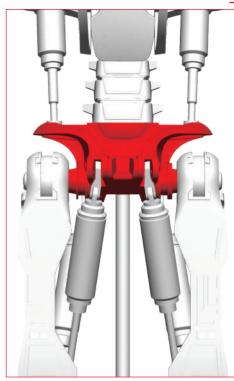
## STAGE 53: FITTING MORE PARTS TO THE TORSO AND PELVIS

Affix a connective muscle to the torso, and complete the hip sockets of the pelvis with the addition of the second hip connector.



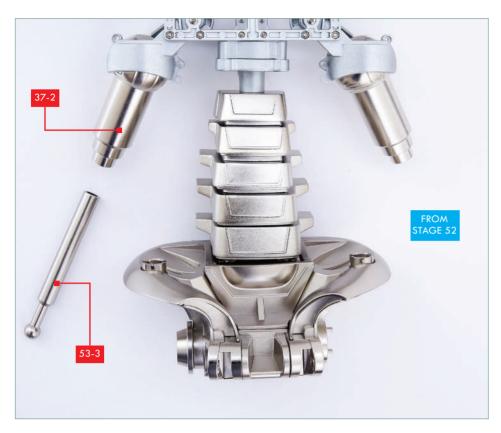


## LIST OF PIECES

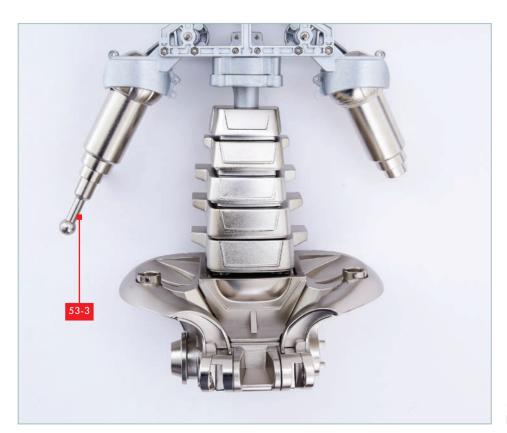
53-1	Leg joint section
53-2	Hip socket
53-3	Inner side muscle
53-4	Muscle connection

## YOU WILL ALSO NEED

Tweezers (optional), the complete assembly from stage 52, superglue and a cocktail stick.

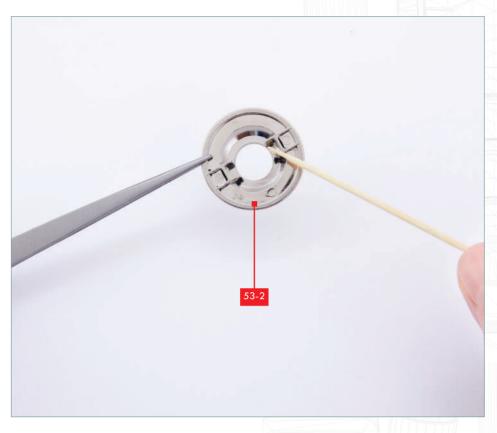


Fit the inner side muscle **53-3** into the shaft of the thoracic side muscle **37-2**.



## STEP 2

Push the inner side muscle **53-3** in as far as it will go. It is not fixed at this point, so handle the assembly with care.



Apply a little superglue to the inner recesses of the hip socket **53-2**.



## STEP 4

Identify the two pegs on the left side of the pelvis (circled) where the hip socket will be fitted.



Fix the hip socket **53-2** in place on the side of the pelvis, so that the pegs on the pelvis go into the recesses in the hip socket.



## STEP 6

This shows the hip socket 53-2 in place.



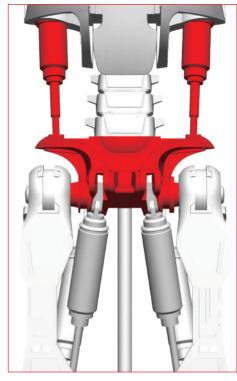
## **STAGE COMPLETE!**

An inner muscle has been fitted into a shaft on the torso and the second hip socket has been fitted to the side of the pelvis. The other parts will be used in a future stage.

## STAGE 54: ASSEMBLING A MUSCLE AND ATTACHING THE SIDE MUSCLES

Attach the side muscles to the torso using ball-joint connections, and prepare another muscle for future integration.





## LIST OF PIECES

54-1	Leg joint section
54-2	Outer muscle
54-3	Inner muscle
54-4	Muscle cap
54-5	Inner side muscle

## YOU WILL ALSO NEED

Tweezers (optional), the muscle connection 53-4, superglue and a cocktail stick.

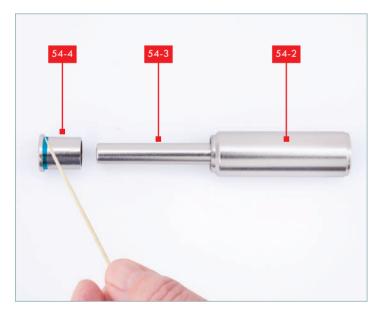




Fit the inner muscle **54-3** into the outer muscle **54-2**, inserting it through the wider end of part **54-2**.

## STEP 2

Pull the inner muscle **54-3** through the outer muscle **54-2**, as shown.



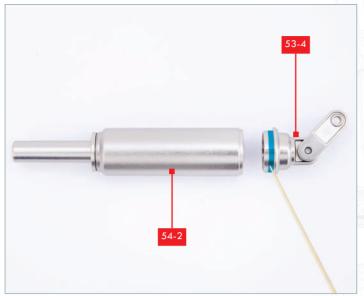


## STEP 3

Apply a little superglue around the end of the muscle cap **54-4**, just beneath the rim (blue shaded area). Slide it onto the inner muscle **54-3** and down to the outer muscle **54-2**.

## STEP 4

Fix the muscle cap **54-4** into the end of the outer muscle **54-2**. Just the rim of part **54-4** is visible.

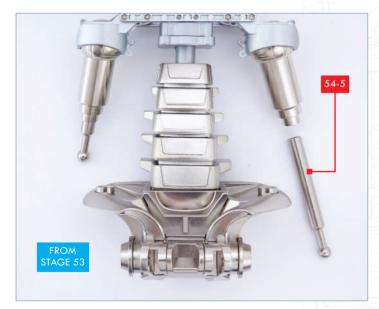


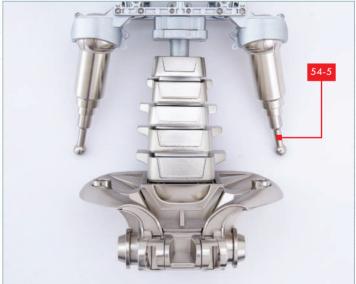


Take the muscle connection **53-4** supplied with the previous stage. Apply a little superglue around part **53-4**, just below the rim (blue shaded area). Fix it in place in the open end of the outer muscle **54-2**.

