Keiran Ryan MODELS

KRM 7mm 023 - 7mm Lower Quadrant 25 ft Tapered Timber Post Signal Kit

Design &

Instructions for Construction

By

Keiran Ryan

Introduction

Thank you for purchasing the KRM 7mm Lower Quadrant 25ft Tapered Timber Post Signal Kit.

Please read the instructions completely (3 times) so that you can get a better idea of how the kit goes together, before you start removing and fitting components. Yeah I know --- I hate reading instructions as well.

As the name suggests this kit makes up into a NSWGR 25ft tapered timber post signal, and is based on the drawings by Greg Edwards - producer of the Data Sheet Drawings (S5) NSWR – Standard Signals (Mechanically Worked c. 1922). The kit was based on these drawings and the modeller can modify the kit to suit individual detailed photos and/or plans that they may have.

The kit consists of 6 main parts groups

1. Etched Nickel Silver Parts.
2. Etched Nickel Silver Post.
3. Etched Nickel Silver Ladder Stiles.
4. Pewter Cast Parts.
5. Timber Landing Parts.
6. Wire and Tube.
7. Timber Base
8. Red & Blue Coloured Lens
9. Lace Pins

In the past this kit has included an LED and resistor, but these are not longer included. If you wish to illuminate the signal, you will need to supply a light source of your own choosing.

The kit has some very small parts included in it, and care needs to be taken with assembly.

Whilst painting suggestions are included with the kit, they are only suggestions and the use of photos to assist in the finishing of this kit is highly recommended.

The Model

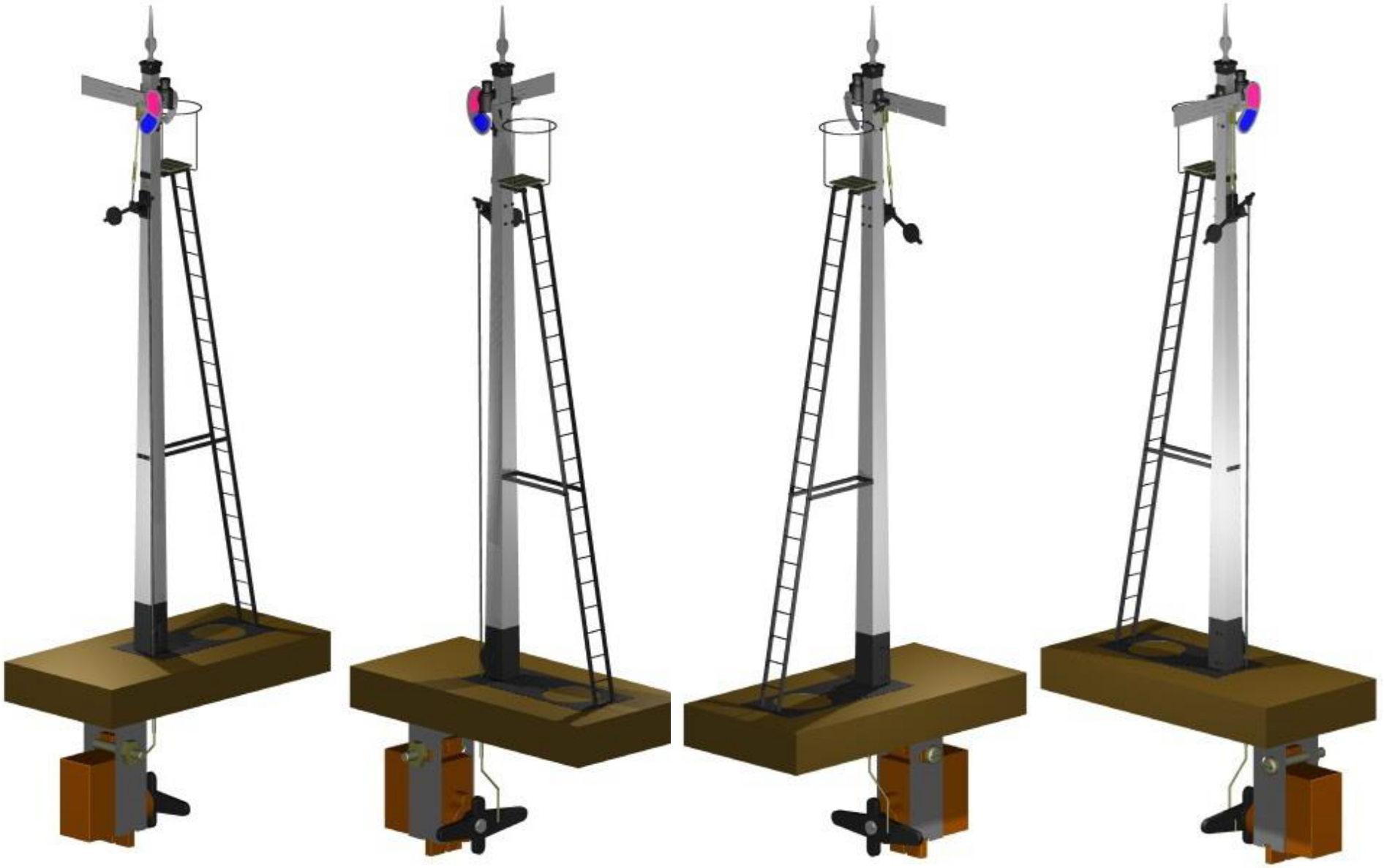
Lower Quadrant Signals of this type were common and readily found throughout NSW, but unfortunately have all but been removed from the system. So any reference material that you already have will come in handy for this kit (photos, drawings etc).

The kit will make up into an attractive working model, with lighting (light source not included).

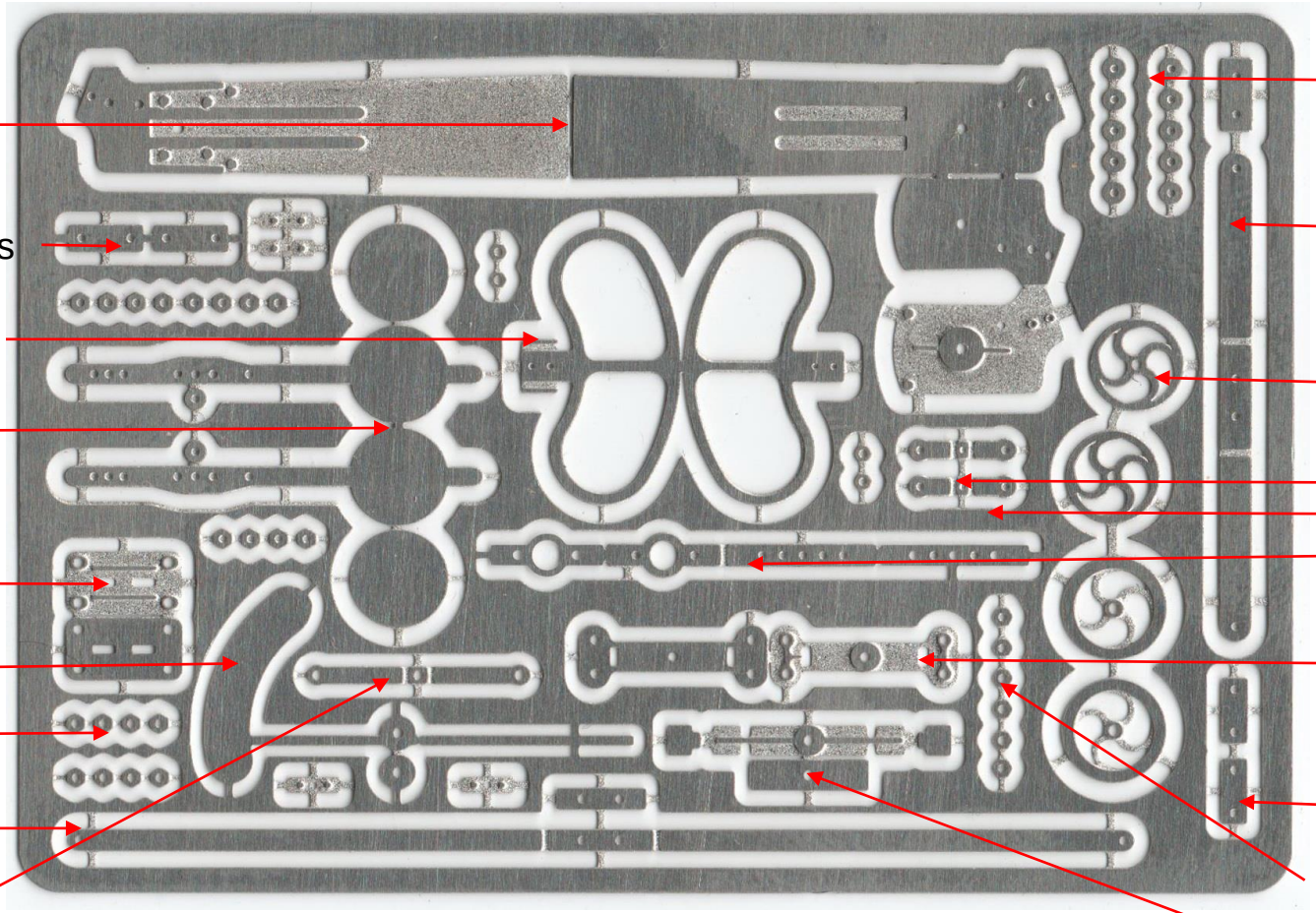
The powering of this kit will be a separate item and not included with the kit, although, suggestions will be included with this kit.

Ideas for operating the kit, are included, using the ANE servo motors with control panel.

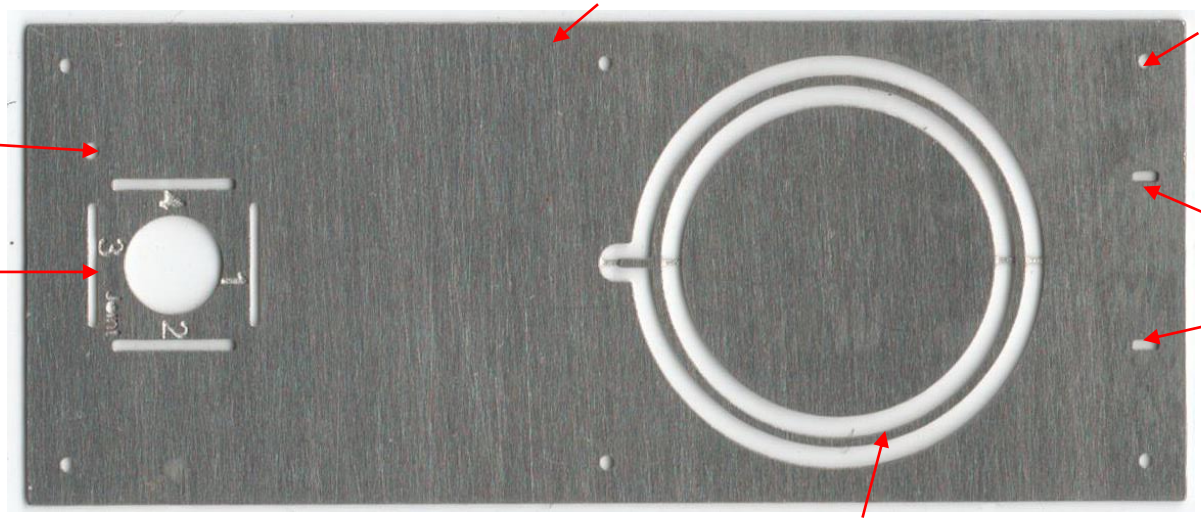
The Outcome



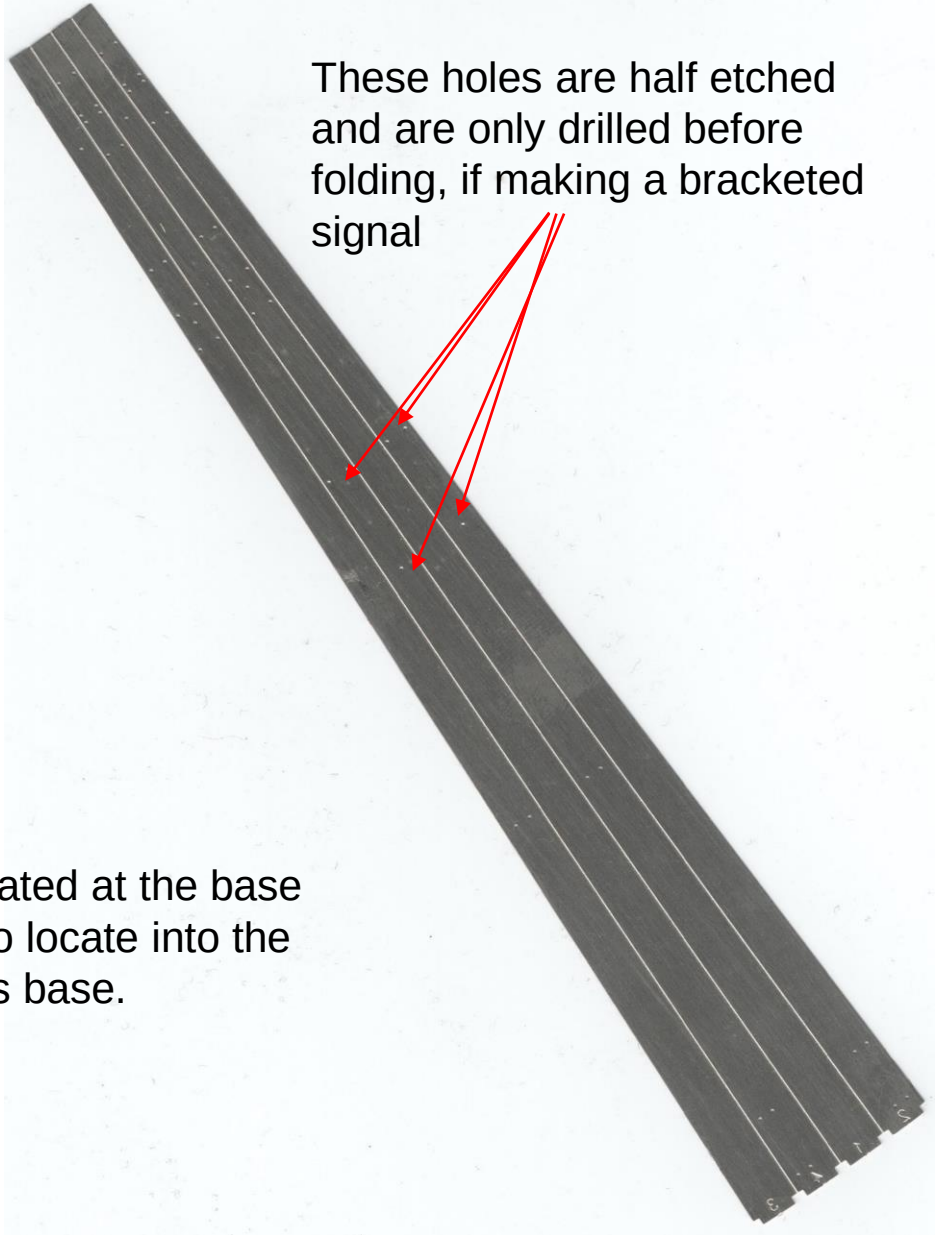
Etched Nickel Silver Parts Identification 1



Etched Nickel Silver Parts Identification 2



Etched Nickel Silver Parts Identification 3



The signal post is an 0.3mm Nickel Silver etch with fold lines.

These fold lines allow the post to fold up into a tapered square post.

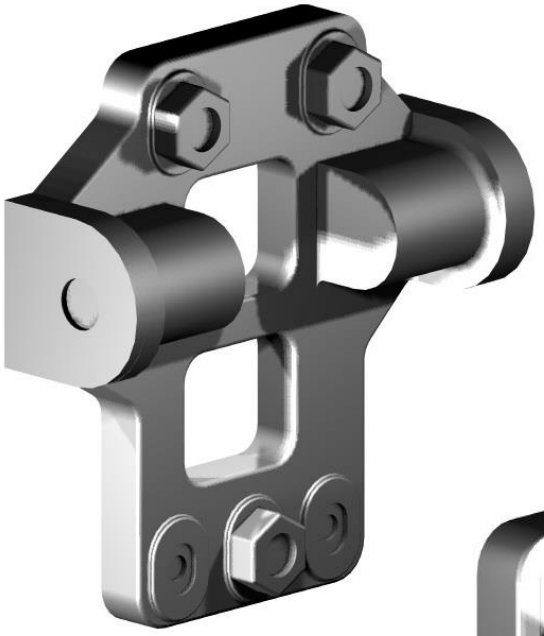
The etch has holes etched into to assist in locating components to the post, these may need drilling, to open up to the correct size.

Tabs are located at the base of the post to locate into the etched brass base.

Cast Parts List

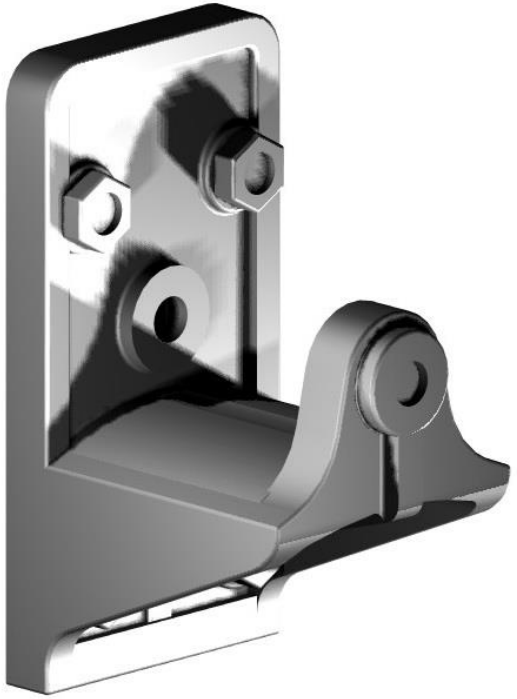
Finial

Signal Lamp



Bearing Bracket

Lever Face Plate



Accessories Parts List

Parts included in the kit:

- 0.3mm Brass Wire 1 x 250mm.
- 0.4mm Brass Wire 2 x 250mm
- 0.5mm Brass Wire 1 x 250mm.
- 0.6mm Brass Wire 2 x 250mm
- 1.00 Brass Tube 1 x 70mm.
- Timber Landing Parts.
- Red & Blue Colour Lenses.
- 6 Lace Pins.
- Timber Base.
- 0.8mm Golden White LED with 6 inch leads.
- Comprehensive Instructions on 8 Gig Mem Stick.

Health Warning

When working with the following materials, please follow some standard common sense precautions and procedures.

Remember you only have one set of eyes, and as a modeller, once they are damaged, they cannot be easily fixed.

Solder, Solder Flux, Superglue, Paints

Safe handling

Wear safety glasses.

Work in a well-ventilated area.

Avoid repeated or long-lasting exposure.

Be aware of hot soldering iron tips.

Have a short break every 2 hours

Emergency

Eye contact: Immediately flush the eye with water. If irritation persists, call for medical help.
Skin contact: Wash off with soap and water.
If swallowed: Call for medical help.

Protective equipment

Safety glasses.

Construction Hints & Tips

- There are some small components on the etched fret and care needs to be taken when handling these parts
- Please work safely, as injuries can occur when using sharp instruments and tools, also be careful of sharp edges on the etch.
- Pre-drill all holes in the brass fret before removing the parts from the fret. *(Refer to the etch drilling guides)*
- Use a sharp, snap off blade knife to remove the components from the fret, and only do so on a hard surface, so as not to distort the etched components.
- The signal post Nickel Silver etch needs to be drilled out using a 0.4mm drill. Drill from the side with numbers and the fold lines.
- Do not drill the holes indicated on the post etch, that are only used to support a bracket on the Bracket Signal Kit.
- There is a small amount of work required to be done on the pewter parts to fit them to the signal post, and this will be detailed later in the instructions.
- Lighting for the signal is not supplied, with the kit and the owner using whatever option they would like.
- This kit does not include any equipment to automate the signal, although some ideas and suggestions will be included.
- Instructions show a diagram of how to fit an ANE servo to the signal, if you need to do so. (my recommendation)

Tools required

- Stainless Steel Scissors
- Tweezers or other small non marring clamping device.(pegs)
- Metric Drills & Pin Vices
- Small & Large Files
- Rail and wire cutters
- Soldering Iron
- Hold & Fold Tool – Large- (8 inch)
- Solder & Flux or Solder Paint
- Snap-off Cutting Blade
- Fine Wet & Dry Paper
- Burnishing Brush (Be very Careful)
- Superglue.
- Cutting Board.
- White Glue

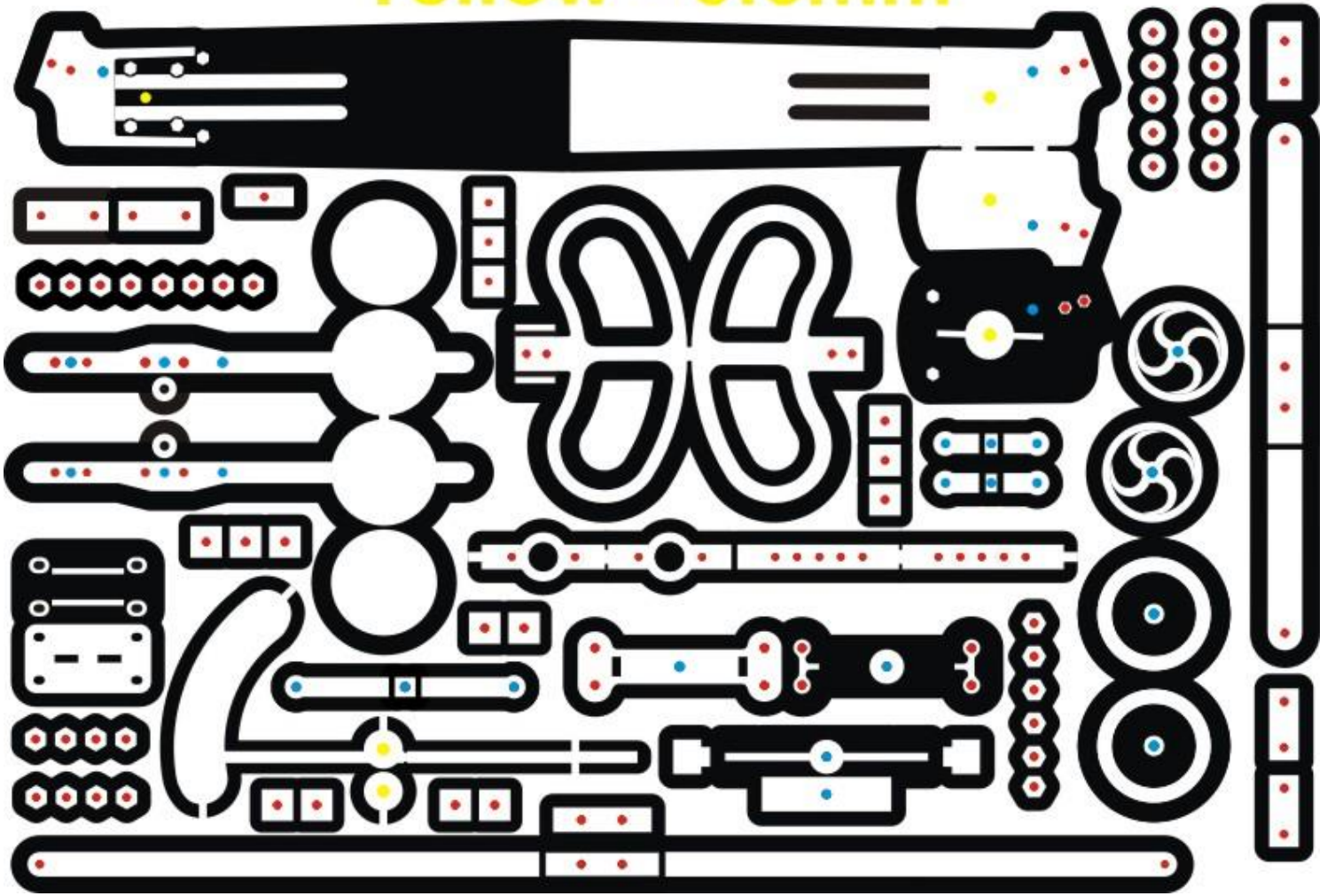
Hints and Tips

- For a good source of number drills, try http://www.krmodels.com.au/wire_drills.html
- Etched nuts and washers are used to secure some components in this kit, however, if you would like use small nuts and bolts, unfortunately, they are no longer available, however, Keiran Ryan Models also has a limited number of these components as well.
- Try to keep the signal post as straight as possible in the folding process.
- Clean up any soldered components with warm soapy water when they are finished.
- When soldering components that need to move freely, place a small amount of graphite powder on the part that needs to be free, so that the solder will not stick to it.
- When building the ladder, make sure that the ladder is square and is not soldered to the ladder forming jig. (Funny how that would stuff up the ladder & the jig)
- To maximize the use of small number drills (minimize breakage), take your time, have the drill as short as possible in the pin vice, use as little pressure as necessary, and keep the pin vise square to the job…….. And PS. pray
- When drilling into pewter (white metal) place the drill bit into soap first, then drill the hole, and don't drill too much at one go, just take small amounts regularly.
- If an etch has a raised section and requires laminating, remember that the raised section must go to the outside or top. (example being the pulley base)

Etched Brass Drilling Indicator - 1

Red - 0.4mm Blue - 0.5mm

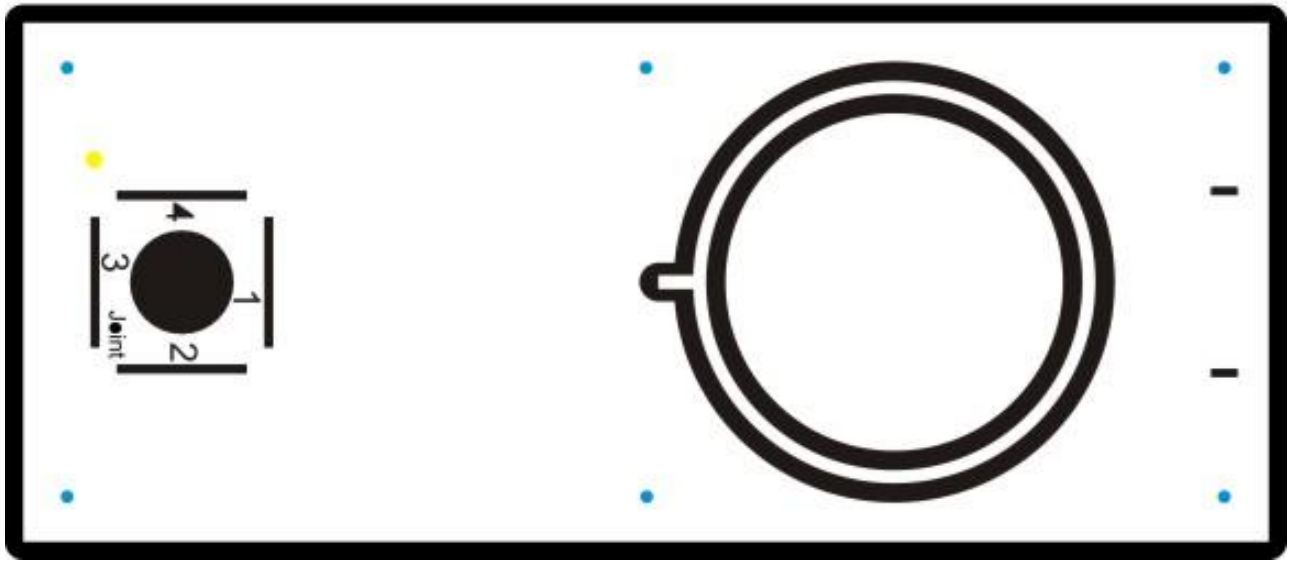
Yellow - 0.6mm



Etched Brass Drilling Indicator - 2

Yellow - 0.6mm

Blue - 0.5mm



Let's Get Ready To Model

Have you read the instructions 3 times like I suggested If not continue reading --- don't cheat now. After all I really do want you to understand the construction methods, and achieve a great result. ------ You didn't read them , did you? Go on admit it, just admit it, you didn't , come on, go back and read em

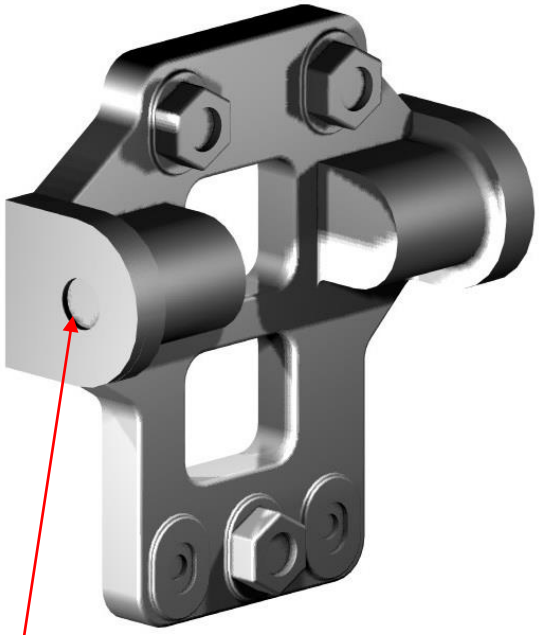
Happy Modelling ---Keiran

Construction Sequence and Ideas

- The order for assembly can be done in a number of different ways, the order shown is only a suggestion, and you may have a better order.
- The following slides show how the components are dealt with.
- Painting of any components can be done as they are finished and touched up when finally located.
- The signal lamp and brackets, and signal arm may require slight adjustment to enable the lamp to sit in the middle of the spectacle plate.
- Feedback from modellers would be appreciated, and would be used to improve the instructions, therefore helping to make the construction of this kit a better experience.

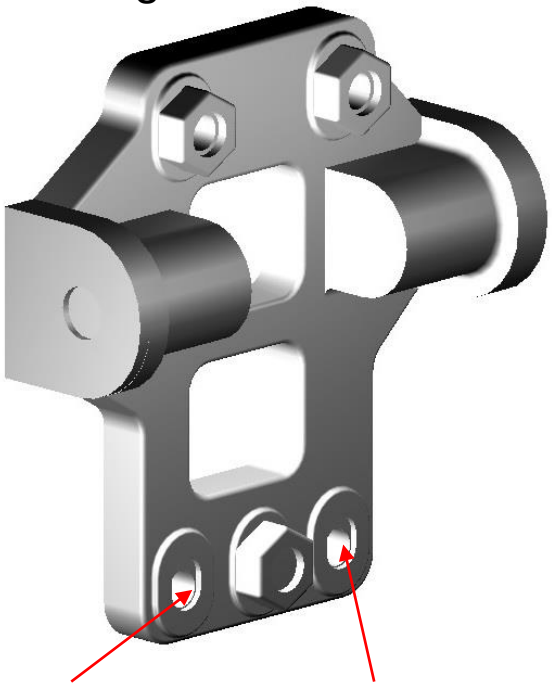
Bearing Bracket

In the past I have suggested that the cast nuts be removed, but Scale Hardware components are no longer available.

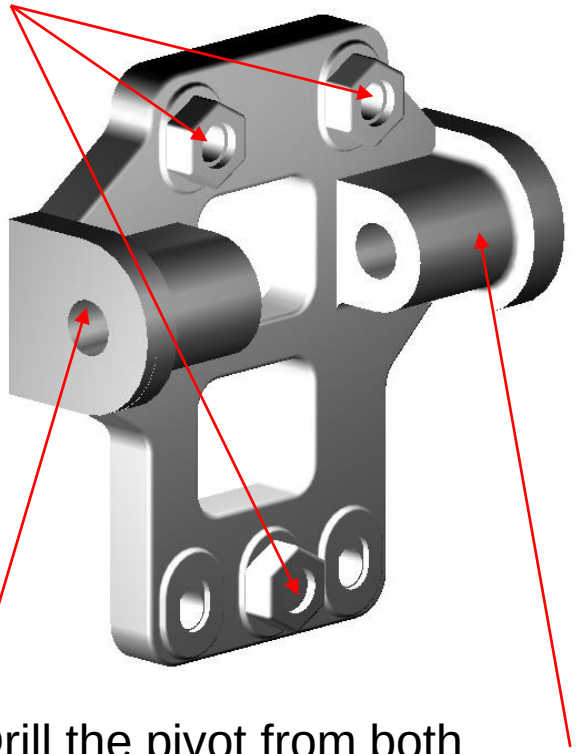


This casting is located at the top of the signal post.

The signal arm and the and the back spectacle pivot on the this plate, through this hole



Drill the bottom 2 holes using a 0.4mm drill. The other 2 holes at the top can be drilled by locating the casting on the post, and drilling through the signal post from the back.

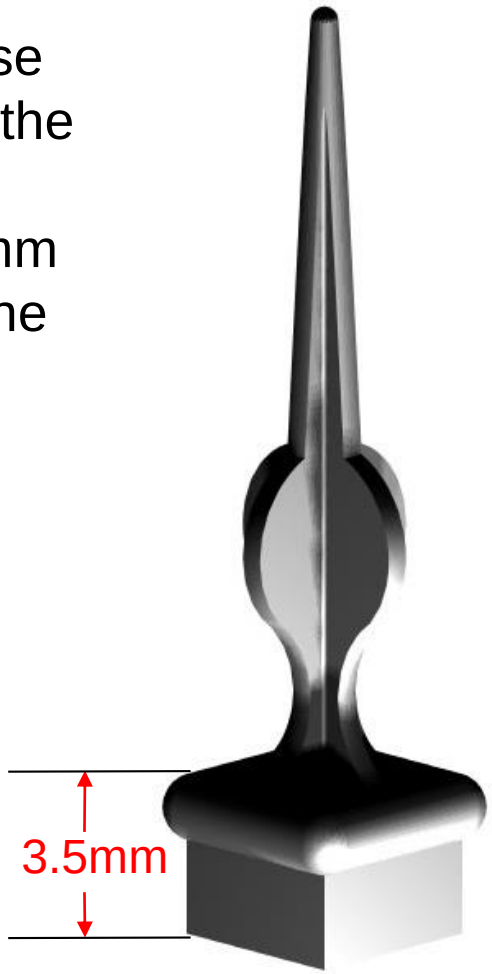


Drill the pivot from both sides using a 0.5mm drill. Ensure that the drill is square to the side. It can be opened up to 0.6mm to provide a bigger bearing area.

Finial

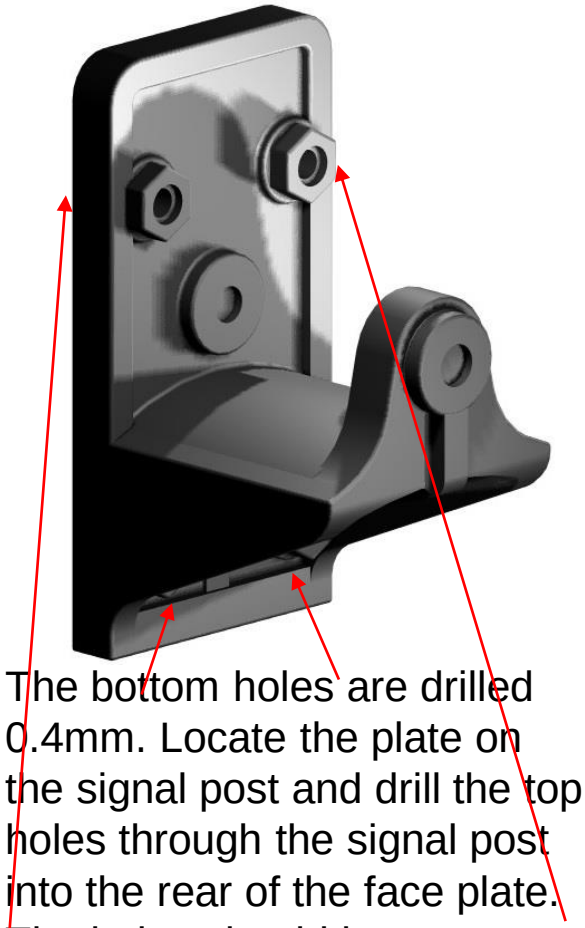
The finial has been cast with a base that is deeper than necessary. So the base needs to be trimmed by sanding or filing to a depth of 3.5mm from the top of the base piece to the lowest point.

Ensure that the inside of the base (yes it is hollow) is cleaned up so that it will fit over the top of the signal post, after the signal post has been modified as per the signal post instructions.

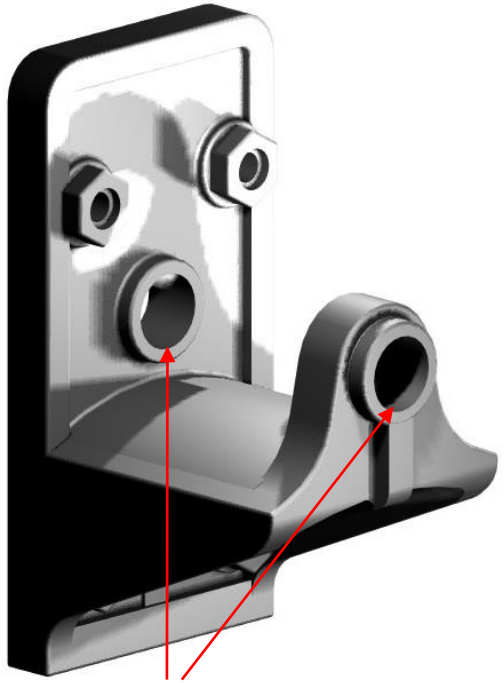


Lever Face Plate - 1

The lever face plate is bolted through the signal post and has the face lever and counter weight pivoting through the centre. The rod from the signal box is connected to the face lever, which in turn is connected to the signal arm.



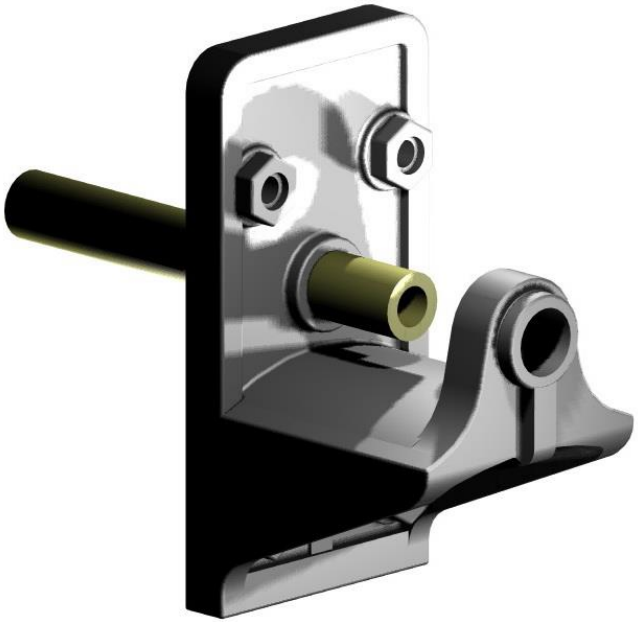
The bottom holes are drilled 0.4mm. Locate the plate on the signal post and drill the top holes through the signal post into the rear of the face plate. The holes should be accurately located, but by coming through the post the plate should end up sitting square on the post.



Drill the centre pivot 1 mm. Start by drilling a 0.5mm hole and open the hole up to 1mm. Ensure that the hole is drilled squarely to the plate.

2 lengths of 1mm brass tube will be located into the drilled hole as per the diagram in the next page.

Lever Face Plate - 2



Locate a 6mm length of 1mm brass tube into the centre of the plate. Ensure that the front face is clean and square. The face lever and counter weight are located in the middle of the gap. The tube at the rear of the plate should be located in but not through the post, drill a 1 mm hole into the front of the post.

Locate a 2mm length (longer and remove the excess) of 1mm brass tube into the centre of the boss at the front of the plate, make sure that the face of the tube is clean and square. The gap left should be approx 0.6mm to locate the Face lever and counterweight. The wire pivot should be 0.5mm. The tighter the better (within reason). It is your choice. You can use the assembled counter balance to help locate the tubes.

Signal Lamp -1

The signal lamp as supplied, it has a dimple in the centre of the lens to allow starting of a drill for drilling out the centre for an LED (not supplied)

The spigot at the base of the lamp needs to be reduced to a diameter of 1.5mm.
The length of the spigot is shortened later, when it is attached to the lamp bracket.

