

Rigging WW1 Aircraft

Presented by Michael Tabone and Martin Reid

Everything within these notes are suggestions based on experience and trial and error. There are several ways to apply rigging to aircraft and many modellers online have expressed their way of doing things. Both Martin and I follow a similar process when rigging although with a few slight differences. This demonstration hopes to impart some easy to use tips together with some practical demonstrations of what's involved. None of what you will see is difficult, but it does require some careful planning and patience.

Kits from the wonderful 1/32 WingNut Wings range will be the focus for this demonstration. If you have the opportunity to tackle one of these kits, I can guarantee that you will be very impressed by their quality and engineering. The rigging aspect and the process involved will enhance your skill set as it can be used across many other modelling subjects.

Remember if you get to experience one of these kits, to enjoy it and take your time!

Supplies and tools:

- Albion Alloy 0.2mm brass rod
- Albion Alloy MBT05 brass tube (0.5mm outer dia and 0.3 inside dia)
- Good lighting – lamps using daylight globes
- Magnifiers – head unit, desk unit
- Tweezers – several good quality types for gripping the EZ-Line
- Elastic thread for rigging, Refer Products section for options. Various gauges are available, select pending the scale of your model.
- Flat Rigging for RFC aircraft - Note, some elastic threads are flat in profile so long as they're not stretched too much.
- Hobby knife with No.11 blade
- Flat nose pliers – for working with tubing
- Flat surface – for cutting tubing

- Thin super glue or super glue gel – to flow into turnbuckles and make sure its still active and hasn't gone off.
- Super glue activator / kicker, this is a personal choice and some modellers prefer to wait for the glue to take hold. If using the activator, it's best applied with a fine paint brush.

Important:

- Once your painting and decaling is complete pre-drilling of your rigging anchor points may be required. If you are using a heavier gauge wire for your wing mounting eyelets, then pre-drill all the rigging holes with a suitable drill bit. Otherwise if you are using 0.1mm wire to fabricate the eyelets, then you won't need to predrill these holes.
- Start with the top wing first before you fix it to the aircraft and add your fabricated turnbuckles and rigging thread. It is much easier to work on the top wing as a section laying flat on your work bench than trying to do it already glued in place.
- The rigging thread should be initially cut longer than required and fitted to your turnbuckles.
- When you fit and glue the top wing in place the rigging will hang downwards. Cut the rigging at around 5mm shorter than the required length. The thread will stretch to bring the rigging into position.
- The remaining rigging can be completed as needed and should be easily accessible.

Creating turnbuckles:

- On a work mat lay down a piece of Tamiya tape at the width of the length of your required turnbuckle – say 4mm wide
- Take a length of your brass or aluminium tube and lay it over the tape
- Take a hobby blade No. 11 and rest it onto the brass tube and lightly roll and score the surface of the brass tube. Once done you will hopefully be able to see the score mark.
- Take a pair of flat nosed pliers with the plier ends up to the position of the score mark. Hold firmly and wiggle side to side to force the brass tube to snap.
- You will need to repeat this process until you have cut your desired number of turnbuckles.

Rigging using brass rod:

Warning: Using brass rod should be treated with caution and should only be used for rigging if the section does not need to flex. This will become apparent when adjustments are needed due to misalignment, cutting errors or unexpected movement of plastic components.

- Measure the distance between the two end points and cut the brass rod to size.
- Determine the length of the turnbuckles as this may vary between different types of turnbuckles.
- Take a length of the brass tube and insert a small length of the brass rod into the end. The brass rod will stop the walls of the brass tube from being crushed in the next step.
- Take a hobby blade No. 11 and rest it onto the brass tube at the 4mm position and firmly roll and score the surface of the brass tube.
- Take a pair of flat nosed pliers with the ends up to the position of the score mark. Hold firmly and wiggle side to side to force the brass tube to snap.
- This will produce a burr free edge of the 4mm length tube and will form your turnbuckle. If you do have a burr you can ream out with either a fine drill bit fixed into a pinvise, or lightly clean the area with a fine tipped scapple blade.

