

AVANTI

Off-shore Deep Vee

Assembly Manual



No.5129

Specifications

Length: 29.1" (740mm)

Beam: 8.3" (210mm)

Height: 6.5" (165mm)

Weight: 2.8 lbs (1250g)

Warranty

This kit is guaranteed to be free from defects in material and workmanship at the date of purchase. It does not cover any damage caused by use or modification. The warranty does not extend beyond the product itself and is limited only to the original cost. By the act of using this product, the user accepts all resulting in liability for damage caused by the product. If the buyer is not prepared to accept this liability, it can be returned new and unused to the place of purchase for a refund.

Notice: Adult Supervision Required

This is not a toy. Running this product requires adult supervision.

Read through this book completely and become familiar with this boat. Inspect all parts for completeness and damage. Browse www.thundertiger.com for more information or customer service if you encounter any problem.

INTRODUCTION

Thanks for purchasing Thunder Tiger AVANTI! With one-piece blow-molded hull, the AVANTI delivers both high speed and wave resistance, plus sophisticated turning performance. Special water-cooled motor and speed controller deliver reliable and smooth throttle response. Read the manual thoroughly to be familiar with the spare parts of this boat and starting steps as well as some tips and safe cautions is strongly recommended. If you encounter any problems in running this boat, contact Thunder Tiger for tech support and customer service.

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SAFETY PRECAUTIONS

- Do not get anything close to the spinning propeller as it is dangerous and may cause serious injury.
- Never run this boat in water where there is any swimmer, animal or obstacle. It might cause property damage and serious injury if a collision occurs.
- Refer to radio manual and always do the range, frequency checking to avoid any possibility of interference. Never take the risk to run the boat without doing these checking procedures.
- Always exam the water tube, make sure there is no leak and the tubes are in well condition.
- Do not touch the Motor as well as the Wires until it has cooled down.
- Always let Motor cool down before next operation.
- Wear safety glasses is strongly recommended as spinning propeller may throw loose material such as sand or gravel into your face.

ITEMS NEEDED FOR COMPLETION



No.8311

Radio

Thunder Tiger GP3 3CH radio is recommended.



No.2814-T

Battery Pack

3S1P 2200mAh Lipo Battery Pack with Deans connector is recommended. High capacity for long time use and perfect fit in receiver box. Suggest to prepare more sets for boating



No.2536

Battery Charger

Build-in switch adaptor for input power source and individual cell balancing function for safe charging.
 No. 2536 110V~240V/2P(US)
 No. 2536-E 110V~240V/2P(Europe)
 No. 2536-U 110V~240V/3P(UK)

ITEMS INSTALLED



No.2375

Motor

Water Cooled Motor OBL29/19-15M. Check the manual for the motor care.



No.8063-M

Speed Controller

Water Cooled BLC-40M Speed Controller with Deans connector. Check the manual before operation.



No.8186

Mini Servo

A mini servo is required for this boat. Thunder Tiger N1226 is recommended.

ITEMS NEEDED CHECK LIST

- Rubbing Alcohol
- Paper Towels
- Sponge
- Misc. Household Tools
- Lubricant oil or WD40
- Grease

Quick-start Guide

Note: Before running the AVANTI , review this quick-start guide and the instruction manual .



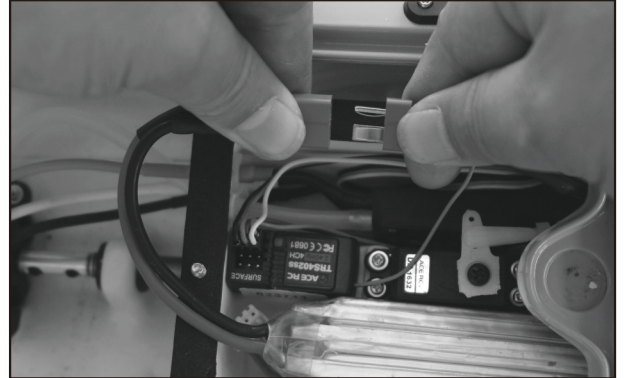
1. Remove the contents from box. (Radio only comes with RTR version)



4. Switch on the transmitter first.



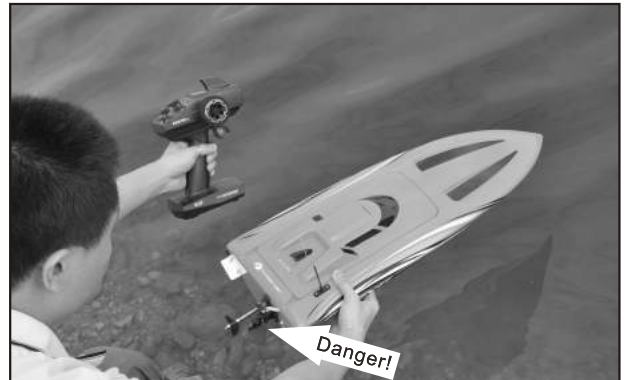
2. Charge the Li-po battery. (Lipo battery and charger are not included.)