Using a 0.5mm drill, drill out the centre of the lens about ¾ of the way through. Keep increasing the drill size until a 2mm hole is present. Drill a 1 to 1.5mm hole in the side for the wires for an LED (not supplied)

Signal Lamp -2

Gwydir Valley Models, can supply LEDS on long leads, that will work in this kit. The leads can be unraveled and the short lead connected to the signal body. The longer wire can be placed into a plastic tube so that they remain insulated. Place a 1kohm resister on the long lead. (12 volts)

The leads should go into the post through a 1.5mm to 2mm hole drilled just above the lamp bracket and at a 30 degree angle. *Any wires or bolts holding components onto the post should be at a minimum length, so that they do not impede the tube with the wire in it*.

Fit an 0.8mm Golden White LED to the lamp. Feed the wires through the 1mm holes in the side of then lamp. Use a clear adhesive to hold the LED in place (supa glue or araldite), and to also keep the leads from shorting against the lamp.

To finish the lamp a lens needs to be made from a clear plastic material, or a clear glue the leaves a curved lens in place. Ensure that the LED is operational before sealing the lamp, or make the lens a push fit. (The side hole can be opened up larger if necessary.)

Constructing the Signal Post

- The original signal post was to be 0.6mm timber, but it was difficult to remove the natural twist that developed, so it was decided to remanufacture the post as a folded N/S etch.

- Open up the holes in the signal post to 0.4mm. Drill from the fold line side to ensure that all holes are opened up. *Do not drill the holes marked in the drawing for the bracket*

- The Nickel Silver etched signal post needs to be folded into a square post. To assist in construction, scribing the fold lines with 3 or 4 light strokes will allow the sides to fold easier. Stop when a pronounced raised line starts forming on the outside of the etch. *(The post folds with the fold lines to the inside - numbers on the inside)*

- To fold the signal post it is suggested that you use a large (8”) hold and fold, etch folding jig. If one of these is not available, the use of 2 long steel rulers and a couple of clamps will also do the job.

- When folding the sides, ensure that the fold occurs on the fold line, if the fold line is not exposed the fold will crack and make the construction of the post very difficult.

- The edge of sides 2 and 3 have been etched so that they fit together neatly.

- The last side to be folded will not be able to be folded to 90 degrees, in the hold and fold, but will need to be worked so that the post is square and clamped together gently, ready to solder the joint.

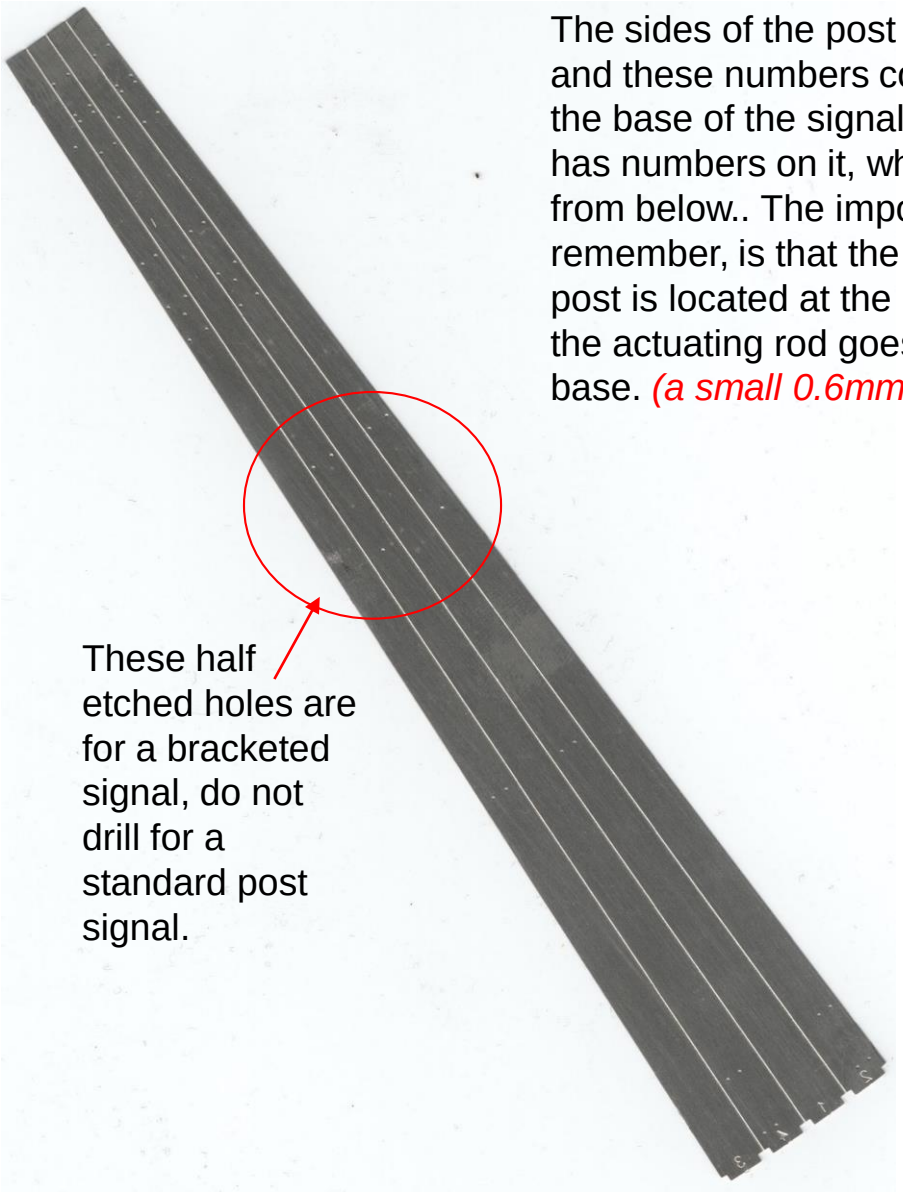
- When soldering the post, start from the base and work up , ensure that the joint is neatly closed before soldering, clean excess solder off the post, wash in warm soapy water and place aside to dry.

Signal Post Step - 1

Note the numbers on the signal post at the base, these indicate the side of the post, and are important when components are to be located on the post.

There are 44 x 0.4mm holes to open up, so have a supply of 0.4mm drills available. *(the holes will drill through very easily, so just be careful when drilling).*

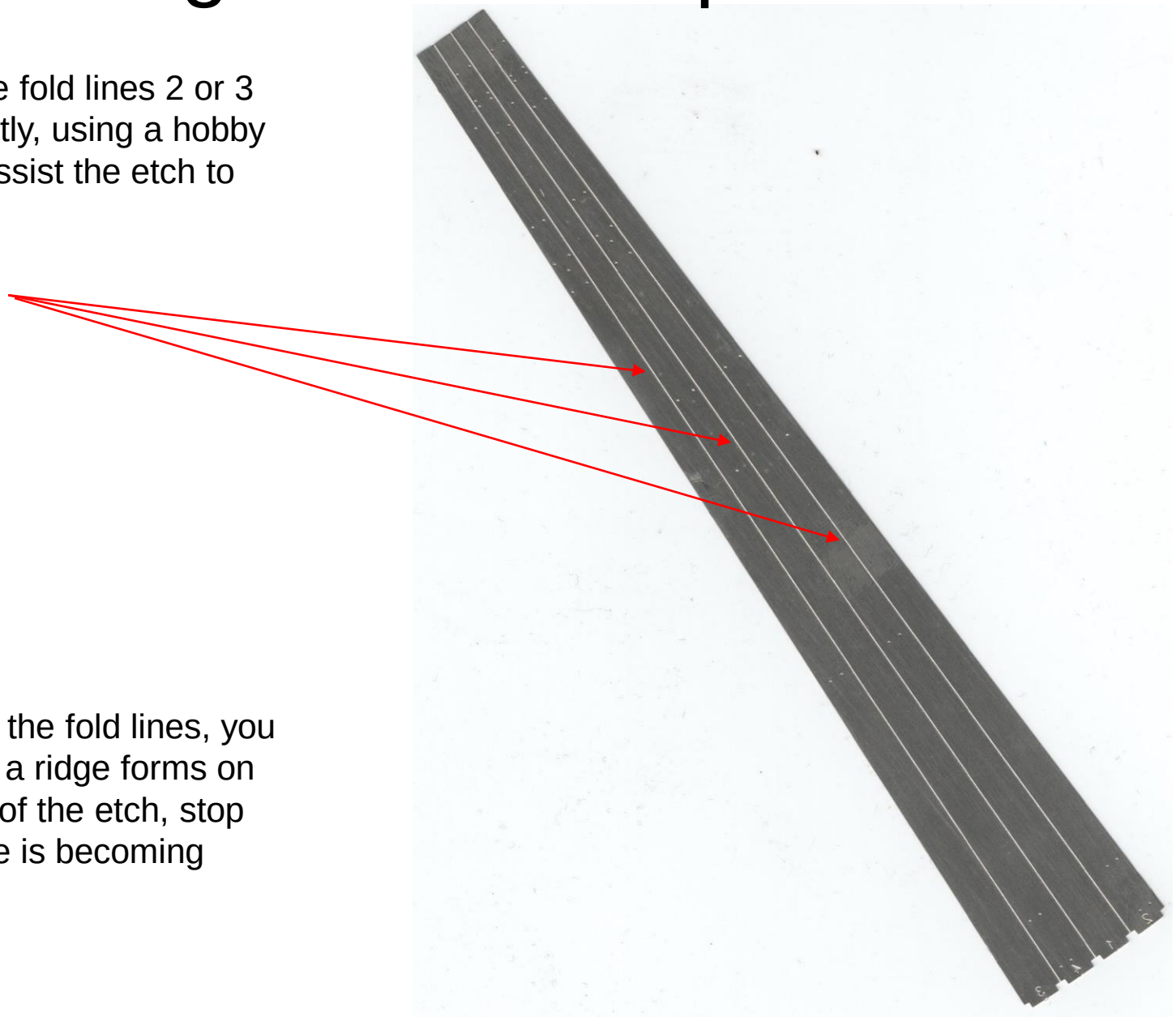
The folding of the post is very important, and if done incorrectly, the etch can be easily damaged. The use if an 8" "Hold n Fold" is the best way to fold the post sides. Pre scribing the fold lines with a hobby knife (2 or 3 light strokes), so that an obvious line appears on the other side of the etch, will also assist in the folding process. Ensure that the fold line is exposed when folding, otherwise the fold line will crack.



The sides of the post are numbered, and these numbers correspond to the base of the signal. The base has numbers on it, which are read from below.. The important part to remember, is that the joint of the post is located at the position where the actuating rod goes through the base. *(a small 0.6mm hole).*

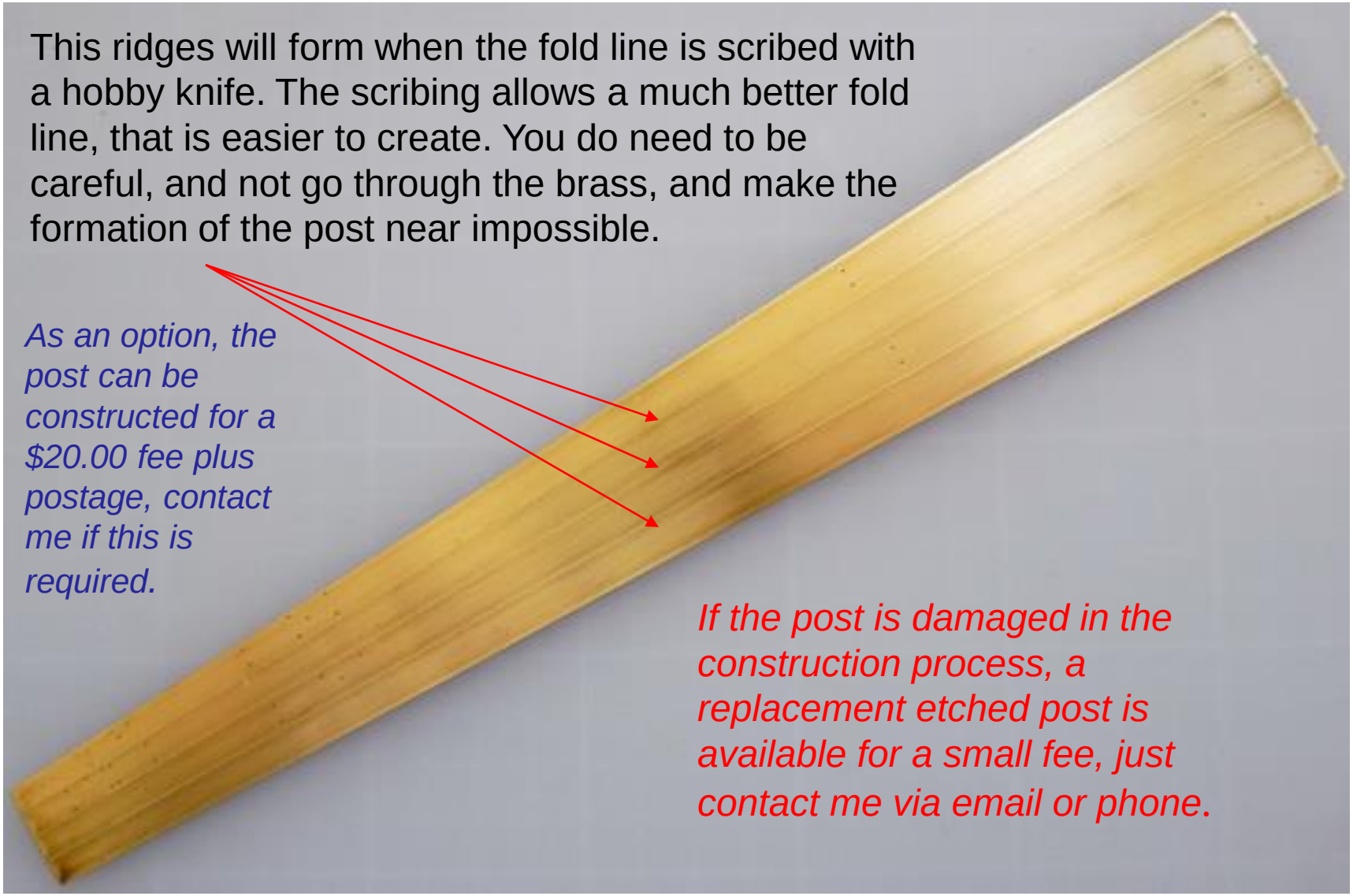
Signal Post Step - 2

Scribe the fold lines 2 or 3 times lightly, using a hobby knife to assist the etch to fold.

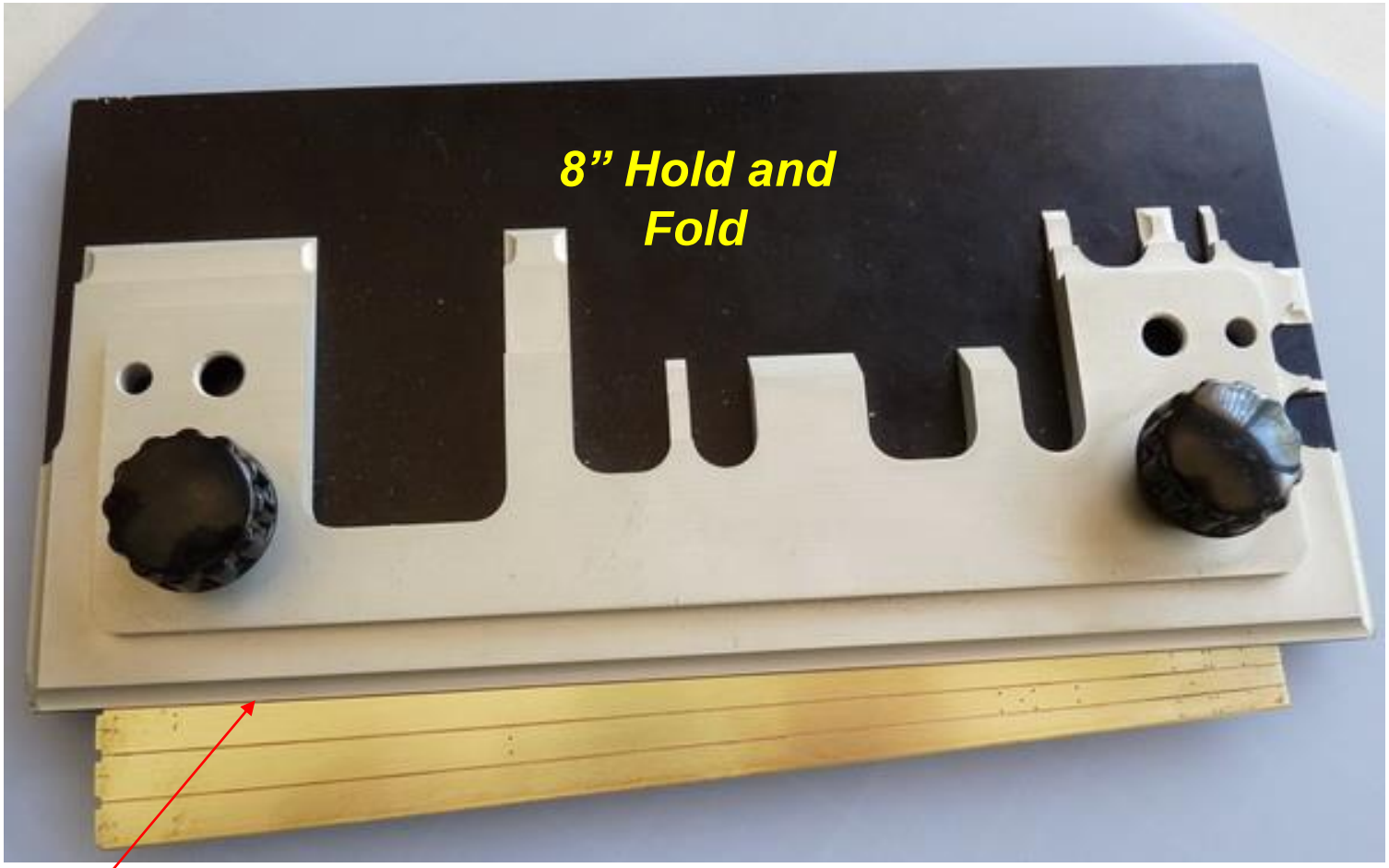


When scribing the fold lines, you will notice that a ridge forms on the other side of the etch, stop when this ridge is becoming pronounced.

Signal Post Step - 3

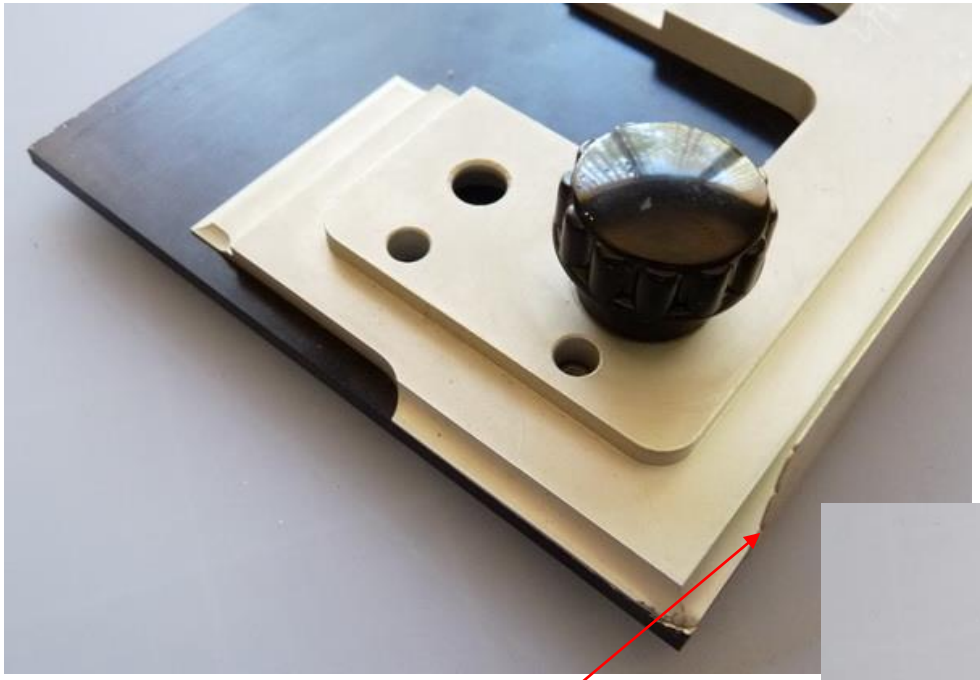


Signal Post Step - 4

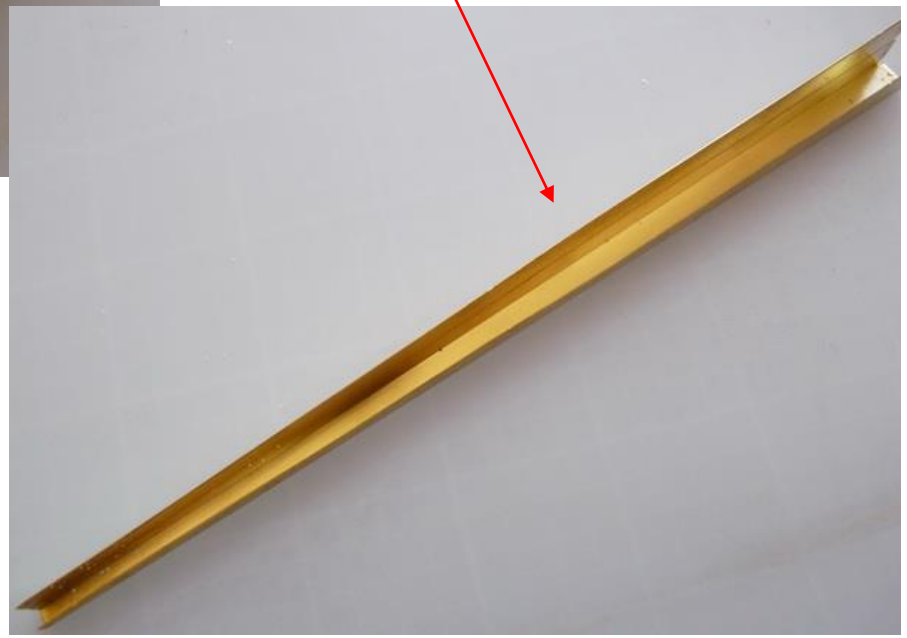


The fold line needs to be exposed approximately ½ to ¾ of the line. If the fold line is not exposed the etch will crack, and will be in need of repair. You can fold the etch just a tad past 90 degrees and allow it to spring back.

Signal Post Step - 5

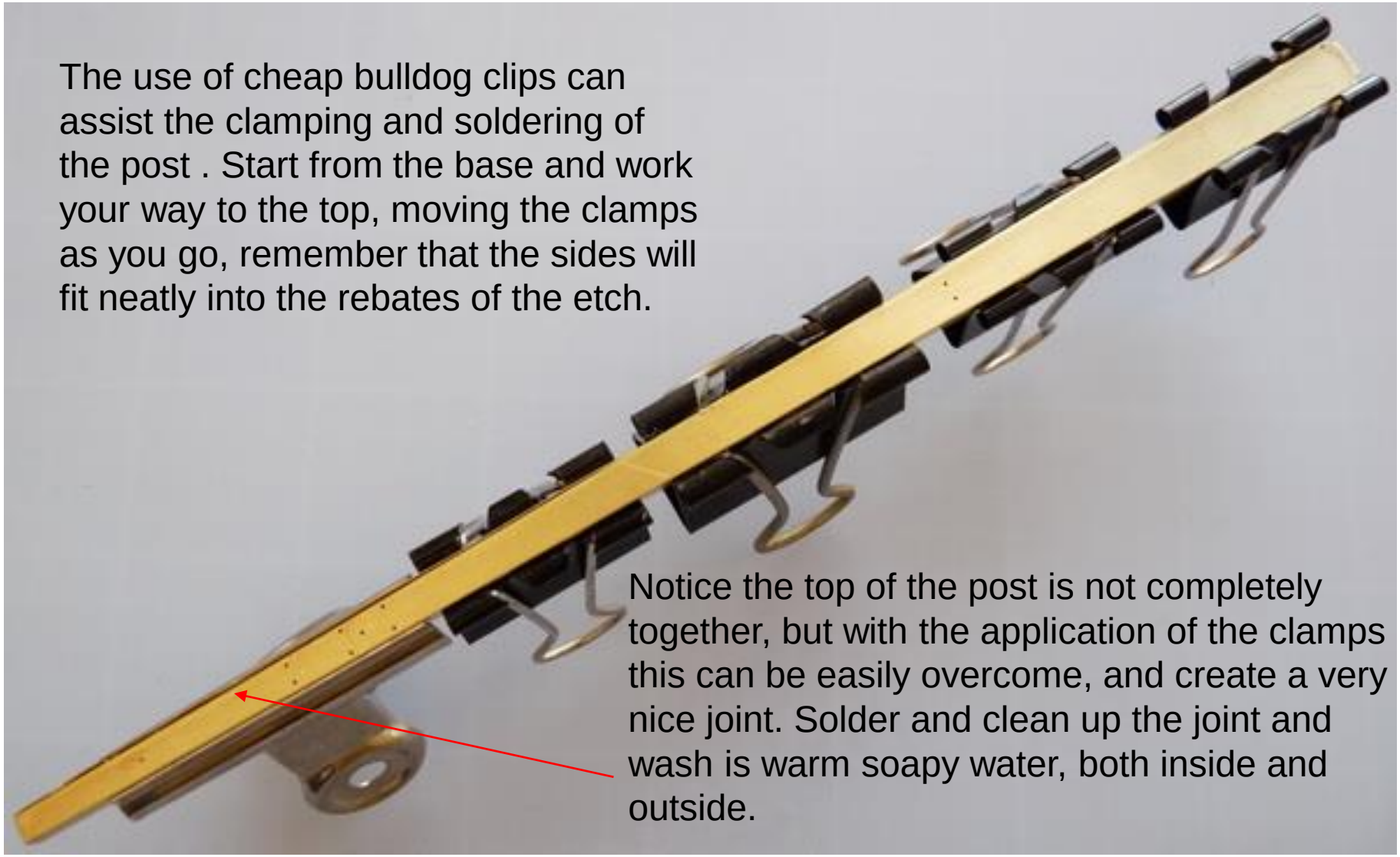


The signal post folded on 3 sides.



Allow the fold to go just over 90 degrees, and spring back.

Signal Post Step - 6



The use of cheap bulldog clips can assist the clamping and soldering of the post . Start from the base and work your way to the top, moving the clamps as you go, remember that the sides will fit neatly into the rebates of the etch.

Notice the top of the post is not completely together, but with the application of the clamps this can be easily overcome, and create a very nice joint. Solder and clean up the joint and wash is warm soapy water, both inside and outside.

Signal Post Step - 7

When the signal post is cleaned up with the solder removed.

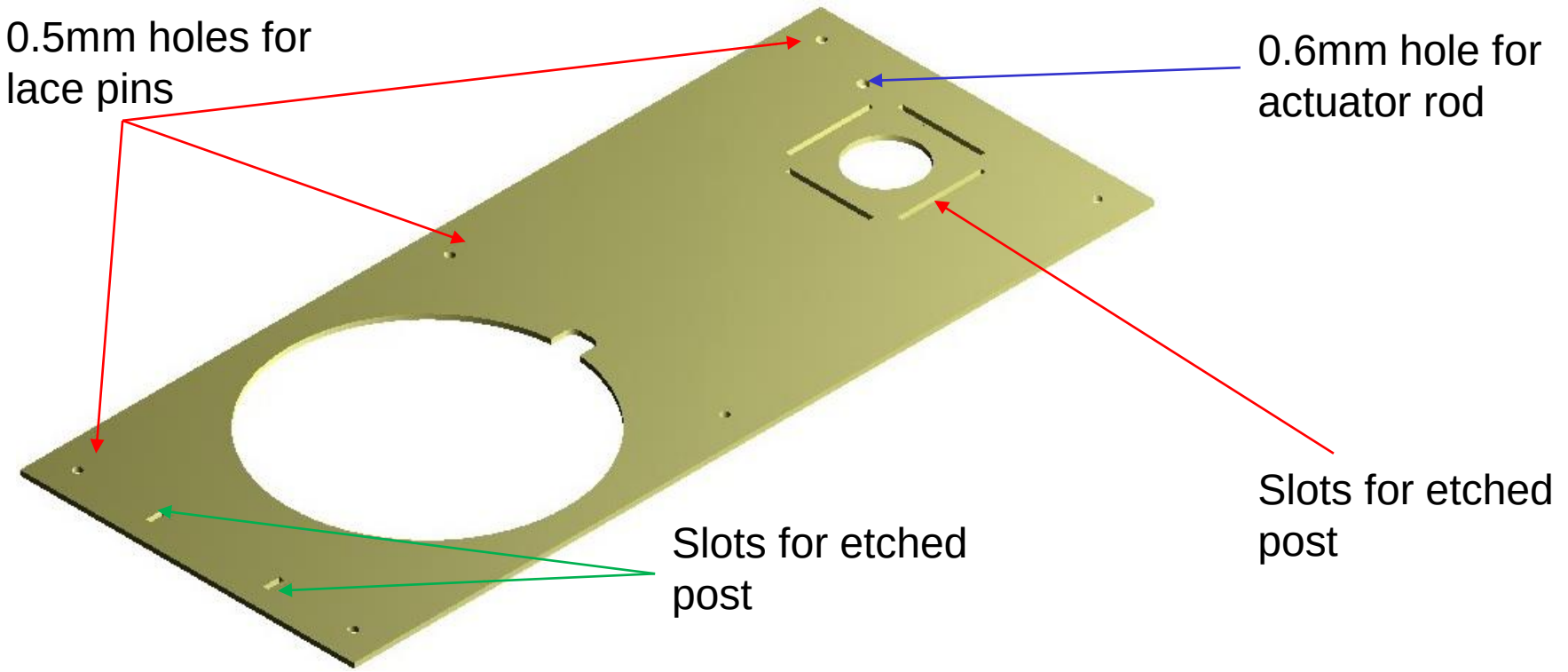
The top of the post needs to be filed to allow the finial to fit neatly in place. Just remove enough material so that the finial fits cleanly with out interference.

Test fit the signal post into the base plate. Trial fit the post until it fits comfortably into the slots.

Soldering the post to the base comes later, for now just trial fitting will be OK.

Signal Base

The signal base is an etch Nickel Silber part, which also has the safety ring, which when removed from the fret leaves a hole in the base. This is not a problem and scenery material will eventually cover the base. The base has slots etched into it to house the feet of the signal ladder and the base of the signal post. There are also 6 x 0.5mm holes that can be used to pin the base down to a timber sub-base. Use the base to assist in drilling the timber base.



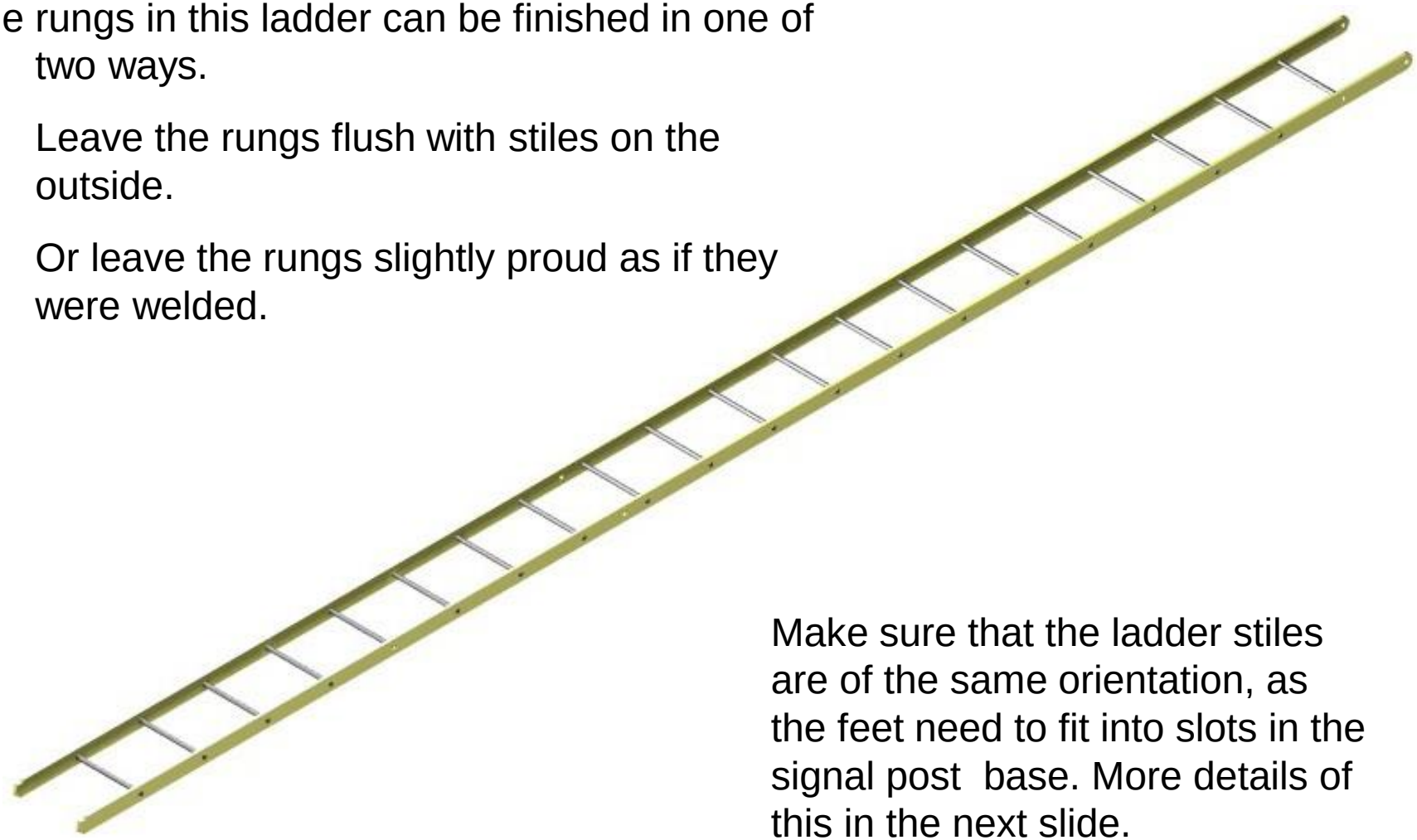
Signal Ladder

- The signal ladder is constructed using the ladder stiles provided in the kit.
- The rung size is up to the individual, and 0.55 mm lace pins can be used but are slightly larger than what would normally be used, as they work out to be a 7/8”rung. I would suggest 0.4 mm which is closer to a 5/8” rung
- Drill out the stiles 0.4 mm. (should be close to that anyway) Cut 11mm lengths of 0.4 mm wire (19 required plus losses) in preparation to using them as rungs.
- To build a nice straight ladder, it is recommended that the KRM 7mm Ladder Forming Jig is used. This is available at http://www.krmodels.com.au/krm_7mm_011.pdf
- The instructions for using this jig is available on the above web site in PDF format, and can be downloaded and printed.
- The ladder size is 12” and the stiles need to be located in the jig at the 0 and the 12” slot *using the shallow slots.*
- Follow the instructions on the jig page whilst keeping in mind that the top holes and the mid holes between the rungs should be left vacant.
- The ladder stiles also need to be located in the same orientation. The ladder stiles are directional at the base, and please ensure that they are the same .
- When the stiles are located, use thin strips of masking tape to locate them in place, whilst soldering takes place.

Signal Ladder - 1

The rungs in this ladder can be finished in one of two ways.

1. Leave the rungs flush with stiles on the outside.
2. Or leave the rungs slightly proud as if they were welded.

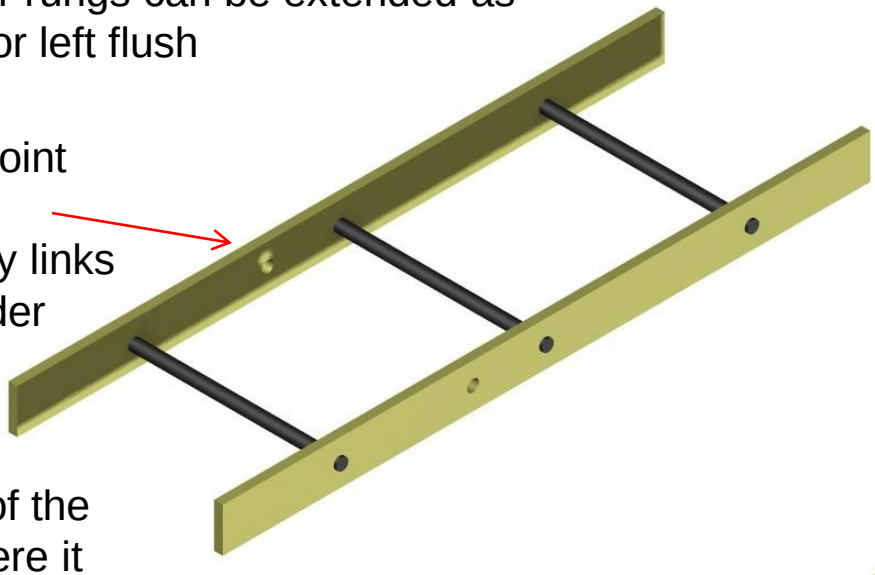


Make sure that the ladder stiles are of the same orientation, as the feet need to fit into slots in the signal post base. More details of this in the next slide.

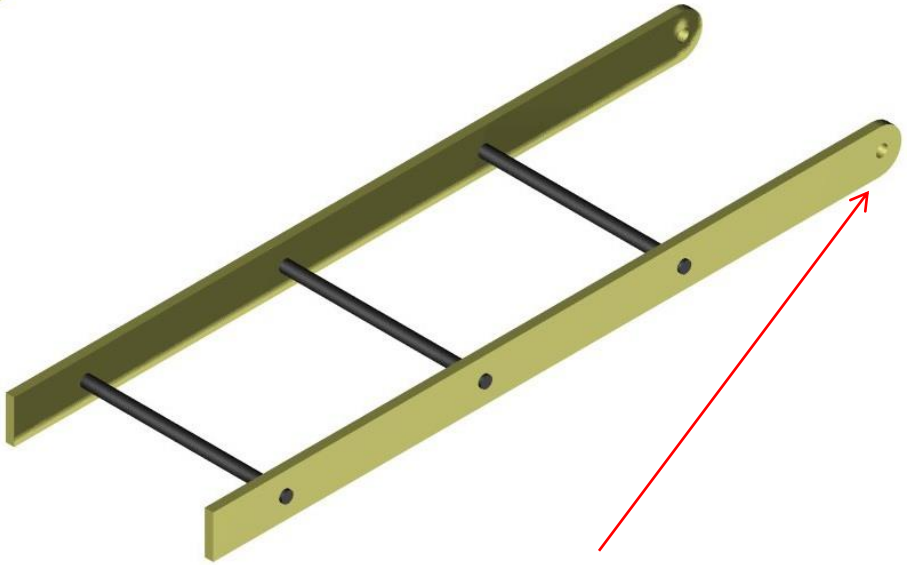
Signal Ladder - 2

The ladder rungs can be extended as if welded or left flush

The mid point where the ladder stay links to the ladder



Top of the ladder where the ladder safety rail and landing bracket are attached.