## STEP 6

This shows the muscle assembled.



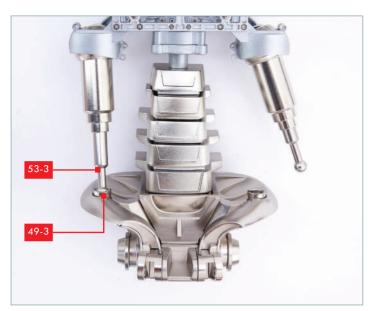


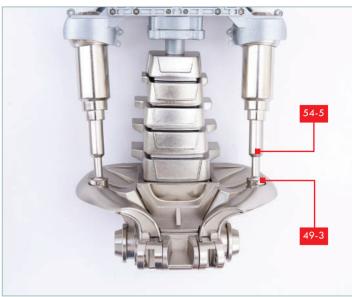
## STEP 7

Take the complete assembly which was last worked upon in stage 53 and the inner side muscle **54-5**.

## STEP 8

Fit the inner side muscle **54-5** into the shaft on the left side of the torso.

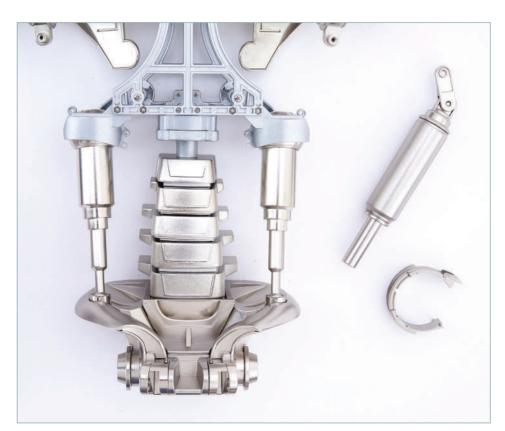




Fit the inner side muscle 53-3 into the socket 49-3. The ball on the end needs to be pushed firmly in place. Do not use any glue.

## **STEP 10**

Similarly, fit the inner side muscle 54-5 into the socket 49-3. Push it firmly in place and do not use any glue.



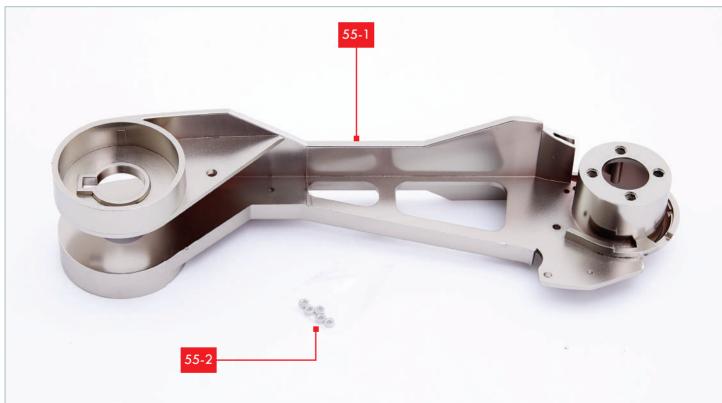
## STAGE COMPLETE!

Another muscle has been assembled, and the side muscles on the torso have been attached to the pelvis. The other parts will be used in a future stage.

## STAGE 55: FITTING A JOINT MECHANISM TO THE RIGHT THIGH

The right thigh begins to take shape, connecting to the leg joints supplied with stages 53 and 54.





## LIST OF PIECES

55-1 Right thigh

55-2 5x M2 nuts (1 spare)

## YOU WILL ALSO NEED

Tweezers (optional), the Leg joint sections 53-1 and 54-1, superglue and a cocktail stick.



Take the two leg joint parts 53-1 and 54-1.



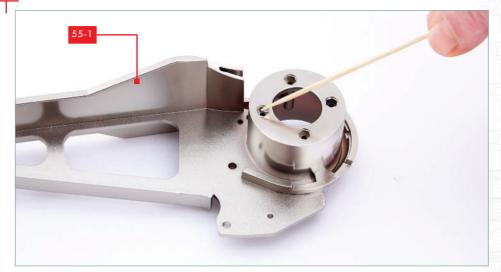
## STEP 2

Fit the joint section **54-1** around joint section **53-1**, in the orientation shown. This is best done by hand so that you can open part **54-1** slightly. We have used tweezers to show the shapes clearly.

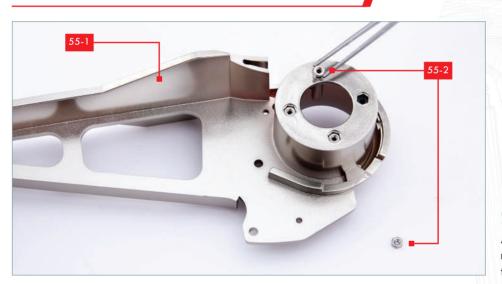


## STEP 3

Push the two parts firmly together, so that they click in place. The indents and raised sections around the edge of part **54-1** fit into place between raised sections and indents on the rim of part **53-1** as shown.

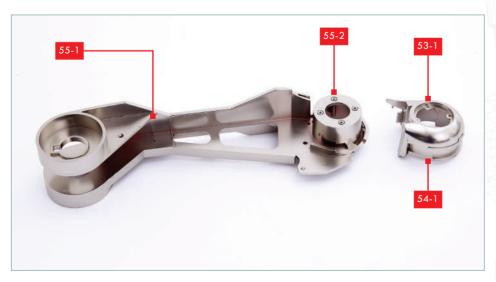


Take the right thigh, part **55-1**. One at a time, apply a little superglue in the hexagonal recesses in the 'hip' end of the thigh.



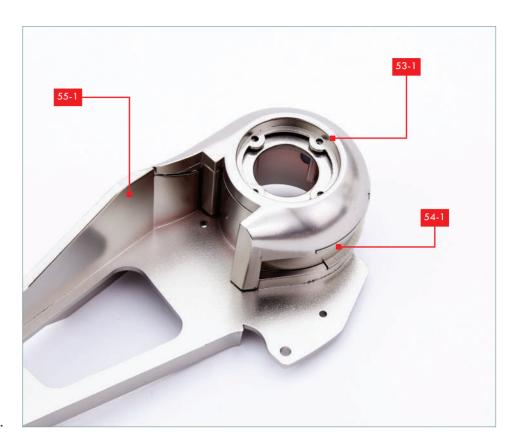
## STEP 5

After applying glue to a recess, fit an M2 nut **55-2** in place. It is very important that the nuts sit flat in the resesses.



