

# V24 ONE-DESIGN™



**AQUACRAFT**™  
Models by **HOBBI**CO®

## Warranty

- AquaCraft™ will warrant this kit\* for 90 days after the purchase from defects in materials or workmanship. AquaCraft will either repair or replace, at no charge, the incorrectly made part.
- Make sure you save the receipt or invoice you were given when you bought your model! It is your proof of purchase and we must see it before we can honor the warranty.
- To return your V24 One-Design for repairs covered under warranty, you should send your boat to:

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](mailto:hobbyservices@hobbico.com)

*\*See engine warranty information on page 2*

Thank you for purchasing the V24 One-Design! We at AquaCraft know how exciting a new R/C boat purchase can be and we know you're anxious to get started, but please take time to read these instructions carefully and completely before attempting to operate your model. This manual contains the instructions you need to safely operate and maintain your boat. As with any hobby, there is the possibility of injury. Arming yourself with knowledge is the best way to avoid injury.

**If for any reason you think that this model is not for you, return it to your local dealer immediately. PLEASE NOTE: Your hobby dealer cannot accept a return on any model after the final assembly sequence has begun.**

## REPAIR SERVICE

Repair service is available anytime.

After the 90-day warranty, you can still have your V24 One-Design repaired for a small charge by the experts at AquaCraft's authorized repair facility, **Hobby Services**, at the address listed on the front page of this manual.

To speed up the repair process, please follow these instructions:

1. Under **ALL** circumstances return the **ENTIRE** system, boat and radio.
2. Make sure the **transmitter is turned off, all batteries are removed and fuel is drained** from the tank.
3. Send written instructions which include a list of all items returned, a **THOROUGH** explanation of the problem, the service needed and your phone number during the day. If you expect the repair to be covered under warranty, be sure to include a proof-of-purchase date (your store receipt or purchase invoice).
4. Also be sure to send your full return address.

## FUJI ENGINES 3-YEAR LIMITED WARRANTY FOR USA AND CANADA

Your AquaCraft V24 One-Design features a powerful **Fuji™ 24cc BT- Marine** engine covered by Fuji Engines' standard 3-Year Limited warranty.

### SPECIFICATIONS:

Displacement: 23.9cc (1.45 cubic inch)  
Horsepower: 3.0HP (2.18kw)  
Ignition Style: Spring-Assisted Recoil Starter  
RPM: 4000 - 12,000  
Fuel: Gasoline/Oil mix  
Weight: Approximately 1.4kg w/muffler (3.13 lbs)

Manufactured by FUJI IMVAC INC.  
YOKOHAMA, 235-0005 JAPAN

Worldwide Distributor (except Japan): Hobbico, Inc.  
Champaign, IL 61826 USA  
[www.fujiengines.com](http://www.fujiengines.com)

Fuji Engines warrants this engine to be free from defects in materials and workmanship for a period of three (3) years from the date of purchase. During that period, Fuji Engines will, at its option, repair or replace without service charge any engine deemed defective due to those causes. You will be required to provide proof of purchase date (receipt or invoice).

- This warranty does not cover damage caused by crash, abuse, misuse, alteration or accident. Damage caused by customer disassembly, tampering, use of substandard fuel,

use of incorrect accessories (spark plug, prop, etc.) or any use of the engine for which it is not specifically intended will automatically void the warranty of the engine. If there is damage resulting from these causes within the stated warranty period, Fuji Engines will, at its option, repair or replace it for a service charge not greater than 50% of the current retail list price. Be sure to include your daytime telephone number and e-mail address in case we need to contact you about your repair.

- Under no circumstances will the purchaser be entitled to consequential or incidental damages. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.
- If you attempt to disassemble or repair this unit yourself, it may void the warranty.
- The **Fuji BT-24 Marine** engine was designed for use in model boats. Do not attempt to use it for any other purpose.

For service on your Fuji Engines product, either in or out of warranty, send it post paid and insured to Hobby Services (address on the front cover).

Along with your engine and proof of purchase date, please include a complete written explanation detailing the problem(s) and a phone number that you can be reached at during the day. State your name and return address clearly. For repairs not covered under warranty, you must specify whether you wish the charges to be billed COD or if you wish to be notified of the charges so you can send a check.

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

## SPECIFICATION & DESCRIPTION CHANGES

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

## SAFETY PRECAUTIONS

- **Adult supervision** is strongly recommended! **Children should be warned** about the dangers of playing in close proximity to water.
- This boat is controlled by radio signals, which are susceptible to possible interference from other R/C transmitters, paging systems, or other electrical noise. **Before turning your radio transmitter and receiver on**, make sure no one else in the area is operating a radio on the same frequency (channel).

- Use care to **avoid touching the propeller anytime the engine 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.
- Model engines generate considerable heat. **Do not touch any part of your engine until it has cooled.** Touching the muffler, cylinder head, or exhaust header may result in a serious burn.
- **Gasoline is poisonous.** Do not allow it to come into contact with the eyes or mouth. Always store fuel in a clearly marked container and **out of the reach of children.**
- **Gasoline is highly flammable.** Keep it away from open flame, excessive heat, sources of sparks, or anything else that might ignite it. **Do not smoke or allow anyone else to smoke** in close proximity to open fuel containers. Make sure that fuel lines are in good condition so that fuel will not leak onto a hot engine causing a fire.
- Never operate your engine in an enclosed space. Model engines, like automobile engines, exhaust deadly carbon monoxide. **Run your engine only in an open area.**
- **Use safety glasses when starting or running engines.** The propeller may throw loose material such as sand or gravel into your face.

If the buyer is not prepared to accept the liability associated with the use of this product, the buyer is advised to return this kit immediately in new and unused condition to the place of purchase.

### ITEMS REQUIRED FOR COMPLETION AND OTHER USEFUL TOOLBOX ITEMS

The AquaCraft V24 One-Design can be made ready for the water in just a few minutes. The following sizes of hex keys are supplied with the V24: 1.5mm, 2mm, 2.5mm, 3mm, and 4mm.

**The following items are required to complete assembly:**

- Adjustable Wrench
- Phillips Head Screwdriver
- Twelve (12) "AA" Batteries (SANP3500 x 4), eight (8) for the transmitter, four (4) for the receiver

**As with any hobby, it is a good idea to assemble a useful collection of tools and accessories to bring along anytime you head out to the pond. Here are some items you will want to keep handy.**

- #2 Phillips Screwdriver (HCAR1024)
- Hobbico Heavy Duty Diagonal Cutter 7" (HCAR0627)
- Pliers (HCAR0625)
- Hook & Loop Material (GPMQ4480)
- Hobby Knife (HCAR0109)
- Fuel Can (with 40:1 gas/oil mixture)
- Funnel
- Speed Grease Drive Cable Lubricant (HCAB3000) or Heavy-Duty Marine Grade Cable Grease
- WD-40 (Spray-On Water Displacement Solution)
- Paper Towels
- Spray-On Glass Cleaner
- Zip-Ties (BUKC2477)
- Extra "AA" Batteries (SANP3510)
- Threadlocking Compound (GPMR6060)
- After Run Engine Oil (HCAP3000)
- Medium CA glue (GPMR6009) and Debonder (GPMR6039)

**Other Useful Items to Have On Hand:**

- Sunglasses
- Sun block
- Waders or rubber boots
- Cooler with plenty of ice and soda
- Folding table
- Lawn chairs
- First-Aid kit
- EZ-up or canopy for shelter

### BOAT TERMINOLOGY

**BOW:** The front of the boat.

**STERN:** The back of the boat.

**PORT:** This is the left side of the boat when aboard and facing the front (bow). An easy way to remember this is that port and left both contain four letters.

**STARBOARD:** This is the right side of the boat when aboard and facing the front (bow).

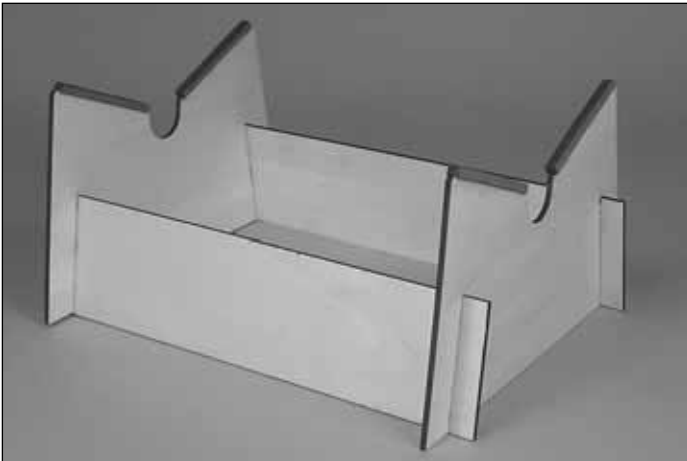
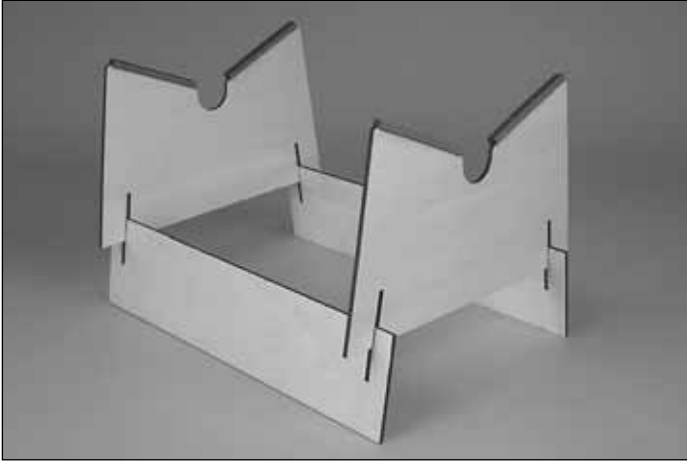
**HULL:** The body of the boat.

