16

dihedral break point upper wing

5/8

3/16 sheet 2 pcs

1/16" sheet
4 pcs
2 left, 2 right
bevel inside
to dotted line

1/16" sheet
4 pcs
2 left, 2 right
bevel inside
to dotted line

1/16" sheet
4 pcs

1/16" sheet
4 pcs

Formers D-J are built up as one-piece units, before being attached to the horizontal keel. Note some former pieces overlap, while some are flush edgejoints.

1" 1"

LG leg fairings - 1/8" sq.
outlines. Two req'd.
Sand to symmetric airfoil.

1/32" x 1/8"

1/8" sheet
gusset

E

Make two Former E bottom
cross-pieces; sandwich LG
wire between them as shown

F1

F2

G

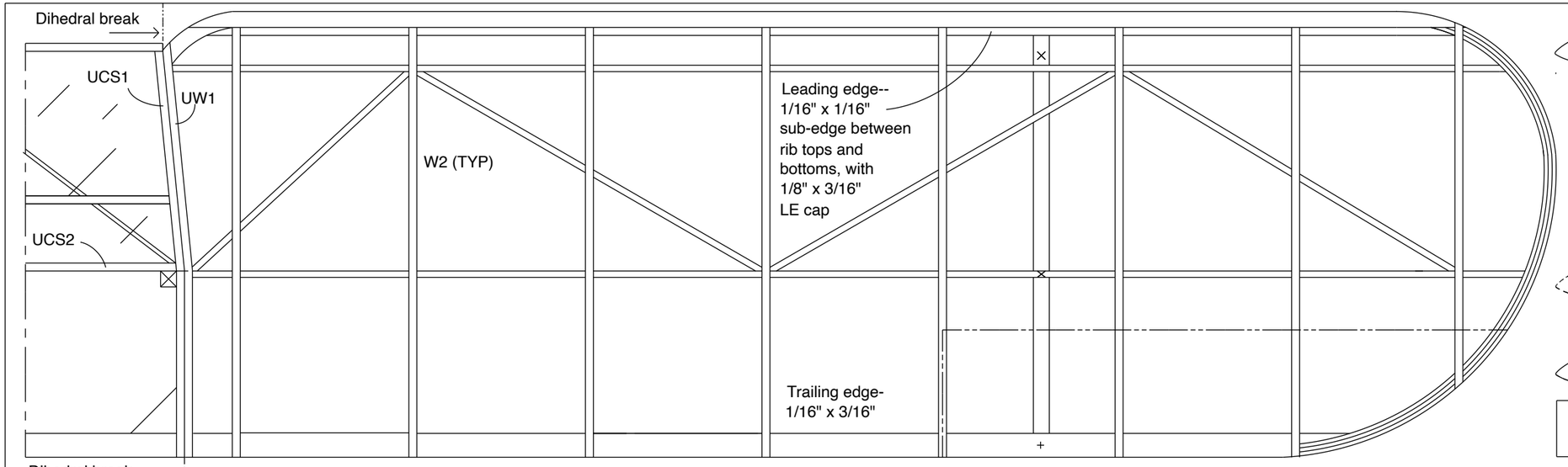
H

I

J

1932 WACO QDC

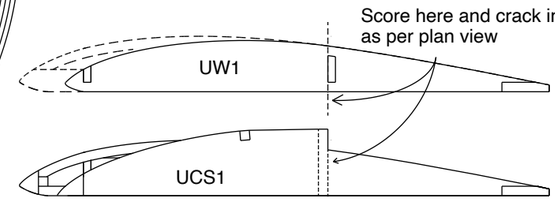
THE WACO AIRCRAFT CO. TROY, OHIO, U.S.A.



