

# 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

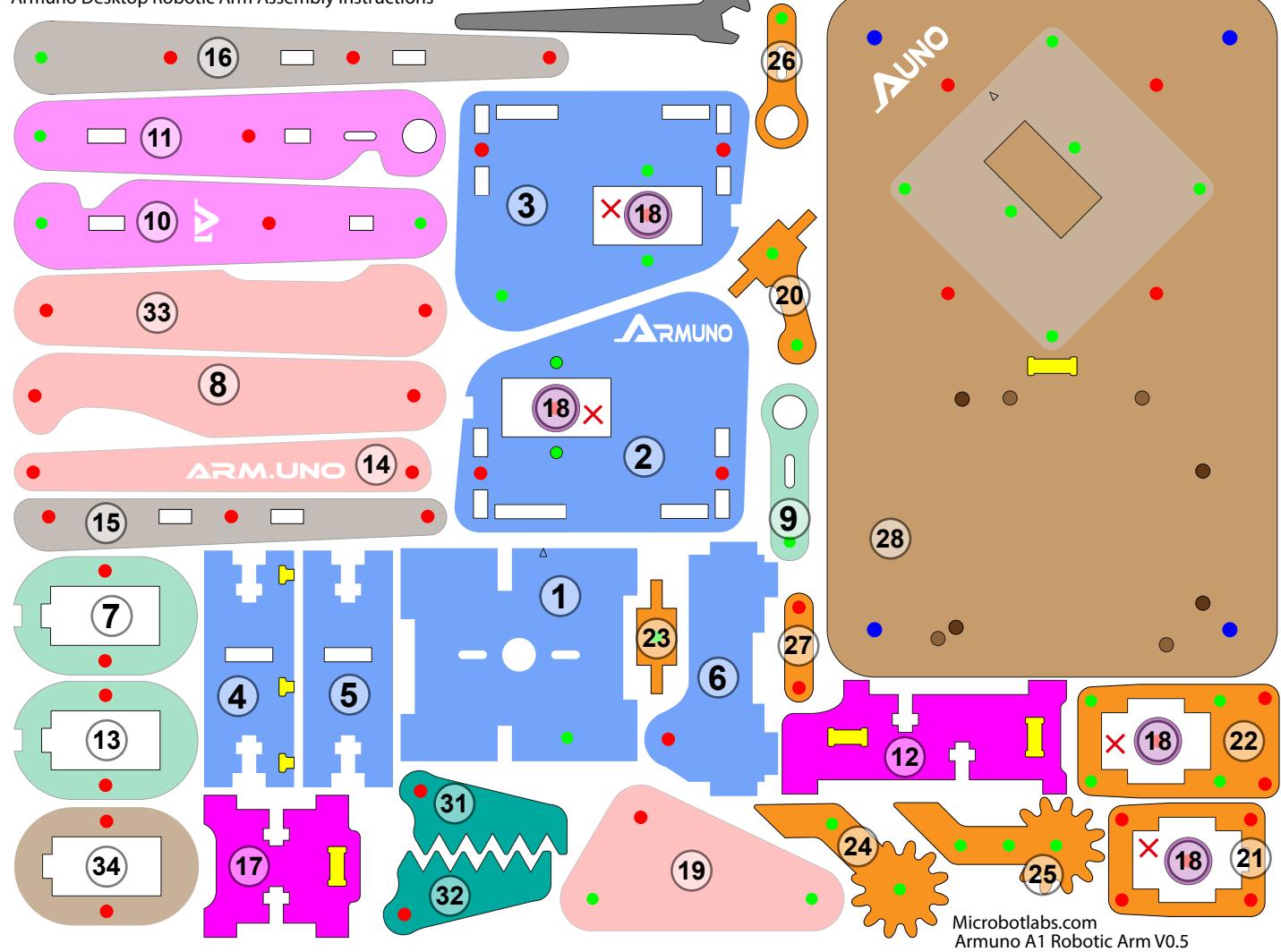


Assembly instructions for the Armuno A1HD Robotic Arm Kit By Microbotlabs. Additional information and resources for getting the most out your robot arm kit please visit [WWW.MICROBOTLABS.COM](http://WWW.MICROBOTLABS.COM)

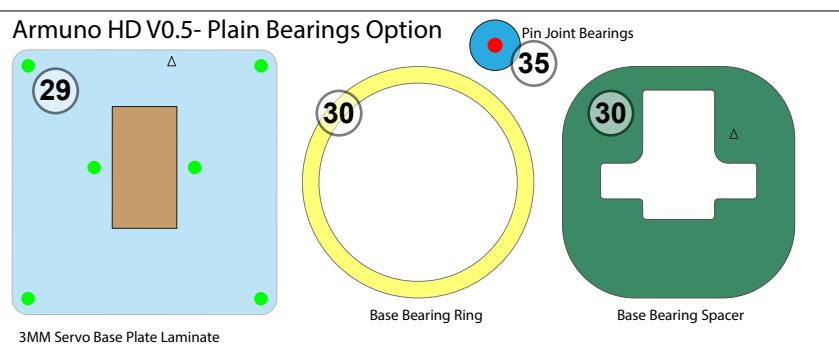
# ARMUNO DESKTOP ROBOTIC ARM

## QUICK REFERENCE STRUCTURAL PARTS CHEAT SHEET

Armuno Desktop Robotic Arm Assembly Instructions



Microbotlabs.com  
Armuno A1 Robotic Arm V0.5



12ea - M3 Nut

11ea - M3 x 6

10ea - M3 x 8

11ea - M3 x 10

1ea - M3 x 12

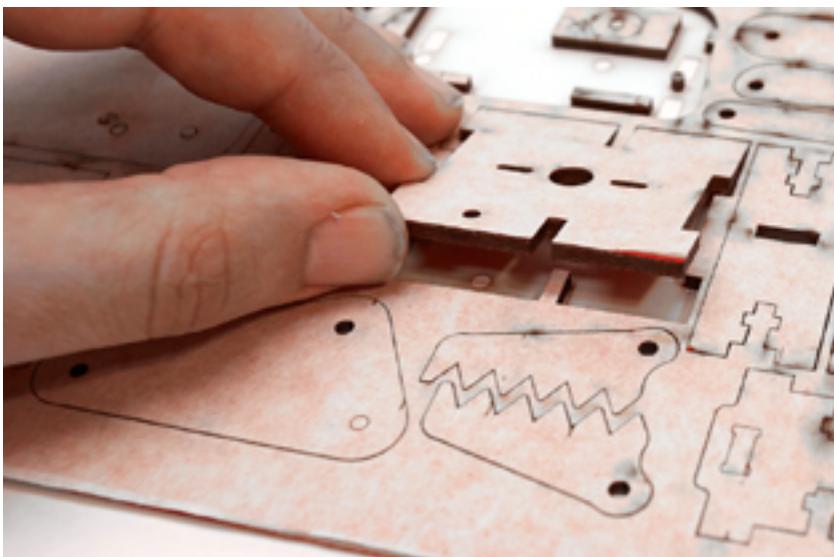
4ea - M3 x 20

- █ 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

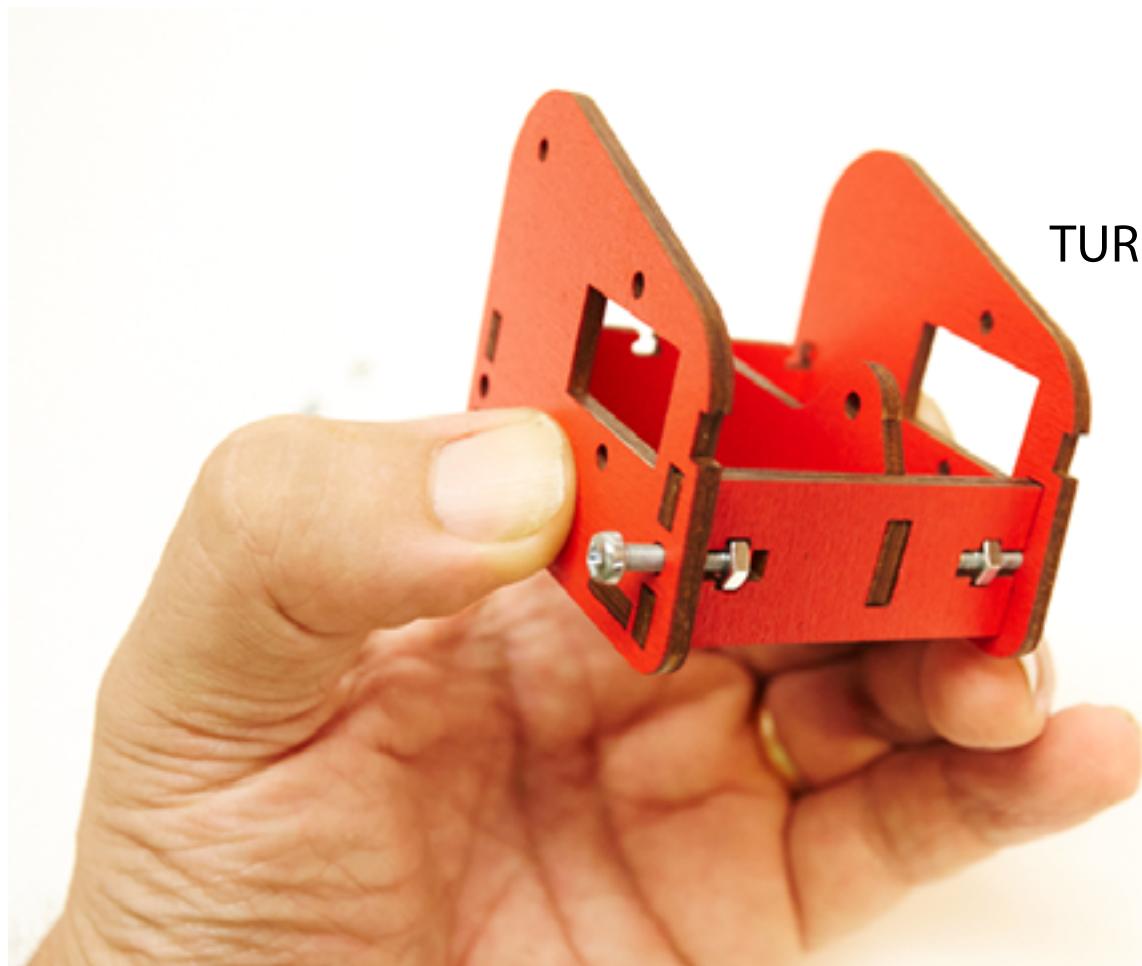
Here is a reference drawing of the basic structural parts for the *Armuno Desktop Robotic Arm*. The parts have been color coded and numbered to assist in identifying them.

# 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.



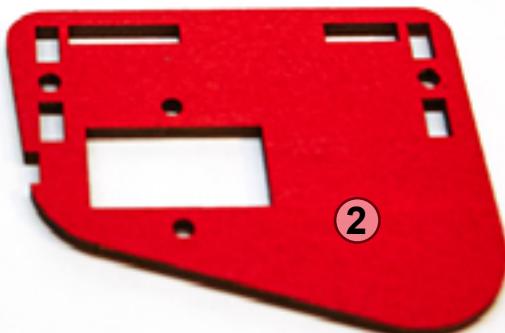
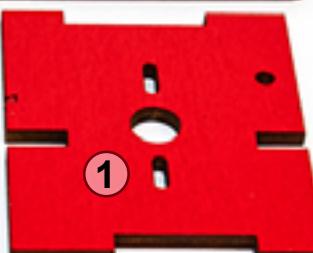
TURRET BOX

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

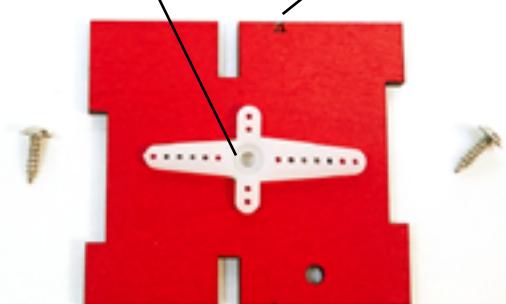


4) 3MM X 10MM LONG BOLTS

4) 3MM NUTS

SERVO HORN

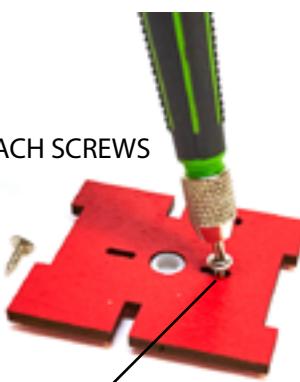
ETCHED ARROW HEAD



FLIP OVER AND ATTACH SCREWS

POSITION SCREW TOWARDS THE OUTER LIMIT OF THE SLOT

SERVO HORN ORIENTATION

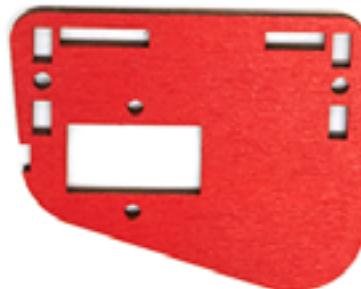
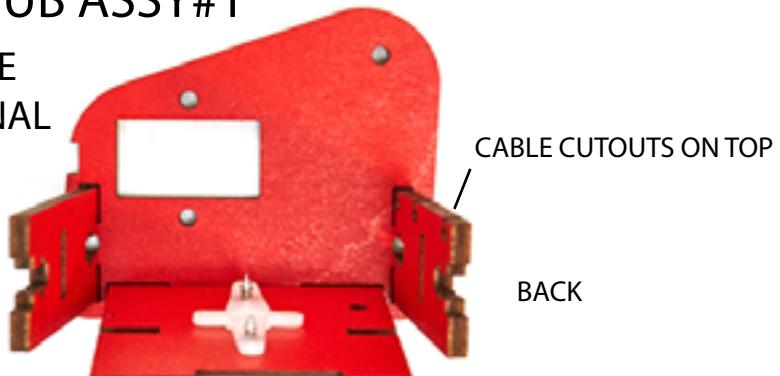
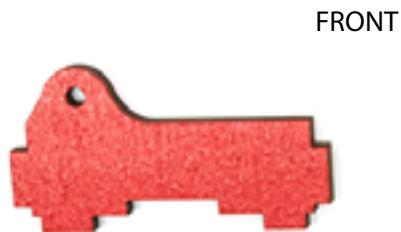


