

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

•Also, please study the entire contents of this instruction manual, so as to familiarize yourself with the controls and other features of the engine.

**SAFETY INSTRUCTIONS AND WARNINGS ABOUT YOUR O.S. ENGINE**

Remember that your engine is not a "toy", but a highly efficient internal-combustion machine whose power is capable of harming you, or others, if it is misused or abused. 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 grouped 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 (in 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.

**⚠ WARNINGS**

**Never touch, or allow any object to come into contact with the rotating propeller and do not crouch over the engine when it is running.**

**Gasoline is poisonous. Do not allow it come into contact with the eyes or mouth. Always store it in a clearly marked container in a cool and dark place and out of the reach of children. There is a possibility that it may damage your health.**

**Gasoline is highly flammable. Keep it away from an open flame, excessive heat, sources of sparks, or anything else which might cause it to ignite. Do not smoke or allow anyone else to smoke near to it.**

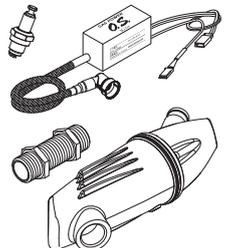
**■ ABOUT THE ENGINE**

**While this is a four stroke gasoline engine, use the same oil mixed gasoline for two stroke gasoline engines.**

- This engine is designed for experienced fliers. Beginners and newcomers should not use this engine.
- The engine unit, silencer, carburetor and ignition module are specially designed.
- The normal rotation direction of the engine is counterclockwise facing to the propeller.
- It offers broad power characteristics suitable for sport flight as well as acro flight.
- The specially designed ignition module "IG-04" is equipped with a micro computer and designed not to operate below 120 rpm.
- The new F-6040 silencer is supplied with the engine. It develops very efficient silencing effect.
- The engine can be easily choked for starting by connecting a choke rod (not supplied) to the carburetor choke lever. See sketch.

**STANDARD ACCESSORIES**

- Spark Plug CM-6
- Ignition module Assembly (IG-04)
- F-6040 Silencer Assembly



**Carry out the mixing of the gasoline and oil outdoors or in a well ventilated place away from any source of fire to prevent the possibility of a fire.**



**Refill the fuel tank only after the engine is well cooled down, or there is a danger of fire.**



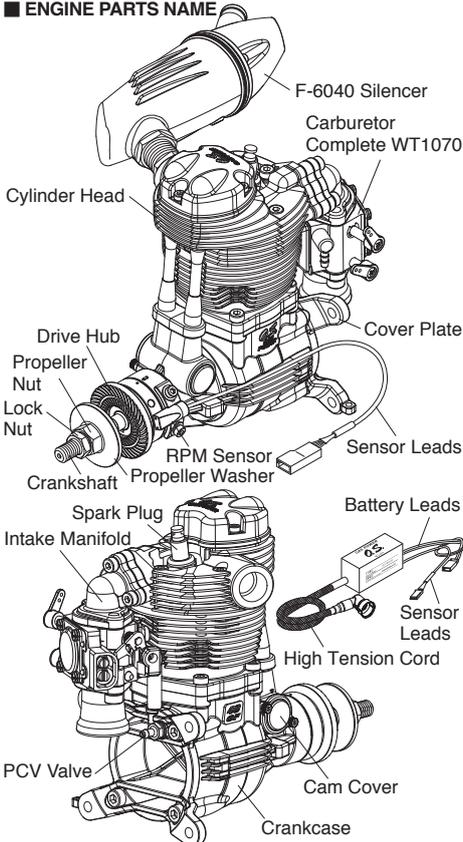
**Model engines generates considerable heat. Do not touch any part of your engine until it has cooled. Contact with the muffler (silencer), cylinder head or exhaust header pipe, in particular, may results in a serious burn.**

- Observe the laws and regulations in each country and district concerning the usage, transportation and storage of gasoline. Ask details at fire station in each district.
- Never operate your engine in an enclosed space. Model engines, like automobile engines, exhaust deadly carbon-monoxide. Run your engine only in an open area.
- Do not operate the engine nor model alone, or there is a possibility of injury.

**⚠ NOTES**

- Any propeller requires utmost attention to handle. Be sure to follow the instruction manual supplied with a propeller.
- This engine was designed for model aircraft. Do not attempt to use it for any other purpose.
- Start the engine only after installing it in the model. Do not start the engine before installing it in the model, or there is a possibility of injury.
- Be sure to use an effective silencer (muffler). Frequent exposure to an open exhaust may eventually impair your hearing. Such noise is also likely to cause annoyance to others over a wide area.
- Mount the engine in your model securely, following the manufacturers' recommendations.
- For their safety, keep all onlookers (especially small children) well back (at least 10 meters) when preparing your model for flight.
- When checking a spark plug with the power source on, do not hold the plug, plug cap, high tension cord, or you will get a shock.
- Install a top-quality propeller of the diameter and pitch specified for the engine and aircraft.

