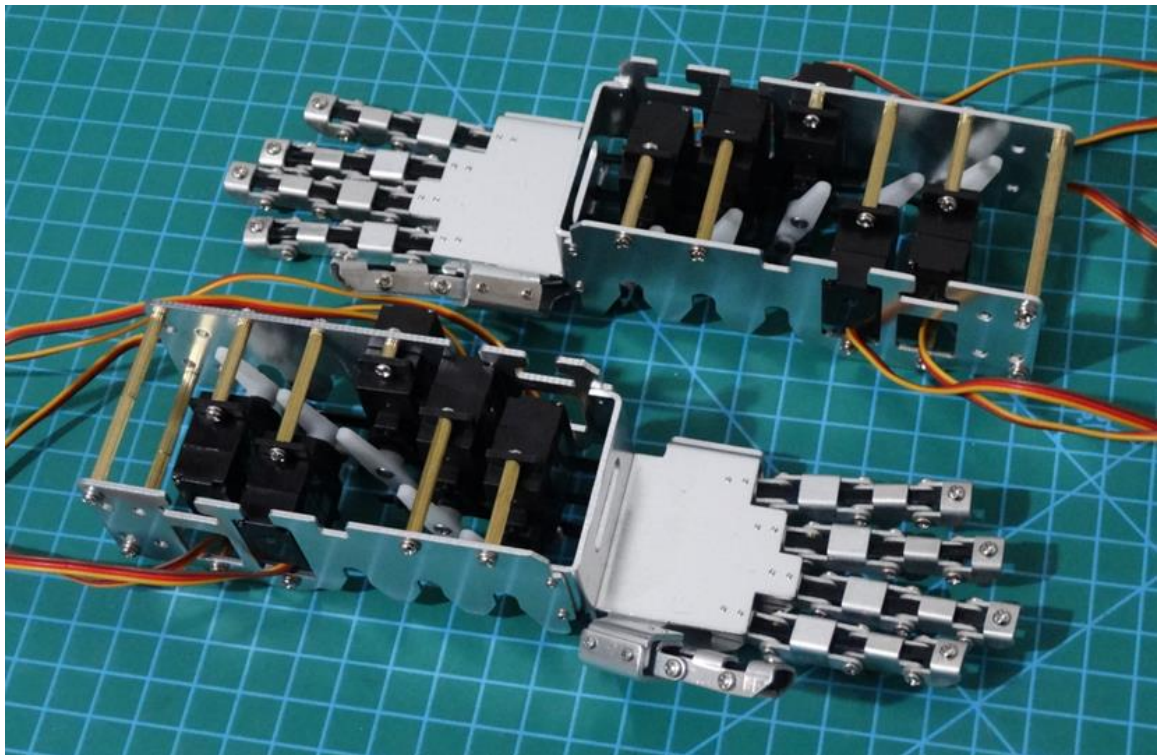
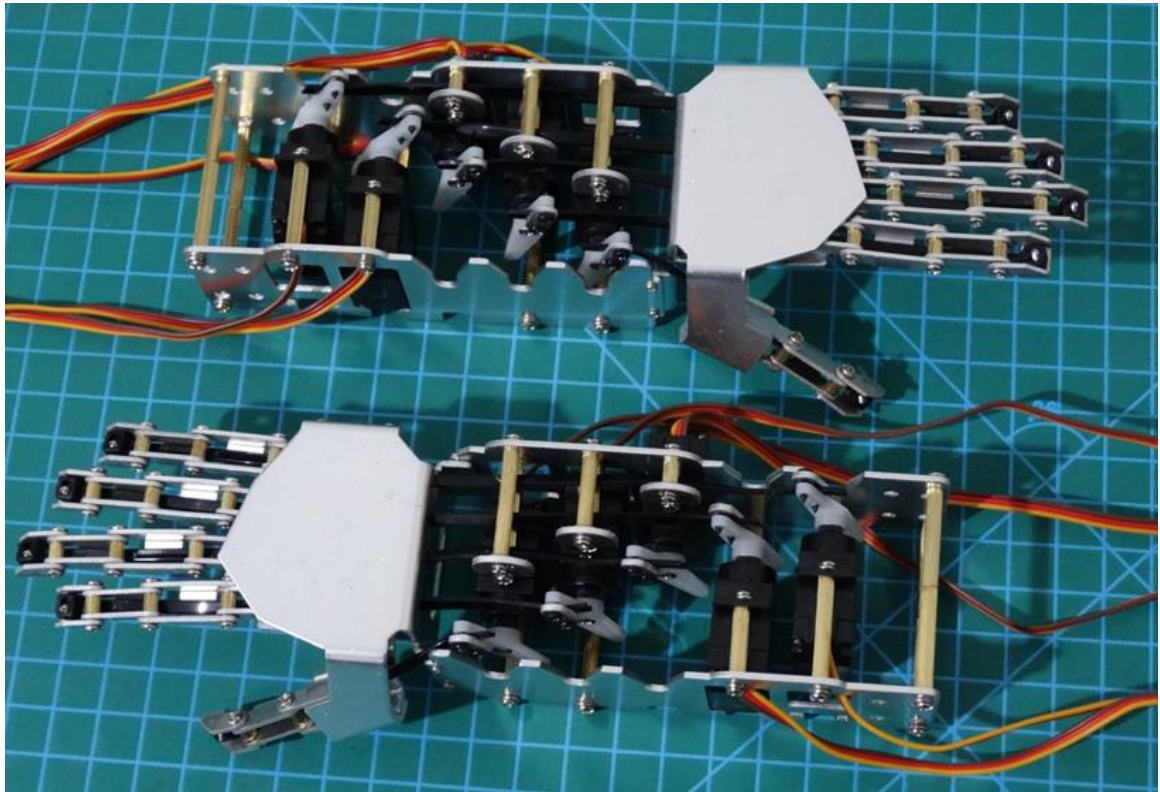


# Robot hand assembly tutorial

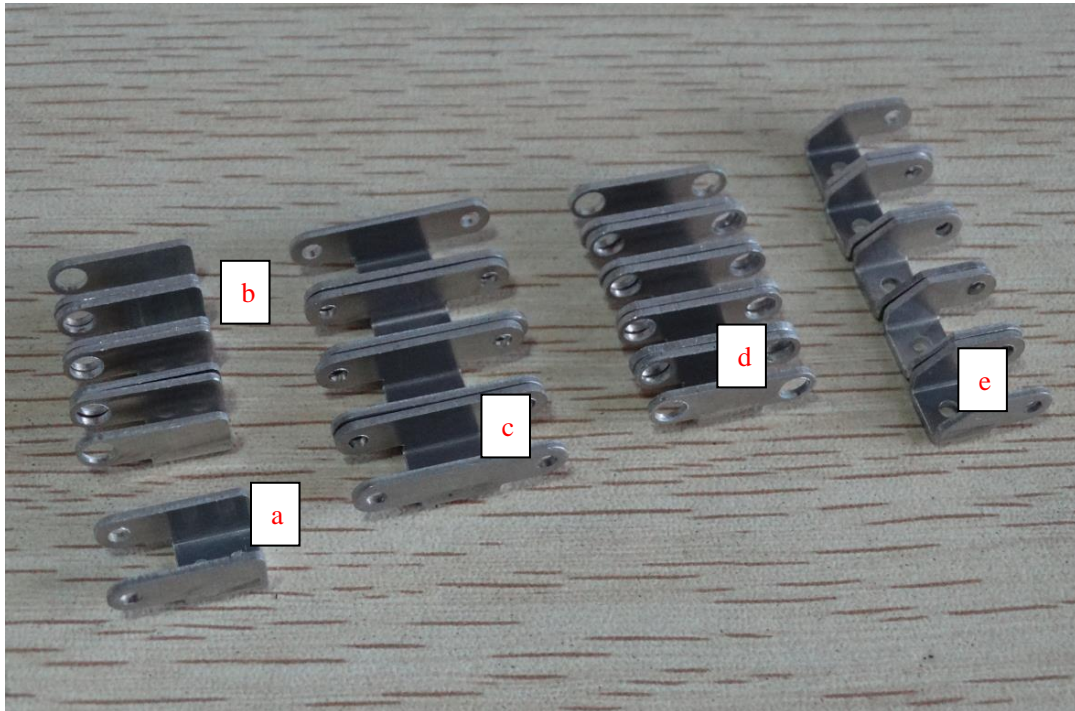
**Finished drawing:**



Assembly course as follows:



## A. Assemble fingers.



1. Take out the finger parts, if have film, ripped off the surface film, the number of parts were 1, 4, 4, 5, 5



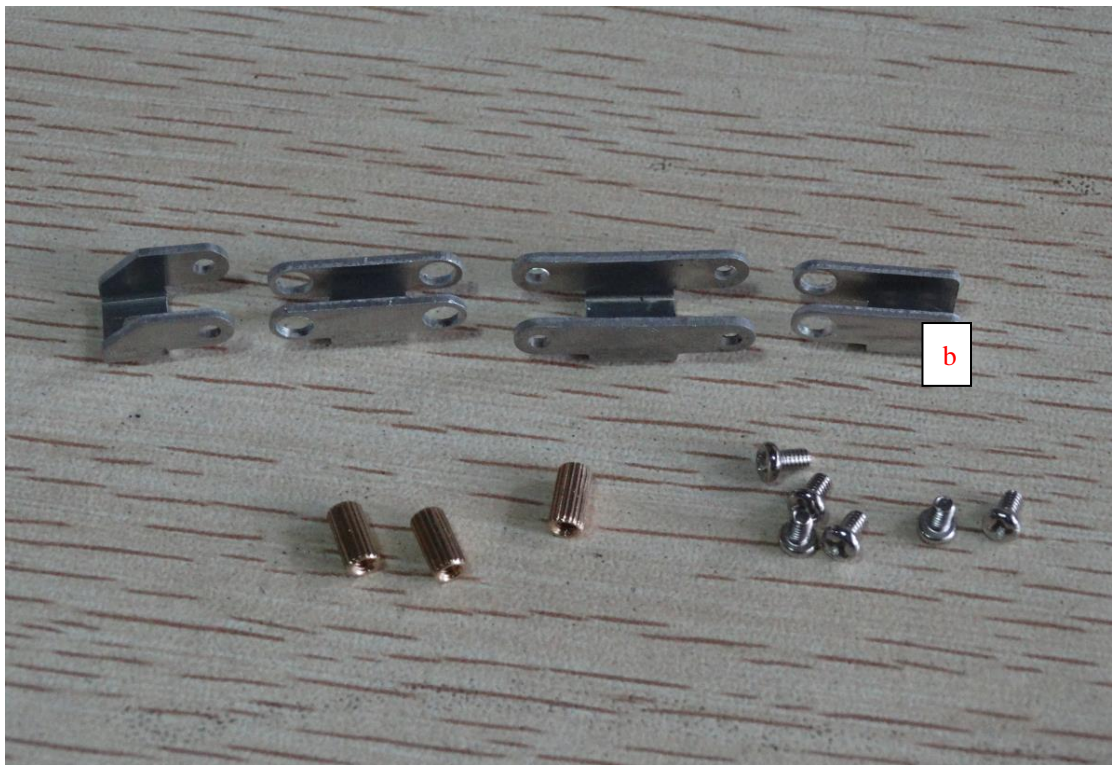
2. Assemble thumb parts as show, use M2X3 screws, M2X6 pillars.

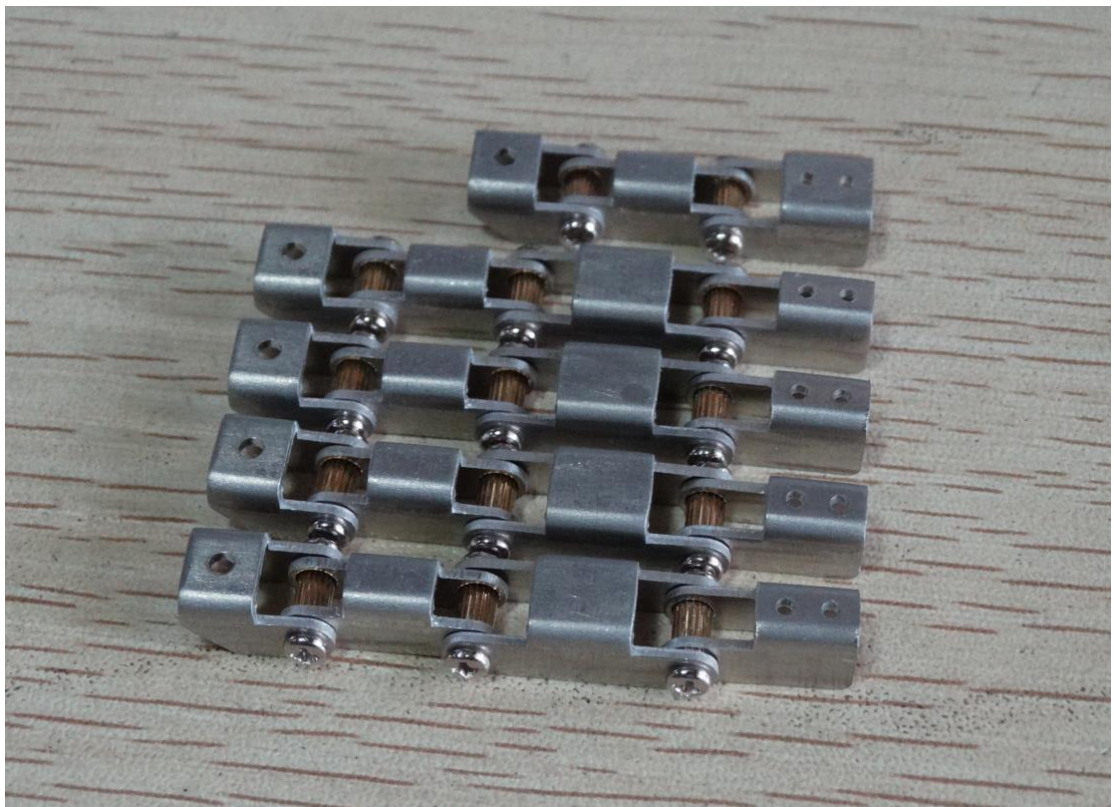
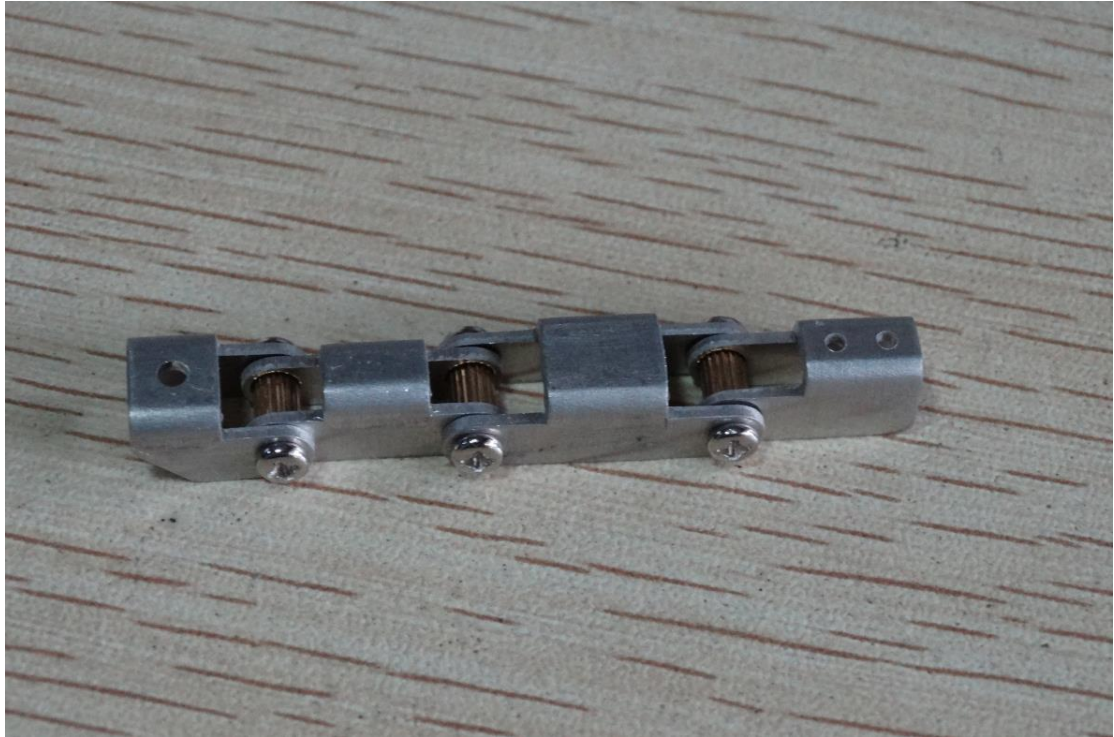






3. The other fingers still use M2X3 screws, M2X6 pillars to assemble.

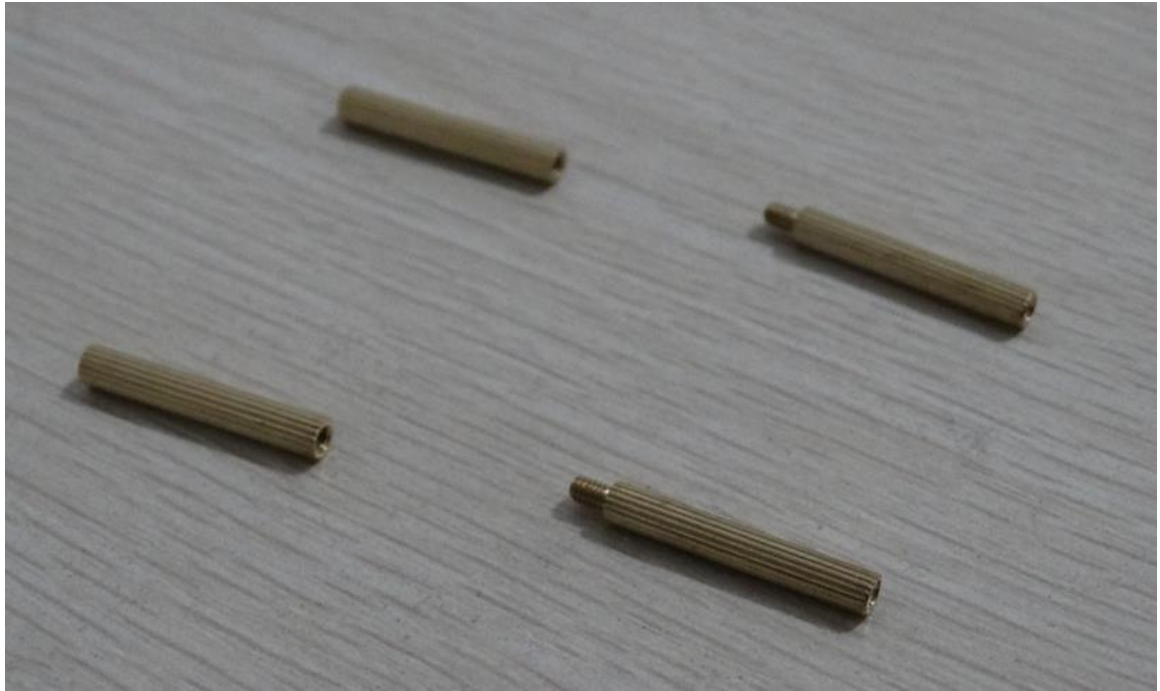




In order to complete the rest of the finger assembly, in addition to the big finger is different, the other four fingers are the same.

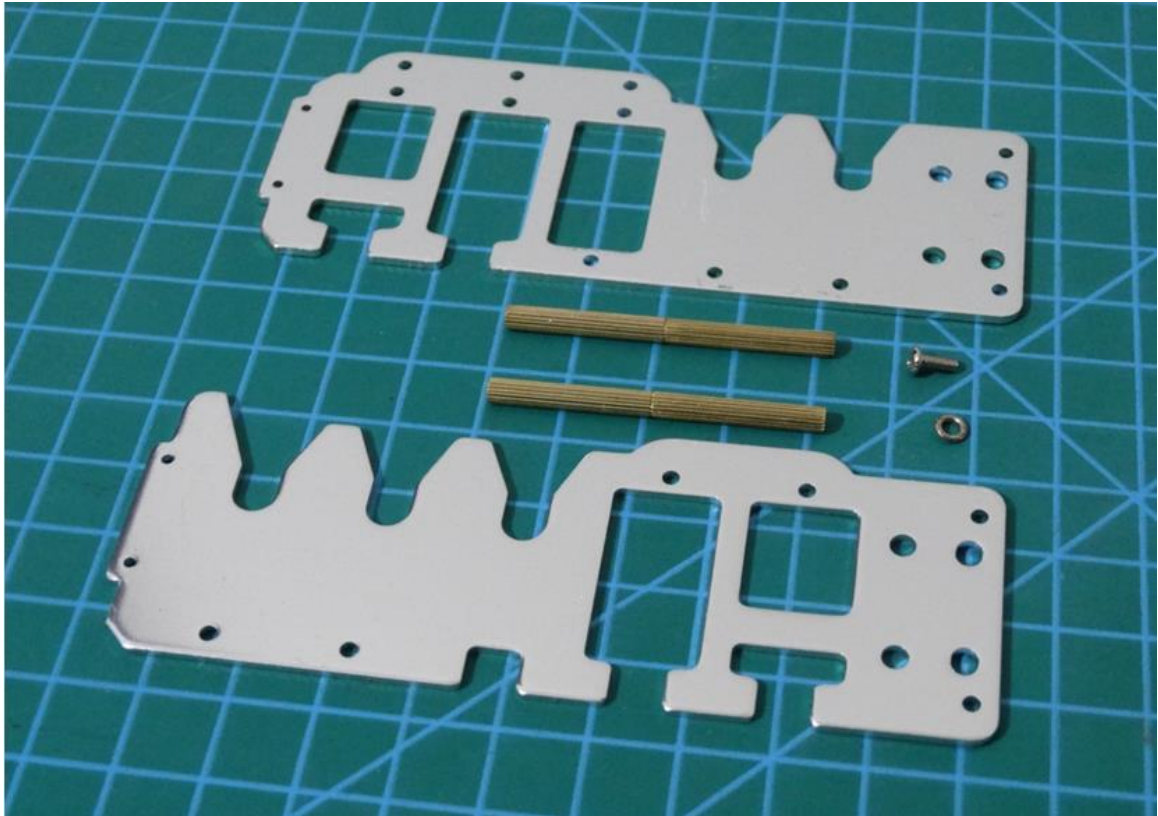


## B. Overall assemble



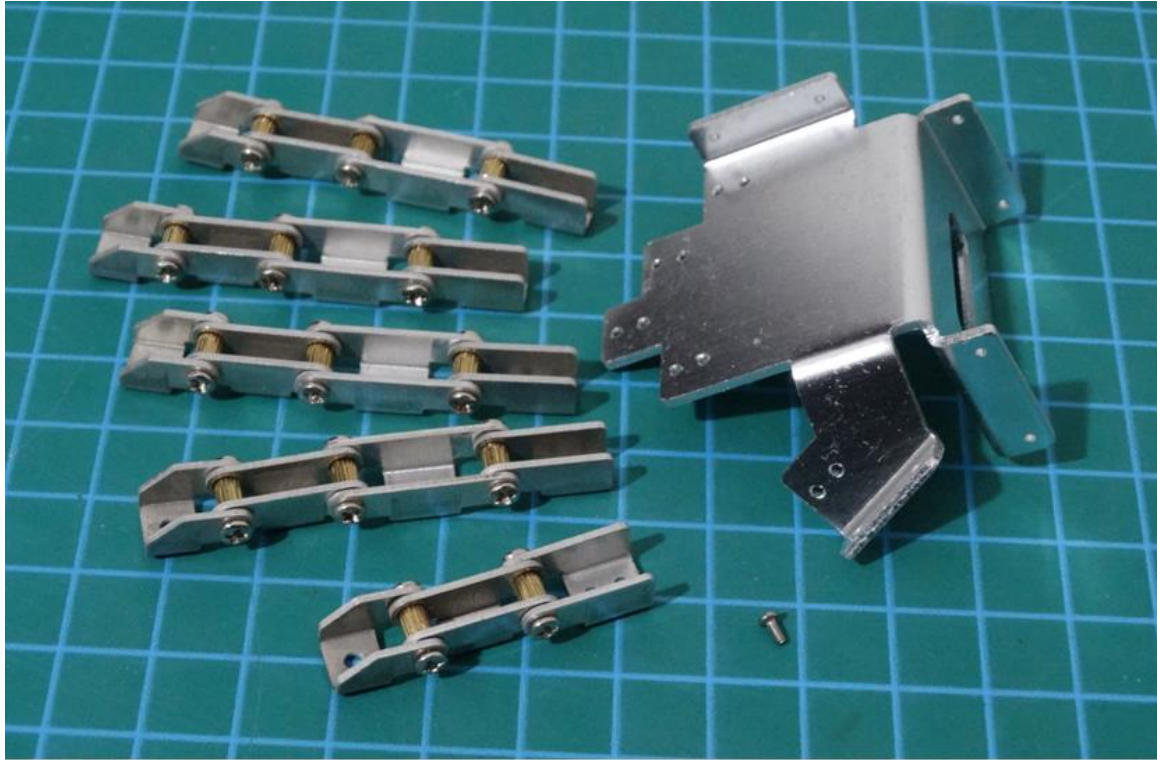
1. Assembling pillars, using M2X21 M2X20+3. They are in the same bag.

If is **right hand**, installation as shown below:



2. Put the assembled pillars with the arm connected with M2X5 screws, M2 spring pad



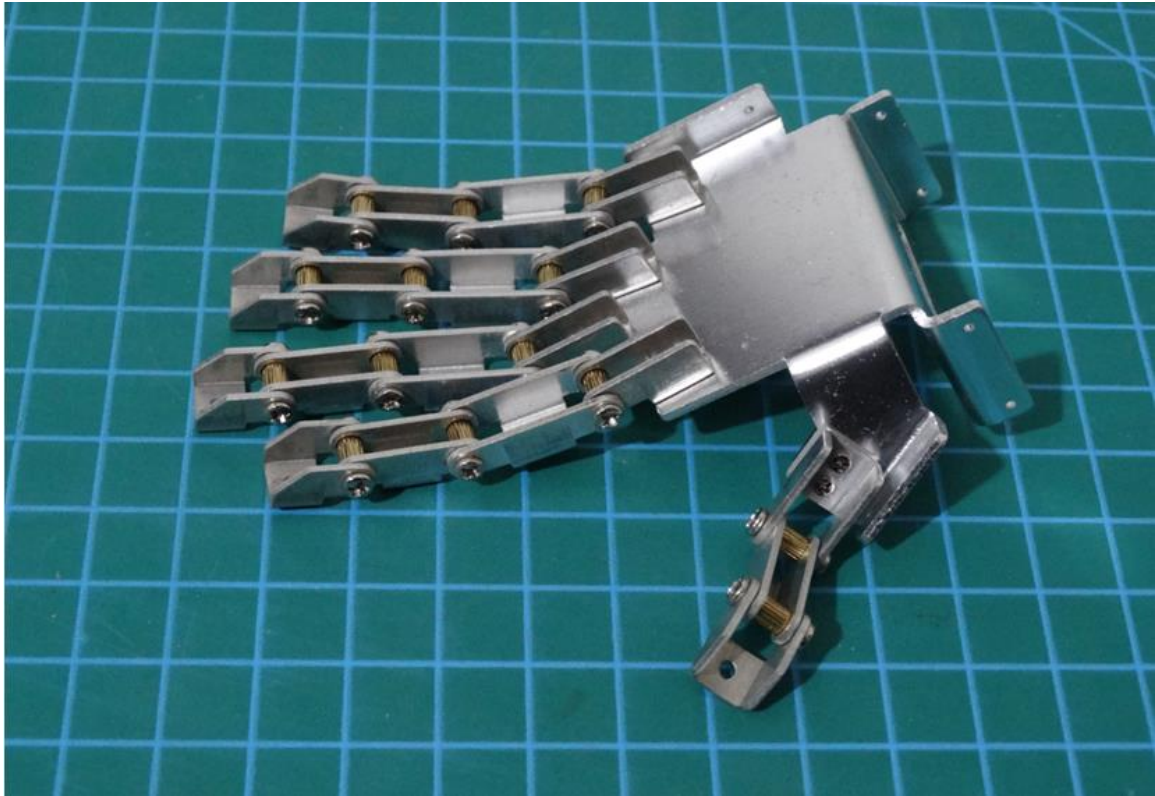


3. Take out right hand, use M1.4\*3 screws

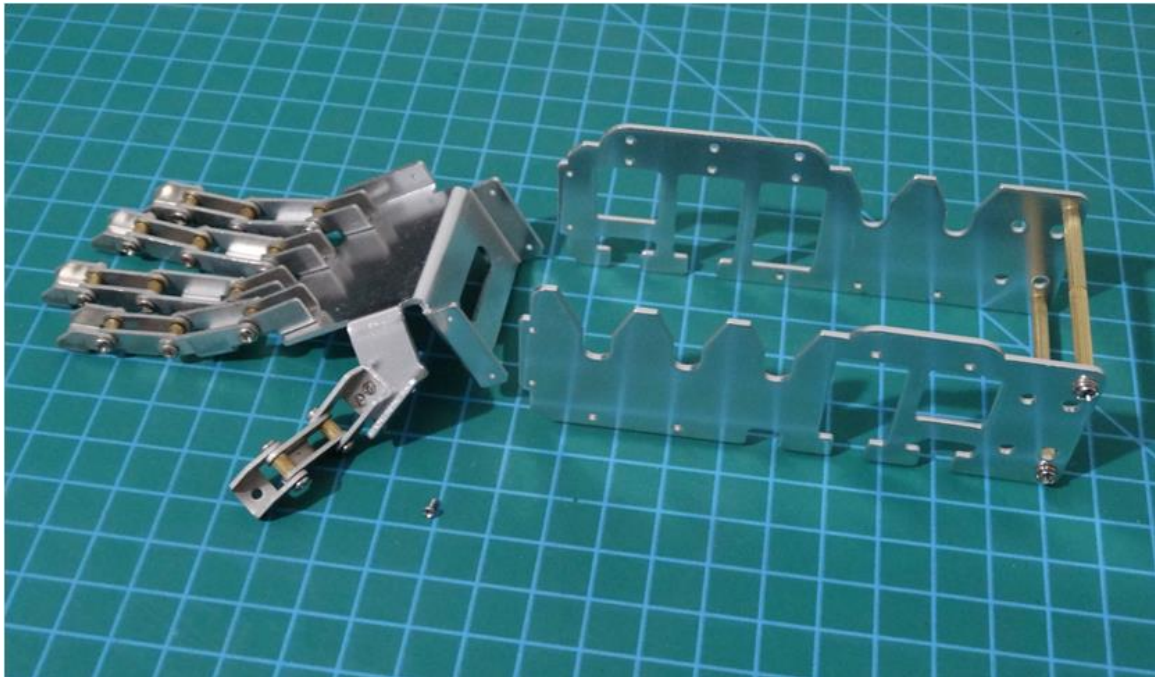


Note the M1.4\*3 stainless screws can not been sucked, please put the screw into the screwdriver first.



