1955

MERCEDES-BENZ 300 SL GULLWING

Pack 04

BUILD INSTRUCTIONS

STAGE 17: COMPLETE THE CHASSIS

STAGE 18: THE FRONT LEFT SUSPENSION

STAGE 19: THE FRONT RIGHT SUSPENSION

STAGE 20: THE STEERING TIE ROD

STAGE 21: THE FRONT RIGHT WHEEL

STAGE 22: THE REAR AXLE

STAGE 23: THE DIFFERENTIAL

AGORA MODELS

Advice from the experts

Spare screws are included with each part. Occasionally, you may be instructed to keep spare or unused screws for a later stage. Keep these spares in a safe place and label them correctly.

Please make sure you don't mix up the screws. They look quite similar, but the threads do vary slightly. Using the wrong screws may damage the parts.

When securing parts together using multiple screws, fit each screw loosely to ensure all the parts are correctly aligned before gently tightening them firmly, but not overtight, in the order in which you placed them.

The screwdriver can be magnetized by stroking it with a magnet (fridge magnet, etc.) enabling it to hold the screws and make assembly easier.

If a screw is tight going into a metal part, do not force it as you may shear the head off. Remove it and put a tiny smear of Vaseline, soap or light oil on the thread. That will lubricate it and make it easier to drive home.

During the course of this build, you will receive many pieces that you will assemble immediately – following the instructions in the corresponding stage – and other pieces that you should store safely to one side, for use in future assembly stages.

Left and Right! When building your Mercedes-Benz 300SL, the left or right hand side refers to each side as you are sitting in the car.

WARNING: Some parts are assembled using magnets. These magnets can cause serious injury if they are swallowed. Keep away from children. If you suspect a magnet has been swallowed, seek medical help straight away.

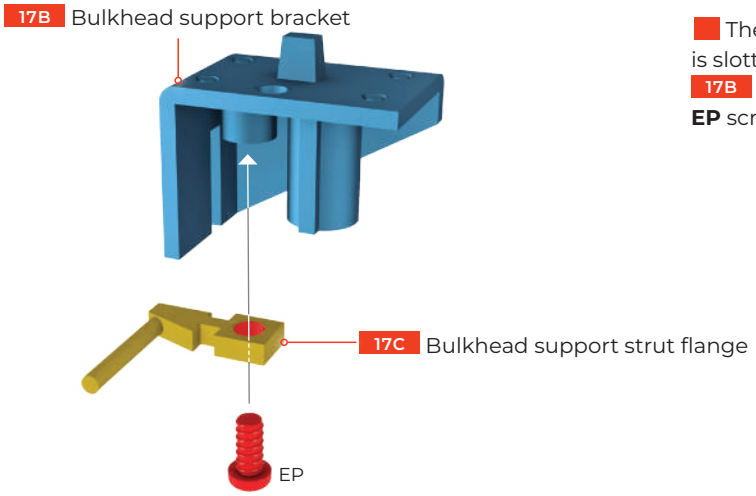
In this stage, you will complete the assembly of the 300 SL's main chassis, with the front and rear frames and other connection elements.

STAGE 17 – REQUIRED PARTS

Code	Name	Quantity	Material
17A	Bulkhead frame	1	Zinc
17B	Bulkhead support bracket	1	ABS
17C	Bulkhead support strut flange	1	ABS
17D	Rear frame	1	Zinc
17E	Bulkhead support strut	1	Zinc
CM	Screws 2 × 4 mm	4 + 2*	Iron
EM	Screws 2 × 5 mm	2 + 1*	Iron
FM	Screws 2 × 6 mm	4 + 2*	Iron
EP	Screws 1.7 × 4 mm	1 + 1*	Iron
HP	Screws 2 × 4 mm	1 + 1*	Iron

* Replacement screws included

01 ASSEMBLING THE BULKHEAD SUPPORT BRACKET



The support strut flange 17C is slotted into the support bracket 17B and is fixed in place with an **EP** screw.

02 ASSEMBLING THE BULKHEAD SUPPORT

The bulkhead support bracket 17B is fitted onto the screw hole of the upper part of the bulkhead frame 17A, as shown in the image. These parts are fixed together with an **HP** screw (figure 1).

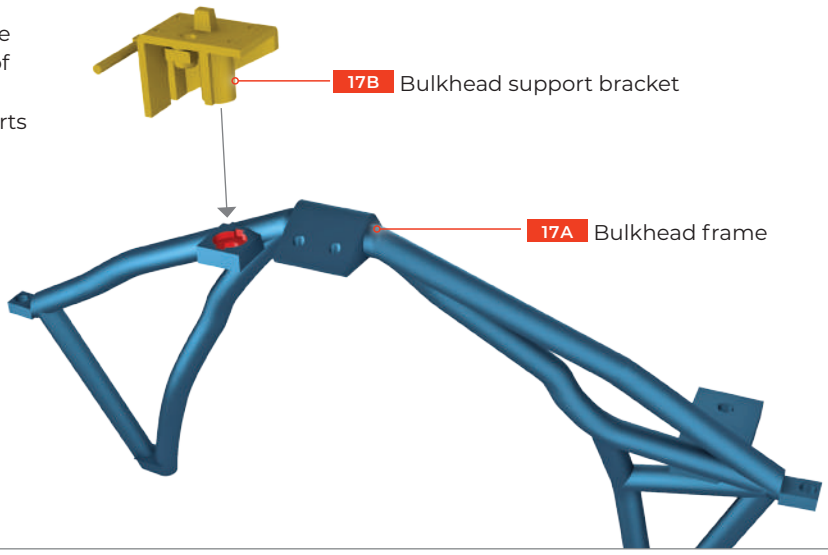
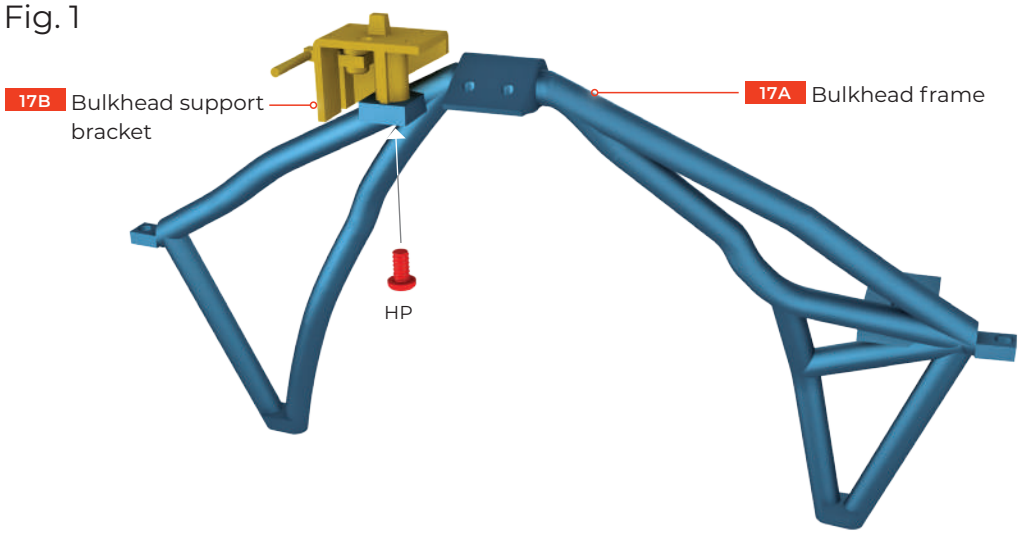


Fig. 1



For screws into plastic, do not over-tighten them. For screws into metal, ensure that they are tightened securely so that the head makes firm contact with the fixing surface.

03 ASSEMBLING THE BULKHEAD FRAME

The bulkhead frame 17A is positioned onto the main chassis 14A and tilted forward behind the engine, as shown in the picture. With **CM** screws, fix the frame to the left side tubular frame (1) 15A and the right side tubular frame (1) 16A. Next, turn over the entire assembly and fix both ends of the bulkhead frame 17A to the main chassis 14A with two **FM** screws, as shown (figure 1).

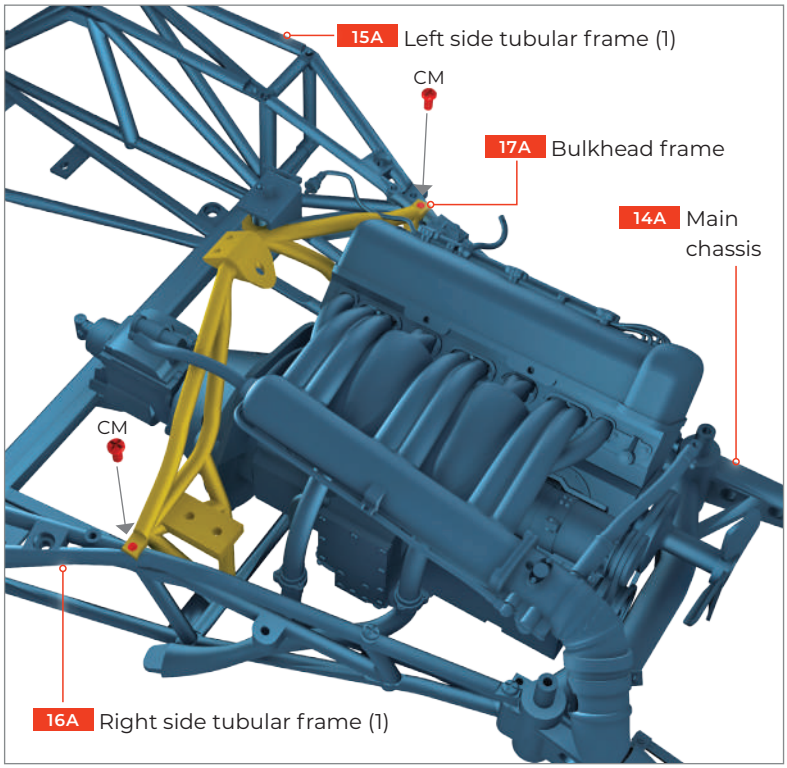
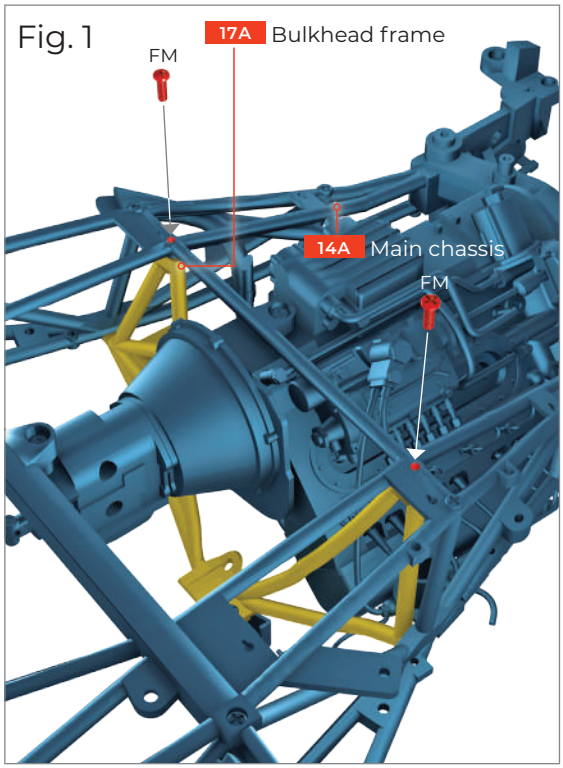


Fig. 1



04 INSTALLING THE BULKHEAD SUPPORT STRUT

The bulkhead support strut 17E is positioned so that the end with the flat surface points towards the front of the engine. The tube slides in from the front end of the engine, below the rear exhaust manifold 07C. It slides back over the high-pressure oil line 12A so that the hole at the end of the tube ends up exactly below the center of the front bulkhead frame 17A. This end of the strut is fixed in place with a **CM** screw. The hole on the opposite end is made to coincide with the hole on the underside of the radiator support, where it is fixed in place with another **CM** screw (figure 1).