First attach a double sided servo horn with the small screws that come with the servo motors. Pay attention to the orientation of the parts. note the small arrow head etched onto the part that points toward the front of the arm. Position the servo horn as shown and then flip the two parts over and attach 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

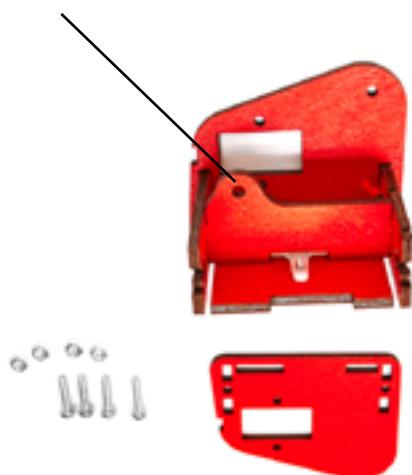
## TURRET BOX FRAME - SUB ASSY#1

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



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

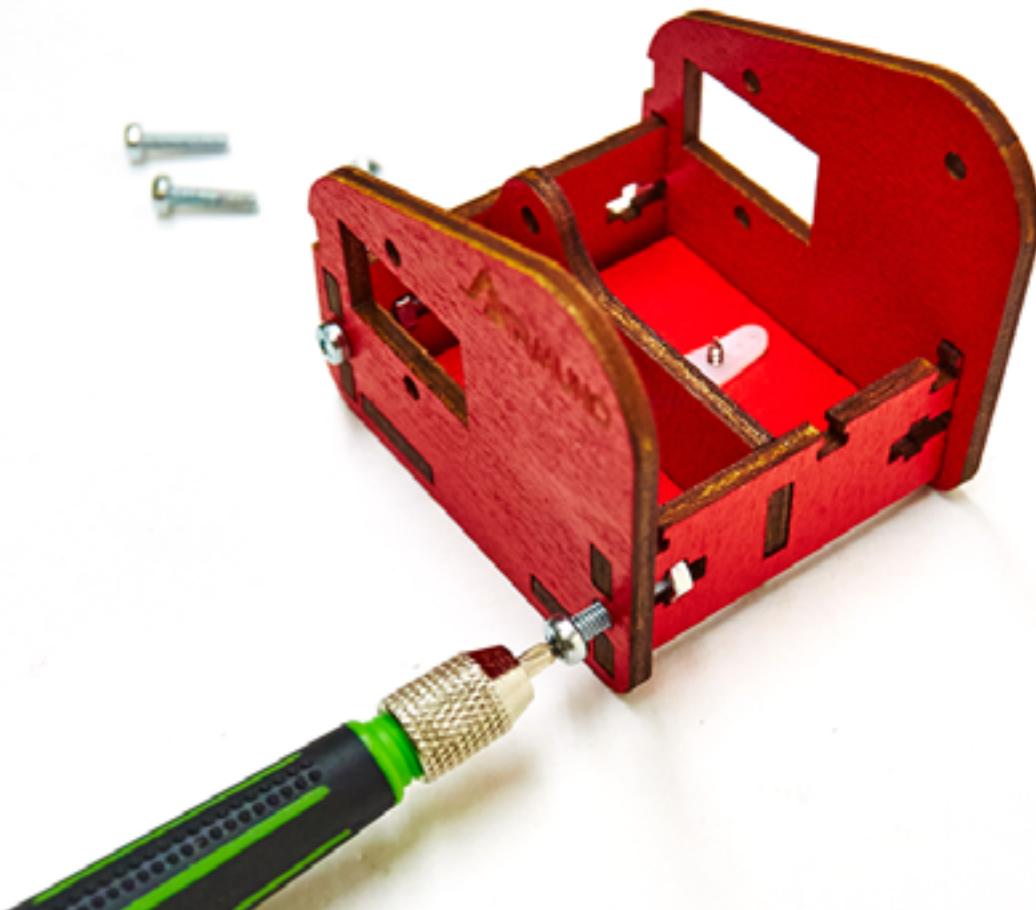
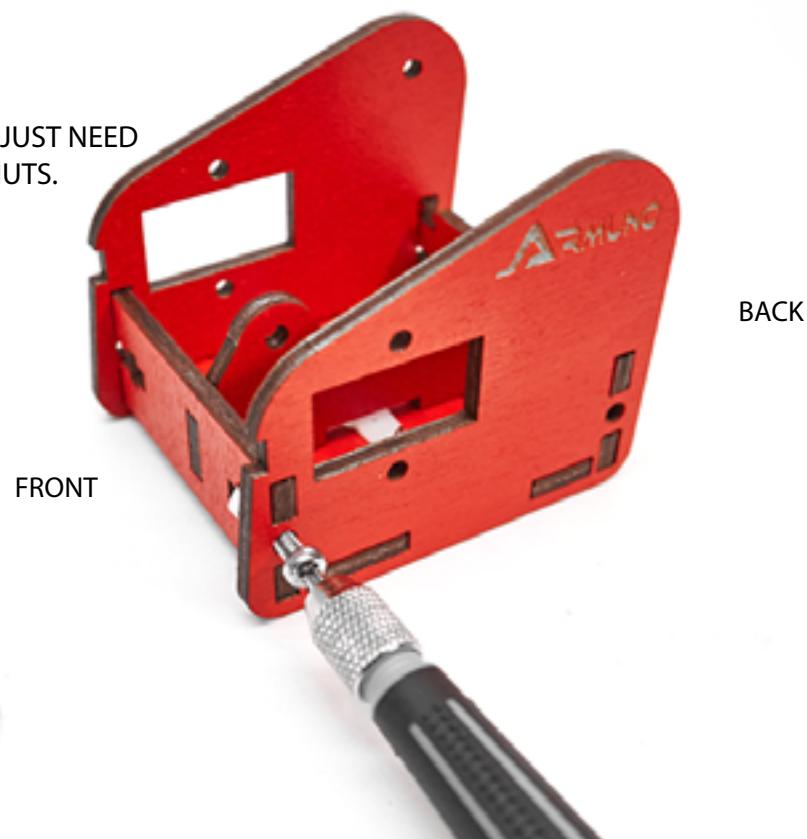


WITH THE LAST SIDE INSTALLED WE JUST NEED  
TO ATTACH THE BOLTS AND NUTS.

# ARMUNO DESKTOP ROBOTIC ARM

## TURRET BOX FRAME - SUB ASSY#1

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

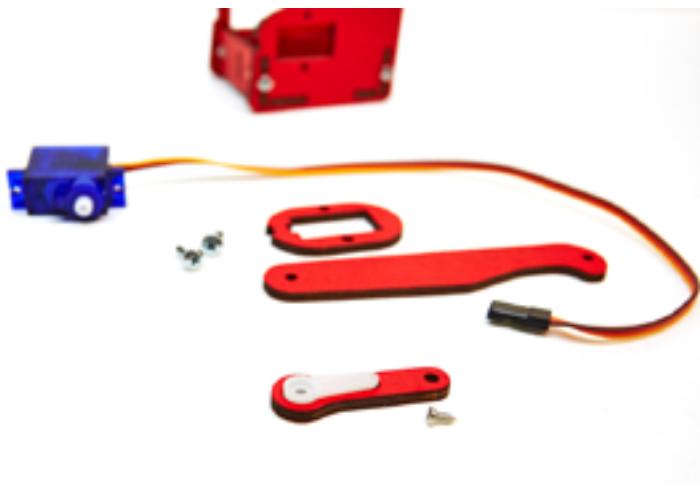


# ARMUNO DESKTOP ROBOTIC ARM

## LEFT SIDE SERVO - SUB ASSY#2



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



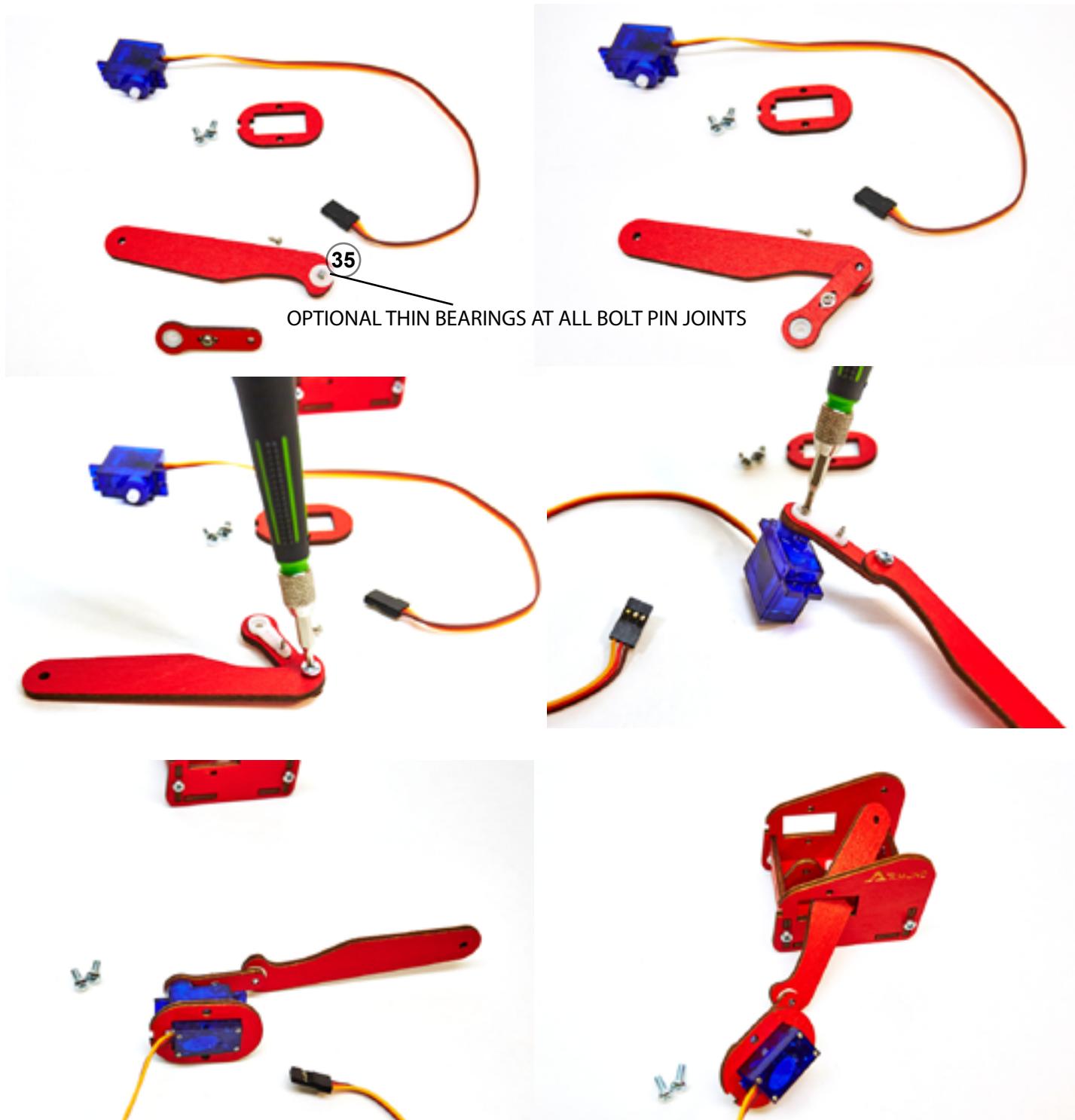
Place servo horn hub into matching  
hole on servo motor link.



