Resource Information

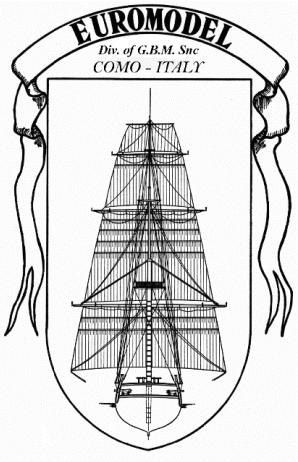


Figure 1: Stern View of Friedrich Wilhelm zu Pferde

Resource Information 1 of 7

Hull Structure (version 5)

My build is an interpretation of the ship based on the supplied drawings and the kit material – this individual approach has utilised small amounts of extra material.

This build manual was based on the original text supplied by Euromodel and then expanded in detail as the actual ship was constructed by the author, Peter Coward. Neither the author or Euromodel have any commercial interest in this manual 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.

To Massimo

Whose untold generosity as owner of
Euromodel G.B.M. Snc
inspired me to translate his plans and instructions.

Who opened his family to my family
and maintained a long relationship via the Internet
between Adelaide, South Australia and Como, Italy.

Who also inspired me whilst building a kit model of the Friedrich Wilhelm zu Pferde
to create a documented manual of construction
for others to utilize.

To him I owe much

To All Ship Builders Who Read This Document

To avoid any ambiguity …

… this documentation of my work is *not an instructional manual* for this ship.

It is a record of how I approached the build **of this ship utilizing the provided kit …** ***and supplementing with additional material*** **which was dictated by my own personal choices.**

No two ships from the same kit will – or should –ever look the same.

I simply wish to share my efforts with you !

Reference Text

The Masting and Rigging of English Ships of War 1625 – 1860 by James Lee (1984). Another indispensable book ! Without this, the masting and especially the rigging would have been difficult.

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

Historic Ship Models by Wolfram zu Mondfeld (1989).

[To navigate through the contents – use 'control + click']

Contents

Illustrations

[The figures below are not hyperlinked]

RECENT CHANGES TO MANUAL

Version 1 to Version 2

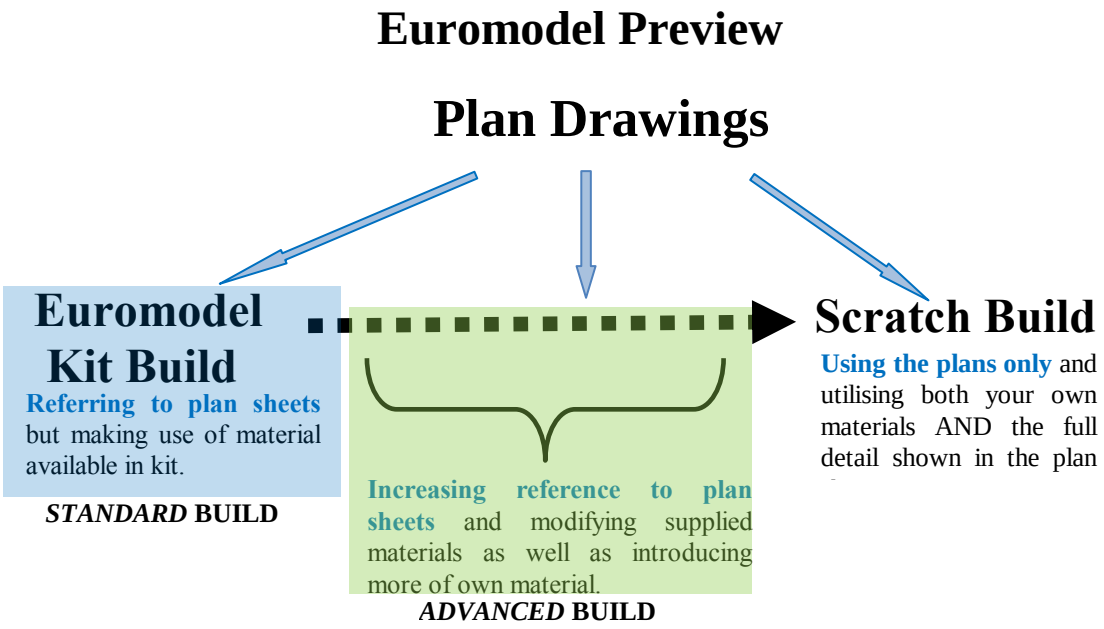
- Page numbering
- Contents & illustration numbering
- Chapter title headings
- Addition of photo of cathead from a scratch model (p.66, Chp.6)
- Addition of photos under Kit Building vs 'Scratch' Building (p. 10, Chp. 1)
- Additional text regarding gun carriages under Kit Variations (p. 13, Chp. 1)
- Changes to Component List presentation of required timbers for the Fore, Main and Mizzen masts.

Version 2 to Version 3

- Page numbering
- Explanation of division of 6 x 6 x 300 mm. timber for bollards, bitts, bowsprit knee
- Editing of historical information

Version 3 to Version 5

- Editing of Component List (eye pins and mast caps)
- Editing of shipyard site in 'Historical Notes'
- Addition of 'Suggested Construction Overview' (Chp. 4)
- Notes on inverting ship for working on lower hull planking & keel tapering (Chp. 4)
- Notes on false keel tapering (Chp. 4)



Euromodel kits are based on sets of drawings by a naval architect and contain a comprehensive amount of detail that would be a challenge to the most serious ship modeller. This is in contrast to most other kits that whilst they also contain excellent plans, the intention there is to achieve a build similar to the plans provided. Euromodel offers plans that can be interpreted at various levels of complexity. If the builder has limited experience in the craft of shipbuilding, then the plans can be read at a simplistic level.

Whilst *all* plan drawings are important to the construction of the Friedrich Wilhelm zu Pferde, the builder is well advised to focus on three – Plan Sheets 1, 2 and especially 10

It could well be argued that *the outcome is somewhere on the continuum between a standard model construction and a scratch model*. How far you wish to extend this continuum is up to you and your build of this ship will be determined by the degree of complexity you choose (refer to the diagram above).

The kit material will go a long way towards achieving a good model but be aware that the purchase of some extra material might be necessary depending on how far you wish to go in emulating the plans. There will be little left over from the kit contents, but during the construction you should experience a compelling drive to create something better than the basic model. Euromodel is aware of this challenge and so provides just the basic needs and leaves it up to the modeller to determine how far he will extend his skills.

In summary … my comments are not prescriptive and if the detail is sometimes a little too precise, please do not let this deter you. It will be up to you to take as much information as you wish and the rest to 'throw overboard'. It is your model, your creation, your handiwork.

Chapter 1: INTRODUCTION

Historical Notes

Figure 2: Friedrich Wilhelm zu Pferde Model

The *Friedrich Wilhelm zu Pferde* (Friedrich Wilhelm on horseback) was built as the flagship of the Brandenburg Navy at a Prussian shipyard in Pillau under the guidance of the Dutch builder Jelis Peckelhering and his team of Dutch shipwrights. At this time, he was responsible for supervision of the shipyards of Prussia (which included the province of Brandenburg) in the cities of Kolberg, Königsberg, Pillau and Berlin and improved them to Dutch standards.

Pillau has now been re-named by the Russians as Baltiysk.

The ship was 32 metres in length, 9.8 metres wide and with a tonnage of about 900 tons.

Designed with an armament of sixty guns, it generally was only equipped with twenty 12-pounders five cannons. The crew varied between 160 – 250 sailors and up to 50 soldiers.

The *Friedrich Wilhelm was part of an active fleet forming the Brandenburg Navy whose role in the seventeeth century was to protect and enhance various trade routes.They were a powerful force in the Baltic Sea as well as Africa and the Caribbean.*

This ship made several trips ... in 1685 to its home port at Emden, in September 1691 from Emden to Shetland Islands under the guide of Captain Jean Le Sage as a convoy escort for the "Derfflinger". On July 25th 1692, along with a large fleet, the "Friedrich Wilhelm zu Pferde" sailed from Emden, heading towards Guinea in West Africa. At this time in history, Brandenburg was at war with France. On the nights between of October 30th and November 1st. 1692, three French ships and a 'brander' (fire ship) fought the Friedrich Wilhelm. Early in the battle, Captain Jean Le Sage was killed by cannon fire and the ship was set on fire and destroyed.

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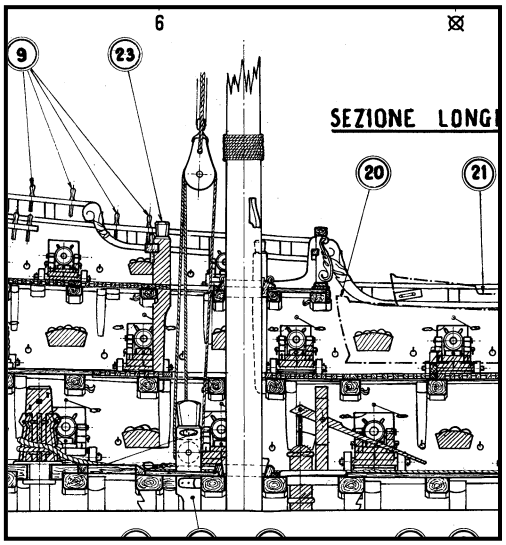


Figure 3: Section From Plan Sheet 2

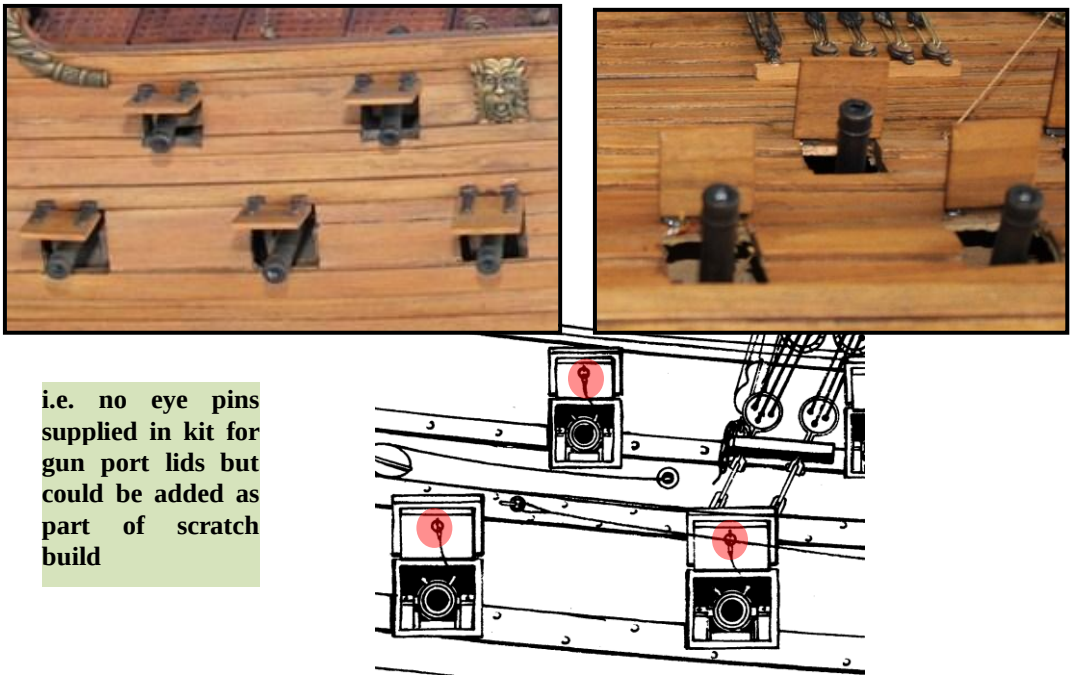
Construction Philosophy

Euromodel have tried to simulate all the designs of the Friedrich Wilhelm zu Pferde in every possible way, with attention to detail in order to appeal to the advanced model builder to construct this model. The designs allow you to construct the vessel using both pre-cut materials ready to use, and materials that require preparation.

Plan Sheets 1 & 2 contains a considerable amount of scratch information. This is a sheet that is useful in interpreting the hull structure but does contain much that is outside the scope of this kit.

Kit Building versus 'Scratch' Building

There may well be some confusion in looking at the plans since there is some considerable detail intended for the 'scratch' builder but which is not provided for in the kit. Fig. 3 shows the detail that *could* be included below decks if engaging in a full scratch build. This kit has a comprehensive array of items to utilise in building this ship. In many cases, these items may not display exactly the same dimensions as the plan sheets but nevertheless will enable the construction of a fine ship. The kit builder will use what is provided but the scratch builder will utilise the plans more fully and decide to spend far more time building particular items as well as purchasing further items to enhance the ship build. Fig. 4 illustrates this point further ... a model showing the gunport lids only partially open does not show the rope and eye pin on the inside surface used as part of the mechanism for controlling the opening/ closing of the lid as shown in Plan Sheet 1.



i.e. no eye pins supplied in kit for gun port lids but could be added as part of scratch build

Figure 4: Gun Port Detail

How *Did* I Build This Ship?

I felt compelled to build this ship from the kit provided but at the same time felt myself drawn to the highly detailed plans which portray far more than the kit provides for. What to do ?

I decided to create a text and photographic portrayal of how the ship could be built from the kit and located in a document on the Euromodel website named '**Friedrich Wilhelm zu Pferde Notes'**. However, at many points I realised that there were alternative and more detailed construction processes that could be carried out. This usually meant the supply of extra material but having gone to the expense of purchasing the kit, the cost of the extra items was incidental. For these alternative processes, you will see some words or heading that by ustilising 'control+click' will allow you to navigate directly to that area of **Chapter 6**:

ADVANCED *Error! Reference source not found.*at the rear of this document. Try control+ click on the words 'advanced notes' in the previous sentence.

A good example is shown by the anchor capstan on Plan Sheet 2. The immense detail provided will enable the construction of a capstan bearing no resemblance to the piece supplied in the kit but will be of a greater historical accuracy. That degree of accuracy is beyond the scope of any kit but not the avid scratch builder. However ... I found myself continually referring to the plan sheet diagrams and calculating how I might improve upon what is in the kit. Somehow, I suspect every builder will become – to some degree – a 'kit/scratch' builder.

In any case it's essential to exercise patience and attention to detail while constructing this model. Without question this ship must be built with passion. The plans are there, an outline of the fundamental steps is there but in the end the modeller must display a high degree of flair. The plans must be studied at length before beginning because it is there that the builders will develop a 'set of instructions' for themselves. **The kit will not necessarily provide all that is required if the modeller aims to include some of the finer detail.**

The kit WILL enable an excellent model to be built from the materials supplied. The plans must be studied at length before beginning because it is there that the builders will develop a 'set of instructions' for themselves.

A complimentary criticism of Euromodel's kits is that the photos displayed on the internet do not portray the kit contents provided but in fact are scratch models. The simple fact is that there are so many variations and additions to the original design possible that (at the risk of repetition) no two ships are going to look the same. The more you examine the plans, the more you are likely to lean towards the 'scratch' style of construction.

Euromodel appreciates your choosing this product and wishes you a challenging experience. There is no question that the detail provided here on the plans and the material contained in the kit sets Euromodel kits apart from other kits available on the market.

Construction Manual

The following documentation will hopefully offer to other future builders an easier ***sequential*** pathway of construction. There is no doubt that others will see 'flaws' or better ways of carrying out some step. In the end, there can be no one way of doing anything so please read what I have written and then make your own judgement about the best method for you and your build. This manual simply describes how *I* constructed this ship.

Whilst I was working under a ***limited build-time to create this hull***, some might well criticise the quality of my construction at some points and you might also be aware that photographing a small area on the hull and enlarging it produces a very different image to the one seen simply through the eye. So whatever you see, make yours better!

This manual is a real 'ship building in progress' and unlike other similar texts, the photographs show the raw work as it is being done – no 'pristine publication-type photos.

Kit Variations

The serious modeller will make many changes and material substitutions. The choice is yours.

As I said earlier, Euromodel have supplied material which will enable you to produce a fine vessel.

As an illustration, here are a number of changes possible – but the list could go on and on ...

Figure 5: A Very Basic Gun Carriage

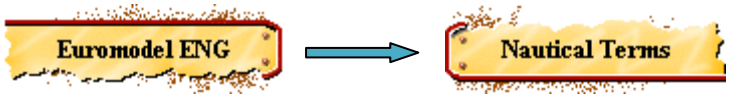
1. The gun carriages supplied do not really match the dimensions or shape shown in the plans and Fig. 5 opposite illustrates the much simplified structure (no quoin, no tapering, almost no rigging, etc) – and no paint detailing! Whilst labour intensive and time consuming, there is ***much*** you can do to alter these gun carriages. I chose to include quite a few details outside the scope of the kit but certainly within the plan sheet description. As an example, a large number of additional eye pins would be needed here !
2. Of particular challenge is the stern construction. From supplied photographs, the majority of 'kit' builders have opted to create a flat stern ('transom') but the plan sheets clearly show a curved transom. Refer to **Error! Reference source not found.**. So it is here especially that there is a grand opportunity to test your skills and create the form that I believe it should be. A challenging choice for the ship builder. Many will opt for the flat stern and that is fine – that is your choice.

3. The decks were traditionally well-scrubbed and lighter in colour than the planking on the hulls. The kit supplies walnut but you could elect to choose a lighter coloured wood.

4. Different woods are available from suppliers for constructing masts & yards but the kit timber supplied is of excellent quality.

Chapter 2: TRANSLATION (from Italian to English)

Whilst every care has been taken with this translation, the author claims little depth of knowledge of Italian and thus various grammar and syntax errors will be apparent to those who are bilingual in these two languages.



An on-line dictionary is to be found on the Euromodel website – 'Nautical Terms' and this will provide assistance for a *large range of terms NOT included in the following pages* of translation from Italian to English.

As you read this manual on construction page by page, all of the plan sheet text in Italian will be explained and translated in English so rather than trying to interpret individual words or sentences on the sheets, just refer to the sequential text. I am hopeful that it will all become quite clear to you.

Italian – English Plan Translation

(Terms shown on the Plan Sheets but not included in the lists below - refer to Euromodel website, 'Nautical Terms')

Tavola 2 **VISTE ESTERNE SCAFO, SEZIONE, LONGITUDINALE E PIANTA**	**Plan Sheet 2** **HULL – COMPLETE, CROSS SECTION, LONGITUDINAL & PLAN VIEWS**
VISTA DI TRIBORDO	**VIEW OF THE HULL ON STARBOARD SIDE**
SEZIONEN LONGITUDINALE SULLA MEZZARIA NAVE	**LONGITUDINAL CROSS SEDCTION VIEW ALONG SHIP CENTRE LINE**
VISATA DELLE POPPA	**VIEW OF THE STERN**
VISTA DELLE PRORA	**VIEW OF THE BOW, WITH BOW WORKS & FIGUREHEAD**
Particolare da realizzarsi a cura del modellista	Details to be made by modeler
ISTRUZIONI PER LA PITTURAZIONE 1.I ponti dovranna essere color legno chiaro e verniciati con transparente o finiti a cera. 2.Saranno ross vivo: affusti dei cannoni, vericelli, argani, bitte, portaproiettili, pazienze, cavigliere, lato interno portelli dei cannoni. 3. Saranno color legno noce: le fiancate interne dello scafo, i corrimano delle ringhiere, scale, mastre dei boccaporti e degli alberi, alberi e pennoni coffe e crocette, aste dei vericelli, tutte le parte interne delle imbarcazioni, cavalletti di ... etc. 4. Tutte le parti metalliche (non ferrose) che non siano coperte dal colore di una zona come, ad esempio, le cerniere dei portelli dei cannoni, possono essere pitturate con una miscela di nero e ... etc 5.Le canne dei cannoni (se di ottone ... etc.) 6.Tutti i colori e la vernice trasparente ... etc **NOTE** - Per le sez. trasversali dello scafo ed i particolari costruttivi dal N^{O} 1 al ... etc. - Per i particolari costruttivi dal N^{O} 18 ... etc.	**INSTRUCTIONS FOR COLOURING** 1.Decks must be bright wood colour & finished with wax or varnish. 2.Following details will be red: gun carriages, winches, capstans, bitts, shell holders, belaying racks, pin racks & inside of the gun port-hole doors. 3.Following details will be walnut coloured: inside bulwark, handrails, stairs, hatchway coamings & mast coamings, masts & yards, tops & crosstrees, winch stocks, inside of life boats & their stands, blocks, deadeyes & belaying pins. 4.All the non iron metallic parts that are not covered by the colour of the detail they are joined to , e.g. hinge of the gun door can be painted with a black and silver mixture to simulate steel. 5.The barrels (brass or bronze) must be burnished. 6.All the colours as well as varnish must be semi-lustre. **NOTES** - For the cross sections of the hull & construction details from 1 to 17, refer to Plan Sheet 3 - For details from 18 to 35, refer to Plan Sheet 4.

