

MANOI™

AT01



DEC2006

はじめに Introduction

Thank you for purchasing MANOI AT01.
It is because this product is for assembling kit,
so if assembling is not correct way, the product can not bring out its performance.

Please, read this instruction manual/manual carefully and assemble the products in correct way.

別途ご用意いただくもの Required Equipment

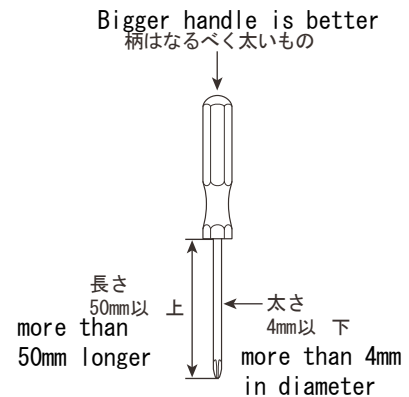
Following Tools and equipment will be necessary to assemble and operate this product.
Prepare before start assembling and operating.

PC with Microsoft Windows or Windows XP
USB Port with more than 1 port
CD-ROM Drive
*Basically use USB Port of PC itself screwdriver

- +screwdriver(#0,#1,#2)
Use for tighten screws
Views are reference for #0 size Screwdriver
- Cutter or Scissors
Use for cutting Body Cover
- Colored Spray for POLYCARBONATE
Use for painting Body Cover. Choose color as you like

Equipment/tool which will help you if you have

- Nipper
Use for cutting free Plastic Parts
- Borer
Use for making hole on Body Cover
- Masking Tape
Use for painting Body Cover



◆About Screwdriver

+screw is used for this product. There is proper screwdriver for different size fo screw as following instruction. If you use wrong screwdriver, it will mess head of screws.

#0 ...2 x 6 countersunk screw
...2 x 6 bindtapping screw
...2 x 8 tapping screw
...2 x 15 tapping screw
...2 x 18 tapping screw

#1 ...2 .6 x 8 bindtapping screw

#2 ...3 x 8 bindtapping screw
...3 x 12 bindtapping screw

*#● means size of screwdriver and it is shown at handle fo screwdriver.
Please, check when you purchase.

◆Being screwed shut

This product has a lot of prastic parst and use screw shich is called Tapping Screw for fixing parts. Use folloeing instruction for reference of using Tapping Screw.

- Tapping Screw is the screw to make screw thread when it is tightned. When it is first time to tighten, it is hard to tirhten. Know-How is as if pushing screw into screw hale when you tighten it.
- When screw is tighten, it is necessary to maker sure that screw is perpendicular to screw hole. if teh screw is skew to screw hole, it is possible to give damage to the parts. If you feel too hard to tighten the screw, please, check if screw is skew or not.
- If screw is too go inside, screw will mess screw thread. When screw thred go inside of part completely, it is enough to tighten.
- After screw is tightened, if you need toloose and tighten screw again, you do not need push screw into screw hole as fist time, just make sure scre is not skew to the hole, and stop tighten when it is enough to tighten,

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安全について Safety

This products is Assembling Kit Model and There is some parts of User's responsibility on result after using. Hope user's understanding on this, There are very important matter in this manual to follow instructio to prevent danger or damage to use, some other people, or some asset,

Danger



危険

In this sign, there is possiblity to cause serious injuly or death by accident.

Warning



警告

In this sign, there may be possiblity to cause serious injuly or death by accident.

Notice



注意

In this sign, there is possiblity to cause serious injuly or damage by accident.

構成部品について complete parts



警告

Warning

- ★ Keep complete parts away from child

Some Parts has sharp part and jut, and it will cause injury or catch on by mistake.

- ★ Do not breakup or modify Servo and PCB Board except instruction in this manual.

Servo and PCB Board are electronic parts, so break up or modify except instruction in this manual will ceause fire or short circuit.

- ★ Do not use this product in high humidity, place of bedewing, in wet.

Component Parts of this products have electronic circuit, so humidity or wet will be resaon of trouble. If it is in wet, contact Customer Service.

- ★ Keep conductance items away from PCB Board.

Terminal in PCB B0ard is not cover for protection, so conductance items such as Metal or water can cause short circuit easily. And Short Circuit can cause damage of performance of PCB Board or fire.

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◆Caution

★Do not operate the product at imbalance place

The product can fall over or fall down because of lose balance and it will cause damage on the products. Also, fall over or fall down of the product can cause rough up others.

★When remove the wires, basically hold Plug or connector to remove unless there is exception instruction.

Holding wire to remove the wires, it will cause cutting wire, Short Circuit and cause electrification or fire,

バッテリーについて Battery

◆Danger

★Do not modify and breakup the battery

★Do not modify and breakup Cable and Connector of the battery

★Do not make short circuit

*It will cause exposed, fire, leaking and cause injure and loss of sight.

Also, when connector is connected, exposed metal parts can cause Short Circuit. Please be careful this.

★Remove the battery from the product when you do not use the product

★Do not be with other item when battery is transported or kept.

Damage or Scratch of Connector, wire, of outside skin of battery can cause Short circuit, then it could cause fire, leaking.

Battery can not be with any other item when it is transported or kept in stock.

◆Warning

When below incidents happen, remove HV Battery Connector from the products

The products is broken

Allotrio is inside the product

Emitting Smoke

have an unusual odor
too hot to touch

If keep using battery with above matters, it will cause fire or short circuit. If there is any unusal happening stop using and contact customer service.

- ★ When leaking happens. Wash hands if liquid touch hands, 万が一 is ineys, wash your eye well, then see doctor. Contents inside battery is harmfulness. It will give damage to human body, house furniture. If it is in eye, eye could lose seight. Be carefull with handling.
- ★ When do not use or leave battery and products for long time, disconnect battery from connector or charger.

Imppsoble to do necesay handling on contingency situation
Must use in your sight, Do not keep connectiong battery to connector for long time bacsue of causing fire.



注意

Notice

- ★ Do recicly No-Use battery with following local rule. Illigal abolishment will casue deterioration of environment. And, short circuit, leaking after abolishment have posibility to cause accident.

充電器について Chahrger



警告

Warning

- ★ Do not breakup or modify the charger.
- ★ Do not cut or give damage cable of charger.
- ★ Do not give damage, keep it near heating equipment. modify an ddo not use with too much pressure.

damage or modify on Charger will cause fire or short circuit,
Contact customer service for repair of cable or wire of charger.
- ★ Disconnect cable from outlet when it is not used.
Clean up Pk¥lug part and keep dirt away from the plug. ◦
- ★ Do not use charger with genuine battery. It is possible to cause fire or leaking if genuine battery used with the charger.

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付属製品について Included Items

アクチュエータ KRS-4024SHV

Actuator KRS-4024SHV

KO Propo's Robot Actuator KRS-4024SHV is tuned for MANO1. maximum operating angle:260degree

Outside Demension: 43 x 32 x 32.5 (mm)

Operating Voltage: 9~12V

Torque:10.5kg/cm*

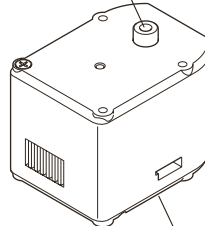
Speed:0.17sec/60*

Maximum Operating Angle:about 260degree

Plastic Gear + Metal gear

*as use NiCd 9cell

Output Axis
出力軸



反対軸
Opposite Axis

マイコンボード RCB-3

PC Board RCB-3

KO Propo's 24axis controll PC Board.

Exsisting PWM signal and

Servo Controll by Serial signal is possible.

Sensors such as gyroscopic can be connect to analog input Port.

Outside Demension: 35 x 45 x 14.5 (mm)

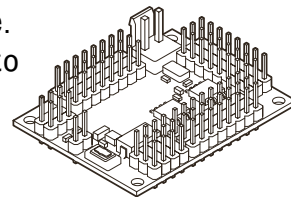
Weight:12g

Operating Voltage: 9~12V

Speed:0.17sec/60*

Output Port: 24

Input Port: 5(annalog3, serial 1+1)



パーツリスト Parts List

パーツリスト Parts List

Item Name	necessary quantity
部品名	要数
ローハイトサーボホーン Low Height Servo Horn	3
サーボ延長コード L=100m Servo Extention Wire L=100mm	1
シリアル USB アダプター Serial USB Addpter	1
コントロールボード (RCB- 3) Control Board(RCB-3)	1
サーボリード L=300m m Servo Lead L=300mm	4
サーボリード L=400m m Servo Lead L=400mm	4
サーボリード L=500m m Servo Lead L=500mm	2
ソール S-01 Sole S-01	2
サーボモーター (KRS-4024SHV) Servo Motor (KRS-40245HV)	17
サーボリード L=100m m Servo Lead L=100mm	2
サーボリード L=200m m Servo Lead L=200mm	5
アッパーアーム Upper Arm	12
ボトムアーム 4000A Bottm Arm 4000A	12
ベース Base	8
ボトムブッシュ Bottom Bush	14
カラーストラップ Color Strap	6
電源スイッチハーネス ON/OFF Switch Harness	1
ケーブルガイド Cable Guide	12
バックトレイ Back Tray	1
ボディポスト A Body Post A	2
アングルゲージ Angle Gauge	8
アッパーフレーム Upper Frame	1
コネクタホルダ Connetor Holder	1
バッテリーホルダ Battery Holder	1
サイドフレーム Side Frame	2
ロアフレーム Lower Frame	1
PCB ベース PCB Base	1
ヒップブリッジ Hip Bridge	2
エルボーアダプター Elbow Adpter	2
ラジアルマウント A Radial Mount A	2
ハンドベース A Hand Base A	2
ショルダーサポーター Shoulder Suppoter	2
フットベース Foot Base	2
サイジョイント B Thighs Joint B	2
サイジョイント A Thighs Joint A	2
ニーアーム B Knee Arm B	2
ニーアーム A Knee Arm A	2
充電器 (AC/DC 急速) Charger(AC/DC Quick)	1
NiMH battery(9 cells/10.8V HV Connector)	1

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Item Name		Necessary Quantity
部品名	必	要数
ヘッドカバー (ATPC01)	Head Cover(ATPC01)	1
フロントマスク (ATPC02)	Front Mask(ATPC02)	1
リアカバー (ATPC03)	Rear Cover(ATPC03)	1
チェストカバー (ATPC04)	Chest Cover(ATPC04)	1
バックパック (ATPC05)	Back Pack(ATPC05)	1
レフトショルダーカバー F (ATPC06)	Left Shoulder Cover F(ATPC06)	1
レフトショルダーカバー R (ATPC07)	Left Shoulder Cover R(ATPC07)	1
ライトショルダーカバー F (ATPC08)	Right Shoulder Cover F(ATPC08)	1
ライトショルダーカバー R (ATPC09)	Right Shoulder Cover R(ATPC09)	1
レフトアームカバー (ATPC10)	Left Arm Cover(ATPC10)	1
ライトアームカバー (ATPC11)	Right Arm Cover(ATPC11)	1
レフトハンドカバー (ATPC12)	Left Hand Cover(ATPC12)	1
ライトハンドカバー (ATPC13)	Right Hand Cover(ATPC13)	1
レフトアッパーレッグカバー (ATPC14)	Left Upper Leg Cover(ATPC14)	1
ライトアッパーレッグカバー (ATPC15)	Right Upper Leg Cover(ATPC15)	1
レフトローアッパーレッグカバー (ATPC16)	Left Lower Leg Cover(ATPC16)	1
ライトローアッパーレッグカバー (ATPC17)	Right Lower Leg Cover(ATPC17)	1
レフトフットカバー (ATPC18)	Left Foot Cover(ATPC18)	1
ライトフットカバー (ATPC19)	Right Foot Cover(ATPC19)	1
アイボール (ATPC20)	Eye Ball(ATPC20)	1
チェストボール (ATPC21)	Chest Ball(ATPC21)	1
インナーカバー (ATPC00)	Inner Cover(ATPC00)	1
シリコングリス	Silicon Gliss	1
ヘッドサーボマウント (BM03)	Head Servo Mount(BM03)	1
ショルダーカバーマウント (Shoulder Cover Mount(BM06)	2
アームカバー /	Arm Cover/Hand Cover Mount(BM07)	2
ライトチェストカバーマウント (Right Chest Cover Mount(BM04)	1
	Left Chest Cover Mount(BM05)	1
	Upper Leg Cover Mount S(BM08)	2
	Left Upper Leg Cover Mount S(BM12)	1
	Right Lower Leg Cover Mount S(BM09)	1
	Left Lower Leg Cover Mount S(BM10)	1
	Right Upper Leg Cover Mount F(BM11)	1
	Right Lower Leg Cover Mount F(BM13)	1
	Left Lower Leg Cover Mount F(BM14)	1
	Right Foot Cover Mount F(BM15)	1
	Left Foot Cover Mount F(BM16)	1
	Right Foot Cover Mount R(BM17)	1
	Left Foot Cover Mount R(BM18)	1
	Head Cover Mount(BM01)	1
	Front Mask/Rear Cover Mount(BM02)	1
グロメット	Grommet	6
ボディピン φ5 用	Body Clip φ5	3
タッピングビス 2 × 8	Tapping Screw 2 x 8	8
タッピングビス 2 × 8 (ボディ用)	Tapping Screw 2 x 8 (for Body)	43
タッピングビス 2 × 15	Tapping Screw 2 x 15	64
タッピングビス 2 × 15 (ボディ用)	Tapping Screw 2 x 15 (for Body)	8
バインドタッピングビス 2 × 6	Bind Tapping Screw 2 x 6	54
バインドタッピングビス 2.6 × 8	Bind Tapping Screw 2.6x 8	6
バインドタッピングビス 3 × 8	Bind Tapping Screw 3x 8	7
バインドタッピングビス 3 × 12	Bind Tapping Screw 3 x 12	14
皿ビス 2 × 6	Countersunk Screw 2 x 6	2
タッピングビス 2 × 18 (ボディ用)	Tapping Screw 2x 18(for Body)	2

Item Name

Necessary Quantity

部品名	必	要数
サーボ番号 & ケーブルステッカー	Servo No. & Cable Sticker	1
MANOI AT01 ロゴステッカー	MANOI AT! Logo Sticker	1
ベルクロテープ (マジックテープ)	Hook and Loop Fastener	1
グロメット (予備)	Grommet (Spare)	2
ボディピン φ5 用 (予備)	Body Pin φ5 (Spare)	2
タッピングビス 2 × 8 (予備)	Tapping Screw 2 x 8 (Spare)	1
タッピングビス 2 × 15 (予備)	Tapping Screw 2 x 15 (Spare)	8
バインドタッピングビス 2 × 6 (予備)	Bing Tapping Screw 2 x 6 (spare)	6
バインドタッピングビス 2.6 × 8 (予備)	Bing Tapping Screw 2.6 x 8 (spare)	6
バインドタッピングビス 3 × 8 (予備)	Bing Tapping Screw 3 x 8 (spare)	3
バインドタッピングビス 3 × 12 (予備)	Bing Tapping Screw 3 x 12 (spare)	3
タッピングビス 2 × 18 (予備)	Tapping Screw 2 x 18 (Spare)	1
皿ビス 2 × 6 (予備)	Countersunk Screw 2 x 6 (Spare)	3
	Manual & Driver & Sofyware & Smaple Motion	1
愛用者ハガキ	Users Post Card	1
組立 / 取扱説明書	Instruction Manual	1

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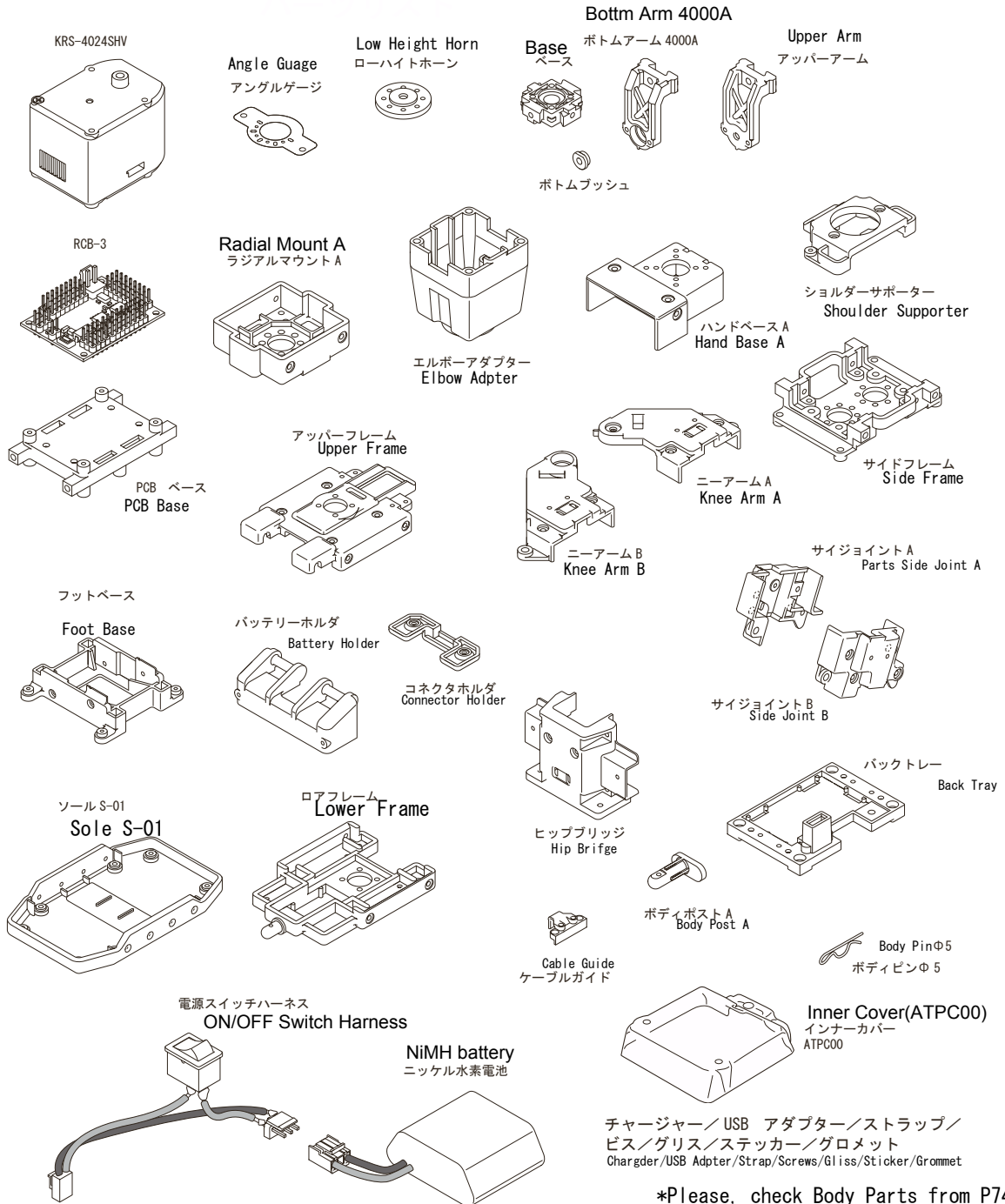
組み立て

展開図

パーツ一覧 Parts Views

Some Parts are very small and some has similler shape with others. After check quantity, it is better to put them back to Plastic Bag.

Products and Items are check before shipemnt, but if missing parts are found, please contact Custimer Suport.



*Please, check Body Parts from P74
*Cables are not showed in this page

組み立ての準備 Before Assembling

バッテリーを充電する Charging Battery

ON the process of assembling MANOI, it is necessary to turn ON PC Board. But, Batteru is not full-charged when it is shipped out. Therefore it is necessary to charge battery by included charger before start assembling.

●MANOI Dedicated AC/DC Charger

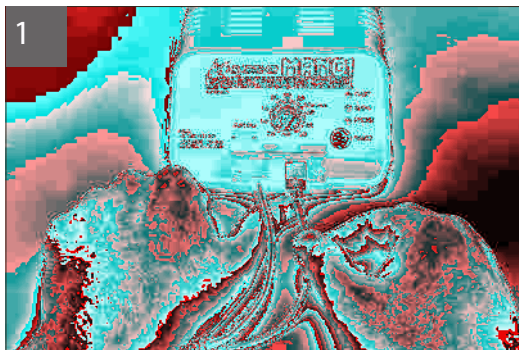
Charge Mode:FET Linear Pulse System Constant Current
Cut System: CPU Controlled Delta Peak Cut System
Charging Current:0.5-5.0A(max 3.5A at AC100V) (*1)
Trickle Current: about 200mAh
Electrifiable Battery Voltage:4.8V-12v(4n-10N) (*2)
Charging Capacity: 225mAh-6000mAh
Possible Charging Battery type: Ni-Cd Ni-Mh
PS:AC100V or DC12V(*3)

*1:Charging Current is changeable, but for MANOI's standard battery, use at 0.5A

*2:MAX 8.4V(7N) at DC12V

*3:When MANOI Standard battery is charged, AC100V is available

●Charging Battery (AC100V)



1

- *Connect Charging Cable to Output Terminal at front side of the charger. Push up by finger, and as see loading slot insert cable and tuck metal part of Cable inside of loading slot
- * Connect as much as hide metal part of Cable.
- * Connect as Color of Cable at same color of Output Terminal.

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展開図



2

Connect AC cable to included Charger, and plug to outlet.
 *LED of "POWER" will be ON. If not, check connection.
 *At this time point, Charging Cable Terminal has current.
 So, do not cause short circuit by screws or tools.



3

Set the Output adjust knob to MIN(0.5A)
 *Do not set more than 0.5A when standard battery is charged.



4

Connect the battery to charging cable
 *Be careful with polar character (+/-).
 Insert the connect as smooth way(see teh figure)
 When connect, LED of "SLOW" will be blinking,
 and low current charging is started.



5

Press the "START" button,
 *With Beep Sound, LED of "FAST" will be blinking.
 Charging time depends on battery remaining. If battery is empty, it will take around 90mins for full charging.

6

As Full Charged, Beep sounds and LED of "FAST" will be OFF.
 Disconnect battery from charging cable,
 and charging process is completed.
 *As long as battery is connected to teh charger,
 low current charging is continued. Therefore,
 disconect the battery after charging is completed.

バッテリーについて

Battery

This product use HV battery (Nickel Hydride battery) as source of power. Nickel Hydride battery is rechargeble battery, but if it is used wrong way, it can be serious accident. Therefore, please read this manual carefully.

ニッケル水素電池の特性について

Attribute of NiMH Battery

- ・ NiMH Battery has low inner electrical resistance and can use large power. However, if battery is charged many time without emptied. incident which is called Memory Effect happens, and it will cause shorter active time even thought battery is full-charged. Memory Effect can be avided to emptythe battery before charging such as by using discharger.
- ・ NiMH Battery will be discharged by itself if charged battery is left for some time. Charge battery before use it.

組み立て解説中でのアイコン表記について

Icon in Instruction Manual

Follwoing Icons are showed in Instruction of assembling. Check for reference.



Issues which need more attention.



Tips



As emntions in Introduction, notice about screw tightened. Too tighten will mess Screw thread. So, do not insert screw into hole as skew. And, stop tighten when you feel it is enough.

組み立てAssembling

アイコン解説



注意



ポイント



締め込み注意

工程 01 シングルアームの組み立て

Operation01 Aseembling of Single Arm

使用するパーツ Set On Parts

Base x 8
Bottom Arm 4000A x 8
2.6 x 8 Bind Tapping Screw



ベース
Base

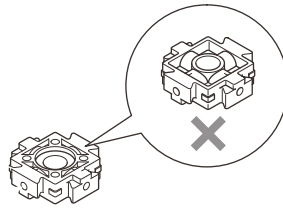


ボトムアーム 4000A

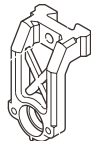
作業の手順 Assembling Process

1

ベース
Base



2.6 x 8 Bind Tapping Screw
2.6 x 8mm



ボトムアーム4000A
Bottom Arm 4000A

1

Fit one Bottom Arm 400A in one Base.
Be carefull with direction of Base.



Push Base into Bottm Arm until face of both parts will be flat.

2

After fit one Bottom Arm 400A in one Base,
Be screwed shut by 2.6 x 8 Bind Tapping Screw
from Bottm Arm Side.



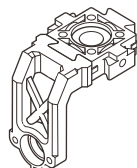
Be carefull with tto tighten the screw



Make 8 sets of this

2

Single Arm
シングルアーム



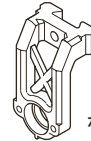
Operation02 Asembling of Cross Arm

工程 02 クロスアームの組み立て

使用するパーツ Set On Parts

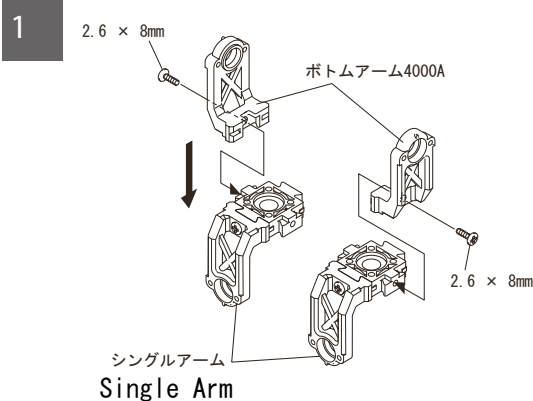
- ・シングルアーム × 4
(工程 01 で組み立てたもの)
- ・ボトムアーム 4000A × 4
- ・2.6 × 8 バインドタッピングビス × 4

Single Arm x 4 (which was assembled at Operation01)
Bottom Arm 4000A x 4
2.6 x 8 Bind Tapping Screw x 4



ボトムアーム 4000A
Bottom Arm 4000A x 4

作業の手順

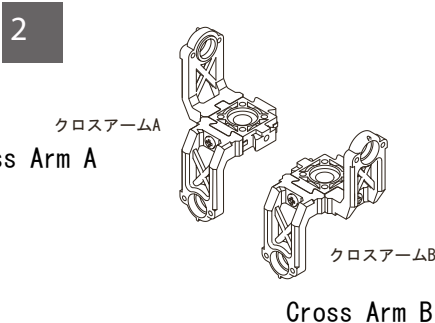


- 1 図を参考にしながらシングルアームの方向に注意して、シングルアーム 1 個につきボトムアーム 4000A を 1 個ずつ追加ではめ込みます。

ボトムベースの面とボトムアームの面が平らになるまで、しっかり押し込みます。

- 1 As seeing figured and be acerefull with direction of Single Arm, fit one Bottm Arm4000A in one Single Arm.

Push both parts into until face of both parts will be flat.



- 2 新たにはめ込んだボトムアーム側から【2.6 × 8 バインドタッピングビス】でねじ止めします。

締め込み過ぎに注意！

シングルアームにボトムアーム 4000A を組み付けたパーツを以後クロスアーム A/B と呼びます。クロスアーム A、クロスアーム B をそれぞれ 2 個ずつ、計 4 個組み立てます。

- 2 After fit one Bottom Arm 400A in one Base, Be screwed shut by 2.6 x 8 Bind Tapping Screw from Bottm Arm Side which is fit in afresh.

Be carefull with tto tighten the screw

- 19 The parts of Single Arm + Bottom Arm 4000A will be called Cross Arm A/B. Assemble 2 of Cross Arm A and 2 of Cross Arm B (Total 4sets)

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Operation03 Asembling of PCB Unit

工程 03 PCB ユニットの組み立て

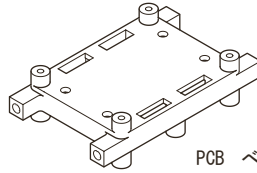
使用するパーツ

- ・ PCB ベース
- ・ RCB-3
- ・ 2 × 6 バインドタッピングビス × 4

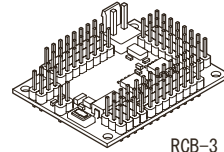
PCB Base

RCB-3

2 x 6 Bind Tapping Screw x 4



PCB ベース
PCB Base



RCB-3

作業の手順

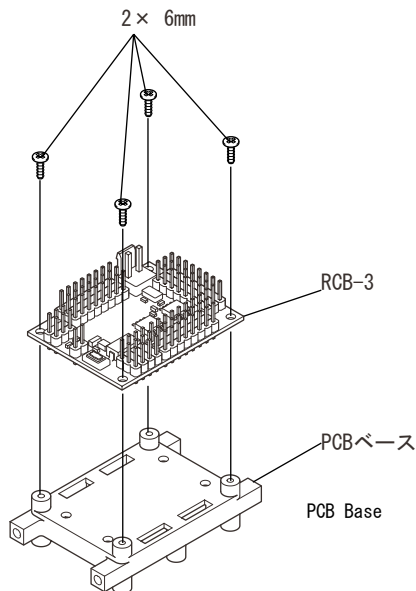


電子部品を取り扱うので、飲み物などの液体が近くにあるところでは作業しないようにしてください。
Due to handle electronic parts, keep liquid such as drinks away.



RCB-3 上の電子部品は静電気に弱いので、静電気の起きやすい布などの近くでは作業しないようにしてください。
PCB-3 is weak with static electricity. Therefore, leave fabric which can cause static electricity when handle PCB-3.

1



1

PCB ベースの、柱が4本立っている側に RCB-3 を乗せ、【2 × 6 バインドタッピングビス】で取り付けます。上下の区別はありません。



4本ともに仮止めをしてから作業すると、スムーズに進みます。



RCB-3 の裏面は端子が露出しているので、この工程後は PCB ベースから外さないようにしてください。

完成したパーツを以後 PCB ユニットと呼びます。

Put PCB-3 on 4 posts side of PCB Base, and fix by 2 x 6 Bind Tapping Screw.
There is no distinction of forward and backward direction.

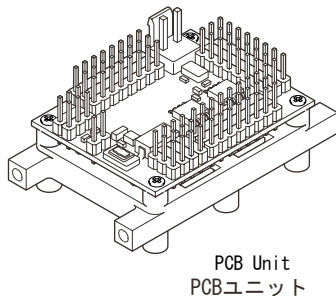


Make 4 screws temporary joint fist, it will be easy.



It is because there are terminals at backside of PCB-3, after this process do not remove PCB-3 from PCB base.

Assembled part will be called PCB Unit.

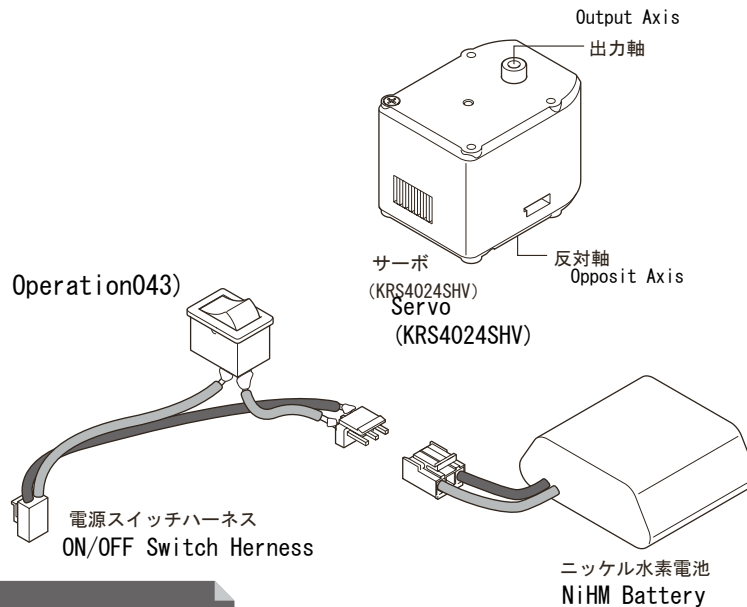


Operation04 Setting of Servo neutral

工程 04 サーボの原点設定

使用するパーツ

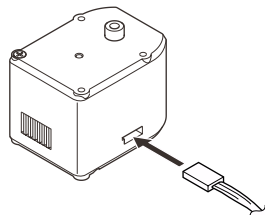
Servo (KRS-4024SH V) x 17
 Servo Lead (500mm) x 2
 Servo Lead (400mm) x 4
 Servo Lead (300mm) x 4
 Servo Lead (200mm) x 5
 Servo Lead (100mm) x 2
 PCB Unit(The one assembled in Operation043)
 ON/OFF Switch Harness
 Serial USB Adppter
 NiHM Battery(Charged one)



作業の手順

Servo Neutral setting is process of setting neutral of Output Axis of each servos and set output axis on basic point as assembling. This process will affect performance of MANO1, so do with carefully. After this process, if neutral point is changed by some reason, it is necessary to set neutral again. To do this process with PC. Install "Serial USB Adppter" and "Software(Heart to Heart3)" with referece of Serial USB Adppter Manual (KONO_USB Folder→in MANUAL) P3-6, HtH Manual (RCB3) p9 in included CD-R

1



1

Insert each Servo Leads to 17pcs of servos. Servo Leads are with different length, but at this timing any servo can any Servo lead.

⚠ Even though click of conecctor prevent reverse-install, please be carefull of reverse-install.



When install connector to Servo Case, cant connector to direction of Oppsite Axisa little bit, then it will be east to install.After installed, pull cable lightly to check if connector is installed well ot not.

