

Stage 9

Assembling the shock and tyre

Your parts



Tyre
Shock oil
3mm flange nuts × 2
6.8mm pillow balls × 2
5.8mm pivot ball × 2
3 × 20mm cap screws × 2
3 × 20mm screw shafts × 2

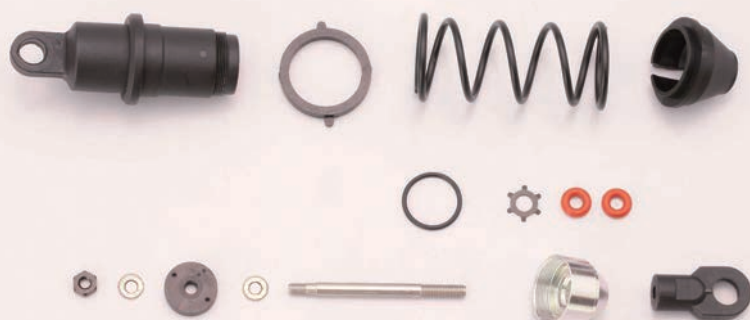
Tools and materials

Pliers
Cutter knife
Instant adhesive
Tissue or paper towel
Washing-up liquid
Wet and dry paper
Calipers

(Stage 2) wheel, wheel cap, sticker
(Stage 4) shock parts set

Assemble the wheel and tyre in the same way as in Stage 3.

Parts provided in Stage 4



Shock case
Shock spring spacer
Rear shock spring
Shock spring stopper
11mm O-ring
Stopper ring
3mm O-rings × 2
2.6mm nut
2.3mm washers × 2
Shock piston
Shock shaft
Shock cap
6.8mm ball end

Assembling the shock



Check the parts for any burrs and scrape off any that you find with a knife, following the advice shown on the right.

Tips!

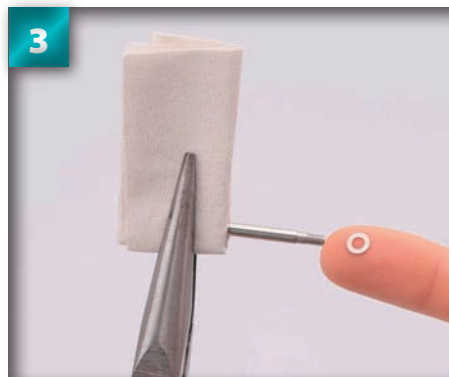


Don't cut away anything on the outer surface of the piston unless it protrudes by a few millimetres, as it would be very easy to distort the shape.

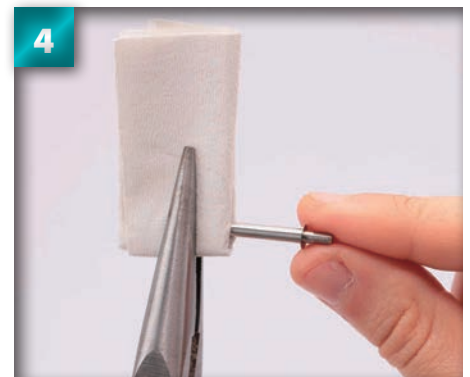
When removing burrs from the larger surface, cut away from you, moving the knife along the flat side of the piston.



To protect the thread on the shaft, wrap some folded tissue paper around it.



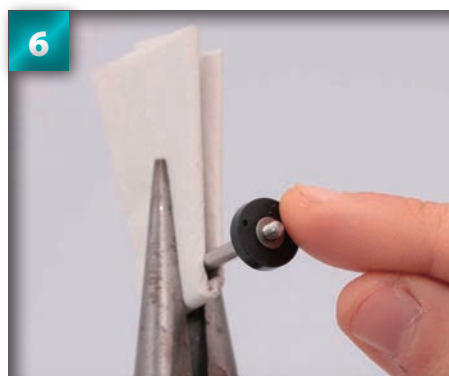
Hold the end of the shaft wrapped in tissue paper with pliers. Pick up one of the 2.3mm washers.



Place the 2.3mm washer over the exposed end of the shaft.



Place the piston onto the end of the shaft, up against the washer.



Place the second 2.3mm washer onto the end of the shaft, up against the piston.



Tighten the 2.6mm nut onto the thread at the end of the shaft.



When you can no longer turn the nut by hand, use pliers to turn it by one more revolution.



