

# AQUACRAFT

by **HOBBIKO**<sup>®</sup>  
Models



## AQUACRAFT .18 MARINE ENGINE INSTRUCTIONS

### Warranty

- AquaCraft<sup>®</sup> will warranty this engine for two years after the purchase date 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 engine! It is your proof of purchase and we must see it before we can honor the warranty.
- To return your AquaCraft .18 for repairs covered under warranty you should send your engine 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: [hobby/services@hobbico.com](mailto:hobby/services@hobbico.com)

#### Repair service is available anytime.

- After the two year warranty, you can still have your AquaCraft .18 repaired for a small charge by the experts at AquaCraft's authorized repair facility, Hobby Services, listed above.

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

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 date of purchase (your store receipt or purchase invoice). Also be sure to include your full return address.

### INTRODUCTION

You are the proud owner of a AquaCraft engine – designed to provide easy starts and all the power you'll need for thrilling R/C action.

The following instructions contain information you'll need to break-in, operate and maintain your new engine like a pro. Read and follow them carefully, and your engine will provide a long life of strong, dependable performance.

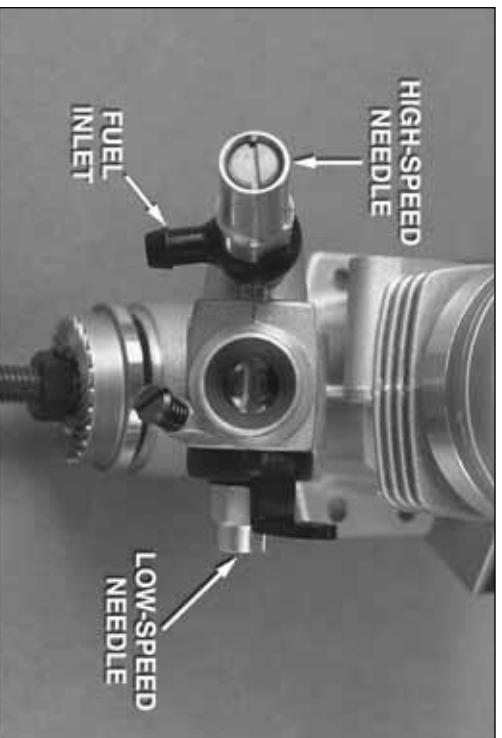
### FOR YOUR SAFETY

- Model engine fuel is poisonous and must be kept in a clearly marked container, stored away from the reach of children.
- Because model engine fuel is highly flammable, it should also be kept away from anything that might cause it to ignite (including open flames, excessive heat, or any objects and materials which could produce a spark). Smoking must not be permitted near the fuel.
- R/C model engine exhaust, like that of automobile engines, contains deadly carbon monoxide. Do not run the engine in enclosed spaces - operate it only in open, well-ventilated areas.

### ADDITIONAL PRECAUTIONS

- Your engine will become very hot as it runs. Touching any part – particularly the cylinder head or exhaust – could result in a serious burn. Avoid contact with the engine until it has cooled.
- Protect onlookers – especially small children – by making sure that they remain at least 8 to 10 feet away while you start the engine.
- This engine was designed only to power R/C model boats and should not be used for any other purpose.
- To prevent damage to the pull starter, never pull the starter cord out more than 10 inches (25cm). Do not abruptly release the handle.

## CARBURETOR SETTINGS



### The High-Speed Needle

The "high-speed" needle is sticking up from the side of the carb. It is located in the brass housing, just above the fuel inlet. It controls the fuel to air mixture of the carb. The needle is pre-set for break-in from the factory at 2 turns out from the fully closed position of the carb. Once the engine is broken-in, the high-speed needle would typically run from 1-1/4 to 1-3/8 turns out from closed (2 turns to start break-in), depending on the weather, humidity and altitude above sea level. To richen turn the needle counterclockwise, to lean turn the needle clockwise.



### The Low-Speed Needle

The "low-speed" needle is the screw in the carb body, in the end of the throttle arm. It controls the fuel to air mixture at low throttle settings. There is a simple way of adjusting the low-speed needle correctly called the "pinch test." With the engine at idle, pinch the fuel line and listen to how the engine speeds up or slows down. If the engine increases its speed for about 3 or 4 seconds and then loses speed, the needle is set correctly. If the engine loses RPM quickly, it is set too lean and the low-speed needle needs to be opened (counterclockwise) to richen the mixture. Pinch again to check the mixture. If the engine takes longer than 5 seconds to slow down, lean (clockwise) the low-speed needle and then pinch again to check the mixture.

