

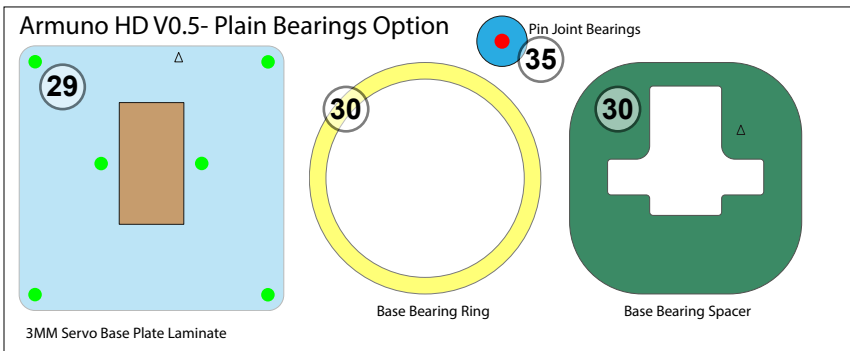
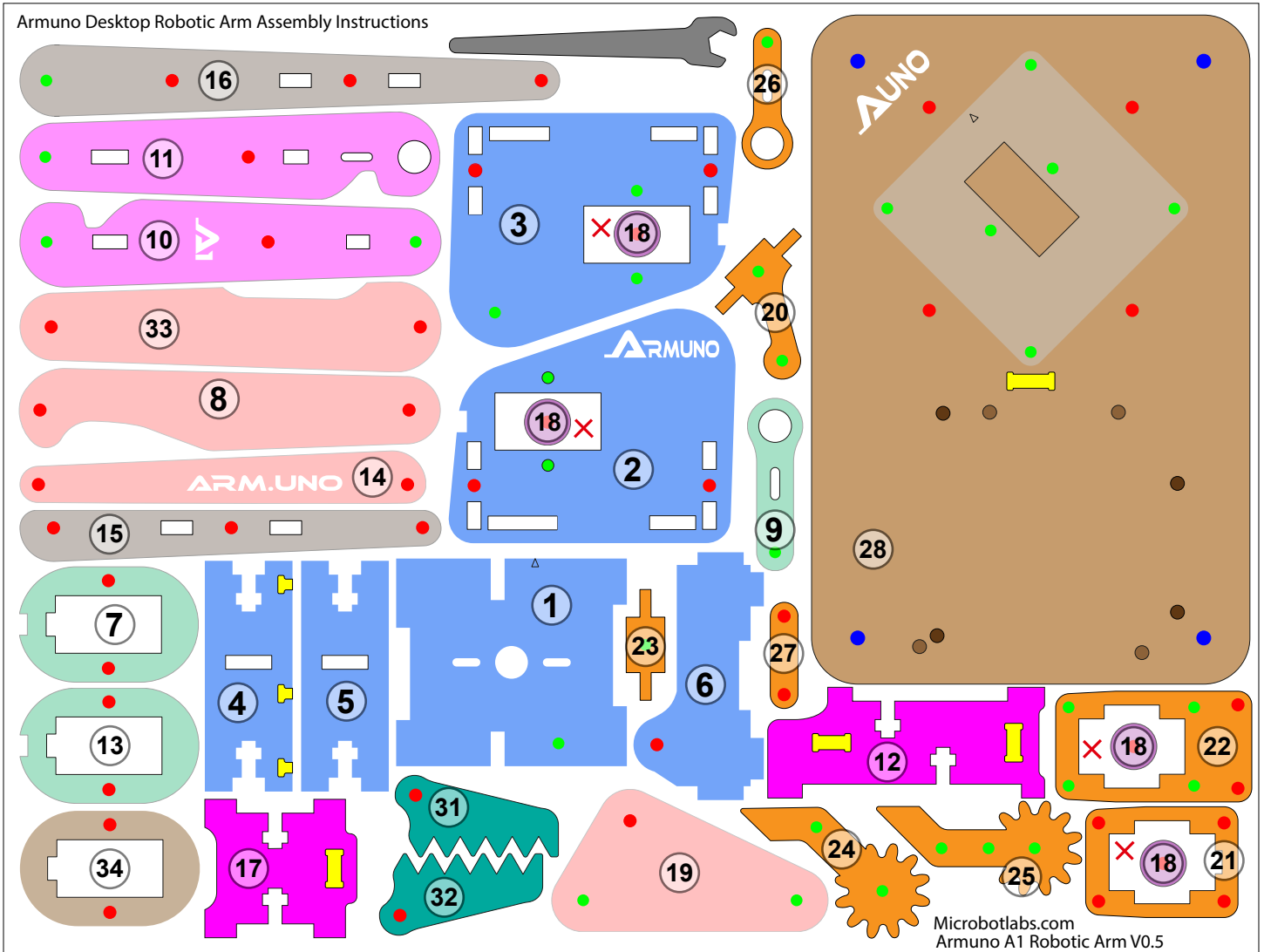
## ARMUNO DESKTOP ROBOTIC ARM

**!** THIS INSTRUCTION MANUAL IS A WORK IN PROGRESS.  
WE ARE UPDATING IT EVERY FEW DAYS  
WITH THE LATEST VERSION.  
PLEASE VISIT [WWW.MICROBOTLABS.COM](http://WWW.MICROBOTLABS.COM)  
FOR THE LATEST UPDATE  
Ver 0.5-7/22/15



# ARMUNO DESKTOP ROBOTIC ARM

## QUICK REFERENCE STRUCTURAL PARTS CHEAT SHEET




12ea - M3 Nut 

11ea - M3 x 6 

10ea - M3 x 8 

11ea - M3 x 10 

1ea - M3 x 12 

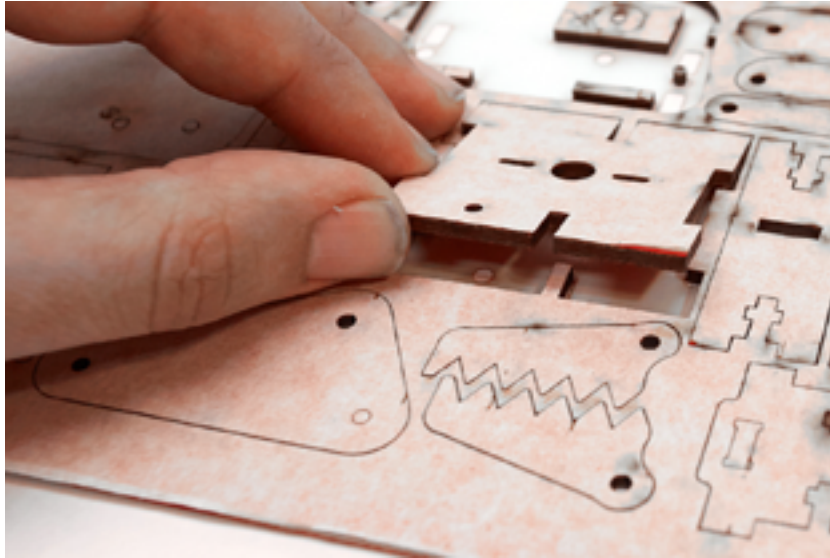
4ea - M3 x 20 

- Base turret
- Arm Link 1 beams
- Side servo mounts and links
- Self threading bolt holes
- Base servo plate and mount
- Parallel links
- Arm beam webbing
- Thru bolt holes
- Claw assembly
- Arm Link 2 beams
- Spacers
- Base mounting plate
- Alt jaws

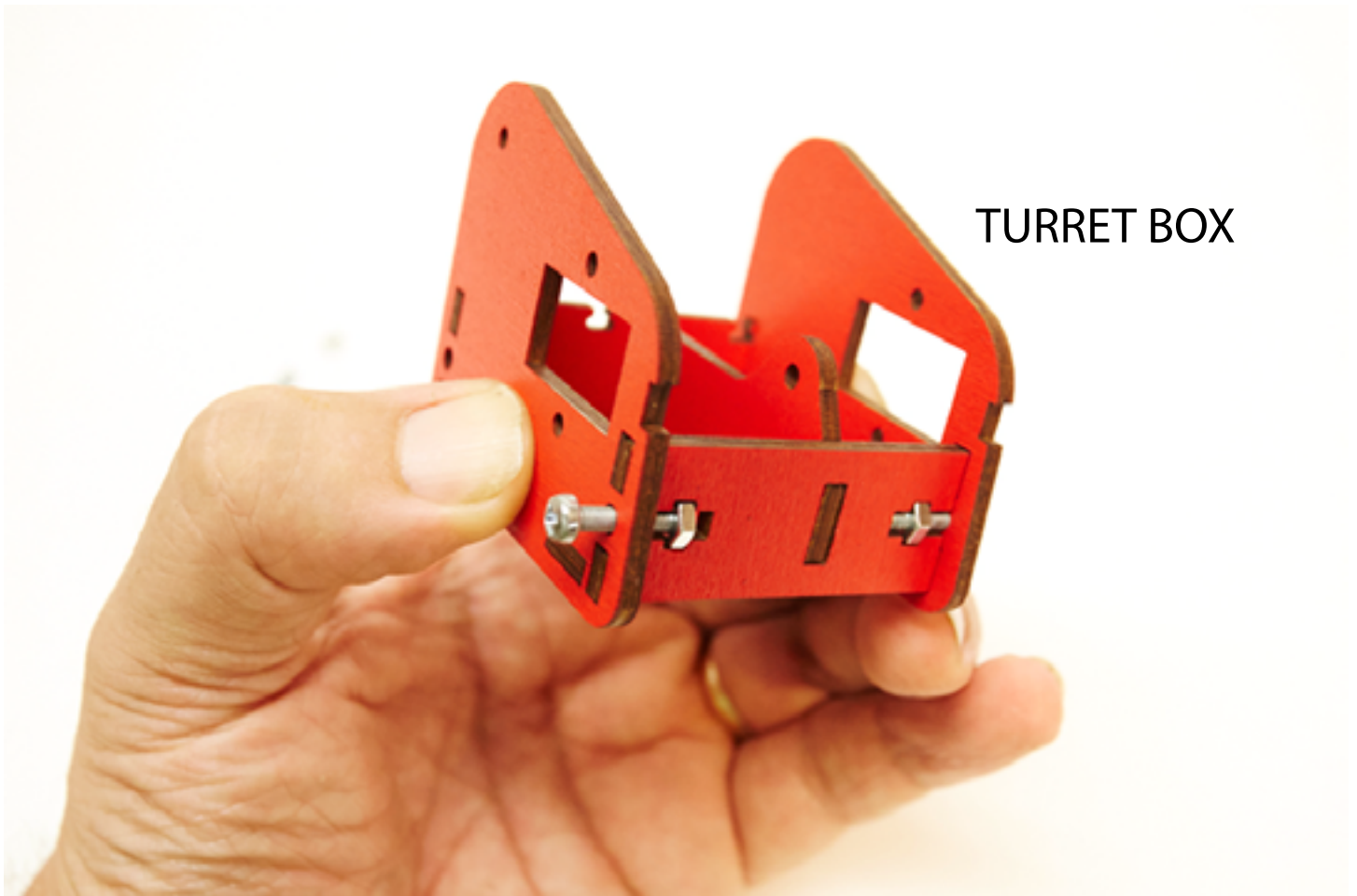
Here is a reference drawing of the basic structural parts for the *Armuno Desktop Robotic Arm*. the parts have been color coded and numbered to assist in identifying them.

# ARMUNO DESKTOP ROBOTIC ARM

## THE FLAT PACK KIT



The Armuno's structural parts are laser cut . They arrive in flat pack form and are covered with protective masking. It is recommended that you only remove the parts required to complete the current sub assembly as shown in the following pages. This will help you keep track of and not loose any of the many small parts. Remember to peel off the masking before building your kit.



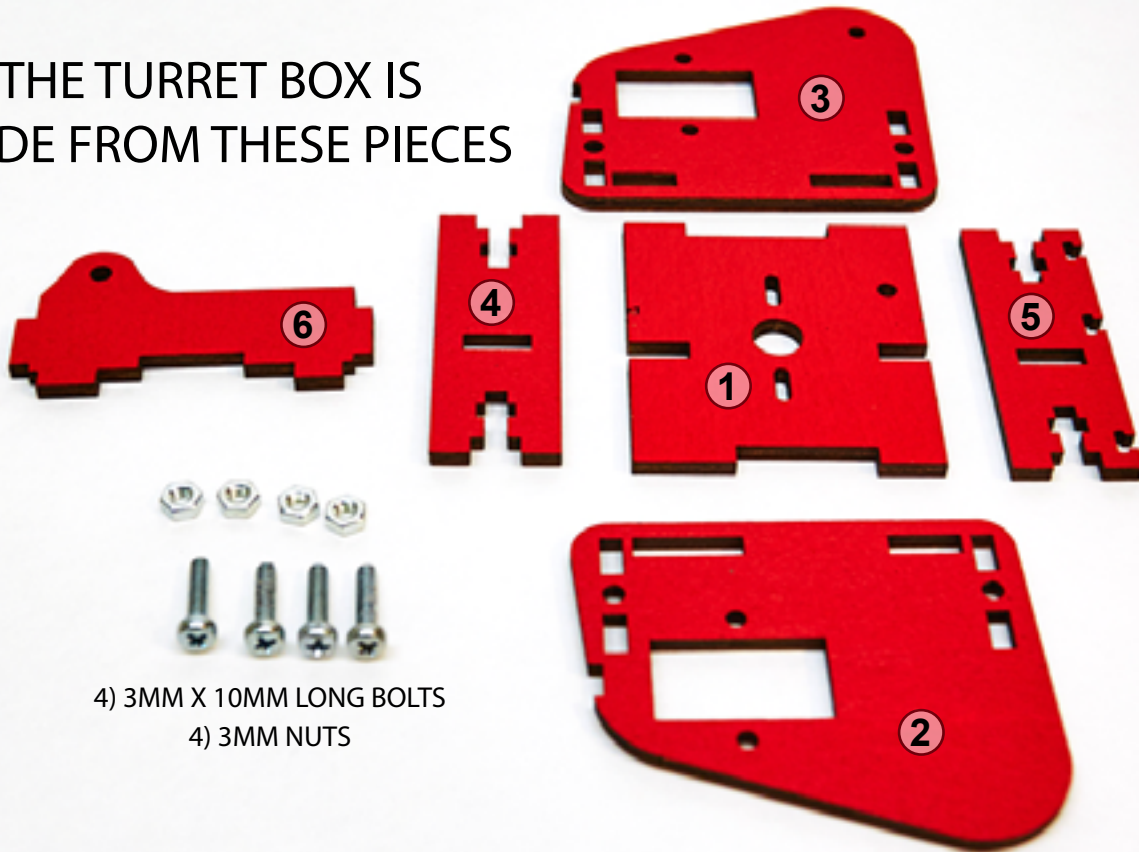
TURRET BOX

The build begins by assembling several sub assemblies. this makes it easier to visualize the arm structure by limiting the number of parts we have to deal with and giving us a fairly recognizable part of the arm when were done with its assembly. Lets start with the turret box sub assembly.

