

Bioid

Premium Kit

Battle Droid

Assembly Manual



Attention!

Before proceeding with assembly you must ensure each actuator's horn is properly aligned. To visually verify proper alignment, the notch from the horn should be in line with the notch from the actuator's body.

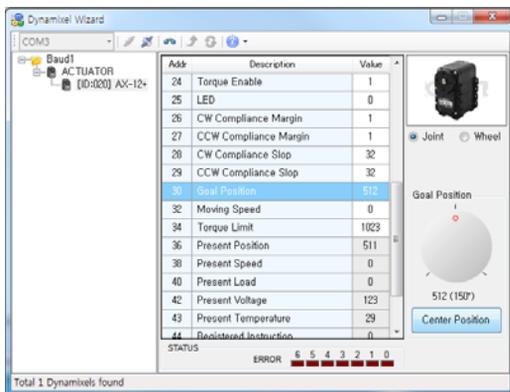
If not, perform one of the following actions:

A. Turn the horn manually until its properly aligned.

B. Use Dynamixel Wizard.

1. Start RoboPlus and run Dynamixel Wizard.
2. Connect the actuator to the computer through USB2Dynamixel. Don't forget to supply power to the actuator separately.
3. Select the correct port, click on the **Open Port** icon, and click on **Start Search**.
4. On address 30, Goal Position, click on **Center Position**. Dynamixel Wizard will then align the horn; you can visually verify horn alignment afterwards.

(For more information, please refer to Dynamixel Management.)



Dynamixel Wizard



properly aligned horn

*Some robots may require a specific horn alignment before assembly. Please follow assembly instructions closely if such horn alignment is necessary.

Tips!

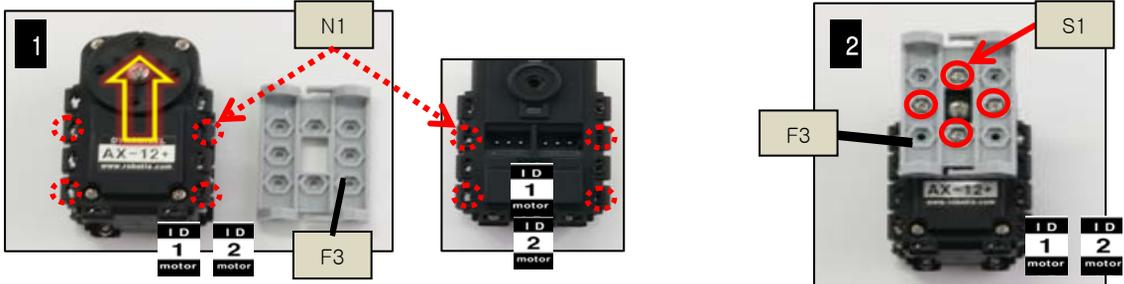
- I. Always assign ID numbers to the actuators before assembly. Robotis recommends you assign ID's by one actuator at a time.
- II. You may need apply gentle pressure to fit nuts into the actuator's body. The tight fit is necessary to facilitate assembly.
 - A. Insert only one nut at a time.
 - B. Use your screwdriver to apply pressure on the nut.
 - C. Point the screwdriver away from your body and away from other people.

Bioid Battle Droid – Getting Started

STEP 1

Attach one F3 to ID1. Connect one F3 to ID2.
(Do not misalign horn position.)

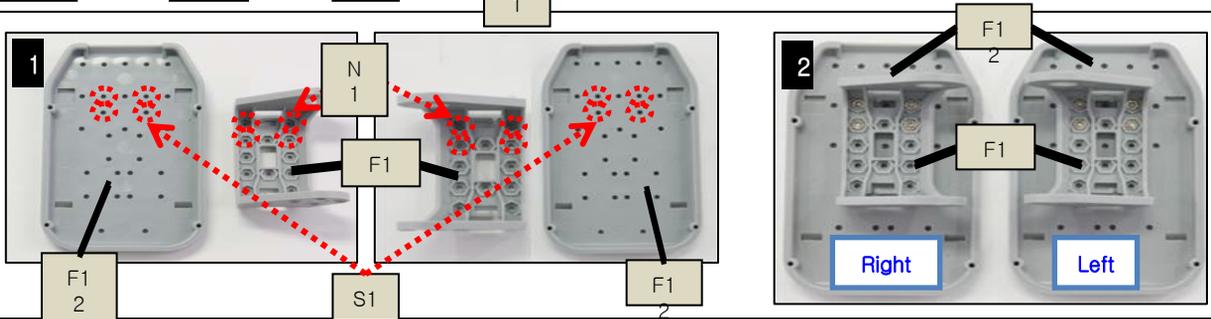
F3 x 2 S1 x 8 N1 x 16



STEP 2

Attach one F1 to one F12.
(Attention to left and right direction.)

