



DARwIn OP Wiring Manual

Created by RoMeLa at Virginia Tech

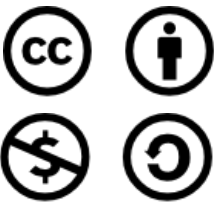
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Principal authors:

Thanh Pham
Stephen Rouleau
Coleman Knabe
Matthew Stanford
Nolawe Woldeesemayat
Mark Umansky
Justin Siegal
Austin Kim
Allison McCormack
Dante Branch
Viktor Orekhov

**THIS WIRING MANUAL IS TO BE USED IN
CONJUNCTION WITH THE FOLLOWING DOCUMENTS:**

DARwIn OP Assembly Manual
DARwIn OP Fabrication Manual



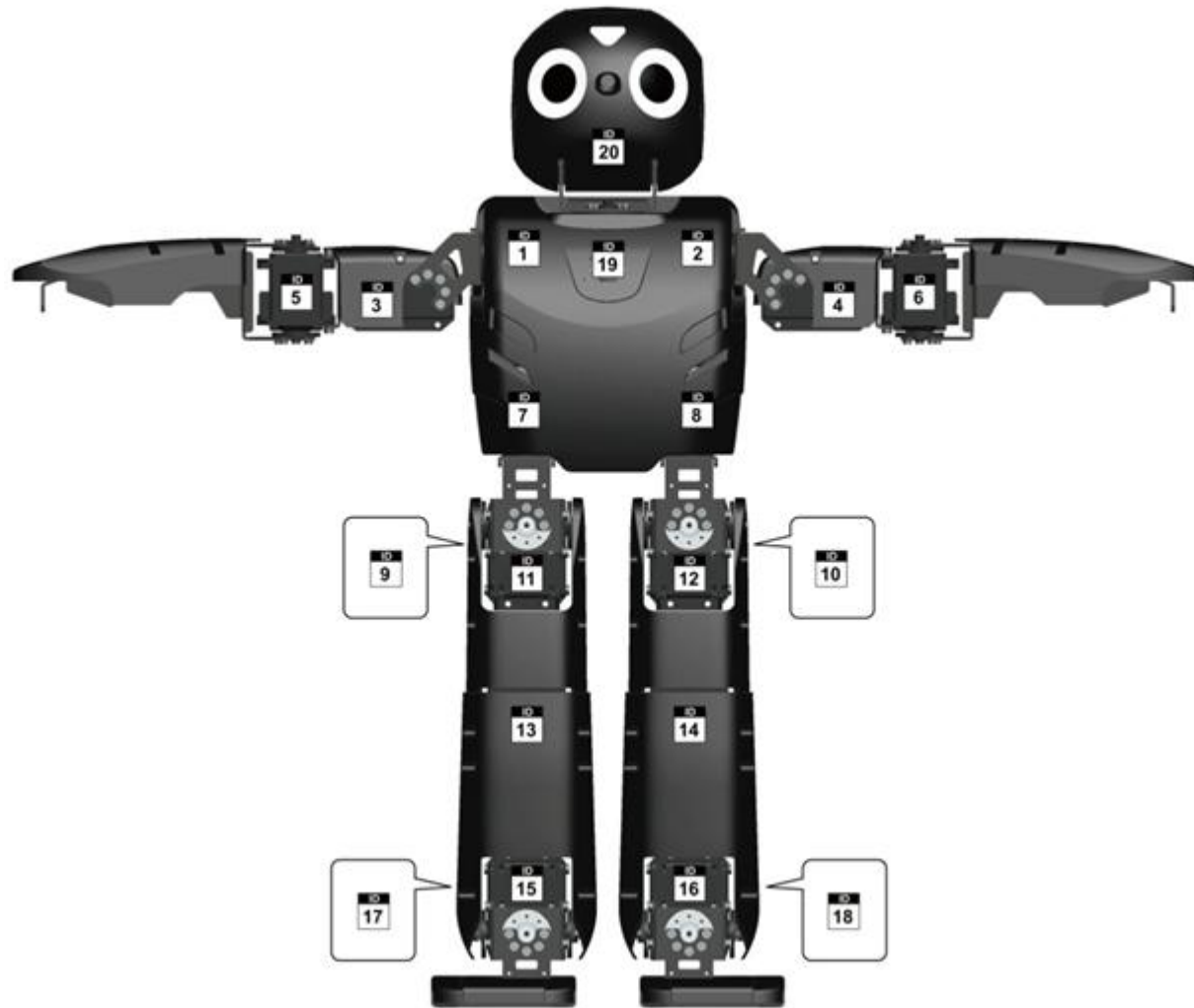
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DARwIn OP Wiring Manual

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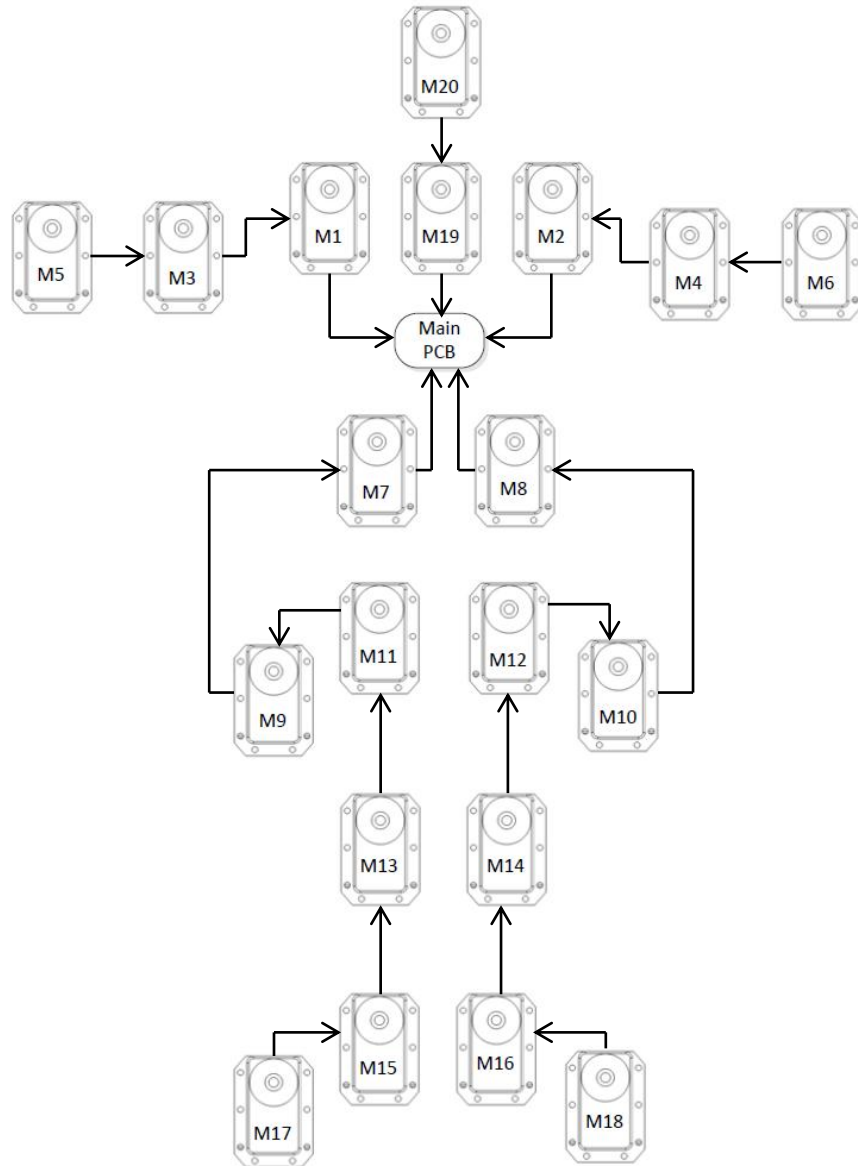
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1. Motor Arrangements



Actuator ID	Actuator Type
M1	Dynamixel MX-28
M2	Dynamixel MX-28
M3	Dynamixel MX-28
M4	Dynamixel MX-28
M5	Dynamixel MX-28
M6	Dynamixel MX-28
M7	Dynamixel MX-28
M8	Dynamixel MX-28
M9	Dynamixel MX-28
M10	Dynamixel MX-28
M11	Dynamixel MX-28
M12	Dynamixel MX-28
M13	Dynamixel MX-28
M14	Dynamixel MX-28
M15	Dynamixel MX-28
M16	Dynamixel MX-28
M17	Dynamixel MX-28
M18	Dynamixel MX-28
M19	Dynamixel MX-28
M20	Dynamixel MX-28

