PACK 10 THE TERMINATOR BUILD THE 800

THE MOST LEGENDARY CYBORG IN SCIENCE FICTION HISTORY!



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1:2 SCALE

2

THE FORMULTION OF BUILD THE T-800 PACK 10 **CONTENTS**

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IDENTIFYING YOUR COMPONENTS: Each of your Terminator packs is divided into stages. Each stage contains a number of components, and can be identified by referring to the images in your assembly guide or the number located on the sticker on the back of each stage. Each number begins with '77' and is followed by a further three digits. The last three digits indicate the number of each stage. For example, 77 001 indicates stage 01, 77 002 indicates stage 02, etc.

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PARTWORKS ITE

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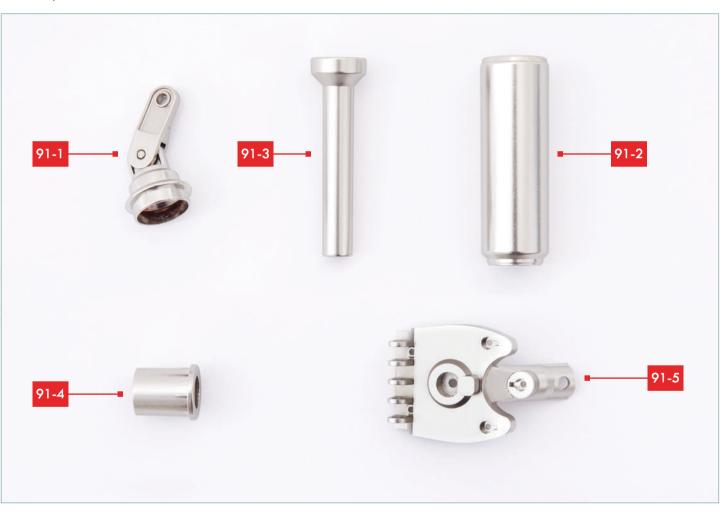
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Not suitable for children under the age of 14. This product is not a toy and is not designed for use in play. Keep the parts out of the reach of small children. Some parts may have sharp edges. Please handle them with care.

STAGE 91: ASSEMBLE A MUSCLE FOR THE LEFT THIGH

Connect the elements of the thigh muscle, and collect the first piece of the left foot.



LIST OF PIECES

- 91-1 Muscle connector
- 91-2 Left thigh muscle
- 91-3 Inner left thigh muscle
- 91-4 Muscle cap
- 91-5 Left foot

YOU WILL ALSO NEED

Superglue and a cocktail stick.

3



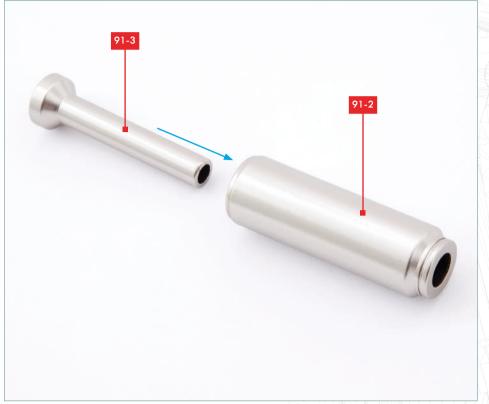
STEP 1

Take the muscle cap **91-4** and apply a little superglue around the side of the part, beneath the rim, as shown.



STEP 2

Fit the muscle cap **91-4** into the narrower end of the left thigh muscle **91-2**.



STEP 3

Take the inner muscle **91-3** and fit it into the other end of the muscle **91-2**, inserting the narrower end first.



STEP 4

Once inserted, the inner part of the muscle can slide in and out of the muscle cap **91-4**, but the wide end of the inner muscle prevents it from sliding through the cap.



STEP 5

Take the muscle connector **91-1**. Apply a little glue around the side of the part, beneath the rim, as shown.



STEP 6

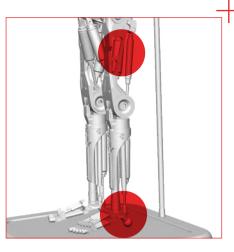
Fit the connector **91-1** into the wider end of the left thigh muscle **91-2**.



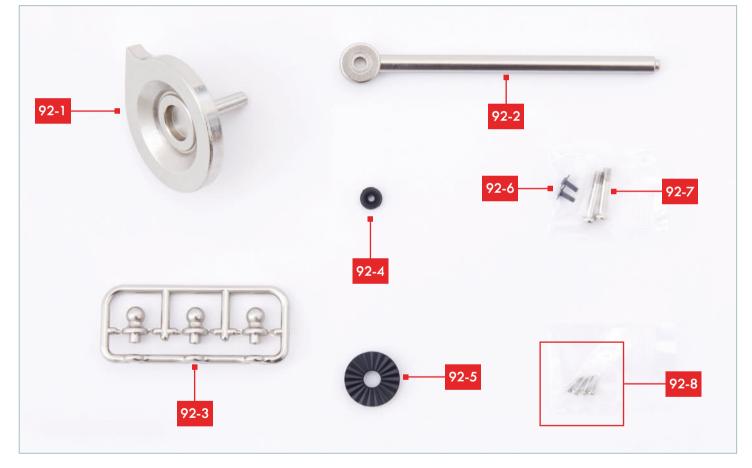
STAGE COMPLETE!

A left thigh muscle has been assembled. The foot part will be used in a future stage. Store the parts carefully until needed.

STAGE 92: KNEE, MUSCLE, AND FOOT: MAKE PROGRESS ON THE LEFT LEG



Construct a knee joint, build a tendon, detail a foot, and attach a muscle.



LIST OF PIECES

92-1	Knee joint
92-2	Muscle tendon
92-3	Details for left foot
92-4	Rubber washer for tendon

92-5	Centre part for joint
92-6	Two 2 x 5mm PWM screws (1 spare)
92-7	Two 3 x 16mm PM screws (1 spare)
92-8	Four 2 x 6mm PB screws (1 spare)

YOU WILL ALSO NEED

Foot part 91-5 supplied with the previous stage.

The left thigh muscle assembled in the previous stage.

The model assembly from stage 90.

A fine crosshead screwdriver.





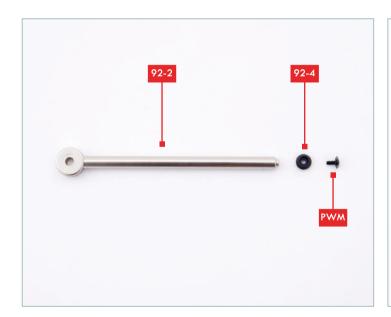
STEP 1

Take the centre part for the knee joint **92-5** and apply a little superglue to the three raised studs.

STEP 2

Fit part **92-5** on to the pin of the knee joint and fix it in place, ensuring that the three studs on part **92-5** fit into the sockets in part **92-1**. The inset shows the centre part **92-5** in place on part **92-1**.





92-2 92-4

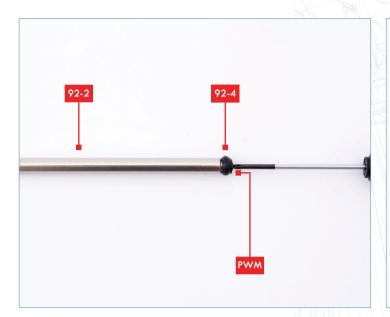
STEP 3

Take the tendon **92-2**, the rubber washer **92-4** and one of the **PWM** screws **92-6**. Note that one side of the rubber washer has a deeper recess.

STEP 4

Fit the rubber washer **92-4** over the end of the tendon **92-2**, with the recessed side of the washer fitting over the shaped end of the tendon.

9



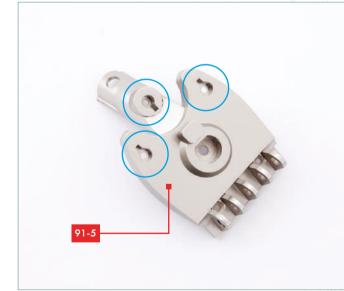
STEP 5

Fix the washer **92-4** in place on the end of the tendon **92-2** using a **PWM** screw. Do not over-tighten the screw.



STEP 6

Remove the foot details from the frame 92-3.



STEP 7

Take the foot **91-5**, supplied with the previous stage.

Identify the three sockets on part **91-5** (circled) for the foot details **92-3**.



STEP 8

Note that the sockets in part **91-5** are shaped like keyholes to accommodate the tabs on the sides of the details from frame **92-3** (arrow).



STEP 9

One at a time, fit the details **92-3** into the sockets in part **91-5**, as shown. You will need three **PB** 2 x 6mm screws.



STEP 10

After fitting each detail **92-3**, turn the foot **91-5** over so that you can fix the detail in place using a **PB** 2 x 6mm screw. This shows the three screws (circled) used to fix the details in place.



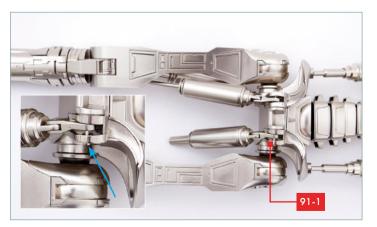
STEP 11

Take the thigh muscle assembled in stage 91 and a PM 3 x 16mm screw. Note the shape of the connector 91-1.