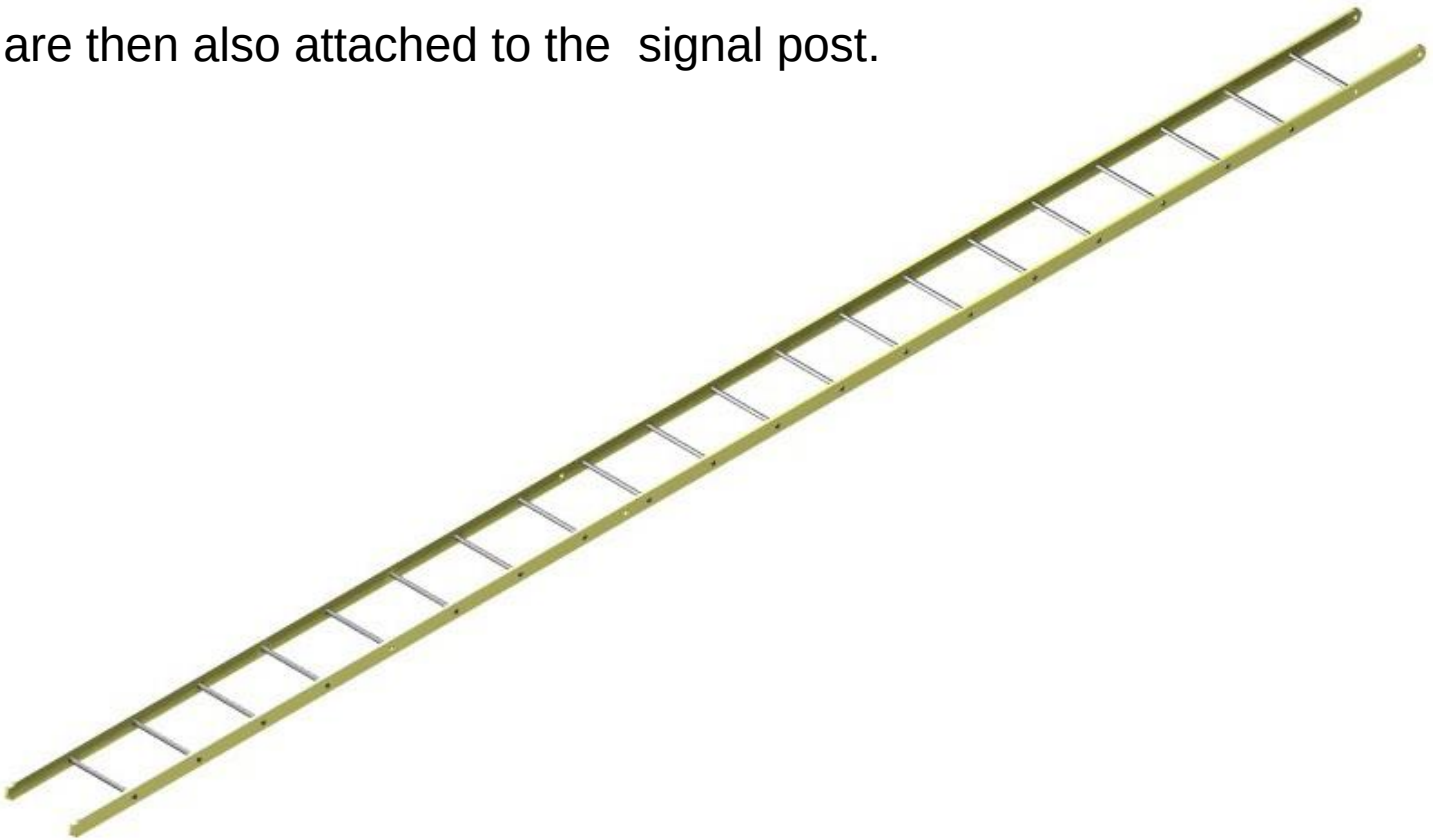
The base of the ladder, where it fits into the base. Note the feet need to be in the same plane

The holes in the top and mid point of the ladder should be left empty when the rungs are fitted.

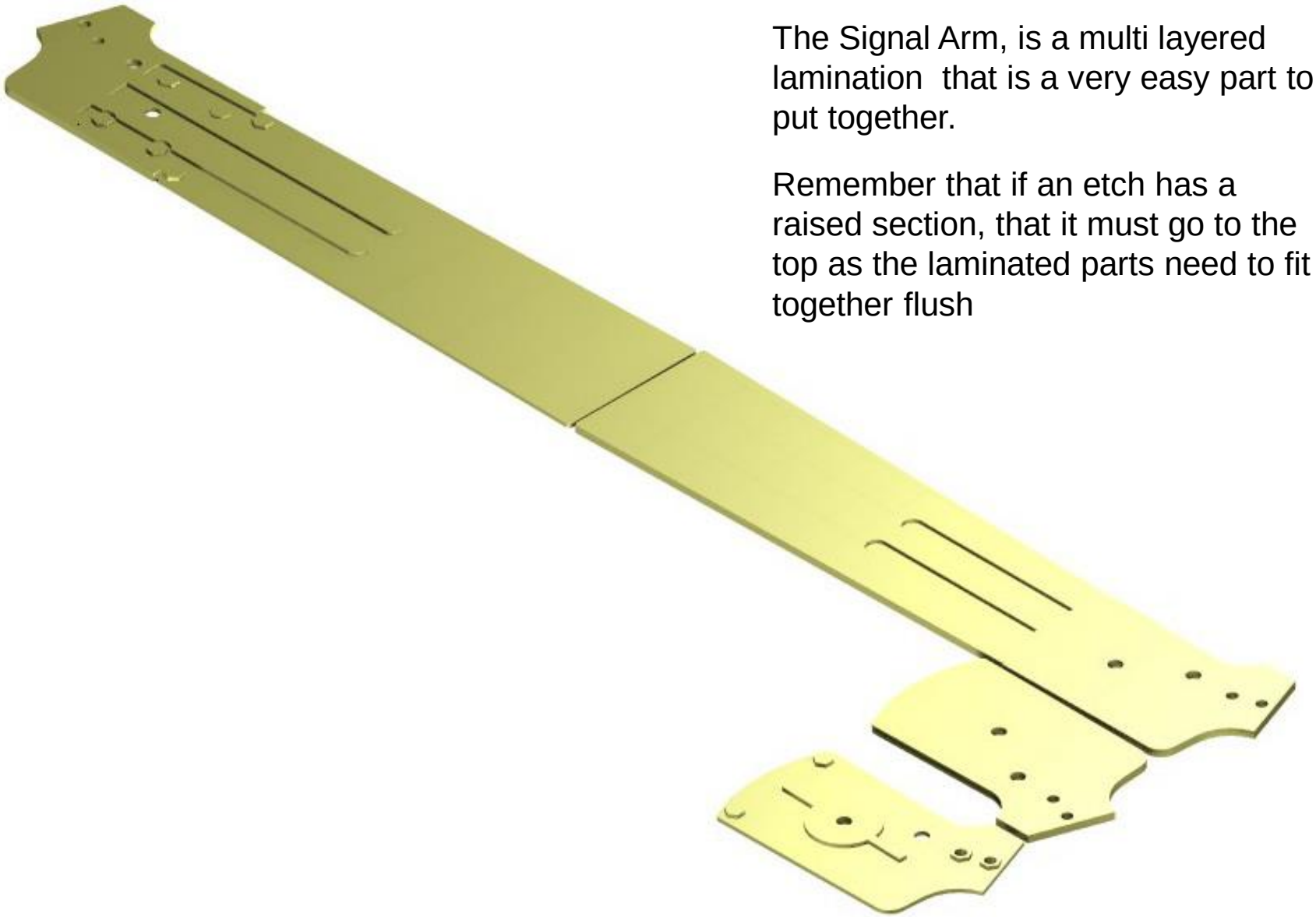
Signal Ladder - 3

The ladder can be used to locate the signal post squarely and to do this the base of the ladder needs to fit neatly into the base slots. And at the same time the ladder stand off and the landing are also attached to the ladder.

These parts are then also attached to the signal post.



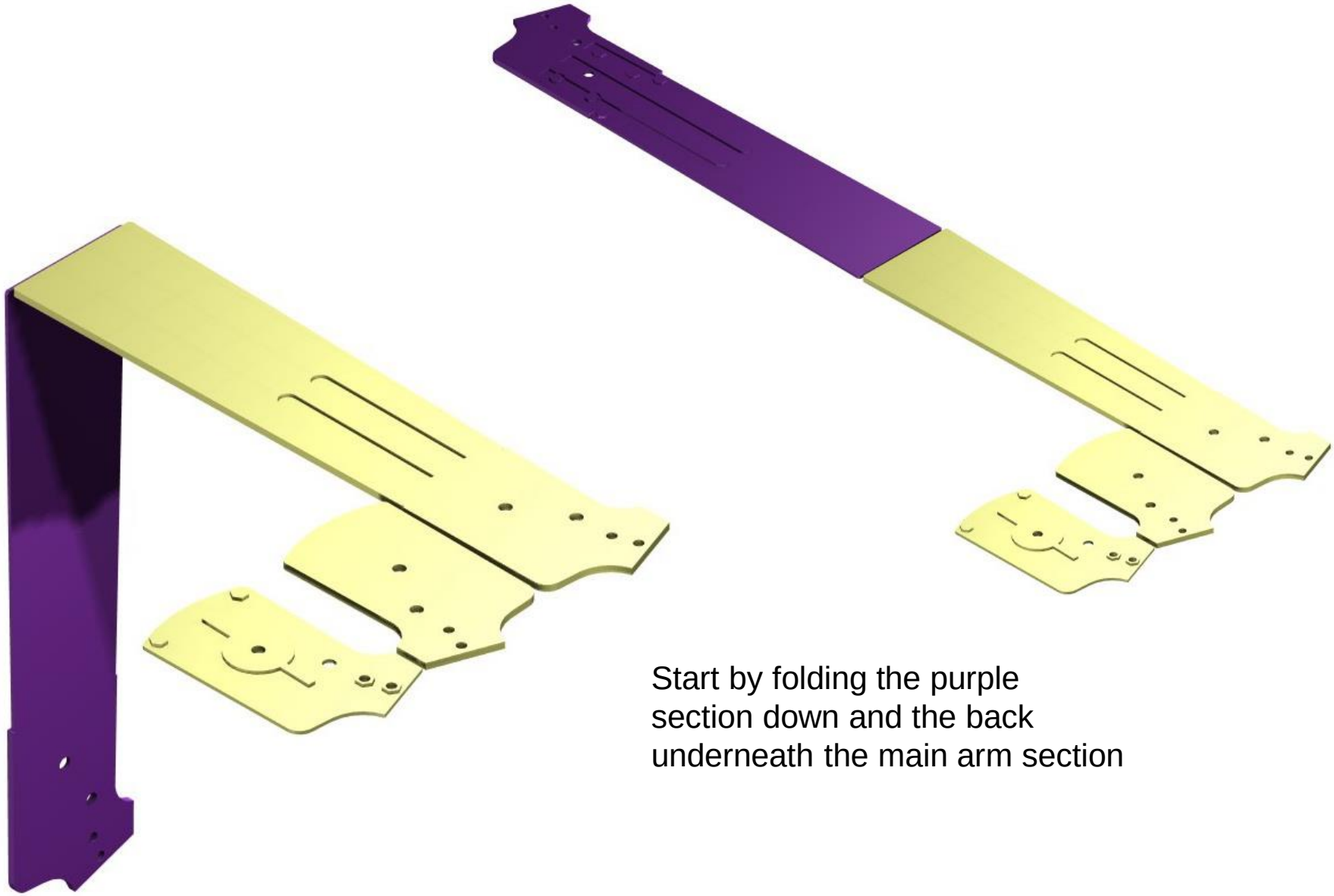
Signal Arm – 1



The Signal Arm, is a multi layered lamination that is a very easy part to put together.

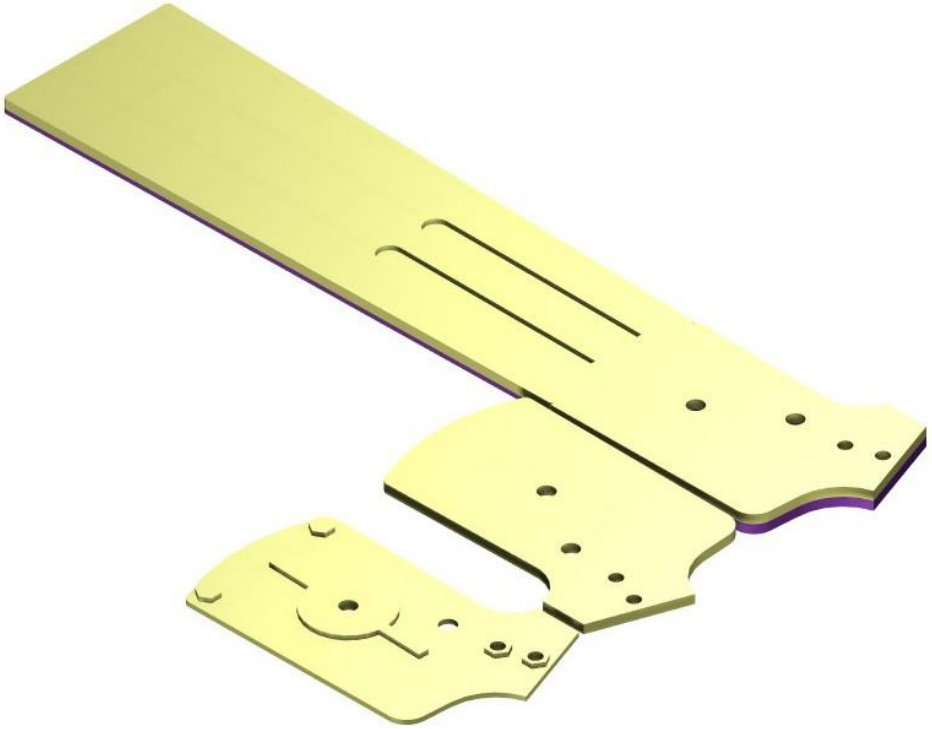
Remember that if an etch has a raised section, that it must go to the top as the laminated parts need to fit together flush

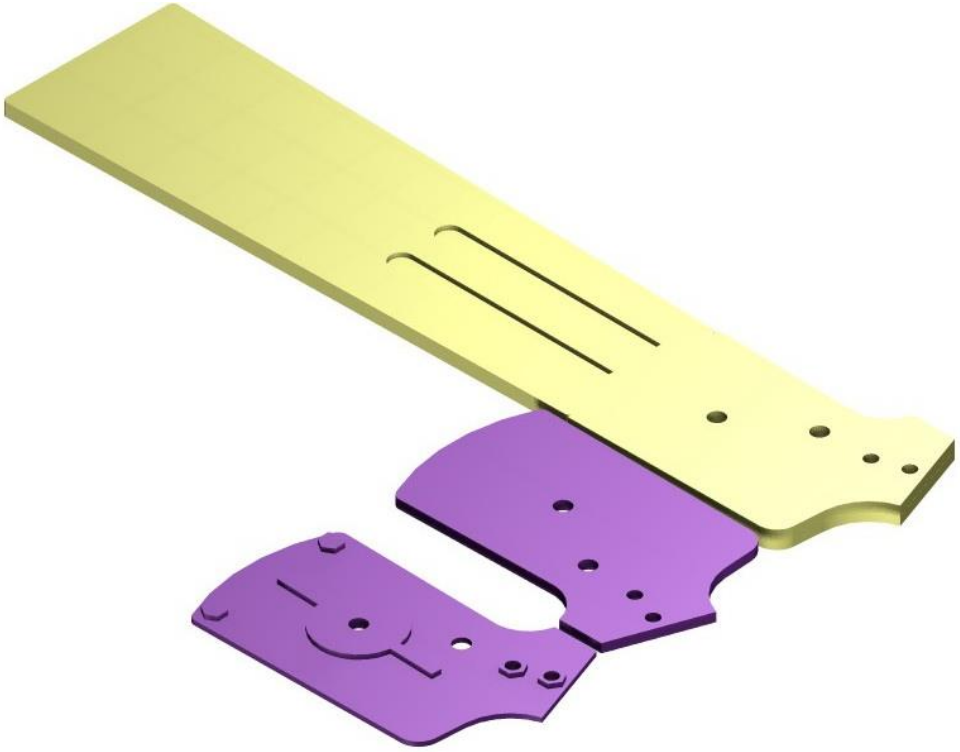
Signal Arm – 2



Start by folding the purple section down and the back underneath the main arm section

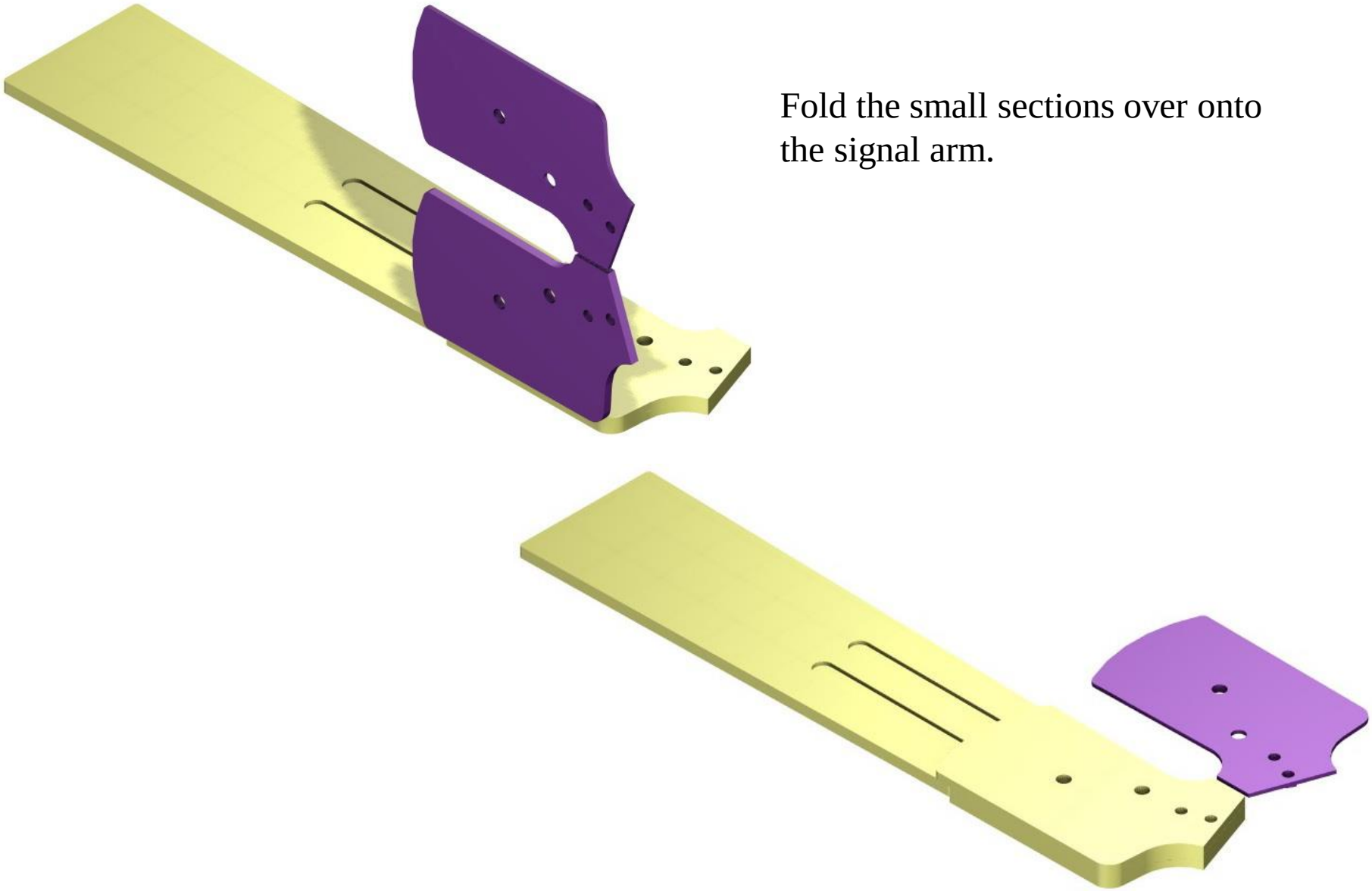
Signal Arm – 3





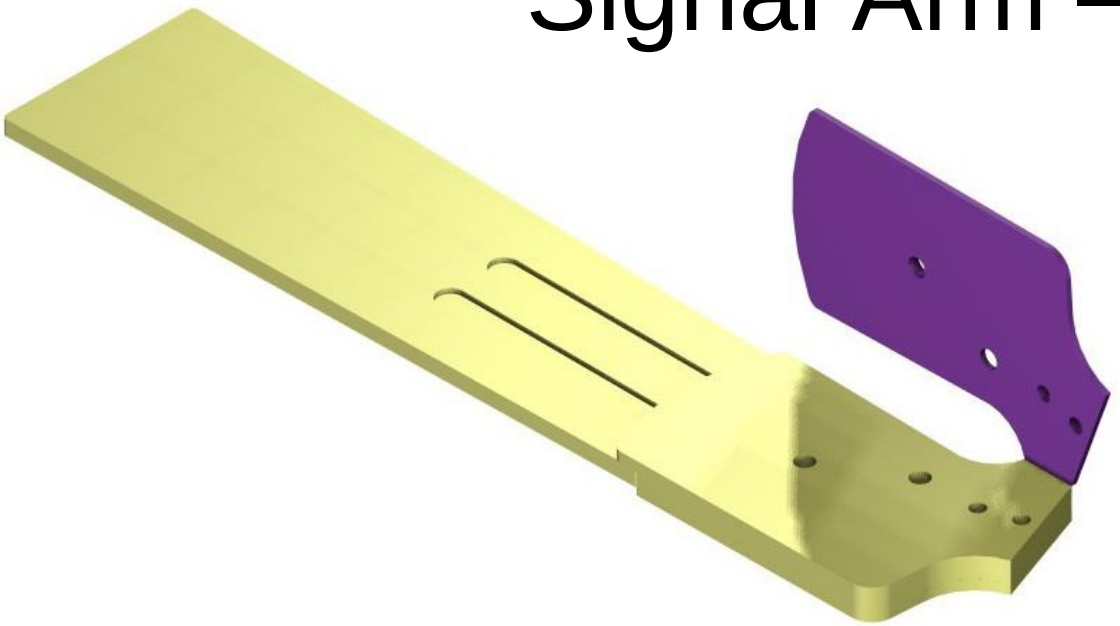
Next fold the small boss sections over onto the top of the main arm section.

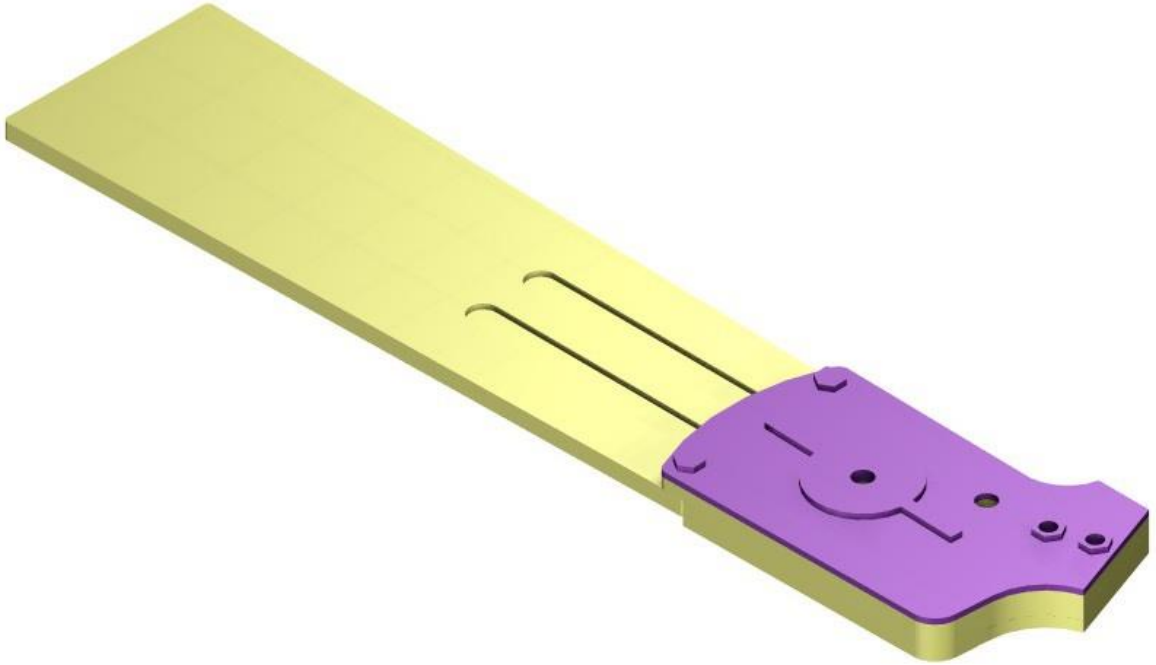
Signal Arm – 4



Fold the small sections over onto the signal arm.

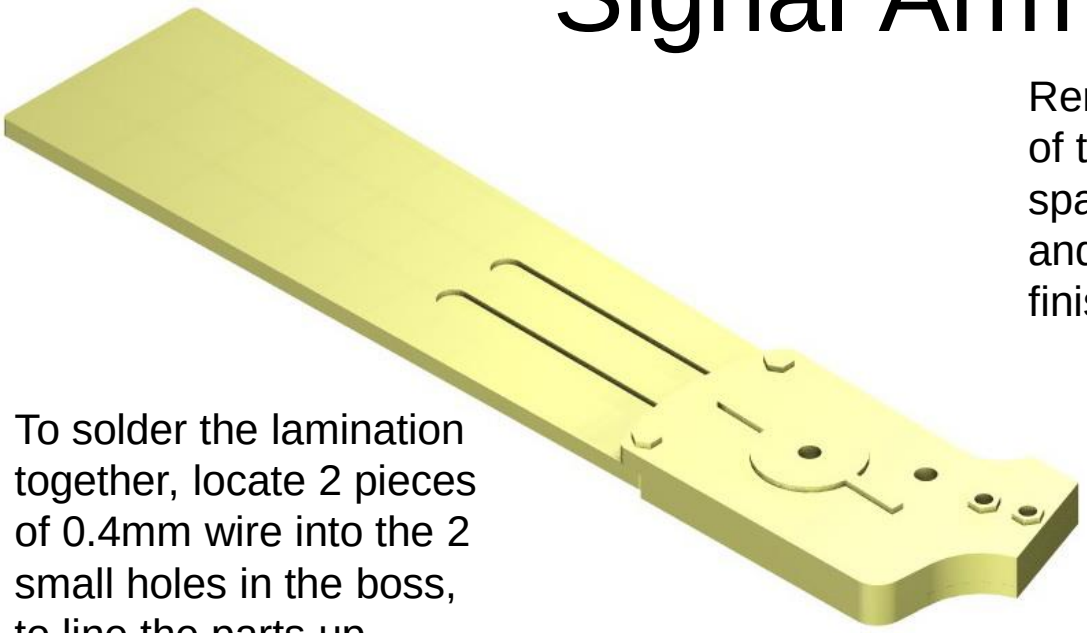
Signal Arm – 5





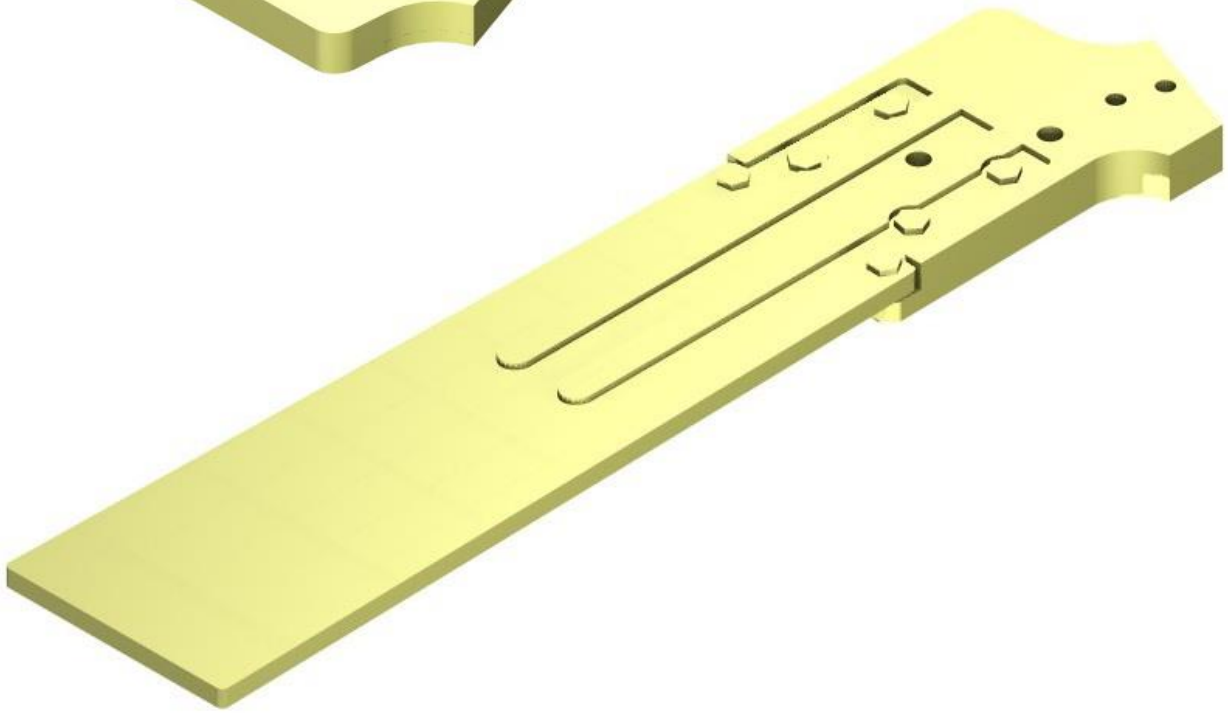
The last section should form the raised boss on the rear of the signal arm.

Signal Arm – 6

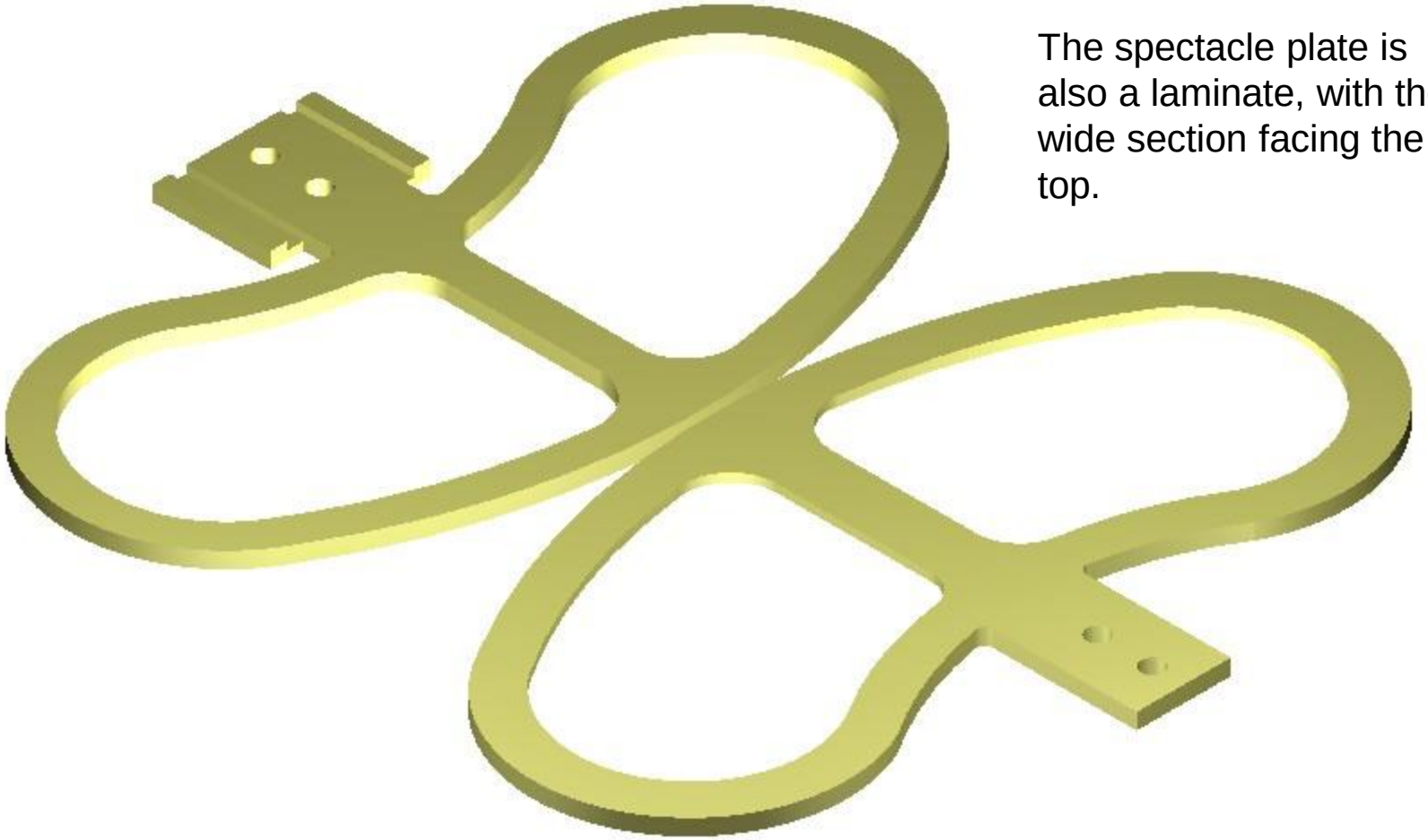


Remove the wire, and solder the rest of the signal arm. Use the solder sparingly, just around the perimeter, and clean up any excess solder when finished. Wash in warm soapy water.

To solder the lamination together, locate 2 pieces of 0.4mm wire into the 2 small holes in the boss, to line the parts up. Clamp the arm with a wooden peg clamp. Them solder the wide end of the arm.



Spectacle Plate – 1



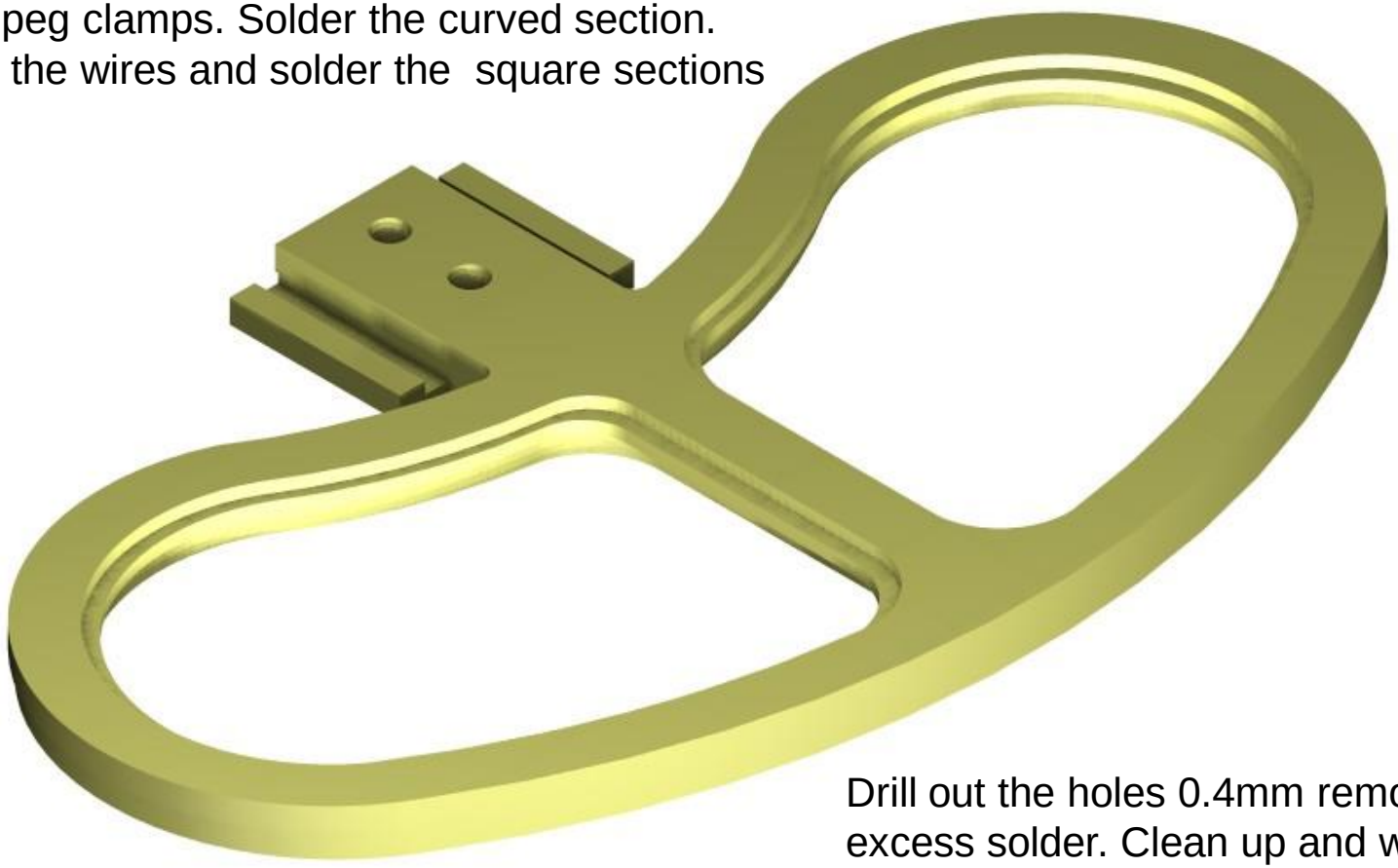
The spectacle plate is also a laminate, with the wide section facing the top.

