

HYDRAULIC ROBOTARM



Assembly & Instruction
Manual



Manual de instrucciones

Contents

Product Introduction	1
Tools You May Need	1
Mechanical Parts List	2
Plastic Parts	3
Mechanical Assembly	
Gripper Unit Assembly	6
Stand & Control Base Assembly	7
Main Body Assembly	13
How To Oil The Parts	20
H0~H5 Cylinder Assembly	20
I1 ~ I5 Cylinder Assembly	26
How To Cut The Tube	35
How To Fill Up The Cylinder With Water	36
How To Fit Tube	37
Hydraulic Cylinder Module Assembly	37
Lever Controller Assembly	49
Controller Module Assembly	51
Robot Arm Module Assembly	66
How To Play	76
Trouble Shooting	86

Introducción.....	1
Herramientas necesarias.....	1
Lista de componentes mecánicos.....	2
Piezas de plástico.....	3
Montaje mecánico	
Montaje de la pinza.....	6
Montaje de la base & el soporte.....	7
Montaje de la pieza principal.....	13
Lubricar las piezas.....	20
Montaje de los cilindros HO-H5.....	20
Montaje de los cilindros I1 - I5.....	26
Cortar el tubo.....	35
Llenar el cilindro con agua.....	36
Fijar el tubo.....	37
Montaje del cilindro hidráulico.....	37
Montaje de la palanca.....	49
Montaje del controlador.....	51
Montaje del brazo robótico.....	66
Jugar.....	76
Solución de problemas.....	86

HYDRAULIC ROBOT ARM

Product Introduction

This Robot Arm has made a little more interesting and hydro-mechanically fun.

With Hydraulic Arm Edge, command six axes of varied movements: the gripper to open and close up to 1.89 inches, wrist rotation of 180 degrees, wrist mobility of 98 degrees, elbow range of 44 degrees, base rotation of 270 degrees, and shoulder motion of 45 degrees. With a vertical reach of 16.35 inches, horizontal reach of 12.42 inches, and lifting capacity of 50g, your robotic friend is ready for your genius to erupt. With the removal of the gripper, you can activate the suction apparatus. This feature enables the user to elevate objects with a larger surface area (like a small mobile phone). Another prodigious attribution is a braking system that is integrated in the lever controllers to execute all commands accurately. WOW!

How does Hydraulic Robot Arm equate to fun? Children will have total command and visual manipulation using the science principles of a Hydraulic system and its application. Easy to follow instructions with detailed graphic illustrations pave the way for successful and satisfying kit building of 229 pieces. Compliment your engineering, math, science, and technology learning strategy. No battery or motor required. It is powered by water; thus, the "Hydraulic" significance and how it manipulates axes movement via lever controllers. Hydraulic Robot Arm is recommended for ages 10 and up, but with its 229 assembly parts, it will challenge the beginner engineering enthusiasts.

Tools You May Need



Diagonal Cutter



Screwdriver



Scissors



Tissue Paper



Cup & Water



Marker Pen (Fine)



or



Tape Measure or Ruler

Introducción

Este brazo hidráulico le permitirá dar sus primeros pasos en el mundo de la hidráulica de forma más amena.

Con el brazo hidráulico podrá controlar seis ejes con varios movimientos: abrir y cerrar la pinza (máx. 1.89"), girar la muñeca (180°), mover la muñeca (98°), mover el codo (44°), girar la base (270°) y mover el hombro (45°). Rango vertical:

16.35", rango horizontal: 12.42", capacidad de levantar: 50 g. Puede activar la función de succión quitando la pinza. Esta función le permitirá levantar objetos más grandes (p.ej. pequeño teléfono móvil). Además lleva un sistema de frenado incorporado en las palancas que le permite realizar los movimientos con precisión. ¡Guau!

¡Este brazo robótico es muy divertido! Los niños podrán controlar y manejar este brazo robótico utilizando los principios de un sistema hidráulico y su aplicación. El kit incluye 229 piezas y un manual de usuario detallado e ilustrado. Por ello, es muy fácil montarlo y es ideal para prácticas de robótica. Aumente sus habilidades en ingeniería, matemática, ciencia y tecnología. No funciona con pilas ni con motor sino con agua. El brazo robótico hidráulico es apto para niños a partir de 10 años.

Herramientas necesarias

Alicates de corte
en diagonal

Destornillador

Tijeras

Papel tisú


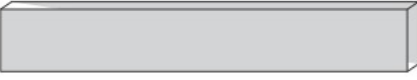

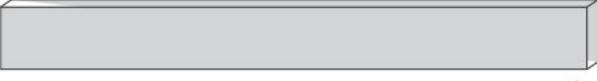



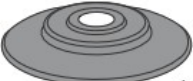
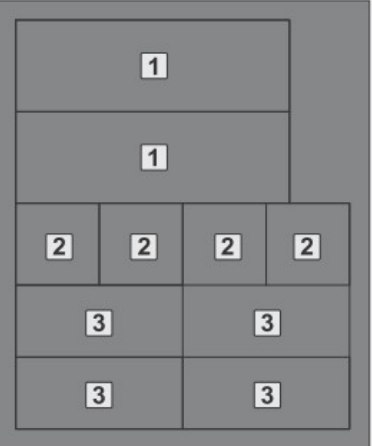




Vaso graduado &
Agua

Bolígrafo (fino)

Flexómetro o regla

Mechanical Parts List

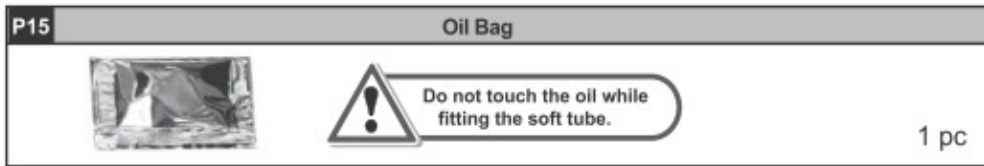
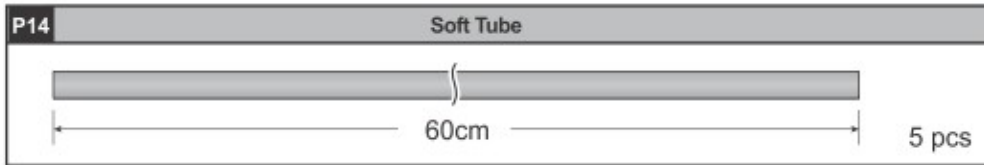
! Product contains functional edges and sharp points.

P1 Tapping Screw(Short)  9 pcs	P3 Iron Bar (Short)  1 pc		
P2 Tapping Screw(Long)  28 pcs	P4 Iron Bar (Long)  1 pc		
P5 Brake Pad  10 pcs	P6 Cap (Small)  5 pcs	P7 Cap (Big)  6 pcs	P8 Suction Cup  1 pc
P9 Sponge  1 pc		P10 Spring(Smallest)  5 pcs	P11 Spring(Short)  1 pc
		P12 Spring(Medium)  1 pc	P13 Spring(Long)  1 pc

Lista de componentes mecánicos

El producto incluye bordes funcionales y puntos afilados.

- P1 Tornillo autoroscante (corto)
- P2 Tornillo autoroscante (largo)
- P3 Barra de hierro (corto)
- P4 Barra de hierro (largo)
- P5 pastilla de freno
- P6 Tapón (pequeña)
- P7 Tapón (grande)
- P8 Ventosa
- P9 Esponja
- P10 Muelle (más pequeño)
- P11 Muelle (corto)
- P12 Muelle (mediano)
- P13 Muelle (largo)

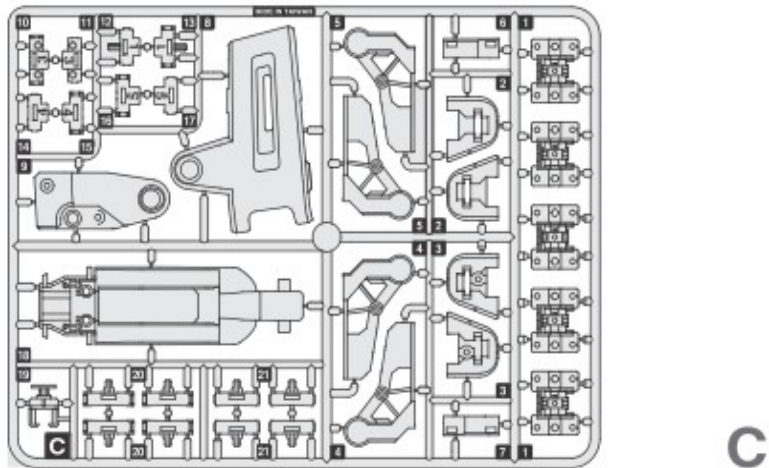
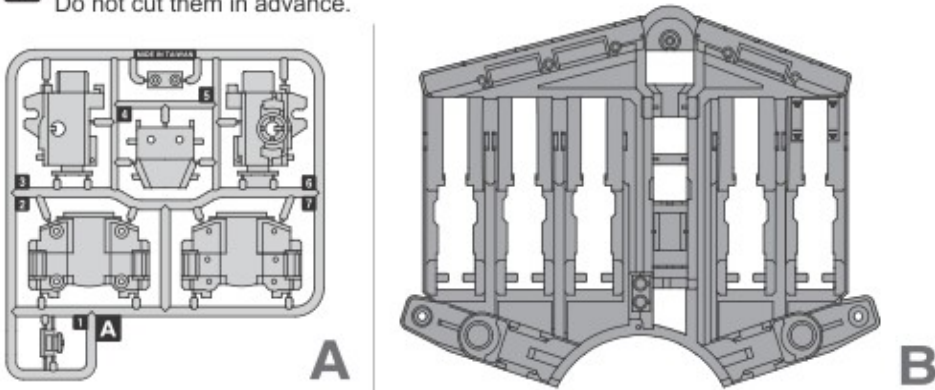


- P14 Tubo blando
- P15 Bolsita con aceite

No toque el aceite al fijar el tubo blando.

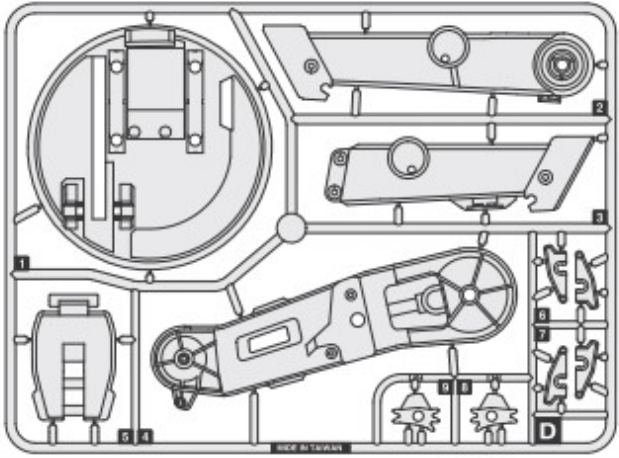
Plastic Parts

! Cut the plastic parts when they are required.
Do not cut them in advance.

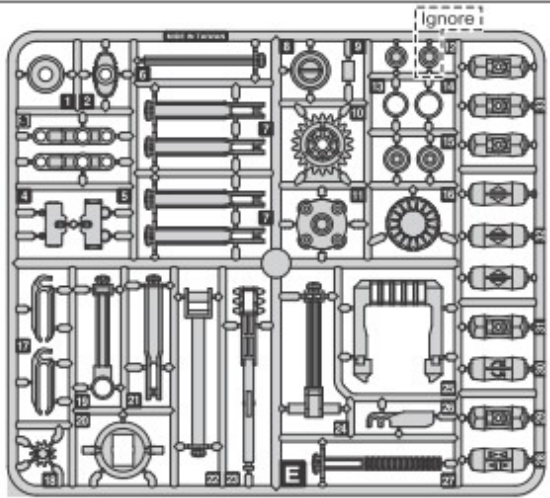


Piezas de plástico

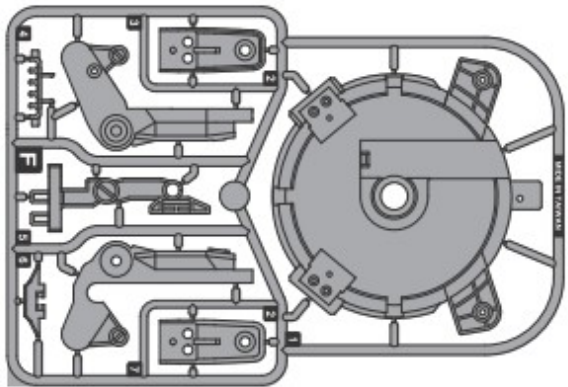
Si fuera necesario, corte las piezas de plástico, pero no las corte de antemano.



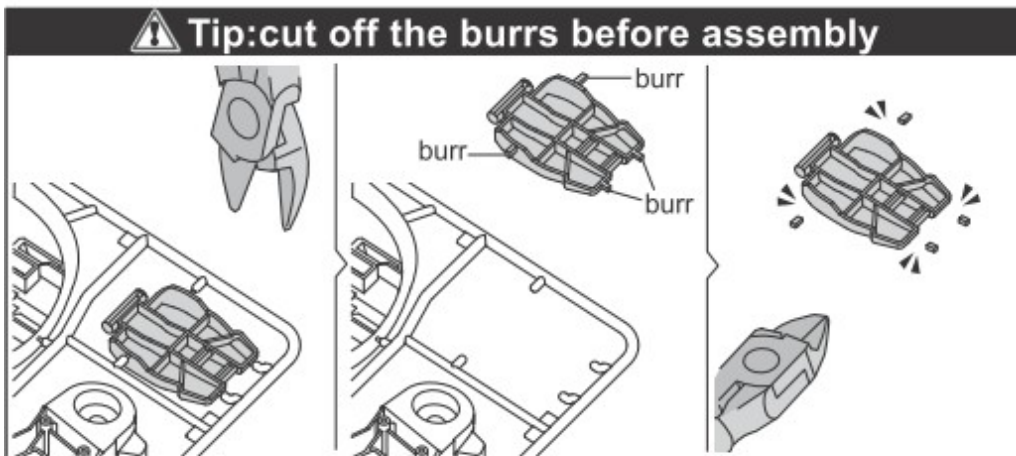
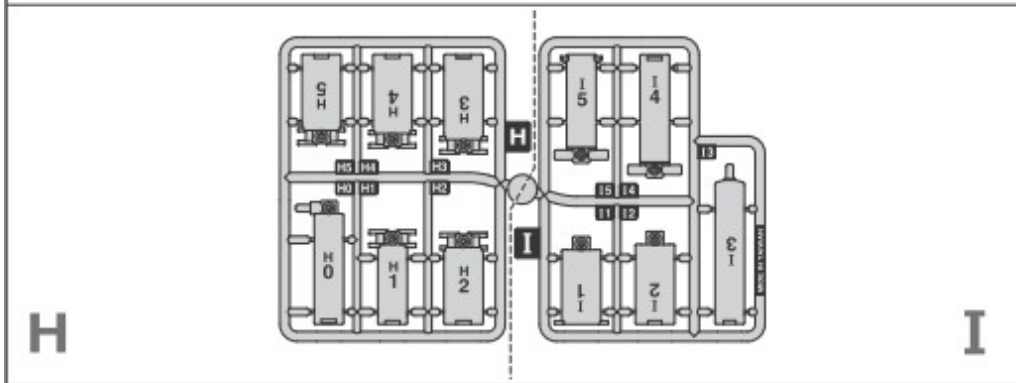
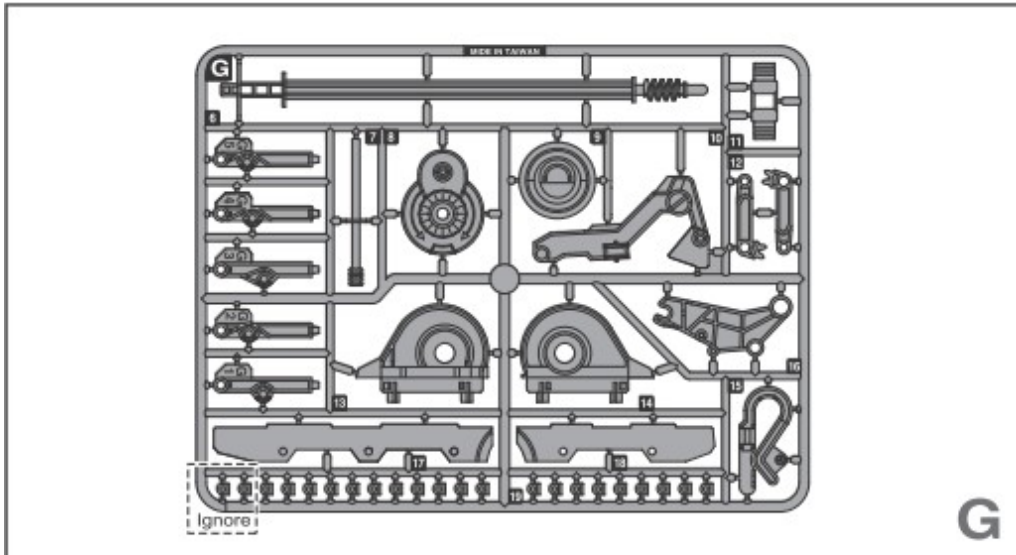
D



E

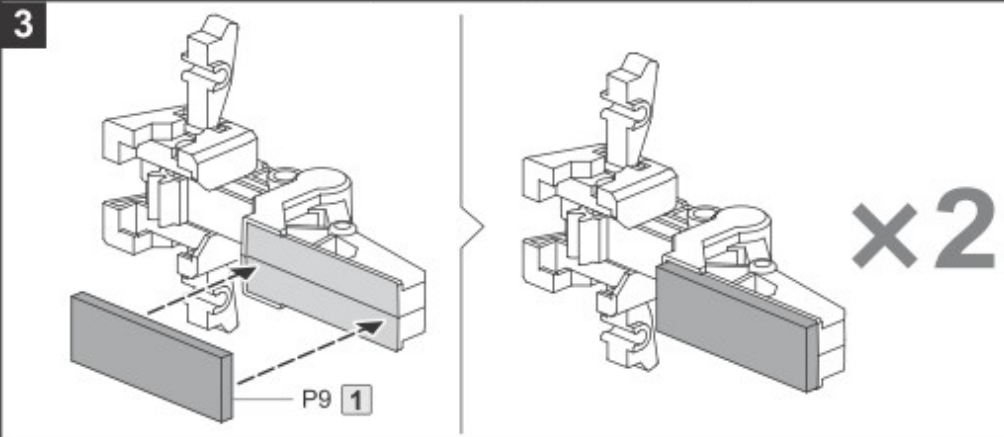
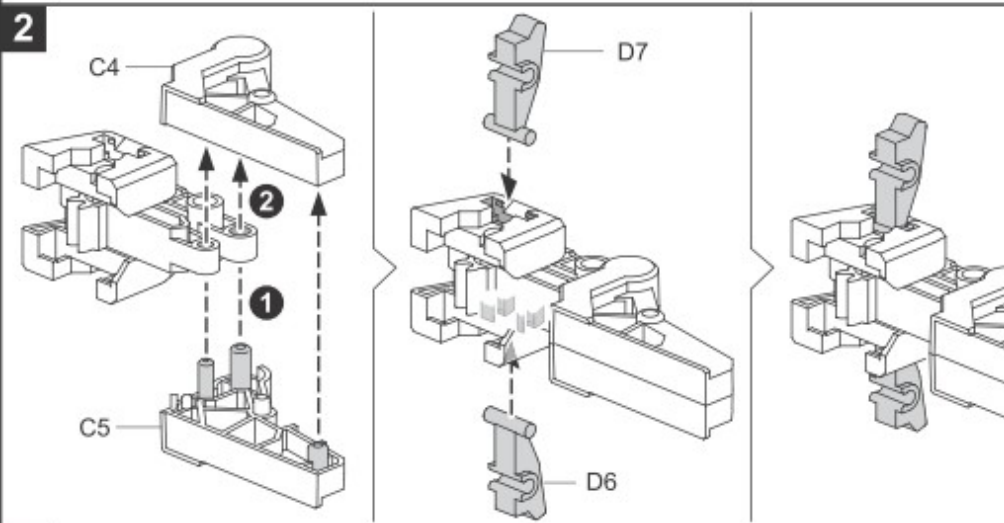
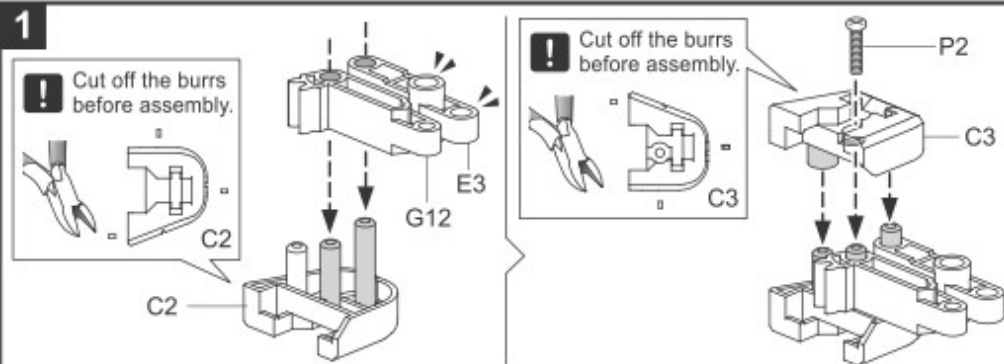


F



Consejo: Corte las rebabas antes del montaje.

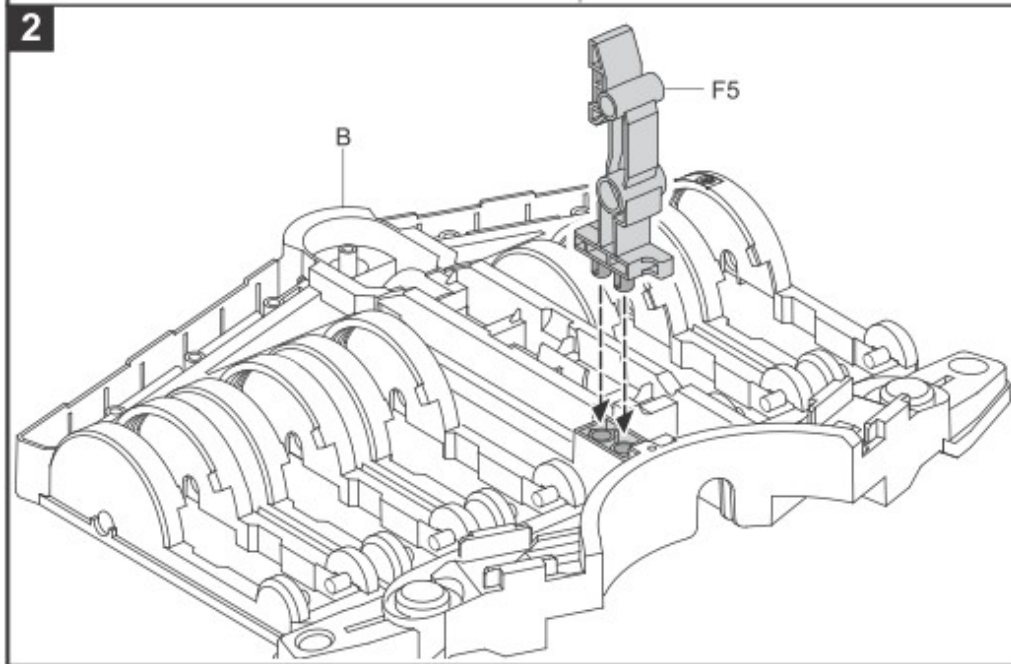
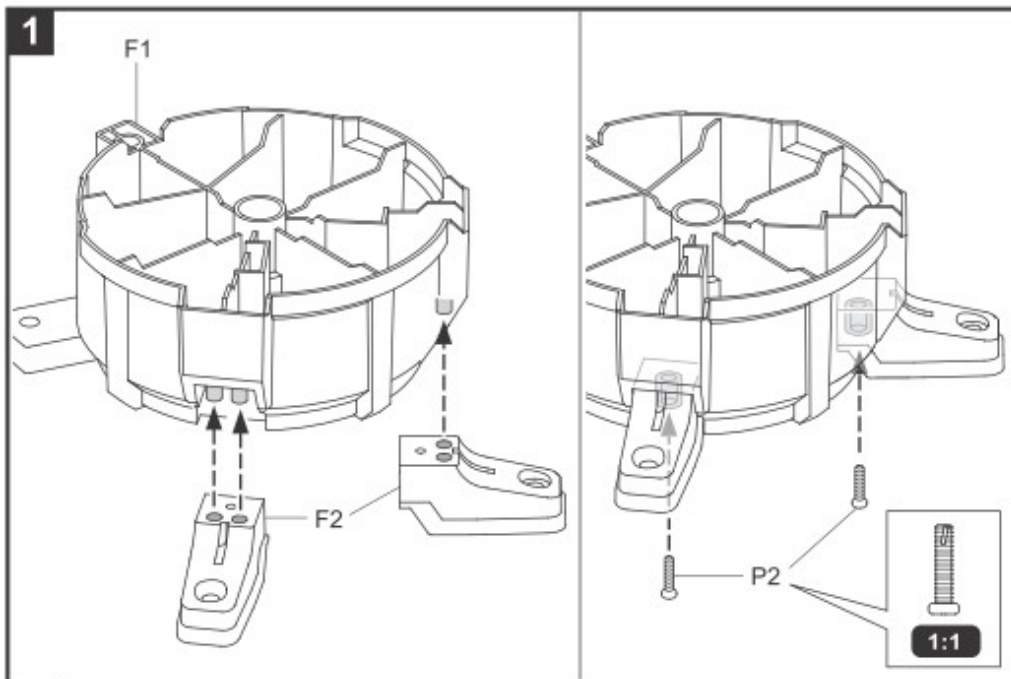
Gripper Unit Assembly



Montaje de la pinza

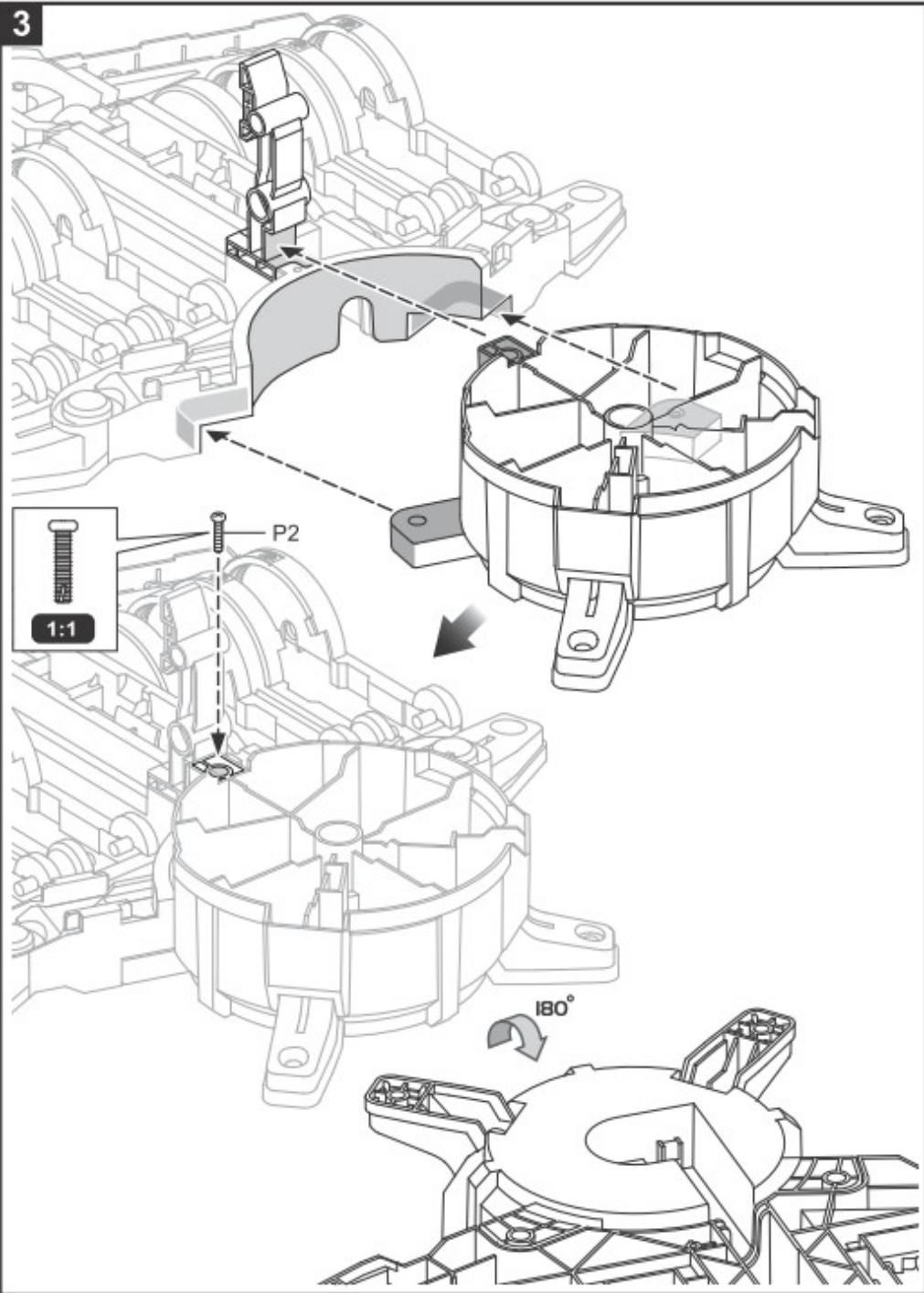
Corte las rebabas antes del montaje.

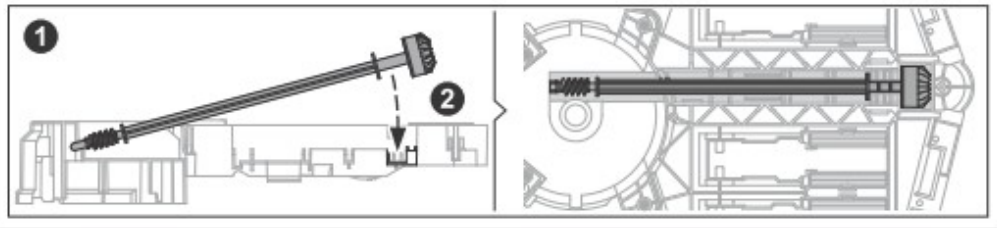
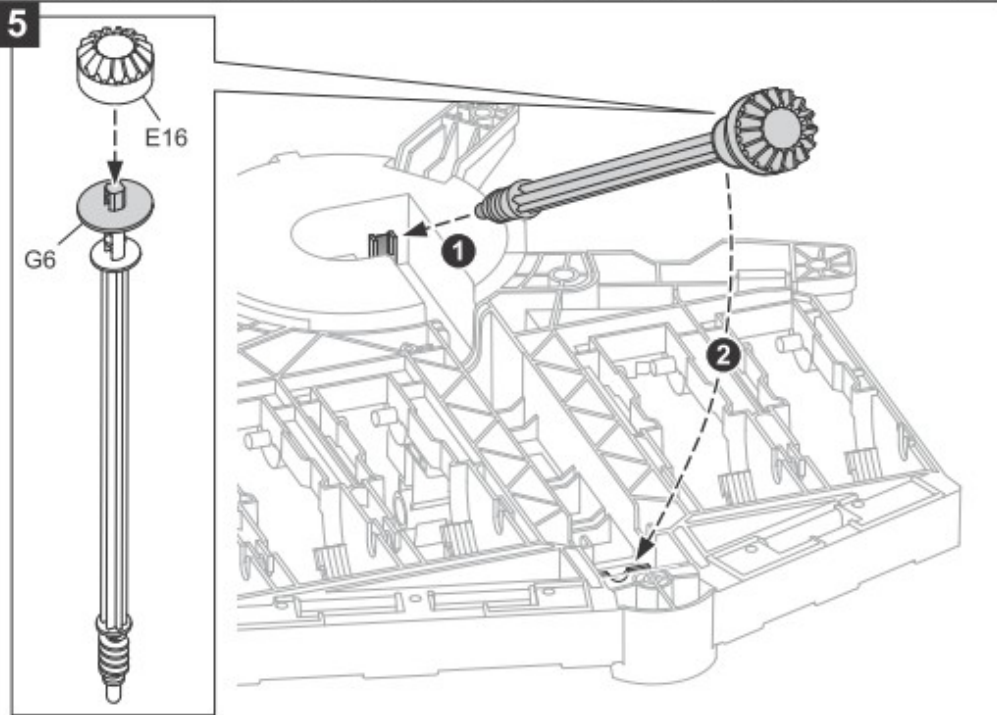
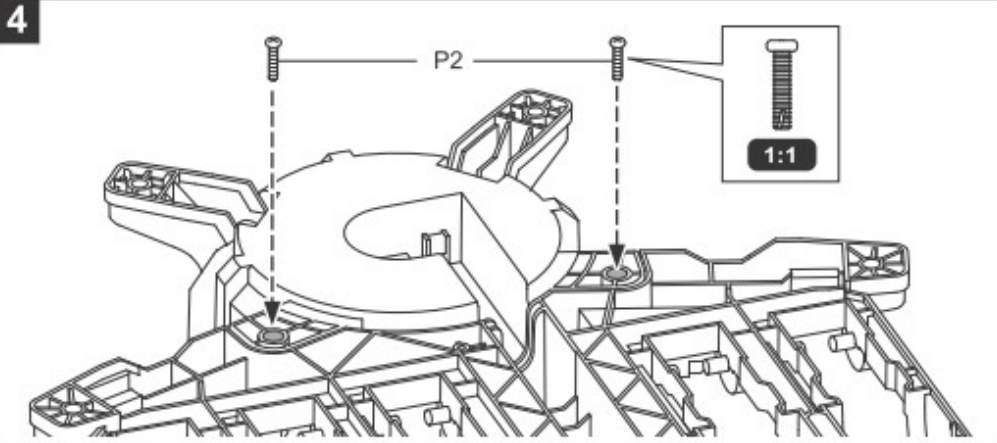
Stand & Control Base Assembly

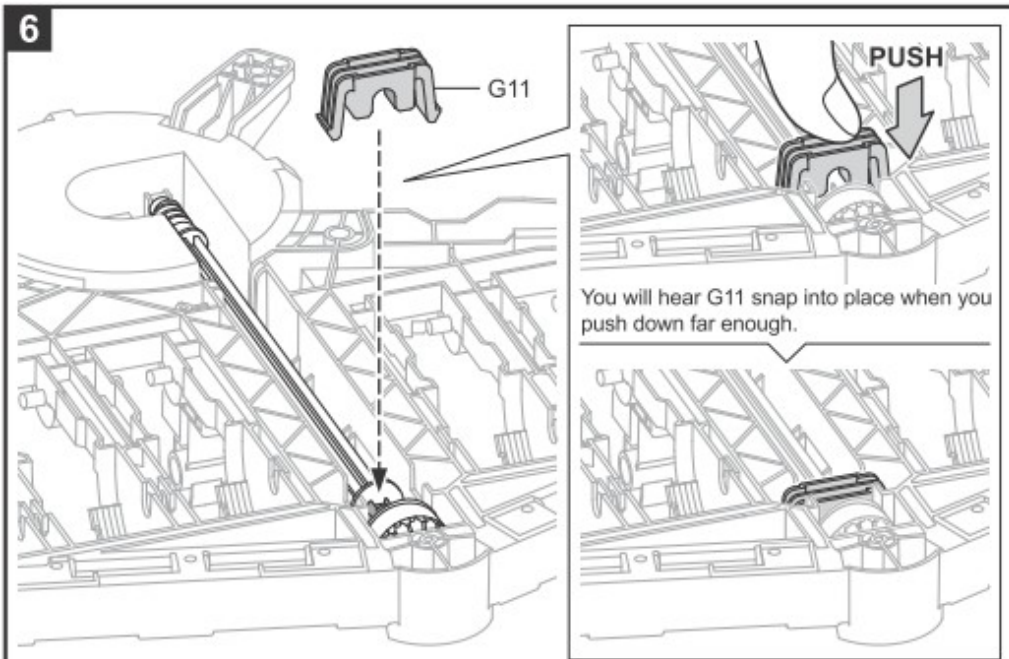


Montaje de la base & el soporte

3

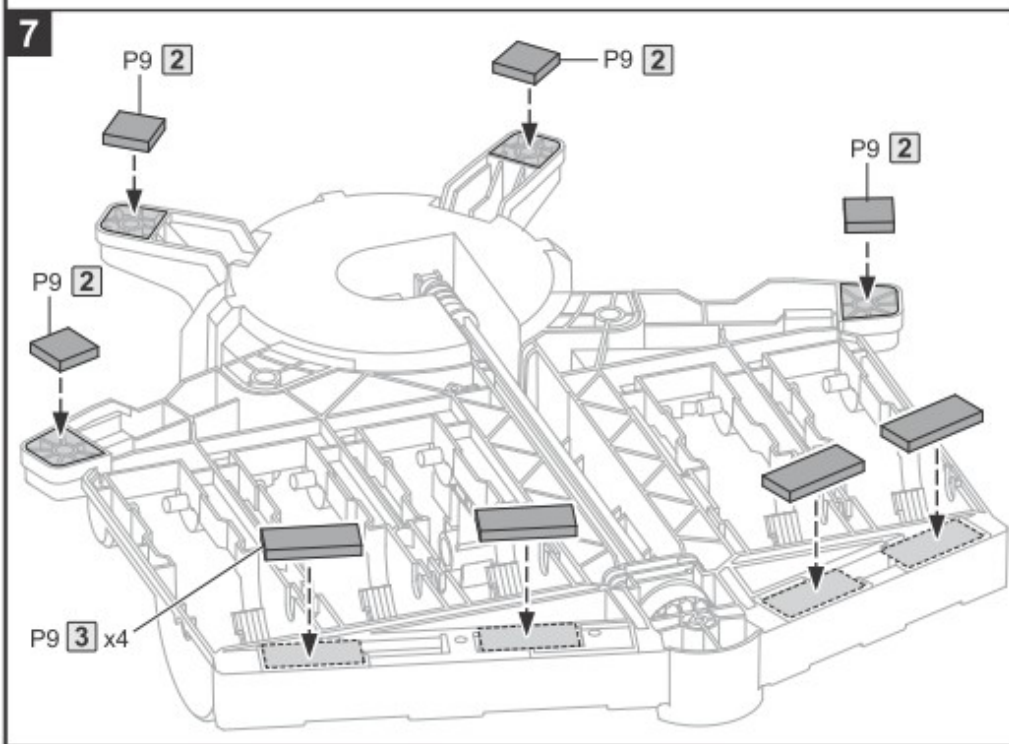


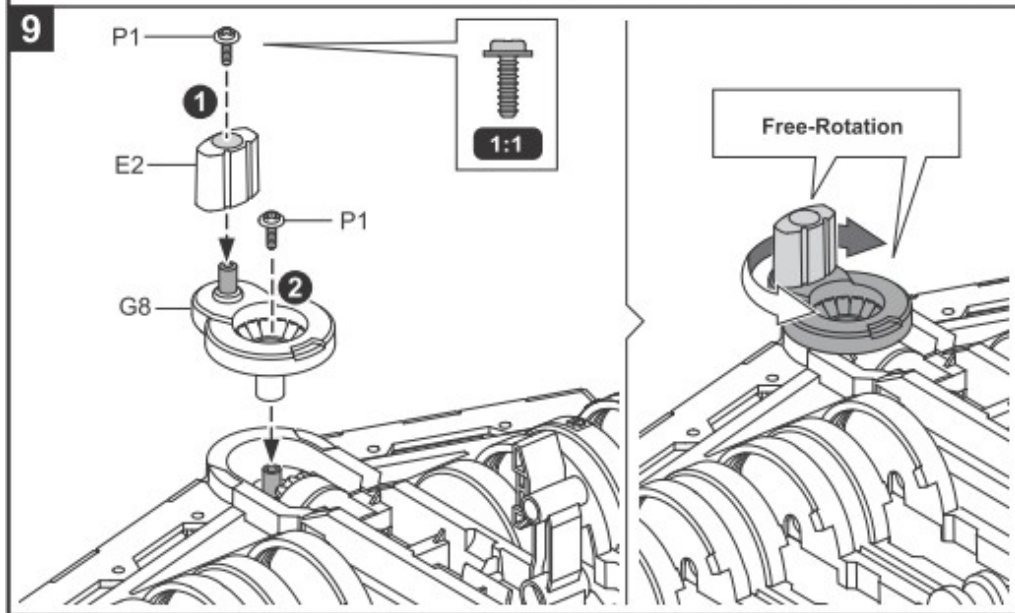
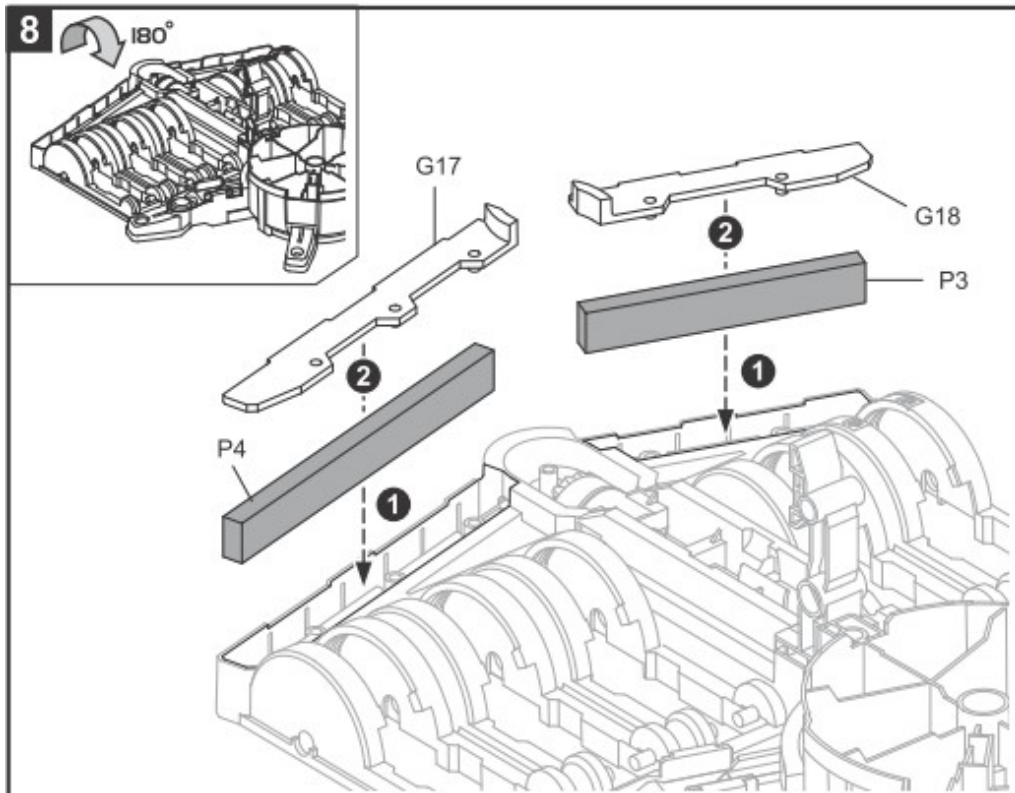




PRESIONAR

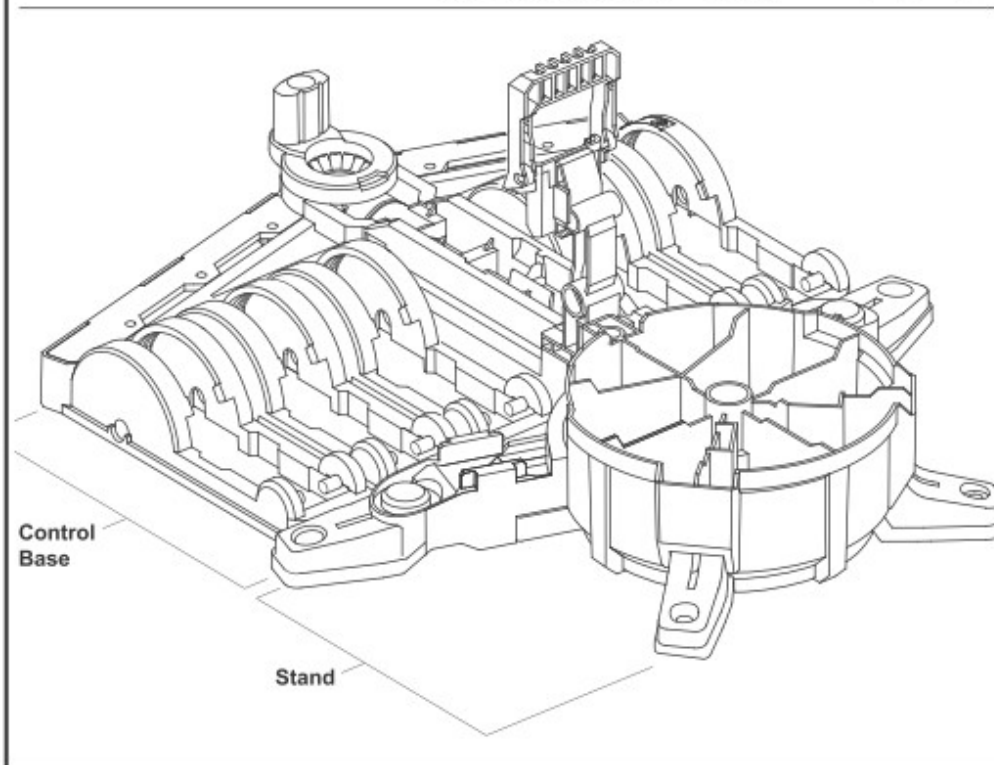
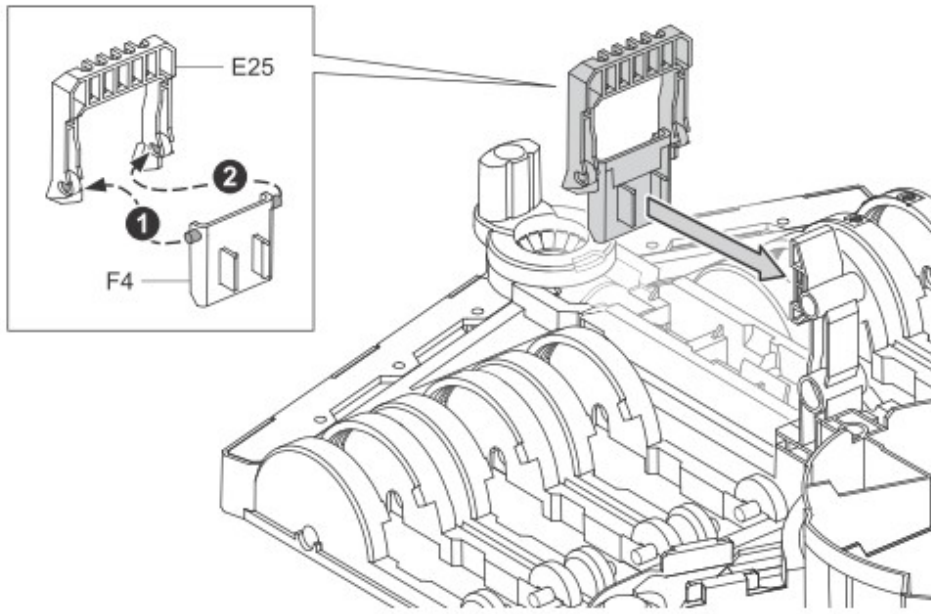
La pieza G11 sonará al encajar presionándola.