STEP 12

Take the model assembly. Identify the fixing point on the front of the hip (circled), where the muscle connector will be attached.



STEP 13

Noting the orientation of the muscle connector **91-1**, position it between the flanges on the front of the hip and fix in place with a 3 x 16mm screw. The screw head is on the outer side of the fixing flange (arrow, inset).



STAGE COMPLETE!

Various parts of the left leg have been assembled: part of the knee joint, a tendon and the foot. A muscle has been fitted to the left hip.



STAGE 93: BUILD OUT THE FOOT, AND CONSTRUCT ANOTHER MUSCLE

The left leg takes shape, and an additional foot component is assembled.



LIST OF PIECES

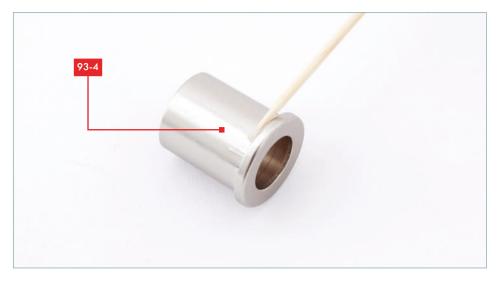
93-1	Muscle connector
93-2	Left thigh muscle
93-3	Inner left thigh muscle

- 93-4 Muscle cap
- 93-5 Left foot
- **93-6** Three 2 x 6m PB screws

YOU WILL ALSO NEED

Superglue and a cocktail stick.

Foot assembly from stage 92.



STEP 1

Take the muscle cap **93-4** and apply a little superglue around the side of the part, beneath the rim, as shown.



STEP 2

Fit the muscle cap **93-4** into the narrower end of the left thigh muscle **93-2**.



STEP 3

Take the inner muscle **93-3** and fit it into the muscle **93-2**, inserting the narrower end first.



STEP 4

Once inserted, the tendon can slide in and out of the muscle cap **93-4**, but the wide end of the inner muscle prevents it from sliding through the cap.



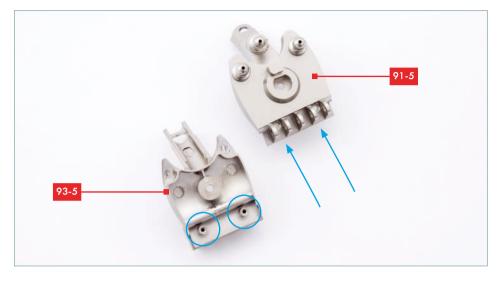
STEP 5

Take the muscle connector **93-1**. Apply a little glue around the side of the part, beneath the rim, as shown.



STEP 6

Fit the connector into the wider end of the left thigh muscle **93-2**.



STEP 7

Take the foot assembly from stage 92 and the foot part **93-5**. Check how the parts fit together so that the screw holes in part **91-5** (arrows) are aligned with the sockets in part **93-5** (circled).



STEP 8

Fit the two parts together and fix them in place with two $\mbox{PB}\,2\,x\,6\mbox{mm}$ screws.

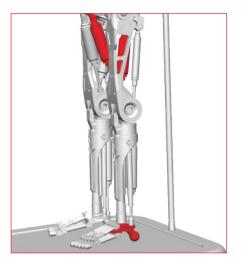


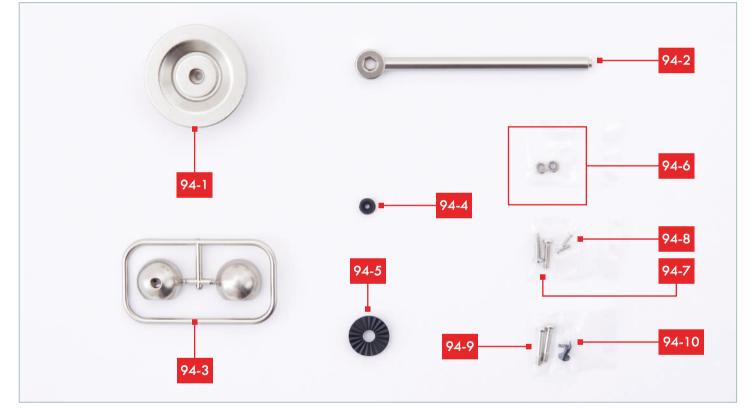
STAGE COMPLETE!

Another muscle for the left thigh has been assembled, together with part of the foot.

STAGE 94: AFFIX THE LEFT THIGH MUSCLE WITH NEWLY-CONSTRUCTED TENDONS

'Turn heel' by adding new elements to the foot, and put together another knee joint.





LIST OF PIECES

94-1	Knee joint	94-6	Two M3 nuts (1 spare)
94-2	Tendon for left thigh muscle	94-7	Two 3 x 12mm screws (1 spare)
94-3	Heel parts	94-8	Two 2 x 6mm screws (1 spare)
94-4	Rubber washer for tendon	94-9	Two 3 x 16mm PB screws (1 spare)
94-5	Centre part for joint	94-10	Two 2 x 5mm PWM screws (1 spare)

YOU WILL ALSO NEED

Superglue and a cocktail stick.

A fine crosshead screwdriver.

Tendon assembly and model from stage 92.



STEP 1

Apply a little superglue to the three raised studs on the centre part for the joint **94-5**.



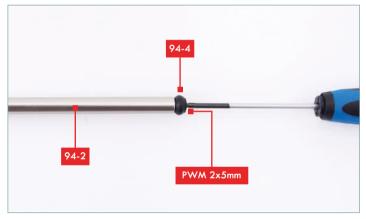
STEP 2

Fit the centre part **94-5** into the knee joint **94-1**, ensuring that the three studs in part **94-5** fit into the sockets in part **94-1** (inset, below).



STEP 3

Take the tendon for the left thigh muscle **94-2** together with the rubber washer **94-4** and a **PWM** 2 x 5mm screw. Note that one side of the rubber washer has a recess. This fits over the shaped end of part **94-2**.



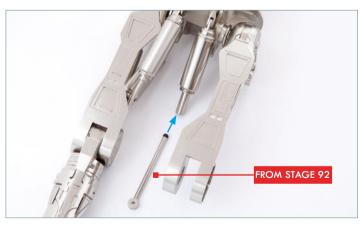
STEP 4

Fix the rubber washer **94-4** in place with a **PWM** 2 x 5mm screw. Do not overtighten the screw.



STEP 5

Fit an **M3** nut into the shaped recess in the end of the tendon. Place on one side until needed, taking care that the washer does not fall out (inset).



STEP 6

Place your model on the work surface, facing upwards. Fit the tendon from stage 92 into the muscle that was fitted in stage 91.

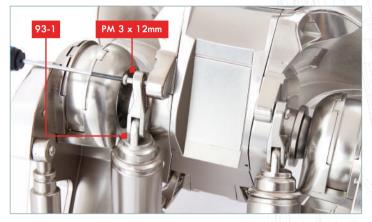


STEP 7 This shows the tendon in place.



STEP 8

Turn the model over so that it faces downwards. Identify the fixing point (circled) for the muscle assembled in stage 93. Note the orientation of the connector on the end of the muscle (arrow).



STEP 9

Fix the connector to the back of the hip using a **PM** 3×12 mm screw.



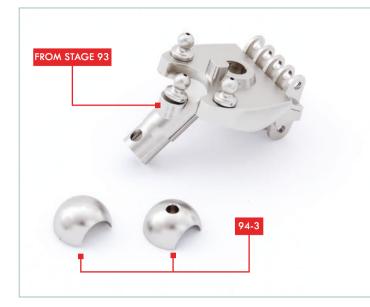
STEP 10 Take the tendon **94-2** from this stage, with the **M3** nut. Fit the tendon assembly into the end of the muscle fitted in the previous steps.



STEP 12

Arrange the ends of the tendons, **94-2** and **92-2** on either side of the strut on the back of the thigh **87-1**. Note that the **M3** nut on tendon **94-2** faces outwards (see also next step). Fix the ends of the tendons in place with a **PM 3** x 16mm screw. Do not overtighten: the parts should be able to move.

This shows the M3 nut, with the end of the 3×16 mm screw flush with the outer face of the nut.



STEP 13

Remove the two parts of the heel from frame **94-3** and take the foot, assembled in the previous stage.



STEP 14

Check how the heel parts fit on either side of the heel of the foot: the holes on either side of the 'stalk' of the heel are a different size, to accommodate the different sized screw sockets in the centre of the heel parts **94-3**.



STEP 15

Fix the heel parts together on the end of the foot using a $\ensuremath{\text{PB}}\,2\,\times\,6\ensuremath{\mathsf{mm}}$ screw.

