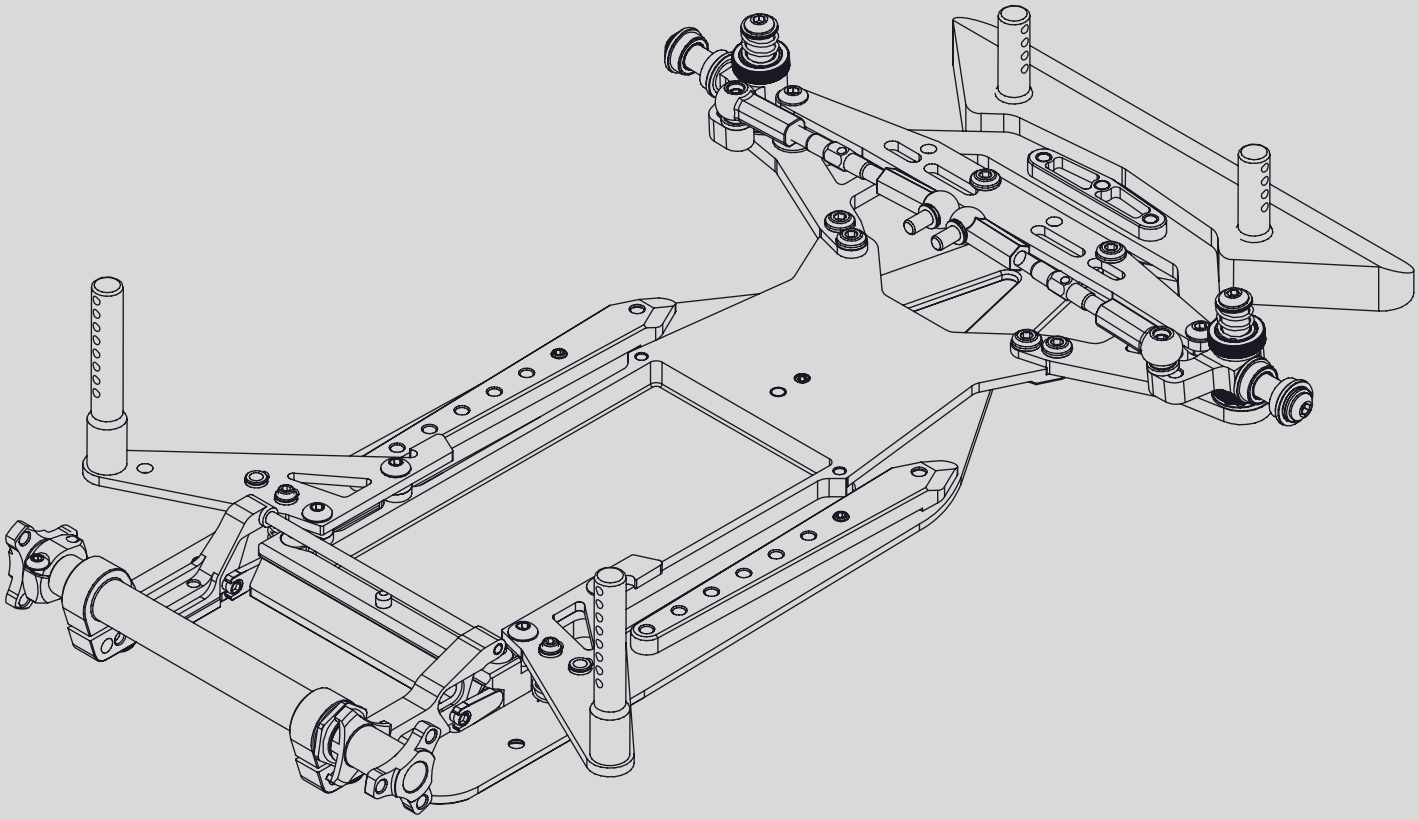
AWESOMATIX®

A12

1/12-SCALE ELECTRIC ON-ROAD CAR



INSTRUCTION MANUAL

INTRODUCTION

Congratulations on purchasing your Awesomatix car!
The A12 car was produced by UAB Awesomatix company.

BEFORE YOU START

The A12 car is the high-quality, innovative 1/12-scale on-road car and should be built only by persons with previous experience building R/C model racing cars.
This is not a toy and is not intended for use by children without direct supervision of a responsible, knowledgeable adult. Read the instruction manual carefully and fully understand it before beginning assembly. If you have any problems or questions please do not hesitate to contact the Awesomatix team at support@awesomatix.com. If, for any reason, you decide that you do not want your A12 car you must not begin assembly.
Your A12 car cannot be returned to UAB Awesomatix for a refund or exchange if it has been fully or partially assembled.

This kit is a radio controlled model racing product and could cause harm and personal injury.
The A12 car is designed for use on r/c car race tracks. It should not be used in general public areas.
UAB Awesomatix accept no responsibility for any injuries caused by making or using this kit.

Due to policy of continuous product development the exact specifications of the kit may vary.
UAB Awesomatix do reserve all rights to change any specifications without prior notice. All rights reserved.

ASSEMBLY NOTES

You can find the useful tips of A12 assembling and the **A12 editable setup sheet** on the Internet site:
http://site.petitrc.com/reglages/awesomatix/setupa12/

GENERAL PRECAUTIONS

- Many of the items in this kit are small enough to be accidentally swallowed and are therefore potential choking hazards, making them potentially fatal. Please ensure that when assembling the kit you do so out of the reach of small/young children.
- Take care when building, as some parts may have sharp edges.
- Please read this manual carefully to understand which ancillary items (tools, electrics, electronics etc) are used with this kit. Awesomatix Innovations accept no responsibility for the operation of any such ancillary items.
- Exercise care when using tools and sharp instruments.
- Follow the operating instructions for the radio equipment at all times.
- Never touch rotating parts of the car as this may cause injury.
- Keep the wheels of the model off the ground when checking the operation of the radio equipment.
- To prevent any serious personal injury and/or damage to property, be responsible when operating all remote controlled models.
- The model car is not intended for use on roads or areas where its operation can conflict with or disrupt pedestrian or vehicular traffic.
- Do not run your car in poor light or if it goes out of sight. Any impairment to your vision may result in damage to your car or, worse, injury to others or their property.
- As a radio controlled device, your car is subject to radio interference from things beyond your control. Any such interference may cause a loss of control of your car so please consider this possibility at all times.
- When not using RC model, always disconnect and remove battery.
- Insulate any exposed electrical wiring to prevent dangerous short circuits.
  Take maximum care in wiring, connecting and insulating cables. Make sure cables are always connected securely.
  Check connectors for if they become loose and if so reconnect them securely. Never use R/C models with damaged wires.
  A damaged wire is extremely dangerous and can cause short-circuits resulting in fire.

