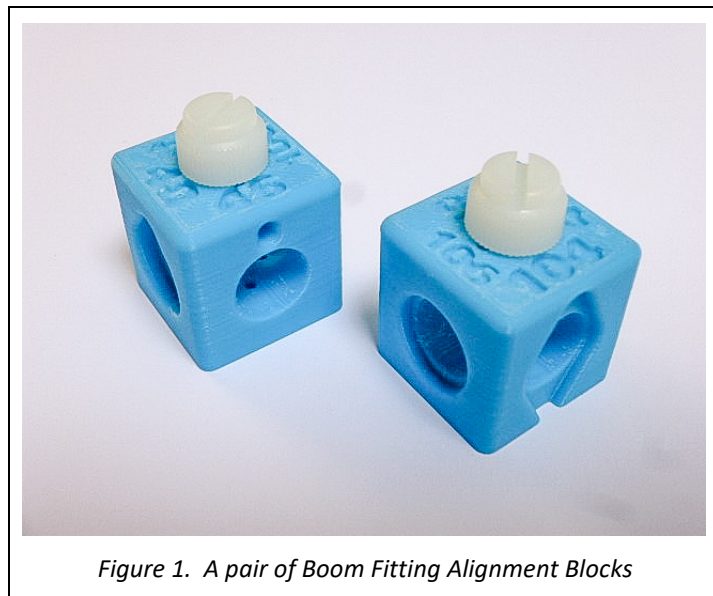


# SAILSetc Boom Fitting Alignment Blocks

## For 11 mm diameter booms

### Introduction

The boom fitting alignment blocks are used to correctly align the fittings used with a SAILSetc headsail boom kit with a 11 mm round tube spar. The blocks have a nylon fastener and are 3D printed in eSun's PLA Plus, a high temperature engineering filament with superior mechanical properties, as shown in Figure 1. Two identical blocks are supplied – they are used as a pair.



*Figure 1. A pair of Boom Fitting Alignment Blocks*

### Scope of the tool

The blocks are designed to work with the following SAILSetc parts:

Boom band with pin	46-110
Boom band with eye, plastic	48-110
Boom band, stainless steel	104-110
Forestay attachment	106-110

The boom fitting alignment block has a recess in each of four faces for one of these fittings.

## Preparation for use

The blocks come ready to use and need no special preparation, though two checks may be useful. One is to check the sliding fit of the spar through the block apertures. The other is to check the sliding fit of a 1.5 mm wire through the block, where the wire can be used to index the boom orientation when locking it in place in the block.

If the 1.5 mm hole needs opening, or if it is desired to open the hole to 1.6 mm, it is important that this is done with a drill press, and with the block held in a vice. The plastic is exceptionally “grabby”, and a block is very quickly ruined if any attempt is made to drill it either held by hand or when slightly off-centre or off-axis.

## Use of the blocks

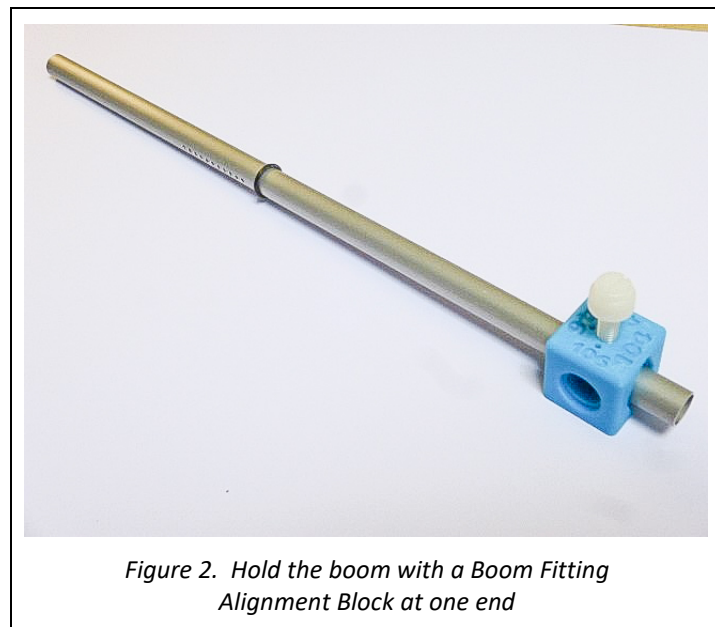
The following is a suggested workflow which may be adapted as required.