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

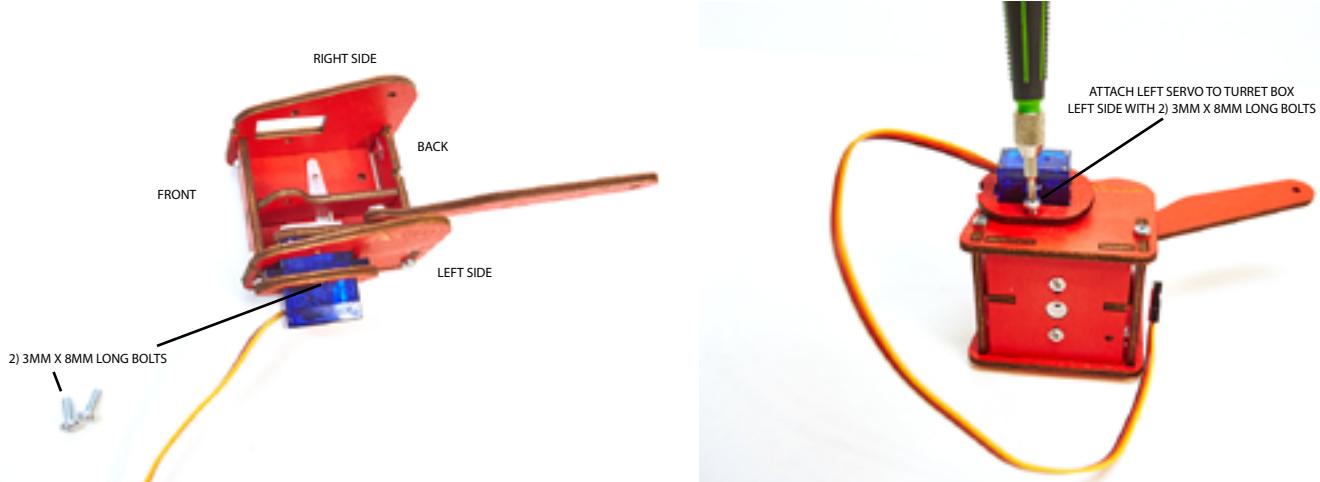
# ARMUNO DESKTOP ROBOTIC ARM

## LEFT SIDE SERVO - SUB ASSY#2

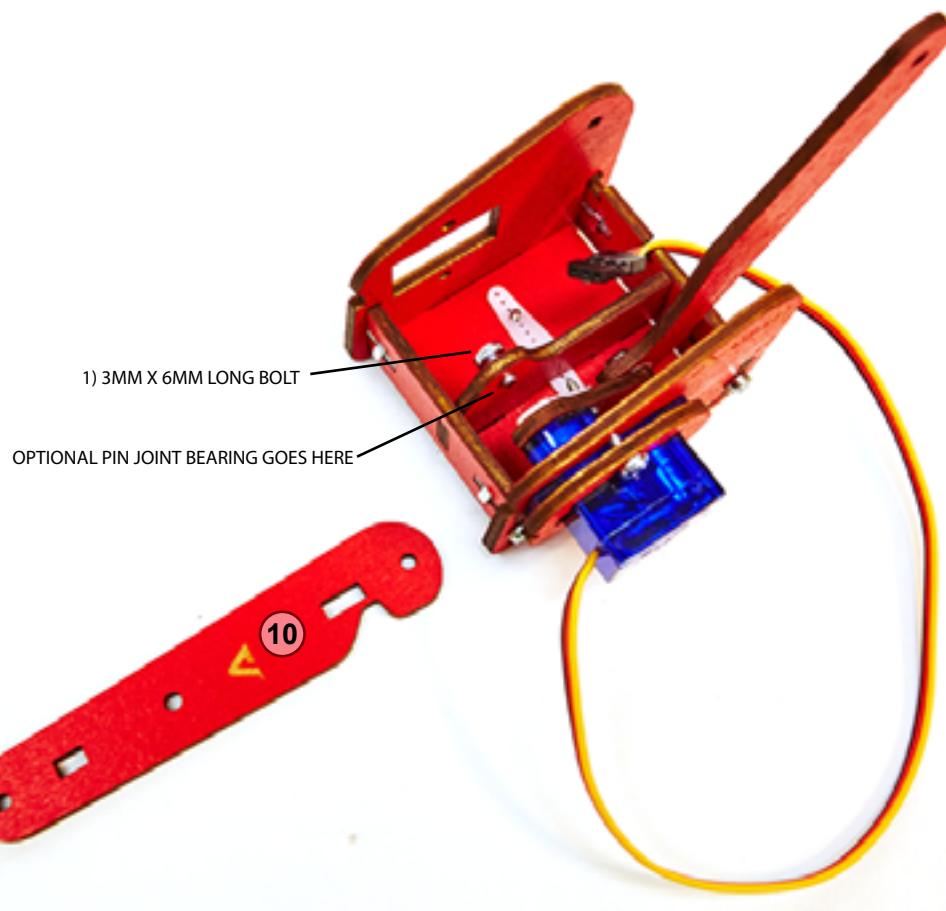


# ARMUNO DESKTOP ROBOTIC ARM

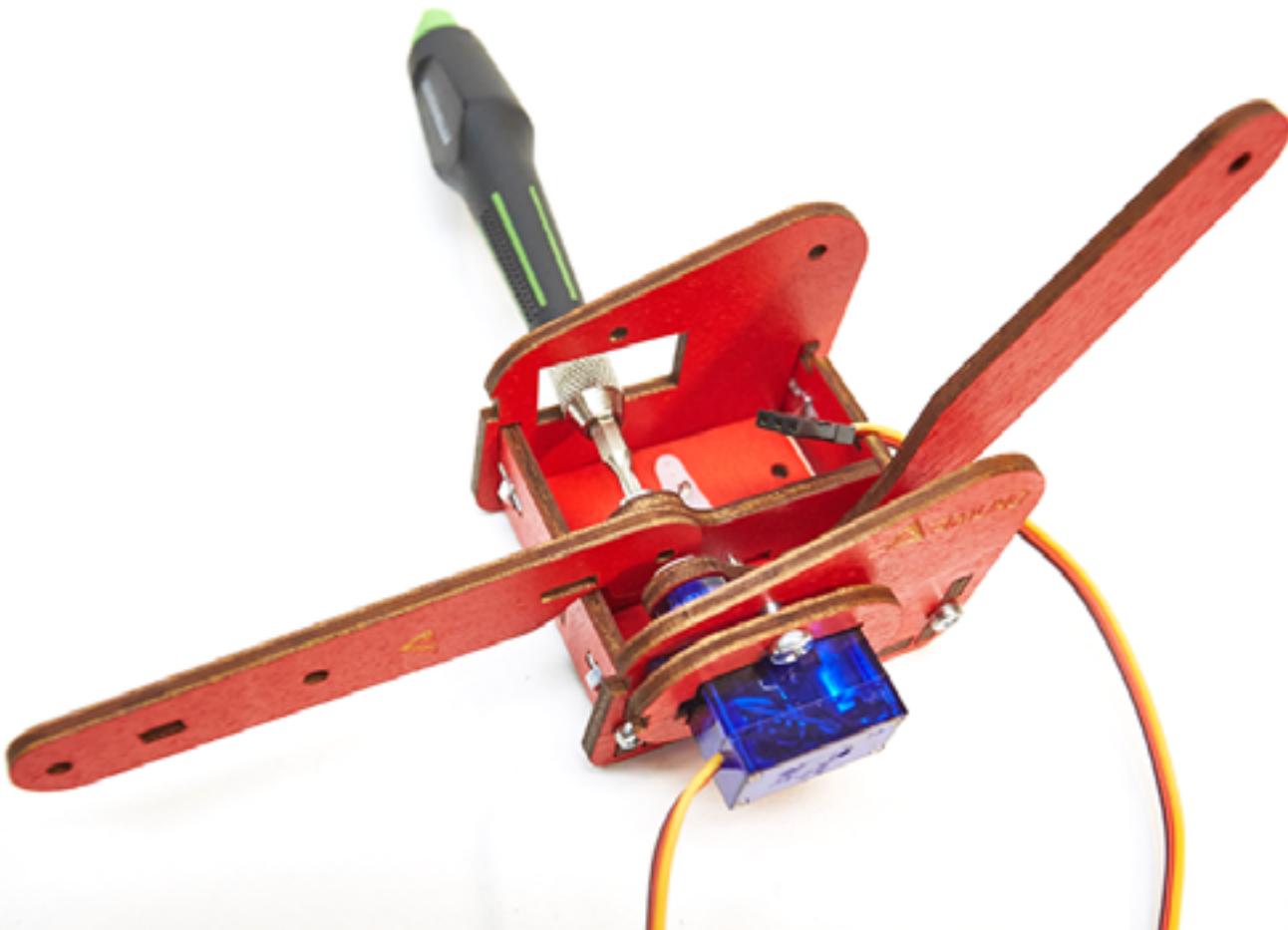
## ATTACHING LEFT SERVO (SUB ASSY#2) TO TURRET BOX (SUB ASSY #1)



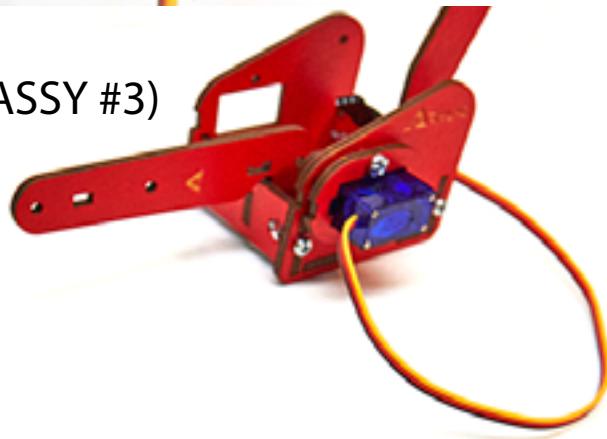
## ATTACHING CENTER ARM BEAM SIDE 1 TO TURRET BOX (SUB ASSY #1)



# ARMUNO DESKTOP ROBOTIC ARM



RIGHT SIDE SERVO - (SUB ASSY #3)

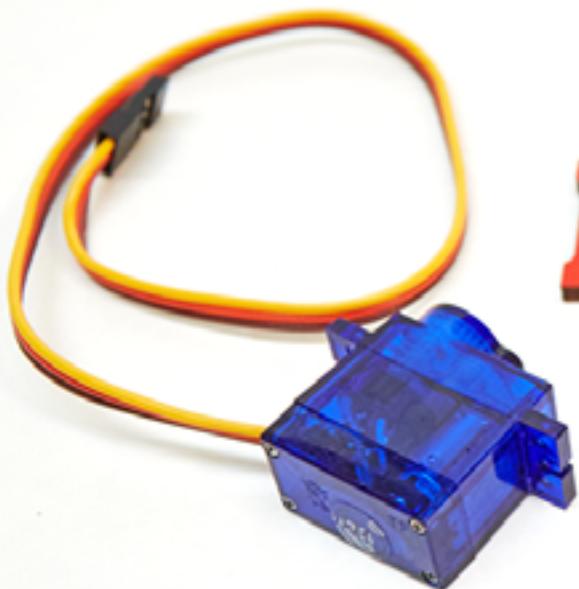


PARTS FOR RIGHT SIDE SERVO SUB ASSY

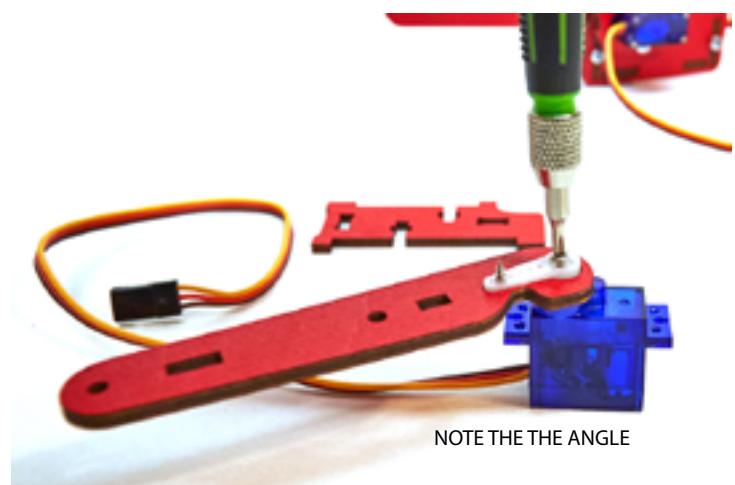


# ARMUNO DESKTOP ROBOTIC ARM

RIGHT SIDE SERVO - (SUB ASSY #3)



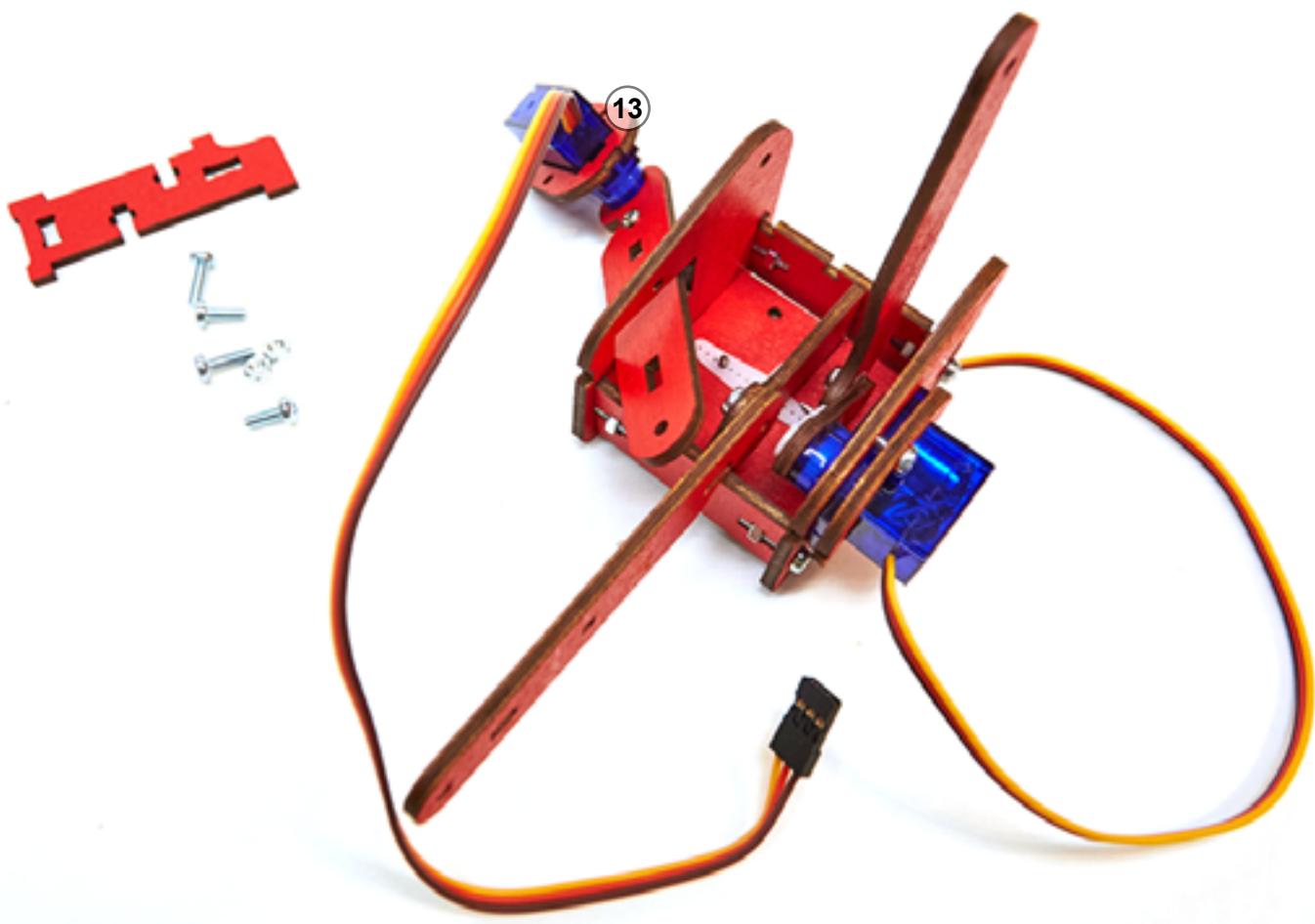
POSITION SERVO HORN HUB INTO MATCHING HOLE