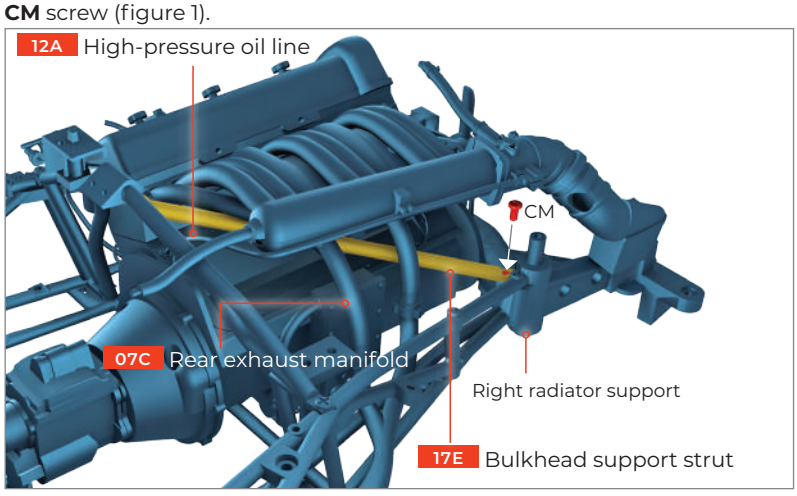
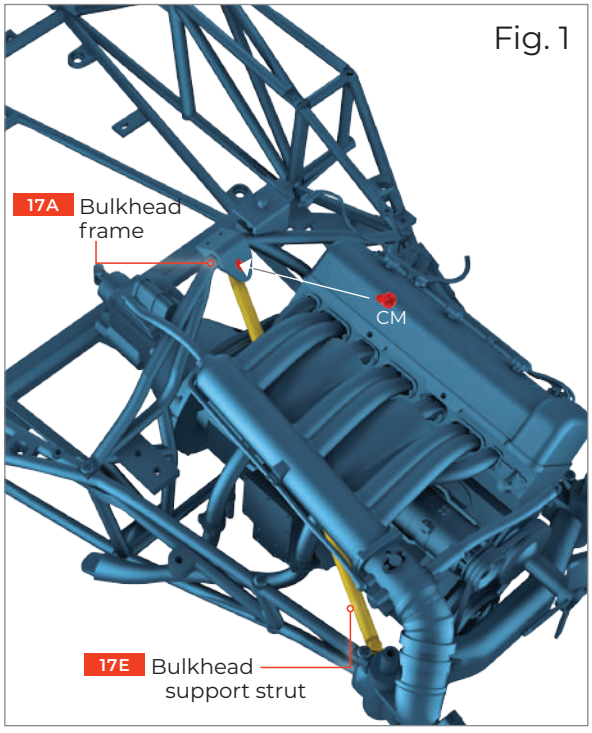
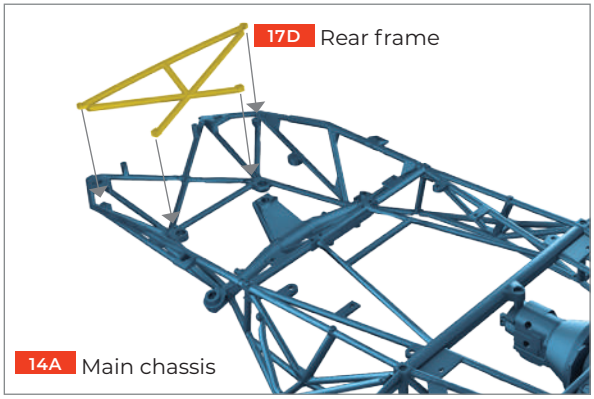


Fig. 1



05 ASSEMBLING THE REAR FRAME



Turn the main chassis 14A upside down on the work surface. The rear frame 17D is positioned so that the long crosspiece is at the top while the ends of the intersecting tubes are at the bottom. Next, the part is placed as indicated into the back of the main chassis 14A. The four holes in the rear frame must line up with those in the main chassis. Then the long crosspiece is screwed on with two **EM** screws, one at each end. The crossed tubes are fixed in place with two **FM** screws, as shown (figure 1).

Fig. 1

In this stage, you will assemble and install the front left suspension and shock absorber onto the main chassis.

STAGE 18 – REQUIRED PARTS

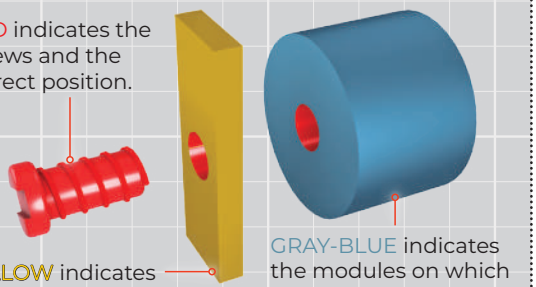
Code	Name	Quantity	Material
18A	Bottom left control arm with spring plate	1	Zinc
18B	Top left control arm	1	Zinc
18C	Left steering knuckle, spindle and kingpin	1	Zinc
18D	Shock absorber	1	Zinc
18E	Kingpin bushing	2	Zinc
18F	Control arm bushing bottom left	1	Zinc
18G	Control arm bushing top left	1	Zinc
18H	Coil spring front suspension	1	Steel
GM	Screws 2 × 7 mm	4 + 2*	Iron
KM	Screws 2 × 13 mm	2 + 1*	Iron
LM	Screws 2.3 × 3 × 6.5 mm	3 + 1*	Iron
MM	Screws 2.3 × 4 mm	3 + 1*	Iron

* Replacement screws included

COLOR CODING

The color coding of the parts shows how they should be put together.

RED indicates the screws and the correct position.

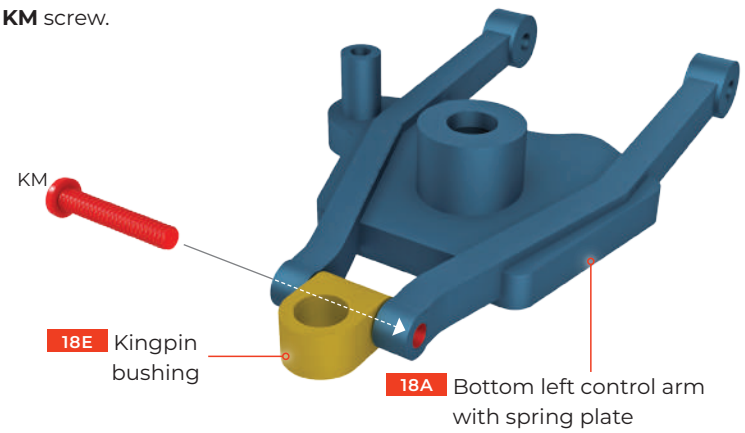


YELLOW indicates new parts.

GRAY-BLUE indicates the modules on which the new parts should be assembled.

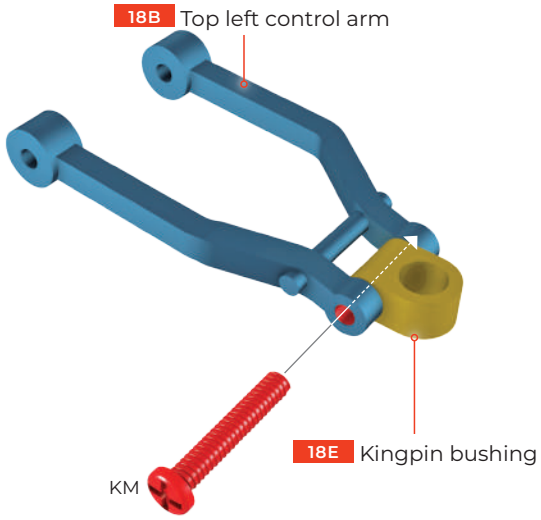
01 INSERTING THE FIRST KINGPIN BUSHING

Position a kingpin bushing 18E between the two closest ends of the bottom left control arm 18A, lining up the holes as shown in the picture. To hold the pieces in place, insert a **KM** screw through the lined-up holes as indicated, until it reaches the opposite end. Then carefully tighten the **KM** screw.



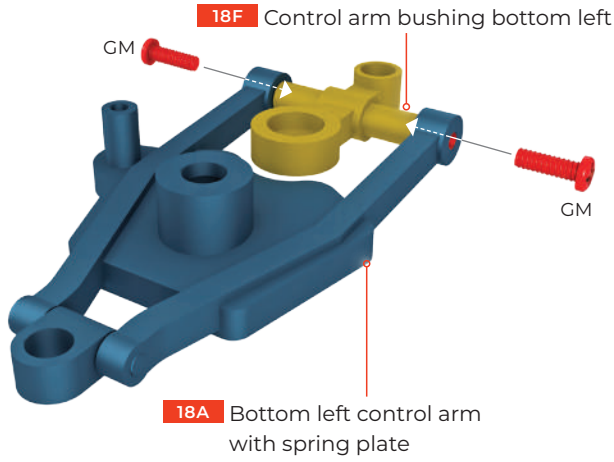
02 THE SECOND KINGPIN BUSHING

The second kingpin bushing 18E is positioned as shown, between the closest ends of the top left control arm 18B. These parts are put together in the same way as before, with a **KM** screw through all the lined-up holes.



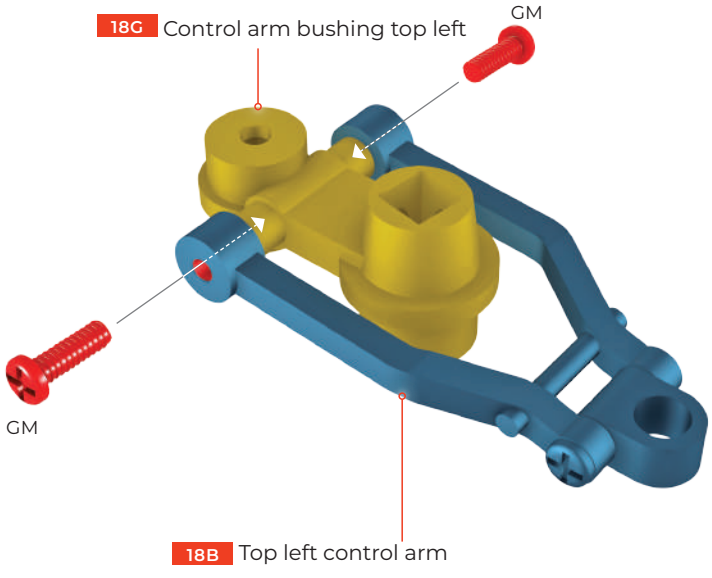
03 BOTTOM LEFT CONTROL ARM BUSHING

The bottom left control arm bushing 18F is positioned as shown in the picture, between the two widest-apart arms of the bottom left control arm 18A. Secure in place with two **GM** screws. Be careful not to over-tighten them.



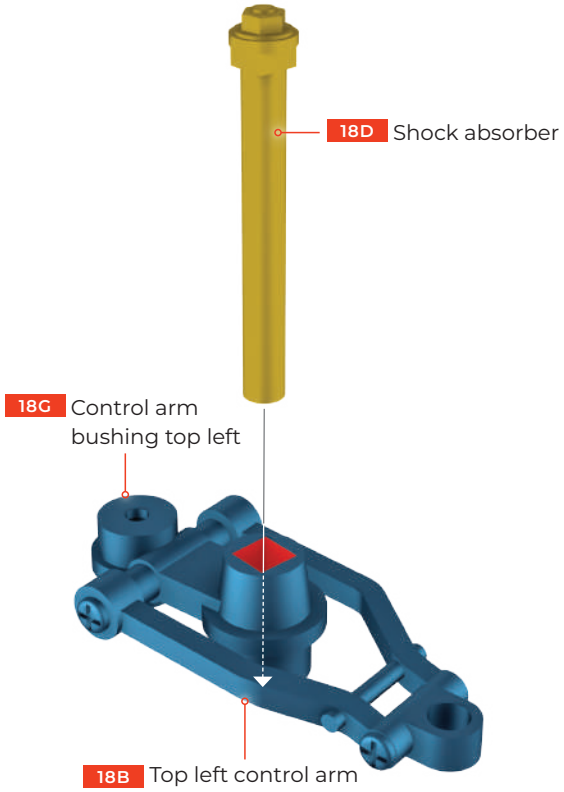
04 TOP LEFT CONTROL ARM BUSHING

The top left control arm bushing 18G is placed as shown in the picture, between the two widest-apart arms of the top left control arm 18B. Secure the parts together using two **GM** screws, making sure not to over-tighten them.



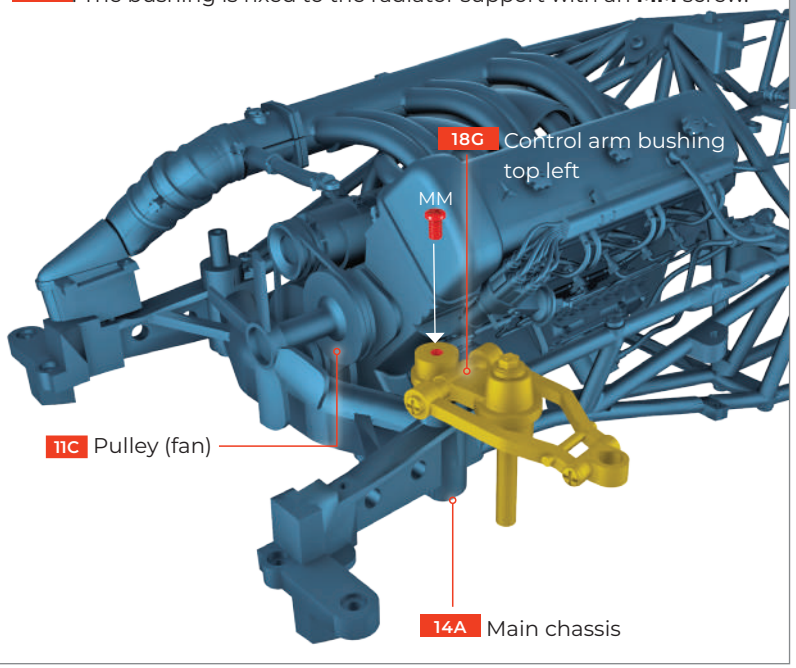
05 SHOCK ABSORBER

Hold the shock absorber 18D as shown and insert the round end through the square hole in the center of the top left control arm bushing 18G until the square part of the shock absorber fits snugly into the square hole of the bushing.



