

# Instruction Manual

40<sup>TH</sup>  
ANNIVERSARY  
**VIPER**  
**989**



**SERPENT**



## INTRODUCTION

The Serpent Viper 989 is designed to be a world champion, while still being easy to use, assemble, and set up. The Serpent Viper 989 offers state of the art specifications and leads the way in chassis design, using all the knowledge we have from 1/8 scale racing into this design too. Continuously pushing the performance envelope, Serpent's engineers have added new and innovative features that help take your Serpent Viper 989 into the winner's circle.

Designed by Michael Salven

Team Serpent  
Multiple World Champions

## INSTRUCTIONS

Serpent's long tradition of excellence extends to the instruction manuals, and this instruction manual is no exception. The easy-to-follow layout is richly illustrated with 3D-rendered full-color images to make your building experience quick and easy. Following the instructions will result in a well-built, high-performance race-car that will soon be able to unleash its full potential at the racetrack. The kit includes bags, with bag numbers, which refer to the same step in the manual. Open only the indicated bag(s) per step and finish that part of the assembly. Remaining parts will be needed later on in the assembly process.

## PLASTIC PARTS

The Serpent moulded parts are very durable and hard. When assembling longer screws in new composite parts, make sure to use new hex bits in your (power) tools. Pre-threading also helps to avoid screw damage.

## SETUP

In certain assembly steps you need to make basic adjustments, which will give you a good initial setup for your Serpent Viper 989. Fine-tuning the initial setup is an essential part of building a high-performance racecar like your Serpent Viper 989.

## EXPLODED VIEWS AND PARTS LIST

The exploded views and parts lists for the Serpent Viper 989 are presented in the Reference Guide section in the back of this manual. The exploded views show all the parts of a particular assembly step along with the Serpent part number and hotlink to the Serpent website. Part numbers in orange indicates that this part is an optional. Optionals part names and numbers are showed below.

## CUSTOMER SERVICE

Serpent has made a strong effort to make this manual as complete and clear as possible. Additional info may be published in our website: [www.serpent.com](http://www.serpent.com) or you may ask your dealer or the Serpent distributor for advice, or email Serpent direct: [info@serpent.com](mailto:info@serpent.com). The Serpent Facebook, Twitter and Youtube pages give additional means of support and communications.

## SAFETY

Read and take note of the 'Read this First section' before proceeding to assemble the car-kit. This car-kit is intended for persons aged 16 or older.

## READ THIS FIRST!

- This is a highly technical hobby product, intended to be used in a safe racing environment. This car is capable of speeds in excess of 80 km/h or 50mph. Please follow these guidelines when building and operating this model.
- Parental guidance is required when the builder/user of this car is under 16.
- Follow the building instructions. If in doubt, contact your dealer or importer.
- Be sure to use the proper tools when assembling the car. Always exercise caution when using electric tools, knives and other sharp objects.
- Be careful when using liquids like lubrication oil, fuel or glue. Do not swallow.
- Follow the manufacturer's instruction in case you experience irritation after using the product.
- Be careful when operating the car. Stay away from any rotating parts such as wheels, gears and transmission. Stay away from motor, engine and exhaust pipe system or speedo during and immediately after use, as these parts may be very hot. We advise to use protective hand gloves.
- Only operate this car in a safe environment, like a special racing track or a closed parking lot. Avoid using this car on public roads, crowded places or near infants.
- Before operating this car, always check the mechanical status of the car. Also check that the transmitter and receiver frequencies correspond and are not used by any other racer at the same time. Check that the batteries of the transmitter and receiver- are fully charged.
- After use, always check all the mechanics of the car. We advise to clean the car immediately after use, and inspect the parts for wear or fractures. Replace when necessary. Do not use water, methanol, thinner or other solvents to clean the car.
- Empty the fuel tank (depending on model) if needed and disconnect the receiver battery.
- Store the car in a dry and heated place to avoid corrosion of metal parts.
- Avoid using this car in wet conditions as the water will cause corrosion on the metal parts and bearings and these parts will cease to function properly. If driven in the wet, ensure that all the electric equipment is waterproofed and after use, that all moving parts are dried immediately.

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## LINES DESCRIPTION

Each step contains a variety of numbers, lines, and symbols. The numbers represent the order in which the parts should be assembled. The lines are described below.



Step number; the order in which you should assemble the indicated parts



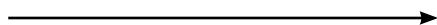
Length after assembly



Assembly path of one item into another



Group of items (within lines) should be assembled first



Direction the item should be moved



Glue one item to another



Connect one item to another



Gap between two items



Press/Insert one item into another

## ICONS DESCRIPTION

Each step contains a variety of symbols described below.



Carefull, read and check very well.



Apply a small amount of cyano glue. Use wear protection for eyes and hands.



Detail view to explain assembly or order of parts better.



Default set-up: This symbol indicates the default setup.



Grease: apply a small amount of grease to the parts shown.



Silicone grease: apply a small amount of grease to the parts shown.



Thread lock: apply a small amount on the parts shown. Before to apply the threadlock, make sure to degrease the parts very well, as otherwise the threadlock will not work.



Silicone oil: use the indicated silicone oil for the shocks and differentials.



Oil: apply a small amount of oil to the parts shown.



Left and right parts should be assembled in the same way.



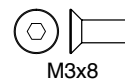
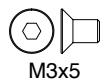
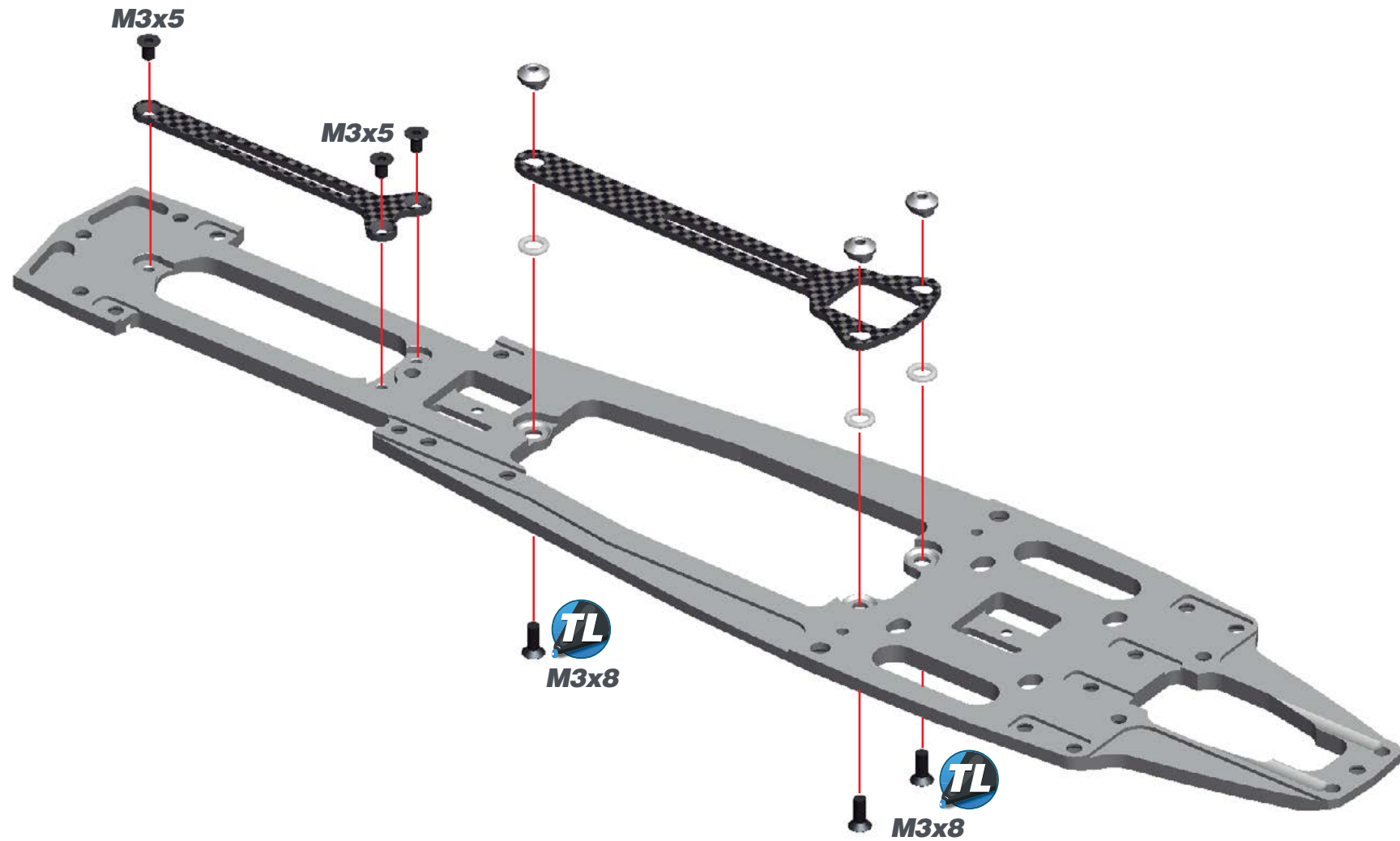
Parts or items not included in the kit.



Optional part, not standard in the kit.

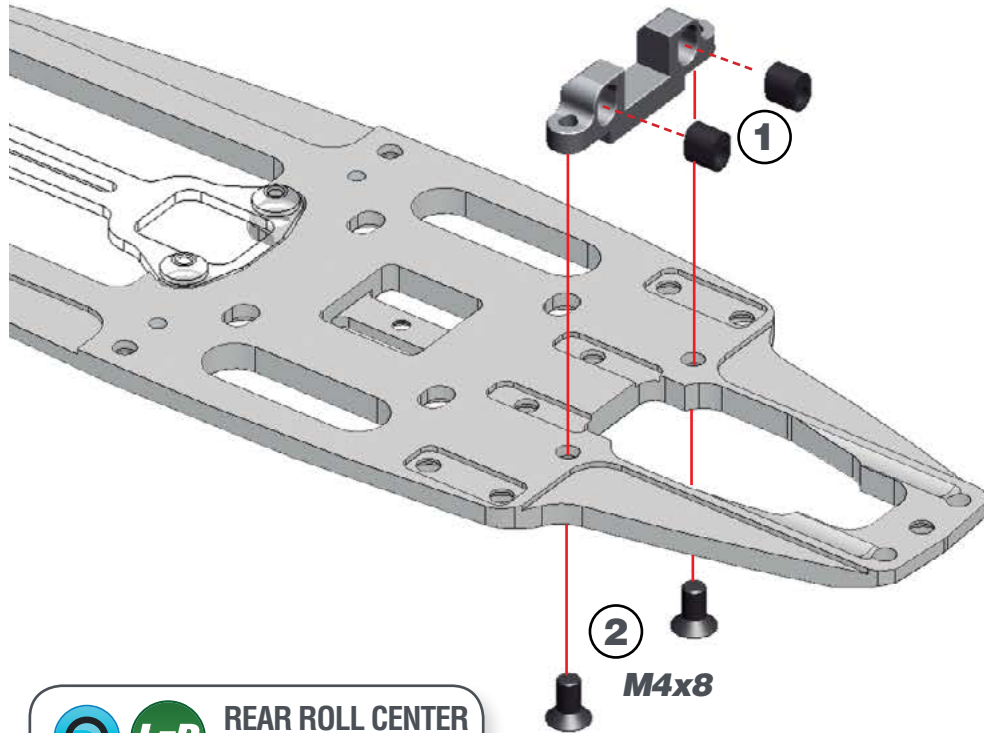
## STEP 1

BAG 1



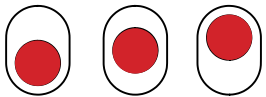


## STEP 2

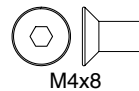


L=R

REAR ROLL CENTER  
INSERTS CHART

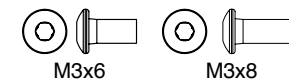
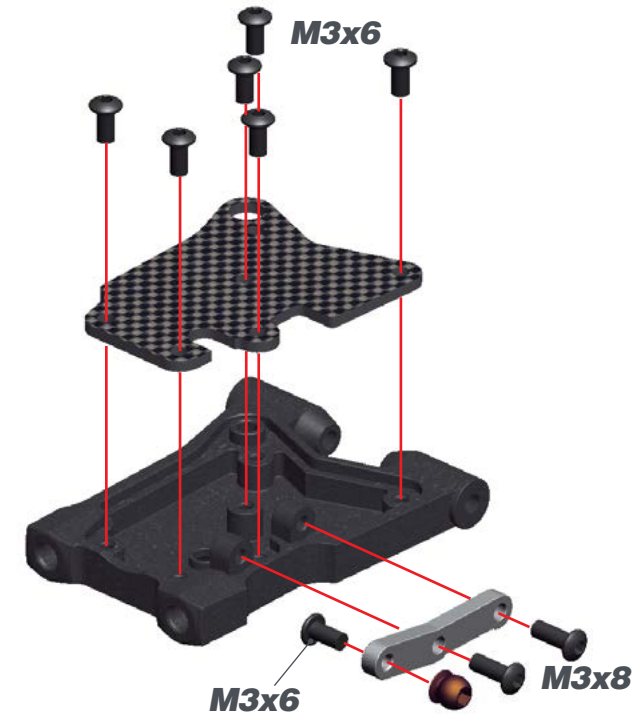


DEF.  
SETUP



## STEP 3

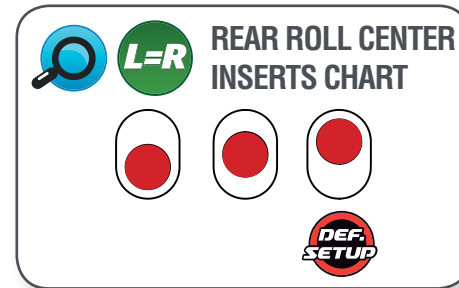
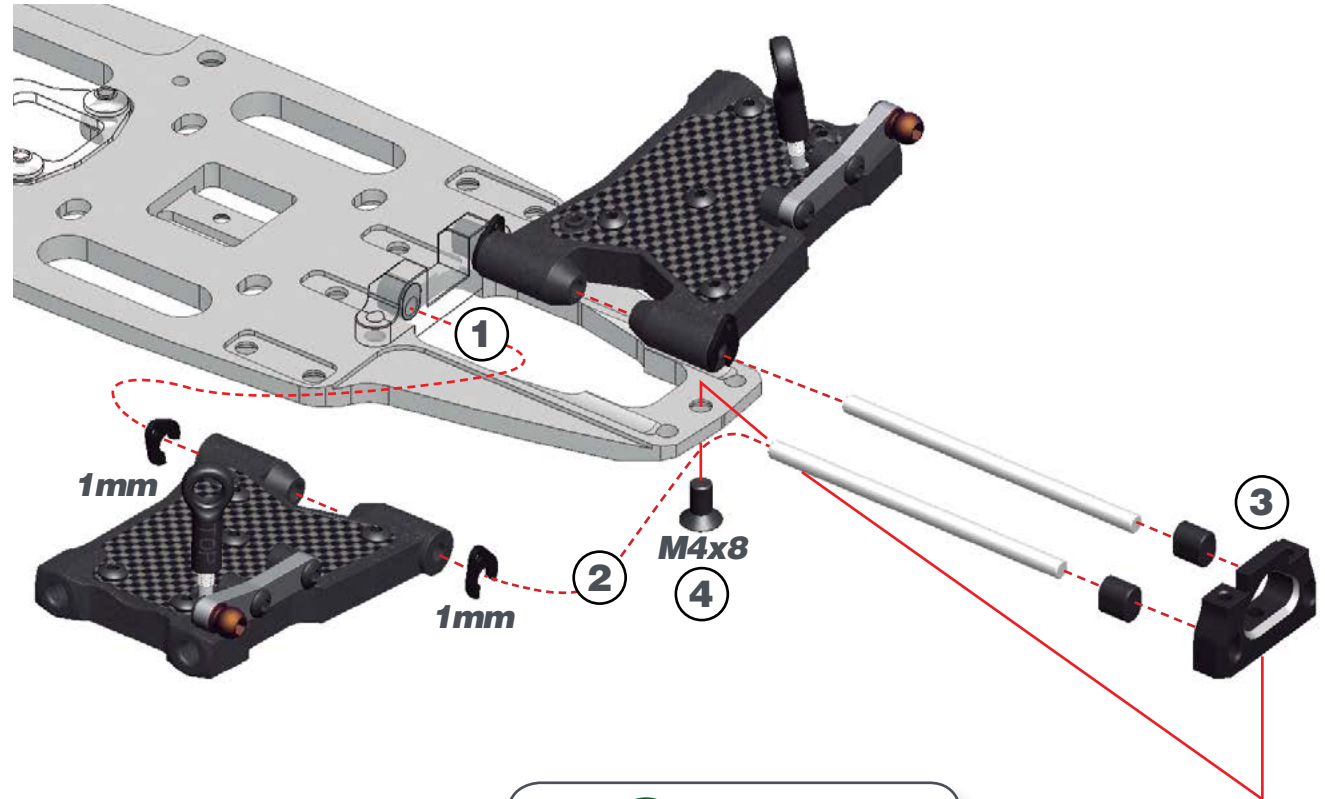
L=R



## STEP 4



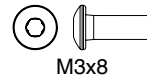
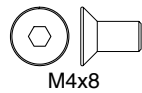
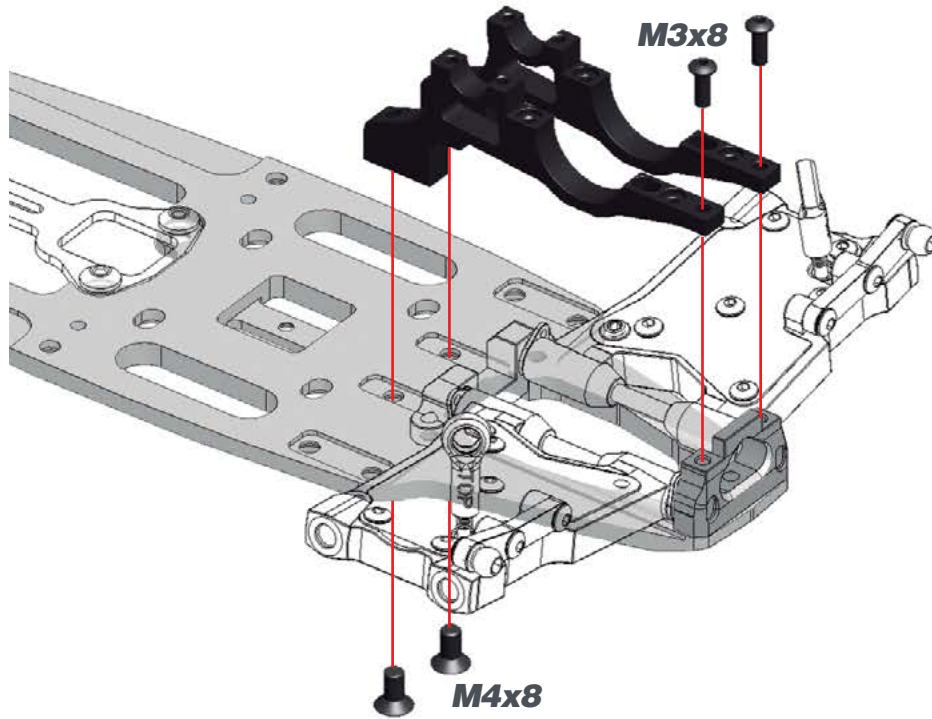
## STEP 5



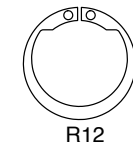
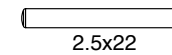
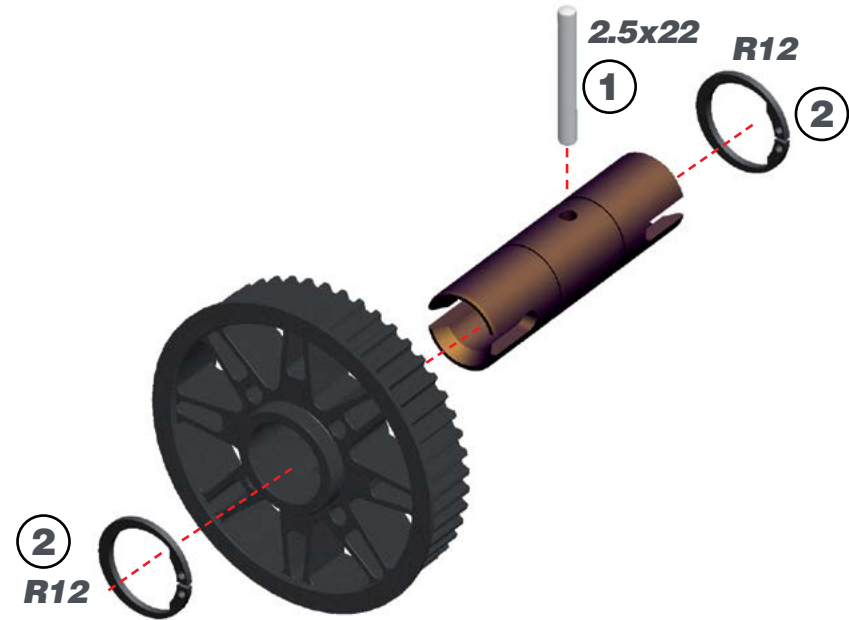


# STEP 6

BAG 2



# STEP 7



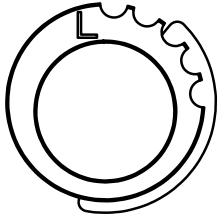
## STEP 8



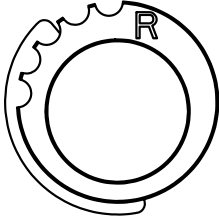
### REAR SOLID AXLE EXCENTERS

Note that the rear solid axle excenters are not symmetrical and are marked with L (=left) and R (=right).

LEFT

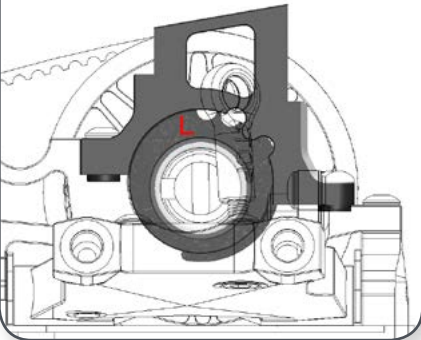


RIGHT



### REAR BELT TENSION

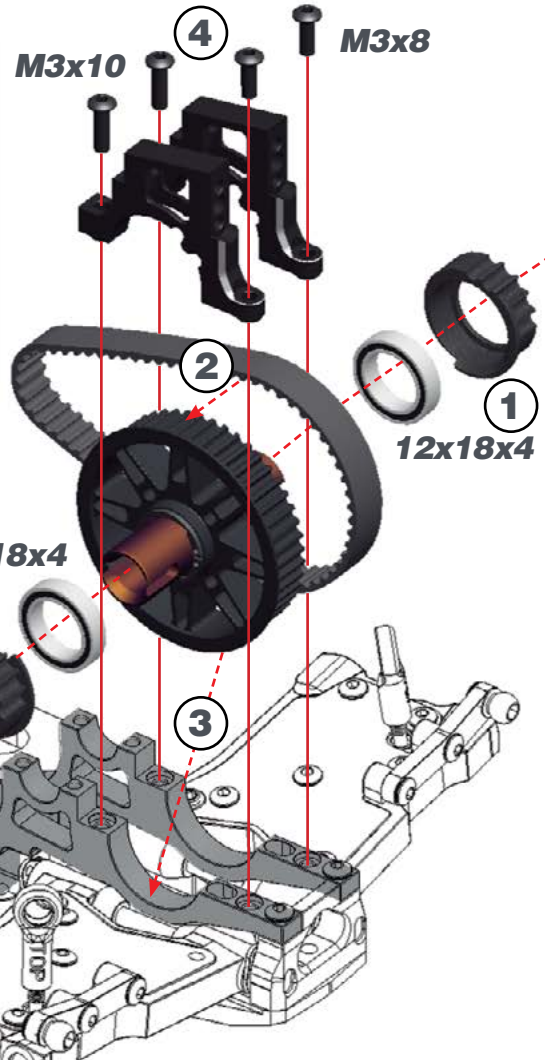
Use the central slot as starting position



M3x10

4

M3x8



12x18x4

1

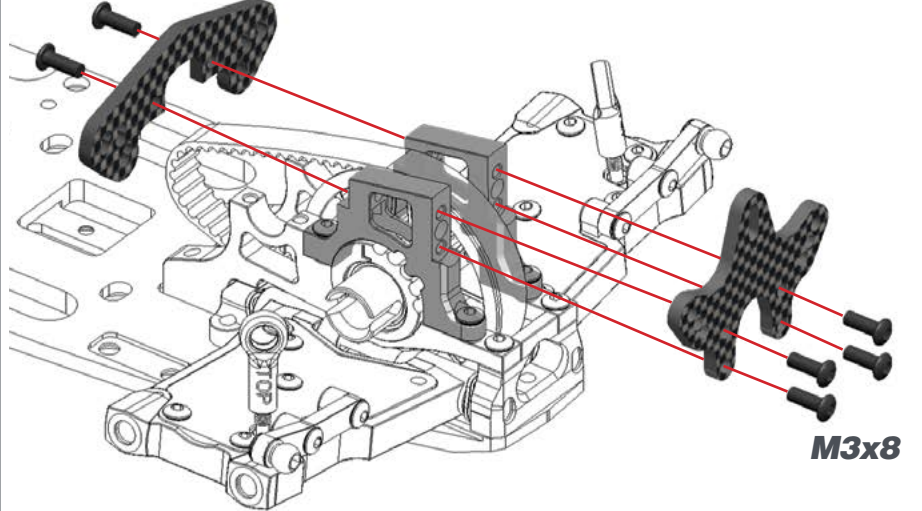
12x18x4

1

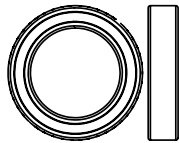
3

## STEP 9

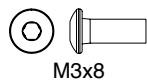
M3x8



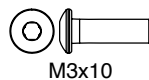
M3x8



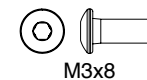
12x18x4



M3x8



M3x10

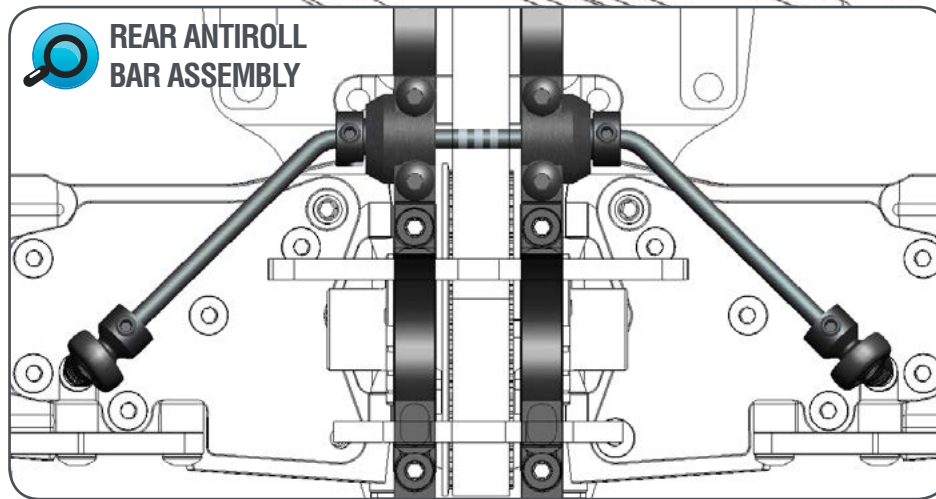
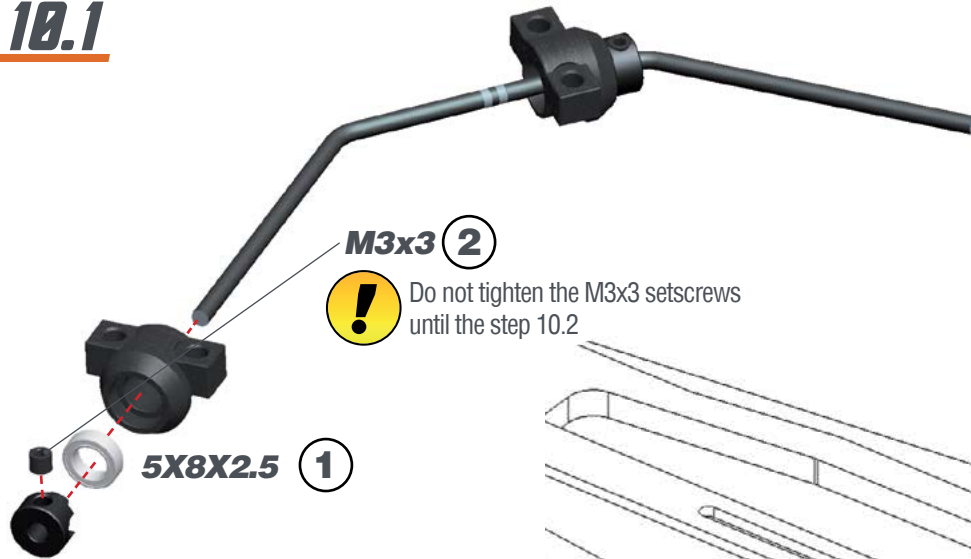