Spectacle Plate – 2

Fold the purple section as per the diagram

Spectacle Plate – 3

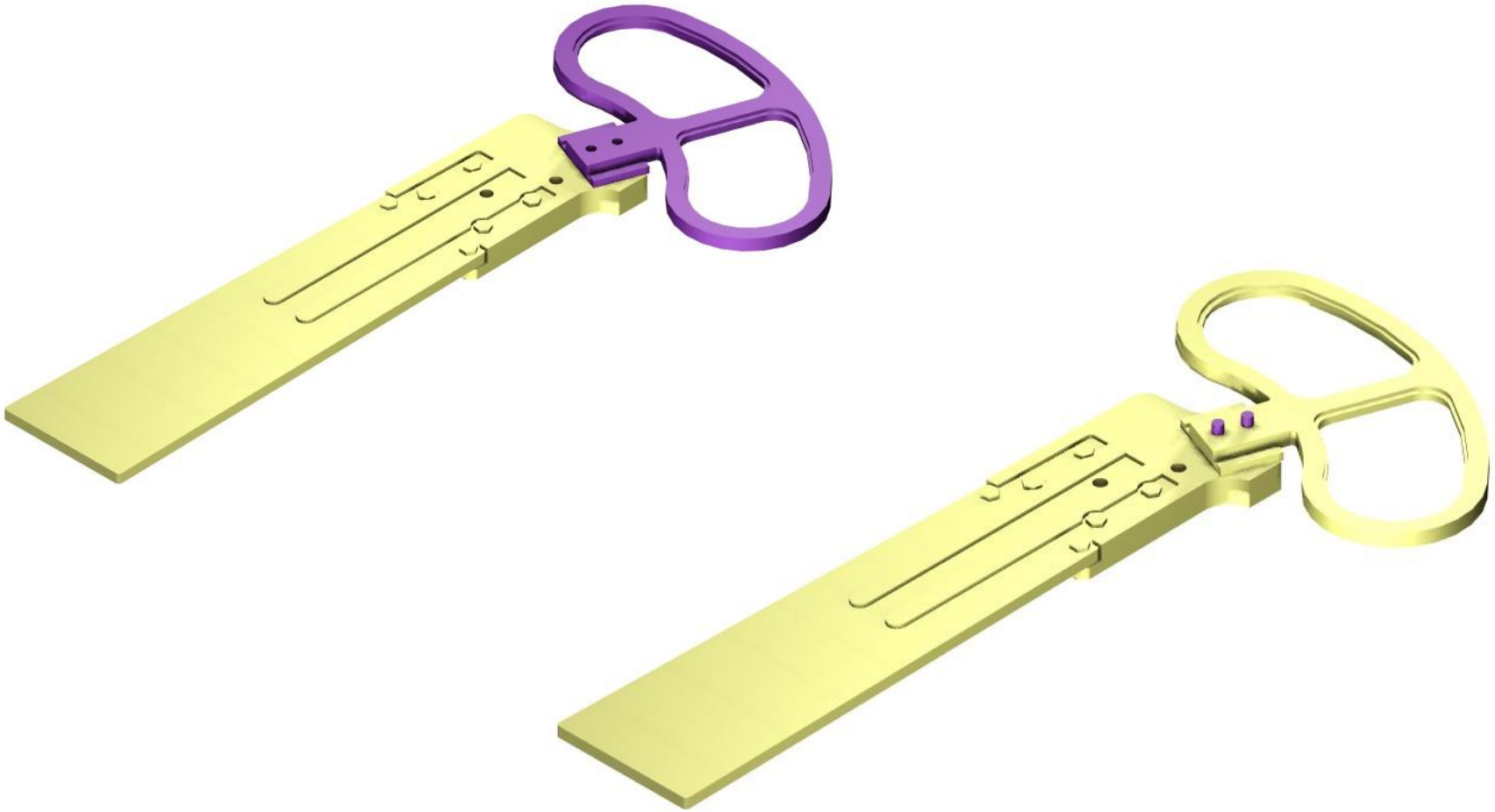
Locate wire into the holes and clamp the plate with 2 wooden peg clamps. Solder the curved section. Remove the wires and solder the square sections



Drill out the holes 0.4mm removing any excess solder. Clean up and wash in warm soapy water

Use the solder sparingly as the coloured lenses need to be fitted to the front (or rear) of the spectacle plate

Signal Arm - 1

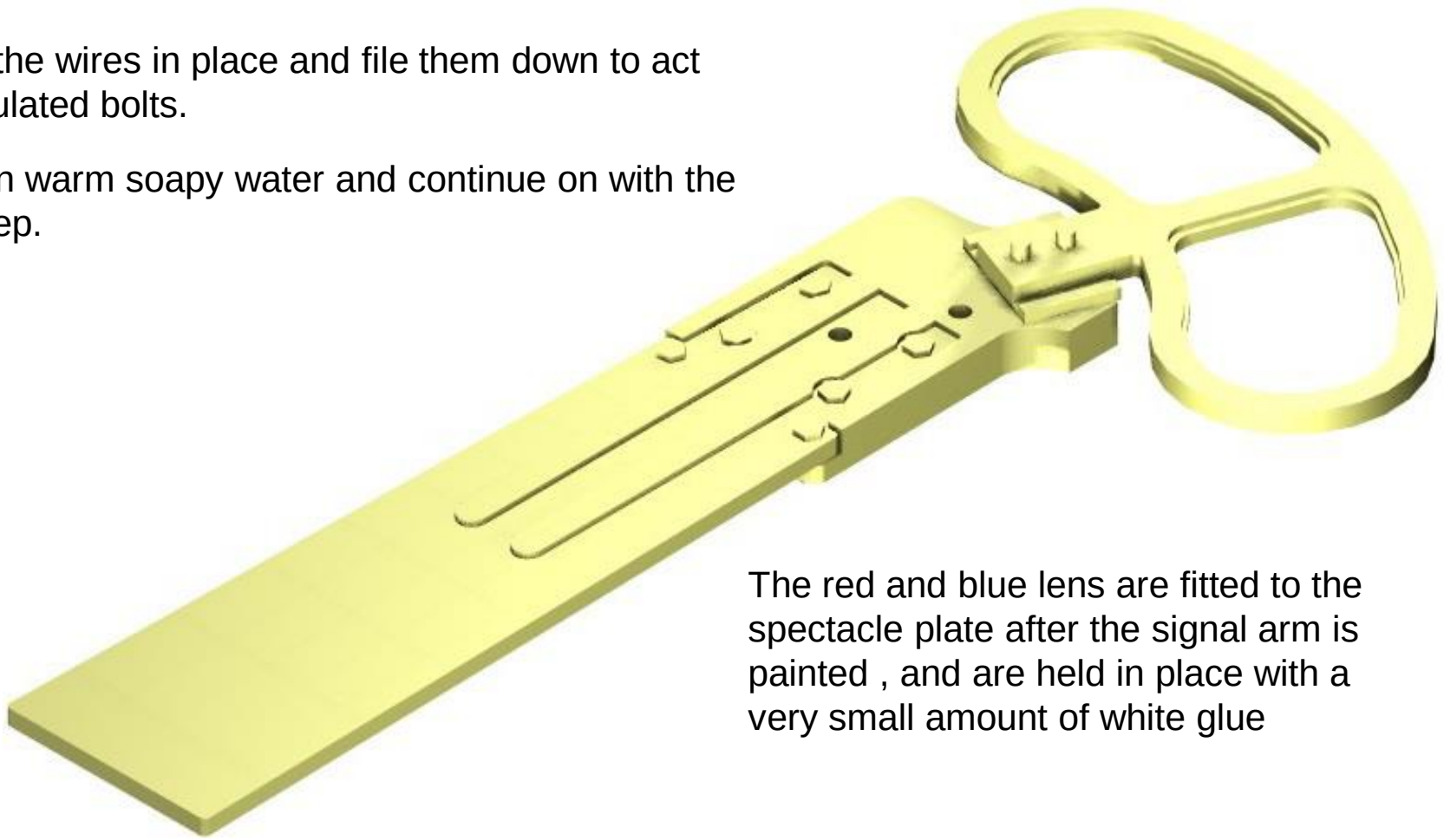


Signal Arm - 2

When soldering the spectacle plate to the arm, locate the plate with wires, and solder the parts together, being careful not to use excessive solder and fill detail.

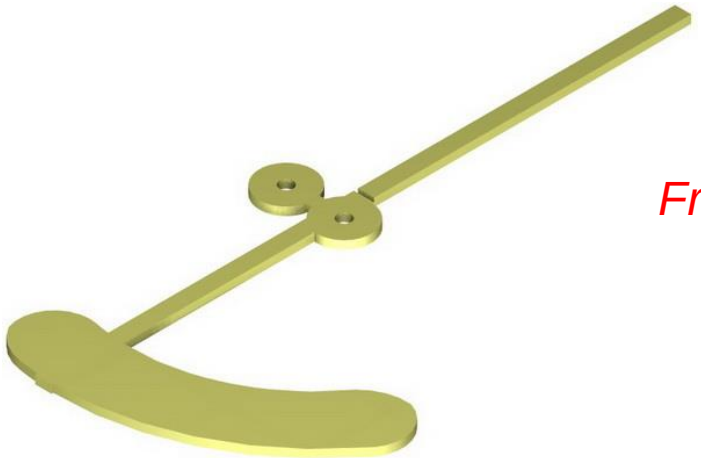
Leave the wires in place and file them down to act as simulated bolts.

Wash in warm soapy water and continue on with the next step.



The red and blue lens are fitted to the spectacle plate after the signal arm is painted , and are held in place with a very small amount of white glue

Back Spectacle

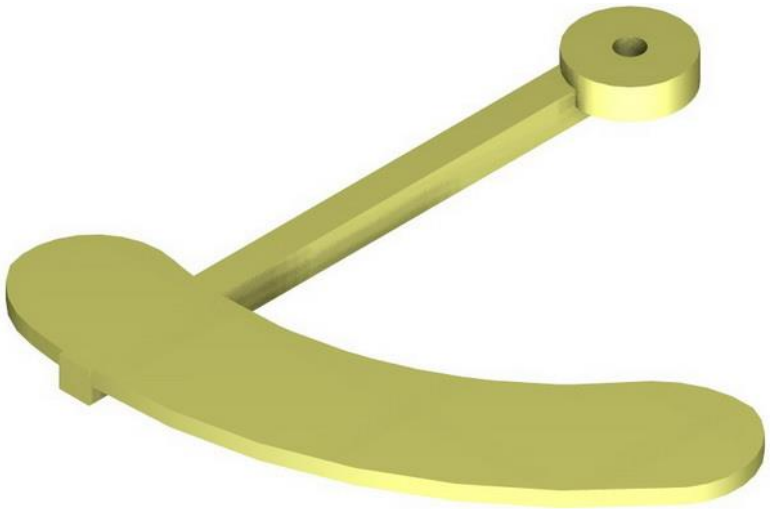


From this

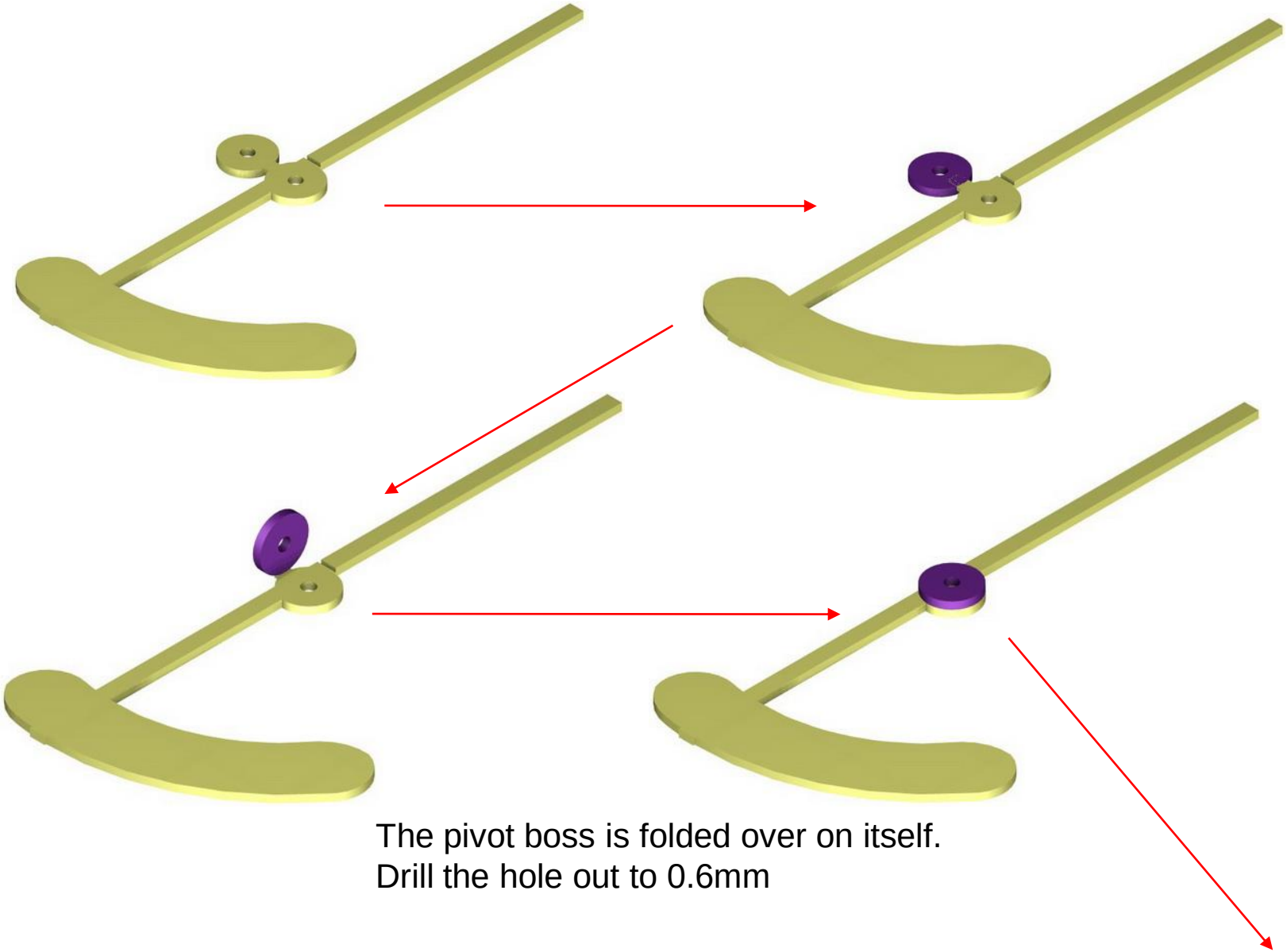
The back spectacle plate (back light) is located to the rear of the Signal Lamp, and is attached to the Signal Arm pivot.

The plate is a laminated fold up and the following pages will show the way the part is put together

To this

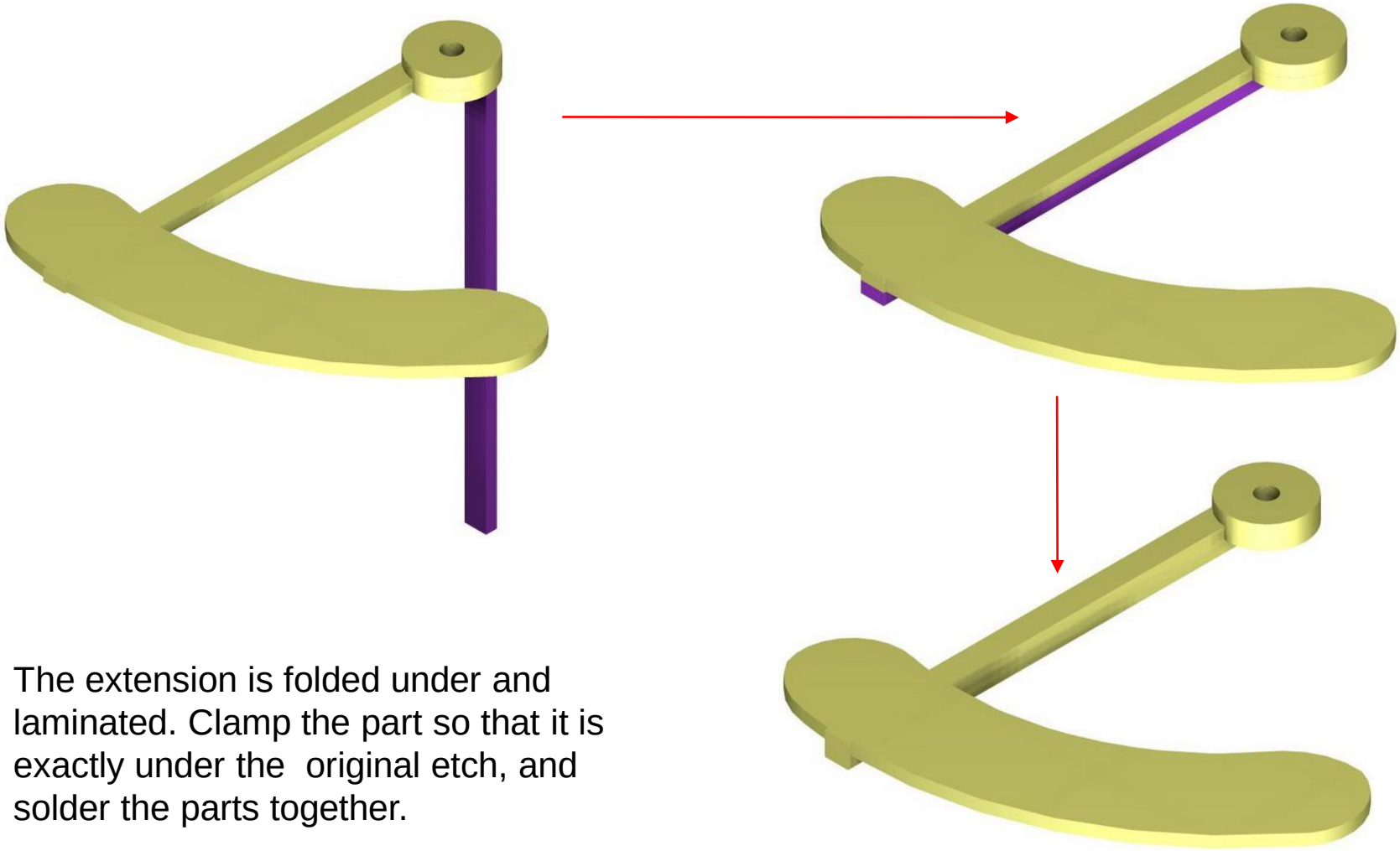


Back Spectacle – 1



The pivot boss is folded over on itself.
Drill the hole out to 0.6mm

Back Spectacle – 2

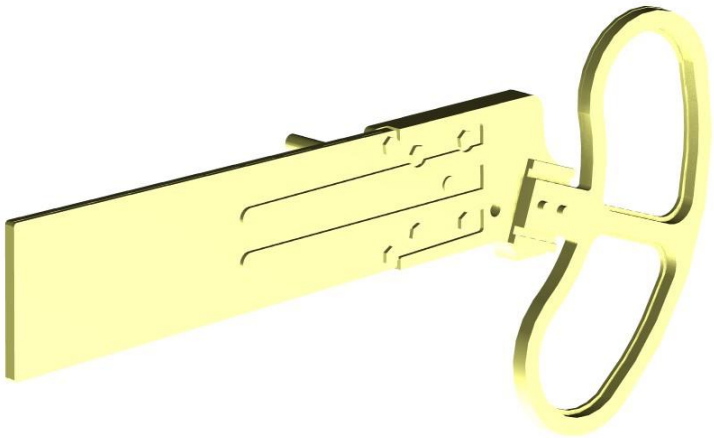


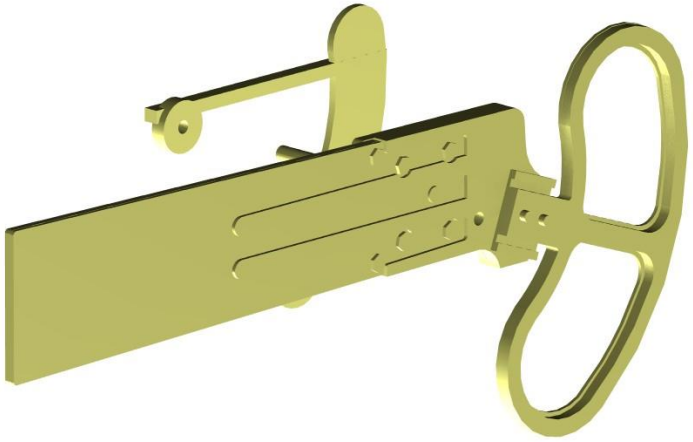
The extension is folded under and laminated. Clamp the part so that it is exactly under the original etch, and solder the parts together.

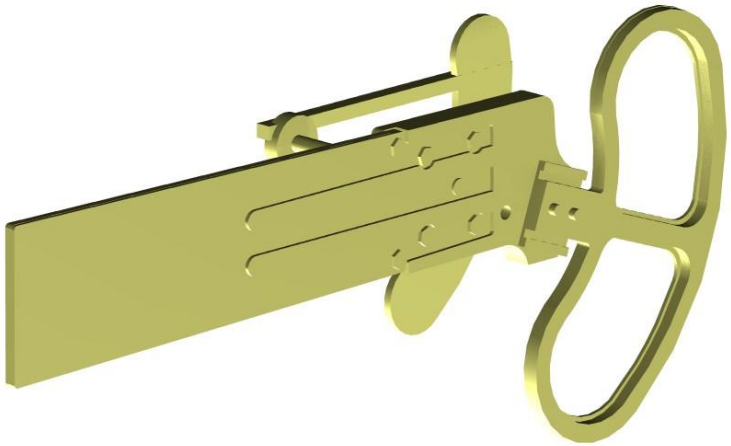
Back Spectacle – 3

The completed back spectacle, ready to attach to the signal

Signal Arm Complete



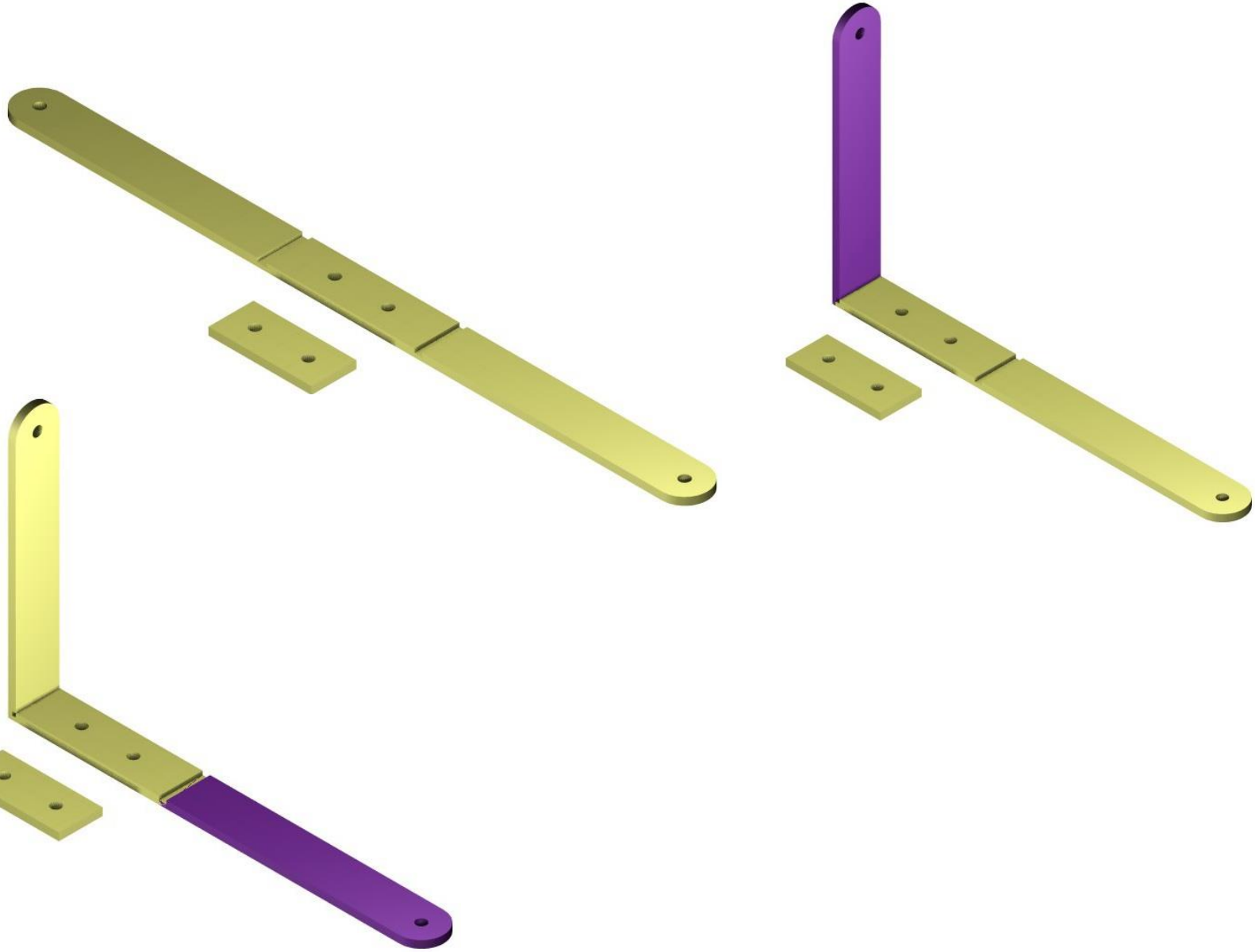




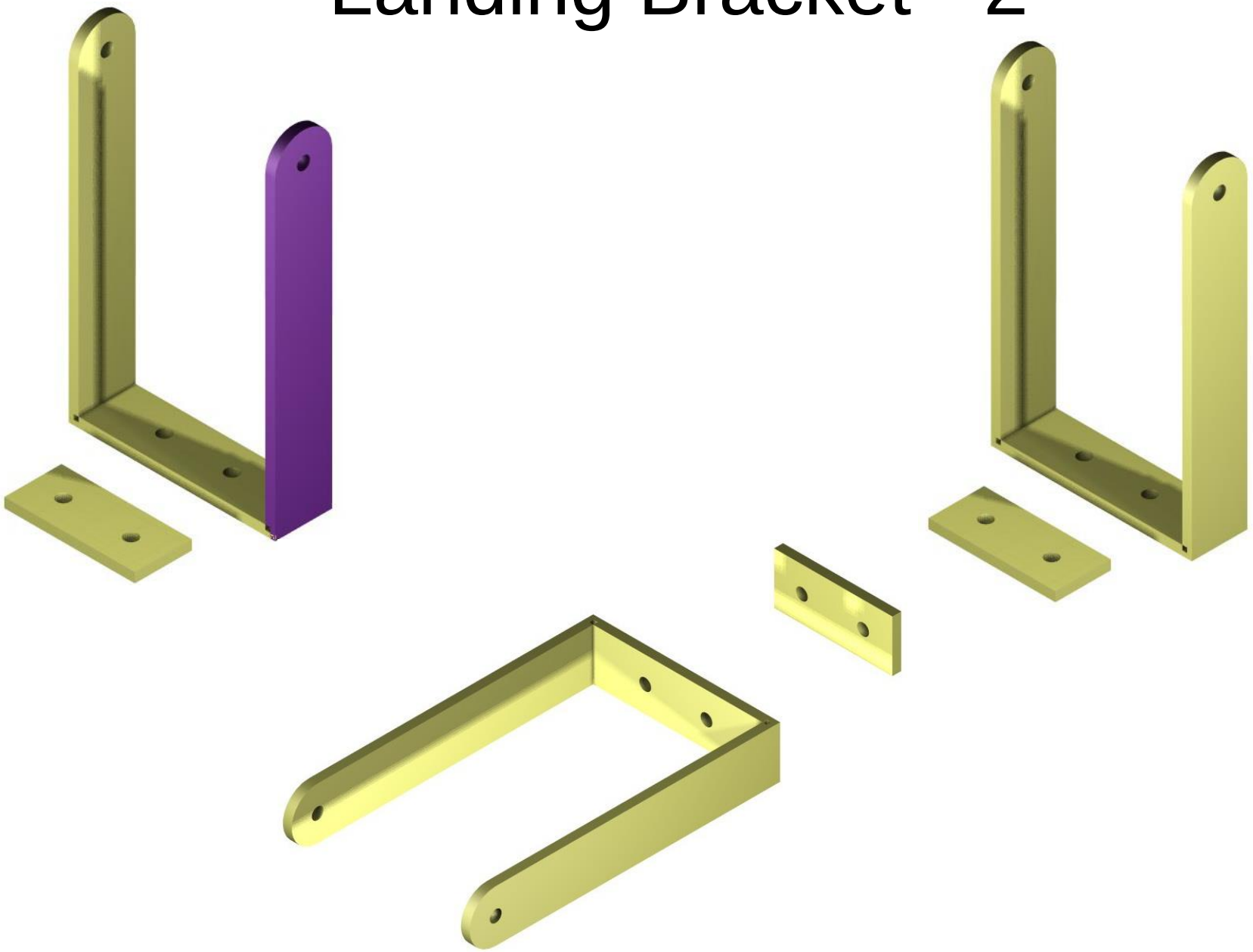
Locate and fix a length of 0.6mm wire through the hole in the signal arm (the bearing plate may need to be drilled out to accommodate the wire.

When ready to finally fit the arm, the back spectacle is fitted to the wire and the plate is lined up with the front spectacle plate and soldered or glued in place. Remove any excess wire, at the rear of the back spectacle plate.

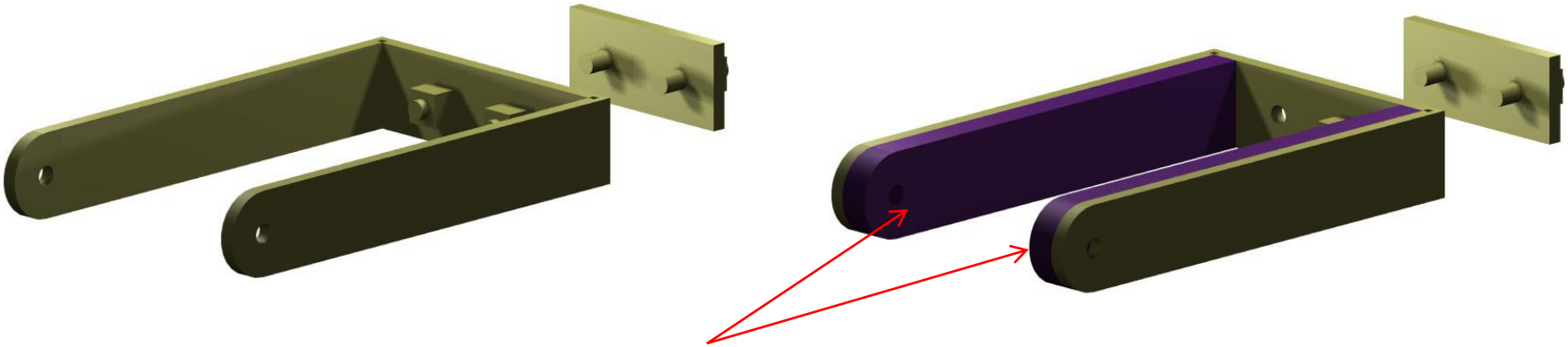
Landing Bracket - 1



Landing Bracket - 2

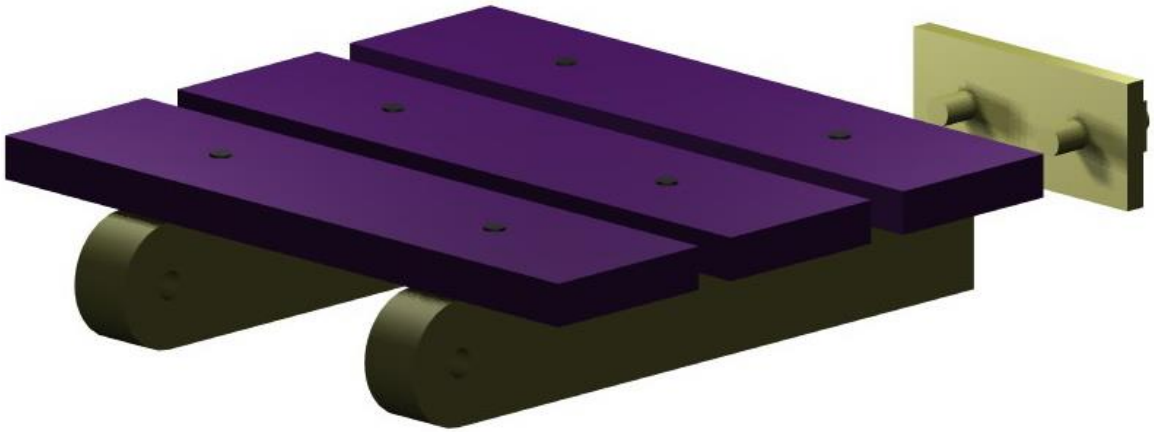


Landing - 1

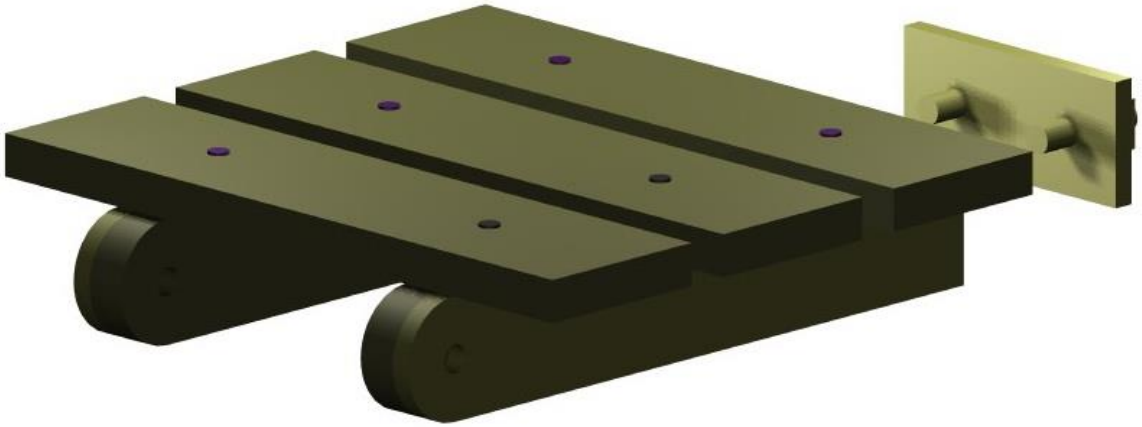


These holes need to be drilled out after being glued inside the landing etch.

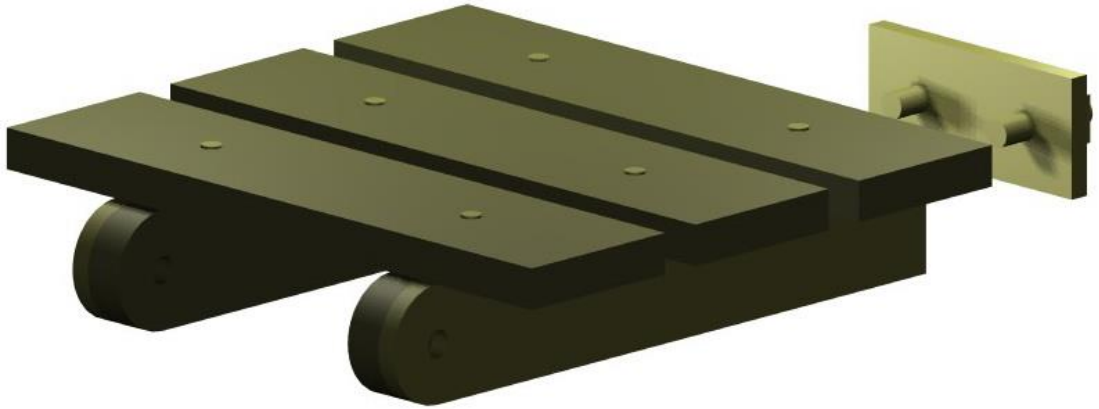
The timbers for the landing are laser cut, and have holes in them which you can use to locate wire to simulate screws or bolts.



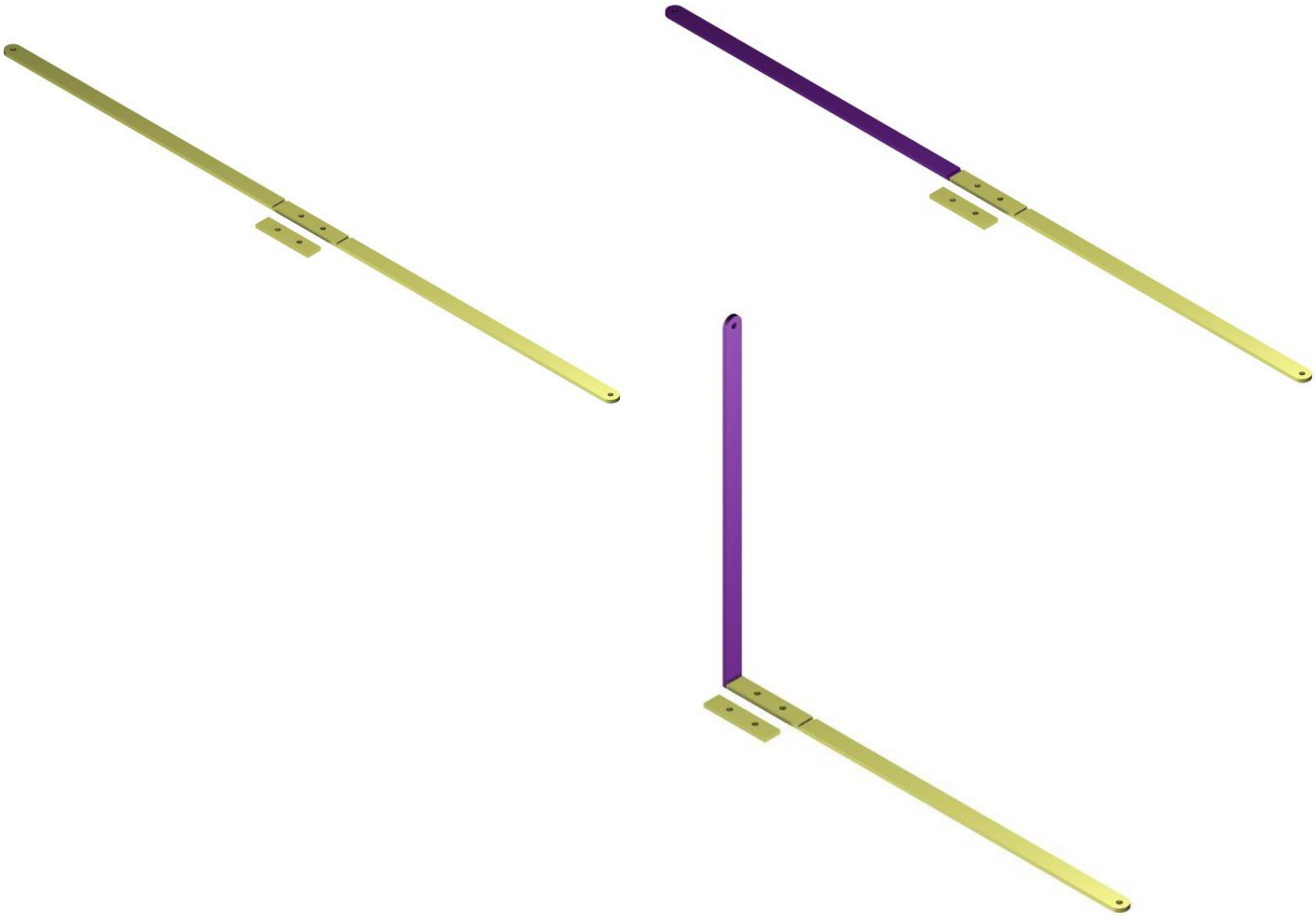
Landing - 2



The landing ready to be located in place.