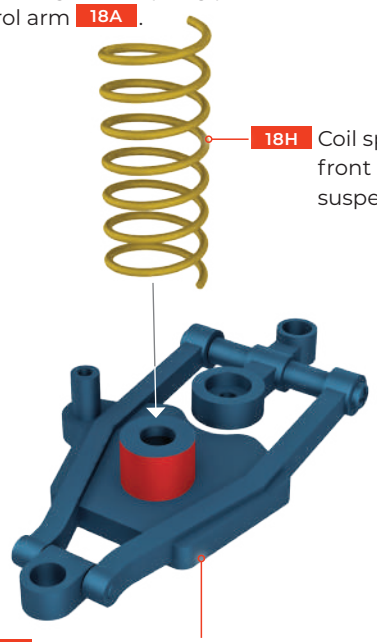
06 ASSEMBLING THE TOP LEFT CONTROL ARM BUSHING

The hole of the upper left control arm bushing 18G fits over the pin at the end of the front left radiator support (part of the main chassis 14A), located around 20 mm to the left of the pulley (fan) 11C. The bushing is fixed to the radiator support with an **MM** screw.



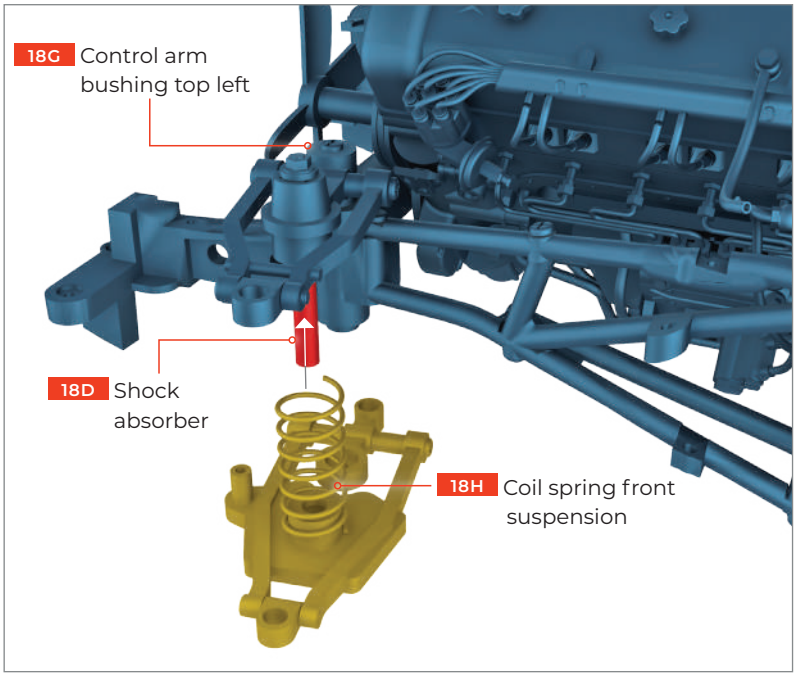
07 FRONT SUSPENSION COIL SPRING

The coil spring 18H fits as shown onto the center housing of the spring plate on the bottom left control arm 18A.



08 FITTING THE SUSPENSION AND SHOCK ABSORBER ONTO THE MAIN CHASSIS

The assembled parts in step 07 are presented up to the top left control arm bushing 18G so that the shock absorber 18D goes inside the coil spring 18H, as indicated in the figure. Next, the bottom control arm bushing 18F is inserted onto the two studs on the underside of the left radiator support on the main chassis 14A. Fix the assembly in place with two **MM** screws (figure 1).



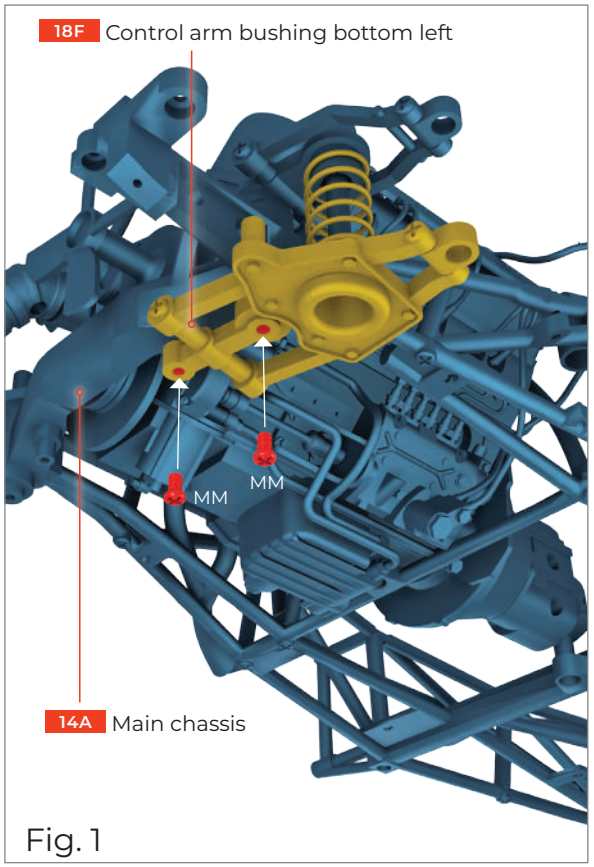
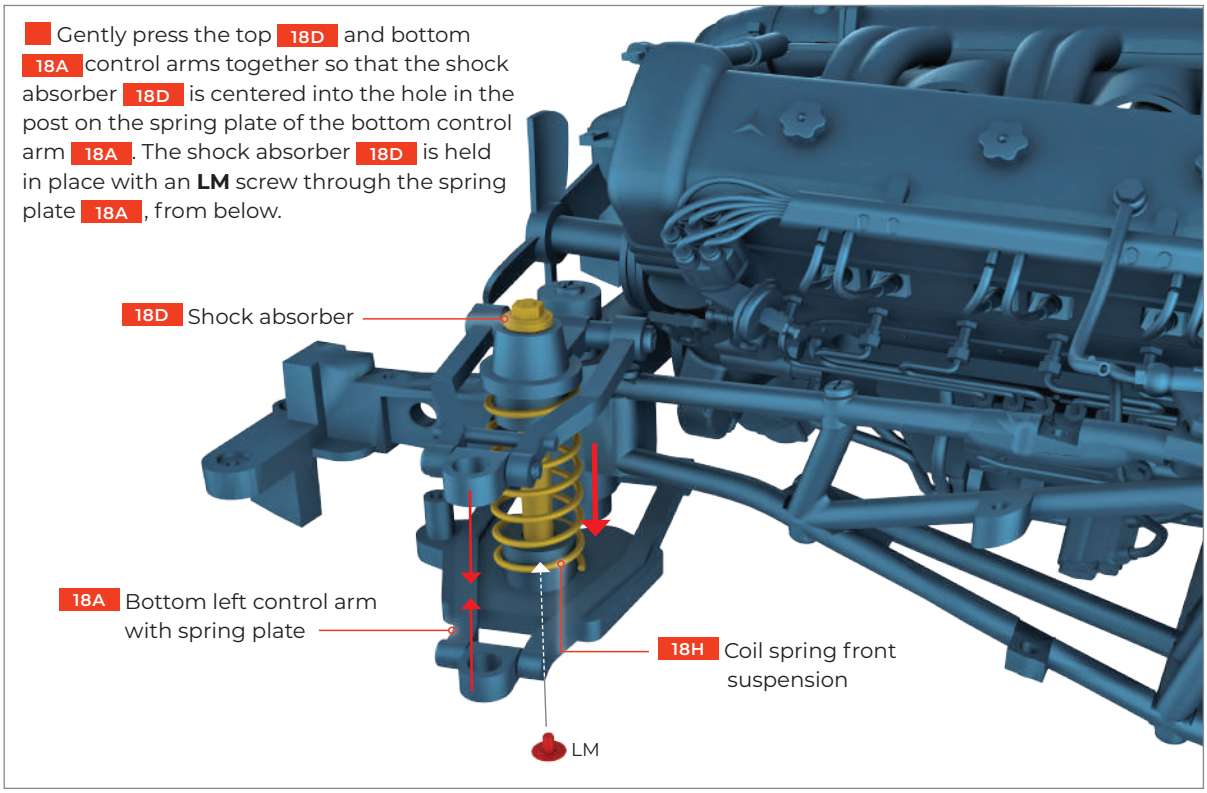


Fig. 1

09 FIXING THE COIL SPRING IN PLACE

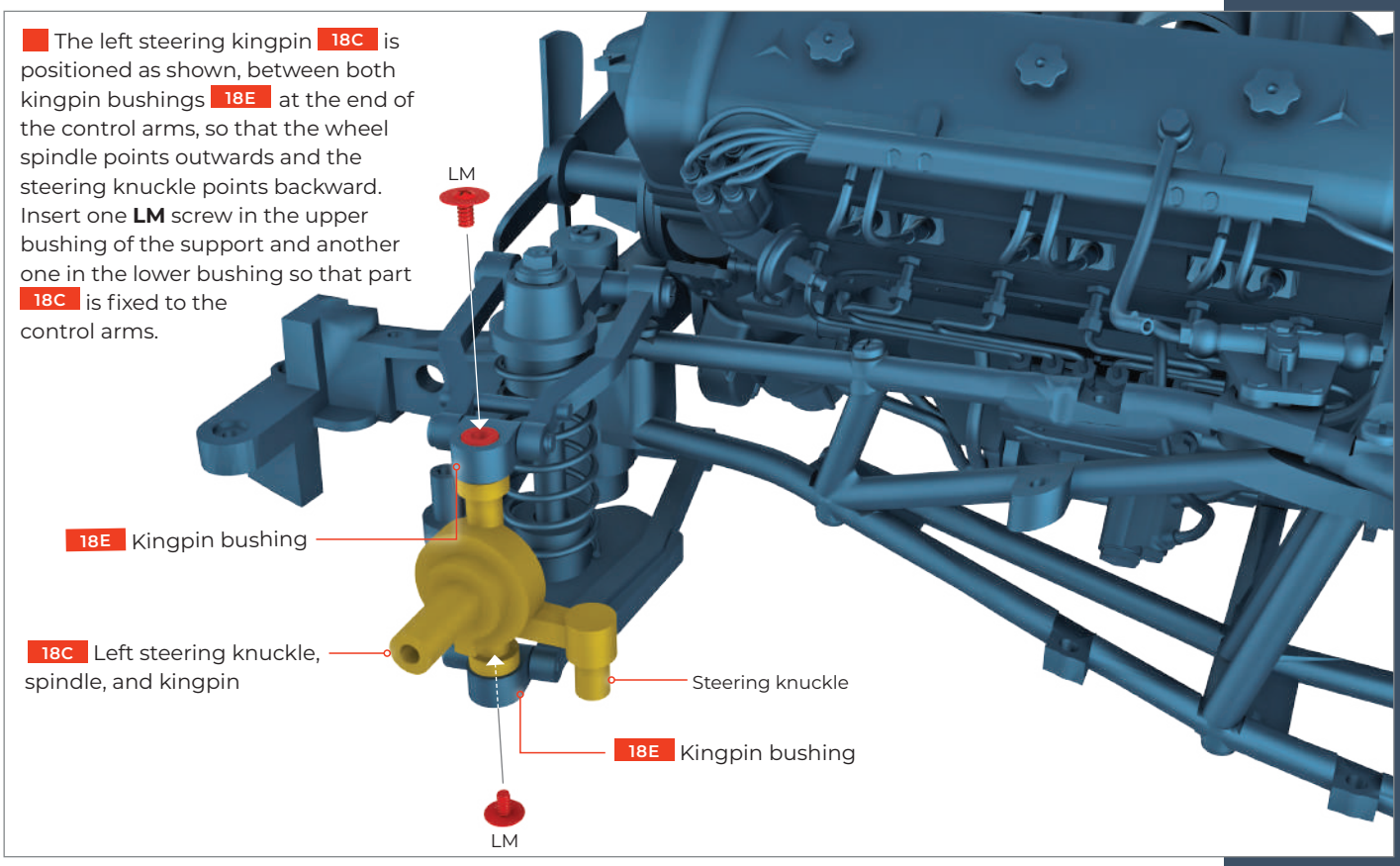
Gently press the top 18D and bottom 18A control arms together so that the shock absorber 18D is centered into the hole in the post on the spring plate of the bottom control arm 18A. The shock absorber 18D is held in place with an **LM** screw through the spring plate 18A, from below.



While tightening the LM screw, keep pressing together both suspension control arms. If needed, get help from someone or use a clamp to keep both control arms in position.

10 LEFT STEERING KNUCKLE, SPINDLE, AND KINGPIN

The left steering kingpin 18C is positioned as shown, between both kingpin bushings 18E at the end of the control arms, so that the wheel spindle points outwards and the steering knuckle points backward. Insert one **LM** screw in the upper bushing of the support and another one in the lower bushing so that part 18C is fixed to the control arms.



Assemble and fit the front right suspension system to the main tubular frame.

STAGE 19 – REQUIRED PARTS

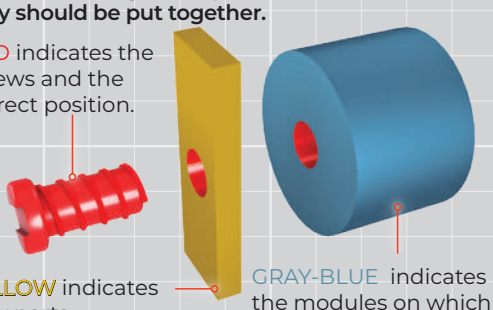
Code	Name	Quantity	Material
19A	Bottom right control arm with spring plate	1	Zinc
19B	Top right control arm	1	Zinc
19C	Right steering knuckle, spindle, and kingpin	1	Zinc
19D	Shock absorber	1	Zinc
19E	Kingpin bushing	2	Zinc
19F	Control arm bushing bottom right	1	Zinc
19G	Control arm bushing top right	1	Zinc
19H	Coil spring front suspension	1	Steel
GM	Screws 2 x 7mm	4 + 2*	Iron
KM	Screws 2 x 13mm	2 + 1*	Iron
LM	Screws 2.3 x 3 x 6.5mm	3 + 1*	Iron
MM	Screws 2.3 x 4mm	3 + 1*	Iron

* Replacement screws included

COLOR CODING

The color coding of the parts shows how they should be put together.