### The Throttle Stop Screw

Turn the throttle stop screw out 1 full turn before installing the engine in your boat. The carburetor barrel should fully close with the throttle arm fully back.

## BREAKING IN THE ENGINE

**Note:** This engine was designed to racing tolerances and may take longer than 5 tanks to fully break-in.

To insure long life and good performance from your AquaCraft .18 engine, you **MUST** break-in the engine. The break-in period is critical for long life of the internal parts of the engine. This should be done over the first 5 or 6 tanks of fuel.

### Some Things To Remember During Break-In:

1. Use the same fuel that you will use for normal running.
2. Resist the urge to accelerate and decelerate the boat quickly.
3. Break-in puts stress on the glow plug and you can burn it out during break-in. Make sure you have an extra plug or two on hand.

### Starting the Engine:

1. Install a glow plug if one is not in your engine. This threads into the top of the cylinder head.
2. Fill the tank almost to the top. Leave a little air at the top of the tank.
3. Prime the engine by covering the exhaust port and rotating the flywheel on the engine. Watch the fuel go through the line and when it gets to the carburetor, turn the flywheel one more full revolution.
4. Open the high speed needle valve 2 to 2-1/2 turns out (counterclockwise) from fully closed. **The high-speed needle is sticking up from the carburetor inside the brass housing.** All of the carburetor settings are adjusted with a flat bladed screwdriver. If you have previously run the boat, keep the same needle valve setting that you used on your last run.
5. Start the engine by pulling the recoil – use short, quick pulls. **DO NOT** pull the recoil starter's string to the end.
6. Once the engine is started, open the high-speed needle valve around 1/8 turn at a time, finding the setting where the engine just barely runs.
7. Look at the smoke that comes out the exhaust this is also a good indicator of how rich or lean the engine is running. If there is a good amount of smoke coming out of the exhaust, then chances are good that you are running rich.
8. Run the boat at a medium speed until the tank is almost out of fuel. Do not allow the tank to run out of fuel. This leans out the engine and can cause overheating (See **How To Stop Your Engine**).
9. Stop the engine and allow the engine to cool before the second tank. This normally takes around 10 minutes.

If the engine does not start after several pulls, sometimes it is helpful to start the engine at around half throttle. Have a friend pull back on the throttle some while you start the engine. This may be an indicator that the low speed needle setting needs to be adjusted. When the engine starts, immediately return the throttle to idle. If this is not done the engine can over-rev and cause engine damage. **If the engine is difficult to turn over with the recoil starter, especially if it is brand new, loosen the glow plug a half turn before starting the engine. This allows some compression to escape, but the engine will**

**still start. Make sure you tighten the glow plug after the engine starts.** If the recoil starter is still difficult to pull, the engine is flooded – there is too much fuel inside the engine. Remove the glow plug and air cleaner, then turn the engine upside down and pull the recoil 5 or 6 times. This will clear the engine of fuel, and you will notice the recoil pulls easier. Replace the glow plug and repeat the starting procedure.

### **Fuels**

Use fuels that are specially formulated for marine engines. O'Donnell Boat Fuel is specially formulated for engines like the AquaCraft .18.

### **Stopping Your Engine**

You will need to stop your engine as the boat approaches shore. Its best to drive your boat parallel to the shore and turn the boat in AFTER the engine quits. Make sure before you run your boat for the first time, that when you push the throttle trigger full back that the engine shuts off.

### **Complete the Break-In**

Turn in the needle valve (clockwise) around 1/8 turn from the previous setting for each additional tank. You should notice that the engine will perform better during each run. Stop the boat periodically to check for overheating. If it is too hot, stop the engine. Wait for it to cool, then open up the needle valve 1/4 turn and restart. After the 5th tank, you should be near to the peak performance of the engine.

