



**F110**  
**SF2**

**INSTRUCTION MANUAL**  
**& REFERENCE GUIDE**



## INTRODUCTION

Serpent developed the Serpent F110 SF2 model car for demanding racers in the highly competitive electric 1/10th scale F1 class, which like all our previous cars, has been designed to win straight from the box.

Featuring a number of very effective features such as a fully adjustable front end, machined aluminium rear pod, side-links combined with ball-link tube-system to control chassis roll and grip, top-mounted shockabsorber, quick and easy tweak adjustment and top quality materials throughout, the F110 SF2 should see you in the winners circle in no time. In fact everything associated with this car is of the highest quality, from the packaging and supplied online manuals, right through to the product and race support.

For latest information about F110 SF2 check on:  
[www.serpent.com/410061](http://www.serpent.com/410061)

Enjoy racing !

Team Serpent

## 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.

## INSTRUCTIONS, HOW TO USE

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 later on in the assembly process.

## SETUP

In certain assembly steps you need to make basic adjustments, which will give you a good initial setup for your Serpent S120-LTR. Fine-tuning the initial setup is an essential part of building a high-performance racecar like your S120-LTR.

## EXPLODED VIEWS AND PARTS LIST

The exploded views and parts lists for the Serpent S120-LTR 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.

## 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!

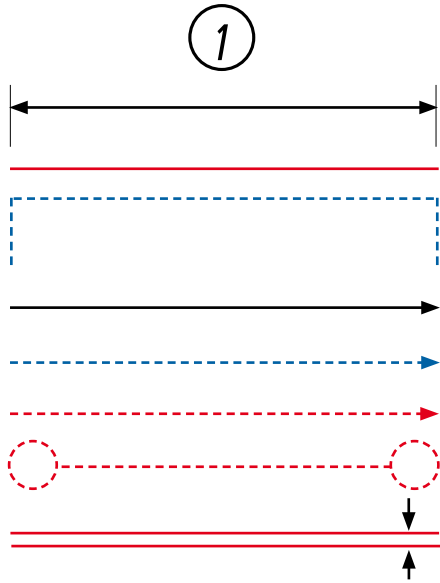
- This is a highly technical hobby product, intended to be used in a safe racing environment. This car is capable of speeds in excess of 80 km/h or 50mph. Please follow these guidelines when building and operating this model.
- Parental guidance is required when the builder/user of this car is under 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.

# CONTENTS

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# USING THE MANUAL

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

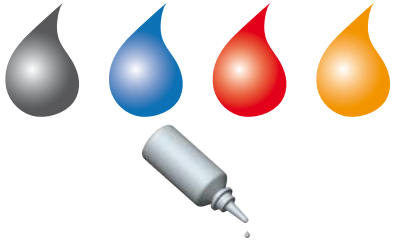
Direction the item should be moved

Glue one item to another

Press/Insert one item into another

Connect one item to another

Gap between two items



Apply transmission grease (Grey), threadlock\* (Blue), CA glue\* (Red) or silicone grease (Orange). (\*Items not included.)

Apply silicone oil,

## ASSEMBLY INSTRUCTIONS

## 🔥 CA Glue

STEP  
1

To prevent the risk of the carbon fibre splitting in the event of a crash you should apply CA Glue around the chassis' edge and the power pod plate external and internal edge as shown in red below.

KIT

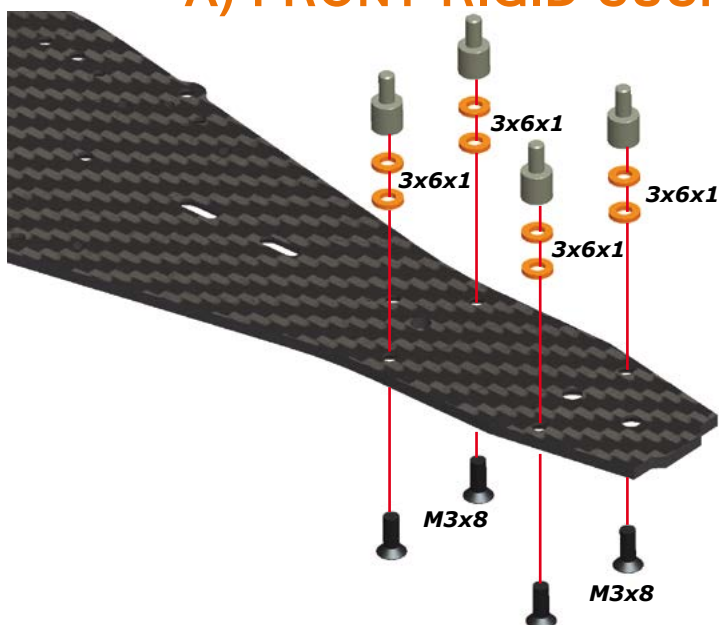


## FRONT ASSEMBLY

### A) FRONT RIGID SUSPENSION ASSEMBLY

STEP  
2A

Bag  
1



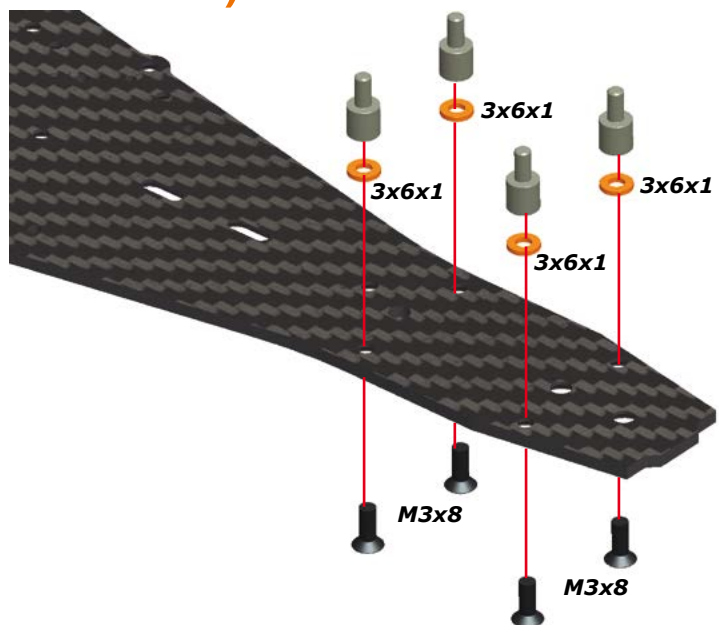
#### NOTE:

When using the front rigid suspension configuration should be assembled 2x 3x6x1 ride height spacers.

The kit includes 3x6x0.5mm ride height spacers for fine tuning.

### B) FRONT FLEX SUSPENSION ASSEMBLY

STEP  
2B



#### NOTE:

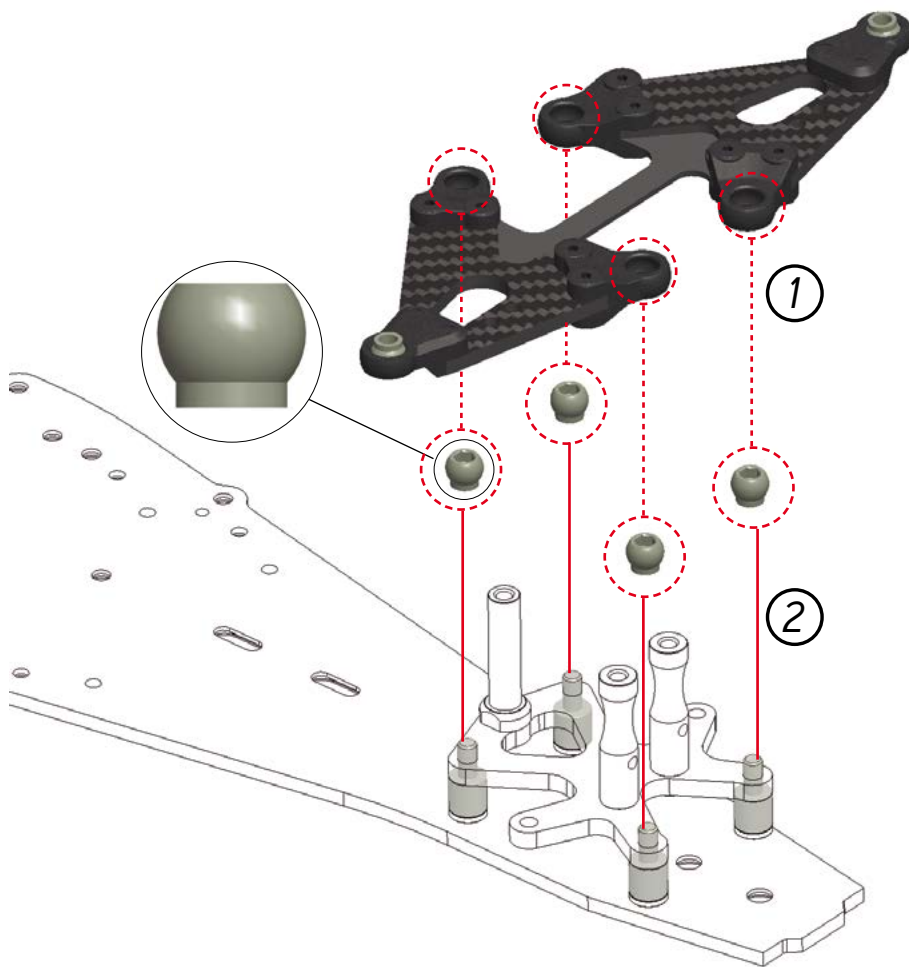
When using the front flex suspension only should be assembled 1x 3x6x1 ride height spacers.

The kit includes 3x6x0.5mm ride height spacers for fine tuning.

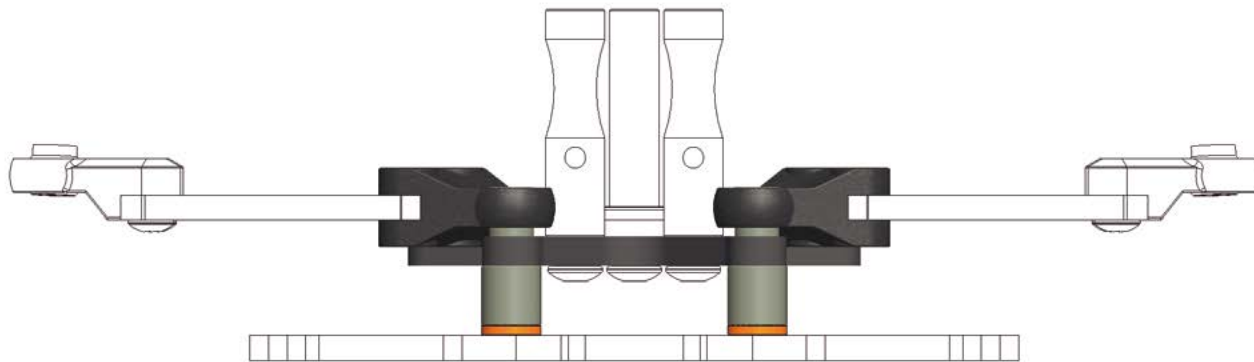


## B) FRONT FLEX SUSPENSION ASSEMBLY

STEP  
4B



## B) Detail view Front Flex suspension assembly



STEP  
5

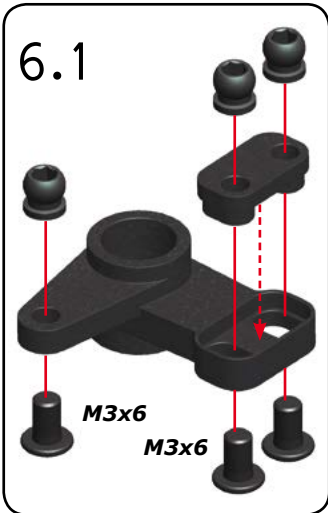
Bag  
2

Serpent

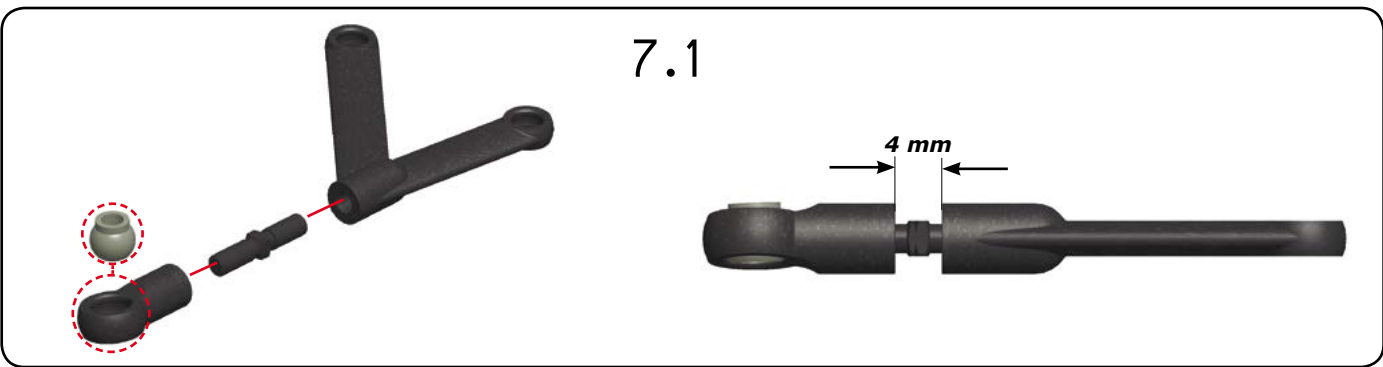
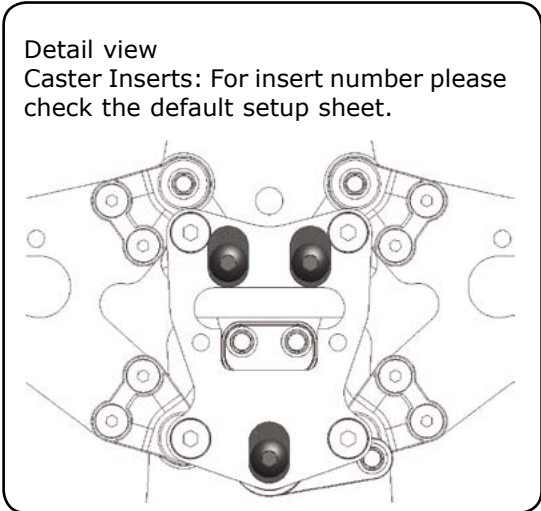
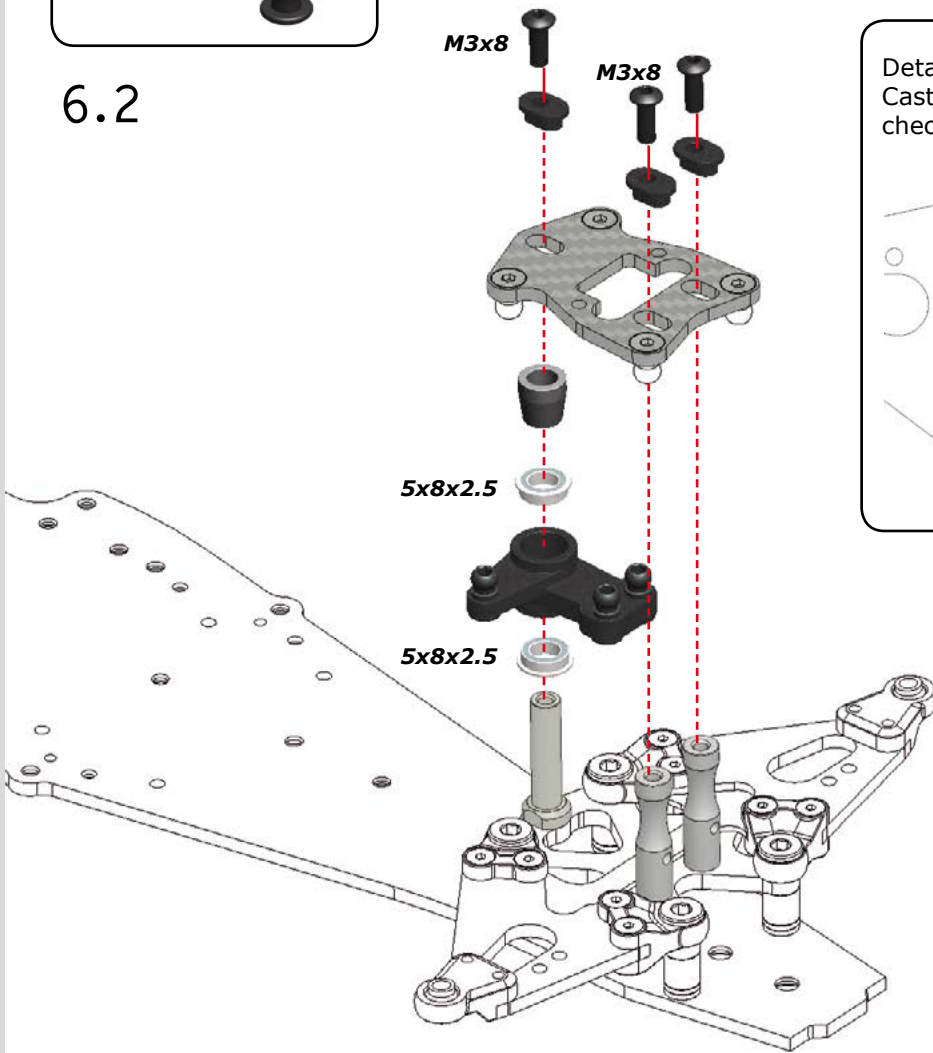
Page  
6