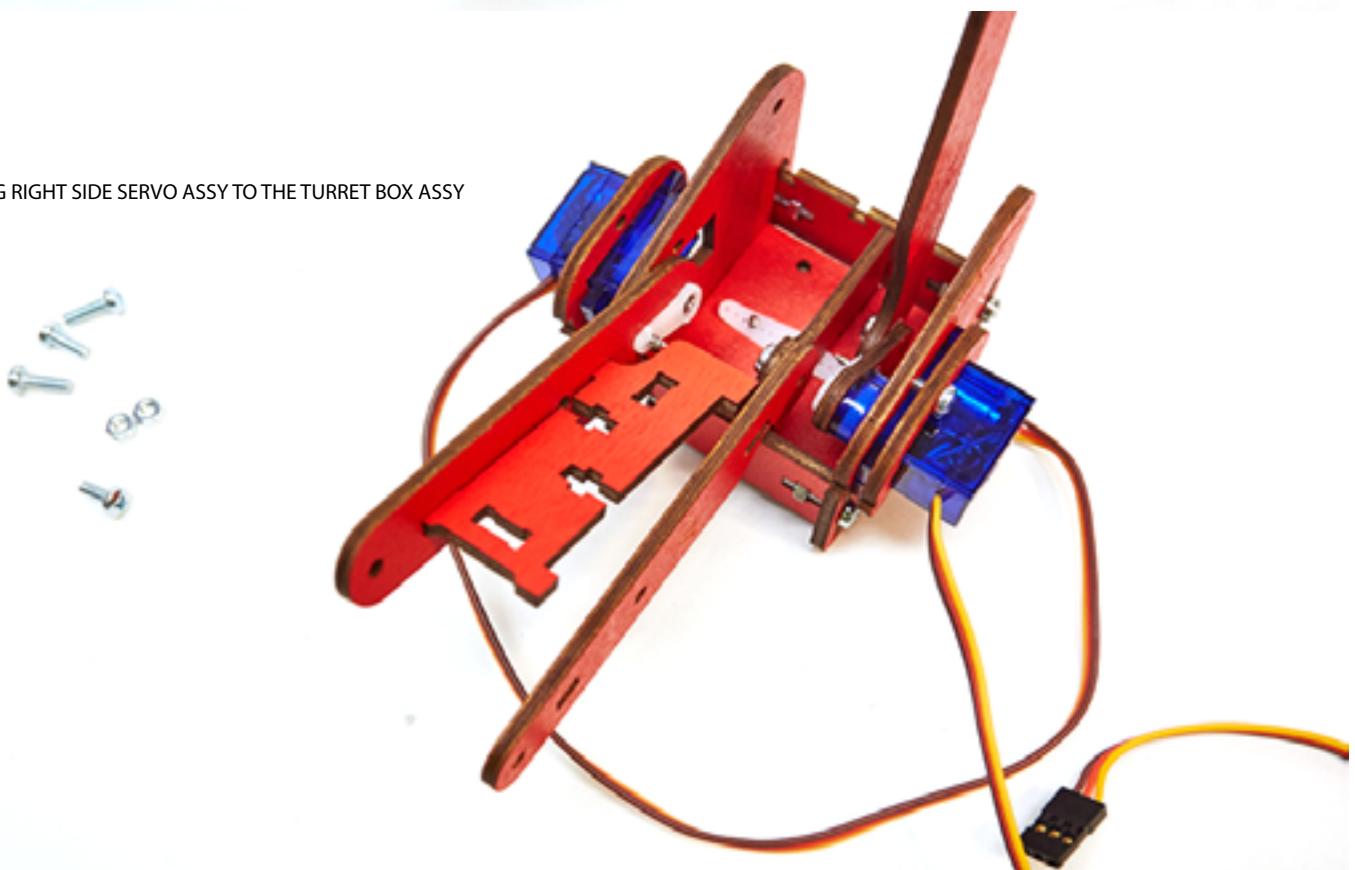
NOTE THE THE ANGLE

# ARMUNO DESKTOP ROBOTIC ARM

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

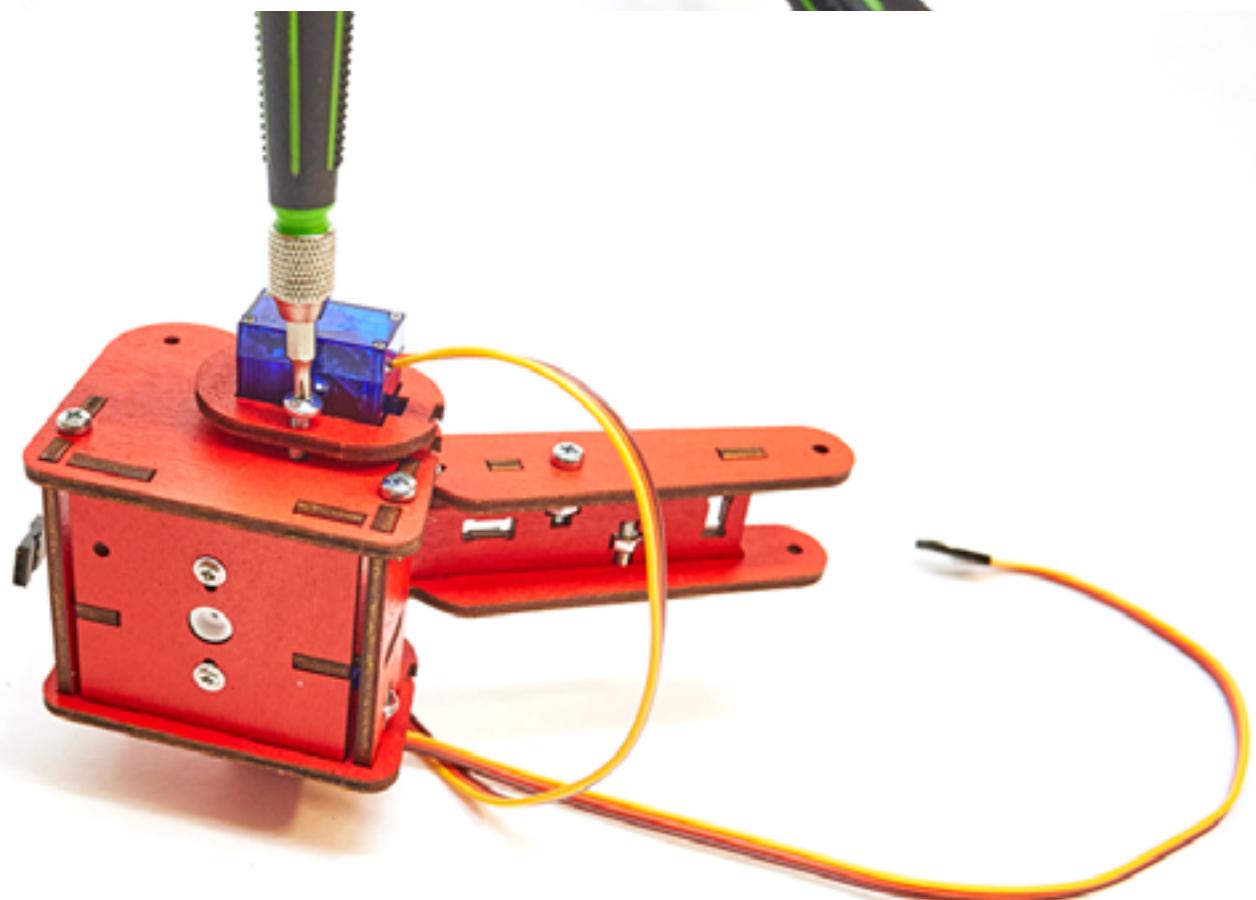
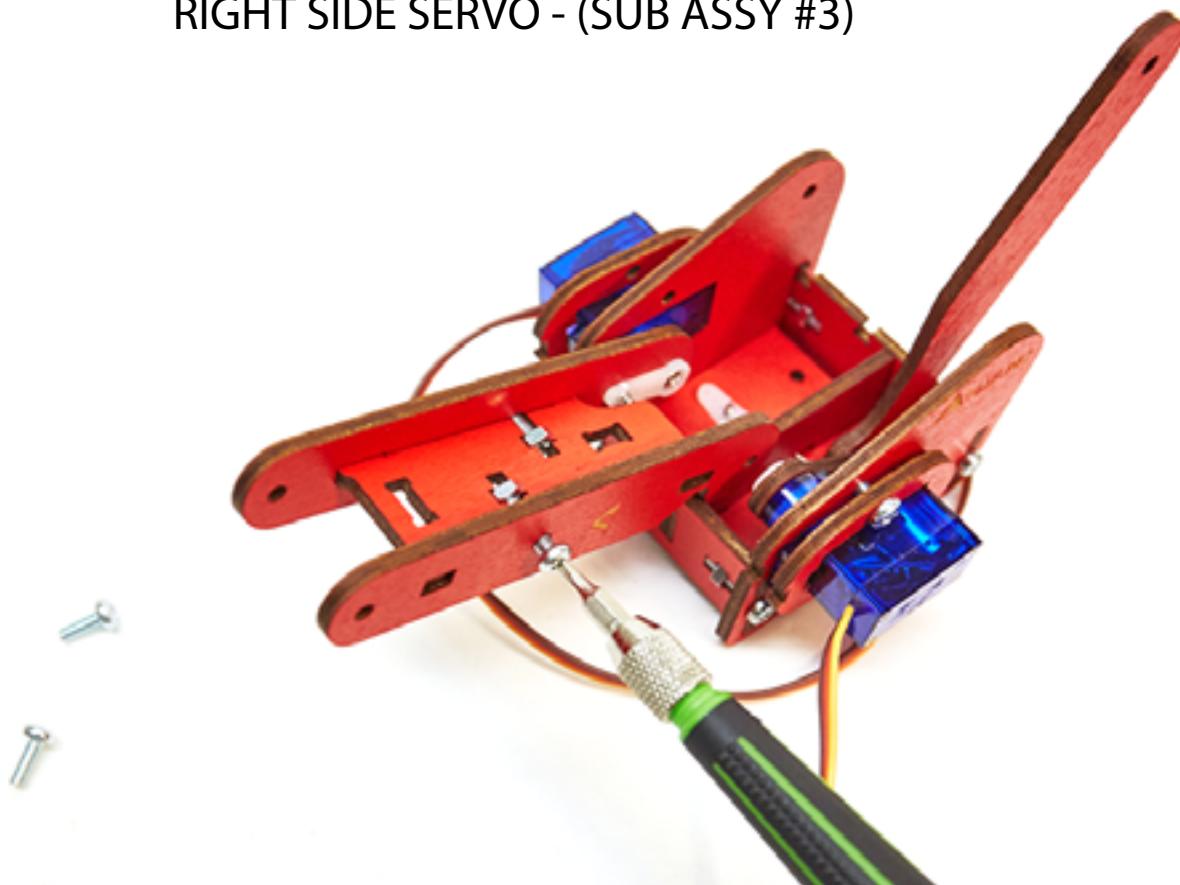