5. Connect the charged Li-po battery to the ESC, The special tone “ ♪ 1 2 3 ” , 3 short beep then a long “beep” tone are emitted.

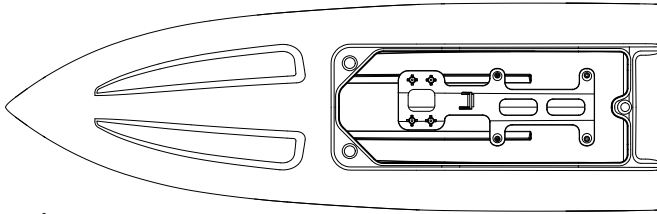


3. Install 6 AA dry-cell batteries. (not included) Note the battery polarity order.



6. Put the boat in the water carefully. Warning: Always keep away from the propeller.

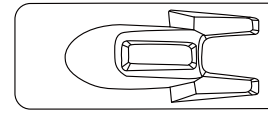
**PJ6352O Hull (Orange)
PJ6352L Hull (Blue)**



Plug (1)

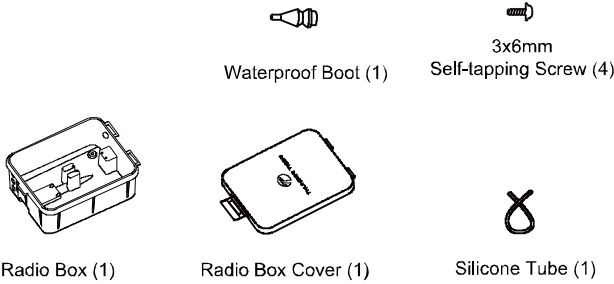
Hull (1)

**PJ6358O Hatch Cover (Orange)
PJ6358L Hatch Cover (Blue)**



Hatch Cover(1)

PJ6345 Radio Case



Radio Box (1)

Radio Box Cover (1)

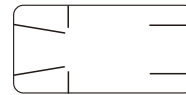
Silicone Tube (1)



Handle (1)



2x5mm
Wood Screw (1)

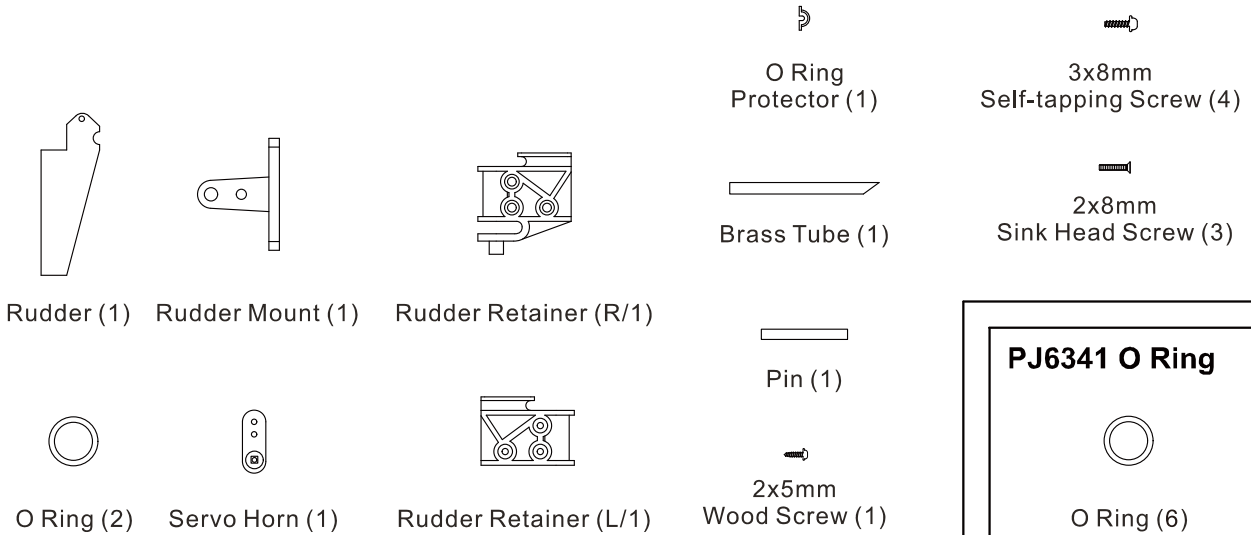


Foam Tape (1)



2x8mm
Wood Screw (1)

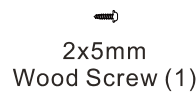
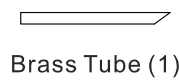
PJ6296 Rudder Set



Rudder (1)

Rudder Mount (1)

Rudder Retainer (R/1)



