

GE-736



科學玩具

MAKING • LEARNING • PLAYING



Assembly & Instruction

Manual

組裝說明手冊

手作樂趣 • 科學玩具

MAKING LEARNING PLAYING

台灣製造 • 專利研發 • 無毒環保

科學玩具行銷全球 20 餘國，擁有歐、美、日、澳、中國、台灣...等多國專利註冊，符合世界級的STEM教育專業組織STEM.org的認證、台灣ST玩具、中國 CCC 等各國安全認證，專業研發獲得國際多項殊榮。結合科學原理，DIY實做、模型美學，啟發孩童想像力與創造力，是玩具也是教具，組模型也組思緒。

三倍樂趣 創客養成推薦



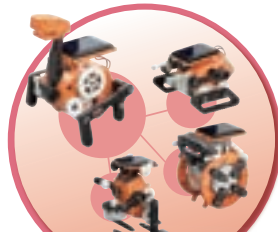
榮獲STEM.org
國際認證



1 手作模型組裝
邏輯力 up



2 科學概念學習
知識力 up



3 多樣創意玩法
創意力 up

科學動力



電池動力



療癒小寵



教學編程



競技遊戲

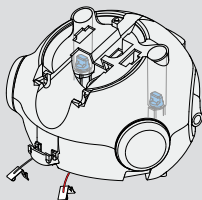


模型收藏



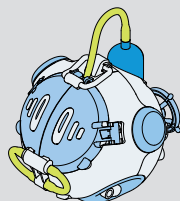
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齒輪箱組裝 Gear Box Assembly

4



最終組裝 Final Assembly

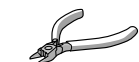
10

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組裝前須知 Must-know

自備工具 Tool You May Need



斜口鉗
Diagonal Cutter



衛生紙
Tissue Paper



鹽
Salt



杯子
Cup



攪拌棒
Stick



螺絲起子
Screwdriver



尺
Ruler



麥克筆(細)
Marker Pen (Fine)

零件清單 Mechanical Parts List

! 部分產品有銳利邊角，組裝時請特別注意。
Product contains functional edges and sharp points.



P1 2 pcs
小齒輪 (綠色)
Gear (Green)



P2 1 pcs
小齒輪 (橘色)
Gear (Orange)



P3 1 pcs
蓋子 (紅色)
Red Cap



P4 1 pcs
圓軸 (小)
Round Shaft (S)



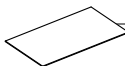
P5 1 pcs
圓軸 (大)
Round Shaft (L)



P6 1 pcs
六角軸
Hex Shaft



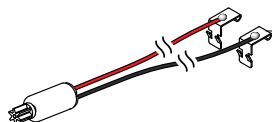
P7 1 pcs
空氣極 (黑色)
Air Cathode (Black)



P8 2 pcs
不織布
Nonwoven Fabric



P9 3 pcs
鎂合金片
Magnesium Sheet



P10 1 pcs
帶連接器的馬達
Motor With Connectors P11



P11 1 pcs
油包
Oil Bag

! 請勿將電線連接到其他電源或牆上插座。
Don't connect the wires to the mains.

! 請勿讓油滲入接觸到軟管。
Do not let the oil come intocontact with the soft tube.

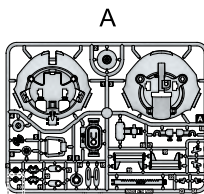


16cm

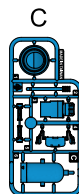
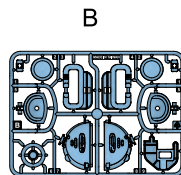
P12 1 pcs
軟管
Soft Tube

塑膠模型零件 Plastic Parts

! 需要時再剪切塑膠部件，
請勿提前剪切。
Cut the plastic parts when they are required.
Do not cut them in advance.

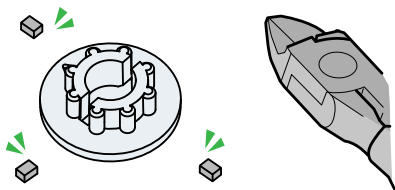
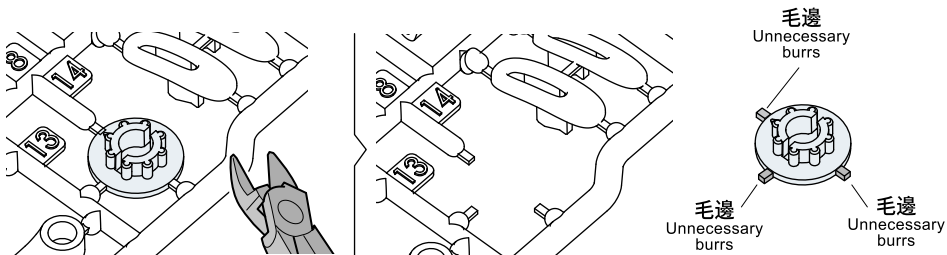


備用零件
Spare parts



請詳讀以下組裝小技巧 Please read through and follow the tips below before assembly.

請將毛邊修剪乾淨 Remove burrs



僅修剪掉毛邊。
不要修剪原始塑料零件上的突出部分。
零件的所有特徵應完整保留。

Trim off the burrs ONLY. Do not trim off the protrusion belonged to original plastic parts.
All features of parts should be kept completely.

請勿使用以下方式 Please do not



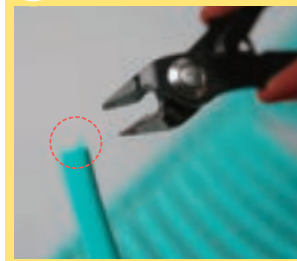
用剪刀剪
Cut with scissors



用手擰
Twist it with your hand



用剪切後會留毛邊的手鉗
The cutter which leaves burrs



建議使用專業模型鉗
Suggest using model cutters



PM-200



PM-202



PM-203

零件剪壞了Don't worry!進入官網頁面依流程提交補配件申請。
Free replacement service for the broken parts or accessories.





產品介紹 Product introduction

鹽水太空人是一款超酷的科學玩具，將趣味與創意結合，專為愛探索的你設計！透過鹽水動力來驅動，只需轉動輪子一個刻度，即可擠入鹽水，透過鎂片與空氣陰極在鹽水中的化學反應，產生電子流來帶動馬達運轉，就能讓它行走超過 30 分鐘，既環保又神奇！

鹽水太空人配備了一個專屬鹽水燃料瓶，能隨時儲存鹽水並為機器人補充能量。每次補滿燃料瓶能進行14次冒險，當然還可以無限次補充鹽水，隨心所欲地玩樂。這款玩具不僅能帶給孩子無窮的樂趣，也能在玩樂中學到環保與科學知識，讓全家人都能享受探索的樂趣。快來和鹽水太空人一起啟動你的鹽水冒險吧！

The Saltwater Robot is an awesome science kit that blends fun with creativity, perfect for curious minds who love to explore! Powered by saltwater, the Saltwater Robot uses an innovative design to run. Just turn the wheel one notch, squeeze in some saltwater, and watch the magnesium sheet react with the air cathode in the saltwater to generate electricity that powers the motor. It can run for over 30 minutes—it's eco-friendly and totally fascinating!

This kit comes with a dedicated saltwater fuel bottle, so you can store and refill saltwater anytime. Each refill powers up to 14 adventures, and you can refill it as many times as you want for endless fun!

Not only does this science kit provide kids with hours of entertainment, but it also teaches valuable lessons about science and sustainability. It's a fantastic way for the whole family to experience the excitement of discovery together. Kick off your saltwater adventure today with the Saltwater Robot!

組裝影片 Assembly Video

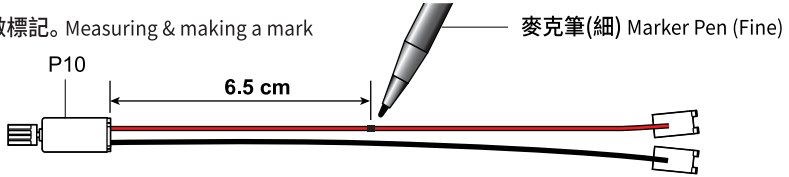


讓我們開始組裝吧！

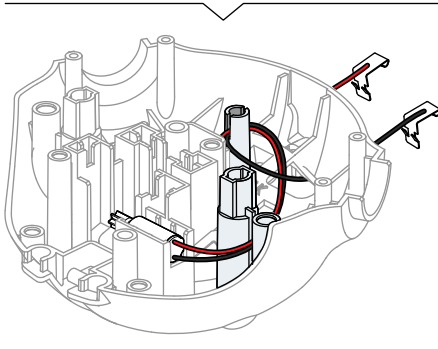
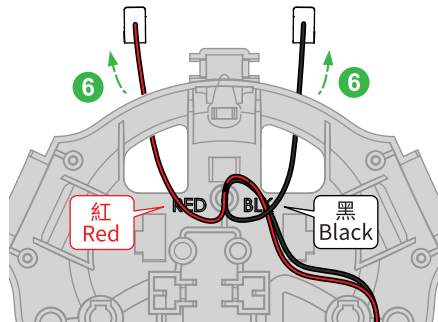
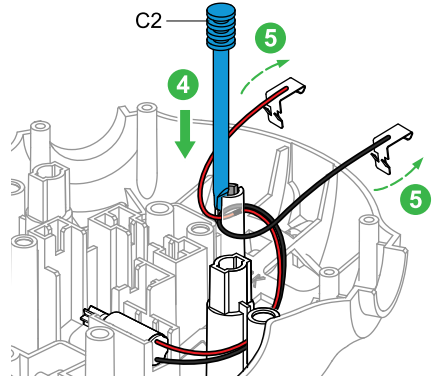
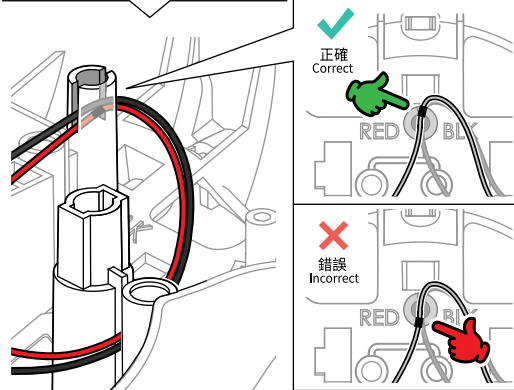
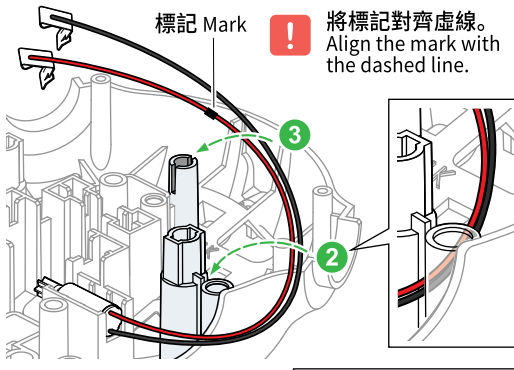
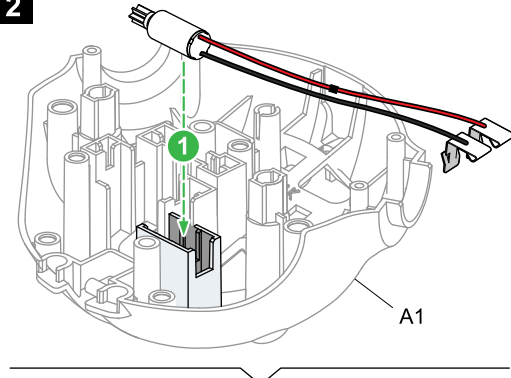
Let's start assembling