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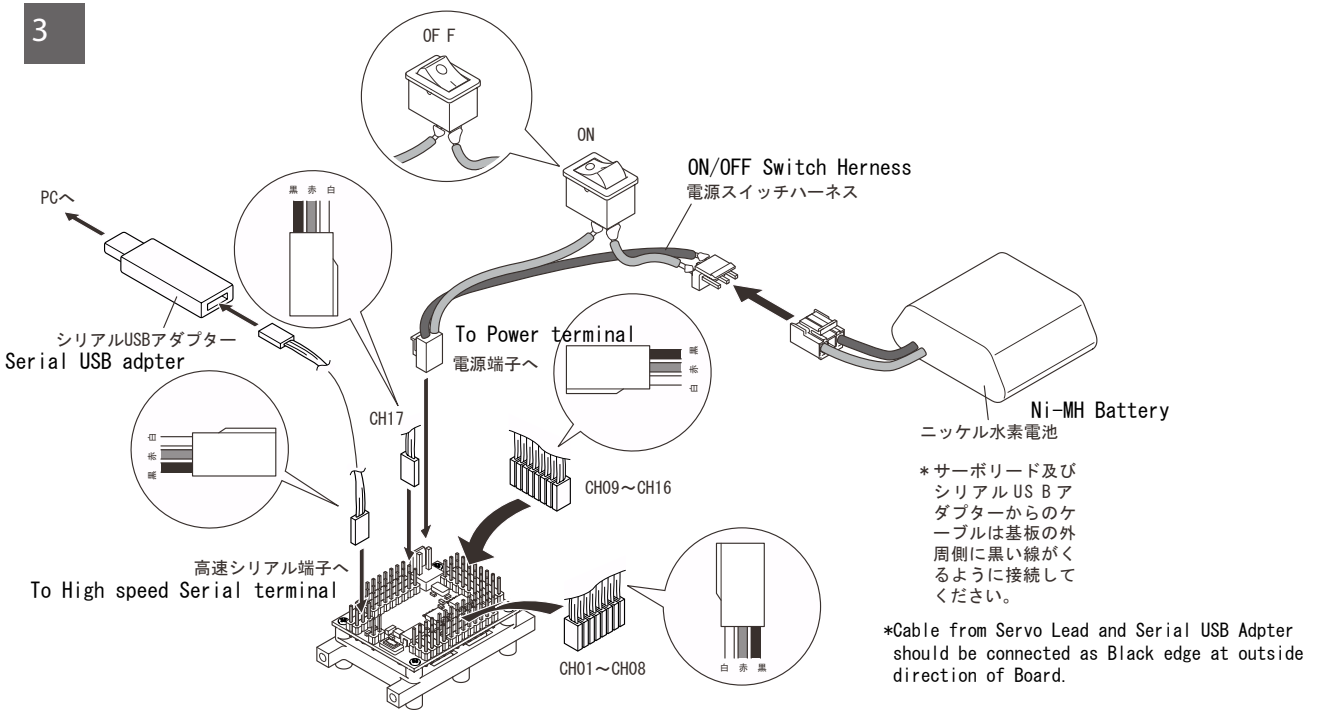
オプションの取り付け

パーツ販売リスト

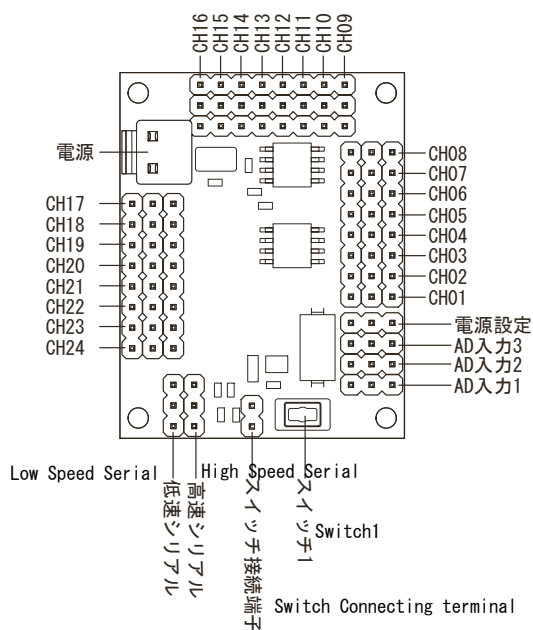
展開図

- 2** Connect Serial USP Adpter to Highspeed Serial terminal, and connect PC and RCB-3.
At PC side, start Heart To Heart 3.
Check "SYNC" at upper right.

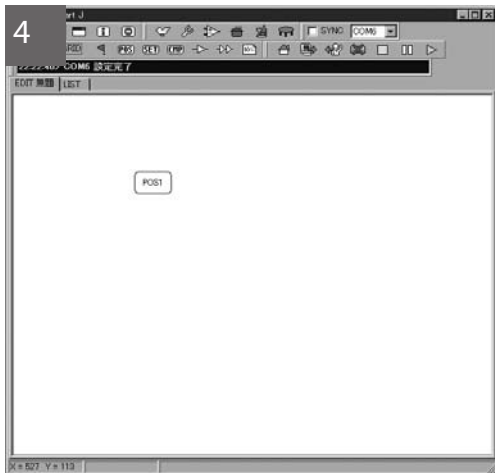
- 2** シリアル US B アダプターを高速シリアル端子と接続し、PC と RCB-3 をつなぎます。
PC 側で HeartToHeart3 を起動します。右上の「SYNC」にチェックを入れます。



- 3** Conenct Servo Leads to Analog Output terminals1-17 (CH01-CH17) of RCB-3.
Connect ON/OFF Switch Herness to RCB-3, then make sure switch is OFF and connect Ni-MH Battery.



- ⚠ Be carefull with direction of Servo lead.
- ⚠ Be carefull with direction of connector of ON/OFF Switch Herness
- ⚠ When install Servo Lead, push connector part into terminal.
Also, when you pull out Servo lead, hold connector part or hold cable part and pull directly above.



4

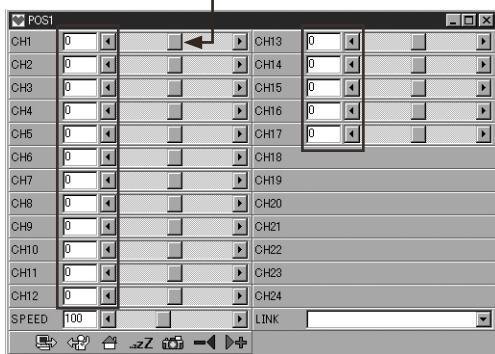
Turn ON power and Place "PDS" on datasheet of Heart To Heart3. (Click PDS of toolbar and move cursor to screen and left-click again.) Open by double-click, right-click on each CH1-17, then choose "SERVO" form dialog.



Servo could be moved, but if it is stopped by itself, it is normal

5

Slide bar
スライドバー



5

Move Slide Bar from side to side to check if servo is moved or not. Then, set numerical number to 0(zero).



If servo does not move, check Cable, ON/OFF Switch and battery charged situation after off the switch. Then On again and try process 5. If it still does not move, contact customer service.

6

Off the power switch and remove Servo lead and Ni-MH battery from RCB-3. Remove ON/OFF Switch Harness from RCB-3 and keep RCB-3 into a bag of preventing static electricity.

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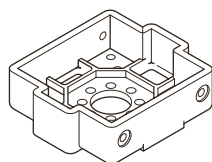
展開図

Operation05 Asembling of Elbow Unit

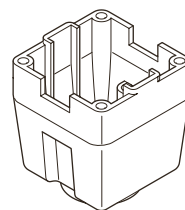
工程 05 エルボーユニットの組み立て

使用するパーツ

Radial Mount x 2
 Elbow Adpater x 2
 Servo+Servo Lead (200mm)
 (The ones which were set neutral in
 Operation04)
 Single Arm x 2
 (The ones whicjh were assembled in
 Operation01)
 2 x 6 Bind Tapping Screw x 16
 2 x 15 Tapping Screw x 8

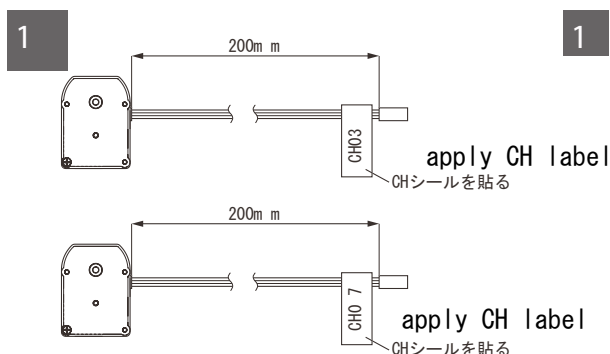


ラジアルマウント A
Radial Mount A



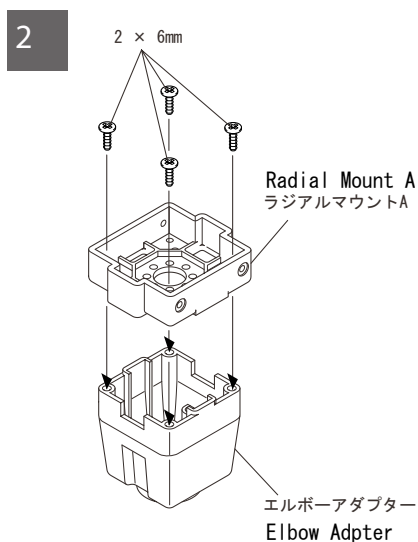
エルボーアダプター
Elbow Adaptor

作業の手順



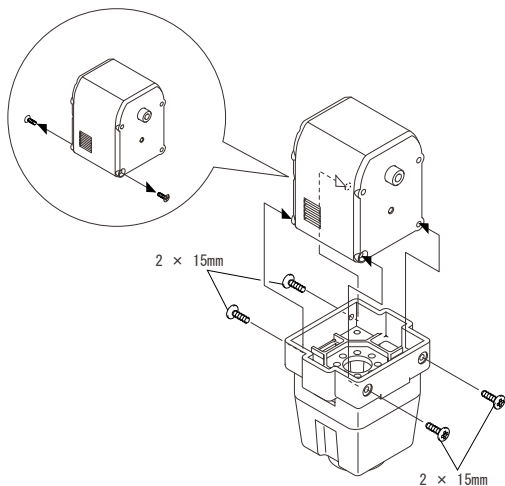
1 サーボリードの先端に「CH03」「CH07」のシールを一枚ずつ貼り付けます。

1 Apply "CH03", "CH07" labels at frontage of Servo Lead.



2 Fit Radial Mount A and Elbow Adpater together with checking direction of two parts, then fix by "2 x 6 Bind Tapping Screw". The parts of radial Mount A + Elbow Adpater will be called Elbow Unit.

3 4 5



3 Remove 2 of countersunk screw from Servo Case.

💡 Removed countersunk screw will not be used for this products, but keep them in plastic bag,

4 Insert Servo at pitted area of Elbow Unit. At this timing, There is no distinction of Front and Back.

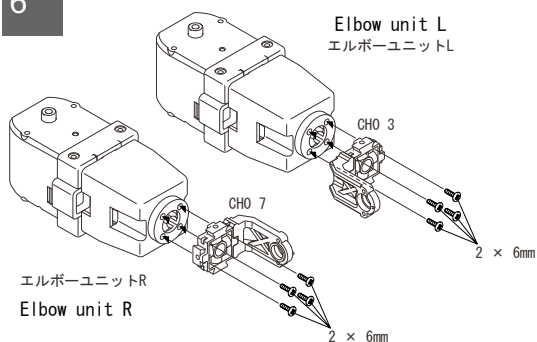
5 Fix the servo by 4 of 2 x 15 Tapping Screw.

💡 Make 1 more set.



Be carefull of too tighten.

6



6 Face Output Axis of Servo upside, and fix Single Arm at edge of Elbow Unit by 2 x 6 Tapping Screw. Direction fo Sigle Are are different as Right and Left. Please, check ficures for reference.



Be carefull of too tighten.



Unit with "CHO3" is Elbow Unit L, and "Unit with "CHO7" is Elbow Unit R.

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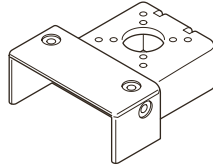
展開図

Operation06 Asembling of Hand Unit

工程 06 ハンドユニットの組み立て

使用するパーツ

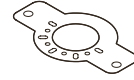
Servo + Servo Lead 400mm x 2
 (The ones which were set nutral in
 Operation04)
 Hand Base A x 2
 Apper Arm x 2
 Angle Guage x 2
 3 x 8 Bind Tapping Screw x 2
 2 x 15 Tapping Screw x 4



ハンドベース A
Hand Base A



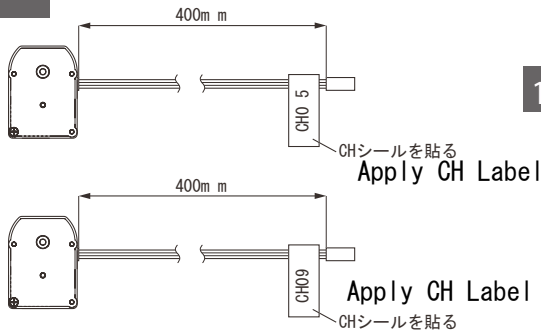
アッパーアーム
Upper Arm



アングルゲージ
Angle Gauge

作業の手順

1

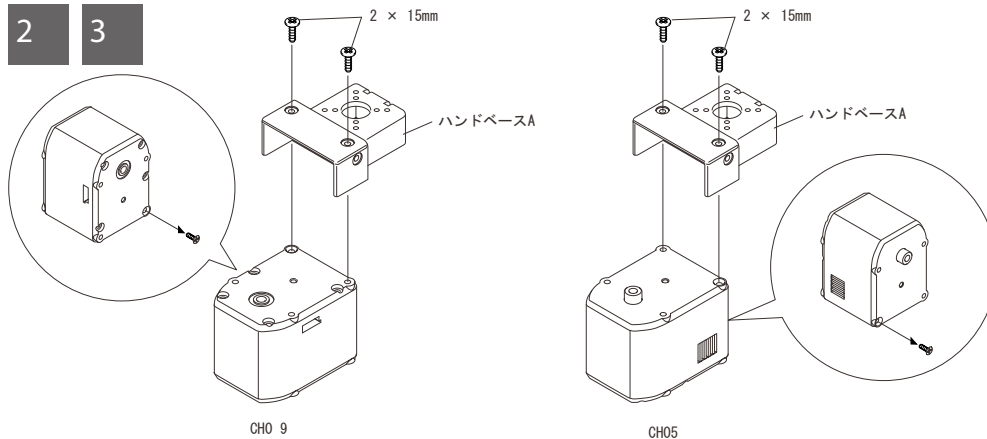


サーボリードの先端に「CH05」「CH09」のシールを一枚ずつ貼り付けます。

1 Apply "CH05", "CH09" label at frontage of Servo Lead.

2

3



2

Remove countersunk screw of Servo.
 "CH05" Servo, remove a countersunk screw
 at side of Output Axis.
 "CH09" Servo, remove a countersunk screw
 at side of Opposit Axis.

3

Cover Hand Base A at side of remove
 countersunk screw and fix by 2 x 15 tapping screw.



Removed countersunk screw will not
 be used for this products, but
 leep them in plastic bag.

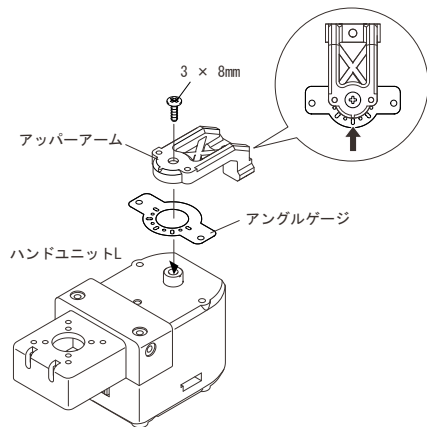
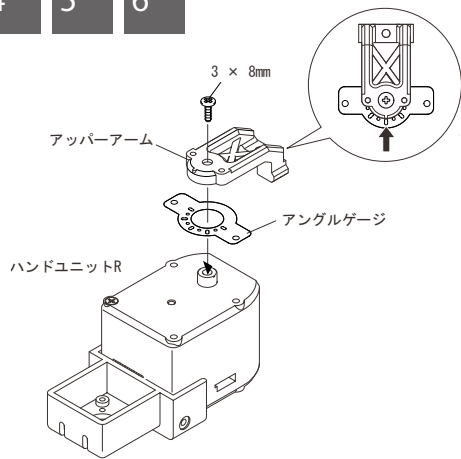


Be carefull of too tighten.



Countersunk screw of only one side of servo
 is removed.

4 5 6



4 Apply Angle Gauges at each Output Axis of Servo.

💡 match dendency of Angle Gauge to holes at right and left side of Output Axis

5 Fit Appers Arm to each of Putput Axis. Match Gauge of Upper Arm to center of scale.

💡 Due to mesh of seratted, it may not be able]to natch with the scale. Push into at most nearest pointb of the scale.

6 Fix Upper Arm by 3 x 8 Bind Tapping Screw.

🔩 Be carefull of too tighten.

💡 Unit with "CH05" is Hand Unit L, and Unit with "CH09" is Hand Unit R.

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Operation07 Aseembling of Arm Unit

工程 07 アームユニットの組み立て

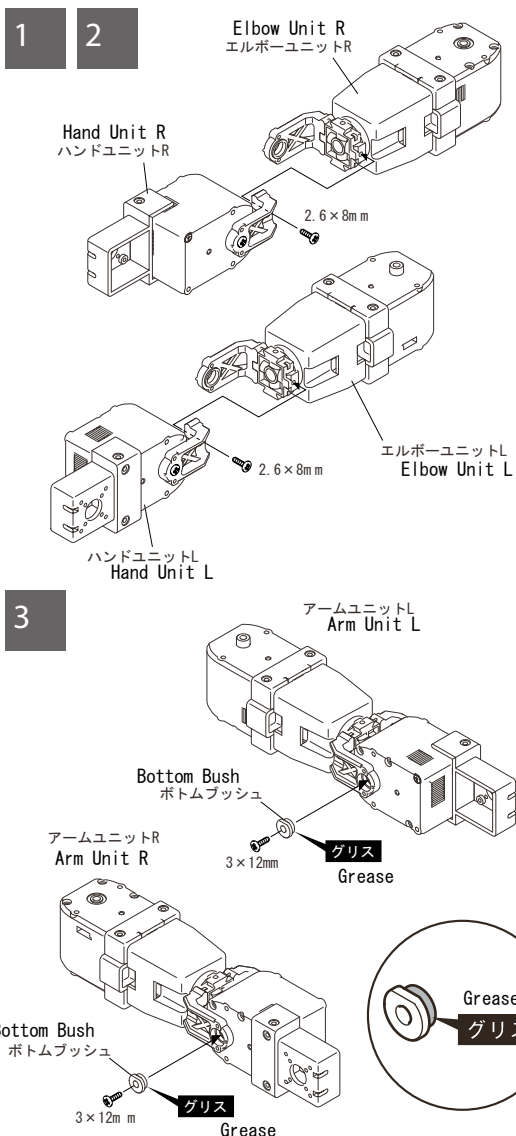
使用するパーツ

Elbow Unit L,R
(the ones which were assembled in
Operation05)
Hand Unit L,R
(the ones which were assembled in
Operation05)
Bottom Bush x 2
3 x 12 Bind Tapping Screw x 2
2.6 x 8 Bind Tapping Screw x 2
Silicon Grease



ボトムブッシュ
Bottom Bush

作業の手順



1

Insert Upper Arm of Hand Unit L into Base part of Single Arm of Elbow Unit L. As same, Insert Upper Arm of Hand Unit R into Base part of Single Arm of Elbow Unit R.



Be carefull with L unit and R unit.

2

Fix Upper Arm and Base part of Single Arm by a 2.6 x 8 Bind Tapping Screw.



Do on both L and R.



Be carefull of too tighten.

3

Coat Sillicon Grease slimly at diagonal line part of Bottm Bush as in figure, and fit Bottm Bush into Single Arm, and fix by 3 x 12 Bind Tapping Screw,



Do on both L and R.



Be carefull of too tighten.

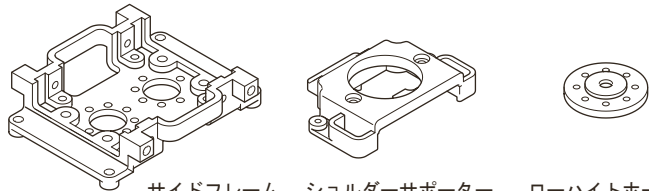
Hand Unit + Elbow Unit will be called Arm Unit L or R.

Operation08 Asembling of Shoulder Unit

工程 08 ショルダーユニットの組み立て

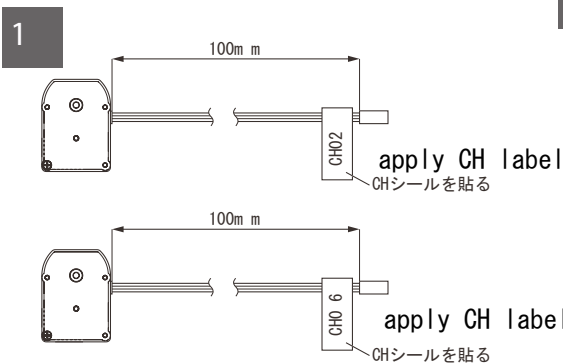
使用するパーツ

Side Frame x 2
 Shoulder Suppoter x 2
 Servo + Servi Lead 100mm x 2
 (The ones which were set nutral in Operation04)
 Low Hightt Horn
 2 x 6 Bind Tapping Screw
 2 x 6 countersunk screw x 2
 2x 15 Tapping Screw s 12



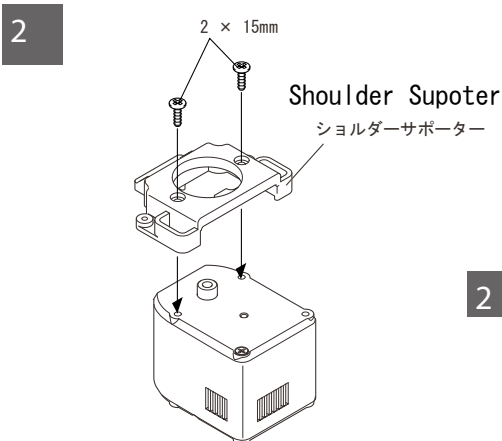
サイドフレーム ショルダーサポーター ローハイトホーン
 Side Frame Shoulder Suppoter Low Hightt Horn

作業の手順



1 サーボリードの先端に「CH02」「CH06」のシールを一枚ずつ貼り付けます。

1 Apply "CH02", "CH06" labels at frontage of Servo Lead.



2 サーボの出力端子を囲むようにショルダーサポーターをはめ、【2 x 15 タッピングビス】各2本で固定します。

- 締め込み過ぎに注意！
- 同じものを2組作ります。

2 Fit Shoulder Suppoter as it surrounds Output Axis of Servo and fix by 2 of 2 x 15 Tapping Screw

Be carefull of too tighten.

Make 2 set totally.

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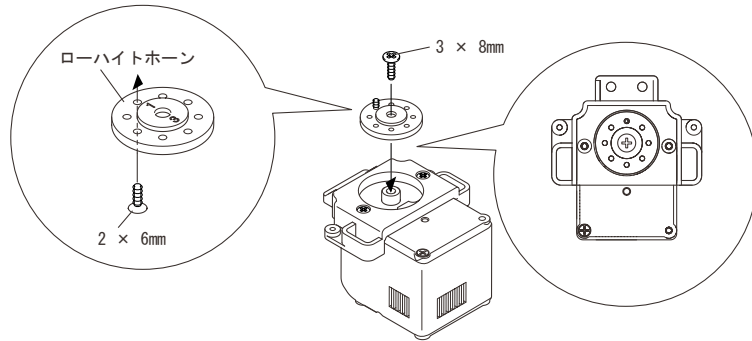
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3 4 5



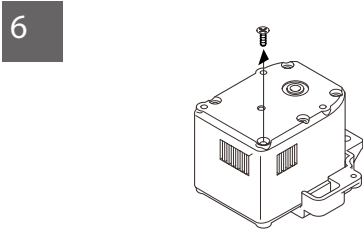
3 Find mold of "1" which is indicate near axix fo Low Height horn and insert a 2 x 6 countersunk screw into hole just above of it form backside.

💡 Stop teighten when head of countersunk screw at about 2mm up on Low Height Horn,

4 Push Low Height Horn to side of Output Axis of Servo. As figjre, Push Low Height horn as Screw from Low height horn is at as near as possible of right overhead.

💡 Due to mesh of seratted, it may not be able to match with right overhead perfectly. Rotate and Push into at most nearest point of right overhead

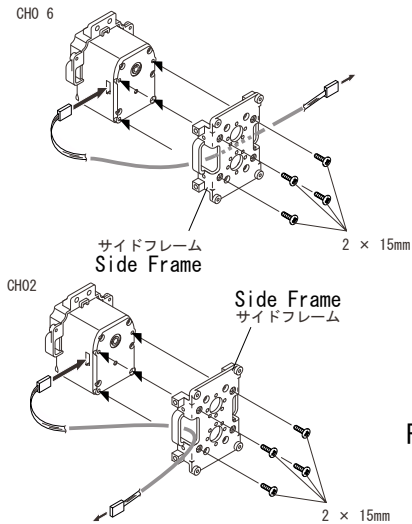
5 Fix Low Height Horn by 3 x 8 Bind Tapping Screw,



6 Turn back Unit of **3** - **5** process, and remove countersunk screw.

💡 Removed screws will not be used for this product. Keep it in Plastic Bag.

7 8



7

Cover side frame ar side of removed countersunk screw(there is no distinct of up and down side). This time, Left and right side will be distincted by the way of letting the wire into.
The way of "CHO2" is Shoulder Unit L and The way of "CHO6" is Shoulder Unit R. Check figure for reference.

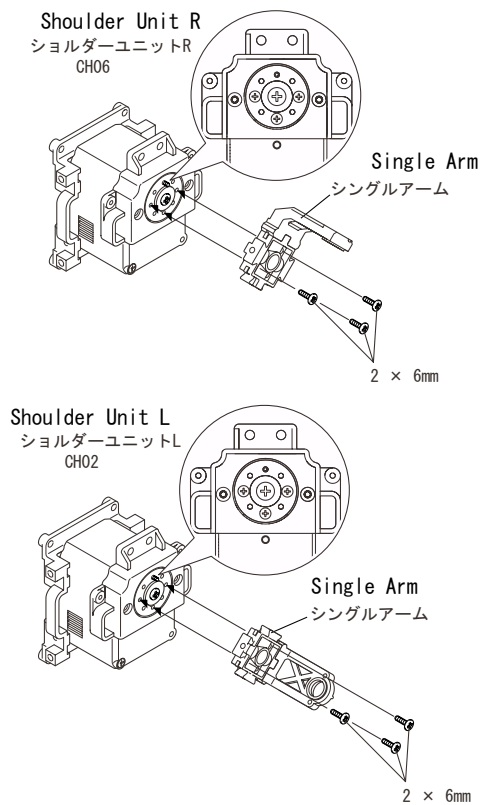


Cable of Shoulder Unit L is through at just beside of Side Frame. And, cable of Shoulder Unit R is through gap between Servo and Side Frame.

8

Fix Side Frame by 4 of 2 x 15 Tapping Screw.

9 10



9

Tighten the countersunk screw at Low Height Horn as match with screw holes of Single Arm. Check direction of Single Arm with figure.



Direction of Single Arm is different by each Unit. Shoulder Unit R has Bottm Arm 4000A at 2-3 0'clock direction to Low Height Horn. Shoulder Unit L has Bottm Arm 4000A at 4-5 0'clock direction to Low Height Horn.



Insert as dent of cntre of Low Height Horn and dent of Single Arm. If insert is made correctly, there will be almost no gap between face of the Unit and Single Arm.

10

Fix Single Arm to Low Height Horn by 3 of 2 x 6 Bind Tapping Screw,



Be acrefull with too theighten,

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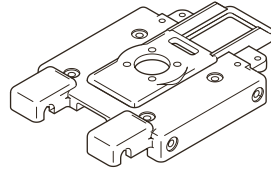
展開図

Operation09 Asembling of Upper Flame Unit

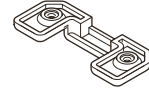
工程 09 アッパーフレームユニットの組み立て

使用するパーツ

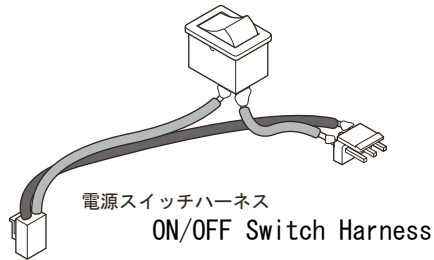
Upper Frame
Connector Holder
Battery Holder
ON/OFF Switch Harness
2 x 6 Bind Tapping Screw



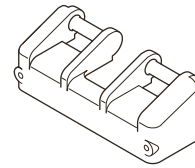
アッパーフレーム
Upper Frame



コネクタホルダ
Connector Holder



電源スイッチハーネス
ON/OFF Switch Harness



バッテリーホルダ
Battery Holder

作業の手順

1 2 3

1 Insert On/Off Switch Harness into Upper Frame until it make sound.



Cable go into first before insert ON/OFF Switch Harness.

2 Fit Connector to Connector holder as Figure.

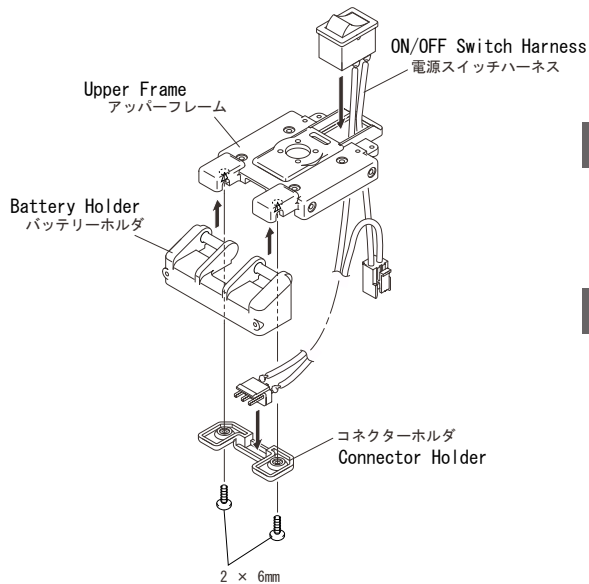


Check with direction of Connector.

3 Match shaft parts of battery holder to ditch of Upper Frame, and cover connector holder, Fix Connector Holder by 2 of 2x 6 Bind Tapping Screw.



Be carefull with too theighten,



Assembled parts of this process will be called Upper Frame Unit,

Operation10 Asembling of Head Unit

工程 10 ヘッドユニットの組み立て

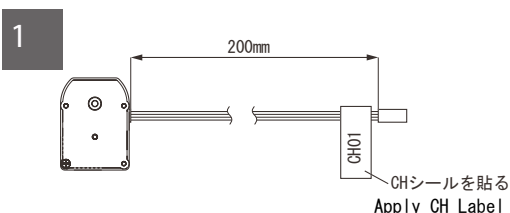
使用するパーツ

Servo + Servo Lead 200mm x 1
 (The one which was set nutral in
 Operation04)
 Upper Frame Unit
 (The One which is assembled in
 Operation09)
 Low Height Horn
 3 x 8 Bind Tapping Screw x 1
 2 x 6 Bind Tapping Screw x 4

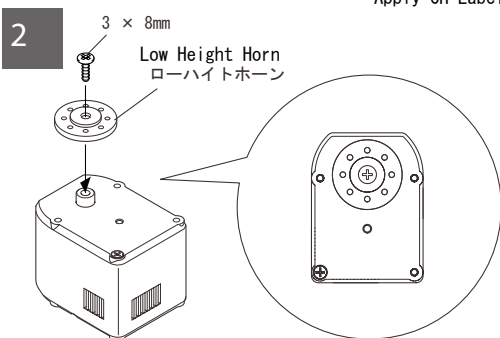


ローハイトホーン

作業の手順

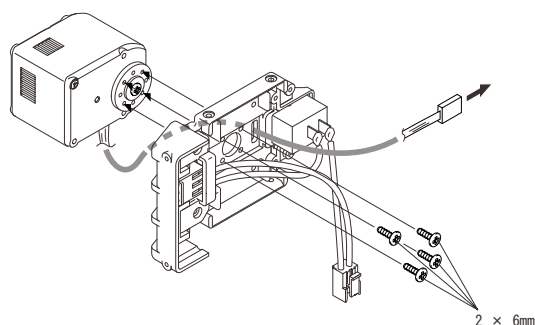


1 Apply "CH01" label at front edge of Servo Lead.



2 Insert Low Height Horn as hole of Low Height Horn matchs dent of centre of Servo on straight line.
 After insert it, fix Low height horn by one of 3 x 8 Bint Tapping Screw.

Due to mesh of seratted, it may not be able to be straight.
 Rotate and Push into at most nearest point of streight



3 After let Servo lead into slit of Apper Frame Unit(see Figure), fix Low Height Horn by 4 of 2 x 6 Bind tapping Screw.



Check direction of servo to assemble and check figure for reference.

Unit of assmbled by this process will be called Head Unit.

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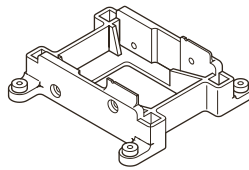
展開図

Operation11 Asembling of Foot Unit Pt.1

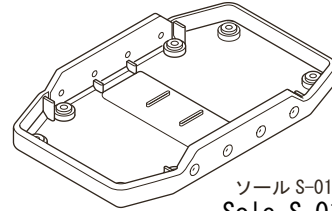
工程 11 フットユニットの組み立て①

使用するパーツ

- Foot Base x 2
- Sole S-01 x 2
- Servo + Servo Lead 500mm
(The one which was set neutral in Operation04)
- 2 x 15 Tapping Screw x 8
- 2 x 8 Tapping Screw x 8

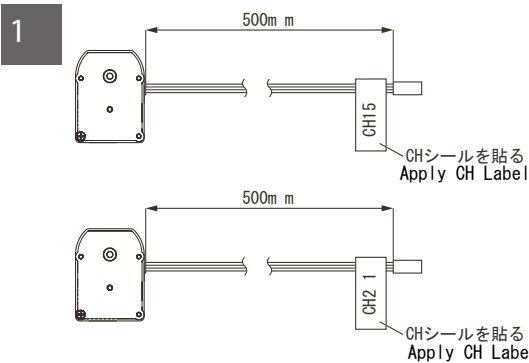


フットベース
Foot Base

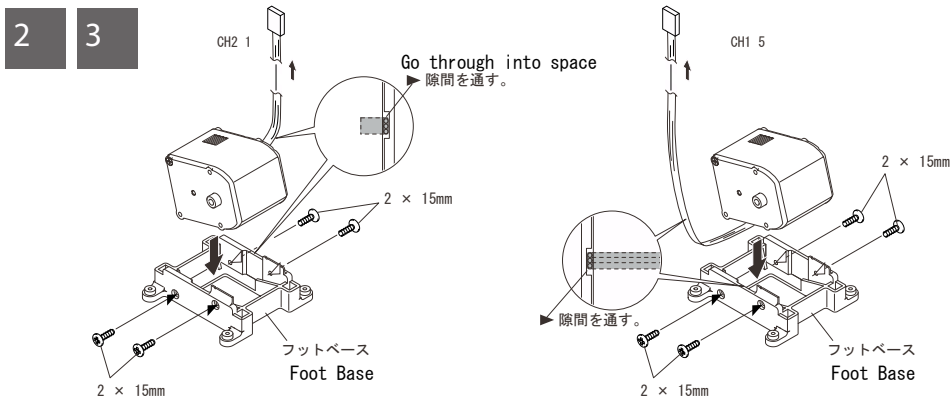


ソール S-01
Sole S-01

作業の手順



1 Apply "CH15", "CH21" label at front age of Servo Lead.



2 Insert Servo into Foot Base.
This time, CH15 side has cable at side of Output Axis, and CH21 side has cable at side of Opposit Axis, and come out from space of between Foot base and Servo case.