**■ ENGINE PARTS NAME**



- Discard any propeller which has become split, cracked, nicked or otherwise rendered unsafe. Never attempt to repair such a propeller: destroy it. Do not modify a propeller in any way.
- Install the propeller on the shaft so that the curved face of the blades faces forward – i.e. in the direction of flight. Firmly tighten the propeller washer and propeller installing screws using the correct size wrench. Always check the tightness of propeller installing screws and retighten them, if necessary, before starting the engine. Also, check the tightness of all the screws and nuts before restarting the engine.
- Always check the throttle linkage. If it is disconnected, throttle action becomes uncontrollable, which may result in a serious accident.
- Take care that loose clothing (ties, shirt sleeves, scarves, etc.) do not come into contact with the propeller. Do not carry loose objects (such as pencils, screwdrivers, etc.) in a shirt pocket from where they could fall through the propeller arc.
- Use an electric starter for this engine. The wearing of safety glasses is also strongly recommended. If you try hand starting, be sure to use a chicken stick or heavy glove. Never attempt to start the engine with a bare hand.
- Be sure to carry out adjustments of the high speed needle and slow speed needle after stopping the engine.
- Do not start your engine in an area containing loose gravel or sand. The propeller may throw such material in your face and eyes and cause injury.
- If you have to carry the model to the take-off point with the engine running, be especially cautious. Keep the propeller pointed away from you and walk well clear of spectators.
- Switch off the ignition module to stop the engine or fully close the throttle valve via the transmitter to shut off the fuel supply. Otherwise there is a possibility of injury.
- Immediately after the engine is stopped, the engine may start with a crank even when the igniter switch is off. Do not crank the engine, or there is a possibility of injury.
- Be sure to install an externally operable switch for the ignition system battery to stop the engine if it is started unintentionally with the radio transmitter turned off or there is the possibility of injury.
- Connect the throttle linkage so that the engine can be stopped via radio operation.

**■ INSTALLATION**

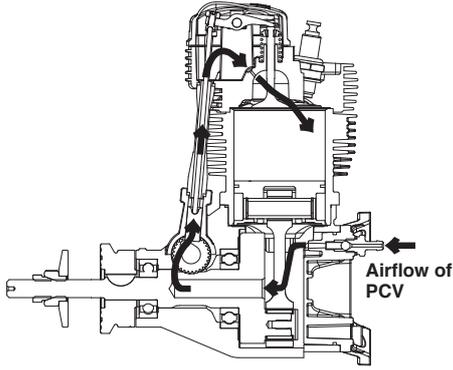
- Use a strong enough material for the mounting face of the model, such as birch ply firewall of more than 8mm thick.
- Make sure the mounting face of the model is flat. If it is uneven, work on it to be flat. (When shims are added to change the thrust angle, work on it to be flat.)
- Engine mounting face has been high-precision machined flat. Make sure mounting face of the model is also flat.
- Use 5mm steel hex socket head bolts to install the engine. (Do not use brass, soft steel nor aluminum screws, because they are not strong enough.) Also, use the Nord Lock Washers (optional extra) and other anti-loosening washers or apply locking agent.
- Be sure that there is sufficient air intake and outlet area on the model for engine cooling to avoid overheating. (Pay careful attention to the cooling since a gasoline engine generates more heat than a glow engine.)
- Secure at least a 30mm dia. area around the air intake of the carburetor so that the air intake will not be restricted.

**■ PCV VALVE**

This engine is employed with PCV (Positive Crankcase Ventilation) valve. Ventilation in the crankcase is positively done with the change of pressure in the crankcase and one-way check valve. Blow-by gas and oil waste are returned to the combustion chamber via intake port. Depending on the running condition, oil will be blown out from the air intake of the PCV valve. Installing 5~10cm tubing on the PCV nipple will reduce the amount of oil blown out oil.

It is not necessary to put the tubing outside the model since the PCV nipple is just an air intake. Hold it inside the cowl to prevent sucking dirt and dust.

Do not block the PCV valve, or the needle-valve adjustment becomes impossible due to the change of crankcase pressure to the carburetor.

