



**105mm**  
**Super Viper**

## NOTICE

Thank you for purchasing from HSD. Please read this manual carefully before operating this plane. We hope this manual is useful in guiding you through the installation and adjustment of the plane so that you may successfully fly it.

Each product from HSD has unique functions that users will need to fully grasp step by step, as you will complete the assembly. It is necessary to assemble and test the product strictly in accordance with HSD's standards.

All rights reserved by HSD for the upgrade and/or reconfiguration of products.

## Meaning of Special Language:

The following terms are used throughout the product manual to indicate various levels of potential harm when operating this product:

**NOTICE:** If procedures are not properly followed, the risk of physical property damage AND a possibility of serious injury are likely.

**CAUTION:** If procedures are not properly followed, the risk of physical property damage AND a possibility of serious injury are likely.

**WARNING:** If procedures are not properly followed, the risk of physical property damage AND a possibility of serious injury are likely.



**WARNING:** Read this instruction manual entirely to become thoroughly familiar with the features of the product before operating. Failure to operate the product correctly can result in damage to the product or personal property and it can 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 use with incompatible components or alter this product in any way contrary to the instructions provided by HSD HOBBY LTD. 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 correctly operate the product and/or avoid damage or serious injury.

# 14+

AGE RECOMMENDATION:

Not for children under 14 years. This is not a toy.

## Safety Precautions and Warnings

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

- Always keep a safe distance, in all directions, around your model to avoid collisions or injury. This model is controlled by a radio signal subject to interference from many sources outside of your control; interference can cause momentary loss of control.
- Always operate your model in open spaces away from full-size vehicles, traffic and people.
- Always carefully follow the directions and warnings for this and any optional support equipment (chargers, rechargeable battery packs, etc.).
- Always keep all chemical, small and electric parts out of the reach of children.
- Always avoid water exposure to all equipment that is not specifically

- designed for this purpose. Moisture causes damage to electronics.
- Never place any portion of the model in your mouth as it could cause serious injury or death.
- Never operate your model with low transmitter batteries.
- Always keep aircraft in sight and under control.
- Always use fully charged batteries.
- Always keep the transmitter in the on state while aircraft is in use.
- Always remove batteries before disassembly.
- Always keep moving parts clean.
- Always keep parts dry.
- Always let the parts cool before touching after use.
- Always remove batteries after use.
- Always ensure failsafe is properly set before flying.
- Never operate aircraft with damaged wiring.
- Never touch moving parts.

## Charging Warnings

**CAUTION:** All instructions and warnings must be followed exactly. Mishandling of Li-Po batteries can result in a fire, personal injury, and/or property damage.

- By handling, charging or using the included Li-Po battery, you assume all risks associated with lithium batteries.
- If, at any time, the battery begins to balloon or swell, discontinue use immediately. If charging or discharging, discontinue and disconnect. Continuing to use, charge or discharge a battery that is ballooning or swelling can result in a fire.
- Always store the battery at room temperature in a dry area for best results.
- Always transport or temporarily store the battery in a temperature range of 40-120° F (5-49° C). Do not store battery or aircraft in a car or direct sunlight. If stored in a hot car, the battery can catch fire or be damaged.
- Always charge batteries away from flammable materials.
- Always inspect the battery before charging and never charge dead or damaged batteries.
- Always disconnect the battery after charging, and let the charger cool between charges.
- Always consistently monitor the temperature of the battery pack while charging.
- ONLY USE A CHARGER SPECIFICALLY DESIGNED TO CHARGE LI-PO BATTERIES. Failure to charge the battery with a compatible charger may cause fire, resulting in personal injury and/or property damage.
- Never discharge Li-Po cells to below 3V under load.
- Never cover warning labels with hook and loop strips.
- Never leave charging batteries unattended.
- Never charge batteries over recommended levels.
- Never attempt to dismantle or alter the charger.
- Never allow minors under the age of 14 to charge battery packs.
- Never charge batteries in extremely hot or cold places (recommended temperature is 40-120°F or 5-49°C) or place in direct sunlight.

