

**MAINTENANCE AND OPERATION OF YOUR  
MP JET .061 BB and .061 BB RC  
glow engine**

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The MP JET .061 BB and .061 BB RC glow is a modern conception engine with a high specific output. It is designed for sport models of all types with adequate size and weight, but its application for some types of contest models is also possible, with regard to its high output. Like every high performance engine, it demands a certain extent of experience, sensible service and careful maintenance. The engines are available in two configuration - standard and RC. We recommend you to study this instruction thoroughly. Observation of the directions stated here will ensure you operating without problems, achieving of a good output and a corresponding service life of the engine. Further instructions are determined for both configurations of engines. See the MP JET RC carburettor instruction sheet for adjustment and operation of MP JET STN-1 carburettor what is used on this MP JET .061 BB RC glow engine.

We thank you for having bought our product and hope that it will quite comply with your requirements.

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## A. Getting familiar with the engine

### 1. SPECIFICATION

A two stroke glow engine, intake by its crankshaft supported on two ball bearings, Schnuerle scavenging with three transfer ports.

Bore	11 mm
Stroke	10,45 mm
Swept volume	0,993 ccm
Weight including silencer	88 g (RC version 97 g)
Recommended speed	14 000-20 000 r.p.m.
Recommended propeller	175/75-150/75 mm

### 2. ENGINE FUNCTION

With regards to the fact that this engine is not designed for beginners, we presuppose at least a basic knowledge of operation and control of a glow modeler's engine, and that is why we do not mention the customary instructions for starting and setting. At all events, it is necessary to realise that any adjusting and operating must be carried out with feeling. Especially use of unsuitable fuels can cause a damage or complete destruction of engine functional parts. Using the recommended glow head and optimum setting of the compression ratio throw the interchange gaskets is one of basic presumptions for right function of the engine. For correct setting the compression ratio is necessary to respect several basic conditions:

- the higher compression ratio must be set for fuel without nitromethane.
- the lower compression ratio must be set for big size propeller.
- the higher compression ratio must be set for low outside temperature and higher humidity.

The engine is equipped with glow head type GH-1 and three gaskets made by MP JET. In principle, the compression ratio would be as lower as possible, but the r.p.m. must not fall when the glow source is disconnected.

**Important advice!** glow head is designed for 1,5 V dry cell or 1,2 V nicad cell. Higher voltage as the recommended may be damage glow head.

### 3. FUEL

Even this engine is designed for use with no nitromethane fuel, it is necessary to point out that an addition of merely small % nitromethane substantially improves starting, running and power output of the engine. Of events with this fact, we recommend the use at least 5% of nitromethane also for sport flying. The fuels contained the synthetic oil are not recommended for this engine. Use always only high quality castor oil. Do not remember a correct fuel is one of most important prerequisites for a proper function and good service life of the engine.

- optimum fuel composition for:	running in	sport service
methylalcohol	75%	78% or 73-58%
nitromethane	0%	0% or 5-20%
castor oil	25%	22%

To achieve maximum power output, it is possible to use the fuel with extreme high contents of nitromethane, but some engine parts destruction could follow from high stress.

- Important advice!**
- a) nitrated fuel may not be used before a through running-in of the engine.
  - b) after application of the nitrated fuel, it is inevitable to rinse out the engine with a standard fuel, so as to prevent corrosion of individual engine parts.
  - c) filtration, chemical purity and good quality of individual fuel components are unconditionally necessary for problemless engine operation.

### 4. PROPELLER

Use only first-rate, intact and well balanced propellers. Observe propeller manufacturers instructions, especially concerning maximum allowable r.p.m. and maintenance. Do not forget that an unbalanced propeller will destroy not only your engine, but also engine bed, and as the case may be, the RC set. The propeller bore for the engine crankshaft must have only a minimal clearance, in case the propeller has an excessive bore, always use an reducing adapter insert. Regular test of the propeller balance are necessary.

Recommended propeller sizes are as follows:

a) engine running-in	175/85 (7/3,5")
b) slow sport model	175/75 (7/3")
c) fast sport model	160/100 (6,5/4")
	150/100 (6/4")
	150/85 (6/3,5")

- Important advice!**
- a) for racing applications are recommended propeller sizes 150/75 (6/3") or 138/115 (5,5/4,5").
  - b) never overrun the engine, engine destruction could follow from the extreme stress.