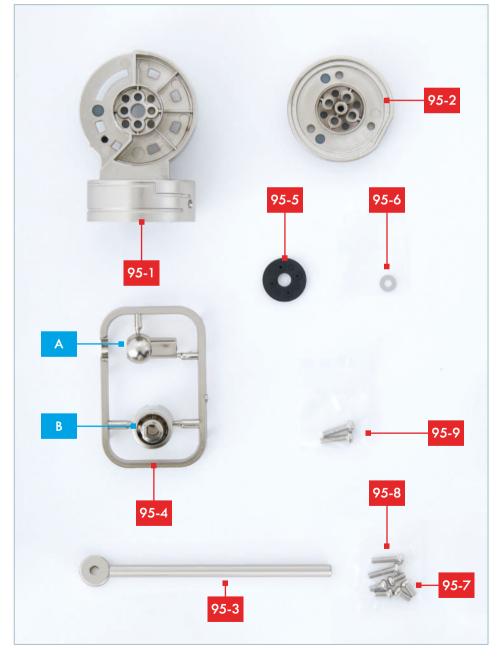


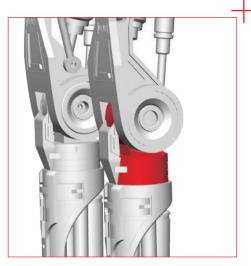
Part of the knee joint has been assembled, and the heel has been fitted to the foot. Tendons now hold the left thigh muscles in place.



STAGE 95: ASSEMBLE AND AFFIX A KNEE JOINT

Attach the knee joints to a lower thigh, and attach an ankle ball and socket to a foot.





LIST OF PIECES

95-1	Knee joint
95-2	Knee joint
95-3	Left leg tendon
95-4	Left ankle parts (A and B)
95-5	Joint washer
95-6	Metal washer
95-7	Five 3 x 6mm PM screws (1 spare)
95-8	Two 3 x 12mm PM screws (1 spare)
95-9	Two 3 x 12mm Allen screws (1 spare)

YOU WILL ALSO NEED

Superglue and a cocktail stick Rubber washer 86-05 (supplied with stage 86) Knee joint parts from stages 92 and 94 Foot assembly from stage 84 A cross-head screwdriver A sharp craft knife and cutting mat

Allen key (supplied with stage 26)



STEP 1

Apply a little superglue to the four raised studs on the joint washer **95-5**.



STEP 2

Identify the fixing point for the joint washer **95-5** in the centre of the knee joint **95-1**. The studs fit into the holes (circled).



STEP 3

This shows the joint washer **95-5** fixed in place in the knee joint **95-1**.



STEP 4

In the same way, glue the joint washer **86-5** (supplied with stage 86) in place on the other side of part **95-1**.



STEP 5

This shows the joint washer **86-5** in place.



STEP 6

Take the tendon **95-3** and a **PM** 3 x 12mm crosshead screw **95-8**. Identify the fixing point for the tendon on the knee joint part **95-1** (arrow).



STEP 7

Use a fine cross-head screwdriver and the **PM** screw to fix the tendon **95-3** to part **95-1**, as shown.



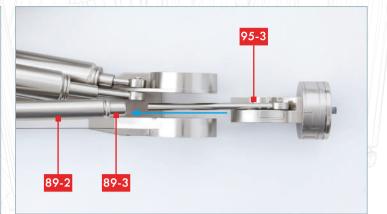
STEP 8

Turn the knee joint assembly so that you can access the three screw sockets on part **95-1** (circled). Take the knee joint part **95-2** and check how it fits in part **95-1**. Note that there is a tab on part **95-2** (red arrow) that fits into a notch in part **95-1** (blue arrow). You will also need three **PM** 3 x 6mm screws.

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Use the three **PM** 3 x 6mm screws to fix part **95-2** inside the base of part **95-1**, as shown.

STEP 10

Place your Terminator T-800 model face downwards, so that you can access the leg part **89-2/89-3**. Fit the knee joint assembly into the knee, and at the same time fit the tendon **95-3** into the end of the leg part **89-3**, as indicated by the arrow.

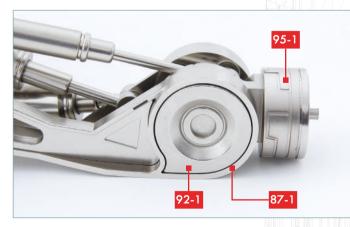




STEP 11

STEP 9

This shows the knee assembly (viewed from behind).



STEP 13

Fit part **92-1** into the recess in the side of the thigh part **87-1**. The shaft on part **92-1** goes through part **87-1** and through the central hole in part **95-1**.

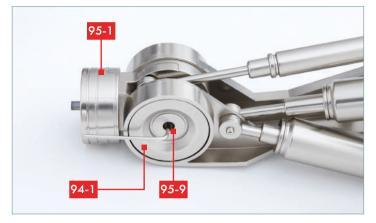
STEP 12

Take the knee joint parts **92-1** and **94-1** with joint washers (assembled in stages 92 and 94). Part **92-1** fits on the outside of the knee joint and **94-1** fits on the inside of the joint.



STEP 14

Check how part **94-1** fits on the the other side of the knee joint at the end of the thigh part **87-1**. Note that there is a square tab on part **94-1** which fits into a recess as indicated (red arrow). The shaft of part **92-1** fits into the centre of part **94-1** (blue arrow).



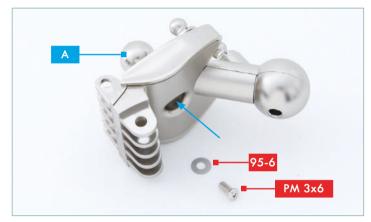
STEP 15

Take a 3 x 12mm Allen-type screw **95-9** and fit it into the centre of the joint part **94-1**. Use the Allen key to tighten it, but do not over-tighten. It should be possible to move part **95-1** up and down.



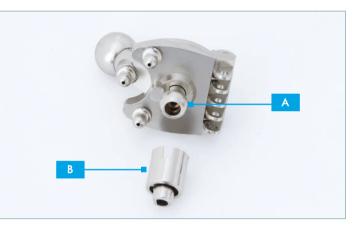
STEP 16

Take the foot assembly from stage 94. Carefully cut part **A** from frame **95-4** and remove any rough edges. Check how it fits into the socket in the foot assembly.



STEP 17

Holding part **A** in place, turn the foot assembly round so that you can access the other side of the socket. You will need a washer **95-6** and a **PM** 3 x 6mm screw. Fit the washer onto the screw and use the screw to fix part **A** in place (arrow).



STEP 18

Cut part **B** from frame **95-4** and remove any rough edges. Push the open end of part **B** firmly over the ball of part **A**. You will hear it click in place.

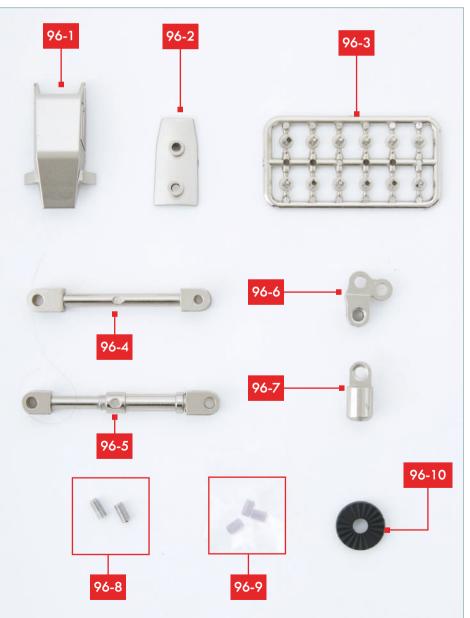


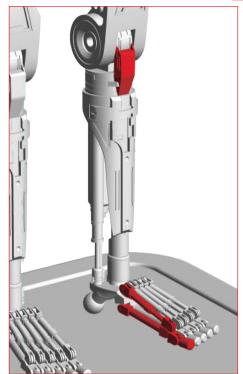


STAGE COMPLETE! The knee joint has been fitted to the lower end of the thigh. An ankle ball and socket have been fitted to the foot.

STAGE 96: ADD THE LEFT KNEE CAP AND ASSEMBLE A TOE

Connect the first toe and foot parts, and finish the knee with a cover.





LIS	T OF PIECES
96-1	Outer left knee cap
96-2	Inner left knee cap
96-3	Foot joint pins x 12 (2 spares)
96-4	Foot part (marked 1)
96-5	Foot part (marked 1)
96-6	Foot joint
96-7	Тое
96-8	Two 4 x 8mm grub screw (1 spare)
96-9	Three plastic sleeves (1 spare)
96-10	Joint washer

YOU WILL ALSO NEED

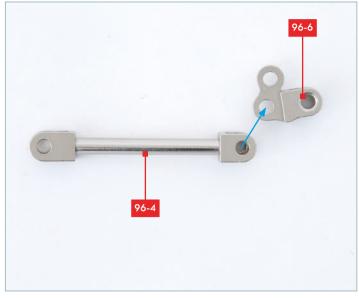
Superglue and a cocktail stick A sharp craft knife and cutting mat Allen key (supplied with stage 26)

23



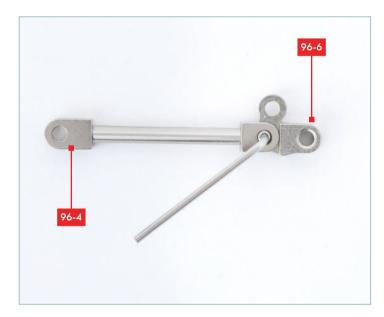
STEP 1

Check the foot parts **96-4**, **96-5** and **96-6**. Note that they all have a number on one side. In the following steps, work with the numbers facing downwards. Also, the foot parts are carefully shaped to produce a splayed effect so follow the instructions carefully.