Rotación libre

10

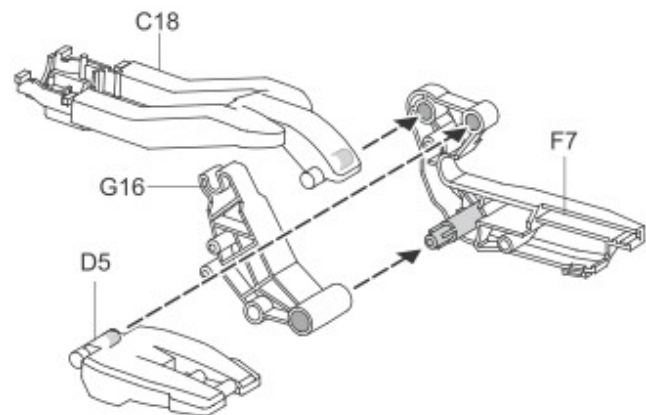


Base

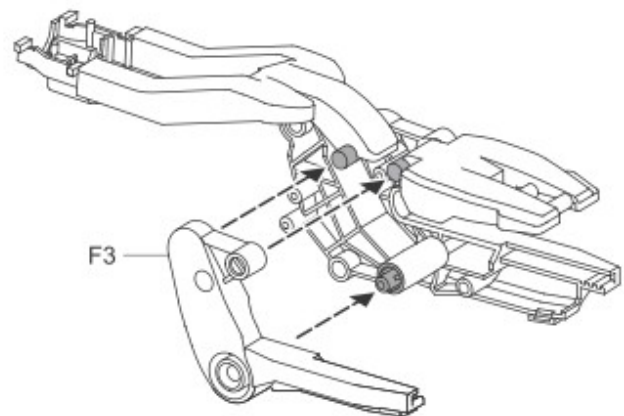
Soporte

Main Body Assembly

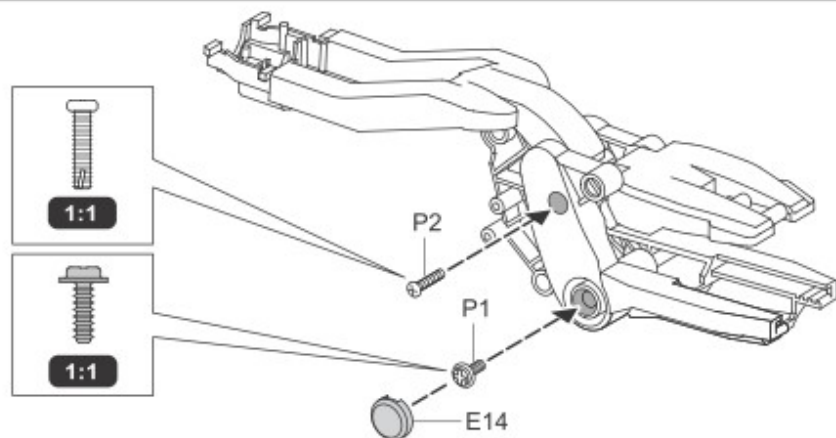
1



2

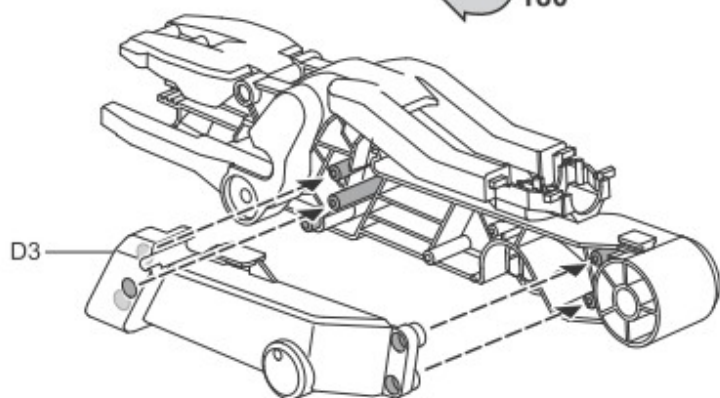
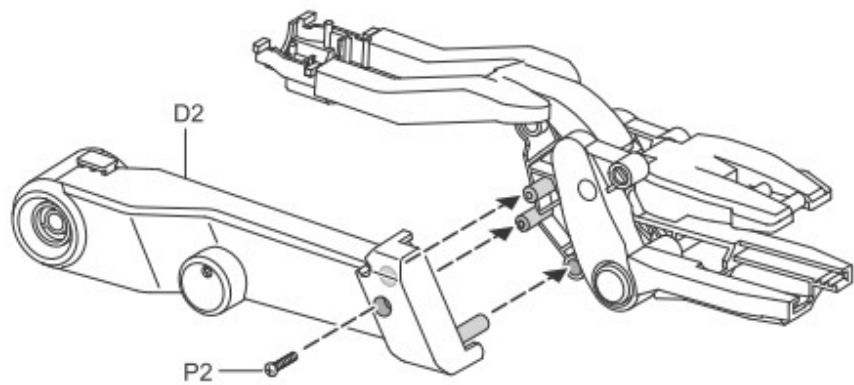


3

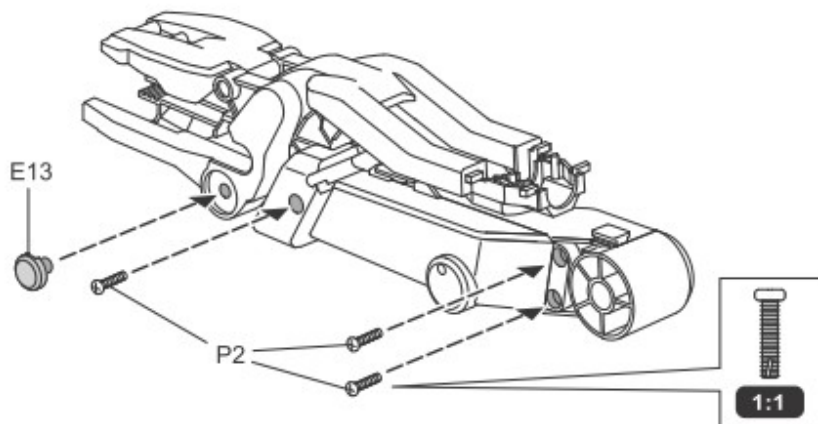


Montaje de la pieza principal

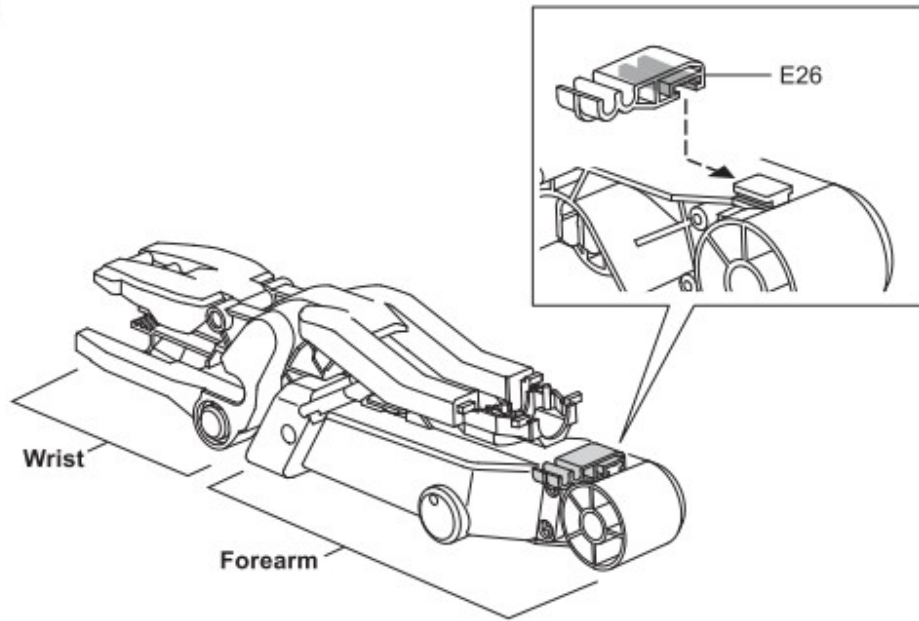
4



5



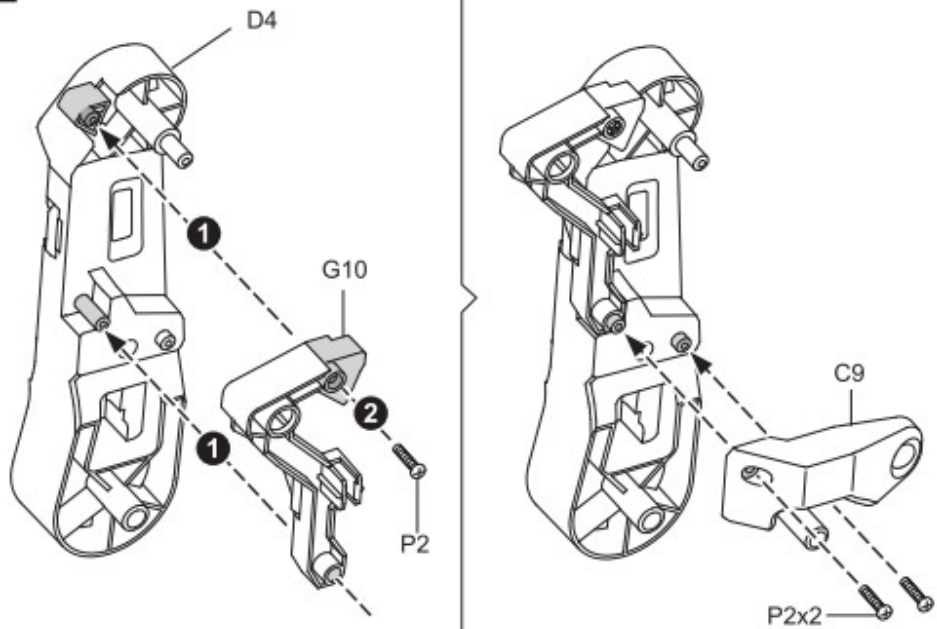
6

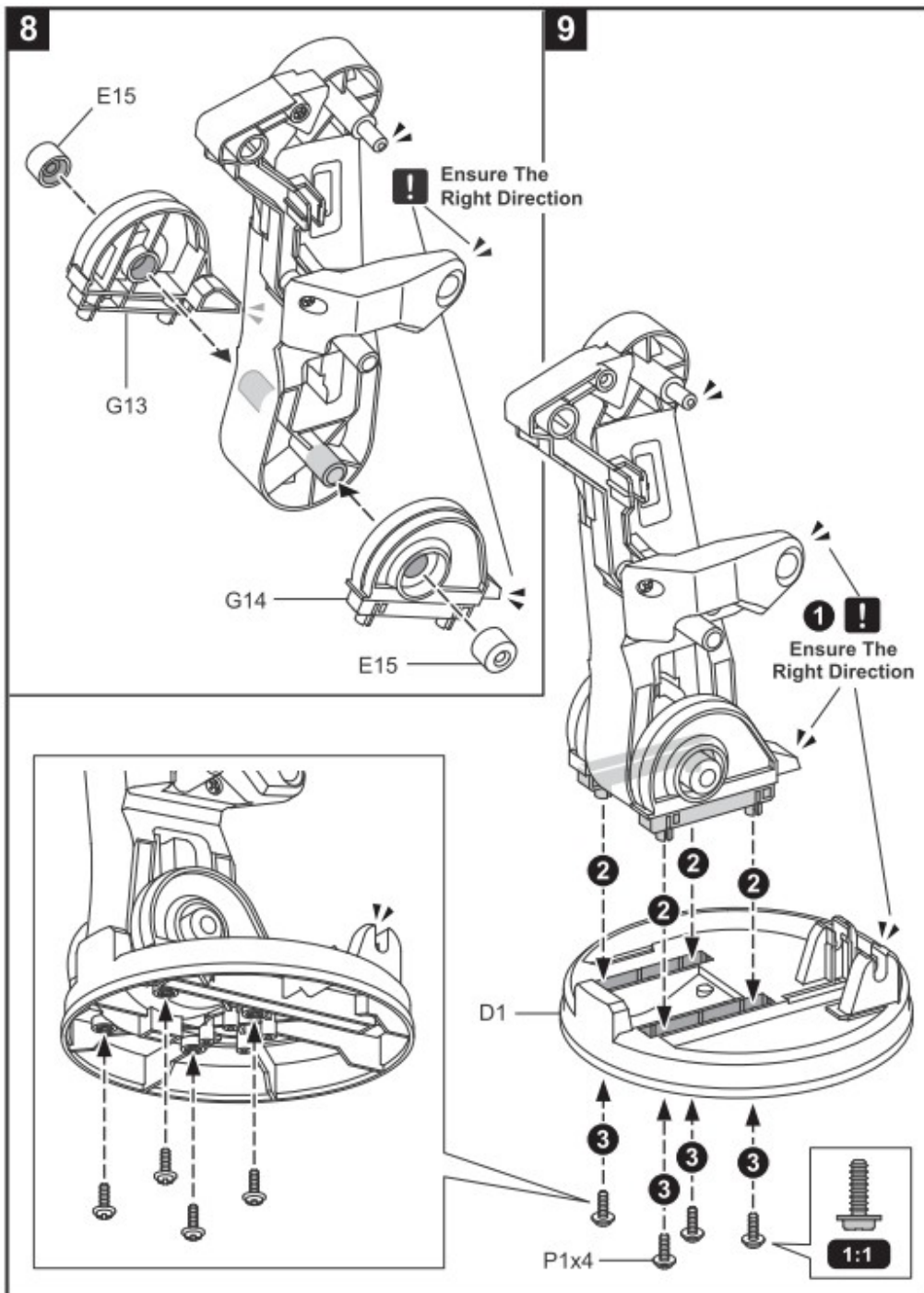


Muñeca

Antebrazo

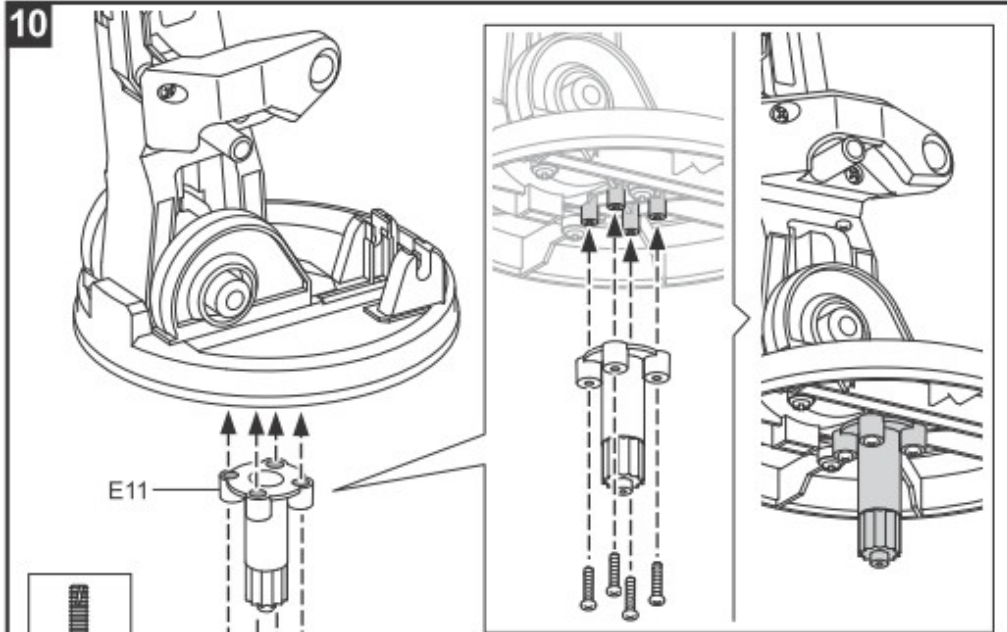
7



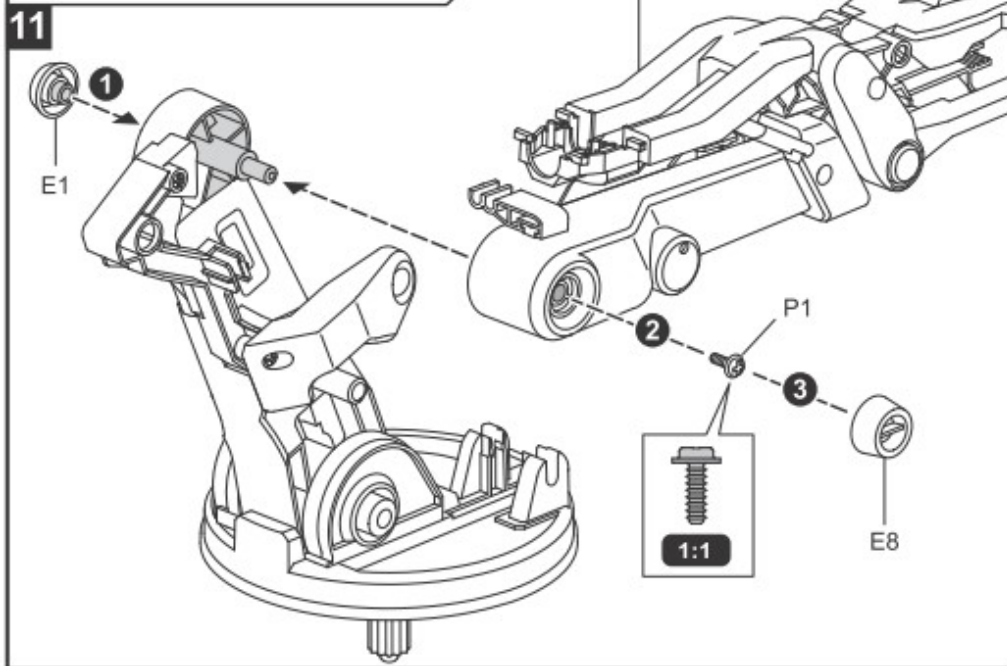


Asegúrese de que la dirección es correcta.

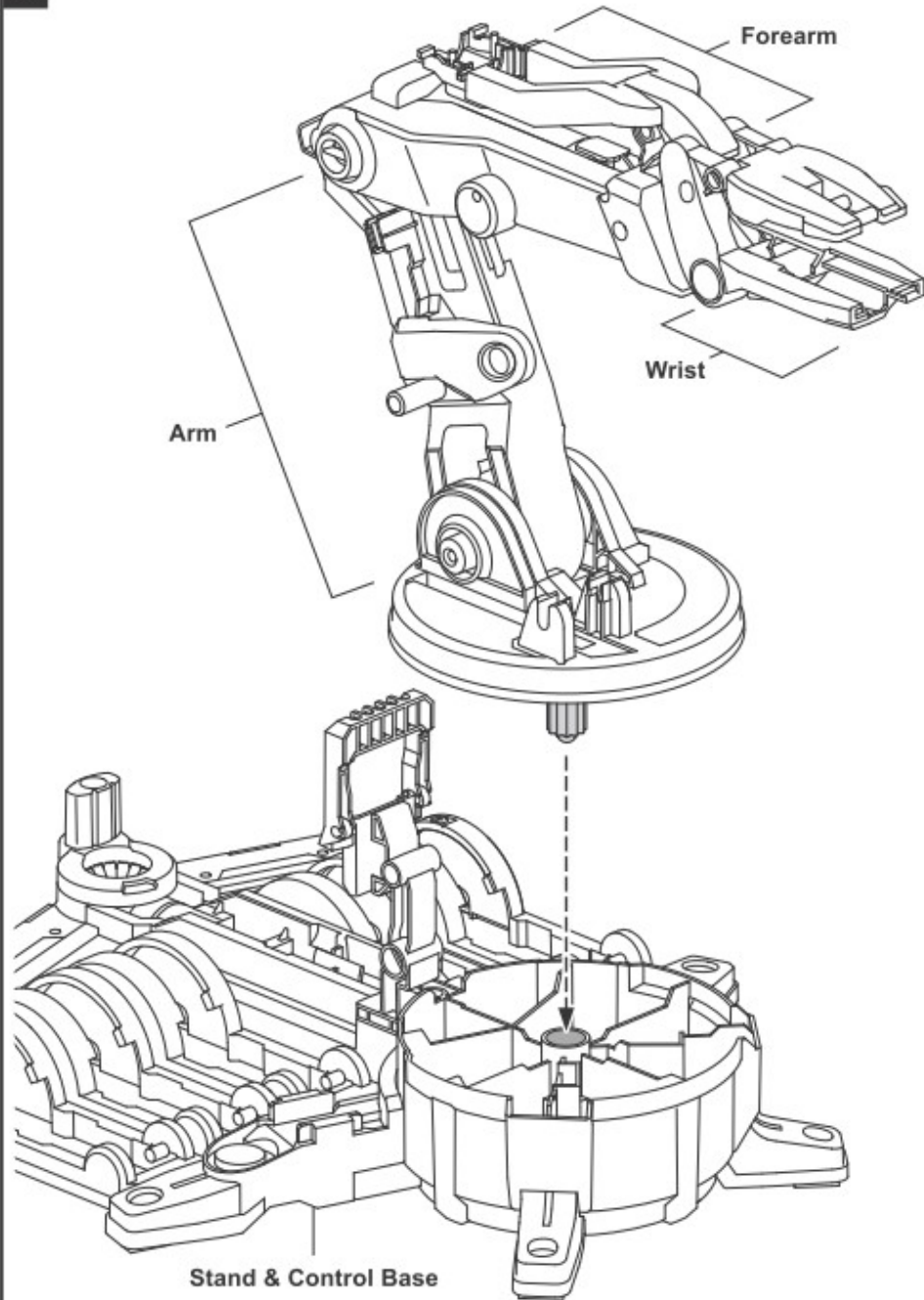
Asegúrese de que la dirección es correcta.



Wrist & Forearm



Muñeca & antebrazo

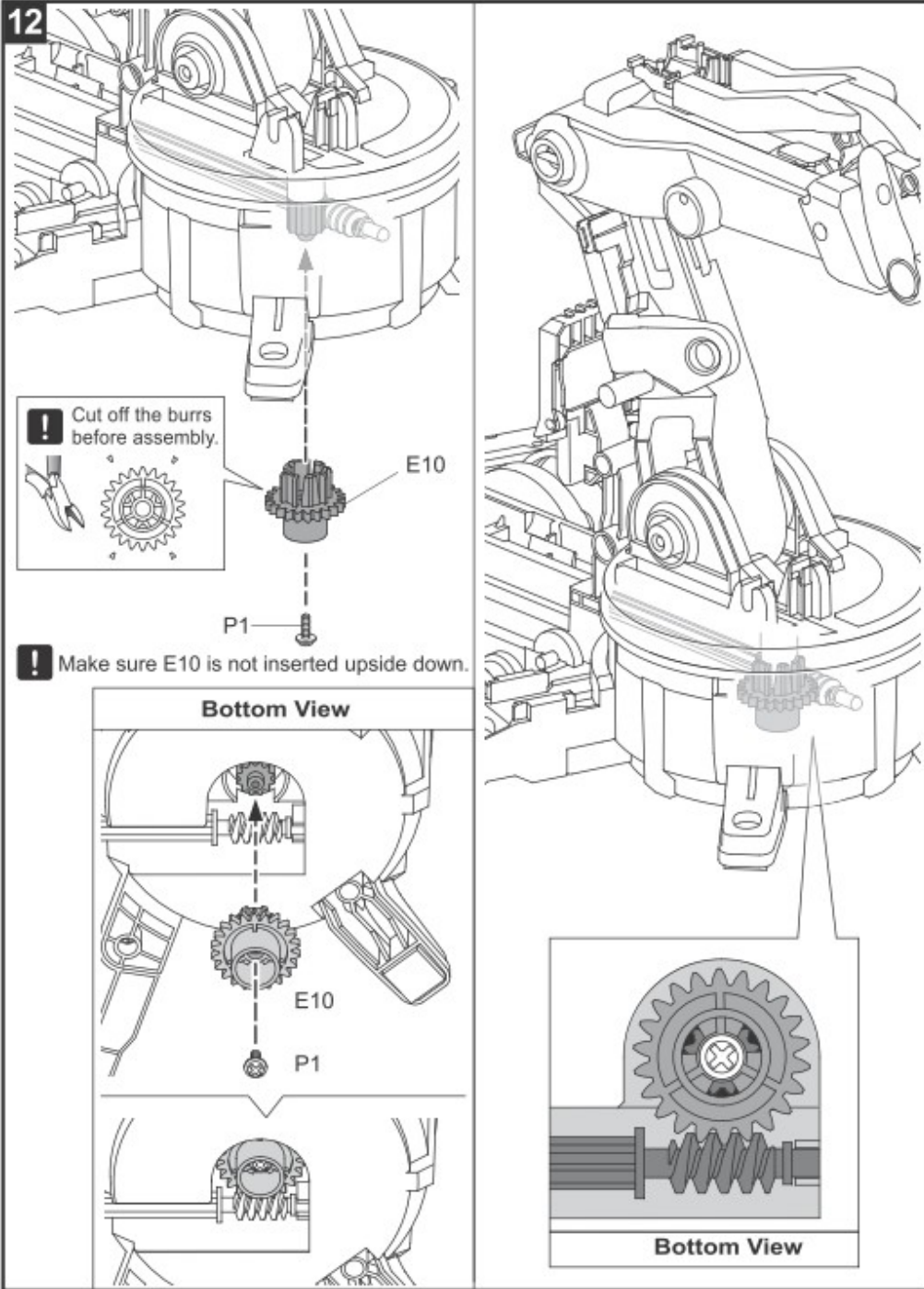


Antebrazo

Muñeca

Brazo

Soporte & Base



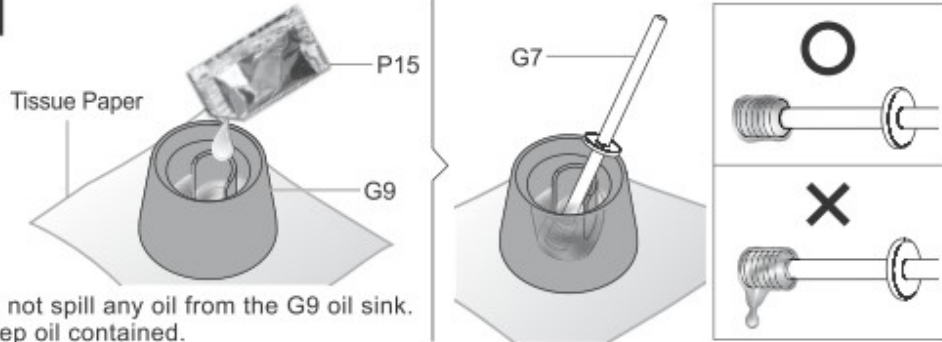
Corte las rebabas antes del montaje.

Asegúrese de que haya fijado la pieza E10 de manera correcta.

Vista desde abajo

How To Oil The Parts

1





Do not spill any oil from the G9 oil sink.
Keep oil contained.

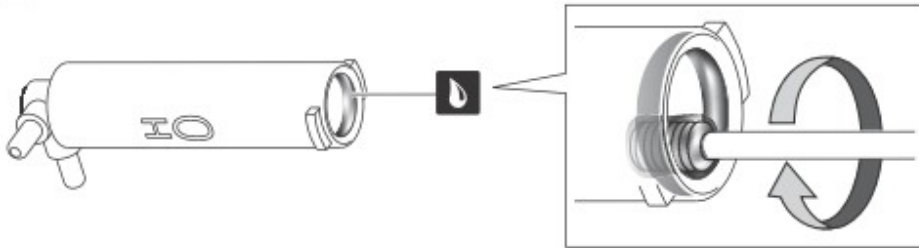
2



= Apply Oil

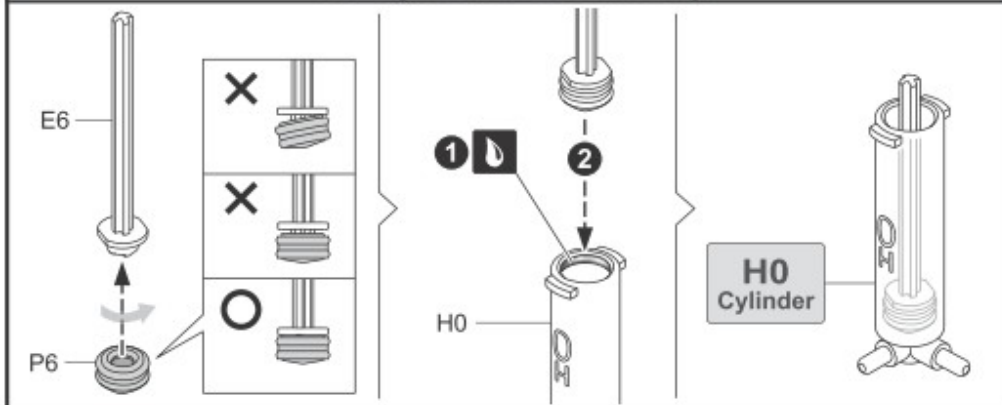
Note : Oil the parts when  appears.

 Do not oil outside the shadow as shown below.



H0~H5 Cylinder Assembly

H0 Cylinder Assembly



Lubricar las piezas

Papel tisú

No derrame aceite del depósito G9.
Mantenga el aceite en el depósito.

= Lubricar

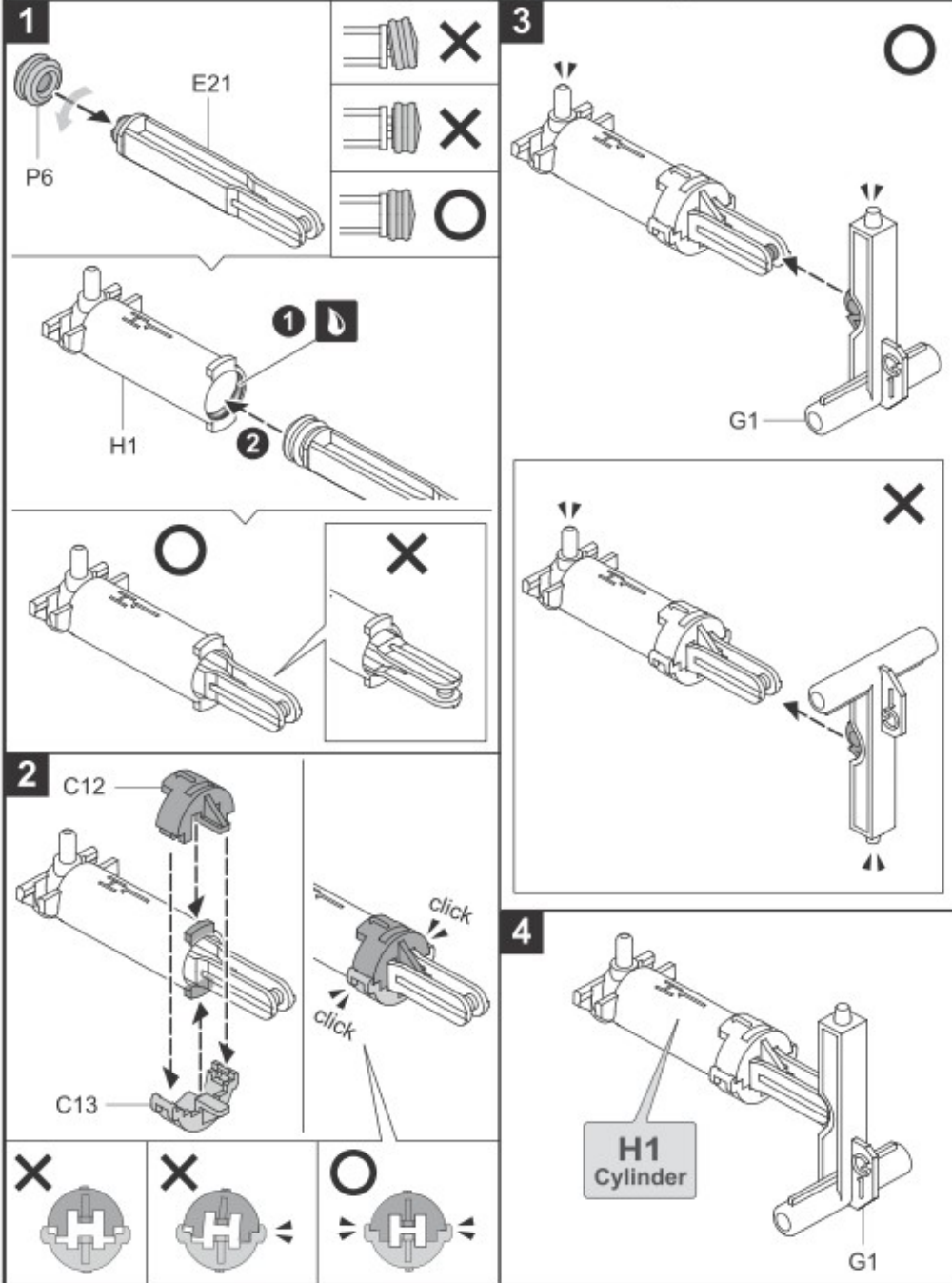
Observación: Lubrique las piezas en cuanto se visualice --.

Lubrique las piezas de manera correcta (véase fig.).