M3x8

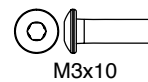
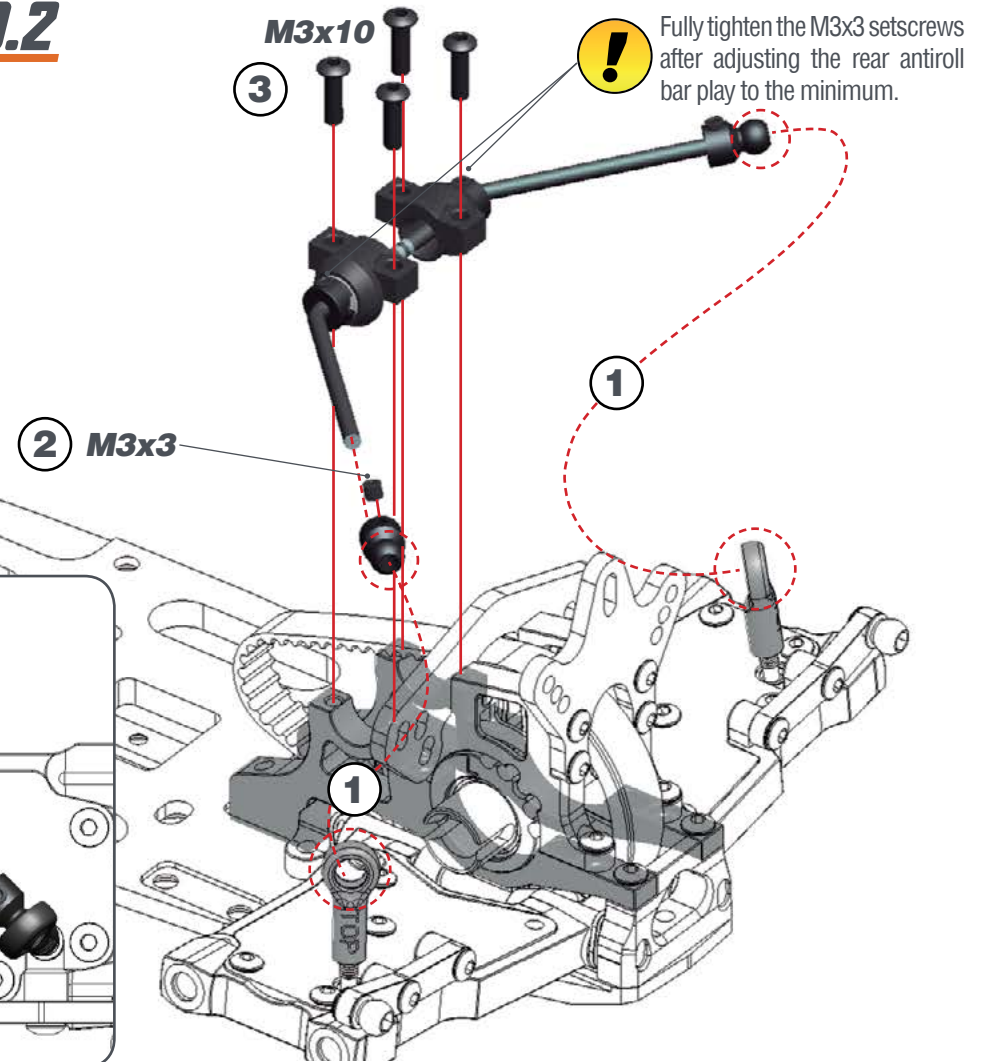


# STEP 10

## 10.1

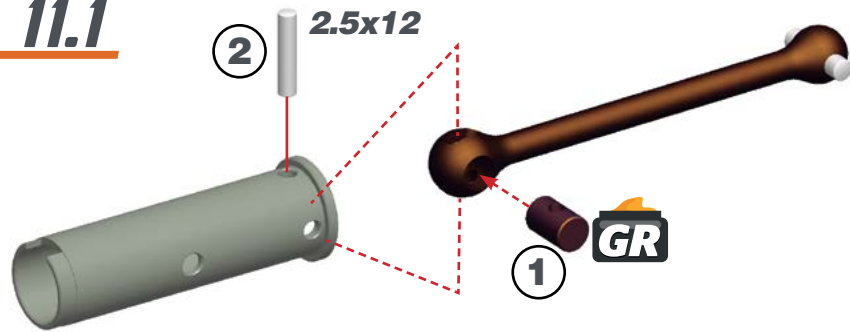


## 10.2

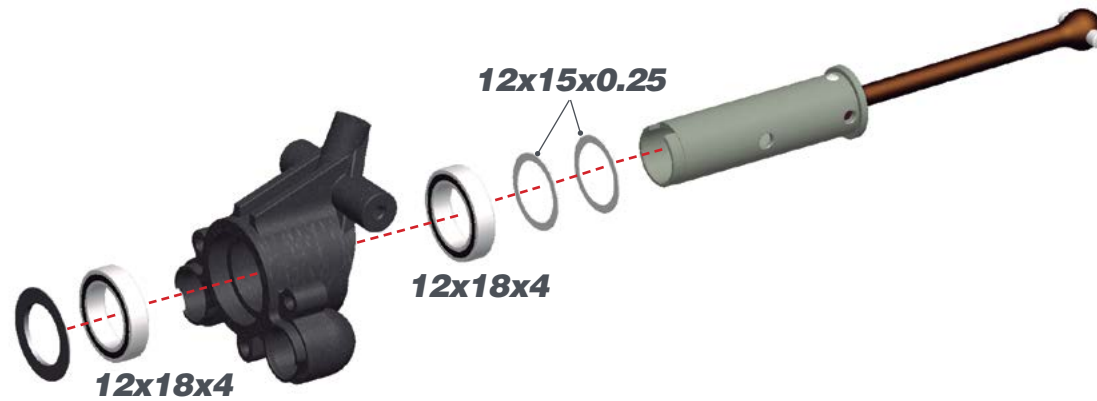


# STEP 11 BAG 3

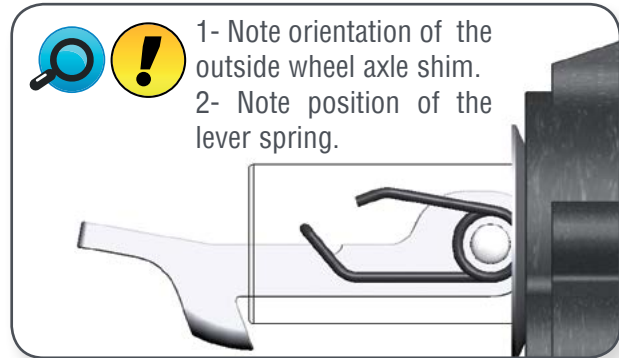
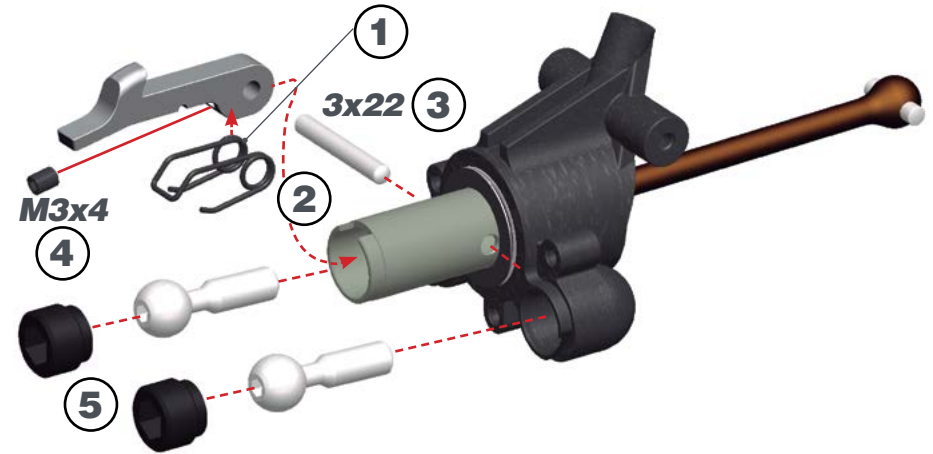
11.1



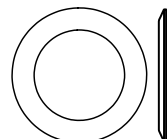
11.2



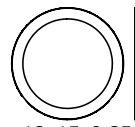
11.3



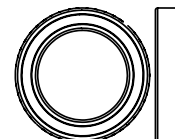
2.5x12



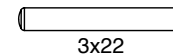
12x18x1 Conical



12x15x0.25



12x18x4



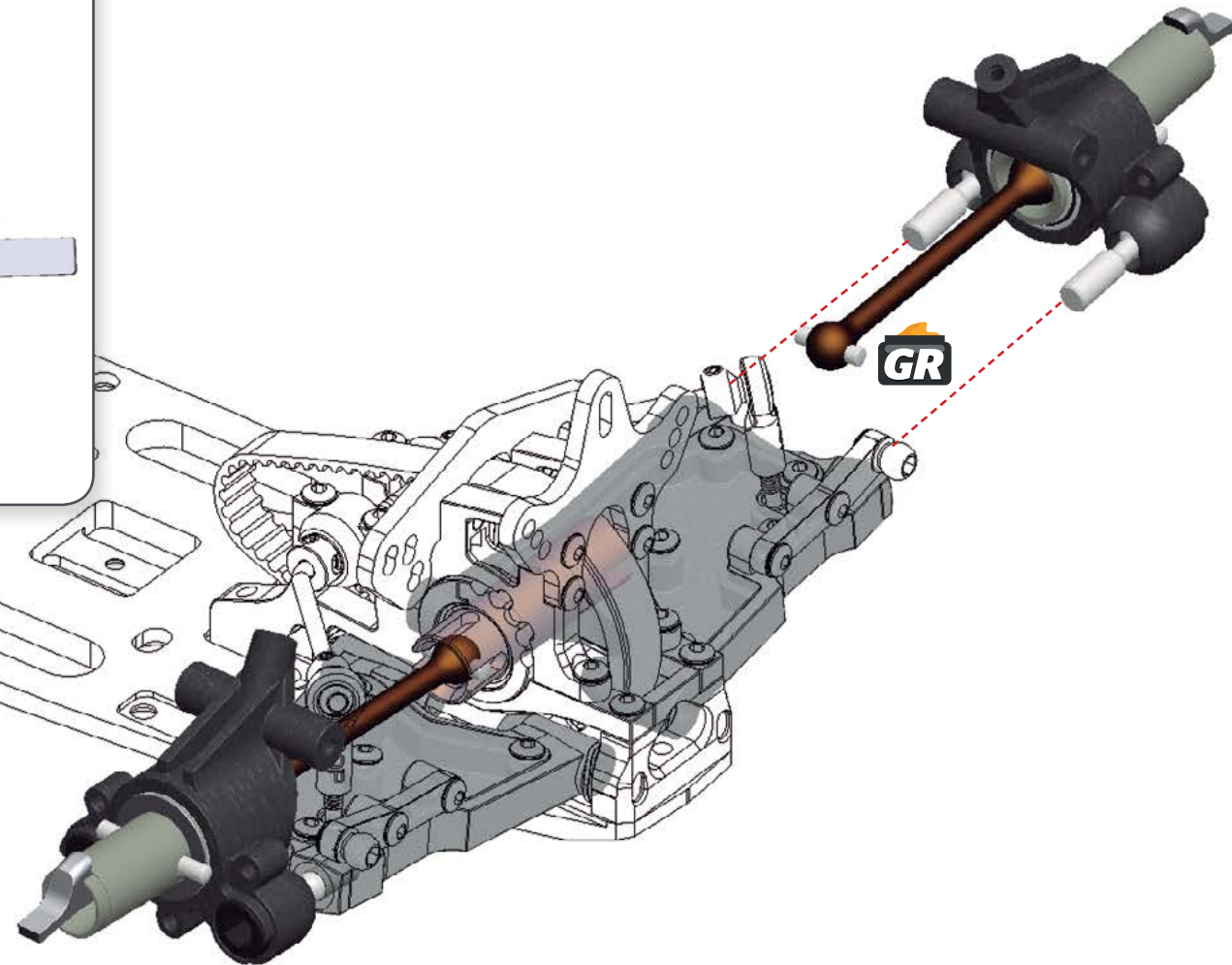
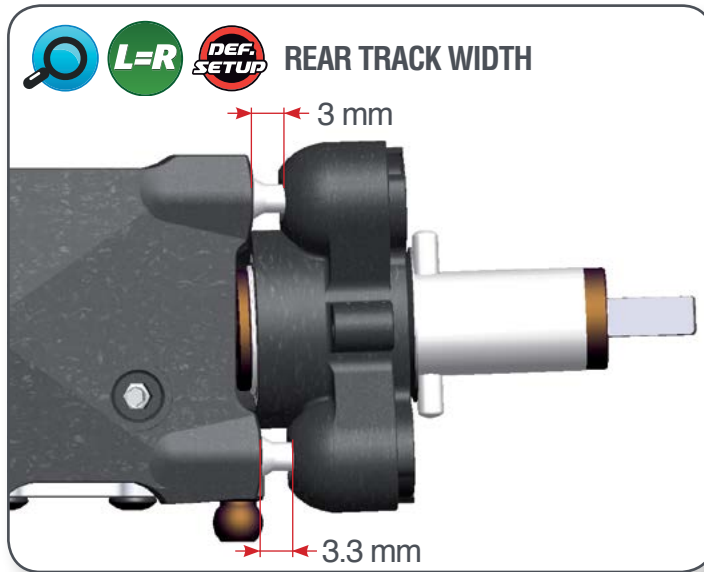
3x22



M3x4



# STEP 12

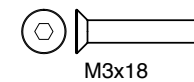
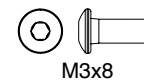
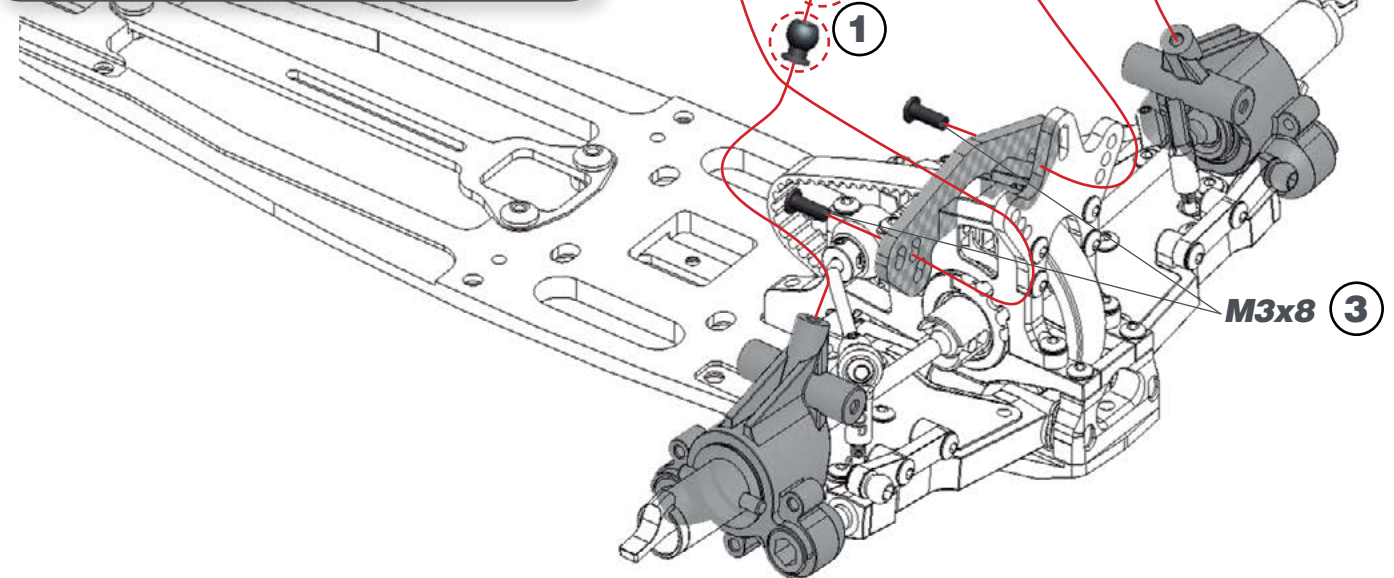
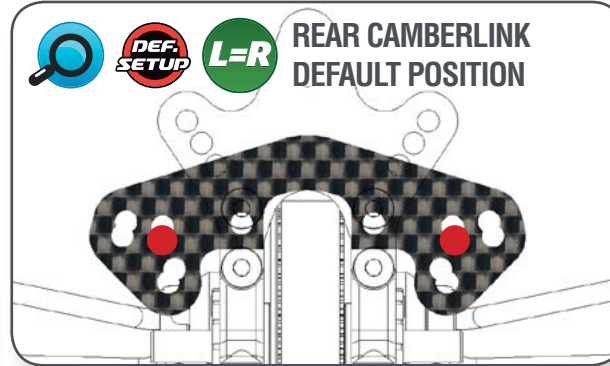


# STEP 13

## 13.1

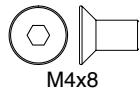
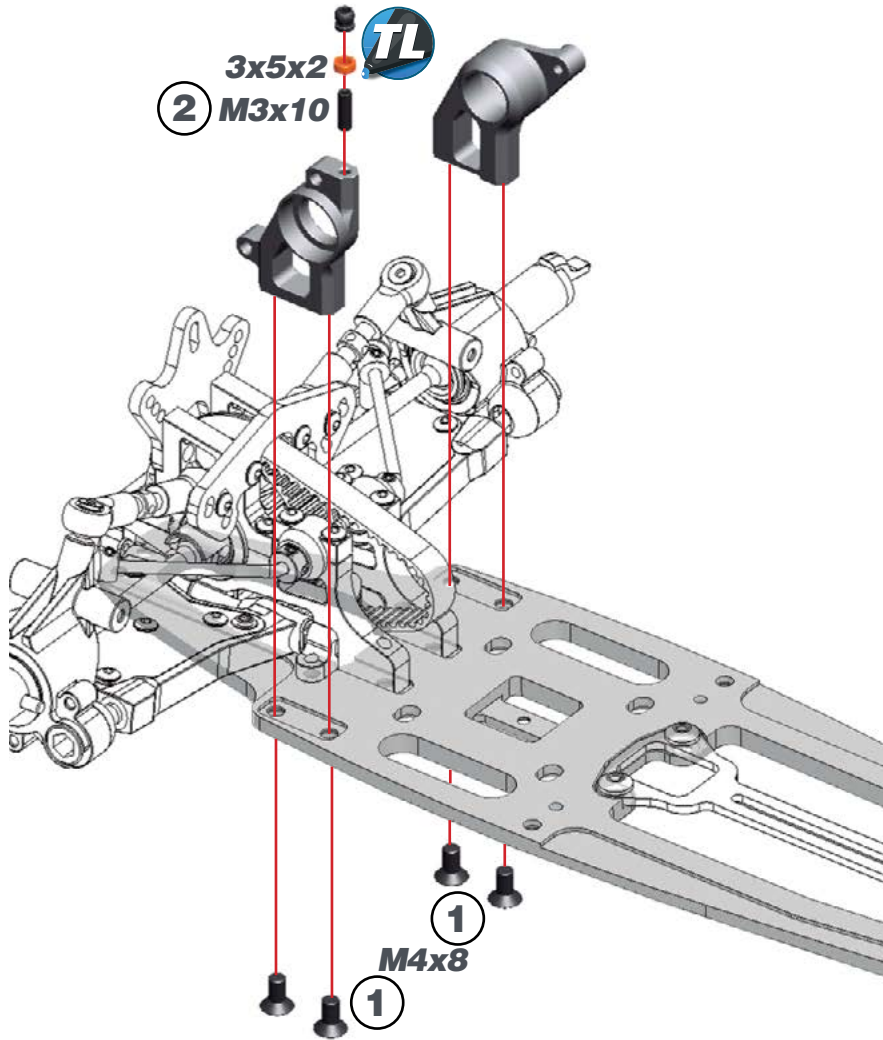


## 13.2



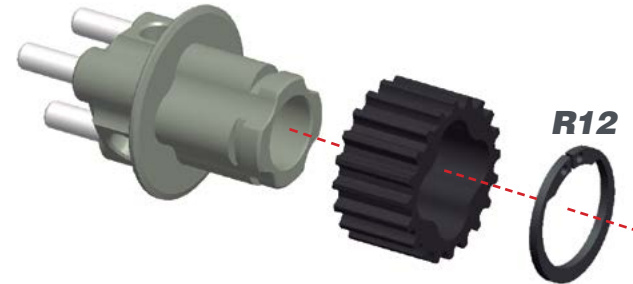
# STEP 14

BAG 4

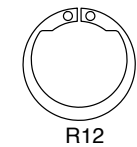
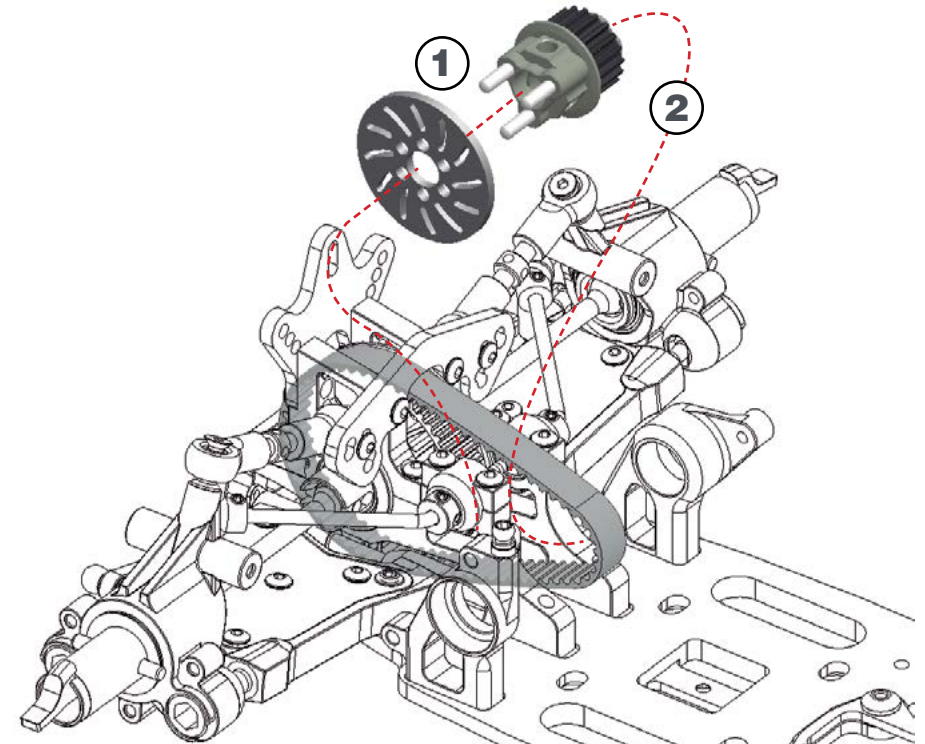


# STEP 15

15.1



15.2



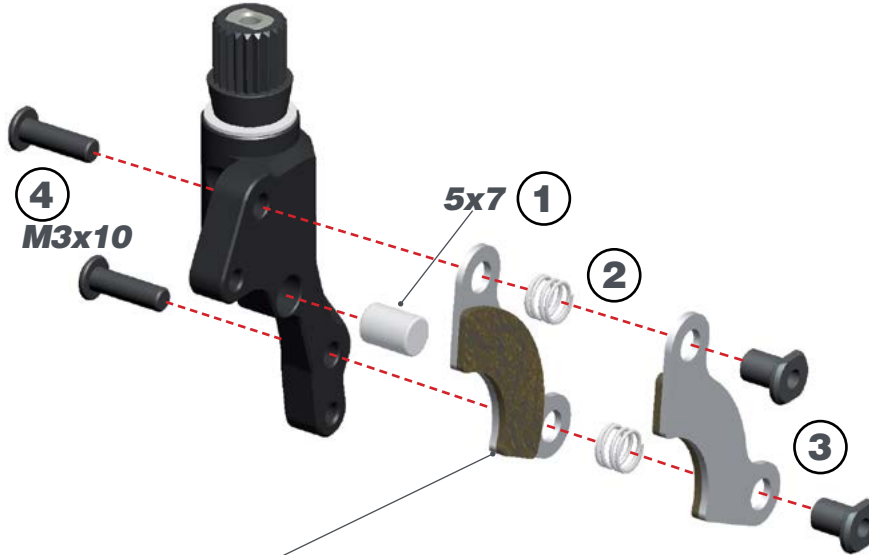


# STEP 16

16.1

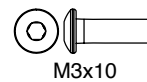
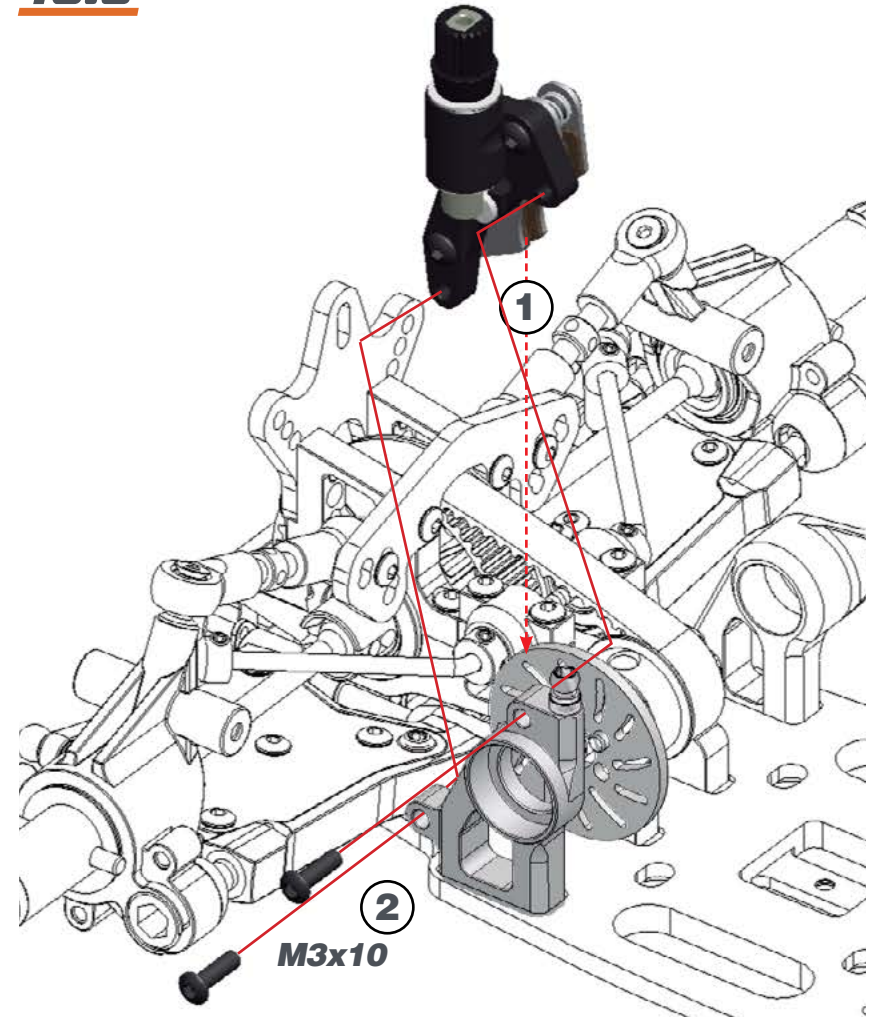


16.2



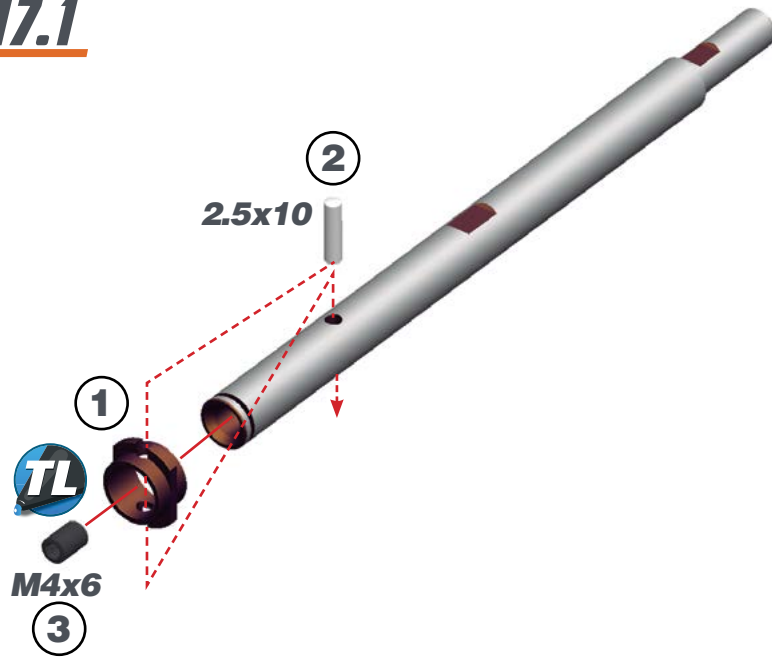
! After tightening the M3x10 screws check that the brake pads slide easy over the bushings.