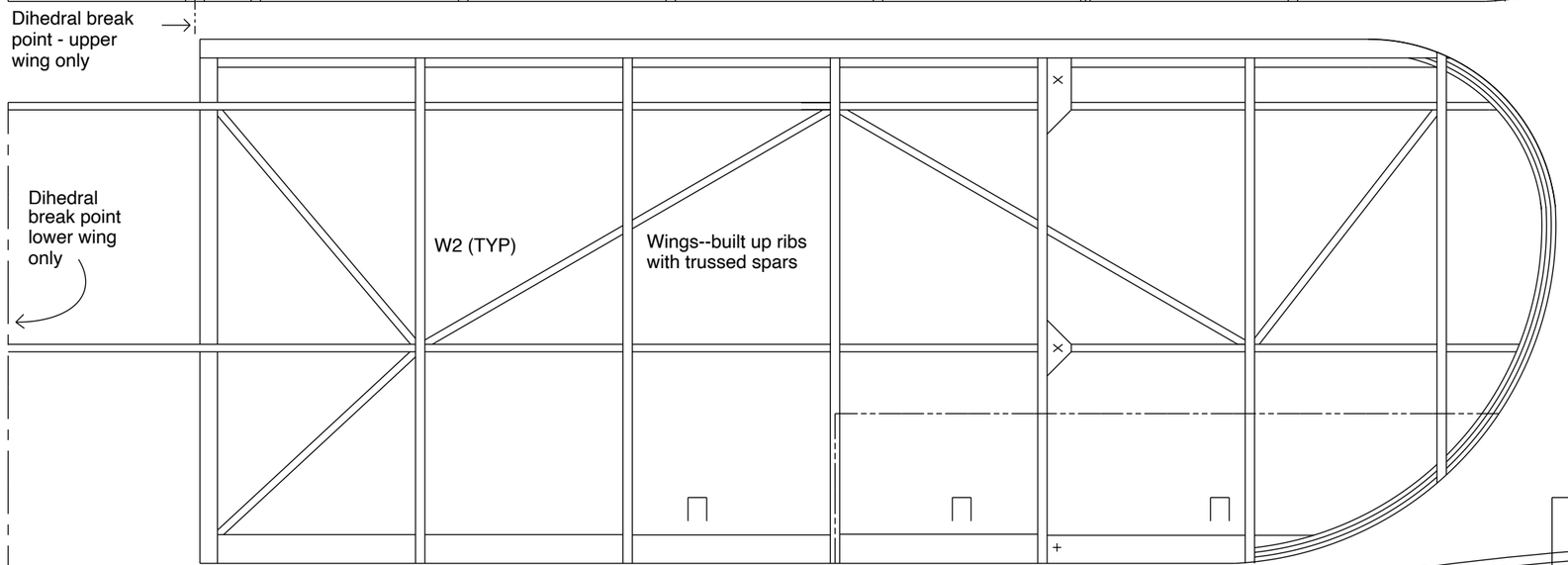
Wing ribs--1/16" sq.
Tops soaked and bent over a form

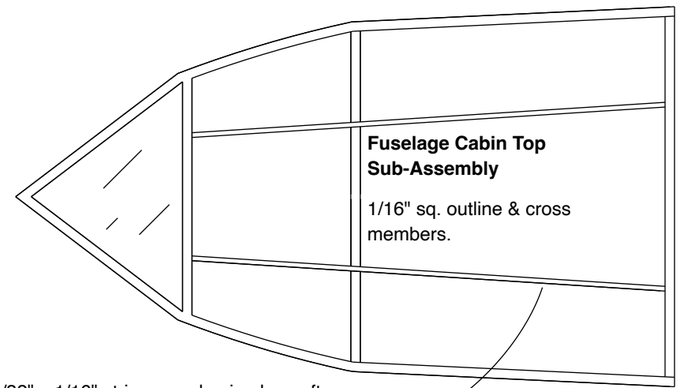
Wing spars--1/20" x 3/16", sand top edge to angle height as per rib profile above after trussing