Place the stopper ring on a flat surface, with the projections around the sides angled up.



Place the stopper ring onto the end of the shock assembly rod.



The projections of the stopper ring should be angled towards the rod.



Place one 3mm O-ring over the end of the rod.



Slide the second O-ring onto the rod up against the first.



Apply a small amount of shock oil to the O-ring at the end of the rod.



Place the shock cap onto the end of the rod, over the two O-rings and the stopper ring.

HUMMER H1: STEP BY STEP

16



Hold the base of the rod and push straight down on the shock cap.

17



Push down hard on the shock cap until the top of the rod is almost flush with the top of the cap, as shown.

18

Remove the shock cap from the rod and check that the two O-rings are held in place by the stopper ring. If not, push the cap down on the rod again.



Holding the cap with a tissue, pour a few drops of shock oil over the O-rings.

19



20



Take the shock shaft assembly and insert it into the hole in the centre of the shock cap.

21



Push the shaft all the way into the cap. Wipe off any oil from the shaft.

Wrap folded tissue paper around the shaft and grip with pliers.

22



Insert the shaft into the hole on the 6.8mm ball end.

23



24



Screw the ball end onto the shaft until you can no longer see the thread of the shaft.

25



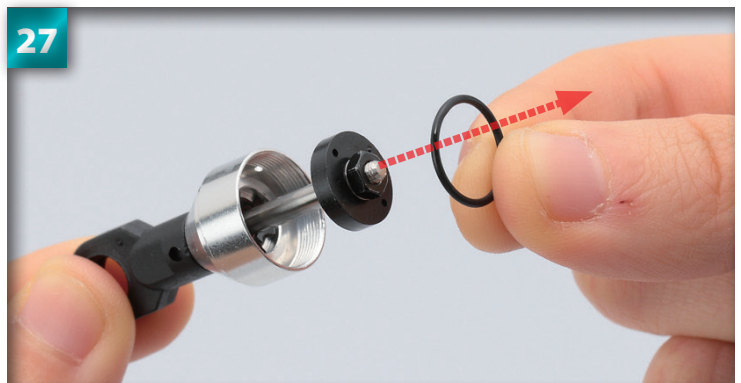
Measure the gap between the cap and the ball end. The ball end should be positioned 14mm away from the cap, so adjust the fit by either tightening or loosening it.

26



The 14mm gap between the cap and the ball end. If you don't have any calipers to measure it, just use a ruler.

27



Push the shaft through the cap and then pass the piston through the 11mm O-ring.

28



Once the piston is through the 11mm O-ring, drop the ring down inside the shock cap.

The 11mm O-ring should rest in the groove on the inside of the shock cap, as shown.

29



30

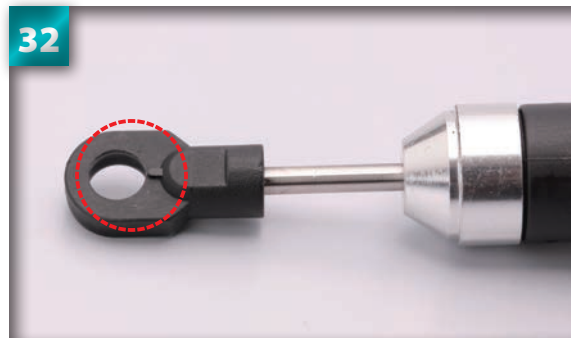


Temporarily assemble the shock by inserting the shaft assembly into the shock case.

31



Screw the two parts together to temporarily secure them.



If you look carefully at the hole in the ball end, you'll see that it's smaller on one side than the other.



Hold the shock assembly so that the larger side of the ball end is uppermost, and take one of the 6.8mm pillow balls.



Push the 6.8mm pillow ball into the hole in the ball end, keeping the hole in the ball aligned with that of the ball end.

Place folded tissue paper around the ball end and squeeze the ball into the hole with pliers.



Keep the remaining parts in a bag with the stage number written on it.



