

## **WARRANTY**

Thunder Tiger guarantees this model kit to be free from defects in both material and workmanship. The total monetary value under warranty will in no case exceed the cost of the original kit purchased. This warranty does not cover any components damaged by use or modification. Part or parts missing from this kit must be reported within 60 days of purchase. No part or parts will be sent under warranty without proof of purchase. To receive part or parts under warranty, the service center must receive a proof of purchase and/or the defective part or parts. Should you find a defective or missing part, contact the authorized Thunder Tiger Service / Distributor nearest you.

For customers in North America, contact Ace Hobby Distributors, Inc. at 949-833-7498 or e-mail: service@acehobby.com. Under no circumstances can a dealer or distributor accept return of a kit if assembly has started.

#### **WARNING**

The Victoria Racing Yacht, its parts and its construction tools can be deadly weapons. Always exercise extreme caution when using this product. Improper operations may cause personal and/or property damage. Thunder Tiger and its distributor have no control over damages resulting from shipping, improper construction, or improper

Thunder Tiger assumes and accepts no responsibility for personal and /or property damages resulting from the use of improper building materials, equipment, and operations. By the act of assembling this product. The user accepts all resulting liability. If the buyer is not prepared to accept this liability, then he/she should return this kit in new, unassembled, and unused condition to the place of purchase.

#### NOTICE

This is not a toy. Assembly and operating of this boat requires adult supervision.



#### Introduction

Thank you for your purchase of the Thunder Tiger Victoria R/C yacht. With proper care taken during assembly, the Victoria will provide you good performance and long service life.

The Victoria R/C Sailing Yacht is recognized by the American Model Yachting Association (AMYA) as a racing class, Thunder Tiger's Victoria has become synonymous with maximum yachting pleasure. Please browse website at www.amya.net or www.victoriarc.org for more information.

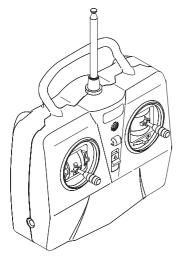
#### **Before Assembly**

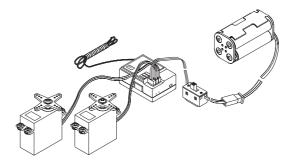
It is very important to take a few moments to familiarize yourself with the construction of your Victoria. Read through the manual before beginning assembly!

This step is the most important, to make sure you are comfortable with the assembly sequence and the tools or accessories that will be required during each step.

Clear a place on your workbench or table, and let's begin.

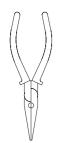
#### **Items Required for Assembly:**





- 2-Channel Surface Radio System w/ 2 Servos & Battery Pack.
- Recommend Ace Jaguar 2AD (P/N ACE8216)
- Using a toqure servo for sail control is recommended (ACE Toqure servo P/N ACE8120MG, 6.9 Kg-cm/ 71 oz.in.)

#### **Tools Required for Assembly**



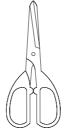
Needle Nose Pliers



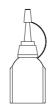
Phillips Screwdriver, Med



Hobby Knife



Scissors



CA Instant Glue



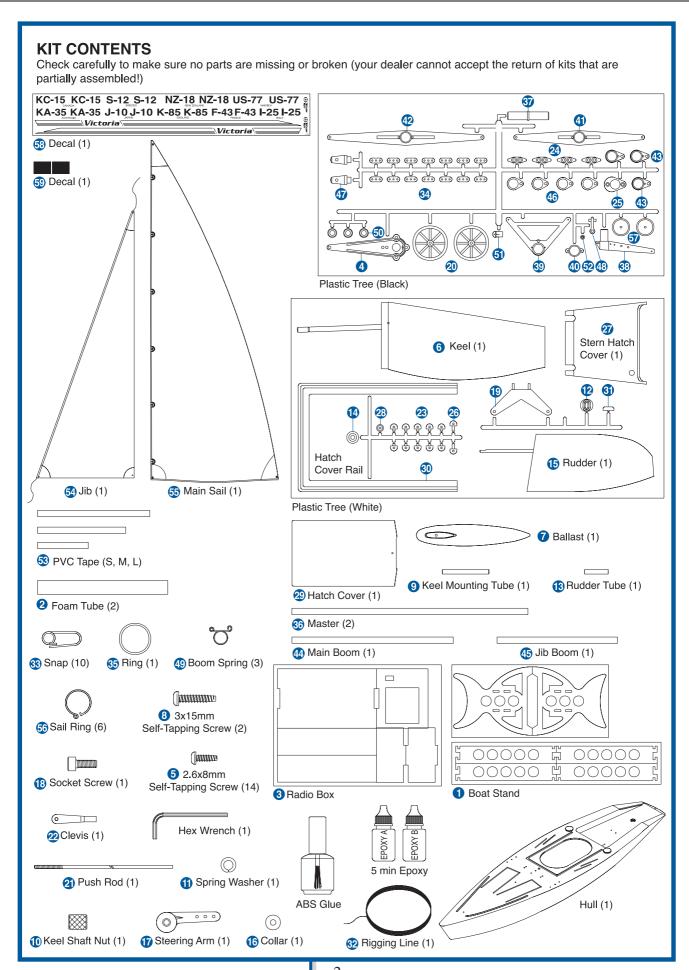
Drill Bit (1/16" or 1.5mm)

- Sandpaper (#600 grit)
- Rubbing Alcohol

#### **Note in Assembly**

- When mixing epoxy, mix the two parts equally.
- When tighten screws, be sure not to overtighten, as the metal thread will strip out plastic.