## **ENGINE MAINTENANCE**

### **Nine Ways To Ensure A Long Life From Your Engine:**

1. Keep your engine clean. Dirt will act as insulation on an engine. It will not be able to shed heat as easily.
2. Do not over-lean your engine.
3. Do not run your engine with little or no load. Don't rev the engine up to full throttle with the boat out of the water.
4. Do not overheat the engine. This goes along with keeping it clean and not over-leaning the engine.
5. Make sure you use a fuel from a reputable manufacturer, such as O'Donnell Fuels.
6. Avoid using old fuels in the engine. Always run all of the fuel out of the engine. After running for the day, use an after-run oil and work it into the engine by turning the flywheel or pulling the engine recoil slowly.
7. Do not scratch the piston or cylinder sleeve. Avoid jamming something into the exhaust port when removing or re-installing the flywheel. Use a special tool called a crankshaft locking tool (not included), which is installed in the glow plug hole.
8. Do not use silicone sealer on the engine joints. Silicone sealer contains acetic acid, which is corrosive if it gets inside your engine.
9. Temperature changes can cause condensation inside the engine. Use an after-run oil to protect the inside of your engine. Store your engine inside the house, not in a garage or shed where there will be temperature extremes.

### **Glow Plug**

The glow plug is an item that will wear out and need replacement from time to time. It is a good idea to remove the glow plug before your first run, heat it and see how well it glows. You should see a bright orange glow from the filament. If a coil or two will not glow or the plug will not glow at all, replace the plug. If the engine quits when you remove the glow starter, the plug might need to be changed, although this may be because you are running too rich and need to screw in your high-speed needle some. Look at the glow plug when you are running the engine. If you see some bubbles coming from around the plug, replace the glow plug (copper) gasket, or both the plug and gasket. The only real way to test a glow plug is to replace it. Make sure you have a spare plug or two (Silver Sport Glow Plug-DTXG3001) on hand when you run the engine.

### **Fuel**

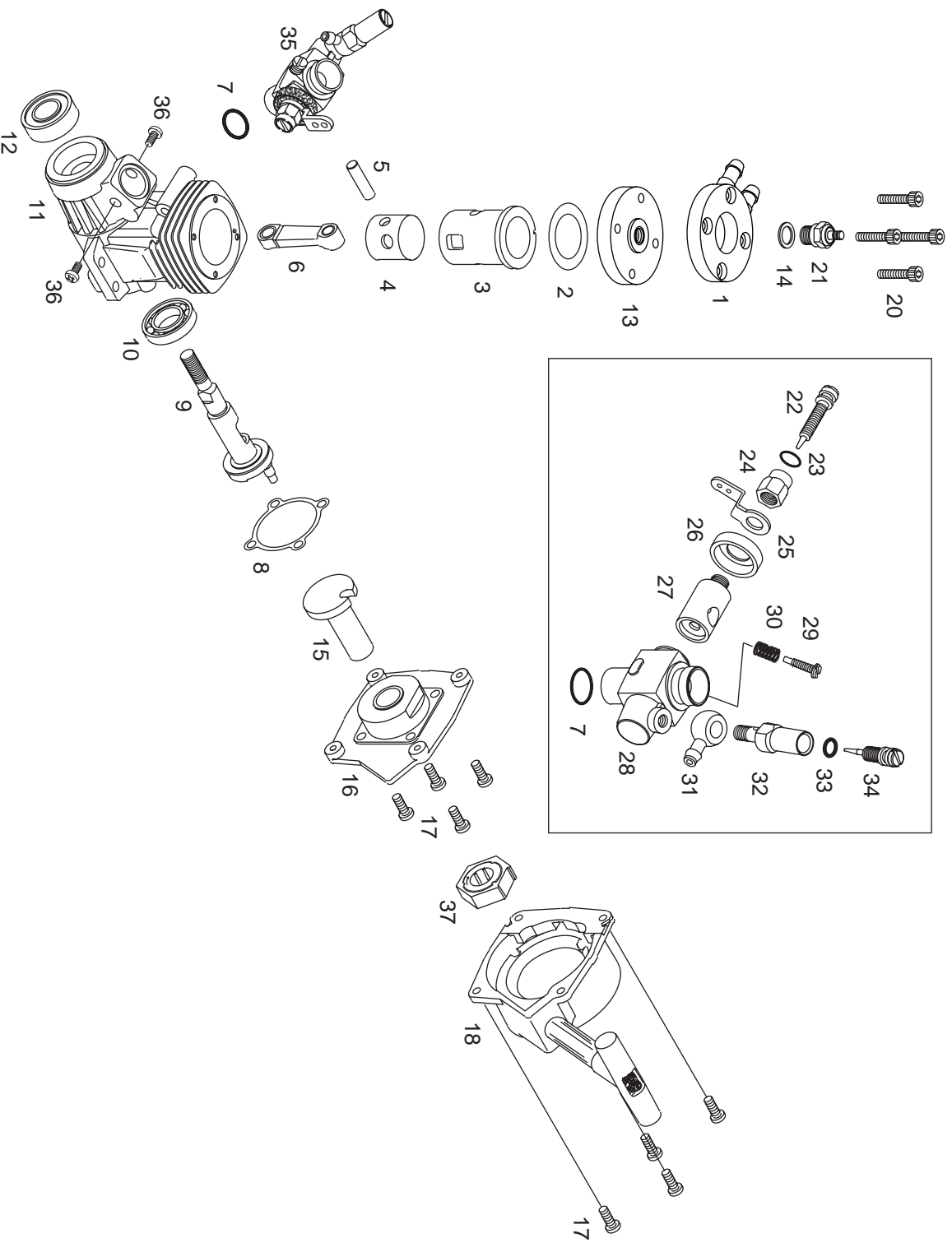
Fuel can go bad. The main ingredient in model fuel is methanol, which can absorb water out of the air, so keep your fuel jug capped at all times. Store your fuel out of the sunlight and in a cool place. Bad fuel is one of the most difficult problems to diagnose in engines. If you have tried everything you can think of to remedy an engine that is not running correctly, try using some fresh fuel.