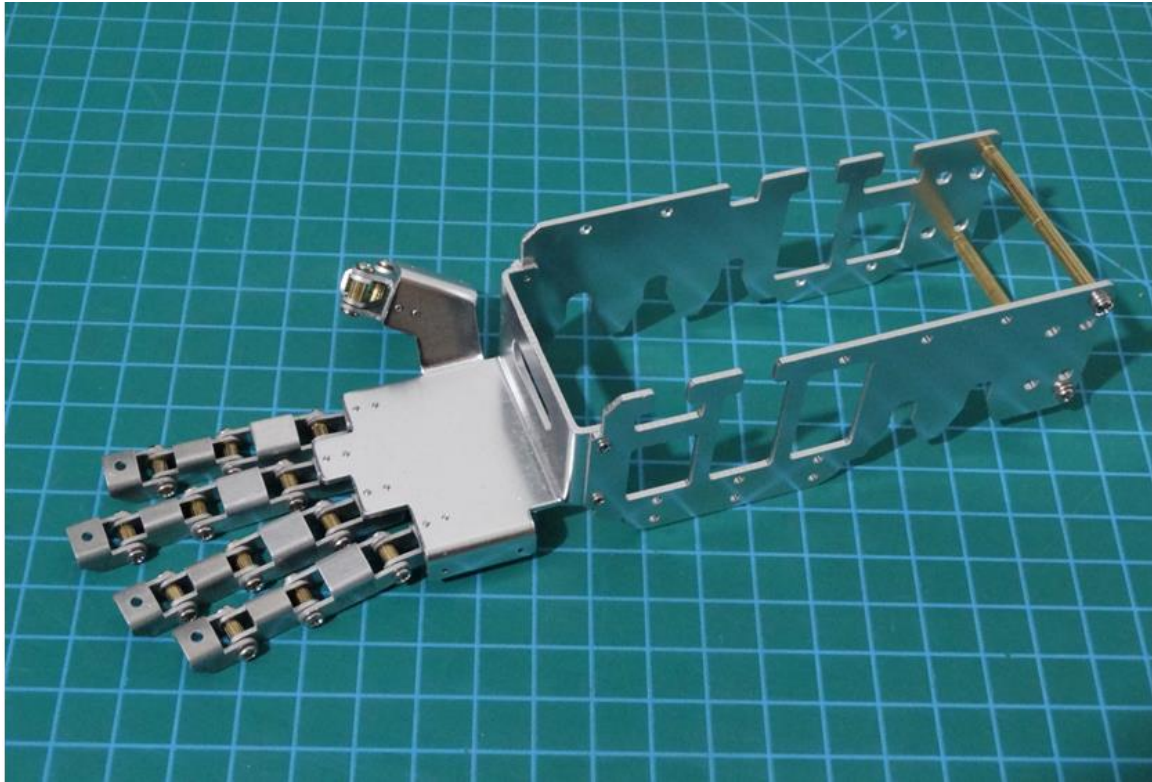


4. Use the M1.4 screw as a self tapping screw forced into the hole. It is more laborious here. If the screw is broken, unscrewed, and replace a new screw.

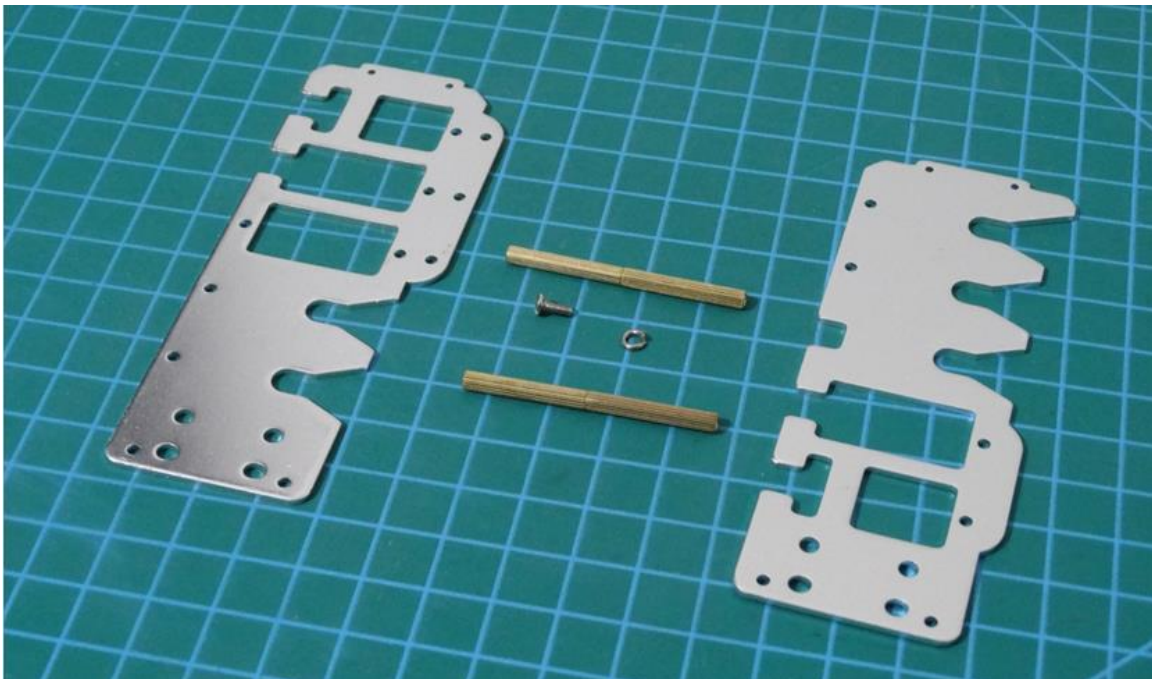


5. Assembly arm connecting piece with the palm of the hand, use M1.4\*3 as the self tapping screws, forced into aluminum plate. Screw one on the

left, and one on the right, do not tighten, and then the remaining two, to be 4 screws are screwed into, then lock screw. The screw is more difficult to screw in, if is broken, exit the screw first, then change the new screw to screw in.



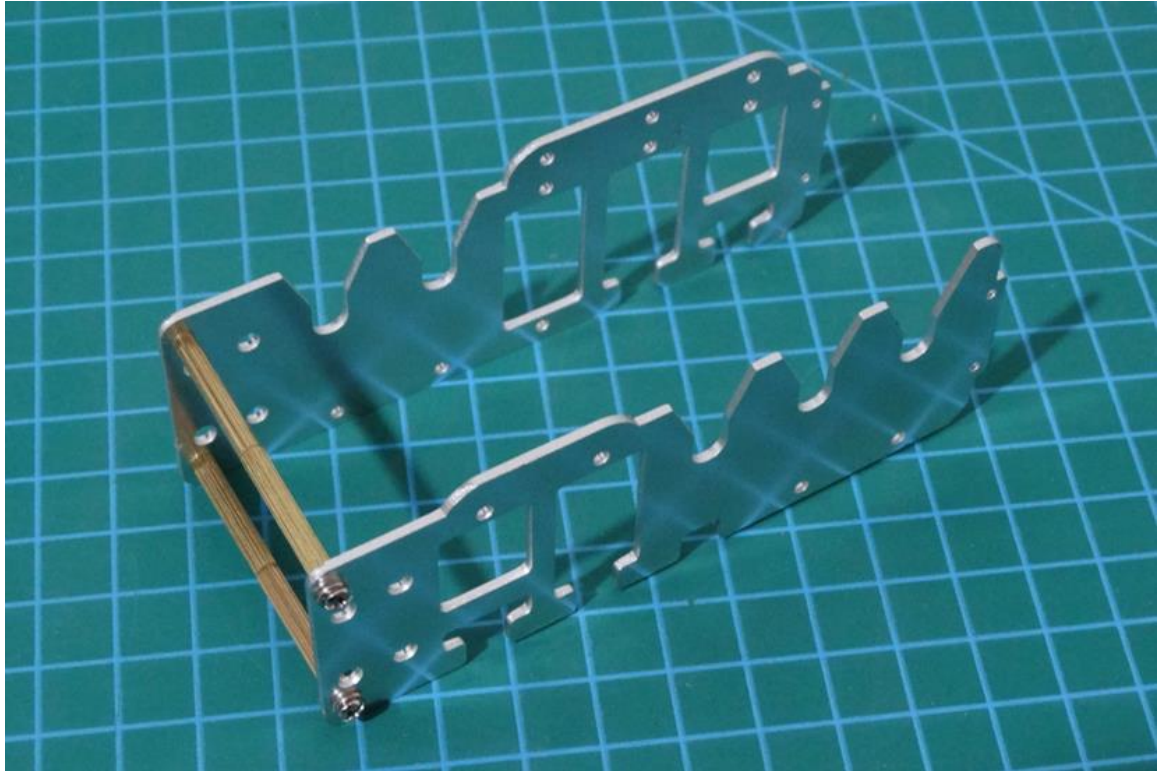
If is **Left hand**, installation as shown below:

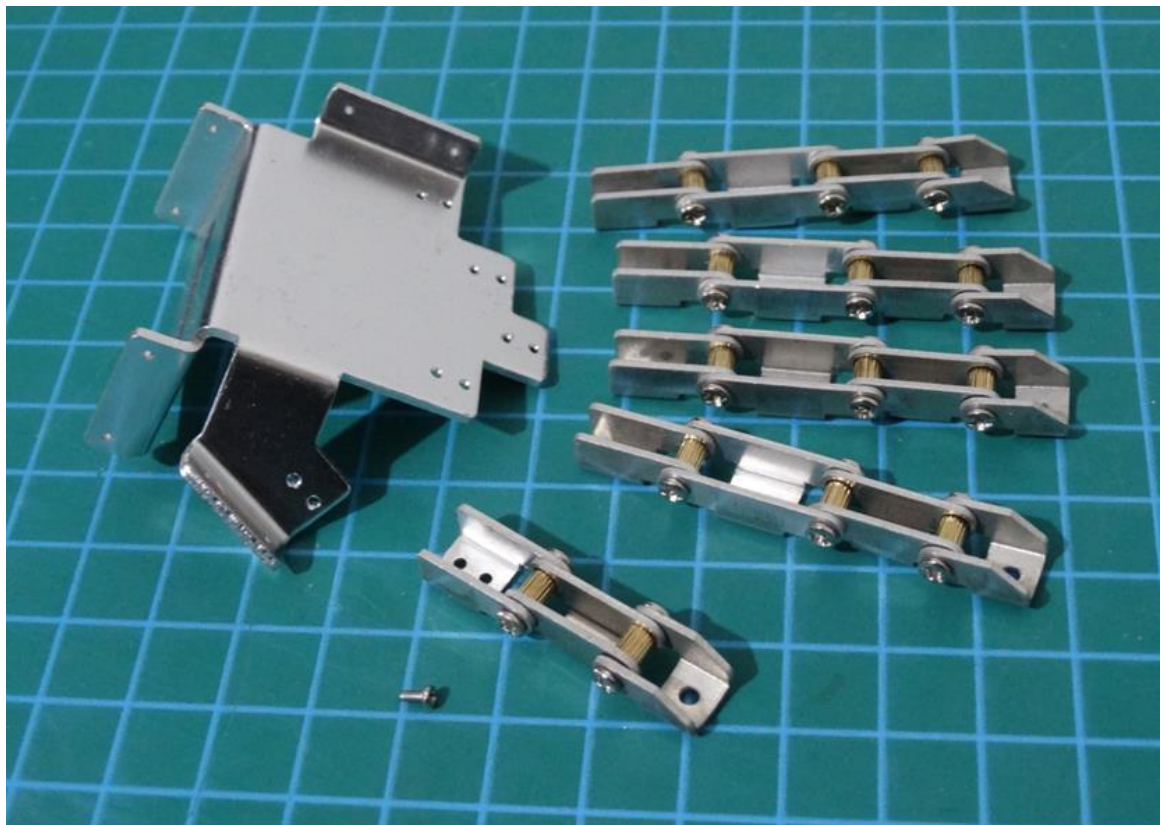




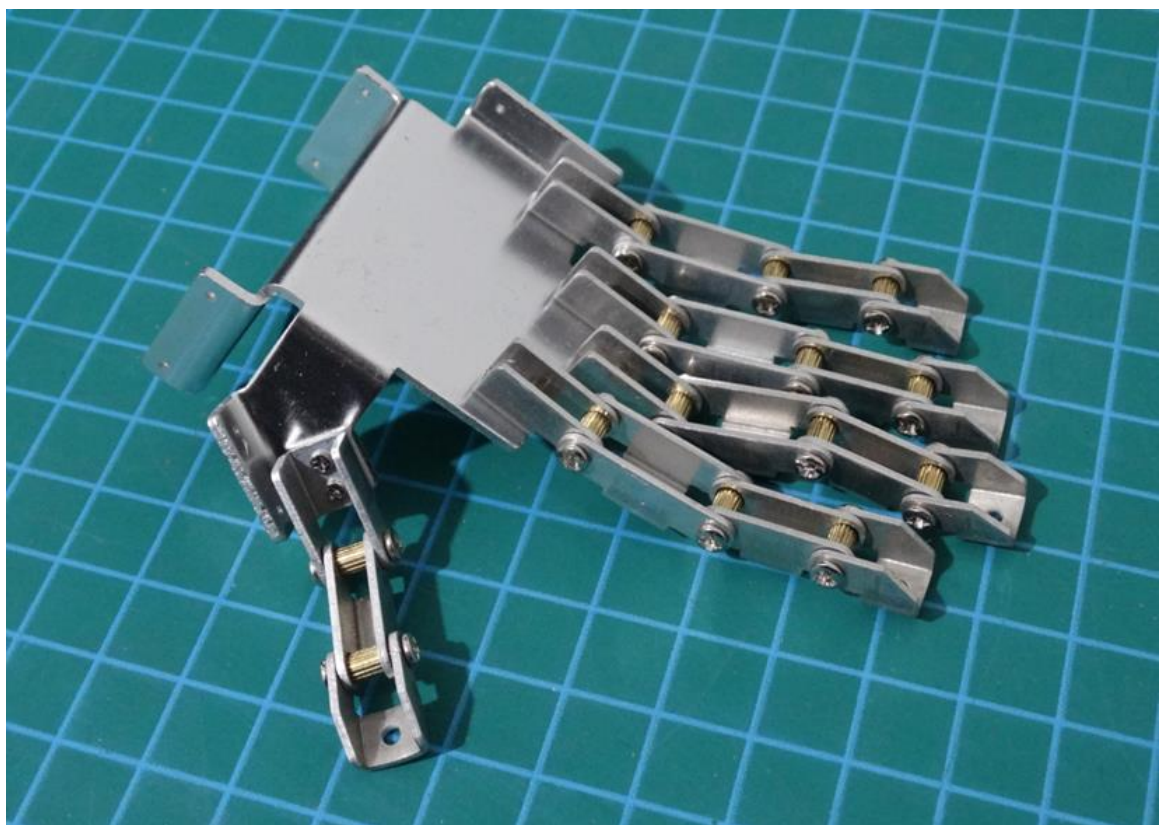
Using the same arm parts, the installation of the left hand with the right hand is different.

Put the assembled pillars with the arm connected with M2X5 screws, M2 spring pad .

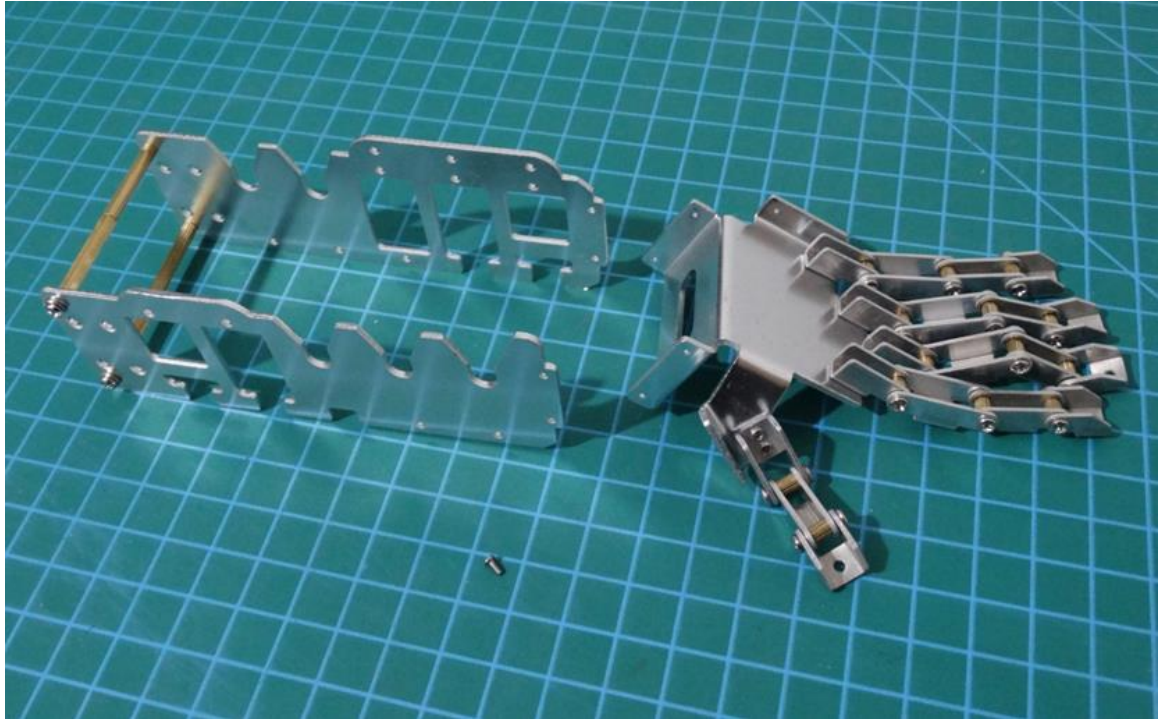




Take out the left hand, use the M1.4 screw as a self tapping screw forced into the hole. It is more laborious here. If the screw is broken, unscrewed, and replace a new screw.

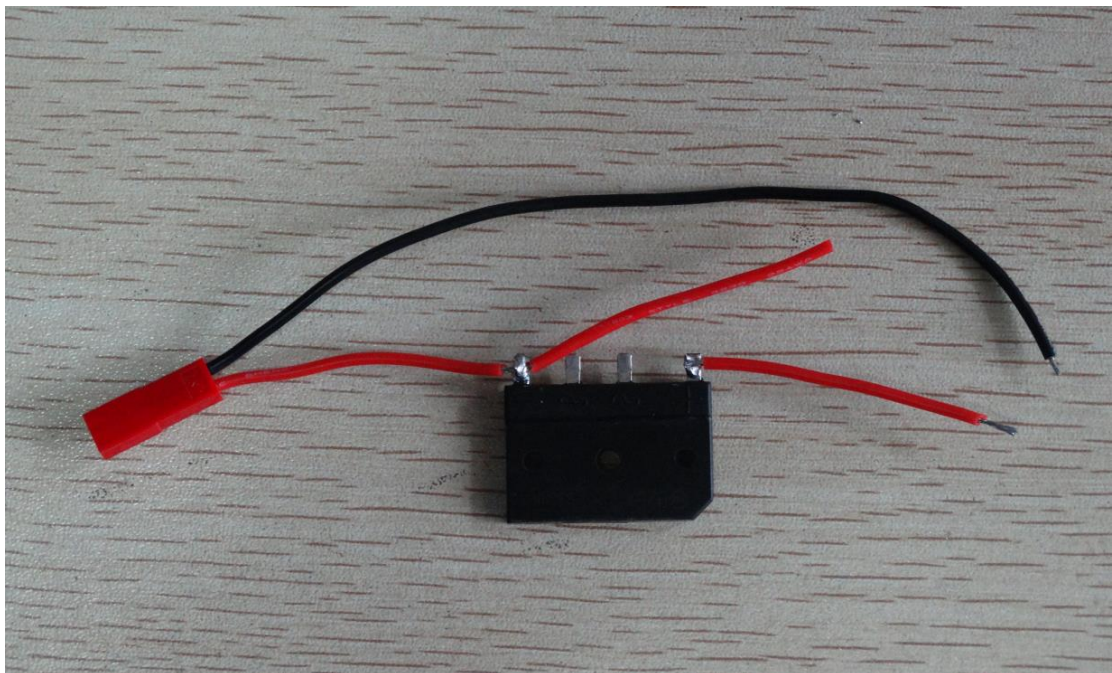




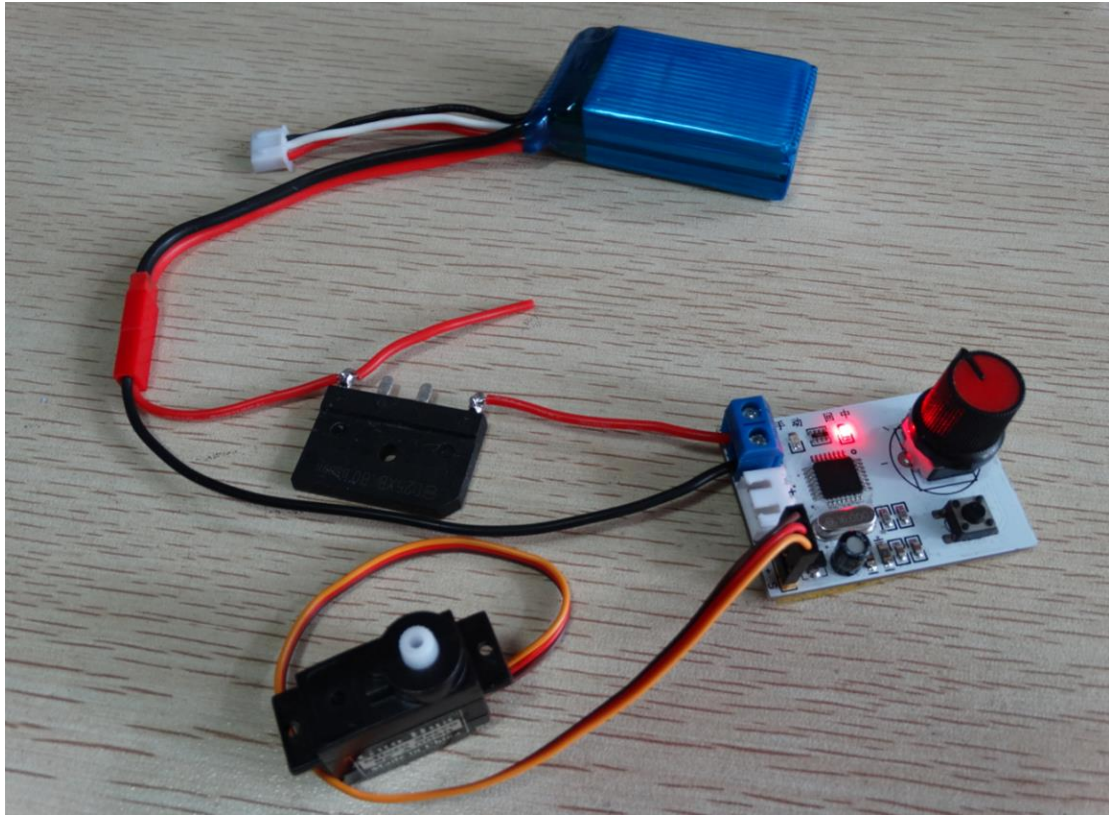


Assembly arm connecting piece with the palm of the hand, use M1.4\*3 as the self tapping screws, forced into aluminum plate. Screw one on the left, and one on the right, do not tighten, and then the remaining two, to be 4 screws are screwed into, then lock screws.

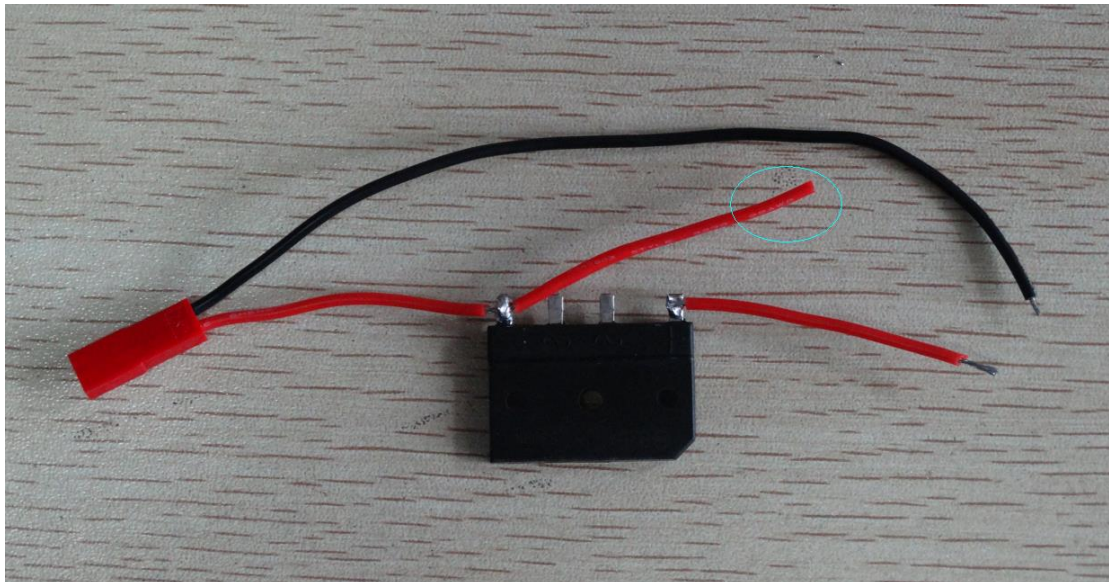
### C. Return all servos to the middle position P1500



Micro servo needs to be used in **low voltage 5-6V**, if use 2S lithium battery needs to be connected to the bridge rectifier.

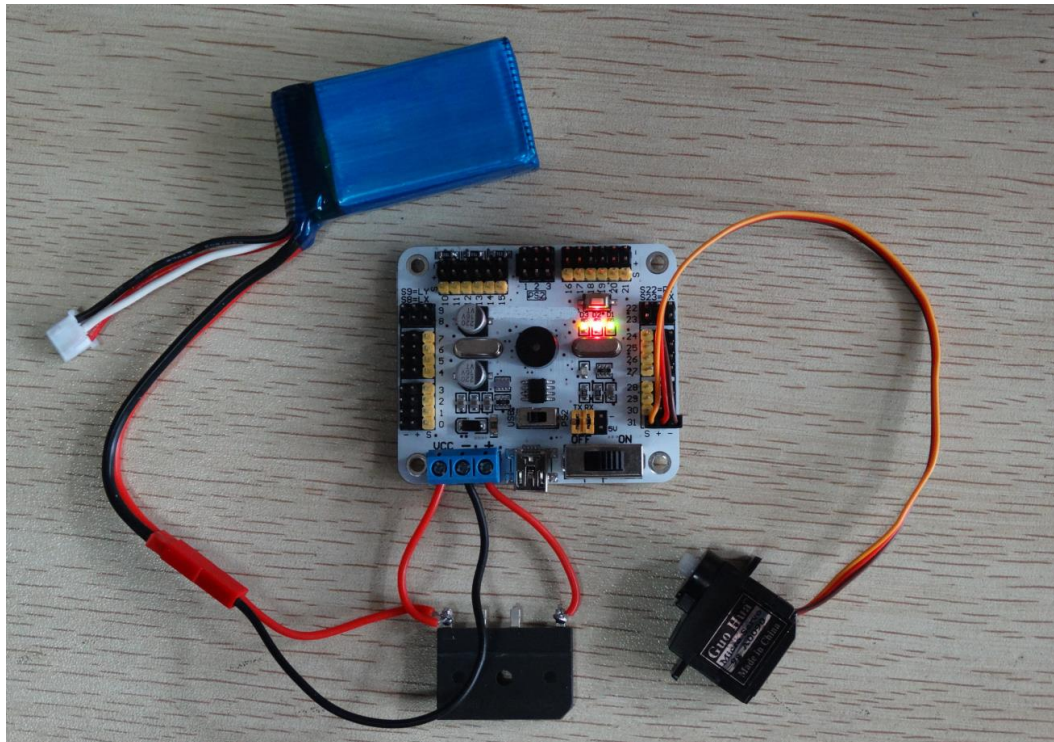


1. Use servo tester

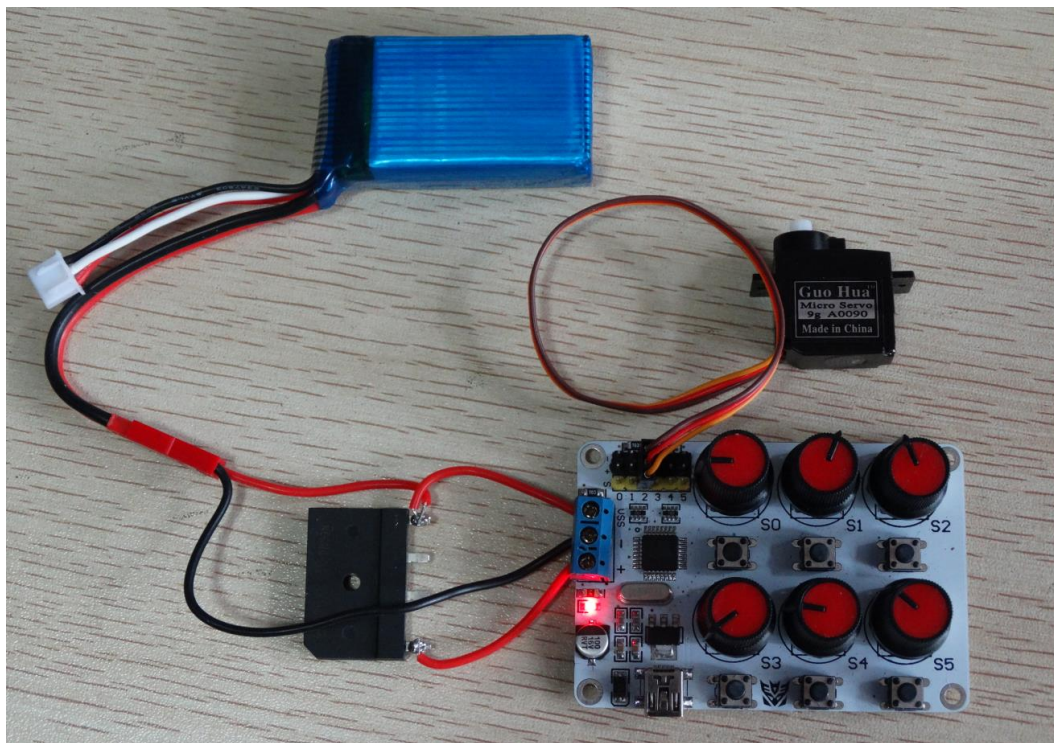


If using servo control panel, please peel the wire in the circle.





