Cloudbuster membership and subscription to the newsletter is $16.00 per year ($6.00 membership without subscription). All memberships expire on Dec. 31. Subscription membership includes all Newsletter issues for the year.

Send Subscription Checks or Money to;
Mike Welshans
976 Pearson St.
Ferndale, MI 48220

Address all regular correspondence to;
Chuck Hickson
1004 Island Lake Dr.
Oxford, MI 48371
Club Officers;

President - Davis Gloff (davis.gloff@gmail.com)
V.P. - Winn Moore (winn_moore@yahoo.com)
Secretary - Chuck Hickson (hicksocl@charter.net)
Treasurer - Mike Welshans (mbwwelshans@aol.com)
Safety Officer - Bruce Thoms (bthoms3006@wowway.com)
Newsletter Editor: Chris A. Boehm, (merlin236@comcast.net) 810-348-8675
5586 Chatham Lane
Grand Blanc MI 48439

Club Website by Davis Gloff, (davis.gloff@gmail.com)
Cloudbustermac.tripod.com

Cloudbusters Model Airplane Club
976 Pearson St
Ferndale MI 48220

The Cloudbusters meet at 8pm. on the third Tuesday of the month at Drayton Ave. Presbyterian Church 2441 Pinecrest Avenue Ferndale, MI 48220 The meeting room is #309 No meetings in June, July, or August.

Be sure to visit our web page to get the 2015 & 2016 handouts. If you do not have access to the web or a printer, contact a member who does and get your copies for handout today.

Cloudbusters NEWSLETTER

Cloudbusters Model Airplane Club of Michigan, Inc

Our 76th Year — Jan-Feb 2016

Using Masking Tape

ripped from the internet at
www.scalemodelguide.com/hints-tips/painting/using-masking-tape/

Posted by: Kris in Painting

Introduction

Most modellers have to use masking tape on a regular basis. This tutorial contains two tips for the price of one. How to reduce the tackiness of masking tape and how to get a good clean line.

Types Of Masking Tape

Masking tape can be divided into two broad types. Some is made specifically for modellers and some is made for general household and D-I-Y use.

On the left is Tamiya masking tape made specially for modellers. On the right is commecial masking tape made for interior decorating.

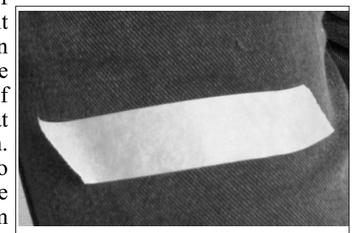
Masking tape made for modellers by the likes of Tamiya normally has a thin width (although it is available in a variety of widths) and generally is far superior to general D-I-Y masking tape. However, it is more expensive and more difficult to obtain. For this reason, I use Tamiya masking tape for most modelling purposes, but may use ordinary masking tape for general jobs such as masking a scenic base. It is worth remembering that masking tape is also very useful for temporarily holding parts together while the glue sets and ordinary masking tape is fine for this.

Commercial masking tape intended for interior decorating comes in much larger rolls and can be quite cheap. Be aware that there are different types and the quality varies enormously. In addition to normal masking tape, it is possible to buy 'low tack', flexible (for goiing around bends) and also varieties that are intended to be left in place for a long time.

Reducing Tackiness

One of the biggest fears when using masking tape is that when it is removed, it might pull off a coat of primer, or other previous layers of paint. To work well, masking tape has to be rubbed down, especially along the edge and this increases the risk of damaging previous coats of paint.

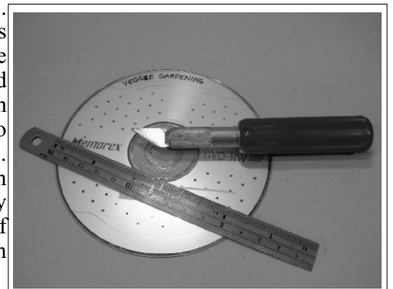
This problem can be reduced by removing the masking tape as soon as possible. Generally, the longer you leave masking tape in place, the more difficult it will be to remove it. I sometimes find it useful to reduce the tackiness of masking tape, so that it sticks well, but does not grip too strongly. To do this I tear off a strip of masking tape and stick it to my trouser leg. When it is removed the surface will have thousands of minute pieces of lint that will reduce the adhesion. If the tape is still too tacky then I repeat the procedure until I am happy that the tape has the right amount of adhesion.



Laying a strip of masking tape on a trouser leg, or other piece of fabric will reduce the amount of adhesion.

Getting a good clean line

A roll of masking tape will attract dust and tiny hairs which will stick to the sides. This is because the edges of the masking tape will have a tiny amount of adhesive exposed. Every time you put a roll of masking tape down on a surface, it will pick up a few more bits. These tiny pieces can prevent the tape from giving a good clean demarcation line between two colours of paint. This is the reason why Tamiya supply their rolls of masking tape in plastic containers.



Old DVD An old CD or DVD, a metal ruler and a knife are perfect for cutting a good straight edge which is essential to get good results from masking tape.

If you reduce the tackiness of the masking tape by sticking it on to your trouser leg as suggested above, you might also notice this effect. Avoiding it is easy. Lay the strip of masking tape that you are going to use down on a piece of glass or a clean cutting surface (an old CD or DVD is ideal). Then using a metal ruler and a sharp blade, cut away the tatty edge of the masking tape to reveal a perfectly straight and clean edge.

approx. 56.5 sqare inches wing area

3/32" square
Leading Edge

1/16" square Spars

double ribs at
dihedral break
to sandwich
landing gear
wire

dihedral =
1.25" per tip

Red
top &
bottom

Red
top &
bottom

R4 R3 R2 R1 R1 R1 R1 R2 R3 R4

1/16" x 1/8"
Trailing Edge

Cover top of cowl with tissue or paper
make oil tank from rolled paper.