STEP 2

Fit the shorter flanges on foot part **96-4** on either side of the hole in part **96-6**, as indicated by the arrow.



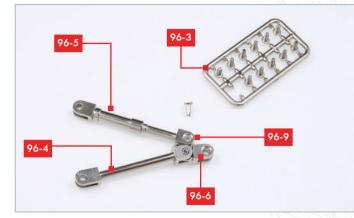
STEP 3

Fit a grub screw **96-8** through the joint between parts **96-4** and **96-6** and tighten it using an Allen key.



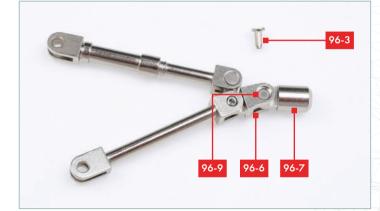
STEP 4

With the number facing downwards, fit the next foot part **96-5** to the hole in part **96-6** that is adjacent to the hole where part **96-4** is fitted. Note that the shorter flanges on part **96-5** are fitted to part **96-6**.



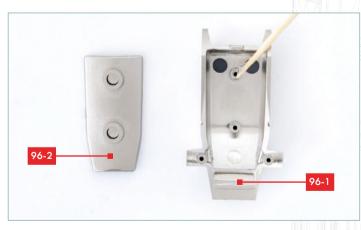
STEP 5

Fit a plastic sleeve **96-9** through the holes in parts **96-5** and **96-6** to hold them together. Cut a pin from frame **96-3** and push it into the plastic sleeve. Place the joint on a flat surface as you push it, so that the sleeve stays in place.



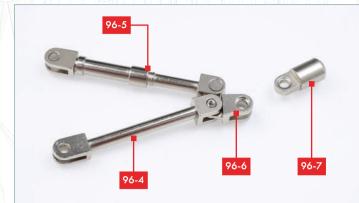
STEP 7

Fit a plastic sleeve through the holes in parts **96-6** and **96-7**. Cut a pin from frame **96-3** and push it firmly into the plastic sleeve to create a firm but flexible joint.



STEP 8

Check how the inner and outer parts of the knee cap **96-1** and **96-2** fit together. Studs on part **96-1** fit into recesses in part **96-2**, as indicated. Use a cocktail stick to apply a little superglue to the two studs on part **96-1**. Stick the two parts together.



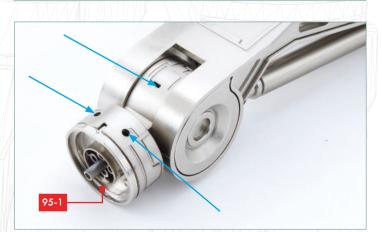
STEP 6

Fit the flanges on part **96-6** on either side of the hole in the toe **96-7**.



EXPERT TIP!

When viewed from above, you can see that the lower bar of the assembly is angled outwards.



STEP 9

Identify the fixing points for the knee cap on the knee joint **95-1**. There are two holes and a slot for the tabs on part **95-1** (arrows).

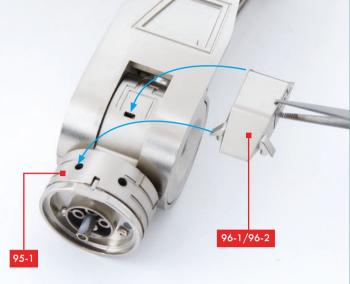
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STEP 10

Apply a little superglue to the two round studs and the rectangular tab on part **96-1** (circled).



STEP 11

Glue the knee-cap assembly **96-1**/**96-2** in place on the knee joint **95-1**, as indicated.



STEP 12

Take the joint washer **96-10** and apply a little superglue to the four studs. Fix the washer in place on part **95-2** at the base of the knee joint.

STAGE COMPLETE!

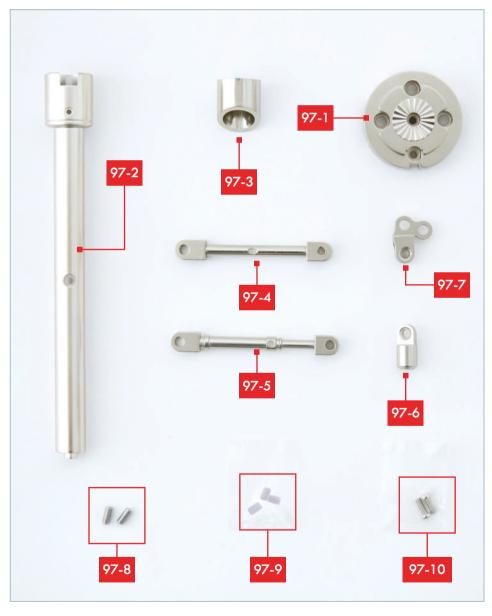
A toe has been fitted to the first part of the foot. The knee cap has been fixed to the knee joint.

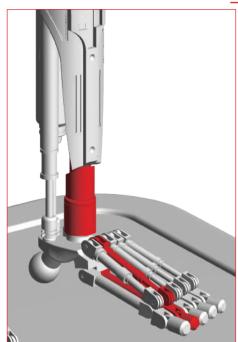


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STAGE 97: BUILD PART OF THE LOWER LEG, AND A SECOND TOE

Assemble the knee connector for the lower leg, and build another toe.





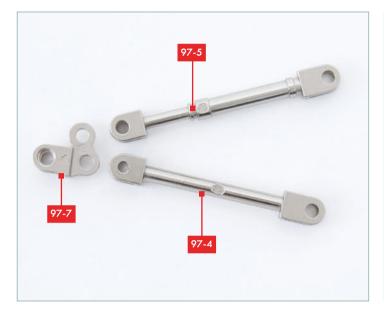
LIST OF PIECES

97-1	Base of knee joint
97-2	Lower leg part
97-3	Sleeve for lower leg part
97-4	Foot part (marked 2)
97-5	Foot part (marked 2)
97-6	Тое
97-7	Foot joint
97-8	Two 4 x 8mm grub screw (1 spare)
97-9	Three plastic sleeves (1 spare)
97-10	Two 3 x 8mm PM screws

YOU WILL ALSO NEED

Superglue and a cocktail stick A sharp craft knife and cutting mat Allen key (supplied with stage 26) A fine cross-head screwdriver

28



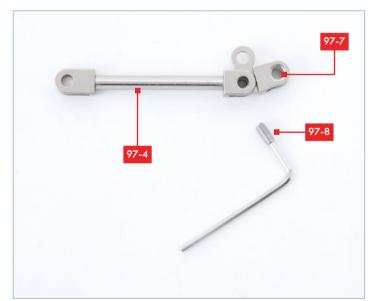
STEP 1

Examine the foot parts **97-4**, **97-5** and **97-7**. Note that they are all marked with numbers. When assembling the foot parts in the following steps, make sure that the numbers are facing downwards.



STEP 2

Fit the flanges at the end of part **97-4** around the central hole in part **97-7**. Note that it is the smaller flanges on part **97-4** that are fitted.



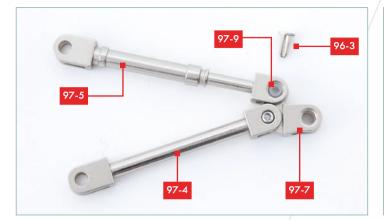
STEP 3

Use a 4 x 8mm grub screw **97-8** and an Allen key to fix the parts together.



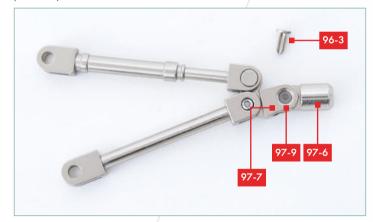
STEP 4

Take foot part **97-5** and fit the flanges around the hole in part **97-7** that is adjacent to the hole where part **97-4** is fitted. Note that it is the shorter flanges of part **97-5** that are attached.



STEP 5

Fit a plastic sleeve **97-9** through the holes to hold part **97-5** in place. Cut a pin from frame **96-3** and push it firmly into the plastic sleeve. Place the joint on a flat surface so that you do not push the sleeve out as you push the pin in.



STEP 7

Fit a plastic sleeve **97-9** through the holes in the toe **97-6** and foot joint **97-7**. Cut a pin from frame **96-3** and push it firmly into the plastic sleeve.



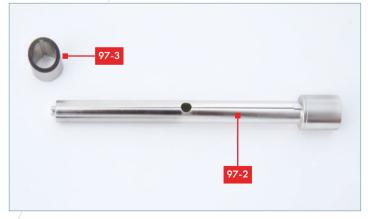
STEP 6

Take the toe **97-6** and fit the tab between the flanges on part **97-7** so that the holes are aligned.



