

#### INTRODUCTION

Thank you very much for selecting this Serpent rc car and thus become a member of the ever growing worldwide Serpent racing family. Serpent started in 1980 and has been growing its product-line and fan -base ever since.

The Serpent Natrix 748-EVO is a state of the art gaspowered 1/10 scale onroad racing car. This evolution of the Worlds TQ car is taking performance to an even higher level. The assembly manual will guide you through all the steps to complete the car, so you can hit the track with a good base-set-up soonest. The Serpent design department succeeded to create a superbly performing car combined with eas of assembly and maintenance. The high quality standards of all parts and hardware will make racing your Serpent car a very rewarding activity!

Through our team, website and social media we will keep you up-to-date on all developments of the Serpent cars. We hope to meet you on the track and through our various media! Enjoy the drive!

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 bagnumbers, 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 lateron 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 Natrix 748-EVO. Fine-tuning the initial setup is an essential part of building a high-performance racecar like your Serpent Natrix 748-EVO.

### EXPLODED NIEWS AND PARTS LIST

The exploded views and parts lists for the Serpent Natrix 748-EVO 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. Partnumbers 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 or you may ask your dealer or the Serpent distributor for advice, or email Serpent direct: 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 cloves.
- 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



Group of items (within lines) should be assembled first

Assembly path of one item into another



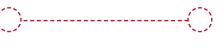
Direction the item should be moved



Glue one item to another



Press/Insert one item into another



Connect one item to another



Gap between two items

### *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.



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



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.



Parts or items not included in the kit.

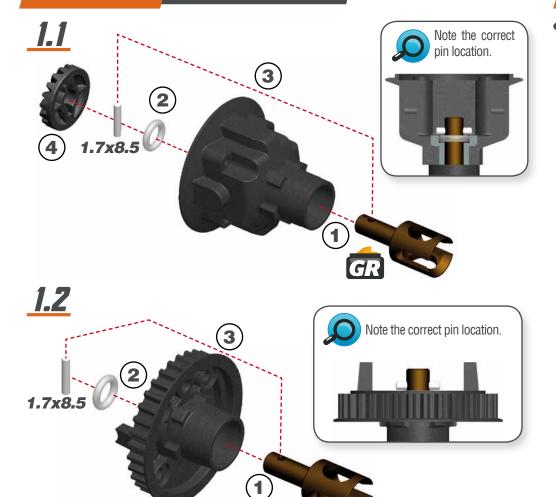


Optional part, not standard in the kit.





### STEP 1 FRONT DIFF BAG



## STEP 2

**2.1** 

Add just enough oil to cover the large gear before assembling the small satellite gears and cross pins.

For the correct cst value please check the default setupsheet.



**2.2** 







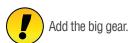






Fill the differential with silicone oil 1 mm above the crosspin, do NOT overfill. For the correct cst value please check the default setupsheet.



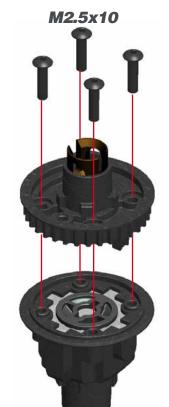




## STEP 4



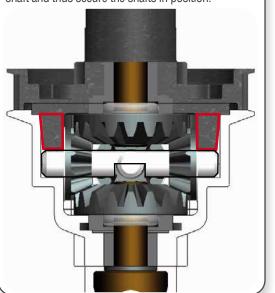
Mount the diff top-case on the lower case, make sure to follow below Detail View, and tighten the screws.





### **HOW TO CLOSE THE FRONT DIFF**

The front diff top case has two protrusions (see below picture in red) to hold the geardiff shafts in the correct position. The two protrusions press on the upper shaft and thus secure the shafts in position.





- 1- Allow the excess of oil to escape through the escape hole.
- 2- Close the hole with the 3x3 setscrew. Tighten carefully.
- 3- In case the diff feels too hard remove the M3x3 set screw and let some oils to escape and colse again. Tighten carefully.



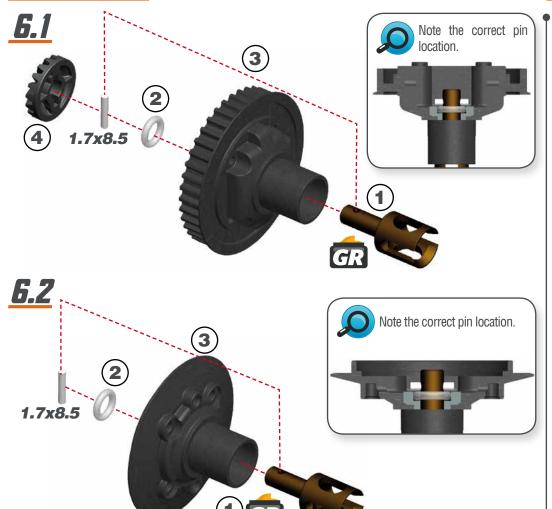








### STEP 6 REAR DIFF BAG



## STEP 7

## *7.1*

Add just enough oil to cover the large gear before assembling the small satellite gears and cross pins.

For the correct cst value please check the default setupsheet.













## *8.1*



Fill the differential with silicone oil 1 mm above the crosspin, do NOT overfill. For the correct cst value please check the default setupsheet.





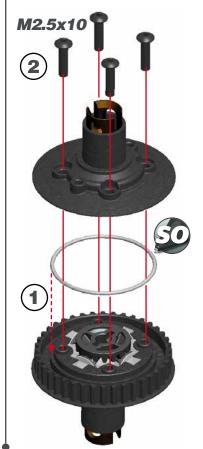




### STEP 9



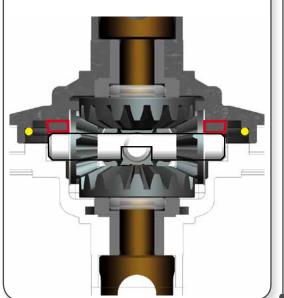
- 1- Fit the o-ring (see detail view picture in yellow) in the slot of the bottom case using some silicone oil to hold it in position.
- 2- Mount the diff top-case on the lower case, make sure to follow below Detail View, and tighten the screws.





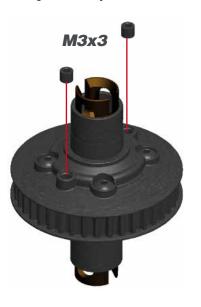
### **HOW TO CLOSE THE REAR DIFF**

The rear diff top case has two protrusions (see below picture in red) to hold the geardiff shafts in the correct position. The protrusion should hold the upper shaft as it will hold the bottom shaft.





- 1- Allow the excess of oil to escape through the escape holes.
- 2- Close the holes with the 3x3 setscrews. Tighten carefully.
- 3- In case the diff feels too hard remove the M3x3 setscrews and let some oils to escape and colse again. Tighten carefully.



