MICRO SPORT CUB S2

RAGE RC
RESIST THE ORDINARY

Instruction Manual

PASS™
Pilot Assist Stability Software

Specifications

Wingspan	15.75” (400mm)
Length	11.25" (285mm)
Weight with Batt.	1.4 oz. (40g)
Battery	1S 3.7v 400mAh LiPo
Flight Time	Up to 15 minutes
Transmitter	4-channel capable, 2.4GHz system
Airplane Control	3-Channel - throttle, rudder, elevator
Motor	8mm Coreless
On-Board-Electronics	Combination RX/ESC with Integrated 1.3-gram Servos

General Precautions

- Never operate your model if the transmitter battery voltage is too low.
- Always operate your model in an open area away from obstacles, people, vehicles, buildings, etc.
- Carefully follow the directions and warnings for this and any optional support equipment. (chargers, rechargeable batteries, etc.).
- Keep all chemicals, small parts, and all electronic components out of the reach of children.
- Moisture causes damage to electronic components. Avoid water exposure to all electronic components, parts, etc. not specifically designed and protected for use in water.

Safety Precautions

Failure to use this product in the intended manner as described in the following instruction can result in damage and/or personal injury. A Radio Controlled (RC) airplane/helicopter/quadcopter is not a toy! If misused it can cause serious bodily harm and damage to property.

Keep items that could become entangled away from the propeller, including loose clothing, tools, etc. Be especially sure to keep your hands, face, and other parts of your body away from the propeller.

As the user of this product you are solely and wholly responsible for operating it in a manner that does not endanger yourself and others, or result in damage to the product or the property of others.

This model is controlled by a radio signal that is subject to possible interference from a variety of sources outside your control. This interference can cause momentary loss of control so it is advisable to always keep a safe distance from objects and people in all directions around your model as this will help to avoid collisions and/or injury.

FCC Information

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference received, including interference that may cause undesired operation.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This product contains a radio transmitter with wireless technology which has been tested and found to be compliant with the applicable regulations governing a radio transmitter in the 2.400GHz to 2.4835GHz frequency range.

The associated regulatory agencies of the following countries recognize the noted certifications for this product as authorized for sale and use: USA, UK, AU, and Canada.

Micro Sport Cub RTF Contents

LiPo Battery Warning

IMPORTANT NOTE: Lithium Polymer batteries are significantly more volatile than the alkaline, NiCd or NiMH batteries also used in RC applications. All instructions and warnings must be followed exactly to prevent property damage and/or personal injury as mishandling of LiPo batteries can result in fire. By handling, charging or using the included LiPo battery you assume all risks associated with LiPo batteries. If you do not agree with these conditions please return the complete product in new, unused condition to the place of purchase immediately.

Charging the LiPo Battery

It is important to fully charge the LiPo flight battery before your first flight.

The USB charger can be powered by the USB port on your computer or a wall plug USB port. Plug the charger into a suitable USB port and then plug the flight battery into the charger. A red light will illuminate during charging. When the charge is complete the red light will go out.

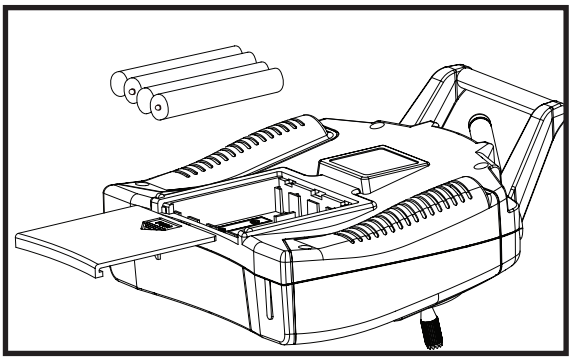
CAUTION: ONLY CHARGE THE FLIGHT BATTERY WITH THE INCLUDED USB LIPO CHARGER OR A SUITABLE LITHIUM BATTERY CHARGER. NEVER ATTEMPT TO CHARGE A LIPO BATTERY WITH A CHARGER THAT IS NOT SPECIFICALLY MADE FOR USE WITH LITHIUM BATTERIES.

Micro Sport Cub Assembly

The Micro Sport Cub comes nearly ready-to-fly. All that is required to complete is the installation of the landing gear.

Insert the landing gear wire into the slot at the rear of the battery box. The wheels should be raked forward. The landing gear is held in place by friction, no screws are necessary to retain.