COLORI - COLOUR	**COLORI – COLOUR**
Bianco – white	Rosso vivo – bright red
Lego noce – walnut wood	Verde marcio – olive green
Nero – black	Oro antico – antique gold
Giallo ocra – yellow earth	Azzurro cielo – blue sky
Colore terra – earth colour	

Tavola 3 **Sezioni Trasversali e Particolari 1-17**	**Plan Sheet 3** **Transverse Sections & Items 1-17**
SEZIONE VERSO POPPA SULL'ORDINATA 6	**CROSS-SECTIONAL VIEW AT FRAME 6 LOOKING TOWARDS POOP**
SEZIONE VERSO POPPA SULL'ORDINATA MAESTRA	**CROSS-SECTIONAL VIEW AT MAIN FRAME LOOKING TOWARDS STERN**
SEZIONE VERSO PRORA SULL'ORDINATA MAESTRA	**CROSS-SECTIONAL VIEW AT MAIN FRAME LOOKING TOWARDS BOW**
PARTICOLARE DELLA PARATIA DI PRORA	**DETAIL OF BOW BULKHEAD**
PARTICOLARE (TIPICO) DELL 'INSTALLAZIONE DEI CANNONI (fuori scala)	**DETAIL (TYPICAL) OF THE GUN INSTALLATION (not to scale)**
Bozzelli del paranco di rinculata	Blocks of the recoil tackle
Bozzelli del paranco dei cannone	Blocks of the gun tackle
1.CANNONI DEL PONTE BATTERIA (N^{O} 20 PEZZI)	**1.GUNS OF BATTERY DECK (20 items)**
Affusti per scatola di montaggio	Gun carriages to be produced (20 items)
2.CANNONI DEL PONTE DI COPERTA ...	**2.MAIN DECK CANNONS (18 items)**
Affusti per scatola di montaggio (N^{o} 10 pezzi) + N^{o} 8 pezzi come da partic. reale per i cannoni in vista	Carriages for assembling box (10 items) + 8 items as per the detail for guns in view.
3.CANNONI DEL CASTELLO E DEL CASSERO (N^{O} 10 PEZZI)	**3.GUNS OF THE FORECASTLE & QUARTER DECKS (10 items)**
4.CANNONI DEL CONTROCASSERO (N^{O} 4 ...	**4.GUNS OF UPPERQUARTER DECK (4 items)**
5. BITTONE ... PENNONE DI TRINCHETTO	**5.TIE BITT OF THE FORE YARD**
6. BITTONE DI DRIZZA DEL PENNONE ...	**6.TIE BITT OF THE MAIN YARD**
Sagomare sulla fiancata int.	Mould on the inside broadside
NOTE Salvo ove diversamente indicato sulla presente tavola e sulle tavole successive, tutti i particolari sono ... etc. Per il codice dei colori e le istruzioni per la ... etc. Per i particolari dal N^{O} 18 al N^{O} 35 vedere la tav. ...	NOTES Where not differently specified, all details of this as well as following drawings have the same scale of the vessel. For colours & painting instructions, see Plan Sheet 2 For detail 18 to 35, see Plan Sheet 4.

Tavola 4 **PARTICOLARE 18 - 35**	**Plan Sheet 4** **DETAILS OF ITEMS 18 – 35**
*Le quote contrassegnate da asterisco sono do ...	Distance shown by asterisk determined by the modeller
FANALE DI POPPA	**STERN LIGHT**
Sviluppo	Development
Rifilare a cono eseguito	When assembled, the cone so produced will need to be trimmed to that of the lantern diameter.
PARTICOLARE DELLE CERNIERE DEGLI AFFUSTI	**HINGE DETAIL OF GUN MOUNT**
Da eseguirsi a cura del modellista	To be produced by modeller
PARTICOLARE DEL PARANCO DELLA ...	**DETAIL OF CATHEAD TACKLE**

Tavola 5 PONTE E PARATIE FRONTALI	Plan Sheet 5 DECKS & BULKHEAD FRONT VIEWS
PARATIA FRA CASSERO E CONTROCASSERO	**BULKHEAD BETWEEN QUARTER & POOP DECKS**
Sugli orli con lasciare 1mm. in +	Allow about 1mm to trim edge
PER OSS.-2 – SISTEMARE PRATICAMENTE DA SOPRA P. COPERTA	**FOR FRAME 2, ARRANGE IT PRACTICALLY FROM OVER THE UPPER STOREY.**
PARATIA LA PARATIA DEVE AVERE ...	**CAREFULLY,BULKHEAD TO BE CURVED**
FORO 5X5 SCASSA MEZZANA	**HOLE, 5X5 MM., MIZZEN STEP**
ATTACO PER BITTA DI ... DI MAESTRA	**FASTENING FOR BITT OF MAIN TIE**
N.B. PER CONSENTIRE – l'imbarco dei ponti, batterie, coperta, casser e controcassero e necessario segare i ponti sulla mezzaria il segno indica ... etc.	N.B. In order to assemble the second, main, quarter and poop decks, it is necessary to saw the decks on the midline (on later kits, this has already been done)
PARTE DEL PONTE DA INTRODURRE PER PRIMA. COPRIGIUNTA SOTTO IL PONTE.	**PART OF THE DECK TO BE INTRODUCED FIRST. JOINT COVERING UNDER DECK.**
IL PONTE BATTERIA – non abbisogna di coprigiunta appoggiando sulla chiglia	**GUN DECK – this deck does not need the joint covering as it is supported on the false keel line.**

Tavola 6 ALBERI E ATTREZZI	Plan Sheet 6 MASTS & EQUIPMENT
BOMPRESSO	**BOWSPRIT**
FORO DA ESEGUIRE AL MONTAGGIO	**HOLE TO BE FORMED AFTER/ BY ASSEMBLY**
FORO CONICA DA ESEGUIRE AL MONTAGGIO	**CONICAL HOLE (BORE) TO BE FORMED AFTER/ BY ASSEMBLY**
FORO PER IL PASSAGIO DELLA FRECCIA	**HOLE (BORE) FOR FITTING OF TOPSAIL MAST**
TRINCHETTO	**FOREMAST**
TRATTO PARALLELO A SEZ. QUADRATA	**FORM A SQUARE CROSS SECTION**
FORO DA ESEGUIRE AL MONTAGGIO DELL'ALBERO DI PAROCCHETTO	**HOLE (BORE) TO BE MADE BY ASSEMBLING OF THE FOREMAST**
QUESTA PARTA DEVE ESSERE ASPORT ...	**PART MUST BE REMOVED FROM F2 PARTS**
FORO DA ESEGUIRE AL MONTAGGIO DELL'ALBERETTO DI PAPPAFFICO ...	**BORE TO BE MADE BY ASSEMBLING THE TOPGALLANT FOREMAST & FLAGSTAFF**
PENNONE DI VELACCINO	**FORE TOPGALLANT YARD**
PENNONE DI PARROCCHETTO	**FORE TOPSAIL YARD**
pulegge per drizza del penn. di parrocchetto	pulley for halliard of topsail yard

Tavola 7 **MANOVRE FISSE E PARTICOL. RELATIVI – BIGOTTE & BOZZELLI**	**Plan Sheet 7** **DETAIL OF FIXED RIGGING – DEADEYES & BLOCKS**
PIANO DELLE MANOVRE FISSE DELL'ALBERATURA	**PLAN OF MAST FIXED RIGGING**
Paterazzi dell'alberetto di parrocchetto di bompresso	Backstays of the topsail bowsprit mast
Le parti indicate con line a tratto e punto sono relative al solo albero di trinchetto sia per quanto riguarda il partic. 1 che per il partic. 2.	The parts shown by chain refer only to the foremast whether for detail 1 or detail 2.
PARTIC. DELLE LANDE E DEGLI ARRIDATOI DELLE SARTIE DI TRINCHETTO E DI MAESTRA	**DETAILS OF THE FORE & MAIN CHAIN PLATES & TURNBUCKLE**
PARTIC. DELLE LANDE E DEGLI ARRIDATOI DELLE SARTIE DI MEZZANA	**DETAILS OF THE MIZZEN CHAIN PLATES & TURNBUCKLE**
NOTE 1.l'attaco fiss (*) del cava buono di maestra deve essere eseguito dal lato di tribordo dell'albero(opposto a quanto indicato a dis.) 2.la legenda sotto riportata e valida per la presente tav. e per quelle ... etc.: indica il no. progressivo di posizione a cui vanno legate le manovre volanti di pennoni e vele (galocce, caviglie, stroppi delle bigotte ecc.) indica il no. progressivo della posizione del punto fisso (dormiente) di una manovra volante … etc. come sopra, ma senza numerazione in quanto non necessaria indica la posizione del passaggio di una manovra volante prima di essere legata ad una posiz. contrassegnata dal cerchio di cui sopra. (il punto di passaggio puo essere ... etc. 3.I numeri in grassetto indicano il tipo di bigotta e di bozzello da adottare per ciascuna manovra. il numero che segue la lettera che identifica il tipo di bozzello designa la posizione relativa al tipo di bozzello – i bozzelli relativi al lato di tribordo (dritta) sono identificati con d, quellie relativi al lato di babordo (sinistra) ... etc. ESEMPIO a. bozzello tipo "h" avente lo stesso scopo, ubicazione analoga ed installato sul lato di babordo b. ubicato sul lato di tribordo c. bozzello no. 1 di tipo "h"	NOTES: 1.the fixed junction of the main mast rope must be carried out from the right hand side of the mast (opposite to what is shown in the drawing). 2.the following legend is valid for this & following plan sheets: 'circle' shows progressive no. of position where running riggings of yards & sails must be fastened (cleats, belaying pins, deadeye fastenings, etc.) 'rhomboid' shows progressive number of fixed point of a running rigging (ring, block fastening, etc.) 'asterix' as above but without numbers because not necessary 'oval' shows passage position of a running rigging before same is fastened to position marked with the above circle (the passage point can be a block, a chock, etc.) 3. The bold numbers show the deadeye & block type used for each rigging. number following the letter showing the block type determines the position. Right-hand blocks are labelled "d" and the left "s". identification nos. of blocks followed by an abbreviation between brackets show the corresponding blocks on the opposite side. EXAMPLE a. block type h has same end place similar to the one installed on left side. b. placed on left hand side c. block no. 1 of the "h" type.

Tavola 8 **MANOVRE VOLANTI DEI PENNONI E PARTICOLARI**	**Plan Sheet 8** **DETAIL OF YARD RUNNING RIGGINGS**
PARTICOLARE DELLE MANOVRE VOLANTI DEL PENNONE DI CIVADA E DEL PENNONE DI PARROCCHETTO DI BOMPRESSO	**DETAIL OF RUNNING RIGGINGS OF THE WHISKER & BOWSPRIT FORE-TOP YARD**
PARTICOLARE DELLE MANOVRE VOLANTI DEL PENNONE DI PAPPAFICIO DI TRINCHETTO E DEL PENNONE ... etc	**DETAIL OF RUNNING RIGGING OF TOPGALLANT YARD & TOP YARD OF THE FOREMAST**
PARTICOLARE DELLE MANOVRE VOLANTI DEL PENNONE DI TRINCHETTO	**DETAIL OF RUNNING RIGGINGS OF FOREYARD**
Strallo di maestra	Main stay
Legare allo stroppo del bozzello "L" 8	Fasten to the L 8 block strap
Bitta della drizza di trinchetto	Bitt of the foremast halliard
PARTICOLARE DELLE MANOVRE VOLANTI DEL PENNONE DI PAPPAFICO DI MAESTRA DEL PENNONE DI GABBIA	**DETAIL OF RUNNING RIGGING OF MAIN TOPGALLANT SAIL & UPPER TOPSAIL**
PARTICOLARE DELLE MANOVRE VOLANTI DEL PENNONE DI MAESTRA	**DETAIL OF RUNNING RIGGING OF MAIN YARD**
Legare incappelando all bitta	Fasten, fixing at the bitt.
Bitta della drizza di maestra	Bitt of the main mast halliard
DETTAGLIO 'C' (Trozza delle pennone di contromezzana)	**DETAIL OF PARREL OF MIZZEN TOPSAIL YARD**
DETTAGLIO 'B' (Trozza delle antenna di mezzana)	**DETAIL OF PARREL OF MIZZEN LATEEN YARD**
incappellaggio dello strallo	**stay strap**
PARTICOLARE DELLE MANOVRE VOLANTI DEL PENNONE DI BELVEDERE, DEL PENNONE DI CONTROMEZZANA E DELL'ANTENNA DI MEZZANA	**DETAIL OF THE RUNNING RIGGING OF MIZZEN TOPGALLANT YARD, MIZZEN TOPSAIL YARD & MIZZEN LATEEN YARD**
DETTAGLIO DELLA TROZZA	**DETAIL YARD ARM SLING**
NOTE 1.dettaglio (tipico) per l'alberetto di parrocchetto di bompresso. dell'alberetto di ... etc 2.detagglio (tipico) della trozza dei pennoni del bompresso, di pappafico di trinchetto, di pappafico di maestra e del penn. di belvedere – il bozzello e relativo stroppa ... etc. 3.dettaglio (tipico) per l'albero di parrocch....etc 4.dettaglio (ipico) per l'albero di trinchetto ...etc 5.le trozze del pennone di contromezzana e dell'antenna di mezzana devono essere ... etc. 6.per il significato dei simboli riportati sulla presents ... etc	NOTES 1.detail (typical) of bowsprit sprit mast as well as the main & foremast topgallant masts. 2.detail (typical) of the seizing of the bowsprit of the 'pappafico' topgallant fore yard, of the 'pappafico' topgallant main yard as well as of the mizzen topgallant yard. 3.detail (typical) for the fore & main masts. 4.detail (typical) for the fore & main topsail masts. 5.the seizing of the mizzen topsail yard as well as of the mizzen lateen yard must be done as per detail "b". 6.for interpretation of symbols used refer to the legend in plan sheet 7.

Tavola 9 MANOVRE DELL VELE	Plan Sheet 9 SAIL RIGGING
Solo per la vela di trinchetto	**Only for the foresail**
Vela addizionale asportagile (bonetta)	Bonnet
Paranchino dei terzaruoli	Reef tackle
Matafioni di inferitura 0.5	Furling line
PARTICOLARE DELL'ATTACCO DELLA VELA AL PENNONE (INFERITURA)	**ATTACHMENT OF SAIL TO YARD (SHOWING FURLING LINE)**
NOTE 1.le dimensioni delle vele devono essere in ... etc 2.escluso la vela di mezzana, che e rappresentata vista da tribordo, tutte le vele sono state ... etc. 3. tutte le manovre indicate con linea tratteggiata passana sulla faccia delle vele opposta a ... etc. 4. per il significato della simbologia usata ... etc.	NOTES 1.sail dimensions to be determined plan sheet 1 2.with exception of mizzen sail which is shown from the right, all other sails are shown viewed from the poop. 3.all the riggings marked with short-dashed lines go on the side of the sails opposite to the visible ones. 4.refer to plan sheet 7 for the symbols used.

Tavola 10 PIANO DI COSTRUZIONE	Plan Sheet 10 BUILDING PLANS
PIANO LONGITUDINALE	**LONGITUDINAL PLAN**
PIANO TRASVERSALE (ORDINATE)	**VIEW OF FRAMES TOWARDS STERN**
Linea retta del baglio	Beam straight line
PIANO ORIZZONTALE (LINEE D'ACQUA)	**HORIZONTAL PLAN (WATER LINES)**
Tutti i profili dei ponti sono riferiti alla mezzeria. per definire il profilo dei ponti a murata usare la sagoma del bolzone sopra ... etc.	All the deck profiles refer to the centre line. in order to establish the deck profiles, user the form of the cambered beam as above.

Tavola 11 SPECCHI DI POPPA	Plan Sheet 11 STERN DETAIL
Deviate di giunzone degli specchi	Base of stern support merges with junction of upper & lower 'mirrors'
N.B. lo spessore delle oss. e di 5 mm.	N.B. The frame thickness is 5 mm.
CURVA INTERNA DEI 2 SPECCHI DI POPPI	**INSIDE CURVE OF 2 POOP 'MIRROR' PIECES**
N.B. Il tutto va montate a parte, provato a posto e sistemato definitamente solo dopo aver fissato a posto i vari ponti. I ponti si introducono da poppa	N.B. Everything must be assembled apart, checked and then placed definitely ONLY after having fixed in place the different decks.
Attenzione: Occorrono No 8 correnti lunghezza 900x5x3 m/m	There are eight longitudinal stringers (4 per side) – 3x5x99 mm. used for strengthening the hull
Incastri per correnti longitudinali	Fit in longitudinal stringers
SISTEMA DI MONTAGGIO OSS. 1	**METHOD OF ASSEMBLY AROUND FRAME 1**

Tavola 12 **SPECCHIO DI POPPA E GIARDINETTI**	**Plan Sheet 12** **STERN & QUARTER GALLERIES DETAIL**
Piano in corrispondenza del P. CASSERO	**A: Level in relation to the quarter deck.**
Piano in corrispondenza del P. COPERTA	**Level in relation to main deck.**
Appogio P. CASSERO	**Quarter deck support**
Appogio P. COPERTA	**Main deck support**
Porzione di supporto da eliminare destro e sin	**Support position to be removed from both sides**
Zona di riemppimento. Il riempimento va fatto con un blocchetto di e egno opportunamente ... etc.	**Area on either side to be filled using wooden blocks shaped as per drawing.**
ELEMENTI COSTRUTTIVI DELLO ...	**PARTS USED IN CONSTRUCTION OF STERN**
- Ordinata no. 10 - No. 5 supporti tipo A e no. 2 Tipo B - Parte superiore specchio di poppa - Parte inferiore specchio di poppa - Dritto di poppa	Frame No. 10 Lower counter timbers (5 type A and 2 type B) Upper stern 'mirror' (support for decorations) Lower stern 'mirror' (support for decorations) Sternpost
SEZ. DELLA CHIGLIA SULL'OSS 10	**C.S. THROUGH FALSE KEEL AT FRAME 10**
Dal punto r al puntos lachiglia va rastremata ...	**Cross section of the keel line on Frame 10**
Lo specchio inferiore va leggermente in curvato ...	**Lower stern 'mirror' must be gently curved/ tapered to fit.**
Inserire l'oss 10 con i supporti gia incollati nella parte di estrema poppa della trave di chiglia	**C: Insert Frame 10 with the already glued supports on the part of the outer poop of the keel line.**
Trave di chiglia	**Beam of the false keel**
Blochetto di riempimento serve d'appoggio alla parte terminale dei listelli a estrema poppa. A sistemazione avvenuta deve formare un tutto unico con supp. ...	**Filling block serves as a support for planks finishing at Poop Deck end. Must be shaped to be complete entity between support B & frame 10. This applies to both sides.**
SEQUENZA DELLE OPERAZIONI DI ... **1.Sull'oss.10 incollare i supporti degli specchi – no.5 tipo A tipo B nelle appositezone – dis A. Fare attenzione che i piani dei sup porti peril ...** **2.Ad incollaggio asciutto incollare ledue parti, superiore e inferiore, dello specchio di poppa.dis.B negli incastri dei supporti (X & Y) come ... etc**	***STERN ASSEMBLING PROCEDURE*** **1.On frame 10, glue 7 supports (5 type A & 2 type B). Make sure supporting surfaces for quarter deck & main deck are level with those of frame 10.** **2. After glueing, assemble upper & lower parts of transom as in drawing B on supports X as in drawing C.** **3.Insert everything in keel line notch at poop end.** **4. Glue sternpost paying checking with the keel line. Notches for longitudinal reinforcements of upper & lower transoms must be in line with notches for frame 10. Check drawings on this plan sheet!**
	QUARTER GALLERY CONSTRUCTION
Disegno pezzo per misura e paragone	**Comparison of block sizes**
Blochetto di legno da lavorarsi	**Block of wood to be worked**
Sezionare orizzontalmente alt A e E – verticalment ...	**Horizontal & vertical views of timber sections to be done.**
PRIMA OPERAZIONE **Sagomatura in senso verticale – da levare ... etc**	**1st. STEP: Shaping in upright fashion, remove dashed part.**
SECONDA OPERAZIONE: I pezzi ottenuti con la precedente sagomatura vanno ora sagomati ...	**2nd. STEP: The pieces obtained from the previous step must be finished on both the side & upper surfaces.**
I pezzi sagomati come dis. 4-(A-B-C-D) vanno incol lati fra loro. Poi si incollano sul fianco del pezzo ottenuto le varie cornici ornamentali, (I-II-III-IV-V-VI) l'effetto della copertura a labbro si puo'ottenere lavorando con un ...	Shaped pieces as per drawing 4 (A+B+C+D)to be glued together; glue on the side of piece the various ornamental frames (I....VI). Roof produced by working with a carving tool on full block or with the application of wooden strips.
Aspetto finale del pezzo dopo l'applicazione degli elementi orna mentali prestampati	**Final view of the structure after application of the ornamental metal pieces.**
N.B. Nel disegno 4 la parte da levarsi e segnata coi trattini	**Final design encompassing the four pieces will need to be modified according to how it fits into the ship.**

Chapter 3: THE KIT

Drawings

The diagrams are beautifully drawn and would allow a scratch-built kit to be readily developed. The difficulty is to separate the essential detail necessary to build the kit from the other more seriously accurate detail.

At this stage it is a good idea to spend quite some time 'pouring' over the plan sheets provided to gain some insight into what is ahead of you.