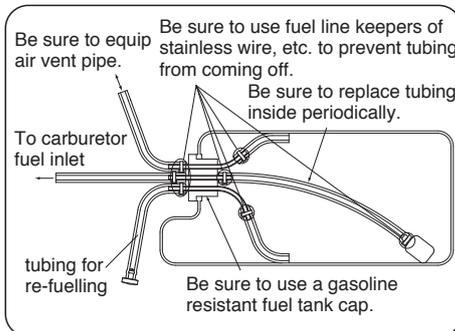


### ■ INSTALLING SILENCER

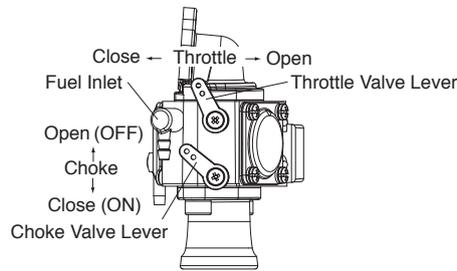
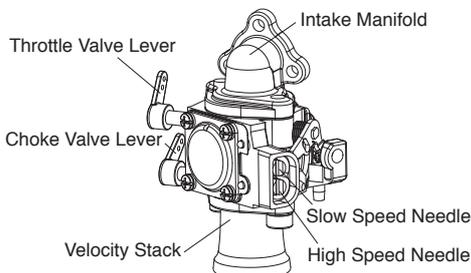
- Screw the exhaust manifold in the exhaust port of the cylinder head as far as possible and fix it with the lock nut. (Insufficient screwing in may result in damaging the screw threads of the exhaust port due to vibration.)
- Screw the silencer on the exhaust manifold within more than 10mm and less than 25mm range. Set the required outlet angle and fix it with the lock nut.
- It is suggested to apply locking agent to the screw threads to prevent loosening and also to make sure no loosening from time to time and retighten if necessary.

### ■ FUEL TANK & LINES

- Use a tank designed for gasoline. (Tanks designed for glow fuel use a rubber cap which is deteriorated by gasoline.)
- A 300cc tank will provide 10~15 minutes flight. (With full throttle, it will provide 7~8 minutes flight.)
- Install a commercially available gasoline fuel filter between fuel tank and carburetor. (Clean the filter from time to time.)
- For plumbing use TYGON®F-4040 (Yellow color) or strong nitrile rubber of more than 2.4-3.2mm ID and 4.8-6.4mm OD. Replace tubing periodically as it becomes hardened. (Replace tubing inside the fuel tank every six months.)
- Use fuel line keepers of stainless wire, etc. at the end of the tubing to prevent the tubing from coming off.
- This engine does not require a muffler pressurized fuel system but be sure to provide an air vent.
- Be sure to install an in-line fuel filter between the tank and carburetor to prevent foreign matter in the tank from entering the carburetor. Clean the filter periodically.



### ■ CARBURETOR PARTS NAME



### ■ CARBURETOR LINKAGE

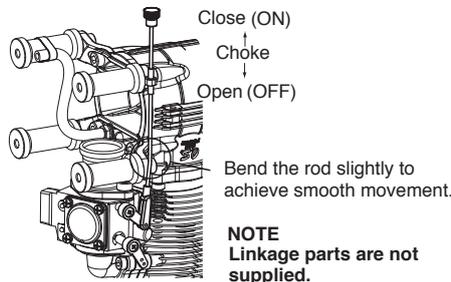
#### NOTE

When changing the throttle valve lever and choke valve lever direction, loosen and tighten each retaining screw placing each lever at mid position. (If the throttle valve lever retaining screw is loosened or tightened with the throttle valve fully opened or closed, excessive force will be applied, which will result in breaking the lever.)

- Before connecting the throttle linkage, make sure that the throttle valve lever does not interfere with the bulkhead or mount of the model when it is fully closed and opened.
- In order to obtain a suitable idle, connect the throttle linkage so that the throttle valve lever will be at 2 to 3 degrees open from the fully closed position when the transmitter throttle stick is pulled fully down, and the throttle valve fully closed when the transmitter throttle stick and trim lever are both pulled fully down so that engine cut off will occur.
- Connect the linkage so that the throttle valve is fully opened when the throttle stick on the transmitter is fully advanced. (Adjust the movement so that the pushrod does not bind when the throttle valve is fully closed and fully opened.)
- Connect the linkage so that the servo arm and pushrod, and throttle valve lever make a right angle when the throttle stick on the transmitter is placed at mid position to avoid differential action.

### ■ Choke valve rod Linkage

Connect the linkage as illustrated.



