

INSTRUCTION MANUAL  
& REFERENCE GUIDE



The Serpent S811 Cobra is a complete new platform for the 1/8 scale electric offroad category of racing. The Serpent S811 Cobra is designed to be a world champion, while still being easy to use, assemble, and set up. You are now part of the worldwide network of Serpent drivers, which gives you superior technical support and access to many benefits that only Serpent drivers can enjoy.

The Serpent S811 Cobra offers state of the art specifications and leads the way in 1/8 scale electric offroad chassis design, using all the knowledge our designers have gathered from racing offroad cars for over 15 years, into this design too. Continuously pushing the performance envelope, Serpent's engineers have added many new and innovative features that help take your Serpent S811-E Cobra into the winner's circle.

### **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.

This instruction manual has been divided into sections that will logically lead you through the assembly process of your Serpent S811-E Cobra. Follow the assembly steps in the order presented to ensure that no problems occur during assembly. Each step indicates all the fasteners, bearings and small parts used. Bag numbers identify the kit bag(s) that contains the appropriate parts.

### **EXPLODED VIEWS AND PARTS LIST**

The exploded views and parts lists for the Serpent S811-E Cobra are included in the back of this manual. The exploded views show all the parts of a particular assembly step along with the Serpent part number. The parts lists indicate the part number and name of each part for easy reference when ordering.

### **SAFETY**

Included in this manual is a sheet entitled "Read This First" that covers safety precautions for the assembly and use of this product. We strongly recommend that you thoroughly read and understand that part, and follow all the precautions.

The printed instruction manual included with your Serpent S811-E Cobra kit is very complete, though due to continuous product development, more up-to-date information may be provided at our [www.serpent.com](http://www.serpent.com) website.

All information about the Serpent S811 Cobra is accessible from the Serpent S811 product page which can be found on [Serpent.com](http://Serpent.com) and can be accessed by simply typing [serpent.com/600016](http://serpent.com/600016) into your web browsers address bar.

From the Serpent S811 product page you will find the very latest information about your Serpent S811: reports by team drivers and other experts, tips and tricks, setups, image gallery and downloadable files including the latest version of the instruction manual will be made available as downloadable PDF-files.

*Team Serpent*

## 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.

## 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.

## Instructions, how to use

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.

## 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.

## SETUP

In certain assembly steps you need to make basic adjustments, which will give you a good initial setup for your Serpent S811-B. Fine-tuning the initial setup is an essential part of building a high-performance racecar like your S811-B.

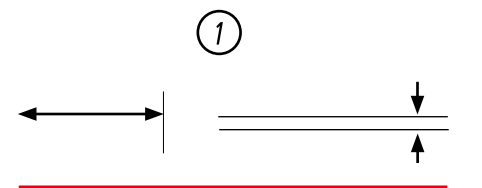

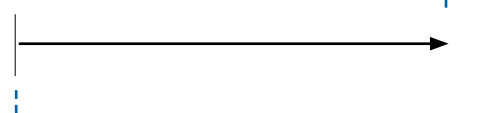


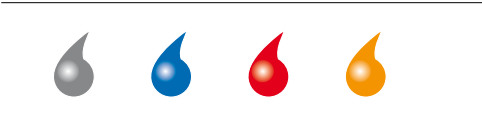


## Exploded views and partslist

The exploded views and parts lists for the Serpent S811-B 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. The parts lists indicate the part number and name of each part for easy reference when ordering.

## 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.

## USING THE MANUAL

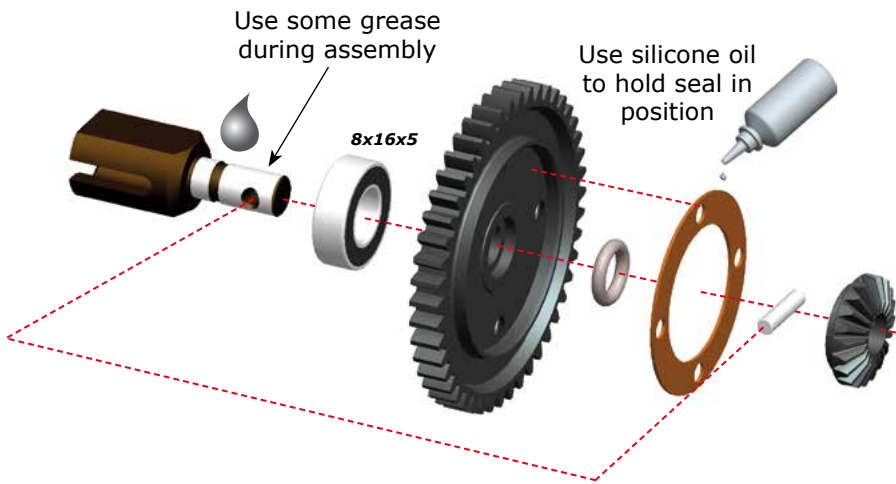
	Step number; the order in which you should assemble the indicated parts
	Length after assembly / Gap between two items
	Assembly path of one item into another
	Group of items (within lines) should be assembled first
	Direction the item should be moved
	Glue one item to another
	Press/Insert one item into another
	Connect one item to another
	Apply transmission grease (Grey), threadlock* (Blue), CA glue* (Red) or differential grease (Orange). (*Items not included.)
	Apply silicone oil.

A

1

CENTER  
DIFF  
BAG

# DIFFERENTIAL CENTER



TIP



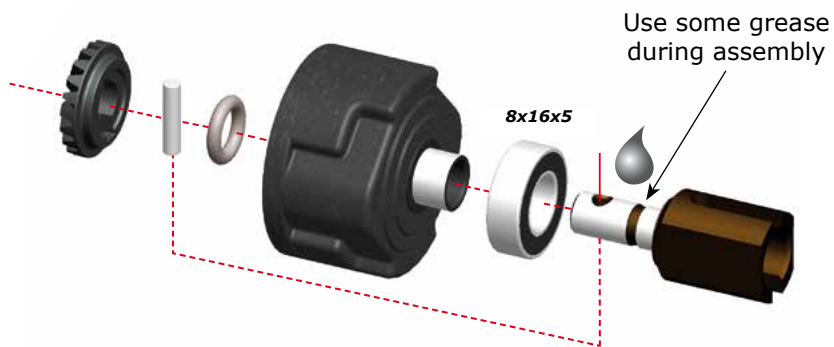
TIP

Add 2mm oil before assembling the gear



A

2



TIP



A

3



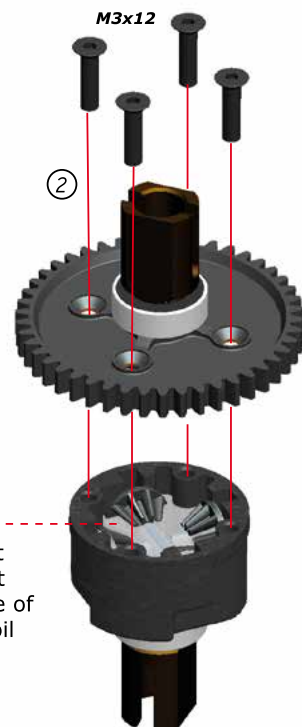
M3x12

②

①

silicone oil  
fill just over  
gear shaft

check default  
SET-UP sheet  
for CST value of  
the silicone oil



2013  
COBBE

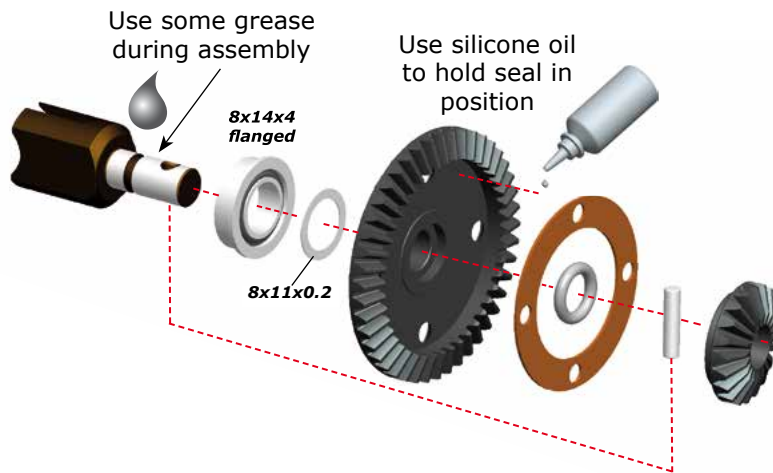
4

A

4

FR/RR  
DIFF  
BAG

## DIFFERENTIAL FRONT/REAR



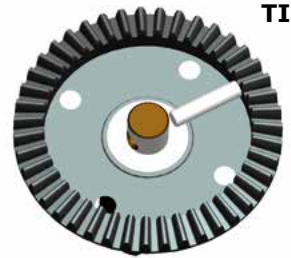
TIP



TIP

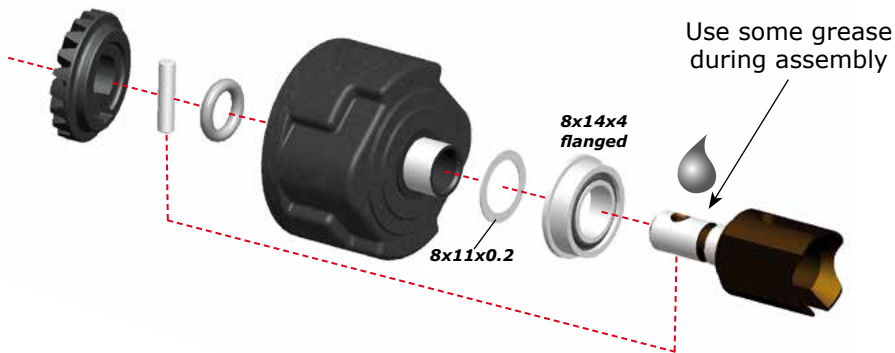
Add 2mm oil before  
assembling the gear

TIP



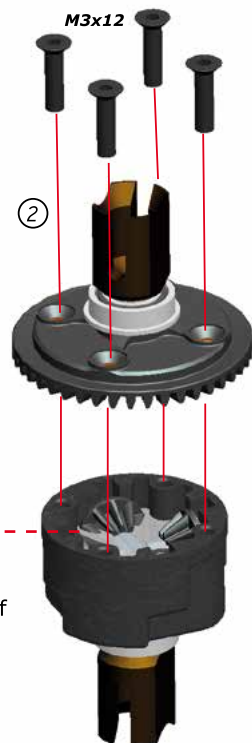
A

5



A

6

①  
silicone oil  
fill just over  
the gear shaftcheck default  
SET-UP sheet  
for CST value of  
the silicone oil



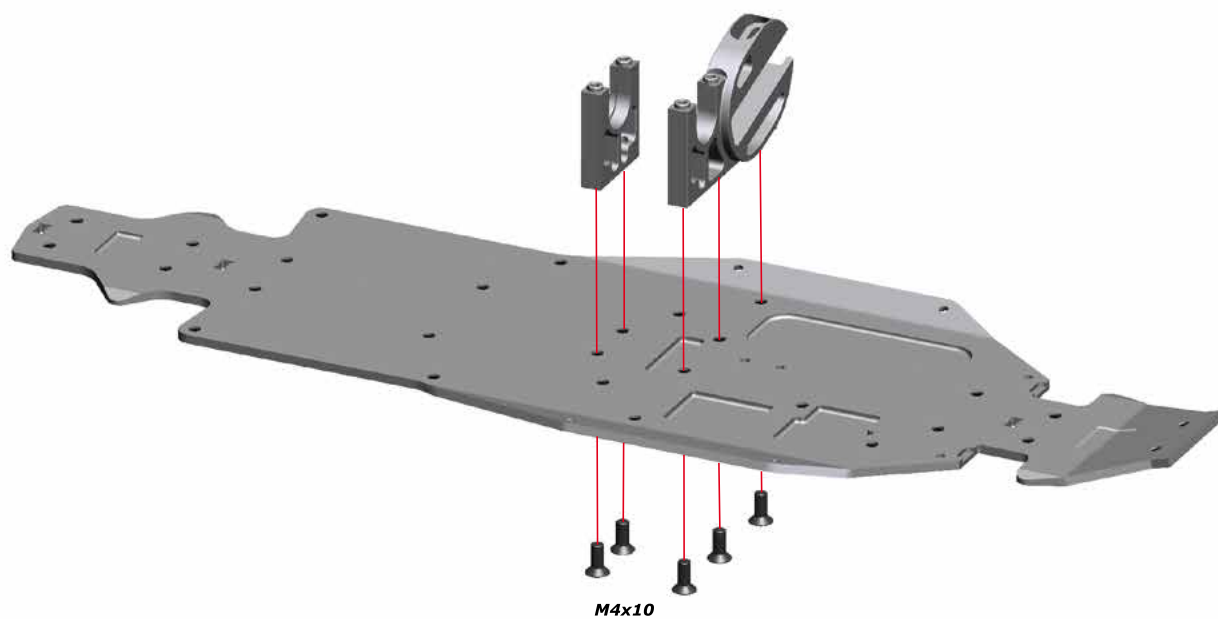
A

## CENTER DIFF MOUNT

7

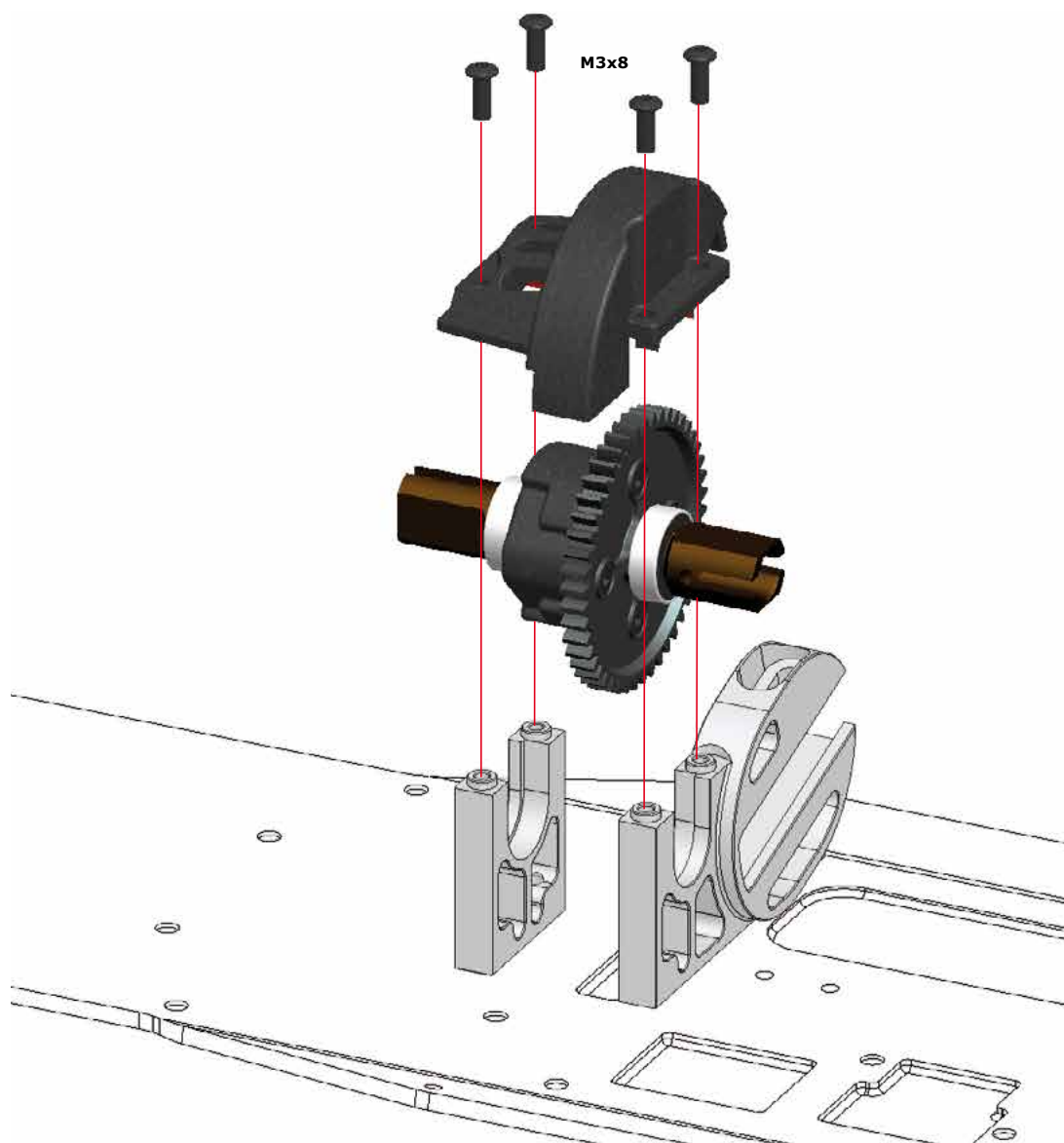
BAG

1



A

8

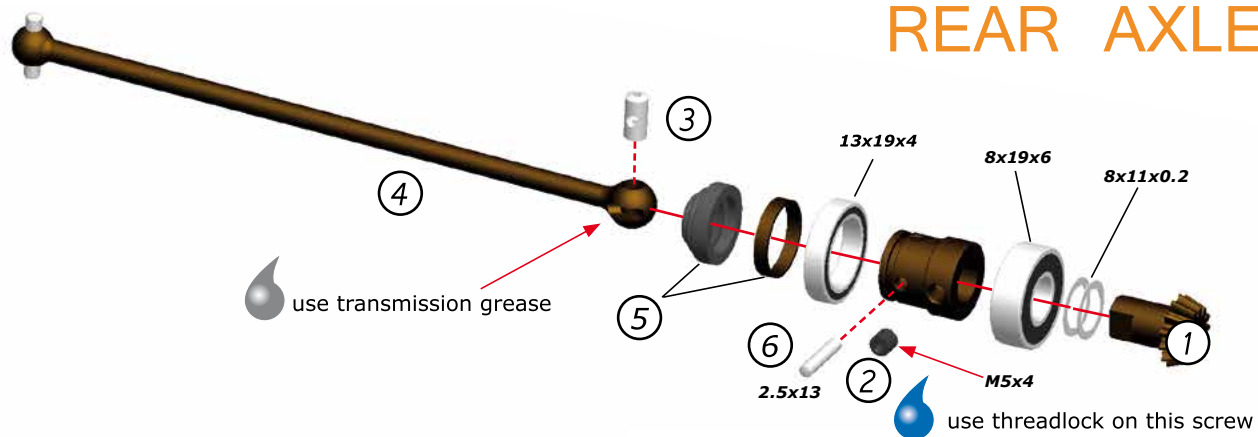


A

9

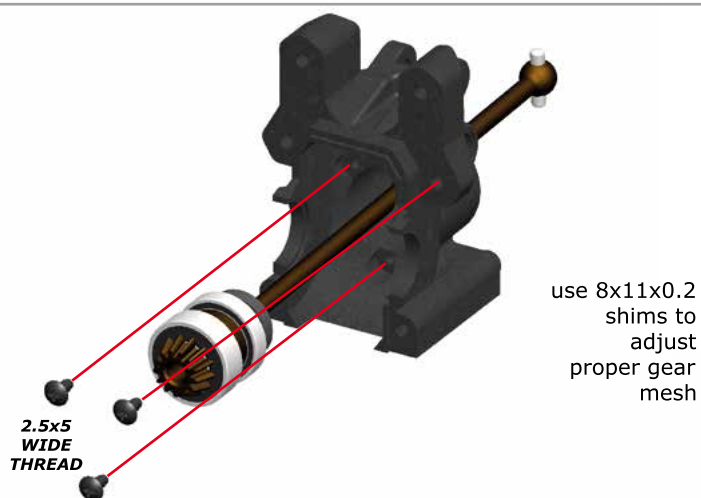
BAG  
2

# REAR AXLE



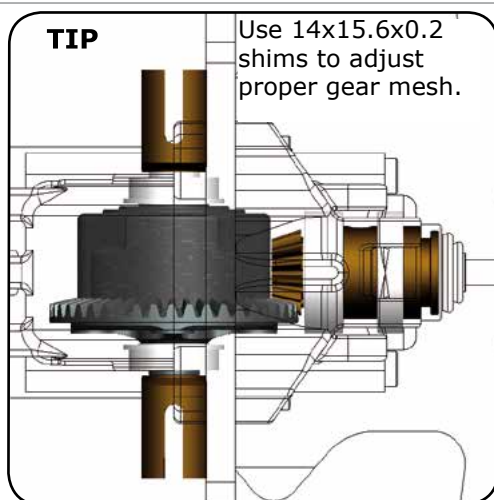
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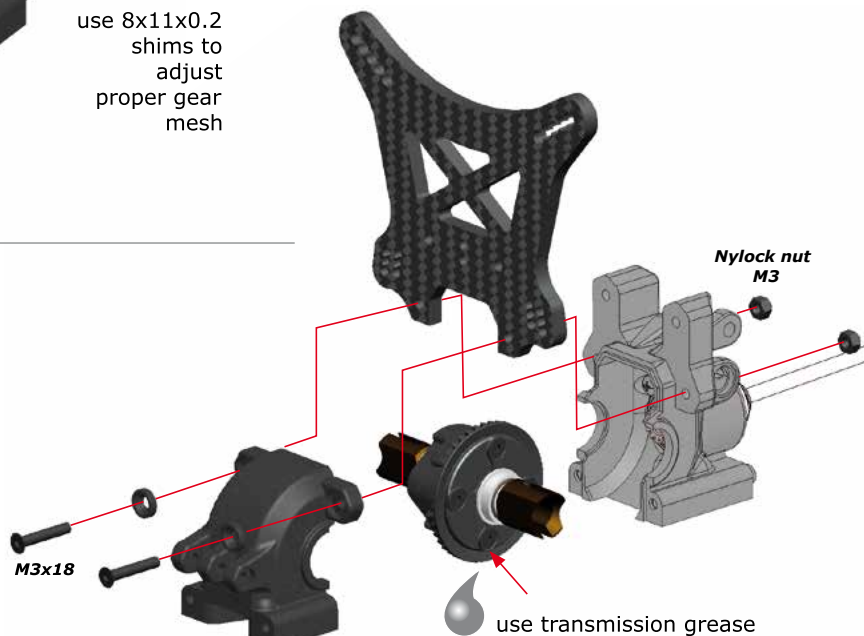