Can be used for the following tasks:

- Interior cockpit internal rigging, Undercarriage rigging, Upper cockpit area between the top wings and fuselage

Working with EZ-Line:

- EZ-line is an elastic thread that is perfect for use when rigging our WW1 kits
- Cut the EZ-Line to length using fresh sharp blade. When cutting the thread, the idea will be to have an absolute minimum of frayed material, as this will make the threading step more difficult. Lay the thread on your cutting mat and drag the blade across to ensure a nice even cut.
- Pre-cut your tubes to 4mm lengths
- Attach one end of the rigging line
- Slide your turnbuckle/s as appropriate on the line

- Attach the other end of the line
- Add a dab of super glue on the line and slide the turnbuckle on the glue

Can be used for the following tasks:

- Wing to strut rigging, Internal cockpit rigging, Control wires, Undercarriage rigging

Wing stub method:

This method is my preferred process over using eyelets and was used on my Sopwith Pup. The advantage here is that the stubs allow positioning of the turnbuckles in any direction after everything has been glued in place. This is very handy if something was missed during the early assembly stages.

- Using a pair of 0.1mm wire, twist these together (using pinvise and hook) to form a length which will be used for your wing stubs.
- Cut the stubs to around 3mm long and insert directly into the existing wing rigging holes. The remainder that is protruding will form a mounting point for your turnbuckle tubes. Complete all rigging points for both top and bottom wings.
- If you are working on your top wing apply a small amount of super glue and slide your tube onto the stub. Add your required length of thread into the tube and you will have your top wing rigging ready to be attached to the bottom wing.
- If you are working on your bottom wing just apply a small amount of super glue to the stub and slide your tube into position.
- When the top wing is fixed into position you can then simply cut the thread to around 5mm short of the lower wing turnbuckle, and then using your tweezers stretch the thread and insert it into the lower wing tube.
- Apply a small amount of super glue to fix it into position.

Can be used for the following tasks:

- Wing to strut rigging, Internal cockpit rigging, Control wires, Undercarriage rigging

Products:

WingNut Wings - <http://www.wingnutwings.com>

- EZ-Line – heavy and fine
- Flat Rigging for RFC aircraft

BNA - <https://www.bnamodelworld.com>

- Uschi – Elastic Rigging - standard, fine, super fine
- MIG
- Infinity Model
- Modelkasten
- CA Gel

