SAFETY INSTRUCTIONS

It is of vital importance, before attempting to operate your engine, to read the following "SAFETY INSTRUCTIONS AND WARNINGS" in the section and strictly adhere to the advice contained therein.

Also, please study the entire contents of this instruction manual, as it is addressed to you as the owner of a powerful high-speed engine, which is capable of harming you, others, or others’ property.

SAFETY INSTRUCTIONS AND WARNINGS ABOUT YOUR O.S. ENGINE

Remember that your engine is not a "toy", but a highly efficient internal combustion machine which is capable of harming you, others, or others’ property. As owner, you, alone, are responsible for the safe operation of your engine, so act with discretion and care at all times. If at some future date, your O.S. engine is acquired by another person, we would respectfully request that these instructions are also passed on to its new owner.

The advice which follows is given under two headings according to the degree of damage or danger which might arise through misuse or neglect.

WARNINGS

These cover events which might involve serious or extreme circumstances, even fatal injury.

NOTES

These cover the many other possibilities, generally less obvious sources of danger, but which, under certain circumstances, may also cause damage or injury.

INSTRUCTION MANUAL

ENGINE CONSTRUCTION

With this engine, the piston idles to the right of the top of its travel (TDC) when the engine is cold. This is normal. The cylinder has a slant taper. The piston and cylinder are designed to achieve good combustion and to prevent heat loss when they reach their operating temperature.

NOTES ON OPERATION

Since this is a special speed version, individual parts are available only for limited period (one year after finishing the production)

FUEL

Petrol, marketed as suitable for use in the engine, cannot be used. A special fuel mixture must be used.

GLOWPLUG IGNITION

Commercially available handy glowplug connected, and the driving wheels clear of the ground, the engine temperature, etc. (i.e. with the driving wheels not in contact with the ground) it will reach overheat and may become seriously damaged.

When the engine is warmed up, disconnect the glowplug battery and try running the car on the friction drive or with the fuel feed system be used so that the fuel may be stably supplied.

When the engine has not been used for a long time, the parts breakage that is capable of being caused by a compression loss, to the spark plug, and the engine to be damaged.

The engine may be damaged to the wrench too far open under the condition of an engine is closed too far.

Avoid to damage the Mixture Control Valve and the Metering Valve are set at the standard position when the engine becomes the factory, readjustment may be necessary, occasionally to allow for changes in fuel formula and climate conditions. Readjust the controls only when satisfactory results cannot be obtained with the standard positions following the instructions mentioned in the "CARBURATOR ADJUSTMENT" section.

Installation of the Carburetor

As delivered, the engine has its carburetor tightly installed in the intake boss. Secure it as follows.

1. Loosen the retainer screw, rotate the carburetor to its correct position and make sure that it is pressed well down into the intake boss, compressing the rubber gasket, before retightening screw.
2. Rotate the retaining screw gently until it stops, then tighten a further 180°. Do not overtighten the screw as this will damage the carburetor body.

ENGINE INSTALLATION

Make sure that the vehicle’s engine mounting surfaces are level and in the same plane. Poor installation may cause the engine to vibrate, mistrack, etc., resulting in erratic running and loss of performance.

The recommended engine mounting surface should be flat so that the engine is vertical within 3mm or 4-40 steel Allen hexagon socket type. If existing holes are level and in the same plane. Poor installation may cause the engine to vibrate, mistrack, etc., resulting in erratic running and loss of performance.

Carefully observe the exhaust smoke.

Be sure to run the engine with visible smoke at all times. If the smoke is not visible, the needle valve is closed too far.

The RUNNING-IN (Breaking-in) is completed.

Note: In the event of any major working parts (e.g. piston ring/bottom liner or assembling parts) replacing, and the engine has been stopped, and then the fuel feed system be used so that the fuel may be stably supplied.

Not to allow the engine to idle for too long.

To stop the engine, close the throttle to the idle speed and stop by rotating with the throttle in the "OFF" position.

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**FINAL ADJUSTMENT**

Final adjustment should be carried out only after the running-in has been completed.

1. **NEEDLE VALVE ADJUSTMENT**

Run the vehicle (with throttle fully open) over the longest available straight road section to

- Smoothen the engine by and then
- Obtain the model's speed.
- Return the vehicle to the starting point and close the Needle valve 10~15° and repeat the run, taking note of the improvement in performance.

Continue with further runs, gradually reduce the Needle-valve setting aiming to achieve the highest straight-line speed (optimum position).

Remember, however, if the Needle-valve is closed too far, the engine will overheat, accompanied by visibly diminished exhaust smoke and the model will lose speed. At this point, throttle down immediately, stop the vehicle and reopen the Needle-valve 30°.

2. **METERING NEEDLE ADJUSTMENT**

After setting the Needle-valve at optimum position, run the vehicle a few times at the straightway, and stop the vehicle. With the engine still running, close the throttle and allow it idle for about five seconds, then reopen the throttle fully. If, at this point, the engine pulls out an excessive amount of smoke and the vehicle does not accelerate smoothly and rapidly or even stops, it is probable that the idle mixture is too rich. In this case, turn the Metering needle clockwise 30°~45°.

If, on the other hand, the engine tends to speed up momentarily with little smoke and then cut out abruptly when the throttle is opened, the idle mixture is too lean. In this case, turn the Metering needle counter-clockwise 30°~45°.

3. **THROTTLE STOP SCREW ADJUSTMENT**

If the engine runs too fast with the throttle closed, the throttle stop screw should be turned counter-clockwise to allow the throttle opening to be reduced.