## STEP 6

With all four M2 nuts in place, take the joint assembly 53-1/54-1 and lay it on the work surface, as shown.



Fit the joint 53-1/54-1 on to the top of the thigh **55-1** so that the screw holes in part **53-1** are aligned with the nuts in part **55-1**.



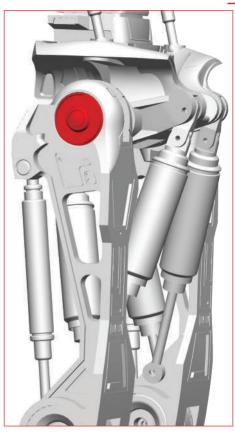
## **STAGE COMPLETE**

A joint has been fitted to the top of the left thigh.

## STAGE 56: ASSEMBLING THE RIGHT HIP JOINT

Connect the right thigh to the pelvis using the joint and casings supplied.





## LIST OF PIECES

56-1	Hip joint
56-2	Inner casing for hip joint
56-3	Outer casing for hip joint
56-4	Domed cap for hip joint
56-5	Outer cap for hip joint
56-6	5x PM screws (2x18 mm)
56-7	2x PM screws (3x8 mm)

## YOU WILL ALSO NEED

Tweezers (optional), the thigh assembly and model assembly from previous stages and a cross-head screwdriver.





Take the thigh assembly from stage 55 and place it in the orientation shown. Fit the inner hip casing 56-2 into the opening for the hip joint. The flat surface of part 56-2 is upwards, as shown. Ensure that the recesses in part 56-2 fit around the screw sockets inside the joint (above).



## STEP 2

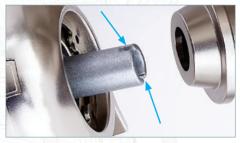
Fit the hip joint **56-1** inside the joint opening so that it sits in the inner joint casing **56-2**.



## STEP 3

Take the model assembly from stage 54 and identify the hip socket **51-2**.





Fit the stem of the hip joint **56-1** into the hip socket **51-2**. Note that there are two notches on the hip socket **56-1** that have to be fitted over raised bars inside the hip socket (see arrows on inset). Take time to ensure that these notches are properly engaged.



## STEP 5

Fix part **56-1** in place with a PM 3x8 mm screw (**56-7**). At this stage, the joint will be quite loose. Ensure the screw is fully tightened.



## STEP 6

Fit the outer hip joint casing **56-3** over the ball of the hip joint **56-1** so that the notches round the edge of part **56-3** fit around the raised screw sockets on the inside of the hip joint.



# 56-5

## STEP 7

Fit the metal domed hip joint cap **56-4** over the casing **56-3**. Again, the notches in part **56-4** fit around the raised screw sockets.

## STEP 8

Take the outer cap for the hip joint **56-5** and note that there are slightly raised parts on either side of the screw holes. These will fit around the raised screw sockets on the inside of the hip joint, as indicated by the arrows. For the next step, you will need four PM 2x18 mm screws (**56-6**).



## STEP 9

Fit the outer cap 56-5 over part 56-4 so that the screw holes are aligned. Fix in place with four PM 2x18 mm screws.

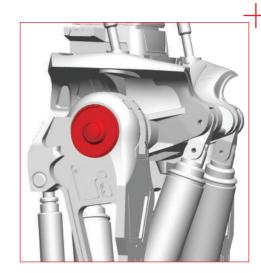


## **STAGE COMPLETE!**

The right thigh has been attached to the pelvis. The hip joint will become tighter in the next stage.

## STAGE 57: FINISHING THE RIGHT HIP JOINT AND ASSEMBLING A LEG PART

Cap off the right thigh joint with a covering plate, and begin a new element of the leg.





## LIST OF PIECES

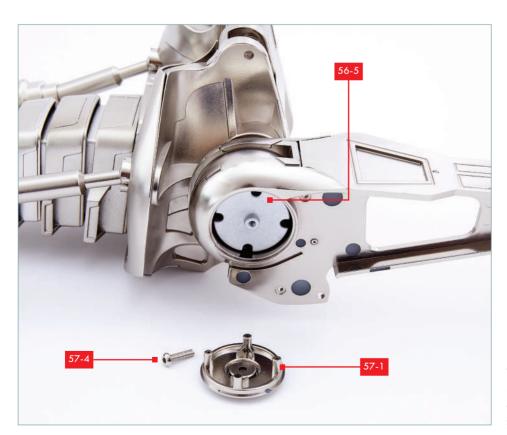
57-1	Hip plate	57-3	Right leg part insert
57-2	Right leg part		2x PM Allen screws (3x12 mm) (1 spare)

## YOU WILL ALSO NEED

The model assembly from the previous stage, Allen key supplied with stage 26.

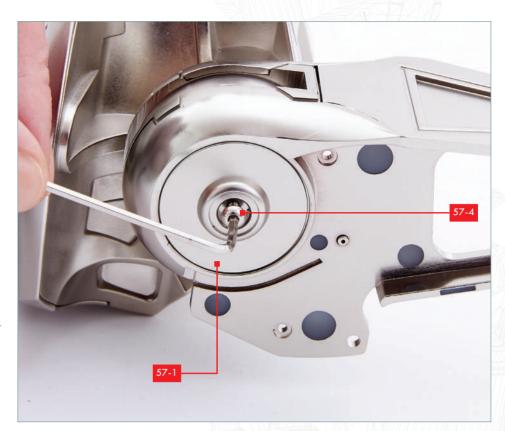


Lay the model on your work surface as shown so that you can access the hip joint and hip cap **56-5**.



## STEP 2

Take the hip plate **57-1** and the Allen screw **57-4**. Note there are four pegs on the inside of part **57-1**. These will fit into the four sockets in the hip cap **56-5**.



Position the hip cap 57-1 over the hip joint opening so that the pegs are located in the holes in part **56-5**. Fit the 3x12 mm Allen screw **57-4** into the screw hole and tighten it with an Allen key.

Do not overtighten: there should be movement in the joint. The thigh section can move backwards and forwards (as if walking) and also move out to the side.



## STEP 4

Take the leg part **57-2** and the insert **57-3**.



Fit the insert **57-3** into the open end of part **57-2**. It is a tight fit, so no glue is needed.