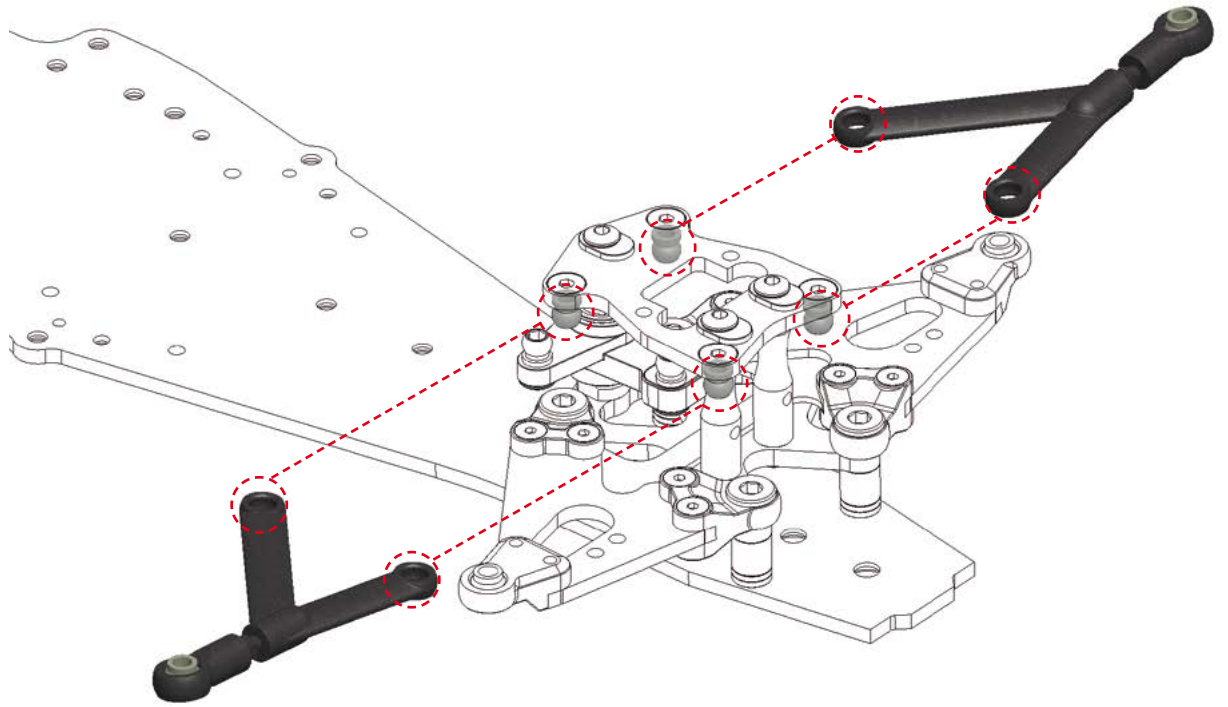
F110  
SF2



6.2



7.2



STEP  
8

**8.1**

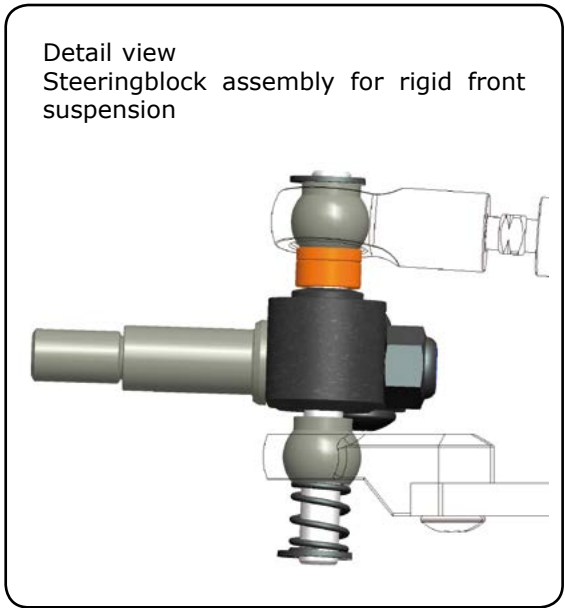
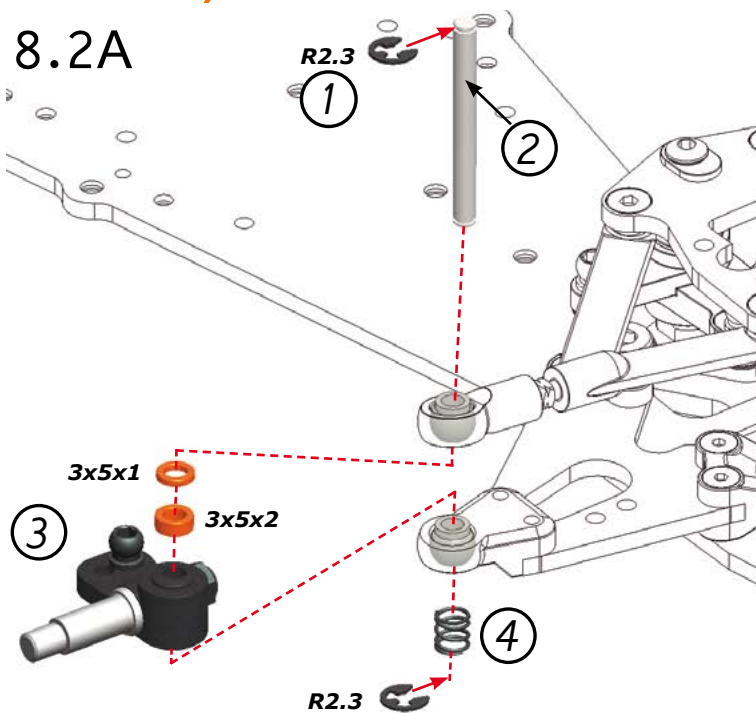
**Nylock Nut M3**

**M3x5**

**NOTES:**  
 1) Note orientation of the king pin insert  
 2) King pin angle adjustable from 0 to 4 degrees. Default 2 degrees.

**A) FRONT RIGID SUSPENSION ASSEMBLY**

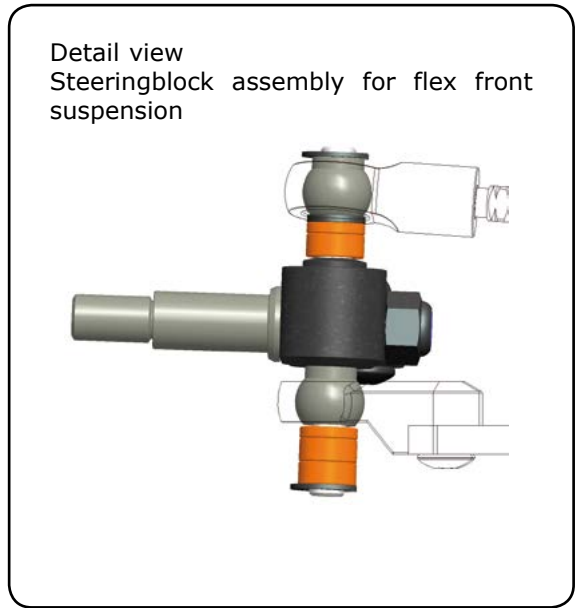
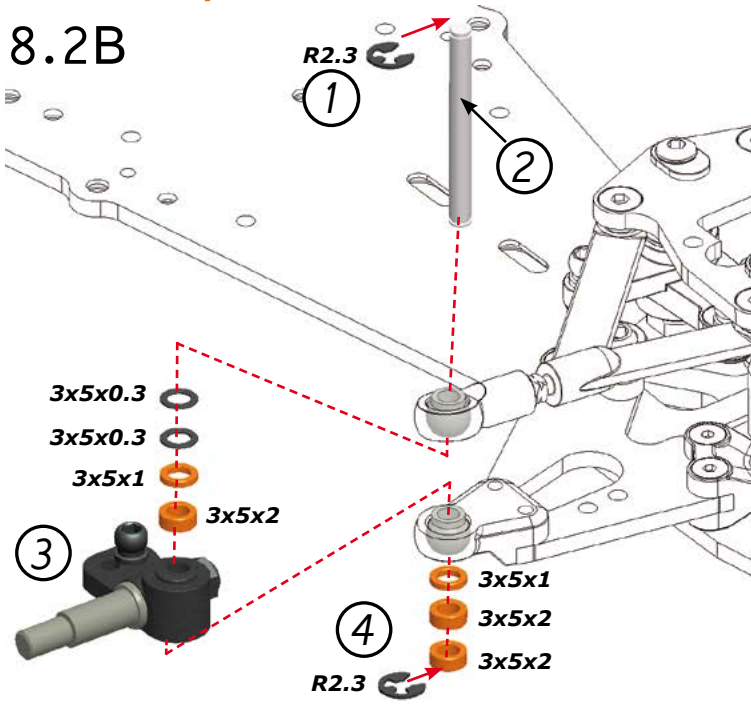
8.2A



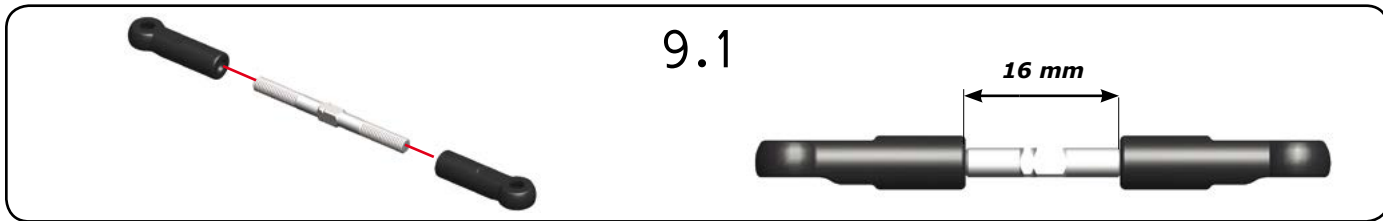


## B) FRONT FLEX SUSPENSION ASSEMBLY

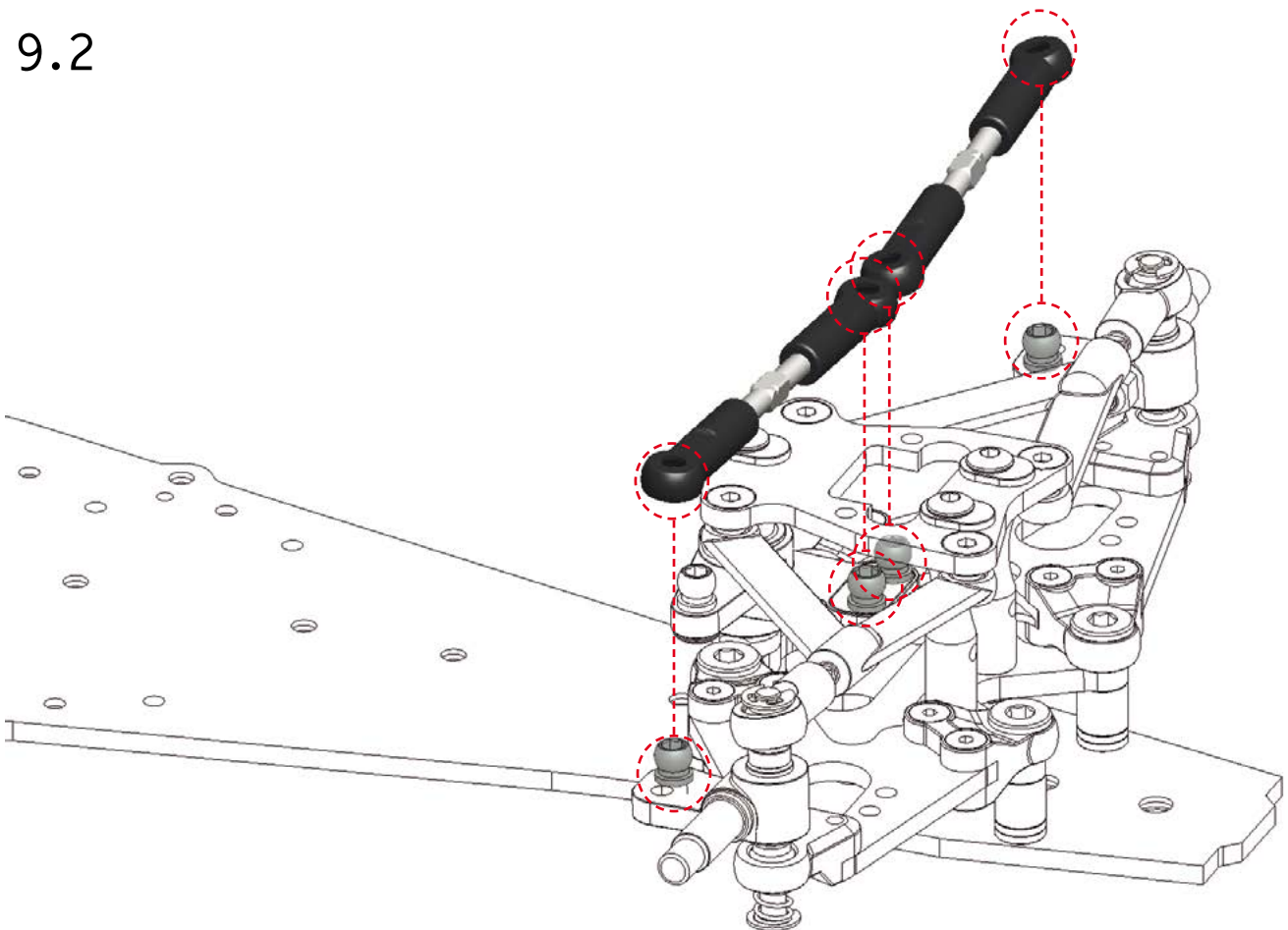
8.2B



STEP  
9



9.2

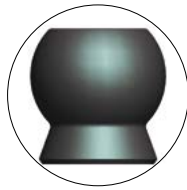


# REAR ASSEMBLY

STEP  
10

Bag  
3

Note the correct  
ball type to use here



②

Nylock Nut  
M3

①

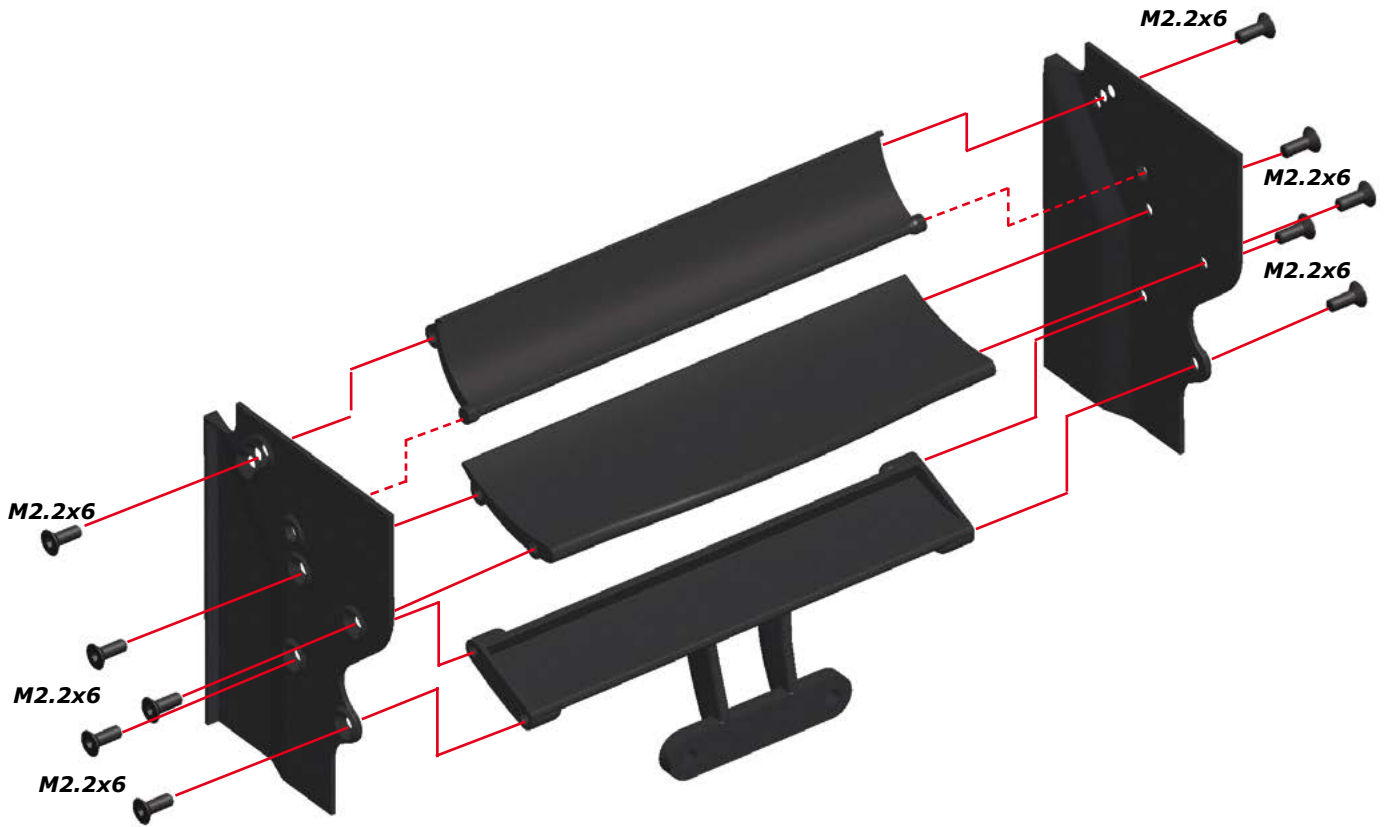
NOTE  
Do no overtight to ensure free  
rotation of the pivot ball.



