



## NOTICE

All instructions, warranties and other collateral documents are subject to change at the sole discretion of Horizon Hobby, LLC. For up-to-date product literature, visit [horizonhobby.com](http://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 a 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, and serious injury 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, LLC. 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.

**Age Recommendation: Not for children under 14 years. This is not a toy.**



**CAUTION:** This product can become extremely hot when in use, which could lead to burns.

This manual describes the engine and its general operating procedures. For mounting and control, see the instruction manual for the model airplane. Some suggestions are included in this manual for mounting the engine using the included motor mount.

For proper heat transfer, it is important to use a metal motor mount when mounting these engines in a model aircraft. The engine is designed for use on a model radio control airplane. If it is used for any other purpose, we cannot be responsible for its reliability or safety.

## Safety Warnings

Model engines produce a substantial amount of power and 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.

- 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.
- 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 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 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.
- Always ensure gasoline and fuel is 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 the 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.

#	DESCRIPTION	PART
1	Cylinder	SAI120R301
6	Piston	SAIG19R306
7	Piston Pin	SAI90TS07
8	Piston Pin Retainer	SAI5008
9	Piston Ring	SAI45S09
10	Master Rod	SAIG19R310
11	Linked Conrod	SAI120R311
12	Conrod Linkpin and E-ring (1 set)	SAI90R312
14	Cylinder Screw Set	SAI5014
15	Crankcase	SAIG19R315
17	Rear Cover (A) Intake Manifold	SAIG19R317
18	Rear Cover (B)	SAIG19R318
19	Breather Nipple	SAI5019
20A	Front Bearing	SAI6520A
22	Rear Bearing	SAI91S22A
23	Crankshaft	SAIG19R323
27	Taper Collet and Drive Flange (1 each)	SAIG19R327
28	Prop Washer and Drive Flange	SAI5628
31	Crankcase Screw Set	SAIG19R331
32	Engine Gasket Set	SAIG19R332
33	Cam Gear Housing	SAI40A33
35A	Cam Gear (right)	SAI30S35
36A	Cam Gear Shaft	SAI90R336A
37	Steel Washer Set	SAI30S37
38	Tappet	SAI30S38
39A	Pushrod	SAI7239A
40	Pushrod Cover and Rubber Seal (2)	SAI7240
41	Rocker Arm	SAI60T41
42	Rocker Arm Screw and Nut	SAI5042
43	Rocker Arm Pin	SAI30S43
46	Valve In/Out	SAI30S46
47	Valve Spring/Keeper/Retainer	SAI30S47
49	Rocker Arm Cover	SAI30SH49
69	Intake Pipe	SAI120R369
78	Muffler Complete	SAIG19R378
82-1	Complete Carburetor	SAIG19R3821
85	Main Needle Valve	SAIG2085
88B	Throttle Lever	SAI5088B
89	Slow Needle	SAI130T89
95	Engine Mount	SAIG19R395
110	Anti Loosening Nut	SAI56110

#	DESCRIPTION	PART
120	Spark Plug	SAIG20120
121	Crank Pin Spacer	SAI90R3121
122	Spray Bar with O-Ring	SAIG19R3122
131	Throttle Valve Extension	SAI90R3131
140	Muffler Right Angle Adapter	SAIG19R3140
152	Screw Pins	SAIG36152
153	Electronic Ignition System	SAIG33R3153
160	Pump Assembly	SAIG20160
170	Carburetor Joint Insulator	SAIG19R3170

### SAITO 3-YEAR LIMITED WARRANTY

**What this Warranty Covers** - Horizon Hobby, LLC (Horizon) warrants to the original purchaser that the product purchased (the "Product") will be free from defects in materials and workmanship for a period of 3 years from the date of purchase.

**What is Not Covered** - This warranty is not transferable and does not cover (i) cosmetic damage, (ii) damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance, (iii) modification of or to any part of the Product, (iv) attempted service by anyone other than a Horizon Hobby authorized service center, (v) Product not purchased from an authorized Horizon dealer, (vi) Product not compliant with applicable technical regulations, or (vii) use that violates any applicable laws, rules, or regulations.

OTHER THAN THE EXPRESS WARRANTY ABOVE, HORIZON MAKES NO OTHER WARRANTY OR REPRESENTATION, AND HEREBY DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL SUITABLY MEET THE REQUIREMENTS OF THE PURCHASERS INTENDED USE.

**Purchasers Remedy** - Horizons sole obligation and purchasers sole and exclusive remedy shall be that Horizon will, at its option, either (i) service, or (ii) replace, any Product determined by Horizon to be defective. Horizon reserves the right to inspect any and all Product(s) involved in a warranty claim. Service or replacement decisions are at the sole discretion of Horizon. Proof of purchase is required for all warranty claims. SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY

IS THE PURCHASERS SOLE AND EXCLUSIVE REMEDY.

**Limitation of Liability** - HORIZON SHALL NOT BE LIABLE FOR SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR PRODUCTION OR COMMERCIAL LOSS IN ANY WAY, REGARDLESS OF WHETHER SUCH CLAIM IS BASED IN CONTRACT, WARRANTY, TORT, NEGLIGENCE, STRICT LIABILITY OR ANY OTHER THEORY OF LIABILITY, EVEN IF HORIZON HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Further, in no event shall the liability of Horizon exceed the individual price of the Product on which liability is asserted. As Horizon has no control over use, setup, final assembly, modification or misuse, no liability shall be assumed nor accepted for any resulting damage or injury. By the act of use, setup or assembly, the user accepts all resulting liability. If you as the purchaser or user are not prepared to accept the liability associated with the use of the Product, purchaser is advised to return the Product immediately in new and unused condition to the place of purchase.