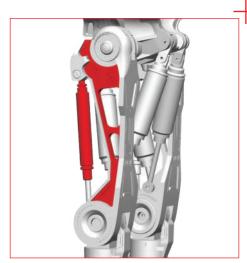


## **STAGE COMPLETE!**

A plate has been fitted to the outside of the right hip and a leg part has been assembled.

## STAGE 58: FITTING PARTS TO THE RIGHT THIGH

Add decoration and support to the right thigh with a leg plate, and connect the leg part assembled last stage.





## LIST OF PIECES

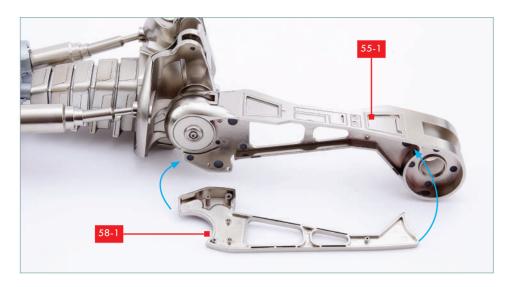
58-1 Right leg plate

58-2 2x PM screw (3x16 mm) (1 spare)

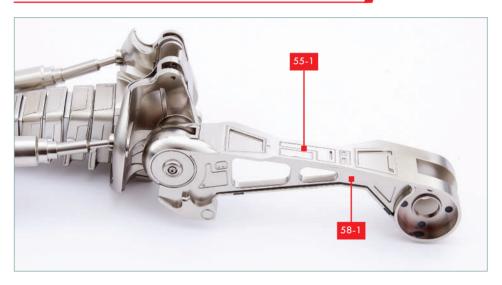
58-3 4x PB screws (2x4 mm) (1 spare)

## YOU WILL ALSO NEED

The model assembly from the previous stage, a fine cross-head screwdriver.



Lay the model on your work surface as shown so that you can acces the outer face of the right thigh 55-1. Position the leg plate 58-1 in front of the model assembly in the orientation shown. The arrows indicate how the leg plate 58-1 fits into the thigh 55-1.



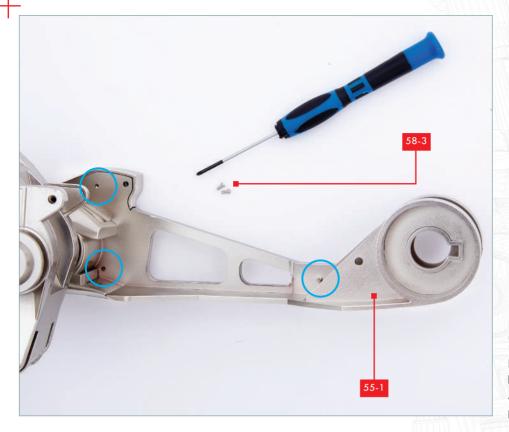
## STEP 2

Fit the leg plate **58-1** into the recessed area in the thigh **55-1**.

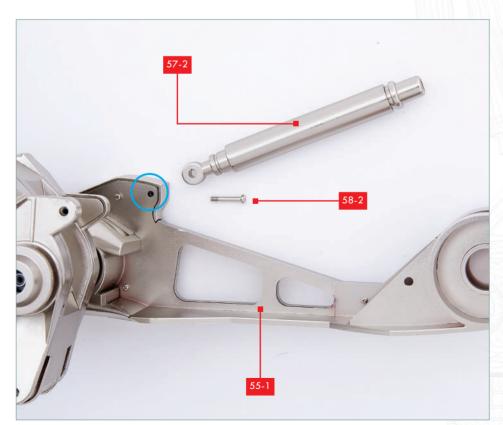


## STEP 3

Holding the leg plate **58-1** in place, access the inside of the thigh **55-1**. This may involve very carefully rolling the model assembly onto its side. Here we are viewing the assembly from above.

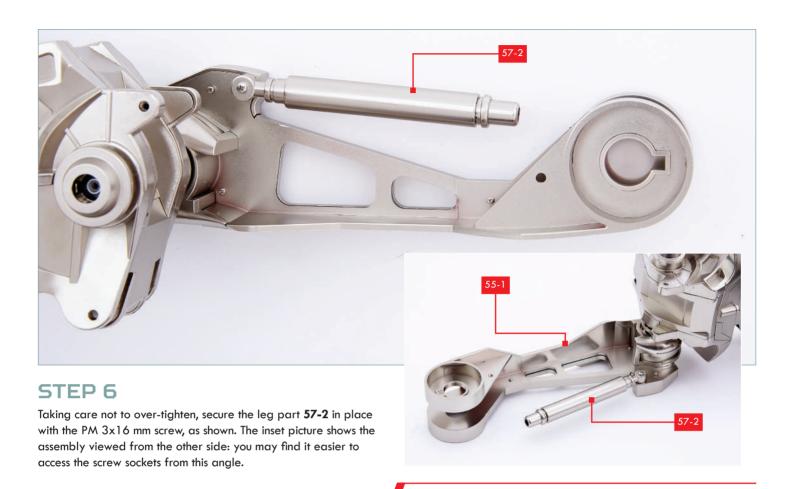


Part **58-1** is fixed from this side of the thigh. Identify the three small screw holes in part **55-1** (circled in blue) and fix part **58-1** in place using three PB 2x4 mm screws (**58-3**).



## STEP 5

The loop on the leg part **57-2** is attached to the thigh **55-1** using a PM 3x16mm screw (**58-2**). Align the loop with the screw socket in part **55-1**, circled in blue.



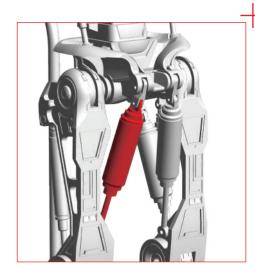


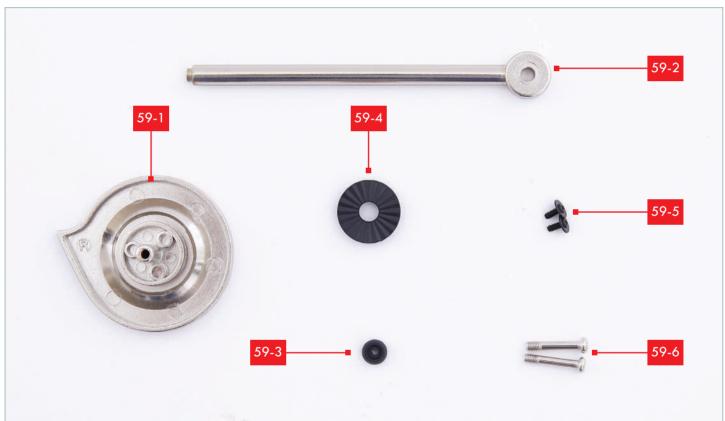
## **STAGE COMPLETE!**

A plate has been fitted to the outside of the right thigh and a leg part has been attached.