**DECK:** The top of the boat.

**RUDDER:** The hinged vertical plate mounted at the stern that controls steering.

## V24 ONE-DESIGN FINAL ASSEMBLY

### ASSEMBLE THE DISPLAY/WORK STAND



A display/work stand has been included with your V24 and can be quickly assembled and disassembled. Simply join the slots together as shown. If you prefer to keep the stand assembled, you may glue the joints together with CA or epoxy. This will also help to increase the stability of the stand.

Carefully place the V24 atop the display/work stand and remove all remaining parts bags from the box. **You may wish to keep the box in order to more easily transport and store your V24.**

**Decals have been provided for your V24. Simply cut them out, peel and stick! See the photos on the box for a decal placement example.**

### TRANSMITTER ASSEMBLY

**Important Note:** The transmitter is not water resistant and should never come in contact with water.



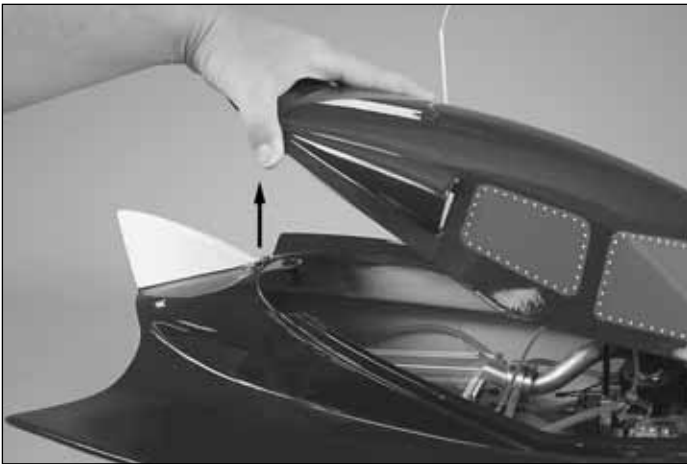
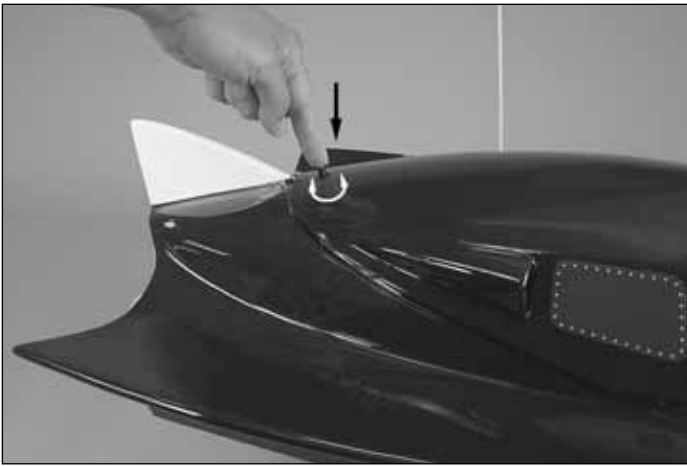
1. Remove the transmitter antenna from the parts bag and screw it into the top of the transmitter. To ensure that the antenna is attached, lightly pull on the base of the antenna. If it slides out, it is not installed properly.



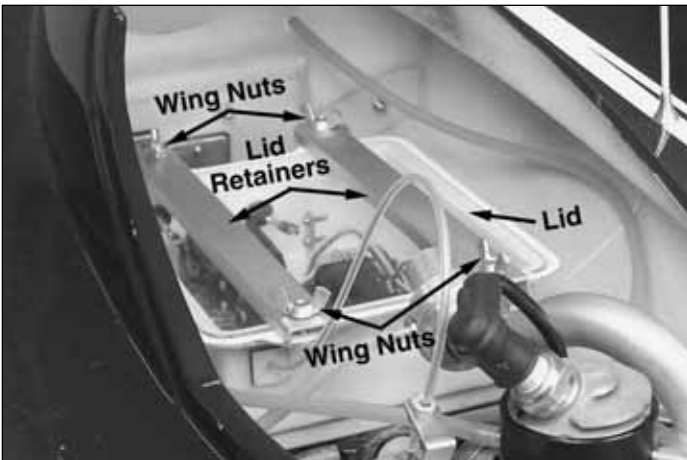
2. Slide off the battery door on the bottom of the transmitter. Install 8 fresh "AA" batteries into the bottom of the transmitter in the configuration molded into the battery holder. Reinstall the battery door onto the bottom of the transmitter.

3. Turn the transmitter "ON" using the switch on the front. The battery level indicator should show two green and one red light. If the level shows only the red light, **the batteries are low and need to be replaced.**

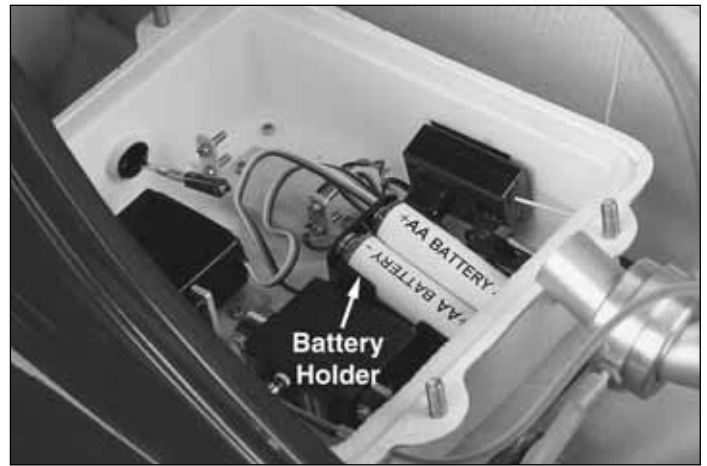
## INSTALLATION OF RECEIVER BATTERIES



❑ 1. Locate the cowl lock button at the rear of the hatch. Remove the hatch cover by depressing the button in a twisting motion and then lifting as shown.



❑ 2. Remove the four (4) wing nuts and radio box lid retainers as shown. This will allow you to remove the radio box cover and access the receiver battery holder.

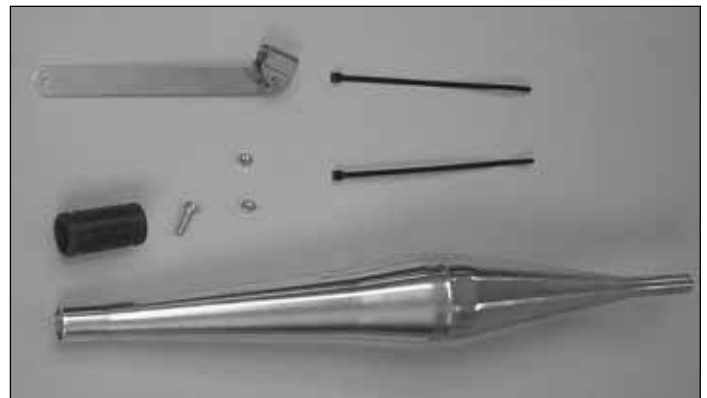


❑ 3. Place four (4) new "AA" batteries into the receiver battery holder. Be sure to follow the polarity diagram molded into the battery holder.

❑ 4. Replace the battery holder inside the radio box. Make sure that it will not interfere with any of the control linkages.

❑ 5. Replace the radio box cover and radio box lid retainers. Secure them with the four (4) wing nuts.

