

AQUACRAFT[®]
Models



Mottley Crew

Warning:

- Never attempt to swim after a stalled RC boat!
- Never operate your RC boat while standing in the water.
- Never operate your RC boat in the presence of swimmers.
- Always use a Personal Flotation Device (PFD) when boarding and operating your retrieval craft, i.e. Jon boat or duck boat.
NOTE: Because of the sharp running hardware included with this RC boat, we do not recommend a rubber blow up raft.
- RC boat running hardware is very sharp. Be very careful when working on and around the metal parts.
- While the engine is running pay close attention to the propeller. Do not come in contact with the propeller at any time the engine is running or serious injury will result.
- AquaCraft products are to be used by ages 14 and over.

INTRODUCTION & DESCRIPTION CHANGES

Thank you for purchasing the AquaCraft Motley Crew. We at AquaCraft want the time you spend with your boat to be safe, fun and successful. If for any reason you feel this R/C model is not for you return it to your place of purchase immediately. Your hobby dealer cannot accept returns on any model after final assembly or after your boat has been operated.

AquaCraft products are to be used by ages 14 and over.

All pictures, descriptions, and specifications found in this instruction manual are subject to change without notice. AquaCraft maintains no responsibility for inadvertent errors in this manual.

ITEMS INCLUDED



- ◆ Motley Crew Brushless Catamaran
- ◆ Tactic™ 2.4GHz Transmitter
- ◆ Boat Stand

PARTS NEEDED TO COMPLETE YOUR MODEL

- 4 – AA Batteries (Transmitter)
- Battery packs (2)
- Charger

For your convenience we have listed below a few different battery and charger options. It is also important to note that chargers come in both DC and AC/DC versions. DC charger requires a 12V power supply like a 12V car battery or bench top power supply to power up the charger. AC/DC chargers allow you to plug the charger into a 120V house outlet or DC power supply, therefore making them more convenient for most charging situations.

OPTION 1: (This is about the minimum cost and performance needed to operate your Motley Crew.)

- 2-AQUC2135 GrimRacer Speed Packs 2S 7.4V 4200mAh 30C Soft Pack
- DTXP4230 Onyx™ 230 Advanced AC/DC Battery Charger

OPTION 2: (This option is more advanced, providing more run time and better future growth.)

- 2-AQUC2225 GrimRacer Speed Packs 2S 7.4V 5000mAh 40C Soft Pack
- GPMM3155 Great Planes® ElectriFly® Triton™ EQ AC/DC Battery Charger

NOTES ABOUT USING LIPO BATTERIES IN YOUR BOAT:

The Motley Crew uses the AquaCraft 60amp ESC. This ESC has a built in stutter bump system that cycles the power to the motor when the battery voltage reaches 12V. This is designed to warn you of impending low battery voltage and subsequent shut down. It also has a 10.8V battery cut off safety system that shuts the power down to the motor so not to damage the batteries.

Having said this: As a rule of thumb we have found it best in very high current draw applications like an RC boat not to use more than 70% of the rated capacity of the battery pack, per run. We have also found that when in doubt and using the recommended propellers you can expect to use about 1000mAh (give or take) per minute of operation. Using this you can better judge your runs knowing you're taking the very best care of your battery pack investment.



GrimRacer Says: *It is best to test this by making a timed 2-minute run, then charging the batteries back up and noting the amount of mAh the pack allowed back in. Do this each and every time you make a prop change or any other significant change to your setup! Then adjust your driving time so you don't go over the 70% usage mark.*

Also keep in mind that car packs (hard case) could be used. But if you get them wet they can store water causing the internal metal parts of the pack to corrode; in turn causing short pack life. We highly recommend the use a dedicated marine LiPo packs.