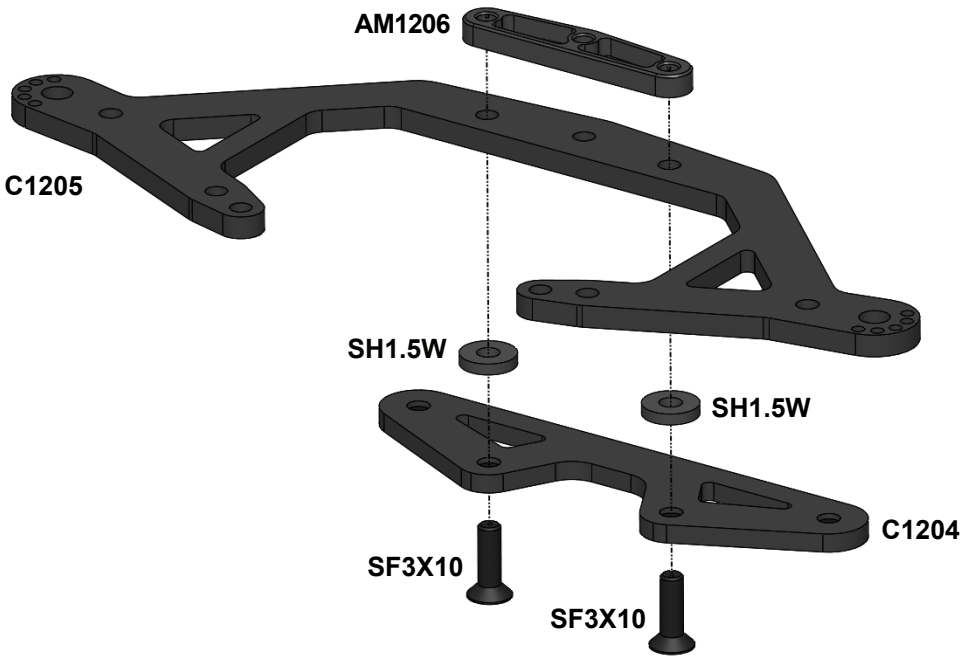
EQUIPMENT RECOMMENDED (NOT INCLUDED)

- Radio Transmitter
- Radio Receiver
- Electronic Speed Control
- Steering Servo
- Servo Saver
- Electric Motor
- Pinion Gear (64 or 48 Pitch)
- Spur Gear (64 or 48 Pitch)
- 1S Li-Po Battery
- 1/12 scale Body Shell
- 1/12 scale Wheels and Tires

TOOLS RECOMMENDED (NOT INCLUDED)

- 1.5mm, 2.0mm, 2.5mm Hex Drivers
- 12mm Wrench
- Sewing Needle or Sharp Pin
- Callipers
- Hobby Knife
- Ride Height Gauge
- Thin CA Glue
- Thread Lock
- Double Side Tape
- Silicone Oil for Dampers
- Joint Grease

STEP 1



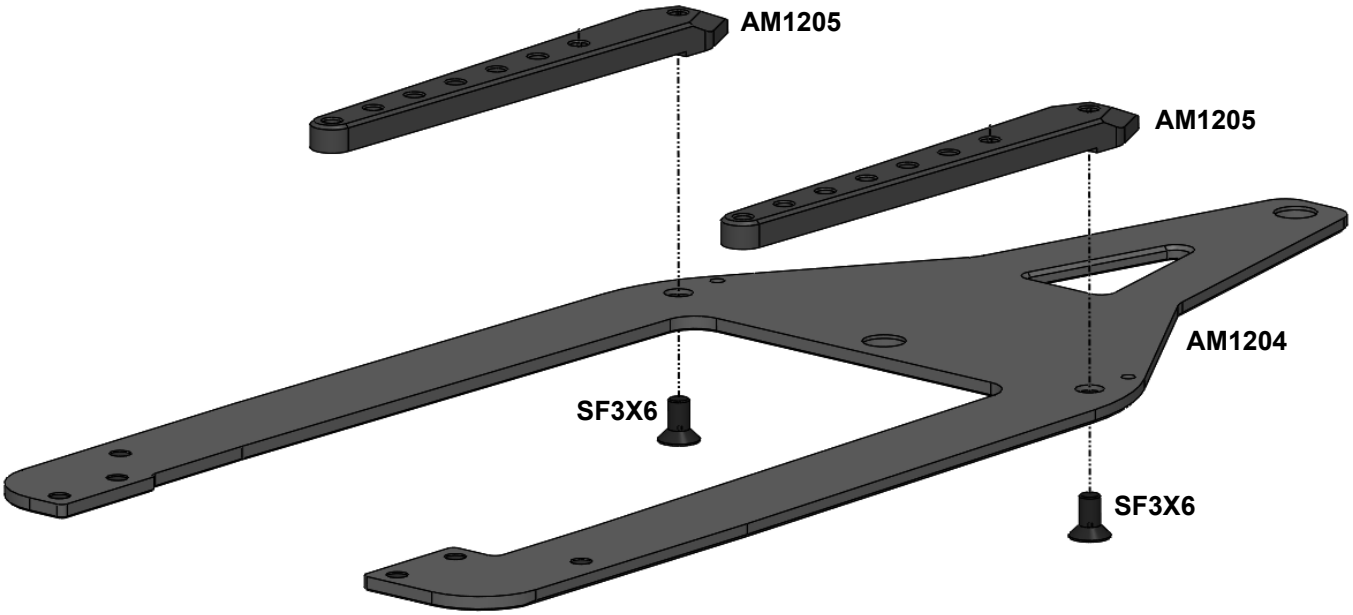
Note: SH1.5W is 7.4x3x1.5mm alloy spacer.