Leading edge--1/16" sq. sub-edge, with 1/8" x 3/16" LE cap, sanded to profile

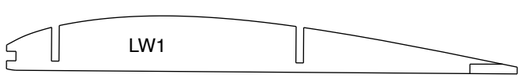


UCS2



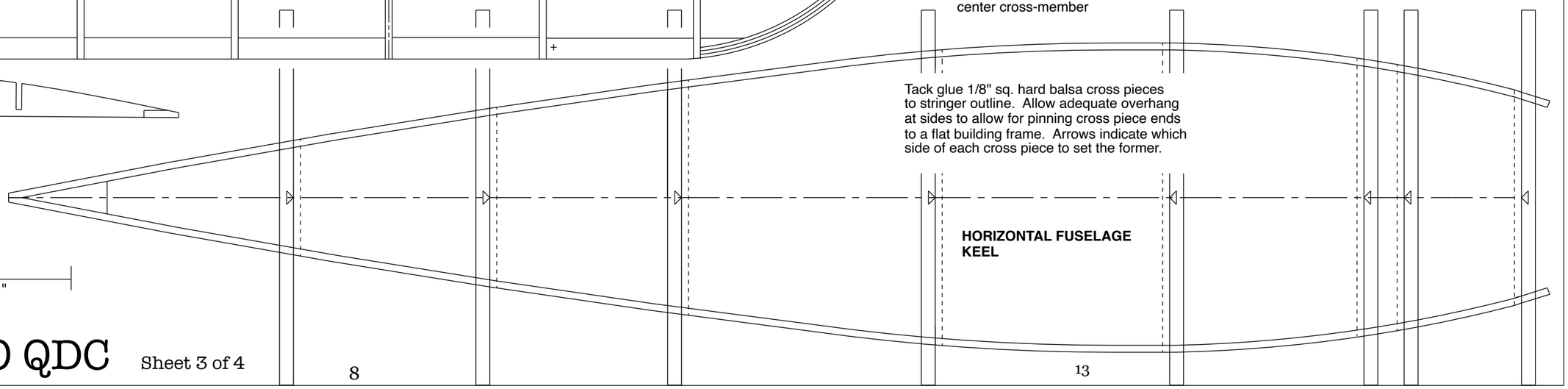


1/32" x 1/16" stringers--glue in place after sub-assembly is fitted to fuselage; ends are glued flush to frame, stringers ride over the center cross-member



Lower wing root rib - 1/8"
Two req'd.

Tack glue 1/8" sq. hard balsa cross pieces to stringer outline. Allow adequate overhang at sides to allow for pinning cross piece ends to a flat building frame. Arrows indicate which side of each cross piece to set the former.



HORIZONTAL FUSELAGE KEEL

1932 WACO QDC

Sheet 3 of 4

Build stab as a flat 1/16" structure first, then cap structure as indicated.
Sand to symmetric airfoil.

Stab TE- 1/32" X 1/16" lamination

Feather all stab cap strips into LE and TE to create a symmetric stab airfoil

1/16" x 1/8"

1/16" dia. carbon fiber spar

1/32" x 1/8" cap top and bottom

1/32" x 1/16" cap top and bottom

1/32" x 3/16" cap top and bottom

NOTE:
If not setting the model up with a DT, replace the CF spar with 1/16" balsa and build the stab in one piece

1" 1"

Strut attachment points

Aileron connector attachment point

1/8" sq. balsa joint reinforcement

Strut attachment points--build up gusset flush to tops of wing ribs

LW1

1/8" root rib low wing

Stab outline 1/32" x 1/16" lamination

1/16" sq.

1/20" x 1/16" (typ)

1/16" x 1/8"

This piece is used on upper wing center section

Fuselage Cabin Side sub-assembly
1/32" sheet - 2 req'd.

After mounting, bind LG at this point with stretch cord or 1/16" rubber

LG 1/32" music wire true length

1932 WACO QDC

Sheet 2 of 4

Upper Cabin assembly separates here
Forward section is integral with wing

Forward half of the Fuselage Cabin Top sub-assembly is glued flush to the top edge of the Fuselage Cabin Side sub-assemblies, beginning at former F; the rear point is glued to former H where former H and formers KL, KR and the top rear stringer converge.

When dry, add the 1/16" sq. diagonal window framing and 1/32" sq. secondary framing.

KR KL

Formers KL and KR are set at angles as per plan view. Stringers not shown for clarity

Cylinder spoke assembly ECA

D top

K

Upper rear deck stringers begin at former K and run to the tail end

Pivot hole for stab spar

NOTE: if you are not setting up the model for a DT, eliminate this balsa strip to provide a slot for a one-piece stab.

Horizontal keel

NB A B C D E F1 G H I J

F2

Trim crutch to lower longerons after longerons are set

Protype data:

Empty weight: 51g
Rubber: 4 x 3/16 x 38
Braided 600-700 turns
9.5" Peck prop cut down to 9"
Gizmo Geezer thrust button

Dry fit the lower wing and glue F2 into place so that the front wing spar can be glued against it for reinforcement.

Glue rear spar to former G cross piece, shimming as needed

Run the bottom stringers and cover the fuselage bottom after the lower wing has been glued in place.

Fuselage wing saddles--1/16" sheet. 2 req.

Notches for lower wing spars

Reinforce the lower wing dihedral joints of lower wing spars with a gusset as shown below. After fitting to the wing saddle, the spar bottoms will be trimmed to the profile of the fuselage bottom, approximated by the fine dotted line.

