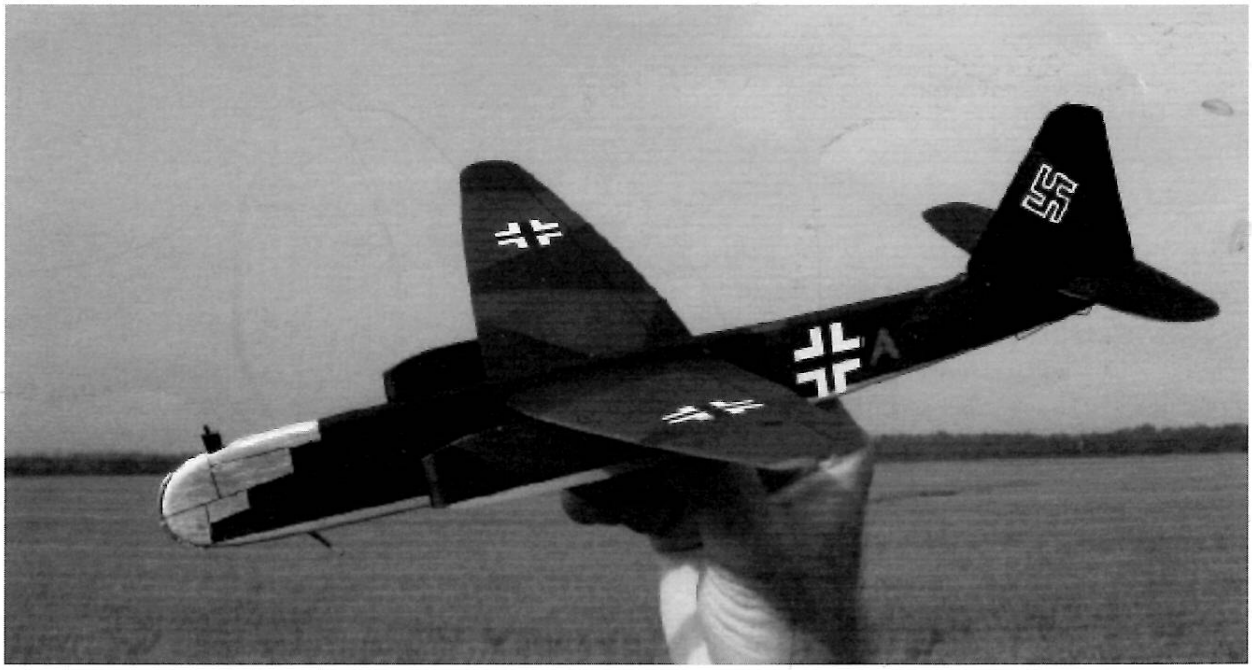
MAXFAX

Journal of the D. C. Maxecuters

... home of the dreaded POTOMAC PURSUIT SQUADRON of the Flying Aces

Editor: Stew Meyers **SEPT-OCT 2007**



COMING ATTRACTIONS

SATURDAY, NOVEMBER 3, 2007 CAAMA CONTEST TAPPAHANNOCK, VA 10:00 AM TO 4:00 PM
FAC EVENTS MASS LAUNCH: WWI, WWII, RACERS
TIMED: EMBRYO, DIME SCALE, GOLDEN AGE
MAP AND DIRECTION AT WWW.DCMAXECUTER.ORG
JIM COFFIN 703-256-3865 SAML63@AOL

TUESDAY, NOVEMBER 6, 2007 THE NOVEMBER MAXECUTER MEETING AT 8.00 PM
AT THE COLLEGE PARK AIRPORT

SUNDAY, JANUARY 13, 2008 NATIONAL BUILDING MUSEUM.

SUNDAY, MARCH 9, 2008 NATIONAL BUILDING MUSEUM.

MONDAYS INDOOR FLYING AT THE BAUER CENTER 12:45 TO 2:30 PM

THURSDAYS INDOOR FLYING AT THE GOODHOPE REC. CENTER 7:05 TO 9:00 PM


1
Photo by Pat Daily


2
Photo by Pat Daily
BYRD ANTARCTIC EXPEDITION


3
Photo by Pat Daily


4
Photo by Frank Rowsome


5
Photo by Frank Rowsome

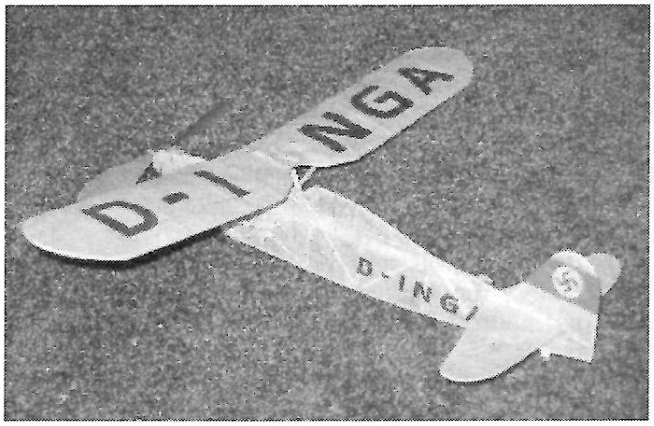
Sept-Oct 2007 Maxfax

Stew Meyers Editor

This issue is devoted to the mechanics of the rubber motor front end: clutches and "S"-hooks, We also have the results from the Summer Kudzu meet which was very hot but enjoyable.

Jim Coffin has suppled us with his FW 159 profile plan which placed at Muncie and George White gave us his Arado 234 Jet catapult glider. I saw this fly over the Columbus day week end at George's Pensacola Gathering of Turkeys meet. It's the best trimmed jet catapult glider I have ever seen. Not at all like the usual lawn dart.

What a contrast in designs from the parasol fighter to the first jet bomber in less than ten years. There is an Arado 234 B here at the Udvar Hazy museum. No FW 159 exists.



FW 159 V2

PHOTOS PAGE 2

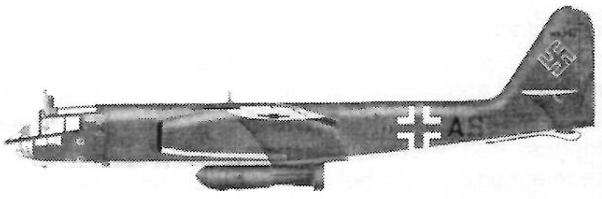
1. Bob Kreplin's electric R/C Ford Trimotor heading for Anartica on its maiden flight.
2. A happy Bob with his aircraft, a labor of love for seven years.
3. Bill Hadden the test pilot for the Ford's flight with his own masterpiece an electric R/C Wright 'B'.
4. From the FAC contest at Muncie, Wally Farrell with a P-63.
5. Also at Muncie, Dave and Marie Rees waiting for WWII to start.

Indoor Flying

This fall/winter flying season we are flying at the Bauer Center on Mondays from 12:45 to 2:30 pm and at the Goodhope Recreation Center on Thursday evenings from 7:05 to 9:00 pm. Directions are on the Maxecuter web page. www.dcmaxecuter.org
We also now have two dates for the National Building Museum. Sunday January 13, 2008 and Sunday, March 9, 2008

MaxFax is put out six times a year. Not necessarily by the issue dates. It ís a volunteer effort, we try, but we are not fanatic about it. Due to increased mailing costs and other expenses as well as the grim reaper trimming our membership list, our treasury balance has been dropping. We voted at the January meeting to increase the dues to $20 US for the US, Canada, and Mexico. It remains $25 for overseas members. It has been years since we have had an increase. Dues are now $20. If you send in only $15 your member ship will only be extended by nine months. When your membership expires, you get a red X on the newsletter. The next issue gets a double red X, and finally after three issues or six months you get a triple red X. You are then dropped for our roles. Therefore if you wait until you receive a triple red X and send in an only one yearís renewal you are only renewing for six months and will soon see another red X. Best to reup for two years if you procrastinate until you get a triple red X.

Back issues are still $3.50 each. We welcome submissions of plans, pictures, three views, and articles. Let us know if you have a nifty building tip. Also let us know what you like to see. We try to keep focused on free flight, but will occasionally have some back yard or indoor R/C.



High Gumbandery

Hank Struck's solderless free wheeler
A Tube in a Toob

At the In-between-NATS FAC meet in Geneseo on Sep. 2 & 3 this year. Paul Boyanowski and I shared a room and much good company each evening after a hot day 's flying. It was the hottest two days I can remember at this great flying site.

This tends to make one cautious and cut back on the exercise of long or repeated chases after models. I promised Shirl I wouldn't fly in the mass launch events if the temperature was too high. For this same reason she asked that I leave the mass launch models at home. I left the models home and true to my promise, I did not fly mass launch events.

So now, back to the evenings in the dormitory. Others more observant than I will relate in detail what transpired on the flying field, What I have to tell you about is a very clever prop free wheeler held open and publicly in secret for almost sixty years.

With the advent of "braiding rubber motors to maintain the tension of long motors that would otherwise shift back and forth in the model and disrupt the center of Gravity (CG), it was found necessary to devise a positive "free wheeling" (? free propping) prop assembly. The common "dog" spiral catch on plastic props that allows the prop to free wheel after the turns in the rubber motor are expended, will not work if there is tension on the prop shaft after the motor runs down. The right angle bend -driver" at the end of the prop shaft will not climb up the spiral because of the pull on the shaft.

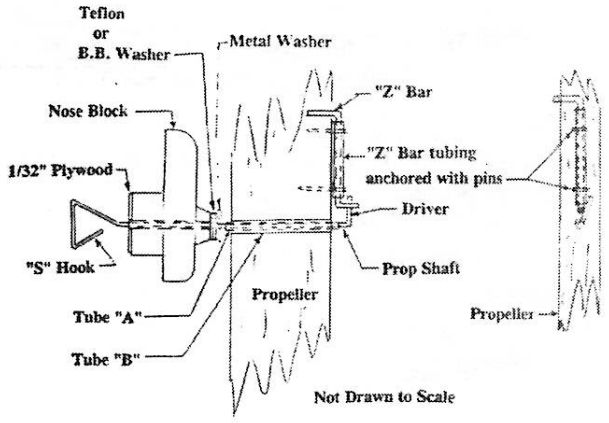
The spiral catch found on today's plastic props is a derivative of several methods of accomplishing this same task in early years. Back then it was a lock washer, a wire spiral, filed tubing, or various types of spring release mechanisms to allow the prop to release from the prop shaft driver and "float", coast, or "free wheel" when the power stored in the rubber motor was expended.

