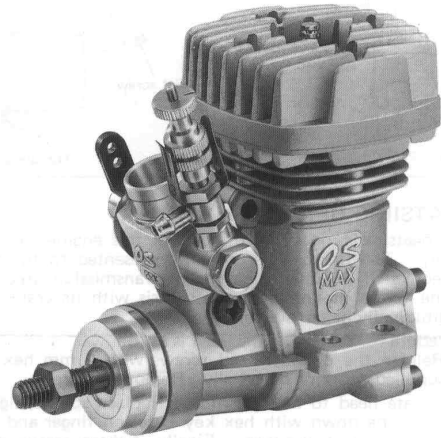


# INSTRUCTIONS FOR O.S. MAX-CZ-R ENGINE

**IMPORTANT:** Before attempting to operate your MAX-CZ-R engine, please read through these instructions so as to familiarize yourself with the controls and other features of the engine. Also, pay careful attention to the recommendations contained in the "Safety Instructions and Warnings" leaflet enclosed.

The MAX-CZ-R is a high performance engine designed expressly for 1/10 class radio-controlled 'buggy' type vehicles.

The MAX-CZ-R is fitted with a special heatsink type cylinder head which ensures the most efficient cooling, and it is also equipped with an O.S. Type 2BK carburettor which endows the engine with quicker response and more rapid acceleration, as well as increased top end power. The O.S. Type 2BK carburettor comes complete with an O.S. air cleaner which provides maximum protection without loss of engine performance.



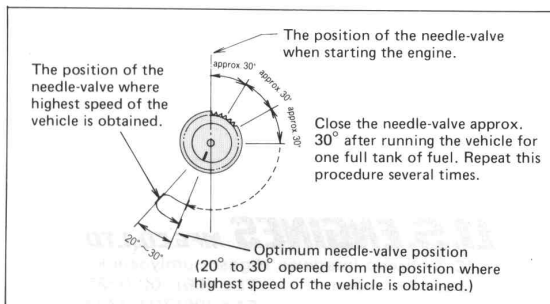
## RUNNING-IN ('Breaking-in')

For long life and high-performance, every engine needs to be properly 'run-in' or 'broken-in'. There are several running-in methods, but the following is suitable for use with this engine.

1. Turn the needle-valve clockwise slowly and gently until it stops. This is the fully closed position. Do not use force to turn the needle-valve beyond this point. Now reopen the needle-valve three turns. (The mark on the needle-valve knob may be used as a reference mark.)  
Set the throttle at a position very slightly opened from the idling position and start the engine.

**Warning!** It is vitally important to set the throttle at the correct position before starting the engine. Never open the throttle wider. If the engine is allowed to run with the throttle too far open under 'no load' conditions (i.e. with the wheels of the car not in contact with the ground) it will speed up to extremely high revolutions — even at part throttle settings — which may result in serious damage.

2. Leaving the needle-valve at the starting setting of 3 turns open, run the car on the track. If the engine stops, due to being over-rich, close the needle-valve 20° to 30° and try again. It should be remembered that, at this stage, response to the throttle control will be less than perfect, due to the rich setting (indicated by dense exhaust smoke) that is required for initial running-in.
3. Run the car on the track with this needle setting until one full tank of fuel has been consumed. Now close the needle-valve approximately 30° and run the vehicle for another full tank of fuel. Repeat this procedure, gradually closing the needle-valve, between runs, until the highest speed is obtained. Make a note of the needle-valve setting at this point. By this time, the exhaust smoke will have thinned to a light grey colour.
4. If the needle-valve is closed beyond this high-speed setting, the car will slow down, accompanied by visibly diminished exhaust smoke. In this case, bring the vehicle to a halt and reopen the needle-valve 20° to 30°.
5. Now open the needle-valve 20° to 30° from the setting at which the highest straight-line speed can be obtained. This is the optimum needle-valve setting. Run the car for about three tanks of fuel with this optimum setting.
6. The completion of the above procedure marks the conclusion of the running-in period, although, as further running time is recorded, a slight readjustment towards a leaner setting may be required to maintain maximum performance. If the engine should need to be disassembled (e.g. for cleaning or minor parts replacement) it is advisable to return the needle-valve to the original rich, starting setting and check whether further running-in time is required before the car is raced again. In the event of any major working parts (e.g. piston/cylinder liner assembly) being replaced, the complete running-in process should be repeated.



## SPECIFICATIONS

Displacement	2.11 cc (0.129 cu.in.)
Bore	14.0mm (0.551 in.)
Stroke	13.7 mm (0.539 in.)
Practical R.P.M.	3,000 — 30,000 r.p.m.
Weight	179g (6.3oz.) (Including Air Cleaner)

## FUEL

Use only top quality model two-stroke engine fuel. For consistent performance and long engine life, it is advisable to use good quality fuel containing AT LEAST 18% lubricant. This engine is designed to run on both low and high nitromethane content fuels, i.e. from mild mixtures containing a few percent of nitromethane, up to high-speed racing fuels containing 40%, or more, of nitromethane. Generally, power output is increased — up to a certain point — as the nitromethane content of the fuel is increased. As a starting point, we recommend a fuel containing 10 — 20% nitromethane, changing to a fuel containing more nitro if necessary. When the nitro content of the fuel is increased or the brand of fuel is changed, it is advisable to initially run the engine with a richer needle-valve setting, so that the optimum setting for the new fuel may be rechecked as described in the RUNNING-IN paragraphs.