2. The wiring diagram using servo control panel



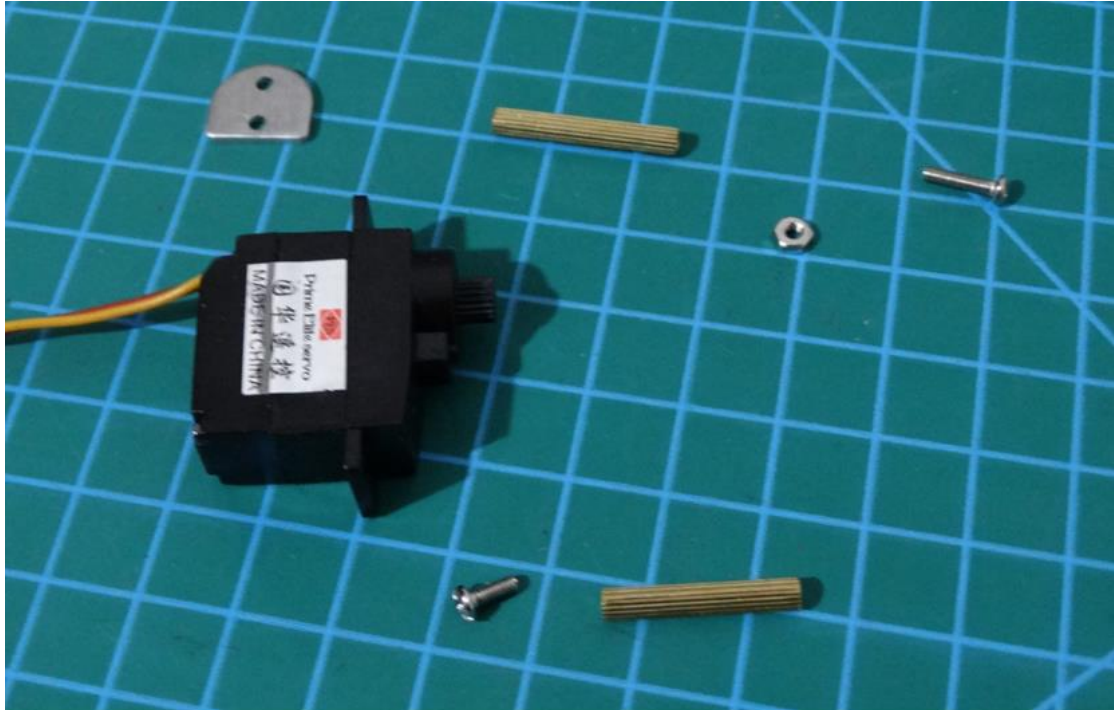
3. The wiring diagram of using 6 road knob panel. Same as servo control panel.

Using the above method, let the servo back to the middle P1500 position.

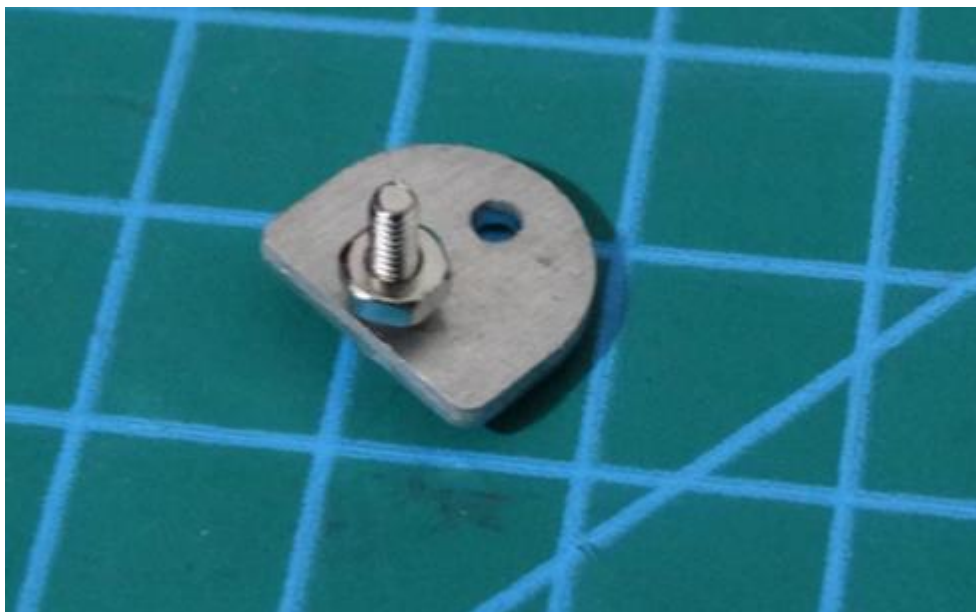
## D. Servo installation

The installation of the hand finger servo is as follows (the same as the left and right hand):

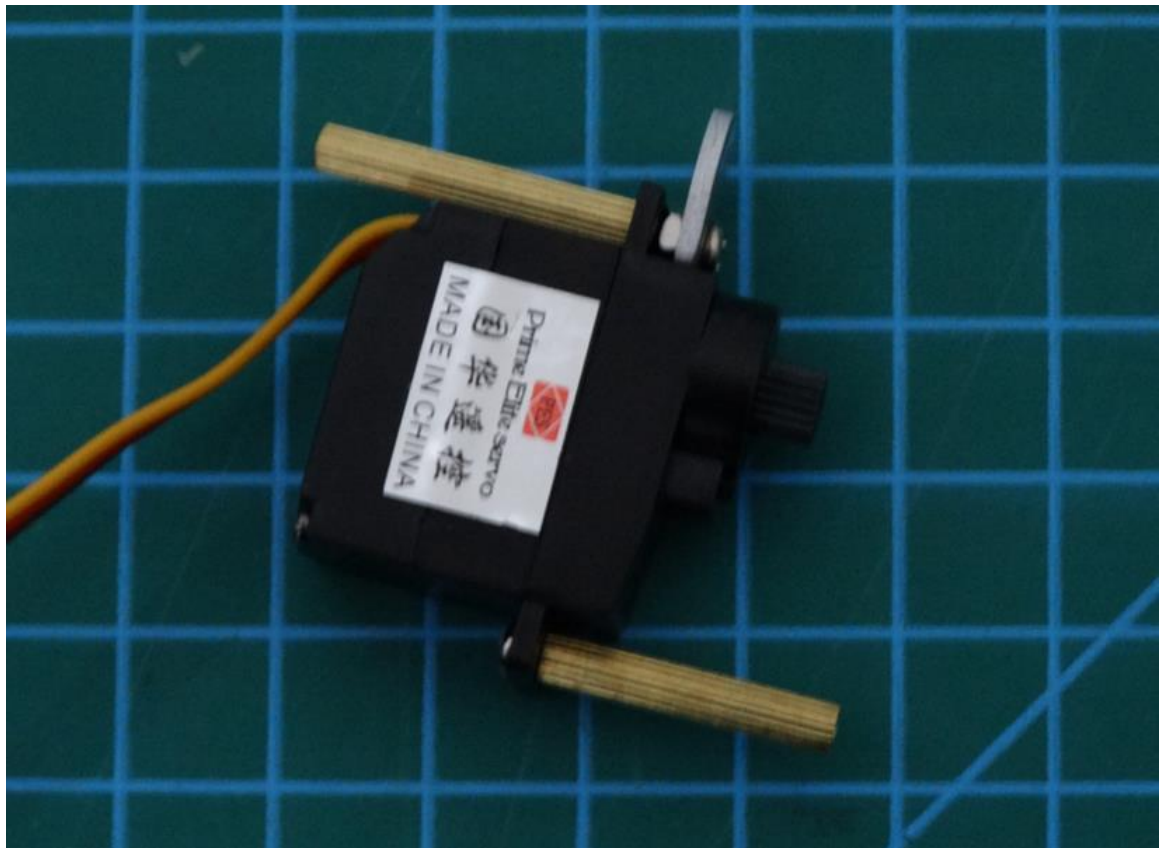
1. Install the first finger servo, upper is M2\*8 screw, M2 nut, M2\*21 pillar, the below is M2\*5 screw, M2\*19 pillar.



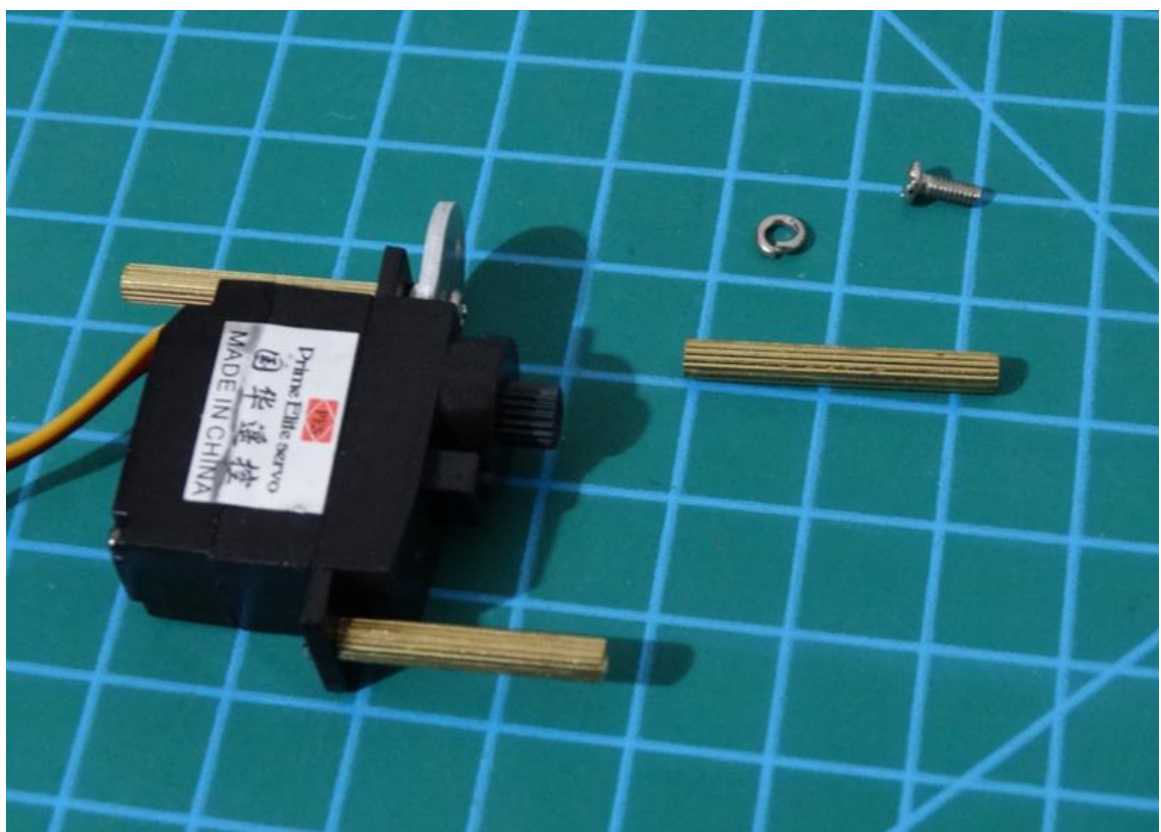
2. Screw the screw with the retaining piece into the servo mounting hole, do not tighten, leave margin.



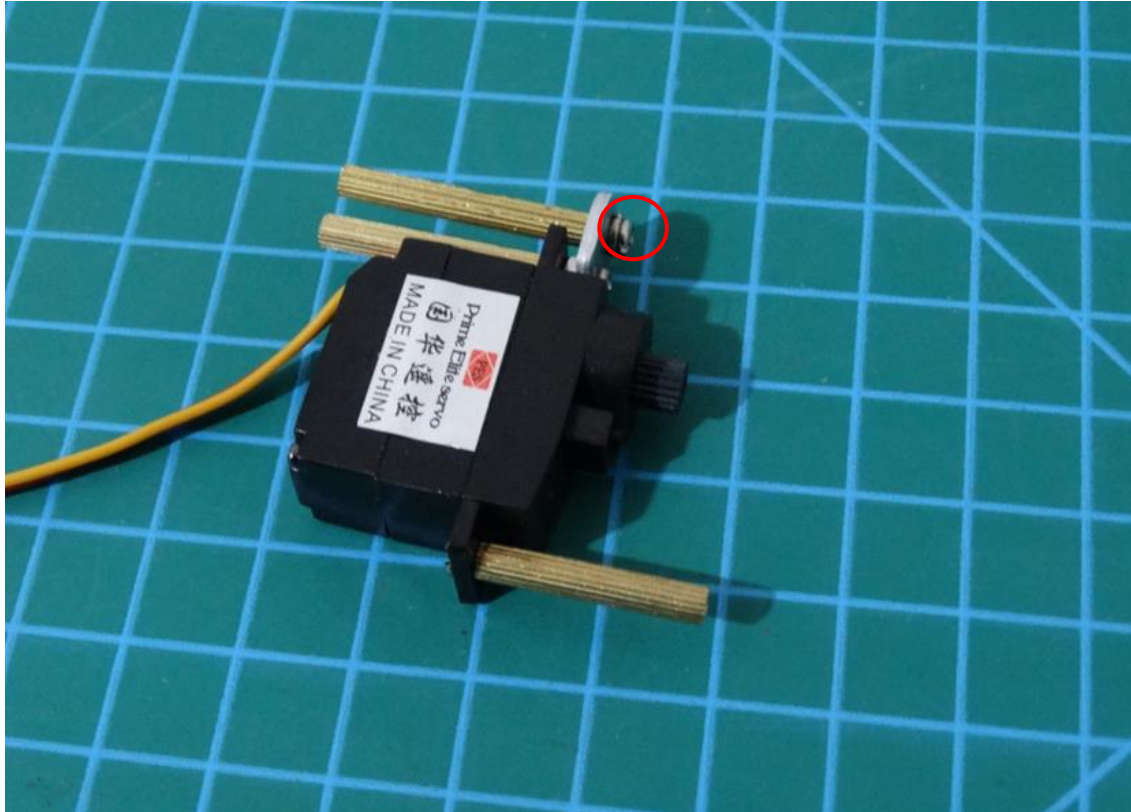




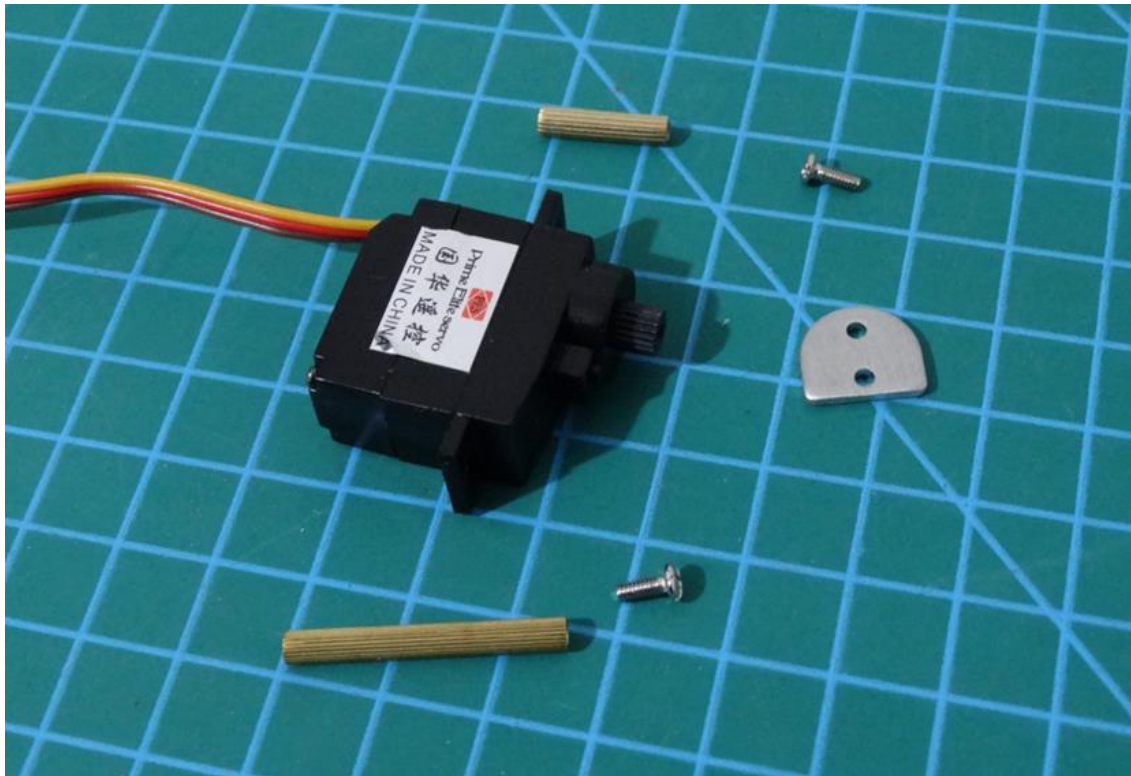
3. The column and screw screwed in, upper the M2\*21, lower the M2\*19 column