Super Viper

# CONTENTS

Attention.....	01
Box Contents.....	01
Diagram of Transfer Line Board.....	02
Assembly.....	03
Control Horn and Servo Arm Settings.....	04
Control Direction Tests.....	05
Manual settings.....	06
Clevis Installation.....	06
Control Surface Centering.....	06
CG LOCATION.....	07
Accessories.....	08-09
Trouble Shooting.....	10
Model Flying Precautions.....	11
Pre-flight Checks.....	11

## ATTENTION:

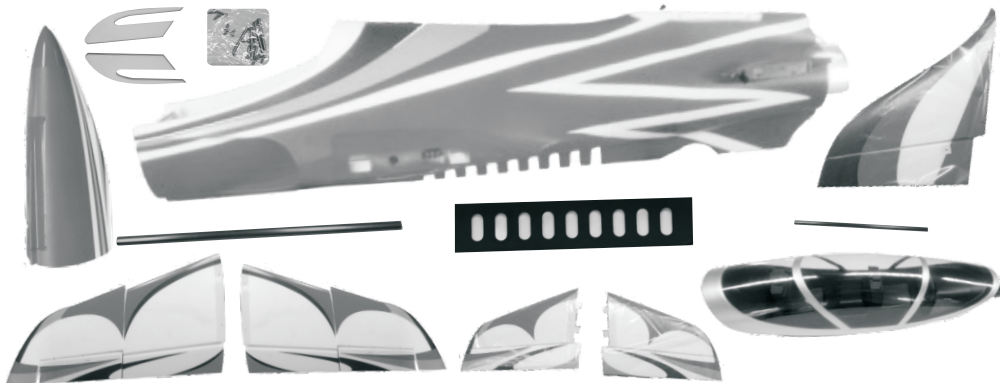
EDF jets require Li-PO batteries with a high discharge rating (Crating) for increased safety and optimal performance. We recommend using Li-Po batteries with a minimum of 40C or above. For 8S and 12S systems that require two batteries in series, the C rating must remain the same on both batteries for better consistency and performance. Below is the power output references:

6S-5000mAh 40C 120A or above = 8.8lb / 4kg thrust

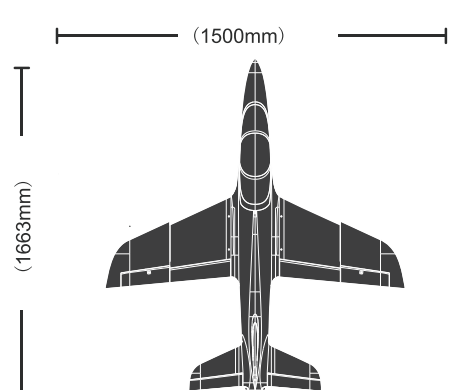






8S-5000MA 40C 105A or above = 11lb / 5kg thrust

12S-5000MA 40C 95A or above = 13.9lb / 6.3kg thrust

## Box Contents

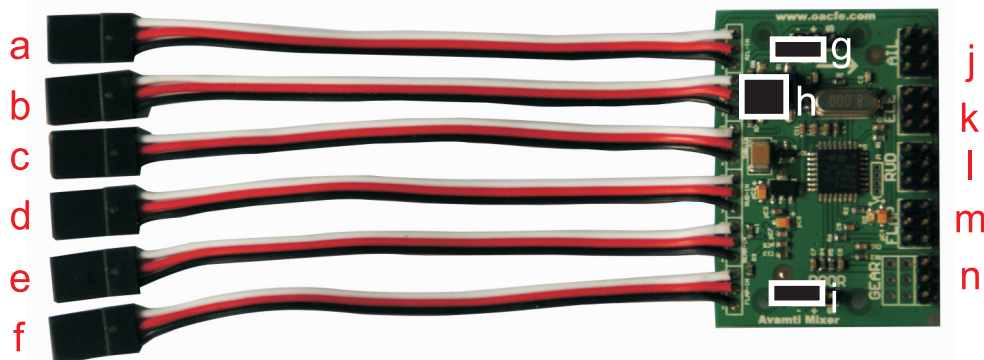


## Specifications

		PNP	
	Brushless Outrunner Motor, 4253/1200KV(6S) 4253/1100KV(8s) 4253/700KV(12s)	Installed	
	HOBBYWING 120A -HV Pro Brushless ESC(6-12S) External UBEC - 8A	Installed	
	Servos: (twin bearings,metal shell and digital servos) 12g*9pcs	Installed	
	Battery: 6S 5000mAh 40C 5000mAh Li-Po 8S 5000mAh 40C 5000mAh Li-Po 12S 5000mAh 40C 5000mAh Li-Po	Required to Complete	
	Recommended Transmitter: Full-Range 6 channel (or more) 2.4GHz with Spektrum FUTABA technology with adjustable Dual Rates.	Required to Complete	 6S-4300g 8S-4500g 12S-5080g