RED indicates the screws and the correct position.

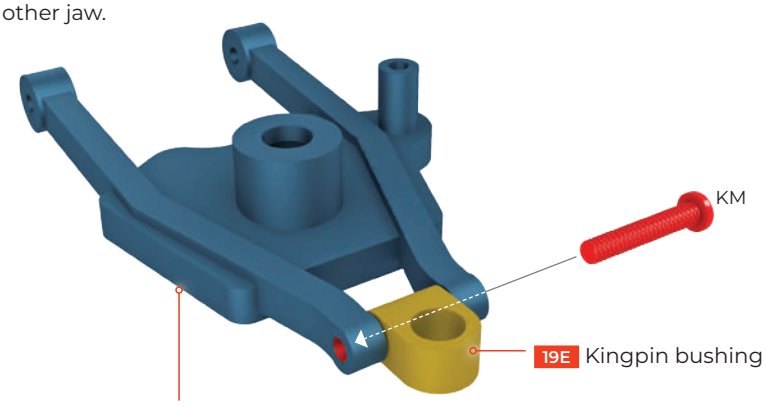


YELLOW indicates new parts.

GRAY-BLUE indicates the modules on which the new parts should be assembled.

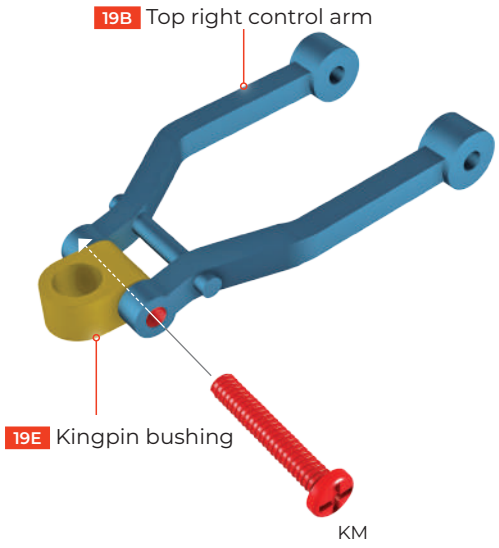
01 FITTING THE BOTTOM KINGPIN BUSHING

Fit a kingpin bushing 19E between the jaws of the bottom right control arm 19A and fix it in place with a **KM** screw. Note that the screw first slips through one side of the jaw and then threads into the other jaw.



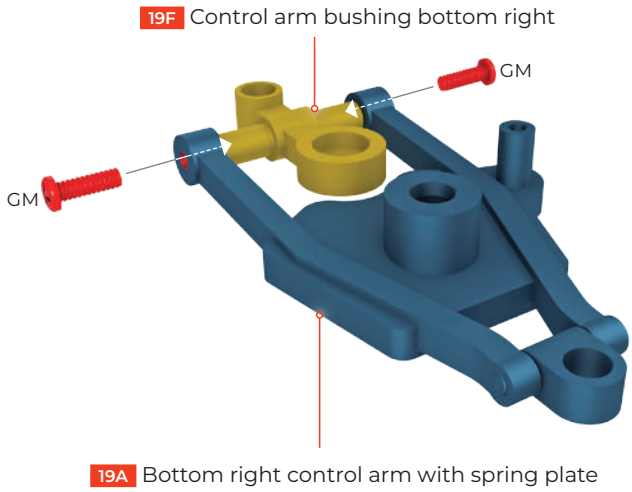
02 FITTING THE TOP KINGPIN BUSHING

Fit the other kingpin bushing between the jaws of the top right control arm 19B and fix it in place with a **KM** screw in the same way as before.



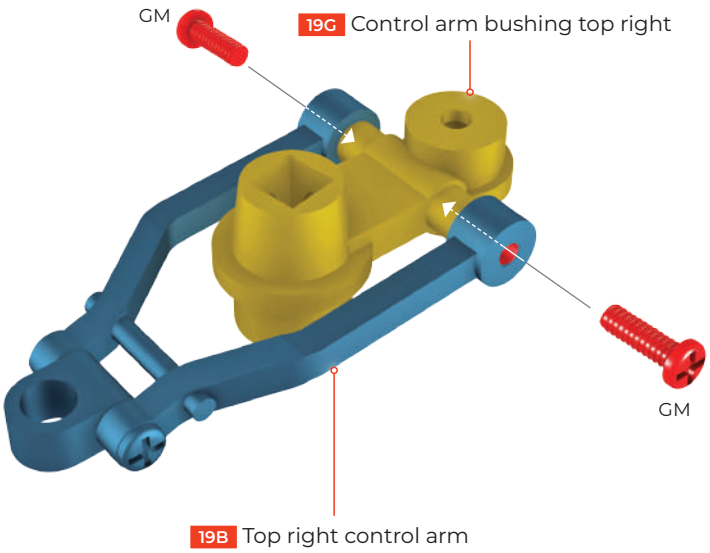
03 FITTING THE BOTTOM RIGHT CONTROL ARM

Fit the bottom-right control arm bushing 19F between the jaws of the bottom-right control arm 19A, positioned as shown. Fix it in place with two **GM** screws. Do not over-tighten the screws.



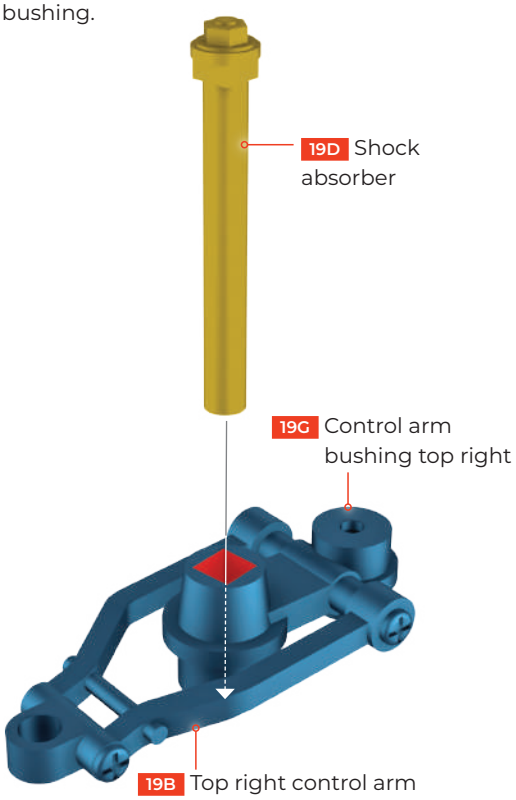
04 FITTING THE TOP RIGHT CONTROL ARM BUSHING

Fit the top-right control arm bushing 19G between the jaws of the top-right control arm 19B, positioned as shown. Fix it in place with two **GM** screws. Do not over-tighten the screws.



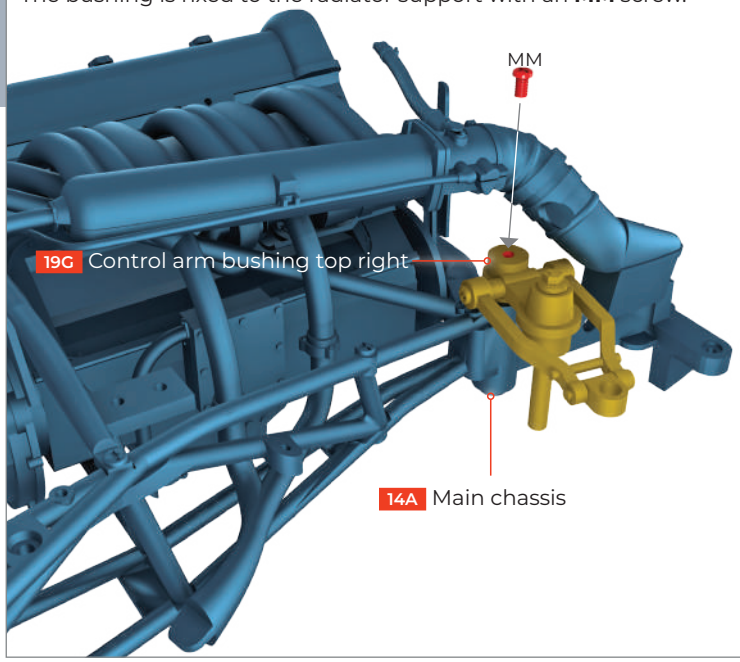
05 FITTING THE SHOCK ABSORBER

Hold the shock absorber 19D as shown and insert the round end through the square hole in the center of the top-right control arm bushing 19G until the square part of the shock absorber fits snugly into the square hole of the bushing.



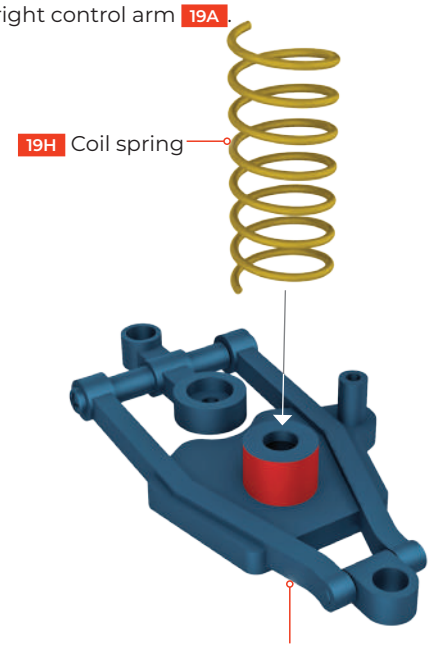
06 FITTING THE CONTROL ARM TO THE CHASSIS

The hole of the top right control arm bushing 19G fits over the pin at the end of the right-front radiator support (part of the main chassis 14A). It is approximately 3/4in to the right of the fan pulley 11C. The bushing is fixed to the radiator support with an **MM** screw.



07 FITTING THE COIL SPRING

The coil spring 19H is located as shown onto the center housing of the spring plate on the bottom-right control arm 19A.



08 FITTING THE SUSPENSION ONTO THE MAIN CHASSIS

The assembled parts in step 07 are presented up to the top right control arm bushing 19G so that the shock absorber 19D goes inside the coil spring 19H, as indicated in the figure. Next, the bottom control arm bushing 19F is inserted onto the two studs on the underside of the front-right radiator support on the main chassis 14A. Fix the assembly in place with two **MM** screws (figure 1).