## STAGE 59: A MUSCLE FOR THE RIGHT THIGH

Assemble and attach one of the thigh muscles and prepare a tendon for future attachment.





## LIST OF PIECES

59-1 Right leg joint
59-2 Tendon for right leg
59-3 Ring for tendon
59-4 Centre part for joint
59-5 2x PWB screws (2x5 mm) (1 spare)
59-6 2x PM screws (3x16 mm) (1 spare)

## YOU WILL ALSO NEED

The model assembly from the previous stage, the muscle assembly from stage 52, a fine cross-head screwdriver, superglue gel and a cocktail stick.



Take the centre part for the joint **59-4**. Note that it has three raised studs. which will fit into recesses in part **59-1**.



## STEP 2

Take part **59-1** and use a cocktail stick to apply a little superglue into the three circular recesses (circled).



## STEP 3

Fit part **59-4** over the central shaft of part **59-1** and fix in place, ensuring that the studs are in the recesses. The centre of the joint **59-4** is not able to rotate around the shaft when it is correctly positioned.



Take the tendon **59-2** and the tendon ring **59-3**. Note that one side of part **59-3** has a wider recess than the other side.



## STEP 5

Fit the end of part **59-3** with a wider recess over the end of the tendon **59-2**. Fix in place with a PWB 2x5mm screw (**59-5**). The flange on the screw fits into the smaller recess in part **59-3**.

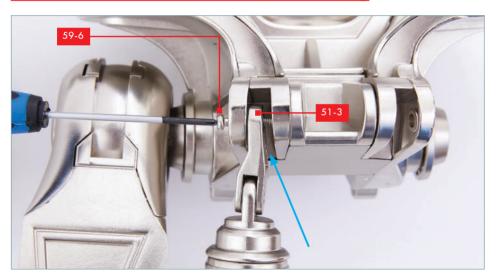


## STEP 6

Take the thigh muscle assembled in stage 52. Note that it is marked with a '1' (circled).



Take the assembly from stage 58 and identify the fixing point for the muscle near the centre of the pelvis (circled). Note that the model assembly is lying face upwards at this stage.



## STEP 8

Fit the muscle connection **51-3** in place as shown. Note that the straighter side of the connection (arrow) goes toward the centre of the model. Fix in place with a PM 3x16 mm screw (**59-6**).



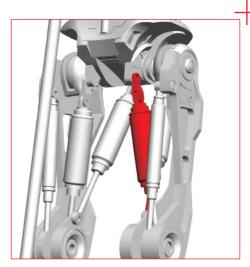


## **STAGE COMPLETE!**

A right thigh muscle has been attached to the pelvis and further right leg parts have been assembled (inset).

## STAGE 60: MORE MUSCLES FOR THE RIGHT LEG

Attach two tendon joints and connect them to the inner thigh.



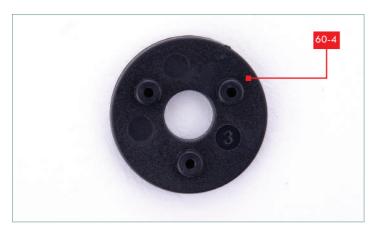


## LIST OF PIECES

60-1	Right leg joint 60-6		2x PM screws (3x12 mm) (1 spare)	
60-2	Tendon for right leg	60-7	2x PM screws (3x16 mm)	
60-3	Ring for tendon	00-7	(1 spare)	
60-4	Centre part for joint	60-8	2x PWB screws (2x5 mm)	
60-5	2x M3 nuts (1 spare)		(1 spare)	

## YOU WILL ALSO NEED

Superglue gel and a cocktail stick, the model assembly from the previous stage, the muscle assembly from stage 54 and a fine cross-head screwdriver.



Take the centre of the joint **60-4**. Note that it has three raised studs, which will fit into recesses in part **60-1**.



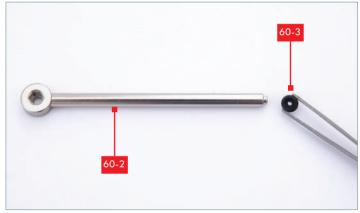
## STEP 2

Take part **60-1** and use a cocktail stick to apply a little superglue into the three circular recesses.



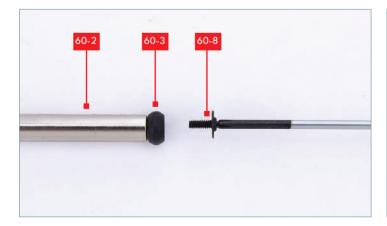
## STEP 3

Fit part **60-4** into place on part **60-1**, ensuring that the pegs are in the recesses. The centre of the joint **60-4** is not able to rotate when it is correctly positioned.



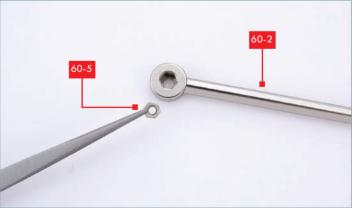
### STEP 4

Take the tendon **60-2** and the tendon ring **60-3**. Note that one side of part **60-3** has a wider recess than the other side.



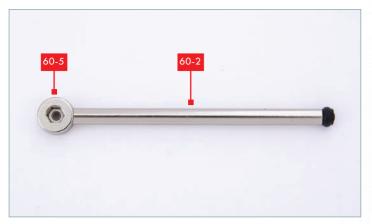
## STEP 5

Fit the end of part **60-3** with a wider recess over the end of the tendon **60-2**. Fix in place with a PWB 2x5 mm screw (**60-8**). The washer on the screw fits into the smaller recess in part **60-3**.



## STEP 6

Take the M3 nut (60-5) and identify the hexagonal recess in the other end of part 60-2.



Fit the M3 nut 60-5 into the recess, ensuring that it is flat.



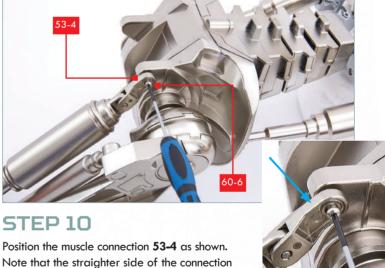
### STEP 8

Take the muscle assembly from stage 54. Note that it is marked with a '2' (circled).