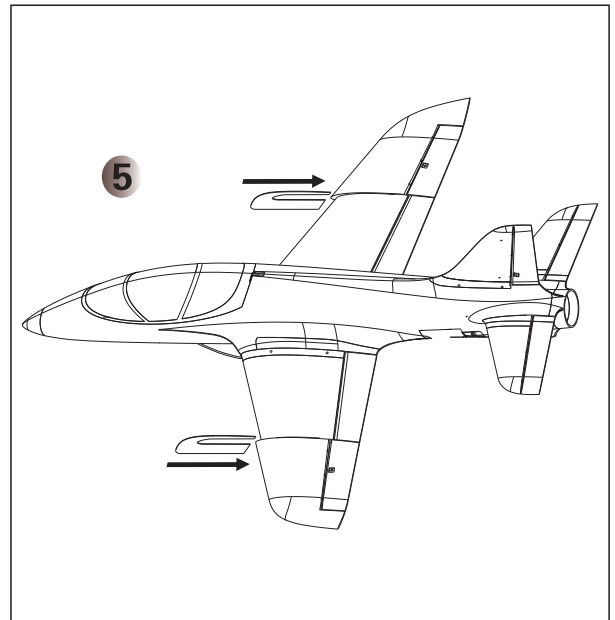
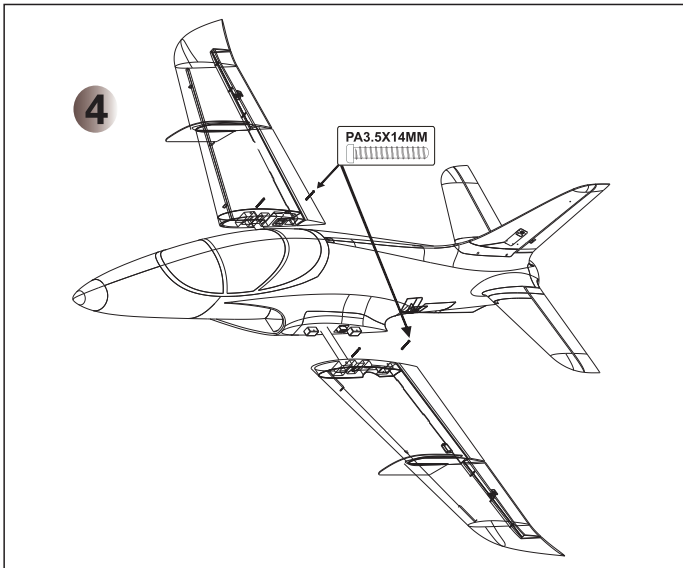
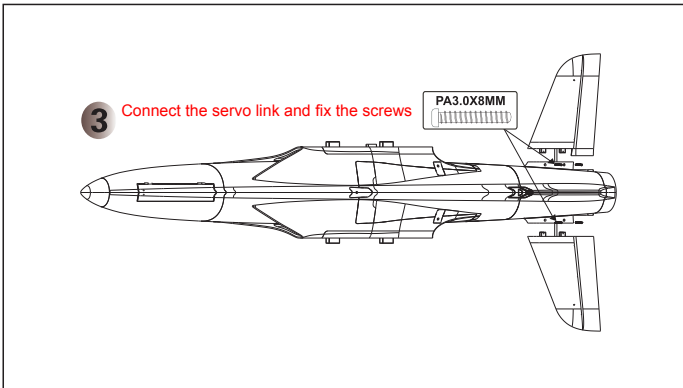
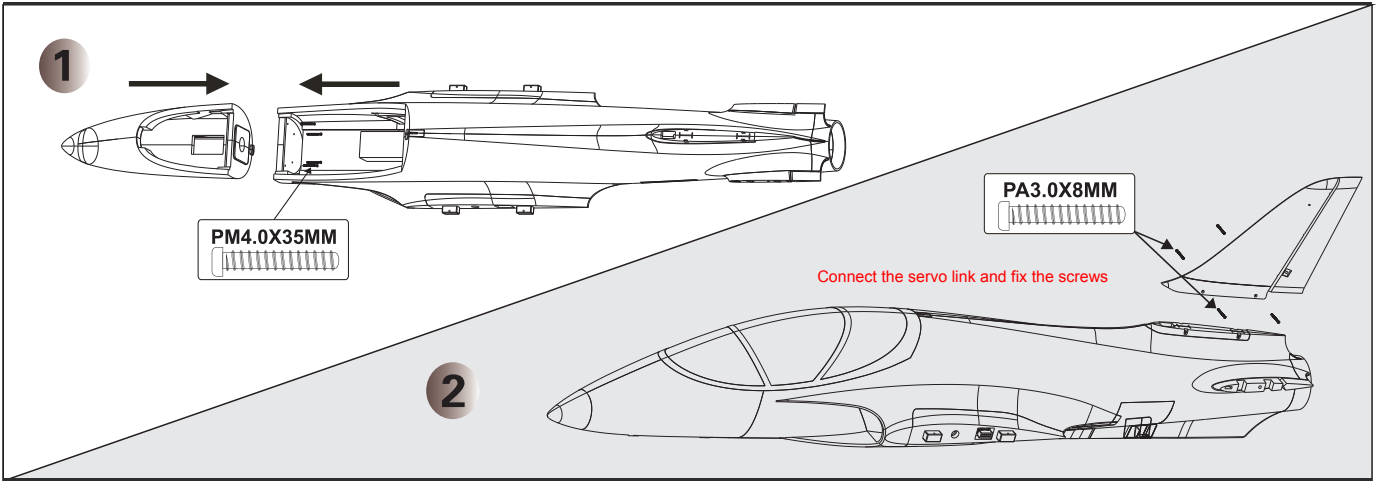
## Diagram of Transfer Line Board