Metro Hobbies - <https://www.metrohobbies.com.au/>

- Limited Albion Alloy products

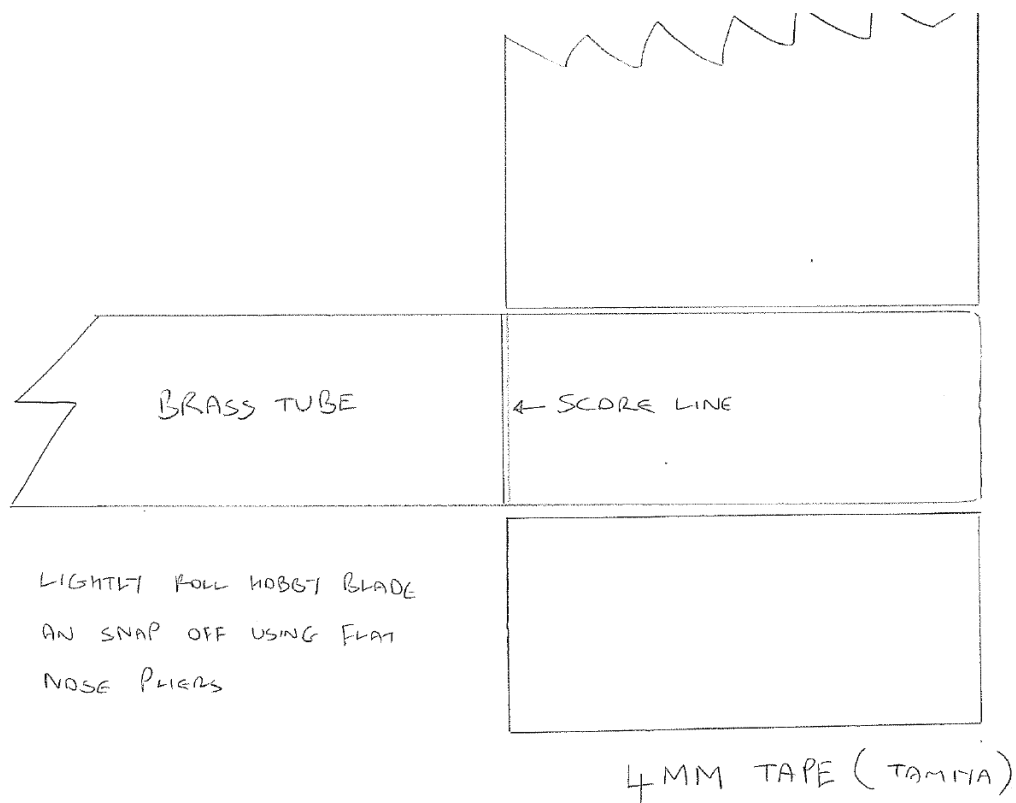
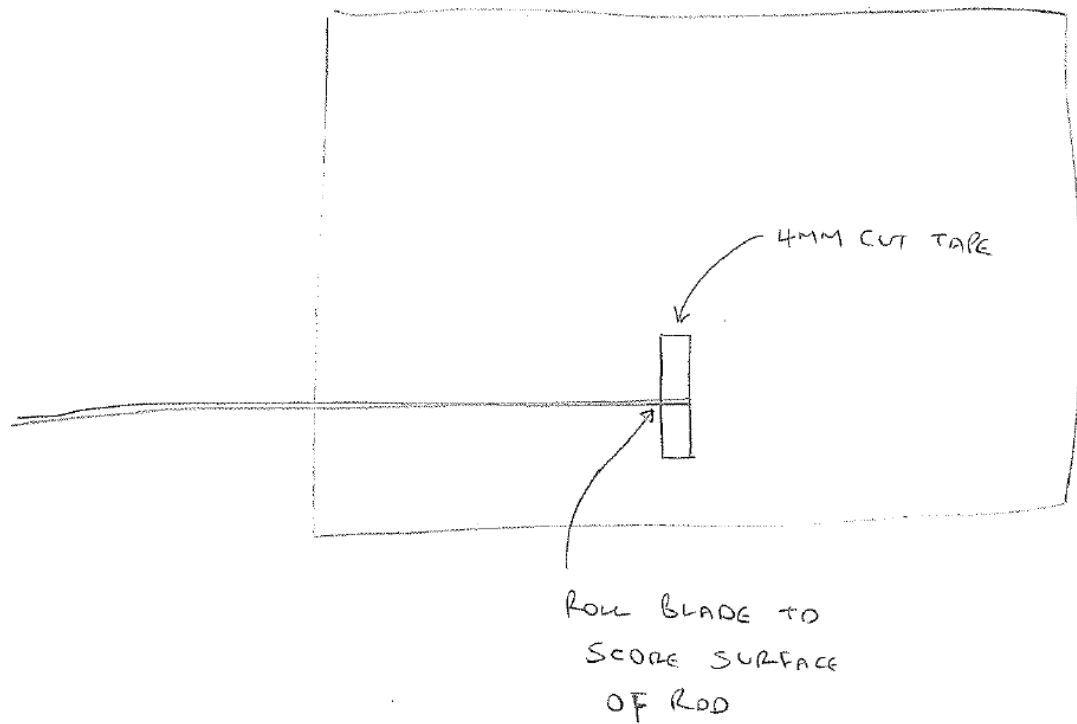
Brunel Hobbies - <http://www.brunelhobbies.com.au/>

- Limited Albion Alloy products

Note:

The Albion Alloys are a little harder to find locally but a good online search should find a supplier.

