BIOLOID

Bioloid

Premium Kit

Attacking Duck

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.)
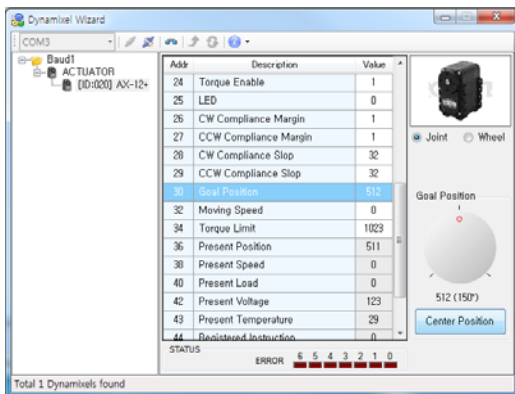
Dynamixel Wizard   properly aligned horn

*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 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.
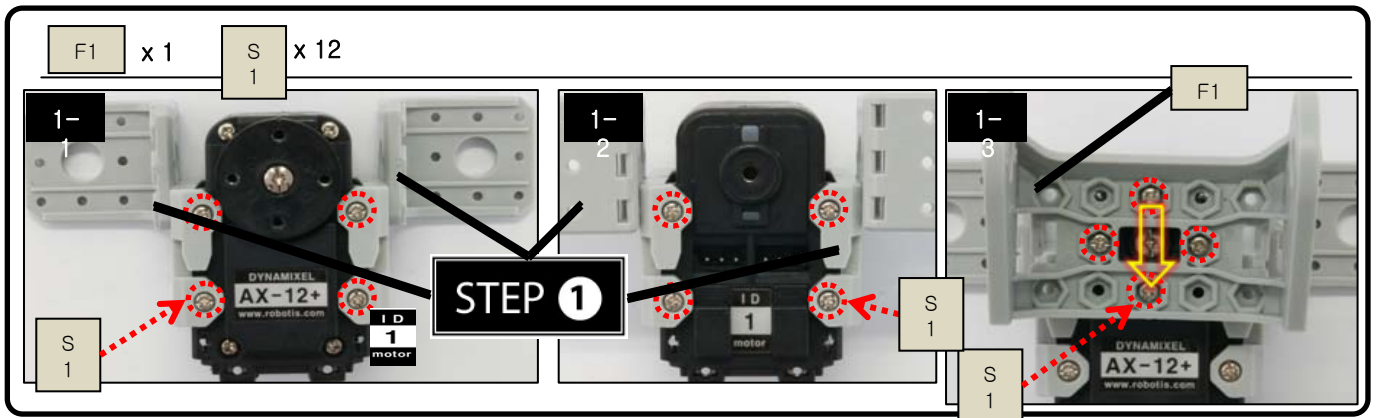
Bioloid Attacking Duck – Getting Started

STEP 1

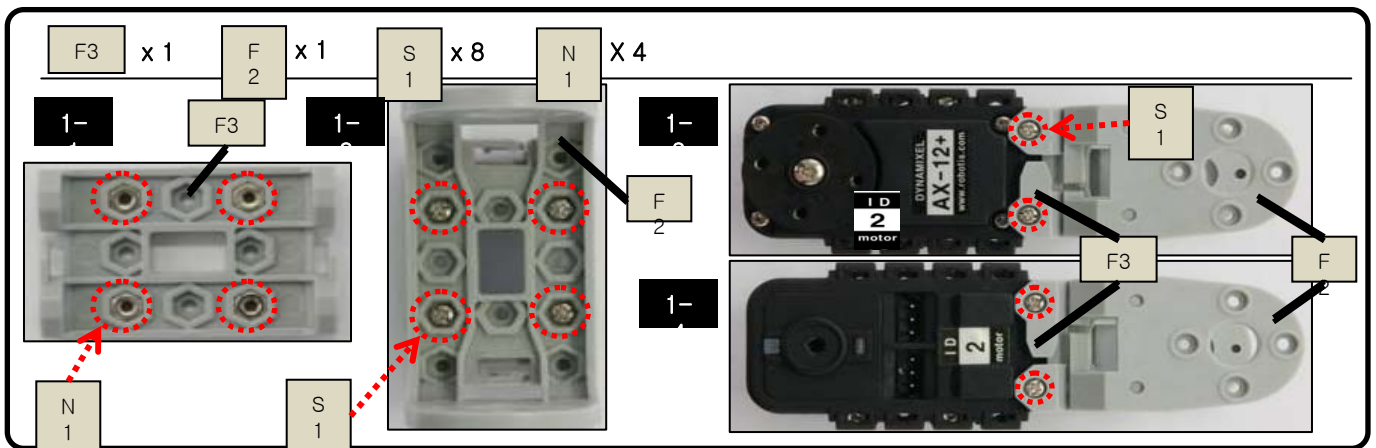Attach F3 to F9. (Attention to left and right oppositional sides.)
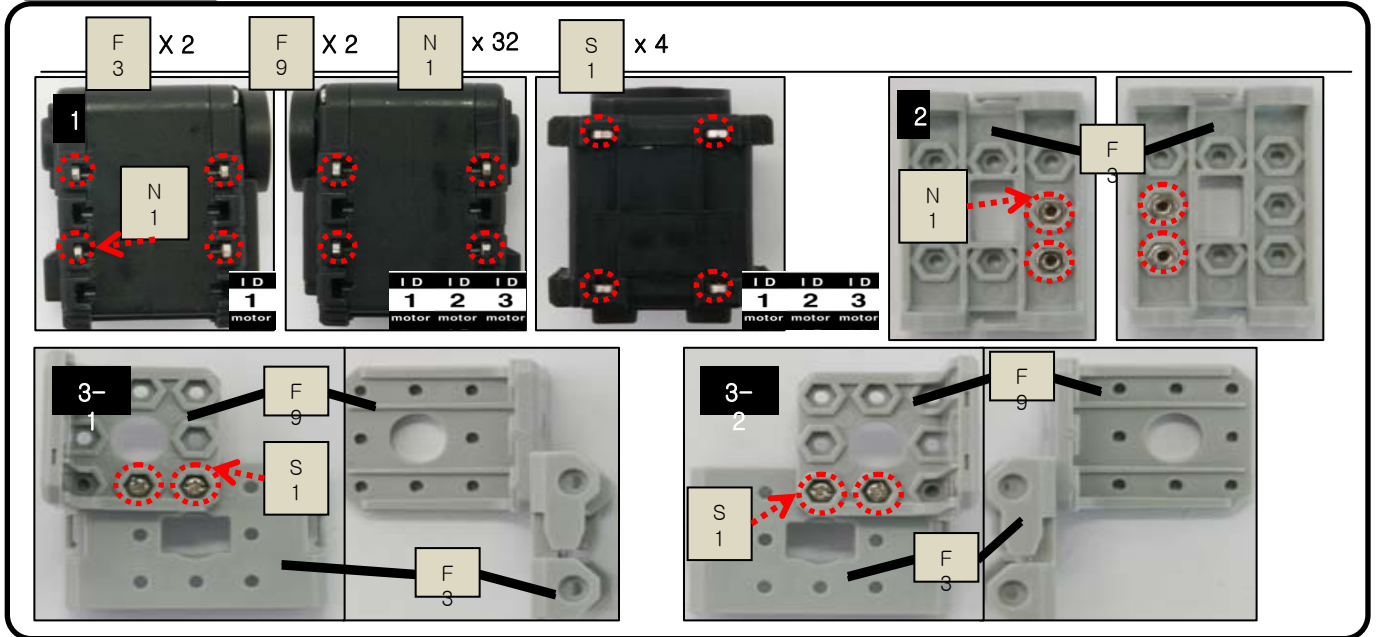
STEP 2