a.Aileron channel	g.Throttle connection	j. Aileron connection
b.Elevator channel		k.Elevator connection
c.Throttle channel	h. Mix-control adjustment button	l.Rudder, front wheel-steering connection
d.Rudder,front wheel-steering channel		
e.Landing gear control box channel		m.Flap connection
f.Flap channel	i.Front hatch cover connection	n.Landing gear control box connection

- 1.This is an all-in-one circuit integration board aimed at simplifying the mixing of controls.
- 2.Since the flaps have their own release and return function, it does not need to be set on the board.
- 3.The flight correction feature (auto-stabilization) on the throttle and pitch functions have a mixing ratio that are within 5 increasing levels. This means the auto-stabilization feature can be adjusted for the elevator and throttle controls to preferred flying characteristics. Configuring this feature depends on the desired preference. To setup the suitable correction ratio, press the mix-control button and set the correction rate. Press the button once (1 flash) for a 4% correction ratio, two times (2 flashes) for a 6% correction ratio, three times (3 flashes) for a 8% correction ratio, four times (4 flashes) for a 10% correction ratio and five times (5 flashes) for a 12% correction ratio.
- 4.The retract cover controls do not need to be mixed on this board since they have their own release and return mixing.

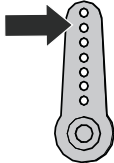
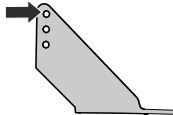


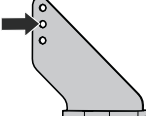
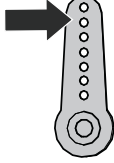
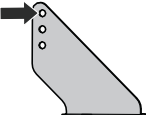
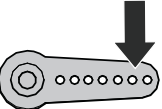
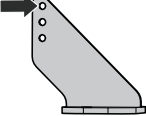
# ASSEMBLY

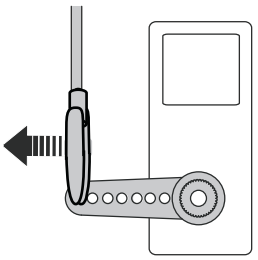
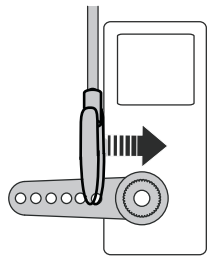
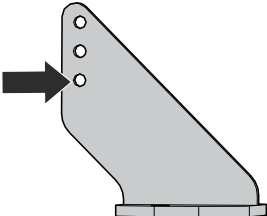
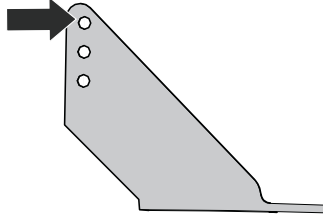


Assembly of your Super Viper is now complete.  
Perform a final check on all screws, bolts and components in order to ensure that everything is securely and firmly in place.

## Control Horn and Servo Arm Settings

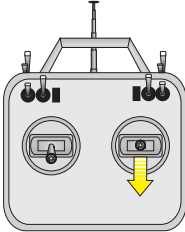
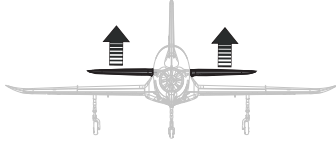
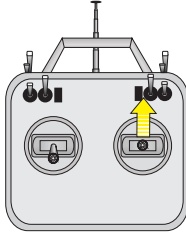
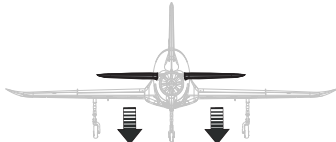
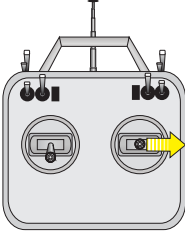
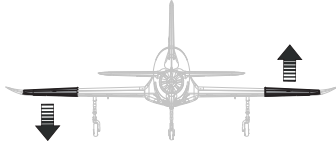
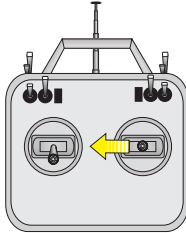