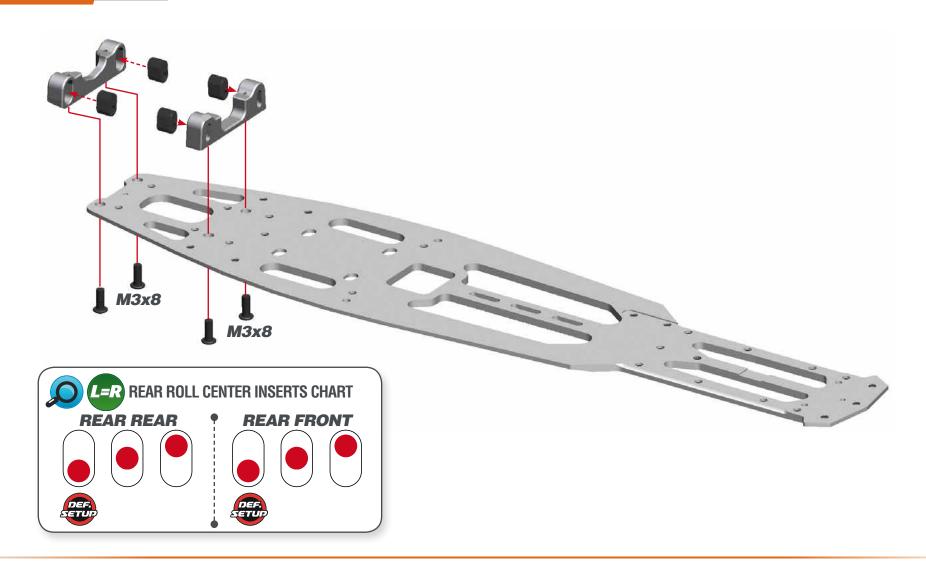








BAG 1 STEP 11



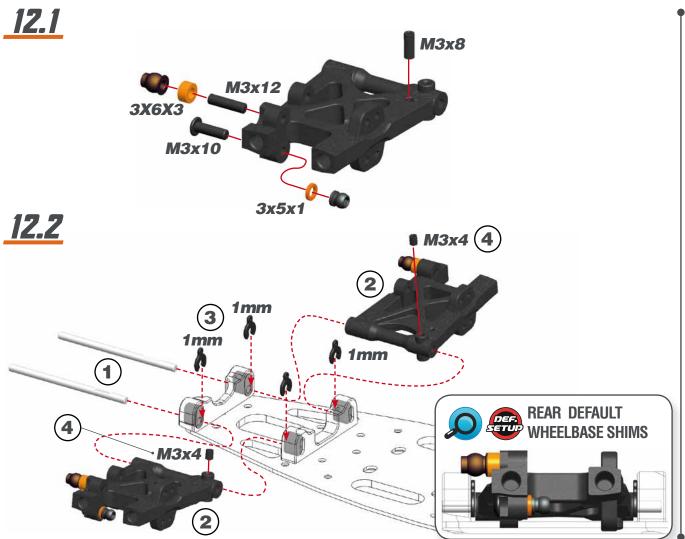


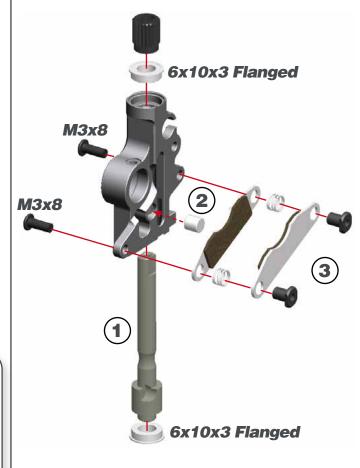
























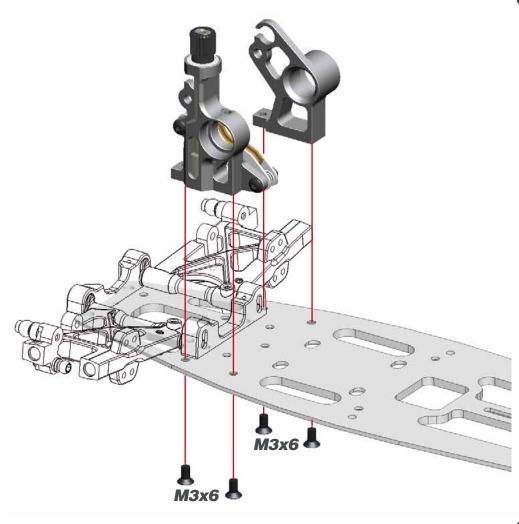


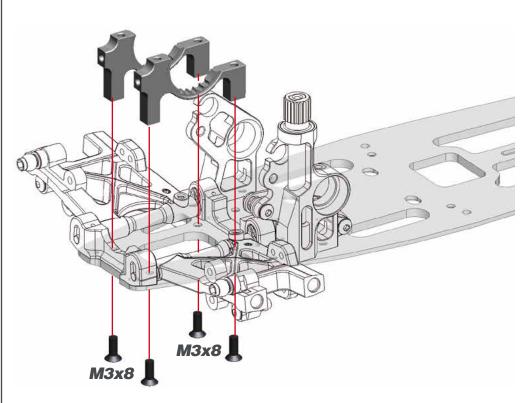












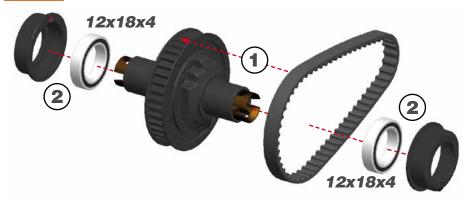


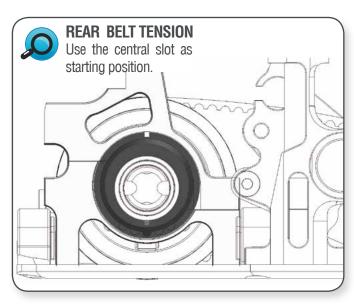


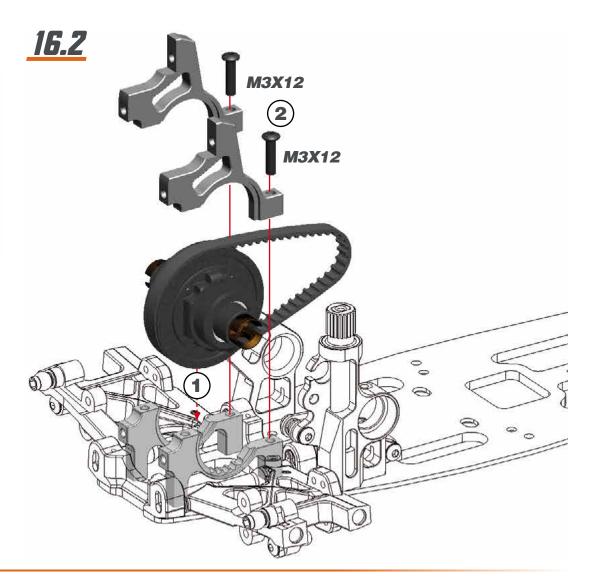




# *16.1*





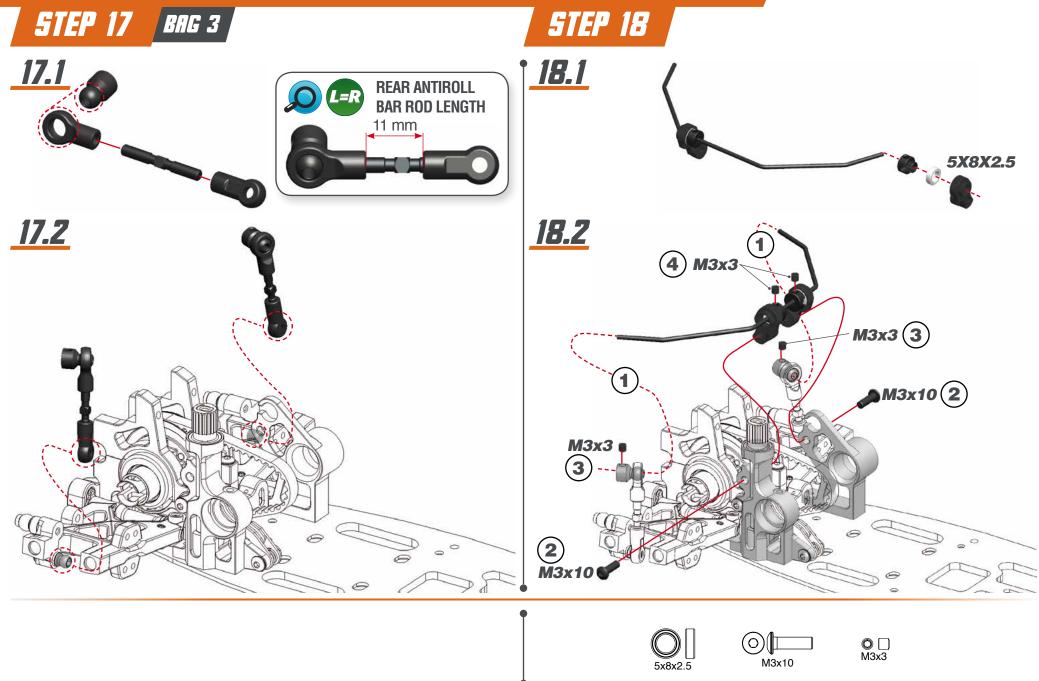






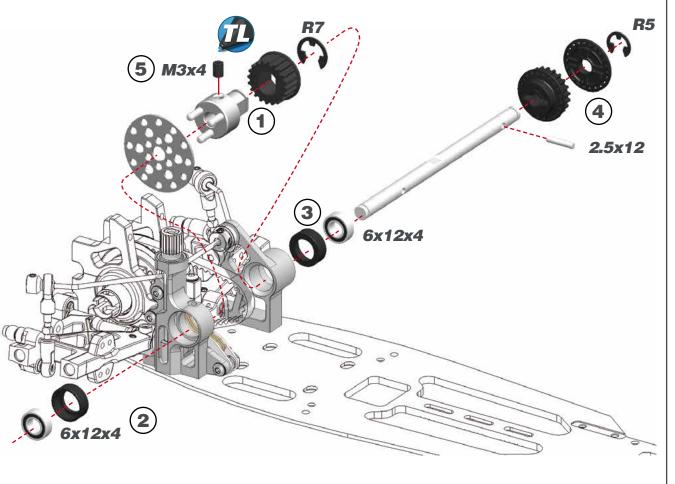


























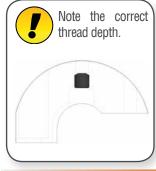


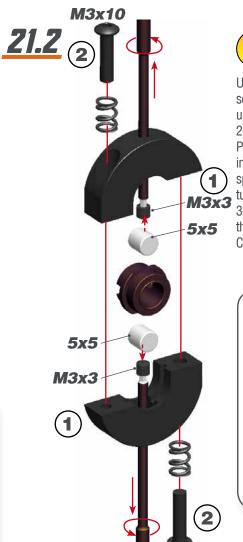




being able to assemble the M3x3 setscrew from the inside the first step is to pre-do a 2mm deep thread in the plastic shoe by the inside. After doing the thread please remove the set screw.

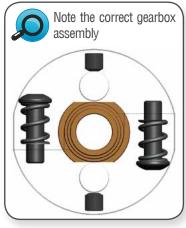






i- Assemble the M3x3 setscrew from the inside of the gearbox unscrewing it. Use the 5x5 cylider for helping the set screw going inside the hole. Do not unscrew the M3x3 screw completely. 2- The M3x10 screw adjust the SHIFT POINT. As default adjustment screw it in all the way (do not over tighten the spring deforming it), then unscrew 3

turns. 3- Adjust the M3x3 screw to minimise the gap between the shoes to the bell. Check regularly.