齒輪箱組裝 Gear Box Assembly

1 測量並做標記。Measuring & making a mark



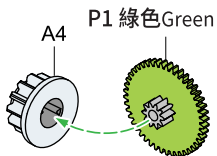
2



3

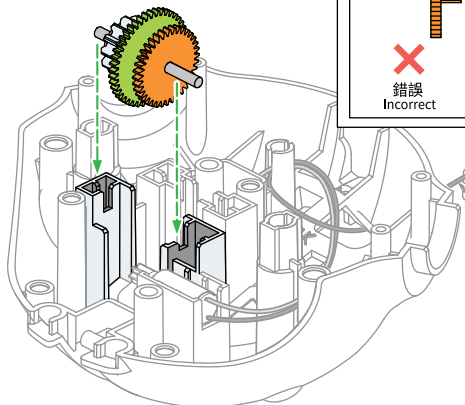
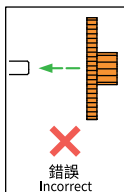
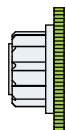
! 請將毛邊修乾淨
Cut off the burrs
before assembly.

A4



P2 橘色 Orange

P5(L)

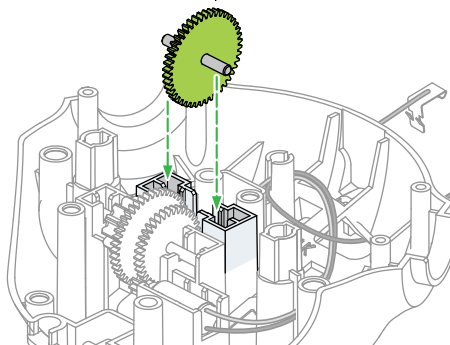


4

P1 綠色 Green

P4(S)

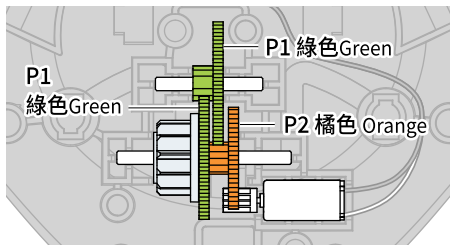
❌
錯誤
Incorrect



P1
綠色 Green

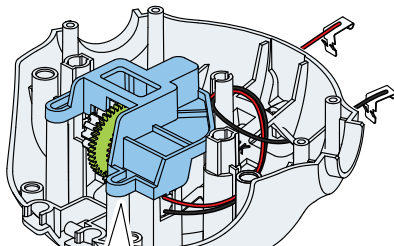
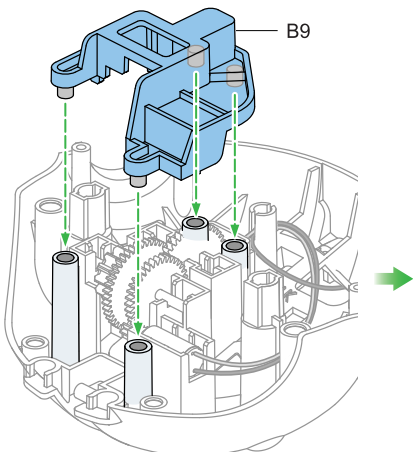
P1 綠色 Green

P2 橘色 Orange

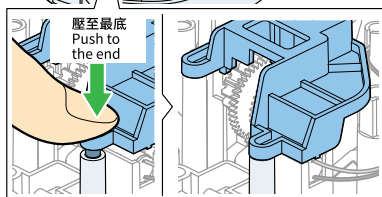


5

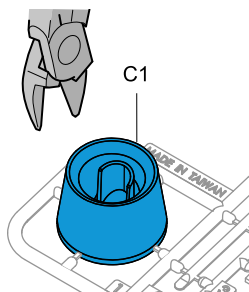
B9



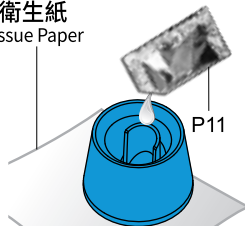
壓至最底
Push to
the end



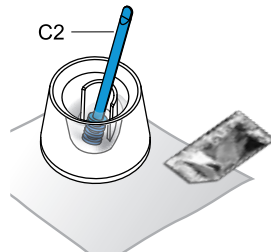
如何為零件上油 How to Oil the Parts



衛生紙
Tissue Paper



小心不要溢出。
Do not spill be careful.

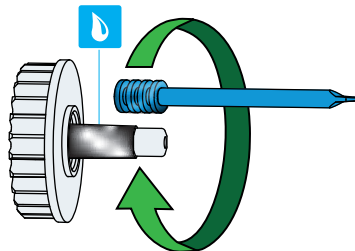


= 上油
Apply Oil

注意：出現 時為零件上油。

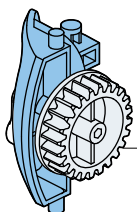
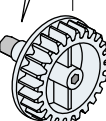
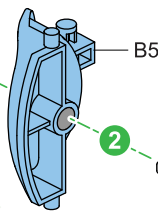
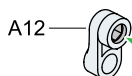
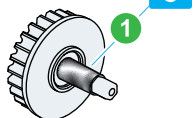
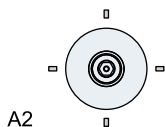
Note : Oil the parts when appears.

請勿在陰影區域外上油，如右圖所示。
Do not oil outside the shadow as shown below.



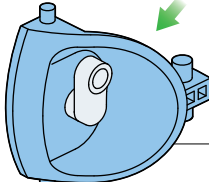
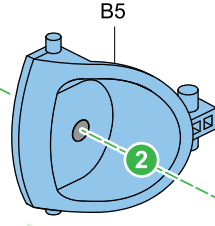
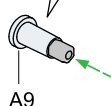
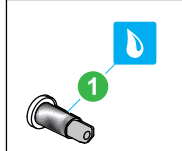
6

請將毛邊修乾淨
Cut off the burrs before assembly.



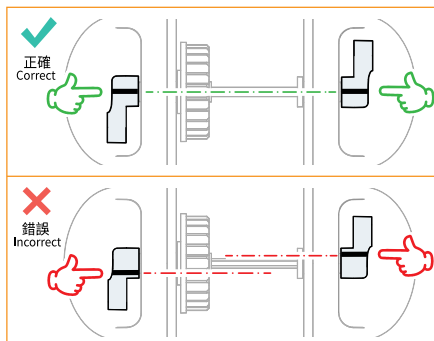
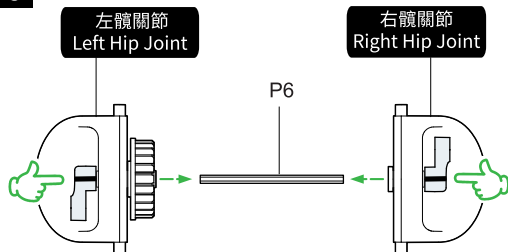
左髖關節
Left Hip Joint

7

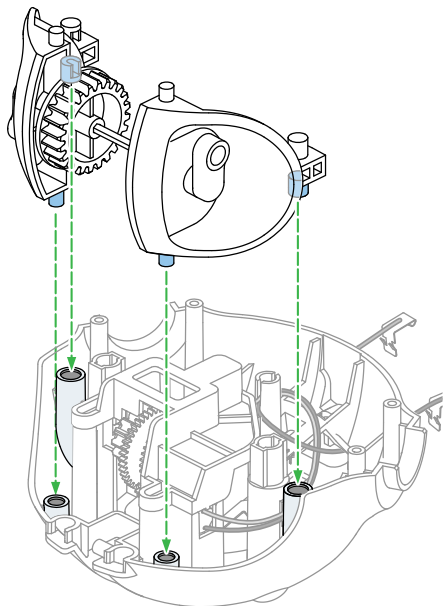


右髖關節
Right Hip Joint

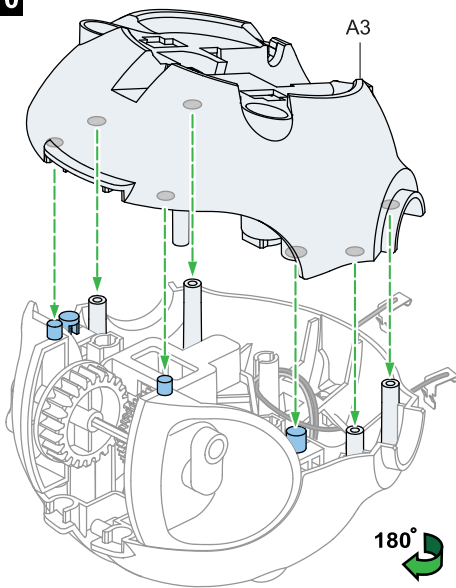
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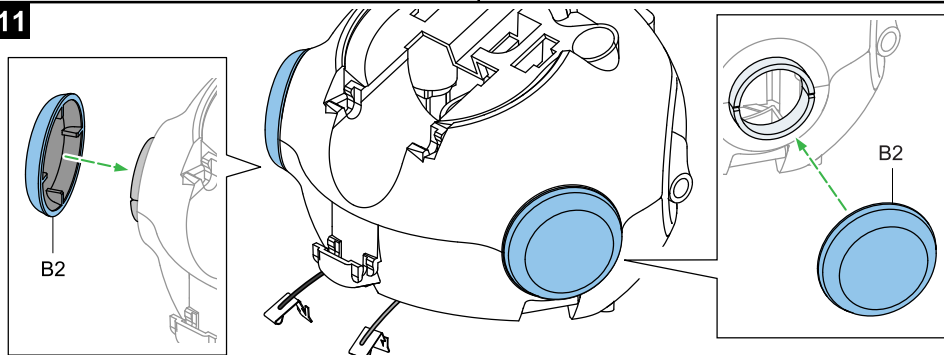
9



10



11

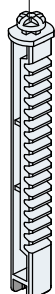


! 請將毛邊修乾淨
Cut off the burrs
before assembly.