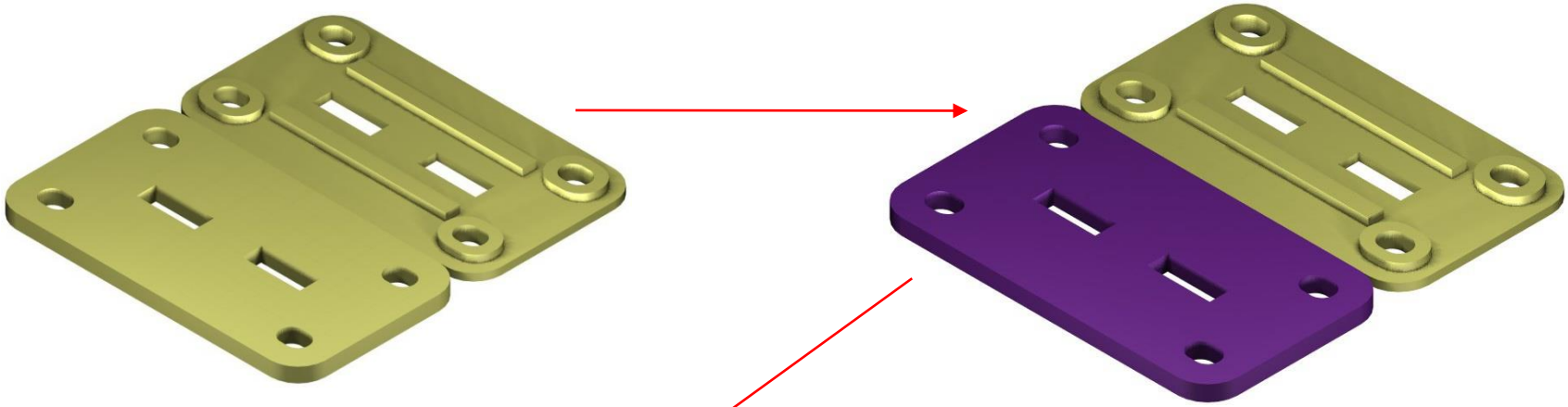


Ladder Stay - 1

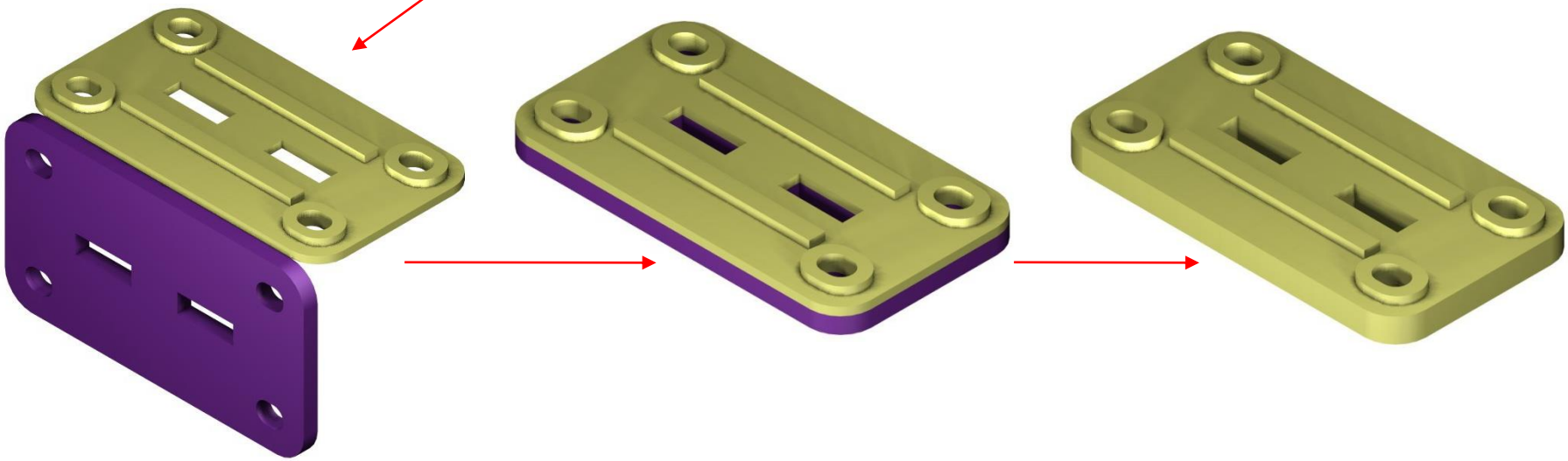


Ladder Stay - 2

Signal Lamp Bracket 1 – 1

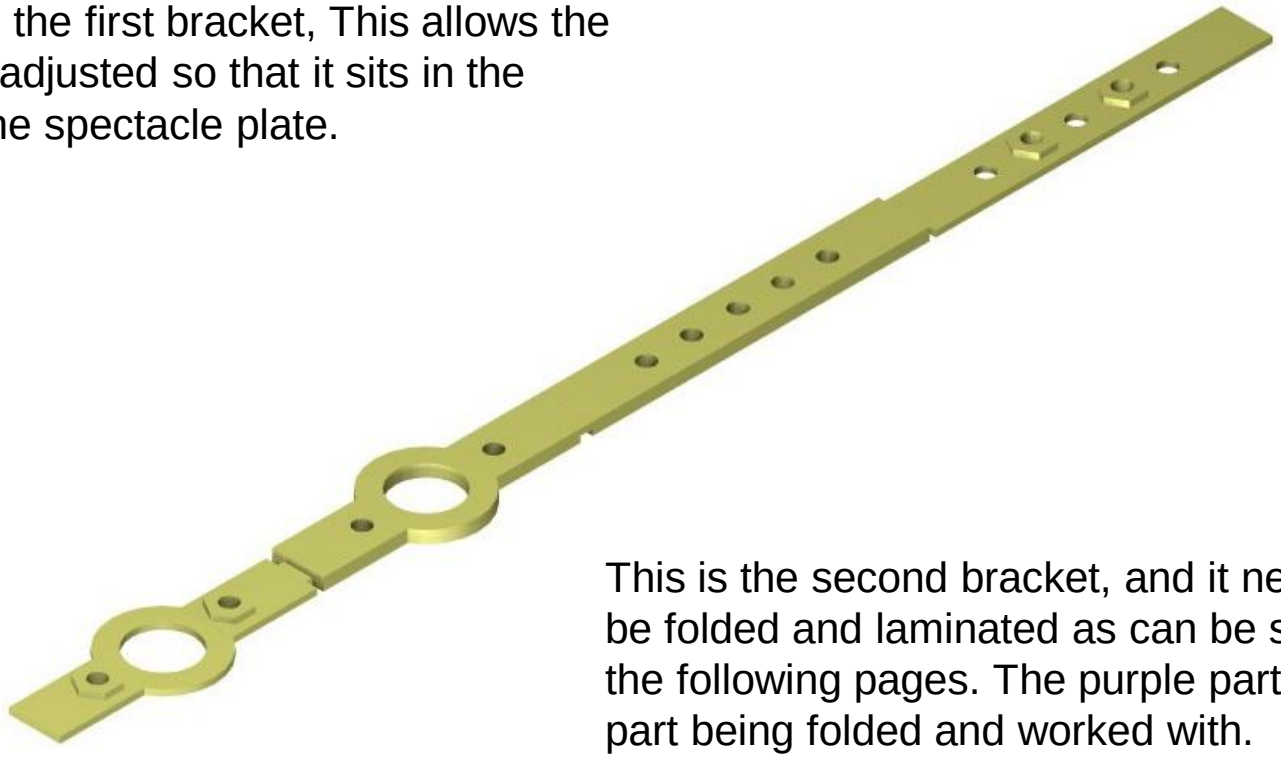


The signal bracket is a simple laminated etch folded 180 degrees and soldered together, cleaned up and washed in warm soapy water. Use peg clamps to hold the folds together while soldering.



Signal Lamp Bracket 2 – 1

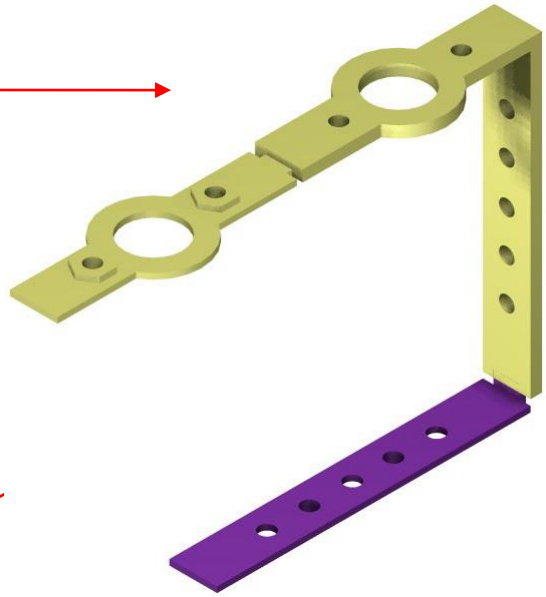
The signal lamp is mounted on 2 brackets, the first bracket is attached to the signal post and then the second bracket is mounted to the first bracket, This allows the lamp to be adjusted so that it sits in the middle of the spectacle plate.



This is the second bracket, and it needs to be folded and laminated as can be seen in the following pages. The purple part is the part being folded and worked with.

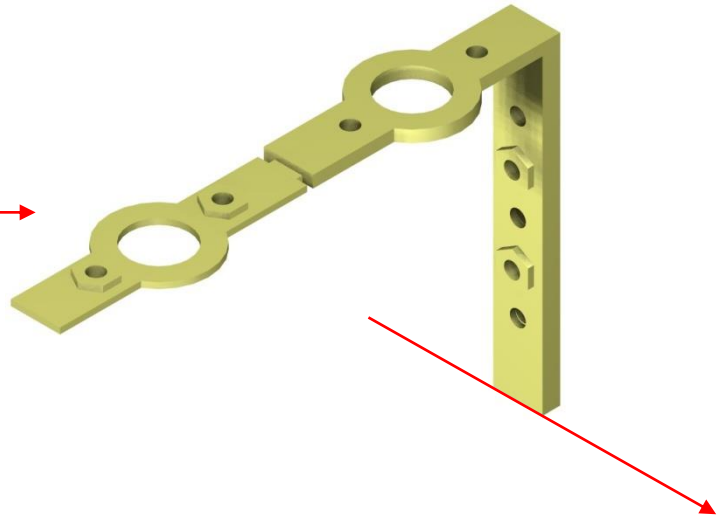
Signal Lamp Bracket 2 – 2

The long end of the bracket is folded up 180 degrees and laminated in place.

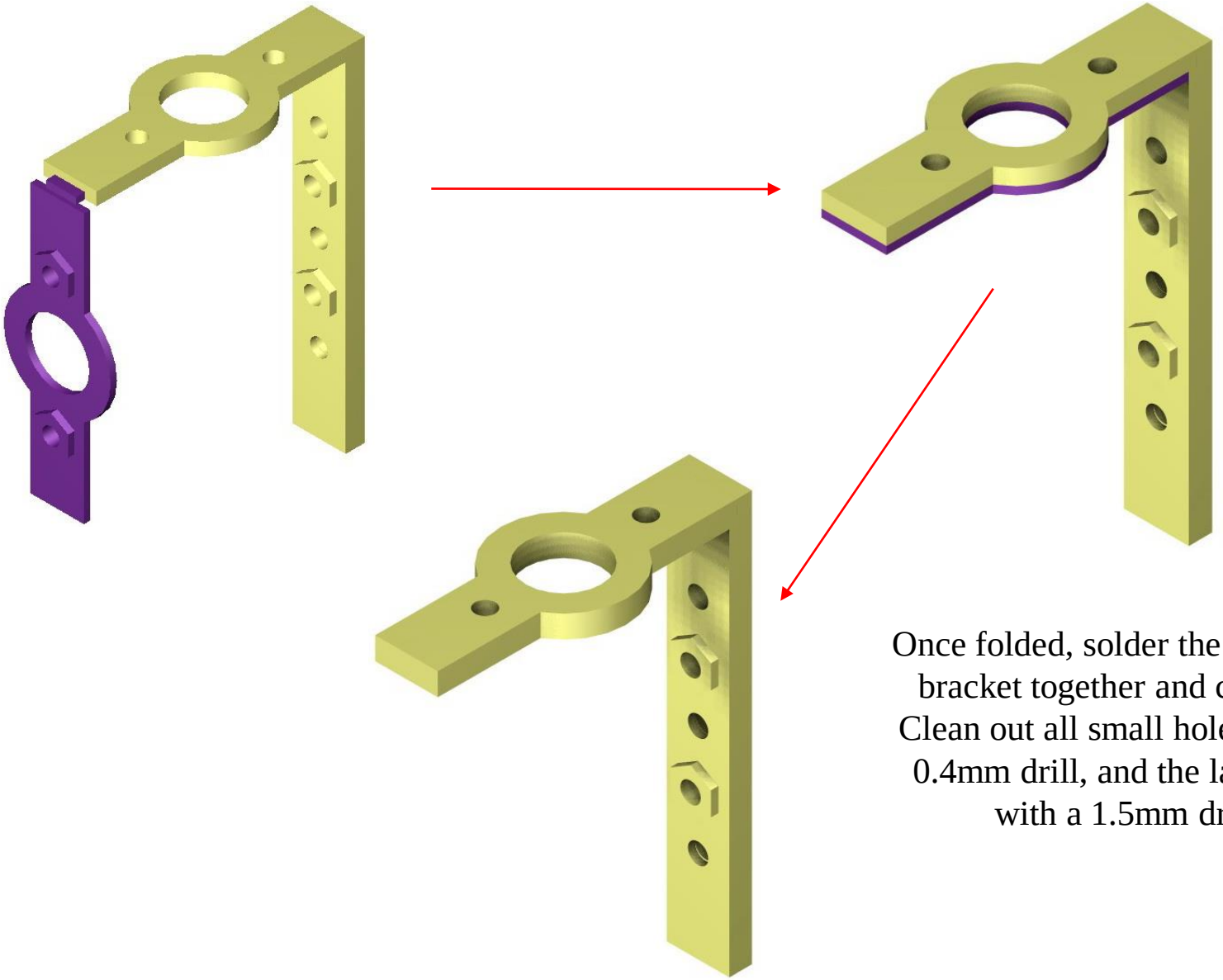


It is important that the tabs at the ends of the etch are totally removed so that they do not interfere with the other parts when folding.

Clean out the holes using a 0.4mm drill.



Signal Lamp Bracket 2 – 3



Once folded, solder the laminated bracket together and clean up. Clean out all small holes with an 0.4mm drill, and the large hole with a 1.5mm drill.

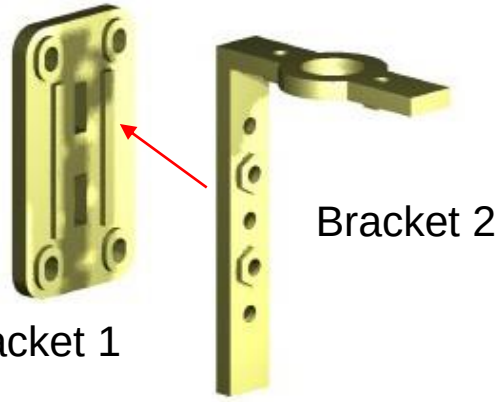
Signal Lamp Bracket 2 – 4

The 1.5mm extension needs to be removed after the lamp has been attached to the bracket.

The lamp can be drilled and 2 lengths of wire attached and glued to the lamp through the bracket.

Signal Lamp & Brackets

Signal Lamp



Bracket 2

Bracket 1

The signal lamp is attached to the second lamp bracket, This can then be secured with 0.4mm brass wire or Scale Hardware rivets or bolts.

The 2nd bracket then attaches to the first bracket which is attached to the signal post with 0.4mm brass wire or Scale Hardware nuts, bolts or rivets.

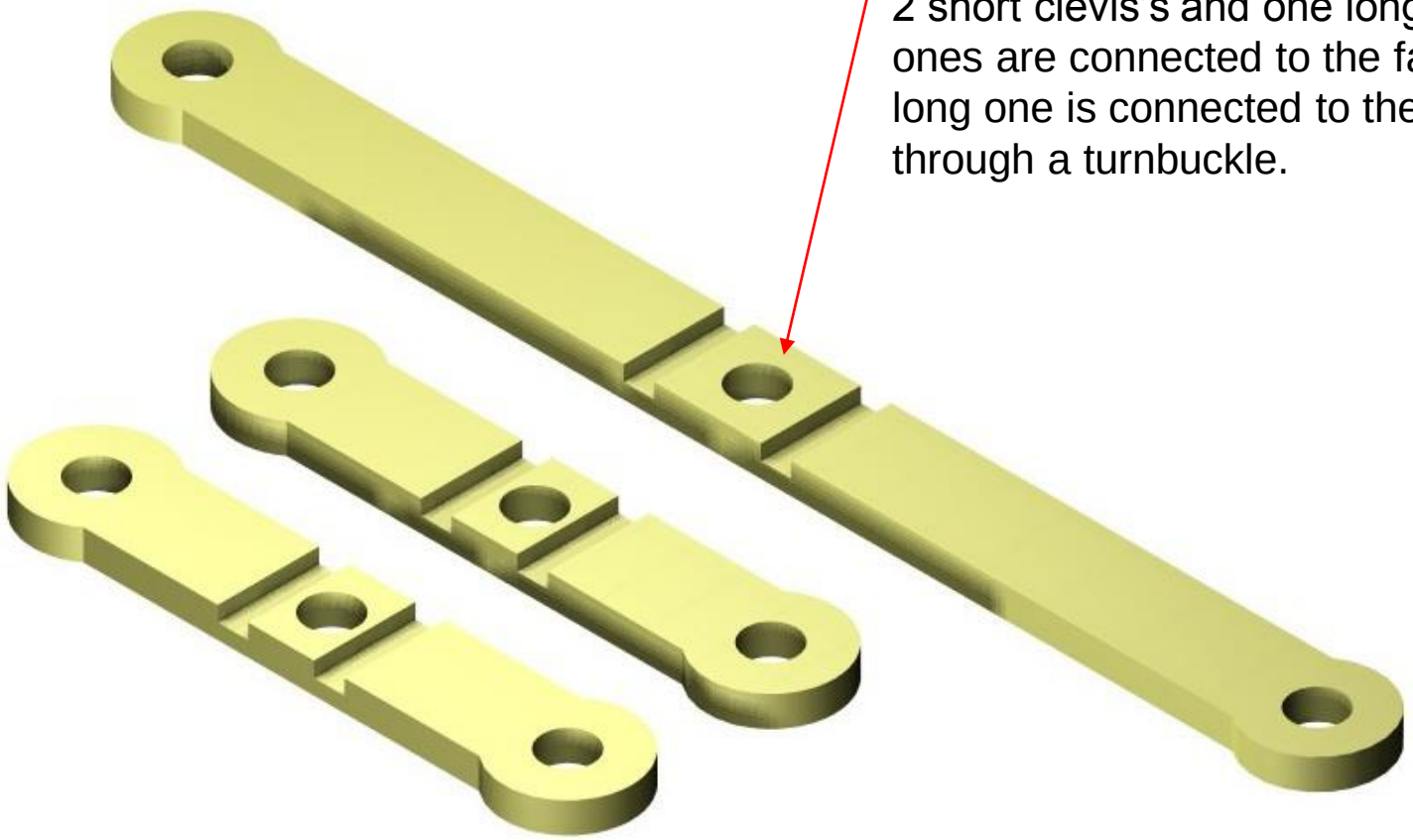
Both brackets are adjustable which is necessary to ensure that the lamp lens is centered with the spectacle plate lens's.

The brackets can be glued in place if you wish, rather than soldering and damaging previously soldered joints, with the heat that is required.

Clevises - 1

What is a Clevis?

It is a folded U shaped bracket with a wire through the centre, and the other end bolted to a device so that the device can be manipulated. There are 3 clevis's in the etch, 2 short clevis's and one long one. The small ones are connected to the face lever and the long one is connected to the signal arm through a turnbuckle.



Clevises - 2

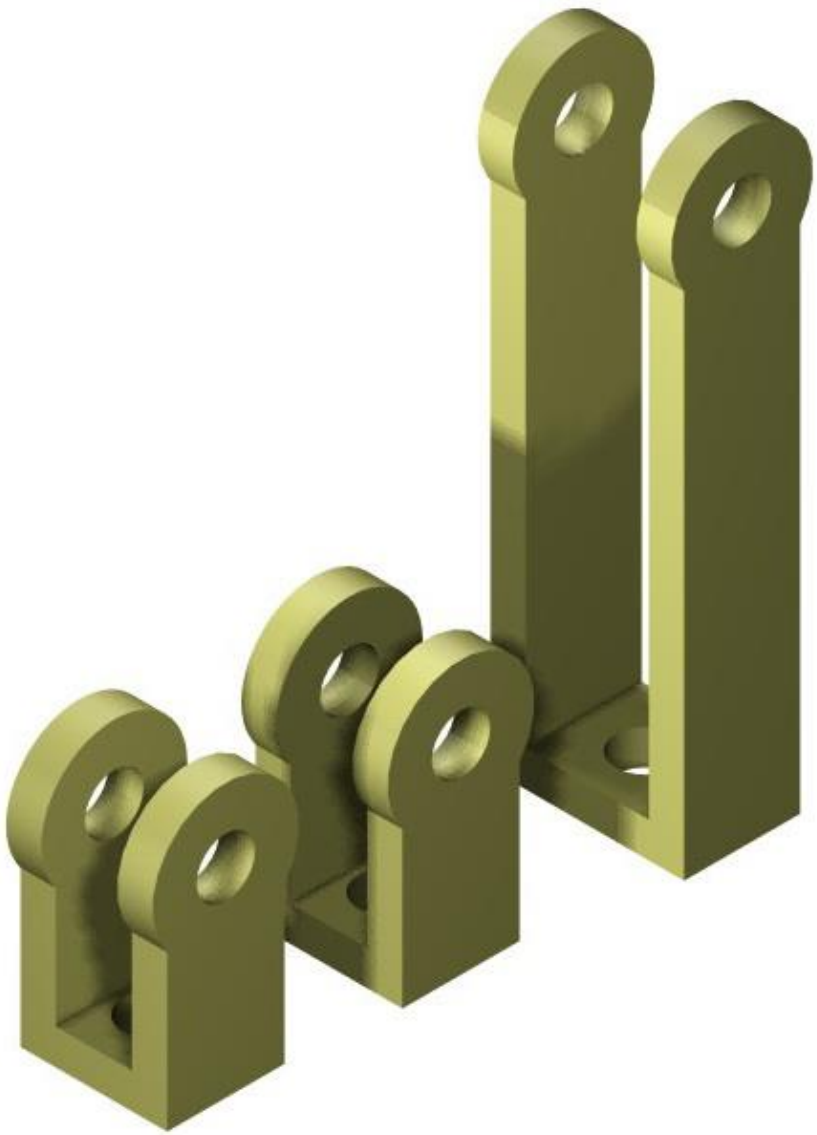
The clevises need to be folded into a U shape.
Fold lines are provided for this purpose.

Clevises - 3

Clevises - 4

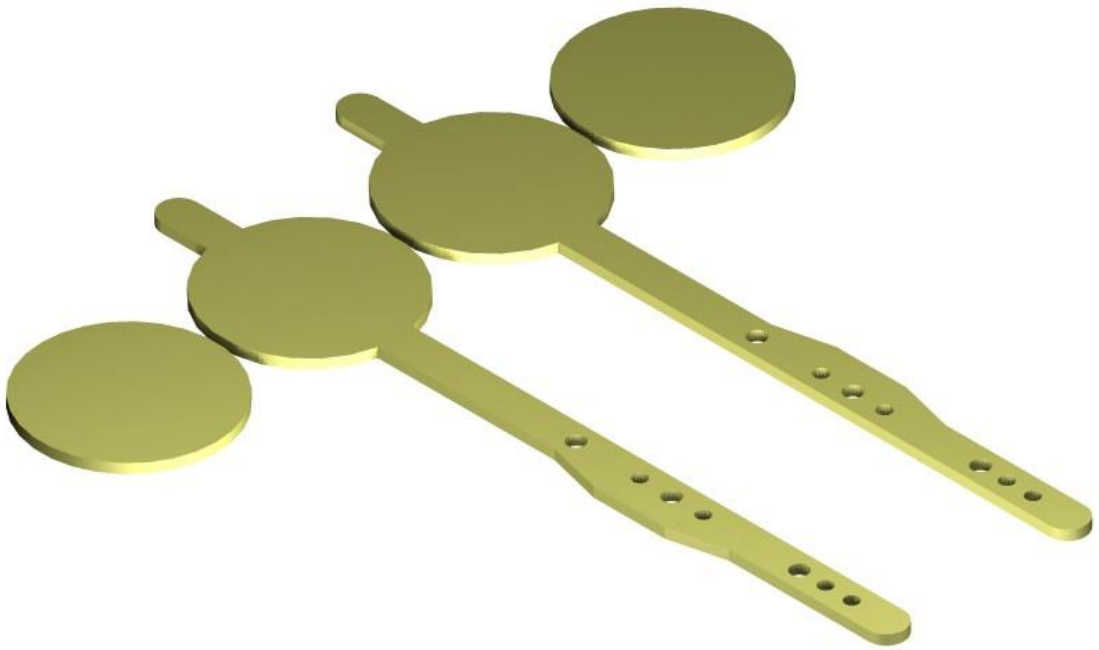
Once one side is folded, fold the other side and make sure that they are aligned, especially the hole. This should happen naturally.

Clevises - 5



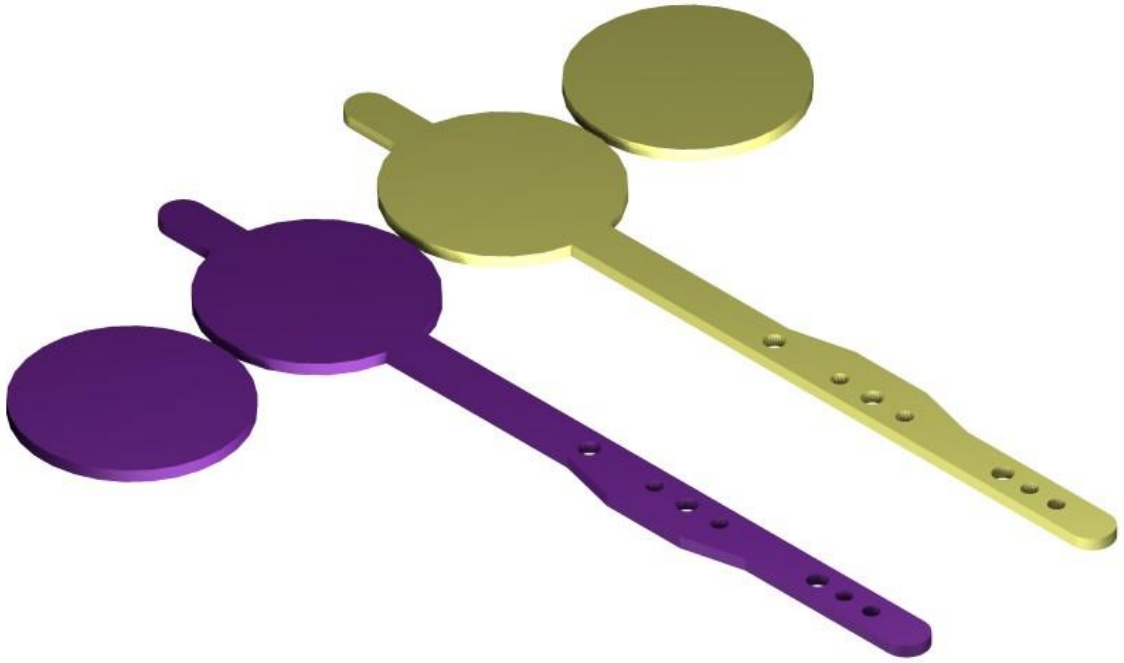
The completed clevises can be re-enforced by placing a small fillet of solder into the folded joints. Use solder sparingly and try not to fill the hole with solder. If you do fill the hole, just clean it out with a 0.5mm drill, as a wire needs to be located and soldered into the hole, in the next few steps. The main actuating rod from the base is 0.6mm, so drill a hole this size to accept the rod, in one of the small clevis’s

Counter Balance _01



The Counter Balance Arm, needs to be folder 180 degrees, to form a solid laminated arm, There is a small ring on the outside of each segment which is NOT used and can be removed.

Counter Balance_02

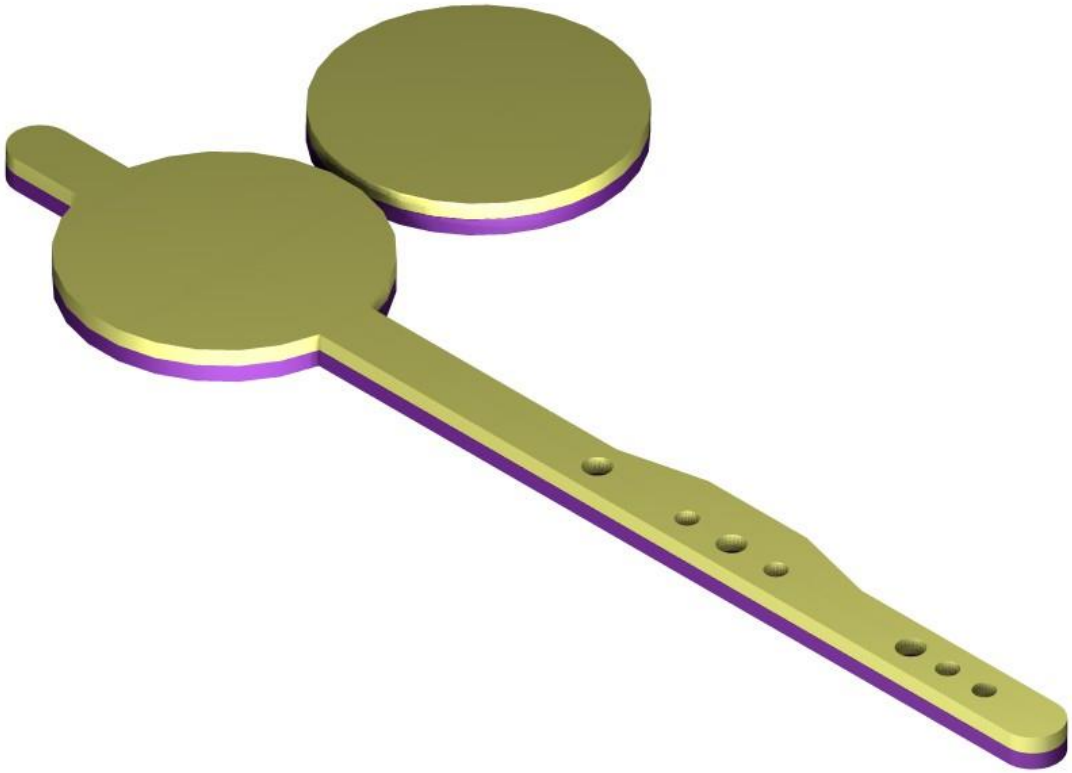


The purple section is folded as per the following drawings.

Counter Balance_03

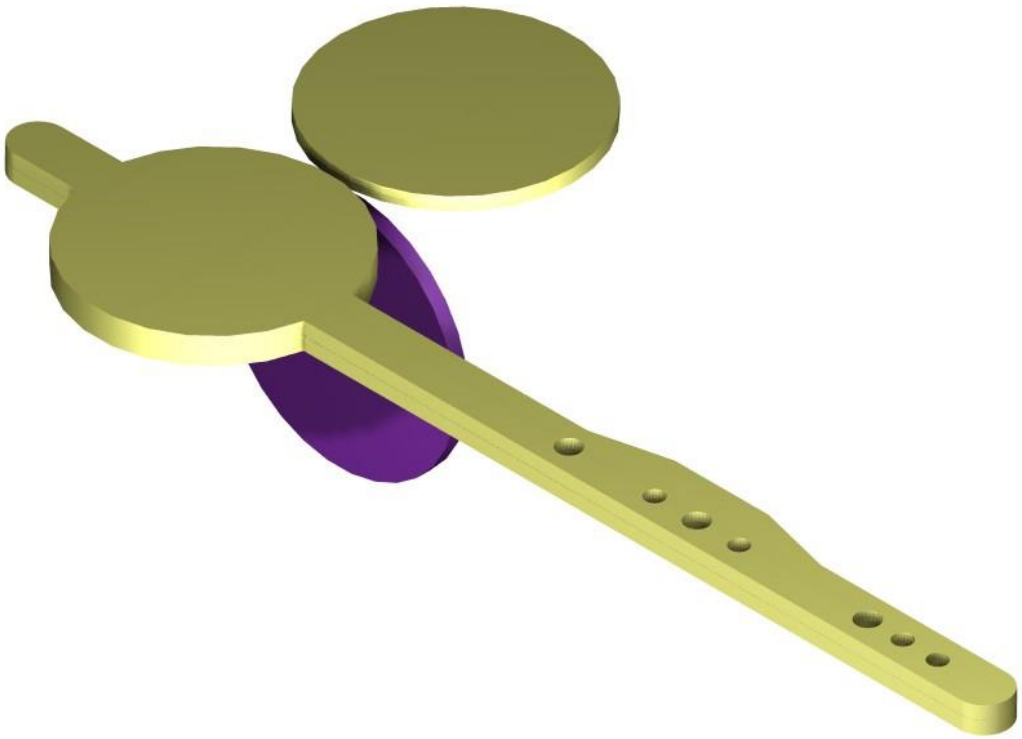
If the small tabs are broken there is a plan “B” which includes locating the parts with sections of brass wire through the holes in the arms and soldering the parts together with them aligned.

Counter Balance_04



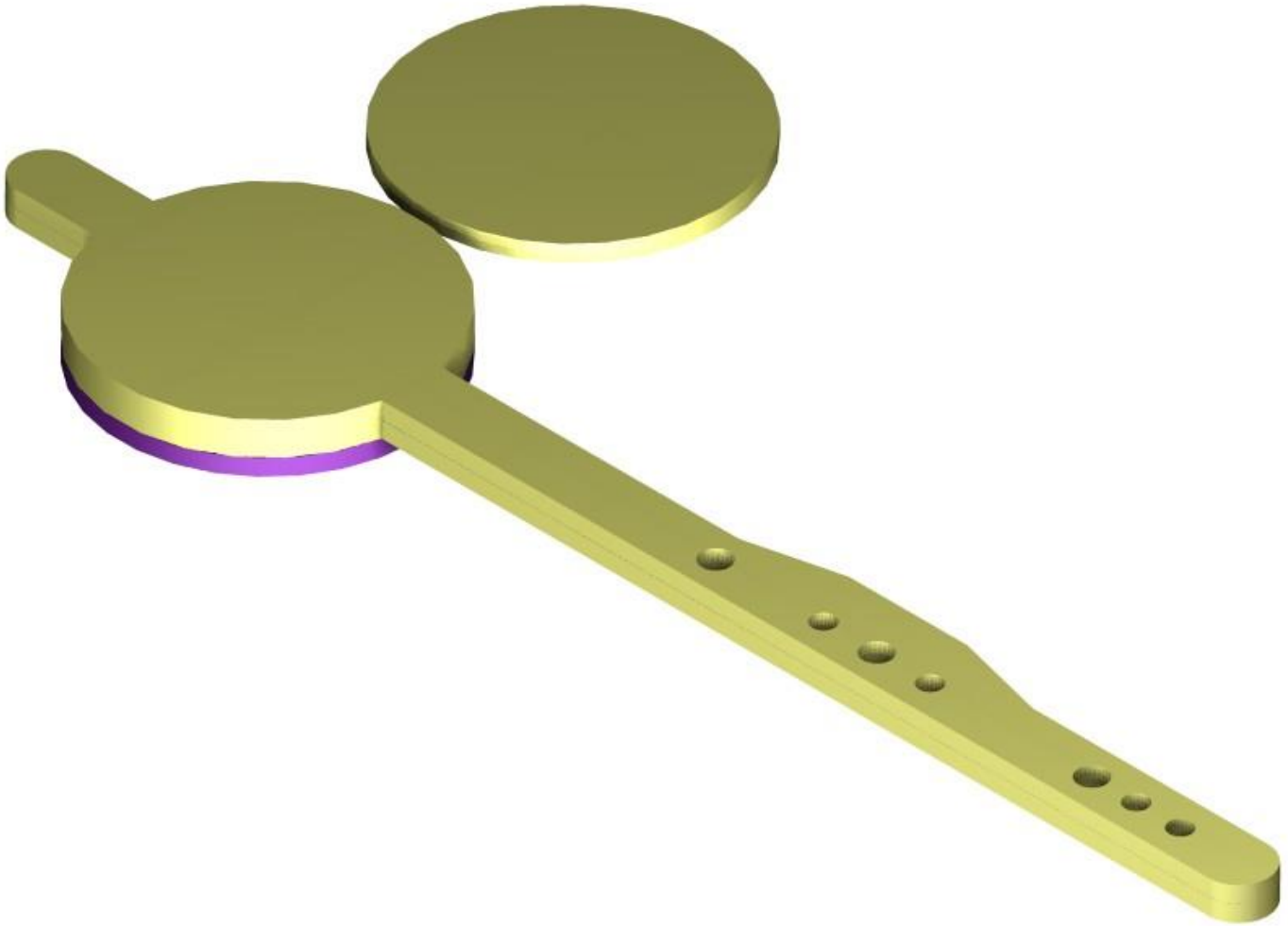
Once the main arms are located you will then need to locate the discs together.

Counter Balance_05

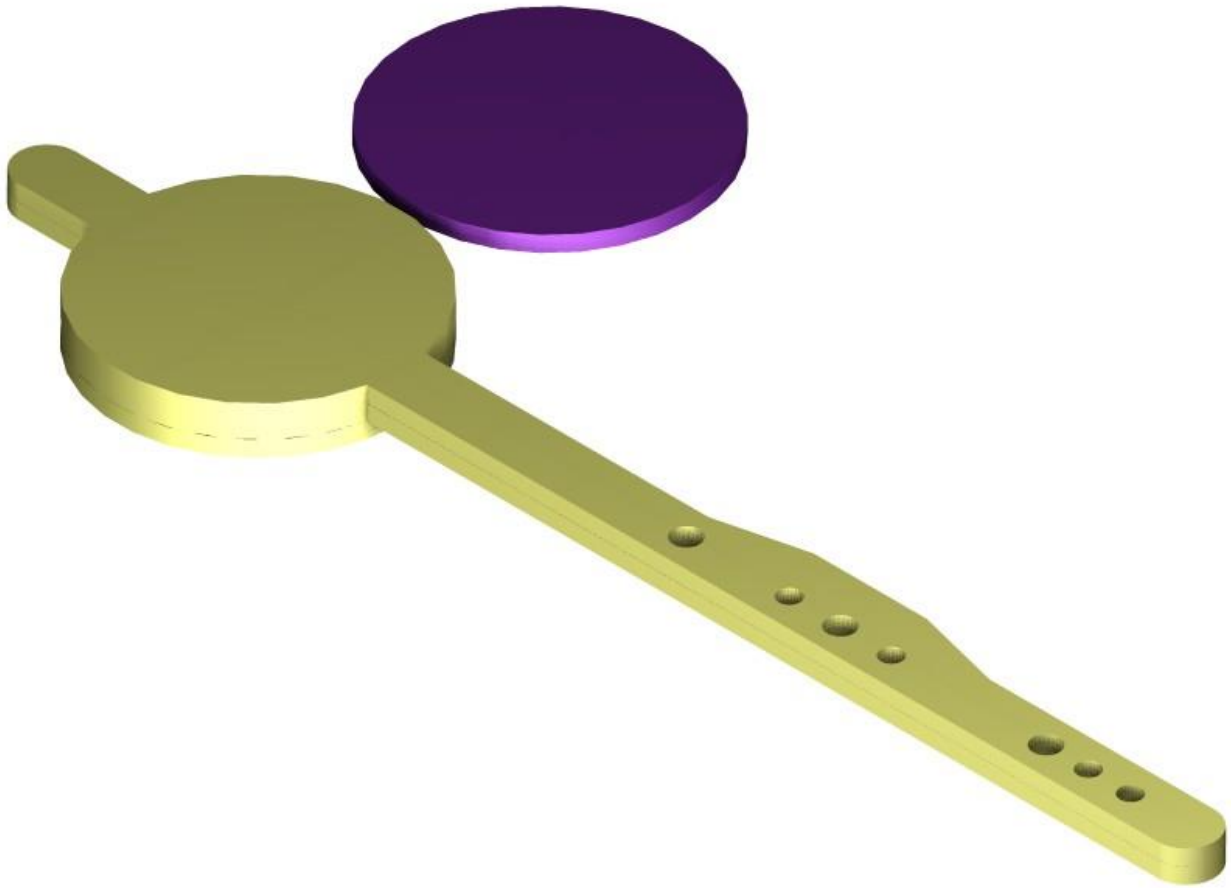


The discs are located top and bottom, to thicken up the weights of the arms. Solder the arms together once all is aligned.

