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### Active Suspension Conversion Kit For MST RMX 2.0

This kit is an STL Data kit for conversion of MSTRMX2.0 chassis with an active suspension system uperScale2k20 SS Unit”.

This kit can use the full potential of the SS unit instantly. And you can get the realistic motion for your MST RMX chassis.

All of the parts are made with Color Fabb HT automobile grade tough and durable material.  
\*without body mounts, etc.

## Future

- Come with All of printable parts
- Design for MST RMX2.0
- Active suspension and conventional suspension hybrid.
- Simple and reliable, easy to swap design
- Fully compatible original suspension geometry

## What is contained in this kit?

Parts list of this kit

ItemNo	ItemName	Nozzle Dia	material	Quantity
1	FrontStruttower	0.4	PETG	1
2	FrontStrutArms	0.4	PETG	2
3	RearStrutTower	0.4	PETG	1
4	RearStrutArms	0.4	PETG	2
5	FrontServo holder	0.4	PETG	1
6	RearServo holder	0.4	PETG	1
7	Servohone	0.4	PETG	4
8	SSunit Mount	0.4	PETG	1
9	Body Mount	0.4	TPU	2



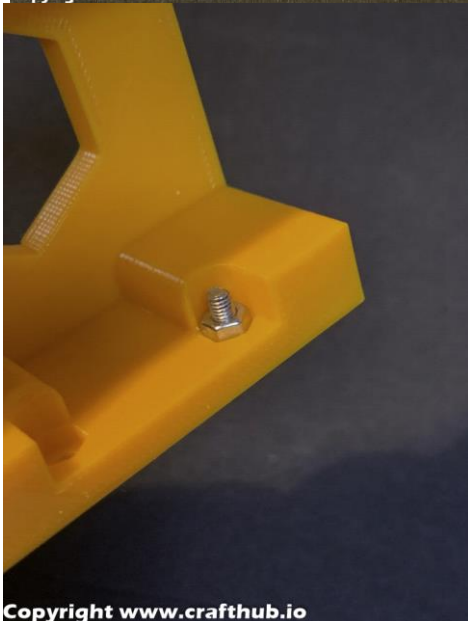
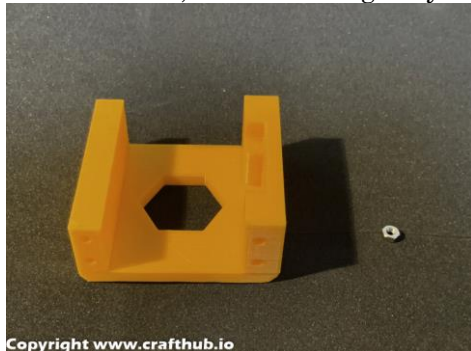
**What you need (items not included in kit)**

ItemNo	ItemName	maker	material	Quantity
1	M3*12			4
2	M3*10			16
3	M3*8			4
4	M3 Nut			5
5	TaperdWasher			4
6	Ballend4.8 φ	Yokomo		4
7	Ballstud	tamiya(partsNo17)		1 set
8	Turnbuckle	yokomo etc		4
9	Rodend	yokomo4.8		8
10	HardSpring	etc Front/Back		4

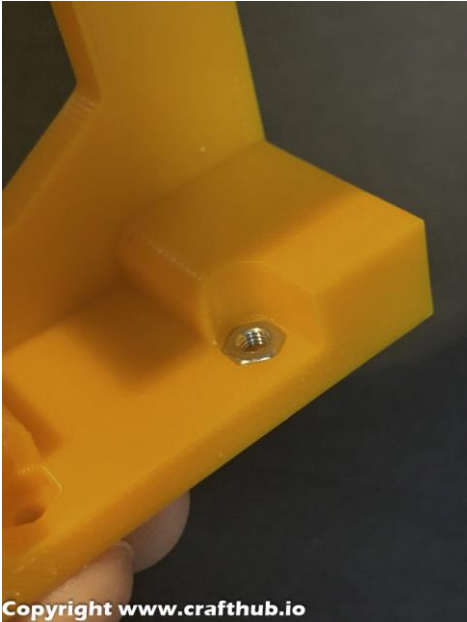
- Superscale2K20 SS unit kit <https://www.superscale2k20.com/>
- BEC unit
- High torque Servo \*4

# 1, Installation

Use M3 screw, M3 Nut and gently insert to the M3 Nut position.



Use the screw to pull the nut into M3 Nut position



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The M3 nut will be flush when it is installed correctly

## 2, High Torque Servo installs



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Use M3\*10 CapScrew(PartsNo13) to screw servos to chassis mount brackets.