4. After assembling M2\*21 and M2\*19 pillars, remove the M2\*24 pillar, M2 gasket, and M2\*5 screw



5. Remove the second finger gear parts, Screw M2\*5, column M2\*14, and M2\*26

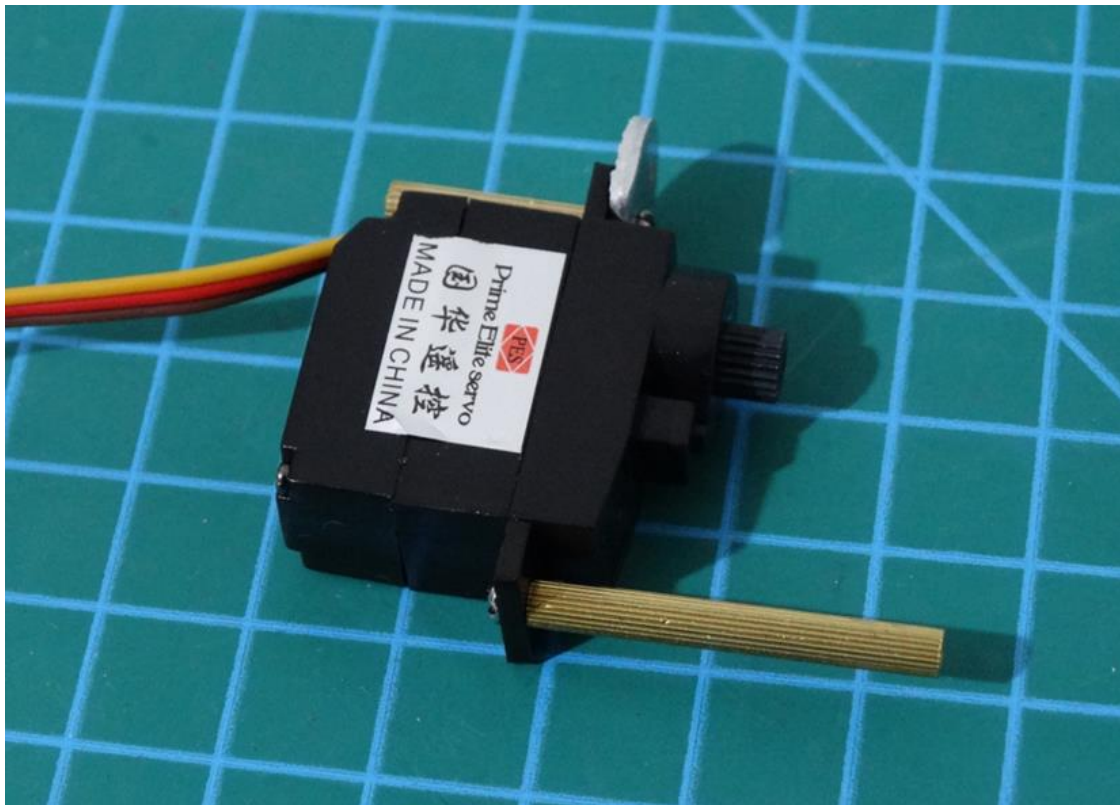


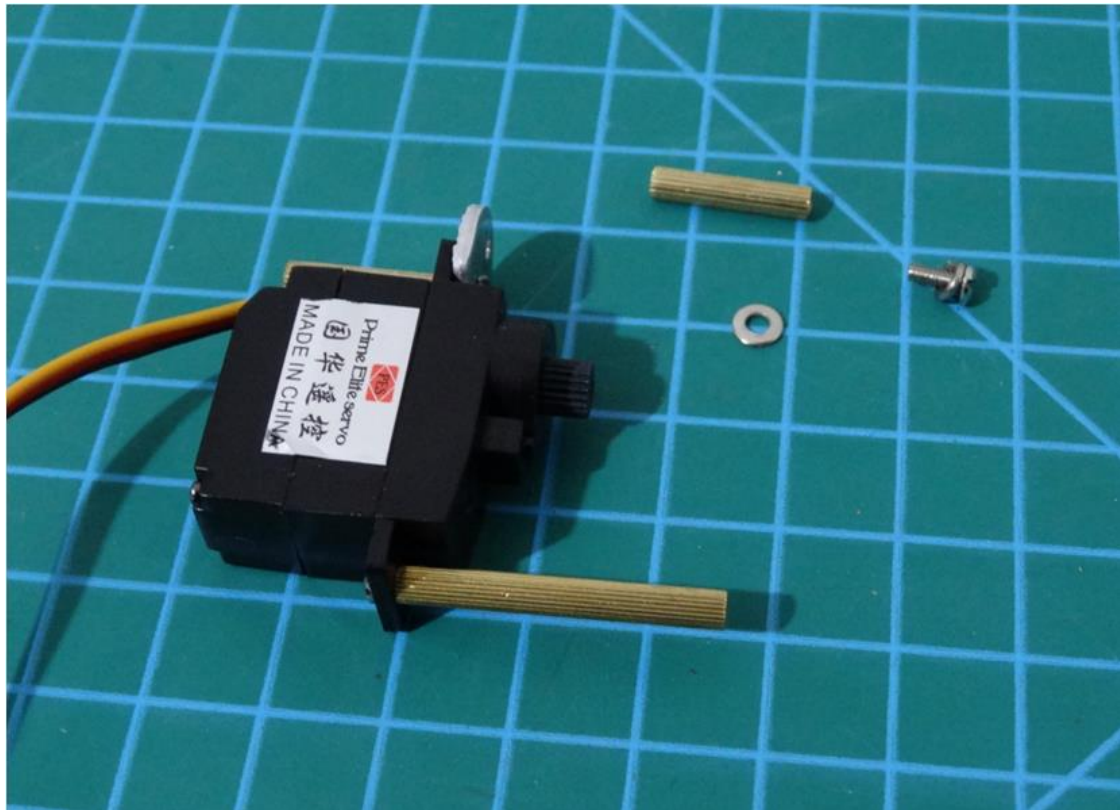


6. Screw the screw with the retaining piece into the steering gear mounting hole, do not tighten, leave margin.

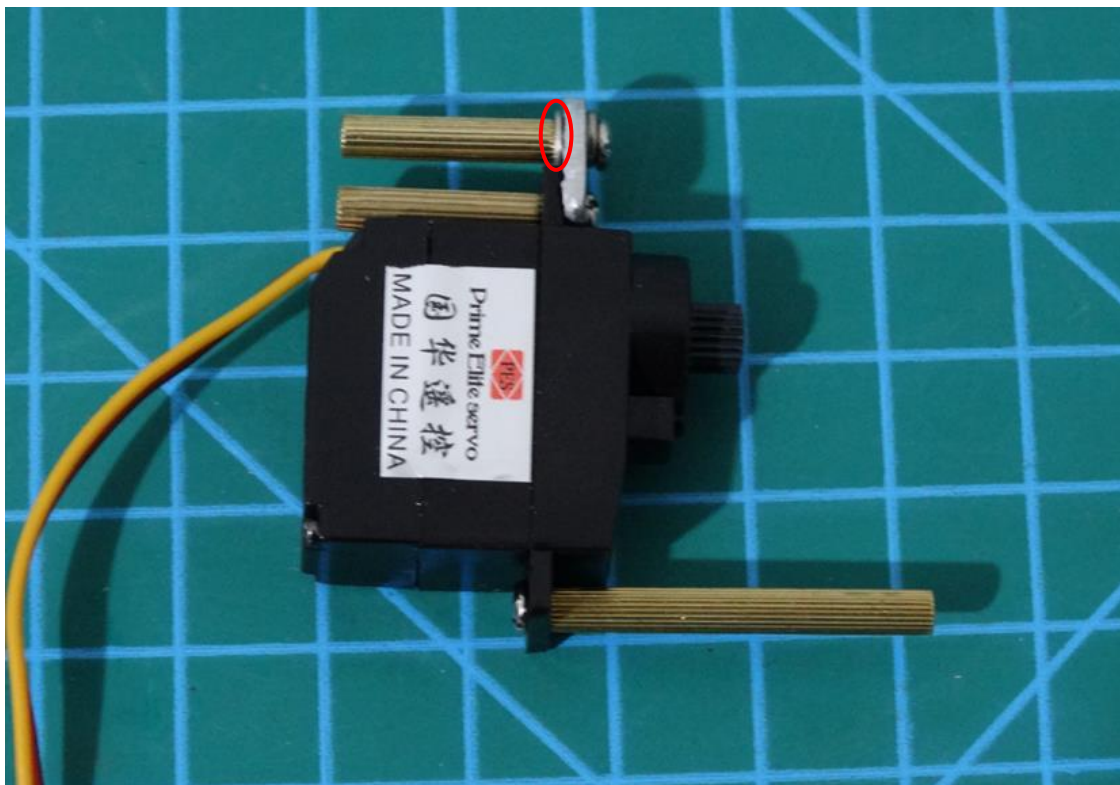


7. Screw the screw in The column ,Upper, M2\*14, lower, M2\*26。



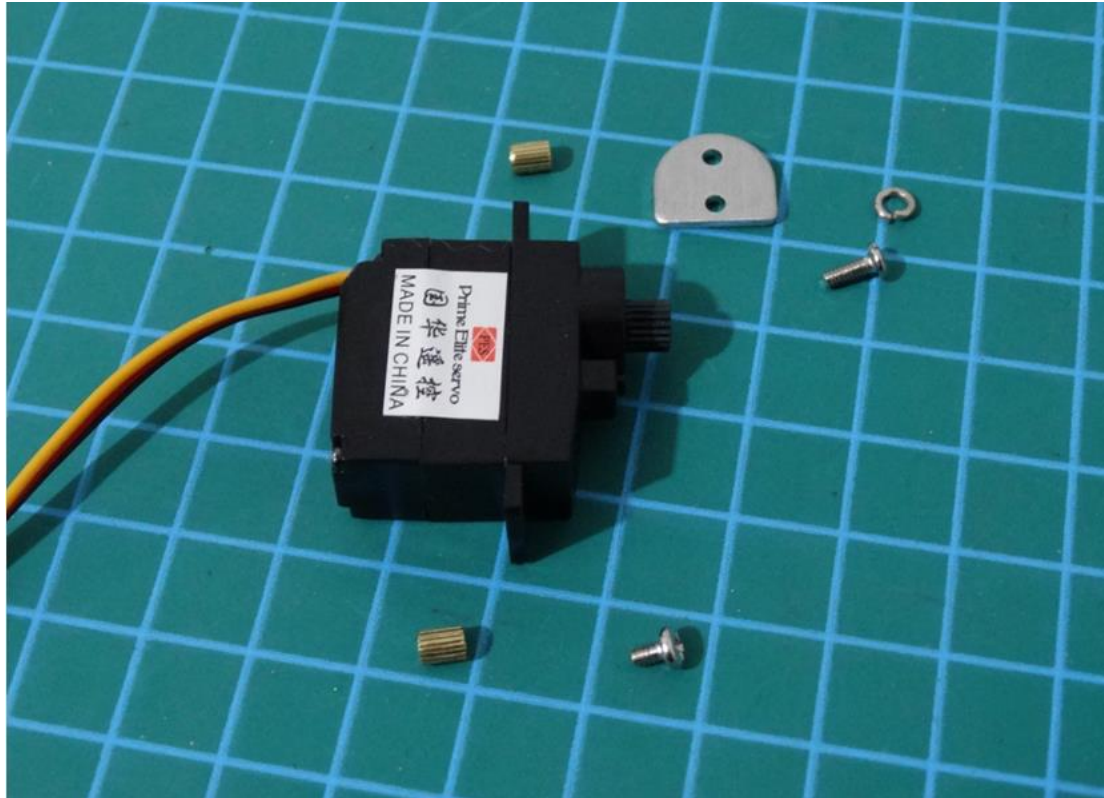


8. Remove the M2\*15 pillar, M2 gasket and M2\*5 screws, M2 spring pad.



9. The second finger steering gear is assembled. Note that the M2 gasket is inside the servo.

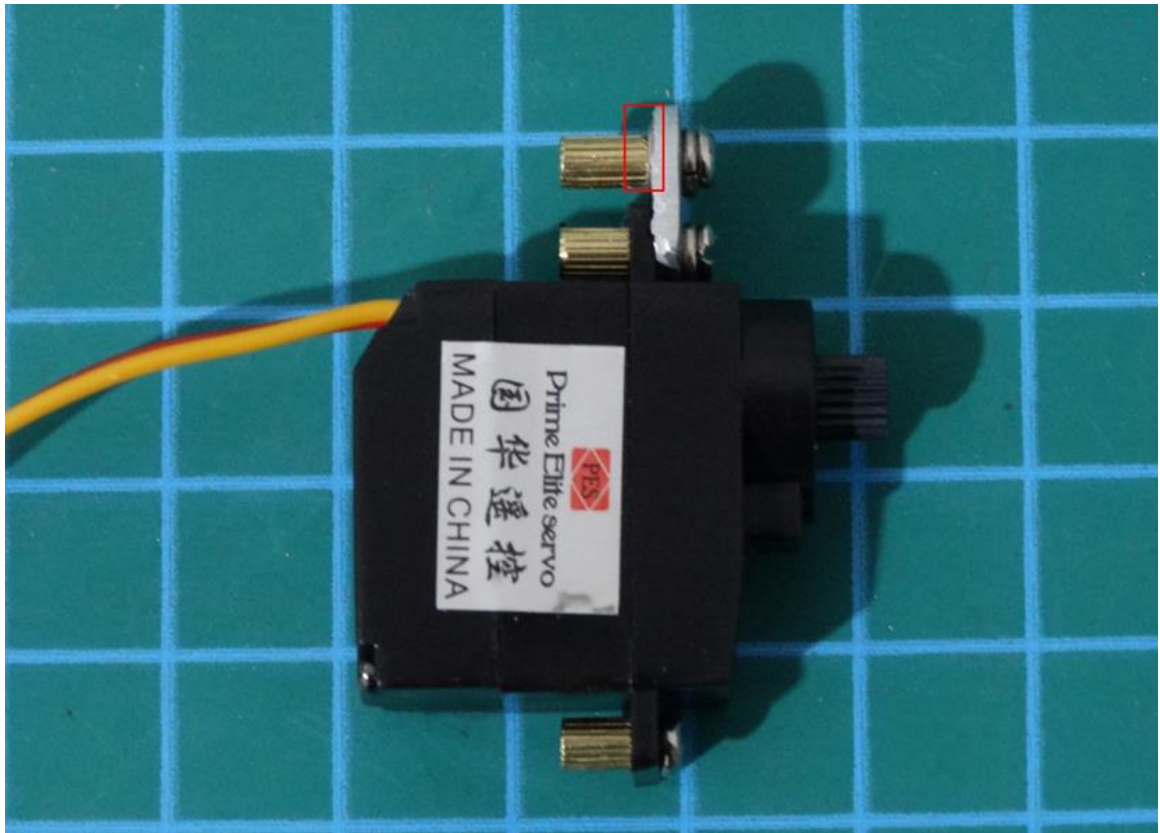




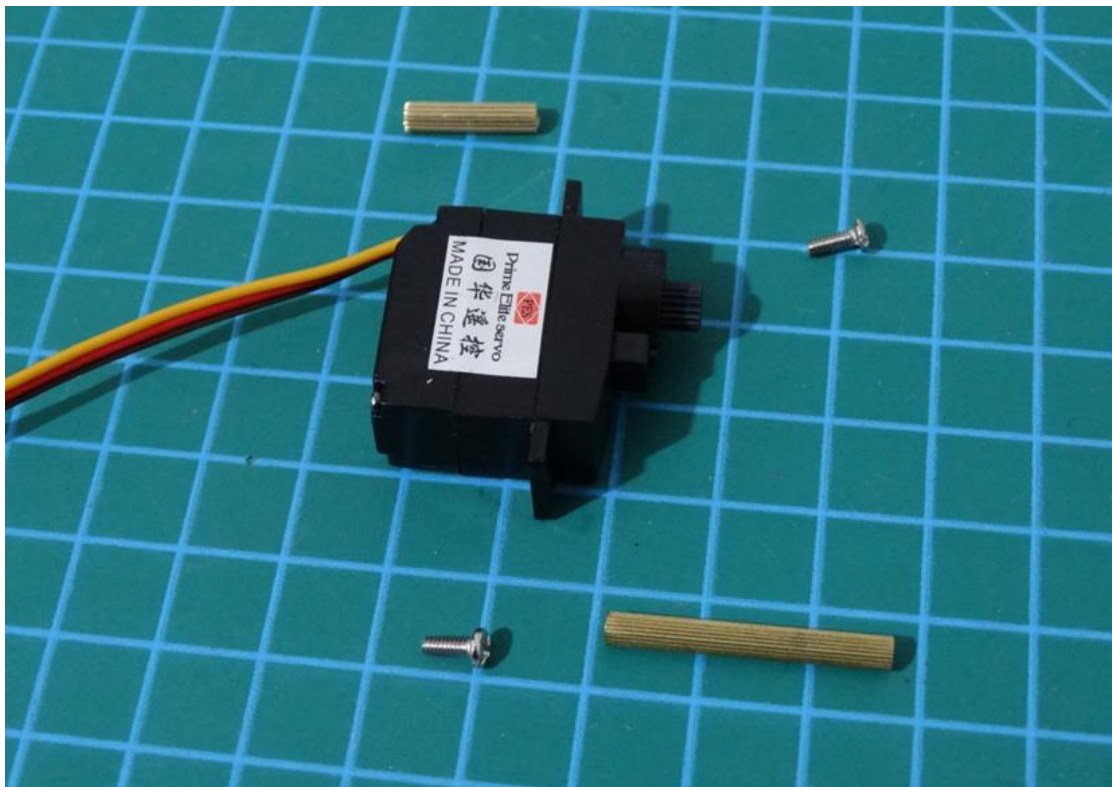
10. Remove the third finger actuator parts, the screw is upper M2\*5, lower M2\*3, copper M2\*4



11. Put the screws into the steering gear mounting hole, and then remove the M2\*5 pillar, M2\*5 screws, M2 spring pad, M2 gasket. Note M2 gasket on the inside.



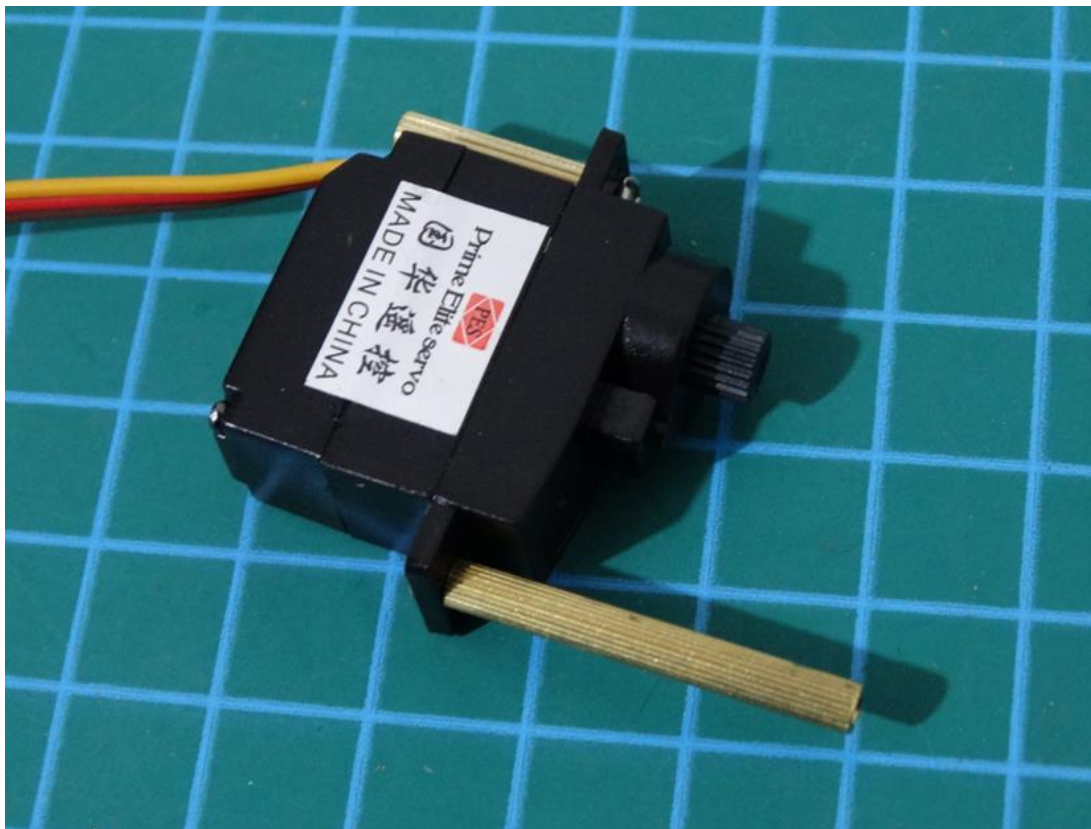
12. Remove the fourth finger gear parts, copper M2\*14, M2\*26, M2\*5 screws.





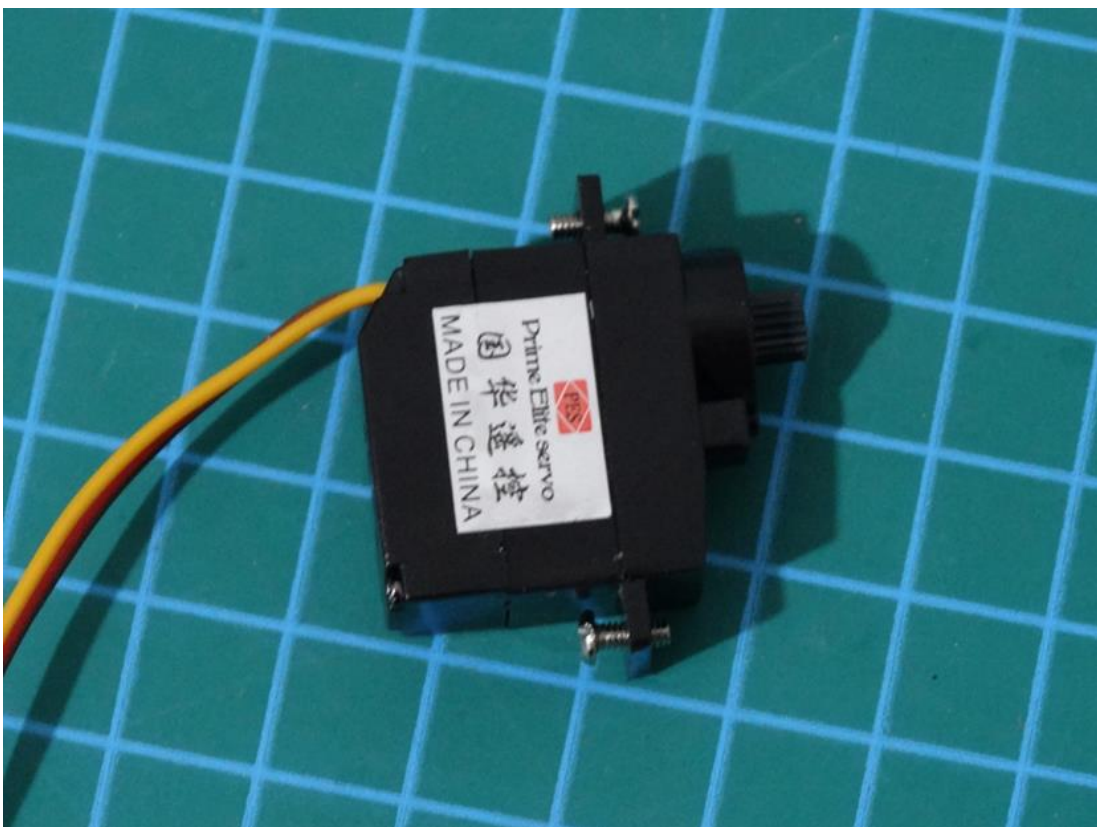
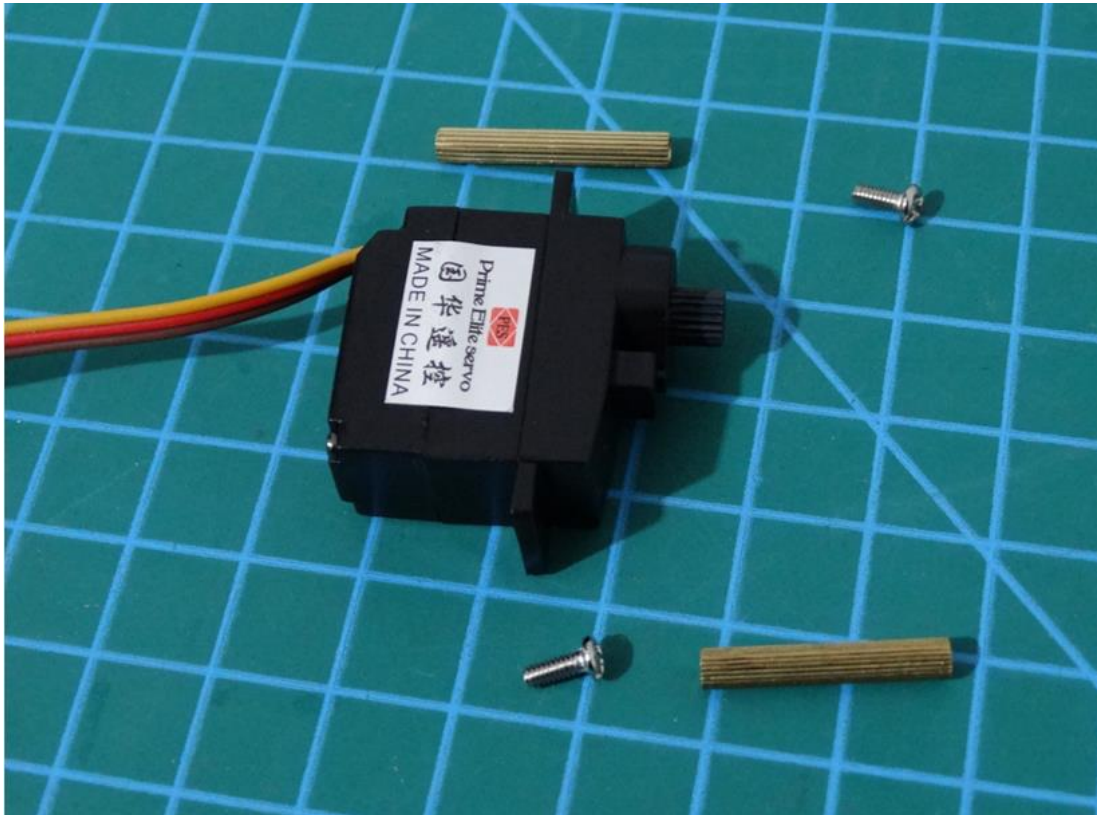


13. Part screw M2\*5 screw, do not tighten it



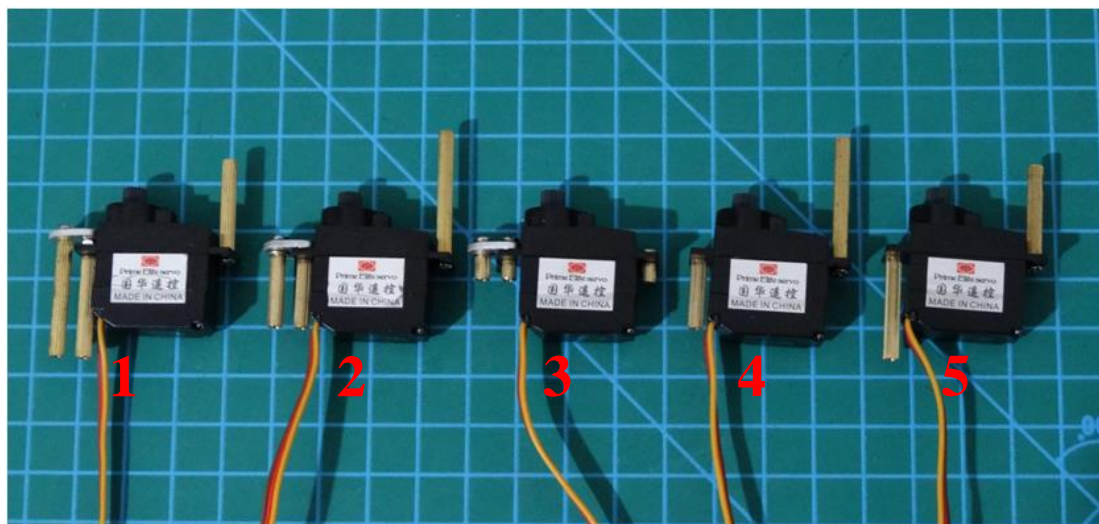
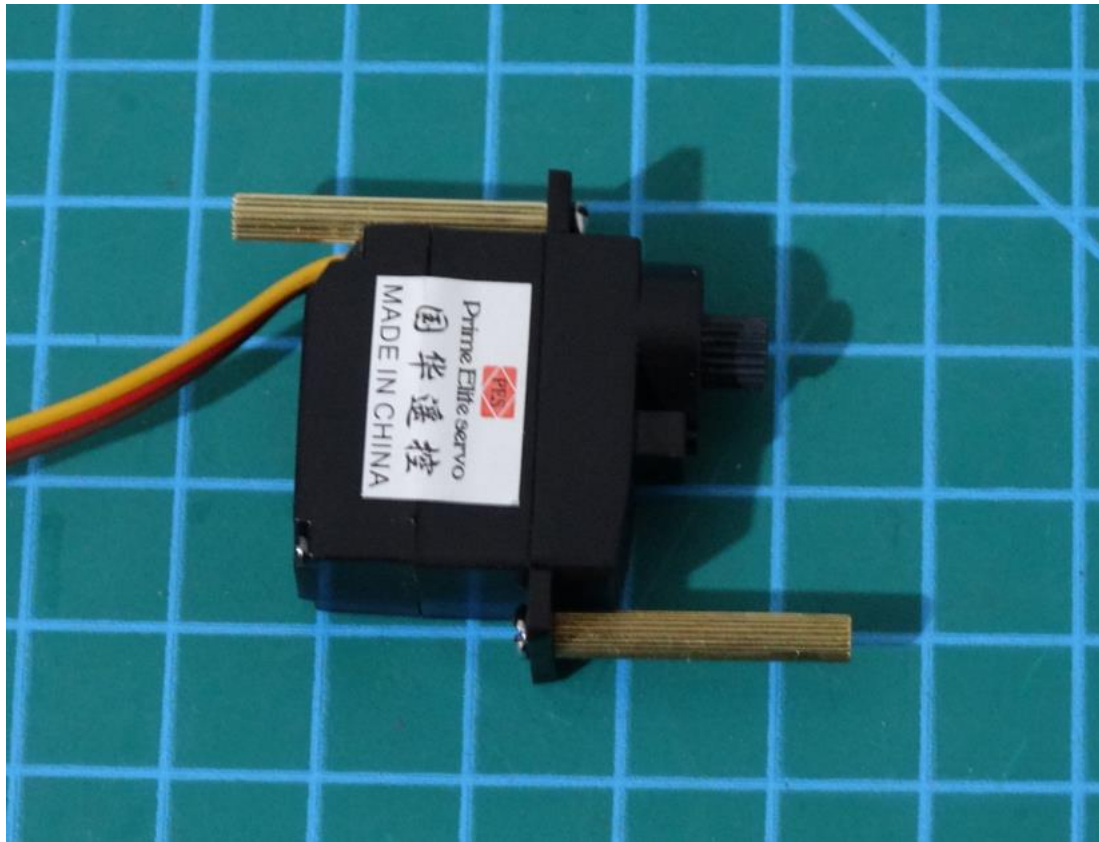
14. Upper, M2\*14, lower, M2\*26

15. Remove the fifth finger gear parts, copper M2\*19, M2\*21, M2\*5 screws.





16. Upper, M2\*19, lower, M2\*21

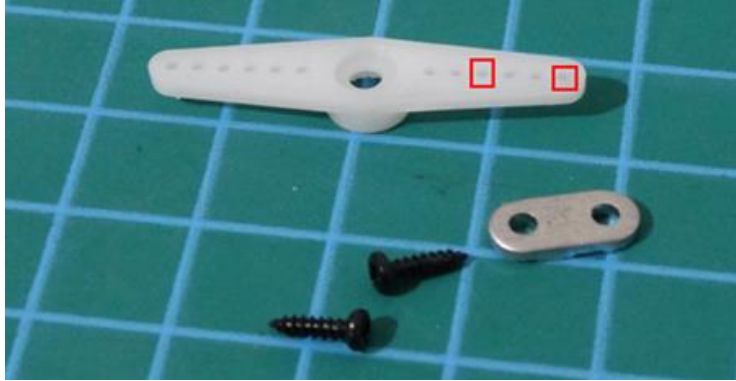


The hand servo assembly completion drawing.

Pay attention to the installation sequence number of different finger servo.

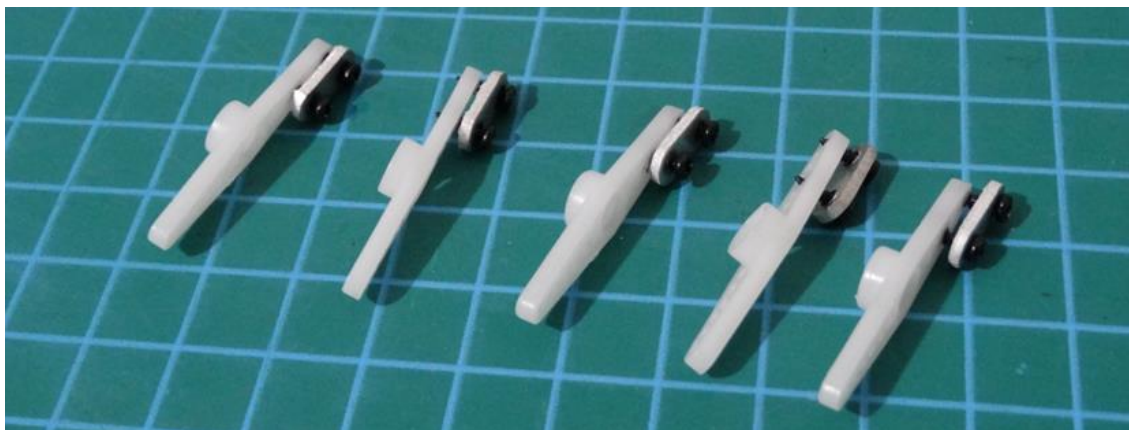
## E: the overall installation of the hand

Remove servo arm ,tie tape, M1.7\*6 screw



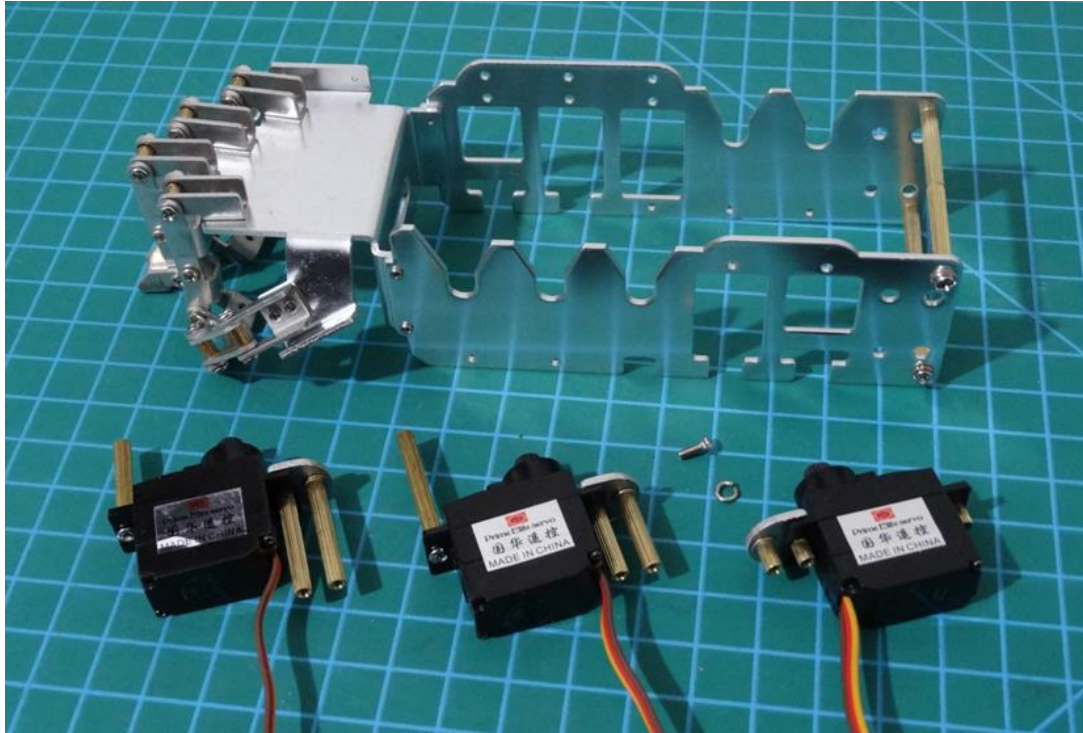
In turn screw the tie tape into the servo arm, do not tighten, leave a margin. Screw in the 1st and the 4th holes of the servo arm as show.

If the tie tape is close to the rocker arm, use a screwdriver to separate them.