16.3

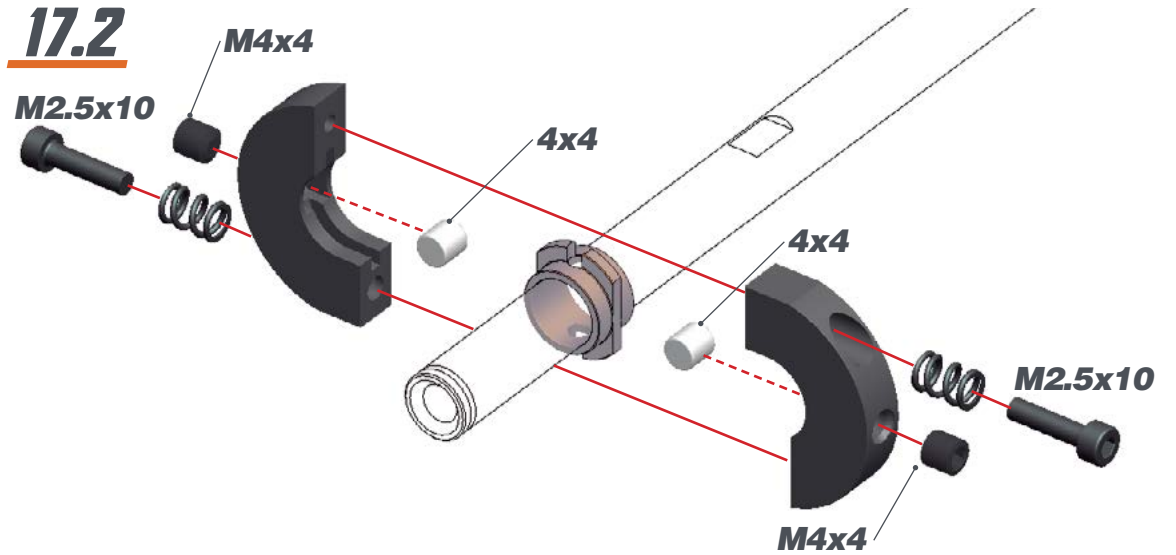


STEP 17 BAG 5

17.1

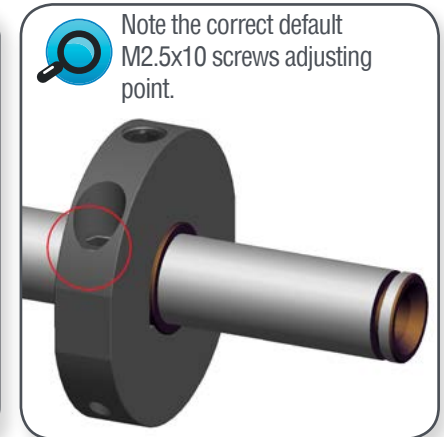
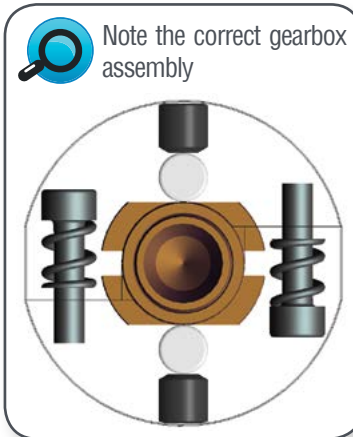


17.2



**!** 1- The M2.5x10 screws adjust the SHIFT POINT. As default adjustment screw them until the screws will be leveled with the hole as in the right pictures.

2- Adjust the M4x4 screw to minimise the gap between the shoes and the bell, but still spinning free without touching. Check after each run.



2.5x10

M4x6

4x4

M4x4

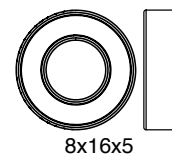
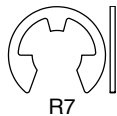
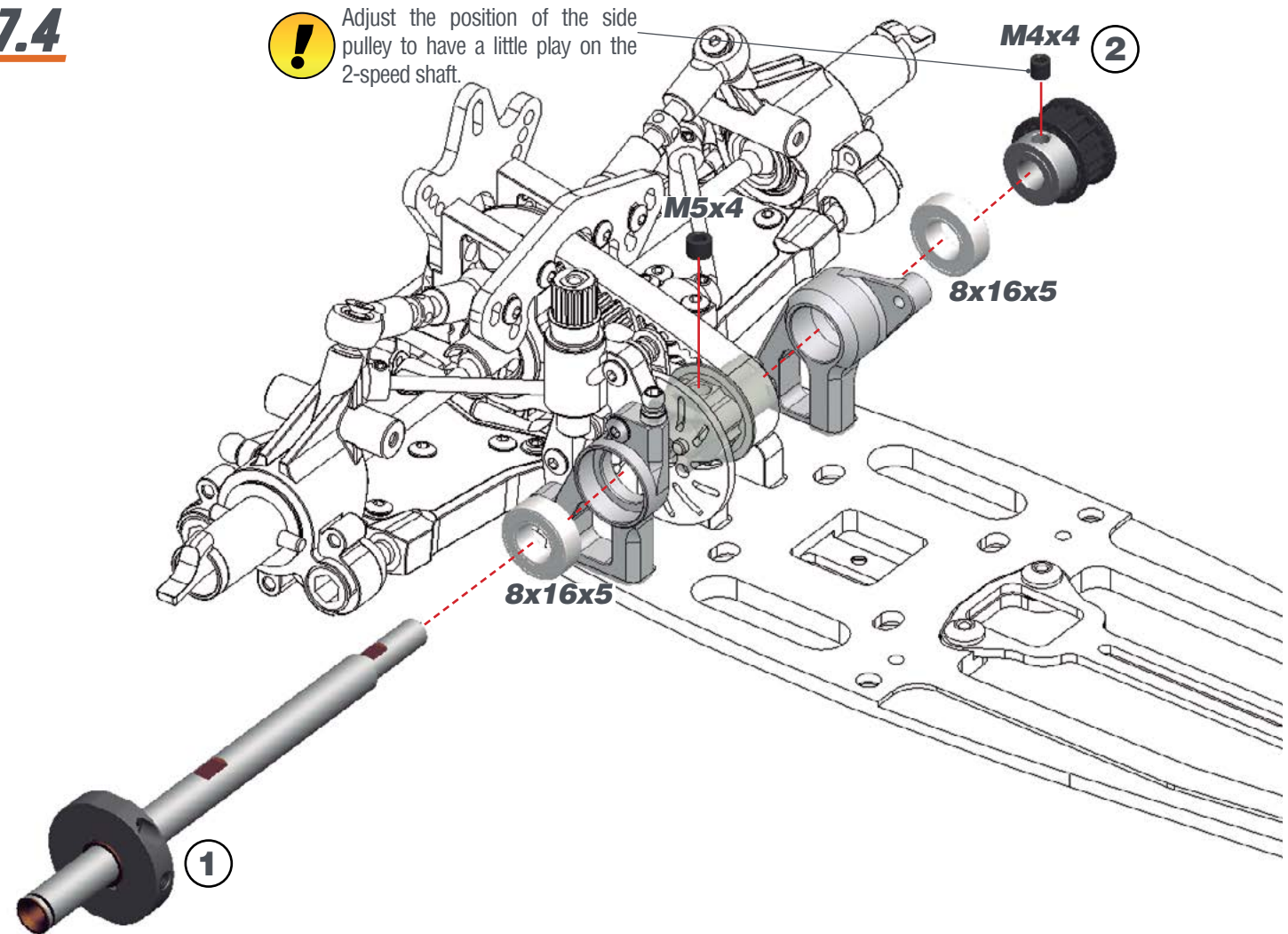
M2.5x10

# STEP 17

## 17.3



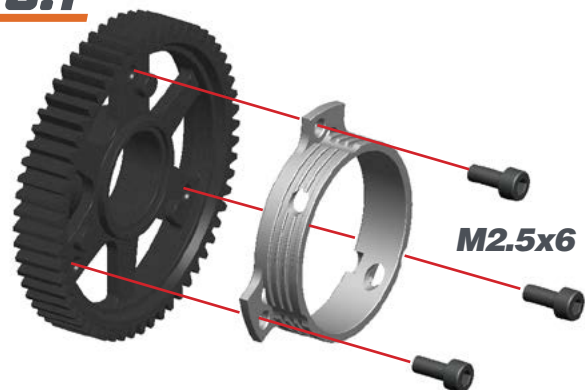
## 17.4



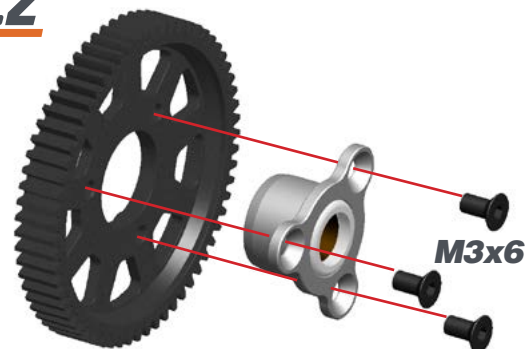


## STEP 18

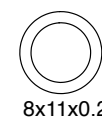
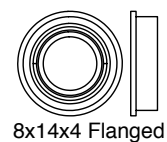
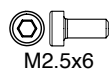
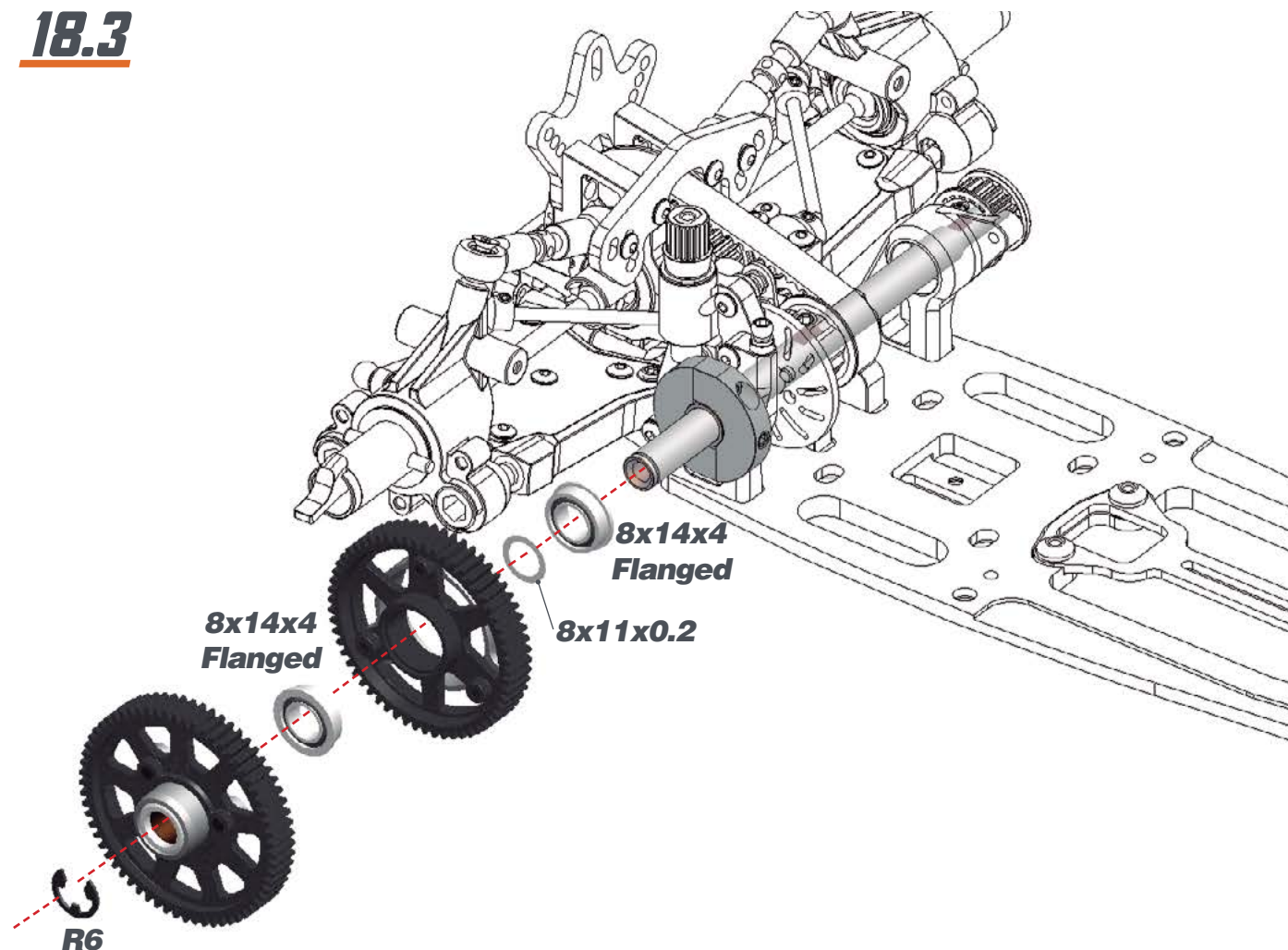
**18.1**



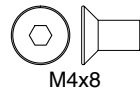
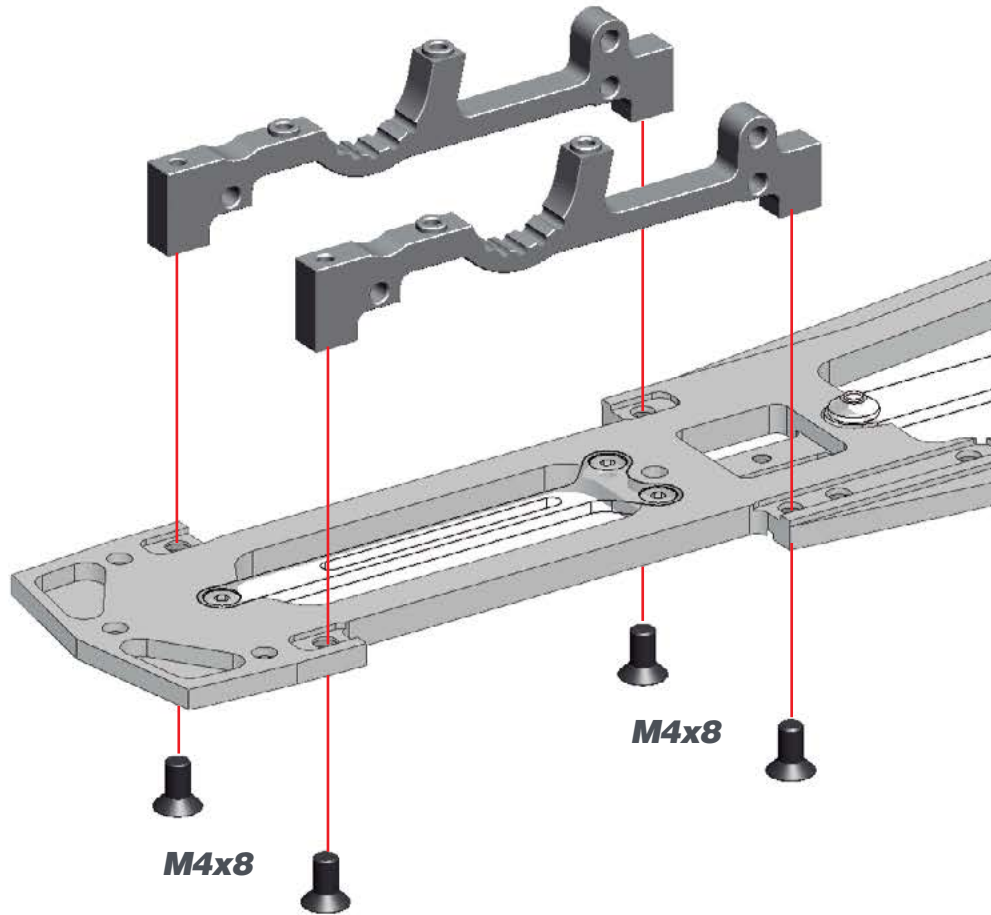
**18.2**



**18.3**



## STEP 19 BAC 6

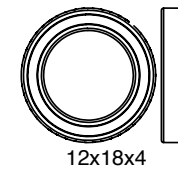
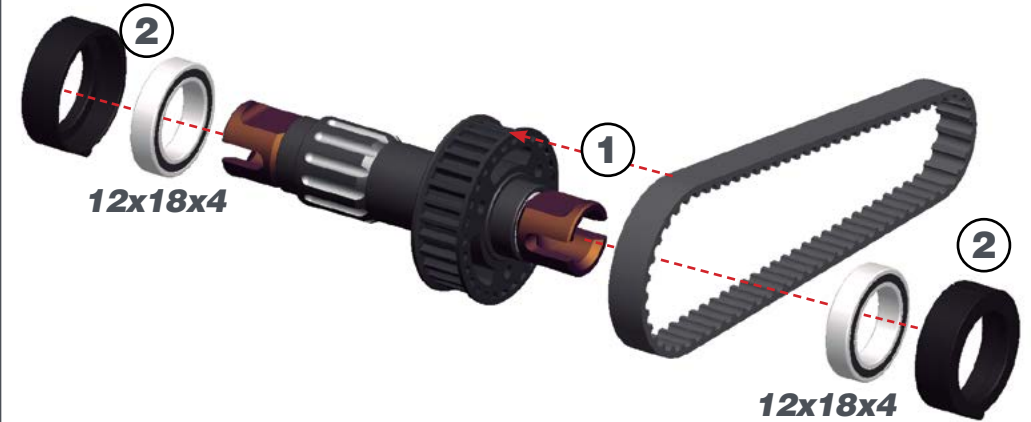


## STEP 20

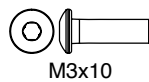
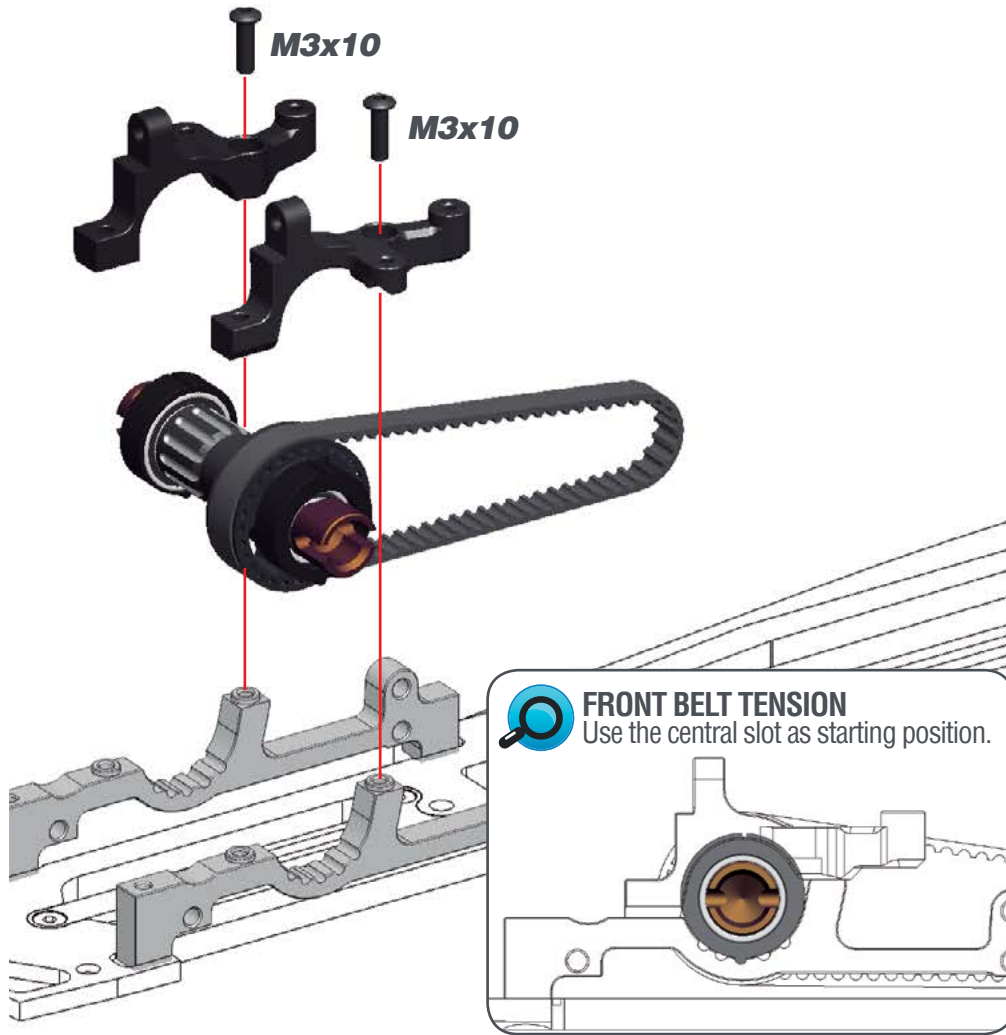
### 20.1



### 20.2



## STEP 21

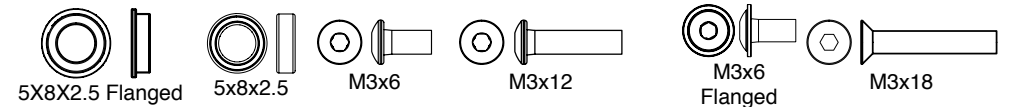
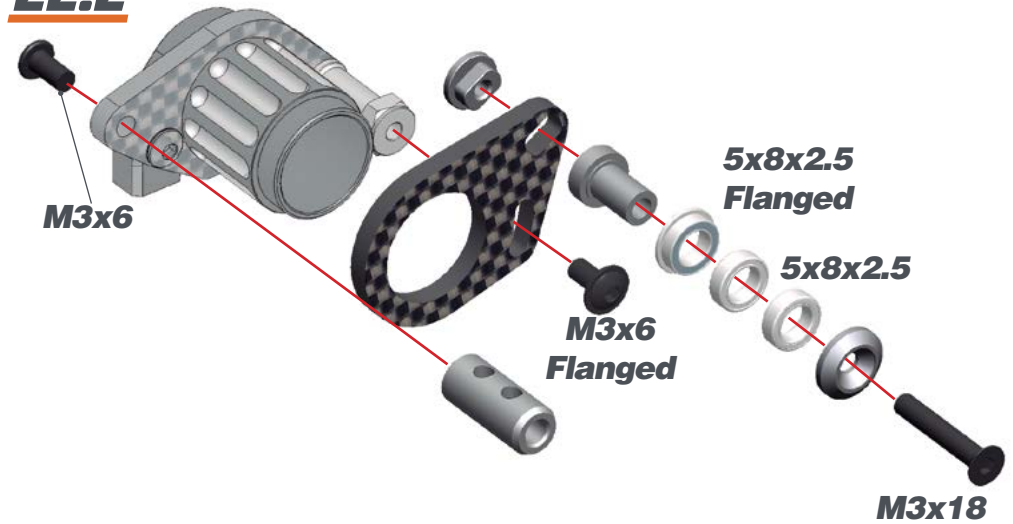


## STEP 22

### 22.1



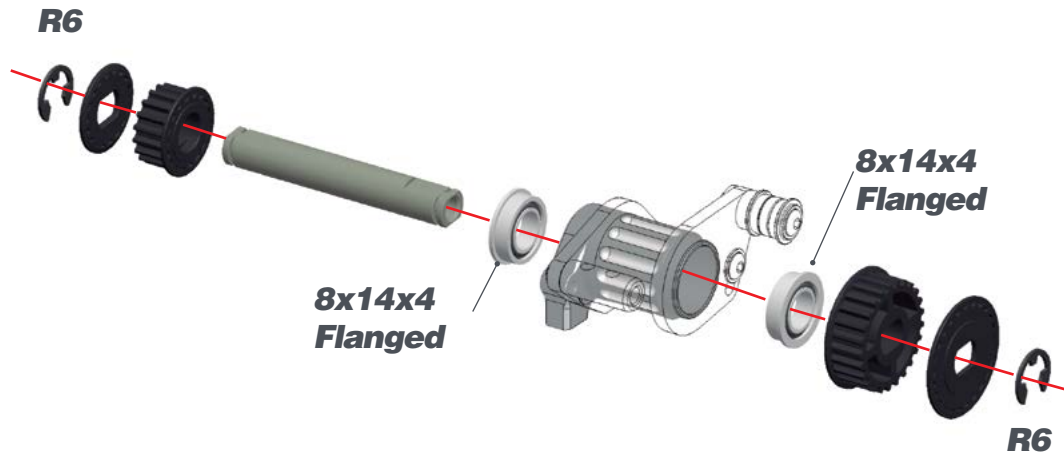
### 22.2



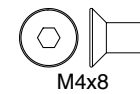
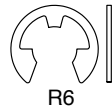
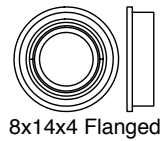
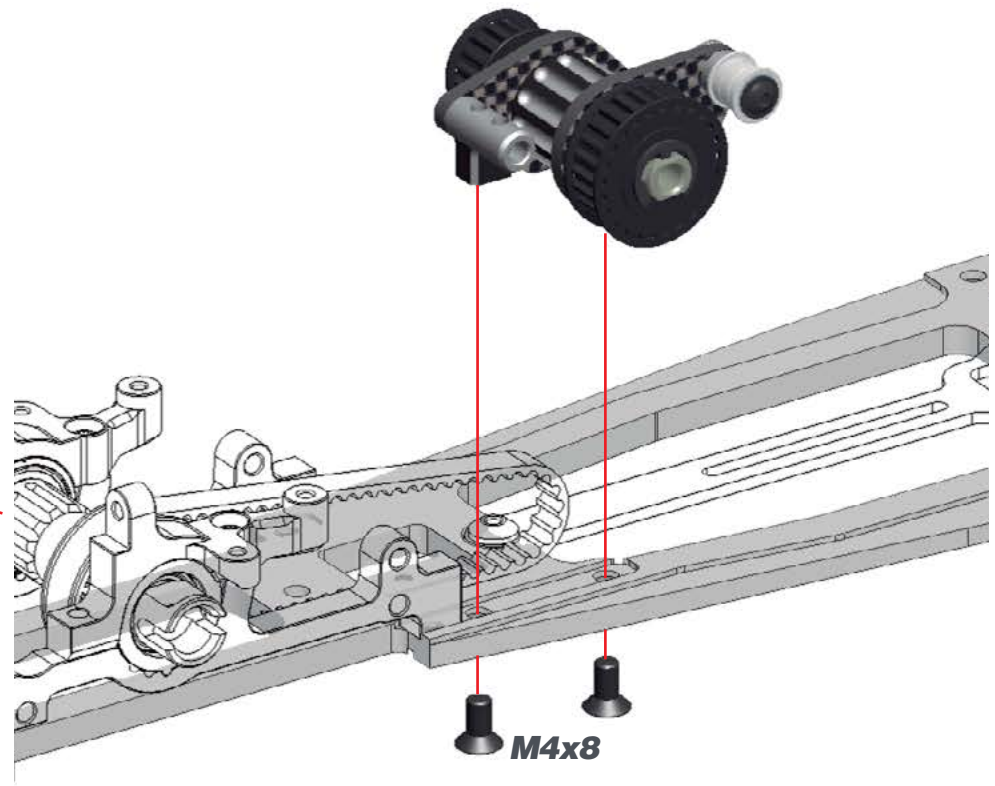


## STEP 22

### 22.3



### 22.4



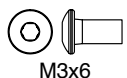
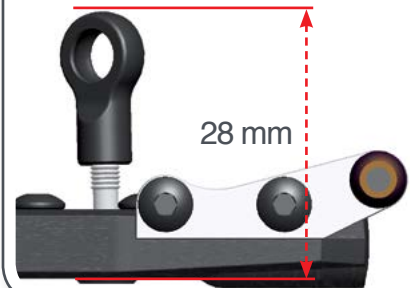
# STEP 23

BAG 7

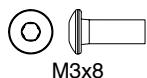
## 23.1 L=R



### L=R FRONT ANTIROLL BAR ROD LENGTH



M3x6



M3x8

## 23.2

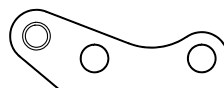


### FRONT LOWER SUSPENSION AND SHOCK BRACKETS

Serpent 989 40 anniversary kit comes with the long shock bracket as standard. On the other hand, the 989 allows to move front bottom arms 3 mm in (NARROW) and out (WIDE). The default combination shows the position used at the World Championship and work best under extreme grip preventing traction rolling.