Well, back in 1938 or there about, a young man named Henry Struck was pre-tensioning his rubber motors, and I suppose like so many of us didn't like to solder. (Not one of my favorite things. It's messy, stinks, and I don't do a very good job at it). So this clever fellow devised a free floating prop set-up that needed no soldering. He and the folks that knew him have been using this method for years, openly showing it to anyone who asked about it. Obviously we should be asking more. It's one of those things that Dave assumed people knew about but were choosing to use their own type of free wheelers.

Dave Stott is one of those fortunate folks who has had contact with Henry Struck. He came into the room proudly showing his 20" Scientific Waco cabin, beautifully constructed and finished. In the course of a thorough (and humble) look see at the masters work, the simple, solderless free wheel device lit up the room like a landing flare released from the belly of an airmail DH-4 somewhere over an Iowa plain on an inky black night.

In response to "WHAT'S THIS?" Dave casually

1930's "No Solder" free Wheeler by Henry Struck



replied that he hated to solder, and had been using this setup ever since Henry Struck came up with it back when the Pope was still an altar boy in Warsaw.

I handed him a beer from the cooler that still had ice in it, (Jack Moses') and shifted the fan in perceptively in his direction, and waited for more words of wisdom. Many followed.. Unfortunately they dealt with things like personal hygiene, rules changes, and contestants wearing pink shorts while competing in WW-II combat, and do not relate to this topic.

For a name I'll call the free wheeler a Tube-in-a-Tube. Now for the fun part, constructing it in your mind's eye using the best "scratch" ever devised, The English Language. (For those who have trouble with my attempt at this type of construction, some prefer box frame rather than half shell, (and half baked), see the sketch).

A typical prop shaft is assembled with the rear "S" hook formed, run through the nose block, with thrust bearing(s) mounted behind the prop. Then tubing (Tube "A" on sketch) is placed over the shaft. This tubing is to be slightly longer than the distance from the front to the back of the prop. It must be proud in front of the prop face and take all the thrust load.

A second piece of tubing, (Tube "B") is inserted into the prop. Tube "B" fits over Tube "A". This tube should be scored on the outside in order for glue to get a purchase on the tube and prop. Be sure that tube "B" is a free fit over Tube "A". Clear burrs or raised edges as a result of cutting the tubing. Some judicious sanding of the outer surface of Tube "A" may be necessary for this free fit. Use #600 sandpaper if you need to do this.

The front face of the prop must have a "Z" bar ratchet attached to it to drive the prop. This is a piece of wire in tubing with opposing 90 degree bends at either end of the tubing. The tubing in the center of the "Z" bar is glued to the prop. I use two pins, bent on round jaw needle nose plies, pushed into the prop at each end of the tubing to augment the attachment. The "Z" bar is positioned on the front of the prop so that the 90 degree bend "driver" at the end of the prop shaft engages the forward bend in the "Z" bar when rotating under power. The "Z" bar cannot

disengage because the rear bend lays on the front surface of a prop blade preventing further rotation of the "Z" bar. The "Z" bar end prop must then rotate with the driver. When the stored energy of the rubber motor is expended and the prop is coasting or - free wheeling", the wire in the "Z" bar rolls back out of the way when contacted by the driver and will not interfere with the "free wheeling" motion of the prop.

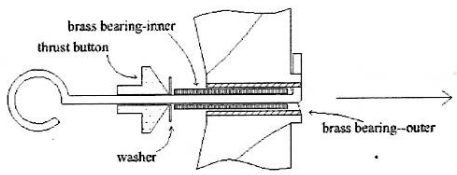
With the "Z" bar installed on the front of the prop, and the larger tubing, (Tubing "B"), glued in the hole in the center of the prop, the prop is slipped over tubing"A", and the 90 degree bend in the prop shaft is made to form the driver. On a balsa prop, a ball bearing can be inserted into the blade opposite the "Z" bar assembly for balance. Installation of a "Z" bar on a plastic prop requires drilling four holes in the blade that is to hold the "Z" bar tubing. This can be done with a pin vise using a straight pin with the head snipped off. Use the cut off end as a drill bit. Drill the holes where each end of the tubing will lay on the blade. Secure the tubing with common pins, with head removed bent in a "U" placed around the tubing through the drilled holes. Twist the pins on the rear face of the blade cutting off excess wire. Epoxy or thick CA is applied over the tubing . Score the plastic around where the tubing will be fastened. Also, installation of the larger prop tube (Tube "B") requires some care as there is just enough plastic at this part of a plastic prop to accommodate the tube without weakening it.

For this solderless fluxless way to provide a truly runny nose on our models, our thanks to Henry Struck, a man of ingenuity, Dave Stott, with his sharing nature. Jack Moses who maintained his cool (beer), and Paul Boyanowski, the effervescent personality who provided the draw for such good company.

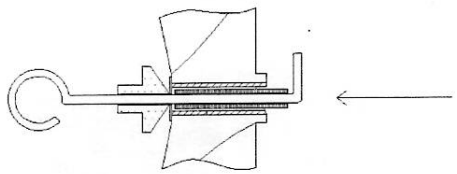
Next yarn I spin will be a topical twist on braiding rubber motors.

Rottensox

Cloudbusters Newsletter Sept/Oct 1995



Prop forward--ramp clutch engaged



Prop rearward--freewheel position

Struck Ramp Clutch Revisited

Dave Mitchell

At one of our recent club meetings, Dan Driscoll demonstrated a wonderfully simple and effective prop clutch, which was originally designed by Henry Struck. A variation on the basic ramp-style clutch that is now molded into virtually every plastic prop in the universe, Struck added a couple of bearing sleeves to the arrangement to create a low profile mechanism that is ideal for small models and airplanes with spinners.

Use concentric brass or aluminium bearings of whatever size meets your needs, keeping in mind that this method is best suited for smaller diameter prop shaft wire--heavier wire becomes difficult to bend sharply at the ramp end, which makes the ramp clutch less reliable.

The inner bearing (spacer) runs free on the prop shaft; the outer bearing is glued into the prop hub.

It is not strictly necessary to bush the prop with the outer bearing, though doing so will be more durable and will allow freer prop rotation during the freewheel.

If you choose to bush the prop, use a file to create a ramp in the prop bearing, rather than relying on the plastic prop ramp. The brass bearing ramp will be more durable. Also, try to slightly undercut the ramp, so as to hold the bent prop shaft in place more securely during clutch engagement.

The most critical issue is that the inner bearing (spacer) be longer than the outer (prop) bearing, so that in the freewheel mode, as the wind pushes the prop back against the thrust button, the bent prop shaft will run clear of the ramp.

After winding the motor, hold the prop forward, to engage the clutch. As long as you avoid pushing the prop back, the clutch will hold. This clutch works beautifully on braided motors, as the inner bearing holds the bent prop shaft free of the ramp when freewheeling, even when there is still tension left in the rubber motor.

Try it, you'll like it. Great for dimers. So far, my only complaint is that if you want to change props, you have to bend up a new prop shaft. Also, I guess if you have a midair and lead with your prop you'll slip your clutch and lose your winds....but in that case, you deserve it.

Comments by the editor.....

Of course you can't make a sharp right angle bend in the wire. There will be a bend radius. If you file a flat on the side of the wire that hits the ramp to create a surface rather than a line contact, the holding power will be greatly enhanced and you don't need to modify the plastic prop ramp very much if at all. I find the face of a Dremel cut off disc does this job wonderfully well and will also allow you to easily cut the prop shaft arm short to fit under a small spinner. I keep a battery powered Dremel tool in my flight tool box to enable me to readily change prop shafts in the field if the need arises.

Further Thoughts on the Struck Clutch

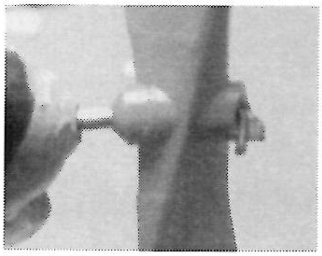
Stew Meyers

The typical ramp clutch uses rubber tension to engage the clutch. In the drive direction, the torque arm is caught against the notch (vertical side) of the ramp. If the tension is not holding it in place, the arm slides over the ramp without catching and the prop free wheels in the opposite direction. If you use a braided motor to maintain tension and prevent bunching, this won't work.

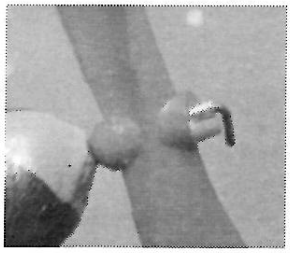
The Struck Clutch instead relies on torque for engagement. The spacer tube takes the rubber tension and the rubber torque forces the torque arm bent into the shaft wire into the notch of the ramp. The prop is allowed to slide back out of the way of the notch when the torque drive force is absent. The ramp is still there to prevent the arm from engaging the notch in the reverse rotation free wheeling mode.

When we use plastic props, the small hub diameter restricts the spacer tube size and does not provide much bearing area for the torque arm. With the typical 1/16 OD, 1/32 ID tubing available at the local hobby shops, 1/32 diameter wire prop shafts seem to be the practical upper limit in size. Enlarging the prop shaft hole for 1/16 clearance does not weaken it that much. If you were to use the more common thick wall brass tubing you would need to open up the hole to 3/32 and the hub gets too weak. 1/32 wire may work for peanuts and dimers but is too whimpy for me on larger models. Of course if you fabricate your own prop you can make the hub as large as you like and use a proper sized shaft.

Thankfully, K&S makes a thin wall brass tube #0537 1/16 OD with a 0.006 wall resulting in a 0.050 ID which will allows us to use a 0.047 (3/64") diameter wire as a prop shaft. (You can order this tubing from Shorty's Basement www.shortysbasement 740-223-7471, if your local hobby shop does not carry it.) I like to bush my plastic props and use this tube for that purpose when I use a swing clutch with 0.047 wire. Before I discovered this thin wall tubing, I had to drill and ream out a piece of 1/32 OD aluminum tubing. For the Struck clutch the 1/16th hole must be reamed slightly to allow the prop to rotate freely on the spacer tube. Use a #51 drill (0.067" dia.). The notch on most plastic props needs to be slightly modified to accommodate an 0.047 wire torque arm, but not much especially if the torque arm has a flat filed on the face that engages the ramp.