2. Motor Connections

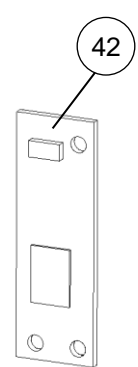
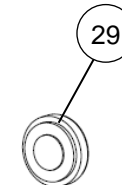
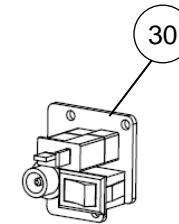
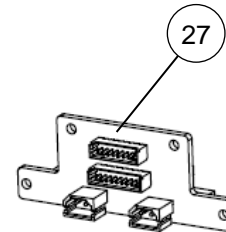
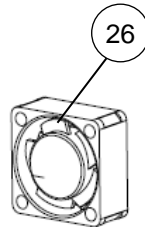
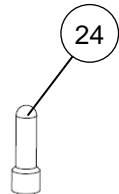
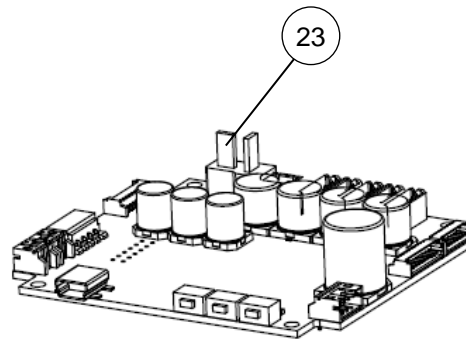
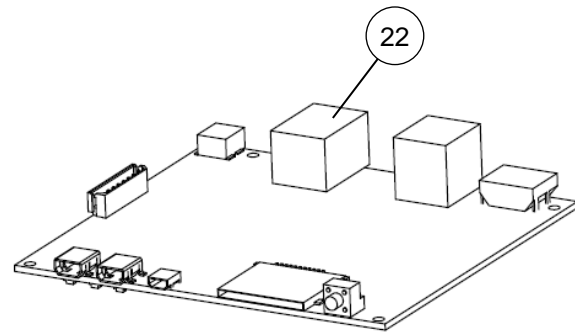
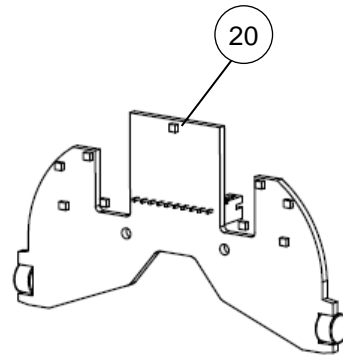
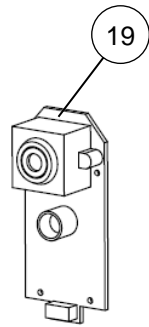


Wire No.	From	To	Approximate Length (cm)
WM1	M20	M19	19
WM2	M19	FitPC	8
WM3	M1	FitPC	10
WM4	M2	FitPC	10
WM5	M7	FitPC	23
WM6	M8	FitPC	17
WM7	M5	M3	5
WM8	M3	M1	18
WM9	M6	M4	5
WM10	M4	M2	18
WM11	M9	M7	13
WM12	M10	M8	13
WM13	M11	M9	6
WM14	M12	M10	6
WM15	M13	M11	18
WM16	M14	M12	18
WM17	M15	M13	25
WM18	M16	M14	25
WM19	M17	M15	6
WM20	M18	M16	6



WM

3-1. Parts List 1 - Electronics

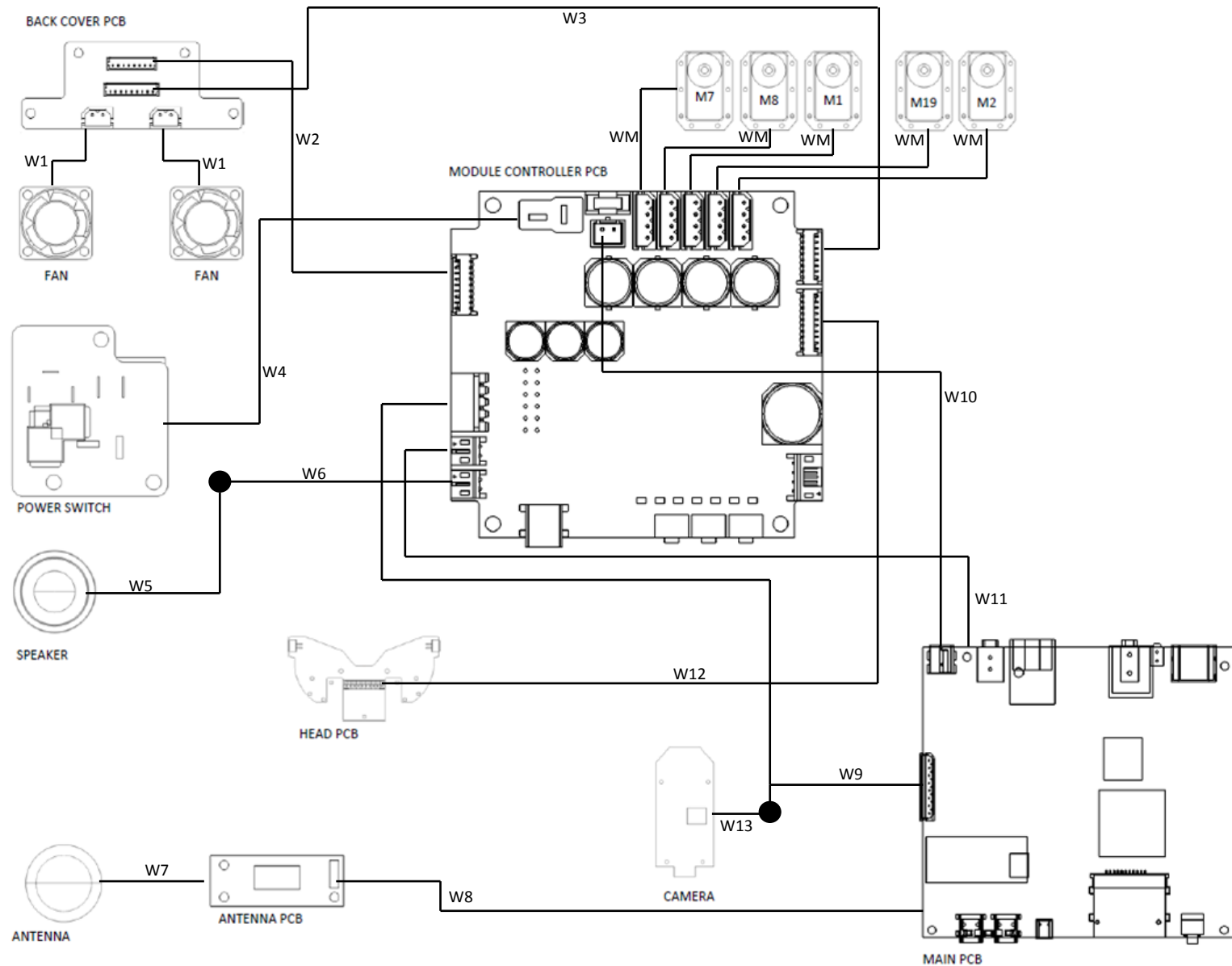


Part Number	Description	Qty.
19	Camera	1
20	Head PCB	1
22	FitPC	1
23	CM730	1
24	Antenna	1
25	Antenna Connector	1
26	Fan	2
27	Back Cover PCB	1
29	Speaker	1
30	Power Switch	1
31	Battery	1
42	Antenna PCB	1

3-2. Parts List 2 - Wires

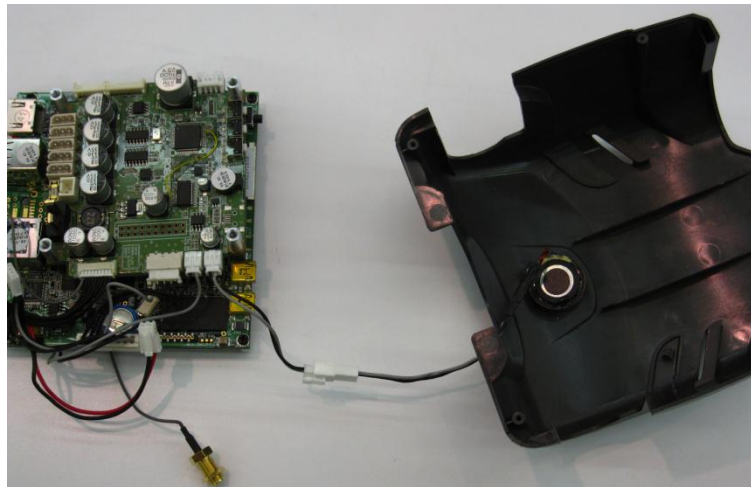
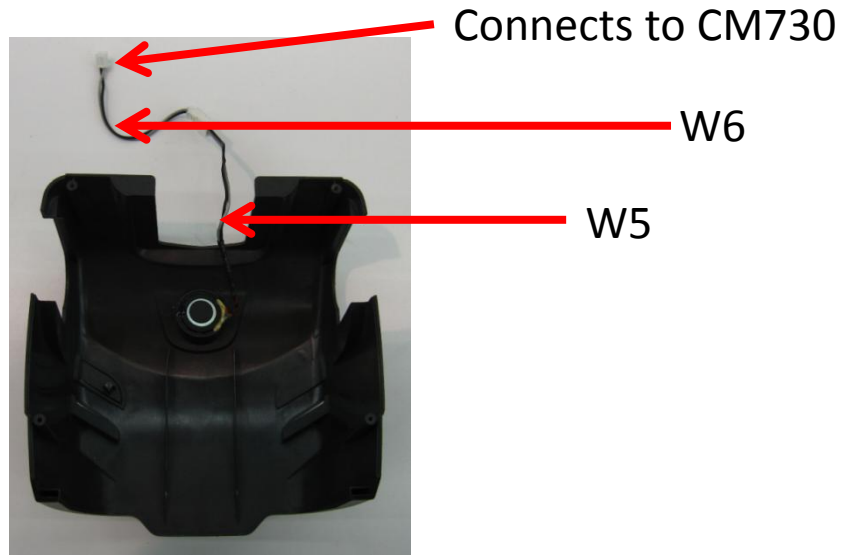
Wire No.	Wire Name	Approximate Length (cm)
W1	Fan Wire	5
W2	Fan PCB Wire 8-pin	18
W3	Fan PCB Wire 9-pin	18
W4	Power Switch Wire	13
W5	Speaker Wire	13
W6	Speaker Extension Wire	9
W7	Antenna Wire	10
W8	Antenna PCB Wire	5
W9	FitPC 3-Way Wire	5
W10	CM730 to FitPC-Top Wire	11
W11	CM730 to FitPC-Bottom Wire	13
W12	Head PCB Wire 10-pin	28
W13	Camera PCB Wire	23