When engines are run at very high speeds and on high-nitro fuels, glowplug elements do not last so long.

## GLOWPLUG

An O.S. No.8 glowplug is fitted to the engine. When replacing the glowplug, it is advisable to use the recommended O.S. No.8. The engine may not always run properly with other types of glowplug.

## INSTALLATION

Make sure that the engine-bed mounting beams in the model are parallel, with their top surfaces in the same plane. Poor installation may not only cause erratic running and loss of power, but may also damage the engine itself by distorting the crankcase, bearings, etc. The recommended screws for securing the engine to the engine-bed mounting beams are 3mm or 4-40 steel Allen type. If the holes in the mounting beams do not align perfectly with the engine mounting lugs, enlarge them slightly with a needle file so that the fixing screws enter vertically.

Avoid forcing the screws. Secure with locknuts.

## AIR CLEANER

This is a heavy-duty air filter that has been developed specifically for 'off-road' model car operation. In order to ensure that the air cleaner provides maximum protection without loss of engine performance, please observe the following.

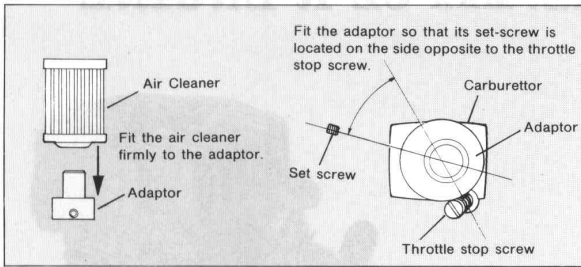
Apply silicone sealant to the outside of the carburettor air intake, then fit the adaptor (provided) to the carburettor air intake and secure it with the set screw. (See sketch.)

**Note:** Do not allow sealant to enter the carburettor intake.

Do not use force, otherwise the carburettor air intake may be damaged. If the air filter element fouls the car body, make a slight modification to the body so that the filter element does not touch it. This will avoid damage to the filter element.

In protecting the engine from the ingress of abrasive dust and dirt, the filter elements gradually become clogged and it is therefore necessary to check their condition periodically and to replace them as required.

Generally, it is recommended that the paper element be checked after every two or three full-tank runs.

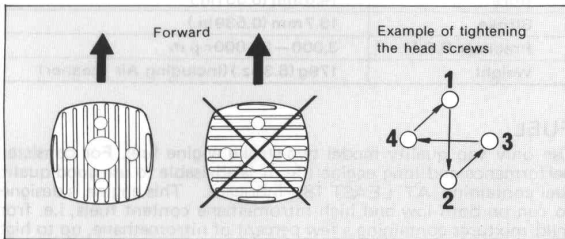


### HEATSINK HEAD

The heatsink type cylinder head of this engine can be relocated simply. The fins can be correctly presented to the airstream, irrespective of whether the type of transmission used requires the engine to be mounted on the chassis with its crankshaft located longitudinally or transversely.

Procedure for relocating the head is as follows:

1. Release the cylinder-head screws with 2 mm hex key wrench supplied, working diagonally. Remove all screws.
2. Rotate head to new position. Replace screws, lightly running each one down with hex key between finger and thumb, then backing off half-a-turn. Finally, tighten screws progressively, each a few degrees at a time, following the diagonal pattern shown in the sketch. Tightening the screws of a cylinder head unevenly can cause distortion and serious loss of performance.



**Note:** If the cylinder head is removed, take care not to allow foreign matter to enter the cylinder or come between the joint faces.

### CARBURETTOR

The MAX-CZ-R is equipped with an O.S. Type 2BK carburettor. See separate instruction leaflet for details of adjustments, spare parts, etc.

### AFTER RUNNING

- Drain any remaining fuel from the tank at the conclusion of the running session.
- After emptying the tank, energize the glowplug and try to start the engine, so that any fuel remaining in the engine will be consumed. If necessary, repeat this procedure until the engine fails to fire. Leaving raw fuel inside the engine may result in difficult starting later.
- Clean the exterior of the engine with methanol or kerosene. Do not use gasoline or a solvent which may damage the silicone fuel tubing or the plastic car body.

### PARTS LIST

Code No.	Description
21201000	Crankcase
21202010	Crankshaft
21203010	ABC Cylinder & Piston Assembly
21204310	Heatsink Head
21205030	Connecting Rod
21206000	Piston Pin
21207000	Cover Plate
21208000	Drive Washer
20810007	Drive Nut
21213000	Screw Set
21214000	Gasket Set
22631019	Crankshaft Bearing (Front)
21230000	Crankshaft Bearing (Rear)
21283011	Carburettor Complete (2BK)
72403001	Air Cleaner Assembly
71608001	Glow Plug No.8
*21125004	O.S.761 Silencer Assembly
*21125010	O.S.761C Silencer Assembly
*71521000	Long Socket Wrench (with plug grip)

\*Optional extra parts

The specifications are subject to alteration for improvement without notice.

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