### ■ IGNITION MODULE

#### ■ Major specifications

- Consumption current is 400mA/6,000rpm/6V. Use a power source of more than 1000mAh capacity.
- The ignition module is set not to operate below 120rpm for safety.
- The voltage of power source is 4.8~8.4V (rated). (Ni-Cd, Ni-MH 4~6 cells, Li-Po, Li-Fe 2 cells)

#### ■ Installation

- Install the ignition module taking sufficient anti vibration measures.
- Install the ignition module at least 100mm away from the engine and in a place where there is airflow so that engine exhaust heat and radiation heat may not affect its operation.
- Do not share the power source with receiver and use a separate power source.
- Equip an ON/OFF switch between the ignition module and its power source, and install it in a place where can be operated from outside the model.
- Install the ignition module and its power source as far as possible away from the servos and receiver power source.
- Connect the sensor leads of the igniter module (white, red black three parallel wires) to the sensor leads from the engine.

- Connect the battery leads of the ignition module (red, black two parallel wires) to the power source.
- Make sure the jackets of high tension cord do not touch the engine and cowl to avoid accidental short circuit.
- Install the plug cap on the plug securely.

### ■ Precautions

- Do not disassemble the ignition module and plug cap. (The ignition module is irreparable. Replace it when necessary.)
- Be careful not to mount the ignition module so that it can be hit by water, gasoline or exhaust.
- Avoid using the engine when the external temperature is over 40°C.
- Do not move the rpm sensor as it is placed at it's optimum position, otherwise the engine will not run properly.
- Do not pull on the high tension cord to remove the plug cap, or the wire will break. Be sure to hold the plug cap to remove it. Be careful not to damage your fingers while removing it.
- Do not connect nor disconnect the rpm sensor with the ignition module on, or there is a possibility it will fire and the engine start.
- Check the ignition module for spark when installing the plug cap on the plug and be careful about getting a shock. Make sure there is no flammable material or gasoline vapors near by that could ignite.
- Do not turn the propeller with the ignition module on, or there is a possibility the engine will start.

### ■ PROPELLER

The choice of propeller depends on the design and weight of the aircraft and on the type of flying in which you will be engaged. Determine the best size and type after practical experimentation. As a starting point, refer to the props listed in the table shown below. Slightly larger, or even slightly smaller props than those shown in the table may be used, but remember that propeller noise will increase if blade tip velocity is raised due to high rpm or if a larger diameter/lower pitch prop is used. Be well aware propeller rotating arc is very large due to a large propeller used with this engine. Carry out the needle adjustments only after stopping the engine. Do not allow your face or hands to come close to the rotating prop.

Type	Size (DxP)
Running-in	18x8
Sport/Acro/Scale	18x8-12 19x8-10 20x8-10

#### Warning:

**Make sure that the propeller is well balanced. An unbalanced propeller and/or spinner can cause serious vibration which may weaken parts of the airframe or affect the safety of the radio-control system. Do not use any propeller which has become split, cracked or nicked even very slightly, or received strong impact even if no apparent damage is visible.**

### ■ PROPELLER & SPINNER ATTACHMENT

There is a risk, particularly with powerful four-stroke engines, of the propeller flying off if the prop nut loosens due to detonation ("knocking") in the combustion chamber when the engine is operated too lean, or under an excessively heavy load.

Obviously, this can be very hazardous. To eliminate such dangers, the O.S. Safety Locknut Assembly was devised. Install this as follows:

1. Install the propeller to the engine shaft, followed by retaining washer and propeller nut and tighten firmly with a 14mm wrench (not supplied).
2. Add the special tapered and slotted locknut and secure with a 12mm wrench (not supplied) while holding the propeller nut with the 14mm wrench.

#### Note:

**Some spinners which are retained at the top of the cone cannot be used with the propeller locknut supplied with the engine. In this case, optional locknut sets are available from O.S. – Propeller Locknut Set for Spinner (Code No.45910200 4mm) and (Code No.45913000 5mm).**

#### NOTE:

Make a habit of always checking the tightness of the propeller before starting the engine. Remember that, especially with wooden propellers, there is a tendency for the material to shrink, or for it to be reduced by the serrated face of the drive hub. Retighten the propeller nut if necessary after loosening the Safety Propeller Locknut. The locknut should be tightened firmly after retightening the propeller nut.

