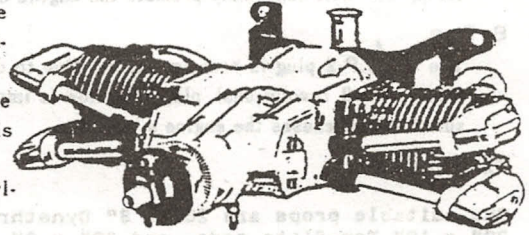


FA-270T is fitted with a choke valve which is very useful device for scale airplanes, etc.

# Instructions for SAITO FA-270T<sup>MK2</sup> 4 Stroke Cycle Engine

Let us express our sincere thanks for your favouring Saito Seisakusho, Ltd., particularly for your purchase of the "Saito FA-270T Engine". This is your engine you bought. please read our instructions carefully and treat your engine with loving care. If you have a manufacturing defect, we are in a position to repair it without any cost.

The large-sized model airplanes such as a quarter scale one are having a popularity. More realistic and dynamic flying is attractive to flyers. However, as the matter of fact, there is no large-sized four cycle engine for model airplanes, so that modellers and flyers have no alternative but to use an engine for the industrial purpose. It is the FA-270T flat twin cylinders four cycle engine that complies with their wishes.



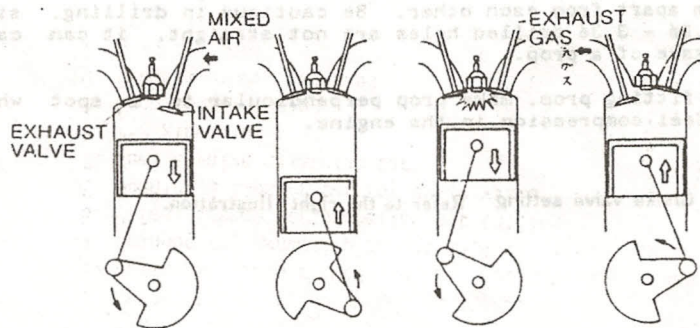
USE RC Large Stunt Airplane (Set up a standard) Wing area : 70~120 dm<sup>2</sup>  
RC Large Scale Airplane Weight : 7~12 kgs

## FA-270T Features

- A roar of its exhaust is realistic.
- Alternative explosion results low vibration level.
- The carburetor is installed in the rear and upper part of the crank case to secure an operator against a large-sized propeller. This is easy to handle and adjust the engine, and will scarcely inhale a dust from the ground.
- Cylinder .....Hard-chrome plated bore increases a durability of the engine.  
The cylinder and head consist of a single unit, which results nondistortion of the cylinder bore, and increase heat dissipation.
- Piston .....High silicone aluminum piston with a compression ring increases efficiency of the engine.
- Crank Shaft .....Made of a solid chrome molybden steel, which is supported by three ball bearings.
- Carburetor with choke valve  
.....We first developed this device in the model four cycle engine world. The operator is able to hold his airplane by one hand, and rotate the propeller by the other hand for easy choking. The carburetor has a unique interlock-ing device.
- Breather nipple  
.....Drains waste oil efficiently (In case of long nipple tube, waste oil goes back and forth in the tube, and is scarcely drained. This unique design solved the problem as above)

- Prevention of loosening a prop. Safety design. The propeller nut hardly loosens.
- Front mounted camshaft results in light weight.
- Semi-spherical combustion chamber increases combustion efficiency.

## Explanation of 4 Stroke Cycle Engine



1. Suction Stroke    2. Compression Stroke  
3. Expansion Stroke    4. Exhaust Stroke

4 Stroke Cycle engine consists of 4 strokes as illustrated above. Stroke means that piston is moved from the upper dead point to the lower dead point. In case of 4 Stroke cycle engine, gas condition in cylinder, variation, valve motion, etc., are 4 strokes (2 both ways) of piston. After all, 1 cycle is finished every 2 revolutions of crankshaft and returns to the original condition.

6  
28/9

## ACCESSORIES FOR FA-270T MK2

### FA-270T (45 cc) Specifications

Bore ..... 32mm × 2  
Stroke ..... 28mm × 2  
Practical Rev ..... 1,500~8,000 rpm.  
Fuel flow ..... 50 cc per a minute. Full throttle, castor oil system with 10% nitro.  
20" × 8" Dynathrust made propeller.  
Weight ..... Approx. 2,200 grs.