Montaje de los cilindros H0-H5

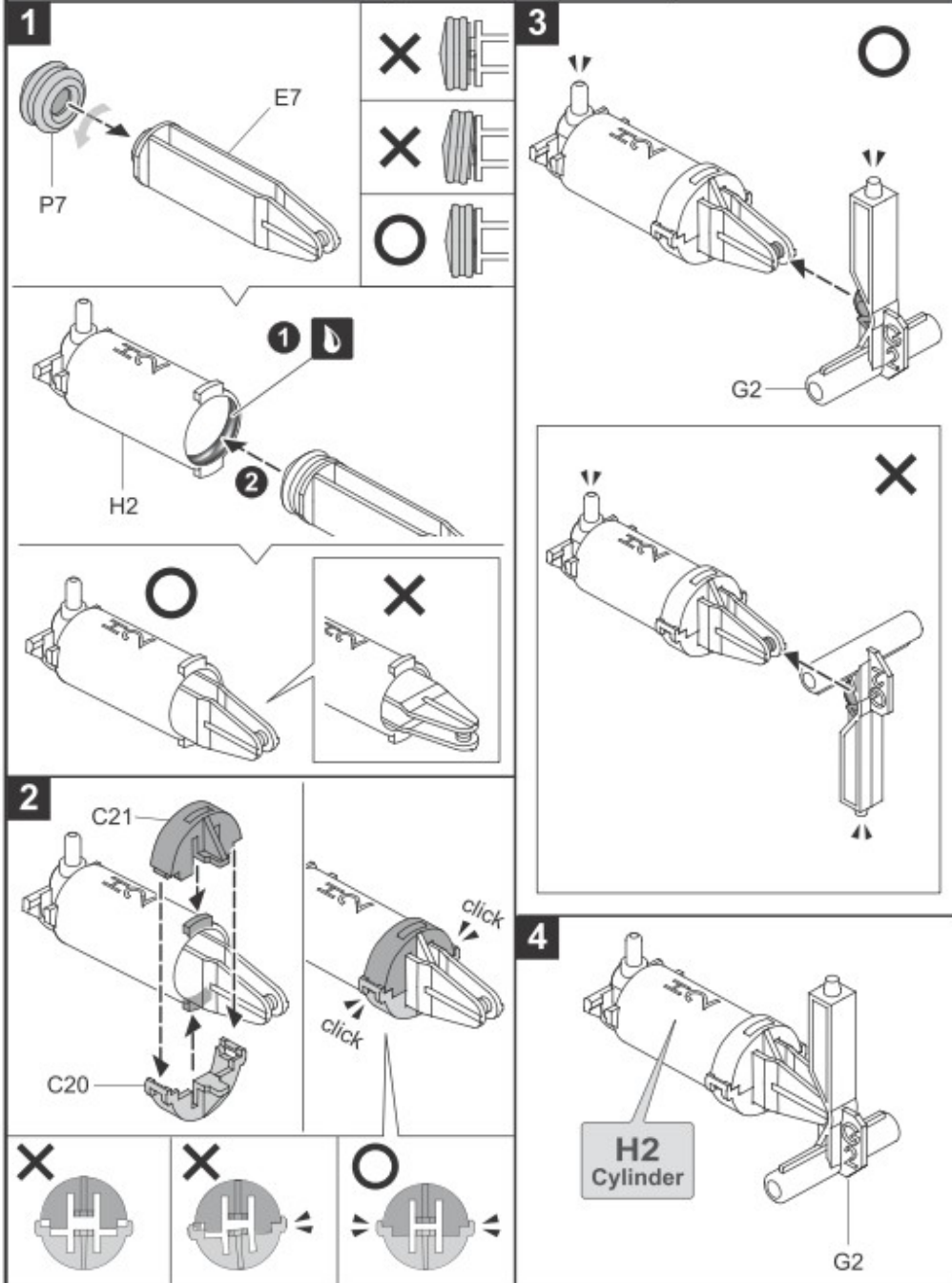
Montaje del cilindro H0

H1 Cylinder Assembly



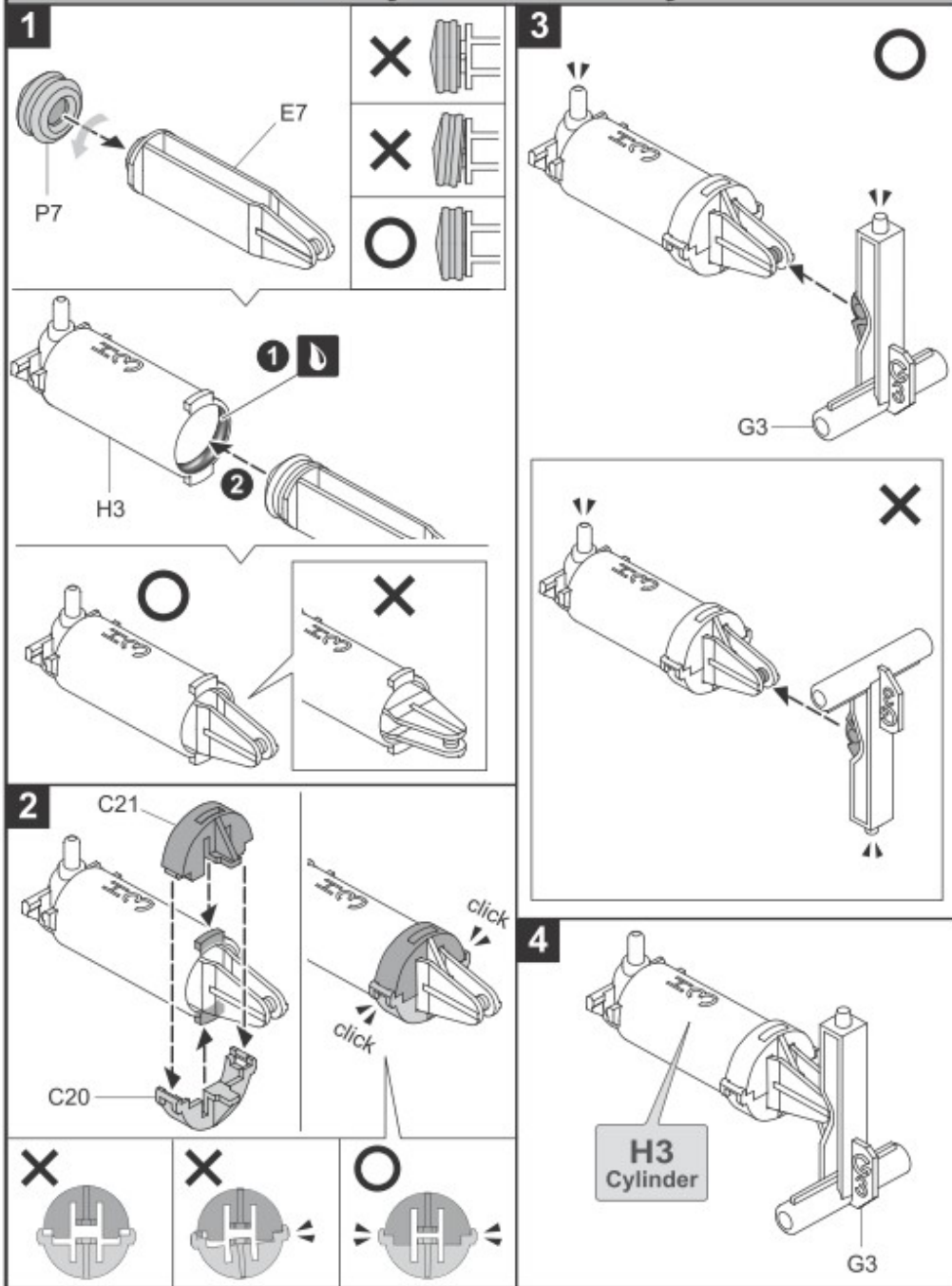
Montaje del cilindro H1

H2 Cylinder Assembly



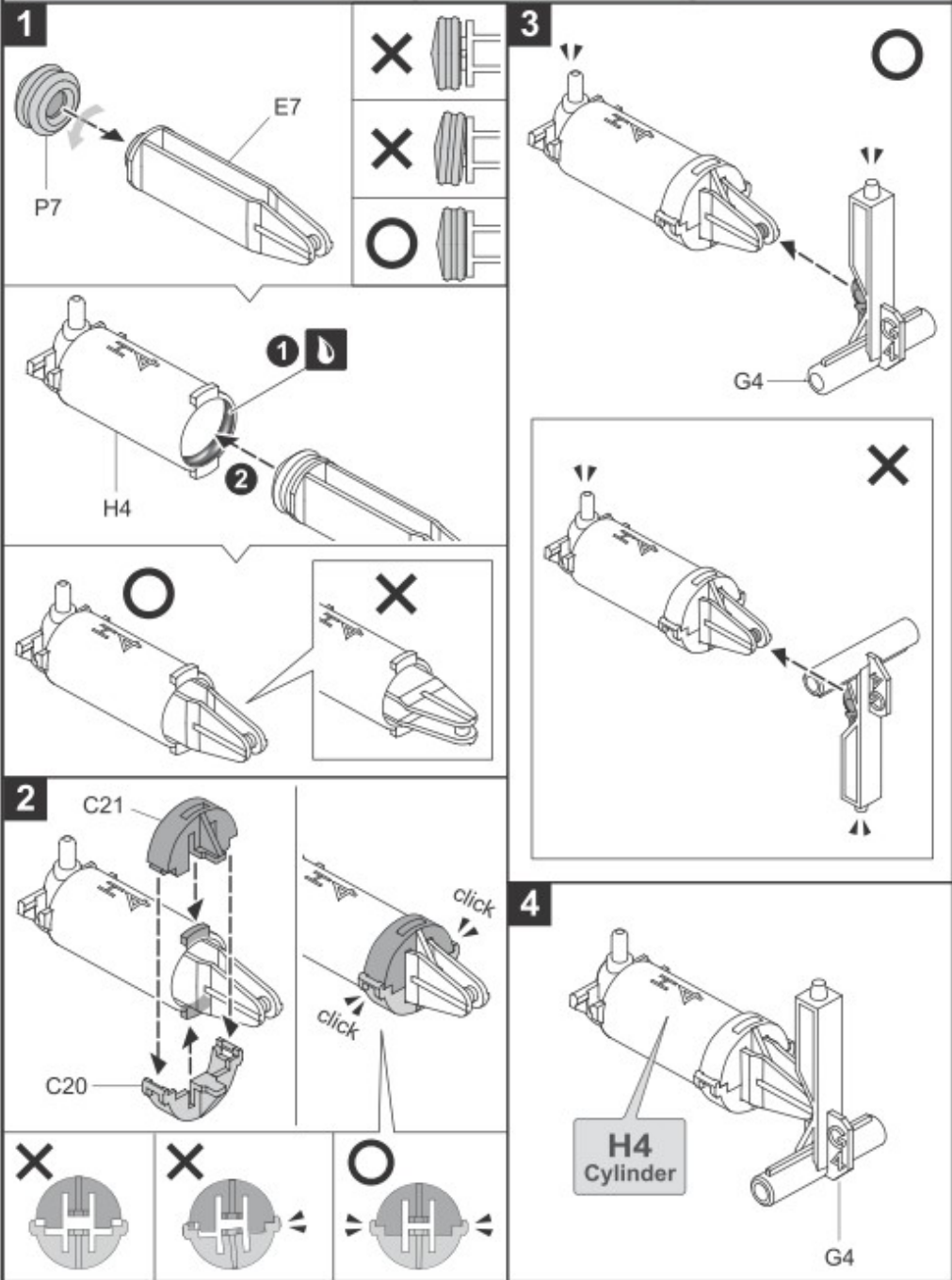
Montaje del cilindro H2

H3 Cylinder Assembly



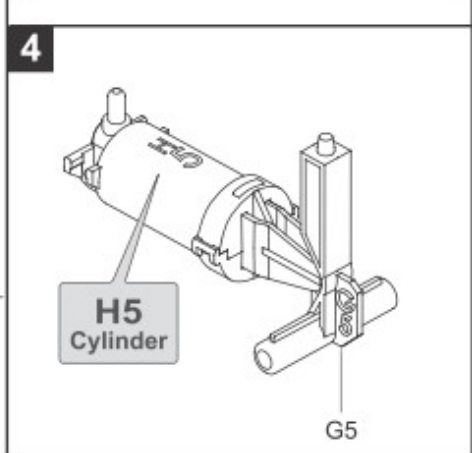
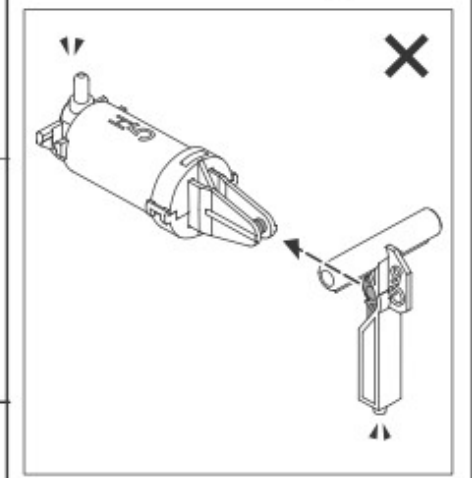
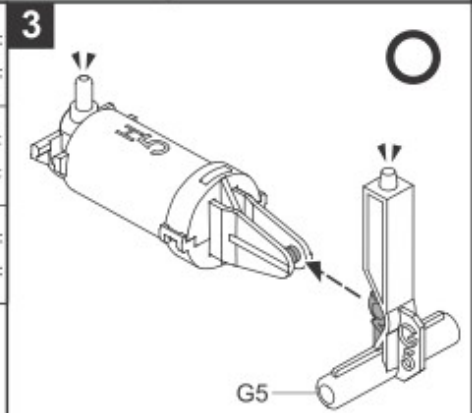
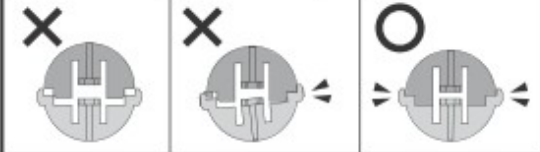
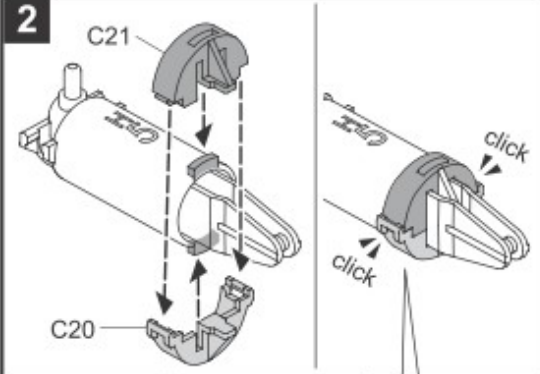
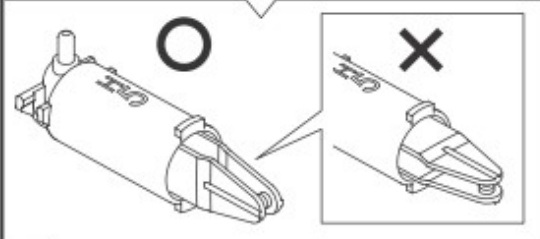
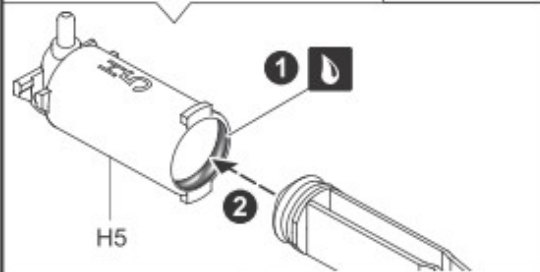
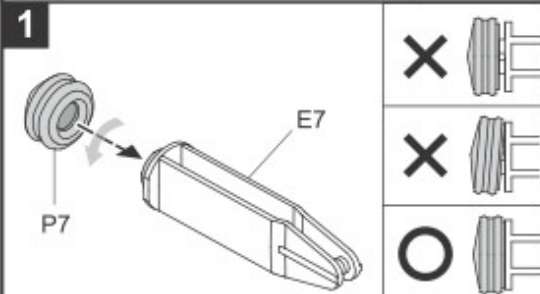
Montaje del cilindro H3

H4 Cylinder Assembly



Montaje del cilindro H4

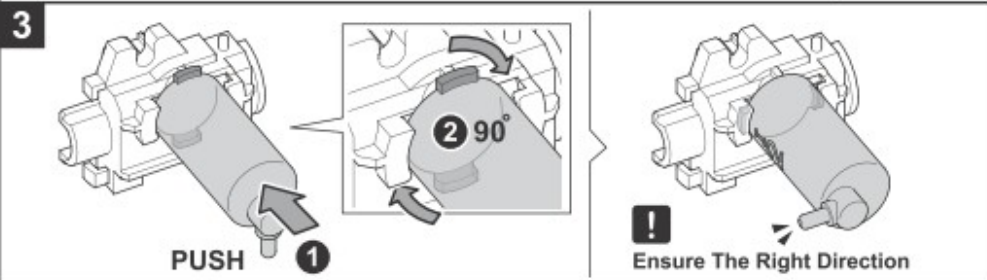
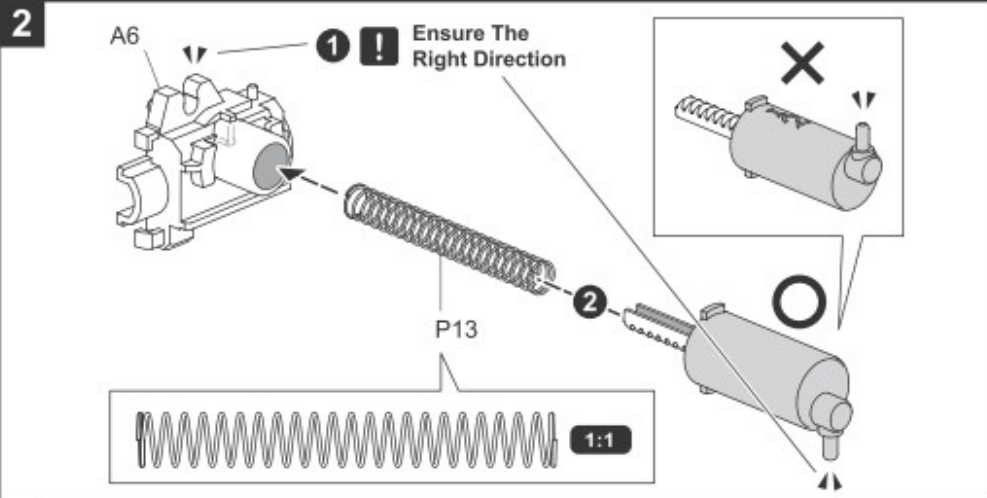
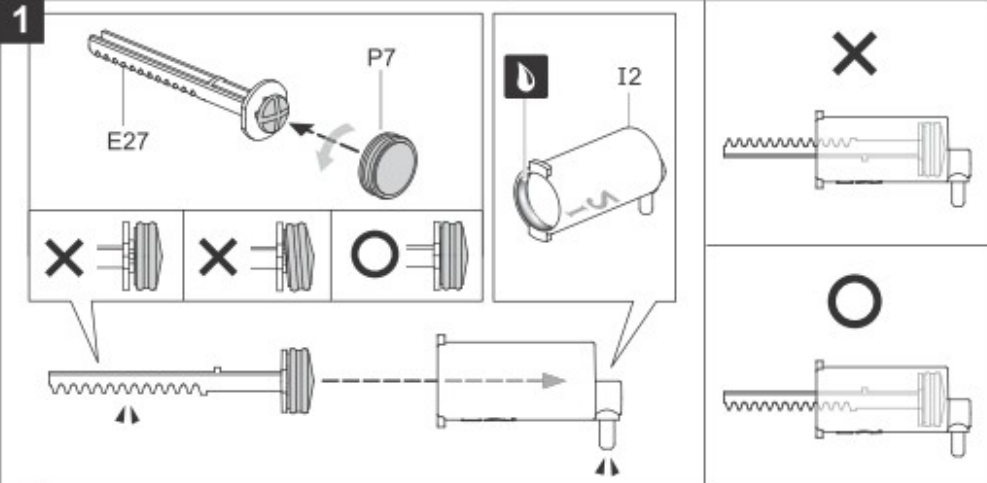
H5 Cylinder Assembly



Montaje del cilindro H5

I1 ~ I5 Cylinder Assembly

I1 & I2 Cylinder



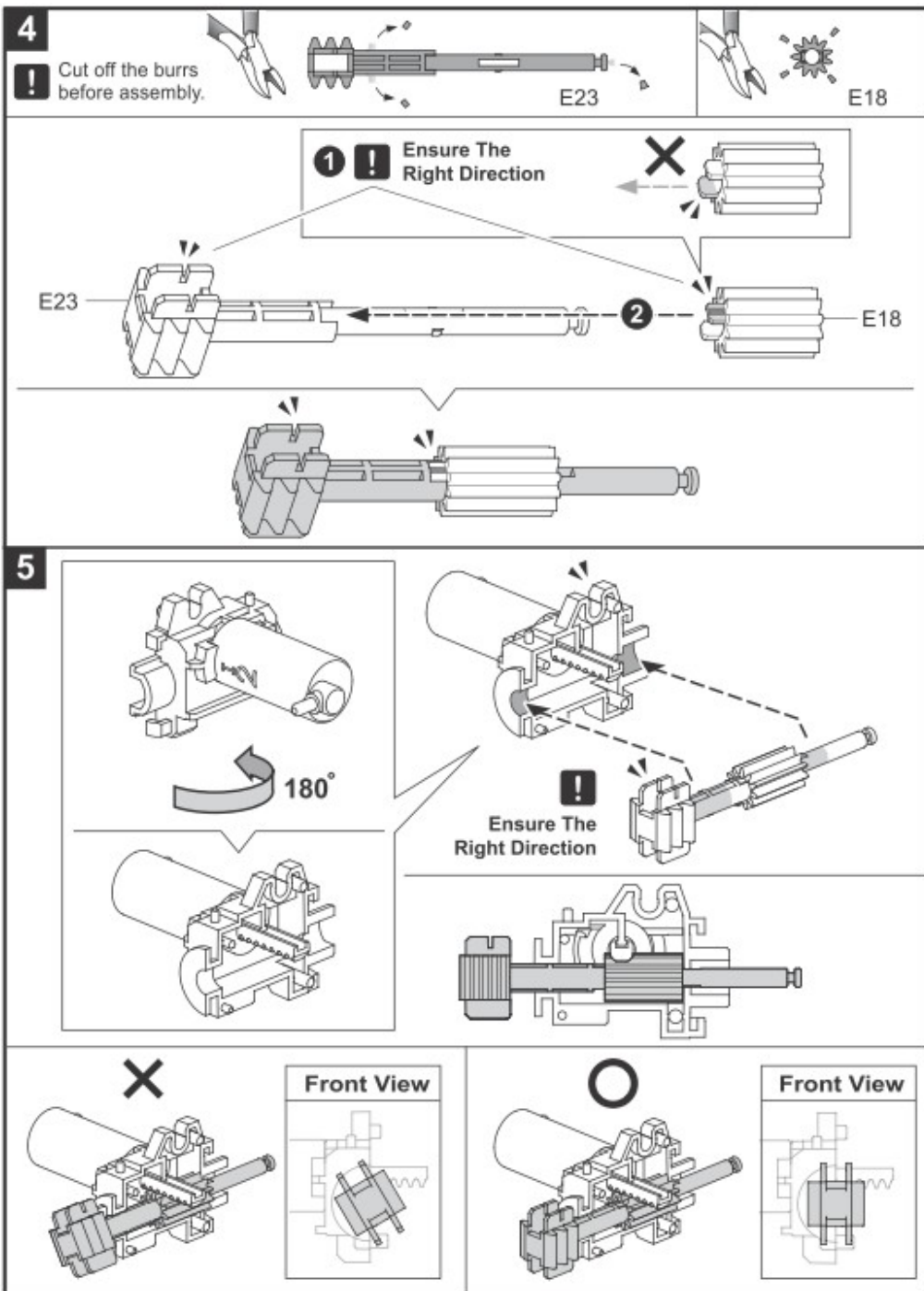
Montaje del cilindro H6

Cilindro I1-I2

Asegúrese de que la dirección es correcta.

PRESIONAR

Asegúrese de que la dirección es correcta.

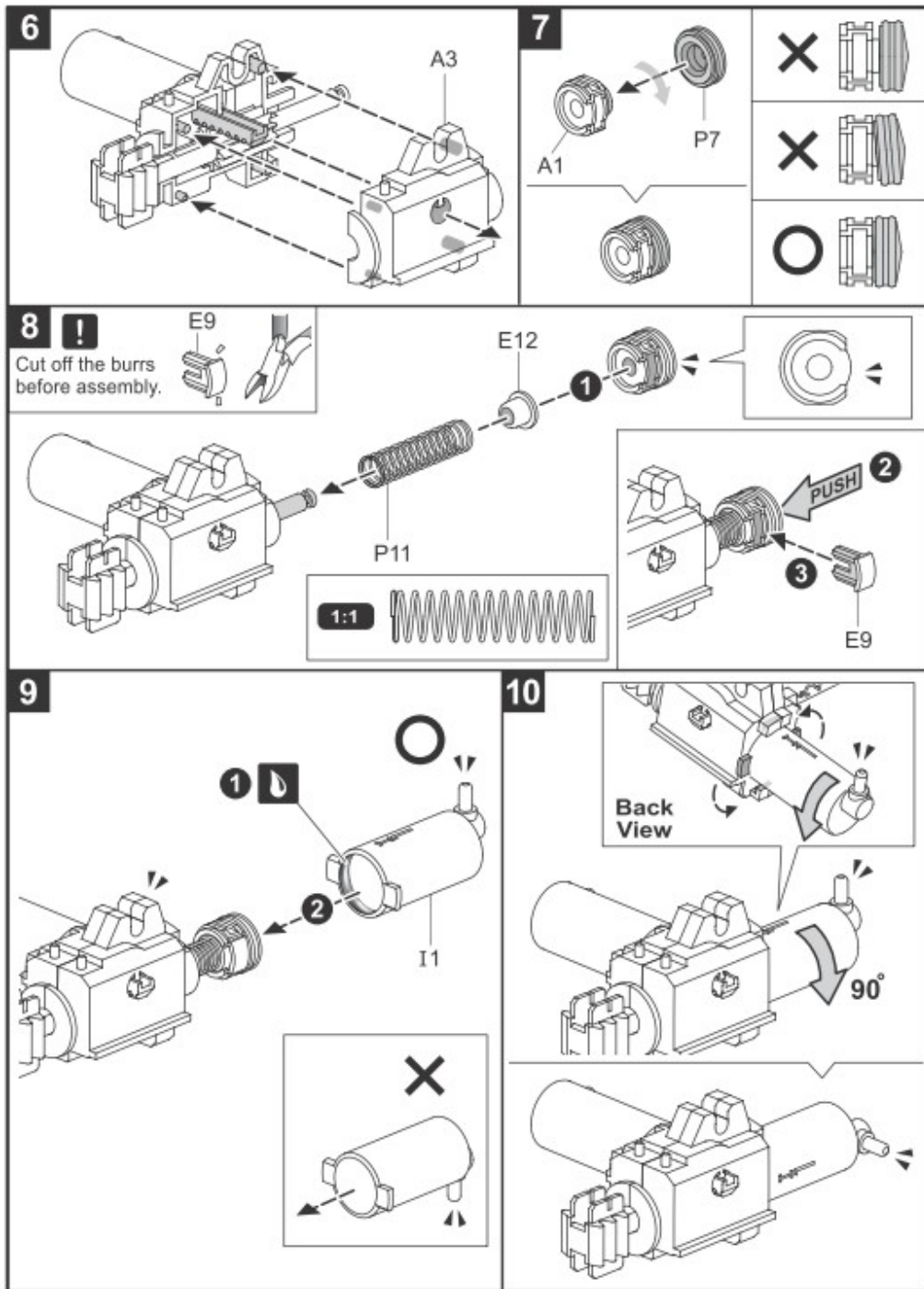


Corte las rebabas antes del montaje.

Asegúrese de que la dirección es correcta.

Asegúrese de que la dirección es correcta.

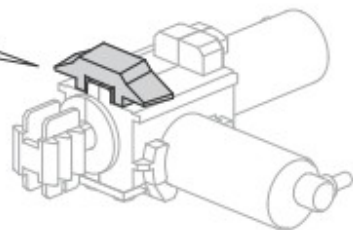
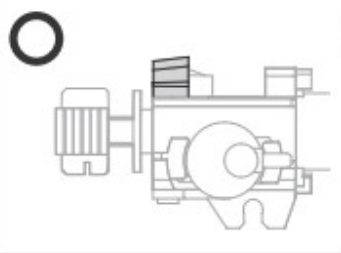
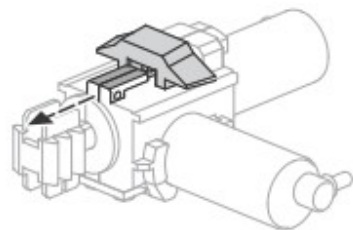
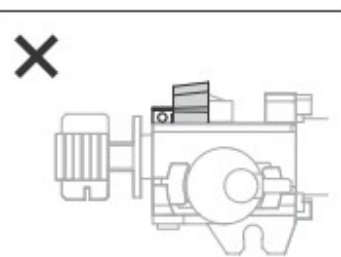
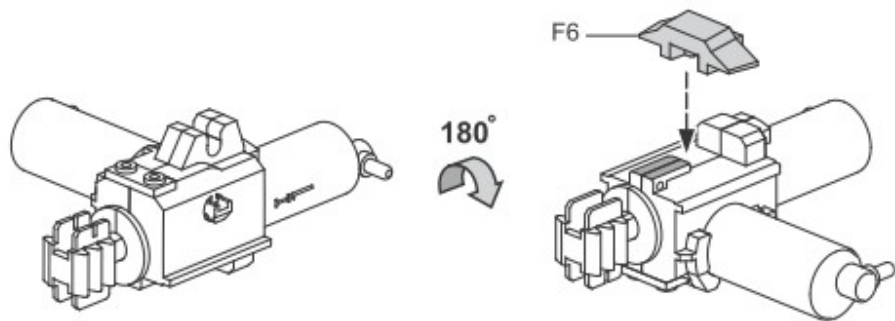
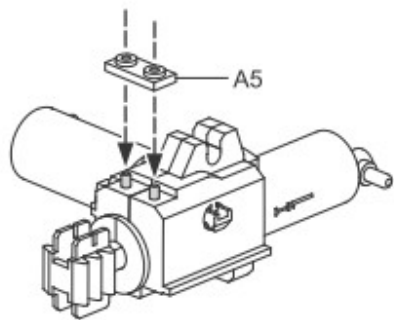
Vista frontal

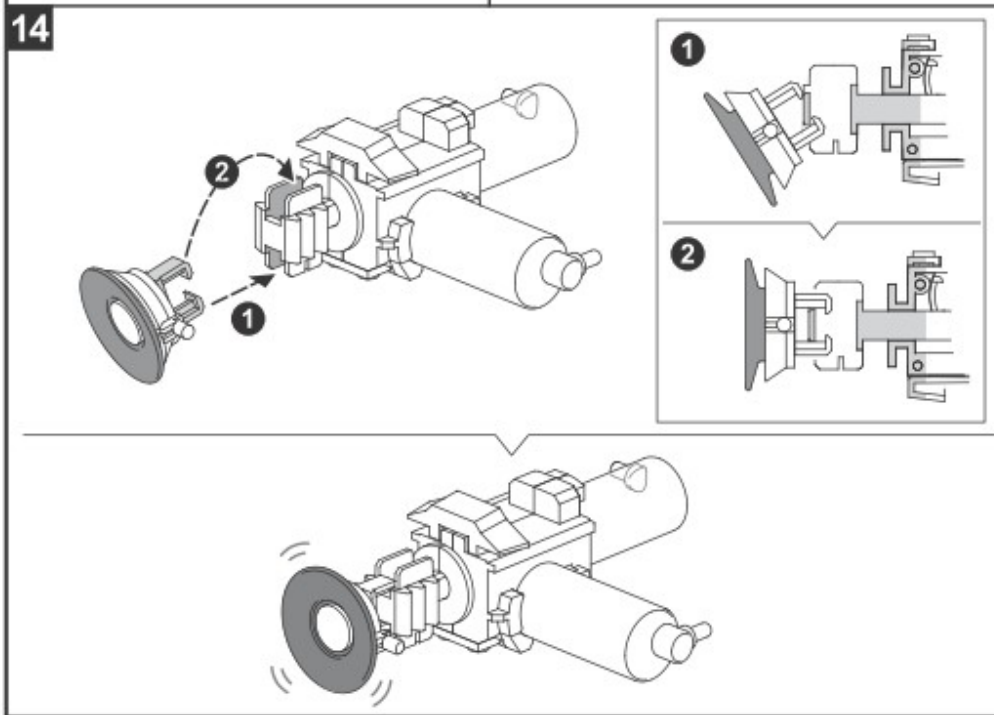
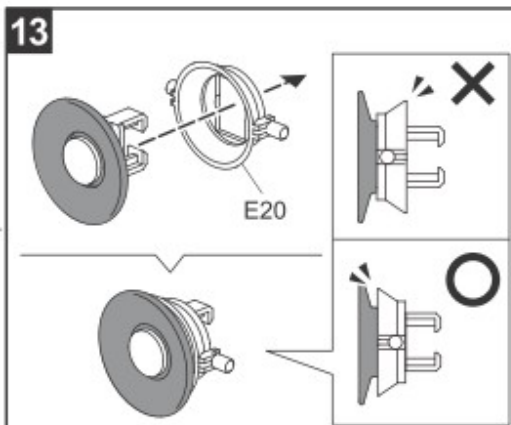
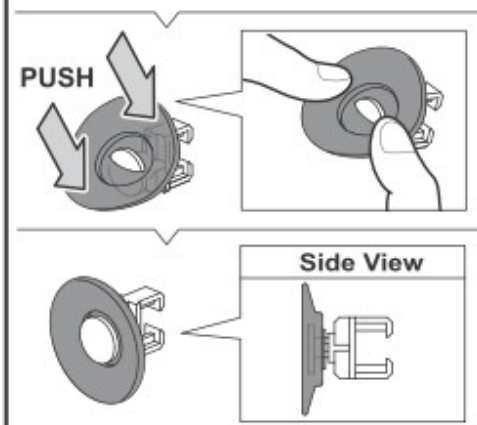
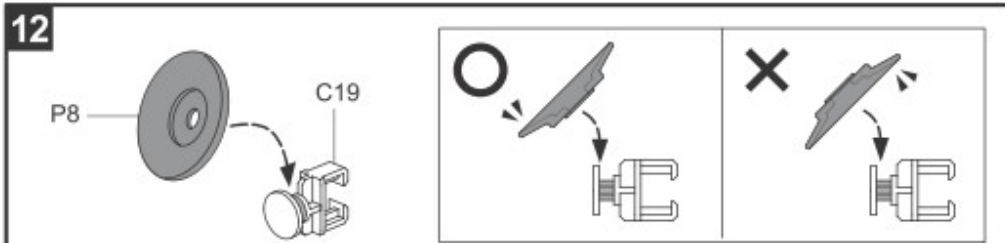


Corte las rebabas antes del montaje.

Vista trasera

11

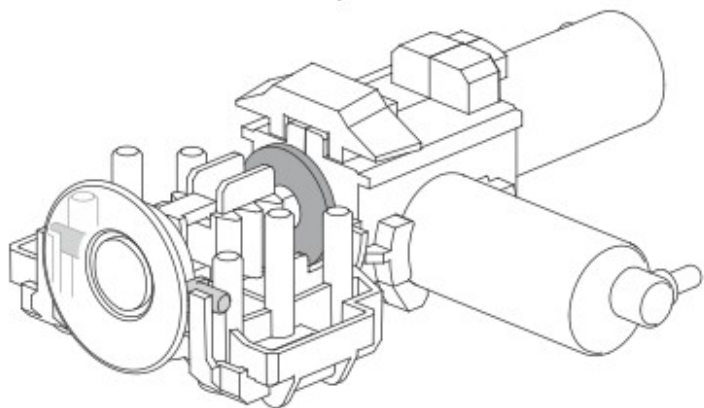
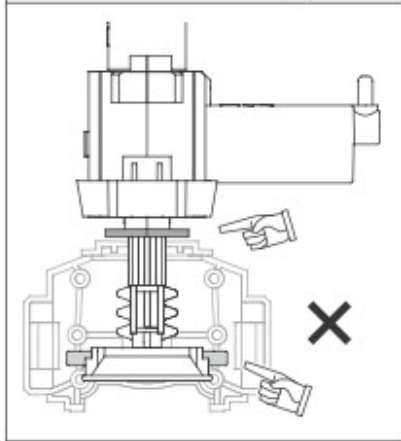
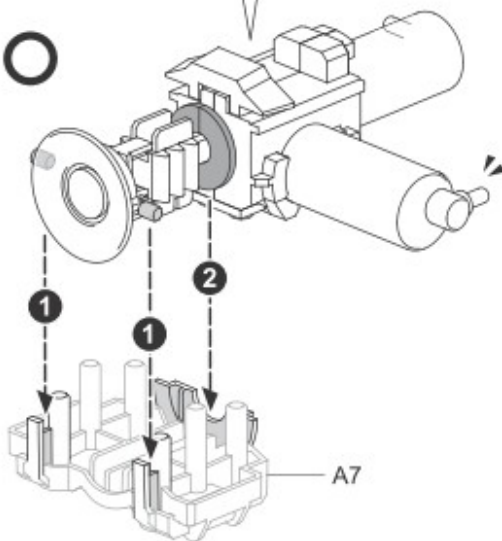
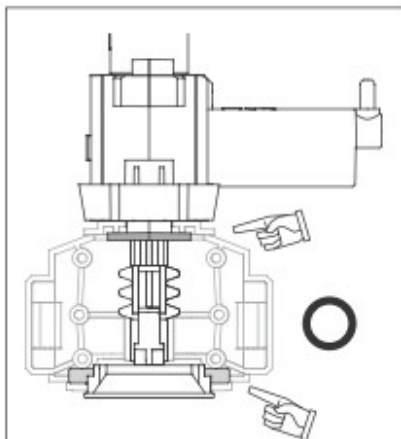
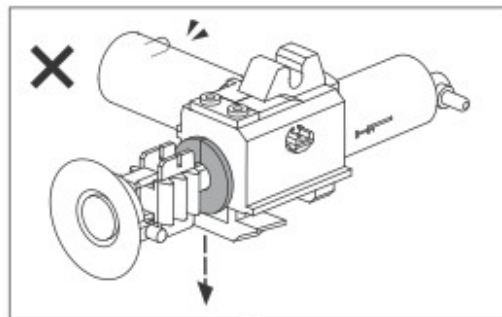




PRESIONAR

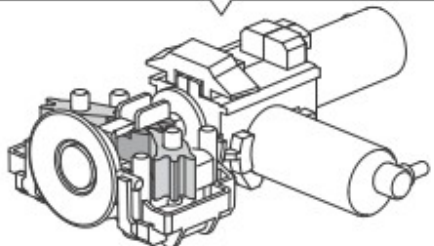
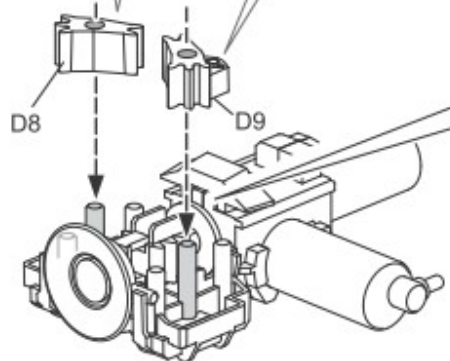
Vista lateral

15

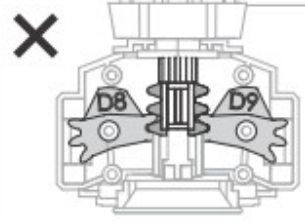
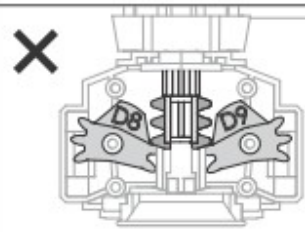
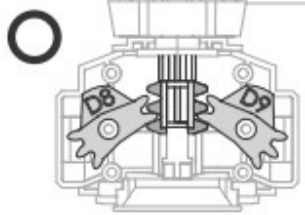


16

! Cut off the burrs before assembly.



! Very Important

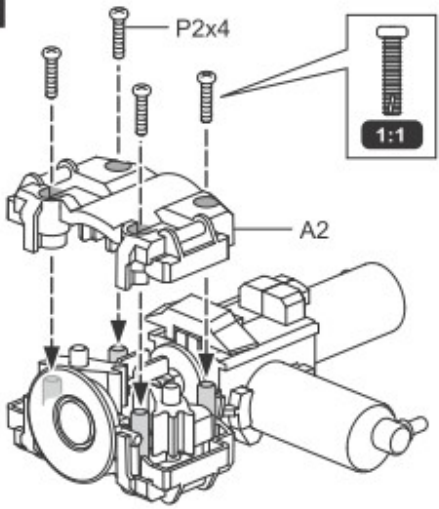


17

P2x4

1:1

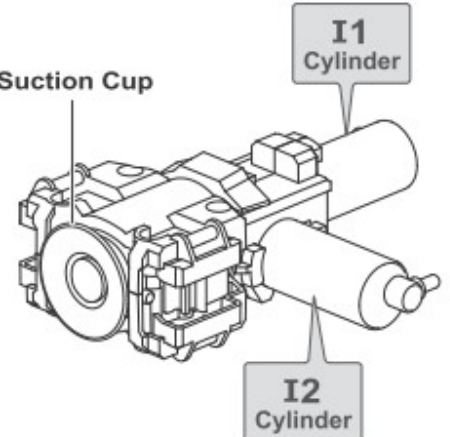
A2



Suction Cup

I1 Cylinder

I2 Cylinder

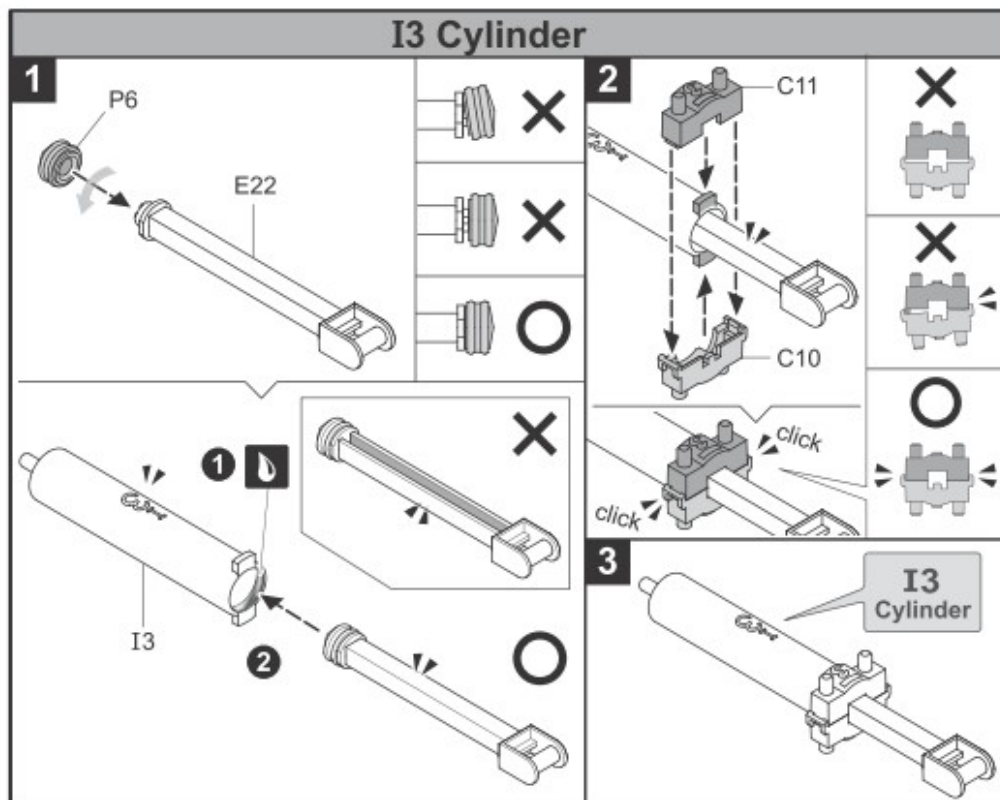


Corte las rebabas antes del montaje.