#### ■ FUEL

- Use regular gasoline. (No need to use high octane gasoline.)
- Alcohol based glow fuel cannot be used in this engine. Not only will the engine not work properly but the internal carburetor plastic parts will be damaged.
- Use high quality commercially available 2 stroke engine oil.
- Follow the oil manufacturer's recommendations concerning the mixture ratio of gasoline and oil. If there is no recommendation, mix with a 30:1 ratio. We have checked and approved the following oil mixture ratio. Zenoah genuine 2 stroke engine oil (40:1) and KLOTZ ModelLube®(50:1). (This does not mean we guarantee the quality of these oils.) Follow the instructions in the running-in section concerning the mixture for running-in.
- With a gasoline engine, passages in the carburetor are narrower than that of a glow engine, and therefore very sensitive against foreign matter such as dust. It is suggested to use optional accessory Super Filter L (Code No. 72403050) when filling a tank in the model from a container used for transportation or storing.

#### ■ RUNNING-IN / STARTING

- Use a fuel with increased oil content and set the needle a little on the rich side. Too rich a needle setting may cause misfiring or erratic running due to fouling of the plug.
- Use a 25:1 fuel/oil mixture if the particular brand of oil states 50:1 mix. Use a 20:1 fuel/oil mixture if the particular brand of oil states 30:1 mix. Set only the high speed needle 200 below maximum rpm. The low speed needle need not be richened.
- No need to carry out running-in on a bench nor with the model fixed. Just fly the model with the above mentioned fuel and needle setting.
- A total of 10 flights (3~4 liters fuel) are required. Avoid prolonged full throttle running at initial stage, and gradually extend the full throttle running time.

#### 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.

#### ■ Initial needle position

When starting the engine for the first time, set both the high speed needle one and 2/3 turns open and the slow speed needle one and 2/3 turns open from the fully closed position.

With this position both high and slow speed mixtures will be rich. If the settings are upset, come back to this setting and adjust them according to procedure in the needle setting section.

#### ■ Starting by an electric starter

1. Turn on the transmitter switch.
2. Turn on the receiver switch.
3. Turn on the ignition switch.
4. Open the choke valve fully (OFF).
5. Pull down the throttle stick on the transmitter fully or to the 1/8 opened position ( 2 to 3 clicks). (With the throttle stick half to fully advanced, the fuel will not be delivered to the carburetor suitably when an electric starter is applied. Also, the model will move forward with engine high power right after it is started, which is very dangerous.)
6. Tell the helper and onlookers that you will start the engine now and have the helper hold the model securely.
7. Apply the electric starter.

#### ■ Starting with a Chicken stick or gloved hand (It is suggested to use an electric starter for safety.)

##### Warning:

The engine sometimes turns to reverse rotation though you flip the propeller counterclockwise. In this case pull down the throttle stick fully to the end, and turn off the igniter switch to stop the engine immediately. If you have Throttle-Cut device in the transmitter, use the function to stop the engine.

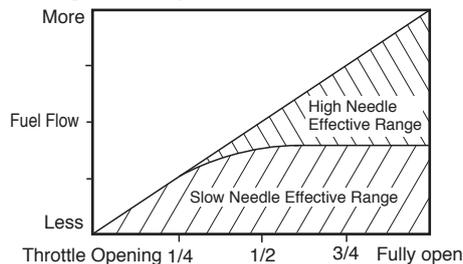
1. Turn on the transmitter switch.
2. Turn on the receiver switch.
3. Close the choke valve fully (ON).
4. Pull down the throttle stick on the transmitter fully or to the 1/8 opened position ( 2 to 3 clicks).
5. Turn on the ignition switch.
6. Flip the propeller counterclockwise until the fuel reaches the carburetor and you hear explosion several times.
7. Pull down the throttle stick fully.
8. Open the choke valve fully (OFF).
9. Tell the helper and onlookers that you will start the engine now and have the helper hold the model securely.
10. Flip the propeller counterclockwise with a Chicken stick. (Usually the engine starts with 5 to 6 flips.)

##### Note

If the engine does not start with the above procedure more than 5 times, most probably the engine is over-primed. Remove the plug to check if it is wet. (Be sure to turn off the ignition switch.) If it is wet, replace it or wait until it becomes dry. Then, flip the propeller quickly 10 times without installing the plug to eject the fuel in the engine. Then, install the plug and repeat the procedure.

#### ■ NEEDLE ADJUSTMENTS

The slow speed needle is effective through the high speed range, while the high speed needle is not effective in the low speed range. Both needles are effective in the mid speed range, while the slow speed needle is the most effective. (Refer to the diagram below.)



