SAITO

Twin-Cylinder Gasoline Four-Stroke Engine

INSTRUCTION MANUAL



NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, Inc. For up-to-date product literature, visit www.horizonhobby.com and click on the support tab for this product.

Meaning of Special Language:

The following terms are used throughout the product literature to indicate various levels of potential harm when operating this product: **NOTICE:** Procedures, which if not properly followed, create a possibility of physical property damage AND little or no possibility of injury. **CAUTION:** Procedures, which if not properly followed, create the probability of physical property damage AND a possibility of serious injury. **WARNING:** Procedures, which if not properly followed, create the probability of property damage, collateral damage, serious injury or death OR create a high probability of superficial injury.

WARNING: Read the ENTIRE instruction manual to become familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product, personal property and cause serious injury.

This is a sophisticated hobby product. It must be operated with caution and common sense and requires some basic mechanical ability. Failure to operate this Product in a safe and responsible manner could result in injury or damage to the product or other property. This product is not intended for use by children without direct adult supervision. Do not attempt disassembly, use with incompatible components or augment product in any way without the approval of Horizon Hobby, Inc. This manual contains instructions for safety, operation and maintenance. It is essential to read and follow all the instructions and warnings in the manual, prior to assembly, setup or use, in order to operate correctly and avoid damage or serious injury.

Introduction

Congratulations on purchasing a Saito[™] 4-cycle gasoline engine. When cared for properly, these high-quality, finely crafted engines offer many years of modeling enjoyment.

This instruction manual has been developed to ensure optimum performance from the Saito gasoline engine you have purchased. Saito gasoline engines are adapted from similarly sized glow fuel engines and are designed with an emphasis towards high performance, durability and weight savings. Where appropriate the engines have been modified to adapt to gasoline fuel usage by equipping it with a four-stroke gasoline engine carburetor and an ignition system matched to your engine. The instructions must be read through completely and understood thoroughly prior to mounting and running the engine.

Features of a gasoline fueled fourstroke engine:

- Fuel efficient
- Fuel cost is low compared to glow fuels
- Your airplane will be cleaner at end of a flying session
- No separate igniter system is required

Safety Warnings

WARNING: Model engines produce a substantial amount of power which can create unsafe situations if not used correctly. Always use common sense and observe all safety precautions when operating, handling or performing any procedure involving your engine. Failure to follow safety precautions could result in serious injury and property damage.

- Always ensure spectators, especially children, are at least 30 feet away when running the engine
- Always ensure that the propeller is securely attached to the engine shaft and all retaining fasteners are tightened properly before EACH flight. Use of blue threadlock to tighten nuts is advisable.
- Always keep small parts out of the reach of children as they can be choking hazards
- Always secure the airplane before powering the engine.
- Always keep your face and body away from the path of the propeller blades when starting or running your engine.
- Always stand behind the propeller when making carburetor adjustments.
- Always wear safety glasses or goggles when starting and running your engine.
- Always keep your fuel in a safe place well away from sparks, heat or

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anything that can ignite.

- Always ensure the aircraft is secure and will not move once the engine is started.
- Always rebind your transmitter to your receiver(s) after setup and before first flight.
- Always ensure the throttle failsafe is set to low throttle in your transmitter.
- Always perform a range check prior to flight.
- Always cut off the fuel supply (pinch or disconnect the fuel line to the carburetor) or use the throttle linkage to shut off the air in order to stop the engine.
- Never use hands, fingers, or any other body part to stop the propeller.
- Never throw any object into a propeller to stop it.
- Never run the engine in the vicinity of loose small objects, such as gravel or sand, to avoid the propeller uncontrollably throwing such materials.
- Never wear loose clothing or a loose neckstrap when operating your model engine as these items could become entangled in the propeller.
- Never have loose objects such as screwdrivers, pencils etc. in your pockets when operating your model engine. These could fall into the propeller.
- Never allow fuel to come into contact with eyes or mouth. Gasoline and other fuels used in model engines are poisonous.
- Always ensure gasoline and fuel are stored in a clearly marked container well away from the reach of children.