#### SHOCK BRACKET

SHORT



OPT

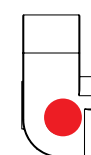
LONG



DEF. SETUP

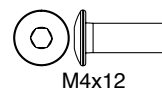
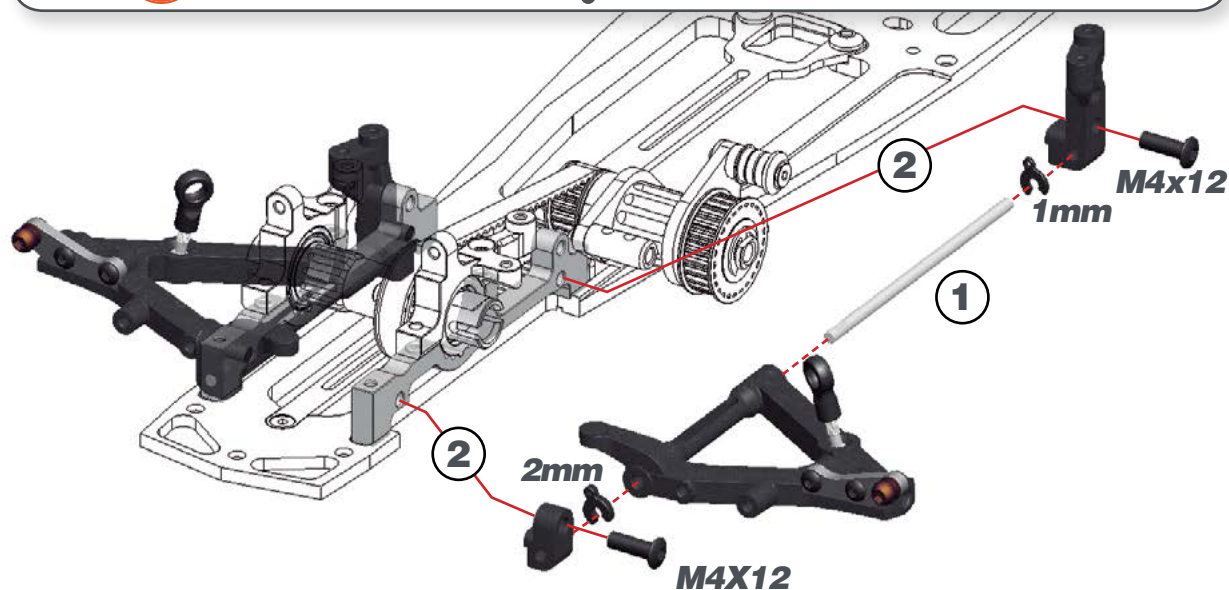
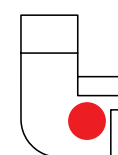
#### SUSPENSION BRACKET

WIDE



DEF. SETUP

NARROW



M4x12

## STEP 24

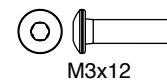
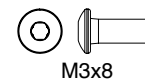
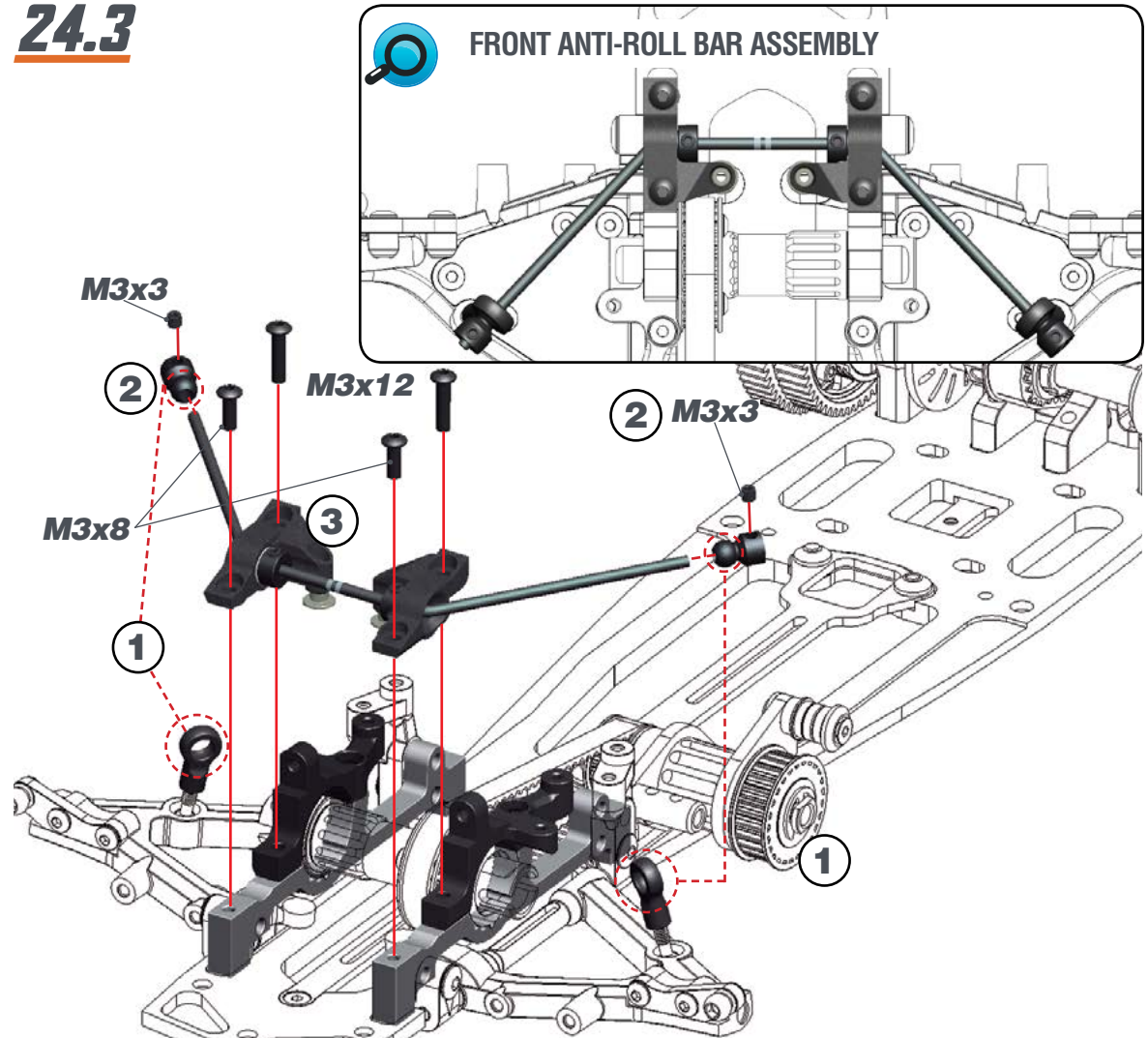
24.1



24.2

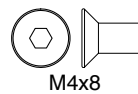
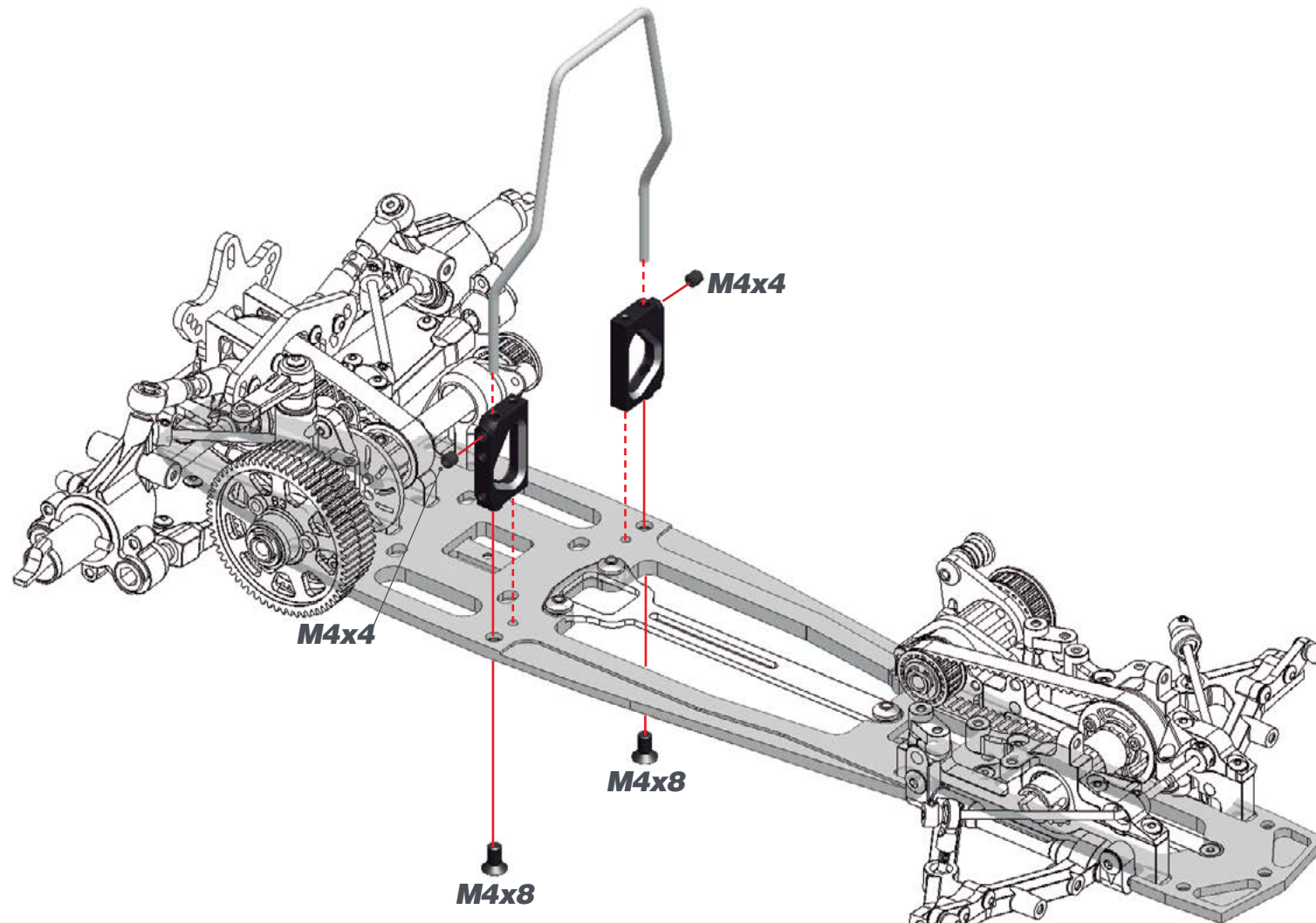


24.3





STEP 25 BAC 8



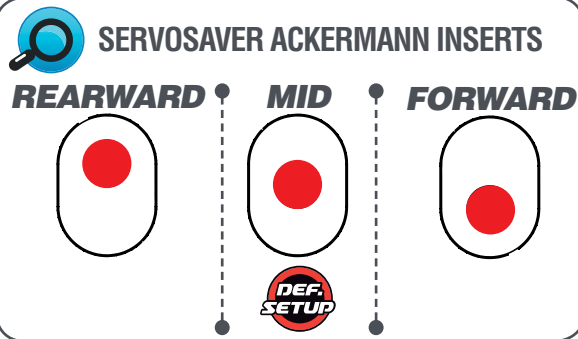
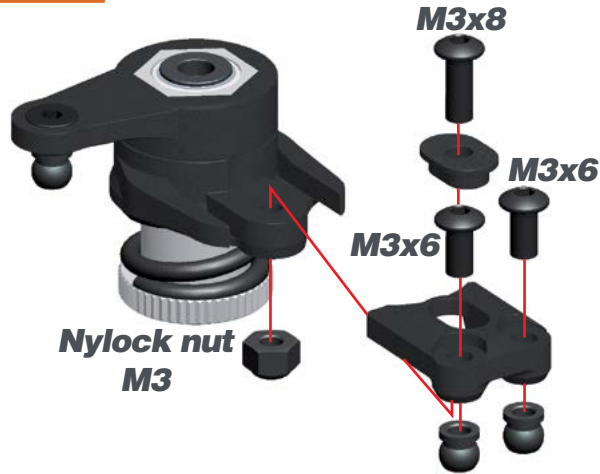
## STEP 26



Preload the servo-saver-spring 1mm.



## 26.2

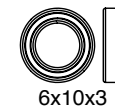
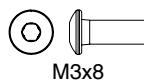
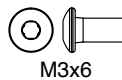
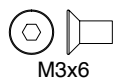
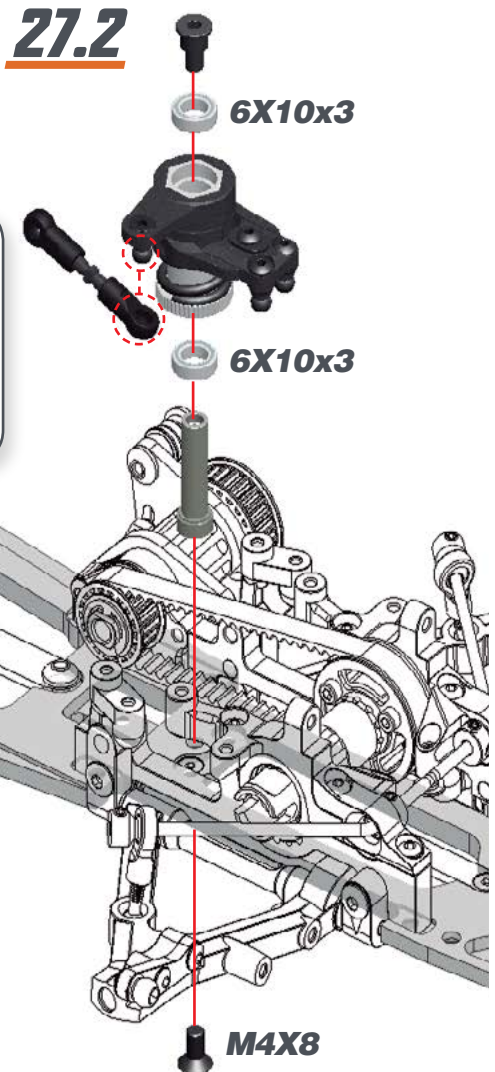


## STEP 27

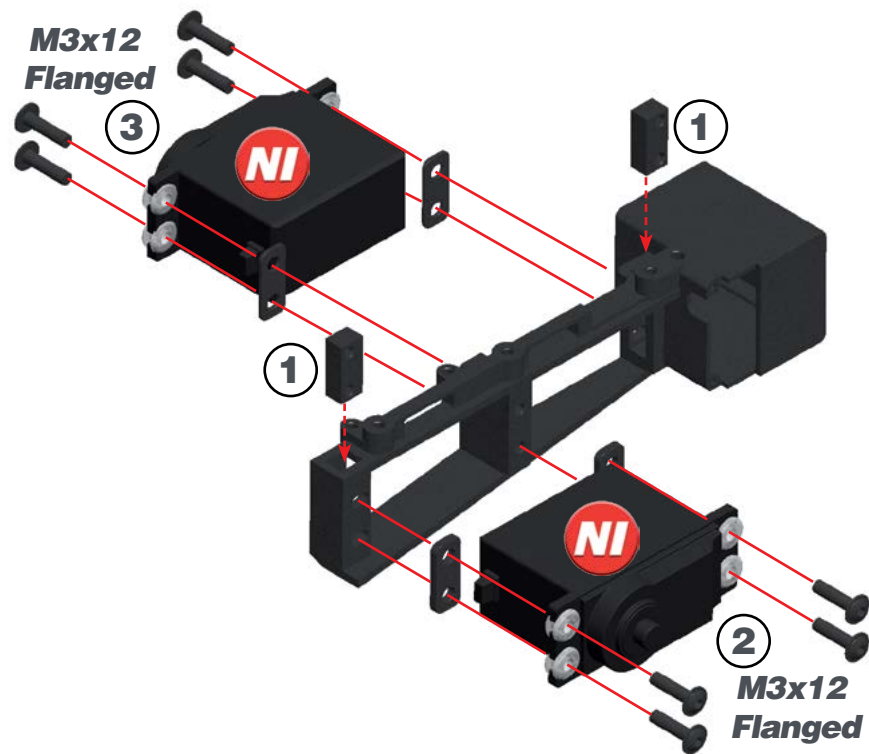
## 27.1



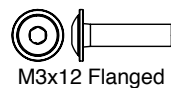
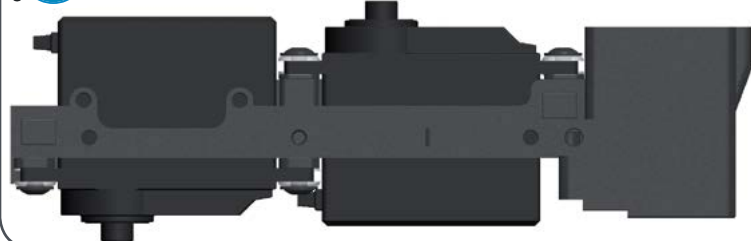
## 27.2



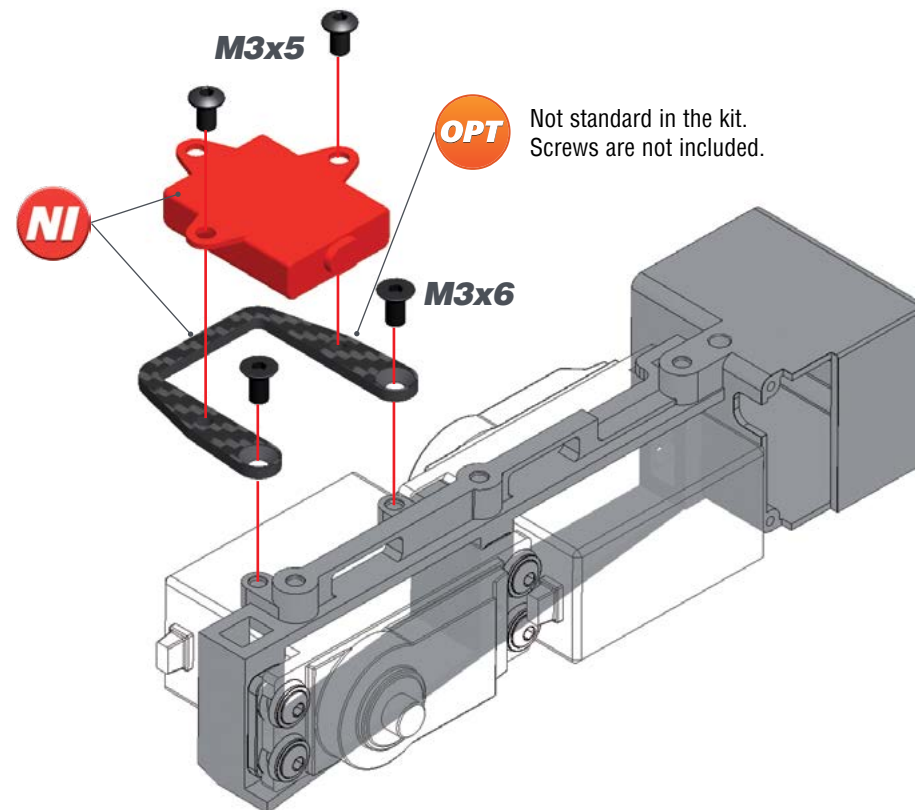
## STEP 28 BAC 9



RADIO BOX ASSEMBLY

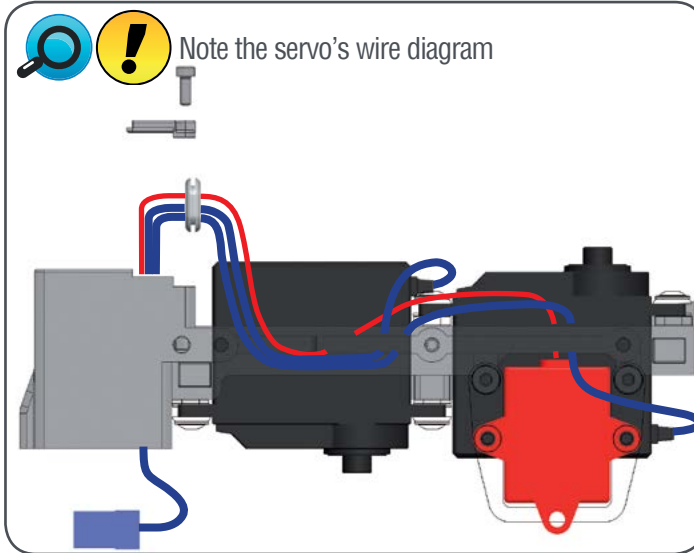
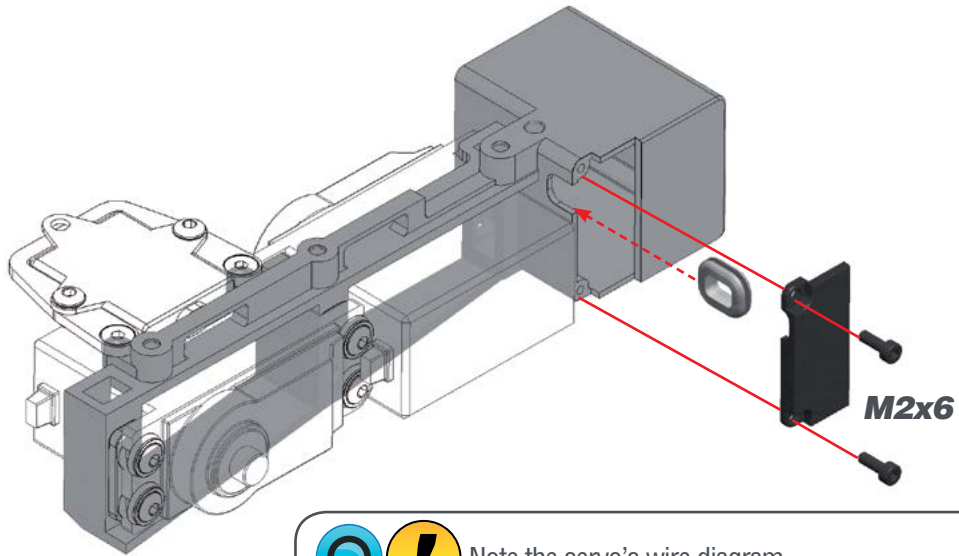


## STEP 29



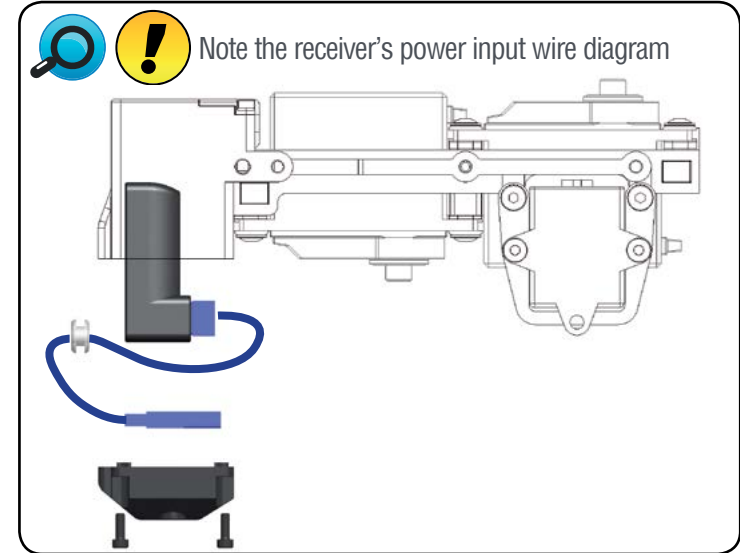
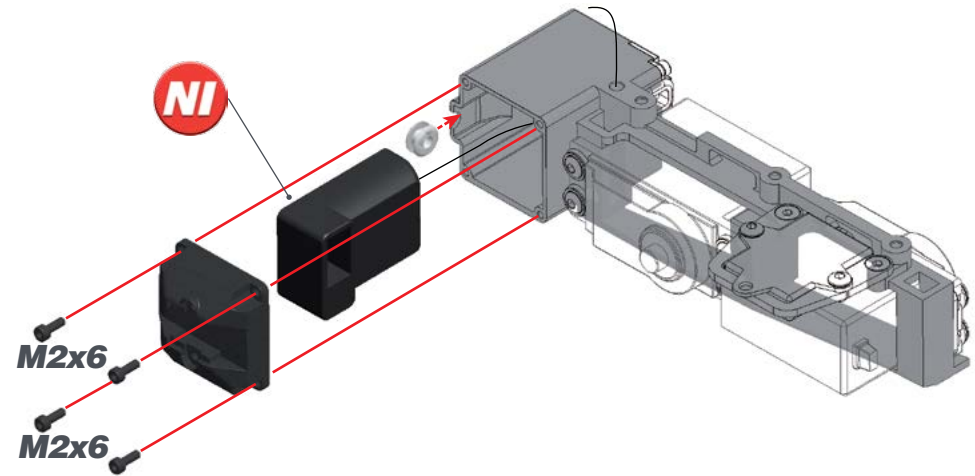


## STEP 30



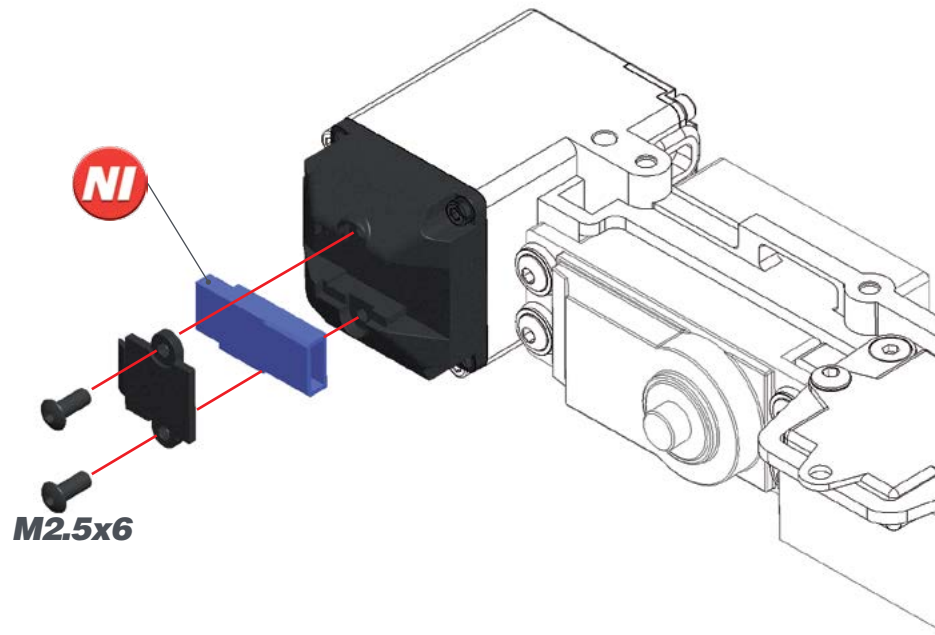
M2x6

## STEP 31



M2x6

## STEP 32



M2.5x6

## STEP 33

! Check how many teeth your servo spline has (23, 24 or 25) and use the right lever.

! Note correct pivot ball type.



! Note correct pivot ball type.



M3x6

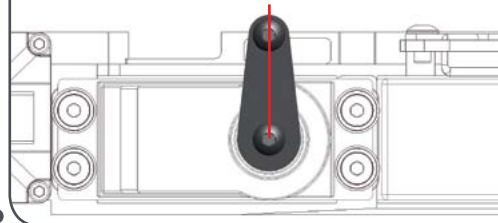
A

M3x5

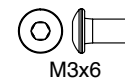
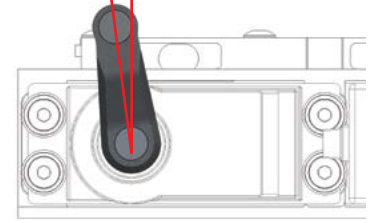
M3x8

B


! A: Note orientation of the throttle servo lever.