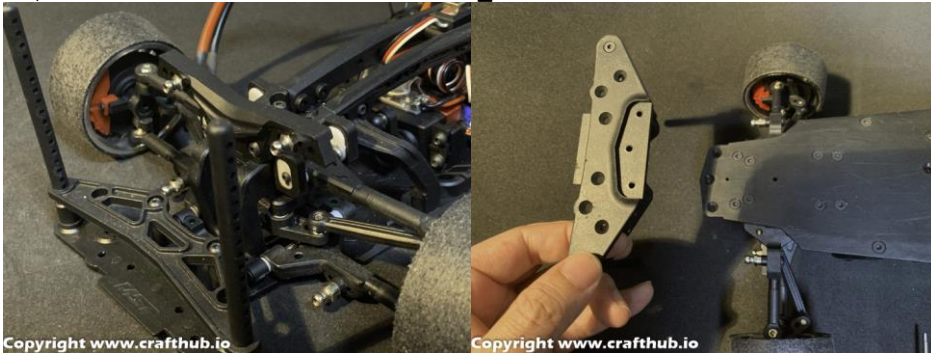
The mount screw hole size is 2.8mm and optimize the tolerance for M3 Screw.  
The Servo's output shaft should be **on the side closest to chassis mount holes.**



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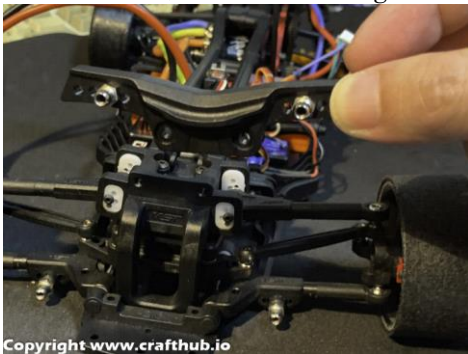
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### 3, Remove the bumper



### 4, Swap the Strut tower bar(Front)

Front Strut (Remove the original Strut Tower)



Remove the ball end and fix it in a same position Referer to page 14





Use a Tamiya Fluorne coated Stabilizer Ball connector set For the front, use this one.



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Assemble the front Strut tower by adding M3\*15 screws for the front. Do not over tighten. Check for minimum play and movement.

The assembled strut tower **needs a little bit friction**. If this part is too loose, the SS's multiplier value can't increase, and serious oscillation will occur and won't stop. However, **regular suspension linkage parts have to always be very smooth**.

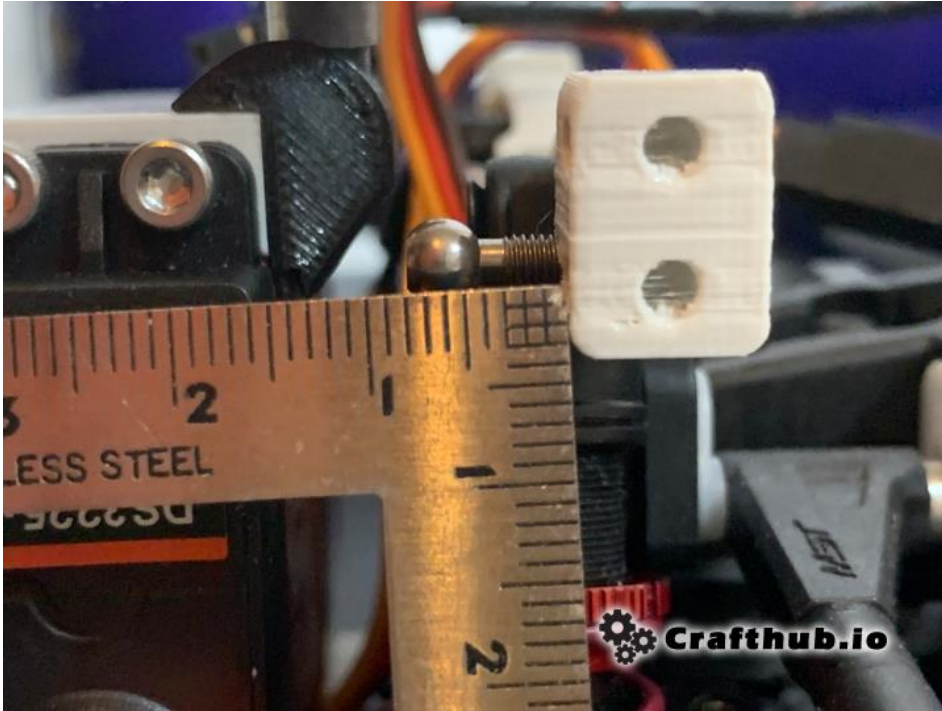


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Check Ball connector position.