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11

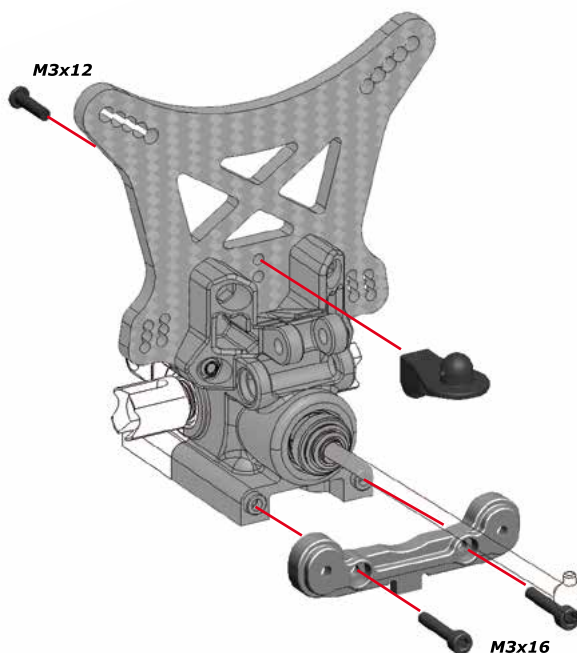


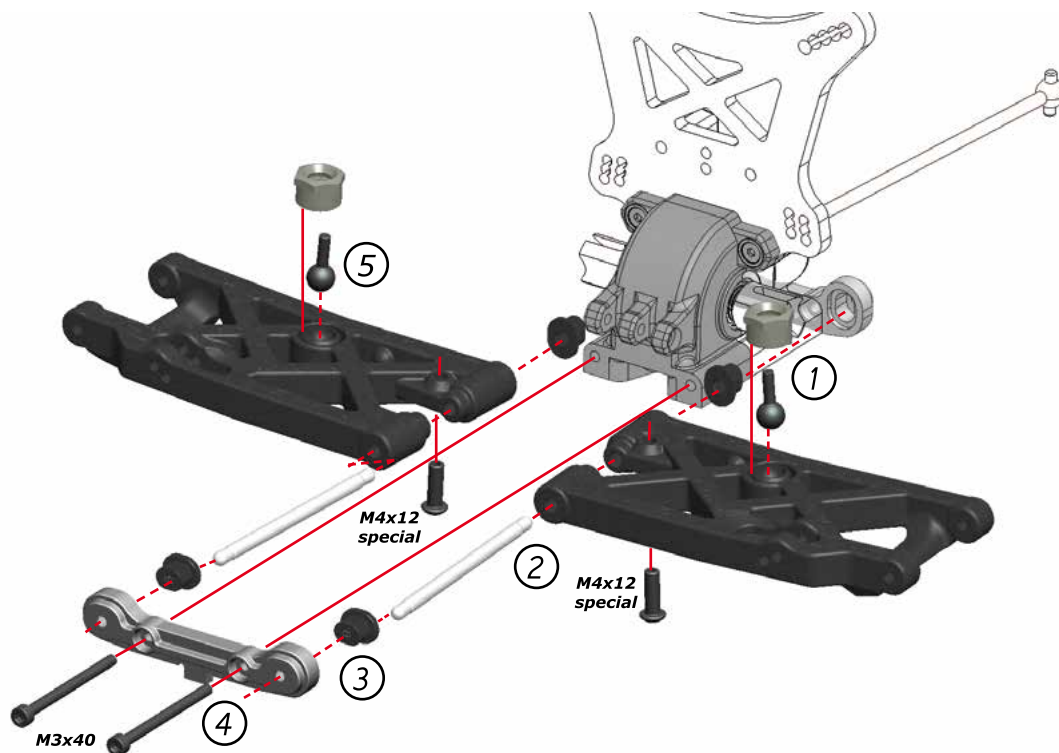
Notice orientation of differential



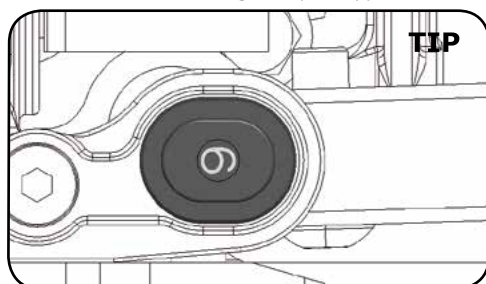
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12

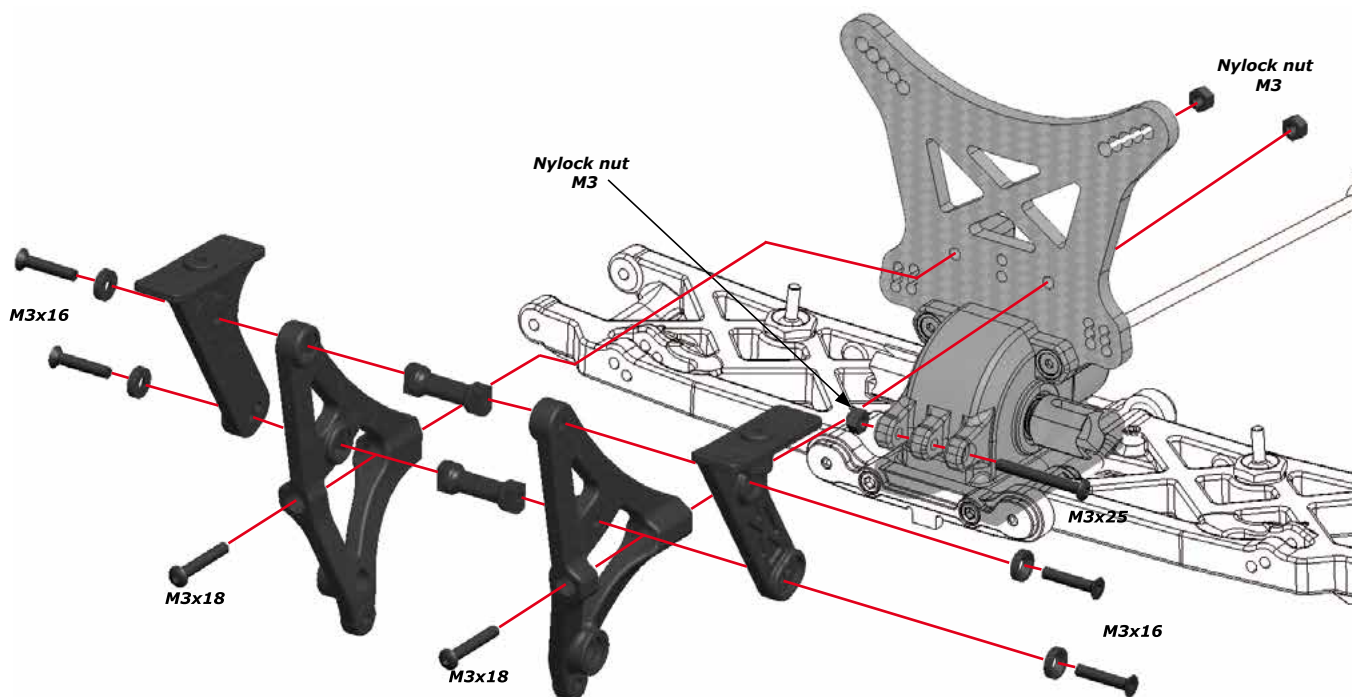
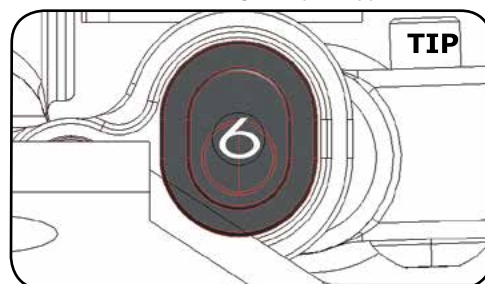




proper insert orientation in the rear bracket, left and right equal type



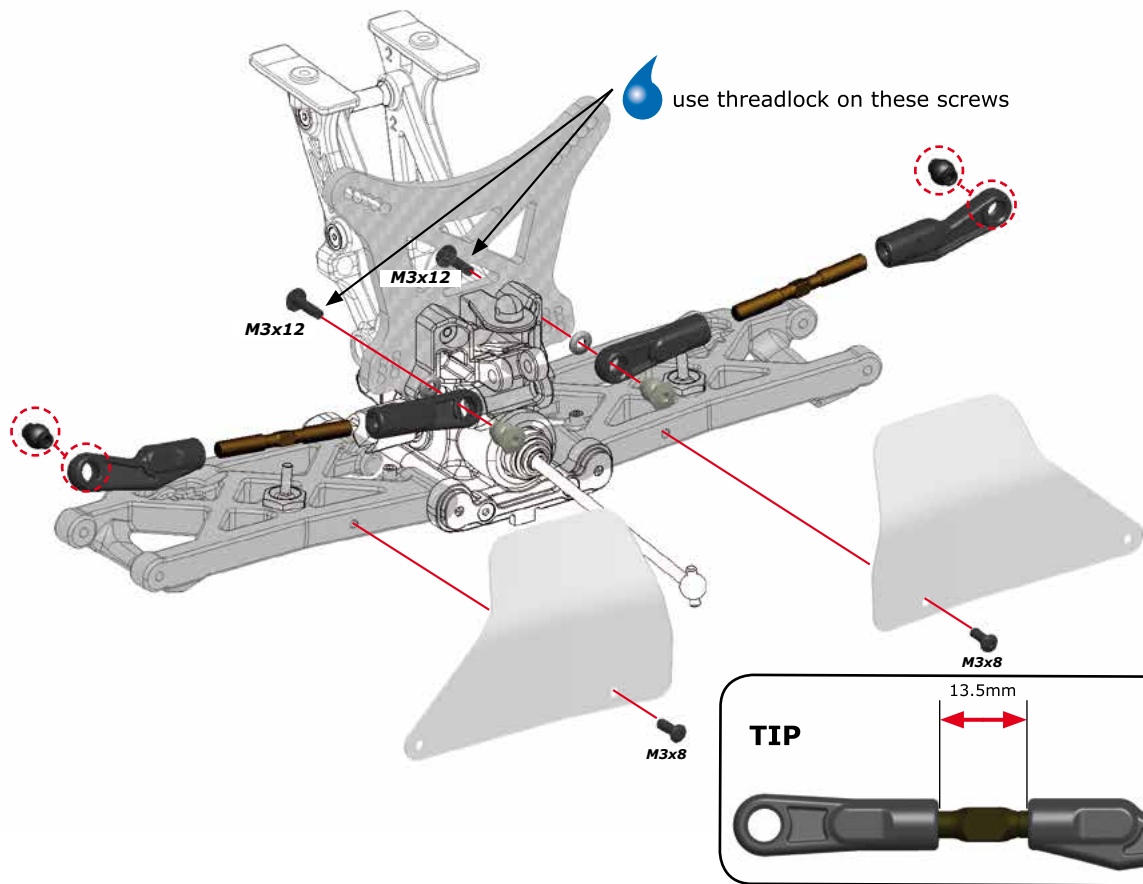
proper insert orientation in the front bracket, left and right equal type





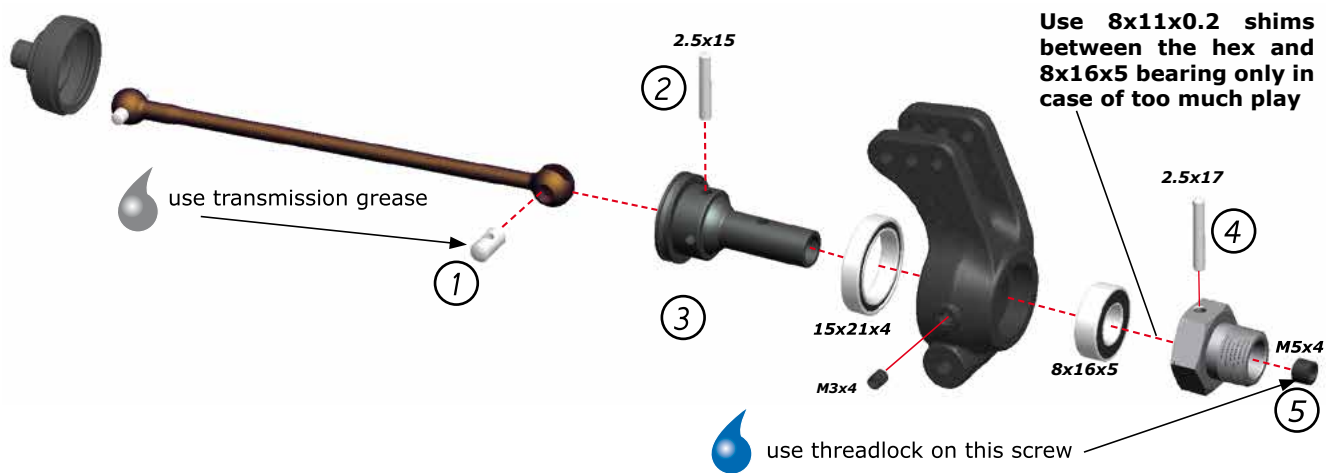
A

15



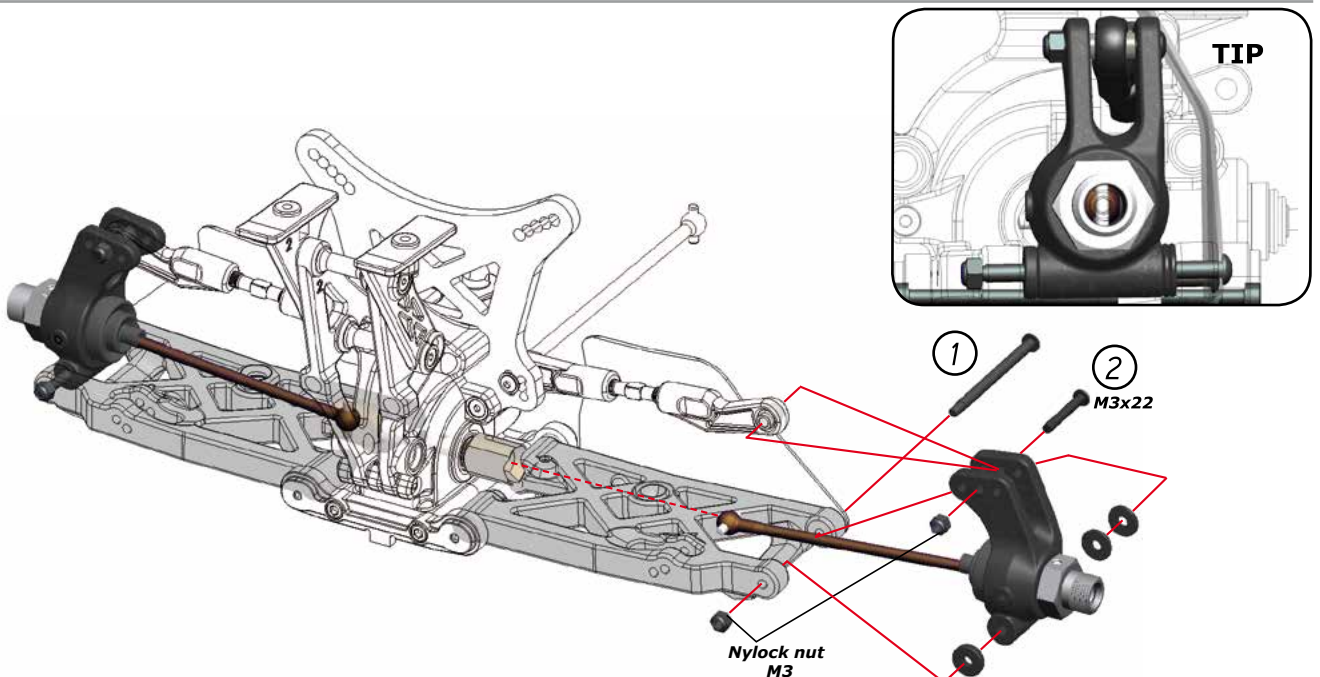
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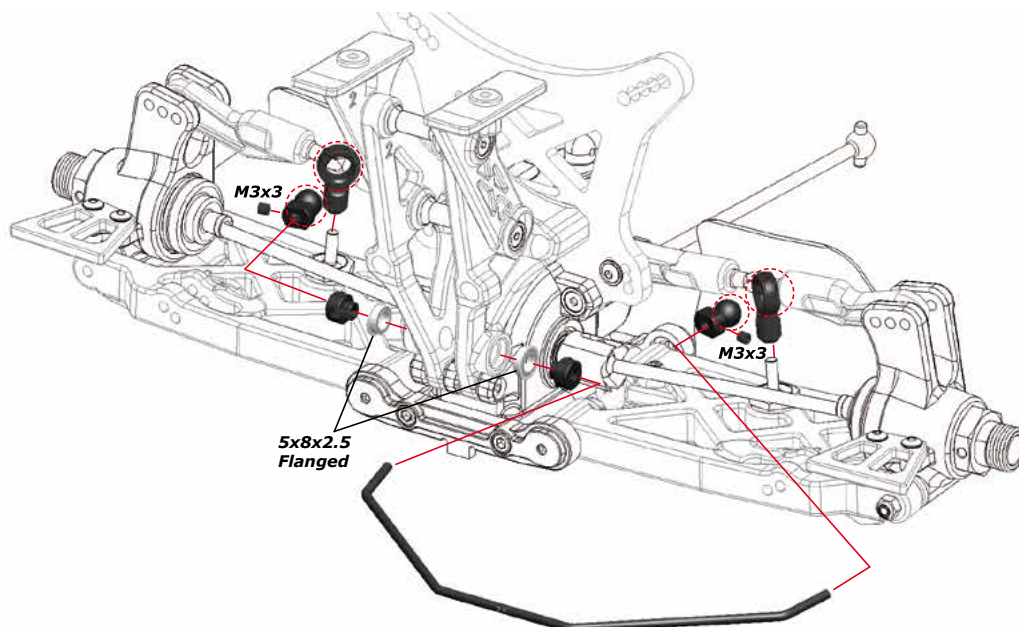
16A