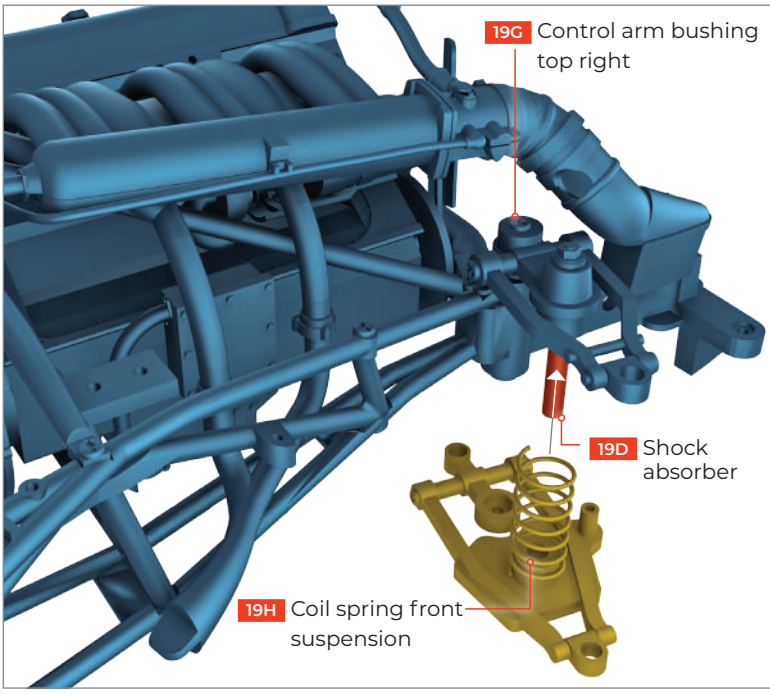
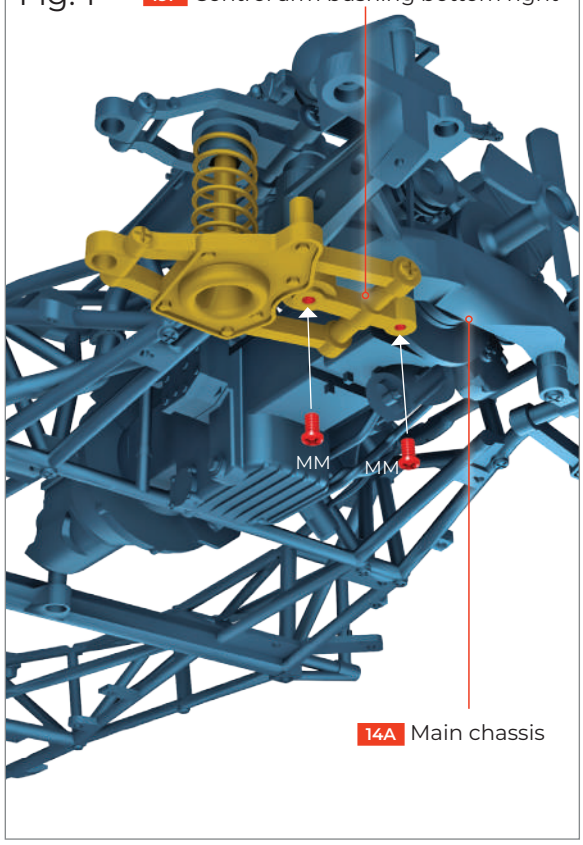
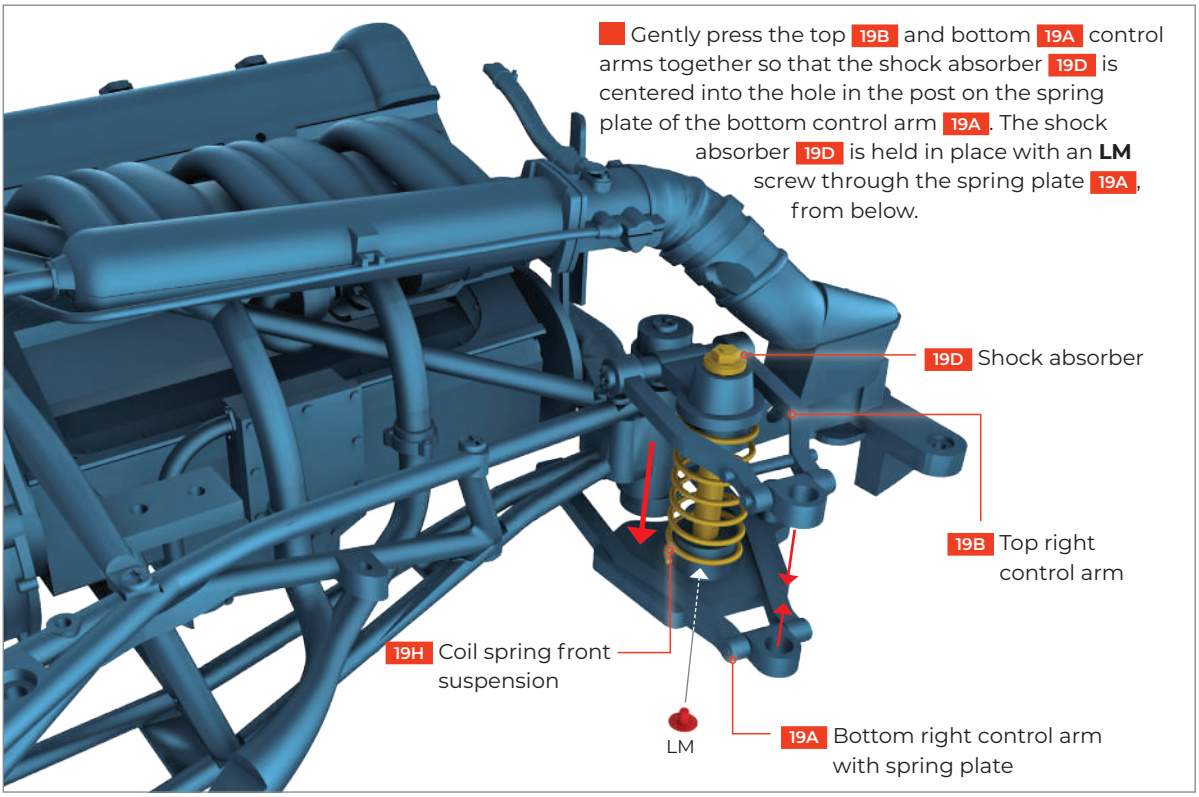


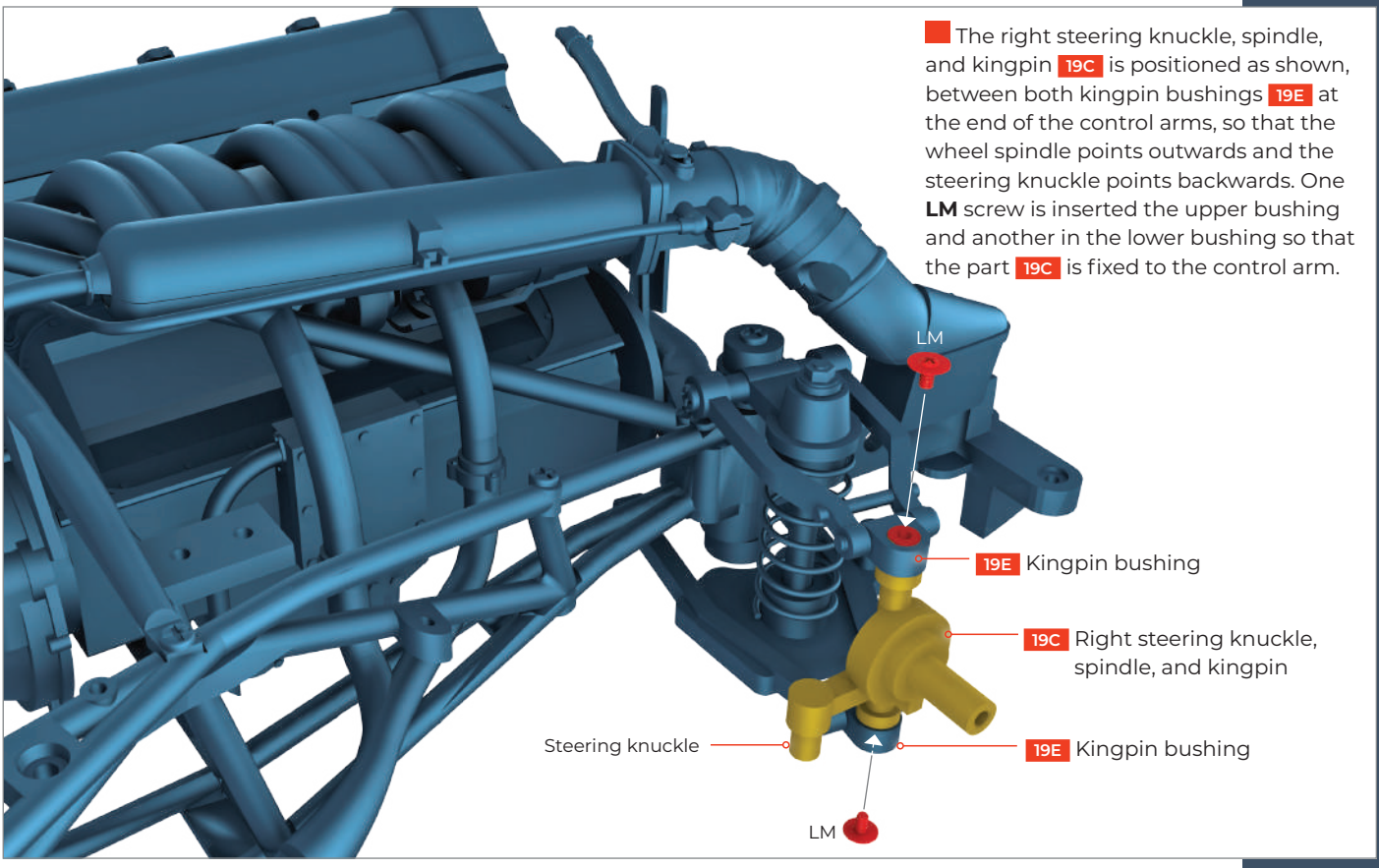
Fig. 1



09 FIXING THE COIL SPRING IN PLACE



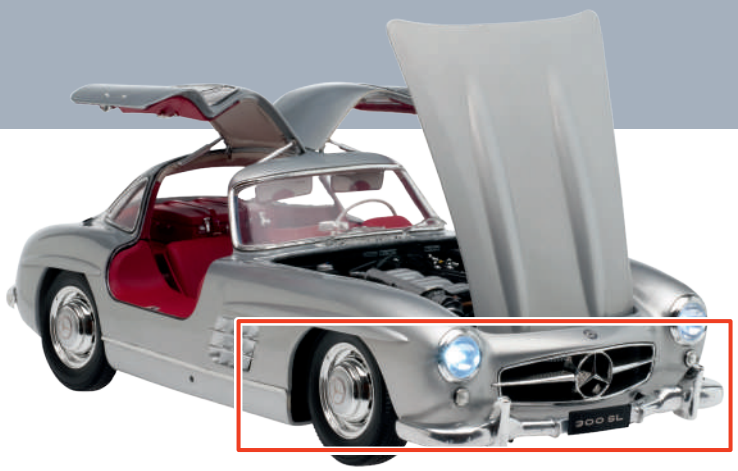
10 FITTING THE RIGHT STEERING KNUCKLE AND AXLE



While tightening the LM screw, keep both suspension control arms compressed towards each other. It might be useful to get help from another person. You can also use a clamp to keep both control arms compressed in the correct position.

STAGE 20: THE STEERING TIE ROD

Fit the steering tie rod between the left and right suspension systems and fit the front anti-sway bar to the main tubular frame.

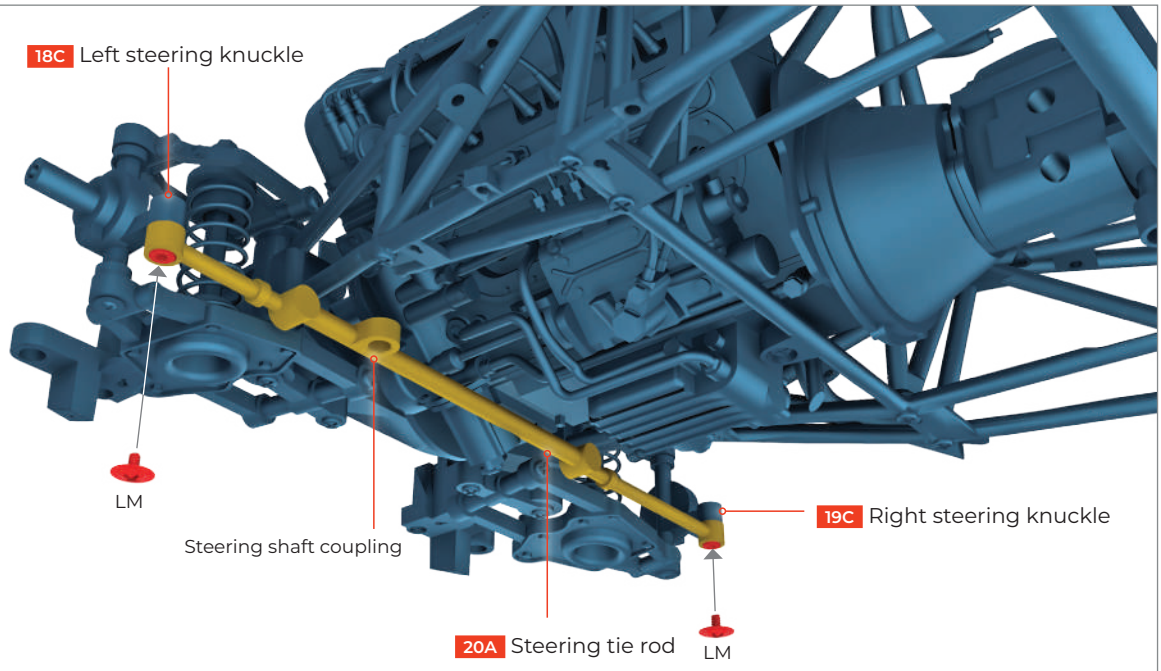


STAGE 20 – REQUIRED PARTS

Code	Name	Quantity	Material
20A	Steering tie rod	1	Zinc
20B	Front anti-sway bar	1	ABS
LM	Screws 2.3 x 3 x 6.5mm	2 + 1*	Iron
HP	Screws 2 x 4mm	2 + 1*	Iron

*** Replacement screws included**

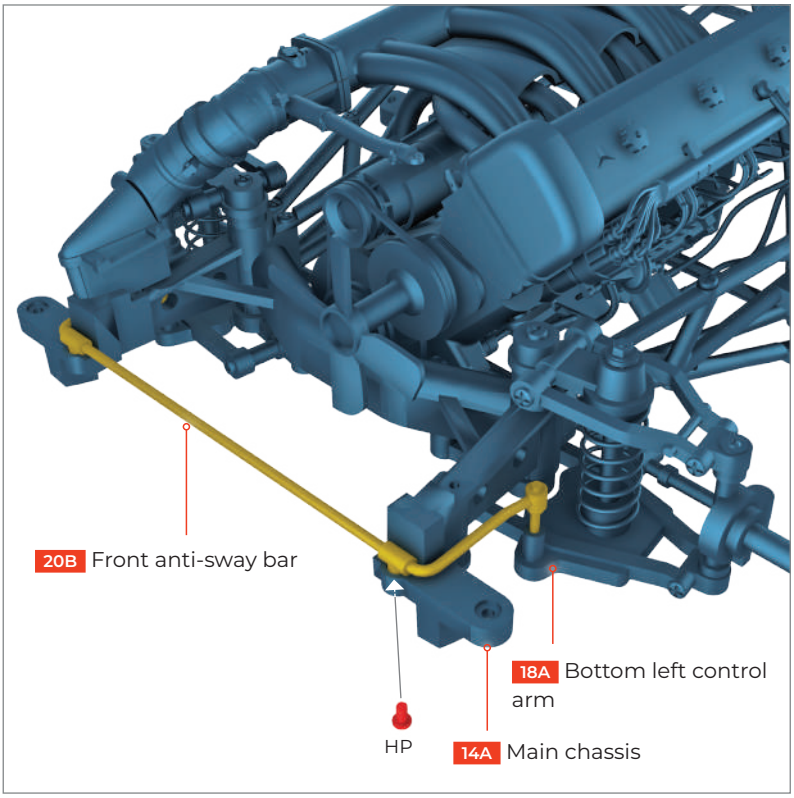
01 FITTING THE STEERING TIE ROD



Position the steering tie rod 20A across the underside of the chassis and underneath the front of the engine. Ensure that the offset coupling for the steering shaft is on the left and points backwards. Fit the left end of the tie rod onto the shaft of the left steering knuckle 18C and fix it in place with an **LM** screw. Fit the right end of the tie rod on to the shaft of the right steering knuckle 19C and fix it in place with an **LM** screw.