M3x10

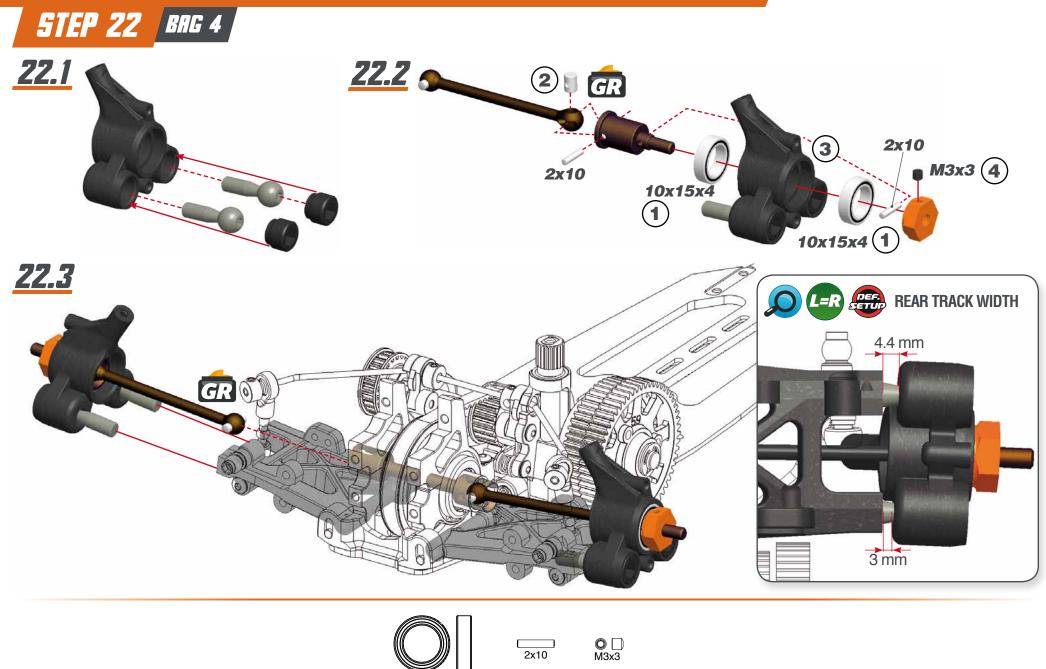
**◎** □ M3x3





2.5x12

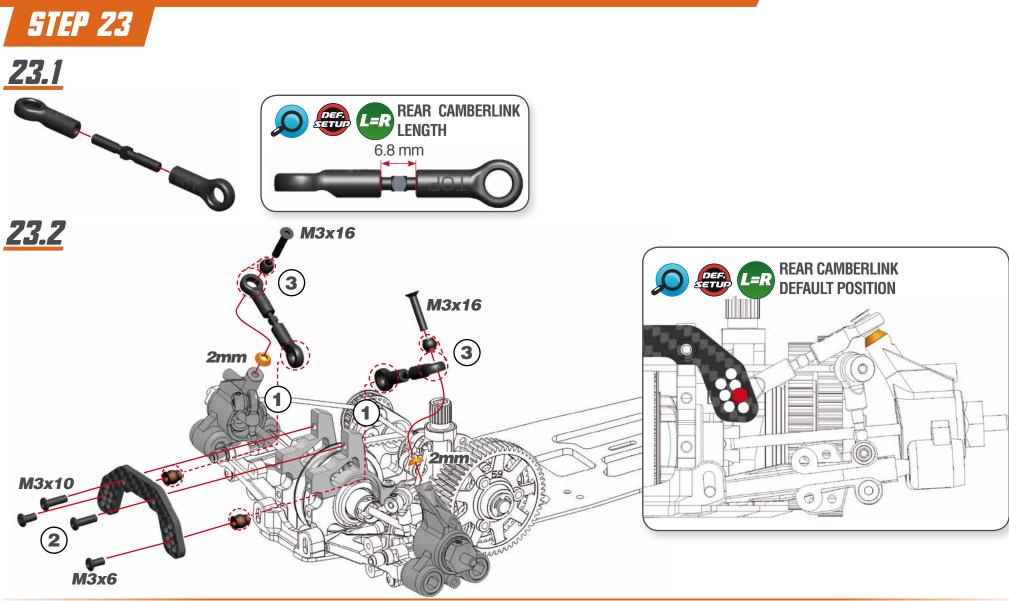




10x15x4







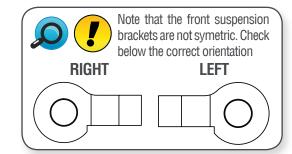


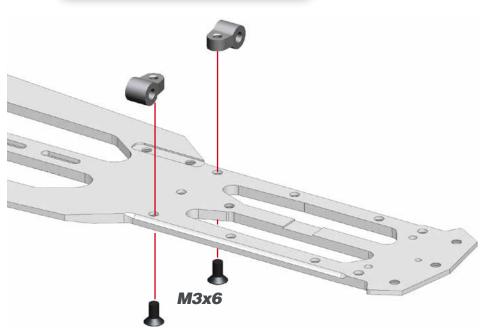


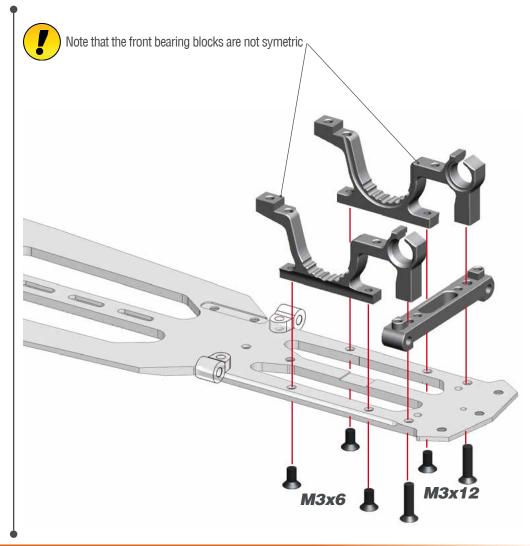




# STEP 24 BAG 5







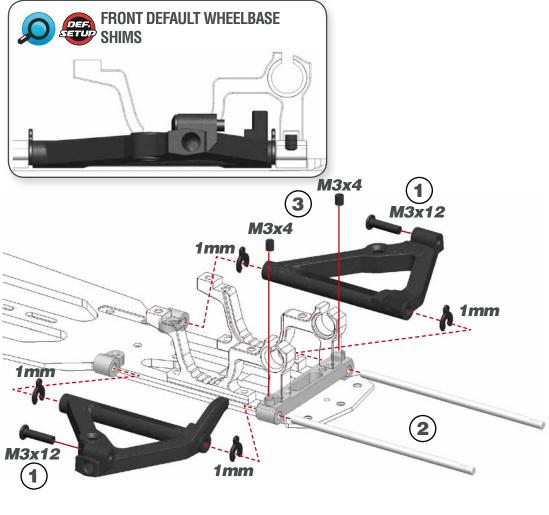




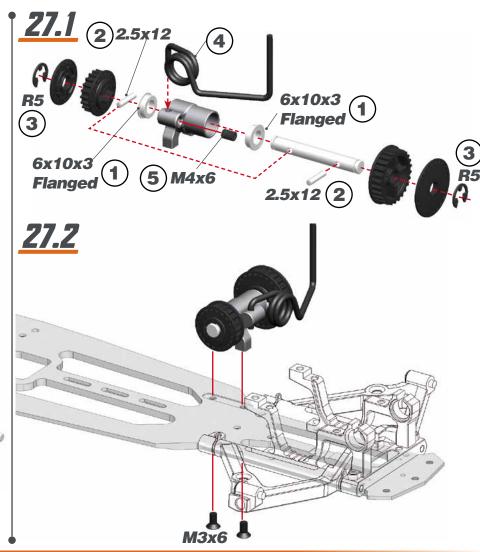








## STEP 27 BAG 6











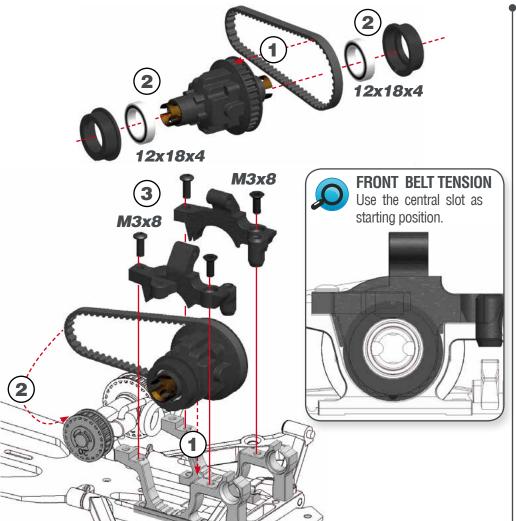


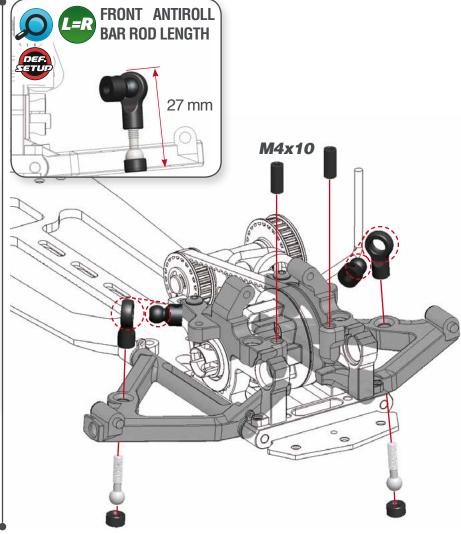


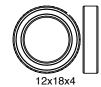














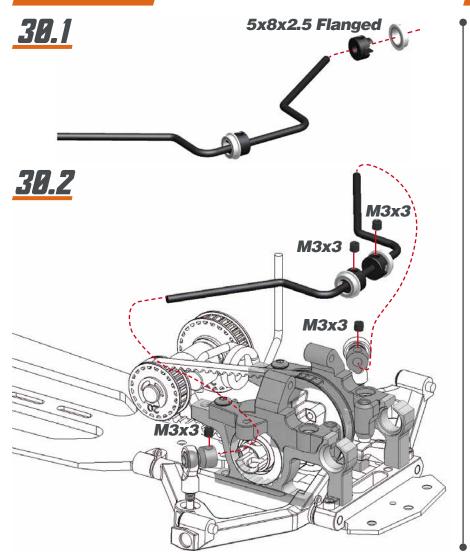




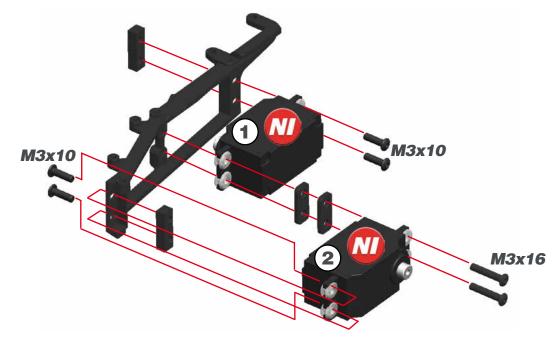


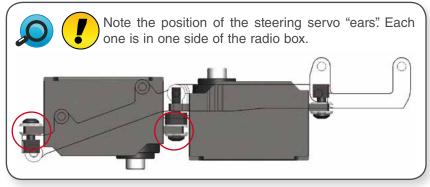






# STEP 31 BAG 7







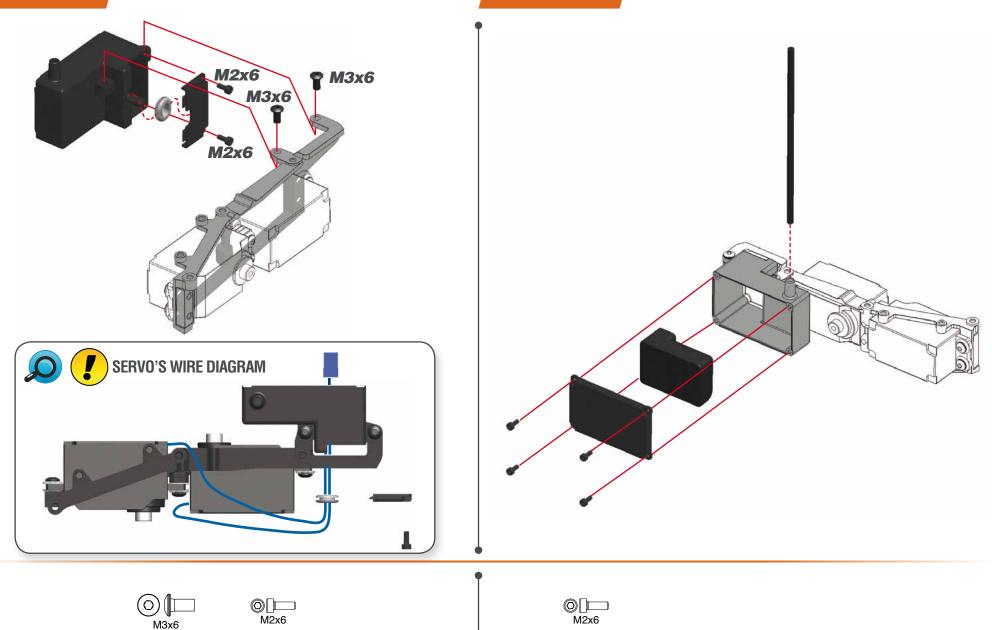






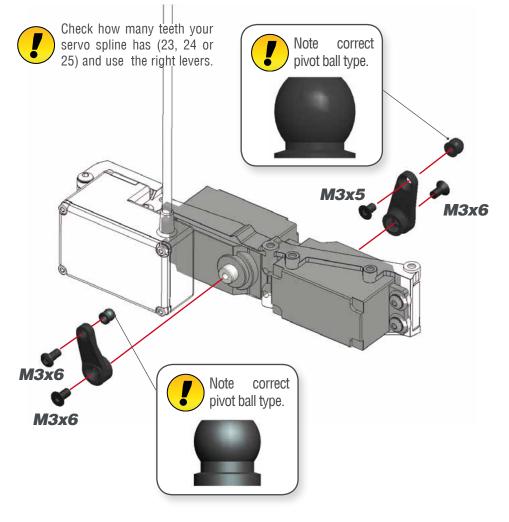


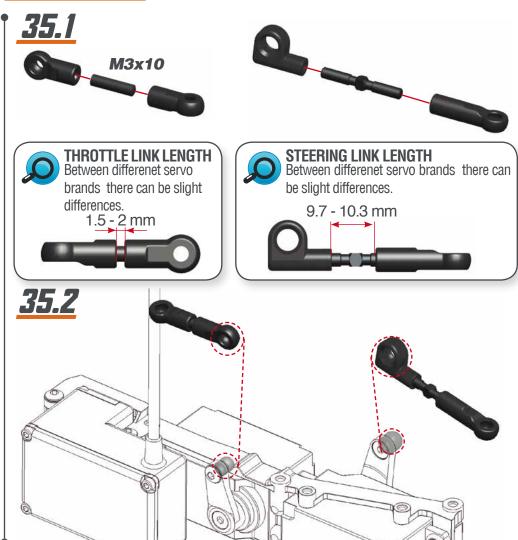


















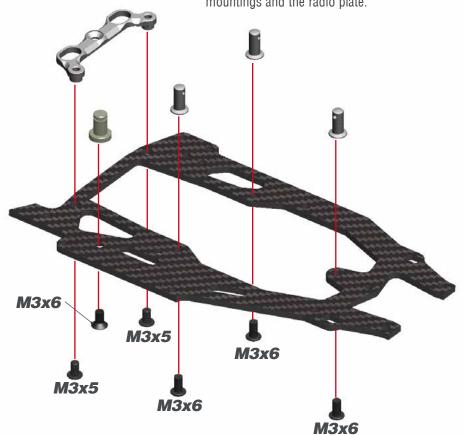


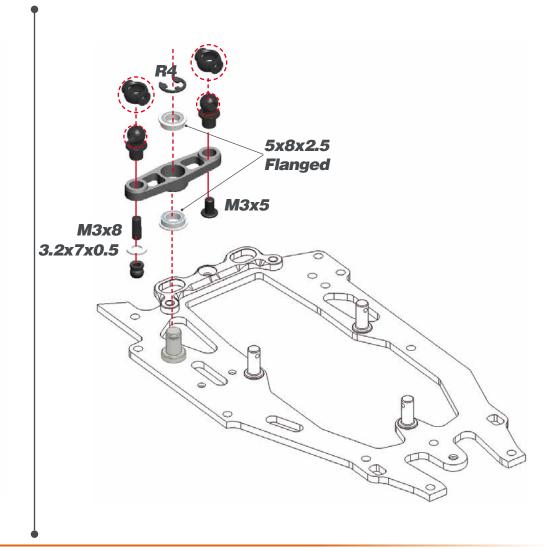




### BAG 8 STEP 36

### NOTE: When using Nimh or some Life receiver batteries, it is needed to raise the fueltank 2mm adding 2mm shims between the fuel tank mountings and the radio plate.











