

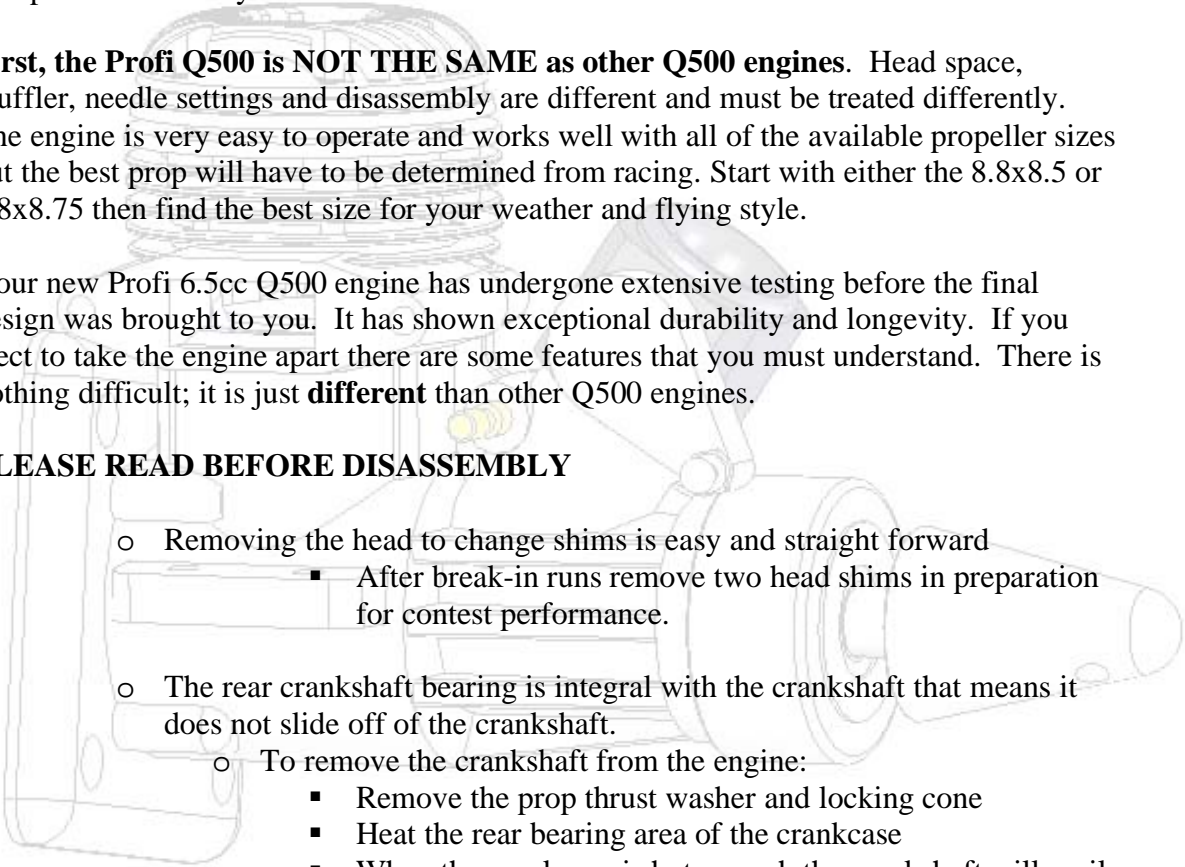
Instruction Sheet Profi Q500

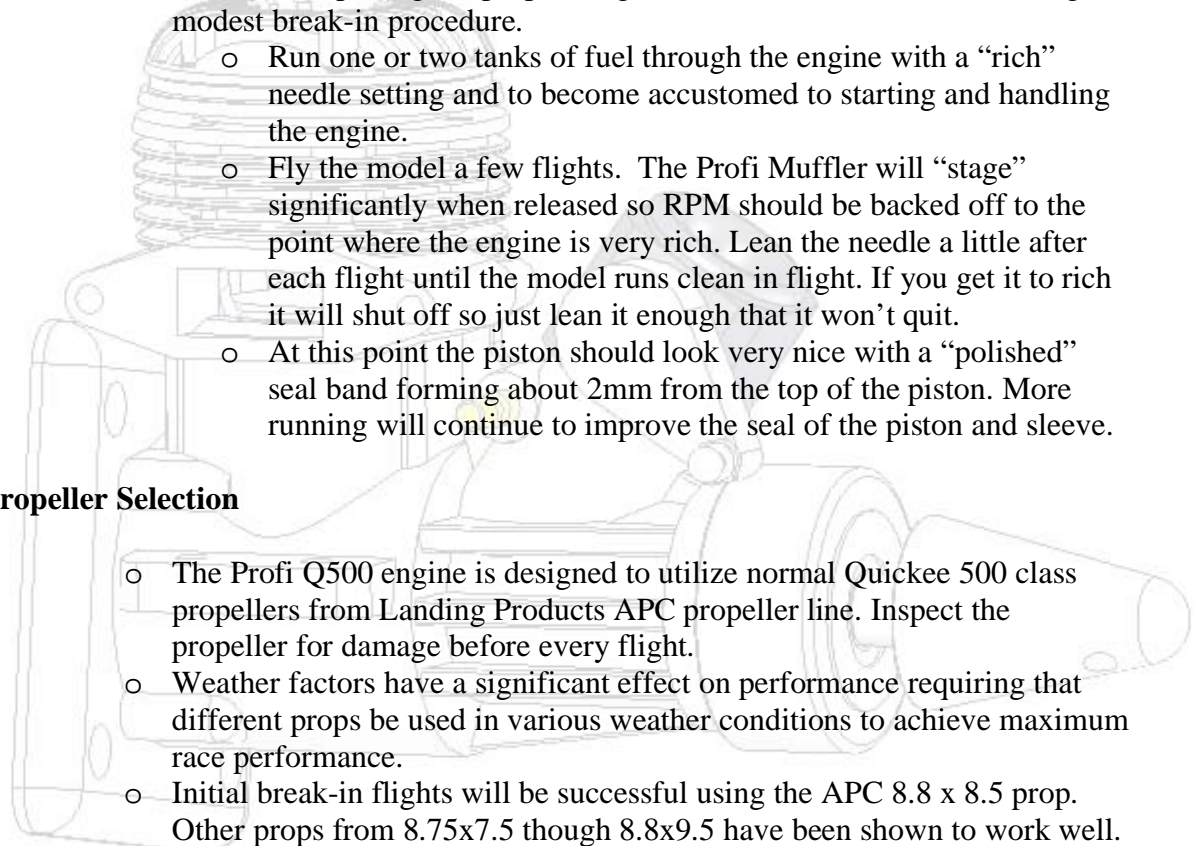
The Profi 6.5cc Q500 engine represents the very latest engineering design for RC Pylon racing and incorporates some new features not seen in an RC engine previously. Materials are of course the most important component and Profi is well known for providing the very best there is. The result is an engine of highest performance and exceptional durability.

First, the Profi Q500 is NOT THE SAME as other Q500 engines. Head space, muffler, needle settings and disassembly are different and must be treated differently. The engine is very easy to operate and works well with all of the available propeller sizes but the best prop will have to be determined from racing. Start with either the 8.8x8.5 or 8.8x8.75 then find the best size for your weather and flying style.

Your new Profi 6.5cc Q500 engine has undergone extensive testing before the final design was brought to you. It has shown exceptional durability and longevity. If you elect to take the engine apart there are some features that you must understand. There is nothing difficult; it is just **different** than other Q500 engines.

PLEASE READ BEFORE DISASSEMBLY

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- Removing the head to change shims is easy and straight forward
 - After break-in runs remove two head shims in preparation for contest performance.
 - The rear crankshaft bearing is integral with the crankshaft that means it does not slide off of the crankshaft.
 - To remove the crankshaft from the engine:
 - Remove the prop thrust washer and locking cone
 - Heat the rear bearing area of the crankcase
 - When the crankcase is hot enough the crankshaft will easily slide out of the crankcase with the rear bearing attached. No hammering allowed! And don't lose any shim washers behind the front bearing.
 - Replacing the crankshaft is basically the reverse of the removal process
 - Be sure that any shim washers on the front of the crankshaft are in place.
 - Heat the clean crankcase until it is relatively warm
 - Carefully drop the crankshaft in place, the rear bearing should easily slip into place.
 - While still warm place the prop nut on the crankshaft and tug on it to be sure the crankshaft has "bottomed" against the front bearing. This is very important to confirm before installing the propeller.