STEP 2



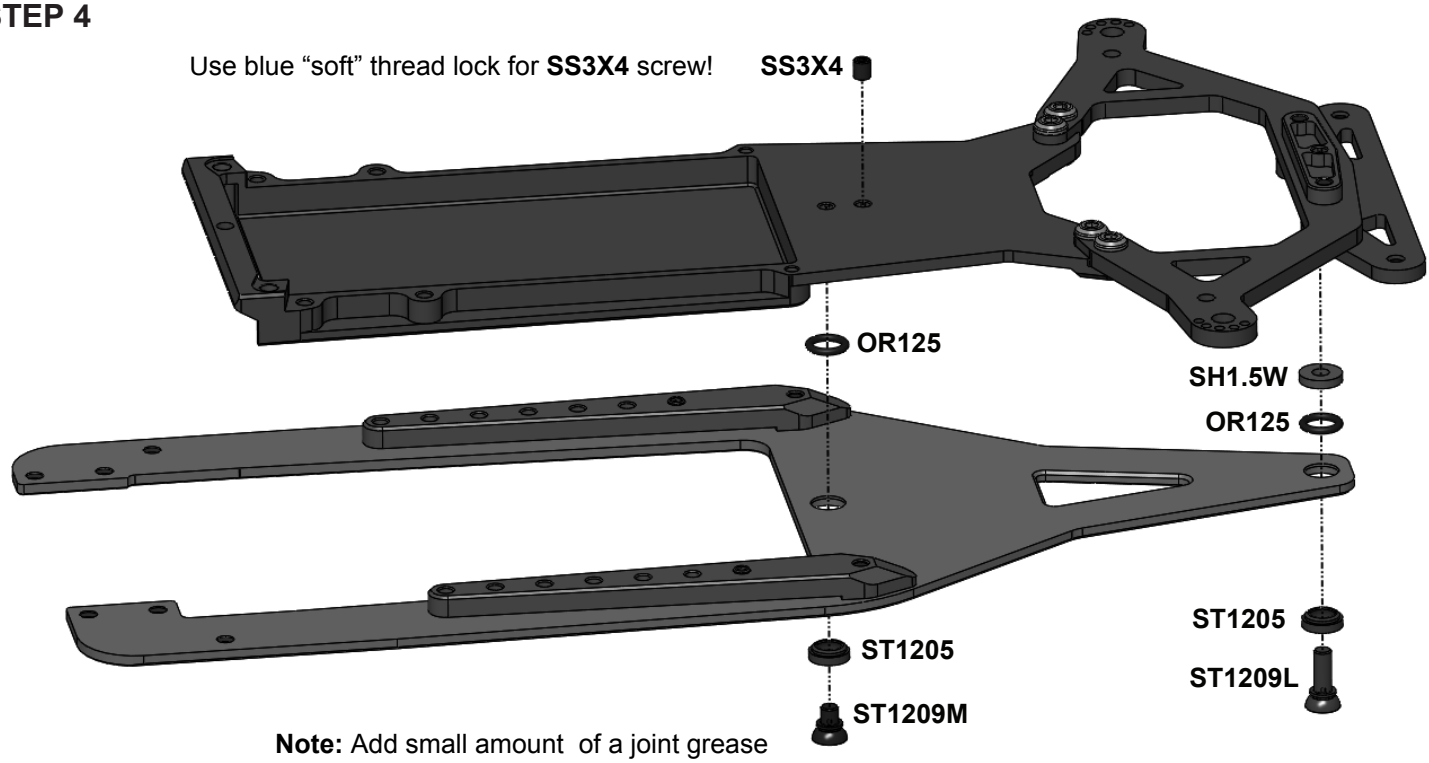
Note:
SB3X5AL is 3x5mm alloy screw.

STEP 3



STEP 4

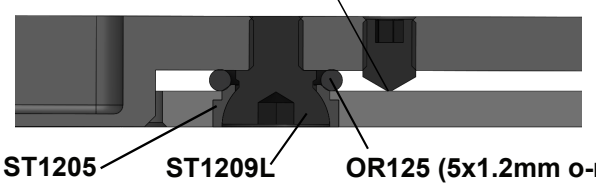
Use blue “soft” thread lock for **SS3X4** screw!



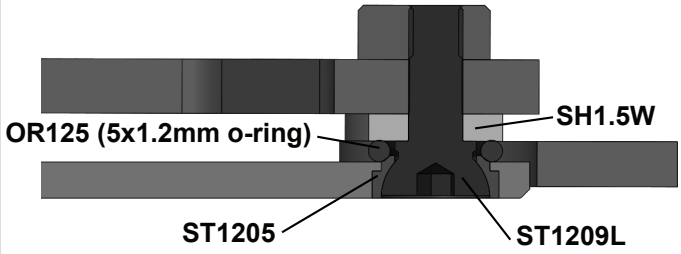
Note: Add small amount of a joint grease between **ST1205** and **ST1209M/L**.

Rear ball joint

Note: SS3X4 set screw tips should just slightly touch **AM1204** chassis surface.



Front ball joint

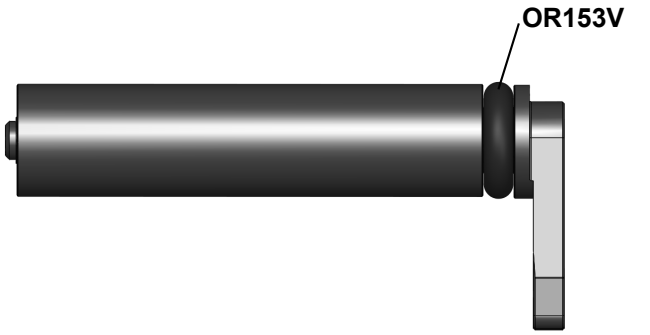


STEP 5

Note: Add a bit of silicone oil into groove of **ST1202**.