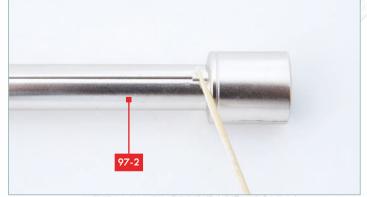
EXPERT TIP!

When viewed from above, you can see how part 97-4 is splayed outwards, but the angle is tighter than the angle of the similar part constructed in the previous stage.



STEP 8

Take the leg part **97-2** and the sleeve **97-3**. Check how the sleeve fits on to the bar (see step 10): a slot on part **97-3** fits over the raised rib on part **97-2**.



STEP 9

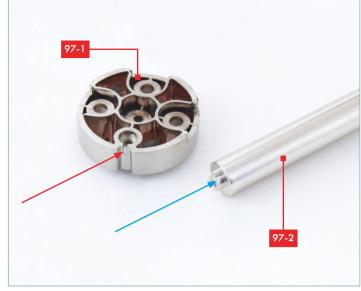
Apply a little superglue to the raised tab at the end of the rib on part **97-2**.

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STEP 10

Fit the sleeve 97-3 on to the leg part 97-2 and fix in place as shown.



STEP 11

Take the base of the knee joint **97-1**. Note that there is a small tab on the end of **97-2** (blue arrow), which fits into a small slot on one side of part **97-1** (red arrow).



STEP 12

Fit part **97-2** into part **97-1** so that the tab is in the slot and fix in place with a **PM** 3 x 8mm screw.



STAGE COMPLETE!

Part of the lower leg has been assembled. The second toe and foot parts have been fixed together.

STAGE 98: CONSTRUCT THE THIRD TOE, AND EXPAND THE LOWER LEG ASSEMBLY

Connect the third toe and foot parts and add a second part to the lower leg.



LIST OF PIECES

98-1	Lower leg casing	98-6	Foot joint
98-2	Lower leg part	98-7	Screw housing
98-3	Foot part (marked 3)	98-8	Two 4 x 8mm grub screws (1 spare)
98-4	Foot part (marked 3)	98-9	Two 2 x 16mm KM screws
98-5	Тое	98-10	Three plastic sleeves (1 spare)

YOU WILL ALSO NEED

Superglue and a cocktail stick

A sharp craft knife and cutting mat

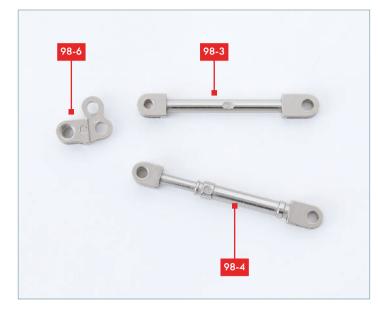
Allen key (supplied with stage 26)

Joint pins from frame 96-3 (supplied with stage 96)

Lower leg assembly from stage 97

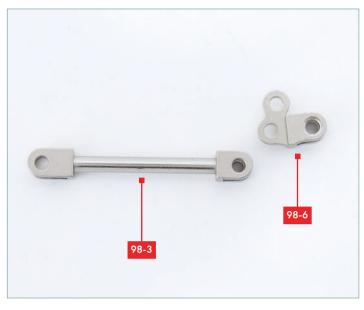
A fine cross-head screwdriver

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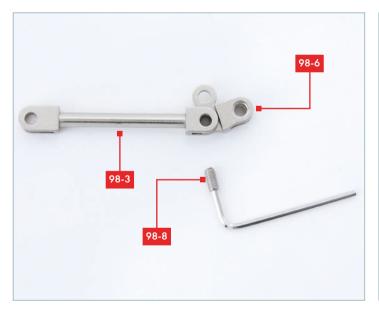
STEP 1

Examine the foot parts **98-3**, **98-4** and **98-6**. Note that they are all marked with numbers. When assembling the foot parts in the following steps, make sure that the numbers are facing downwards.



STEP 2

Fit the flanges at the end of part **98-3** around the central hole in part **98-6**. Note that it is the shorter flanges on part **98-3** that are fitted.



STEP 3

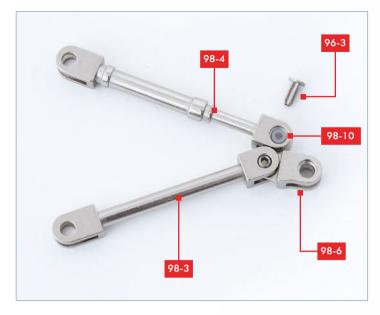
Use a $4\,x\,8\text{mm}$ grub screw 98-8 and an Allen key to fix the parts together.

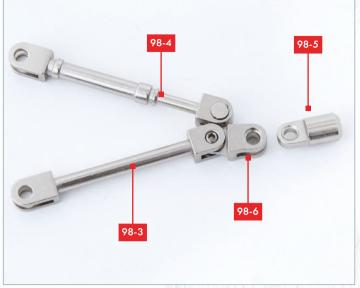


STEP 4

Take foot part **98-4** and fit the flanges around the hole in part **98-6** that is adjacent to the hole where part **98-3** is fitted. Note that it is the shorter flanges of part **98-4** that are attached.

33



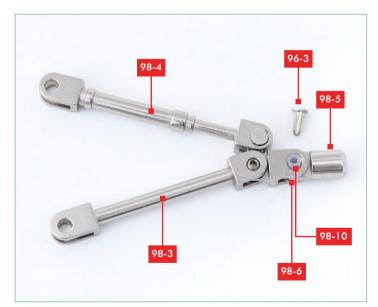


STEP 5

Fit a plastic sleeve **98-10** through the holes to hold part **98-4** in place. Cut a pin from frame **96-3** and push it firmly into the plastic sleeve. Place the joint on a flat surface so that you do not push the sleeve out as you push the pin in.

STEP 6

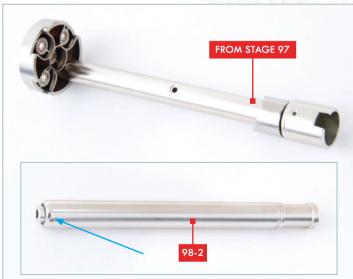
Take the toe **98-5** and fit the tab between the flanges on part **98-6** so that the holes are aligned.



STEP 7

Fit a plastic sleeve **98-10** through the holes in the toe **98-5** and foot joint **98-6**. Cut a pin from frame **96-3** and push it firmly into the plastic sleeve.

Note that this foot part is not splayed – the parts **98-3** and **98-4** are aligned with each other.



STEP 8

Take the lower leg assembly from stage 97 and the lower leg part **98-2**. Note that one end of the leg part has a raised stud shape (arrow).



STEP 9

Fit the stud on the end of part **98-2** against the socket at the side of part **97-1**, as indicated.



STEP 10 Fit a **KM** 2 x 16mm screw into the screw housing 98-7.





STEP 11

Turn the lower leg assembly so that you can access the top of part **97-1**. Fix part **98-2** in place by fitting the screw and screw housing into the appropriate screw hole and tightening the screw with a cross-head screwdriver.

STAGE COMPLETE!

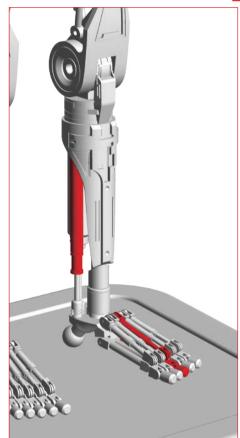
Another part has been fitted to the lower leg assembly. The third toe and foot parts have been assembled. The part **98-1** will be used in a future stage.



STAGE 99: BUILD A FOURTH FOOT PART AND ASSEMBLE THE LOWER LEFT LEG.

Construct an element of the foot, continue the lower leg assembly, and unite the leg casing with the shin.





YOU WILL ALSO NEED

Superglue and a cocktail stick

A sharp craft knife and cutting mat

Allen key (supplied with stage 26)

Joint pins from frame 96-3 (supplied with stage 96)

Lower leg assembly from stage 98

Lower leg casing from stage 98

A fine cross-head screwdriver

LIST OF PIECES

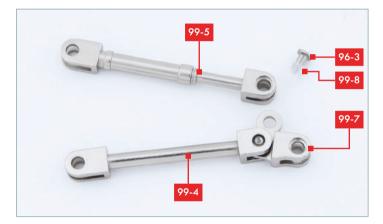
99-1	Left shin piece
99-2	Lower leg part
99-3	Trims for shin piece
99-4	Foot part (marked 4)
99-5	Foot part (marked 4)
99-6	Тое

99-7	Foot joint
99-8	Three plastic sleeves (1 spare)
99-9	Two 4 x 8mm grub screws (1 spare)
99-10	Socket for screw
99-11	Two 2 x 16mm KM screws (1 spare)
99-12	Two 3 x 8mm PM screws (1spare)



STEP 1

Examine the foot parts **99-4**, **99-5** and **99-7**. Note that they are all marked with numbers. When assembling the foot parts in the following steps, align the parts carefully as shown.