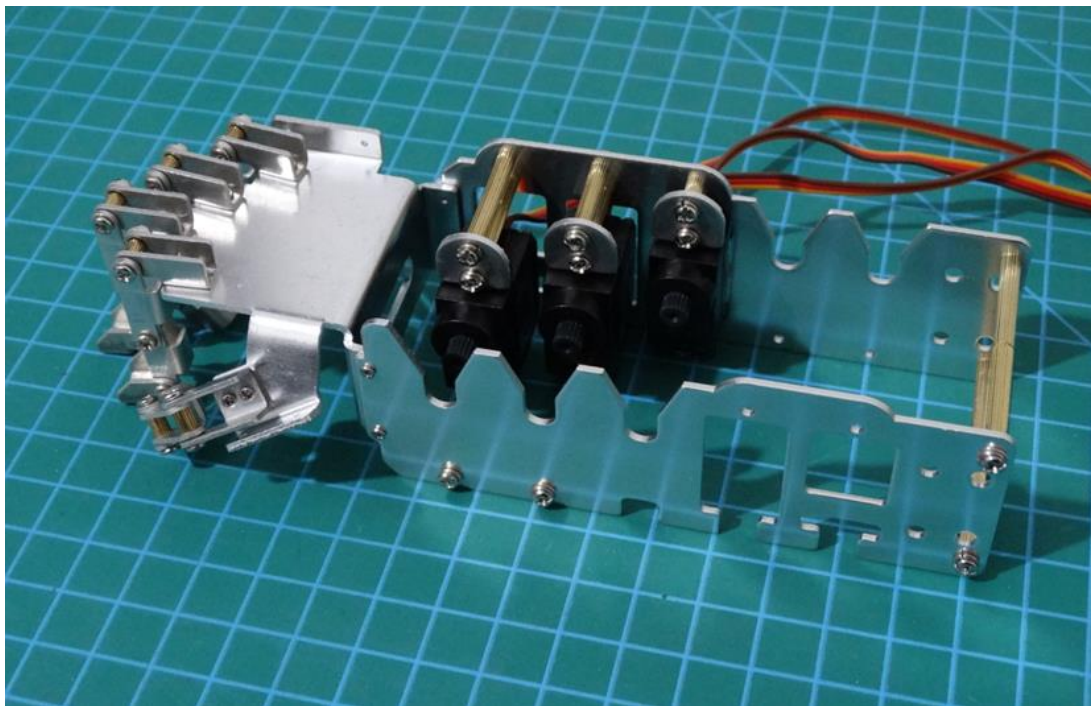


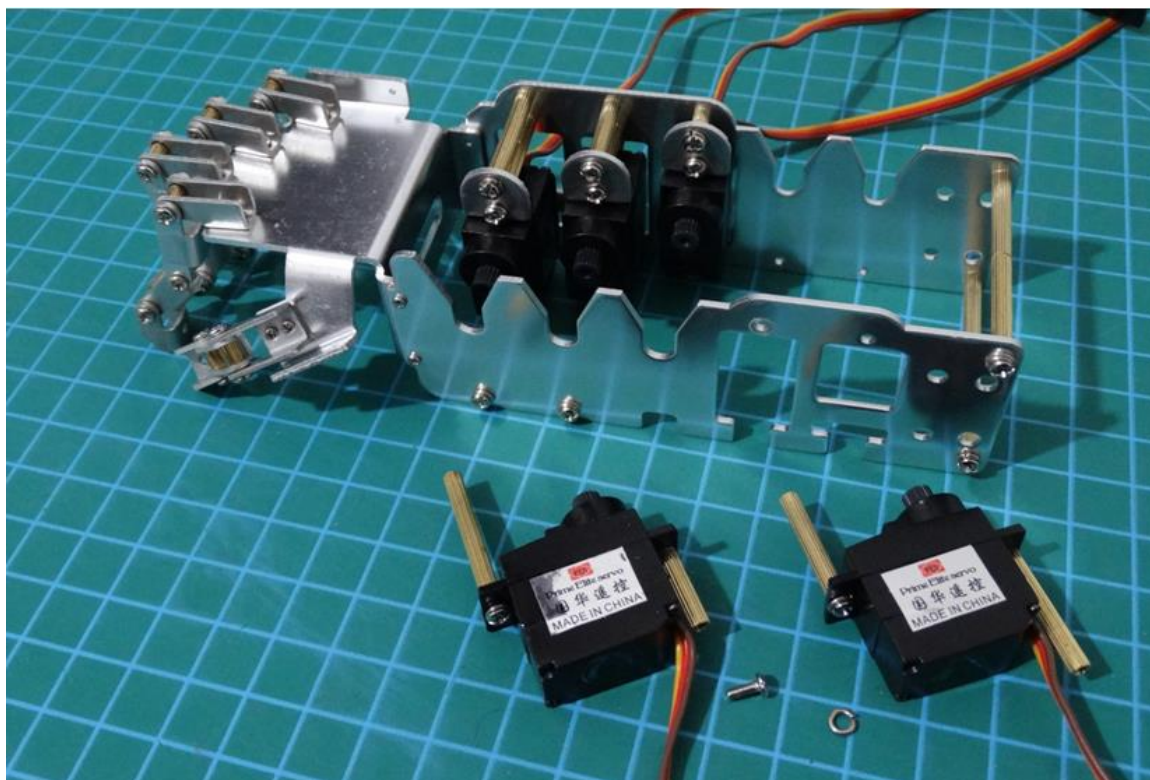


The overall installation of the **right hand**

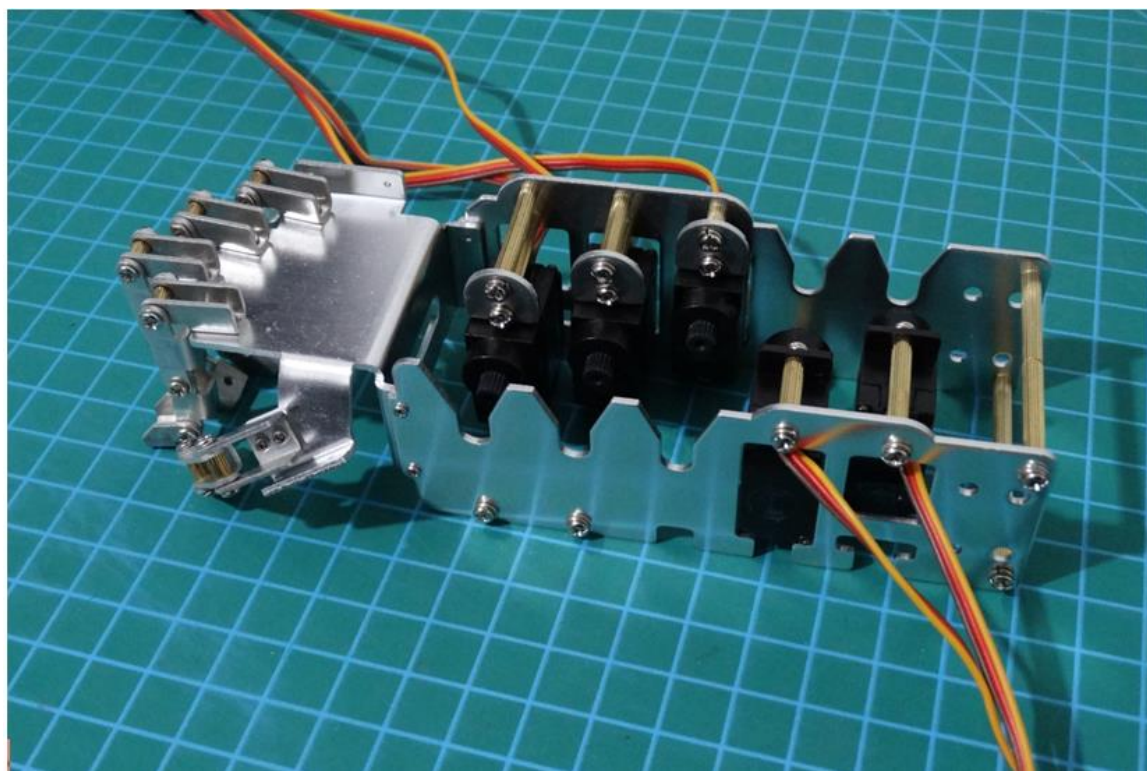


1. The right hand finger servo 1.2.3 is installed in the right arm in sequence, the use of M2\*5 screws, M2 spring pad.

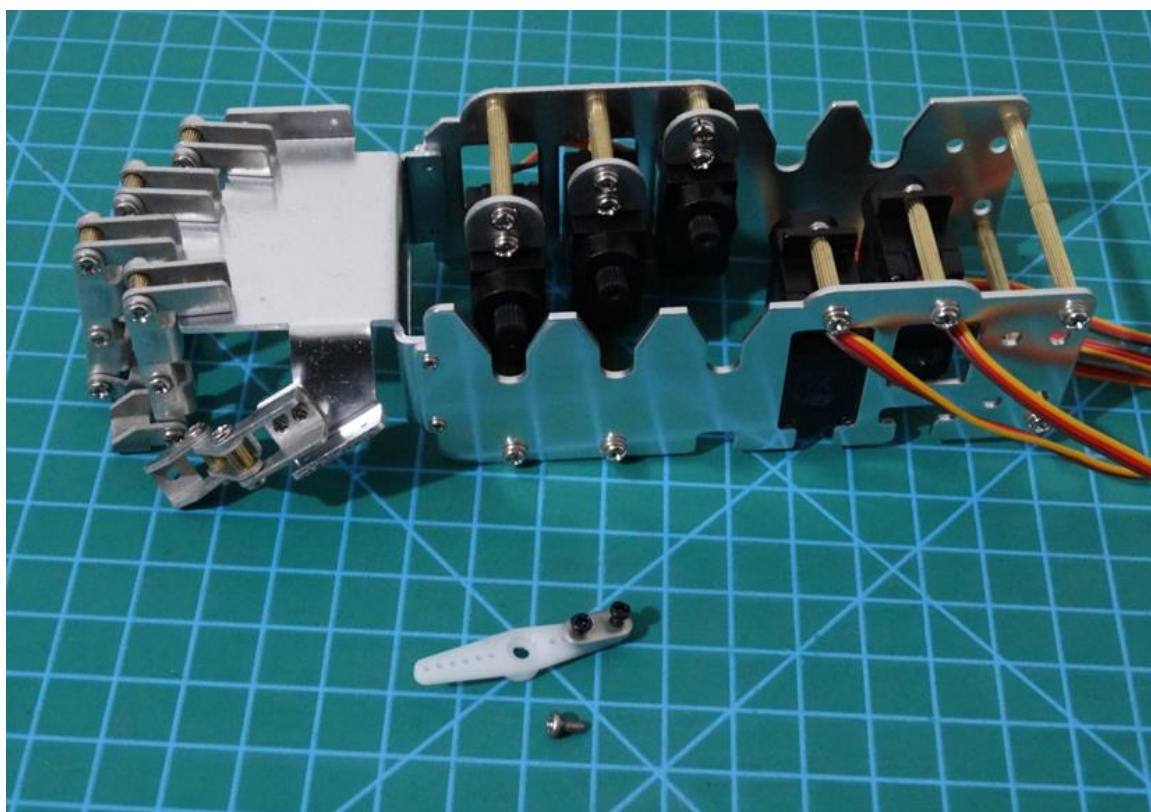




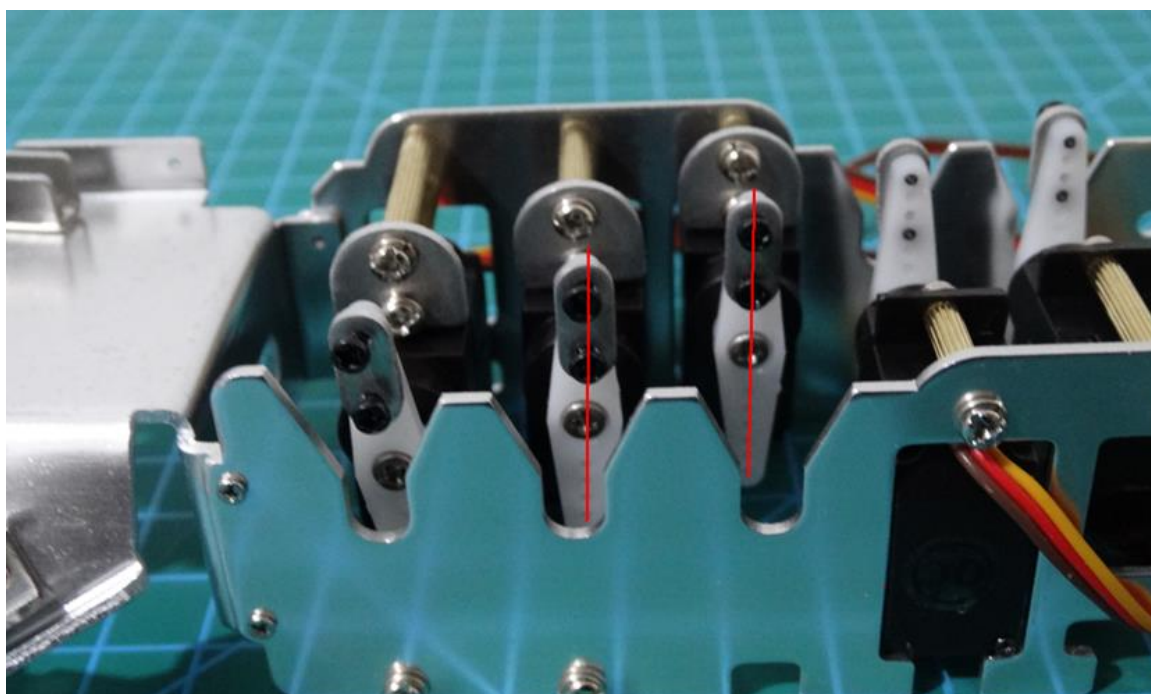
2. Installing the 4.5 finger steering gear on the right hand. Still use the M2\*5 screw and M2 spring pad



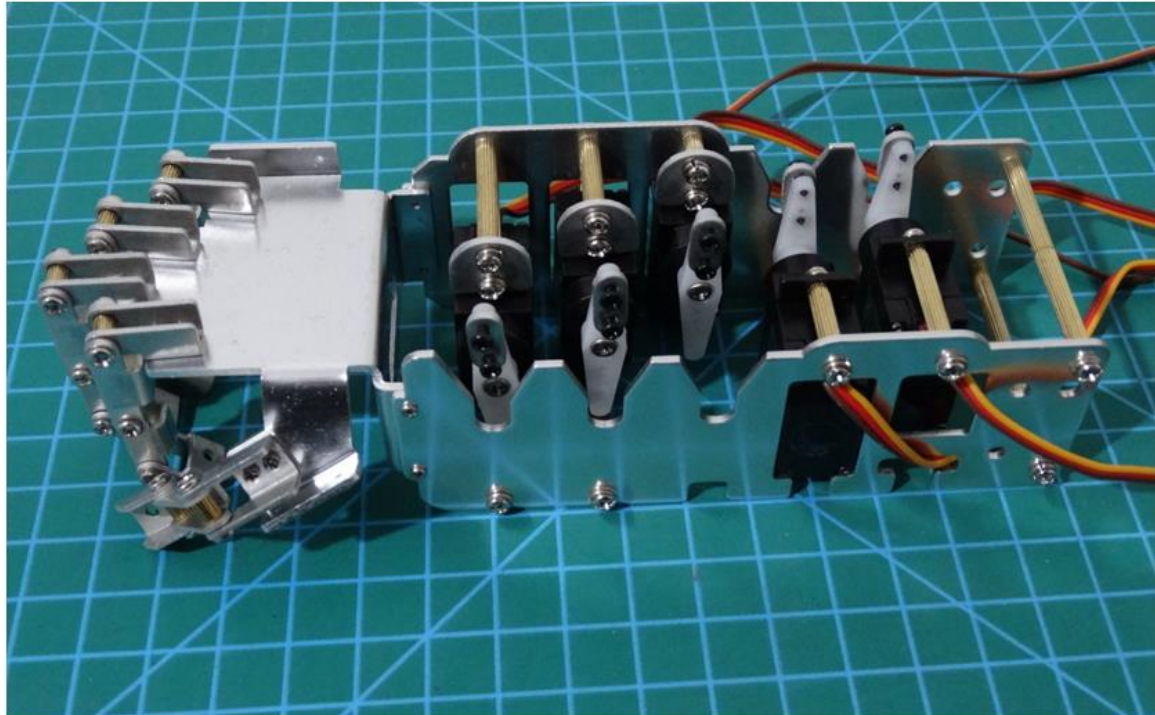




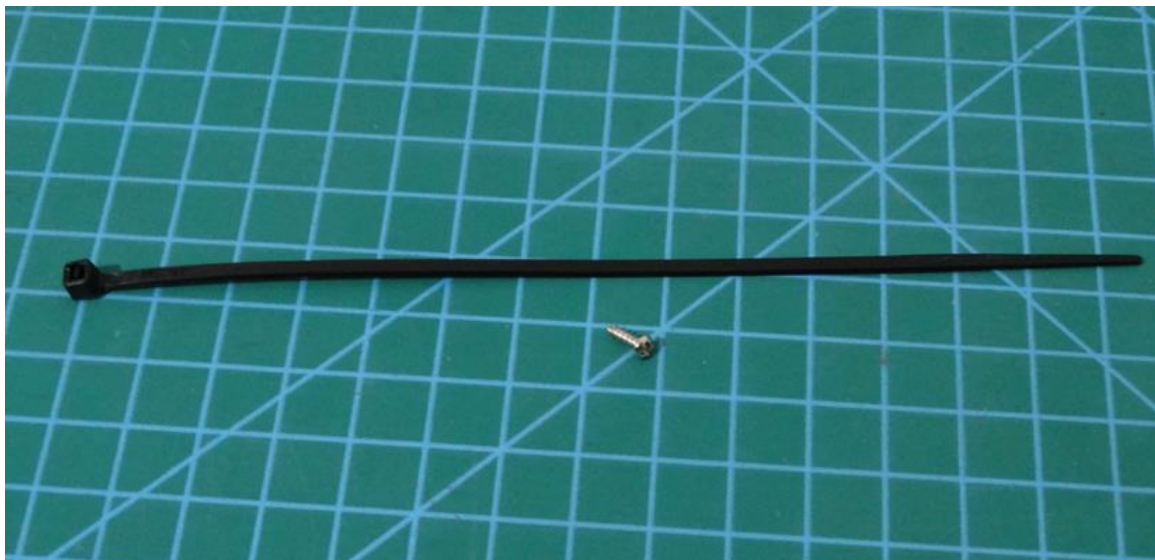
3. Remove the servo arm and the screw for the installation of it



4. Screw the rocker arm into the servo, press the rocker arm first, then screw the screws. Pay attention to the rocker arm to ensure that the red line as far as possible in the same horizontal line.



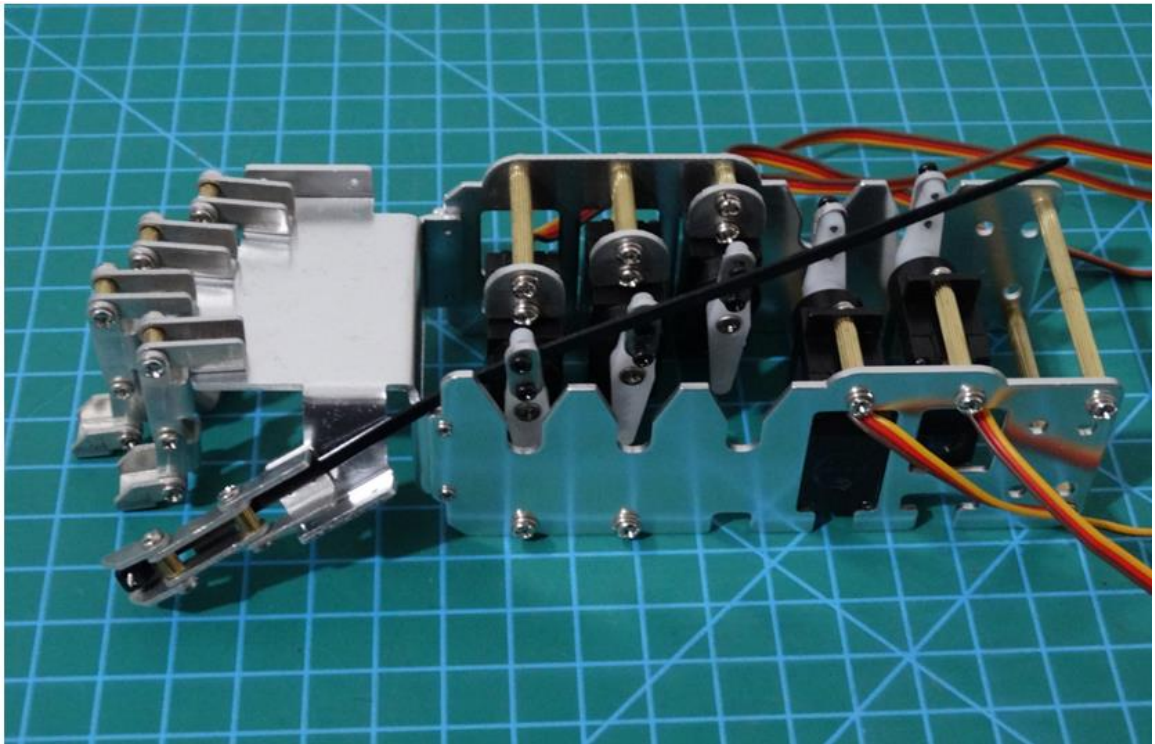
The same way as the 5 servo arms. If you do not parallel the state of the screw into the rocker arm and turn the steering gear, you can first remove the rocker arm, then re-back the servo, and re install the rocker.



5. Take out the finger tie and M2\*6 self-tapping screw, put the tie into the finger, attention to the tie with 2 types, the big finger with a small tie. Screw in the head of the tie, **note that the tie tooth face down to**

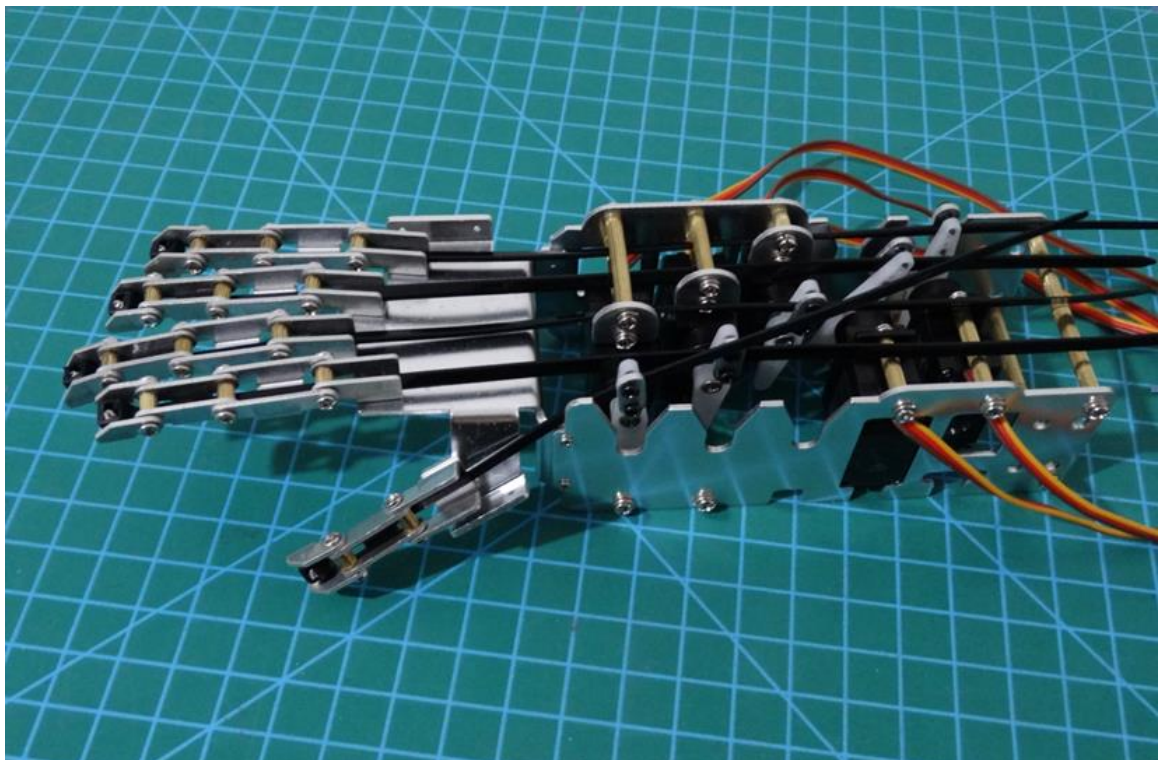


finger, face to the rocker arm.

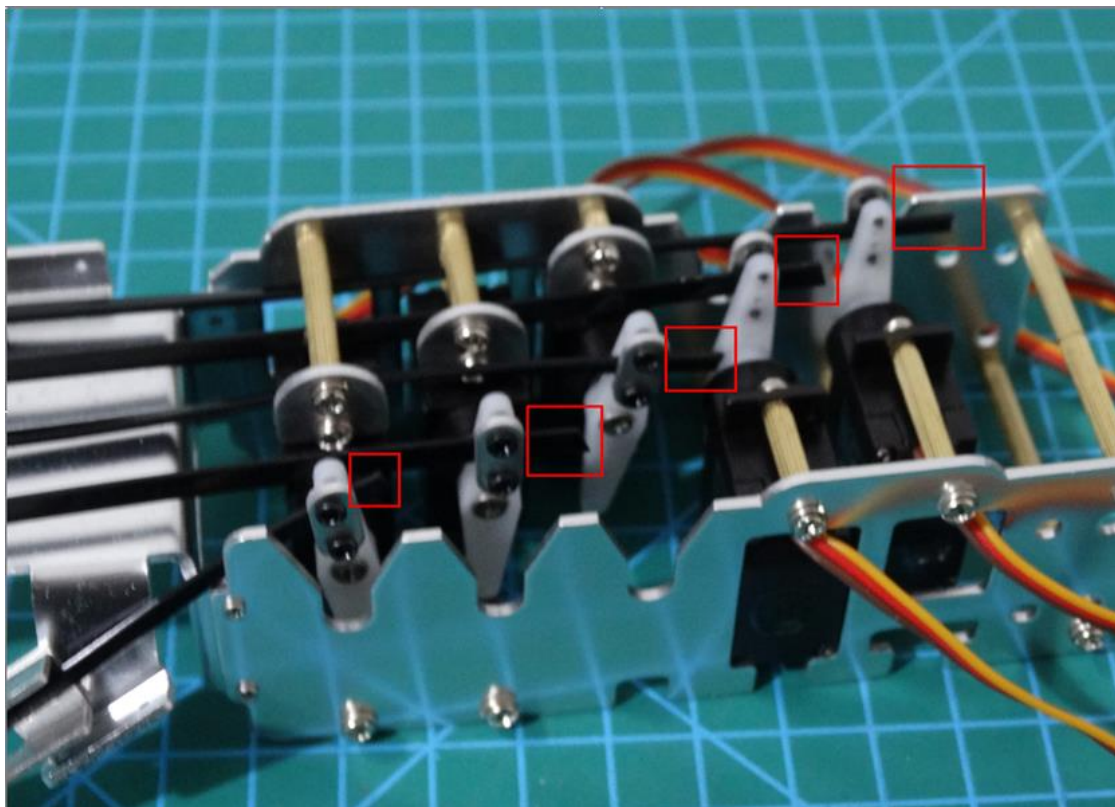
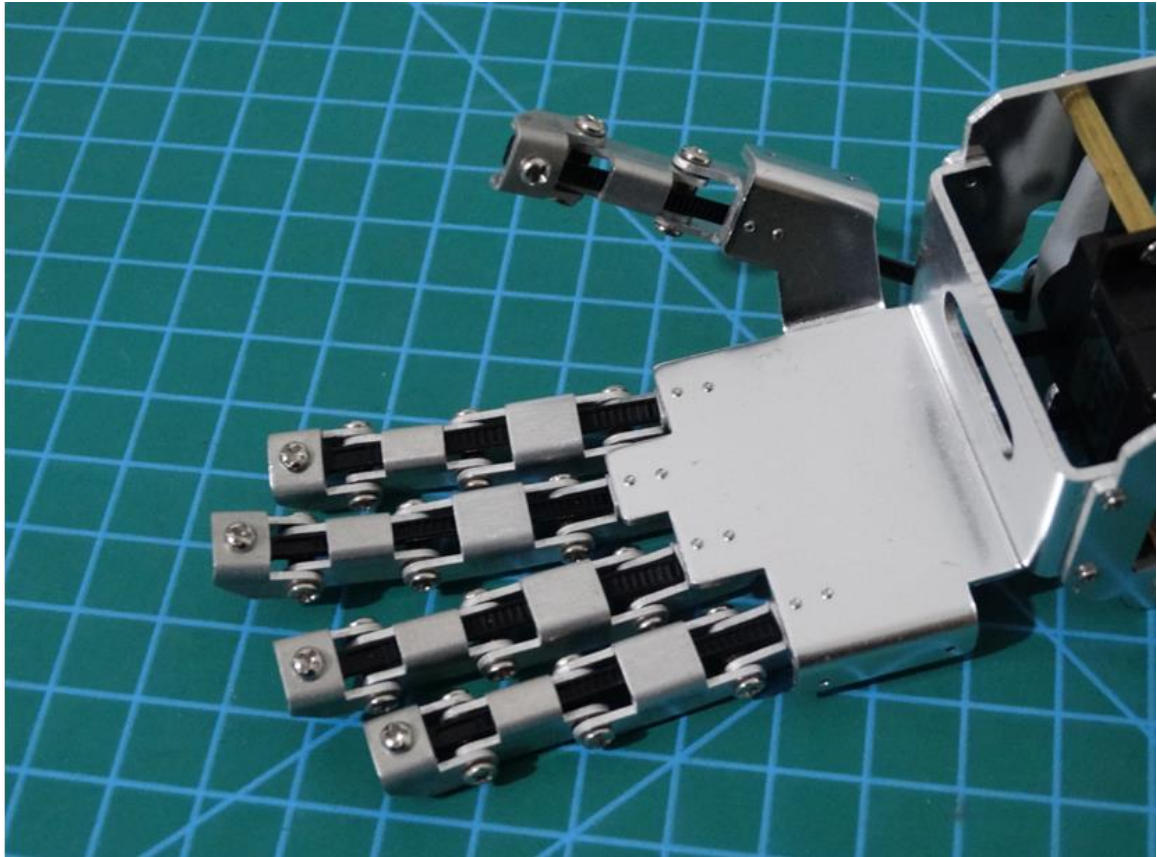


The self tapping screws are screwed into the head of the tie, and the tail of the tie is inserted between the rocker arm and the tie tape.

6. Remove the big tie, the other 4 fingers are all used with them. Self tapping screws using M2\*6

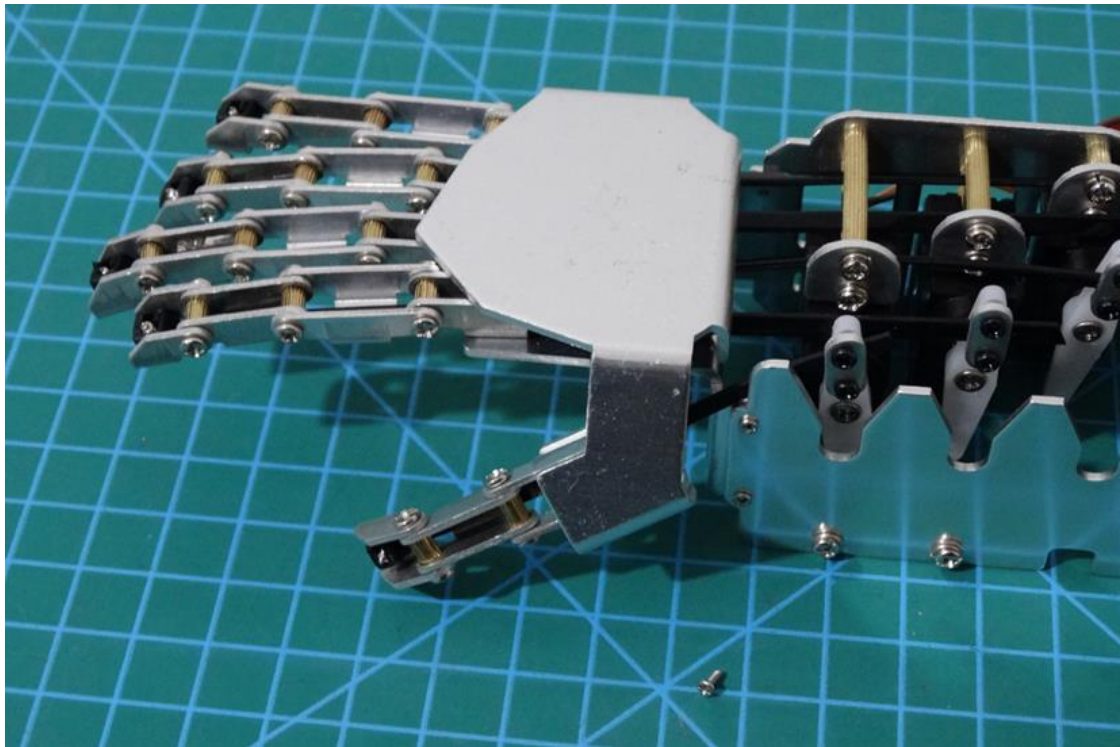


Screw all the ties into your fingers. Tie tail into the tie plate and the rocker arm. The tie teeth face to the rocker arm.