4. Overall Chest Wiring Layout

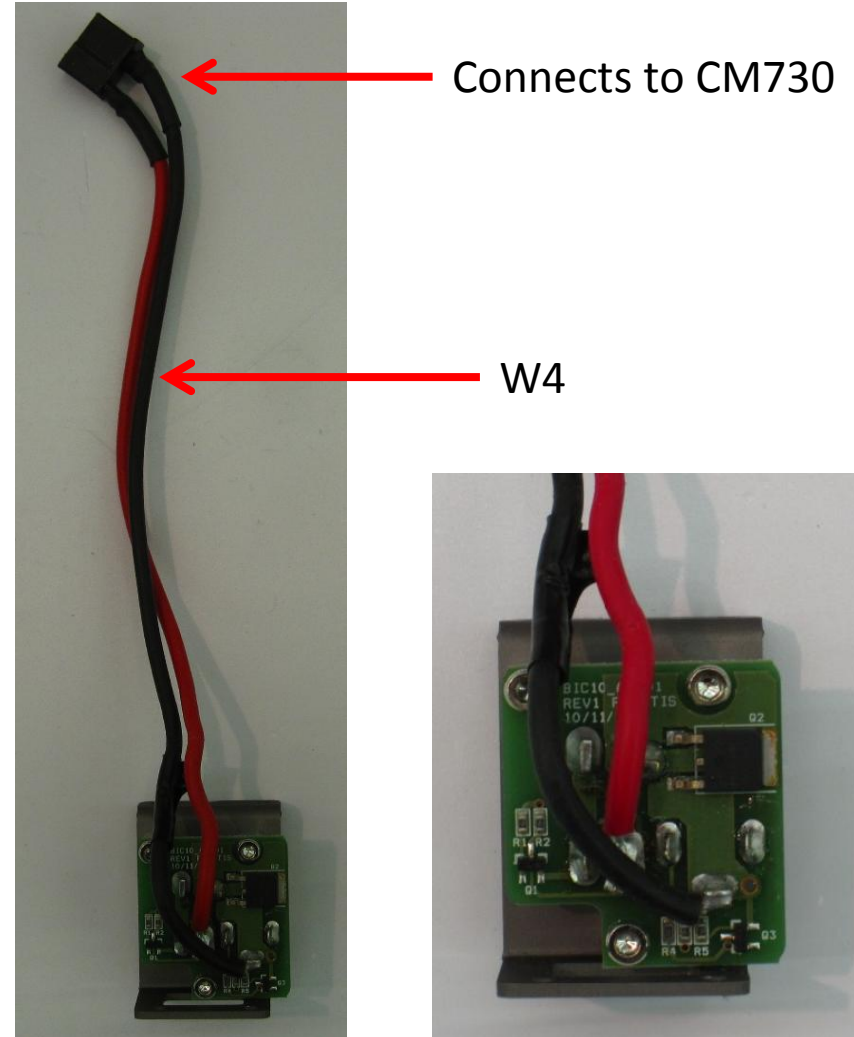


5. Chest Section Wiring

5-1 Speaker Wiring

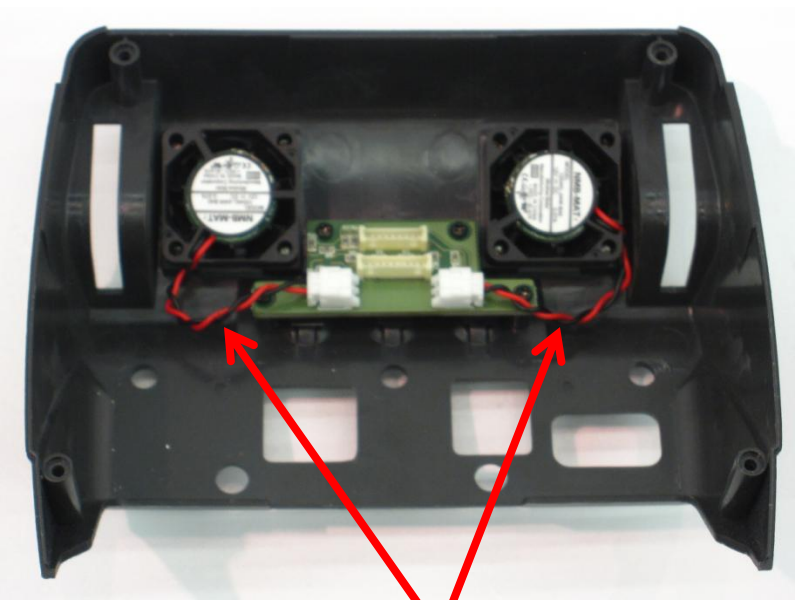


5-2 Power Switch Connection

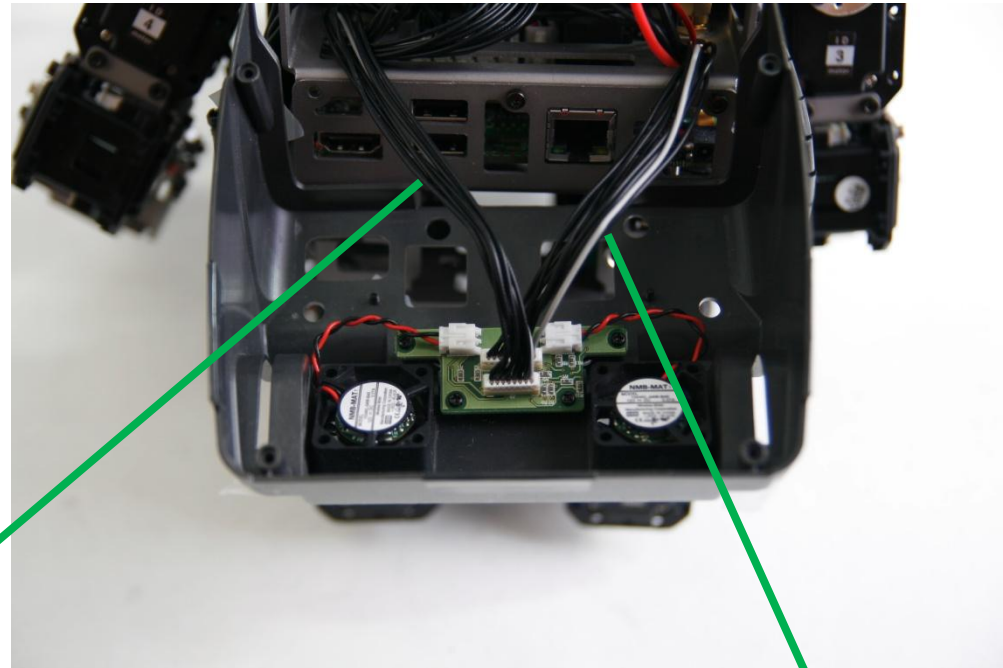


5. Chest Section Wiring

5-3 Fan Wiring

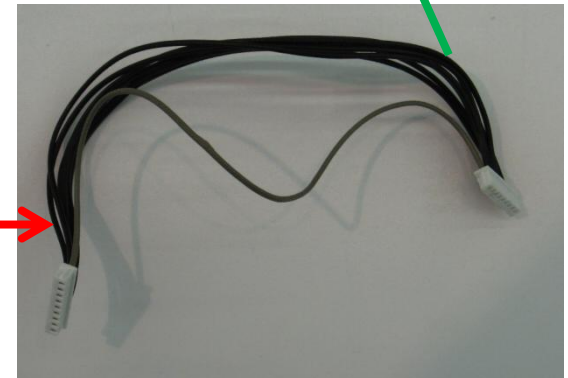


W1



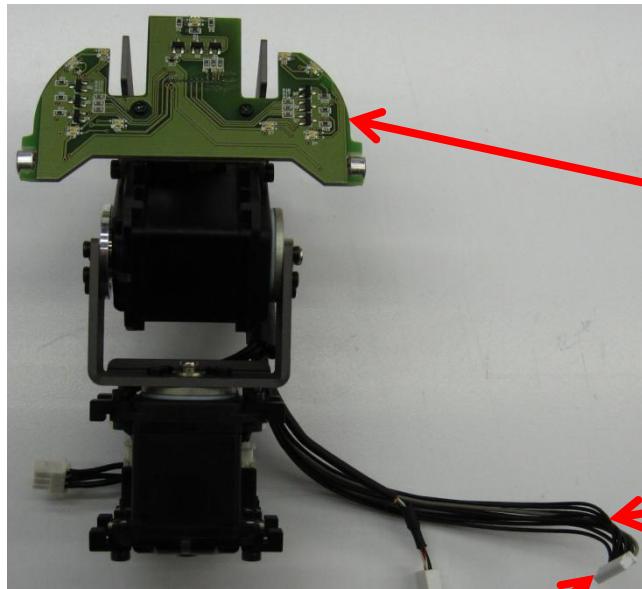
W2 (8-pins)