# ARMUNO DESKTOP ROBOTIC ARM

## TURRET BOX FRAME - SUB ASSY#1

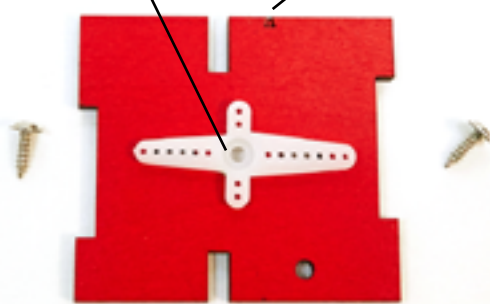
THE TURRET BOX IS  
MADE FROM THESE PIECES



4) 3MM X 10MM LONG BOLTS

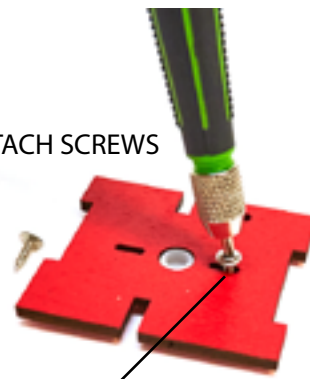
4) 3MM NUTS

SERVO HORN      ETCHED ARROW HEAD



SERVO HORN ORIENTATION

FLIP OVER AND ATTACH SCREWS



POSITION SCREW TOWARDS THE OUTER LIMIT OF THE SLOT

First attach a double sided servo horn with the small screws that come with the servo motors. Pay attention to the orientation of the parts. note the small arrow head etched onto the part that points toward the front of the arm. Position the servo horn as shown and then flip the two parts over and attach the two small screws. Always position the screws midway or more away from the servo horn center hub. This prevents possible interference with the screw heads with some servo motor cases.

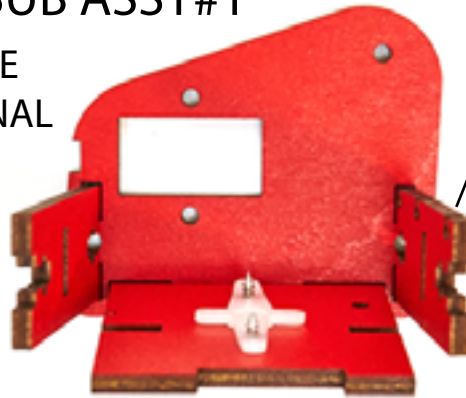
# ARMUNO DESKTOP ROBOTIC ARM

## TURRET BOX FRAME - SUB ASSY#1

LAY DOWN THE TURRET BOX SIDE  
AND START FITTING THE ADDITIONAL  
PIECES AS SHOWN



FRONT

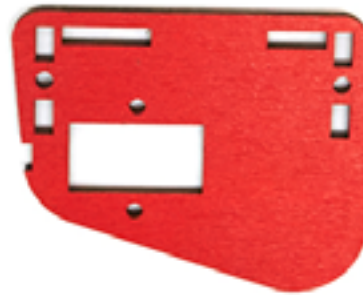


CABLE CUTOUTS ON TOP

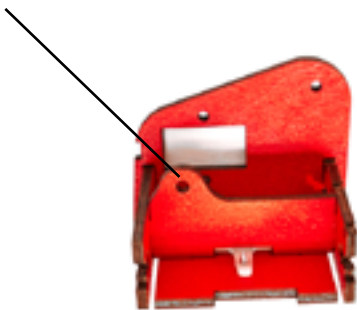
BACK



IF SLOTS ARE NOT LINING UP  
DOUBLE CHECK THAT THE PART IS  
ORIENTATED AS SHOWN. DO NOT  
INSTALL THE NUTS AND BOLTS YET.



INSTALL THE CENTER STRUT AS SHOWN



WITH THE LAST SIDE INSTALLED WE JUST NEED  
TO ATTACH THE BOLTS AND NUTS.

# ARMUNO DESKTOP ROBOTIC ARM

## TURRET BOX FRAME - SUB ASSY#1

WITH THE LAST SIDE INSTALLED WE JUST NEED TO ATTACH THE BOLTS AND NUTS.

FRONT

BACK

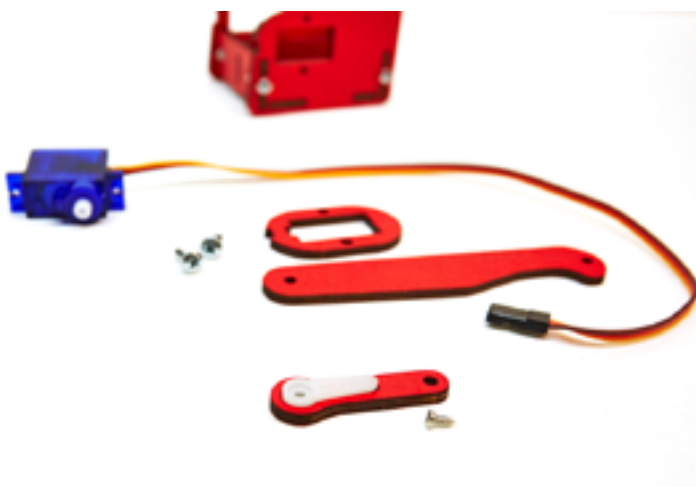
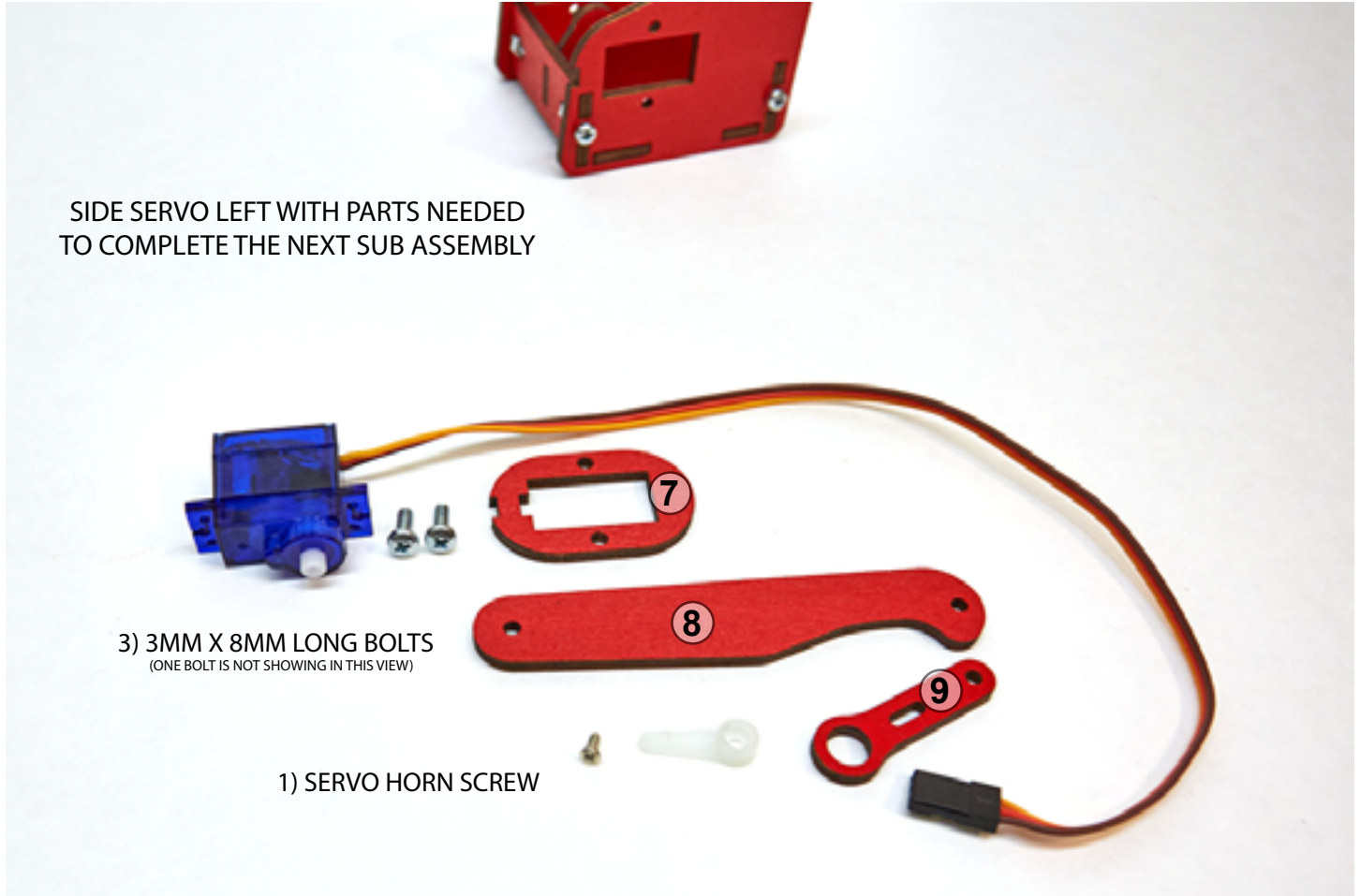
- 4) 3MM X 10MM LONG BOLTS
- 4) 3MM NUTS



# ARMUNO DESKTOP ROBOTIC ARM

## LEFT SIDE SERVO - SUB ASSY#2

SIDE SERVO LEFT WITH PARTS NEEDED  
TO COMPLETE THE NEXT SUB ASSEMBLY



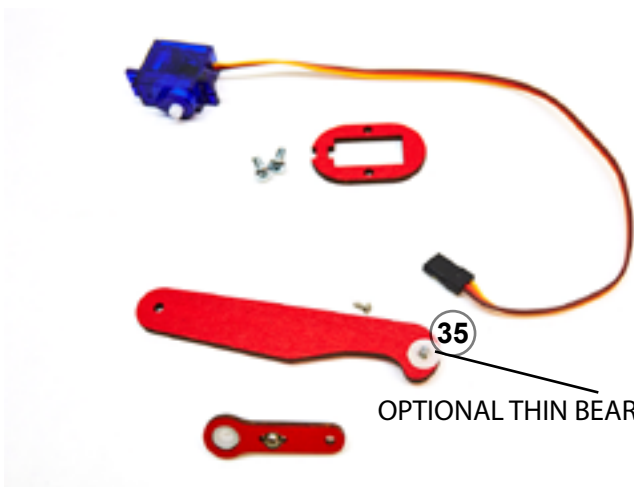
Place servo horn hub into matching  
hole on servo motor link.



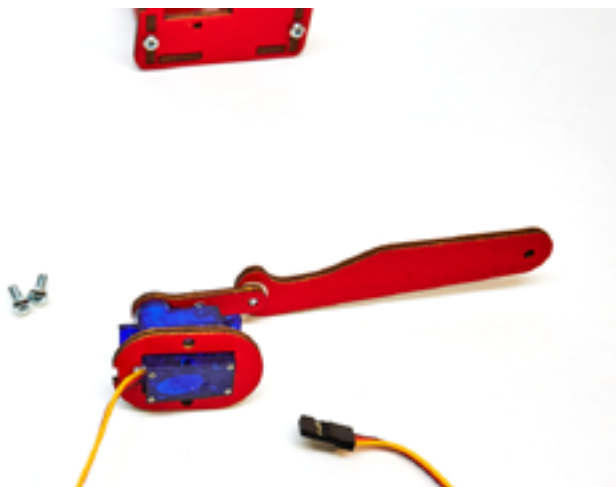
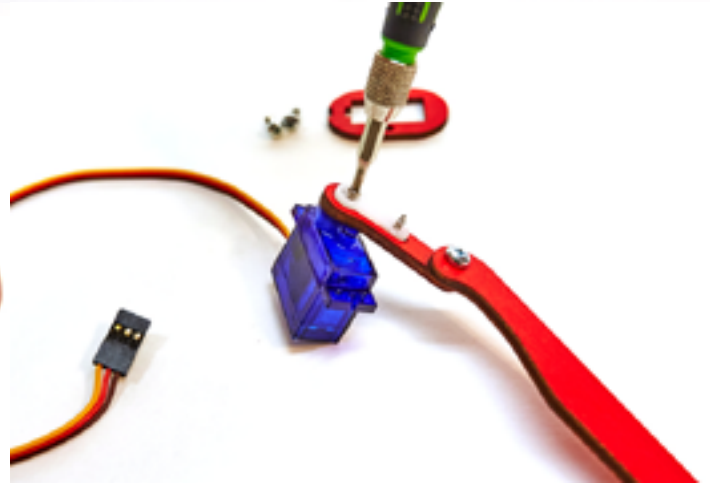
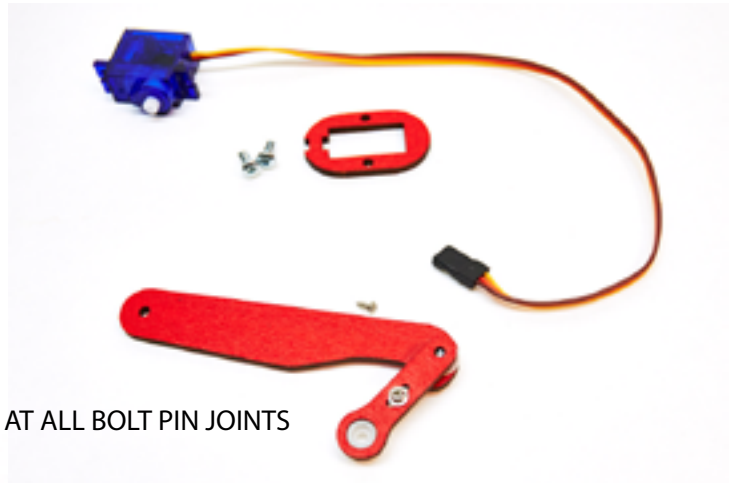
Flip the two pieces over and again attach  
the servo horn screw toward the out most limit  
to avoid possible servo case clearance problems.

# ARMUNO DESKTOP ROBOTIC ARM

## LEFT SIDE SERVO - SUB ASSY#2



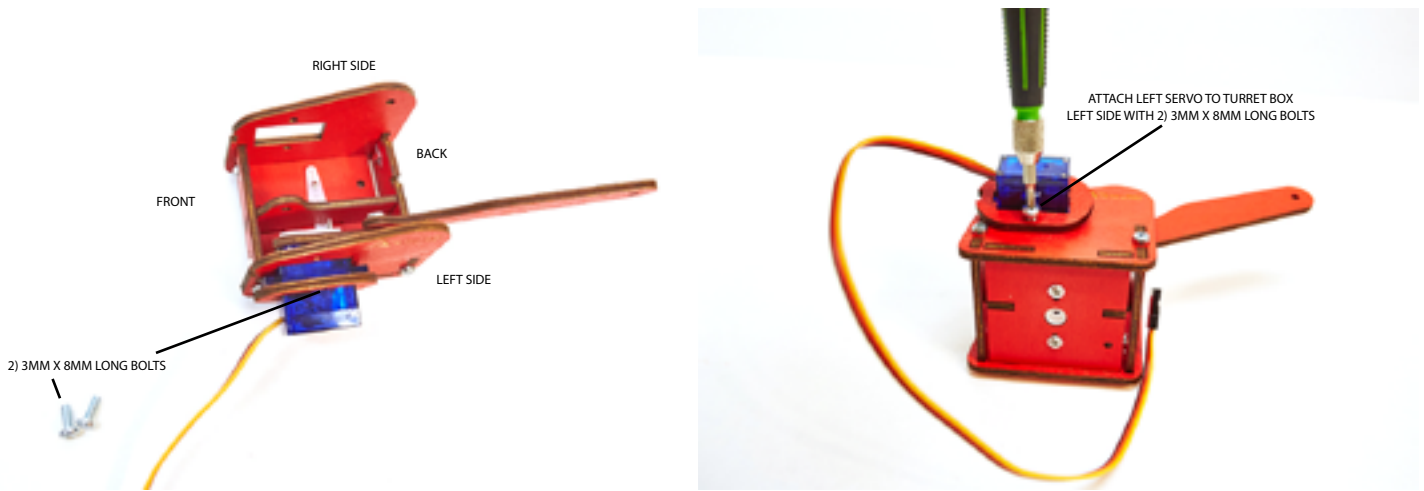
OPTIONAL THIN BEARINGS AT ALL BOLT PIN JOINTS