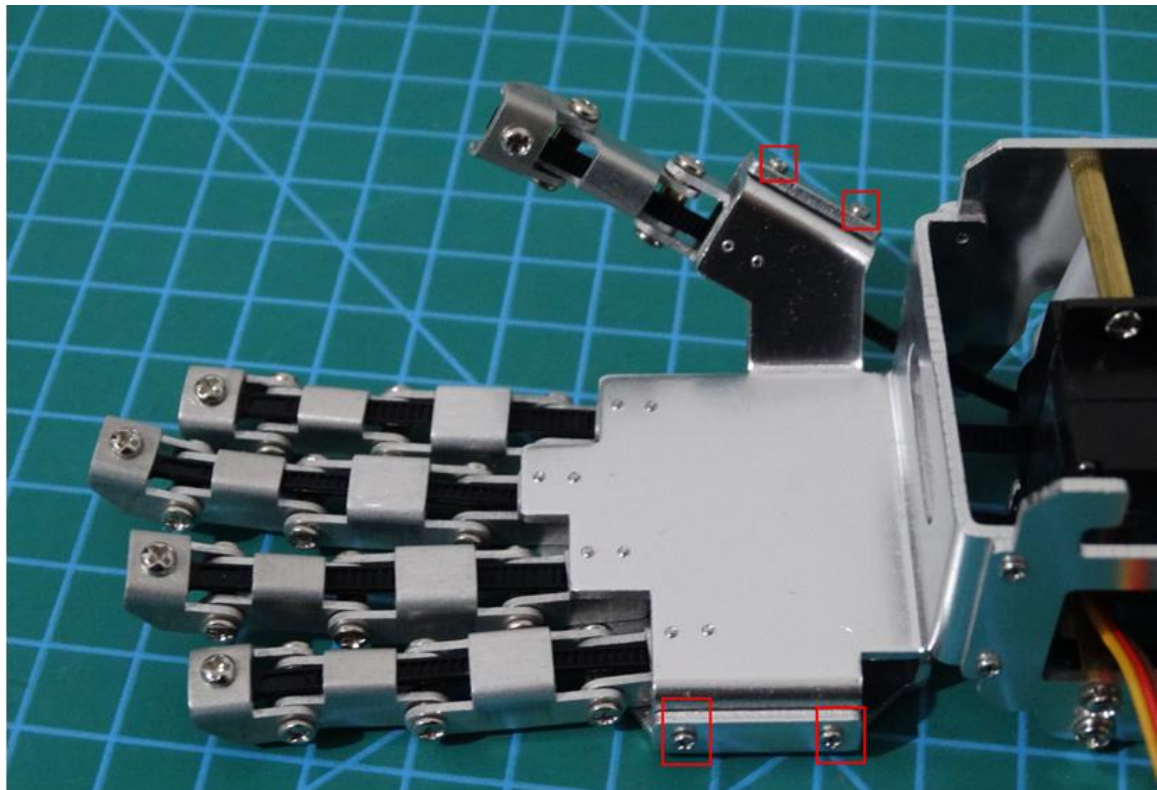


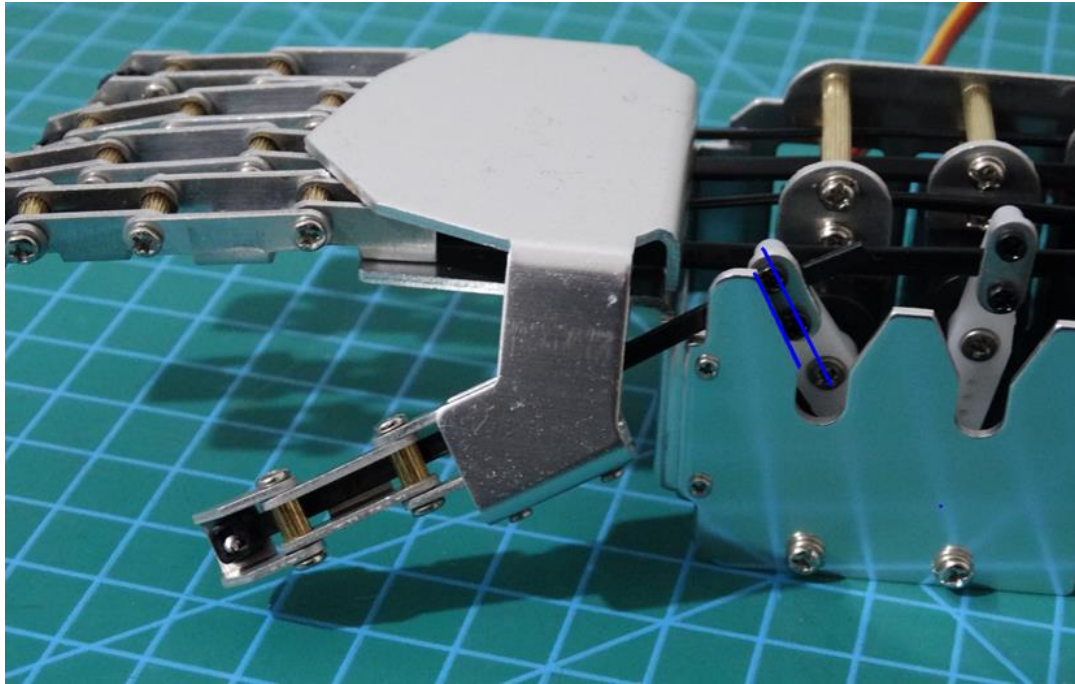


7. Cut off the extra tie and leave the length of about 1CM.



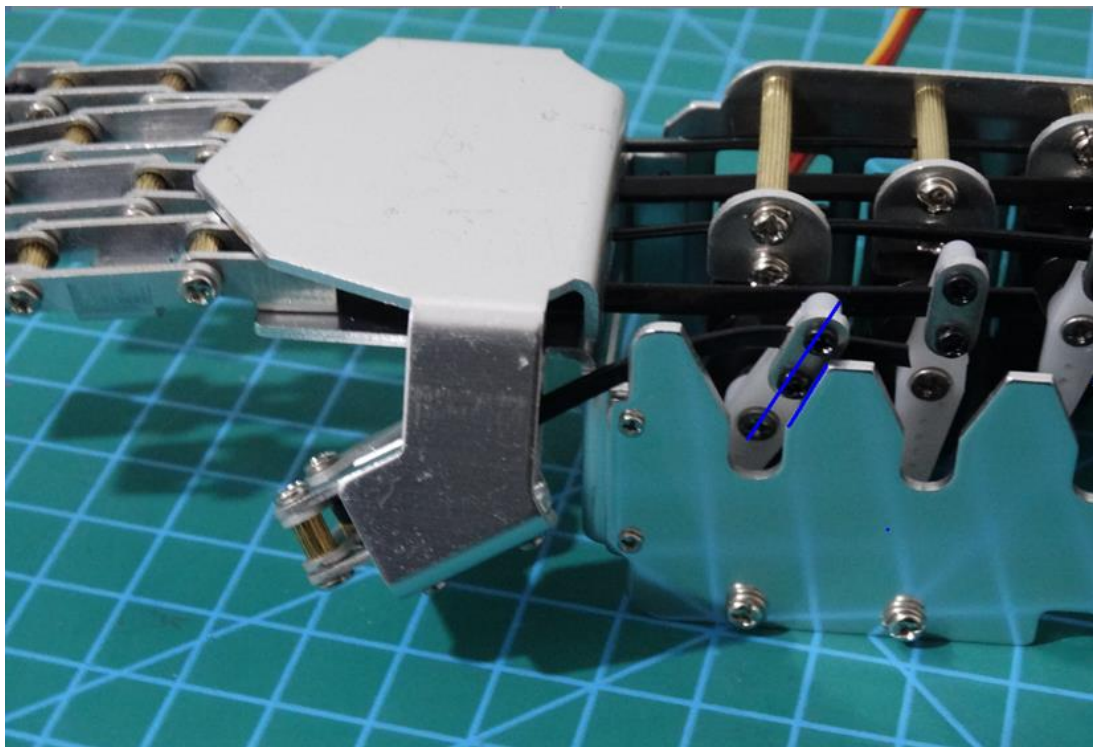
8. Take out the back of the hand, use 4\* M1.4\*3 stainless steel screw, the screw is screwed into as self-tapping screw. Note here the first a left and a right screw, do not tighten. Then on the other 2 screws, 4 screws are screwed into the palm of the hand, and finally in turn tightening screws fixed back of the hand.





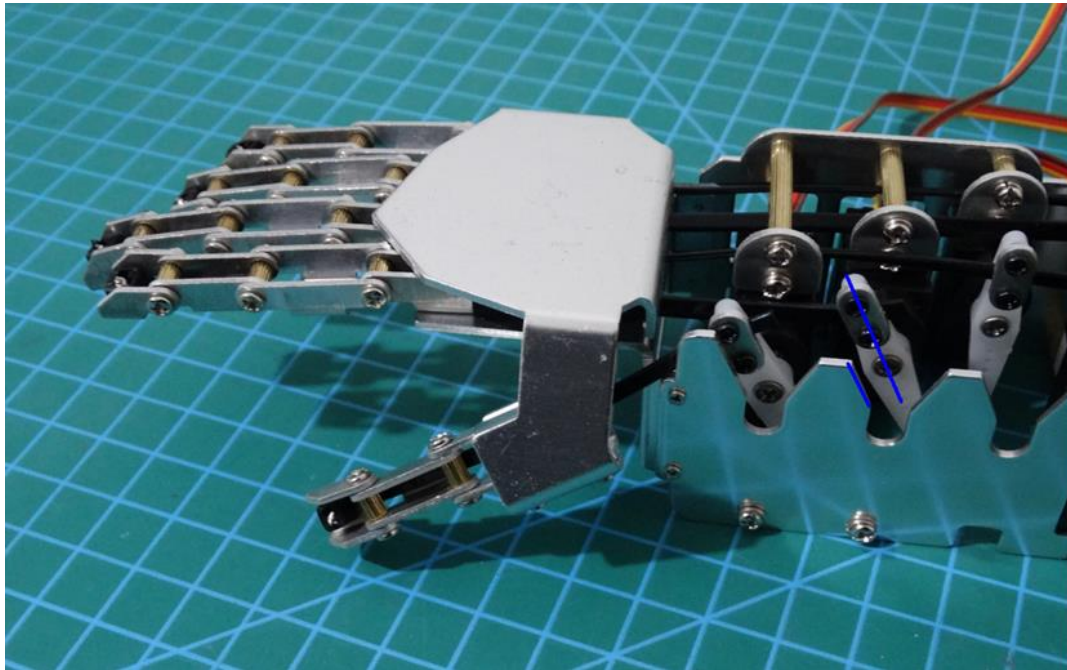
9. Adjust the strap, you' d better to use the steering gear control panel to debug the steering gear. Do not use hand to direct pull the rocker arm, easy to damage the steering gear.

When the rocker push forward, the 2 blue lines in the picture to keep parallel when the big finger slightly upturned, tighten the M1.7 black fixed screw.



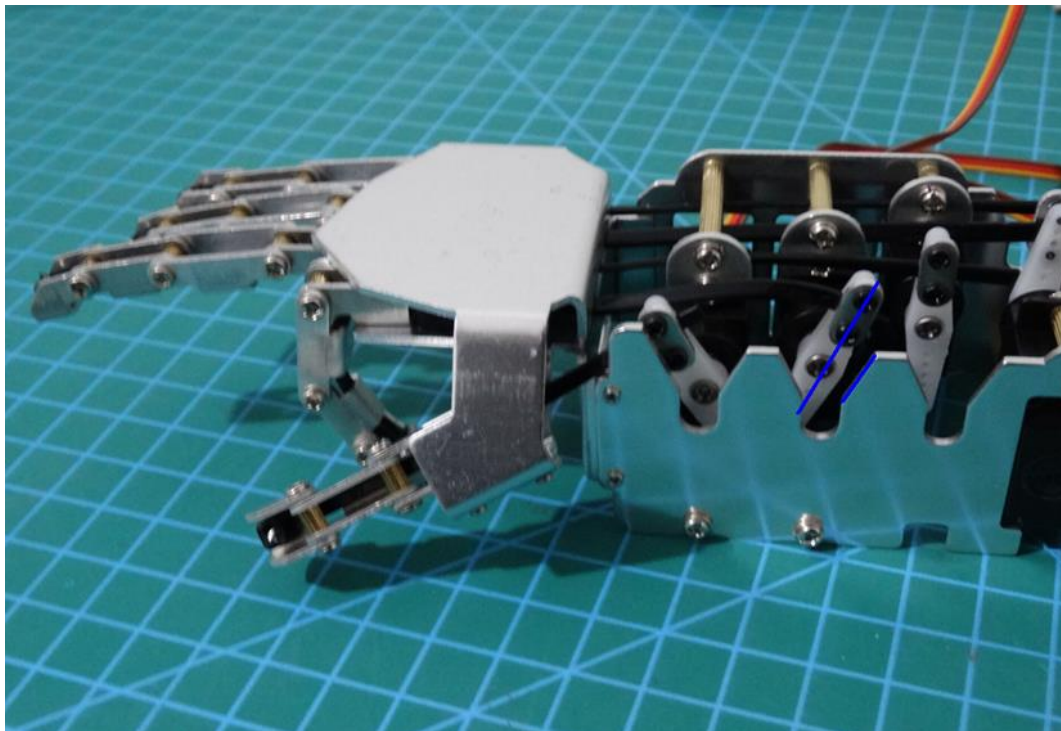


When the steering wheel pulls back is the same way, the 2 blue lines in the picture to keep parallel. And cut off the extra tie to remain 0.5cm.



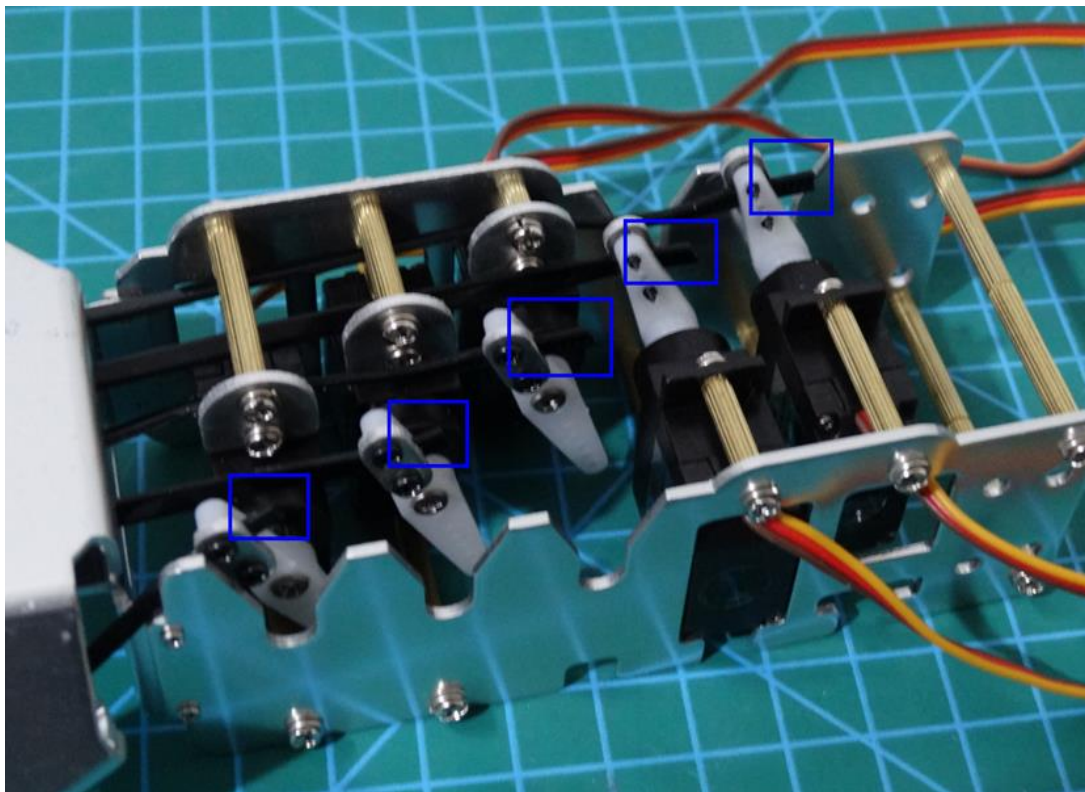
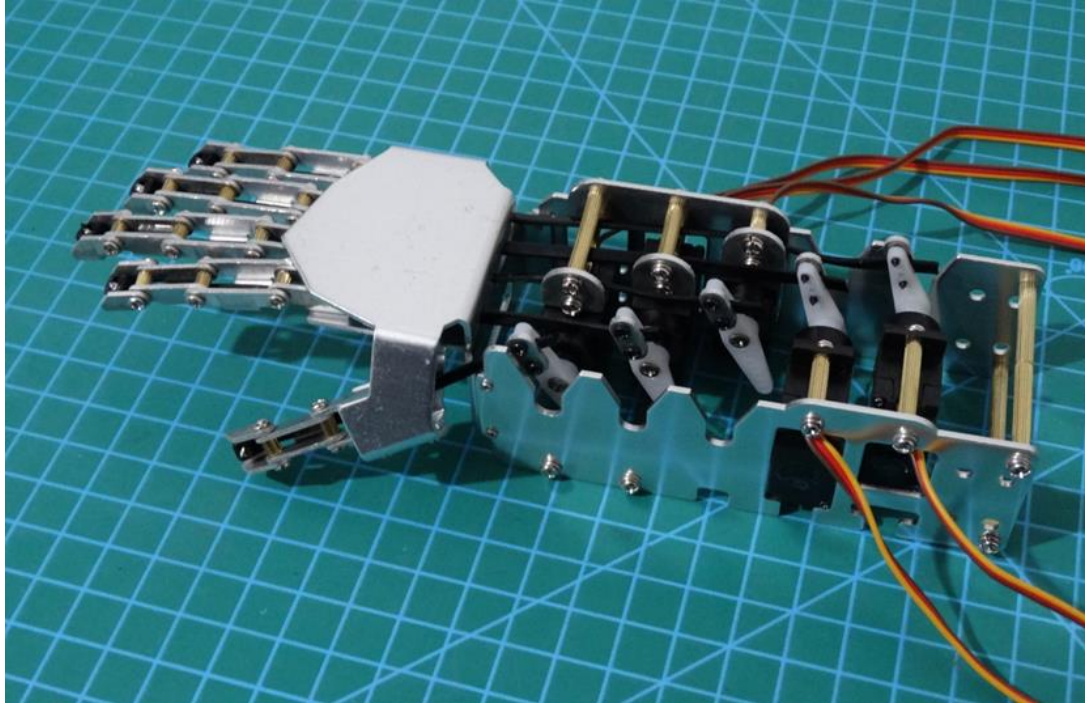
10. The other 4 fingers is similarly, as shown, after the length of the tie bar is adjusted, tighten the black fastening screws

Let the rocker arm parallel to the edge of the slope, here is the maximum stroke of the steering gear, when the finger slightly upturned.



Then pull back. After the adjustment to cut off the extra band, Reservation length of about 0.5CM

11. In order to adjust the 5 servo.



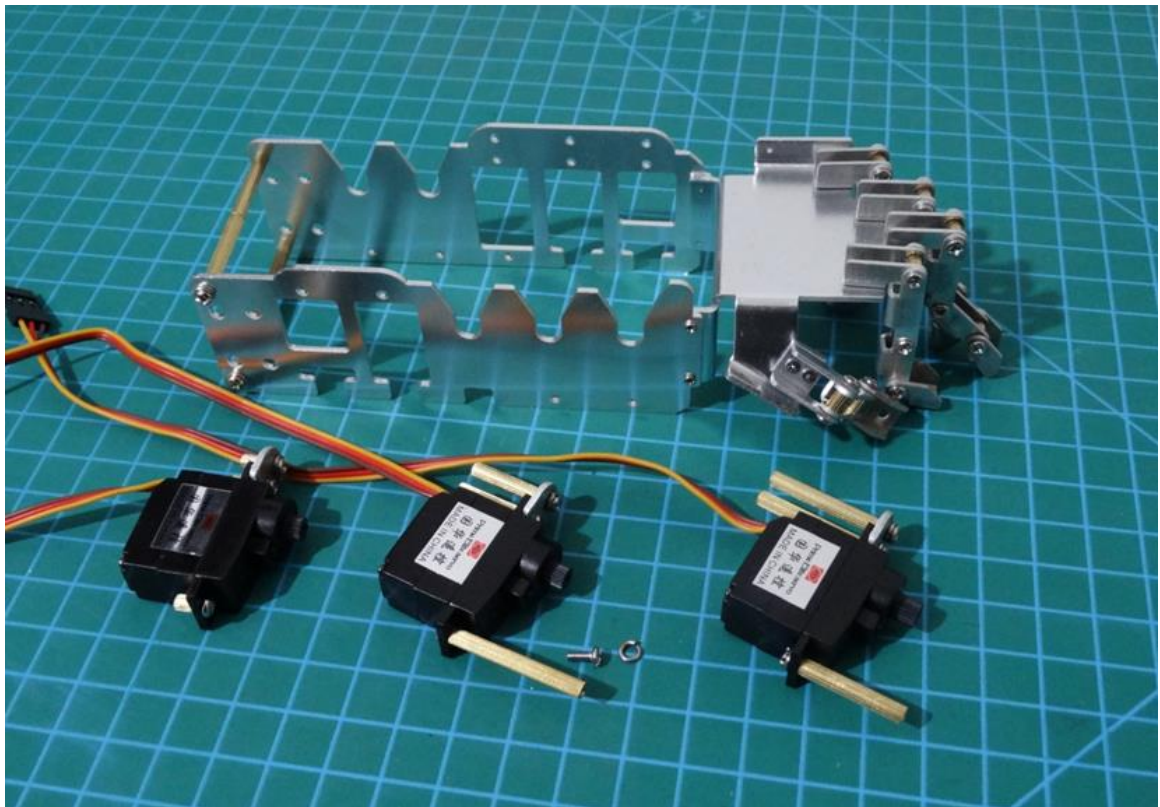
12. Cut short the tie, can retain 5MM. Complete installation.



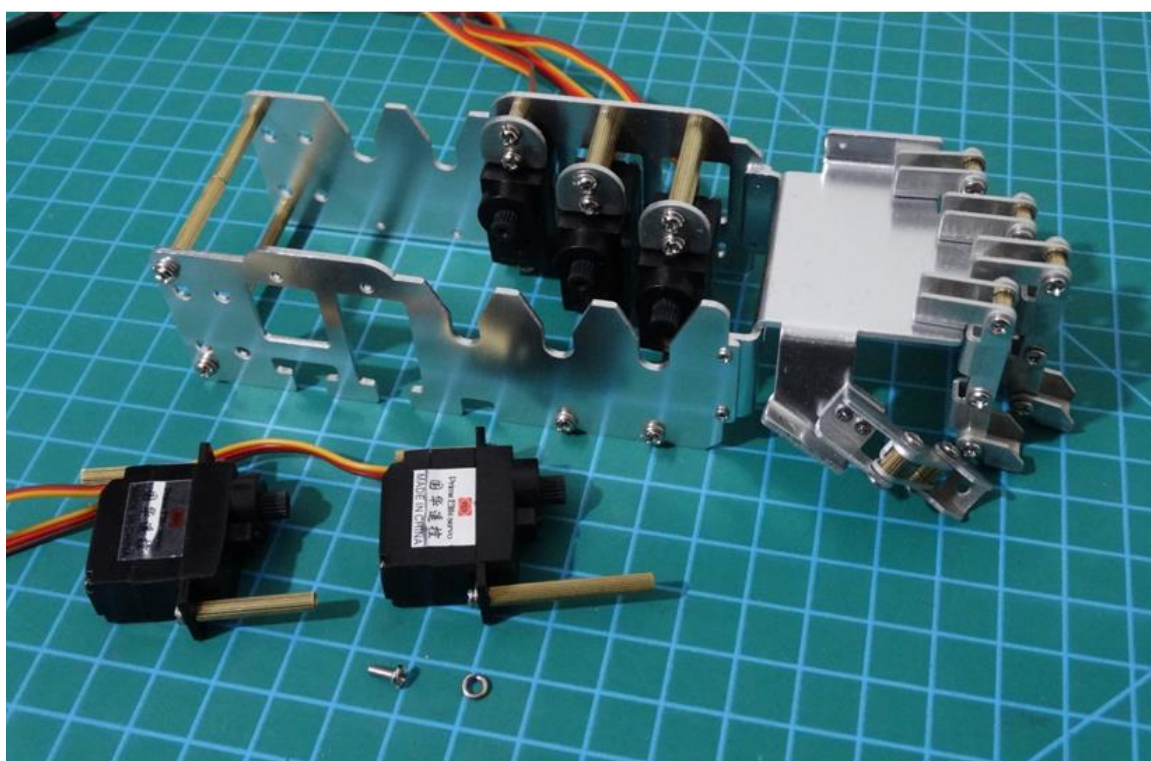
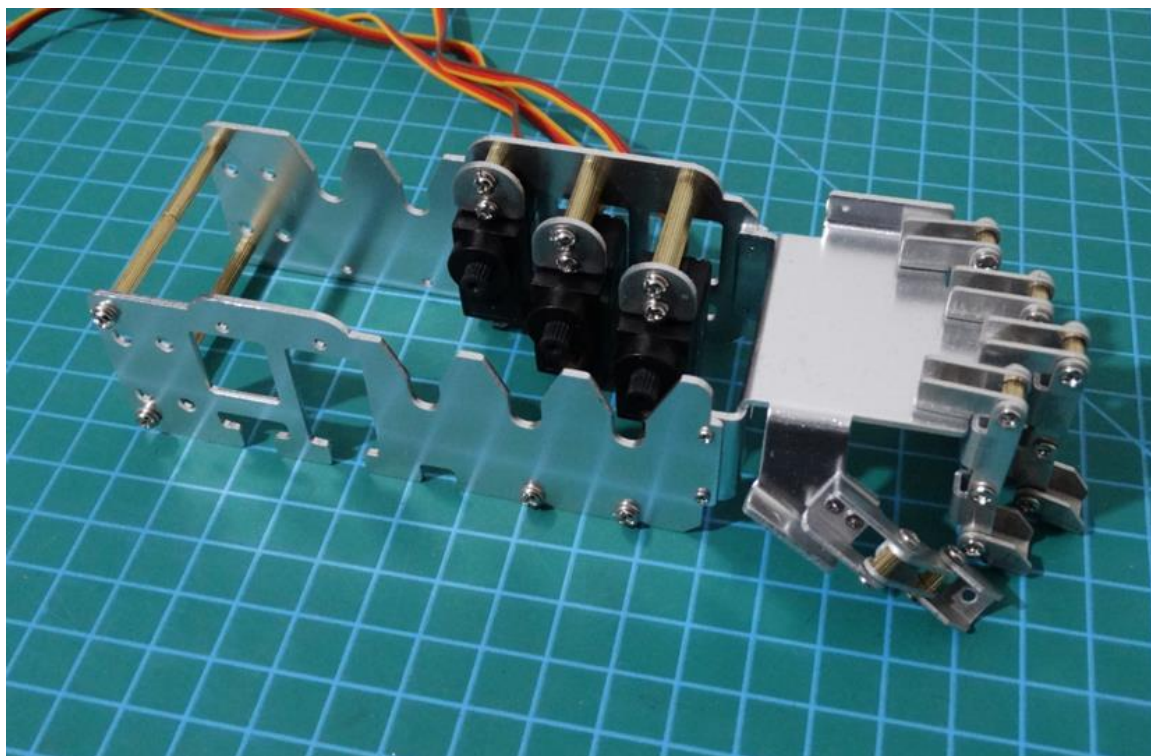
After the completion of the assembly can test the servos.

Note: If when debugging servo manual wrench arm easily stuck to the fixed, you can with steering gear tester or servo control board to control the steering gear to rotate, otherwise it is easy to sweep the tooth.