OPTIONAL PARTS

- GPMQ4480 Hook and Loop (If you purchase extra battery packs, you are going to need to purchase extra hook and loop as well.)
- AQUB9725 42X55 2-Bladed Prop (This prop has great acceleration as well as top speed.)
- AQUB9514 Grimracer Pro Radio Box Tape
- AQUB9500 Grimracer Speed Grease (You are going to need to re-grease the drive cable after each day of running.)
- AQUB6322 Grimracer Decal Set (Let them know that you're ready to race!)

WARRANTY SERVICE

AquaCraft will warrant your model for 90 days after the purchase from defects in materials or workmanship of original manufacture. AquaCraft, at their option, will repair or replace at no charge, the incorrectly made part. This warranty does not cover damage caused by crash, abuse, misuse, alteration or accident. To return your boat for service you need to provide proof of purchase. Your store receipt or product invoice will suffice.

IN NO EVENT SHALL THE PURCHASER BE ENTITLED TO ANY INCIDENTAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, WHETHER RESULTING FROM THE USE, MISUSE OR INABILITY TO USE THE PRODUCT OR FROM DEFECTS IN THE PRODUCT.

This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Outside USA and Canada, contact local importer for warranty information.

Hobby Services
3002 N. Apollo Drive, Suite 1
Champaign, Illinois 61822
Attn: Service Department
Phone: (217) 398-0007 9:00 am - 5:00 pm Central Time M-F
E-mail: hobbyservices@hobbico.com

SAFETY PRECAUTIONS

- ▶ **Never, ever, attempt to swim after a stalled RC boat. DO NOT get in the water for any reason to retrieve your boat. Your Motley Crew has flotation added to the interior of the hull and the cowl. It will not sink. To aid you in retrieving a stalled RC boat you can use a fishing reel with a tennis ball tied to the end of the line. Or better yet, get yourself a small Jon boat so you can row out and pick up your boat. Remember to use a PFD any time you enter your retrieval craft.**
- ▶ Do not touch the propeller anytime the motor is running. Pay equally close attention to items such as loose clothing, shirtsleeves, ties, scarves, long hair or anything that may become entangled in the spinning prop. If your fingers, hands, etc. come in contact with the spinning propeller, you may be severely injured.
- ▶ The speed and mass of this boat can inflict property damage and severe personal injury if a collision occurs. Never run this boat in the presence of swimmers or where the possibility of collision with people or property exists.
- ▶ This boat is controlled by radio signals, which are susceptible to possible interference from RF sources. It is a good idea to pre-check the system to make sure it's operating properly before you launch your boat.
- ▶ If your boat should happen to stall, water currents will slowly carry it to shore. The bad news is the boat could be carried to the opposite shore. When surveying areas to run your model, keep variables in mind such as wind direction, size of the lake, etc. It is not advisable to run R/C boats on any free-flowing bodies of water such as creeks or rivers.

FEATURES & SPECIFICATIONS

MOTLEY CREW FEATURES:

Hand laid fiberglass hull and canopy
Drop tub design
Roomy interior
Tactic 2.4GHz radio system
AquaCraft 1800 KV 6 pole motor
AquaCraft 60amp Motor Controller (ESC)
Aluminum water jacket
Black anodized aluminum hardware
Transom mounted water cooling pickup
Hook and loop battery mounting
Registered Motley Crew graphics

Other standard features include:

High gloss painted finish
Brass stuffing tube
Low friction cable guide
.150" flex drive cable
Industry standard 3/16" (.187") prop shaft
42mm Fiber Reinforced Plastic (FRP) Propeller

BASIC HULL SPECIFICATIONS:

Hull Length: 29-3/4" (756mm)
Overall Length: 32" (813mm)
Width: 10-1/2" (242mm)
Height (Less Hardware): 6" (153mm)
Empty Weight: 4.18lb or 67oz (1.89kg)
Weight RTR: 5.53 lb or 88.5oz (2.50kg) (weight taken with Marine Power 5000mAh LiPo packs)

MOTOR SPECIFICATIONS:

Diameter: 36mm
Length: 56mm
Shaft Length: 15mm
Overall Length: 71mm
Shaft Size: 5mm
Connectors: 4mm Bullet
Weight: 212g

