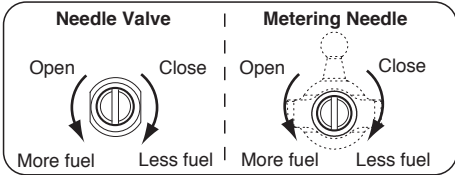


■ CARBURETOR ADJUSTMENT

Carburetor 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 course a few times to observe the model's speed. Return the vehicle to the starting point and close the Needle-valve 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 30~45°.

2. METERING NEEDLE ADJUSTMENT

After setting the Needle-valve at optimum position, run the vehicle a few times at the straight line. With the engine running, close the throttle and allow it idle for about five seconds, then reopen the throttle fully. If, at this point, the engine puffs 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 15~30°. If, on the other hand, the engine tends to speed up momentarily 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 15~30°.

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

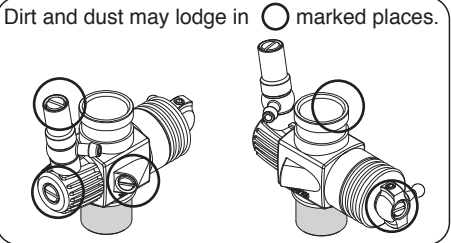
With the optimum mixture control position, light smoke is visible during high speed running and the engine rpm increase smoothly during acceleration. Carry out adjustment 1.~3. patiently until the engine responds quickly and positively to the throttle control. Remember that, if the engine is operated 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 measure. Finally, beyond the normal break-in period, a slight readjustment toward a leaner needle setting may be required to maintain maximum performance.

Note:
Please regard the standard positions in the instruction manual as just a guide. Positions will vary due to the fuel and silencer used. In general, if a fuel containing less nitromenthane is used, the needlevalve will need to be closed further. Remember, closing the needlevalve too far can cause rusting and damage to the engine.

■ CARE AND MAINTENANCE

- The minute particles of foreign matter, that are present in any fuel may, by accumulating and partially obstructing fuel flow, cause engine performance to become erratic and unreliable. O.S.' 'Super-Filters' (large and small) are available, as optional extras, to deal with this problem. One of these filters installed to the pickup tube inside your refueling container, will prevent the entry of foreign material into the fuel tank. It is also recommended that a good in-line filter be installed between the tank and carburetor.
- Do not forget to clean the filters regularly to remove dirt and lint that accumulate on the filter screens. Also, clean the carburetor itself occasionally.
- At the end of each operating session, drain out any fuel that may remain in the fuel tank. Afterwards,energize the glow-plug and try to restart the engine, to burn off any fuel that may remain inside the engine. Repeat this procedure until the engine fails to fire. Do this while the engine is still warm.

- Then, inject some O.S. SPEED MAINTENANCE OIL (code no. 71430010) into the engine, and rotate the engine with an electric starter for 4 to 5 seconds to distribute the oil to all the working parts.
- Finally, when cleaning the exterior of the engine, use methanol or a household cleaning agent. Do not use gasoline, kerosene, or any petroleum based chemical which can damage silicone fuel tubing.



Note:
Crankshaft of this engine is filled with silicone. Do not use light oil nor kerosene, etc. for washing, or the silicone will swell. Use alcohol or fuel for washing and dry it completely.

■ REMOVING DIRT/STAIN

The note on cleaning the outer head
The graphic design on the outer head is not laser engraving but special printing. When you clean it, do not use paint remover and engine cleaner, otherwise the print may be damaged. Clean it with alcohol after cooling down.

Dirt and stain stuck 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.