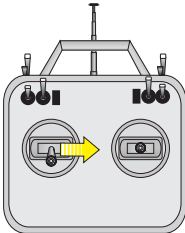
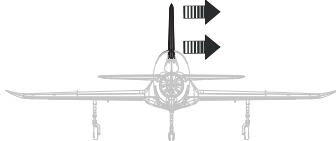
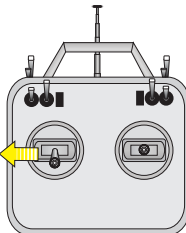
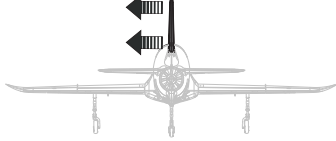
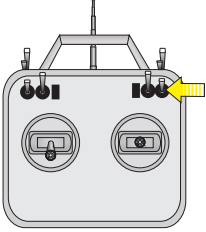
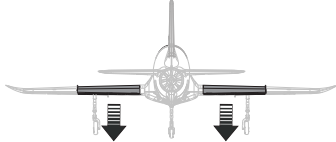
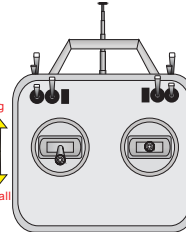

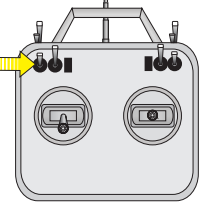

The table to the right shows the factory settings for the control horns and servo arms. Fly the aircraft at factory settings before making changes. After flying, you may choose to adjust the linkage positions for the desired control response. See the table below.

	Horns	Arms
Elevator		
Rudder	The rudder  The front wheel steering 	
Ailerons		
Flaps		

Increased Thrust Control		Decreased Thrust Control	
			

## Control Direction Tests

Assemble the aircraft and bind your transmitter to the receiver before performing this test. After binding the transmitter to the aircraft receiver, set the trims and sub-trims to 0, then adjust the clevises to center the control surfaces. Move the controls on the transmitter to make sure the aircraft control surfaces move in the proper direction.

		Transmitter Command	Aircraft Reaction		
	Elevator	Up Elevator Command			
		Down Elevator Command			
	Aileron	Stick Right			
		Stick Left			
	Rudder	Stick Right			
		Stick Left			
	Flaps	Half			
		the Throttle			
			the Landing gear		

According to everyone's operating habit, the position of switch can be chosen on the premise of optional remote control switch.

According to everyone's operating habit, the position of switch can be chosen on the premise of optional remote control switch.

Big  
Small

## Manual settings

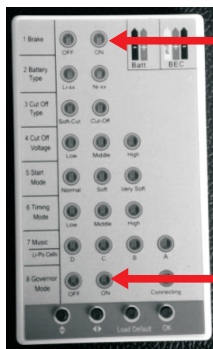
When experiencing problems with the e-retracts, please refer to the following steps:

- Turn on the system and press the button on the control box as shown.
- Set the landing gears down with the manual switch and turn off the system.
- Turn on the system again, the problem should be resolved.



Manual switch for landing gear 'Up/Down'.

To use the reverse thrust feature, use the Hobbywing programming card shown below. With the programming card, make the following changes to the ESC: set the 1<sup>st</sup> and 8<sup>th</sup> term to 'ON'.



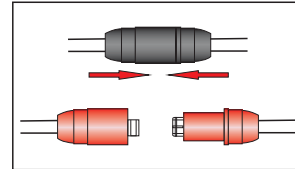
1<sup>st</sup> term set ON.

8<sup>th</sup> term set ON.

## Battery link method

ATTENTION:

Connect the black (negative) anti-spark connectors first, and the red anti-spark connectors afterwards.



## Throttle range setting

(Throttle range should be reset whenever a new transmitter is being used)

Step 1: Switch on the transmitter and move the throttle stick to 100% (wide-open throttle).

Step 2: Connect the battery pack to the ESC, and wait about 2 seconds.

Step 3: A 'beep-beep' tone will be emitted and this means the highest point in the throttle control range has been confirmed.

Step 4: After the 'beep-beep' tone is emitted, move the throttle stick back down to the lowest position (0%). You will hear a set of initialization beeps that register the number of cells in the battery.

Step 5: A final, long beep tone will be emitted meaning that the lowest point of the throttle range has been confirmed. This means the throttle control has been initialized properly and is ready for use.

## Clevis Installation

\* Adjust the push-rod and clevis as necessary.