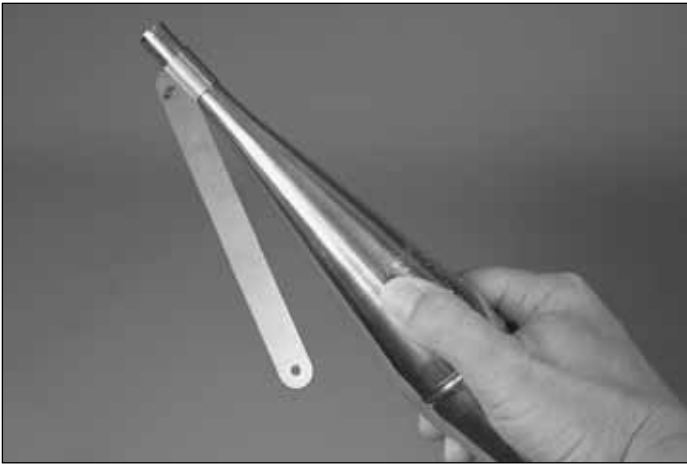
## INSTALLATION OF TUNED PIPE



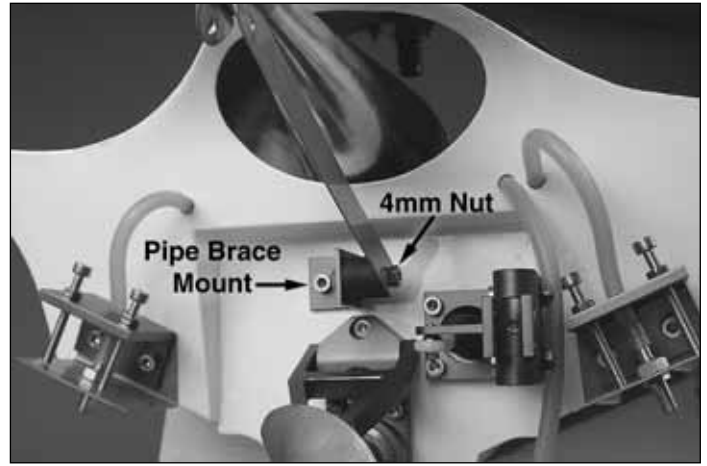
❑ 1. Remove the tuned pipe, exhaust coupler, tuned pipe brace, and (2) zip-ties from the accessory box.



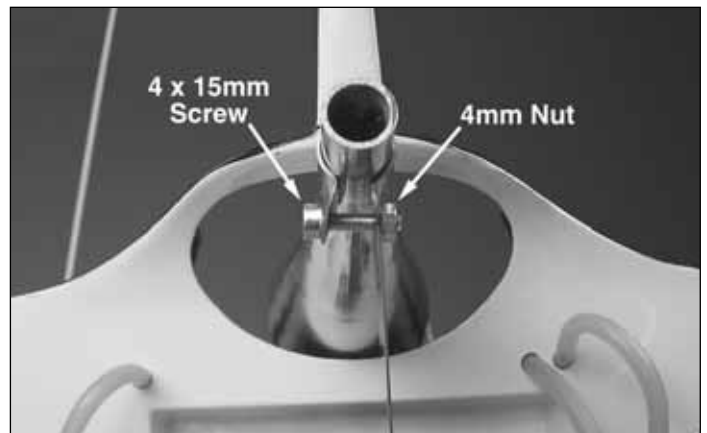
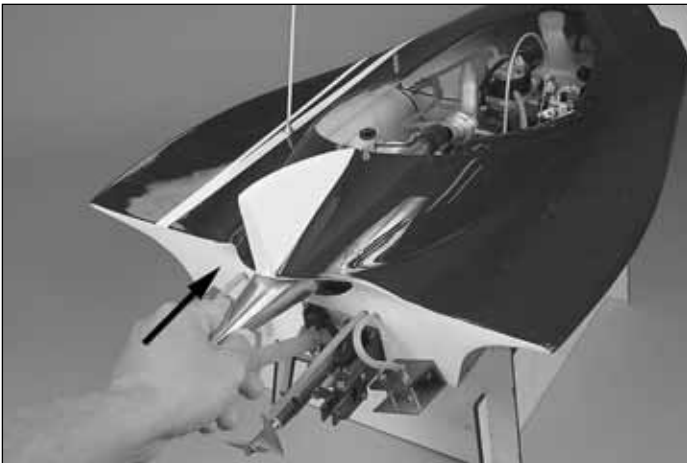
❑ 2. Slide the exhaust coupler onto the large end of the tuned pipe and secure it with one of the provided tie-straps.



❑ 3. Slide the tuned pipe brace onto the small end of the tuned pipe as shown.



❑ 5. Place the tuned pipe brace onto the pipe brace mount on the transom as shown and secure it with the 4mm nut.



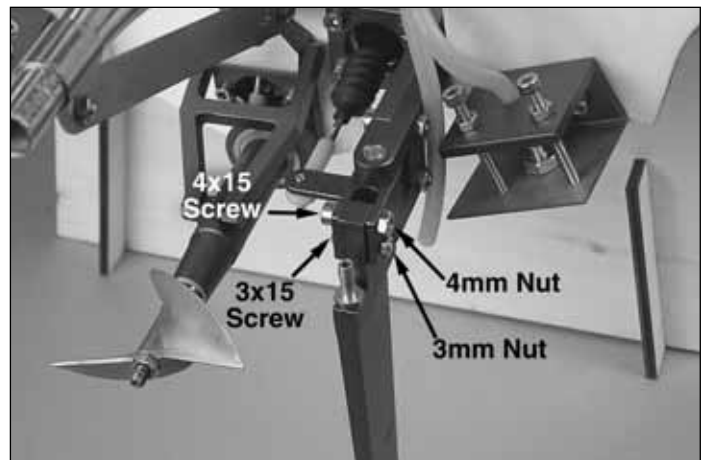
❑ 6. Adjust the pipe so that it is not resting on the radio box and insert the 4x15mm screw. Attach the 4mm nut.



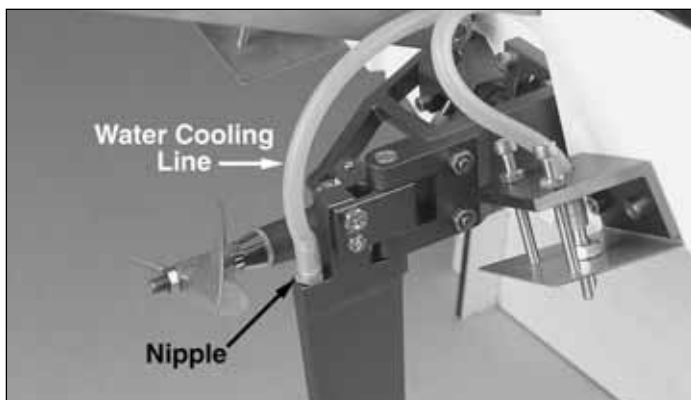
❑ 4. Insert the tuned pipe in through the exhaust outlet at the rear of the boat until the exhaust coupler joins the tuned pipe and exhaust manifold. Secure the exhaust coupler in place with the remaining tie-strap as shown. Carefully cut off the excess tie-strap end.

### **INSTALLATION OF RUDDER**

❑ 1. Locate the rudder from the accessory box. Remove the 3mm and 4mm nuts and the 4x15mm and 3x15mm screws.



❑ 2. Insert the rudder into the rudder control arm assembly as shown. Replace the 4x15mm screw and 3x15mm screw and secure them with the 4mm and 3mm nuts, respectively.



3. Attach the water-cooling line to the rudder water pick-up nipple as shown.

### 3-CHANNEL OPERATION

The V24 One-Design features a variable strut unit that can be adjusted manually or controlled by an optional third servo. Installation of a third servo will require that you replace the included radio gear with a 3-channel radio system.

As the boat is propelled forward and the speed increases, the nose of the boat should lift out of the water slightly. Adjusting the strut angle allows the propeller and engine to work at maximum efficiency so the boat can reach faster speeds (See Propeller Thrust Angle feature on page 12 and 3-Channel Operation feature on page 13).

### CHECK THE RADIO SYSTEM:

- Standing behind the boat with both the transmitter and receiver powered up, rotate the wheel to the left. The back of the rudder should move towards the left. Move the wheel to the right. The back of the rudder should move towards the right. If this is not the case, simply move the steering servo reverse switch to the other position.
- Squeeze the trigger on the transmitter; this should open the throat of the carburetor. If this is not the case, simply move the steering servo reverse switch to the other position.

The D/R knob located on the handle of the transmitter is the steering rate adjustment. Turning the knob increases or decreases the rudder movement.

### SPARK PLUG

The recommended spark plug is a Champion RCJ-6Y. To avoid improper operation or possible engine damage, do not use any other type of spark plugs. The plug gap should be 0.016" to 0.024" [0.4mm to 0.6mm]. If the plug gap is incorrect, adjust it with a spark plug gapping tool, wash it with gasoline and allow it to dry completely before you reinstall the plug in the engine.