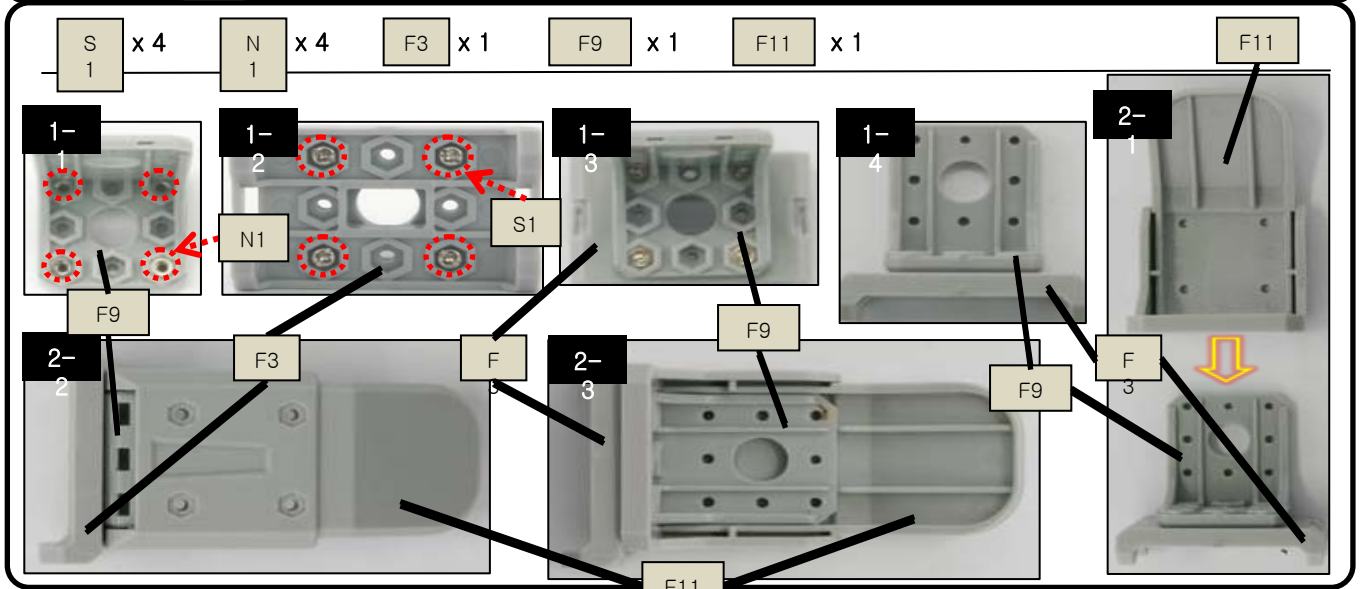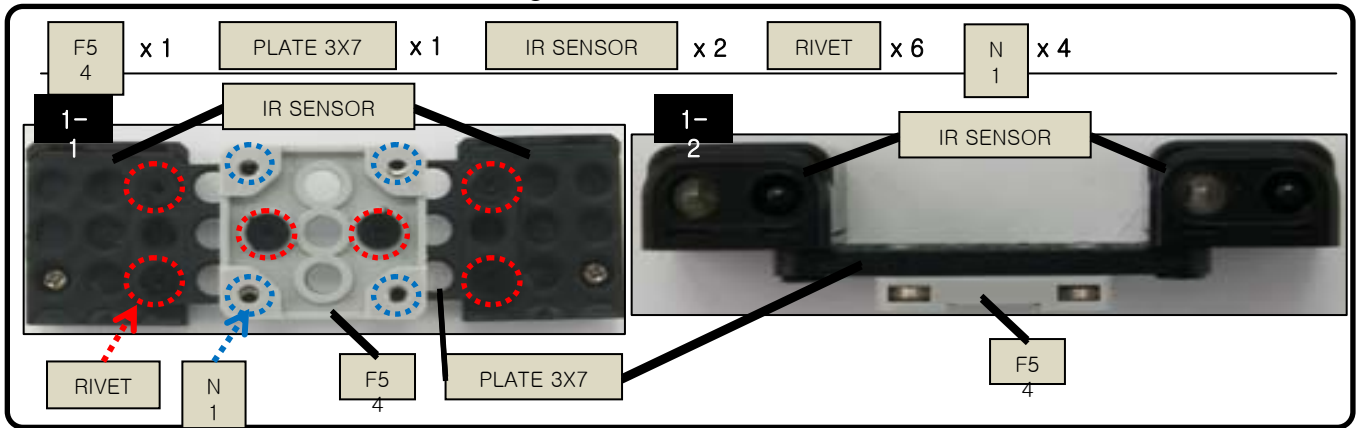Attach STEP①, ID1, and F1 together. (Do not misalign horn position.)

STEP 3

Attach F2, F3, and ID2 together.

STEP 4

Attach F54, PLATE 3X7, and IR SENSOR together.
Attach F3, F9, F11 together.