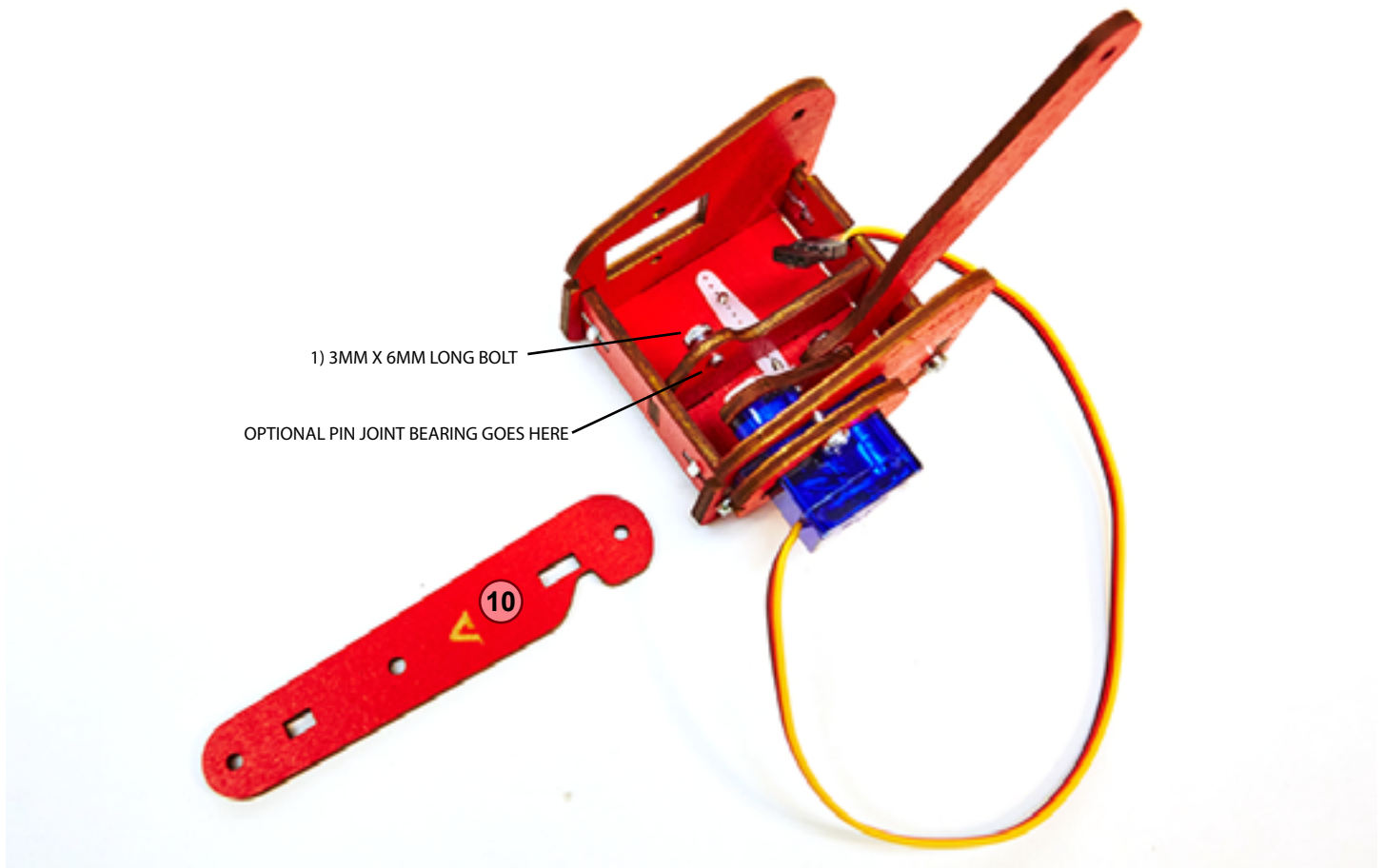


# ARMUNO DESKTOP ROBOTIC ARM

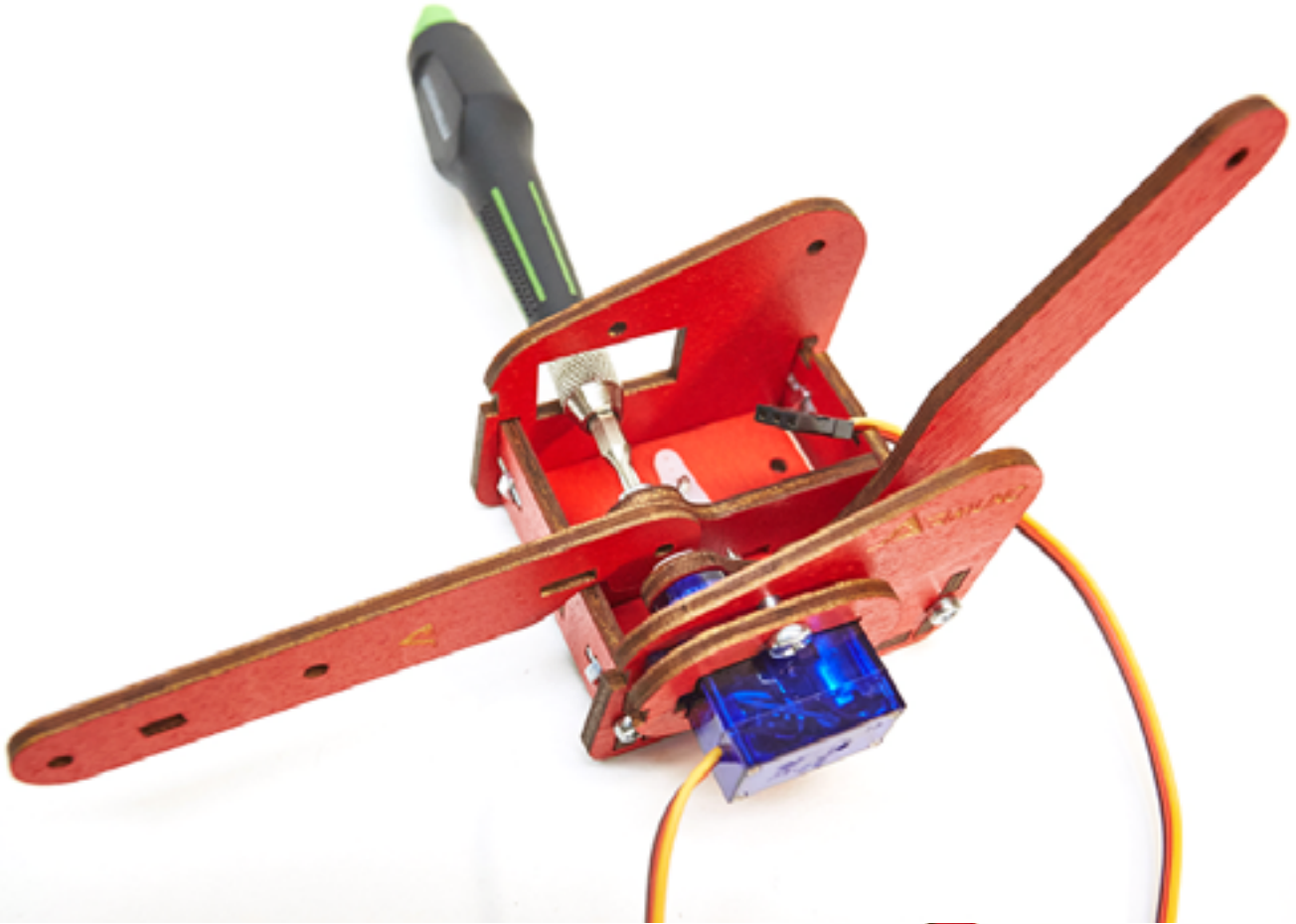
## ATTACHING LEFT SERVO (SUB ASSY#2) TO TURRET BOX (SUB ASSY #1)



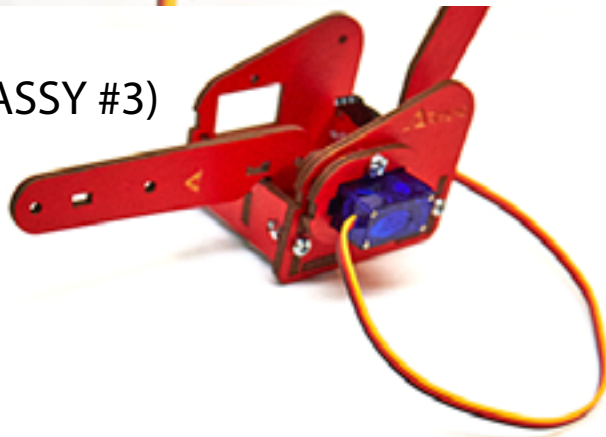
## ATTACHING CENTER ARM BEAM SIDE 1 TO TURRET BOX (SUB ASSY #1)



# ARMUNO DESKTOP ROBOTIC ARM



RIGHT SIDE SERVO - (SUB ASSY #3)

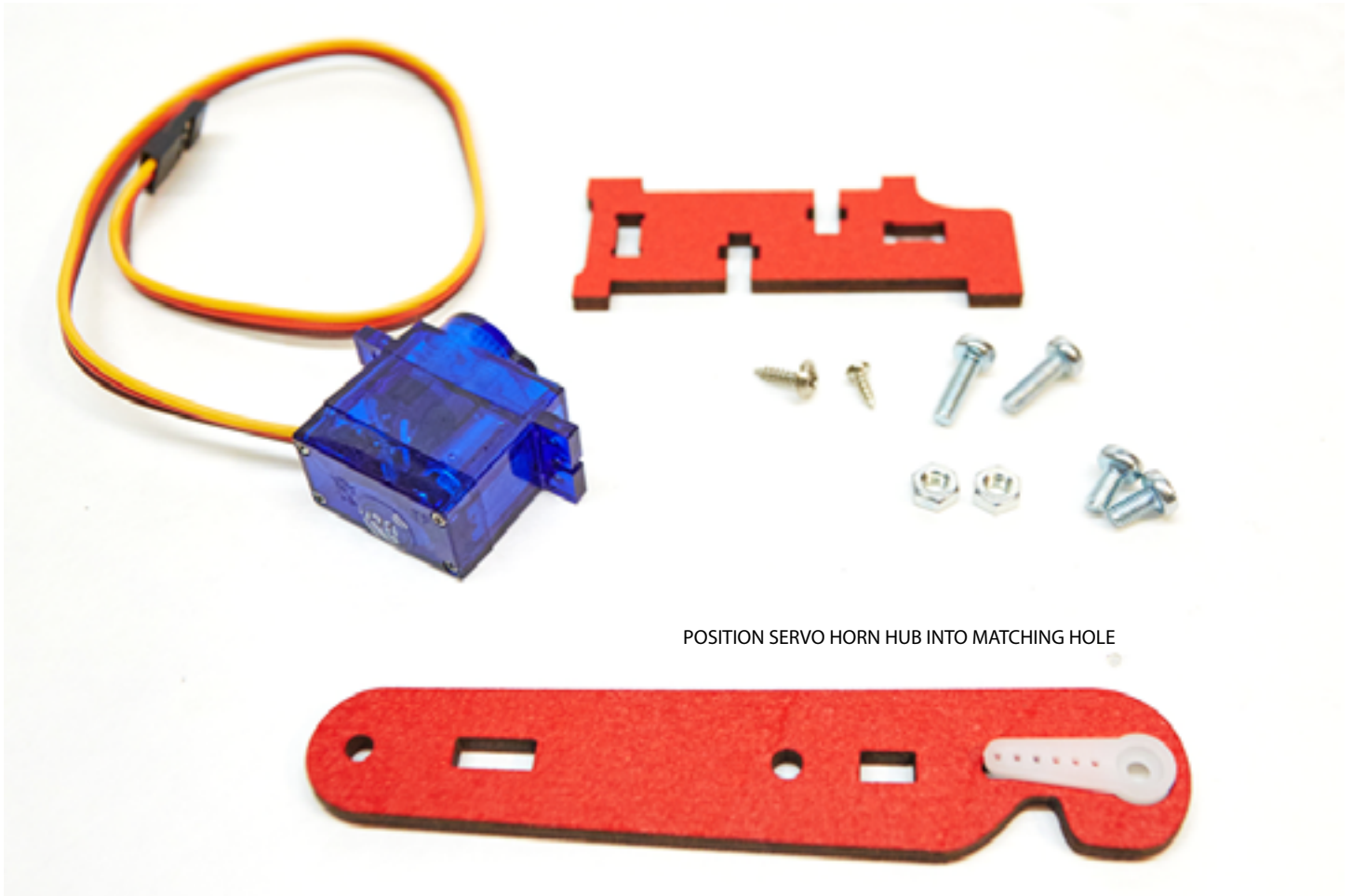


PARTS FOR RIGHT SIDE SERVO SUB ASSY

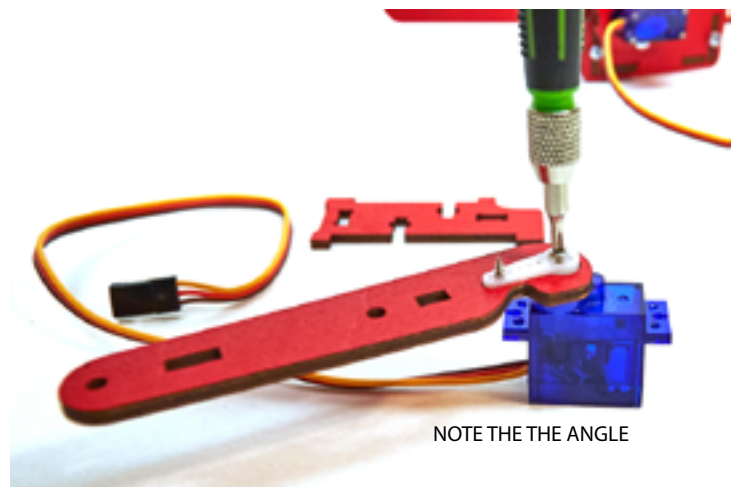


# ARMUNO DESKTOP ROBOTIC ARM

## RIGHT SIDE SERVO - (SUB ASSY #3)



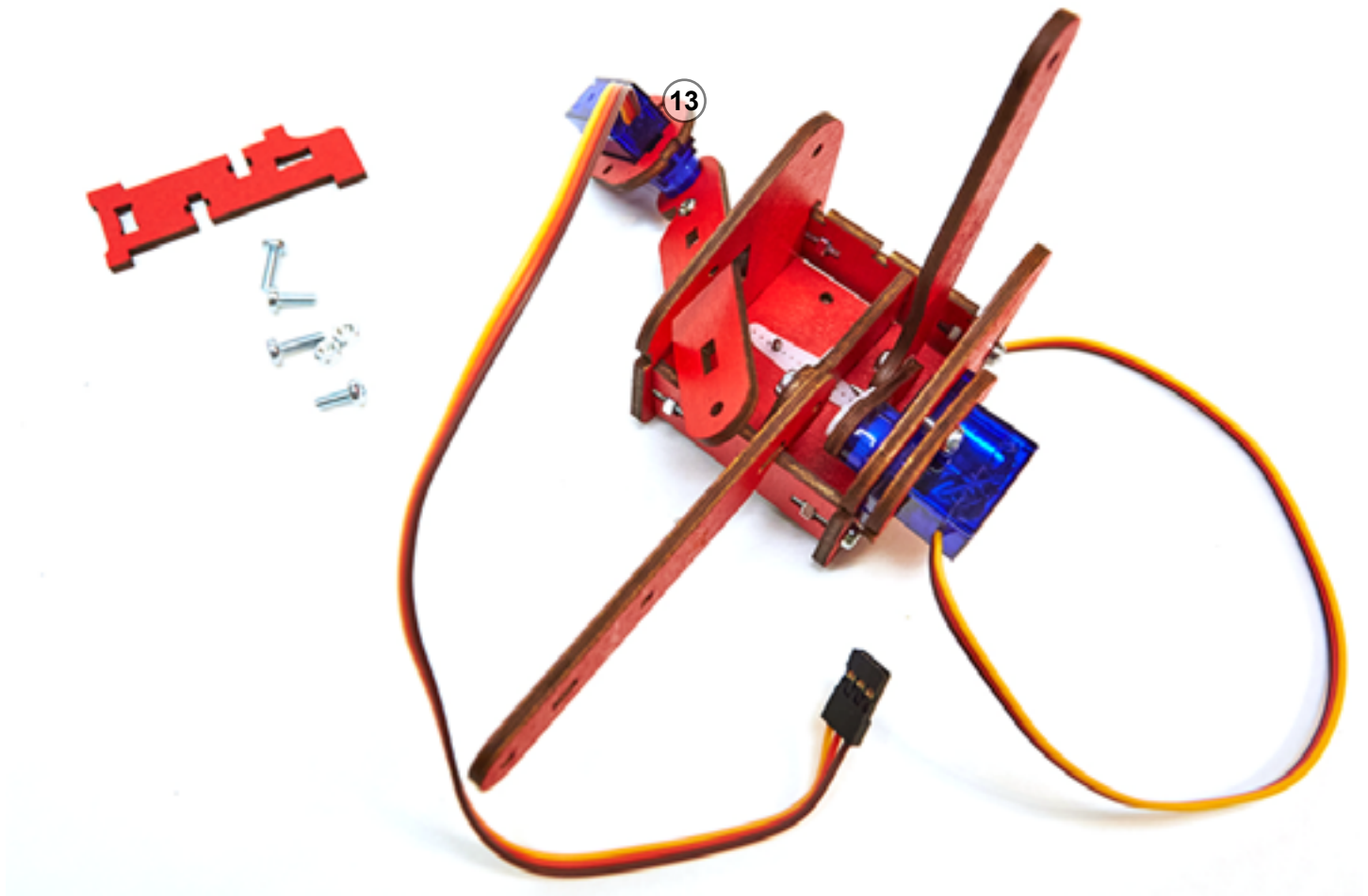
POSITION SERVO HORN HUB INTO MATCHING HOLE