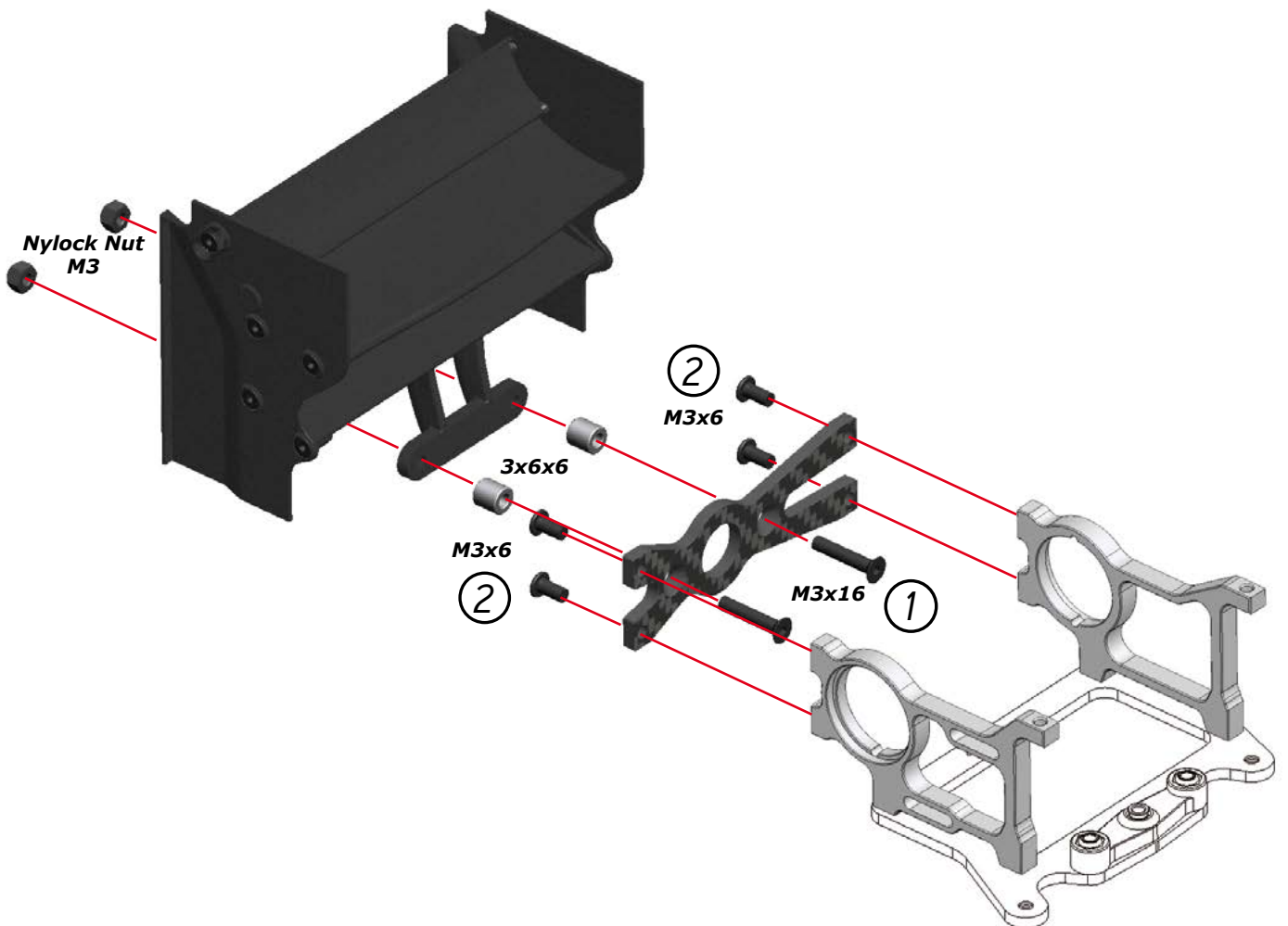
STEP  
11

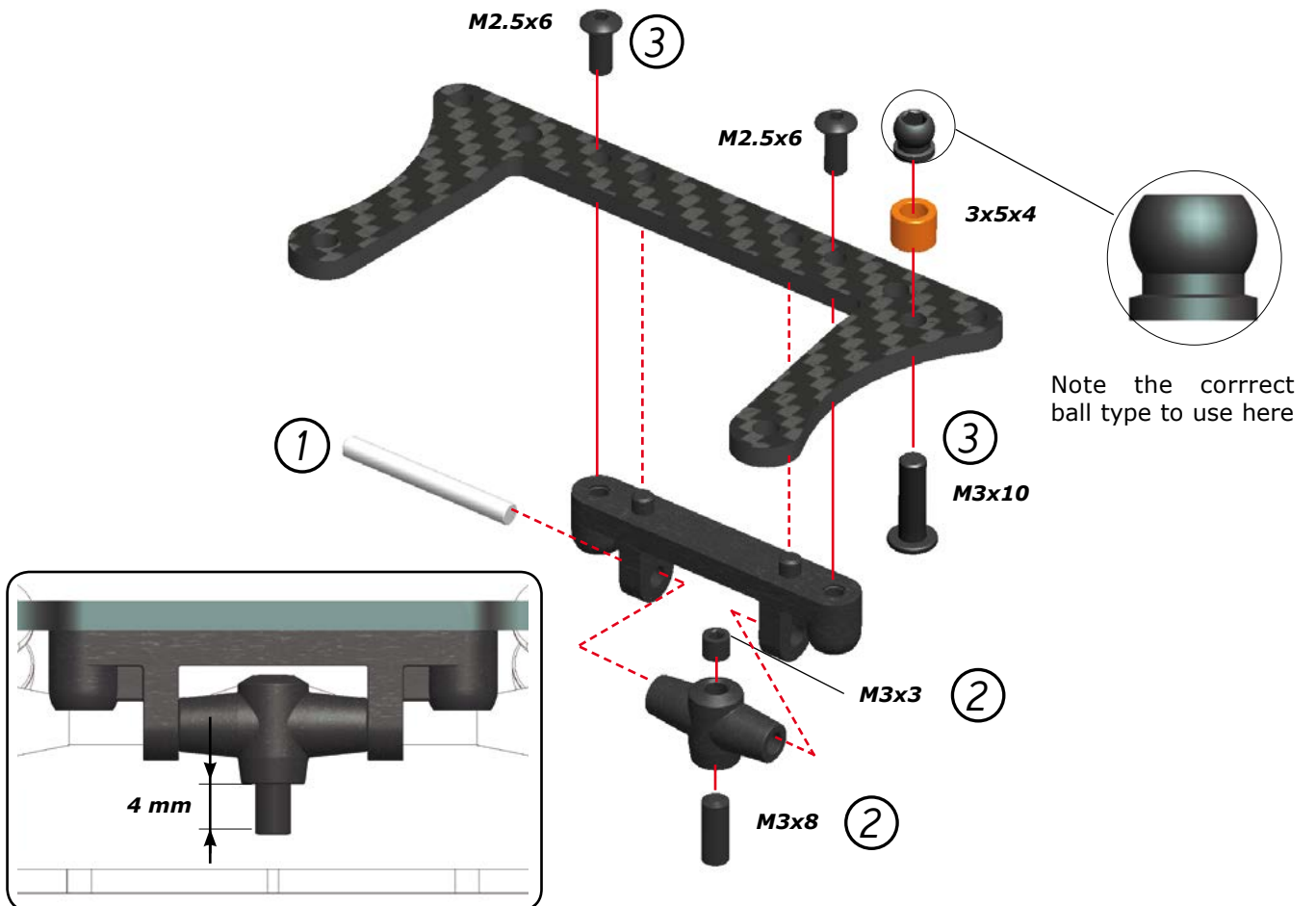
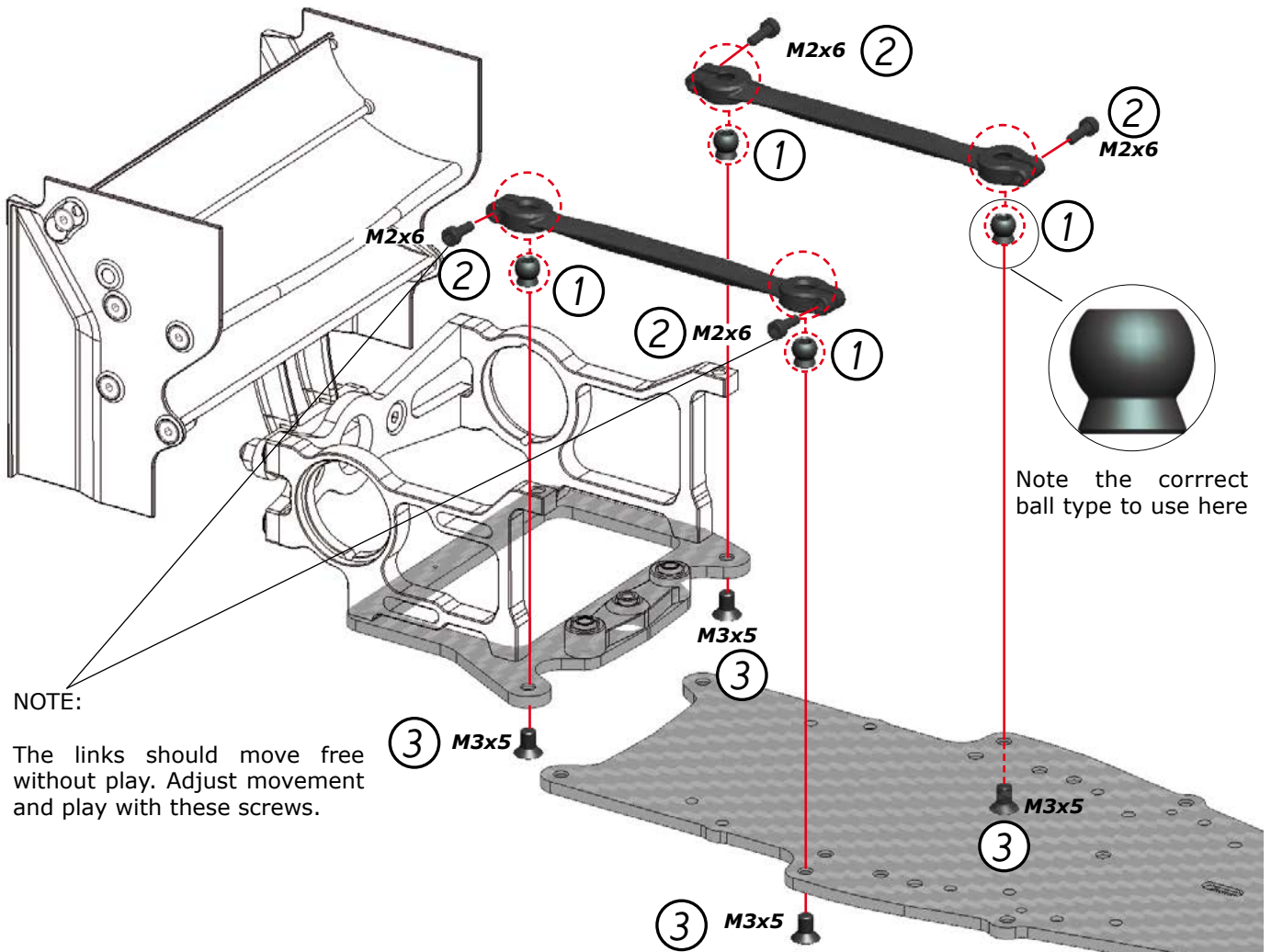


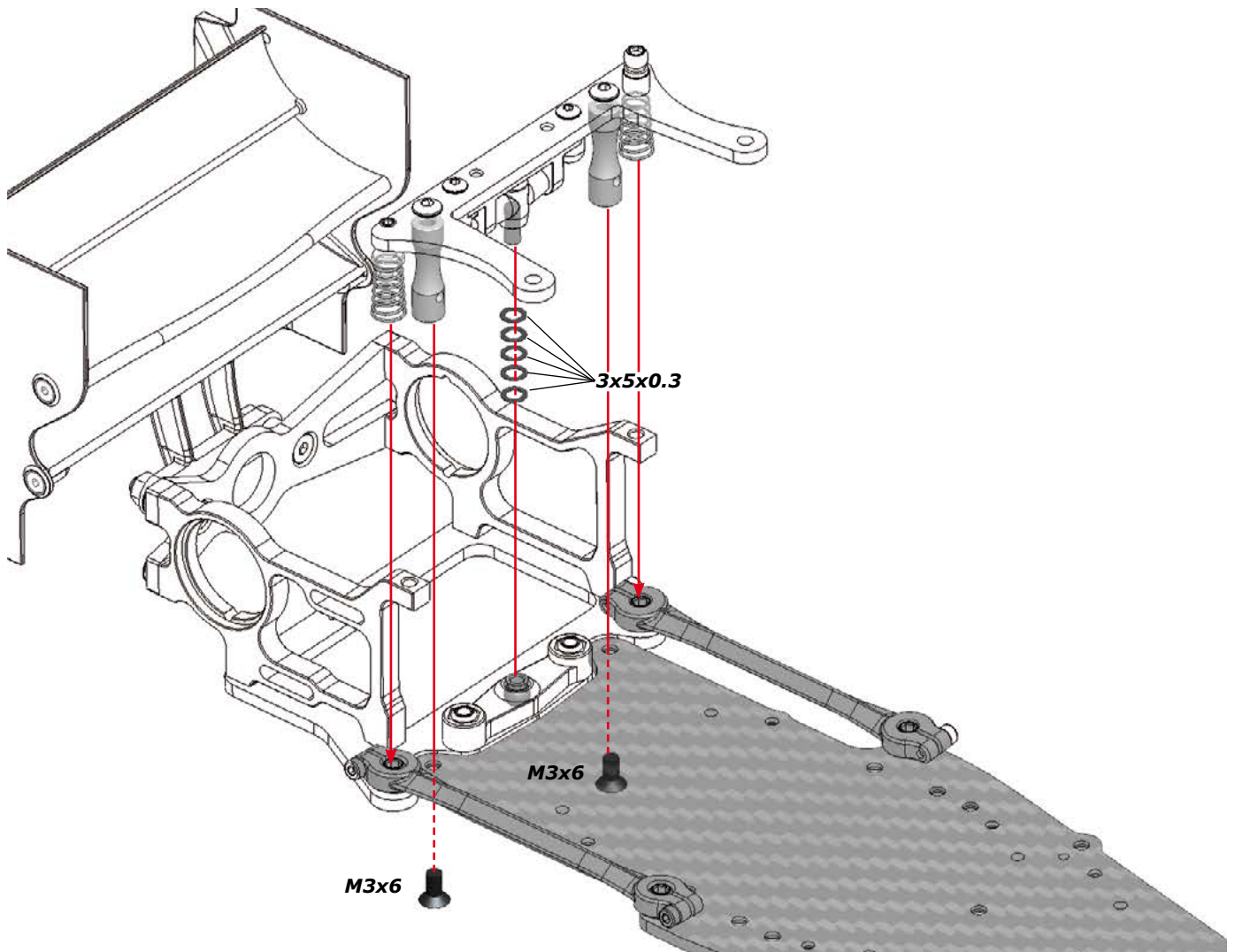
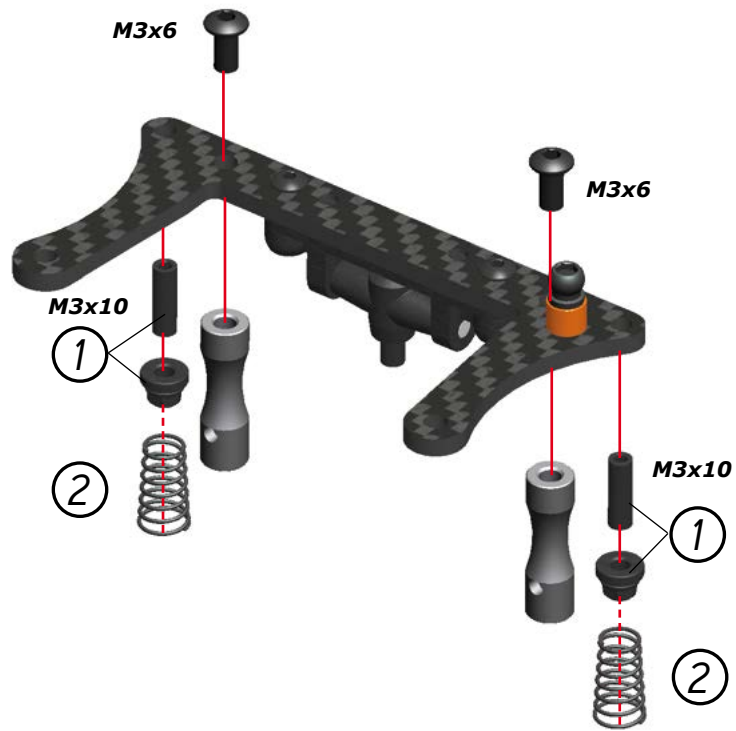
STEP  
12

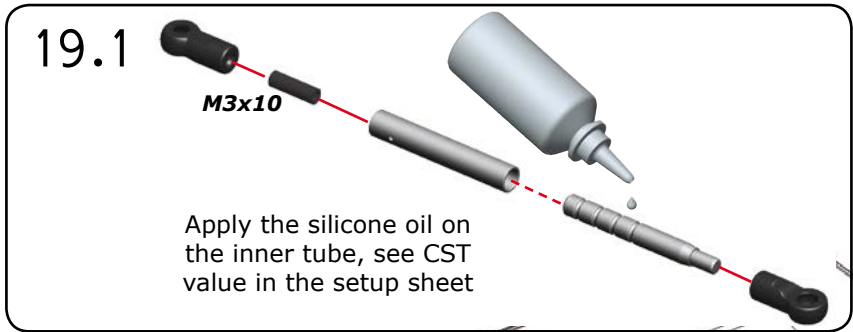
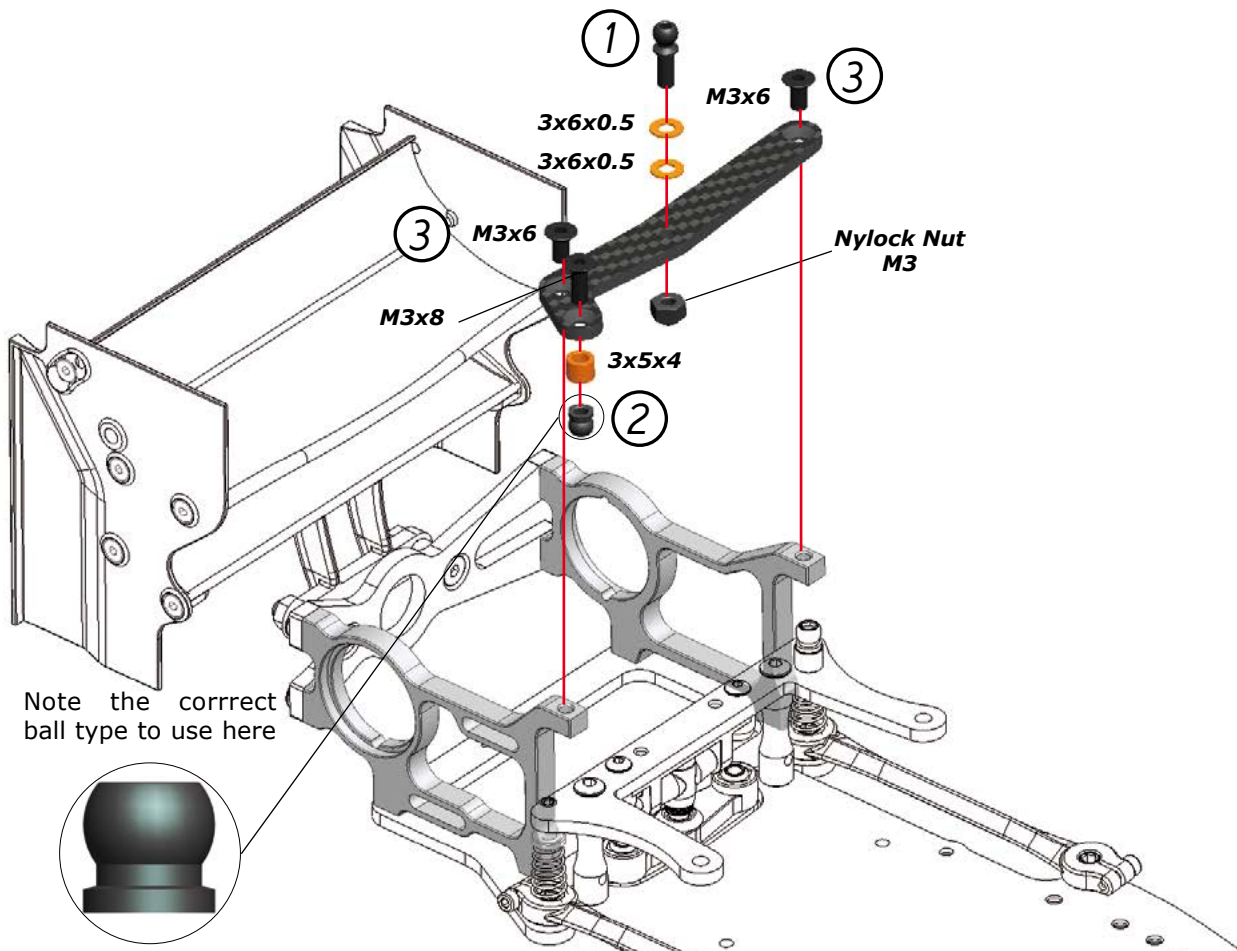