BAG  
4

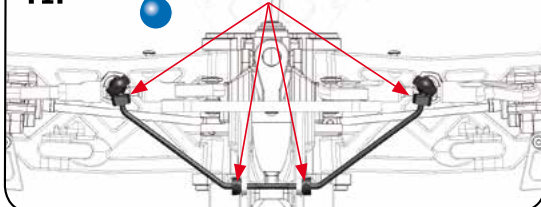
A

16B

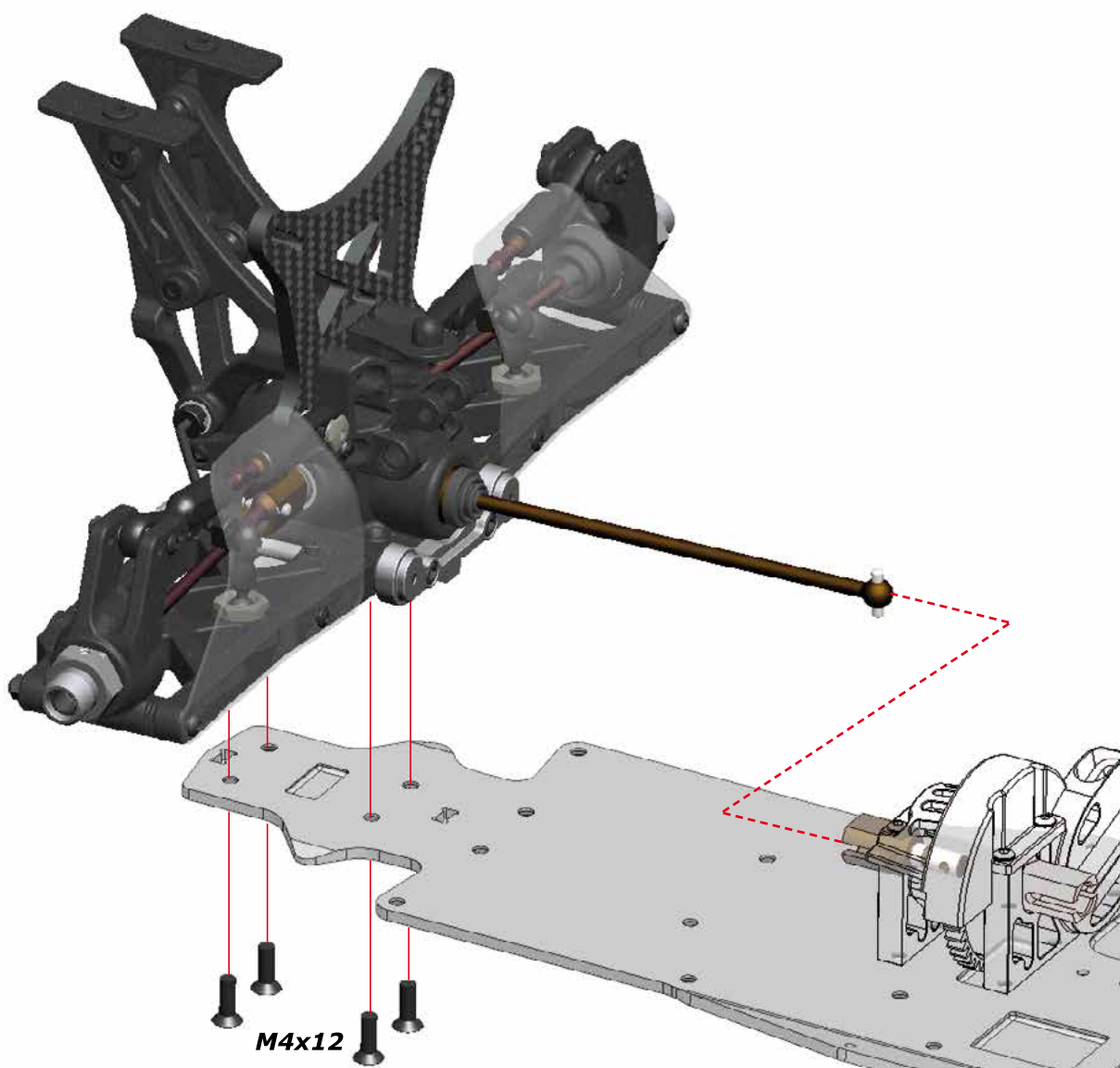
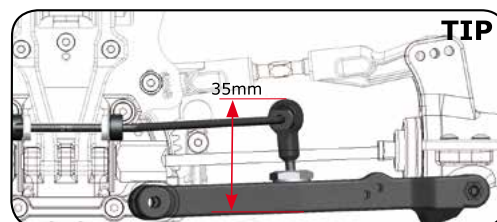




**TIP** use threadlock on these screws

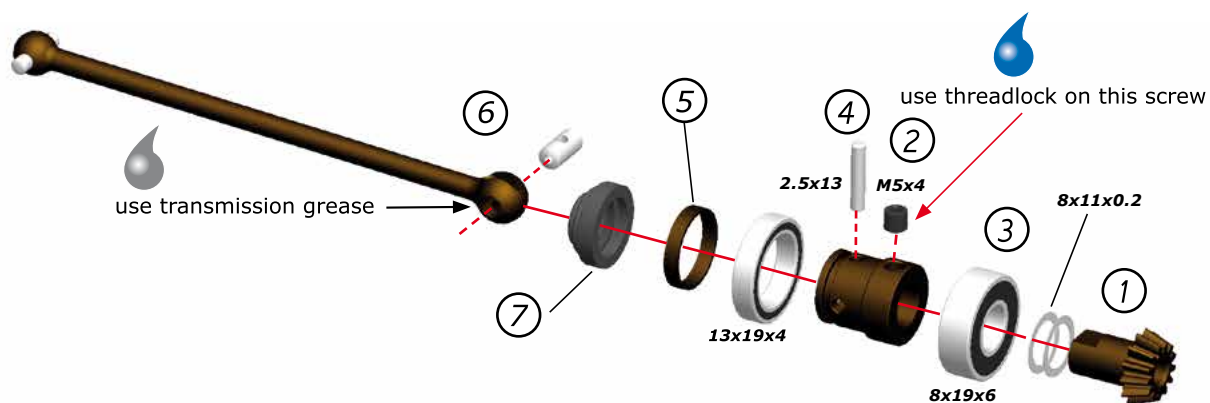


**TIP**

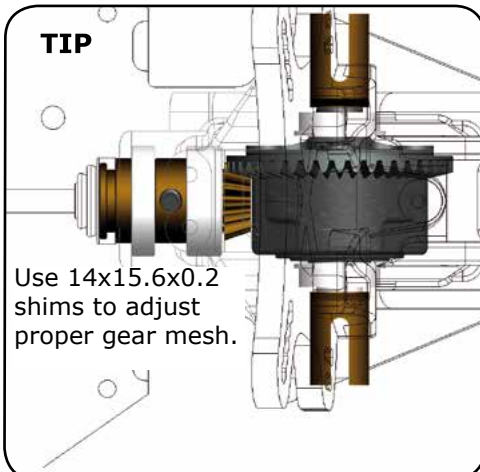


A

19

BAG  
5**TIP**

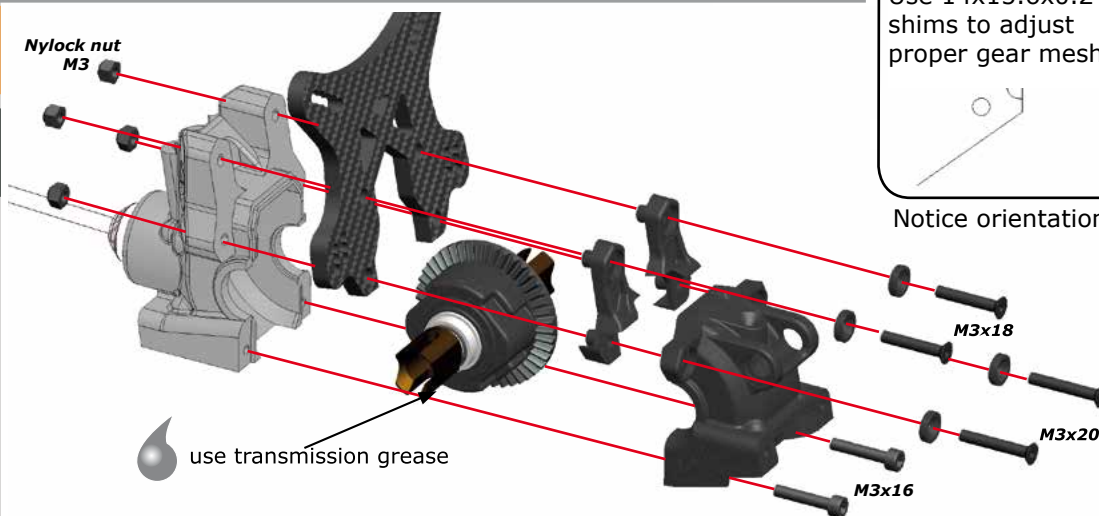
After building the differential with new gears a new differential case and bearings, the differential may feel a little tight. The connected parts need at least an hour run-time to create a perfect match. Attention: When you assemble the diff with too much initial play, the gears will not run-in properly and may wear quickly. After 1 or 2 hours of running the car, re-check the gear-mesh between the ring gear and the pinion. All parts should have run-in properly now. You may add one or more extra shims on the pinion or ring-gear, start off by placing 1 x 0.1mm more, and try again.

2.5x5  
WIDE THREAD**TIP**

Notice orientation of differential

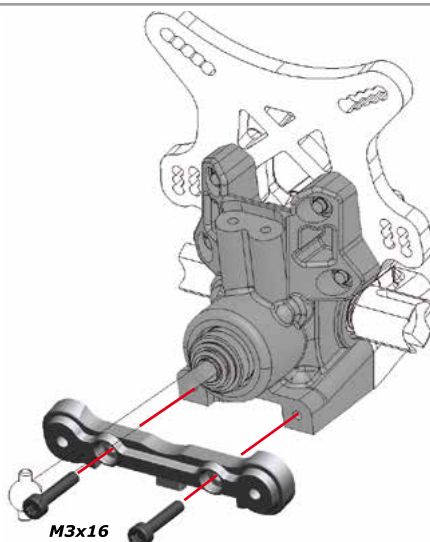
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21



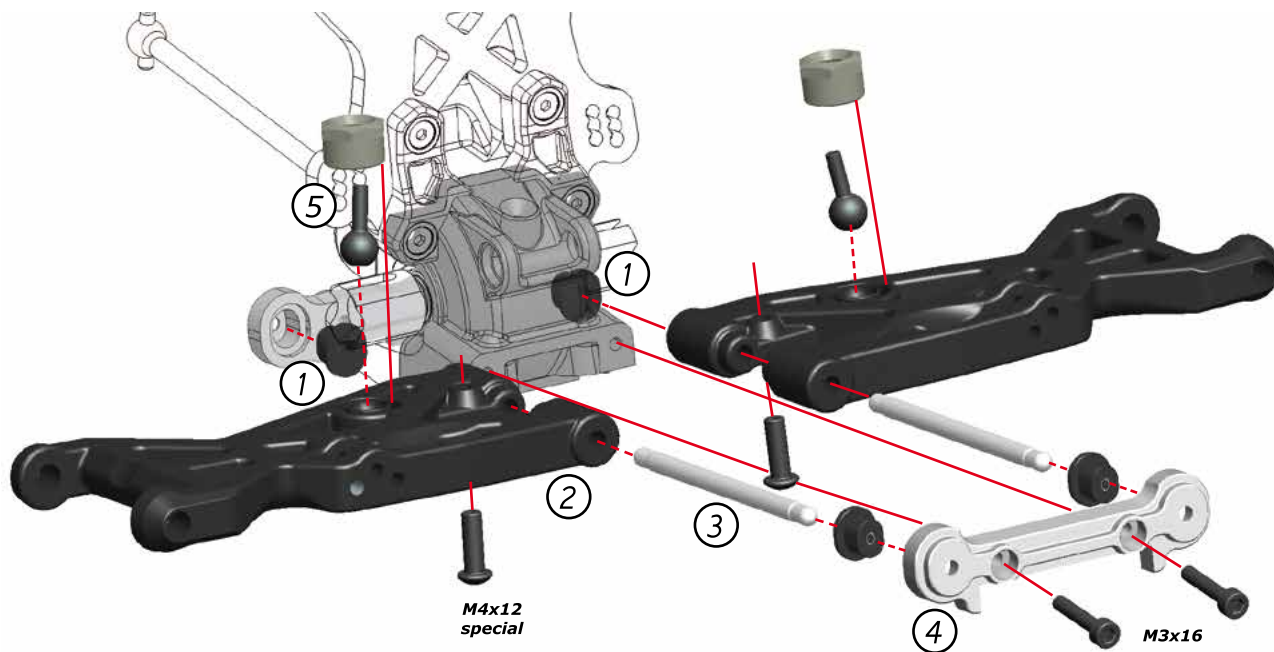
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22

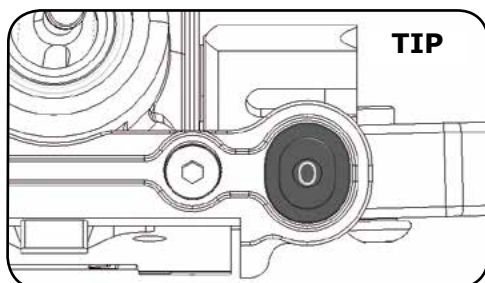


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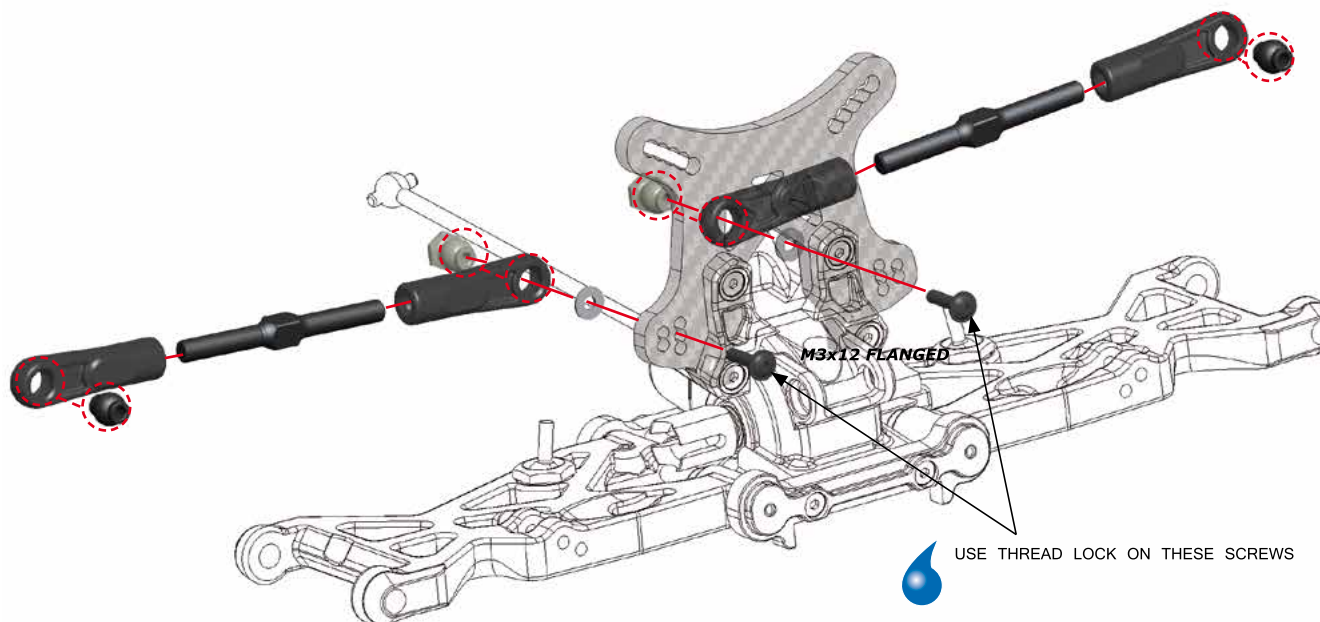
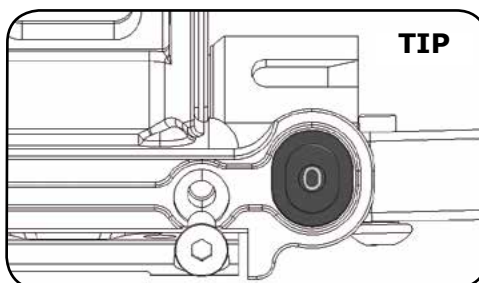




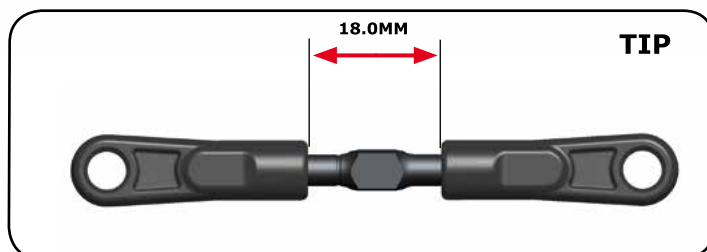
proper insert orientation  
in the rear bracket