### FUEL

Once the engine is broken in, use 40:1 (2.5% oil) fuel/oil mix. Always use high quality oil intended for 2-cycle engines. Prepare only the amount of gasoline needed. Aged gasoline could damage the engine and cause it to overheat.

Use only low octane, alcohol-free gasoline. The carburetor diaphragm will gradually deteriorate if you use gasoline with alcohol. You will need to replace the diaphragm after about 80 hours of operation if you use gasoline with alcohol.

Fuel can go bad. Store your fuel out of the sunlight and in a cool place. Bad fuel is one of the most difficult problems to diagnose in engines. If you have tried everything you can think of to remedy an engine that is not running correctly, try using some fresh fuel.

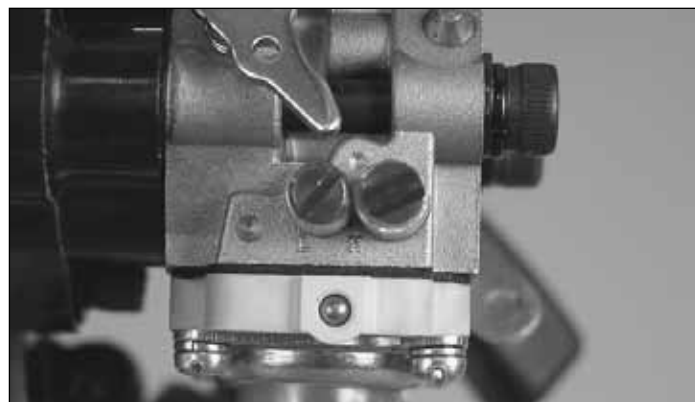
### OVERHEATING

One of the worst things you can do to your engine is overheat it. The oil that lubricates the engine is carried in the fuel. If your engine is set too lean, there will not be enough oil in the engine to lubricate the internal parts. This will cause premature wear in the engine and cause damage.

### ENGINE ADJUSTMENTS

- Always make high and low-speed needle adjustments while the engine is **not** running.
- Adjust the needle marked "H" for high-speed RPM. Adjust the needle marked "L" for low-speed RPM.

### NORMAL HIGH- AND LOW-SPEED NEEDLE SETTINGS:



It is not necessary to change the needle settings if the engine runs smoothly. Normally only the "H" needle will need adjustment from time to time and only by a small amount.

**H:** Open the needle 3/4 of a turn from the closed position ( $\pm 1/4$  of a turn in cold weather).

**L:** Open the needle 1-3/8 turns from the closed position ( $\pm 1/4$  of a turn in cold weather).

**Only adjust the high and low-speed needle within the above range.**

## **IDLE ADJUSTMENT:**

Important: Do not confuse the idle screw with the low-speed needle "L". The idle screw physically adjusts how much the carburetor valve can close. The low-speed needle "L" adjusts the gasoline to air mixture when the engine is running at low RPM. If your engine appears to work correctly except that the low RPM are not as low as you want them to be, then adjust the idle screw. If your engine behaves erratically at low RPM, then adjust the low-speed needle "L". When adjusting, turn the screw about 1/8 of a turn each time. A dirty plug will make it difficult to adjust the idle RPM. Follow the recommended procedures if any of the following happens:

### **Problem:**

- The engine hesitates when accelerated rapidly.
- The RPM increases at idling.
- The engine stops when the throttle is moved from high to low.

**Solution:** Your low-speed needle "L" is too lean. Open it up about 1/8 of a turn and try again.

### **Problem:**

- The idle is not steady.

**Solution:** Your low-speed needle "L" valve is too rich. Close it 1/8 of a turn and try again.

## **HIGH-SPEED ADJUSTMENT:**

The high-speed RPM and transition performance is adjusted with the high-speed "H" needle valve. When adjusting, turn the screw about 1/8 of a turn each time. The position of the "H" needle will vary according to temperature and elevation. If your engine is running smoothly then do not adjust this needle valve. Follow the recommended procedures if any of the following happens:

### **Problem:**

- Engine stops at full throttle.
- Engine hesitates when accelerated rapidly.
- The engine will not come up to full RPM at full throttle.

**Solution:** Your high-speed needle valve "H" is too lean. Open it up 1/8 of a turn and try again.

### **Problem:**

- Your engine does not reach full RPM.
- Carbon build-ups appear consistently on your spark plug.

**Solution:** Your high-speed needle valve "H" is too rich. Close it up 1/8 turn and try again.

## **BREAKING IN THE ENGINE**

To ensure long life and good performance from your **Fuji BT-24 Marine** engine, you **MUST** break it in properly. To break-in your BT-24 Marine, you need to run the engine for about an hour with a fuel mixture that has a 25:1 (4% oil) fuel/oil ratio. **Patience** is important here; the boat will run slowly during the break-in process and the engine's output power will increase gradually over the first few tanks. Once the engine is broken in and you begin running a 40:1 fuel/oil mix, power will increase substantially.

- Do not adjust the high-speed needle on the carburetor to break in the engine. If you do so, carbon will accumulate in the spark plug and that will make ignition difficult.
- Do not run at full power for extended periods of time while breaking in your engine.
- Make sure that the engine has adequate cooling.

**Adjustments should be made on dry land with the boat securely held in place.**



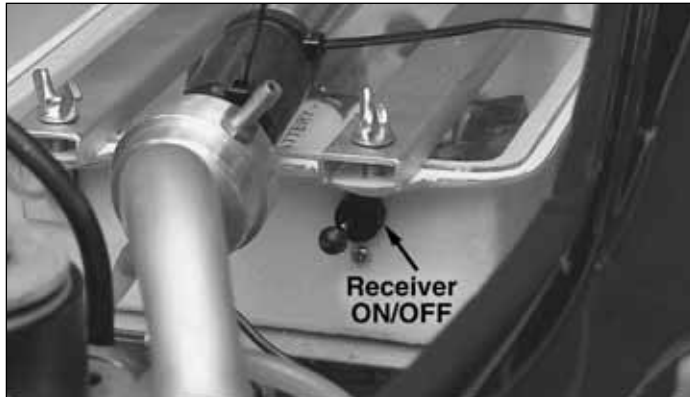
## STARTING THE ENGINE AND LAUNCH PROCEDURE

There are several simple steps to starting the engine. It is a good idea to have another person hold the boat in place while you start the engine.

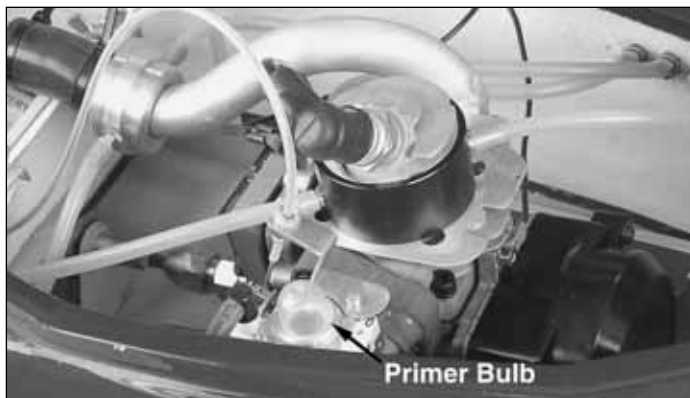
### STARTING PROCEDURE:

**IMPORTANT:** The propeller will begin spinning as soon as the engine starts! Be certain that the propeller is unobstructed; failure to do so will damage the prop.

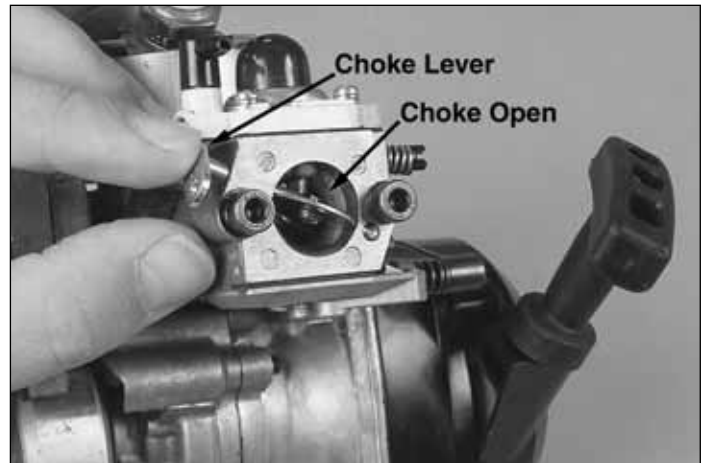
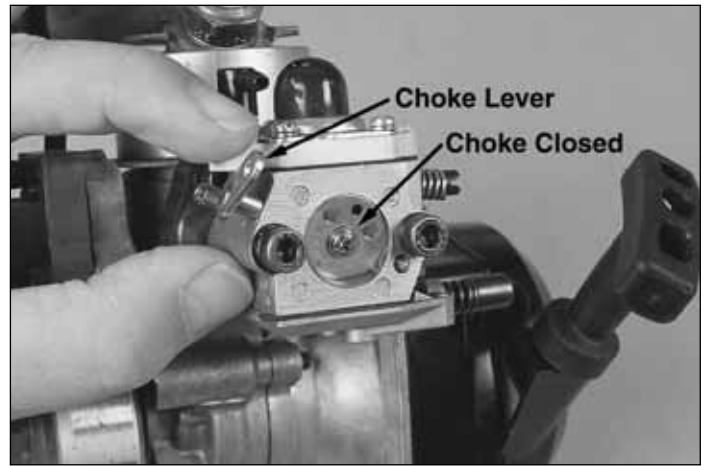
1. Carefully fill the fuel tank with the appropriate fuel/oil mix.