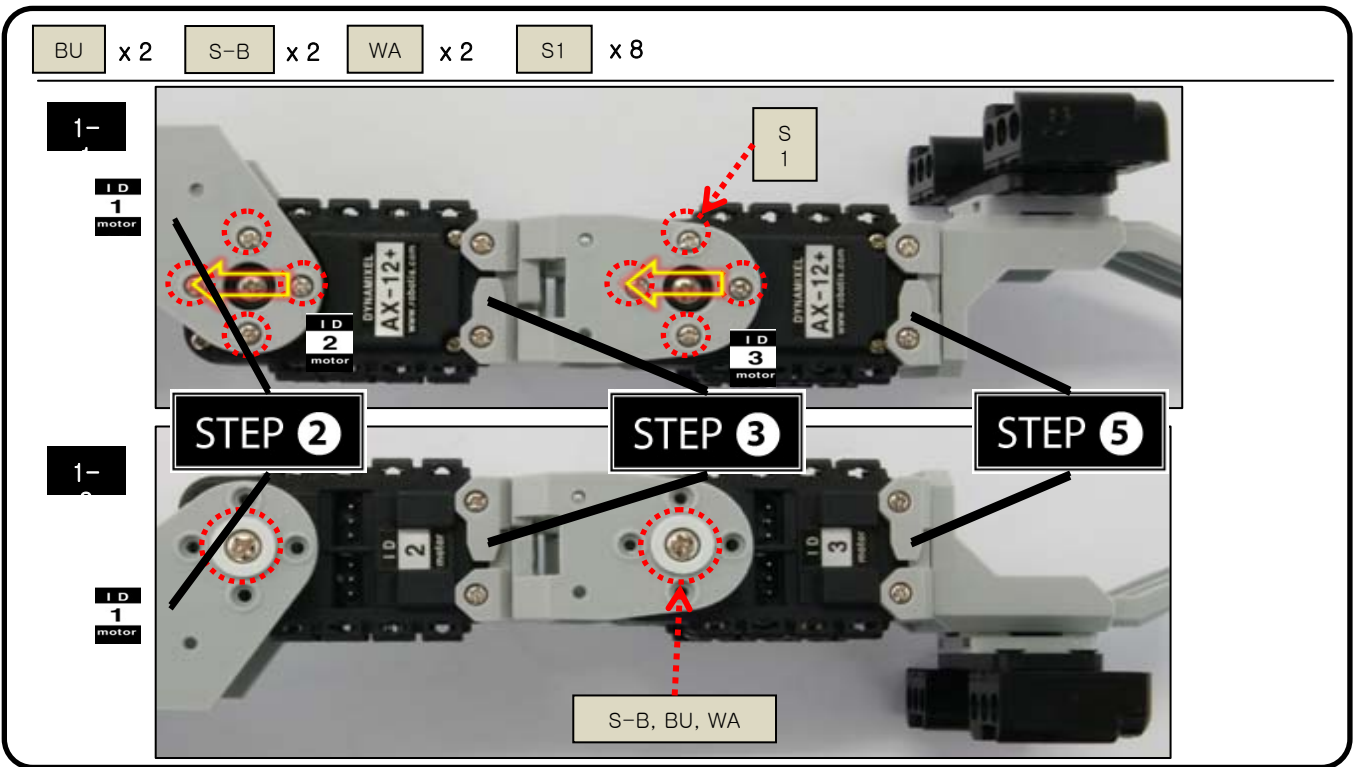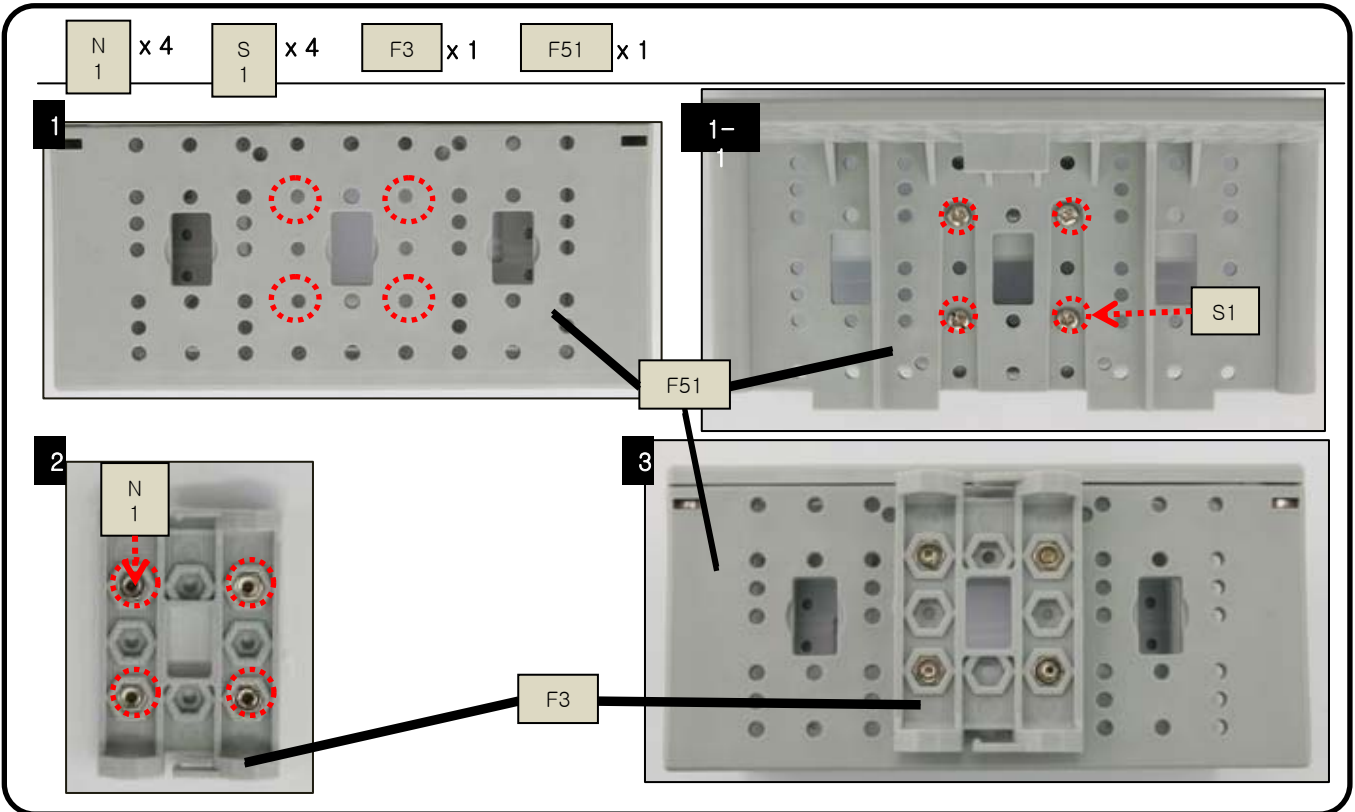| F54 x 1	PLATE 3X7 x 1	IR SENSOR x 2	RIVET x 6	N1 x 4

1-1

IR SENSOR

RIVET N1 F54 PLATE 3X7

1-2

IR SENSOR

F54

S1 x 4	N1 x 4	F3 x 1	F9 x 1	F11 x 1

1-1 F9

1-2 N1 S1

1-3 F9

1-4

2-1 F11

2-2 F3 F3

2-3 F9 F11

F9 F3

STEP 5

Attach ID3 to STEP④.