#### ■ Carry out the needle settings as follows.

##### Adjustment on the ground

1. Set the both needles at the initial needle position – i.e. 1+2/3 turns open from fully closed position.  
**Note: With this engine basically you do not need to change slow needle position from the initial position.**
2. Start the engine. Open the throttle valve slowly until fully open and run the engine for 10 seconds to warm the engine.
3. With the throttle valve fully open, measure rpm with a tachometer and write it down.
4. Close the high needle approx. 30 degrees and measure rpm with a tachometer and write it down. (Be sure to adjust the high needle only after stopping the engine.)
5. Repeat step 4. to locate the high needle position where maximum rpm is achieved. Open approx. 45 degrees from this position. This is the basic high needle position.
6. Set the throttle trim on the transmitter so that the idle rpm is approx. 2,000. (approx. 1,800 when idle down function is used.)
7. Warm the engine for 10 seconds with the throttle fully open, then idle the engine for 5 seconds, then quickly open the throttle fully. Make sure the engine does not respond sluggishly to increase rpm nor hesitate before picking up speed or even cease firing.
8. If the engine hesitates before picking up speed nor even ceases firing, the mixture is too lean. Close the high needle approx. 15 degrees. Repeat this procedure until the engine accelerates smoothly. (Be sure to adjust the high needle only after stopping the engine.) Repeat this procedure until sluggish rpm increase disappears.

9. If the engine responds sluggishly to increase rpm or rpm are unstable at idle due to rich mixture, the mixture at slow speed is too rich. Close the low needle approx. 15 degrees. Repeat this procedure until the engine accelerates smoothly and rpm at idle become stable. (Be sure to adjust the low needle only after stopping the engine.)
10. When the low needle is adjusted, it affects the fuel flow at high speed and it is necessary to readjust the high needle. In this case, return the high to the initial needle position and carry our adjustment from 3.

#### ■ Adjustment with flight

11. If the rpm drop or exhaust sound becomes discontinuous when vertically climbing from level flight with full throttle, while exhaust sound at level flight is continuous, the mixture is too lean. Land the model and open the high needle approx. 15 degrees. Repeat this procedure until the rpm do not drop and exhaust sound becomes continuous at vertical climbing.
12. If, on the other hand, exhaust sound becomes continuous when vertically climbing from the level flight is discontinuous, the mixture is too rich. Land the model and close the high needle approx. 15 degrees. Repeat this procedure until exhaust sound becomes continuous at level flight.
13. If the power drops gradually or exhaust sound changes to clear from unclear (overheating symptom), when performing torque roll and hovering, the mixture is too lean. Land the model and open the high needle approx. 15 degrees. Repeat this procedure until the power does not drop gradually nor exhaust sound does not changes to clear.
14. If the above symptom is not detected with prolonged torque roll and hovering but sluggish to increase rpm when the throttle is fully opened abruptly, the mixture is too rich. Land the model and close the slow needle approx. 15 degrees. Repeat this procedure until sluggish rpm increase disappears.

##### Note

Generally, a gasoline engine is sensitive to a lean mixture compared with a glow engine, and will stop without warning hesitation and stops with overheating. It is recommended that the engine be run with a slightly richer mixture.

#### ■ FLIGHT & MAINTENANCE

##### ■ Checking prior to flight

- When the engine is started, make sure the radio control system works normally (distance test).
- Engine does not run erratic with full throttle.
- Idling is stable.
- Responds positively to the throttle operation.
- Warm-up is finished.

Warm-up is required as with full size aircraft and car engines. Take off the model after warming the engine for approx. 10 seconds with full throttle.

##### ■ Precautions in flight

- A slight engine rpm increase and decrease delay is normal. Abrupt throttle operation will the cause engine to quit. Move throttle smoothly.
- Due to the construction of the carburetor, 80~90% of maximum power develops with half throttle. If you feel uneasy with this, adjust with transmitter function (exponential and throttle curve, etc.) or differential of throttle linkage.
- Cooling is more vitally important to a gasoline engine than to a glow engine. If overheating symptoms (loss of power at full throttle or exhaust note at mid speed changes from cloudy one to clear one) are observed during flight, immediately stop flying and carry out the following countermeasures.
  - 1) Enlarge the air intake cutout on the cowling.
  - 2) Enlarge the air outlet cutout on the cowling. (It is vitally important.)
  - 3) Partly cover the air intake cutout on the cowling where air does not hit directly hit the engine.
  - 4) Install an air guiding plate on the fuselage and cowling so that cooling air may be guided to the cylinder portion of the engine and muffler.

- When the interval between flights is short and the engine is still hot, with a cowled installation over heating symptoms may occur due to lack of air circulation. In this case allow the engine to fully cool down (in hot weather, it may take more than one hour), or run the engine at idle for four or five minutes.