The overall installation of the **left hand**

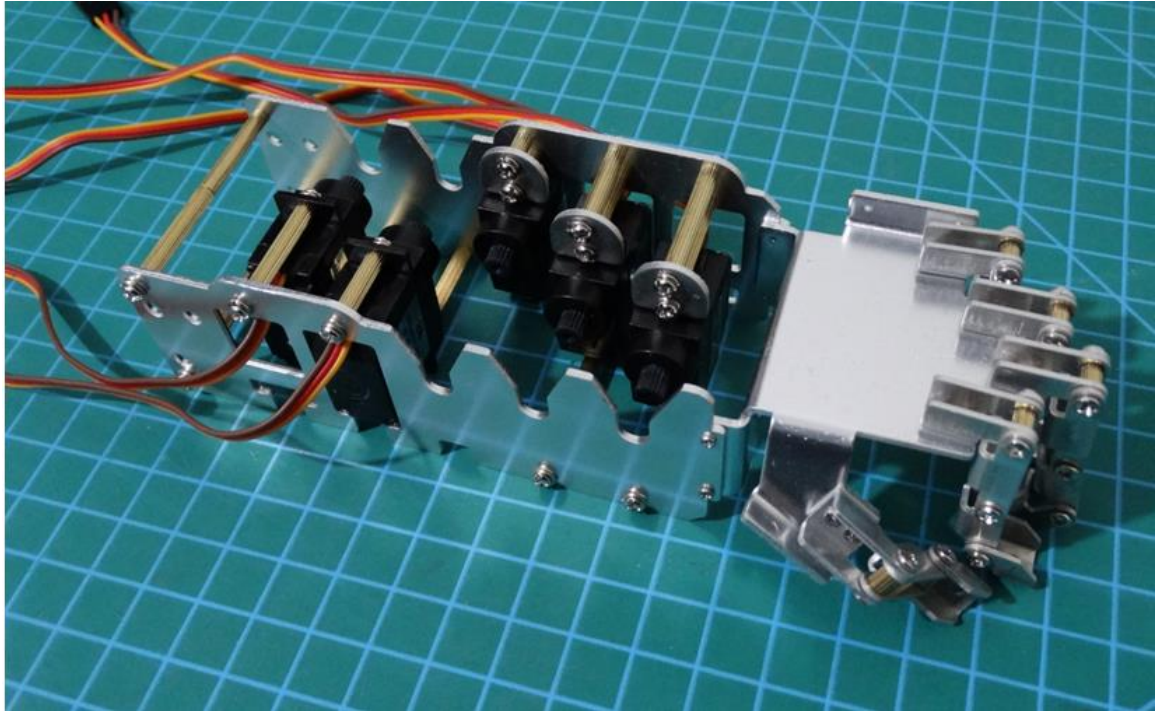


1. The left hand finger servo 1. 2. 3 is installed in the left arm in sequence, the use of M2\*5 screws, M2 spring pad.

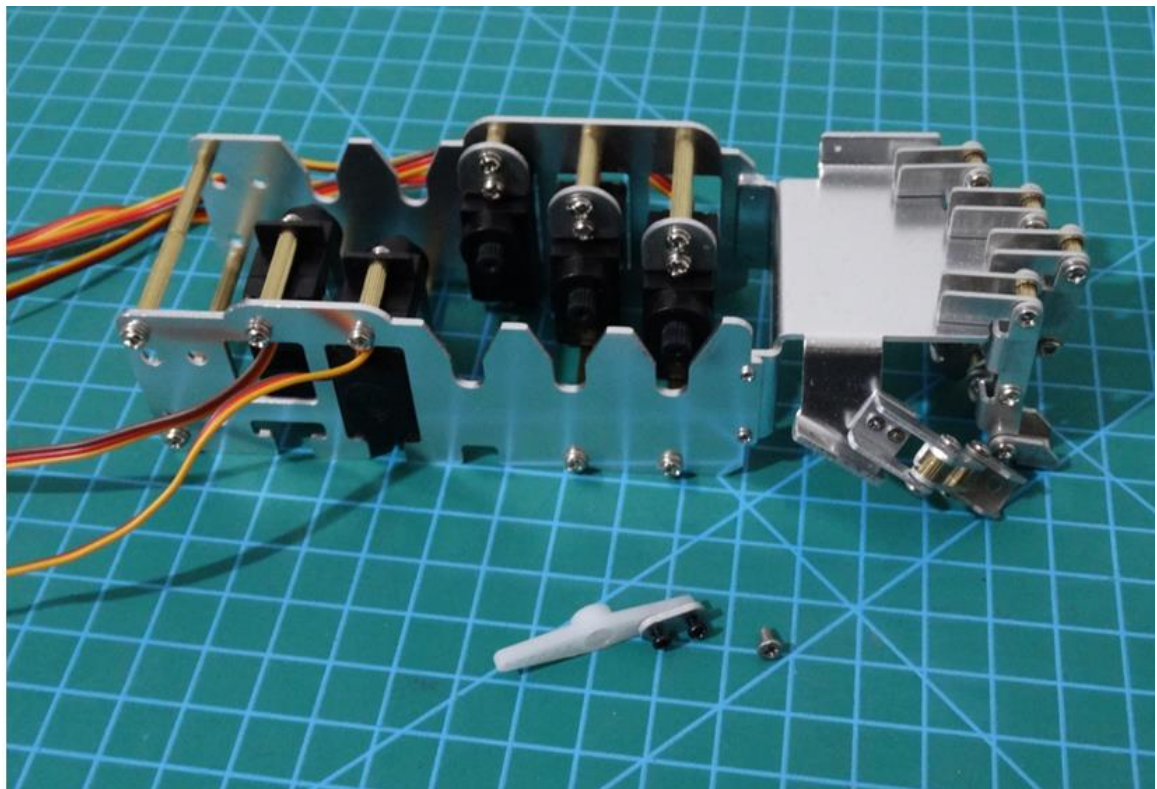


2. Installing the 4 and 5 finger steering gear on the left hand. Still use the M2\*5 screw and M2 spring pad

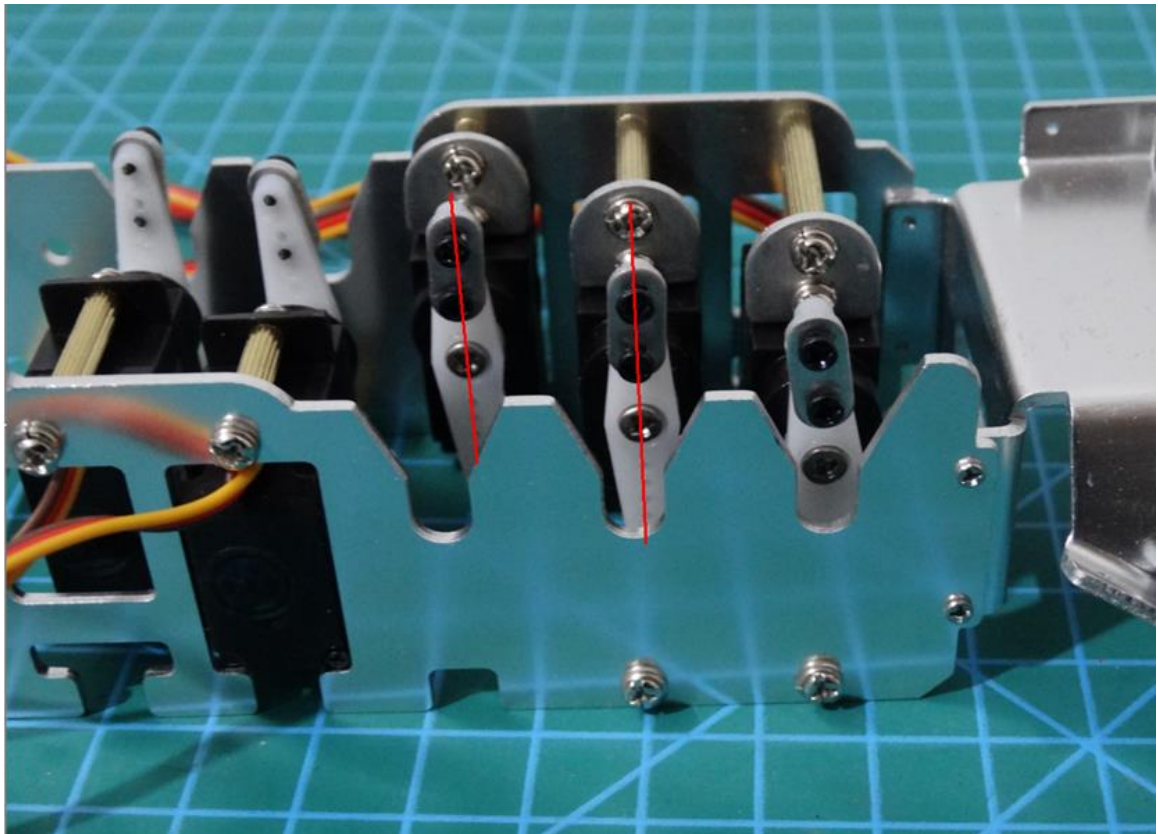




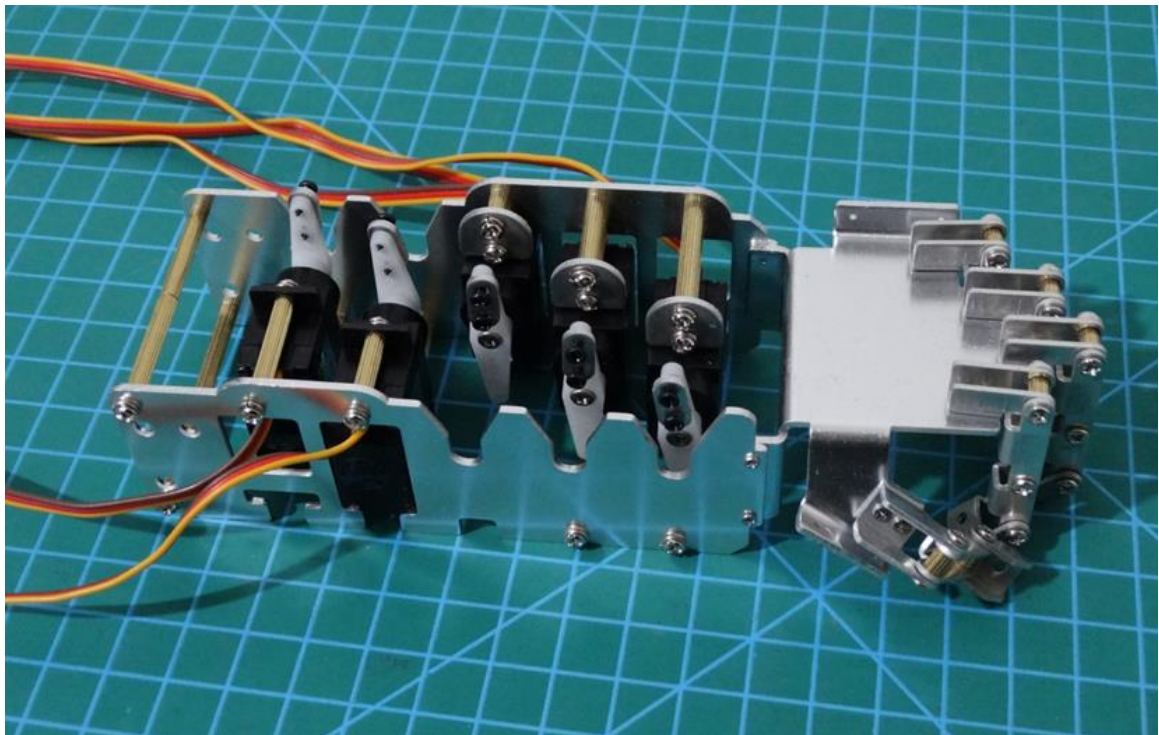
3. Remove rocker arm ,tie tape, and screw for mounting rocker arm



4. Remove the servo arm and the screw for the installation of it



5. Screw the rocker arm into the servo, press the rocker arm first, then screw the screws. Pay attention to the rocker arm to ensure that the red line as far as possible **in the same horizontal line**.

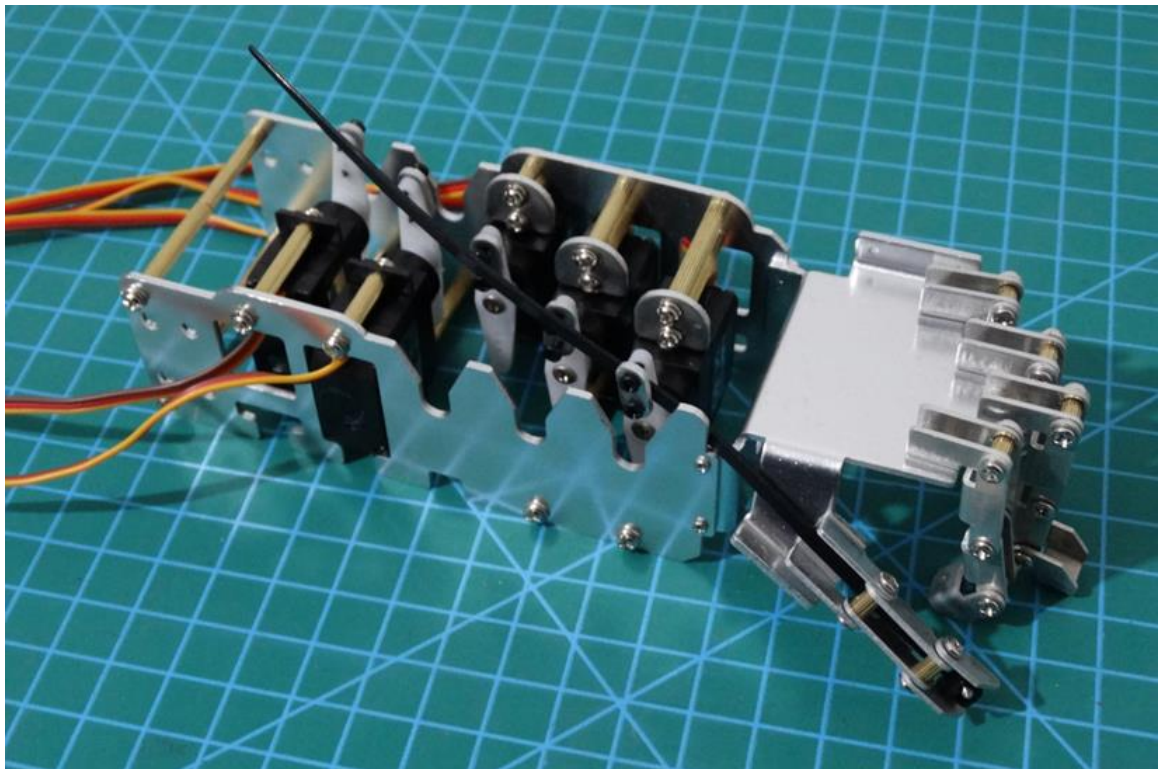




The same way as the 5 servos rocker. If you do not parallel the state of the screw into the rocker arm and turn the steering gear, you can first remove the rocker arm, then re-back the servo, and re install the rocker.

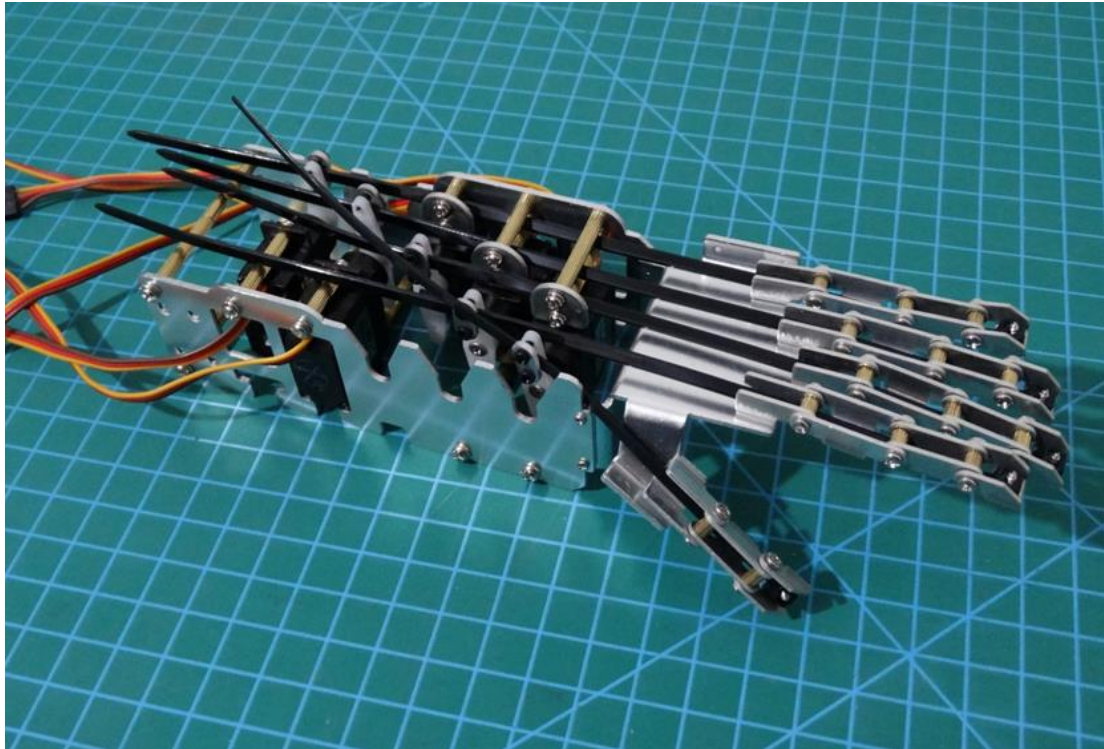


6. Take out the finger tie and M2\*6 self-tapping screw, put the tie into the finger, attention to the tie with 2 types, the big finger with a small tie. Screw in the head of the tie, note that the tie tooth face down to finger, face to the rocker arm.

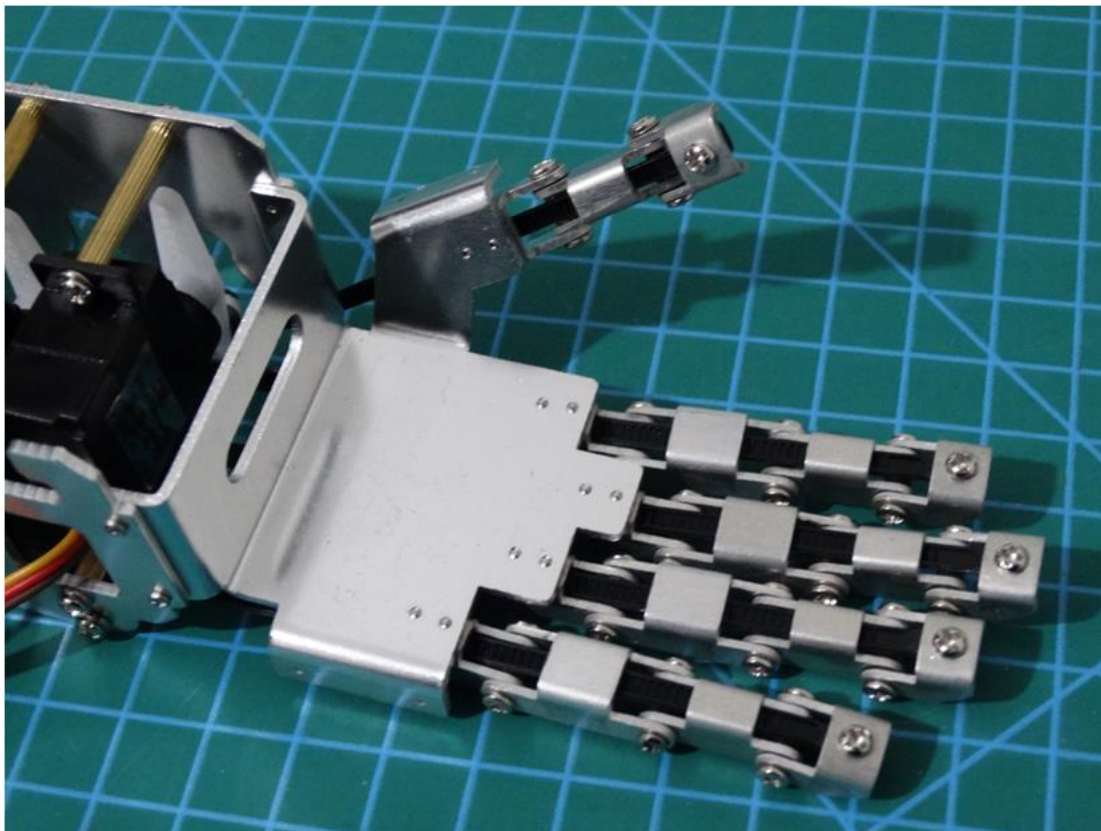


The self tapping screws are screwed into the head of the tie, and the tail of the tie is inserted between the rocker arm and the tie tape.

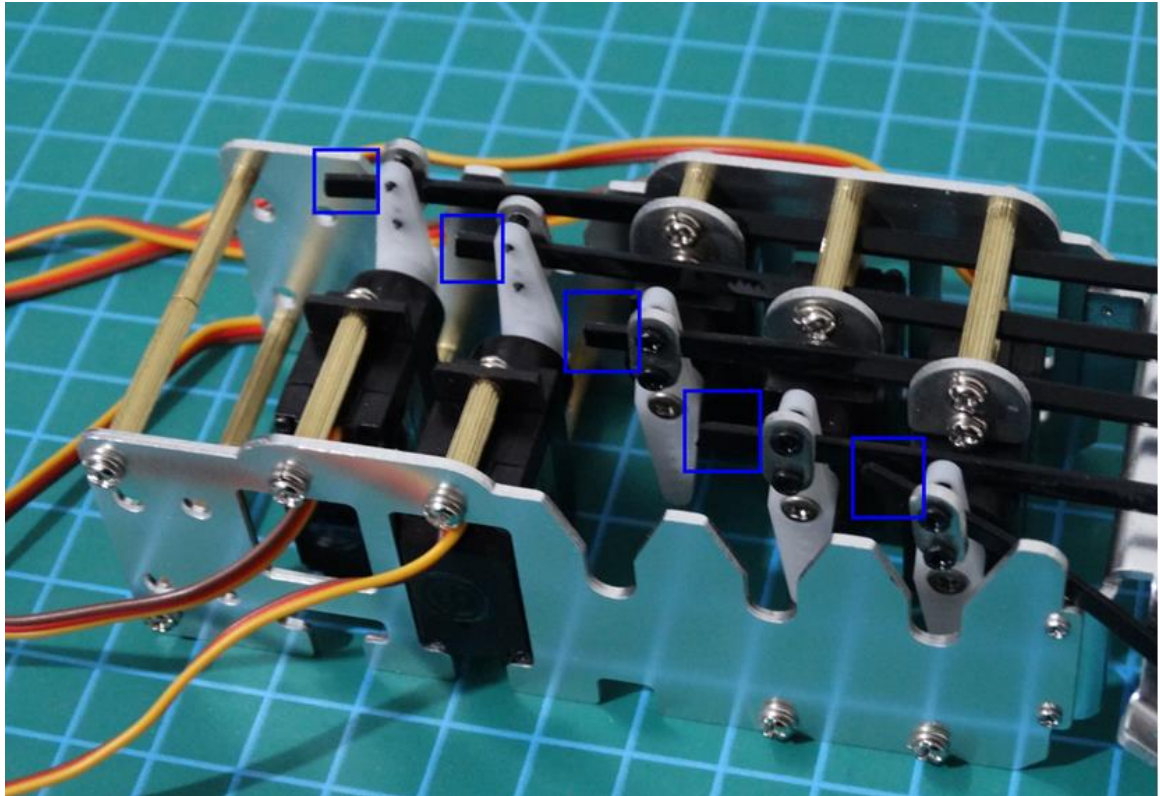
7. Remove the big tie, the other 4 fingers are all used with them. Self tapping screws using M2\*6



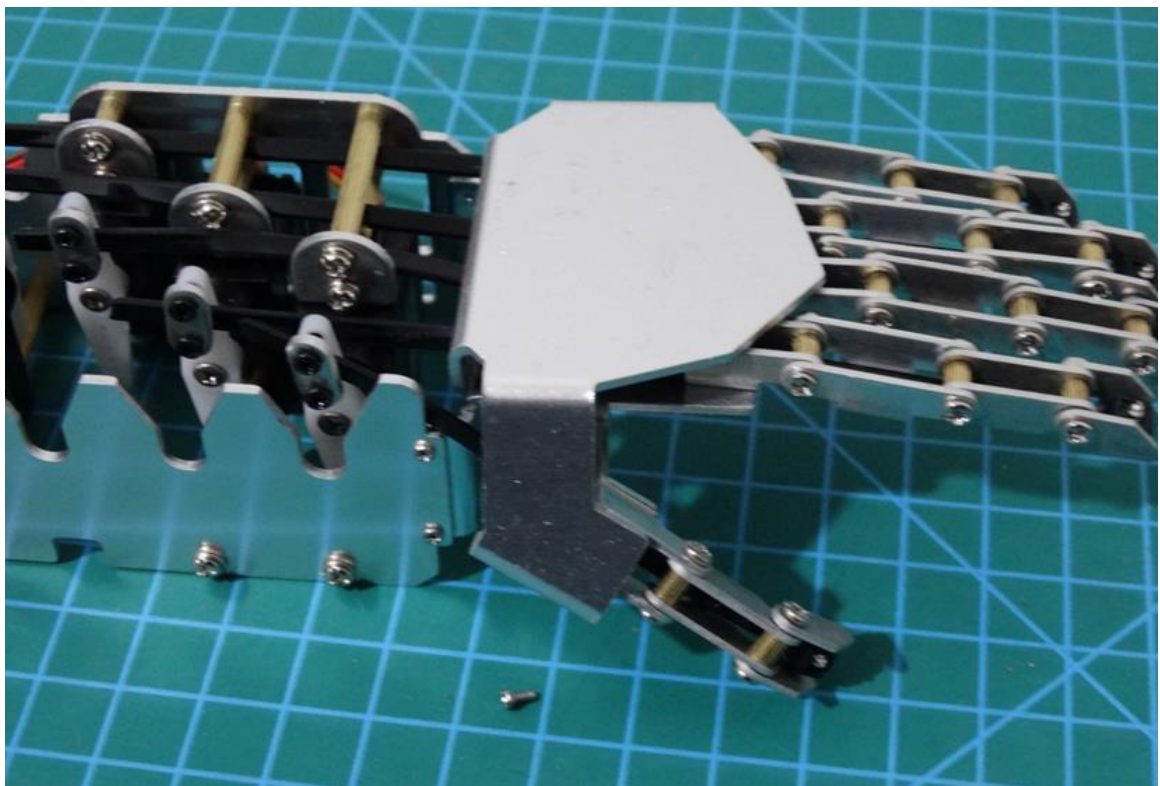
Screw all the ties into your fingers. Tie tail into the tie plate and the rocker arm. The tie teeth face to the rocker arm.