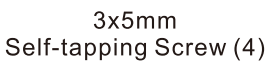
PJ6341 O Ring



PJ6301 Trim Tab



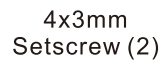
Trim Tab (2)



PJ6306 Adaptor



Adaptor (1)



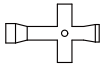
PJ6302 Prop Shaft



Prop Shaft (1)



Washer (1)



4-Way Wrench (1)



Prop Drive Collar (1)



Locknut (1)



4x3mm Setscrew (1)

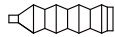
PJ6304 Pushrod



Clevis (1)



Silicon Tube (1)



Waterproof Boot (1)



Rudder Pushrod (1)

PJ6190 Antenna Mount



Antenna Mount (1)

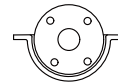


2x8mm
Wood Screw (2)



Antenna Tube (1)

PJ6303 Motor Mount



Motor Mount (1)



2.3x8mm
Wood Screw (4)



Rubber Damper (2)

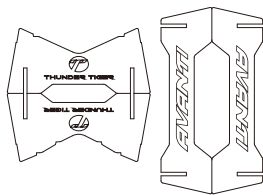


3x5mm
Sink Head Screw (4)

PJ6357 Boat Stand

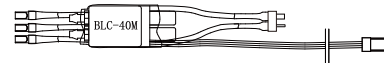


Foam Tape (4)



Wood Stand (1)

8063-M BLC-40M



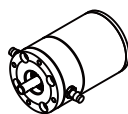
BLC-40M (1)

1177 Silicone Tube



Silicone Tube (1)

2375 OBL29/19-15M

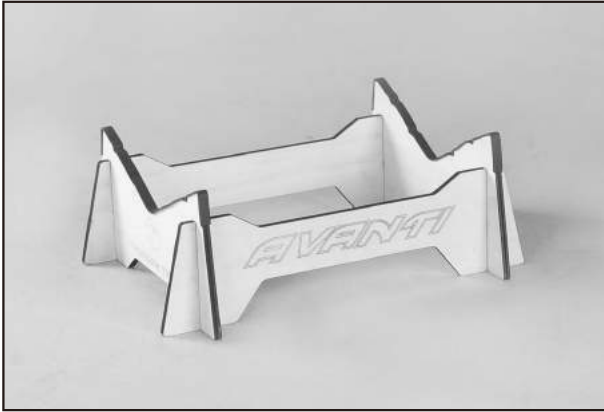


OBL29/19-15M (1)

5015 Propeller P4014 (sold in pair)



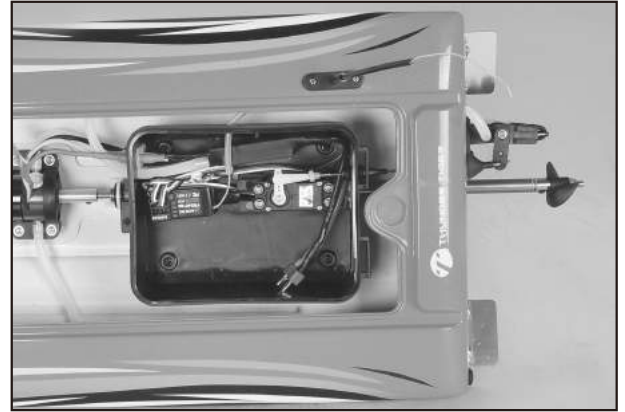
Propeller (2)



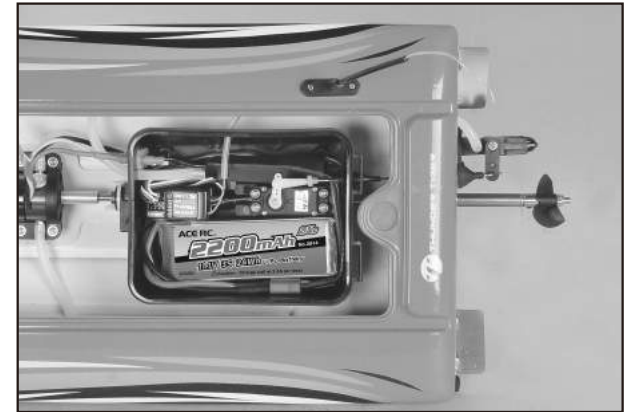
1. Locate two stands and beams. Assemble the stand as illustrated. Locate the foam tapes, then apply on the top side of the front and the rear stand, this is to protect the bottom surface of the hull.