S1 x 4	S2 x 4

1-1 S2

1-2

STEP 4

S1

ID 3 motor

ID 3 motor DYNAMIXEL AX-12+ www.robotis.com
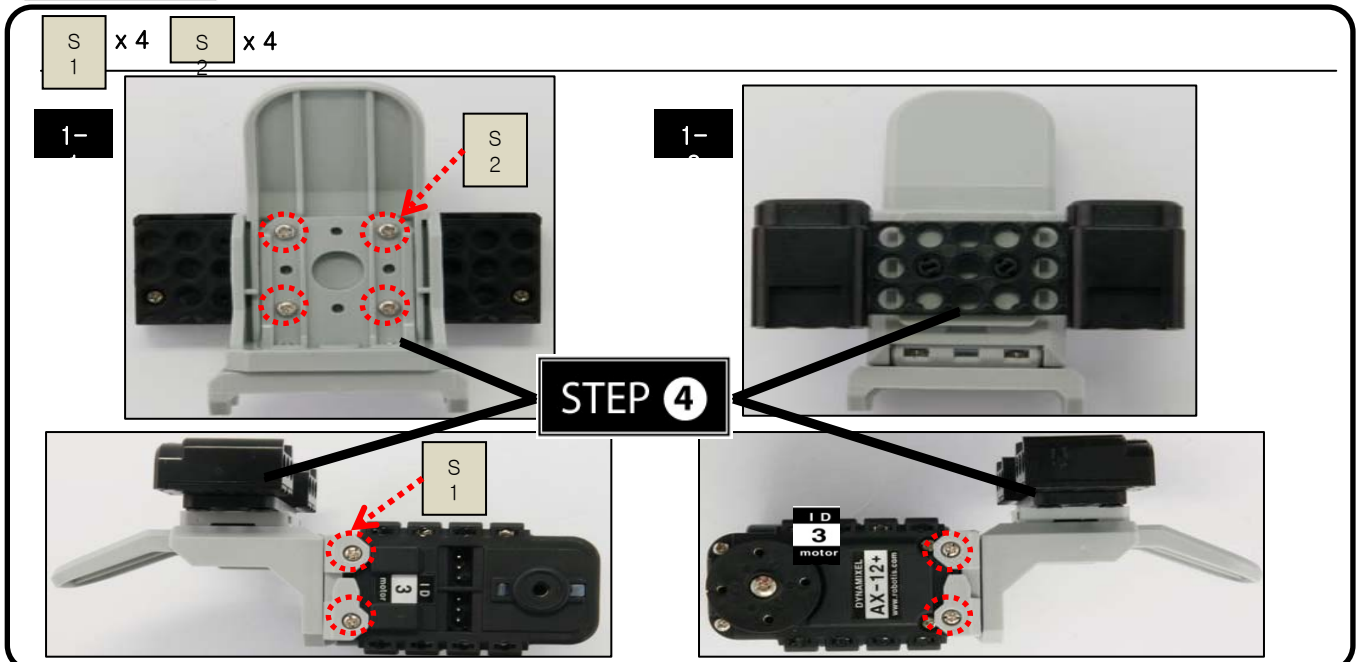
STEP 6

Attach STEP②, STEP③, and STEP⑤ together. (Do not misalign horn position.)

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

1-1

ID 1 motor

S 1

ID 2 motor

ID 3 motor

STEP 2   STEP 3   STEP 5

1-2

ID 1 motor

ID 2 motor

ID 3 motor

S-B, BU, WA

STEP 7

Attach F3 to F51.

N 1 x 4   S 1 x 4   F3 x 1   F51 x 1

1

1-1

S1

F51

2

N 1

3

F3

STEP 8   Attach STEP⑦ to F52.

N1 x 4   S1 x 4   F52 x 1

1

1–

S1

STEP ⑦

F52

STEP ⑦

N1

STEP ⑦
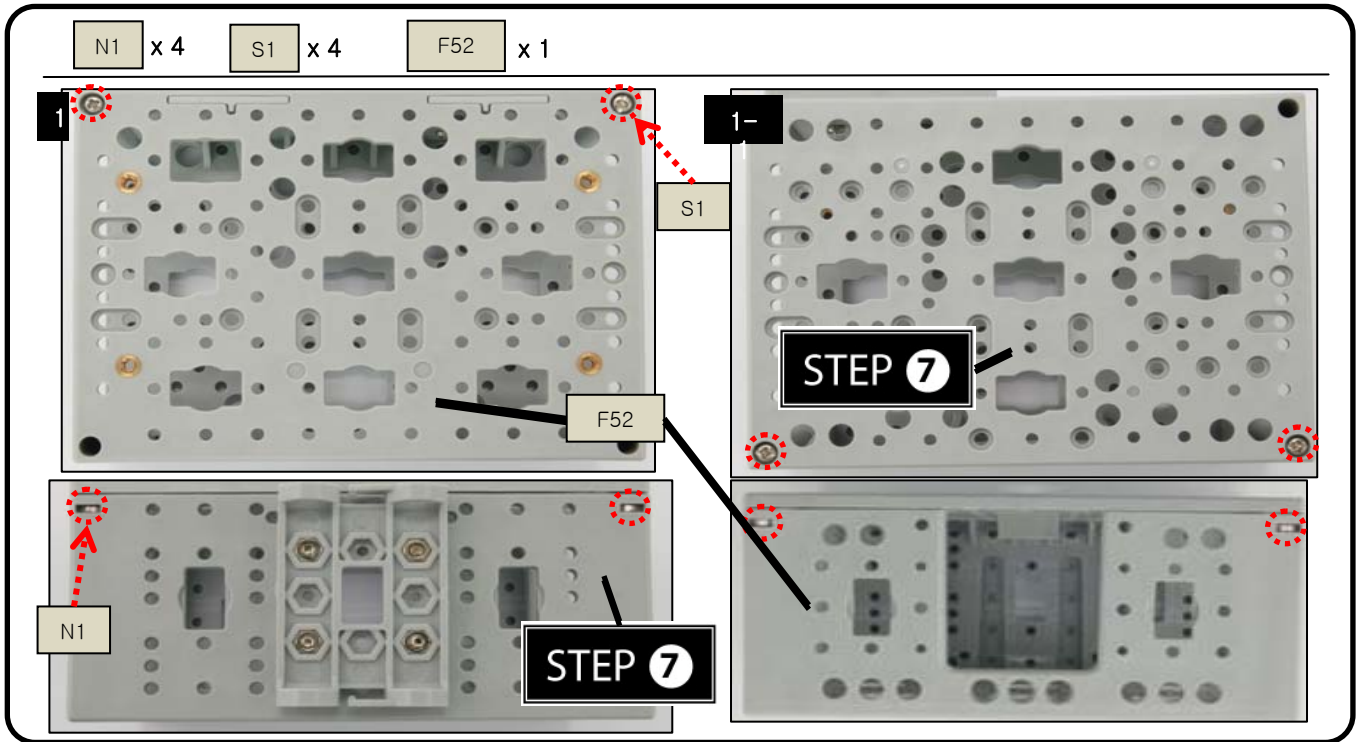
STEP 9   Attach STEP⑥ to STEP⑧.