Install Transmitter Batteries

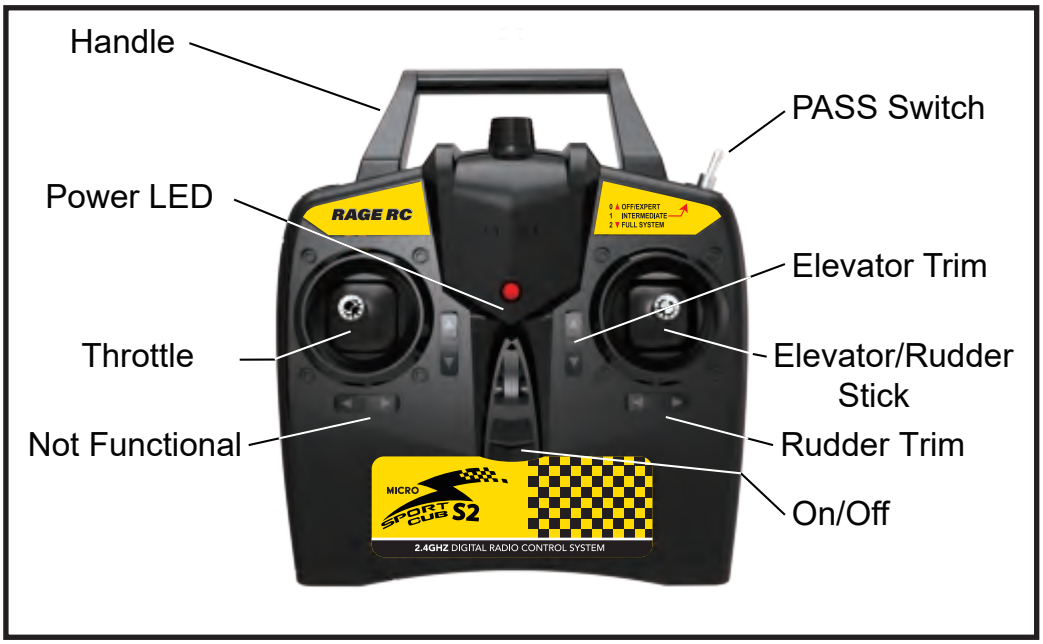


PLEASE NOTE: Install 4 AA batteries into the battery compartment located on the back of the transmitter, under the battery hatch cover. Make sure that the batteries are installed with correct polarity per the diagram inside the battery compartment.

Battery Install

Insert the battery into the battery box located on the bottom of the fuselage. First, turn on the transmitter with the throttle off (left transmitter stick all the way down). Then plug in the connector, which will power up the aircraft. Unplug the flight battery at the end of each flight.

Transmitter Details



Binding Instructions

Binding is the process of programming the receiver to recognize the GUID (Globally Unique Identifier) code of a single specific transmitter. When a receiver is bound to a transmitter, the receiver will only respond to that specific transmitter.

If you need to rebind for any reason, please follow these steps:

- Make sure the transmitter is turned off, the throttle is off (stick to bottom) and the PASS switch is in the Partial or Full Assist position. Plug the flight battery in while keeping the airframe still for gyro calibration.
- Turn on the transmitter within 5 seconds.
- The receiver LED will flash for 3-5 seconds and then bind automatically.
- Once bound, the LED will remain solidly lit.

Arming the Motor

The left stick on the transmitter controls the throttle function. When the transmitter is on and the aircraft flight battery is plugged in, the electronics will be active but the motor will not be armed. To arm the motor, cycle the throttle stick from the down to the up position and then back down. You will hear an arming tone and the next time that the throttle stick is raised the motor will start.

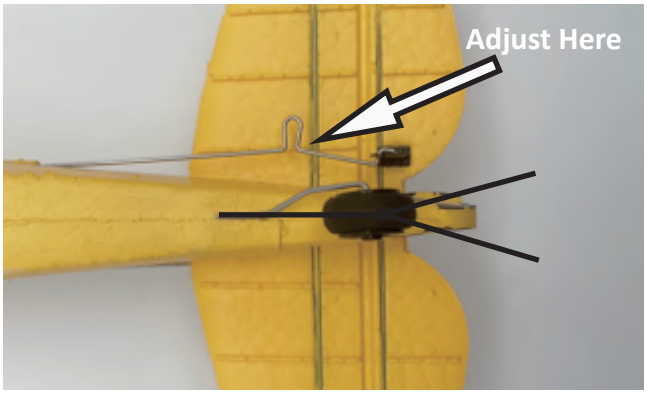
In normal flight operations, always turn the transmitter on first and then power up the aircraft. Keep the aircraft still for 3-5 seconds to allow the gyro to properly calibrate before flying. Cycle the throttle down/up/down to arm the motor. When finished flying, always unplug the flight battery first and then turn off the transmitter.