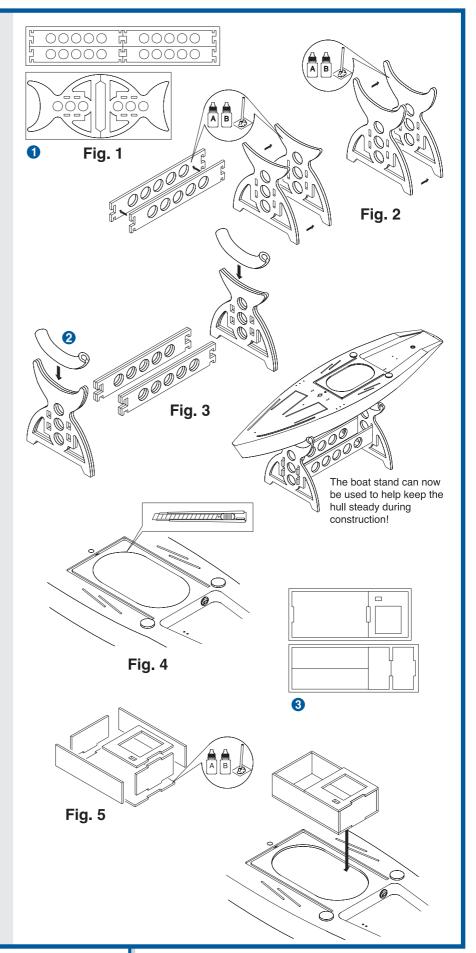






#### **Assembly**

- 1. Locate the die-cut plywood sheet Boat Stand ①, shown in Fig. 1. Apply a thin coat of 5-minute epoxy to one side of each stand "half" as shown in Fig. 2, then tape or clamp parts together until the epoxy cures. Hint: Clothespins work well for this job.
- Assemble the boat stand as shown in Fig. 3. You may glue the stand together permanently if you wish, or leave it collapsible for ease of storage.
- Locate the black foam Rubber Tubing 2 included in your kit.
   Trim proper length and apply to the boat stand using 5 min.
   epoxy. This will protect the hull bottom from scratches during construction and storage.
- 4. Using a sharp hobby knife, carefully cut out the radio compartment hatch as shown in Fig 4. The best way to do this to score the plastic by lightly slicing a cut line by repeated strokes over the entire piece. By gradually and carefully increasing the amount of pressure used in the cutting process, a clean cut will be made with no additional trimming required.
- 5. Locate the plywood sheets shown in Fig. 4. Apply a thin bead of 5-minute epoxy to all adjoining surfaces and assemble the Radio Box 3 as shown in Fig. 5. Trial-fit the radio compartment into the hull, but DO NOT YET GLUE IT IN!

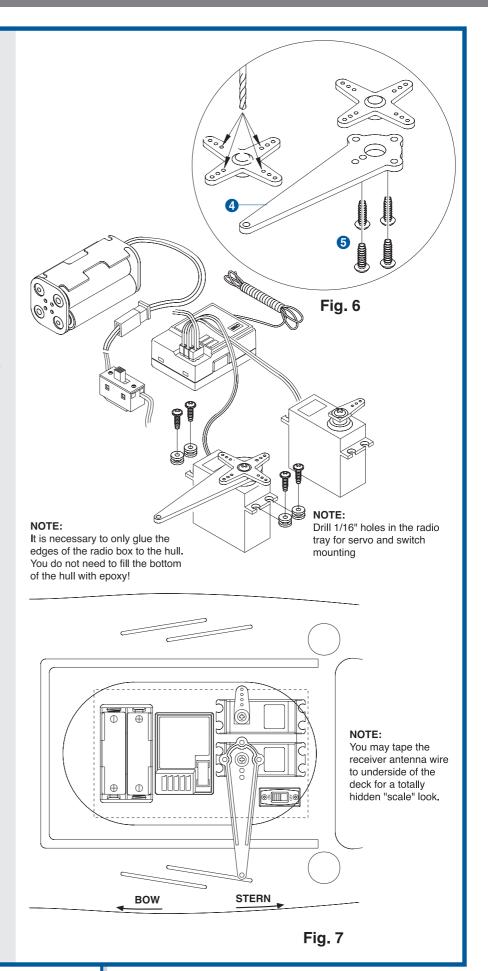






## Mounting the radio system

- Locate the Sail Winch Arm from the plastic parts bag. Drill 3/32" holes in the servo arm and mount the sail winch arm as shown in Fig. 6, using the 2.6x8mm Self-tapping Screws
   from the hardware bag.
- Connect the radio system following the manufacturer instructions. Mount the
  - components into the plywood radio compartment as shown in Fig. 7.
- 3. When satisfied with the fit of the radio in the radio compartment, trail fit the entire unit inside the hull. Position the equipment as shown, and epoxy the unit into the hull. Make sure to use enough epoxy to create a strong bond in this area.





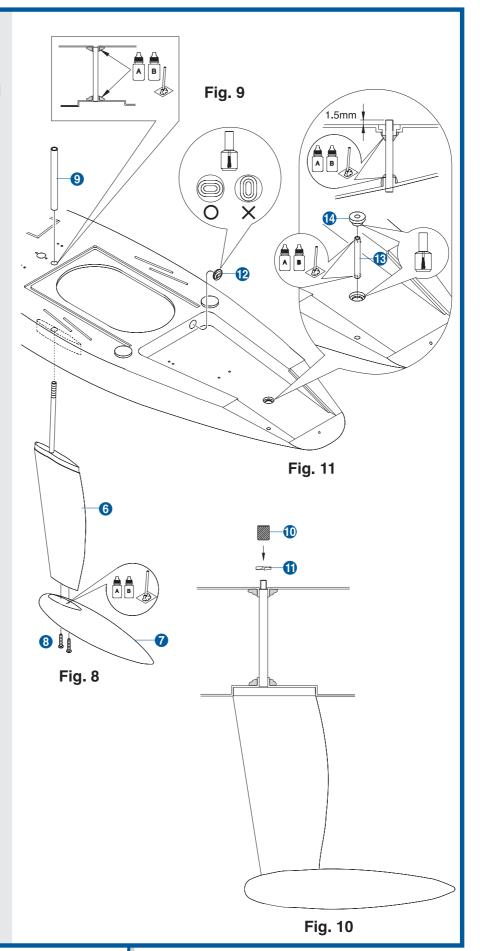


## Assembling the keel and rudder tube

- 1. Locate the Keel **3**, Ballast Bulb **7**, and 3x15mm Self-tapping Screws **3** as shown in Fig. 8.
- Apply a generous amount of epoxy to the ballast bulb and insert the keel, securing with the two 3x15mm screws.
   Excess epoxy that over-flows the ballast bulb can be smoothed out with a wet finger, or removed using rubbing alcohol. This must be done before the epoxy hardens.
- 3. Locate the Keel Mounting Tube

   from the parts bag. Trial fit
  the tube into the hull as shown
  in the Fig. 9, and secure with
  epoxy when satisfied. Allow the
  epoxy to cure.
- 4. Attach the keel to the hull as shown in Fig. 10 using the Knurled Nut and Spring Washer when satisfied with the fit, you may remove and set aside the keel assembly, making the balance of the construction sequence easier. The weight of the keel can make it inconvenient when moving the hull around during assembly.
- 5. Locate the pushrod exit

  Bushing and attach to the
  hull where indicated using ABS
  glue. Note the direction of the
  slot as shown.
- 6. Locate the Rudder Tube (a) and Plastic Bushing (b). Trial fit into the hull where indicated in Fig. 11. When satisfied, remove the tube then apply epoxy to the tube as shown, taking care not to get any epoxy on the inside of the tube. Insert the tube in place then secure the bushing to the hull using ABS glue.