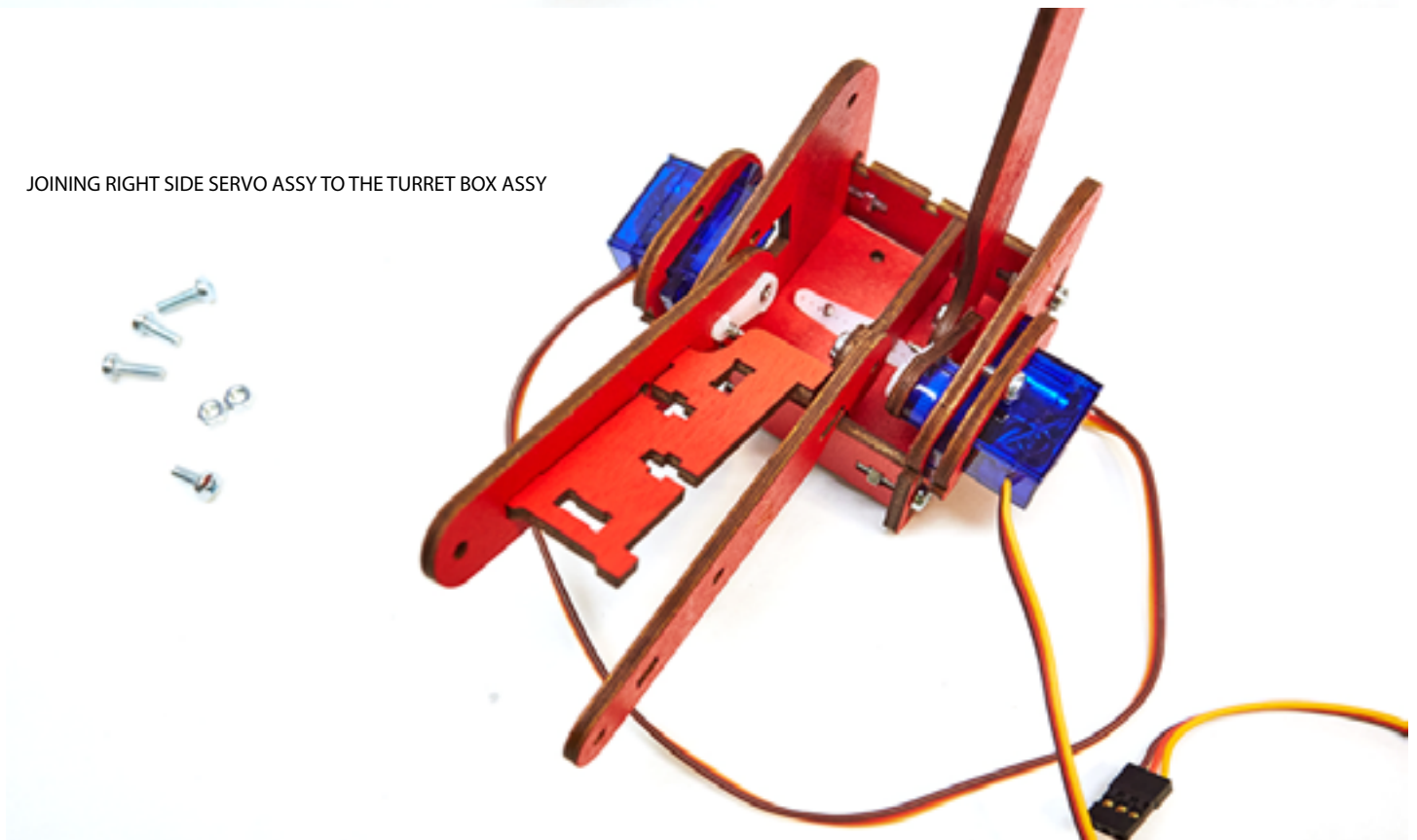
NOTE THE THE ANGLE

# ARMUNO DESKTOP ROBOTIC ARM

## RIGHT SIDE SERVO - (SUB ASSY #3)

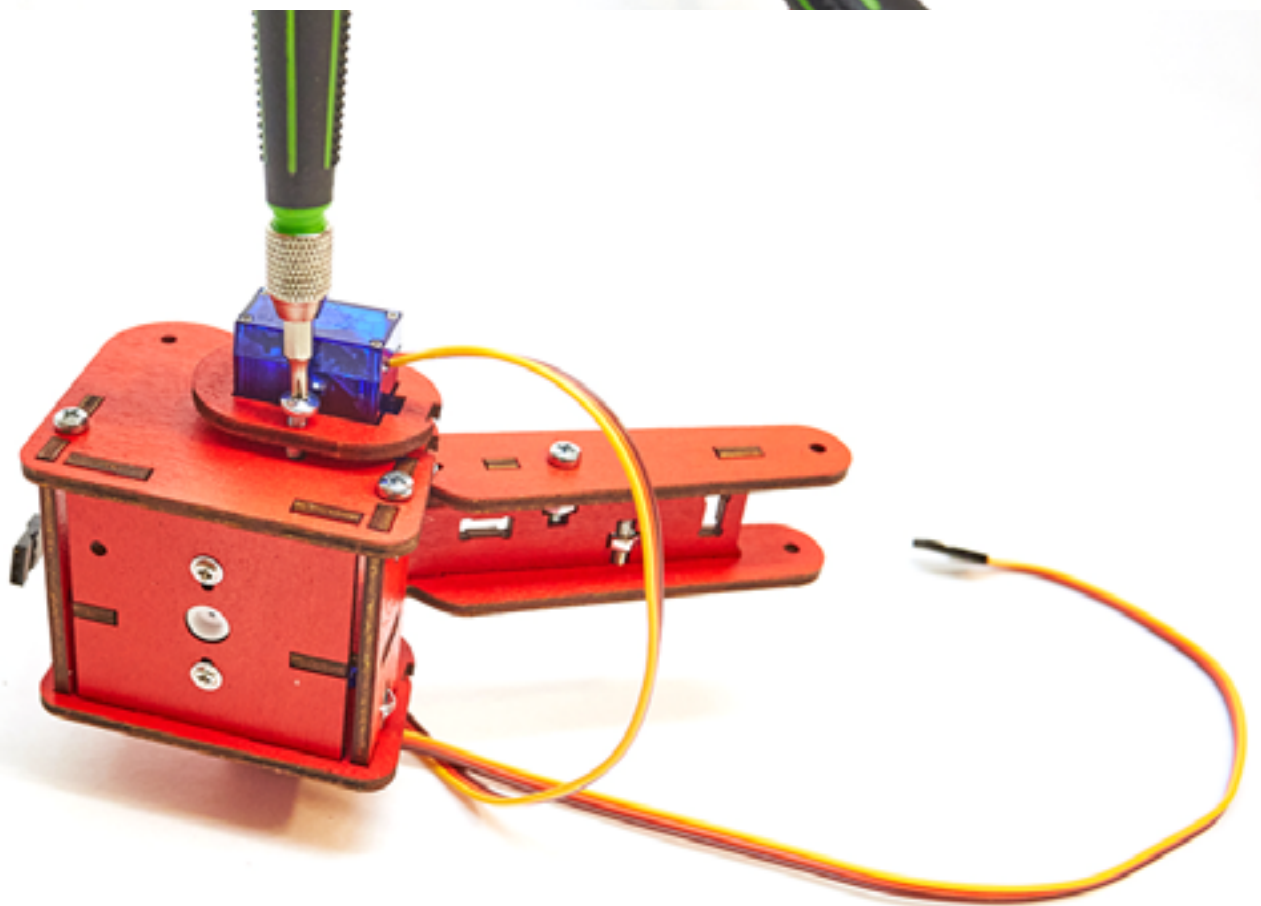
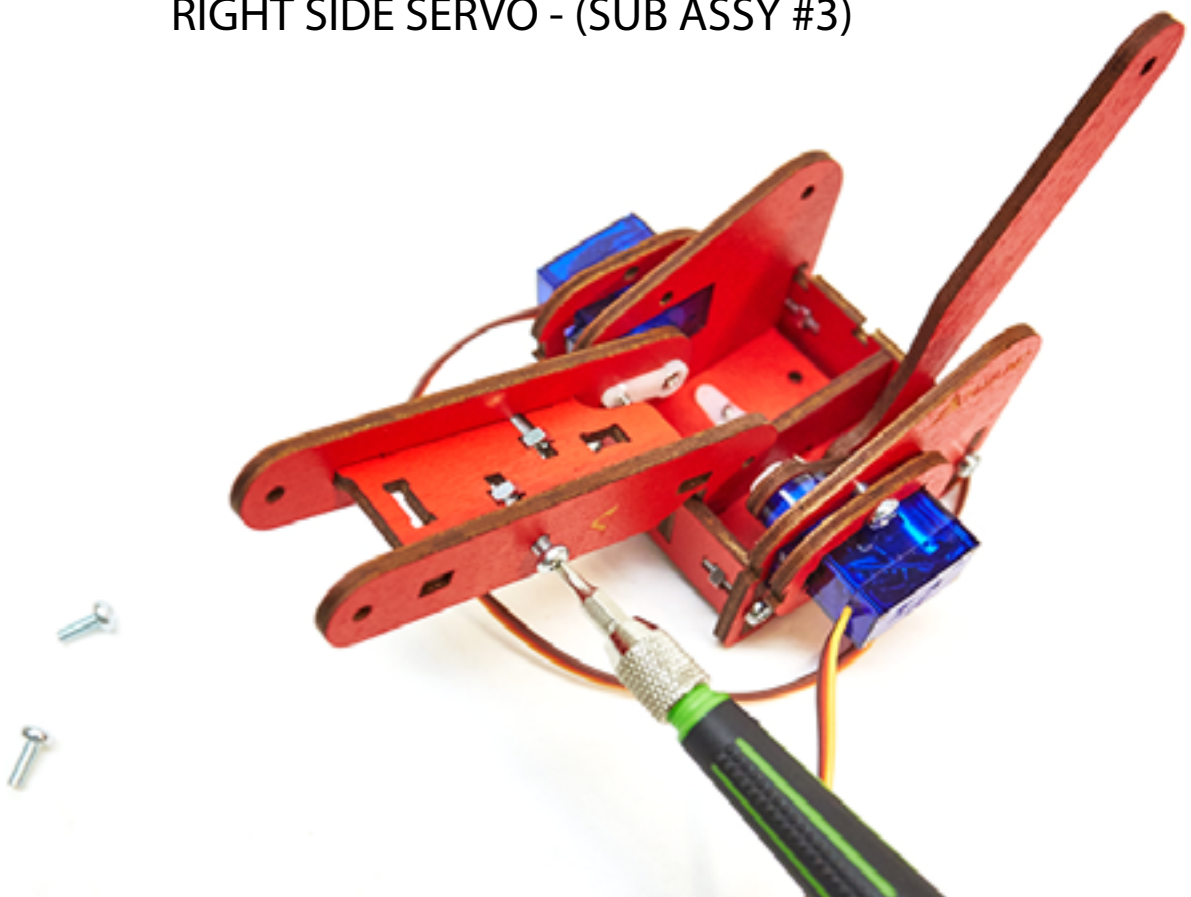


JOINING RIGHT SIDE SERVO ASSY TO THE TURRET BOX ASSY



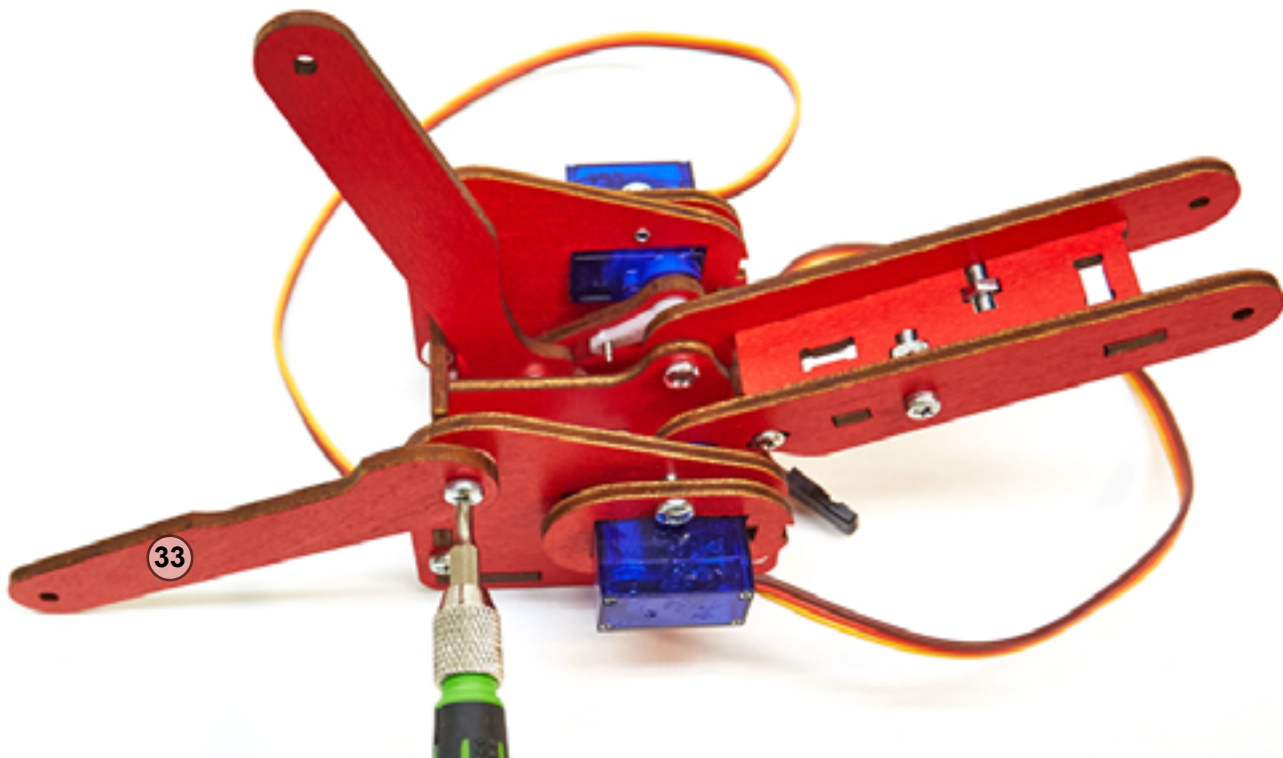
# ARMUNO DESKTOP ROBOTIC ARM

RIGHT SIDE SERVO - (SUB ASSY #3)