STEP  
13

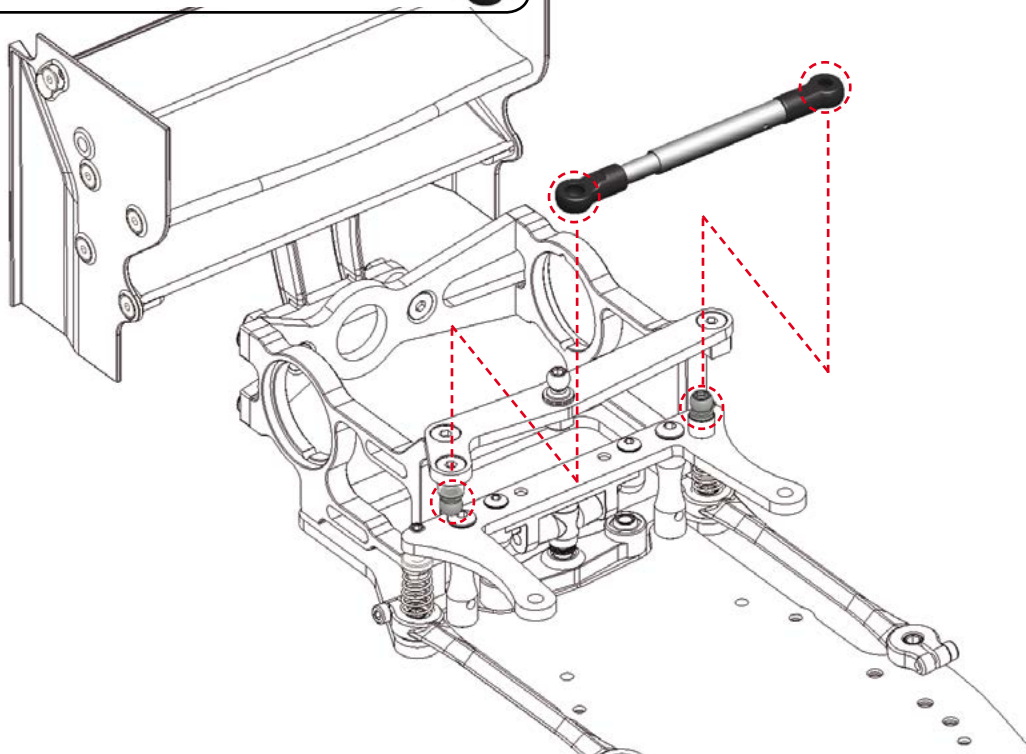








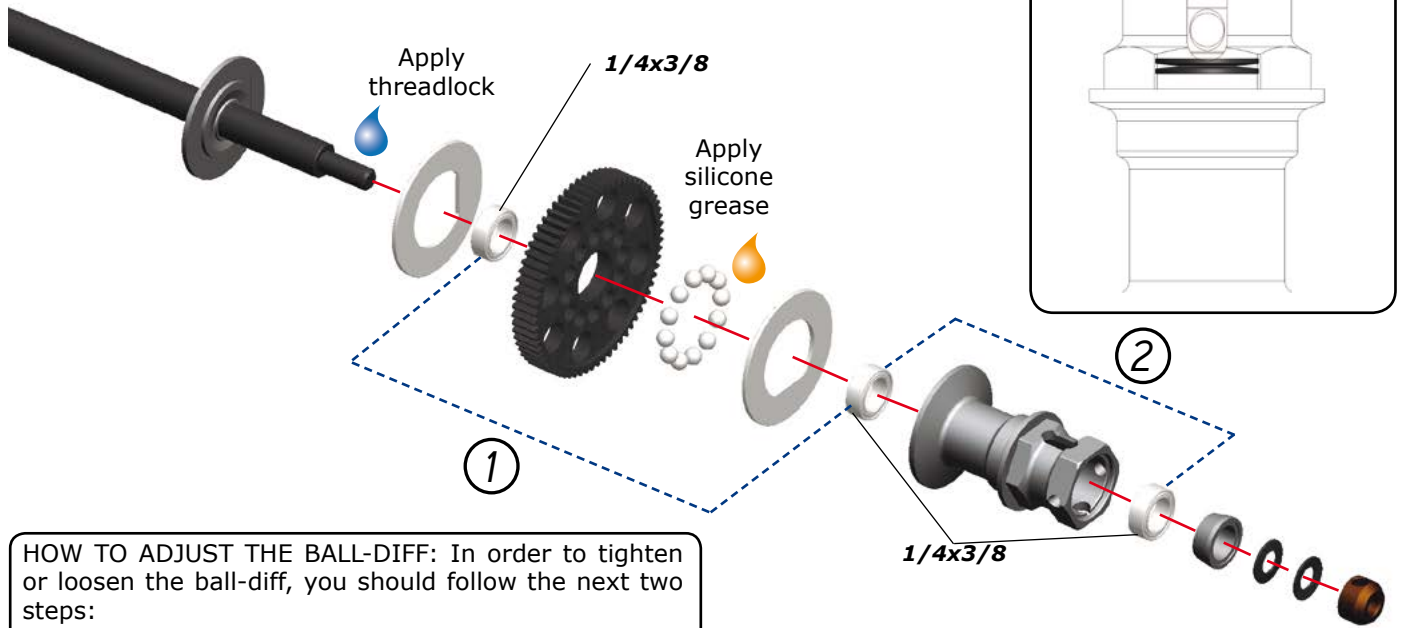
19.2



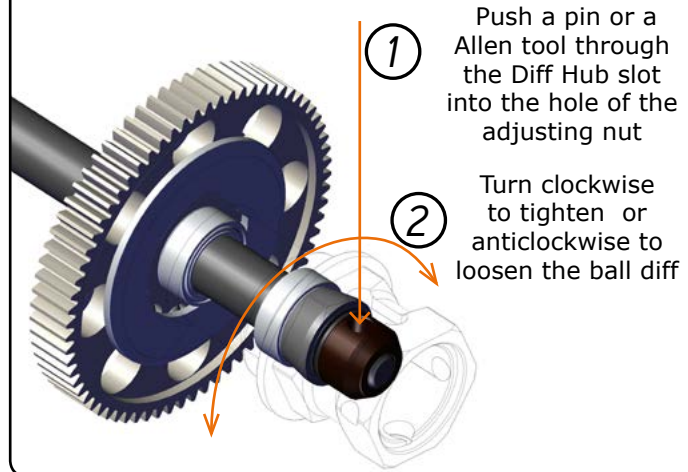
# BALL DIFF ASSEMBLY

STEP  
20

Bag  
5

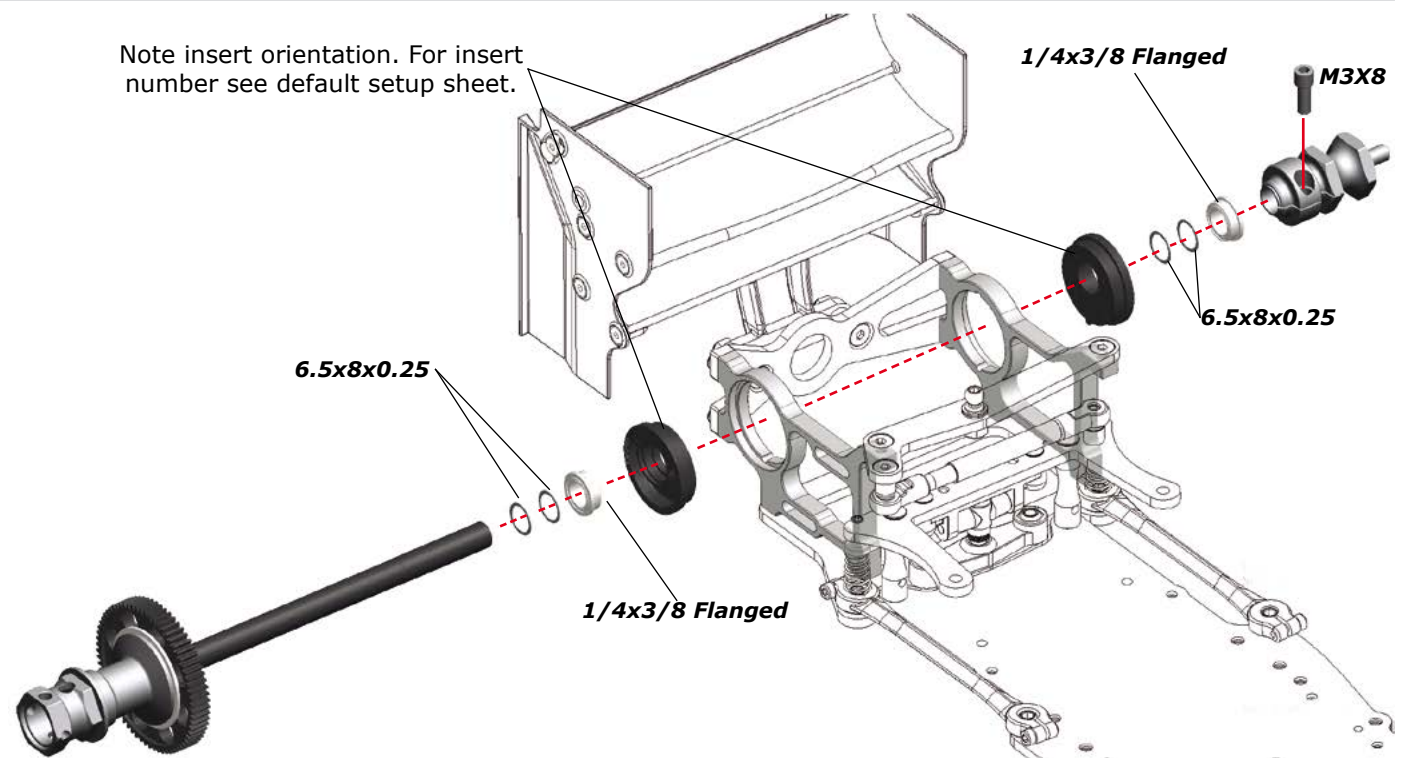


HOW TO ADJUST THE BALL-DIFF: In order to tighten or loosen the ball-diff, you should follow the next two steps:



STEP  
21

Note insert orientation. For insert number see default setup sheet.