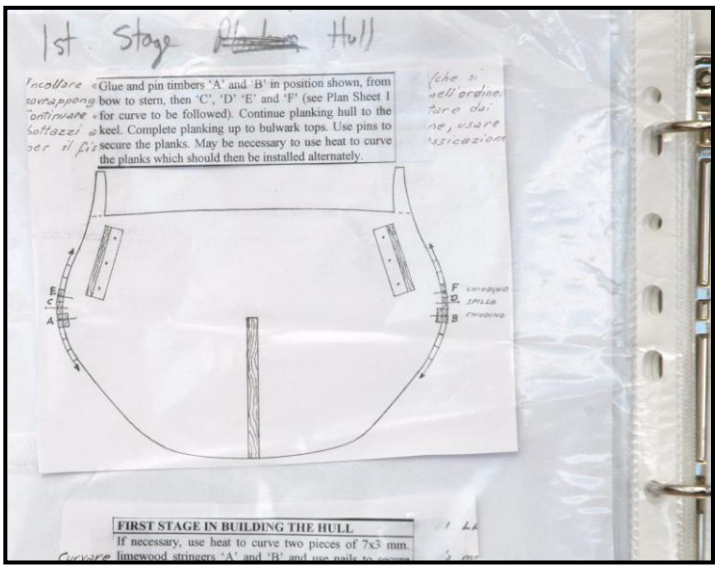


Figure 6: Re-organisation of Plan Sheets (from another kit)

A point I found useful was for many – but not all – plan sheets to be carefully cut into small sections and placed into plastic sleeves in a folder. This way I could arrange the drawings in semblance of order of construction. Another very useful step was to print off the Italian-English translations, cut out the English translations and stick them over the appropriate Italian words (see below)

Figure 7: Identifying Metal Castings

Metal decorations

All cast metal decorations are contained in small but unmarked plastic packets. They have very few blemishes to remove. On the reverse side of the casting there is a specific number that identifies that piece. There are some excellent side and stern views on pages in this set of instructions that hopefully allows the kit builder to identify the castings with little problem. .

Now is the time to go through every packet, identify the pieces. What I then did was to place an identifying name or number inside each packet and re-staple them ready for future use.

Much patience is required to identify these pieces and I would caution against direct contact with the skin – use gloves when cleaning & painting the pieces. Certainly any filing should be carried out in a separate area that can be easily cleaned up. Obviously any painting and gilding will need to be done before assembly onto the ship. More on their useage later.

Scrap Material

The laser-cut material in this kit is surrounded by pieces of wood which may appear to be superfluous – *do not discard this 'waste'* as there will be a number of places in the ship build where it becomes useful.

Component List

Wood – Laser-cut

Hull:

Keel (1) – Chiglia

Transverse Frames (10) - Ordinate

Decks:

Gun Deck (1) - Ponte di batteria
Main Deck (1) - Ponte di coperta
Quarter Deck (1) – Ponte di cassero
Upper Quarter Deck (1) – Ponte di contro cassero
Poop Deck (1) – Ponte di casseretto
Forecastle Deck (1) – Ponte castello

Bulkheads A, B & C (3) – Paratia A, B & C

Stern:

Stern Supports (7) - Supporti di poppa No. 7
Transom, upper (1) - Specchio superiore
Transom, lower (1) - Specchio inferiore
Rudder (1) – Timone

Posts:

Stem (Bow) Post (1) - Ruota di prua
Stern Post (1) – Ruota di poppa

Support Base (1) - Invasatura anteriore + posteriore

Wood – Limewood – listello tiglio

35 x 60 x 120 mm.	**Block for Bow & Stern Sides -** Blocchetto di riempimento va fatto di prua
50 x 60 x 180 mm.	**Block for Quarter Galleries -** Blocchetto di riempimento di poppa
1.5 x 6 x 760 mm. (100)	**First Planking -** 1° Fasciame [N.B. varies between 1.5 – 1.8]
2.5 x 5 x 760 mm. (6)	**Longitudinal stringers -** Correnti lunghezza

Plywood- compensata

'1' x 85 x 300 mm.	**Mast Tops -** Coffe ***[N.B. thickness approx. 0.6 mm.]***

Wood –Walnut – listello noce

1 x 6 x 760 mm. (100)	**Second Planking** - 2° Fasciame
0.5 x 6 x 710 mm. (40)	**Deck Planking -** Rivestimento ponti
10 x 10 x 330 mm. (1)	**Cradle Support Cross Pieces -** Traversa invasatura
10 x 10 x 630 mm. (1)	**False Keel -** Sottochiglia
4 x 17 x 150 mm. (1)	**Mast Cheeks -** Maschette
2 x 5 x 760 mm. (8)	**Wales, Cap & Pin Rails,** – Incintoni, capodibanda, pazienza
2 x 8 x 760 mm. (6)	**Wales -** Incintoni
9 x 11 x 150 mm. (1)	**Bollard for Foremast Yard** – Bittone di drizza del pennone di maestra
9 x 14 x 150 mm. (1)	**Bollard for Main Mast Yard** – Bittone di drizza del pennone di trinchetto
2 x 2 x 760 mm. (6)	**Capstan Base; Head Grating** – Base de aragano, Serpa
2 x 4 x 560 mm. (1)	**Bowsprit[Cleats, Trestletrees]; Steps** (outside staircase) – Barre costiere di albero di bompresso; Scaleo di scala (esterno)
2 x 2 x 700 mm. (3)	**Fore Top Mast Crosstrees; Bowsprit Topmast Crosstrees; Stern Buttock** – Barre traversa di albero di parrocchetto e albero di bompresso
3 x 4 x 80 mm. (1)	**Main Top Mast Trestletree -** Barre costiere di albero di gabbia
2 x 3 x 80 mm. (1)	**Main Top Mast Crosstree** - Barre traversa di albero di gabbia

Fore Lower Mast Top [B2]

2.5 x 4 x 140 mm. (1) **Crosstrees** – Barre traversa di albero di trinchetto
5 x 6 x 140 mm. (1) **Trestletrees -** Barre costiere di albero di trinchetto

Fore Top Mast Crosstree [B2]

Crosstrees: included in 2 x 2 x 700 mm. on previous page
Trestletrees: included in 2 x 4 x 560 mm. on previous page

Fore Topgallant Mast Crosstree [B8]

Crosstrees: included in 1 x 3 x 110 mm. in list below
Trestletrees: included in 2 x 2.5 x 50 mm. in list below

Main Lower Mast Top [C2]

6 x 7 x 140 mm. (1) **Trestletrees -** Barre costiere di albero di maestra
2 x 5 x 760 mm. **Crosstrees** – Barre traversa di albero di trinchetto
Crosstree timber included on previous page for 'Wales, Cap & Pin Rails'

Main Top Mast Crosstree [C5]

Crosstrees: included in 2 x 3 x 80 mm. in above list
Trestletrees: included in 3 x 4 x 80 mm. in above list

Main Topgallant Mast Crosstree [C8]

Crosstrees: included in 1 x 3 x 110 mm. in list below
Trestletrees: included in 3 x 3.5 x 220 mm. in list below

Mizzen Lower Mast Top [D2]

3 x 3.5 x 220 mm. (1) **Trestletrees & Crosstrees -** Barre costiere e barre traversa di albero di mezzana

Mizzen Top Mast Crosstree [D5]

Crosstrees: included in 1 x 3 x 110 mm. in list below
Trestletrees: included in 2 x 2.5 x 700 mm. in list below

2 x 2.5 x 50 mm. (1) **Mizzen Top Mast Trestletrees -** Barre costiere di albero di contromezzano / albero di belvedere
1 x 3 x 110 mm. (1) **Main, Fore & Mizzen Top Mast Crosstrees** – Barre traversa di albero di maestra e albero di contromezzano/ albero di belvedere
2 x 2 x 500 mm. (2) **Grating borders** – Bordo di boccaporto
2 x 3 x 760 mm. (1) **Grating; Main Topgallant Crosstrees** – Bordo do boccaporto; Barre traversa di albero di pappafico di maestro
3 x 15 x 400 mm. (1) **Channels –** Parasartie; **Fairlead -** Passacotte

6 x 6 x 300 mm. (1) **Bitts & Bollards –** Pazienza e Bitta [Nos. **10, 22, 23 & A2**, bowsprit knee]

I divided this as follows:

10: 66 mm. (to deck level only)
22: 40 mm. (to deck level only)
23: 122 mm.
A2: 37 mm. (vertical section of bowsprit knee)
N.B. 16: Made from scrap timber

8 x 8 x 200 mm. (1) **Catheads -** Gru di capone
2 x 20 x 760 mm. (1) **Gun Port Hatch -** Portelli cannoni
1 x 14 x 760 mm. (1) **Gun Port Hatch Lining -** Battuta portelli cannoni
2 x 4 x 400 mm. (1) **Stern Buttocks (side quarter galleries) Decoration**

Accessories

Anchor:

Bow: 72 mm with stock (2) – Ancora di poasta da mm. 72 con ceppo (Art.11/108)

Stern: 83mm with stock (2) - Ancora da mm. 83 con ceppo (Art.11/109)

Barrel (2) – Botte (Art.22/111)

Belaying Pins: 14 mm. (15) - Caviglia da mm. 14 (Art.22/088); **12 mm. (12)** – Cavig.da mm. 12 (Art.22/088)

Binnacle (1) - Chiesuola campana (Art.11/363)

Blocks:

N.B. The plan sheet shows a larger variation of block sizes than that provided in the kit. This kit has amalgamated a number of blocks with similar sizes together – e.g. Y, L and K all use the same sized block.

Y + L + K :	**3mm., 1 hole(132) -** Bozzelli da mm. 3 a 1 foro (Art.22/026)
LL + KK :	**3mm., 2 hole(20) -** Bozzelli da mm. 3 a 2 foro (Art.22/031)
H + J :	**5mm., 1 hole (50) -** Bozzelli da mm. 5 a 1 foro (Art.22/028)
HH + JJ :	**5mm., 2 hole (15) -** Bozzelli da mm. 5 a 2 fori (Art.22/032)
G :	**7mm., 1 hole (15) -** Bozzelli da mm. 7 a1 fori (Art.22/030)
GG :	**7mm., 2 hole (5) -** Bozzelli da mm. 7 a 2 fori (Art.22/034)
F :	**10mm., 1 hole (5) -** Bozzelli da mm. 10 a 1 fori (Art.22/116)
FF :	**10mm., 2 hole (5) -** Bozzelli da mm. 10 a 2 fori (Art.22/115)
D + E :	**10mm., 3 hole (5) -** Bozzelli da mm. 10 a 3 fori (Art.22/114)
T :	**Violin, 16 mm. (2) -** Bozzelli a violino da mm. 16 (Art.22/129)
M :	**Heart, 11 mm.(20) -** Bozzelli a cuore da mm. 11 (Art.22/084)
N :	**Heart, 7 mm. (12) -** Bozzelli a cuore da mm. 7 (Art.22/083)

Capstan, 19 x 25 mm (1) – Argano (Art.22/133)

Cleats ('Staghorns') (6) - Tacchetto ad orecchia (Art.11/271)
item number '13' ... inner bulwarks – upper quarter/main/forecastle decks

Cleats, small (12) – Galloccia di cavo buono (Art 11/048)
item number '7' on plan ... /masts on deck, 6/ bowsprit foremast knee, 2/bowsprit, 4/

Cleats(groove underneath) (2) - Galloccia di cavo (Art 11/049) ... Mainstay, 1; Forestay, 1
item number '39' on plan/ Plan 07/Particolare 3

Columns (15) – Colonnine (Art 22/119)

Deadeyes:

7 mm. (60) - Bigotta da mm. 7 (Art.22/022)

5 mm. (32) - Bigotta da mm. 5 (Art.11/020)

3 mm. (26) - Bigotta da mm. 3 (Art.11/018)

Deadeye Straps:

3mm. (8) - Landra da mm. 3 (Art.11/358)

5mm. (12) - Landra da mm. 5 (Art.11/313)

7mm.(30) - Landra da mm. 7 (Art.11/306)

Eye Pins, 2 mm. (40) - Anelli diam. mm. 2 con gambo

Flag set (1) - Serie completa bandiere (Art.13/024)

Grating strips

1.5 x 1.5 x 60mm. (250) - elementi per paiolato da mm. 60 (Art.22/003)

Armament

Full Cannons - Cannoni:

55mm. (20) (Art.11/084): **gun deck**
50mm. (18) (Art.11/114) : **main deck**
45mm. (10) (Art.11/115) : **forecastle & quarter decks**
38mm. (4) (Art.11/116): **upper quarter deck**

Gun Carriages-Affusti per cannoni

35mm. (20) (Art.22/123);
27mm. (28) (Art.22/125);
21mm. (4) (Art.22/008)

Gun Carriage Hardware:

Pins, 2mm. (155) - Anelli diam. mm. 2 con gambo (Art.11/022)
Rings (2mm.) (44) - Anelli diam. mm. 2

Gun Door Hinges (84) - Cerniere portelli cannoni (Art.11/052)

Wheels - Ruote per cannoni **diam. 5mm.(28)** (Art.22/149); **diam. 6mm. (64)** (Art.22/150); **diam. 7mm.(76)**; **7.5 mm. (40)**

Axles (carriage wheels) wooden rod

4 x 200mm (3)- Tondini di kotò diam.mm. 4 per assali affusti
3 x 200mm (9)- Tondini di kotò diam.mm. 3 per assali affusti
2 x 200mm (3)- Tondini di kotò diam.mm. 2 per assali affusti

Mast Caps – Testa di moro (3) (Art.22/043); (4) (Art.22/044); (2) (Art.22/045); (2) (Art.22/046)

Bowsprit: A4,10 x 16 / A7, 8 x 12
Foremast: B3, 16.5 x 24.5 / B6, 10 x 16 / B9, 8 x 12
Main: C3, 16.5 x 24.5 / C6, 13 x 21 / C9, 10 x 16
Mizzen: D3, 13 x 21 / D6, 8 x 12
Ensign: E1, 10 x 16

Metal Decorations Set (124) - Serie completa decorazioni fuse (Art.11/102)
Metal Decorations Set , Stern - Serie completa decorazioni fuse di poppa (Art.33/008)
Plaque (1) - Targa invaso (Art.12/004)

Rigging yarn

0.25mm., 10m. (Art. 77/025); 0.40mm., 10m. (Art. 77/040); 0.60mm., 10m. (Art. 77/060); 0.80mm., 10m. (Art. 77/080); 1.0mm., 10m. (Art. 77/100); 1.50mm., 10m. (Art. 77/150)

Rudder hinges (5) - Cerniere timone complete (Art.11/052)

Sail Boat Hull:

110 mm. with keel (1) - Scialuppa da mm. 110 (Art.88/009);
150 mm. with keel (1) -(Art.88/013)

Sail Cloth, 450 x 900 mm. - Serie tela per vele mm. 450 x 900 (Art. 15/004)

Stairs: 2 x 5 x 80mm (2 supplied – sufficient for 3 sets) - Scale (Art.22/070)
Staghorn Cleats (see 'cleats' above) (6) – Tacchetto ad orecchia (Art.11/271)
Stern Lantern (1) – Fanale di poppa **(Art 55/003)**
Set of Plans (12 sheets) - Serie disegni (No 12 Tavole) (Art.66/004)
Instructions - Istruzioni

Colours

Bianco - white
Nero – black
Oro antico – antique gold
Rosso vivo – bright red
Giallo ocra – ochre
Lego noce – walnut
Verde marcio – green

Euromodel have made the following suggestions but in the end it is up to you, the modeller.

Transom Figure
The panel must be fully painted before it is cut. The colours should be diluted sufficiently so that it produces a very light shade in order to maintain the realism of the wood panel.

sky: blue
ground: brown
horse: yellow
tunic: red
face: flesh
saddle: brown

Decks: natural colour finished with wax or varnish

Gun barrels burnished

Figure 8: Colour Scheme Used by a Modeller

Non-ferrous kit items not covered by the colour of the detail they are attached to(e.g. gun door hinge) can be painted with a black & silver mixture to simulate steel.

Red
gun carriages, winches, capstans, bitts, shell holders, belaying racks, pin racks, inside of gun port doors.**[N.B. 'red' paints were manufactured using pigments such as red lead & iron oxides; the resultants paints were therefore a darker red & not a primary red colour].**

Walnut
inside bulwarks, handrails, stairs, hatchway coamings, mast coamings, masts & yards, tops & crosstrees, winch stocks, inside of life boats & their stands, blocks, deadeyes & belaying pins.

Chapter 4: HULL STRUCTURE (Part 1)

It is best to formulate your OWN method of assembly before starting. This applies to all stages and especially includes mast & rigging construction.

The following instructions are prioritised to make the construction process as simple as possible. Keep in mind that they are only ***suggestions.*** Study the designs carefully as the instructions highlight only the major steps for construction.

A Suggested Construction Overview

1. Glue bulkheads (frames) to keel.
2. Create curve in the transom.
3. Attach the 7 stern supports.
4. Shape the stern supports.
5. Attach upper & lower stern transoms.
6. Attach and shape bow blocks.
7. Attach Gun Deck with planking.
8. Create a stand on which to INVERT the ship.
9. Attach false keel /stem post/ bow post.
10. Then you will be able to shape the keel to that shown in the drawings.
11. Construct ALL gun-mounted carriages - a long task. This allows you to determine the required height of the gun ports above the decks.
12. Begin first planking below bottom edge of the Gun Deck guns down to the keel bottom.

Structural Integrity

Frames and the Keel

Nine of the ten transverse pre-cut 'bulkheads' are slotted into the false keel as a dry run to determine which joints are too tight and which are too loose. All the joints were extremely tight and a fair amount of sanding of the fitting surfaces was required.

Figure 10: Bow Frames in Position

Figure 10: Stern Frames in Position

Figure 11: Overall View of Frames in Position

Deck Beam Alignment

Alignment of the beams supporting the decks was good but some adjustments would still have to be made – especially over Frames 7 – 10 due to the slight downward inclination of the decks. All the frames and the deck pieces were then removed from the false keel.

Figure 12: Foremast Step

Mast Steps

Both the main mast and the foremast have cut-out slots provided in the false keel. However, to hold the bottom of the masts in place, the mast steps have pieces of plywood glued either side of the slots to form a useful seat for the masts when inserted at a later stage.

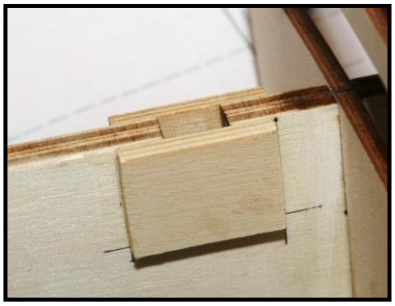


Figure 13: Main Mast Step

Fixing the Frames in Position

PVA is the adhesive of choice and Frame 5 was glued in first using a set square to check its alignment with the false keel. This frame was allowed to dry before proceeding any further.

Frames 4 and 6 were then put in place. Square & diagonal measurements and central alignment were checked to ensure the correct overall alignment. Frames were then continued to be put in place with the ***diagonal measurements*** being checked in all sorts of point combinations as the work progressed. At this stage DO NOT glue in place the seven stern support pieces !

These combined factors should provide for good symmetry throughout the ship but be warned that the frames are porous and if the stringers (see below) and the first planking are not soon put in place, moisture absorption and subsequent alteration of frame alignment can occur.

Cell Construction

Considering the size of this ship, any small degree of warping will magnify itself along the length so I decided to create a central cell within the ship's frames. This consisted of a set of three pairs of tightly fitting rectangular panels of scrap plywood between Frames 4 – 7. Fig. 12 says it all. I was just happier that this large ship now had a lot more integral strength.

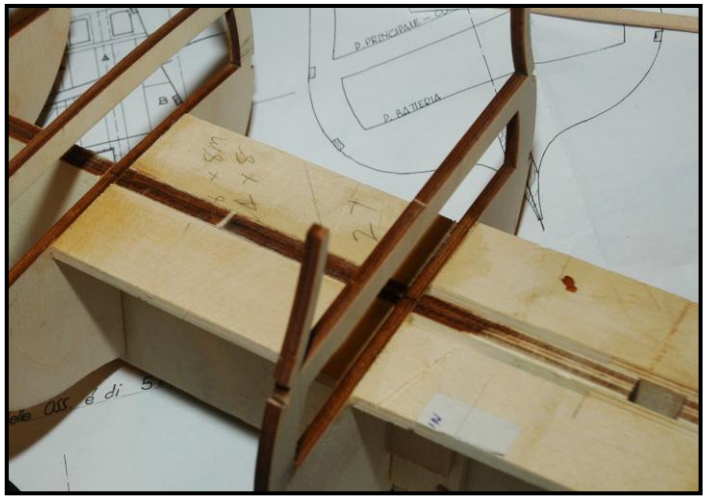


Figure 14: Creating Cell Strengtheners

Two of the three pairs of rectangular inserts that I used (between 4 & 5; 5 & 6). The third pair between 6 & 7 are not visible in this photograph.

Frame Adjustment

With a long strip of wood placed longitudinally down the hull side, you may well find that some frames are out of alignment. This will occur no matter how carefully you have worked ! If any frame surface is low, packing with a thin strip may be necessary. Alternatively one or more frame surfaces may need to be reduced.

The frame **edges will need to be bevelled** towards each end and here I used my trusty Dremel power tool with a small cutting tool followed by a sanding drum. Otherwise, any number of hand tools can be used to perform the same function. The frame surfaces need to be checked continually with a long strip of wood.

Figure 15: Adjusting Length of Gun Deck

Gun Battery Deck Positioning

A word of warning from my own experience – the top sections of the frames are fragile and easily broken off during this step. Be warned (I broke off four pieces at various stages !).

Initially (and the photos show it), I decided NOT to plank this deck. However, as construction proceeded, I changed my mind and used the decking material supplied for the Main Deck. This was in spite of the fact that most will not be seen ! The Main Deck was planked with some tanganika that I had in my 'scrap box'.

Before the two bottom stringers are glued into place, it is imperative that the Gun Battery Deck be put into place. This is based on the assumption that the laser-cut slots in the two deck pieces are in the correct positions and that the plywood frames are quite soft and tend to warp and move out of position as mentioned above. Fig. 13 shows that Frame 2's lowest beam does not *support* the gun battery deck but causes the deck to *butt* against it. In other words, a small section of the bow end of the supplied plywood decking needs to be cut off. By sliding the decking halves into position, I found that a number of frames needed a little nudging to fit into their correct places.