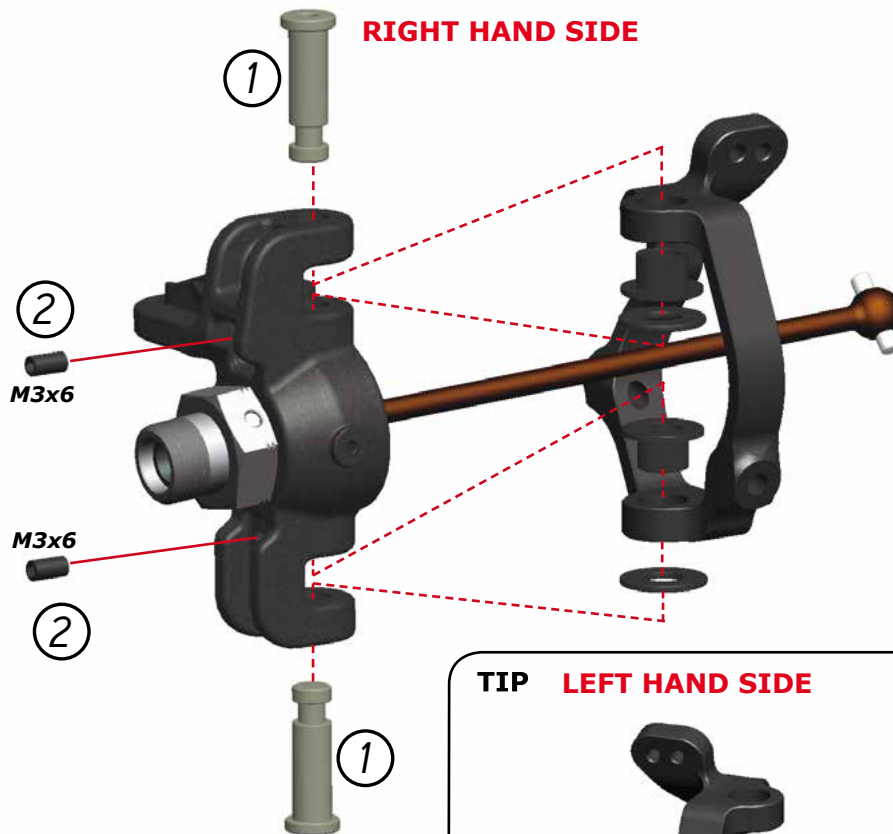
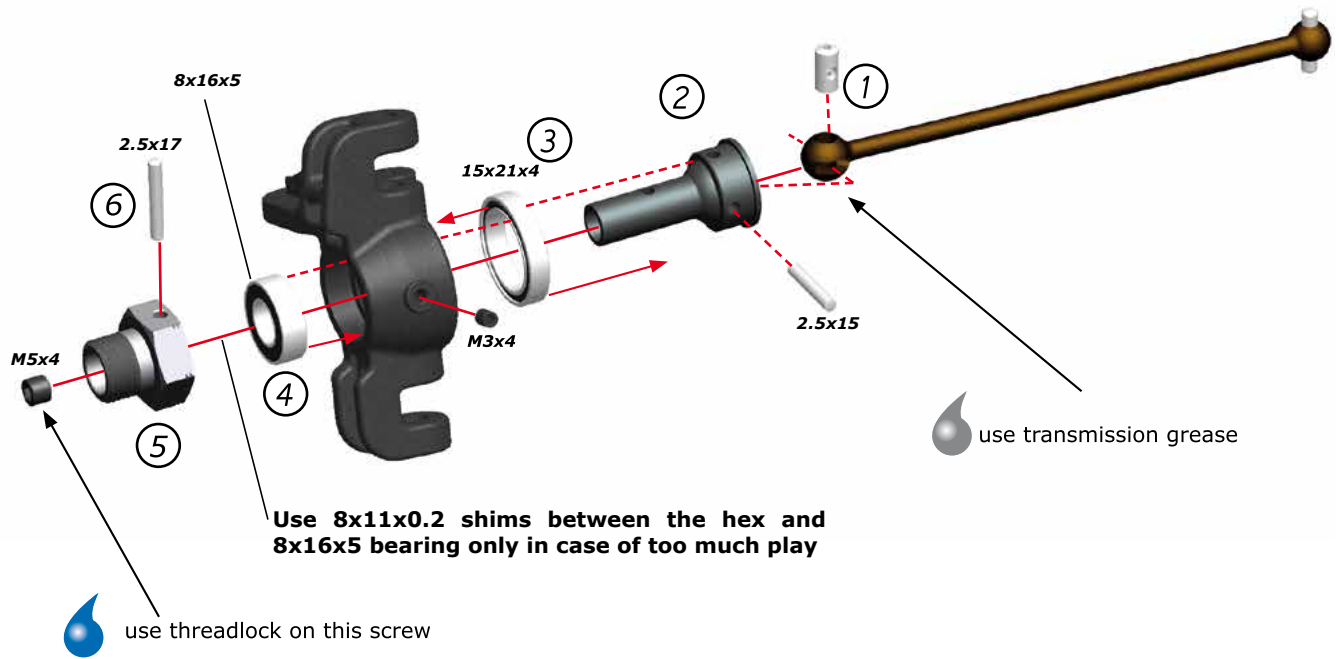


proper insert orientation  
in the front bracket



USE THREAD LOCK ON THESE SCREWS

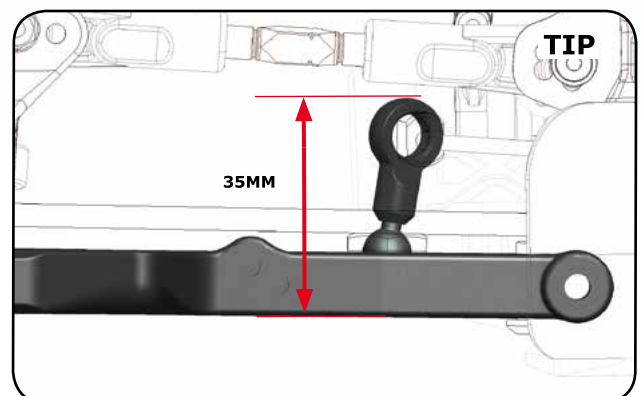
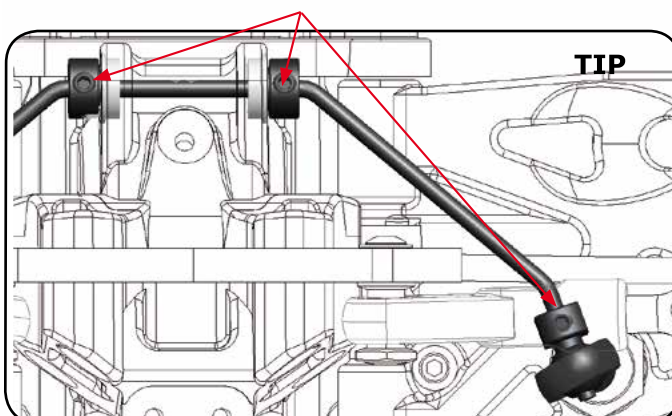
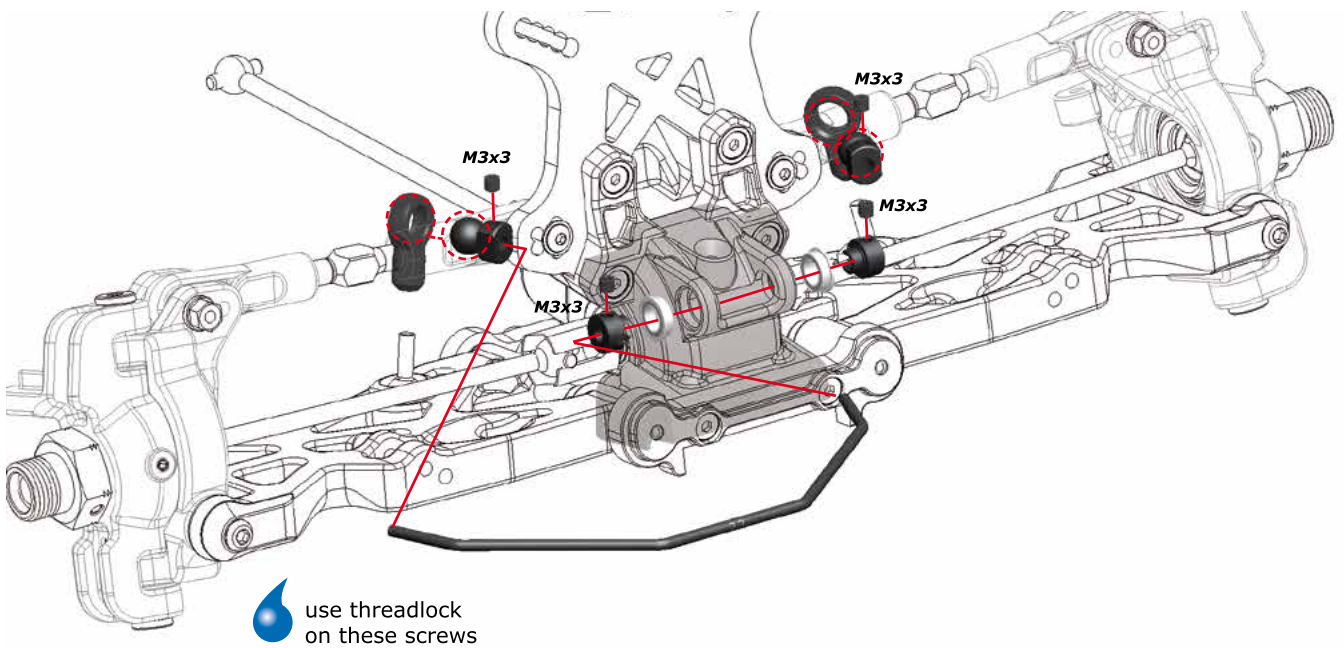
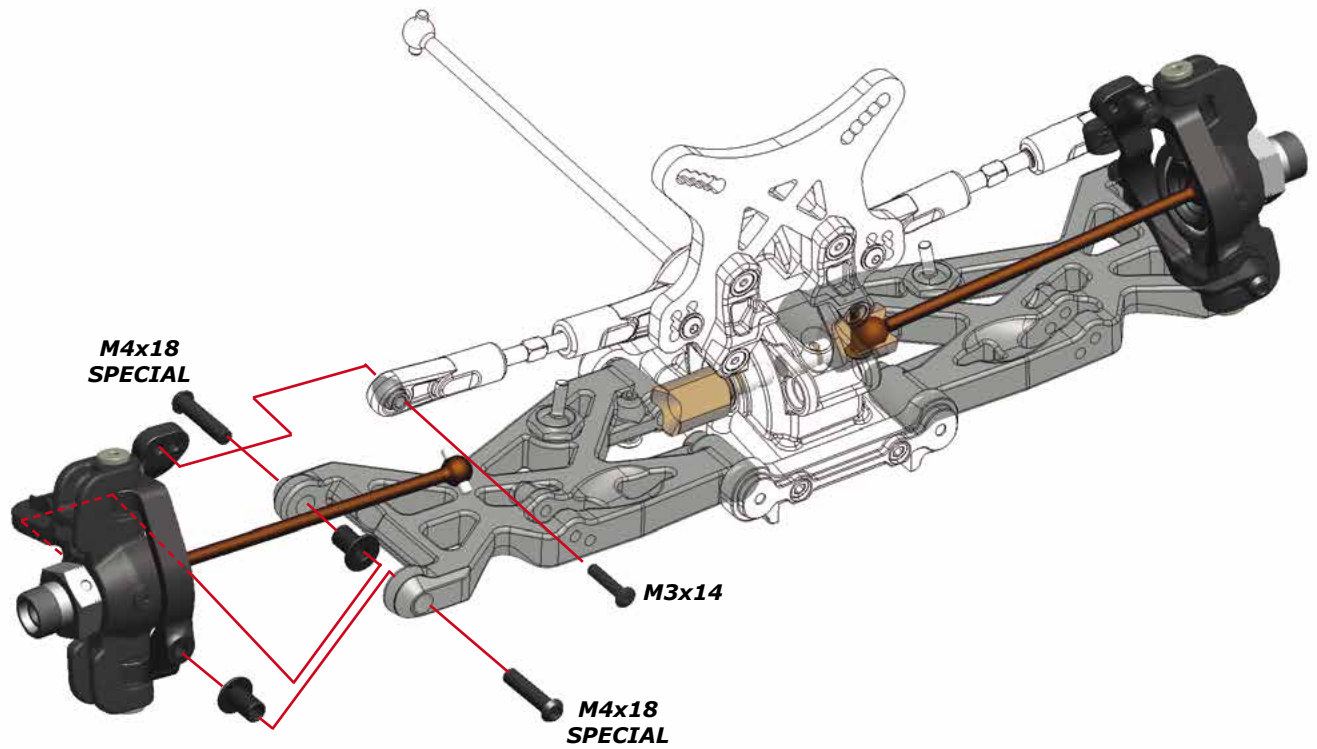


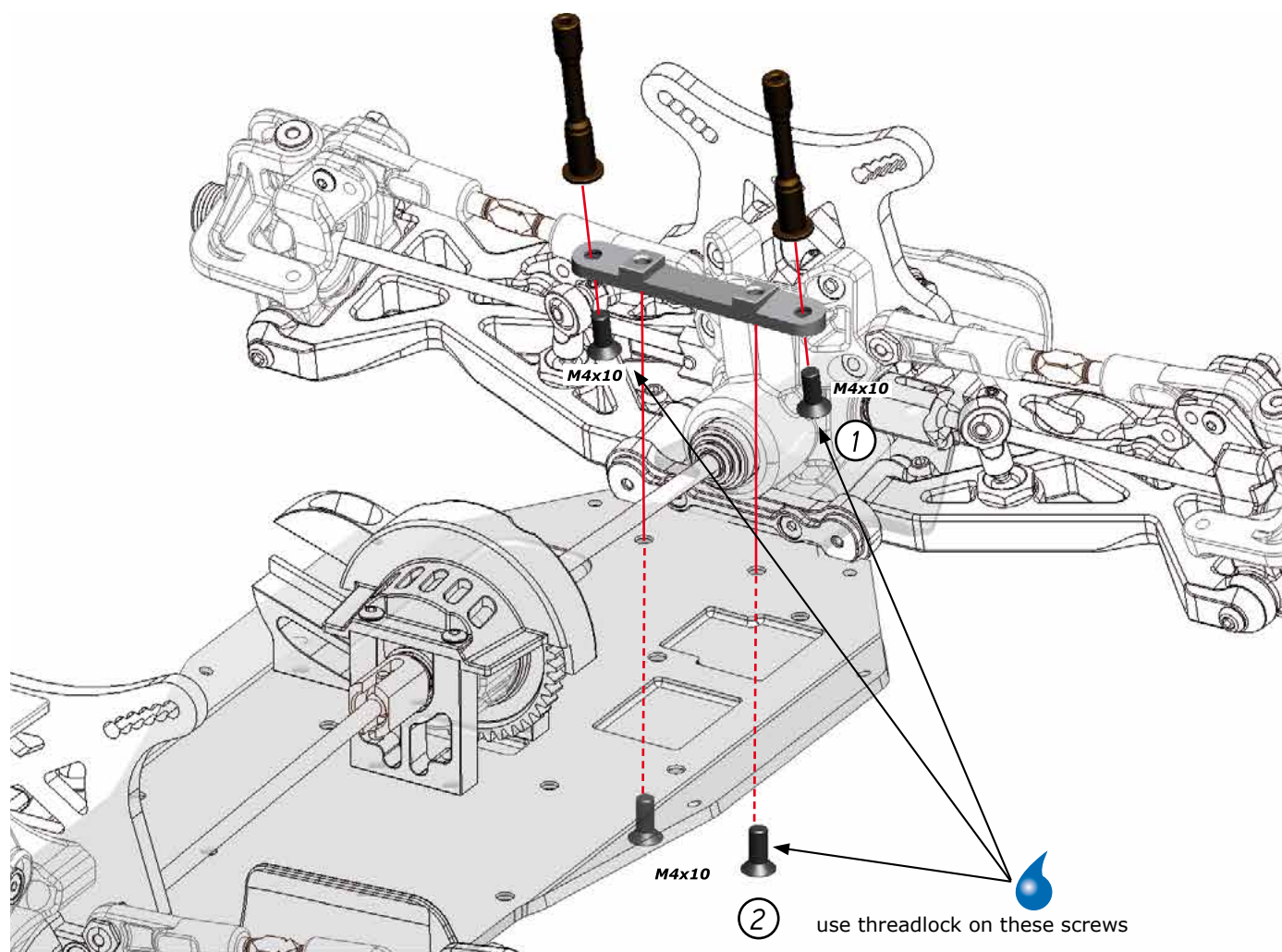
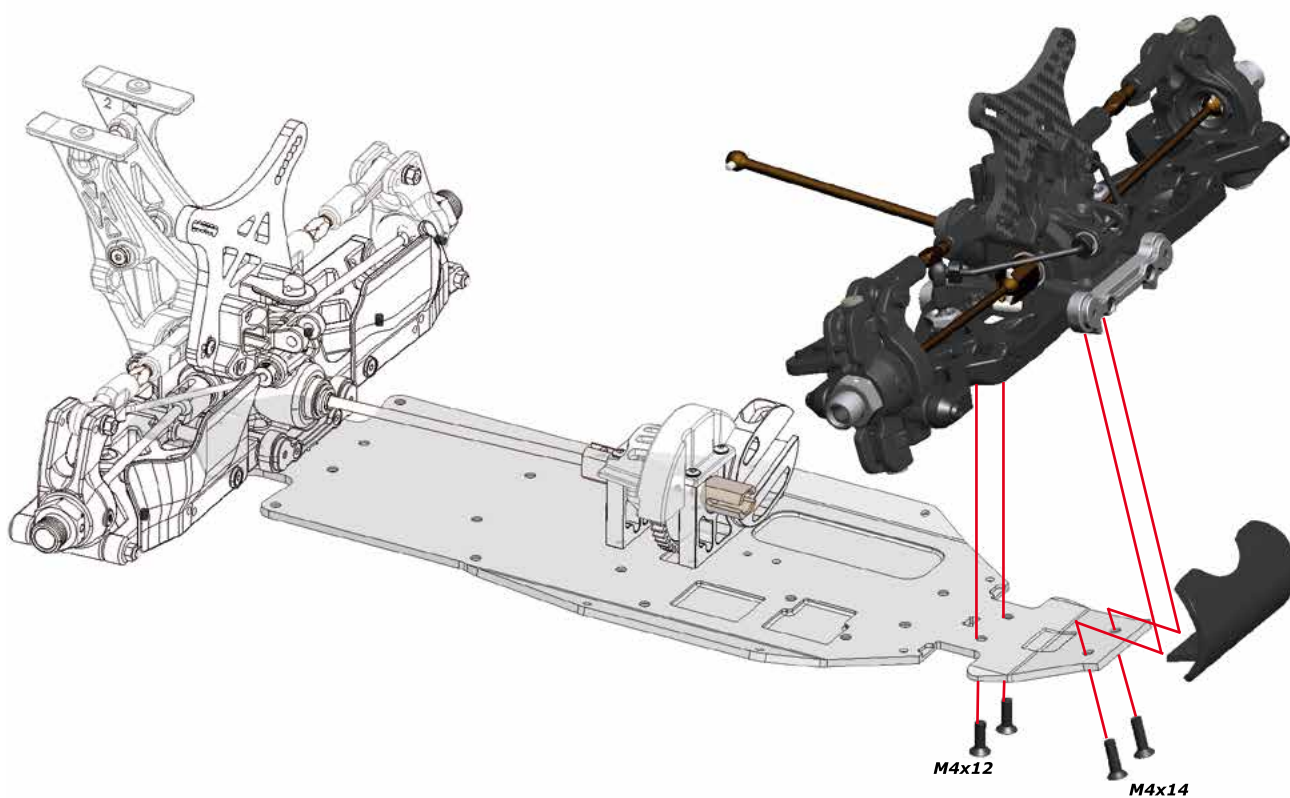