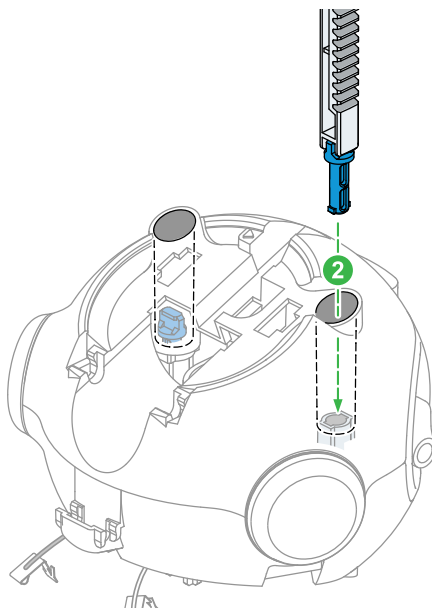
A22

A22

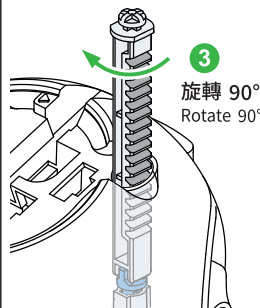


1

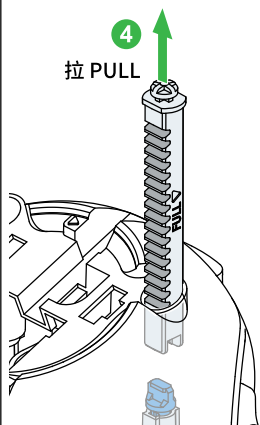
C5



2

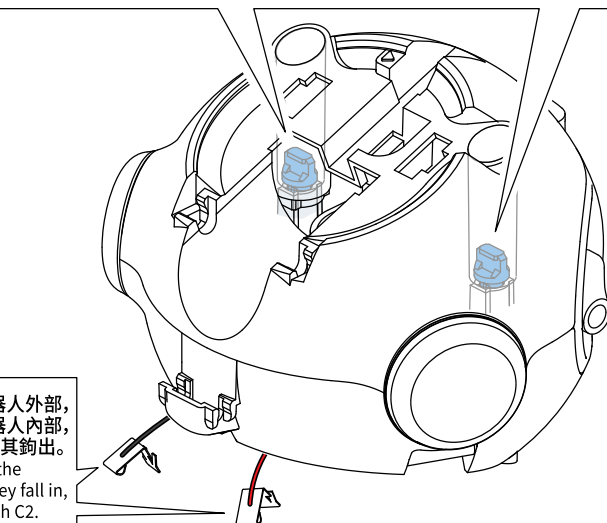


3

旋轉 90°
Rotate 90°

4

拉 PULL



! 請確保電線在機器人外部，
如果它們掉入機器人內部，
請使用 C2 零件將其鉤出。
Keep wires out of the
robot's body. If they fall in,
hook them out with C2.

兔寶科學講堂

鹽水動力

利用浸潤過鹽水的不織布當做鹽橋，讓鎂合金片與鹽水及空氣混合。鎂片丟出電子，空氣中的氧氣獲得電子後，與鎂離子形成氫氧化鎂生成物，電子從鎂經過電路到達空氣極，電子的移動產生電流，進而驅動馬達。

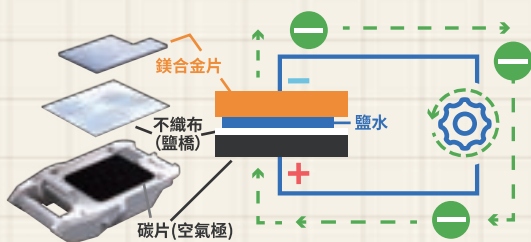


燃料電池模組

鹽:水比例1:5

• 滴入鹽水時，請勿弄濕正負極連接位置

• 鹽與水最佳建議比例為1:5驅動



鹽 + 水 = 燃料電池

1. 滴入鹽水，氧化還原

鎂片丟出電子與空氣中的氧結合後形成氫氧化鎂 $\text{Mg}(\text{OH})_2$ 。

2. 電子移動，電來了

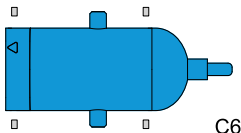
電子的移動產生電流。

3. 馬達驅動，開始玩吧！

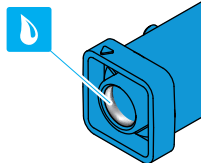
最終組裝 Final Assembly

1

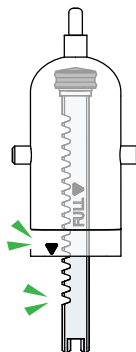
! 請將毛邊修乾淨
Cut off the burrs before assembly.



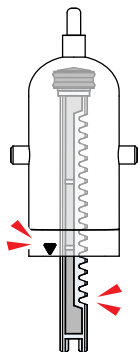
C6



正確
Correct



錯誤
Incorrect



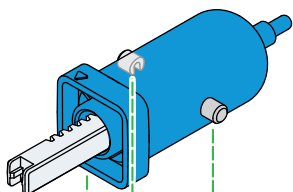
A22

C6

P3

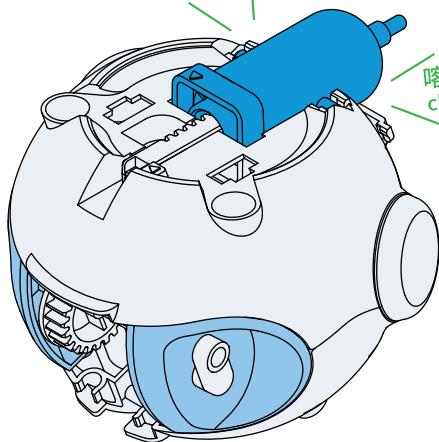
推到底部
Push to the end

2



喀噠
click

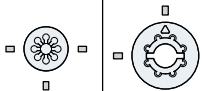
喀噠
click



3  請將毛邊修乾淨
Cut off the burrs before assembly.

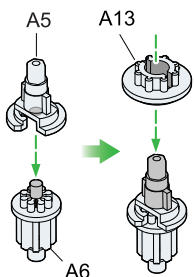


A5



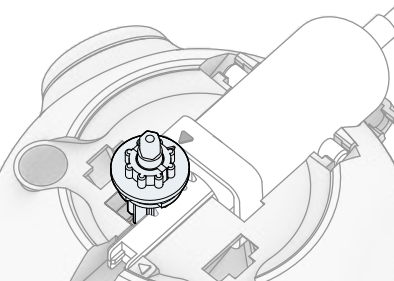
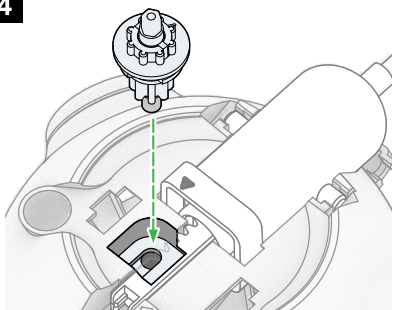
A6

A13



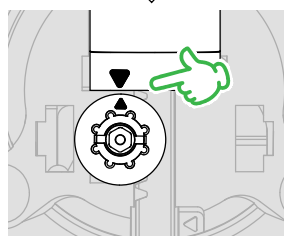
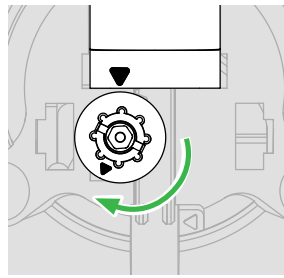
A6

4

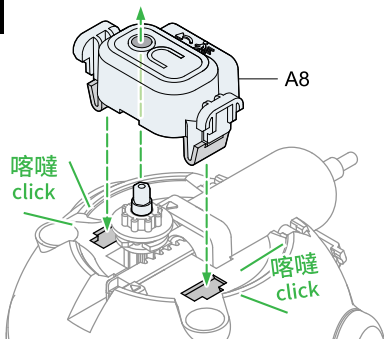


5

 旋轉它直到上下箭頭對齊。
Turn it until the up and down arrows line up.

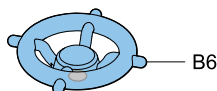
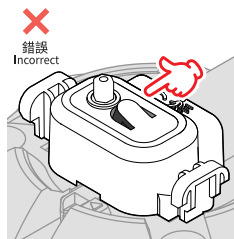
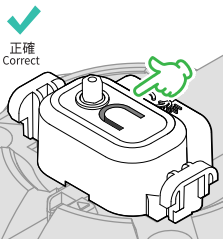


6

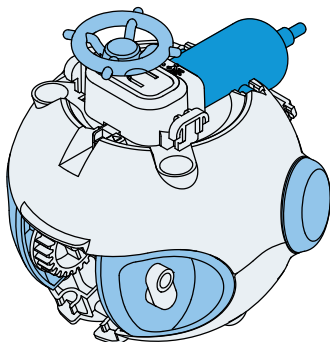
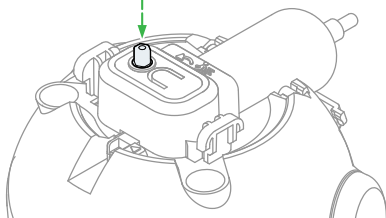


A8

 如果出現錯誤，請返回步驟 5。
Go back to step 5 if there is a mistake.