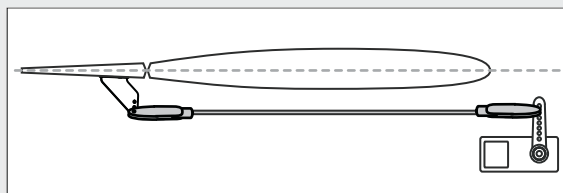
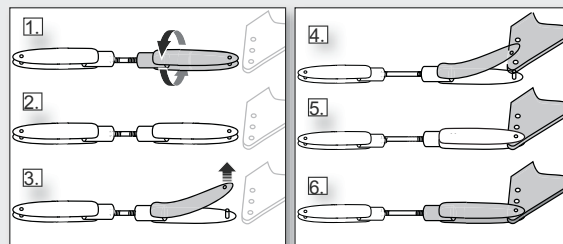
\* Carefully adjust the clevis so that it creates a centered surface when attached to the control horn.

## Control Surface Centering

After assembly and transmitter setup, verify that the control surfaces are centered. If the control surfaces are not centered, mechanically center the control surfaces by adjusting the linkages.

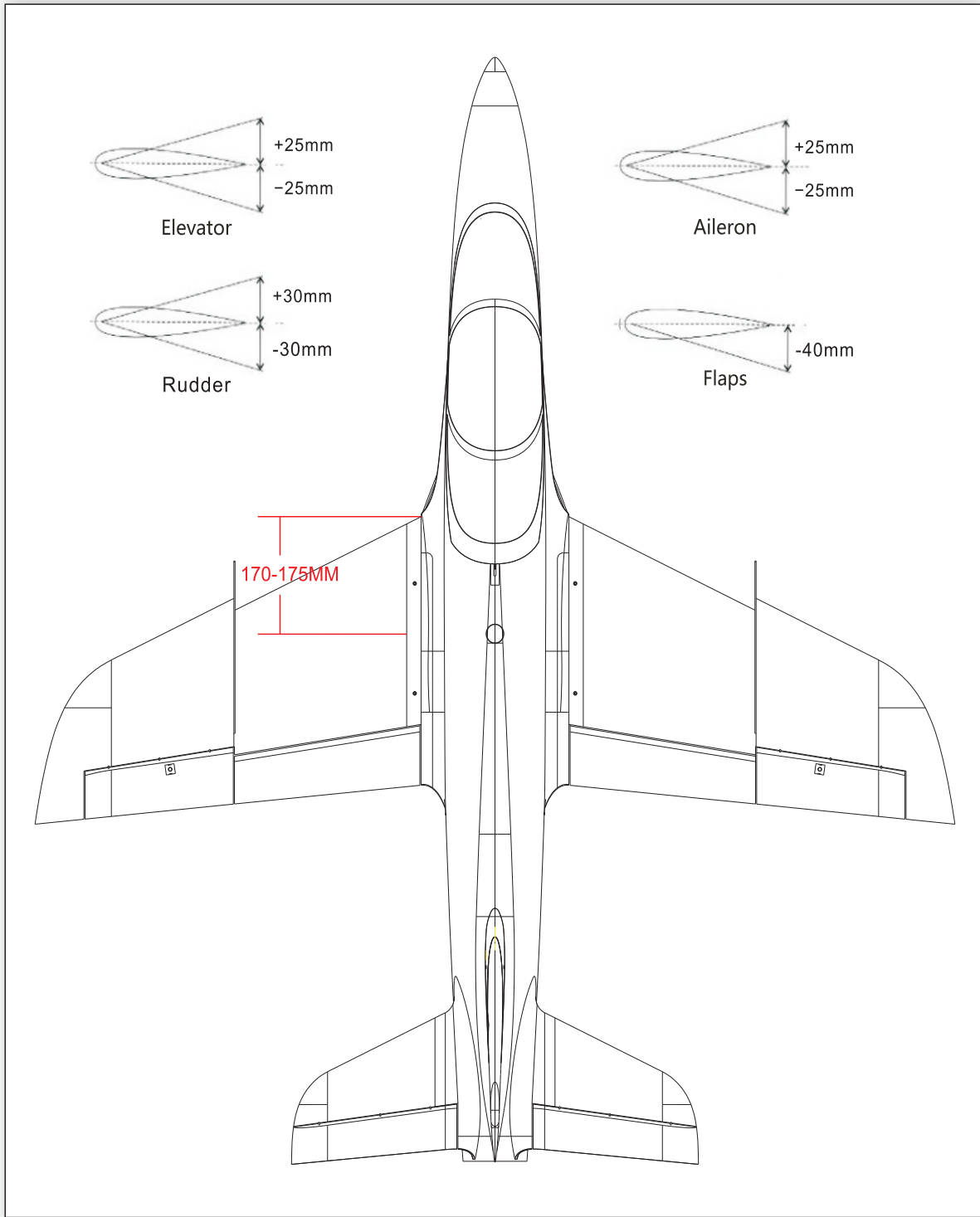
With the flap switch in the up position, flaps should be adjusted so they are even with the ailerons and/or the root of the wing.