Gusset glued to the TOP of the spar

1" 1"

KR

KL

C D E F Fuselage--top cabin sub-assembly G H I J

Sheet 1 of 4

24" FAC RUBBER SCALE
by Dave Mitchell - Plan revisited 2022

1932 WACO QDC

WACO QDC by Dave Mitchell

The Waco QDC was Waco's first foray into the closed cabin business class market, with a production run of 37 aircraft beginning in 1931. What with Waco throwing out new models left and right in those heady days, the QDC did not hold its position in the vanguard for long, giving way to a steady progression of sleeker / faster / more powerful ships that culminated in 1942 with the VKS-7F. My model represents Alan Buckner's glorious restoration of NC12438, photos of which are all over the internet. There are also photos of other color schemes that you could opt for. Lots of fiddly bits to chew on make for a fine FAC Scale subject!

The model was challenging to design, and is a bit of a tricky build. The middle cabin portion of the structure lends itself to box frame construction, sort of, but not the nose or the back—both are better served by a keel and former approach. I decided to cobble it up building off of the horizontal keel--a technique I like to use generally, but especially with complex fuselages as it works wonders to preserve the plan-view symmetry. I've written about this method in the past so I'll try to keep my notes brief.

Lay out the horizontal keel as per the plan and tack glue temporary cross-strips of hard 1/8" square balsa across the side pieces at each fuselage former position, marking to which side of the cross-strip each whole former will be fitted. This horizontal keel assembly will be very fragile, and must be pinned to a rigid open building frame, built of straight pine or a similar softwood--you want the frame to be soft enough that you can pin the cross-pieces to it. This will hold the keel assembly true while the assembled formers and main keel stringers are being added. Once this is accomplished, the left and right 1/32" sheet Fuselage Cabin Side sub-assemblies are glued in place, followed by the left and right Fuselage Wing saddles. Finally, the Top Cabin sub-assembly is set in position as per the plans, and the remaining stringers can be run (NOTE: run the bottom stringers AFTER the lower wing has been glued in place. See the notes below re: the lower wing). Despite all the complication, the end result works a charm; using the building frame does a great job of minimizing the amount of direct handling you have to subject the fuselage to, and helps allow for any necessary adjustments where my engineering or instructions might fail.

The upper wing is one piece, with the dihedral break at the cabin. Note that the dihedral break isn't along a straight line though. Take your time here and it will all work out! The trailing edge of the upper wing centersection fits into a pocket framed out by the 1/32" sheet Fuselage Cabin Side assemblies and the Fuselage Cabin Top sub-assembly. The forward half of the cabin top is integral with the upper wing. As for the lower wing, it's also designed as a one-piece wing, but with the dihedral break in the *center*. The set of the lower wing to the fuselage is such that the main spars will project beyond the profile of the lower fuselage after the wing is in place. To deal with this, a long gusset is glued to the top edge of both the front and rear spar, as per the plan. During assembly, cover the wing, leaving the center section open. Cover the fuselage, leaving the unstringered bottom open. Glue the lower wing in place; this involves gluing the front spar up against former F2, as well as shimming and gluing the rear spar to former G. When everything is dry, shape the bottom of the wing spars to the profile of the fuselage bottom, run the bottom stringers, and cover the fuselage bottom. Whew! I think that's everything.

The engine cylinders are positioned with the aid of part "ECA", which comprises 7 pie-shaped wedges and seven cylinder spokes. These are cut out and lightly taped together; the pie shaped wedges ONLY are glued into position on the face of nose part B as per the plan layout, and the cylinder spokes are removed. Nose part A is then glued to the face of the pie shaped wedges, creating slots that the cylinder spokes can fit into later. Assembly A-B can then be glued onto the fuselage nose and sanded to shape. After covering, when you are ready to make up the engine, fit the cylinder spokes into place in their slots; wrapped paper tube cylinders are fitted onto the spokes, shaped to the sloped profile of part A-B, and glued in place. Detail the engine as you wish. The Townend cowl is glued to the heads of the cylinders, making a sturdy assembly that will withstand lots of handling. I used aluminum leaf for the finish on the cowl, which was built up using a cut section of cardboard packing tube as the core, with balsa wrapped around the perimeter and sanded to profile. As I was planning this I envisioned a bright shining thing, with invisible seams, giving off perfect reflections in the early morning sun. Eh, not so much—working with leaf is tricky, and I didn't have any real experience with it. But I'm happy enough with the results.

All this, plus a Dave Rees-style trussed-spar wing and judicious wood selection, should result in a reasonably light airframe—the weight of mine without rubber was 51g when the plane was new, and it required no additional ballast. Much to my delight (and relief), the portly beast flew right off the board. A model that I expected to be a bit of a delicate flower has instead been one of the workhorses of my fleet, and has borne a heavy workload with little complaint. Ten years on, she still flies on the original set-up: a slightly modified 9" Peck prop (cut down from 9.5", and the tips thinned in chord) in front of a 4 x 3/16" x 40" motor, braided about 600 turns; at a hook-to peg length of about 7.5" you'll want all those braid turns, maybe more. I have also flown it sucessfully on a slightly shorter 38" motor.