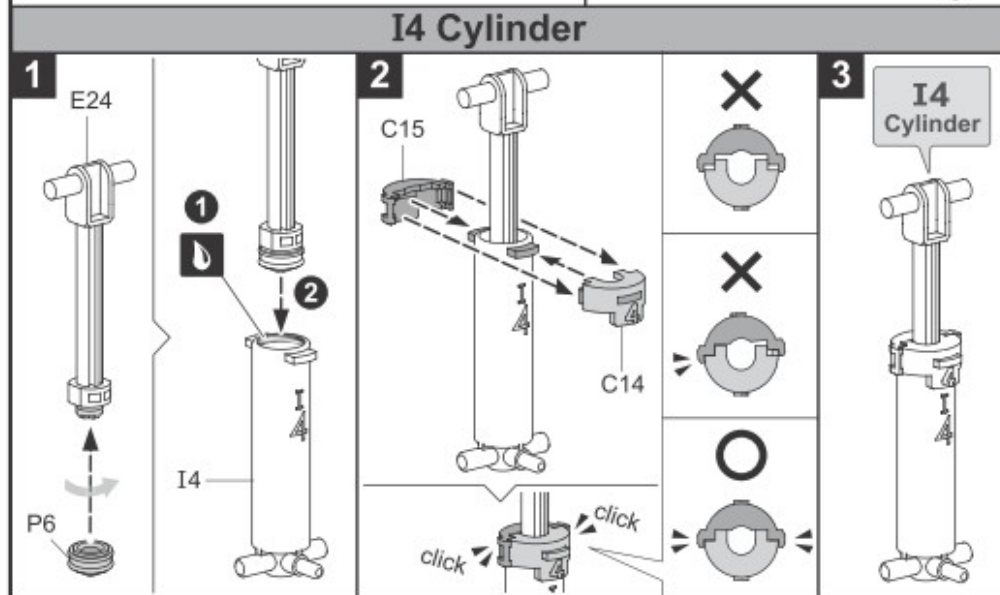


Muy importante

Ventosa



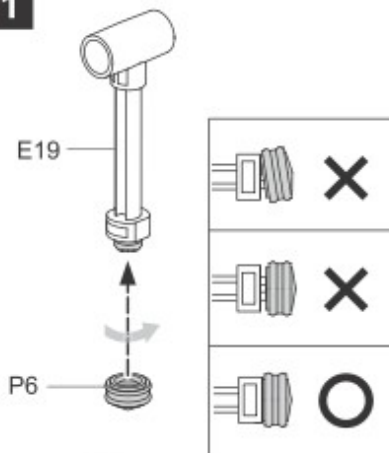
Cilindro I3



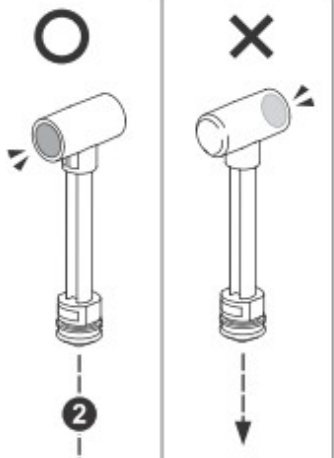
Cilindro I4

I5 Cylinder

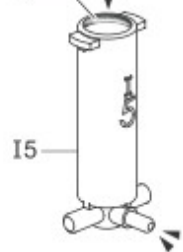
1



! Ensure The Right Direction

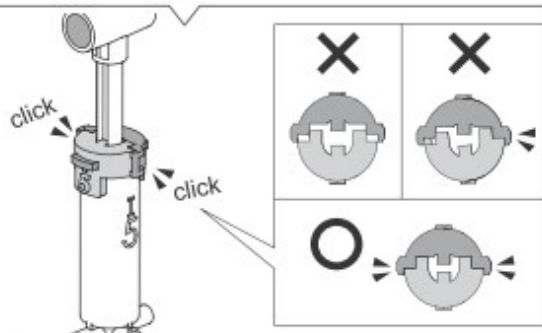
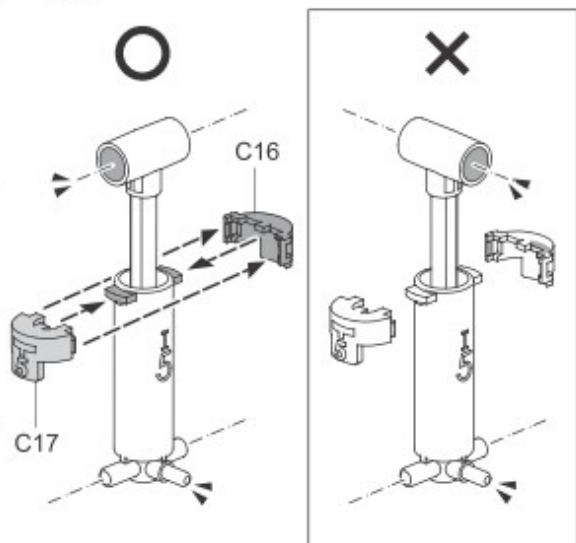


1

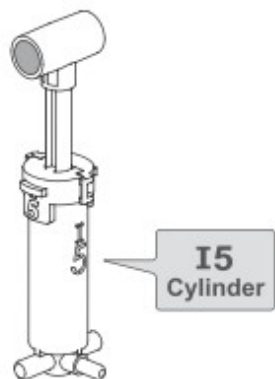


2

! Ensure The Right Direction



3

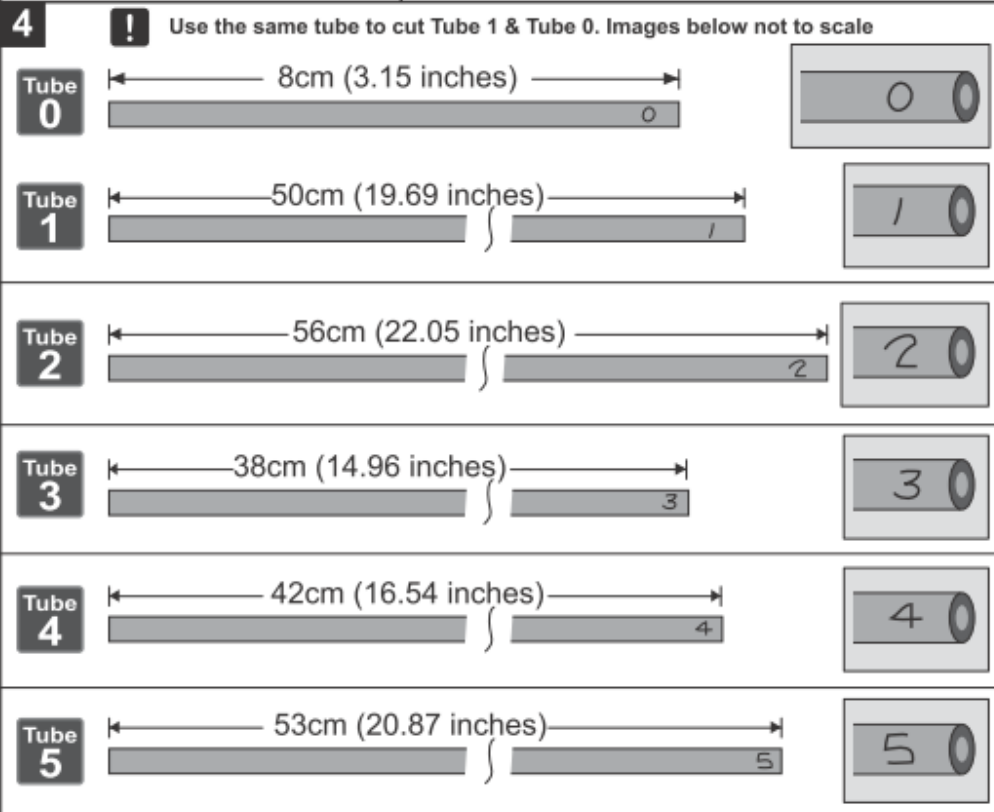
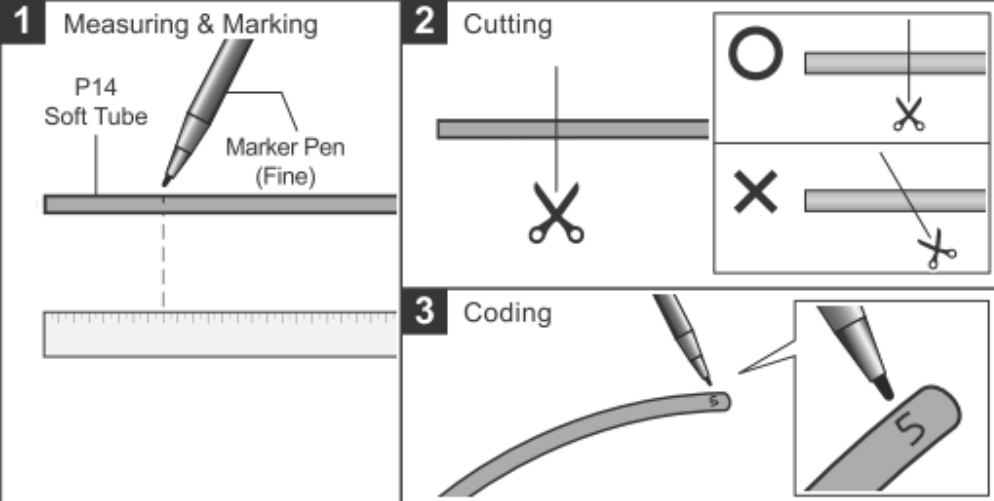


Cilindro I5

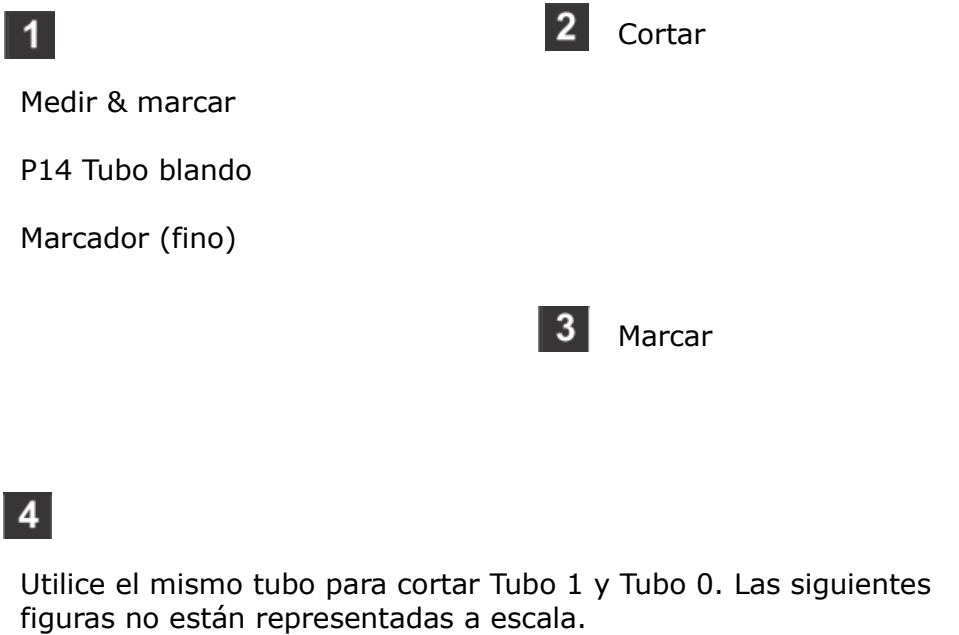
Asegúrese de que la dirección es correcta.

Asegúrese de que la dirección es correcta.

How To Cut The Tube



Cortar el tubo



How To Fill Up The Cylinder With Water

1

G15

Water

Cup

Water

Pour around a half cup of water

2

Press down the piston to the bottom

3


1

2

3

4

Note

Fill up the cylinder with water when  appears.

1 Pull up the piston to the top (as shown above).

2 Press down the piston to the bottom.

3 Re-do step 2&3 to fill up the cylinder with water.

Llenar el cilindro con agua

1

Llene el cilindro aproximadamente con una media taza de agua.

!

Presione el pistón hacia abajo.

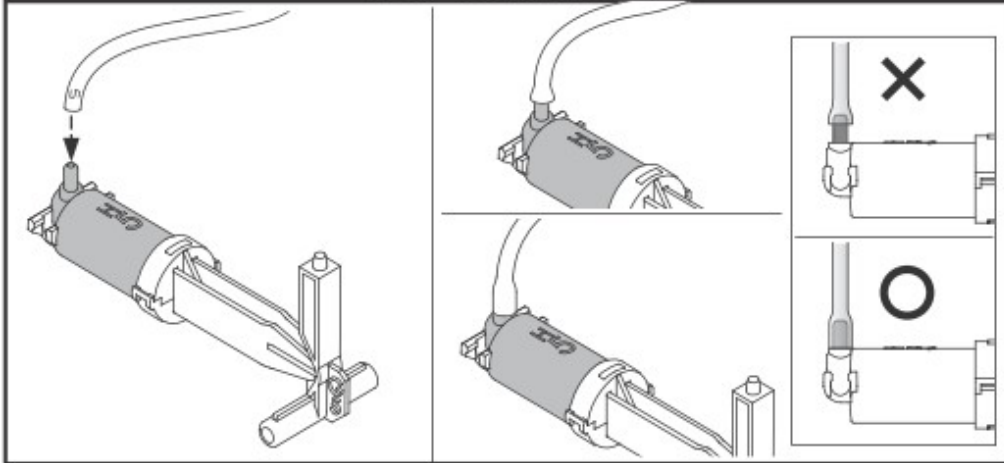
3

1. Ponga el pistón en la posición superior (véase arriba).
2. Presione el pistón hacia abajo.
3. Repita el paso 2 & 3 para llenar el cilindro con agua.

4

Observación
Llene el cilindro con agua en cuanto se visualice --.

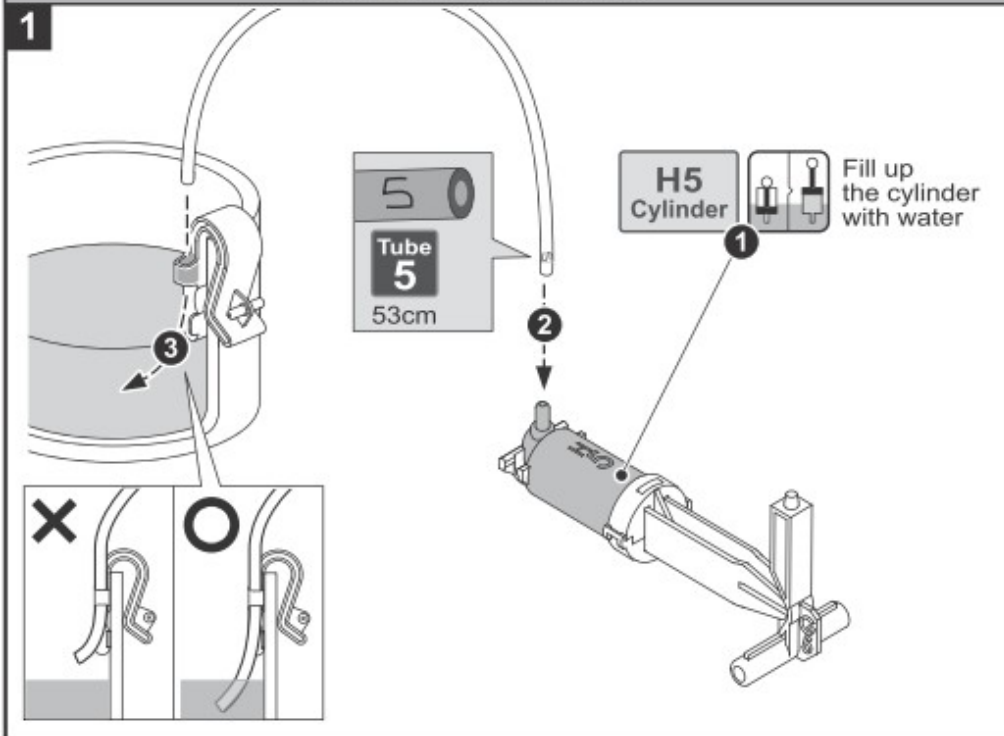
How To Fit Tube



Fijar el tubo

Hydraulic Cylinder Moduel Assembly

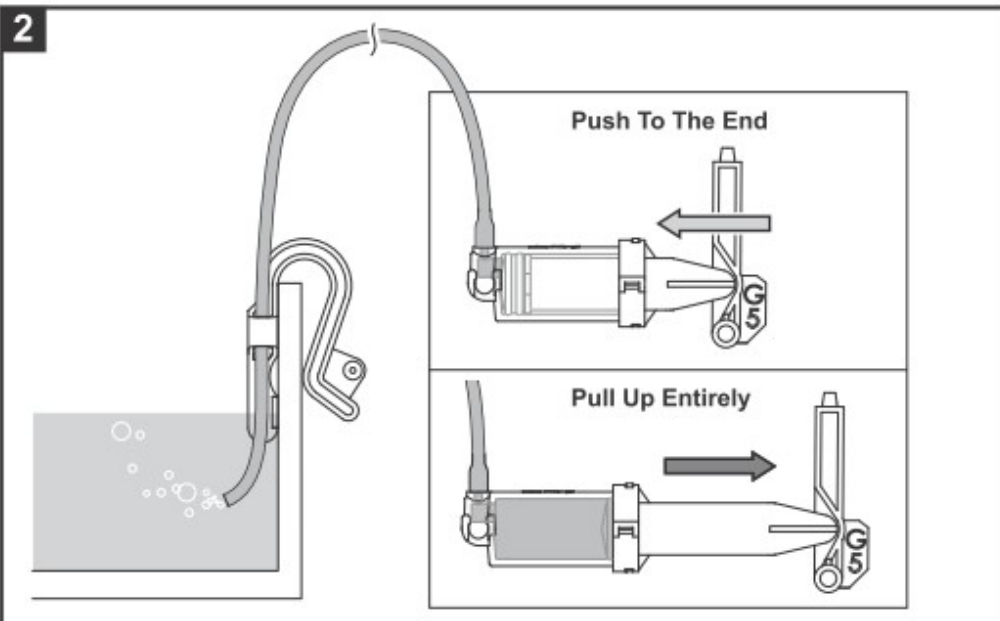
Connect H5 With I5



Montaje del cilindro hidráulico

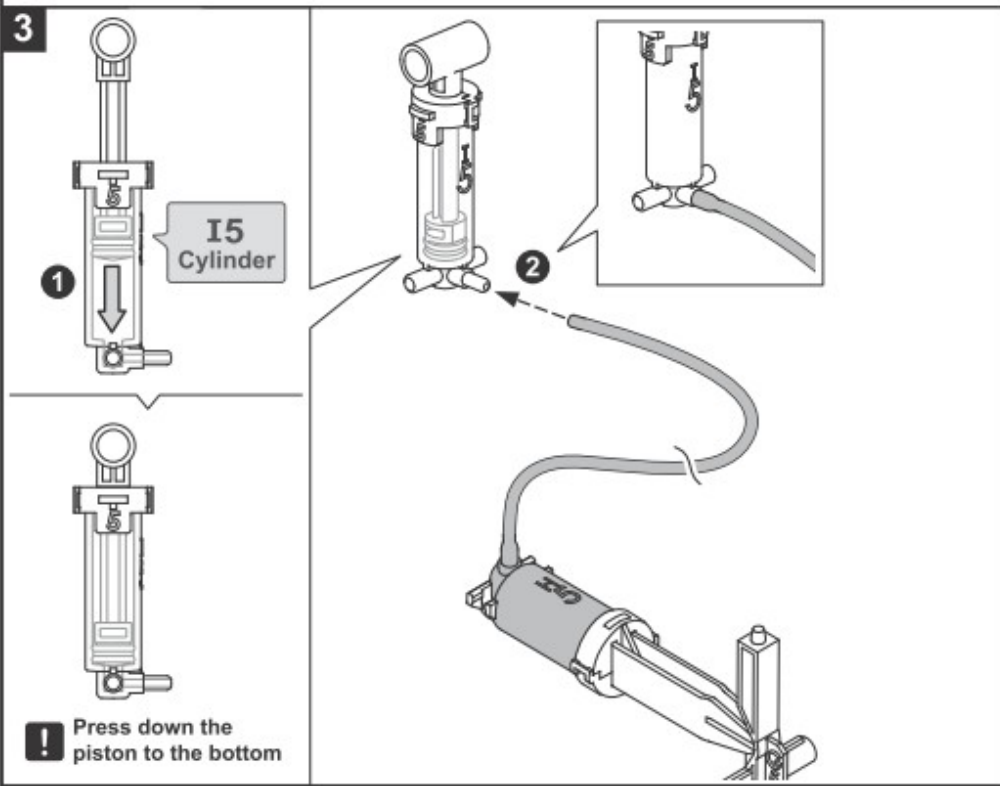
Conecte H5 a I5.

Llene el cilindro con agua.



Presione hasta el extremo.

Levántelo completamente.



Presione el pistón hacia abajo

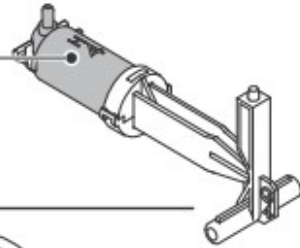
Connect H4 With I4

1

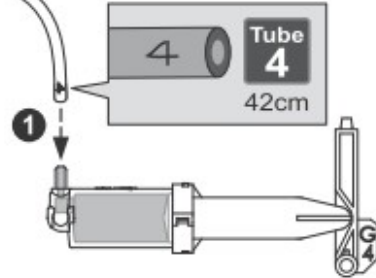
H4
Cylinder



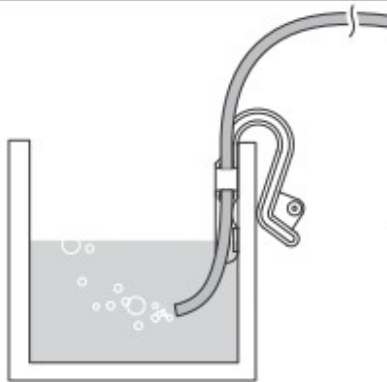
Fill up the cylinder
with water



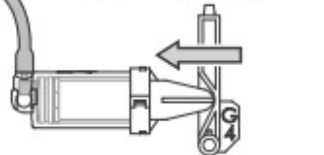
2



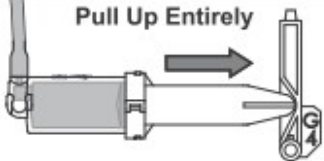
3



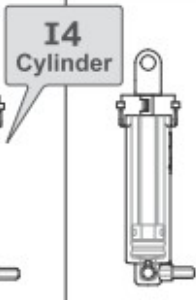
Push To The End



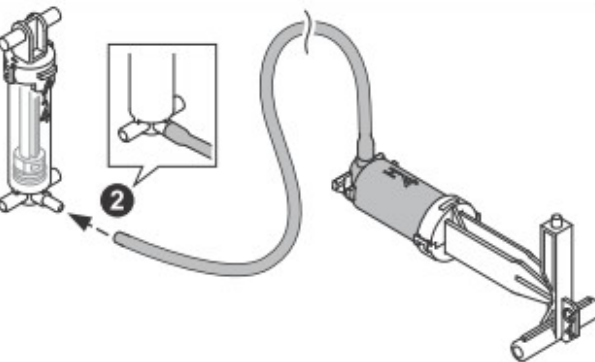
Pull Up Entirely



4



I4
Cylinder



! Press down the
piston to the bottom

Conecte H4 a I4.

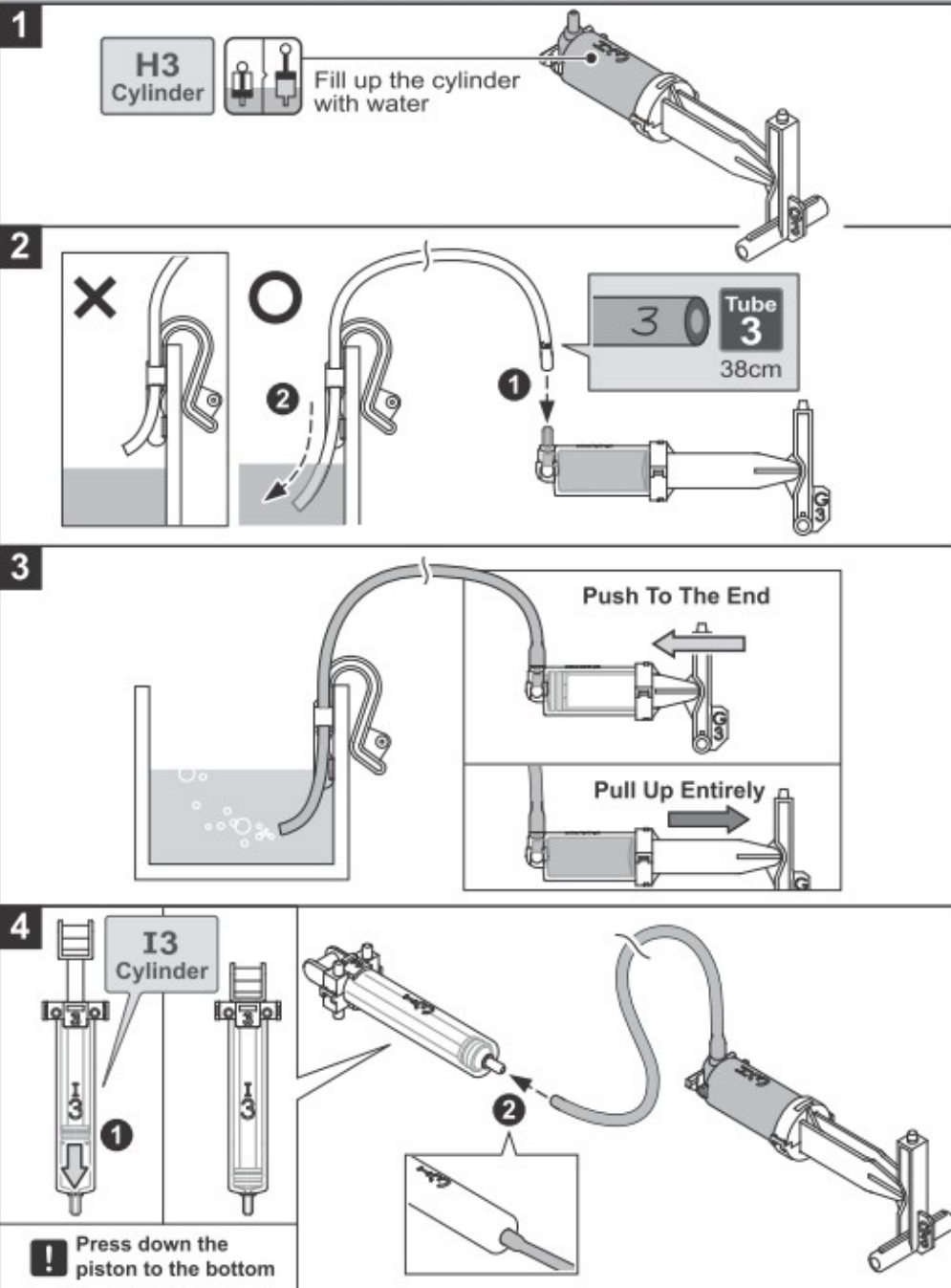
Llene el cilindro con agua.

Presione hasta el extremo.

Levántelo completamente.

Presione el pistón hacia abajo

Connect H3 With I3



Conecte H3 a I3.

Llene el cilindro con agua.

Presione hasta el extremo.

Levántelo completamente.

Presione el pistón hacia abajo

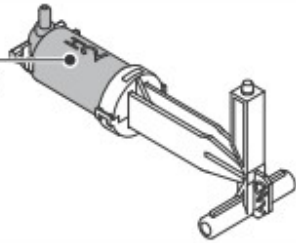
Connect H2 With I2

1

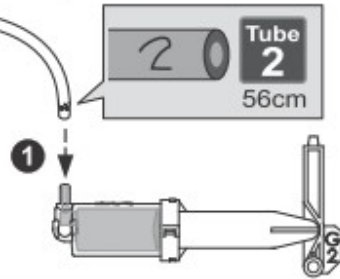
H2
Cylinder



Fill up the cylinder
with water

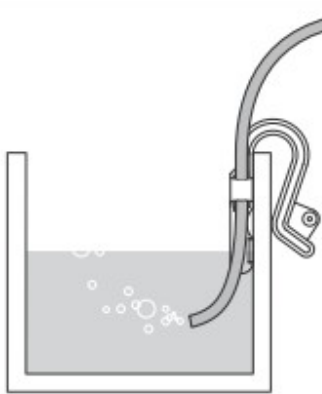


2

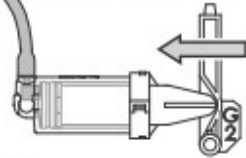


Tube
2
56cm

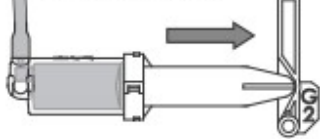
3



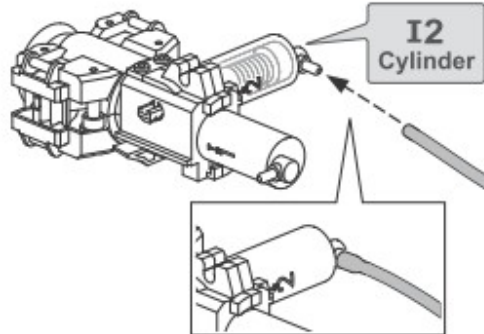
Push To The End



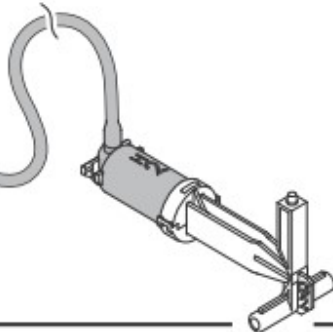
Pull Up Entirely



4



I2
Cylinder



Conecte H2 a I2.

Llene el cilindro con agua.

Presione hasta el extremo.

Levántelo completamente.

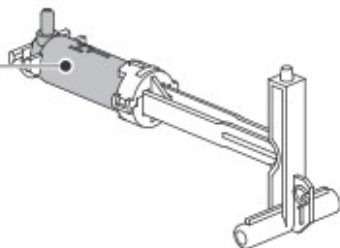
Connect H1 \ H0 With I1

1

H1
Cylinder



Fill up the cylinder
with water



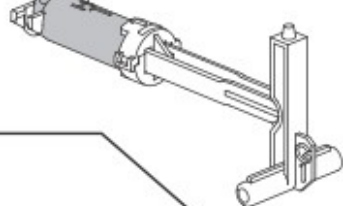
2

Tube
0

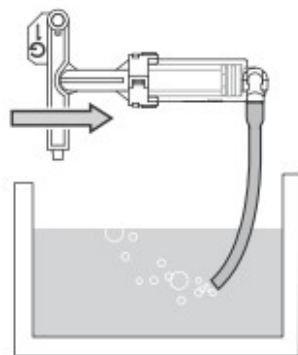
1:1



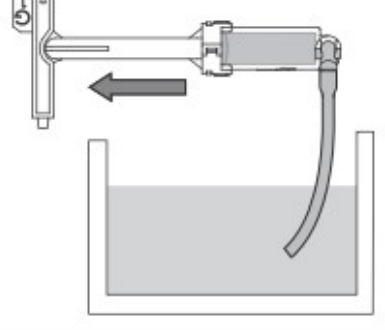
1



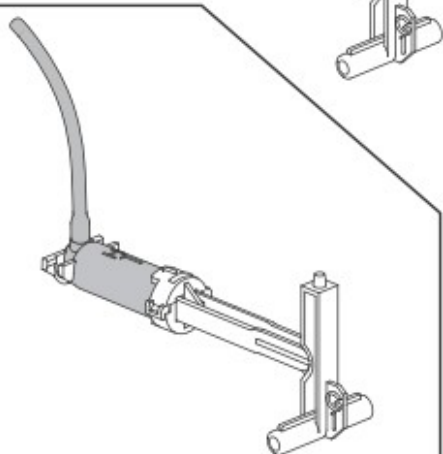
2 Push To The End



3 Pull Up Entirely



3

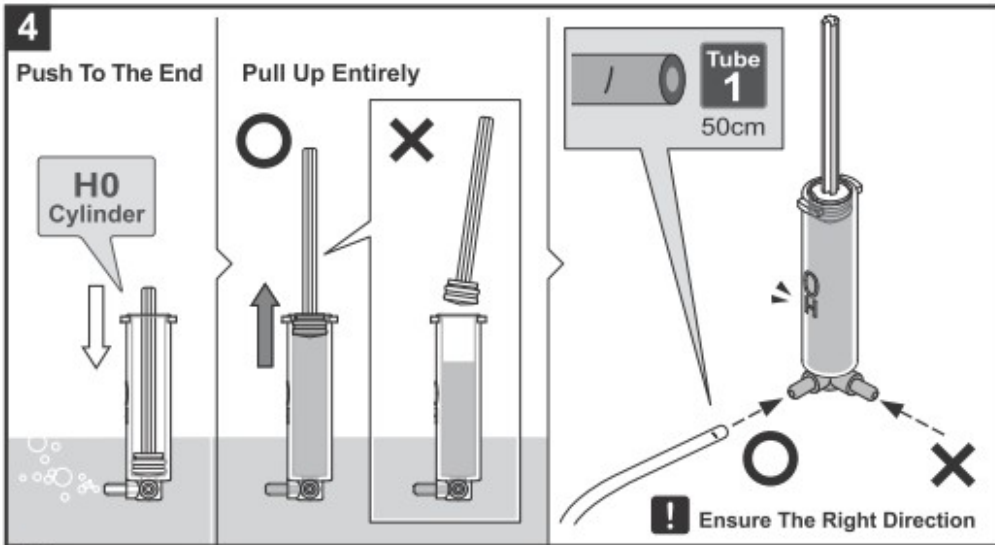


Conecte H1 a I1.

Llene el cilindro con agua.

Presione hasta el extremo.

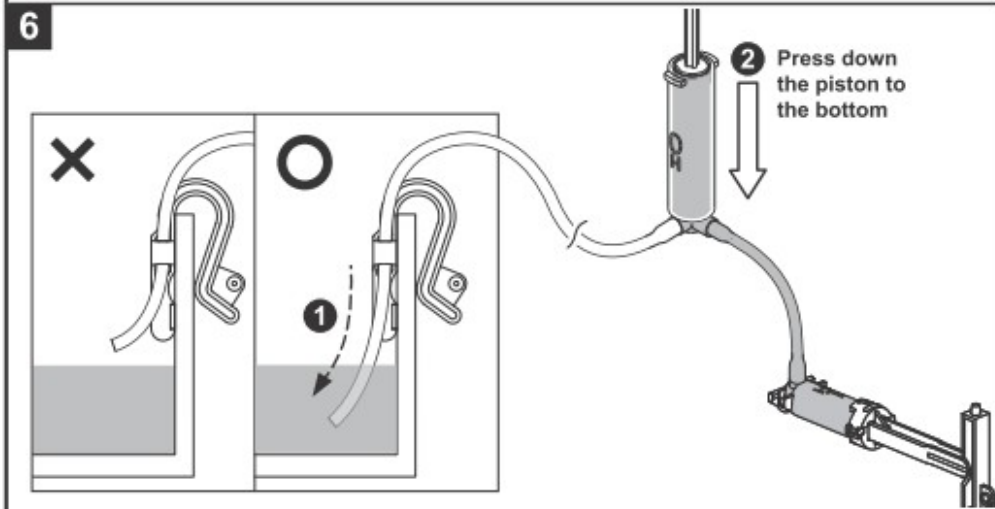
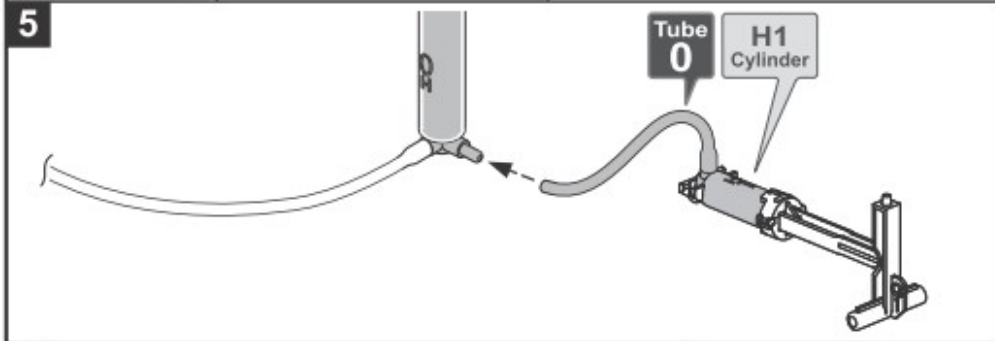
Levántelo completamente.



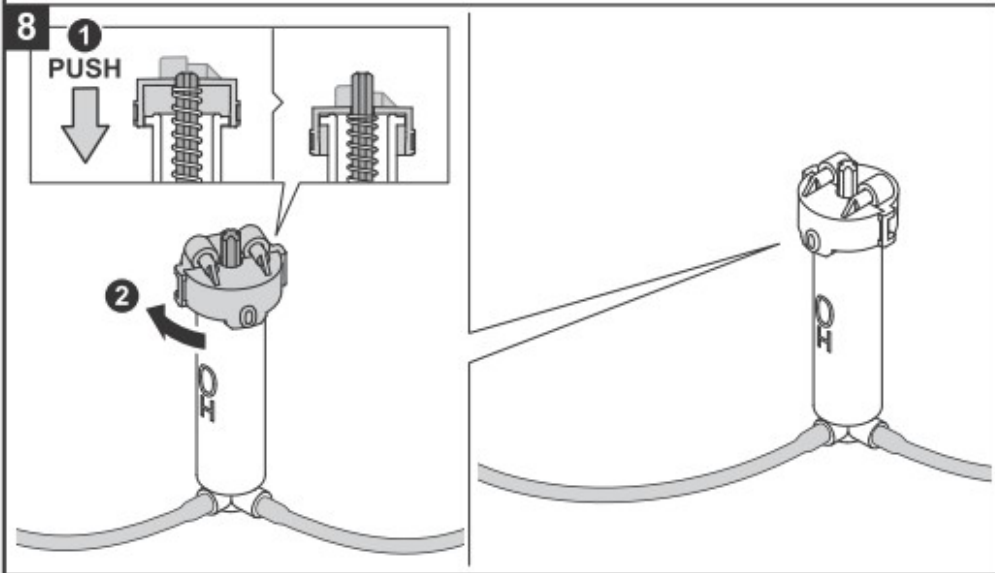
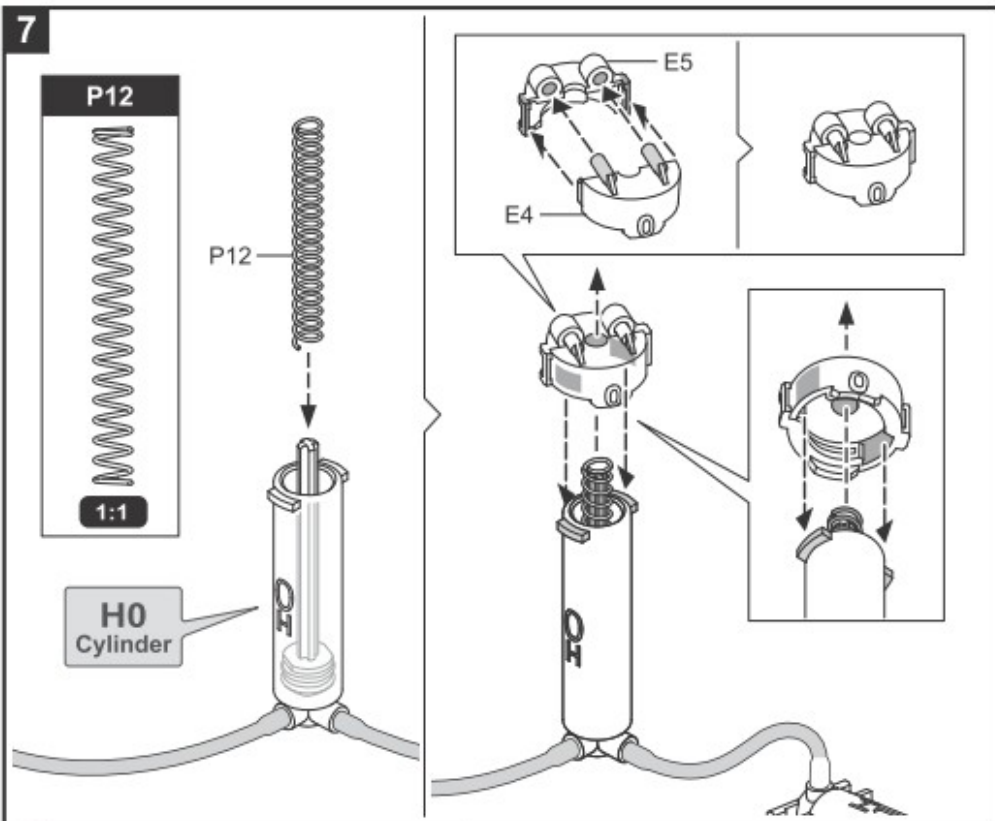
Presione hasta el extremo.

Levántelo completamente.

Asegúrese de que la dirección es correcta.

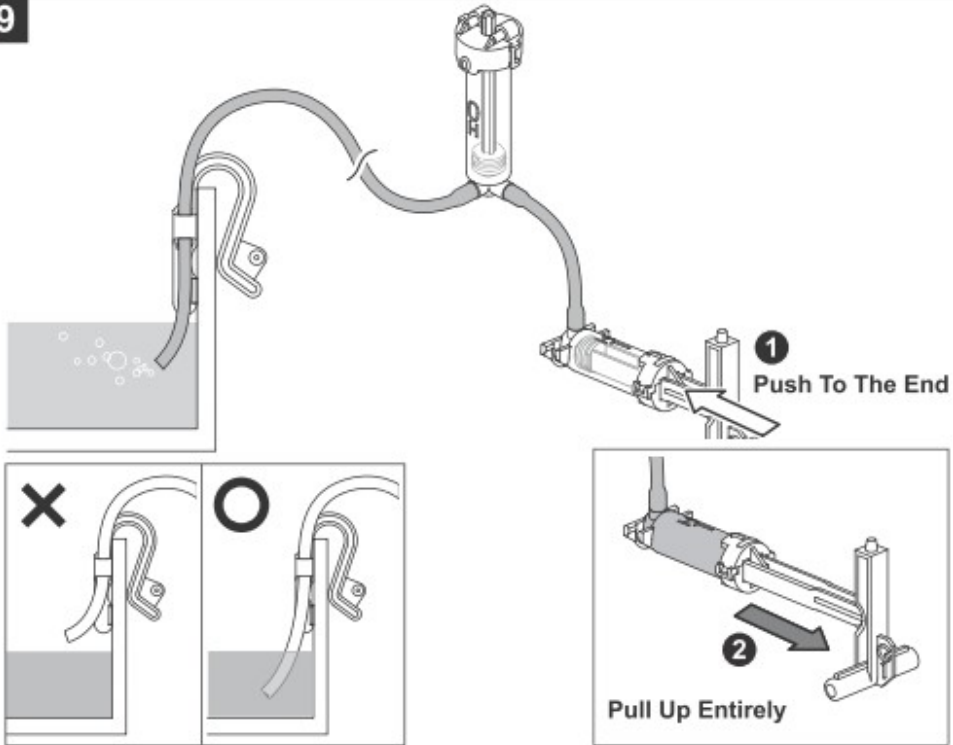


Presione el pistón hacia abajo



PRESIONAR

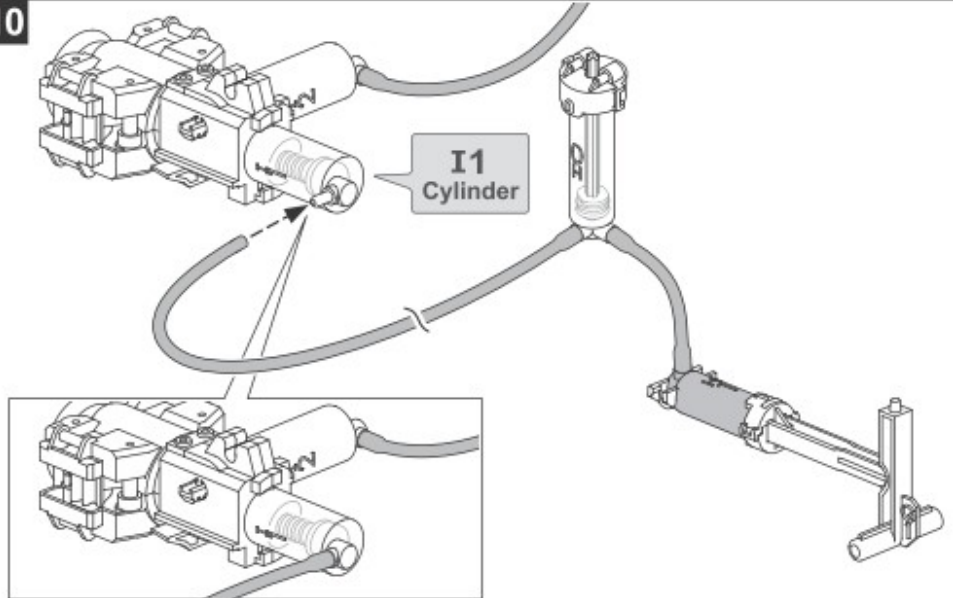
9



Presione hasta el extremo.