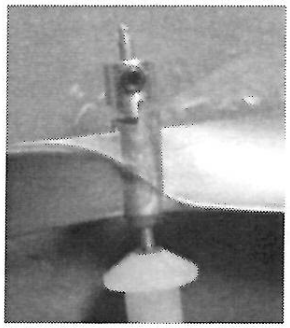


Clutch engaged

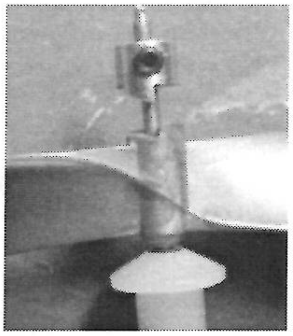


Clutch in freewheel

Once you realize the spacer tube does not need to rotate with the prop, some new possibilities open up. You can solder or hot stuff the spacer tubing to the shaft. You can then use a modified wheel collar as a ramp cam, which only needs to take the torque, not tension.



Ramp Cam Locked

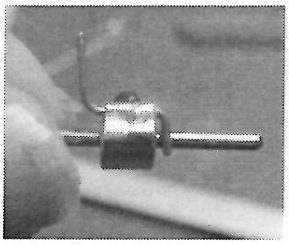


Ramp Cam Free

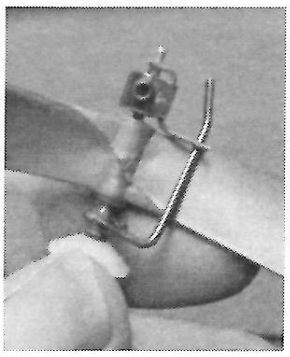
A flat filed on the prop shaft for the set screw greatly increases the torque holding capability. The brass spacer tube will be pressed in to it by the set screw. Or you can file a notch in the spacer tube as well for even more torque capability. You can now easily change props with out bending a new prop shaft.

As you move up from a 0.047 prop shaft to a 1/16 or larger dia prop shaft bending a torque arm in the shaft becomes more difficult. Using a wheel collar with a torque arm or ramp cam eliminates the problem. For those who are challenged by silver soldering, you can make a ramp cam from a piece of brass or aluminum rod. And by using a notch in the prop shaft you can eliminate the solder operation. For higher torque applications I would not trust the notch in plastic props. Better to use an external mechanism like the "Z" bar in Ralph's article to mate with an arm on the collar. Just use a long set screw for the arm.

The "Z" bar can be incorporated into the wheel collar to engage an arm on the prop rather than the other way around.



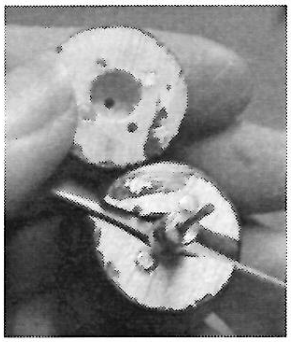
This "Z" bar clutch is made by filing a notch an a wheel collar and silver soldering a piece of 1/16h OD brass tub in it. Keep the tubing longer than the collar during the soldering operation to prevent clogging. File it flush after ward.



<Locked ^Free

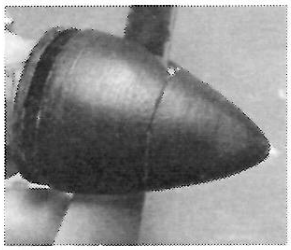
Note a drive bar is used to avoid having to drill the plastic prop. A small tubing spacer may also be used between the "Z" bar collar and the prop to provide clearance for the lock torque arm. Since there is a spacer tube this is not mandatory.

The cam clutch is ideal for use with spinners. Keep the prop shaft long enough to center the front of the spinner. I use magnets to attach the front of the spinner to the base.

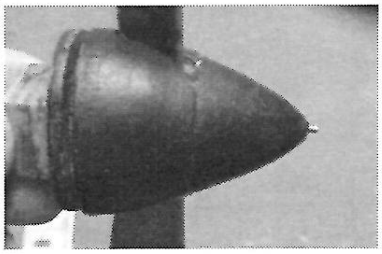


Note the clearance to allow the cam to rotate in the nose piece during free wheeling and the extended shaft which provides a bearing for the nose piece and greatly reduces wobble. This shaft retracts in to the spinner when the clutch is engaged and extends out when free wheeling. This is an excellent visual indicator of clutch engagement. By removing the cam, prop blades can be changed.

Of course you can also just use a bent wire, space tube, and prop notch for small spinners, but aligning the spinner on the prop is more difficult.



Clutch Engaged



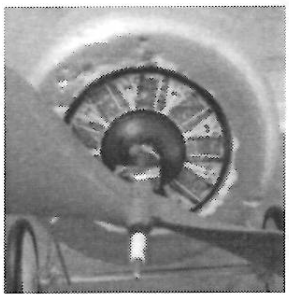
Clutch Free

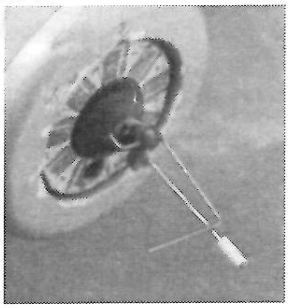
Bail Clutches

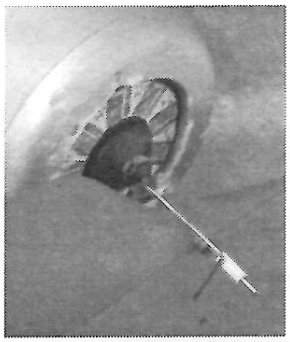
Before my recent discovery of the "Struck" clutch, I used a bail clutch as my braided motors made the simple ramp clutch unreliable. The bail clutch usually consists of a short length of brass square stock with two holes drilled in it perpendicular to each other. One a tight fit on the prop shaft and the other a clearance fit for the bail wire. The brass tube is sliver soldered on the prop shaft after it is assembled into the thrust bearing and nose block.

This soldering operation is critical and a potential source of problems. The shaft must be well tinned with acid flux for a good joint. You need to use a hot iron to localize the heat to prevent melting a nylon thrust bearing and you need to prevent the acid flux from running down into the bearing. It is also important to neutralize the flux after soldering. If you don't the shaft will soon rust and expand freezing in the bearing. Another problem is filling the bail hole with solder, but this is minor as you can easily drill it out. I have had what I thought to be a good joint let go far too often. Usually this only results in the clutch slipping around the shaft and not transmitting torque. But occasionally the clutch has slipped off the shaft allowing the wound rubber to draw the prop shaft down the fuselage flailing it around with destructive results.

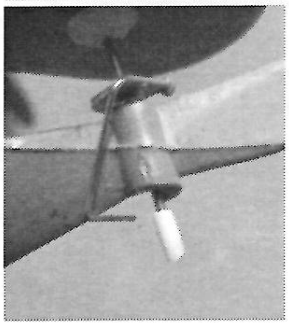
Another problem is retaining the prop. A length of wire insulation keeper and drop of hot suff usually does the job, but I have pulled the prop off during a mass launch and lost the keeper.







Here is my Bristol Scout with the bail clutch disengaged. You can see the bail has beat up the front of the cowl. The prop shaft is 0.047 music wire and the bail is 1/32 music wire. The photo on the left shows the clutch engaged.



You can also make a bail clutch from a piece of folded sheet brass to reduce the weight. In this case a soft pin with point blunted is used as the bail. This is best suited to 1/32 music wire prop shafts and smaller.

With bails there are two ways to set up the engagement you will note both of the above clutches are set up for normal clockwise rotating props. You can also insert the bail in the opposite direction and keep it on the same side of the prop shaft rather than crossing as these do. You can reverse either of these set ups for pushers.

And then there is the Gizmo Geezer which also will function with a braided motor. I haven't tried one yet.

AR-234 in operation

The Ar-234B could be configured either as a bomber or reconnaissance aircraft. Maximum bomb load was about 1.5 tonnes (3,300 pounds), carried externally. A typical bomb load was a single 500 kilogram (1,100 pound) bomb under the fuselage centerline and under each engine nacelle, but a single 1,000 kilogram (2,000 pound) bomb or 1,400 kilogram (3,080 pound) bomb could be carried on the centerline. When used as a reconnaissance aircraft, the Ar-234B carried a 300 liter (79 US gallon) drop tank under each engine in place of the bombs.

The powerplants consisted of a pair of full-production Junkers Jumo 004B turbojets, with 8.83 kN (900 kgp / 1,980 lbf) thrust each. Maximum speed without bombs or drop tanks was 740 KPH (460 MPH) at 6,100 meters (20,000 feet), but the speed dropped to as low as 660 KPH (410 MPH) with external loads. The prototypes had actually been a good 30 KPH (19 MPH) faster than the Ar-234B, as the lack of landing gear made them more streamlined.

Tricycle landing gear was fitted, with single wheels on all assemblies, and low-pressure tires for rough-field operation. The nose gear retracted backwards, while the main gear retracted inward and forward into the sides of the fuselage.

As the Ar-234 landed at high speed, it had a drag chute as standard equipment; it was one of the first aircraft to do so. The rounded nose of the aircraft was covered with plexiglas, giving the pilot an excellent view to the front, but no view to the back except through a periscope. The periscope, which was not fitted to the Ar-234 prototypes, also served as a sight for dive-bombing attacks. Although an ejection seat had been fitted to some of the prototypes, the Ar-234B did not have such a nicety. The pilot got into and out of the aircraft through a transparent hatch on top of the cockpit. Getting out of the Ar-234 in an emergency was not a trivial task.

The Ar-234 handled very well at all speeds and was capable of all aerobatics. The worst operational problem was the unreliability of the Jumo 004B engines, which required overhaul or replacement after as little as ten hours of operation. The brakes also tended to wear out after about three landings and so had to often be replaced.

The fuel consumption of the Jumos varied widely with altitude. At 10,000 meters (33,000 feet), it was a third of what it was at sea level. This meant that for low-altitude bombing missions, the operational radius of the aircraft was only about 190 kilometers (120 miles), while in high-altitude reconnaissance operations the range was as much as 720 kilometers (450 miles) with the drop tanks.

When operated as a bomber, the Ar-234 could be used in shallow dive attacks, low-level horizontal attacks, or high-altitude horizontal attacks. In shallow dive attacks, the pilot would drop from about 5,000 meters to under 1,500 meters (16,400 to 4,920 feet), aiming the bombs through the periscopic sight that stuck up above the cockpit. In low-level horizontal attack, used only when the target was obscured, the pilot simply flew level and dropped the bombs when it seemed appropriate. Results were not generally very impressive.