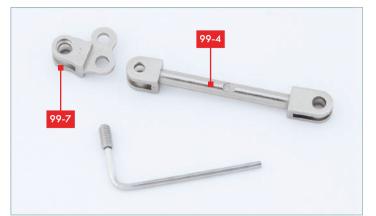


STEP 3

Turn the parts over so that you cannot see the numbers. Fit the shorter flanges on part **99-5** over the hole in the foot joint **99-7**. Use a plastic sleeve **99-8** and pin **96-3** to fix the parts together. The head of the plastic pin fits flush in the recess in part **99-5**.

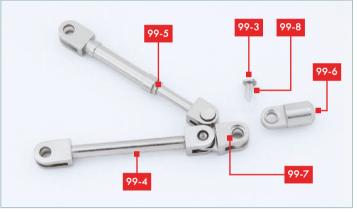


STEP 5 This shows the foot parts fitted together.



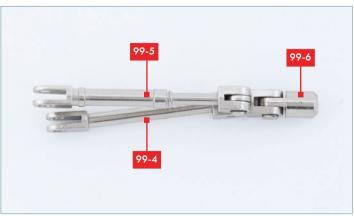
STEP 2

Fit the flanges at the end of part **99-4** around the central hole in part **99-7**. Note that it is the shorter flanges on part **99-4** that are fitted and that the number is facing upwards. Fix the parts together using a 4 x 8mm grub screw and the Allen key supplied with stage 26.



STEP 4

Take toe part **99-6** and fit it between the flanges of part **99-7**. Fix the parts together with a pin **96-3** and plastic sleeve **99-8**. The head of the pin fits into the recess in part **99-7**.



STEP 6

When viewed from above, note the way the end of part **99-4** is splayed to one side.



STEP 7

Take the lower leg assembly from stage 98. Fit the rounded end of part **99-2** against the socket in part **97-1**, as indicated.



STEP 8

Fit a KM 2 x 16mm screw 99-11 into the screw socket 99-10.



STEP 9

Fit the screw and socket from step 8 into the hole in part **97-1** and into the end of leg part **99-2**. Fix the parts together by tightening the screw.



STEP 10

Take the leg casing **98-1**, from the previous stage, and check the fit over the assembly from step 9 (see next step). Note that there is a tab on part **98-1** (arrow), which fits into a recess in part **97-1**.



STEP 11

This shows the leg casing in place over the lower leg assembly.



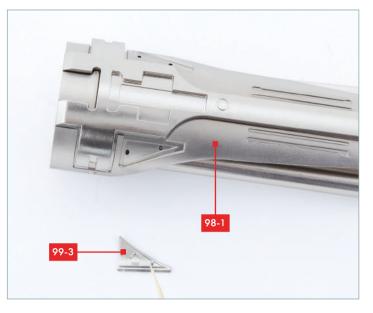
STEP 12

Take the shin piece **99-1**. Check the fit on the leg casing **98-1**: three pegs on the inside of part **99-1** fit into holes in the leg casing **98-1**, as indicated. The lower peg (red arrow) fits through the casing into a hole in lower leg part **97-2**.



STEP 13

Fix the lower leg parts together using a **PM** 3 x 8mm screw, inserted from the back of part **97-2** into the screw socket/peg in part **99-1**.



STEP 14

Cut the triangular trims from frame **99-3**. Check the fit in the recesses of the leg casing **98-1**. Apply a little superglue to the pegs on the first part **99-3** and fix in place.



STEP 15

Repeat to fit the second part **99-3** in place on the leg casing **98-1**.



STAGE COMPLETE

The fourth foot part has been assembled and work continues on the lower leg assembly.

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STAGE 100: ASSEMBLE THE LEFT FOOT AND ATTACH THE LOWER LEFT LEG

Combine the five toes of the foot with the heel, construct the final portion of the lower left leg, and attach it at the knee.



YOU WILL ALSO NEED

Allen key (supplied with stage 26) Joint pins from frame 96-3 (supplied with stage 96) Lower leg assembly from stage 99

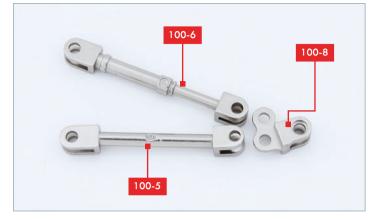
A fine cross-head screwdriver A sharp craft knife and cutting mat Heel assembly from stage 95 Model from stage 96



LIST OF PIECES

100-1	Cap for lower left leg part
100-2	Lower left leg part
100-3	Cap for lower left leg part
100-4	Lower left leg connectors
100-5	Foot part (marked 5)
100-6	Foot part (marked 5)
100-7	Тое
100-8	Foot joint
100-9	Three long grub screws (1 spare)
100-10	Two 4 x 8mm grub screws (1 spare)
100-11	Three plastic sleeves (1 spare)
100-12	Two rubber washers
100-13	Screw socket
100-14	Three 2 x 5mm PWM screws (1 spare)
100-15	Two 2 x 16mm KM screws (1 spare)
100-16	Two 3 x 12mm PM screws (1 spare)
100-17 Two spring washers (1 spare)	

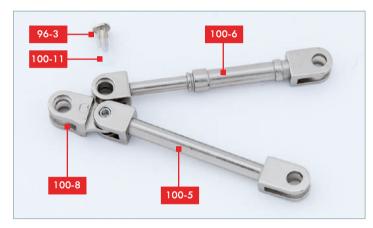
40



100-5

STEP 1

Examine the foot parts **100-5**, **100-6** and **100-8**. Note that they are all marked with numbers. When assembling the foot parts in the following steps, align the parts with the numbers facing away from you.



STEP 3

Fit the shorter flanges on part **100-6** over the hole in the foot joint **100-8**. Use a plastic sleeve **100-11** and pin **96-3** to fix the parts together. The head of the plastic pin fits flush in the recess in part **100-6**.

STEP 2

With the number facing downwards, fit the flanges on part **100-5** around the central hole in part **100-8**. Note that it is the shorter flanges on part **100-5** that are fitted. Fix the parts together using a 4 x 8mm grub screw and the Allen key supplied with stage 26.



STEP 4

Take toe part **100-7** and fit it between the flanges of part **100-8**. Fix the parts together with a pin **96-3** and plastic sleeve **100-11**. The head of the pin fits into the recess in part **100-8**. When viewed from above, the foot part **100-5** is splayed (inset).

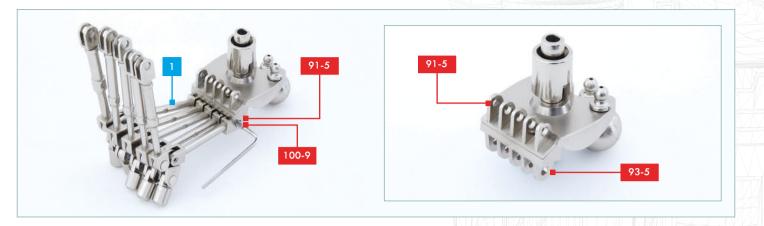


STEP 5

Before fixing the foot parts together, check that they are correctly assembled. Arrange them in order, according to the numbers on the main parts of each foot (main image). Viewed from above, the lower

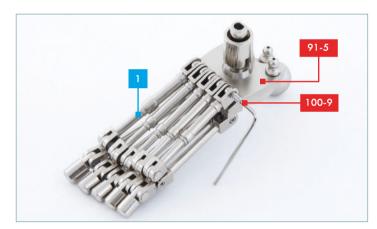
bars of each foot part assembly splay towards the centre of the arrangement. When viewed from the side, the outer foot parts are finished with flush pin heads (arrows, insets).

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STEP 6

Take the heel assembly from stage 95. Position it so that you can access the racks of holes on parts **91-5** and **93-5** (inset). Fit the flanges at the ends of the lower bars of the five foot assemblies around the holes in



STEP 7

Position the flanges on the upper bars of the foot part around the holes in the rack of part **91-5**, as shown. Fit a long grub screw **100-9** through the row of holes. Again, the grub screw engages with a screw thread on the interior of the fixing point of foot assembly 1. When you are happy with the fit, screw in place, using the Allen key supplied with stage 26.



STEP 9

Fit the end of part **100-2** that is fitted with the cap **100-1** against the remaining hole in part **97-1**, as indicated. Take the screw socket **100-13** and fit a 2×16 mm KM screw (**100-15**) into it (inset).

the rack on part 93-5. Fit a long grub screw 100-9 through the row of

holes. The grub screw engages with a screw thread on the interior of

the fixing point of foot assembly 1. When you are happy with the fit,

screw in place, using the Allen key supplied with stage 26.

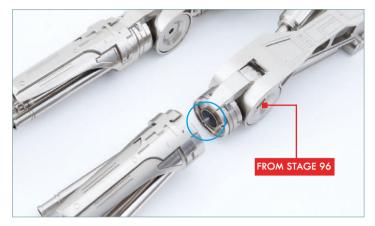
STEP 8

Take the leg part **100-2** and the two leg part caps **100-1** and **100-3**. Check the fit of the caps. Fit them in place (inset). No glue is needed.



STEP 10

Fit the screw socket into the final hole in the top of part **97-1** and into the top of leg part **100-2**. Tighten the screw to fix the parts together. Note that the leg parts are not rigidly fixed, they are designed to move around slightly.