Precautionary Guidelines

- Always mount the engine securely on a bench mount or high-quality engine mount.
- Always use the correct size and pitch of propeller for your engine. Refer to Propeller Chart in this manual.
- Always confirm proper balance of your propeller prior to installation of the engine. Failure to do so could cause damage to the engine and/or the airframe.
- Always utilize an electric starter to start your engine.
- Always discard any propeller that is nicked, scratched, cracked or damaged in any way.
- Always run your model engine in a well-ventilated area. Model engines produce possibly harmful carbon monoxide fumes.
- Always store your fuel safely in a sealed, water-resistant container.
- Always store fuel in a cool, dry location. Do not allow fuel containers to come in direct contact with concrete, as the fuel may absorb moisture.
- Always responsibly discard fuel if there is condensation and/or water inside the fuel container.
- Never return unused fuel from the fuel tank back into the fuel container.
- Never attempt to repair or modify a propeller beyond its intended use.
- Never handle model engines, mufflers and/or tuned pipes until they have had time to cool. They become extremely hot when in use.

Disassembly

Do *not* needlessly disassemble your Saito engine. Only qualified individuals should perform engine repairs. Damage due to improper disassembly will not be covered under warranty.

Engine Parts Identification

It is important to be able to identify the parts of your Saito engine. In the back of this manual you will find an exploded view of Saito twin-cylinder gasoline engines, as well as a chart which includes part numbers and descriptions. This will assist you in easily and rapidly identifying the respective parts of your Saito engine.

Ignition System.

- 1. Spark Plug Leads (Mesh-covered high-tension cord) Attach the spark plug leads to the spark plugs. These are both identical and can be used on either side of the engine.
- 2. Sensor cord (Red, Black and white cord) This is connected to the cord from the already attached ignition sensor unit mounted to the output of the crankcase. This connector has a specific orientation, pay attention when connecting these two cords.
- **3. Battery cord (Black and red cord with a universal servo style female connector).** Attach a 6–9 volt battery of at least 1000mAh capacity. 2S Li-Po batteries are the recommended power source

because of their light weight and durability. The ignition amp draw is approximately 790mAh at full throttle.

Carburetor

The gas twin engines are equipped with a suitable carburetor developed in cooperation with Walbro for exclusive use in the Saito gasoline engine it is mounted to. This carburetor has a negative-pressure type fuel pump so your tank can be mounted in most any convenient position relatively close to the engine. The negative pressure to actuate the pump is drawn internally from the intake manifold so no external tubes or connections are required.

NOTICE

If the fuel remains in carburetor after the days flying ends, the rubber components of the carburetor will tend to degrade rather quickly. When stopping the engine after the last flight of the day cut the fuel supply to the carb and run the engine until the carburetor is dry. (The parts of the carburetor made of rubber are considered consumables and are not covered under the warranty of the engine.)

NOTICE

The included gasoline carburetor is elaborate and delicate. Do not attempt to disassemble the carburetor yourself. If the performance of the carburetor indicates that service is required send it to our qualified service technicians.

Support Equipment

The following items, which are not included with your Saito engine, are necessary in order to operate the model engine:

- **1. Fuel.** For maximum protection and longevity of its engines, Saito recommends a fuel containing a 20:1 gasoline to oil ratio. We recommend a synthetic based oil such as Evolution Oil (EVOX1001Q). High octane fuel is not needed for this engine.
- **2. Propeller and Fuel Consumption:**

If you are using a high load (prop diameter and or pitch is large), the air-fuel mixture needs to be richer than with a light load. The main high-speed needle will need to be opened even though the rpm's will be lower than if you were using a smaller propeller. Conversely if you are using a low load (prop diameter and or pitch is small), the air-fuel mixture needs to be leaner than with a heavily loaded engine. The main, high-speed needle will need to be closed, even though the rpm's will be higher than if you were using a larger propeller. For the longest engine life and best fuel consumption, the propeller you choose should provide your best level flight speed at less than full throttle.