Recommend 7" prop
with a loop of 3/16" rubber

NPx F1x oil tank open cockpit

nose: 2 stringers
top and bottom

oil tank

F2t F3t

combing

flat, no stringers
all four sides

all structure
1/16" square
unless indicated

Tail Marking
white – both sides

OVERALL COLOR
WWII Japanese Green
Top & Bottom

F1t

NPy F1y

F1b

G1 WS G2

Red with
White band

MP

use 3/32" aluminum
tube for motor peg

TP

landing gear
support strut

100 lb
bomb
mounted on
centerline

LG3

1/32" music wire
sandwich between
two ribs to anchor
the landing gear

Sandwich
short aluminum
tubes to support
wheel axle

Kokusai Ki-128 Ta-Go
1945 Japanese "Special Attack"

Dime Scale by
George Bredehoft - 01/2016

George Bredehoft - Volare Products
www.volareproducts.com

Future-Pledge Dope

In all my years of modeling (dating back to the late 1980s), I have never* used dope to seal my tissue (nor to adhere the tissue to the frame). * - "never", as in: not that I recall. I believe this is because it was unfamiliar to me and not easy to get when I was starting out. I started stick and tissue modeling in my late 20s, and I was on my own with just Model Builder magazine to guide me. No experienced modeler showed me the ropes when I was a kid, so I never got into dope because of someone telling me "this is what we do". My first models were unsealed and, by the time I got the notion to start sealing them, "krylon" started to be the alternate choice. Spray paints, including Krylon Matte, Semi-Gloss, and Gloss, can be had at any department store, so spray clear (Krylon and Rustoleum) continues to be my tissue sealer of choice. It is easily obtained and can-spraying is something I know how to do and the results are just fine.

However, as with airbrushing colors (which I don't do a lot of), there are months-long stretches where this cannot be done. These periods also coincide with prime building time, because you cannot fly, either. This time period is known as "winter". This is problematic for a guy without a heated garage - I have nowhere to spray noxious paint in the winter months. I do not like to assemble models before they are sprayed, since the spray does not go evenly into corners like wing/fuse junctions, etc. So my models sit in pieces waiting for some warmer weather - say a day above freezing - where I can take the warm model and the warm can and quickly shoot the pieces in the empty garage before ducking back into the warm house. This is not ideal and I don't like doing it this way.

Over the last few years, I have read about - and scoffed at - alternatives to dope and krylon; specifically "Future" floor wax. This seemed to be a fad when I was getting back into modeling 3 or 4 years ago. I read about it and considered it to be on par with using domestic tissue because you were looking for a way to do stick and tissue on the cheap (stick and tissue is already just about the cheapest form of model aviation there is, and that's why it should be everyone's entry level - but that's another article).

But, my curiosity and the winter conditions got the better of me and last winter I decided to give Future Floor Wax a try as a tissue sealer. I built one model and decided to try Future out on that model. I wouldn't commit to the new practice for all models; I just wanted to see how it worked. I found the acrylic floor "finish" (by the way, it is now called "Pledge Floor Care Finish") at my local department store in a clear plastic squirt bottle. I poured (squirted) some in the bottom of a styrofoam cup and, not having a brush, folded up a paper towel to use as a substitute brush. I dabbed the towel in the cup, and then spread the liquid on the tissue.

This is not "easy". When the liquid comes in contact with the tissue (tissue that has been shrunk taught on a fuselage and wing), the tissue immediately goes limp - even more so than spraying with a water mister to shrink the tissue. Maybe that's because I am not spraying but soaking the tissue. Anyway, it takes some care (and worry) to apply in this manner. It appears that the extremely saggy tissue actually contacts the back side tissue on tail surfaces, etc. - but as it dries it seems to separate again. I made it through that model and even did a couple of applications. The model turned out fine; it looked about the same as a semi-gloss spray. I don't know how much weight I added. The tissue tightens back up and all looks fine. The model worked fine and even flew away on me.

I made mental notes on how the stuff applied with my "paper towel" method. I even paid attention to the leftover liquid in the cup. This may be a very interesting attribute regarding Future and tissue - the liquid in the cup, about 1/4"-3/8" in the bottom of the cup, took an extremely long time to "evaporate". And once it became solid, after a LONG time, the outer surface was solid and not sticky, but the acrylic was a soft consistency - a bit like a piece of caramel candy - it was resilient and not hard, nor brittle. And its transition to a harder material was a very long process - MONTHS. This may keep tissue from becoming brittle; at least, for my planes - they usually suffer blown motor damage or entire plane loss. But I HAVE had brittle tissue with spray paints.

As the calendar crept into this winter, again I was faced with models being completed that needed sealed but the weather prevented spraying. Again, I decided to try Future. This winter, I have given it a more dedicated test. I have now done three models with future. I even bought some "brushes" - those cheap foam brushes at 1" width - and applied Future with that. Remember when I described that applying the Future to the tissue seemed to make the tissue extra saggy? Well, with the brush, I think the application is even worse. On the model I did with the brush, I think so much is going onto the tissue that there is actually excess being applied. On that model, I have areas where there is a lot of buildup - not runs, but definitely smears of excess sealant. I will not use the foam brushes again.