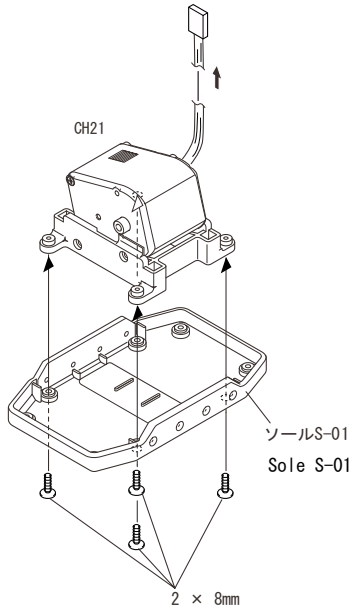
3 Fix Servo by 4 of 2 x 15 Tapping Screw.

💡 There is space for cable can through at Foot Base. Make it through that space.

⚠ Exceptbthat space, Cable will be shut. So, pay attention that cable go through the space.

🔩 Be carefull of too teighten.

4



4

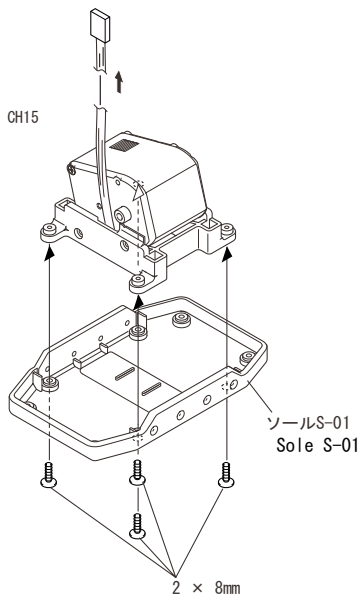
Fit assembled Unit into Sole S-01 and fix by 2 x 8 of Tapping Screw,



Be carefull of too teighten.



Make 2 set totally.



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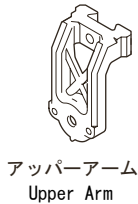
展開図

Operation12 Aseembling of Foot Unit Pt. 2

工程 12 フットユニットの組み立て②

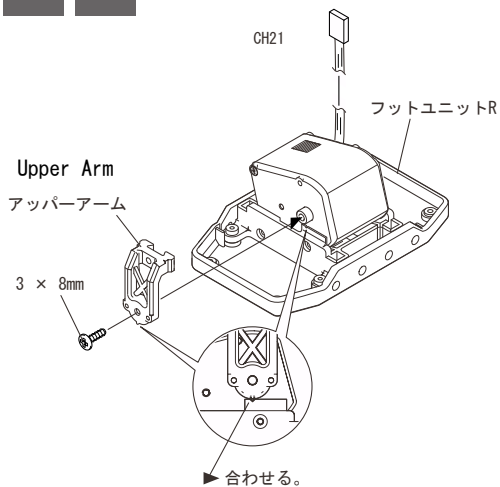
使用するパーツ

Foot Unit x 2
 (the ones which were assembled in
 Operation11)
 Cross Arm x 2
 (The one which were assmbled in
 Opeartion02, A and B 1 each)
 Bottm bush x 2
 3 x 8 Bind Tapping Screw x 2
 3x 12 Bind Tapping Screw x 2
 2.6 x Bind Tapping Screw x 2
 Slicon Grease



作業の手順

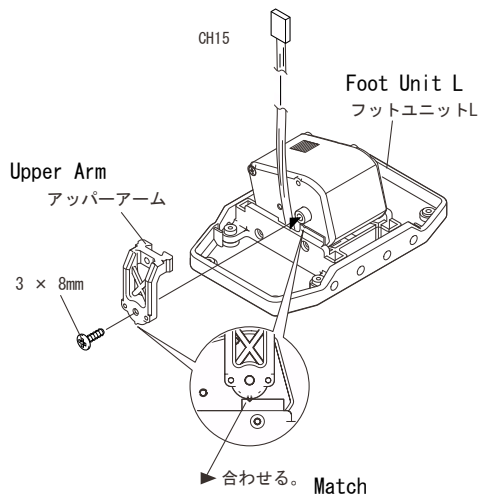
1 2



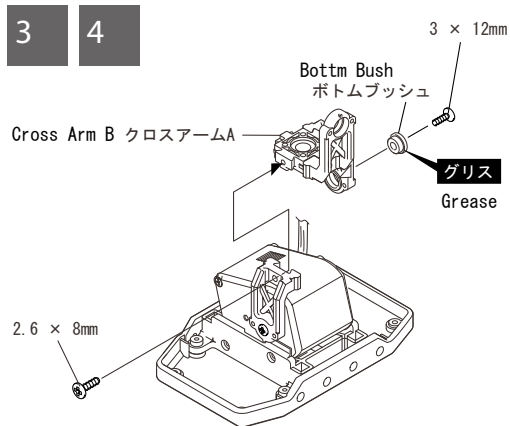
- 1 Fit Upper Arm into Output Axis of Foot Unit. This time, cutting of Foot Unit should match Guage of Apper Arm.



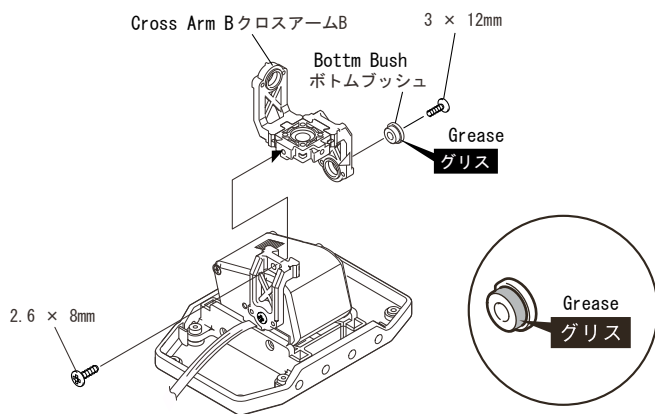
Due to mesh of seratted, it may not be able to be match completely. Rotate and Push into at most nearest point.



- 2 Fix Upper Arm by one of 3 x 8 Bind Tapping Screw. At this time, Unit of CH15 is Foot Unit L and Unit of CH21 is Foot Unit R



フットユニットR Foot unit R



フットユニットL
Foot unit L

- 3** Fit Cross Arm A to Upper Arm part of Foot Unit R.
Fit Cross Arm B to Upper Arm part of Foot Unit L.



Check direction of Cross Arm.



Fix Cross Arm by 2.6 x 8 Bind Tapping Screw.
Coat Sillicon Grease slimly at diagonal line part of Bottm Bush as in figure, and fit Bottm Bush into Cross Arm, and fix to Servo of CH15 and CH21 by 3 x 12 Bind Tapping Screw,



Do on both Foot Unit L and R



Be carefull with too teighten.

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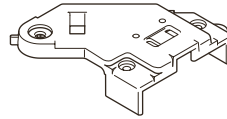
展開図

Operation13 Asembling of Knee Unit

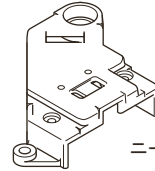
工程 13 ニーユニットの組み立て

使用するパーツ

Knee Arm A x 1
 Knee Arm B x 1
 Servo + Servo Lead 400
 (The one which was set neutral in
 Operation04)
 2 x 15 Tapping Screw x 8

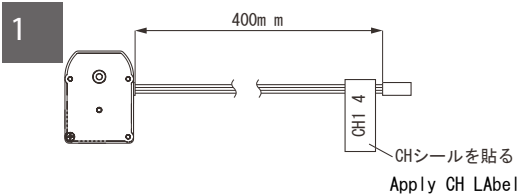


ニーアーム A
 Knee Arm A

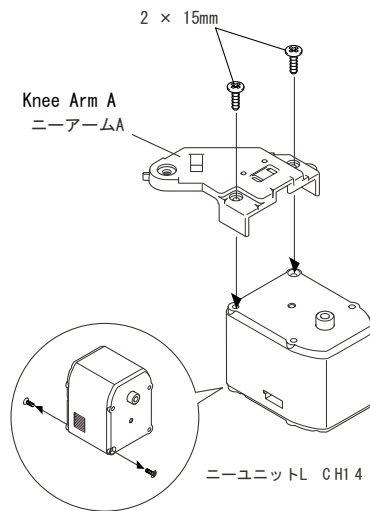
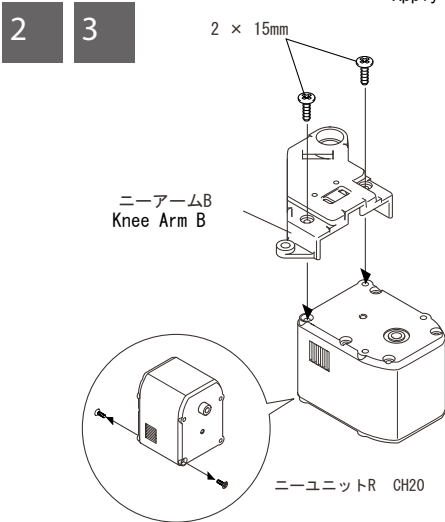
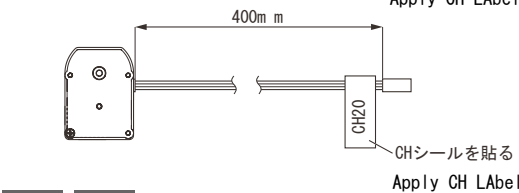


ニーアーム B
 Knee Arm B

作業の手順



1 Apply "CH14", "CH20" label to front edge of Servo lead



2 Remove countersunk screw of Servo as figure.



Removed countersunk screw will not be used for this products.
 Keep it in Plastic Bag.

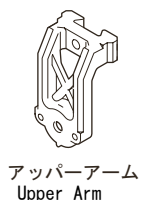
3 Fit Kee Arm A at Output Axis of CH14 and Fit Kee Arm B at Opposit Axis of CH20.
 Then fix by 2 15 Tapping Screw.
 These Unit will be called Knee Unit L/R.

Operation14 Connectting of Knee Unit

工程 14 ニーユニットの接続

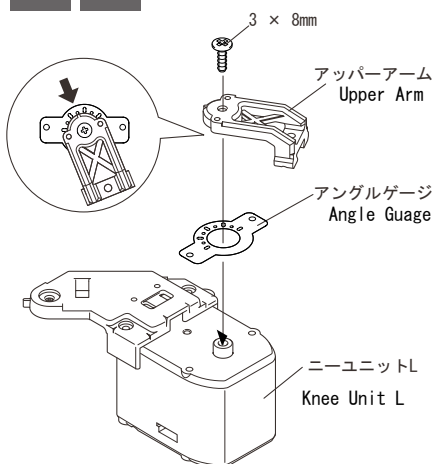
使用するパーツ

Knee UnitL R
 (The ones which were assembled in
 Opeartion13)
 Foot UnitL R
 (The ones which were assembled in
 Opeartion12)
 Upper Arm x 2
 Bottm Bush x 2
 Angle Gauge x 2
 3 x 12 Bind Tapping Screw x 2
 3x 8 Bind Tapping Screw x 2
 2.6 x 8 Bind Tapping Screw x 2



作業の手順

1 2 3



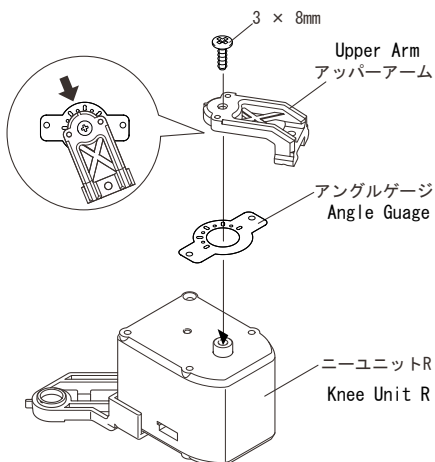
1 Apply Angle Gauge at side of Output Axis of Servo of Knee unit.

💡 Fit dent of Angle Gauge to hole of right and left side of Output Axis.

2 Fit Upper arm in Output Axis. Check figure to match guage of Upper Arm.

💡 Due to mesh of seratted, it may not be able to be match with guage. Rotate and Push into at most nearest point of guage

3 Fix each Upper Arm by each of 3 x 8 Bind Tapping Screw.



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組み立て

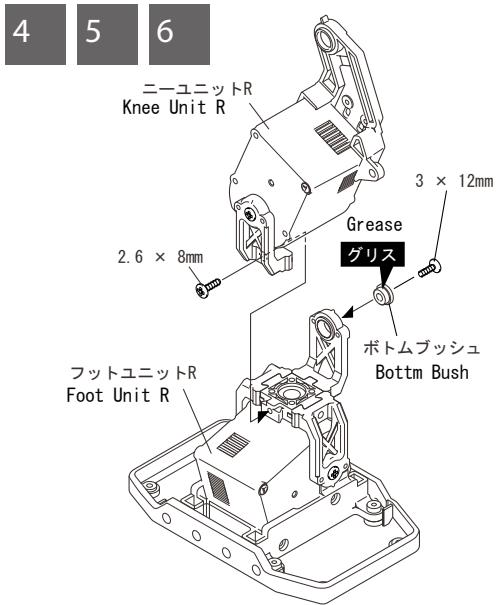
ソフトウェアの設定

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展開図

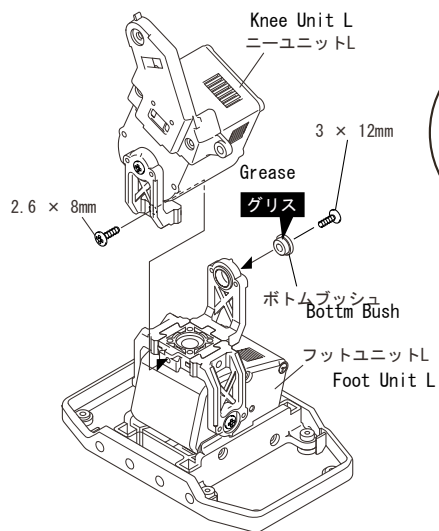


- 4 Fit Upper Arm of Knee Unit L in Cross Arm of Foot Unit L.
Fit Upper Arm of Knee Unit R in Cross Arm of Foot Unit R.

Push until face of Base of Cross Arm and face of Arm become flat

- 5 Fix Upper Arm to Cross Arm Part by one of 2.6 x 8 Bind Tapping Screw.

- 6 Coat Silicon Grease slimly at diagonal line part of Bottom Bush as in figure, and fit Bottom Bush into Cross Arm, and fix to Servo of CH15 and CH21 by 3 x 12 Bind Tapping Screw,

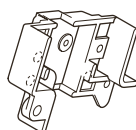


Operation15 Asembling of Thigh Unit

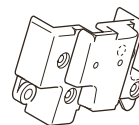
工程 15 サイ (太もも) ユニットの組み立て

使用するパーツ

Thigh Joint A x 1
 Thigh Joint B x 2
 Servo + Servo Lead 300mm x 4
 (The Ones which were set neutral in
 Operation04)
 2 x 15 Tapping Screw x 12

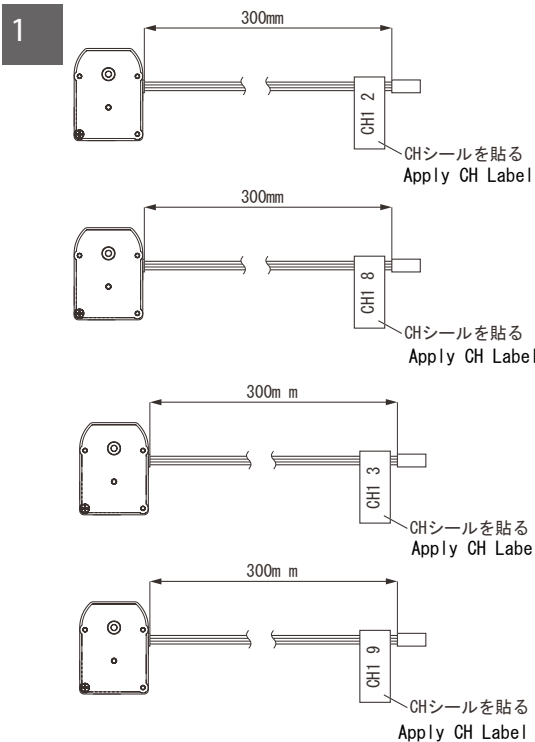


サイジョイント A
 Thigh Joint A



サイジョイント B
 Thigh Joint B

作業の手順



1

Apply "CH12", "CH18", "CH13", "CH19" label
 at front edge of 300mm Cable.

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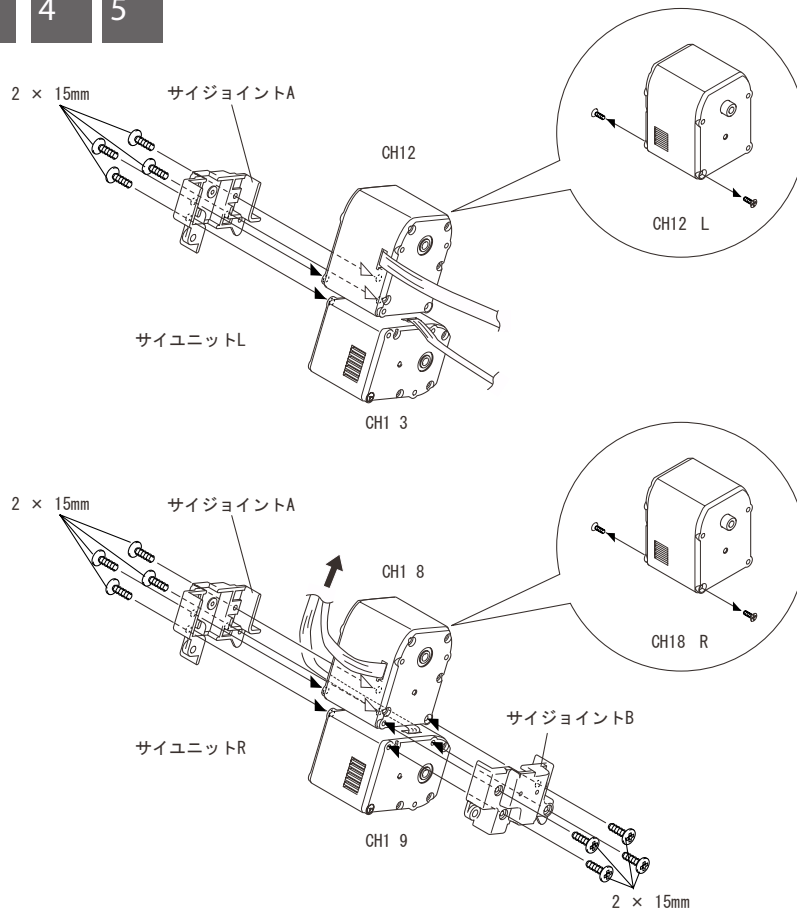
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2 3 4 5



2 Remove countersunk screw of CH12 and CH18 of servos.
Do not remove countersunk screw of CH13 and CH19 of servos.

Removed screws will not be used in this product.
Keep it in plastic Bag.

4 Line up CH18 and CH19 as figure and
Fix Thigh Joint A to side of Output Axis
by 4 of 2 x 15 Tapping Screw.

Be careful with direction of Servo and Output Axis.

3 Line up CH12 and CH14 as figure and
Fix Thigh Joint A to side of Output Axis
by 4 of 2 x 15 Tapping Screw.



Be careful with direction of Servo and Output Axis.

5 Fix Thigh Joint B at Opposite Axis of assembled unit
by 4 of 2 x 15 Tapping Screw.



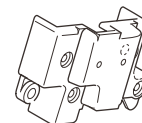
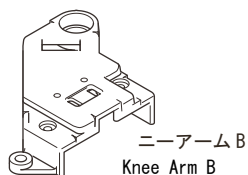
There are two units as Thigh Unit R with CH18 and CH19
and Thigh Unit L with CH12 and CH13.
Thigh Unit L has only Thigh Joint A and Thigh Unit R
has both Thigh Joint A and B.

Operation16 Aseembling of L Leg Unit

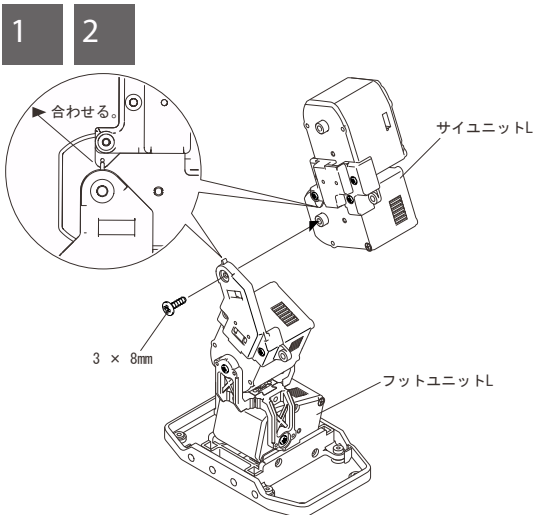
工程 16 レッグユニット L の組み立て

使用するパーツ

Thigh Unit L
(The One which was assembled in
Operation15)
Foot Unit L and Knee Unit L x 1
(The One which was assembled in
Operation14 and 13)
Knee Arm B x 1
Thigh Joint B x 1
Bottom Bush x 1
Color Strap x 1
Cable Guide x 2
3 x 12 Bind Tapping Screw x 1
3 x 8 Bind Tapping Screw x 1
2 x 15 Tapping Screw x 6
2 x 6 countersunk screw x 2

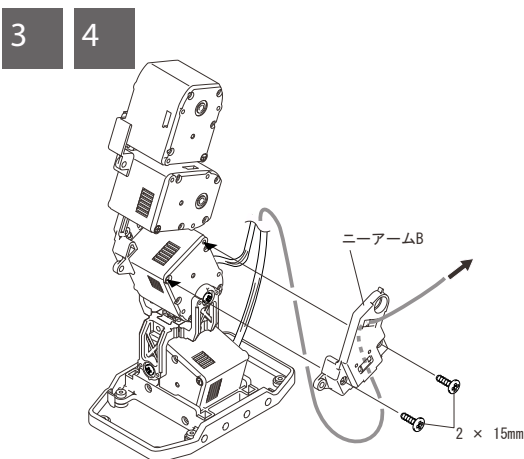


作業の手順



- 1 Insert Output Axis of CH13 which is inserted in Thigh Unit L to serrated part of Knee unit. Match Gauge of Thigh Unit with Guide of Knee Unit.

Due to mesh of serrated, it may not be able to be match with guage. Rotate and Push into at most nearest point of guage



- 2 Fix installed Putput Axis by one of 3 x 8 Bind Tapping Screw.

- 3 Go cable form Foot Unit L through slit of Knee Arm B, and fit with Servo of Knee Unit.

Cable is like go backside of Knee Arm B and come out to from side through slit.

- 4 Fix assembled Knee Arm B by 2 of 2 x 15 Tapping Screw.

Before fixing, make sure cable are in space between Servo and Knee Arm.

Be carefull of clipping wire.

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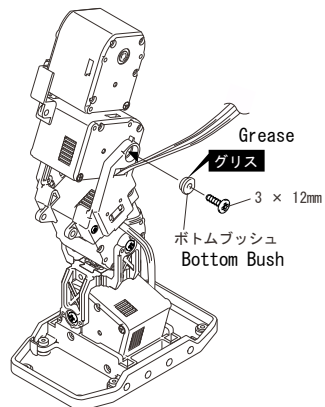
ボディの取り付け

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5

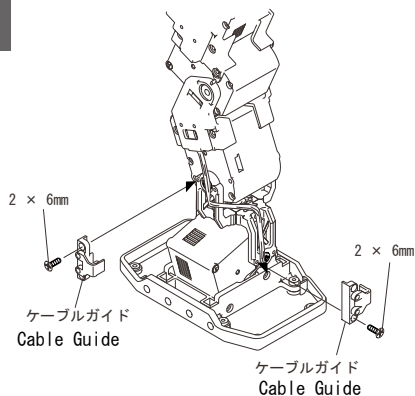


5

Coat Silicon Grease slimly at diagonal line part of Knee Arm B as in figure, and fit Bottom Bush into Cross Arm, and fix by 3 x 12 Bind Tapping Screw,



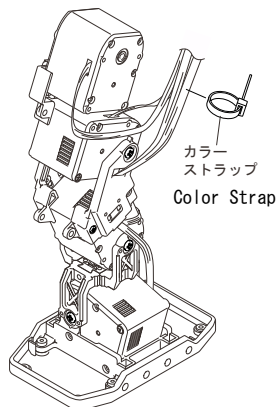
6



6

As use figure for reference, fix up cable, and fix Cable Guides at Roll Axis and Pitch Axis of angle by each of 2 x 6 countersunk screw.

7



7

Tight two cables which was come out from slit in process of #3 and two cable from Thigh Unit L together by Color Strap.

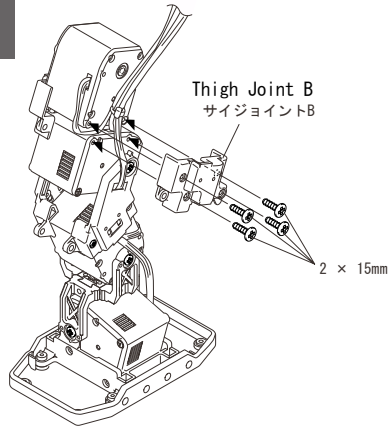


Cable coming out in process #3 better has some a little margin.




At this timing point, do not fatten Color Strap completely.

8 9

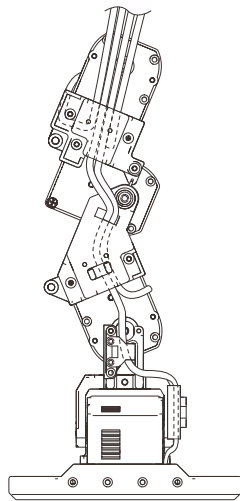


8 Hold tightend cable by finger and try to move every joints to check and adjust length of cables. After adjustmet, fasten Color Strap completely.

9 Cover place of tightend color strap by Thigh Joint B and fix it by 4 of s x 15 Tapping Screws.

 Be care full with clipping wire.

Assembled unit will be called Leg Unit L.



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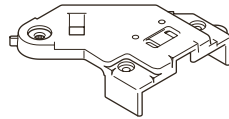
パーツ販売リスト

展開図

工程 17 レッグユニット R の組み立て

使用するパーツ

- Thigh Unit R
(The One which was assembled in Operation15)
- Foot Unit R and Knee Unit R x 1
(The One which was assembled in Operation14 and 13)
- Knee Arm A x 1
- Thigh Joint B x 1
- Bottom Bush x 1
- Color Strap x 1
- Cable Guide x 2
- 3 x 12 Bind Tapping Screw x 1
- 3 x 8 Bind Tapping Screw x 1
- 2 x 15 Tapping Screw x 6
- 2 x 6 countersunk screw x 2



ニーアーム A



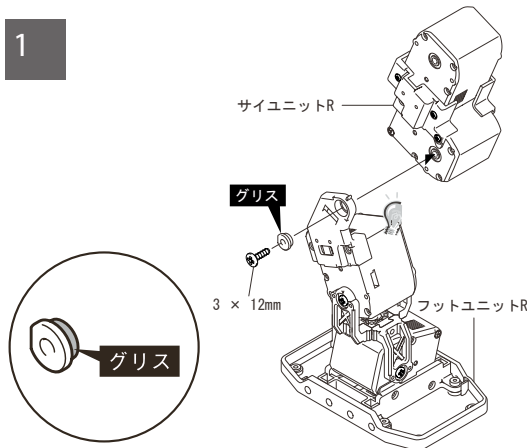
ボトムブッシュ



ケーブルガイド

作業の手順

1

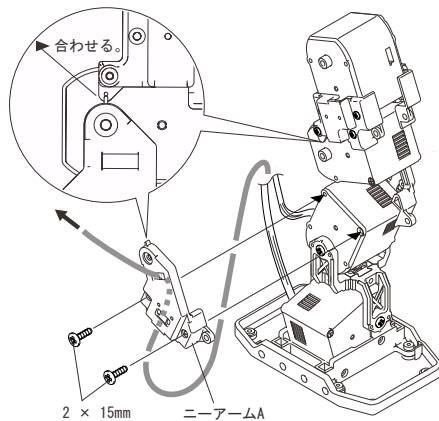


1

Match Oppsit Axis of CH19 which is installed in Thigh Unit R to Foot Unit R. Coat Sillicon Grease slimly at diagonal line part as in figure, and fit Bottom Bush into Knee Unit, and fix by 3 x 12 Bind Tapping Screw,

2

3



2

Cable from Foot Unit R thought into slit of Knee Arm A and insert Output Axis of CH19 to Cerreted part. This time, match guage of Thigh Unit and Guide of Knee Arm A,



Cable will go through backside of Knee Arm A, and come out to fromjt side through slit.

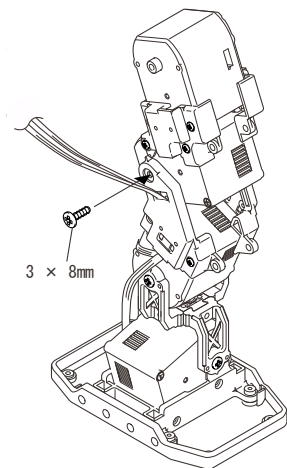


Due to mesh of seratted, it may not be able to be match with guage. Rotate and Push into at most nearest point of guage

3

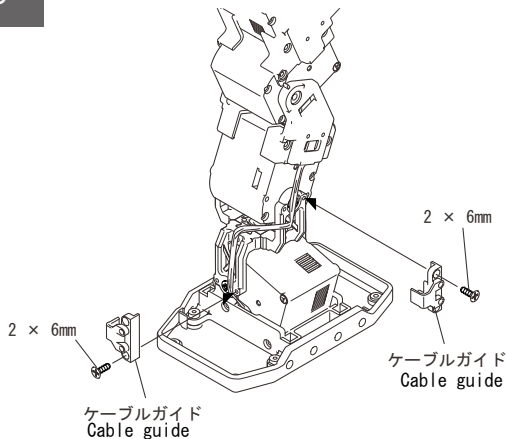
Match Knee Arm A with CH20 Servo which is installed with Foot Unit R and fix by 2 of 2 x 15 Tapping Screw.

4



4 Fix installed Output Axis by 3x 8 Tapping Screw.

5



5

As use figure for reference, fix up cable, and fix Cable Guides at Roll Axis and Pitch Axis of angle by each of 2 x 6 countersunk screw.

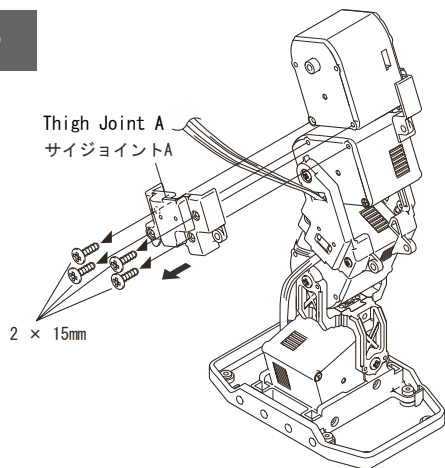


Before fixing, make sure cable come through space between Servo and Knee Arm.



Be carefull with click the wire.

6



6

Untighten 4 of 2 x 15 Tapping screw wchih is fixing Thigh Joint A which is installed Output Axis side of Thigh Unit R, and Remove Thigh Joint A.

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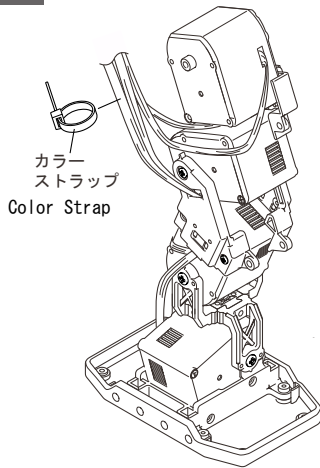
ボデーの取り付け

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7 8



7

Tight two cables which was come out from slit in process of #2 and two cable from Thigh Unit R together by Color Strap.



Cable coming out in process #2 better has some a little margin.

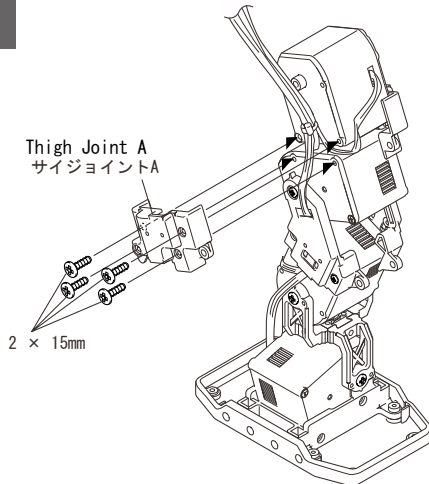


At this timing point, do not fasten Color Strap completely.