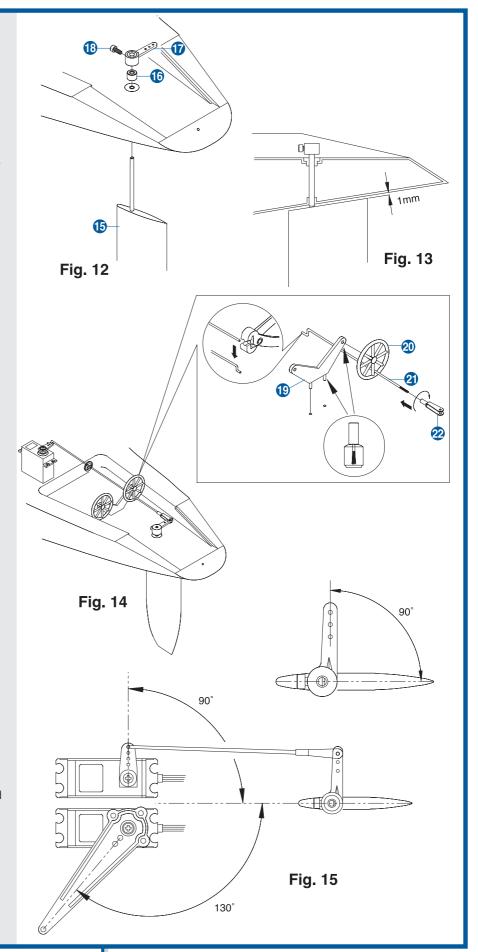






#### Assembling the rudder and steering linkage

- 1. Locate the Rudder 15 from the parts bag. Polish the rudder shaft with 600-grit sandpaper to make sure that the rudder turns freely in the rudder tube.
- 2. Insert the Wheel Collar 16 in to Rudder Steering Arm 0, and partially insert the socket head Cap Screw 18 through the arm and into the wheel collar.
- 3. Assembly the rudder into the rudder tube and attach the steering arm as shown in Fig.
- 4. Position the steering arm to allow a 1mm gap between the top of the rudder and the bottom of the hull as shown in Fig. 13.
- 5. Locate the Steering Wheel Mount 19, Steering Wheels 20, Metal Push Rod 2 and Clevis 22 from their respective parts bags.
- 6. Secure the steering wheel mount to the hull using ABS glue as shown in Fig. 14. Attach the steering wheels to the mount using ABS glue.
- 7. Make a Z-bend on the plain (unthreaded) end of the pushrod using pliers as shown in Fig. 14. Pass the pushrod through the steering wheel and pushrod exit bushing then thread a metal clevis on the pushrod as shown. Attach the pushrod to the servo arm, and then attach the clevis to the rudder steering arm. Adjust the clevis so that the servo arm and rudder steering arm are at ninety-degree angles to the pushrod, as shown in Fig. 15.

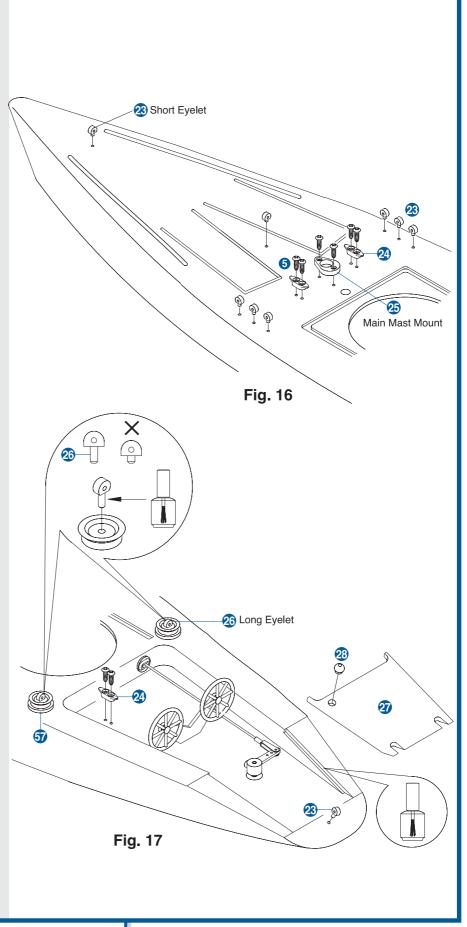






## Installing cleats, eyelets, and mast mount

- Locate 9 Short Eyelets 3, 3
   Cleats 4, and the Main Mast Mount 5, 2 Long Eyelets 6 will be used below in step 4.
- 2. Attach the eyelets to the hull using ABS glue, paying close attention to their proper direction, as shown in Fig. 16.
- Mount the cleats and main mast mount to the hull using 2.6x8 self-tapping screws.
- Mount the long eyelets to the Winches using ABS glue, and then adhere to the hull using ABS glue as shown in Fig. 17.
- Attach the Cockpit Cleat as shown using 2.6x8 self-tapping screw.
- 6. Glue the Short Eyelet 3 to the hull, and mount the Cockpit
  Cover 3 as shown in Fig. 17.
  Glue the Cockpit Rope Bushing
  3 to the cockpit cover using
  ABS glue.







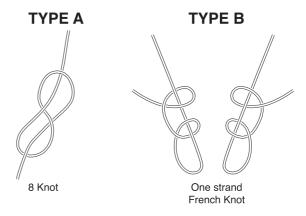
## Installing the hatch cover Rigging the deck

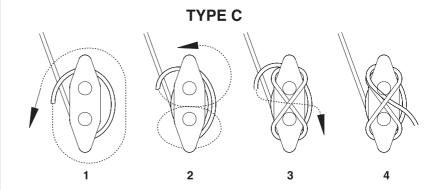
- 1. Locate the Hatch Cover ②, Hatch Cover Rail ③, Short Eyelet ③, and the Hatch Cover Handle ⑤.
- 2. Drill a 1/16"(1.5mm) hole in the hatch cover rail where indicated in Fig. 18. Glue the short eyelet into the rail using ABS glue.
- 3. Trial fit the hatch cover rail to the deck, and insert the hatch cover, making sure that is slides freely. You may wish to cut a small notch into the hatch cover to clear the mounting post on the short eyelet. When satisfied remove the hatch cover, and secure the hatch cover rail to the deck using ABS glue. Drill a 1/16"(1.5mm) hole in the hatch over where indicated in Fig. 18. Mount the hatch cover handle using ABS glue.
- 4a. Cut 5 pieces of Rigging String into the following lengths for use in the step:

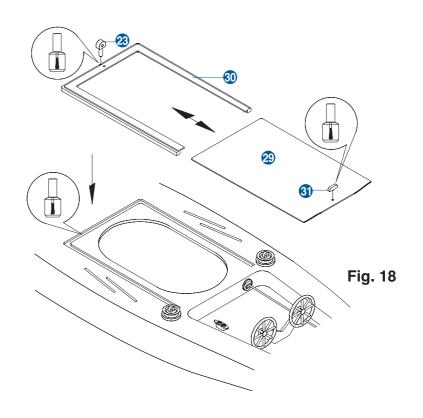
Main/jib Line 43- 5/16"(110cm) Line A 12"(30cm) Line B 6"(15cm) 2pcs Sail Control Line 21 1/2"(55cm)

- 4b. Locate 3 Snaps 3, 4 Line
  Adjusters 4, and 1 Silver Ring
  from the parts bags.
- 4c. Starting at the bow end, thread a snap, line adjuster, and another snap onto the main/jib line a shown in Fig. 19a (Next page). The sequence to follow is:
  - 1. Thread the snap on the rigging line.
  - 2. Thread on the line adjuster using the first hole.
  - 3. Reverse the line direction and thread back through the second hole.
  - 4. Install a second snap onto the line.
  - 5. Thread the line back through the third adjuster hole.