### STEP 9

Take the assembly from stage 59 and identify the fixing point for the muscle at the outside of the pelvis (circled). Note that the model assembly is lying face downwards at this stage.



### STEP 11

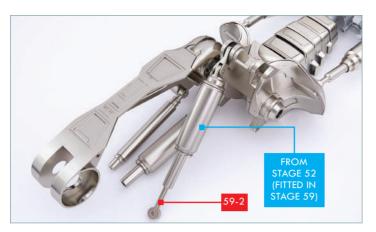
This shows the rear view of the model with the muscle from stage 54 fixed in place. Note that the muscle connections are quite loose, to allow for movement.



goes toward the centre of the model (arrow, inset).

## STEP 12

Turn the model over so that it is lying face upwards. Take the tendon **59-2** and fit the end with a ring into the front thigh muscle (parts from stage 52, connected to the pelvis in stage 59).



This shows the tendon fitted into the front thigh muscle.



### STEP 15

This shows the two muscles fitted with tendons.





## **STEP 14**

Turn the model over so that it is facing downwards. Take the tendon **60-2** assembled in step 7 and fit it into the end of the muscle assembly from stage 54, fitted in step 10.



## **STEP 16**

With the model still facing downwards, position the two tendons **59-2** and **60-2** on either side of the inner part of the thigh. The hexagonal nut on part **60-2** should face outwards (circled, inset) Fix in place with a PM 3x16 mm screw (**60-7**). Again, the parts do not tighten fully against each other.

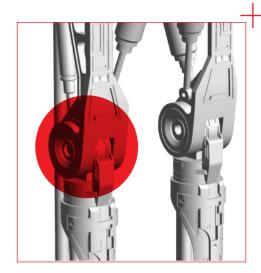


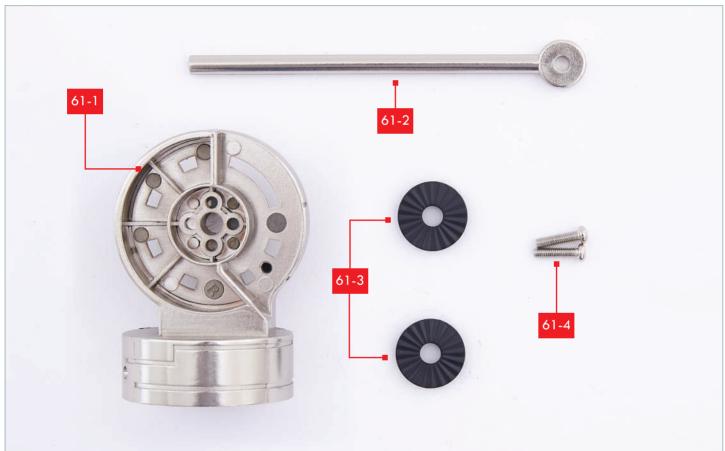
## **STAGE COMPLETE**

Tendons have been attached to the knee joint and part of a joint has been assembled.

# STAGE 61: BUILDING THE KNEE

Assemble the right knee joint and an associated tendon.





## LIST OF PIECES

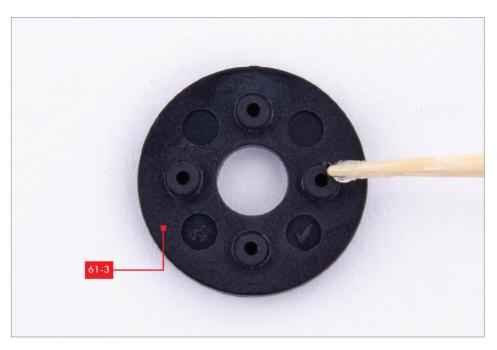
61-4

61-1 Knee joint 61-2 Tendon for right leg 61-3 2x Joint centre parts

2x PM screws (3x12 mm) (1 spare)

## YOU WILL ALSO NEED

A fine cross-head screwdriver, superglue gel and a cocktail stick.



Take the first joint centre part **61-3**. Note that it has four raised studs, which will fit into recesses in part **61-1**. Apply a little superglue to the sides of the raised studs.



## STEP 2

Take part **61-1** and identify the four sockets for the raised studs on part **61-3**.



## STEP 3

Fit part **61-3** into place on one side of part **61-1**, ensuring that the studs are in the recesses. The centre of the joint **61-3** is not able to rotate when it is correctly positioned.





Turn part **61-1** around, and repeat steps 1 and 2 to fit the second part **61-3** in place on the other side of the knee joint.

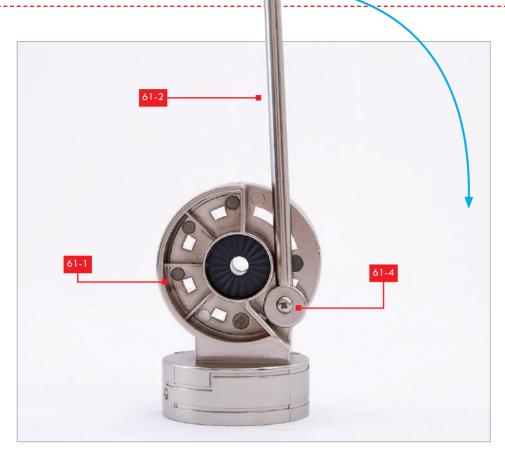
## STEP 5

This shows the second part **61-3** fitted in place in the centre of part **61-1**. Check that part **61-3** is fully inserted.



## STEP 6

Take the tendon **61-2** and the PM 3x12 mm screw (**61-4**). Note the orientation of part **61-1**. Identify the fixing point for the rounded end of part **61-2** on part **61-1** (circled).



Use a fine screwdriver to fix part **61-2** in place on part **61-1**, as shown, using the PM 3x12 mm screw. Do not overtighten as the part should be able to swing down (arrow).

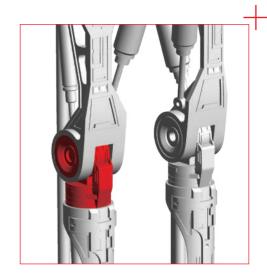


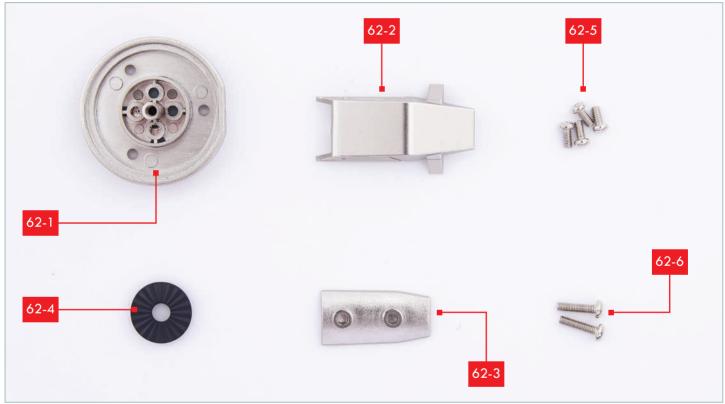
## **STAGE COMPLETE!**

Part of the knee joint has been assembled.

