

7. Turn the prop "backwards" (clockwise) by hand until it is against compression. This is to enable the kinetic energy of the prop to subsequently assist the starter through the compression stroke to start the engine.

8. Energize the glowplug and apply the starter. If the starter fails to rotate the engine completely, this may be due to the cylinder being over-primed, or to the starter battery being insufficiently charged.

9. Check these conditions and, instead of pressing the starter button after applying the starter, have the starter spinning before applying it to the engine, to give it a "running start".

When the engine starts, slowly open the throttle, leaving the needle-valve at its rich starting setting to promote cool running conditions. However, if the engine slows down because the mixture is excessively rich, the needle-valve may be closed a little to speed it up until it runs evenly.

10. Now disconnect current to the glowplug and gradually close the needle-valve so that the rpm increases. Make adjustments to the needle in small steps. Abrupt changes at this stage are likely to cause the engine to stall. Restart the engine by simply applying the starter with the glowplug re-energized and the throttle at its starting setting.

● How to stop the engine

Pull down the throttle lever and trim lever on the transmitter fully.

Note:

Make sure that the throttle linkage is made so that the throttle is fully closed when the throttle lever as well as trim lever on the transmitter are fully pulled down.

■ RUNNING-IN ("Breaking-in")

All internal-combustion engines benefit from extra care when they are run for the first few times known as running-in or breaking-in. This allows the working parts to mate together under load at operating temperature. Therefore, it is vitally important to complete the break-in before allowing the engine to run continuously at high speed and before finalizing carburetor adjustments. However, because O.S. engines are produced with the aid of the finest modern precision machinery and from the best and most suitable materials, only a short and simple running-in procedure is called for and can be carried out with the engine installed in the model.

The recommended procedure is as follows:

1. Use the same fuel and prop as you intend for flying your model.

2. Open the needle-valve 3-3.5 turns from the fully closed position and start the engine.

3. Open the throttle slowly to the mid speed position, and disconnect the current to the glowplug.

4. Now open the throttle slowly to the fully opened position and run the engine for no more than 5 seconds with the needle-valve tuned to produced near maximum r.p.m., then, immediately, slow the engine down again by opening the needle-valve approximately one turn. The rich mixture, so induced, will cool the engine, at the same time providing increased lubrication.

5. Repeat this process, alternately running the engine fast and slow by means of the needle-valve, while keeping the throttle fully open, then begin to extend the short periods of high-speed operation until two tanks of fuel have been consumed.

WARNING:

When ground running the engine, avoid dusty or sandy locations. If dust or grit is drawn into the engine, this can have a ruinous effect, drastically shortening engine life in a matter of minutes.

6. Following the initial running-in session, check for any looseness in the installation due to vibration, then allow the engine a period of moderately rich operation in flight.

7. For the first flight, have the needle-valve set on the rich side and adjust the throttle trim on the transmitter so that the engine does not stop when the throttle is closed to the idle setting.

8. With each successive flight, close the needle-valve very slightly until, at the end of about 10 flights, the needle is set for full power. Do not "over-lean" the mixture in an attempt to extract more power.

If overheating should be suspected at any time during flight (i.e. if the engine begins to "labor") reduce power by partially closing the throttle and land the aircraft to enable the needle-valve to be readjusted to a richer setting.

IDLE MIXTURE ADJUSTMENT

1. Start the engine, open the throttle fully and set the needle-valve slightly rich (30-45°) from the highest r.p.m. setting.

2. Close the throttle to the idle position. Allow the engine to idle for about 5 seconds, then reopen the throttle. The engine should accelerate smoothly back to full speed.

3. If, instead, the engine responds sluggishly and emits an excess of white smoke from the exhaust, the idle mixture is too rich. Turn the mixture control valve approx. 45° clockwise to lean the idle mixture.

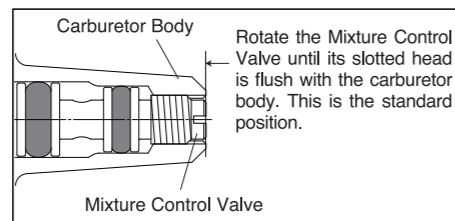
4. On the other hand, if the engine hesitates before picking up speed or even ceases firing completely, the idle mixture is likely to be too lean. Turn the mixture control valve 90° counter-clockwise to substantially enrich the mixture, then back again 45° clockwise.

