



Dennis McFarlane

R/C Report

Volans I-Meter Sailing Yacht

Slow down, take a breath, and enjoy life.

The Thunder Tiger Volans is a semi-scale model of a racing trimaran. Although the research was somewhat limited, it does not appear the Volans is an exact duplicate of any specific trimaran sailing yacht. It is, however, a replication of racing trimarans that range in length from 21 meters to 32 meters with an average length of right around 30 meters.

The model Volans is one meter in length, so for all practical purposes it's completely acceptable to refer to the Volans as 1/30 scale. The first thing every dealer needs to be aware of is the Volans is not an ARF (Almost Ready to Float) sailboat and the purchaser needs to understand what he is getting into. Very different from most of today's products, this model is a kit and will take time to assemble. The review topic was delivered the first week of April and was not completed until the third week of May. Roughly six weeks was spent on the project. Nothing was difficult by any means, but there is some thought needed with the assembly sequence on the part of the purchaser. And there is quite a bit of "hurry up and wait" also involved as components are glued together and set aside while the adhesives cure.

Opening the box was a real treat. I have never been witness to such thought put forward in packaging. Each of the major components is packaged in a separate box, and the individual boxes are stacked like a three dimensional puzzle in the main container. Nothing can move in such a manner that damage can occur during handling.

The first thing the purchaser must do is read the instruction manual. The manual is a combination of written text and line drawings. Unfortunately the manual suf-



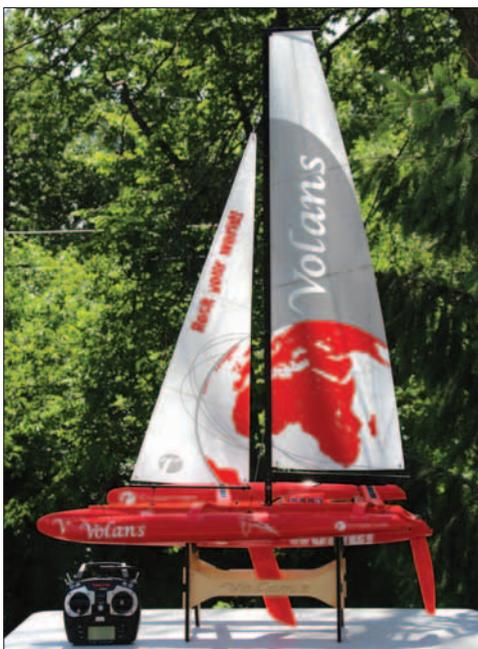
fers. The instructions are a combination of outtakes from one of the company's line of ARF sailboats and written instructions specific to the Volans. This is where things become confusing. The ARF sections are clearly understandable, but the Volans specific instructions are best

described as "Englasian." Originally written in an Asian dialect, the translation to English is somewhat lacking.

Still, by spending some time reading and re-reading the manual, the areas of well-translated instructions, along with the Englasian instructions and line drawings, the builder can work through assembly. It's not at all difficult, but to complete the kit there will be a lot of comparison between the written manual, line drawings and the component in hand. This is the first Thunder Tiger instruction manual I have felt was sub-par and this is a real disappointment, as usually the TT manuals are exemplary.

Assembly begins by gluing a few wood pieces together. This involves the main stand which will be needed throughout assembly (and later for display) along with the servo tray first mentioned on page nine. (Once again

advise the potential purchaser to study the manual until he's completely familiar with its contents) Thick, gap filling cyanoacrylate adhesive was used for both of these



When completed the Volans has an incredible wow factor and some extreme visual presence.

assemblies. Allow the adhesive to set overnight. There is absolutely no reason to use "kicker" to speed the curing. We want the adhesive to penetrate as deeply as possible and to really secure each of the component's pieces. The last thing needed with any radio control product is for a display stand, or worse yet, the servo tray, to fall apart.

Since the Volans is a sailboat, and this means water, the stand and servo tray, along with the bulkhead (part #79) were each given three coats of oil based clear polyurethane (available from any home improvement center) with 12 hours of drying allowed between coats. As previously described, and this will be repeated throughout construction, there is a lot of waiting involved as adhesives cure and in this case paint dries. But, and this cannot



The first step in assembly is to glue the main stand and servo tray together, allowing the adhesive to cure overnight.

each glued in place with the included epoxy adhesive. Once these had cured, a slurry of micro balloons (#TORP190) and 30-minute epoxy (#GPMR6047) was mixed together and, by using a disposable brush taped to a dowel, was added to the inside joint where the tubes pass through the hull. This was done twice: first with the hull upright on the stand, and then after the slurry had flowed into a nice fillet and cured, the hull was placed on the stand inverted and the step repeated.

