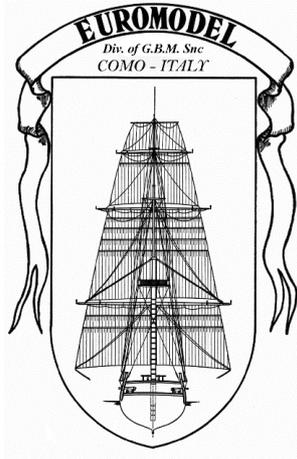


TRANSLATION LINKS

1. type into your browser ... **english+italian+glossary+nautical terms**
2. utilise the translation dictionary 'Nautical Terms & Expressions' from Euromodel website



**A research paper including an
interpretive build**

Royal William

1st. Rate English Vessel

Originally launched in 1670 as the 100-gun HMS Prince
Re-built and launched in 1692 as the HMS Royal William
Finally re-built again and ...

Launched 1719

Scale 1:72

**Checked the
Resource Information
File ?**

03.FIRST PLANKING

December 2021

**This paper is based on ...
Euromodel drawings,
external references,
kit material,
extra material.**

This resource information was based on the original text supplied by Euromodel and then expanded in detail as the actual ship was constructed by MSW member piratepete007. [Additional & exceptional support was gratefully received from MSW members **marktiedens**, **Ken3335**, **Denis R**, **Keith W**, **Vince P**, **Pirrozzi** & **Bill Kent**. My sincere thanks to them and other MSW members who gave advice and gave permission to use some of their posted photos.

Neither the author or Euromodel have any commercial interest in this information and it is published on the Euromodel web site in good faith for other persons who may wish to build this ship. Euromodel does not accept any responsibility for the contents that follow.

This is **not** an instructional manual but is a collaboration amongst a number of MSW members whose interpretations were based on the drawings and the supplied kit.

- Additional material used was dictated by personal choices.
- Greater simplification would be achieved by using the material as it is supplied.

Model Ship World Forum

I am indebted to those members who were, or are, involved in their own build of the Royal William and have allowed me to add photos from their posts – but not utilising their personal text - in the belief that the images could add both a stimulus and an interest to new builders of this ship. So my grateful thanks go to ... Brian C; Denis R; KeithW; marktiedens; Vince P, Ken3335

They have taken the RW build to a much higher level than intended by this kit.

Reference Texts

Fighting at Sea in the Eighteenth Century; The Art of Sailing Warfare by Sam Willis (2008)

Historic Ship Models by Wolfram zu Mondfeld (1989)

Seventeenth Century Rigging by R.C. Anderson (1955) [almost a complete copy of his earlier book *The Rigging of Ships in the Days of the Spritsail Topmast, 1600 – 1720* (1927)]

The Construction and Fitting of the English Man of War 1650-1850 by Peter Goodwin (1984)

The Masting and Rigging of English Ships of War 1625 – 1860 by James Lee (1984).

For the purposes of discussion, this ship is considered as an 18 C build.



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CHAPTER 1: GUNPORT OVERVIEW

Before proceeding with first planking, it is necessary to gain an insight into the gunport structure.

Open & Closed Gunports

In this kit build, there are a number of frames and/or masts (vertical red lines) that are obstructing the gun supporting blocks as well as making it difficult to cut out the gunport openings.

It is the intention in this build to have these problem areas covered with a closed gunport lid. This also gives the opportunity to observe the lid in more detail with its hinges and tackle clearly evident.