Figure 16: Fixing Port-side of Gun Deck in Position

Before glueing down the two halves, I turned my attention to installing the pair of lower stringers (5 x 2 mm.) that help support the frames *and* the outer edge of this deck. The notches in the frames towards each end of the ship needed a slight amount of work to make a good fit.

It was here that I needed to force one half of the deck a little towards the bow in order that the mast openings in each half exactly corresponded.

A temporary wood screw through this half deck and into the timber of the cell piece underneath held everything in place. I then glued in the two bottom stringers. A large number of pieces of folded cardboard were created to hold the deck halves as they were glued in place – see photo opposite. Due to the downward curve of the deck, I found it necessary to use planking screws to hold the centre section down tightly.

Stern Construction

There is a major decision to take at this point and either choice results in the construction of a stern transom that will be part of a vessel that looks well balanced. For the basic approach, **the transom will have a flat surface**.

Well before I decided to create a 'basic' and an 'adavanced' version to show the choices available in building this kit, I forged ahead and created the more difficult 'advanced' version. So I do not have available a set of photographs to show the building of the flat transom. However, in all honesty I do not believe the 'advanced' version presented any great difficulties that a builder with a reasonable level of skills could not overcome. So, I would strongly suggest that you refer to the **'advanced' section and see what is involved in creating a curved surface**.

The accompanying photos support the fact that many builders have indeed constructed this ship using a flat transom.

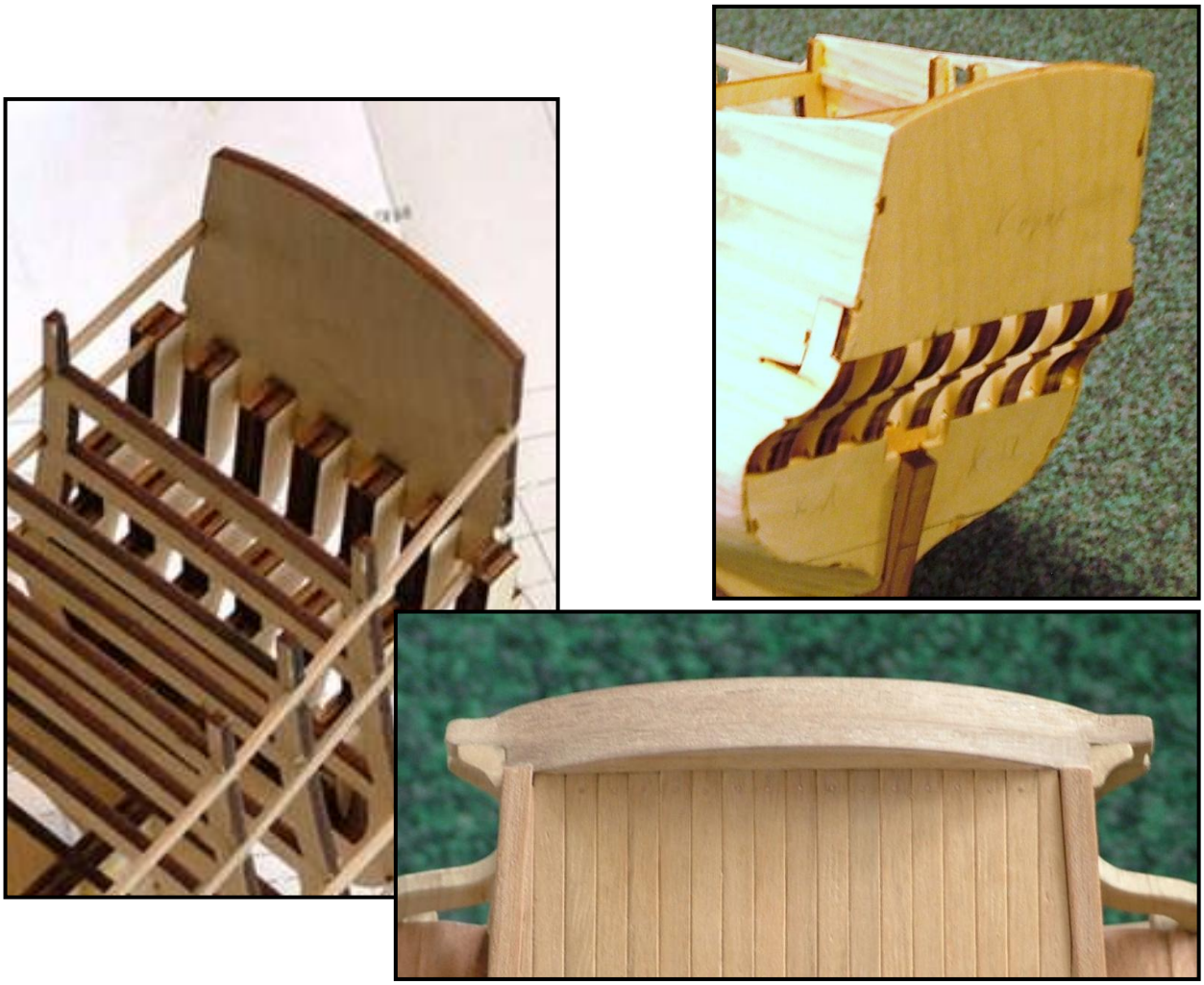
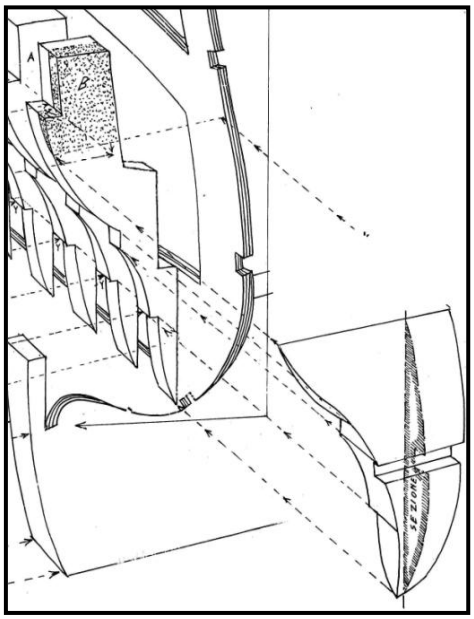
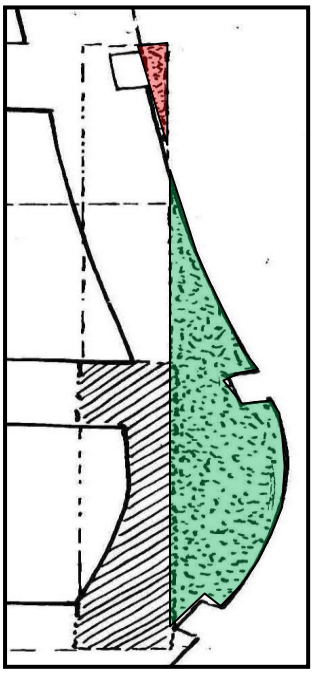


Figure 17: Creating a Flat Transom - a Choice

Stern Filler Blocks

The kit supplies a filler block, 35 x 60 x 120 mm. This is sufficient to provide the required fillers AND the fillers either side at the bow end adjacent to Frame 1. The two filler blocks either side now need to be produced. When glued to the two outer support pieces, the term 'B' is used in the plan sheet. These blocks will form a strong bond with Frame 10 and thus allow a continuous surface for planking through to the stern extremity. The two blocks that I produced were smaller than anticipated from the plan sheet but posed no problem in their construction.





Showing position of support 'B' in relation to Frame 10. The green shading shows the cross-sectional shape of the filler block to be added. The red shading shows the amount of

Figure 18: Stern Filler Blocks

Figure 19: Transom First Planking

Stern First Planking

After the glue has dried – and I allowed 24 hours for this one since the lower transom was under a tension – a fair amount of sanding was required to produce a sharp angle on the edge of this piece as well as the edges of Frames 10 & 9 to achieve a uniform flow for the hull side-planking that is to follow.

Planking (with the 1 x 6 mm. limewood strips) over the entire stern surface now completes the basic structural appearance of the stern. You might choose not to plank the upper & lower transoms but it seemed to me in doing so that I now had a uniform surface on which I could base any further work. After planking the lower transom, a cut-out was carefully made to accomodate the stern post. It was necessary to remove about 1 mm. from the exposed transom surface to make it uniform with the end keel surface. At a later stage, the second planking will take place so a complete smoothing over this area is now done.

Upper Deck Preparations

Stringer Alignment

The two halves of the Main Deck are joined by an intricate amount of laser cut pieces around the Main Mast position which need to be carefully cut through along one side to separate the two halves. I overlooked this as I pulled it out of the box and the structure simply broke into two halves with jagged breaks through the cut-outs. Not a problem though as it is all planked over at a later stage. In order to position the Main Deck correctly, place the two halves on top of the beams, checking that they both but up against each other along the centre and that seat correctly on the beams. Some minor tapering of the top edges of the beams may be necessary.

The stern end of the deck had a curve but this required no alteration and I could see no reason for its shape (unless I should have curved the inside of the stern supports but that matter has been addressed previously). With the deck halves sitting correctly (but not glued in), check for alignment of the upper stringers that will support the deck outer edges. It was here that I found a minor error. The cut-out for the upper stringer in Frame 4 was 4 mm. too low so that cut-out needed to be raised – an insignificant task. I could see no obvious error in my construction that would have led to this problem.

Figure 20: Dry Fitting of Decks

Now is the time to dry-fit ***ALL THE OTHER DECKS*** to ensure the correct alignment for remaining stringers before they are glued into position. It was at this point that I realized that the four notches in the upper transom needed to be adjusted – for some reason they had been cut in the wrong position. Take the correct measurements from Plan Sheet 12. Apart from strengthening the hull, the stringers also support the deck edges. On this basis, a considerable amount of adjustment was required with the frame notches. Make sure that the dry-fitted decks are held down tightly whilst the notch positions are checked and modified.

NOTE: The Upper Quarter Deck has a significant slope downwards so... you will need to carefully cut angles on the top of Frames 8, 9 & 10 to accomodate this slope. Visible is the Upper Quarter Deck and the Quarter Deck beneath – the Main Deck was removed prior to taking the photograph. neither deck has been glued in position. Photo shows correlation between stringers and decks.

Figure 21: Curved Transom Illustrated

Plywood frames are very hygroscopic, absorb moisture and some were slightly deformed out of position. However, placing all decks into position, the frames are easily bent back into position. This allows the stringers & frames to be glued correctly. Just out of interest, the Fig. 21 illustrates the original intention of the ship designer in creating a curved transom. It shows the Upper Quarter Deck with its end curve seated reasonably well in the curvature that I created.

Main Deck Opening

Figure 22: Enlargement of Deck Opening for Bollard

At this stage I decided to support the edges of the Main Deck gratings by inserting a beam either side of the opening and for these I used 6 x 6 mm timbers (actually 3 strips of 6 x 2 mm. glued together from my scrap timber box). It was necessary to cut out a section from the top beam of Frame 5 – Fig. 20.

Then ... and only then ... did I decide I actually would plank the Gun Deck ! Whilst I was at it, I turned up six supporting columns. The result is shown on the right and what a contrast ... but how much will be seen ? The joy of ship modelling but I broke the cardinal rule. Once you make a decision (i.e. not to plank this deck), stick with it. Ah well, the result was much better.

Figure 23: Opening in Main Deck Showing the Gun Deck

Frame 6 Explained

Question: Why does the Upper Quarter Deck not extend as far as being supported by Frame 6 when dry-fitting in the previous section ? It seemed to be left hanging 'in the air'. In the end, it will be supported by Bulkhead B. So why have a top beam in Frame 6 at all ?

Answer: Its function is to temporarily maintain the integrity of the upper part of the frame whilst planking is carried out against it. Following the completion of first and second planking, the upper beam AND the upper side portions will be removed. Refer to the diagram opposite.

Note also that the longitudinal stringer supporting this deck appears to be too long as it is embedded into Frame 6 well past the front end of the deck. However, it serves well as a support for the two sides of the deck where it meets the bulwark.

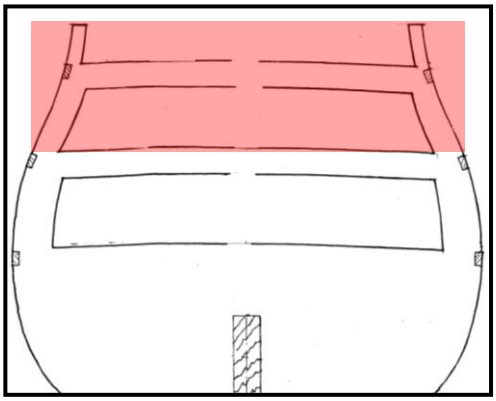


Figure 24: Reducing the Size of Frame 6

The timber visible behind the pink shaded area will eventually all be removed (after planking).

Deck Support

Whilst most decks have cross-support with the beams, they lack support (apart from the Gun Battery Deck) down the mid-line where the two halves meet. So before the decks are glued in place, it is necessary to glue in short sections of some scrap wood material under one of the two halves. So when fixing the other half in place, there is now a common structural support for both halves down the mid-line. The photo above illustrates this point.

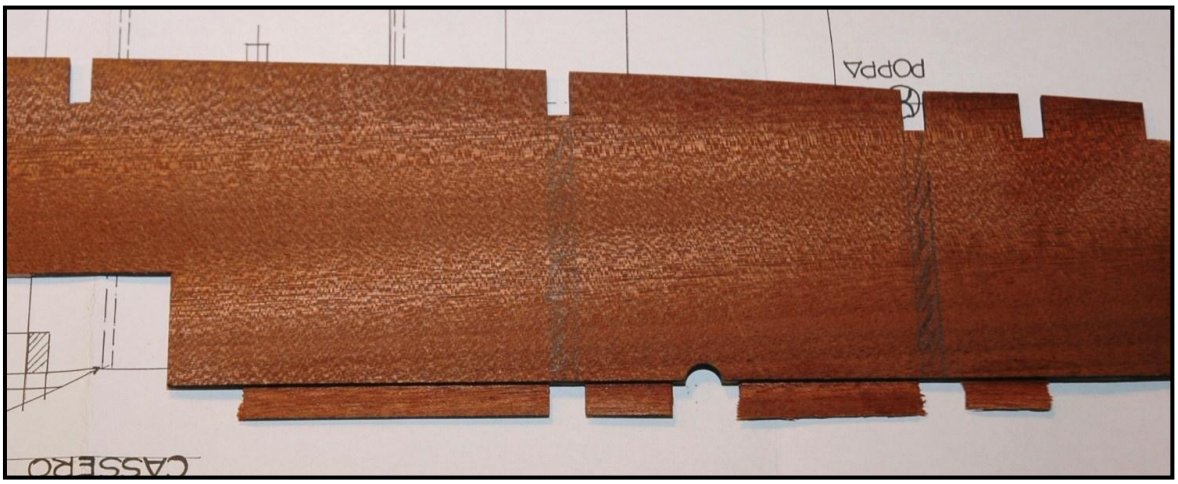


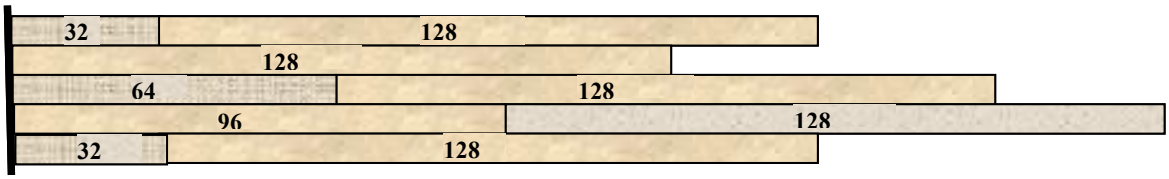
Figure 25: Deck Support Along Deck Mid-Line

Deck Planking Principles

Points to consider include the wood type, width, length, nailing, caulking & texture

The decking in the 17th century was usually constructed with a very light coloured timber but there is a limit to what a kit can supply and the same wood (walnut) is used for both the hull & deck second planking in this model. In this time period, the **width** of decking timber was 10-16 inches (5.5-8.5 mm.). ***The kit supplies 6 mm. walnut which really is fine but I chose to go with some lighter-coloured tanganika planks that I happened to have which were 5mm. wide.***

From European forests, the **length** of timber varied between 20-24 feet. Settling on 20 feet (240 inches), the length of planks for this ship at a 1:48 scale will be 127 mm**.** The plan sheets show continuous planking but I was not comfortable with that. So, 128 mm. it is (easier to divide) ! Having determined what length you are going to use, it is best to set up a jig. I also settled on using the 'Continental variation of the three plank shift' which is illustrated in the following diagram.



To create this style of planking, I used four different lengths – the actual 128 mm + 32/64/96 mm lengths. The solid vertical line could represent, say, a bulkhead against which the planking starts.

Since the Poop/ Upper Quarter/ Forecastle Decks measure less than 128 mm., these simply utilise full plank lengths without showing any 'shift'.

In spite of what I have said above, some will simulate the planking length by the careful application of pencil lines.

'**Nailing**' with nails or a marked black spot? Actual nails used in planking of real ships had a head diameter of about 5/8 inch. which converts to 0.33 mm. with the 1:48 scale. The nails typically supplied in kits have a head of approx. 1.3 mm. which converts to a head diameter of 2.46 inches. **Far too big**. So at the best, you are left with attempting to create very small black marks or do nothing at all. To this end, a tried technique is to utilize a hypodermic needle squared off at the tip that is heated in a smokey candle flame. Carefully applied to the timber, the nailed effect is produced. Also, too many builders only put 'nail heads' at the plank ends – at the very least, they should correspond to the original distances between the frames. Whilst this varied a lot, it was often between 4-5 feet which on this scale converts to approx. 29 mm.

The gap between the plank lines in the actual ships was '**caulked** with oakum and paid with tar'. To simulate this, first carefully sand back the edges which are usually very sharp & rough. Then apply a black marking pen with a broad, flat tip quickly and lightly to colour all the edges. Some builders only do this to ***one of the adjacent edge***s to avoid too much 'bleeding' from the marking pen. You will need to make your own choice in this matter.

The end grain is very porous and so some use an HB pencil (or pencil block available from art supplies) instead of the black marking pen. Again, experiment and make your own choice.

Main Deck Planking Preparation (*non – installation*)

Whilst the deck cannot be planked fully before it is installed, some of the planking can be done on the two halves before installation because:

- the intricate laser-cutouts around the Main Mast means the trimming of planks will need great care or alternatively see below for an alteration,
- the planks being only 0.5 mm. thick will most likely cause some planks to warp/ lift with the moist glue and that is more easily controlled on the work bench

After planking the whole deck – or even a major part – I usually coat the timber with a '**wood sealer**' which serves a couple of uses. Firstly, after sealing the surface, a few wood fibres may lift and these are easily removed when the whole surface is sanded back. No more fibres will lift when the final finish is applied to the deck – a bonus ! Also, after installation, any glue/ adhesive spills are easily removed without damage to the sealed deck surface – another bonus !

I was not happy with the very fine laser-cut area around the mast (Fig. 30) even though this will be hidden by the Quarter Deck above. I 'over-planked' this section by an extra 3 mm. and inserted a narrow piece of plywood underneath to match the extra width of planks. This increases the narrow part and lessens the very real risk of the planking material just breaking off when trimming back to its proper size. I am going to assume that decreasing the length of the grating opening will have no effect on its construction. Time will tell.

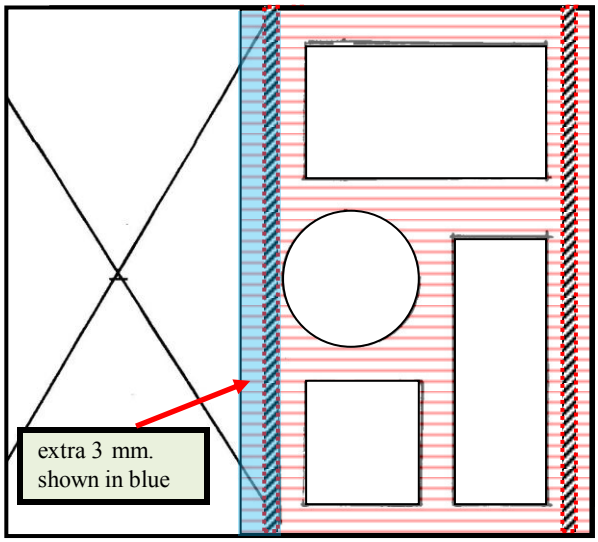


Figure 26: Portion of Main Deck Adjacent to Main Mast (Top View)

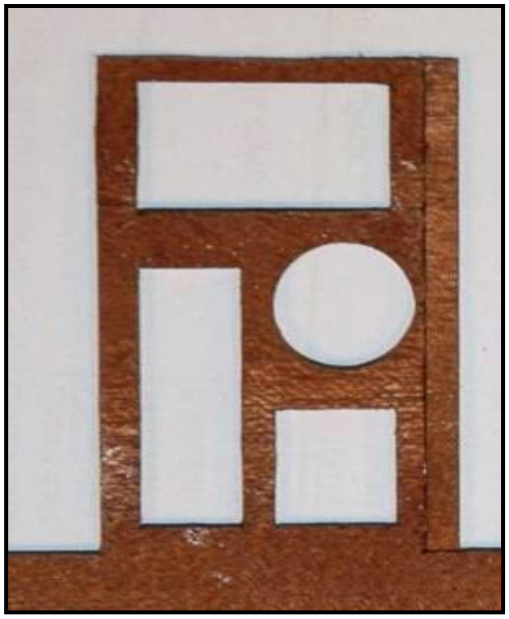


Figure 27: Underside View of Main Deck Showing Reinforcing Strip

The 'entire' deck surface was planked minus the one planking strip row that will sit neatly over the join of the two halves when they are finally installed.