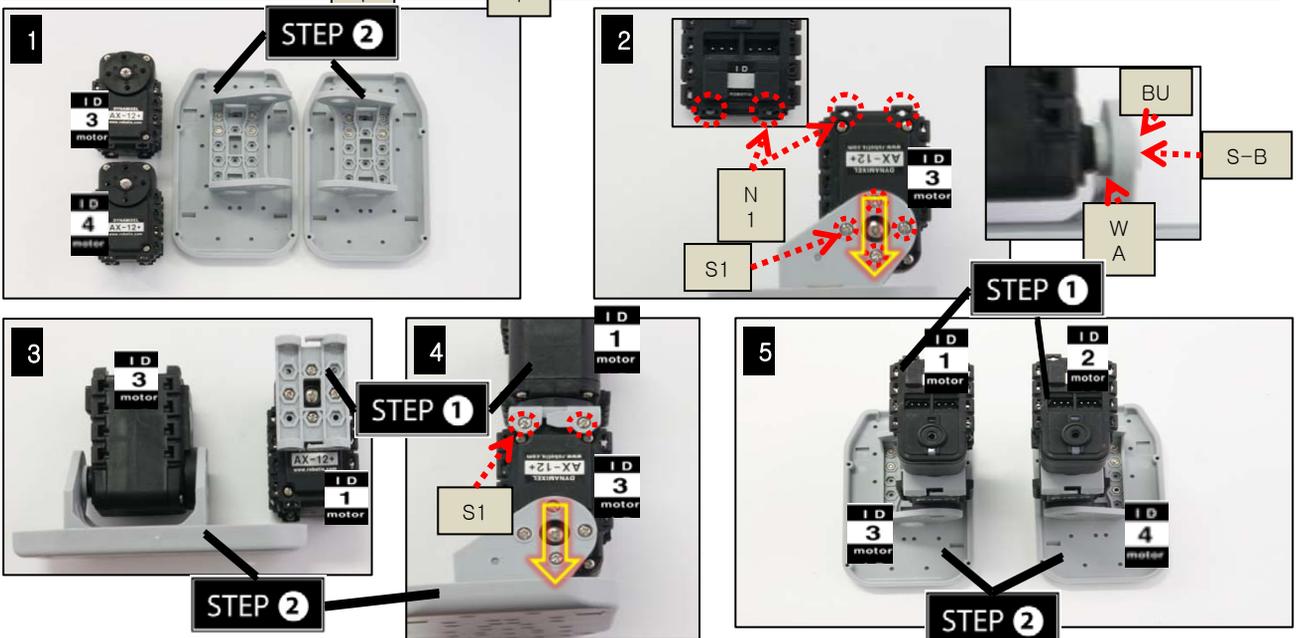
F1 x 2 F12 x 2 S1 x 8 N1 x 8



STEP 3

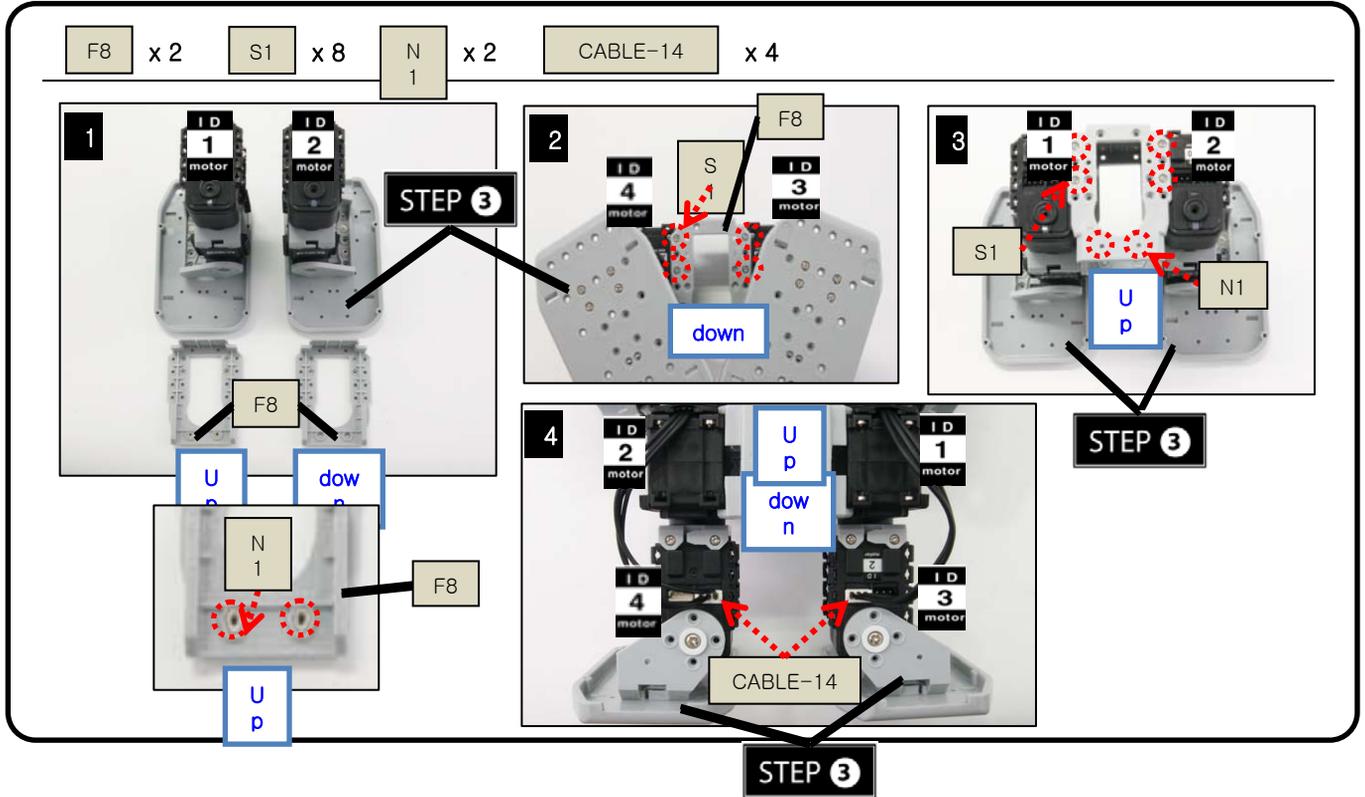
Attach ID3 and ID4 to STEP 1 and STEP 2. (Do not misalign horn position.)
Attach ID1 to ID3 through F3. Attach ID2 to ID4 through F3.