**Law** - These terms are governed by Illinois law (without regard to conflict of law principals). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Horizon reserves the right to change or modify this warranty at any time without notice.

### WARRANTY SERVICES

**Questions, Assistance, and Services** - our local hobby store and/or place of purchase cannot provide warranty support or service. Once assembly, setup or use of the Product has been started, you must contact your local distributor or Horizon directly. This will enable Horizon to better answer your questions and service you in the event that you may need any assistance. For questions or assistance, please visit our website at [www.horizonhobby.com](http://www.horizonhobby.com), submit a Product Support

Inquiry at <https://horizonhobby.quickbase.com/db/bghj7ey8c?a=GenNewRecord>, or call the toll free telephone number referenced in the Warranty and Service Contact Information section to speak with a Product Support representative.

**Inspection or Services** - If this Product needs to be inspected or serviced and is compliant in the country you live and use the Product in, please use the Horizon Online Service Request submission process found on our website or call Horizon to obtain a Return Merchandise Authorization (RMA) number. Pack the Product securely using a shipping carton. Please note that original boxes may be included, but are not designed to withstand the rigors of shipping without additional protection. Ship via a carrier that provides tracking and insurance for lost or damaged parcels, as Horizon is not responsible for merchandise until it arrives and is accepted at our facility. An Online Service Request is available at [http://www.horizonhobby.com/content/\\_service-center\\_render-service-center](http://www.horizonhobby.com/content/_service-center_render-service-center). If you do not have internet access, please contact Horizon Product Support to obtain a RMA number along with instructions for submitting your product for service. When calling Horizon, you will be asked to provide your complete name, street address, email address and phone number where you can be reached during business hours. When sending product into Horizon, please include your RMA number, a list of the included items, and a brief summary of the problem. A copy of your original sales receipt must be included for warranty consideration. Be sure your name, address, and RMA number are clearly written on the outside of the shipping carton.

**Notice: Do not ship LiPo batteries to Horizon. If you have any issue with a LiPo battery, please contact the appropriate Horizon Product Support office.**  
**Warranty Requirements - For Warranty consideration, you must include your original**

**sales receipt verifying the proof-of-purchase date.** Provided warranty conditions have been met, your Product will be serviced or replaced free of charge. Service or replacement decisions are at the sole discretion of Horizon.

**Non-Warranty Service - Should your service not be covered by warranty, service will be completed and payment will be required without notification or estimate of the expense unless the expense exceeds 50% of the retail purchase cost.** By submitting the item for service you are agreeing to payment of the service without notification. Service estimates are available upon request. You must include this request with your item submitted for service. Non-warranty service estimates will be billed a minimum of ½ hour of labor. In addition you will be billed for return freight. Horizon accepts money orders and cashiers checks, as well as Visa, MasterCard, American Express, and Discover cards. By submitting any item to Horizon for service, you are agreeing to Horizons Terms and Conditions found on our website [http://www.horizonhobby.com/content/\\_service-center\\_render-service-center](http://www.horizonhobby.com/content/_service-center_render-service-center).

**ATTENTION: The sale, warranty and service of Saito products distributed by Horizon is limited to the geographic regions of North America, Central America and South America. Saito products distributed by Horizon cannot be purchased in other regions and may not be compliant with applicable regulations. If non-compliant product is received by Horizon for service, it will not be serviced. Further, the sender will be responsible for arranging return shipment of the un-serviced Product, through a carrier of the sender's choice and at the sender's expense. Horizon will hold non-compliant Product for a period of 60 days from notification, after which it will be discarded.**

## Warranty and Service Contact Information

Country of Purchase	Horizon Hobby	Contact Information	Address
United States of America	Horizon Service Center (Repairs and Repair Requests)	servicecenter.horizonhobby.com/RequestForm/	4105 Fieldstone Rd. Champaign, Illinois 61822
	Horizon Product Support (Product Technical Assistance)	www.quickbase.com/db/bghj7ey8c?a=GenNewRecord	
		888-959-2305	
Sales	sales@horizonhobby.com	888-959-2305	

## Consumer Warranty and Repair Policy

Saito engines are guaranteed against workmanship and manufacturing defects for a period of 3 years from the original date of purchase. This warranty is limited to the original purchaser of the engine and is not transferable. Warranty repairs will not cover:

- Normal engine wear
- Damage due to insufficient maintenance
- Damage related to over-revving of engine due to small prop size or unreasonable use
- Rusted bearings
- Crash damage
- Damage due to use of improper fuel and/or glow plug
- Damage due to lean runs, such as rusted bearings, seized connecting rod or piston, etc.
- Damage caused by foreign objects (dirt or broken glow plug filaments)
- Damage caused by unreasonable mountings or running conditions (dust, insufficient cooling, improper mounting, improper propeller size, or lack of balancing, etc.)
- Damage due to improper disassembly
- Modifications of any kind
- Repair or replacement and any warranty coverage is Horizon's sole decision

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**SAIEG19R3**

Please cut on dotted line.



## Consumer Warranty Registration

Complete this form and mail along with your dated sales receipt (send copy, keep original for your files) within 10 days of purchase to:

Horizon Service Center  
Attn: Saito Warranty Dept.  
4105 Fieldstone Road  
Champaign, IL 61822

Engine Type \_\_\_\_\_

Date of Purchase \_\_\_\_\_

Owner's Name \_\_\_\_\_

Street Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

Daytime Phone Number \_\_\_\_\_

Purchased From:

Dealer's Name \_\_\_\_\_

Street Address \_\_\_\_\_

City/State/Zip \_\_\_\_\_