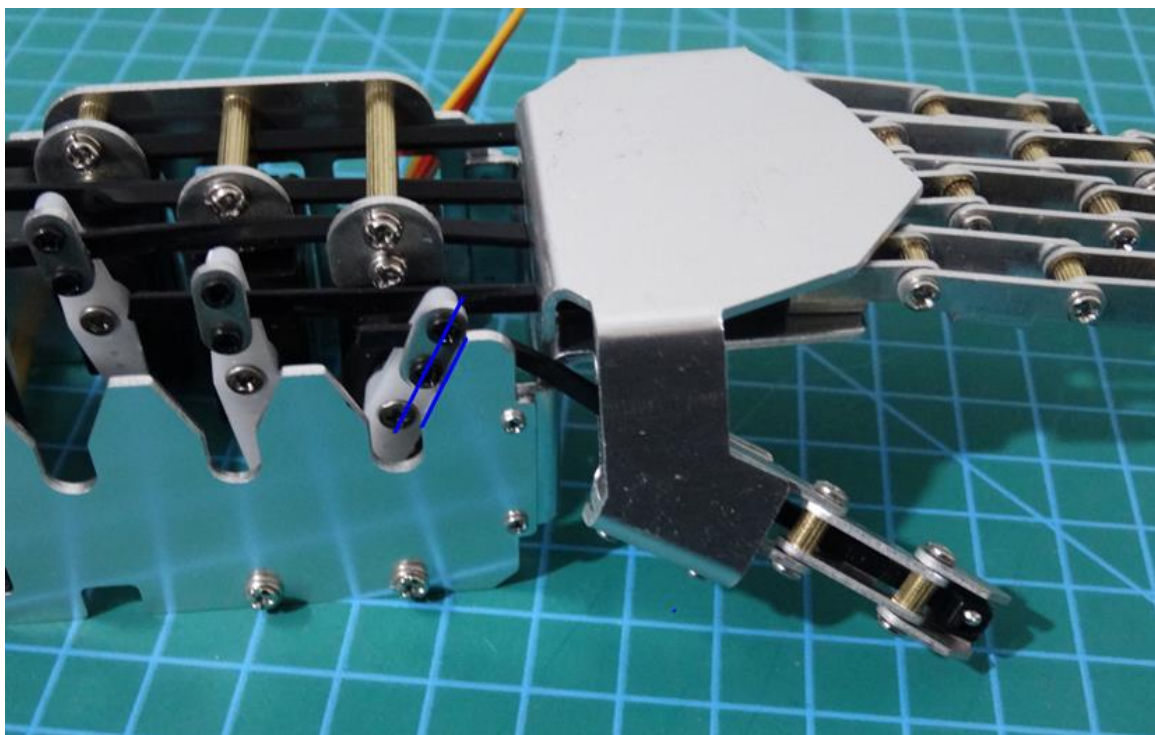
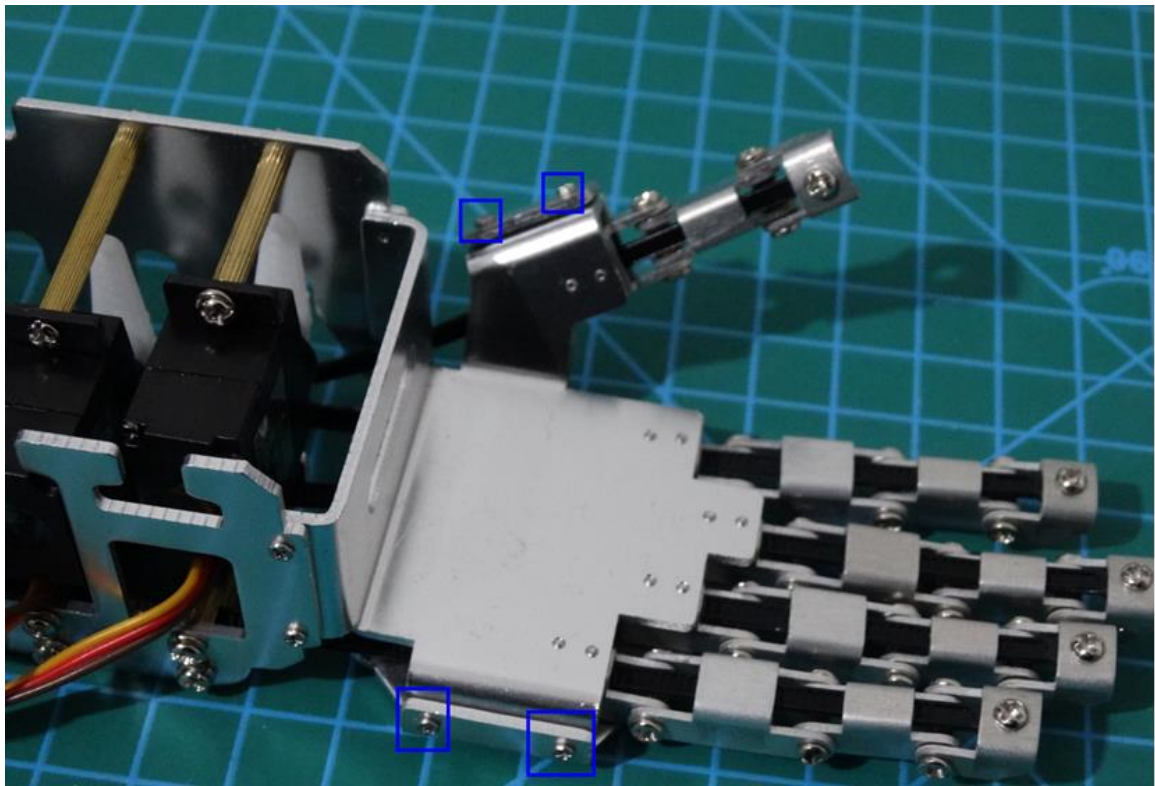


8. Cut off the extra tie and leave the length of about 1CM.



9. Take out the back of the hand, use 4\* M1.4\*3 stainless steel screw, the screw is screwed into as self-tapping screw. Note here the first a left

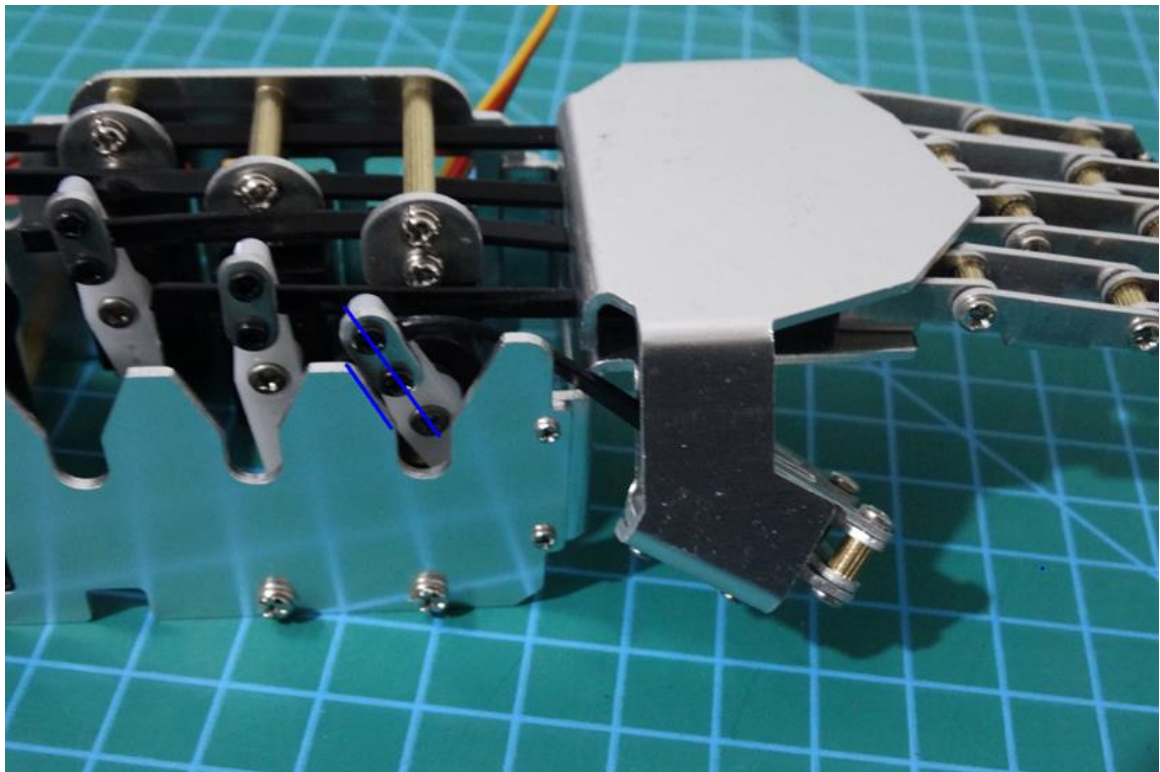
and a right screw, do not tighten. Then on the other 2 screws, 4 screws are screwed into the palm of the hand, and finally in turn tightening screws fixed back of the hand.



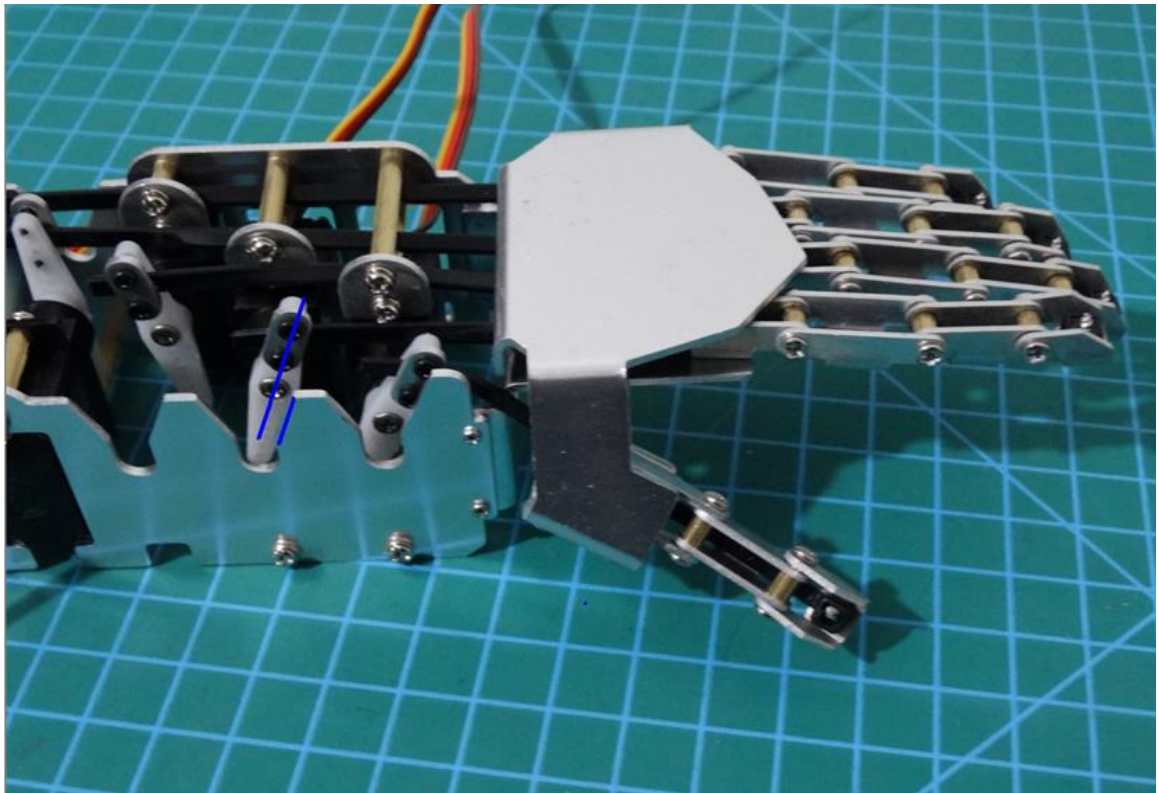


10. Adjust the strap, you' d better to use the steering gear control panel to debug the steering gear. Do not use hand to direct pull the rocker arm, easy to damage the steering gear.

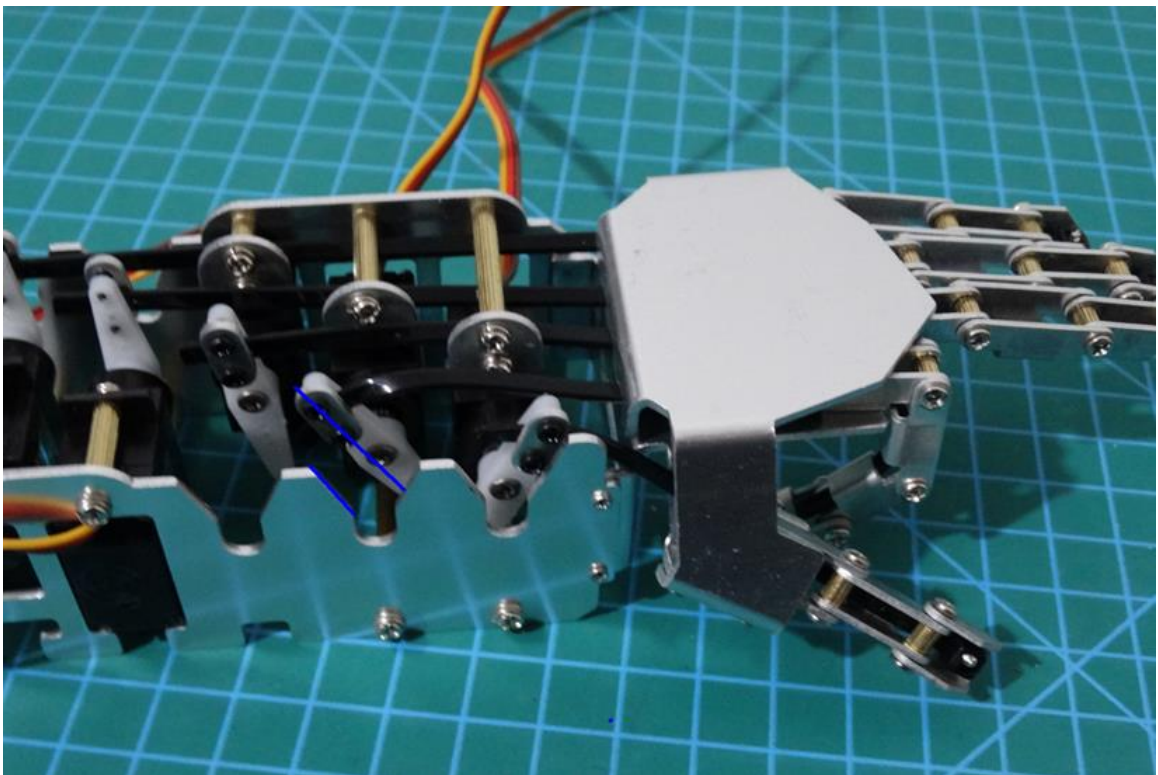
When the rocker push forward, the 2 blue lines in the picture to keep parallel when the big finger **slightly upturned**, tighten the M1.7 black fixed screw.



When the steering wheel pulls back is the same way, the 2 blue lines in the picture to keep parallel. And cut off the extra tie to remain 0.5cm.



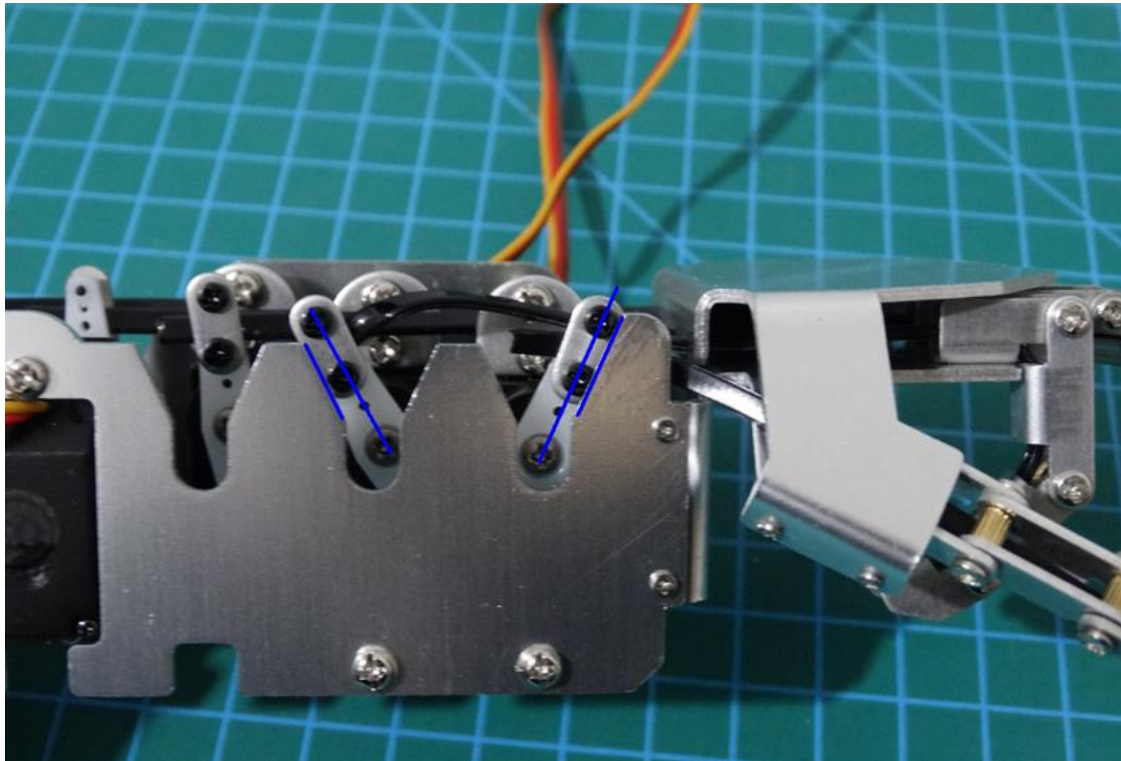
11. The other 4 fingers is similarly, as shown, after the length of the tie is adjusted, tighten the black fastening screws



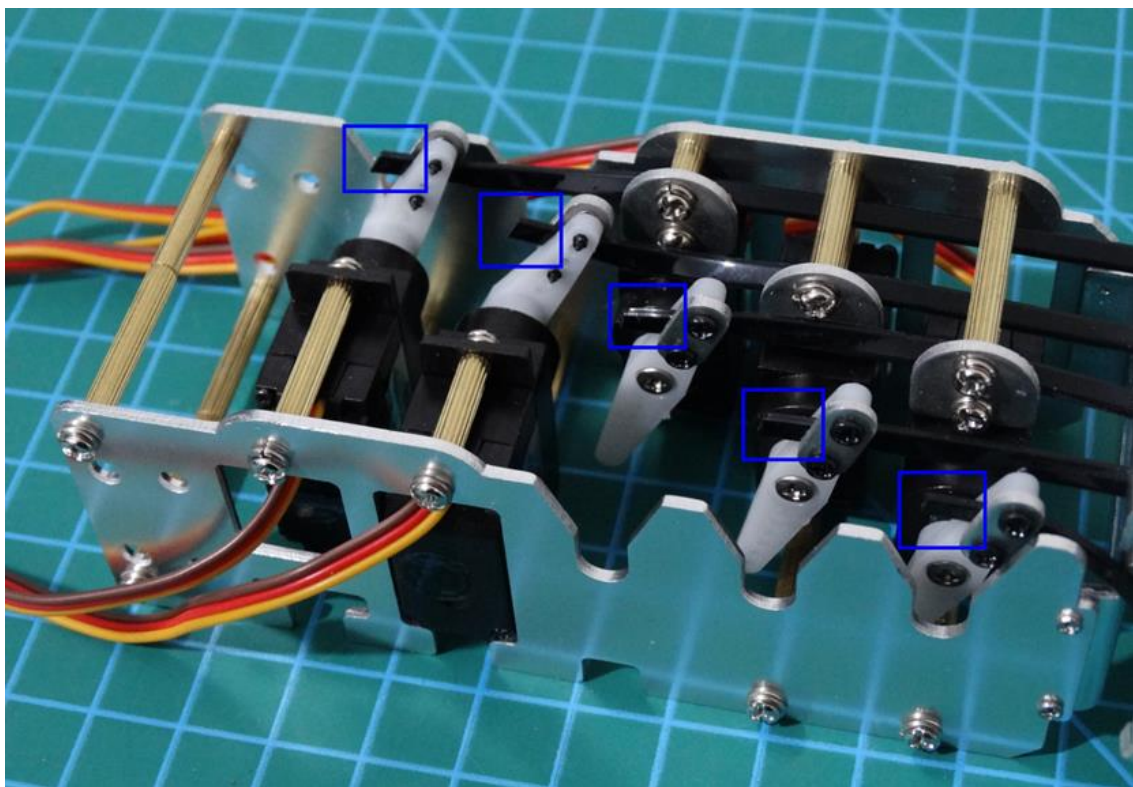
Let the rocker arm parallel to the edge of the slope, here is the maximum stroke of the steering gear, when the finger slightly upturned.



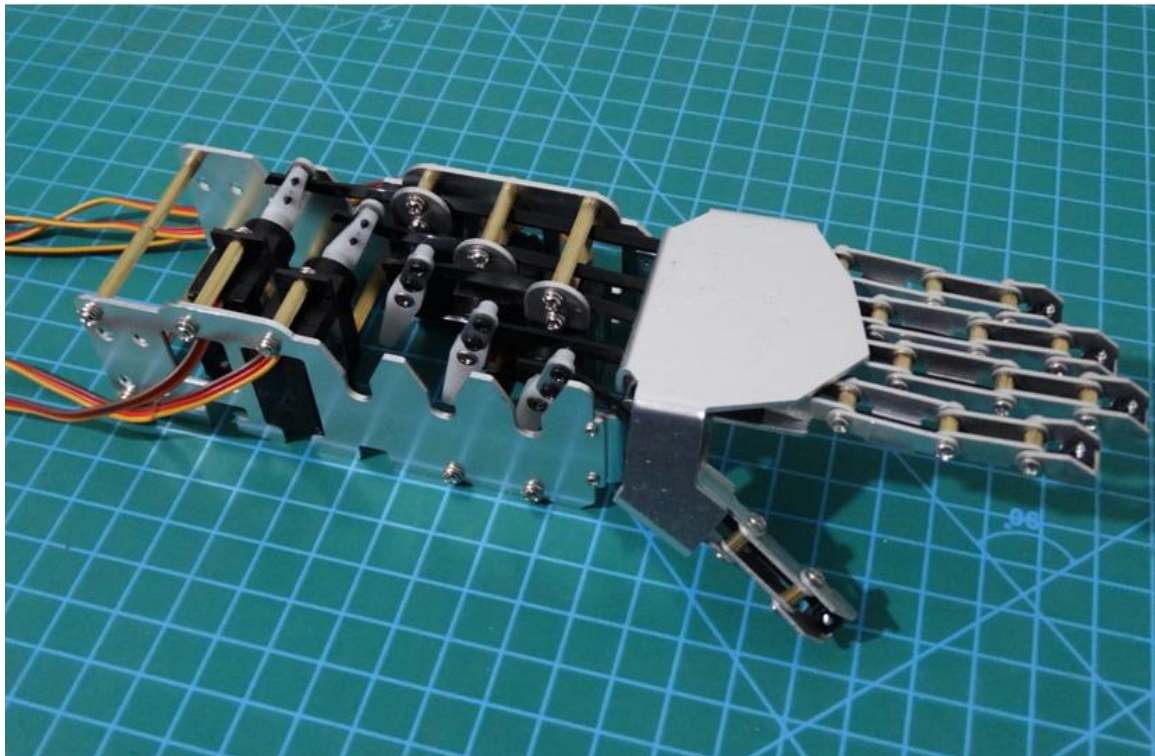
Then pull back. After the adjustment to cut off the extra band, Reservation length of about 0.5CM



12. In order to adjust the 5 servo.



13. Cut short the tie, can retain 5MM. Complete installation.

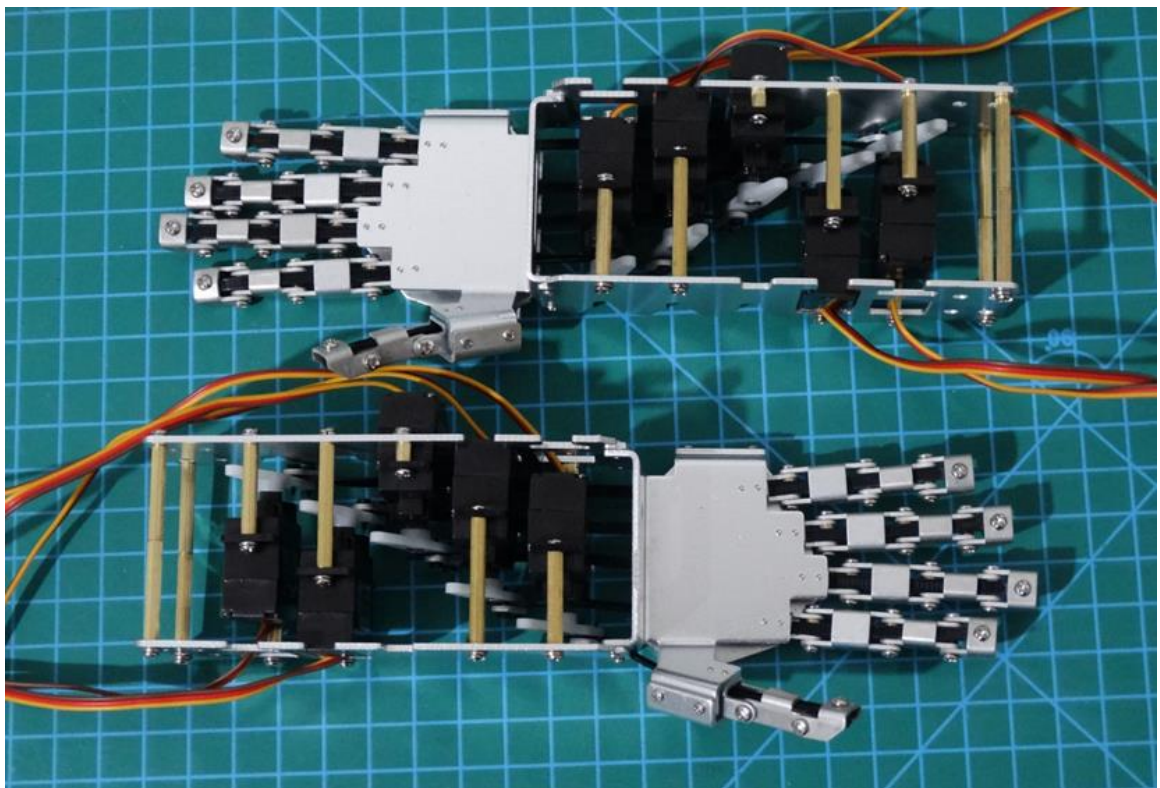
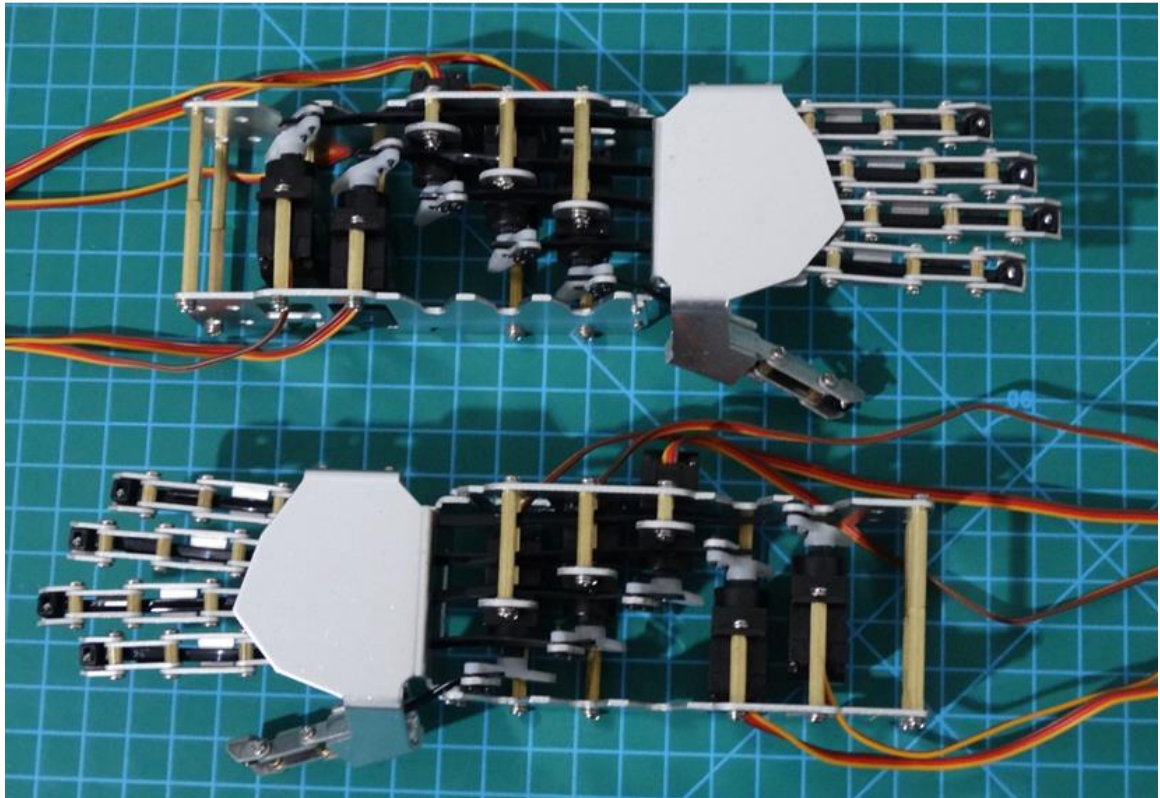


After the completion of the assembly can test the servos.

Note: If when debugging servo manual wrench arm easily stuck to the fixed, you can with steering gear tester or servo control board to control the servo to rotate, otherwise it is easy to broken.

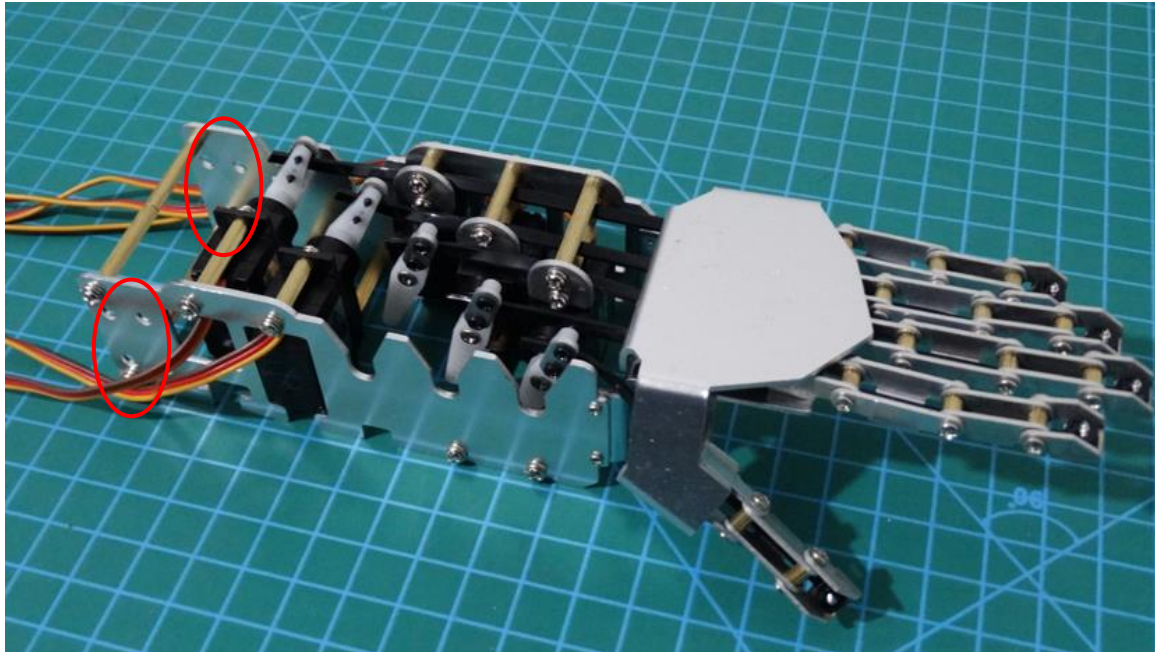


## F:NOTE



1. When the final use of robot fingers, do not let the small rudder in the maximum or minimum position long time, that is the two states of the

fingers holding and straight, and always pay attention to the heat of the small steering gear. If the heat is too hot, let the small steering gear back to the middle position, or stop working. Let the servo cooling and readjust the length of the belt.



2. Note that the rear left and right of the 4 M2.5 screw holes, is used to extend the use of the servo, generally do not use. If use, set into the robot servo, and use four pieces of M2X6 countersunk head screw tapping.

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