Input Voltage: 7-18.5v
Max. Constant Current: 50A
Max. Surge Current: 80A/five seconds
No Load Current: 5.0A
kV Rating: 1800 rpm/V
Watts: 925Max

ESC SPECIFICATIONS:

Length: 100mm
Height: 17mm
Wire Gauge: 14g
Battery Connectors: Male Deans® Ultra® Plugs (2)
Motor Connectors: 4mm gold plated bullet connectors (3)
Input Voltage: 12-14 NiMH
4 cells LiPo
8-20V input w/o BEC)
Output Current: 60A continuous maximum
72A surge maximum

Max Output Power: 720 watts
On-Resistance: 0.003 ohms
Operating Frequency: 8kHz
Stutter Bump Voltage: 12V
Thermal Cutoff: 110C

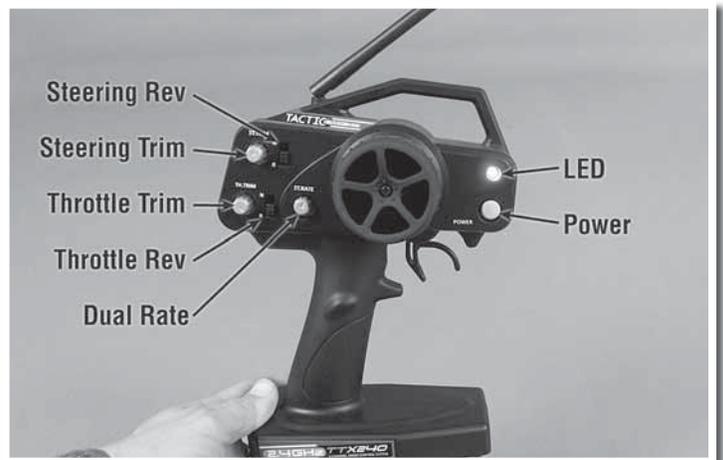
Width: 38mm
Weight: 3.8oz (109grams)
BEC: 5.2V/2A
Low Voltage Cutoff: 11.6V
Timing Angle: 10°

START UP AND OPERATION

Install four AA batteries into the transmitter using the installation pattern molded into the bottom of the battery tray.



Turn on the transmitter, making sure it's working by viewing the LED on the front. The LED should glow bright red.



Remove the canopy and install the provided hook and loop to your battery packs.



Install the batteries, making sure they are well seated.



Stand clear of the propeller and plug each of the battery packs into the motor controller.

At this time you will hear one beep. To arm the system squeeze the throttle trigger and hold until you hear one more beep. Release the throttle trigger and you will hear three more beeps. Your boat is now ready to operate. Note: You will have to go through this simple arming procedure each time to run your boat.

If your boat does not beep after plugging in the batteries turn the throttle trim knob either left or right until you hear the boat beep. Then continue the arming process.

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W**

- Plug in the packs ► One (1) beep
 - Squeeze the throttle trigger and hold ► One (1) beep
 - Release the trigger ► Three (3) beeps
- Your boat is now ready to operate!*

Now is a good time to check the rotation of the prop. Quickly squeeze the throttle trigger and check the direction of the motor. It should spin the propeller counterclockwise when viewing the boat from the back. If the motor spins the wrong way, simply switch any two of the three wires between the motor and the controller. **Warning:** Do not hold the throttle down for more than one or two seconds to check the motor direction or you might risk damaging the motor. Also check the steering direction. When you turn the wheel to the right, the back of the rudder blade should also move to the right.

Install the cowl and tape in place. You are now ready to run the boat.

After you have completed your run, bring the boat in, untape and unplug the batteries.

- Be careful as electronic parts can become very hot during operation.
- Allow the electronics to cool before running the boat again.