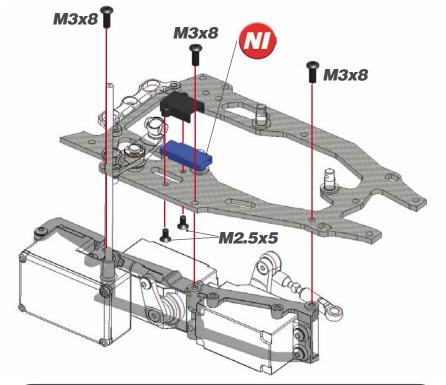


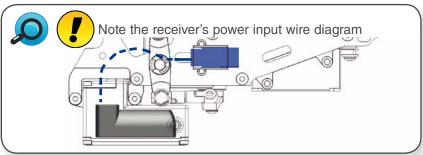


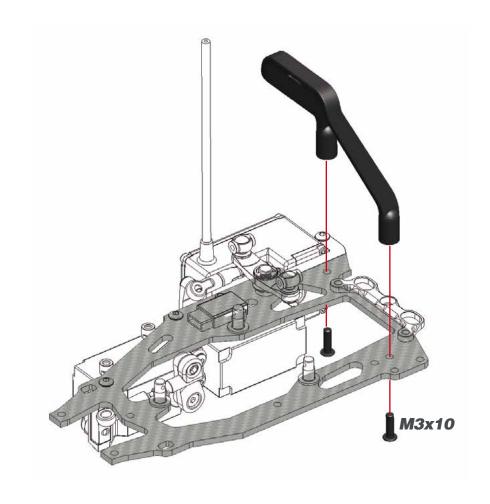


















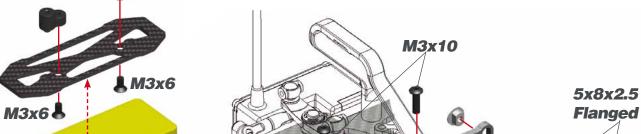


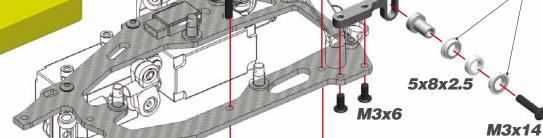


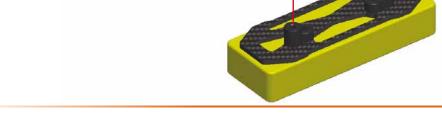




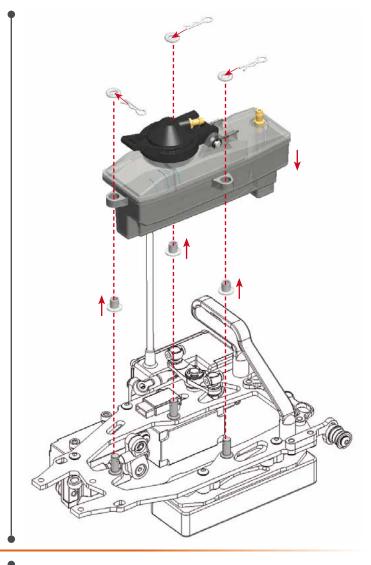
W



























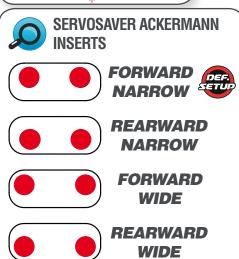


# STEP 42 BAG 9

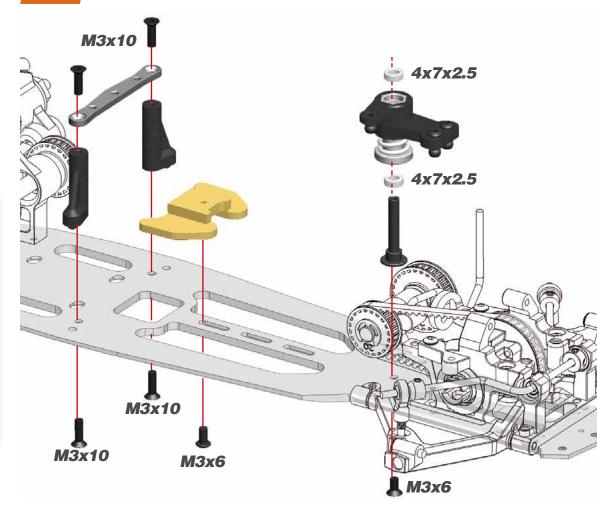
# <u>42.1</u>







## <u>42.2</u>









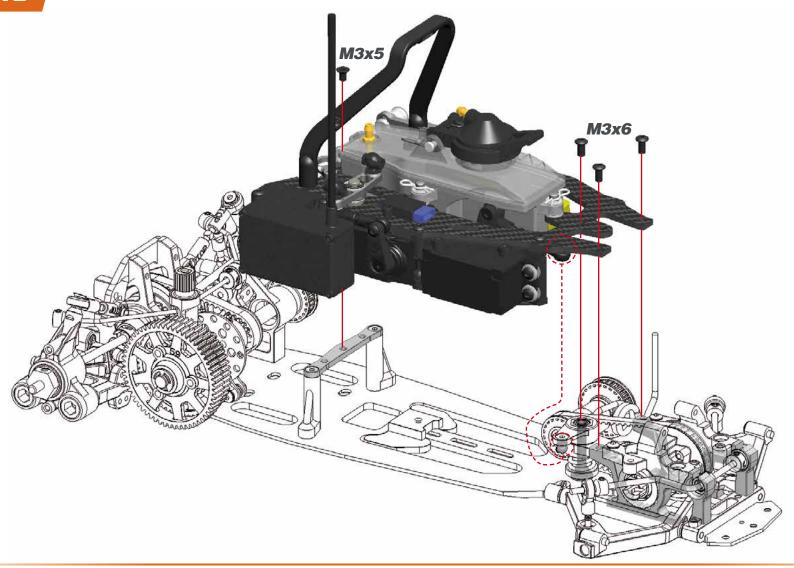














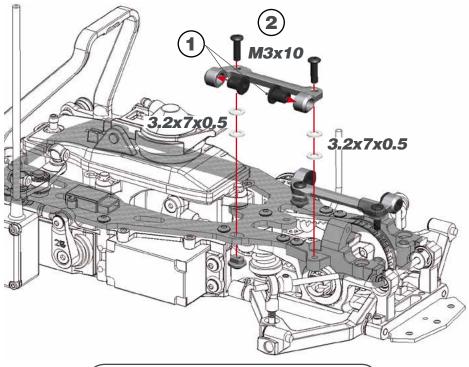


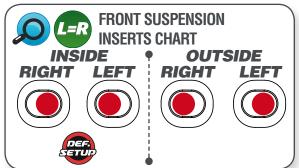
# FRONT ASSEMBLY II

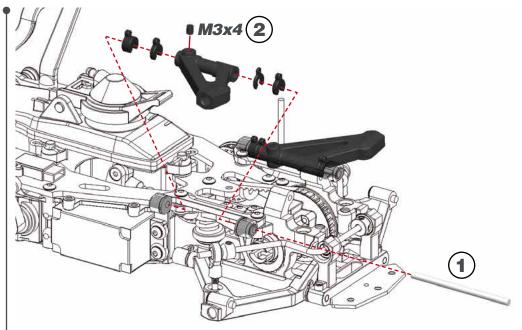


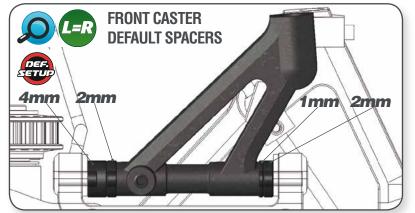














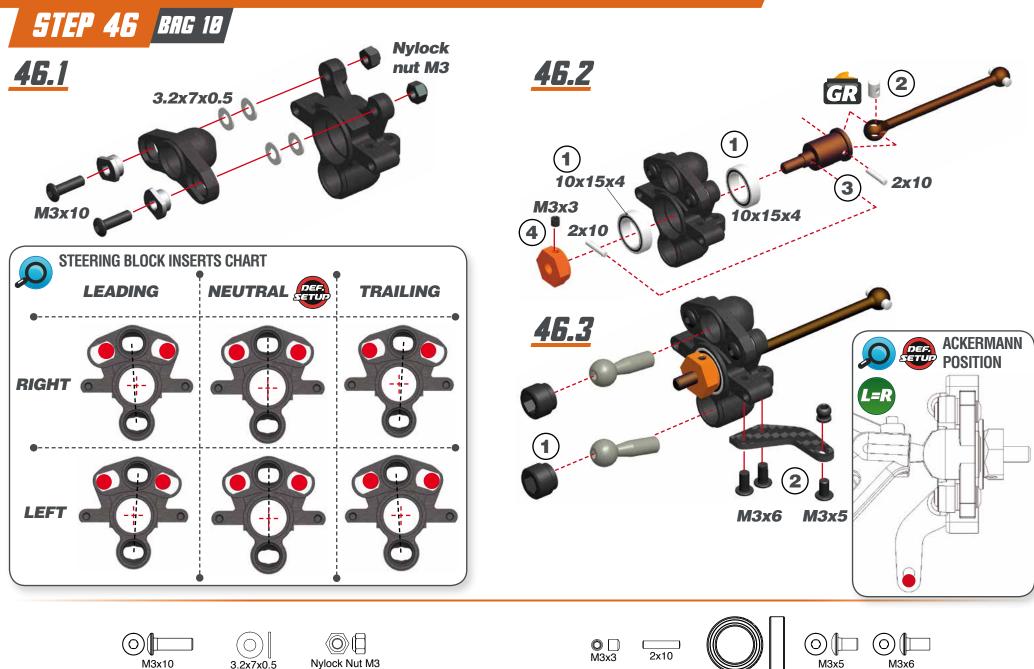




M3x5

10x15x4



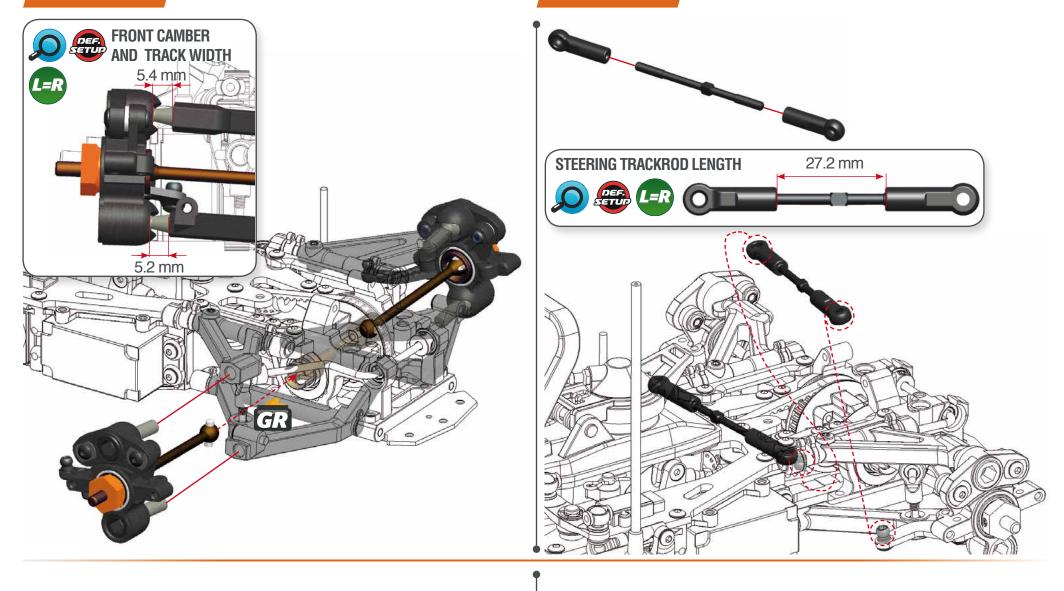


Nylock Nut M3

3.2x7x0.5

M3x10

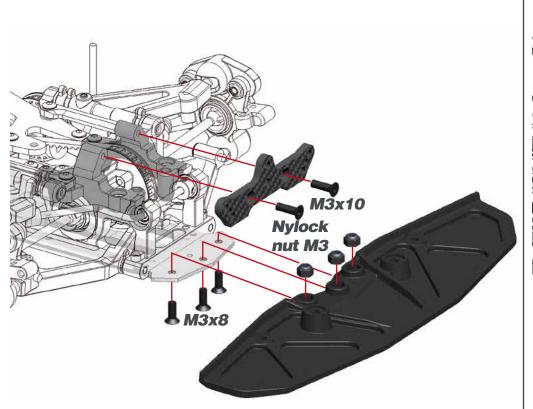


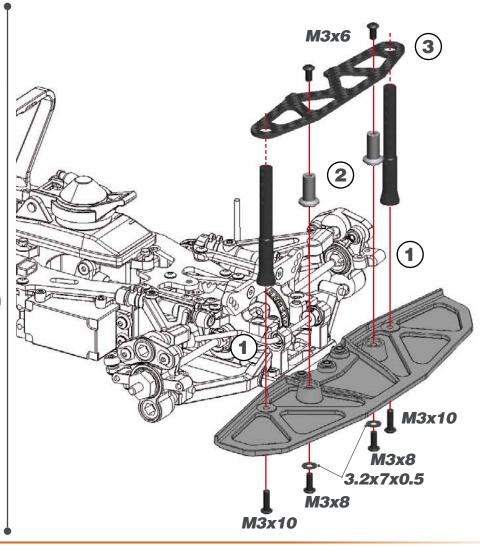






STEP 49 BAG 11













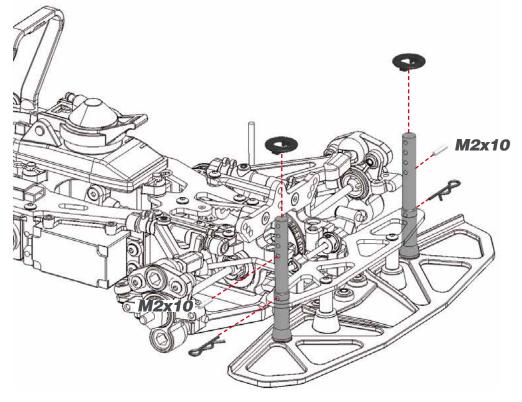




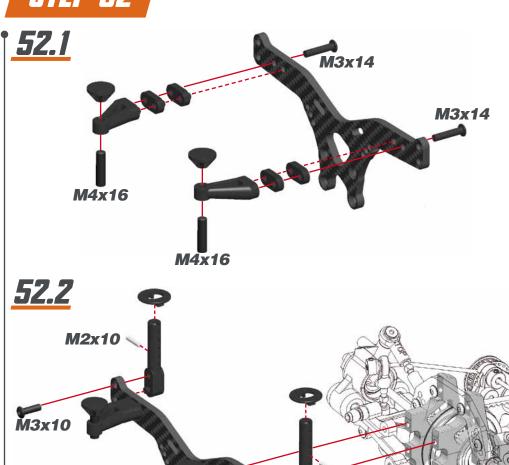








# *STEP 52*









M3x10





M3x10

2x10

M2x10





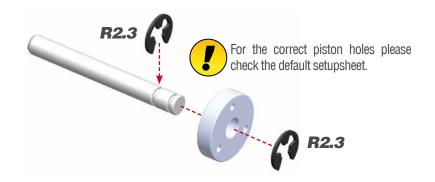
# STEP 53 BAG 12

# STEP 54

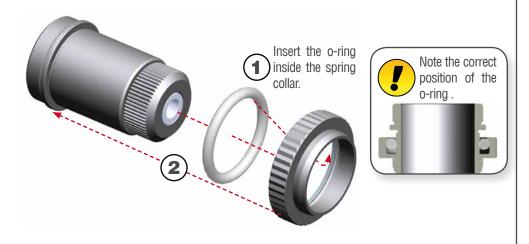
## *53.1*



## *54.1*



## *53.2*



## *54.2*









48.1

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



## *48.2*

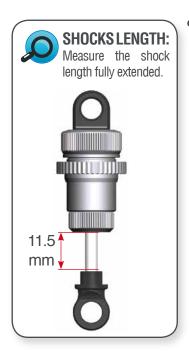
- 1- Fill up with sillicone oil fully using the silicone oil supplied in the kit. For the correct cst value please check the default setupsheet.
- 2- Extend the shockrod fully
- 3- Move the shockrod slowly up and down to let ALL air bubbles escape.
- 4- Close top only 3/4.