#### **TYPES OF KNOTS USED**



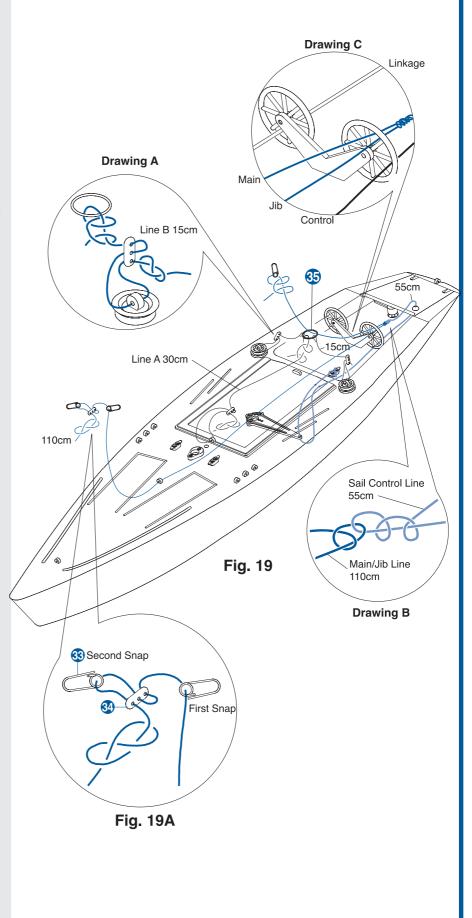






#### Rigging the deck

- 5. Pass the main/jib line through the deck eyelet as shown in Fig. 19.
- 6. Measure10 3/4"(27.5cm) from the opposite end of the main/jib line and mark the location.
- Pass the main/jib line through the steering wheel as shown in drawing.
- Attach one end of the sail control line to the main/jib line at the location marked in step 6, using the detail from Drawing B as your guide.
- Pass the main jib line back through the steering wheel as shown in Drawing C.
- On the end of the main/jib line, thread on the silver ring, a snap, and complete the line with a "TYPE B" knot.
- 11. Pass the sail control line through the bushing in the cockpit cover and through the steering wheel as shown in drawing C, then through the first 1/16" hole then the hole in sail winch Arm and second 1/16" hole. Attach the end of the sail control line to the cockpit cleat using a "TYPE C"
- 12. Tie a "TYPE A" knot onto one end of the Line A. Follow the following sequence for the rest of this step:
  - 1. Thread Line A through the first hole of a line adjuster.
  - 2. Pass the line through the eyelet on the hatch cover rail.
  - 3. The thread it through the second hole of the adjuster.
  - 4. Then thread it back through the adjuster.
  - Finally, attach the end of line A to the silver right using " TYPE B" knot.
- 13. Attach one end of each of the two line B lines to the silver ring using "TYPE B" knot.
- 14. Thread the ends of line B through a line adjuster, deck winch eyelet, and back through line adjuster as shown in drawing A. Complete each line with a "Type A" knot.

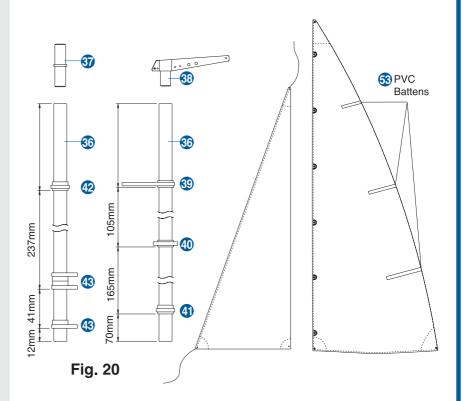






## Assembling the main mast and sails

- Locate the two long sections of aluminum tubing to be used as the Main Mast 6. Clean any grease or oil from the mast using rubbing alcohol.
- 2. Locate the plastic parts \$\overline{3} \sim \overline{3}\$ for use in the mast assembly.
- 3. Place a mark on the mast where each fitting is to be placed. Refer to Fig. 20.
- 4. Place the mast fittings at locations marked as shown in Fig. 20. Do not glue!
- 5. Refer to Fig. 21 to determine the proper orientation of the various main mast fittings. When satisfied with the location, attach the fittings to mast using CA glue, but DO NOT GLUE THE TWO GOOSENECK FITTINGS
  43 to the lower main mast half. These will need to be moved during the step 8!
- 6. Cut the thin PVC Tape 3 using the main sail as your guide, for use as battens. Refer to sail drawing in Fig. 20 for placement.



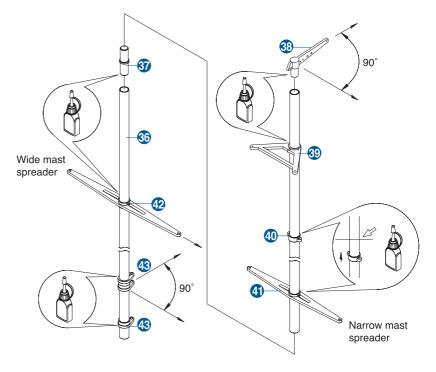


Fig. 21

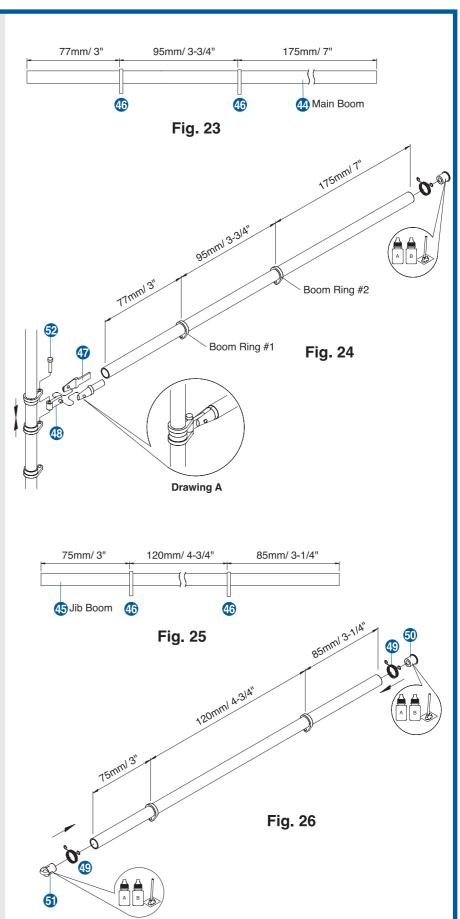






#### Assembling the main and jib boom

- 1. Locate the two aluminum tubes for use as the Main Boom 44 (longer tube) and the Jib Boom (shorter tube).
- 2. Measure the main boom and mark at the places indicated in Fig. 23.
- 3. Place the Plastic Boom Rings 46 on the boom at the marks indicated, but do not glue.
- 4. Assemble the two Boom Mount 47 halves onto the Boom Swivel 48, then epoxy into the end of boom as shown in Fig. 24.
- 5. Place a Boom Spring 49 over the end of the main boom, and then insert a Boom End Cap 50. Secure the end cap with 5minute epoxy.
- 6. Secure boom ring #1 with epoxy. Boom ring #2 will need to be adjusted later. Glue boom ring #2 after adjustments.
- 7. Measure the jib boom and mark at the places indicated in Fig.
- 8. Slide the jib boom rings on the jib boom at the locations marked, but do not glue, as they will need to be adjusted later.
- 9. Place boom springs over each end of the jib boom, and epoxy a rear Jib Boom End Cap 50 and front Jib Boom End Cap 51 into each end as show in Fig.
- 10. Attach the main boom to the main mast with Pin 52 as shown in drawing A. Secure the gooseneck fittings with epoxy when finished.