TIPS AND NOTES:

The handling and performance of your Motley Crew can be disrupted by the smallest obstructions in the water. If you happen to pick up a small duck feather or leaf, the power system could draw more current than the ESC is capable of handling; the performance of the boat will be compromised and you could damage the motor, ESC or batteries. Please make sure the water you are running in is clear or obstructions.

It's also important to note that if you operate the boat for extended periods of time at less than full throttle, you could overheat the ESC. Be mindful of this as you operate the boat.

TROUBLESHOOTING

NO SIGNAL BETWEEN THE TRANSMITTER AND THE BOAT:

Check to make sure the transmitter is bound to the receiver. To bind, turn on the transmitter and plug the batteries into the boat. Press and hold the bind button on the top of the receiver (use a tooth pick or other small pointed object) for approximately 4 seconds or until the system binds. You will know it is bound when the small LED hidden behind the face of the receiver stops flashing and stays lit.

BOAT RUNS BACKWARDS:

Switch any two of the three motor wires.

ESC WILL NOT ARM:

Move the throttle trim knob slowly clockwise, then counterclockwise, to adjust the center point of the throttle system. Also check the throttle reverse switch to make sure it is in the down position.

BOAT IS SLOW TO TAKE OFF:

Make sure the cable coupler is tight. If it's OK, try being more aggressive with the throttle during the launch; or, toss the boat forward with more force, applying power as the boat touches the water.

BOAT SLOWS DOWN OR SHUTS OFF IN THE MIDDLE OF A RUN:

Check for weeds on the prop or any obstruction blocking the water cooling pickup.

AFTER A RUN THE MOTOR, BATTERIES AND/OR ESC IS HOT:

Check to make sure the water pickup is not plugged. Check to see that the prop is not broken or that you have changed to a propeller that is too large for the power system.

MAINTENANCE

Here are some basic maintenance routines.

After each day of operation we feel it's best to remove the motor and flush it out with a moisture displacer and re-oil the bearings.

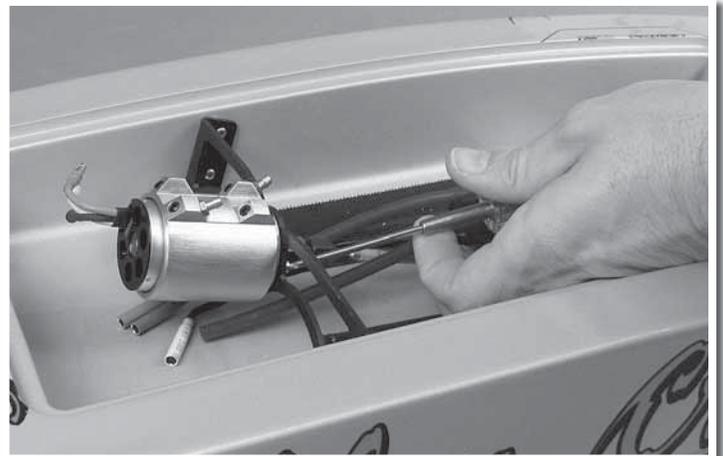
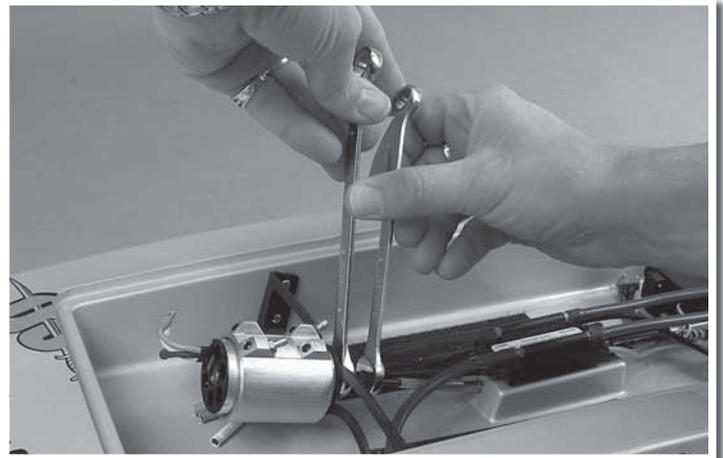
You are going to need the following tools and supplies.