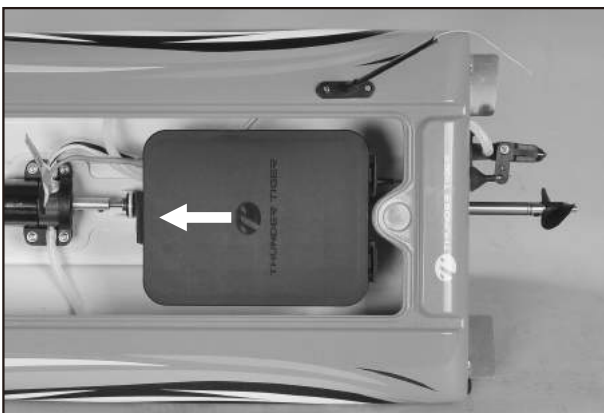
2. Now you can place the AVANTI on the stand. Open the hatch cover with your index finger at the black fin.



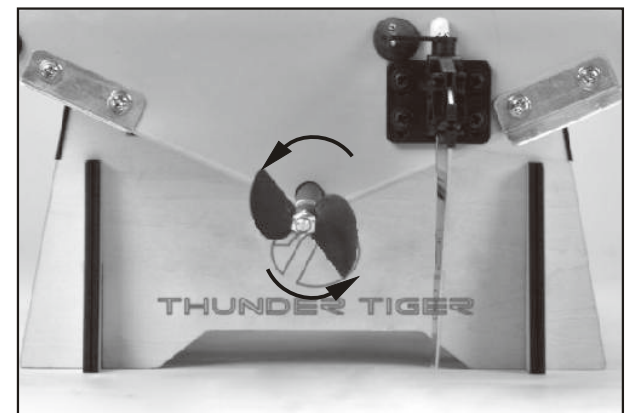
4. Install the receiver and thread the antenna through the antenna mount. Refer to radio instruction manual and well connect the servo wire and controller wire. Always use care and keep away from the propeller when you connect the battery wires. Remember that always transmitter on first then connect the battery; disconnect the battery first and turn off the Transmitter at last.



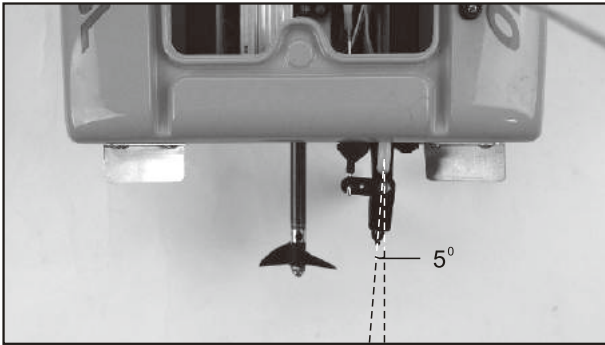
5. With transmitter on, install the suggested 3S1P 2200mAh Lipo Battery in place and connect the wires properly. Make sure the motor is not rotating when transmitter is in neutral position. Adjust the trim knob if necessary.



3. Now you can see the radio case. Unlock the case cover at the indicated position. Make sure to lock and seal the cover securely after the assembly, adjusting or battery change.



6. Make sure the propeller rotates counter-clockwise, if not then switch any two of the wires of the brushless motor to the connectors of controller.



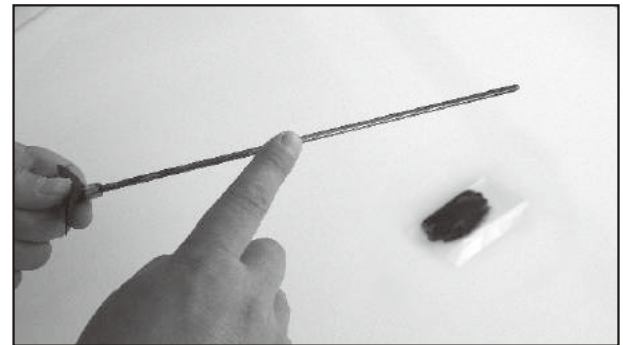
7. Initial setting of rudder is about 5-degree to the left when servo is in the neutral position. This is to correct the prop walk.



10. Always get back to the pier with the power as it is not good to run out of power then retrieve the boat from the pond or lake. Once out of power, do not be nervous and decide the shortest distance to the shore, the battery still has some power in it, you may stop the motor for couple seconds then run the boat again, it can move a short distance. You may repeat this for several times until the boat reach the shore.



8. Place the boat in water gently to test running the boat. Check if water flow out from the port. If not then drive it back to the pier or shore to exam the water line. This is so important that motor will overheat and burn if water cooling is not enough. Trim the boat and make sure the boat runs straightly.



11. Lubricate the drive shaft is important. Remove the shaft by unscrewing the adaptor. Note to exam the shaft then clean and apply new grease every 10 runs.



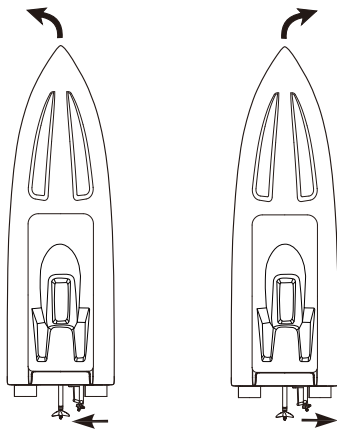
9. The AVANTI can run at full power speed for about 5 minutes and top speed may reach 22mile/hr if using the suggested 2200mAh Lipo Battery (No.2814). Always watch the running time and do not run too far, lest the battery may run out of power any time.