- |  |        |
|--|--------|
| 1. Spanner for tappet adjusting screw          | 1      |
| 2. Tappet adjusting screw gap gauge (0.1t)     | 1      |
| 3. Hexagonal spanner (wrench) (3, 2.5, 2, 1.5) | 1 each |
| 4. Spanner for exhaust pipe nut (M14)          | 1      |
| 5. Offset wrench for propeller nut (M14)       | 1      |
| 6. Opening & closing bar for choke valve       | 1      |
| 7. Needle valve extension bar                  | 1      |
| 8. P-2 glow plug                               | 2      |
| 9. Connector for plug                          | 1 set  |
| 10. Exhaust pipes w/gasket                     | 1 set  |
| 11. Leather washer                             | 2      |
| 12. Engine mount bolts M4x25 & washers         | 4 each |
| 13. Blind nuts for mounting bolts M4           | 4      |
| 14. Bolt M3x32 for fixing propeller            | 2      |
| 15. Knob for bar                               | 1      |
| 16. Breather nipple                            | 1      |
| 17. Prop nut for spinner                       | 1      |

### A. Fuel.

Use castor oil system with nitromethane approx 5~10 % for glow engine use. Do not use 100 % synthetic system fuel. When using synthetic system fuel, use 30 % castor oil system and 70 % synthetic system fuel, and high quality fuel. The "Saito fuel filter (F-1)" will supremely promote the engine efficiency. Fit always the fuel filter in.

### B. Plug.

The Saito P-2 plug is recommendable. Due to the operation of 4 stroke engines (1 explosion for 2 revolutions), plug selection is important for efficient operation. An unsuitable plug causes the engine a trouble.

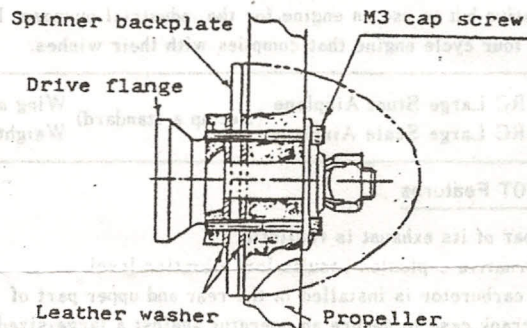
### C. Propeller

The suitable props are 20" x 8" Dynathrust made, 20" x 8" - 20" x 10" Top-Flite made, and 20" x 8" - 20" x 10" Zinger made according to kind of airplanes.

Prop made of grass-nylon is preferable. Keep fairly a balance of prop when using a large sized prop, since imbalance can cause vibration.

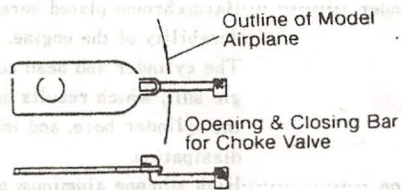
Approx 7,200 rpm on Dynathrust 20" x 8". Static thrust : Approx 8.5kg  
 Approx 8,100 rpm on Top-Flite 20" x 8". Static thrust : Approx 9.0kg  
 Approx 7,300 rpm on Zinger 20" x 10". Static thrust : Approx 8.5kg

Two tapped holes of M3 x 0.5 into a drive flange are designed for safety and to avoid loosening a prop when turning. Fix the prop to the drive flange by M3 cap screws from a prop washer side. As to fitting, refer to an illustration.

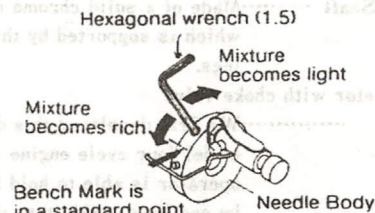


When drilling by yourself, drill accurately 3.2φ - 3.3φ, and 26 mm apart from each other. Be cautious in drilling, since if 3.2φ - 3.3φ drilled holes are not straight, it can cause breakage of a prop.

When fitting prop, make prop perpendicular to a spot where you feel compression in the engine.



Choke valve setting Refer to the right illustration.



### D. Fuel Tank.

Refer to the "Fuel flow"

### E. Carburetor Adjustment and Engine Start

Rotate the needle body toward the left direction as shown in the right illustration, and mixture gas will become rich. Rotate it toward the right one, and it will become light. Line up the bench mark on the needle body where it has been set at a standard adjustment point.