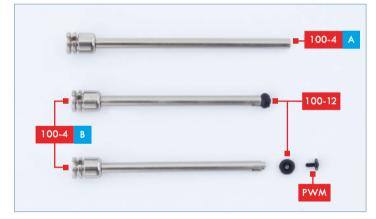
STEP 11

Take the model from stage 96 and identify the shaft in the centre of the knee (circled).



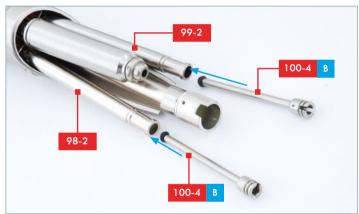
STEP 12

Turn the model on its face ready to fit the lower part of the left leg to the shaft. Fit a spring washer **100-17** onto a 3 x 12mm **PM** screw (**100-16**) as shown in the inset. Working from inside the lower leg, insert the **PM** screw into the central shaft of the knee. Tighten the screw to fix the lower leg in place.



STEP 13

Cut parts **A** and **B** from frame **100-4**. Use a **PWM** 2 x 5mm screw to fit a rubber washer **100-12** over the ends of the two parts **100-4-B**. Note the larger recess in the rubber washer fits over the end of part **100-4-B**. Do not over-tighten the screws.



STEP 14

Fit the two parts **100-4-B** into the ends of lower left leg parts **99-2** and **98-2**, inserting the ends with rubber washers, as indicated.



STEP 15

Fit part **100-4-A** through the cap and in to the lower leg part **100-2**, as shown.



STAGE COMPLETE!

The left foot has been assembled and the lower left leg has been fitted to the model.

SCI-FI CINEMA

PACIFIC RIM

When Kaiju emerge from the Pacific Ocean, drift-compatible pilots fight back in giant robot Jaegers.

acific Rim is an American tokusatsu action film inspired by Japanese mecha animation and Atomicera giant monster (Kaiju) movies. It tells the story of an international force of soldiers working together to fight off attacks by fearsome Kaiju, each large enough to reduce a city to rubble. Released in 2013 by Legendary and Warner Bros, it was generally well received by film critics, but underperformed in American cinemas.

It was still a global box office success, however, as it performed well in international markets. Chinese audiences were particularly enamoured with the mecha action and character development, and the country was responsible for over a quarter of the worldwide box office returns. Several notable Japanese creators also publicly praised the film, with Metal Gear Solid creator Hideo Kojima going as far as to call Pacific Rim "the ultimate otaku film that all of us had always been waiting for".

While the film is the most financially successful of Guillermo del Toro's cinematic works, the director chose not to return for its sequel *Pacific Rim: Uprising*, which released in 2018, although he is still involved with an animated follow-up, headed to Netflix sometime in the future.

DESTROY ALL MONSTERS!

An interdimensional breach opens in the middle of the Pacific Ocean in 2013. Fearsome Kaiju spill through the phenomenon and decimate cities along the Pacific Rim. After several seemingly-coordinated attacks from the monsters, humanity invents the Jaegers (giant, equally powerful robots) to defend itself. These machines are so complex and intricate that they usually require two (or more) 'drift compatible' pilots who operate the Jaegers through a telepathic link.

Seven years after the first attack on the Pacific Rim, Yancy and Raleigh Becket attempt to protect Anchorage, Alaska, from a Kaiju in their Jaeger, *Gipsy Danger*. When Yancy is killed in the assault, Raleigh pilots the mecha



"I WAS FIFTEEN WHEN THE FIRST KAIJU MADE LAND IN SAN FRANCISCO. BY THE TIME TANKS, JETS, AND MISSILES TOOK IT DOWN, SIX DAYS AND 35 MILES LATER, THREE CITIES WERE DESTROYED." – RALEIGH BECKET

by himself and defeats the monster, before passing out. Emotionally broken by the death of his older brother, he chooses to leave the Jaeger program behind.

By 2025, world leaders doubt the effectiveness of the Jaeger program. Kaiju attack rates are on the rise and, as the creatures continue to grow more powerful, the Jaegers prove more expensive to maintain and upgrade. Marshal Stacker Pentecost is informed that they will ABOVE: The *Pacific Rim* teaser poster, featuring Gipsy Danger and its driftcompatible pilots - to scale. (Photo: BFR / Alamy Stock Photo)

FILM DATABLAST

Director: Guillermo del Toro

Screenplay: Travis Beacham, Guillermo del Toro **Producer:** Guillermo del Toro, Thomas Tull, Jon Jashni, Mary Parent

Composer: Ramin Djawadi

Director of Photography: Guillermo Navarro **Editor:** John Gilroy, Peter Amundson

Cast: Charlie Hunnam (Raleigh Becket), Idris Elba (Stacker Pentecost), Rinko Kikuchi (Mako Mori), Charlie Day (Newt), Rob Kazinsky (Chuck Hansen), Max Martini (Herc Hansen), Ron Perlman (Hannibal Chau) Year: 2013

eur: 2015

Duration: 132 mins Aspect Ratio: 1.85 : 1 Country of Origin: USA

BELOW: Gipsy Danger rescues a fishing trawler during a coastal assault. (Photo: Pictorial Press Ltd / Alamy Stock Photo) be pulling his funding once the seemingly more costeffective coastal defence wall project is completed. He complains, but his men, the Jaegers and their pilots are all moved to the Shatterdome in Hong Kong to await decommissioning when they run out of funds. When the Kaiju attack Sydney, humanity swiftly learns that coastal walls are also ineffective, as the monsters breach the wall and trash the city.

Pentecost decides to put a stop to the Kaiju attacks by sealing the interdimensional breach underwater with a nuke before their funding is pulled.

Pentecost locates Raleigh, now working as a builder on the coastal wall project. Pentecost wins him over, and the pair return to Hong Kong. It's there that Pentecost introduces Mako Mori, his adopted daughter. In tests, Raleigh and Mako prove drift compatible and become co-pilots of the newly restored *Gipsy Danger*, although Pentecost would rather his daughter remain safely inside the base. While Mako and Raleigh train, the pair telepathically struggle with her memory of the day the Kaiju killed her biological parents. Their indoor activation of a plasma cannon as a result puts the entire Shatterdome base at risk. The pair are taken off the active combat duty roster — until Raleigh convinces Pentecost to give Mako another chance.

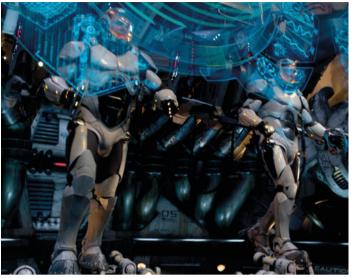
Meanwhile, scientist duo Newt and Herman work with Pentecost to plan the upcoming attack. Newt has been experimenting with drifting with Kaiju brains and makes the startling discovery that the monsters are geneticallyengineered servants of aliens that intend to invade the planet. The scientist meets with criminal Hannibal Chau in an attempt to procure a secondary Kaiju brain on the black market and explains that, if he can drift with it, he can gather useful intelligence for the military. When Chau discovers that Newt has done this before, he calls him a moron, pointing out that, because drifting goes both ways, the alien hive mind probably now knows at least some of what he knows.

As if on cue, two Kaiju attack Hong Kong, hunting for Newt. Three Jaegers defend the city, but two are



SCI-FI CINEMA

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destroyed, and one is disabled with an electromagnetic pulse. With no other choice, Pentecost sends in Raleigh and Mako to deal with the situation in *Gipsy Danger*, as its old nuclear reactor technology is immune to the monster's EMP ability. After *Gipsy Danger* quickly defeats the monsters, Newton and Chau examine the corpses and discover that one of the Kaiju is pregnant. As the baby bursts from within the corpse of its mother, it swallows Chau in a single bite and then chokes to death on its own umbilical cord. Newt and Hermann drift with the brain of the recently deceased infant and discover that only a Kaiju can open the breach in the Pacific.

The army continues with Pentecost's plan to attack the breach. Pilot Herc Hanson is still recovering from his injuries from Hong Kong, so Pentecost takes his place in *Striker Eureka. Gipsy Danger* and *Striker Eureka* fight their way through to the breach, through a horde of Kaiju, until *Eureka* takes too much damage to move. Pentecost orders *Gipsy Danger* to use their nuclear reactor to seal the portal... before self-destructing the *Eureka* to stop the Kaiju and buy them more time.

Gipsy Danger blasts the nearest living Kaiju and uses its body as a key to open the breach and go through. Raleigh and Mako set their reactor to self-destruct, and pilot Danger into the abyss. Everyone at command holds their breath. The pair eject and escape, with only seconds to spare. Gipsy Danger explodes, and the breach is sealed. Command erupts in jubilation, the mission a success. Humanity wins.

In the middle of the Pacific Ocean, our heroes float atop an escape pod and wait for rescue forces from the Shatterdome.

And, back in Hong Kong, Chau cuts his way out of the dead Kaiju that ate him...