RADIO CHECK



Switch on the radio and make sure the propeller will not rotate when the trigger is in neutral position. Trim the throttle knob if necessary.



Make sure the steering is correct when rotate the wheel on the transmitter. Later on when running the boat you may trim the steering by adjusting the trim knob on your transmitter until it runs straight when the steering wheel is at neutral position.

PROPELLER

To improve performance, balancing the propeller is highly recommend. First remove any flashing on the propeller then use quality propeller balancer to do the balancing. Sharpen the leading edge of propeller will have better performance and get less prop walk to the right.

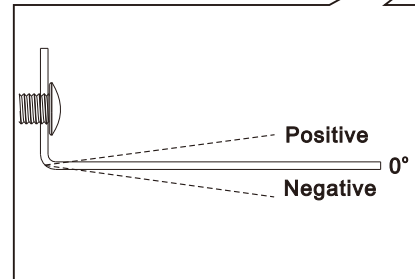
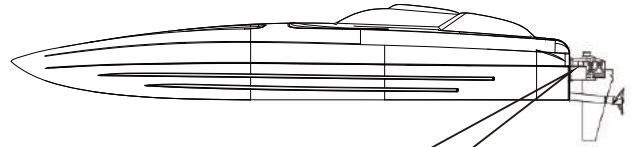
TRIM TAB

The AVANTI has two trim tabs at the transom that you could adjust to reach the peak performance.

Bow Up-Adjust the two trim tabs to negative so it will Downward the bow.

Bow Down-Adjust the two trim tabs to positive so it will Upward the bow.

Even-Trim either one of the tabs to get the hull even, slightly bend the trim tabs is recommended.



Congratulations!

Now you are ready to test running Your boat !

RUNNING THE AVANTI

LAUNCH PROCEDURE

- 1.Refer to radio manual and always transmitter on first receiver last.
- 2.Always stay clear of spinning propeller.
- 3.Gently place the boat in at least 12”(30cm) deep water and free of obstacles (rocks, weeds, sticks, muskrats, ducks, etc.).
- 4.Watch out the spinning prop during the launch.
- 5.When finished running, then turn off Receiver first Transmitter off last.

MORE RUNNING TIPS!

Besides the “Safety Precautions” at the beginning of this manual we recommend you to read through the following valuable tips which will help you enjoy boating the AVANTI successfully and safely.

- Make sure the water cooling system is working properly or it will cause motor or controller overheated.
- Refer to Motor manual to lubricate your Motor periodically.
- Choose a windless day to run your AVANTI as wind can cause rough water that will affect the performance.
- The running time of AVANTI is about 5 minutes. Always notice the running time and have it back to the shore before out of power.
- Check the lake and wind direction then choose a good location for boating. The wind can carry it back to the shore if battery is out of power. The following is a good way to get your boat back. Retrieve the stalled or capsized model boat with a fishing rod that equips reel. Tie a tennis ball to at least 12 lb.string.

- Do not run your AVANTI on a flowing water like creeks or rivers as well as jump into the water or swim after a stalled or capsized boat!
- Always keep away from wildlife, do not intend to threaten any wildlife with your AVANTI. This is prohibited at any lake or pond.

Happy Boating!

MAINTENANCE

Basically you need to dry and clean the boat after running, specially if you would store the boat for a period of time.

Lubricate the motor, grease the drive shaft is required.

RADIO BOX

Check radio box immediately once flipping is occurred. Always keep radio box dry or electric device will be damaged, suggest to open the box after running. This is to get rid of any moisture inside the box.

In case of capsizing, you will need to disconnect the battery power immediately when reach the boat then dry the electrics completely before using them again:

Motor-See motor instruction for motor care.

Controller-If you can not make sure the controller is dry or not, you may cut away the heat shrink tube then let dry completely. However, you will need to get a new tube to heat shrink or tape the old tube tightly to make sure the cooling tank contact the PCB properly.

Receiver-Open the receiver case then let PCB dry completely or it will be out of control.

Lipo Battery-Let dry completely or it will hurt the battery if use again. Normally the battery will get high temperature up to 60~70-degree C when it is working, this will get a lot of moisture inside the heat shrink tube and this will hurt the battery sometime will short the battery and cause fire or explosion. Extremely use care to dry the battery before using it again.

HULL

- 1.Remove the water in the hull by unplugging the water plug at the transom.
- 2.Prepare the sponge or cloth which will help to remove the water in the hull.
- 3.Always clean the hull after each run specially the area where there is fuel or exhaust residue.
- 4.Exam the hull after each run, make sure there is no damage at side and bottom.
- 5.Always remove the hatch cover, this will help to dry the inside of the hull.