High-altitude horizontal attacks were particularly interesting. Since the Ar-234 was a single-seat aircraft, the pilot had to double as the bombardier, and did so with the help of a sophisticated Patin autopilot system. The pilot would fly to within about 30 kilometers (19 miles) of the target, engage the autopilot, swivel the control column out of his way to the right, and then lean over and sight the target through the Lotfe 7K bombsight. The bombsight was linked to the autopilot. As long as the pilot held the target in the crosshairs, the autopilot would change the aircraft's heading accordingly, and then the bombsight would automatically drop the bombs at the right moment.

In principle, the Ar-234B had a pair of fixed rearward-firing 20 millimeter MG-151/20 cannon for protecting its tail, with the pilot sighting the guns through the periscope. Not only did the pilot have to be his own bombardier, he was his own tail gunner as well. However, in practice the guns were not always fitted and were never an important feature of the aircraft. Armor plate was attached to the rear wall of the cockpit to give the pilot a little protection.

The Luftwaffe conducted reconnaissance operations with the new Ar-234Bs through the fall, including some reconnaissance missions over England, beginning in October, to determine if the Allies were preparing a follow-up amphibious landing in the Netherlands. Despite the activity, it wasn't until 21 November 1944 that Allied pilots reported spotting an Ar-234B, when P-51s escorting bombers over Holland observed one of the jets overflying their formation. Detected, the German pilot immediately applied power and disappeared.

Bomber sorties did not take place until Christmas Eve, when nine Ar-234Bs, each carrying a single 500 kilogram (1,100 pound) bomb, took off from a German airbase single file to attack Liege in Belgium, in support of the Wehrmacht's ground offensive then underway in the Ardennes. Such attacks continued until the weather became too nasty in early January to allow operations to be safely continued.

An inventory of Ar-234s at that time indicated 17 of them in service, with 12 configured as bombers and 5 as photo-reconnaissance machines. This quantity was surprisingly small, since 148 had been delivered to the Luftwaffe by the end of 1944. The small number of the aircraft in service was almost certainly due to the disruptions caused by Allied air attacks on German industrial and military infrastructure.

The continuous, harrassing presence of Allied airpower made operations increasingly risky. When 18 Ar-234s were relocated to a new airfield in early January 1945 and came in to land, they were bounced by Spitfires who shot down three of them and damaged two others, killing two German pilots. Nonetheless, as the weather improved again, Ar-234s performed as many sorties as they were able, attacking targets in the Low Countries and mounting a large number of attacks in the defense of Aachen, Germany, on 21 February 1945.

On 24 February, an Ar-234B suffered a flameout in

one of its engines and was forced down to a hard landing by an American P-47 Thunderbolt fighter near the village of Segelsdorf. The jet was captured by the advancing Allies the next day. It was the first example of the type to fall into Allied hands largely intact.

Pilots found the Ar-234 pleasant to fly, but engine flameouts were a problem, particularly since increasing fuel shortages meant the engines had to be run on inappropriate grades of fuel. With proper fuel, the engines could be relit below 4,000 meters (13,000 feet) and at speeds between 400 to 500 KPH (250 to 310 MPH); otherwise, it was impossible to do so. Once a flameout occurred, the pilot had to shut off fuel to the engine, since it would flood and become an extreme fire hazard.

Pilots new to jets often had troubles understanding the long take-off run and high landing speed, leading to a high accident rate. One unit obtained a two-seat Me-262 jet trainer to familiarize Ar-234 trainees, and the number of accidents fell off substantially.

A few Ar-234Bs were pressed into service as night fighters by being fitted with FuG 218 "Neptun" longwave radar, featuring nose-mounted aerials, and a belly pack containing two 20 millimeter MG-151/20 cannon. The radar operator was crammed into the fuselage behind the wing. There is no evidence that any of these few improvised Ar-234B night fighters ever scored a kill.

The failed Ardennes offensive was the very last chance the Germans had to take the initiative in the West, and since that time they had remained on the defensive. Their defense was seriously breached on 7 March 1945, when the Americans seized the Ludendorf Bridge over the Rhine river at the town of Remagen. While German demolition specialists had attempted to destroy the bridge, it remained usable, though badly damaged. Reichsmarshall Goering ordered it to be destroyed at all costs, and over the course of the next ten days, Ar-234Bs flew several sorties in attempts to take it down. The jets failed, with losses to themselves.

The last Ar-234s were delivered early in March. At the end of the month, demolition teams destroyed the main Arado plant to deny it to the advancing Soviets.

A total of 210 Ar-234Bs and 14 Ar-234Cs were delivered to the Luftwaffe, but with Germany in chaos, only a handful ever got into combat. A final inventory taken on 10 April 1945 listed 38 in service, including 12 bombers, 24 reconnaissance machines, and 2 night fighters. These aircraft continued to fight in a scattered and ineffective fashion until Germany surrendered on 8 May 1945. Some were shot down in air combat, destroyed by flak (sometimes their own), or bounced by Allied fighters when they came in to land. Others performed their missions and then fled too fast for enemy fighters to follow, to land and then wait for scarce fuel to be found so they could fly other missions.

As a bomber, the Ar-234 was something of a failure. It could not carry enough of a bombload to match the destructive power of the big heavy bombers that were smashing the Reich. However, as a reconnaissance aircraft it proved able to bring back intelligence from airspace denied to prop-driven aircraft.

Focke-Wulf Fw 159 V2

Jim Coffin

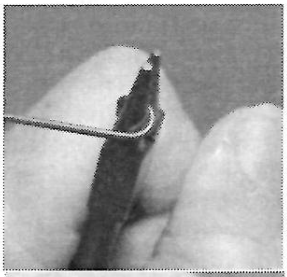
The German fighter competitions of 1934 requested proposals for an advanced design aircraft using a V-12 cylinder inverted Junkers Jumo 610 engine. There were four competitors awarded contracts to build three each prototypes for evaluation. Based on the success of the Fw-56 "Stosser", Focke-Wulf chose to design a single seat parasol aircraft with retractable gear. This was an anachronism in that the added strutting posed an insurmountable drag penalty over the low wing monoplane designs by Messerschmitt (Bf 109), Heinkel (HE 112) and Arado (AR 80). The three prototypes built by Focke-Wulf were designated Fw 159 V1, V2 and V3, V being the German notation for prototype or experimental aircraft. The first V1 test flight in spring of 1935 ended in a complete write-off as the landing gear failed to extend fully and V1 somersaulted twice in the attempted landing. The pilot was virtually unhurt.

The second prototype was registered as D-INGA and, though flown successfully with handling characteristic similar to the Stosser, it fell far short of expected performance figures. The landing gear retracting and extending problems were partially corrected, but D-INGA still made a number of one wheel up landings. Testing continued with both D-INGA and the V3 version, D-IUPY, into 1938, by which time, the Messerschmitt BF-109 had long been accepted as the standard single engine Luftwaffe fighter. The highest speed obtained toward the end of the program was 252 mph versus 301 for the HE 112 and 292 for the BF-109. AR-80 was also not in the running with its open cockpit, fixed landing gear and 255 mph top speed..

In summation, the Luftwaffe staff that judged the competitions considered Fw 159 as a half way stop between the fighter biplane and the emergent low wing fighter, having neither the maneuverability of the former nor the performance of the latter. In other words, it was a failure in basic design selection. Of course, Focke-Wulf did redeem itself later with the Fw-190 and TA 152 fighter designs. Incidentally, I chose to use D-INGA as the one I modeled = 1 No Good Airplane. With some further titivation, I expect it to be a good, if not excellent flyer in No-Cal FAC scale.

"S"- Hooks

A "S" hook, or to be exact a reverse "S" hook, is just about mandatory to keep the rubber from climbing the prop shaft. Its not really too hard to bend one in wire 1/16" or smaller. It's possible to bend one in 3/32 music wire but you need to use a wire bending tool. Let's do one.

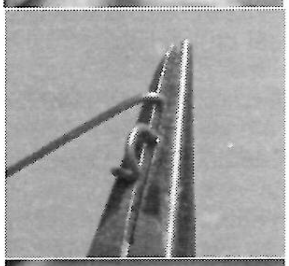


First round smooth the end of a piece of music wire – in this case 0.047" dia. Bend a small 90 degree tang on this end.

Then with a small set of round nose pliers make a half circle bend. Note the direction of the bend.

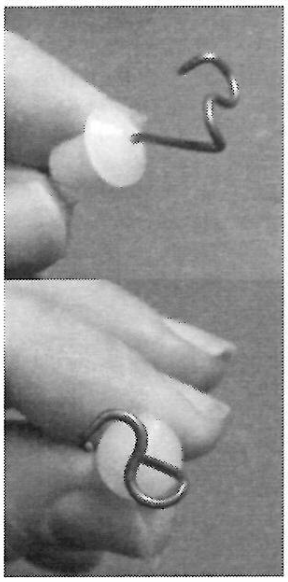
Then bend in a half circle in the opposite direction.

Now you have the basic "S"- hook in a plane except for the tang.



Bend the wire down at about a 45 degree angle so it looks like it passes through the center of the "S".

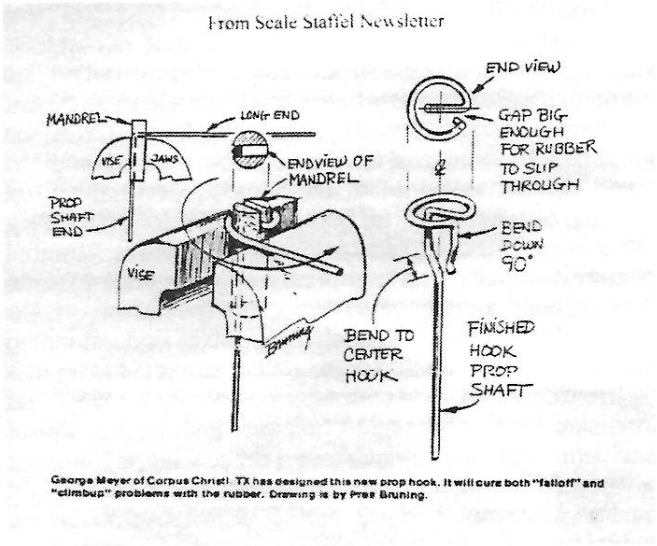
At the point where the bend leg appears to cross the center of the "S", bend the free end of the wire perpendicular to the "S" plane.