■ INATALLING DUST CAPS

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 long time 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.
 - Power has 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

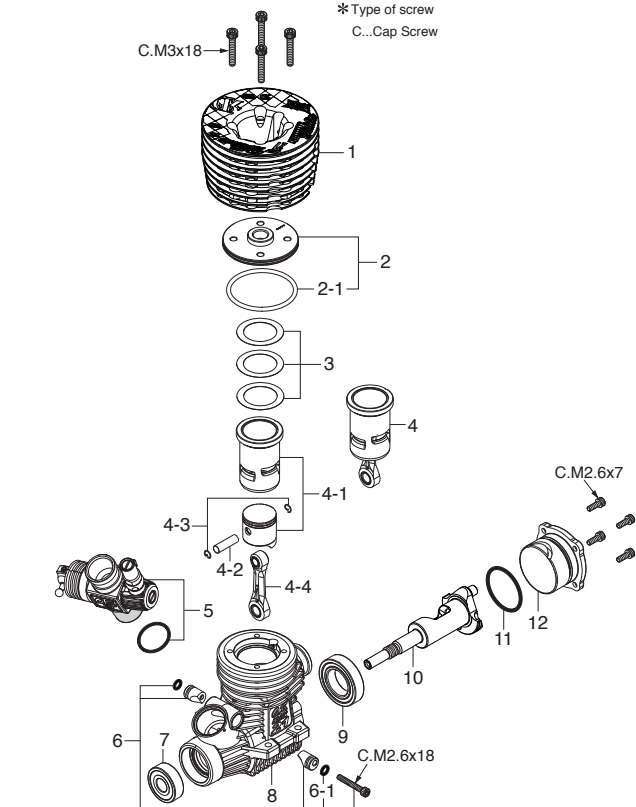
- O.S. SPEED T-SERIES GLOW PLUG
 - P3 (71642720) ●P4 (71642730)
- O.S. GLOW PLUG
 - P3 (71641300) ●P4 (71641400) ●P5 (71641500)
- CARBURETOR REDUCER (RED)
 - Ø6 (71533260) ●Ø6Ⅱ (71533261)
 - Ø6.5 (71533265) ●Ø6.5Ⅱ (71533865)
 - Ø7 (71533270)
- MB01-75(M2000SC) EXHAUST HEADER PIPE ASSEMBLY (72106440)
 - Header Pipe Spring (2pcs.) (72101272)
 - Exhaust Seal Ring (2pcs.) (22826140)
- MB01-80(M2002SC) EXHAUST HEADER PIPE ASSEMBLY (72106480)
 - Header Pipe Spring (2pcs.) (72101272)
 - Exhaust Seal Ring (2pcs.) (22826140)
- MB01-85(M2004SC) EXHAUST HEADER PIPE ASSEMBLY (72106910)
 - Header Pipe Spring (2pcs.) (72101272)
 - Exhaust Seal Ring (2pcs.) (22826140)
- MB01-90(M2005SC) EXHAUST HEADER PIPE ASSEMBLY (72106920)
 - Header Pipe Spring (2pcs.) (72101272)
 - Exhaust Seal Ring (2pcs.) (22826140)
- TB03 EFRA2155 (T-2100SC) TUNED SILENCER (72107710)
 - Exhaust Seal Ring (2pcs.) (22826140)
 - Joint Spring (3pcs.) (72106042)

- TB01 EFRA2042 (T-2060SC WN) TUNED SILENCER COMPLETE SET (72106135)
 - TB01 EFRA2042 (T-2060SC WN) Tuned Silencer Assembly (72106130)
 - MB01-75(M2000SC) Exhaust Header Pipe Assembly (72106440)
- TB02 EFRA2089 (T-2090SC) TUNED SILENCER COMPLETE SET (72106192)
 - TB02 EFRA2089 (T-2090SC) Tuned Silencer Assembly (72106190)
 - MB01-75(M2000SC) Exhaust Header Pipe Assembly (72106440)
- SUPER AIR CLEANER 203 (72413000)
 - 203 Filter Element (4pcs.) (72413200)
- SUPER AIR CLEANER 204 (72415000)
 - 204 Filter Element (4pcs.) (72415200)
- O.S. SPEED OFF-ROAD 4-SHOE CLUTCH SYSTEM (71814001)
- O.S. SPEED CLUTCH SHOE STANDARD(B)PL (YELLOW) (71814330)
- O.S. SPEED CLUTCH SHOE HARD(B)PL (BLACK) (71814340)
- PRESSURE CHAMBER SET (71550000)
- O.S. SPEED CARBURETOR REPAIR KIT 21 (71490000)
 - O.S. SPEED Carburetor Repair Parts 21 (71491000)
- O.S. SPEED CLUTCH BEARING (1050ZZ 4pcs.) (71550001)
- O.S. SPEED CLUTCH BEARING (1050ZZ 10pcs.) (71550002)
- O.S. SPEED SILICONE TUBE (72506100) 2.5mm x 1000mm
- O.S. SPEED EXHAUST SEAL RING 21 (2pcs.) (22826140)
- DUST CAP SET 3mm (5pcs.) (73300305)
- DUST CAP SET 16mm (3pcs.) (73301612)
- DUST CAP SET 18mm (3pcs.) (73301812)
- O.S. SPEED MAINTENANCE OIL (71430010)
- O.S. SPEED PISTON PIN RETAINER PLIERS (71492000)
- O.S. SPEED CLUTCH WRENCH & ADJUSTER (71415300)
- O.S. SPEED FLYWHEEL KEY (71415200)
- O.S. SPEED FLYWHEEL PULLER (71415100)
- O.S. SPEED PLUG WRENCH (71520100)
- O.S. SPEED PHILLIPS SCREW DRIVER No.1 (71417100)
- O.S. SPEED PHILLIPS SCREW DRIVER No.2 (71417200)
- O.S. SPEED SPRING REMOVER (71415500)
- O.S. SPEED BODY REAMER (71415400)
- O.S. SPEED DRIVER TOOLS

