

Make: Robotic Arm Kit

In putting together this kits BOM (Bill of Materials) based on the text and parts list from the book, Make: Robotic Arms, we noticed several parts had inaccurate sizes listed and/or were missing altogether from the project supplies lists in various places across the book.

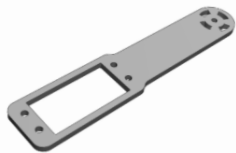
We have worked with the books author to provide the minor corrections here in this insert, which mainly provide a clearer list of the parts needed per project, and correct the rogue wrong size reference here and there in the book.

Robotic Arm Kit Parts List:

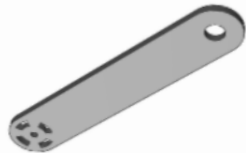
- Arduino and programming cable (1)
- Half-Size Breadboard (1)
- 5V 2A power supply (1)
- Barrel jack adapter (1)
- Jumper wires (23)*
- Micro screwdriver (1)
- MG995 servos (4)
- MG90s micro servo (1)
- Servo Mounting Brackets (4)
- Servo Extension Wires (3)
- Rotary Encoder Module (1)
- Joystick Module (1)
- 10K Potentiometers (2)
- Push-buttons (4)
- M2 x 10 mm bolts (2)*
- M2 Nuts (2)*
- M3 x 10 mm (mf) standoffs (4)
- M3 x 25 mm (ff) standoff (1)
- M3 x 30 mm (ff) standoffs (4)
- M3 x 50 mm (ff) standoffs (2)
- M3 x 3 mm spacer (1)
- M3 x 5 mm spacers (3)
- M3 x 5 mm bolts (16)*
- M3 x 10 mm bolts (45)*
- M3 x 16 mm bolts (2)*
- M3 x 20 mm bolts (3)*
- M3 Lock Nuts (26)*
- M4 x 10 mm bolt (1)*
- M4 Lock Nut (1)*
- 8mm bearings (6)
- 16mm bearings (2)
- Laser-cut Top & Bottom Etched MDF Plates (2)
- Laser-cut Robotic Arm Acrylic Parts Pack:
 - Two Link Robot (Servo Link) 1
 - Two Link Robot (Servo Base Link) 1
 - Four Link Robot (Servo Base Link) 1
 - Four Link Robot (Arm Links) 2
 - 3 DOF Robot Base (Servo Bottom Plate) 1
 - 3 DOF Robot Base (Servo Side Panels) 2
 - 3 DOF Robot Link 2 (Side Servo Extension) 1
 - 3 DOF Robot Link 2 (Side Extension) 1
 - 3 DOF Robot Link 3 (Part 1 Servo Side) 1
 - 3 DOF Robot Link 3 (Part 2 Bearing Side) 1
 - 3 DOF Robot Gripper Base 1
 - 3 DOF Robot Gripper Parts:
 - Gripper Cog Components 2
 - Slanted Finger Pieces 2*
 - Straight Finger Pieces 2*

*Includes an extra one or two pieces of these starred parts.

Acrylic Parts Chart



**Two Link Robot
(Servo Link)**



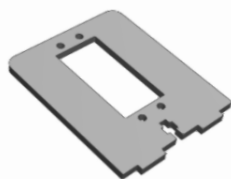
**Two Link Robot
(Servo Base Link)**



**Four Link Robot
(Servo Base Link)**



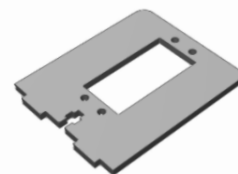
**Four Link Robot
(Arm Links x 2)**



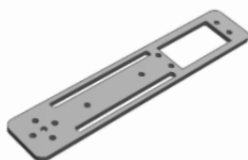
**3_DOF Robot
(Servo Side Panel L)**



**3_DOF Robot
(Servo Bottom Plate)**



**3_DOF Robot
(Servo Side Panel R)**



**3_DOF Robot
(Link 2 Side Servo Extension)**



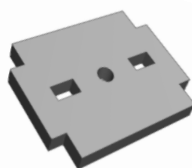
**3_DOF Robot
(Link 2 Side Extension)**



**3_DOF Robot
(Gripper Components)**



**3_DOF Robot
(Link 3 Servo Side)**



**3_DOF Robot
(Gripper Base)**



**3_DOF Robot
(Link 3 Bearing Side)**

Make: Robotic Arm Book - Parts Errata Notations

Chapter 1:

Project 1:

Supplies List Text Changes:

- Jumper Wires (6)
- 5V 2A power supply (1)
- Micro screwdriver (1)
- MG995 servo (1)
- Arduino and programming cable (1)
- Barrel jack adapter (1)
- Breadboard (1)

Main Text Changes:

- None

Project 2:

Supplies List Text Changes:

- Jumper wires (10)
- 5V 2A power supply (1)
- Micro screwdriver (1)
- MG995 servo (1)
- Arduino and programming cable (1)
- Barrel jack adapter (1)
- Breadboard (1)
- Push-buttons (2)

Main Text Changes:

- None

Project 3:

Supplies List Text Changes:

- Jumper wires (9)
- 5V 2A power supply (1)
- Micro screwdriver (1)
- MG995 servo (1)
- Arduino and programming cable (1)
- Barrel jack adapter (1)
- Breadboard (1)
- Potentiometer (1) is also spelled wrong here

Main Text Changes:

- On page 29, in the sample code section, one of the “p”s in println isn’t yellow

Chapter 2:

Project 1:

Supplies List Text Changes:

- Jumper wires (9)
- 5V 2A power supply (1)
- Micro screwdriver (1)
- MG995 servo (2)
- Servo Mounting Bracket (2)
- Arduino and programming cable (1)
- Barrel jack adapter (1)
- Breadboard (1)
- M3 x 30 mm (ff) standoff (4)
- M3 x 10 mm (mf) standoff (4)
- M3 x 10 mm bolt (17)
- M3 Lock Nut (8)
- M3 x 5 mm bolt (9)

Main Text Changes:

- On step 11 (page 35), it says “four more bolts” it should say, “4 more M3x5mm and 1 more M3x10 in the center of the motor mount”.

Project 2:

Supplies List Text Changes:

- Assembled Two-Link Robot
- Additional Jumper wires (9)
- 5V 2A power supply (1)
- Micro screwdriver (1)
- Arduino and programming cable (1)
- Barrel jack adapter (1)
- Breadboard (1)
- Push-button (4)

Main Text Changes:

- None

Project 3:

Supplies List Text Changes:

- Assembled Two-Link Robot
- Additional Jumper wires (6)
- 5V 2A power supply (1)
- Micro screwdriver (1)
- Arduino and programming cable (1)
- Barrel jack adapter (1)
- Breadboard (1)

- Potentiometer (2)

Main Text Changes:

- None

Chapter 3:

Project 1:

Supplies List Text Changes:

- Assembled Two-Link Robot

Main Text Changes:

- None

Project 2:

Supplies List Text Changes:

- Assembled Two-Link Robot

Main Text Changes:

- None

Chapter 4:

Project 1:

Supplies List Text Changes:

- Jumper wires (9)
- 5V 2A power supply (1)
- Micro screwdriver (1)
- MG995 servo (2)
- Servo Mounting Bracket (2)
- Arduino and programming cable (1)
- Barrel jack adapter (1)
- Breadboard (1)
- M3 x 30 mm (ff) standoff (4)
- M3 x 3 mm spacer (1)
- M3 x 10 mm bolt (18)
- M3 Lock Nut (11)
- M3 x 5 mm bolt (8)
- M3 x 20 mm bolt (3)
- 8mm bearing (6)

Main Text Changes:

- None

Project 2:

Supplies List Text Changes:

- Assembled Four-Link Robot

Main Text Changes:

- None

Project 3:

Supplies List Text Changes:

- Assembled Four-Link Robot

Main Text Changes:

- None

Project 4:

Supplies List Text Changes:

- Assembled Four-Link Robot

Main Text Changes:

- None

Chapter 5:

Project 1:

Supplies List Text Changes:

- Jumper wires (5)
- Arduino and programming cable (1)
- Joystick Module (1)

Main Text Changes:

- None

Project 2:

Supplies List Text Changes:

- Assembled Four-Link Robot
- Additional Jumper wires (5)
- 5V 2A power supply (1)
- Micro screwdriver (1)
- Arduino and programming cable (1)
- Barrel jack adapter (1)
- Breadboard (1)
- Joystick Module (1)

Main Text Changes:

- None

Chapter 6:

Project 1:

Supplies List Text Changes:

- Assembled Four-Link Robot

Main Text Changes:

- None

Project 2:

Supplies List Text Changes:

- Assembled Four-Link Robot

Main Text Changes:

- None

Project 3:

Supplies List Text Changes:

- Assembled Four-Link Robot
- Additional Jumper wires (5)
- 5V 2A power supply (1)
- Micro screwdriver (1)
- Arduino and programming cable (1)
- Barrel jack adapter (1)
- Breadboard (1)
- Joystick Module (1)

Main Text Changes:

- None

Project 4:

Supplies List Text Changes:

- Assembled Four-Link Robot

Main Text Changes:

- None

Chapter 7:

Project 1:

Supplies List Text Changes:

- Jumper wires (18)
- 5V 2A power supply (1)
- Micro screwdriver (1)
- MG995 servo (4)
- MG90s micro servo (1)
- Servo Mounting Bracket (4)
- Arduino and programming cable (1)
- Barrel jack adapter (1)
- Breadboard (1)
- M2 x 10 mm bolt (2)
- M2 Nut (2)
- M3 x 30 mm (ff) standoff (4)
- M3 x 25 mm (ff) standoff (1)
- M3 x 50 mm (ff) standoff (2)
- M3 x 5 mm spacer (3)
- M3 x 10 mm bolt (45)
- M3 Lock Nut (26)
- M3 x 5 mm bolt (16)
- M3 x 16 mm bolt (2)
- M3 x 20 mm bolt (1)
- M4 x 10 mm bolt (1)
- M4 Lock Nut (1)
- 16mm bearing (2)

Main Text Changes:

- There is a ground wire going from the breadboard to the Arduino in Figure 7-2.
- On page 131, in step 7, it says “5 M3 x 10mm bolts”, and it should say “4 M3 x 5mm bolts, and one M3 x 10mm bolt in the center”.
- On page 133, in step 14, it says “35mm” and it should say “25”.
- On page 135, in step 19, it says “M3 x 10mm plastic spacer” and it should say “M3 x 5mm”.

Project 2:

Supplies List Text Changes:

- Assembled Three-DOF Robotic Arm

Main Text Changes:

- None

Chapter 8:

Project 1:

Supplies List Text Changes:

- Assembled Three-DOF Robotic Arm
- Rotary Encoder Module (1)
- Additional Jumper Wires (5)

Main Text Changes:

- There is a ground wire going from the breadboard to the Arduino in Figure 8-1.

Project 2:

Supplies List Text Changes:

- Assembled Three-DOF Robotic Arm
- Rotary Encoder Module (1)
- Additional Jumper Wires (5)

Main Text Changes:

- On page 158, in the void loop section of the code, there is a “d” in digitalRead that is still black, and not yellow.

Chapter 9:

Project 1:

Supplies List Text Changes:

- Assembled Three-DOF Robotic Arm

Main Text Changes:

- None

Project 2:

Supplies List Text Changes:

- Assembled Three-DOF Robotic Arm

Main Text Changes:

- None

Project 3:

- Assembled Three-DOF Robotic Arm

Main Text Changes:

- None

Project 4:

Supplies List Text Changes:

- Assembled Three-DOF Robotic Arm
- Rotary Encoder Module (1)
- Additional Jumper Wires (5)

Main Text Changes:

- None

Appendix Parts List:

- Jumper wires (23)
- 5V 2A power supply (1)
- Barrel jack adapter (1)
- Micro screwdriver (1)
- MG995 servo (4)
- MG90s micro servo (1)
- Servo Mounting Bracket (4)
- Arduino and programming cable (1)
- Half-Size Breadboard (1)
- M2 x 10 mm bolt (2)
- M2 Nut (2)
- M3 x 10 mm (mf) standoff (4)
- M3 x 25 mm (ff) standoff (1)
- M3 x 30 mm (ff) standoff (4)
- M3 x 50 mm (ff) standoff (2)
- M3 x 3 mm spacer (1)
- M3 x 5 mm spacer (3)
- M3 x 5 mm bolt (16)
- M3 x 10 mm bolt (45)
- M3 x 16 mm bolt (2)
- M3 x 20 mm bolt (3)
- M3 Lock Nut (26)
- M4 x 10 mm bolt (1)
- M4 Lock Nut (1)
- 8mm bearing (6)
- 16mm bearing (2)
- Rotary Encoder Module (1)
- Joystick Module (1)
- Potentiometer (2)
- Push-button (4)