# ARMUNO DESKTOP ROBOTIC ARM

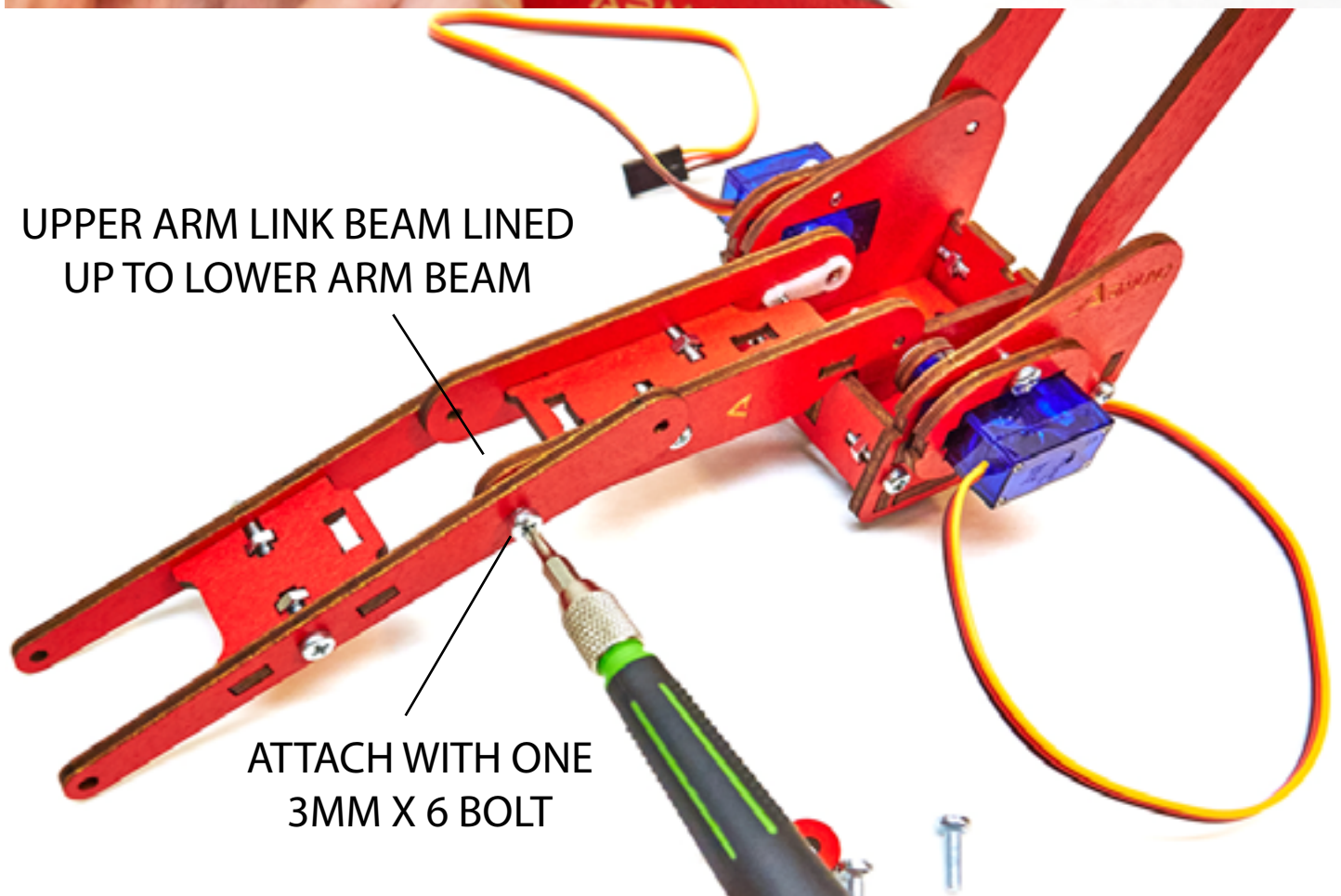
RIGHT SIDE PARALLEL LINK ATTACHED TO TURRET BOX



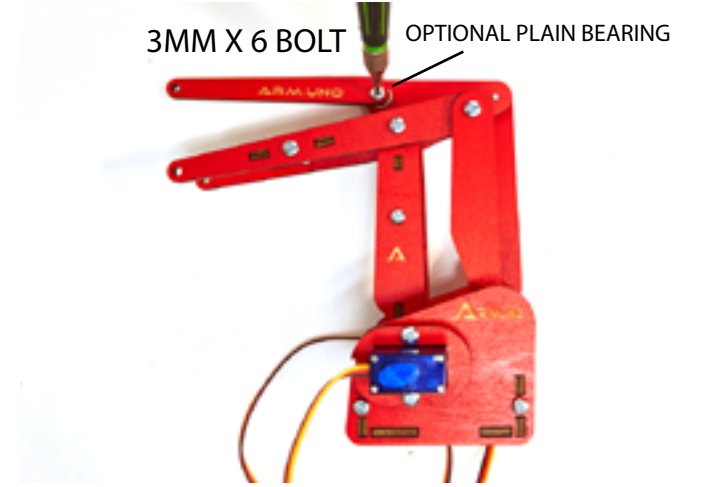
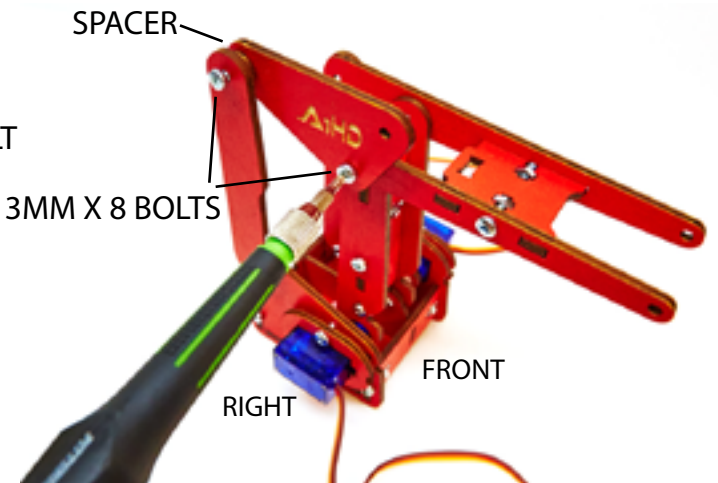
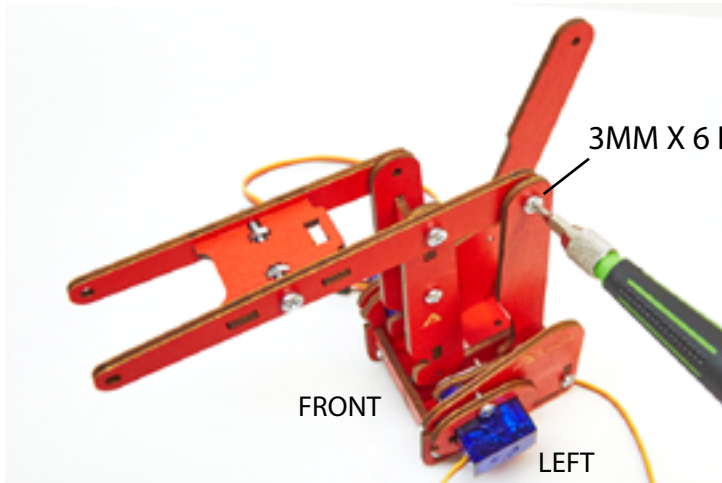
## UPPER LINK BEAM ASSY PARTS



# ARMUNO DESKTOP ROBOTIC ARM



# ARMUNO DESKTOP ROBOTIC ARM



THE MAIN ARM ASSY IS NOW COMPLETE AND READY FOR THE CLAW ASSY TO BE ATTACHED

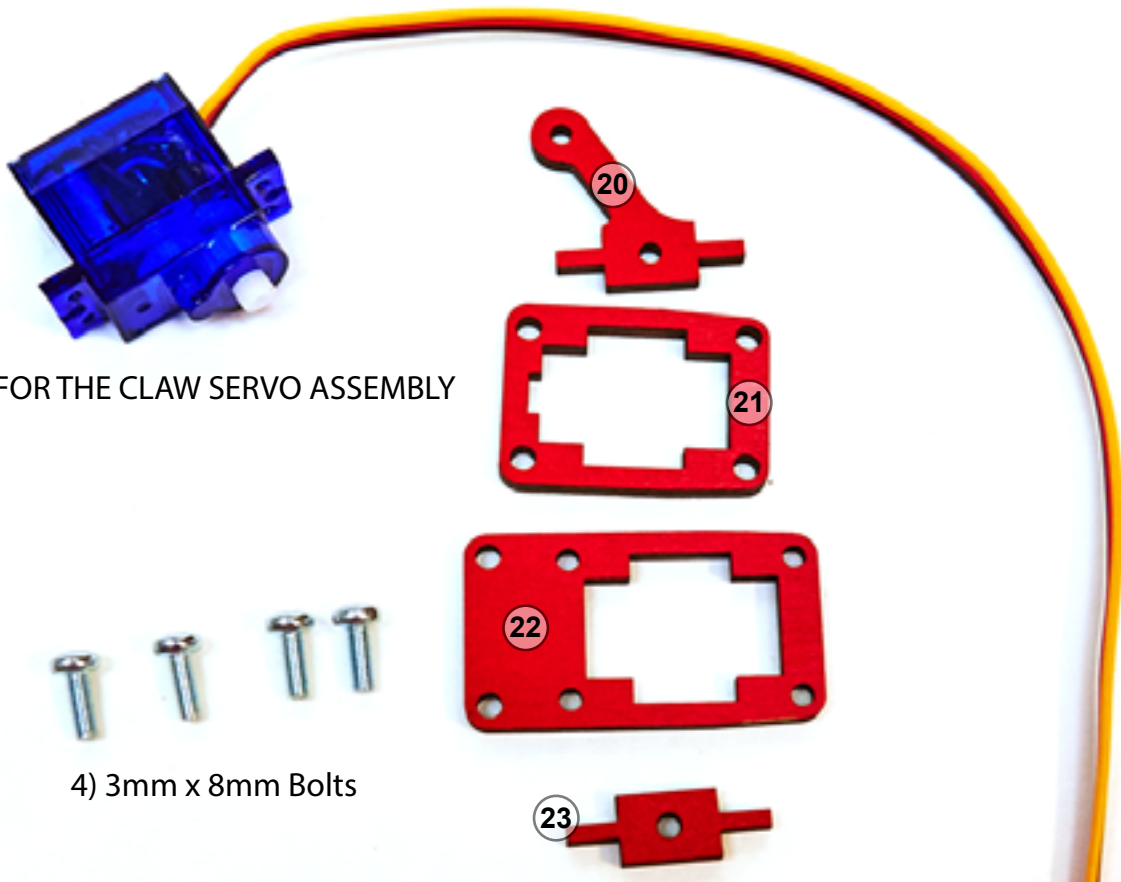




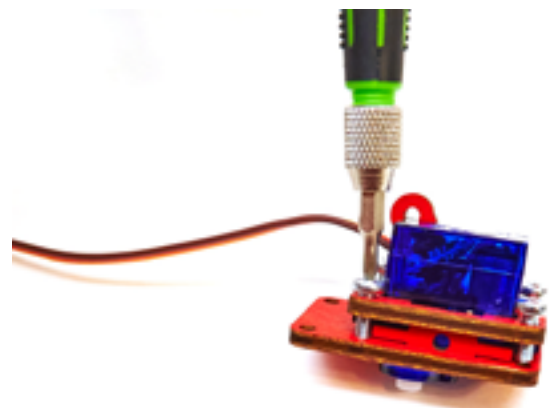
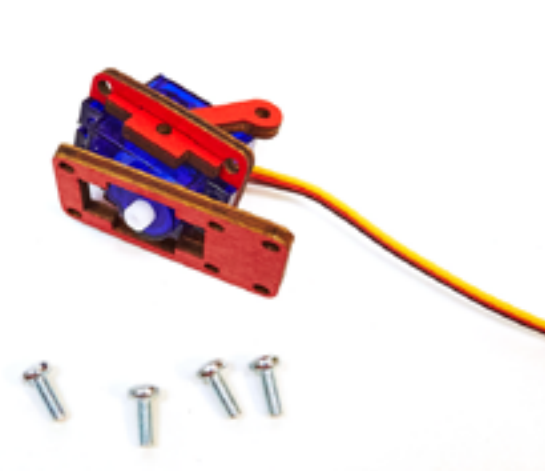
# ARMUNO DESKTOP ROBOTIC ARM