ALIEN ANATOMY

While creating Pacific Rim, director Del Toro hoped to introduce the Kaiju Tokusatsu genre to a new generation

"NO KAIJU ENTRAILS OVER ON MY SIDE OF THE ROOM. YOU KNOW THE RULES! EVERY BLOODY DAY! IT'S INCESSANT!" - DR. HERMANN GOTTLIEB

of children. As such, he wanted to ensure that the property stood on its own and did not directly reference previous works from Japanese giants of the genre at Toei, Toho, or Tsuburaya Productions. In the end credits, however, the film is dedicated to Ray Harryhausen and Ishir Honda, as the pair were key figures in establishing genre films about strange giant beasts around the world.

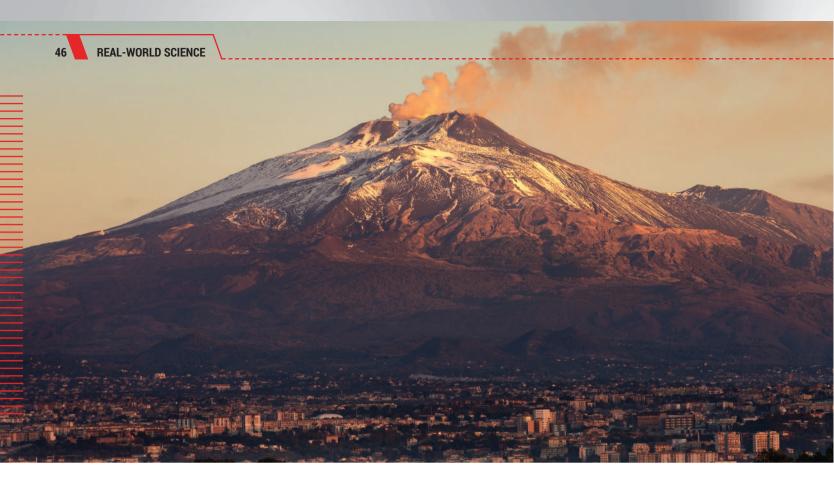
In an interview with Syfy, the director stated that he warned the film's creative team away from becoming intensely familiar with works like Godzilla and Ultraman while working on the film as he specifically "didn't want to be postmodern, or referential, or just belong to a genre.". He instead suggested that his crew studied art of giants like Francisco de Goya's painting *El Coloso*, or George Bellows' paintings of boxing matches from 1920s New York.

When it comes to *Pacific Rim*'s monster and mecha designs, the production crew designed over two hundred characters — Jaegers and Kaiju both, before they decided which would appear in the final film with an internal voting process.

While each Kaiju was given a 'man-in-a-suit' look to match the aesthetic of Del Toro's favourite tokusatsu Kaiju classics, he made sure the creatures had no scars, damage, or evidence of culture, to further indicate the Kaiju were genetically-engineered weapons and not the product of evolution.

The creatures also do not follow the rules of what we currently know about bone structures that would be required for creatures to stand up at such a colossal scale. This was so that audiences could feasibly suspend disbelief that the extra-terrestrial creatures would not be crushed by their own weight under Earth's gravity. TOP LEFT: Only driftcompatible pilots can sync their minds and movements closely enough to pilot a Jaeger. (Photo: TCD/ Prod.DB / Alamy Stock Photo)

TOP AIGHT: Mako Mori (Ainko Kikuchi) must battle both her fears and her overprotective father figure to bring defeat to the Kaiju. (Photo: TCD/Prod.DB / Alamy Stock Photo)



WHOLE LOTTA SHAKIN' GOIN ON

The Jaegers of *Pacific Rim* might be great for bashing Kaiju but would be of little help in the event of a real geological disaster. Come with us as we take a closer look at the real-life Pacific Rim and how humanity has adapted to life in this hotbed of seismic activity.

ome to 452 volcanoes and 90% of all major earthquakes, the Ring of Fire is easily one of the most volatile places on planet Earth. Unfortunately, the area also houses some of the world's biggest cities, like Los Angeles and Lima, and even entire countries, including Japan, the Philippines, and Indonesia.

IT BURNS, BURNS, BURNS

Running the entire outline of the Pacific Rim, this 40,000 km, horseshoe-shaped chain of seismically-active sites sits on a series of tectonic boundaries, where many of Earth's lithospheric plates converge, collide, and overlap. These plates are constantly in motion, and as one is subducted beneath another, it melts, becoming magma, giving rise to conditions that are ripe for volcanic activity.

ABOVE: Mount Etna, the tallest active volcano in Europe, emits smoke from its summit, with the city of Catania beneath it. (Photo: Shutterstock)

One notable exception is the border between the Pacific Ocean and North America — a transform boundary where two plates move alongside one another. The resulting build-up of tension in the earth's crust caused by these underground collisions eventually releases in the form of an earthquake, often causing devastation on the surface.

The impact of these geological processes can be catastrophic. Earthquakes were responsible for around 2 million deaths in the 20th century and, while volcances have claimed 'only' 280,000 lives since the year 1500, their most dangerous effects often occur after the main event. Tsunamis, mudslides and other secondary phenomena are common following seismic activity, with the likes of Pompeii — levelled back in 79CE by Mount Vesuvius — permanently preserved as a grim testament to the fact. In more recent times, the Valdivia Earthquake of Chile in 1960, the largest in recorded history, reached 9.5 on the Richter scale, cost up to \$9 billion in damages, and killed between one and seven thousand people.

A BLESSING IN DISGUISE?

There are upsides to life within the Ring of Fire. Volcanic ash, known as tephra in scientific circles, is rich in minerals, making for some of the most fertile soil on the planet. Many famers risk living on or near volcanoes because of these

REAL-WORLD SCIENCE



agricultural benefits.

There's also the scenery to consider. Volcano tourism has proven a lucrative venture for many nations in the Pacific Rim. The centrepiece of Yellowstone National Park — one of America's first tourist attractions — is its supervolcano, which attracts over 4 million visitors each year. Offering a rare opportunity to experience the awesome power of the restless Earth up close, Mount Etna in Italy and Mount Bromo in Java are both equally popular holiday destinations and, in Japan, the image of Mount Fuji has itself become a symbol of the island nation.

However, following disasters like the deadly eruption on White Island in 2019, the Haiti earthquake of 2010, and the Philippines' Taal catastrophe early in 2020, the need to find new ways of mitigating the impact of these natural disasters has become increasingly apparent.

STATE OF EMERGENCY

While earthquakes and eruptions can't be influenced directly, there are methods of limiting the severity of their effects. Drills and early warning systems are important, but one of our biggest defences against the former is seismic engineering. No human-made construction can be completely earthquake proof, but within the Ring of Fire, it's essential that cities are designed with seismic activity in mind.

Seismic waves can cause buildings to sway and oscillate, and the biggest damages occur where they meet the ground or an adjacent structure. The seismic loading of a structure — the indication of how much energy it would need to endure in a specific geographic location — can be influenced by a number of factors, including location, building materials, and the quality of the final construction. Performance is tested using shake-tables, scale models, and various analytical methods, which use physics engines and computer code to simulate an earthquake's impact.

Base isolation is the most widespread method of protection, as this can also be used to retrofit existing structures. This state-of-the-art approach acts as a suspension system, utilizing structural elements in a building's foundation to decouple the superstructure from its substructure, allowing a degree of movement and the ability to return to its original position with minimal damage.

In skyscrapers and high-rise buildings, additional methods

of vibration control are distributed throughout to help further abate earthquake forces. Many Japanese buildings, such as the Tokyo Skytree — the world's second tallest structure — feature tuned mass dampers, which reduce the amplitude of harmonic vibration. Usually formed of massive steel structures mounted to move in opposition to the resonance vibration of a structure by means of springs, fluid, or pendulums, thereby dissipating its energy, the largest example can be found in Taipei 101, which has been hailed as one of the safest constructions in the modern world.

FIGHT OR FLIGHT

Volcanoes are a little more difficult to deal with. The only viable method of risk mitigation is evacuation, preferably prior to an eruption, and therefore effective prediction methods are extremely important for nearby populated areas.

Fortunately, the hazard potential of a volcano is much easier to establish than an earthquake and its history can give us a reliable idea of when the next eruption might occur, as well as its magnitude. Today, eruptions can often be predicted weeks, months, or even years in advance thanks to satellite monitoring and advances in seismic analysis, allowing plenty of time for escape procedures to be properly designed and implemented.

To deal with lahars, the violent mudslides that often occur post-event, causeways have been purpose-built to direct the flow away from civilization. Barriers can also be built to withstand molten rock flows and lava can be cooled with sea water, yet, as with earthquakes, education and culture of preparation will always be our most essential tool to prevent future disasters. general term for all pyroclastic materials ejected from a volcano, providing rich minerals for the surrounding soils. (Photo: Shutterstock)

TOP LEFT: Tephra is a

BOTTOM RIGHT: Taipei 101 in the Taipei, Taiwan skyline at night. It is dubbed one of the safest tall buildings in the world, due to its adoption of the latest in mass dampingtechnologies. [Photo: Shutterstock]

"WHEN I'M ASKED ABOUT THE PROBABILITY OF AN EARTHQUAKE, I SAY, 'IT'S 100 PERCENT. JUST GIVE ME ENOUGH TIME." – DR. LUCY JONES, SEISMOLOGIST AT USGS