The previous paragraphs describe those areas of assembly which will take the longest. It might sound a bit crazy, but the better part of two weeks will be spent. Each step requires gluing (or painting) and overnight curing. As long as the builder understands the time involved there won't be an issue. Odds are he'll come back reporting his progress as he picks up little odds and ends like micro



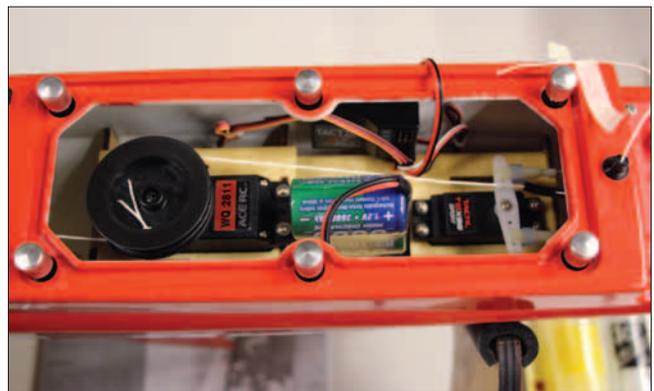
There are three types of knots used when rigging the mast and sails and these will most likely require a little practice tying.

be stressed enough, for longevity the components must have secure glue joints and be made as near to waterproof as reasonably possible.

The hulls, one center and two outrigger, are molded in ABS plastic, prefinished in a brilliant red with the markings applied perfectly. The hulls are an absolute thing of beauty and care must be taken to protect them, especially from fingerprints, during assembly.

This is mentioned because the next step in the sequence is the center hull assembly and this will involve some potentially messy epoxy. Thunder Tiger is asking the builder to progress with part installation from the central radio compartment to the stern and bow respectively. This will never work. Common sense should takeover and progress should be made from the most aft stern installations forward, and again from the bow installations back towards the radio compartment.

With this in mind, the rudder tube and keel tube were



The radio compartment is part of the center hull and will get filled with equipment in a hurry, but everything fits perfectly.

balloons and disposable brushes. And although time consuming it's not at all stressful and it's visually obvious progress is being made.

Working though the installation of the radio tray and sail-line guides really doesn't take much effort. Because the hull is molded out of ABS plastic, standard slo-cure, gap filling, cyanoacrylate (#GPMR6015) is suggested. It's

my recommendation only, but I would avoid the use of rubber-based odorless cyanos. The builder wants the acid, which is the base element of all standard cyanoacrylates, to etch into the ABS during the cure and create a really strong bond. Also avoid the use of kicker to speed things up. Let all of the adhesives do their job and cure at the designed pace.

Next the manual instructs the builder to mount the outrigger hulls to the cross braces and then attach this assembly to the hull. The hulls were indeed assembled in sequence, with Shoegoo (#DTXC2460) used to secure each of the hulls to the braces and in addition, thick cyano was used at each of the screw locations. Once cured, the manual suggests the outriggers should be attached to the central hull, but unless the builder has a much better back than I, and doesn't mind reaching across an outrigger to get to the radio compartment, leave the outriggers off the central hull until the servos, receiver and battery have been installed. The rudder's push-pull system set up and the winch servo has been wound. The steering arm was the only deviation from the kit's contents. In place of the supplied setscrew, a 3mm by 6mm



The radio compartment hatch is held in place by six hand tightened nuts and includes a seal to help with waterproofing. socket head cap screw was used to secure the steering arm to the rudder. Although the setscrew will work fine, the longer cap screw helps tie the composite steering arm and brass locking collar together as one component.

Now that the radio compartment has been "stuffed" it's time to attach the outriggers and the necessary chain plates to the hulls so the mast can be rigged. By now the builder is over a month into the project, but a lot of progress has been made and the end is in sight.

Putting the mast together can also be a bit confusing. The part numbers for the spreaders are all listed in the manual, but these numbers are not located on the sprue that holds the spreaders. Like any of the assembly process, it isn't a big deal. If the builder has made it this far but gets a bit lost, have him bring the manual in and walk him through. By comparing the spreaders to the rigging necessary to attach the mast to the hull, quick work can be made of the assembly.

Rigging will require the use of three knots. A square knot is pretty common, but the alternative is known by sailors as a "landlubber's knot," it is nowhere near as



The pushrods for the rudder exit the hull through water resistant boots, further helping to keep water out.

secure and will loosen quickly. Also needed is what is called a figure-8 knot, which I know as a surgeon's knot, and lastly is the bowline hitch. Bowlines are common with hunters and campers, but it's been around 35 years since I last spent the night in a tent and a little practice was needed. Eventually all of the necessary bowlines were tied, along with the figure-8 and square knots. Even the mast rigging took a couple of days, but completion was drawing near.