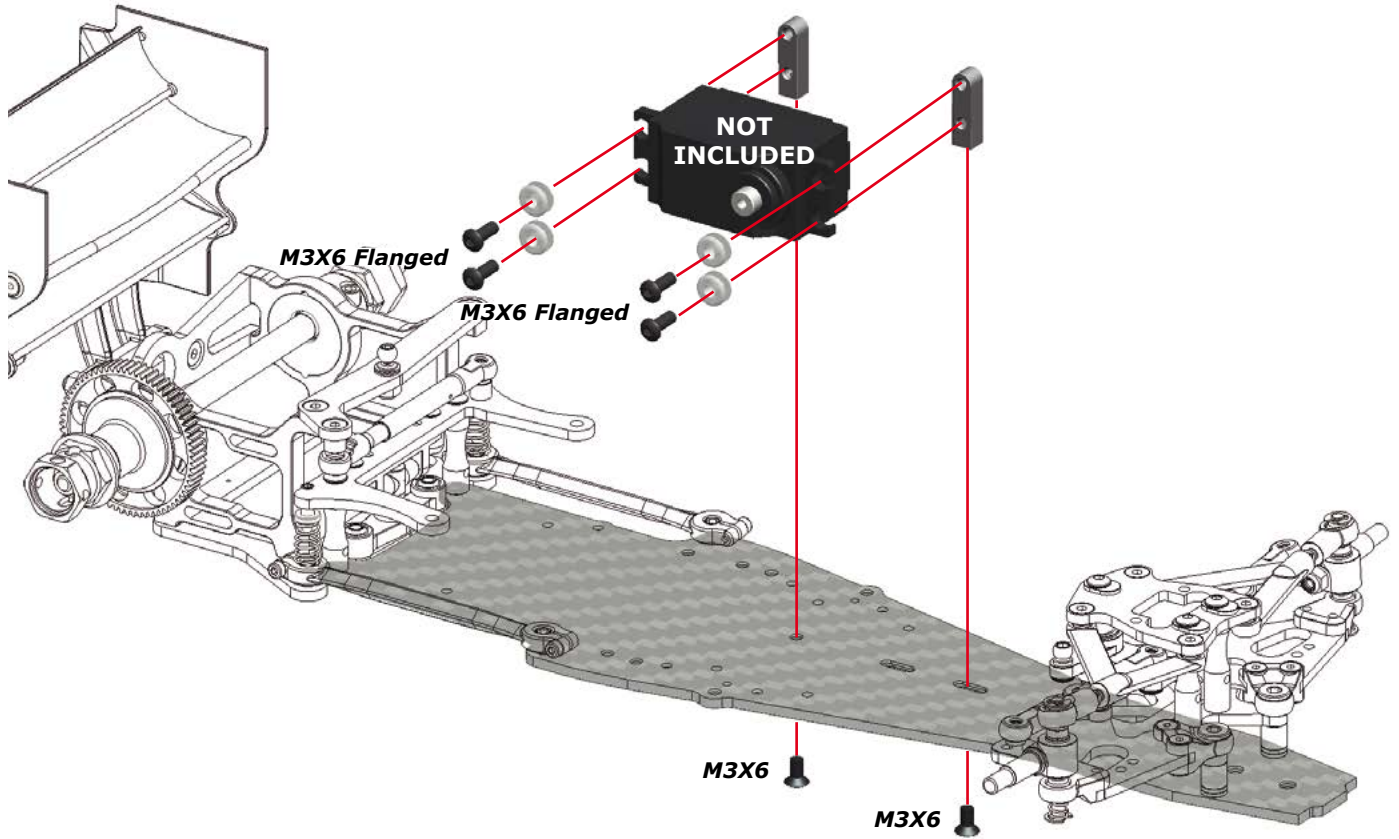


# ELECTRONICS AND SERVO ASSEMBLY

## A) REARWARD SERVO CONFIGURATION

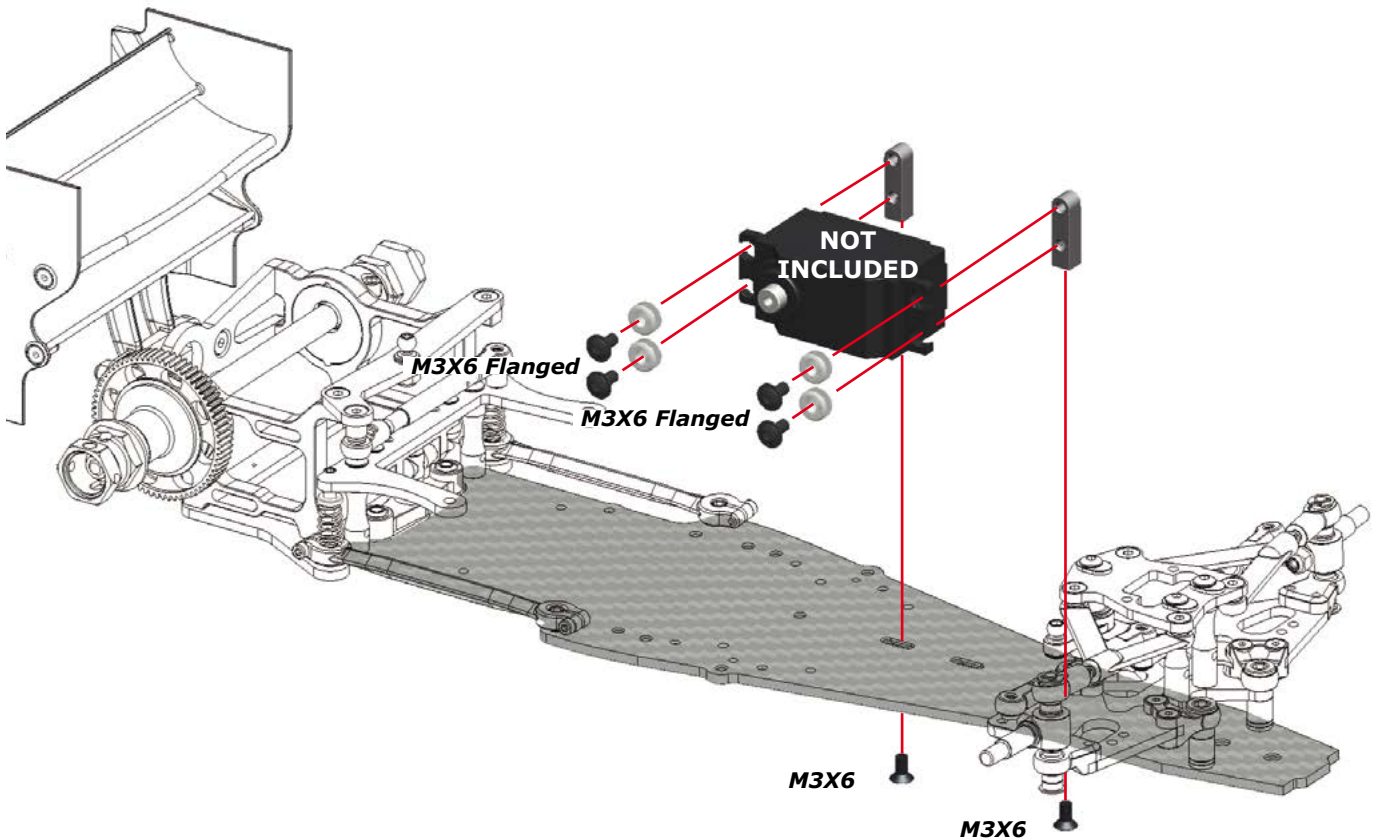
STEP  
22A

Bag  
6



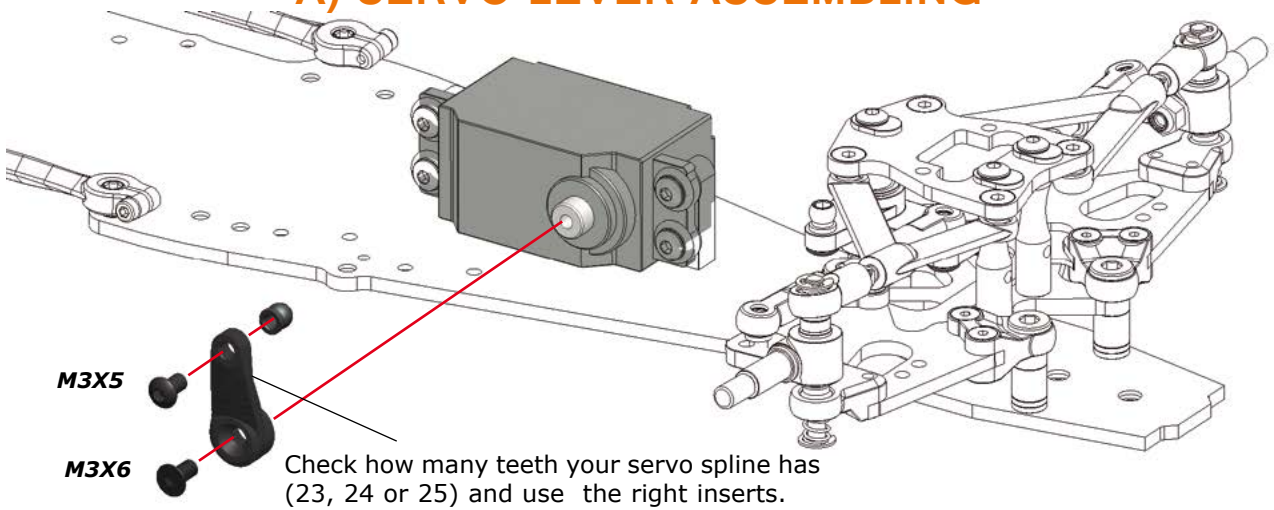
## B) FORWARD SERVO CONFIGURATION

STEP  
22B

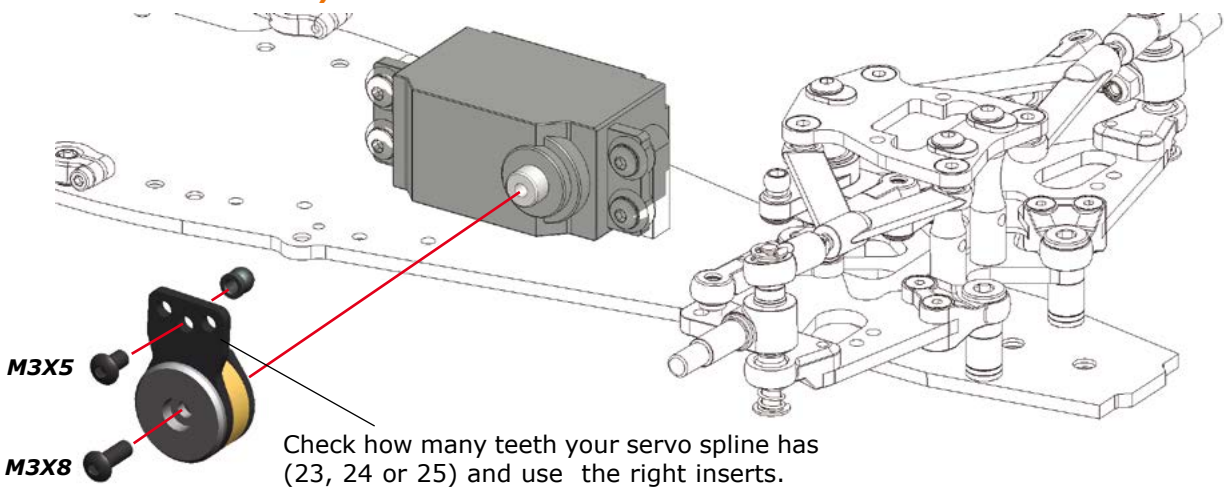




## A) SERVO LEVER ASSEMBLING

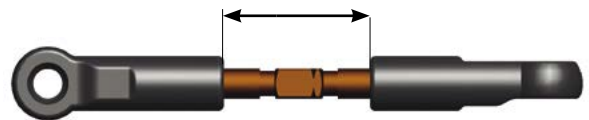


## B) SERVO SAVER ASSEMBLING

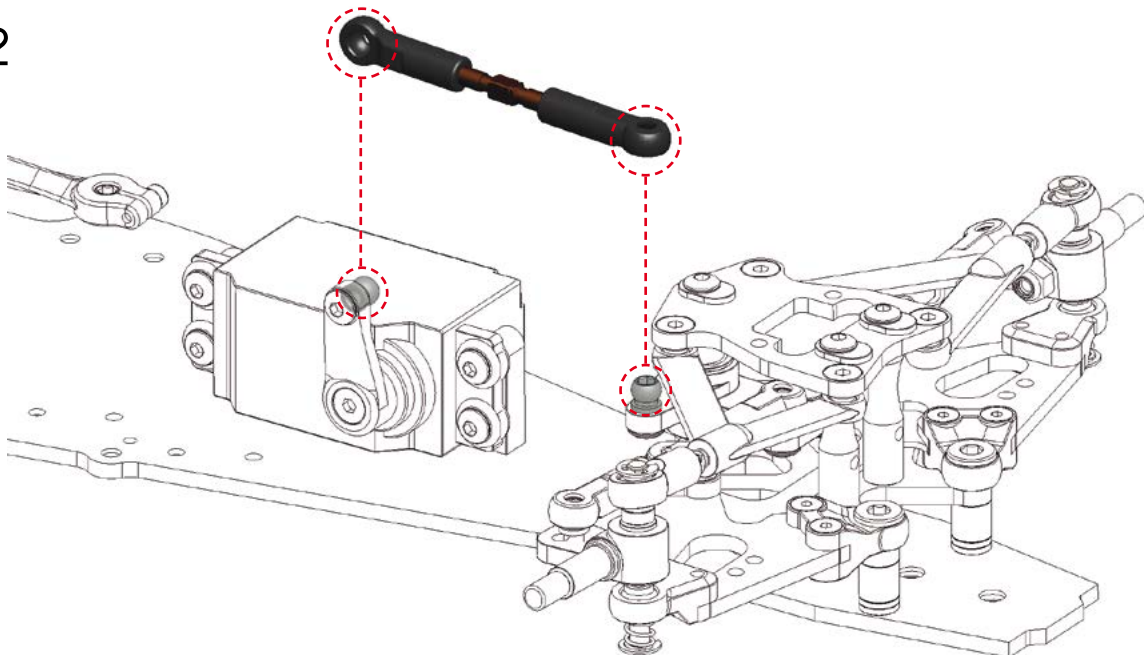


24.1

14 mm with *Rearward* servo configuration  
6mm with *Forward* servo configuration



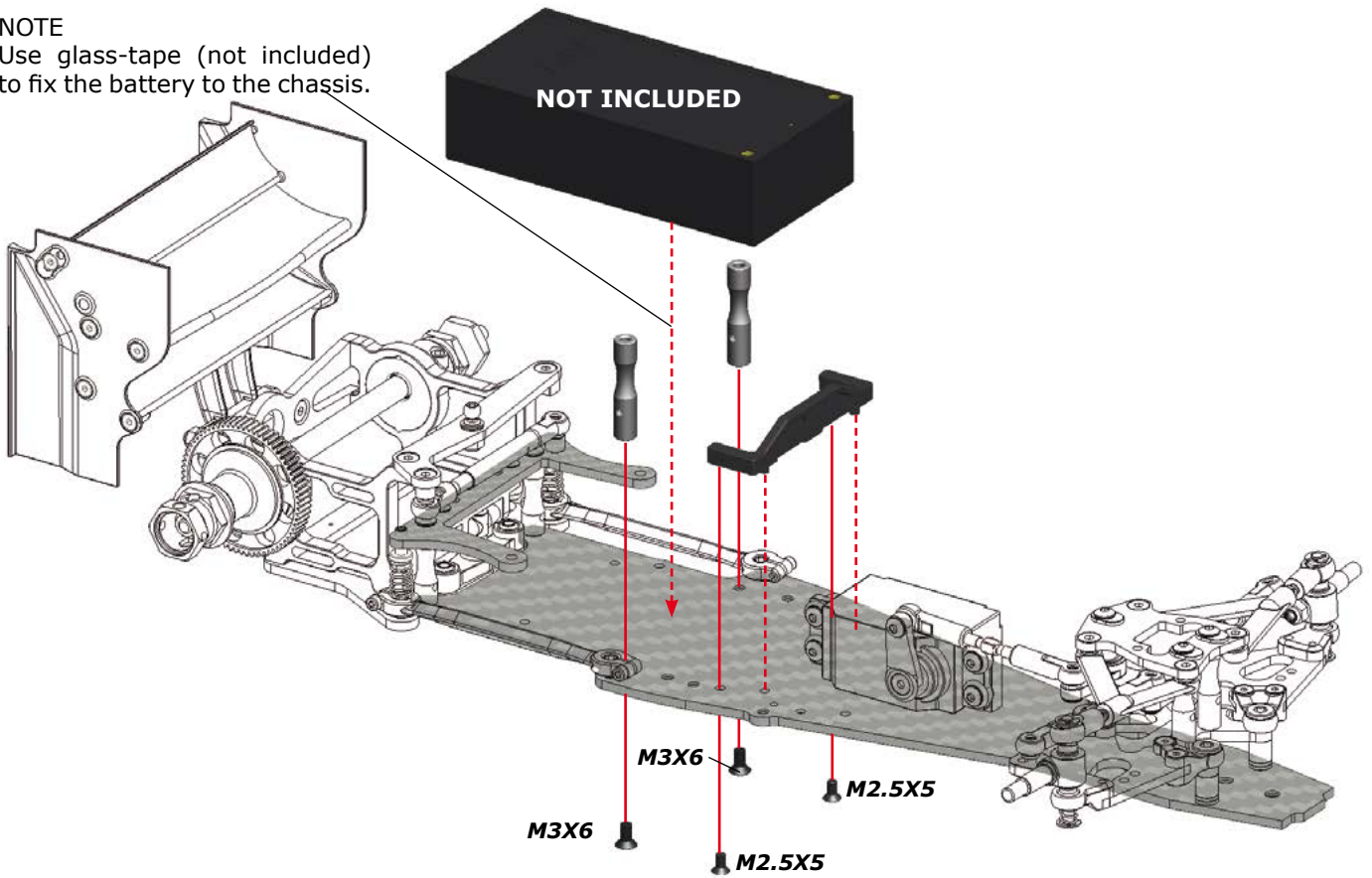
24.2



# A) REARWARD BATTERY CONFIGURATION (DEFAULT)

STEP  
25A

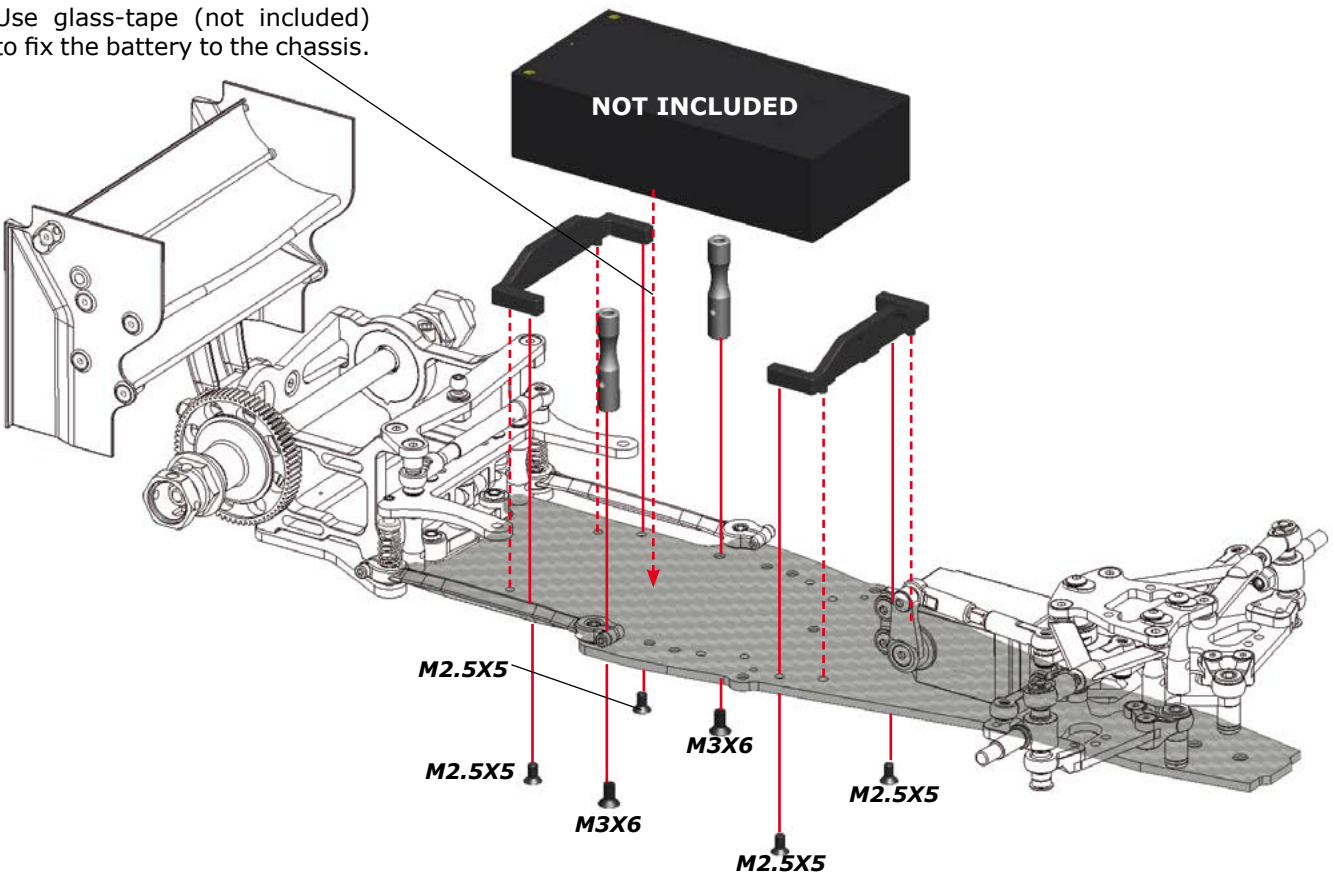
NOTE  
Use glass-tape (not included)  
to fix the battery to the chassis.



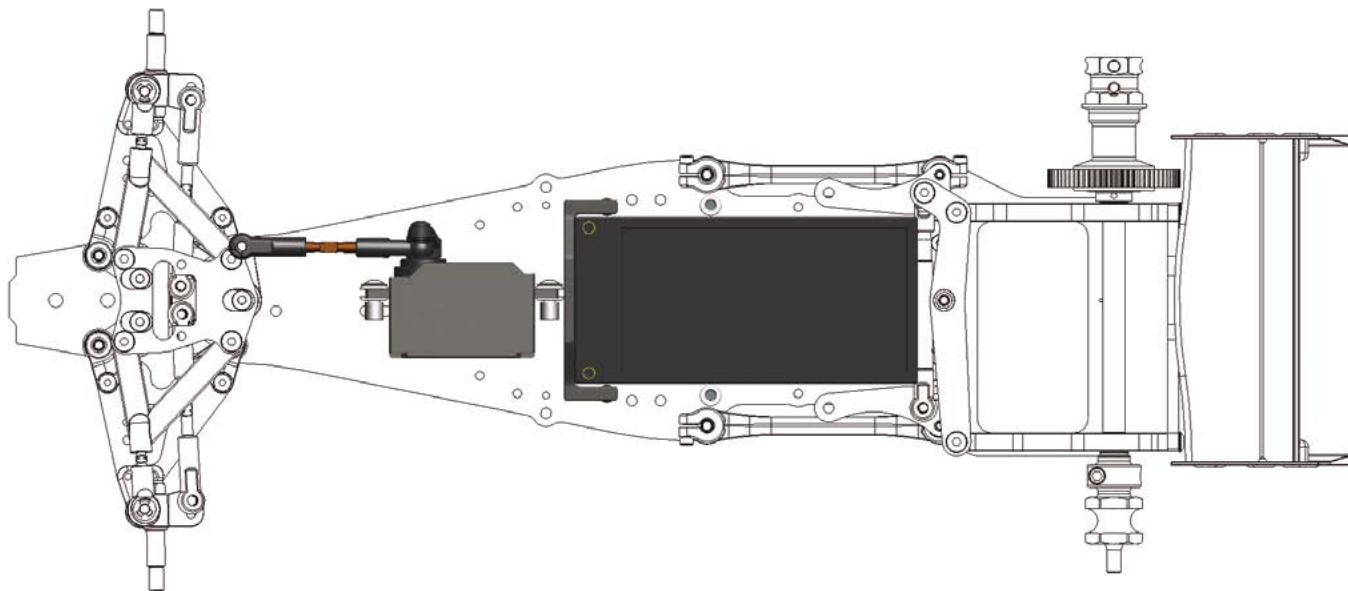
STEP  
25B

NOTE  
Use glass-tape (not included)  
to fix the battery to the chassis.