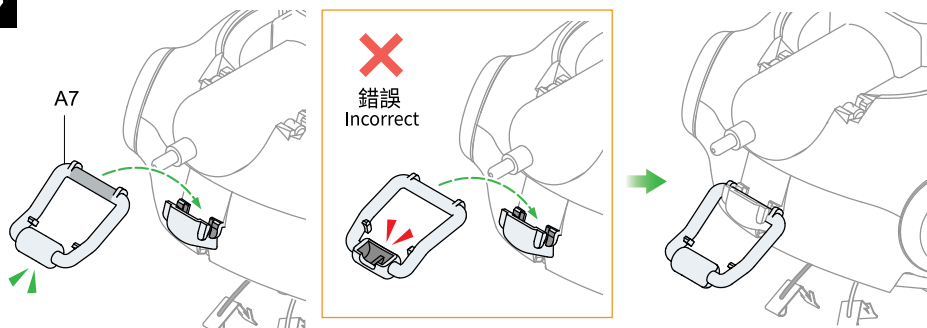
B6



180°



7

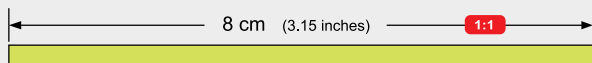
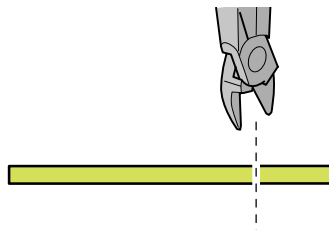
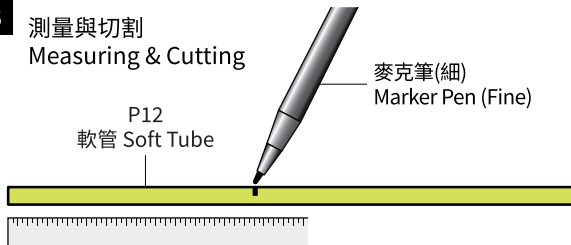


8

測量與切割 Measuring & Cutting

P12
軟管 Soft Tube

麥克筆(細)
Marker Pen (Fine)

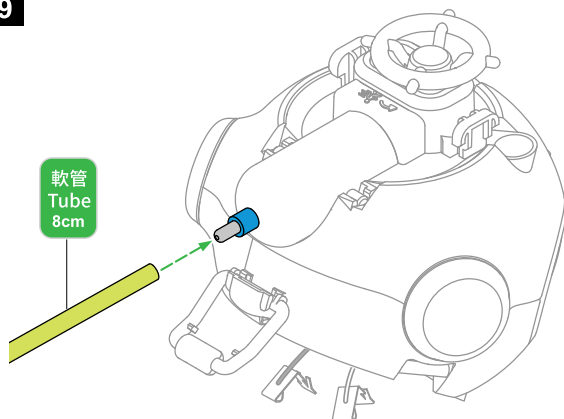


軟管
Tube
8cm x1

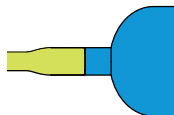


軟管
Tube
4cm x2

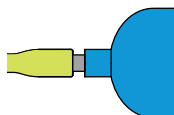
9



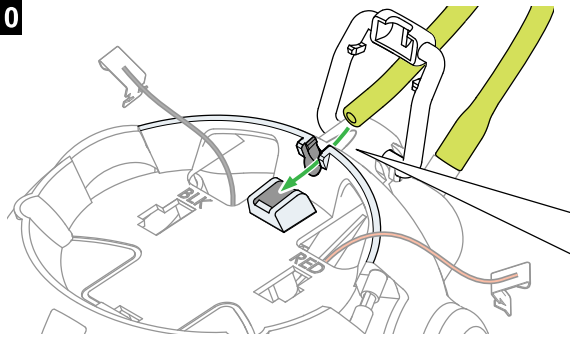
正確
Correct



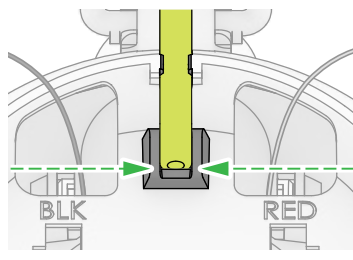
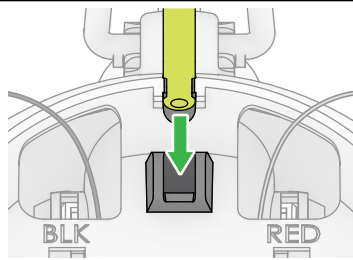
錯誤
Incorrect



10



! 請將管子完全推入。
Push the tube all the way in.

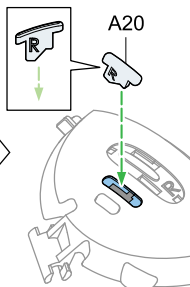
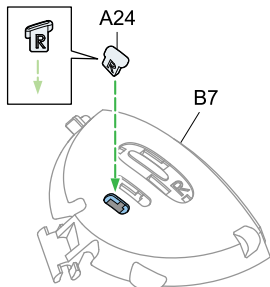
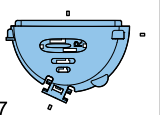


11

! 請將毛邊修乾淨
Cut off the burrs
before assembly.

A14

B7

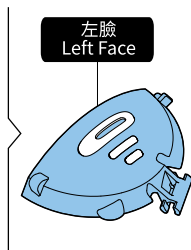
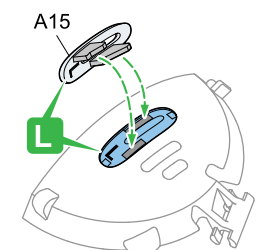
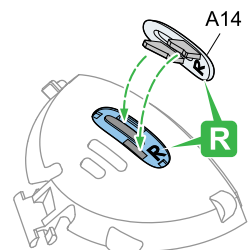
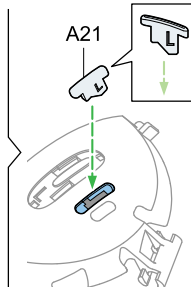
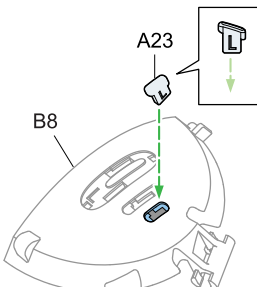
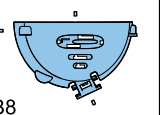


12

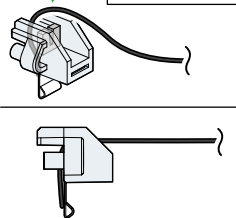
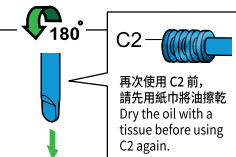
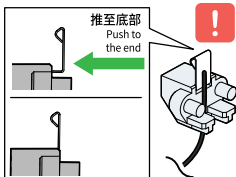
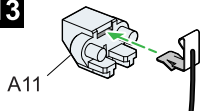
! 請將毛邊修乾淨
Cut off the burrs
before assembly.

A15

B8

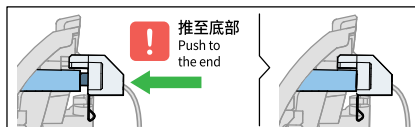
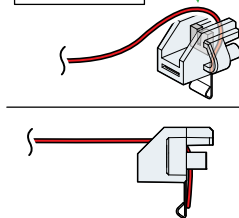
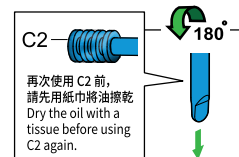
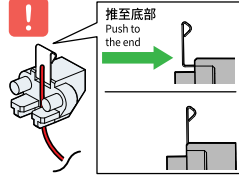
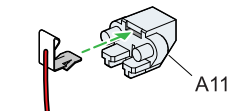


13

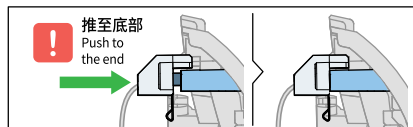
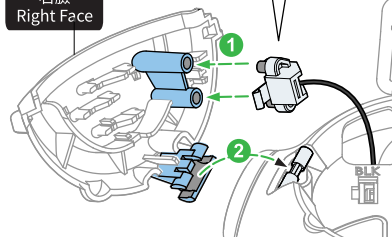


黑
Black

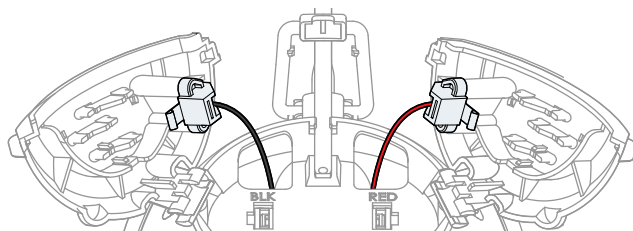
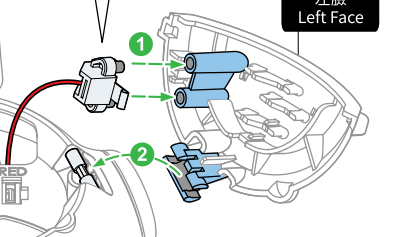
紅
Red



右臉
Right Face



左臉
Left Face



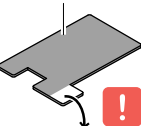
14

P9 鎂片
Magnesium Sheet

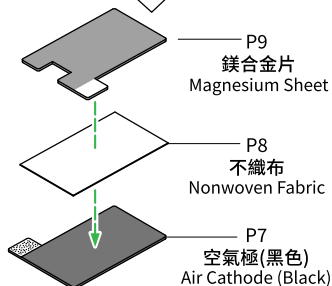


組裝前請先輕刮此處。
Scrape here before assembly.

另一邊 The other side.



組裝前請先輕刮此處。
Scrape here before assembly.



P9
鎂合金片
Magnesium Sheet

P8
不織布
Nonwoven Fabric

P7
空氣極 (黑色)
Air Cathode (Black)

! 請確認P7, P8, P9以正確的順序及位置組裝。
Make sure the P7,P8,P9 placed in correct sequence and position.