DRIVE SHAFT

Remove the drive shaft, clean and dry the shaft then apply new grease.

RACING

It is always exciting to race with other boats. Be aware of following suggestions before you go racing with other boats.

- 1.Well exam the boat completely and make sure all screws are fasten firmly, all wires are well connected, all water tubes are working smoothly without linking or binding.
- 2.Be aware of the surrounding conditions and race course.
- 3.Be aware of the rough water created by other boats.
- 4.Keep distance to other boats and avoid crashing.

MODEL BOATING ORGANIZATIONS

Please browse the following website for more details of regional or national racing.

United States and Canada:

APBA www.Apba-rcboating.com

IMPBA www.impba.net

NAMBA www.namba.com

France

FFMN www.ffma.fr

Great Britain

MPBA www.mpba.org.uk

Sweden

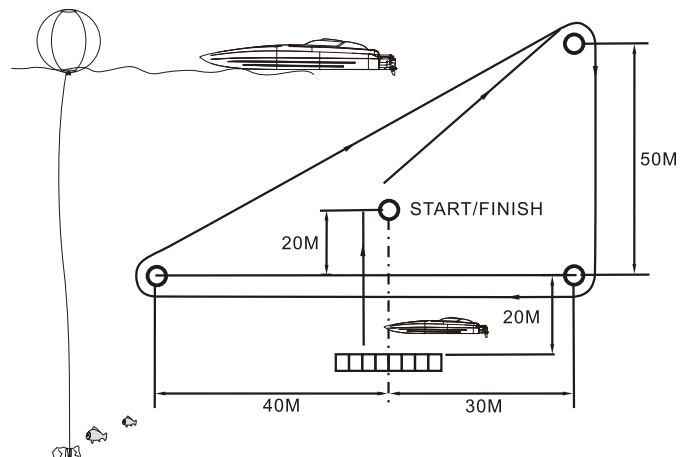
SMBF www.smbf.info

Australia

AMPBA www.ampba.asn.au

Here are some suggestions for setting up a simple race course for boats:

Make 3 simple "Maker Buoys" with beach ball, string, and heavy objects for anchors, similar to the sketch below. Place the buoys as above sketch. for "OVAL RACING", the length can be vary.



ACE RC RIPPER OBL SERIES BRUSHLESS MOTOR INSTRUCTION MANUAL

No.2375 OBL 29/19-15M

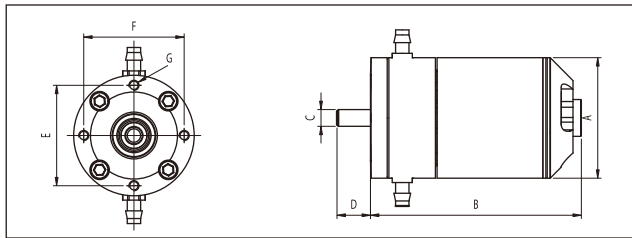
Introduction

Congratulation on your purchase of the ACE RC Water-Cooled Outrunner Brushless Motor. This outrunner motor is an ideal powerplant for RC boat models and was specifically-designed to deliver high torque & power output. Its advanced design & cooling system ensure top efficiency in all RC boating applications. Please read this manual thoroughly before running the motor. Please contact Thunder Tiger authorized distributors for tech support or after service.

Features

- High current capacity for longer run
- Highly efficient RPM value
- Advanced design for better cooling
- Dual ball bearings shaft support
- Reinforced Neodymium "rare earth" magnets for high torque and the highest temperature ratings in R/C at 266°F (130°C) for longer life
- All necessary accessories included

Basic Dimension



A (mm/in)	B (mm/in)	C (mm/in)	D (mm/in)	E (mm/in)	F (mm/in)	G
28 / 1.10"	49 / 1.93"	3.175 / 0.125"	10 / 0.39"	16 / 0.63"	19 / 0.75"	M3*0.5

Caution

- Ensure all wires are secured properly in the model to avoid them from touching the case of the outrunner motor. For additional details, please refer to your model instruction manual.
- Ensure the motor is mounted properly before running the motor.
- Always follow voltage range as indicated on your motor specifications when selecting batteries (refer to chart on opposite column).
- Ensure the BLC current limitation meets indicated specifications (refer to chart on opposite column).
- Do NOT let positive & negative wires contact each other while power is applied.
- Always keep motor dry as moisture will damage the motor.
- Do NOT touch the rotating case or shaft as it may cause serious physical injury.
- Please STOP using the motor at once if you suspect electrical or mechanical malfunction may have occurred.

Installation

- Refer to the model instruction manual to install the Ripper motor in the model.

Safety Notes

Double check the balance of the propeller, replace a new propeller if it is damaged.

Always keep distance away from the propeller as it is extremely dangerous. Make sure the transmitter speed control stick or trigger is at low speed position before you switch on the transmitter. Always transmitter ON first, receiver ON last; receiver OFF first, transmitter off last.