S1 x 4

1

1–

STEP ⑥

DYNAMIXEL
AX-12+
www.robotis.com

ID
1
motor

ID
1
motor
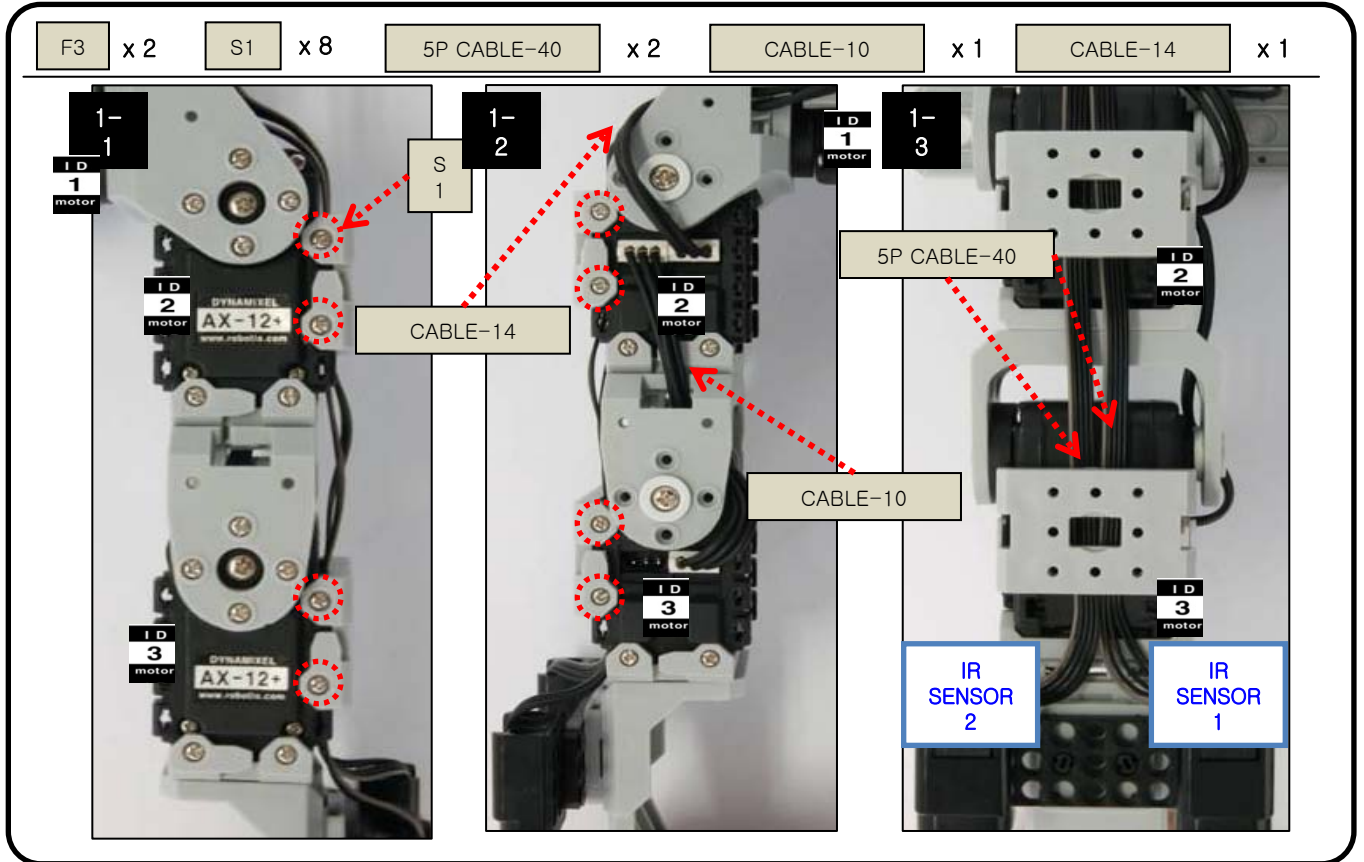
S1

STEP ⑧
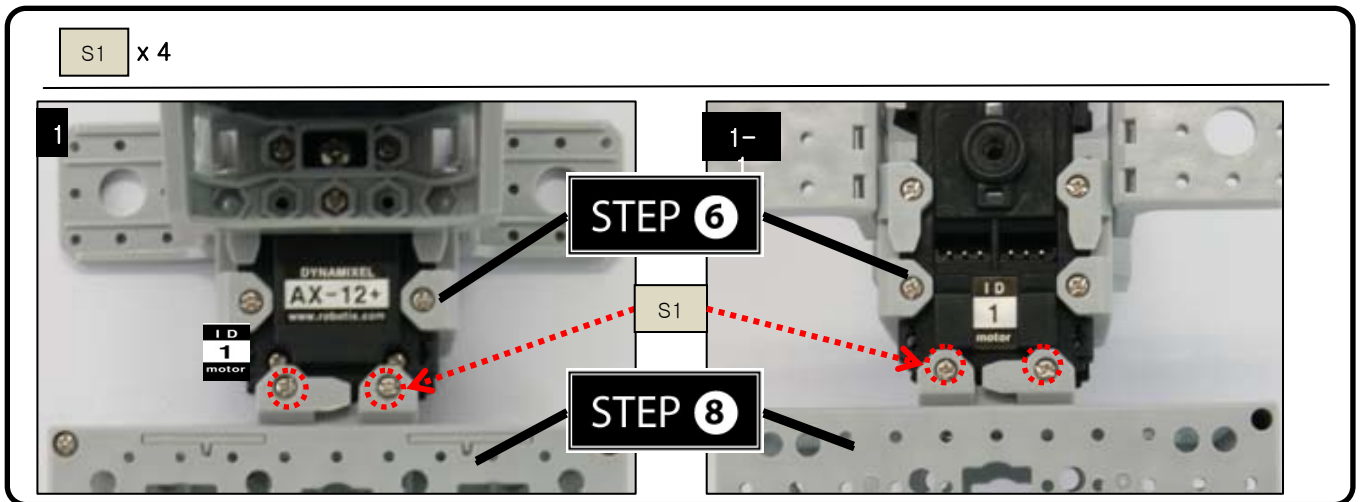
STEP 10

Connect 2 IR SENSORS with 5P CABLE-40 each. Run 5P CABLE-40 beneath F3 from ID2, ID3, and through STEP⑨.
Connect ID2 and ID3 with CABLE-10.
Connect ID1 and ID2 with CABLE-14.

| F3 | x 2 | S1 | x 8 | 5P CABLE-40 | x 2 | CABLE-10 | x 1 | CABLE-14 | x 1 |