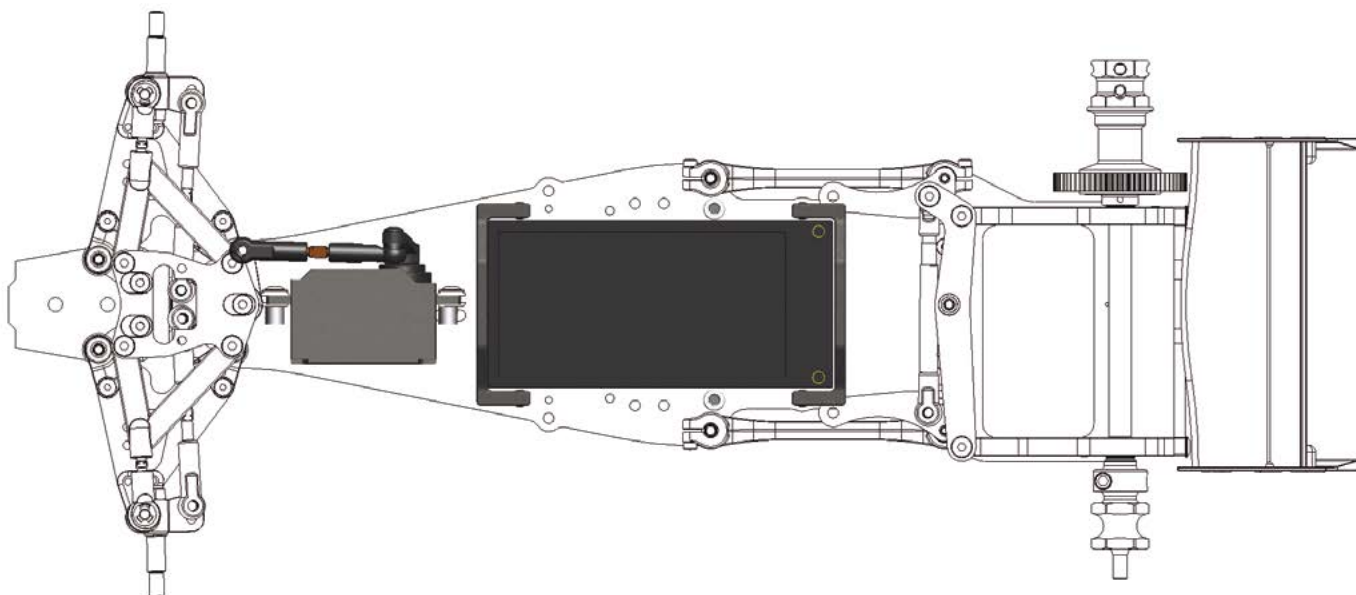
# B) FORWARD BATTERY CONFIGURATION



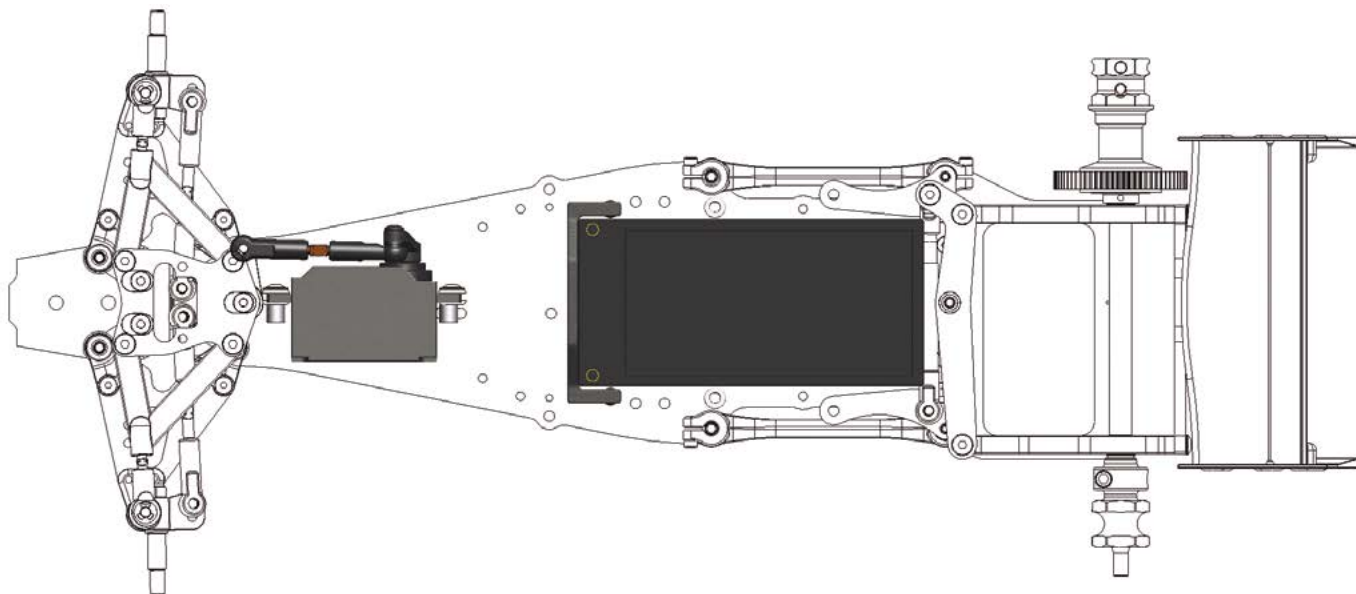
## Detail view rearward battery and servo configuration (default)

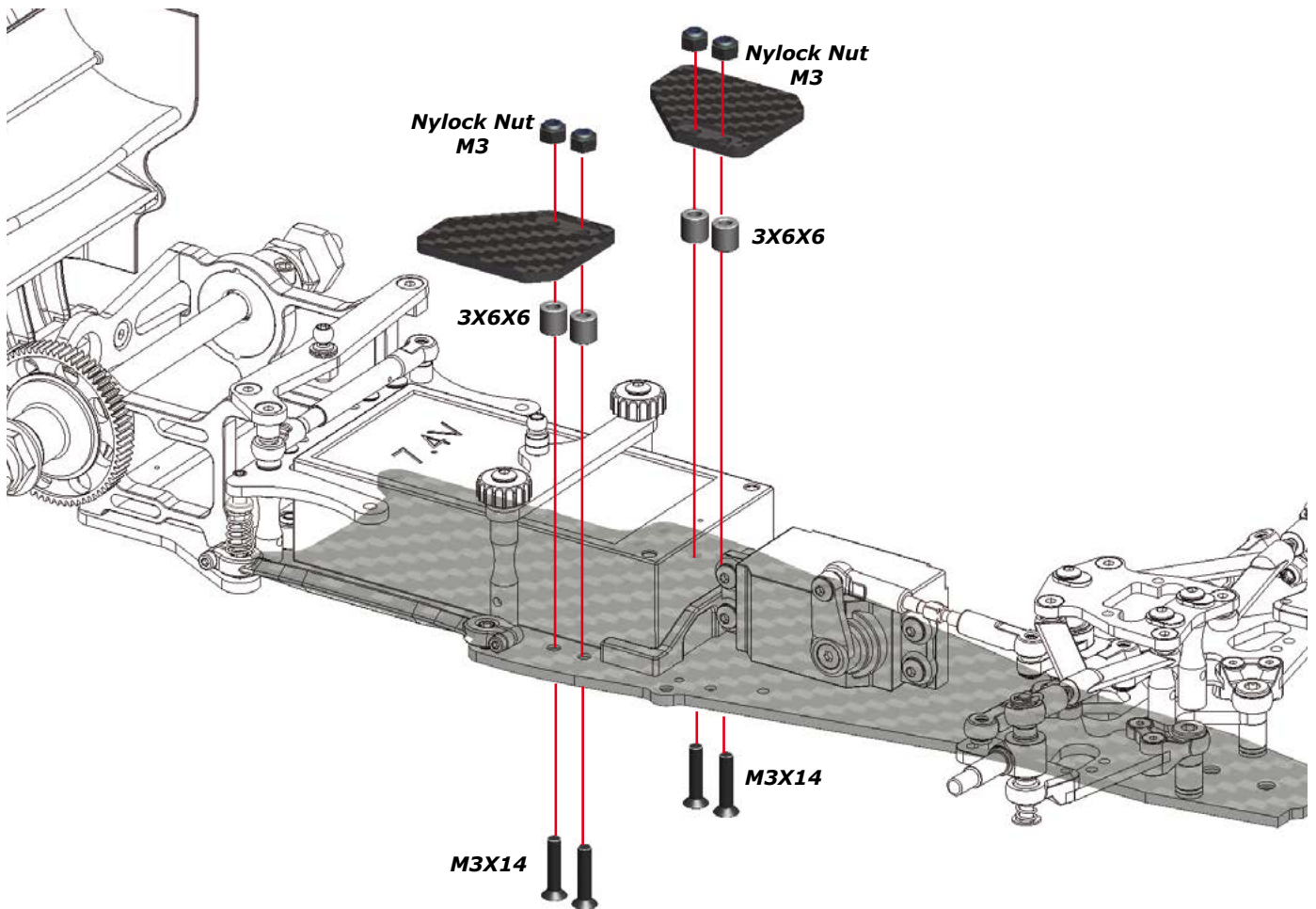
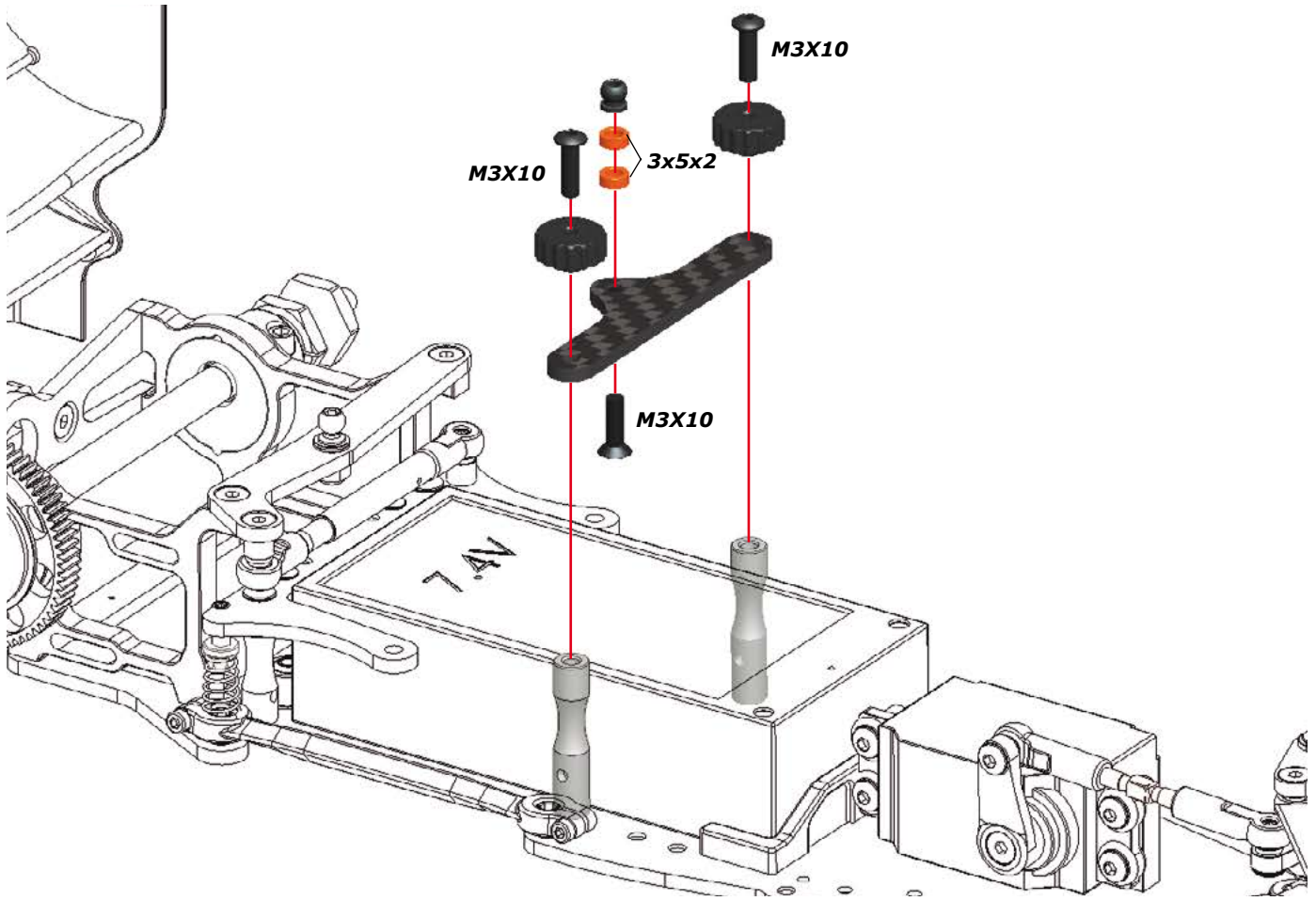


## Detail view forward battery and servo configuration

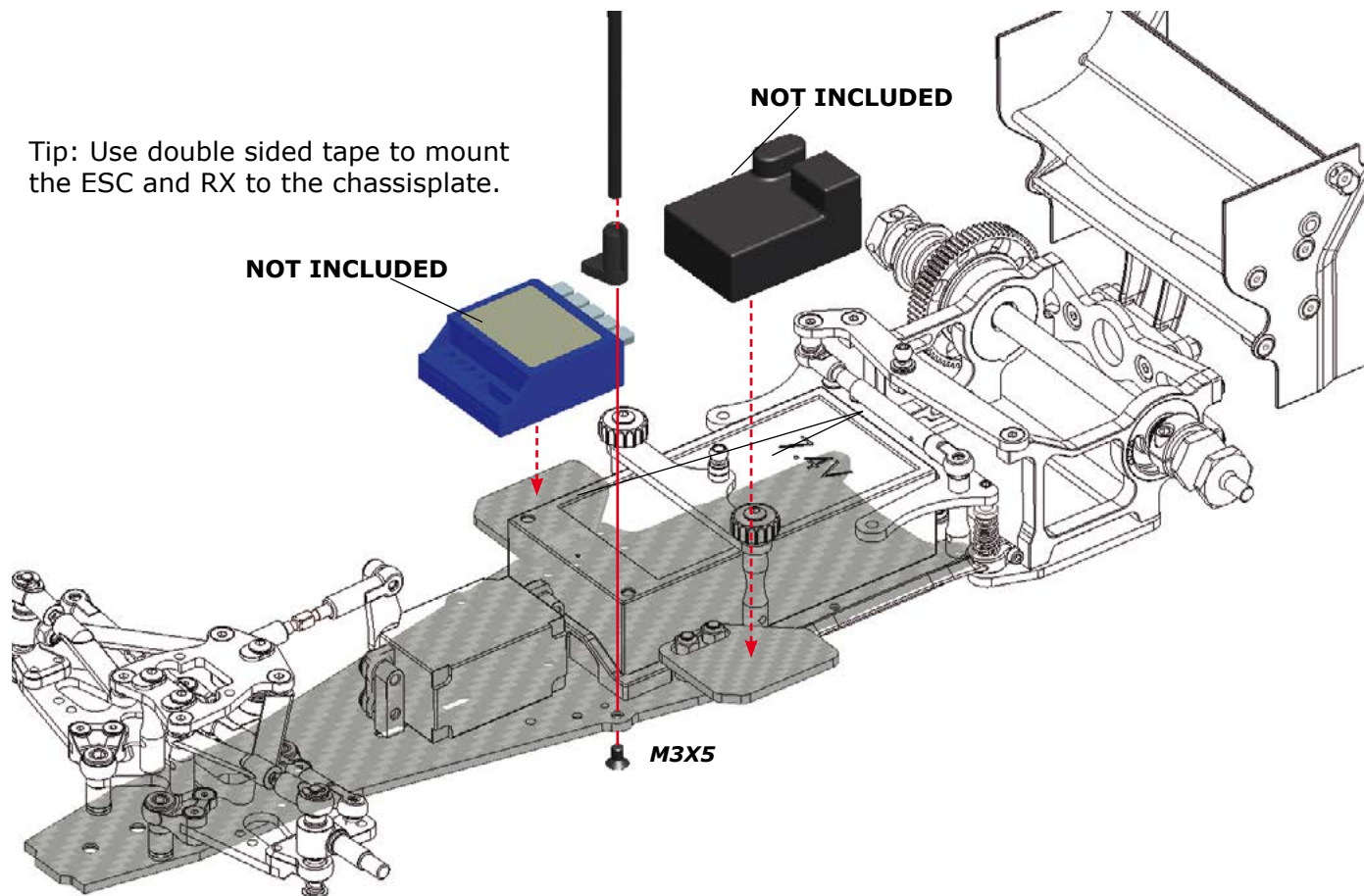


## Detail view forward servo and rearward battery configuration

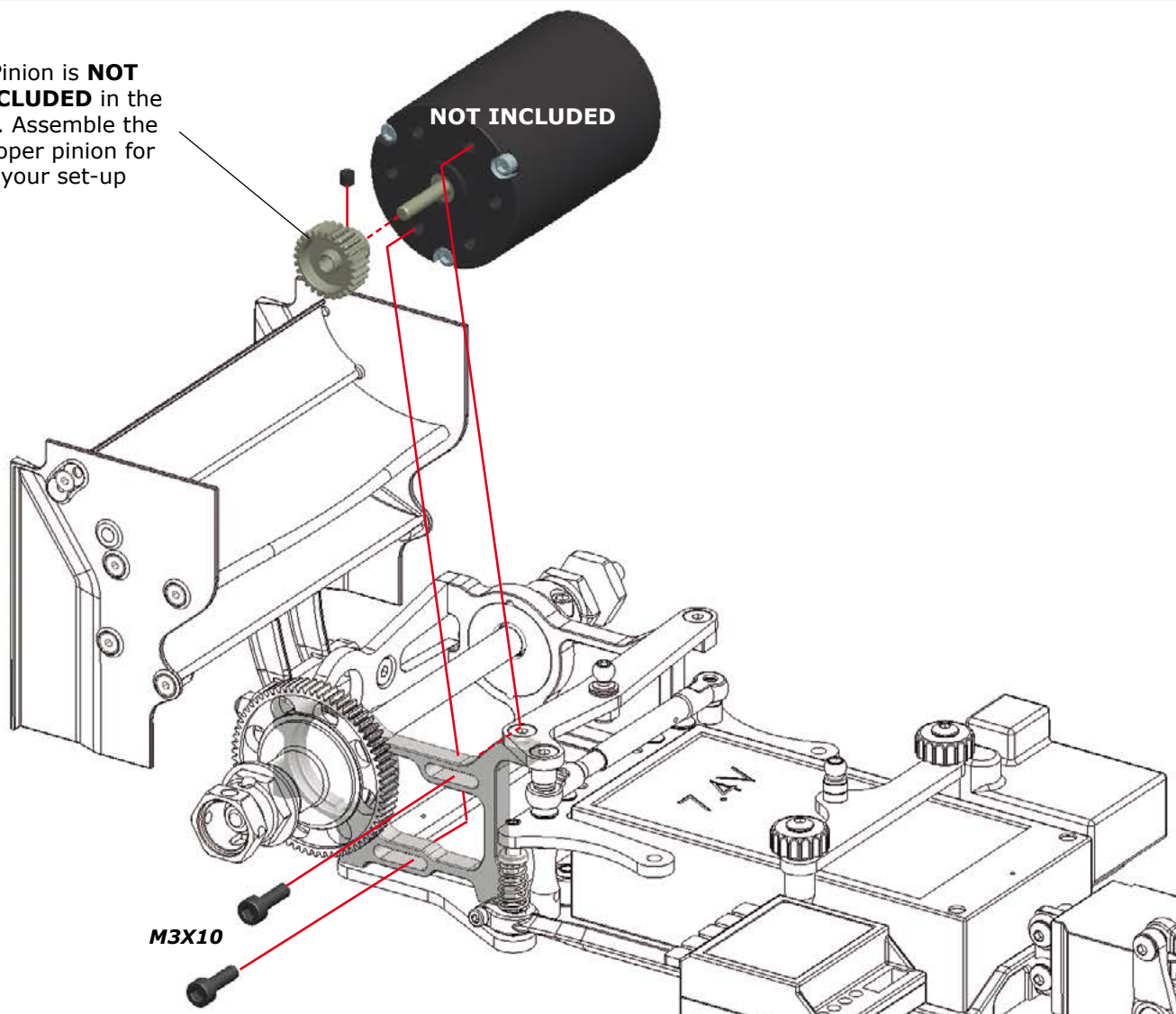




Tip: Use double sided tape to mount the ESC and RX to the chassisplate.