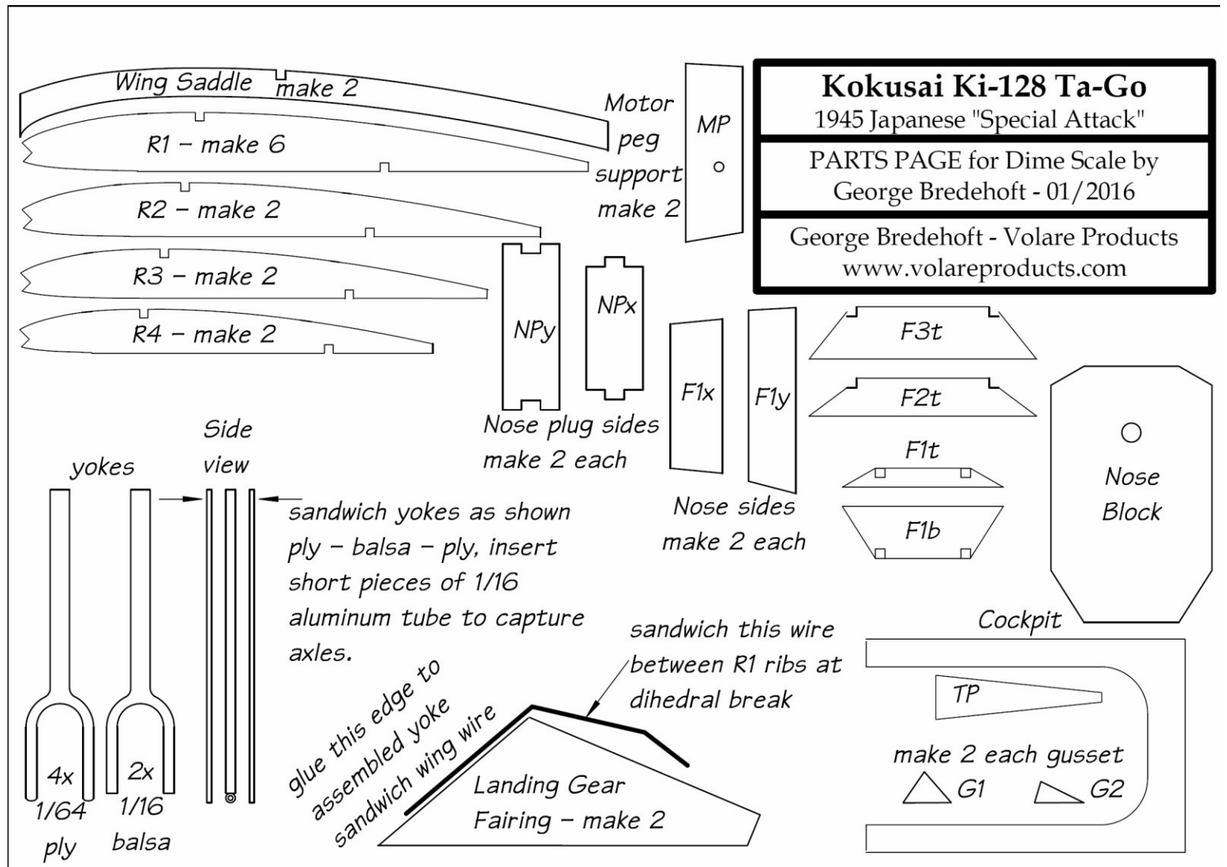
But on the other two models, I have very good, even beautiful, results. On one model I have a very shiny wing and on the other, the shine is just starting to appear. One benefit of winter is the air is pretty dry. I would do a panel at a time and let that dry while working on another part of the model. When the second part was completed, the first would be dry to the touch and I would put on a second coat. It goes quickly and I am very pleased with the results - this is maybe even better than the spray can because sometimes with the spray can, I would be trying too hard to apply a light dusting - and that is what I would get - the paint droplets seemed to dry before hitting the tissue and the surface would be rough and dusty.

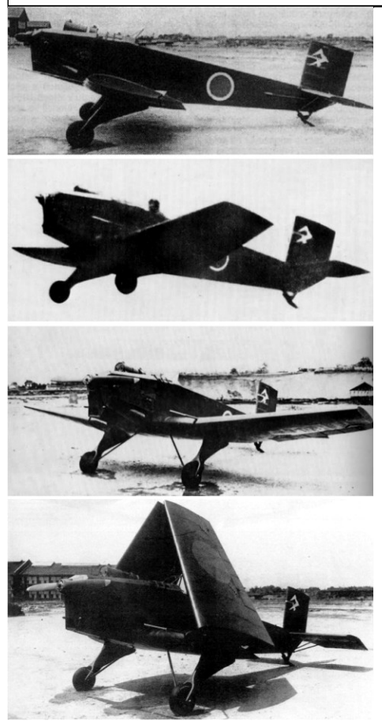
I believe my "paper towel" method works well because the paper towel keeps the liquid in the towel and doesn't want to surrender it readily. I think that the capillary action of the tissue is so much greater than the capillary attraction between the foam and liquid that the liquid just dumps onto the tissue. Yes, a lot of liquid remains in the paper towel, but the tissue only attracts a small amount. By the way, I fold the paper towel into a small square, say 2 inches square, and use the last folded edge as my applicator. I no longer dunk the towel in a cup, but simply squirt a little onto the tissue whenever it starts to run dry.

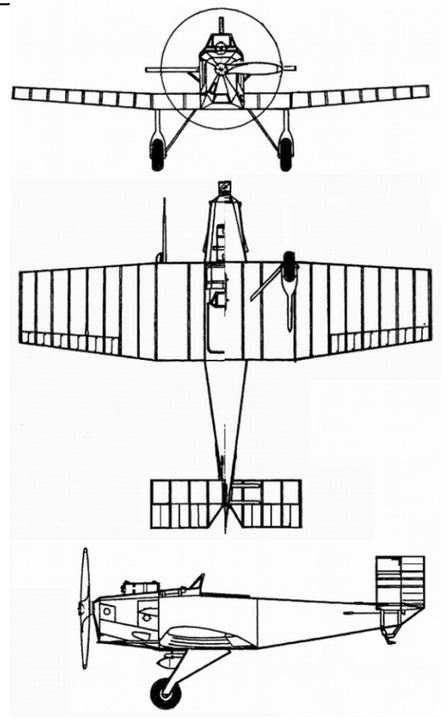
I have read online that another modeler is also a proponent of Future, but he only sprays it. This really doesn't solve my problem, as I don't have a real location to spray an airbrush in the house. Oh! I forgot one major part - this is easily done inside, as there is nothing but a pleasant odor and even that is not overpowering. After all, the product is meant to be used in great quantities inside the house and a terrible odor would not be acceptable. I apply this treatment to my models in the evening, in the family room, while watching TV. To quote a favorite movie, "the pleasing odor is half the point". And, cleanup is accomplished with water.