BU x 2 WA x 2 S1 x 16 N1 x 8 S-B x 2



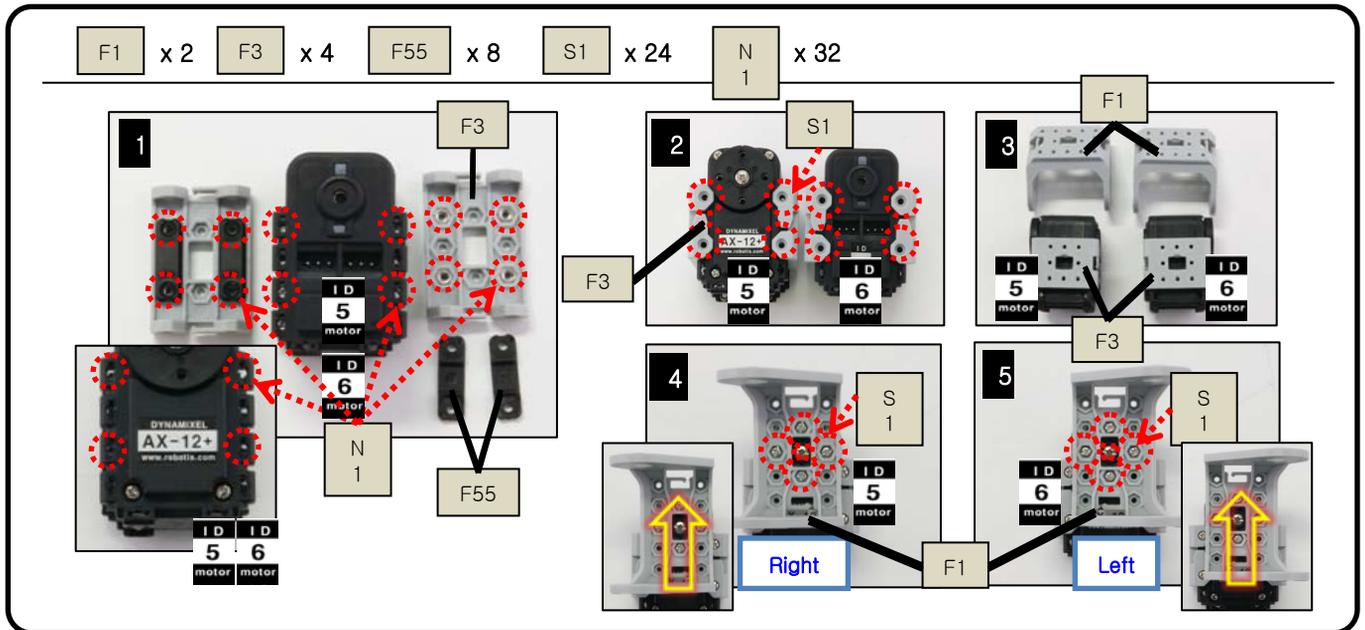
STEP 4

Connect one F8 to each leg of STEP③.
 Connect ID1 and ID3; ID2 and ID4 with CABLE-14.
 Connect ID1 and ID with CABLE-14.