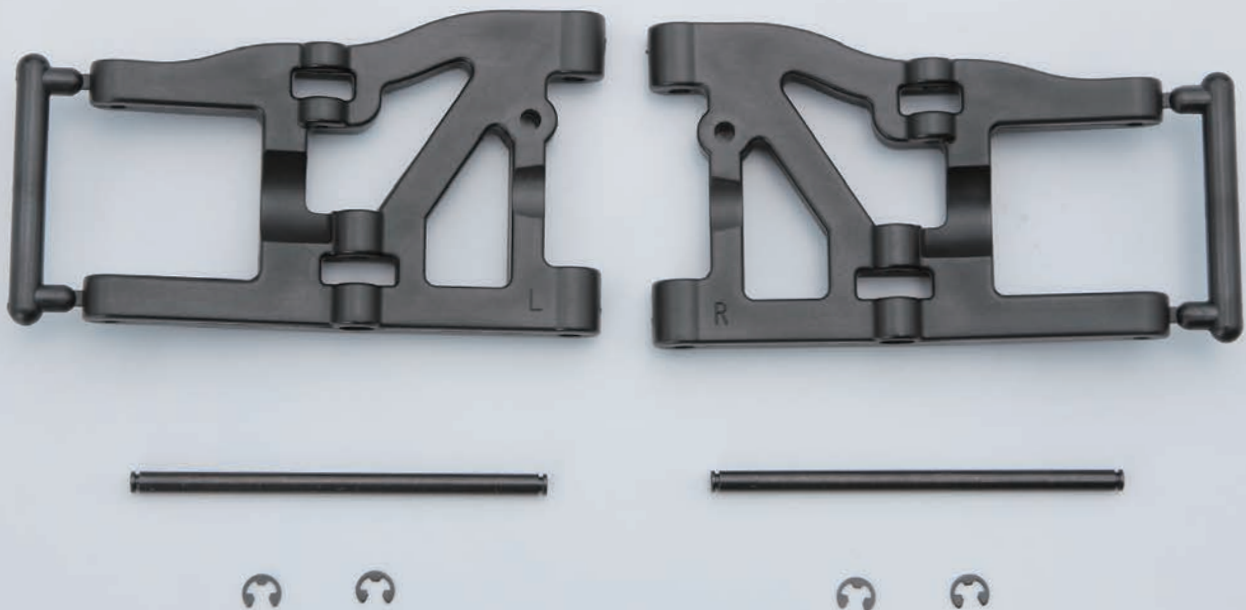
Assembled parts



Stage 10

The rear lower suspension arms

Your parts



Left rear lower suspension arm

Right rear lower suspension arm

4 × 74mm shafts × 2

E3 E-rings × 4

Tool and materials

Pliers
Cutters
Knife
2.5mm Allen key
Cross wrench

(Stage 8) rear bulkhead assembly
(Stage 9) 3mm flange nuts × 2
(Stage 9) 5.8mm pivot ball × 2
(Stage 9) 3 × 20mm cap screws × 2

Preparing the parts



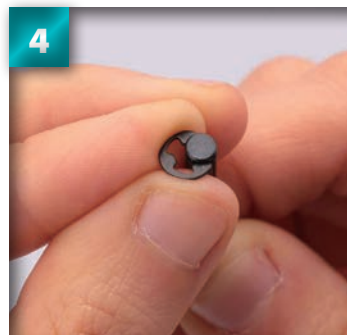
Use cutters to cut the joins (circled) between the sprues and the rear lower suspension arms.



When you have removed the sprues, cut away any remaining burrs with a knife.



Hold the E3 E-ring with the slightly rounded side facing up, and locate the grooved area at the end of the 4 x 74mm shaft.



Push the E-ring into the grooved area of the shaft as far as you can by hand.

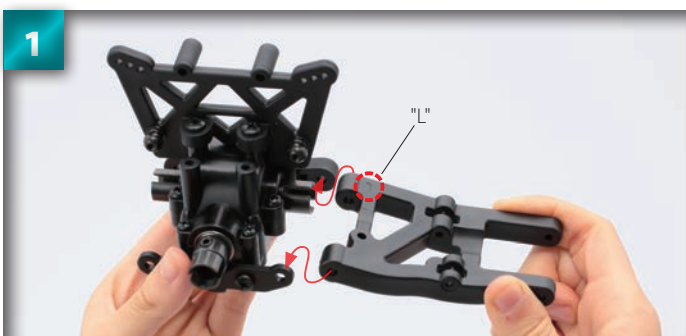


Use pliers to push the E-ring into the groove of the shaft. It should click into place.



Repeat this process for the other E-ring and 4 x 74mm shaft.