## CLAW SERVO ASSY

PARTS FOR THE CLAW SERVO ASSEMBLY



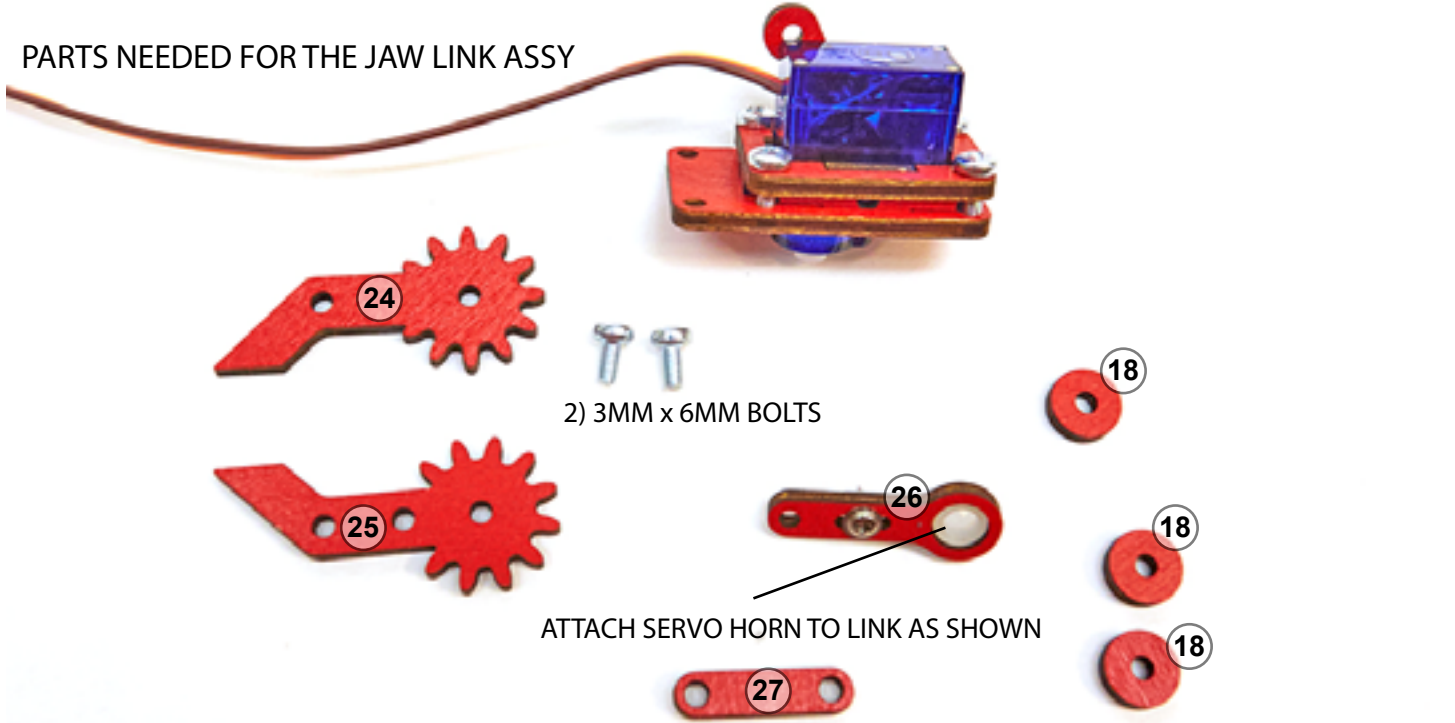
4) 3mm x 8mm Bolts



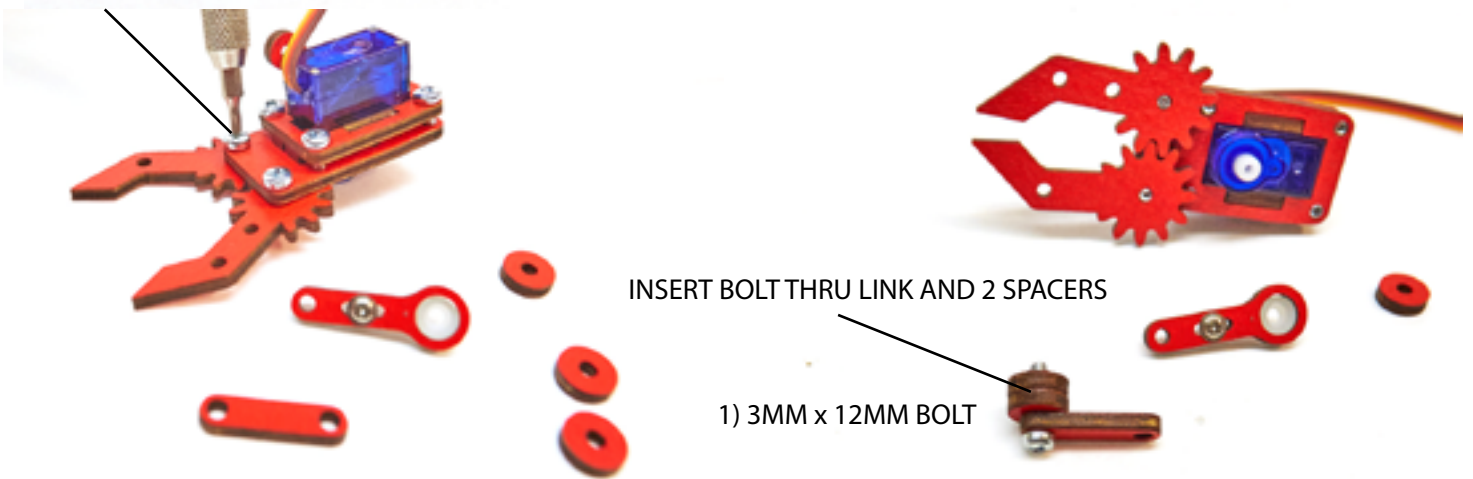
# ARMUNO DESKTOP ROBOTIC ARM

## CLAW JAW LINK ASSY

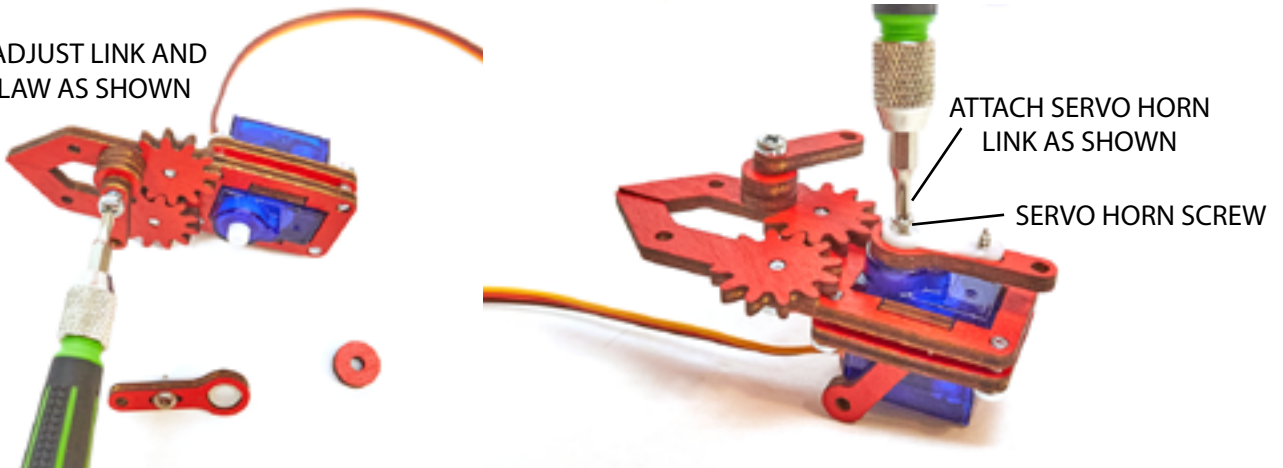
PARTS NEEDED FOR THE JAW LINK ASSY



ATTACH JAWS WITH 6MM BOLTS AND ADJUST FOR SMOOTH ROTATION

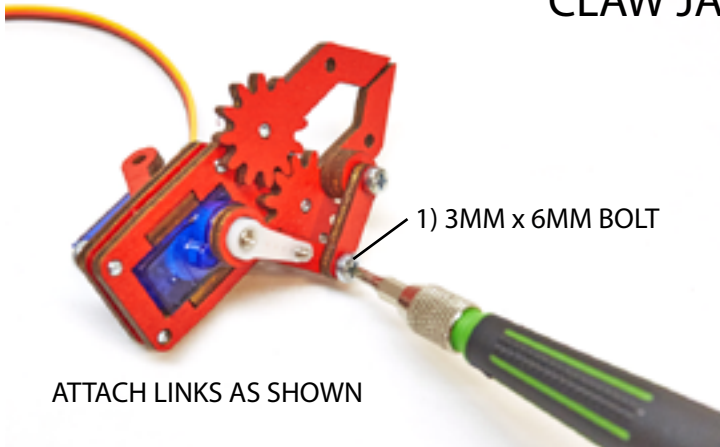


TIGHTEN AND ADJUST LINK AND SPACERS TO CLAW AS SHOWN

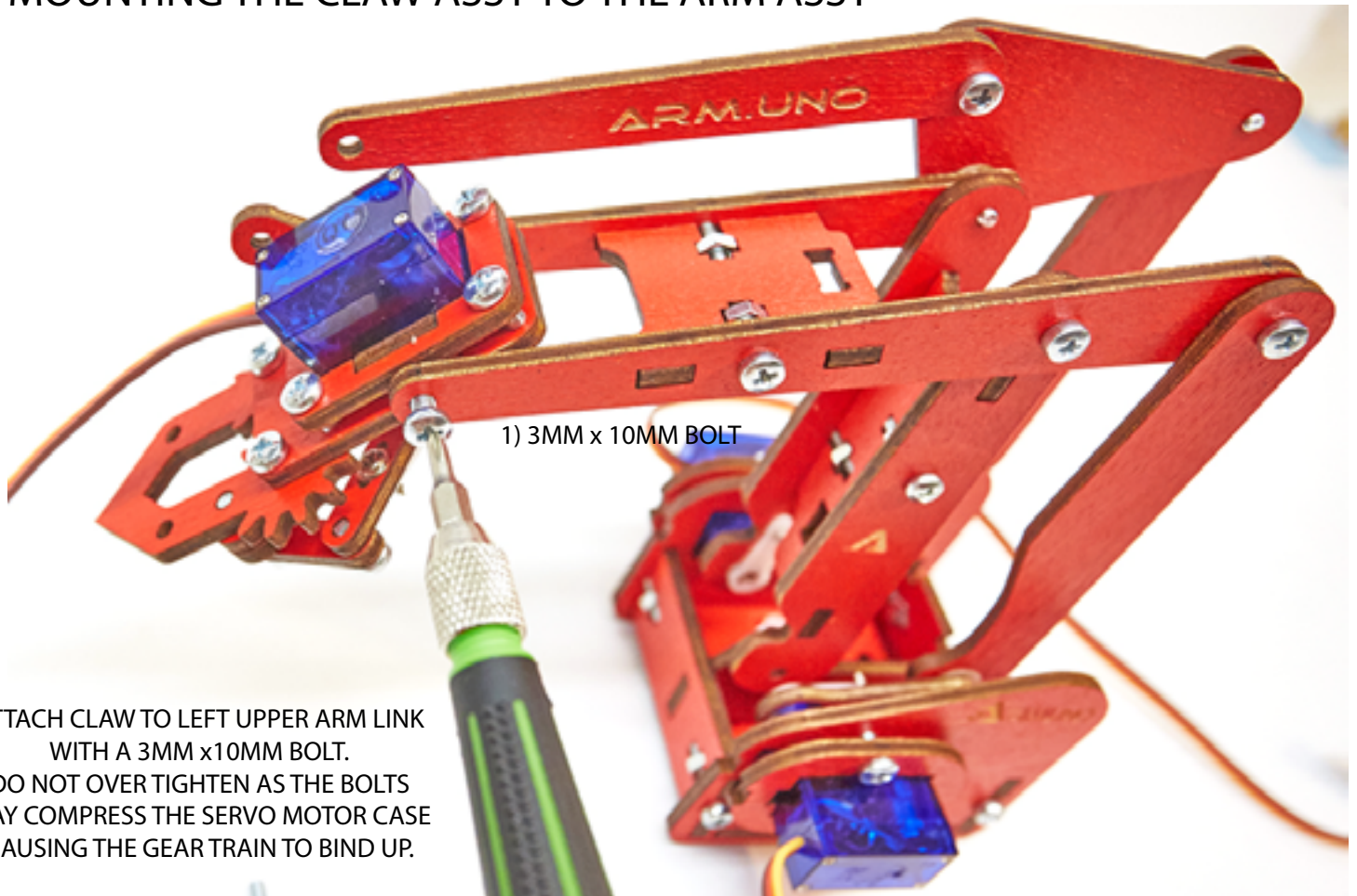


# ARMUNO DESKTOP ROBOTIC ARM

## CLAW JAW LINK ASSY



## MOUNTING THE CLAW ASSY TO THE ARM ASSY

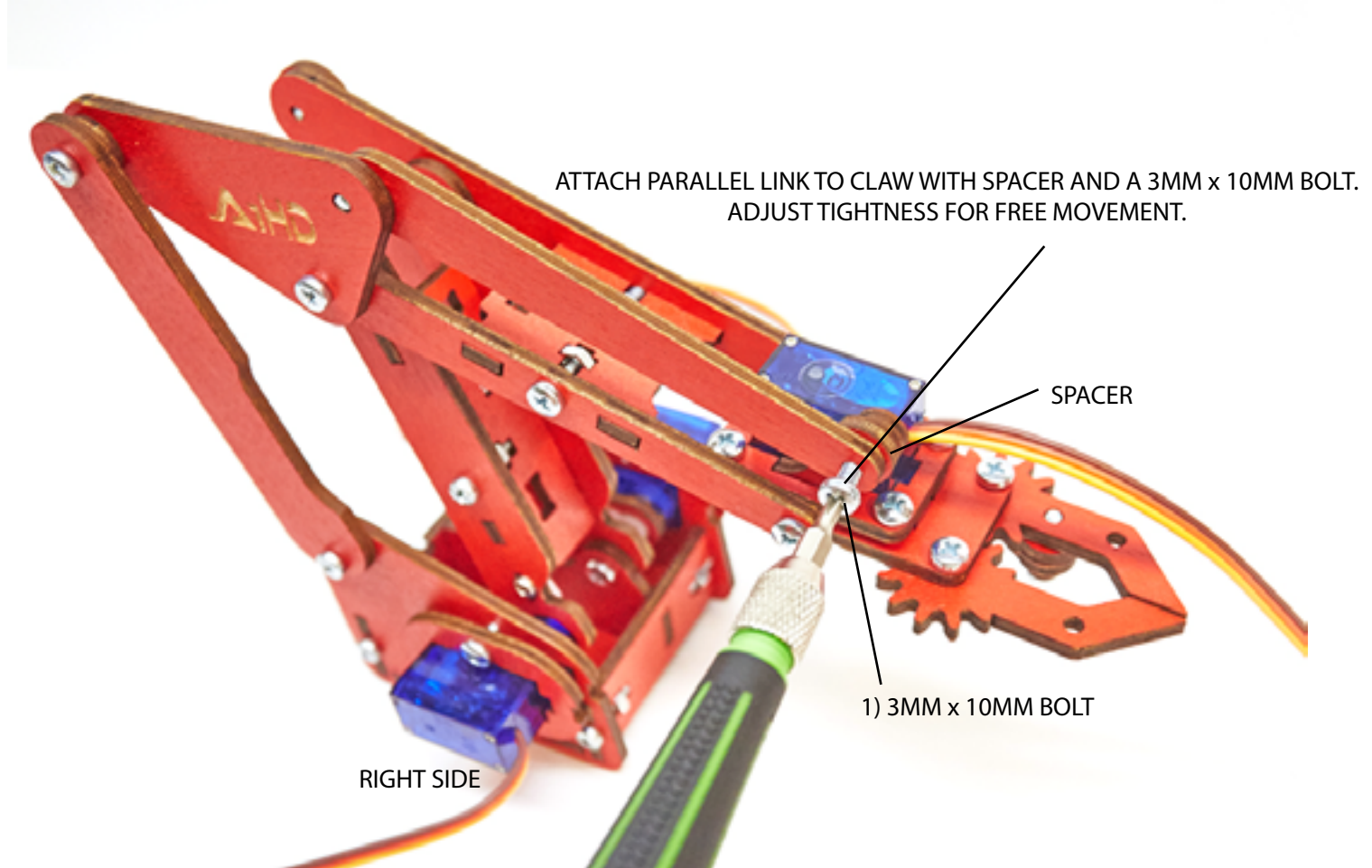
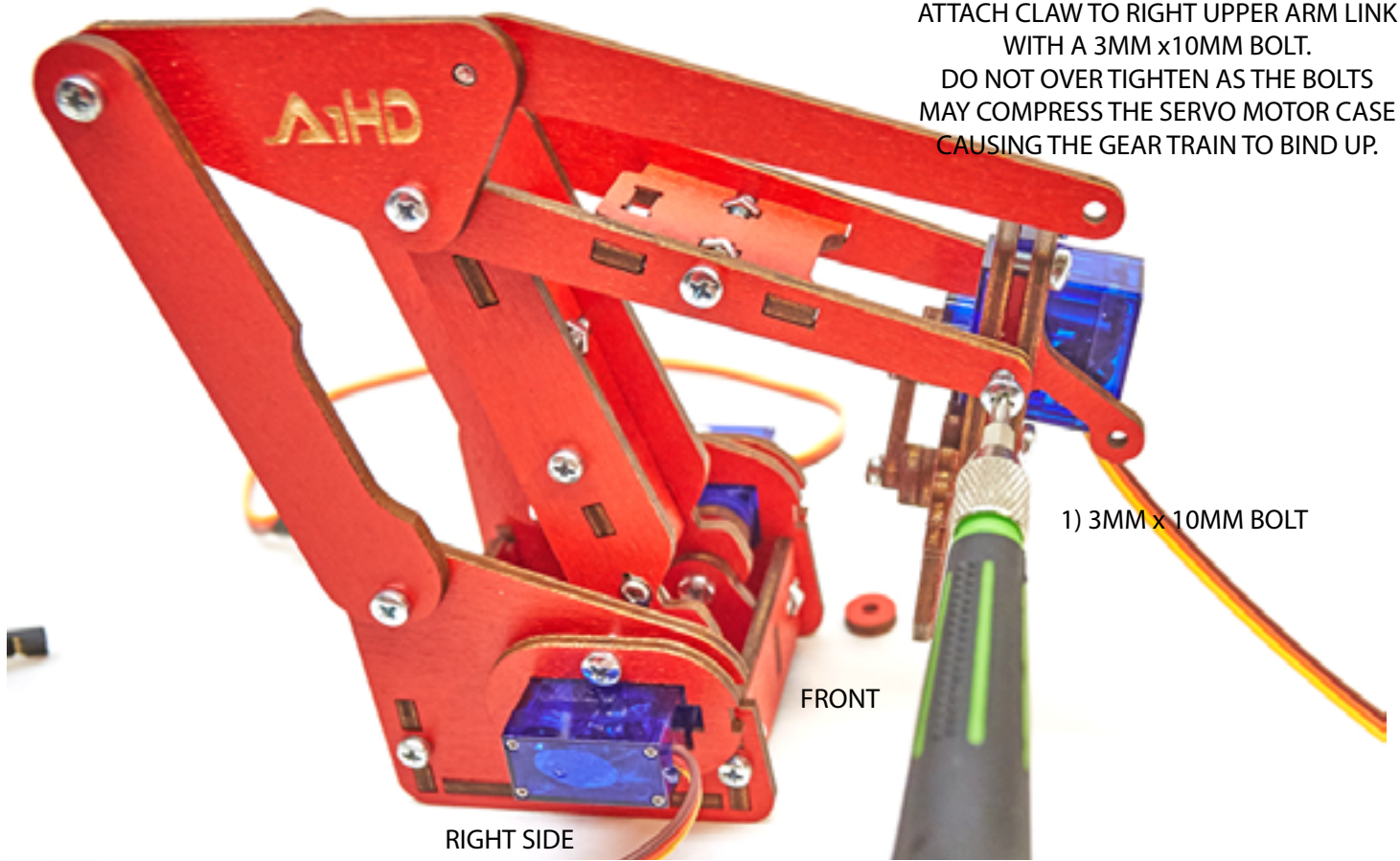


