www.aquacraftmodels.com

AQUACRAFT® Models

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 motor 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.

AQUB2105 RTF
AQUB2106 Rx-R

INTRODUCTION

Thank you for purchasing the AquaCraft Lucas Oil Racing Catamaran. 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 will likely not accept returns after your boat has been operated.

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.

NOTE: Transmitter (shown) and Receiver (not shown) are not included with the Rx-R model.

INCLUDED WITH YOUR BOAT

- Lucas Oil Racing Catamaran
- Tactic 2.4GHz Transmitter
- Boat Stand
- Manual

PARTS NEEDED TO COMPLETE YOUR MODEL:

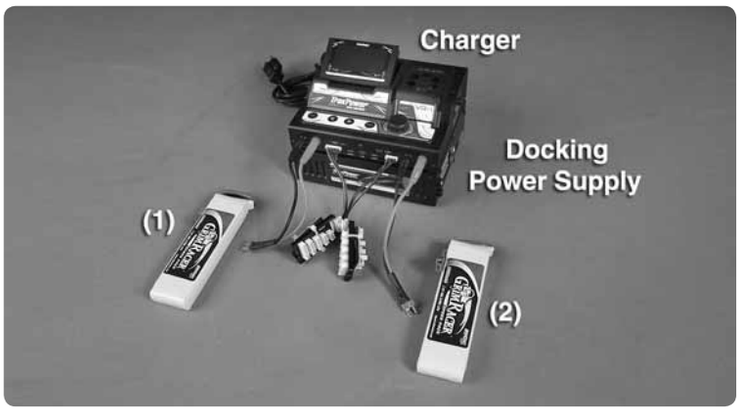
- 4 – AA Batteries (Transmitter)
- Two (2) LiPo Battery Packs
- LiPo Compatible Battery Charger

For your convenience we have listed a few different battery and charger options. It is also important to note that chargers come in both DC and AC/DC versions. A DC charger requires a 12V power supply like a 12V car battery or bench top power supply for power. 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.

NOTE: If you purchased the Rx-R model, you will need to install a 2-channel (or greater) receiver.

Option 1: This is about the minimum cost and performance you would need to operate your Lucas Oil.

- (2) AQUB9825 AquaCraft GrimRacer LiPo Pack 2S 7.4V 4200mAh 30C
- (1) DTXP4245 Duratrax Onyx 245 AC/DC Dual Charger with Built in Balancing



Option 2: This option is more advanced and provides more run-time, faster charge rates and greater future growth.

- (2) AQUB9835 AquaCraft GrimRacer LiPo Pack 2S 7.4V 5000mAh 40C
- (1) TKPP5000 TrakPower VR-1 DC Dual Channel Charger w/Balancer
- (1) TKPP5505 TrakPower DPS 12V 25A Fixed Racing Power Supply

PLEASE READ THESE NOTES ABOUT USING LIPO BATTERIES IN YOUR BOAT

The Lucas Oil uses the AquaCraft 60A motor controller. This controller 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 and will not allow you to re-arm the power system until the battery power is cycled.

With that in mind, 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's best to test this by making a timed 2 minute run, charge the batteries back up and note 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 and in turn causing short pack life. We highly recommend the use a dedicated marine LiPo pack like those in the AquaCraft GrimRacer line.

OPTIONAL PARTS

- GPMQ4480 Hook and Loop: Remember 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 Lucas Oil 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 Lucas Oil has flotation added to the interior of the hull and the cowl. They will not sink. To aid you in retrieving a stalled RC boat one 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 can be susceptible to interference from other RF sources. It is a good idea to pre-check the radio 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

THE LUCAS OIL FEATURES

- Hand-Laid Fiberglass Hull and Canopy
- Drop Tub Interior Design
- Tactic 2.4GHz Radio System
- AquaCraft 1800 kV 6 Pole Motor
- AquaCraft 60A Motor Controller
- Aluminum Water Jackets on Both the Motor and Controller
- Grimracer Aluminum Hardware
- Hook and Loop Battery Mounting
- Lucas Oil Graphics

OTHER STANDARD FEATURES

- High Gloss Painted Finish
- Brass Stuffing Tube
- Teflon Cable Guide
- .150" Flex Drive Cable
- Industry Standard 3/16" (.187") Prop Shaft
- 44mm 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 88.5 oz (2.50kg) (weight taken with 5000mAh LiPo packs)