Two support strips (shown by broken lines in diagram above) were placed underneath either side of section around the mast prior to the two deck halves being installed.

The Main Deck is *not* installed at this point.

Bow Construction

The following two diagrams indicate how I proceeded from the original plans ...

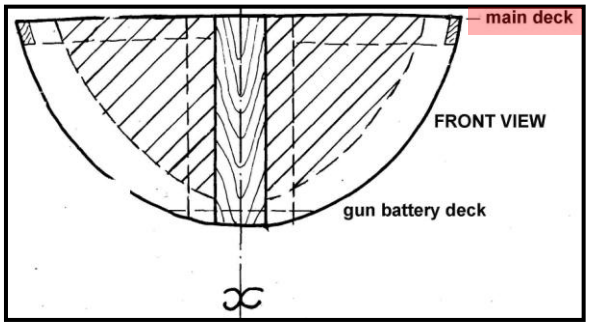


Figure 29: Front View of Frame 1 - Alignment of Front Top Edge with Main Deck Profile

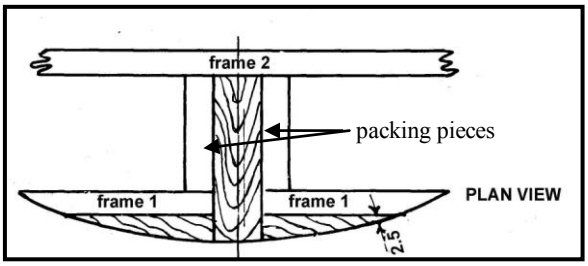


Figure 29: Plan View of Frames 1 & 2

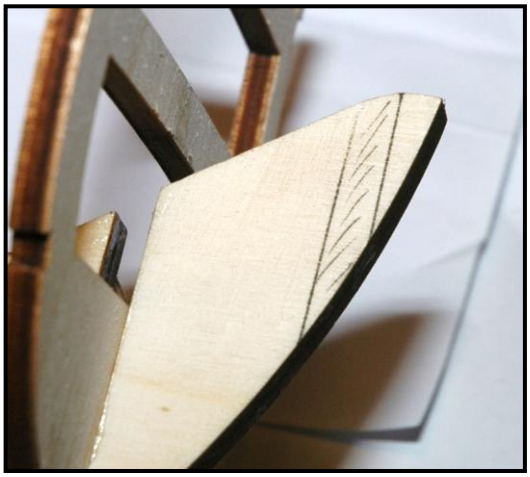


Figure 30: False Keel Showing Marking for the Fitting of Frame 1

Frame 1 needed fitting into its place. To do so, its appropriate position was first marked out on the false keel. The important feature here was that the **top edge of Frame 1 viewed from the front had to conform to the Main Deck profile**. Obviously Frame 1 was going to be cut into two halves, making allowance for the thickness of the false keel.

The kit supplied a filler block, 35 x 60 x 120 mm. This was sufficient to provide the required filler on the front end of Frame 1 AND the fillers either side at the stern end adjacent to Frame 10.

Figure 31: Partially Shaped Bow Filler Blocks

Plan deviation ... I chose not to just use the packing strips behind Frame 1 as shown in the plan sheet. Instead, I had sufficient scrap timber to produce two large blocks instead of the strips. The advantage here is that a total surface is now created upon which the full planking around the bow can occur – Fig. 35.

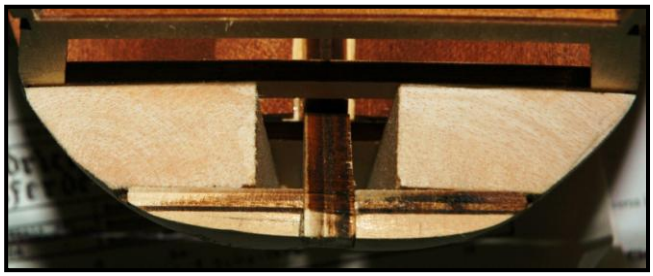


Figure 32: Careful Use of Limited Material to Form Bow Filler Blocks

False Keel & Posts – Preliminary Discussion

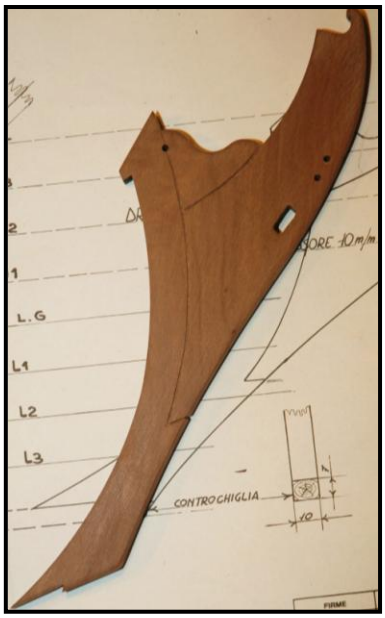


Figure 33: Stem Post with Carved Lines

Stem Post

Now that the bow filler blocks have been shaped to their correct form and the stern transom is completed, it is a good idea to consider adding the posts.

The exposed edge of the stem (bow) – and stern - post is very dark due to the laser-cutting process and it may necessary to sand this back to the original wood colour, depending on your choice of wood finish.

Not happy with just leaving the surface of the stem post plain and whilst much will be hidden by decorations, I opted to carve timber lines onto the two surfaces to make them appear more authentic. At the same time, the three round holes shown in **Plan Sheet 11** for the stem post were drilled out as well completing the extended hole. This stem post ***should NOT be fixed in place*** until all the planking is complete (refer to the following page).

Inversion Support Stand

To allow work on the lower keel (and plank the lower hull), I created a support stand which allowed **name** protection of the fragile upper framework when the framework is inverted. **Supporting pieces used were 17 mm. thick mdf**.

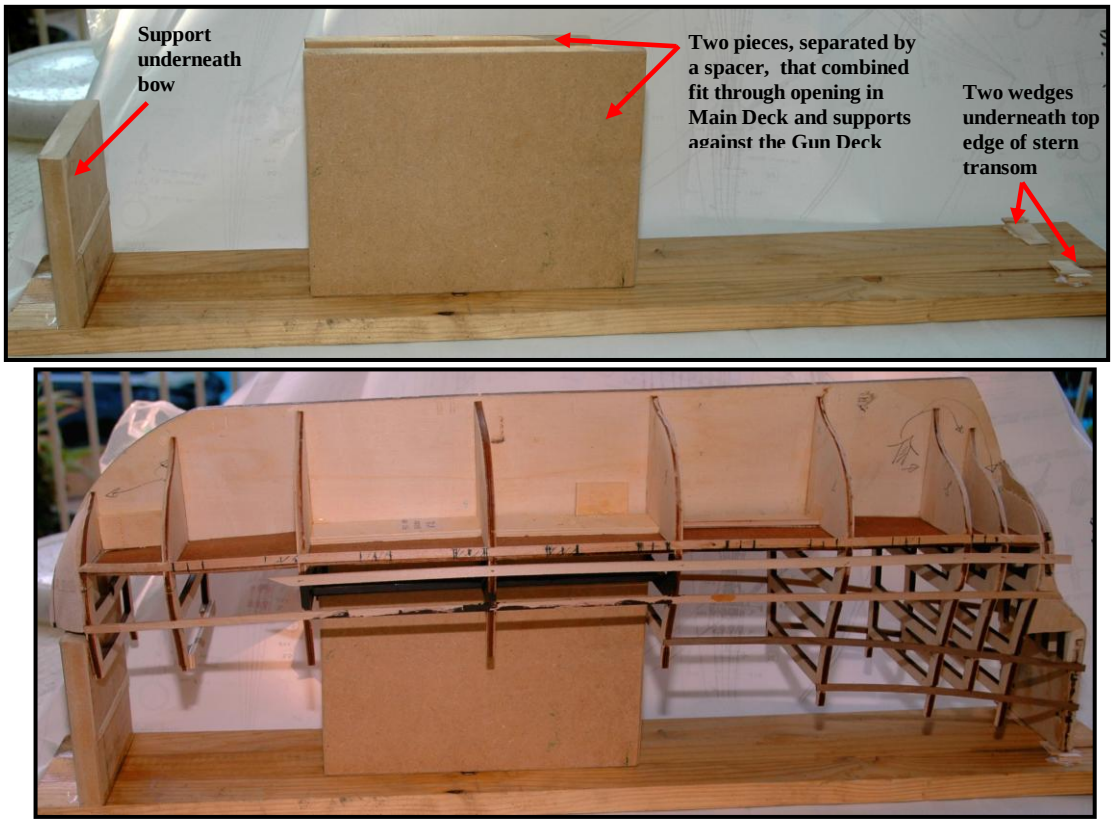


Figure 34: Inversion Stand & Its Use

False Keel Tapering

The false keel and stems are not put in place at this stage but it is worthwhile appreciating the construction of this length, particularly in relation to Plan Sheet 11. In these drawings, the various frames (bulkheads) are shown with a ***finely tapered point*** – especially those towards the stern. However, it must be understood that this 'point' (actually approx. 4 mm. wide) allows for the double planking either side of it and in the end the bottom edge will be approx. 8 mm. wide and not just a fine line as suggested by the drawings. Hopefully, the following diagrams illustrate what must be done in tapering the original keel before any planking is carried out.

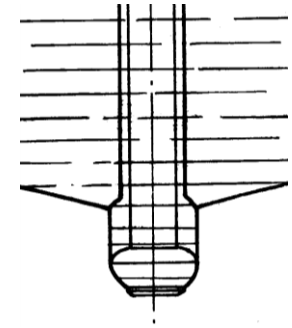


Figure 35: False Keel in Plan Sheet 2

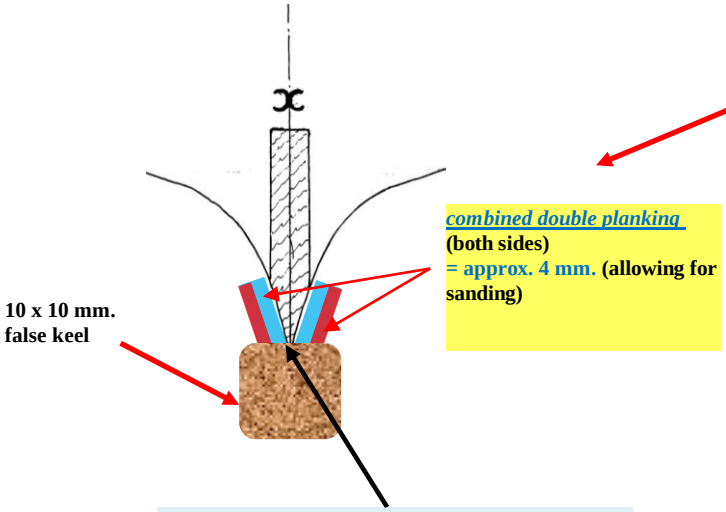


Figure 36: Construction of False Keel

The plywood surfaces extending downwards from the frames need to be tapered carefully to a minimum width of approx. 4 mm.

Figure 37: Stern & Bow Tapering of Keel

Chapter 5: HULL STRUCTURE (Part 2)

Bulkheads

Bulkhead (paratia) Beginnings

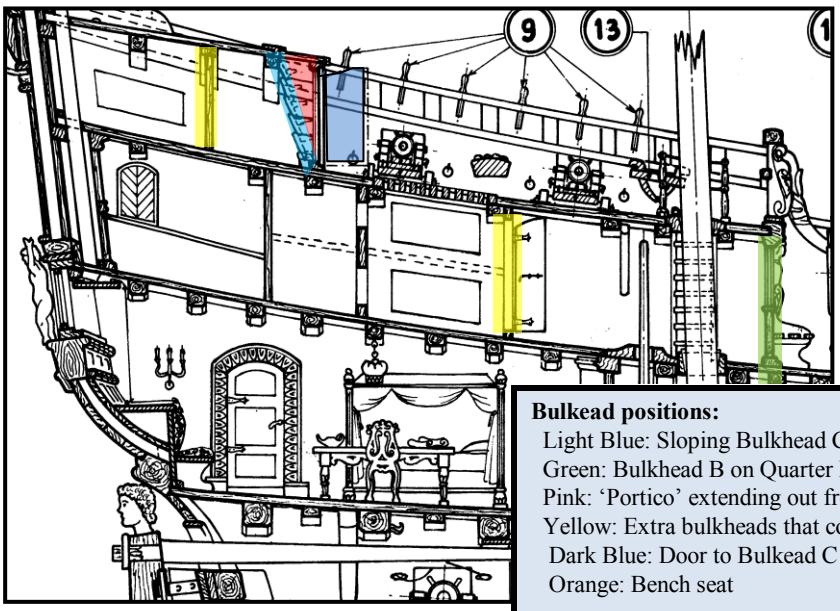


Figure 38: Bulkhead Placement

Now it may seem a little strange to divert from the core work of planking that is about to occur but the insertion of the bulkheads will occur as the decks are being put into place, not afterwards. So I included some discussion about them under this current section.

Bulkead positions:
Light Blue: Sloping Bulkhead C on Upper Quarter Deck
Green: Bulkhead B on Quarter Deck
Pink: 'Portico' extending out from Bulkhead C
Yellow: Extra bulkheads that could be included
Dark Blue: Door to Bulkead C
Orange: Bench seat

The first stage of constructing Bulkheads A & B was considered at this point but I left Bulkhead C until later. Plan Sheets 2 and 3 gave a thorough understanding of the deck arrangement as well as the positioning of other items such as the bench seat (no. 26) immediately in front of Bulkhead B! The two laser-cut pieces used to create Bulkheads B and C were too high allowing room for any individual variations in the build. My changes were:

Bulkhead B reduced to 32.6 mm. across.
Bulkhead C reduced to 30.5 mm. in centre & 27.5 mm. at sides. **Check your *own* measurements.**

The bulkead outline diagrams for B and C on Plan Sheet 5 are not accurate – particularly when considering the size of the doors & windows. Care was taken to **adjust the bottom camber** of Bulkhead B – mine needed flattening out (by approx. 1.5 mm.).

Another aspect which will not concern many builders (but a few I would hope) is that there are two other bulkheads (yellow shading) at least that could be put in position – Fig. 38.

Bulkhead B Preparation

Having tightly held the Quarter Deck and Upper Quarter Deck in position with clamps and checking the **height** (which needed some reduction), I felt confident about preparing this bulkhead in detail. At the same time, whilst the **width** is greater than needed, that can be left until it is fitted into position.

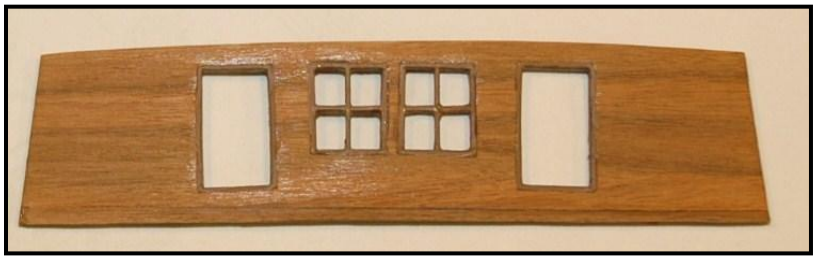
Figure 39: A Modeller's Construction of Bulkhead B

The dimensions for the **doors** & **windows** were taken from the plan sheet containing the diagram above and then easily cut out with my Dremel Power Tool with a mini-circular saw attachment and then trimmed to size with a sharp knife.

Figure 40: Diagrammatic View of Bulkhead B

Stage 1: The front surface of the bulkhead was covered with 0.5 x 6 mm. walnut strips and the framing was carried out with 1.0 x 3 mm. strips.

The timber surface was coated with a sealant and then re-sanded – this avoids the lifting of wood fibres when the surface is painted. The door and window frrames were painted with ‘Games Workshop’ paint colour ‘Graveyard Earth’.



Bulkhead B, Stage 1 complete. The wood sealant has been sanded back (but a few reflective shiny parts were missed before the photo was taken). Final height and width will be adjusted later when being installed. Metal decorations are still to be added.

Figure 41: First Stage of Building Bulkhead B

Bulkhead A Preparation

Again I felt that some time examining the bow in detail could serve a useful purpose so I decided to start the construction of yet another bulkhead. Some will shake their head and say 'get on with the planking' but there is quite a bit of time to spend on Bulkhead A ... so why not now ?

Whilst there will be considerable adjustment of the final size, the cutting out of the doors, the upper openings, the creation of a curve, the planking and other pieces of timber as well as the construction of the doors all add up to a little creativity !

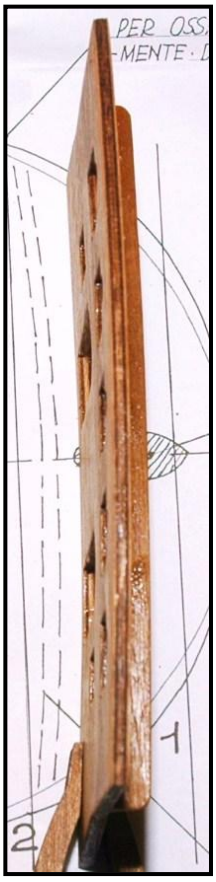


Figure 42: Curving the Bulkhead – Curve a 'Work in Progress'

Having marked the various openings to cut out, I heavily **scored each outline** with a sharp blade that cut through at least one third of the plywood. It was just a matter of using a sharp blade to cut back to the lines that I had scored ealier. This was not at all a difficult piece of work.

The bulkhead was given a curve ('wetting & pressing') as shown in Plan Sheet 5 – and the photo opposite.

After finishing the bulkhead to accurate detail, what will be the rear surface was then covered completely with 0.5 x 6 mm planking, sanded and trimmed to size. Cut-outs were then done. The reverse side (i.e. the side facing the bow) was covered with the same planking, sanded and again the same cut-outs completed but not trimmed back fully leaving an overhang of approx. 3 mm. This is in anticipation of matching in with the planked sides when finally installed.

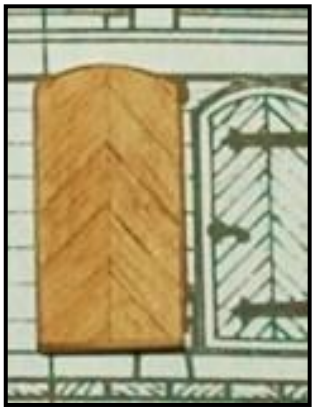


Figure 43: To Be Replaced By Something Better !!!

Apart from the obvious vertical metal decorations, the front surface of the bulkhead can be left fairly plain or adorned with a number of wood strips.

The doors I made slightly over-size by laminating a few pieces of scrap plywood with 4 x 0.5 mm. strips. Careful trimming down to the correct size and then edging them with more of the same strip material produced a neat looking structure. A little altering of the doorway opening was also needed. Addition of hinges added the finishing touch.

The photo below shows how far I went before this bulkhead is finally installed. The wood has been coated with a sealer which then allows a final sanding to take place. The two strips added at this point were a 4 x 2 mm. with a 6 x 1 mm. on top of that. Any further strips of timber will depend on the final height of this piece when installed.

PHOTO TO BE ADDED

Bulkhead C Preparation

This bulkhead is quite different to the other two in that:

- it is not vertical with respect to the deck but inclines backwards towards the stern,
- it has overlapping planks forming its surface,
- its entrance door is part of the extended enclosed 'portico' or verandah
- it has no stairs leading up to the poop deck but a series of steps mounted each side on its surface,
- the bulkhead door is in two halves with hinges on each side.

In spite of all these variations, its construction is quite straightforward but be careful to match in the width of the plywood overhang from the poop deck with the width of the 'portico' extension.

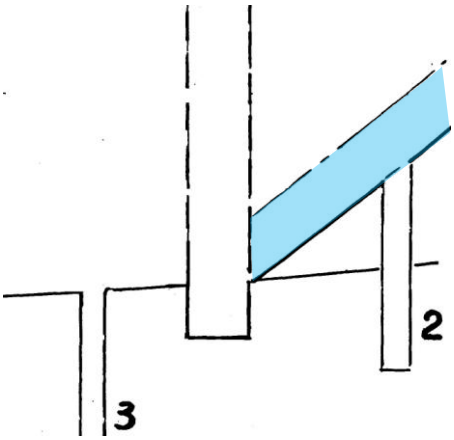


Figure 44: Foremast & Bowsprit Abutment

Bowsprit

Now it might seem out of sequence to even mention this mast but I would strongly suggest constructing its overall shape and creating a length of 345 mm. rather than the drawing length of 330 mm. The reason for doing this is that there is some frame adjustment to carry out which will be easier to do than when the hull is fully planked. This adjustment will allow the full seating of the bowsprit onto the side of the Foremast beneath the decking. The bowsprit end will, therefore, be concave. A full commentary is contained in Manual 4, pp. 15-16.

Hatchways & Grates

Euromodel have supplied grate strips that are similar to that used in the drawings. However there are small dimensional differences that will cause you to create grates that are slightly different in size to that shown... so, some flexibility in thinking is required!