8

Hold tightend cable by finger and try to move every joints to check and adjust length of cables. After adjustmet, fasten Color Strap completely.

9



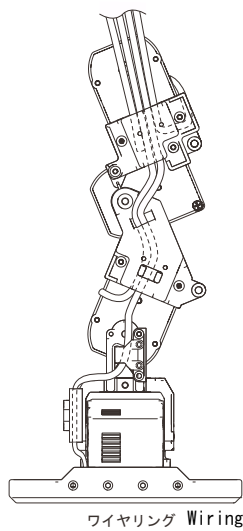
9

Cover place of tightend color strap by Thigh Joint A and fix it by 4 of s x 15 Tapping Screws.



Be care full with clipping wire.

Assembled unit will be called Leg Unit R.



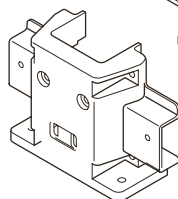
Operation18 Asembling of Hip Unit

工程 18 ヒップユニットの組み立て

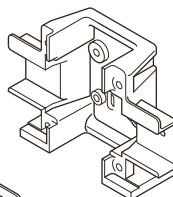
使用するパーツ

Hip Bridge x 2
 Servo + Servo Lead 200mm x 2
 (The ones which were set nutral in Operation04)
 Upper Arm x 2
 Cable Guide x 2
 3 x 12 Bind Tapping Screw x 2
 3 x 8 Bind Tapping Screw x 2
 2 x 15 Tapping Screw x 8
 2.6 x 8 Bind Tapping Screw x 2

Upper Arm
 アッパーアーム



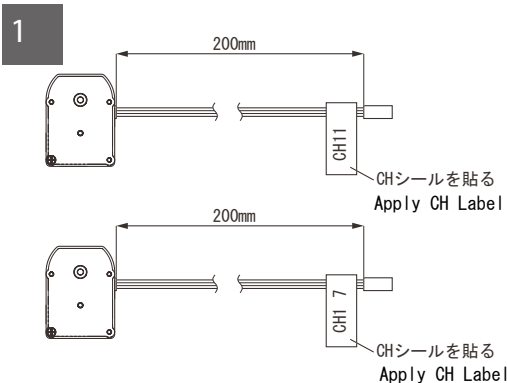
ヒップブリッジ
 Hip Bridge



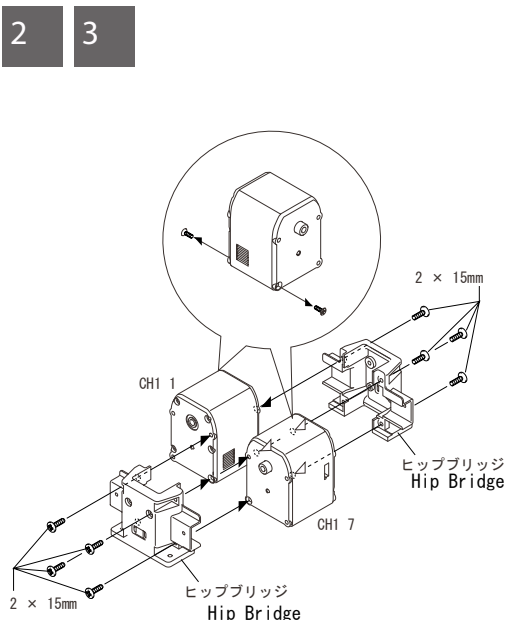
ケーブルガイド
 Cable Guide



作業の手順



1 Apply "CH11""CH17" lables on front edge of each Cable of Servo.



2 Remove countersunk screw of Servo as figure.

Removed screws will not be used in this product. Keep them in Plastic Bag.

3 Line up 2 servos as figure and hold them by Hip Briggess from both side and fix by 8 of 2 x 15 Tapping Screw.

Check and be carefull with direction of Hip Bridge, Servo and Output Axis of Servo.

Servo Lead must face outside.

Hip Bridge at Output side of CH11 and at Oppsit Axis of CH17 will be removed in process #9, so it is okay to temporary tighten of screw.

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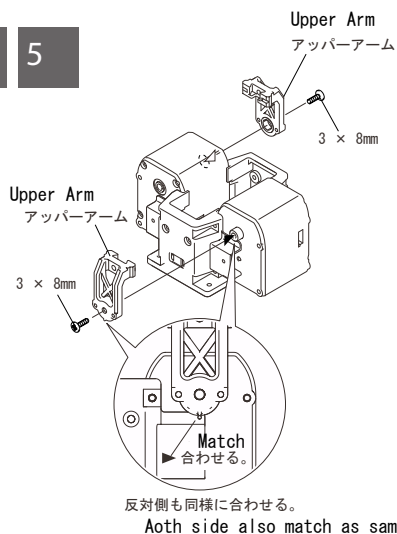
ボディの取り付け

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展開図

4 5



4

Fit Upper Arms on each Output Axis of Servos, Match Mark of Hip Joint to Gurge of Upper Arm.

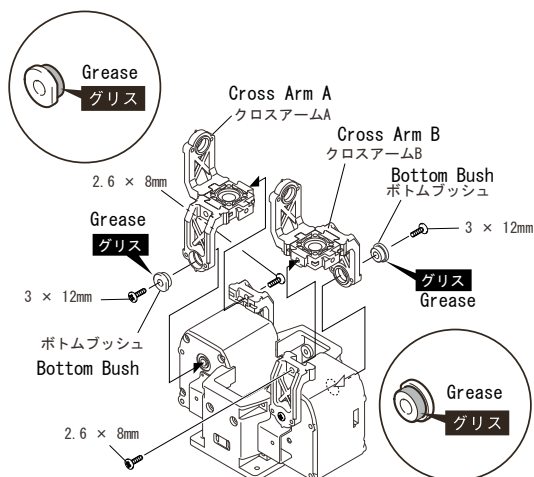


Due to mesh of serrated, it may not be able to be match with guage. Rotate and Push into at most nearest point of guage

5

Fix Upper Arm by one of 3x 8 Bind Tapping Screw.

6 7 8



6

Fit Cross Arm A to Upper Arm on side of CH17. Fit Cross Arm B to Upper Arm on side of CH11.



Push until face of base of Cross Arm and face of Arm become flat.

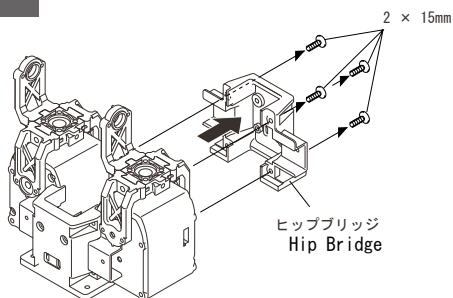
7

Fix Upper Arm to Cross Arm by one of 2.6 x 8 Bind Tapping Screw.

8

Coat Sillicon Grease slimly at diagonal line part of Bottm Bush as in figure, and fit Bottm Bush into side of Oposit Axis of Cross Arm, and fix by one of 3 x 12 Bind Tapping Screw.

9



9

Lose 2 x 15 Tapping Screw of Hip Bridge at Output Axis side of CH11 and Oposit Axis side of CH17, then remove Hip Bridge.



Hip Joint is under Cross Arm a littel bit. Slide it slightly to remove.



Removed Hip Bridge will be used in Operation19.

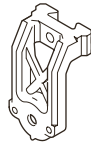
Assembled Unit in this Operation will be called Hip Unit.

Operation19 Connecting of Hip Unit

工程 19 ヒップユニットの接続

使用するパーツ

Hip Unit
 Leg Unit L R
 Upper Arm x 2
 Bottom Bush x 2
 Angle Gauge x 2
 3 x 12 Bind Tapping Screw x 2
 3 x 8 Bind Tapping Screw x 2
 2.6 x 8 Bind Tapping Screw x 2
 2 x 15 Tapping Screw x 4
 2 x 6 countersunk screw x 4



アッパーアーム
Upper Arm



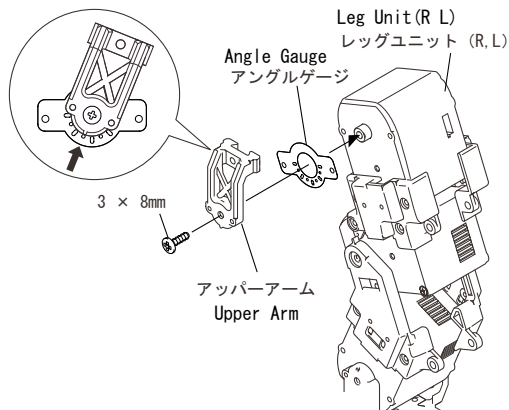
アングルゲージ
Angle Gauge



ボトムブッシュ
Bottom Bush

作業の手順

1 2 3



1 Apply Angle Gauges on Output Axis side of "CH12" of Leg Unit L and "CH18" of Leg Unit R.

Match dent of Angle Gauge to holes of Left and Right sides of Output Axis.

2 Fit Upper Arm to Output Axis of Process 1 and match gauge of upper Arm as figure.

Due to mesh of serrated, it may not be able to be match with gauge. Rotate and Push into at most nearest point of gauge

3 Fix Upper Arm to Output Axis by 3 x 8 Bind Tapping Screw.

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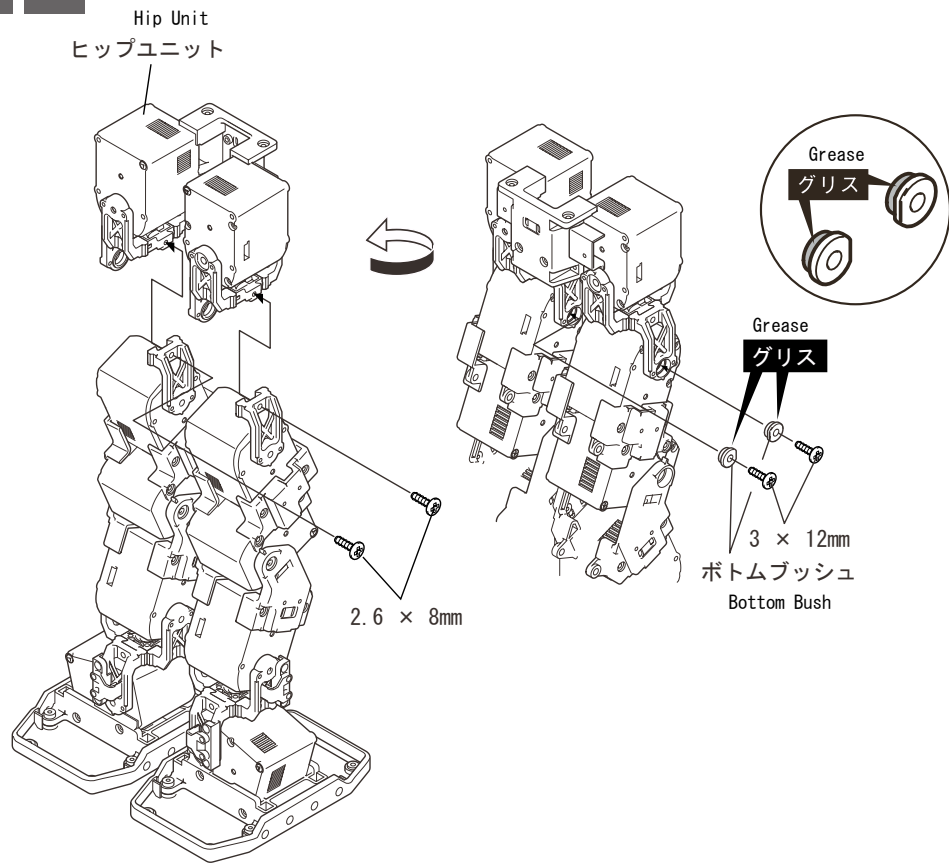
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4 5 6



4

Fit Upper Arm(CH12) of Leg Unit L to Cross Arm B which was fixed to CH11 of Hip Unit. Same time, Fit Upper Unit (CH18) of Leg Unit R to Cross Arm A which was fixed to CH18 of Hip Unit

5

Fix Upper Arm to Arm Base of Cross Arm by one of 2.6 x 8 Bind Tapping Screw.

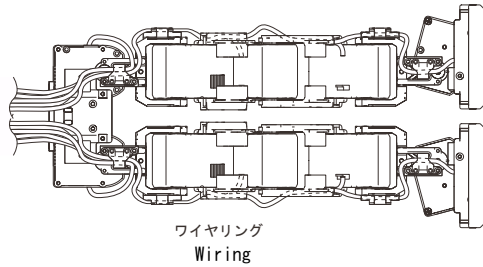
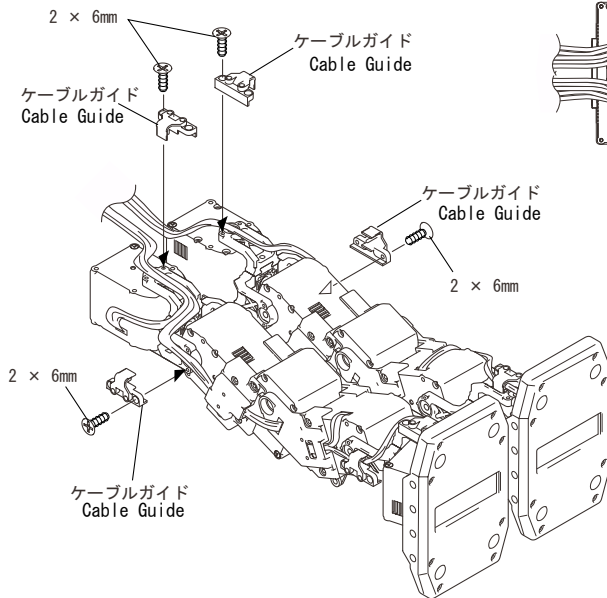
6

Coat Sillicon Grease slimly at diagonal line part of Bottm Bush as in figure, and fit Bottm Bush into Oppsit Axis of Cross Arm, and fix by 3 x 12 Bind Tapping Screw,



Push until face of Base of Cross Arm and face of Arm become flat.

7

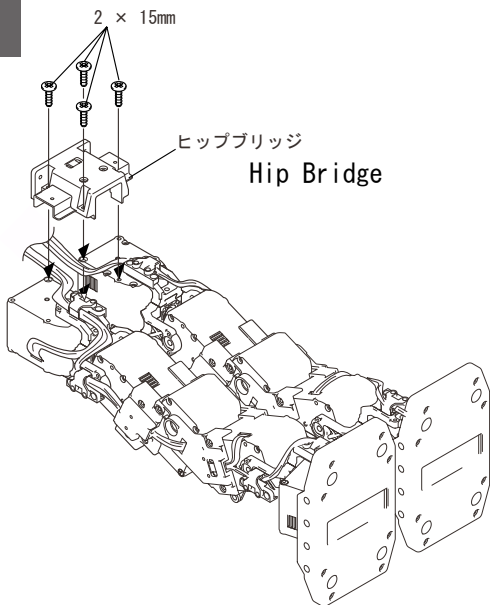


7 Tight 4 cables from Leg Unit and one cable from Hip Unit by Cable Guide as figure, and fix by each of 2 x 6 Bind Tapping Screw.



Tight by each Foot Unit.

8



8 Place Cables as cables come inside from open space of side of Hip Bridge and go to Upper side, then cover Hip Bridge which was removed in Operation 18. And, fix it by 4 of 2 x 15 Tapping Screws.



Slide and cover as Guage part of Hip Joint goes into gap between Cross Arm and Servo.



Be carefull of clip the cables

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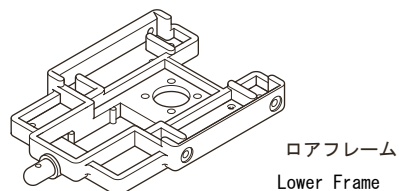
展開図

Operation20 Asembling of Core Unit

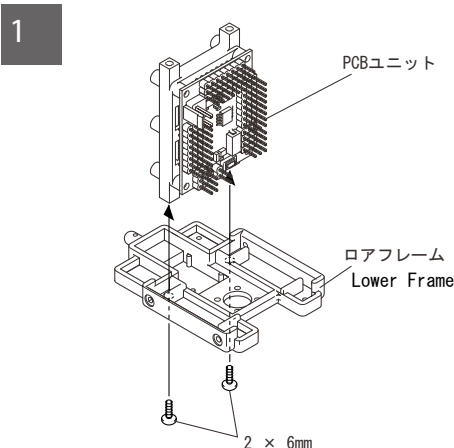
工程 20 コアユニットの組み立て

使用するパーツ

Shoulder Unit L R
 (The ones which were assembled in
 Operation09)
 PCB Unit
 (The one which was assembled in
 Operation03)
 Lower Frame
 2 x 6 Bind Tapping Screw x 6



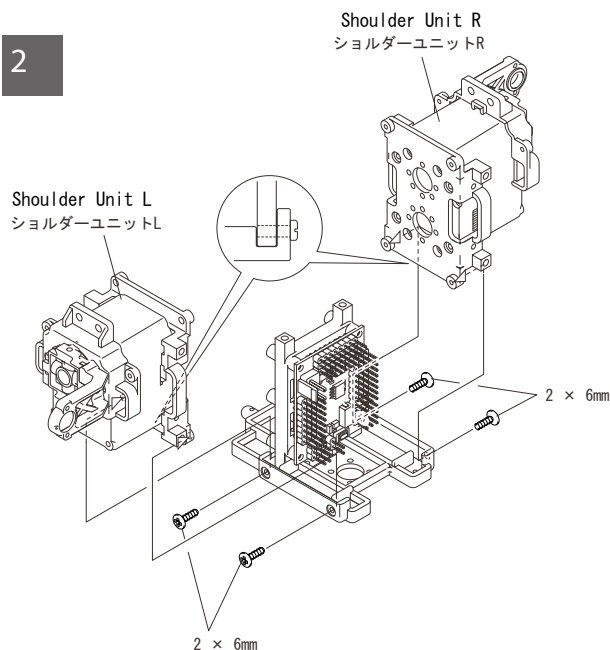
作業の手順



1 As Figure, stand PCB Unit vertically on Lower Frame and fix to Lower Frame by 2 of 2 x 6 Bind Tapping Screw.



Check up/down side and fornt/back side of PCB unbit.



2 Insert Shoulder Unit L and Shoulder Unit R on Lower Frame and fix by 2 each of 2 x 6 Bind Tapping Screws.



Lower Frame is under and when face to terminal of PCB Unit, Shoulder Unit R is at right and Shoulder Unit L is at Left Side

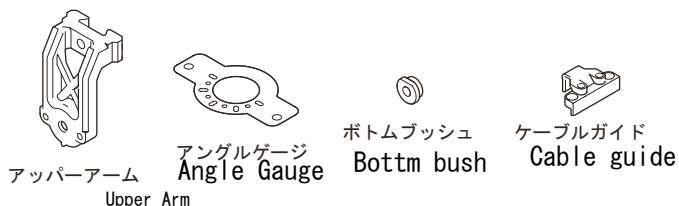
Parts which is assembled in this process will be called Core Unit.

Operation21 Connecting of Arm Unit

工程 21 アームユニットの接続

使用するパーツ

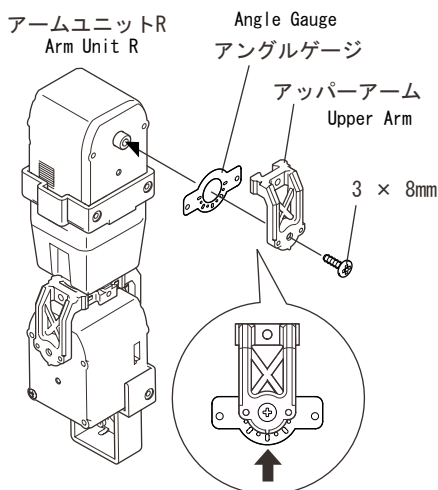
- Core Unit
(The one which was assembled in Operation21)
- Arm Unit L R
- Upper Arm x 2
- Angle Gauge x 2
- Cable guide x 2
- Bottom bush x 2
- 3 x 12 Bind Tapping Screw s 2
- 3 x 8 Bind Tapping Screw x 2
- 2.6 x 8 Bind Tapping Screw
- 2 x 6 countersunk screw x 4



作業の手順

- 1
- 2
- 3

1 Apply Angle Gauge to Output Axis of Servo at edge of Arm Unit.

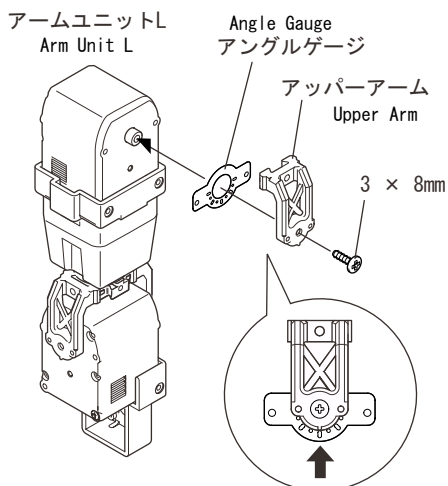


Match dent of Angle Gauge to holes at right and left side of Output Axis.

2 Fit Upper Arm to Output Axis and match gauge of Upper arm to centre of gauge.

Due to mesh of serrated, it may not be able to be match with gauge. Rotate and Push into at most nearest point of gauge

3 Fix Upper Arm to Output Axis by one of 3 x 8 Bind Tapping Screw.



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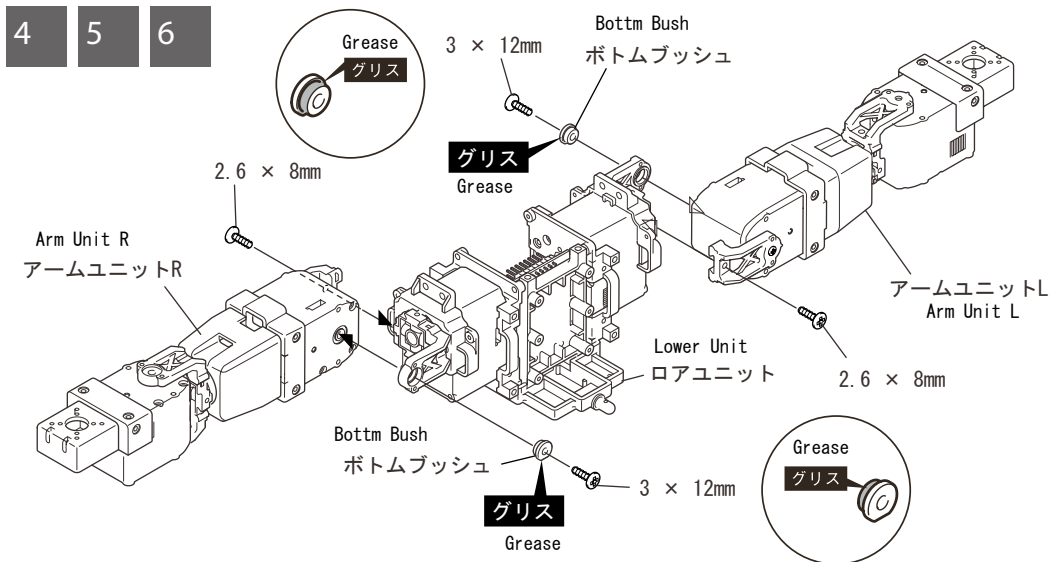
ソフトウェアの設定

ボディアの取り付け

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展開図

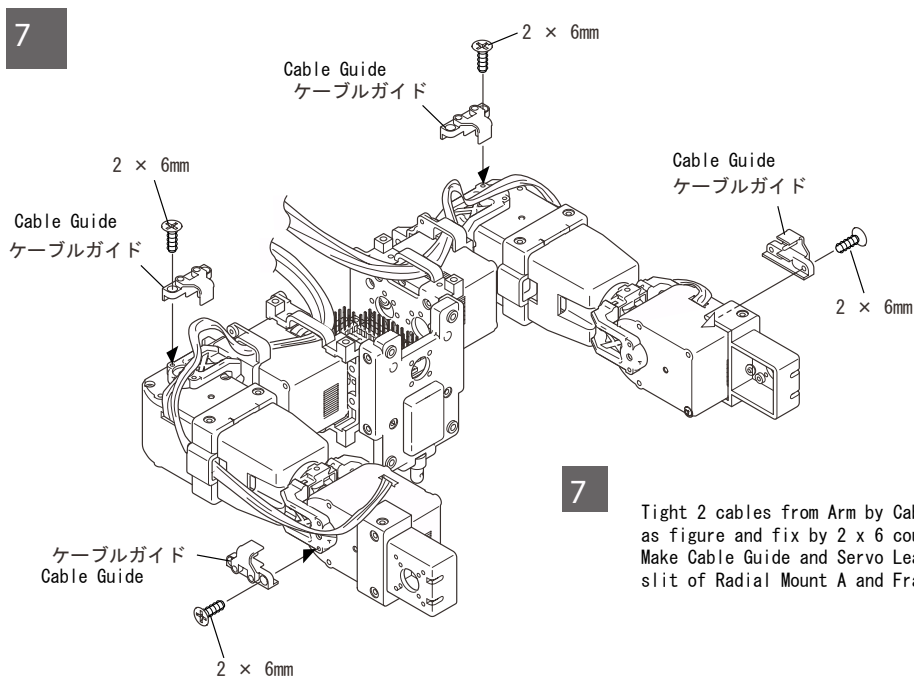


4 Fit Upper Arm(CH03) of Arm Unit L to Single Arm of Shoulder Unit L(CH02) at Core Unit. Same time, Fit Upper Arm(CH07) of Arm Unit R to Single Arm of Shoulder Unit L(CH06) at Core Unit.

5 Fix Upper Arm to Arm Base by each one of 3 x 12 Bind Tapping Screw.

6 Coat Silicon Grease slimly at diagonal line part of Bottom Bush as in figure, and fit Bottom Bush into Oppsit Axis, and fix by 3 x 12 Bind Tapping Screw,

 Push face of base and face of arm become flat.



7 Tight 2 cables from Arm by Cable Guide as figure and fix by 2 x 6 countersunk screw. Make Cable Guide and Servo Lead through into slit of Radial Mount A and Frame of Shoulder Unit.

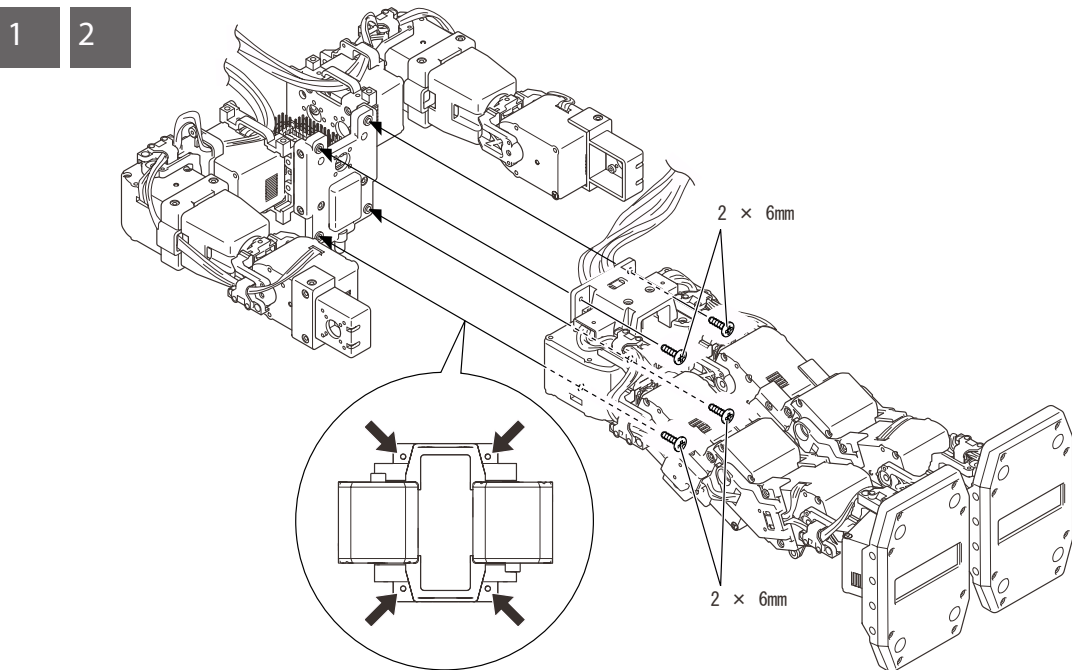
Operation22 Connecting of Body Flame

工程 22 ボディフレームの接続

使用するパーツ

Core Unit + Arm unit L R
(The one which was assembled in
Operation21)
Foot Unit
(the one which was assembled in
Operation 19)
2 x 6 Bind Tapping Screw x 4

作業の手順



1 As see the Figure, connect side of you can see terminal of Core Unit and side of tightend Cable of Foot Unit. Pull all cable from Foot Unit out to outside of upper Hip Unit.

2 Fix from Foot Unit side by 2 x 6 Bind tapping Screw.



Be carefull with clicking Cables

The unit which is assembled in this process will be called Body Frame.

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Operation23 Connecting of Cable

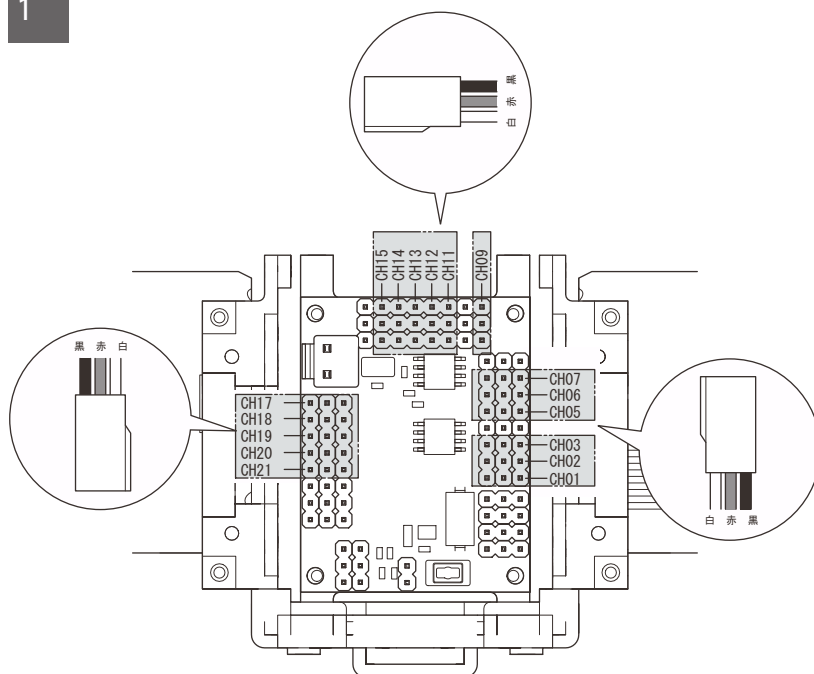
工程 23 ケーブルの接続

使用するパーツ

・ ボディフレーム Body Frame

作業の手順

1



1

As see Channel Chart, insert collateral Servo Lead to Terminal side of Core Unit. Check CH Label for Channel nuber of Servo.



Check direction of cable!



When insert cable, hold connector part one by one. And, when pulling out, hole connector part or cable part one and pull out right above one by one.

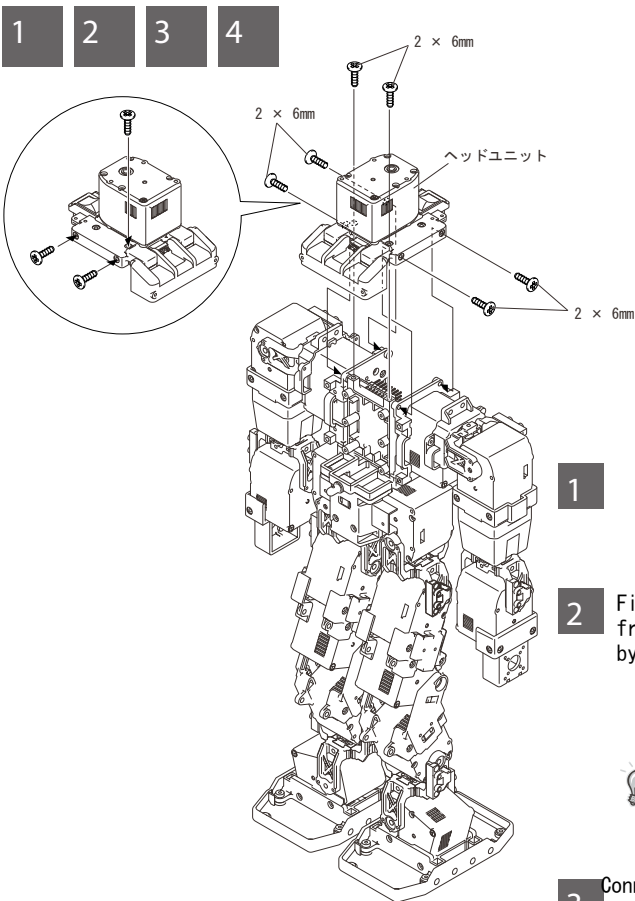
Operation24 Connecting of Head Unit

工程 24 ヘッドユニットの接続

使用するパーツ

Head Unit
(the one which was assembled in
Operation11)
Body Frame
(the one which was assembled in
Operation23)
2 x 6 Bind Tapping Screw

作業の手順



1 As see figure for reference, Insert Head Unit into upper Body Frame.

2 Fix from upper side of Head Unit and from connecting side of Shoulder Unit by 2 each (total 6) of 2 x 6 Bind Tapping Screw.