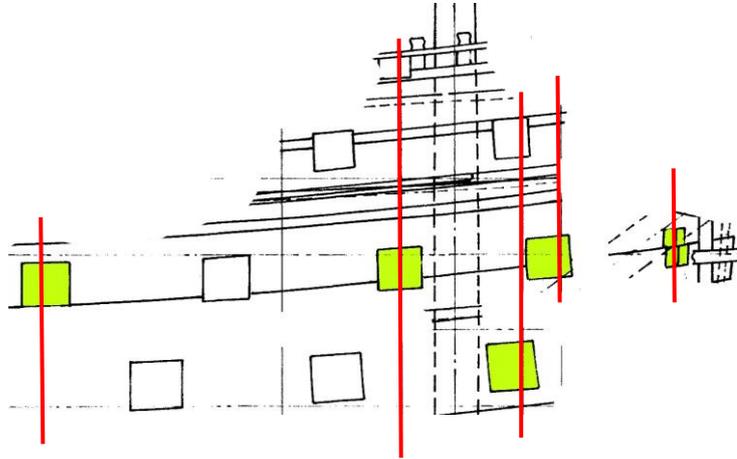


Figure 1: Bow Frames Obstructing Gunports

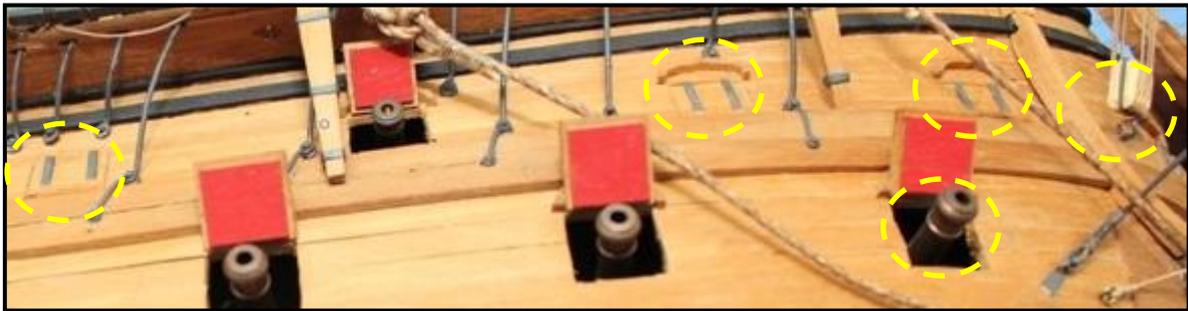


Figure 2: Closed Gunports Over Bow Frames

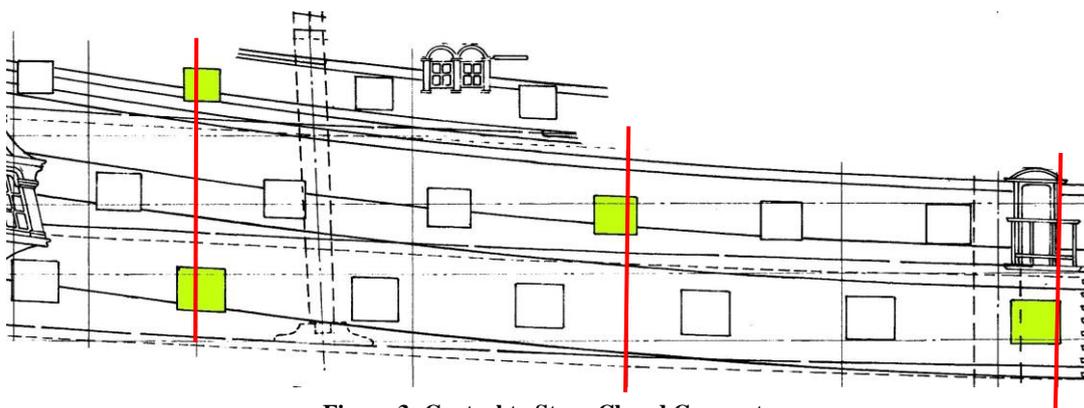


Figure 3: Central to Stern Closed Gunports

In summary, there are 18 gunports closed

- lower gun deck 22 – 3 closed per side (i.e. 6) ... 11 open per side
- upper gun deck 23 – 5 closed per side (i.e. 10) ... 10 open per side
- main deck – 1 closed per side (i.e. 2) ... 13 open per side open
- quarter deck – 0 per side ... 5 open per side open

Gunport Openings

From Plan Sheet 8, all three gun levels are shown with *gun carriages*, but Fig. 4 portrays (in part) the *omission of such structures on the lower two gun decks and a substitution with supporting blocks or strips*. Such pieces are painted black and whether there is a carriage or not is not easily noticeable. Such simplification is typical of a kit build.

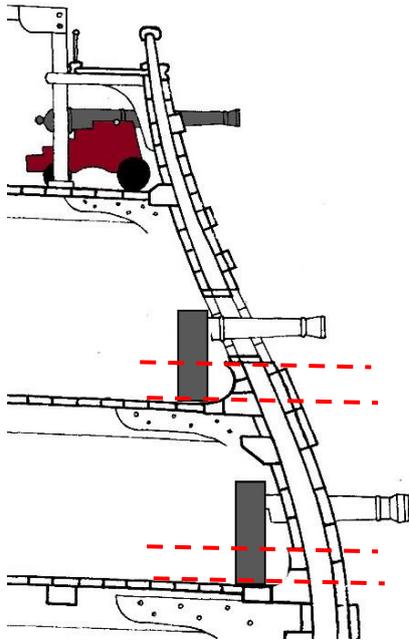


Figure 4: CS Adjacent to Main Mast

What is mis-leading on that scratch drawing in Fig. 4 is the historical hull construction with a double layer of planking separated by a space. In this build there is simply a first and second planking on the outside of frames. Again, not noticeable and its absence can be masked to a fair degree by the use of batten lining made from *1 x 6 mm.* second planking.

In the following text, there is a discussion on the construction of separate frames that are added into the hull – these are often made from *2 x 2 mm* but some use *2 x 6 mm.*, strips to more accurately portray the historical hull thickness. This latter-sized strip can cause problems when fitting and then aligning with respect to the deck. It is suggested that *2 x 2 mm* is the better choice.

In cutting out the gunport openings, there is often a failure to make these sills (top and bottom parts) match the deck level behind them. That is a potential dilemma that few appreciate.

The following description of a gunport was found some time ago but cannot be exactly referenced

... the typical gunport was formed from two vertical ship's frames (green) and an upper and lower horizontal sill timber (blue).

The strakes were so arranged to form a *partial overlap* of the four gunport timbers.

From Fig. 5, it can be seen that the *lid will fit in the recess and therefore be flush with the exterior hull surface.*

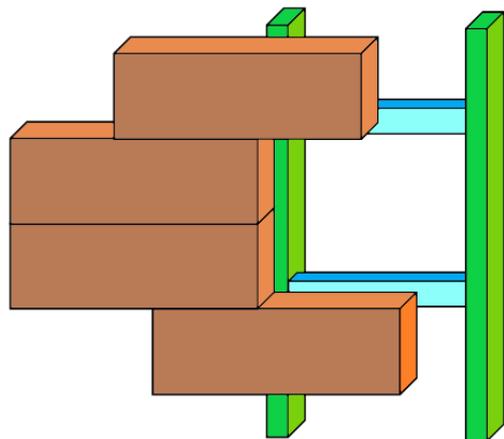


Figure 5: Gunport (diagrammatic)

Many builders construct frames & insert them into the gunport cut-outs.

Batten Lined

The most basic way of portraying the framing is to line the gunport cut-out with planking material cut-offs (such as *1 or 1.5 mm.*).

The openings for the two gun decks and the main deck (calculations based on *mid-line section* in Plan Sheet 8 and the *exterior hull view* in Plan Sheet 17) would then be cut out.