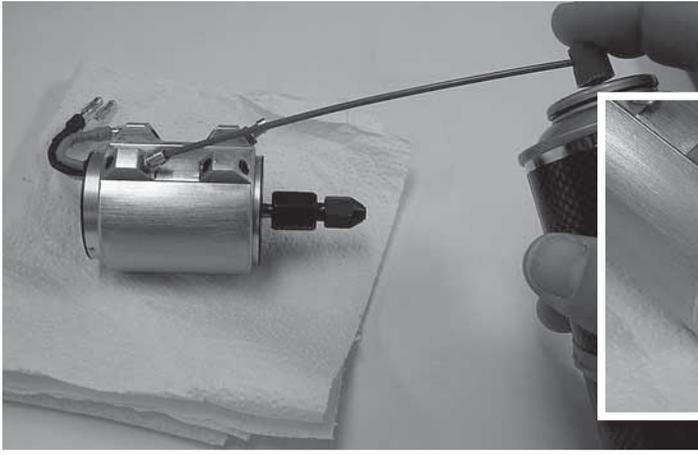
12mm open end wrench	Bearing oil
10mm open end wrench	AquaCraft Grimracer Speed Grease (AQUB9500)
2.5mm hex wrench	Paper Towels
Water displacer (WD-40, CRC-56 or Corrosion X)	

Start by removing the water lines to the motor jacket. Also unplug the three connector leads to the motor. Use the 12mm and 10mm wrenches to loosen the cable coupler from the cable. To do so hold the 12mm wrench still and rotate the 10mm wrench counterclockwise.

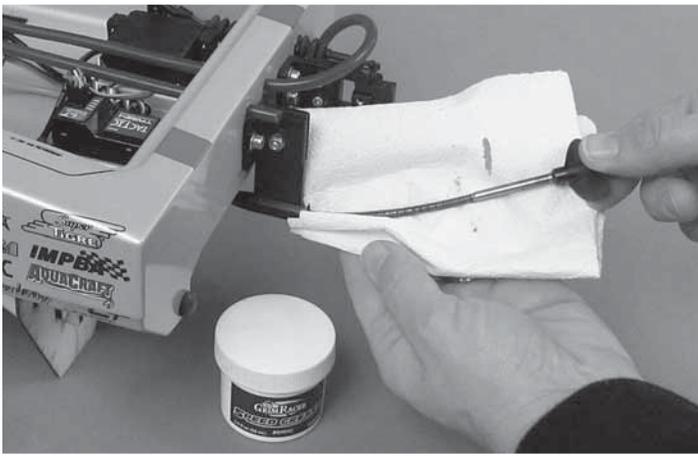
Fully loosen the coupler. Using a rag cover the prop and firmly pull the prop and shaft away from the coupler. Use a 2.5mm hex wrench to loosen the two motor screws.

Remove the motor from the boat.

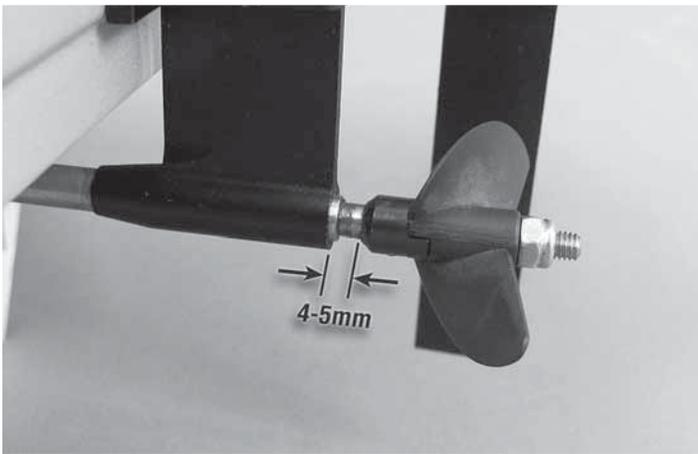




Place the motor in a rag or paper towel and spray a water displacer into the fittings on the water jacket as well as in the motor itself. After the motor is “pickled,” re-oil the motor bearings, wipe the motor down and reinstall it in the boat using the above instructions in reverse order.