Fitting the rear lower suspension arms



Hold the lower bulkhead as shown, and place the left rear lower suspension arm in between the suspension holder and the suspension plate.



Insert one of the prepared shafts into the hole in the suspension holder.

HUMMER H1: STEP BY STEP



Push the shaft through the holes on the left rear lower suspension arm.



You will notice that the holes of the suspension arm and suspension plate are out of alignment when the shaft is inserted.



Push the arm in, aligning the holes, and push the assembly down until the shaft comes through the hole of the suspension plate.



Place the E-ring in the groove at the end of the shaft.



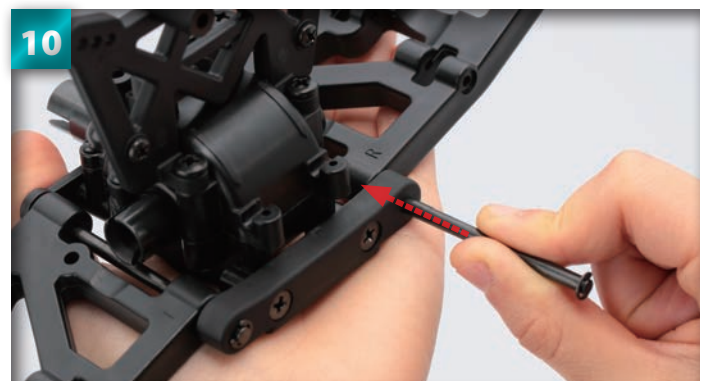
Use pliers to click the E-ring into position at the end of the shaft.



Position the right rear lower suspension arm on the other side of the assembly, between the suspension plate and holder.



Hold the parts as shown in the photo above, and place the second shaft in the hole in the suspension holder.



Push the shaft into the hole in the holder and through the two holes in the arm.

HUMMER H1: STEP BY STEP



11 Push the right suspension arm in towards the rest of the assembly to align the hole of the suspension plate with the hole at the end of the arm.



12 Holding the arm in to align the holes, push the assembly down so that the shaft comes through the hole of the suspension plate.



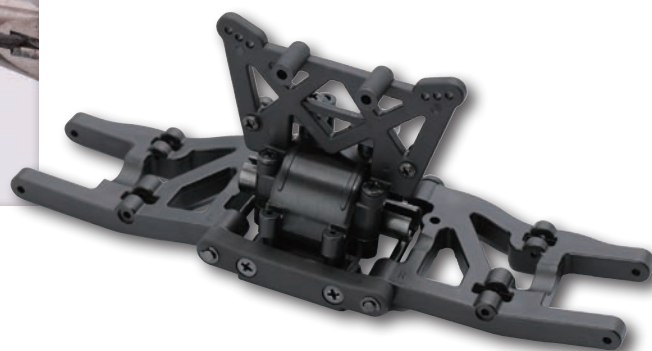
13 Place the last E-ring in the groove at the end of the shaft.



14 Use pliers to click the E-ring into position.

15

Your rear suspension assembly should now look like this. Check that the two arms can move up and down freely.



Fitting the shock pivots



1 Insert the 3 x 20mm cap screw into the 5.8mm pivot ball, both from Stage 9.



2 Insert the end of the cap screw into the top left hole of the rear stay, pushing it in from the rear.

Look at the two sides of the flange nuts. One side is like a normal nut, the other is toothed, to grip better onto surfaces.



3

Place a flange nut onto the end of the cap screw.

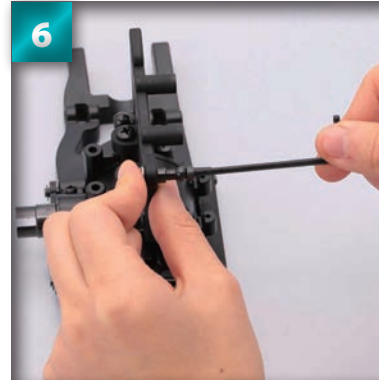


4

HUMMER H1: STEP BY STEP

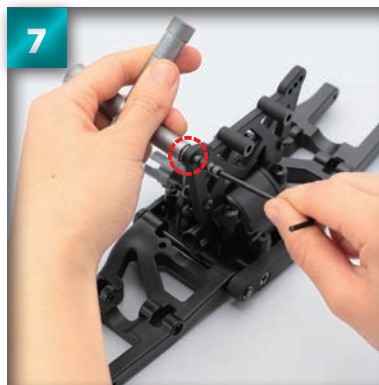


Tighten the cap screw into the flange nut by hand.