Direction of Rotation

Simply switch over any two cables between the motor and speed controller.

Care and Maintenance

Unlike the brushed motor, Ripper brushless motor does not require break-in, replacement or cleaning of internal parts. After operating, clean the motor with compressed air is recommended. Always keep the boat and motor dry, the motor will be rusted and easily damaged if there is any water or moisture inside the motor. While installation, be aware of screws or other small items being attracted to the magnets of your motor. If you have some other questions about the care and maintenance, please contact the local distributor for advanced assistance.

Service

Thunder Tiger strives to bring you the highest level of quality and service we can provide, We race and test our products around the world to bring you state-of-the-art items. Thunder Tiger products have been sold worldwide through the authorized distributors that are supported directly and rapidly from Thunder Tiger. You may find that Thunder Tiger is always pursuing to explore new items creatively with highest quality. To update the latest product information and to get the best technical support, please contact your local hobby shops or Thunder Tiger authorized distributor.

Basic Specification

Product Name	OBL29/19-15M
Item No.	2375
Voltage Range	6~10cells / 3S Li-Po
KV Rating (RPM/volt)	1850 RPM/V
Max. Efficiency Current	10~30A
Max. Surge Current	40A/60s
Internal Resistance	60mΩ
Weight (g/oz)	105 / 3.72
Recommended Propeller	S215 (3S)
Recommended Speed Controller	BLC-40M (3S Li-Po)

Spare Part



AQ1208 Gold Connector 3M+3F, Ø3.5mm

ELECTRIC SPEED CONTROLLER FOR BRUSHLESS MOTOR

No. 8063-M BLC-40M

INTRODUCTION

Congratulations on selecting the ACE RC BLC speed controller. The BLC-40M is designed for electric boat and satisfies all your needs. Please take a few minutes to familiarize yourself with the system by reading this manual thoroughly.

FEATURES

- Advanced cooling system
- Top quality components endures strong current
- 2 protections : Low voltage cut-off / Over-heat
- 3 start modes: Normal/Soft/Super-Soft meets most boats
- Throttle range can be calibrated for all transmitters
- Smooth, linear and precise throttle response

SPECIFICATIONS

No.	8063-M	BEC Output Capability	2S Lipo: 5 servos
Model	BLC-40M	Battery Cell	3S Lipo: 4 servos
Cont. Current	40A		Lipo: 2-3S
Burst Current (>10s)	55A	Size(L*W*H)	NiMH: 5-9 cell
BEC Mode	Linear	Weight	68*25*8
BEC Output	5V/2A		50g

PROGRAMMABLE ITEMS

1. Brake: Disabled
2. Battery Type: Lipo / NiMH
3. Low Voltage Cut-Off Mode:
 - Soft Cut-Off (gradually reduce the output power)
 - Normal Cut-Off (immediately stop the output power)
4. Low Voltage Cut-Off Threshold: Low / Medium / High
 - For Lipo battery, the battery cell number is calculated automatically. Low/medium/high cutoff voltage for each cell is: 2.85V / 3.15V / 3.3V. For example: For a 3S Lipo, when "Medium" cutoff threshold is set, the cut-off voltage will be: $3.15 \times 3 = 9.45V$
 - For NiMH battery, low/medium/high cutoff voltages are 0%/50%/65% of the startup voltage (i.e. the initial voltage of battery pack), and 0% means the low voltage cut-off function is disabled. For example: For a 6 cells NiMH battery, fully charged voltage is $1.44 \times 6 = 8.64V$, when "Medium" cut-off threshold is set, the cut-off voltage will be: $8.64 \times 50\% = 4.32V$.

5. Startup Mode: Normal /Soft /Super-Soft (300ms/1.5s/3s)
Normal mode is suitable for most racing boats. Soft or Super-soft modes are suitable for scale boats. The initial acceleration of the Soft and Super-Soft modes are slower, it takes 1.5 second for Soft startup & 3 seconds for Super-Soft startup from initial throttle to full throttle for the first start up. The start up will be changed to normal mode if the throttle is completely closed (bottom position) and opened again (throttle stick moved to top position) within 3 seconds.

6. Timing: Low / Medium / High, (3.75°/15°/26.25°)
Usually, low timing is suitable for most motors.
User may change timing refer to the manual of brushless motor for better performance.

BEGIN TO USE YOUR NEW ESC

IMPORTANT! Please center all the trim knobs in the neutral position and calibrate the throttle range of your transmitter before boating. Always transmitter power on first RX last.