MOTOR SPECIFICATIONS

Diameter:	36mm
Length:	56mm
Magnet Length:	30mm
Extended Shaft Length from end bell:	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:	925 Max

MOTOR CONTROLLER SPECIFICATIONS

Length:	100mm
Width:	38mm
Height:	17mm
Weight:	3.8oz (109g)

Wire Gauge:	14g
Battery Connectors:	Male Deans® Ultra Plugs® (2)
Motor Connectors:	4mm Gold Plated Bullet Connectors (3)
Input Voltage:	14.4 to16.8V input
Output Current:	60A continuous, 72A max surge
Max Output Power:	1000 Watts
On-resistance:	0.003 Ohms
Operating frequency:	8kHz
BEC:	5.2V/2A
Stutter Bump Voltage:	12V
Low Voltage Cutoff:	11.6V
Thermal Cutoff:	110° C
Timing Angle:	10 degrees

RECEIVER READY (Rx-R) RADIO INSTALLATION

Listed here are a few great radios to choose from for your receiver ready (Rx-R) Lucas Oil.

1 Tactic TX240 (TACJ0245). The TX240 radio system is reliable and easy to operate. It's basic but has all the necessary features to operate your Lucas Oil.

2 Futaba 3PMS (FUTK2021). This radio system is very reliable and offers more operator options. We really like the timer option this radio system offers as well as the multi model memory.

3 Futaba 4PL (FUTK1400) Along with great reliably this radio system offers the most user options. It's also a great system if you want to add to your AquaCraft boat collection. This system offers 40 model memory and 10 character naming; great features to grow your boat lineup.

NOTE: This step will require working on the boat with the radio turned on and power to the motor. To prevent any possible injury temporarily remove the propeller from the boat.

Mount your receiver in your boat by installing hook and loop to the bottom of your receiver.

Plug the steering servo into channel 1 of the receiver and the motor controller into channel 2.

Turn on your transmitter.

Set the Throttle Trim to negative (clockwise if you have a dial) 25%.

If your radio has end point adjustments, check to see that you're (EPA) is set to 100% both forward and reverse throttle trigger. Then proceed to "arming your system".

START UP AND OPERATION

Install 4 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 material 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 of the transmitter and hold until you hear one more beep. Release the throttle trigger and you will hear three more beeps. ***NOTE: You will have to go though 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 (the trim knob in the 2 o'clock position is typical). Then, continue the arming process.

REVIEW

Plug in the packs -> **One (1) beep**
Squeeze the throttle trigger and hold -> **One (1) beep**
Release the trigger -> **Three (3) beeps**

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 Lucas Oil 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 motor or controller is capable of handling; the performance of the boat will be compromised and you could damage the motor, controller or batteries. Please make sure the water you are running in is clear of obstructions.

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

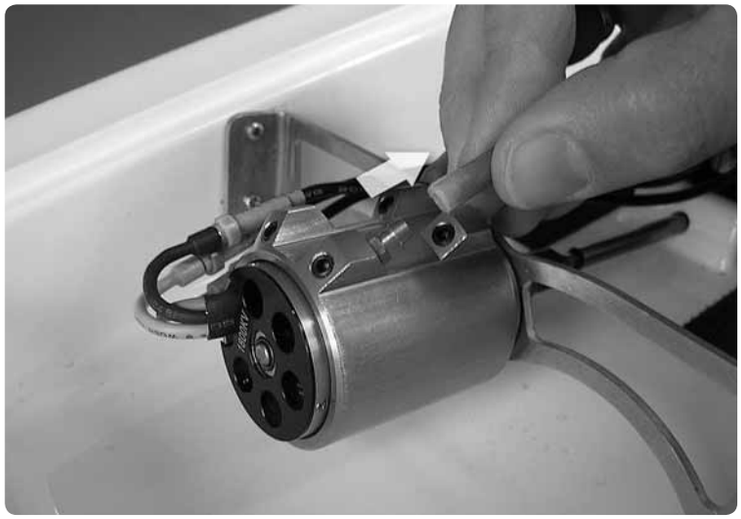
PLEASE READ! Your Lucas Oil features a rudder blade water inlet. This system offers the most speed and least drag. In RC boat racing, our boats race in a clockwise manner; having said this, it is important to make the majority of your turns to the right. You could damage the motor or controller by continually turning left. ***NOTE: Because of prop torque, our models turn best clockwise (right).*** Your lap times will be lower when running and racing in a clockwise pattern. If you still feel you would like to mount a water pickup on the transom, a Transom Mount Water Pickup (AQUB9520) will allow you to do so.