If you move the steering tie rod from side to side, the wheel axles will steer left and right.

02 FITTING THE FRONT ANTI-SWAY BAR



Lay the front anti-sway bar 20B across the front of the chassis in the position shown. Insert the left downward-pointing pin at the end of the bar into the socket in the front of the bottom left control arm 18A. Then fix the pin of the front left support bracket onto the main chassis 14A with an **HP** screw. Insert the right pin into the socket of the bottom right control arm 19A and fix onto the main chassis 14A with an **HP** screw (figure 1).

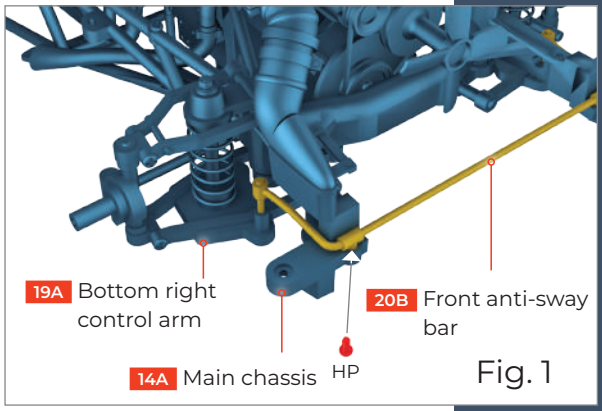


Fig. 1

Fit the tire on to the front right wheel rim, attach the brake drum and support plate, fix the wheel onto the spindle and fit the hub cap. Then repeat for the front left wheel that was supplied and partly assembled in stage 2.

STAGE 21 – REQUIRED PARTS

Code	Name	Quantity	Material
21A	Front right tire	1	PVC
21B	Front right rim	1	Zinc
21C	Brake drum	1	ABS
21D	Support plate and brake pipe	1	ABS and PVC
21E	Hub cap	1	ABS
21F	Washer	2	ABS
MM	Screws 2.3 x 4mm	4+2*	Iron

* Replacement screws included

21A

21B

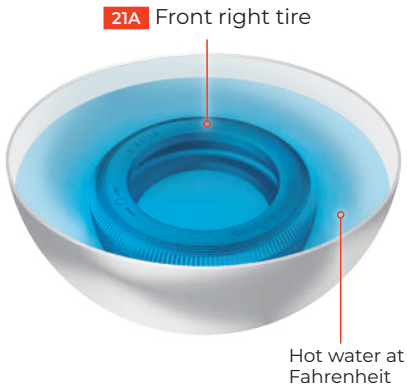
21E

21C

21D

21F

01 PREPARATION OF THE TIRE

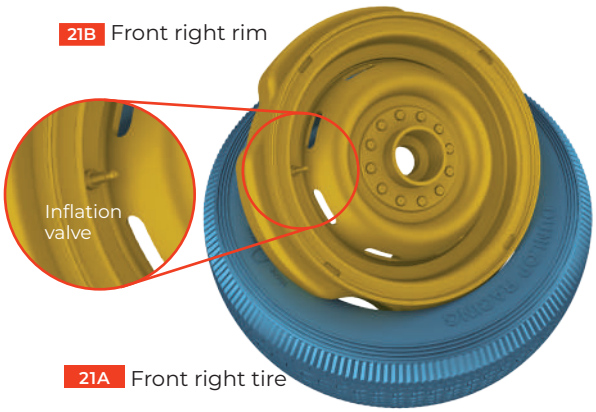


The front-right tire 21A is difficult to bend at room temperature, and it is hard to press onto the rim. We recommended you place it in a container with hot water (approx. 170° F / 75°C) for a few minutes. When warmed up it will soften and can easily be fitted.

Warning!
Take care when handling hot water and the tire to avoid scalding yourself.

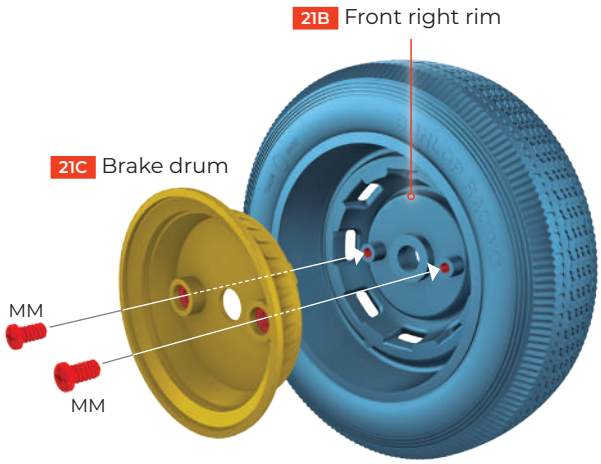
02 FITTING THE TIRE ON TO THE RIM

Place the rim 21B inside the 21A tire as shown in the picture and carefully press the sides to seat it onto the the rim so that it is evenly distributed. ATTENTION: while fitting the tire DO NOT PRESS the inflation valve as it is very fragile.



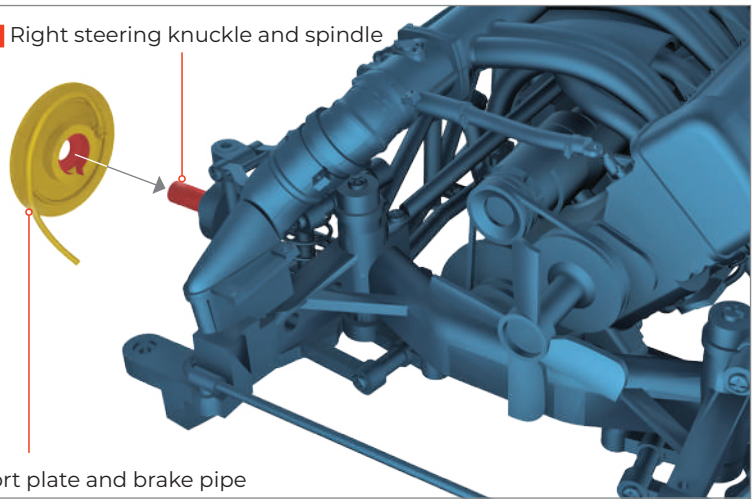
03 ASSEMBLING THE BRAKE DRUM

Place the brake drum 21C on the inside face of the rim 21B as shown in the image. To fix it in place, use two **MM** screws.



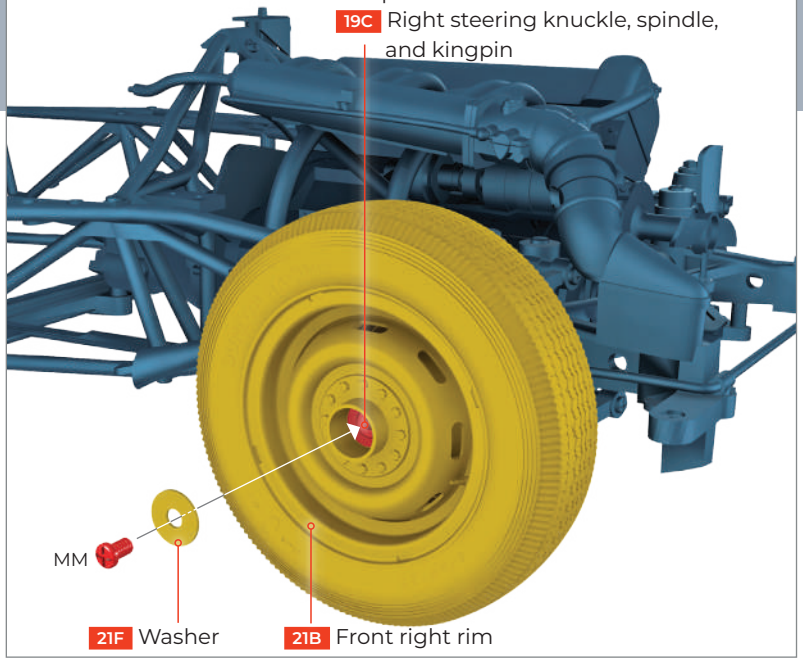
04 FITTING THE RIGHT BRAKE SUPPORT PLATE

Fit the right brake support plate and brake pipe 21D on to the right steering knuckle and spindle 19C, ensuring that the slot in the rim of the brake support plate is located over the notch below the spindle. The brake pipe will be connected in a later stage, so leave it loose for now.



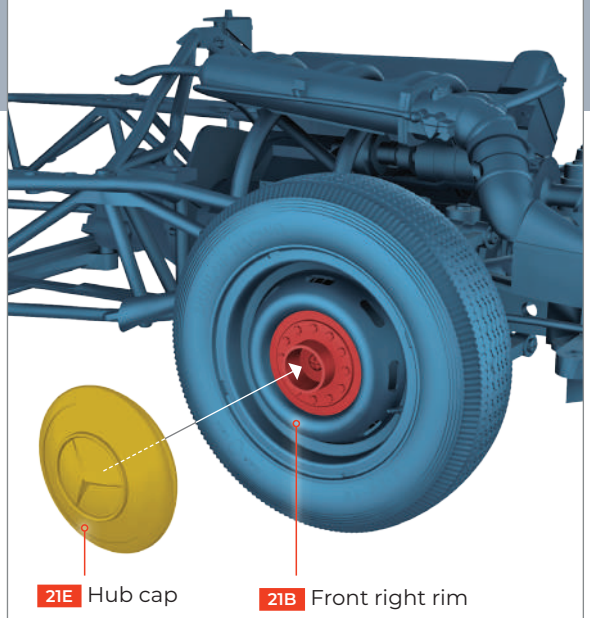
05 FITTING THE RIGHT WHEEL

Fit the complete wheel rim, tire and brake drum assembly onto the right spindle 19C. Place a washer 21F over the spindle where it protrudes through the rim 21B, then fix the rim firmly in place with an **MM** screw into the end of the spindle.



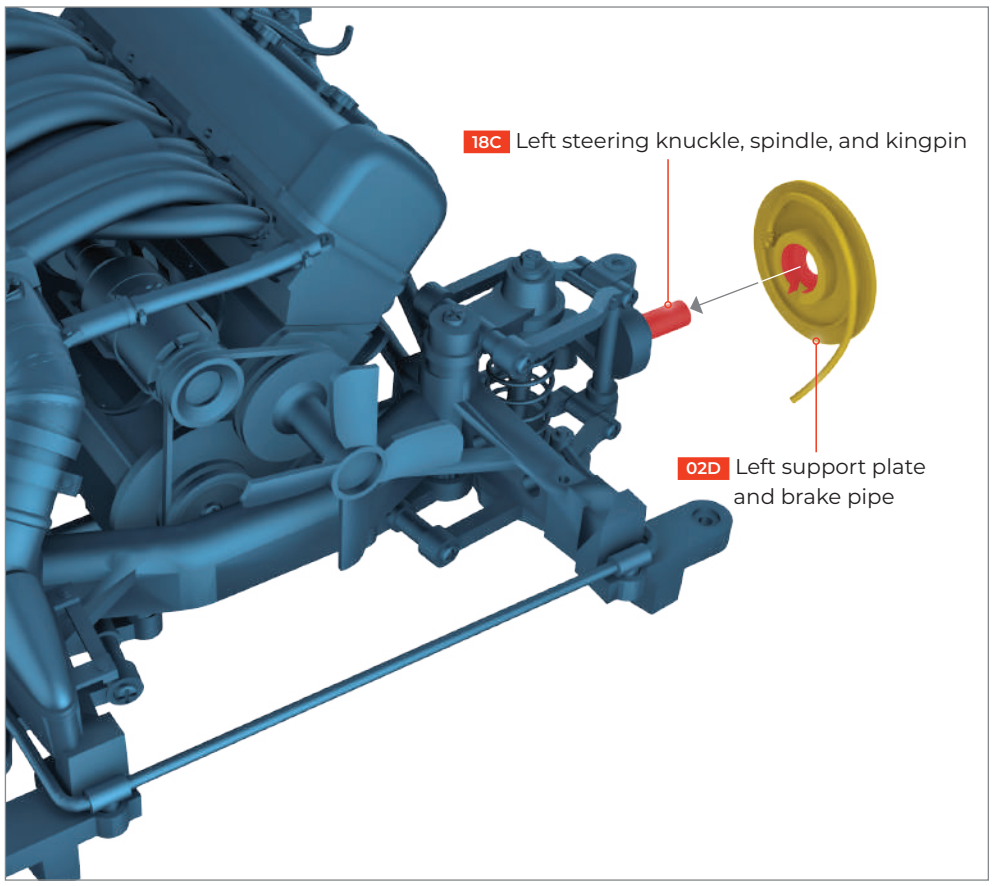
06 FITTING THE RIGHT HUB CAP

Push the hub cap 21E firmly onto the center of the front right wheel rim 21B.