- **3. Fuel Filter and Fuel Pump.** Because commercial gasoline has many impurities be sure to use a reliable filter when refueling the onboard tank of the aircraft.
- **CAUTION:** If a quality filter system is not used impurities and dirt will be transported to the carb, clogging internal filter screens and passages, possibly causing an engine failure or poor running of your engine. This could lead to a crash resulting in injury or property damage.
- **4. Fuel Tank.** Choose a tank with a capacity of 14-17 ounces (400-500cc's). This will provide on average a flight time of 11 to 14 minutes at full throttle. Make sure you use a gasoline-compatible fuel tank stopper and gasolinecompatible fuel line both inside the tank and for all connections outside of the tank. (We recommend SAIG36155 for your internal and external fuel line) In the fuel line between the tank and the carburetor. make sure you use an inline fuel filter of some type (HAN143 recommended). We also recommend vou use SAIG36154 Filter with weight as your clunk inside the tank.
- **5. Spark Plug Wrench.** An included spark plug wrench is used to remove and tighten spark plugs.
- Manual or Electric Starter. For manual starts, a heavy-duty leather glove is highly recommended.

CAUTION: Never use your bare fingers to start any model engine. This could lead to injury.

There are a variety of electric starters on the market. The Hangar 9[®] PowerPro[™] H-D 12V starter (HAN162) will work perfectly on all of the twincylinder gasoline Saito engines.

Engine Mounting

When mounting the engine please note that the carburetor of the engine extends beyond the mounting pads of the engine mount and this requires the use of at least 1.0-inch (25mm) standoffs between the firewall and the engine mounting pads. Conversely, you could provide a relief hole in the firewall for the carburetor to stick through into the interior of the fuselage/nacelle.

The engine mounting holes are sized for M4 screws. If you choose a different screw, carefully enlarge the holes in the engine mount to provide the proper clearance.

Make sure that adequate cooling air is circulating around the engine! The cooling air should pass around and through the cylinder fins and over the exhaust pipes as insufficient cooling will cause the engine to run poorly and cause mechanical failures. Without cooling air over the exhaust pipes, it is very likely they will become loose at the cylinder head. Always ensure that there is at least a 3:1 (5:1 preferred) ratio of cool air exhaust outlet area to inlet area. If you need to add baffles within your cowl to direct the air over and through the cylinders, you should do this <u>before</u> you have an overheating problem that could possibly damage your engine.

When attaching the muffler pipes, screw the pipes into the cylinder heads as far as possible before tightening the locking nut to the cylinder head. This ensures adequate strength in the threaded joint between the cylinder and the muffler/exhaust pipe. (The use of a thread locking compound will help greatly in this area.)



Included with your engine is a muffler clamp that is designed to be mounted to the airframe and provides the support necessary for the exhaust pipes. It is important to either use the supplied exhaust pipe mounts or devise another method for yourself to adequately support the exhaust tubes and prevent tube breakage in flight.

Preparing your engine

The first run on any engine, whether 2-cycle or 4-cycle, is critical to the future of the engine itself. During this time, metal mating parts (piston and cylinder, ball bearings, etc.) settle in. Care must be taken that the engine is clean and free of any dust or grit that may have accumulated while building the model.

There are two accepted methods for breaking in a new engine: test stand mounted and run or aircraft mounted and run. Either method is acceptable; however, mounting the engine to a test stand allows the engine to be observed throughout its operation, as well as elevating it above the ground and away from harmful dust and dirt.

Note: Because your engine may have been sitting for an extended period of time prior to running it, a few drops of light oil applied through the crankcase breather nipple (19 on the exploded view) and down the push-rod tubes (40) will ensure proper lubrication for the first run.

Regardless of the mounting method chosen for break-in, the following procedures are applicable:

1. Use a break-in fuel as described in the "Support Equipment" (20:1 - gasoline:oil ratio).

- **2.** Use the proper spark plugs. Your engine includes the NGK CM-6 spark plugs (SAIG36120).
- **3.** Check whether you can **completely** open and close the throttle barrel. If it cannot be completely closed you will have a hard time drawing fuel to the carburetor for a manual start.
- **4.** Check to make sure the ignition system wiring is connected correctly.
- 5. Use a 14 –17 oz (400-500cc) fuel tank for your test bench. Use the installed tank if breaking in mounted to an airframe.
- 6. Use a 22 x 10 propeller for break-in. We prefer a carbon propeller such as a Mejzlik. Since this engine can easily be started manually, position the propeller with the blades at about 1:30 and 7:30 position (when viewed from the front) as the engine comes up against compression. This will be a good position to allow a quick and strong flip of the prop when starting. If starting with an electric start

motor, also add a spinner nut or cone to the propeller/engine assembly.