**OPTIMUM MIXTURE CONTROL POSITION**

With the optimum mixture control position, full smoke is visible during high speed running and the engine rpm increase smoothly during acceleration. Carry out adjustment 1~3, patient while engaging the throttle slowly and quickly to the throttle control.

Remember, if the engine is operated with the fuel-air mixture slightly too lean, it will overheat and run unevenly. As with all engines, it is advisable to set both the needle-valve and metering needle slightly on the rich side of the best rpm setting, as a safety margin.

Finally, beyond the normal break-in period, a slight readjustment toward a leaner needle setting may be required to maintain maximum performance.

4. **REMOVING DIRT/STAIN**

Dirt and dust may lodge in marked places.

Dirt and stain on the engine and silencer/manifold cause lowering heat dissipation effect. When dirt and stain are detected, remove the engine from the chassis and clean it with alcohol.

**INSTALLING DUCTS**

When storing the engine, install the cap on the exhaust port, carburetor, etc. to prevent dust from entering the engine.

**CHECKING THE ENGINE**

If the engine will not develop normal performance after break-in running due to wearing of parts, it is suggested to replace necessary parts when the following symptoms are detected.

- Engine sound changes and easily overheats.
- Ignition failure occurs (as dropped extremely).
- Idle is unstable and/or engine tends to stop at idle.
- In most cases, ball bearings, cylinder & piston assembly, connecting rod and/or crankcase have become worn.

Check the parts carefully and replace them if necessary.

**O.S. GENUINE PARTS & ACCESSORIES**

- **GLOW PLUG**
  - RPP (71642005)
  - RPP (71642070)
- **THROTTLE HEAD #5 O.S. SPEED R2101**
  - (22040040)
- **T-2080SC TUNED SILENCER COMPLETE SET**
  - T-2080SC Tuned Silencer Assembly (72550190)
  - Joint Spring (3pcs.) (72510242)
  - Exhaust Seal Ring (2pcs.) (23781400)
- **M2001SC Exhaust Header Pipe Assembly**
  - (22848160)
- **SUPER AIR CLEANER 202 ASSEMBLY**
  - On-road Type (72412000)
  - 02 Cleaner Body (72411200)
  - Filter Element (4pcs.) (72412003)
- **PRESSURE CHAMBER SET**
  - (71600520)
- **INDUCTION SILENCER**
  - Induction Silencer Filter (3pcs.) (72412004)
- **ON-Road FILTER OIL (20ml)**
  - (72414000)
- **O.S. SPEED CARBURETOR REPAIR KIT 21**
  - (71490000)
- **O.S. SPEED CARBURETOR REPAIR PARTS 21**
  - (71491000)
- **O.S. SPEED CLUTCH BEARING 100102 4pcs.**
  - (71700035)
- **O.S. SPEED CLUTCH BEARING 100102 10pcs.**
  - (71700032)
- **O.S. SPEED GIUCONE TUBE**
  - (72550180)
  - 2.0mm x 160mm
- **O.S. SPEED EXHAUST SEAL RING 21 (3pcs.)**
  - (72300035)
- **O.S. SPEED PISTON PIN RETAINER 4pcs. (Black)**
  - (21870100)
- **O.S. SPEED FLYWHEEL COLETTE (2pcs.)**
  - (71801100)
- **O.S. SPEED DUST CAP SET FOR 12-30 CLASS 6mm(2pcs.)- / 8mm(2pcs.) / 10mm (5pcs.)**
  - (22882454)
- **DUST CAP SET 3mm (5pcs.)**
  - (73030305)
- **DUST CAP SET 10mm (5pcs.)**
  - (73031512)
- **DUST CAP SET 18mm (5pcs.)**
  - (73031812)
- **O.S. SPEED CLUTCH WRENCH & ADJUSTER**
  - (71413300)
- **O.S. SPEED FLYWHEEL KEY**
  - (71413300)
- **O.S. SPEED FLYWHEEL PULLER**
  - (71415100)
- **O.S. SPEED DRILL WRENCH**
  - (71510100)

**ENGINE PARTS LIST**

- **Control Screw Set 18mm**
  - (71490000)
- **O.S. SPEED HEX BALL WRENCH DRIVER 2.0**
  - (71520100)
- **O.S. SPEED HEX WRENCH DRIVER 2.5**
  - (71491000)
- **DUST CAP SET 3mm**
  - (73030305)
- **DUST CAP SET 4mm**
  - (73030404)
- **DUST CAP SET 6mm**
  - (73030603)
- **DUST CAP SET 8mm**
  - (73030803)
- **DUST CAP SET 10mm**
  - (73031004)
- **O.S. SPEED PISTON PIN RETAINER 4pcs. (Black)**
  - (21870100)
- **O.S. SPEED FLYWHEEL COLETTE (2pcs.)**
  - (71801100)
- **O.S. SPEED DUST CAP SET FOR 12-30 CLASS 6mm(2pcs.)- / 8mm(2pcs.) / 10mm (5pcs.)**
  - (22882454)
- **O.S. SPEED NUT DRIVER TIP ONLY 6.0**
  - (71801110)
- **O.S. SPEED NUT DRIVER TIP ONLY 5.5**
  - (71801120)
- **O.S. SPEED FLAT HEAD SCREWDRIVER 3.0**
  - (71750100)

For more information, please visit our website: [http://www.os-engines.com](http://www.os-engines.com)

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