W3 (9-Pins)

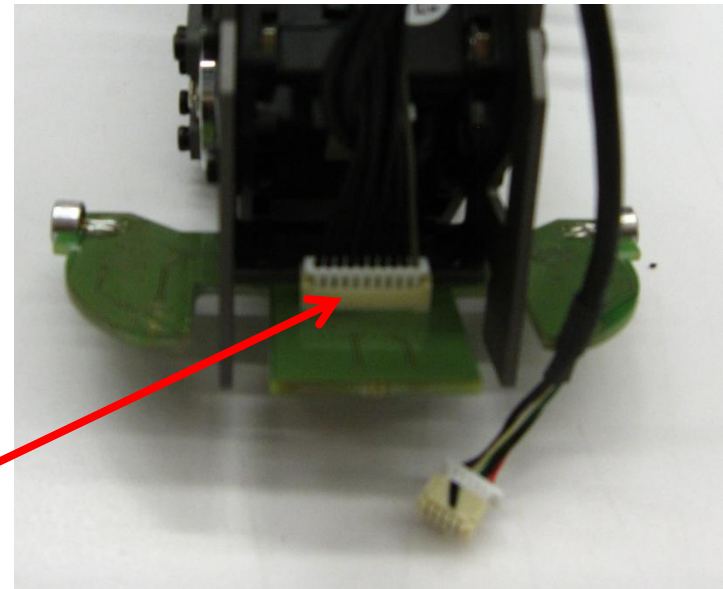


5. Chest Section Wiring

5-4 Head PCB Connection to CM730



Front View



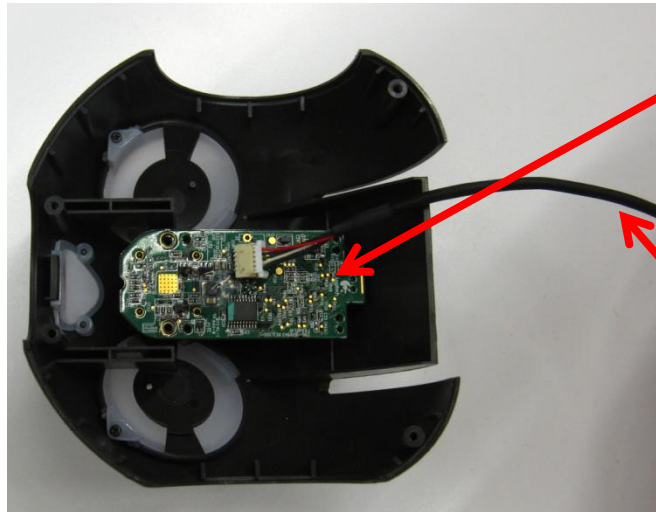
Back View

Connects to CM730



5. Chest Section Wiring

5-5 Camera PCB to CM730



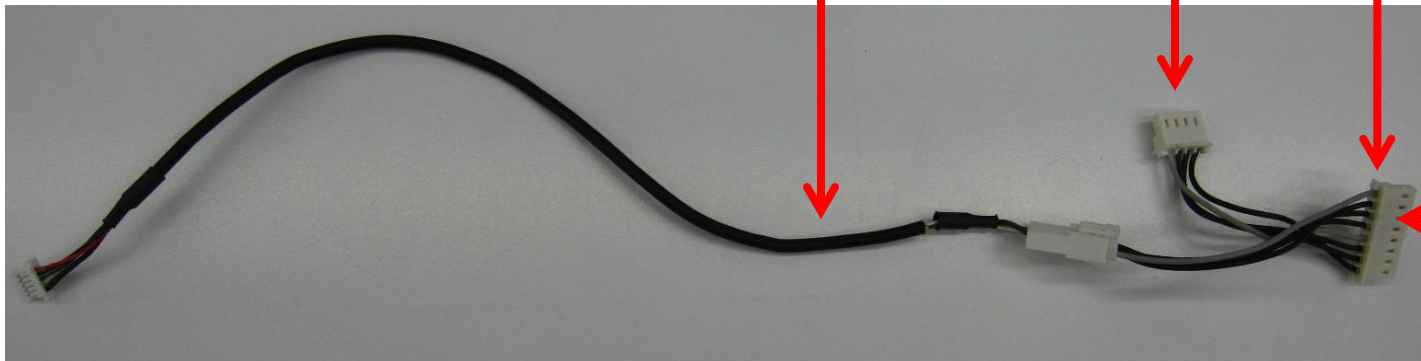
Camera PCB

W13

Connects to
CM730

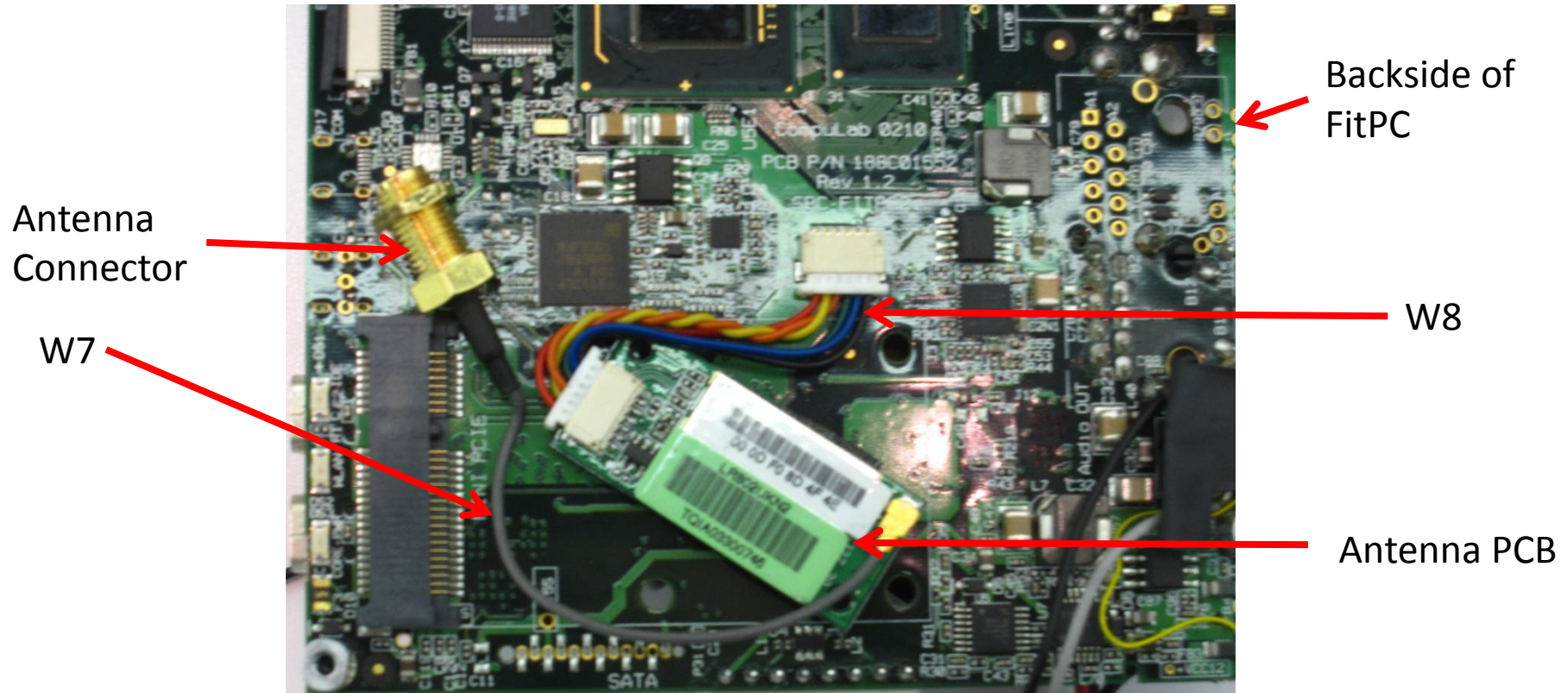
W9

Connects to