#### Rigging the main mast

- Attach a Cleat 4 to the head crane using 2.6x8mm Self-tapping Screws 5 as shown in Fig.27.
- 2. Cut 8 pcs of rigging string for use in this step:

  Backstay line 52"(132cm)

  Jumper line 30-5/16"(77cm)

  Upper line 39-5/16"(100cm)

  Middle line 29-1/2"(75cm) 2pcs

  Lower line 19-1/2"(50cm) 2pcs

# 3. Backstay line: Thread through mast top and secure with "TYPE B" knot. Thread the other end of backstay line through a Line Adjuster 4 and Snap 4 as

Adjuster 49 and Snap 43 as shown in Drawing A. Secure with "TYPE A" knot.

#### 4. Jumper line:

Thread the jumper line from the mast fitting through the jumper spreader, head crane (the second hole), back through the jumper spreader and finally back to the mast fitting. Refer to drawing B and Fig. 28.

#### 5. Upper lines:

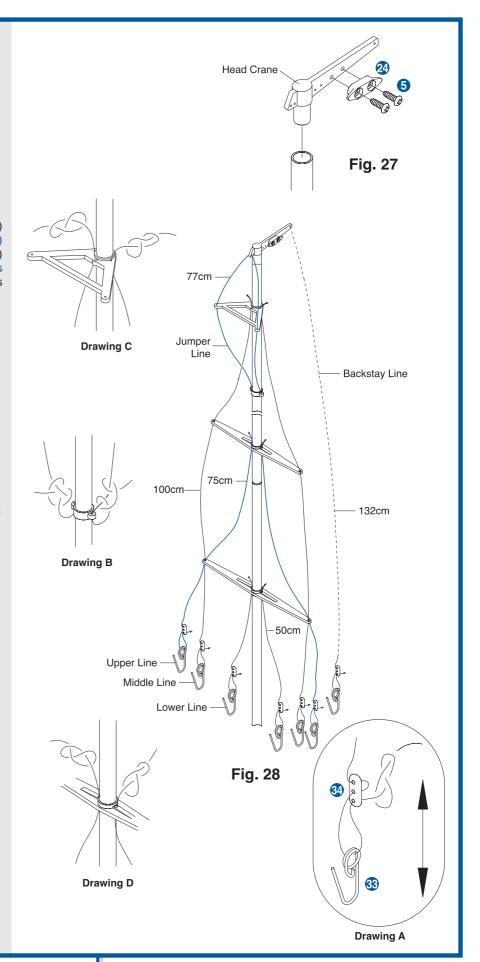
Thread the upper lines from the jumper spreader through the upper and lower mast spreader, and end the lines with line adjusters and snaps. Refer to Fig. 28, drawing C and drawing A

#### 6. Middle lines:

Thread the middle line through the upper and lower mast spreader, and end the lines with a line adjuster and snap. Refer to Fig. 28 and Drawings A and D.

#### 7. Lower lines:

Thread the lower lines from the lower mast spread, ending them in a line adjuster and snap. Refer to Fig. 28 and drawings A and D.



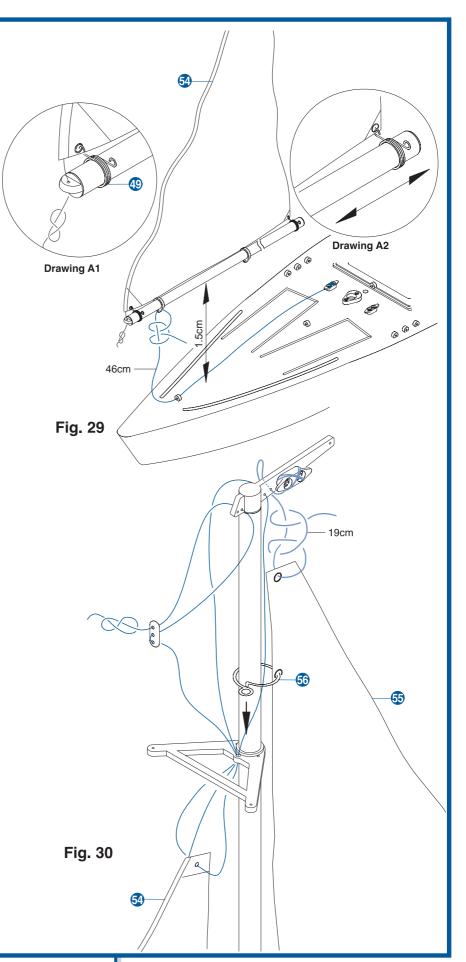


## 10

#### Sail assembly

- Thread the jib line through the front jib boom end cap and secure a "TYPE A" knot as shown in Fig. 29.
- 2. Attach the jib boom to the Jib 3 as shown in Drawing A1 and A2 with the Boom Spring 49.
- 3. Thread jib line as follows:
  - 3-1. Thread jib line through the hole of jumper spreader.
  - 3-2. Thread the first hole(inner one) of head crane.
  - 3-3. Back through jumper spreader.
  - 3-4. Then pass the jib sail top eyelet.
  - 3-5. Back through jumper spreader again.
  - 3-6. Thread on the line adjuster using the first hole.
  - 3-7. Reverse the line direction and thread back through the second hole.
  - 3-8. Then to the first hole of head crane.
  - 3-9. End the line back through the third adjuster hole and secure with a "Type A" knot.
- 4. Adjust the jib line so the jib boom is 1/2"-3/4"(about 1.5cm) off the deck surface.
- 5. Cut a piece of rigging string to a length of 18" (46cm). Attach one end to the forward jib boom ring using a "TYPE B" knot.

  Thread the other end through the bow eyelet, and attach to the deck cleat using a "TYPE C" knot as shown in Fig. 29.
- 6. Cut a piece of rigging string to a length of 7-1/2"(19cm). Attach the line to the top of the Main Sail 5, and secure it to the mast top as shown in Fig. 30. Attach a Sail Ring 5 as shown.