If adjustments are required, turn the ball buckle on the pushrod to change the length of the link between the servo arm and the control horn. After binding a transmitter to the aircraft receiver, set the trims and sub-trims to 0, then adjust the ball buckles as necessary to center the control surfaces.

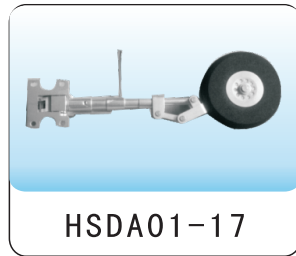
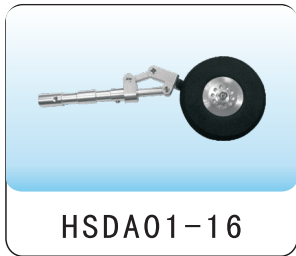
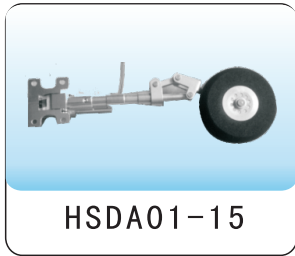
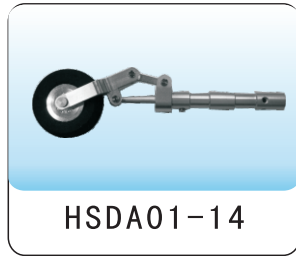
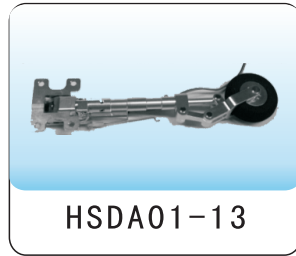
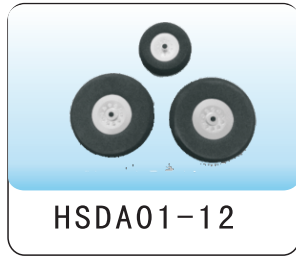
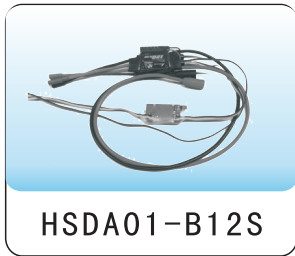
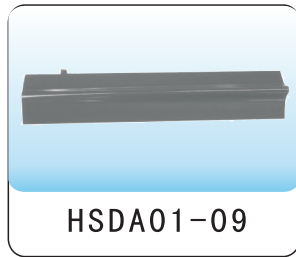
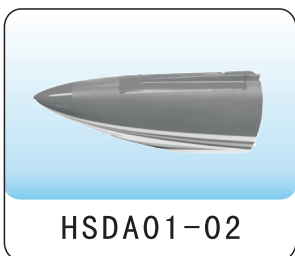
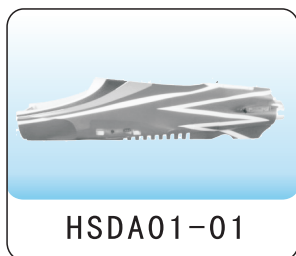


## CG LOCATION

Make sure the center of gravity(CG) is as indicated in the following diagram.