### Prepare boom

Cut the boom to the required length and lightly deburr the inside and outside of both ends.

If making a mainsail boom, first drill the hole for the kicking strap using the Drill Guide Block for 11 mm diameter (mast) spars, item DB-MAST-110. Deburr the hole.

Drill holes as required for the 87Z sheet attachment hook using the Drill Guide Block for 11 mm diameter spars, item DB-BOOM-110. Deburr the holes. If making a mainsail boom with a hole for a kicking strap, note that a BFAB, as well as a second DB-BOOM-110, can be used to index the boom orientation with a 1.5 mm wire passing through the block and the kicking strap hole.



*Figure 2. Hold the boom with a Boom Fitting Alignment Block at one end*

Place one BFAB at the fore end of the boom and lock it to hold the boom with the holes on the port or starboard side as preferred (Figure 2). It may be useful to orient the boom appropriately by using

the other BFAB, or a DB-BOOM-110, with a length of 1.5 mm wire passing through the block and one of the sheet hook holes on the boom.

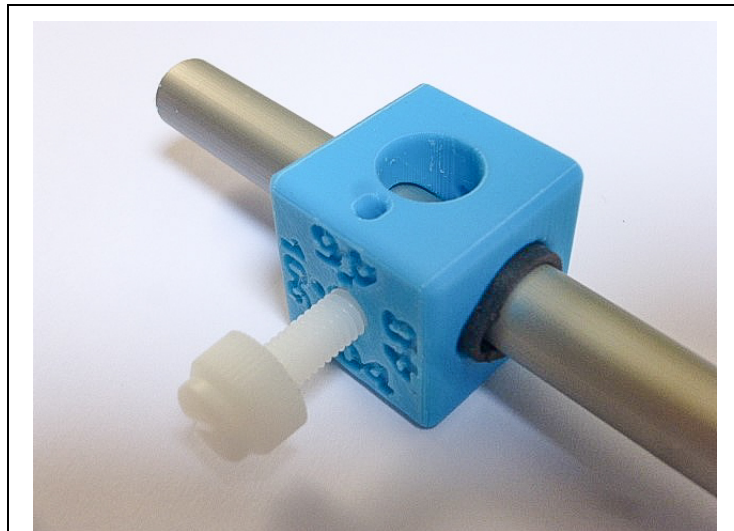
Add the 'O' ring(s) to the boom that will hold the 87Z in place.

Continue to work on a flat surface to ensure maximum accuracy while carrying out the following steps.

### Swivel attachment fitting to headsail boom

**EITHER – where a loop of line is used as a swivel to attach the boom to the deck:**

Add the headsail sheet attachment fitting (to be used for the swivel attachment here), item 48-110 or 104-110, followed by the second BFAB to the aft end of the boom to hold it at the correct attitude. The faces of the BFAB are marked with the fitting codes, "48" in this example. Rotate the boom on the working surface as required. Bring the BFAB and sheet attachment fitting forward along the boom to the required place and use a spot of cyanoacrylate glue to hold the fitting in place (Figure 3). Remove the BFAB.

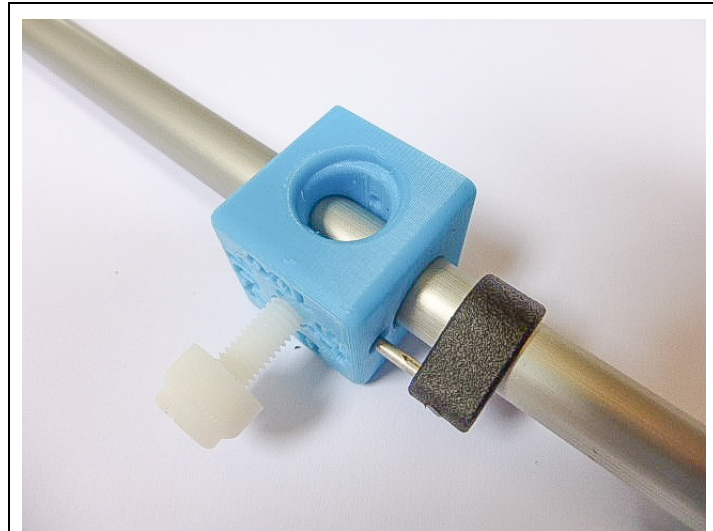


*Figure 3.*

*A 48-110 fitting held in alignment – note the band and BFAB have yet to be moved forward to the correct position on the boom*

**OR – where a boom band with pin, item 46-110, is used to attach the boom to the swivel on the deck:**

Add the boom band with pin (pin facing aft), item 46-110, followed by the BFAB to the aft end of the boom to hold it at the correct attitude, using the face with fitting code "46" in this case. Rotate the boom on the working surface as required. Bring the BFAB and boom band with pin forward along the boom to the required place and use a spot of cyanoacrylate glue to hold the fitting in place (Figure 4). Remove the BFAB.