# ARMUNO DESKTOP ROBOTIC ARM

## MOUNTING THE CLAW ASSY TO THE ARM ASSY

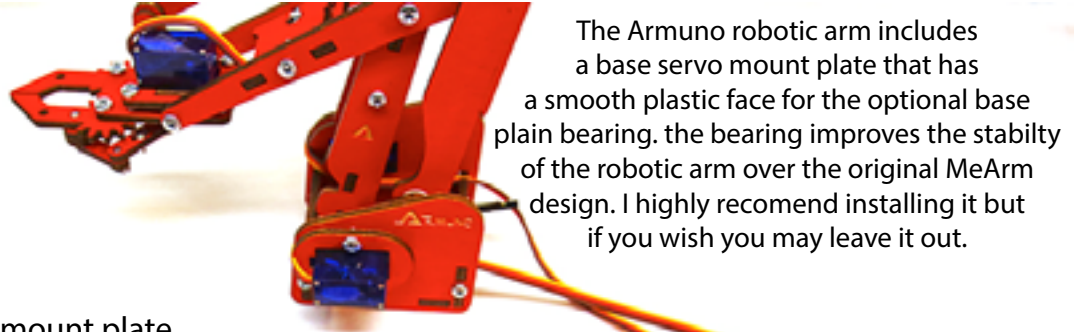
ATTACH CLAW TO RIGHT UPPER ARM LINK WITH A 3MM x 10MM BOLT.

DO NOT OVER TIGHTEN AS THE BOLTS MAY COMPRESS THE SERVO MOTOR CASE CAUSING THE GEAR TRAIN TO BIND UP.



# ARMUNO DESKTOP ROBOTIC ARM

## BASE AND BEARING ASSY



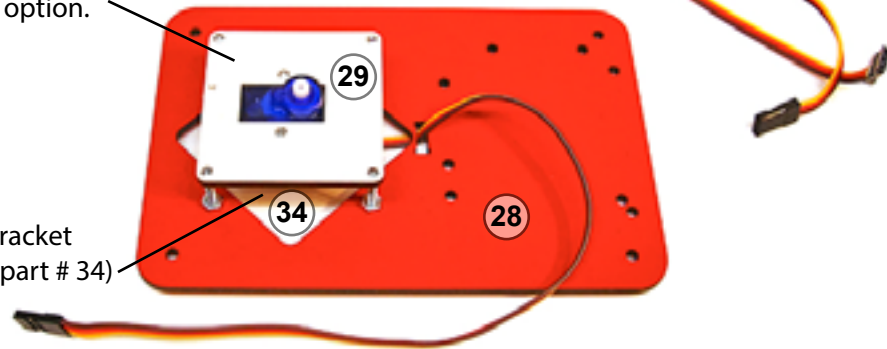
The Armuno robotic arm includes a base servo mount plate that has a smooth plastic face for the optional base plain bearing. the bearing improves the stability of the robotic arm over the original MeArm design. I highly recomend installing it but if you wish you may leave it out.

Plastic veneered servo mount plate  
This must used instead of the plain wood plate for the base bearing option.

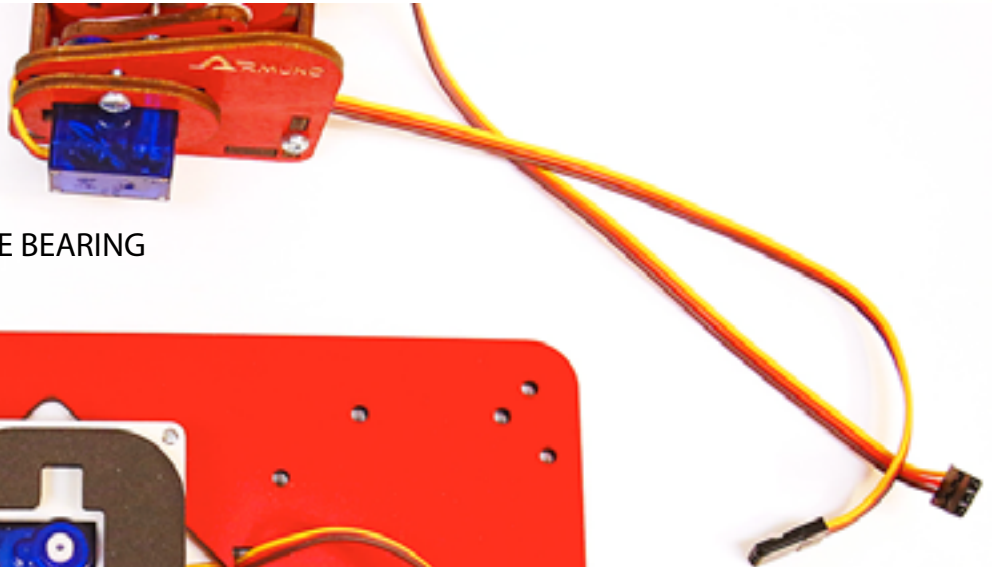
4) 3MM X 20MM BOLTS

4) 3MM HEX NUTS

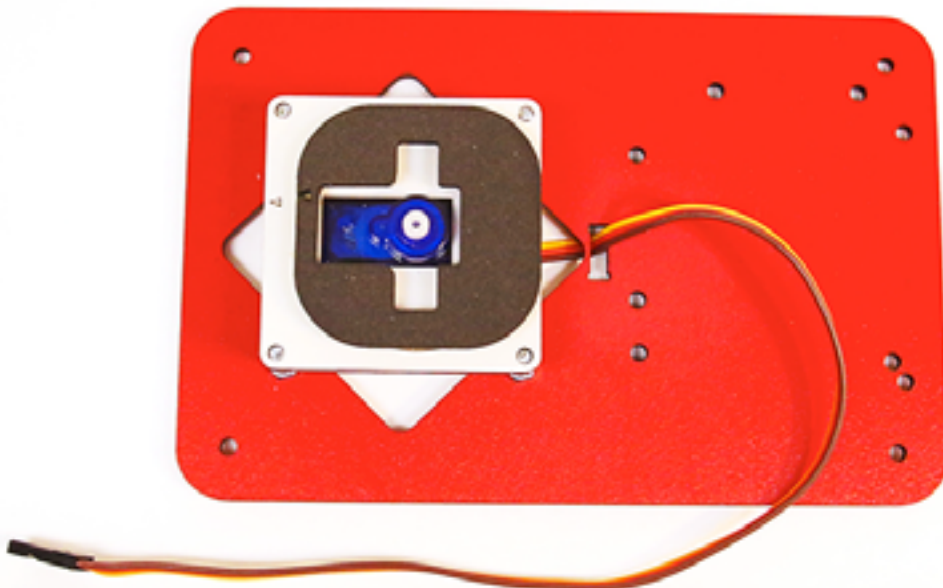
Servo mount bracket  
(hidden from viewpart # 34)



This goes between the bottom of the turret and the base servo mount plate

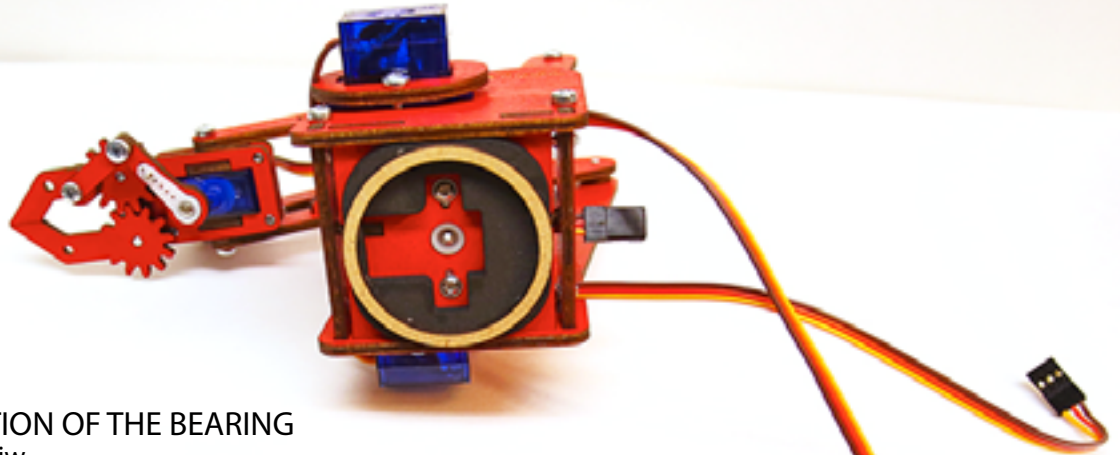


SHOWING THE ORIENTATION OF THE BEARING

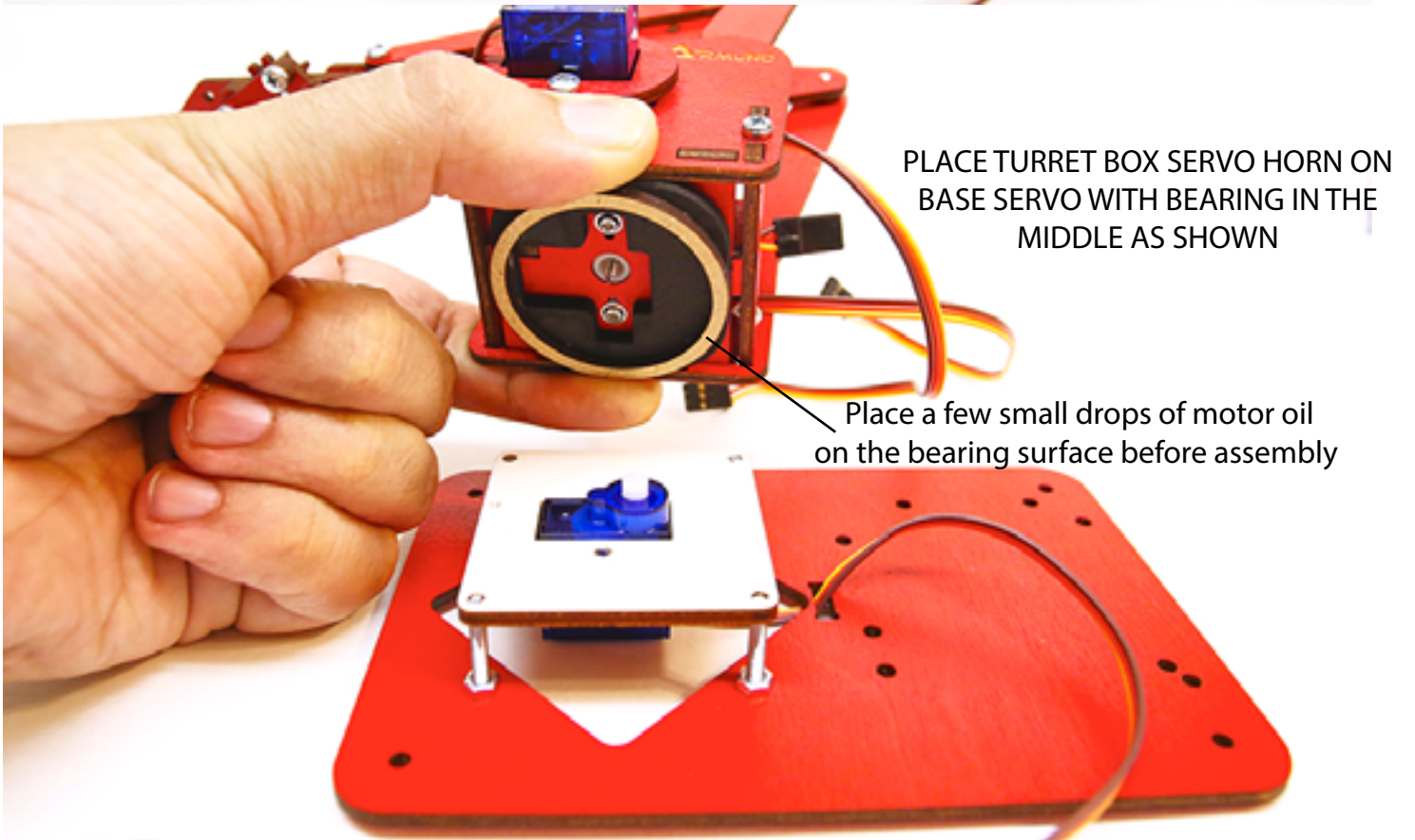
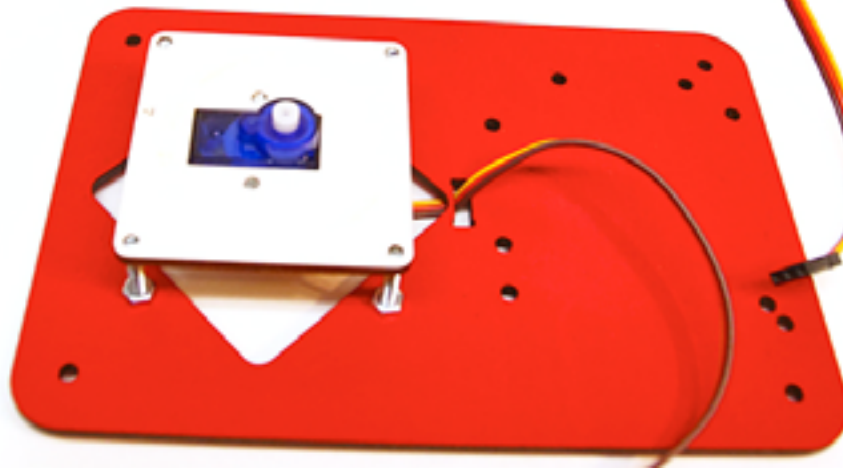