FitPC



5. Chest Section Wiring

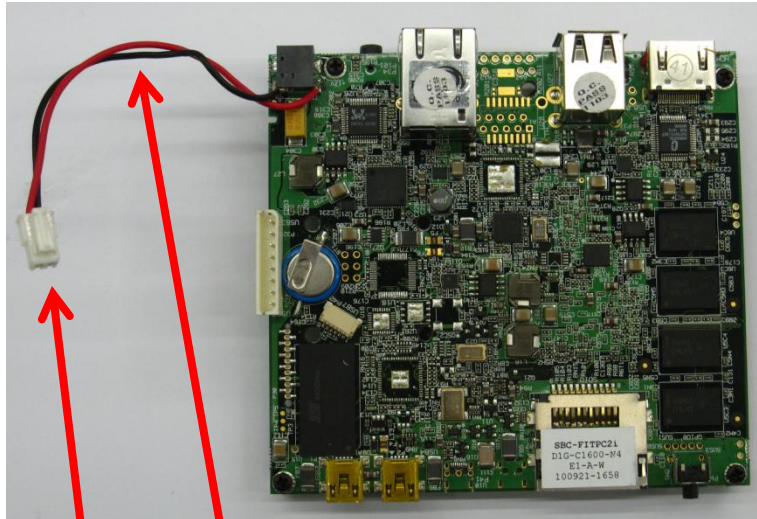
5-6 Antenna Wiring



5. Chest Section Wiring

5-7 FitPC Connection to CM730

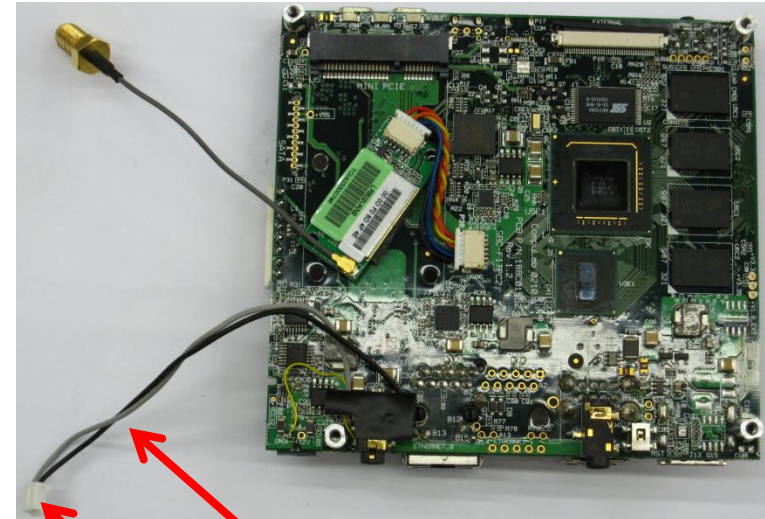
FitPC Top Side



W10

Connects to CM730

FitPC Bottom Side

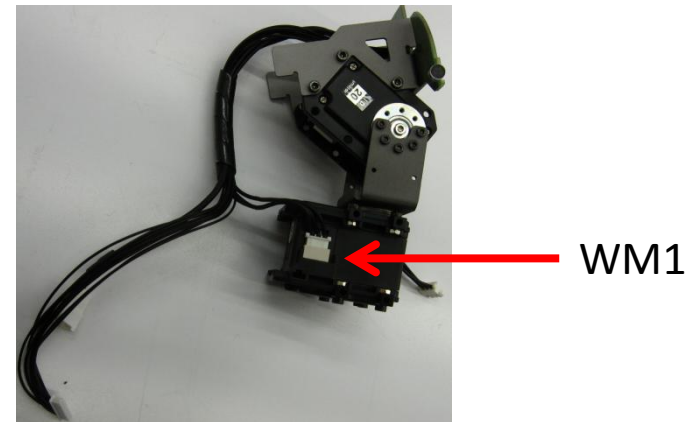
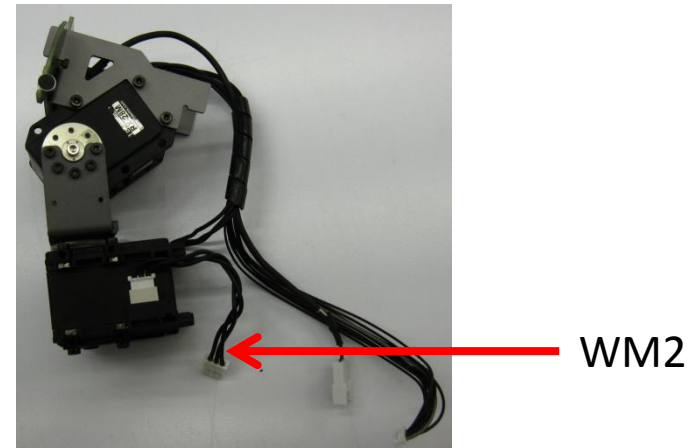
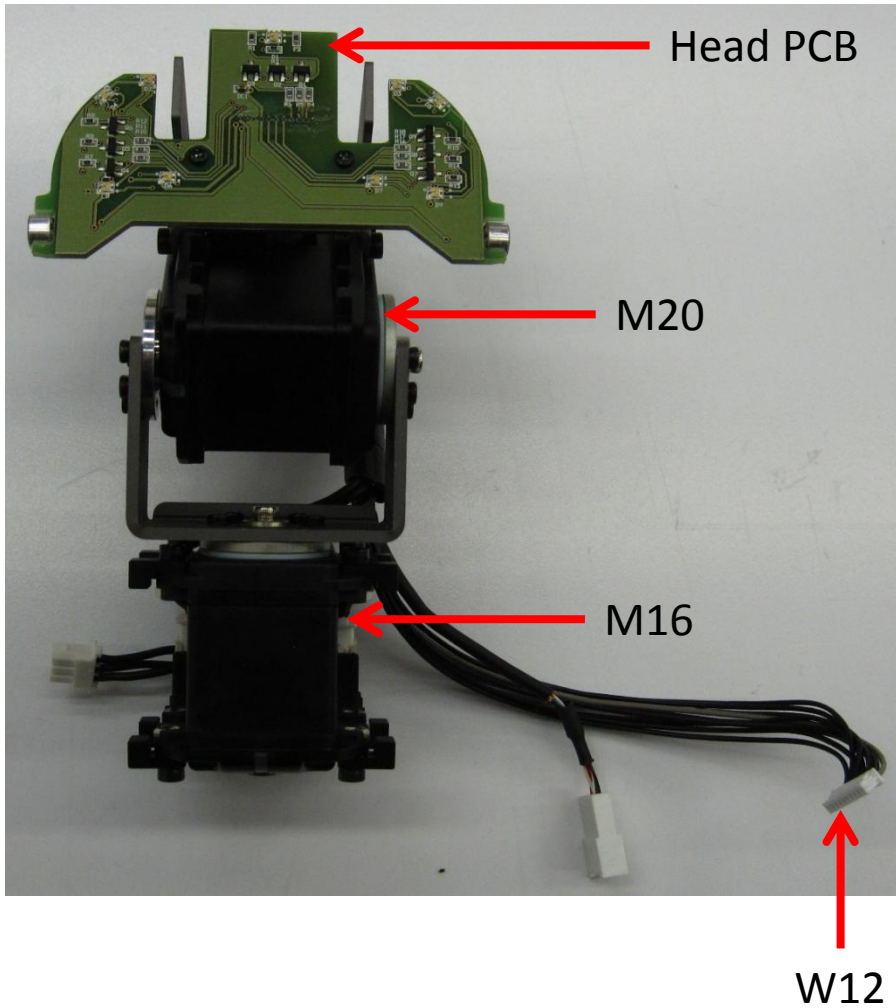