STEP 11

Attach CM510 to STEP⑩.
Connect IR SENSOR 1 (right) to Port 2 of CM-510 with 5P CABLE-40.
Connect IR SENSOR 2 (left) to Port 6 of CM-510 with 5P CABLE-40.
Connect ID1 to CM-510 with CABLE-10.

| S1 | x 4 | CABLE-BAT | x 1 | CABLE-10 | x 1 | CM-510 | x 1 |
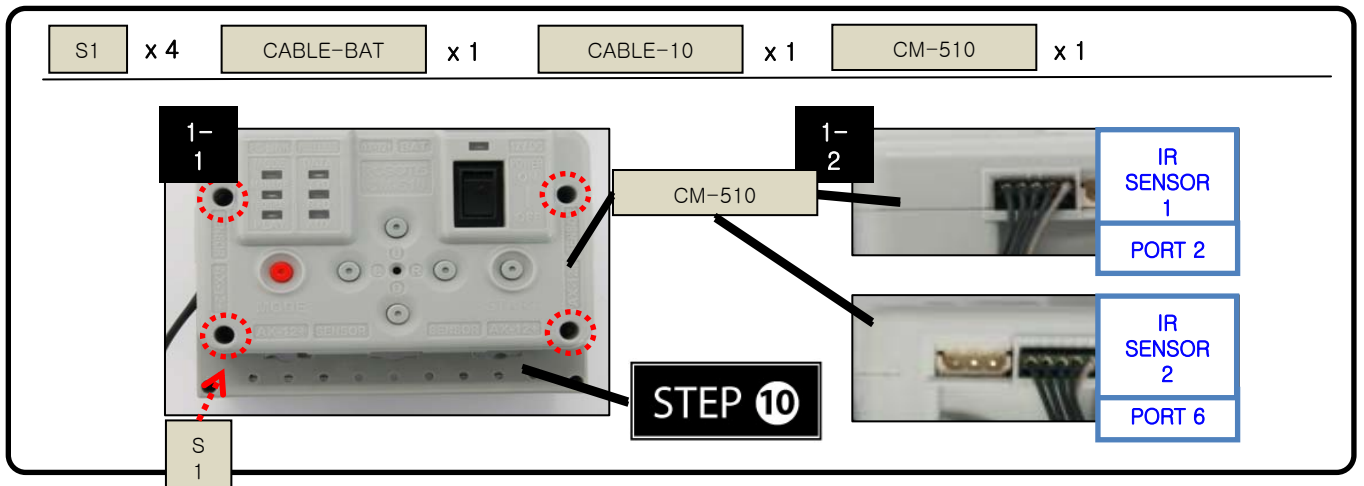
STEP 12

Connect the battery through the battery cable.