## STAGE 62: FITTING THE KNEE CAP AND KNEE JOINT

Attach the knee cap to the right knee, and assemble the entirety of the right knee joint.



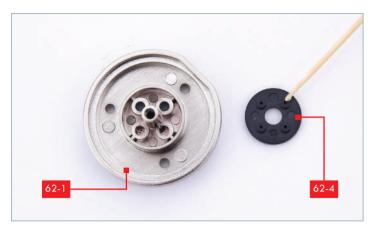


## LIST OF PIECES

40.1	Kunn inin
62-1	Knee joint
62-2	Outer right knee cap
62-3	Inner right knee cap
62-4	2x Joint centre parts
62-5	4x PM screws (3x6 mm) (1 spare)
62-6	2x PM Allen screws (3x12 mm) (1 spare)

## YOU WILL ALSO NEED

Superglue gel and a cocktail stick, a fine cross-head screwdriver, Allen key supplied with stage 26 and all the parts assembled so far.

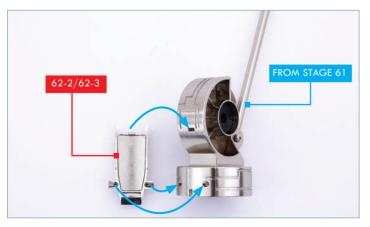


Take the joint part **62-1** and the joint centre part **62-4**. Note that it has four raised studs, which will fit into recesses in part **62-1**. Apply a little superglue to the sides of the raised studs.



## STEP 3

Take the two parts of the knee cap and check how they fit together: two hollow pegs on part **62-2** fit into the sockets in part **62-3**. Apply a little superglue to the inside of the sockets in part **62-3**.



## STEP 5

Take the knee joint from stage 61 and check how the knee cap assembly 62-2/62-3 fits: a tab at the top of part 62-2 and two pegs on the side fit into corresponding holes in part 61-1 (arrows).



## STEP 2

Fit part **62-4** over the shaft of part **62-1**. Ensure that the studs are correctly located in the recesses.



### STEP 4

Fit part 62-3 into the back of part 62-2.



## STEP 6

Apply a little superglue to the sides of the tab and the pegs on part **62-2**.



Fit the assembly 62-2/62-3 in place on part 61-1.



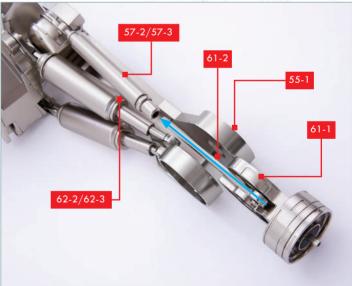
## STEP 8

Take the parts assembled in step 1 and turn the assembly from step 7 on one side. Note that there is a flattened section on the rim of part **62-1** (blue arrow). This has to align with the knee cap (red arrow).



## STEP 9

Fit part 62-1 into part 61-1 as shown and fix in place with three PM 3x6 mm screws 62-5 (circled).



## STEP 10

Take the model assembly from stage 60 and lay it face downwards. Position the parts from the previous step so that the 'head' of part 61-1 fits beween the sides of the right thigh part 55-1. Note the orientation of part 61-1, with the tendon 61-2 uppermost in this orientation. As you fit the head of part 61-1 between the sides of part 55-1, fit the tendon 61-2 into the open end of parts 57-2/57-3 (arrow).

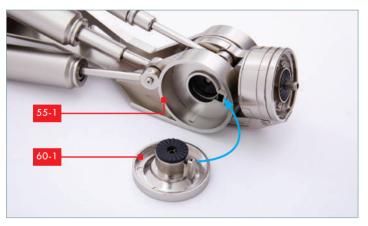


This shows the knee joint in position, ready to be fixed in place.



## **STEP 12**

Take the sides of the knee joint assembled in stages 59 and 60. Note that the model is still lying face downwards.



### STEP 13

The parts from stages 59 and 60 fit into the knee joint on either side. When they are screwed together they will hold the knee joint parts from stage 61 in place. Note that there is a notch on part 60-1 that fits into a recess in part 55-1 (arrow).



### STEP 14

On the outside of the joint, part 59-1 has a shaped rim that fits into the corresponding shape in part 55-1 (arrow).



## STEP 15

Fit the sides of the joint into the sides of part 55-1 and fit the Allen screw **62-6** into the centre of part **60-1**. Use the Allen key to tighten the Allen screw.

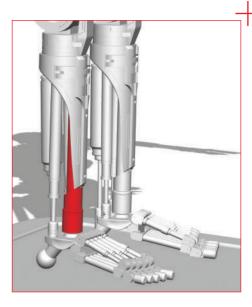


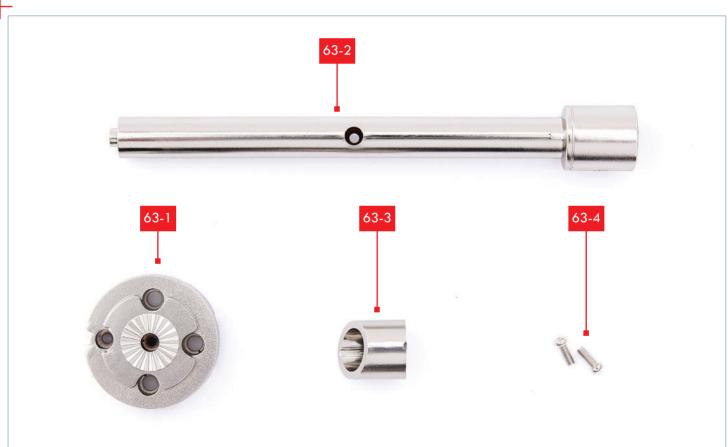
## **STAGE COMPLETE!**

The knee joint has been fitted to the lower end of the thigh. This is the view of the right-hand side of the right knee, with the model lying facing upwards.

## STAGE 63: STARTING WORK ON THE LOWER RIGHT LEG

Begin to assemble the right shin bone, the core around which the lower leg will be built.





