

TARTAN 3500 OWNER'S MANUAL INDEX

1.0 INTRODUCTION

2.0 LIST OF ILLUSTRATIONS AND TABLES

3.0 CONSTRUCTION

- 3.1 Hull
- 3.2 Deck
- 3.3 Hull / Deck Joint
- 3.4 Rudder & Steering
- 3.5 Ballast

4.0 RIGGING

- 4.1 General Description
- 4.2 Spars
- 4.3 Tuning at the Dock
- 4.4 Tuning While Sailing

5.0 FUELSYSTEM

- 5.1 Fuel Tank
- 5.2 Fueling
- 5.3 Fuel Grade

6.0 POWER PLANT AND TRANSMISSION OF POWER

- 6.1 Engine
- 6.2 Transmission
- 6.25 Saildrive
- 6.3 Propeller Shaft
- 6.4 Shaft Alignment
- 6.5 Stuffing Box
- 6.6 Propellers
- 6.7 Removal of Propellers
- 6.8 Installation of Propellers
- 6.9 Propeller Alignment Check
- 6.10 Exhaust System

7.0 CONTROLS

- 7.1 General
- 7.2 Starting and Operating the Engine
- 7.3 Engine Shut Down

Again, this manual is intended to help you to know your new Tartan Yacht. It is most important to familiarize yourself thoroughly with all aspects of operating and maintaining your yacht in a safe and efficient manner. Read your manual carefully as well as the booklets supplied by the manufacturers of the components. If any questions arise for which you can not find an answer, your Tartan dealer will be pleased to help you.

It is Company policy that the Tartan line of yachts is continually upgraded and improved. Thus, you may find your yacht equipped with gear different from that shown in your manual. Any new piece of equipment will be in all cases equal to or better than, its predecessor.

On taking delivery of your yacht, be sure to read and understand the Tartan warranty. Complete the warranty card or the change of ownership card and return it to Tartan immediately.

If you are a seasoned sailor much of the manual may be old news but if this is your first boat, we hope this will prove useful. We know that you will have many satisfying and happy hours of sailing in your Tartan Yacht.

Should you need to contact Tartan Yachts please use the following addresses and numbers:

Tartan Yachts
Customer Service
1920 Fairport Nursery Road
Fairport Harbor, OH 44077
Phone: 440-354-3111
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We would like to take this opportunity to thank you for choosing Tartan Yachts and we wish you good sailing.

2.0 LIST OF ILLUSTRATIONS AND TABLES

Figures

Sailplan
Standard Deck Layout
Accommodation Plan
Major Mechanical Locations
Electrical Conduit Layout
Interior Lighting Plan
110 VAC Layout
DC Wiring Diagram
Freshwater System
Black Water System
Gray Water System

Tables

- 1 Sailmaker's specifications
- 2 Forestay Dimension for Harken Roller Furling

3.0 CONSTRUCTION

3.1 Hull

The hull of the Tartan 3500 is a single unit fiberglass molding which incorporates a specially developed NPG/ISO gelcoated hull. Alternating layers of strand mat and Unidirectional 'E' glass in Isotholic resin are locally reinforced and cored with Balsa in order to achieve an optimum balance of strength, stiffness and weight in the laminate composite.

The construction process ensures the complete weaning of the laminate complex with no voids or bubbles. Extra laminate is used in any area that would be subject to additional stresses. The exterior finish consists of gelcoat molded into the fiberglass backed up by a 4mm barrier coating of Vinylester anti-corrosive resin. The boot stripe is applied using *DuPont Centari Acrylic Enamel* while the cove stripe is a premium vinyl film. A Balsa Core is sandwiched between the laminate layers to add significant strength and stiffness properties to the hull, and yet ensuring that overall weight is kept to a minimum. The strength/weight characteristic of the sandwich composite as well as resistance to impact and abrasion is magnified by the use of Unidirectional 'E' glass in the laminate.

3.2 Deck

The deck and cockpit, like the hull, is a single unit fiberglass molding with a gelcoat surface. A Balsa core is incorporated into the structure between the laminate layers for additional stiffness. A non-skid finish is molded into the working areas of the deck.

3.3 Hull / Deck Joint

The top flange of the hull is capped with marine adhesive sealant. The deck is then fitted and fastened through the Teak or Aluminum toerail by means of stainless steel bolts. As the bolts are tightened, the sealant is forced into exposed crevices. If a leak should ever develop in the hull / deck joint, the through bolts may be tightened accordingly.