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- At this point you should feel a very minor fore and aft clearance when you push/pull on the crankshaft. And it should spin exceptionally free.
 - This engine utilizes an AAC piston and sleeve. The piston and sleeve are made from proprietary aluminum alloys not available to other engine manufacturers. You will find that there is a considerable drag at top dead center when pulling the prop through. This is normal. It should undergo a modest break-in procedure.
 - Run one or two tanks of fuel through the engine with a “rich” needle setting and to become accustomed to starting and handling the engine.
 - Fly the model a few flights. The Profi Muffler will “stage” significantly when released so RPM should be backed off to the point where the engine is very rich. Lean the needle a little after each flight until the model runs clean in flight. If you get it to rich it will shut off so just lean it enough that it won’t quit.
 - At this point the piston should look very nice with a “polished” seal band forming about 2mm from the top of the piston. More running will continue to improve the seal of the piston and sleeve.

Propeller Selection

- The Profi Q500 engine is designed to utilize normal Quickee 500 class propellers from Landing Products APC propeller line. Inspect the propeller for damage before every flight.
- Weather factors have a significant effect on performance requiring that different props be used in various weather conditions to achieve maximum race performance.
- Initial break-in flights will be successful using the APC 8.8 x 8.5 prop. Other props from 8.75x7.5 though 8.8x9.5 have been shown to work well. 8.8x9.25 is exceptional when the engine is fully broken in.

Cylinder Head Space

- **The Profi engine is very different from other Q500 engines; do not try to set head space similar to other engines!**
- The engine is equipped with **extra head spacers as delivered**. When break-in flights have been completed you can **remove spacers** one at a time to achieve maximum performance in your weather conditions.
- When removing the head follow this process:
 - Remove the glow plug
 - Put the piston towards top dead center to hold the sleeve in place
 - Remove and replace the head and shims, it fits very close
 - Screw tightening sequence 1-3-5-2-4-6

- The domed piston is matched to the cylinder head such that head space with no spacers is .004” to .005”. Head space is therefore simply a question of measuring the head spacers you have installed.
- Final head space for race performance will be very tight requiring .001”- .005” spacer. Excessive head space will result in carbon buildup and poor performance. **Please follow this instruction for maximum performance.**
- You will find that removing most (or even all) of the spacers will provide the highest performance but must be tailored to your prop, plug and weather conditions. This is significantly different than other Q500 engines available.
- It is advisable to use Plasti-gauge to determine head space. The domed piston makes measurement very imprecise. With no spacer installed the head space will be .004”-.005”.

Spare Parts

The Profi Q500 engine has been shown to be very durable. Piston and sleeve fit is long lasting and continues to get better with normal use. All parts are available should you need to do repair for any reason.

Other Notes

The AAC P/S will not allow full lean running on the ground for more than a few seconds before overheating the muffler and “falling off”. Pinch the fuel line and watch the tach rpm. Correct propellers should allow 18,000 to 20,000 rpm on the ground during these “pinch” tests. Do not be concerned about ground tach tests; this engine is all about airborne performance. When the pinch test allows the engine to “stage” for 10 seconds before falling off rich the setting is correct. Lean settings will result in slower times.

Please confirm that your fuel tank has no leaks and fuel lines have no holes before flying. It is recommended to use the typical Tetra bubbleless type fuel tank commonly used for racing. Proper needle settings will result in long life and high performance.

You may return your engine for service at any time.

To: J Booker
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You will find that your new Profi Q500 engine is an “animal” when it comes to racing. Tuning has been very easy with a tolerance for a wide range of needle settings at takeoff. One of the first flight characteristics noticed has been the “pull” through the tight turns. This allows pilots to fine tune the engine and model to match their particular flying style.

Knowledge Base

We want to build a knowledge base about the Profi Q500 engines. Please forward any performance figures you find to: info@flycontrolline.com. As we receive feedback you will find other people's results there as well. This engine is significantly different than other similar competition engines. The Profi muffler lends exceptional power and should always be used for maximum performance. But more than anything the correct propeller will provide the maximum performance.

Thank you again for your selection of this Profi engine. Please be sure to send race results and your tuning setups for our Profi Knowledge Base web page.