Control Functions

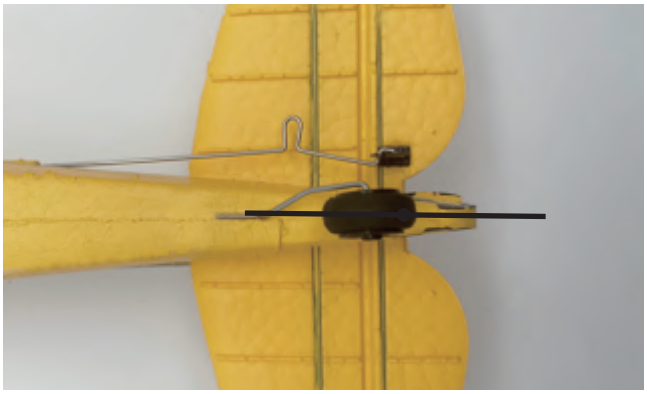
The Micro Sport Cub comes nearly completely assembled. All the control surfaces have been pre-connected. Check that the direction of movement is correct for each of the control functions. This is accomplished by first turning on your transmitter (make sure that your throttle stick is at the down position) and then plugging in your charged 1-cell flight battery. Leave the throttle stick in its down position. The motor will not be activated until the throttle stick is cycled from the down to the up and back to the down. Flip the PASS switch located on the right shoulder of the transmitter away from you, into the Assist Off position. In this position the control surfaces will only move when the sticks on the transmitter are moved. With the transmitter sticks in their neutral positions the control surfaces on the aircraft should be neutral.

Center Control Surfaces

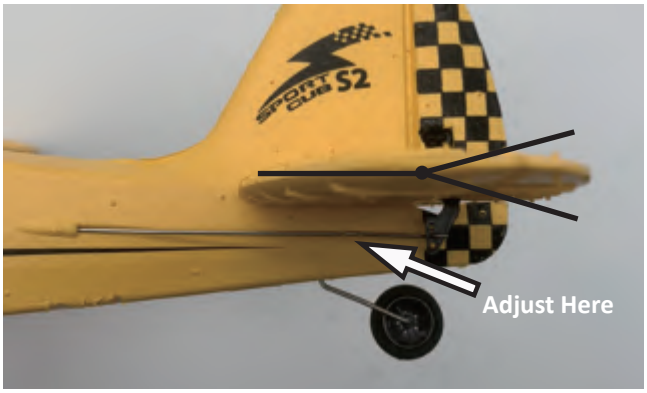
With both the transmitter and the aircraft powered on and the PASS switch in the "No Assist" position, check the control surfaces for correct centering. If the surface is not centered, make the adjustment to the pushrod length by either opening or closing the gap at the U-shaped section of the pushrod.



Rudder not properly centered.



Rudder properly centered.



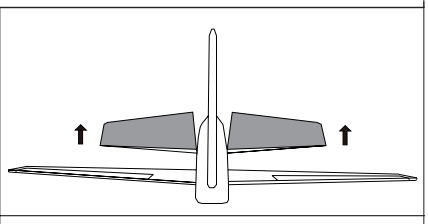
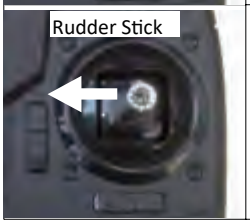
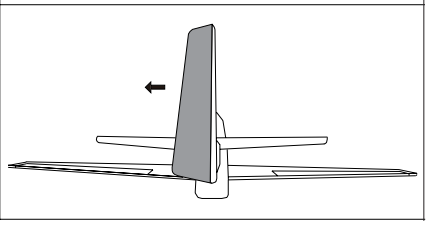
Elevator not properly centered.

Elevator properly centered.