## 48.3

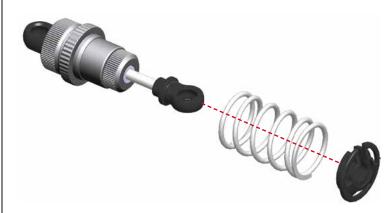
- 1-Bleed: push shockrod all the way in slowly, to allow excessive oil to escape.
- 2- Close completely the shock cap.



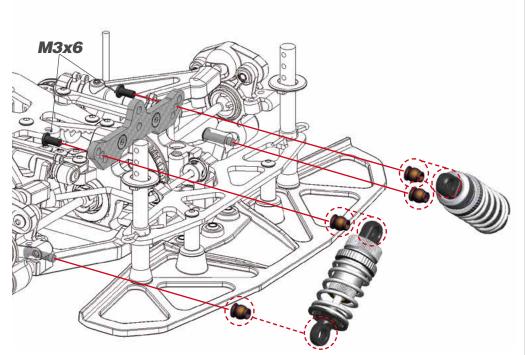


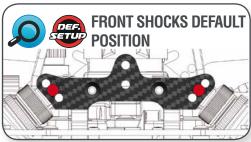
## STEP 56

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

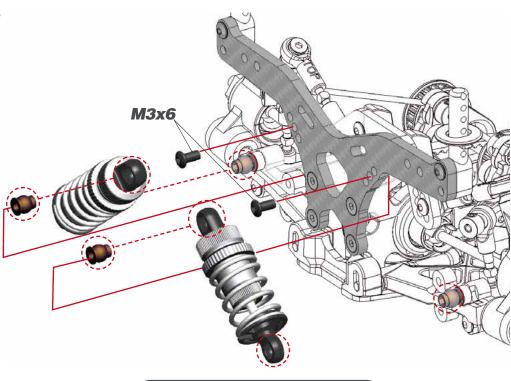
















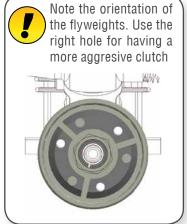


## STEP 59 BAG 13



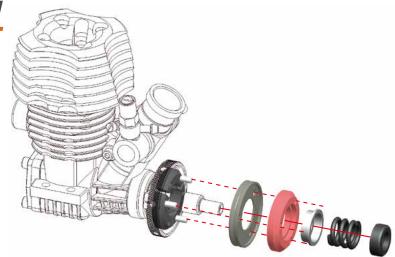
2- The holes in the side of the flywheel can be used to block the flywheel (with short allen tool) through the bottom of the chassis, when the engine/clutch is mounted in the car. It's easier to tighten or loosen the pre-load on the clutch spring that way.





## STEP 60



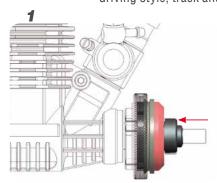


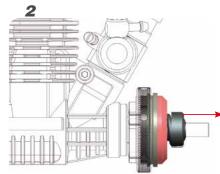
*60.2* 



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.