# Accessories

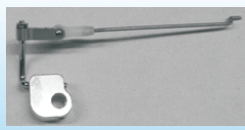




# Accessories



HSDA01-22



HSDA01-23



HSDA01-24



HSDA01-25



HSDA01-26



HSDA01-27



HSDA01-28



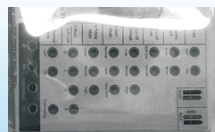
HSDA01-29



HSDA01-30



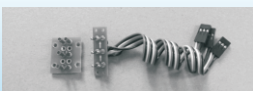
HSDA01-31



HSDA01-32



HSDA01-33



HSDA01-34



HSDA01-35



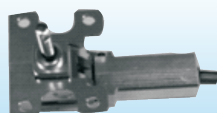
HSDA01-36



HSDA01-37



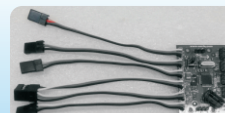
HSDA01-18



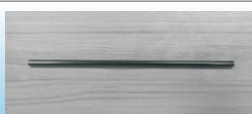
HSDA01-19



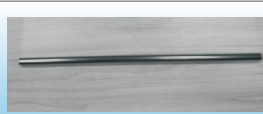
HSDA01-20



HSDA01-21



HSDA01-38



HSDA01-39



## TROUBLESHOOTING

Problem	Cause	Solution
Motor does not turn	<ol style="list-style-type: none"> <li>1. Battery is not fully charged</li> <li>2. Transmitter battery low</li> <li>3. Motors not connected</li> <li>4. The motor is damaged</li> <li>5. Receiver is not bound to Tx</li> <li>6. ESC in set-up mode</li> </ol>	<ol style="list-style-type: none"> <li>1. Charge the batteries</li> <li>2. Install a fully charged battery</li> <li>3. Check for connection between the ESC and the motor</li> <li>4. Replace motor</li> <li>5. Consult Radio manual and go through bind procedure again</li> <li>6. Hold model and move throttle to full position then back down to idle</li> </ol>
Model moves backwards	<ol style="list-style-type: none"> <li>1. Both ESC and motor are not establishing a proper response range</li> </ol>	<ol style="list-style-type: none"> <li>1. Locate the three (3) connections between the motor and ESC, disconnect two (2) of the three (3) and swap their places for proper response</li> </ol>
Control Surfaces are not responding to stick input	<ol style="list-style-type: none"> <li>1. The servo lead may be connected to the receiver incorrectly</li> <li>2. The servo is damaged</li> </ol>	<ol style="list-style-type: none"> <li>1. Make sure the servo leads are properly connected to the receiver</li> <li>2. Replace the servo</li> </ol>
Model is flying erratically	<ol style="list-style-type: none"> <li>1. The control surfaces are not centered</li> <li>2. The control surfaces are severely off center</li> <li>3. Center of Gravity (CG) is not in the correct position.</li> </ol>	<ol style="list-style-type: none"> <li>1. Make trim adjustments as necessary on the transmitter if the issue is not serious</li> <li>2. Make manual adjustments as necessary to the surface control linkages</li> <li>3. Re-position the Li-Po battery as necessary to achieve a balanced CG.</li> </ol>
Model does not climb well	<ol style="list-style-type: none"> <li>1. The battery is not fully charged</li> <li>2. Elevator surface response is reversed</li> <li>3. CG is too far back causing a tail heavy airframe</li> </ol>	<ol style="list-style-type: none"> <li>1. Re-charge the battery within the specified charge time</li> <li>2. Charge the surface direction via the 'reverse' function on the transmitter</li> <li>3. Re-position the Li-Po battery as necessary to achieve a balanced CG</li> </ol>
Limited Radio Range	<ol style="list-style-type: none"> <li>1. Transmitter or receiver (if applicable) power is low</li> </ol>	<ol style="list-style-type: none"> <li>1. Charge or replace any batteries used on the transmitter and receiver (if applicable)</li> </ol>

---

## MODEL FLYING PRECAUTIONS

---

- Select your flight area carefully. Always choose an open space that is unobstructed by trees and/or buildings and away from crowded area. Avoid flying in area with roads, electricity/telephone poles or wires and water nearby or within close proximity to full size air traffic.
- Do not fly this model in poor weather, high winds, low visibility, extreme temperatures, rain and storms.
- Never attempt to catch this model whilst in flight. Even a slow moving model can cause harm to yourself and/others and this risks damage to the model.
- This model is recommended for children no younger than 14 years old. All children, not matter what age, should always be supervised by a capable and responsible adult when operating this model.
- Always unplug your model battery when not in use. Never leave the battery installed in the model.
- Please remember to keep clear of the propeller at all times when your flight battery is connected.
- Before flying, always turn on your transmitter first then plug your flight battery into the model.
- After flying, always unplug your battery first then turn off your radio transmitter.
- Exercise caution when charging your batteries and follow your battery manufacturer's safety guideline when doing so.

---

## PRE-FLIGHT CHECKS

---

1. Always range check your model before any flight (especially when flying a new model for the first time). Follow your radio manufacturer's guidelines to perform this check.
2. Check that all screw/bolts and mounting points are firmly secured, including control horns and clevises.
3. Only fly with fully charged batteries (both in your radio and model). Failure to do so could result in loss of control, damage to the model and/or persons/property around you. Check that your batteries are fully charged.
4. With the model powered on (transmitter on first, then receiver/model) check that all surfaces are free from damage/obstructions, moving freely in the correct directions with stick input.
5. Inspect the model and prop for any damage that may have occurred during transit and listen for any unusual sounds from the electronics when powered on. If in doubt, do not fly.
6. If this is your first flight with the model double check that the CG is at the correct position. If not, adjust the battery position inside your model accordingly.
7. If you are an inexperienced model pilot, seek the assistance of an experienced pilot to perform these final checks and to test fly the model for you.

**105mm**  
**Super Viper**  
2066L 1!66L  
102mm

**Distributed by:**



**Banana Hobby**  
**California, USA**  
**Call or Text(626) 629-8243**  
**WWW.bananaHobby.com**