## CHAPTER II: SPECIFICATIONS

Four models of the Vancouver yachts were built by Ta Yang: After Cockpit, Trunk Cabin, Center Cockpit and Pilot House. All these were cutter rigged.

### A. General Design Specifications

| | |
|---|---|
| Length overall | 41' 9" |
| Length on deck | 40' 2" |
| Length at waterline | 33' 0" |
| Beam | 12' 6" |
| Draft | 5' 10" |
| Displacement (unloaded) | 29,147 lbs. |
| Ballast | 11,800 lbs. |

Sail area

Main - 407 ft.sq. Staysail - 255 ft.sq. Yankee - 493 ft.sq.

Engine options

Perkins 4-108
Yanmar 3QM30
Yanmar 4JHE

| | |
|---|---|
| Fuel tankage (standard) | 120 gallons in two black iron tanks |
| Water tankage (standard) | 140 gallons in two stainless steel tanks |
| Vertical clearance | 60' 10" Mast height above L.W.L. |

### B. Serial Numbers

It is a wise idea to place the serial numbers of the boat and its major equipments in this place where it is available for replacement parts or determining equipment warantees.

Hull number _____

Documentation number _____

Engine serial number _____

Hot water heater serial number _____

Stove serial number _____

Battery charger serial number _____

_____

### C. Materials

A few words about materials are called for because of the may questions people ask about the quality of the metals, woods and plastics used in Far East built yachts. In the early years of their building, there were some building challenges that had to be overcome. But Ta Yang overcame them as they developed. They have matured to be one of the finest boatbuilders of the 21st century.

The resins used in the construction of Tayana yachts has evolved as has their technology. These polyesters were purchased in the United States or Japan where the leading resins are developed. Their quality equals or exceeds that of resins used in nearly every U.S. or European yard. Those resins used in post 1985 used isophthalic gel to resist blistering and those in post 1992 used vinylester resin which is in use today (2002) and is purported to be the leading resin for yachts because it is considered to be the most moisture resistant..

Fiberglass is primarily purchased from the U.S., although some are purchased from Japan and Europe. Most glass structures are made from 1.5 ounce mat and 24 ounce woven roving in alternating layers.

Various core materials are used. If cored hulls are ordered, the material is Airex™. This plastic material is light and highly resistant to moisture. It is also an effective insulator. The decks of Tayana yachts are generally cored with wood blocks cut into two inch squares and formed into core "mats" to isolate moisture problems, much as Balsa is used. It is heavier than either Balsa or Airex, but it is cheaper than either and tolerates fastenings better. Where there is to be a heavy installation of some type, such as a winch or windlass, the core material is usually a solid plywood sheet covered on both sides by a heavy fiberglass laminate.

**1. Teak**.

Teak is obtained from several sources. The most common, at this writing, appears to be Burma. The demand for teak is sufficiently high that properly cured teak is virtually impossible to find. It has been reported to us that the teak obtained by TaYang is generally two to three years old when purchased. This teak is then cut into planks and stored in a drying yard for a period of months. It is dried further in a kiln before it is used on a yacht. Optimally, teak would be aged for seven to eight years before use and kilns would not be used.

Curing cracks have occasionally been a problem in yachts with solid teak tables or desk tops. Where this has occurred, the tops have been replaced. On the whole, however, the teak has been surprisingly good, and in applications such as ceiling and decks, it is almost problem free. (See Section V for proper maintenance care.)

**2. Plywood**

Plywood is the core material used in interior bulkheads, soles, and tops as well as for certain structural applications. TaYang does use marine plywood. The glue used between the plys is waterproof. There have been few plywood problems when owner maintenance has been reasonable.

### 3. Stainless Steel

Type 304 stainless steel is most common in yachts whether built in the Far East or elsewhere, and that is what TaYang generally uses. Type 316 stainless steel is the best for yacht application. but it is considerably more expensive than type 304. There is little difference in strength between them, but type 304 can tend to show corrosion which while generally-harmless, is irritating

### 4. Bronze

Bronze fittings used on Tayana yachts are made in Taiwan. Tests by an independent laboratory showed that the bronze used is of good marine alloy and grade. The bronze castings are C86800 (55Cu, 37Zn, 3Ni, 2Fe, 3Mn alloy while such items as turnbuckle barrels are C19000 alloy (98-7Cu, 1.1Ni, 0.25P) .

### 5. Iron

TaYang uses black iron in fuel tanks and cast iron ballast. This is important because iron is less susceptible to corrosion than is the steel that is occasionally used by some builders in place of iron. TaYang does paint the iron with a good quality red lead primer to help extend the life of the tank.