MAINTENANCE

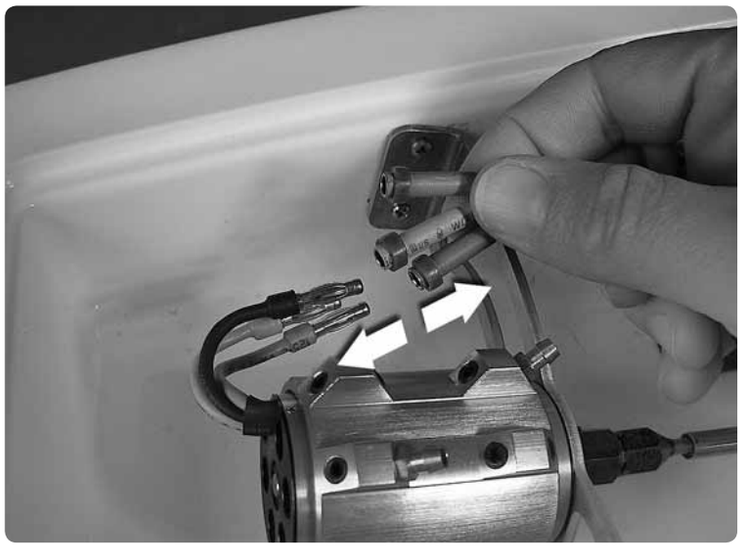
MOTOR CARE

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 shaft bearings. You are going to need the following tools and supplies.

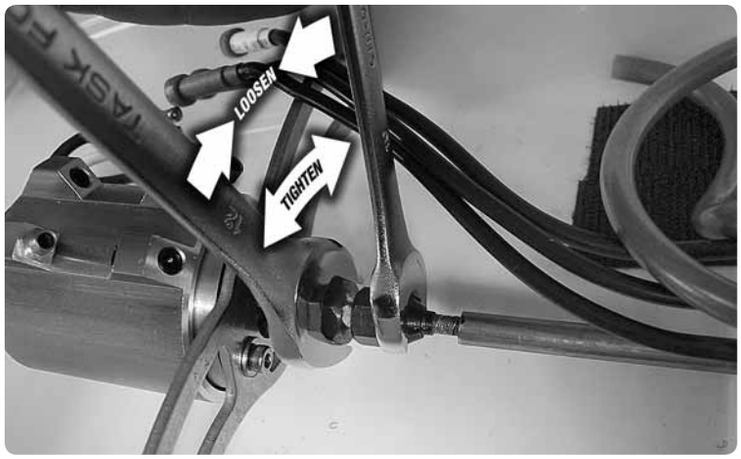
- 12 mm Open End Wrench
- 10 mm Open End Wrench
- 2.5 mm Hex Wrench
- Water Displacer (WD-40, CRC-56 or Corrosion X)
- Bearing Oil
- Paper Towel



Start by removing the water lines to the motor jacket.

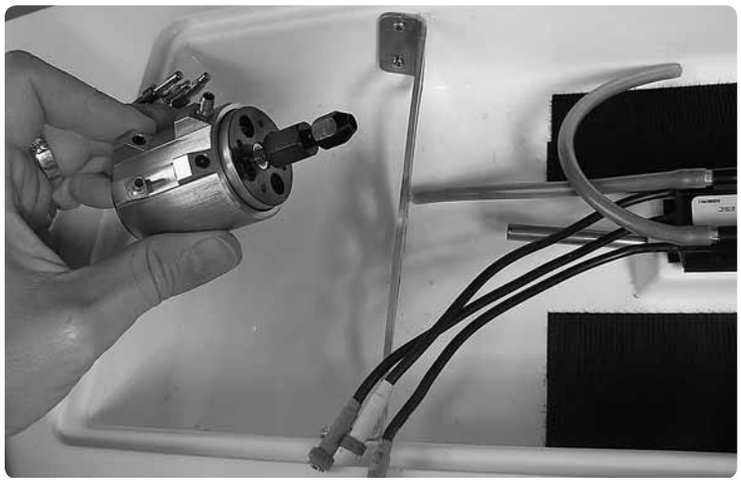


Unplug the three 4mm connector leads to the motor.