STEP 5

Attach one F1 (at the horn), one F3, two F55 to ID5.
 Attach one F1 (at the horn), one F3, two F55 to ID6.



STEP 6

Attach one F3 and one F10 to each F4.

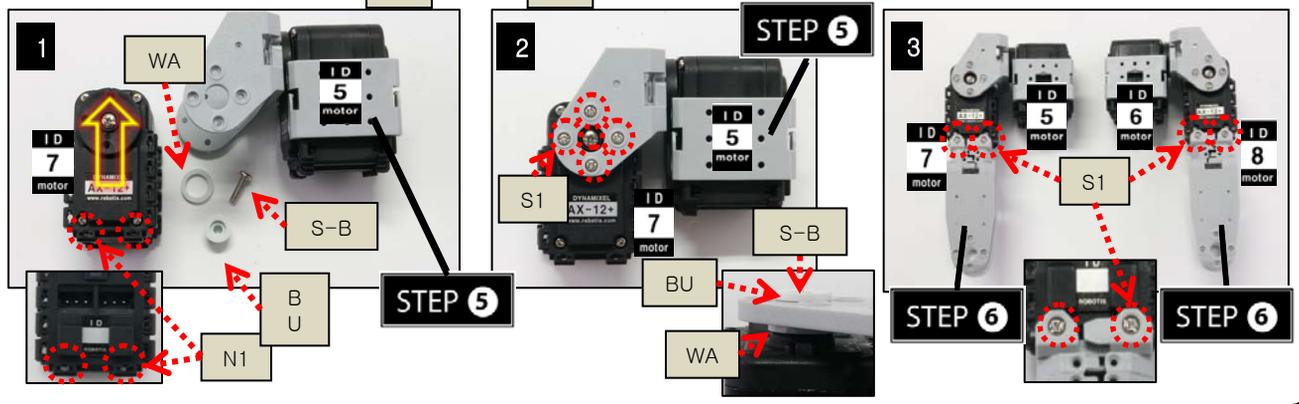
- F3 x 2
- F4 x 2
- F10 x 4
- S5 x 8
- N1 x 8



STEP 7

Attach each part from STEP 5 (do not misalign horn position) and STEP 6 to ID7.
Attach each part from STEP 5 (do not misalign horn position) and STEP 6 to ID8.

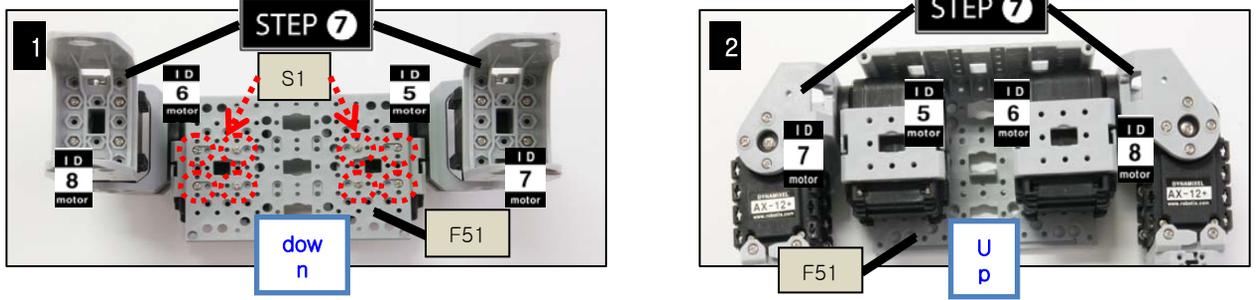
- BU x 2
- WA x 2
- S1 x 16
- N1 x 8
- S-B x 2



STEP 8

Attach both parts of STEP 7 to F51.