15

! 請將毛邊修乾淨
Cut off the burrs
before assembly.

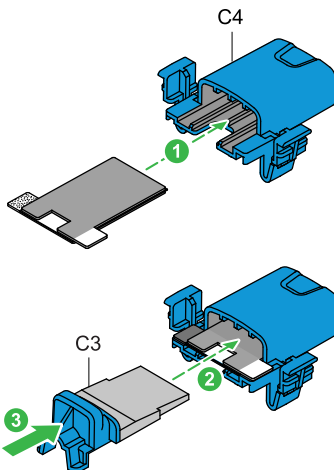
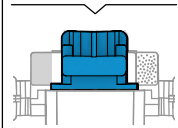
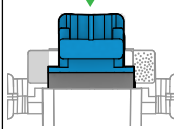


C3

推至底部
Push to the end

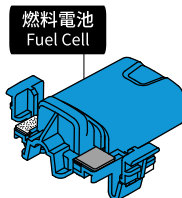


3



C4

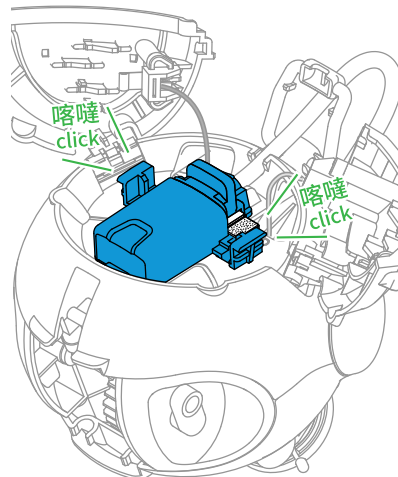
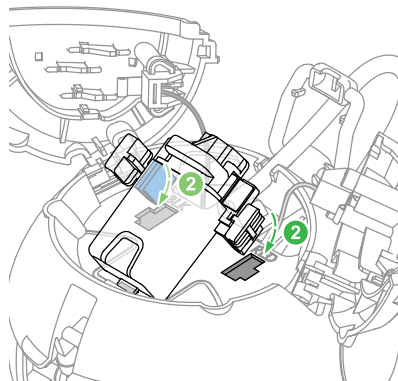
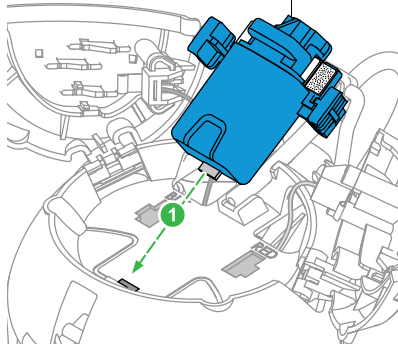
C3



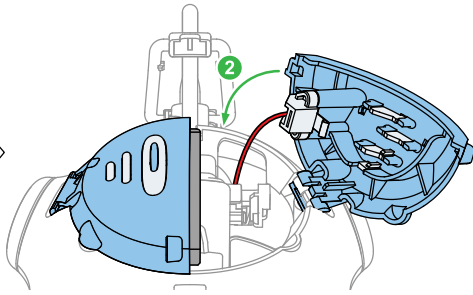
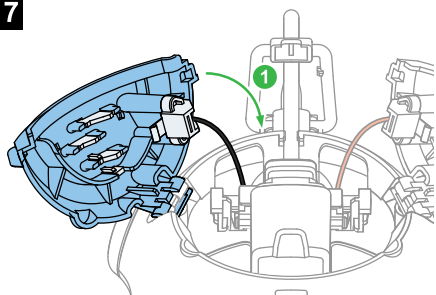
燃料電池
Fuel Cell

16

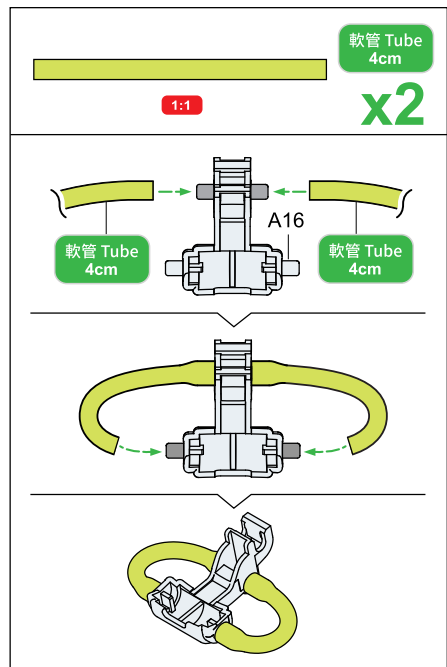
燃料電池
Fuel Cell



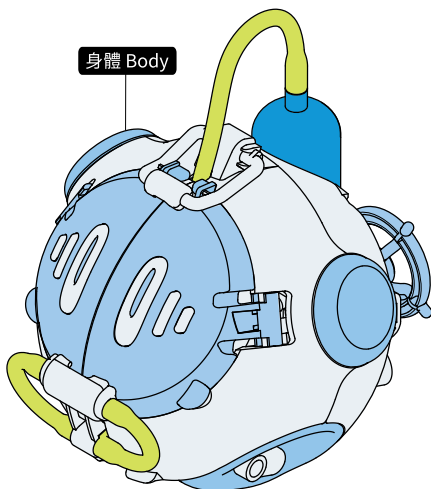
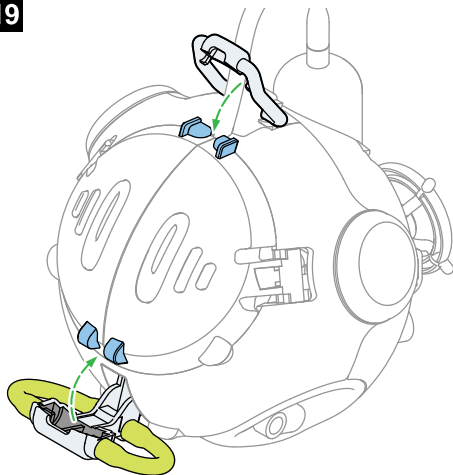
17



18

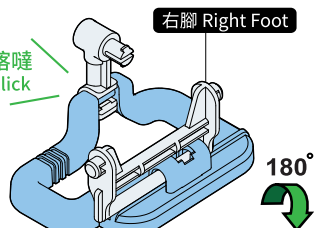
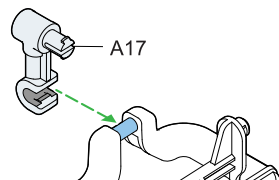
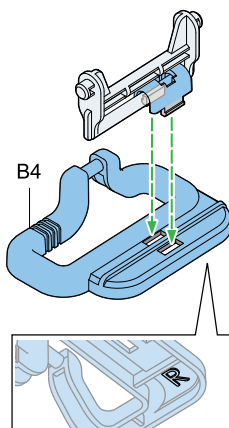
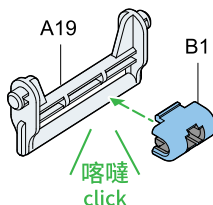
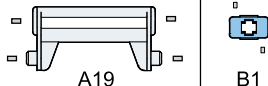


19



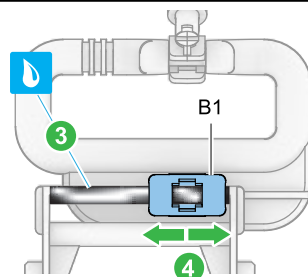
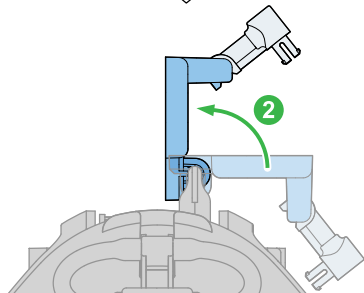
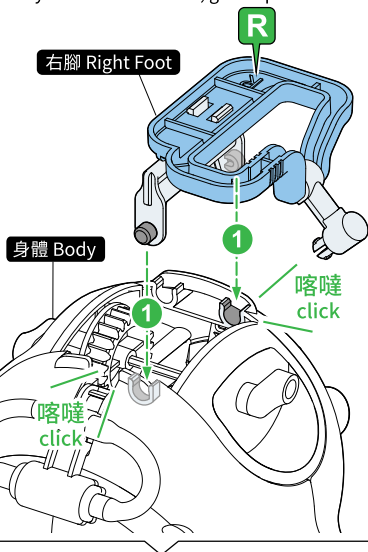
20

! 請將毛邊修乾淨
Cut off the burrs before assembly.

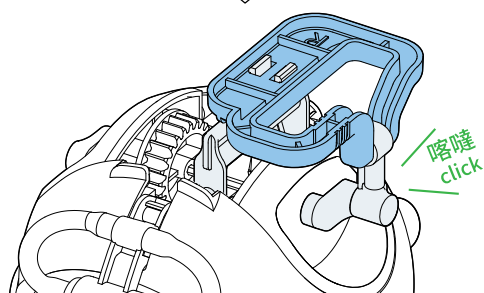
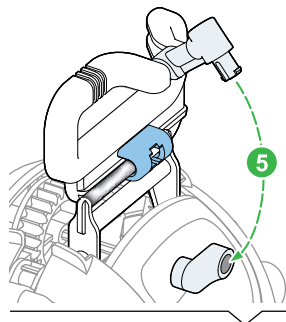


21

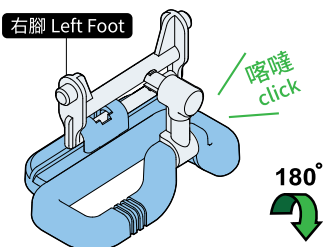
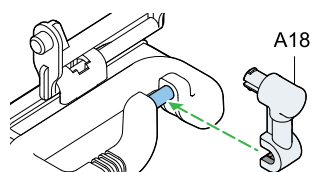
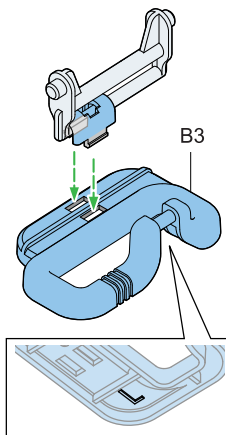
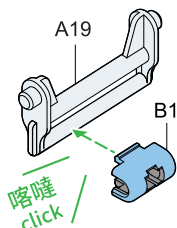
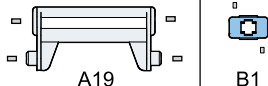
! 如果遇到困難，可以請成人協助幫助
If you have difficulties, get help from an adult.