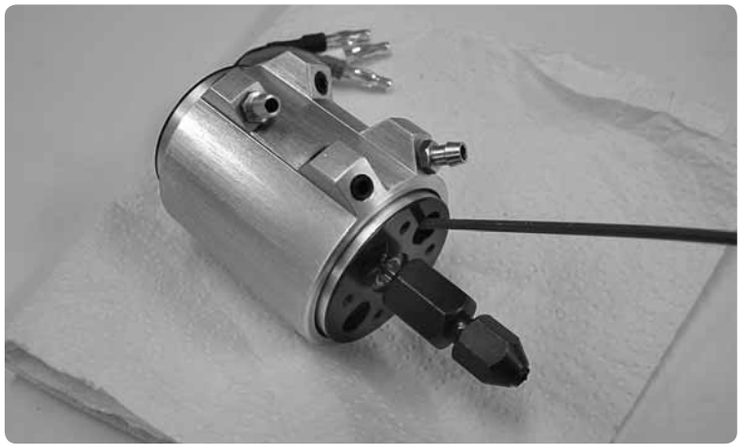


Use the 12mm and 10mm wrenches to loosen the cable coupler from the cable. To do so, hold the 12mm wrench still and rotate the 10mm wrench counterclockwise.

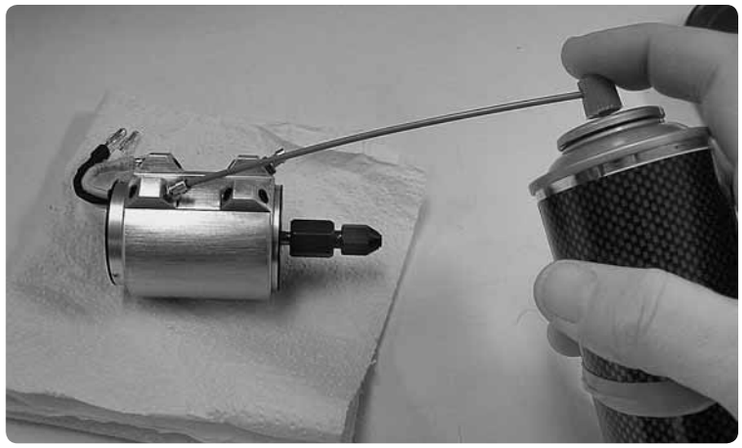
Fully loosen the coupler. Use a rag to cover the prop and firmly pull the prop and shaft away from the coupler. Use a 2.5mm hex wrench to loosen the two motor screws. **NOTE: If you find the shaft hard to remove try rotating the shaft clockwise as you pull.** ***WARNING: Never rotate the shaft counter clockwise as you twist.***



Remove the motor from the boat.



Place the motor in a rag or paper towel and spray water displacer into the fittings on the water jacket as well as in the motor itself.



After the motor is “pickled,” wipe it down and reinstall it in the boat using the above instructions in reverse order.

SHAFT MAINTENANCE

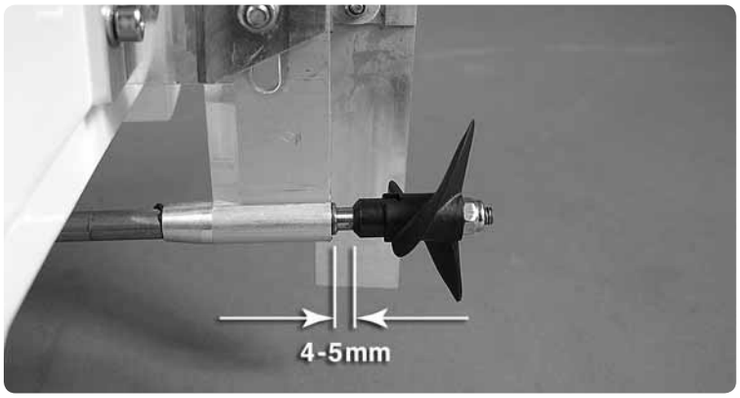
After 5 or so runs and/or after a day of running, it’s a good idea to re-lubricate the drive cable. Here are the tools and supplies you need to complete the task.

- 10 mm Open End Wrench
- 12 mm Open End Wrench
- AquaCraft GrimRacer Speed Grease (AQUB9500)
- Paper Towel

Loosen the cable coupler using the 10mm and 12mm wrenches.