Screw Hole of Core Unit will be easy to tighten by twisting and moving CH01 Servo

3 Connect Servo Lead of Head Unit to CH01 of terminal in Core Unit.

4 Connect the conneter of ON/OFF Switch Harness to Battery terminal of Core Unit Terminal.

Check direction of cable

Check direction of cable

Push until it is locked



When insert cable, hold connector part one by one. And, when pulling out, hold connector part or cable part one and pull out right above one by one.

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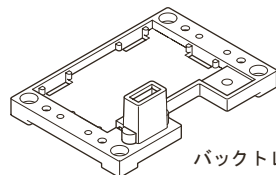
展開図

Operation25 Fixing of Back Tray

工程 25 バックトレイの取り付け

使用するパーツ

Back Tray x 1
 Extension Cable x 1
 Body Post x 2
 2 x 6 Bind Tapping Screw x 6
 2.6 x 8 Bind Tapping Screw x 2

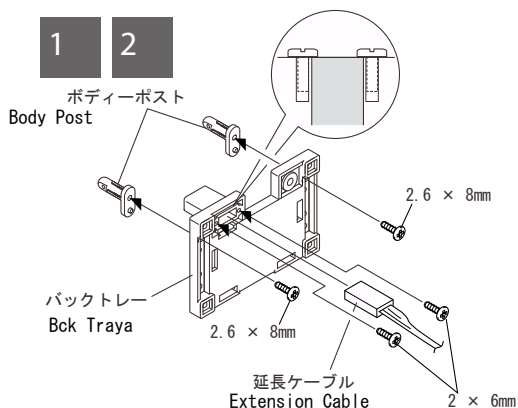


バックトレイ
Back Tray



ボディポスト
Body Post

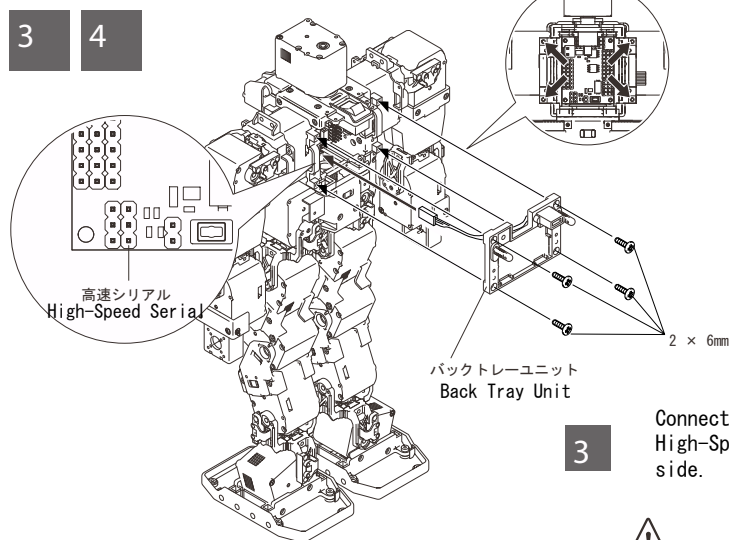
作業の手順



1 Make Extension Cable through into Slit of back tray, and fix by 2 of 2 x 6 Bind Tapping Screw.

Connect of Extension Cable is hold by head of screw.

2 As figure, fix Body Post to Back Tray by one each of 2.6 x 8 Tapping Screw.



3 Connect terminal of Extension Cable to High-Speed Serial Terminal of Core Unit Terminal side.

Be care full of clipping cables.

4 Score all Cables inside of Core Unit and fix by 4 of 2 x 6 Tapping Screw.

When insert cable, hold connector part one by one. And, when pulling out, hole connector part or cable part one and pull out right above one by one.

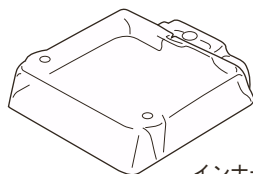
Be care full of clipping cables.

Operation 26 Fixing of Inner Cover

工程 26 インナーカバーの装着

使用するパーツ

Inner Cover
2 6 Bind Tapping Screw x 2
Body Clip x 1



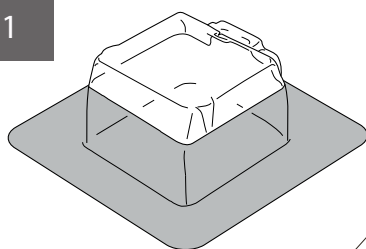
インナーカバー
Inner Cover



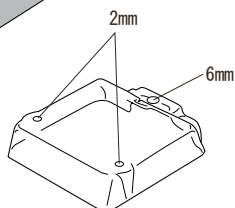
ボディピン
Body Clip

作業の手順

1



Cut this part  部分をカットする。



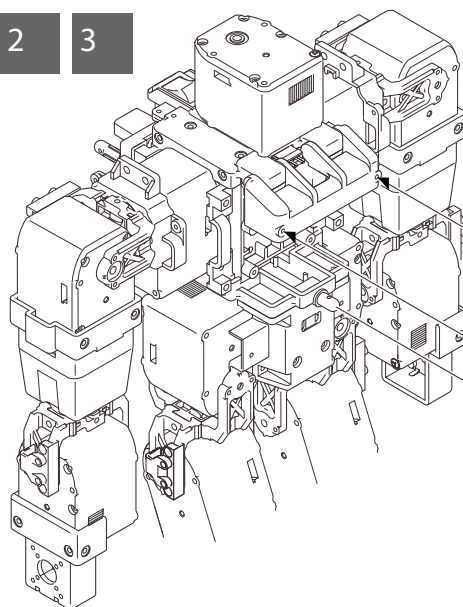
穴を開ける。Make hole

1

Cut Inner Cover out by Cutter or some other tools, and make 3 holes.

2

3

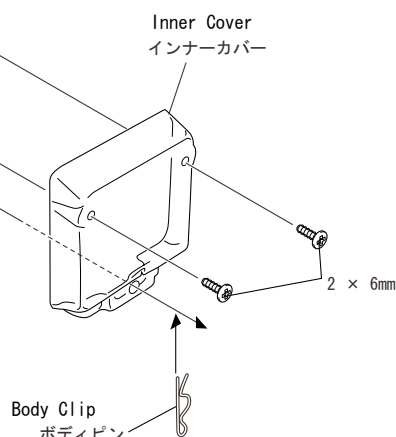


2

Fix Inner Cover to Battery Holder of Head Unit by 2 x 6 Tapping Screw.

3

Insert Body Clip to Body Pin to fix



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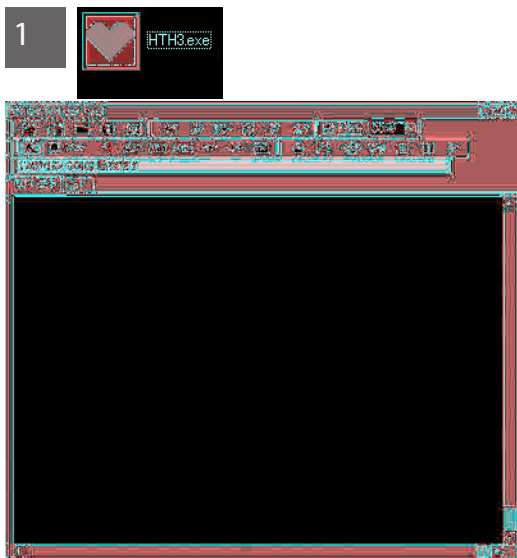
展開図

ソフトウェアの設定 Setting Software

Setting Home Position

ホームポジションの設定

Home Position is posture of MANO1 when it is ON.
From now connect PC and MANO1 to set software.
*Use Manual of Heart TO Heart 3 for setting.



1



1

Connect Serial USB Adaptor to backside of Body Frame for connecting PC and MANO1.
At PC side, start Heart To Heart 3 and check SYNC.

2

Turn ON the switch and place POS on Data Sheet of Heart To Heart 3.

3

Double Click POS and right-click CH1-3, CH5-7, CH9, CH11-15, and CH17-21 in newly opened window, then choose SERVO in dialog.



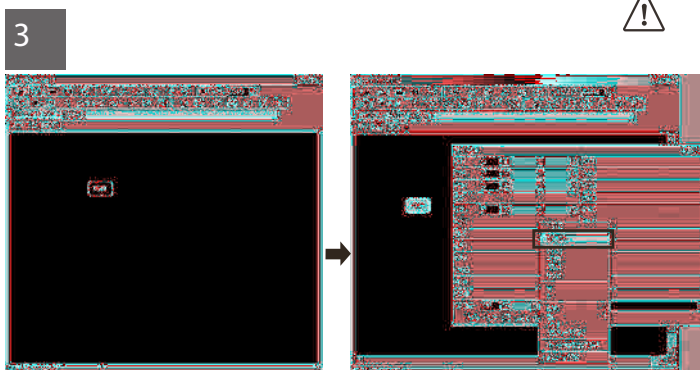
At this point, Servo will start to move back to neutral position of Servo, so be careful of your finger.



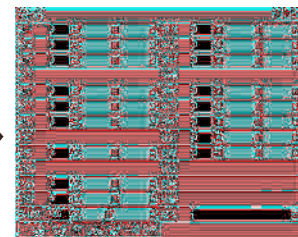
If Servos don't move, check battery charging situation, COM Setting.



At this timing Point, Upper body has posture of open arms.



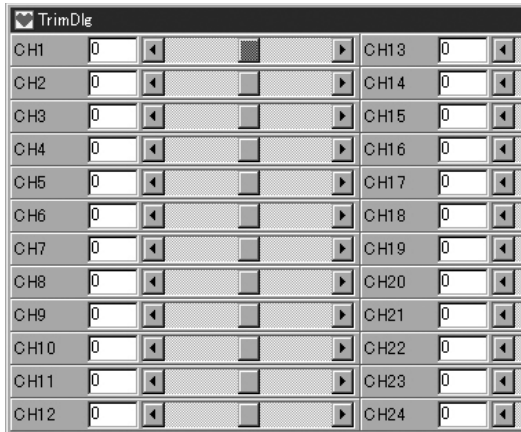
3



完了画面 Completed Window

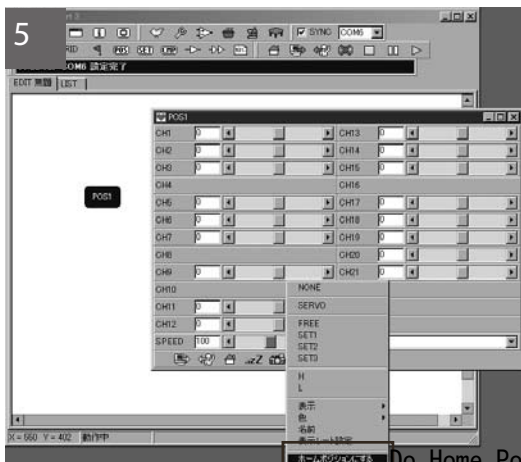


Trim Adjust Button



4

Click Trim Adjust Button in Tool Bar of Herat To heart 3. Make posture as Public Home Position in P66 for reference and check with Guide and Angle Guage of each arthro of CH1-3 CH5-7, CH9, CH11-15, CH17-21 in Slide Bar of Newly Opend Window.



Do Home Position

5

Double Click again on POS which was made in process 3 and Right Click inside Window. Choose "Do Home Position" from Dialog.



This setting will be written in PCB-3 in automatically right after chosen.

サーボのリバース設定 Setting Servo Reverse

For making easy to create MOTion of MANO1 AT01, make roatating direction of some Servo reverse. Channel of changing in setting this is that sample motion's and other's date were made in Reverse Motion, so when/if Servo in recverse setting is changed because of so¥t trouble or other reason, need to setting. Also, if Servo in reverse setting will be placed to other postion, need to set rotation direction of Servo.

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1

Connect Serial USB Adaptor to Connector of backside of Body Frame to connect PC and MANO1. Start Herat To Heart3 at PC side and check SYNC at right upper side.

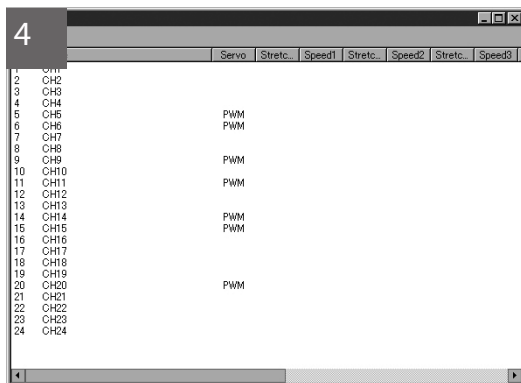
2

Connect Battery after make sure Switch is OFF.

3

Turn ON Switch and open Option Setting Window of Heart To heart3 by Option Button. And, check CH5, CH6, CH9, CH11, CH14, CH15, and CH20 in ICS Setting. Then close the window.

4



4

Next, open ICS Setting window by ICS Button. As keep the window opening turn OFF switchb of MANO1 and ON again.



When enter ICS Setting Mode, power of Servo will be OFF. It is better to make MANO1 lay down because it can fall down when Servos are OFF.

5



5

Double Click CH which were set in process 3 to open window of setting each servo. Choose ON from Drop Down menu, then close the window. As same, ON the reverse of servos which were set in process 3



This setting will be recorded to RCB-3 when the window is closed.

6

After set all reverse of CH which are set in Process 3 ON, close ICS Setting window and turn OFF switch of MANO1, then ON again.

Kyosho is approve/exposure basic motion setting (Approved Basic Setting)

KY OS HO はモーションの基準となる設定を
公認 / 公開しております (公認基本設定)

Hobby Robot in this time, H0me Position setting which is basic of creating Robot Motion and reverse fuction of changing rotating direction of Servo are not in unified way. Kyosho is thinking to make all users have same motion data and make Approved Basic Setting of H0me Position and Reverse Function be in unified way in MAN01 seriese for smooth communication between Kyosho and Users.

There are 5 merits to use Approved Basic Setting as follows.

It is easy for anybody to make Home Position.
Use Practice Motion. *Check below for meaning of Practice Motion.
Be carefull for opeation because fingers or hands can be clipped by unwilling motion.
If User downloads directry MAN01's motiodata wich is opend(in Kyosho or someone's web site), all of Motion data can be used.
Direction of Servo7s action is fixed, so motion can be createtd viscerally.
NO necessary to check direction of movement by moving servo everytime.



What is Proctice Motion?

Motion which is made by Kyosho or MAN01 adviser and great motion from User's posting will be showed in Kyosho's website. And from this everybody can get Practice Motion freely and it will be system in unified way among MANI Users. When Motion from User's posting is showed in Kyosho7s web site, name of creator (Handle Name is okay) and approved date will be on website together with the motion.

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ボディアの取り付け

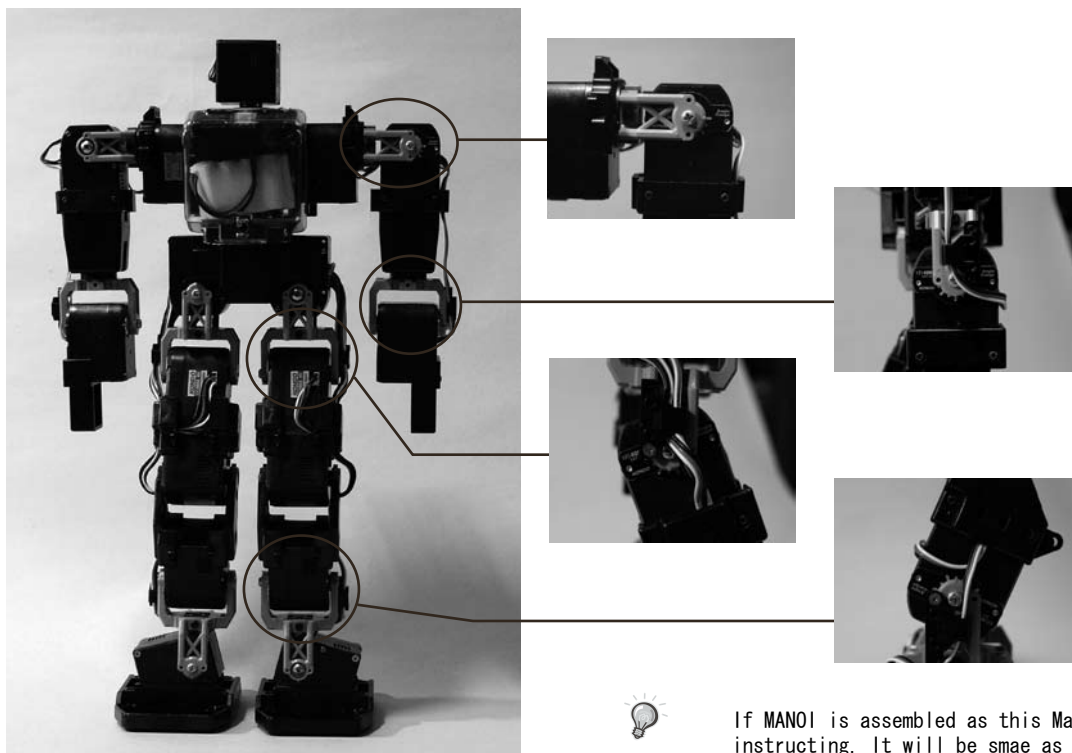
オプションの取り付け

パーツ販売リスト

展開図

•MANOI™ AT01 公認ホームポジション

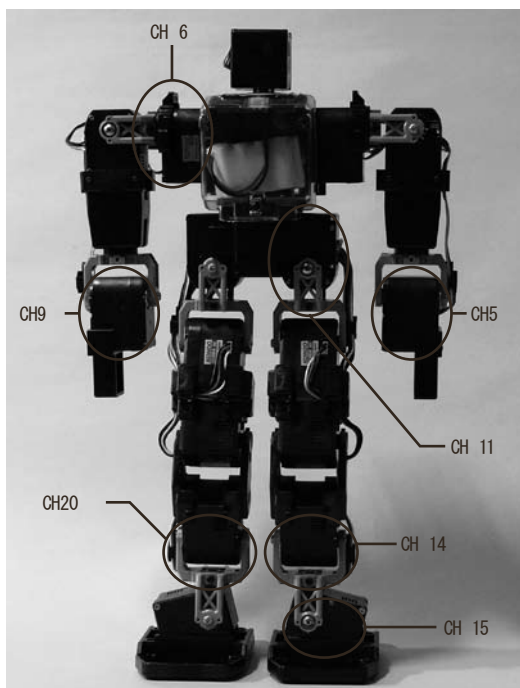
MANOI AT01 Approved Home Position



If MANOI is assembled as this Manual instructing, It will be smae as this Approved Home Position. Please, check figure.

•MANOI™ AT01 公認リバース設定

MANOI AT01 Approved Reverse Setting

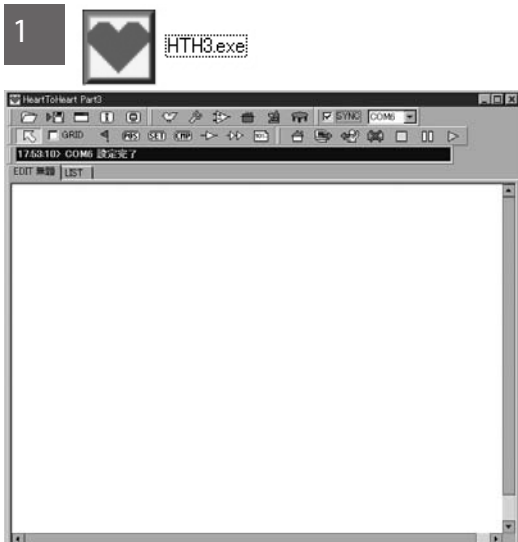


If MANOI is assembled as this Manual instructing, Pointed Servo(CH) in figure should be reverse setting. Please, check figure.

Registerring Strat Up Motion

スタートアップモーションの登録

Control Signal is not be sent to Servos when only Switch of MANO1 is ON due to specification of PC Board.
 IN this process, register Start Up MOTion which will make MANO1 get back Hoem Position autmatically right after turn ON the switch.

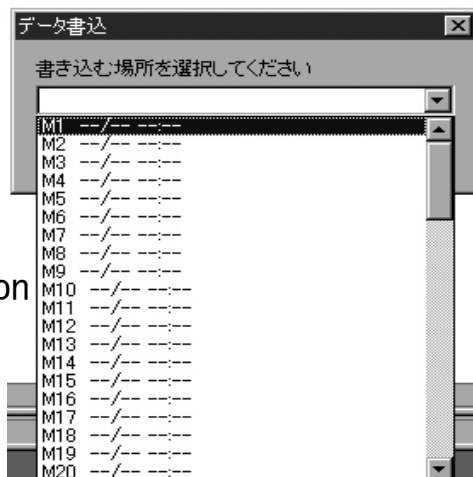


1 Connect Serial USB Adaptor to Connector of backside of Body Frame to connect PC and MANO1.
 Start Heart To Heart 3 at PC side and check SYNC at rightabove.

2 Conenct the battery after making sure switch is OFF.

3 Turn ON switch and load "startup.RCB" by Load Button.

4 Push Write In Button to write in "startup.PCB" in write in area of M08 of RCB-3.



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 展開図

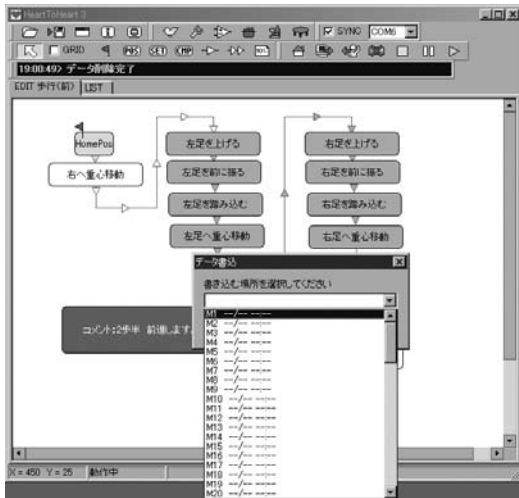


4

Press Write In Button to write in "Toward Walking.RCB" is one of Write In Area of RCB-3.



Power of MANOI will be off once, so hold it by hands. After write in is over, it will be ON automatically.



5

Press Paly Button and choose "Toward Walking.RCB", then the motion will start,

モーシヨンの作成 Creating Motion

Included CD-R of MANN01 has some sample motion, but user can create his own motion and register and play. In this process, for example, create simple motion of "Up both arms, then down arms by two stage".



More detail of way of creating motion, please check instruction Manual of RCB-3.

When creating Motion, it is better to do on horizontal place such as on the table. There is possibility for MANOI to fall down, so do not do this process near Glass or on fragile place or on soft wooden material. Be careful to clipping fingers or hands by unwilling action. If Servo motor is having too much loading, it will cause damage in worst case. Check always that you are not trying to move servos unreasonable direction.

- #1 Constructive range of movement is narrower than Servo motor's range of movement
- #2 Because of mistake of adjusting length of cable, Servo Motor is pulled.

If process is too long, power of Servo could be lower. Stop working and wait servo motor cooled down before re-starting

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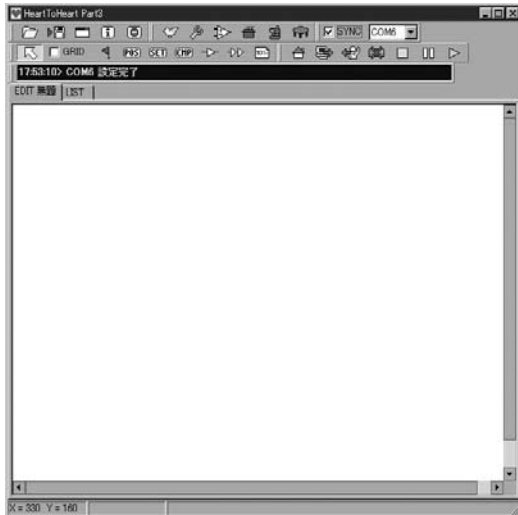
オプションの取り付け

パーツ販売リスト

展開図

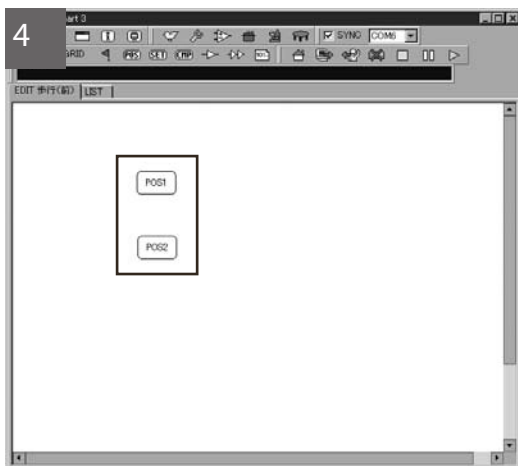


1 Connect Serial USB Adaptor to Connector of Backside of Body Frame to connect PC and MANO1.

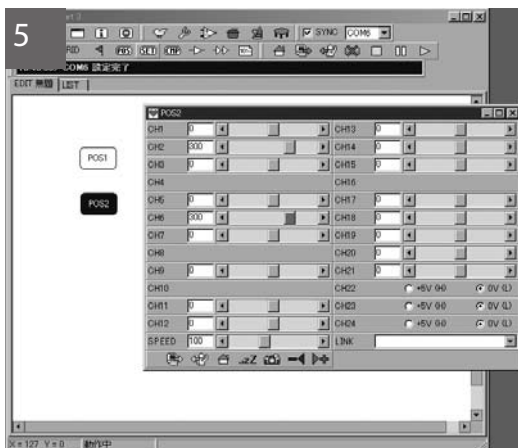


2 Connect the battery after making sure that Switch is OFF.

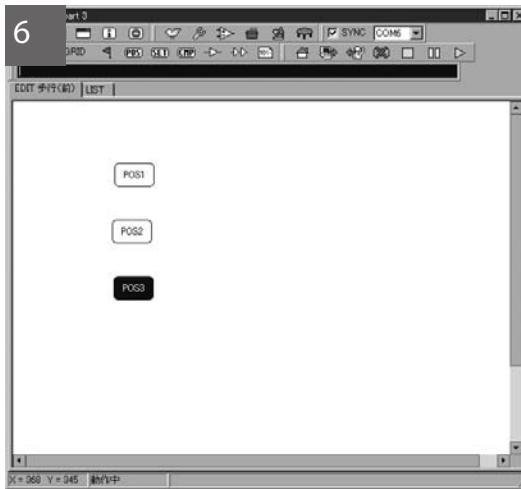
3 Turn ON switch and wait MANO1 is coming back to Home Position.



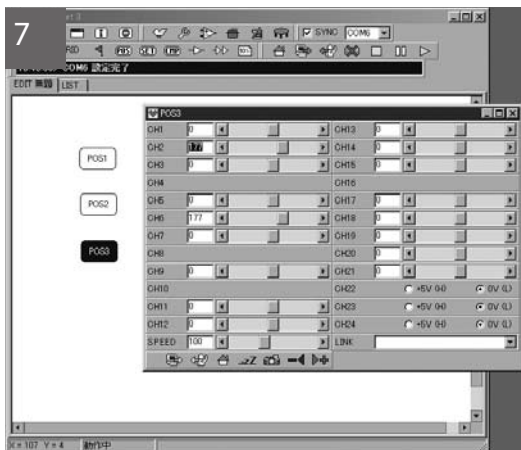
4 Place "POS" in data field. "POS" and "POS2" will be displayed..



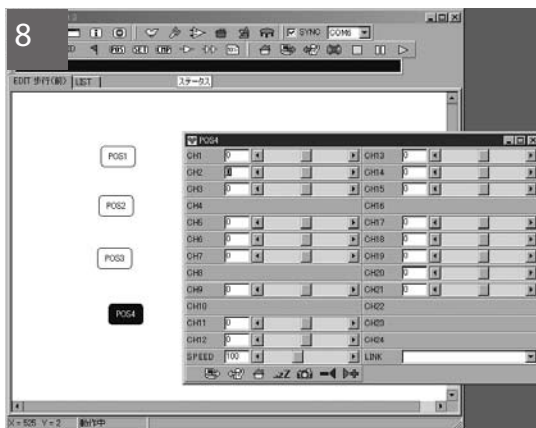
5 Open "POS2" and move Slid Bar of CH2 (Left Shoulder) and CH6 (Right Shoulder) to make MANO1 up both hands.



6 Place "POS" one more time, then "POS3" will be displayed.



7 Open "POS3" and move Solid Bar of CH2 (Left Shoulder" and CH6 (right Shoulder) to make both arms are kept opening horizontally.



8 Place "POS" one more time, then "POS4" will be displayed. Open "POS4" and move Solid Bars to make both arms are down.

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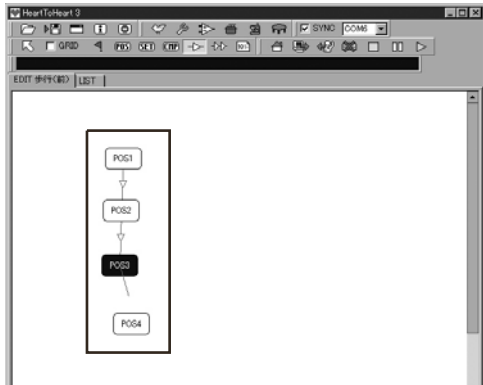
オプションの取り付け

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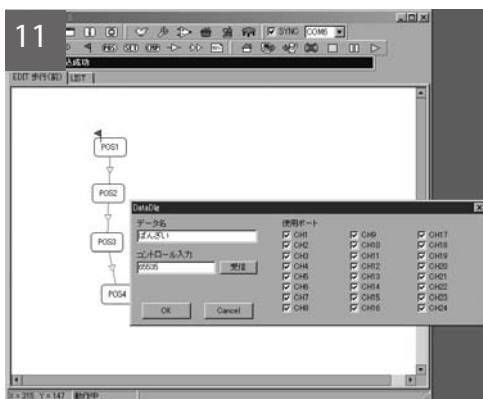
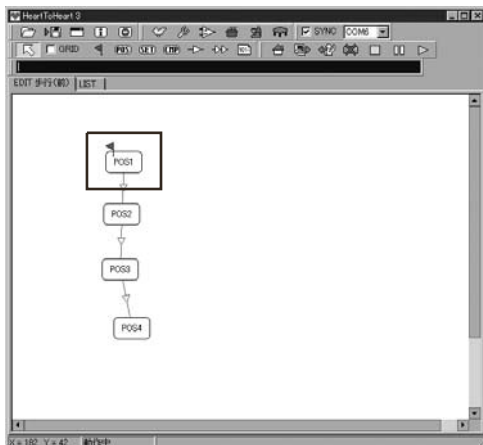
展開図



9 Click "Connection Wiring Button" and joint "POS1"-"POS4" in order.



10 Choose "Origin Allocation Button", and click "POS1", then Red Flag will be on "POS1".

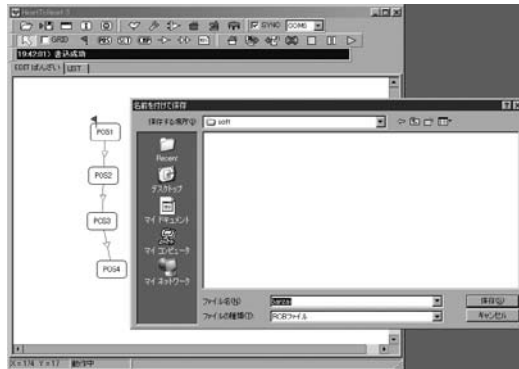


11 Double Click on nothing in data Field to name this motion on Dialog. Here, name it "Up Hands".

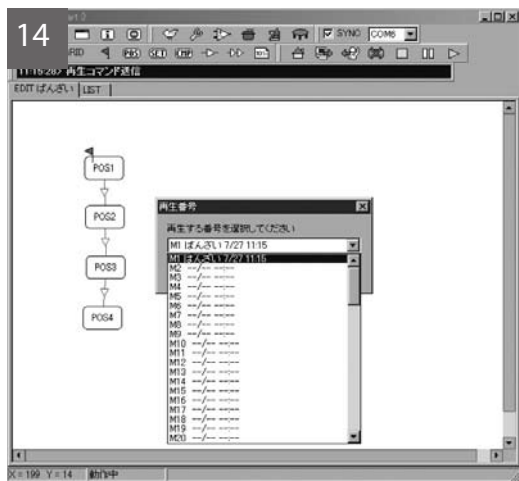


12 Press "Save Button" and name "uphands.RCB" and save it on PC. You can name as you like, but you must add ".RCB" with the name.

It is recommended to create a folder for motions and save them there.