CAUTION: The safest way to start the engine is with an electric starter.

- 7. Because it is more difficult to set the needles of a 4-stroke engine than a 2-stroke engine by 'ear', we highly recommend the use of an optical tachometer (HAN156) when attempting to set the needles of any 4-stroke engine.
- Make sure you use a fuel filter between the fuel tank and the engine. Also make sure you use filtered fuel in the fuel tank.

How to choke your Saito Gasoline engine equipped with the Saito/Walbro Carburetor.

Provided with your engine is a choke bar. This bar has a 90 degree bend on one end and a 3.5mm thread on the opposite end for engaging the internal threads of the rotating barrel of the carburetor.

You engage the internal threads of the rotating barrel by inserting the threaded end of the choke bar into the hole in the center of the lever and rotate clockwise to engage the internal threads. Once engaged with the threads you can begin the choke procedure:

- **1.** Make sure the ignition module is turned off.
- **2.** Fully close the throttle barrel. (If it is not fully closed it will be difficult to draw fuel into the carburetor for choking).

- **3.** Pull the choke bar and fix it in place with a clamping tool of some sort against the side of your cowling so it cannot spring back into the normal operating position.
- **4.** Rotate the propeller by hand in a clockwise direction (from the front of the airplane) until you hear a hissing sound come from the carburetor a total of 5 times. This gets fuel into the carburetor.
- **5.** Now quickly flip the propeller 10 times in a clockwise direction and your choking process is complete. This gets fuel into the cylinders of your engine.
- **6.** Remove the choke bar from the carburetor, turn on the ignition and begin flipping the propeller. Your engine should readily start. If it doesn't, repeat the above procedure.

Starting The Engine

The following procedures assume the engine is properly mounted and the tank is full of fuel.

Starting with an electric starter motor.

- 1. Turn on the transmitter, and then turn on the receiver switches. Position the throttle stick to the fully closed position.
- 2. Turn on the ignition system.
- **3.** Open the throttle to approximately ¹/₄ throttle.

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4. Engage the electric starter for about 5 seconds and the engine should start.

Manually starting the engine

CAUTION: Use a starting stick or leather workman's gloves to protect your hands.

- 1. Turn on the transmitter, and then turn on the receiver switches. Position the throttle stick to the fully closed position.
- 2. Check that the ignition system is turned off.
- **3.** Insert the choke bar through the carb and engage in the rotating barrel of the carb.
- **4.** Pull the choke bar out and hold in position.
- 5. Next to pull fuel into the carb, grasp and rotate the propeller through a number of times. This choking operation works better if the propeller is not quickly flipped but pulled through the operation. Once you hear that fuel is flowing to the carburetor, rotate through another 5 times.
- Now quickly flip the propeller 10 times in a clockwise direction and your choking process is complete. This gets fuel into the cylinders of your engine.
- 7. Release and remove the choke bar.
- 8. Turn on the ignition.
- 9. Quickly flip the engine through. The engine should start easily. If it does not start, repeat the above choking procedure.

Break-in

Break-in is a very important start to a long and enjoyable engine life so please do these steps with patience and care.

The main purpose of the break-in period is to provide plenty of lubricant to each and every moving part in the engine. Rough engine operation during break-in because of a rich fuel mixture is ok and required to ensure that adequate lubrication is being provided to the newly mated parts.

- **1.** Start the engine as described and allow it to operate at low rpm for 3–5 seconds.
- 2. While running at slow rpm, open the main (high-speed) needle ¹/₂ turn and open the throttle ¹/₂ way. If a rich mixture is not evident at this point, open the low-speed needle to achieve a rich mixture. While no particular rpm target is given, this should all be accomplished at or below 5000 rpm. The object is to run this way for two full tanks. This provides sufficient lubrication to all the mating surfaces to allow them to begin to work together.
- **3.** Reset the low-speed needle to the factory specification and run one full tank of fuel with the rich high-speed needle setting and ½ throttle.
- **4.** With a fresh tank of fuel restart the engine, this time leaning the high-speed needle to achieve a

peak setting followed by richening to cool. Do this about 10 times throughout the course of this tank of fuel.