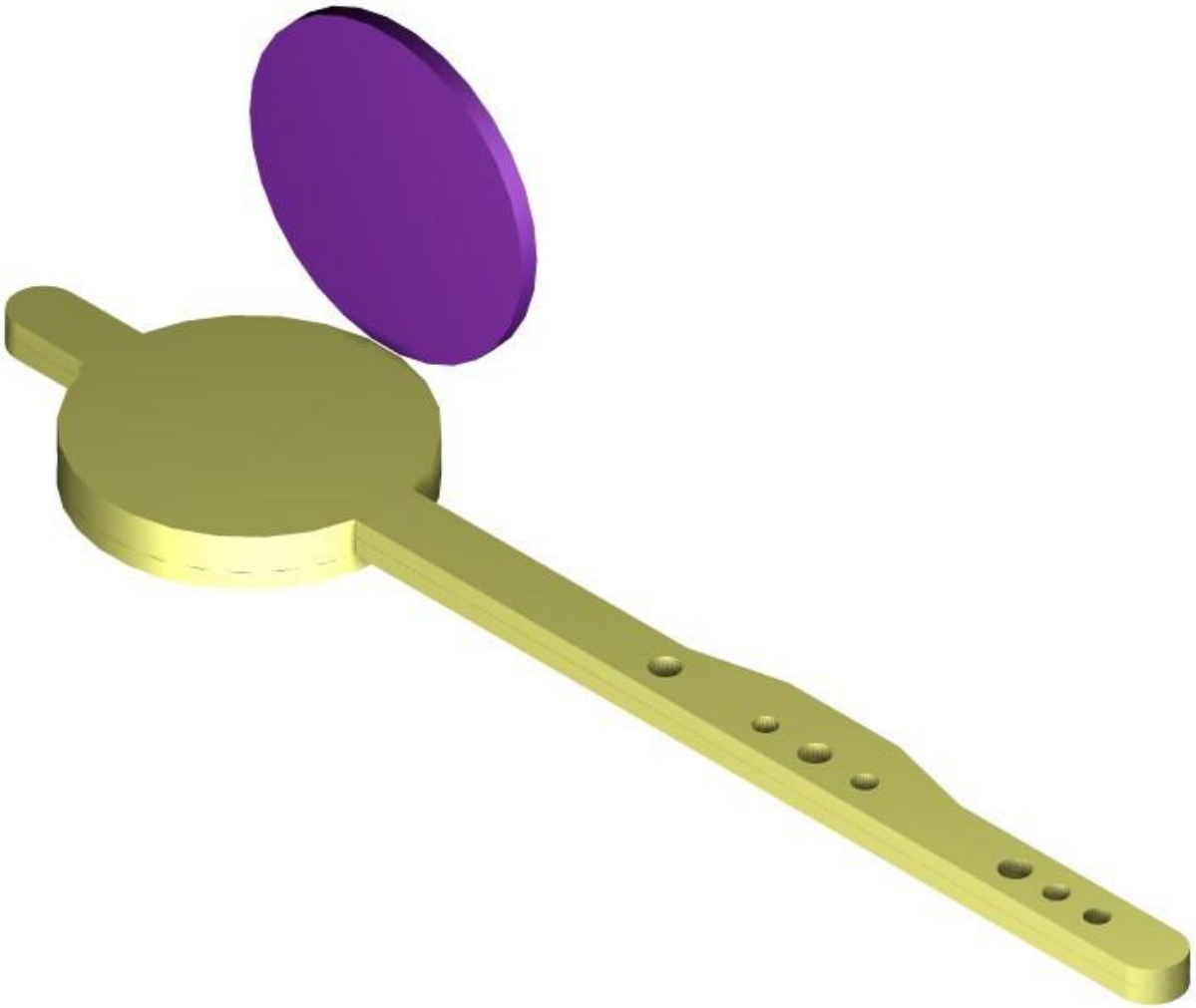
Counter Balance_06



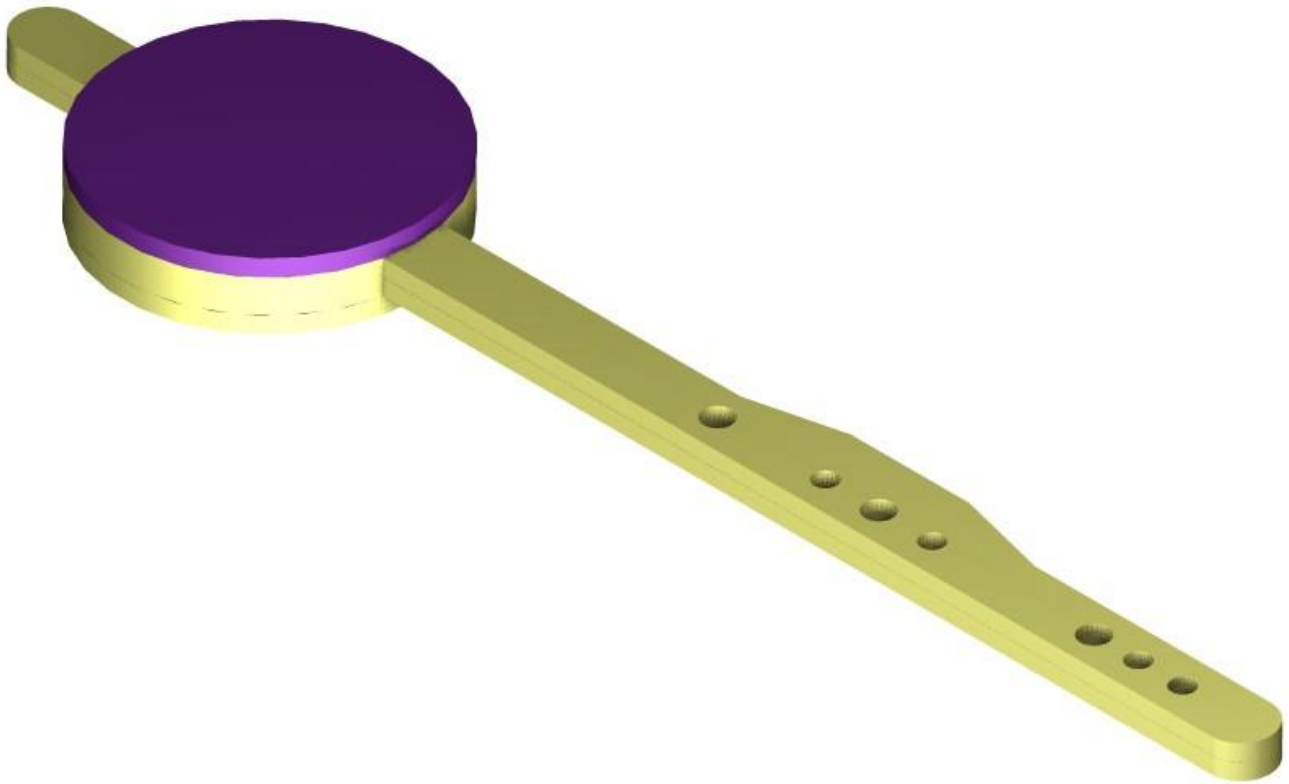
Counter Balance_07



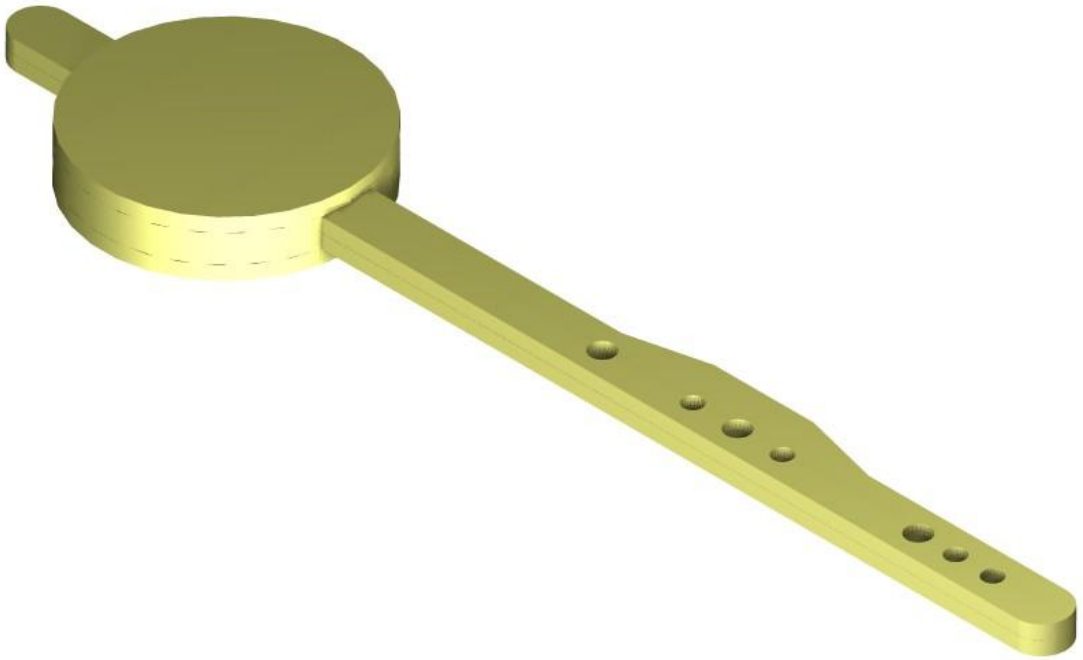
Counter Balance_08



Counter Balance_09



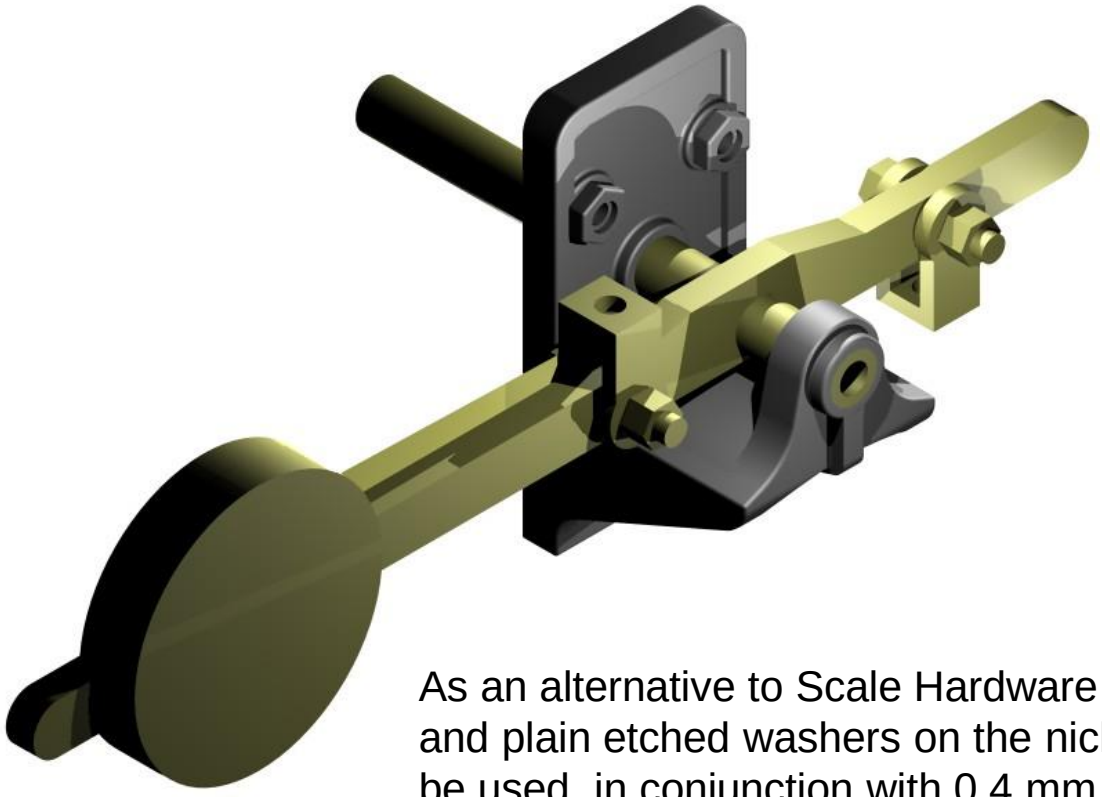
Counter Balance_10



Once soldered together, the parts require cleaning up and the holes can be cleaned out using metric number drills.

Using The Clevises - 1

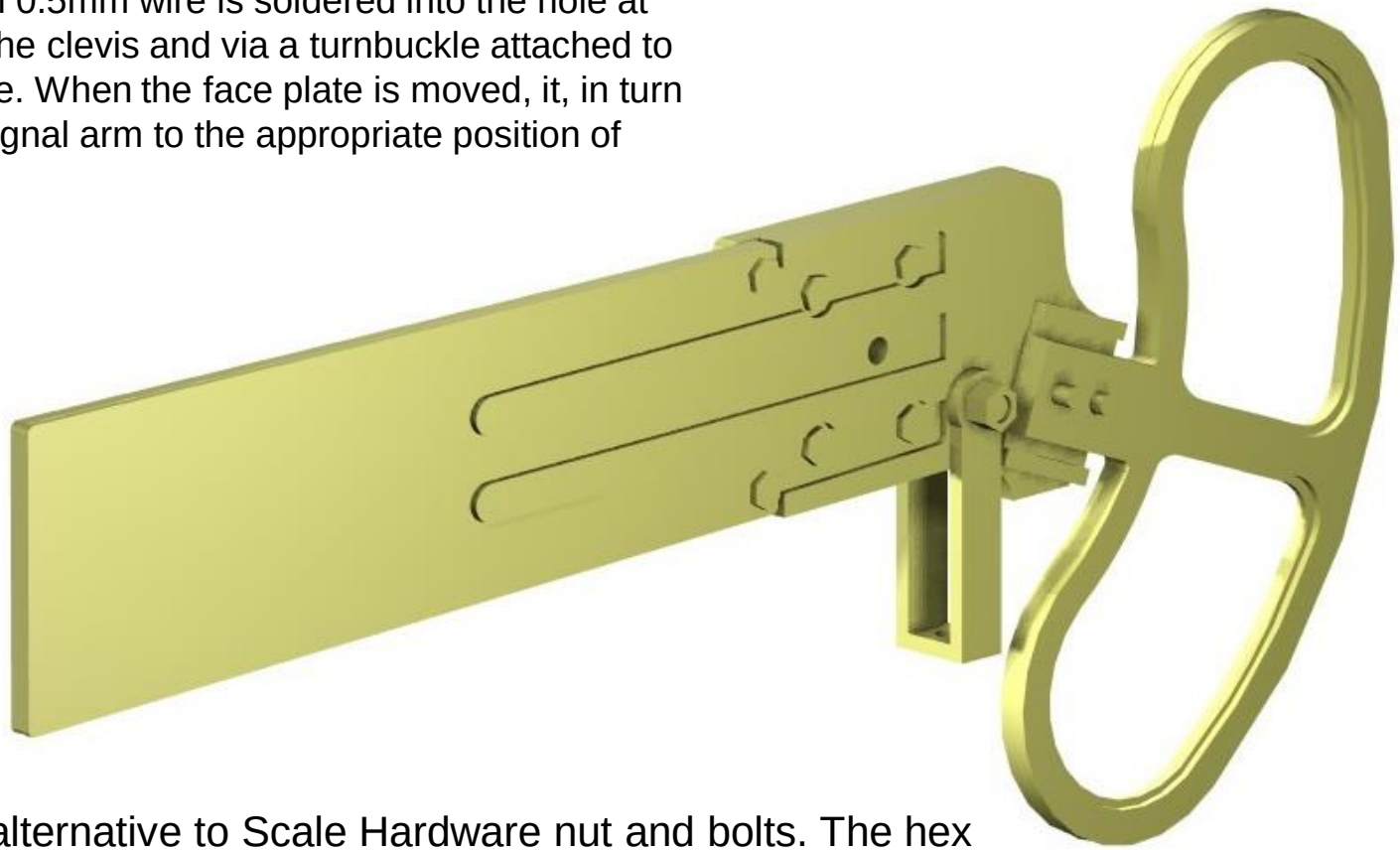
The short clevises are attracted to the lever plate using Scale Hardware 0.5mm threaded nut and bolts. This allows the clevises to pivot on the lever. Movement is transferred from the signal lever through the pulley at the signal base to the lever plate. When the lever plate moves, this in turn allows the signal arm to move to the Stop and Go Positions.



As an alternative to Scale Hardware nut and bolts. The hex and plain etched washers on the nickel silver fret, can also be used, in conjunction with 0.4 mm brass wire. You will need to be careful when gluing or soldering as you need the clevises to be able to pivot when assembled.

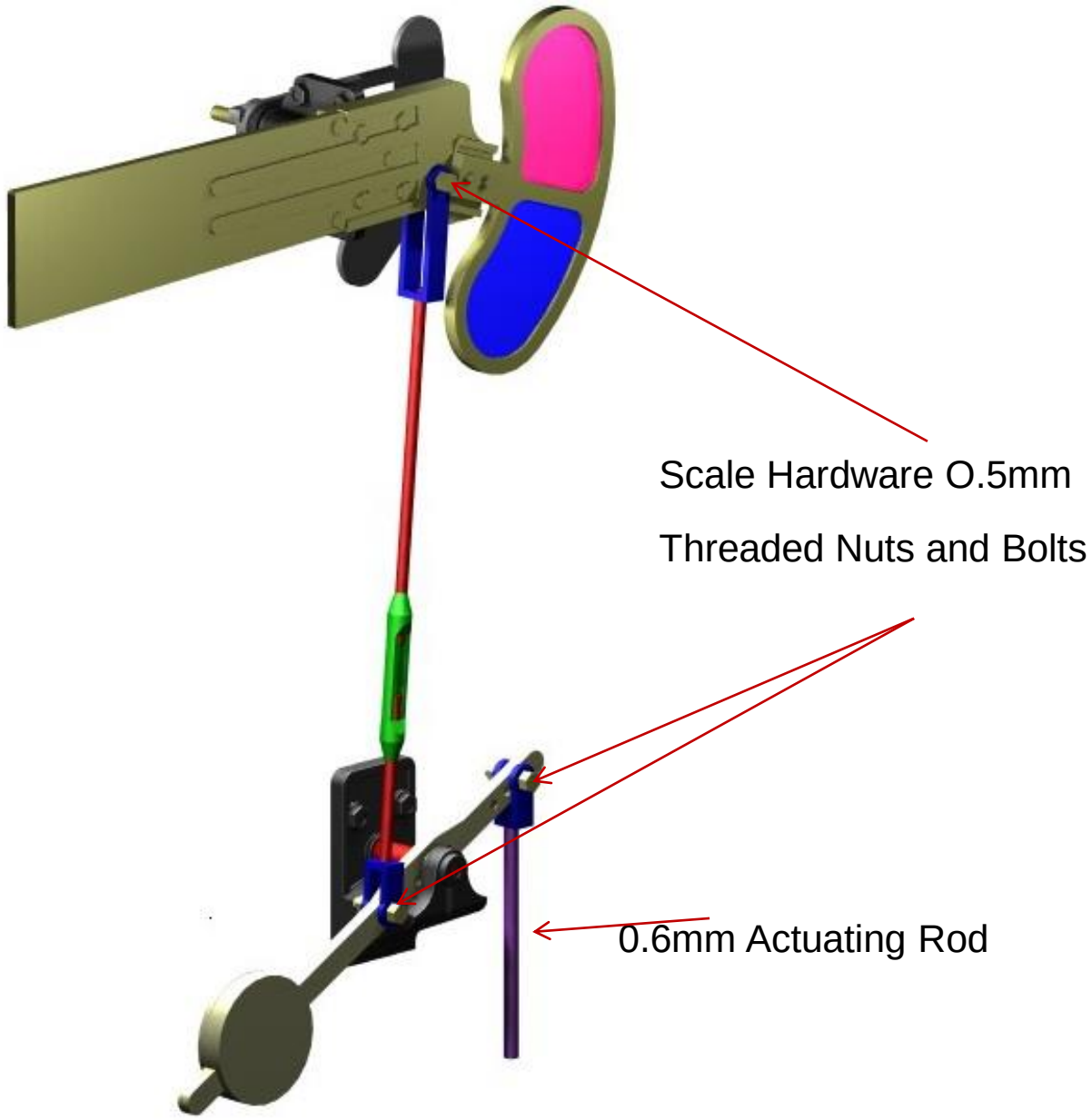
Using The Clevises - 2

The long clevis is attached to the completed Signal Arm, and bolted using scale hardware threaded nut and bolts. An 0.5mm wire is soldered into the hole at the base of the clevis and via a turnbuckle attached to the face plate. When the face plate is moved, it, in turn moves the signal arm to the appropriate position of Stop or Go



As an alternative to Scale Hardware nut and bolts. The hex and plain etched washers on the brass fret, can also be used. You will need to be careful when gluing or soldering as you need the clevises to be able to pivot when assembled.

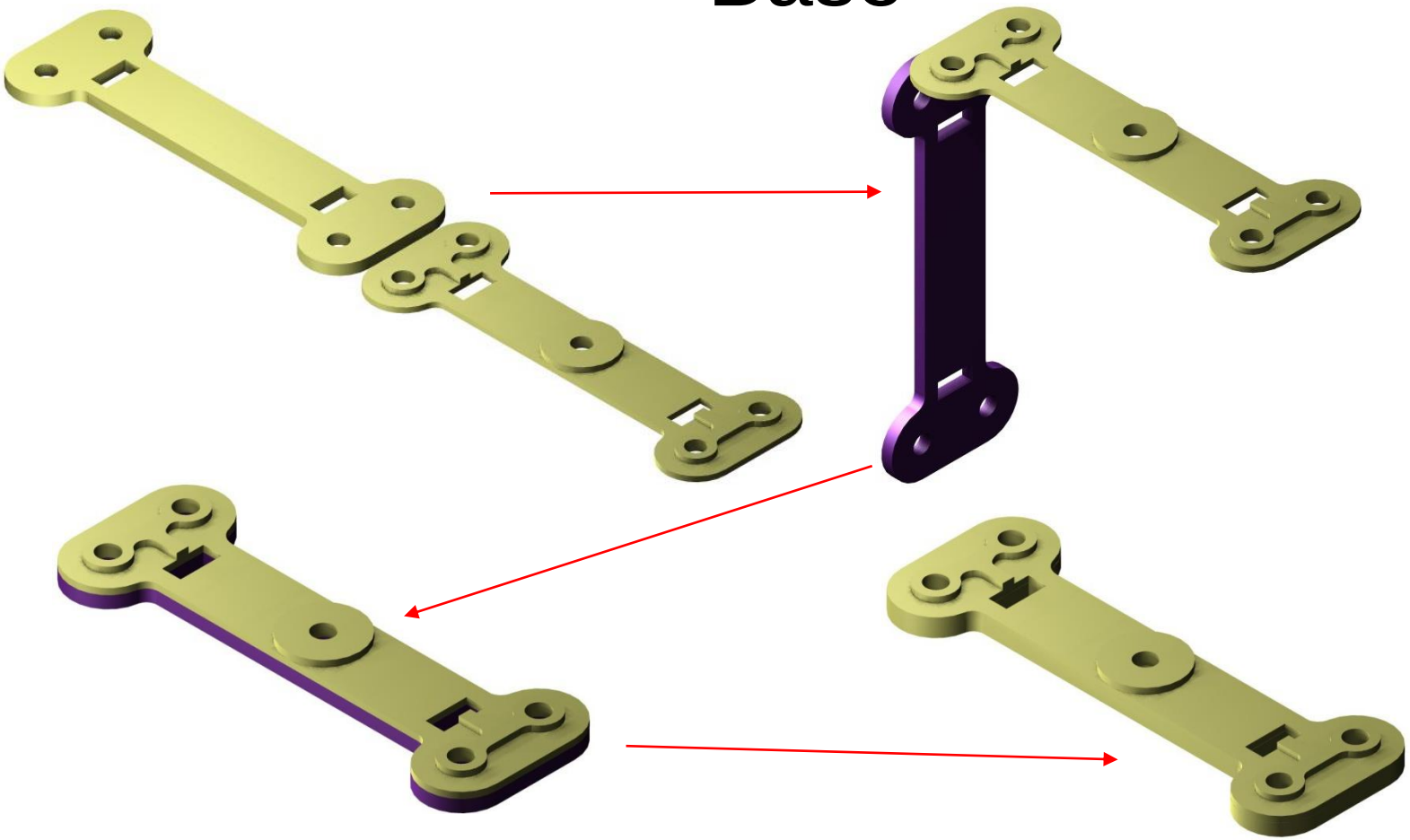
Using The Clevises - 3



Pulley Bracket and Wheel - 1

The Pulley Bracket

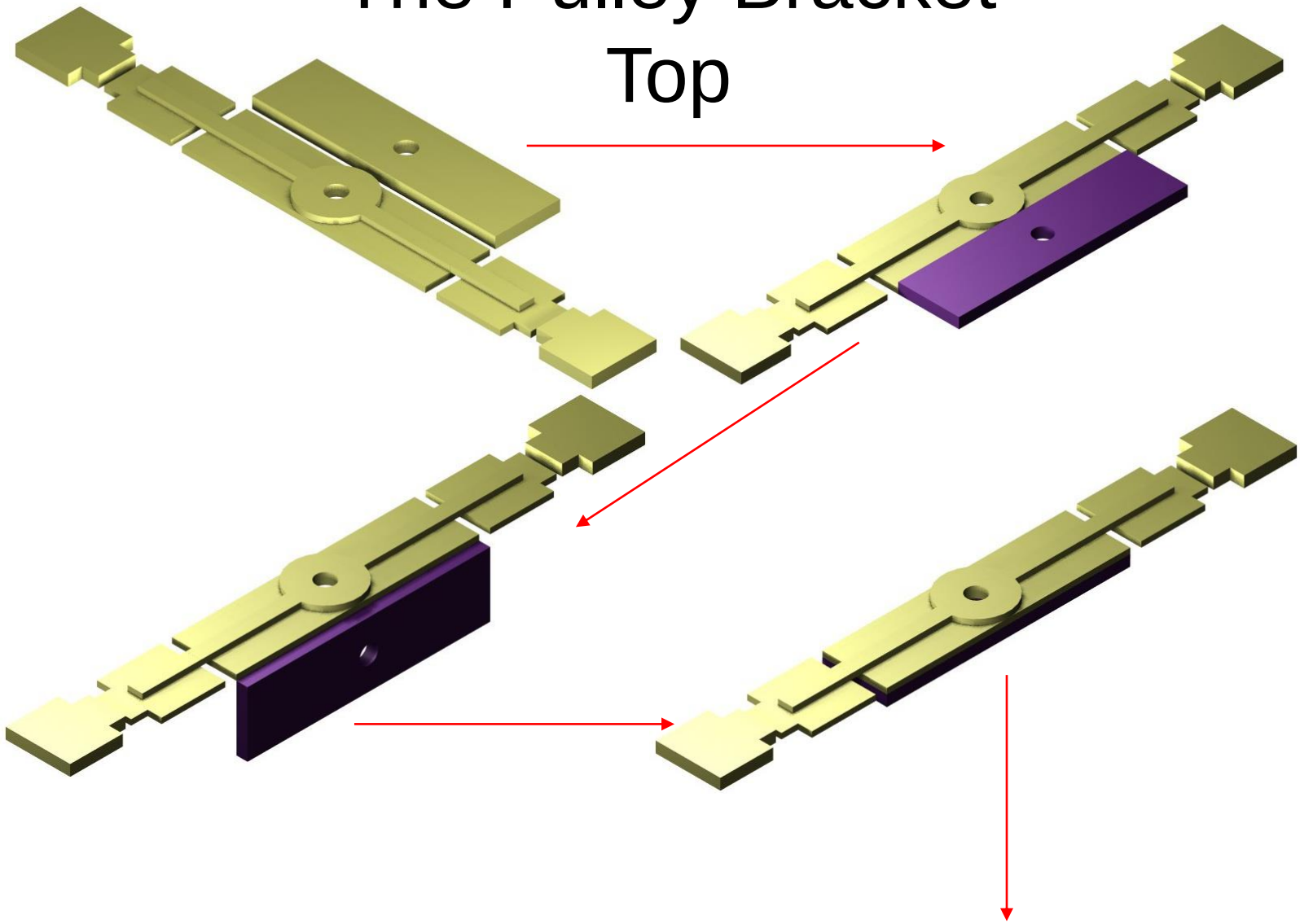
Base



Pulley Bracket and Wheel - 2

The Pulley Bracket

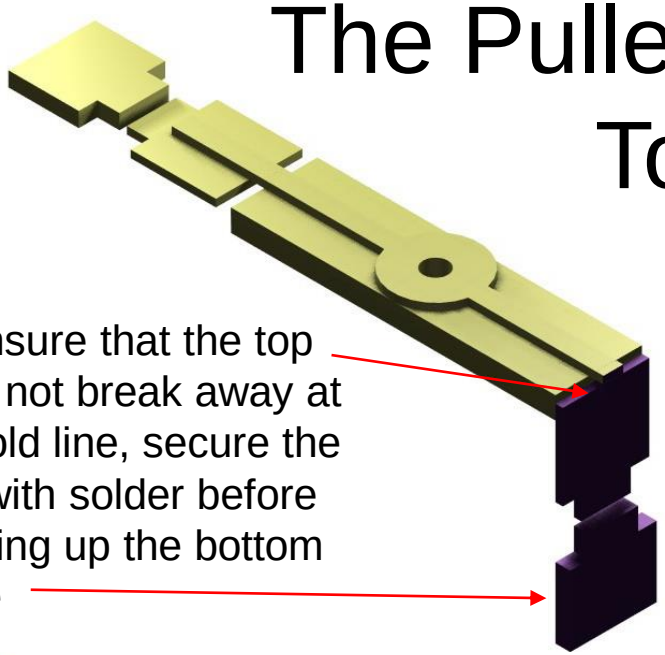
Top



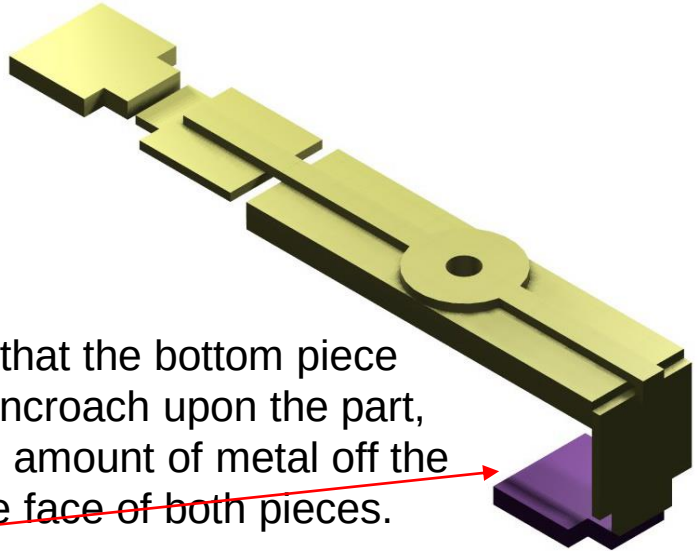
Pulley Bracket and Wheel - 3

The Pulley Bracket

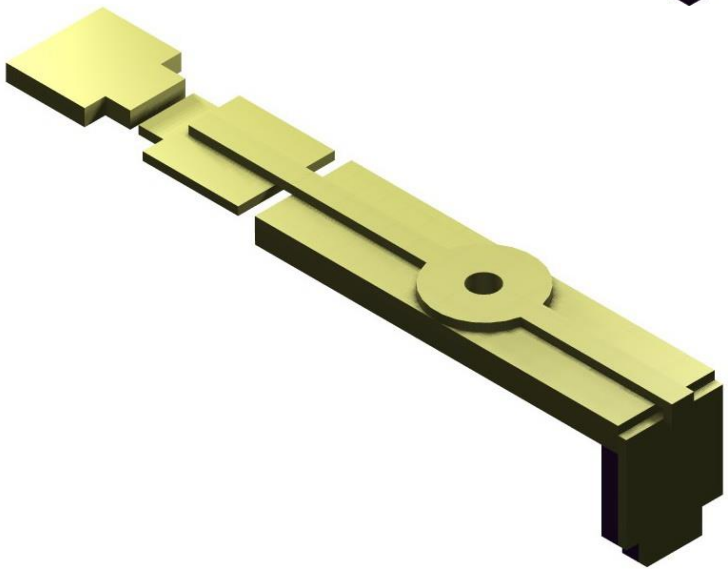
Top

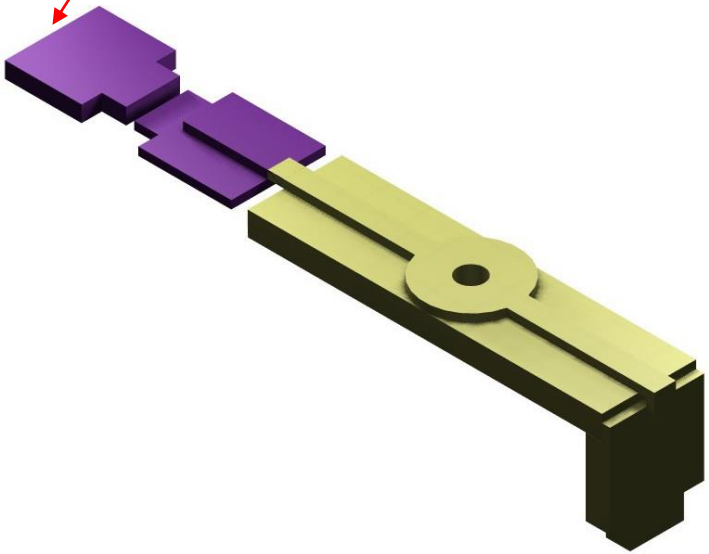


To ensure that the top does not break away at the fold line, secure the fold with solder before bringing up the bottom piece



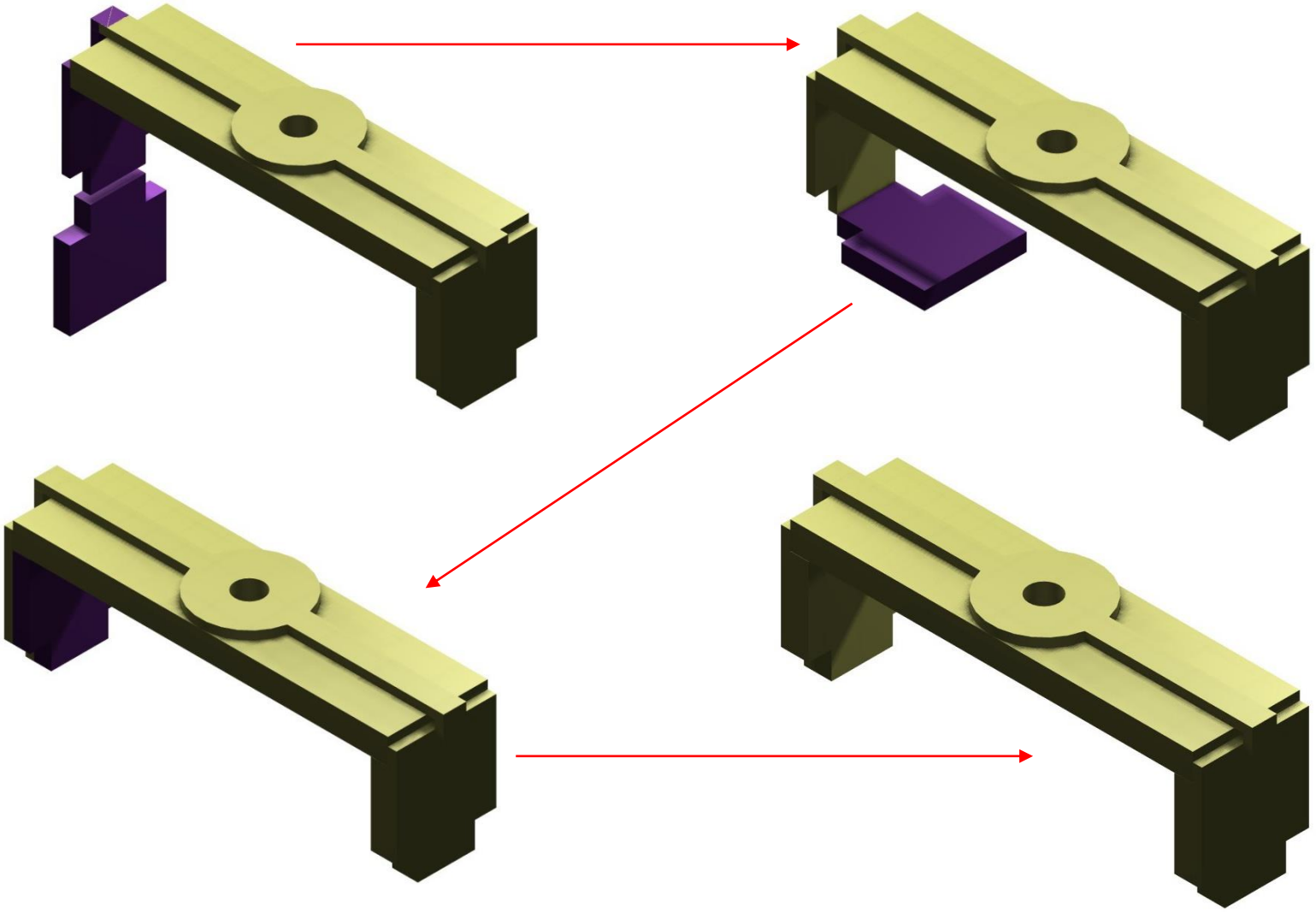
To ensure that the bottom piece does not encroach upon the part, file a small amount of metal off the etch on the face of both pieces.