## 5, Swap the Strut tower bar (Rear)

Rear Strut Remove the original Strut Tower



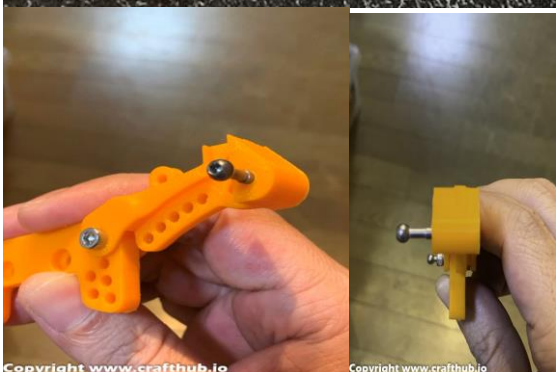
Assembling the Rear Strut tower: (Assembled)

Using M3\*12 screw for the Rear. (Do not over tighten)

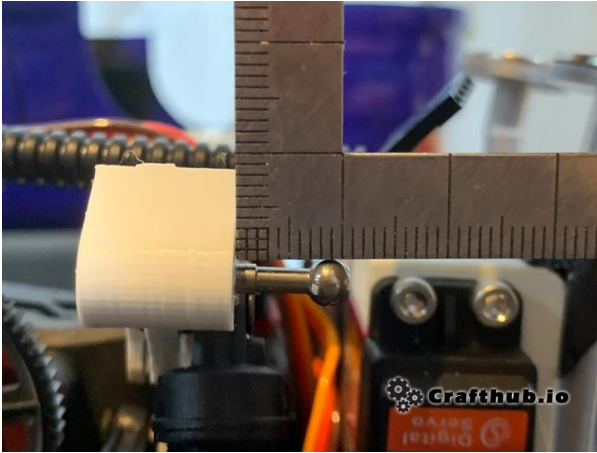
Check minimum play (The arms should move easily.)

The assembled strut tower **needs a little bit friction**. If this part is too loose, the SS's multiplier value can't increase, and serious oscillation will occur and won't stop. However, **regular suspension linkage parts have to always be very smooth**.

Use a Tamiya Fluorne coated Stabilizer Ball connector set For the Rear , use this one.







## 6, Mounting the servo holder

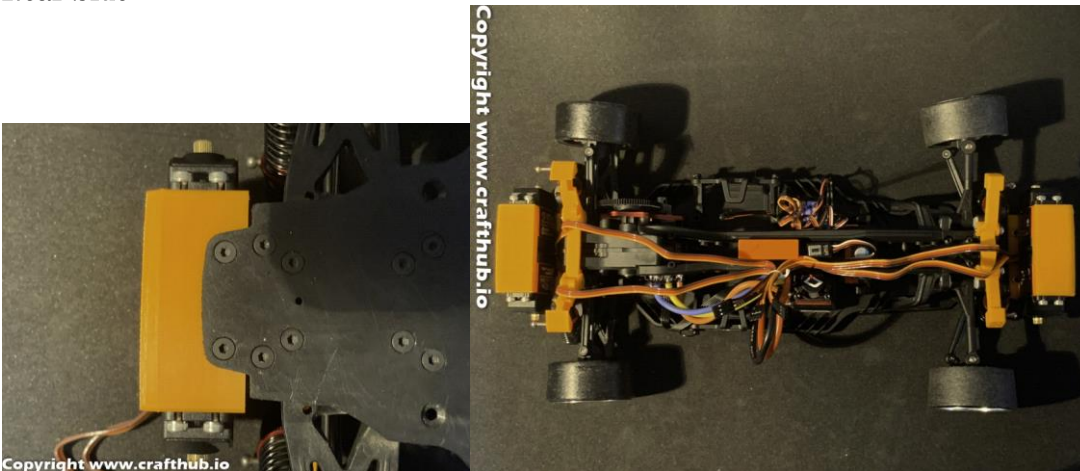
Frontside



Side screw use 3\*15 Countersunk screw.(partsNo10) center screw. Use the screw that MST original used.

The \*Front servo holder has 3 screws. The rear servo holder has 2 screws.