**TIP LEFT HAND SIDE**



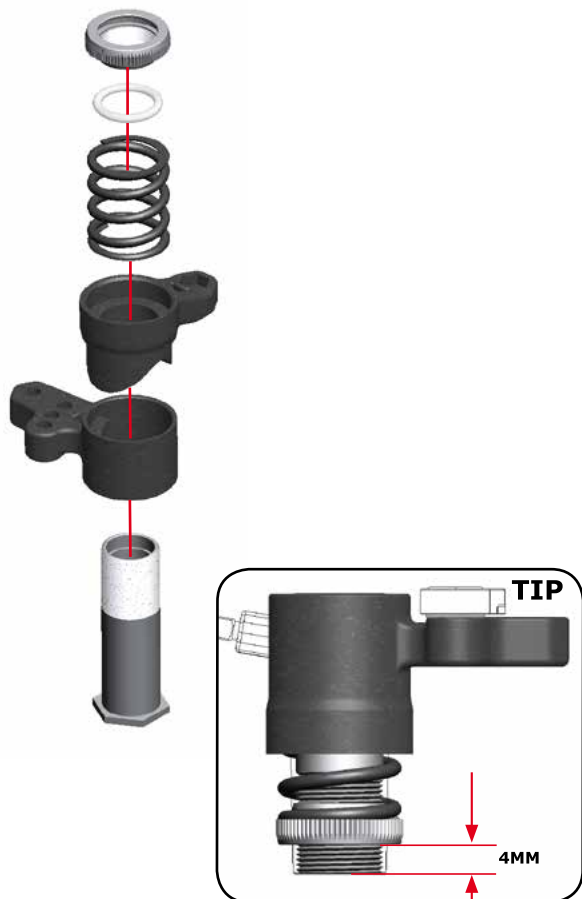








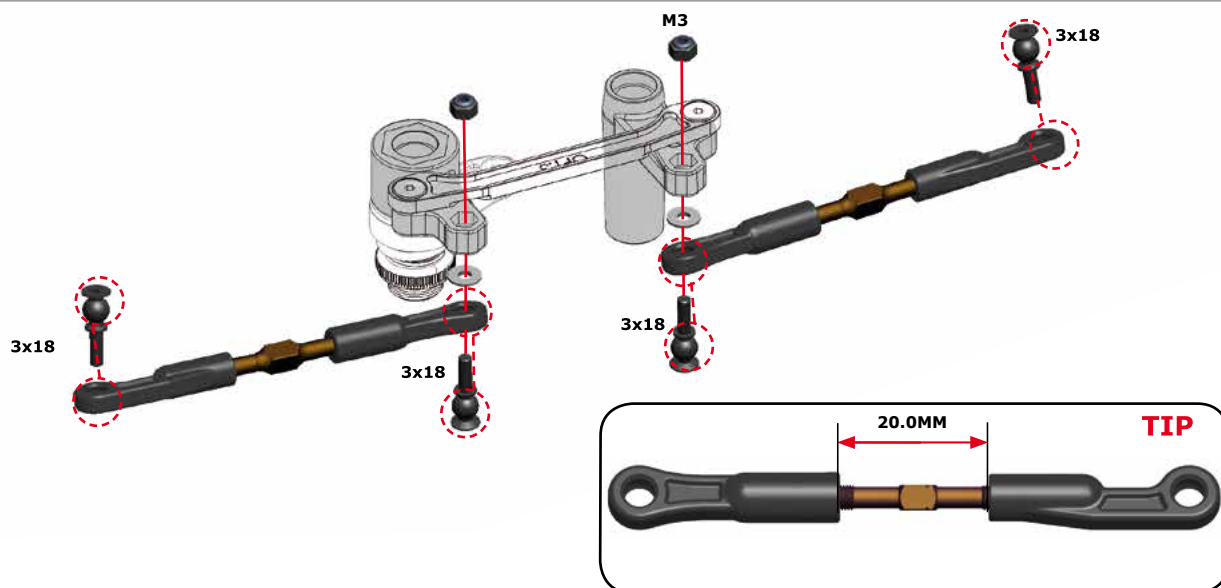
A  
31



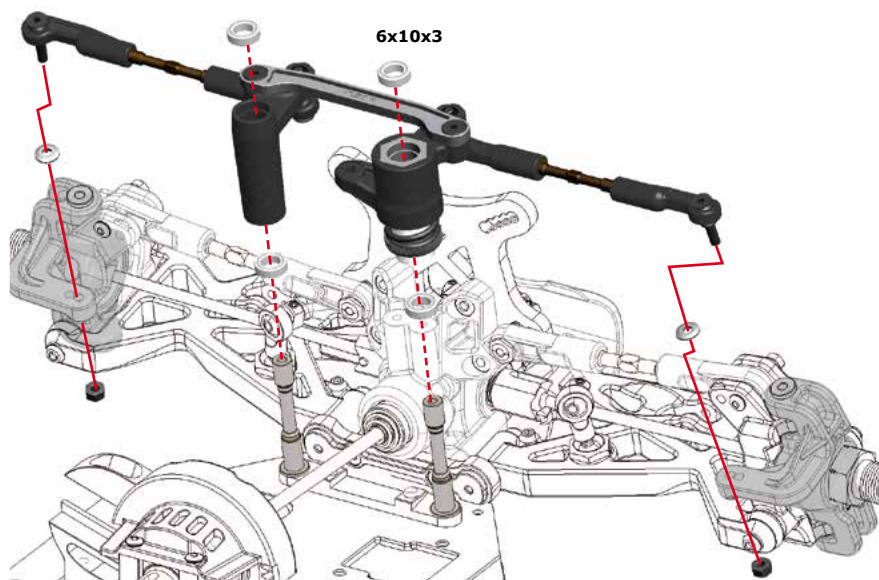
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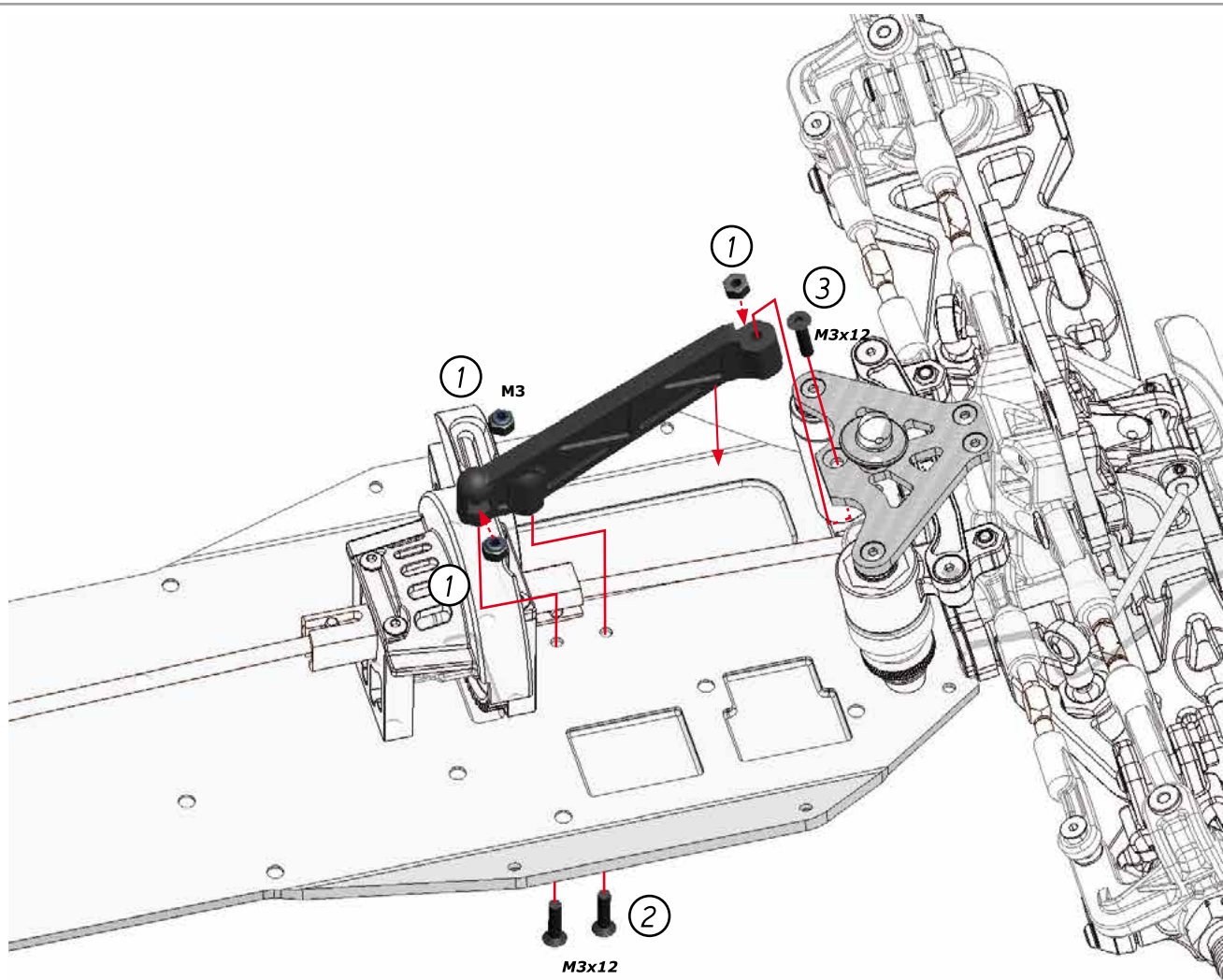
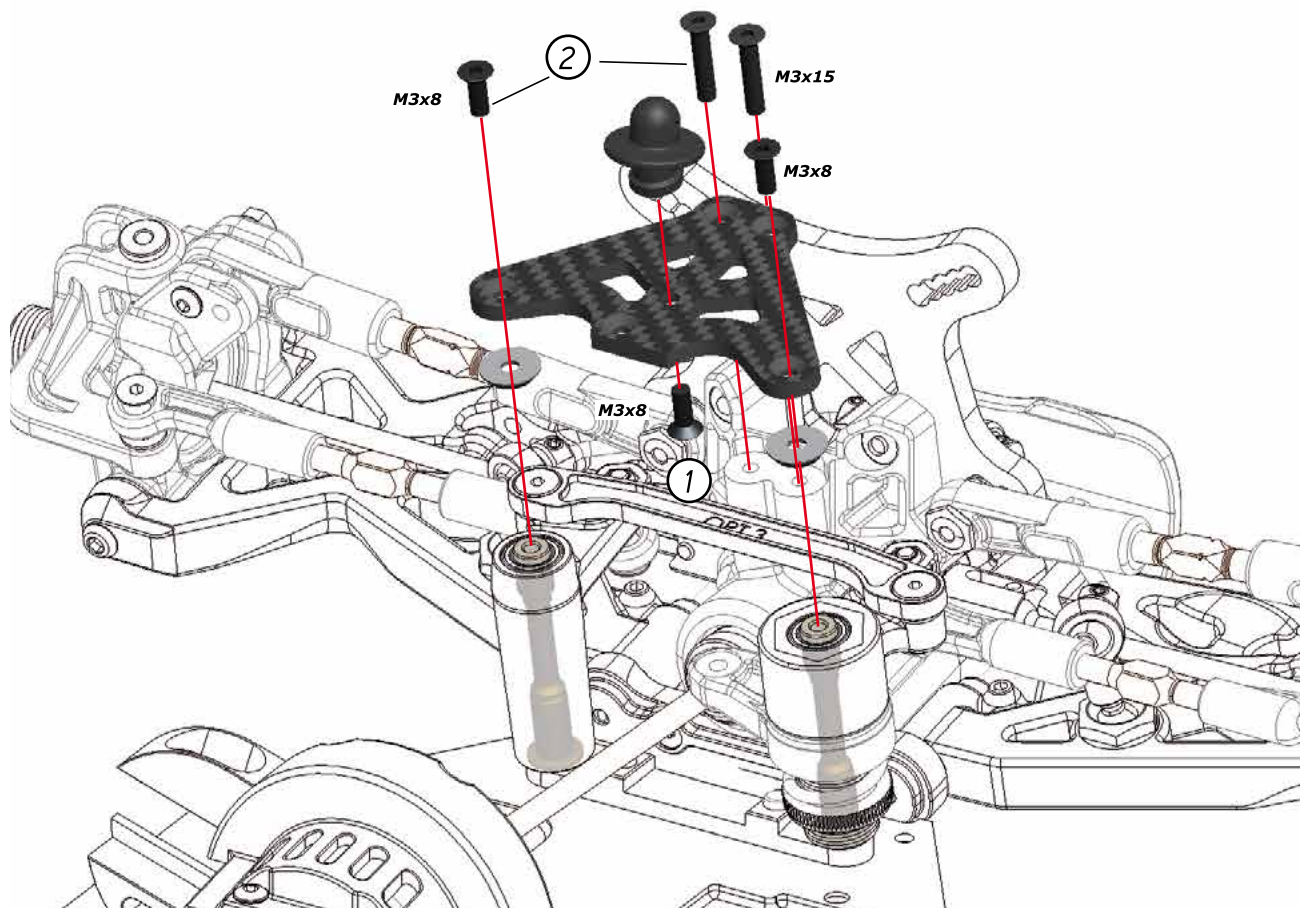


A  
33



A  
34



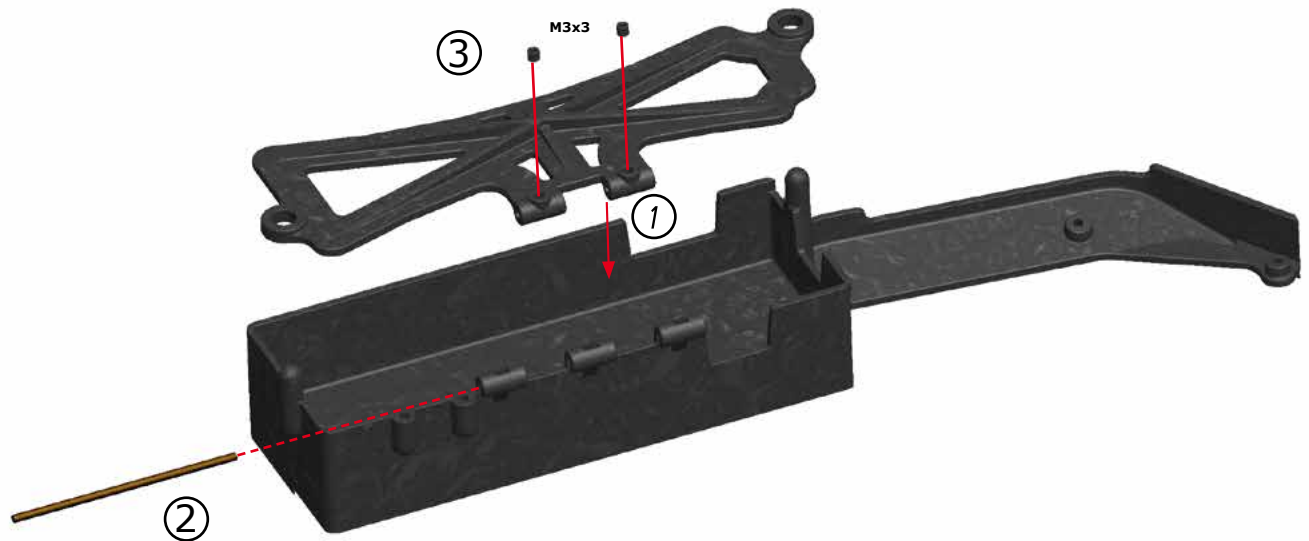


# SIDE-GUARD / RADIO ASSEMBLY

C

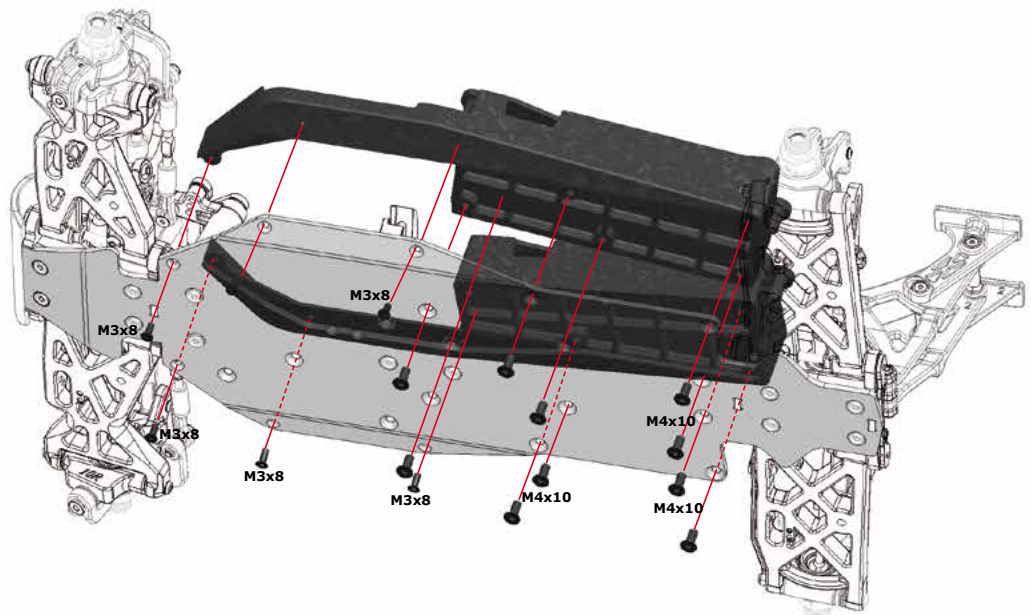
1

BAG  
8



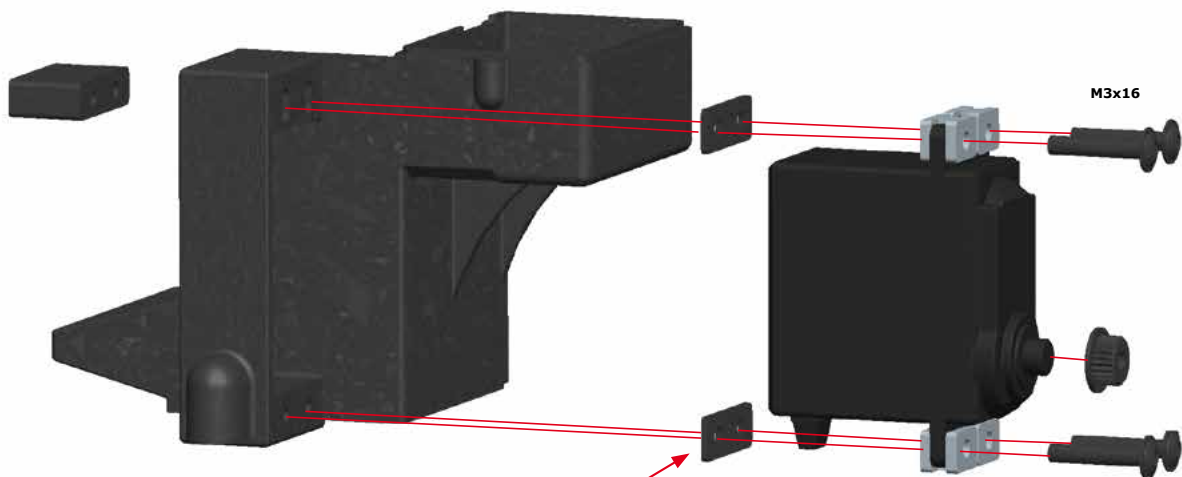
C

2



C

3



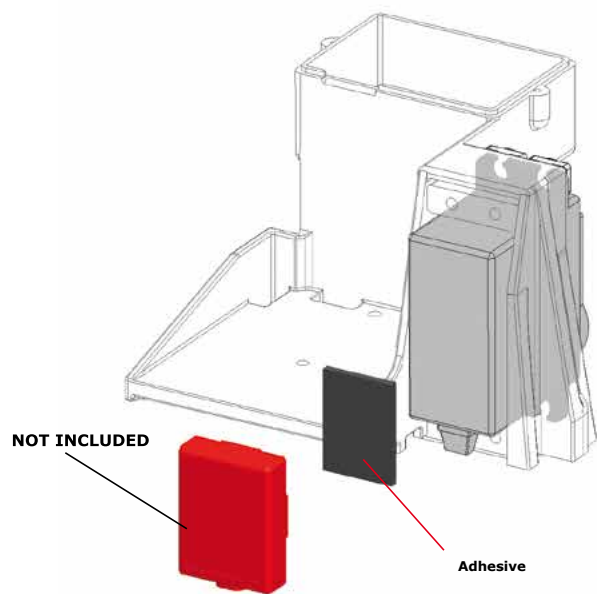
Use shims to allow servolever to clear radiobox by 0.5 to 1.0mm (see step C6)

**Inserts:**  
23T Sanwa / KO / JR  
24T Hitec  
25T Futaba



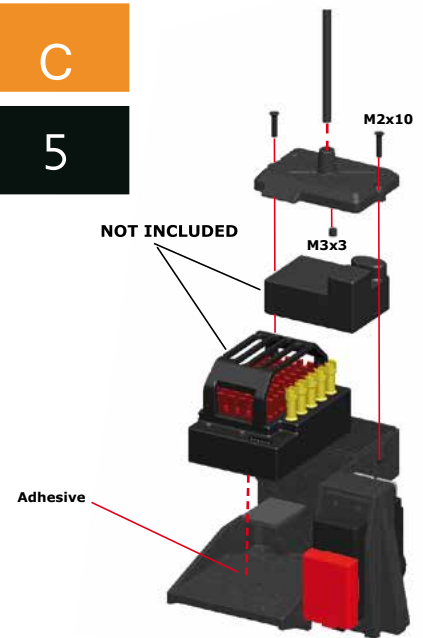
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4



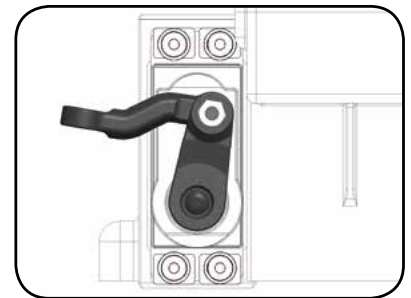
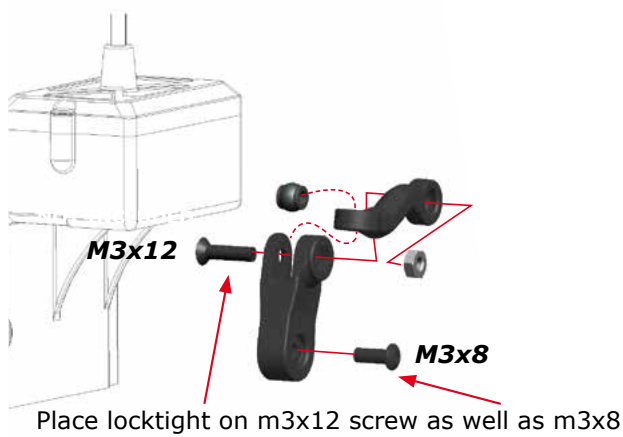
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5