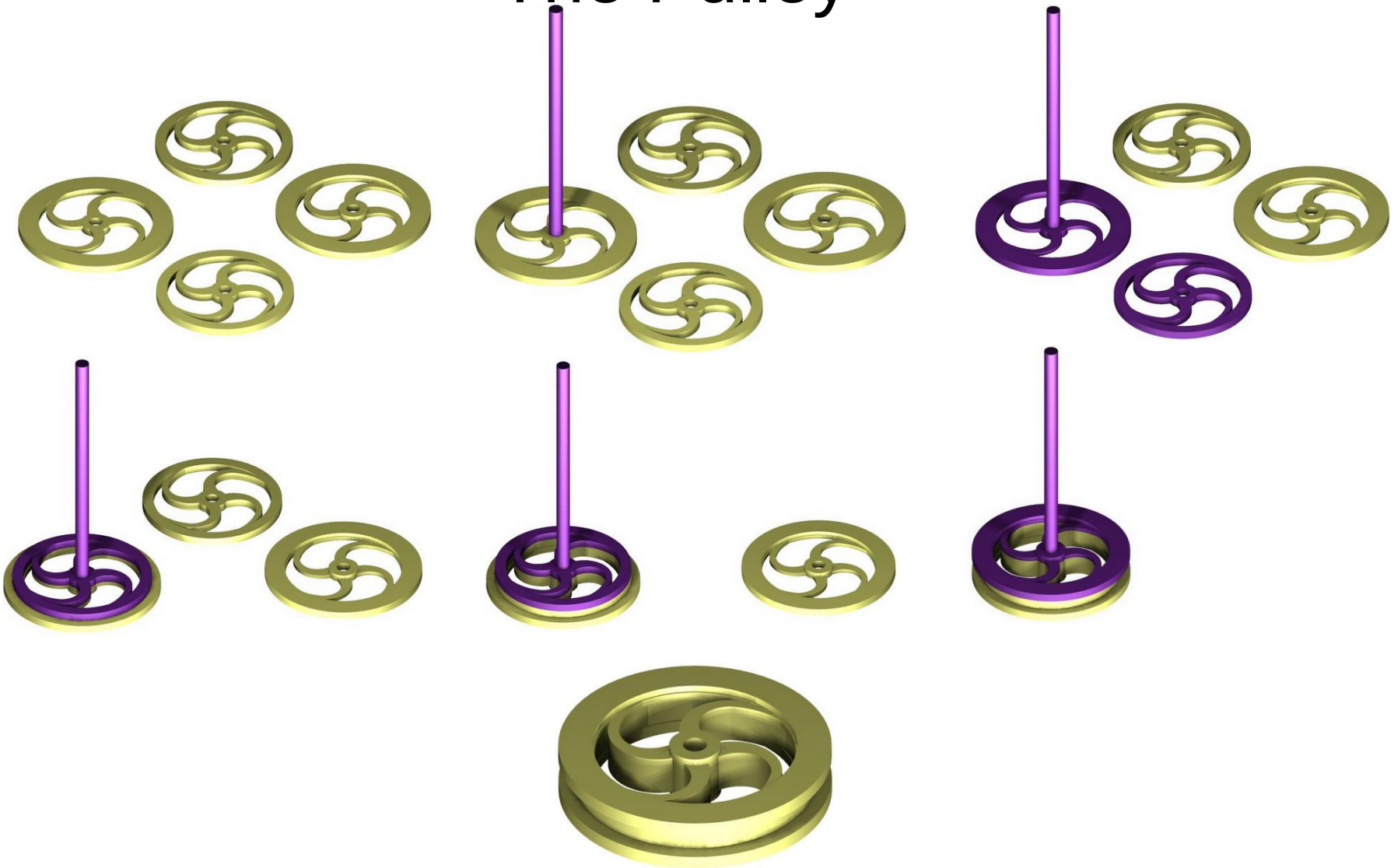
Pulley Bracket and Wheel - 4

The Pulley Bracket Top



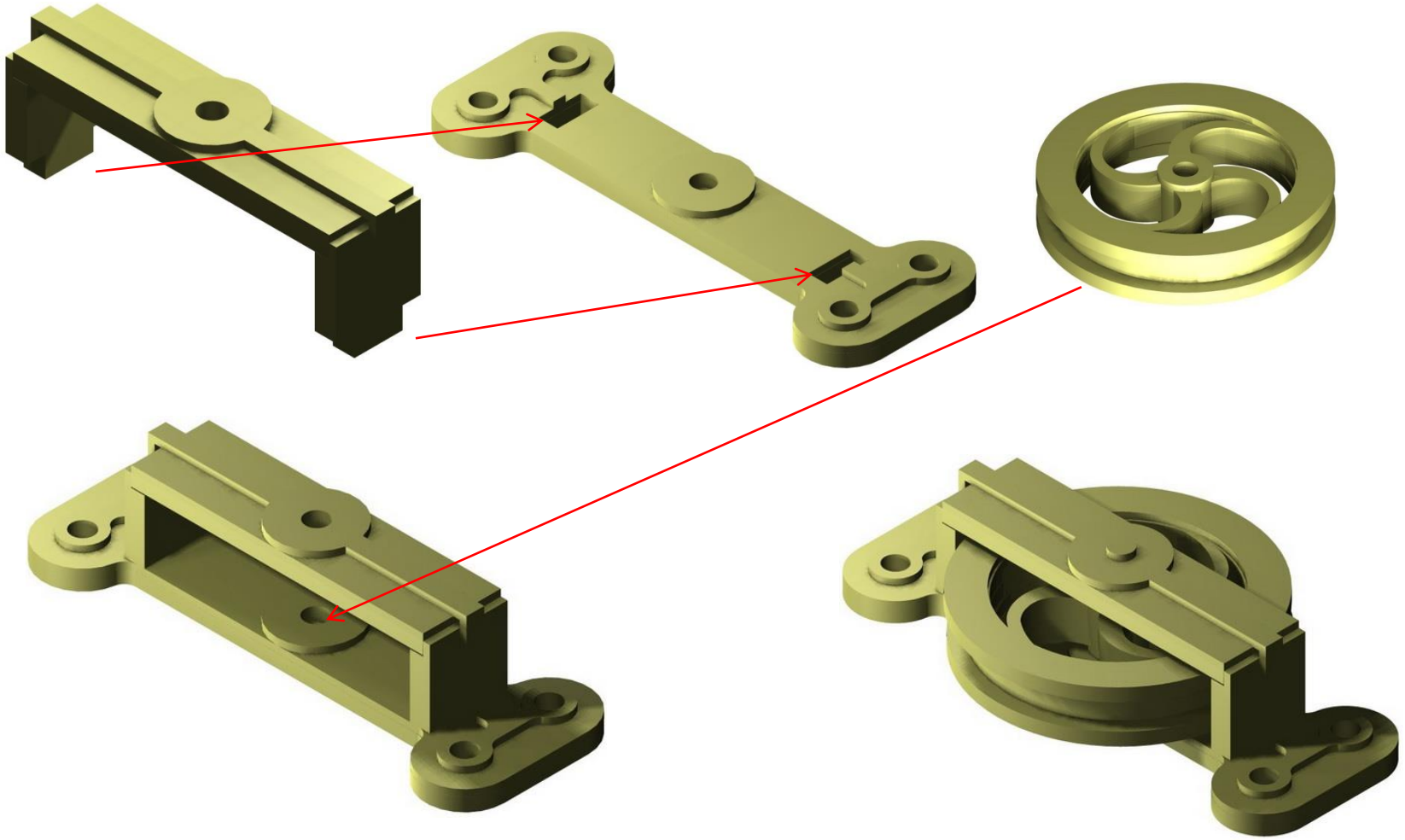
Pulley Bracket and Wheel - 5

The Pulley



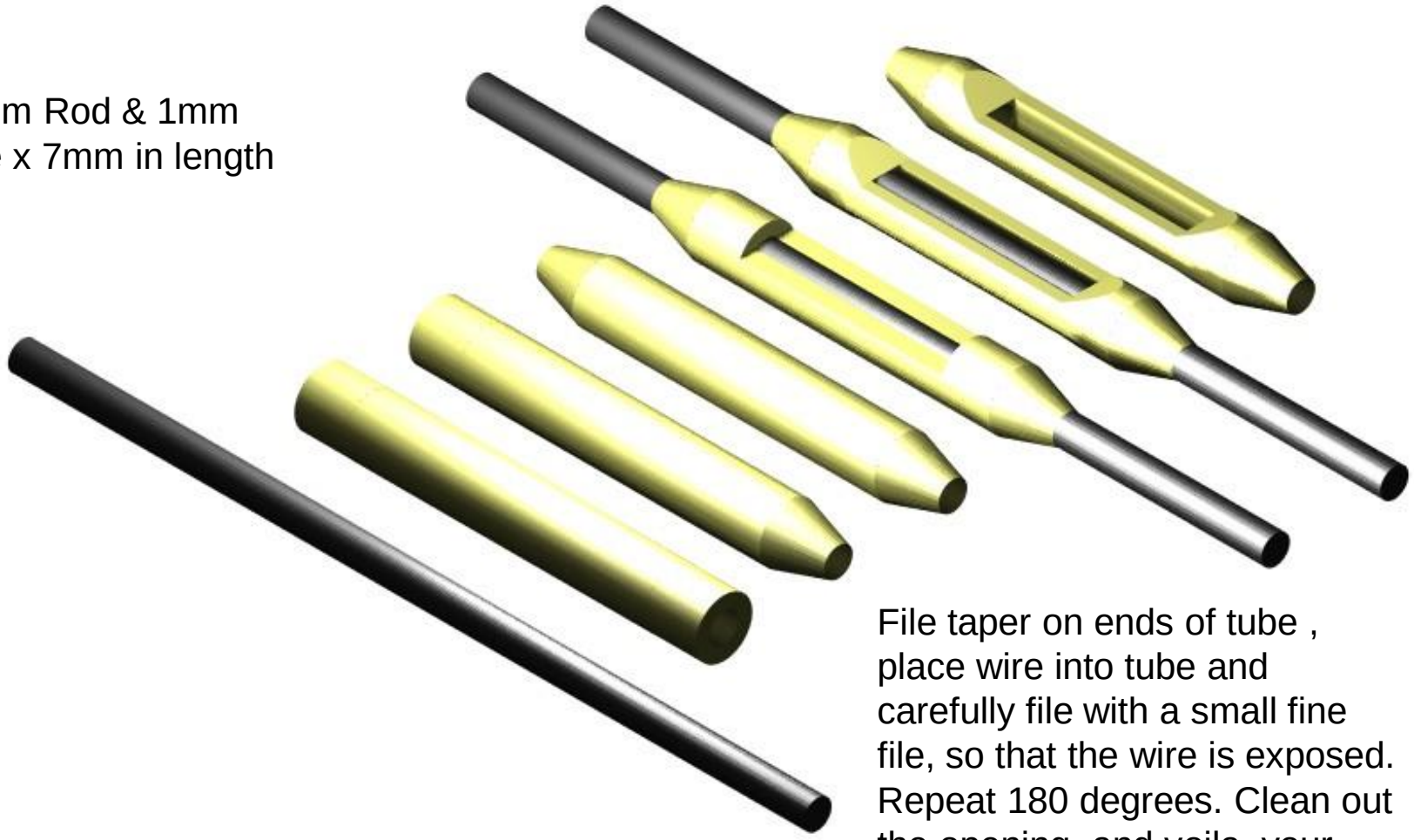
Pulley Bracket and Wheel - 6

The Lot



Signal Arm Turnbuckle

0.5mm Rod & 1mm
Tube x 7mm in length



File taper on ends of tube , place wire into tube and carefully file with a small fine file, so that the wire is exposed. Repeat 180 degrees. Clean out the opening, and voila, your turnbuckle is ready. If you bugger up the first one, try it again, you do have enough tube

Assembly Hints and Tips

- To secure parts, you have a choice of solder of supa glue, no matter which one that you choose, use them sparingly.

- When securing parts to the signal post, you have another choice of etched washers and hex nuts, or Scale Hardware nuts and bolts (no longer available) and simulated square and hex nuts.

- Some parts can be painted before securing and any touching up, can be done after fitting.

- Build up the signal base on the craftwood sub-base supplied, which will also need to have the actuating mechanism attached to it.

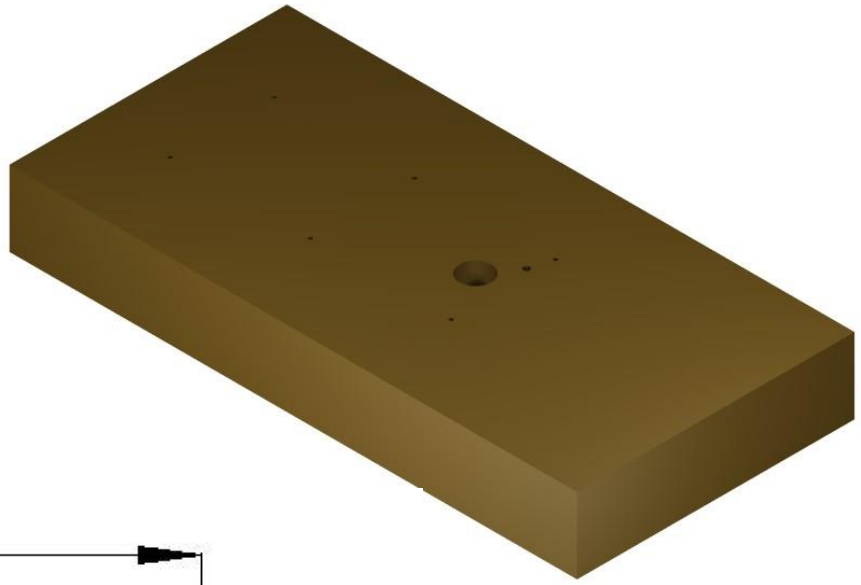
- 0.3mm Nickel Silver packing can be use to pack out the signal arm bearing plate and the signal lamp bracket, to enable the lamp to appear through the middle of the spectacle plate. Check to see if it is necessary on your kit.

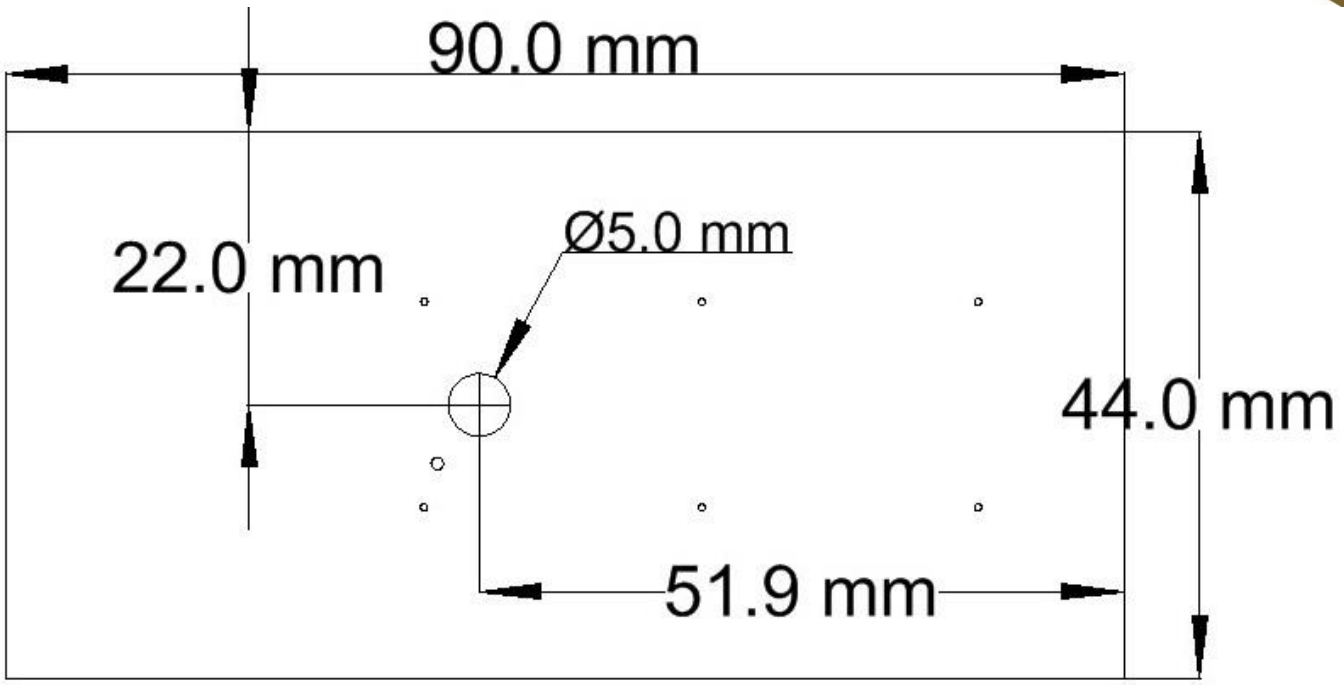
- The lenses for the spectacle plate are supplied in the kit and are red and blue. These are placed into the spectacle plate after it is painted and secured with a small amount of white glue. The blue lens suits the yellow LED suggested in the instructions.

- *The diagrams in the following slides, show where the components fit onto the post , this should assist in the construction of the kit.*

Assembly - 1

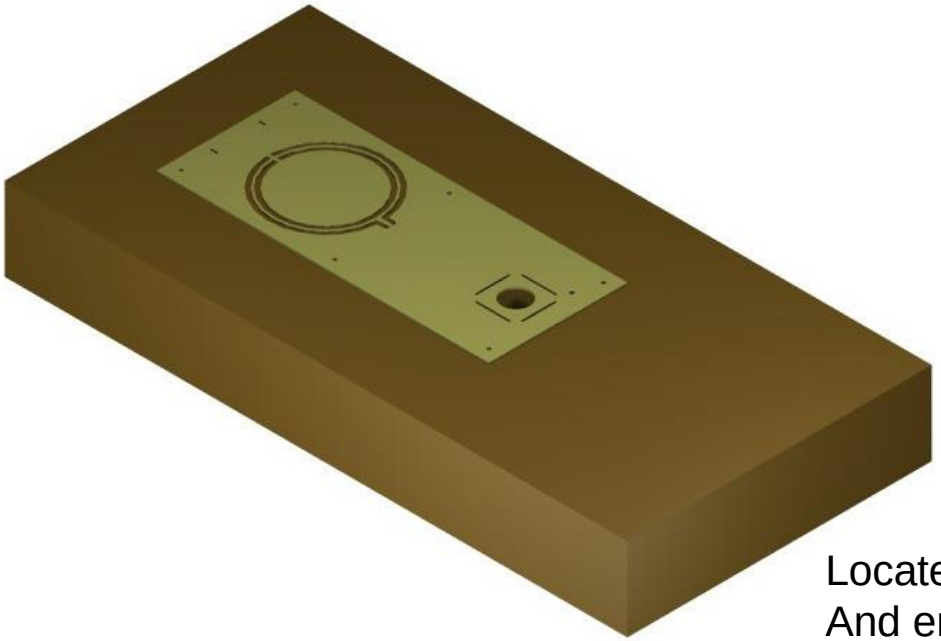
Mark the base as per the dimension drawing below, and drill the 5 mm hole, and mark the centreline, then using the etched brass base as a template, locate the etch and drill all the other holes.

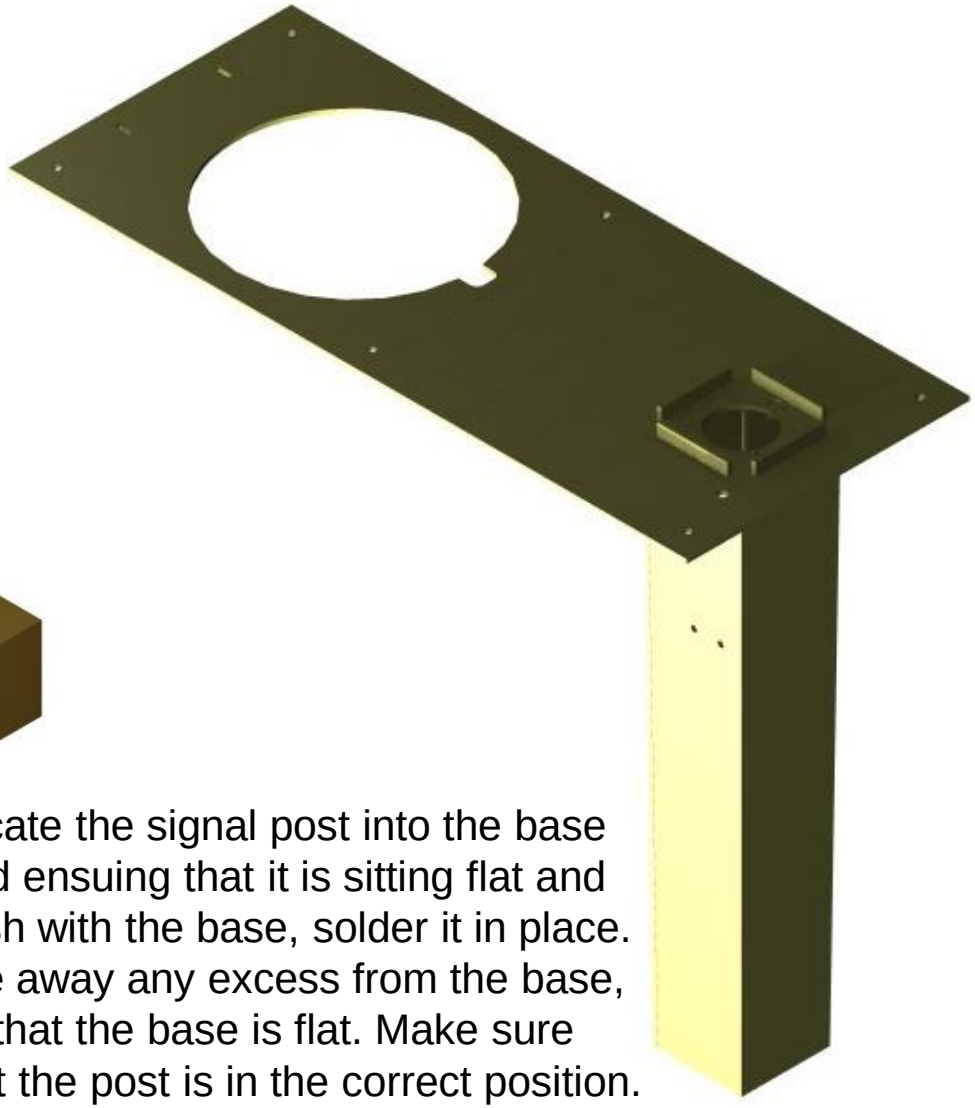




Assembly - 2

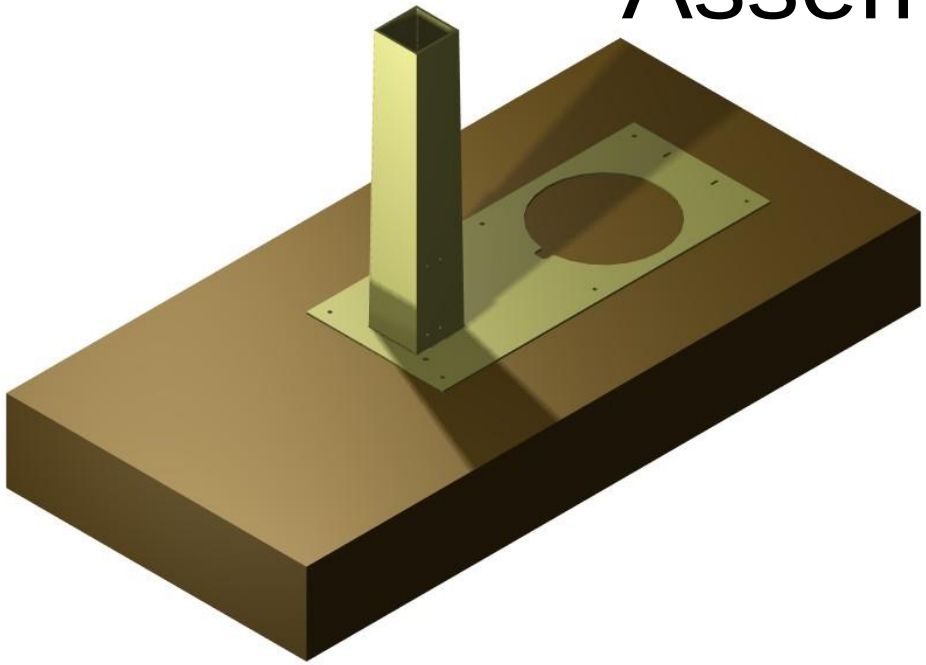
After drilling the timber base, test fit the etch base and locate using the 6 lace pins attached. This is only temporary.



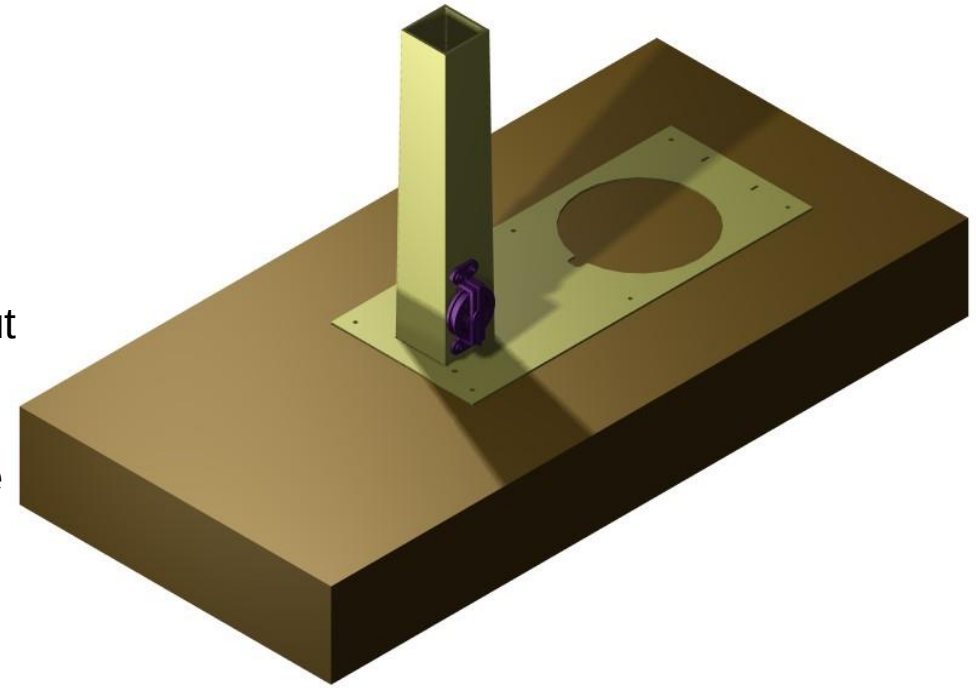


Locate the signal post into the base And ensuing that it is sitting flat and flush with the base, solder it in place. File away any excess from the base, so that the base is flat. Make sure that the post is in the correct position.

Assembly - 3



For ease of explanation the post is depicted in a cut down state please do not cut the post, as it will ruin the kit.



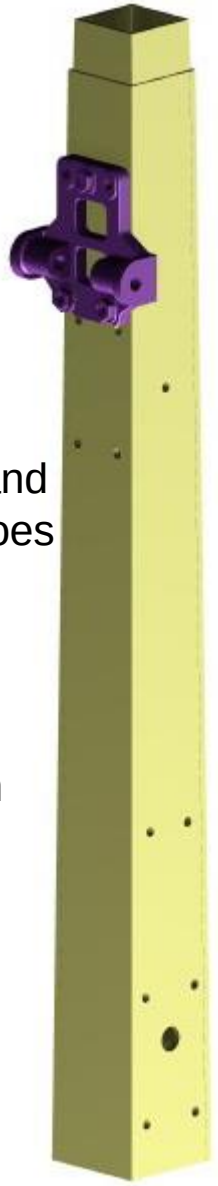
The post is secured to the brass base, but the base is not placed into the timber base at this point. The drawing on the right shows the pulley and wheel fitted to the post. This can be secured with square headed or hex headed simulated nuts and bolts.

The post needs to be fitted with a plastic tube, so that the wires for the LED (not supplied) can be fitted and kept insulated. All drilling of the post should be done before the plastic tube is fitted, to prevent short circuits

Assembly - 4

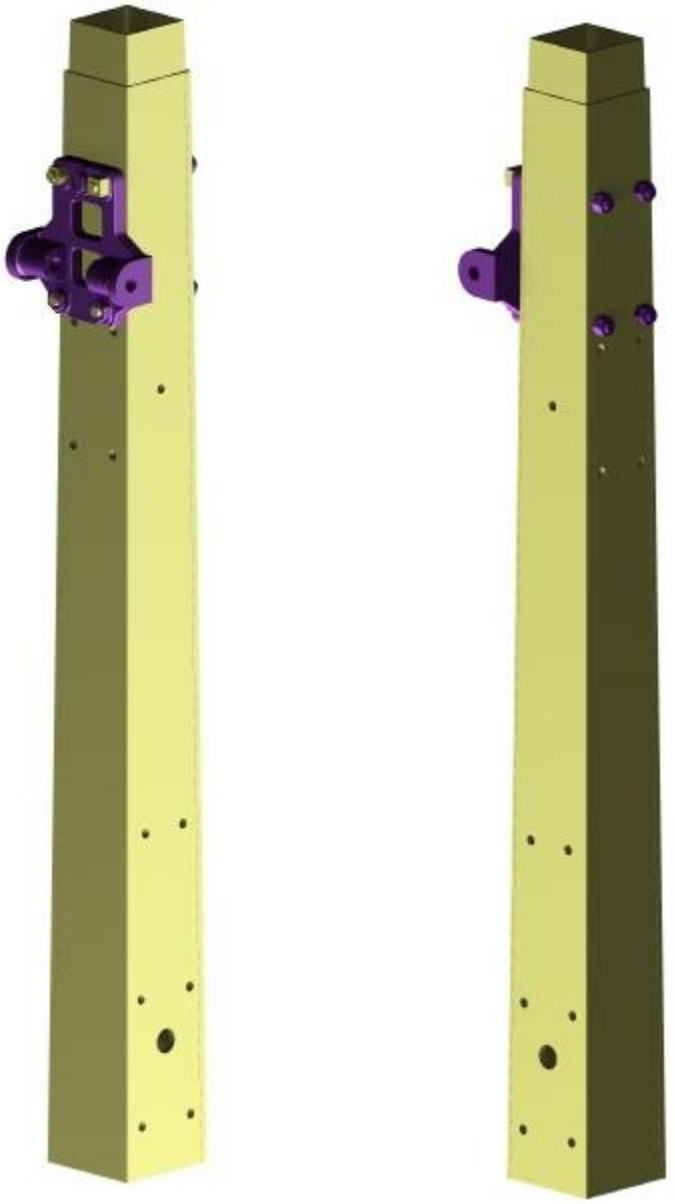
Test fit the signal arm bearing bracket , and use either the 0.4mmwire supplied with etched nuts and washer, or Scale Hardware simulated nuts and bolts

Only test fit at this stage and if you find that the lamp does not sit at the centre of the spectacle plate, you can pack the bearing bracket using a small piece of 0.3mm shim from the etch fret.

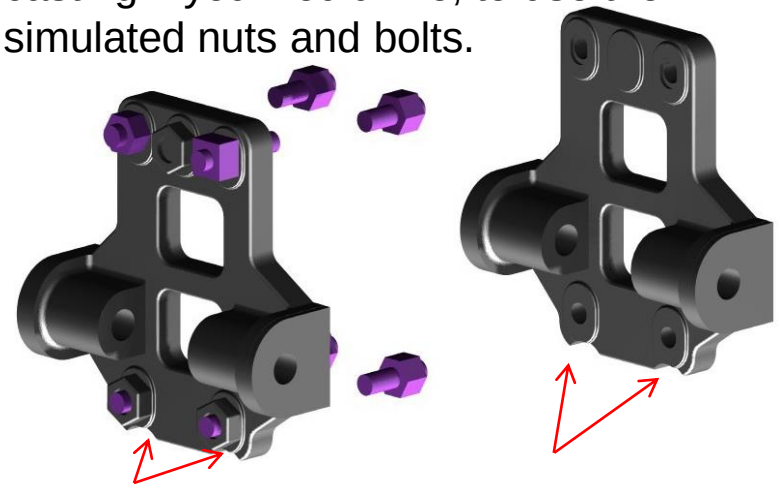


Ladder

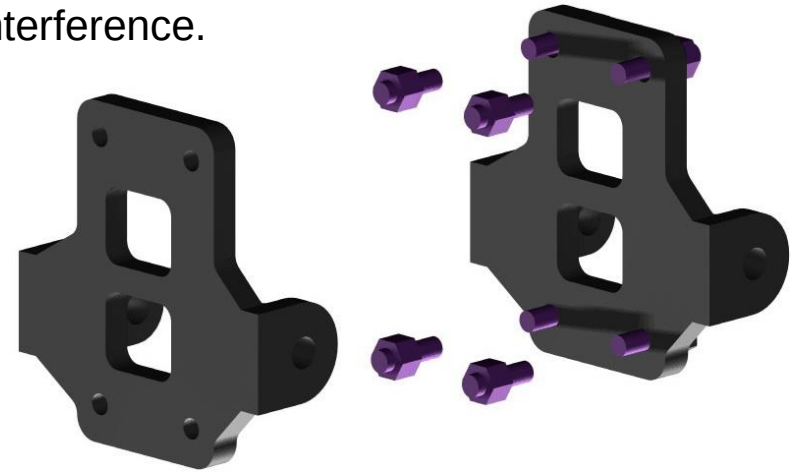
Assembly - 5



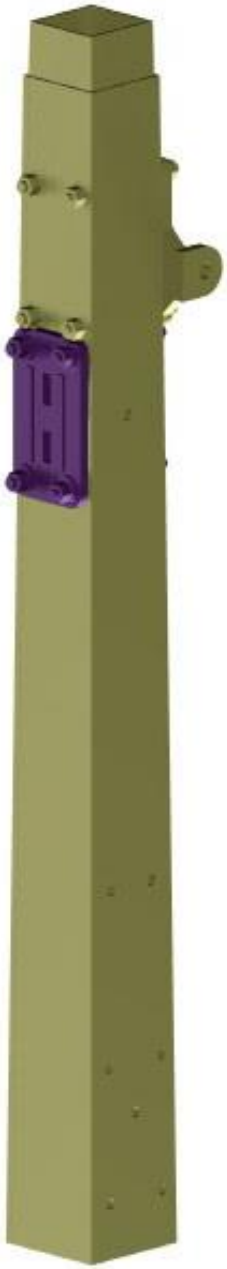
The cast nuts can be removed from the casting if you would like, to use the simulated nuts and bolts.



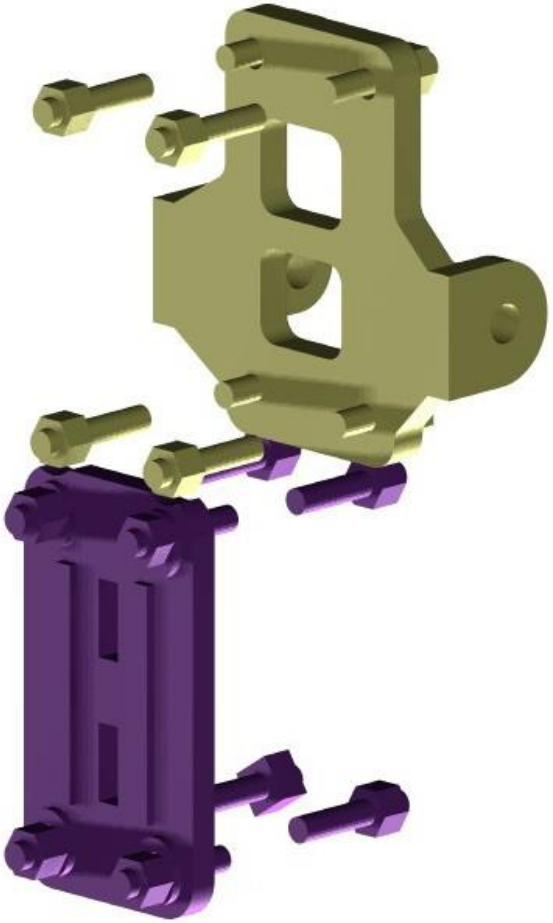
Small rebates can be filed into the base of the casting to allow the bolts from other parts to be fitted in place without interference.

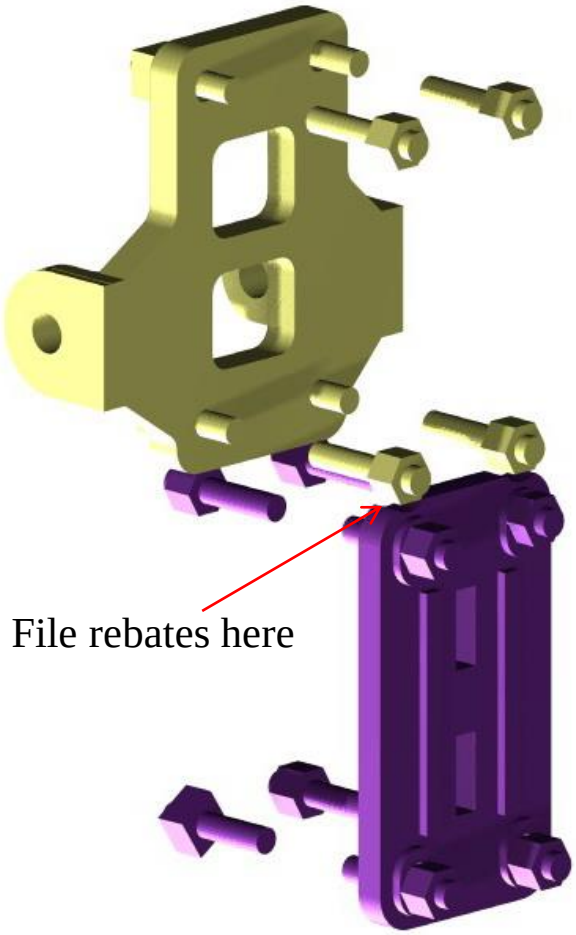


Assembly - 6

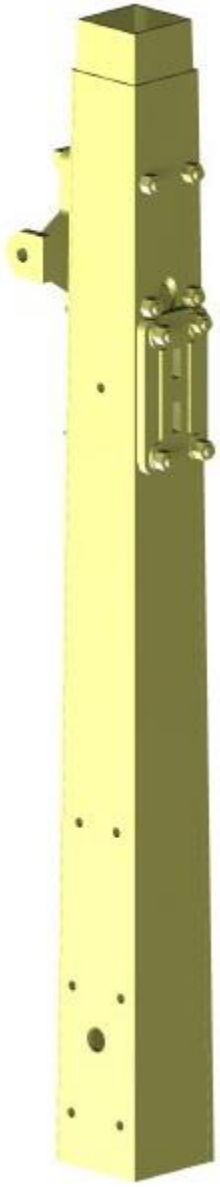


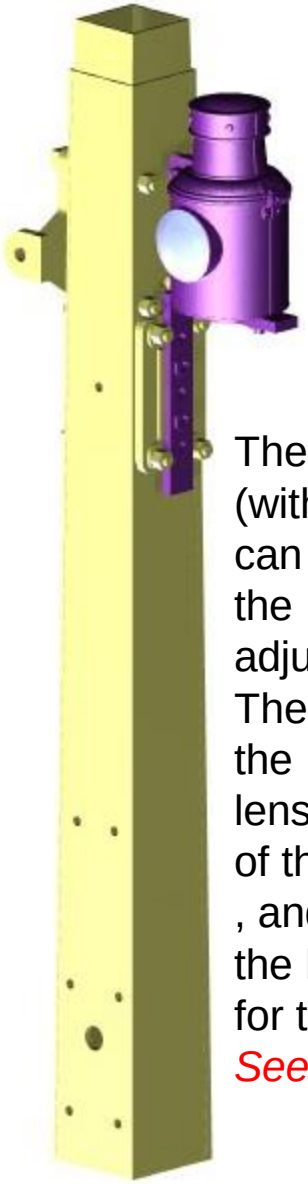
Test fit the first signal lamp bracket to the signal post, and again file a small rebate in the top of the bracket to allow the simulated nuts and bolts from the bearing bracket to sit neatly. Only test fit at this stage and if you find that the lamp does not sit at the centre of the spectacle plate, you can pack the lamp bracket using a small piece of 0.3mm shim from the etch fret.