Use the 2.5mm Allen key to tighten the screw into the nut a little more.

Finally, place the 5.5 end of the cross wrench over the nut to hold it in place and tighten the screw fully into the nut.



Insert the second 3 x 20mm cap screw into the 5.8mm pivot ball, and then place into the outermost right hole of the stay.



Place the flange nut onto the end of the cap screw.



As in Steps 5-7, tighten the flange nut onto the end of the cap screw.

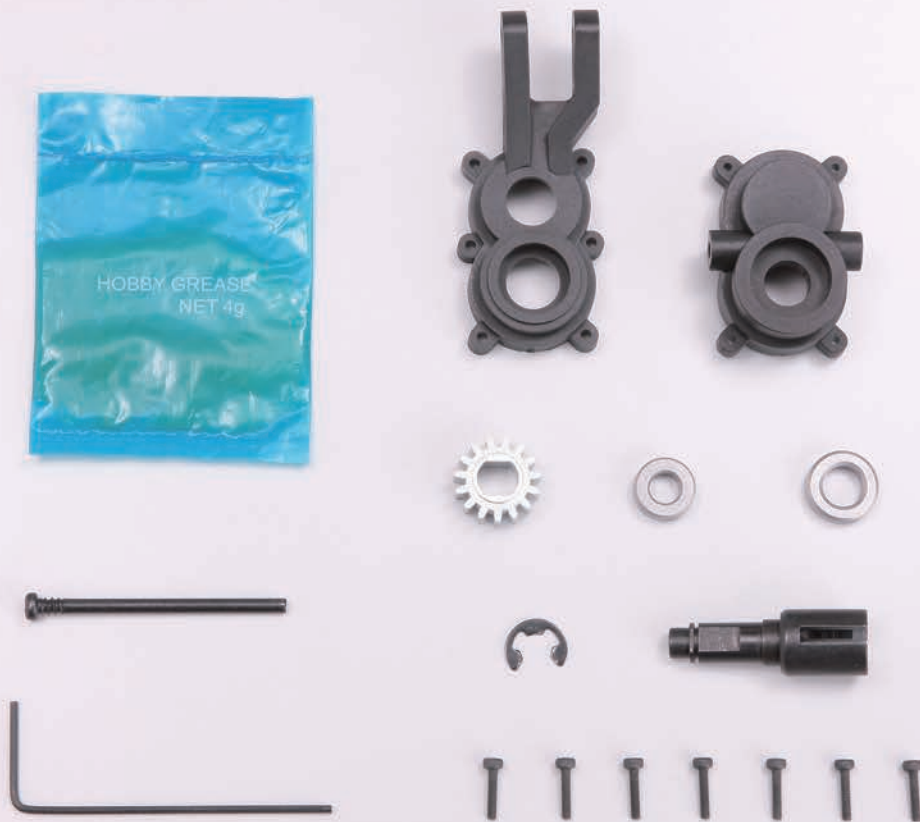
Assembled parts



Stage 11

Assembling the rear left hub

Your parts



Grease
Inside left rear hub
Outside left rear hub
15T reduction gear

1260 metal bush
1480 metal bush
3 × 48mm screw shaft
E6 E-ring

Differential cup joint
1.5mm Allen key
2 × 10mm cap screws × 7

Tools & materials

Pliers
Scissors
Cellophane tape
Pen

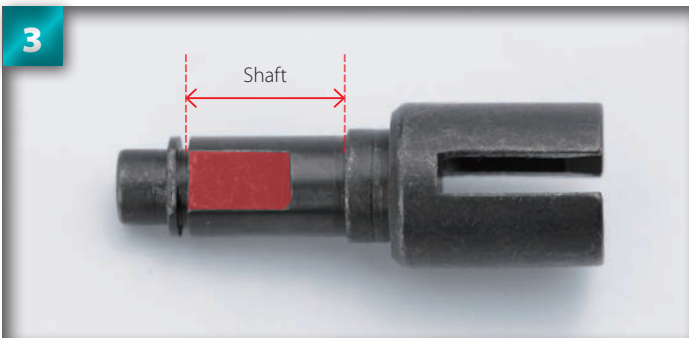
HUMMER H1: STEP BY STEP



Place the 1480 bushing into the recess in the rear hub.