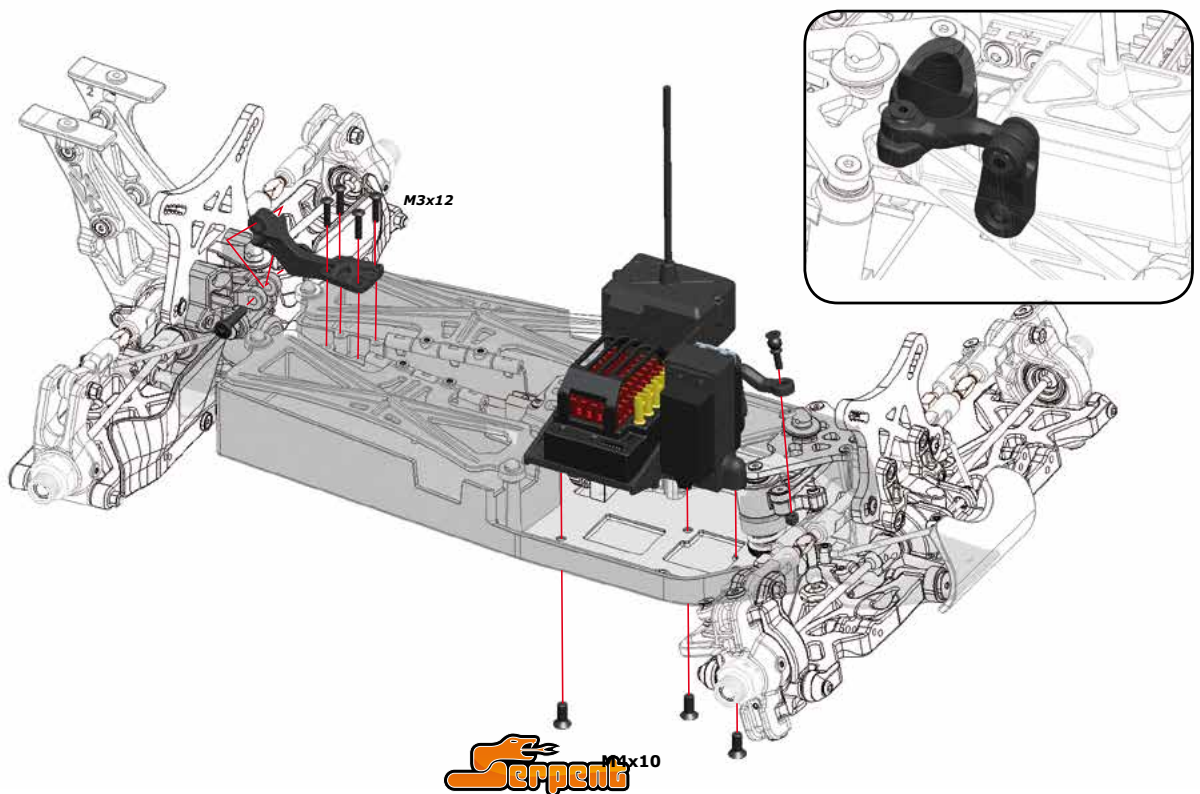
C

6



C

7



# FRONT/REAR SHOCK ASSEMBLY

D

1

BAG

9/10

D

2

D

3

D

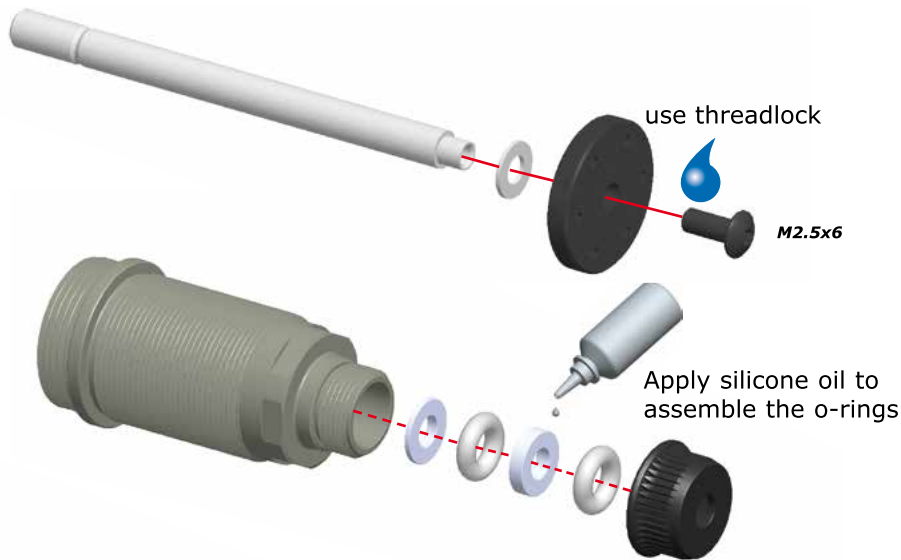
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D

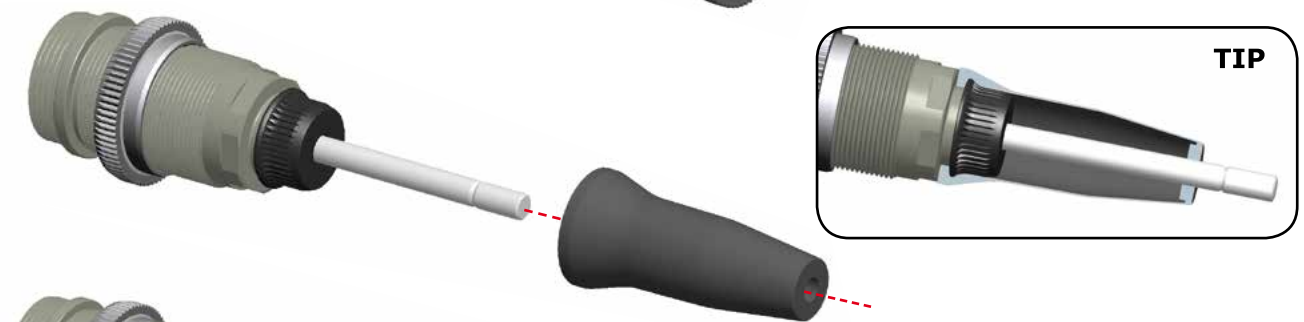
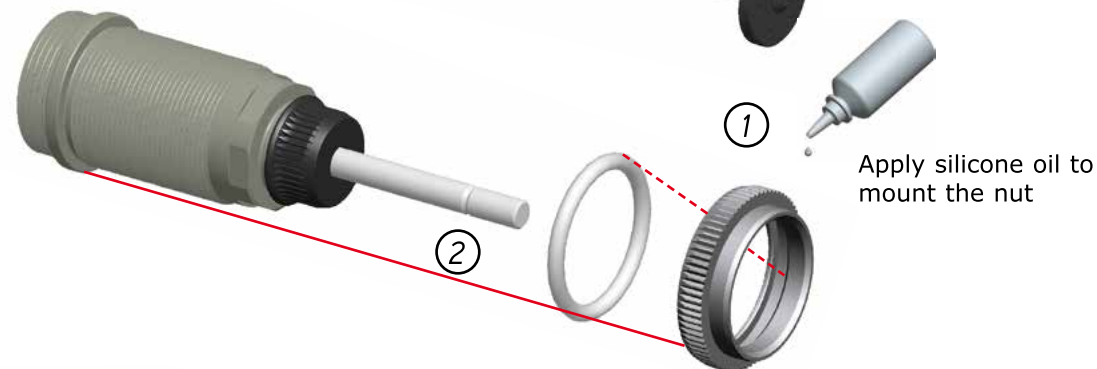
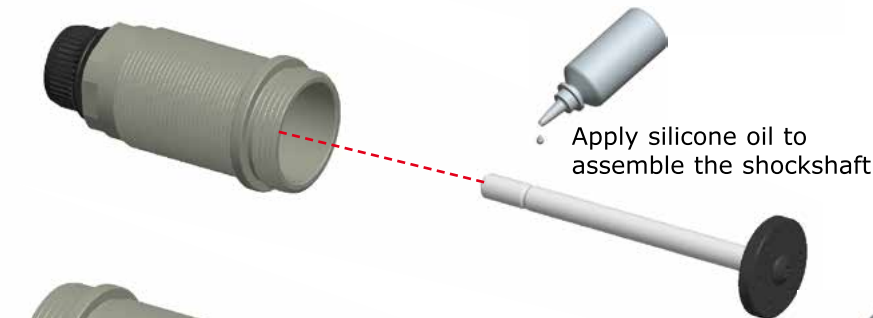
5

D

6



**NOTE:**  
Bag 10 are  
FRONT shocks.  
Bag 11 are  
REAR shocks



**TIP**





Push membrane into the shock top

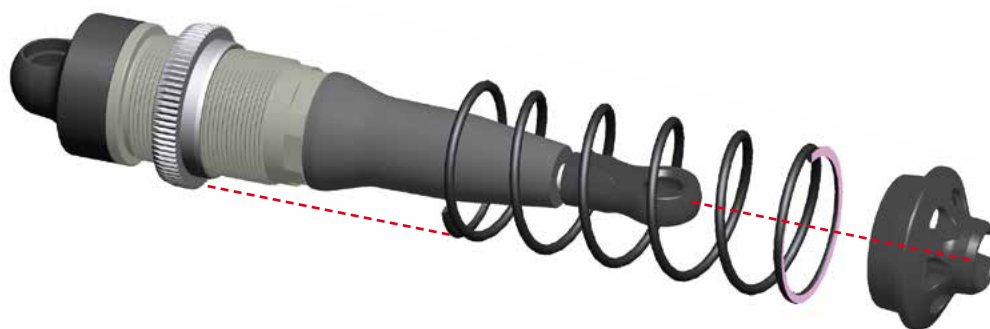


- Fill up with silicone oil
- Wait for air bubbles to escape
- Close top only 3/4
- Check default SET-UP sheet for CST value of silicone oil