5. Leaving the high-speed needle in a peaked condition, check your throttle response, going from low to high and back, gradually lengthening the duration of high rpm. Continue the break-in process until you can get a stable high rpm for at least one minute. At this point the ground break-in is complete.

Carburetor Adjustments



Notice: Before adjustment make sure the low-speed needle is set at the target position. In particular make sure this is done after doing the break-in process. It is also preferable to start with the main (high-speed) needle ½ turn open from the target position. In principal the carburetor should be adjusted by first achieving peak rpm with the main (high-speed) needle valve and then adjusting the low-speed needle valve. (Until the high-speed needle setting is fixed low-speed adjustment will be difficult and not stable.)

- 1. Fill the fuel tank and then start the engine as previously described. After the engine starts allow it to warm up for 20 seconds and then fully open the throttle.
- 2. Utilizing a tachometer, adjust the main (high-speed) needle valve to peak rpm carefully. Note as you lean the motor the drop off in rpm, richen back to the peak rpm from that position.

CAUTION: Over-closing (leaning) the main needle valve can be dangerous, causing pre-ignition, knocking and possibly loosening the propeller. If you hear these symptoms, immediately richen the needle valve.

- **3.** Next close the throttle until the engine idles reliably at about 1700 rpm. Careful coordination between the idle (low-speed) needle and the throttle position is needed to achieve this.
- **4.** After you have a reliable idle now check for a good slow transition from low to high. If the engine

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bogs down during the transition, then the idle is too rich and needs to be adjusted leaner. If during the transition the rpm increases quickly, the idle is likely too lean and needs to be adjusted richer. Continue working in this manner until you are satisfied with the slow transition from low to high rpm.

5. Once you have completed the slow transition adjustment now is the time to check how the engine reacts to a fast throttle transition from low to high speed. If the quick transition results in a gradual increase in rpm to a peak setting, the high speed is likely too rich and should be adjusted leaner. If the engine quits or hesitates during this transition the high-speed adjustment is likely too lean and should be made slightly richer. Continue working in this way until you are satisfied with the quick low to high speed transition of the engine.

Because the engine will unload in the air when the propeller operates in turbulent free conditions, it is necessary to richen the high speed slightly before your first flight. Final adjustment of the carburetor needs to be made after actually flying the airplane in the conditions and manner that you enjoy.

Normal Engine Operation

- 1. Ensure the ignition battery is adequately charged before flying your aircraft. The ignition system usage is roughly 790mAh at full throttle so judge the required capacity of your pack based on the flight time expectations you have.
- 2. Connect a heat-proof and gasolineproof line to the crankcase breather nipple. Make this line long enough to exit the cowl so the interior of the engine compartment will remain mostly oil free.
- 3. Lubrication for the piston, conrod, bearings and cam gears comes from the blow-by fuel and oil between the cylinder and the piston. The engine is designed to provide adequate lubrication to these crankcase-located parts when good reliable oil is used. We have used Evolution[®] Oil (EVOX1000Q) with good results.
- 4. Over-closing (over-leaning) the main (high-speed) needle valve will result in overheating, preignition, knocking, engine failure and adverse effect on the conrods and cam gears. Always set the main needle on the ground slightly rich to allow the peak rpm and setting to occur once the airplane is airborne.
- When attaching the exhaust pipe to the cylinder or the propeller nut to the shaft, apply a threadlocking

compound before attaching the two parts together. This will help to keep these parts tight and help prevent any leakage from occurring.

6. The propeller nut and the exhaust locking nuts should be tightened when the engine is hot.

Engine Maintenance

NOTICE: DO NOT NEEDLESSLY DISASSEMBLE YOUR SAITO ENGINE. ONLY QUALIFIED INDIVIDUALS SHOULD PERFORM ENGINE REPAIRS. DAMAGE DUE TO IMPROPER DISASSEMBLY WILL NOT BE COVERED UNDER WARRANTY.