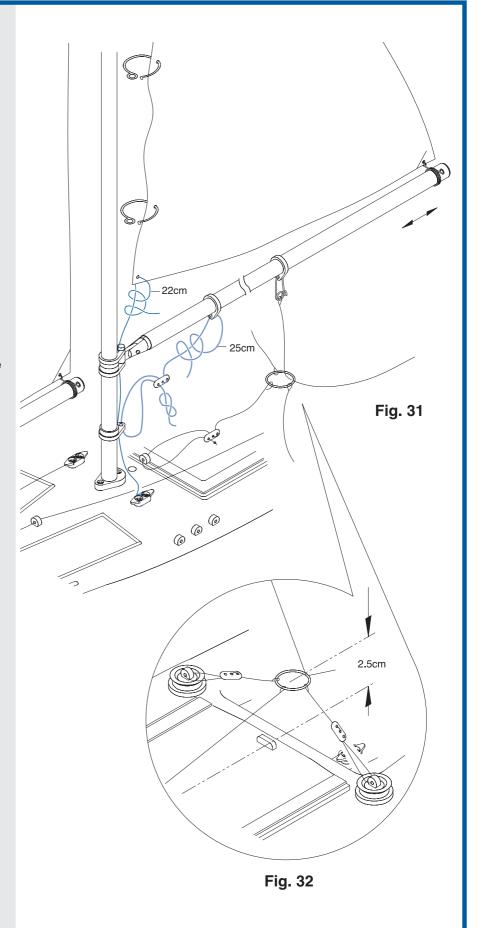




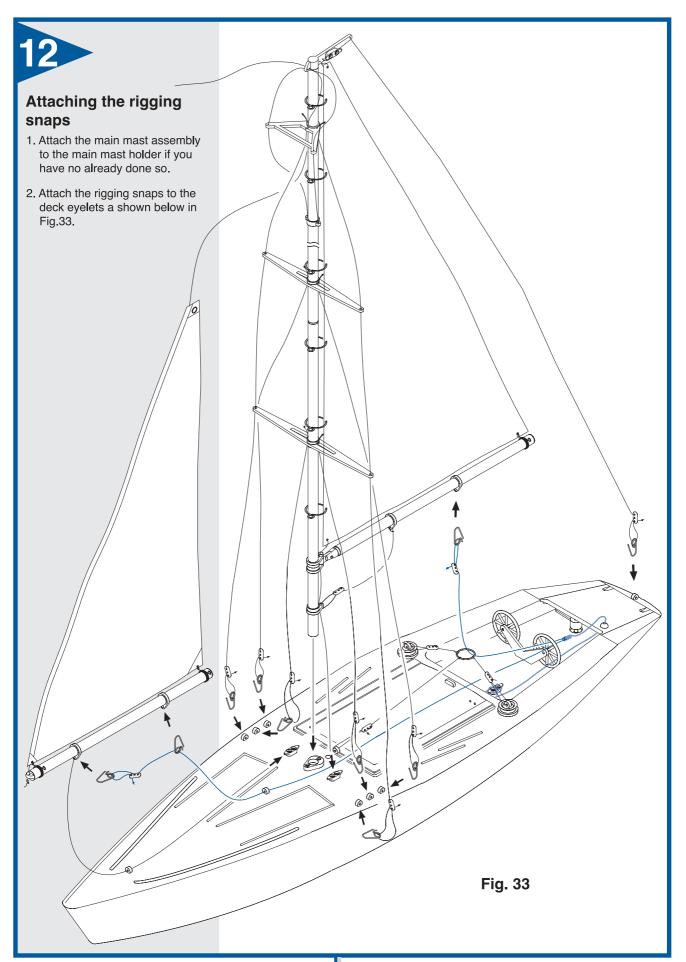


#### Attaching the main sail

- 1. Place sail rings into the main sail, but do not secure to the main mast at this time.
- 2. Cut a piece of rigging line to length of 8.5"(22cm). Attach one end to the main sail using "TYPE B" knot. Thread the line through the gooseneck fittings, lower master fitting, and onto a cleat as shown in Fig. 31.
- 3. Cut a piece of rigging line to a length of 9.8"(25cm). Attach one end to the forward main boom ring and secure with a "TYPE B" knot. Thread the other end through a line adjuster, the lower master fitting, and back through the line adjuster, ending the line with a "TYPE A" knot. Refer to Fig. 31.
- 4. Attach the remaining sail rings to the main mast.
- 5. Adjust the rigging line tension so the silver sail control ring is set as shown in Fig. 32.





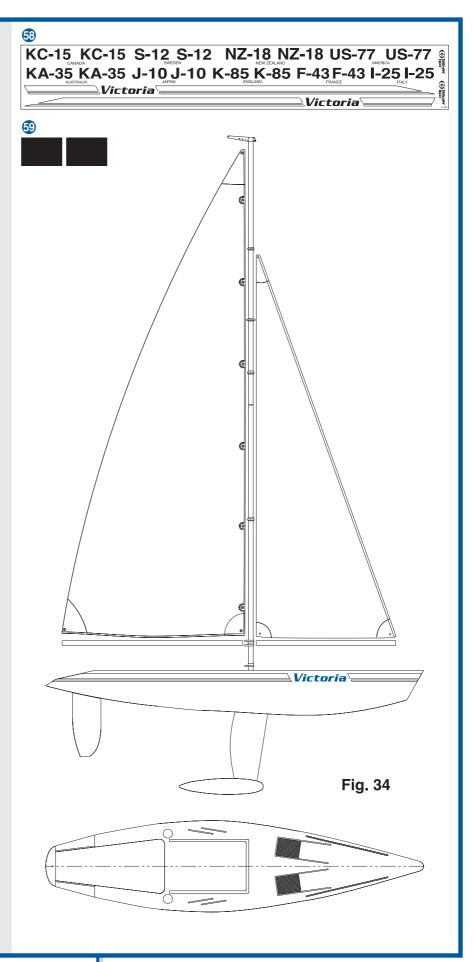






#### **Applying the decals**

- 1. Trim the decals with scissors or sharp hobby knife.
- 2. Carefully remove the backing from each self-adhesive decal and apply to the hull as shown in Fig. 34.







#### Adjusting the sails

- 1. Adjusting the main sail:
  - A. When the sail winch transmitter control stick is in the full "down" position, the sail winch servo arm should be in the position shown in Fig. 35.
  - B. With the winch arm in the "full down" position, open the main boom to a deflection of 15-degree by adjusting the main sail boom ring and the line adjusters located on the winch lines
  - C. With winch arm in the "full up" position, open the main boom to a deflection of 80-degree using the same adjustment method as B
  - D. It will be necessary to readjust the "full down" setting again, as both of these adjustments are effected by one another. The goal is to reach the best compromise possible.

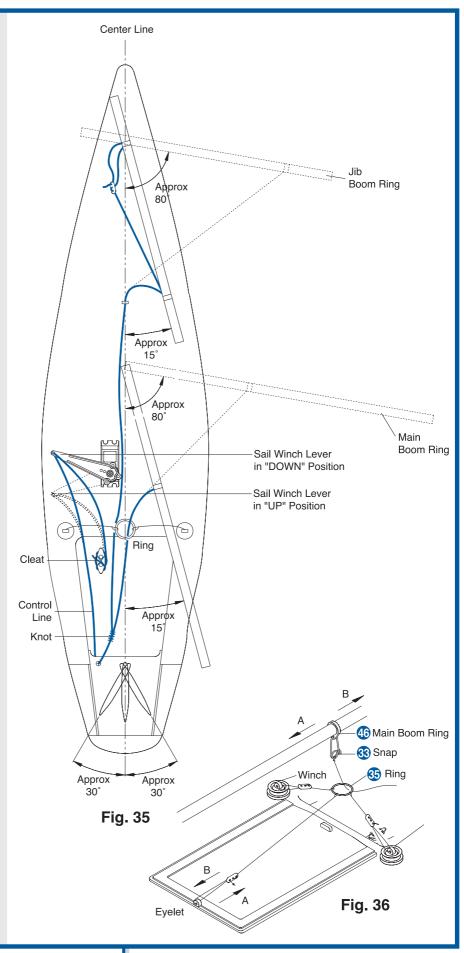
#### HINT:

- A. When the boom opens more than required, move the main sail boom ring toward the bow and tighten the adjuster tied to the line on the hatch cover rail eyelet. Refer to Fig. 36.
- B. When the boom will not open the required amount, mover the main boom ring toward the stern, and then loosen the adjuster. See Fig. 36.
- 2. Adjusting the jib sail
  - A. With the sail winch arm in the "full down" position, open the jib boom to a deflection of 15-degree by adjusting the position of the jib sail boom ring.
  - B. With the sail winch arm in the "full up" position, open the jib boom to defection of 80-degree using the same adjustment as A.
  - C. As above in "D", these two adjustments are also a compromise. Adjust each setting until you achieve the desired performance.
- 3. Adjusting the sail control line:

With the sail control in the "full down" position, put the transmitter trim lever in the full down position, as well. After doing so, keep Knot about 1/16"-1/8"(1-2mm) from the hole in the hatch cover by retieing the line to the cleat. After adjusting, return the trim lever to the center (neutral) position.

4. Rudder Adjustment:

Make sure that the rudder deflects 30-degree in each direction. If it does not, mover the clevis closer to towards the center of the ruder steering arm







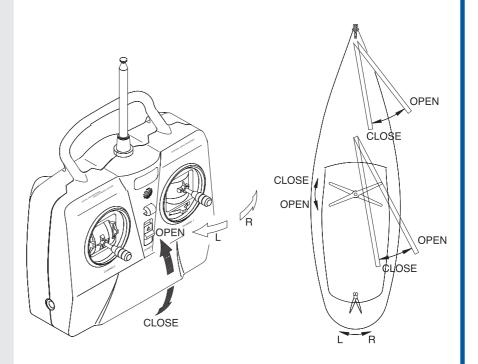
#### **Preparations for sailing**

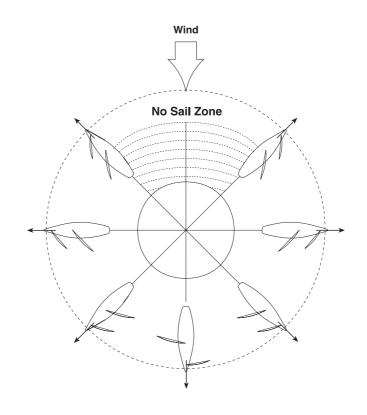
Before sailing your Victoria for the first time, take note of the following:

- A. Using clear tape, seal the radio hatch cover after turning on your radio to prevent water from entering the hatch.
- B. Make sure that your transmitter antenna is extended completely. Make sure that the receiver antenna is completely uncoiled (either inside or outside the hull).
- C. Always turn the transmitter on before the receiver, likewise, turn the receiver off before the transmitter.
- D. Check that each sail, line, snap, and fitting is properly installed and adjusted.

#### **CAUTION:**

On very windy days, periodically check all knots if loose and the inside of the hull to make sure that there is no excessive accumulation of water.

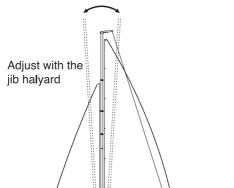






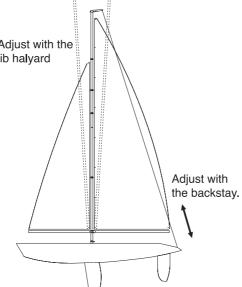
#### **Tuning your Victoria for proper operation**

Straighten any left or right leaning of master

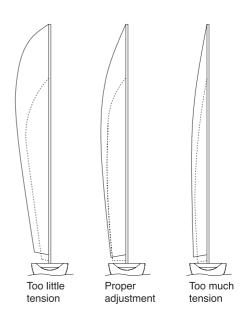


Straighten any forward or

backward inclination of master



- 1. If your boat carries weather helm, incline the mast a bit forward.
- 2. If your boat carries lee helm, incline the master a bit backward.
- Refer to the explanation of weather helm and lee helm below

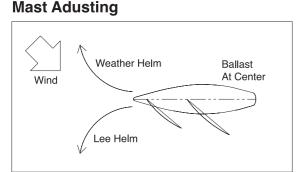


Maintaining an optimum sail profile is important for both speed and control. You may need to make some finer adjustments to your tuning to obtain the sail profile you want. The sail profiles shown in the figure are viewed form behind.

### straighten the mast.

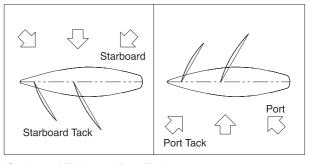
adjuster in order to

Tighten or slacken the



#### Weather Helm and Lee Helm

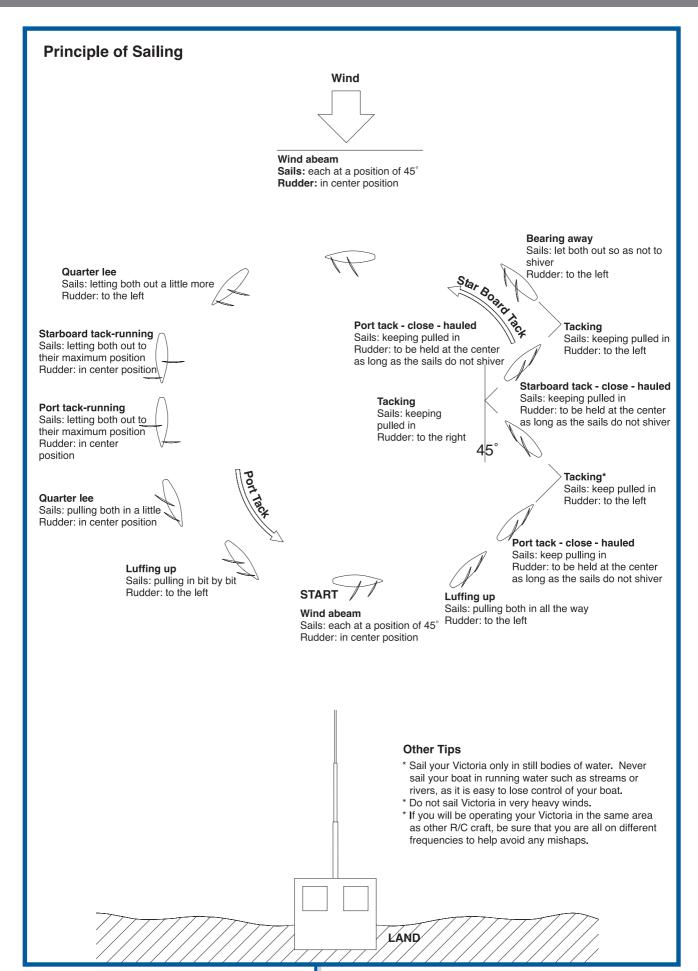
With the Rudder in line with the Keel, if the boat tends to turn windward, it is said that the boat carries weather helm. If it tends to turn leeward, it is said that it carries lee helm. The situation in which the boat shows neither tendency is called balanced helm. In general, a boat carrying a slight weather helm is better inperfor-mance than one carrying lee helm or having balanced helm. Therefore, after adjusting the boat to balanced helm re-adjust it so that it carries slight weather helm.