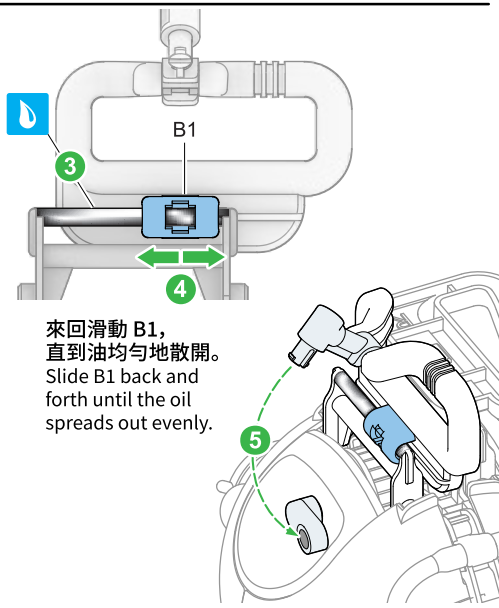
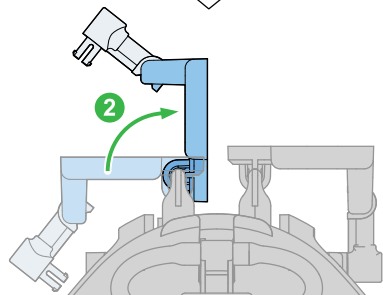
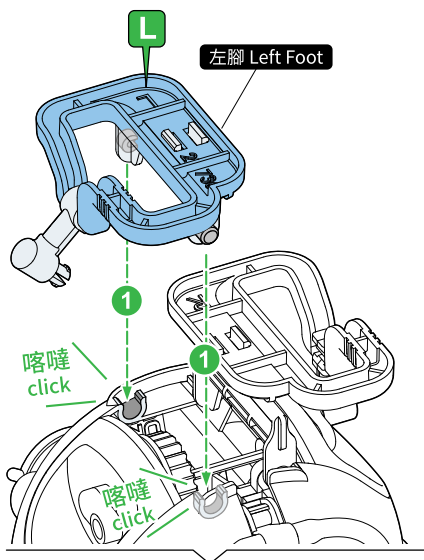
來回滑動 B1，直到油均勻地散開。
Slide B1 back and forth until the oil spreads out evenly.



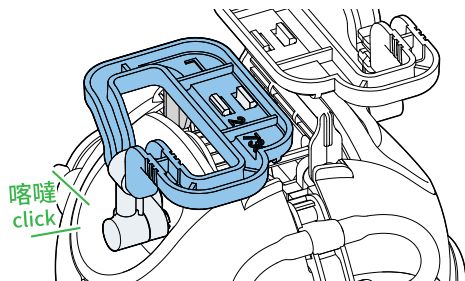
! 請將毛邊修乾淨
Cut off the burrs before assembly.



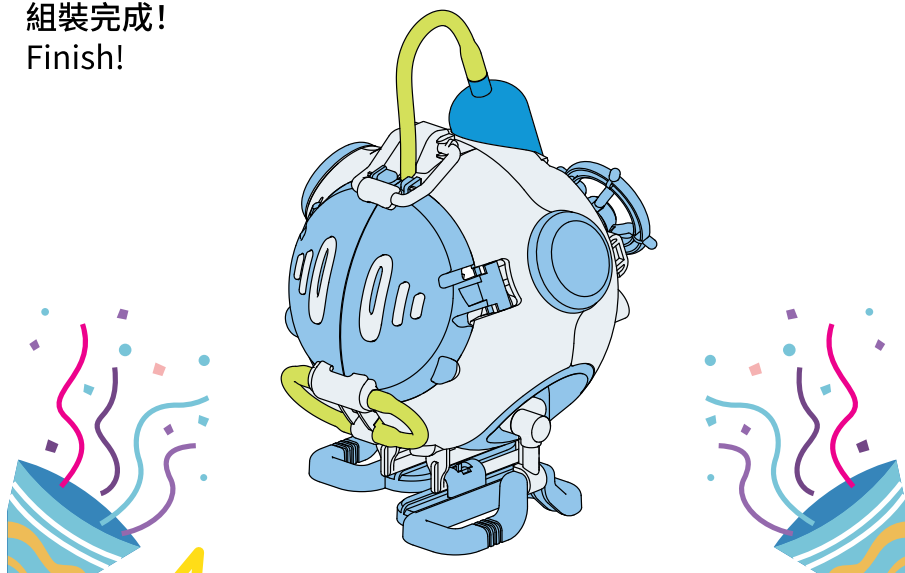
! 如果遇到困難，可以請成人協助幫助
If you have difficulties, get help from an adult.



來回滑動 B1，
直到油均勻地散開。
Slide B1 back and
forth until the oil
spreads out evenly.



組裝完成！
Finish!



在遙遠的鹽水星球上，閃耀的鹽水玻璃屋孕育著新生命。
小小鹽水星人在純淨的1:5鹽水溶液中緩緩成形。
當他們睜開雙眼的一刻，正式成為鹽水星人家族的一員！
準備展開冒險，探索奇幻世界！

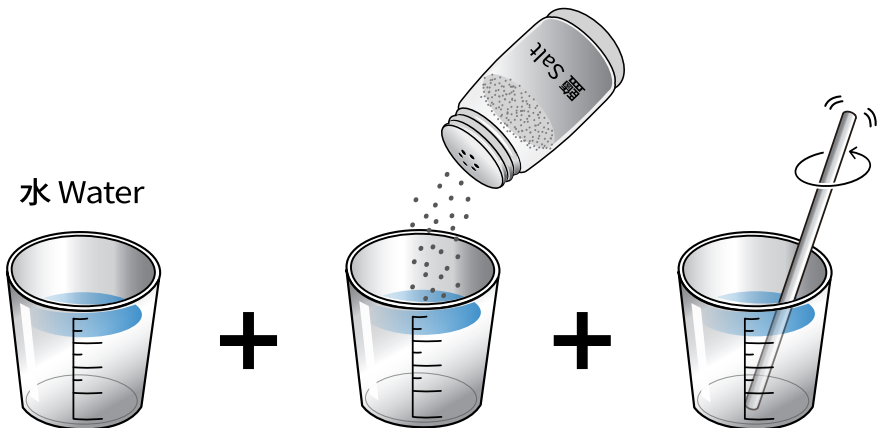
遊玩方式 How to Play

- 每個鎂合金片約可持續使用4小時，當鎂合金片氧化至不堪使用時請更換新鎂合金片。本產品隨貨附贈3片鎂合金片備品。
- Each Magnesium sheet works for 4 hours before becoming fragmented. Replace it to energize Orbi. The kit includes 3 refills.
- 本產品是對環境安全、無毒、乾淨的鹽水燃料電池玩具，無須擔心丟棄會造成環境危害。
- All materials used in this kit are environmentally safe and clean, no toxic substances or disposal concerns.

1 如何調配鹽水比例 How to make salt water solution

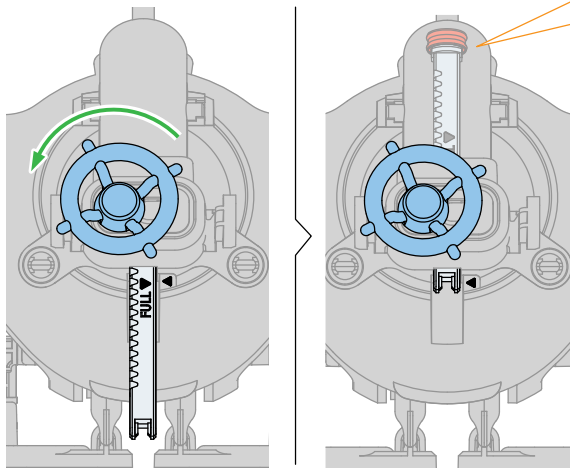
請取出容器裝水，以鹽 1:5 水的比例調製，基本上鹽的比例從20%~99% 都可以驅動太空人，但以鹽佔20%的效果最好。

Add salt to tap water or distilled water at ratio of **1(salt) : 5(water)**. Any percentage ratio from 20% to 99% salt water is workable although the 20% will be the most efficient.



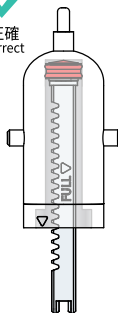
2 如何將鹽水添加到燃料瓶 How to Fill the Fuel Bottle with Salt Water

- 1** 持續逆時針旋轉輪子。
Turn the wheel all the way counterclockwise.

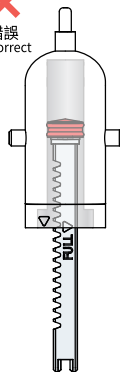


! 確保齒條完全推入，否則在加注時會進氣。
Push the rack in completely or air will get in when filling.