If it becomes necessary to dismantle your Saito engine, the following procedure should be followed:

It's important to maintain identification of the "left"and"right" cylinder parts when dismantling and reassembling the engine. Looking forward from the rear of the engine with the engine upright, the cylinder on the right side is the right cylinder. Therefore, the cylinder to the left is, of course, the left cylinder.

Adjustment of the Tappet Gap

- Once the break-in on the ground is completed, you should adjust the tappet/valve gap for the first time. After the initial adjustment, inspect the tappets at least after every 10 hours of operation and check for the proper gap. Your experience may cause you to do this more frequently.
- 2. Adjustment of the tappet is done when the engine is cold.
- 3. Remove the spark plugs and the rocker covers from the engine.
- 4. Rotate the propeller slowly in the normal direction of rotation. Once you see the intake valve open and close, rotate the propeller another 180 degrees and you should be at the compression top dead center.
- 5. In that position loosen the tappet locking nut and adjust the clearance to virtually zero. (You should not be able to insert the included feeler gauge between the tappet and the valve.)
- After the gap is checked tighten the locking nut firmly but do not overtighten.

Note. In normal maintenance of full-size four-stroke engines, a little clearance between the tappets and the pushrods/camshaft is allowed because of the assumed expansion of the valve. Saito engines are different because of the aluminum construction. The

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cylinder in Saito engines elongates more than the valve and the clearance gets larger as the engine heats up. Therefore, in cold conditions the clearance should be virtually zero.

After several hours of running the occasional check of the tappet clearance can be performed quite easily. Once the engine is cool set the engine up as described above (intake closed and at top dead center) and check to see if you can slide the included feeler gauge (0.10mm thick-ness) between the tappet and valve. If you can it is at its absolute maximum and valve tappet adjust-ments should be made. If you cannot slide the feeler gauge between the two, then your adjustment is fine and nothing further needs to be done.

Tips For Extended Engine Life

To add longer life to your Saito[™] engine the following recommendations are made:

- 1. Use a fuel 20:1 gasoline to oil ratio.
- 2. Use recommended spark plugs.
- **3.** Use the proper propeller size and balance the propeller prior to use.
- **4.** Use a tachometer for precise engine adjustments.

5. For long-term storage, make sure there is no fuel left in the tank, caburetor and the engine. Store the engine in the box or on the airplane with the nose down in order to keep oil in the bearings.

FG-57T Needle Valve Target Positions

High Speed - 2 turns + 50 minutes Low Speed - 4 turns + 10 minutes

Spark Plug Gap

Please maintain your spark plug gap between 0.7mm (0.027") and 0.8mm (0.031")

Troubleshooting

Generally speaking, there are very few things that will keep today's modern gas engines from starting. To that end, make sure you're using good quality "fresh" fuel, you have a fully charged ignition battery, and good spark plugs installed. Should the engine fail to start after these items are verified, refer to the troubleshooting chart below.

SYMPTOM CAUSE		CORRECTIVE ACTION			
Engine fails to start	Low voltage on ignition battery	Replace/recharge the ignition battery			
	Bad spark plug(s)	Inspect/replace bad spark plug			
	Insufficient priming	Repeat priming procedure			
	"Flooded" due to excessive priming	Disconnect ignition battery, remove the spark plugs, and rotate the propeller several times to "clear" the cylinder			
Engine fires but does not run	Over-primed	Disconnect ignition battery and rotate propeller several times to "clear" cylinder			
Engine starts but slows down and then stops	Mixture too rich	Close high-speed needle valve ¹ / ₄ turn and start again. Repeat until engine is running smoothly			
Engine starts, speeds up, and then quits	Mixture too lean	Open high-speed needle valve ¹ /4 turn and start again. Repeat until engine is running smoothly			
Rough idle	Plug	Change plug type			

In the event that none of the above procedures results in the engine running properly, contact our service department for suggestions:

Horizon Service Center 4105 Fieldstone Road Champaign, Illinois 61822 877-504-0233 (Mon–Fri 8:00–5:00 CST)