## B. Engine running-in

Every engine is functionally tested by the manufacturer, however it has not been run in. We recommend that the engine should be run in on principle on a stand, consequently not in the model. In no case use for attachment a vise or other clamping aids that could damage the crankcase or other engine part. Connect the fuel installation, fit on the propeller and close the fuel needle. During the running-in self proceed as follows:

- fill the fuel tank so that the fuel level may be a few mm lower than the carburettor jet.
- inject 3-5 drops of fuel through the exhaust port over the piston and the same quantity into the venturi.
- connect glow source.
- start to flick the propeller. Continue than the engine starts, takes the fuel and stops. Repeat this procedure several times to be sure, that the engine starts reliably on injected fuel.
- open the fuel needle by 3 turns, blind the venturi opening with your finger and suck the fuel into the fuel hose so, that the fuel could not get in the jet and in the engine, but the end of the fuel column should not be distant of the jet more than 10-15 mm.
- inject the fuel to the exhaust port and the venturi and flick the propeller again.
- the engine starts, sucks the fuel into the jet and runs.
- set a low speed (9 000-10 000 r.p.m.) with a richer mixture with the fuel needle. Let the engine run 10-15 min. in this mode.
- after 10-15 min. run begin to slowly raise the r.p.m. by closing the fuel needle. If the speed begins spontaneously to drop owing to engine heating up, quick enrich the mixture with the fuel needle. The engine being cooled, you can attempt to raise the speed again. Repeat the whole process, as long as the engine is able to run at least 2 min. at full speed and quite regularly without loss of power output. Standard running-in period varies from 15 to 30 min., rather tight engines can not give off the maximum output before 1 hour's running. After this basic running-in, test the engine with the propeller that you will usually apply with your model. Should the engine after being adjusted for full speed still incline to lose its output, go on running-in with this propeller, until the engine is able to run trouble-free also under these conditions. Since this moment, you can consider the engine to be run-in and you can use nitrated fuel.

## C. Mounting the engine in a model

Mount the engine in principle on a sufficiently dimensioned bed of hard wood or of aircraft plywood. See about easy access to the engine fuel needle and glow head. A well accessible venturi enables you simple cleaning of the fuel jet without disassembling the engine out of the model. With covering the engine, it is necessary to allow for a sufficient cooling air inlet. For sporting models use a suction tank, for RC aerobatic models a suitable aerobatic tank. Do not forget about installation of a suitable fuel filter. If need be (engine stalling during flight owing to fuel level variation in the tank with different aerobatic turnings), it is possible to apply pressurizing of the fuel system. Prefer pressurizing from the exhaust silencer, pressurizing from the crankcase use only for the case that the pressurizing from the exhaust silencer should not be sufficient. Use only original fittings manufactured by MP JET and never widen the joints opening for adaption.

## D. Operation of the engine in the model

The starting method is the same as at running-in of the engine. Since the engine fuel mixture will become rather leaner during the flight (owing to relief and higher r.p.m.), it is useful to regulate maximum speed at the model position with bow inclined 45° upwards. Carry out the first start with a richer mixture.

Final setting and tuning up the engine by change of compression ratio with regards to concrete conditions make by means of interchange gaskets mounted under glow head. Respect the basic rules written in column 2 "ENGINE FUNCTION".

## E. Engine maintenance

In principle, do not disassemble the engine. Every, also for the best executed disassembly, reduce the engine life. In case of extreme necessity disassemble only the venturi and the crankcase cover. If the engine becomes soiled (e.g. owing a crash), proceed in this way:

- in no case rotate the propeller.
- disassemble carefully the engine from the model.
- detach the complete carburation assembly (1 screw M2/8).
- dismount the crankcase cover (4 screws M2/5).
- wash the engine carefully with fuel by means of a syringe and oil thin with conservation oil the crank pin, the bore (through the exhaust port) and the crankshaft (through the intake opening).
- re-mount the carburation assembly and the rear cover. Tighten the screws moderately so that no damage to the plastic parts might occur.
- test the rear cover tightness with fuel (bubbles at turning propeller). In case of untightness replace the cover.

**Important advice!**

- a) never forget to wash out the engine and conserve it with several drops of good conserving oil after every flying.
- b) entrust any repairs always to the manufacturer.

## F. Guarantees

Full guarantee for manufacturing and material defects lasts 12 months from the purchase date. Transmit the defective engine direct to the manufacturer's address. Describe briefly the troubles, if possible let know their probable causes. Provided that the defect will pertain to the guarantee for manufacturing and material defects, the defect will be repaired free. If the guarantee will not apply to the defect, MP JET s.r.o. will inform of the repair extent and price. A condition of guarantee validity is a warranty sheet (part of the operating instructions) confirmed by the dealer. Glow head are never guarantee because of their delicate nature.

## G. Important safety advices

- do not start the engine in a room.
- do not smoke while filling the tank with fuel or handling it.
- the methylalcohol and nitromethane is very poisonous matter. Adhere the regulations for manipulation with the poisons. Do not eat, drink, any skin or part of body contamination wash by water and soap.
- the glow fuel is highly inflammable, keep maximum caution at storage and handling.
- inhaling the fuel fumes and its products in the course of the engine running is unhealthy.
- for engine starting use an effective finger protection. An interference of fingers or another part of body with the rotating propeller can result in very serious injuries.
- protect your hearing by means of an effective protection.
- secure that the onlookers stay at a safe distance when the engine runs.