The QDC has been a solid 80-90 second flyer in dead air. She handles wind like a champ. Typical flight profile is a strong, straight nose-high climb-out, bunting out at the top into a moderately wide right hand circle. If there is rising air, this little piggie will sniff it out like a truffle; the DT that I forced myself to build into it has been employed several times, dumping it back to earth rather unceremoniously. Partly due to this, I HAVE had to do repair work on the landing gear from time to time. I built the original model with a lot of attention to a flexible LG set up that could take shocks, pivoting backwards from the *rear* of the LG fairings, using a minimum of wire, and stretch monofilament at all of the attachment points It worked great for a while, but over time the monofilament got brittle, lost its bounce and damage began to accrue. The plan as presented here uses a more conventional wire LG set-up; you may want to experiment with other arrangements to suit your tastes.

If you build one, send pictures! I'm here if you get confused by my contorted construction processes....

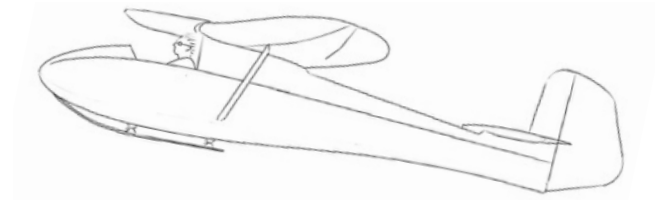
-Dm

CUSTOM TOWLINE GLIDER WINCH

The growing interest in FAC glider events has people exploring the relative merits of Hi Start vs Towline launchs. For those of us inclined towards towline, there is a need for a suitable winch. Wally Farrel and I both tried out a 10" kite reel, which was a nice tool, with ball bearing races, solid construction and a comfortable hand grip. On the surface of it, it seemed a step up from the old Towmaster winders that FAI used to sell. A few sessions out at the field quickly revealed its shortcomings, though. On a day with light wind, we had to literally wind as fast as we possibly could to get a glider up to speed; being ungeared was a real disadvantage here. I didn't realize just how MUCH of a disadvantage until a conversation with Tom Hallman about the Towmaster winder compelled me to actually do some math---something to which I rarely if ever stoop. Fortunately, it was very basic stuff, and it didn't make my head hurt at all. Multiply Pi (3.14) x diameter of the take-up spool of any given winder to get the circumference. If your winch is ungeared, that circumference is the amount of line you take up for every rotation of the spool. If it's geared, multiply the circumference by the gear ratio to get your line take up.

The 10" kite reels actually have an spool diameter of about 7" --the 10" figure is the diameter of the outer flange. So, using our math the circumference is approximately 22". The winch is ungeared, so that's your line take up for each rotation.

The ol' Towmaster, on the other hand has a spool circumference of a mere 8". But because it has 6:1 gearing, you get line take up of 48" for each rotation of the crank.

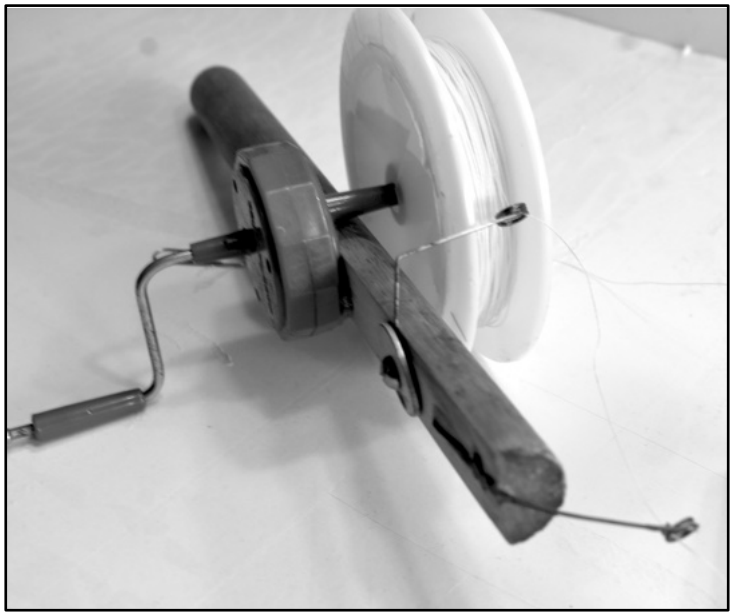


That's a big difference! And it *feels* very different, as you might expect, exactly like the difference between pedaling a bike in high gear vs. low gear. Which is better is a matter of preference, though I note again that in low wind situations, you really have to work hard with the kite winder to get a glider up to speed; with the Towmaster, it's a breeze. On the other hand, on a windy day you might appreciate the high responsiveness of the kite reel.