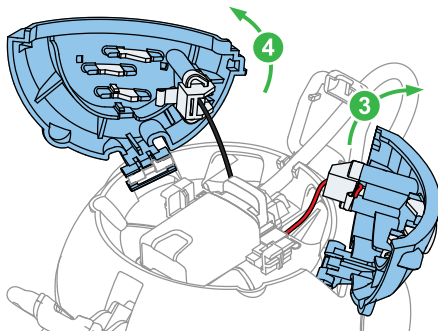
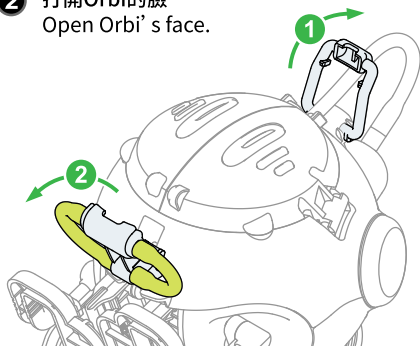
✓
正確
Correct



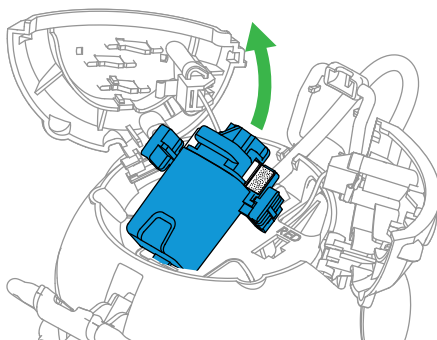
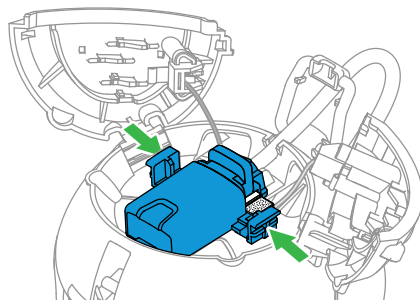
✗
錯誤
Incorrect



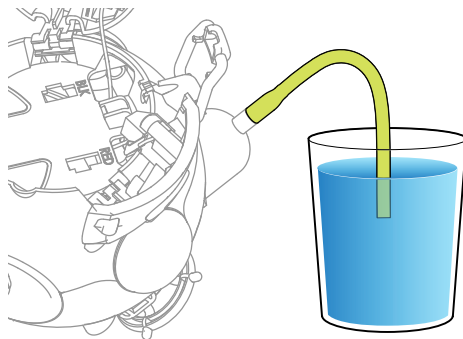
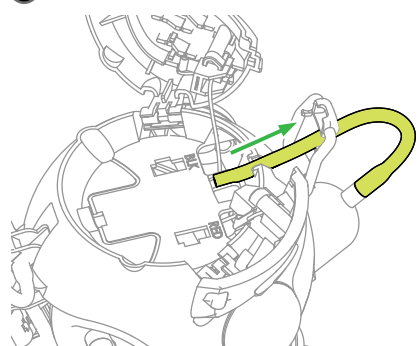
- 2** 打開Orbi的臉
Open Orbi's face.



- 3** 取出燃料電池。
Take out the fuel cell.

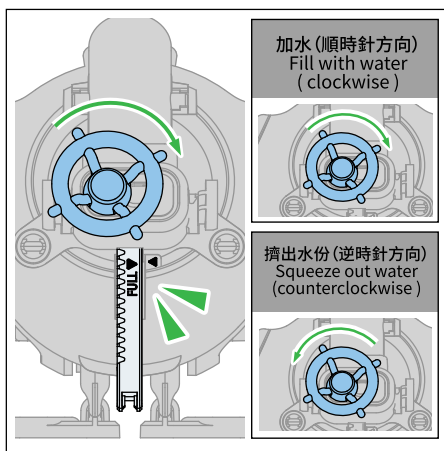
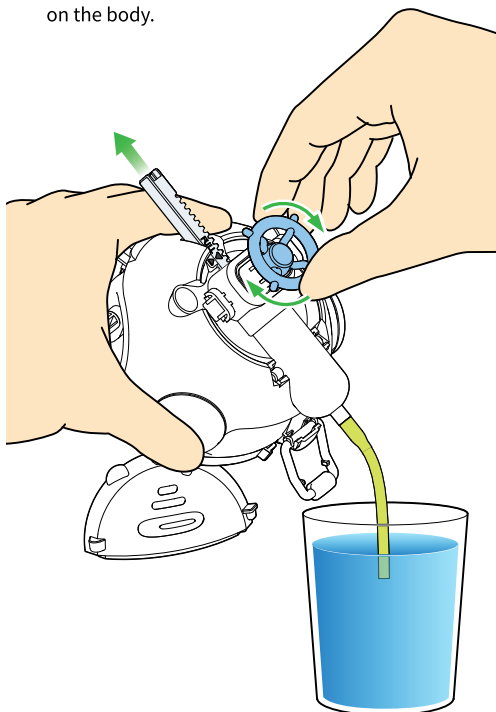


- ④ 拔出管子並將其放入鹽水中。Pull out the tube and put it in the salt water.



- ⑤ 順時針旋轉，將水吸入，直到齒條上的箭頭與機體上的箭頭對齊。
Turn clockwise to soak up the water until the arrow on the rack lines up with the arrow on the body.

Turn clockwise to soak up the water until the arrow on the rack lines up with the arrow on the body.



如果齒條沒有完全推入，空氣可能會進入，導致擠水功能故障。

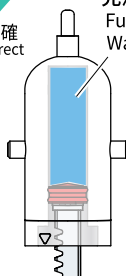
(請參閱第 21 頁，步驟 2-1)

If the rack isn't fully in, air may enter and cause the water-squeezing function to malfunction.
(refer to page 21, step 2-1)



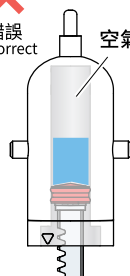
正確
Correct

充滿水
Full of Water



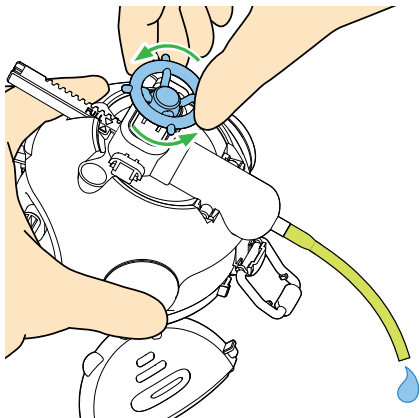
錯誤
Incorrect

空氣 Air



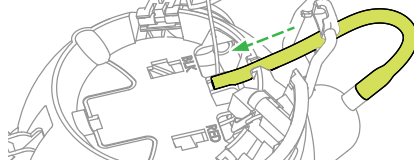
6 測試 Testing:

將輪子逆時針旋轉一格，並檢查是否有水滴滴出。
如果有，則表示運作正常。
Turn the wheel one click counterclockwise and check if a single drop of water has leaked.
If yes, it works properly.



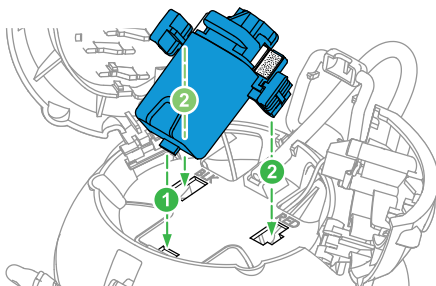
7 將軟管放回 (請參閱第 13 頁，步驟 10)。

Put the tube back in. (refer to step13, page10)



8 將燃料電池放回。(請參閱第 15 頁，步驟 16)。

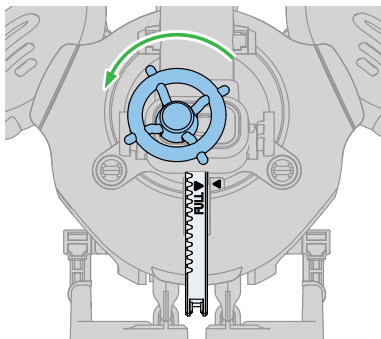
Put the fuel cell back in. (refer to page15, step16)



3 如何擠出鹽水 How to Squeeze out Salt Water

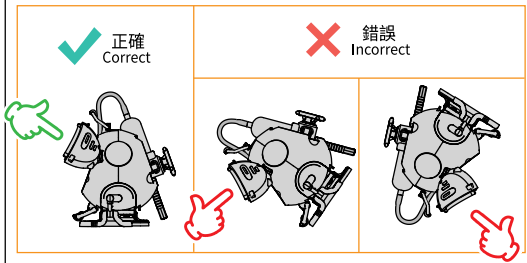
1 逆時針旋轉一格，鹽水將被擠出並滴入燃料電池。

Turn one click counterclockwise to squeeze out salt water into the fuel cell.



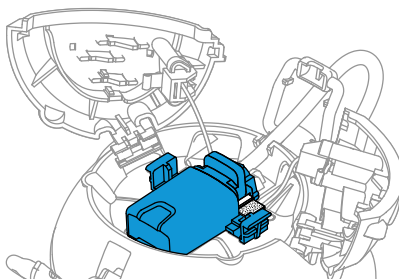
警告 Warning

- 1.只需轉動一格。請避免轉動超過兩格。
 - 2.擠出鹽水時請保持機器人面朝上，否則鹽水無法正確流入燃料電池。
- 1.Turning one click is enough. Avoid turning more than two clicks.
2.Keep the robot's face up while squeezing, or the salt water won't flow into the fuel cell properly.

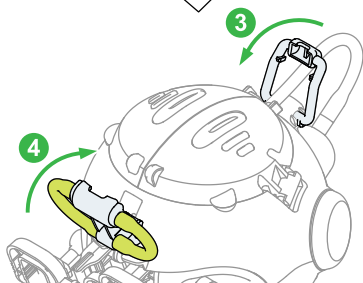
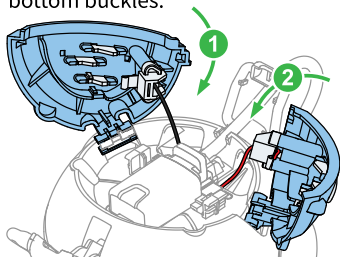


2 等待 10 秒鐘。

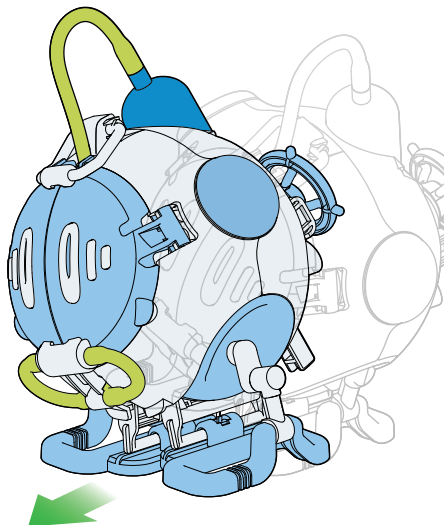
Wait for 10 seconds.



- 3** 將 Orbi 的臉部合上，並將上下的扣環扣上。
Close Orbi's face and snap the top and bottom buckles.