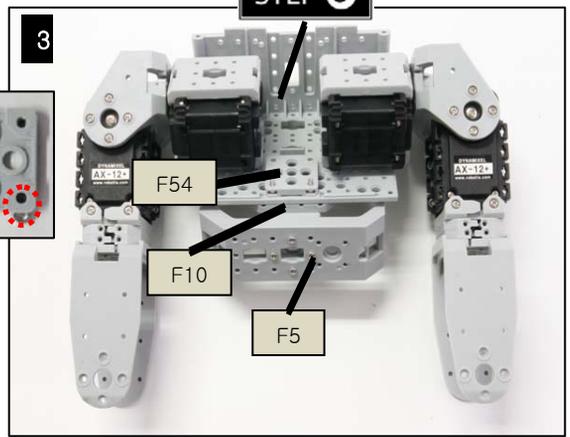
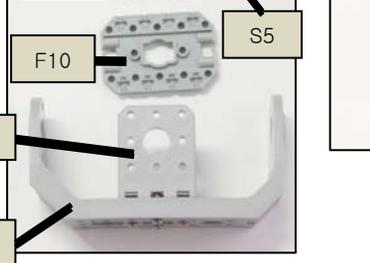
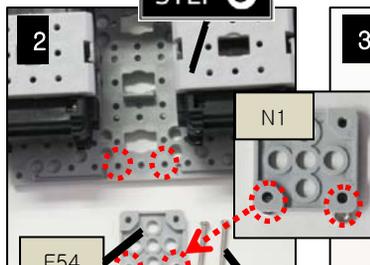
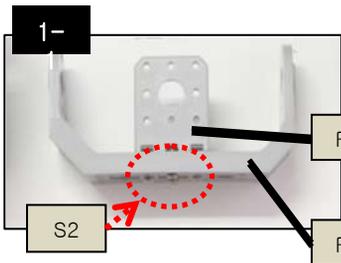
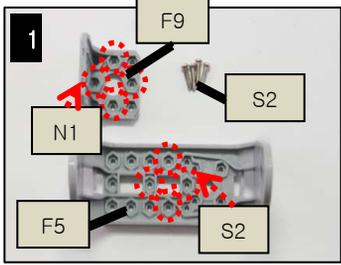
- F51 x 1
- S1 x 8



STEP 9

Attach one F5, One F9, one F10 and one F54 to STEP 8.

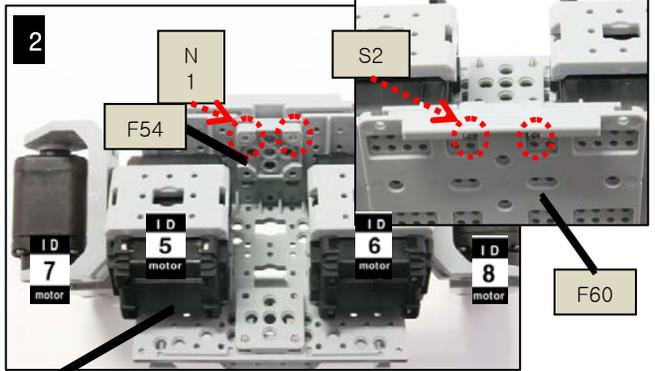
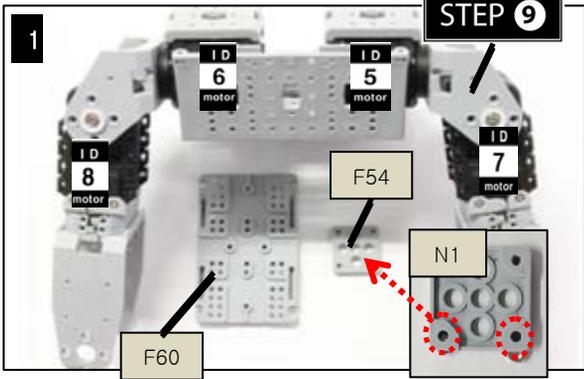
F5 x 1 F9 x 1 F10 x 1 F54 x 1 S2 x 4 S5 x 2 N1 x 6



STEP 10

Attach one F54 and one F60 to STEP 9.

F60 x 1 F54 x 1 S2 x 2 N1 x 2



STEP 9

Attach STEP ④ and ⑩.

STEP 11

Connect ID1 and ID5 with CABLE-14.
 Connect ID2 and ID6 with CABLE-14.
 Connect ID5 and ID6 with CABLE-10.

| | | | |
|----|-----|----------|-----|
| S2 | x 2 | CABLE-10 | x 2 |
|----|-----|----------|-----|

STEP 4

STEP 10

STEP 10

STEP 4

CABLE-10

CABLE-10

5 motor

6 motor

STEP 12

Attach an F52, an IR SENSOR, a SINGLE BRACKET, and a PLATE 3x7, to CM-510.
 Connect IR SENSOR to CM-510 with 5P CABLE-15 (through Port 1 of CM-510).

| | | | | | | | | | |
|----------------|------|-------------|-----|-----------|-----|-----------|-----|-------|-----|
| S1 | x 12 | 5P CABLE-15 | x 1 | CABLE-BAT | x 1 | IR SENSOR | x 1 | RIVET | x 8 |
| SINGLE BRACKET | x 2 | PLATE 3x7 | x 1 | F52 | x 1 | CM-510 | x 1 | | |

1

IR SENSOR

SINGLE BRACKET

PLATE 3x7

RIVET

2

F52

5P CABLE-15

RIVET

3

S1

F52

CABLE-BAT

CM-510

S1

CABLE-BAT

PORT 1 (1) 5P CABLE

Connect ID7 to CM-510 with CABLE-18.
Connect ID8 to CM-510 with CABLE-18.
Connect the battery to CM-510 with the battery cable.