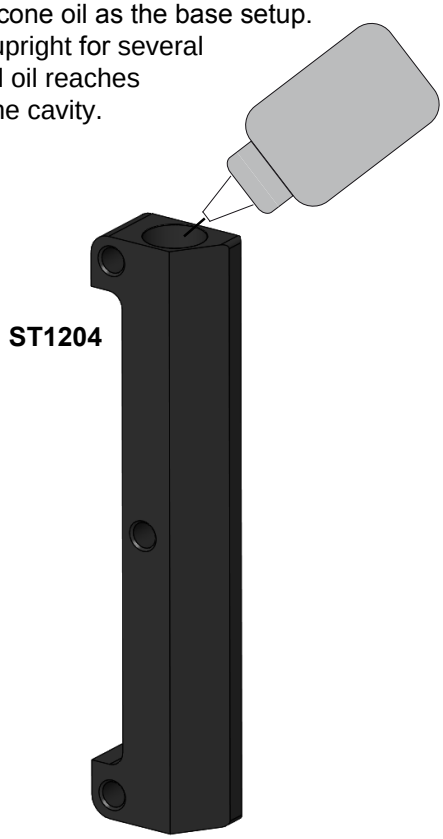


Note: Lubricate **OR153V** via silicone oil.
Stretch **OR153V** via fingers and put it on **ST1202** (to avoid the damage of o-ring please don't use a sharp edged tool for this!).



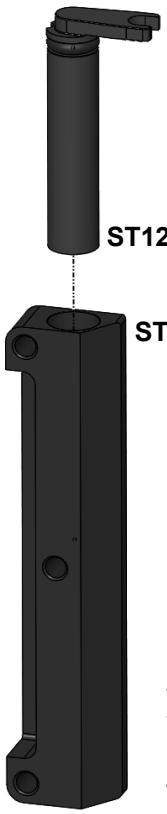
STEP 6

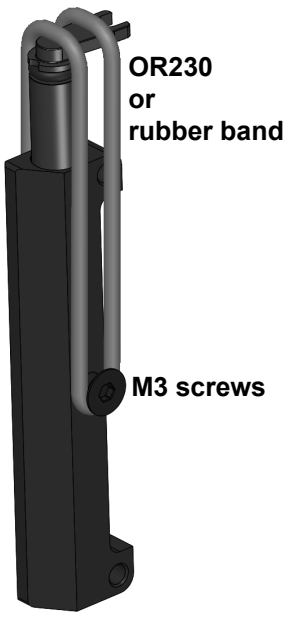
Note: Add ~0,3 g of 50 000...100 000 cst silicone oil into cavity of **ST1204** damper case. We recommend 100 000 cst silicone oil as the base setup.
Keep **ST1204** upright for several minutes until all oil reaches the bottom of the cavity.



STEP 7

Note: Insert **ST1202** damper rotor into **ST1204** damper case slowly.
After the lower face of the **ST1202** reaches the oil in the bottom of the cavity, the **ST1202** will need an additional force to be pushed fully into the proper position. We recommend using a rubber band or **OR230** o-ring as shown in the picture. The oil will start to come up towards the top of the cavity of the **ST1204** as the **ST1202** is pushed further into that cavity by the o-ring. When the **OR153V** o-ring and the **ST1204** damper are close to flush (almost fully inserted), please use a sewing needed or a sharp pin along the recess of the **ST1202** to move the o-ring out of position and allow more oil to be pushed out from the **ST1204** case. Using this needle or pin will allow the **ST1202** to be fully seated and sit perfectly flush with the **ST1204** damper case.



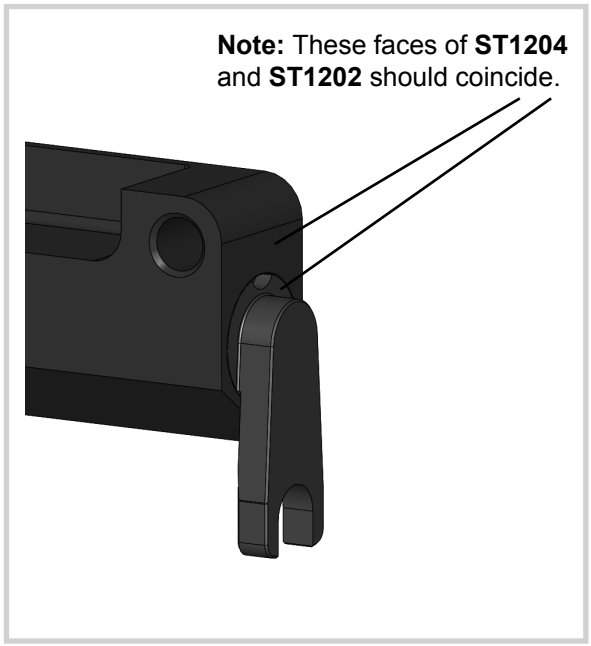


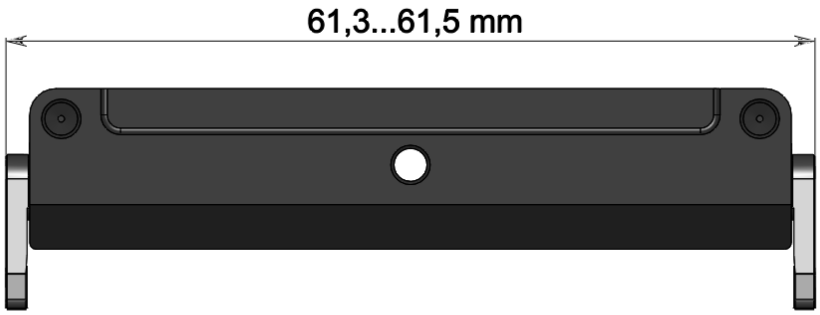


Note: It is very important to assemble the damper without any air inside!
The silicone oil has to occupy the gap between the damper's rotor and case fully. It can take some practice.