2. Turn on the transmitter and receiver (in that order).



3. Depress the priming bulb 2-3 times. This will begin the flow of fuel into the carburetor.



4. **NOTE:** The engine was removed from the boat for photographic purposes. You do not need to remove the engine to open/close the choke. Close the choke on the carburetor and pull the handle of the recoil starter until you hear some initial firing sounds. **DO NOT PULL THE RECOIL HANDLE OUT ANY MORE THAN 25 INCHES; DOING SO MAY DAMAGE THE RECOIL STARTER.**

5. Quickly open the choke and pull the handle of the recoil starter until the engine starts. **THE PROPELLER WILL BEGIN SPINNING AS SOON AS THE ENGINE STARTS!**

6. After starting, let the engine idle for 15-20 seconds. Open and close the throttle slowly until the engine runs smoothly at idle and at full throttle. Acceleration should also be smooth. **DO NOT RUN THE ENGINE FOR EXTENDED PERIODS OF TIME WITHOUT SUFFICIENT COOLING!**

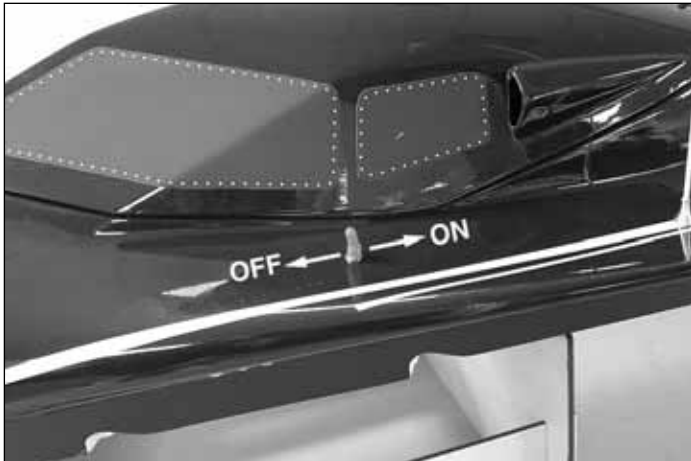
7. If your engine does not start, repeat the starting procedure.

8. With the engine started, put the hatch cover back in place. Press the cowl lock and twist to secure it. **BE CAREFUL NOT TO TOUCH THE SPINNING PROP!**

**IMPORTANT:** Unlike full scale boats, model boats race in a clockwise circuit and it is the nature of model race boats to make right turns more easily than left turns. If you absolutely have to turn left, do so at very slow speed and allow yourself plenty of room.

9. Gently place the boat in water that is at least 8" deep and free of obstacles (weeds, rocks, sticks, ducks, muskrats, etc.). Be sure to stay clear of the spinning prop during the launch.

10. Slowly advance the throttle and note if the boat has a tendency to turn right or left. Adjust the steering trim knob on your transmitter until the boat runs in a straight line when the steering wheel is at neutral.



11. When finished running, use the kill switch to stop the engine and turn off the receiver and transmitter (in that order).

*If the V24 pulls sharply to the right when accelerating, add weight to the portside near the radio box. You will need to experiment in order to determine most effective placement.*

**If the engine fails to start, refer to the TROUBLESHOOTING CHART on page 8.**

### **HOW TO STOP YOUR ENGINE**

For safety purposes, your V24 comes equipped with a kill switch that can completely disable the engine until you are ready to start it.

**PLEASE READ these valuable running tips as well as the "Safety Precautions" at the beginning of this manual BEFORE Running the V-24 to ensure a successful and safe run.**

- **NEVER** attempt to swim after a stalled or capsized boat! Wait patiently for the wind currents to return the boat to shore or use a tennis ball attached to the end of a fishing rod to retrieve a stalled or capsized boat.
- **NEVER** threaten wildlife with any R/C vehicle! This is the quickest way to get R/C boating banned from your favorite local pond.
- It is dangerous to operate any R/C vehicle at any time that there is not sufficient light.

- R/C models produce vibrations which *will* cause screws, nuts, bolts, etc, on your model to become loose over time. **It is important to make sure that all hardware is secure** before operating your model.
- Before running your V24, it is a good idea to **check the water-cooling system** to make sure all tubes are properly connected and unblocked.
- **Do not** attempt to stop the engine by throwing anything into the path of the propeller or by grabbing the driveshaft.
- **The edges of the propeller are very sharp and can cut you very badly** if you are not careful. At no time should you ever attempt to stop the prop with your hand. In the event that weeds become entangled in the propeller, stop the engine before attempting to remove them.
- **IMPORTANT:** If, for whatever reason your boat takes on a large amount of water causing the radio equipment to get wet, you must do the following immediately: Remove the battery pack and radio equipment from the boat. Allow the components to air dry completely before reassembling. Reinstall the components and check for proper operation before running the boat again.
- If your engine should ever become submerged, remove the spark plug and pull the handle of the recoil starter several times until all water has been expelled from the engine. Once you are positive that all water has been removed from the engine and the spark plug is completely dry, reinstall the plug and perform the starting procedure. This may take several attempts.
- Always use a balanced prop. An unbalanced prop will cause high levels of vibration that may be harmful to your driveshaft and engine.
- Be sure to keep your driveshaft well lubricated. Failure to do so may cause vibrations that can be harmful to the engine. Re-lubricate your driveshaft frequently (See *Driveshaft Maintenance* on page 11).
- Do not use silicone fuel line because gasoline will ruin it. Use vinyl or neoprene rubber fuel line instead.
- Use an in-line fuel filter intended for use with gasoline engines. Metal filters intended for glow engines are too coarse and will not screen out finer particles.
- **CAUTION!** The engine will be hot! Allow it to cool for a few minutes before restarting.
- Total run time of the V24 is approximately 25-35 minutes (assuming you begin with a full tank of fuel). When you notice an increase in power, it means the fuel tank is nearly empty and it's time to head for shore. As soon as the boat reaches shore, stop the engine by pushing forward on the kill switch. Open the hatch and turn off the receiver and transmitter (in that order).

- **CAUTION:** Windy conditions cause rough water that will affect the performance of your V24 and increase the chances of capsizing.
- Your V24 may take on water when running in rough conditions and when making tight turns. Keep a roll of paper towels handy and dry out the hull interior after every run. Check for leaks if you notice excessive amounts of water in the hull.

### THE WAITING GAME

If your V24 should happen to stall, water currents will slowly carry it to shore. The bad news is that the boat could be carried to the opposite shore. When surveying areas to run your V24, 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.

**HELPFUL TIP:** Use a fishing rod with at least 15lb line and a tennis ball tied to the end to retrieve a stalled boat.

## MAINTAINING THE V24

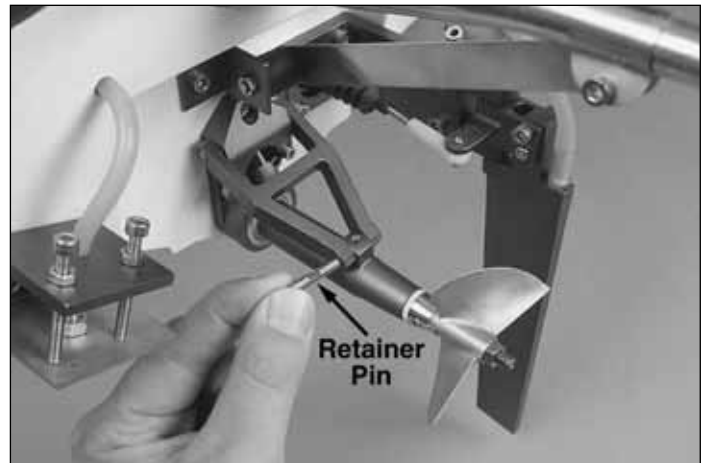
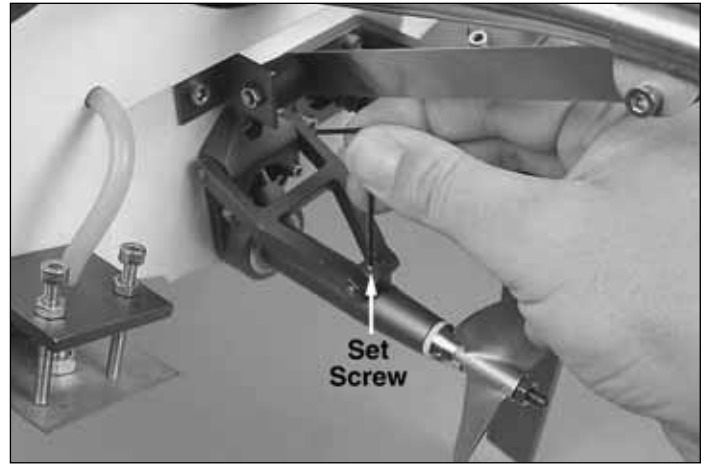
### BASIC MAINTENANCE