Adjust the engine to high speed running by the main needle. For low speed adjustment, rotate the air needle screw toward the closed position, and mixture gas will become rich. Do it toward the opened position, and mixture will become light.

When running at middle speed, if mixture is too rich, rotate the needle body toward the right for adjustment. The needle body is designed for adjusting the engine when it runs at middle speed. A little rich mixture is preferable on low speed running, and a richer mixture than the peak is recommendable on high speed running. Be careful not to choke too much to avoid knocking. The first time, use the castor oil system with 10 % nitro content, and a fuel tank with a capacity of over 500 cc. It will be well enough to install the fuel tank direct in the airplane because of low vibration.

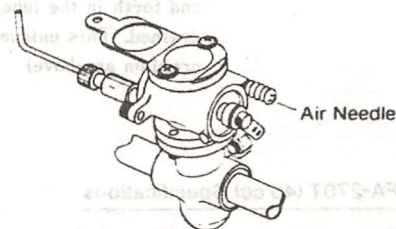
Use 20" x 8" propeller made from glass-nylon, and fit it vertically on the drive flange at the portion where the compression has built up.

#### a) Engine Start.

Let's carry out the following procedure. (Use always muffler pressure.)

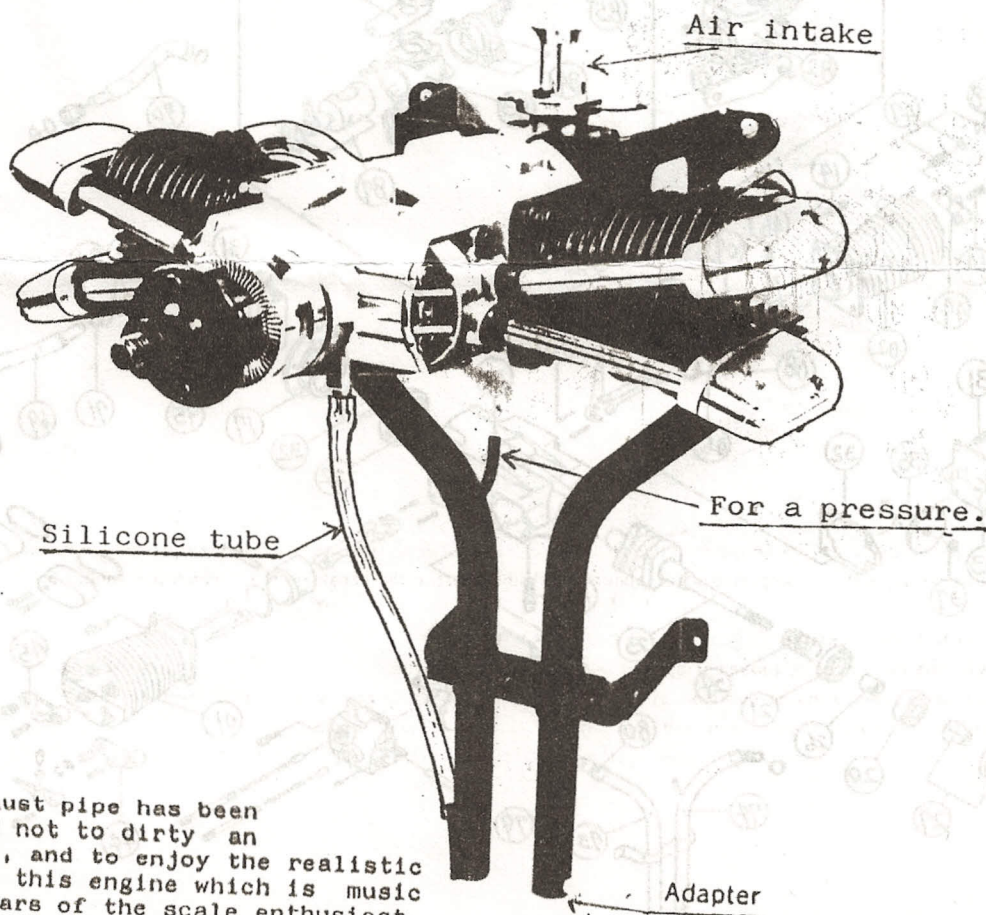
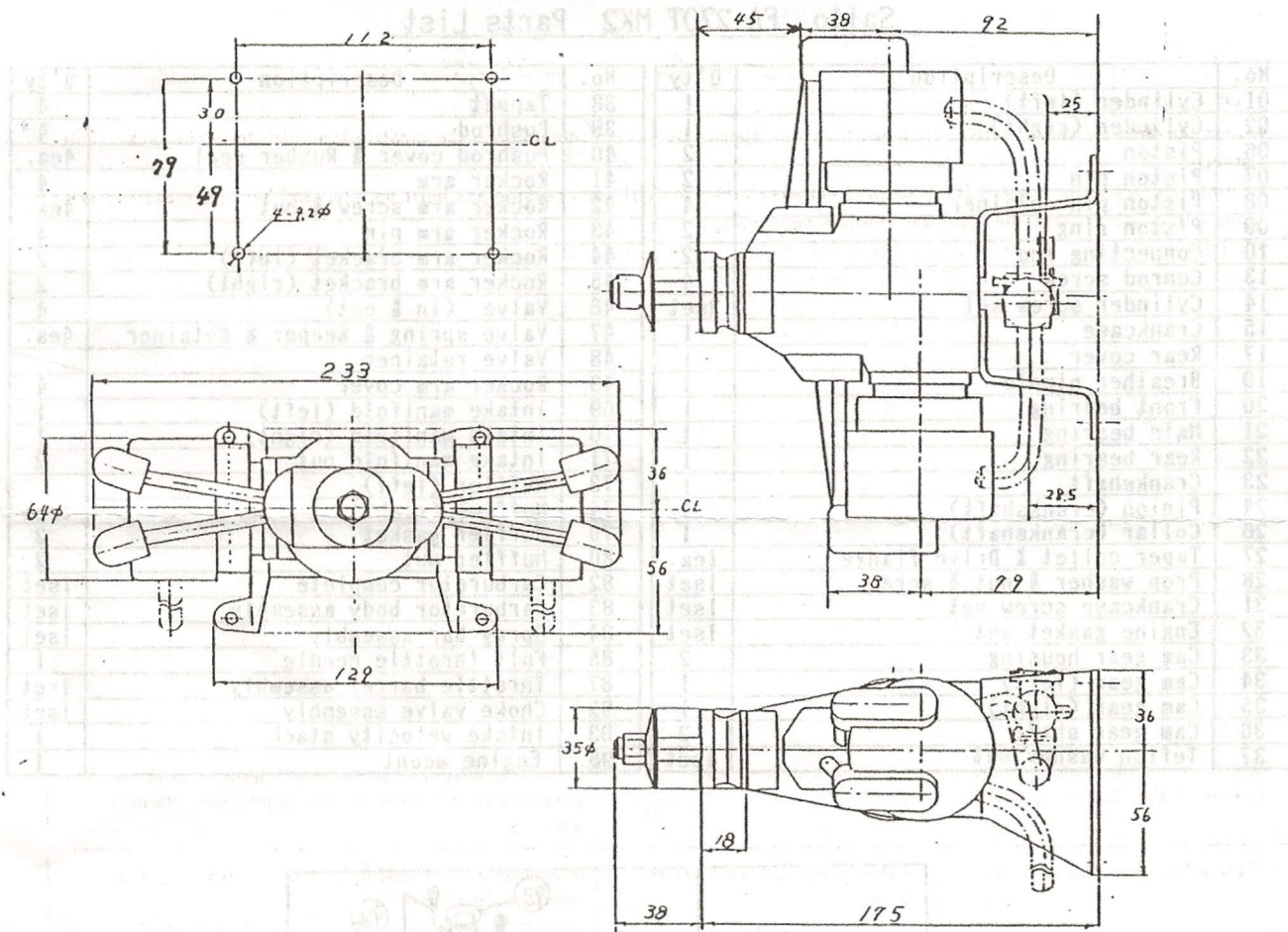
- \* Open the throttle valve to full open position.
- \* Open a needle valve by  $2\frac{2}{3}$  rotation turns.
- \* Close a choke valve.

GAS  
 Toward the closed position → Rich  
 Toward the opened position → Light



FA-300T

FA-270T MK2 OUTSIDE DIMENSIONS(mm)



The exhaust pipe has been modified not to dirty an airframe, and to enjoy the realistic sound of this engine which is music to the ears of the scale enthusiast.