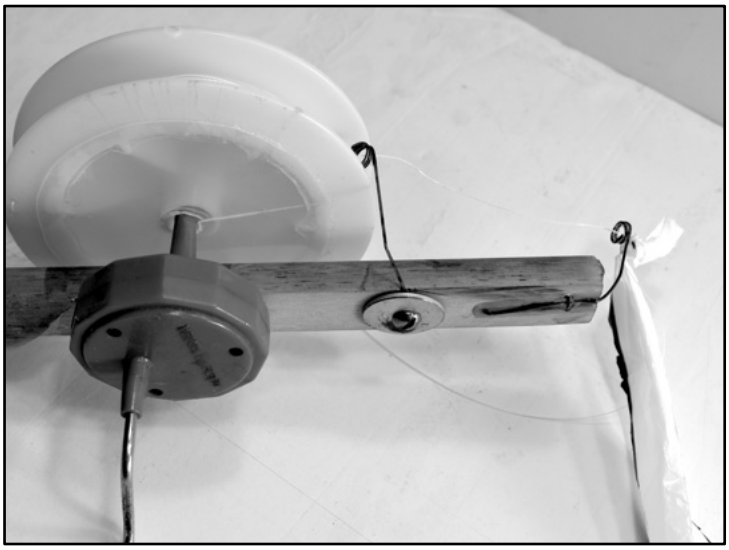
The problem is, Towmaster winders are no longer made. You can find them every now and then on the internet, but they're not exactly common. They were cheap things to begin with. And what about if you want to experiment with other combinations of circumference and gear ratio?

Rick Pendzick came up with a laser-cut spool adaptor that fits onto a Rees winder. At 10:1, the Rees winder plus a modest diameter spool would presumably give you a pretty turbocharged winch. But not everyone has a Rees winder, and they also are no longer made.

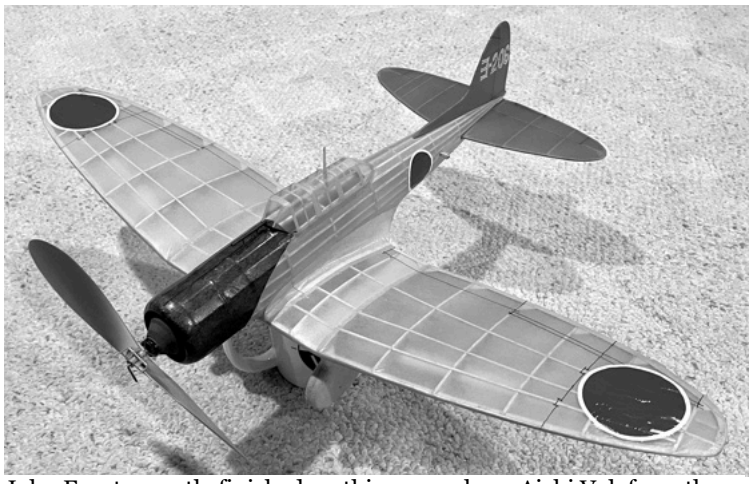
What to do? **Pete Kaiteris** has a neat solution, using more commonly available and relatively inexpensive materials! He glued a plastic 5:1 winder to a wood handle, then epoxied a ribbon spool onto the shaft. A couple of wire line leaders are attached to keep things in order. You could try a 10:1 winder if you wanted, or try different combinations of spools / winders to come up with the winch that best suited your models or different conditions. If you don't already have one of these winders laying about, I'm sure Wind-it-Up /Peck, EasyBuilt, Volare or FAI can help you out!