Close fully

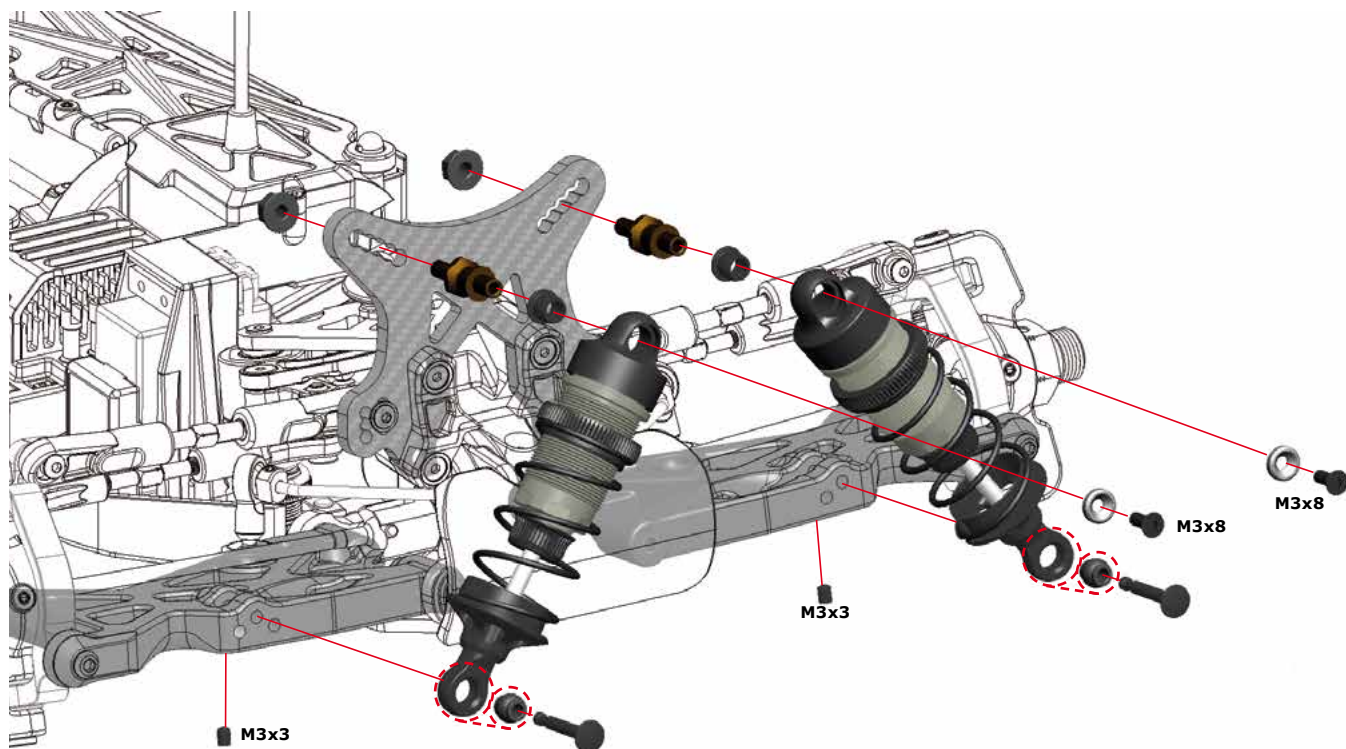


Push all the way in

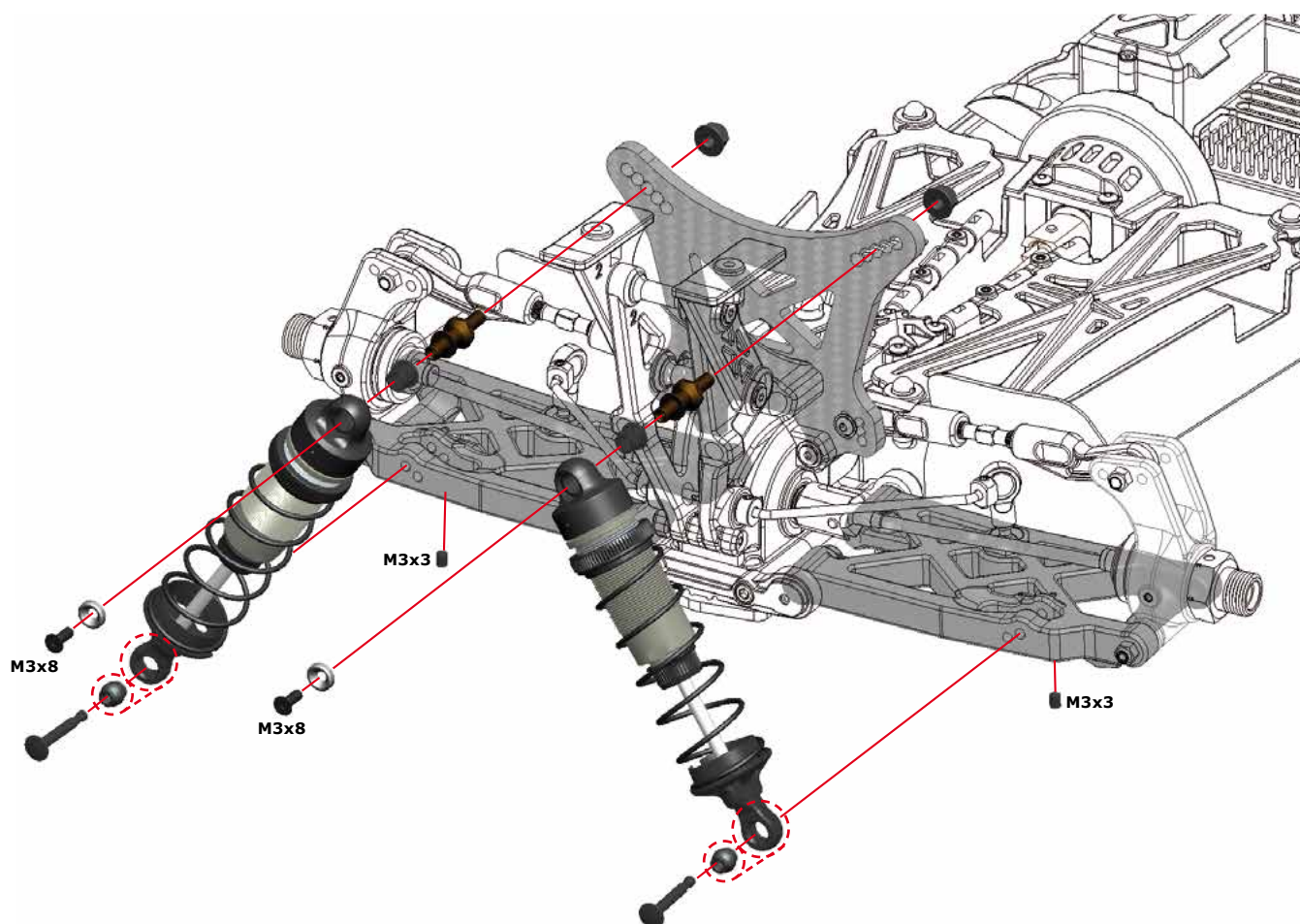




## SHOCK MOUNTING

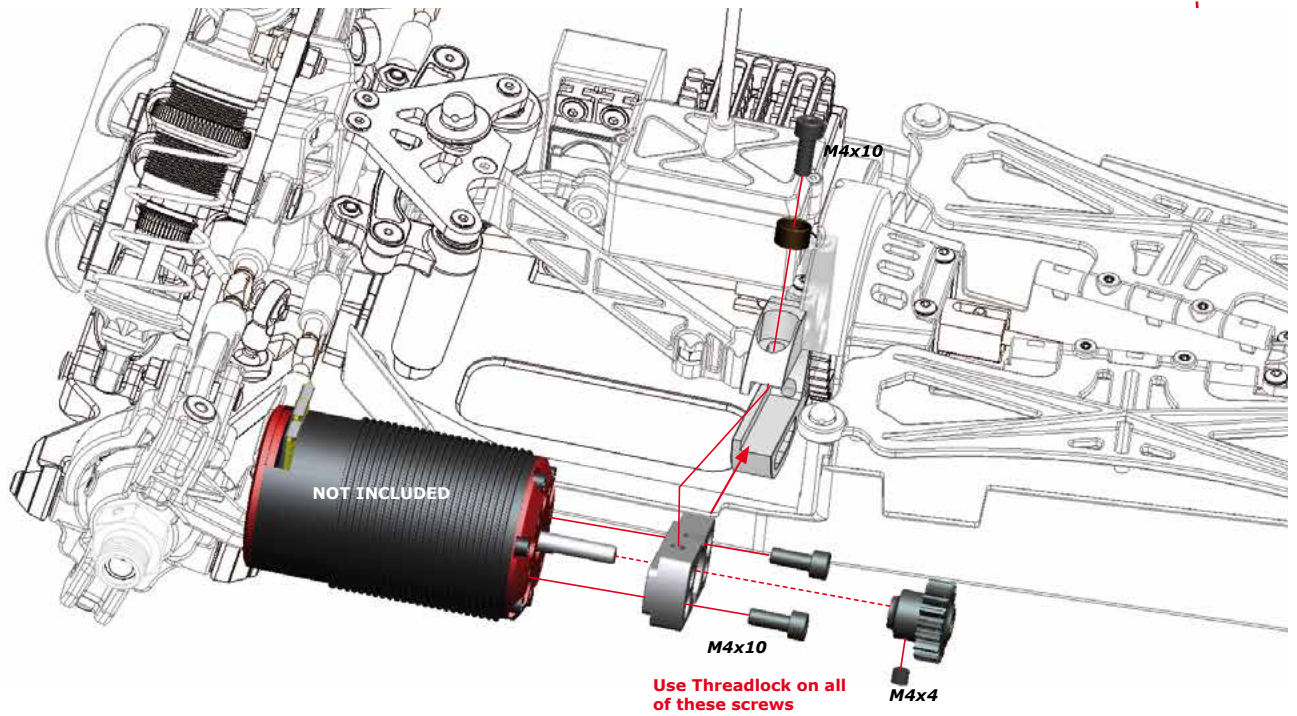


**NOTE: SHOCKS  
SHOWN WITHOUT  
SHOCK BOOTS**



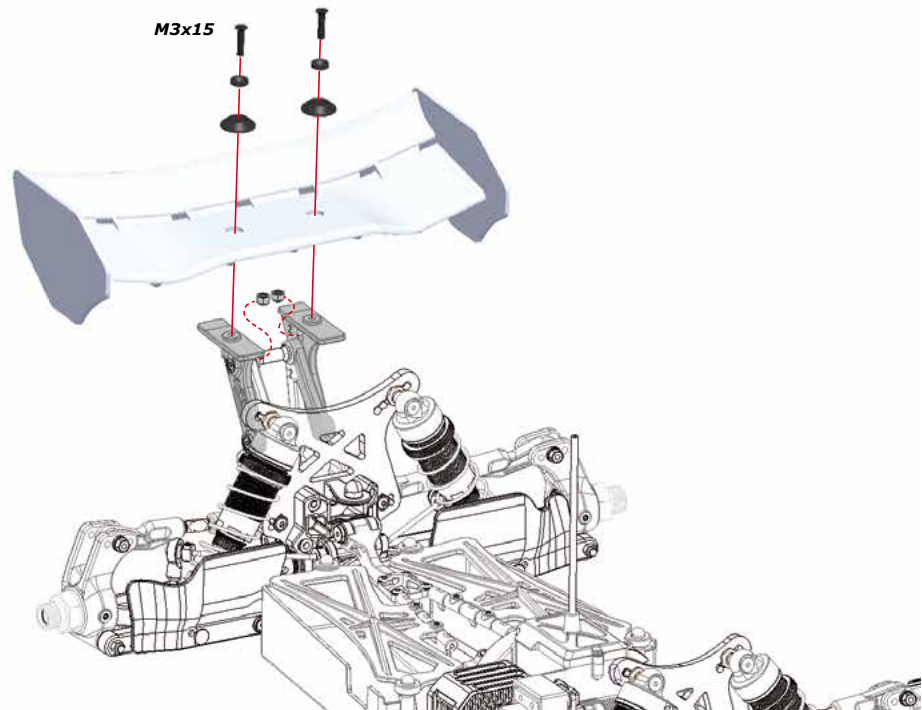
E

1

BAG  
11

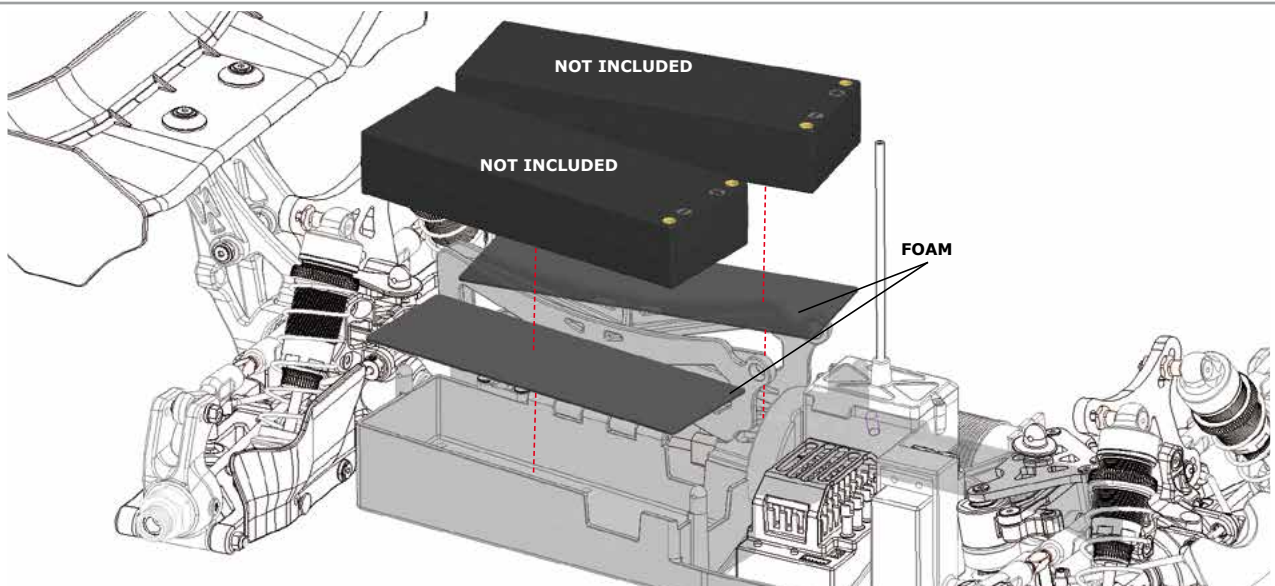
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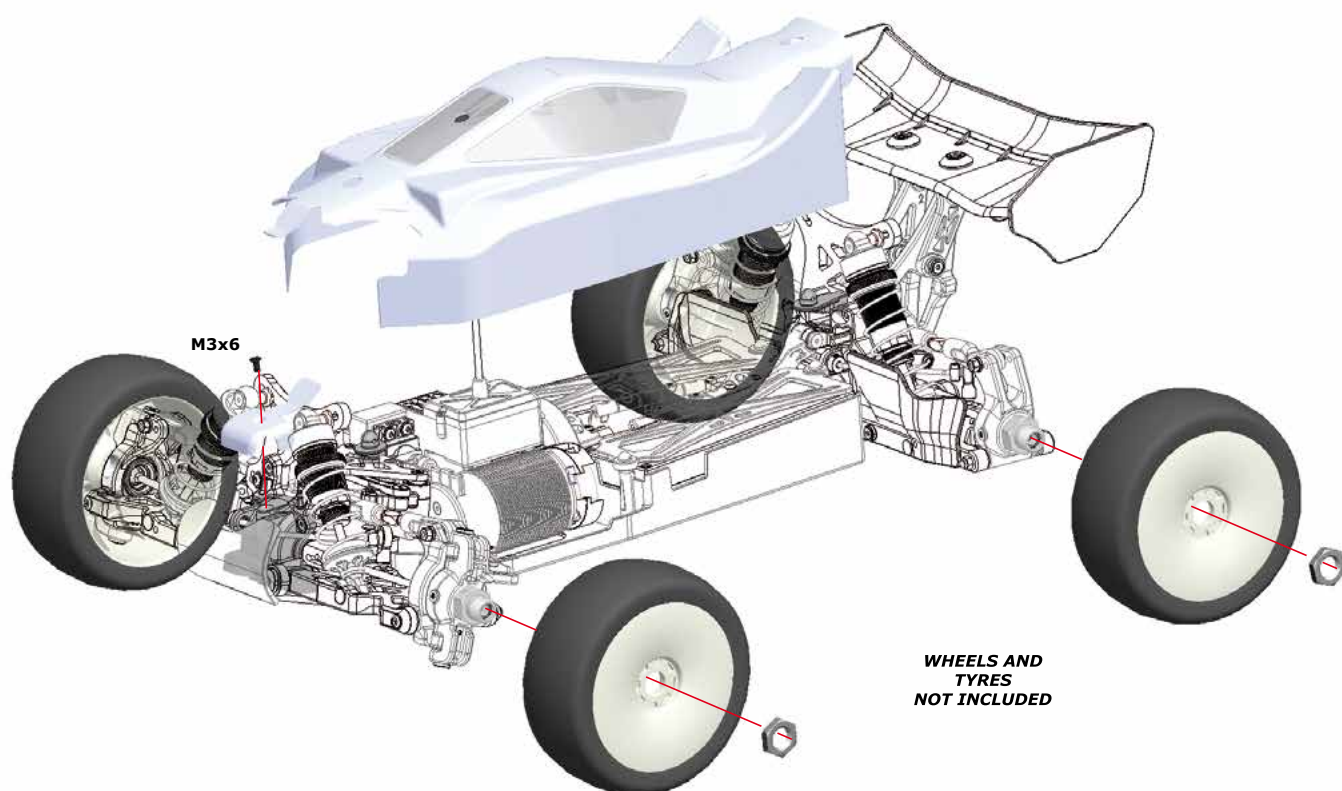


E

3









## REFERENCE GUIDE AND EXPLODED VIEWS

Part no	Description		
600016	Serpent S811 Cobra Buggy EP 1/8 4wd 2.1		
<b>Radio Instalation / Battery option</b>			
600463	Servo lever 23T 811-E alu	600274	Wheelhexagon light -2mm (2)
600464	Servo lever 24T 811-E alu	600275	Wheelhexagon light -1mm (2)
600465	Servo lever 25T 811-E alu	600276	Wheelhexagon light -0mm (2)
600681	S811E Radiotray set light alu/carbon	600284	Shocktower FR alu light
600682	S811E batterystrap carbon (2)	600297	Lightwheight wheel nut 17mm (4)
<b>Servo Saver &amp; Steering option</b>		600303	C-hub 10 L+R alu
600171	Steeringrack option 1	600304	C-hub 12 L+R alu
600172	Steeringrack option 2	600336	Antiroll bar front 1.8mm
600278	Servo saver post alu (2)	600337	Antiroll bar front 2.0mm
600296	Servosaver alu coated (3)	600461	Chassis brace front alu 811-E
600330	Servo saver spring hard	600483	Wheelaxle fr alu V2 (2)
600463	Servo lever 23T 811-E alu	600484	Antirollbar spacer alu (2)
600464	Servo lever 24T 811-E alu	600485	Pivotball anti roll bar (2)
600465	Servo lever 25T 811-E alu	600486	Bushing suspension arm fr alu (4)
600698	Ackermann set S811	600487	Bolt shock titanium (4)
<b>Shock Absorbers option</b>		600490	Hingepin TiNi coated (2)
600282	Shock bushing delrin (4)	600497	Steeringblock L+R V2 alu
600287	Shock spring support alu (4)	600498	Delrin sleeve for alu upright/steeringblock (2)
600306	Shock shaft FR TiNi coating (2)	600611	Steeringblock Alu 0-Deg L+R
600347	Shock top 7075 hard anodized (2)	600622	Pivotball antirollbar alu (4)
600349	Shock pistons conical 6 hole (4)	600641	Hex adaptor -2mm (2)
600350	Shock pistons conical 8 hole (4)	600663	C-hub 16 L+R alu
600351	Shock pistons conical 10 hole (4)	600678	Bushing delrin for 811 alu C-hub (4)
600357	Membrane webbed silicone (4)		
600487	Bolt shock titanium (4)	<b>Middle Section Option</b>	
600488	Shock pistons 8 hole (4)	600279	Spur gear 44T
600645	Shock shaft RR 811 2.0 Tin coated (2)	600280	Spur gear 48T
<b>Shock Springs optionals</b>		600606	Spurgear 46T composite
600646	Spring FR orange V2 (0.66N/3.8LB) (2)	600607	Spurgear 48T composite
600647	Spring FR red V2 (0.70N/4.0LB) (2)	600608	Spurgear 50T composite
600648	Spring FR pink V2 (0.73N/4.15LB) (2)		
600649	Spring FR blue V2 (0.75N/4.3LB) (2)	<b>Rear Section option</b>	
600650	Spring FR purple V2 (0.79N/4.5LB) (2)	600238	Antiroll bar rear 2.5mm
600651	Spring FR green V2 (0.81N/4.65LB) (2)	600239	Antiroll bar rear 2.7mm
600652	Spring RR orange V2 (0.53N/3.0LB) (2)	600263	Washer M3 alu (12)
600653	Spring RR red V2 (0.56N/3.2LB) (2)	600265	Suspension bracket RR FR 2.5 - 4.5
600654	Spring RR pink V2 (0.58N/3.3LB) (2)	600266	Suspension bracket RR RR HR 3
600655	Spring RR blue V2 (0.60N/3.4LB) (2)	600267	Suspension bracket RR RR LR 3
600656	Spring RR purple V2 (0.61N/3.5LB) (2)	600270	Track rod M5x53 titanium (2)
600657	Spring RR green V2 (0.63N/3.6LB) (2)	600273	Shock mount titanium (2)
600658	Spring set FR V2 (6x2)	600274	Wheelhexagon light -2mm (2)
600659	Spring set RR V2 (6x2)	600275	Wheelhexagon light -1mm (2)
<b>Chassis / Guards Optional</b>		600276	Wheelhexagon light -0mm (2)
600461	Chassis brace front alu 811-E	600297	Lightwheight wheel nut 17mm (4)
600462	Chassis brace rear alu 811-E	600300	Post wingmount alu (2)
600470	Chassis S811E hard anodized	600301	Wing washer alu (2)
600489	Transmission brace tube alu	600308	Suspension bracket RR FR 2.5 - 4.5
<b>Front Section Optional</b>		600338	Antiroll bar rear 1.8mm
600240	Antiroll bar front 2.3mm	600339	Antiroll bar rear 2.0mm
600242	Antiroll bar front 2.7mm	600434	Antiroll bar rear 2.4mm
600263	Washer M3 alu (12)	600440	Wing black low 811
600269	Track rod M5x46 titanium (2)	600462	Chassis brace rear alu 811-E
600271	Track rod M4x51 titanium (2)	600484	Antirollbar spacer alu (2)
600273	Shock mount titanium (2)	600485	Pivotball anti roll bar (2)
		600487	Bolt shock titanium (4)
		600490	Hingepin TiNi coated (2)
		600491	Hingepin rr outer TiNi coated (2)
		600492	Wheelhexagon light +1mm /nut/pin (2)
		600493	Wheelhexagon light +2mm /nut/pin (2)
		600494	Wheelhexagon light +3mm /nut/pin (2)
		600496	Upright L+R V2 alu
		600498	Delrin sleeve for alu upright/steeringblock (2)
		600644	Shocktower 811 2.0 rear alu light

600660 Wheelaxle RR 811 2.0 alu (2)  
 600661 Upright L+R 811 2.0 alu  
 600684 Antiroll bar rear 3.0mm

#### Differential Optional

600283 Diff pin 10T alu (2)  
 600695 Diff pinion 10T spiral  
 600696 Diff gear 43T spiral

#### Pinions Optional

600452 Pinion 12T  
 600453 Pinion 13T  
 600454 Pinion 14T  
 600455 Pinion 15T  
 600457 Pinion 17T  
 600458 Pinion 18T  
 600459 Pinion 19T  
 600460 Pinion 20T

#### Body Optional

600664 S811-E Body Avenger

#### Rims Optional

600620 Rim 1/8 buggy White (4)  
 600621 Rim 1/8 buggy Yellow (4)

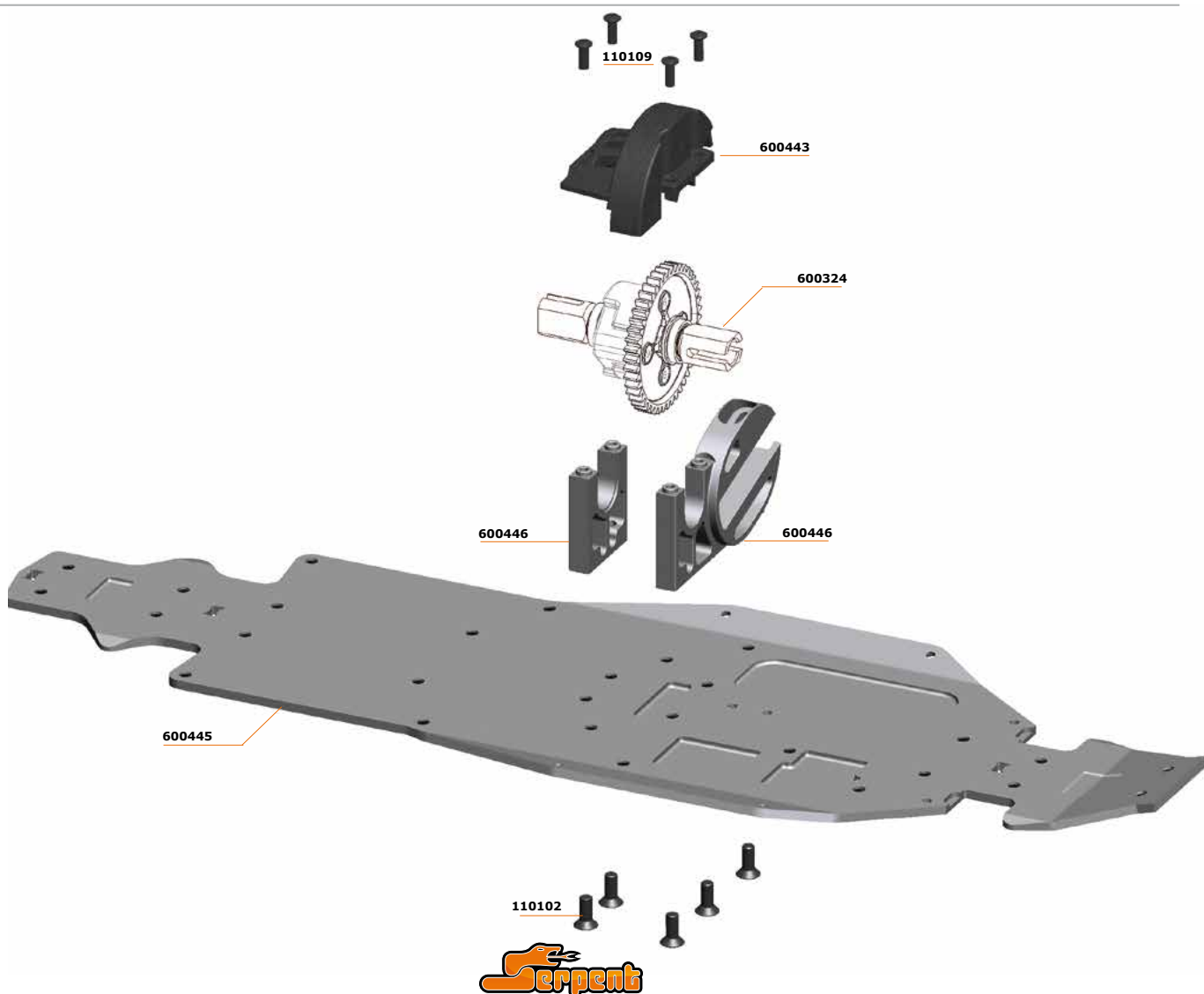
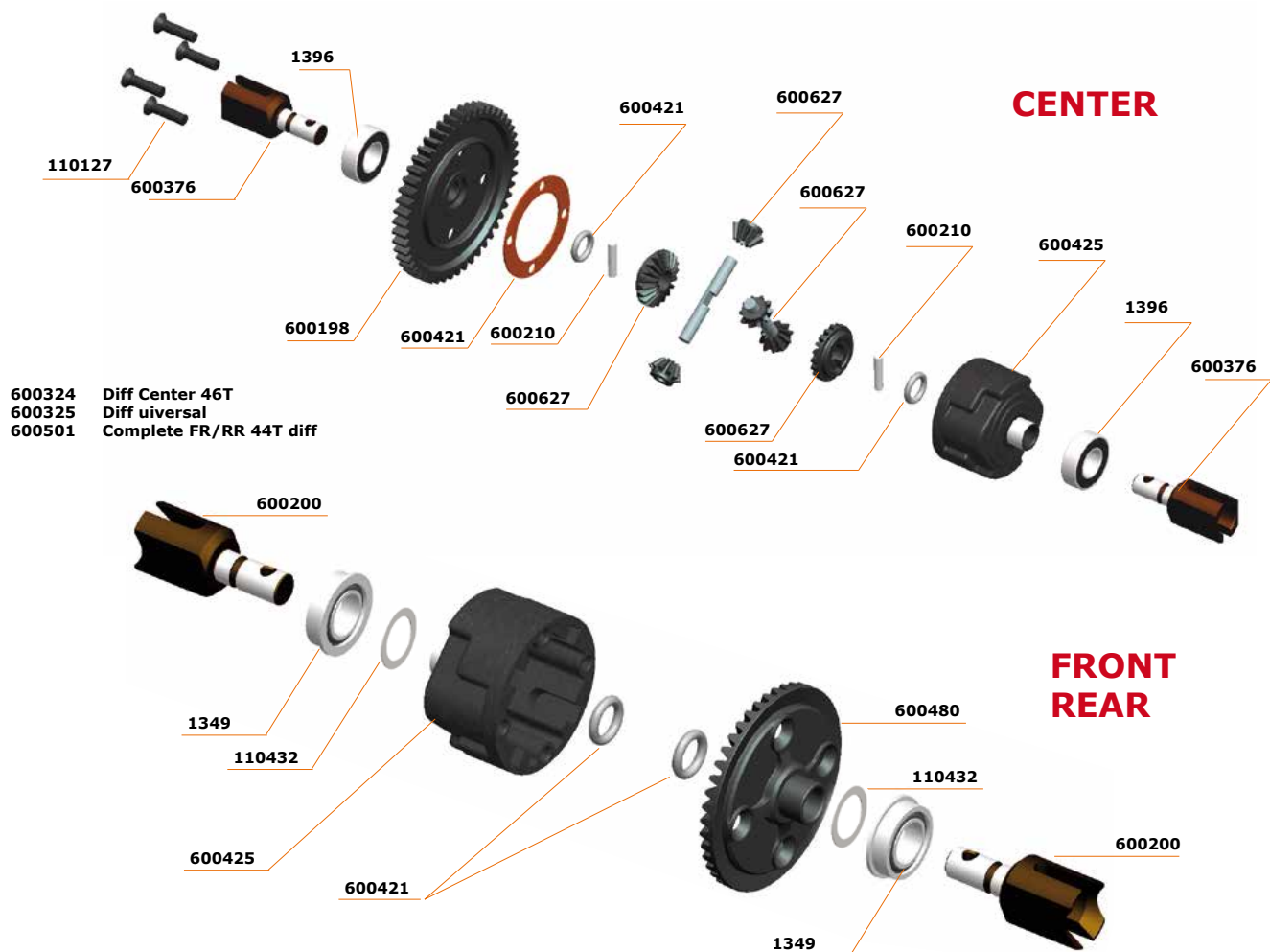
#### TOOLS