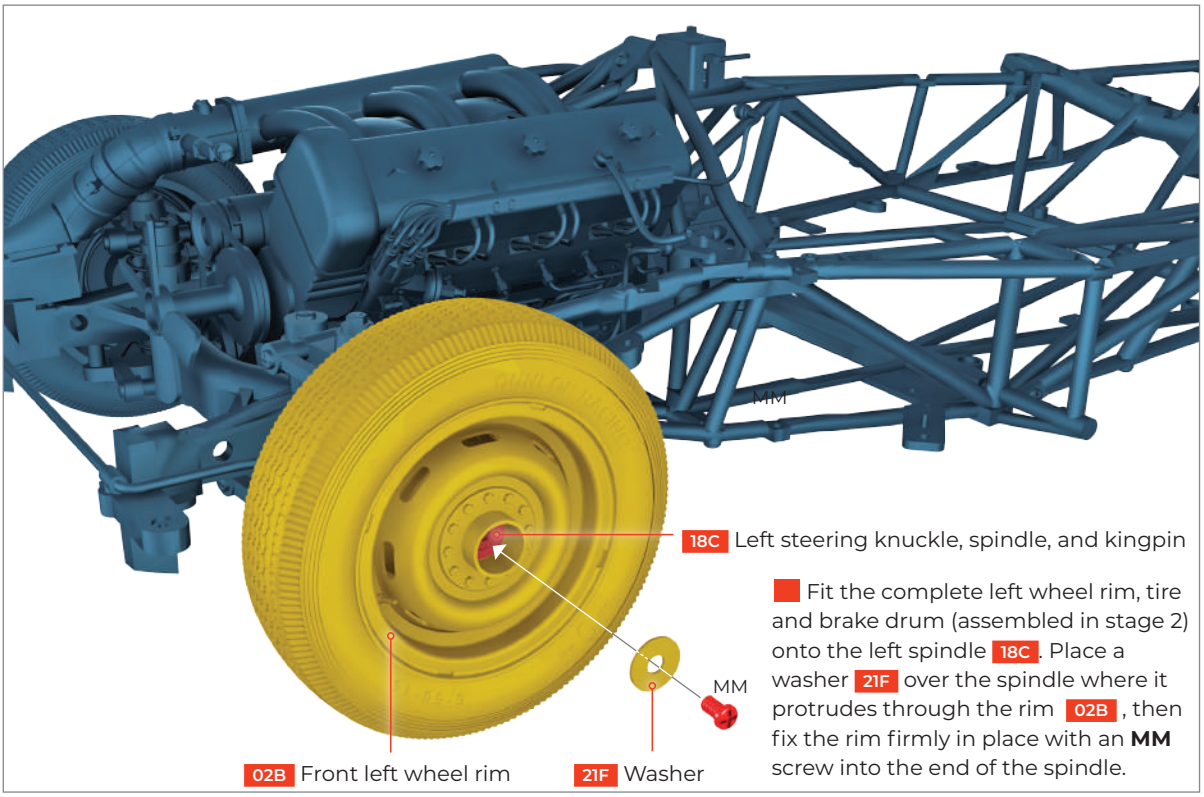


07 FITTING THE LEFT BRAKE SUPPORT PLATE

Fit the left brake support plate and brake pipe 02D (supplied with magazine 1) on to the left steering knuckle and spindle 18C, ensuring that the slot in the rim of the brake support plate is located over the notch below the spindle. The brake pipe will be connected in a later stage, so leave it loose for now.



08 FITTING THE LEFT WHEEL



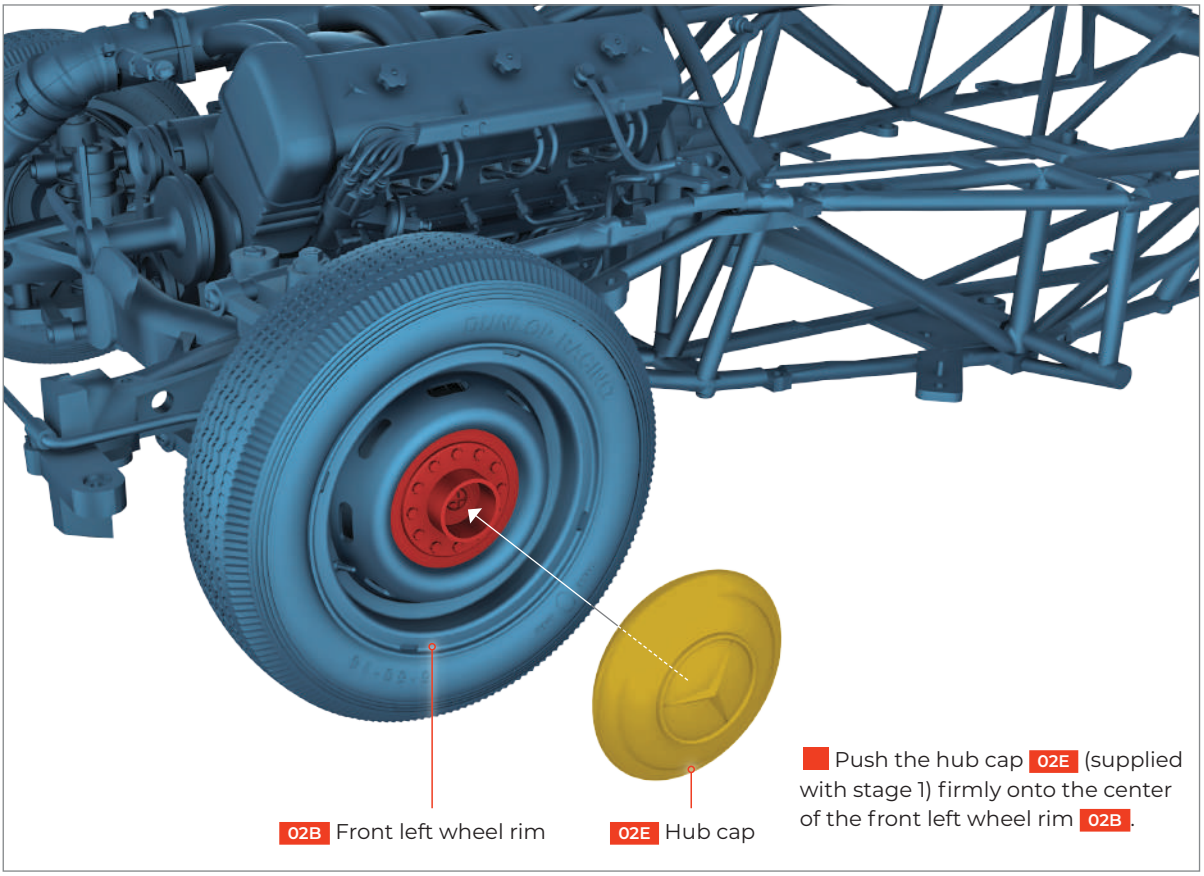
18C Left steering knuckle, spindle, and kingpin

02B Front left wheel rim

21F Washer

Fit the complete left wheel rim, tire and brake drum (assembled in stage 2) onto the left spindle 18C. Place a washer 21F over the spindle where it protrudes through the rim 02B, then fix the rim firmly in place with an **MM** screw into the end of the spindle.

09 FITTING THE LEFT HUB CAP



02B Front left wheel rim

02E Hub cap

Push the hub cap 02E (supplied with stage 1) firmly onto the center of the front left wheel rim 02B.

Fit the rear left and right suspension springs, support rods and axles to the main chassis.

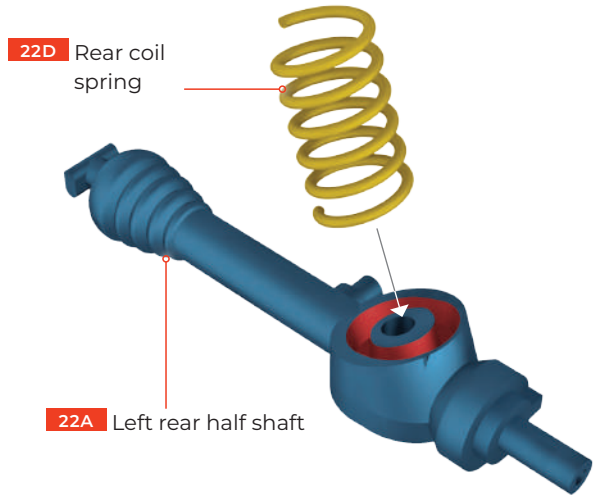
STAGE 22 – REQUIRED PARTS

Code	Name	Quantity	Material
22A	Left rear half shaft	1	Zinc
22B	Right rear half shaft	1	Zinc
22C	Spring damper	2	Zinc
22D	Rear coil spring	2	Steel
CM	Screws 2 x 4mm	2 + 1*	Iron

* Replacement screws included

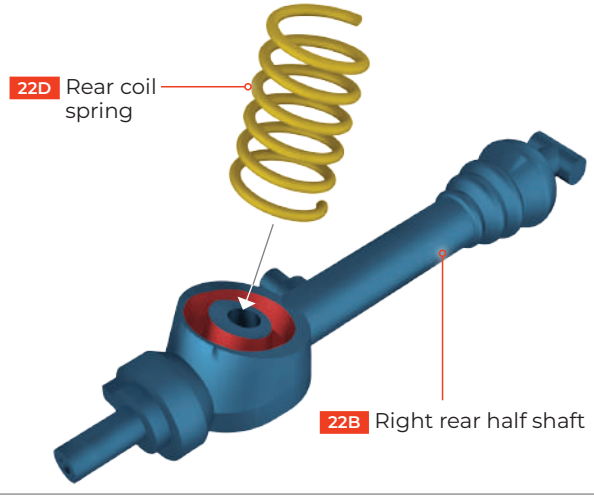
01 FITTING THE LEFT REAR COIL SPRING

Fit one of the rear coil springs 22D into the ringed recess in the left rear half shaft 22A. Twist the spring as you push it into the recess to ensure it seats fully.



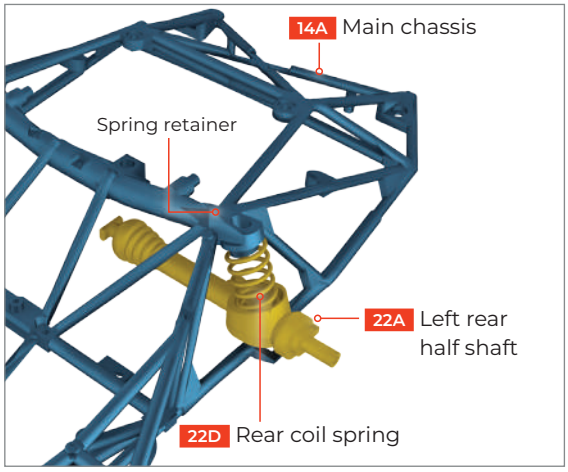
02 FITTING THE RIGHT REAR COIL SPRING

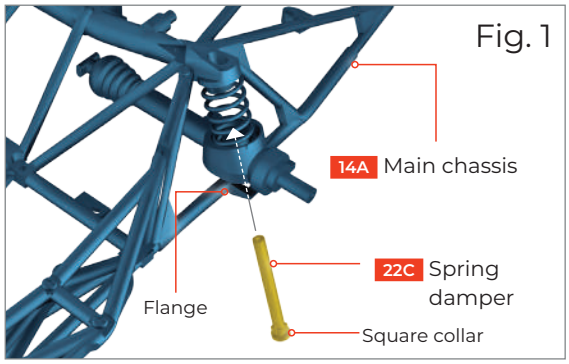
Fit the remaining rear coil spring 22D into the ringed recess in the right rear half shaft 22B. Twist the spring as you push it into the recess to ensure it seats fully.

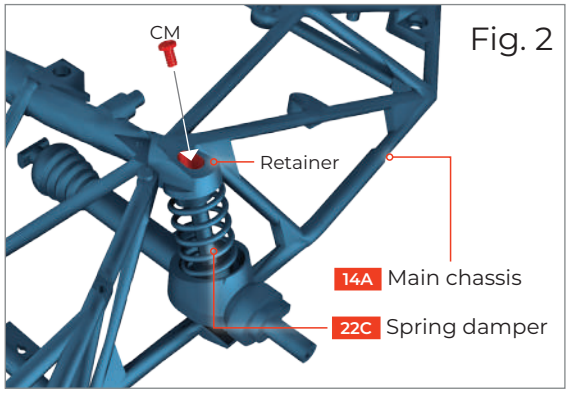


03 FITTING THE LEFT REAR HALF SHAFT TO THE CHASSIS

Locate the top of the coil spring 22D into the spring retainer on the main chassis 14A in the position shown. Then slide a spring damper 22C up through the square hole in the flange on the underside of the main chassis, through the half shaft 22A, through the spring 22D and up into the spring retainer. Ensure that the square collar at the base of the damper rod locks into the square hole in the flange (figure 1). Fix the damper in place with a **CM** screw from above, through the retainer (figure 2).