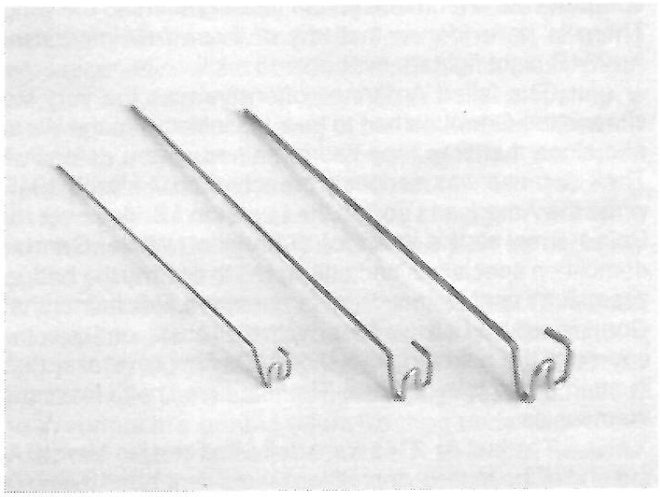
This is how it ought to look. You may need to make some slight corrections to the bends with needle nose pliers to get the "S" centered.

As a final check slip the shaft into a thrust bearing ans spin it. The center of the "S" shuld appear to be on the axis of rotation.

Here is another approach if you have a Machinist buddy that can make you a Mandrel.

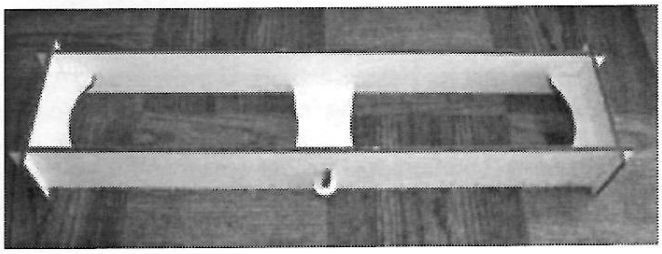


Or you can order a pre-bent "S" hook from



www.rockytopmodels.com. 615-452-4127 They have other neat stuff besides their laser cut kits.

While you're there, check out their Building Jig for half shell fuselages.



Summer Kudzu Meet - Goldsboro and Raeford, NC - August 24-25, 2007

Friday ROW Winners:

Stick – Dave Rees **Cabin** – Dan Driscoll **Scale** – Dave Mitchell

Saturday Events:

WWI Biplanes (7 flew)		
1	Dave Mitchell	Bristol Scout
2	George White	SE-5
3	Frank Rowsome	D-VII

Spec. Event ML Dime Scale Golden Age Military Biplanes (3 flew)		
1	Claude Powell	Stearman 76
2	Dave Mitchell	P-6E
3	Stew Meyers	P-6E

Modern Civil ML (6 flew)		
1	Dave Rees	Super Cruiser
2	Doug Griggs	Cessna 180
3	Dan Driscoll	Cougar

Embryo (5 flew)		
1	Josh Finn	E-ZZ
2	Frank Rowsome	Moth Crysalis
3	P. Catrufo	Pemby's Kid

Dime Scale (10 flew)		
1	Josh Finn	Flyabout
2	Dave Mitchell	Winnie Mae
3	George White	Corben

AMA Catapult Glider (8 flew)		
1	Carl Dowdy	Pink 15
2	John Diebolt	?
3	Andy Ringlien	?

AMA Hand Launch Glider (2 flew)		
1	Carl Dowdy	Twirly Bird
2	Larson Ringlien	

Combined Racers (8 flew)		
1	Josh Finn	Chambermaid
2	Stew Meyers	Bumble Bee
3	George White	Chambermaid

WWII Fighters ML (7 flew)		
1	George White	Ki 61
2	Dave Mitchell	Avenger
3	Dave Rees	Defiant

Jet Catapult (5 flew)		
1	Carl Dowdy	Viggen
2	Josh Finn	Sup. Attacker
3	John Diebolt	Provost

Golden Age (6 flew)		
1	Dave Mitchell	Stinson
2	Claude Powell	RWD
3	Marie Rees	Porterfield

FAC Scale (6 flew)		
1	Dave Mitchell	Sopwith Tripe
2	Josh Finn	Goon
3	Dan Driscoll	Poncelet

AMA P-30 (4 flew)		
1	Josh Finn	?
2	Brad Glass	Souper 30
3	Carl Dowdy	Contestor

The most impressive part of the lake flying was Dave Mitchell's Cessna 150 on floats making a 20 foot take off run, flying for over a minute, and then landing on the water.

National Building Museum (NBM) for 2008

We have a new coordinator at NBM, Joanne Seelig, and we have two confirmed flying dates for the indoor season. We expect to have both free flight and R/C. The dates are: Sunday, January 13, 2008 and Sunday, March 9, 2008

We are dropping the Flying Aces Club (FAC) Dime Scale Kanone event due to lack of participation. The Dime Scale mass launch and all our other usual free flight events will continue. The new Kanone event will be FAC No-cal Profile Scale. Win and receive an official FAC Kanone (if you are an FAC member).

Events for the 2008 NBM flying sessions.

Mass Launch:
14g. Bostonian -Must ROG
P-nut Scale
Phantom Flash- Must ROG
WWII No-cal
Dime Scale
Helicopter

Timed Events:
Pennyplane
Ready-to-Fly (RTF)
A-6
FAC No-cal Profile Scale

FAC No-cal Profile Scale Rules

1. Event intent: Competition for recognizable profile scale models.
2. Scale considerations:
   A) Motor sticks shall not exceed fuselage length.
   B) Surfaces may be single covered.
   C) All wing struts must be on model.
   D) Model must be in correct color scheme.
   E) Model must have control outlines, registration numbers, etc.
   F) Have proof of scale. Judges decisions are final.
3. Wing span: 16 inches maximum.
4. Prop diameter: NA.
5. Launch technique: hand.
6. Landing gear: aircraft with fixed landing gear must have each landing gear represented as per the original subject.
7. Official flight: A) 20 second minimum. B) NO MAX!
8. Scoring: total of three flights.
9. Bonus points: NA.
10. Tie breaking: fly off.

You must meet all rules to win the Kanone. Your model will be judged for scale fidelity only if you are flying a model of an obscure aircraft, or your model is in an unusual color scheme or markings. Models flown in the WWII No-cal mass launch are eligible for this event.

Brainbusters

Tidewater Virginia's Brainbuster club is sponsoring the 2008 International Indoor Postal Contest for Mini-stick and A-6. If you want to fly either class of model and have your times entered in the contest, Jim Coffin will be at NBM and will forward your times to the proper Brainbuster official.

Mini-stick is not one of our events. The rules are in the AMA rulebook for indoor models at number 24 on page IND-7.

Brainbusters also use slightly different A-6 rules than we use.
Differences are:

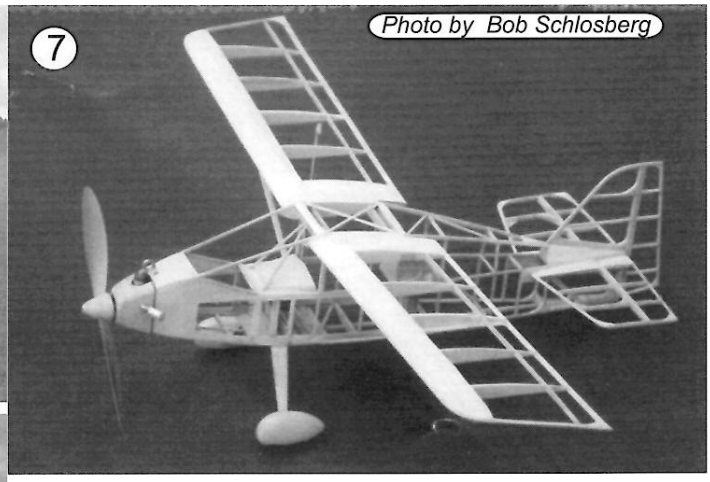
- Prop must use 1/32" or 1mm thick flat blades, and edges cannot be rounded. NO commercial plastic props.
- 1/32" max prop shaft diameter.
- Strip wood used in construction cannot be rounded.

If you are not on the email list and want to be kept up to date on NBM activities, contact Dan Driscoll at djdriscoll@cox.net to be added to the list.

PHOTOS PAGE 19

6. A WW2 mass launch post-mortem photo from Muncie By Frank Rowsome -- "look what you did to my aircraft"!!
7. Bob Schlosberg's Zippy sport from a Thomas Designs kit.
8. And here is the finished Zippy -- CO2 powered.
9. Don launching his rubber powered Jumbo Alco Sport over Shangri-la South, model is equipped for safe return with R/C rudder!
10. Claude Powell enlarged Rich Weber's pseudo dimer to 20" and added some details such as lower wing fillets, tail assembly bracing, etc.. Claude added " Everyone else seems to be doing it so I've joined the crowd for some models".
11. John Hunton's R/C Savoia with two glow engines for power, a real noisemaker!
12. And here is John's R/C Chipmunk, a Don Srull design, quieter with electric power.
13. Now the Flyline Heinkel is eligible for WWII -- this one by Bob Schlosberg.
14. Don Srull's F5F making a pass over Shangri-La, a real nifty twin electric.