Supporting Diagrams:



M3TØ5 BRASS TUBE

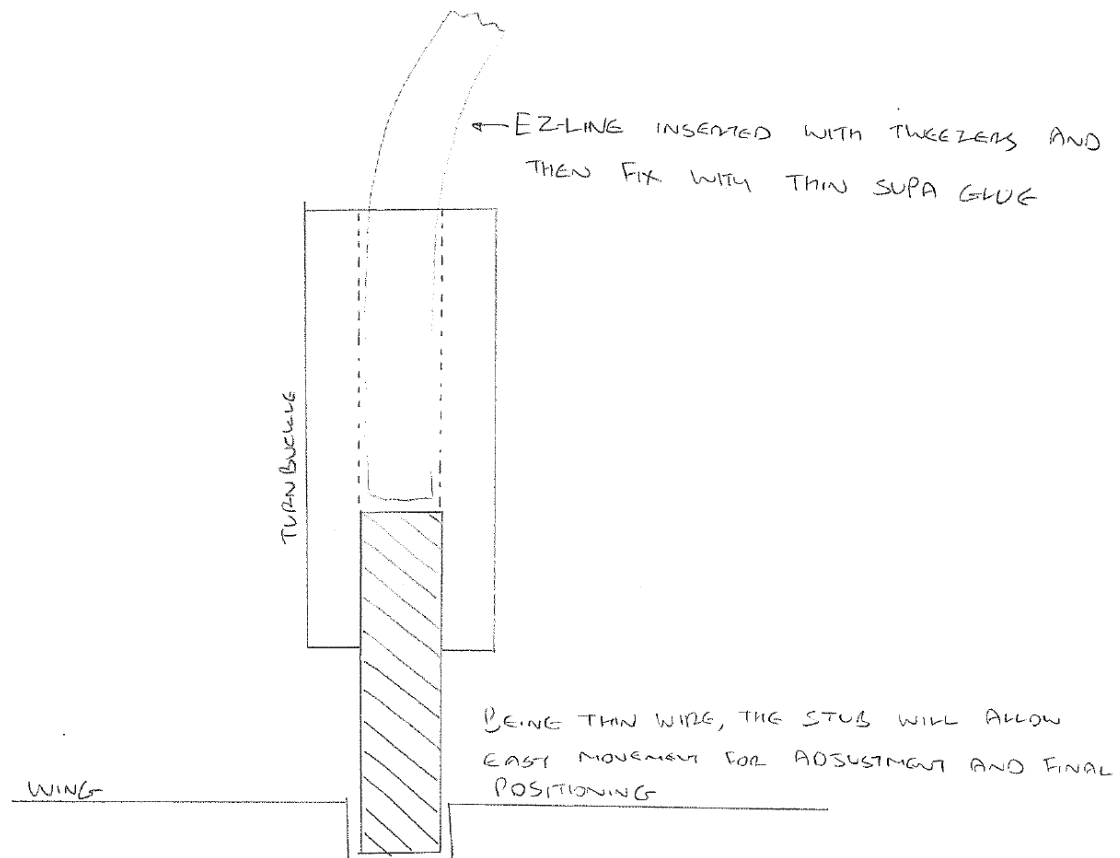
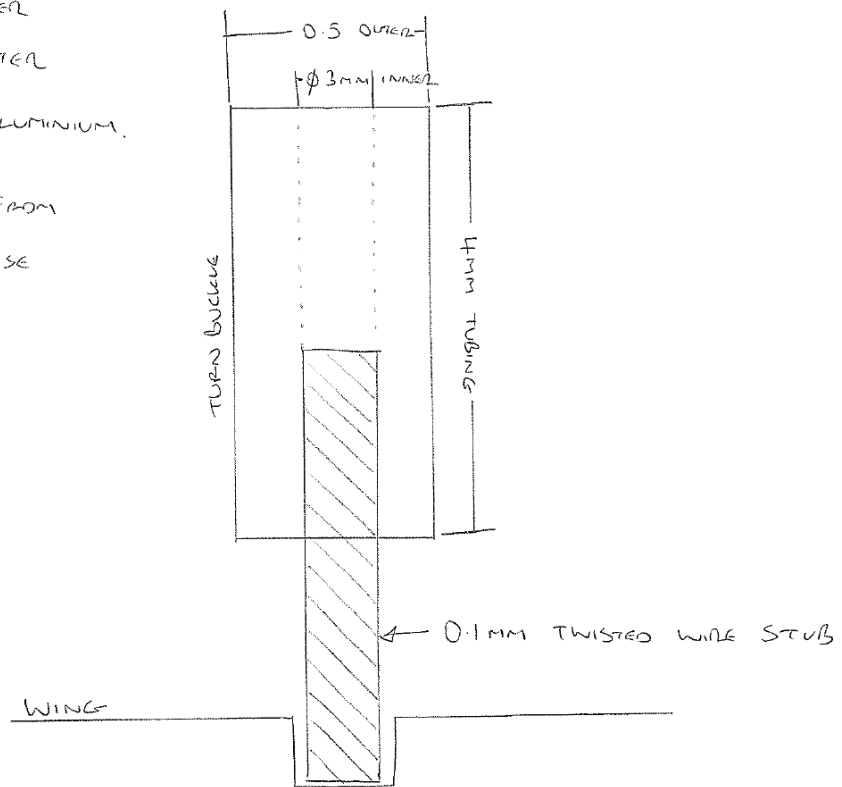
0.5MM OUTER DIAMETER