*Figure 4. A 46-110 fitting held in alignment*

### **Sheet attachment fitting**

Add the sheet attachment, item 48-110 or 104-110, followed by the second BFAB to the aft end of the boom to hold it at the correct attitude. Rotate the boom on the working surface as required. Bring the BFAB and sheet attachment fitting forward along the boom to the required place and use a spot of cyanoacrylate glue to hold the fitting in place (Figure 3). Remove the BFAB.

### **Clew attachment fitting**

Add the clew attachment fitting, item 105-110. Its vertical alignment is not critical, but it should have a smooth and firm slide fit on the boom allowing incremental adjustment along the boom. Tighten its grip if needed by distorting slightly its shape into an oval/ellipse using a vice or pliers. Slacken its grip if needed by using a smooth round file and/or abrasive paper on a 8 mm rod or similar until the correct fit is achieved. Note this fitting should not be glued in place.

### **Topping lift fitting to headsail boom**

Push the 101G-110 a few millimetres into the aft end of the boom and use a length of 1.2 mm diameter wire inserted in the small holes to align it vertically. Once you are happy with its alignment it can be pushed fully home (Figure 5). Note this fitting normally needs no glue.

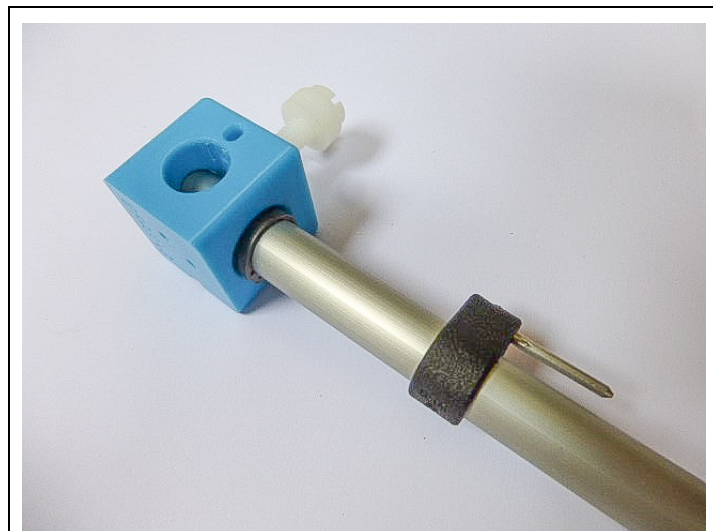


*Figure 5. Aligning a 101G-110 fitting*

### Forestay attachment fitting to headsail boom

Place the second BFAB at the aft end and lock it, maintaining alignment with the forward end BFAB. Then remove the forward BFAB.

Add the forestay attachment, item 106-110, followed by the BFAB to the forward end of the boom to hold it at the correct attitude, using face "106". Rotate the boom on the working surface as required. Bring the BFAB and forestay attachment aft to the required place and use a spot of cyanoacrylate glue to hold the fitting in place (Figure 6). Remove the BFAB.



*Figure 6. A 106-110 fitting held in alignment*

### Counterbalance weight fitting to headsail boom

Place the counterbalance weight attachment on the forward end of the boom and rotate it until the lock screw is on the upper side. This is the intended attitude of this fitting but you may prefer the lock screw to be on the port, starboard or under side. When you are content with its placement, push it fully home (Figure 7).



*Figure 7. Counterbalance weight fitting*

### Gooseneck fitting to mainsail boom

If using the 103-RD-BR-110 main boom forward end fitting, push it a few millimetres into the forward end of the boom and use a length of 2 mm diameter wire or similar inserted in the gooseneck attachment holes to align it horizontally. Once you are happy with its alignment it can be pushed fully home. Normally no fixing is required for this fitting but, if the wall thickness is especially low, it may need pinning in place with a self-tapping screw such as a No 2 x 6 pan head or similar.

### Finishing

When you are content that all the fittings are correctly placed, perhaps after adding the sails, use more cyanoacrylate glue to lock them in place.

Graham Bantock & Lester Gilbert