### ■ Maintenance after the day's flights

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

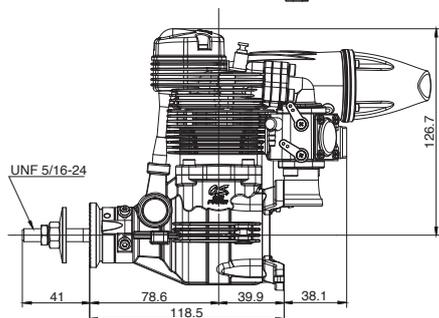
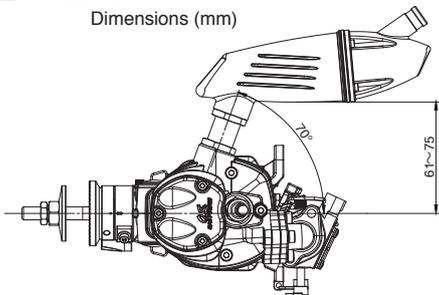
- Check the tightening of each screw, especially engine installation screws and silencer installation screws each time. Also, for the first several flights, tighten the screws after each flight.
- As previously mentioned, it is vitally important to avoid operating the engine in conditions where dust, distributed by the propeller, may be deposited on the engine and enter its working parts.
- With a gasoline engine rust hardly occurs. Check the exterior to make sure there is nothing wrong and wipe off any oil res.
- Fill the carburetor with fuel at the conclusion of a day's flying. (Pay careful attention to fire and ignition source when carrying and storing the model.) If the engine is stored without filling the carburetor, with fuel the inside parts will dry out and not work properly at the next running. If the engine quits out of fuel, refill the carburetor with fuel.

### ■ O.S. GENUINE PARTS & ACCESSORIES

- SPARK PLUG CM-6(NGK)** (71669000)
- PROPELLER LOCKNUT SET FOR SPINNER**  
5/16"-M4 (45910200) 5/16"-M5 (45910300)
- LOCK WASHER (10sets)**      **SUPER FILTER**  
M5 (55500004)                      (S) (72403051)
- NON-BUBBLE WEIGHT (L)** (72403050)  
(S) (71531010)                      **BLIND NUT (10pcs.)**  
M5 (79870050)
- FLUORORUBBER TUBE**  
ID. 2mm × OD. 4mm Length 500mm (28382100)  
ID. 3mm × OD. 5mm Length 500mm (28382200)
- M5 STAND OFF ENGINE MOUNTS (4pcs.)**
  - 1/4" (6.4mm)                      • 1-1/4" (31.8mm) (74003510)                      (74003550)
  - 1/2" (12.7mm)                      • 1-1/2" (38.1mm) (74003520)                      (74003560)
  - 3/4" (19.1mm)                      • 1-3/4" (44.5mm) (74003530)                      (74003570)
  - 1" (25.4mm)                      • 2" (50.8mm) (74003540)                      (74003580)

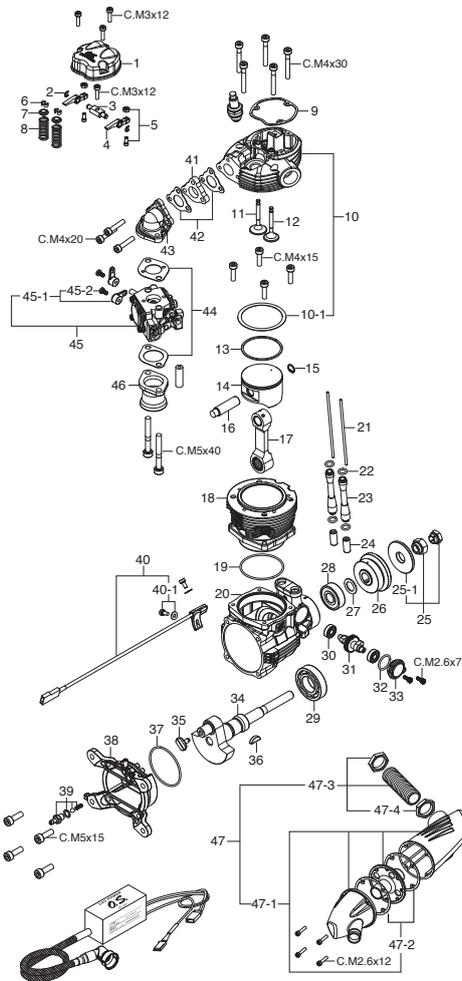
### ■ THREE VIEW DRAWING

Dimensions (mm)



### ■ ENGINE EXPLODED VIEW

\* 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.)
79871040	M2.6x12	Silencer Assembly Screw (4pcs.)
79871140	M3x12	Rocker Cover & Rocker Support Retaining Screw (4pcs.)
79871415	M4x15	Cylinder Retaining Screw (4pcs.)
79871420	M4x20	Intake Manifold Retaining Screw (3pcs.)
79871430	M4x30	Cylinder Head Retaining Screw (5pcs.)
79871515	M5x15	Cover Plate Retaining Screw (4pcs.)
79871540	M5x40	Carburetor Retaining Screw (2pc.)