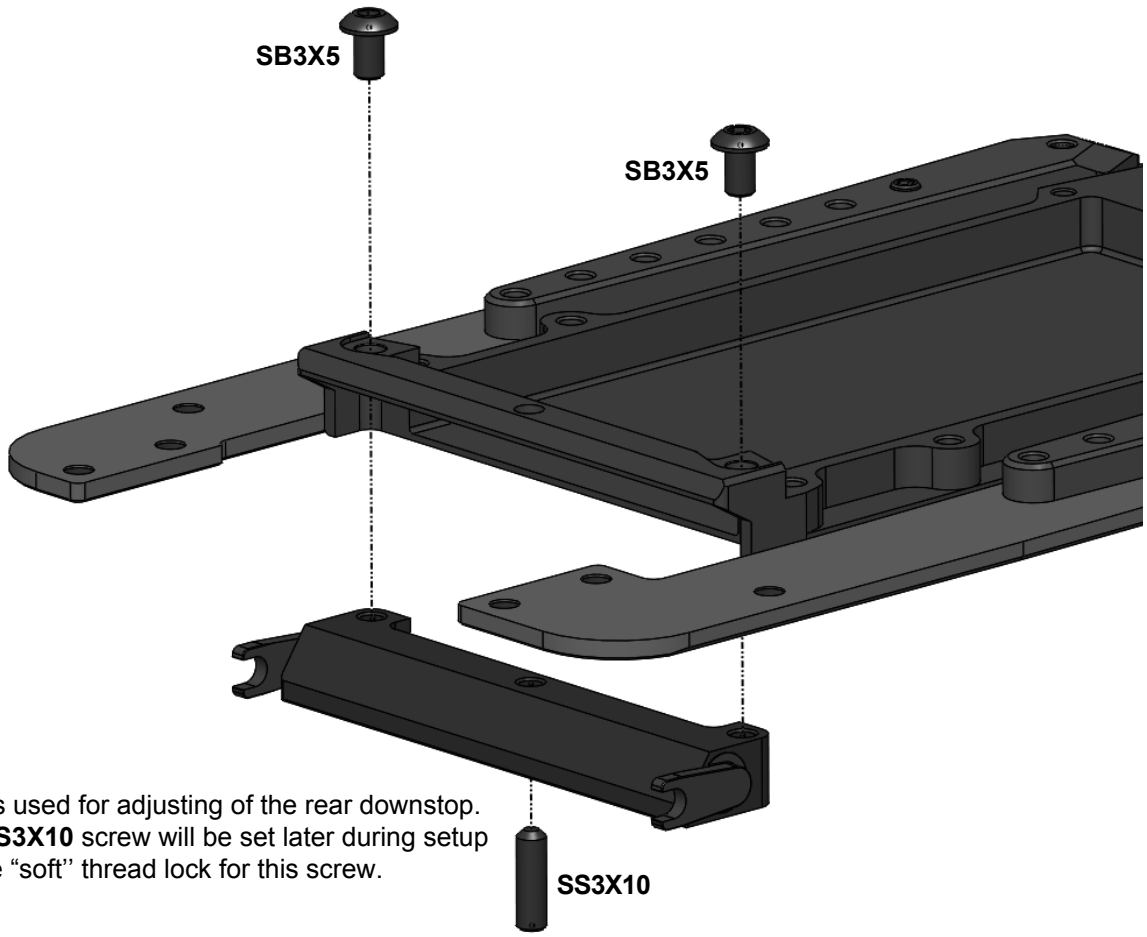
STEP 8

Repeat the STEPS 5,6,7 for other side of **ST1204** and check that both **ST1202** rotors reached the desirable position (flush with the **ST1204** face)





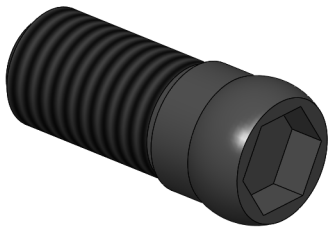
STEP 9



Note: **SS3X10** set screw is used for adjusting of the rear downstop. An exact position of this **SS3X10** screw will be set later during setup of the car. Please use blue “soft’’ thread lock for this screw.