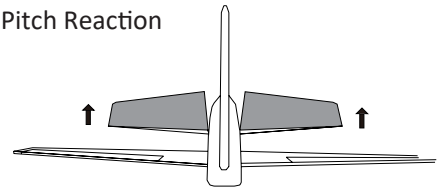
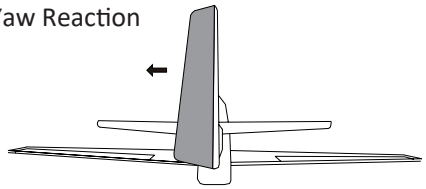
Electronic Trims

All trims should be centered mechanically as shown in the Center Control Surfaces above.
If adjustments are required for level flight when flying the Micro Sport Cub, the electronic trims should be used. If any up elevator trim is needed, press the bottom half of the elevator trim button several times until level flight is achieved. Do the opposite if down trim is required.

Control Movement

Transmitter Operation	Reaction
Elevator Stick 	
Rudder Stick 	

With the aircraft power on and the PASS system in Expert, check the elevator and rudder response as shown above.

Swing the Plane	PASS Reaction
	Pitch Reaction 
	Yaw Reaction 

With the aircraft power on and the PASS system in Partial or Full Assist, check the elevator and rudder response as shown above.

Pilot Assist Stability Software (PASS)

PASS (**P**ilot **A**ssist **S**tability **S**oftware) is incorporated into your Micro Sport Cub. This system allows you to tailor the response of the airplane to your flying ability. As your piloting skills grow, the capabilities of the Sport Cub can grow with you.

Full Assist (Switch toward pilot)

In this mode, the amount of roll, rate of climb, and rate of dive are limited. Self leveling is also engaged. The reduced roll, climb, and dive angles are to aid the newer pilot in not overcontrolling the aircraft. If at any time the airplane feels out of control, simply let go of the sticks and the model will return to normal flight.

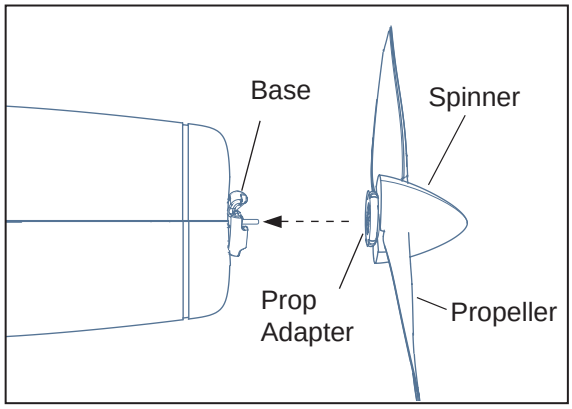
Partial Assist (Switch center position)

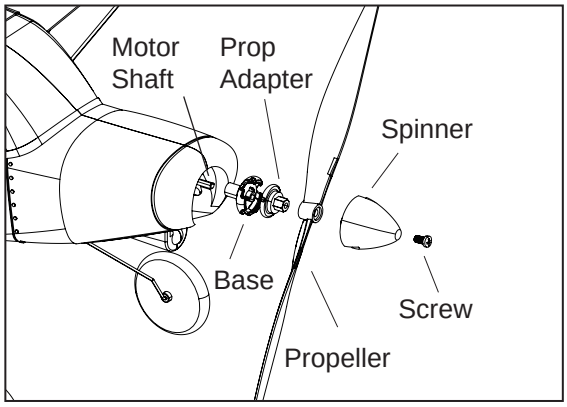
This mode allows for greater pilot input and increases the maximum roll angle and the climb and dive angles possible. The aircraft still cannot be rolled inverted, but will loop. As in Full Assist, the aircraft is self leveling if the sticks are released.

No Assist (Switch away from pilot)

In this mode, all electronic stability control is turned off. With the Micro Super Cub, flying loops is possible in this setting, but because this is a 3-channel airplane, rolls and inverted flight are not possible. If while flying without PASS in this setting, you become disoriented, simply switch to Partial or Full Assist to automatically level the aircraft and regain control.

Prop Saver Instructions





Each Prop/Spinner set includes the propeller, spinner and prop adapter. See page 10 for specific part numbers for this airplane. The prop saver keeps the propeller and prop shaft from damage, along with preventing the electronic components from over current. When the airplane hits any obstacle, the prop will pop loose and fall from the base. To reinstall the prop, center the prop adapter (see diagram) on the motor shaft, and press until you hear a "click" that indicates that the prop has been reinstalled.