13 Transfer Motion Data to Manoi by Write In button.



14 Press Play Button and choose "Up Hands", and the motion is played, process is succeeded.

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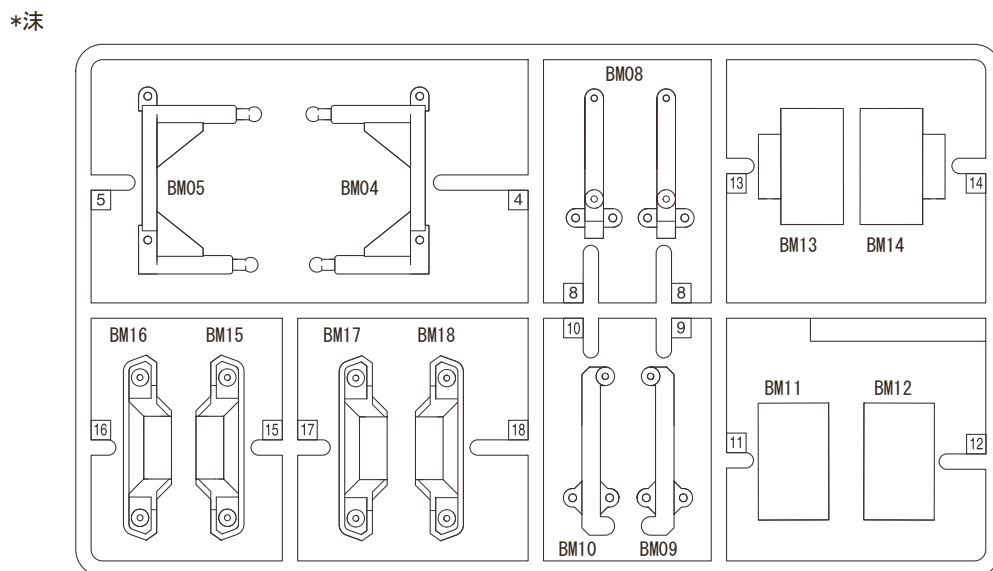
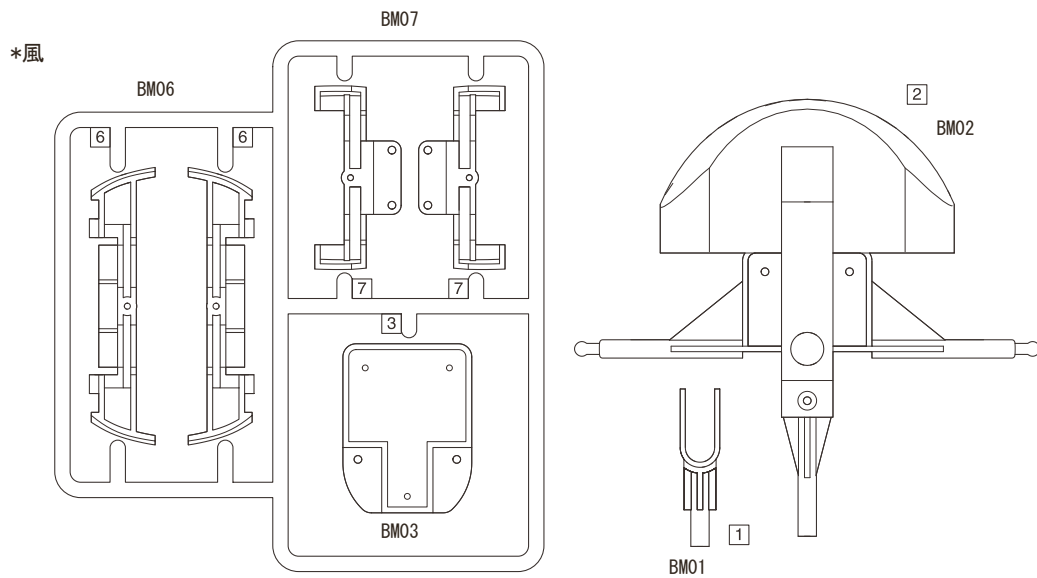
オプションの取り付け

パーツ販売リスト

展開図

ボディの取り付け Mounting Body

ボディマウントパーツ一覧 Body Mount Parts Views



工程 B01

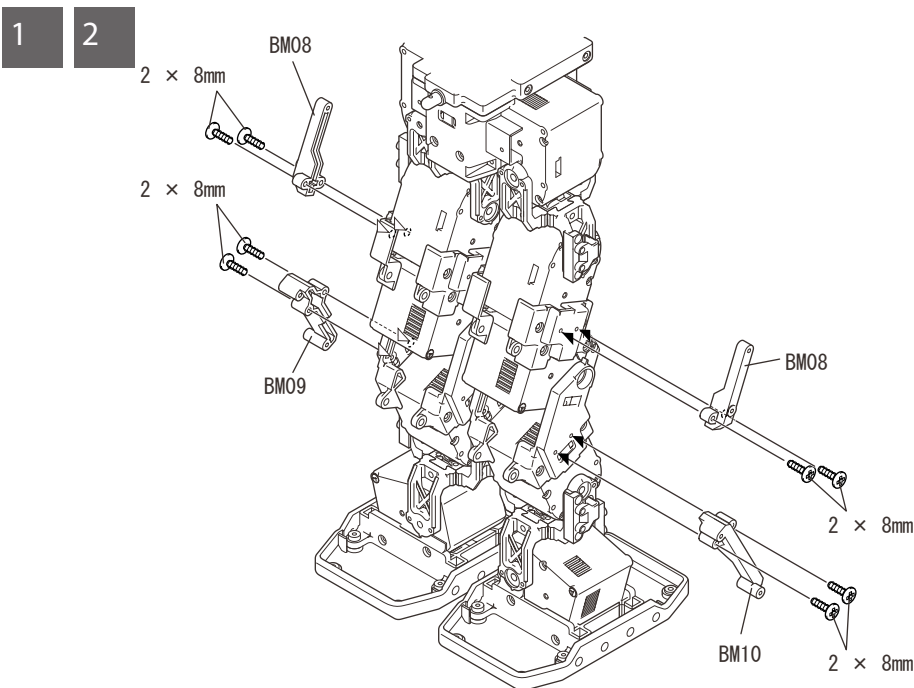
Operation01 Mounting of Body Mount Lower ボディマウントの取り付け(下半身)

使用するパーツ

Upper Leg Cover Mount S(BM08)
Left Upper Leg Cover Mount S(BM12)
Right Lower Leg Cover Mount S(BM09)
Left Lower Leg Cover Mount S(BM10)
Right Upper Leg Cover Mount F(BM11)
Right Lower Leg Cover Mount F(BM13)
Left Lower Leg Cover Mount F(BM14)

Right Foot Cover Mount F(BM15)
Left Foot Cover Mount F(BM16)
Right Foot Cover Mount R(BM17)
Left Foot Cover Mount R(BM18)
2 x 8 Tapping Screw x 24

作業の手順



1

As see figure, fix Upper Leg Cover Mount S(BM08) to Thigh Unit side by 2 of 2 x 8 Tapping Screw.



Fix both Left and Right side parts to Thigh Unit to both legs.

2

As see figure, fix Left Lower Leg Cover Mount S(BM10) to stay of Knee Unit(CH14) of Left Leg, and fox Right Lower Leg Cover Mount S(BM09) to stay of Knee Unit(CH20) of Right Leg, by 2 each of 2 x 8 of Tapping Screw.



Those parts looks similar, so check carefully before fixing.

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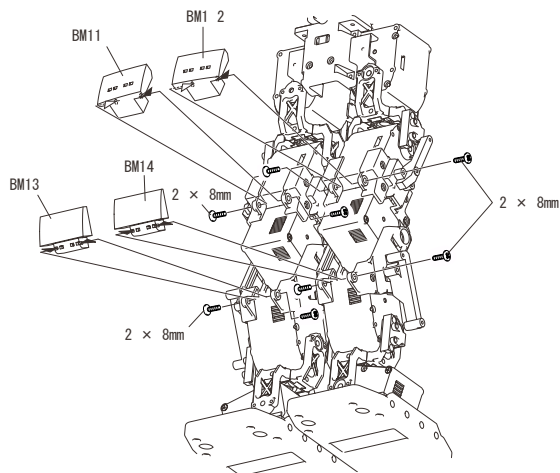
ボディの取り付け

オプションの取り付け

パーツ販売リスト

展開図

3 4



3

As see figure, fix Left Upper Leg Cover Mount S(BM12) to stay of Thigh Unit(CH12,13) of Left Leg and fix Right Upper Leg Cover Mount F(BM11) to stay of Thigh Unit(CH18,19) of Right Leg by 2 each of 2 x 8 Tapping Screw.



If is too tight to insert between Stay, loose screw of fixing Thigh joint once and insert it, then tighten the screw.



Those parts looks simillar, so check carefully before fixing.

4

As see figure, fix Left Lower Leg Cover Mount F(BM14) to stay of Knee Unit(CH14) of Left Leg and fix Right Lower Leg Cover Mount F(BM13) to stay of Knee unit(CH20) Right Leg by 2 each of 2 x 8 Tapping Screw.

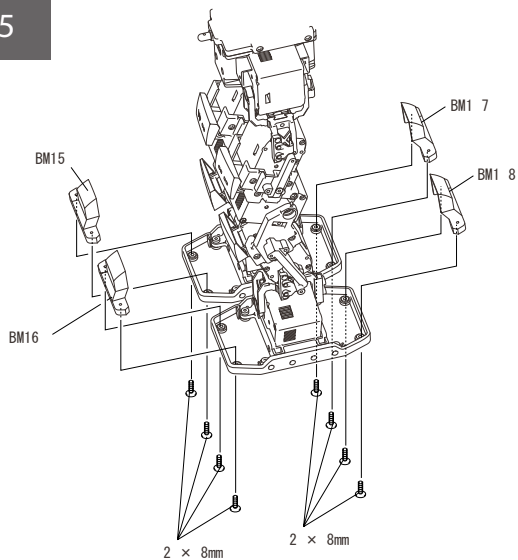


If is too tight to insert between Stay, loose screw of fixing Knee Arm once and insert it, then tighten the screw.



Those parts looks simillar, so check carefully before fixing.

5



5

As see figure, fix Left Foot Cover Mount F(BM16) to Oposit Axis side of Left Leg(CH15), fix Left Foot Cover Mount R(BM18) to Output Axis by 2 each of 2 x 8 Tapping Screw. On Right Leg(CH15), fix Right Foot Cover Mount F(BM15) to Output Axis side and fix Right Foot Cover Mount R(BM17) to Oposit Axis side by 2 each of 2 x 8 Tapping Screw.



Those parts looks simillar, so check carefully before fixing.

Operation02 Mounting of Body Mount Upper

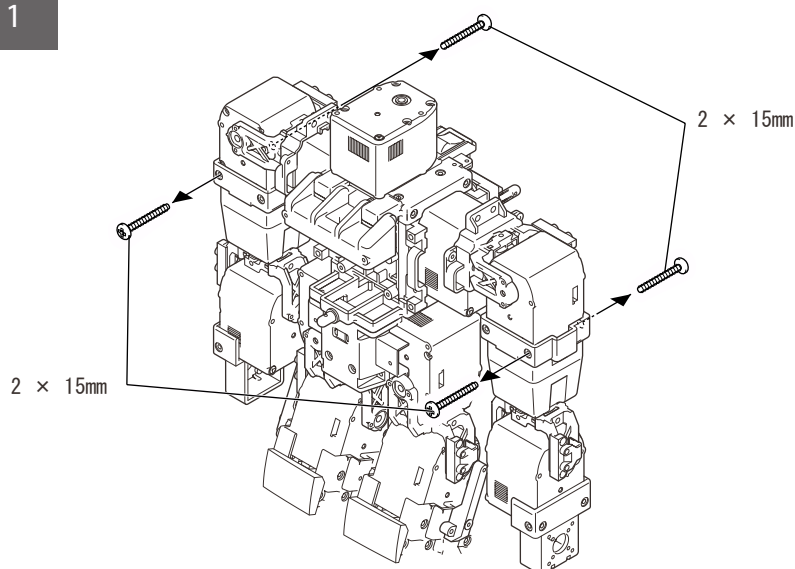
工程 B02 ボディマウントの取り付け(上半身)

使用するパーツ

Shoulder Cover Mount(BM06)
Arm Cover/Hand Cover Mount(BM07)
Right Chest Cover Mount(BM04)
Left Chest Cover Mount(BM05)
2 x 18 Tapping Screw x 2
2 15 Tapping Screw x 6
2 x 8 Tapping Screw s 2

作業の手順

1



1

As seeing MONOI from front side, remove two screws at outside(2 each at a side, total 4 screws) which are fixing Servo(CH03 07) of roght and left Shoulder.



2 screws of removed one will be used in process 2.

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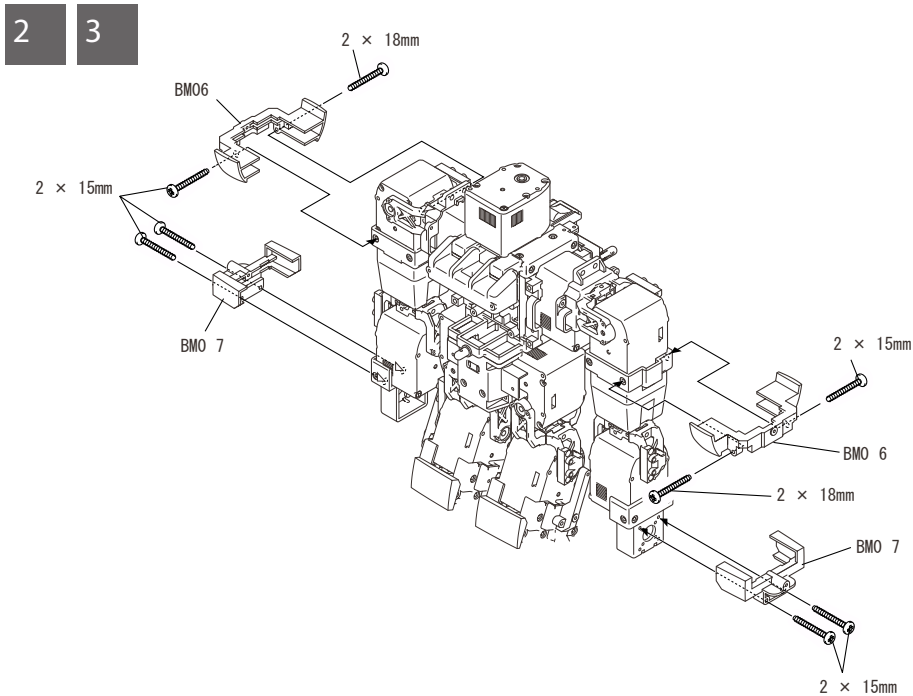
ソフトウェアの設定

ボディの取り付け

オプションの取り付け


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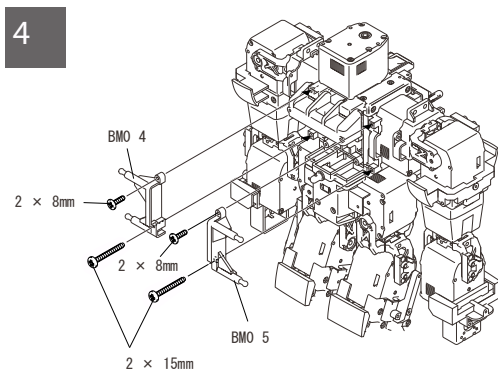
展開図



2 Cover Shoulder Cover Mount (BM06) on right and left arm and insert and tighten one each of 2 x 15 Tapping Screw which were removed in process 1 from side of Opsit Axis. Then, tighten one each of 2 x 18 Tapping Screw from side of Output Axis.

3 As see figure, cover Arm Cover/Hand Cover Mount (BM07) on Output Axis side of Left Arm (CH05) and on Opsit Axis side of Left Arm (CH09). Match with holes of Hand base and fix by 2 each of 2 x 15 Tapping Screw.

 1 of 2 x 15 Tapping Screw and 1 of 2 x 18 tapping Screw for one Arm



4 As see figure, match Left Chest Cover Mount (BM05) to Side Frame of Left Shoulder (CH02) and match Right Chest Cover Mount (BM04) to Side Frame of Right Shoulder (CH05), and fix upper side by one of 2 x 8 Tapping screw, and fix lower side by 2 x 15 Tapping screw.

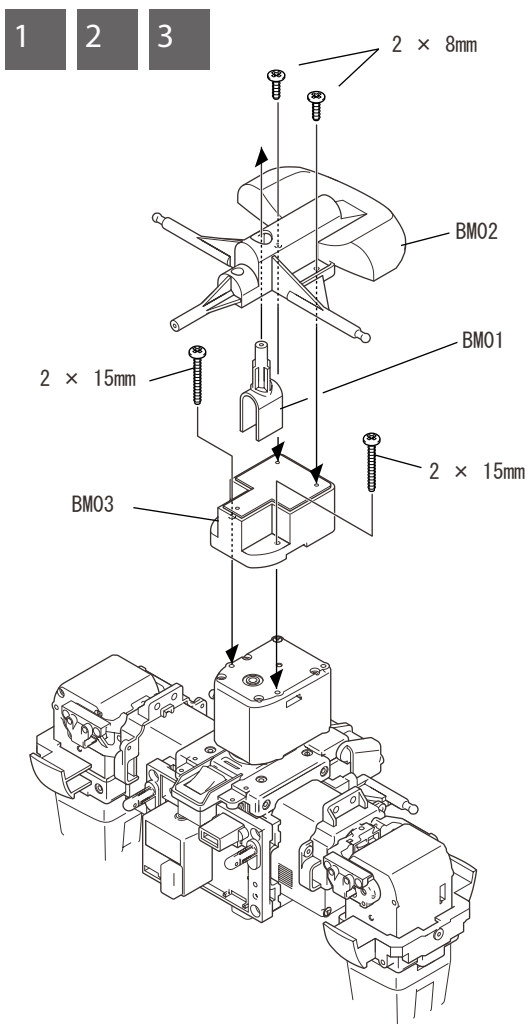
Operation03 Mounting of Body Mount Head

工程 B03 ボディマウントの取り付け(頭)

使用するパーツ

Head Cover Mount(BM01)
Front Mask/Rear Cover Mount(BM02)
Head Servo Mount(BM03)
2 x 15 Tapping Screw x 2
2 x 8 Tapping Screw x 2

作業の手順



1 As see figure, match Head Cover Mount(BM01) and Front Mask/Rear Cover Mount(BM02).

2 As paying attention to direction, as figure, cover Head Servo Mount(BM03), and fix by 2 of 2 x 15 Tapping Screw.

⚠ There is ditch for cable of Servo, so cble should be go thought inside of it.

3 As see figure, match unit which was assmebled in process 1 to Head Servo Mount(BM03) and fix by 2 x 8 Tapping Screw.

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展開図

OperationB04 Separating of Body Cover

工程 B04 ボディカバーの切り離し

使用するパーツ

Head Cover
Front Mask
Rear Cover
Chest Cover
Back Pack
Left Shoulder Cover F
Left Shoulder Cover R
Right Shoulder Cover F
Right Shoulder Cover R
Left Arm Cover

Right Arm Cover
Left Hand Cover
Right Hand Cover
Left Upper Leg Cover
Right Upper Leg Cover
Left Lower Leg Cover
Right Lower Leg Cover
Left Foot Cover
Right Foot Cover
Eye Ball
Chest Ball

作業の手順

Danger



危険

Cutting Tools which will be used in this process could cause injury by mistake or wrong way to use. Please watch your hands and surrounding area, do work with making sure safety.

1

Separate each parts at cutting line(See figure in P81-84)



Protection film may start loosing from surface of parts as separating parts, but but keep this film at surface of the part until painting is done.



A part of cut could be sharp enough to cause injury. Be carefull with sharp part and cut sharp down by scissors ro some tools or make unsharp by file.



Using Cutter, do not cut strongly, but cut as trace cutting line several time to make ditch. then, bent that ditch several time by hand to separate parts.



If use satndard scissors, cut at base part of scissors, it will be easy to put some muscle. If you use Round Cutter, it will be easier and nicer than using satndard scissors.

2

Make 2mm or 6mm hole by borer etc at positons pointed in figure.



Hold Body Cover on by Tapes beofre working, it can be better finishing.




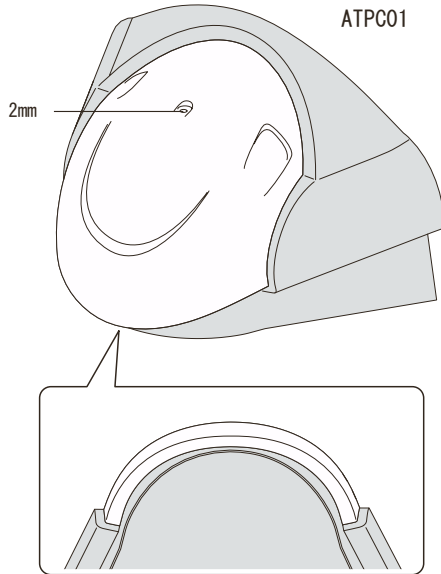
Place soft wood other side of place of making hole, it can be nice finishing.



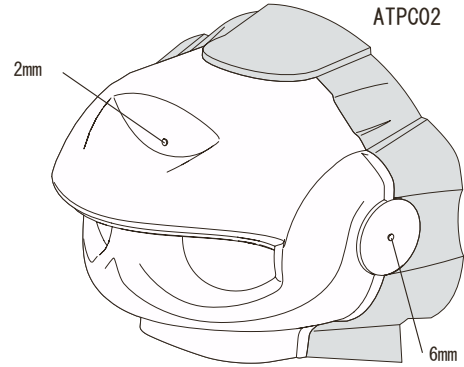
If use reamer for hobby models in hobby shop it will be easier to make better hole.,

Head Cover
ヘッドカバー

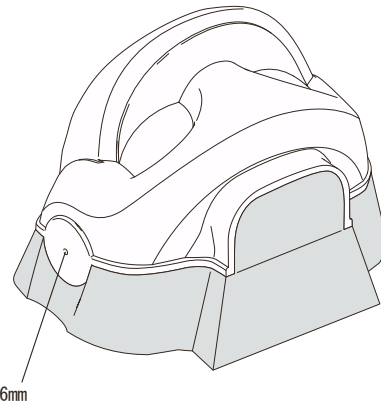
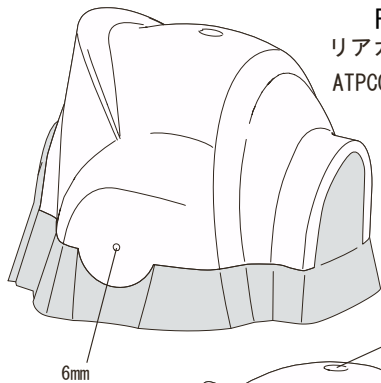
Cut  part of each parts



Front Mask
フロントマスク

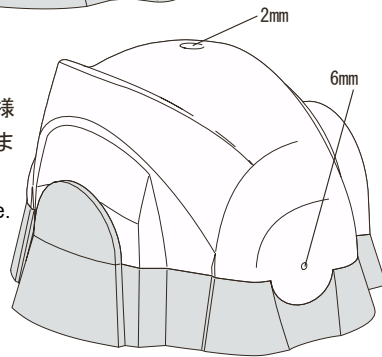


Rear Cover
リアカバー



※反対側も同様に穴を開けます。

Make hole at opsit side as same.



Protection film may start loosing from surface of parts as separating parts, but keep this film at surface of the part until painting is done.



A part of cut could be sharp enough to cause injury. Be carefull with sharp part and cut sharp down by scissors ro some tools or make unsharp by file.



Hold Body Cover on by Tapes beofre working, it can be better finishing.

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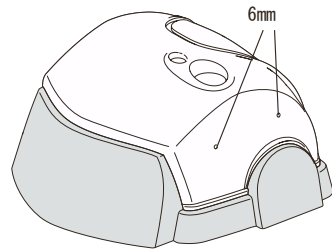
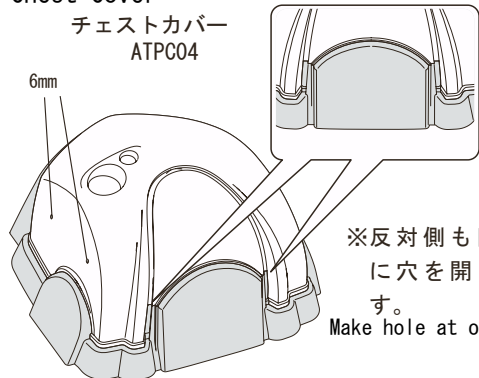
オプションの取り付け


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展開図

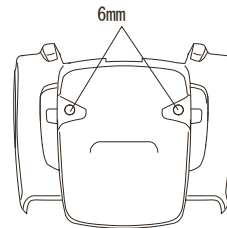
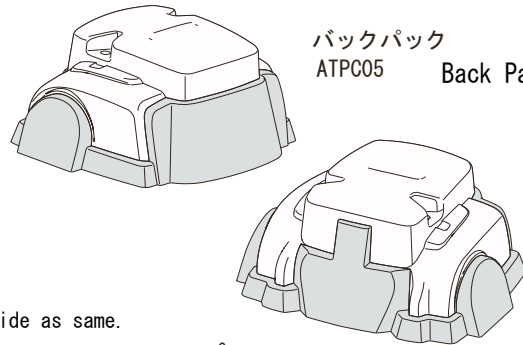
Chest Cover

チェストカバー
ATPC04



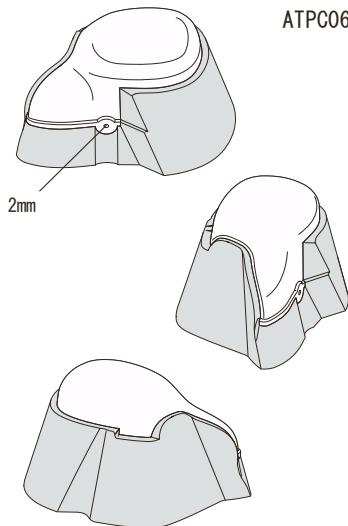
Cut  Part of each parts

バックパック
ATPC05 Back Pack



Left Shoulder Cover F
レフトショルダーカバーF

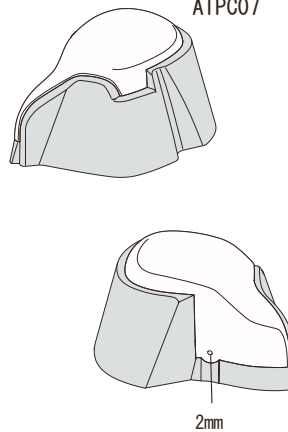
ATPC06



Left Shoulder Cover R

レフトショルダーカバーR

ATPC07



Protection film may start loosing from surface of parts as separating parts, but but keep this film at surface of the part until painting is done.




A part of cut could be sharp enough to cause injury. Be carefull with sharp part and cut sharp down by scissors ro some tools or make unsharp by file.

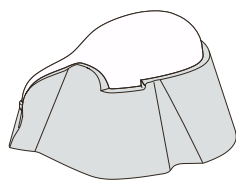
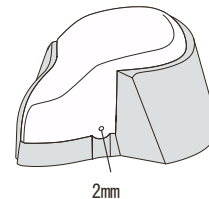
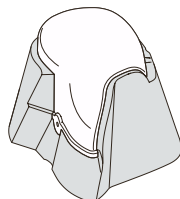
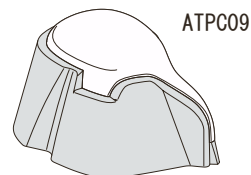
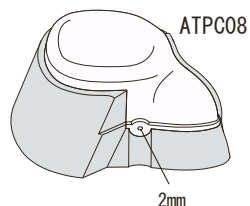


Hold Body Cover on by Tapes beofre working. it can be better finishing.

Right Shuolder Cover F
 ライトショルダーカバーF

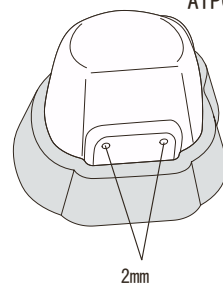
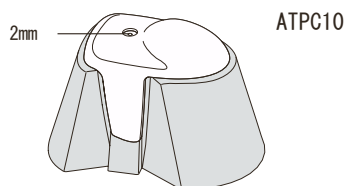
Cut  Part of each parts

Right Shuolder Cover F
 ライトショルダーカバーF



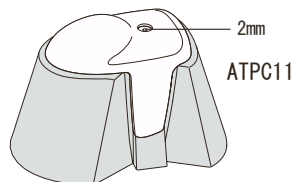
Left Hand Cover
 レフトハンドカバー
 ATPC12

Left Arm Cover
 レフトアームカバー



Right Hand Cover
 ライトハンドカバー
 ATPC13

Right Arm Cover
 ライトアームカバー



Protection film may start loosing from surface of parts as separating parts, but but keep this film at surface of the part until painting is done.



A part of cut could be sharp enough to cause injury. Be carefull with sharp part and cut sharp down by scissiors ro some tools or make unsharp by file.



Hold Body Cover on by Tapes beofre working, it can be better finishing.

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 準備

組み立て

ソフトウェア
 の設定

ボディの
 取り付け

オプション
 取り付け

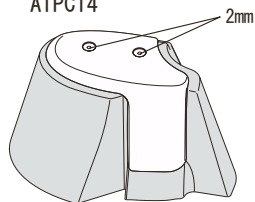
パーツ販売
 リスト

展開図

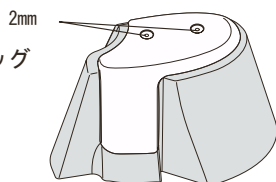
Left Upper Leg Cover

Cut  part of each parts

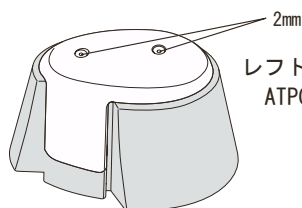
レフトアッパーレッグカバー
ATPC14



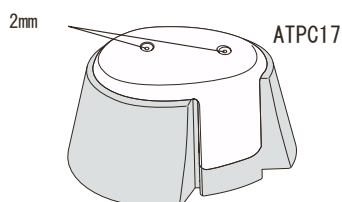
Right Upper Leg Cover
ライトアッパーレッグ
カバー ATPC15



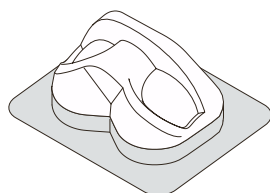
Left Lower Leg Cover
レフトローレッグカバー
ATPC16



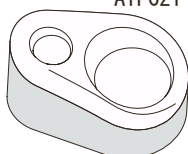
Right Lower Leg Cover
ライトローレッグカバー



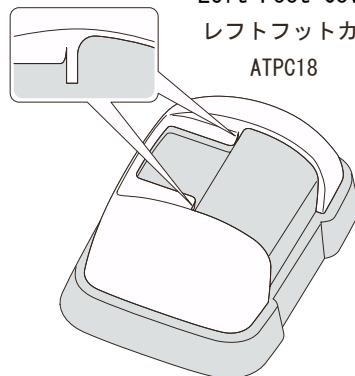
Eye Ball
アイボール
ATPC20



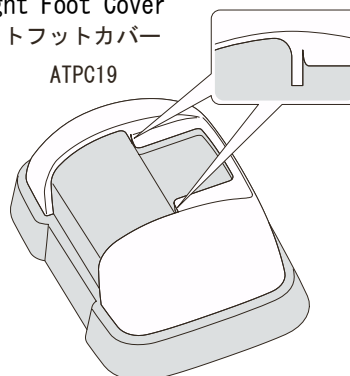
Chest Ball
チェストボール
ATPC21



Left Foot Cover
レフトフットカバー
ATPC18



Right Foot Cover
ライトフットカバー
ATPC19



Eye Ball and Chest Ball are parts which will be attached by user's choice. Eye ball can be replaced at eye part of Front Mask when eye parts is removed by cutting for attaching LED light . Chest Ball also can use for replacement of chest parts of Chest Cover



Protection film may start loosing from surface of parts as separating parts, but keep this film at surface of the part until painting is done.



A part of cut could be sharp enough to cause injury. Be carefull with sharp part and cut sharp down by scissiors ro some tools or make unsharp by file.



Hold Body Cover on by Tapes beofre working, it can be better finishing.

OperationB05 Painting of Body Cover

工程 B05 ボディカバーの塗装

使用するパーツ

Body Covers

(The ones which are separated in OperationB04)

Paint

(Paint for Polycarbonate, not including in this kit)

作業の手順

Danger



危険

When use Spray Paint in this Operation, do not use near fire because it is very dangerous to sue enar fire.



It is possible to use organic solvent which is harmfulness for body. Open the window of the room and work in well-ventilated situation.



Color and way of painting which are showed here is just for one example. Usee can paint as like. Use Body Cover which are sold as Spare Part to make your own paint to make your own MANO1.



Eye Ball and Chest Ball are parts which will be attached by user's choice. Eye ball can be replaced at eye pasrt of Front Mask when eye parts is removed by cutting for attaching LED light . Chest Ball also can use for replacement of chast parts of Chest Cover

1



1

Wash inside of separated Body cover by Sponge with watered-down mild detergent, and rinse under water, then dry them well.



When use mild detergent, check and follow the label warnings of it.



Wash inside which are side of being painted. Do this process, paint will not come off easily and can make beautiful finishing.

安全について

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パーツリスト

組み立ての準備

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ソフトウェアの設定

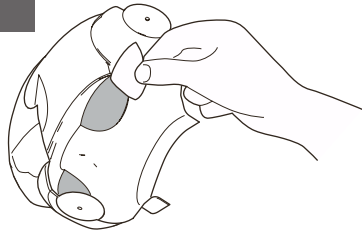
ボディの取り付け

オプションの取り付け

パーツ販売リスト

展開図

2



2

As see figure, make Masking at backside at necessary part.



Masking is process to prevent paint goes out to differet color area. It is called at MAsking Tape and be able to be found in Hobby Hosp. There are many type and many diffrent size. Get them as necessary.



If paint with some different colors, start painting with dark color, then could make nice finishing. It is recommended to make masking for painting dark color first.

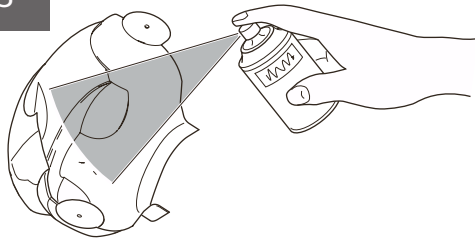


When you use Spray paint or Air Brush, paint will be sparated to large area. So, Masing tape shoule cover all part of inside of parts except painting area.



If you want to make your own desigen of painting, draw the line at upper side(side not painting) by magic maker, and use that line for masking. The line by Magic Maker can removed by pealing film off alter.

3



3

Use photo of Package Box for reference, use specified color to paint.



If use Spray Paint or Air Brush, better not paint all by once, but try to paint by several time. Then it will be nice finishing.



If use more than 2 colors, start from Dark Color and it can be nice fionishing.

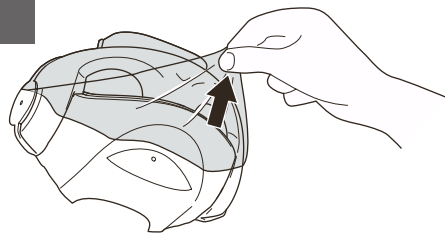


If use more than 2 colors,wait until painted color is dry, then paint another color.