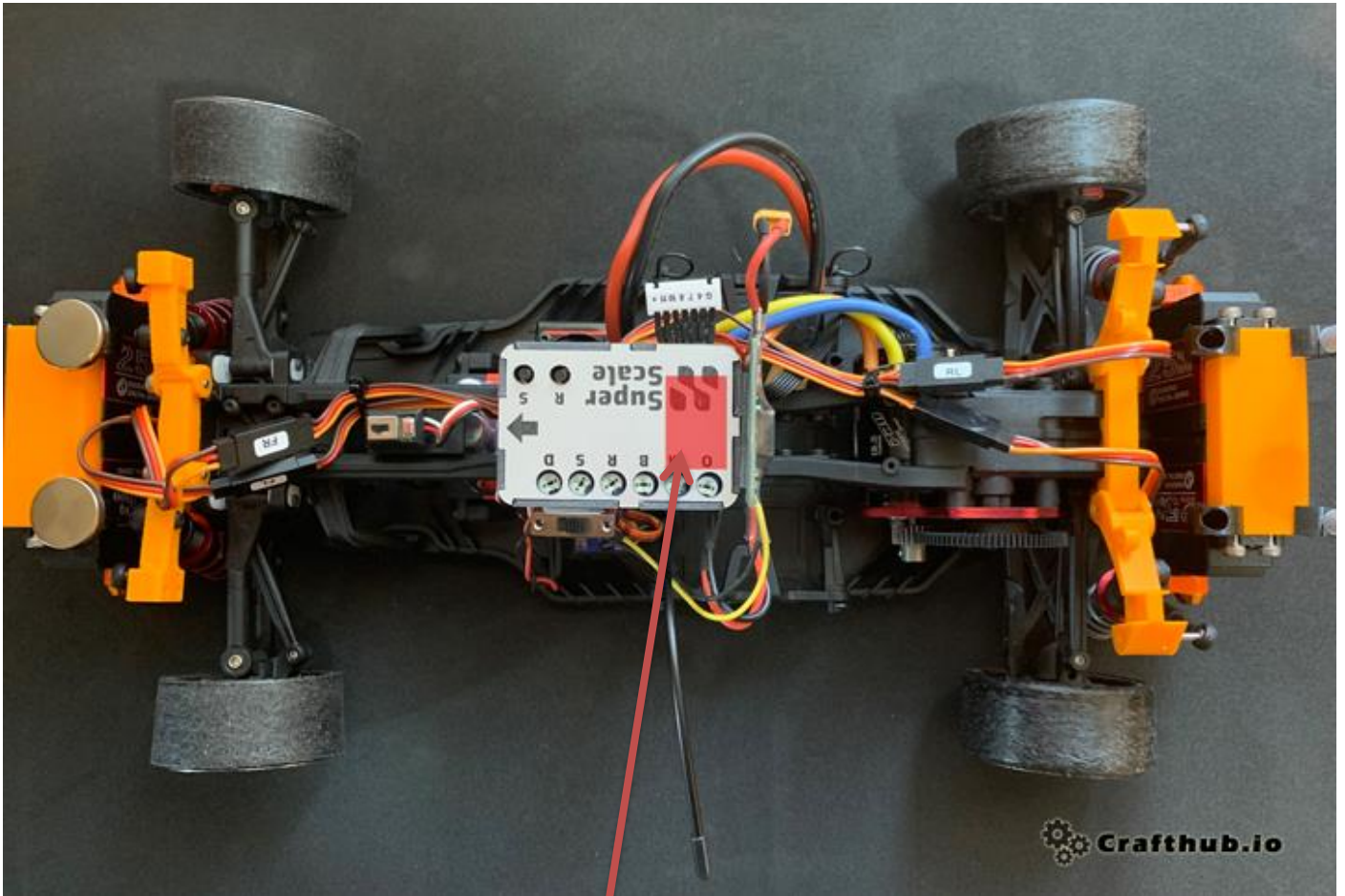
Rear Side



Remove the original bumper and replace Servo holder.  
About the Rear screw. Use the screw that MST original used.



## 7, Initial setup of SS unit



Be aware of the gyro sensor position in SS unit

**Firmware needed from SuperScale2k20**

SUPERSCALE\_V1.2.ino.hex

**\*this firmware is pre installed**

## 8, How to setup SS unit

You need to install Arduino configuration software. Please download from the link below.  
<https://www.arduino.cc/en/Main/Software>

You may download Arduino IDE software for your suitable platform. MacOS or Win

## Step 1

First connect the SS unit to the PC and set the offset to 0.

Next set BALANCE to 50.