Make sure the bush is pushed right into the recess in the hub.



Locate the shaft of the differential cup joint.



Spread a small amount of grease onto the shaft of the differential cup joint, as highlighted in the previous step.



Insert the differential cup joint into the rear hub, so that its shaft protrudes through the bushing.

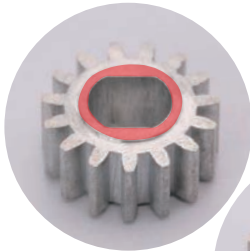


Turn the differential cup joint to spread the grease around .

Spread more grease over the shaft of the joint protruding from the bushing.

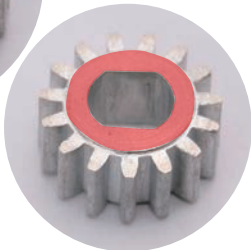


8 Identify the difference between the two sides of the 15T gear, shown here on the right.



Back:
the flat
area is small.

Front:
the flat
area is large.





Hold the 15T gear with the back side visible, turn it over and place onto the end of the joint.



Push the gear down the joint, turning it back and forth to make sure that it's correctly positioned.



Push the gear down the joint until flush with the bushing, as shown.



Place the E6 E-ring on a flat surface and look at the inner edge. The red-shaded area is slightly curved in comparison to the other side. Sometimes this information is necessary to the placement of the part.



Place the E-ring on top of the gear, into the groove of the joint, with the two sides of the ring positioned at the curved sides of the joint.



Use pliers to click the E-ring into position on the joint, taking care that its position doesn't shift.

Assembled parts



The different types and characteristics of the screws

At various points during the life of your remote control Hummer H1 you will need to change screws to maintain optimal performance. Therefore you will need to familiarise yourself with the many kinds of screw, because if you use an incorrect one you may lose control of the model and cause irreparable damage to it or to other models. In this series, you will have already dealt with several kinds of screw, and in order to better organise them, it is important to learn about their varying types and characteristics.

Basic screw measurements are determined by diameter \times length, such as 2 \times 10mm. The size and shape of the head are irrelevant, apart from with countersunk screws, because their total length includes the head.

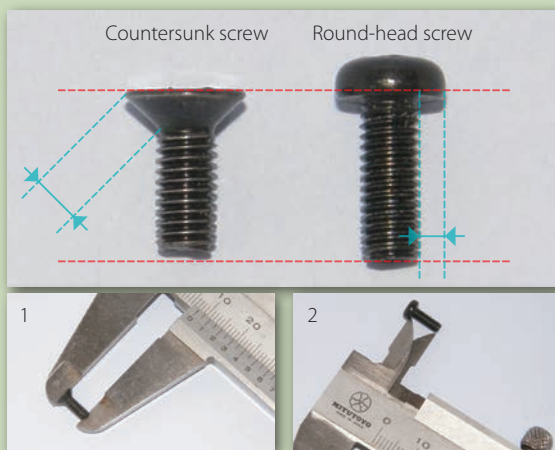
The difference between a standard screw and a self-tapping screw



The screw shown on the left in the photograph is a standard screw, which fits into a threaded hole. The threads are thin, with a narrow gap between them.

The screw shown on the right is a 'self-tapping' screw, which cuts its own thread in the hole it is screwed into. The threads on these screws are thicker and spaced further apart.

The difference between a countersunk screw and a round-head screw



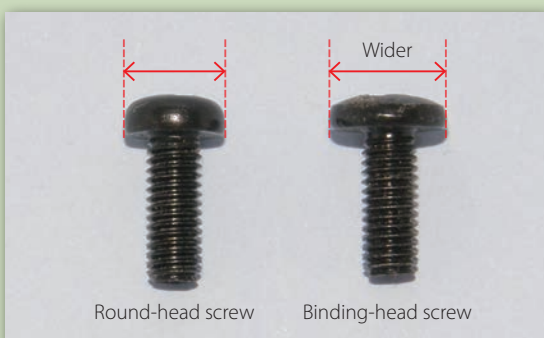
The difference between a countersunk screw and a round-head screw should be quite obvious when looking at them on their own, but less noticeable when the screws are fitted.

The countersunk screw does not protrude from the top of the part it is screwed into, leaving a flat finish with the surface. This generally means that the countersunk screw is more securely fixed than the round-head screw due to

the contact area (indicated by the blue lines) being larger.