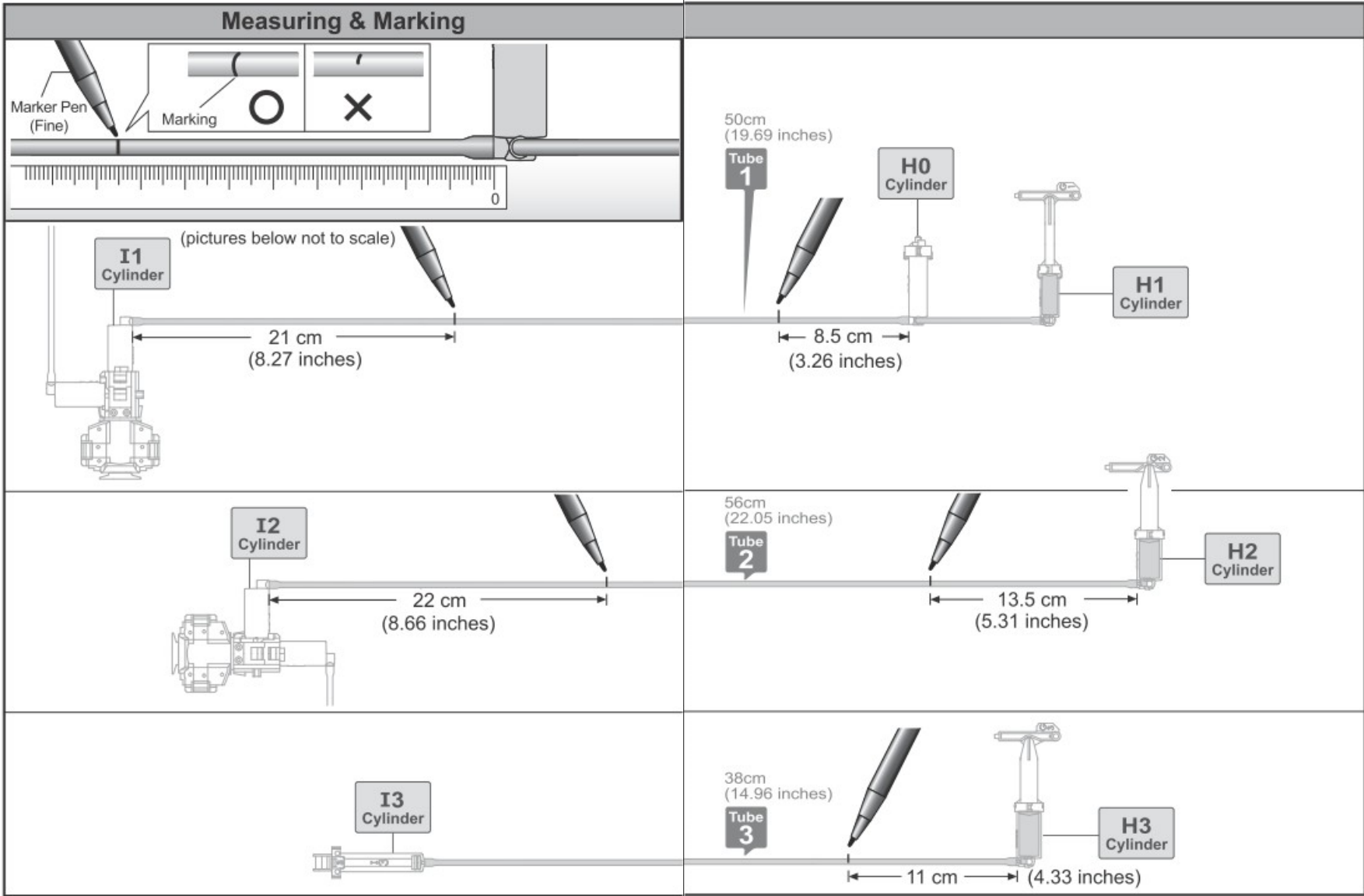
Levántelo completamente.

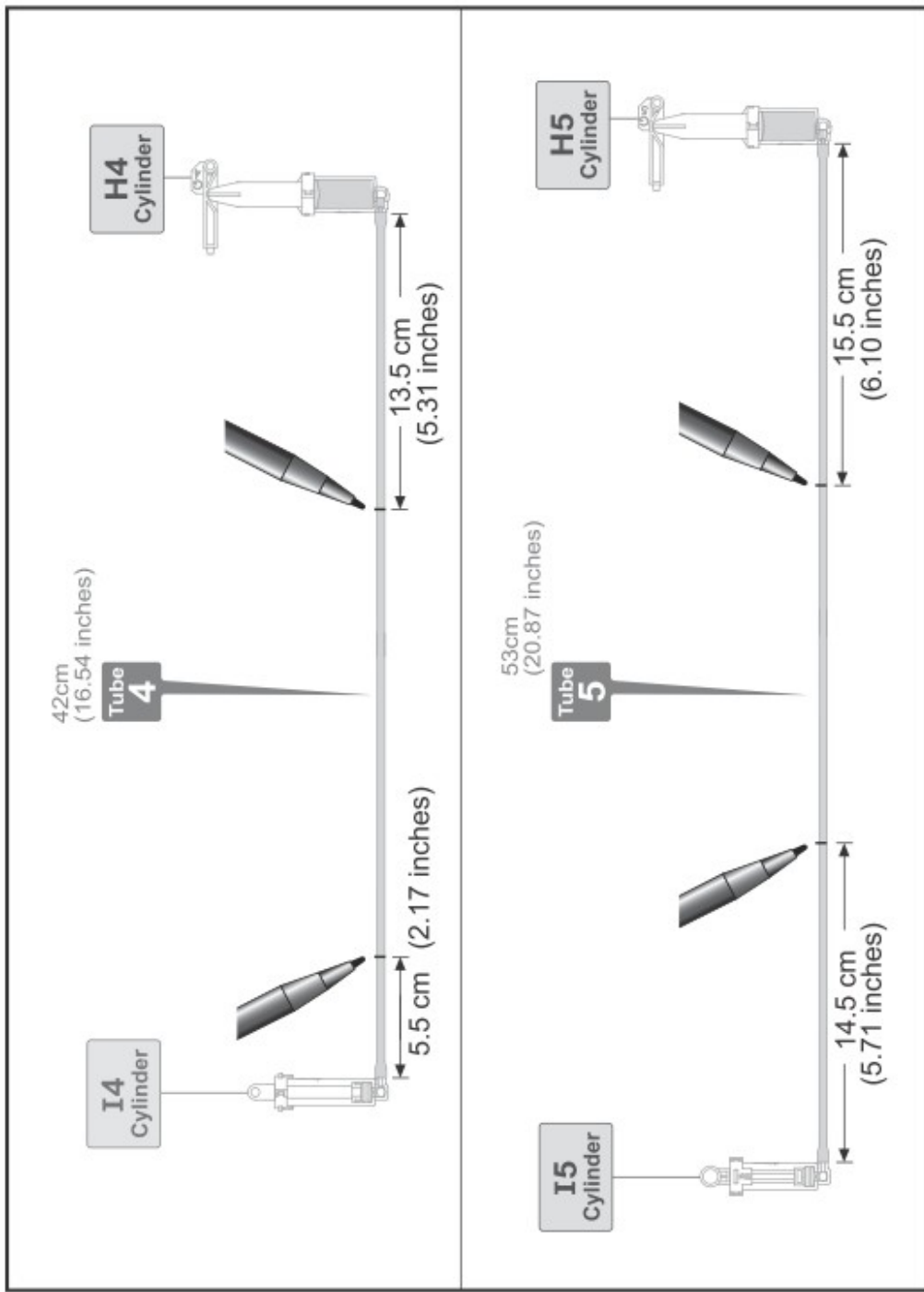
10



Medir & marcar

Las siguientes figuras no están representadas a escala.

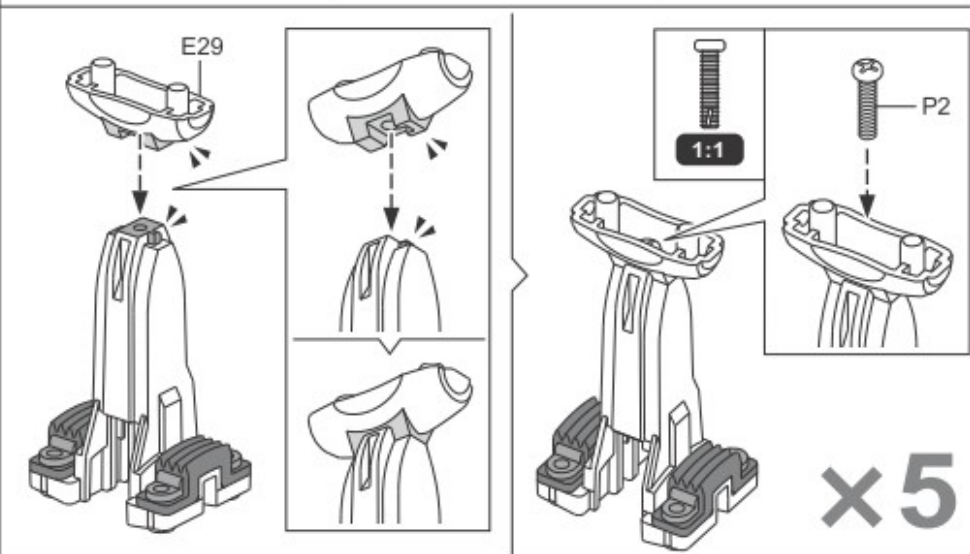
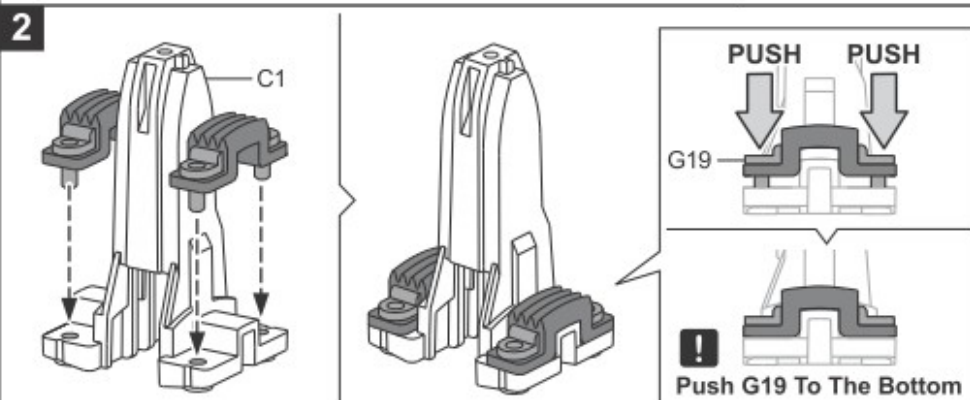
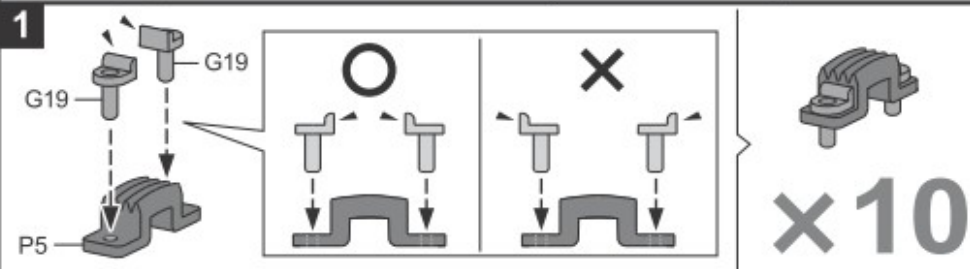




Lever Controller Assembly



Very Important! P5 (Brake Pad) must be clean and not stained by oil.
Make sure to hand clean and dry P5 before assembly.



Montaje de la palanca

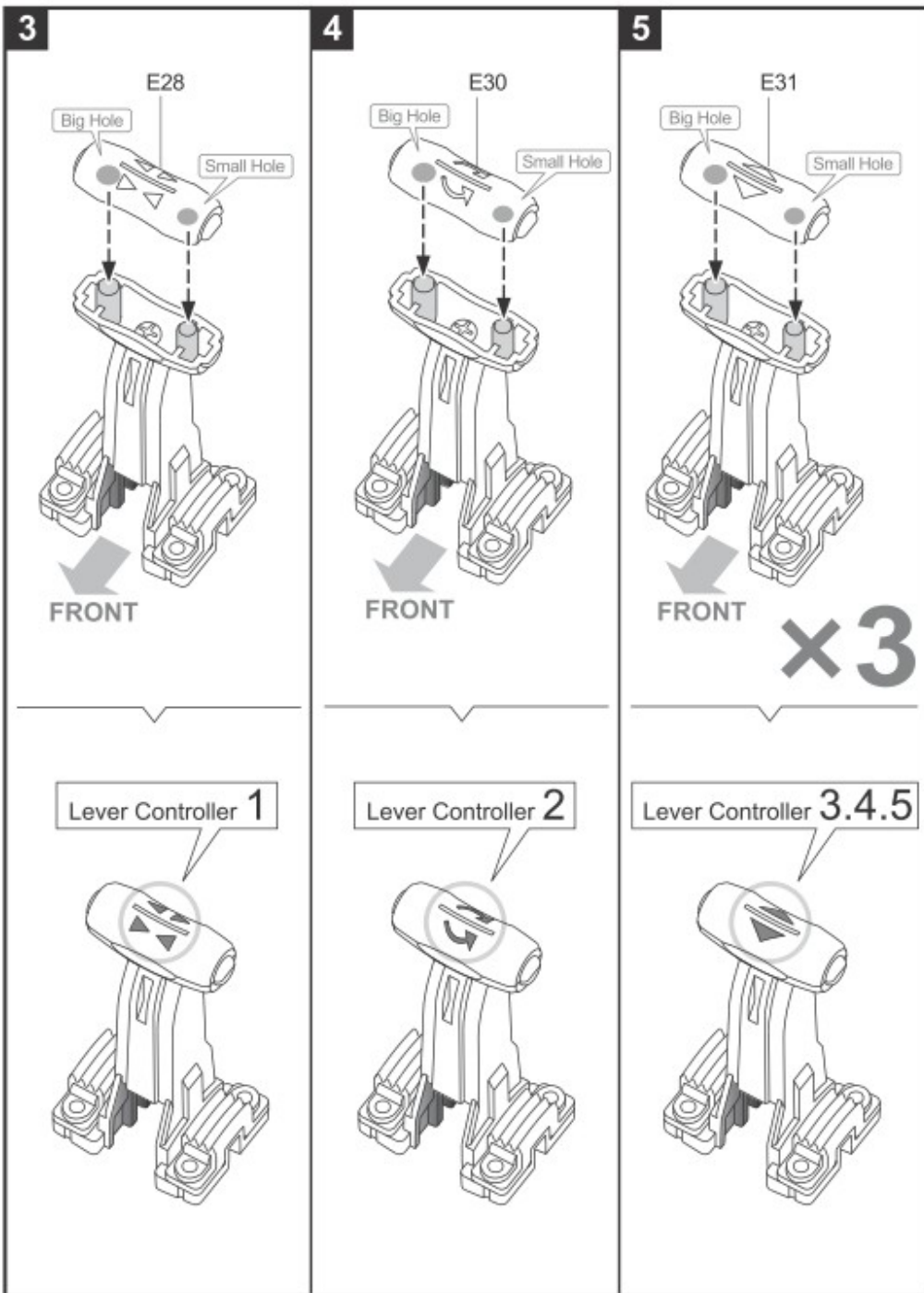
Muy importante

Asegúrese de que la pastilla de freno (P5) esté limpia y no esté manchada de aceite.

Límpiala y séquela antes del montaje.

PRESIONAR

Presione G19 hacia abajo.



Agujero grande
Pequeño agujero

PARTE FRONTAL

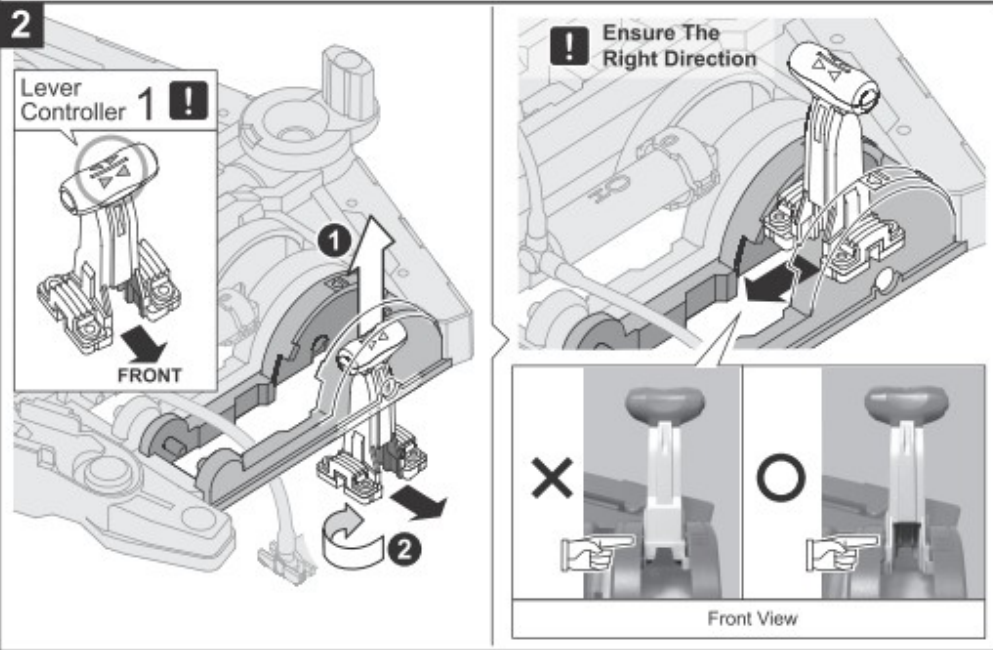
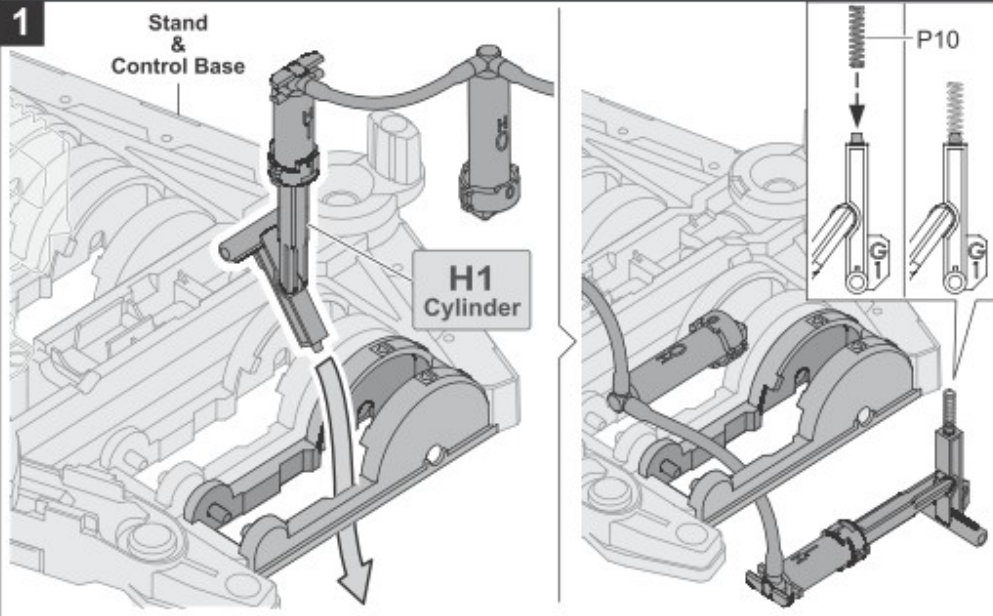
Palanca 1

Palanca 2

Palanca 3, 4, 5

Control Moduel Assembly

Unit 1: H0.H1 Cylinder & Lever Controller 1



Montaje del controlador

Unidad 1: H0. Cilindro H1 & palanca 1

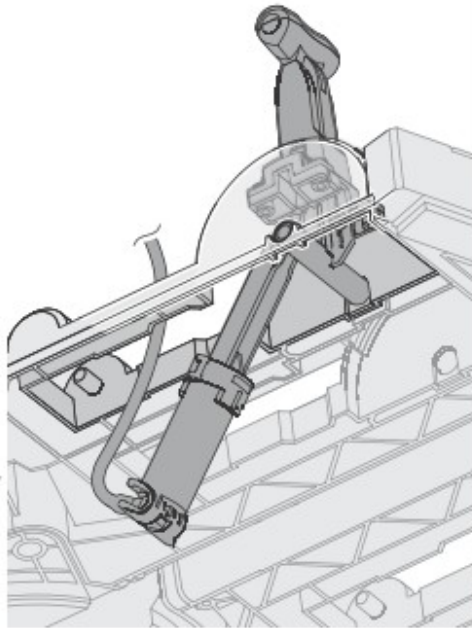
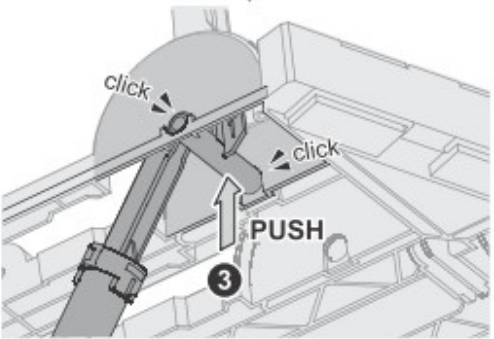
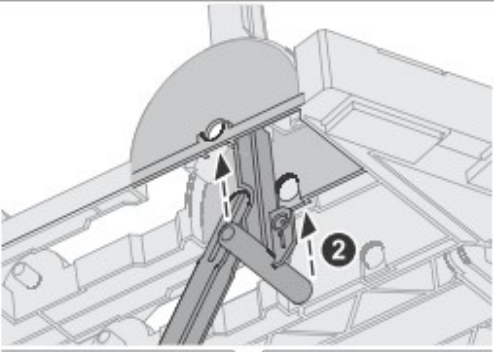
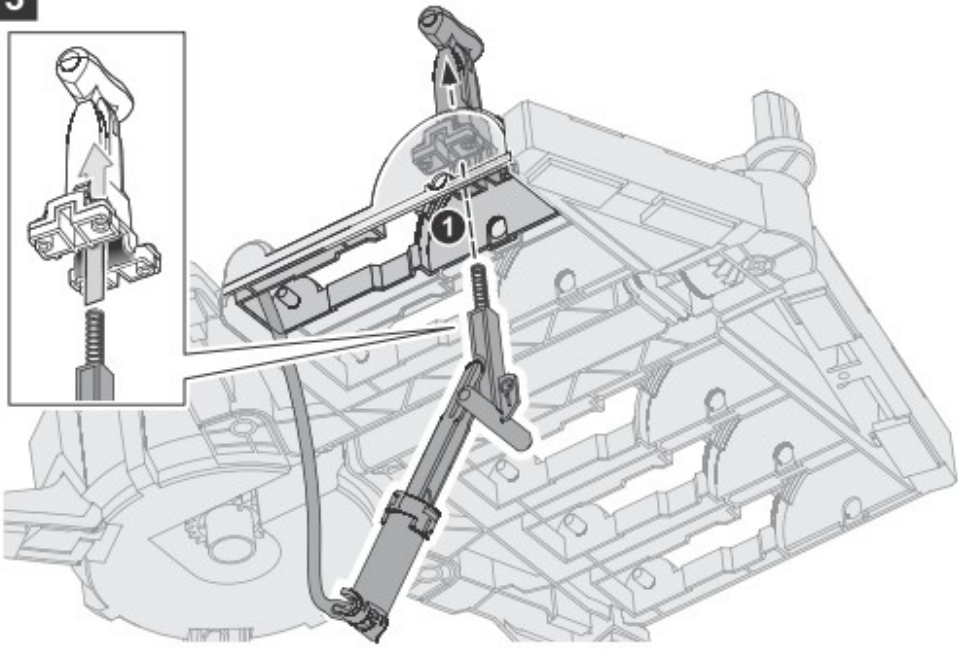
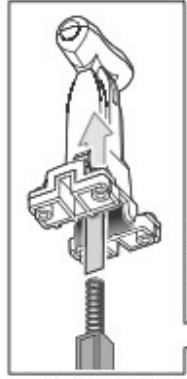
Soporte & Base

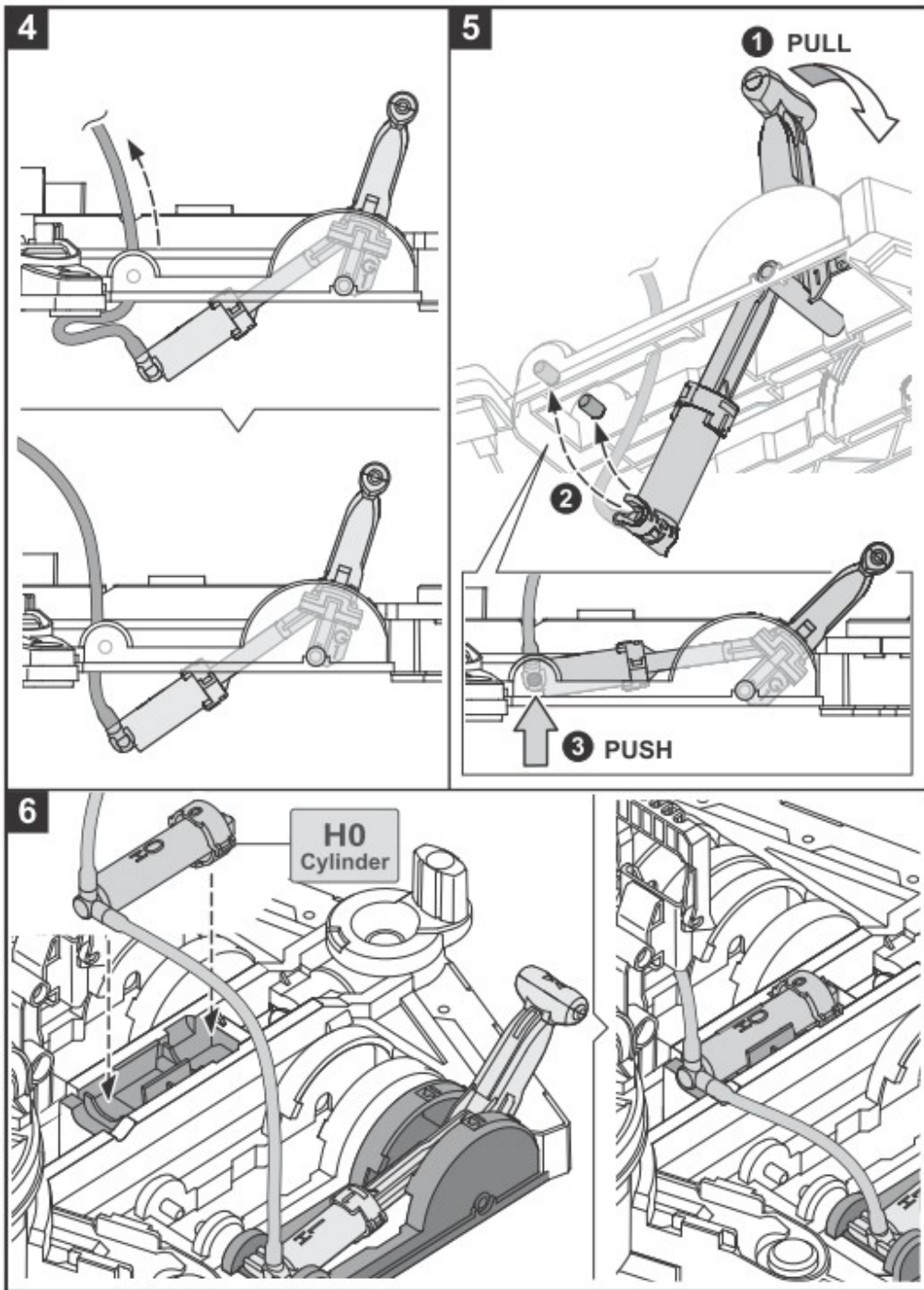
Palanca 1

Asegúrese de que la dirección es correcta

Vista frontal

3

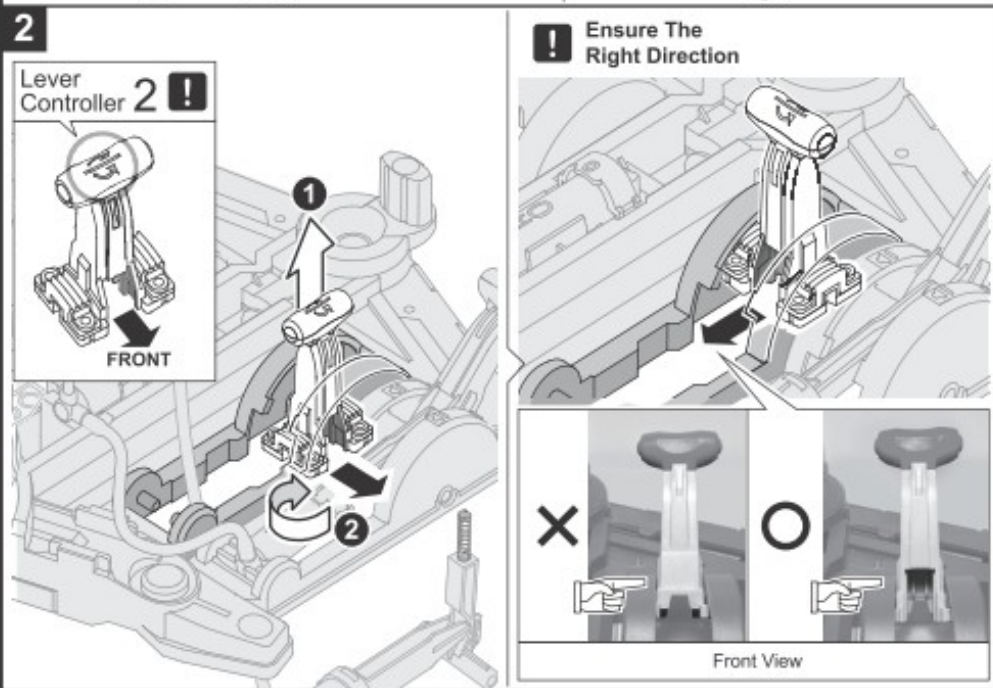
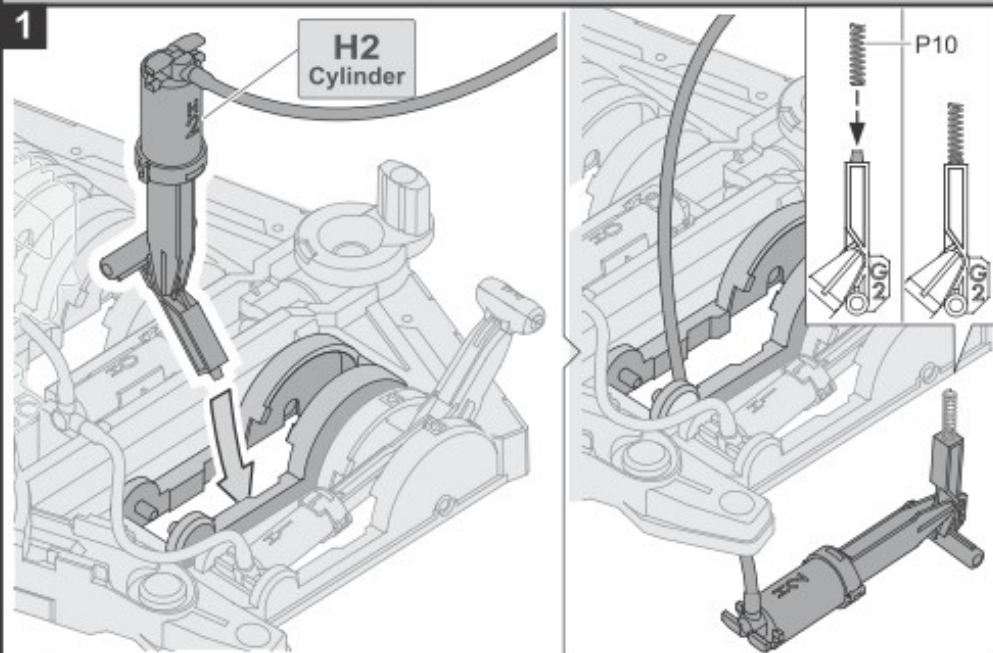




TIRAR

PRESIONAR

Unit 2: H2 Cylinder & Lever Controller 2

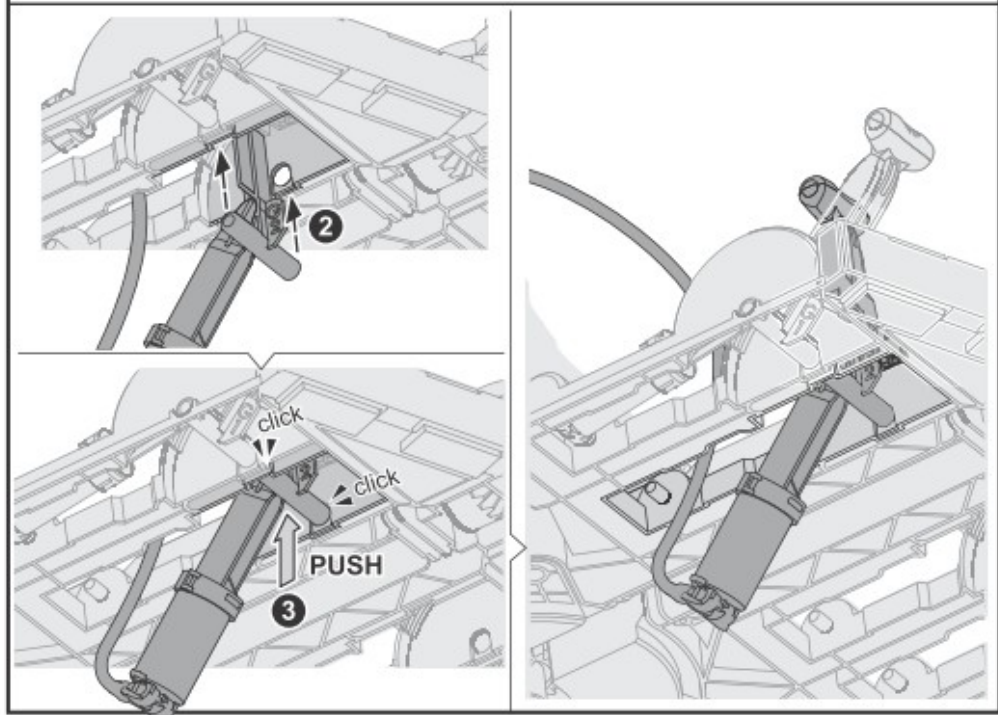
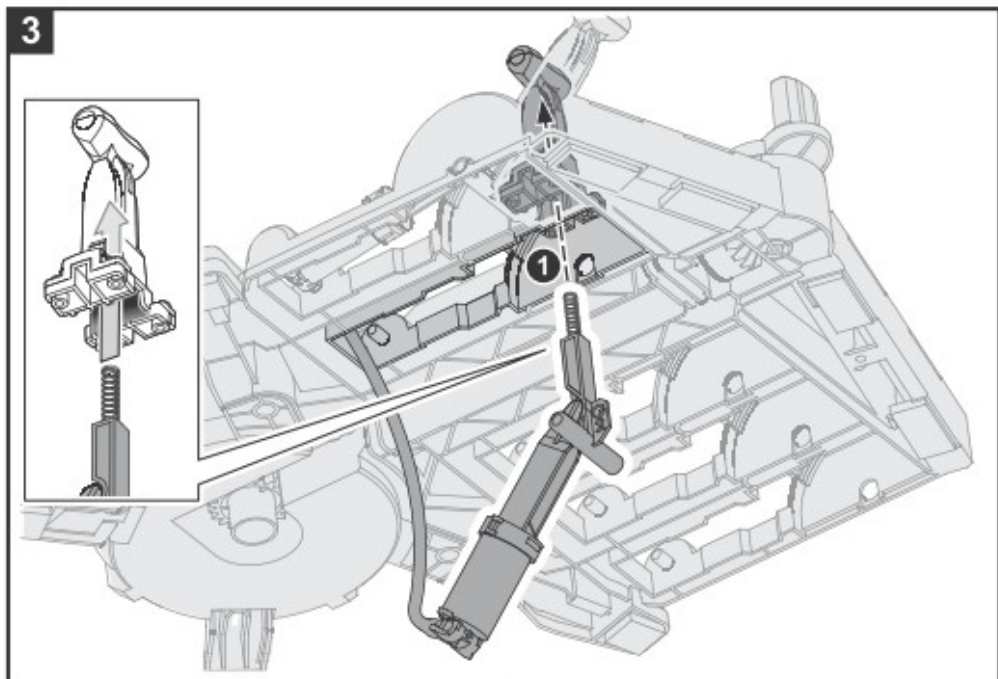


Unidad 2: Cilindro H2 & palanca 2

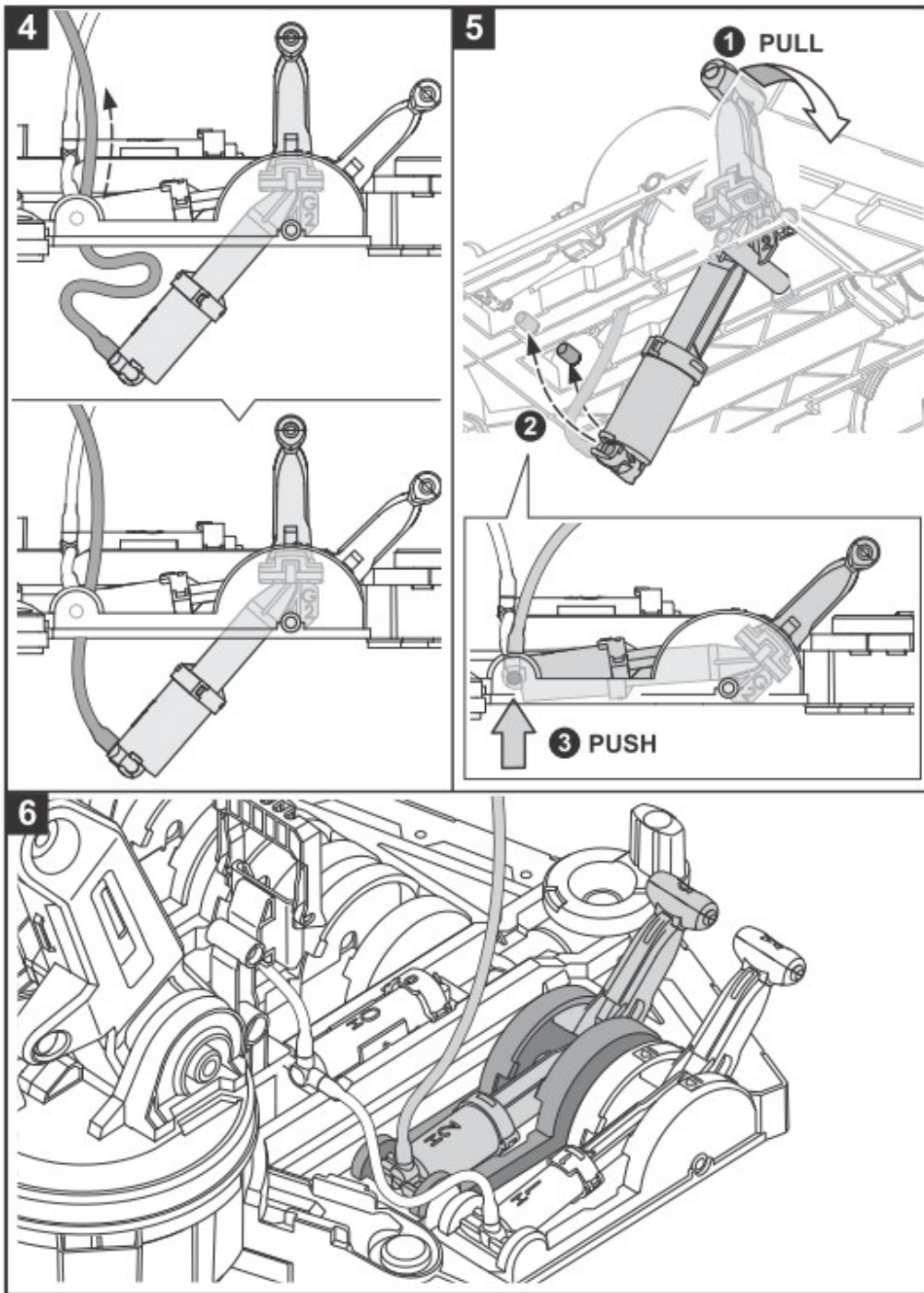
Palanca 2

Asegúrese de que la dirección es correcta

Vista frontal



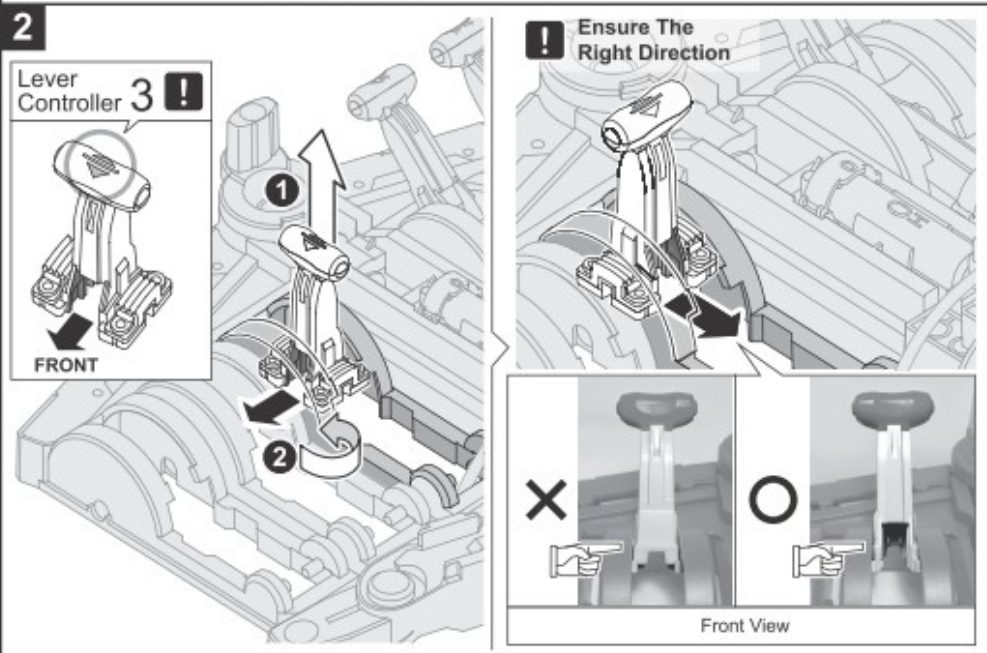
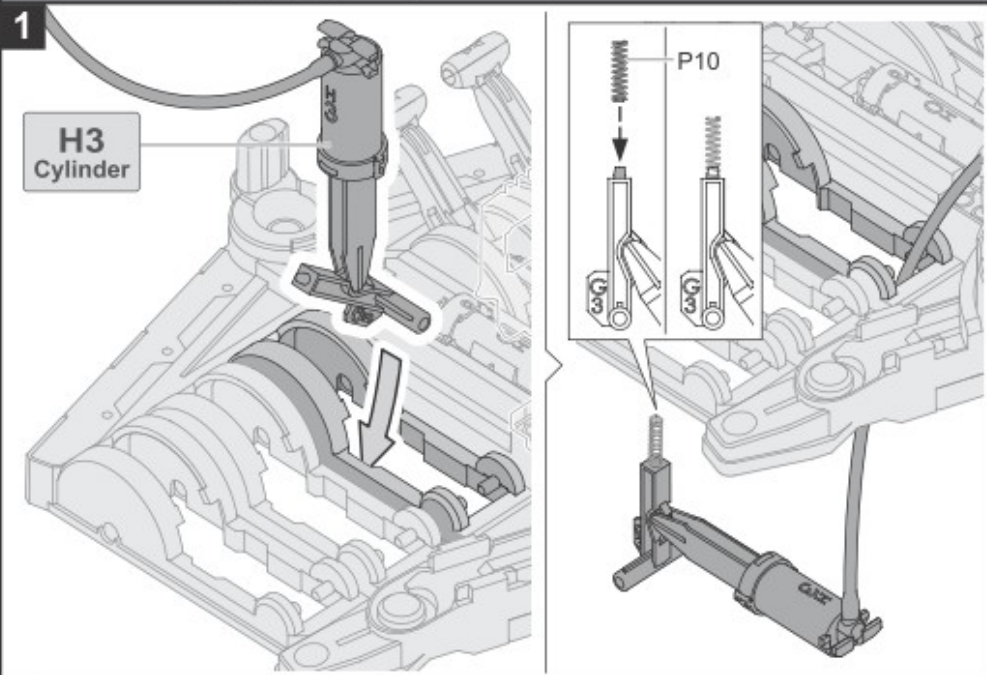
PRESIONAR