Twin Cylinder Gas Cross-Reference Chart

TWIN CYLINDER GAS CROSS REFERENCE CHART

	Р			
ITEM	FG-57T			
01 Cylinder Left	G57T01			
02 Cylinder Bight	G57T02			
06 Biston	007102			
07 Piston Pin	12007			
08 Piston Pin Ret	300708			
00 Riston Ring	19000			
10 Con Rod	2007100			
11 Linked Con Bod	*			
12 Coprod Linknin/Ser	*			
12 Con Rod Screw	200T12			
14 Cul Scraw Sat	G57T14			
15 Crankcase	G57T15			
19 Breather Nipple	63610			
20 Ert Ball Bearing	2007208			
20 Fit Dall Dearing 21 Main Ball Rearing	200T20A			
22 Poor Poll Pooring	200722			
22 Real Ball Bearing	300122			
23 Gidinosidit	*			
24 Finion-Gankshan				
25 Pillion gear pill	*			
26 Collar, Grankshalt	057707			
27 Tapered Collet & DTV 28 Prop Wook /Nut	45002020			
20 Prop Nut Spinper	4JUNJUZ0 *			
29 Flop Nut Spiritier	200721			
31 Grankedse Screw S	00131 657T22			
22 Com Coor Housing (right)	037132			
22 Cam Caas Hausing (Ingit)	0577001			
33 Calli Gear Housing (left)	60/1331			
34 Cam Gear Lett	300135			
35 Gam Gear Chaft	120535			
30 Galli Geal Shall	0030A			
37 Steel Wash Set	65/13/			
38 Tappet	120538			
39 PUShrod	65/139			
40 PUSh Rd CVr RD sea	65/140			
41 Rocker Arm	120541			
42 KCKr arm scrw nut	120542			
43 KCKr arm pin	120543			
46 Valve In/out	120546			
47 VIV Spg/kpr/rtr	120547			
40 VIV Retailler	120348			
49 NUCKER ARM COVER	150549			
69 Intake manifold, lft	65/169			
70 Intake manifold. rt	G57T70			

ITEM	P FG-57T
73 Muffler, Left	G57T73
80 Muffler nut	220A80
90 Carb scr/spring set	G3690
91 Carb gasket set	G3691
93 Intake velocity stk	57T93
96 Tool set	G57T96
97 Instruction Manual	SAIMANGAST
99 Muffler bracket	300T99A
110 Anti-loos Prop nut	G57T110
119 Rear Cvr/w eng mt	G57T119
120 Spark Plug	G36120
123 Rub bush PRC U	120S123
124 Rub bush PRC L	120S124
135 Prop Wash w/Anti-loos nut	G57T135
140 Muffler Rt Angle Adapter	220A140
152 Screw Pin	G36152
153 Electronic Igntion System	G57T153
164 Inlet Manifold	G57T164
165 Throttle Control Assembly	G57T165
821 Carb comp	G57T821
831 Carb body assy	G57T831
F-1 Fuel Filter	50109
Filter w/weight	G36154
Fuel Tube (Gasoline)	G36155

Propeller Selection

Below you will find a propeller selection chart. This chart will enable you to select the best propeller for initial setup of your Saito engine. Remember, it is imperative to balance each propeller prior to installation onto your Saito engine. Failure to do so may cause unwanted vibration in your aircraft.



SaitoTwin-Cylinder Gas Propeller Chart						
ENGINE	SPORT	SCALE				
FG-57T 1,500 - 7,000 rpm	21 x 10, 22 x 8 22 x 10	22 x 8, 22 x 10, 23 x 8,				

NOTE: Observe operating rpm ranges as excessive rpm can result in damage to the engine. Damage from overrevving the engine will not be covered under warranty





OUTSIDE DIMENSIONS (mm)								
Items	A	B1	B2	С	D	E	F	
FG-57T Twin Cylinder Gas	104	26.5	33	168.5	232	80	83	

SPECIFICATIONS								
Items	Disp (cc)	Bore (mm)	Stroke (mm)	Total Weight (g)	K (ISO)	Cylinder	Thrust	
FG-57T Gas	57.0	36.0	28.0	2435	M10 x 1.25	28.5 x 2AAC	6 - 8 Kg (13.2 - 17.6 lb)	