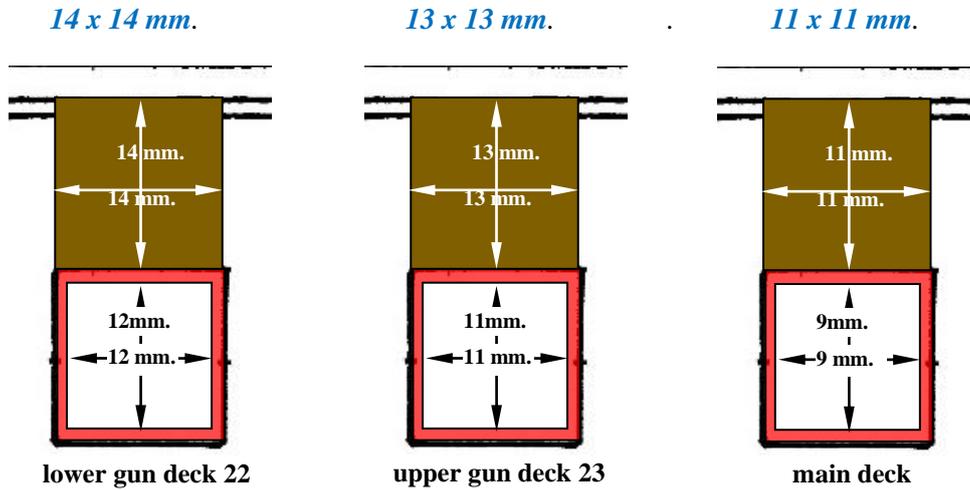


Figure 6: Gunport Opening
(1 mm. battening)



Figure 7: Battens Set Back

The inserted battens should be set in slightly from the hull surface (Fig. 7) but given that the total hull thickness is not great, *the tendency will be to go flush* (maggs1_01 from MSW, Fig. 8) to enable those strips to be fixed satisfactorily against the cut-out surfaces.

A small dilemma.



Figure 8: Battens Flush

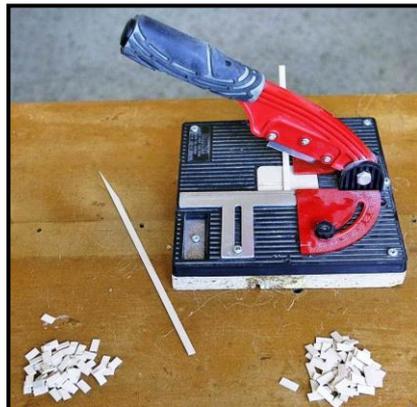


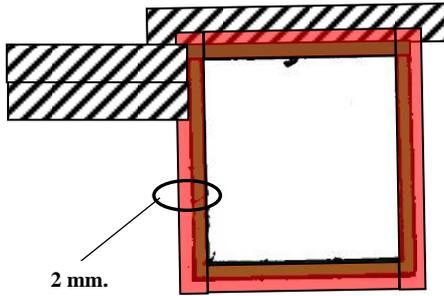
Figure 9: Battens Cut to Length

Frames

A common alternative to battening is the construction of a separate framework which is inserted into the hull opening (Fig. 10) *before adding the second planking*. The framework will need to be sourced outside of what the kit provides.



**Figure 10: Framing Inset
Flush With First Planking**

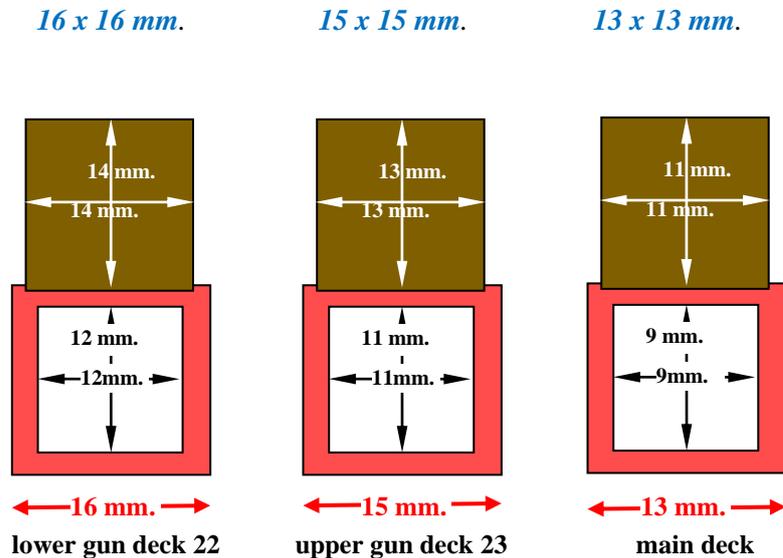


**Figure 11: Second Planking
Overlying Part of Framing**

‘Sills’ and ‘frames’ could be constructed from **2 x 2 mm** timber with the overlying second planking covering just **1 mm.** of the **2 mm.** width.