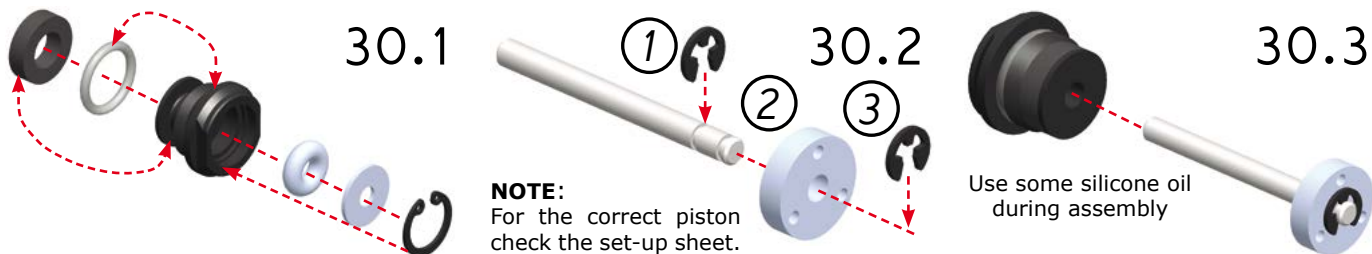
Pinion is **NOT INCLUDED** in the kit. Assemble the proper pinion for your set-up



# SHOCK ASSEMBLY

STEP  
30

Bag  
7



**NOTE:**  
For the correct piston  
check the set-up sheet.

Use some silicone oil  
during assembly



30.6

**Filling:**  
Fill the shock body with  
shock absorber oil.  
Check the oil CST value  
in the setup sheet.

**Bleeding:**  
Let the oil settle  
and allow the air  
to escape.

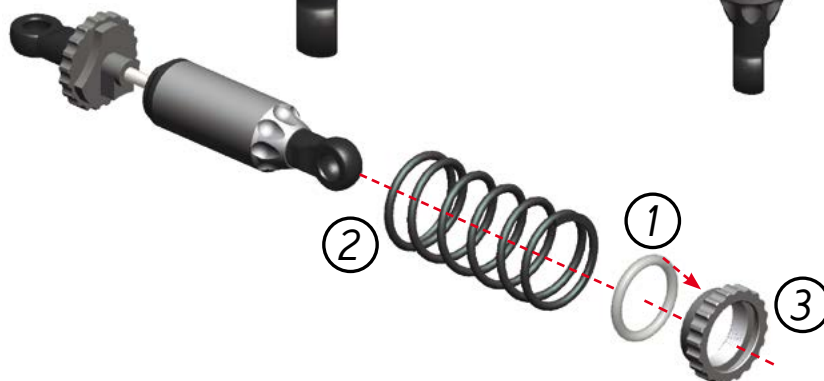
30.7

Close the shock slowly.

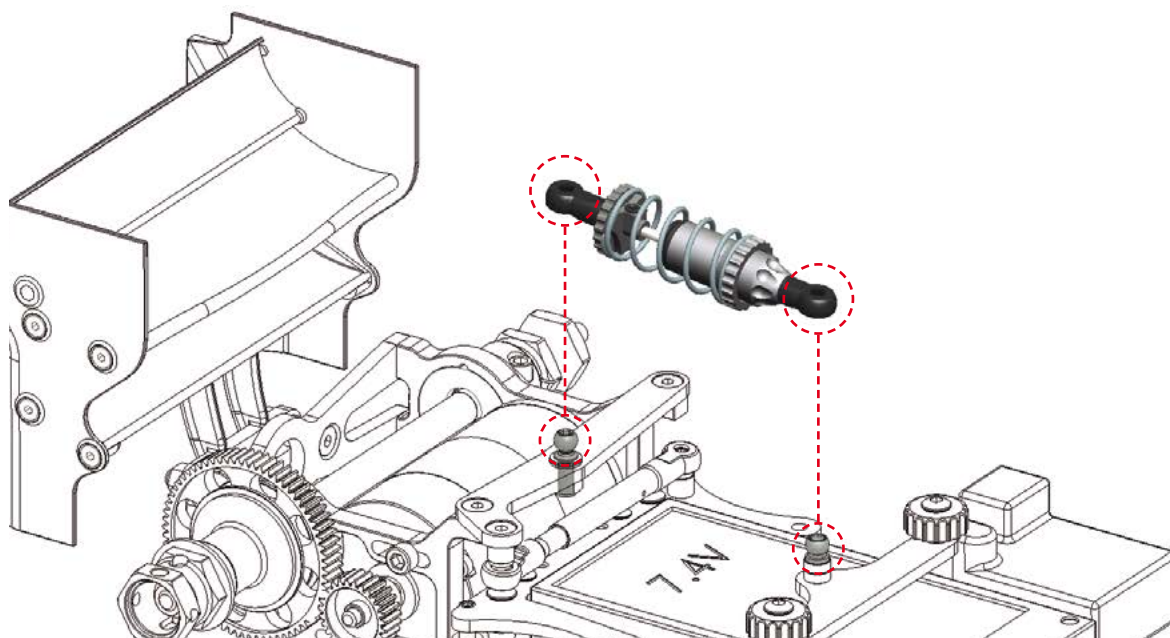
**Important:** do not  
crossthead! Oil will  
overflow through the  
built-in bleed channel.