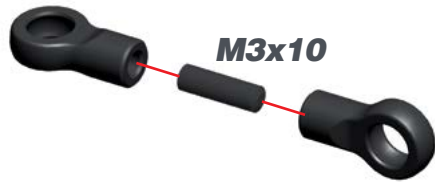


! B: Note orientation of the steering servo lever.



## STEP 34

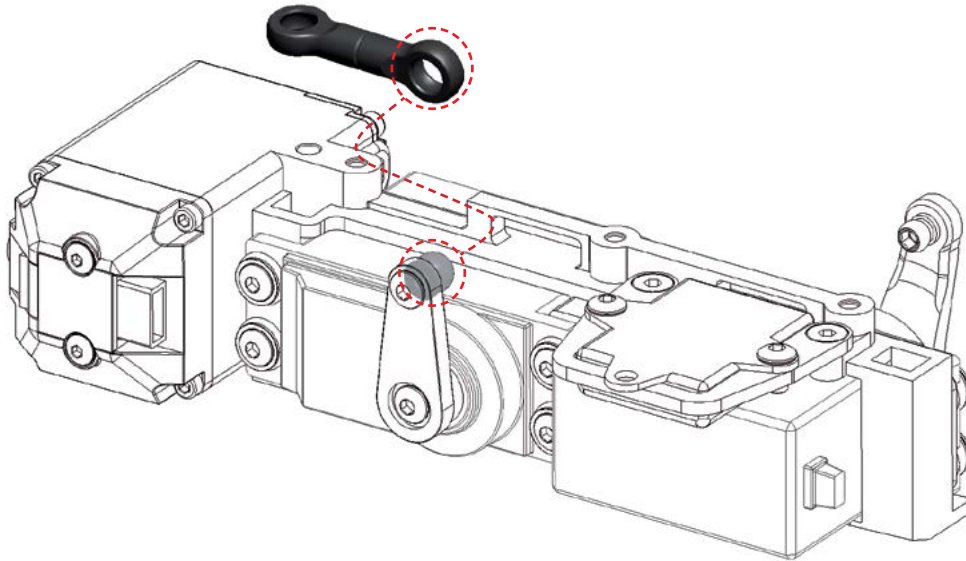
**34.1**  Check how many teeth your servo spline has (23, 24 or 25) and use the right lever.



 THROTTLE LINK LENGTH

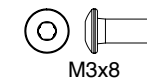
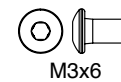
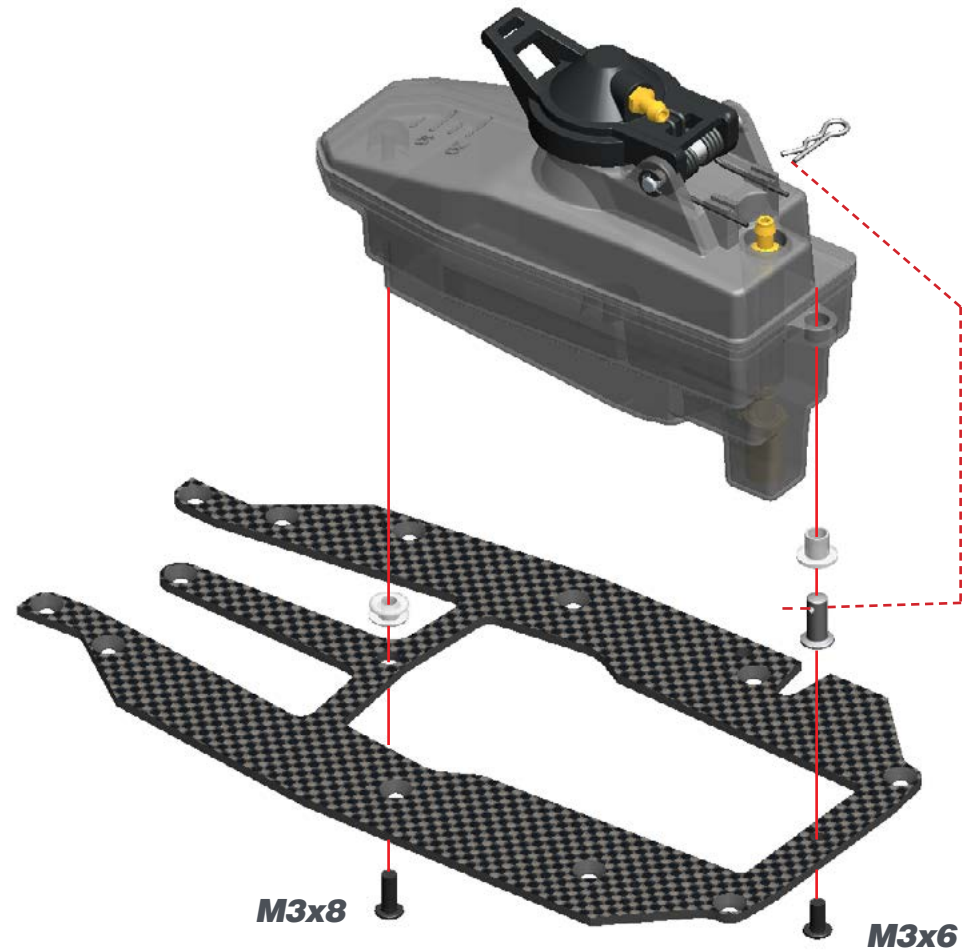


## 34.2



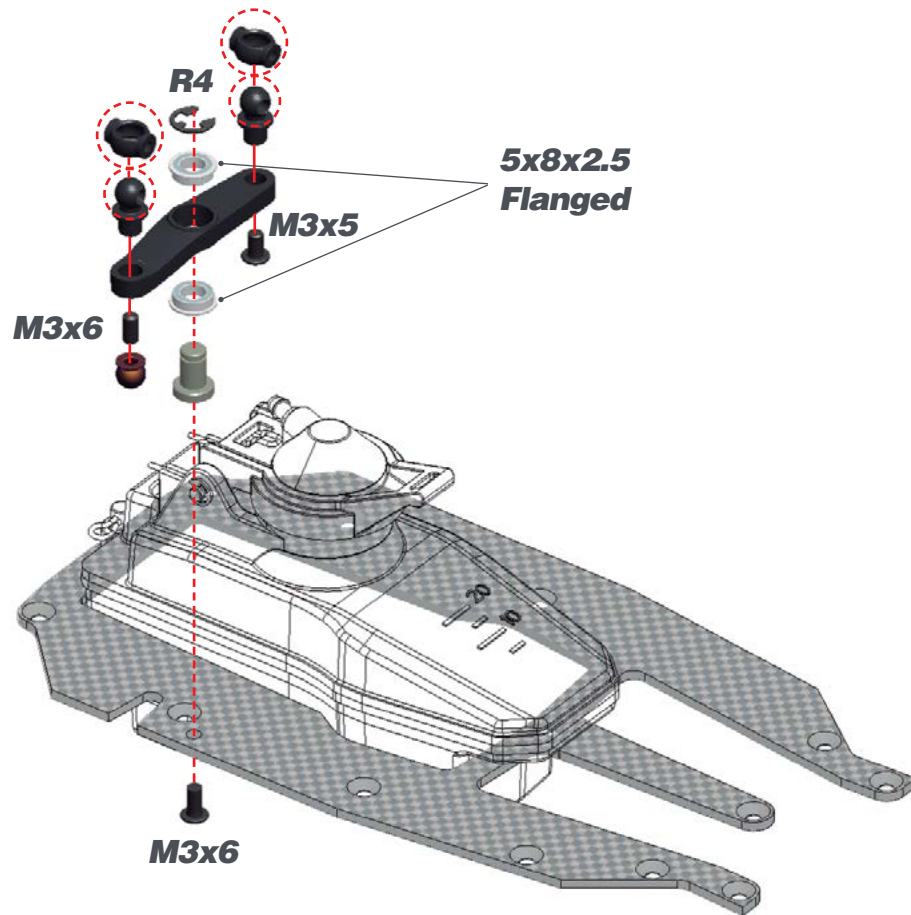
## STEP 35

BAG 10

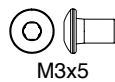
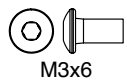
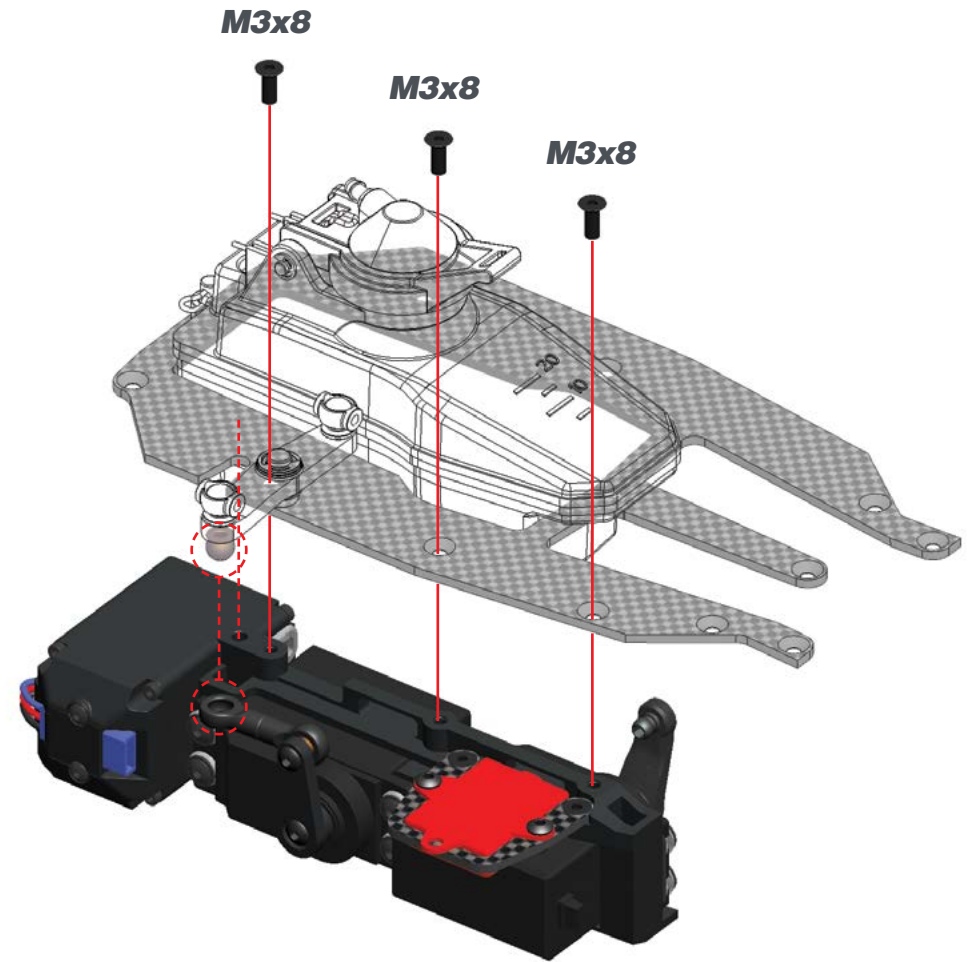




## STEP 36



## STEP 37



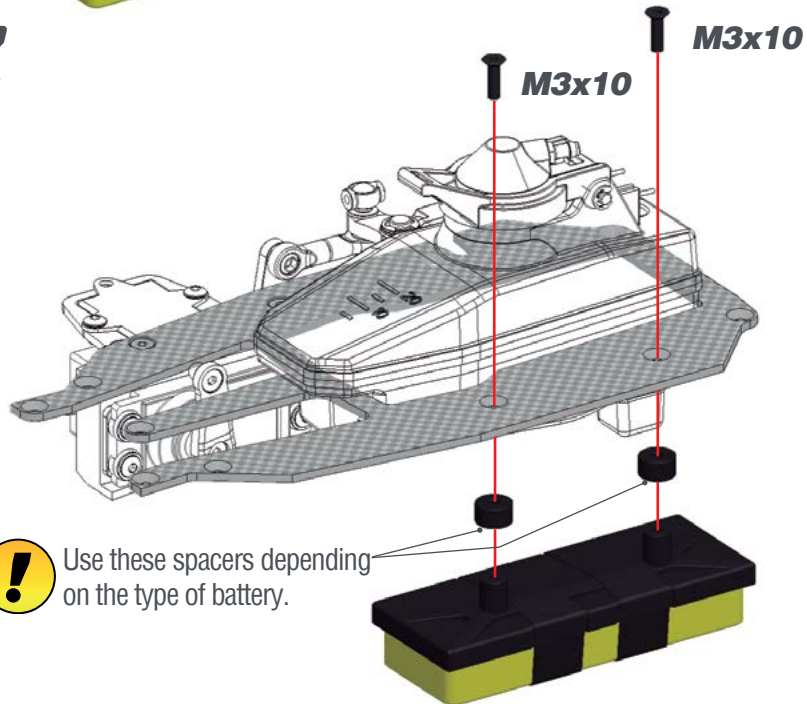
## STEP 38

38.1

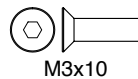


Use tape to mount the battery to the plastic support.

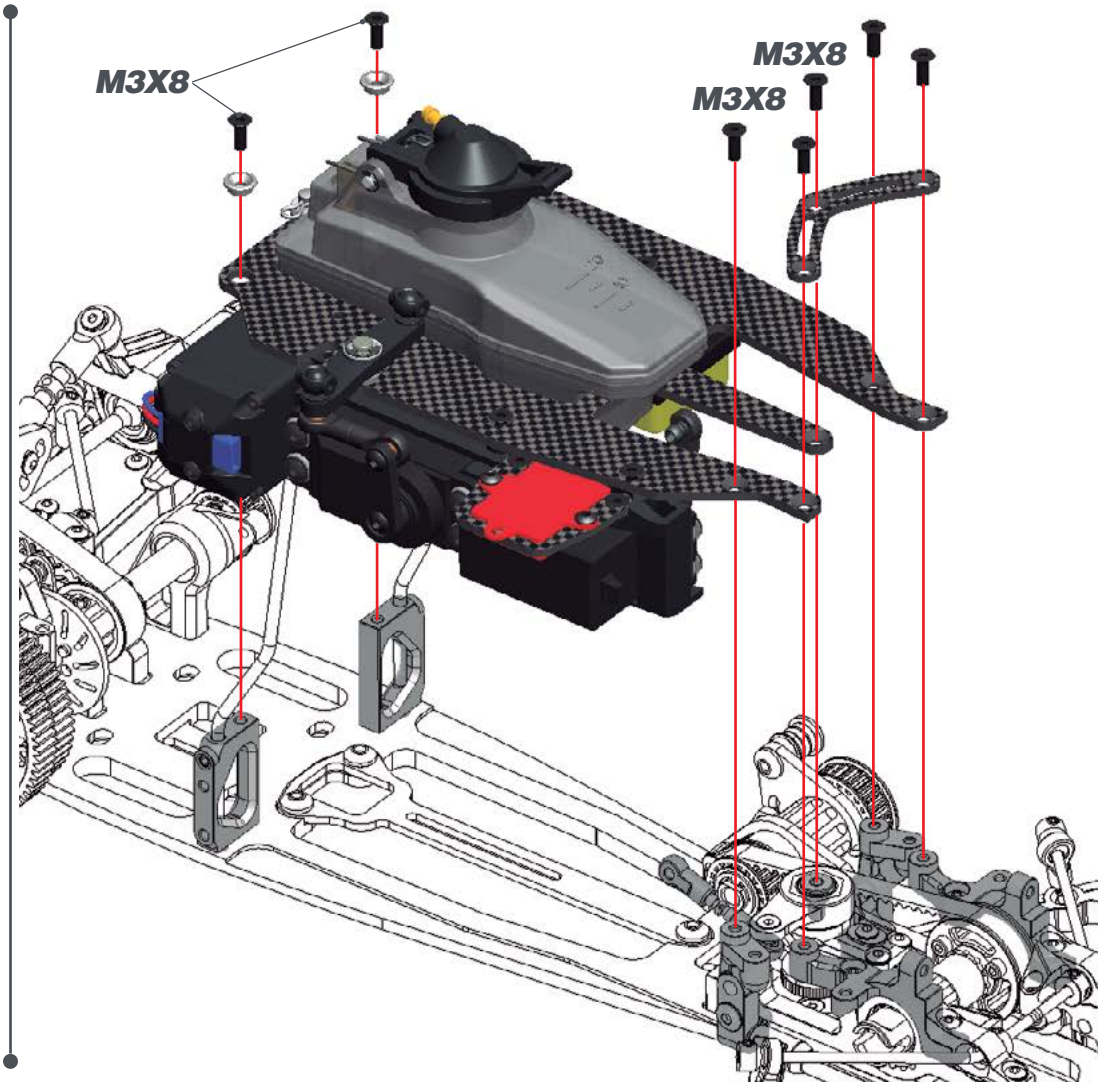
38.2



Use these spacers depending on the type of battery.

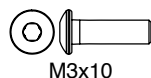
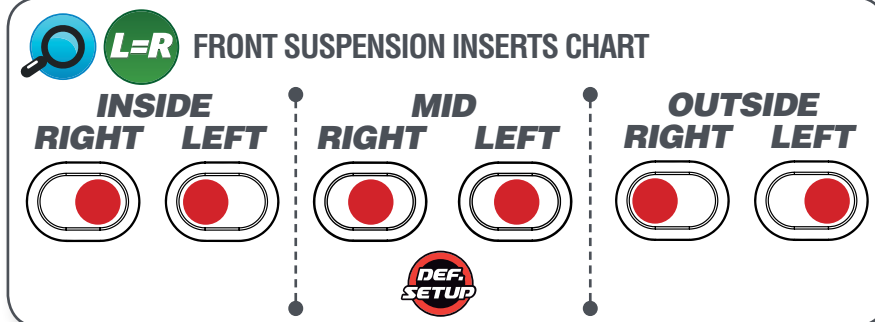
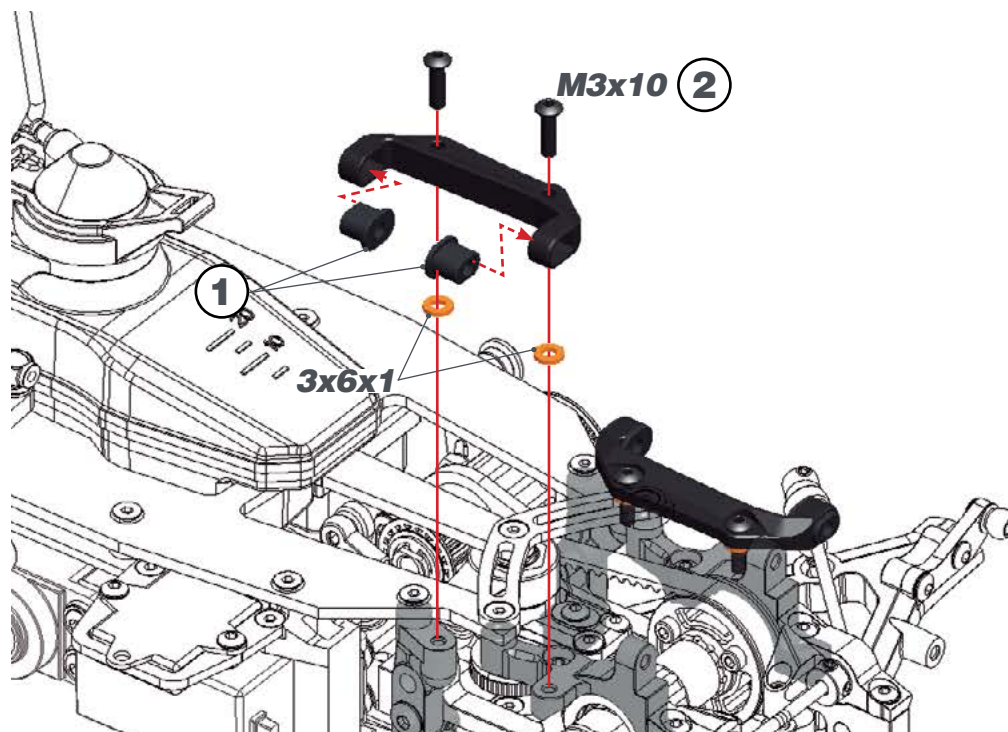


## STEP 39

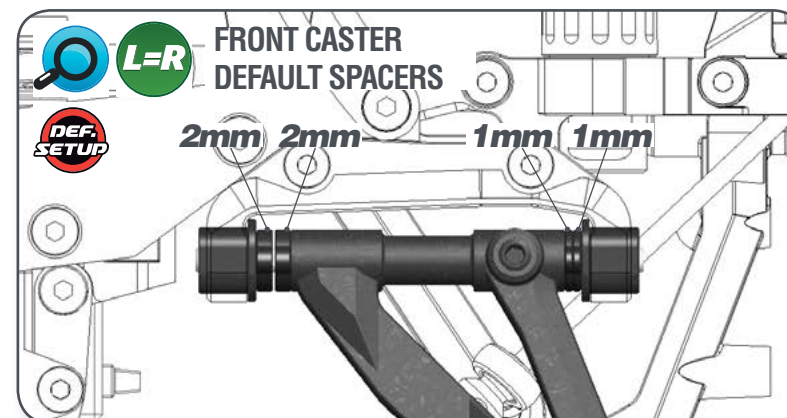
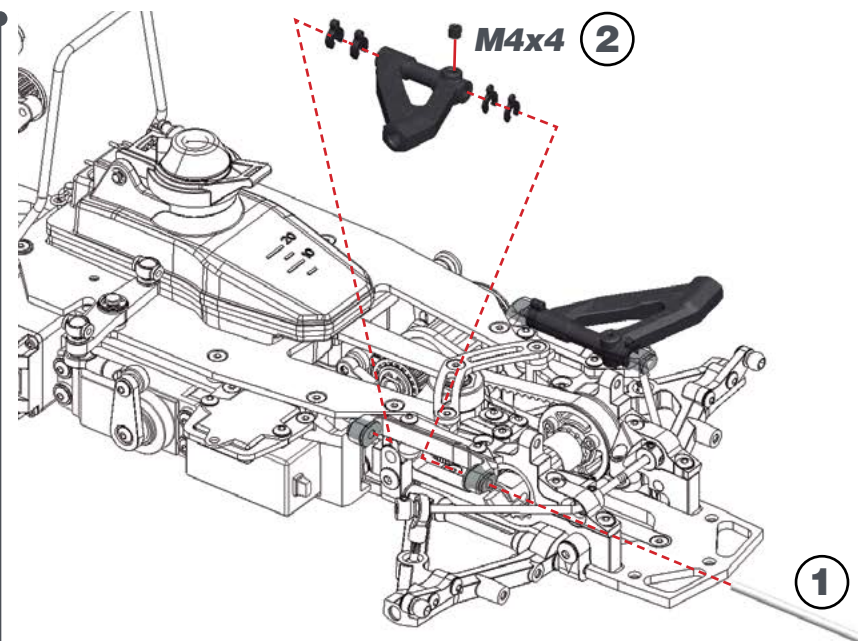




## STEP 40 BAG 11

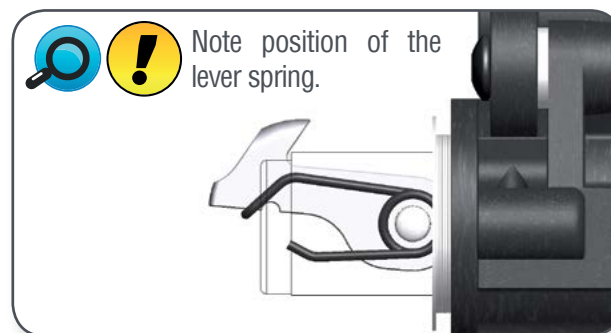


## STEP 41

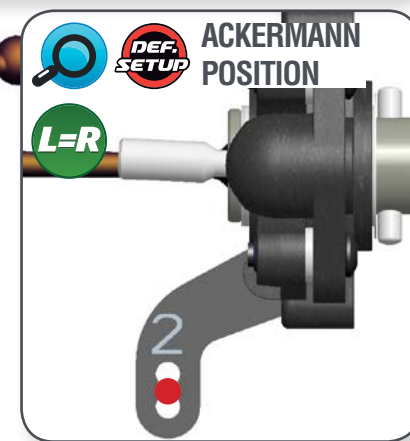




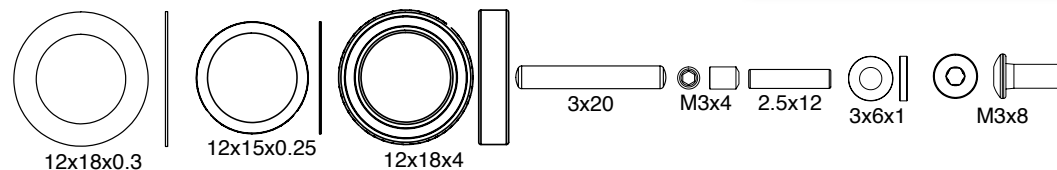
## 42.1



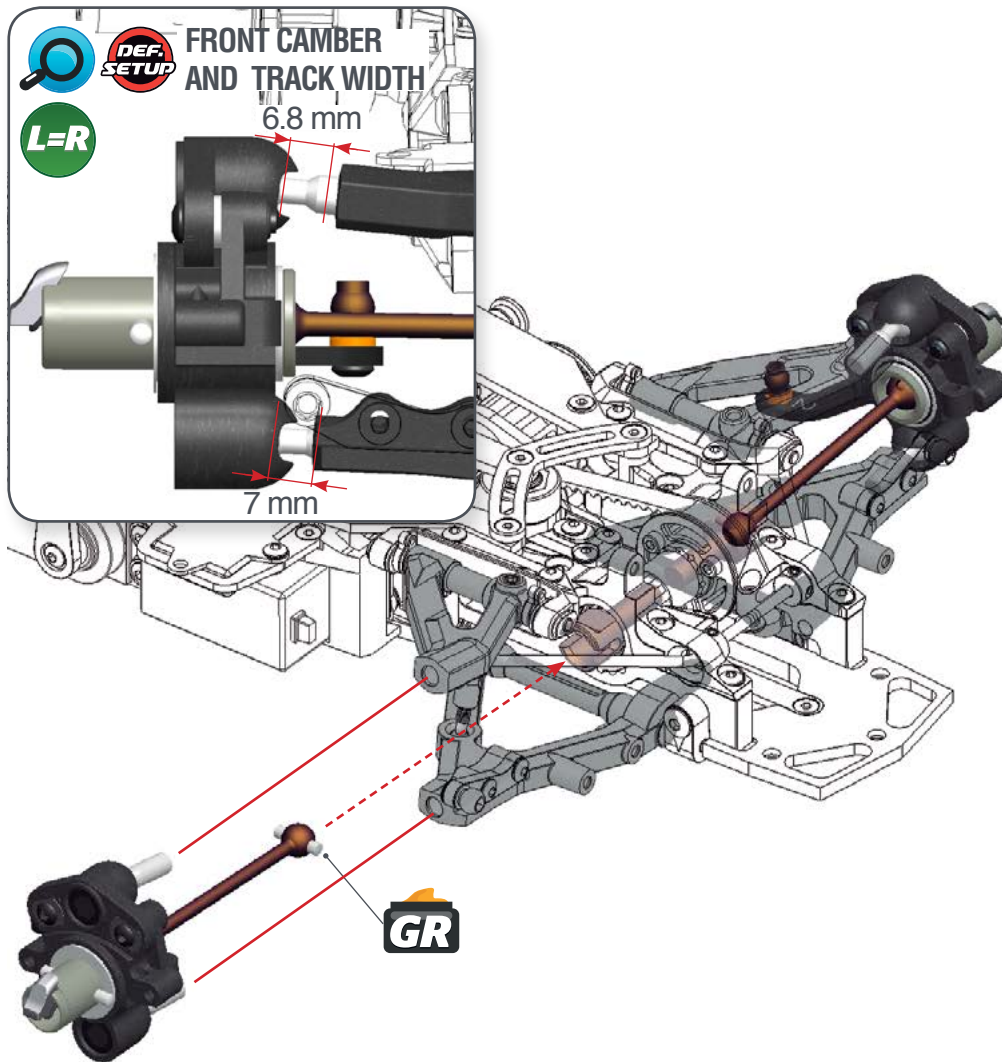
## 42.3



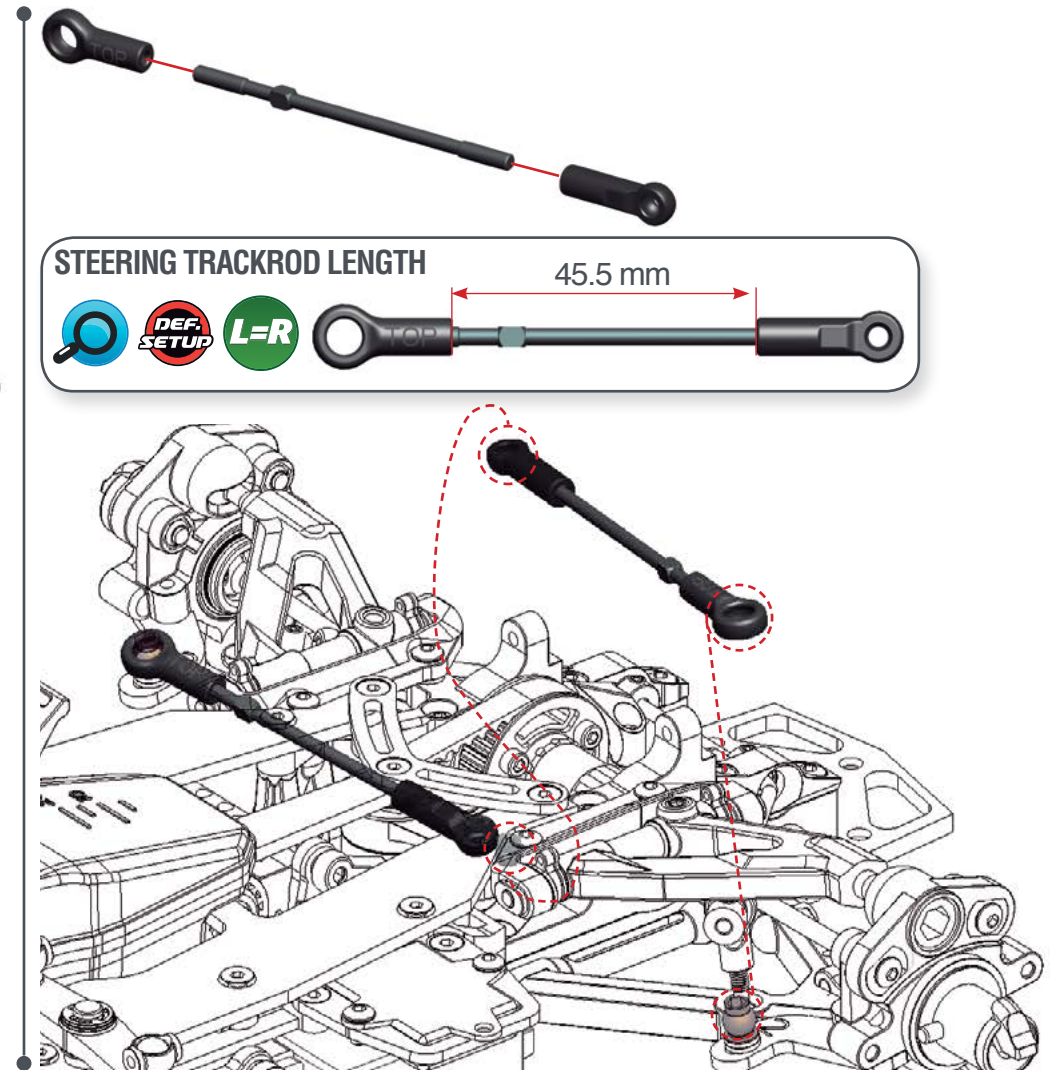
M3x12      3.2x7x0.5      Nylock Nut M3



## STEP 43



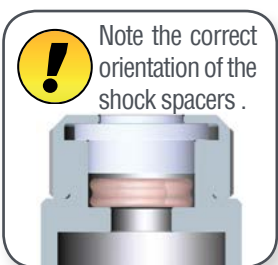
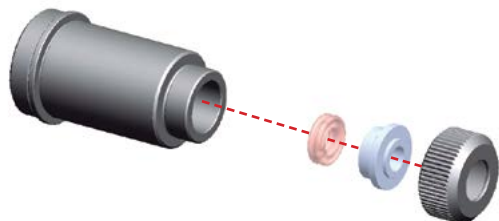
## STEP 44