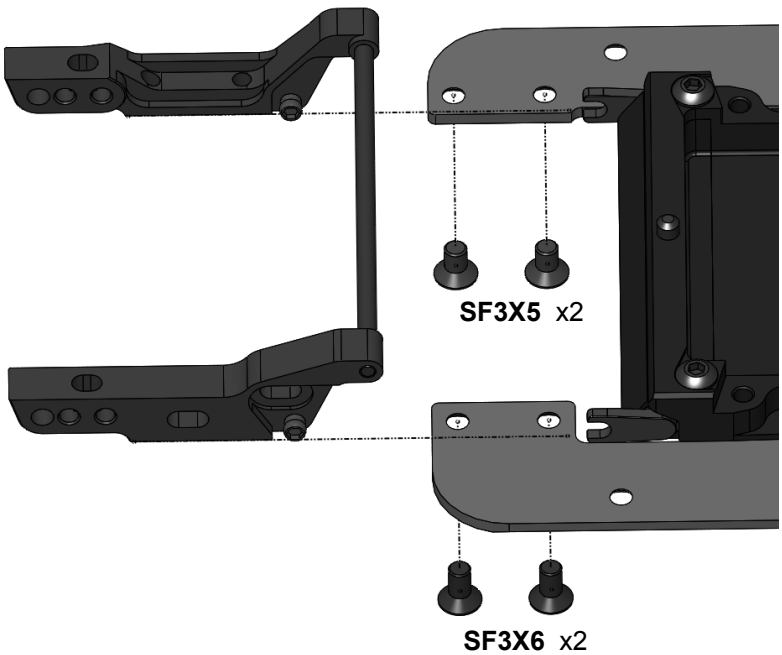
STEP 10

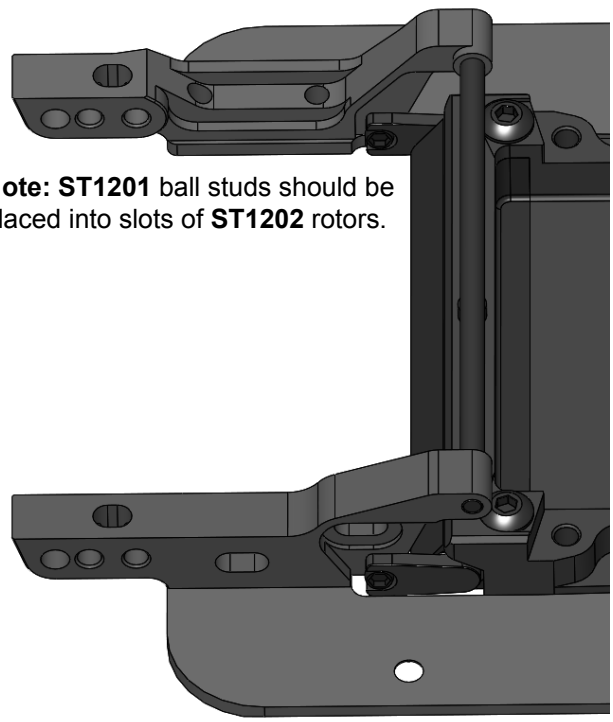




ST1201 3mm Ball Stud

STEP 11

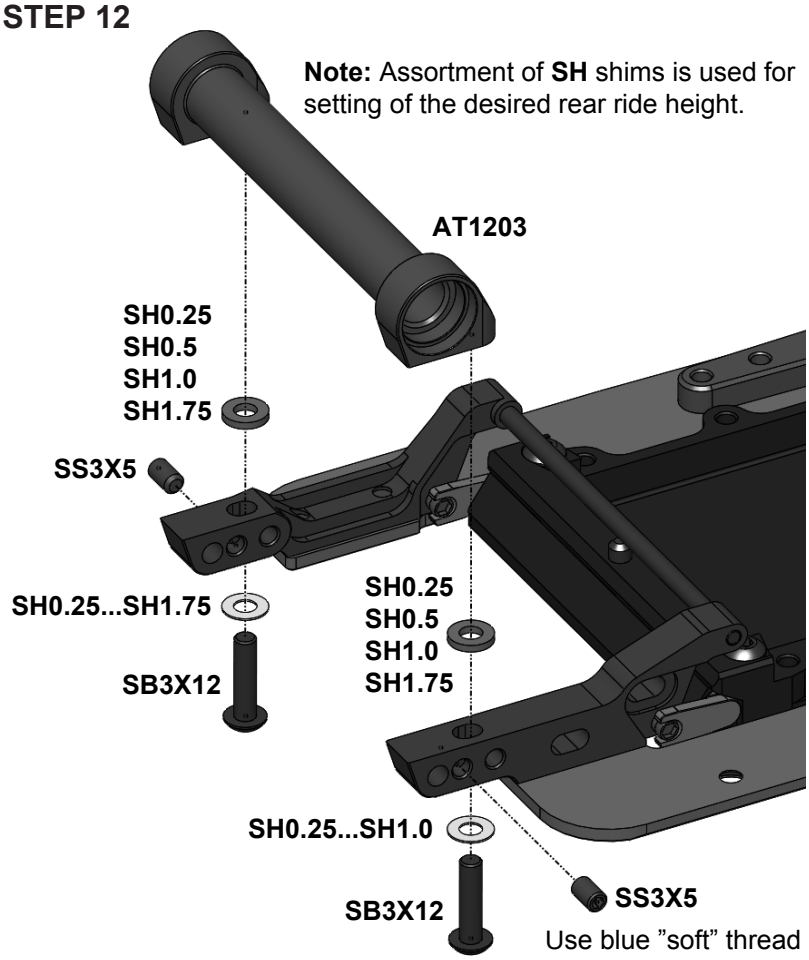




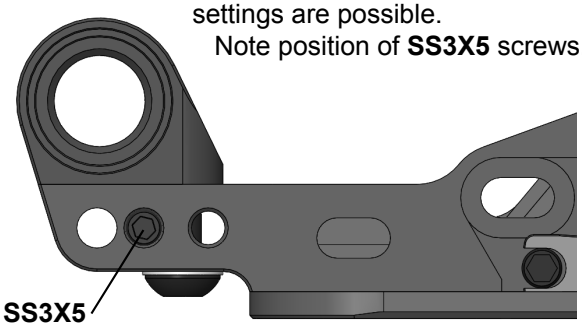
Note: ST1201 ball studs should be placed into slots of **ST1202** rotors.

STEP 12

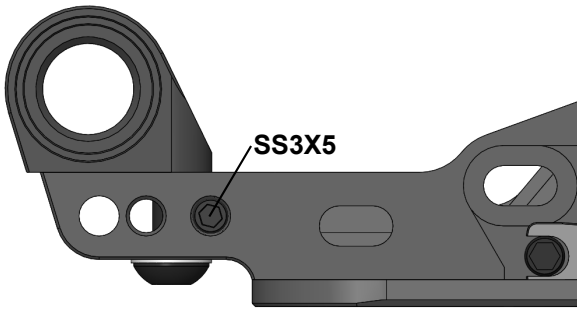
Note: Assortment of **SH** shims is used for setting of the desired rear ride height.



Short and +1mm longer wheelbase settings are possible.
Note position of **SS3X5** screws.



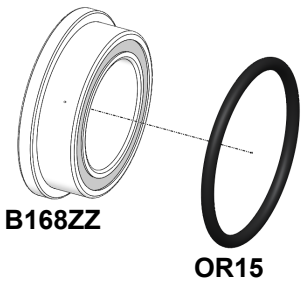
Short wheel base



Long (+1mm) wheel base

Use blue ”soft” thread lock for **SS3X5** screws!