The servo's neutral PWM value is almost 1500

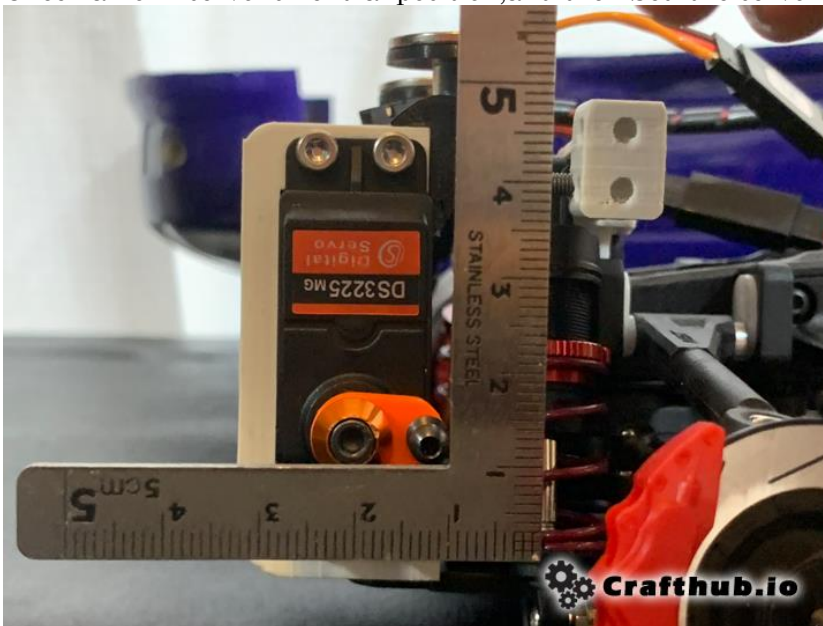
FLpos 1500

RLpos 1500

\*you should provide the power for SS Unit cause USB doesn't provide enough power to move the servo neutral position.

## Step2

Check all of 4 servo is neutral position, and then Set the servo horn like this.



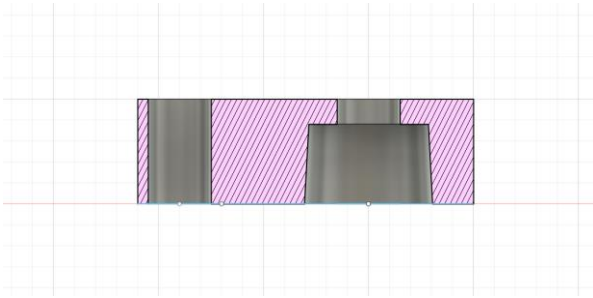
Servohorn and endball fix with M3x8 cap screw



This horn has tapered servo shaft connection, so any spline servo can perfect fit for this servo horn. so this servo horn material is PETG.

Use with Tapered washer like the photo.





Servohorn cut image

### Step3

Adjust The turnbuckle length, and then connect servo and Strut arm.



Parts No16

**Front and Rear Rod Length**

Front Rod length



Front=34mm

RearRodLength

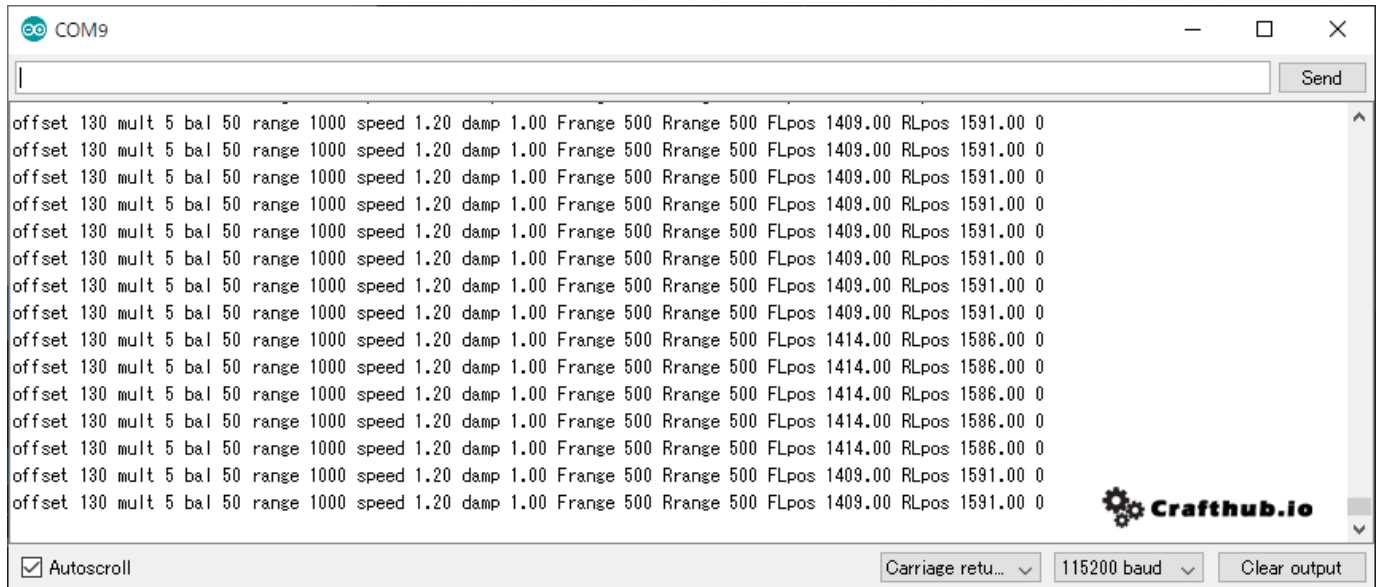


Rear=37mm

All about physical setup is done, please test the sample setting value.