Tighten carefully until  
the bottom half sits  
against the shock body

30.8



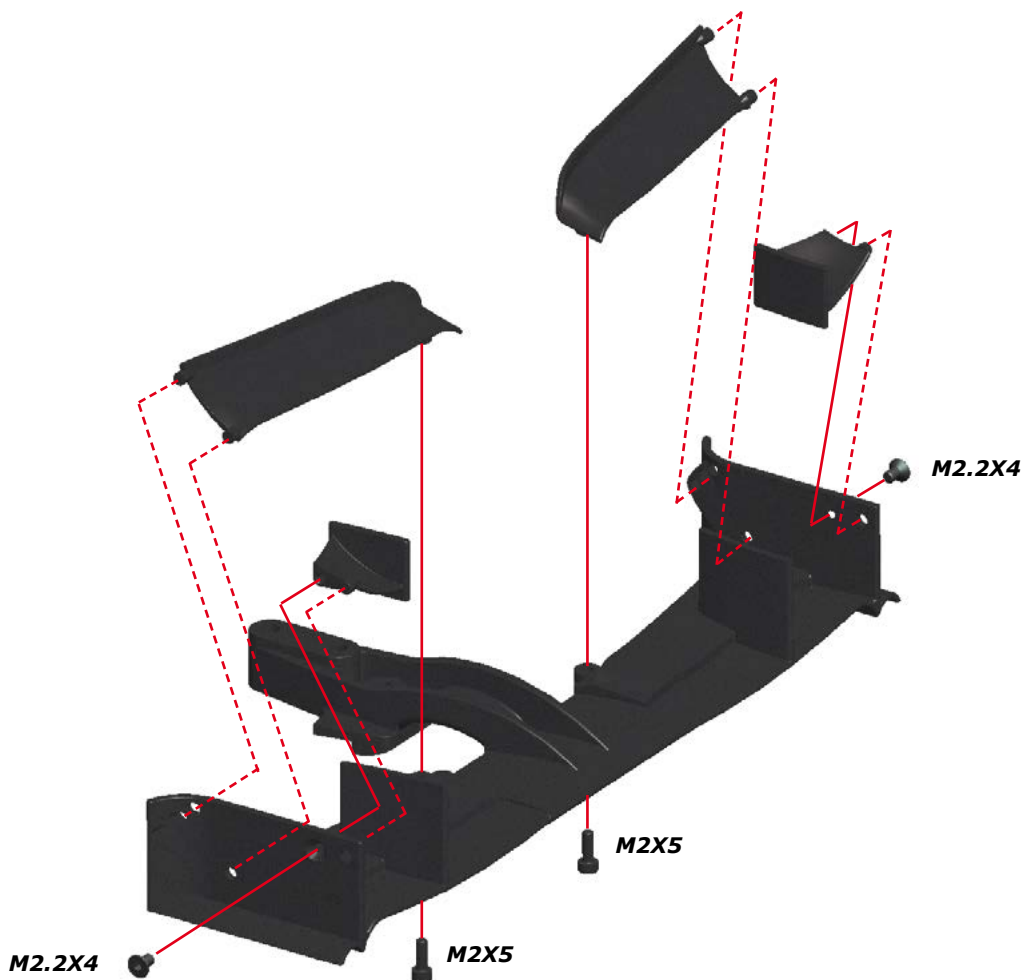
STEP  
31



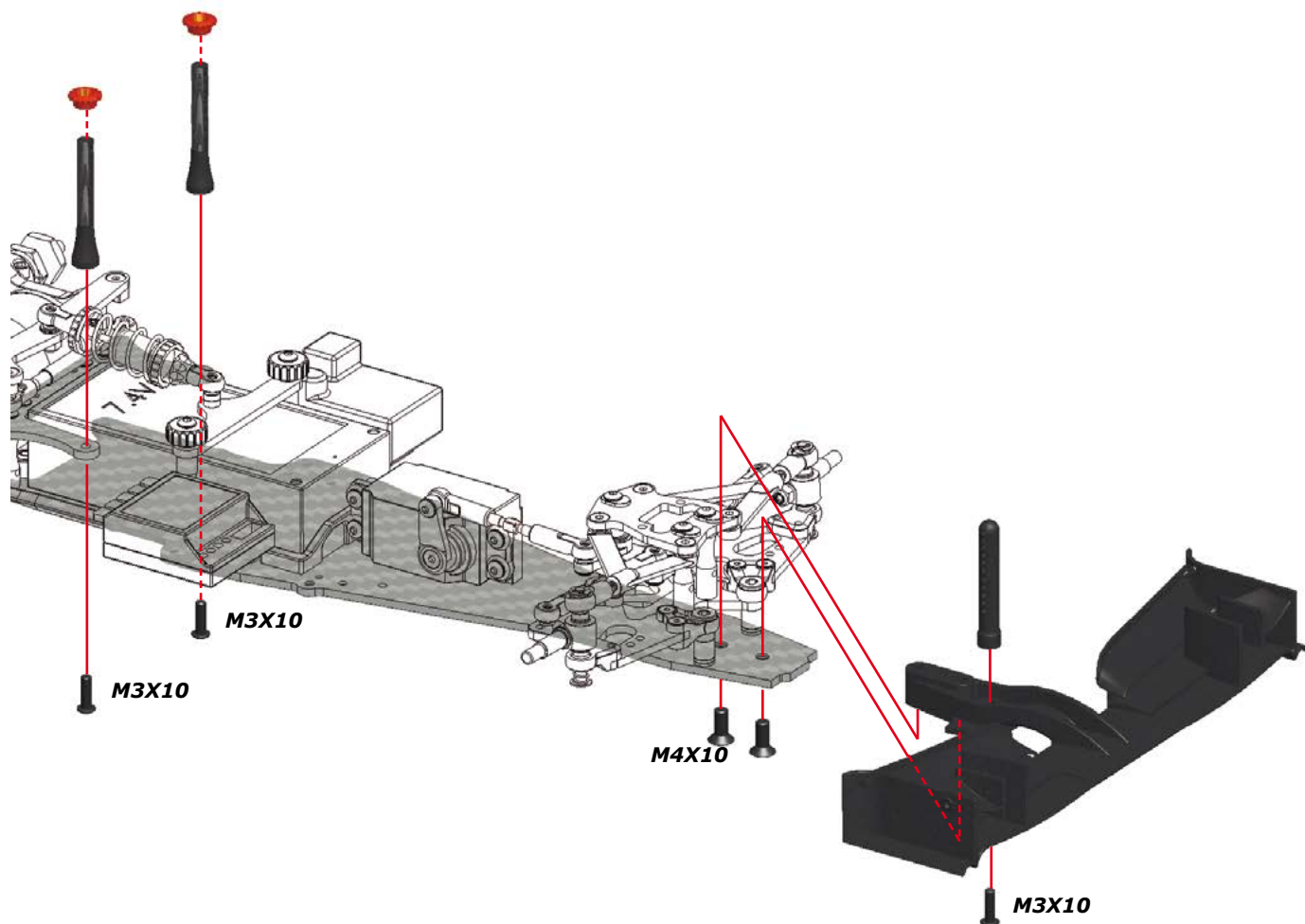
# FINAL ASSEMBLY

STEP  
32

Bag  
8

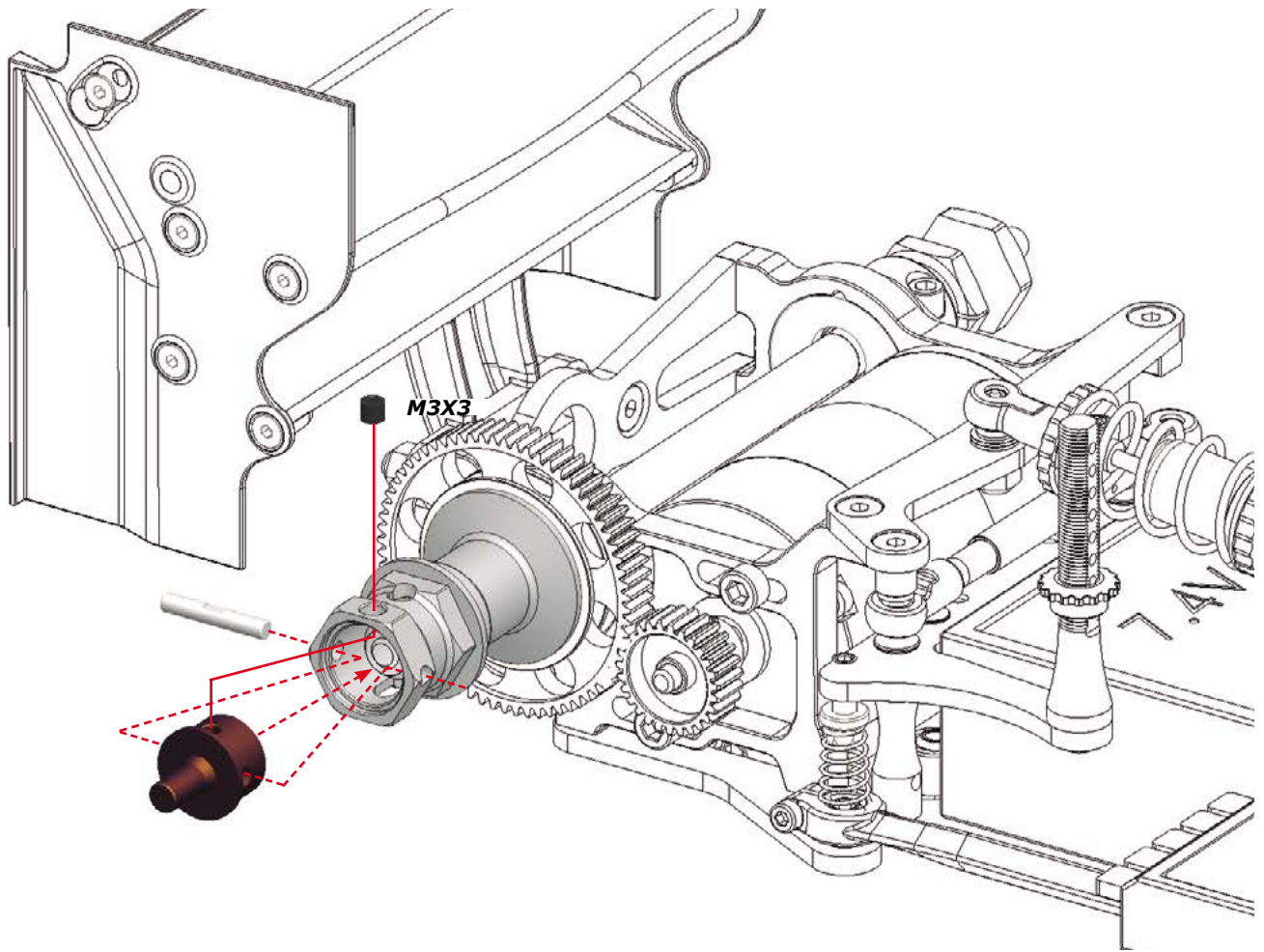


STEP  
33

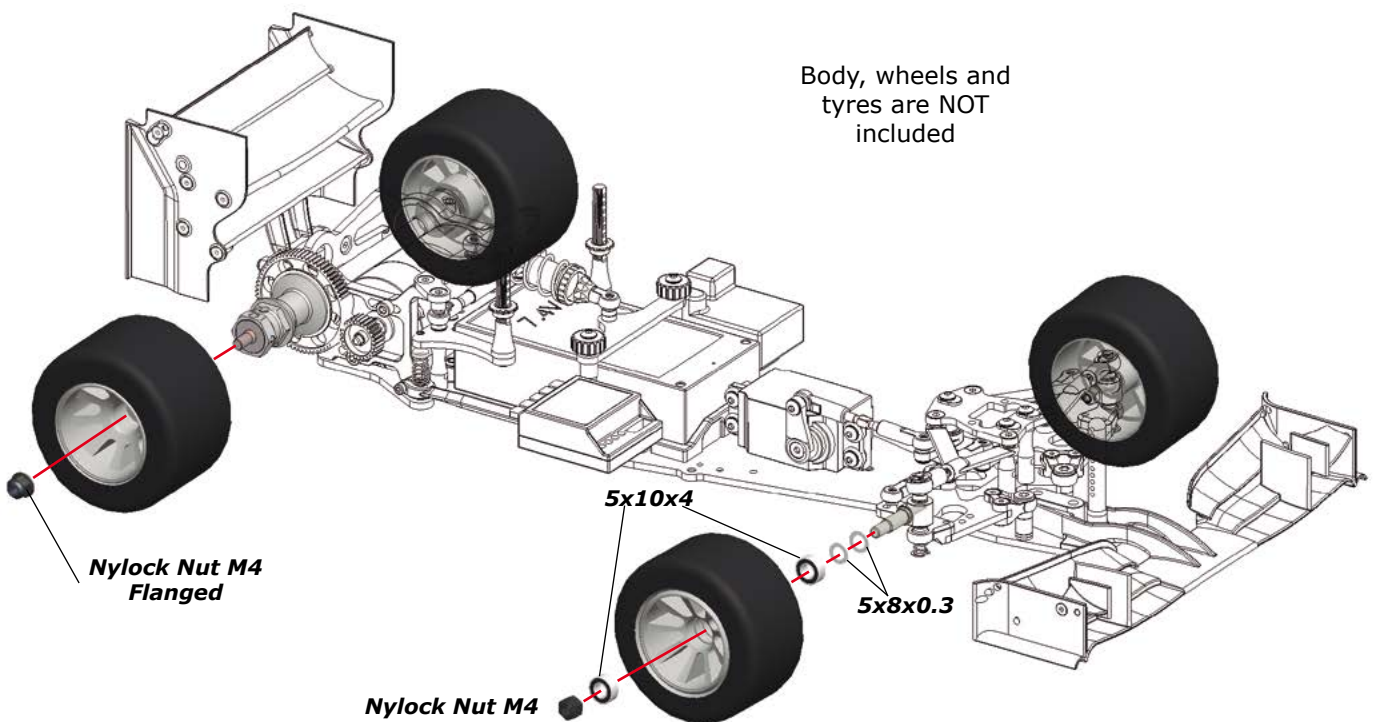


Serpent

Page  
23



Body, wheels and  
tyres are NOT  
included



**Nylock Nut M4  
Flanged**

**5x10x4**

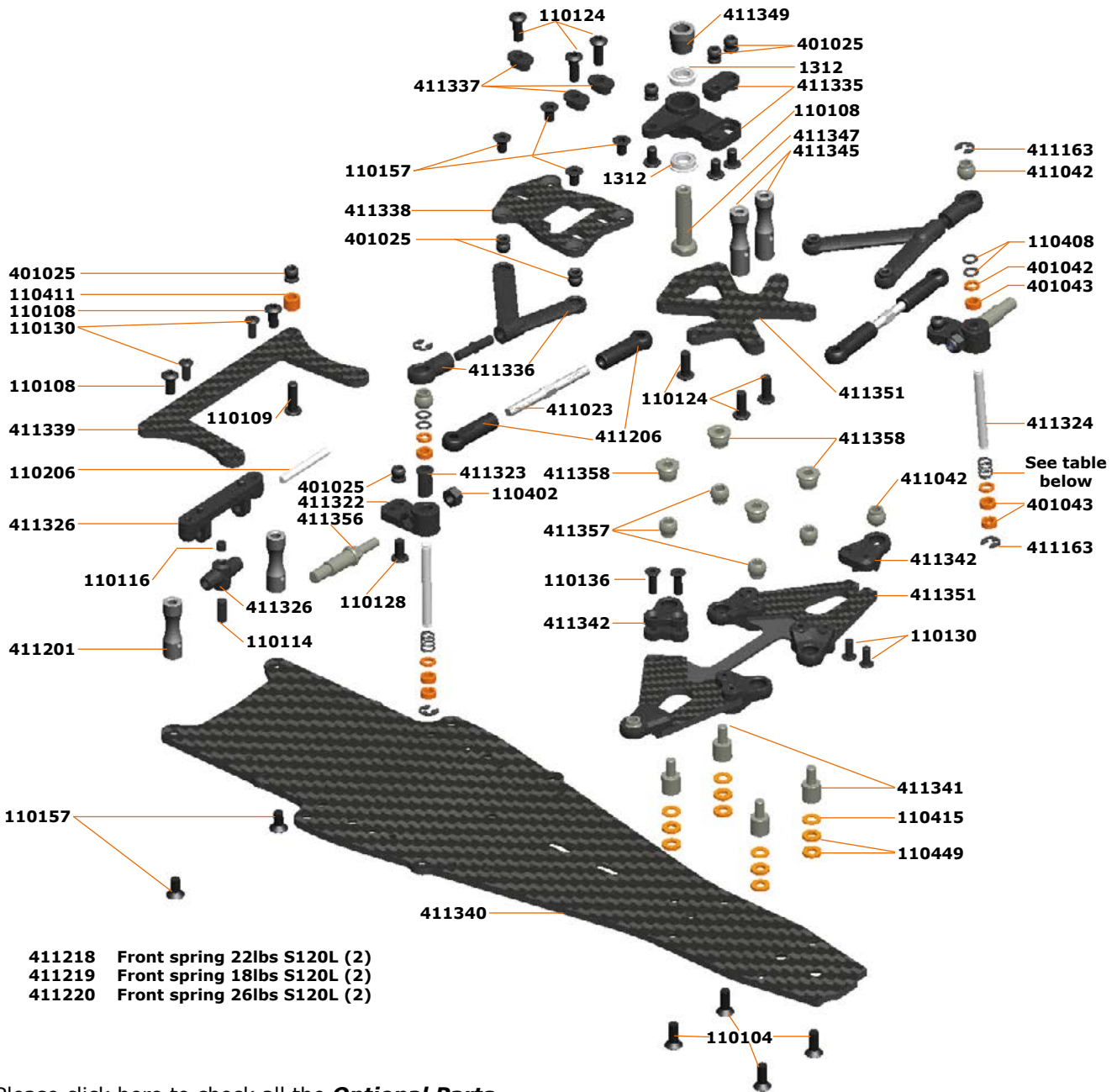
**5x8x0.3**

**Nylock Nut M4**



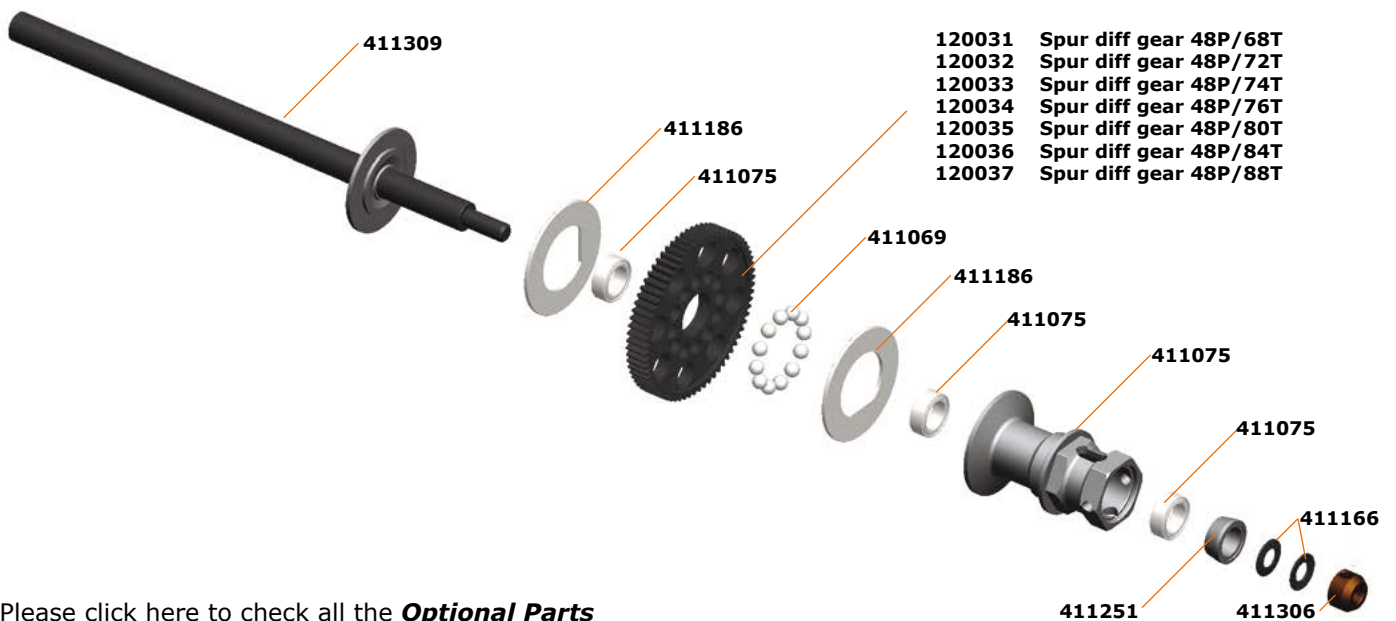
# REFERENCE GUIDE

# FRONT ASSEMBLY



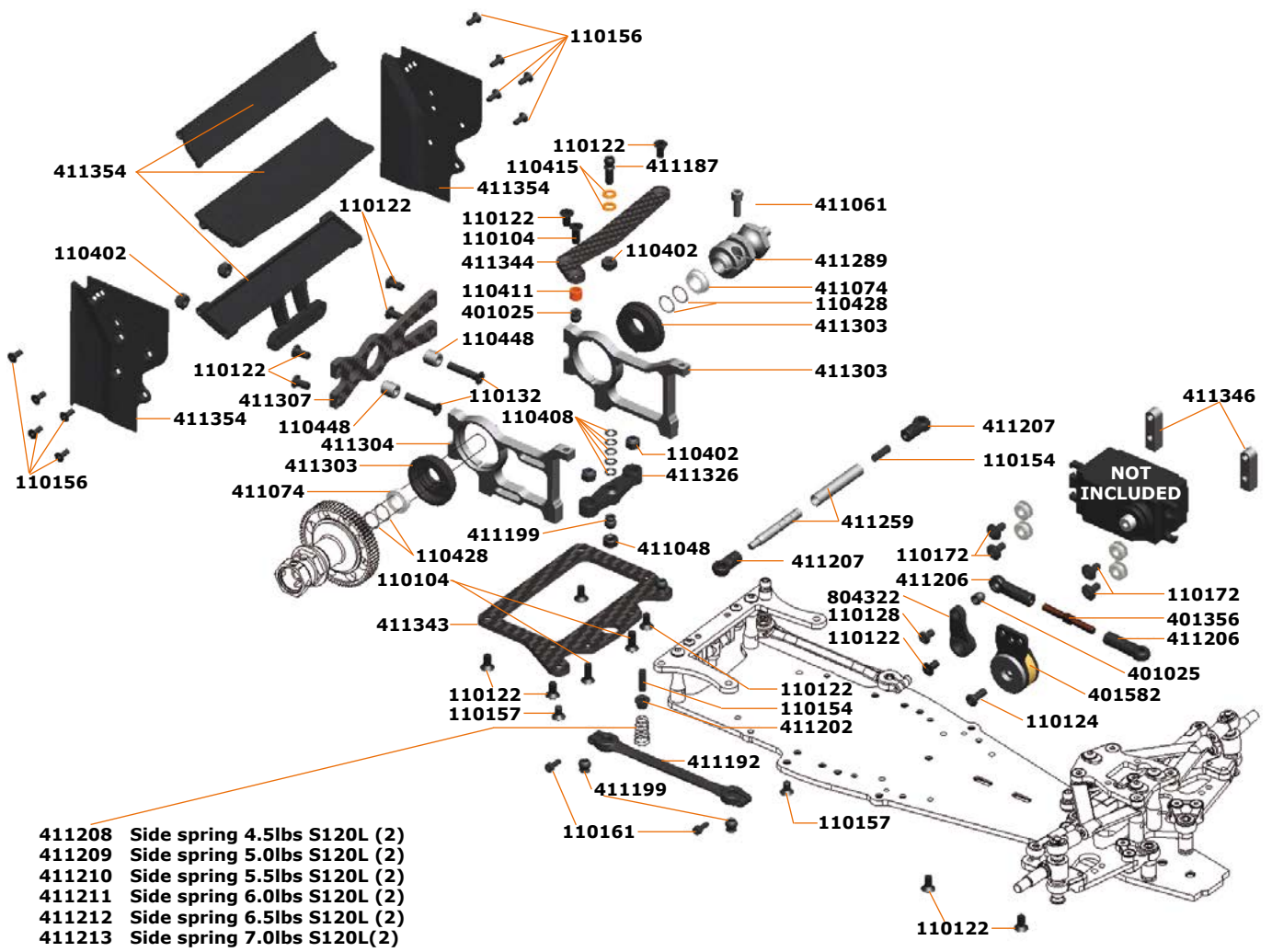
Please click here to check all the **Optional Parts**

# BALL DIFF ASSEMBLY



Please click here to check all the **Optional Parts**

# REAR ASSEMBLY



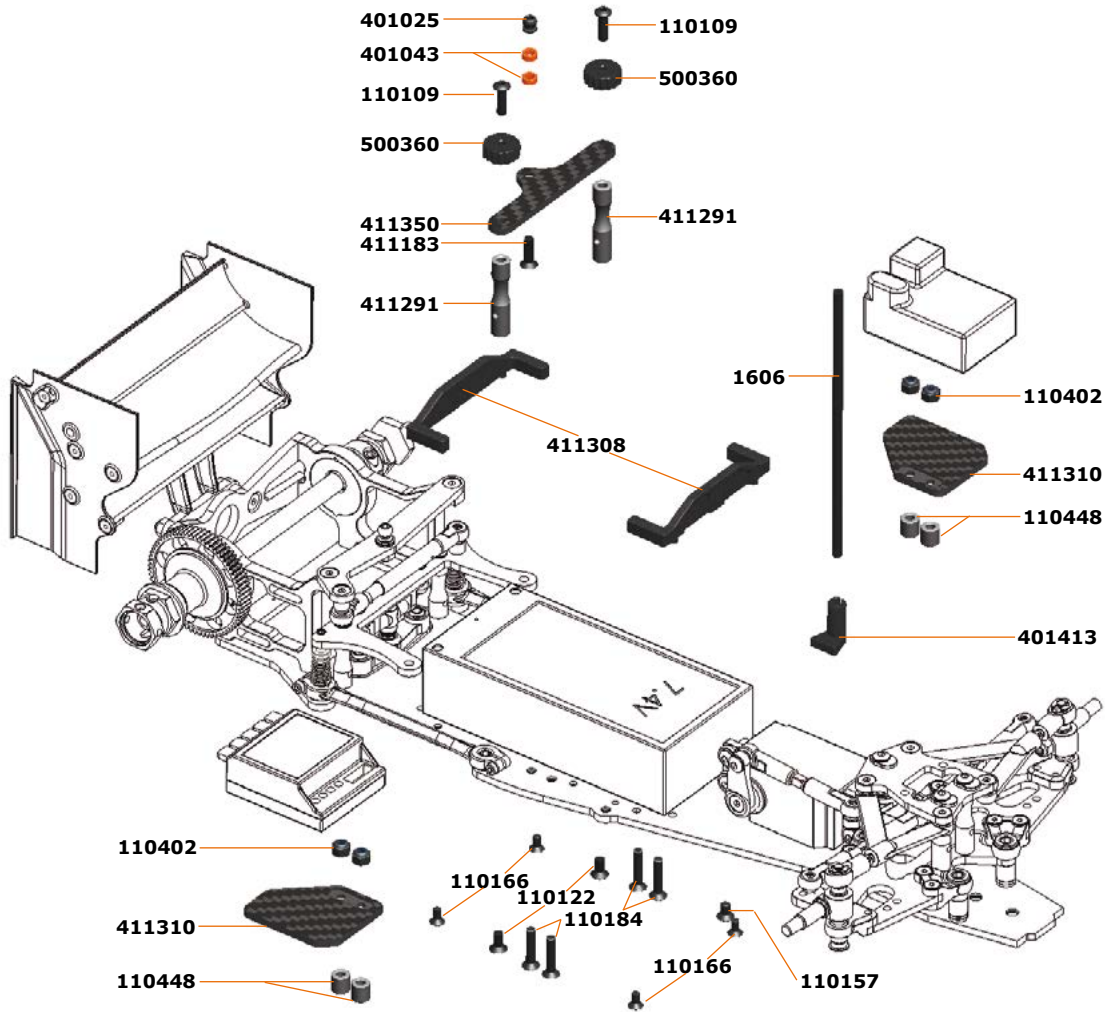
Please click here to check all the **Optional Parts**

# SHOCK ABSORBER ASSEMBLY



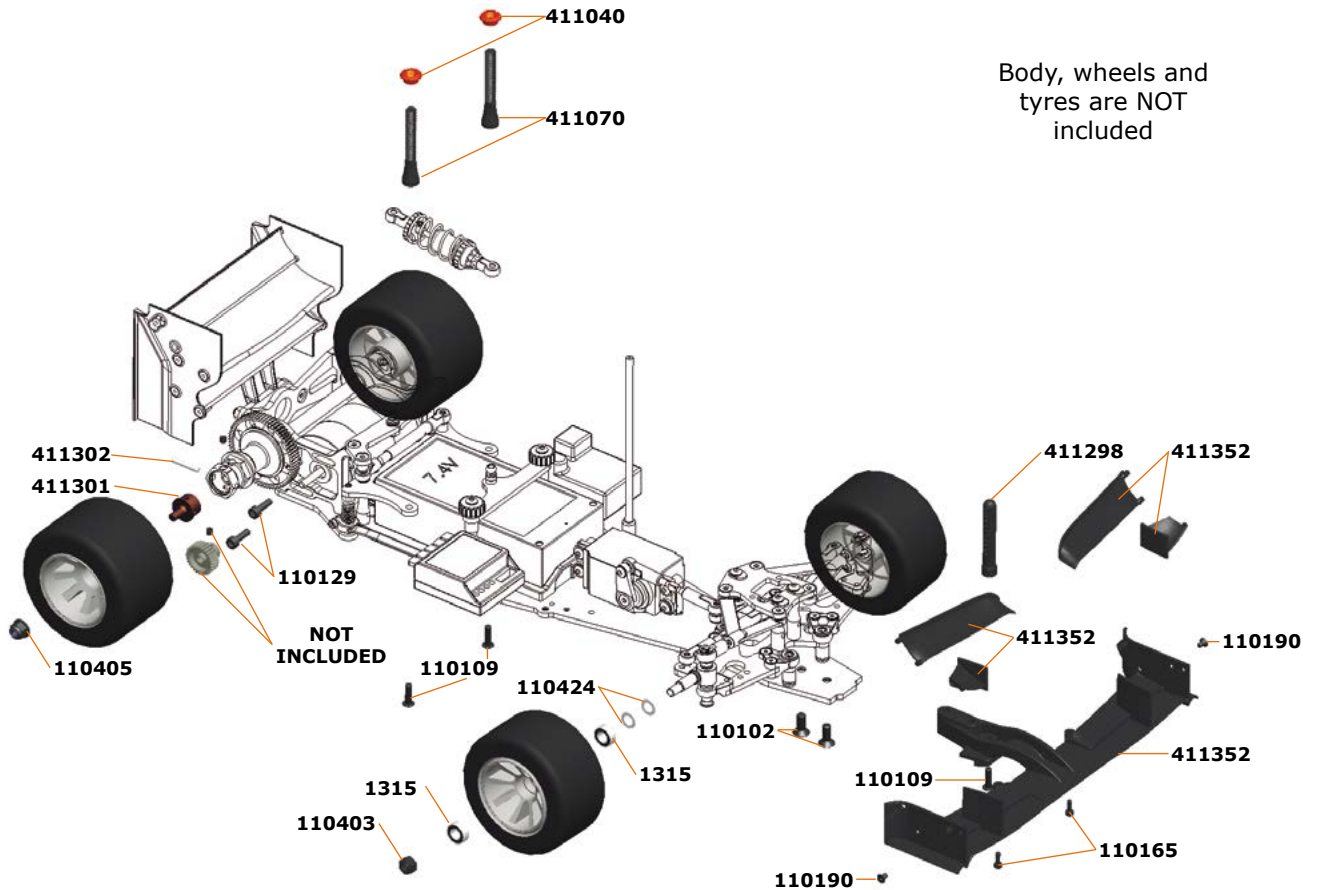
Please click here to check all the **Optional Parts**

# FINAL I ASSEMBLY



Please click here to check all the **Optional Parts**

# FINAL II ASSEMBLY



# F110 SF2



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F110 SF2 version 1