Paint is make from backside of cover, so if use some colors to paint after first painted color, it an not see from upper side, so no need to do masking at painted area after first color is done/

4



4

After paint is dried completely, peel protect film off at upper side.

OperationB06 Mounting of Body Cover

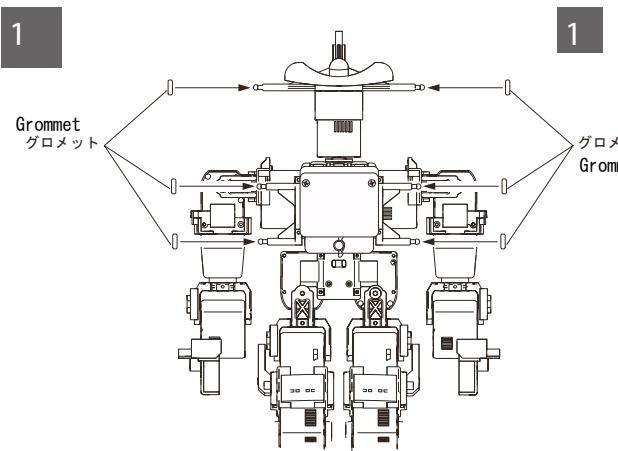
工程 B06 ボディカバーの取り付け

使用するパーツ

- Body Cover
(The ones which are painted in OperationB05)
- Grommet (Black Rubber Parts)
- 2 x 8 Tapping Screw x 15
- Body Clips 2

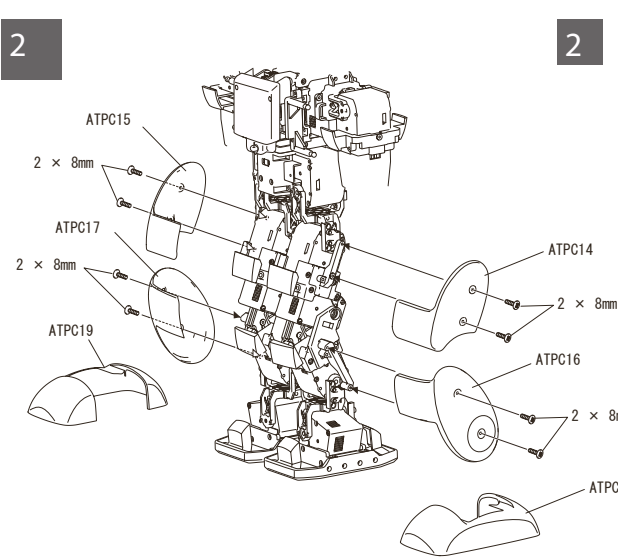
作業の手順

1



1 Put 2 each of Grommet to Left Chest Cover Mount, Right Chest Cover Mount, and Head Cover mount.

2



2 As figure, mount Body Covers to each Body mount and fix them by 2 x 8 Tapping Screws.

安全について

付属製品について

パーツリスト

組み立ての準備

組み立て

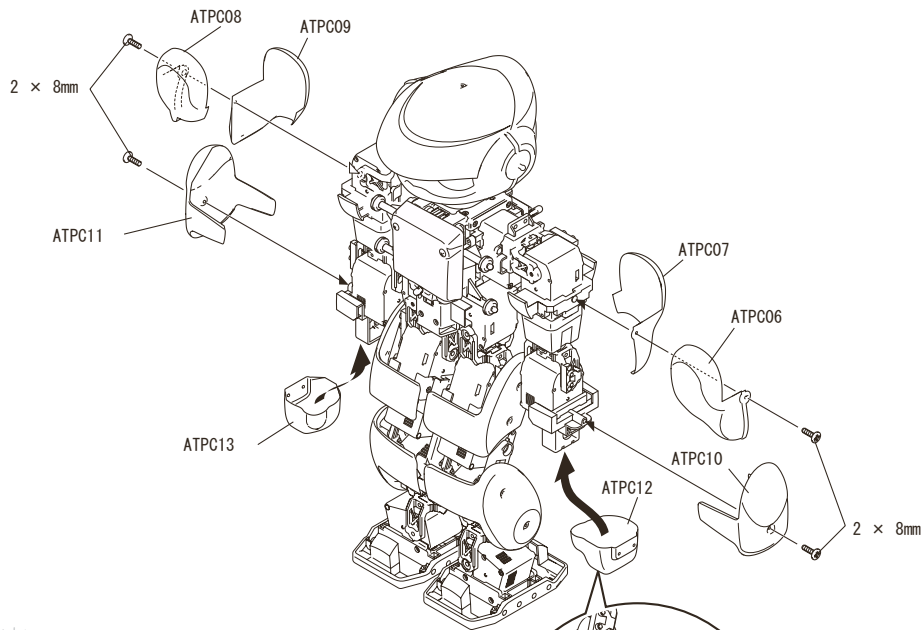
ソフトウェアの設定

ボディの取り付け

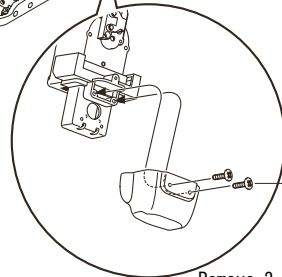
オプションの取り付け

パーツ販売リスト

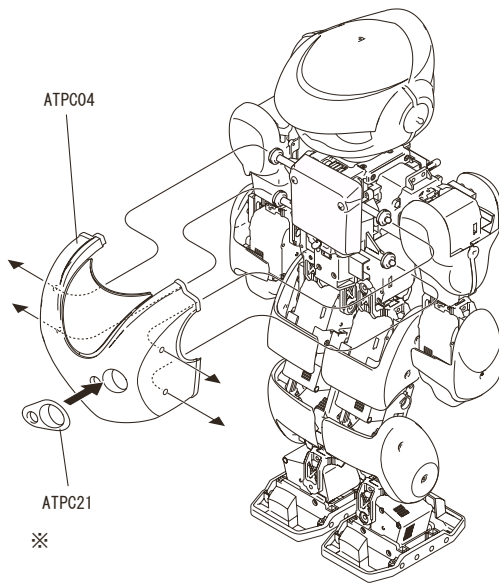
展開図



Fix left and right shoulder cover together by 2 x 8 Tapping Screw.



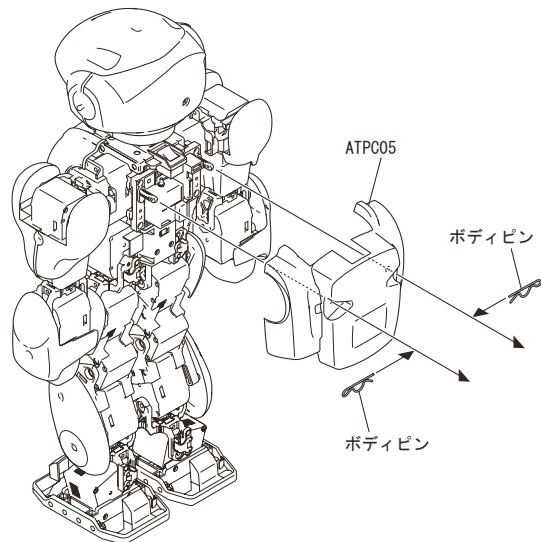
Remove 2 x 15 Tapping Screw of fixing Arm Cover, Hand Cover Mount (BM07) and Frame, then fix them again with Hand cover.



Chest cover can be attached by user's choice

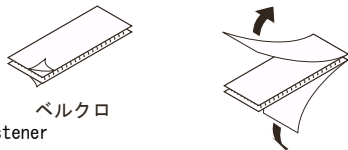


Chest Cover will be fitted to Grommets which are put in process 1.



3

take both protector papers away



hook and loop fastener

3

As see figure, cut hook and loop fastener and take protector paper away and apply to assignment place between Body Mount and Body cover. Press well to make sure it is working.

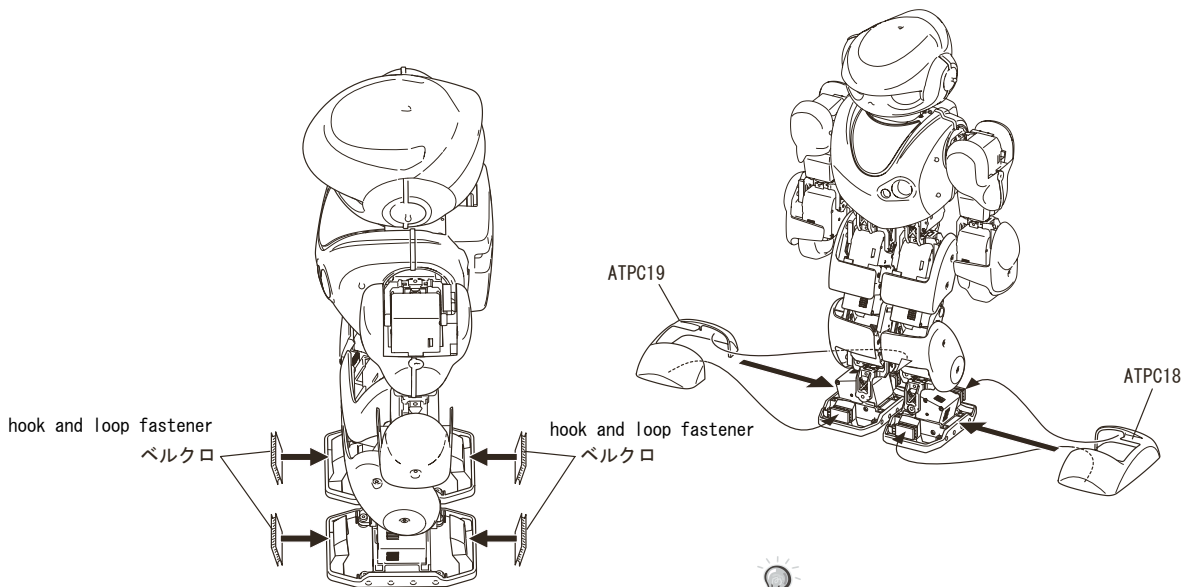
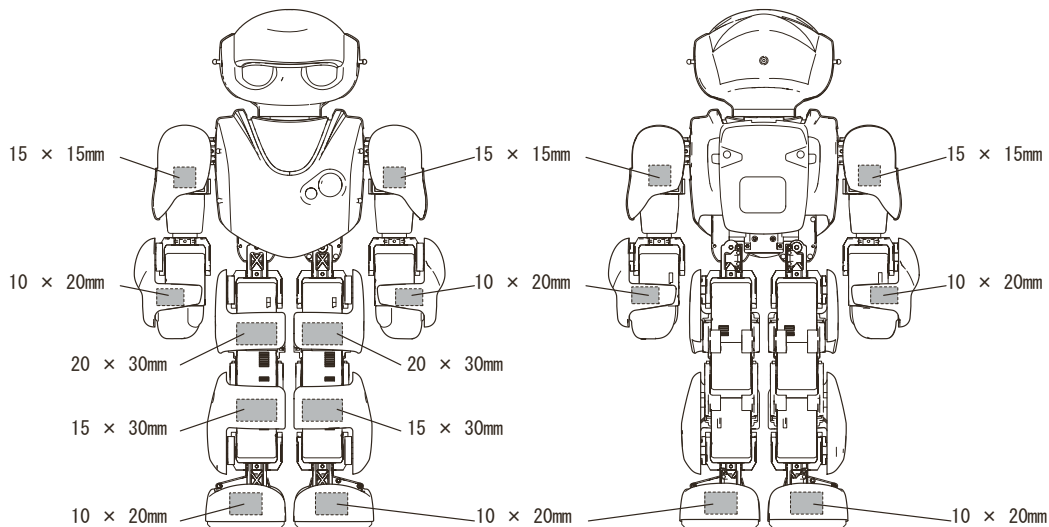


Insert as if open Body Cover a littel bit.



Cutting size of hook and loop fastener is just for reference. Andm can be a little bit bigger or smaller.

position of hook and loop fastener



After apply hook and loop fastener, then cover by Left Foot Cover (ATPC18) and (ATPC19),

Installing Option Parts オプション取り付け

アイコン解説



注意



ポイント



ねじ込み注意

MMANOI can be installed many type of Option Part to upgrad its ability.
In this Operation, explain adding method of Movable Axis.
(Explaining is uder condition of that Bpdy mount i sremoved.)

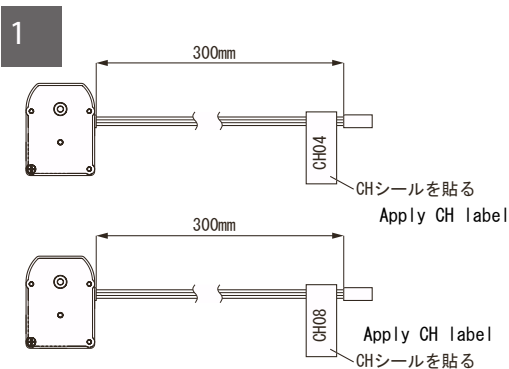
Operation0P01 Adding Arm Yawing Axis

工程 OP01 腕ヨ一軸の追加

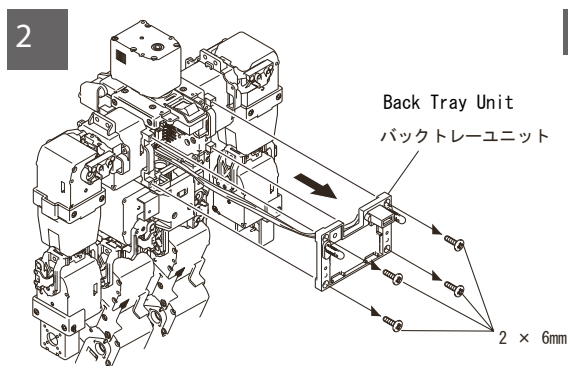
追加するパーツ

Servo (KRS-4024SH V) x 2
Servo Lead (300mm) x 2
Low Height Horn x 2
3 x 8 Bind Tapping Screw s 2
2 x 15 Tapping Screw x 8

作業の手順



1 Insert cable to adding Servo and Apply CH04 and CH08 label on front edge of cable.



2 Remove Back Tray. Keep cables connecting.

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パーツリスト

組み立ての準備

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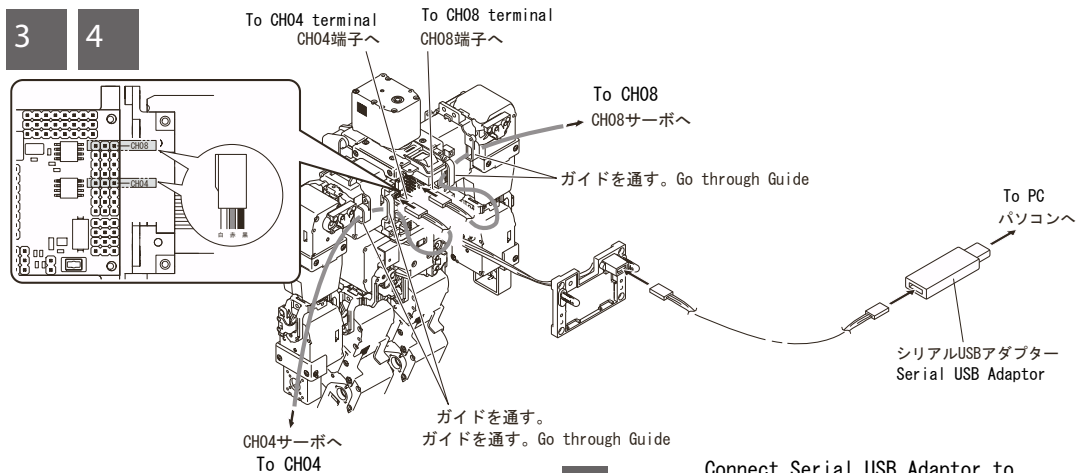
ソフトウェアの設定

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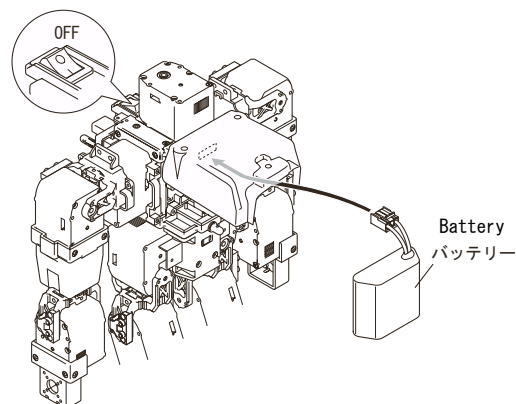
3

Connect Serial USB Adaptor to terminal of Back Pack to connect PC and MANO1, Start Heart To Herat 3 at PC side. Check SYNC at right above side.

4

Send Servo Lead through 2 of guides of Shoude Unit, then connect CH04 and CH08 of Analog Terminal of RCB-3. Connect Battery after making sure that Switch is OFF.

5 6



5

Turn ON switch and place "POS" on data sheet of Heart To Heart3, Double Click to open and Right Click CH04 and CH08, then choose "SERVO" from dialog.

6

Move Slide Bar of CH04 and CH08 from right to left to check if servos move or not. Then, set "0" of number in window in display, and turn OFF switch of MANO1.



Be careful of +/- of each cables.

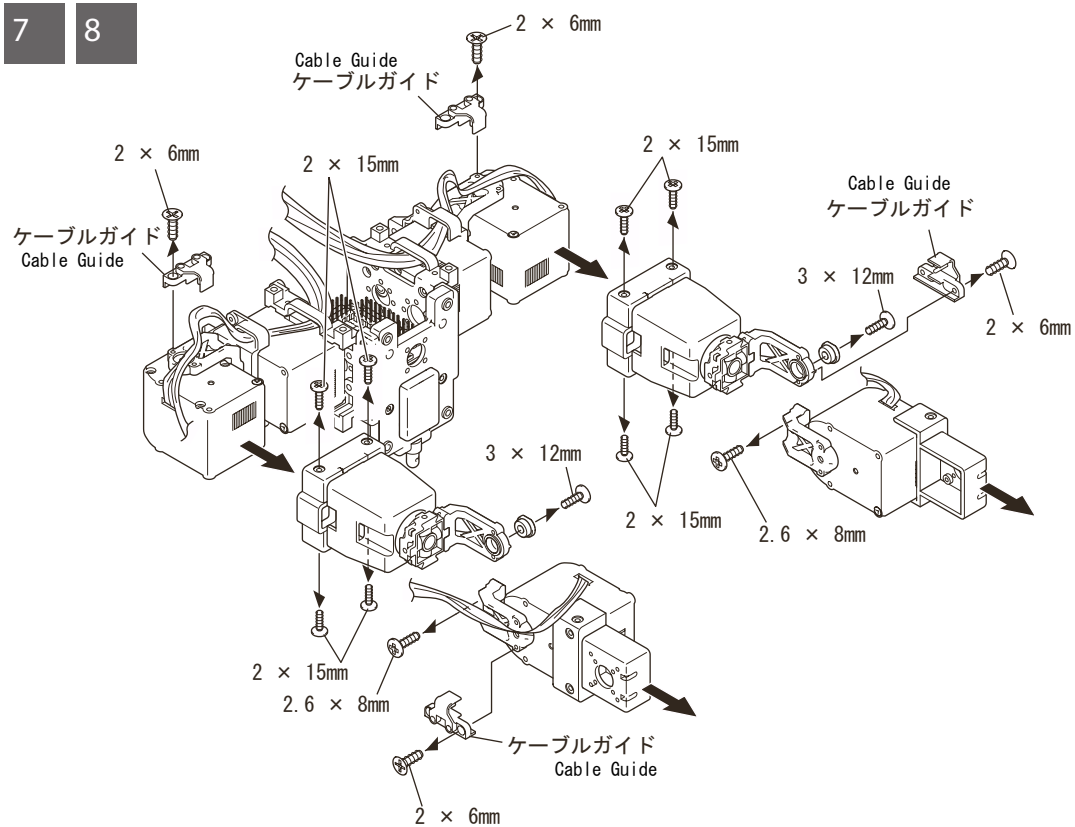


Servo could be moved suddenly, but it is stopped by itself, it is normal.



If Servo doesn't work, turn OFF switch first and check Cable, ON/OFF switch, battery, and Turn ON again to check. If still it doesn't work, contact Customer Service.

7 8



7

Remove 4 of Cable Guides at both arms

8

Remove 3 x 12 Bind Tapping Screws of fixing Opsit Axis of Servo Arm at part of Elbow, and remove 2.6 x 8 Bind Tapping Screw of fixing base of Upper Arm.

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展開図

9 10 11

9

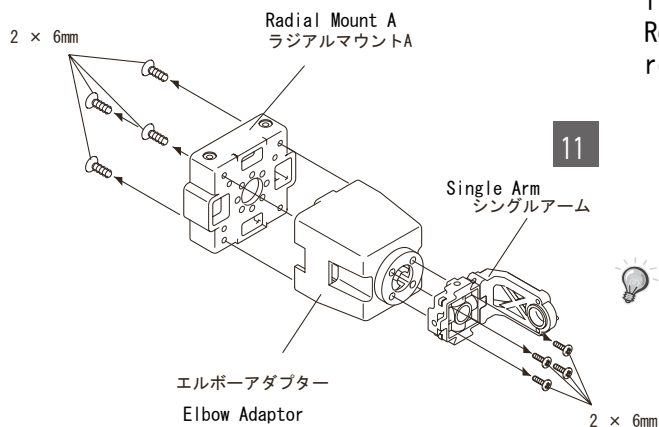
Remove Hand Unit as pull out.

10

Remove 2 x 15 Tapping Screw of fixing Elbow Adaptor which is kointed with Roll Axis(CH03,CH07) at both Arms, and remove Elbow Unit.

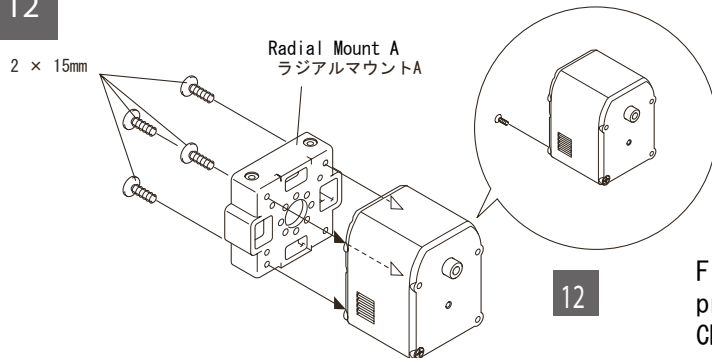
11

Breakup Elbow Unit to Elbow Adaptor, Radial Mount A , and Single Arm.



Elbow Adaptor will not use later, but keep it.

12



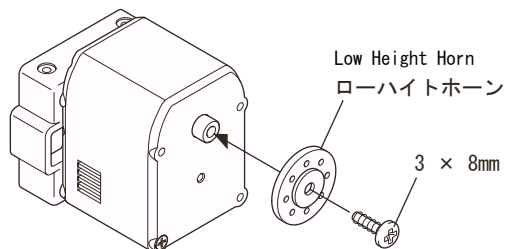
12

Fix radial Mount A which was removed in process 11 to Output Axis of adding Servo CH04 and CH08 by 2 x 15 Tapping Screw.



Be carefull of too tighten.

13



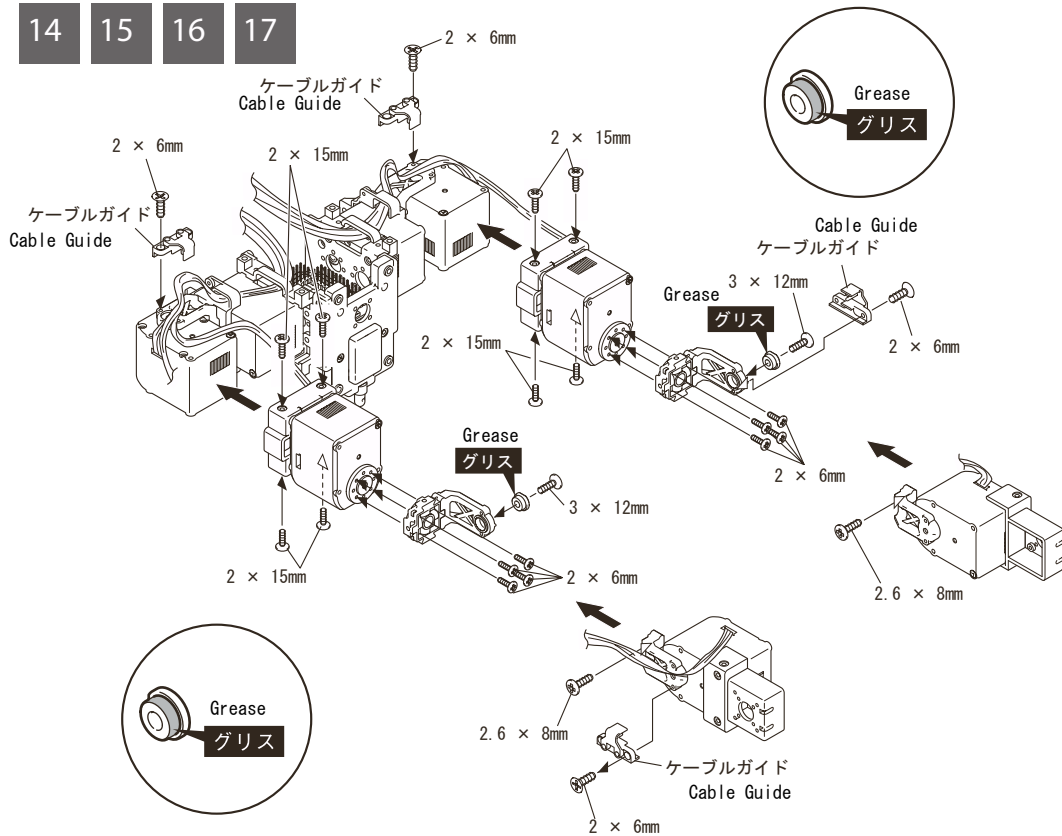
13

Insert Low Height Horn as horizontally and verticality as possible to Output Axis of Servo which was assembled in process 12, and fix by 3 x 8 Bind Tapping Screw.



Due to mesh of seratted, it may not be able to be straight. Rotate and Push into at most nearest point of straight.

14 15 16 17



14

Fix The Unit which was assembled until process 13. Roll Axis(CH03 CH07) by 4 each of 2 x 15 Tapping Screw.

15

Fit Single Arm to Low Height Horn. Fit as CH08(Right Arm) is as Opsit Axis at outside and CH04 (Left Side) is as Opsit Axis at inside.

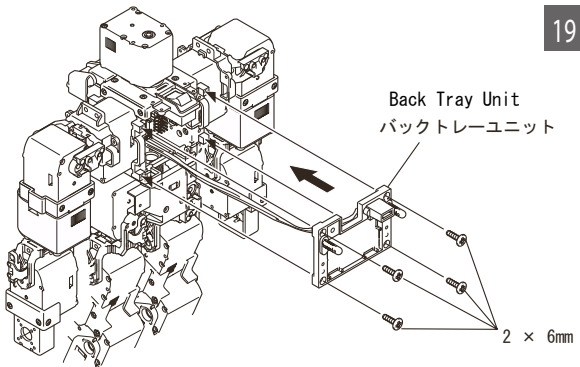
16

Fit Hand Unit which was removed in Process 9 to Single Arm and fix by one of 2.6 x 8 bind Tapping Screw. Connect Opsit Axis by 3 x 12 Bind Tapping Screw and Bottom Bush.

17

Tight Cable of Servo by Cable Guide and fix by 2 x 6 countersunk screw.

18 19



18

Replace Back Tray.

19

Set Home Position of added CH04 and CH08. See process 4-5 in P63 for reference to set Home Position.

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 ボディの取り付け
 オプションの取り付け
 パーツ販売リスト
 展開図

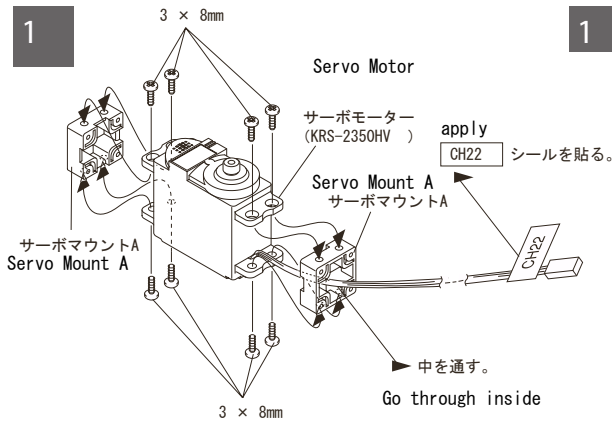
Operation0P02 Adding Lower Back Yawing Axis

工程 OP02 腰ヨ一軸の追加

追加するパーツ

- Servo (KRS-2350HV) x 1
- Servo Mount A x 2
- Colro Strap x 1
- Servo Tab Spacer s 4
- 3x 8 tapping Screw x 9
- 2.6 x 8 Bind Tapping Screw x 4
- 2 x 6 Bind Tapping Screw x 4

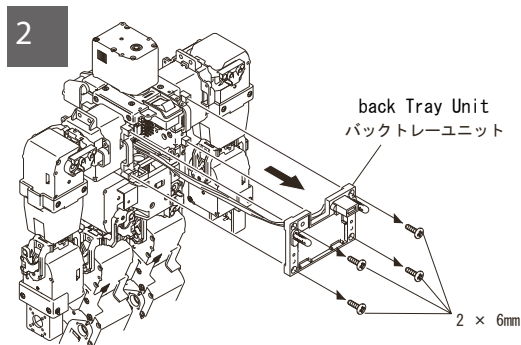
作業の手順



1

Fit Servo mount A to adding Servo and fix by 8 of 3 x 8 Bind Tapping Screws. 4 screws at Output Axis side will be after Servo Tab Spacer is fitted. Apply label of CH22 at front edge of cable.

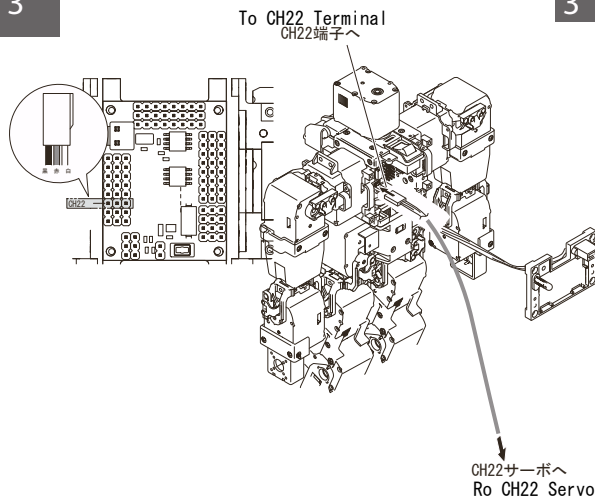
💡 Let Cable in Servo mount A



2

Remove Back Tray. Keep cables connecting.

3



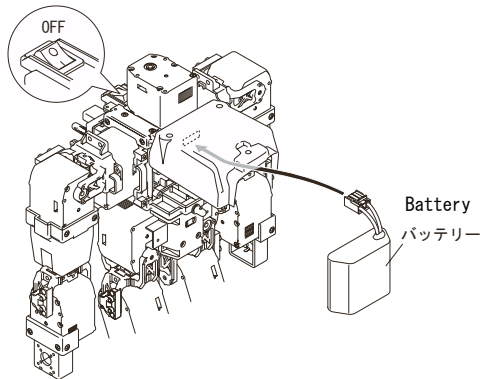
3

Connect Serial USB Adaptor to terminal of Back Pack to connect PC and MANO1, Start Heart To Herat 3 at PC side. Check SYNC at right above side

4

5

6



4

Send Servo Lead through 2 of guides of Shoulde Unit, then connect CH22 of Annalog Terminal of RCB-3. Connect Battery after making sure that Switch is OFF.



Be carefull of +/- of each cables.

5

Turn ON switch and place "POS" on data sheet of Heart To Heart3, Double Click to open and Right Click CH22, then shoose "SERVO" from dialog.



Servo could be moved suddenly, but it is stopped by itself, it is normal.

6

Move Slide Bar of CH22 from right to left to checkif servos moves or not. Then, set "0" of number in window in display, and turn OFF switch of MANO1.



If Servo doesn't work, turn OFF switch first and checkCable, ON/OFF switch, battery, and Turn ON again to check. If still it doesn't work, contact Customer Service.

安全について

付属製品について

パーツリスト

組み立ての準備

組み立て

ソフトウェアの設定

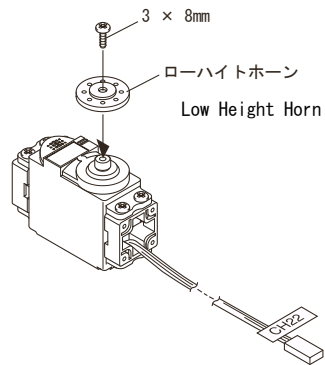
ボディアの取り付け

オプションの取り付け

パーツ販売リスト

展開図

9



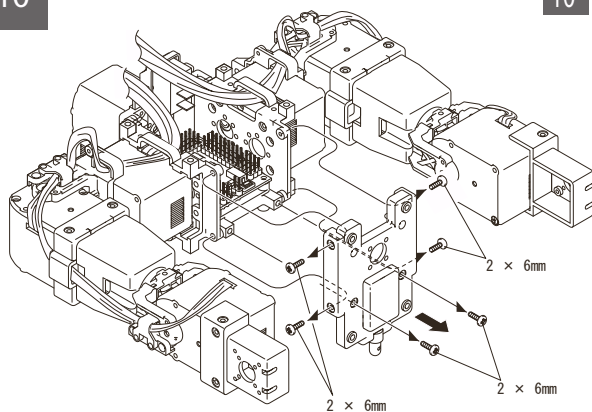
9

Insert Low Height Horn as horizontally and verticality as possible to Output Axis of Servo motor , and fix by 3 x 8 Bind Tapping Screw.