Firmly pull the prop and drive shaft out of the back of the boat. **NOTE: If you find the shaft hard to remove try rotating the shaft clockwise as you pull.**

Wipe away any old grease and water. Apply new grease (AQUB9500 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 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 retracts during operation. Tighten the cable coupler, reversing the direction of the open end wrenches. **DO NOT OVER TIGHTEN.**

It's also worth noting that the drive cable is supported by the brass stuffing tube which, in turn, is lined with a low friction liner. The prop shaft, or stub shaft (as some call it), is hard soldered to the flexible drive cable and it spins in a brass bushing located in the back of the stuffing tube. The bushing is designed to be replaced, as well as the Teflon liner. Both of these parts can wear out, so you might want to include them in a biannual or as needed maintenance routine.

Here are the part numbers:

- AQUB7884 Prop Shaft Bushing
- AQUB7869 Teflon .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 over night. This will allow any moisture that collected in the boat to 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 motor controller 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 and likely draw less current, 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. Using a flat file, sharpen the leading edge of the rudder, finishing with 400 grit, then 600 grit wet/dry sandpaper. Then polish! 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 handles. Tilting the rudder under the boat tightens the ride, while tilting it back loosens the ride.

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 areas of the boat that touch the water when the boat is running at full speed. 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 that 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.

WARNING: GrimRacer says, "If you scuff the boat and don't like the way it looks don't come running back to me for a new hull. I'm just trying to help you win some races so don't shoot the messenger!"

Also be careful not to round off any of the corners of the running surfaces. You want those as sharp as possible. Now let's go racing!

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 Lucas Oil. 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 some of the "How to balance your propeller" links at aquacraftmodels.com.

RACING

Your Lucas Oil was designed to fit into IMPBA and NAMBA Limited P class boat racing. You will find power systems designed for this boat and others like it making their own class called P-Spec. This boat fits into the P-Spec Off-Shore racing class. Check the web sites listed below for information and places to race your Lucas Oil.

NATIONAL ORGANIZATIONS AND ONLINE HELP

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

ORDERING REPLACEMENT PARTS

AQUB9506	Drain Plug
AQUB8781	Servo Mount w/ Mounting Screws (4)
GPMQ4476	Hook & Loop 24"
AQUB7777	FRP Prop 43x50mm 2-Blade (dia. 1.68, pitch 1.98)
AQUB7912	Motor Mount w/ Mounting Screws (4)
AQUB8760	Rudder Linkage
AQUB8762	Rudder Arm Ball Stud and Ball Link
AQUB9014	Servo Arm Clevis
AQUB8759	Rudder Bracket 25"- 35" Hydro
AQUB8812	Strut Mounting Bracket Starboard Hydro
	Strut Mounting Bracket Port Hydro
AQUB8004	.150" Left Lay Flex Cable
	.150 - .187 Stub Shaft
AQUB9006	Plastic Cable Liner 4S Cat
AQUB8753	Rudder Blade w/ Water Nipple, Mounting Bolts
AQUB8757	Rudder Back Plate Mount w/ Mounting Bolts
AQUB8756	Rudder Control Arm w/ Set Screw
AQUB8808	Strut
AQUB8811	Strut Back Plate Mount w/ Strut Bolts
AQUB9545	Cable Coupler 5mm - .150
AQUB9547	.187" Drive Dog w/ Set Screw
AQUB8003	Brass Prop Shaft Bushing
AQUB7759	M4 Stainless Steel Nylon Insert Lock Nut
AQUG7002	36-56-1800 Marine 6pl Brushless Motor
AQUB9518	One-Piece Water Cooling Jacket 36mm
TACJ0245	TTX240 Pistol Grip TX w/ Rx
TACL0324	TR324 3-Channel 2.4GHz Receiver
AQUM7011	60-amp Controller
FUTM0031	S3003 Standard Servo
AQUB6904	Blue Water Tubing

TROUBLESHOOTING

NO SIGNAL BETWEEN THE TRANSMITTER AND THE BOAT

Check to make sure the transmitter is bound to the receiver. The small LED of the receiver will be illuminated if bound properly. If it's not, follow these instructions for binding: Turn the transmitter on and plug the batteries into the controller. Lightly 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 and the LED remains on. Once bound you will not have to repeat this process until either one of the components is changed or serviced.

BOAT RUNS BACKWARDS

Switch any two of the three motor wires.

MOTOR CONTROLLER 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 after or during the launch. Surface drive systems like that of your Lucas Oil typically cavitate (slip) the prop, so you are going to experience some slippage during takeoff. (This is normal). This can be minimized with a metal prop but be warned: A prop that is too large can damage the power system.

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 pick-up.

AFTER A RUN, THE MOTOR, BATTERIES AND/OR CONTROLLER ARE ABNORMALLY HOT

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