Grate Appearance

A dilemma – most models that I have seen show the original 'white/cream' colour of the grate strips surrounded by the much darker walnut strips and the appearance is quite striking. Others have chosen to lightly stain the grate strips to give a more weathered look. The confusion increased when I looked at two restored ships (albeit in Britain). HMS Victory in Portsmouth shows the Main Deck gratings painted white with a dark natural brown surround and the HMS Trincomalee in Hartlepool where the entire grate including the outer framework having a brown painted surface. In the end, there will always be a balance between historical accuracy and modellers' preferences. I decided on the latter approach where I assumed the timber in the grates and frameworks would be of the same material and therefore the same colouration. Maybe not as 'pretty' as so often portrayed in models but that was my personal choice.

Main Deck, Grate Type '18' + Grate Type '19'

This grate type consists of eight sub-units, all of the same width across the deck. Type '19' consisting of two sub-units (shaded pale green in Fig. 30 below) are completely under the Quarter Deck and Type '18' consisting of six sub-units (pale blue) is mainly visible on the open portion of the Main Deck.

Before beginning this discussion, I must point out my strong belief that in any grate the continuous visible strips are laid down in a ***fore-aft*** direction. Nevertheless, I still followed the direction shown in the drawings (e.g. see Fig. 45 below) to make construction simpler with some of the grates.

Grate Type '18'

The six grates each were made up of 6 full lengths + 14 half lengths (i.e. 7 full lengths) – one extra unit of the same size is needed for Hatch 19 (see below). Once assembled, the units were individually immersed in a 1:1 PVA – water mixture and allowed to dry. Careful sanding along the edges provided a grating with uniform openings over the entire structure (Fig. 45). **My finished grate size (without borders) was 58.20 mm. x 25.50 mm.**

The drawings suggest a grate thickness of 2 mm. but that would only apply to a scratch build. The grate pieces are just over 3 mm. thickness so that led me to use 3 x 3 mm. wood strip rather than the 2 x 3 mm. provided.

The figure below is composite – the green area is from a separate drawing and shows bevelled corners; the blue area is from a larger, general drawing and does not show the bevel detail. For this basic version, the corners of the frame can be ***butt-jointed*** and the overall effect is fine. However, I chose to create the bevelled corners which required a little more effort which is shown in the 'advanced' section (refer to**Error! Reference source not found.**). I was not sure how this was going to turn out but using an Amati 'Master Cutter', the required 45° was actually rather simple to achieve. To match the curvature of the deck camber, some further sanding could be done to produce a slight curve over the top surface.

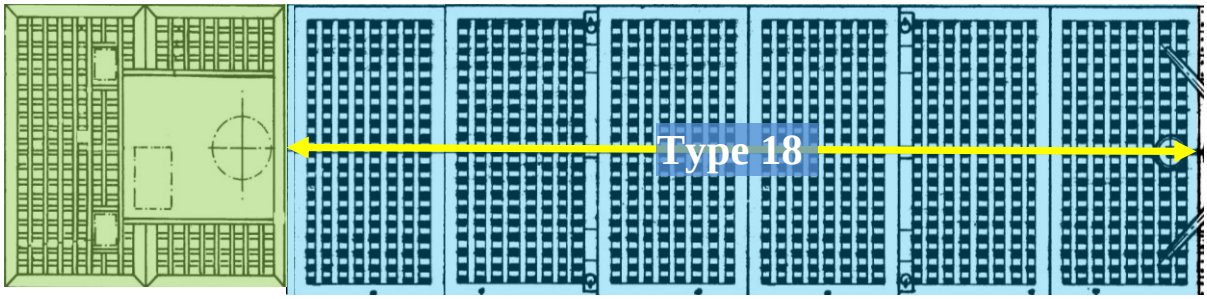


Figure 45: Grate Types 18 (blue) + 19 (green) in one composite diagram

Total no. grate lengths for Type 18 : 6 x (6 + 7) = 78

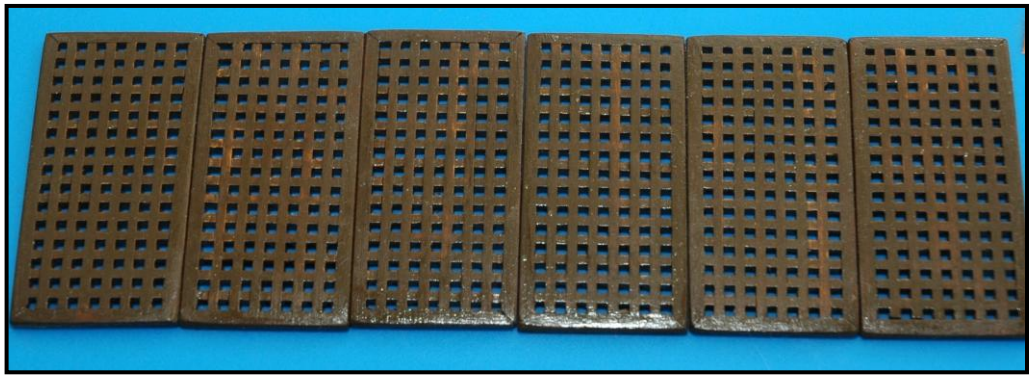


Figure 46: Grate Type 18

Grate Type '19'

This consists of two grate units ...

- 1 large grate: [6 full lengths + 14 half lengths (i.e. 7 full lengths)] = 13 strips; **my finished hatch size (without borders) was 58.20 mm. x 25.50 mm.** – *the same as that required for the Hatch 18 units.*
- 2 small grates, each 1 full length + 1 half length + 6 quarter lengths (i.e. 1.5 full lengths).

Total no. grate lengths for type 19: 13 + 2x3 = 19

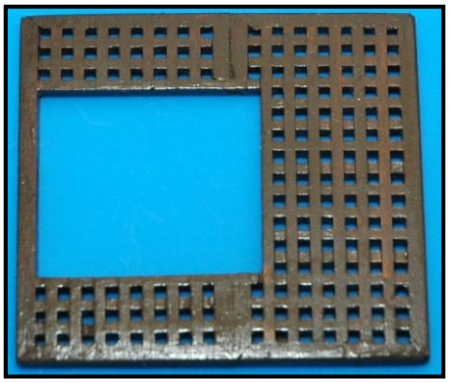


Figure 47: Grate Type 19

NOTE: Although this grate consists of two different units, I found the easiest method of construction was to make this whole assembly at the same time rather than the two individual units. Whether you decide to use butt joints or utilise the 45° bevel angle, the whole structure is created like a jigsaw puzzle. Fig. 31 gives a clearer indication of what the two different pieces look like. I used a jig made from some planking material glued onto a board and within this area the whole grate was assembled.

Quarter Deck: Grate Type '25'

This grating consists of five sub-units:

- 2 narrow sub-assemblies (on far left) in Fig. 32 – each 1 half strip + 6 quarter strips.
- 3 rectangular sub-assemblies – each 5 full strips + 9 half strips (i.e. 5 full strips)
- 1 assembly (far right) created from one of the above three.

Type 25 : Total no. of grate lengths required : 4 + 2x10 + 1x10 = 34

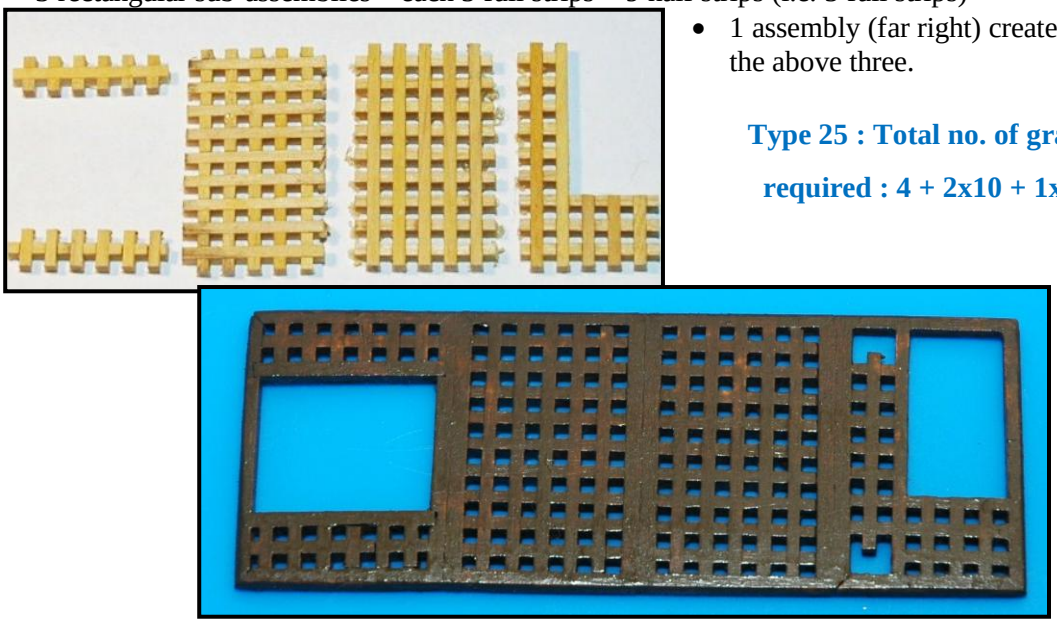


Figure 48: Grate Type 25

Upper Quarter Deck: Grate Type '28'

This grating consists of one sub-unit – 6 full lengths cut appropriately

Type 28 : Total no. of grate pieces required : = 6

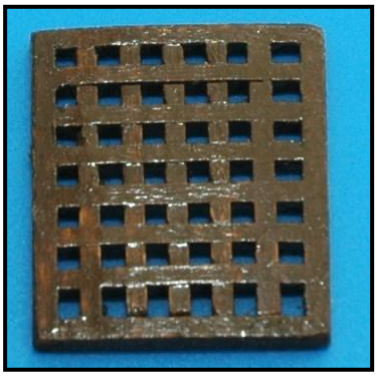


Figure 49:Grate Type 28

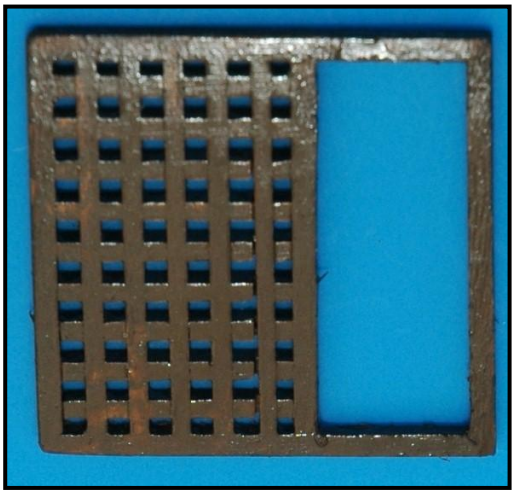


Figure 50: Grate Type 11

Forecastle Deck: Grate Type '11'

This grating consists of one sub-unit – 5 full strips + 9 half strips (i.e. 5 full strips).

Rather than using Plan Sheet 4 which shows the individual drawing, I took my measurements from Plan Sheet 2 which gives a ***narrower*** grate and a ***wider*** opening. Your choice but my feeling was that the latter drawing gave a better set of dimensions, particularly when considering the steps through the opening.

Type 11 : Total no. of grate pieces required : = 10

TOTAL NUMBER OF GRATE PIECES FOR ALL DECKS = 147

Stove

Careful examination of the plan sheets shows that this ship differs to the majority of other ships from the Euromodel stable – the top of the ship's galley stove projects above the Gun Deck level but beneath the Main Deck level. No portion is visible on the completed ship so many builders would deem it not necessary to build any portion of it ! That is what I also decided.

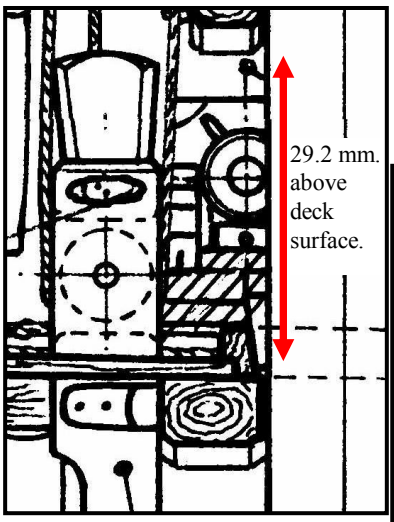


Figure 51: Main Mast Bollard Viewed From Starboard Side

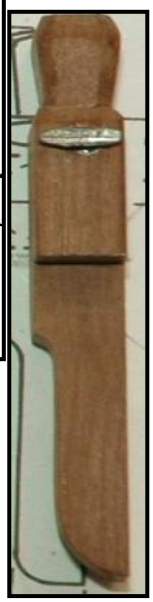


Figure 52: Bollard Cleat

Yard Arm Bollards

The two below-deck bollards need to be secured before the Main Deck is placed in position.

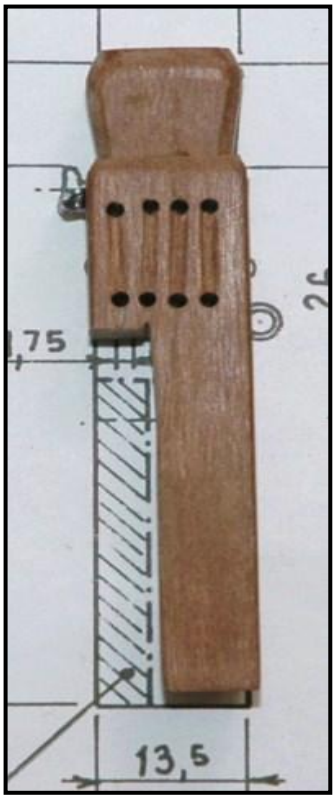


Figure 53: Bollard 'Sheaves'

Main Mast Bollard

Technically, four sheaves (‘pulleys’) could be utilized here but I considered against the time that this would entail and opted for four sets of double holes drilled through the bollard along with four vertical channels to simulate the appearance of the sheaves (Fig. 53). A 5 mm. depth was cut out of the bollard to allow for half the keel thickness. This cut created a bollard height of 29.2 mm. above the deck which is greater than that shown in Plan Sheet 03. **Additions included a cleat and an eye pin** – the latter not yet in place. It was then glued in position directly on the port side of the centre line and secured to the side of the false keel.

Figure 54: Main Mast Bollard in Position

Short lengths of temporary rope were inserted through the holes to allow for easier final fixing of the ropes that will pass through this bollard.

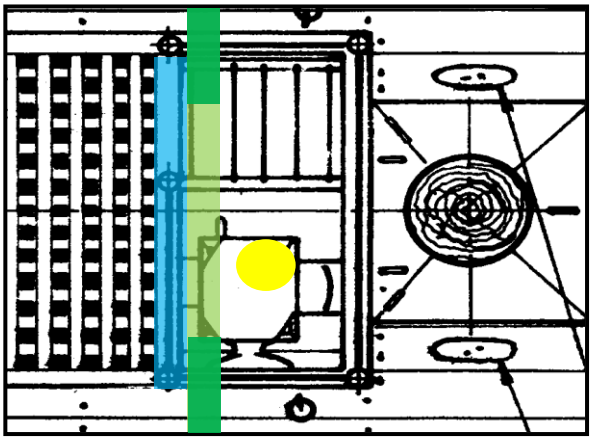


Figure 55: Altering Frame for Foremast Bollard Positioning

Foremast Bollard

At this stage neither the Main or Forecastle Deck is in place. Unlike the previous bollard placement, this one required a few significant changes.

The transverse frame shown in pale green in Fig. 55 appears to be in the wrong position and would have been hard up against the bollard not leaving any space aft of this structure. So I chose to cut out a section leaving the dark green areas onto which I glued a replacement beam shown in blue. This then provided the space needed for the ropes and also corresponded with the edge of the adjacent grate. The round hole (yellow) that is pre-cut in the Main Deck was utilized as a marking point and I enlarged it to accommodate the bollard. A little disconcerting to do the former cutting/glueing factor, but a valuable lesson in keeping an eye on the plan drawings.

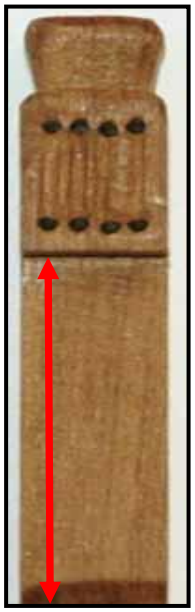


Figure 56: Altering Length of Foremast Bollard

The bollard finished up with a longer cut on the one side only as indicated in Fig. 56. The bottom was seated into a small cut in the Battery Deck.

TO BE COMPLETED

Figure 57: Positioning Foremast Bollard

The colour shading relates to the diagram above. The patterned rectangular pattern shows the cut-out required for the bollard. This preserves the spatial relationship with the Foremast hole. NOTE: Some extra planking is required due to the visibility of the Battery Deck at this point.

Chapter 6: STEERAGE,ANCHORAGE &

Steerage

During the 16th and 17th centuries, the larger ships were commonly steered through a 'sweep' – a tall vertical beam connected to the tiller through a swivel bearing. The helmsman could be found standing on the Main Deck looking out onto the Quarter Deck or taking directions from another crew member.

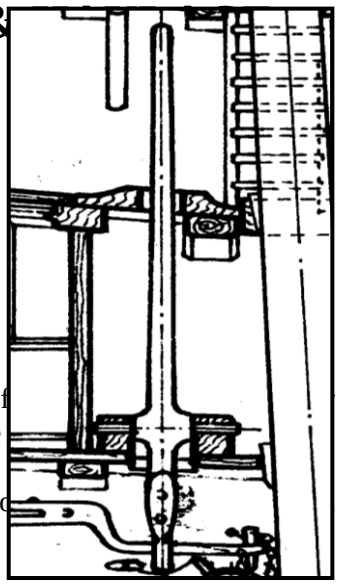


Figure 58: Sweep & Tiller

Rudder

The supplied blade is already laser-cut to shape including that required for the f
irons'). With their gudgeon pins, the pintles fit into the stem post pintles of the

There is *no indication in the drawings for the tapering* of the rudder so I ado
tapers ...

- aft edge from 10 mm. to 5 mm.
- inner edge from 10 mm. to 8.6 mm.

Thus the maximum taper is at the bottom on the aft edge.

Note that the pintles completely wrap around the rudder. There is also a metal decoration to be placed on the top of the rudder post (Fig. 59).

There are **other choices** that could be made such as illustrating the use of separate timbers in the rudder and the presence of the tiller arm [use hyper-link above]. You may elect simply not to show the presence of the tiller arm at all.

Figure 59: Rudder Pendant

Rudder Pendants

At the second rudder iron down, an eye pin and ring were inserted on each side to anchor the rudder pendants (ropes that could be used in the event of tiller damage). Where the 1.0 mm. pendant rope passes through the hull, I planned to use two 3 mm. **brass 'portholes'** which form a very neat appearance. However, to simplify matters, the pendant ropes could be passed into two holes and glued in position.

Anchorage

The larger **sheet anchor** (ancora di speranza) and the smaller **bow anchor** (ancora di posta) are to be found on each side at the bow end. The attached ropes are connected to a nearby capstan. Buoys floating on the water surface indicate the vertical position of each anchor.

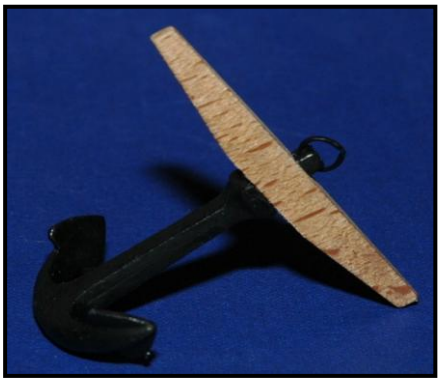


Figure 60: Complete Anchor; Basic Form

Anchor Assembly

Time needs to be spent on the metal components filing the surfaces to remove raised casting edges. At this stage, the top of the shank (above the wooden stock) will need to be very carefully drilled through to accomodate the anchor ring - there may well be an impression of a hole. The metal is fragile and and drilling must be done by hand ***very slowly*** to avoid breakages.

Anchor Cable (gomene delle ancora)
At sea, the cable was often unreeved ('unrove' or 'undone') from the anchor ring and secured along the deck. During the 18th. century, the cable was secured to the ring with an 'fisherman's knot' - some references confirm its use on Mediterranean vessels during this time. The 'fisherman's knot' is an easy knot to create. The photo & diagram opposite illustrate this knot. **Do not colour the rope to simulate tar**. Historically, these ropes were not coated with tar – handling would be difficult and in any case the ropes readily dried out after immersion.

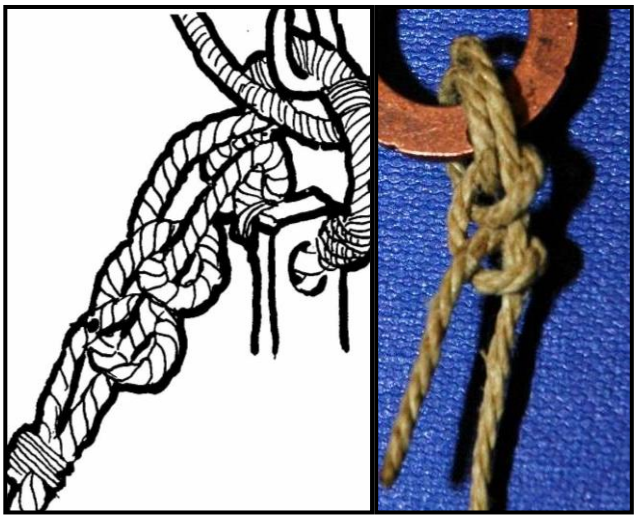


Figure 61: Fisherman's Knot

So ...
sheet anchor cable = 1.5 mm. (largest size available in kit)
bow anchor cable = 1.5 mm. (largest size available in kit)
seizing rope = 0.5 mm.