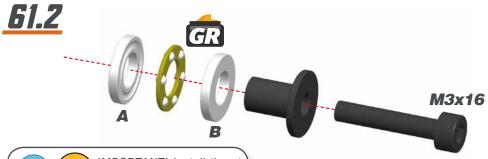


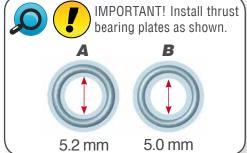


### STEP 61

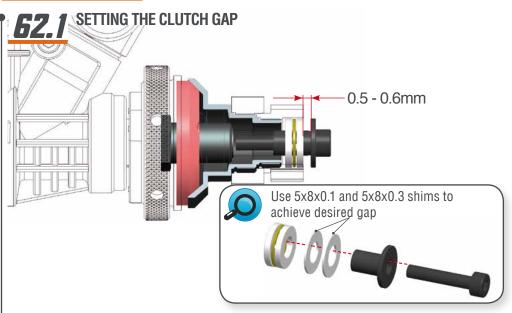




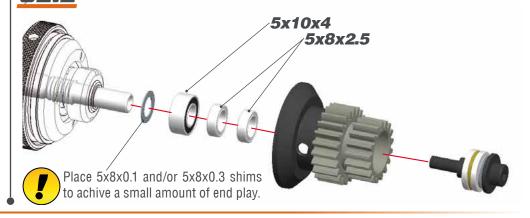




## *STEP 62*















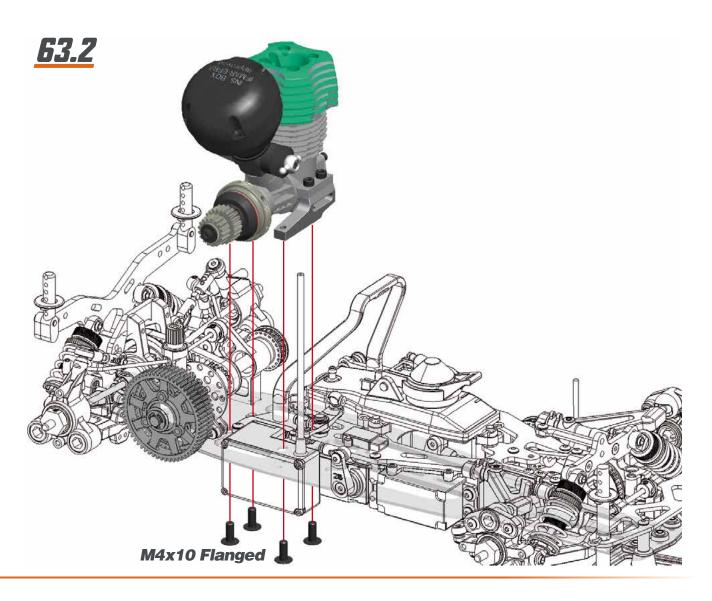






# STEP 63 BAG 14



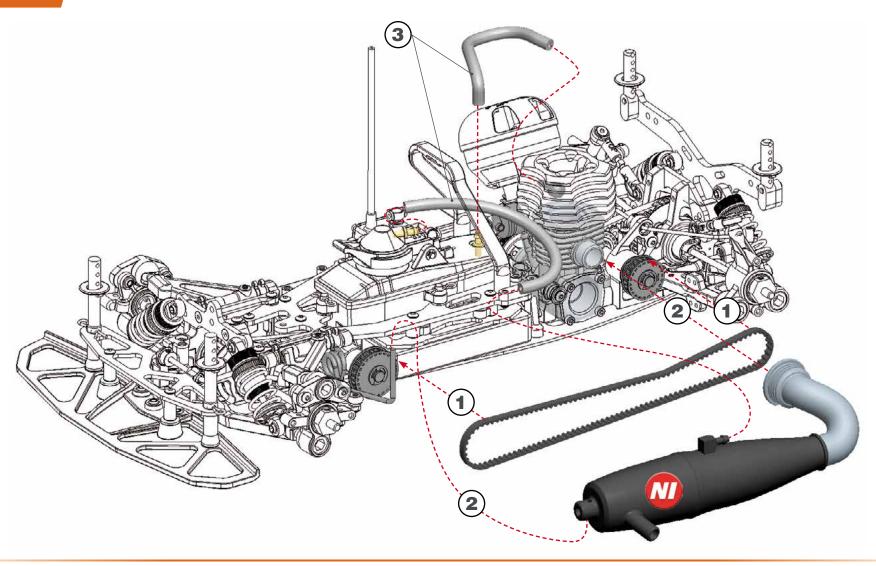






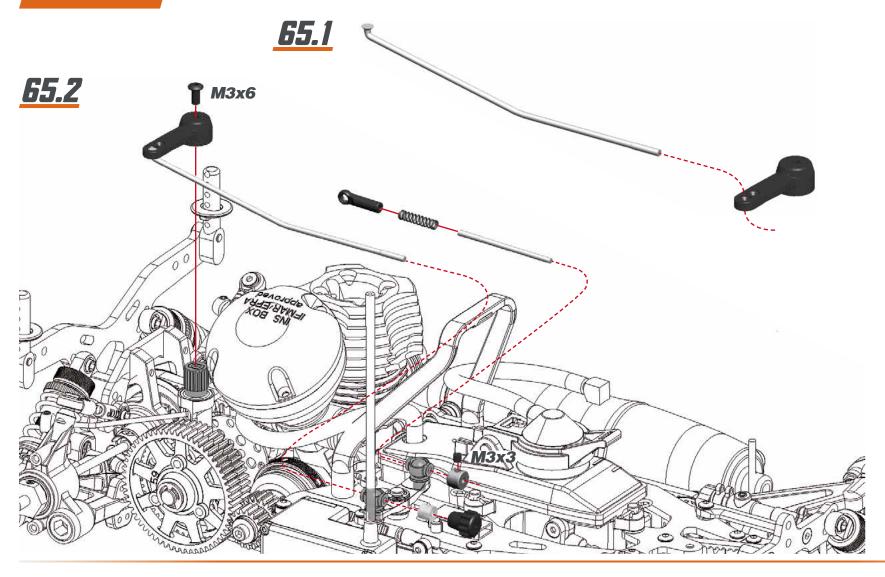


STEP 64





# STEP 65

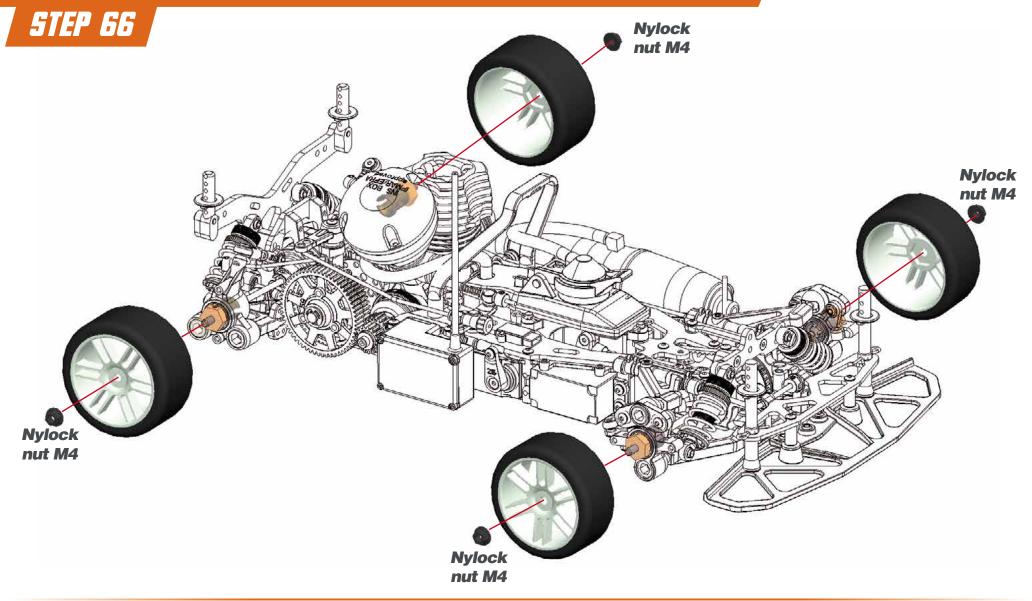
















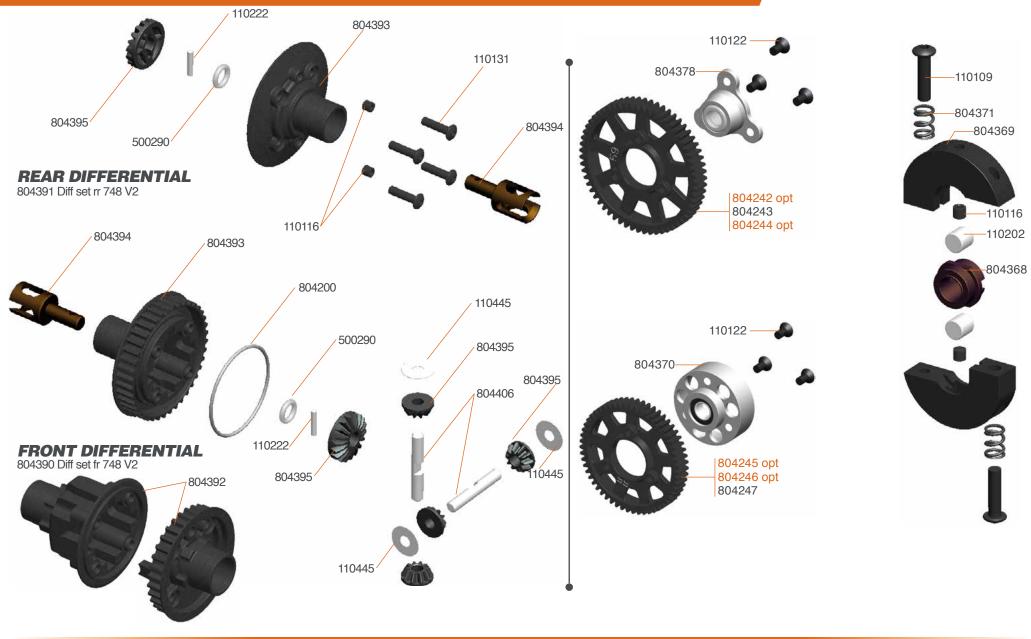
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#### DIFFERENTIAL AND GEARBOX EXPLODED NIEW





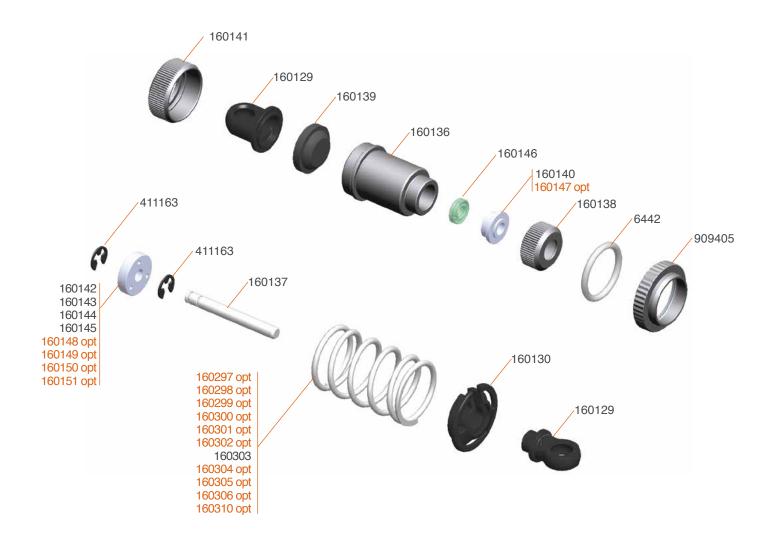




804245 2-Speed gear 53T SL6 804246 2-Speed gear 54T SL6 804374 Solid axle set front alu

804375 Solid axle front alu 804376 Solid axle outdrive (2)







160148 Shock onroad big bore piston 1 hole LF (2)

160149 Shock onroad big bore piston 2 hole LF (2)