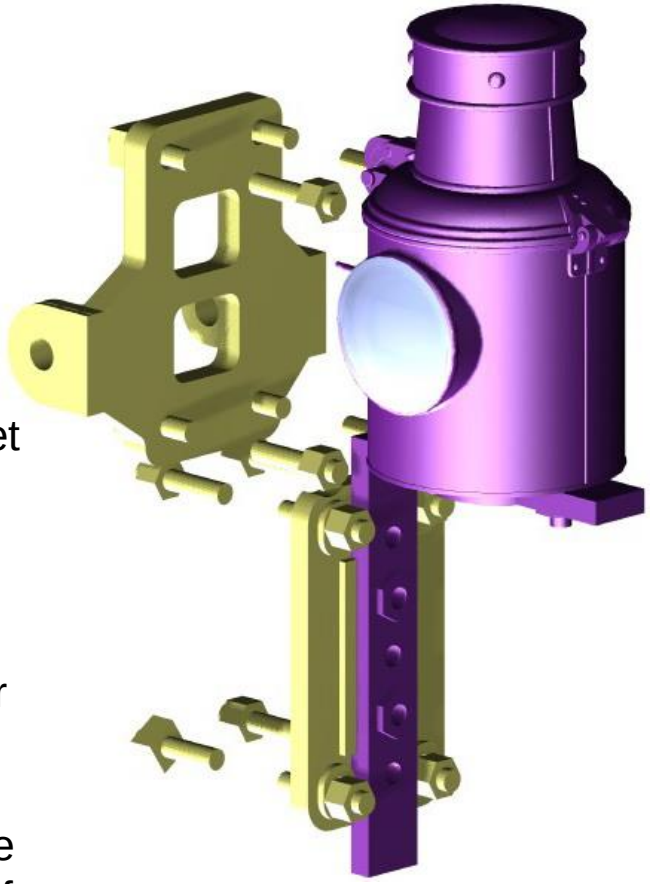


Assembly - 7

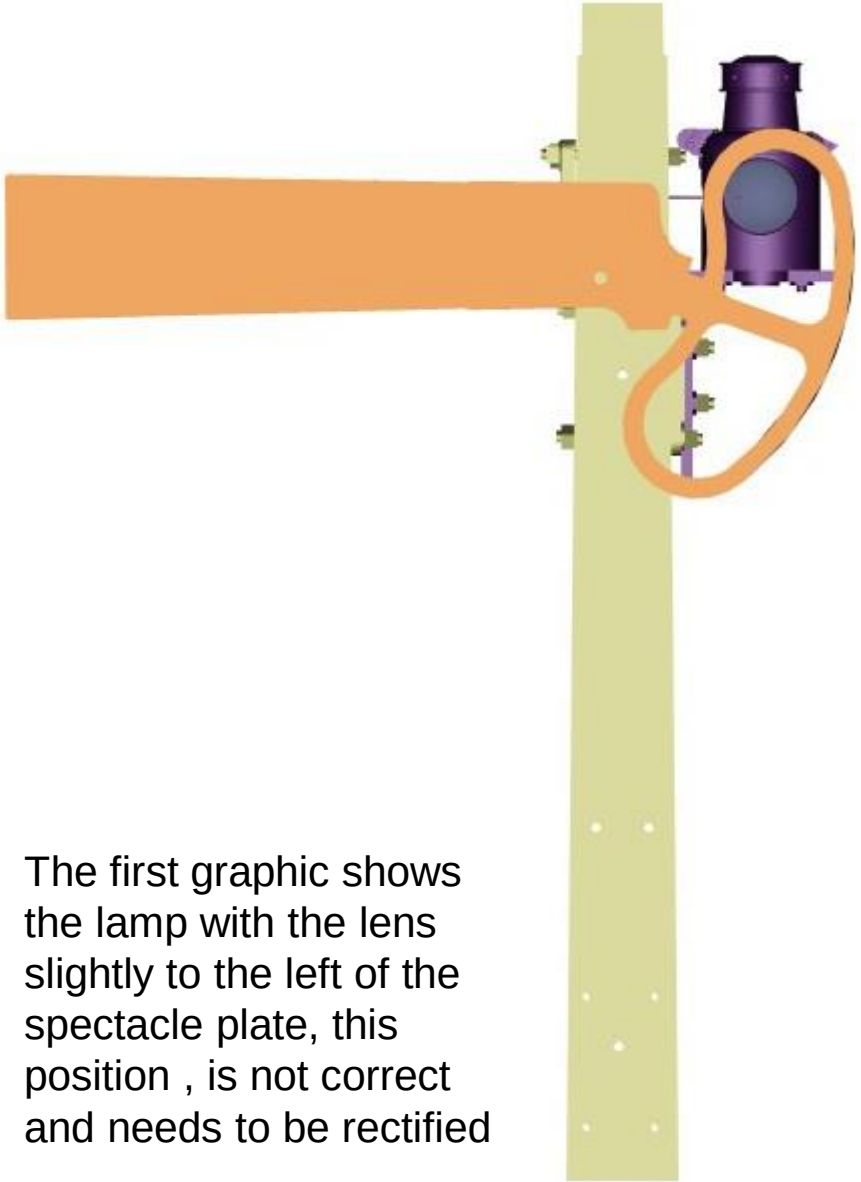




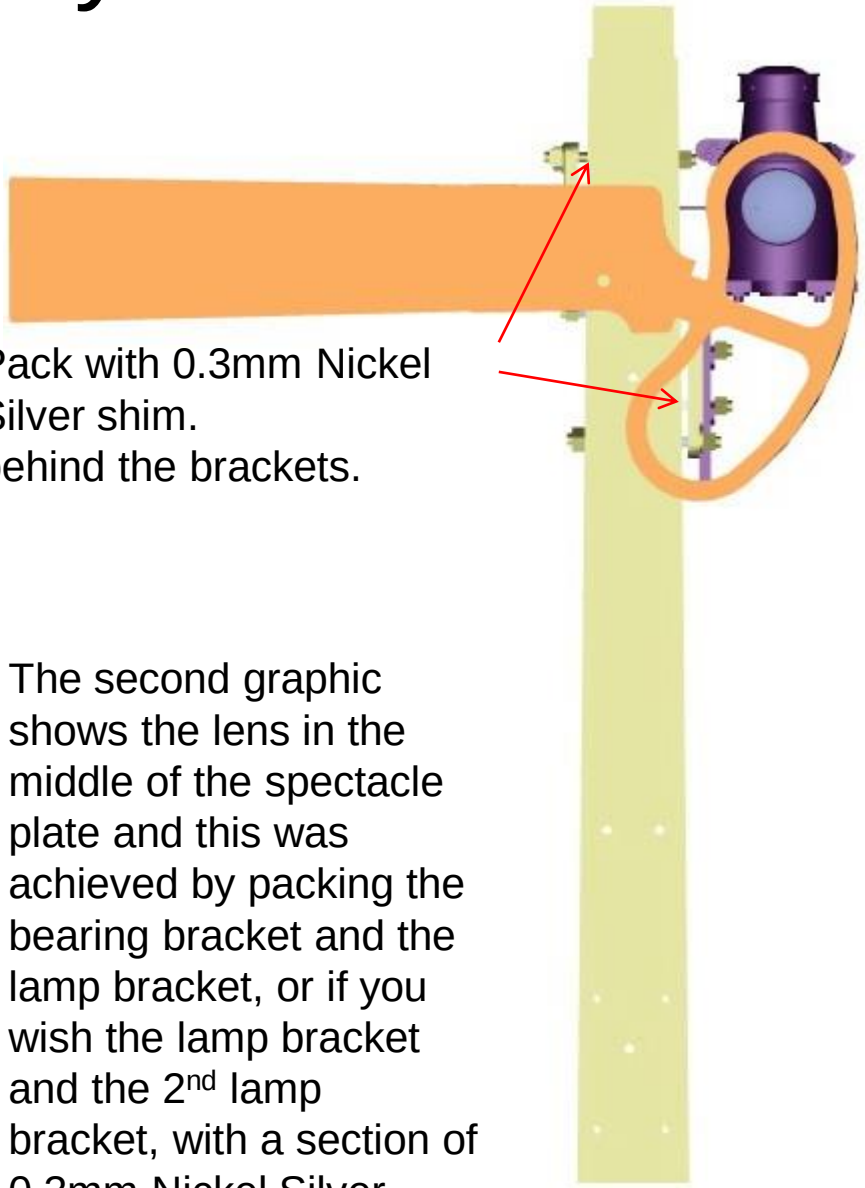
The 2nd lamp bracket (with lamp attached) can be test fitted to the 1st bracket and adjusted to suit.
The ideal position for the position of the lens is in the middle of the spectacle plate , and the mounting of the bracket is critical for this to be correct.
See Assembly - 8



Assembly - 8



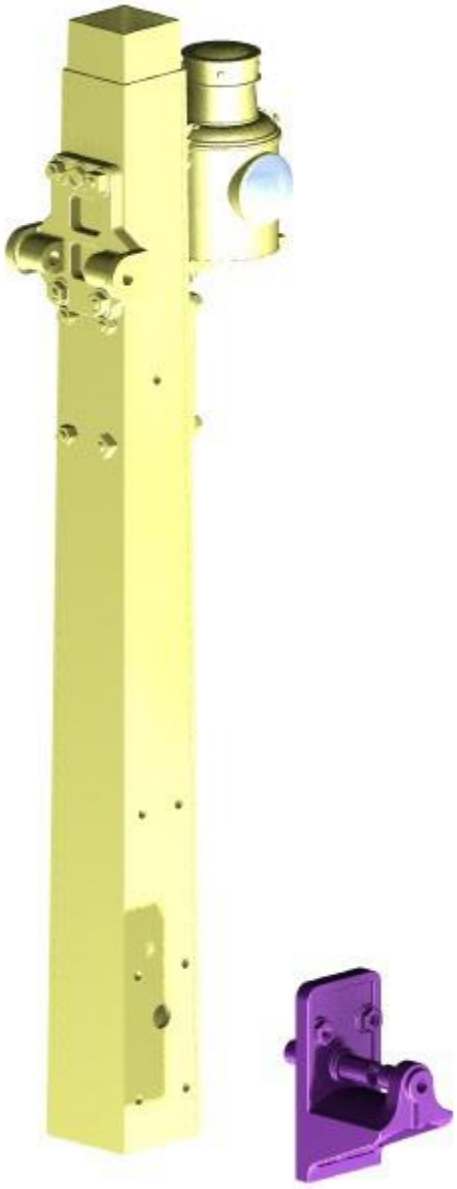
The first graphic shows the lamp with the lens slightly to the left of the spectacle plate, this position , is not correct and needs to be rectified .



Pack with 0.3mm Nickel Silver shim.
behind the brackets.

The second graphic shows the lens in the middle of the spectacle plate and this was achieved by packing the bearing bracket and the lamp bracket, or if you wish the lamp bracket and the 2nd lamp bracket, with a section of 0.3mm Nickel Silver from the etch fret.

Assembly - 9



Test fit the lever face plate to the post. You can drill out the centre hole in the post, 1 mm to house the tube used in the plate.

Once happy with the fit, complete the construction of the plate with the counter balance and clevis’s

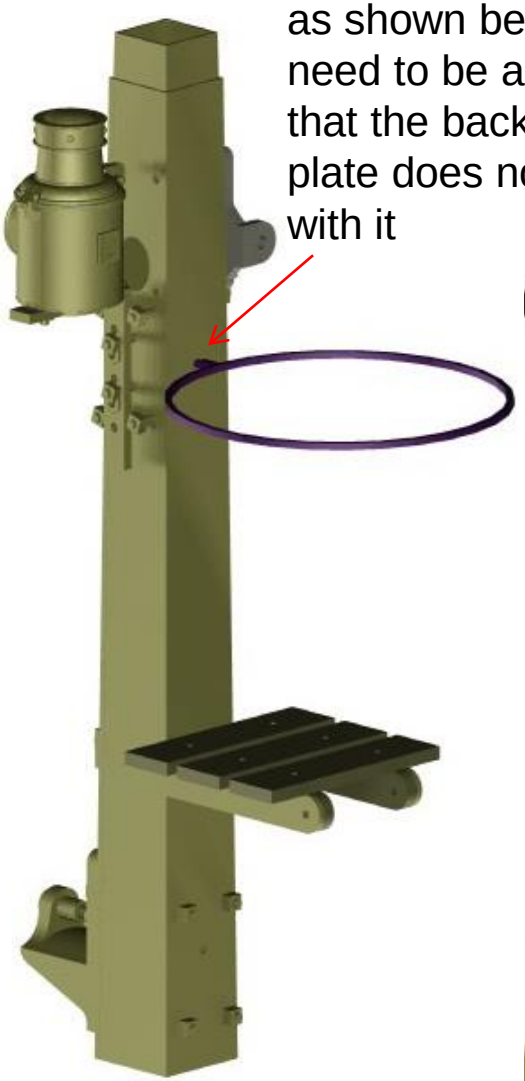
Use which ever method you prefer to attach the plate to the post. But ensure that you cut the wire or bolt so that they just protrude through the post.

Assembly - 10

Test fit the pre constructed landing into the post, and use the etched support braces on the reverse side of the post to assist in supporting the landing. The ladder also assists in keeping the landing in place.

Assembly - 11

The landing safety ring is located into the hole as shown below. It may need to be adjusted so that the back spectacle plate does not interfere with it



The 2 support wires go into the landing after the ladder is fitted. The ring and ladder can be fitted once the unit has been dry fitted correctly

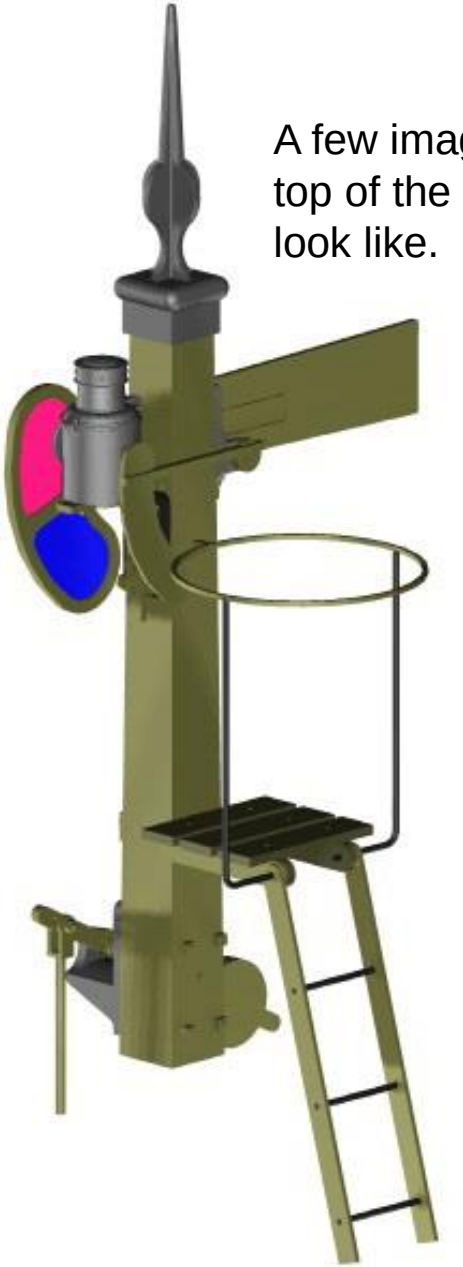
Assembly - 12

Fit the signal arm and rear spectacle plate

Fit the counter weight and pivot pin.

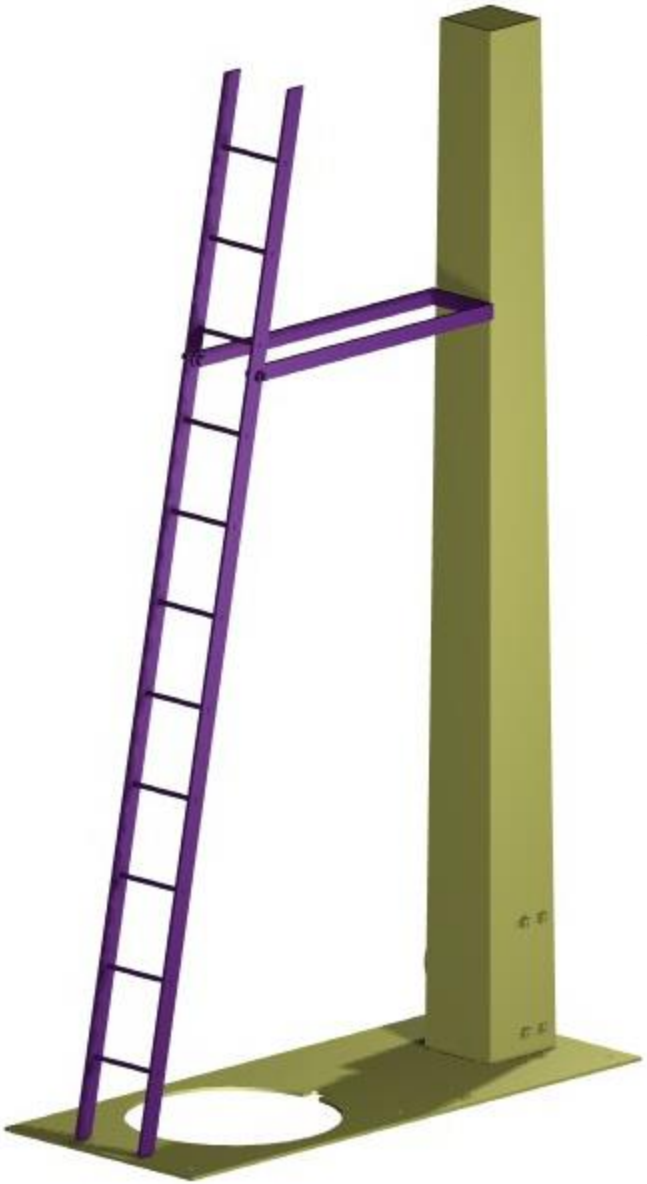
Fit the clevis’s, turnbuckle and associated rods The arm and counter weight can be adjusted with the rods and the turnbuckle. And glued or soldered when correct

Assembly - 13



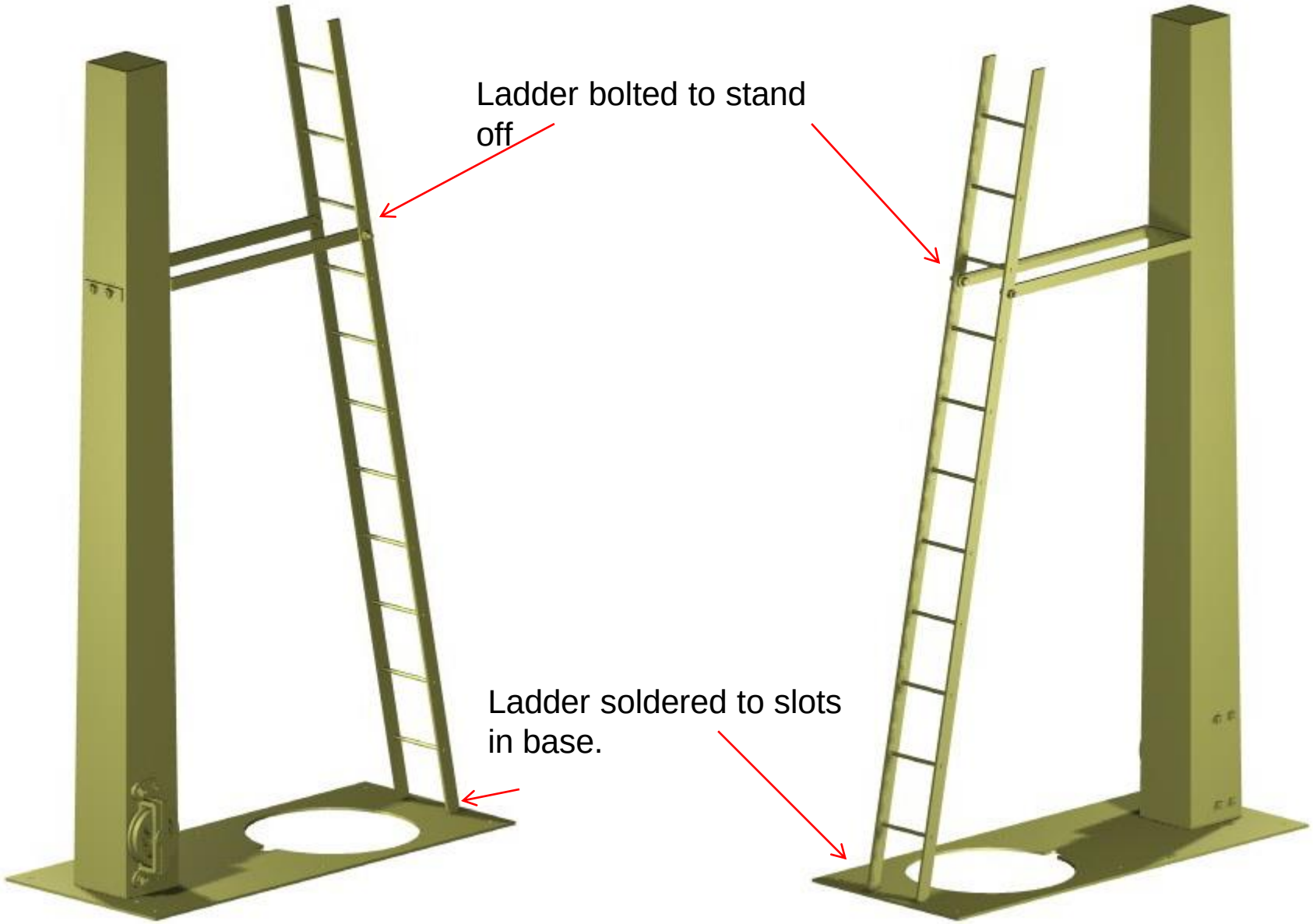
A few images of what the top of the signal should look like.

Assembly - 14

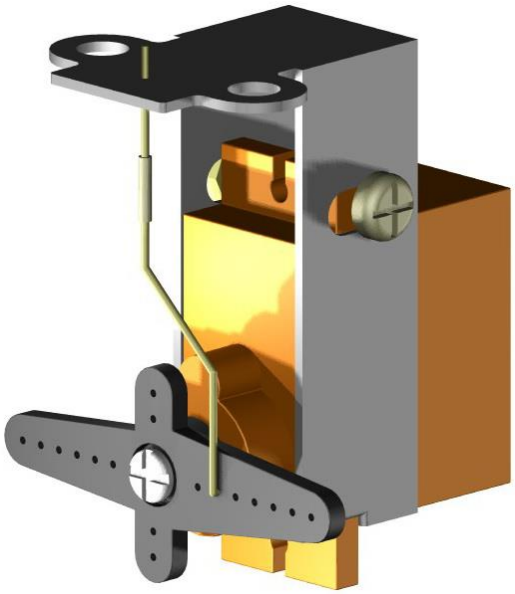


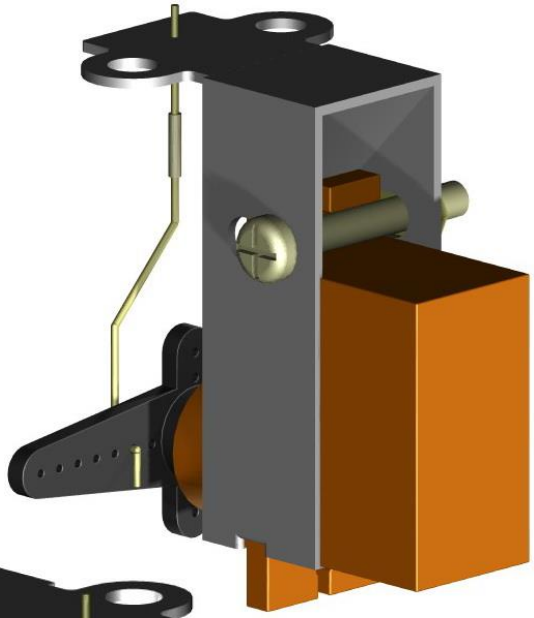
The ladder standoff is attached to the post using your preferred method,(shown here with square simulated nuts) the ladder is bolted to the stand off using 0.5mm threaded nuts and bolts, or etched washers and wire rod, and the ladder has the base soldered into the slots provided.

Assembly - 15



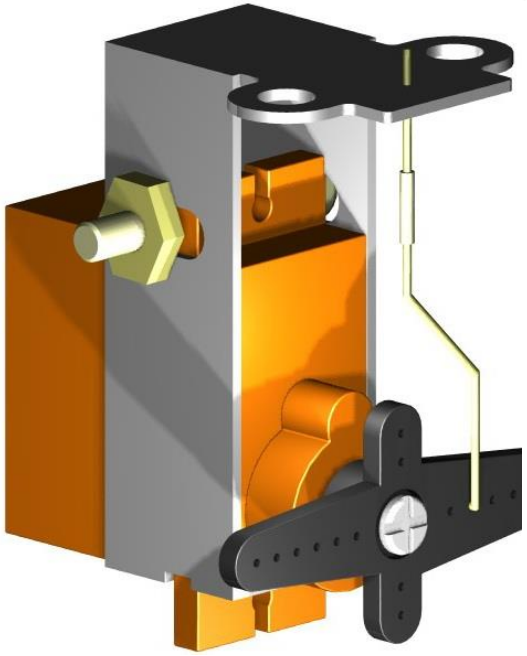
Servo Information-1

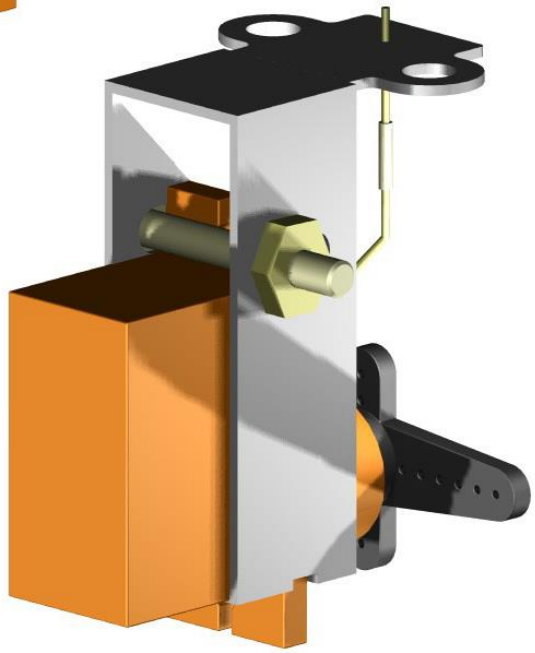




The servo pictured, is available in a set of 4 which includes all the hardware, switches and wiring as well as a programmable control board and instructions.

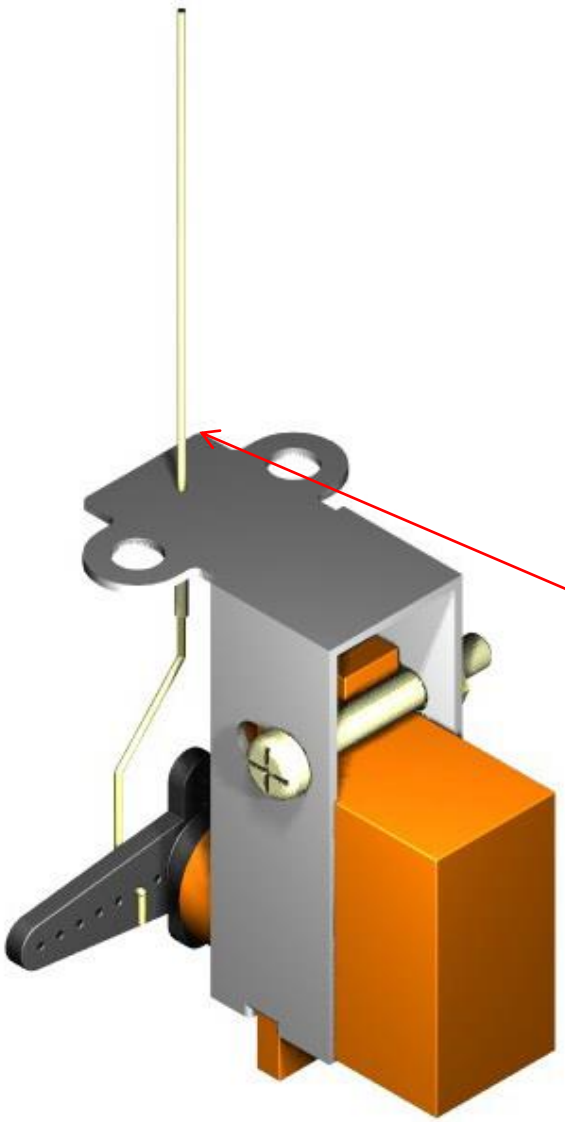
Available on the net from:
http://www.timesaverlayouts.com/ANE%20Model%201.html



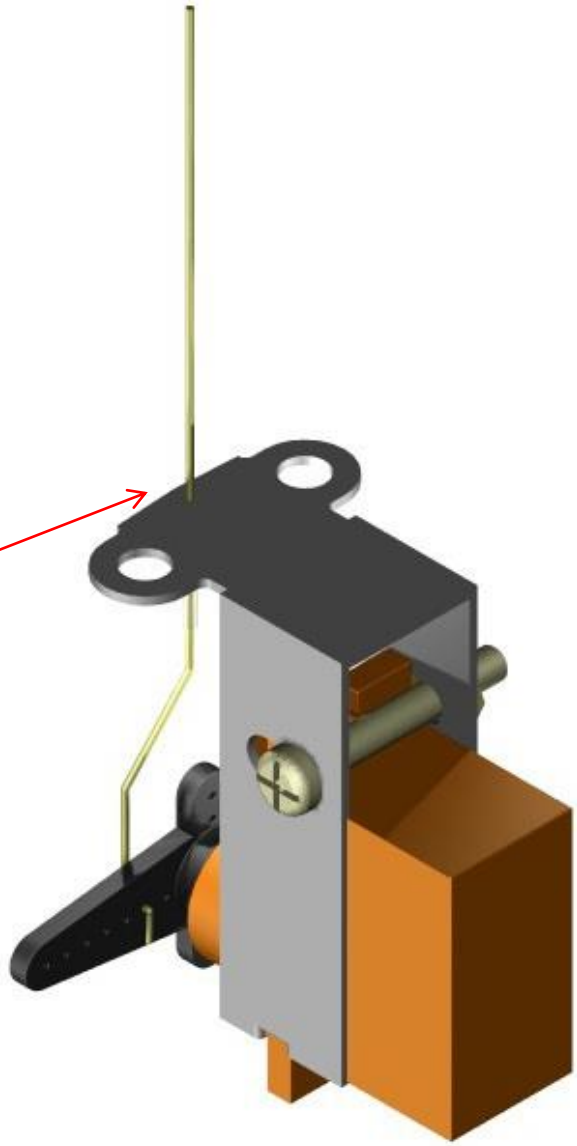


Servo Information-2

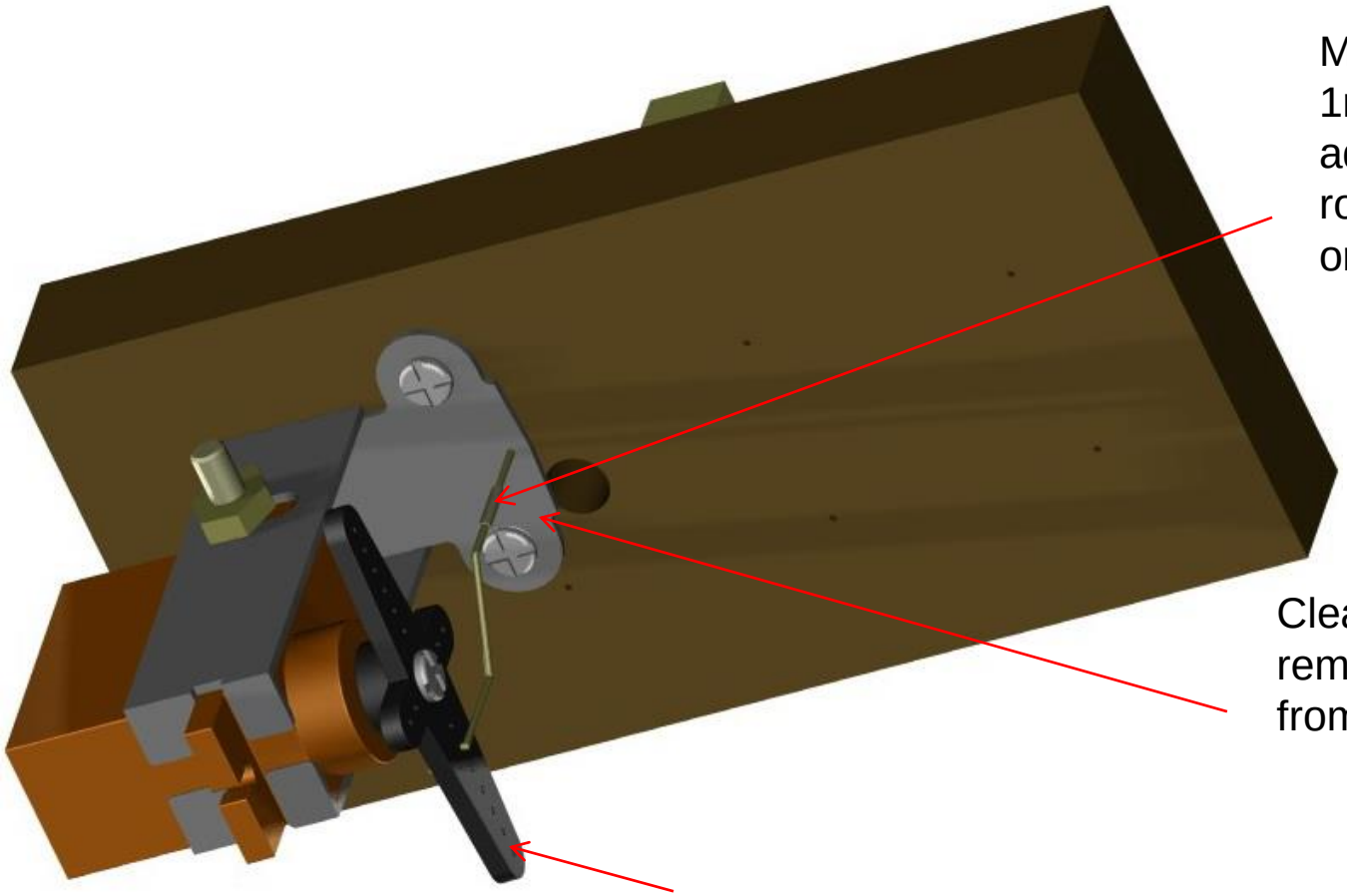
The servo needs to be modified so that when fitted to the timber base, it is clear of the hole that allows the access wiring to the signal lamp.



The modification involves the removal of metal just to the front of the actuating rod hole. When grinding the metal away. Just remove enough metal so that the servo clears the hole.



Servo Information-3



Make a coupler out of 1mm tube to join and adjust the brass wire rod. You can then glue or solder them in place

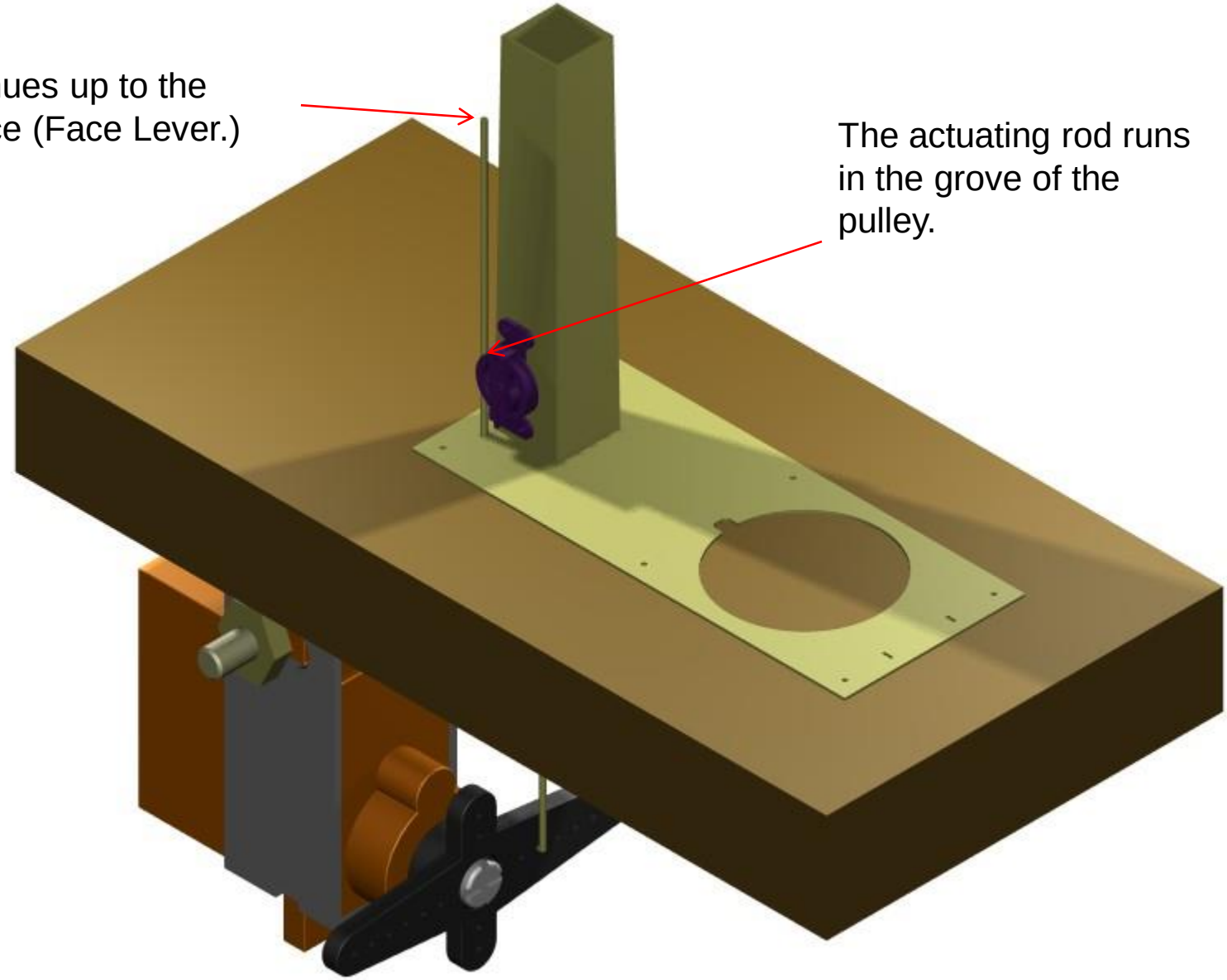
Clear the hole, by removing excess metal from the bracket

Use which ever plastic link lever that you like *(a few in the kit),* as long as it does the job, and experiment with the rod and the holes to suit your particular needs.

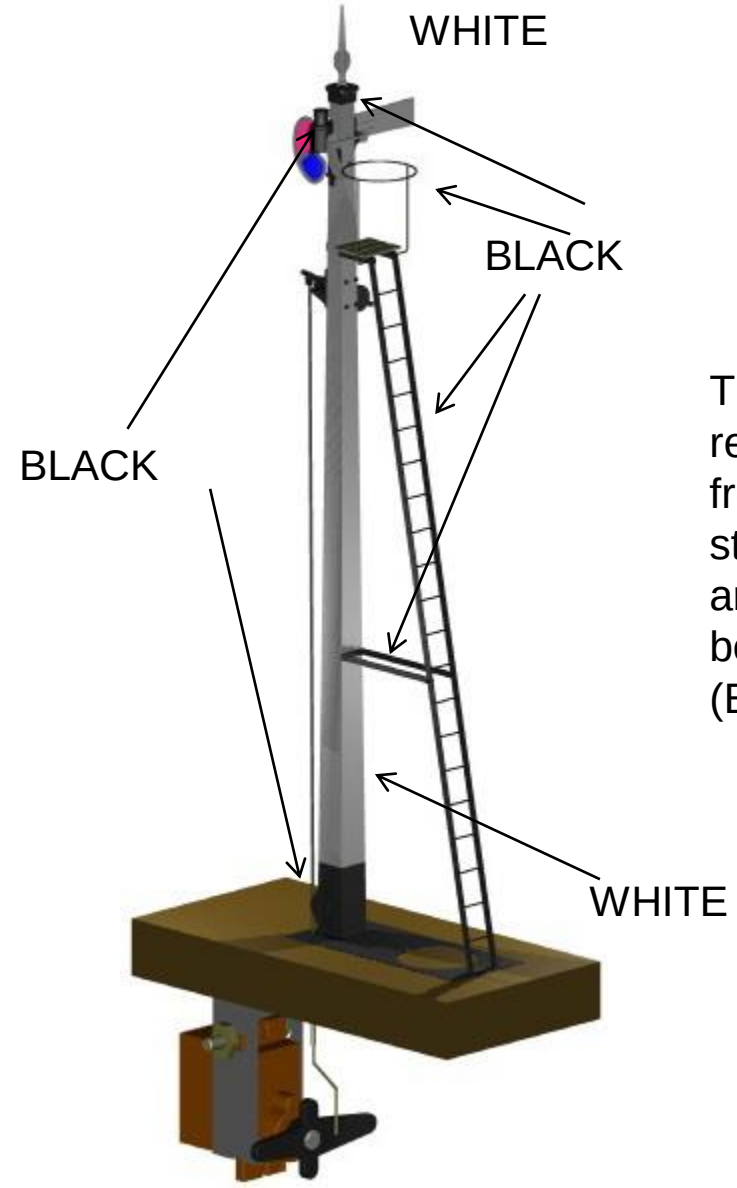
Servo Information-4

This rod continues up to the counter balance (Face Lever.)

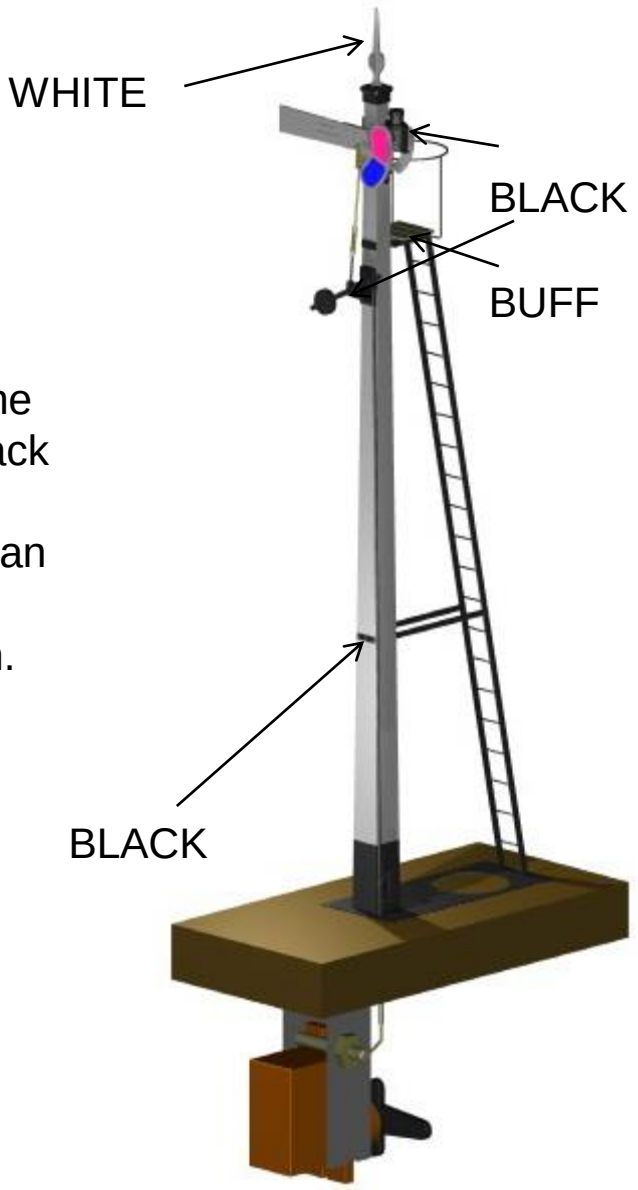
The actuating rod runs in the grove of the pulley.



Painting



The signal arm is painted red with a white strip on the front, and White with a black strip on the rear.. The link arm and spectacle plate can be either white or black, (Black was more common.



Conclusion

- I have no doubt that there will be errors in these instructions, and if you find any please let me know, so that the problems can be rectified.
- As stated in the instructions, the order used to construct this kit need not be strictly adhered to, and if you find a better way of building the kit let me know.
- I apologise for the lengthy instruction, but I think it is better to have more information than less, so to this end , do digest as much as you can.
- Please ensure that you have good photos to detail your signal kit, as they did vary and it appears that no 2 signals were the same.
- Feed back can be provided via phone, mail or email, using the any of the media below.

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