JOINING RIGHT SIDE SERVO ASSY TO THE TURRET BOX ASSY



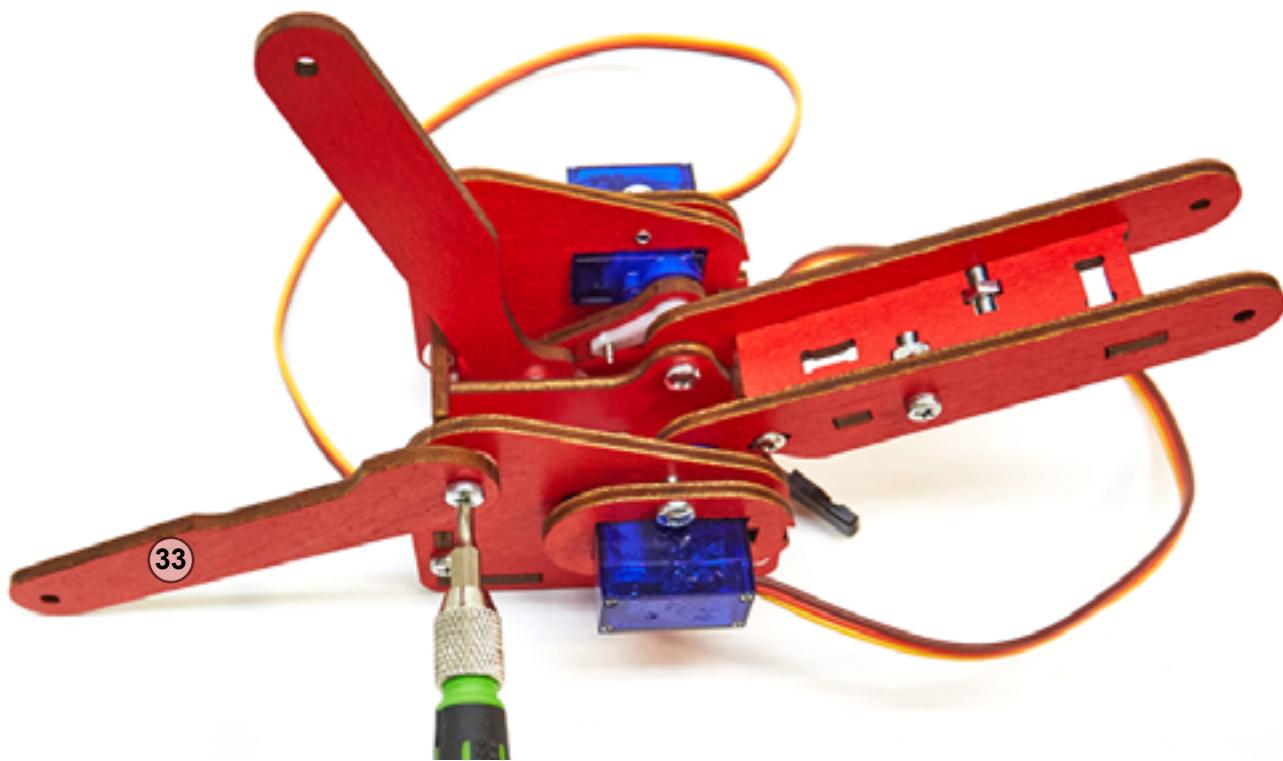
# ARMUNO DESKTOP ROBOTIC ARM

RIGHT SIDE SERVO - (SUB ASSY #3)



# ARMUNO DESKTOP ROBOTIC ARM

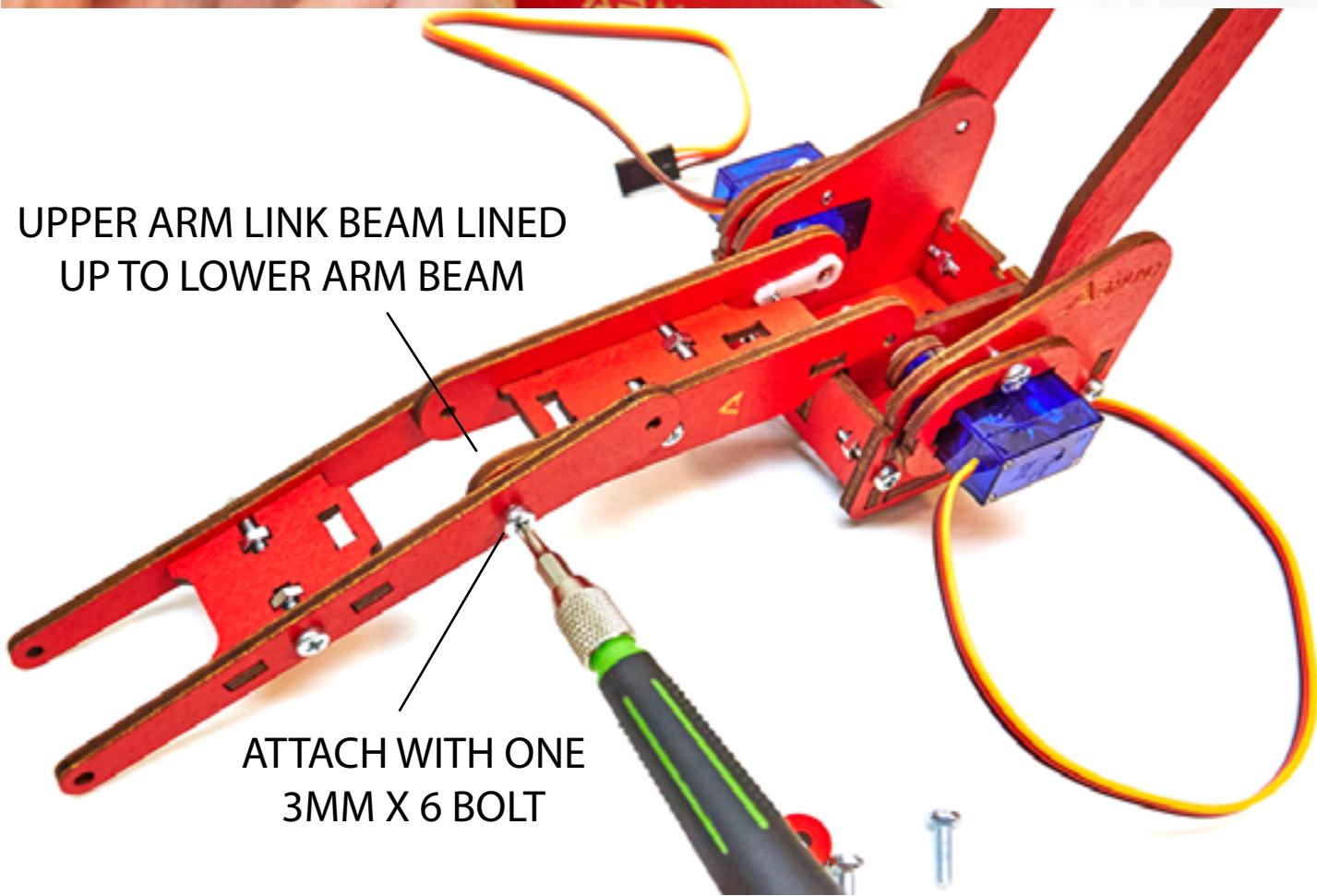
RIGHT SIDE PARALLEL LINK ATTACHED TO TURRET BOX



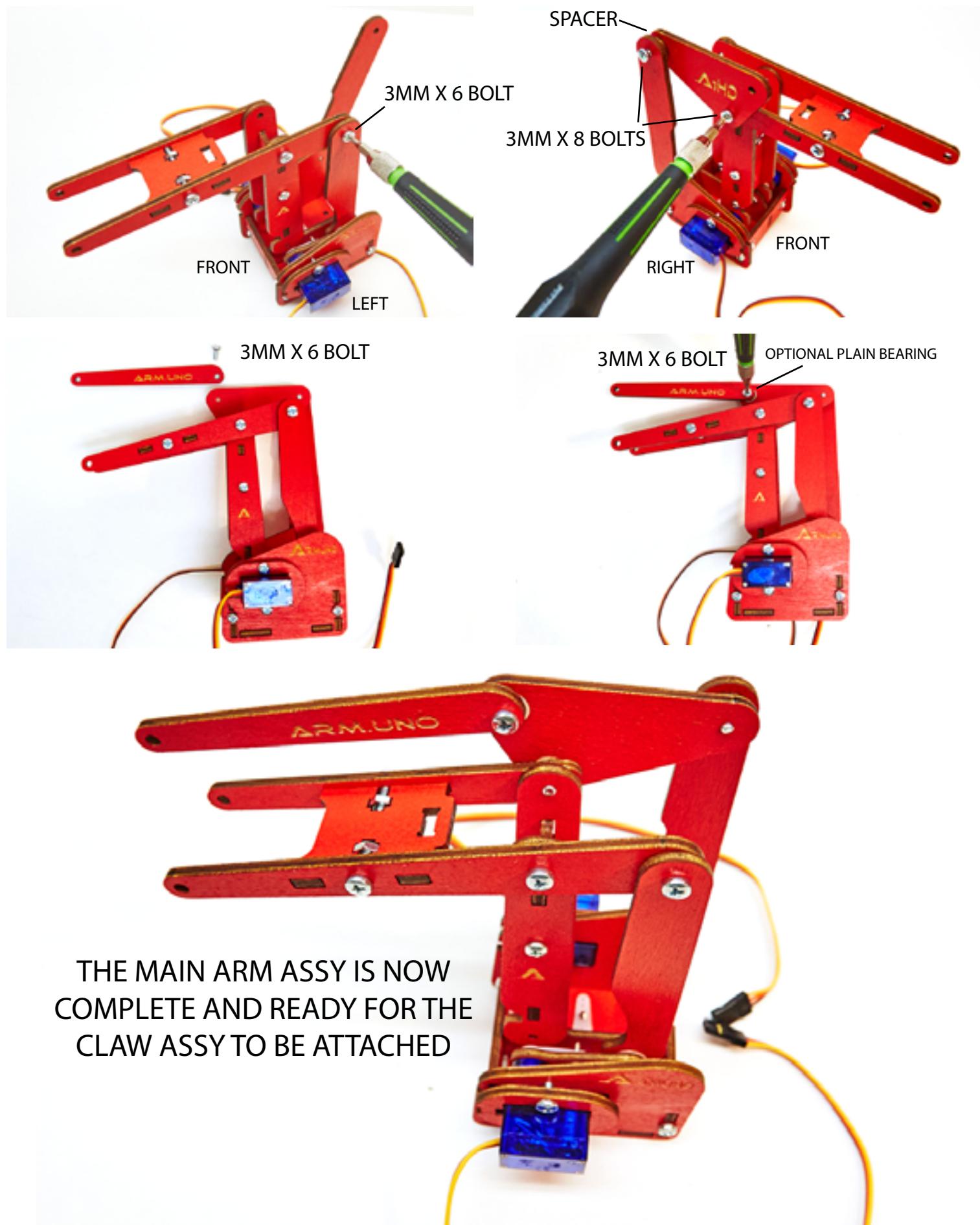
UPPER LINK BEAM ASSY PARTS



# ARMUNO DESKTOP ROBOTIC ARM



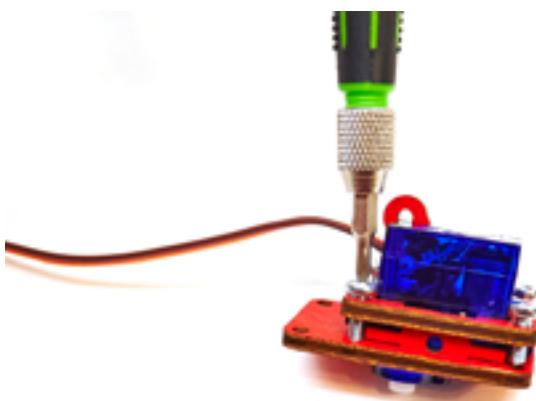
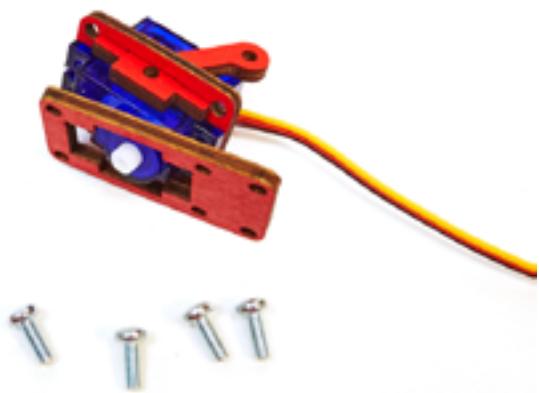
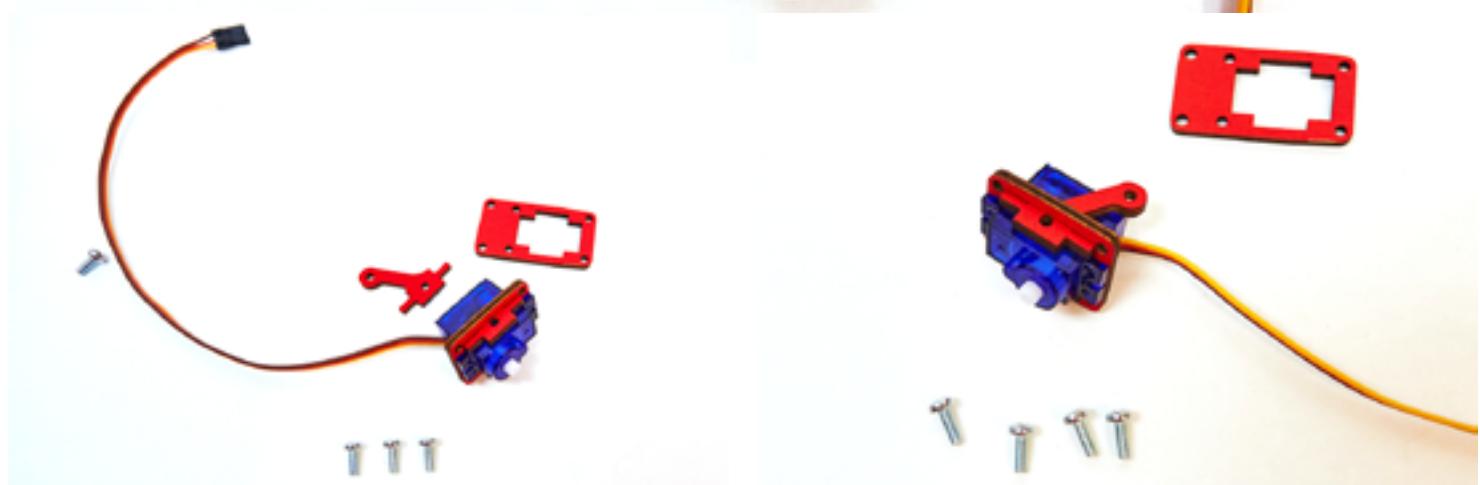
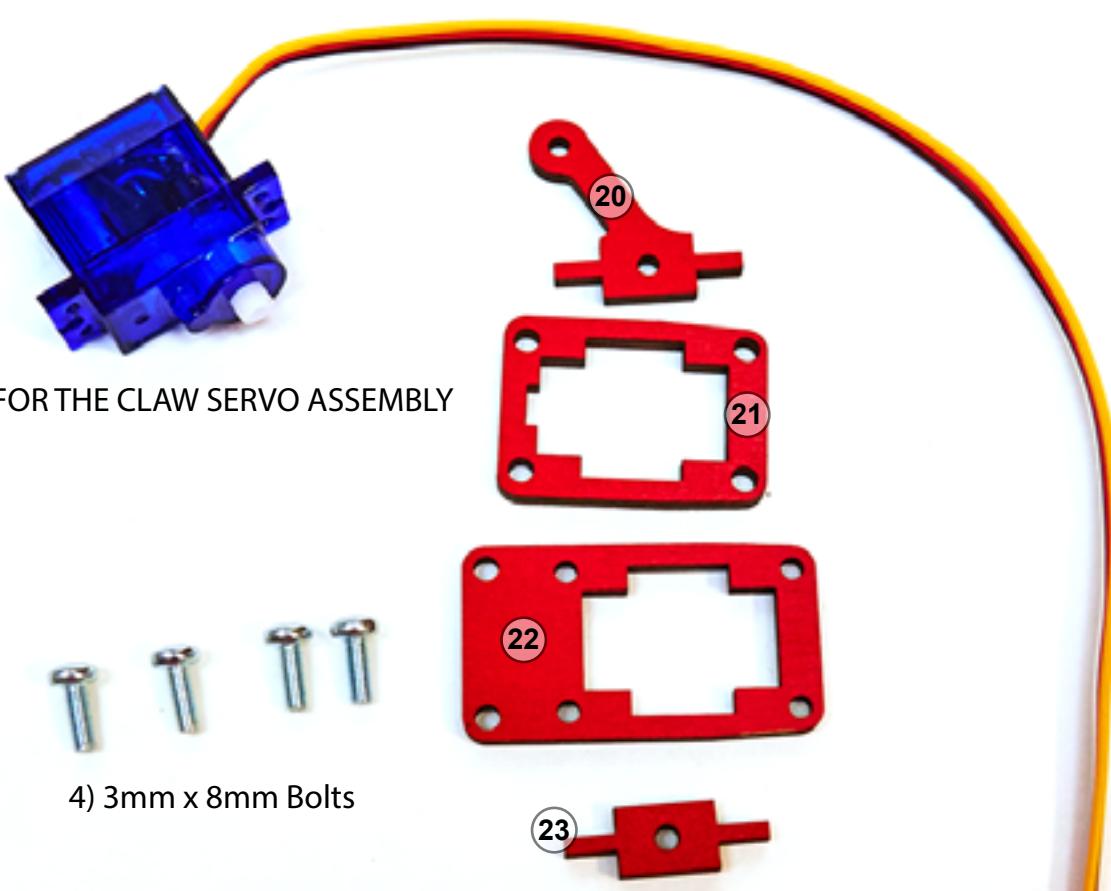
# ARMUNO DESKTOP ROBOTIC ARM