*For those wishing to project a greater thickness to the hull, **2 x 6 mm.** could be used – but that may cause problems (refer back to file 02).*

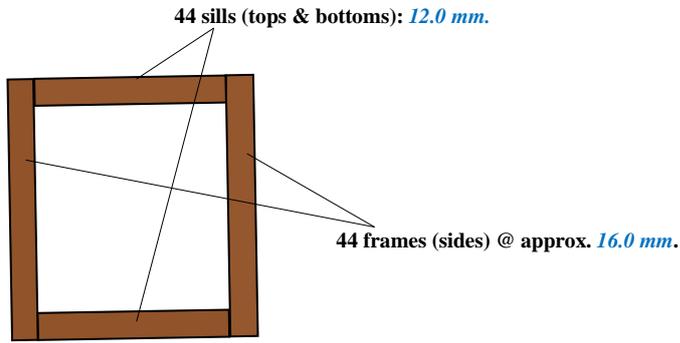
As an example – and shown below - with a **16 mm. x 16 mm.** cut-out for the lower gun deck, this still retained the **12 x 12 mm.** opening surrounded by an *exposed* timber lining thickness of the intended **1 mm.**



**Figure 12: Gunport Opening
(2 mm. ‘frame’)**

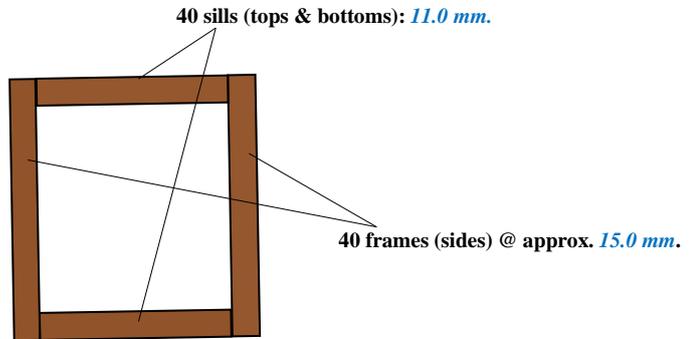
Frame and Sill Strips

(2 x 2 mm. or 2 x 6 mm if wishing to produce an appearance of a greater thickness to the hull)



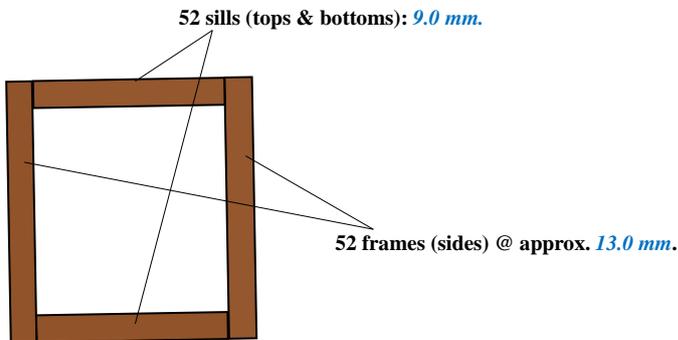
Lower Gun Deck 22
(cut-out = 16 x 16 mm.)
22 frames

Figure 13: Opening Strips to be Cut for Deck 22



Upper Gun Deck 23
(cut-out = 15 x 15 mm.)
20 frames

Figure 14: Opening Strips to be Cut for Deck 23



Main Deck
(cut-out = 13 x 13 mm.)
26 frames

Figure 15: Opening Strips to be Cut for Main Deck

On ebay, there is a guillotine that is very useful for this type of cutting ...

'Craft Guillotine Trimmer Multi Angle Supplied With 2 Blades.card Tile Trims Etc.'



Figure 16: Guillotine

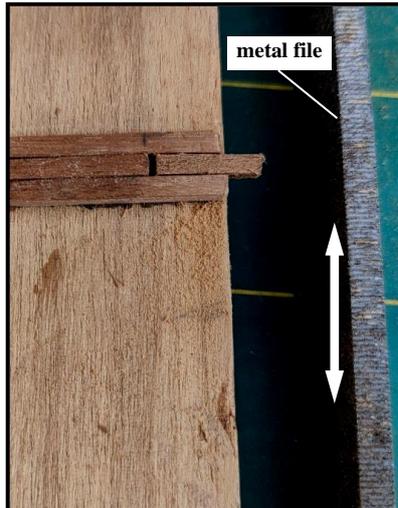


Figure 17: Trimming the Opening Strips

The sills were cut and carefully filed back to exactly **10.0 mm**. using a flat metal file (Fig. 17). Three strips fixed to a board made the holding and filing a simple task.

Forming the Frames

The four pieces were formed into a complete frame using some standardised squares that could be ...mounted onto a board (Fig. 18), or just ...using individual squares by themselves.

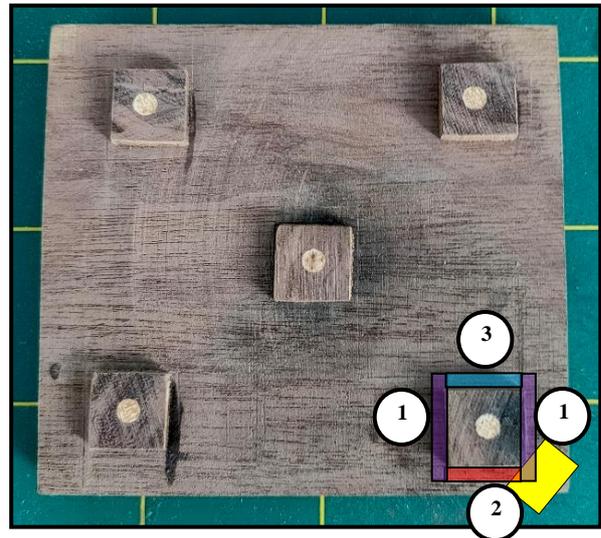


Figure 18: Framing Steps

- longer lengths (**purple**) were put in position – Step 1,
- a small spot of PVA was added to each end of one of the shorter piece (**red**) – Step 2,
- three pieces were pressed together tightly,
- other short piece (**blue**) was carefully placed in position – Step 3,



Figure 19: Beeswax to Aid Removal

- after about 2 minutes, a thin blade (yellow) was carefully slid under *each corner* to slightly lift the framing (adhesive has not fully set and is still flexible); making sure to lift & support both adjacent sides at the corners together with the blade; to make things easier it was suggested that some beeswax applied to the square formers was a great help in lifting the frames away from the squares.