Pete writes: "This winch was started years ago and just updated and improved by changing the fairlead in front of the spool. The handle is a piece of broom with a flat sawed into it. The 5:1 winder is attached to the handle with shoe goo. The spool was obtained years ago, I think it had some sort of ribbon on it--think craft store. The spool is attached to the winder hook with epoxy, thickened up with some

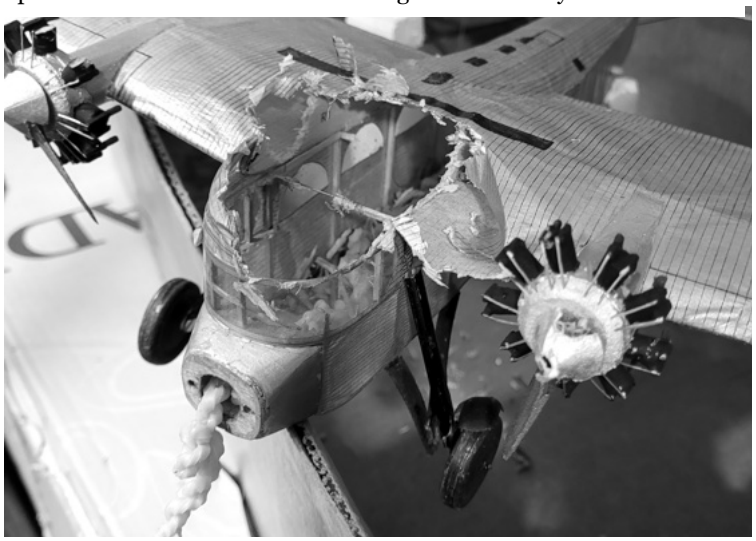


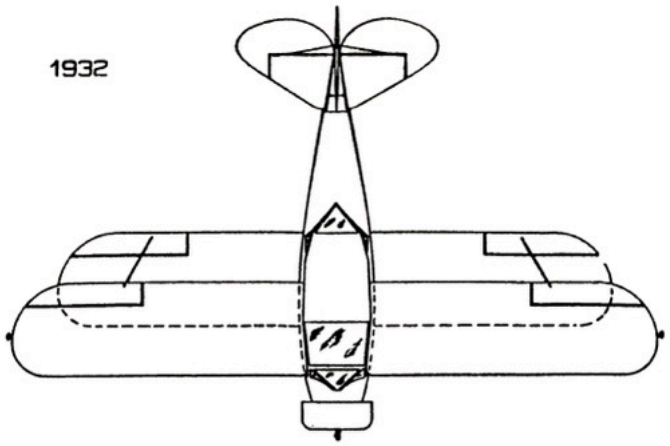
talcum powder; it turns in the same direction as the handle. The spool hub has a diameter of 2.8", and outer diameter of 4" (Ed. note: this gives Pete's winder 44" of line take up per crank). The line is microfilament braided fishing line. The rear fairlead is located inside the walls of the spool and helps to keep the line from jumping off the spool. It is adjustable. The front fairlead is fixed. Both fairleads are .030 wire."

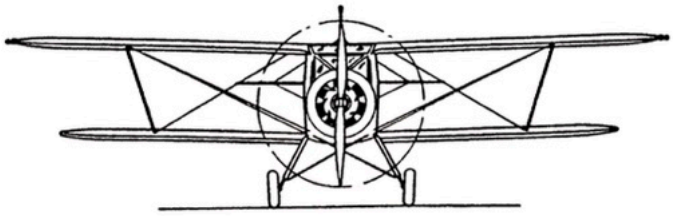


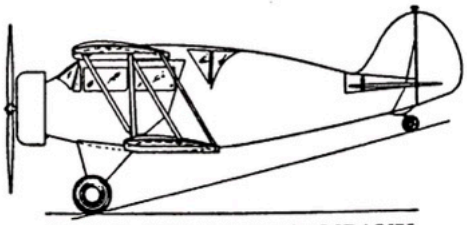
John Ernst recently finished up this super sharp Aichi Val, from the Diels kit. The white, black and red color scheme really pops!

A blown motor? Alas, no. Matt King opened up a bunch of his model boxes recently to find that they had been invaded by MEECES! Ugh! Spiteful creatures! Look at that damage! It's like they don't even care!