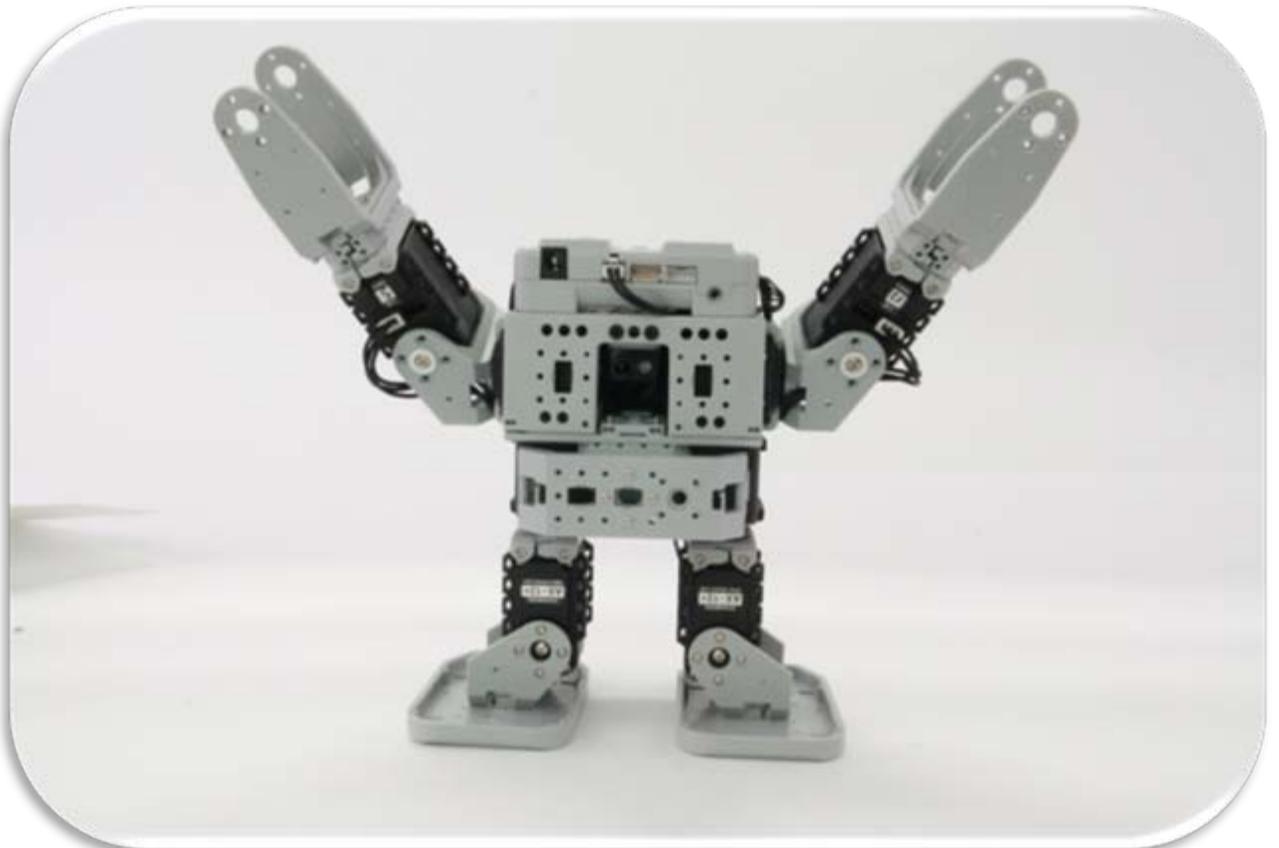
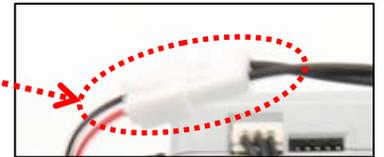
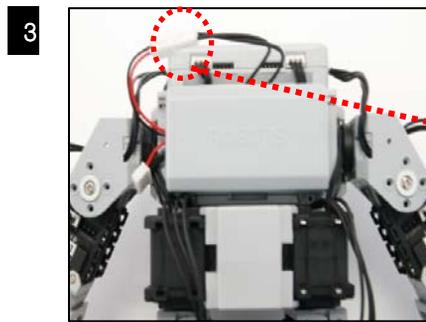
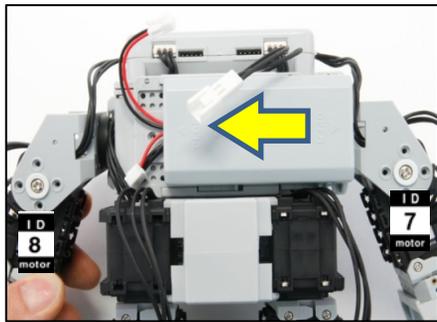
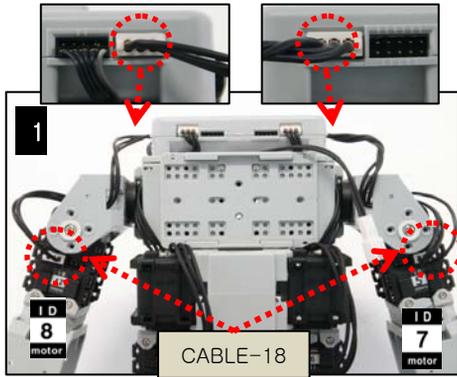
STEP 13