## STEP 45 SHOCKS BAG

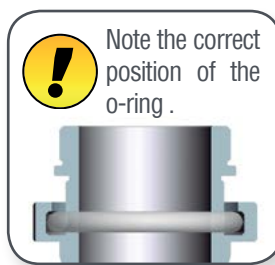
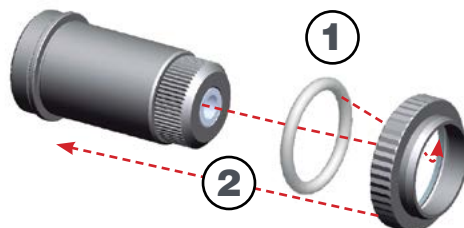
**45.1**

Use some silicone oil during the assembly.



**45.2**

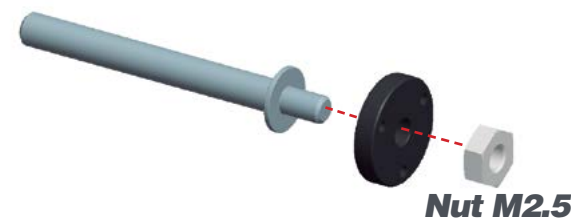
Insert the o-ring inside the spring collar.



## STEP 46

**46.1**

**!** For the correct piston holes please check the default setupsheet.



**46.2**

**SO** Use some silicone oil during the assembly.



Nut M2.5



## STEP 47

### 47.1

Push the shock top and the membrane into the shock cap.



### 47.2

1- Fill up with silicone oil fully using the silicone oil supplied in the kit. For the correct cst value please check the default setupsheet.

2- Extend the shockrod fully

3- Move the shockrod slowly up and down to let ALL air bubbles escape.

4- Close top only 3/4.



### 47.3

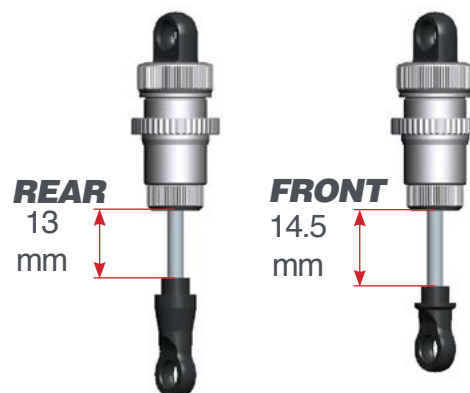
1-Bleed: push the shockrod all the way in slowly, to allow excessive oil to escape.

2- Close the shock cap completely.



#### SHOCKS LENGTH:

Measure the shock length fully extended.



**REAR**  
13 mm

**FRONT**  
14.5 mm

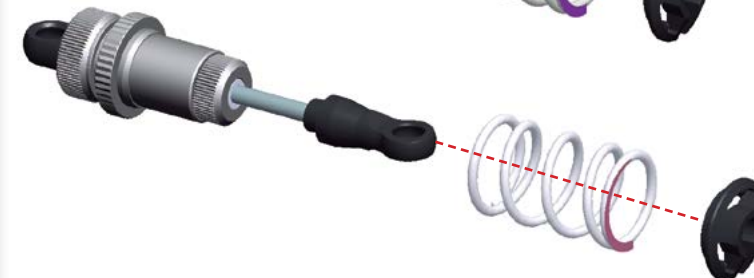
## STEP 48

Assemble the spring and spring-cup (align correctly) to complete the shock.

**FRONT**

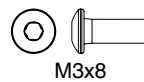
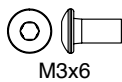
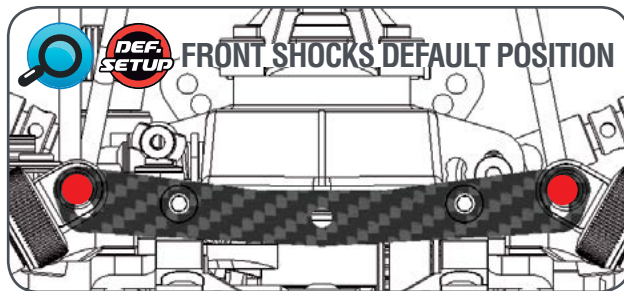
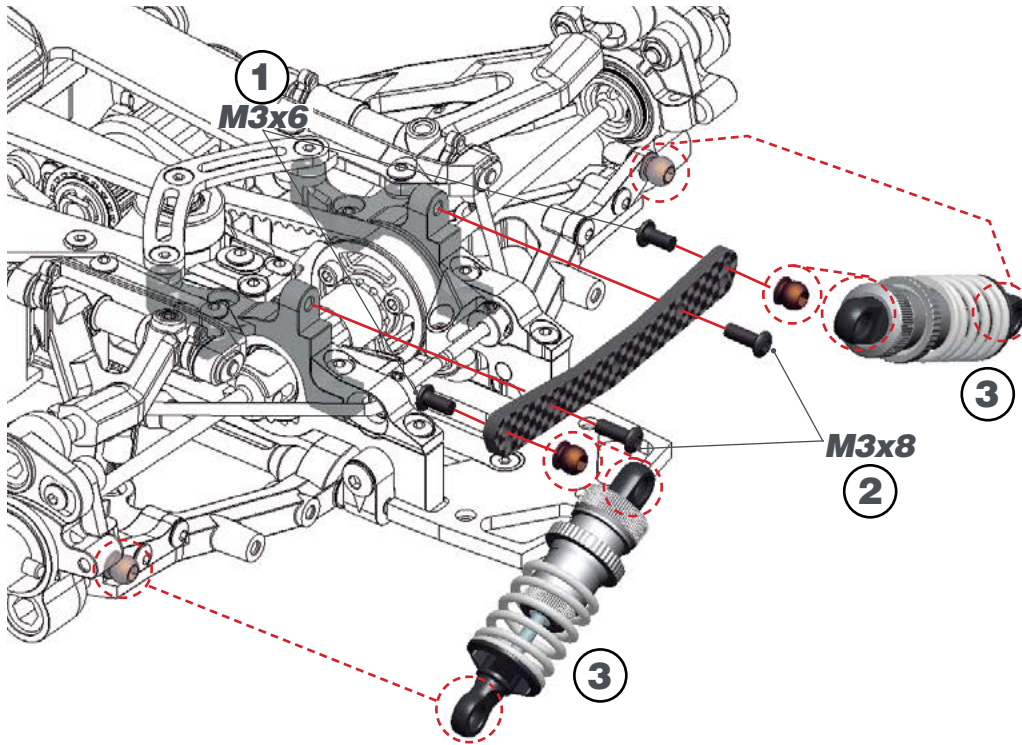


**REAR**

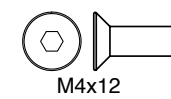
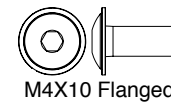
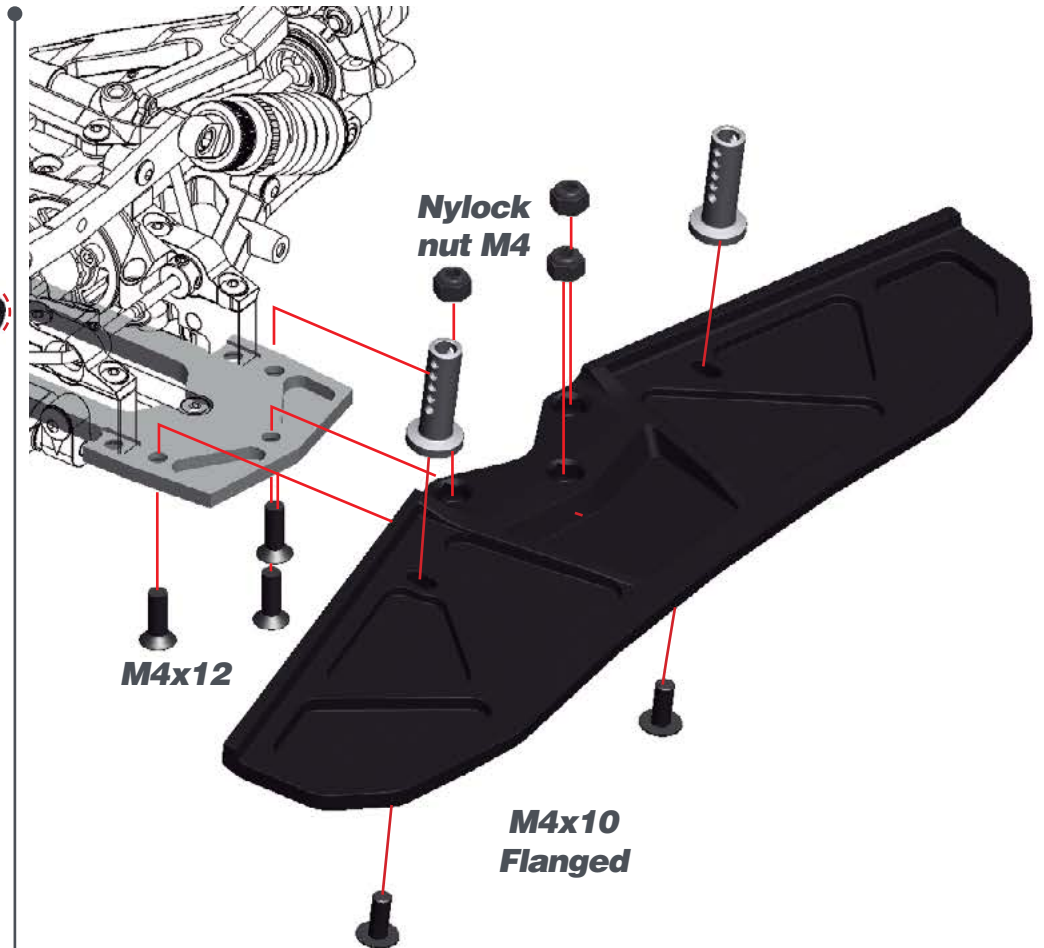


# STEP 50

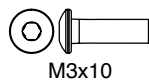
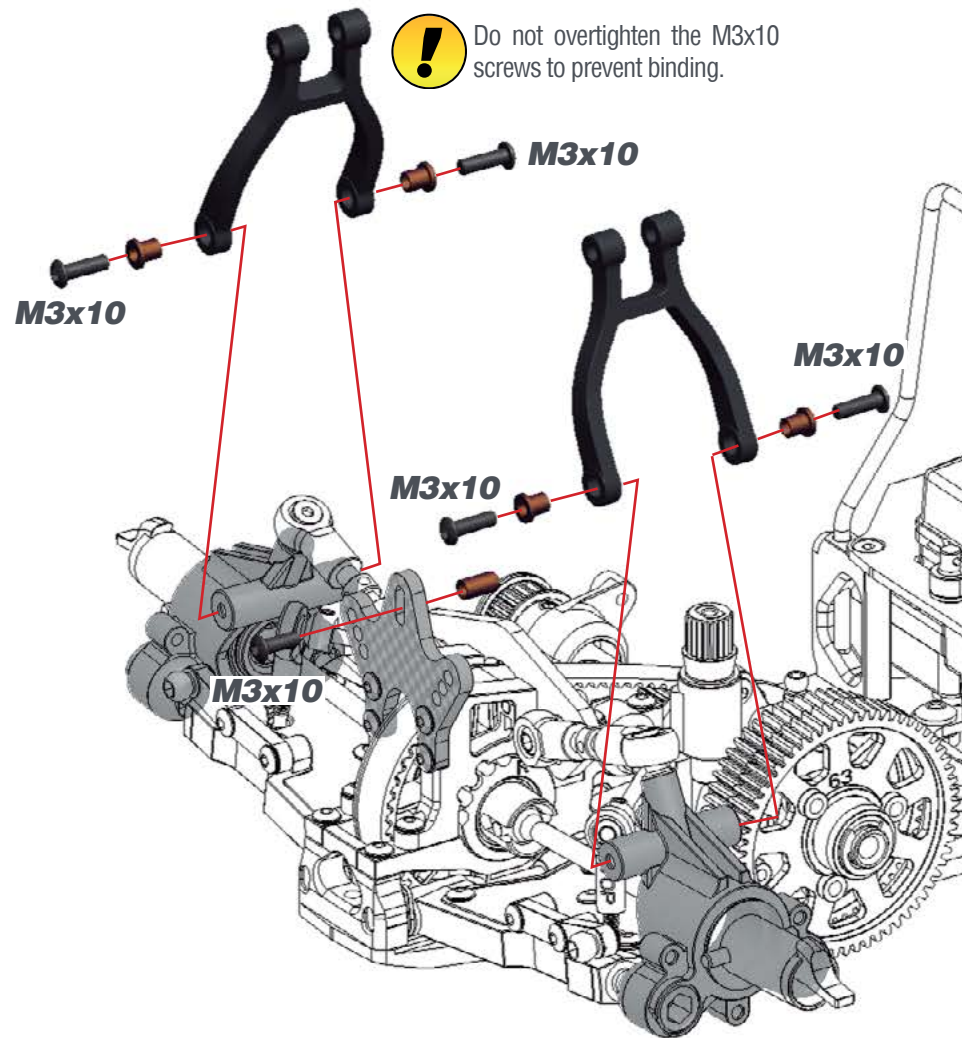
BAG 12



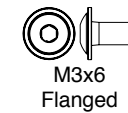
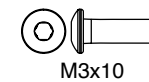
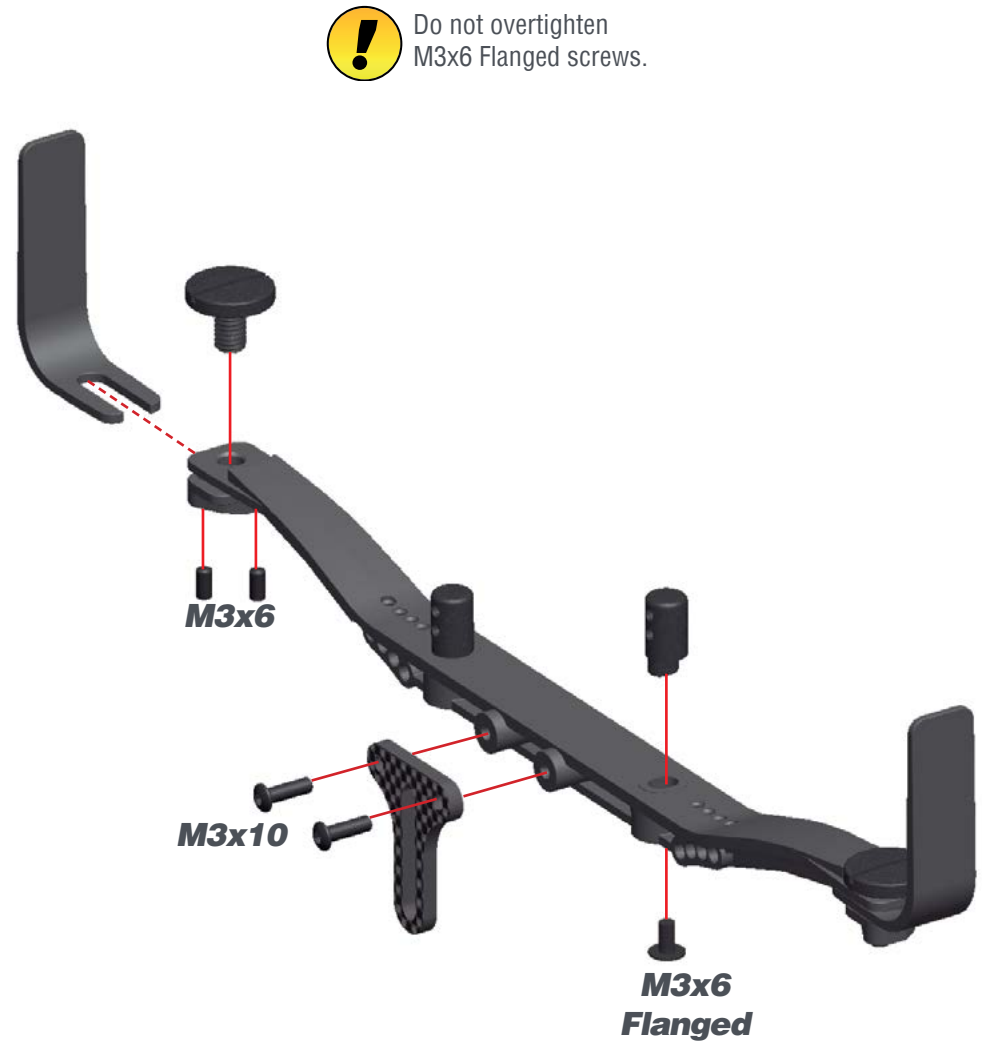
# STEP 51



## STEP 52

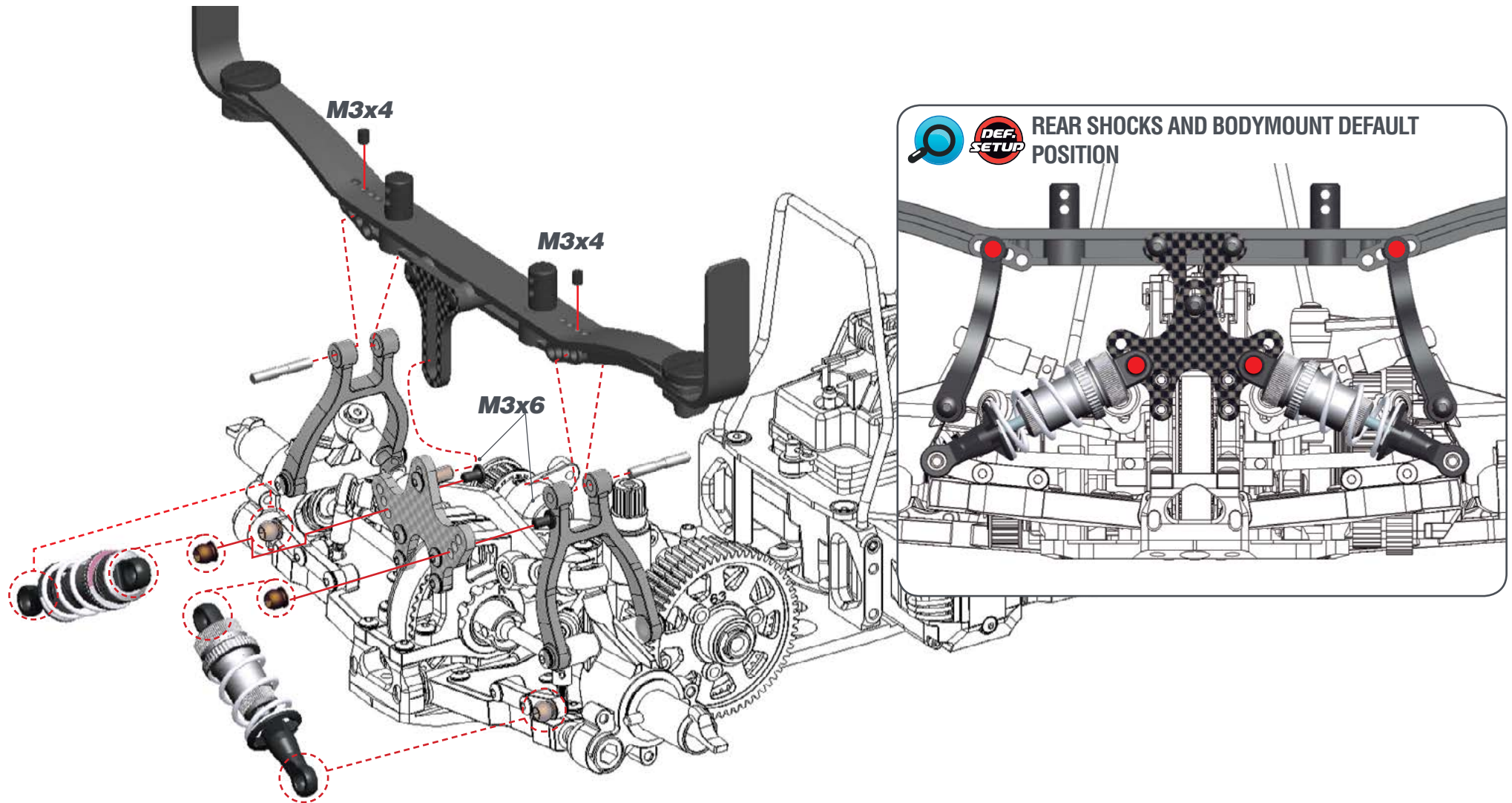


## STEP 53





# STEP 54

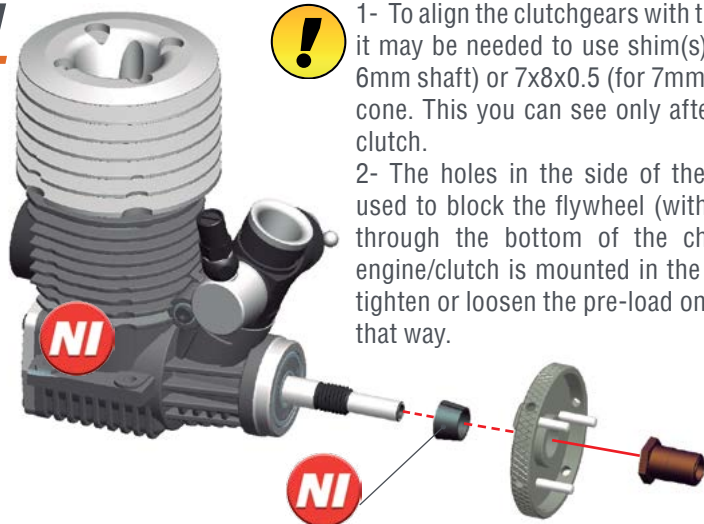


○ □  
M3x4

○ □  
M3x6

## STEP 55 CLUTCH BAG

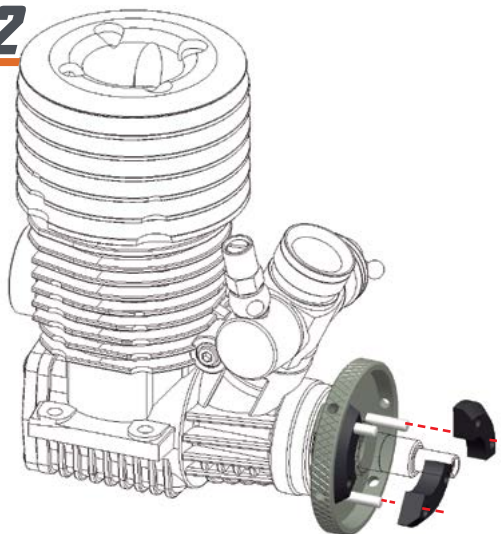
**55.1**



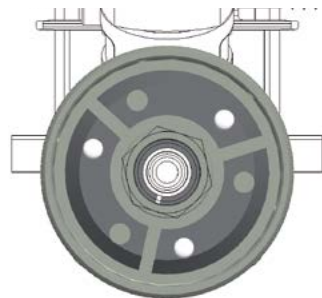
1- To align the clutchgears with the 2-speed gears, it may be needed to use shim(s) 6x8x0.5mm (for 6mm shaft) or 7x8x0.5 (for 7mm shaft) behind the cone. This you can see only after assembling the clutch.

2- The holes in the side of the flywheel can be used to block the flywheel (with short allen tool) through the bottom of the chassis, when the engine/clutch is mounted in the car. It's easier to tighten or loosen the pre-load on the clutch spring that way.

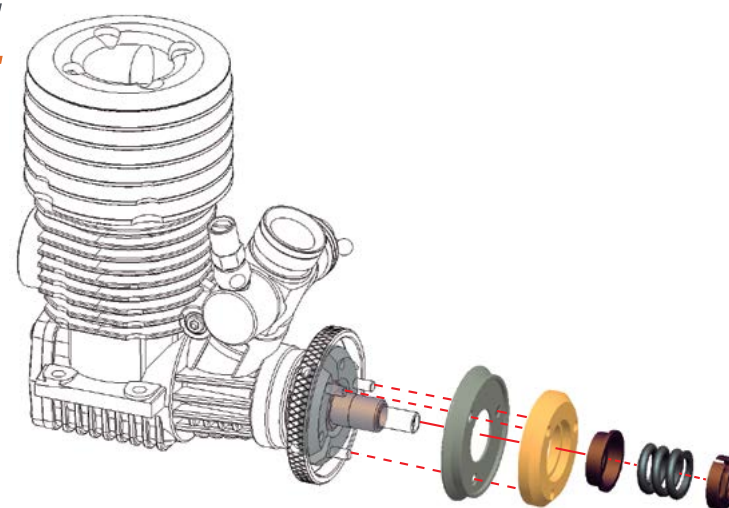
**55.2**



Note the orientation of the flyweights. Use the right hole for having a more aggressive clutch



**56.1**



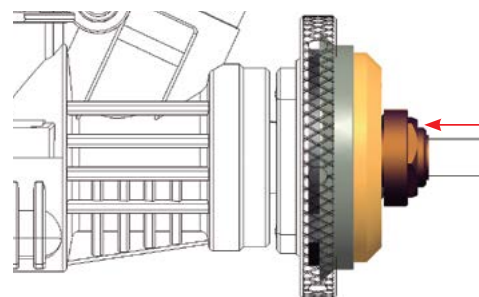
**56.2**



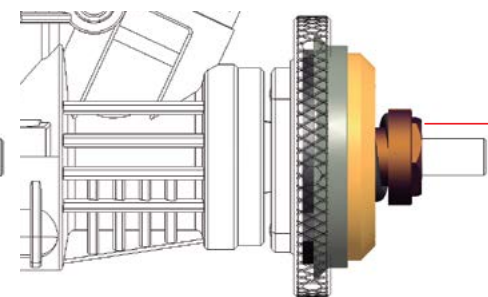
For adjusting the default clutch spring tension:

- 1- Screw in the adjusting nut all the way.
- 2- Unscrew it one and a half turns.
- 3- Fine tune the setup of your clutch on the track according to your driving style, track and weather conditions.