Figure 62: Anchor Rigging Showing Fisherman's Knot

Haulage

The **cathead** was a heavy beam extending well out from the hull to allow the lifting of large metal anchors without damaging the wooden hull.

Hauling of the ropes was done by movement of the rotating **capstan** – from the 17 century one was located abaft the Main Mast for general lifting and the other abaft of the Foremast on or under the Forecastle Deck for lifting the anchors.

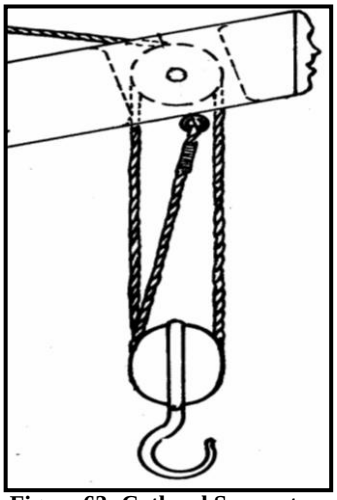


Figure 63: Cathead Supporter, Basic

Anchor Cable (cavo delle ancora)
The largest size rope available in this kit was 1.5 mm. diameter but I decided to utilize 2.0 mm – the largest I could readily obtain locally.

Cathead (gru di capone)

This heavy wooden beam carries two sheaves ('pulleys') at its outboard end. The anchor tackle is reeved through these sheaves and belayed to a cleat or timberhead on the forecastle. The drawings also show a **supporter on the underside** of the cathead (Fig. 63), needed to support the block & tackle used in hauling the anchor up. The supporter is represented by an eye pin. A more detailed interpretation of stowage is contained in the advanced section.

The cathead beam is curved – the majority of ships models show many variations but even so are usually straight. In the most simplest approach, you *could* utilise the 8 x 8 mm. as a **straight beam** and leave it at that. If you want to be more precise in following the drawing intentions, then you will need to create a curve – no mean feat ! I attempted to create a curve in the 8 x 8 x 200 mm. piece supplied and even though I utilised a steam bath, much hot water and even ammonia solution, I still managed to crack the wood in a number of places.

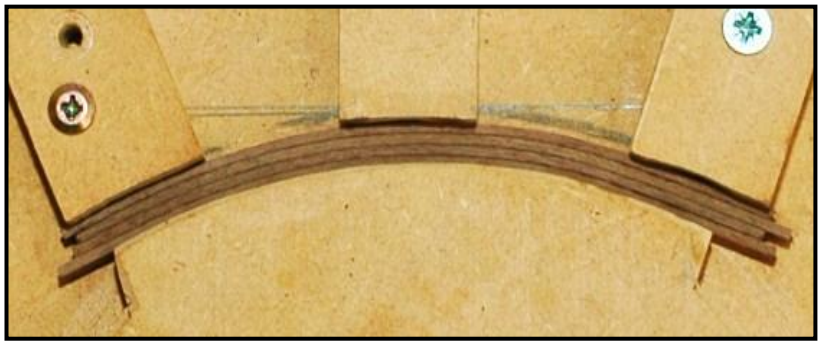
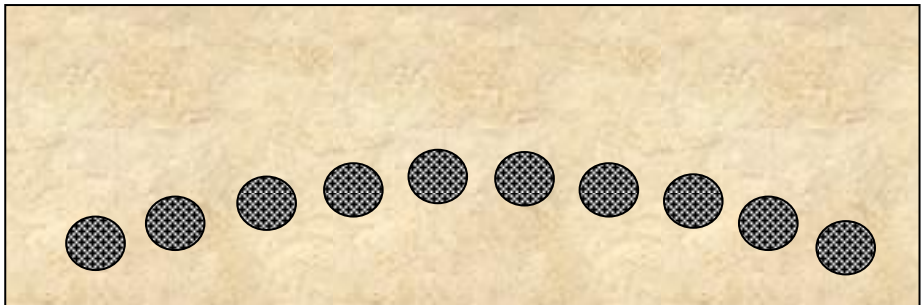


Figure 64: Forming the Cathead Curve

I then considered an alternative approach which was simple and easy to achieve – **lamination**. I utilised four pieces of 2 x 8 x 160 mm planking, After being soaked in hot water for two hours, this was then sufficient to bend them in a press - Fig. 64. An alternative method using a simpler set of tools is shown in Fig. 65 which uses a board with a series of vertical rods... there will be other setups possible but these two will give you the idea! If using the latter method, I suggest using an extra strip adjacent to the rods to avoid denting the surface of the wood strips to be used. Each method mirrored both cathead curves, holding them in position and then allowing drying in a warm oven for two hours. The pieces could then be glued together forming the desired curved 8 x 8mm. catheads. After allowing the glue to fully dry, the two catheads were cut out of the total curve.



In Fig. 66 the cathead beams are shown with the simulated two sheaves. The four holes passing through the cathead that simulate the two sheaves I produced by using a very fine drill. The hole drilling must be done slowly and care taken that the bit is at right angles to the surface. Even so, I started each hole from both sides and with some patience, the holes were drilled and channels carefully cut into the surface between each pair of holes.

Some of the typical terms relating to the cathead assembly are :

1. Cathead Block (bozzello tipo 'FF')
The block available for this is a 2-hole, 10 mm. piece.

2. Cathead Tackle (paranco di capone)
0.75 mm. rope starts from an eye pin under the cathead, through the block and cathead above and then to a timberhead of similar fixing point on the nearby bulwark.

3. Cathead Tackle Hook (stroppo e gancio in acc.)
The hook and the strap around the block are both made from brass wire.

Figure 66: Sheaves in the Curved Catheads

Capstan (argano)

Anchor Capstan (argano a salpare)

Both capstans are actually a double-capstan design with two barrels fitted on the same spindle situated on two decks thus allowing double the number of men to operate it. Whelps were arranged around the barrel to help prevent the rope from slipping and strengthening chocks were fitted between the whelps.

The anchor capstan supplied is of a height and width that varies considerably from the drawing dimensions but is the nearest commerically available unit. All that was required was the assembling of the eight whelps and the creation of the bars. The bars are not installed in the capstan on a working ship – they are put to one side to avoid creating an obstruction. So this is one area not demanding a high degree of precision. It you do opt for the square holes, do not drill the holes as this process will readily fracture the surrounding wood but carefully utilise a fine blade - beware that this may cut into the upper and lower 'lips' on the head of the capstan.

When attaching to the deck, the capstan was glued down onto the deck planking.

Figure 67: Structure Typical for the Main Capstan

Rounded holes yet to be made square !

Chapter 6:

ADVANCED CONSTRUCTION

Friedrich Wilhelm zu Pferde

Chapter 7: ADVANCED NOTES

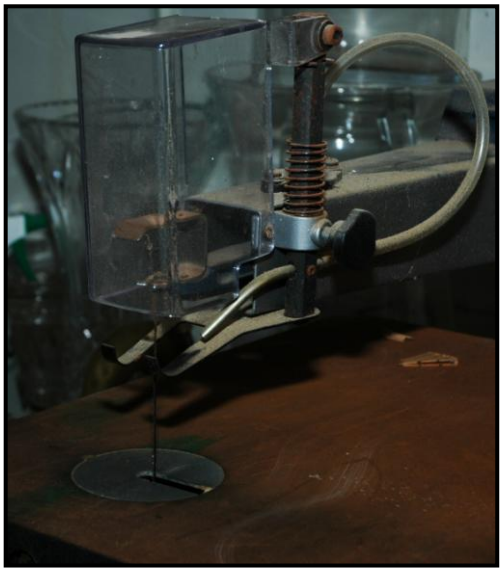
Tools

Apart from the normal range of cutting blades, cutting mats, fine metal files, large soldering iron (plank bending) etc., the following tools were essential or at the very least *useful*….

Vertical belt sander with attached sanding disc – absolutely indispensable

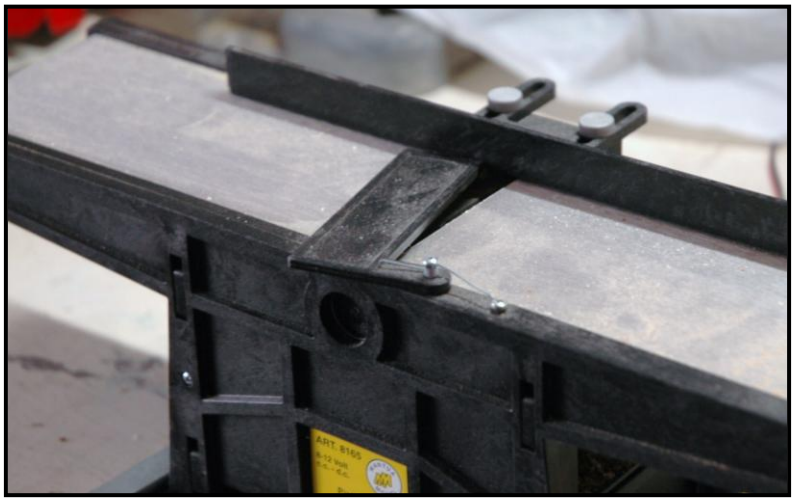
Dremel tools (high speed cutter tool, sanding drum & other bits; flexible drive attachment; along with a mini **drill press**)

Digital vernier calipers – how could you do without these ?



Jig saw – fine blade. No way I could have done without this work horse.

Lathe – for those masts & yards, etc. Not shown but also useful is an electric **min-plane (below)**.



One of my most valuable tools will always be the glue syringe. Used with care, it can deliver just one very small droplet glue to the task in hand. Alternatively, it can deliver a constant stream. The advantage of this device is that it has a very small opening at the external tip which easily seals over after use where it comes in contact with the air. When next required, a pin prick through the small pocket of solidified glue at the tip allows the syringe to come back into use. I can leave the tool for months without use and it is always ready to use. I would not be without it.

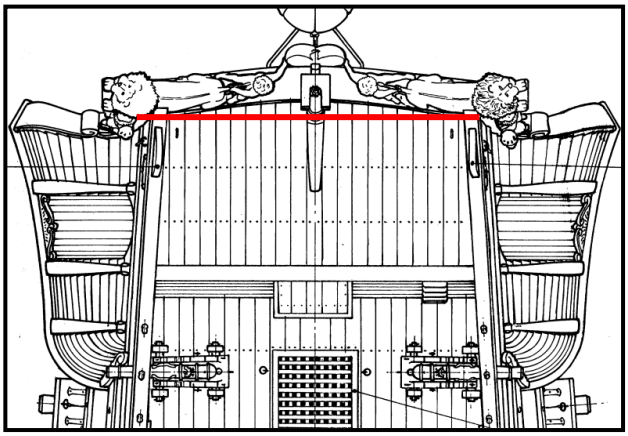


Figure 68: Illustrating Curvature of Transom

Stern Construction

The upper & lower transom pieces are laser-cut from 5 mm. plywood but there is one major hurdle to overcome – both should have a distinct curve generated in them as the the plan view of the poop deck illustrates. Working from the original plan, there is a 6 mm. difference between the edges and the middle of the upper transom piece !

There is also mention made in Plan Sheet 12 ['Lo specchio inferiore va leggermente in curvato e rastremato in basso' i.e. the lower stern transom must be gently curved and tapered].

Figure 69: Curved Transom

To create these curves, I produced a form shape from 20 mm. board onto which I could press the upper transom piece (see Fig. 71). The difference in height between the centre line and edges of the form I initially made 6 mm. but after some trial and error, 8 mm. worked better (after drying, the curved plywood showed a curvature difference of approx. 6 mm.).

The plywood was immersed in water for **three hours** and then screwed tightly down onto the form (Fig. 72). After some attempts at air drying in a naturally warm environment, I settled on placing it into a heated oven for **one hour at approx. 180 Celsius,** turning the oven off and leaving it there for another hour. The result was excellent and in the end substantiated using the 'wood-screw' method ... even though it produced a 'damaged-looking' result. Since this is well hidden by timber & decorations, the end result is no different. Alternatively, I could have used a strip of timber on top of each edge and held them down with a number of strong clamps but with wood or plastic components in the clamps, the oven method of drying would not have been possible.

Figure 71: Base Board Used to Create Curved Transom

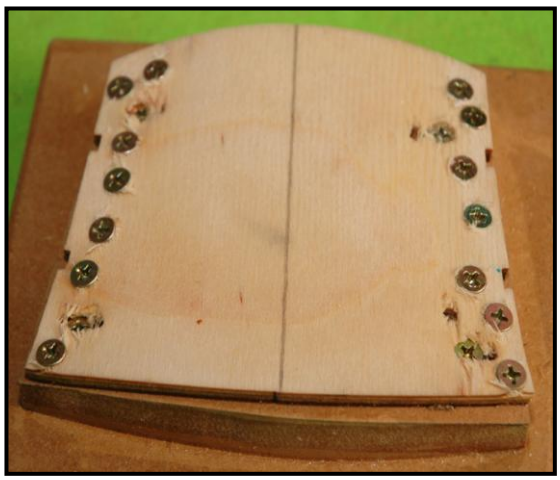


Figure 70: Upper Transom Piece Fixed Onto Base

As it turned out, the lower transom required more manipulation than the upper. Firstly, I re-adjusted the form used for curving the upper transom so that the curve across the width was only a 3 mm. difference between the outer edges and the centre. Secondly, the lower transom needed to be curved from top to bottom. I managed this by again adjusting the form in that direction as well. Here the screw-method came into its own and with the transom thoroughly wet, it was not difficult to bend the plywood in two directions at the same time (refer to the photograph opposite). Very happy with the result after another session with the heated oven ! As unsightly as this method is, producing the same result with clamps in the oven would have been difficult (impossible with any plastic components).

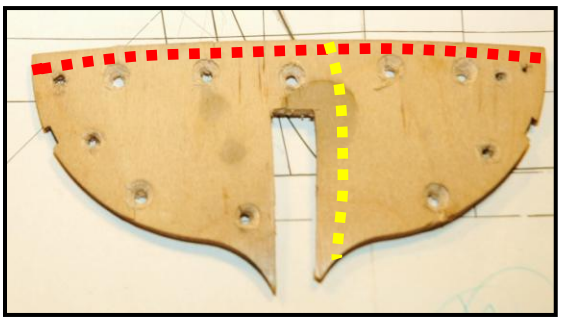


Figure 72: Curving Lower Transom

Red line (dashed): curvature across - a difference of about 3 mm.
Yellow line (dashed): curvature down - a difference of about 2 mm.

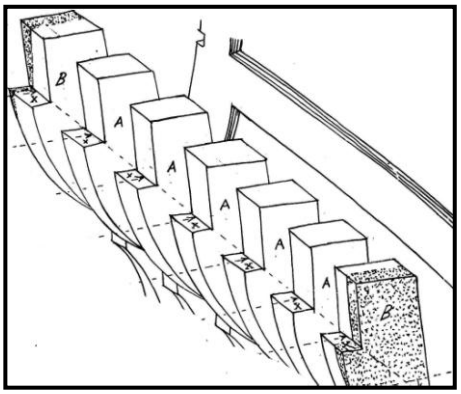


Figure 73: Starting Point for Curvature Formation

Transom Support

I realised at this stage why many builders do not bend the upper transom. The support pieces for the transom shown in the original drawings generating a straight line across the stern ... 'thus the transom must be straight'... is not a true assumption.

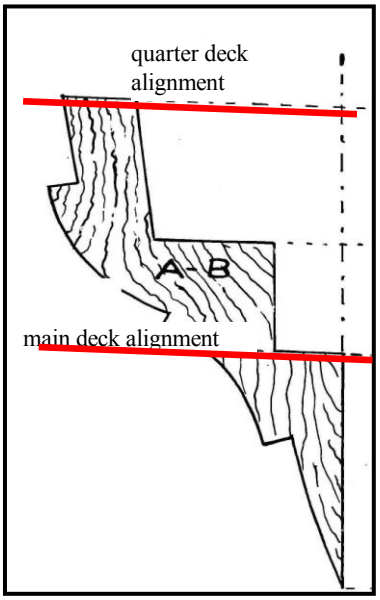
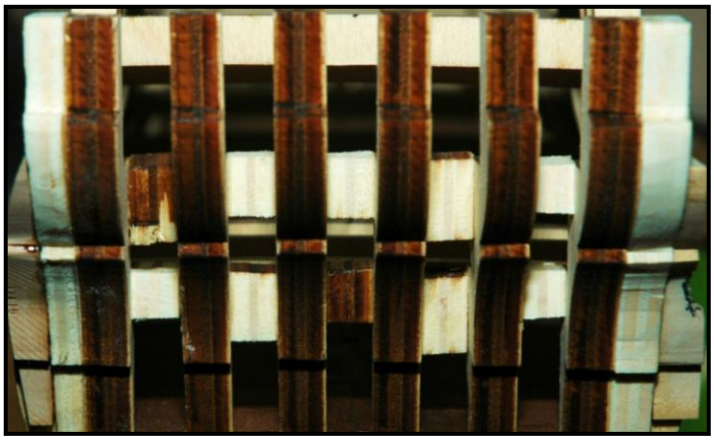


Figure 74: Alignment of Transom Support Pieces

With the curved transom that I produced, the **supports obviously need to be curved as well**. So I glued in position the supports, taking care to align with both the quarter and main decks as shown in the diagram opposite. However, I decided to add one extra support (easily cut out of scrap) so that I could fill in more of the space available and so I began by fixing a piece either side of the false keel rather than one in line with the keel. Extra filler supports were placed *between* the supports to strengthen the whole structure. All of this should be clarified by looking at Fig. 75.



There are eight support pieces – one was missing/ lost so I had to cut out two pieces (one each side, 'white'.

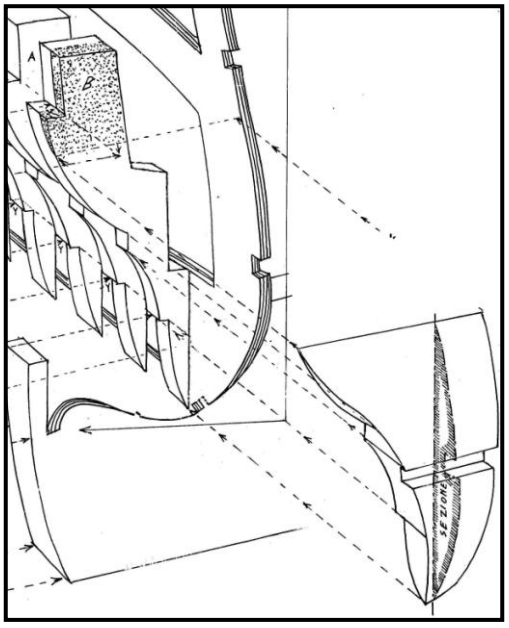
Figure 75: Transom Support Pieces

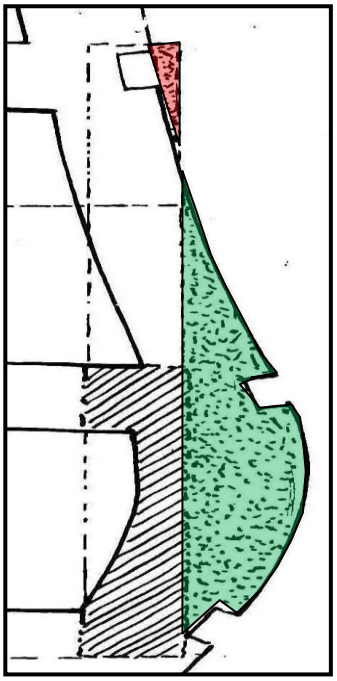
Just a reminder ... my most valuable tools used whilst constructing the stern were the high-speed cutting tool and sanding drum depicted opposite (and underneath).

Stern Filler Blocks

The kit supplies a filler block, 35 x 60 x 120 mm. This is sufficient to provide the required fillers AND the fillers either side at the bow end adjacent to Frame 1.

The two filler blocks either side now need to be produced. When glued to the two outer support pieces, the term ‘B’ is used in the plan sheet. These blocks will form a strong bond with Frame 10 and thus allow a continuous surface for planking through to the stern extremity.





Showing position of support ‘B’ in relation to Frame 10. The green shading shows the cross-sectional shape of the filler block to be added. The red shading shows the amount of the support ‘B’ that needs to be removed.

Figure 76: Stern Filler Blocks

The two blocks that I produced were smaller than anticipated from the plan sheet but posed no problem in their construction.

Transom Shaping

I proceeded to generate a curve in the upper portion of the transom support pieces using the upper transom as a template. My trusty Dremel with its grinding wheels/ stones proved useful here as timber can be ground away without generating very much stress on the structure. The curve created in the support pieces behind the upper transom then caused some considerable re-shaping of the side support pieces to accommodate the curve.

Hopefully the following photos will illustrate the steps that I made to create the stern.

Not clearly evident but the red line is curved in a... horizontal direction (centre towards you and the ends away from you), vertically downwards in a concave curve

Figure 77: Transom Curvature Perspective A

Colour code showing ....

1. Red line (dashed): illustrating the need to carve back along the whole length of the outer supporting pieces to accomodate the curve of the upper transom.