So, you might want to give Future (Pledge Floor Care Finish) a try as a tissue sealant. I don't know if it can produce museum quality finishes, but I am happy on my sport and scale models. It even goes well over Epson-printed tissue and does not smear the ink. I won't say that I am 100% sold, but I will definitely use it in the winter months.

--george bredehoft







Detecting Thermals

(or How to Trounce the Opposition)

Ripped from the WEB at f4bscale.worldonline.co.uk/index.htm

The first objective of any model glider flier is to have a model that flies well, once the model is trimmed for perfect flight the next objective is duration.

If you are flying on a local park you won't want the model to go too high or too far, but competition HLG fliers strive to achieve at least one minute duration - a 'Max' - for each and every flight (hardly ever achieved), so how do they do that ?

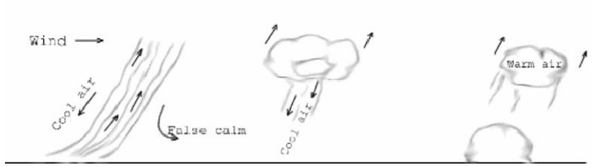
Answer: By 'picking lift' - launching into Thermals.

Thermals are very elusive, they are visible to all and sundry as we casually lean back in our folding chairs, but as soon as you venture forward for a competition flight with model in hand, they will collapse before you like soap bubbles popped by a fickle finger !

A thermal is warm rising air which (hopefully) will carry your model to a great height. There has always been some debate as to the actual shape of thermals. Thermals are said to be either columns of warm rising air, doughnut shaped bubbles and some fliers perceive them to be large bubbles of warm air which form at ground level then break away to float skywards. It may be that thermals are large columns of warm air with a cool (downward flowing) core, centring on a thermal is a common phenomenon, if a free-flight model centres on a thermal the result is a downward almost vertical spiral which is often terminal !

Knowledge that recently came to my notice (2003) :- Thermals spiral upwards in a clockwise direction when viewed from beneath (Northern Hemisphere).

Whatever shape thermals are - you will want your glider to be in one! There are many variables that are involved in producing thermals ie; air pressure / cloud formations / sun intensity / wind strength / the surrounding terrain, the list goes on !



What the surrounding countryside looks like and the amount of thermal activity it may or may not generate is not something that the would be 'maxer' should trouble themselves with. All competitors on the day will experience the same amount of thermal activity. What we need to be able to do is to 'pick the lift' as and when it arrives at our launch point. Picking or spotting the lift will give us distinct advantages over those fliers who have no knowledge of detecting thermals and launch as and when they have the urge !

How do we do go about finding the lift ? The first and obvious way is to stand next to a competitor of known pedigree and launch at the same moment as he/she does (commonly known as piggy-backing). I don't recommend that method. The flier you are watching is sure to be aware of your strategy and may try to lure you to launch into 'sink' - definitely not recommended.

I must point out that thermal picking is not an exact science and many an experienced flier has been seen with head in hands as his model wallows slowly earthwards in a patch of 'sink'. Even experienced fliers get it wrong from time to time.

We will assume for the sake argument that thermals are columns of rising air. As this column of warm air rises, cooler air will precede it and a cool air will rush in the fill the space previously occupied by the rising warm air.

There are strong thermals, weak thermals and patches of air that give the appearance of thermals but collapse moments after launch. We can't see thermals, so we need some means of detecting them and avoiding the down drafts.

Bubbles

"Know your enemy" someone once said. Arm yourself with two or three tubs of children's bubbles - go to a lonely field and conduct some experiments. Stand in an exposed position and feel the changes of air temperature on your face as the wind passes over you. If the wind speed increases, wait, strong wind very rarely brings useful lift, wait for a lull and feel for a rise in the air temperature. When you think the air is warmer, release some bubbles, if they begin to float upwards they are in 'lift', if they float along without gaining height or fall, then you were either too early or too late when you released the bubbles. Keep practicing until you feel confident you are able to sense the warm rising air and release your bubbles into it.

Disadvantages with bubbles :-

1) After you release the bubbles any signs of a thermal will now be downwind of your position.

2) You will have soap on your hands.

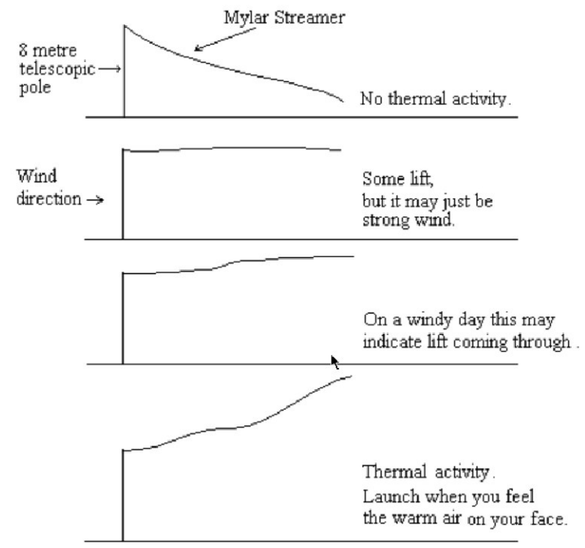
3) You will have to place the bubbles in a safe place before you can pick up your glider. By now the thermal will be well downwind of your position.

