



ENGINE QUICK START AND TROUBLESHOOTING GUIDE

The following information is provided to get your new Magnum engine running right away with minimal effort. We have listed some recommendations for fuel, propellers, starting procedures and other accessories. Also included is general information about the accessories needed for the engine that we hope you will find helpful.

This Quick-Start Guide should not be used as a replacement to the Operating Instructions included; rather, it should be used along with the Operating Instructions. We highly recommend reading through the Operating Instructions to familiarize yourself with each part of the engine, along with the proper procedures for engine break-in, tuning, care and maintenance.

Fuel:

We suggest Cool Power 10% to 15% Nitro 2-Stroke Blend for break-in and normal use.

More Nitro will increase power and improve general running. Cool Power Fuel comes in 0 % to 30 % Nitromethane contents or you may purchase the lubricant separately and mix your own fuel. Be sure to only use high quality Nitromethane and Methanol.

Fuel Tank:

A Fuel Tanks such as the TY1 , Kraft Hayes , Tetra or others of the appropriate size and designed for methanol fuel use . Use a silicone based fuel line and always use a good fuel filter in the filling line from your fuel container and another between the fuel tank and engine in the model.

Engine Preparation :

1) Mount the engine to the recommended motor mount. A wood beam mount built into the airframe would also be sufficient. Kraft Hayes Glass / Nylon mounts and Magnum adjustable mounts also work well on these engines.

The Hayes motor mount is a glass- filled type that mounts to a plywood firewall in the model. It is easy to install and rugged, yet in the event of a crash, will break away to minimize damage to the engine and/or airframe.

2) Install the muffler to the engine using the hardware provided. The muffler cone / outlet can be rotated to better suit the installation in your model, Be sure to tighten the two nuts securely to prevent the muffler cone from loosening.

3) Using a stepped reamer if available (more accurate) or a drill bit, drill out the center hub in the propeller to match the engine shaft size – do not allow it to be oversized - as it will not centre correctly and the propeller will run out of true, causing dangerous vibrations. Install the propeller to the engine using the propeller nuts and washer provided. Tighten the nuts securely using a spanner.

Engine Starting :

Carefully turn the high speed needle valve in completely until it stops, then turn the needle valve out 2-1/2 turns. This is the mixture setting for initial starting. We highly recommend using an electric starter or a "chicken stick" to start the engine. DO NOT use your finger or hand to start any engine – it is too dangerous....

The Magnum 12 Volt Geared electric starter is an excellent and safe aid to engine starting.

Glow Plug: Thunderbolt, YS , and others, have Glow Plugs to suit 2 or 4 stroke engines.

The Thunderbolt # 3 glow plug is designed to be used in high performance engines using fuels containing 10 % - 20% Nitro content and in any environment. It is a "hot" type of glow plug for easy starting, excellent transition and top end. These glow plugs are very durable and able to withstand repeated use, day after day.

Propeller: Use propellers of the recommended size such as **APC** Glass / Nylon or **Xoar** Beech wood or Glass / Nylon We have found that these brand props are designed to be very efficient, run quiet at high R.P.M.'s, and they are also durable. Use the guide in the Operating Instructions to help you find the right size propeller.

Glow Driver: *Max. 1.5 Volts DC only.*

1) **TY1** make a great range of Glow drivers / Starters for your glow engine

2) If hand starting , prime the engine by opening the throttle barrel completely, placing your finger over the carburetor opening and flipping the prop through compression 2-3 times. If you will be using an electric starter, do not prime the engine. The starter will turn the engine over fast enough to draw fuel on its own.

3) Connect the glow starter to the glow plug. Open the carburetor barrel to about ¼ throttle and start the engine. If you are starting the engine by hand, using a chicken stick - you will need to vigorously flip the prop several times before the engine will start. Once the engine begins running, you may have to turn the high speed needle valve in about ¼ turn to keep the engine running, as the initial start setting is usually rich.

4) Advance the throttle to full speed and adjust the needle valve to keep the engine running. The engine should be producing a smokey exhaust from the muffler and sound like it is running rough, this rich setting keeps the engine running cool . Allow the engine to run only for about 5 minutes, then shut the engine off to cool down.