TIRAR

PRESIONAR

Unit 3: H3 Cylinder & Lever Controller 3

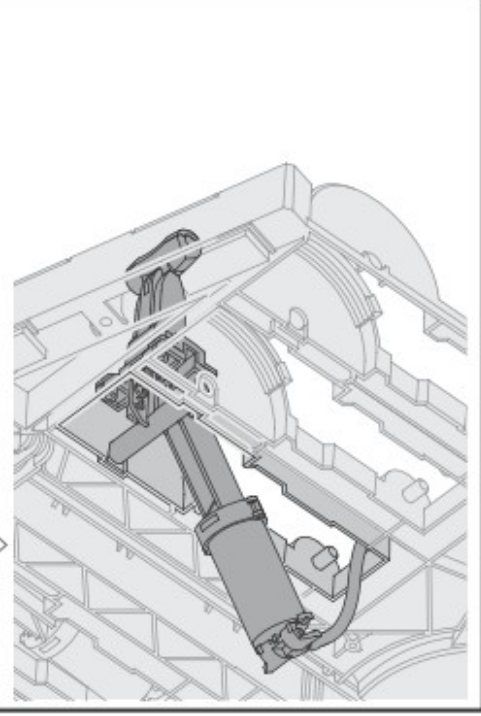
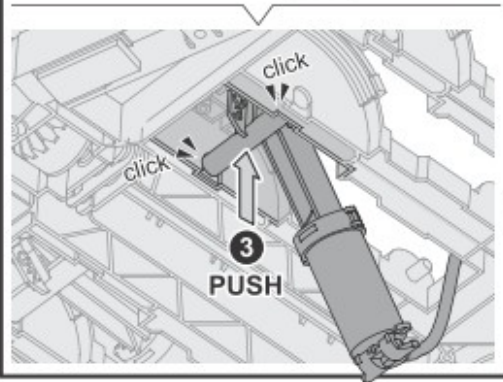
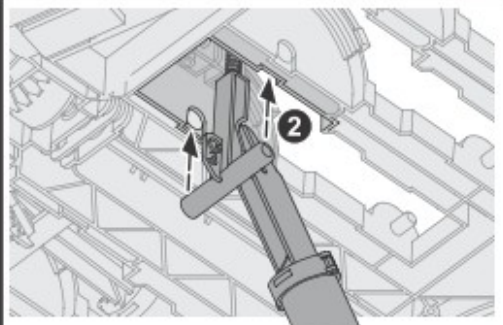
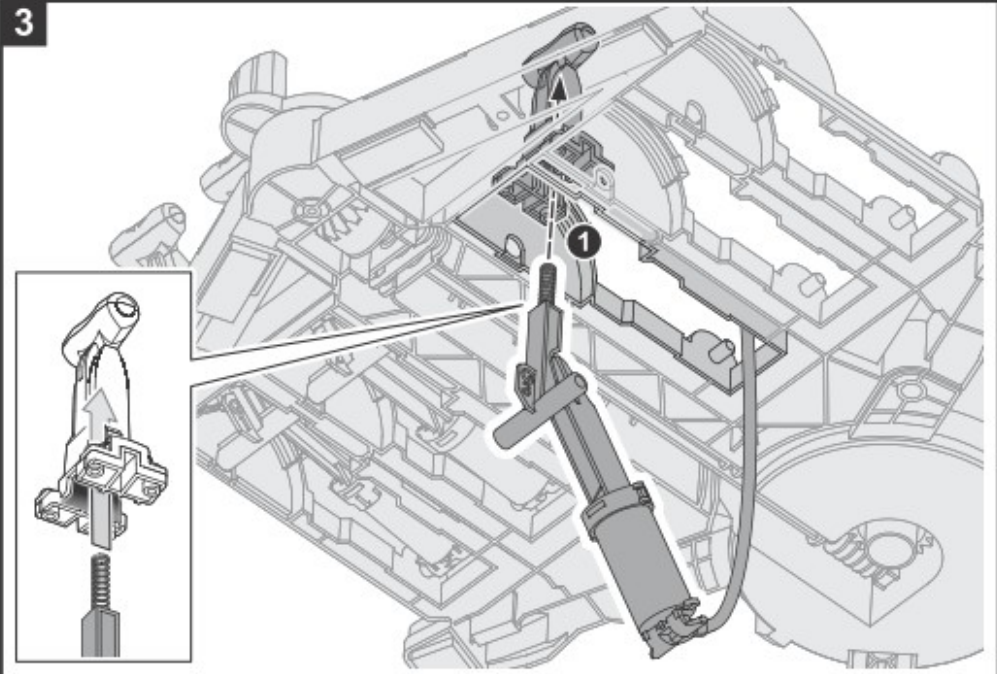


Unidad 3: Cilindro H3 & palanca 3

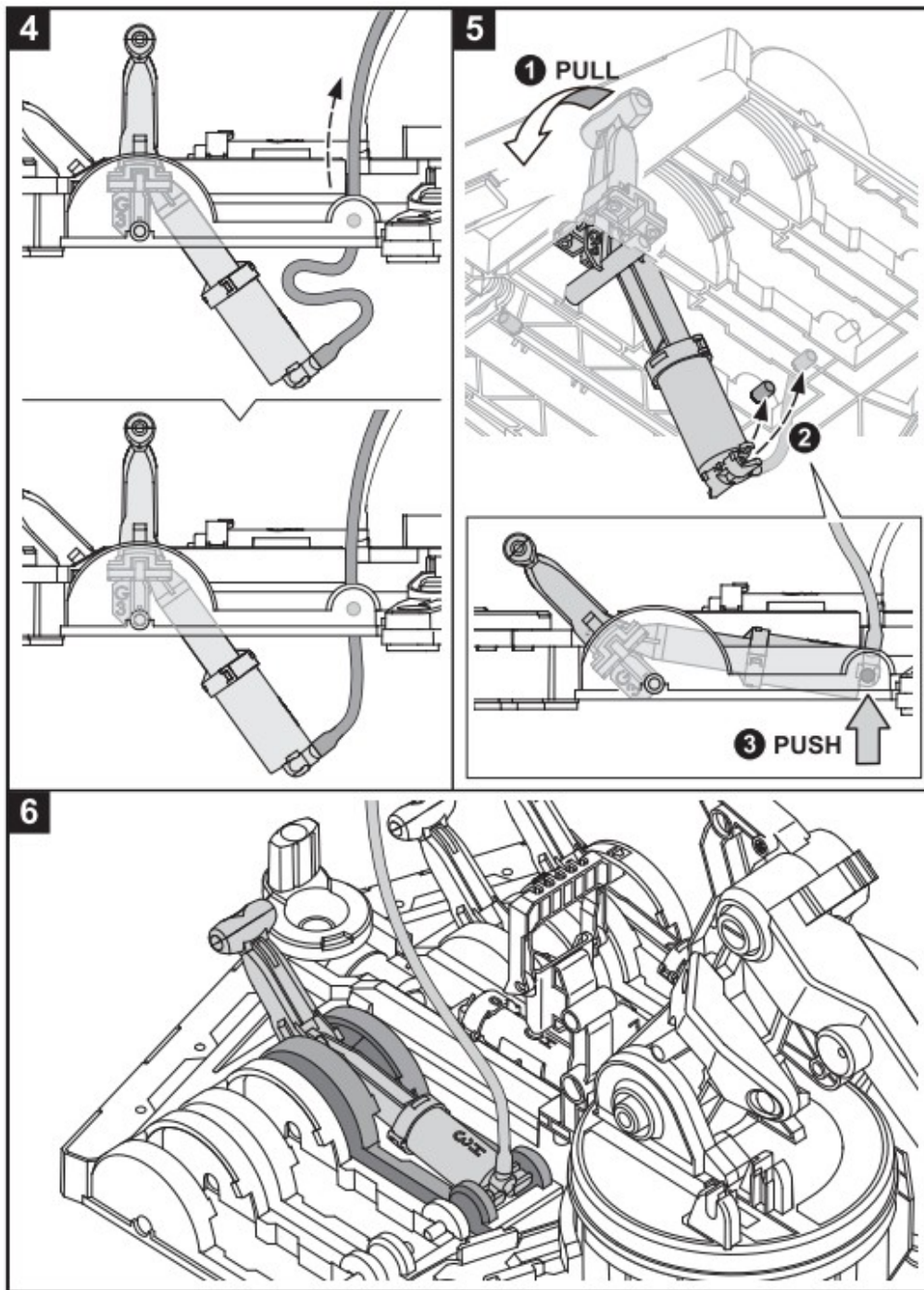
Palanca 3

Asegúrese de que la dirección es correcta

Vista frontal



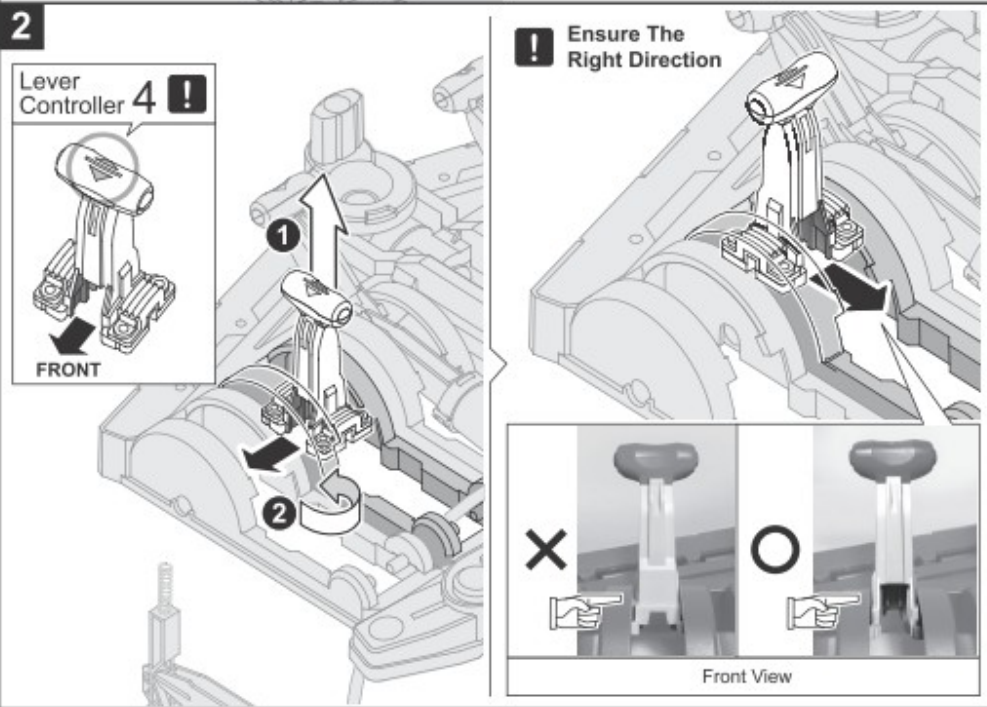
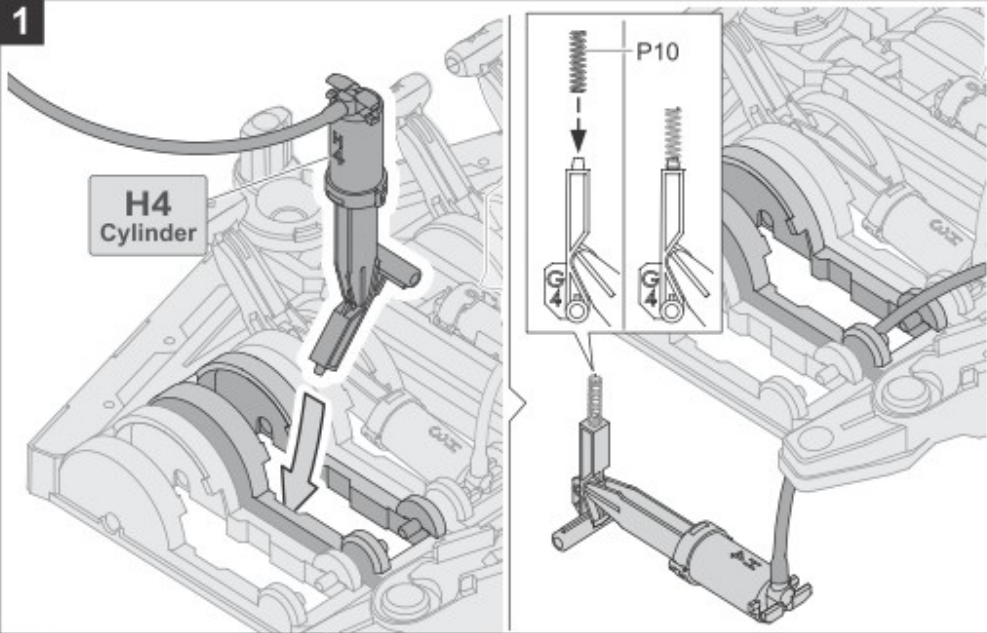
PRESIONAR



TIRAR

PRESIONAR

Unit 4: H4 Cylinder & Lever Controller 4

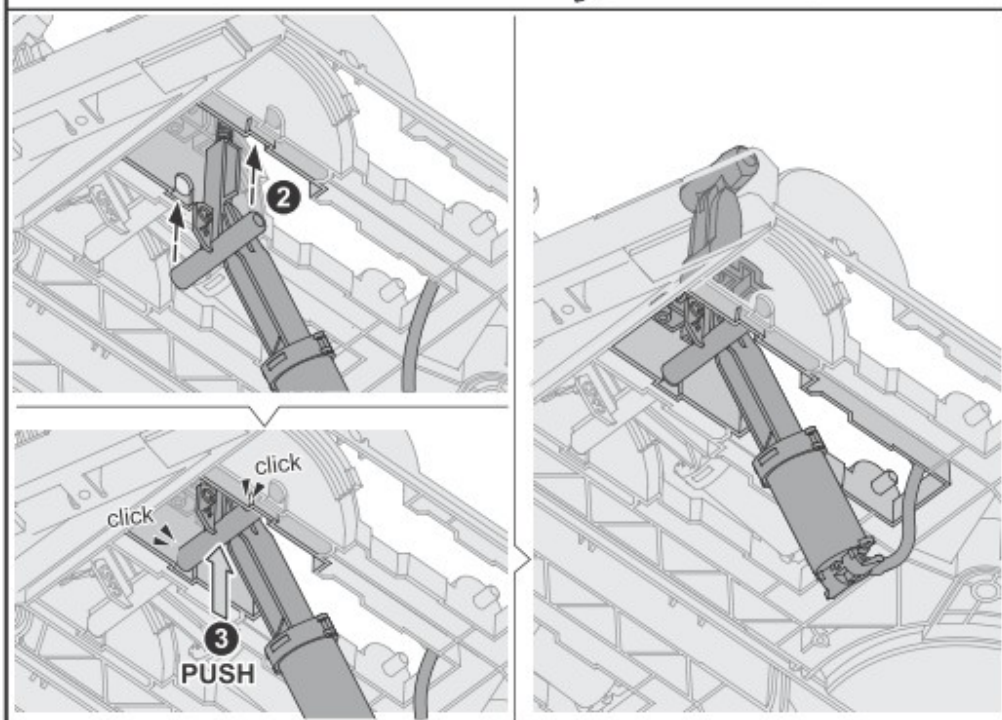
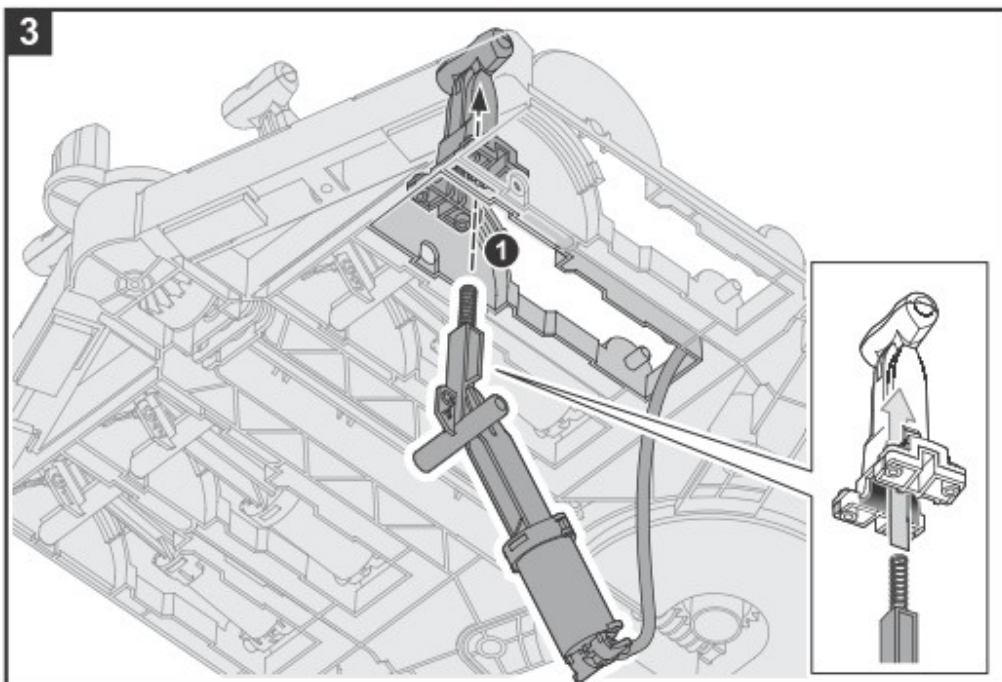


Unidad 4: Cilindro H4 & palanca 4

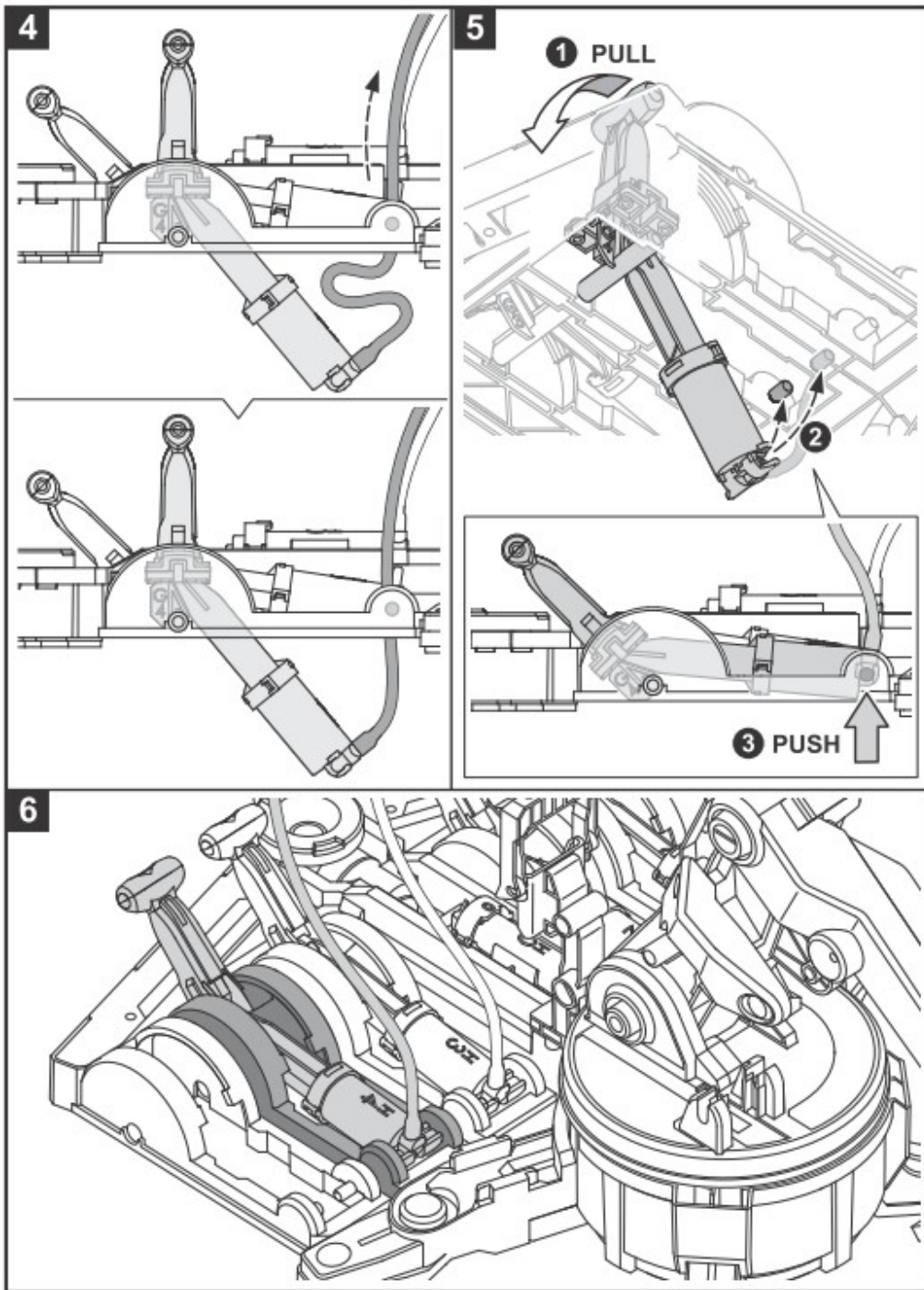
Palanca 4

Asegúrese de que la dirección es correcta

Vista frontal



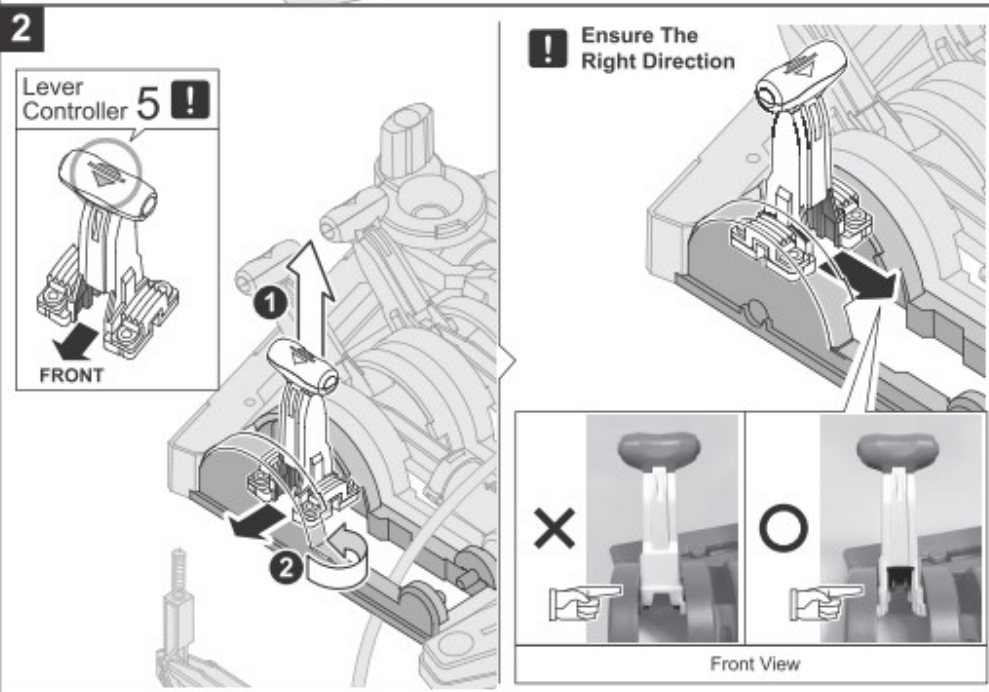
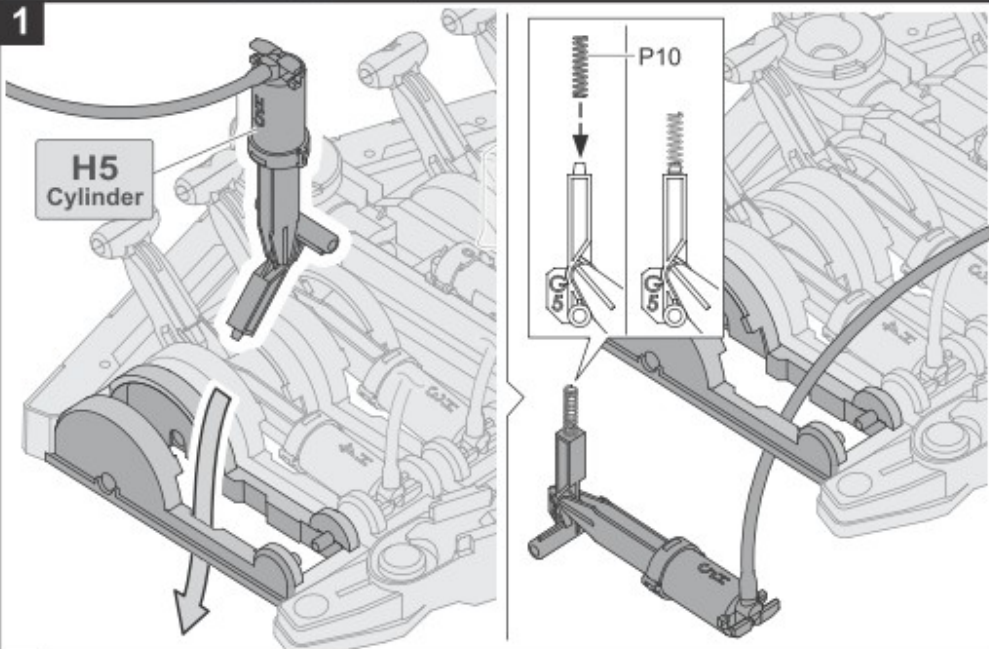
PRESIONAR



TIRAR

PRESIONAR

Unit 5: H5 Cylinder & Lever Controller 5

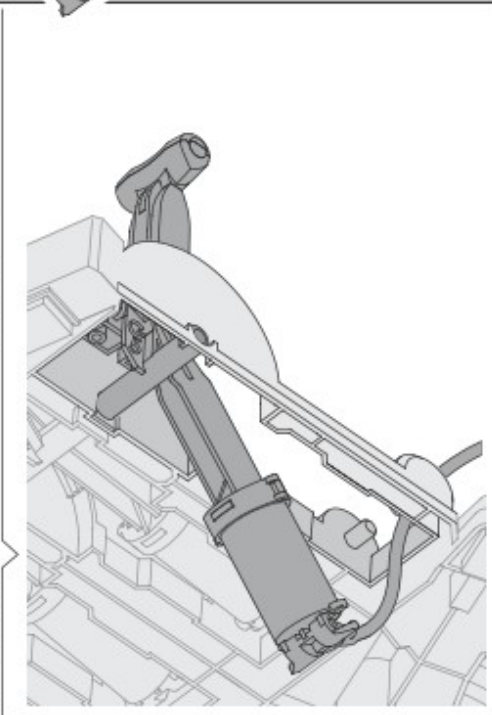
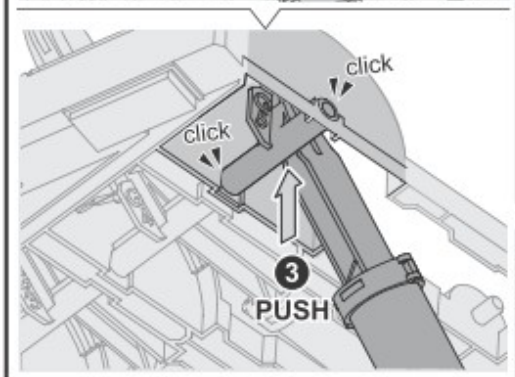
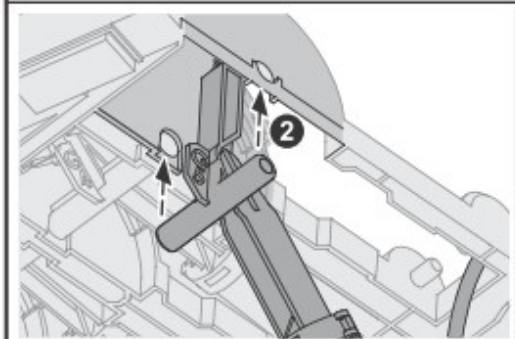
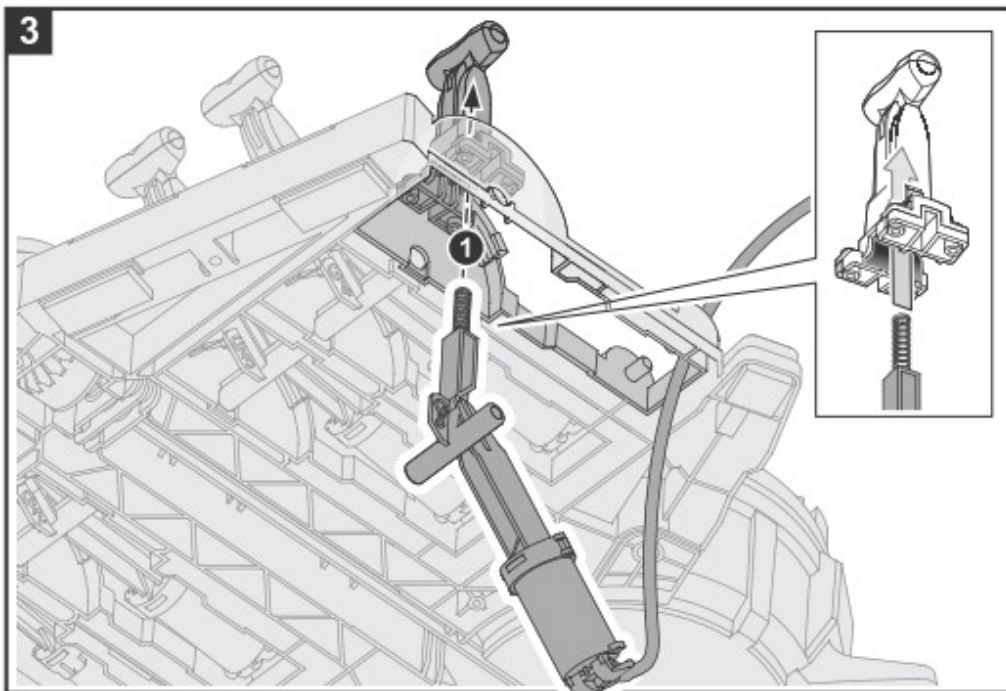


Unidad 5: Cilindro H5 & palanca 5

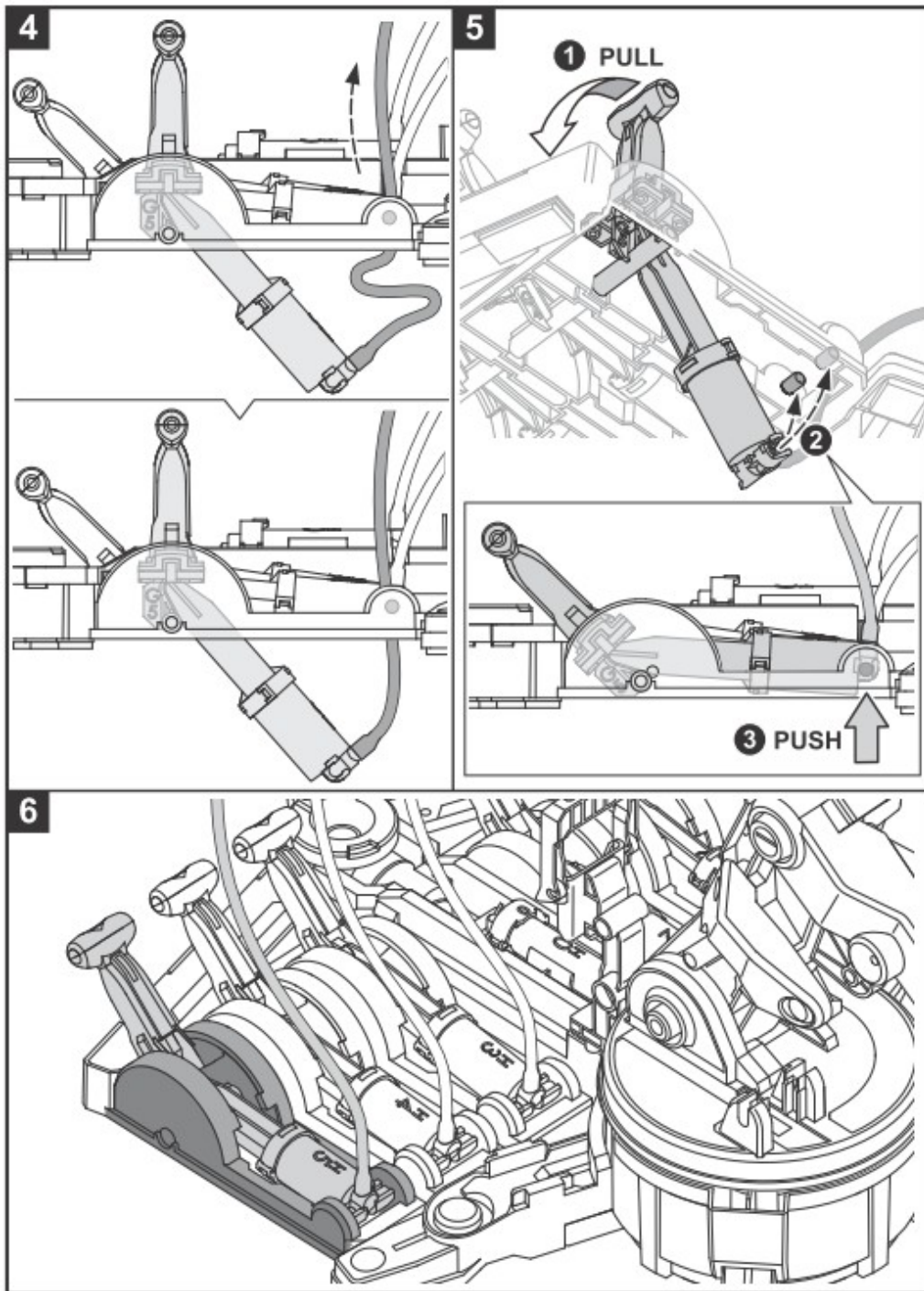
Palanca 5

Asegúrese de que la dirección es correcta

Vista frontal



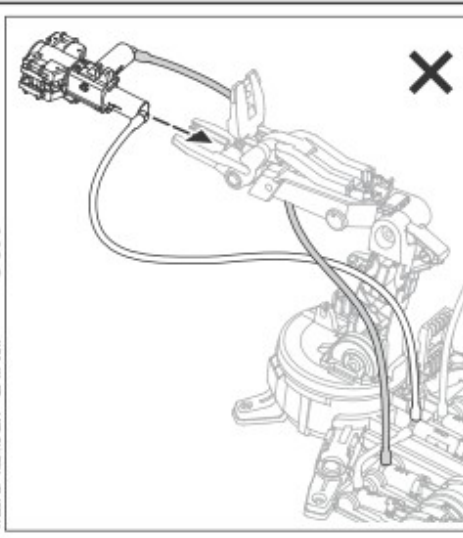
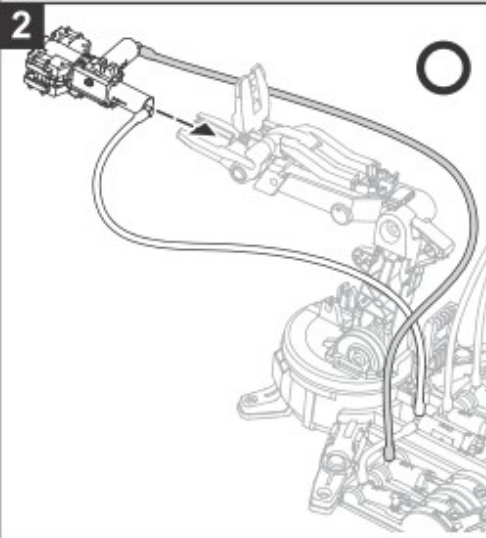
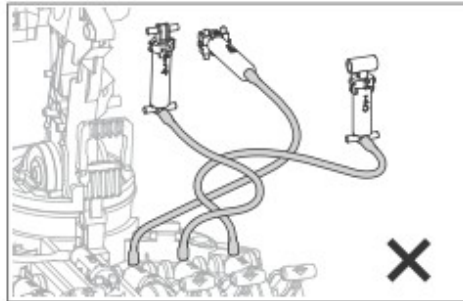
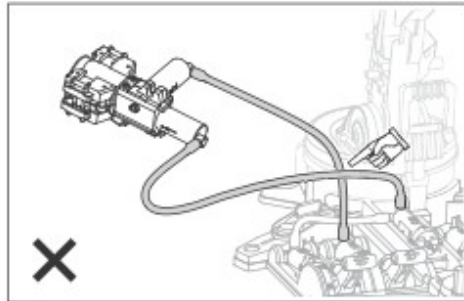
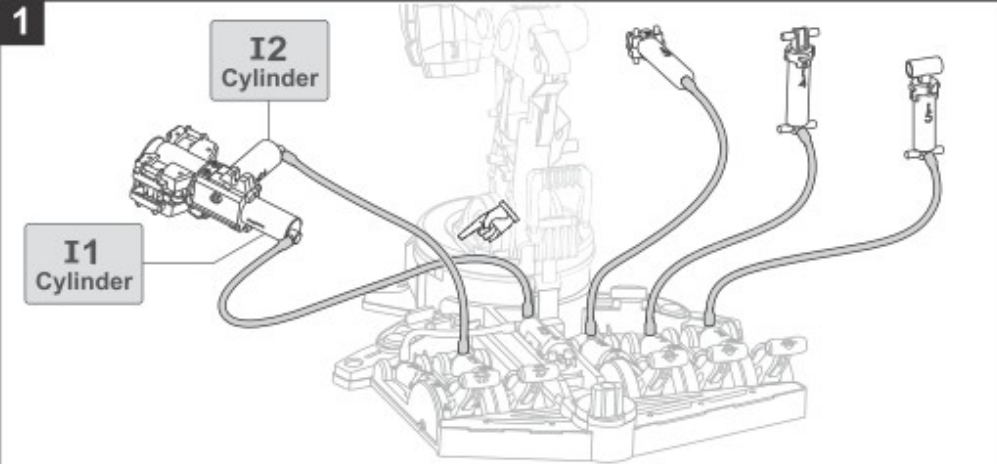
PRESIONAR