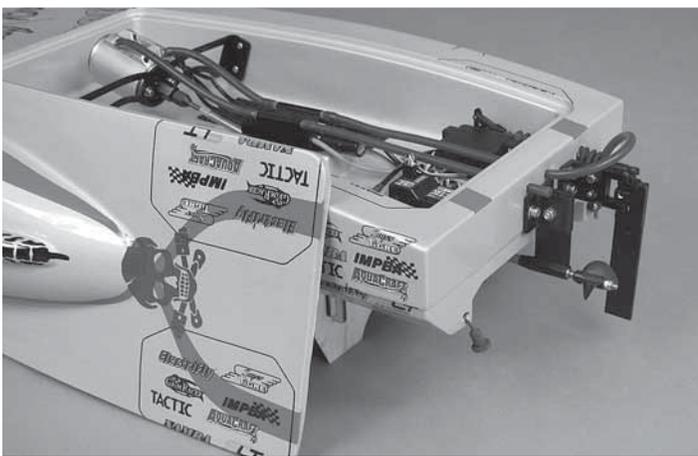


After each 5 or so runs and/or after a day of running it's a good idea to re-lubricate the drive cable. Loosen the cable coupler using the 10 and 12mm wrenches. Firmly pull the prop and drive shaft out of the back of the boat. Wipe away any old grease and water. Apply new speed grease to the shaft and slide it back into the strut, moving it in and out as you do so to help spread the grease along the length of the cable.



Before tightening the cable coupler, make sure to leave a 4 or 5mm distance between the back of the strut and the front of the drive dog. This will keep the drive system from binding or breaking as the cable operates. Tighten the cable coupler, reversing the direction of the open end wrenches. **DO NOT OVERTIGHTEN.**

NOTE: The drive cable is supported by the brass stuffing tube which has a low friction liner. The prop shaft (or “stub shaft”) is hard-soldered to the flexible drive cable and spins in a brass bushing located in the back of the stuffing tube. The bushing and liner should be replaced when they start to show wear. (AQUB7884 Prop Shaft Bushing; AQUB7869 .150" Cable Liner 10", cut to length as needed.)



At the end of the day make sure to leave the cowl off and the drain plug out overnight. This will allow any moisture that collected in the boat to safely evaporate.

TUNING TIPS AND PROP INFO

“The Business End of the Boat”

STRUT: Tilting the strut down or lowering it tightens the ride of the boat. A “tighter ride” will help stabilize the boat but at the risk of more power consumption as well as a loss of speed. It’s also important to note that this “tight ride” could cause the ESC and/or motor to overheat. Tilting the strut up or raising it loosens the boat ride. This looser ride allows the boat to go faster but at the risk of a blow off (the boat lifting off the water). It’s best to make small strut adjustments and only make one small change at a time.

RUDDER: The rudder can be tuned in a variety of ways. The most important aspect is how sharp it is or you make it. Using a flat file, sharpen the leading edge of the rudder finishing with 400 grit, then 600 grit wet/dry sandpaper. You can also gain some performance if you remove the lift the rudder makes off the bottom of the blade. You can either round or sharpen the bottom of the blade as either method works. Another important aspect is the angle front to back of the rudder blade. Tilting the rudder back and forth also changes the way the boat operates. Tilting the rudder under the boat tightens the ride while tilting it back loosens it.

CG: Adjusting the CG or center of gravity of the boat has a lot to do with how tight the boat rides as well as the how the boat “flies” as it enters and exits the water. Moving the battery packs forward or rearward is the best way to adjust the CG.