Now that you have started your engine it must be properly broken in. Proper break-in will seat all of the moving parts, particularly the piston and cylinder. This procedure takes about 30 minutes of runtime and is highly recommended. An engine that is properly broken in will produce more power, be more user-friendly and last much longer than an engine that does not receive a break-in period. For this reason we highly recommend following the break-in procedure detailed in the Operating Instructions before you run the engine further.

Recommended fuel for your new Magnum Engine

We recommend a slightly different fuel to that mentioned in the instructions, which suggest adding some Castor Oil to the fuel.

Modern fully synthetic lubricants like “**COOL POWER**” are more than able to cope with the high temperatures and pressures of our glow engines.

Any Castor oil present in the fuel will cause carbon and varnish build up, and cause valves to “stick” as well will reduce the power output of the engine. Castor is useful in some applications like very high revving car engines only. Cool Power does produce the OMEGA range of fuels, containing 5% Castor oil.

All modern high performance motor vehicle lubricants are synthetic based today !

Recommended fuel mix for initial “break-in”

Morgan’s Coolpower Oil (Blue or Purple)	17% -> 20%	Amount to measure (200ml)
Nitro Methane	10%	Amount to measure (100ml)
Methanol	70%	Amount to measure (700ml)
		Total = 1 Litre

This fuel is available as a Cool Power pre mix – “Cool Power 10% - green”

Use ONLY “COOL POWER” synthetic oils in your Magnum engines. As we have no control over the quality of other brand, synthetic oils – Engine warranty may be voided. In these cases use a quality castor oil.

After “Break in” you can increase the Nitro content up to - 15% to 25% . This greatly improves the power and reliability of any engine. Choose the mix that suits your need. **Cool Power** pre mixed fuels are available to suit .

This fuel has been tested and used by many modelers for over 10 years and has been found to give excellent engine performance as far as power, reliable idling, easy starting, rapid transition and long life, As well it provides excellent internal protection and, no matter how long the engine is left without running, it will not gum up or cause bearing skid, the major cause of bearing failure after periods of non use. An added bonus is that this fuel mix can be used in four strokes and two strokes.

For Your Information

Always measure your fuel very accurately for consistent results. For amounts above one litre, multiply the ‘Amounts to measure’ by the number of litres required. For example, 5 litres. $200 \times 5 = 1000$. $700 \times 5 = 3,500$.

$1,000 + 500 + 3,500 = 5,000$ ml which is 5 litres

When finished flying – it is a good idea to use an “after run” oil. Cool Power after run oil is recommended – or if not available – use some straight “Cool power” oil, injected into the motor, then spin it over to spread around internally.

Warranty Information

Your Magnum engine is guaranteed to be free of defects in parts and workmanship for a period of 12 months from the date of purchase. The manufacturer’s guarantee covers failures of the engines due to materials, workmanship or production defects.

The manufacturer’s guarantee does not extend to failures of the ball bearings or to breakage of the connecting rod.

Crash damage, neglect, abuse, improper customer disassembly, tampering, use of sub standard fuel, use of incorrect accessories (glow plug, prop, etc.) will automatically void the warranty of the engine. Should your engine require warranty or non-warranty service please return it to the factory dealer.

For warranty service, send your engine and proof of purchase date (copy of original invoice or receipt) to –

TATES PERFORMANCE HOBBIES. 135 Shannon Ave Geelong West VIC 3218
Ph 03 52224501 sales@tates.com.au

Please enclose a complete written explanation detailing the problems. State your name, address and phone number clearly.

For repairs not covered under warranty, you must specify whether you wish the charges to be billed COD or to your Visa or MasterCard (be sure to complete credit card information including the expiration date).

Please package your engines carefully, preferably in it’s original box.

As it is not possible for the manufacturer to control the circumstances of the operation of model engines, the manufacturer can not be responsible for any accident occurring in the course of the operation of model engines. The manufacturer assumes no liability for injury or loss resulting from the use of these engines beyond the cost of the engine if there was a defect in material or workmanship of the engine.