| BATTERY | x 1 | S12 | x 2 | F60 | x 1 |

1
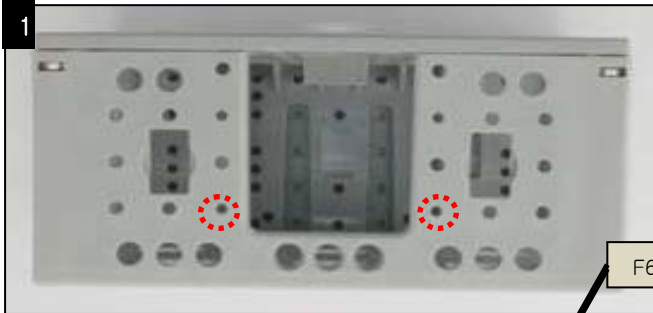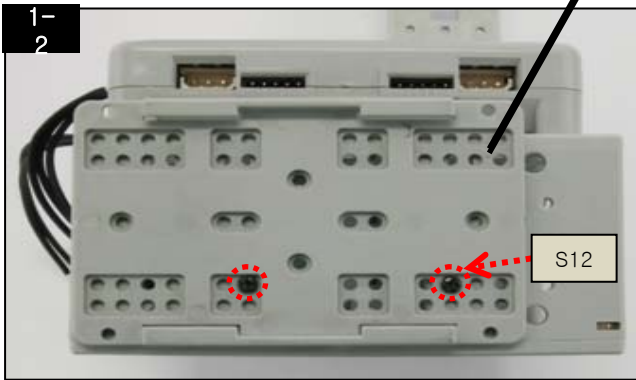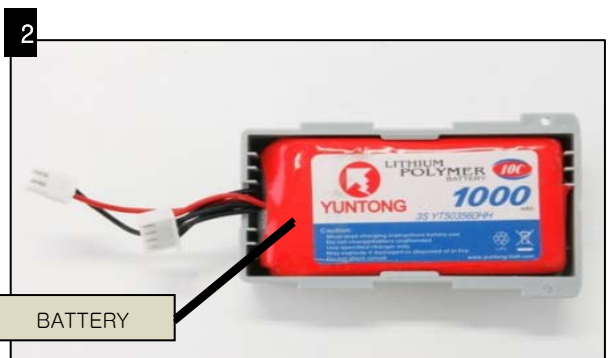
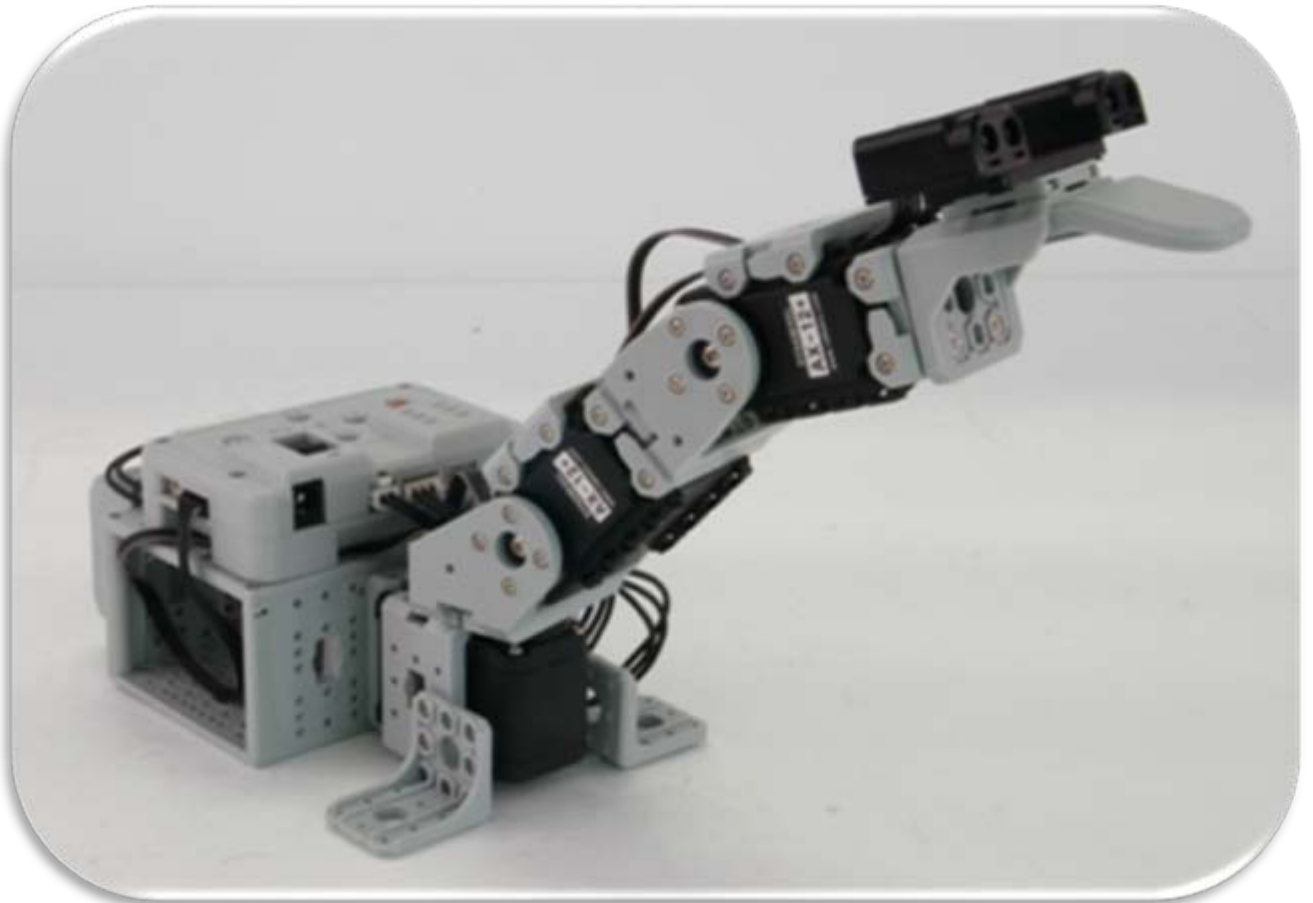**1-1**
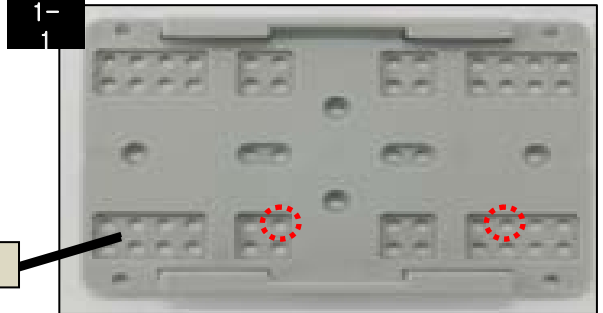
F60

1-2

S12

2

BATTERY

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.