## MST sample setup value



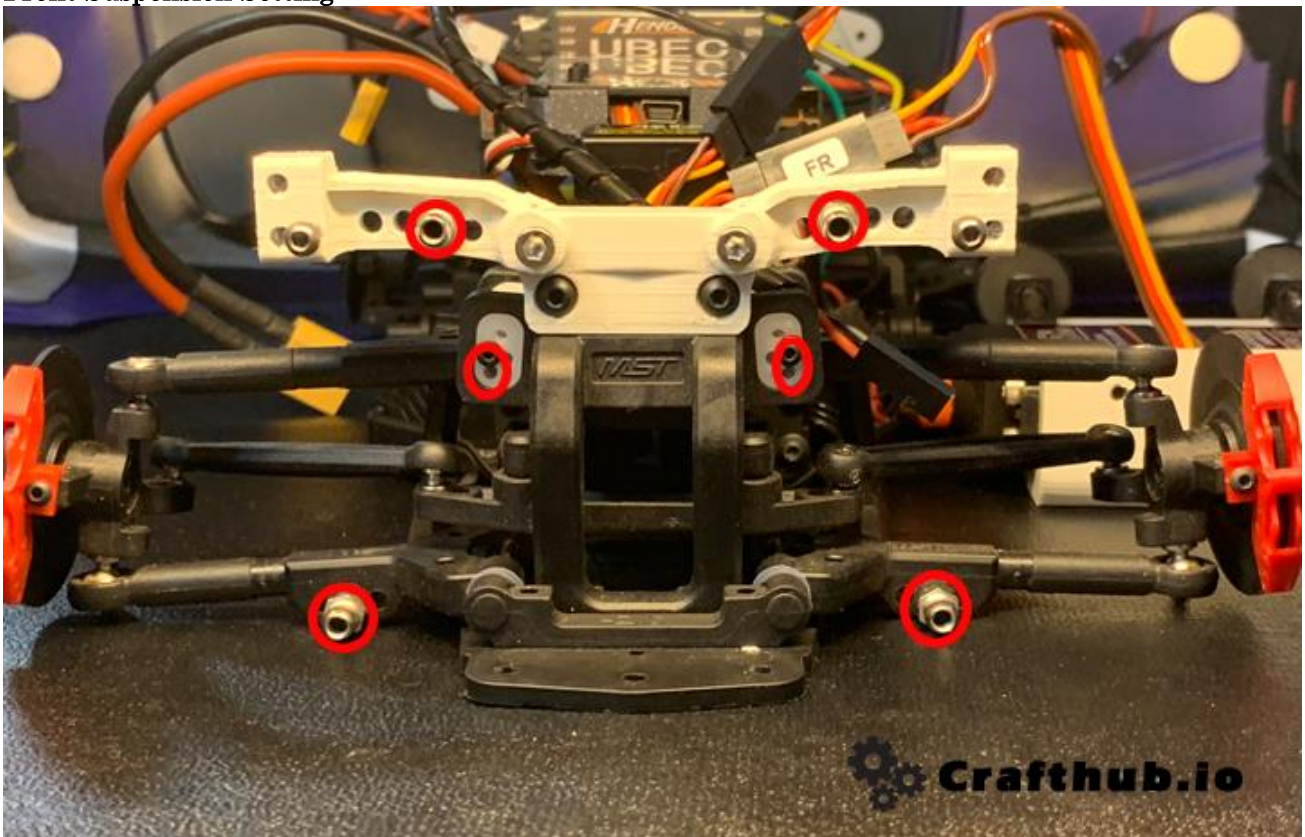
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offset 130 mult 5 bal 50 range 1000 speed 1.20 damp 1.00 Frange 500 Rrange 500 FLpos 1409.00 RLpos 1591.00 0
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offset 130 mult 5 bal 50 range 1000 speed 1.20 damp 1.00 Frange 500 Rrange 500 FLpos 1409.00 RLpos 1591.00 0

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This is the start value to set up the active suspension  
 More detail, please refer to SS unit manual.