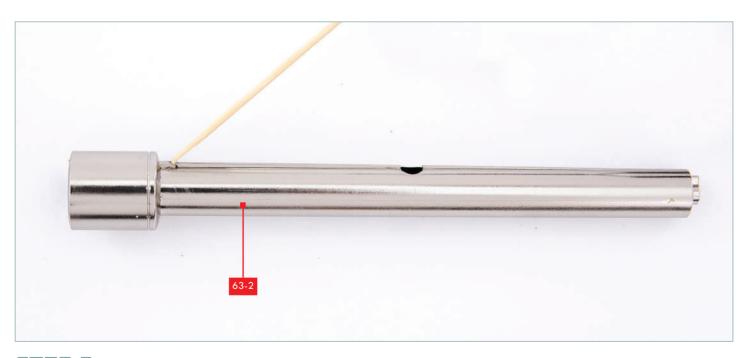
## LIST OF PIECES

- 63-1 Lower leg joint
- 63-2 Lower leg part
- 63-3 Sleeve for lower leg part
- 63-4 2x PM screw (3x8 mm) (1 spare)

## YOU WILL ALSO NEED

A fine cross-head screwdriver, superglue gel and a cocktail stick to apply it.

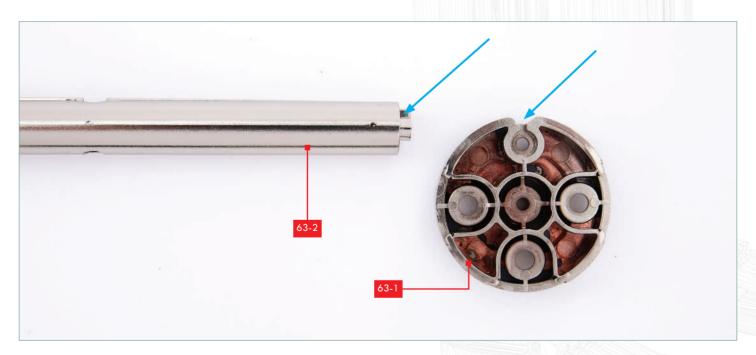




Apply a little superglue to the tab at the end of the rib down the side of leg part **63-2**.

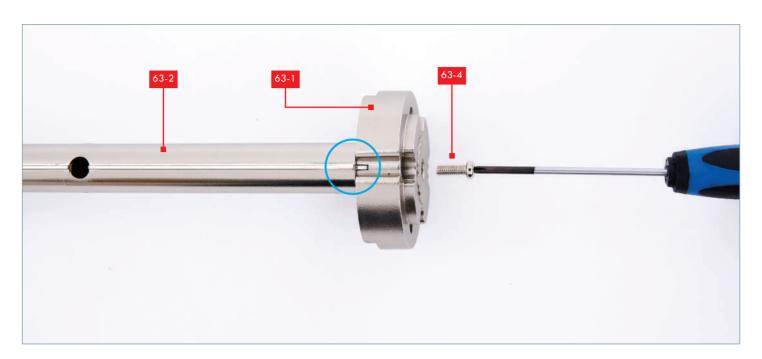


Slide the sleeve 63-3 down the shaft and fix in place as shown.



## STEP 4

Take the lower leg joint **63-1**. Note that there is a tab on the narrow end of part **63-2**, which fits into a slot in part **63-1** (arrows).



Fit part 63-2 into part 63-1 as shown, so that the tab fits into the slot (circled). Fix in place with a PM 3x8 mm screw (63-4).

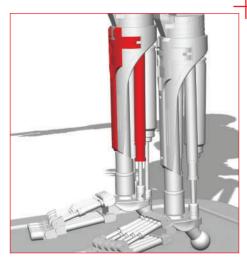


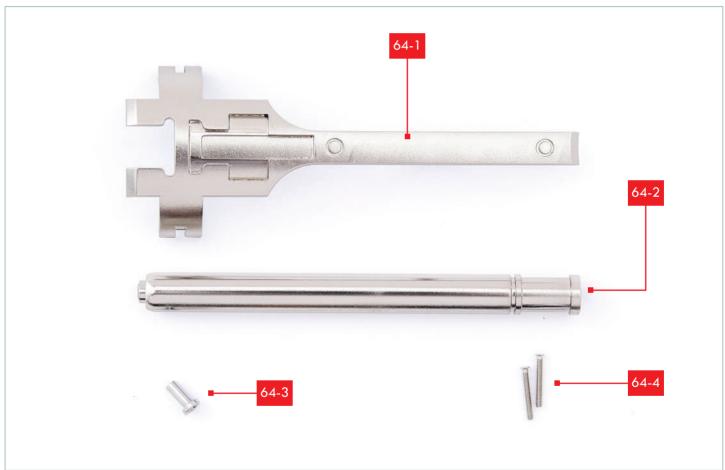
## **STAGE COMPLETE!**

The first steps have been taken in assembling the lower right leg.

## STAGE 64: ADDING ANOTHER PART TO THE LOWER RIGHT LEG

Collect a shin piece, and affix a new muscle element to the existing right leg assembly.





## LIST OF PIECES

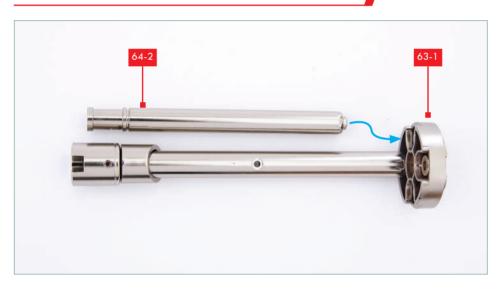
- 64-1 Shin piece
- 64-2 Lower leg part
- 64-3 Screw housing
- 64-4 2x KM screws (2x16 mm) (1 spare)

## YOU WILL ALSO NEED

A fine cross-head screwdriver and a pair of tweezers.



For the next stage of assembly, you will need the parts assembled in stage 63.



## STEP 2

Take the leg part **64-2** and position it beside the assembly from stage 63. Note the orientation of part **64-2**: the narrower end will fit against part **63-1** (arrow).



## STEP 3

Fit a KM 2x16 mm screw (**64-4**) into the screw housing **64-3**.



Fit the end of part 64-2 against the hole in part 63-1 (as shown in step 2). Fit the screw and housing into the corresponding hole on the other side of part 63-1 and fix in place. Note that **64-2** is not a tight fit against part 63-1; it hangs loosely.



## STAGE COMPLETE!

A second part has been added to the lower leg. Note that the part is quite loose fitting, to allow for movement. The shin will be used in a future stage. Store the parts safely.