When you are through operating your boat for the day, be sure to perform these basic maintenance procedures. This will prolong the life of the V24 and help to ensure trouble-free running. **Make sure that the engine kill switch is set to the "OFF" position before performing any maintenance.**

- Remove the hatch cover.
- Open the radio box.
- Soak up any excess water with a paper towel.
- Remove the driveshaft and wipe away as much grease as you can. Spray the driveshaft down with WD-40 and place it in a plastic bag until you are ready to operate the boat again (See Driveshaft Maintenance feature below).
- Wipe down the entire boat with spray-on glass cleaner and a paper towel.

### DRIVESHAFT MAINTENANCE

The flexible driveshaft is the most abused component of a gas boat. **IT IS CRUCIAL** that you remove the drive shaft and lubricate it with Speed Grease Driveline Cable Lubricant (HCAB3000) or some type of heavy-duty marine grade cable grease at the beginning of each daily session and again every couple of tanks. This exercise will require a 1.5mm hex driver. **Make sure that the engine kill switch is set to the "OFF" position during this procedure.**



1. Usa a 1.5mm hex key to loosen the 3x3mm set screw located on the strut assembly, and slide the retainer pin out as shown.



2. Gently pull the driveshaft out and wipe off any excess grease with a clean rag.

3. Apply Speed Grease Driveline Cable Lubricant (HCAB3000) or heavy-duty marine grade cable grease to the driveshaft and reinsert it into the stuffing box. Slowly rotate the driveshaft while gently pushing it back into place.

4. Slide the retainer pin back in place and retighten the 3x3mm set screw on the strut assembly, making sure that the set screw rests on the flat spot of the retainer pin.

## ENGINE MAINTENANCE:

### Ways To Ensure A Long Life For Your Engine.

- Keep your engine clean. Dirt will act as insulation on an engine and prevent it from shedding heat easily.
- Do not over-lean your engine.
- Do not run your engine without a propeller.
- Do not overheat the engine. This goes along with keeping it clean and not over-leaning the engine.
- Avoid using old fuel in the engine. Always run all of the fuel out of the engine. After running for the day, use after-run oil and work it into the engine by pulling the pull-starter 2-3 times.
- Store your engine someplace where it will not be subjected to extreme temperature changes.
- Before transporting your model, remove all of the gasoline from the tank and lines.
- If you are not planning to run your engine for more than a month, drain the fuel tank and remove any fuel from inside the carburetor. Do this by running the engine at idle until it quits by running out of fuel. Keeping gasoline inside the carburetor over an extended period of time will damage the diaphragm valve and clog passages inside the carburetor.

## RADIO BOX MAINTENANCE

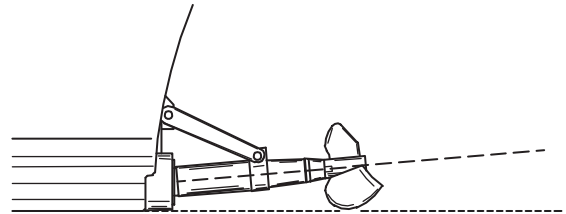
- Line the forward interior of the radio box with paper towel prior to running to absorb moisture.
- Place the receiver in a rubber balloon to provide added protection from moisture.
- Use a water-resistant tape to seal the radio box lid to the radio box.
- When finished running, open the radio box and soak up any moisture that may have made its way into the compartment.
- Should moisture gain access to the radio box, all connections should be dried thoroughly. Hobbico "Duster" Compressed Air (HCAR5500) will provide a blast of air capable of blowing moisture out of connectors.

## HULL MAINTENANCE

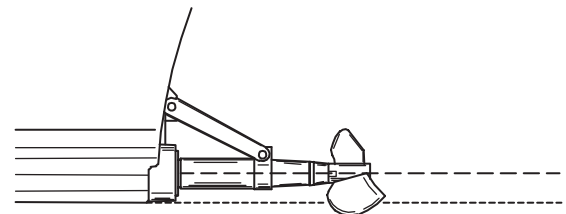
- After running, the exterior of the hull should be cleaned. Common household cleaners can be utilized for cleaning. Areas exposed to fuel/engine exhaust residue should be thoroughly cleaned. Agents in the fuel/exhaust residue can attack the finish if allowed to remain on the surface over time.

## PROPELLER THRUST ANGLE INFORMATION

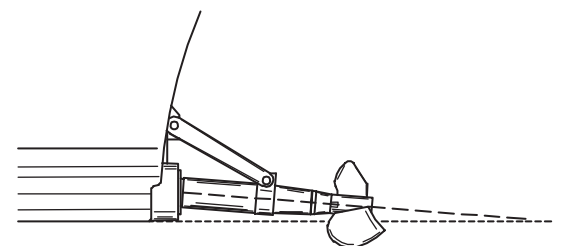
As an initial starting point, try running the V24 with a neutral propeller thrust angle (See Figures 1-3 above). This can be checked by placing a straight edge along the bottom of the hull and checking its relation to the prop shaft.



*Positive angle (prop angles up)*



*Neutral (prop points straight back)*



*Negative angle (prop angles down)*

**Neutral Propeller Thrust:** Provides thrust without letting the thrust affect the ride attitude of the hull (the bow's tendency to ride up or down).

**Positive Propeller Thrust:** Causes a "bow upward" ride attitude. A "bow upward" ride attitude will increase speed but as it does, handling becomes more sensitive.

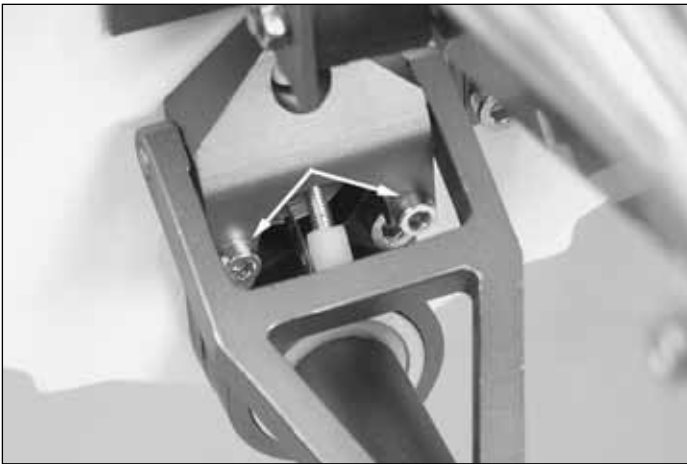
**Negative Propeller Thrust:** Causes the hull to ride "stuck down" (flat on the water). This reduces speed and may cause the boat to submerge in a turn.

Be sure to retighten all the screws upon establishing the desired thrust angle.

## 3-CHANNEL OPERATION

The optional third channel will allow you to adjust the strut and prop angle while the boat is in motion. This option is used mainly by serious racers who need to fine-tune their struts during a race. Once the proper thrust angle is achieved manually by the average modeler, it is unlikely that it would be used very often. In other words, a 3-channel radio is not essential to have fun with this boat!

The procedure requires a 3-channel radio system (of course!), an additional servo (preferably high torque), and removing the two 3x10mm hex head screws that keep the strut stationary (See photo below).



Once the two 3x10mm hex head screws have been removed, the strut assembly linkage is able to move freely. Simply attach the strut linkage to the arm of your third servo and you are ready for some serious racing!

**IMPORTANT SAFETY TIPS:** It is recommended that you use a 5-cell rechargeable receiver battery pack if you decide to use the third channel option. However, since gasoline fumes can build up inside the hull, you should **NEVER attempt to charge a battery pack while it is in the boat.**

## BALANCE THE PROPELLER

To avoid damage to the engine and flexible driveshaft, balancing metal propellers is highly recommended. Balancing a propeller requires the use of a balancing device such as the Top Flite® Power Point® balancer (TOPQ5700), metal files, and 400 grit wet/dry sandpaper. The front, rounded side of the propeller is the surface from which material is removed. Follow the curvature of the propeller surface. Continue checking the propeller on the balancer until the propeller is balanced. 400 grit wet/dry sandpaper will provide a smooth finish.