- framing was carefully lifted off and left for 24 hours
- any protruding lengths were sanded back on a bench sander,
- both faces were lightly sanded,
- edges sanded to +/- **14.0 mm**. .. still to be done in Fig. 20.



Figure 20: Edge Sanding Still Required

CHAPTER 2: FIRST PLANKING & RELATED FACTORS

Holding and Bending Planks

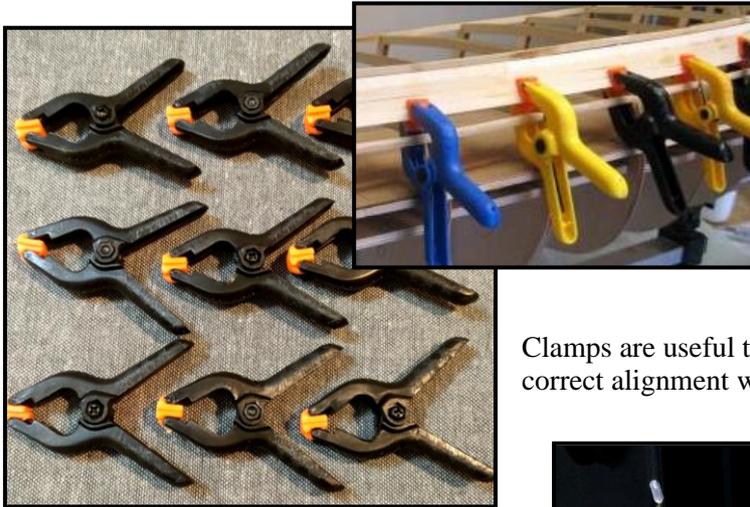


Figure 21: Mini-Clamps (e.g. 65 mm.)

Clamps are useful tools to hold adjacent planks in the correct alignment whilst adhesive is setting.

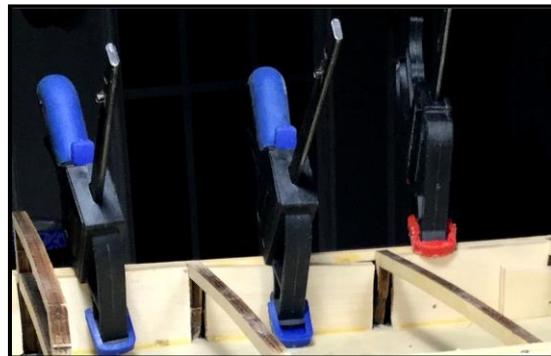


Figure 22: Amati 'Nailer' & Mini-Nails

Brass nails driven half way in with a 'Nailer' are useful in holding planks in position. Sometimes the nails were more effectively bent over flat with a small hammer. Either way, after the glue had set, these nails were easily withdrawn with a pair of small long-nose pliers.

To curve some planks, an Amati 'Plank Bender' can be useful.



Figure 23: Amati Plank Bender

First Planking Example

The following photos are from one builder (courtesy of Ken3335, MSW) of the Royal William but are only presented out of interest. First planking methods vary and are left to the individual to interpret – the method shown is not necessarily the correct or incorrect way. For that reason, no captions are provided.

Before proceeding with first planking, a *careful analysis is necessary of the following pages dealing with the stem post/ beakhead, keel and stern post*. That will then lead to a decision on the best way of dealing with first planking.



Stem Post & Beakhead

Before beginning the first planking, consideration should be given to this laser-cut piece.

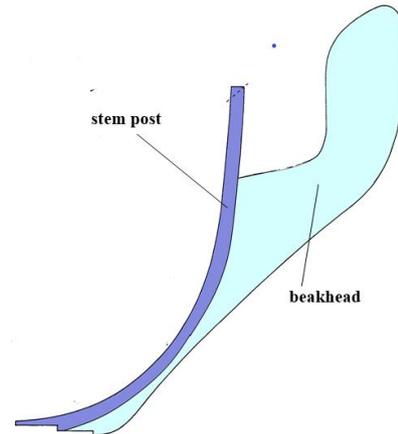


Figure 24: Laser-Cut Post & Beakhead

Plan Sheet 8 (Fig. 24) clearly shows the presence of the stem post at the bow but depending on the approach to planking, some of this post could be obscured (Fig. 25). Also note the solid blank form of the beakhead – a rather easy option but one that many choose.



Figure 25: First Planking Butting Against Stem Post

Modifications

1. laser-cut edge *sanded* back to the original wood color.
2. beakhead *tapering* as shown in Fig. 26.
 - stem post adjacent to the hull tapering from *8 ... 7 mm.*
 - beakhead outer edge tapering from *6 ... 5 mm.*
 - *carved timber joints* were created onto the surface to make it appear more authentic.

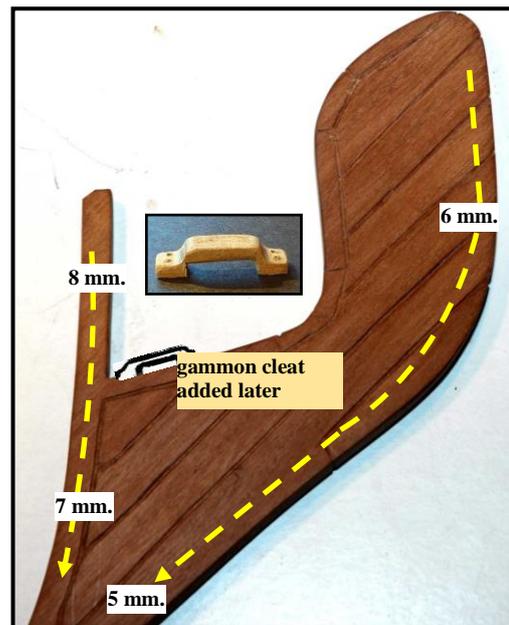


Figure 26: Beakhead Modifications

NMBrook on the MSW forum ... “I do think this taper is frequently overlooked by kit builders. Whilst I am not familiar with kits from American manufacturers, the only European kit maker that depicts this taper and indeed that of the prow is Euromodel. I feel that addressing this point, will take your model away from one of the typical 'kit traits'. You only need to look in the scratch build section and see how many parallel stem posts you can find”.