# ARMUNO DESKTOP ROBOTIC ARM

## CLAW SERVO ASSY

PARTS FOR THE CLAW SERVO ASSEMBLY



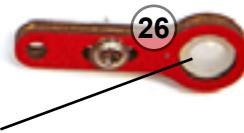
# ARMUNO DESKTOP ROBOTIC ARM

## CLAW JAW LINK ASSY

PARTS NEEDED FOR THE JAW LINK ASSY



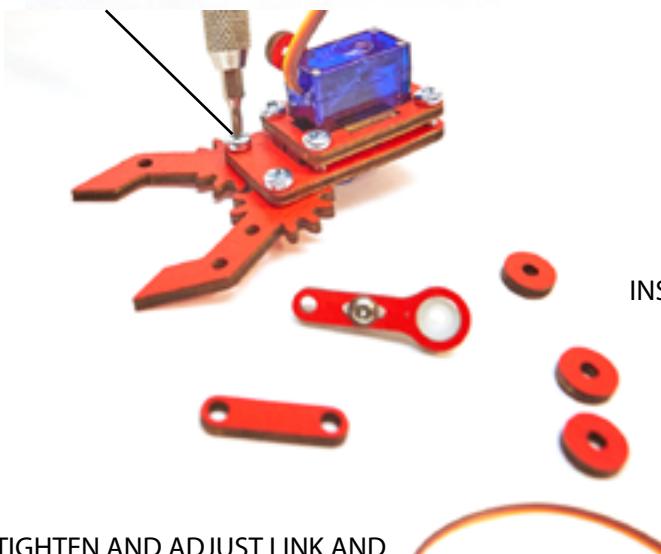
2) 3MM x 6MM BOLTS



ATTACH SERVO HORN TO LINK AS SHOWN



ATTACH JAWS WITH 6MM BOLTS AND  
ADJUST FOR SMOOTH ROTATION

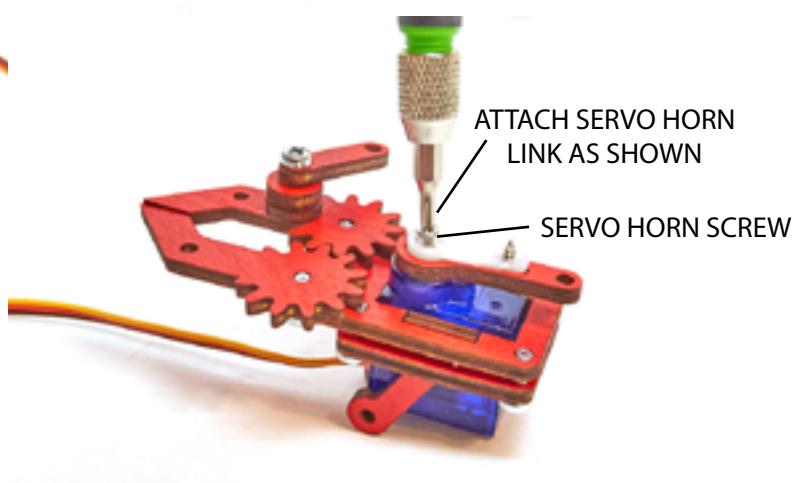


INSERT BOLT THRU LINK AND 2 SPACERS

1) 3MM x 12MM BOLT



TIGHTEN AND ADJUST LINK AND  
SPACERS TO CLAW AS SHOWN

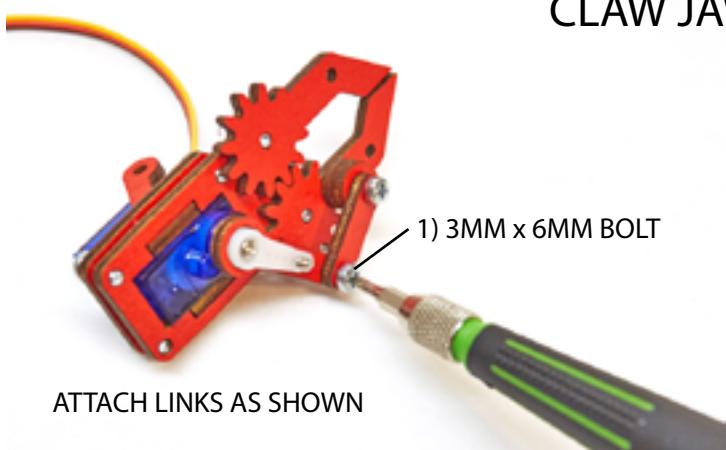


ATTACH SERVO HORN  
LINK AS SHOWN

SERVO HORN SCREW

# ARMUNO DESKTOP ROBOTIC ARM

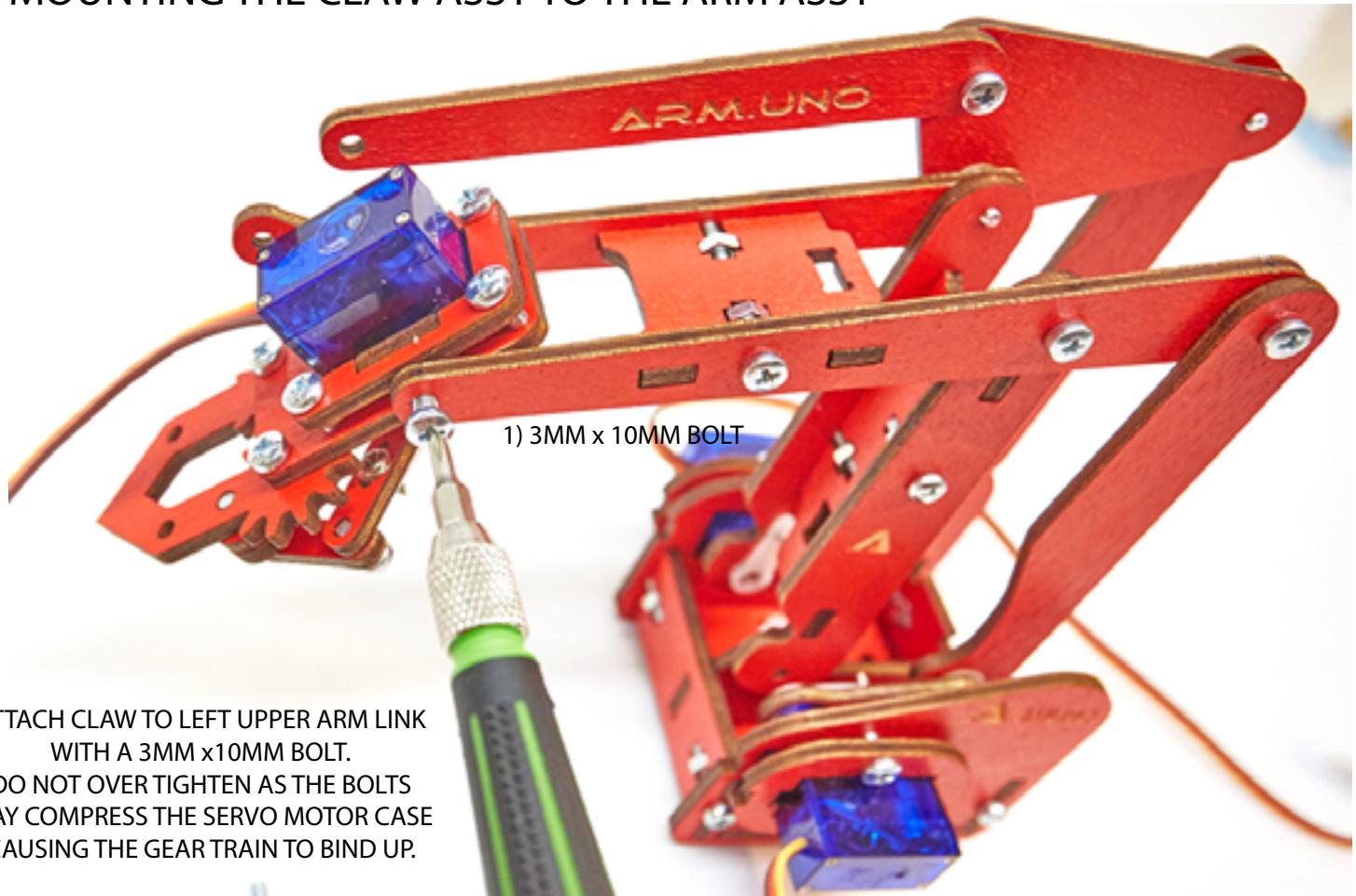
## CLAW JAW LINK ASSY



THE COMPLETED CLAW ASSEMBLY



## MOUNTING THE CLAW ASSY TO THE ARM ASSY

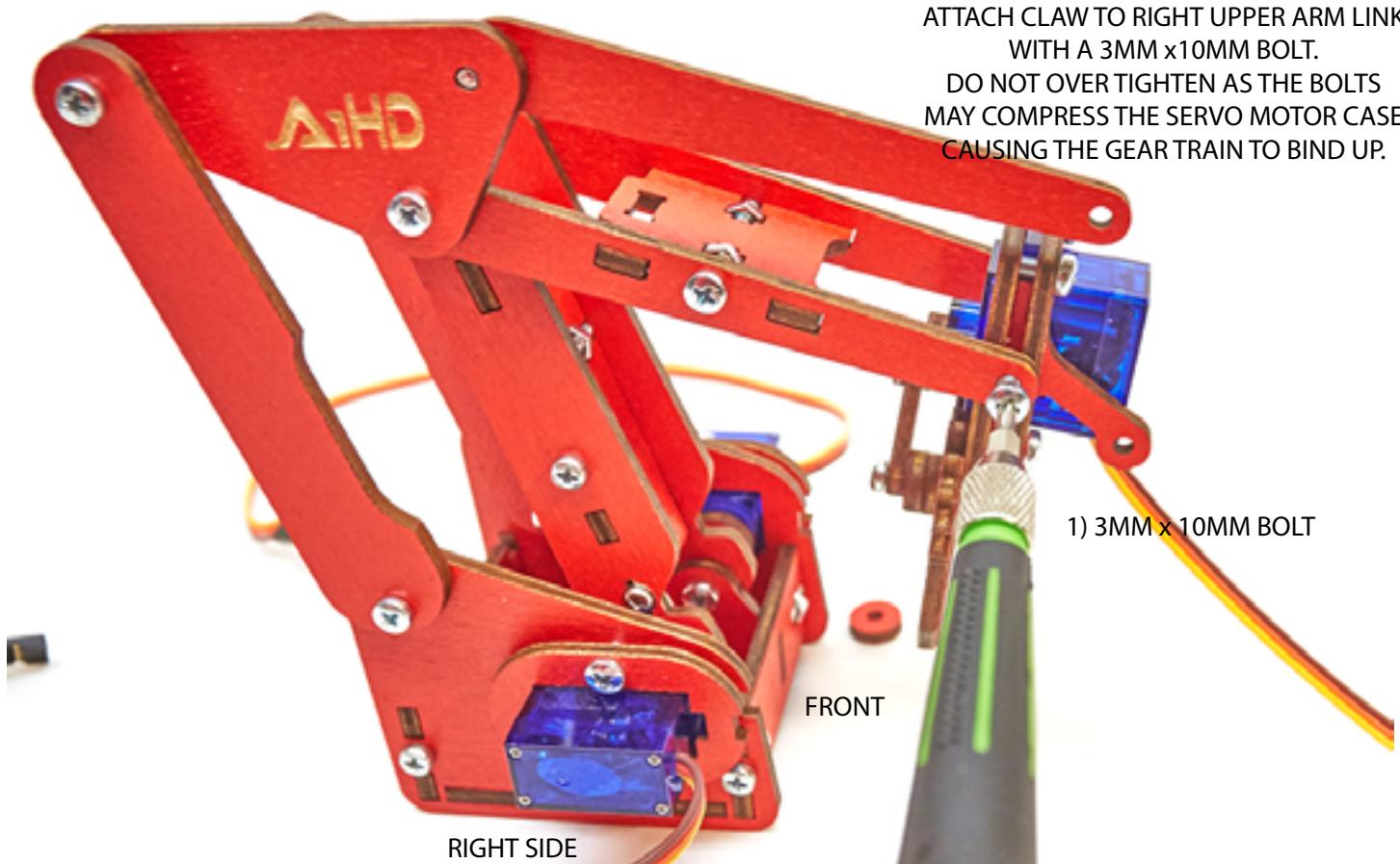