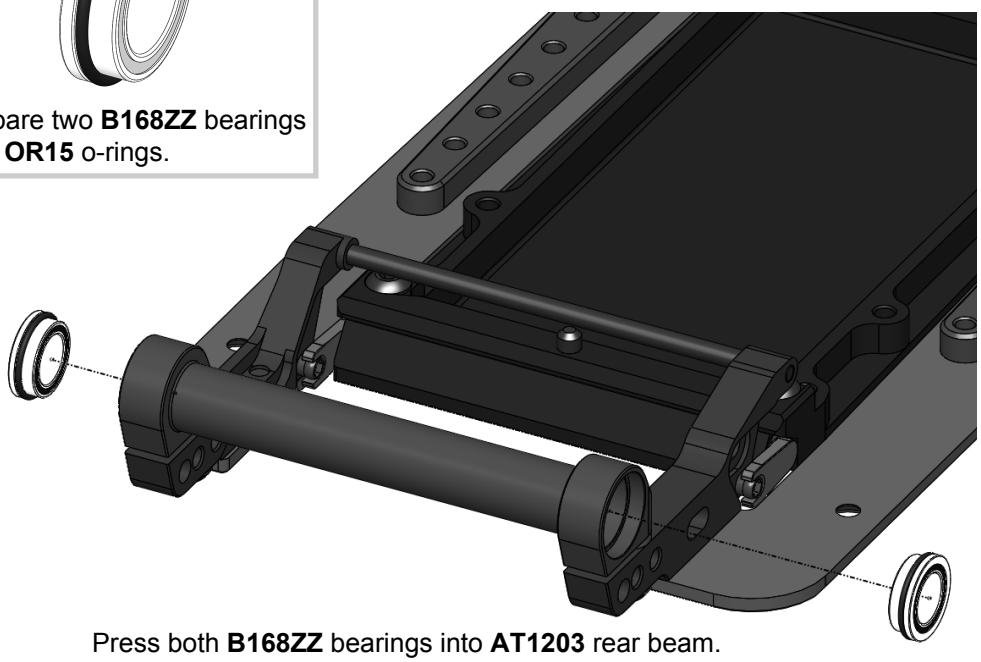
STEP 13



Stretch **OR15** 1x5mm o-ring and put it on **B168ZZ** ball bearing.



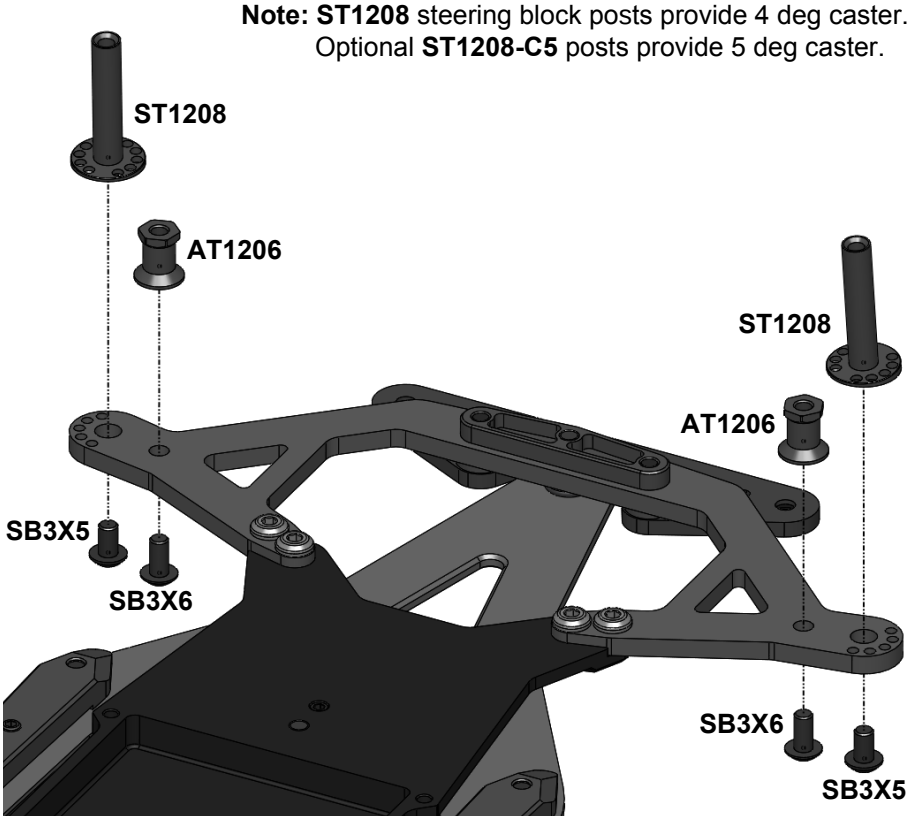
Prepare two **B168ZZ** bearings with **OR15** o-rings.

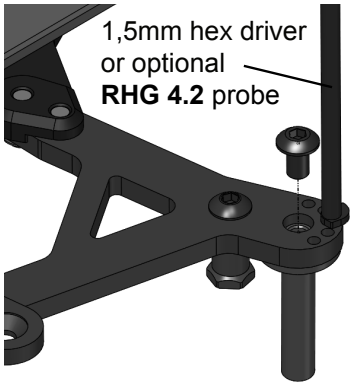


Press both **B168ZZ** bearings into **AT1203** rear beam.

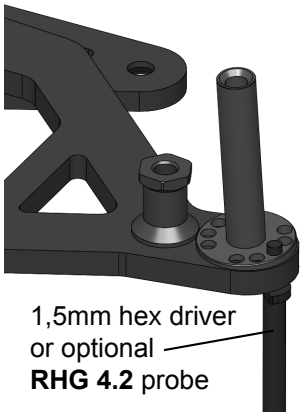
STEP 14

Note: ST1208 steering block posts provide 4 deg caster.
Optional **ST1208-C5** posts provide 5 deg caster.