To overcome these disadvantages you could place the tub of bubbles on top of a long pole, a small fan is required to blow air through the plastic loop to produce a stream of bubbles - a helper is also required to take the pole upwind and operate the plastic loop.

Poles and Streamers

HLG fliers need to be independent of devices, for this reason the pole and streamer technique has been developed and used almost without exception in the UK.

An eight metre telescopic fibreglass fishing pole is used to hoist a Mylar



streamer into the wind, the pole is then fixed so that it can't fall over. The streamer length can be anything from 50 to 100 feet long and is approximately 10 mm wide. The streamer will float in the air stream and respond to warmer or cooler air by rising and falling. Giving the 'perfect' visual indication of thermal activity !

Now dear reader, I am assuming that you have just run out of the house and have bought, begged or borrowed an eight metre telescopic pole and mylar streamer !

At your local flying site erect the pole and streamer at least 60-100 yards upwind of your chosen launch position and watch the behaviour of the streamer as it rises and falls, combine that with the knowledge you gained from using bubbles (feeling the warm air on your face) and attempt to launch into lift. Chances are that you won't have immediate success, you probably launched into a down draft. The reason (in my experience) is that thermals do not rise straight up, they come along in inclined columns. The size and shape of these columns depends on wind speed, cloud formations and the strength of the sun. You alone will have to decide at what moment you are going to launch, wait for the warm air to reach your position, remember that the streamer is only an indicator, you must continue to 'feel' for the warm air. Launch too soon and your glider will be pushed down in front of the lift, launch too late and your glider will wallow in the down draft.

Strong arm tactics

The strength of your throwing arm and type of launch pattern your model follows will also determine the moment of launch that is correct for you. If your glider has a vertical climb with a roll-off the top then launch in the centre of the thermal, if the glider has a right/right launch pattern, position yourself to the left of the pole so that as the glider finishes its transition to level flight in the centre of the lift.

Now watch the streamer again, it will rise and fall as the warm air passes, it will also rise and fall as the wind strength increases or decreases, so can we rely entirely on a rising streamer to show thermal activity ?

Yes we can, because it is generally accepted that a combination of a drop in the wind speed, a rise in temperature and a rising (upwardly fluttering) streamer indicate a strong thermal - wait for that combination and LAUNCH ! Be aware that it also possible to launch to the side of any lift that comes through, your position relative to your pole is most important. A row of three upwind streamers can indicate three very different situations.

Swirling air

Do not be fooled by swirling air, if the streamer changes direction by 180 degrees and indicates strong lift by fluttering at a steep angle - ignore it, in my experience it will collapse moments later, wait for the streamer to return to the prevailing wind direction then launch.

This swirling air phenomenon once occurred at a UK Nationals championship.

Everyone was waiting for the usual signs of thermal activity. The wind began to swirl and changed direction. The streamer went up at an incredible angle, there was almighty rush of launch activity, more than a dozen models were launched, I tried to get the attention of my timer who seemed transfixed in her chair, after repeated arm waving from me she still didn't acknowledge my signal, I turned to walk towards her, as I did almost without exception all the gliders that had launched started to rain down on the runway ! The thermal had collapsed, the best flight was about 12 seconds. As the streamer returned to the prevailing wind direction I launched and maxed !

Natures little helpers

Nature can provide evidence of thermals. Small feathers, floating seeds and insects can all give clues as to when thermals are present. Look for these items floating towards you, if they are floating upwards then you may be sure that they are in warm rising air. Also look for circling birds which are hunting insects they also give away the presence of thermals.

The Black Art

Now there is one method of thermal detection that cannot go unmentioned, it is almost a Black Art - the use of your legs !!

Using the skin of bare legs, back of hands or face to detect changes in air temperature and wind speed has many advantages, especially as there are some UK venues (Oxford) where thermal detecting devices are forbidden. Only the senior and more experienced free-flight competitors seem to have the ability to detect thermals using their legs, so watch them well and learn.

All the above rules still apply for the 'black art', warm calm air etc, you must have a model that has a vertical launch pattern with a roll-off the top to ensure your glider is within the thermal you are sensing. All of the above advice applies to perfect days when there is only a light breeze, there will be days when the wind is very strong, on these days the lift will arrive and pass in seconds, you will have to be alert and respond immediately the moment you spot the changes.

Conversely, on flat calm days you will have too much time too spot lift and it is on these days that you are most likely to pick false lift - the type of lift that collapses seconds after it formed ! only experience will help you get around that problem.

Technology

A common sight amongst the free flight glider and power fliers is a small pole (10 ft), at the top of the pole is anemometer made from the four halves of two ping pong balls and the sensor from a bicycle computer. The wind spins the ping pong balls and in turn the sensor gives an approximate indication of the wind speed. There is also a sensor for an electronic temperature gauge.

The displays for devices both are positioned at eye level. The anemometer gives the wind speed and the thermometer gives the temperature (of course). By watching the two and waiting for a combination of warm air and reduced air speed the detection of lift becomes 'easy' (ha ha).

I have tried watching these devices and tried to learn this new technique but be warned, there is a tendency to become too reliant on it. Sometimes 'the old ways' are the best.

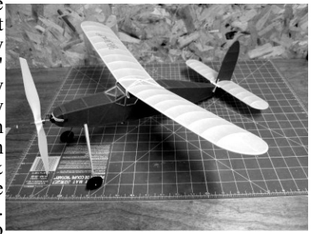
To re-iterate :- Wait for the wind to ease off, if the wind temperature rises and the streamer also rises - launch.