# ARMUNO DESKTOP ROBOTIC ARM

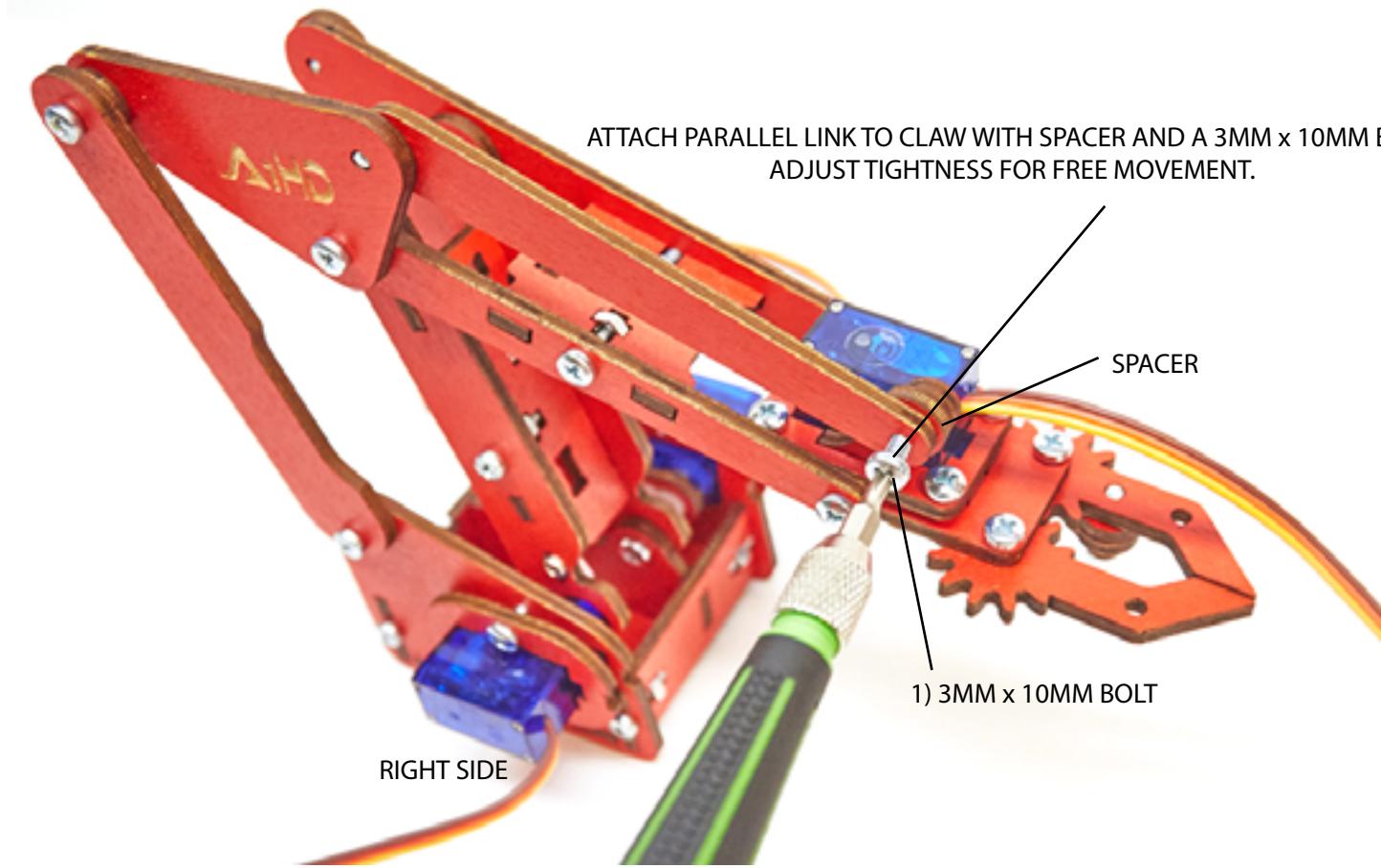
## MOUNTING THE CLAW ASSY TO THE ARM ASSY

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

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



ATTACH PARALLEL LINK TO CLAW WITH SPACER AND A 3MM x 10MM BOLT.  
ADJUST TIGHTNESS FOR FREE MOVEMENT.



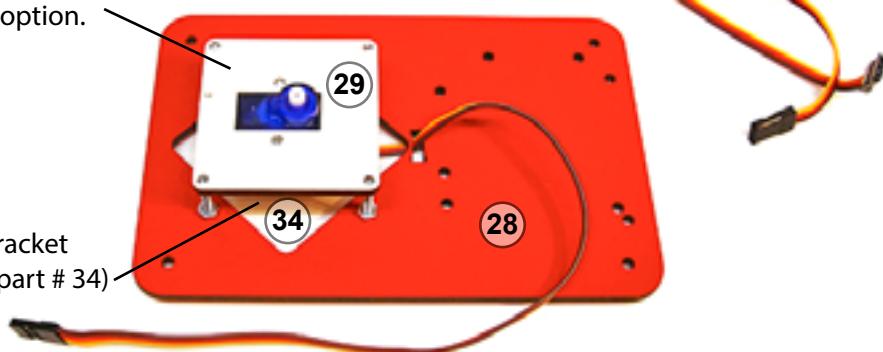
# ARMUNO DESKTOP ROBOTIC ARM

## 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 recommend installing it but if you wish you may leave it out.

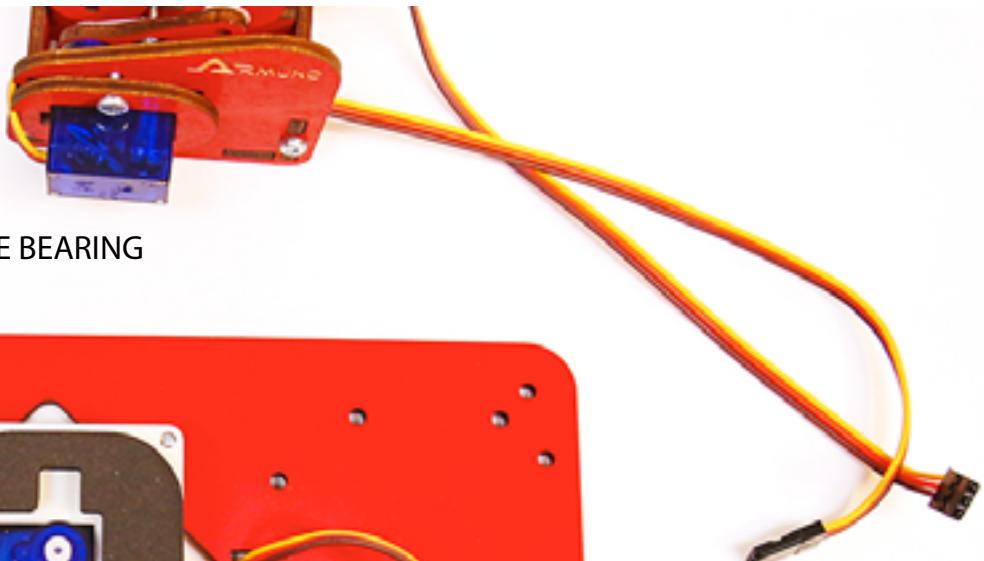
Plastic veneered servo mount plate  
This must used instead of the plain wood  
plate for the base bearing option.



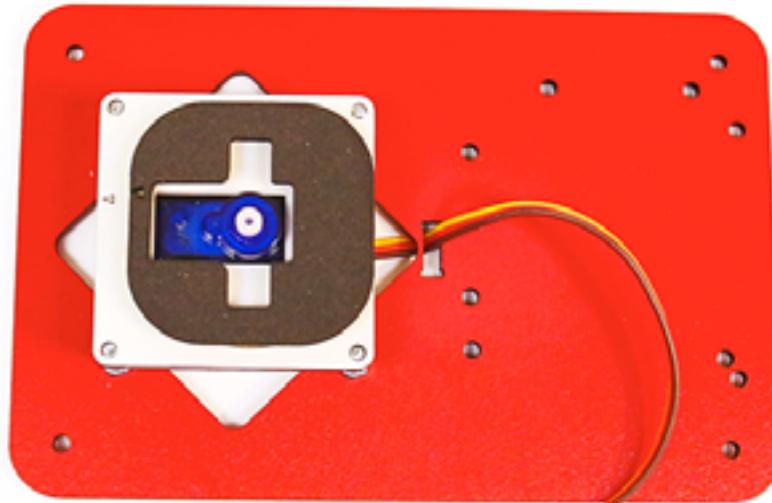
- 4) 3MM X 20MM BOLTS
- 4) 3MM HEX NUTS

Servo mount bracket  
(hidden from viewpart # 34)