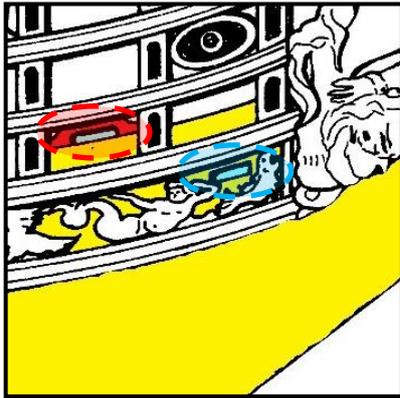


Figure 27: Double Gammoning Provision

3. two gammon lashings are shown in the drawings, but builders of this ship frequently resort to rigging only one gammon. Note that the forward gammon lashing requires an **opening through the beakhead** (Fig. 27, blue).

If two gammons are to be included – as they should - now is the time to create and add a **cleat** (Fig. 27, red) – this was overlooked but added later.

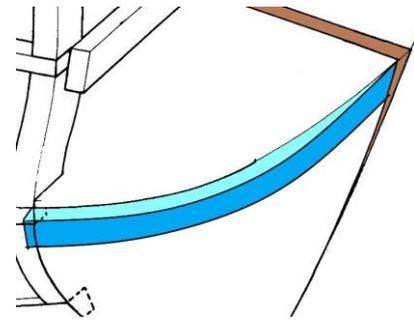


Figure 28: First Planking Tapered Around Bow

4. **first planking surrounding the bow filler blocks could be tapered** (Fig. 28) towards the plywood keel. This will reduce the amount of the stem post being obscured but at the same time, this will have the effect of slightly altering the bow profile (not seen as a big issue).

The following comment is *included out of interest* but in no way is it implied as a basic inclusion in this kit build ...



Figure 29: Cutting Tool Used for Rabbet

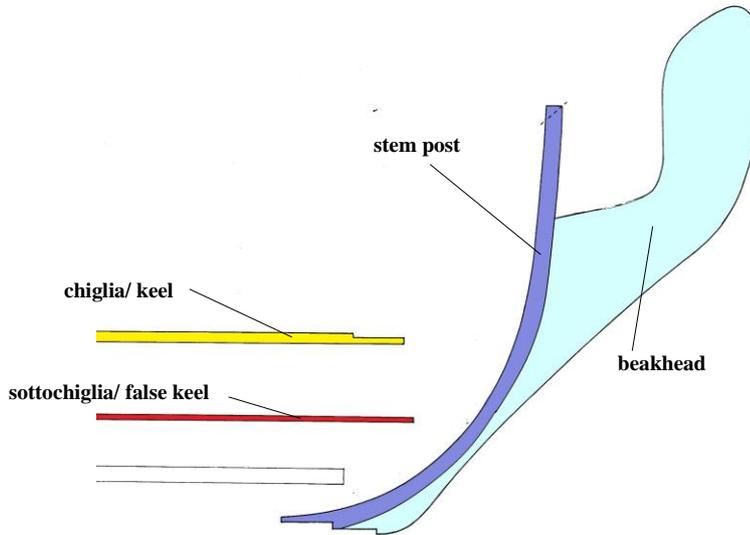
5. form a **rabbet** groove (**1 x 1 mm.**) along each side of the stem post adjacent to the hull to allow for the insertion of only the second planking (A Dremel tool could be used, Fig. 29). Given the narrow width of the post, this concept will exclude the first planking being inserted as well. This **rabbet** is avoided by most builders and each plank butted against the post.

6. **stem post internal edge** will most likely require some modification for a tight fit.
7. **two long glued nails** (Fig. 30) were used as posts to form a solid linkage between the post and plywood keel.



Figure 30: Supporting Nails for Stem Post

Keel



Plan Sheet 16 shows *two* strips of timber used in a scratch build forming the keel (chiglia, yellow) and false keel (sottochiglia, red) - a relatively thin strip designed to break away from the keel should the bottom of the ship contact a submerged obstruction such as a reef.

The bottom strip (included in the kit as one length of timber, *6 x 7 mm.*) substitutes for the two timbers and will be collectively referred to as the 'keel' – refer to Fig. 32 below.

Figure 31: Bow Terminology

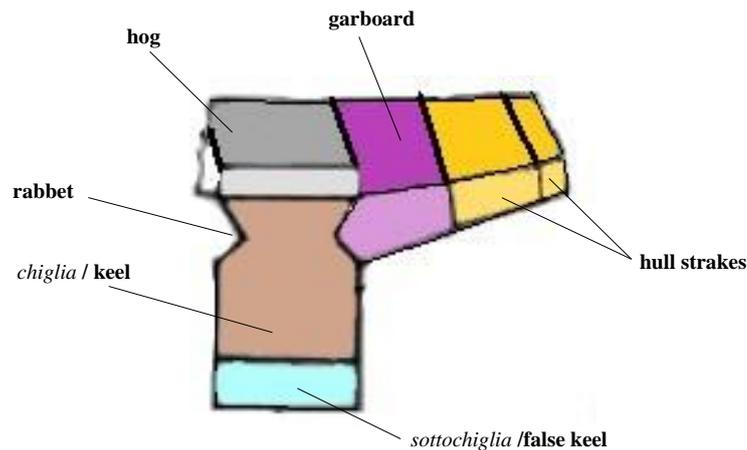


Figure 32: Typical Keel CS



Figure 33: Stem Post Fitting into the False Keel

As seen from Fig. 33, some careful work is required to form the joint between the straight keel and the stem post/ beakhead .