SCUFFING: Scuffing is a tuning trick boat racers use to increase the speed of their boat. Scuffing involves dulling the area/s of the boat that touch the water as the boat is running. We like to use a red scratch pad like the ones you find in the paint section of your local home supply store. Scuff the bottom of the boat to the point the shine is removed from the paint. While this tuning trick is mostly geared towards the hard core boat racer, sport runners can benefit from this as well. (**IMPORTANT!** Scuffing will remove the attractive shine from the bottom of your hull. If having a pretty finish is important to you, don’t scuff!)

PROPS: About the best we can do is help guide you to a better performing prop. Ultimately how you drive and tune your boat will determine the best prop for your racing program. Having said that we have found the GrimRacer 42x55 (AQUB9725) is about the best overall prop for your Motley Crew. It is also advisable that you balance your propeller when it is new and check it for balance periodically. If you want to learn more about tuning props check out the “How to Balance your Propeller” link at aquacraftmodels.com.

RACING: Your Motley Crew was designed to fit into boat IMPBA and NAMBA P class racing. What you will find is power systems designed for the boat and others like it are making their own class called P-Spec. This boat fits into the P-Spec Off-Shore racing class. Check the websites listed at top right for information and places to race your Motley Crew.

NATIONAL ORGANIZATIONS & ONLINE HELP

www.impba.net
www.namba.com
www.ampba.asn.au
www.aquacraftmodels.com
www.inlthwaters.com
www.rcgroups.com
www.rcuniverse.com

REPLACEMENT PARTS

Part #	Description
AQUB6233 . . .	Motley Crew Cowl
AQUB6904 . . .	Blue Water Tubing
AQUB6950 . . .	Strut Assembly
AQUB7111 . . .	Boat Stand
AQUB7758 . . .	FRP 3-Blade Prop 42mm
AQUB7806 . . .	Rudder Push Rod with Clevis
AQUB7869 . . .	Cable Liner (.150" x 10")
AQUB7884 . . .	Strut Bushing
AQUB7885 . . .	Drive Dog
AQUB7886 . . .	Motor Coupler 5mm to .150"
AQUB7906 . . .	Motor Mount Motley Crew
AQUB8000 . . .	Flex Drive .150" Cable 3/16" Prop Shaft
AQUB8729 . . .	Rudder Tiller Arm
AQUB8730 . . .	Rudder Transmom Mounting Bracket
AQUB8731 . . .	Rudder Blade with Water Fitting
AQUB8781 . . .	Steering Servo Mount
AQUB9503 . . .	Push Rod Seals
AQUB9506 . . .	Drain Plug
AQUB9518 . . .	One-Piece 36mm Alum. Water Cooling Jacket
AQUG7002 . . .	36-56-1800 6-Pole Marine Motor
AQUM7011 . . .	60-Amp WC/WP LiPo ESC
FUTM0031 . . .	Futaba® S3003 Servo
TACJ0241 . . .	Tactic TTX240 2.4 Transmitter
TACJ0245 . . .	Tactic TTX240 2.4 Transmitter/Receiver
TACL0324 . . .	TR-324 Tactic 2.4 Receiver

OPTIONAL PARTS

AQUB9500 . . .	Cable Grease
AQUB9514 . . .	GrimRacer Pro Radio Box Tape
AQUB9575 . . .	GrimRacer Prop Balancer
AQUB971540 x 53 GrimRacer Metal Prop
AQUB972040 x 52 3-Blade GrimRacer Metal Prop
AQUB972542 x 55 GrimRacer Metal Prop
AQUC2135 . . .	GrimRacer Speed Packs 2S 7.4V 4200mAh 30C Soft Pack
AQUC2225 . . .	GrimRacer Speed Packs 2S 7.4V 5000mAh 40C Soft Pack
DTXP4230 . . .	Onyx 230 AC/DC Advanced Charger
FUTM0043 . . .	Hi-Torque Ball Bearing Servo
GPMM3156 . . .	Triton EQ2 AC/DC Charger