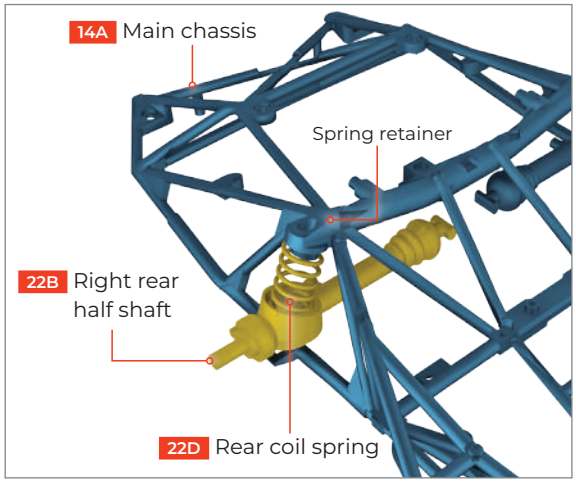


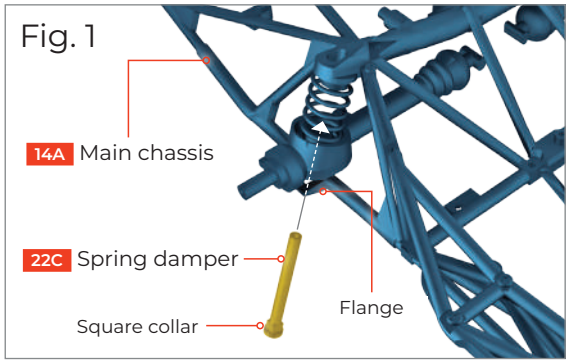


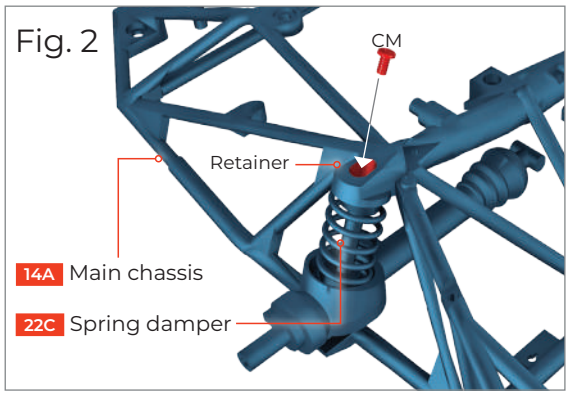


04 FITTING THE RIGHT REAR HALF SHAFT, COIL SPRING AND SPRING DAMPER

Locate the top of the coil spring 22D into the spring retainer on the main chassis 14A in the position shown. Then slide a spring damper 22C up through the square hole in the flange on the underside of the main chassis, through the half shaft 22B, through the spring 22D and up into the spring retainer. Ensure that the square collar at the base of the damper rod locks into the square hole in the flange (figure 1). Fix the damper in place with a **CM** screw from above, through the retainer (figure 2).







When fitting the left and right axle, ensure that the axle stub points outwards.

Assemble the universal joint and fit it to the differential, then connect the assembly to the rear half-shafts and the chassis.

STAGE 23 – REQUIRED PARTS

Code	Name	Quantity	Material
23A	Differential housing (bottom)	1	Zinc
23B	Differential housing (top)	1	Zinc
23C	Universal joint fork	1	Zinc
23D	Universal joint block	1	Zinc
CM	Screws 2 x 4mm	1 + 1*	Iron
GM	Screws 2 x 7mm	1 + 1*	Iron
OM	Screws 2.3 x 5mm	5 + 2*	Iron

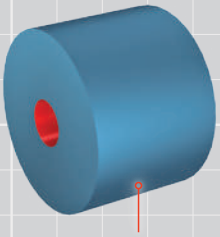
* Replacement screws included

COLOR CODING

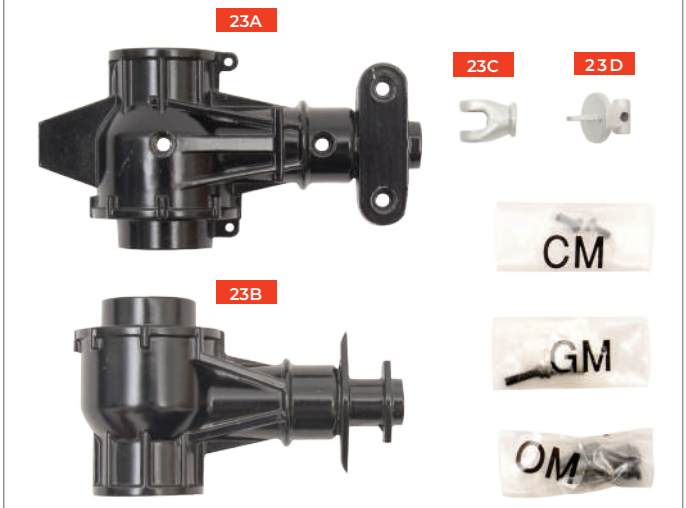
The color coding of the parts shows how they should be put together.

RED indicates the screws and the correct position.

YELLOW indicates new parts.

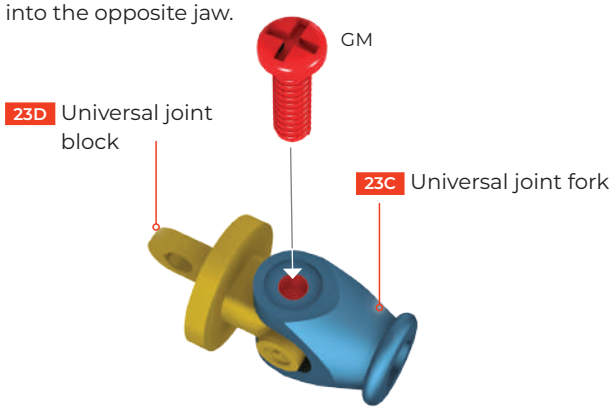


GRAY-BLUE indicates the modules on which the new parts should be assembled.



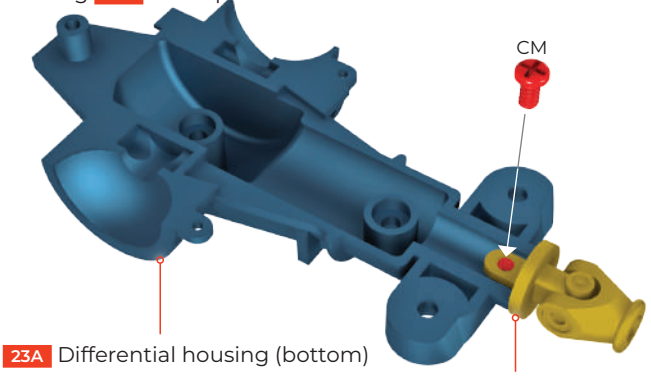
01 ASSEMBLING THE UNIVERSAL JOINT

Fit the universal joint block 23D into the jaws of the universal joint fork 23C. Fix in place with a **GM** screw. Note that the screw slips through one jaw of the fork and threads into the opposite jaw.



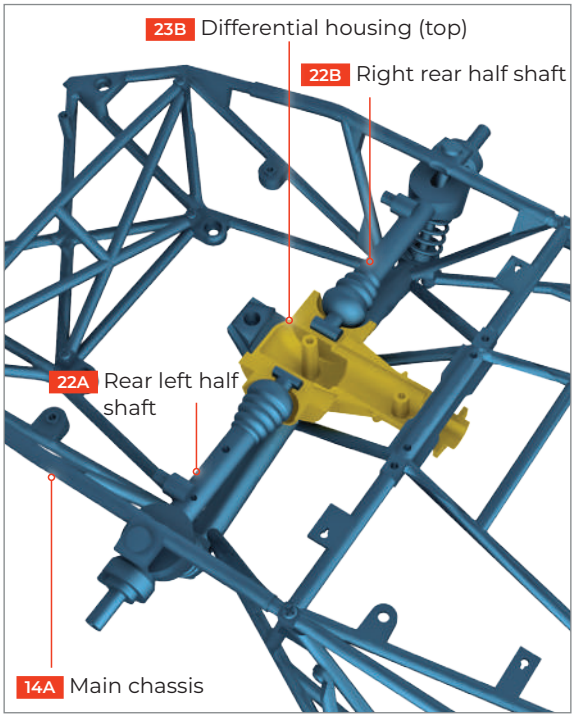
02 CONNECTING THE UNIVERSAL JOINT

Fit the tab on the universal joint block 23D over the pin at the front end of the bottom part of the differential housing 23A. Fix in place with a **CM** screw.



03 ASSEMBLING AND FITTING THE DIFFERENTIAL

With the model upside down, position the top part of the differential housing 23B into the main chassis 14A so that the couplings at the end of the rear left half shaft 22A and the rear right half shaft 22B fit into the recesses in the differential housing. Then position the bottom differential housing 23A over the upper housing 23B so that the two halves clamp the half shaft couplings in place. Fix the housings together with two **OM** screws (figure 1). Now turn the model upright. Fix the rear of the bottom differential housing 23A to the support bracket on the main chassis 14A with an **OM** screw (figure 2). Fix the front end of the bottom differential housing 23A to the main chassis 14A with two **OM** screws (figure 3).



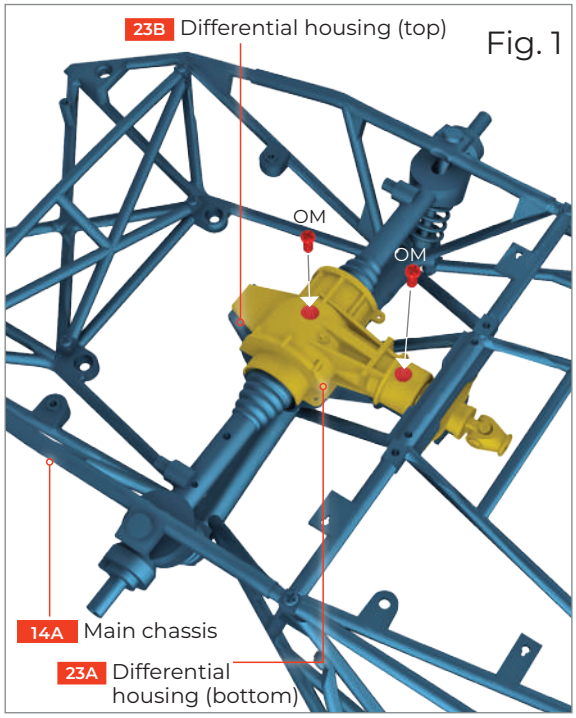


Fig. 1

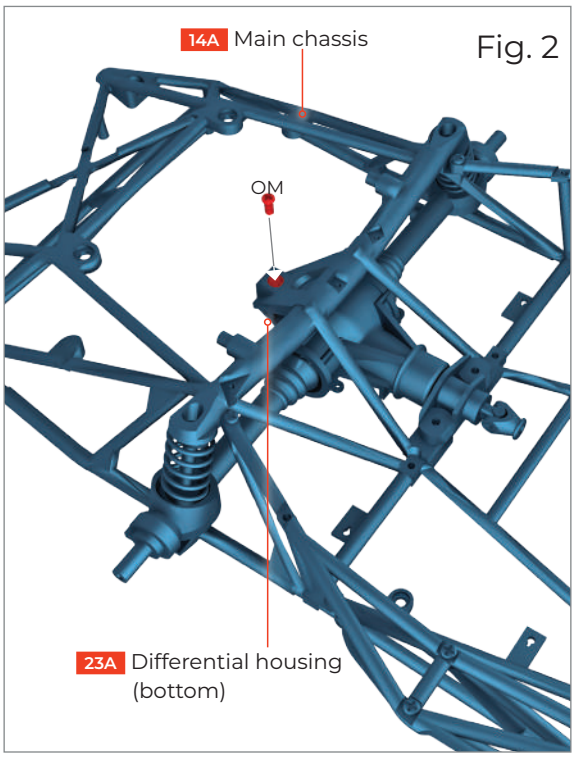


Fig. 2

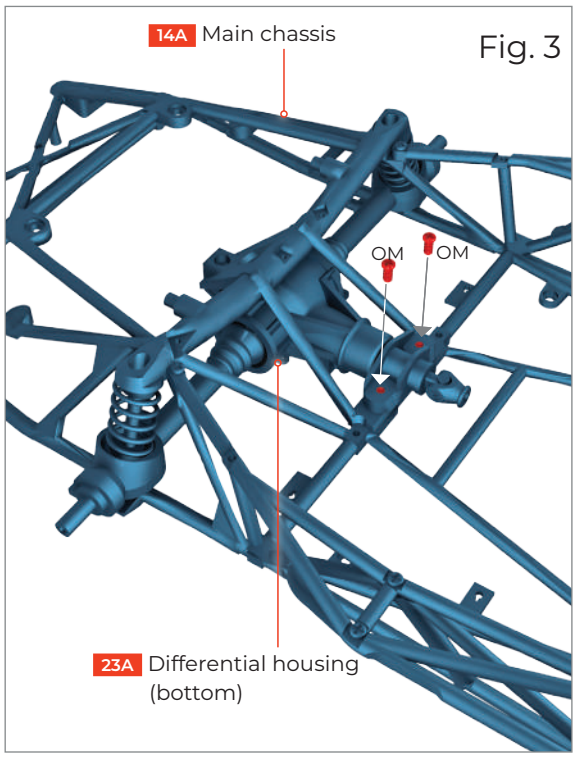


Fig. 3

When assembling the model upside down, work on a pad of soft cloth to protect the delicate engine parts.