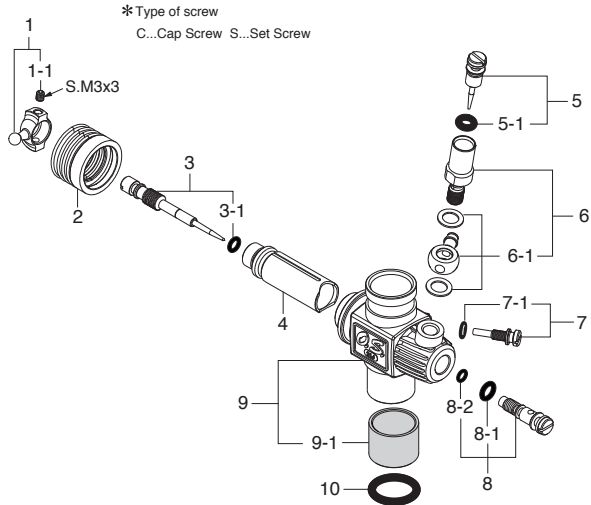
Code No.	Description
71410150	O.S. SPEED HEX WRENCH DRIVER 1.5
71410200	O.S. SPEED HEX WRENCH DRIVER 2.0
71410250	O.S. SPEED HEX WRENCH DRIVER 2.5
71410300	O.S. SPEED HEX WRENCH DRIVER 3.0
71411200	O.S. SPEED HEX BALL WRENCH DRIVER 2.0
71411250	O.S. SPEED HEX BALL WRENCH DRIVER 2.5
71412300	O.S. SPEED FLAT HEAD SCREWDRIVER 3.0
71413550	O.S. SPEED NUT DRIVER 5.5
71413600	O.S. SPEED NUT DRIVER 6.0
71413700	O.S. SPEED NUT DRIVER 7.0
- O.S. SPEED DRIVER TOOLS

Code No.	Description
71414015	O.S. SPEED HEX WRENCH TIP ONLY 1.5
71414020	O.S. SPEED HEX WRENCH TIP ONLY 2.0
71414025	O.S. SPEED HEX WRENCH TIP ONLY 2.5
71414030	O.S. SPEED HEX WRENCH TIP ONLY 3.0
71414120	O.S. SPEED HEX BALL WRENCH TIP ONLY 2.0
71414125	O.S. SPEED HEX BALL WRENCH TIP ONLY 2.5
71414230	O.S. SPEED FLAT HEAD SCREWDRIVER TIP 3.0
71414355	O.S. SPEED NUT DRIVER TIP ONLY 5.5
71414360	O.S. SPEED NUT DRIVER TIP ONLY 6.0
71414370	O.S. SPEED NUT DRIVER TIP ONLY 7.0