2. Yellow block: edge of upper transom.

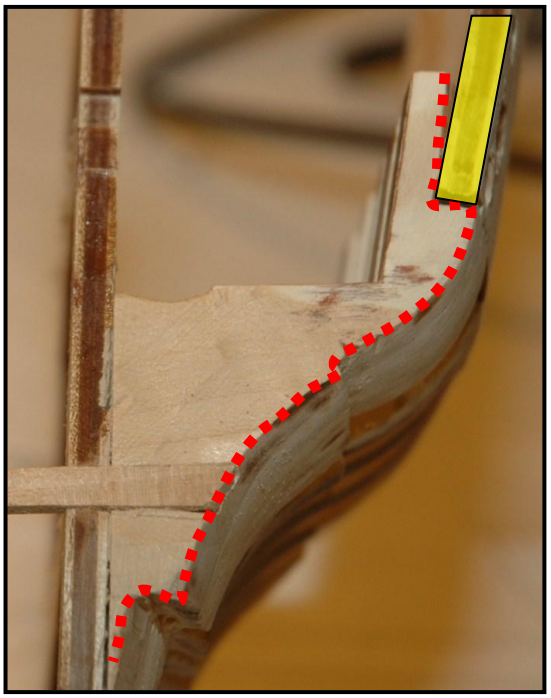


Figure 78: Transom Curvature Perspective B

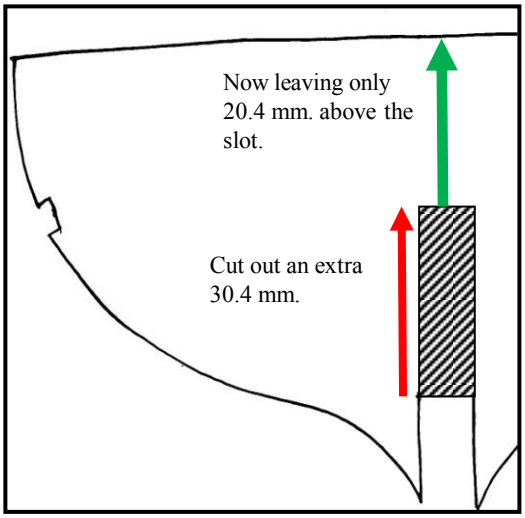


Figure 79: Diagrammatic View, Lower Transom

Frame 10 required considerable cutting back at the bottom to allow the lower transom piece to be fitted against Frame 10.

The transom piece needed an extra 34 mm. cut out to deepen the slot so that it could fit over the false keel. This should leave 20.5 mm. of timber *above the slot* (a previous photo shows this already done). Yours may be a later production piece and Euromodel may well have fixed this error.

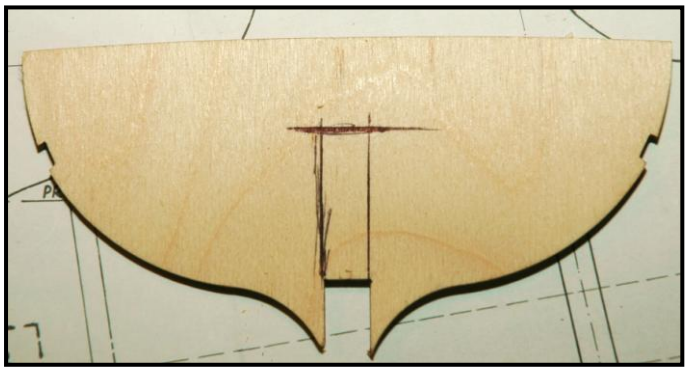


Figure 80: Lower Transom, Alterations to be Made

The carving/tapering that went on with the total stern was not difficult but just required a little thinking so hopefully the annotated photo that follows will illustrate the major focal points to cover in creating your stern.

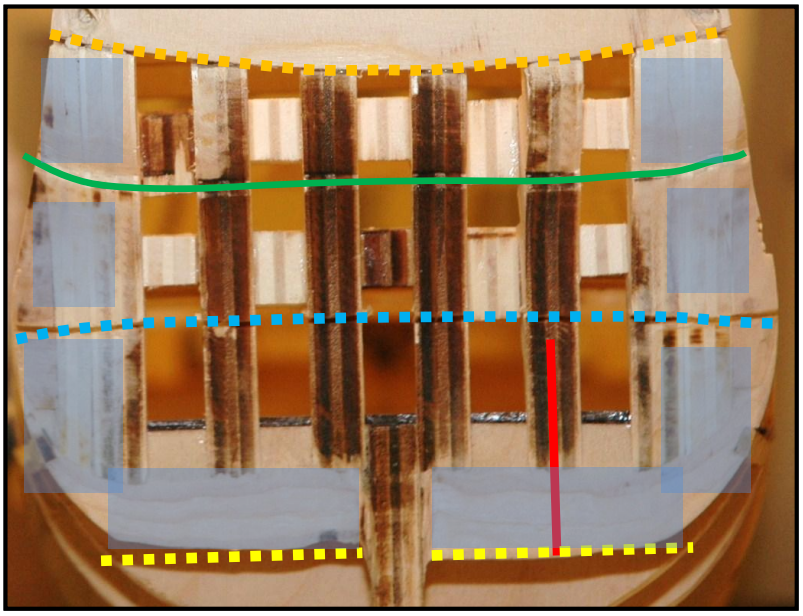


Figure 81: Overview of Stern Construction

Colour code for stern carving ...

1. Pale blue areas: very definite tapering.
2. Red line (solid): continuous straight line with suppporting pieces and Frame 10.
3. Orange line (dashed): concave curve for bottom of upper transom piece.
4. Blue line (dashed): convex curve for top of lower transom piece.
5. Yellow line (dashed): bottom section of Frame 10 cut away through tapering the surface.
6. Green line (dashed): concave curve separating two planked sections of stern

One of the most important pieces of advice I can give here is to reiterate what is contained in the original drawings for the stern ... "***constantly check and re-check through dry-fitting before any pieces are finally glued in position***".

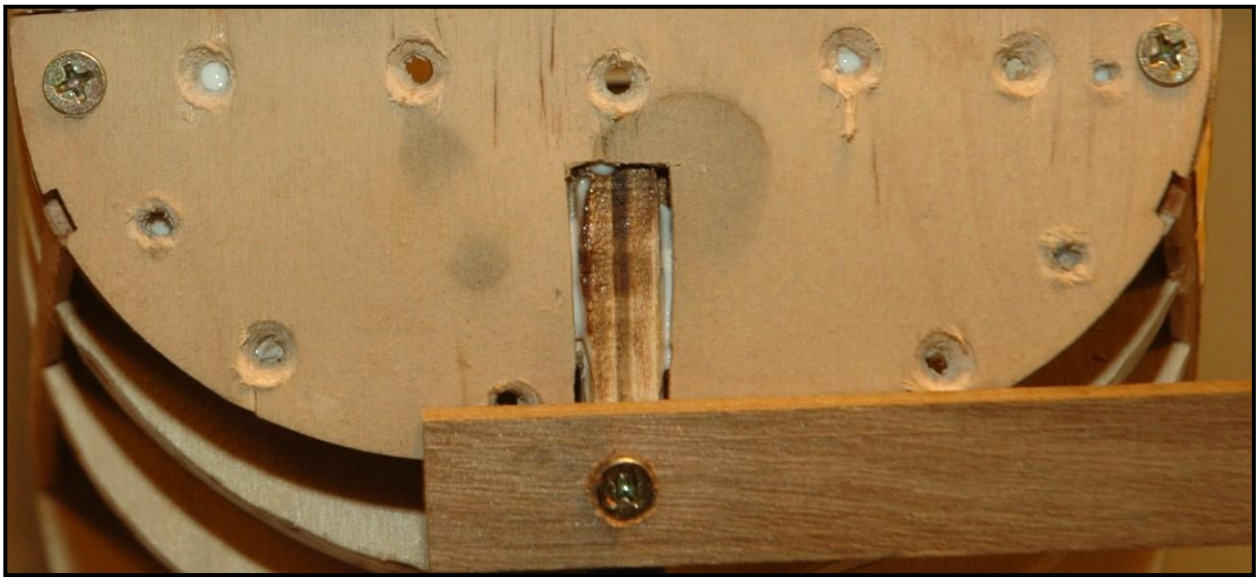


Figure 82: Force-Fitting the Lower Transom

The previous comment especially applies to the dry-fitting of the lower transom piece. This took a lot of patience to get the curve correct. I had to wet/ clamp/ heat *three times* before I got it anywhere near correct ! In the end, it was close enough. Finally, it was glued in position and forced into its final curves using a screw each side going into the frame behind and a screw going into a piece of scrap wood and into the keel to curve the bottom section. The photo above explains this more clearly.

Figure 83: Wilhelm zu Pferde Rudder

Rudder

The rudder was made up with three or four lengths bolted together, each one stepped down in a "hance" to the rudder post. So deep lines were cut down either side of the blade to simulate the use of three timbers in creating the rudder blade.

Near the top of the rudder, a **3.5 mm. square hole for the tiller arm** was produced. For the sake of completion, I produced a **2.5 mm. 'tiller arm'** projection out from the rudder – a total length of 6.0 mm. allowed the projection to fit into the rudder post (refer to the object shaded pink in Fig. 84). A vertical pin (brass rod) was inserted through the tiller projection adjacent to the rudder post (refer to the object shaded green in Fig. 84).

In building this model it is unlikely that the remainder of the tiller arm (shaded yellow) in total can/will be built.

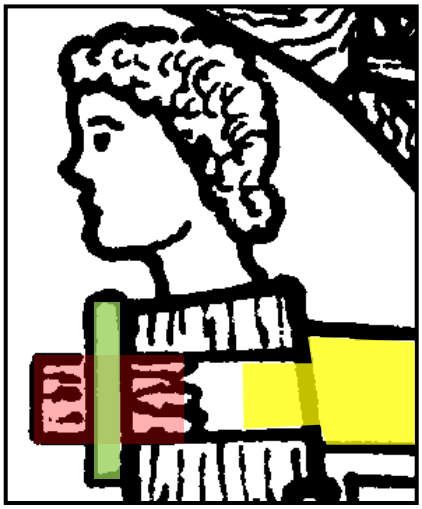


Figure 84: Tiller Projection Through Rudder Post

The 'bearding' (Fig. 86) has its outer edge bevelled on both sides.

Rudder Pendants

The eye pin + ring attaches the pendant rope to the rudder and is often anchored through a metal strap such as a metal pintle for added strength and not just the wood. Plan Sheet 2 appears to show this (not sure where pin is located – could be just off the pintle but I assume that it IS passing through the pintle).

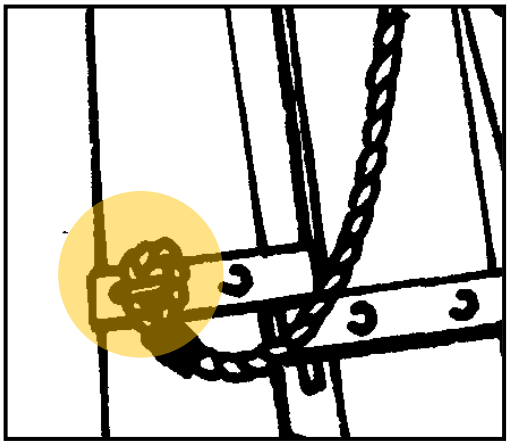


Figure 85: Rudder - Pendant Rope Attachment

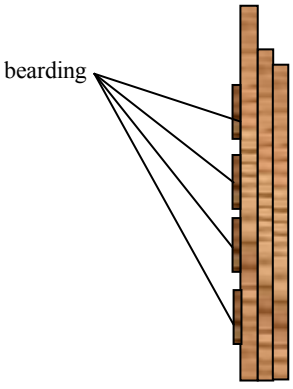


Figure 86: Rudder Bearding

Anchor Assembly

The metal castings measurements were **reasonably close** to the drawings and no improvements could be made. The wooden stocks provided were quite different in their dimensions compared to the described size and appearance. I felt it a pity not to attempt some modification ...

Sheet Anchor & Bow Anchor (ancora di speranza e ancora di posta)

Figure 87: Showing Size Variation of Baulks from Standard Stock Supplied

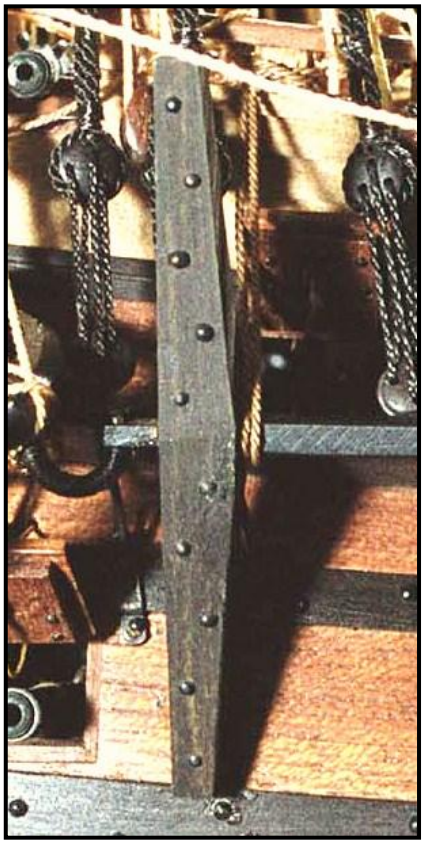
Stock of Sheet Anchor

The measurements of the supplied pieces were +/- 64.5 x 7.4 x 8.1 mm. – different to the drawing size of **76.0 x 6.0 x 10.0 mm.** I decided to produce the stock from scrap timber.

Stock of Bow Anchor

The measurements of the supplied pieces were again +/- 64.5 x 7.4 x 8 .1 mm. – but this time reasonably similar to the drawing size of **65.0 x 5.0 x 8.0 mm.** For reasons of timber colour & ease of manufacturing, I still decided to produce the this stock from scrap timber.

Although not clear in the drawings, the stocks were historically produced from two halves creating the two baulks that make up the stock – a laborious task but worth the effort. For this, I utilised some scrap 10 mm. thick mahogany left over from some of the laser-cut pieces. In the drawings, the two halves are shown bound together by metals studs. nails/bolts so for this I utilised some small brass nails



Anchor Ring (cicala delle ancora)

The four brass rings supplied were all approx. 6.5 mm. in diameter and will be utilised by most modellers. However, it was here that I decided to work from information gleaned from the following link : http://hnsa.org/doc/steel/part3.htm#pg81 . This link at least confirmed that anchor rings are indeed large and whilst the English standard ring diameter was a little less than that shown in the drawings for this ship, I at least knew I was creating rings of approximately the same standards used during these times. I used some 1.18 mm. diameter brass rod I had as follows : 15 mm. diameter for the sheet anchors and 10 mm. diameter for the bow anchors.

Of interest, the ring would have a series of puddening – strips of tarred cloth followed by rope and finally some fine yard applied at each end of the rope and also in the middle. At this scale, it is reasonable to only apply the rope (1.5 mm. sheet & 1.0 mm. bow).

Anchor Cable (cavo delle ancora)

The largest size rope available in this kit was 1.5 mm. diameter but I decided to utilize 2.0 mm – the largest I could readily obtain locally.

Cathead (gru di capone)

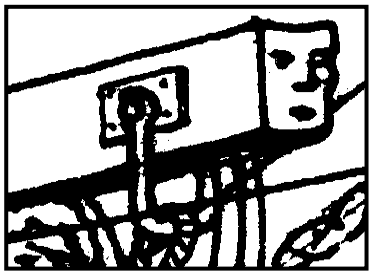
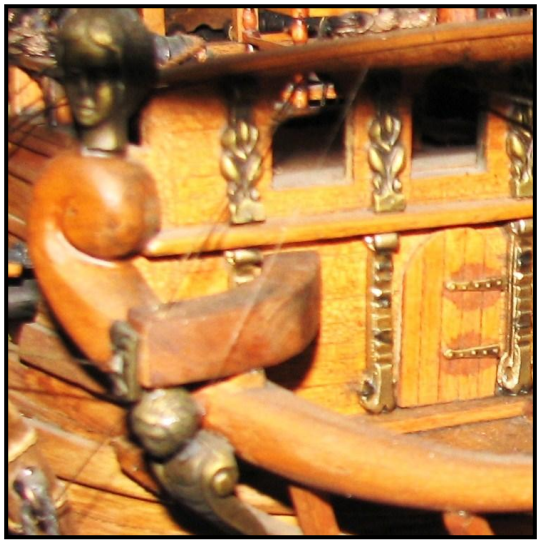


Figure 88: Bracket for Anchor Stowage

Some will attempt to create a curvature in the supplied 8 x 8 mm. piece – not an easy task but I was more than happy creating curves through lamination of thinner strips glued together.



The drawings show a **supporter on the underside** of the cathead. Plan Sheet 1 also shows a U-shaped anchor stowage bracket. This bracket (8.5 x 9.5 mm.) was formed from some 0.75 mm. brass rod and shaped as described on Plan Sheet 4 and shown in the generalised drawing of the whole ship in Plan Sheet 1(Fig. 88). A flat plate and the supporter were both attached using small brass nails. The materials for the bracket will have to be found by the modeller.

Figure 89: Curved Cathead Showing Bracket for Anchor Stowage

The following diagram *could* apply to the Friedrich Wilhelm zu Pferde but is a **generic layout** and hence open to variation and interpretation.

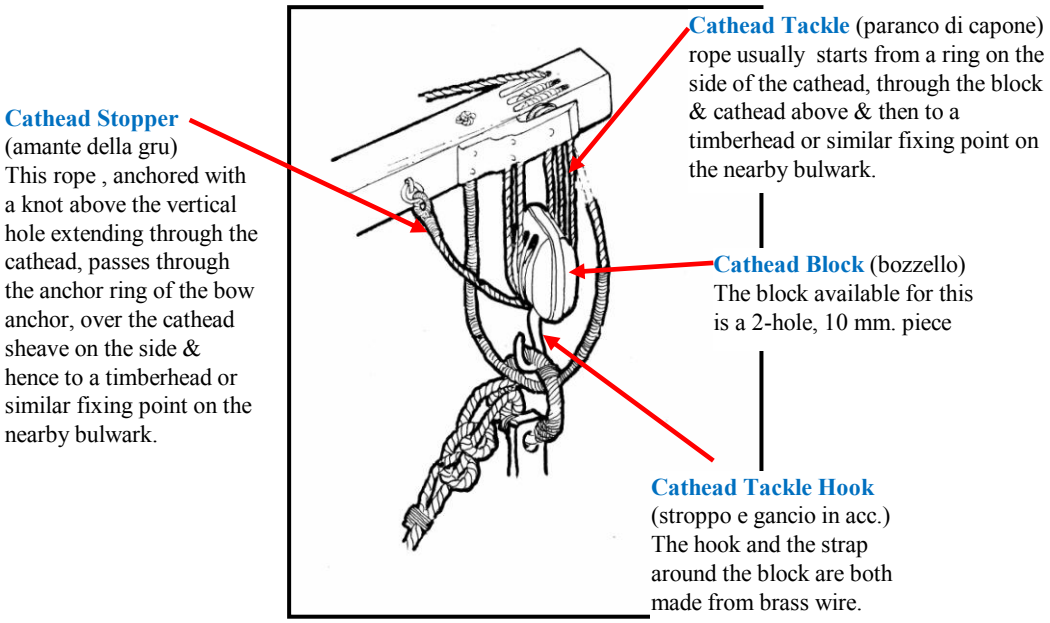


Figure 90: Cathead Rigging

Capstan (argano)

Figure 91: Anchor Capstan Completed (Advanced Version)

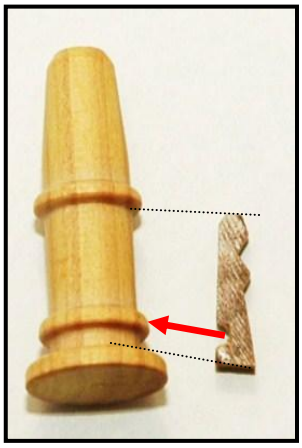


Figure 92: Fitting Whelps to Capstan Spindle

The plans give detailed data for the enthusiast to construct capstans typical of this era but for the mainstream of ship modelers, there are two choices. Ignore the intricate data shown and so not construct the capstan as shown or making a presentable capstan using the material supplied.

Figs. 91 & 92 show my own capstan produced by using a lathe but the straightforward one (Capstan (argano) supplied by Euromodel will save much time.

Holes were drilled and then squared to take the 31 mm. long bars which were easily made from 2 x 2 mm. wood. The eight whelps that fit around the capstan spindle required a small cut – **very, very carefully** as the wood is easily fractured.

Note when assembling the finished model - avoid the common error of having the bars slotted into the capstan! On a working ship, they would be a major hindrance and should be stored on the deck to one side.

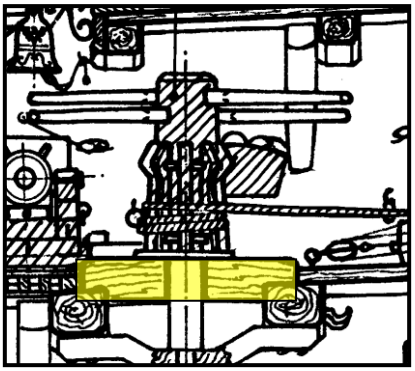


Figure 93: Capstan Base

The capstan stands on a base which is 6.75 mm. thick, most of which is below deck level supported by beams underneath (refer to diagram above and photo opposite). To add a touch of realism, the base could be included by representing the small amount that is visible using a thin piece of scrap plywood or similar wood.

End

of

MANUAL 1 OF 7

FRIEDRICH WILHELM ZU PFERDE