5. In paragraphs 3 and 4 above, the 45° total movements are, of course, approximate. It will be necessary to fine-tune the mixture control valve 10-15° at a time to reach the best setting for optimum throttle response.

6. Continue re-checking the idle mixture setting until the engine responds smoothly and positively to operation of the throttle at all times.

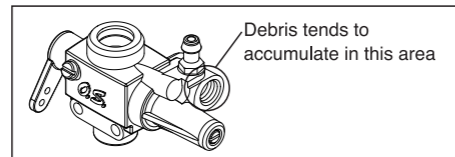
■ REALIGNMENT OF MIXTURE CONTROL VALVE

In the course of making carburetor adjustments, it is just possible that the Mixture Control Valve may be inadvertently screwed in or out too far and thereby moved beyond its effective adjustment range.



■ CARBURETOR CARE & MAINTENANCE

If you experience difficulty in obtaining a consistent mixture setting it could be due to foreign debris in the carburetor. Carefully disassemble the carburetor and wash in methanol. Do not use gasoline or kerosene that can effect the silicone rubber "O" rings.



■ VALVE ADJUSTING

Valve clearances are correctly set before any O.S. engine leaves the factory and, in normal use, will seldom require adjustment. However, if, after a considerable amount of running time, a loss of power is detected, or if the engine has been disassembled for repair, these clearances should be checked and reset as necessary. Clearance should be 0.04mm - 0.1mm (.0015" - .004") For checking and adjusting the valve clearances, a VALVE ADJUSTING TOOL KIT is available as an optional accessory.

Also, a 5.5mm wrench (not supplied) is required for this purpose.

• Wrench 5.5mm

The kit comes in a plastic case and includes:

(Code No.72200060)
• Feeler gauge 0.04mm • Feeler gauge 0.1mm
• Hex. key 1.5mm • Wrench 5mm

■ CARE AND MAINTENANCE

Please pay attention to the matters described below to ensure that your engine serves you well in regard to performance, reliability and long life.

● As previously mentioned, it is vitally important to avoid operating the engine in conditions where dust, disturbed by the propeller, may be deposited on the engine and enter its working parts.

● Remember to keep your fuel container closed to prevent foreign matter from contaminating the fuel.

● Install a fuel filter to prevent dirt and foreign matter in the fuel container from entering the fuel tank. O.S. Super Filters (L) and (S) are available as optional extras.

● Install an in-line fuel filter between the tank and carburetor to prevent dirt and foreign matter in the tank from entering the carburetor.

● Clean these filters periodically.

● If these precautions are neglected, restriction of fuel flow may cause the engine to cut out, or the fuel/air mixture to become too lean causing the engine to overheat.

● The use of modern high-performance alcohol based model engine fuels, while promoting cooler running, improved anti-detonation combustion and increased power, have the disadvantage of causing corrosion due to the acid by-products of combustion. The use of nitromethane in the fuel can also contribute to the problem.

● Do not close the needle-valve and mixture control valve too far as this will cause a lean setting and over heating of the engine. This can, in turn, create nitromethane oxide leading to internal rusting of the engine. Always adjust the needlevalve slightly on the rich side of peak rpm.

● Do not leave unused fuel in the engine at the conclusion of a day's flying. Accepted practice is to cut off the fuel supply while the engine is still running at full throttle, then expel as much fuel residue as possible by turning the engine over 5-10 seconds with the electric starter.

Finally, inject some after-run oil through the glowplug hole and turn the engine over several times by hand.

● When the engine is not to be used for some months (for example, as between flying seasons), a worthwhile precaution is to remove it from the airframe and, after washing off the exterior with alcohol (not gasoline nor kerosene), remove carefully the carburetor with intake pipe, glow plug and all silicone tubing and put them safely aside. Then, immerse the engine in a container of alcohol. Rotate the crankshaft while the engine is immersed. If foreign matter is visible in the alcohol, rinse the engine again in clean alcohol. Finally, shake off and dry the alcohol, and inject some after-run oil in the glowplug hole and rotate the crankshaft several times by hand. Reinstall the carburetor with intake pipe and glowplug on the engine and keep it in a dry place after putting in a vinyl bag.