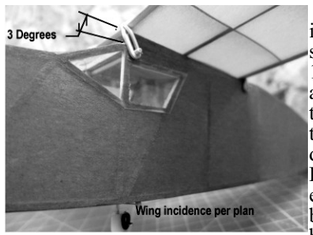
Now get running Yippeee ! !

Final note

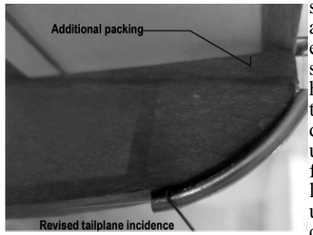
Mother nature wrote the rules for thermal generation and she re-writes them as and when she chooses - be warned, but enjoy yourself.

My real awakening to the fascination of aeromodelling came when, at the age of eleven, I acquired a book entitled "How To Make Model Aircraft" by Peter Chinn. Since I didn't know anyone else who shared my interest & wasn't aware of a local model club, this book became my bible, serving to teach me the basic building & flying skills needed to produce some halfway decent models. I was able to progress from gliders & rubber jobs through control line to free flight power duration by the age of fifteen. My parents would joke about the hours spent reading & re-reading my "bible" & its deteriorating state as the binding disintegrated through excessive thumbing. It ended up with Scotch tape down the spine in a vain attempt to hold it together. I subsequently subscribed to "Model Aircraft" magazine, which regularly featured model engine tests by Peter Chinn who, using his own dynamometer, produced in depth performance figures & handling characteristics of the latest model aircraft engines. (Peter was able to comprehensively detail B.H.P. & torque figures along with performance curves). I respected him as a true master of pretty well all aspects of our hobby.





Imagine then, how my interest was piqued when I spotted the "Wasp" plan from 1942 in our last club newsletter, a Peter Chinn design! For old times sake, I had to build it & the fact that it looked to be a decent candidate for FAC Two Bit competition didn't hurt either. The model is a quick build & I was soon out in the back yard for test glides. Having incorporated the three degrees of incidence on the wing & with the balance point at about one third chord I expected some semblance of a glide but no, she appeared to be severely under-elevated. I progressively shimmed the tailplane up until I had a decent glide, went back to the shop & built in the revised decalage. My next outing was up to my (small) local flying field where I adjusted the thrust-line & gradually upped the turns until I was seeing a nice fast climb, though the glide was not of the floating variety! I am looking forward to the new year & a decent sized field when I can fin d out what the "Wasp" can really do!



Ted Allebone.

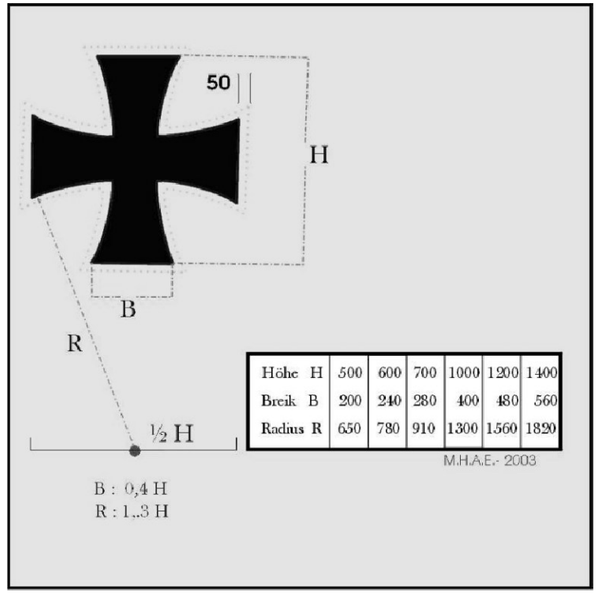
How to draw a German Eisernkreuz

Snagged from a web page mainly about Plastic models.

http://www.wwi-models.org/misc/index.html

Martin Héctor Afflitto Echagüe found this description in an old german book in an Argentine Aeronautical library. It describes the dimensions of a german Eisern Kreuz.

Diagram (reproduced)



Martin reproduced the diagram by hand.

Accompanying Text

The text in German is as follows:

Hoheitsabzeichen

An den Enden der Oberseite der oberen tragflächen an der Unterseite der unteren Flächen, beiderseits in der Mitte des Rumpfes und auf beiden Seiten des Seitensteuers erhalten die Flugzeuge in größtmöglichster Abmessung die deuchen Hoheitsabzeichen in Form des "Eisernen Kreuzes ", in schwarzer Farbe. Das Kreuz erhält eine etwa 5 cm breite weiße Umrandung. Für die Abmessungen bezw . Formen des Kreuzes sind die in Fig. 114 angegebenen Abmessungen zu wählen. Der flugzeugrumpf erhält außerdem beiderseits neben dem Kreuz die Typenbezeichnung und Flugzeugnummer.

Translation (bei Hans Trauner)

National Markings

The German national markings are applied to the very ends of the uppersides of upper wings, on the underside of the lower wings, on both sides of the middle of the fuselage and on both sides of the rudder. The markings are in maximum possible dimension in form of the 'Iron Cross', in black colour. The cross has a white border of approx. 5 cm width. For the measurements and form, the measurements of Fig. 114 are used.

In addition, the type designation and Aircraft Serial number (Flugzeugnummer) are applied to both sides of the aircraft.

Hans notes:

This Figure 114 is taken from an order of July 25th 1916. Interestingly in this order the ratio of radius to height is given as 1:1.4, despite the given measurements. This 1.4 ratio included the white border!

Alternate instructions

Tom Solinski offers:

I found the same information (dimensions) in newer form in an issue of Flying Scale Models two years ago. Great numbers but constructing it is a draftsman's nightmare. For those of you who want to practice drawing these "Iron Crosses" may I suggest the following process using a straight edge, ruler and compass?