## D. Construction

Your Tayana 42 has been constructed of the finest materials, using the best techniques, and it exceeds the specifications laid down by any of the most accepted standard-setting agencies. The fiberglass schedule for the hull is shown in Figure II-1. Layup is done in a single mold by hand using polyester resin.

The large female mold is separated longitudinally for cleaning and mold preparation. The gelcoat is sprayed in and the first glass layer is laid up. The mold is then joined and all the remaining layups are done in the assembled mold. While the hull is still in the mold, bulkheads are installed and the hull is allowed to cure. The deck is laid up in much the same way except that a core of wood is used in those deck areas which will generally be required to support loads such as decks and cabin top.

Ballast is made of a single casting of cast iron. The ballast casting is lowered into the keel cavity and is fully encapsulated to become part of the hull. The deck and hull are joined by one of the strongest methods in the industry. A diagram of the deck to hull joint is shown in Figure II-2. Assembling the hull and deck is one of the most critical operations in the yacht's construction. The deck is lifted by a crane above the hull. The joint is prepared with 5200 epoxy compound and the

FIGURE II - 1
FIBERGLASS LAYUP
SCHEDULE

Figure II-1

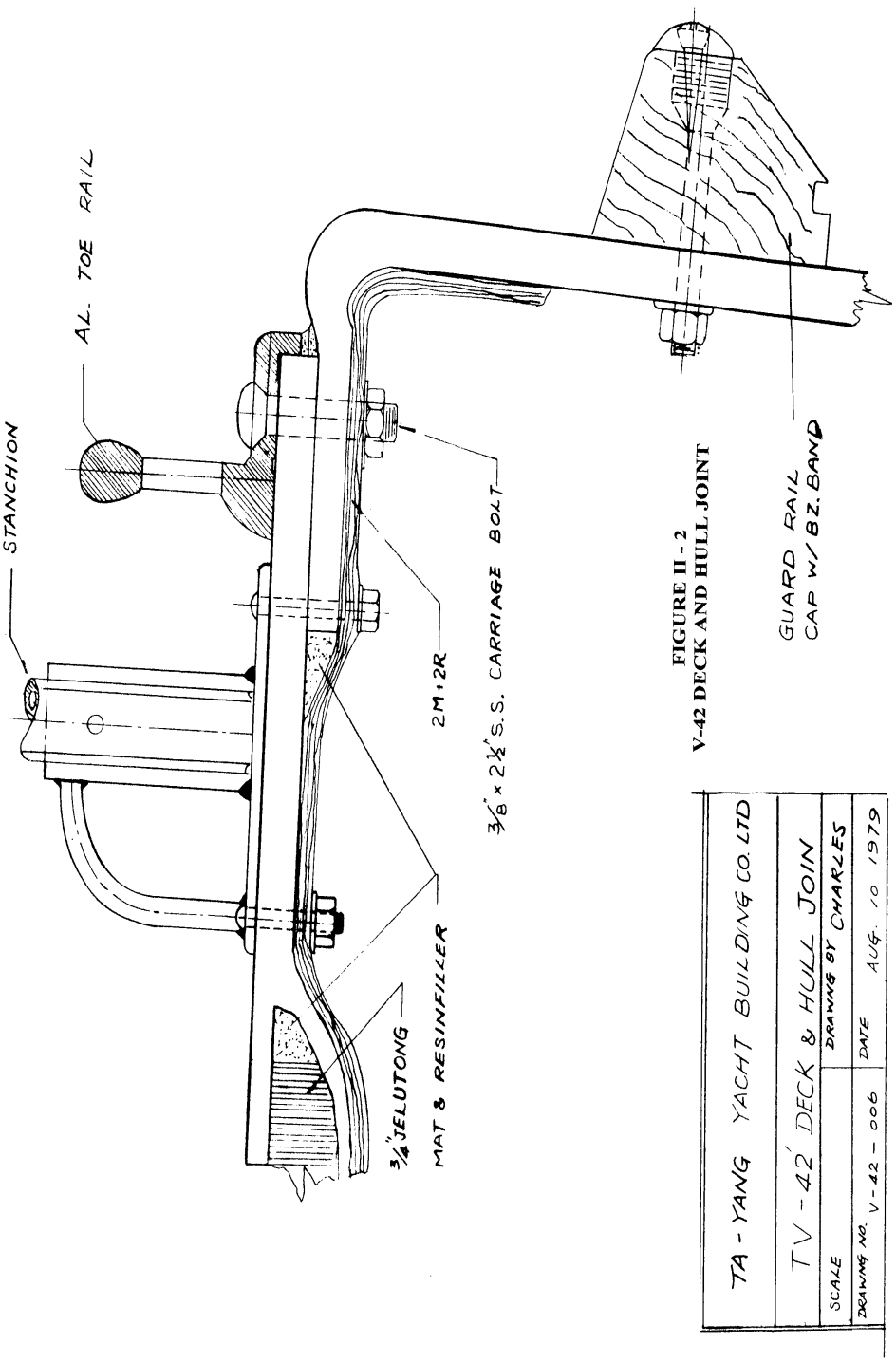


**FIGURE II - 2**
**V-42 DECK AND HULL JOINT**

Figure II - 2

deck is then set onto the hull. The joint is then bolted together using stainless steel-bolts on varying centers depending on the curve of the hull at the various points. Once the joining has been accomplished, the joint is fiberglassed as shown in the figure. The result is a single piece, extremely strong hull with a rigidly curved hollow beam in the form of a bulwark running nearly the entire length of the yacht.

Once these critical operations have been finished to the satisfaction of the company engineers, exterior trim is installed and the work on the accommodations is undertaken. A team of the world's finest boat carpenters and finishers takes over the yacht and frames in the interior cabinets and bunks, as shown on the plans. This work is done with extreme care and attention to detail. Framing is actually glassed into the hull and becomes an integral part of it. As a result, the quality and livability of the accommodations is largely a function of how well the framers do their job. Cabinets, doors, drawers, and the like are done by cabinet makers in a specialty shop to the order of the production foremen. TaYang engineers closely supervise every step to insure that dimensions are met and proper installation is made. The result is a yacht whose strength and beauty are second to none and whose accommodations precisely fit the needs of its new owner.