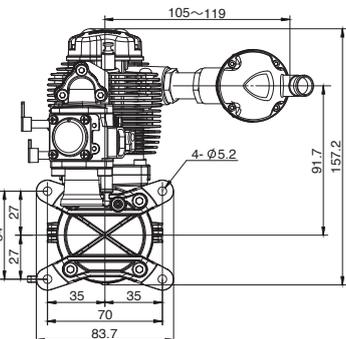
### SPECIFICATIONS

■ Displacement	39.96 cc / 2.439 cu.in.
■ Bore	40.0 mm / 1.575 in.
■ Stroke	31.8 mm / 1.252 in.
■ Output	3.8 ps / 3.75 hp / 8,600 r.p.m.
■ Practical R.P.M.	1,800-9,000 r.p.m.
■ Weight	1,170 g / 41.27 oz. (Engine) 113 g / 3.99 oz. (Silencer) 95 g / 3.35 oz. (Ignition module)

### ■ ENGINE PARTS LIST

No.	Code No.	Description
1	49404200	Rocker Cover
2	45761600	Rocker Arm Retainer (2pcs./1pair)
3	49464000	Rocker Support
4	42561100	Rocker Arm (1pc.)
5	44561200	Tappet Adjusting Screw (1pair)
6	45560410	Split Cotter (2pcs./1pair)
7	49460400	Valve Spring Retainer (1pc.)
8	49460200	Valve Spring (1pc.)
9	49414300	Rocker Cover Gasket
10	49404100	Cylinder Head (W/Gasket)
10-1	49404160	Head Gasket (1pc.)
11	49460100	Intake Valve (1pc.)
12	49460110	Exhaust Valve (1pc.)
13	49403400	Piston Ring
14	49403200	Piston
15	29717000	Piston Pin Retainer (2pcs.)
16	49406010	Piston Pin
17	49405000	Connecting Rod
18	49403300	Cylinder
19	29122540	Cylinder Gasket
20	49401000	Crankcase
21	49466000	Push Rod (2pcs.)
22	45566310	Push Rod Cover "O" Ring (2pcs.)
23	49466100	Push Rod Cover (1pc.)
24	44564000	Cam Follower (2pcs.)
25	28310000	Lock Nut Set
25-1	28309000	Propeller Washer
26	49408000	Drive Hub
27	45520000	Thrust Washer
28	29431000	Crankshaft Ball Bearing (Front)
29	29030001	Crankshaft Ball Bearing (Rear)
30	45231100	Camshaft Bearing (1pc.)
31	49462000	Camshaft
32	44514110	"O" Ring
33	49401100	Cam Cover
34	49402000	Crankshaft
35	49402100	Crank Pin Stop Screw
36	29208200	Woodruff Key
37	29122540	Cover Gasket
38	49407000	Cover Plate
39	49407010	PCV Valve Set
40	74002320	Rotation Sensor
40-1	74002321	Rotation Sensor Retaining Screw Set (2pcs.)
41	49469450	Thermo Insulator
42	49414010	Intake Manifold Gasket (2pcs.)
43	49469400	Intake Manifold
44	49415010	Carburetor Gasket Set
45	49481000	Carburetor Complete (WT1070)
45-1	29781360	Choke Arm Assembly (1pc.)
45-2	29781350	N4-40x5 Screw (1pc.)
46	49412000	Velocity Stack
47	49425000	F-6040 Silencer Assembly
47-1	49425100	Silencer Body
47-2	44525110	Silencer Gasket (2pcs.)
47-3	44525200	Exhaust Header Pipe Assembly
47-4	44525210	Exhaust Header Pipe Nut M16 (1pc.)
	74002510	Ignition Module (IG-04)
	71669010	Spark Plug CM-6 (Rcexl)

The specifications are subject to alteration for improvement without notice.



**G.S. ENGINES MFG.CO.LTD.**

6-15 3-Chome Imagawa Higashiumiyoshi-ku  
Osaka 546-0003, Japan TEL. (06) 6702-0225  
http://www.os-engines.co.jp FAX. (06) 6704-2722