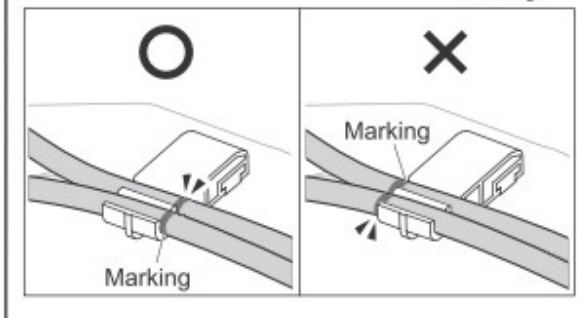
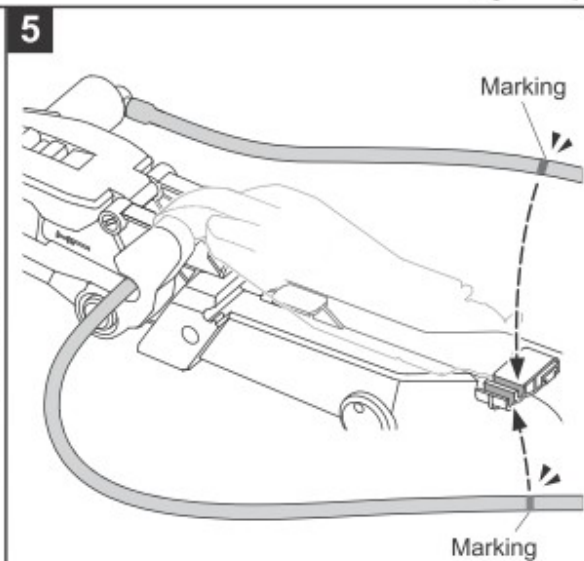
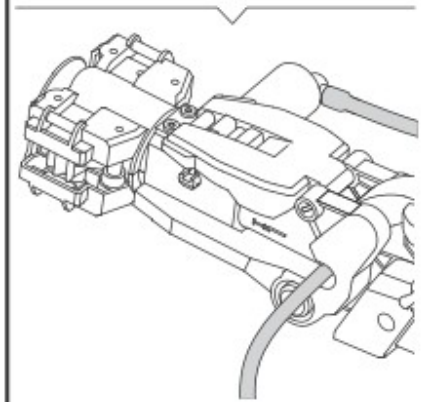
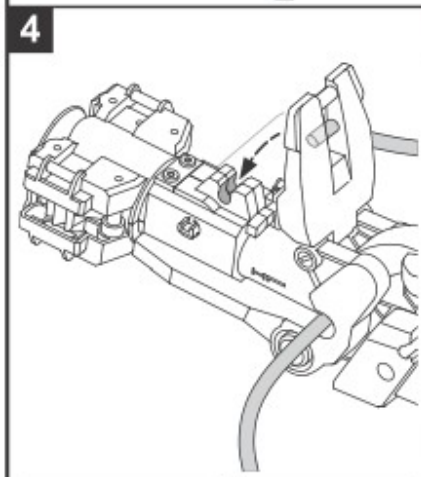
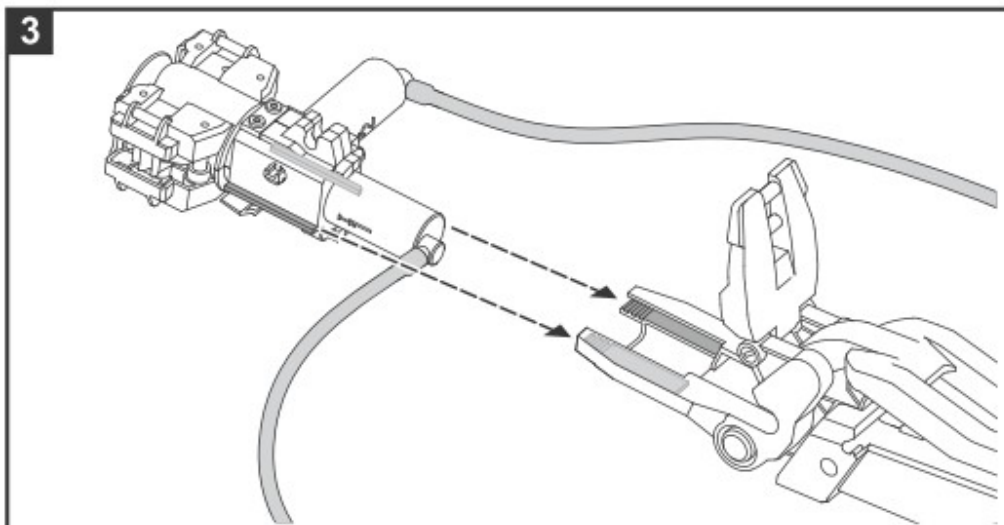
TIRAR

PRESIONAR

Robot Arm Module Assembly

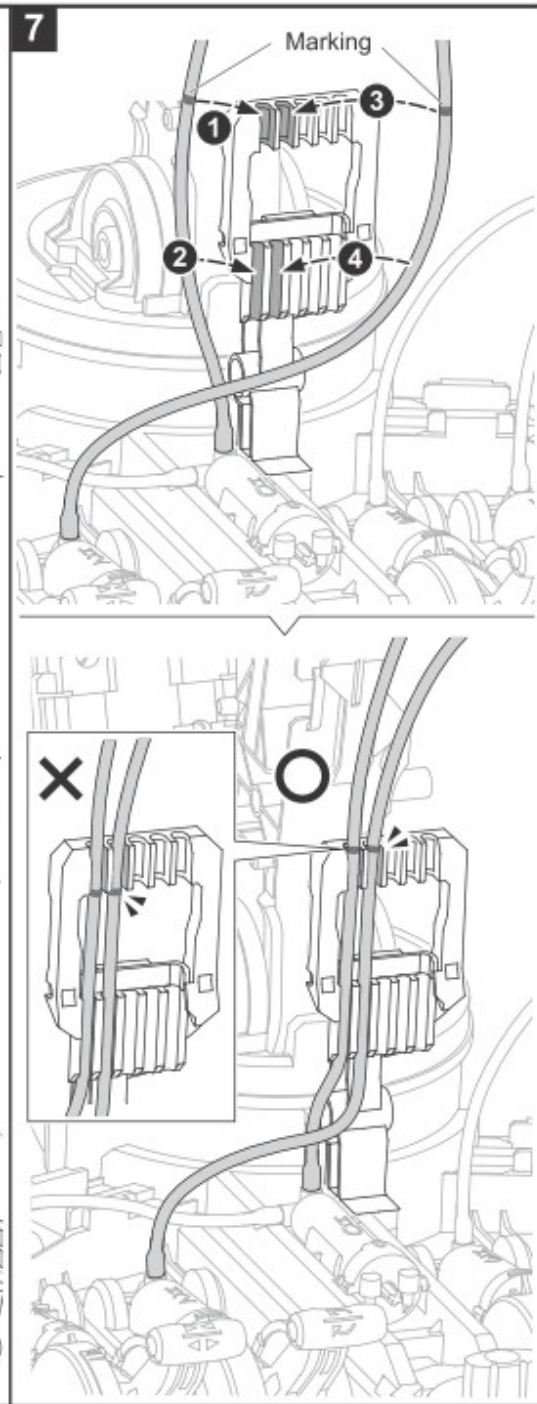
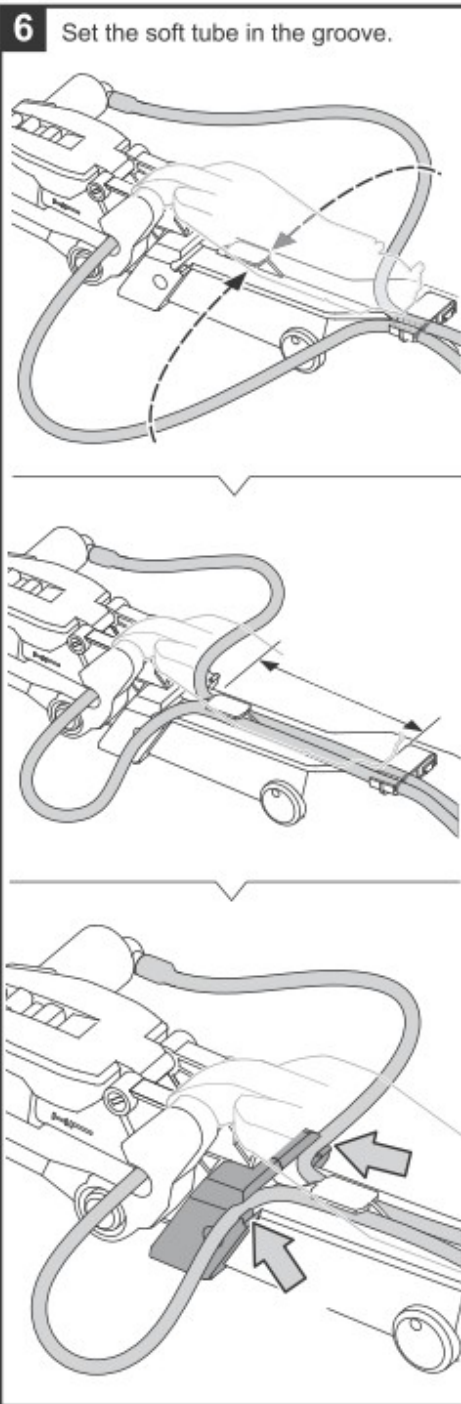


Montaje del brazo robótico



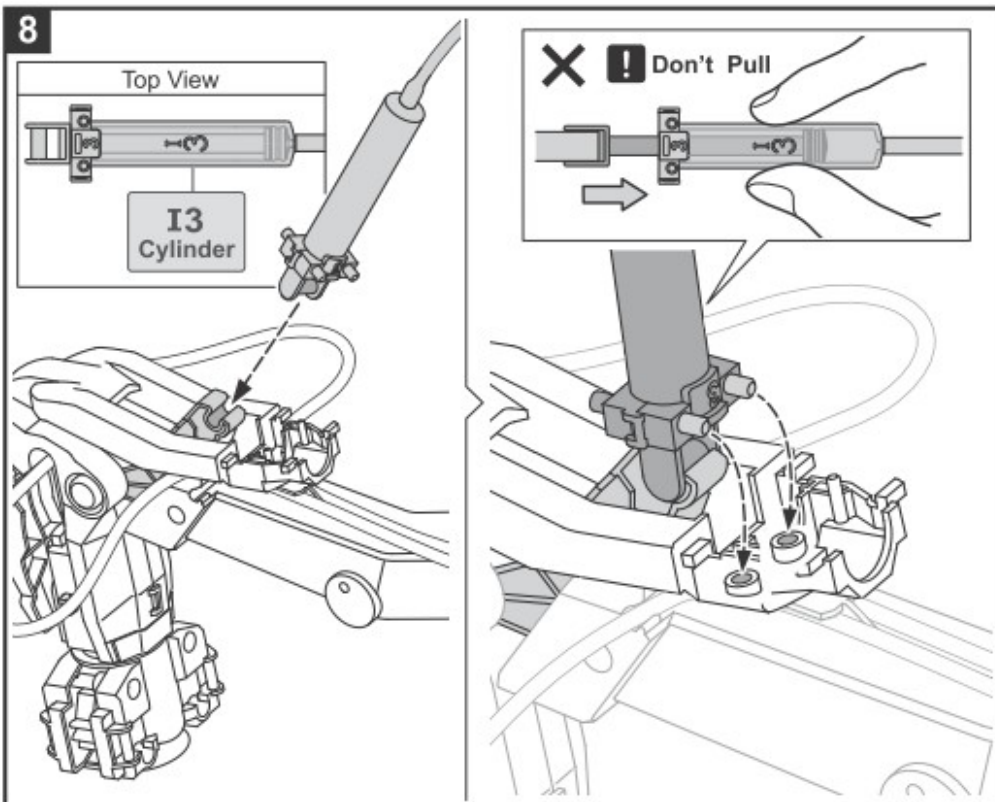
Marca

Marca



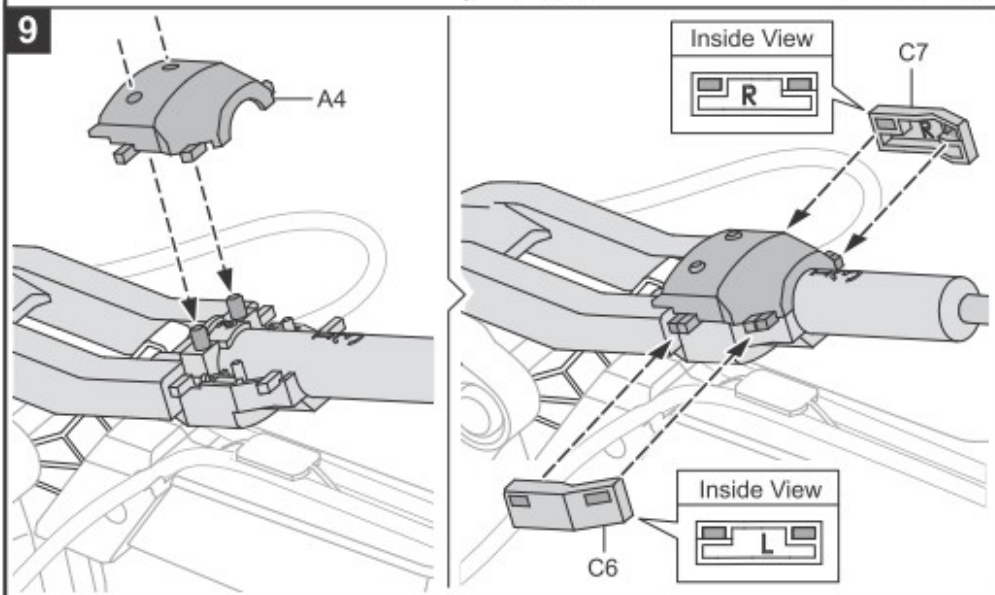
Introduzca el tubo blando en la ranura.

Marca

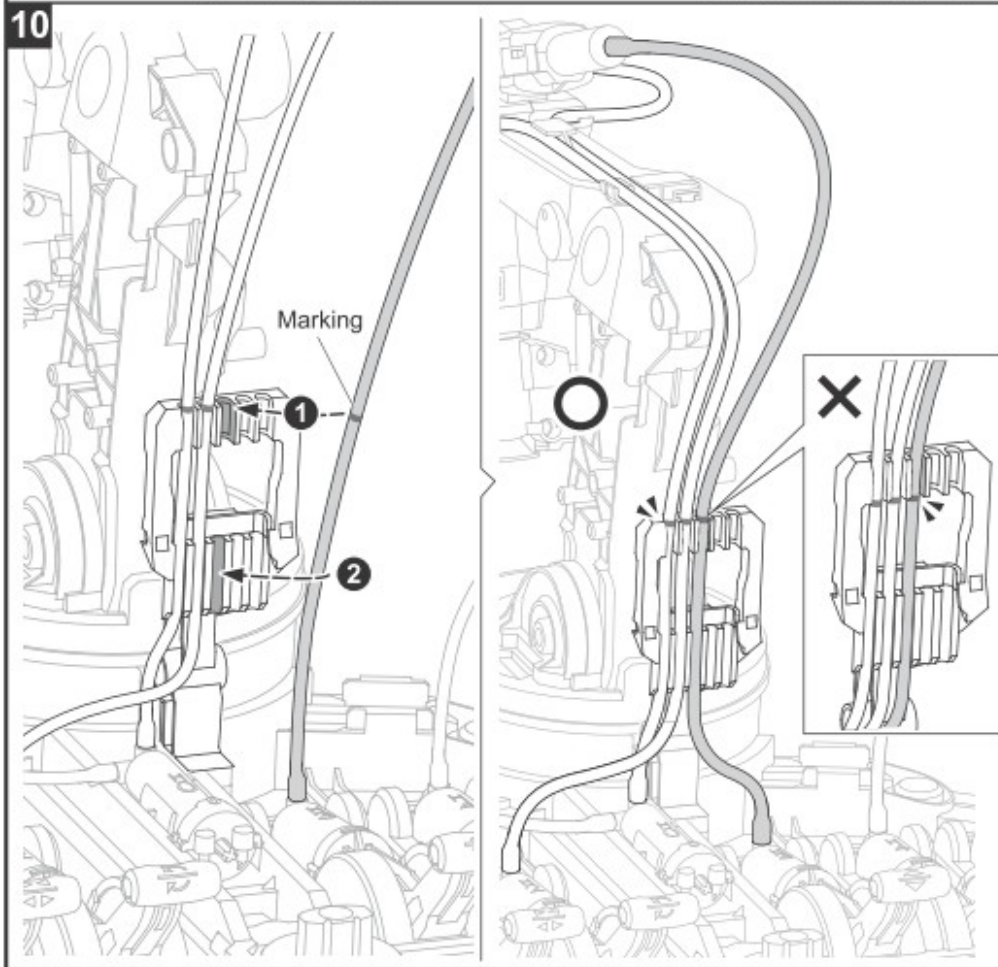
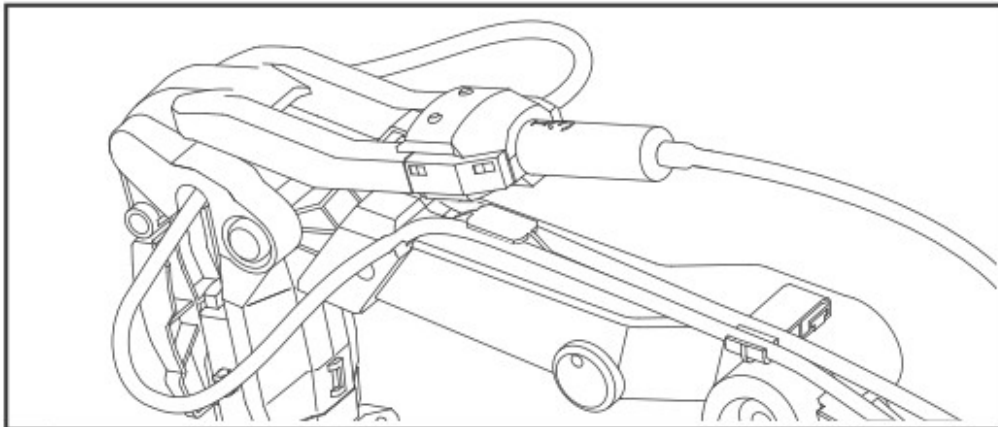


Vista desde arriba

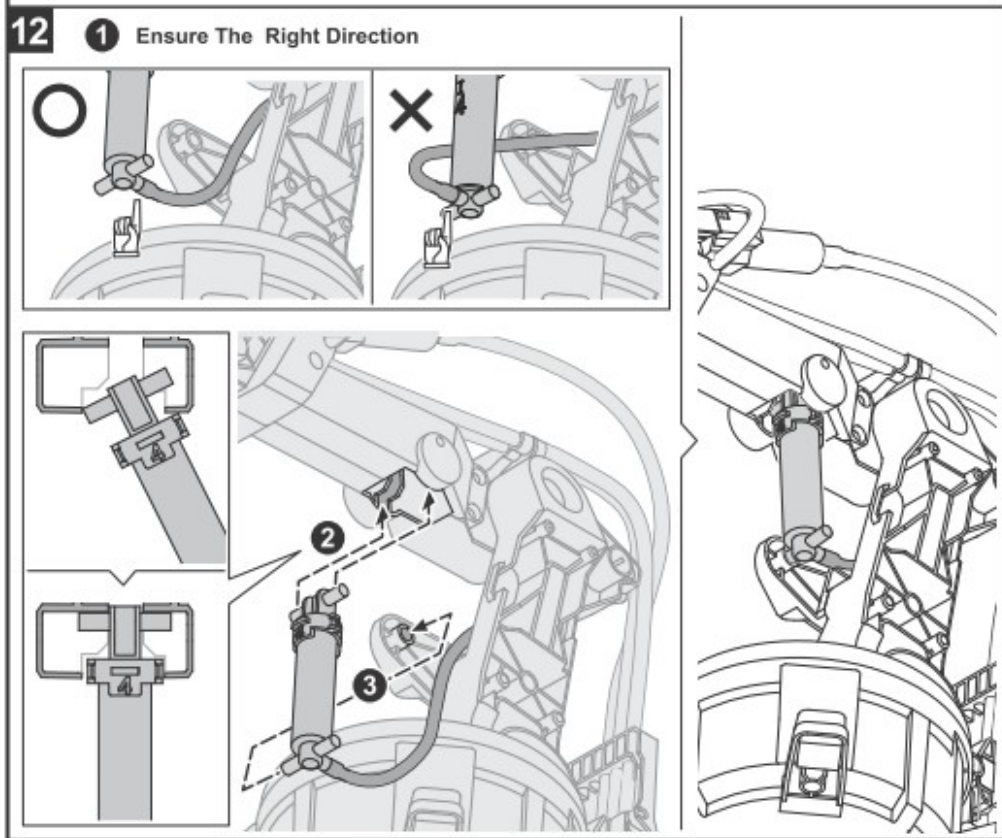
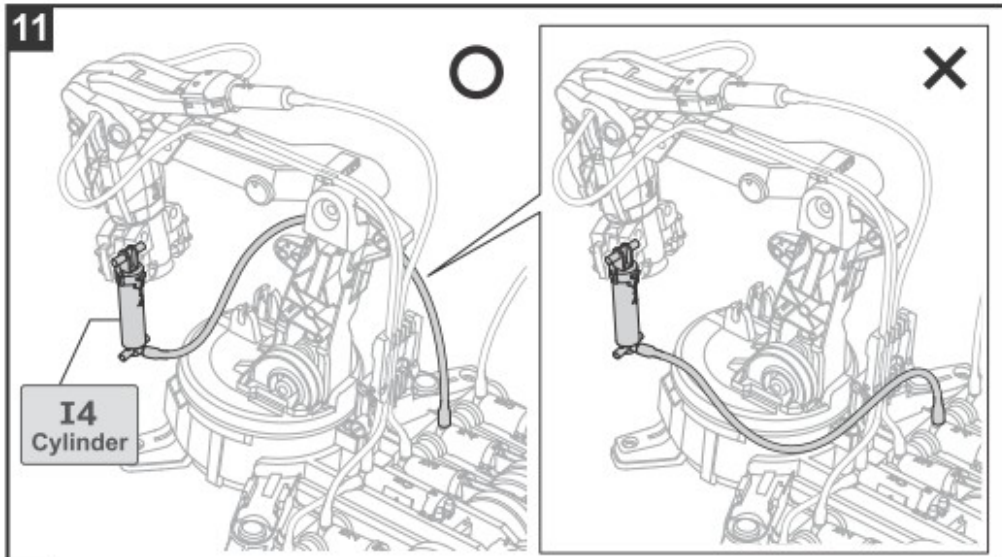
No tirar.



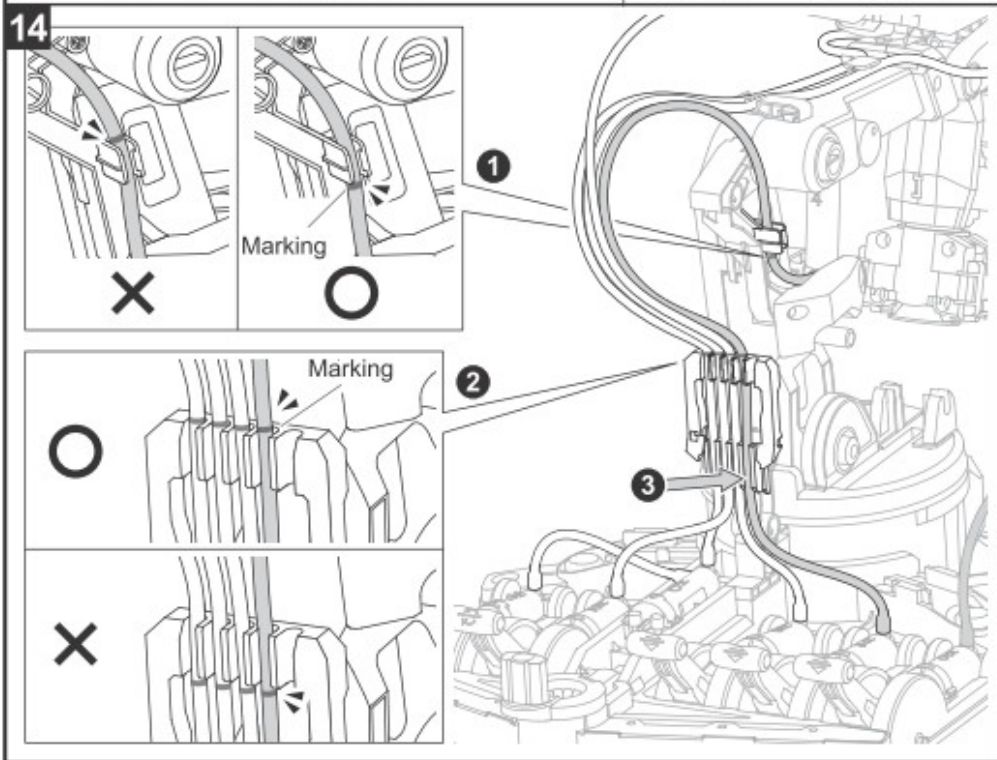
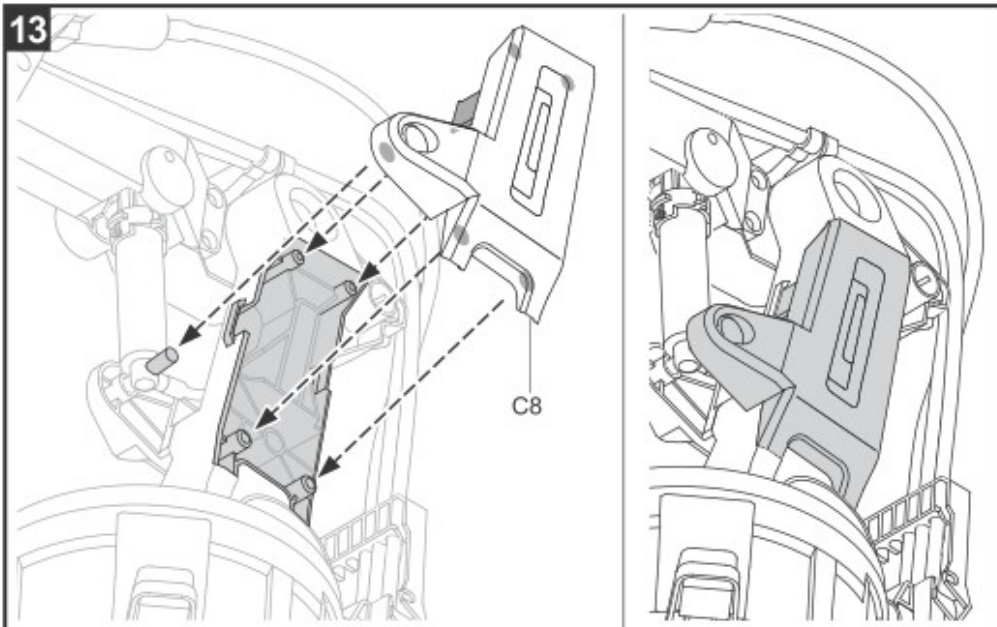
Vista desde el interior



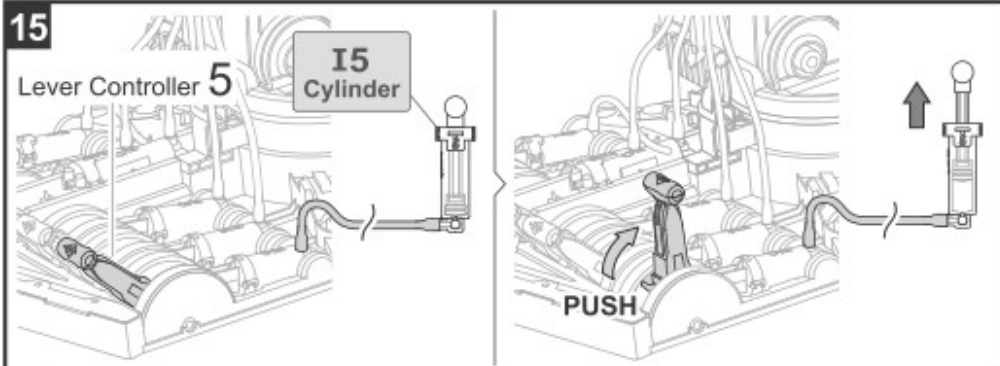
Marca



Asegúrese de que la dirección es correcta.

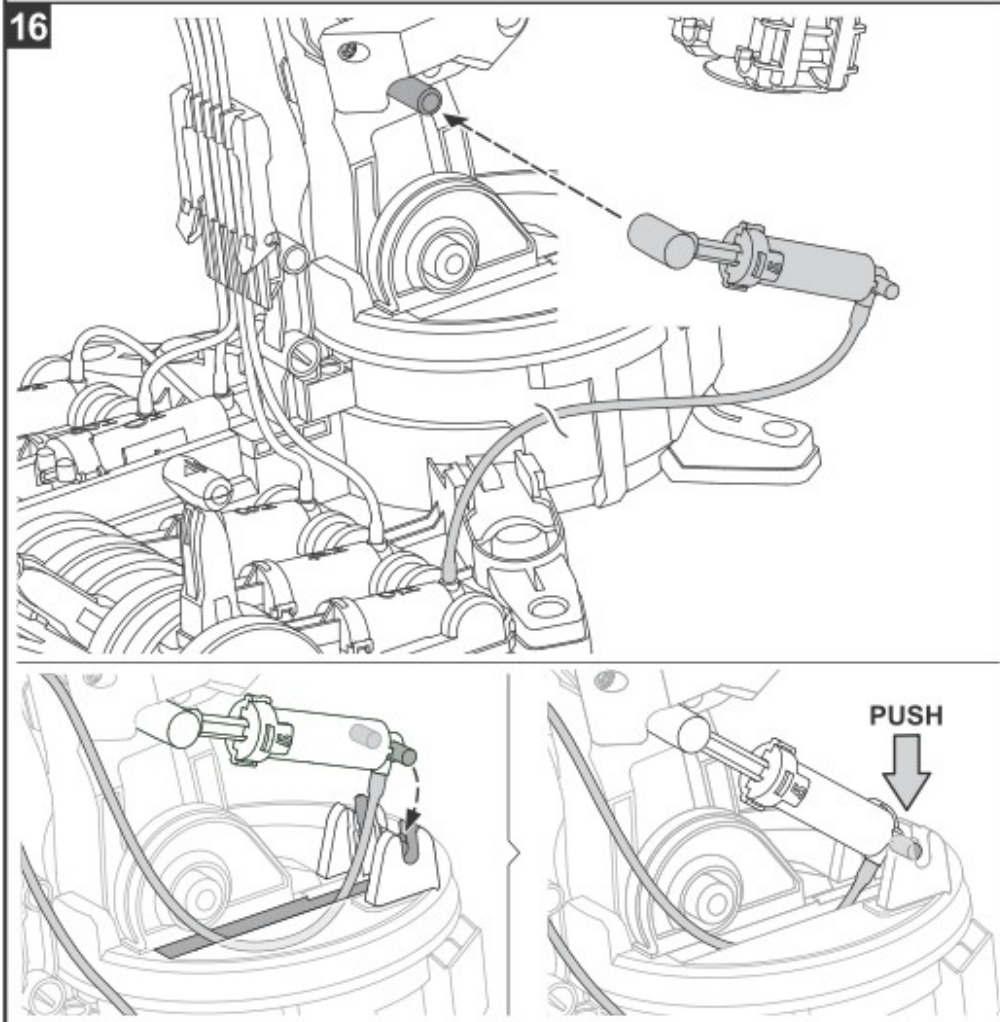


Marca

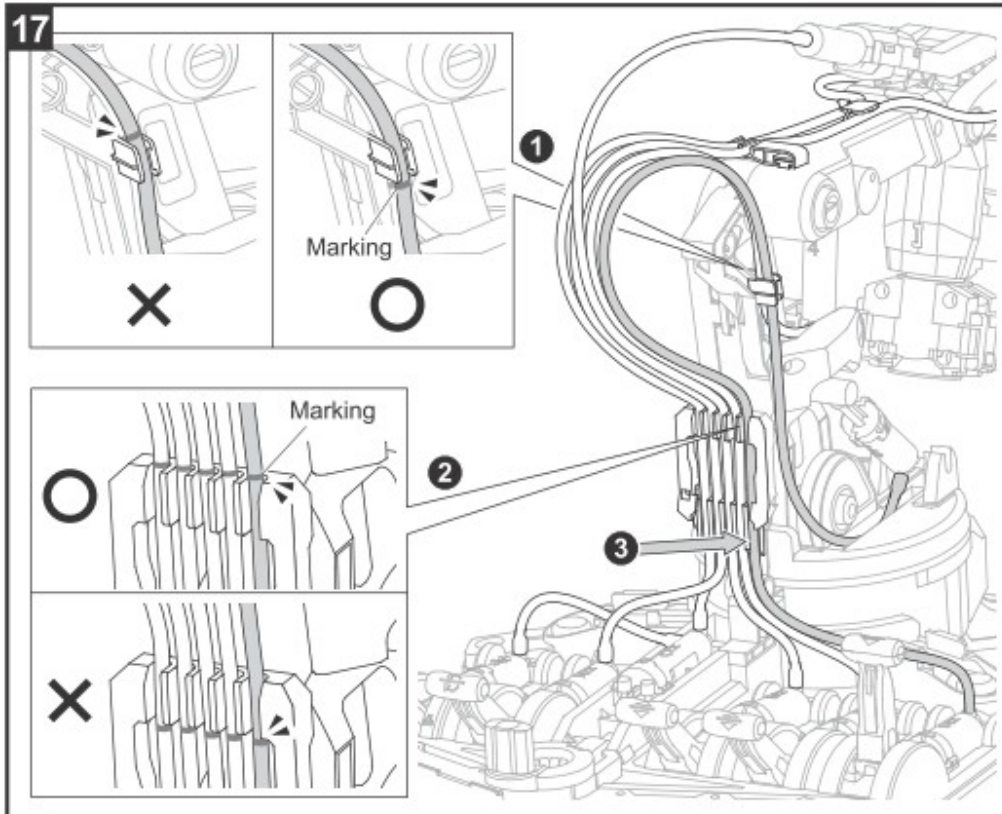


Palanca 5

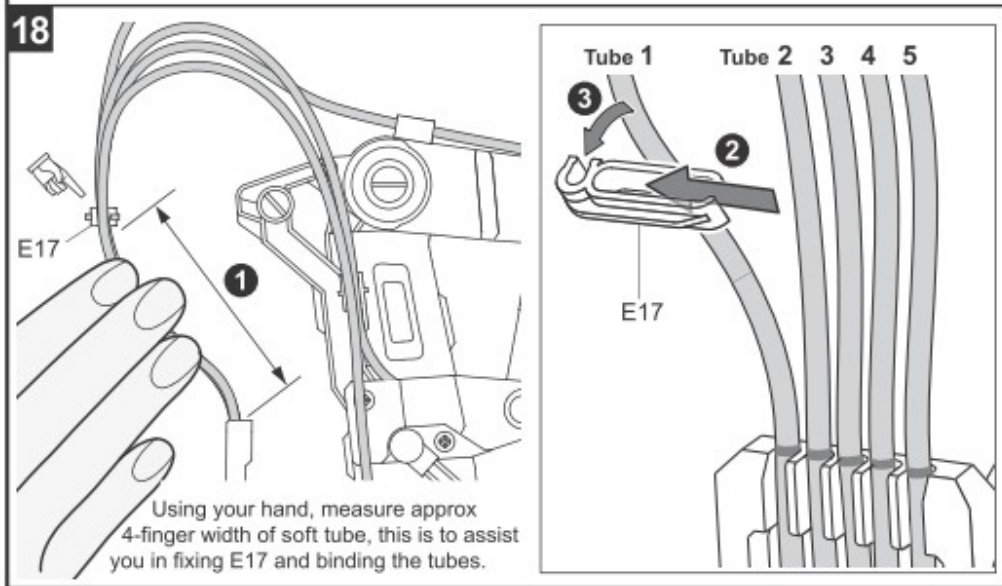
PRESIONAR



PRESIONAR



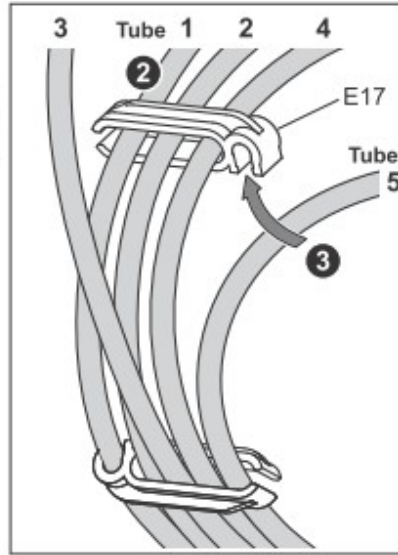
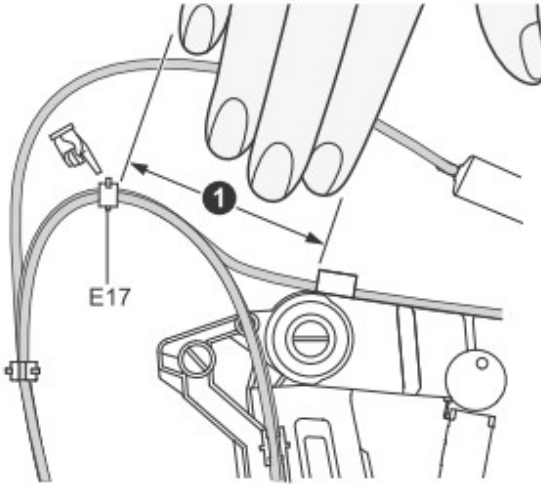
Marca



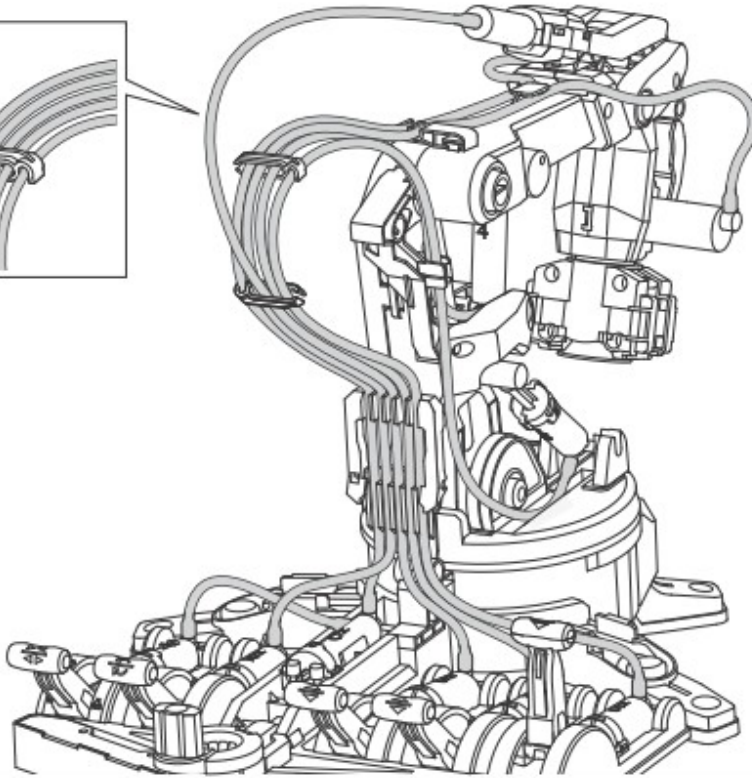
Tubo 1 - 2 - 3 - 4 - 5

Utilice su mano y mida una pieza de tubo blando de unos 4 dedos de ancho. Esta servirá para fijar E17 y los tubos.

19 Using your hand, measure approx 4-finger width of soft tube, this is to assist you in fixing E17 and binding the tubes.



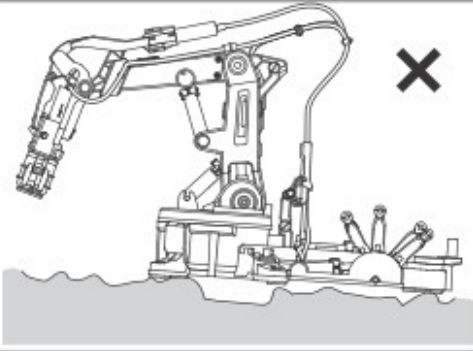
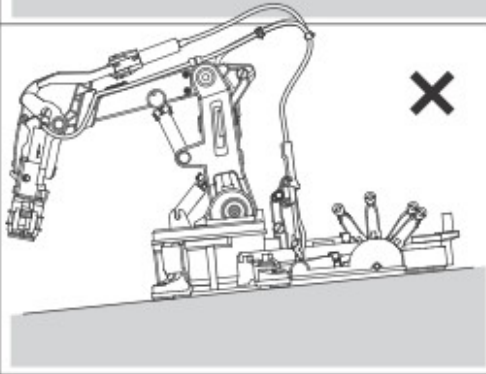
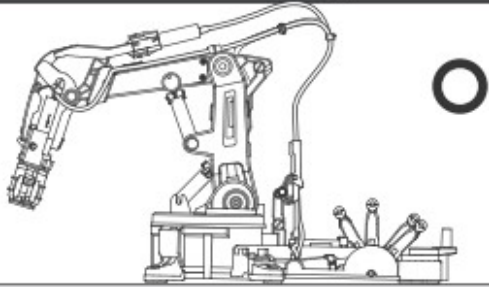
20



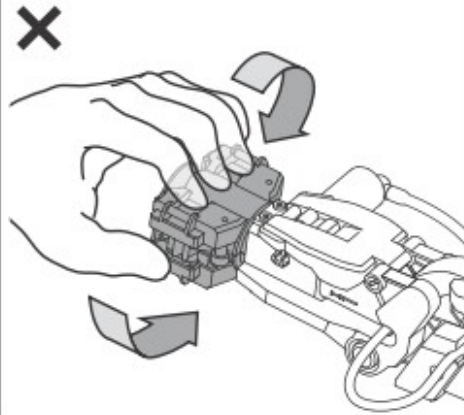
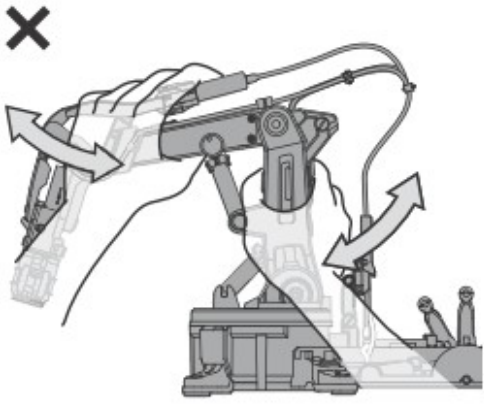
Utilice su mano y mida una pieza de tubo blando de unos 4 dedos de ancho. Esta servirá para fijar E17 y los tubos.

How To Play

Warning



Operate on a smooth and level surface.