BATTERY

x 1

CABLE-18

x 2



Assembly Check

After assembly please check the following procedure to ensure correctness.

STEP 1

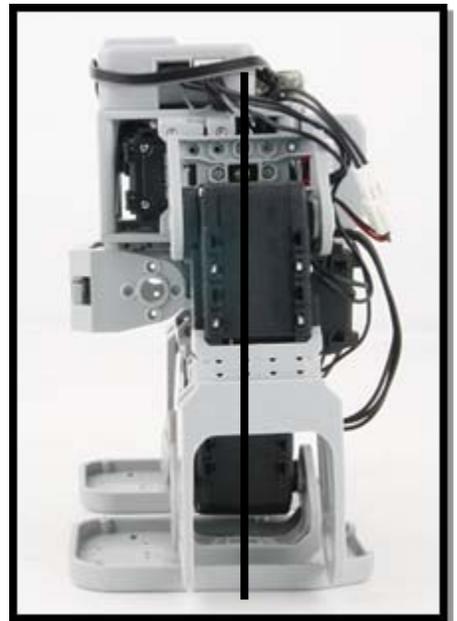
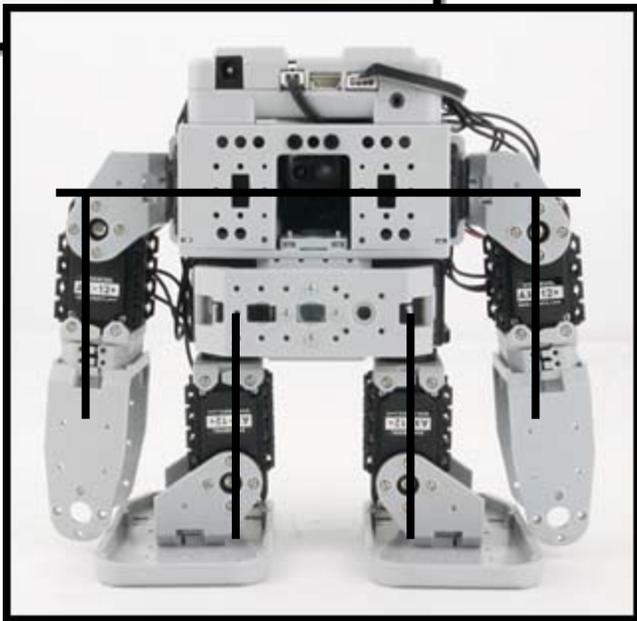
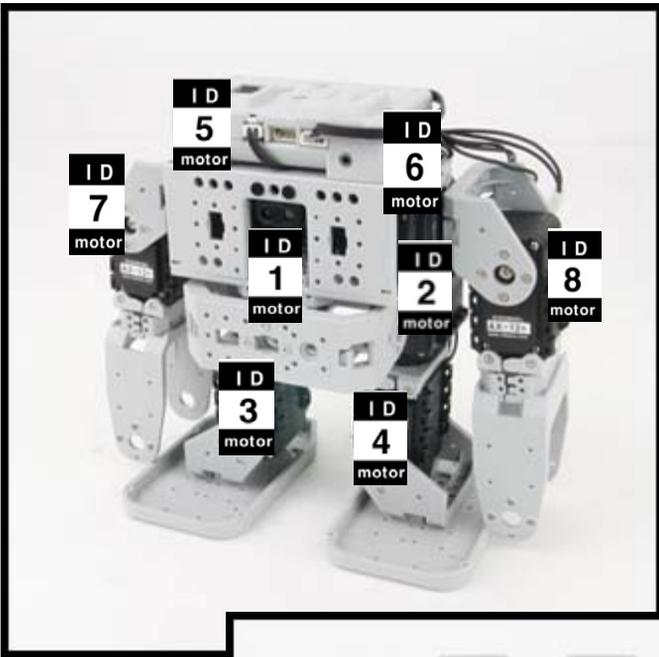
Run the assembly check program

Set the robot in **PLAY** mode; hold the **D** button then press **START**.
Once the **START** button is pressed, the assembly check program begins.