W9

Connects to CM730

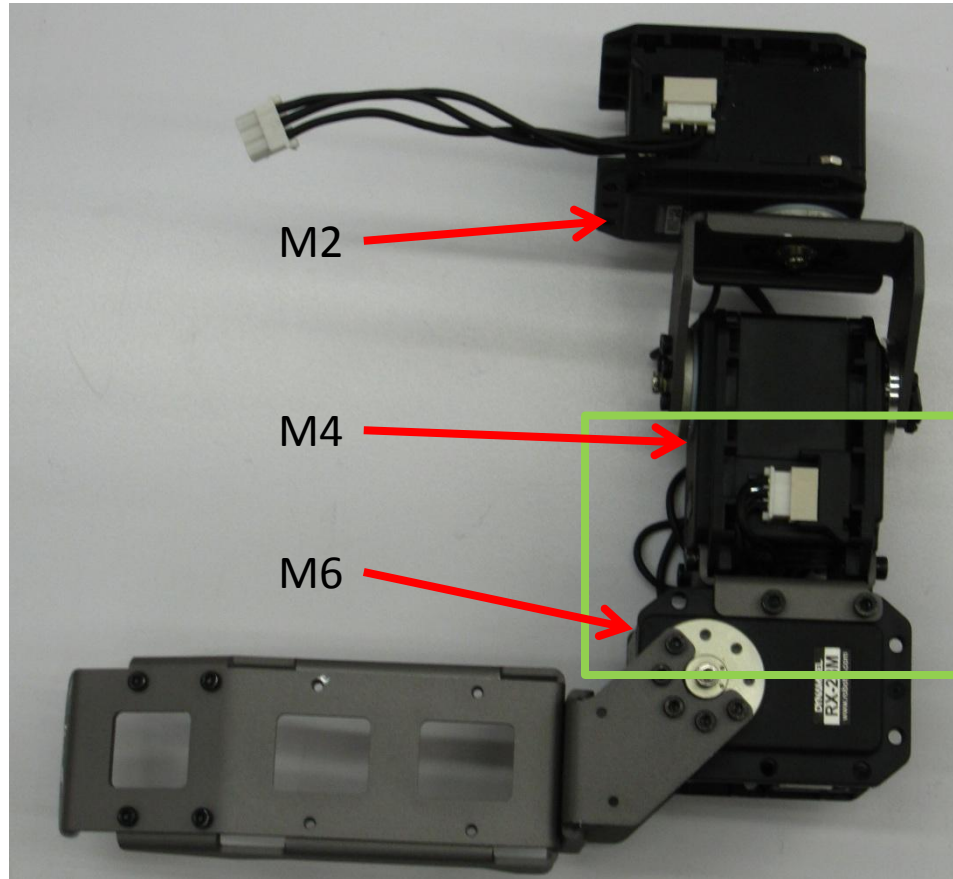
6. Motor Wire Routing

6-1 Routing for the Head

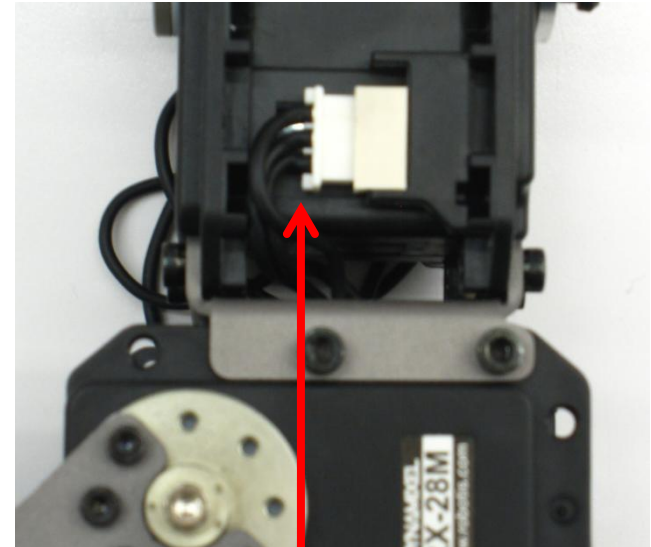


6. Motor Wire Routing

6-2 Routing for the Arms



Left Arm



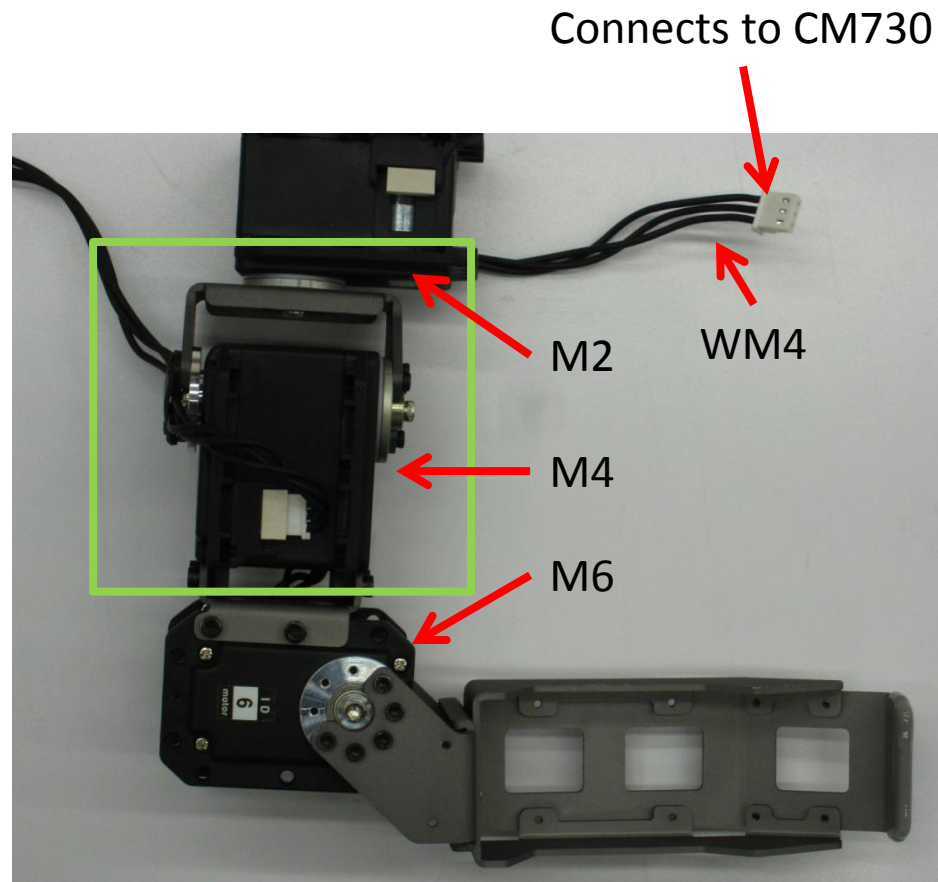
WM9

Wire WM9 should be fed through the center hole of the arm actuator mount before connecting to motor M4.

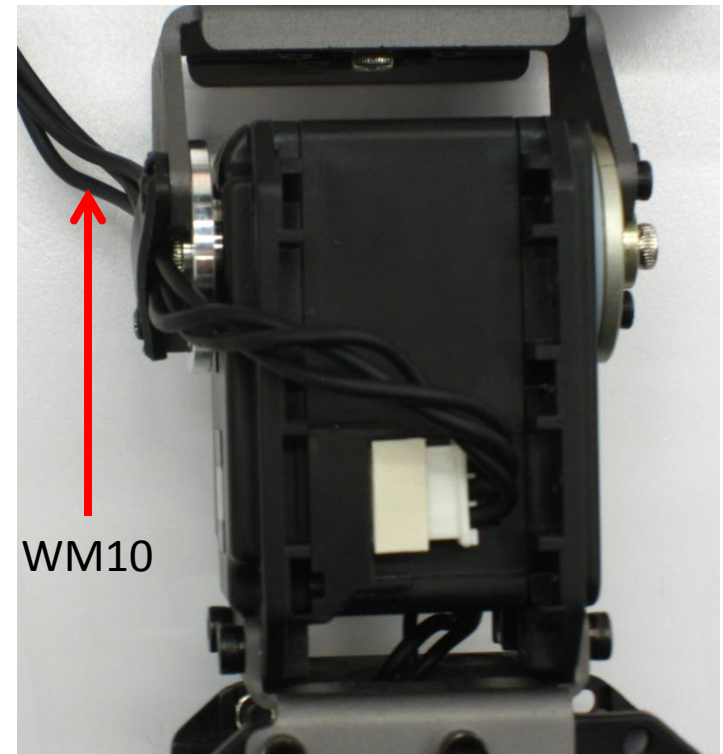
* Note that the right arm will follow the same routing configuration