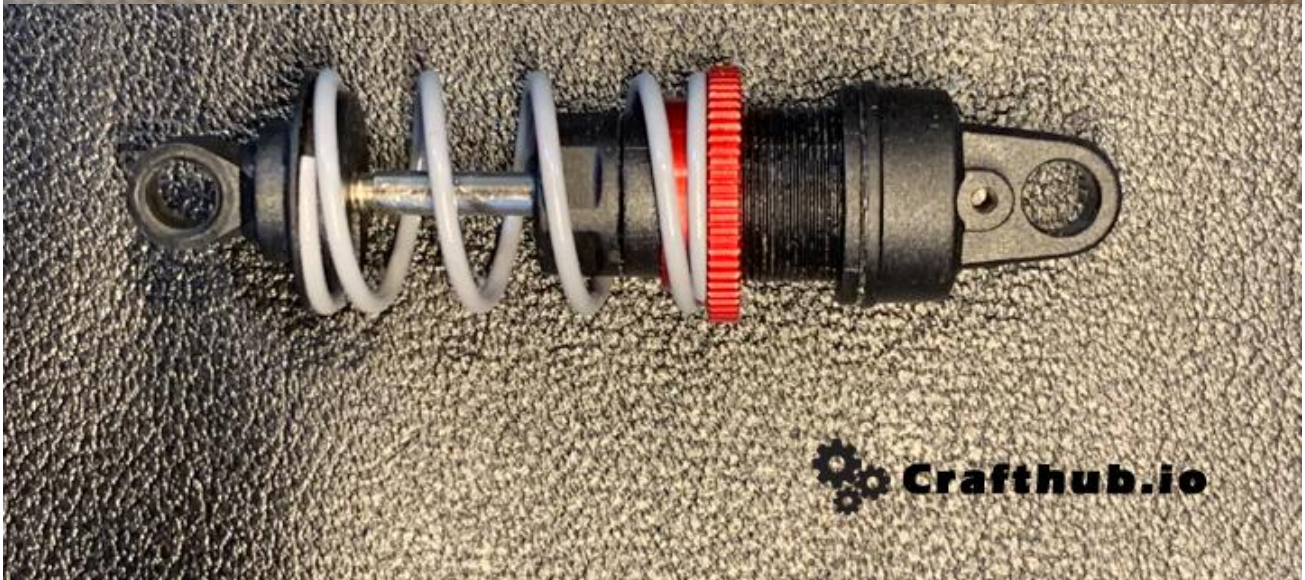
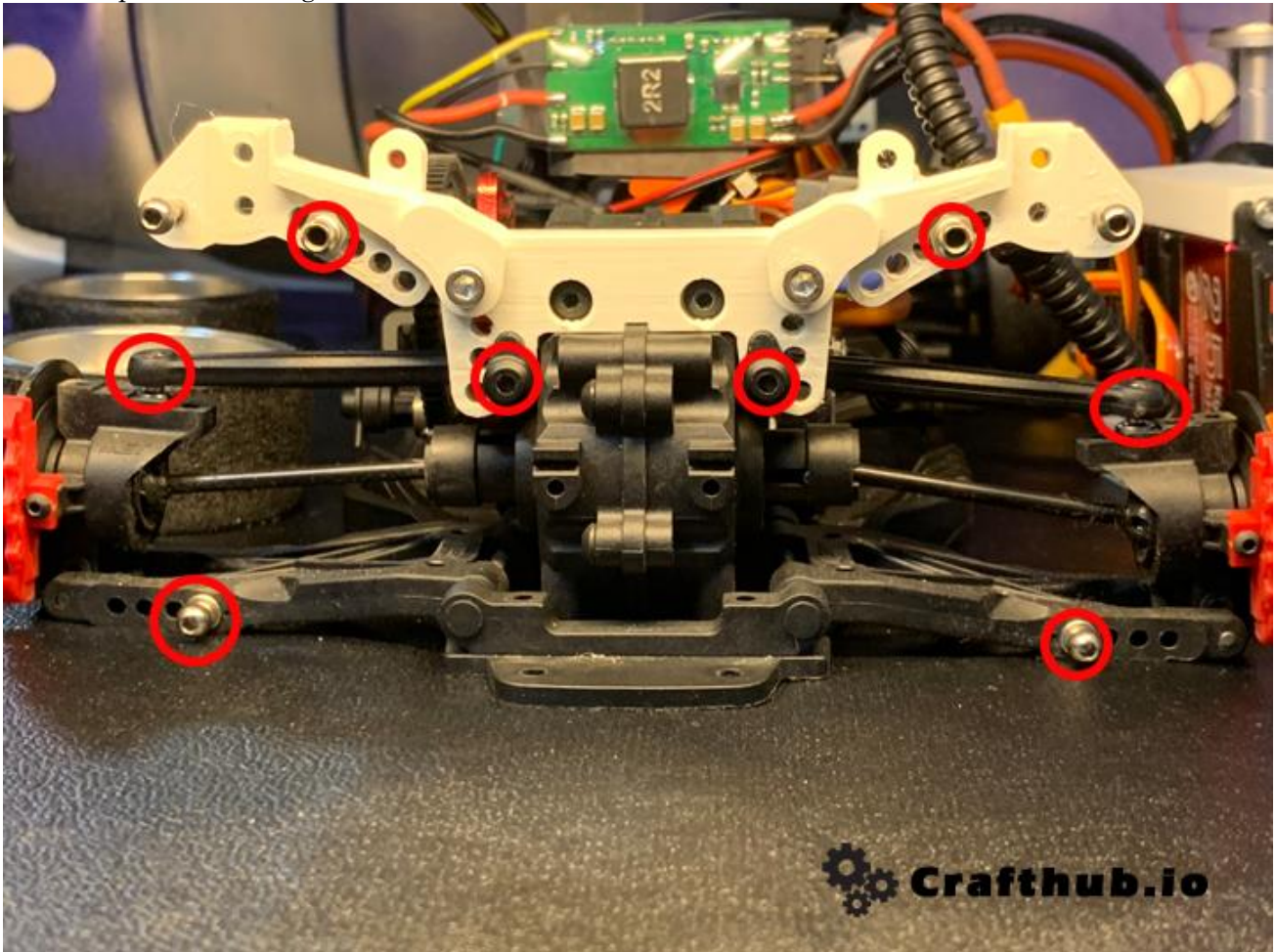
Front Suspension Setting