Also, while the round-head screw appears longer, the actual area in contact with the hole would be the same on both of these screws, as the countersunk screw is measured along its entire length (photo 1), whereas the round-head screw is measured along the thread (photo 2).

The difference between a round-head screw and a binding-head screw



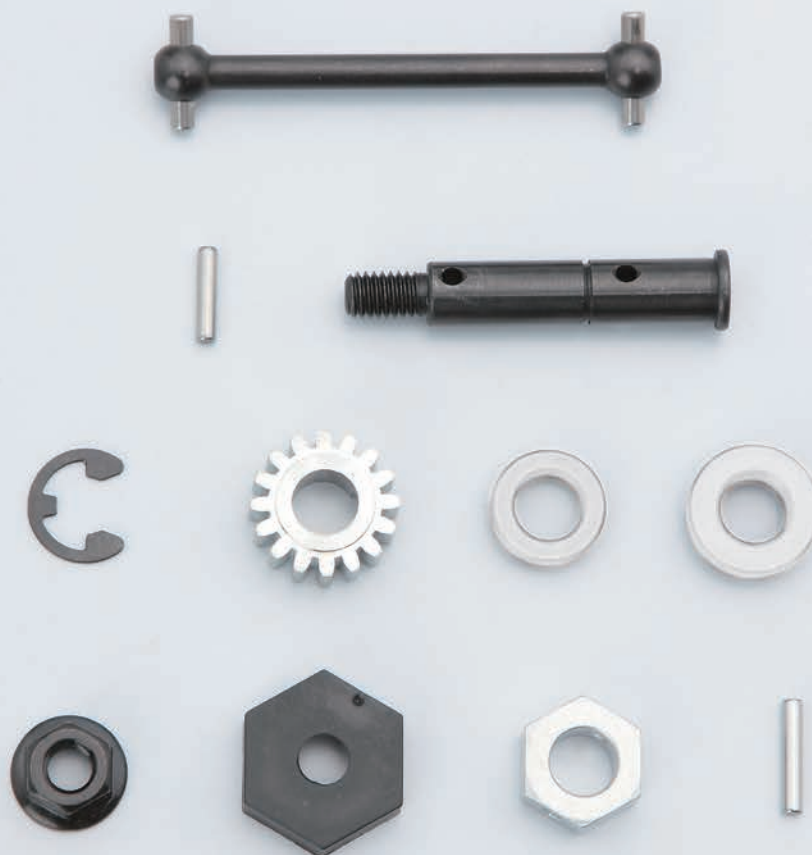
The shape of a binding-head screw is similar to that of a round-head screw, but the head is slightly larger. Since the outer diameter of the head is larger, the binding-head screw has a larger surface area in contact with the surface it's being screwed into, creating a stronger grip. However, you can achieve a similar effect with a round-head by placing a washer underneath the head to increase the surface area, as shown on the right.



Stage 12

Assembling the left rear hub

Your parts



Rear driveshaft
2.5 × 12mm pin
Rear wheel shaft
E7 E-ring

16T gear
1480 metal bush
1680 metal bush
6mm flange nut

Wheel hub adapter
Wheel hub
2.5 × 14mm pin

Tools & materials

Pliers
Pen
Phillips screwdriver
1.5mm Allen key (Stage 11)
Grease (Stage 11)
Inside left rear hub (Stage 11)

Outside left rear hub (Stage 11)
1260 metal bush (Stage 11)
3 × 48mm screw shaft (Stage 11)
2 × 10mm cap screws × 6
Rear bulkhead (Stage 10)

HUMMER H1: STEP BY STEP



Apply a small amount of grease to the rear wheel shaft, and place the 1480 metal bush onto it while turning the bush to spread the grease over it.

Insert the shaft into the hole next to the differential cup joint in the assembly from Stage 11, but do not push it all the way in.



Rotate the shaft while holding the assembly as shown, until the circled hole is visible.

Insert the 2.5 × 12mm pin into the hole in the shaft. Adjust the angle of the shaft to make it easier to insert the pin.



If you have trouble pulling the shaft into position you may need to wipe away the grease.