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

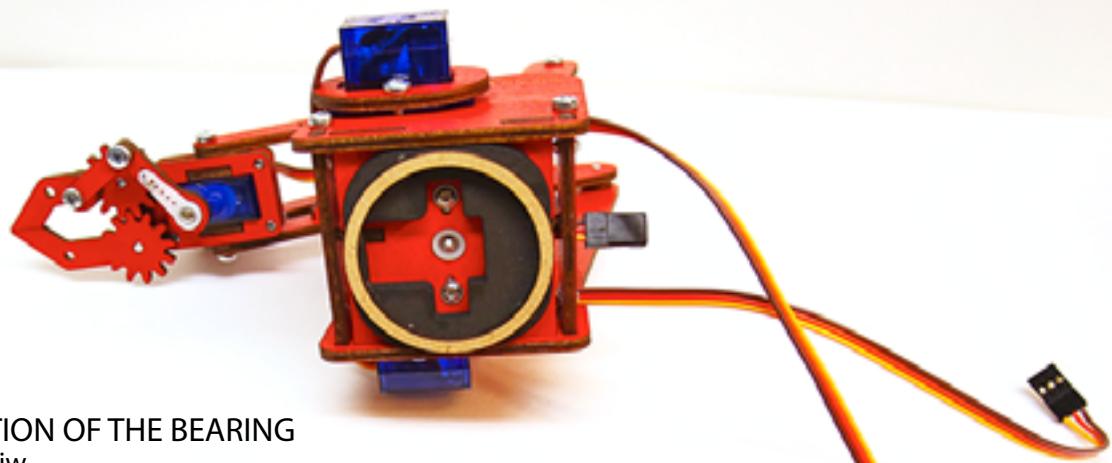


SHOWING THE ORIENTATION OF THE BEARING



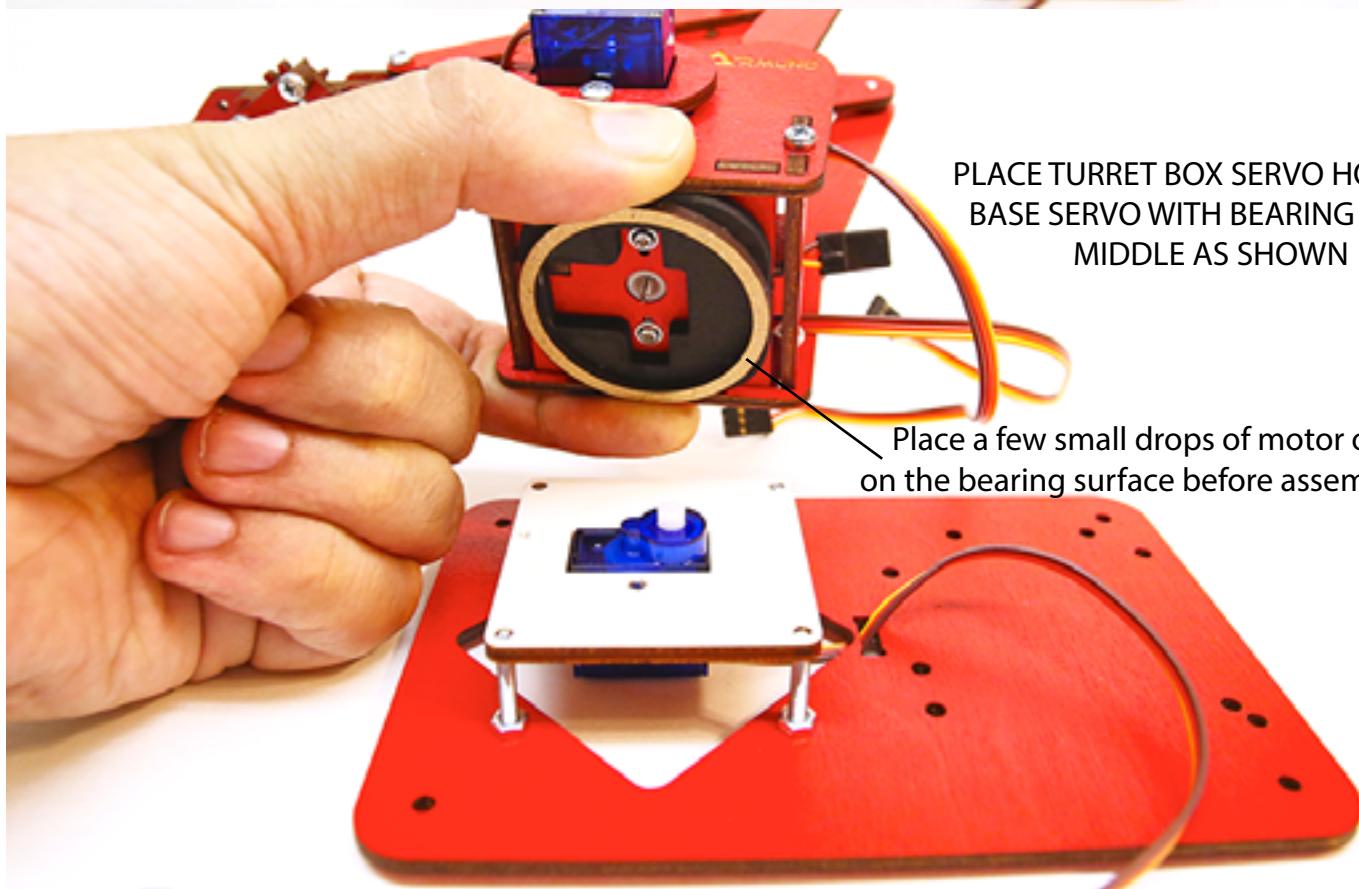
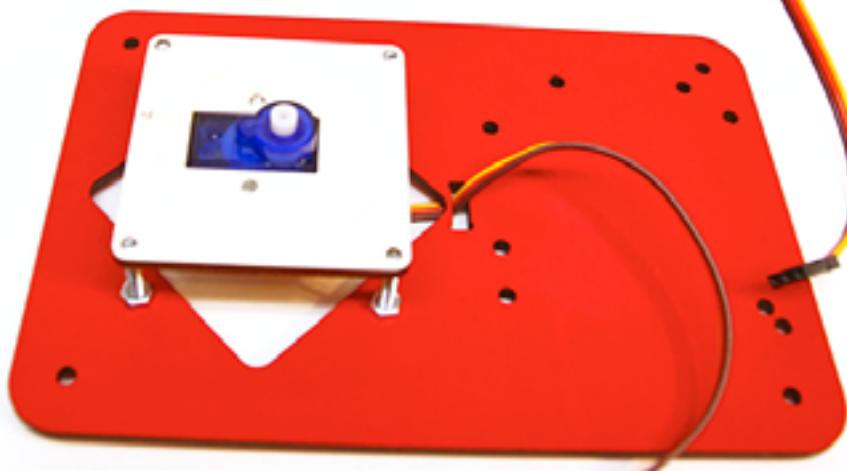
# ARMUNO DESKTOP ROBOTIC ARM

## BASE AND BEARING ASSY



SHOWING THE ORIENTATION OF THE BEARING

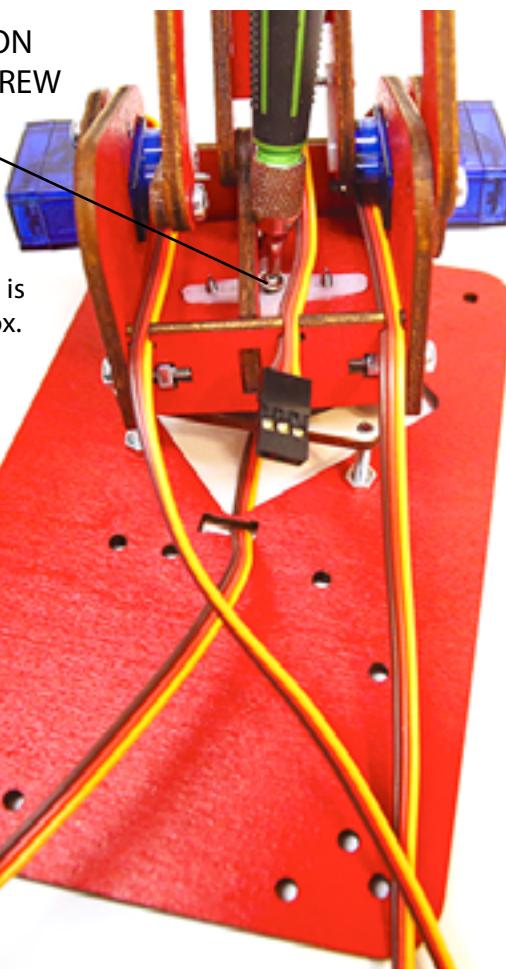
Another view



# ARMUNO DESKTOP ROBOTIC ARM

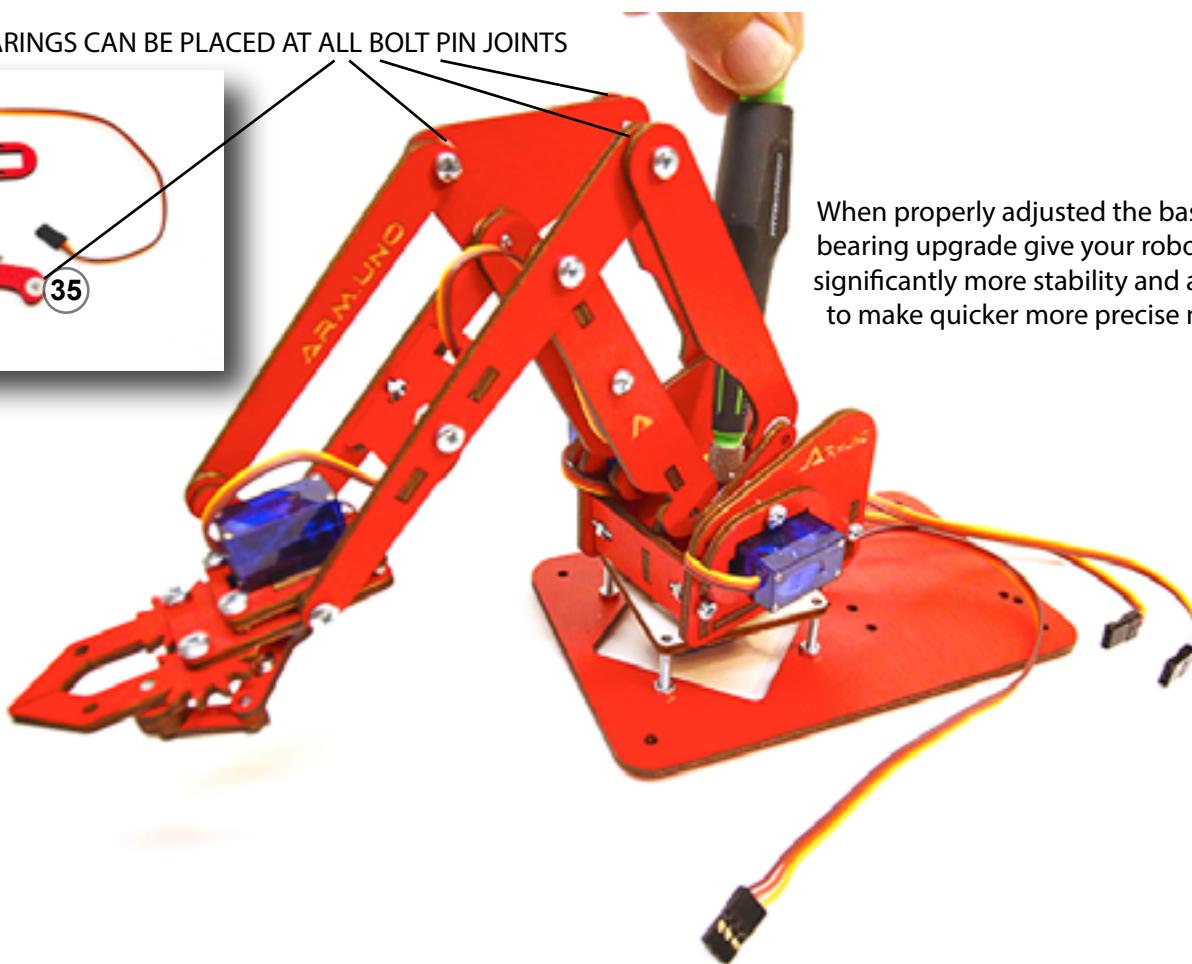
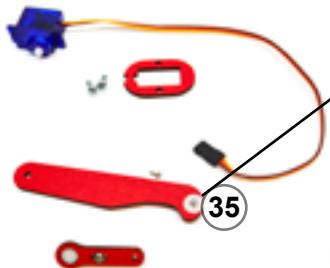
## BASE AND BEARING ASSY

ADJUST BEARING COMPRESSION  
WITH THE BASE SERVO HORN SCREW



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

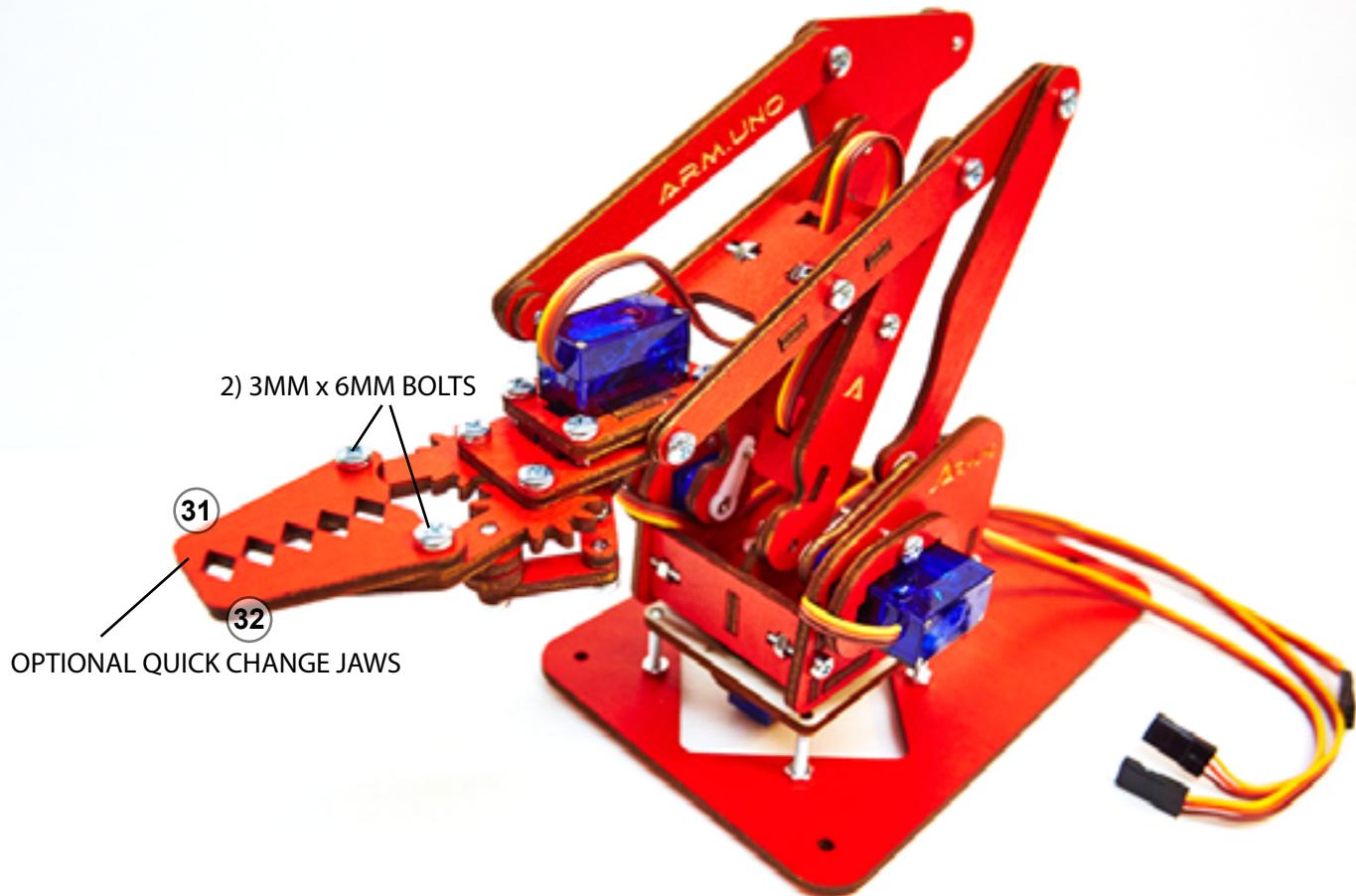
OPTIONAL THIN BEARINGS CAN BE PLACED AT ALL BOLT PIN JOINTS



When properly adjusted, the base plain bearing upgrade gives 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



LETS SEE, NEEDS A LITTLE ADJUSTMENT HERE..



AND ADD THE BASE PLATE AND WERE GOOD TO GO!