Change the Front Spring to harder one



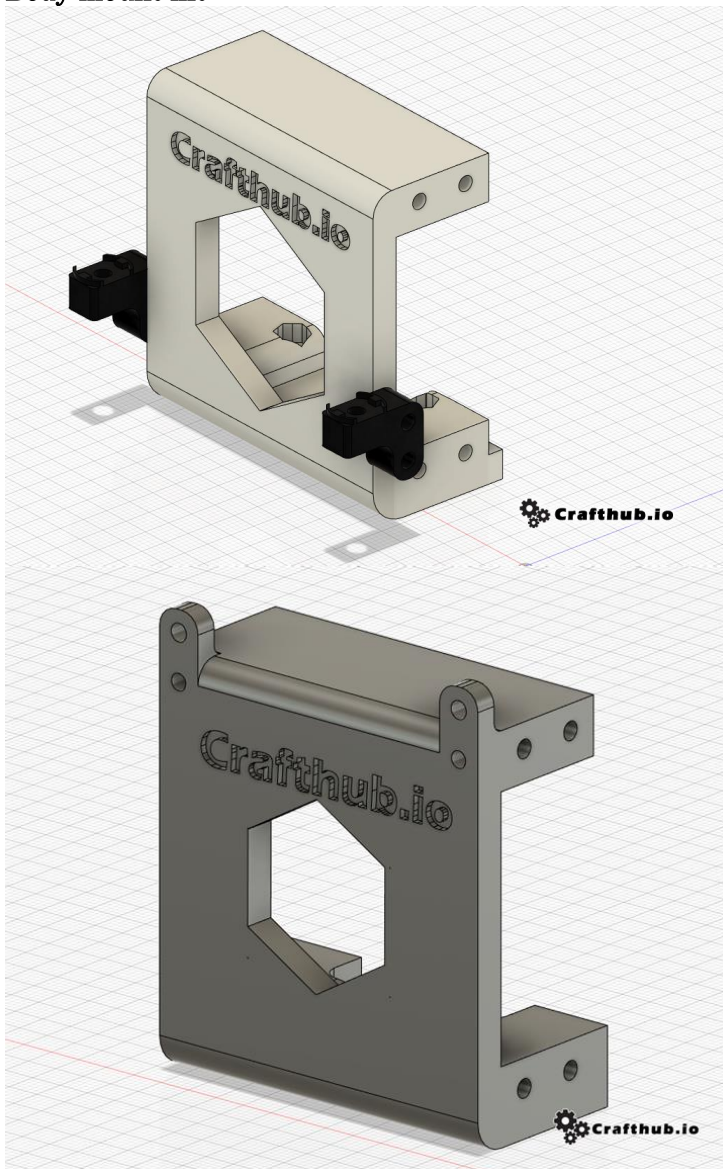
Rear Suspension Setting



Change the Front Spring to harder one

It will be better to change more high viscosity dumper oil.

Body mount kit



Body mount was integrated with servo holder.





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