STEP 2

AX12+ initial position and ID check

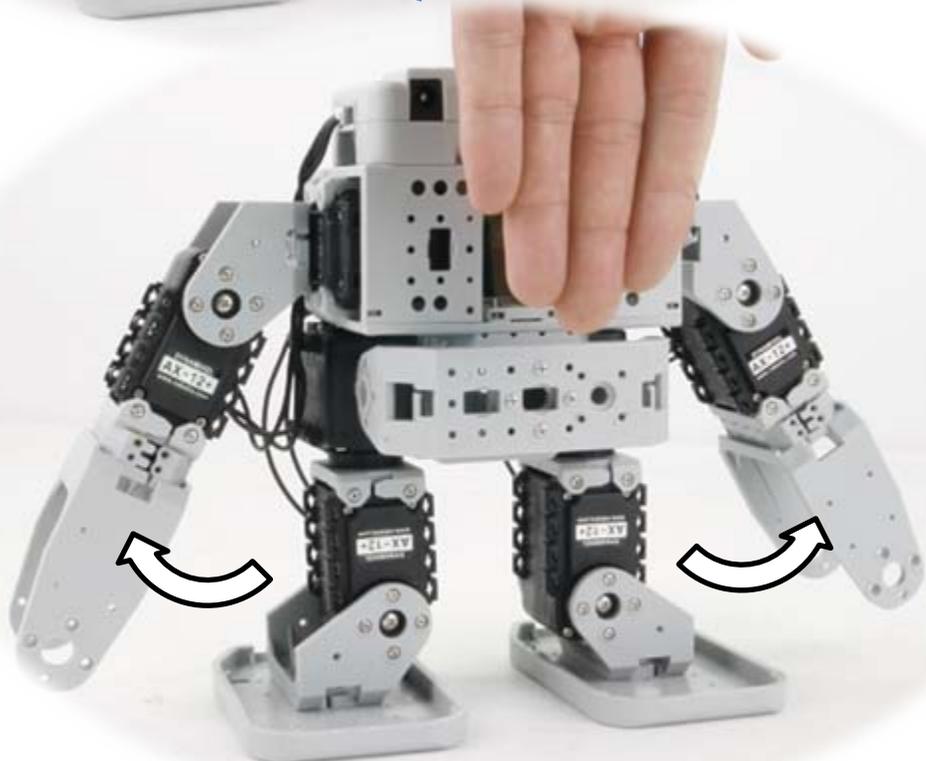
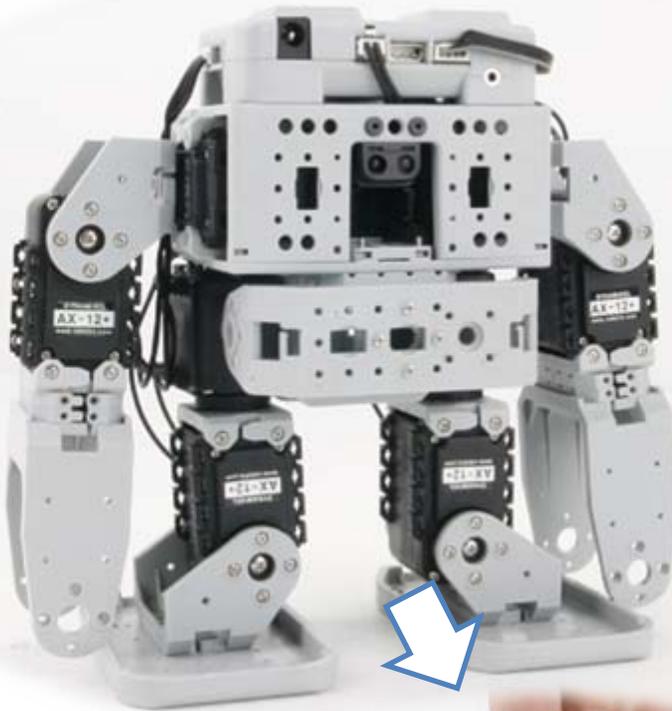
Select each actuator separately and compare it to the picture below.
Ensure the actuators' horns are properly aligned (the horn's notch should be aligned with the actuator's).
Pressing the **U** or **D** button selects one actuator at a time.
The selected actuator's LED lights up and goes to its initial position.
Check starts from ID1.
U moves to the next ID in ascending numerical order; **D**, in descending numerical order.
If the actuator's ID does not exist then the robot beeps.
Although the LED may lit, if there is no power then check the wiring on the actuator.



STEP 3

Sensor and behavior check

From STEP② press **R**. The robot returns to its initial position as pictured above. Place your hand close to the sensors as pictured below. Robot behavior begins. If the robot does not behave, as pictured below, then check the sensor wiring and its port. Pressing **L** will return the robot back to STEP②.



STEP 4

If everything works fine, play the robot.

Set the robot in **PLAY** mode and press **START**. The robot will play.