**1**

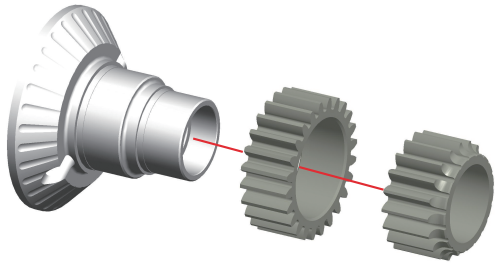


**2**

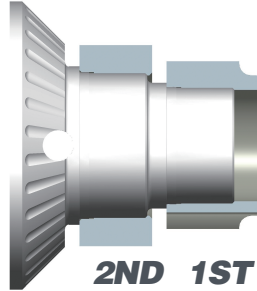


## STEP 57

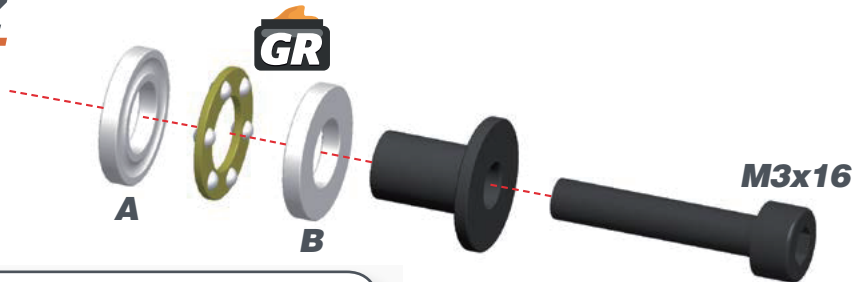
### 57.1



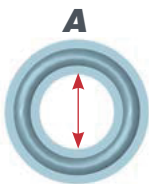
Note the orientaion of the gears



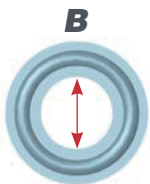
### 57.2



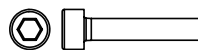
IMPORTANT! Install thrust bearing plates as shown.



5.2 mm



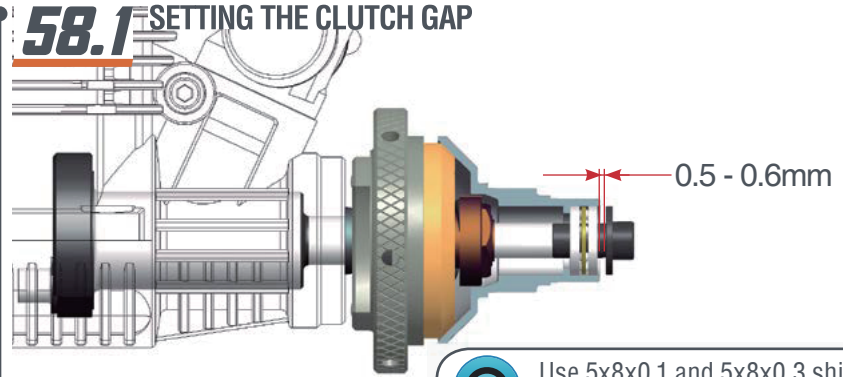
5.0 mm



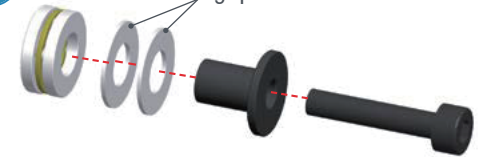
M3x16

## STEP 58

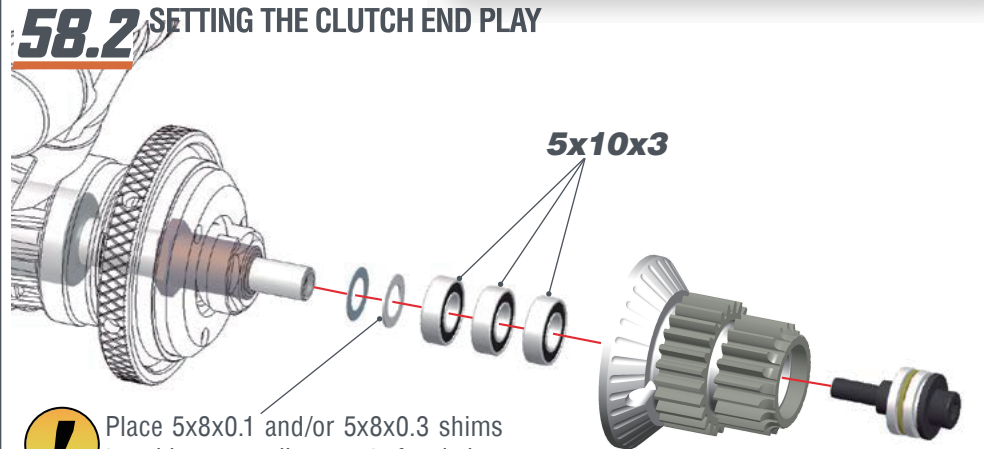
### 58.1 SETTING THE CLUTCH GAP



Use 5x8x0.1 and 5x8x0.3 shims to achieve desired gap



### 58.2 SETTING THE CLUTCH END PLAY



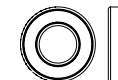
Place 5x8x0.1 and/or 5x8x0.3 shims to achieve a small amount of end play.



5x8x0.1



5x8x0.3

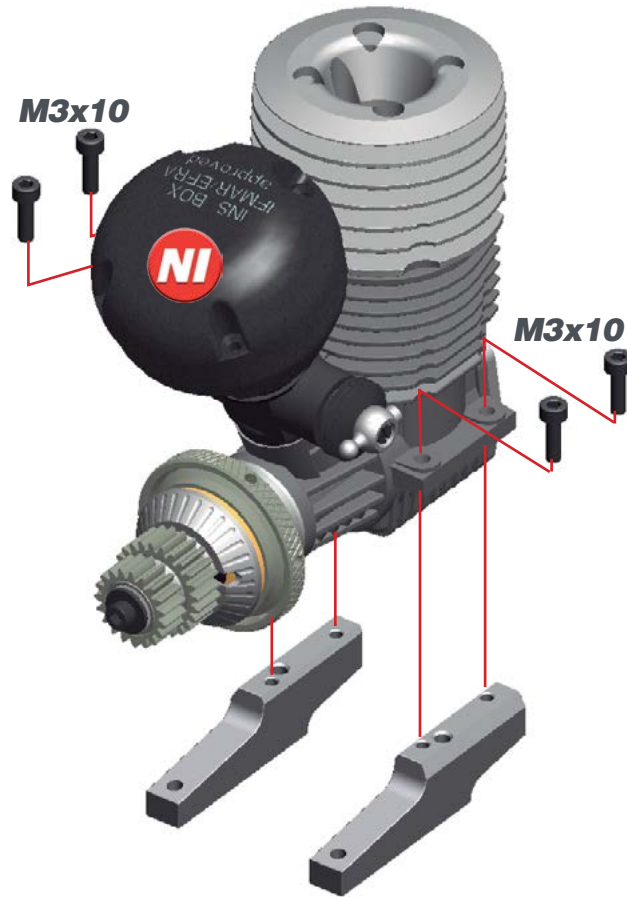


5x10x3

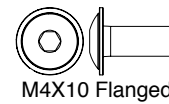
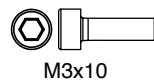
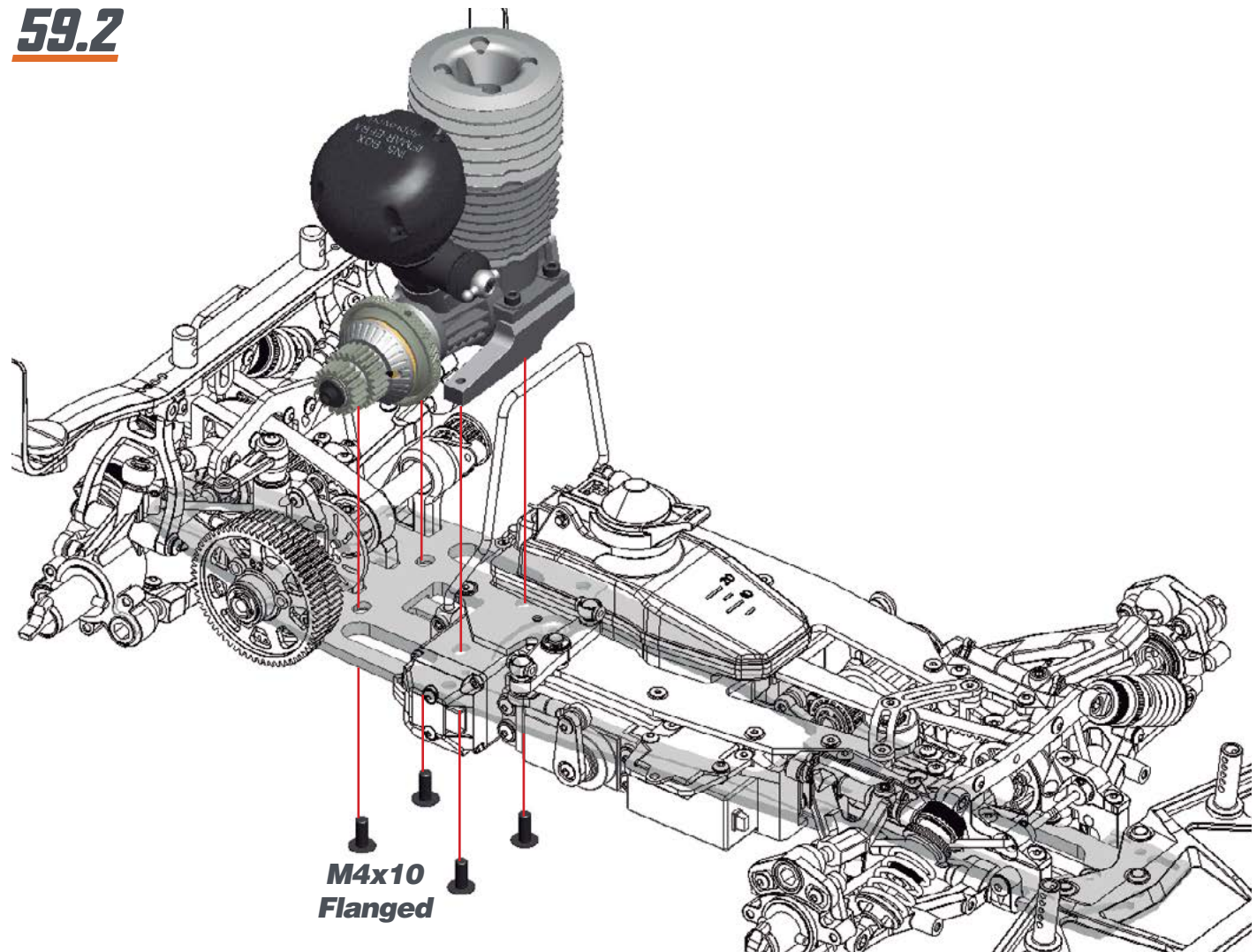


## STEP 59 BAG 13

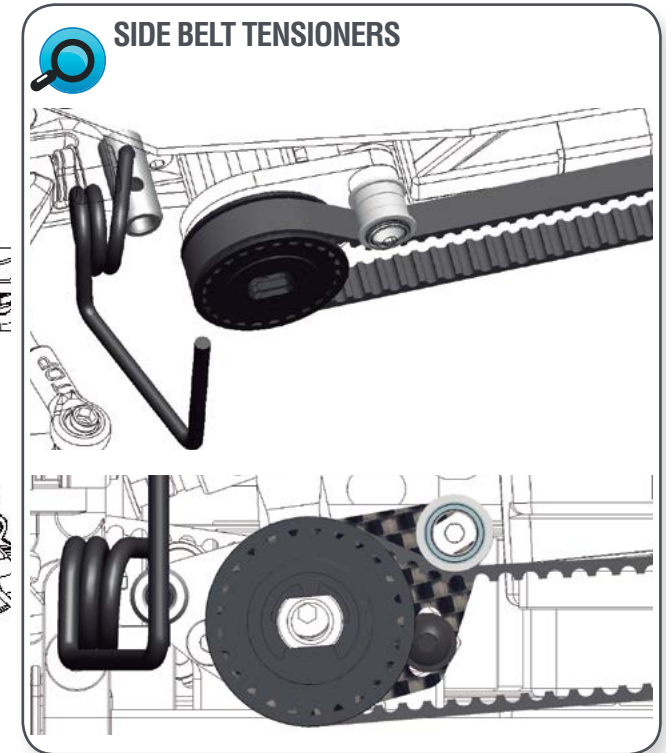
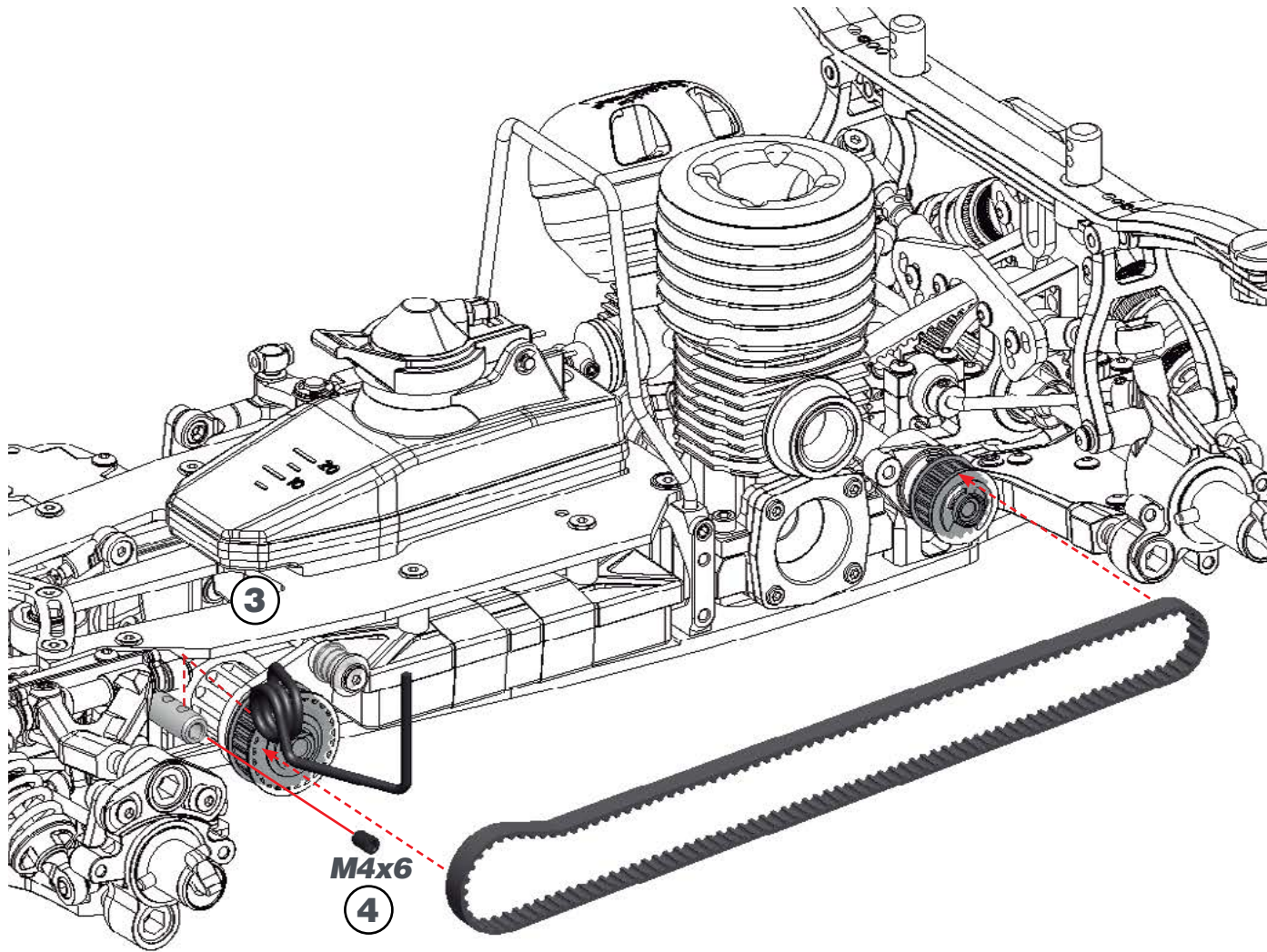
**59.1**