### **Maintenance**

Fuel line is susceptible to pinhole leaks. You cannot see the hole in the fuel line, but if you see air bubbles in the line going to the carburetor, replace the fuel line. Another symptom of a leak in the fuel line is a surging engine. The properly tuned engine will surge when the air bubbles hit the carb. It is basically leaning out the mixture.

To keep dirt out of the engine, we recommend that you use an inline fuel filter (Clean-Flow Fuel Filter-DTXC2551) on the fuel line running from the fuel tank to the carburetor. Dirt can get caught in the needle seat and cause an inconsistent running engine. If you suspect that some dirt has lodged itself in the carb, remove the needles and clean the carb with denatured alcohol or fuel. It can help to use compressed air to blow out the fuel passages as well.

# EXPLODED VIEW/PARTS LIST



STOCK #	DESCRIPTION	INCLUDES
AQUUG4101	Front Bearing	12 x 1pc
AQUUG4151	Rear Bearing	10 x 1pc
AQUUG4201	Carb Complete	35 x 1pc
AQUUG4223	Carb Gasket (O-ring)	7 x 1pc
AQUUG4226	Throttle Arm Nut	24 x 1pc
AQUUG4241	Carb Retainer Screws	36 x 2pcs
AQUUG4261	Carb Barrel (Rotor)	27 x 1pc
AQUUG4351	Connecting Rod	6 x 1pc
AQUUG4411	Backplate w/Gasket	8, 16 x 1pc
AQUUG4501	Crankcase	11 x 1pc
AQUUG4551	Crankshaft	9 x 1pc
AQUUG4601	Piston/Sleeve Set	3, 4 x 1pc
AQUUG4651	Water Cooling Head	1, 13 x 1pc
AQUUG4652	Head Button	13 x 1pc
AQUUG4739	Carb Dust Cover	26 x 1pc
AQUUG4751	Fuel Inlet	31 x 1pc
AQUUG4771	Backplate Gasket	8 x 1pc
AQUUG4772	Head Gasket	2 x 1pc

STOCK #	DESCRIPTION	INCLUDES
AQUUG5041	Idle Needle w/O-ring	22, 23 x 1pc
AQUUG5042	Idle Needle O-ring	23 x 1pc
AQUUG5421	Piston Pin	5 x 1pc
AQUUG5511	Recoil Start Assembly	18 x 1pc
AQUUG5512	One-Way Bearing	37 x 1pc
AQUUG5526	Needle Socket	32 x 1pc
AQUUG5527	Needle Valve w/O-ring	33 x 1pc
AQUUG5528	Needle Valve Assembly	31, 32, 33, 34 x 1pc
AQUUG5529	Needle Valve O-ring	33 x 1pc
AQUUG5621	Backplate Screws	17 x 4pcs
AQUUG5622	Head Screws	20 x 4pcs
AQUUG5721	Start Shaft	15 x 1pc
AQUUG5831	Throttle Arm	25 x 1pc
AQUUG5871	Throttle Stop Screw Assembly	29, 30 x 1pc
<b>OPTIONAL</b>		
AQUUG6000	Exhaust Header w/Coupler	
AQUUG6001	18 Tuned Pipe	
AQUUG6002	Tuned Pipe Silicone Extension	