0.3MM INSIDE DIAMETER

CAN ALSO GET IN ALUMINIUM.

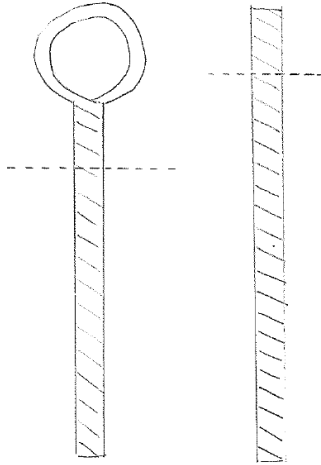
0.1MM WIRE TAKEN FROM

OLD COMPUTER MOUSE



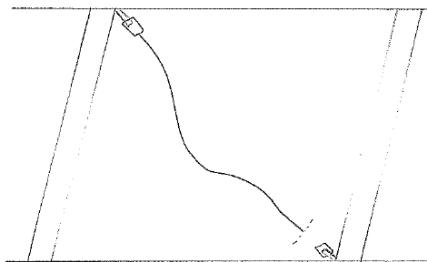
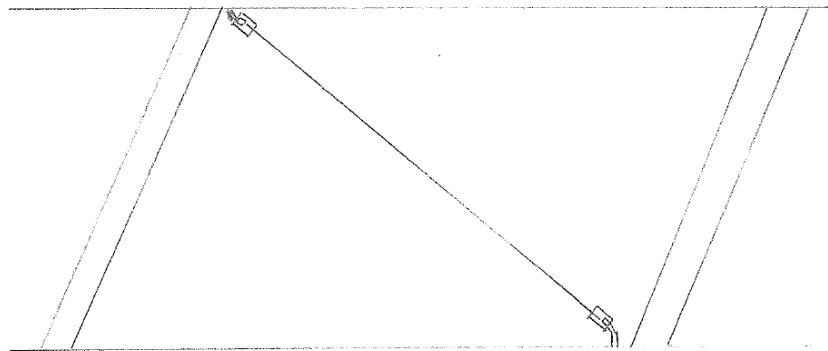
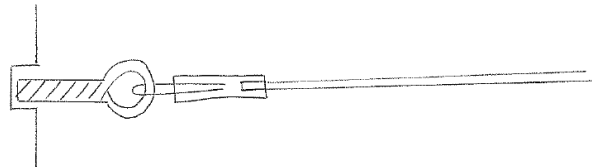


PIN VISE WITH FABRICATED HOOK

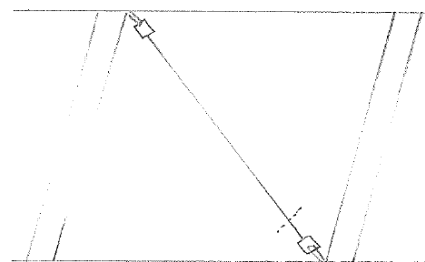


CUT OFF LOOP TO
ATTACH TO WING

TWISTED $\phi.1\text{MM}$ WIRE X 2
TO USE AS MOUNTING STUB



PULL EZ-LINE UNTIL THE POINT
BEFORE IT STRETCHES AND CUT
5MM BEFORE TURN BUCKLE



STRETCH EZ-LINE AND INSERT
INTO TUBE - ADD GLUE TO HOLD