**NOTE:** While polishing a propeller improves its appearance, it does not improve performance.

## RACING

Although it is very enjoyable to run the V24 by yourself, the real fun and excitement of R/C boating is experienced when you get involved in racing. Racing against other boats is much different than running your boat alone. The following suggestions will hopefully provide helpful strategies when racing a model boat.

A good set-up for running alone may not be the best for racing. Race water conditions create challenges different from running alone and water conditions constantly change during a race. Five or six boats racing against one another will create rough water on the race course. To compete successfully, it may be necessary to “tighten” the ride characteristics. This can be accomplished by lowering the depth of the propeller or adding additional weight to the front of the boat.

Wakes caused by other boats can upset the balance and ride characteristics of even a well trimmed model boat. When running down the straight-aways, don't follow in another boat's wake. Wakes generated by other boats while entering and negotiating a corner are especially dangerous. Cutting across a wake when entering a corner can cause the boat to “hook” (spin to the inside) and stall.

Racing other boats through a corner may be a competitor's greatest challenge, especially the first corner after the start of a race. The boat entering the corner first has the task of holding its position (often called “holding your lane”) through the corner. The following boats must then attempt to hold their lanes, too. Changing lanes and crossing a wake to gain a position in a turn can result in “hooking” and elimination from that race. Executing a good start in the inside lane is one key to successful racing.

Avoid beating yourself. In any type of racing, there are some situations you can control and other situations that you cannot control. The ability to set the needle-valve on the engine so it runs the entire race without stopping, checking the linkages, fasteners, fuel tubing, amount of fuel, glow plug, and radio system are conditions/situations that can be dealt with prior to the start of a race. During the race, making a good start and driving defensively are controllable actions. By focusing on tasks and actions that can be controlled, successful racing outcomes can be achieved.

## NATIONAL MODEL BOATING ORGANIZATIONS

There are three national model boating organizations in the United States and Canada:

APBA or American Power Boat Association (RC Boat Category)  
[www.apba-rcboating.com](http://www.apba-rcboating.com)

IMPBA or International Model Power Boat Association  
[www.impba.net](http://www.impba.net)

NAMBA or North American Model Boat Association  
[www.namba.com](http://www.namba.com)

Each of these organizations has its own rules governing model boat racing, sanctioned events and recognized records. Organized model boat racing is offered at both regional and national levels. Location of clubs, race dates and locations, membership applications, and other information can be obtained through their respective websites.

All three offer both stock and modified engine classes for hulls like the V24. Participation by those new to the hobby of model boating is possible through club events.

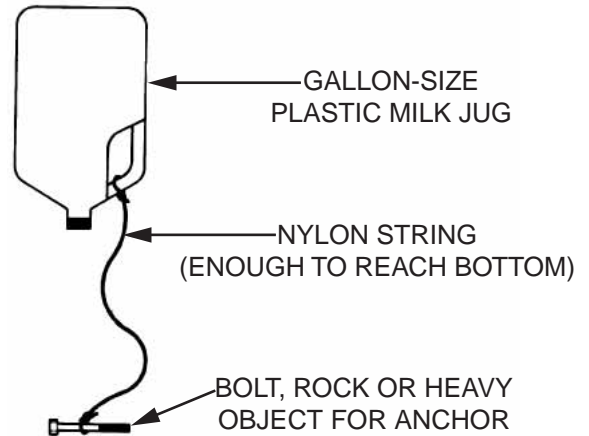
Here are some more good sources of information regarding all aspects of model boat operation:

International Waters  
[www.intlwaters.com](http://www.intlwaters.com)

Jim's RC Boat Dock  
[www.jrcbd.com](http://www.jrcbd.com)

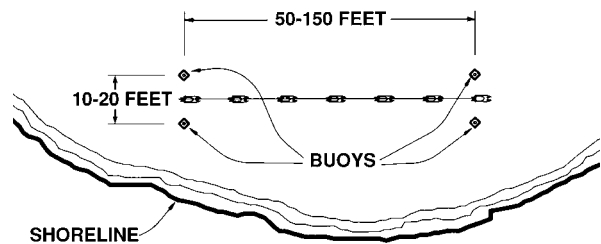
Of course, racing does not have to be an organized and sanctioned competition to be fun. Small informal races can be very exciting without the stress that comes with formal events.

## SUGGESTIONS FOR SETTING UP A SIMPLE RACECOURSE



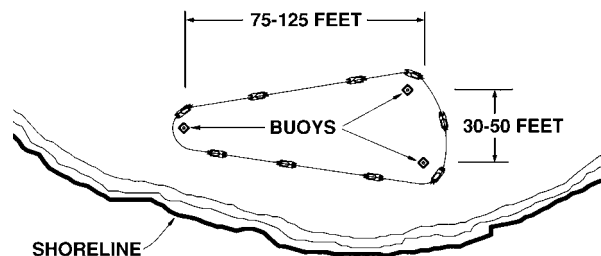
- Make 2 to 4 simple and inexpensive “**marker buoys**” with empty milk jugs, string, and heavy objects for anchors, similar to the above sketch.

### SAMPLE "DRAG RACING" COURSE



- For “**drag racing**” place the buoys similar to the above sketch.

### SAMPLE "OVAL" RACE COURSE



- For “**oval racing**” place the buoys similar to the above sketch. **NOTE:** The above patterns are not based on official standards. You may set up racecourses any way you desire, using your imagination to make the races more interesting. Usually, smaller courses will provide more action and excitement.
- The length of the races can be determined by a set number of **laps** around the buoys (for example, the first boat to complete 5 laps is the winner); or by **time** (for example, whoever is leading at the end of two minutes is the winner).

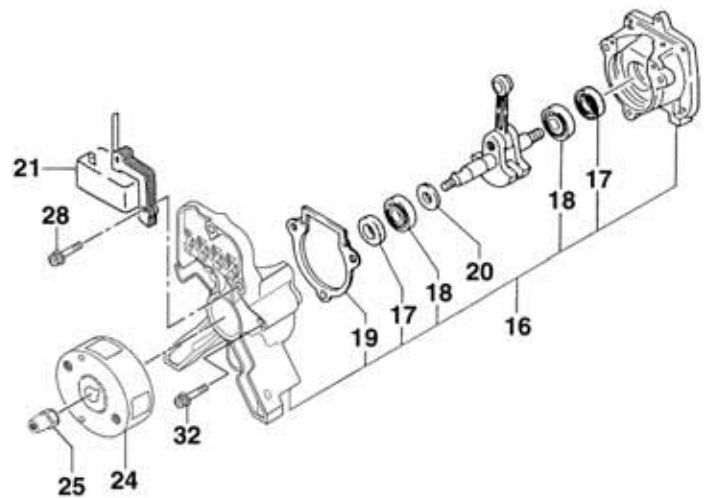
**GOOD LUCK AND GREAT BOATING!**

## ORDERING REPLACEMENT PARTS

To order replacement parts for the AquaCraft V24, use the order numbers from the lists below. Replacement parts are available only as listed and can be purchased from hobby shops or through mail order/ Internet order firms. Hardware items (screws, nuts, bolts) are also available from these outlets. If you need assistance locating a dealer to purchase parts, visit [www.hobbico.com](http://www.hobbico.com) and click on "Where to buy". If this kit is missing parts, contact Hobbico Product Support.