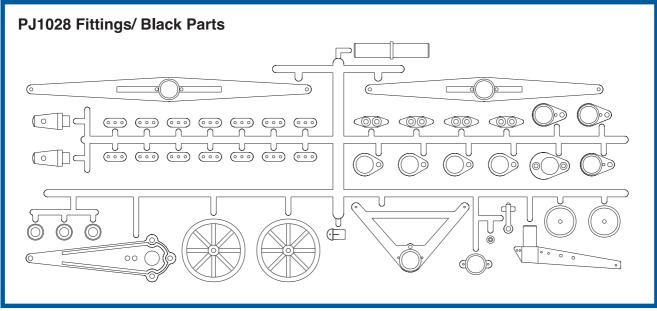
#### **Starboard Tack and Port Tack**

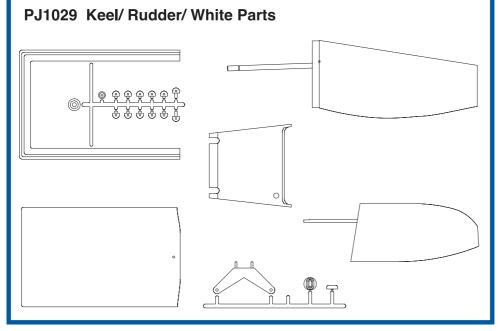
The right side of the boat is called starboard and the left side of boat s called port. When the yacht sails with the wind cross the starboard and the mainsail is on the port side, it is said that the boat is on a starboard tack. When it sails with the wind cross the port and with the mainsail on the starboard, it is said that boat is on a port tack. You can sail on a starboard or port tack when sailing close-hauled (i.e. windward), wind abeam (i.e. leeward).

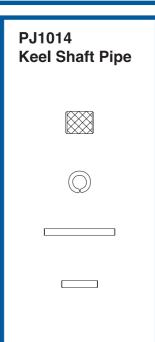


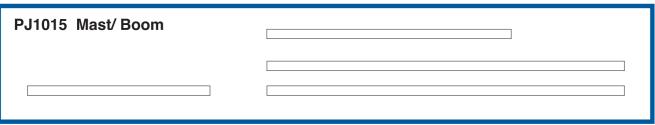


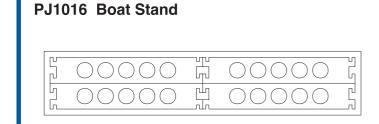


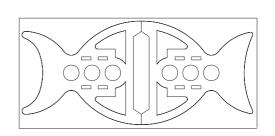




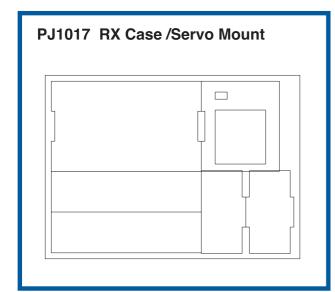


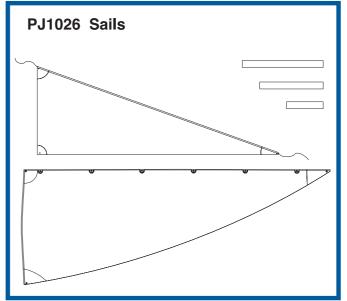


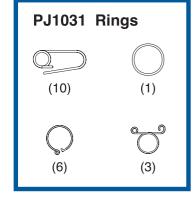


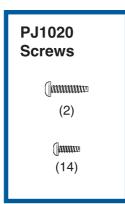


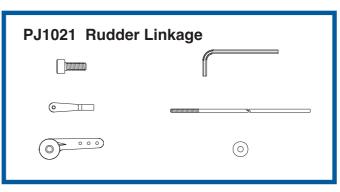






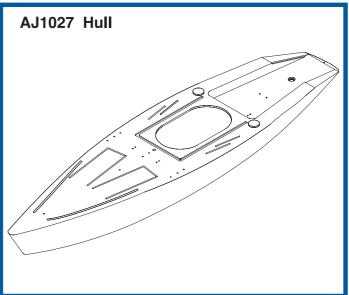


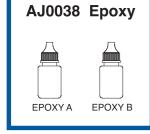


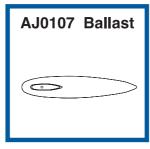


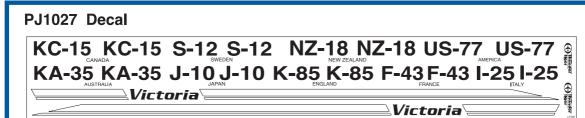






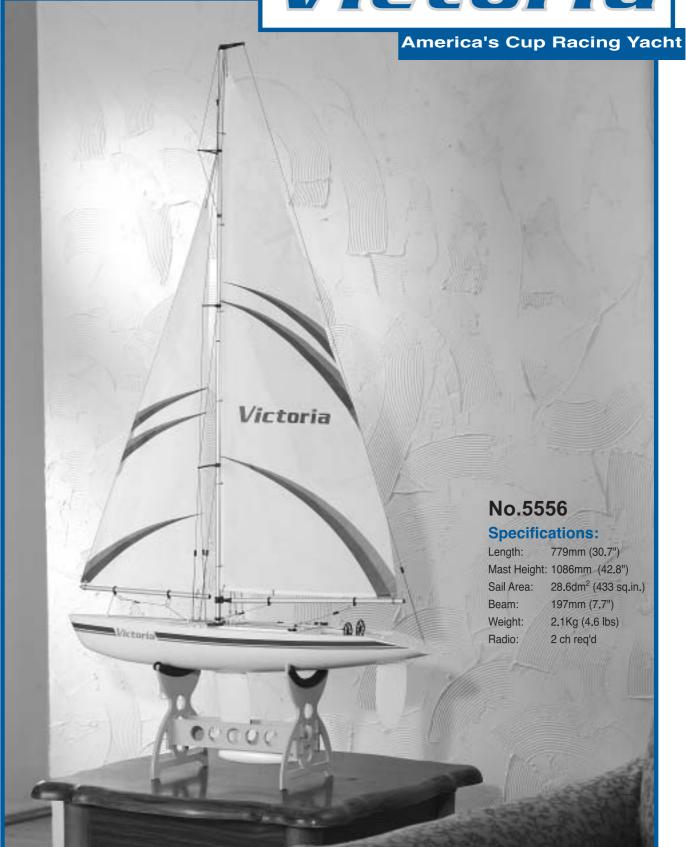








## Victoria



#### **Manufactured by Thunder Tiger Corporation**

No. 7, 6Th Road Industry Park Taichung, Taiwan R.O.C. 407 Tel:886-4-23591616 Fax:886-4-23591902

Website: www.thundertiger.com E-mail:thundertiger@tiger.com.tw

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