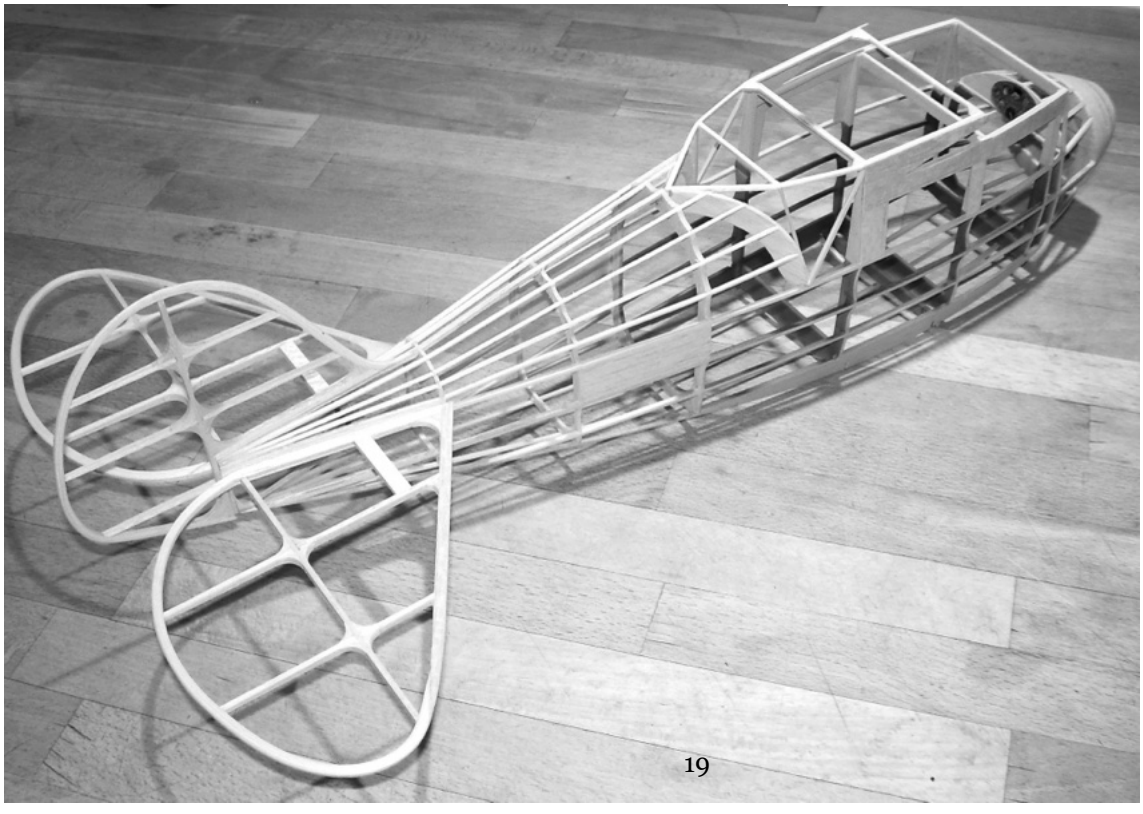








WACO AIRCRAFT COMPANY
Troy, Ohio
MODEL QDC — 4 PLACE
ENGINE: CONTINENTAL A-70



(Left) This shot of the QDC bones will hopefully clarify some of the complexity of the fuselage construction, especially the intersection of the Fuselage Cabin Top with the angled "K" formers, and the transition to the rear stringers. Note also the pocket that the upper wing fits into. The cockpit interior has been airbrushed red and gray; on a model with this much glazing, taking the time to do this goes a long way towards a more scale appearance.

Sharp eyed modelers will see that in this picture, the lower stringers are in place already, and that this is contrary to my instructions on the plan and in the building notes. I suggest that you follow the plan / notes! They are the fruits of hindsight...

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FRONT COVER:

The Waco QDC, 24 inches of 1930's zaftig beauty. Plan in this issue.

Hazel Ying Lee (1912-1944) was born in Portland, Oregon to first generation Chinese American parents. She earned her pilots license at the age of twenty. With America's entry into WWII, Lee joined the WASPS (Womens Airforce Service Pilots), class 43 W4, and thus became the first of two Chinese American woman to fly for the US Air Military (the other being **Maggie Gee**). After graduation, Ying flew with the Third Ferrying Group out of Romulus, MI, before being assigned to the Pursuit School at Brownsville, TX where she flew P-63 Kingcobras, P-39 Airacobras and P-51 Mustangs. She was killed in November 1944 in a landing accident while ferrying a P-63 from Niagra Falls to Great Falls, Montana; hers was the 38th and final wartime fatality among the WASPS, who were disbanded in December of 1944.

Despite their outstanding wartime service to their country, the WASPs were officially listed as Civil Service and were not militarized; among the practical realities of this was that WASPs were responsible for the cost of their transportation to training sites, dress, and room and board. The cost of transporting the remains of those who died in service was born by the families of the deceased. The WASPs were finally recognized as veterans (and thus eligible for VA benefits) in 1977. In 2009 Lee and all WASPS living or deceased were awarded the Congressional Gold Medal.