Draw a vertical line the desired height of the cross. This forms the vertical "H" in the sketch.

Draw a horizontal line the same length as the first line that bisects the first line. The horizontal "H" in the sketch.

At the end point of each of these lines draw two perpendicular lines that are one-fourth the length of the original vertical lines one running in each direction away from the base line. These form the vertical and horizontal "B"s in the sketch. 1/4H + 1/4H = 1/2H=B)

Label the endpoints of the "B"s as (working clockwise): top left, top right; right top, right bottom; bottom right, bottom left; and left bottom, left top.

Draw and extension of the original lines from steps a & b above out at least one "H" unit long.

Take your compass and set it to 1.3 x "H" wide, this is the dimension "R" in the sketch.

Set the point of the compass on the "top right" endpoint from step d above and strike an arc on the extension line to the right of the cross.

Move the compass to the intersection just drawn on the extension line, and strike an arc from the "top right" to the "bottom right" end points in step d above. Now you have the first curve established.

Repeat steps g & h for the other three legs of the cross.

Erase anything that doesn't look like a cross.

That was easy wasn't it?

Reference

Title : Das Flugzeug Und sein Aufbau, Bibliothek für Luftschiaffahrt und Flugtecchnik, Band 17

Author : Knut Anacker (Ingenieur und Flugzeugführer)

Publisher : Richard Carl Schmitdt & Co., Berlin W 62, Januar 1918

German Aircraft Designations

By: Tom Solinski (tskio at cox dot net)

Snagged from a web page mainly about Plastic models.

http://www.wwi-models.org/misc/index.html

As we approach the new millenium and the subsequent Centennial of powered flight I have noticed several aviation myths that should remain in this century.

This short paper started off after I read an article on flying the Fokker D-VII at old Rhinebeck aerodrome. The author, the late Jeff Ethell frankly states that "D" designation of German WW-I era fighter aircraft, such as the Fokker D-VII, the Pfalz D-III the Albatros D-V, stood for "Doppledecker" or bi-plane. Looking at these examples it is easy to see how this could be accepted, because all of these aircraft were in fact bi-planes. Other Imperial German Army's aircraft designations go on to support this statement, i.e. the Fokker E-III Einedecker, (one-wing) for a monoplane and the Dr, or Dridecker (three wing) designation for the famous Fokker Dr-I of Von Richtoffen the "Red Baron".

But other designations make this "D" designation confusing. What about all of the biplanes that had "B, C, G, & W" designations? Why isn't there a "D" in these titles to identify them as Doppledeckers?

Another contradiction to this designation is found in the usually clear, specific Teutonic thinking. If they called a ONE wing airplane by the numeric title of Eine (one) and a THREE wing airplane by the numeric of Dri (three) why break convention by calling a TWO wing airplane Dopple instead of the logical, numeric Zwie (two)? After all, this Prussian logic was followed in identifying one, and two-bay rigging on bi-planes as "einstielig" and "zwiestielig" respectively.

I have come to believe that the correct answer to all of this is that under the Imperial German Army designation system the "D" designation of German WW-I aircraft DOES NOT stand for "Doppledecker". It stands for "Type D" aircraft, in a very organized, logical, system.

My research has revealed that the Inspektion der Fliegertruppen (Inspectorate of the Flying Troops) i.e.: Idflieg had an aircraft mission identification system in place as early as the fall of 1915. The system consisted of identifying the designing manufacturer by name; followed by an alphabetical mission designation (i.e. A through W) followed by a Roman numeral sequence number of that mission type from that manufacturer. This system continued to evolve throughout World War One and it eventually consisted of:

"Type A" A single place unarmed monoplane scout of less than 150 hp. Example the Pfalz A-I, & A-II.

"Type B" A two place unarmed biplane scout or trainer of less than 150 Hp. Example the Albatros B-I.

"Type C" A two place armed biplane scout of 150 Hp or more. Example the Albatros C-III.

"Type CL" This was a subset of the "C" type indicating "light" weight. They were developed for a new mission; to be an armed escort, or two-seat fighter. Example the Hannover Cl-III.

"Type D" A single place armed biplane scout of 150 Hp or more. Example the Pfalz D-III, and D-XII. However, this designation was later applied to monoplane fighters as well, i.e. the Fokker D-VIII.

" Type E" A single place armed monoplane scout of less than 150 hp. Example the Fokker E-III. Note: the Pfalz A-II became the Pfalz E-III when armed! The Fokker D-VIII was originally the Fokker E-V

"Type F" A single place armed triplane scout of less than 150 horsepower. The original designation for the Fokker Dr-I, was Fokker F-I.

"Type G" A multi place armed biplane bomber with two or more engines. Example the Gotha G-IV. This designation was originally "K" for Kampf flugzeug or battle-plane. The "G" apparently lent itself to "Grosse" or large The sequence breaks down after G, skipping through the alphabet, sometimes using the first letter of the name of the mission type.

"Type J" A two-place, armed, and armored biplane specifically designed for the trench-strafing mission. Example the Junkers J-I

"Type N" A two-place, armed biplane scout of 150 Hp or more specifically designed for night bombing. Very few were produced. Example the Friedrichshafen N I

"Type R" "Riesenflugzeug", "Giant aircraft". A multi place armed biplane bomber with four or more engines. Example the Zeppelin-Staaken R-I.

"Type W" "Wasser"? A designation for all float equipped land planes or flying boats regardless of number of wings, seats, or horsepower.

I have two other items to support this position, of "D" being "Type D" and not "Doppeldecker". In 1918 the IDFLIEG held two "Type D" aircraft competitions. The aircraft evaluated and eventually winning weren[redacted] always biplanes, but they ended up being Type D aircraft.