Due to mesh of serrated, it may not be able to be straight.
Rotate and Push into at most nearest point of straight.

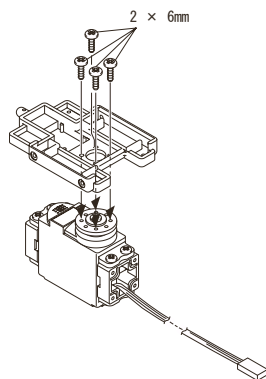
10



10

Remove Core Frame (Lower side of Core Unit).

11



11

Fix Core Frame which was removed to Adding Servo which was seembled until process 9 and fix by 2 x 6 Tapping Screw.

安全について

付属製品について

パーツリスト

組み立ての準備

組み立て

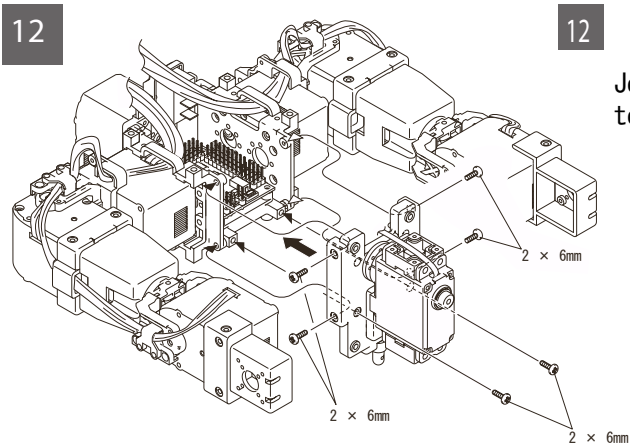
ソフトウェアの設定

ボデーの取り付け

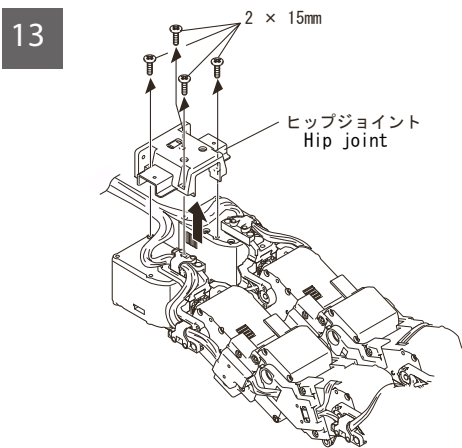
オプションの取り付け

パーツ販売リスト

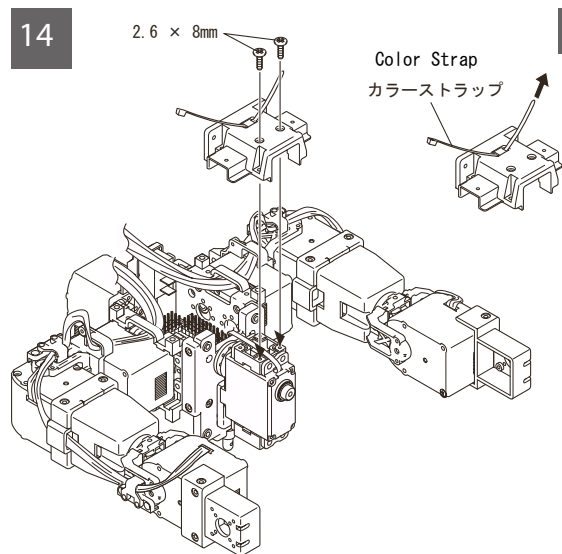
展開図



12 Joint Unit which was assembled until process 11 to Core Frame.



13 Remove backside Hip joint of side of Foot Unit, and let Color Strap into position in Figure.

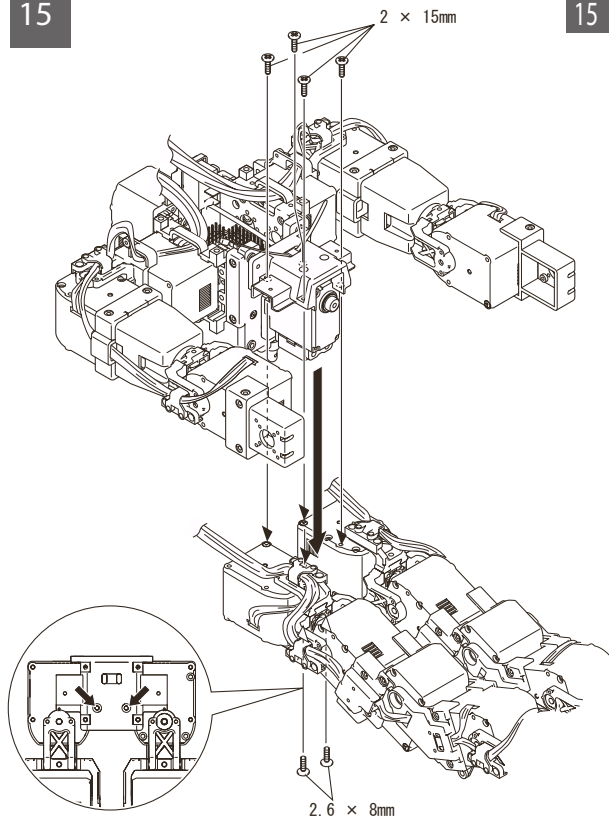


14 Cover Adding Servo which is like protruding from Core Unit by Hip joint of process 13 and fix by 2.6 x 8 Bind Tapping Screw.



cable go inside cover.

15



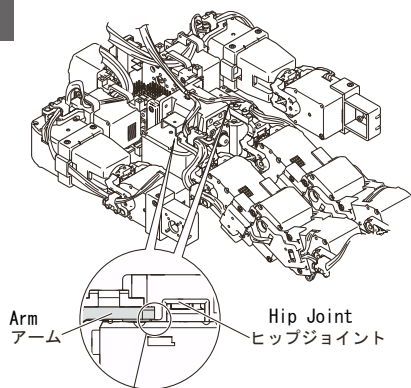
15

Insert Added Servo Unit part into space of centre of Hip Unit, and fix by 2.6 x 8 Tapping Screw from front. Same time, fix Hip Joint to Servo at Hip Unit from back side by 4 of 2 x 15 Tapping Screws.



Fit back side Hip Joint as if it goes under Cross Arm.

16



16

As see Figure, tigting cables and insert cables to right place of RCB-3 cannels.



Cable will be gothered by ensurock at backside of Hip Unit.

Arm アーム Hip Joint ヒップジョイント

▶ アーム側が上にくるようにする。
Arm Side will be upper

安全について

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パーツリスト

組み立ての準備

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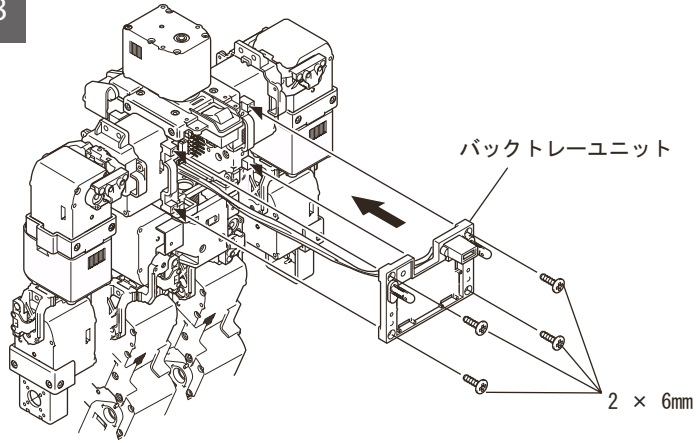
ボディアの取り付け

オプションの取り付け

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展開図

17 18



17

Replace Back Tray.

18

Set Home Position of added CH22.
See process 4-5 in P63 for reference to
set Home Position.

Adding Servo(KRS-4024SH V) for Adding Arm Yawing Axis Item Number of is 01101 and is launched from KO Propo.

OperationOP02 Adding Lower Back Yawing

Adding Servo(KRS-2350SH V) for Adding Arm Yawing Axis Item Number of is 01097 and Servo Tab Spacer's Item nuber is 01036, and tose parts are also launched from KO Propo.

パーツ販売リスト Parts Sales List

distribution source Item No. Item Name Qty Price Discription

販売元	パーツ品番	パーツ名	入数	パーツ価格	製品内容
KONDO	01029	Low Height Servo Horn	2	¥315	Low Height Servo Horn
KONDO	01079	Servo Extention Wire-100mm	1	¥420	Servo Extention Wire-100mm
KONDO	01107	Serial USB Adaptor	1	¥6,300	Serial USB Adaptor
KONDO	01114	Control Board (RCB3)	1	¥39,900	Control Board
KONDO	01133	Servo Lead L=300mm	1	¥630	Servo Lead L=300mm
KONDO	01134	Servo Lead L=400mm	1	¥630	Servo Lead L=400mm
KONDO	01135	Servo Lead L=500mm	1	¥630	Servo Lead L=500mm
KONDO	01174	Servo Motor	1	OPE N	Servo Motor
KONDO	01179	Servo Lead L=100mm	1	¥420	Servo Lead L=100mm
KONDO	01180	Servo Lead L=200mm	1	¥420	Servo Lead L=200mm
KONDO	01183	Upper Arm	12	¥1,680	Upper Arm
KONDO		Bottom Arm 4000A	12		Bottom Arm 4000A
KONDO		Base	8		Base
KONDO		Bottom Bush	12		Bottom Shaft
KYOSHO	HRA001	ON/OFF Switch Harness (MANOI AT01)	1	¥840	ON/OFF Switch Harness
KYOSHO	HRA002	Cable Guide (MANOI AT01)	12	¥525	Cable Guide
KYOSHO	HRA003	Plastic Partts Set A (MANOI AT01)	1	¥3,150	Back Tray
			1		Connector Holder
			1		PCB Base
			1		Battry Holder
KYOSHO	HRA004	Body Post A (MANOI AT01)	4	¥525	Body Post A
KYOSHO	HRA005	Angle Guage (MANOI AT01)	4	¥735	Angle Guage
KYOSHO	HRA006	Lower/UpperFrame Set (MANOI AT01)	1	¥2,100	Lower Frame
			1		Upper Frame
KYOSHO	HRA007	Plastic Parts SetB (MANOI AT01)	1	¥2,100	Side Frame
			1		Hip Bridge
			1		Foot Base
KYOSHO	HRA008	Plastic Parts Set C (MANOI AT01)	1	¥2,100	Radial mount A
			1		Hand Base A
KYOSHO	HRA009	Plastic Parts Set D (MANOI AT01)	1	¥3,150	Sole S-01
			1		Elbow Adaptor
			1		Shoulder Supporter
			1		Thigh Joint B
			1		Thigh Joint A
			1		Knee Arm B
KYOSHO	HRA010	Body Mount Set A (MANOI AT01/A)	1	¥420	Knee Arm A
			2		Bottom Bush
			2		Head Servo Mount (BM03)
KYOSHO	HRA011	Body Mount Set B (MANOI AT01/ Type A)	1	¥840	Shoulder Cover Mount (BM06)
			1		Arm Cover/Hand Cover Mount (BM07)
			2		Right Chest Cover Mount (BM04)
			1		Left Chest Cover Mount (BM05)
			1		Upper Leg Cover Mount S (BM08)
			1		Left Upper Leg Cover Mount S (BM12)
			1		Right Lower Leg Cover Mount S (BM09)
			1		Left Lower Leg Cover Mount S (BM10)
			1		Right Upper Leg Cover Mount F (BM11)
			1		Right Lower Leg Cover Mount F (BM13)
			1		Left Lower Leg Cover Mount F (BM14)
			1		Right Foot Cover Mount F (BM15)
			1		Left Foot Cover Mount F (BM16)
			1		Right Foot Cover Mount R (BM17)
1	Left Foot Cover Mount R (BM18)				
KYOSHO	HRA012	Extansion Cable (MANOI AT01)	1	¥1,050	Head Cover Mount (BM01)
			1		Front Mask/Rear Cover Mount (BM02)

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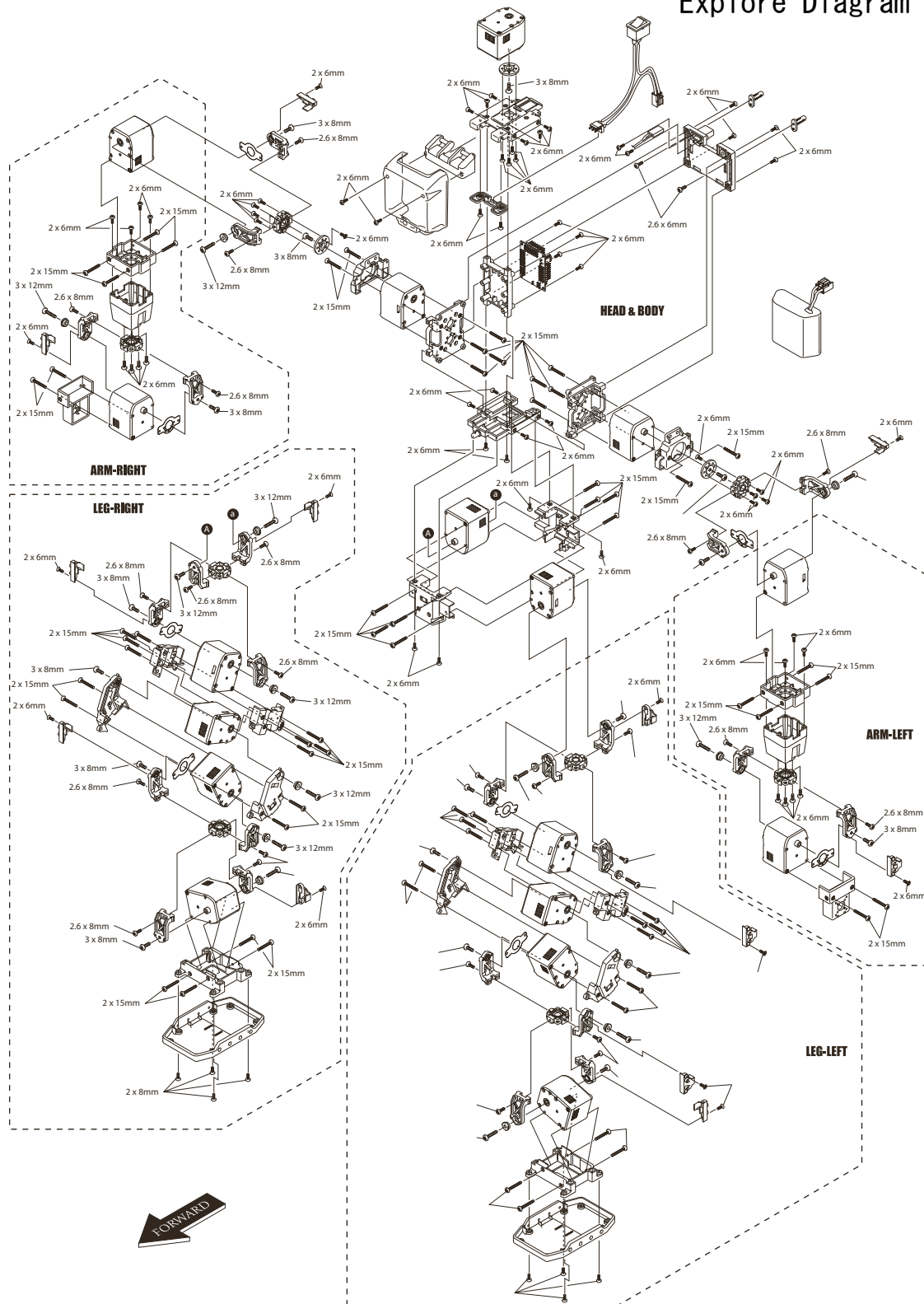
distribution source Item No. Item Name Qty Price Discription

販売元	パーツ品番	パーツ売名	入数	パーツ価格	製品内容
KYOSHO	HRCH001	AC/DC Delt Peak Quick Charger	1	¥6,825	Charger HV Connector Included
KYOSHO	HRBA00 1	Ni-MH Battery(9Cells 10.8V/HV Connector)	1	¥3,150	Ni-MH Battery(9Cells 10.8V)
KYOSHO	HRB001	Head Parts Set (AT01/ATPC01.02.03)	1	¥4,410	Head Cover (ATPC01)
			1		Front Mask (ATPC02)
			1		Rear Cover (ATPC03)
KYOSHO	HRB002	Chest Cover/Back Pack AT01/ATPC04.05)	1	¥3,150	Chest Cover (ATPC04)
			1		Back Pack (ATPC05)
KYOSHO	HRB003	Left Shoulde Cover Set (AT01/ATPC06.07)	1	¥1,575	Left Shoulde Cover F (ATPC06)
			1		Left Shoulde Cover R (ATPC07)
KYOSHO	HRB004	Right Shoulde Cover Set (AT01/ATPC08.09)	1	¥1,575	Right Shoulde Cover F (ATPC08)
			1		Right Shoulder Cover R (ATPC09)
KYOSHO	HRB005	Arm Cover Set (AT01/ATPC10.11)	1	¥1,575	Left Arm Cover (ATPC10)
			1		Right Arm Cover (ATPC11)
KYOSHO	HRB006	Hand Cover Set (AT01/ATPC12.13)	1	¥840	Left Hand Cover (ATPC12)
			1		Right Hand Cover (ATPC13)
KYOSHO	HRB007	Upper Leg Cover Set (AT01/ATPC14.15)	1	¥1,575	Left Upper Leg Cover (ATPC14)
			1		Right Upper Leg Cover (ATPC15)
KYOSHO	HRB008	Lower Leg Cover Set (AT01/ATPC16.17)	1	¥1,575	Left Lower Leg Cover (ATPC16)
			1		Right Lower Leg Cover (ATPC17)
KYOSHO	HRB009	Foot Cover set (AT01/ATPC18.19)	1	¥1,575	Left Foot Cover (ATPC18)
			1		Right Foot Cover (ATPC19)
KYOSHO	HRB010	Eye Ball (AT01/ATPC20)	1	¥525	Eye Ball (ATPC20)
KYOSHO	HRB011	Chest Ball (AT01/ATPC21)	1	¥525	Chest Ball (ATPC21)
KYOSHO	HRB000	Inner Cover (AT01/ATPC00)	1	¥840	Inner Cover (ATPC00)
KYOSHO	HRP001	Grommet (10PCS)	10	¥420	Grommet
KYOSHO	HRP002	Color Strap (BLACK/30PCS)	30	¥525	Color Strap (BLACK)
KYOSHO	HRP003	Silicon Grease	1	¥420	Silicon Grease
KYOSHO	HRP004	Body Clip φ5 (20PCS)	20	¥420	Body Clip φ5 用
KYOSHO	HRP005	hook and loop fastener	1	¥420	hook and loop fastener
KYOSHO	HRS0208TP	Tapping Screw 2 × 8 (10PCS)	10	¥210	Tapping Screw 2 × 8
KYOSHO	HRS0215TP	Tapping Screw 2 × 15 (10PCS)	10	¥315	Tapping Screw 2 × 15
KYOSHO	HRS0206BT	Bind Tapping Screw 2 × 6 (10PCS)	10	¥210	Bind Tapping Screw 2 × 6
KYOSHO	HRS2608BT	Bind Tapping Screw 2.6 × 8 (10PCS)	10	¥210	Bind Tapping Screw 2.6 × 8
KYOSHO	HRS0308BT	Bind Tapping Screw 3 × 8 (10PCS)	10	¥210	Bind Tapping Screw 3 × 8
KYOSHO	HRS0312BT	Bind Tapping Screw 3 × 12 (10PCS)	10	¥210	Bind Tapping Screw 3 × 12
KYOSHO	HRS0206F H	countersunk screw 2 × 6 (10PCS)	10	¥210	countersunk screw 2 × 6
KYOSHO	HRS0218TP	Tapping Screw 2 × 18 (10PCS)	10	¥315	Tapping Screw 2 × 18 (For Body)
KYOSHO	HRD001	Servo NO. Cable Sticker(Die Cut)	1	¥840	Servo NO. Cable Sticker(Die Cut)
KYOSHO	HRD000	MANOI AT01 Logo Sticker	1	¥1,050	MANOI AT01 Logo Sticker

オプションパーツ Option Parts						
KONDO	01027	Servo mount A (2PCS)	2	¥315	Check Instruction Manul for mounting those parts.	
KONDO	01036	Servo Tab Spacer (4PCS)	4	¥368		
KONDO	01097	KRS-2350HV (Servo Motor)	1	¥16,275		
KONDO	01099	KRS-4014HV (Servo Motor)	1	¥16,800		
KONDO	01110	KRC-1 (Radio Controlled Unit)	1	¥20,790		
KONDO	01116	KRG- 3 (Gyroscope Sensor)	1	¥5,250		
KONDO	01076	RAS-1 (Acceleration Sensor)	1	¥2,940		
KONDO	01181	Connect Cable G Black (about 100mm/for KRS4014)	1	¥630		Dress Up Item
KONDO	01182	Connect Cable G Black (about 200mm/for KRS4014)	1	¥630		Dress Up Item
KONDO	01136	Connect Cable G Black (about 300mm/for KRS4014)	1	¥630		Dress Up Item
KONDO	01137	Connect Cable G Black (about 400mm/for KRS4014)	1	¥630	Dress Up Item	
KONDO	01138	Connect Cable G Black (about 500mm/for KRS4014)	1	¥630	Dress Up Item	
KONDO	01104	ROBO Power Cell D Type (10.8V/800mA h)	1	¥4,410	Large Capacity NiMH Battery	
KYOSHO	695101	Knife Edg Limer	1	¥2,100	Tool for Body	
KYOSHO	1829	Round Cutter and Sander	1	¥1,050	Tool for Body	
KYOSHO	96162	Ring Gear Grease	1	¥420	High Performance Gliss for teflon	
KYOSHO	96153	Screw Rescue	1	¥525	For repair screw head	
KYOSHO	94402	Rock Tight Middle	1	¥945	For tight screws	
KYOSHO	94403	Rock Tight Strong	1	¥945	For tight screws	
KYOSHO	1796B L	Spiral Silicon Tube (Blue)	1	¥735	for tight wire	
KYOSHO	1796R	Spiral Silicon Tube (Red)	1	¥735	for tight wire	
KYOSHO	96446	impact absorption sheet(3mm thickness)	1	¥1,050	Protect Electronics	
KYOSHO	96165	Aluminum Mesh Tape (10x2500m m)	1	¥420	For Body reinforcing	
KYOSHO		KYOSHO Spray Color (28 colors)		各		

MANOI™ AT01 展開図

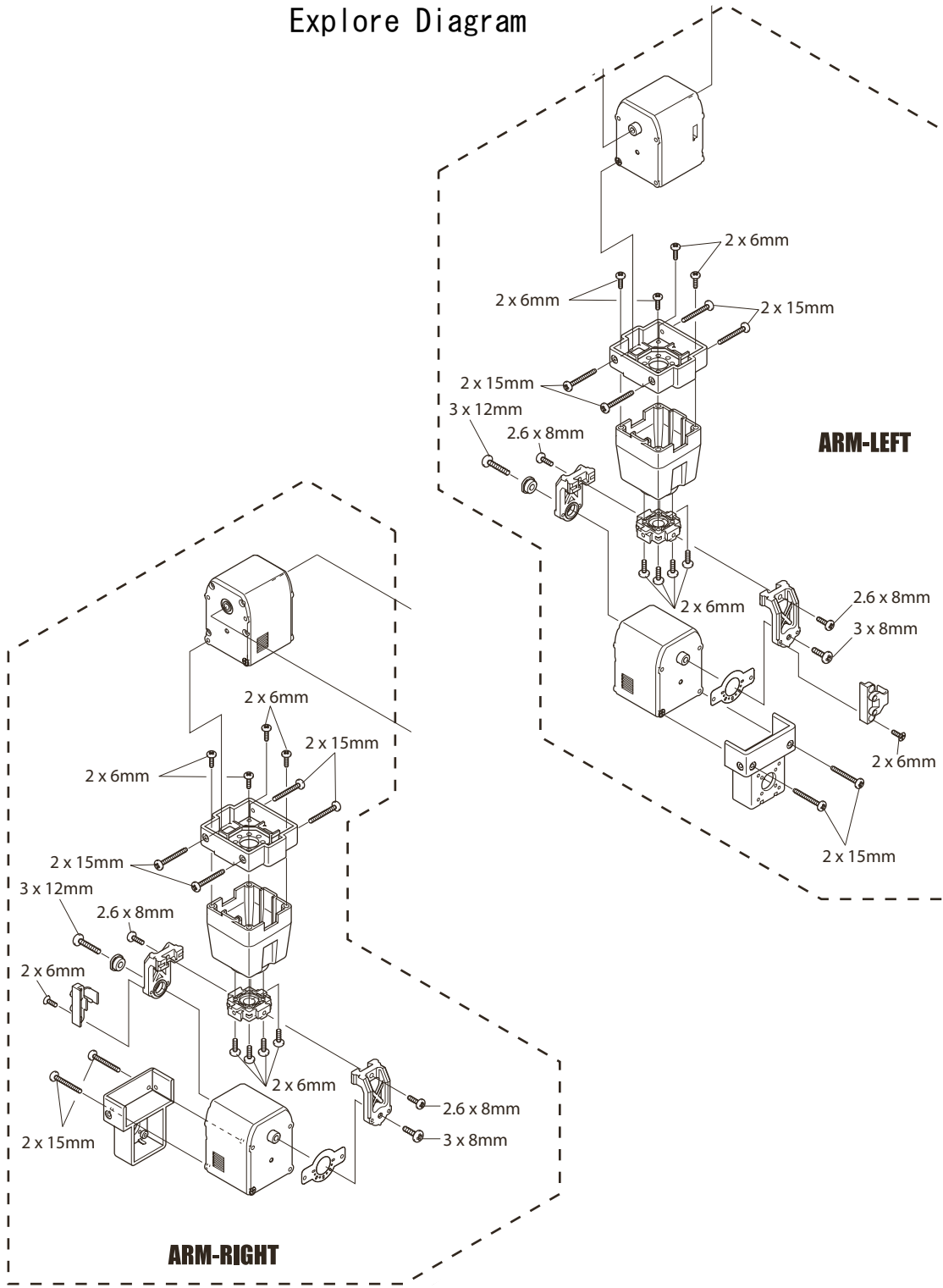
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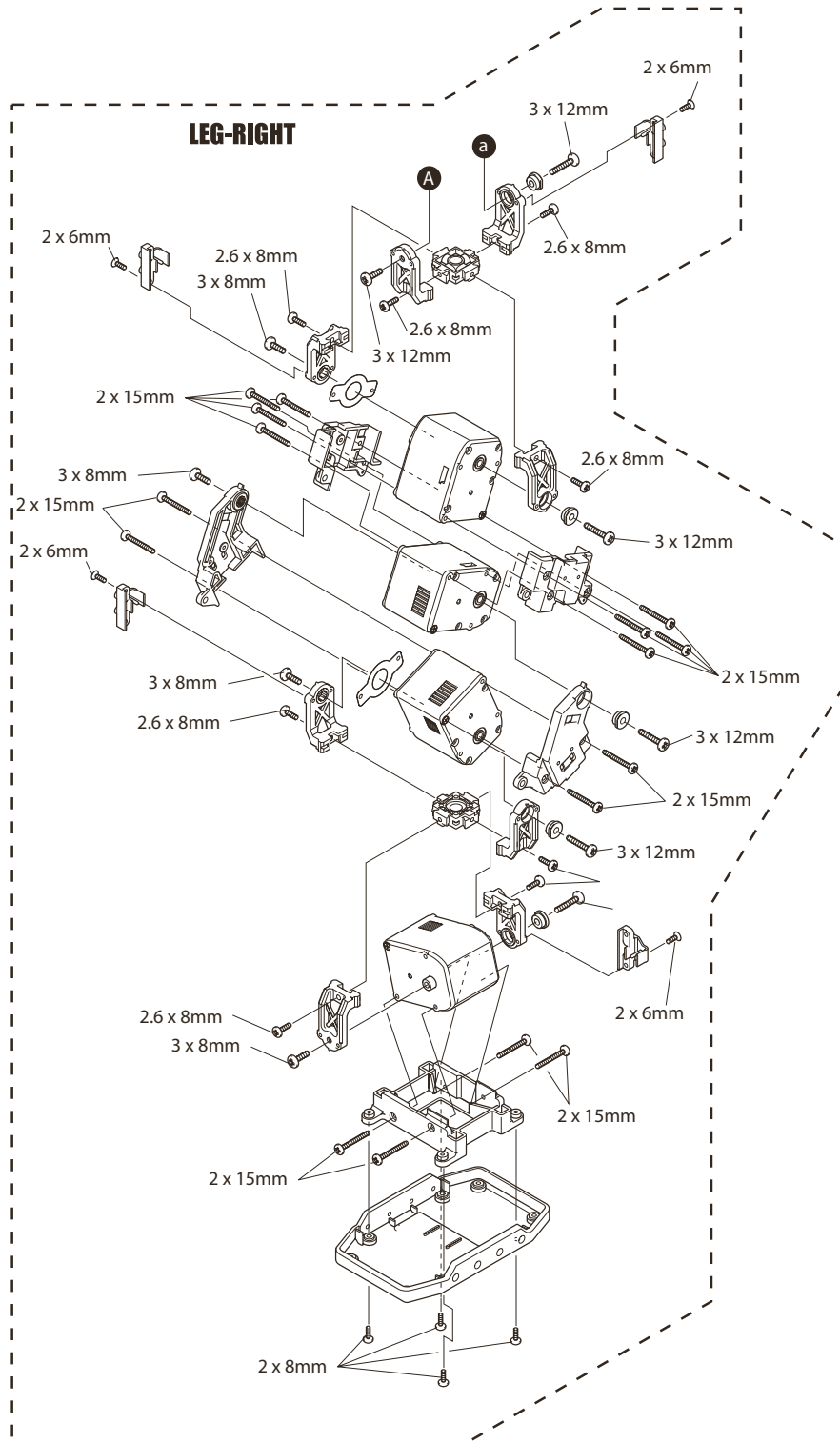
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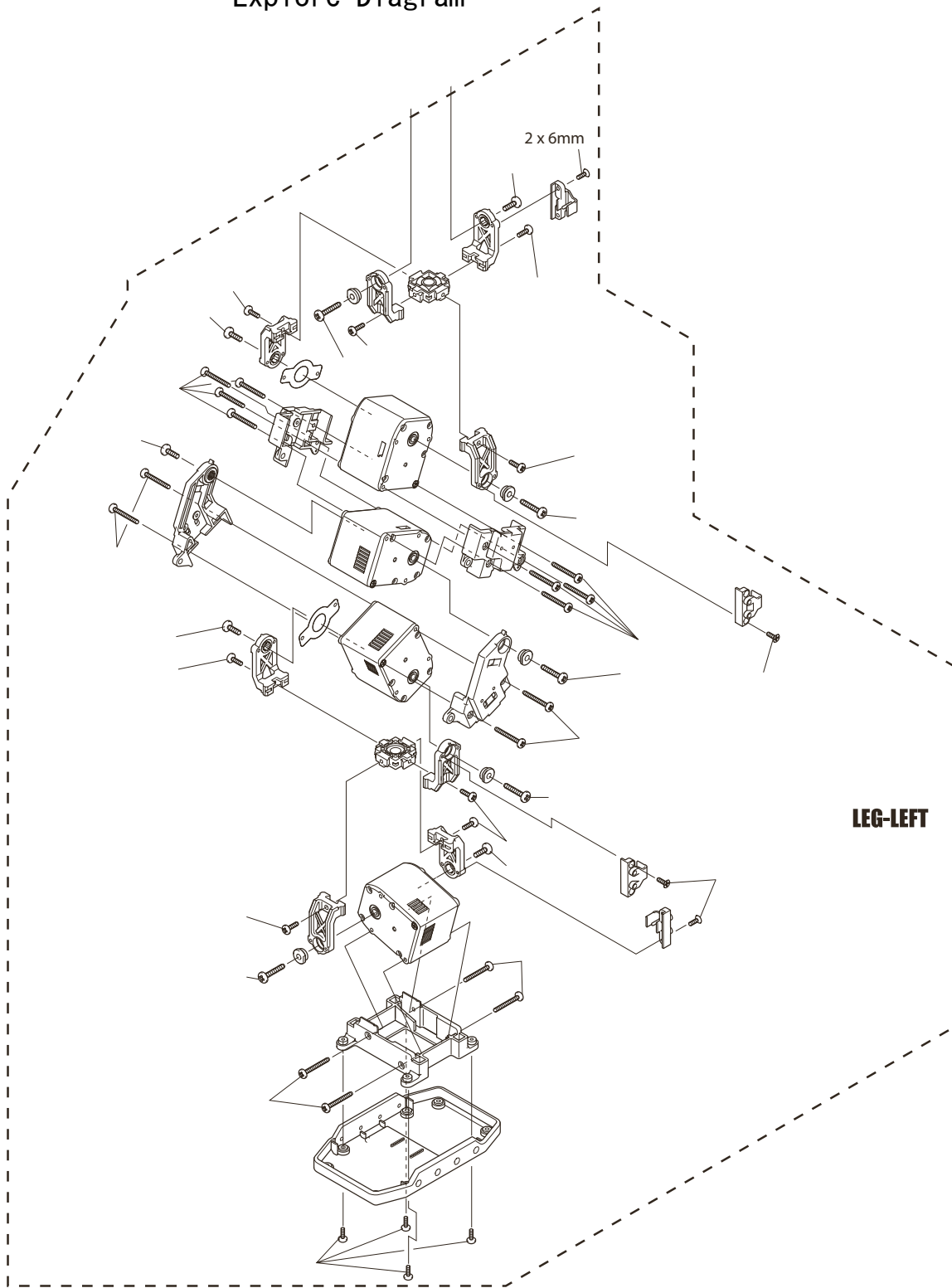
擴大機與副機

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