First Flight

Perform a preflight check to see that the controls are moving in the correct direction. This is best performed with the PASS system set to No Assist.

After the check, switch the PASS system to Full Assist and aim the aircraft into the wind. The ideal flying site needs to be about the size of a ball field, and without obstacles. Smoothly advance the throttle and allow the aircraft to take off after a short roll. Gently pull back on the elevator stick to climb, and initiate a turn to keep the aircraft within easy visual distance. Full throttle is not required, and for learning purposes a throttle setting of 1/2 to 2/3 throttle is best.

Remember that the aircraft will return to level flight if the control sticks are released and PASS system is engaged. When ready for landing, make your approach with the nose of the airplane pointed into the wind. Reduce the throttle to descend and allow the PASS system to aid in maintaining a gentle glide to touchdown.

Calibration

The PASS system used in the Micro Sport Cub is pre-calibrated from the factory. Recalibration is only necessary if the aircraft does not respond correctly (pitches up or down) when the PASS switch is activated. With the aircraft sitting on a level surface and the tail raised to a "wings level" attitude, follow the steps below to recalibrate the PASS system:

- Turn on the transmitter but do not cycle the throttle channel.
- Plug in the flight battery to the airplane and set it on its landing gear with the wing parallel to the ground.
- Hold the sticks as shown in the photo for several seconds until you hear a beep. This indicates that calibration has completed.
- Power the airplane and transmitter off and restart.

Parts List

See your local hobby shop or place of purchase first. If unavailable, parts can be ordered direct at www.ragerc.com or call 1-866-724-3811 M-F 8:00-5:00PM Mountain Time.

Item Number	Description
RGRA1135	Fuselage
RGRA1136	Main Wing and Tail
RGRA1137	Main Wing Struts
RGRA1138	Push Rod Set
RGRA1139	8mm Coreless Motor
RGRA1186	Servo Arms (Set of 4)
RGRA1190	1S USB Charger
RGRA1211	2-Blade Propeller (2)
RGRA1215	2-Blade Performance Prop & Spinner
RGRA1216	Propeller Saver Shaft Adapter (2)
RGRA1217	5-Channel 2.4GHz Transmitter
RGRA1328	3.7V 400mAh 25C LiPo Battery
RGRA1209	Landing Gear Set
RGRA1187	5-in-1 Control Board
RGRA1350	6-Port 1S Micro USB Charger

Limited Warranty

Warranty Period: Rage R/C warrants that the Micro Sport Cub (“Product”) will be free from original factory defects in materials and workmanship upon purchase (“Warranty Period”).
What is Not Covered - This warranty is not transferable and does not cover (a) cosmetic damage, (b) damage due to acts of God, accident, misuse, abuse, negligence, commercial use, or due to improper use, installation, operation or maintenance, (c) modification to any part of the Product, (d) attempted service by anyone other than a Rage R/C authorized service center, or (e) Product not purchased from an authorized Rage R/C dealer.
OTHER THAN THE EXPRESS WARRANTY ABOVE, RAGE R/C MAKES NO OTHER WARRANTY OR REPRESENTATION, AND THEREFORE DISCLAIMS ANY AND ALL IMPLIED WARRANTIES, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY AND SUITABILITY FOR A PARTICULAR PURPOSE. THE PURCHASER ACKNOWLEDGES THAT THEY ALONE HAVE DETERMINED THAT THE PRODUCT WILL MEET THE REQUIREMENTS OF THEIR INTENDED USE.
Purchaser’s Remedy - Rage R/C’s sole obligation and purchaser’s sole and exclusive remedy shall be that Rage R/C will, at its option, either (a) service, or (b) replace, any Product determined by Rage R/C to be defective. Rage R/C 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 Rage R/C. Proof of purchase is required for all warranty claims.
SERVICE OR REPLACEMENT AS PROVIDED UNDER THIS WARRANTY IS THE PURCHASER’S SOLE AND EXCLUSIVE REMEDY.
Limitation of Liability - RAGE R/C 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 RAGE R/C HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.
Further, in no event shall the liability of Rage R/C exceed the individual price of the Product on which liability is asserted. As Rage R/C 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 Utah 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. Rage R/C reserves the right to change or modify this warranty at any time without notice.

Notes

RAGE RC

RESIST THE ORDINARY

Rage R/C, an exclusive brand of:
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Salt Lake City, Utah 84104

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12/22