On page 19 in the book "Aircraft versus Aircraft by Norman Franks" there is a contemporary German photo of an L.V.G. B-II training aircraft. The caption printed on the negative in German reads "LVG Doppledecker, System Schneider, Schulemachine" this is clearly a distinction between the training mission and the biplane configuration of the aircraft.

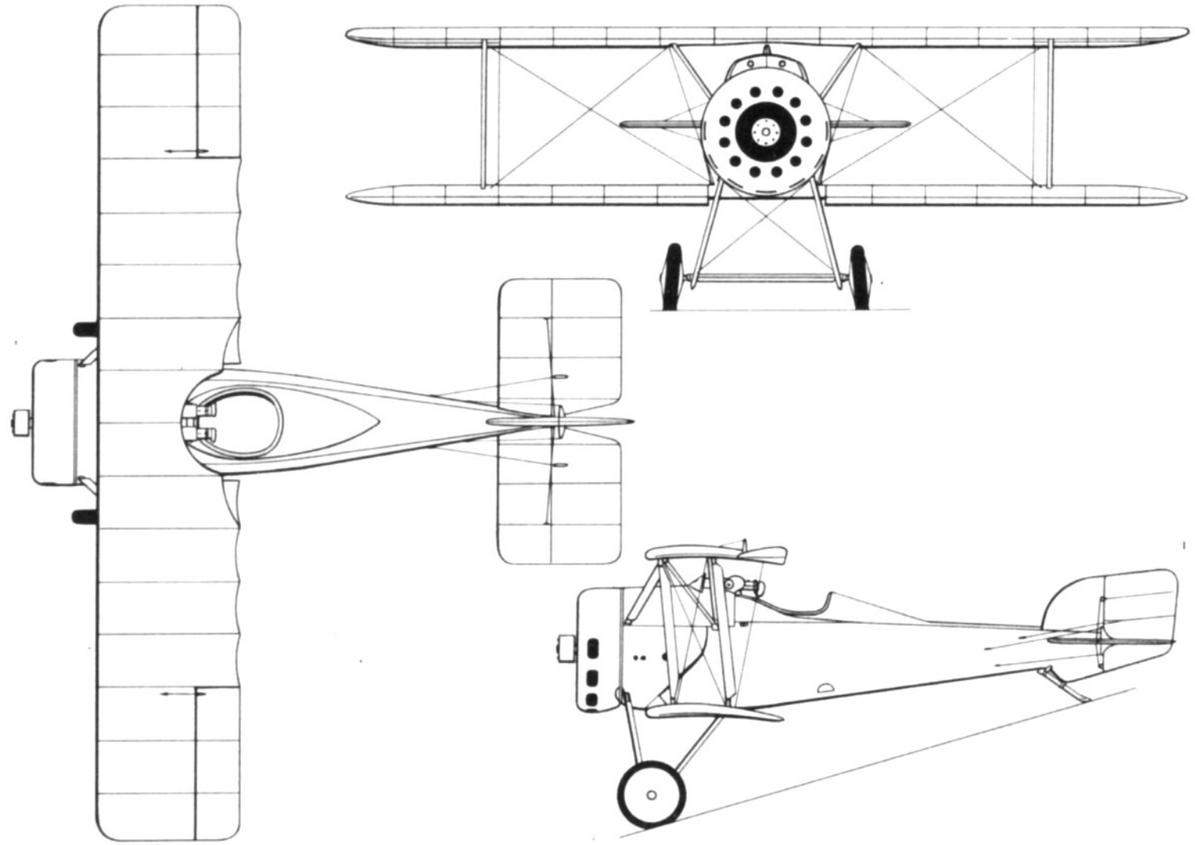
Please note that this list applies to the official Imperial German Army designation for these airplanes once they were accepted for service. Many of the German and Austrian manufacturers had their own internal designation systems.

Take the case of Anthony Fokker who initially used a designation of "M" and a series number, so his companies[redacted]M5K became the Fokker E-III in service. Later in the war Fokker used the designation "V". It is not clear weather this stood for Versuchflugzeug or "test aircraft" (i.e. prototype) or Verspannungsloser for "wing without bracing" as found on the Fokker D-VI and subsequent.

The Junkers company identified all of their prototypes with "J" not to be confused with the in service "J". Their J-4 became the operational J-I.

And finally, to confuse the whole issue the Brandenburg Company of Austria built an armed biplane designated "KD" for "Kampf Doppledecker" or "Battle bi-plane"

Some of you are probably saying to your self "this guy has too much time on his hands" and normally I[redacted] agree with you on an article such as this covering this type of minutia. But, as one popular radio talk show host says, "words mean things". Aviation has always been an art and science of exacting words. If we care about aviation as our hobby, or for some of us, as our living, then we owe both the founders and our future followers a clear accurate history of aviation stomping out half truths and myths whenever possible.



1/16 sq.

1/20 sq.

1/16 x 1/8

SCALE WING STRUCTURE

NO DIHEDRAL ON PROTOTYPE

BALSA BLOCK

BOND PAPER DECKING

RIBS AT STRUTS, CENTER SECTION, AND BOTTOM WING ROOTS ARE 1/16, ALL OTHERS ARE 1/32.

PUNCH OUT HOLES

B

C

D

1/32 SHEET FORMERS

E

F

G

H

EPOXY

A

B

C

D

E

F

G

H

OPTIONAL GUN RING

2 LAMS. 1/32 x 1/16

WHITE TISSUE

37.41

DRILL 1/16 HOLE

ALL STRUTS 1/16 DOWEL

1/64 PLY

A

3/32 TUBING

1/16 SHEET

BAMBOO

PEANUT SCALE

AVIATIK BERG C-1

BY. E.J. Heyn 3/77