■ O.S. GENUINE PARTS & ACCESSORIES

● RADIAL MOTOR MOUNT
(71913000)

● PROPELLER LOCKNUT SET FOR SPINNER

1/4"-M4 (45810200)

1/4"-M5 (45810300)

● BOOSTER CABLE SET FOR SINGLE CYLINDER
(72200200)

● Plug Cable Set (72200170) ● Earth Cable 2/5 (72200180)

● Plug Cable (72200171)

● Plug Terminal (72200190)

● IN-COWL EXHAUST HEADER PIPE
M10 SIDE 60D
(72109660)

M10 INVERTED 80D
(72109670)

● SUPER FILTER
(L) (72403050)

● NON-BUBBLE WEIGHT
(71531000)

● NON-BUBBLE WEIGHT (S)
(71531010)

● VALVE ADJUSTING TOOL KIT
(72200060)

● Needle Valve Extension Cable Set
(72200080)

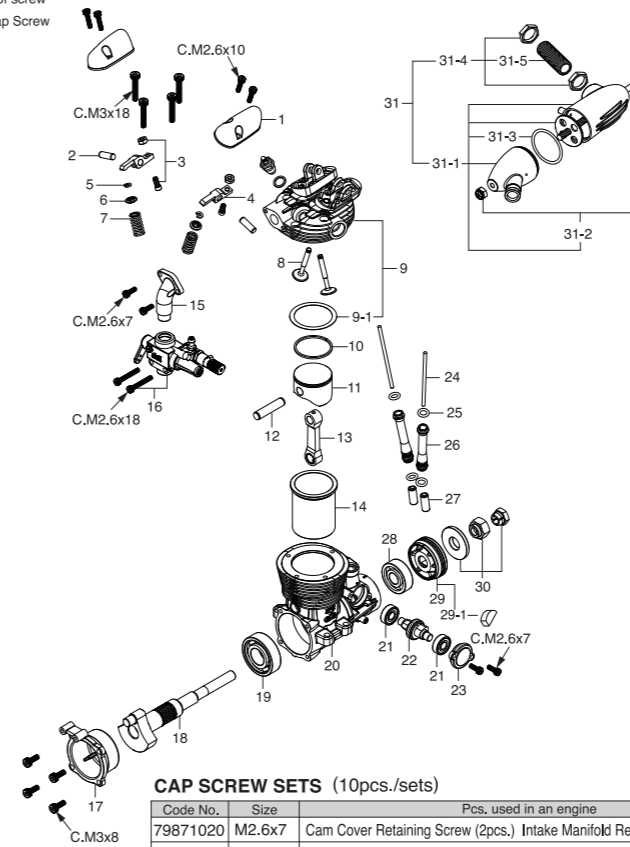
● O.S. SPEED SILICONE TUBE
(72506100) 2.5mm x 1000mm

● O.S. SPEED PLUG WRENCH
(71520100)

The specifications are subject to alteration for improvement without notice.

■ ENGINE EXPLODED VIEW & PARTS LIST

* Type of screw
C...Cap Screw

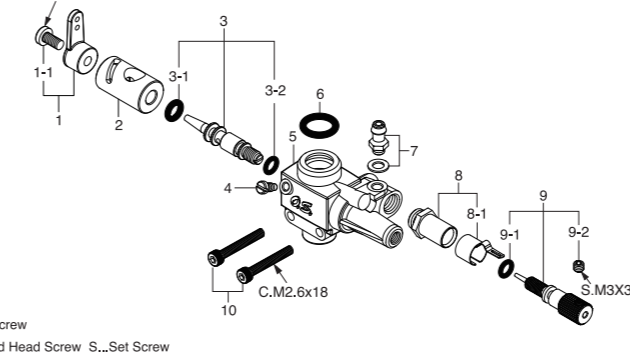


CAP SCREW SETS (10pcs./sets)

Code No.	Size	Pcs. used in an engine
79871020	M2.6x7	Cam Cover Retaining Screw (2pcs.) Intake Manifold Retaining Screw (2pcs.)
79871030	M2.6x10	Rocker Cover Retaining Screw (4pcs.)
79871110	M3x8	Cover Plate Retaining Screw (4pcs.)
79871180	M3x18	Cylinder Head Retaining Screw (4pcs.)