BIOLOID
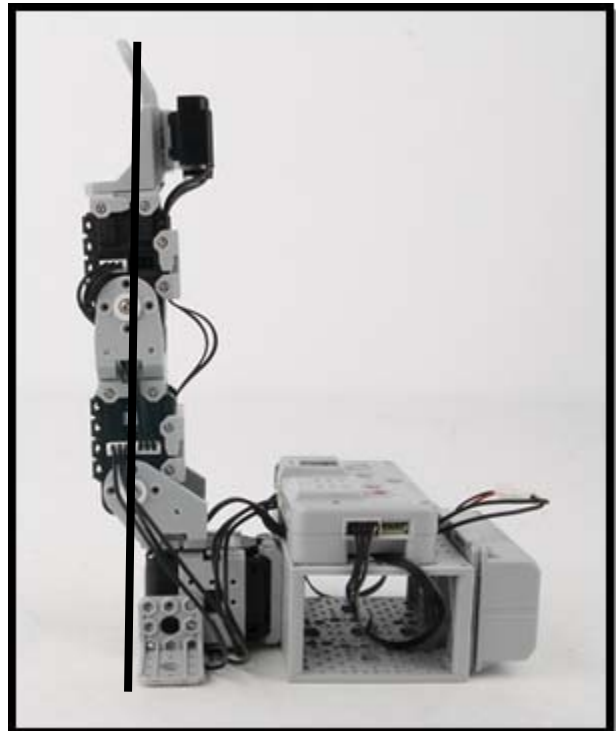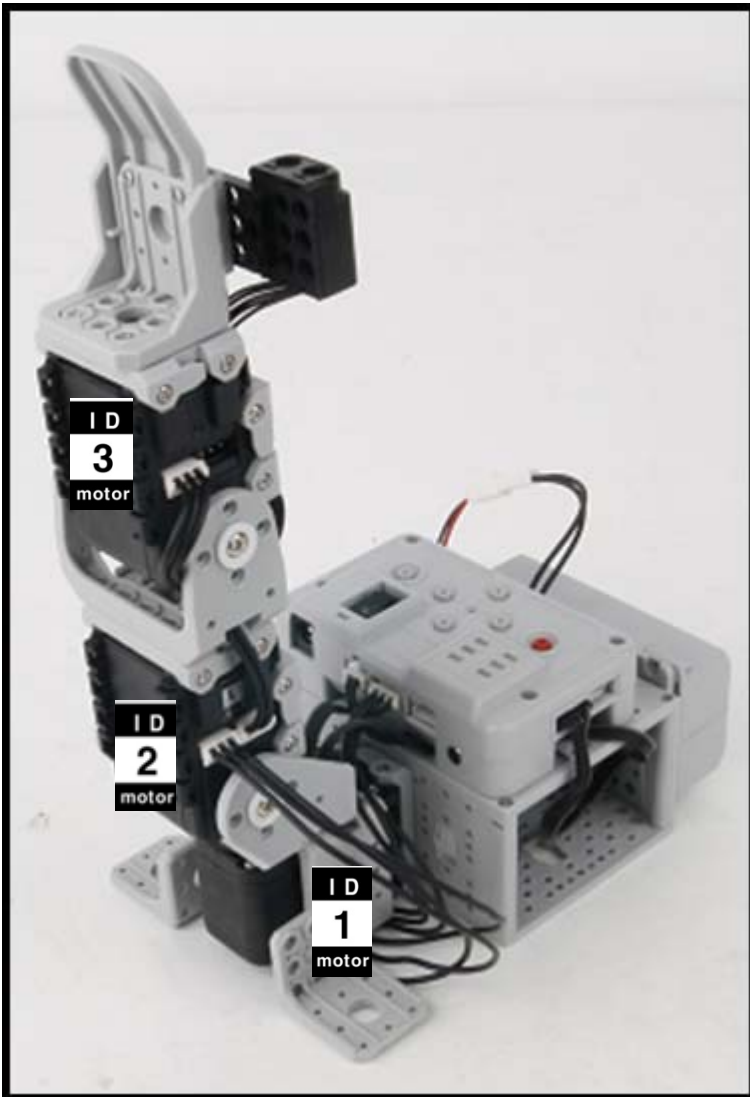
Sensor and behavior check

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.
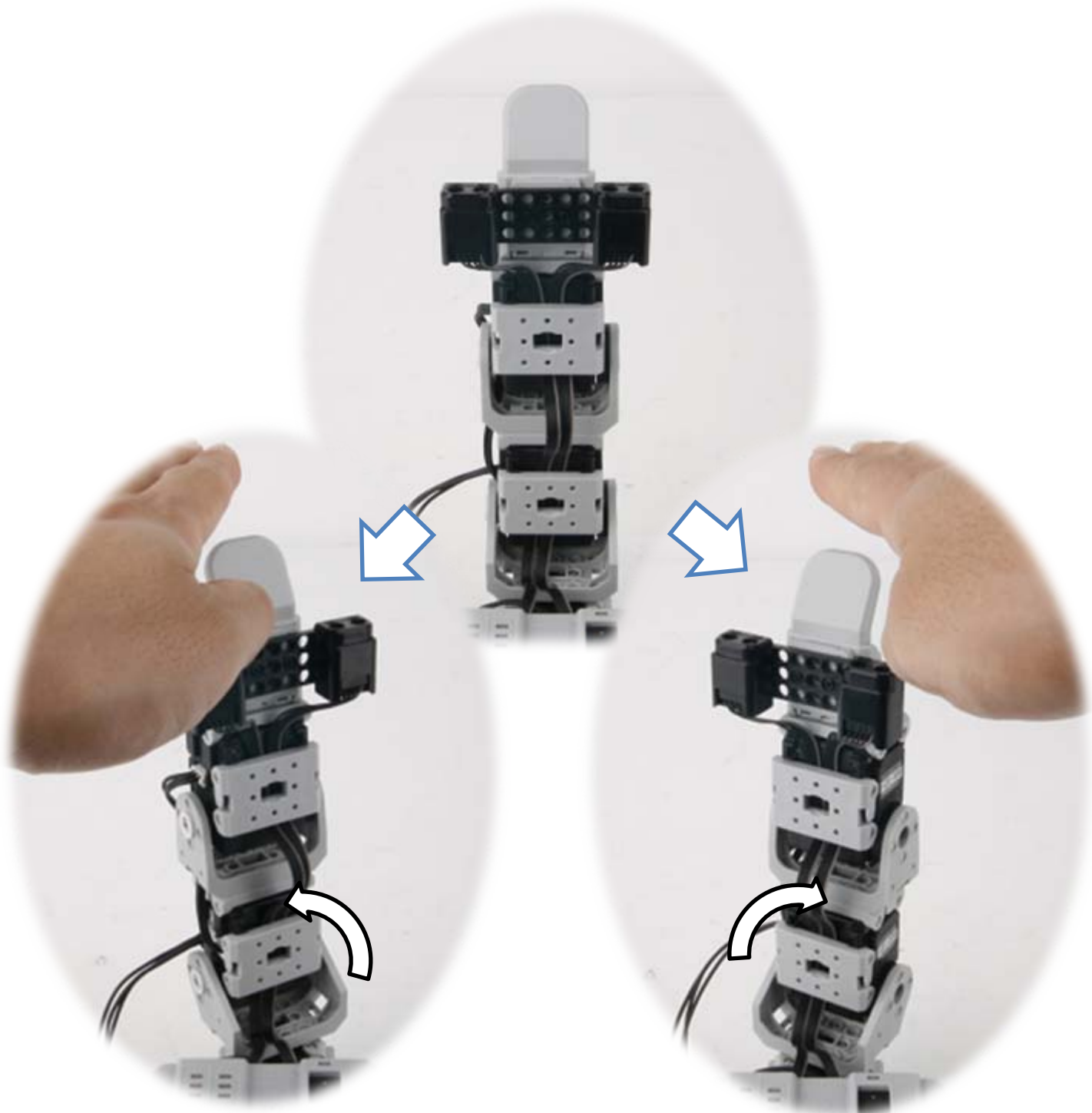
STEP 4

If everything works fine, play the robot.

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