Securing the mast to the central hull is simple. There's a mast pocket (the manual says there are two, but this is a section taken from an ARF) molded into the deck. The



Although not for everyone, sailing a radio control yacht like the Volans is a great way to relax and unwind from the daily grind.

rigging is secured using swivels and the chain plates. An electrician's line level was used to plumb the mast vertically both fore and aft along with port and starboard. The sail booms were tied to the winch servo and after a bit of programming the boat was finished. All I can say is "WOW"; when complete the Volans has a lot of presence, and it's extremely satisfying to see the yacht rigged and ready to sail.

It was hard waiting for the weather to cooperate, but late spring in the Chicagoland area is filled with storms and high winds. At the time of the first launch I knew very little about sailing a model boat, and as much effort

as it took, prudence was applied until the wind was at the low end of the speed range recommended for safe sailing.

Finally a day arrived. As soon as the Volans was placed in the water wind filled the sails. Slight adjustments were made to the winch until the sails were trimmed and around the pond she went. Eventually, a few tacks into the wind were attempted and I suppose they can be called successful since the boat didn't tip over.

Sailing isn't for everyone. As more experience is gained, I find it a fantastic way to slow down, relax a little and allow pent up tensions to unravel. My partner, on the other hand, doesn't seem to care much for the activity. Cindy thinks the boat is extremely impressive and absolutely beautiful to look at, but unless R/C boating involves a race-tuned glow motor, or a 30,000 rpm electric inrunner, kicking up a six-foot rooster tail she doesn't see the draw. Therefore some instruction was offered on the use of a DSLR camera, and for the first time since we've been working on projects together, I piloted while Cindy took photos (and she did a nice job too, even capturing this month's cover).

Beyond those items which are mandatory for assembly, life will be made much easier with the purchase of a metric tap set (#GPMR8118) used to add threads to holes instead of forcing a screw or threaded pushrod into place. In addition, a waterproof receiver switch cover (OFNA #10282) was installed on the radio compartment hatch.

Take everything into consideration when discussing a project like the Volans with a potential customer. Make him aware that there are some inconsistencies in the manual, but these can easily be worked through. Unless he's a longtime modeler, without a little up front warning he might get frustrated, as he will most likely find himself working out of sequence for the first time. I've said this during the build and it's worth repeating, but it's not a big deal, definitely not a sale breaker. All store owners want a happy customer, because as you know this means a repeat customer, so it's only fare that the purchaser knows what he's getting into before laying his cash on your counter next to the register.

The Volans, like all Thunder Tiger products, is a proprietary brand of Great Planes Distributors. **HM**

Selecting a Radio Control System for the Volans

The Volans will require, at minimum, a two channel "stick" system for operation and there are many options available. The instruction manual recommends the Ace Jaguar system. Although the Jaguar will work very well, it operates on a 27MHz AM band, so by today's standards the technology is pretty outdated.

Chosen for the Volans was a Tactic TTX650

Transmitter (#TACJ2650) along with a Tactic TR624 Receiver (#TACL0624). Servo selection involved a Tactic Standard Sport Servo (#TACM0235) for rudder control and the recommended Thunder Tiger Sail Winch Servo (#8141) was used to control the sails. Power is supplied by a HydriMax 4.8V NiMH flat pack (#HCAM6333) with a 3600mAh rating.

While a six channel system may seem to be a bit of overkill to some, there are a number of advantages.

Price is something that is on everybody's mind, and the use of Tactic is an extremely cost effective proposition. Plus there are a number of needed features beyond cost and Tactic's operation on the industry standard 2.4GHz band.

To place a TTX650 into service the throttle stick, channel-3, controls the sail winch servo. Out of the box, moving the stick from low to high will provide three full revolutions of the servo. The Volans only requires two revolutions, so the end points must be reduced to no more than 66 percent total throw, $2/3 = 66\%$.

Entering the end point menu, adjustment was made until all that was left was 30 percent when the stick is in the

low position and again 30 percent when moved to the high position. This provided 60 percent of throw via the stick. When a few degrees of movement via the trim tab is added to each direction of servo travel, the exact amount of servo rotation, along with the 80 degrees of boom swing specified, is obtained. Rudder, which uses channel-1 on the receiver, also needed some adjustment, but only required a 10 percent

reduction to the endpoints in each direction to bring rudder movement within recommendations. Plus, since we're already in the menu, 75% was applied to the rudder's dual rate allowing for some reduced travel and therefore even gentler turns until more sailing experience is gained.

As a last comment, although my personal preference is to turn a transmitter's throttle ratchet upside down so smooth throttle stick movement can be obtained, for use with the Volans it was not only kept in

place, but the adjustment screw was cranked down a couple of turns, increasing the tension, or notch. This way when the sails are put in trim, a slight bump of the stick won't have any effect on its position and the way the Volans' sails are grabbing the wind.

Intended primarily as an air system, the TTX650 is an ideal solution for surface craft requiring the use of a stick transmitter. An outstanding price point combined with features such as multiple model memory and the many programmable functions will provide the end user with a system that will work in any number of applications for many years to come. **HM**