6
Photo by Frank Rowsome


7
Photo by Bob Schlosberg


8
Photo by Bob Schlosberg


9
Photo by Pat Daily

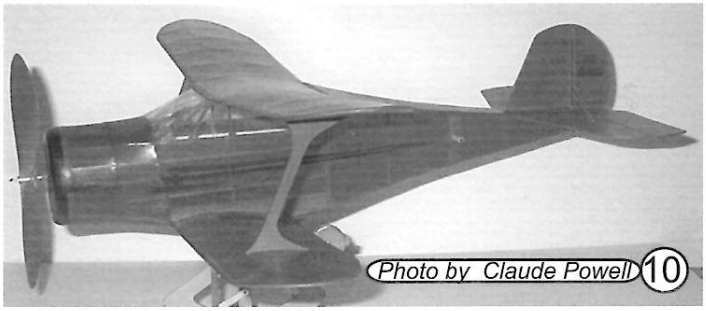
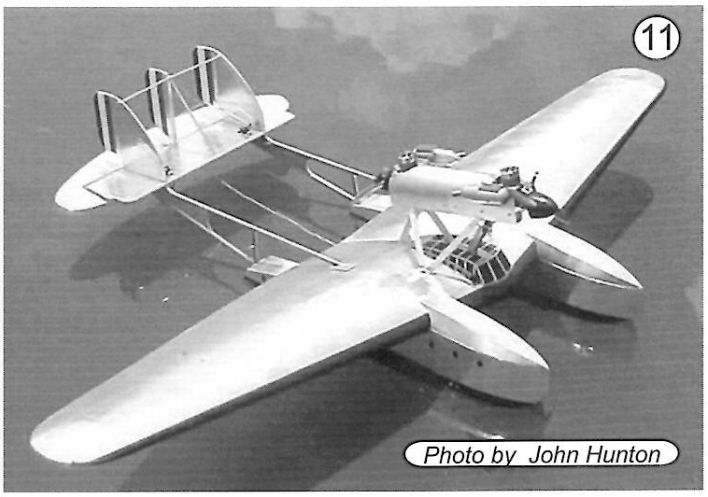
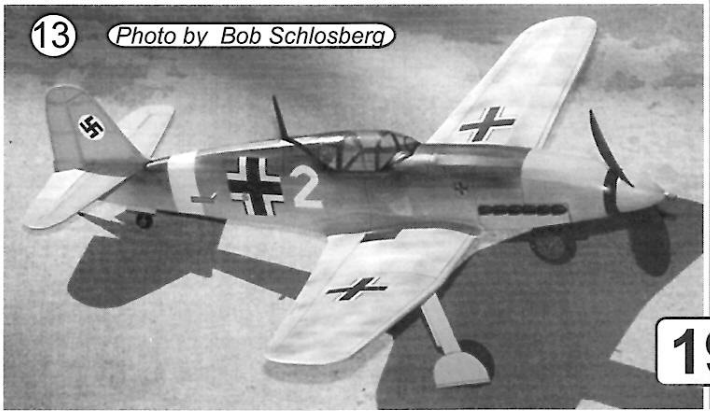
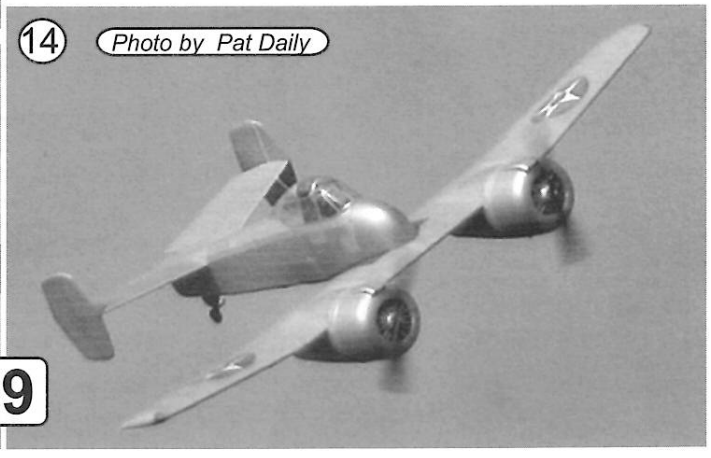


Photo by Claude Powell
10

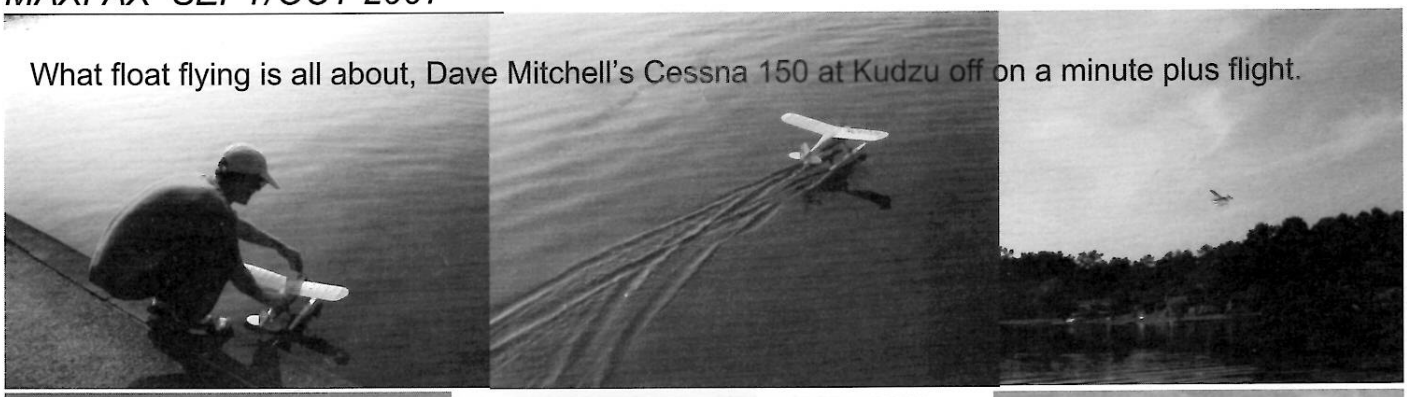

11
Photo by John Hunton

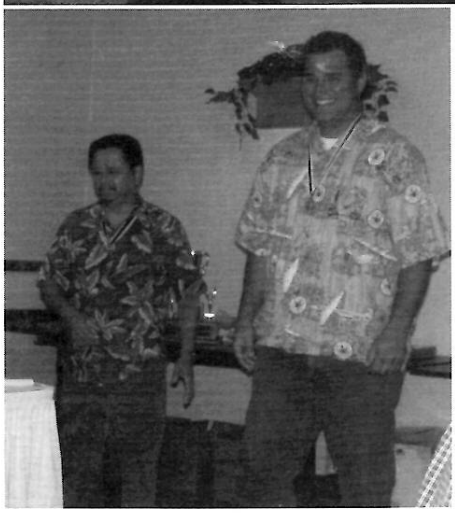

ACADEMIA DA FORÇA AÉREA
Photo by John Hunton
12


13
Photo by Bob Schlosberg


14
Photo by Pat Daily

What float flying is all about, Dave Mitchell's Cessna 150 at Kudzu off on a minute plus flight.





Mark Houck get his Blue Max at Geneseo

Dan Driscoll has a good day at Muncie his winning P-30 blew out of the tree.

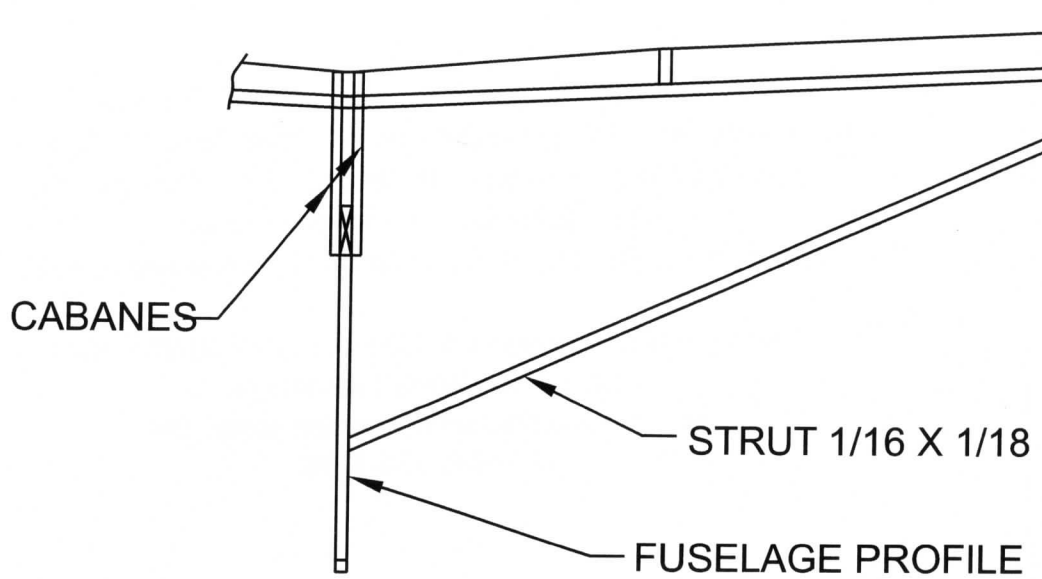
Claude Powell's winning Dime Scale Golden Age Military Bipe at Kudzu.

Joyce White, Jane McClellen, Hellen Paisley, and Marie Rees take shelter from the heat at the Kudzu summer meet.

Dave Rees launches his B. P. Defiant on it's final OSS flight in the second round of WW2 at Kudzu.

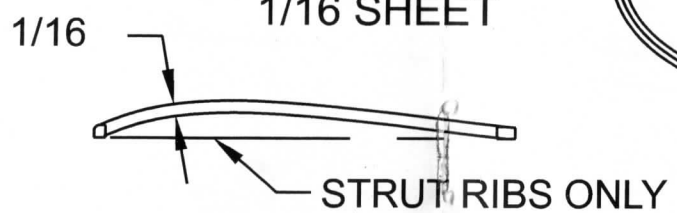
CLUB OFFICERS -President: Stefan Prosky 414 11th Street SE., Washington, DC 20003
Secretary: David Mitchell 230 Walnut St. NW., Washington, DC 20012
Treasurer:Stew Meyers, 8304 Whitman Dr., Bethesda, MD 20817 ---- *Note change - Stew has replaced Norm!*
Editor: Stew Meyers, 8304 Whitman Dr., Bethesda, MD 20817
MEETINGS - The D.C. MAXECUTERS hold meetings at 8:00 pm on the first Tuesday of every month at the College Park Airport, the oldest continuously operating airport in the world.
MEMBERSHIP - Dues for membership in the D.C. MAXECUTERS are $20 per year for residents of the USA, Canada, and Mexico, and $25 for all other countries.
Your mailing label indicates the year and month of the last issue of your current membership. A red "X" in the box below is a reminder that your dues are due. Send a check, payable to the"D.C. MAXECUTERS", to the treasurer, Stew Meyers.
PUBLISHING DATES - Six issues of MaxFax are sent each year as close to the nominal dates as possible, but since this is a volunteer publication nothing is guaranteed except that six issues will be sent to all members.
CONTACTS - Material for the newsletter and membership questions should be addressed
to Stew Meyers phone 301-365-1749. Email gets immediate attention. *stew.meyers@erols.com*
Maxecuter web site: http://www.dcmaxecuter.org