190500 Pit-caddy  
 190501 Tool-bag  
 190502 Pit-bag medium. 3 drawers  
 190504 Ballcup tool  
 190506 Toolset for onroad (17pcs) with tools bag  
 190507 Toolset for ep (16pcs) with tools bag  
 190508 Toolset for offroad (20pcs) with tools bag  
 190509 Allen wrench 1.5 x 120mm  
 190510 Allen wrench 2.0 x 120mm  
 190511 Allen wrench 2.5 x 120mm  
 190512 Allen wrench 3.0 x 120mm  
 190513 Ball driver hex wrench 2.0 x 120mm  
 190514 Ball driver hex wrench 2.5 x 120mm  
 190515 Ball driver hex wrench 3.0 x 120mm  
 190516 Tool tip allen wrench 1.5 x 120mm  
 190517 Tool tip allen wrench 2.0 x 120mm  
 190518 Tool tip allen wrench 2.5 x 120mm  
 190519 Tool tip allen wrench 3.0 x 120mm  
 190520 Tool tip ball driver hex wrench 2.0 x 120mm  
 190521 Tool tip ball driver hex wrench 2.5 x 120mm  
 190522 Tool tip ball driver hex wrench 3.0 x 120mm  
 190523 Turnbuckle wrench 3mm  
 190524 Turnbuckle wrench 4mm  
 190525 Turnbuckle wrench 5mm  
 190526 Flat head screwdriver 3.0 x 150mm  
 190527 Flat head screwdriver 4.0 x 150mm  
 190528 Phillips screwdriver 2.0 x 45mm  
 190529 Phillips screwdriver 3.5 x 120mm  
 190530 Phillips screwdriver 5.8 x 120mm  
 190539 Nut driver 4.5 x 100mm  
 190531 Nut driver 5.0 x 100mm  
 190532 Nut driver 5.5 x 100mm  
 190533 Nut driver 7.0 x 100mm  
 190534 Reamer with end cap for lexan body

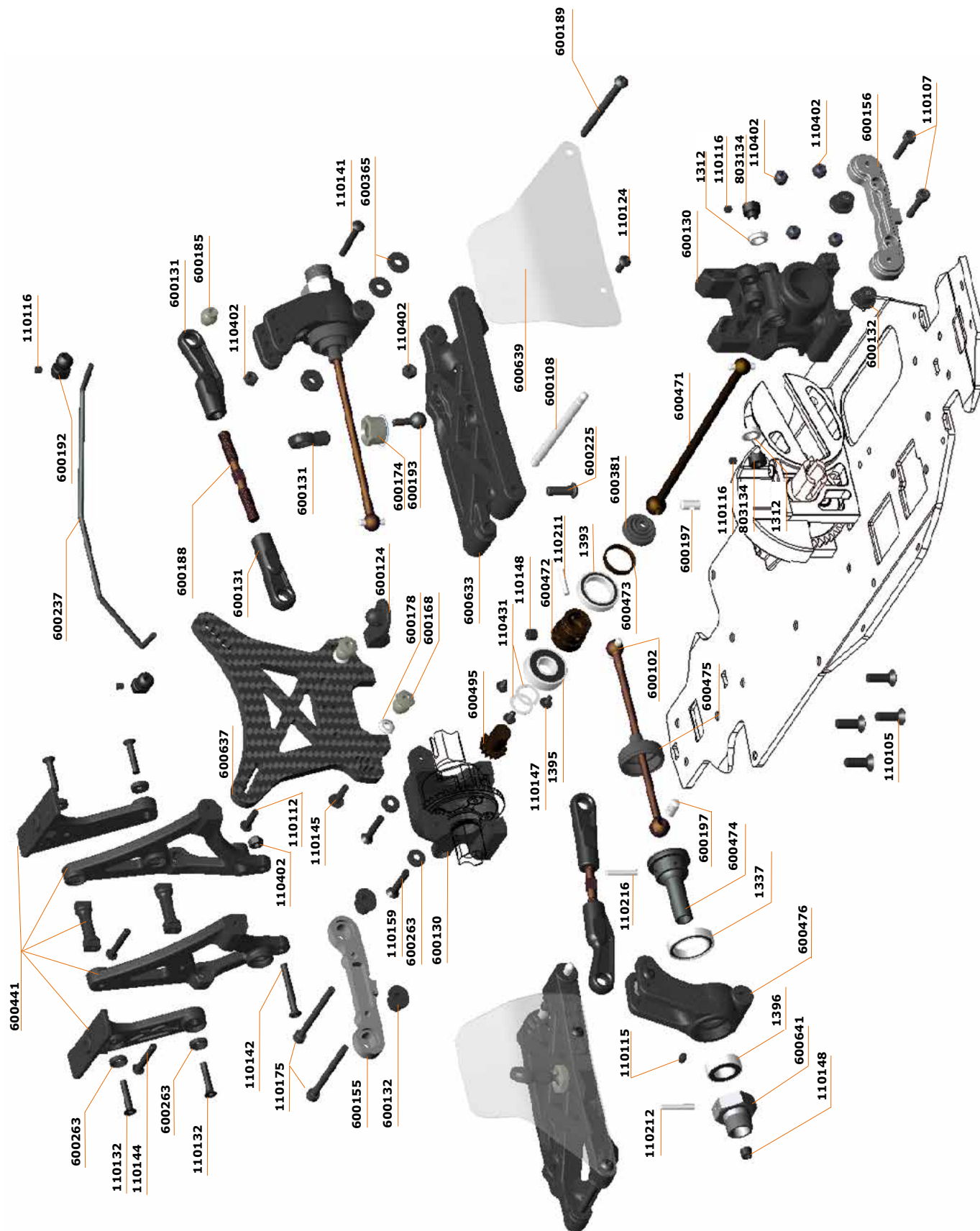
190158 Polo shirt Serpent black (L)  
 190159 Polo shirt Serpent black (XL)  
 190160 Polo shirt Serpent black (XXL)  
 190161 Polo shirt Serpent black (XXXL)  
 190182 T-shirt Serpent Splash white (S)  
 190183 T-shirt Serpent Splash white (M)  
 190184 T-shirt Serpent Splash white (L)  
 190185 T-shirt Serpent Splash white (XL)  
 190186 T-shirt Serpent Splash white (XXL)  
 190187 T-shirt Serpent Splash white (XXXL)  
 190188 T-shirt Serpent Splash orange (S)  
 190189 T-shirt Serpent Splash orange (M)  
 190190 T-shirt Serpent Splash orange (L)  
 190191 T-shirt Serpent Splash orange (XL)  
 190192 T-shirt Serpent Splash orange (XXL)  
 190193 T-shirt Serpent Splash orange (XXXL)  
 190194 T-shirt Serpent Splash black (S)  
 190195 T-shirt Serpent Splash black (M)  
 190196 T-shirt Serpent Splash black (L)  
 190197 T-shirt Serpent Splash black (XL)  
 190198 T-shirt Serpent Splash black (XXL)  
 190199 T-shirt Serpent Splash black (XXXL)  
 190201 Hoody sweater Serpent black-zip (S)  
 190202 Hoody sweater Serpent black-zip (M)  
 190203 Hoody sweater Serpent black-zip (L)  
 190204 Hoody sweater Serpent black-zip (XL)  
 190205 Hoody sweater Serpent black-zip (2XL)  
 190206 Hoody sweater Serpent black-zip (3XL)  
 190207 Hoody sweater Serpent black-zip (4XL)

#### MERCHANDISING

1896 Cap serpent black-orange  
 190172 Winter jacket Serpent black-orange hooded (M)  
 190173 Winter jacket Serpent black-orange hooded (L)  
 190174 Winter jacket Serpent black-orange hooded (XL)  
 190175 Winter jacket Serpent black-orange hooded (2XL)  
 190176 Winter jacket Serpent black-orange hooded (3XL)  
 190208 Winter jacket Serpent black-orange hooded (4XL)  
 190156 Polo shirt Serpent black (S)  
 190157 Polo shirt Serpent black (M)

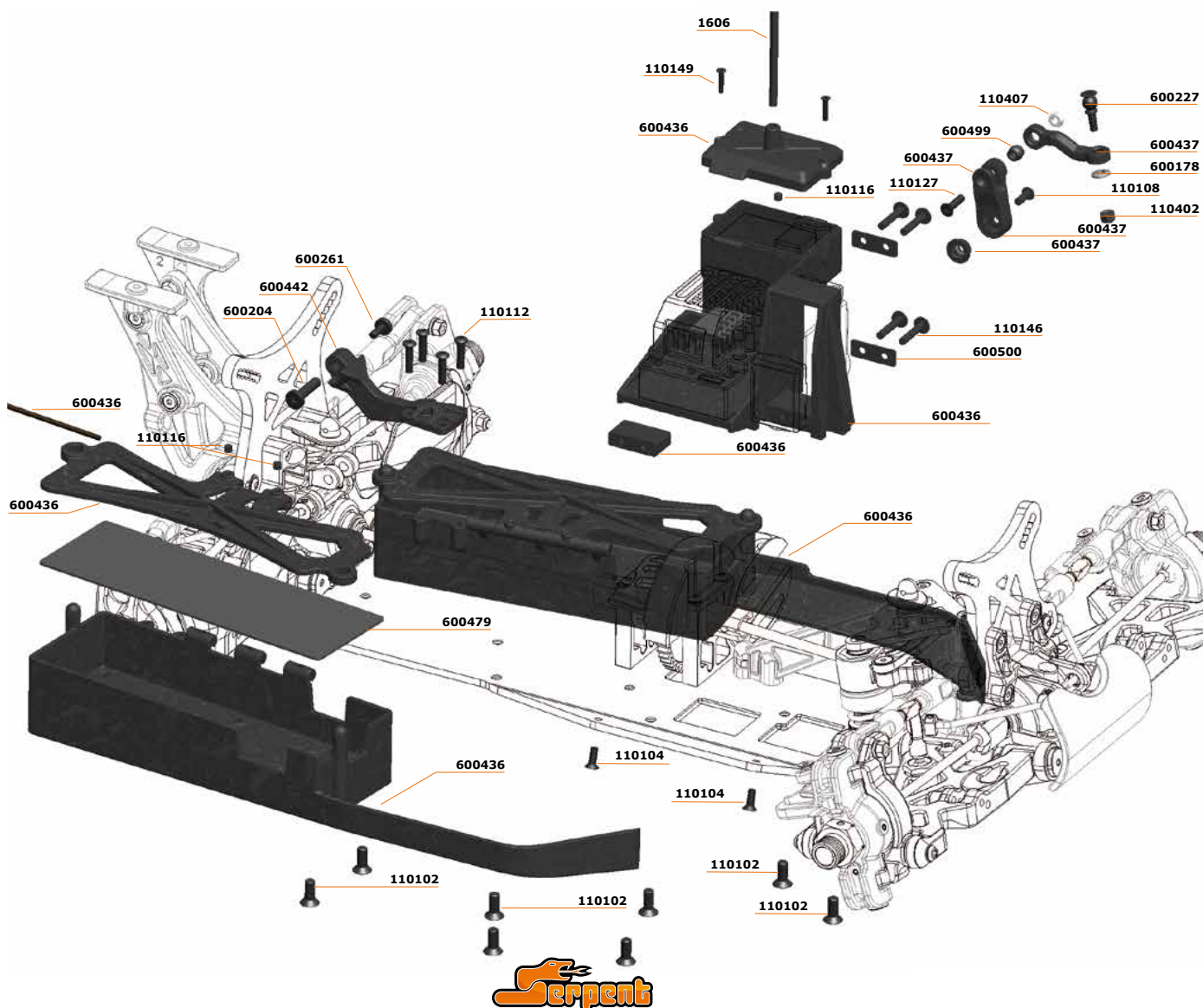




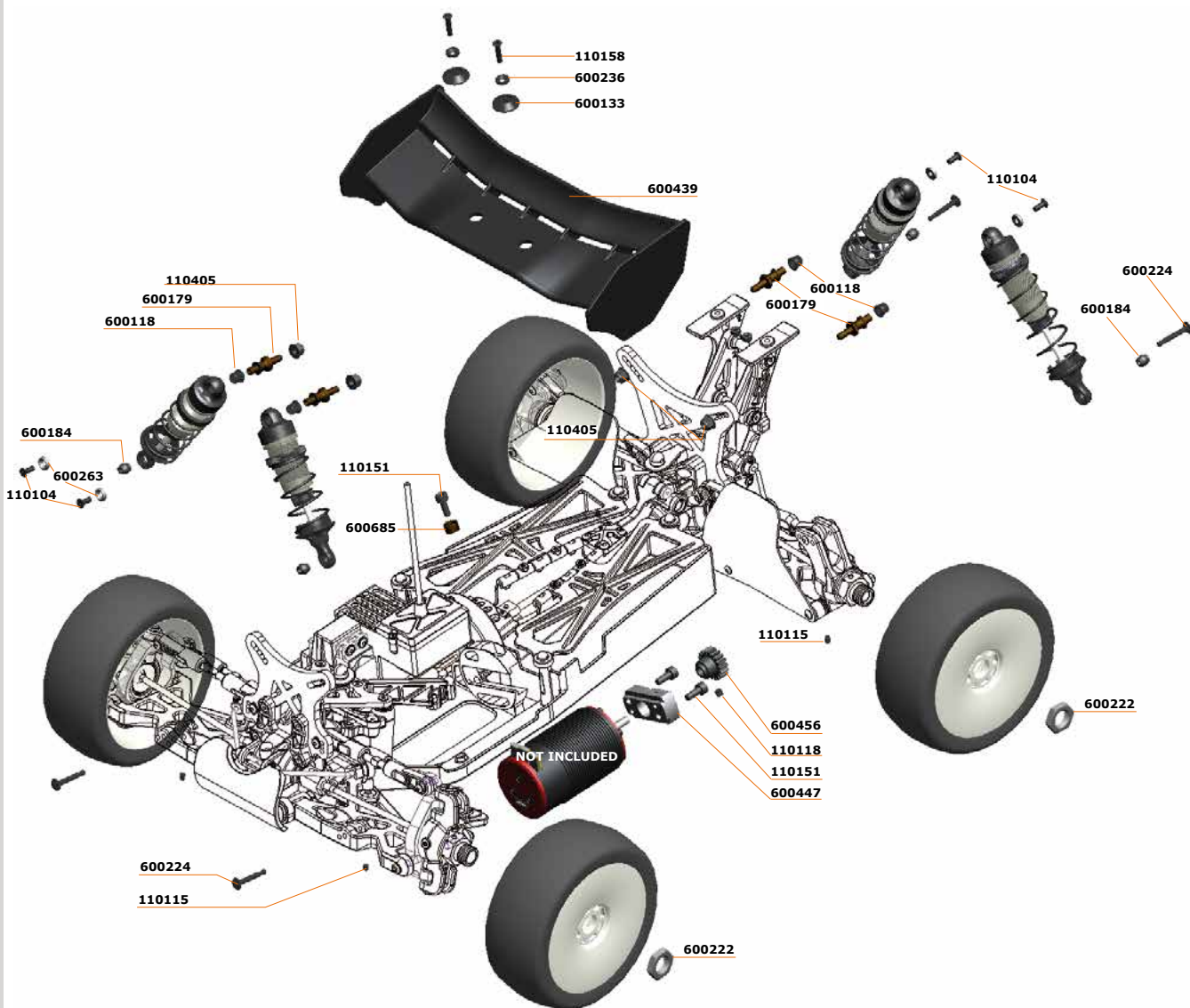
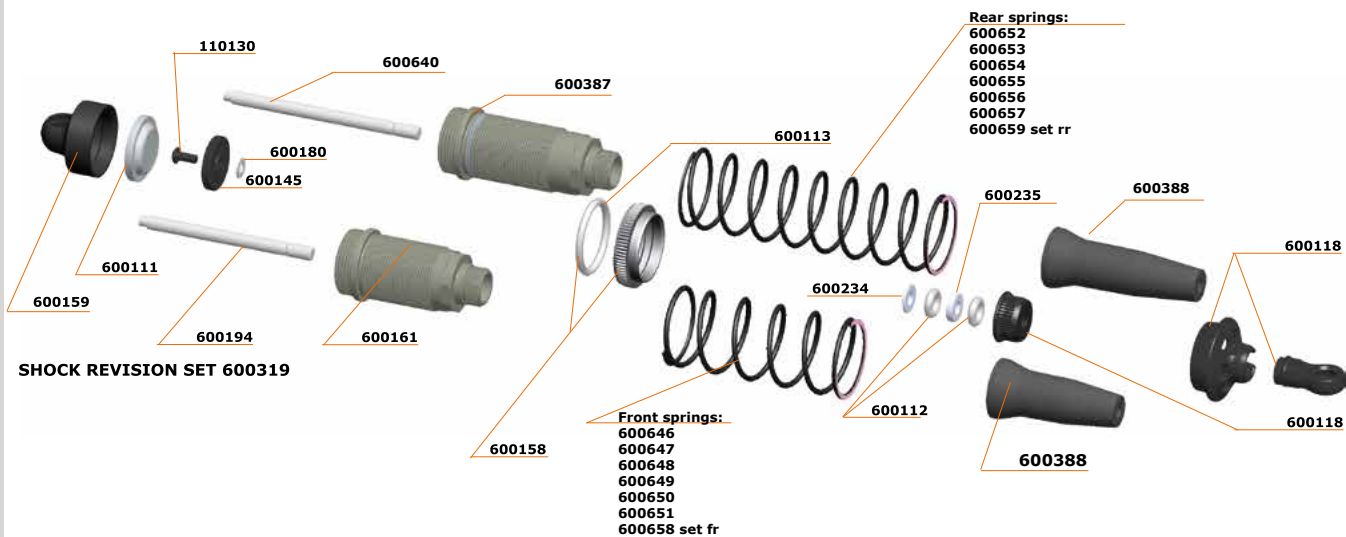












# 2.1 COBRA



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# 82056-2 S811 Cobra EP 2.1 Manual version 1