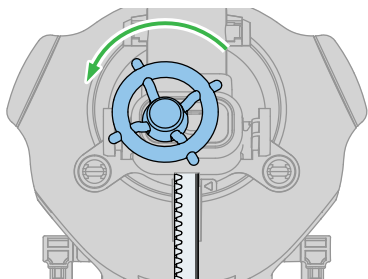


- 4** Orbi 就能開始行走囉！
Orbi starts Walking!

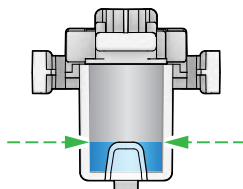


- 4** 當Orbi開始變慢時 If Orbi starts getting slower

逆時針轉一格，注入更多鹽水。Turn one click counterclockwise to add more salt water.

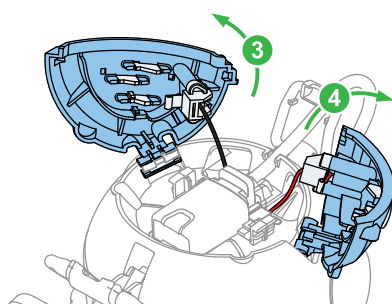
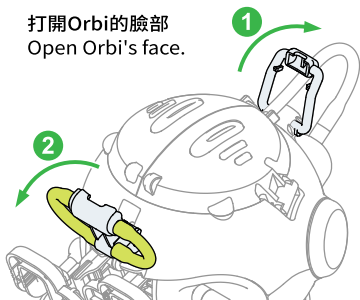


請將水位保持在虛線以下。
Keep the water below the dashed line.



- 5** 如何將Orbi停下來 How to stop Orbi

打開Orbi的臉部
Open Orbi's face.



6 如何保養燃料電池板 How to maintain Fuel Cell plate

- ① 每次不使用時，都需要清潔燃料電池板。
It is necessary to clean Fuel Cell plate every time when not in use.



正確
Correct



空氣極
Air Cathode



錯誤
Incorrect



空氣極
Air Cathode

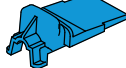
輕輕用自來水沖洗空氣極。不要用手擦拭表面，確保空氣極的品質。

Gently rinse air cathode under tap water. Don't hand rub the surface to ensure the quality of air cathode.

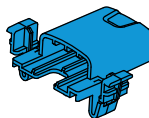
- ② 沖洗下方所示的部件並輕輕擦拭表面，確保沒有鹽分殘留，並將所有部件分開晾乾。
Flush the parts shown below and hand rub the surface. Make sure that there is no salt residue. Dry all parts separately.



1. 不織布
1. Nonwoven Fabric



2. 壓縮板
2. Compression Plate



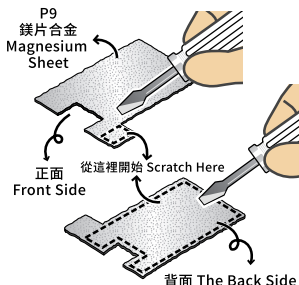
3. 燃料電池外殼
3. Fuel Cell Case

- ③ 沖洗並輕輕刮除如下方所示鎂片上的氧化物。
Flush and scrape off the oxidization from the magnesium sheet as shown below.



鎂片 Magnesium

輕輕沖洗鎂片。
Gently rinse magnesium sheet



輕輕刮除鎂片上的氧化物。
Gently scratch the oxidization of the magnesium sheet



鎂片 Magnesium

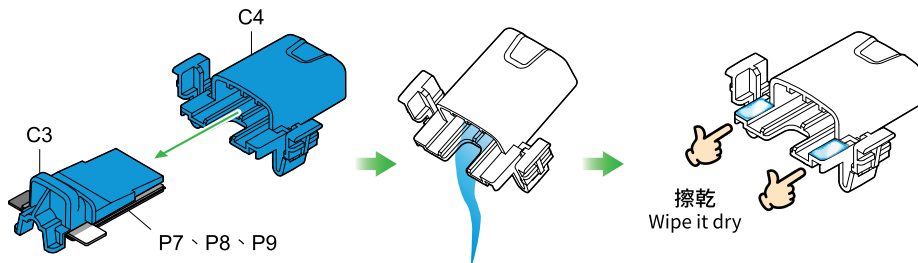
輕輕沖洗鎂片並將其晾乾。
Gently rinse magnesium sheet and dry it

故障排除 Trouble Shooting

如果 Orbi 無法正常行走，請檢查以下步驟。
Check the steps below if Orbi cannot walk properly.

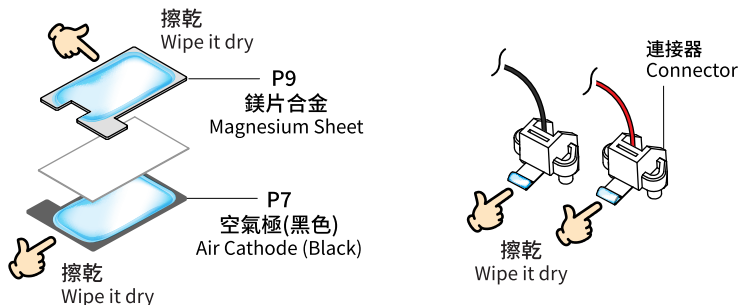
1-1. 拆開燃料電池，倒出多餘的水並擦乾。

1-1.Take apart the fuel cell, pour out any excess water, and wipe it dry.



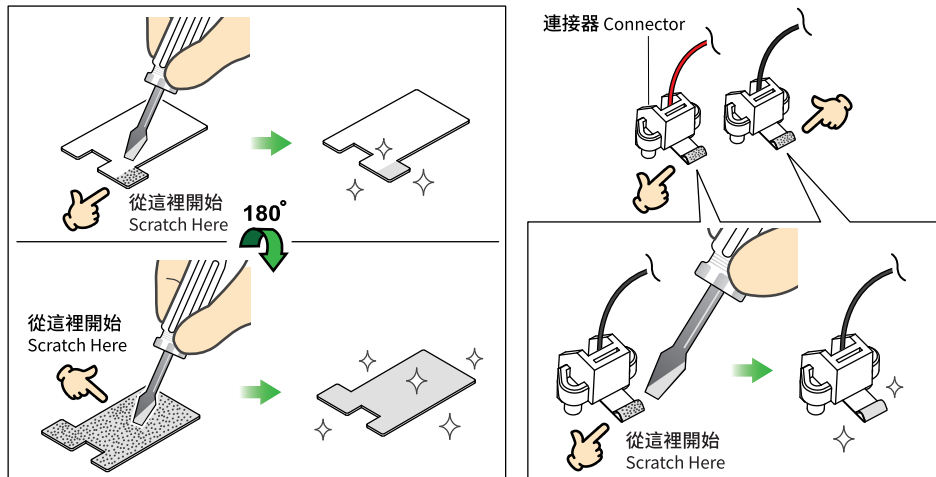
1-2. 確保鎂片、空氣極和連接器乾燥。擦乾所有鹽水。

1-2.Make sure the magnesium sheet, air cathode, and connectors are dry. Wipe off any salt water.



1-3. 如果鎂片和連接器有氧化物，請按照下圖清潔。

1-3.If the magnesium sheet and connectors have any oxidation, clean it off as shown below.

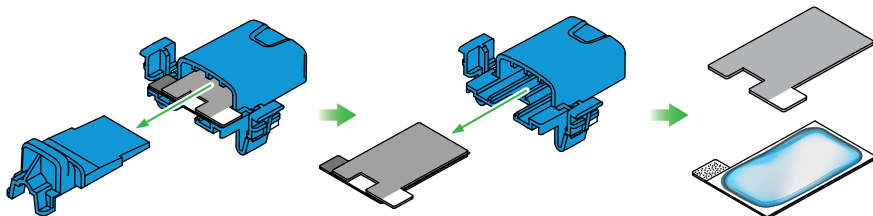


2. 檢查管子、連接模組和燃料電池是否正確組裝。(請參考第13到15頁。)

2.Check if the tube, connector modules and the fuel cell are assembled correctly. (refer to pages 13 to 15.)

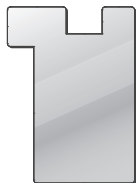
3. 打開燃料電池, 查看內部的不織布是否潮濕。

3.Open the fuel cell and see if the nonwoven fabric inside is wet.



4. 如果鎂片如圖所示已經腐蝕, 請更換鎂片。

4.Replace the magnesium sheet if it is eroded as shown below.



(新 New)



(使用後 After use)



(需要更換 Need to replace)

5. 檢查腳是否正確組裝。(請參考第17至18頁)

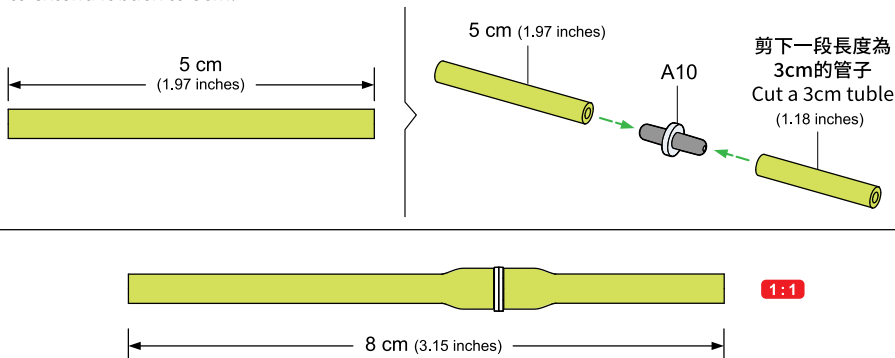
5.Check if the feet are put on correctly. (refer to pages 17 to 18)

6. 確保齒輪箱正確組裝。(請參考第4到7頁)

6.Make sure the gear box is assembled properly. (refer to pages 4 to 7)

7. 如果8cm的管子不小心被剪短到小於6cm (例如5cm), 請使用A10連接器將其延長回8cm。

7.If the 8cm tube has been accidentally cut shorter than 6cm (5cm for example), use the A10 connector to extend it back to 8cm.

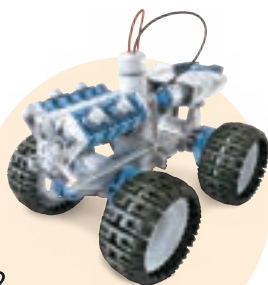


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