# ARMUNO DESKTOP ROBOTIC ARM

## BASE AND BEARING ASSY



SHOWING THE ORIENTATION OF THE BEARING  
Another view



PLACE TURRET BOX SERVO HORN ON  
BASE SERVO WITH BEARING IN THE  
MIDDLE AS SHOWN

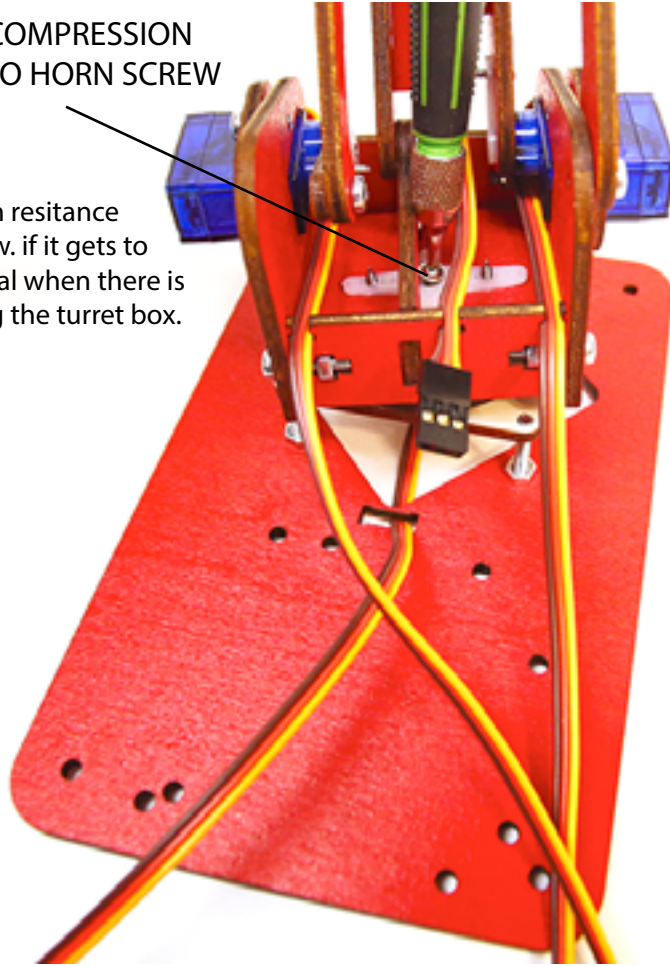
Place a few small drops of motor oil  
on the bearing surface before assembly

# ARMUNO DESKTOP ROBOTIC ARM

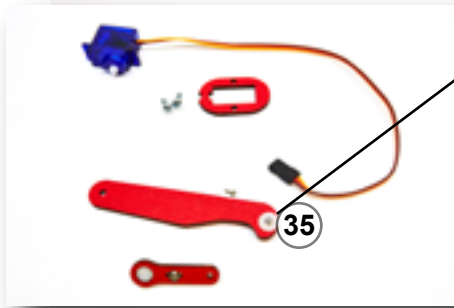
## BASE AND BEARING ASSY

ADJUST BEARING COMPRESSION  
WITH THE BASE SERVO HORN SCREW

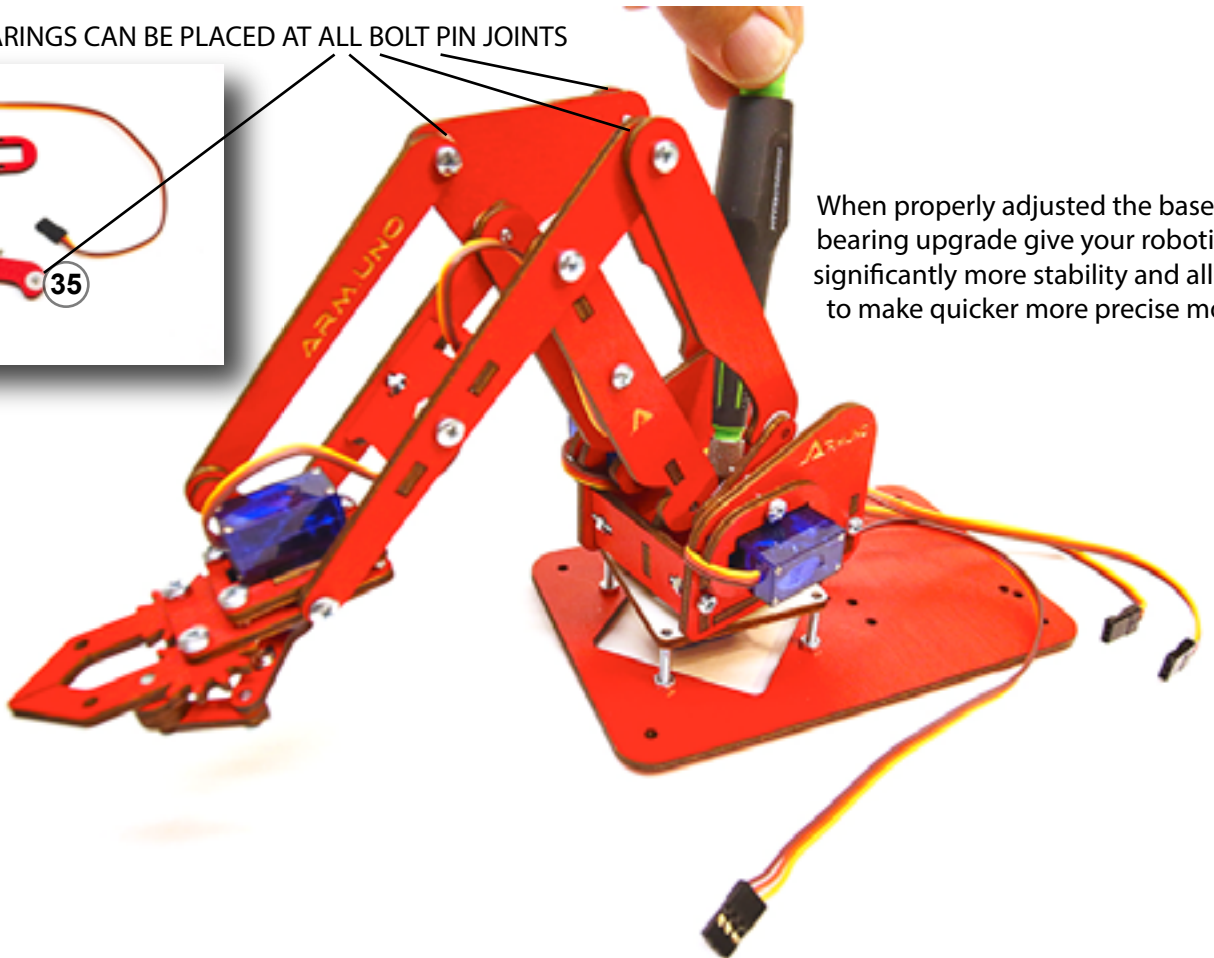
Check the base rotation resistance while tightening the screw. if it gets to tight loosen it a little. it is ideal when there is very little drag upon rotating the turret box.



OPTIONAL THIN BEARINGS CAN BE PLACED AT ALL BOLT PIN JOINTS

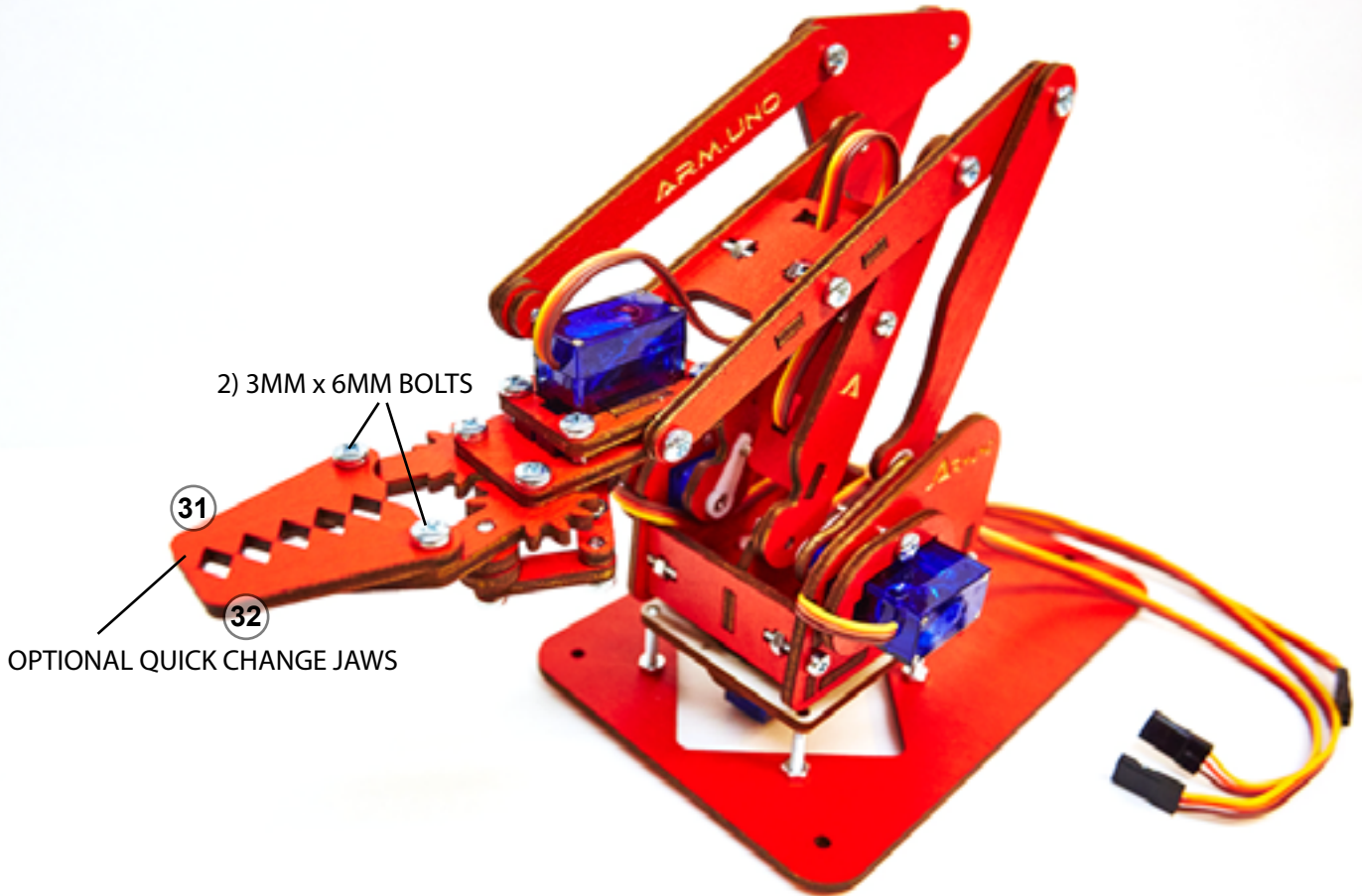


When properly adjusted the base plain bearing upgrade give your robotic arm significantly more stability and allows it to make quicker more precise moves.



# ARMUNO DESKTOP ROBOTIC ARM

YOU DID IT! YOUR ARMUNO DESKTOP ROBOTIC ARM IS ASSEMBLED

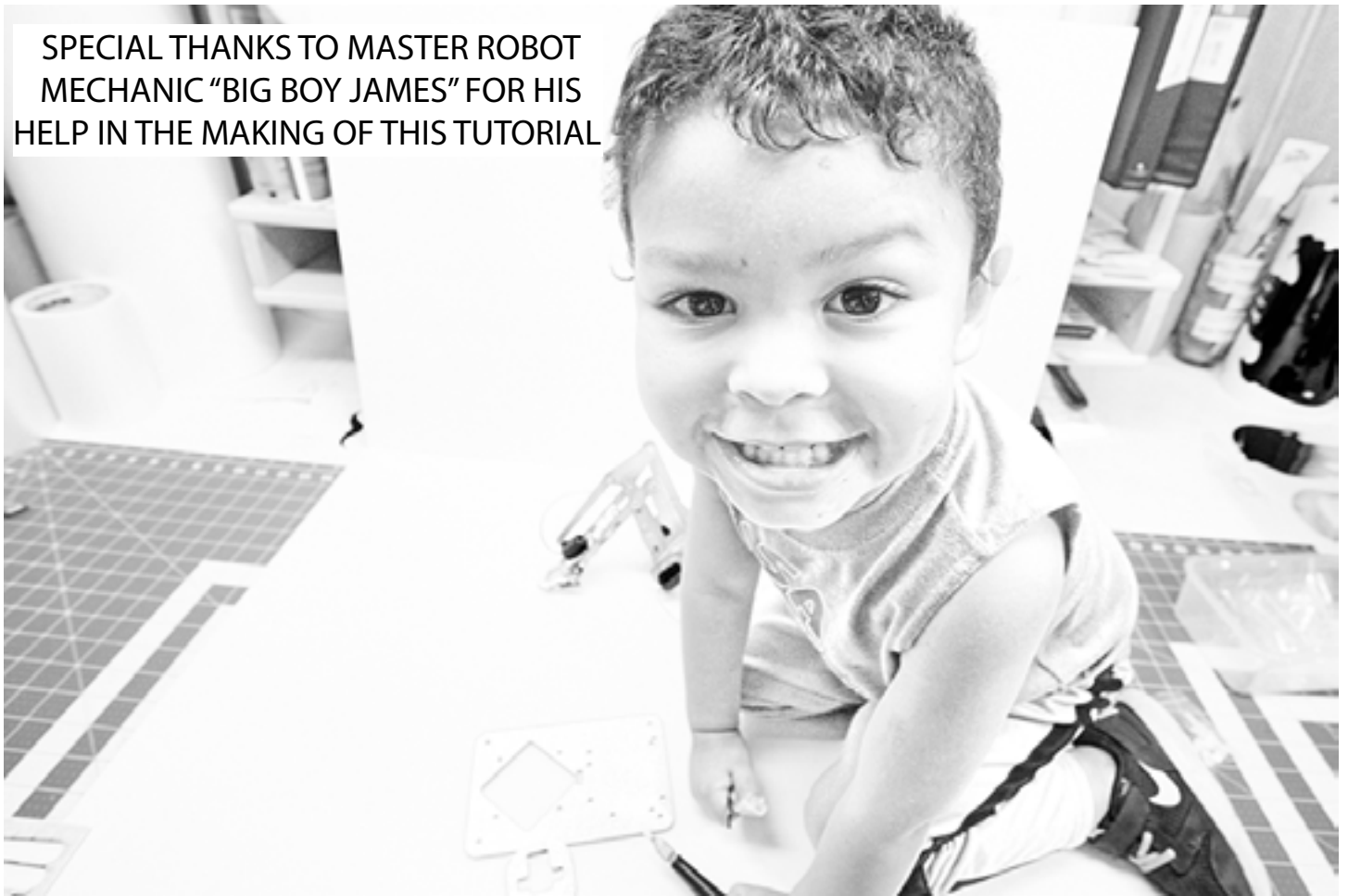


YOUR MeCon MOTION CONTROL SOFTWARE HAS WIRING DIAGRAMS TO SHOW YOU HOW HOOK UP YOUR ARDUINO MICRO CONTROLLER AND ALSO AN ARDUINO SKETCH SO YOU CAN START MAKING SOME MOVES WITH YOUR NEW DESKTOP ROBOTIC ARM.



# ARMUNO DESKTOP ROBOTIC ARM

SPECIAL THANKS TO MASTER ROBOT MECHANIC "BIG BOY JAMES" FOR HIS HELP IN THE MAKING OF THIS TUTORIAL



LET'S SEE, NEEDS A LITTLE ADJUSTMENT HERE..



AND ADD THE BASE PLATE AND WE'RE GOOD TO GO!