160150 Shock onroad big bore piston 3 hole LF (2)

160151 Shock onroad big bore piston 4 hole LF (2)

160297 Spring grey TC

160298 Spring black TC

160299 Spring green TC

160300 Spring white

160301 Spring yellow

160302 Spring orange

160304 Spring Pink

160305 Spring blue

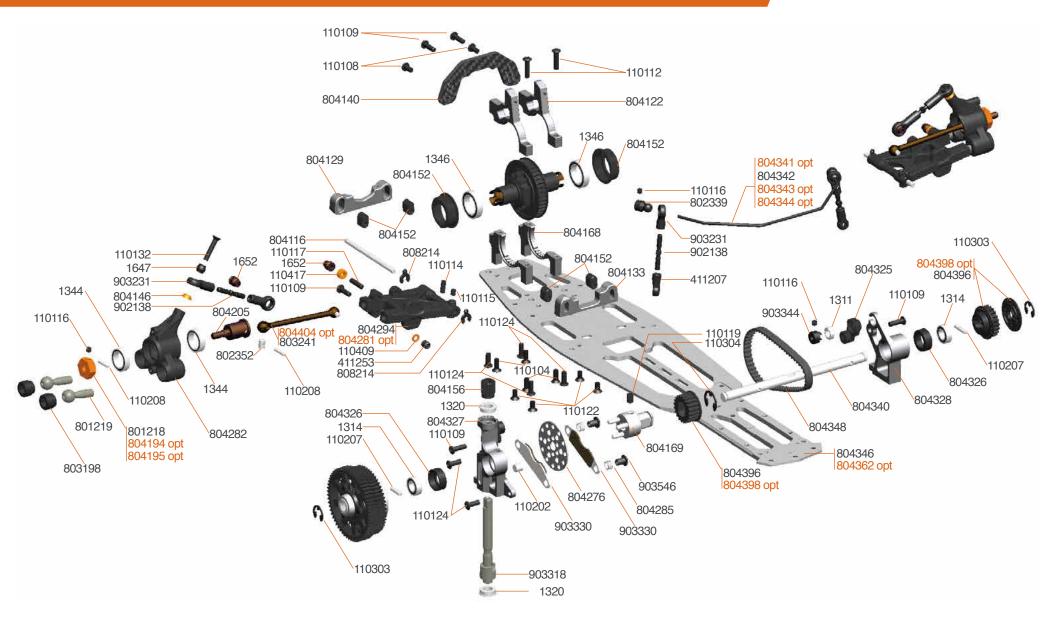
160306 Spring purple

160310 Spring-set L23 (5x2)

160147 Shock onroad big bore bushing LF (4)

#### REAR EXPLODED VIEW



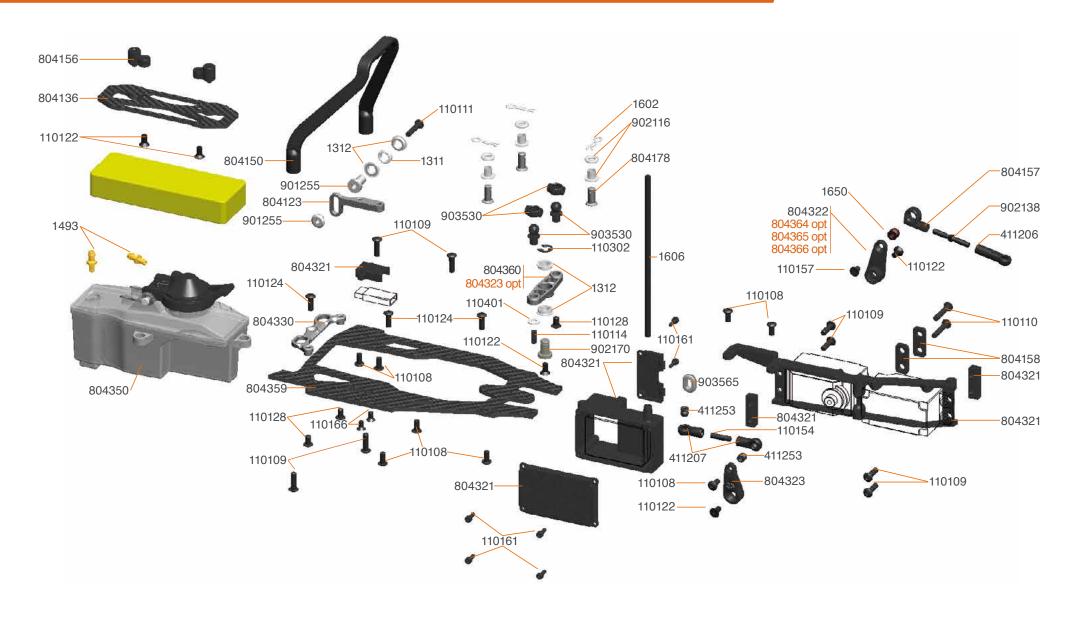




803240 CVD-set Pro (2) 804194 Wheel hexagon +1mm (4) 804195 Wheel hexagon -1mm (4) 804281 Wishbone 747 RR LW medium (2) 804341 Antiroll bar 1.6 RR 748 804343 Antiroll bar 2.0 RR 748 804344Antiroll bar 2.2 RR 748 804362 Chassis alu hard coated 748 804398 Pulley set low friction (6) 748 V2 804401 Wheel-axle set CVD alu (2) 804402 Wheelaxle CVD alu (2) 804403 Wheelaxle CVD -1mm alu (2) 804404 Driveshaft CVD alu (2)