3.4 Rudder & Steering

The rudder is constructed of two molded composite shells, which are bonded together and injected with two-part foam for added strength. The rudderpost is all stainless steel with a flat stainless steel plate reinforcing weldment positioned within the rudder.

Wheel steering is standard. The pedestal system is a silky-smooth Compact Rack & Pinion Whitlock steering system.. The pedestal manufacturer (Whitlock) has provided maintenance instructions concerning the steering system.

3.5 Ballast

The keel of your Tartan Yacht is of lead alloyed with antimony for added strength and cast to exacting tolerances. In addition to providing the yacht's stability, the foil shape of the keel produces hydrodynamic lift while sailing to weather, enhancing upwind performance.

The keel is fastened to the hull by means of stainless steel bolts, which are cast into the lead. These bolts project through the bottom of the boat and are bedded with a flexible *Thiokol* compound which allows for the divergent expansion and contraction rates of lead and fiberglass to prevent water leaks. The bolts are secured by stainless steel nuts and washers, which are visible in the bilge.

4.0 RIGGING

4.1 General Description

In order to tune your mast effectively, it is important that you are familiar with the basic associated principles. Some definitions and explanations follow.

The term 'standing rigging' refers to fixed pieces of stainless steel rod or wire supporting the mast. Those which offer fore and aft support are called 'stays' (backstay, forestay, etc.). Those which provide transverse support are called 'shrouds'.

The shroud running from the masthead to a chainplate on the deck near the rail is called the main or upper shroud. If it were to travel this route directly, the angle of support would be so fine as to induce extremely large tensile forces in the shroud and equally large compressive forces in the mast. To increase this angle of support, a spreader is positioned according to load requirements. This spreader should be angled upwards to bisect the angle formed by the shroud as it bends over the spreader tip. A horizontal spreader, or worse still a spreader angled downwards, is dangerous. The spreader may be forced to slip further down the shroud resulting in the loss of the spreader and possible collapse of the mast.

The spreader becomes a compressive member, and when properly loaded tends to push the middle of the mast to leeward. To eliminate such a leeward bow, a lower shroud is installed running from the mast at the base of the spreader down to the deck near the upper shroud chainplate. The primary purpose of the lower shroud is to provide athwartship support. The addition of the spreader and the lower shroud means that the mast is supported at more places transversely than fore and aft. Therefore, the mast itself need not be as strong transversely as fore and aft. The mast then may have a lesser (more aerodynamically advantageous) transverse dimension than fore and aft dimension.

4.2 Spars

Based upon the relationships described above, the more spreaders and shrouds used transversely, and the more intermediate forestays and running backstays used longitudinally, the smaller the allowable mast section may be. This can be advantageous as weight aloft and windage may be reduced in addition to minimizing the undesirable aerodynamic effect of the mast on the mainsail. The smaller the mast section, the less disturbed is the air flow across the main. However, a practical and functional balance of rig complexity and aerodynamic efficiency has governed the design of the rig of the Tartan 3500. Running backstays are not fitted on this model. The spar section is sufficiently large with appropriate wall thickness to be supported by a double spreader system; drag and its detrimental effect on the main is reduced by virtue of the sophisticated, aerodynamically shaped cross section to the mast.

Tuning involves adjusting the tension in these shrouds and stays so that the mast will remain straight in most sailing conditions with an appropriate amount of rake for comfortable helm balance. Tuning is carried out in two phases - tuning at the dock and tuning while under sail.

4.3 Tuning at the Dock

All turnbuckles are equipped with toggles at their base, which eliminates bending load on the swage and turnbuckle threads. Toggles are fitted to both ends of the forestay. As the boat tacks and the headsail loading varies from side to side, the forestay terminals are subject to extreme fatigue loading.

Start tuning the spar by ensuring that the mast is in the center of the boat, perpendicular to the designed transverse water line. Your boat may not sit level at the dock due to distribution of gear, stores and tankage levels, so check the water line position both sides. Then slacken the lower shrouds completely by undoing their turnbuckles. Take the main halyard and lead the shackle end to a point on the rail or chainplate. Adjust the halyard so that the shackles just touch the reference point on the rail or chainplate with a given downward tension, and then cleat the halyard. Then take the halyard to the same reference point on the other side of the deck. With the same amount of downward tension, you will be able to just touch the shackle to the reference point if the mast is plumb transversely. If not, let off one upper shroud turnbuckle and take up on the other in order to bring the masthead closer to center line until the halyard shackle touches both reference points under the same downward tension.

The particular part of the rail or deck you choose as your reference point is not important as long as it is the same point on each side. Once the mast is centered transversely, tighten both upper shroud turnbuckles uniformly, one full