6. Motor Wire Routing

6-2 Routing for the Arms



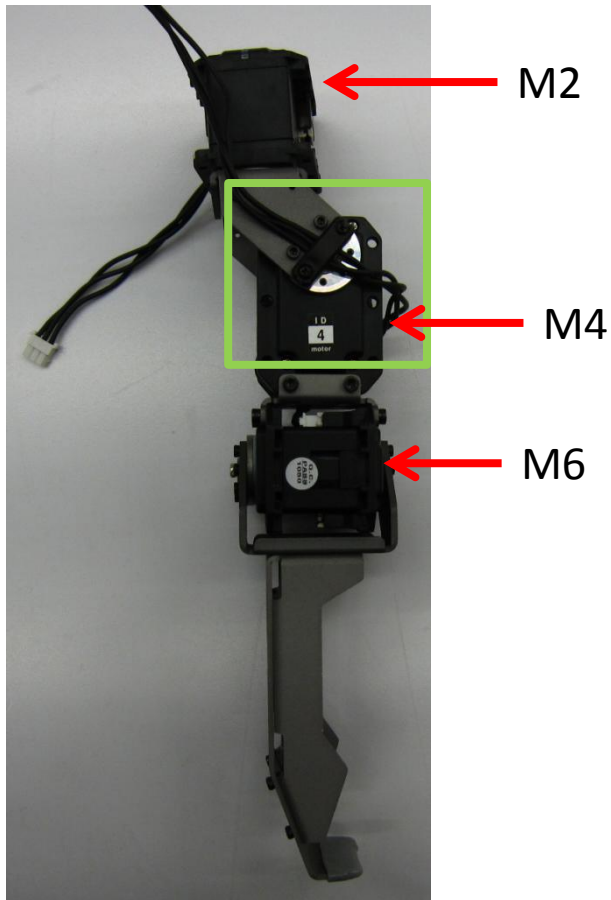
Left Arm



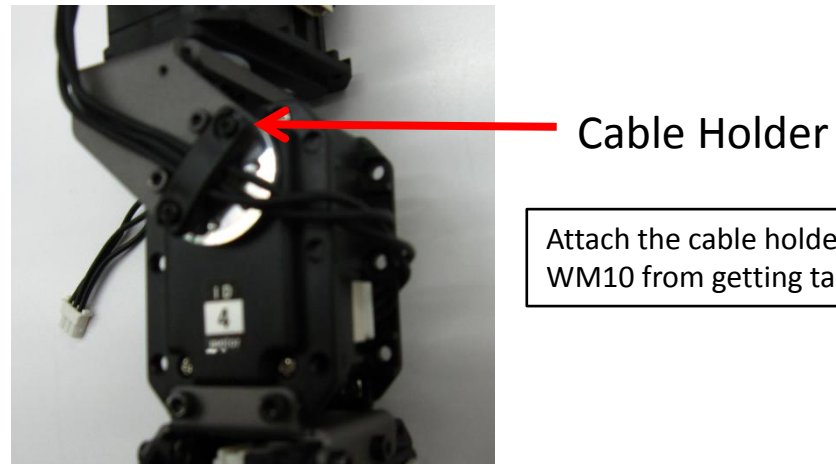
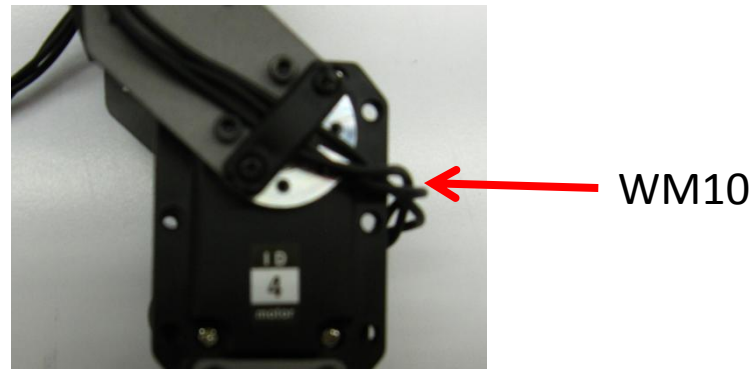
* Note that the right arm will follow the same routing configuration

6. Motor Wire Routing

6-2 Routing for the Arms



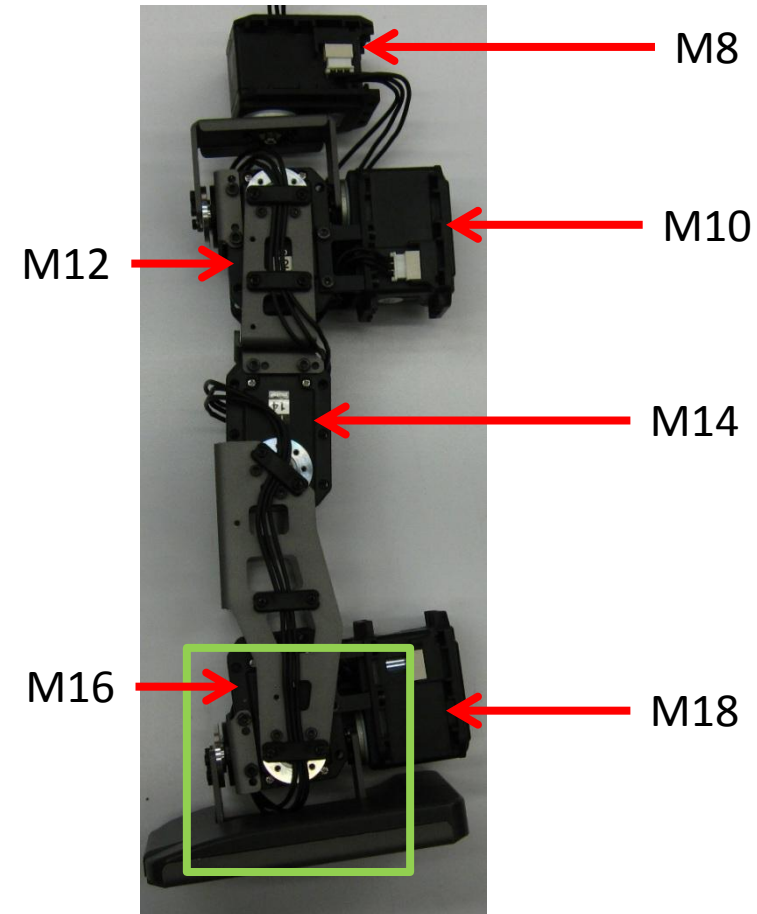
Left Arm



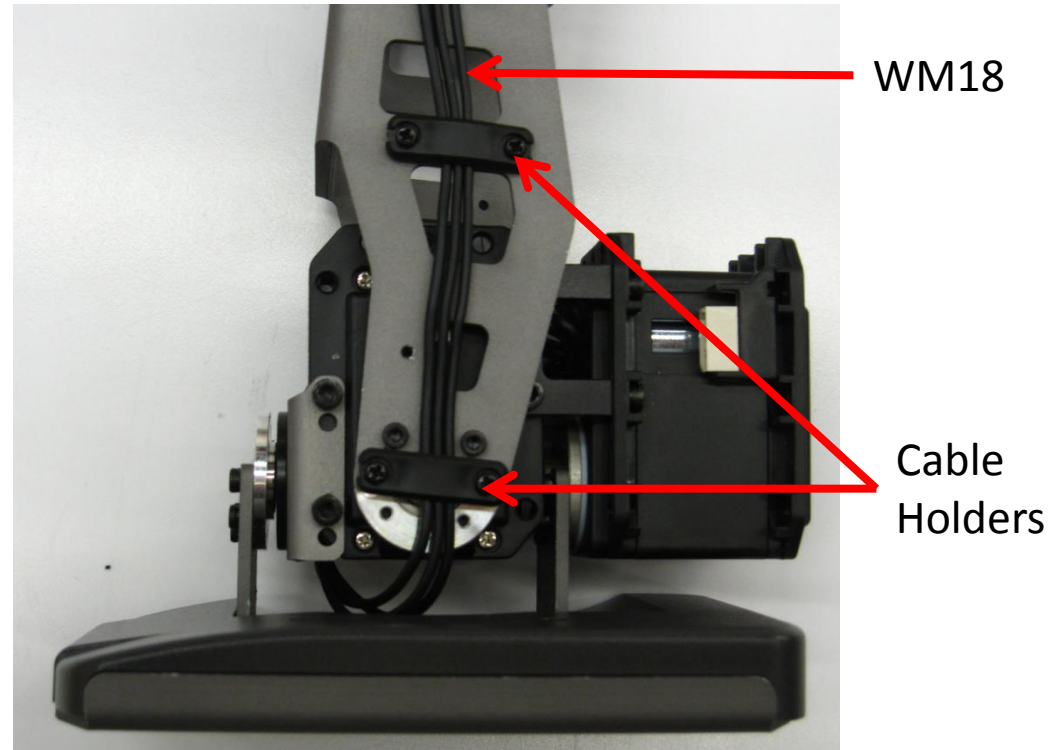
* Note that the right arm will follow the same routing configuration

6. Motor Wire Routing

6-3 Routing for the Legs



Left Leg

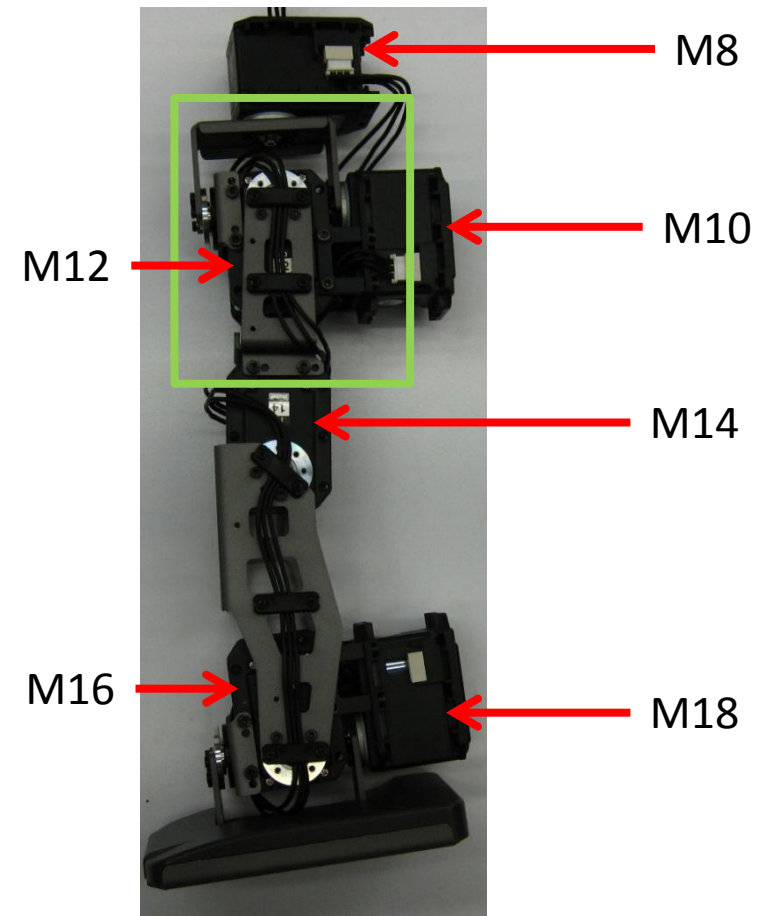


Attach the cable holders to keep wire WM18 from getting tangled.