Handle the arm with care and do not mistreat as shown above

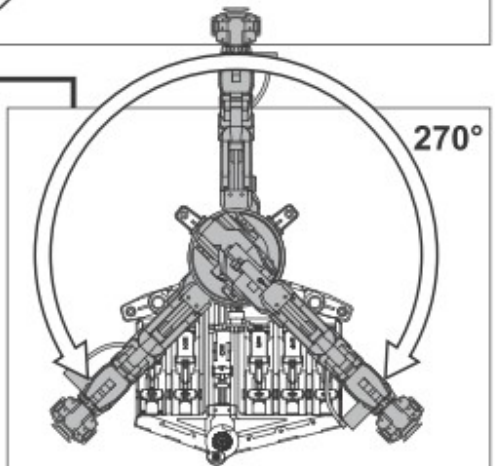
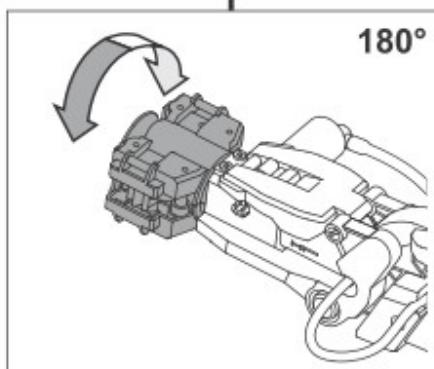
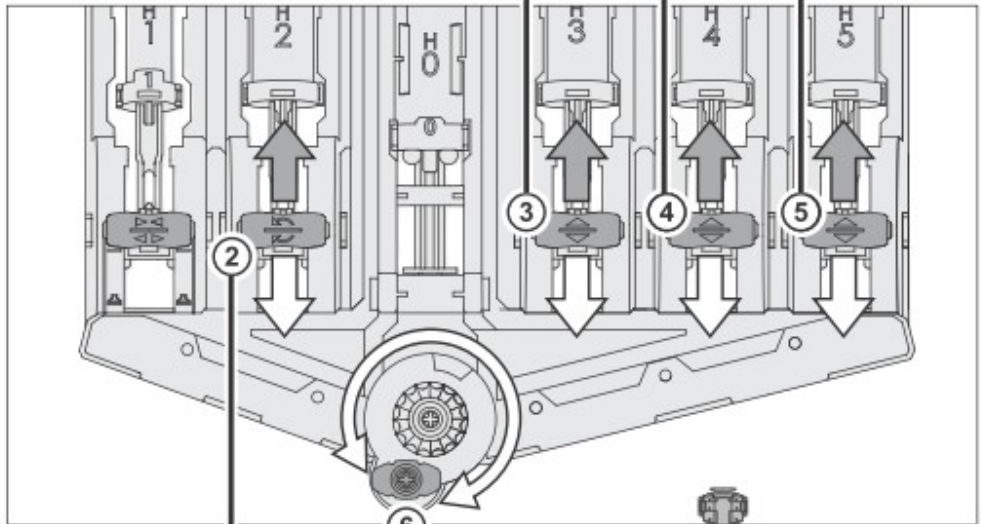
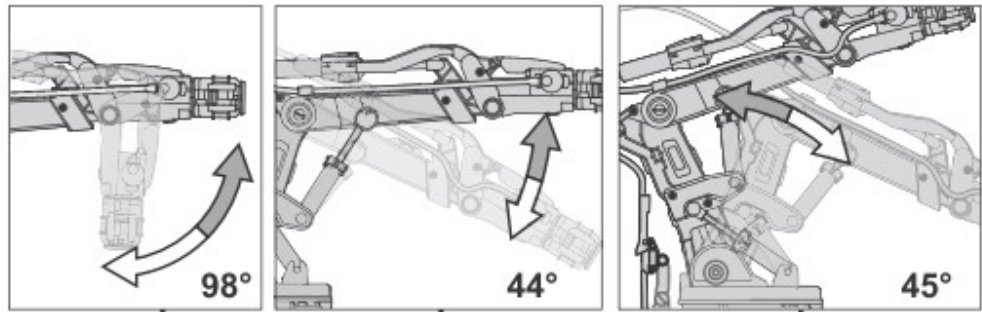
Jugar

Advertencia

Maneje el aparato en una superficie plana y nivelada.

Sea cuidadoso al manipular el brazo y no lo fuerce.

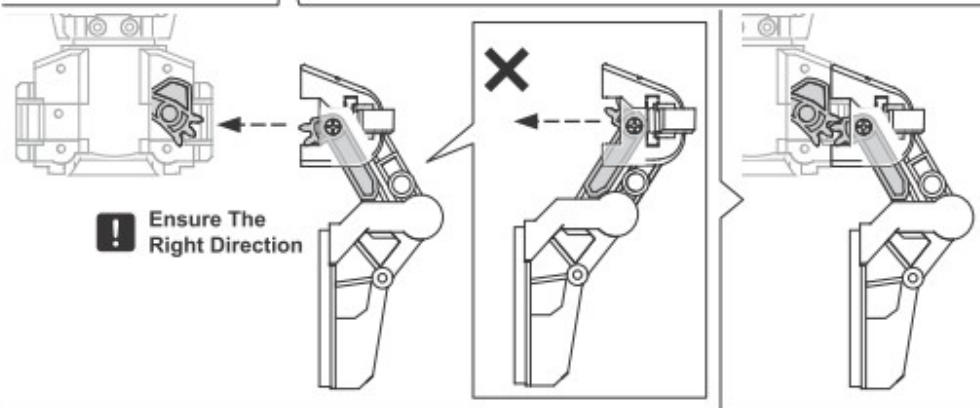
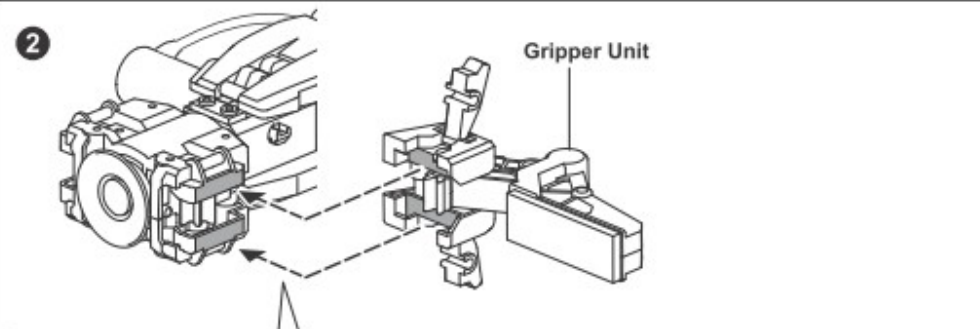
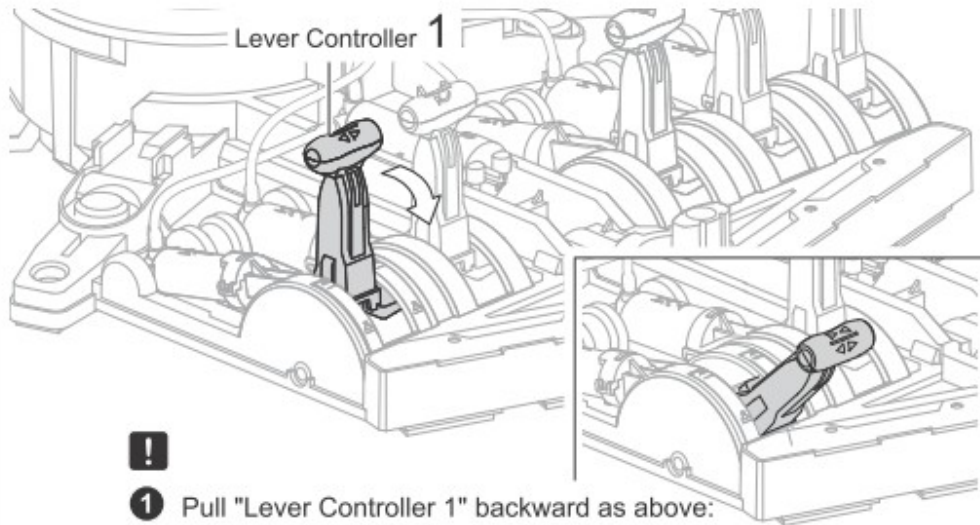
How To Play: 2~6 AXES



Jugar: 2-6 EJES

How To Play-Gripper Mode

1 Installation



Jugar – Modo pinza

Instalación

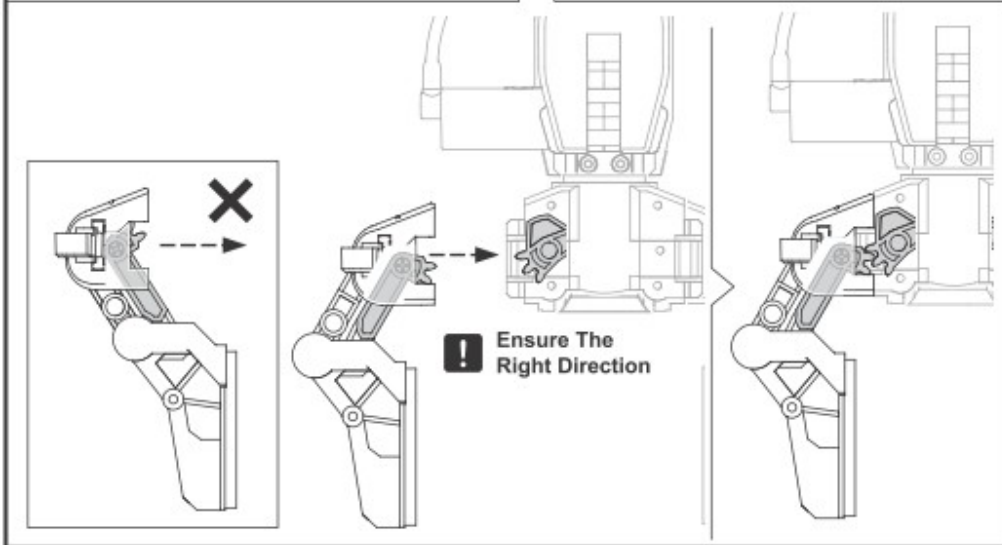
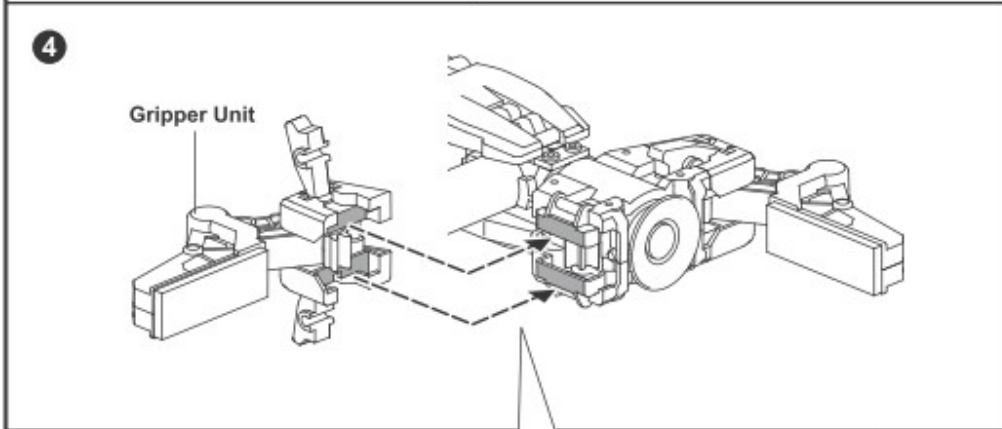
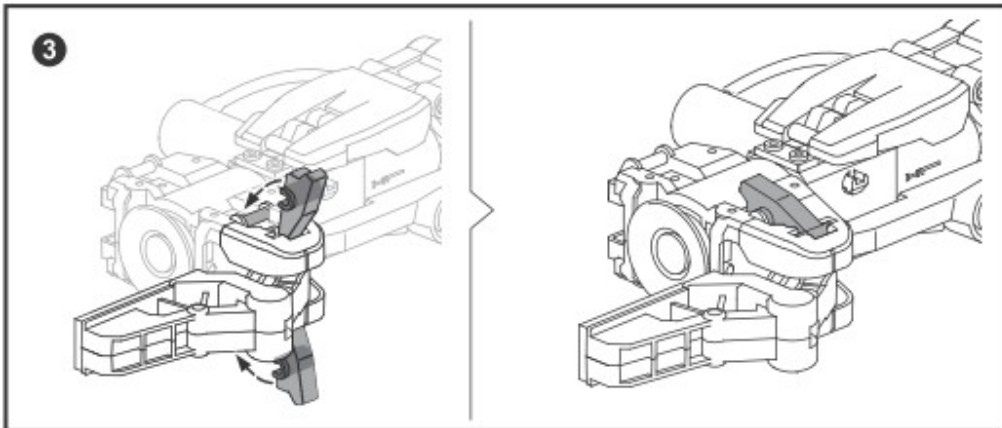
Palanca 1

1 !

Tire de la palanca 1 hacia atrás (véase fig.).

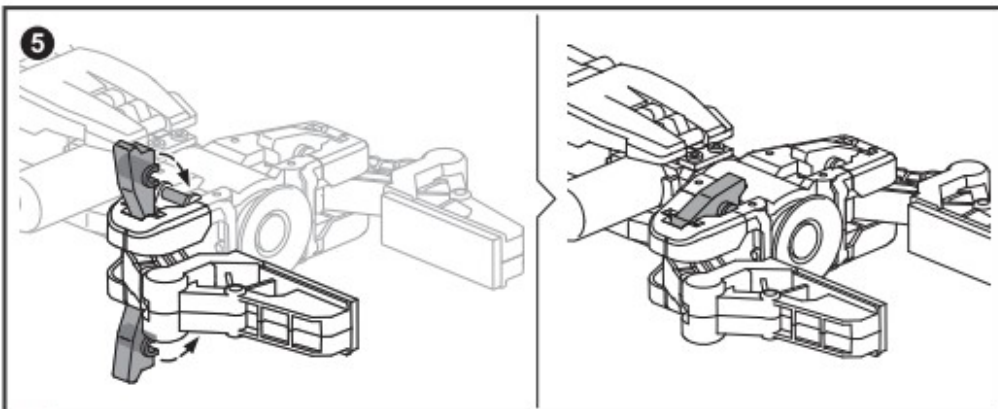
Pinza

Asegúrese de que la dirección es correcta.

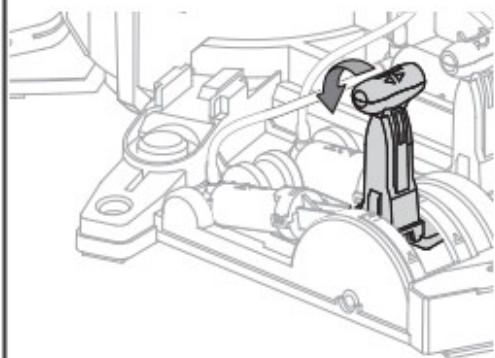


Pinza

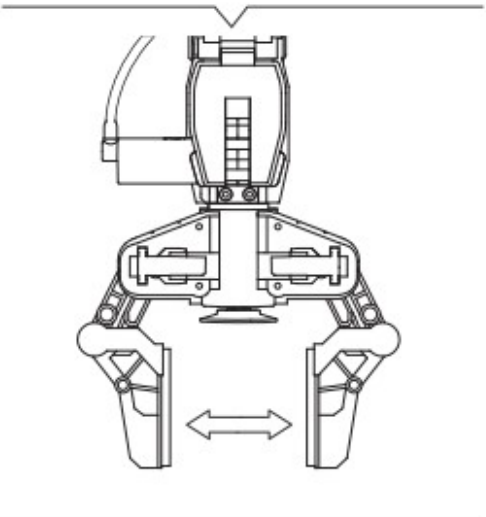
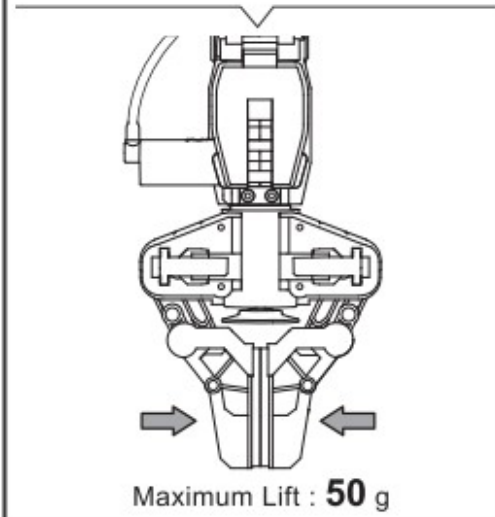
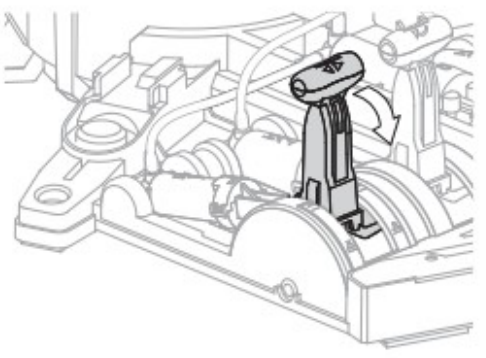
Asegúrese de que la dirección es correcta.



2 Grip the object:
Push "Lever Controller 1" forward



Release the object:
Pull "Lever Controller 1" backward



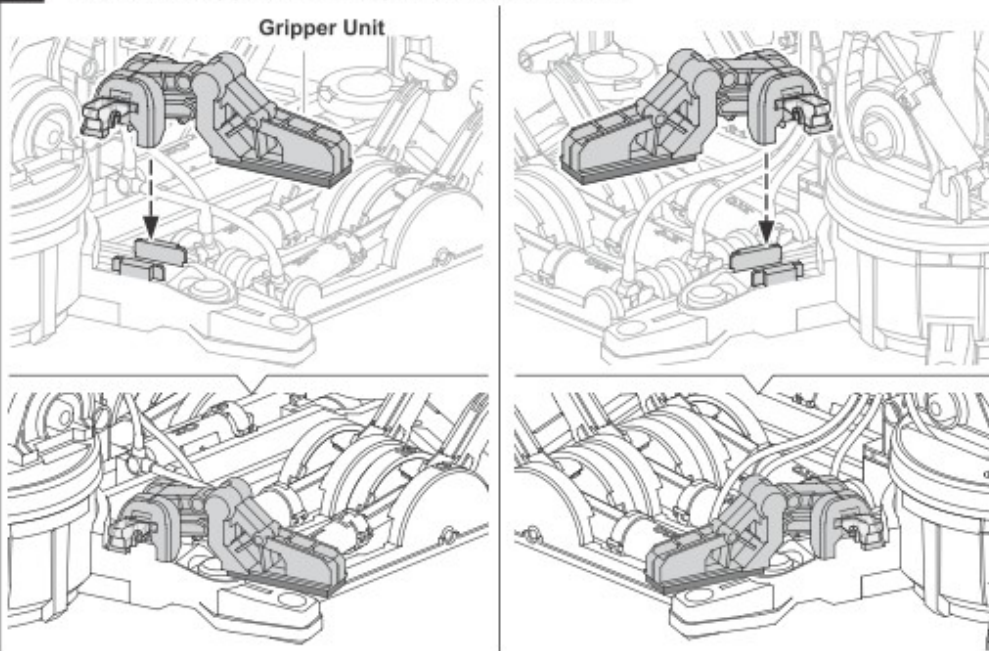
Agarre el objeto: Tire de la palanca 1 hacia adelante.

Suelte el objeto: Tire de la palanca 1 hacia atrás.

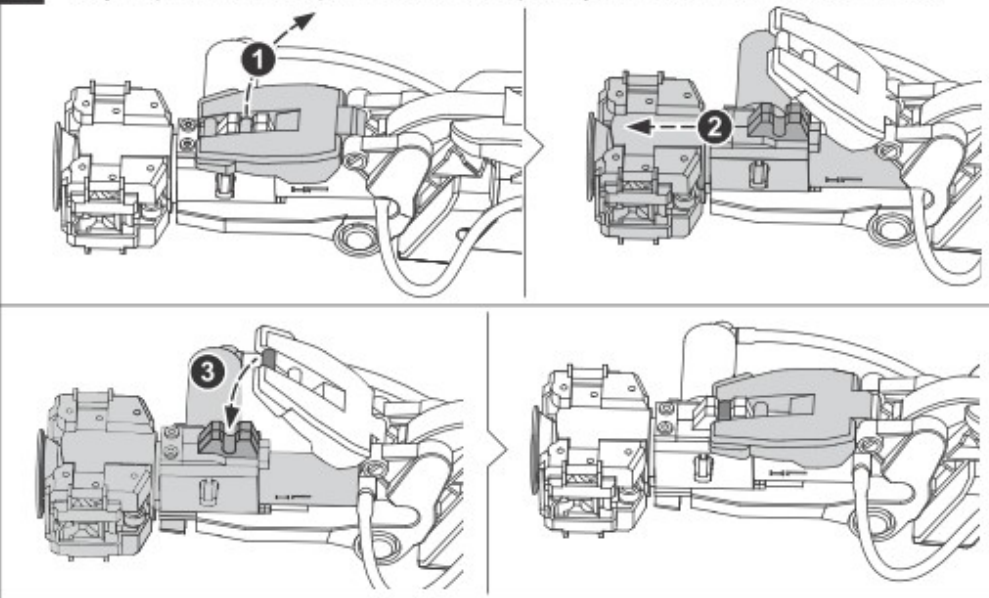
Capacidad de levantar: máx. 50 g

How To Play- Suction Mode

- 1** Release Gripper unit and put it aside as below



- 2** Very Important !! Step 2 must be completely fulfilled under Suction Mode.



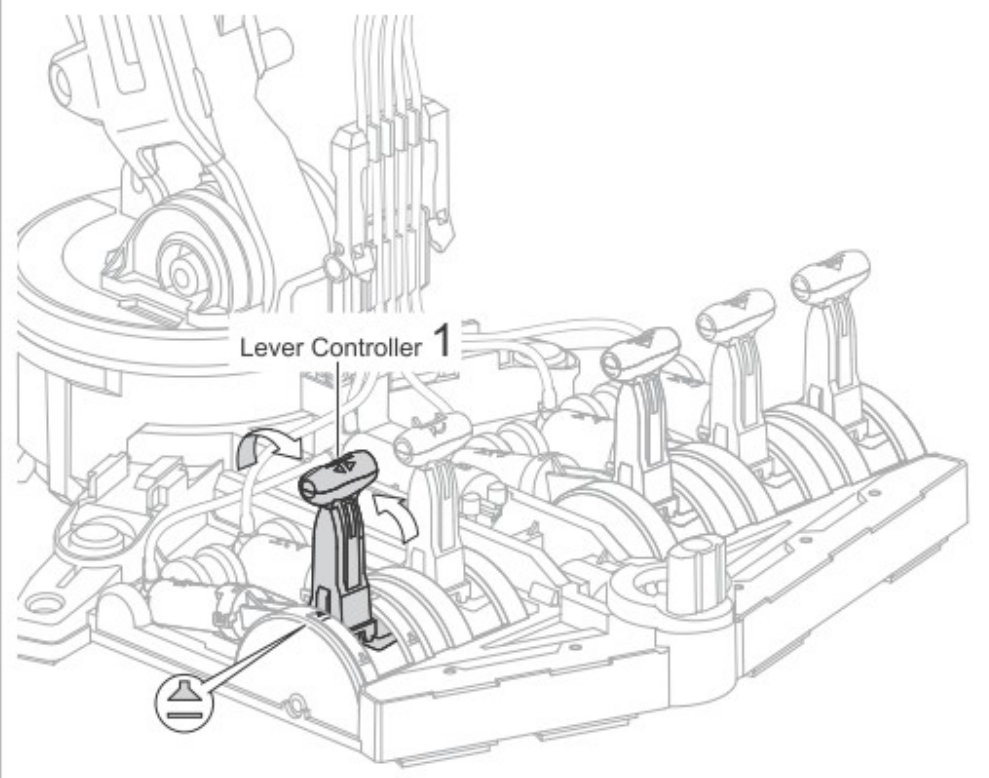
Jugar – Modo de succión

Suelte la pinza y móntela en el lateral (véase fig.).

Pinza

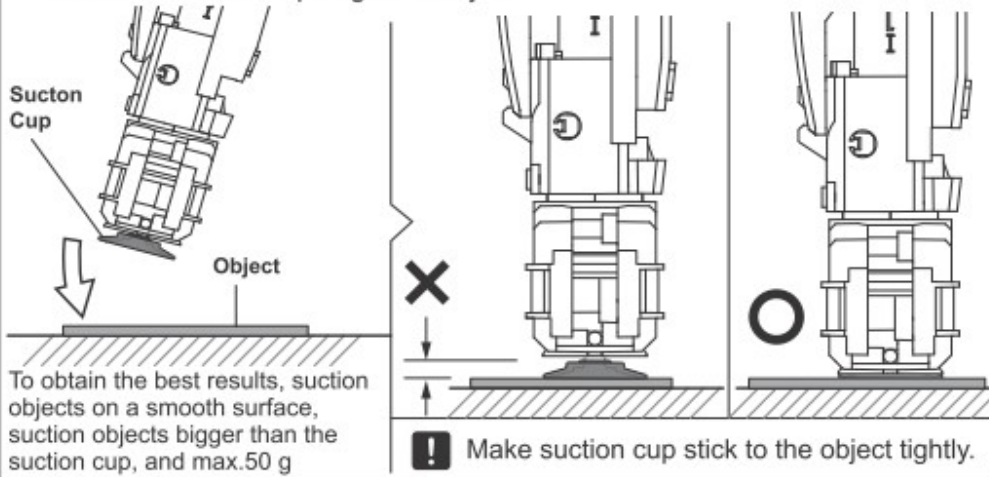
Muy Importante – El paso 2 debe realizarse en su totalidad en el modo de succión.

3 Set the "Lever Controller 1 " in the middle as below



Ponga la palanca 1 en la posición media (véase fig.).

4 Operate the lever Controllers 2-6 (refer to page. 77), and have suction cup target the object.



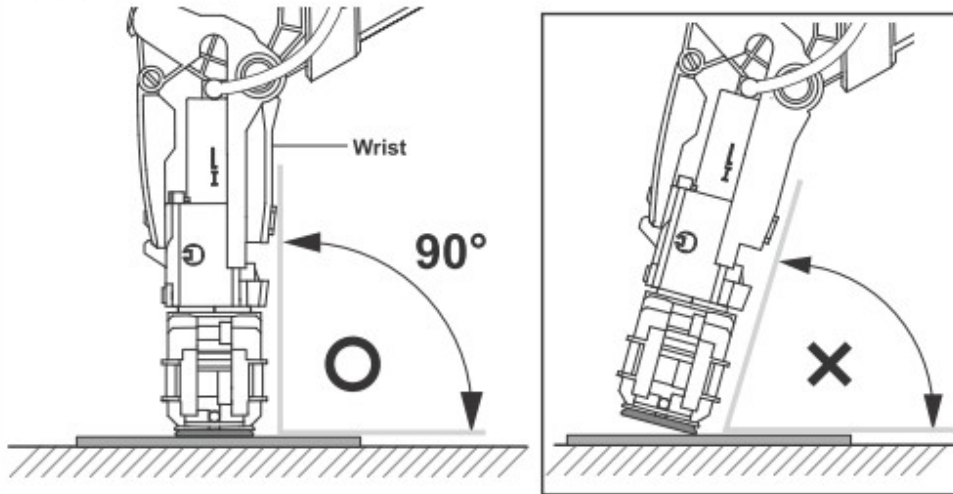
Maneje las palancas 2-6 (véase p. 77) y haga que la ventosa esté dirigida al objeto.

Ventosa
Objeto

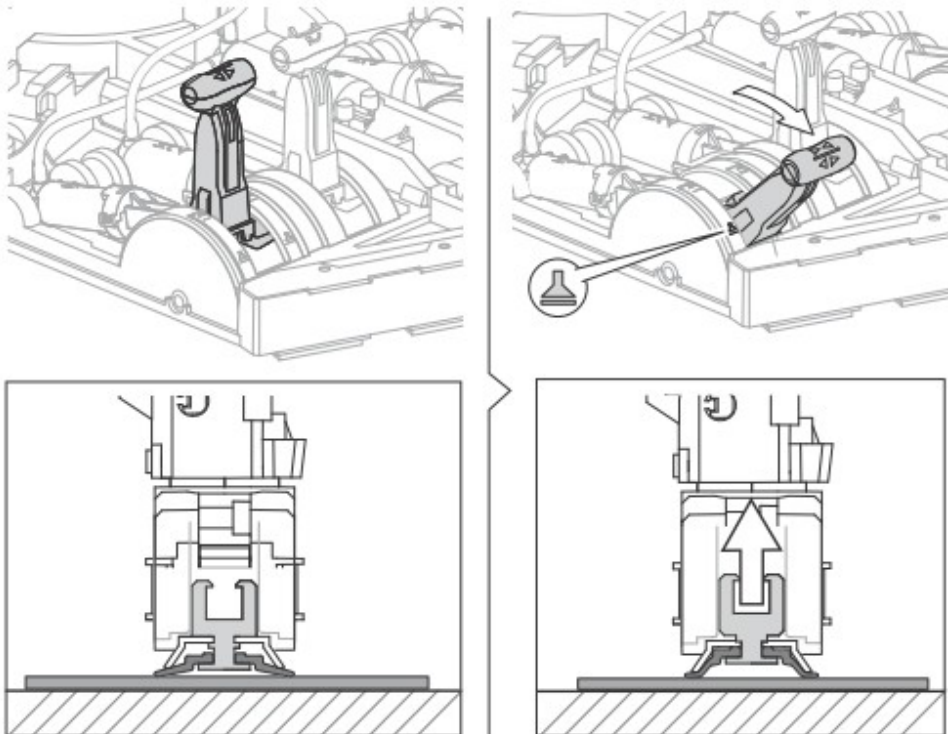
Para un mejor resultado, ponga el objeto que quiere levantar en una superficie plana, asegúrese de que sea más grande que la ventosa y no pese más de 50 g.

! Asegúrese de que el objeto esté firmemente fijado a la ventosa.

! Direct the Wrist to the object straightly



5 Pull "Lever Controller 1" backward as below, and have the cup suck the object.

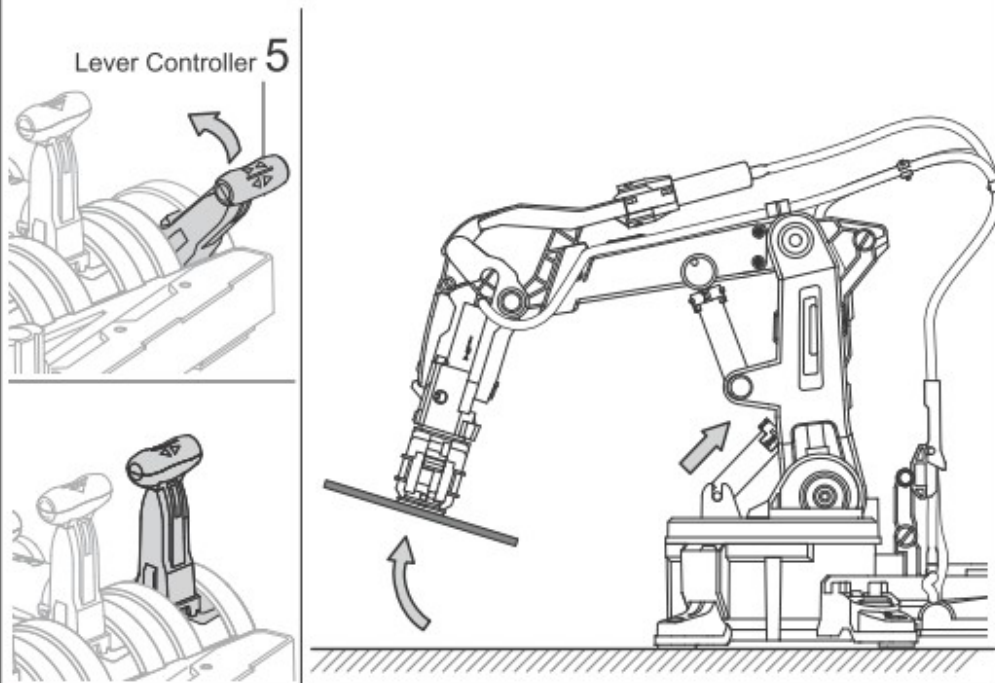


! Dirija la muñeca directamente al objeto.

Muñeca

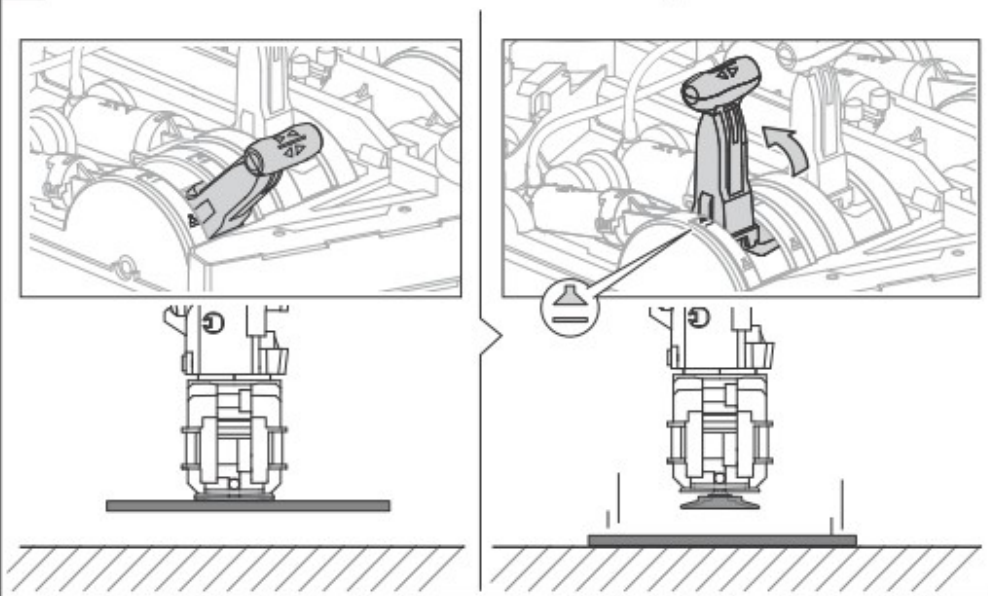
Tire de la palanca 1 hacia atrás y asegúrese de que el objeto esté firmemente fijado a la ventosa.

6 Push "Lever Controller 5" forward to lift the object.



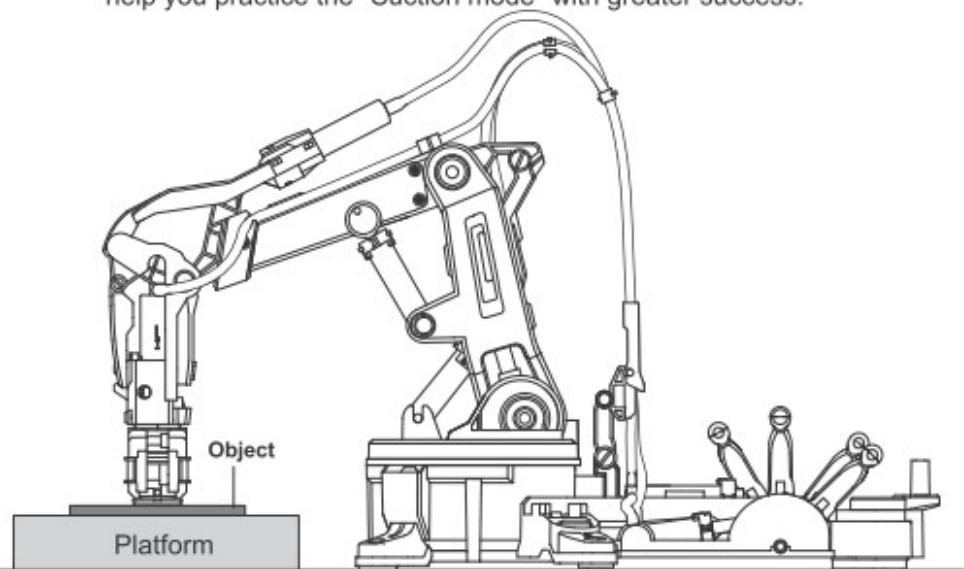
Tire de la palanca 5 hacia atrás para levantar el objeto.

7 Set "Lever Controller 1" in the middle to release object.



Ponga la palanca en la posición media.

8 Tip: Put the object under a slightly higher/and smoother platform, it may help you practice the "Suction mode" with greater success.

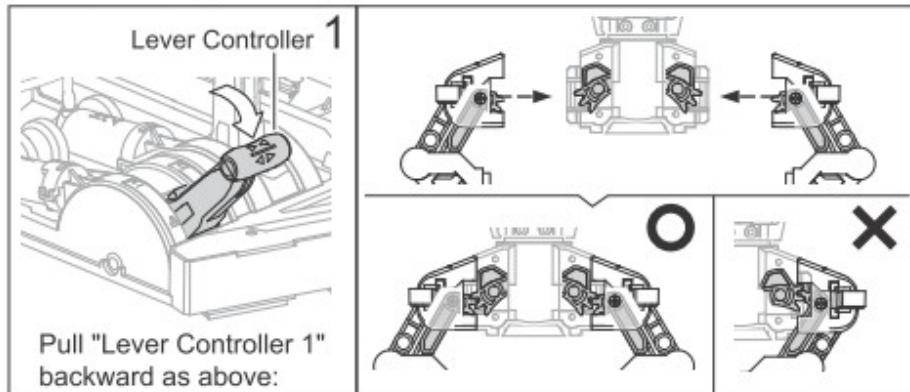


Consejo: Ponga el objeto en una plataforma plana y un poco más alta para que la ventosa pueda levantar el objeto más fácilmente.

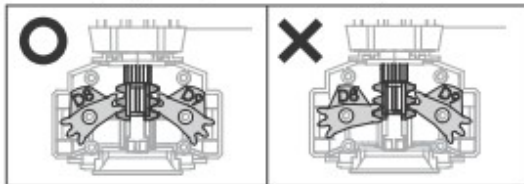
Trouble Shooting

● If gripper unit does not work (open or close) functionally, please check following steps.

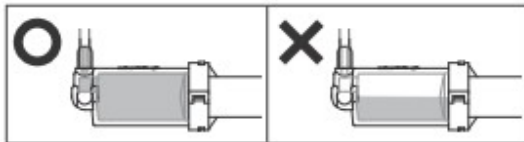
1. Check if gripper unit is installed in the correct position and direction (as below pics in pages 78,79)



2. Back to page 32, and check step 16 is correct.



3. Check if there is excess air inside the Cylinder H1, I1 and Tube 1. In the case, back to pages 42-45 to re-assemble."



● If suction cup cannot suck the objects under suction mode.

1. Back to pages 81~84, and check if all steps 2~6 are installed correctly.
2. Check if there are excess air inside the Cylinder H1, I1 and Tube 1. In the case, back to pages 42-45 to re-assemble.

Solución de problemas

● Si la pinza no funciona correctamente (abrir y cerrar), verifique lo siguiente.

1. Verifique si la pinza está instalada en la posición y dirección correctas (véase fig. página 78, 79).

Tire de la palanca 1 hacia atrás (véase fig.).

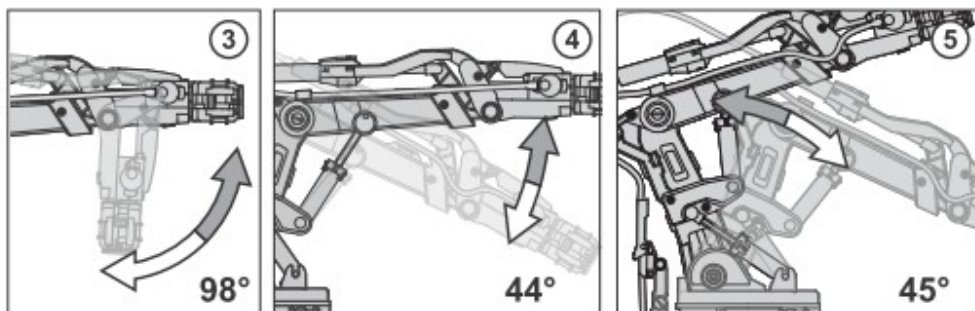
2. Vuelva a la página 32 y compruebe el paso 16.

3. Asegúrese de que no hay demasiado aire en el cilindro H1, I1 y el tubo 1. Si fuera el caso, vuelva a la página 42-45 para volver a montar.

● Si la ventosa no puede levantar el objeto.

1. Vuelva a las páginas 81-84 y compruebe los pasos 2-6.
2. Asegúrese de que no hay demasiado aire en el cilindro H1, I1 y el tubo 1. Si fuera el caso, vuelva a la página 42-45 para volver a montar.

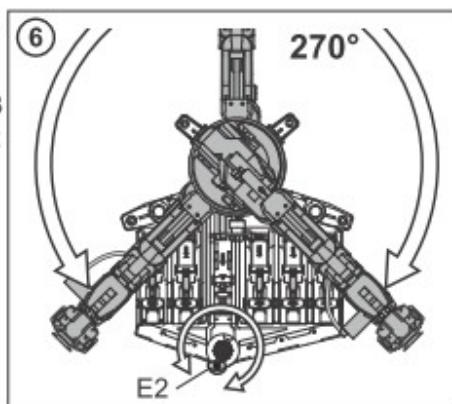
● **If operation angle on the Axes 3/4/5 is unable to extend to the max.**



1. Check if there is excess air inside the Cylinder H3/4/5, I3/4/5, and Tube 3/4/5, in that case, back to pages 37~40 to re-assemble.
2. Check if all tubes are routing and not twisting during assembly. In the case of twisted tubes.
 - (a) back to pages 66~75 " Robot Arm Module Assembly " to check if all markings on the tubes are installed in the right position.
 - (b) back to Pages 46~48 " Measuring & Marking " to check if all lengths of tubes are cut and marked correctly.

● **Poor movement of the 6th Axe.**

1. If 6th Axe doesnot move when rotating E2, back to Page 19, Step 13 and check if E10 is intalled in the right position.



2. Check if all tubes are routing and not twisting during assembly. In the case of twisted tubes,
 - (a) back to pages 66~75 "Robot Arm Module Assembly" to check if all markings on the tubes are installed in the right position.
 - (b) back to Pages 46~48 " Measuring & Marking " to check if all lengths of tubes are cut and marked correctly.

● **Si no es posible extender el ángulo de funcionamiento en los ejes 3/4/5 al máximo.**

1. Asegúrese de que no hay demasiado aire en el cilindro H3/4/5, I3/4/5 y el tubo 3/4/5. Si fuera el caso, vuelva a la página 37-40 para volver a montar.
2. Verifique si ha instalado todos los tubos correctamente y si no están torcidos. Si fuera el caso:
 - (a) vuelva a las páginas 66-75 "Montaje del brazo robótico" para verificar si todos los marcados de los tubos están en la posición correcta.
 - (b) vuelva a las páginas 46-48 "Medir & marcar" para verificar si ha cortado y marcado los tubos correctamente.

● **Movimiento incorrecto del sexto eje.**

1. Si el sexto eje no se mueve al rotar E2, vuelva a la página 19, paso 13 y verifique si ha instalado E10 correctamente.
2. Verifique si ha instalado todos los tubos correctamente y si no están torcidos. Si fuera el caso:
 - (a) vuelva a las páginas 66-75 "Montaje del brazo robótico" para verificar si todos los marcados de los tubos están en la posición correcta.
 - (b) vuelva a las páginas 46-48 "Medir & marcar" para verificar si ha cortado y marcado los tubos correctamente.