It is important to note that the keel is 7 mm. wide along the full length.

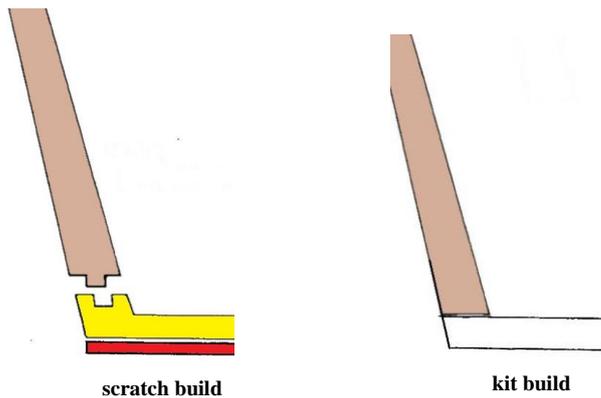


Figure 34: Stern Post

Stern Post

The joint between the stern post and keel is much simplified in the kit build (Fig. 34).

The post tapers in CS from $7 \times 7 \text{ mm}$. at the base to $2 \times 7 \text{ mm}$. at the top.

Second planking in the stern area is continuous with side surfaces of the stern post and keel. With the keel being 7 mm . wide along its full length, it was necessary to taper the stern area of the keel back to a width of only 5 mm . (Fig. 35). In this way, the application of the 1 mm . thick second planking either side would increase the overall thickness of the lower hull back to the 7 mm . width shown by the keel and stern post.

Forward of this area, the second planking will largely butt against the keel (Fig. 36) posing no problem.

plywood keel and first planking collectively reduced to 5 mm . width

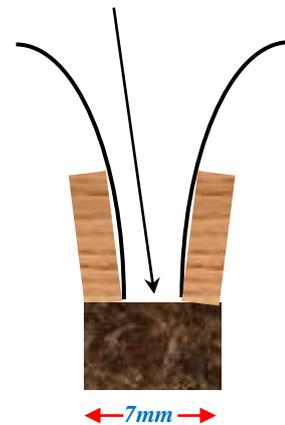


Figure 35: Maintaining Width at Stern



Figure 36: Second Planking Forward of Stern



Figure 37: Importance of Tapering Before Adding Stern Post

Critical Analysis of Fig. 37

- tapering of the plywood keel was not taken into account when adding the stern post – some subsequent cutting out has occurred to remedy this error and a rather sharp taper formed BUT that should be a *longer bevel tapering back some distance*.
- by this stage, bevelling of the frames should have been done.

Gunport Construction

Most builders opt to show all gunports open but this is discussed back on page 5 and the preference is to have **18 gunports closed** (with 39 gunports open)...

lower gun deck 22 – 3 closed per side (i.e. 6) ... 11 open per side
upper gun deck 23 – 5 closed per side (i.e. 10) ... 10 open per side
main deck – 1 closed per side (i.e. 2) ... 13 open per side open
quarter deck – 0 per side ... 5 open per side open

Positioning

It is essential to mark out the ...

- **frames** (broken red line),
- two **gun deck levels** (broken yellow)
- longitudinal **distribution of the cannons** (blue arrows)

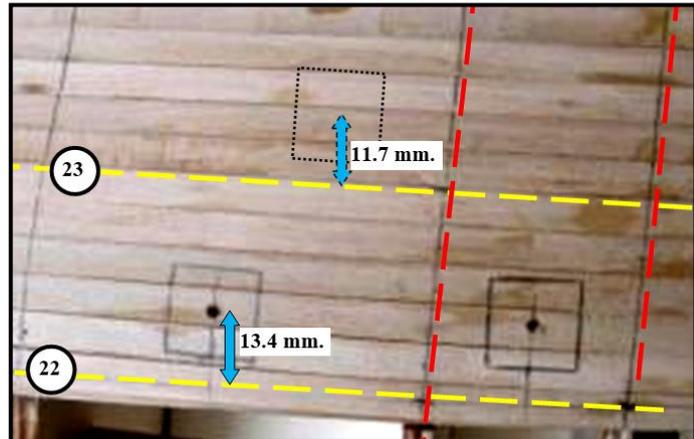


Figure 38: Marking Gunport Positions

Jigs

Center points can be identified through the use of a number of different jigs but that is left to the builder. Once established, holes are drilled through to identify these points.

In this build with **2 mm.** thick frames, two different jigs were required (**16 x 16 mm** for deck 22 and **15 x 15 mm.** for deck 23). The jigs were inserted into the holes and the outline marked onto the first planking.