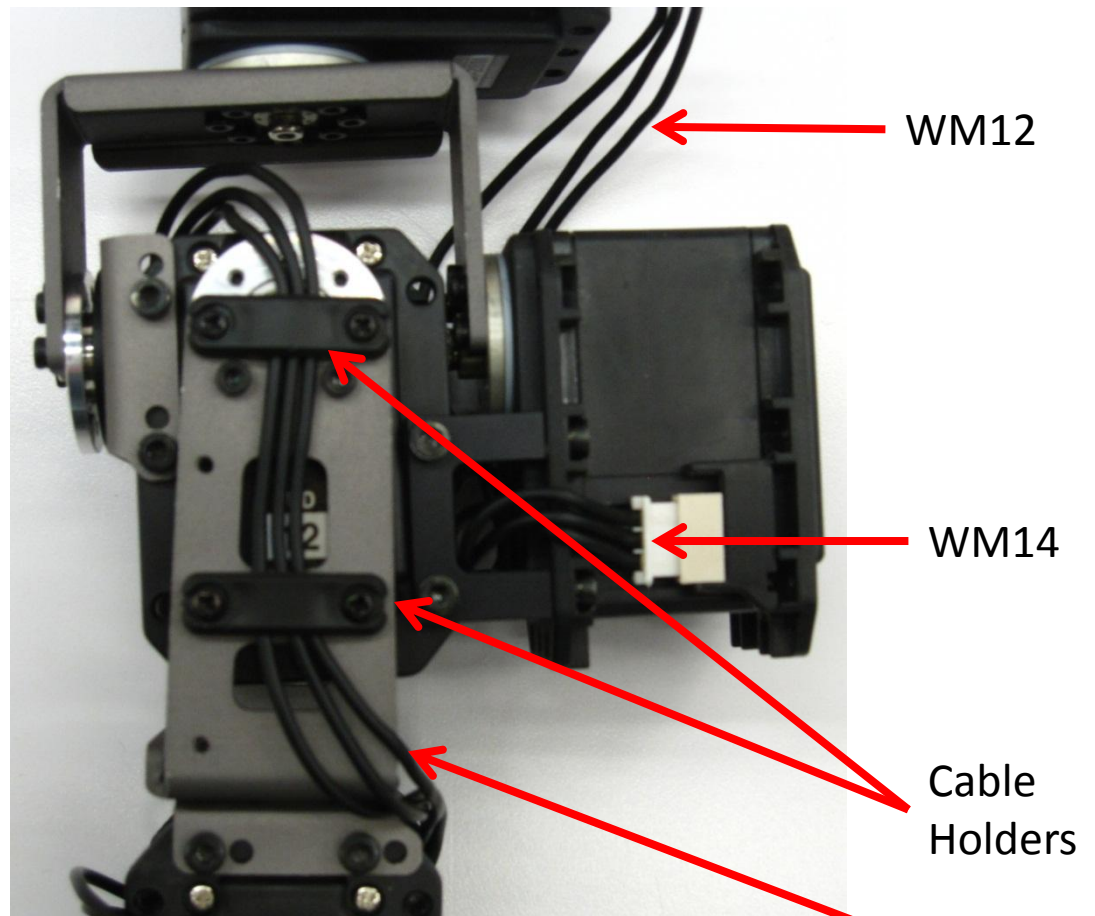
* Note that the right leg will follow the same routing configuration

6. Motor Wire Routing

6-3 Routing for the Legs



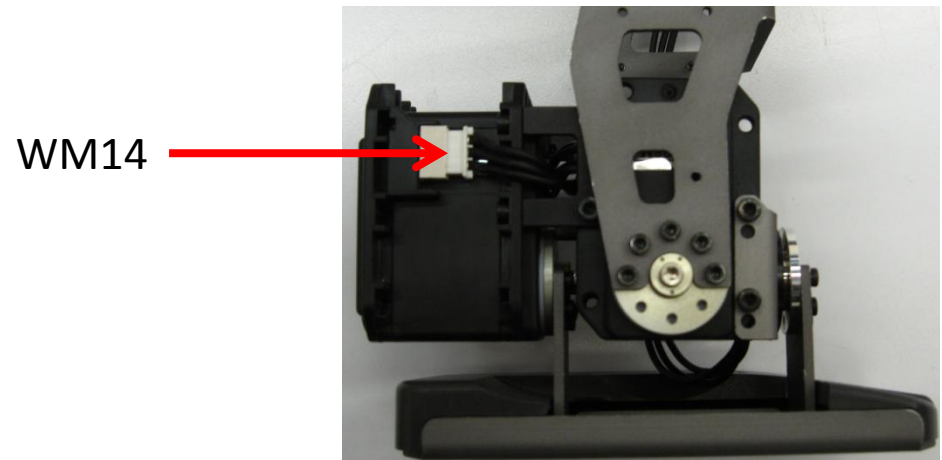
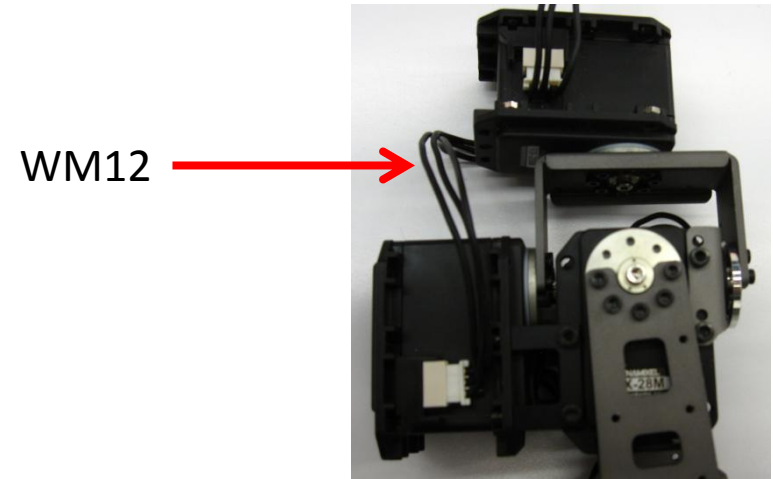
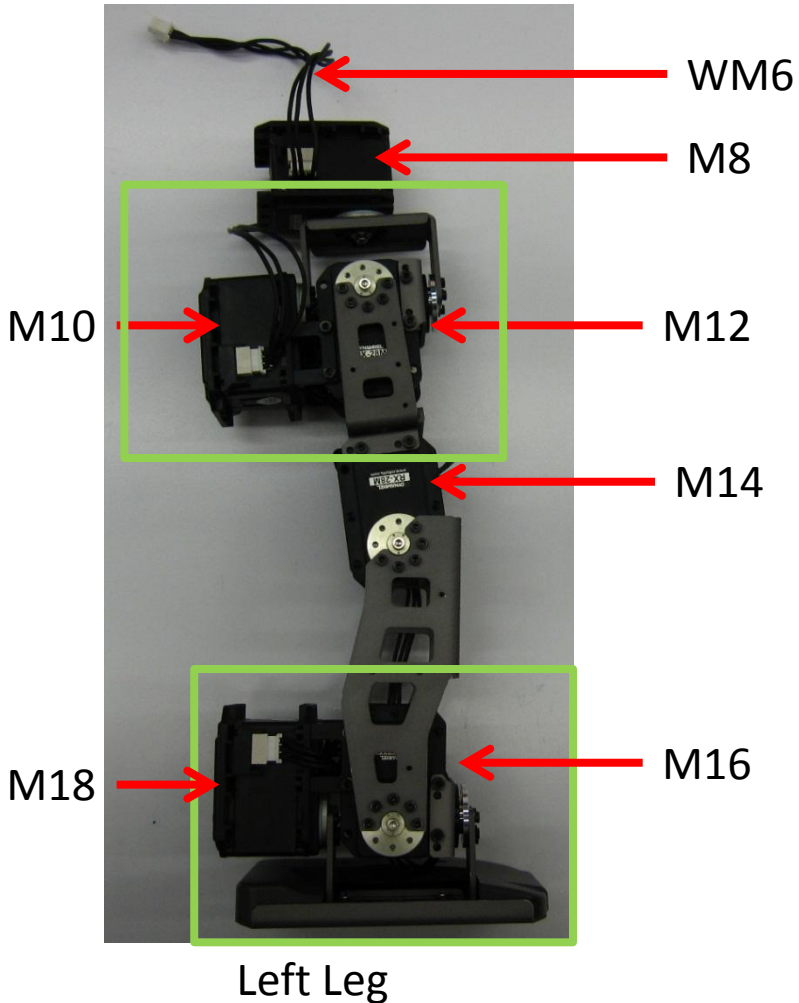
Left Leg



* Note that the right leg will follow the same routing configuration

6. Motor Wire Routing

6-3 Routing for the Legs



* Note that the right leg will follow the same routing configuration

R_oM_eL_a

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