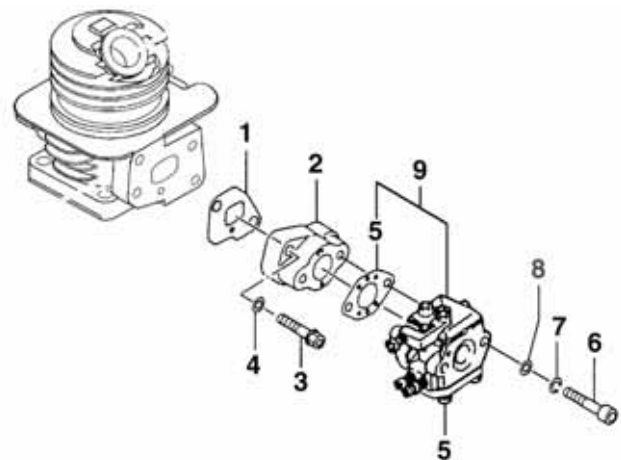
<b>ORDER #</b>	<b>ITEM</b>
HCAB6464	Fiberglass Cowl w/cowl lock
HCAB6902	Gas Boat Fuel Tank, 24oz.
HCAB7859	Flex Cable w/prop shaft, 1/4"
HCAB7862	Stuffing Tube
HCAB7863	Engine Flex Cable Collet
HCAG5101	Exhaust Header
HCAG5911	Tuned Pipe, 23cc - 30cc Gas
HCAB8200	Tuned Pipe Support Brace
HCAB6502	Gas Engine Isolation Mount, 23-30cc
HCAB8605	Radio Box, Fiberglass w/Lid
HCAB9011	Servo Linkages w/connects
HCAB7865	Drive Dog w/screw,washer, 1/4"
HCAZ1003	Instruction Manual
HCAB6314	Decal Sheet
HCAB7866	On-board Adjustable Surface Drive, 1/4"
HCAB7864	Prop Shaft for Adjustable Surface Drive
HCAG4736	Gas Exhaust Coupler w/tiewraps
HCAB7008	Push Button Cowl Locks (2)
HCAB8606	Radio Box Waterproof Tape
HCAG6010	Gas Engine Toggle Kill Switch
HCAB8708	Machined Aluminum Rudder, Blue alum
HCAB8709	Rudder Support Assembly, Blue alum
HCAB8710	Aluminum Rudder Control Arm
HCAB9260	Water Line nipples, std
HCAB9043	Adj. Trim Tabs w/water pick up
HCAB7761	Propeller, Balanced/Sharp 65mm Stainless
HCAG5110	Water Cool Header Jacket
HCAG5111	Water Cool Exhaust Flange for Fuji engine
HCAB6700	Water-proof Switch Boot w/ON-OFF Plate
HCAB6701	Radio Box Water Seal Boot (2)
HCAB7008	Push-button Cowl Locks (2)
HCAB8604	Antenna Tube w/ Cap
HCAB6702	Receiver Water-Proof Balloon (2)
HCAB8603	Radio Box Foam
HCAB8606	Radio Box Water-Proof Tape
HCAB3000	Speed Grease Driveline Cable Lube

### Crankcase



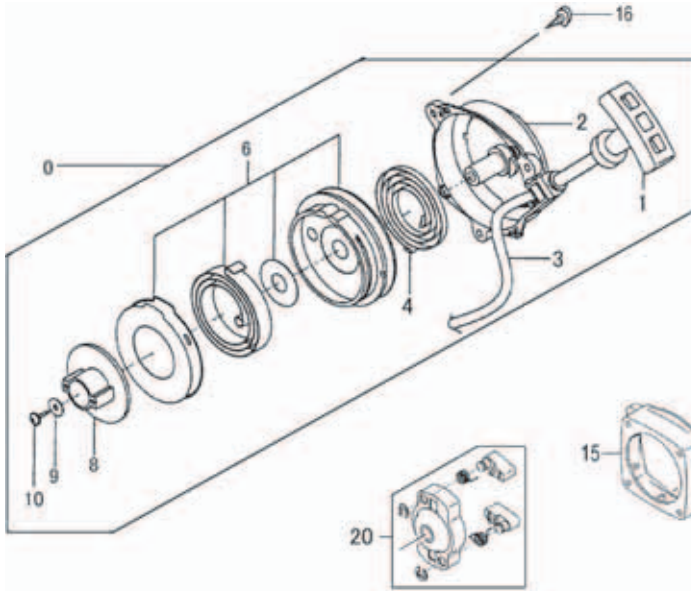
<b>Key # Part #</b>	<b>Description</b>
16 .....FJIG3830 .....	Crankcase Assembly
17 .....FJIG6300.....	Oil Seal TB12227
18 .....FJIG3080 .....	Ball Bearing 6001 C3
19 .....FJIG3920 .....	Crankcase Gasket
20*.....FJIG7310.....	Gear Shaft Shim 0.10
20*.....FJIG7311.....	Gear Shaft Shim 0.15
20*.....FJIG7312.....	Gear Shaft Shim 0.20
20*.....FJIG7313.....	Gear Shaft Shim 0.30
21 .....FJIG5315 .....	Ignition Coil Complete
24 .....FJIG0020.....	Magneto Rotor 60mm
25 .....FJIG0020 .....	Adapter
28 .....FJIG8220 .....	Hex Hole Bolt 4x18WS
32 .....FJIG8290 .....	Hex Hole Bolt 5x18S

### Engine



<b>Key # Part #</b>	<b>Description</b>
1 .....FJIG5480.....	Insulator Gasket
2 .....FJIG5515 .....	Insulator Set
3 .....FJIG8305 .....	Hex Hole Bolt 5x22/S
4 .....FJIG8645 .....	Small Washer 5mm
5 .....FJIG3110 .....	Carburetor Gasket
6 .....FJIG8340.....	Hex Hole Bolt 5x50
7 .....FJIG8605 .....	Washer 5mm
8 .....FJIG8645 .....	Small Washer 5mm
9 .....FJIG3230 .....	Carburetor Set

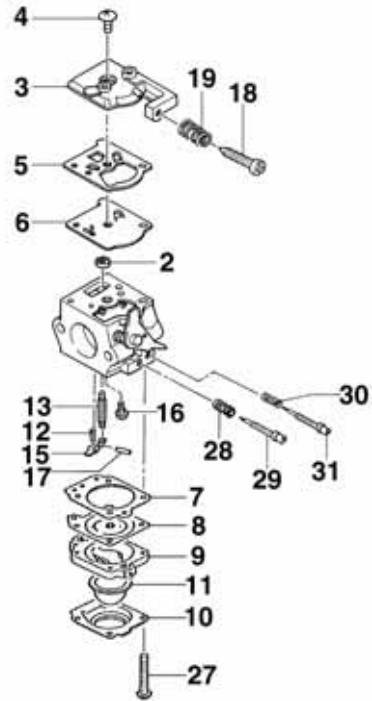
### Recoil Starter



Key #	Part #	Description
0	FJIG7130	Recoil Start Body Assembly
1	FJIG7134	Starter Handle
2	FJIG7131	Recoil Start Body Complete
3	FJIG7132	Recoil Rope
4	FJIG7133	Recoil Spring
6	FJIG7135	Spring Case
8	FJIG7136	Sarter Pulley
9	FJIG8606	Special Washer 5.2x15
10	FJIG7164	Tapping Screw 5x14
15	FJIG7137	Starter Base
16	FJIG7162	Tapping Screw 4.5x14
17	FJIG8190	Hex Hole Bolt 4x12WS
20	FJIG7138	Starter Pulley Assembly

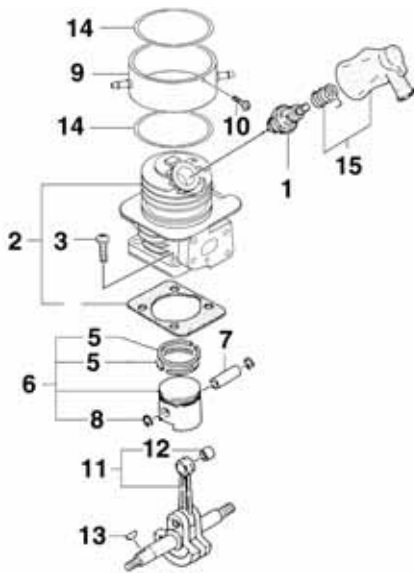
5	FJIG6635	Piston Ring
6	FJIG6361	Piston Set
7	FJIG6419	Piston Pin
8	FJIG6509	Piston Pin Circlip
9	FJIG8719	Water Jacket Complete
10	FJIG7160	Screw 3x8
11	FJIG4019	Crankshaft Complete
12	FJIG6149	Needle Bearing 1.4x8.5
13	FJIG7660	Woodruff Key
14	FJIG6260	O-Ring
15	FJIG7500	Spark Plug Cap Assembly

### Carburetor



Key #	Part #	Description
2	FJIG5460	Inlet Screen
3	FJIG6930	Pump Body
4	FJIG7170	Set Screw
5	FJIG7060	Pump Gasket
6	FJIG7020	Pump Diaphragm
7	FJIG4610	Diaphragm Gasket
8	FJIG5760	Metering Diaphragm Comp
9	FJIG3020	Air Purge Comp
10	FJIG4520	Diaphragm Cover
11	FJIG6210	Priming Body
12	FJIG8525	Valve Spring
13	FJIG6240	Needle Valve
15	FJIG7540	Valve Hinge
16	FJIG5130	Hinge Pin Set Screw
17	FJIG5100	Hinge Pin
18	FJIG5220	Idle Adjust Screw
19	FJIG5285	Idle Adjust Spring
27	FJIG7161	Set Screw
28	FJIG5070	High/Low Adjust Spring
29	FJIG5590	Low Adjust Screw
30	FJIG5040	High Adjust Spring
31	FJIG4940	High Adjust Screw

### Cylinder/Piston/Crankshaft



Key #	Part #	Description
1	FJIG7470	Spark Plug RCJ-6Y
2	FJIG4441	Cylinder Set
3	FJIG8290	Hex Bolt 5x18/S
4	FJIG4291	Cylinder Gasket