The aluminum spars supplied are ordered from overseas suppliers- Taiwan has no extrusion capability at this writing. Generally, the suppliers have been ISOMAT of France and YACHT SPAR out of New Zealand. ISOMAT masts are received already anodized and are not necessaruly painted. YACHT SPARS are painted at the yard and the color can be selected by the buyer. TaYang uses a primer and polyurethane for this. Aluminum spars are also being imported from Japan These are painted by the spar manufacturer.

Standing rigging is assembled at the yard using Japanese stainless steel cable and Taiwanese-made turnbuckles and swage end fittings. A crew at the factory sets up the spars and all of the rigging is fitted to each yacht. This is an important factor in cutting down the number of modifications which might have to be done in the U.S. Similarly, pulpit, lifelines, stanchions, and bowsprit are all installed to insure proper fit. The stanchions and pulpits are among the industry’s best.

The final step is packing the yacht for shipment. Spars, rigging, and any projecting assemblies are all disassembled and packed either in the hull, or, in the case of the masts, into special boxes. On the shipping date, the yacht is loaded onto a lowboy and taken to the huge port city of Kaohsiung where it is loaded aboard one of the many container carriers which operate between Taiwan and the United States.

**E. Procedures and Data for Documentation**

Documentation must be accomplished with the United States Coast Guard in the United States or with the governing agency in the country where your vessel is to be registered. We suggest you contact the Documentation office nearest you for full details, forms, instructions, duties and customs fees, call the Coast Guard at 1-800-799-8362 or visit their internet site at <www.uscg.gov>.

The following notes and references are made for your information and convenience. They should in no way be construed as complete and detailed instructions:

PROCEDURE

Pleasure Class: Under 20 tons requires a Yacht License. Twenty tons and over requires a certificate of Enrollment and a Yacht License.

Application for Admeasurement requires a Builder's Certificate issued by the builder on the prescribed Coast Guard form. This certificate will be retained by the Coast Guard with certified copies available to the owner.

Admeasurement The admeasurer uses data in the Builder's Certificate (BC) to compute net tonnage.
Gross Tonnage = 1/2 (LBD/100)
Net Tonnage = 0.9 (Gross Tonnage)
where: L = Length, B = Breadth, and D = Depth

Official Number - After admeasurement files your certificate of tonnage, application is made for an official number. Title and mortgage papers are required.

Additional Forms which may be needed include:
Applications for number
Declaration of Ownership and/or Extent of interest
Identification of Owner's or Existing Mortgages
Declaration of No Foreign Interest involved
Declaration of Master of Vessel
Declaration No freight or Commercial Passengers to be Carried on Board.
Designated Home Port-Licensing Office.
Designated Hailing Port-Berth Marking Certificate

For a commercial class, contact your U.S. Coast Guard Documentation Office for information due to the complexity of the application.