**59.2**



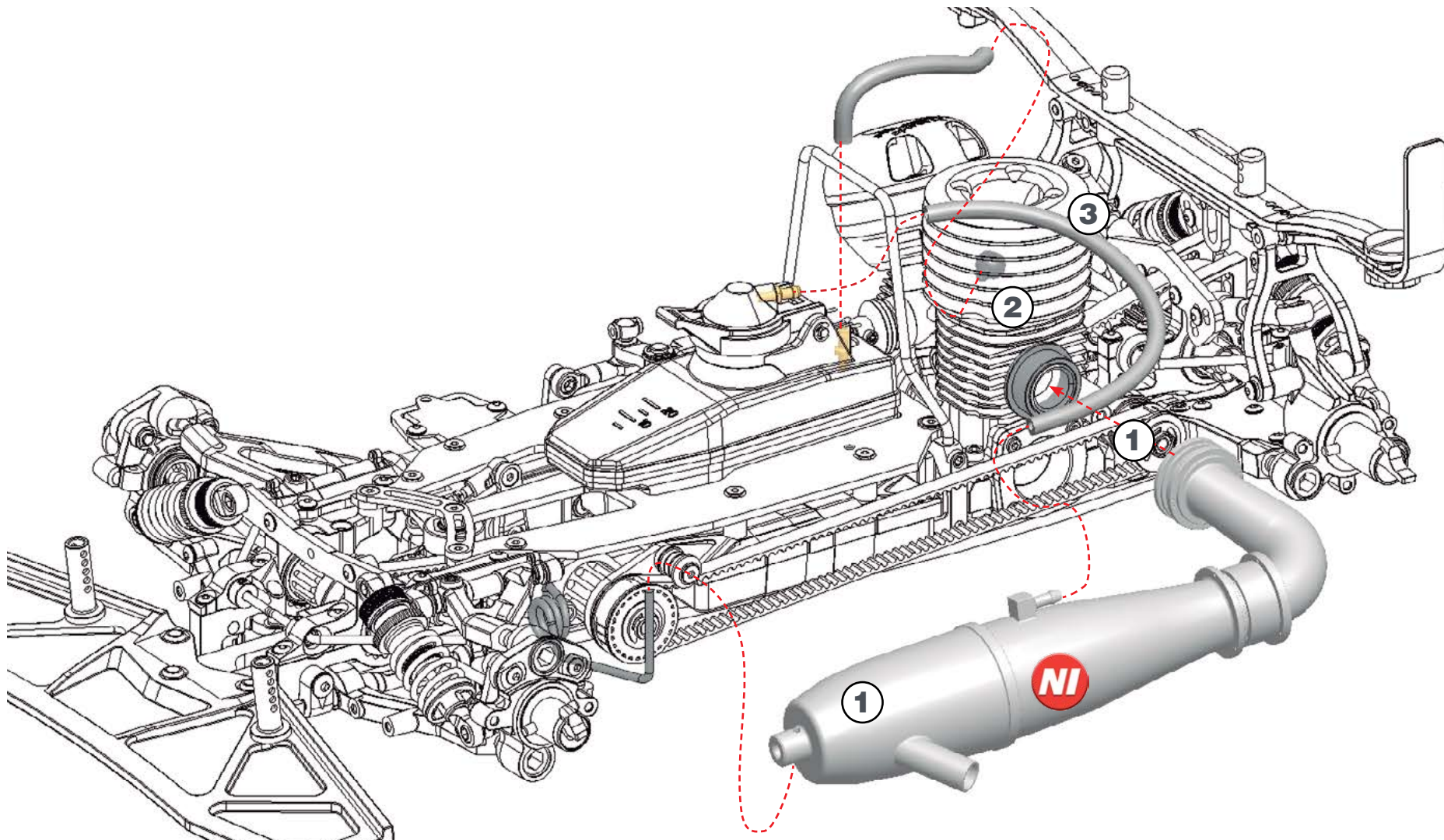
# STEP 60



M4x6



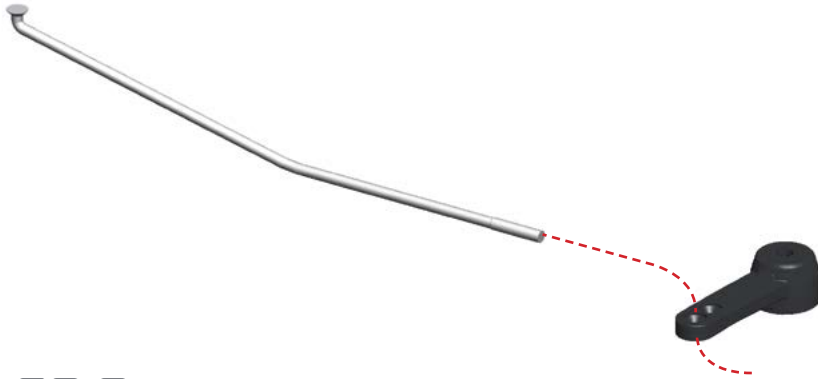
STEP 61





## STEP 62

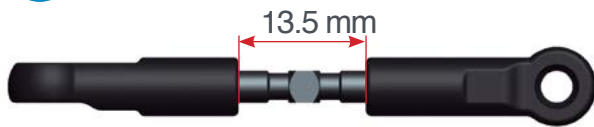
### 62.1



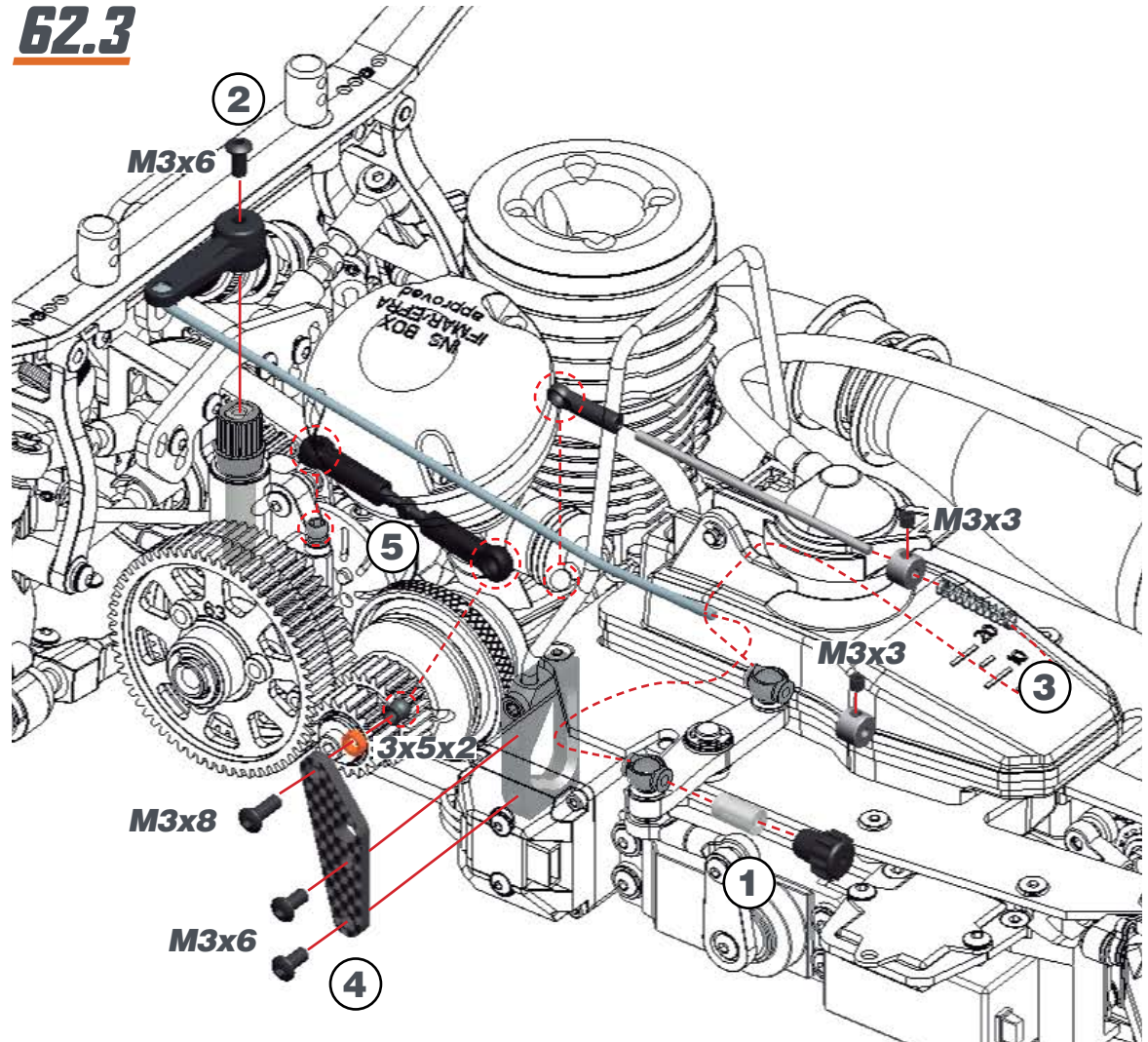
### 62.2



STIFFENER LENGTH



### 62.3



3x5x2



M3x3

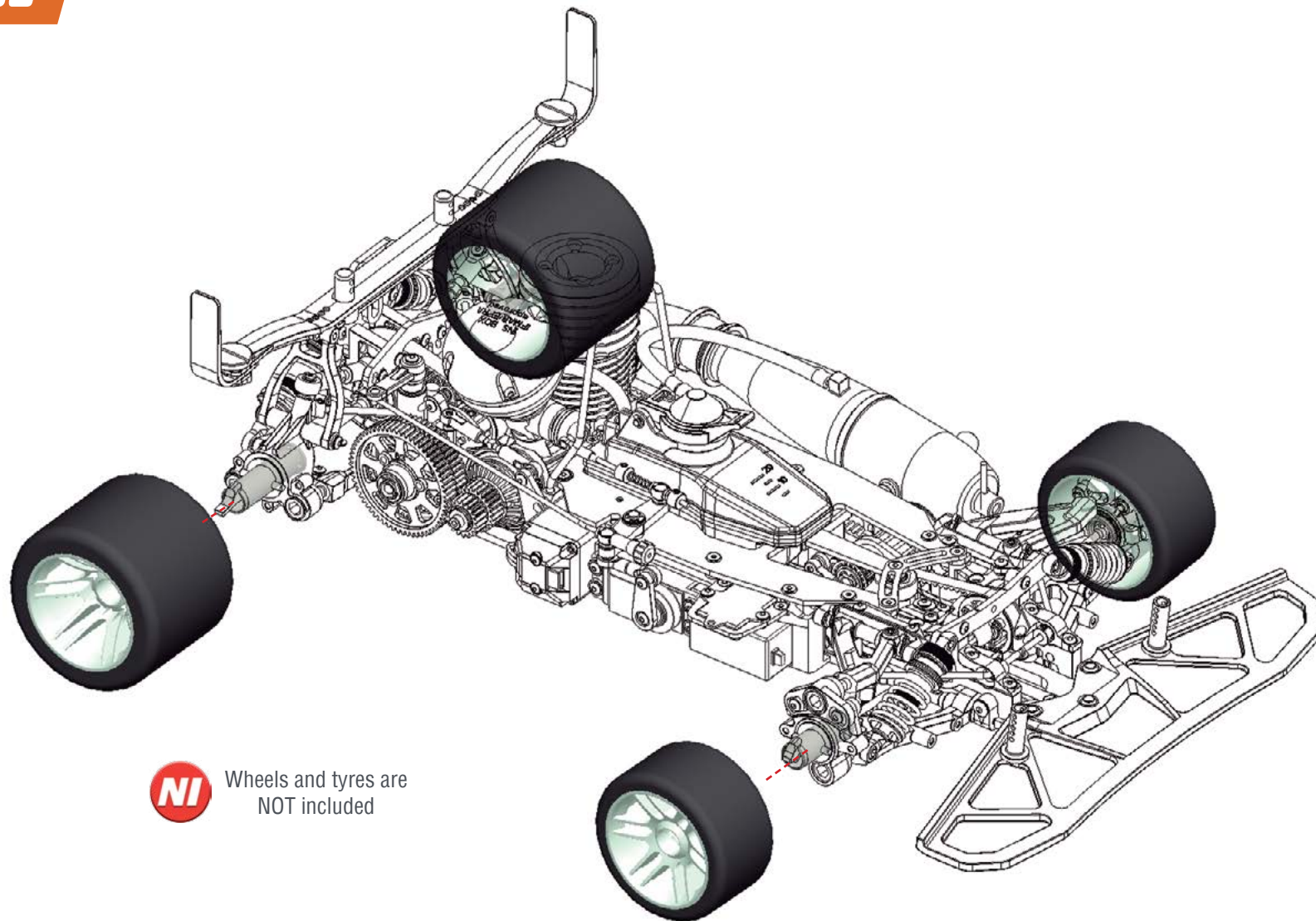


M3x6



M3x8

## STEP 63



Wheels and tyres are  
NOT included

## INDEX

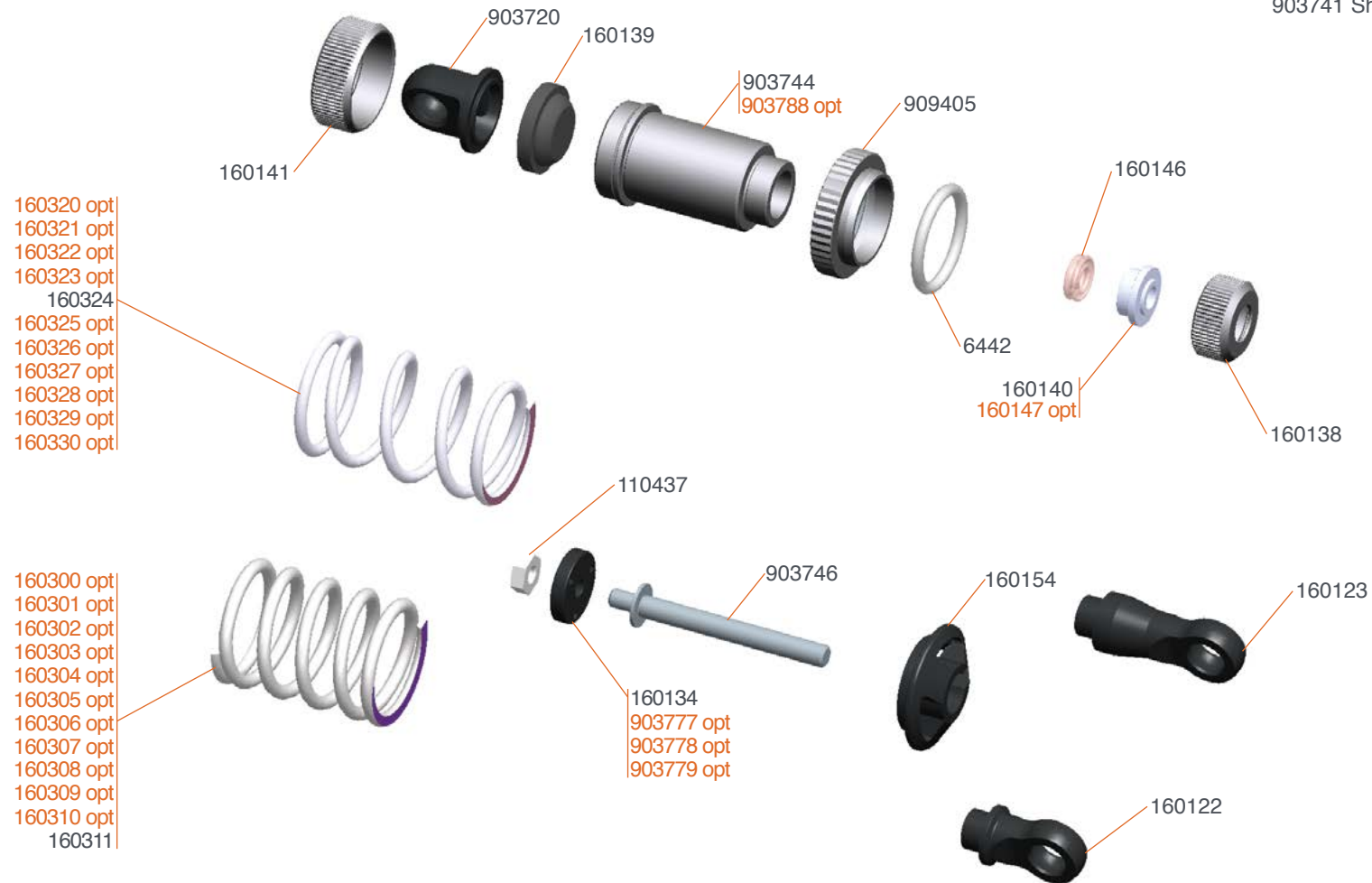
<b>CLUTCH AND GEARBOX EXPLODED VIEW</b>	<b>47</b>
<b>SHOCKS EXPLODED VIEW</b>	<b>48</b>
<b>REAR EXPLODED VIEW</b>	<b>49</b>
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<b>RADIO EXPLODED VIEW</b>	<b>51</b>
<b>FRONT II EXPLODED VIEW</b>	<b>52</b>
<b>BUMPER AND BODYMOUNT EXPLODED VIEW</b>	<b>53</b>
<b>FINAL EXPLODED VIEW</b>	<b>54</b>
<b>TEAM SERPENT NETWORK</b>	<b>55</b>





903732	2-speed gear 56T XLI Gen2
903734	2-speed gear 58T XLI Gen2
903771	2-speed gear set (6) XLI Gen2
909512	Centax II clutch-housing universal
909520	Centax II / III spring 1.8 (10mm)

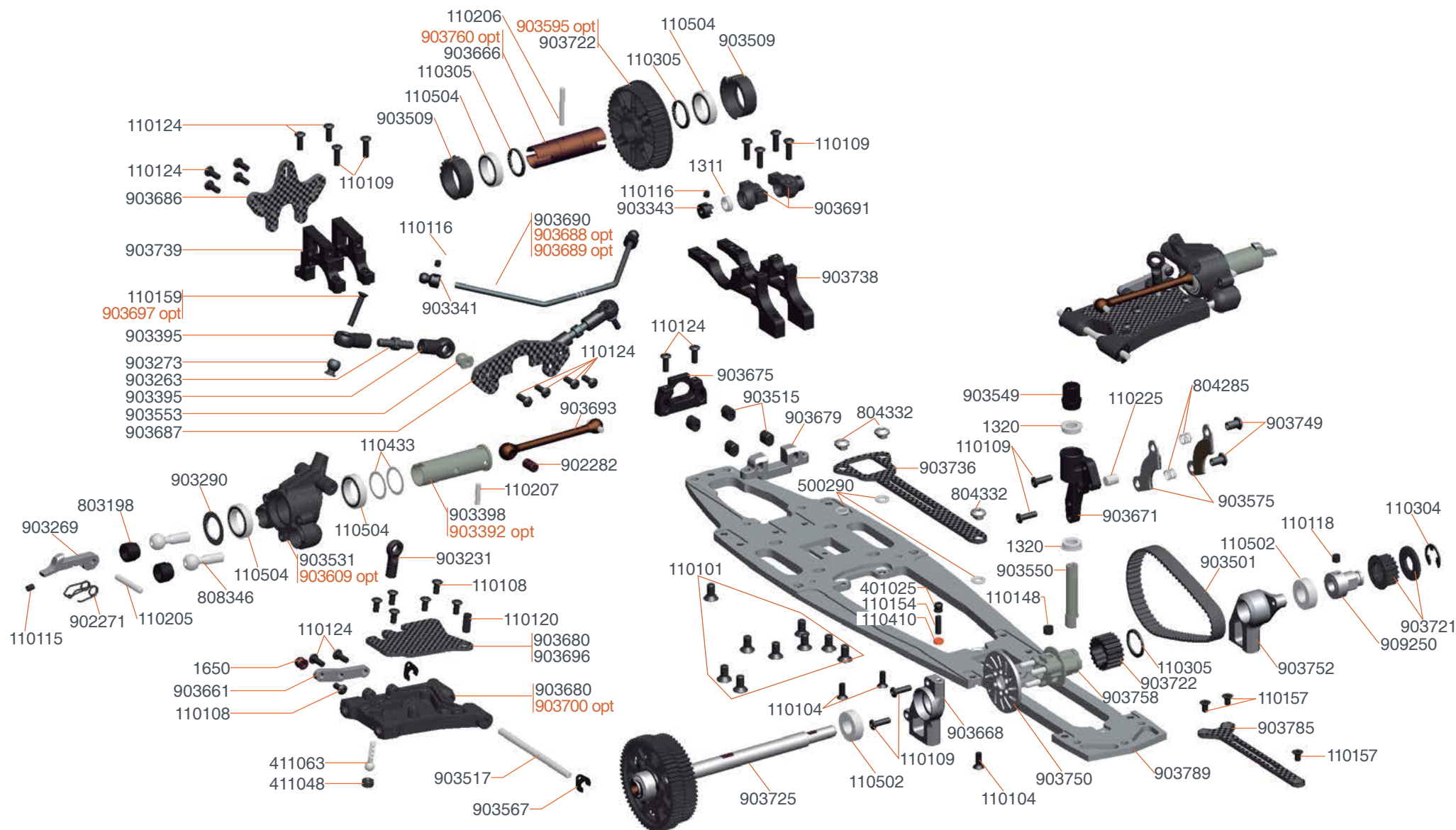
903741 Shockset XLV short (2)



160147 Shock onroad big bore bushing LF (4)  
160300 Spring white L23 (2.3/13) (2)  
160301 Spring yellow L23 (2.8/16) (2)  
160302 Spring orange L23 (3.4/19.5) (2)  
160303 Spring red L23 (4.1/23.5) (2)  
160304 Spring pink L23 (4.0/28) (2)  
160305 Spring blue L23 (5.8/33) (2)  
160306 Spring purple L23 (6.8/39) (2)  
160307 Spring green L23 (8/45.5) (2)  
160308 Spring grey L23 (9/51.5) (2)

160309 Spring black L23 (10/57) (2)  
160310 Spring-set short (5x2)  
160320 Spring white L27 (2.3/13) (2)  
160321 Spring yellow L27 (2.8/16) (2)  
160322 Spring orange L27 (3.4/19.5) (2)  
160323 Spring red L27 (4.1/23.5) (2)  
160325 Spring blue L27 (5.8/33) (2)  
160326 Spring purple L27 (6.8/39) (2)  
160327 Spring green L27 (8/45.5) (2)  
160328 Spring grey L27 (9/51.5) (2)

160329 Spring black L27 (10/57) (2)  
160330 Spring-set L27 (5x2)  
903777 Shock piston XLV 1 hole (4)  
903778 Shock piston XLV 2 hole (4)  
903779 Shock piston XLV 3 hole (4)  
903780 Heave demper set rear  
903781 Heave demper set front  
903788 Shockbody XLV short NiCoated (2)



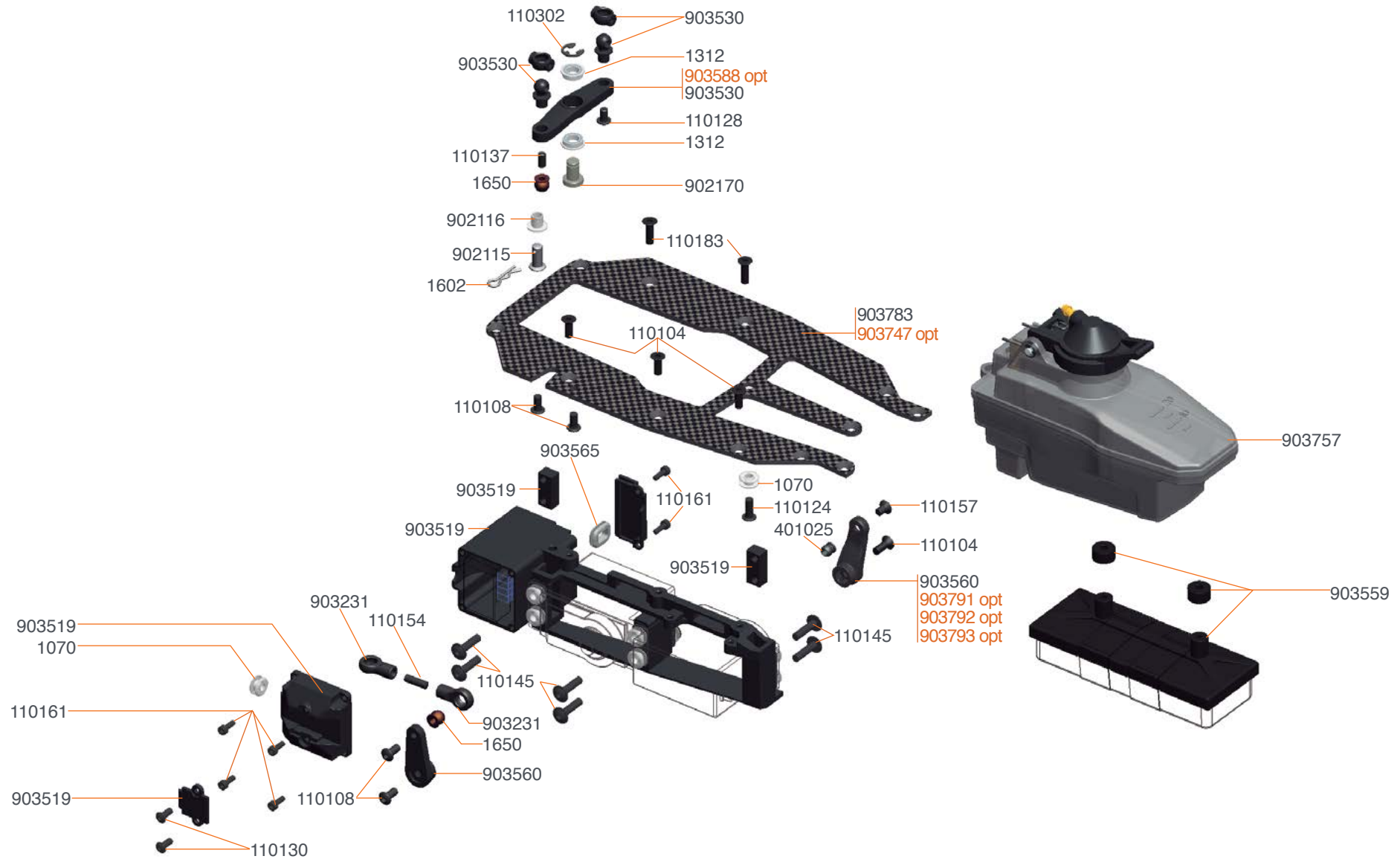
903392 Wheel-axle CVD RR (2)  
903595 Pulley rear axle 48T alu  
903609 Upright (2) hard  
903688 Antiroll bar FR/RR soft S988  
903689 Antiroll bar FR/RR medium S988

903697 Camberlink riser 1/8 (2)  
903700 Wishbone RR lw L+R hard S988  
903759 Chassis weight 14gr brass S989  
903760 Solidaxle light S989



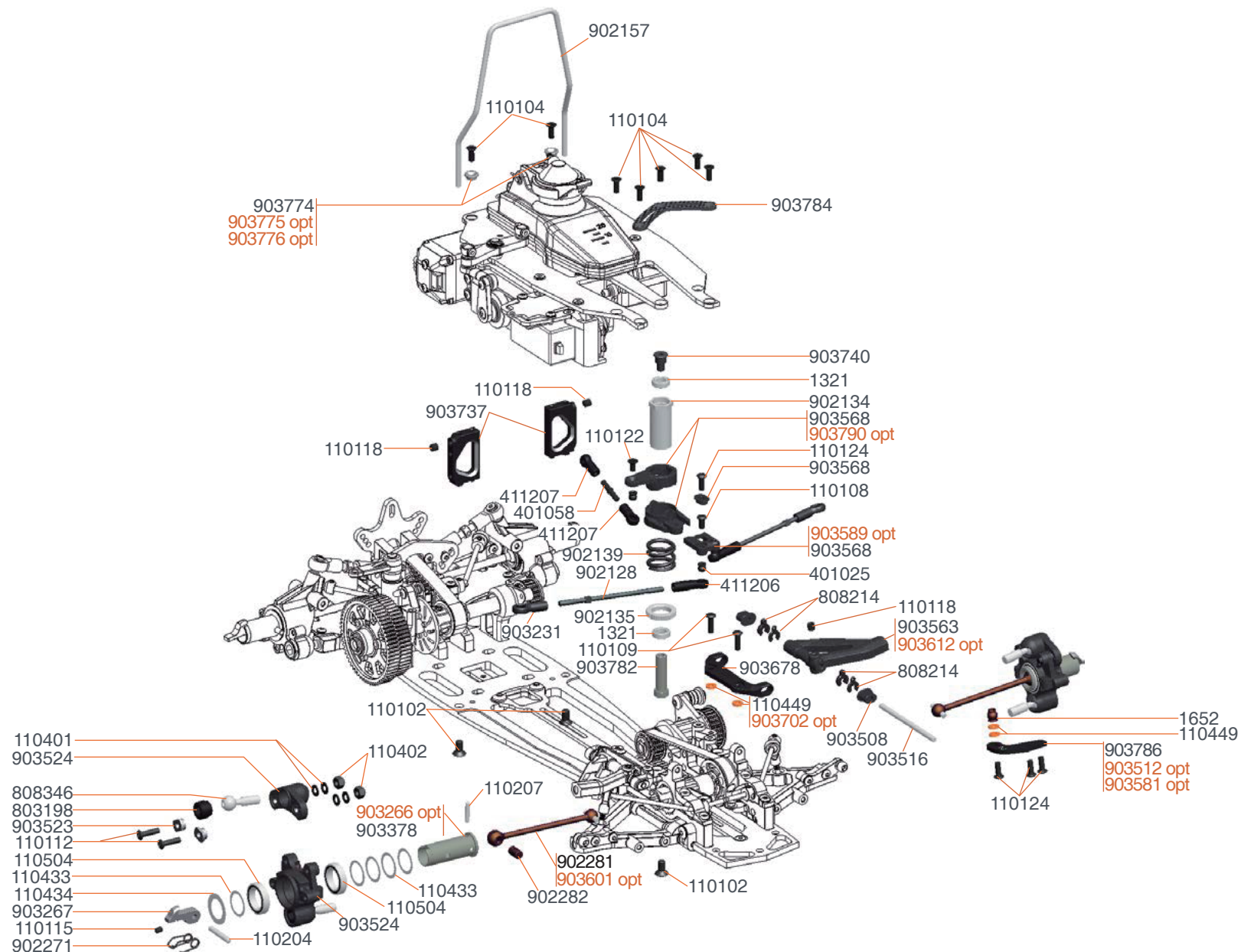


903695 Wishbone insert carbon FR lw (2)  
903699X Wishbone FR lw V2 L+R hard S988



903588 Throttle lever alu  
903747 Radioplate carbon S989  
903791 Servo lever 23T alu  
903792 Servo lever 24T alu

903793 Servo lever 25T alu

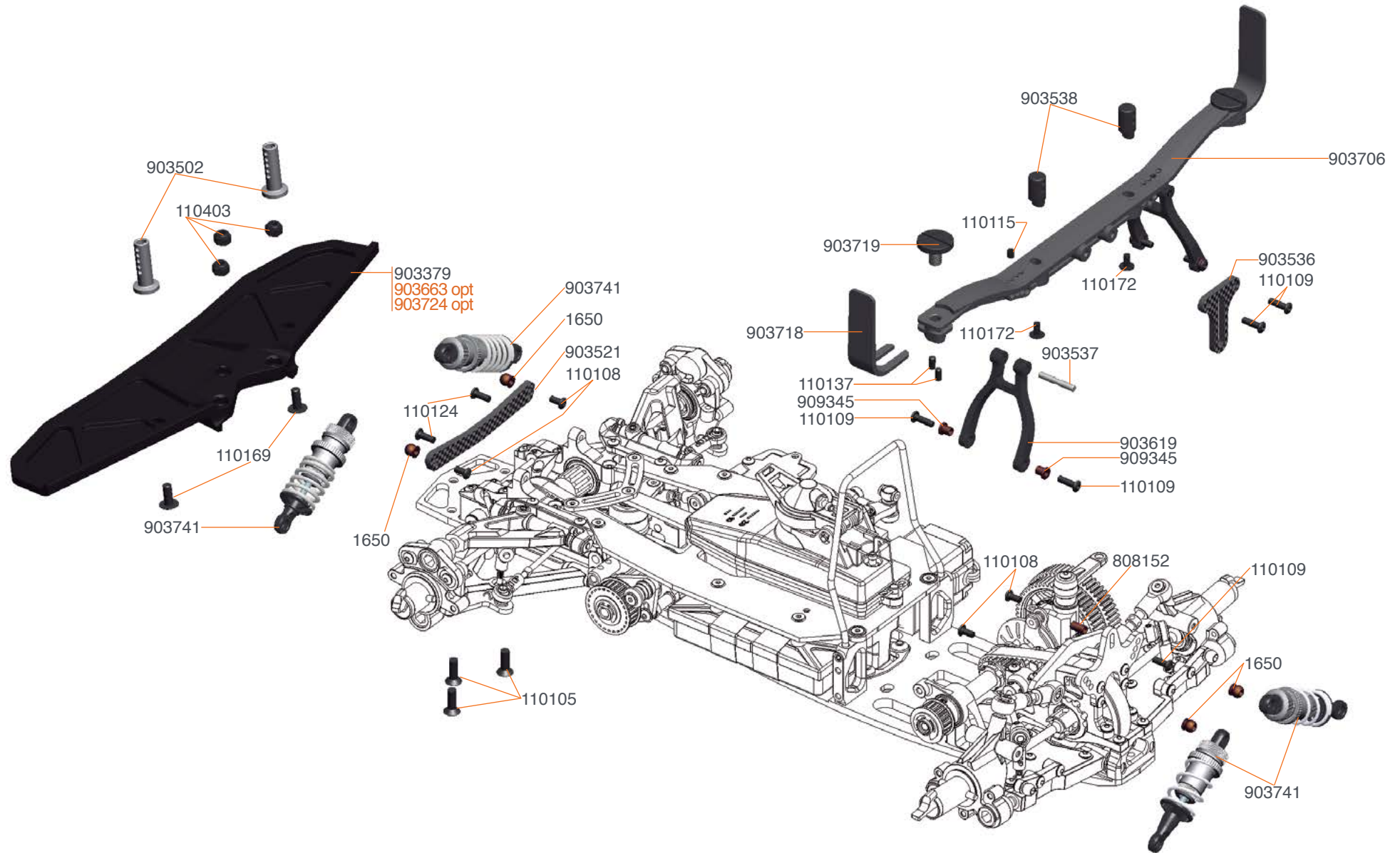


903266 Wheel-axes OS2 RR (2)  
903512 Steeringblock lever alu (2)  
903581 Steeringblock lever carbon (2)  
903589 Servosaver bottom alu (2)

903601 Driveshaft cvd FR alu (2)  
903612 Wishbone FR up (2) hard  
903702 Rollcenter spacer fr (2) S988  
903775 Flex set S989

903776 Flex insert (2) S989  
903790 Servosaver top alu

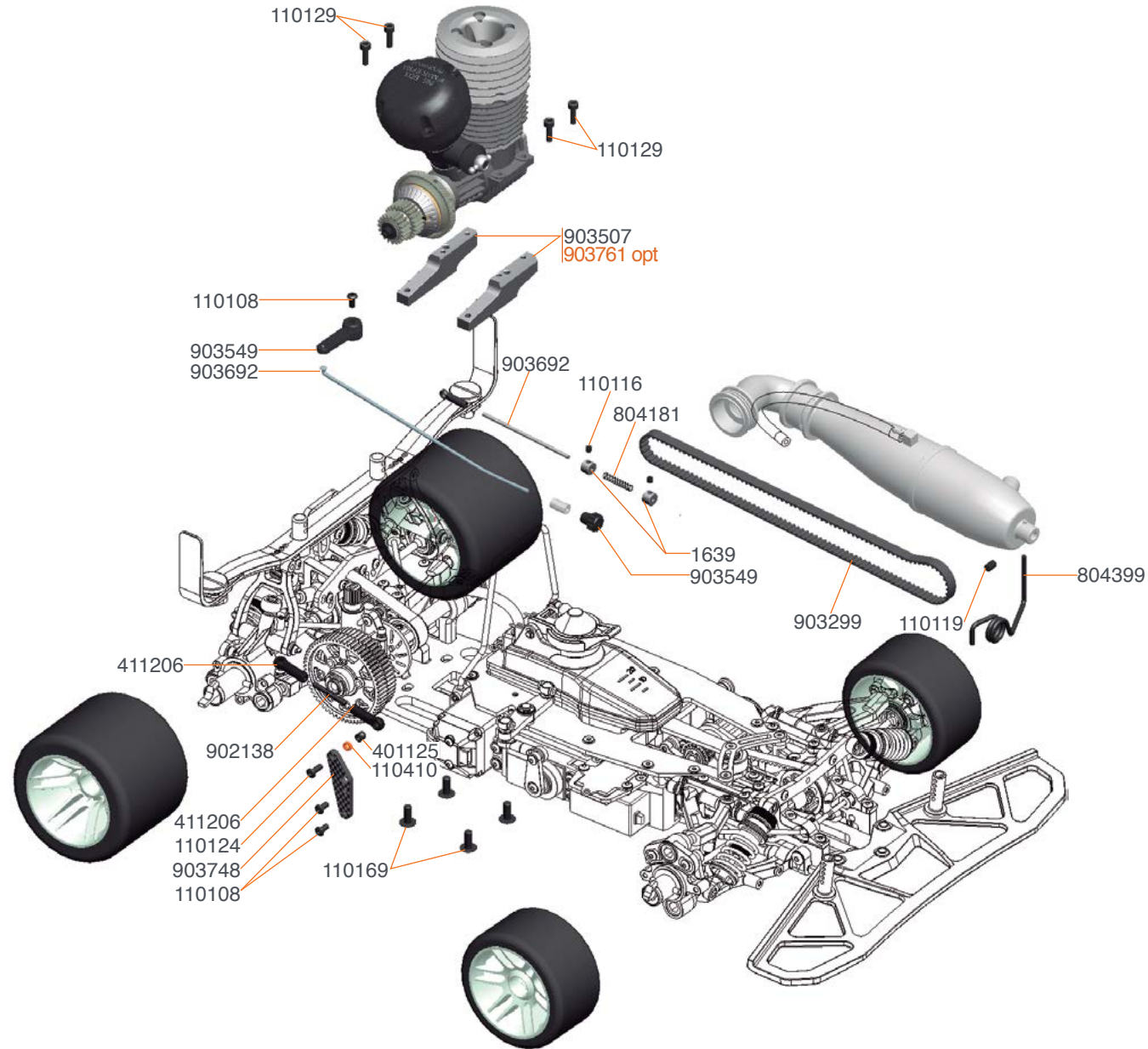




903663 Bumper 1/8 FLOW  
903664 Bumper insert set (2+2) FLOW  
903724 Bumper light S989  
903764 Bodymount pro set

903765 Bodymount center pro  
903766 Bodymount pro post alu (2)  
903767 Bodymount pro pin mount alu (2)  
903768 Bodymount pro extension mount alu (2)

903769 Bodymount pro extension carbon (2)  
903770 Bodymount pro support plate carbon



**NOTES:**

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# TEAM SERPENT NETWORK

**989 SPARE PARTS** [www.serpent.com/903019/spares/](http://www.serpent.com/903019/spares/)



**989 OPTIONALS PARTS** [www.serpent.com/903019/Optionals/](http://www.serpent.com/903019/Optionals/)



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40<sup>TH</sup>  
ANNIVERSARY

# VIPER 989

## Instruction Manual



Manual 989 40th Anniversary #57574-1

# SERPENT