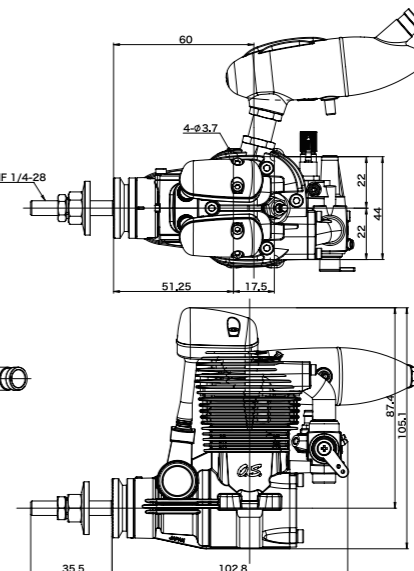
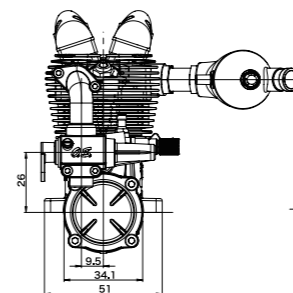
■ CARBURETOR EXPLODED VIEW & PARTS LIST

* Type of screw
N...Round Head Screw S...Set Screw



■ THREE VIEW DRAWING Dimensions(mm)

SPECIFICATIONS	
■ Displacement	10.46 cc / 0.638 cu.in.
■ Bore	25.0 mm / 0.984 in.
■ Stroke	21.30 mm / 0.839 in.
■ Output	1.14 ps / 1.12 hp / 11,000 r.p.m.
■ Practical R.P.M.	2,400-11,000 r.p.m.
■ Weight	442 g / 15.59 oz. (Engine) 44 g / 1.55 oz. (Silencer)



No.	Code No.	Description
1	47104200	Rocker Cover (1pc.)
2	40964000	Rocker Arm Shaft (1pc.)
3	44561200	Tapet Adjusting Screw (1pair)
4	40661100	Rocker Arm (1pc.)
5	46160400	Valve Spring Retainer (2pcs.)
6	40960300	Valve Spring Seat (1pc.)
7	45960210	Valve Spring (1pc.)
8	40660100	Valve (1pc.)
9	4AY04100	Cylinder Head (W/Gasket)
9-1	40614000	Cylinder Head Gasket (1pc.)
10	40603400	Piston Ring
11	40603200	Piston
12	40606000	Piston Pin
13	44605000	Connecting Rod
14	40603100	Cylinder Liner
15	40669400	Intake Manifold
16	4AY81000	Carburetor Complete (Type 61T-2)
17	40607000	Cover Plate
18	4AY02000	Crankshaft
19	40630000	Crankshaft Ball Bearing (Rear)
20	4AY01000	Crankcase
21	45231100	Camshaft Ball Bearing (1pc.)
22	45262010	Camshaft
23	40601100	Cam Cover
24	40604160	Push Rod (2pcs.)
25	45566310	Push Rod Cover "O" Ring (2pcs.)
26	40666100	Push Rod Cover (1pc.)
27	45664000	Cam Follower (2pcs.)
28	26531005	Crankshaft Ball Bearing (Front)
29	45808000	Drive Hub
29-1	27708200	Woodruff Key
30	45810100	Lock Nut Set
31	40625010	F-4051 Silencer Assembly
31-1	40625110	Silencer Body
31-2	40625400	Assembly Screw
31-3	44625410	Silencer Gasket (1pc.)
31-4	40626000	Exhaust Header Pipe Assembly
31-5	45626010	Exhaust Header Pipe Nut M10 (1pc.)
	71615009	Glow Plug Type F

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No.	Code No.	Description
1	22081408	Throttle Lever Assembly
1-1	22081313	Throttle Lever Retaining Screw
2	40681200	Carburetor Rotor
3	44681600	Mixture Control Valve Assembly
3-1	46066319	"O" Ring (L) (2pcs.)
3-2	24881824	"O" Ring (S) (2pcs.)
4	21285220	Rotor Guide Screw
5	40681100	Carburetor Body
6	45115000	Carburetor Rubber Gasket (1pc.)
7	22681953	Fuel Inlet (No.1)
8	27381940	Needle Valve Holder Assembly
8-1	26711305	Ratchet Spring
9	24081970	Needle Assembly
9-1	24981837	"O" Ring (2pcs.)
9-2	26381501	Set Screw
10	79871055	Carburetor Retaining Screw (2pcs.)

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