#### RADIO EXPLODED VIEW

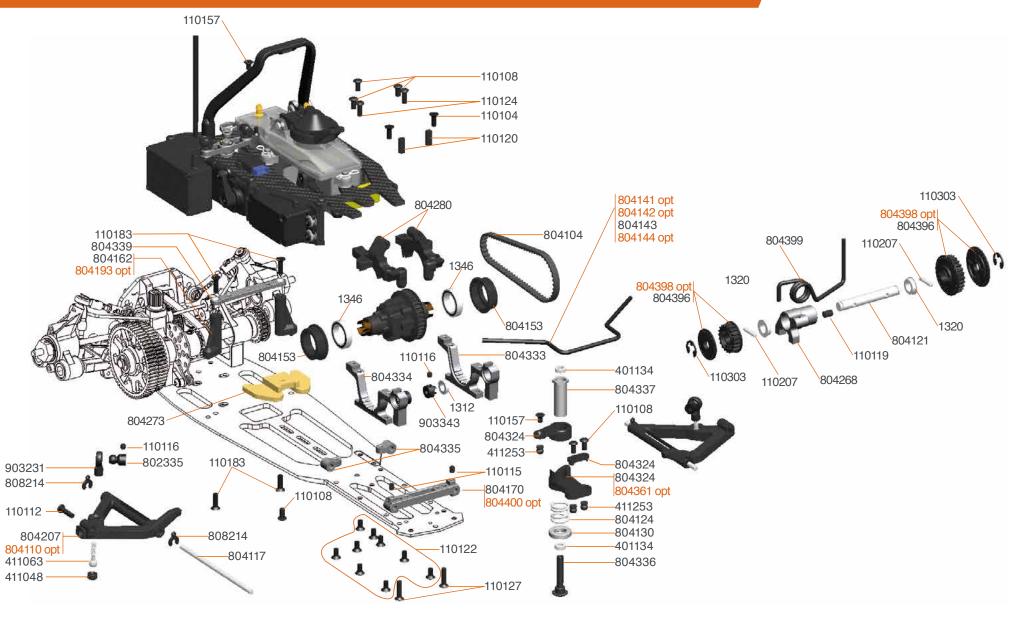




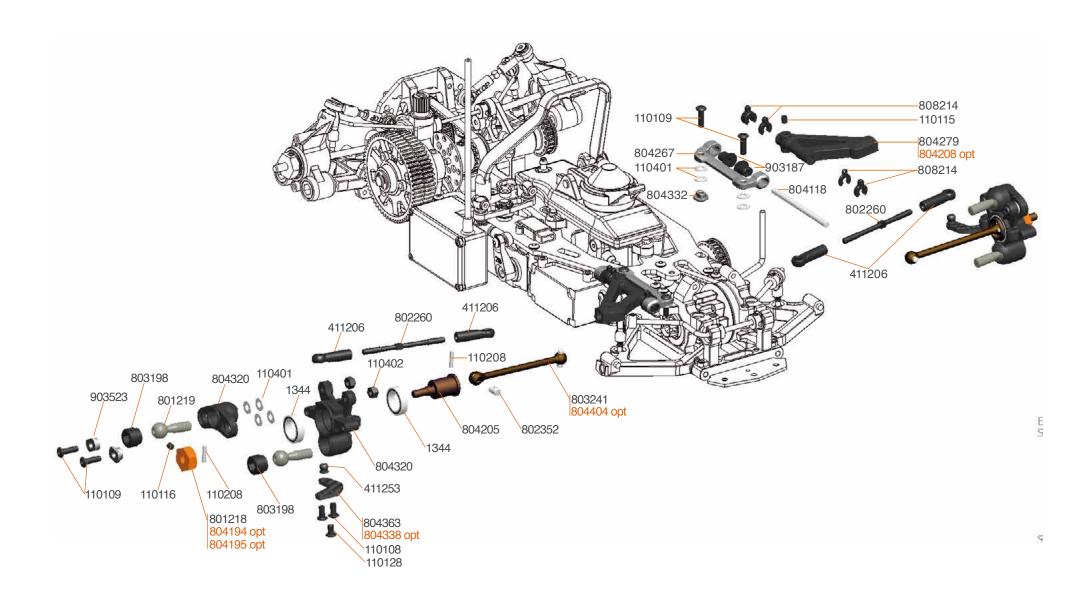
#### FRONT I EXPLODED WEW



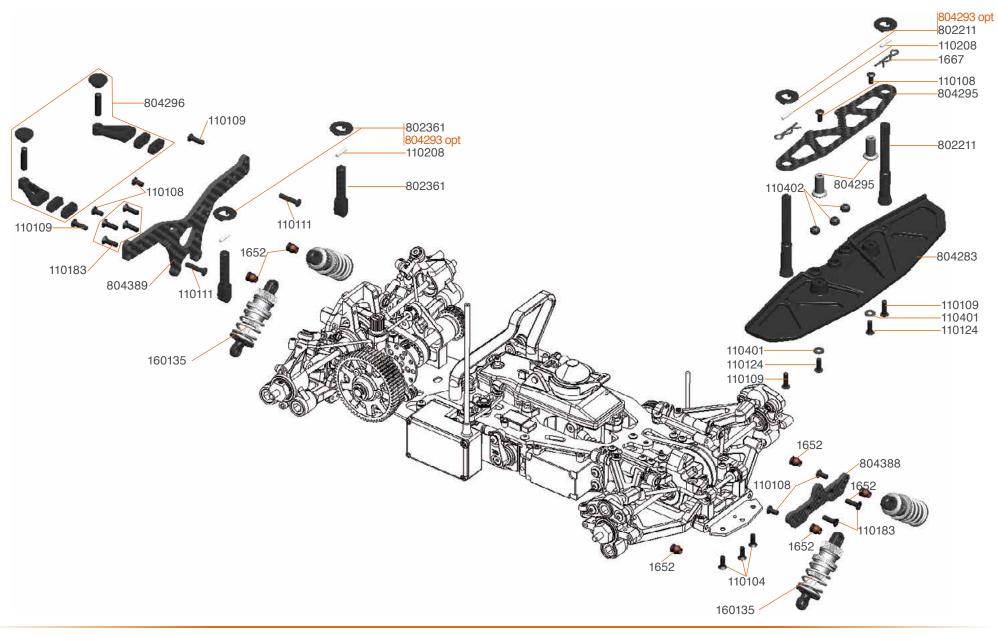












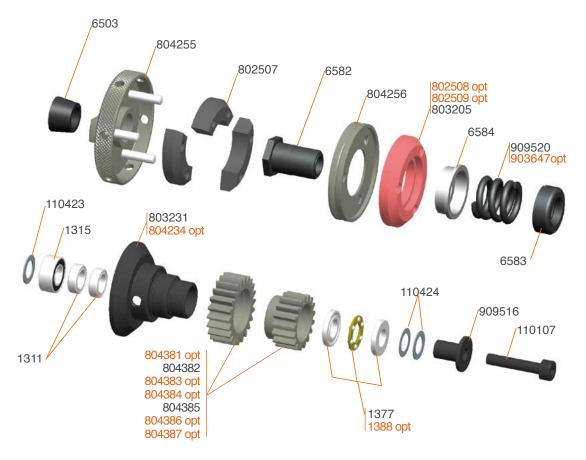


804293 Body support washers med + high (5+5)



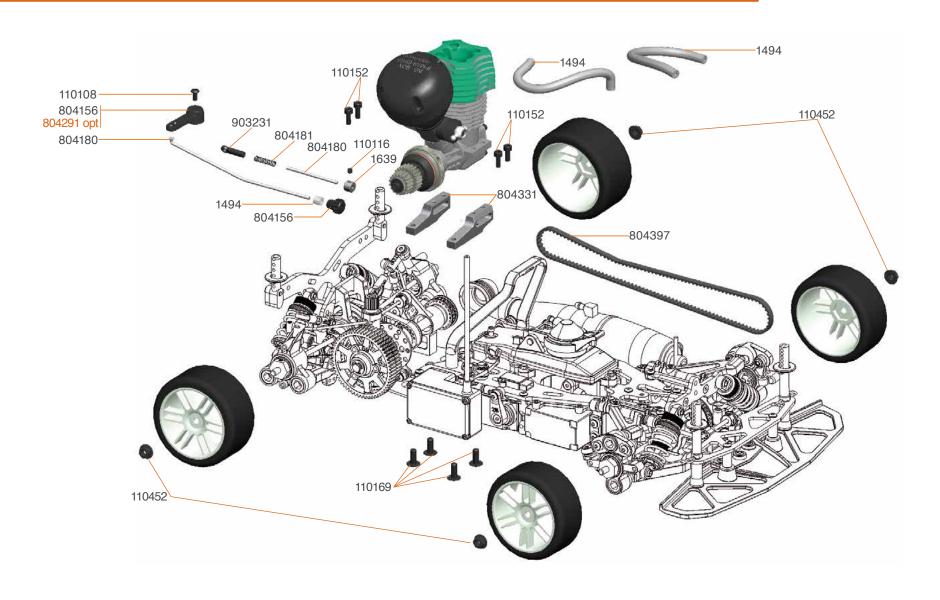


#### Centax True Motion clutch 1/10 #804250











# TEAM SERPENT NETWORK

748EVO SPARE PARTS www.serpent.com/804010/spares/



748EVO OPTIONALS PARTS www.serpent.com/804010/Optionals/



SERPENT TOOLS www.serpent.com/product/Tools/



SERPENT MERCHANDISING www.serpent.com/product/Merchandising/



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