■ ENGINE EXPLODED VIEW & PARTS LIST



■ CARBURETOR EXPLODED VIEW & PARTS LIST

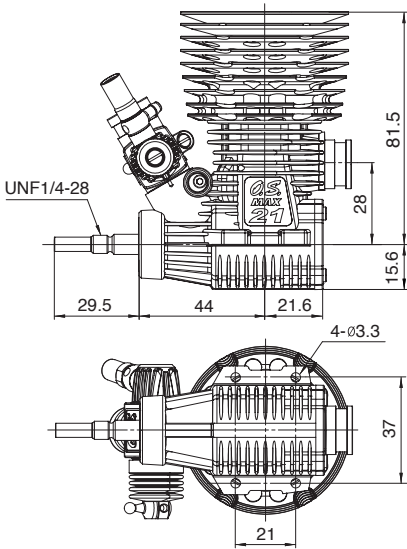
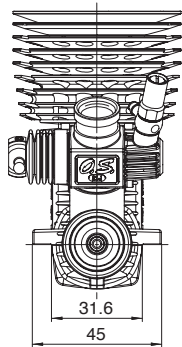


■ THREE VIEW DRAWING

Dimensions (mm)

SPECIFICATIONS

■ Displacement	3.49 cc / 0.213 cu.in.
■ Bore	16.4 mm / 0.646 in.
■ Stroke	16.55 mm / 0.652 in.
■ Output	2.65 ps / 2.61 hp / 34,000 r.p.m.
■ Practical R.P.M.	4,000-42,000 r.p.m.
■ Weight	362 g / 12.77 oz. (Engine)



No.	Code No.	Description
1	2CH04010	Outer Head
2	2CH04100	Inner Head
2-1	2BN04180	Inner Head "O" Ring (RED)
3	2A204160	Head Gasket Set (0.1mm,0.15mm)
4	2A203013	Built-up Parts Set
4-1	2A203003	Cylinder & Piston Assembly
4-2	22016000	Piston Pin
4-3	2AP17000	O.S. SPEED Piston Pin Retainer 2 (6pcs.)
4-4	22425003	Connecting Rod w/piston pin retainers (3pcs.)
5	2CH81000	Carburetor Complete (Type 21J4(B))
6	23981740	Carburetor Retainer Assembly
6-1	24881824	"O" Ring (2pcs.)
7	23731020	Crankshaft Ball Bearing (Front)
8	2A201000	Crankcase
9	23730050	Ceramic Ball Bearing (Rear)
10	2CH02000	Crankshaft
11	23107100	Cover Gasket
12	2A207000	Cover Plate
	71642720	Glow Plug O.S. SPEED P3
	71534865	Reducer Ø6.5II (PINK) AL2
	71534570	Reducer Ø7 (PINK) AL
	22826145	Exhaust Seal Ring 21 (10pcs.)
	22884254	O.S. SPEED Dust Cap Set For 12-30 Class (3mmx2,16mmx2,18mmx1)

CAP SCREW SETS (10pcs./set)

Code No.	Size	Pcs. used in an engine
79871020	M2.6x7	Cover Plate Retaining Screw (4pcs.)
79871055	M2.6x18	Carburetor Retainer Retaining Screw (1pc.)
79871180	M3x18	Cylinder Head Retaining Screw (4pcs.)

No.	Code No.	Description
1	2BN81430	Ball Link No.6
1-1	26381501	Retaining Screw
2	23981520	Dust Cover
3	23818340	Metering Needle Assembly
3-1	27881820	"O" Ring (2pcs.)
4	22848210	Slide Valve
5	23618197	Needle Assembly
5-1	46066319	"O" Ring (2pcs.)
6	22082940	Needle Holder Assembly
6-1	22082950	Fuel Inlet (No.15)
7	22848160	Throttle Stop Screw
7-1	27881820	"O" Ring (2pcs.)
8	23781600	Mixture Control Valve Assembly
8-1	46066319	"O" Ring (L) (2pcs.)
8-2	22781800	"O" Ring (S) (2pcs.)
9	2AN81100	Carburetor Body 21J3(B) (w/o Reducer)
9-1	2AN81101	Thermo Insulator
10	29015019	Carburetor Rubber Gasket

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