Your DUES are due XXX

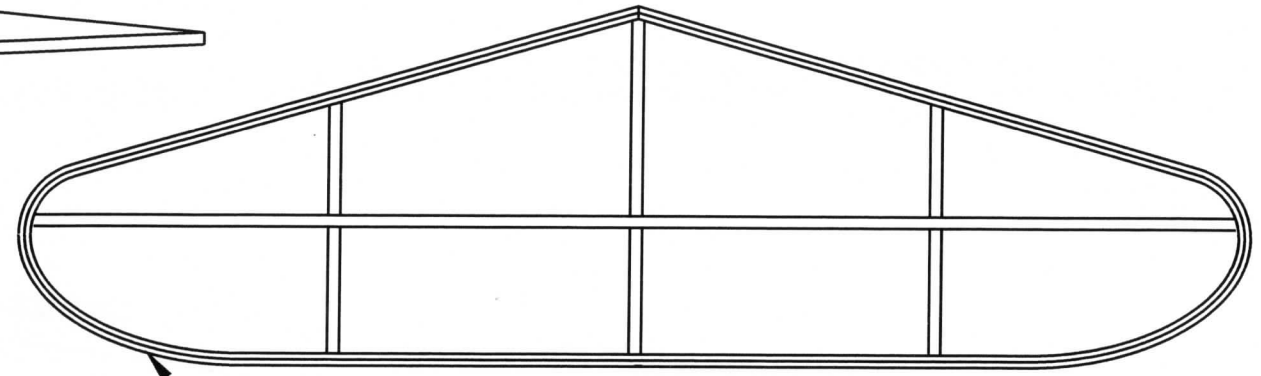


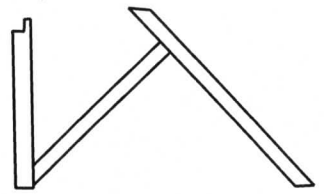
PARTIAL SECTION VIEW A-A

CENTER RIB
1/16 SHEET

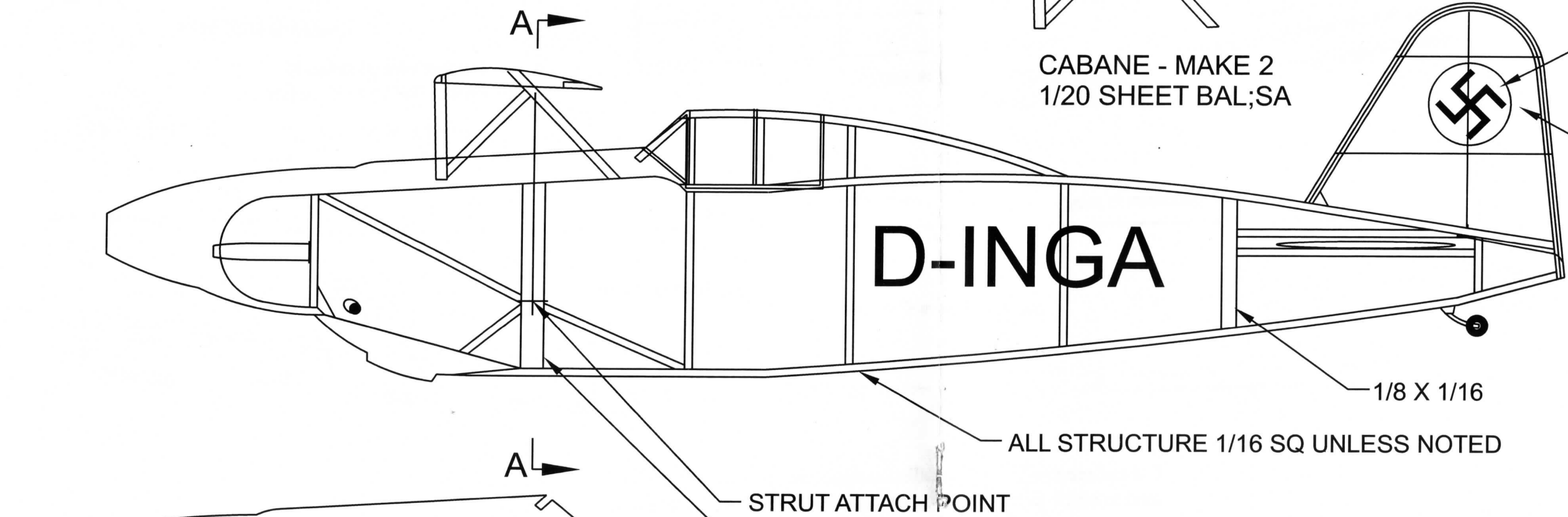


MAIN RIB, 1/16 SHT.