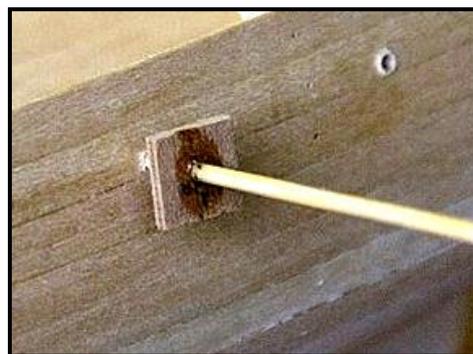
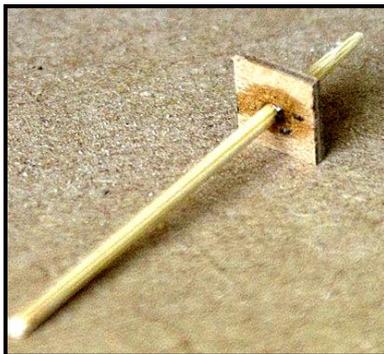


Figure 39: Gun Port Marking Guide

Cutting Out Gunport Openings or Not

Cutting out the openings (in my view) is best left until the hull first planking has been completed and a smooth surface created. Otherwise, the multitude of openings could prove to be obstructive to the sanding/ scraping process.



Figure 40: Two Different Approaches to Forming Gunport Openings

Cutting Out

Ken3335 (MSW) suggested a method for cutting out where no corner pilot holes were used

- a new blade for each side of ship to get a clean cut
- *straight, pointy blade* for cutting **down** across the grain (quite a few passes required)
- *curved blade* for **top and bottom edges** (only 1 or 2 passes required)



Figure 41: Blade Used for Cutting Down

Second planking will be added to partially cover the frame edges (illustrated diagrammatically in Fig. 42).



Figure 42: Battens Sanded Back & Now Flush With Hull Surface

Lids

Kit supplies ...

1.5 x 11 x 200 mm. (1) main deck

1.5 x 13 x 400 mm. (1) upper gun deck 23

1.5 x 14 x 500 mm. (1) lower gun deck 22

Due to the likelihood of incurring damage, the lids were not added at this stage.

Historically, the lid was composed of a number of timbers butted together with the inner lining timbers at 90° to the outer lid. This detail is not often observed in model builds.

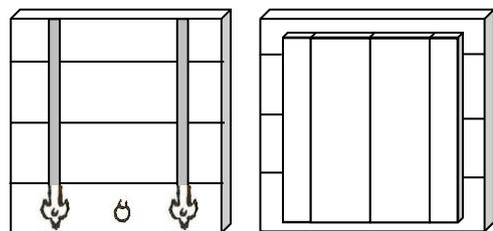


Figure 43: Gun Deck Port Lid
17C/ early-mid 18C



Figure 44: Hinge with Flory End

In the 17C to mid-18C, the extreme ends of the hinges finished in a ‘flory’ (cross with flowers on the ends) whilst the late 18C were just basic straps with square ends. The Euromodel metal hinge (Fig. 44) has such a flory and with a length of approx. *9.1 mm*, it creates a correct embellishment to the lid.

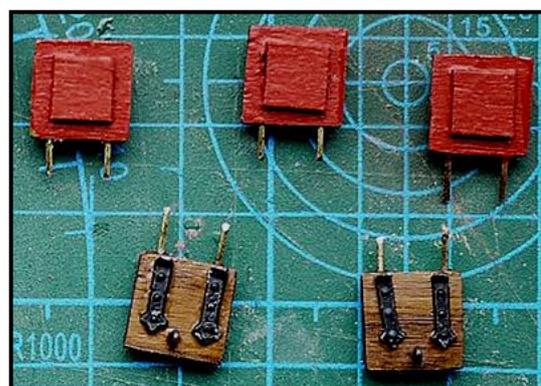
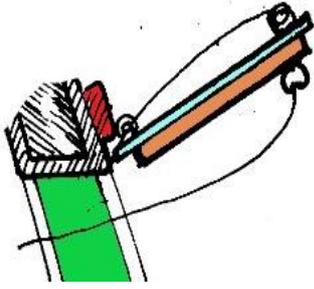


Figure 45: Gunport Lid Supporting Pins



Tackle

By the 1750's, many ships had a *double tackle* to operate the lid movement requiring the presence of two rings on the outside - but in these drawings, only a single tackle (and ring) is evident.

Figure 46: Gunport Lid Tackle

Final Comments

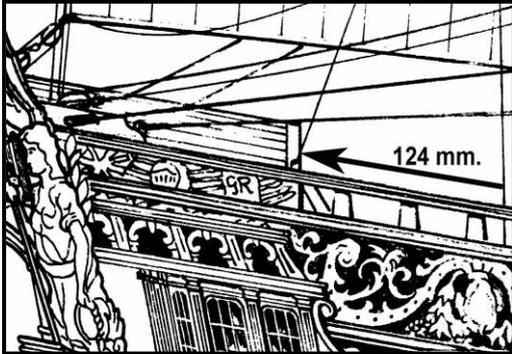


Figure 47: Considering Lengths of the Upper Planks

Here is an example of what makes this a ‘scratch’ model. There are some excellent books out there showing its construction but there are times when you should follow your own initiatives. This is not meant in any way to decry what is in these books – far from it.

There is no one absolute way of building the RW and it depends on how much you wish to follow the actual plans. In one book the front edge of the poop deck is shown flush with the rear edge of Frame 8 – and that is OK – but if you look at the plan sheets, the front edge of the poop deck is approximately **124 mm.** behind the mizzen mast putting it about **12 mm.** past Frame 8. *The implication here is that the top 4-5 planks should extend out past Frame 8 and not be cut off flush with that frame.*

- Planks were then started from the mid-line on the bottom of the hull upwards. It was found useful to create a supporting base that fitted into the long rectangular hole that will later form the grating on the main deck. Now the handiwork here was rough but served the purpose. Made from MDF board, the key dimensions were ...**70 mm x 29 mm** for the locating block on a base that in total was **75 mm** high. (the side ‘wings’ shown are not necessary).



Figure 48: Supporting the Ship When Inverted