Throttle range setting:

- Switch on the transmitter, move throttle stick to the top position (pull the trigger if pistol radio is used).
- Connect battery pack to the ESC, and wait for about 2 seconds.
- The "beep-beep-" tone should be emitted, it means the high point of throttle range is confirmed.
- If there is an alert tone "beep-beep-beep-beep.....", That means the controller does not recognize the high point. You will need to switch off all devices then re-start the setting procedure. Suggest to trim the throttle ATV knob (high end position) at least over the center point and pull the trigger all the way to the end point(pistol type) or move the throttle stick to the highest position then "beep-beep-" tone should be emitted.
- Move throttle stick to the bottom position (keep the trigger in the neutral position if pistol radio is used), several "beep" tones should be emitted to the present the numbers of battery cells.
- A long "beep-" tone should be emitted, it means the lowest point of throttle range is confirmed.

Normal startup procedure:

- Keep the trigger in the neutral position then switch on the transmitter.
- Connect battery pack to ESC, special tone like "♪ 23" means power supply is OK.
- Several "beep-" tones should be emitted to present the numbers of Lipo battery cells.
- When self-test is finished, a long "beep-----" tone should be emitted.
- The startup procedure is completed, now you can control the brushless motor successfully.

PROTECTION FUNCTIONS

1. Start up failure protection: If the motor fails to start within 2 seconds after throttle is applied, the ESC will cut off the output power. In this case, restart the motor by moving the throttle stick to the bottom. (Such a situation happens in the following cases: The connection between ESC and motor is not reliable, the propeller or the motor is blocked, the gearbox is damaged, etc.)
2. Over-heat protection: When the temperature of the ESC is over about 110°C (230°F), the ESC will reduce the output power.

TROUBLE SHOOTING

Trouble	Possible Reason	Action
After power on, motor does not work, no sound is emitted.	The connection between battery pack and ESC is not correct.	Check the power connection. Replace the connector.
After power on, motor does not work, such an alert tone is emitted: "beep-beep-, beep-beep-, beep-beep-" (Every "beep-beep-" has a time interval of about 1 second)	Input voltage is abnormal, too high or too low.	Check the voltage of battery pack.
After power on, motor does not work, such an alert tone is emitted: "beep-, beep-, beep-" (Every "beep-" has a time interval of about 2 seconds)	Throttle signal is irregular.	Check the receiver and transmitter Check the cable of throttle channel.
After power on, motor does not work, such an alert tone is emitted: "beep-, beep-, beep-" (Every "beep-" has a time interval of about 0.25 second)	The throttle stick is not in the bottom (lowest) position.	Move the throttle stick to bottom position. If not work, then power off all and redo the startup procedure.
After power on, motor does not work, a special tone "♪ 56712" is emitted after 2 beep tone (beep-beep-)	Direction of the throttle channel is reversed, so the ESC has entered the program mode.	Set the direction of throttle channel correctly.
The motor runs in the opposite direction.	The connection between ESC and the motor need to be changed.	Swap any two wire connections between ESC and motor.

PROGRAM THE ESC WITH YOUR TRANSMITTER

Note: Please make sure the throttle curve is set to 0 when the throttle stick is at bottom position and 100% for the top position.

1. Enter program mode

- Switch on transmitter, move throttle stick to the top position (Pull the trigger), connect the battery pack to ESC.
- Wait for 2 seconds, the motor should emit special tone like "beep-beep-".
- Wait for another 5 seconds, special tone like "♪ 56712" should be emitted, now it means in program mode.

2. Select programmable items:

After entering program mode, you will hear 8 tones in a loop with the following sequence. If you move the throttle stick to bottom within 3 seconds after one kind of tones, this item will be selected.

- "beep-" brake (1 short tone)
- "beep-beep-" battery type (2 short tone)
- "beep-beep-beep-" cutoff mode (3 short tone)
- "beep-beep-beep-beep-" cutoff threshold (4 short tone)
- "beep----" startup mode (1 long tone)
- "beep----beep-" timing (1 long 1 short)
- "beep----beep-beep-" set all to default (1 long 2 short)
- "beep----beep----" exit (2 long tone)

3. Set item value (Programmable value):

You will hear several tones in loop. Set the value to match the tone as following table by moving throttle stick to the top when hearing the tone, then a special tone "♪ 1515" emits, means the value is set and saved. (Keeping the throttle stick at top, you will go back to Step 2 and you can select other items; or moving the stick to bottom within 2 seconds then exit program mode directly)

Items	Tones	"beep-" 1 short tone	"beep-beep-" 2 short tone	"beep-beep-beep-" 3 short tone
	Brake	Off		
Battery type	Lipo		NiMH	
Cutoff mode	Soft		Normal	
Cutoff threshold	Low		Medium	High
Start mode	Normal		Soft	Super Soft
Timing	Low		Medium	High

The default set up shown in the table with Bold Font.

4. Exit program mode

There are 2 ways to exit program mode:

- In step 3, after special tone "♪ 1515" please move throttle stick to the bottom position within 2 seconds.
- In step 2, after tone "beep----beep----" (ie. the item #8), move throttle stick to bottom within 3 seconds.