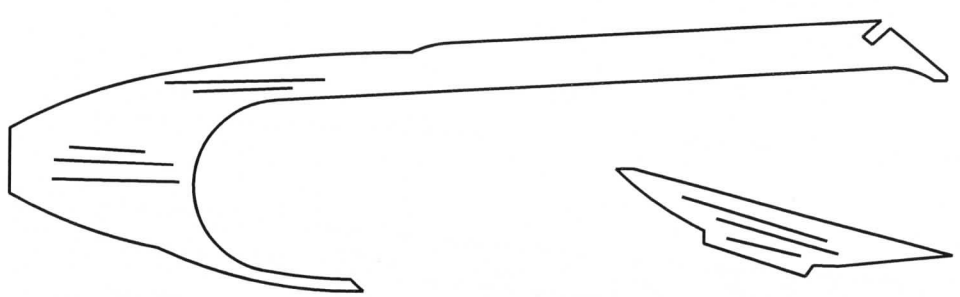




CABANE - MAKE 2
1/20 SHEET BAL;SA



COLOR OVERALL
ALUM OR GREY
ID: D-INGA ON
FUSELAGE SIDES
& TOP OF WING



NOSE PIECES, 1/16 BALSA

MOTOR STICK 3/16 X 1/8
YOUR CALL ON END BEARING
AND REAR HOOK. 2 DEGREES
DOWN THRUST

FOCKE-WULF Fw 159 V2

AN ORINGINAL DESIGN

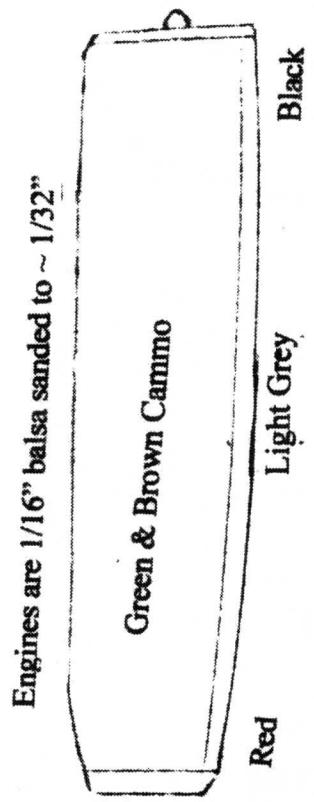
BY JIM COFFIN SAM73

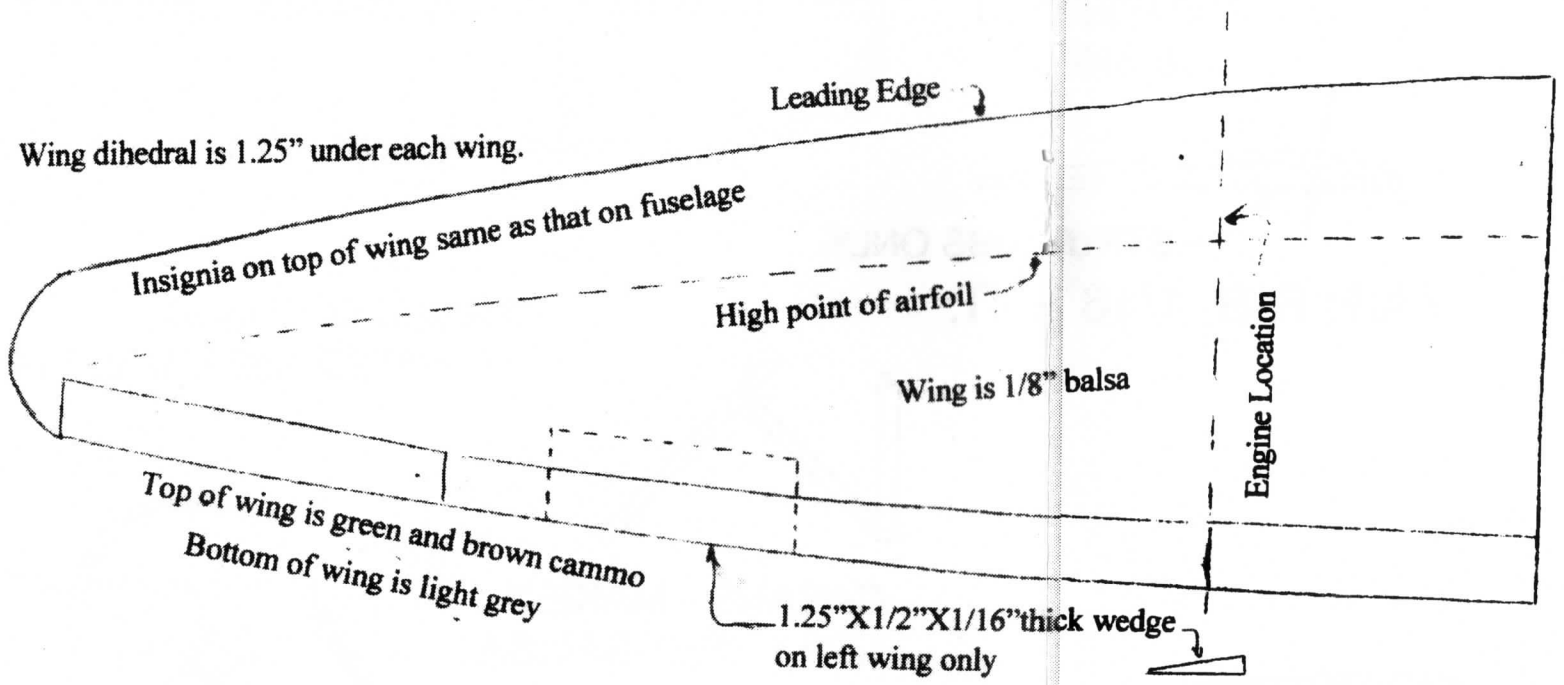
FOR MAXFAX

ARADO AR 234B-2
CATAPULT SCALE GLIDER

PLAN BY GEORGE WHITE, 2007

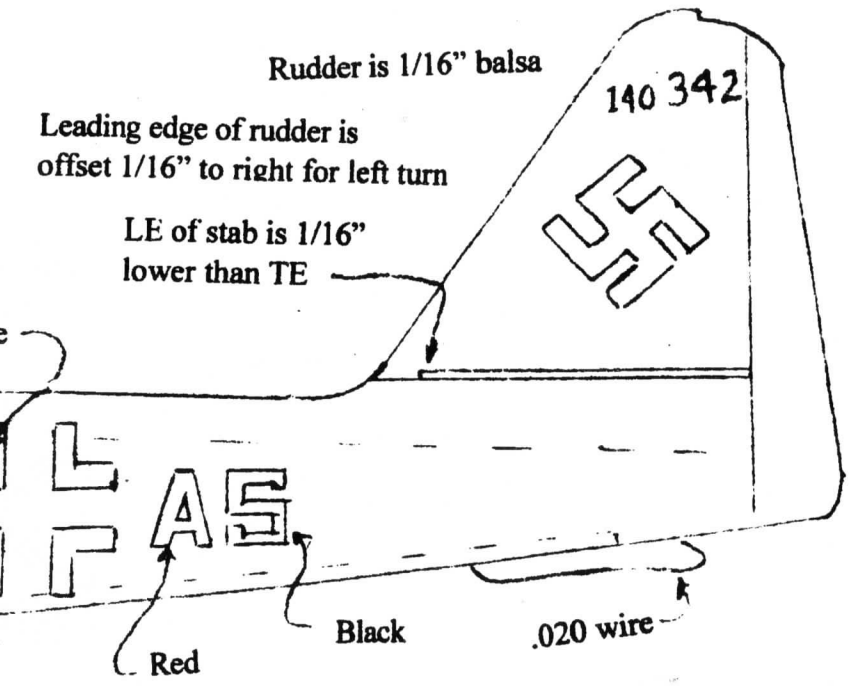
Finished with two coats of Deft Sanding Sealer, then light coats of Moss Green #721, October Brown # 718 and French Blue # 749 Floral Spray will result in a reasonably light model. The color won't be exact, but close.

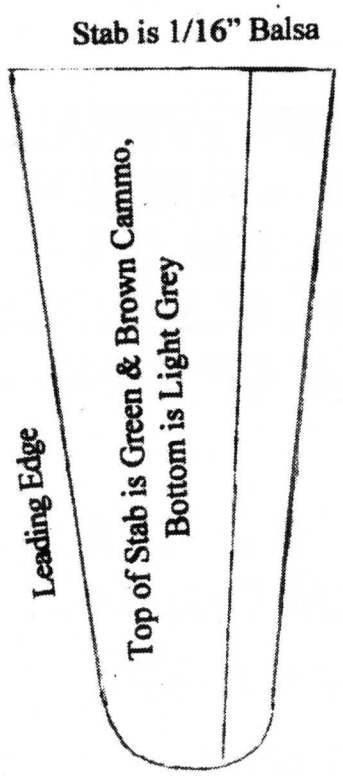


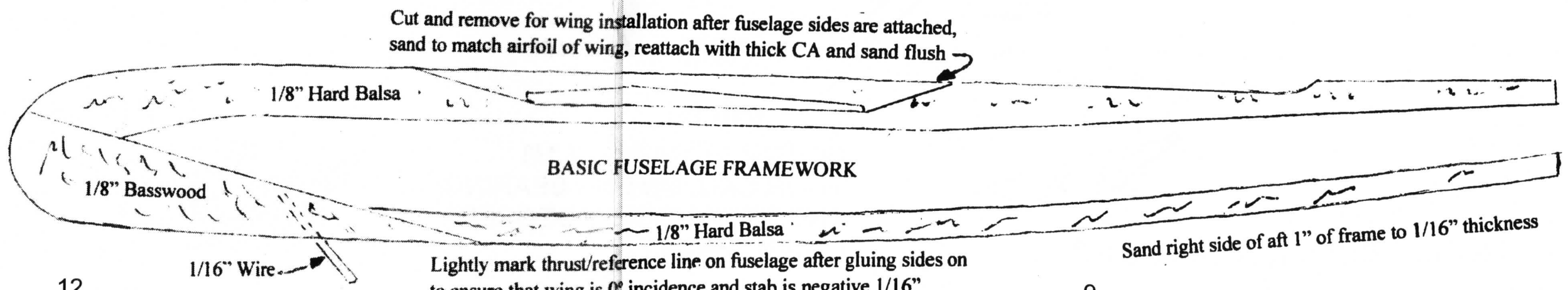


Inner frame structure is to be covered in 1/32 balsa.
Recommend that inside of each of the 1/32 sheet balsa fuselage sides have extremely light carbon tissue doped on. Then glue the 1/32 sides to the inner frame structure.
This dramatically reduces the tendency of the fuselage to break.

Carbon tissue weighing only .02gm/sqft is obtainable from:
Carbon Structures Technology,
http://www.cstsales.com/carbon_tissue.html
or 1=800-338-1278



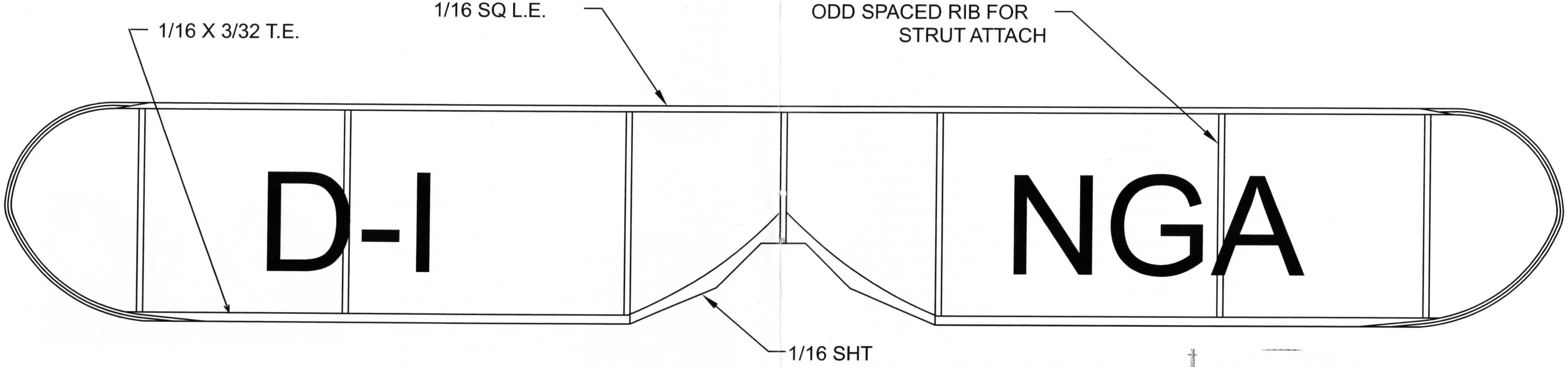


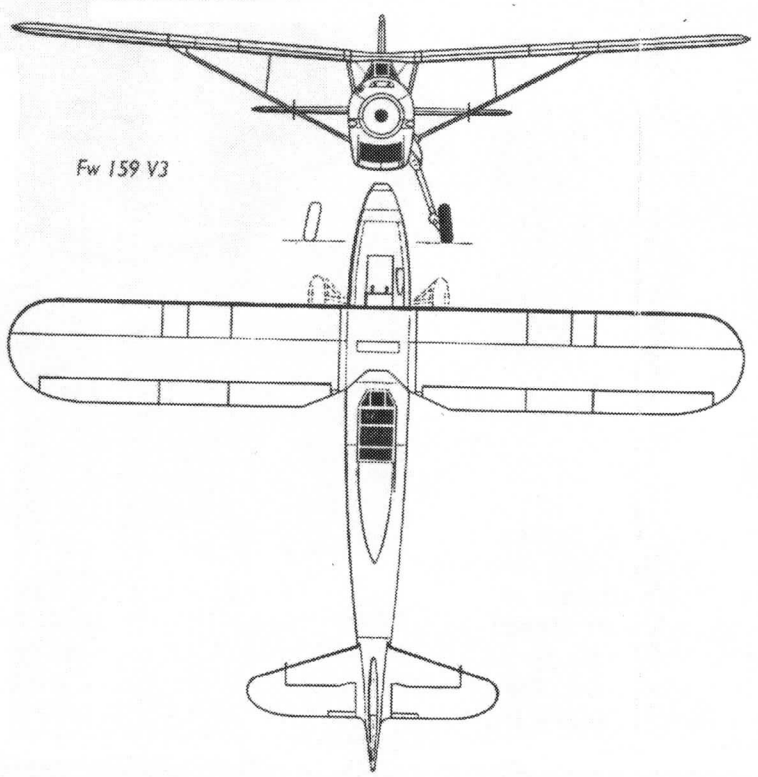


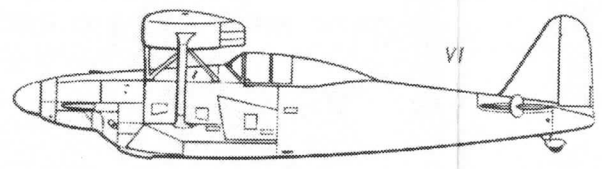
BASIC FUSELAGE FRAMEWORK

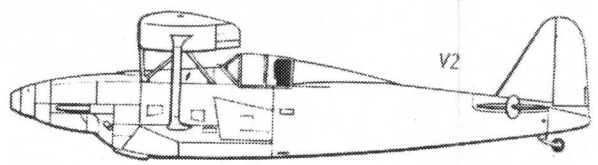
Lightly mark thrust/reference line on fuselage after gluing sides on to ensure that wing is 0° incidence and stab is negative 1/16"

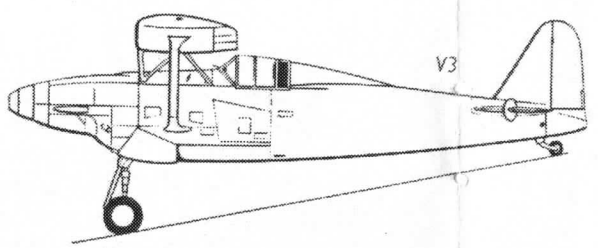
Sand right side of aft 1" of frame to 1/16" thickness











For you guys who go ape on panel lines here are a couple of 3-views from William Green's *Warplanes of the Third Reich.*