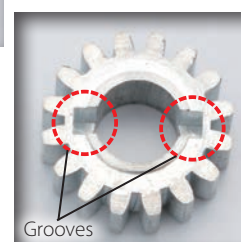
Turn the assembly upside down and check that the shaft and bush are correctly positioned, as shown.



Apply a small amount of grease above the 2.5 × 12mm pin.



[Back]



The two photos here show the difference between the front and the back of the 16T gear.

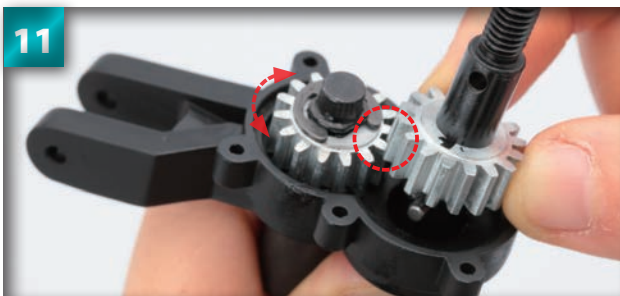
HUMMER H1: STEP BY STEP



Mark the grooves on the front side of the 16T gear with a pen.



Place the 16T gear onto the shaft and rotate to align the marks with the pin.



As you slide the gear down the shaft, turn the 15T gear to align the teeth with those of the 16T gear.



As you engage the teeth of the two gears, make sure the 16T gear is positioned correctly over the 2.5 x 12mm pin.



Place the E7 E-ring into the groove above the 16T gear, with the rounded edge facing up.



Click the E-ring into place with pliers.



Your gear assembly should now look like the one shown above.

Apply a small amount of grease to the teeth of the two gears.



HUMMER H1: STEP BY STEP



Turn the shaft to spread the grease around the gears.



Fit the 1260 bush from Stage 11 onto the end of the joint.

Place the outside left rear hub from Stage 11 over the assembly, positioning the hole over the shaft.



Push the two halves together.

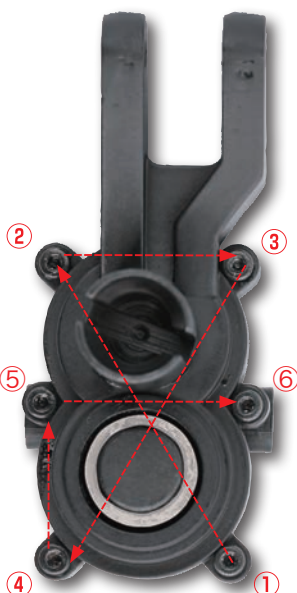


Place a 2 × 10mm cap screw (Stage 11) onto the end of the 1.5mm Allen key.



Insert the 2 × 10mm cap screw into the hole in the corner of the assembly, as shown, and screw it in.

23 Screw another five cap screws into the remaining holes, following the order shown on the right. If it is hard to tighten a screw, insert the Allen key into the hole first and turn it to increase the size of the hole slightly, but be careful not to make the hole too large.



Squeeze some grease into the hole around the shaft.



25



Place the 1680 bush over the end of the shaft.

26



Push the bush straight down the shaft, turning it slightly to spread the grease.

Place the wheel hub over the end of the shaft.

27



Locate the hole on the shaft above the 1680 bush, and align the hole of the hub with it (circled).

28



29



Push the wheel hub all the way down the shaft, keeping the holes aligned, and insert the 2.5 × 14mm pin into the hole in the hub.

30



Push the 2.5 × 14mm pin all the way through the hub and the shaft. You may need to turn them slightly if the holes have become misaligned.

When the 2.5 × 14mm pin is fully in place and does not protrude from the sides of the wheel hub, place the wheel hub adapter over the end of the shaft.

31



Push the adapter down the shaft and over the wheel hub.

32



33



Place the toothed side of the 6mm flange nut over the end of the shaft.

34



Screw the flange nut onto the end of the shaft by hand. You may find it easier to do this if you hold the differential cup joint to prevent the shaft from turning.

35



Place the rear bulkhead assembly as shown.

36



Holding the hub assembly with the shaft at the bottom, place it between the two struts of the left arm.

37



Align the holes of the arm struts with the holes at the side of the hub assembly.

38



Insert the 3 × 48mm screw shaft, provided with Stage 11, into the hole in the arm strut. Push it through the holes in the hub until it protrudes from the hole on the other side of the arm.

39



Tighten the 3 × 48mm screw shaft into place.



Assembled parts