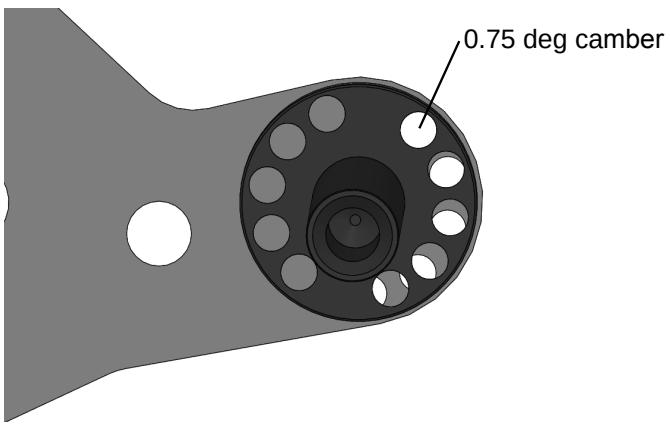


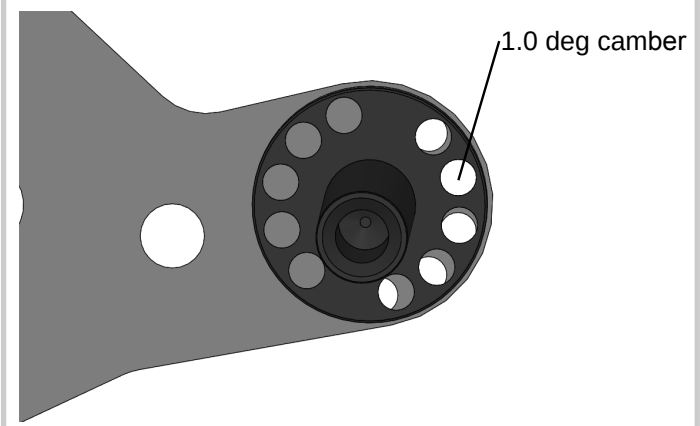


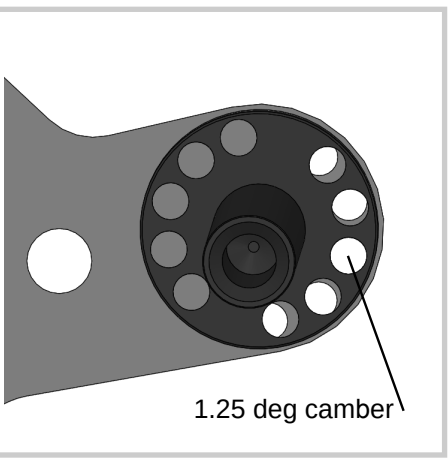
The tip of 1,5mm hex driver or optional **RHG 4.2** probe is used for alignment of the appropriate holes of **ST1208** and **C1205**.

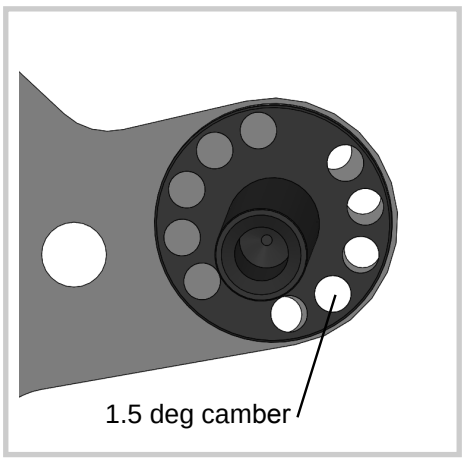


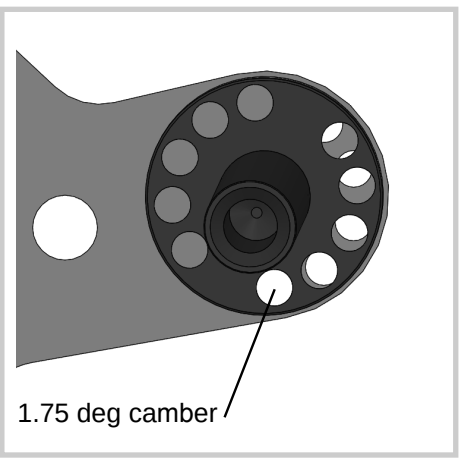
Alignment of the appropriate holes of **ST1208** and **C1205** for camber settings.



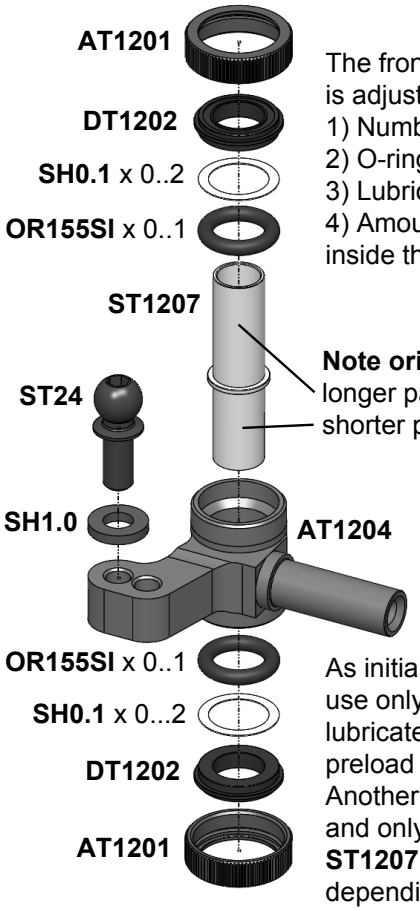








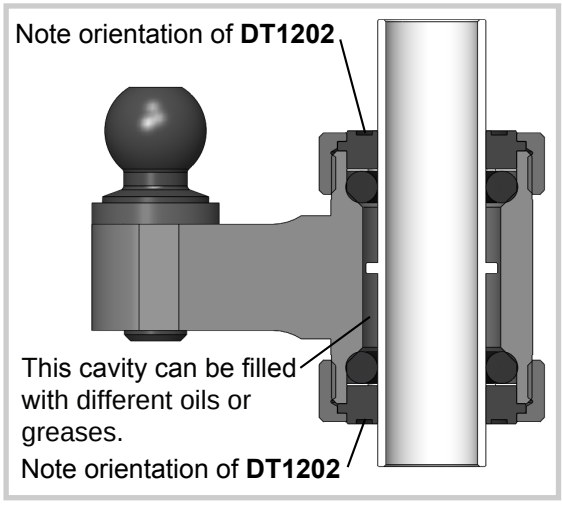
STEP 15

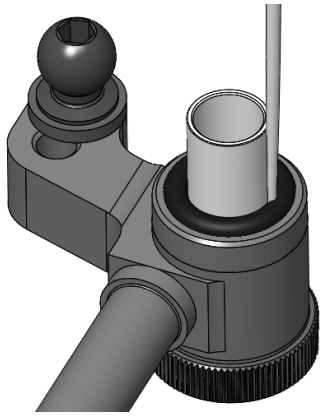


The front damping of the steering blocks is adjusted via:
1) Number of the o-rings installed (0,1 or 2).
2) O-ring's preload by **SH0.1** 6x8x0.1mm shims.
3) Lubricant for o-rings.
4) Amount and viscosity of the damping fluid inside the steering blocks.

Note orientation!
longer part of **ST1207**
shorter part of **ST1207**

As initial setting we recommend to use only one lower **OR155SI** oring lubricated by joint grease without preload by **SH0.1** shims.
Another option is to use no orings and only thick grease on the **ST1207** in the steering blocks, depending on track conditions.

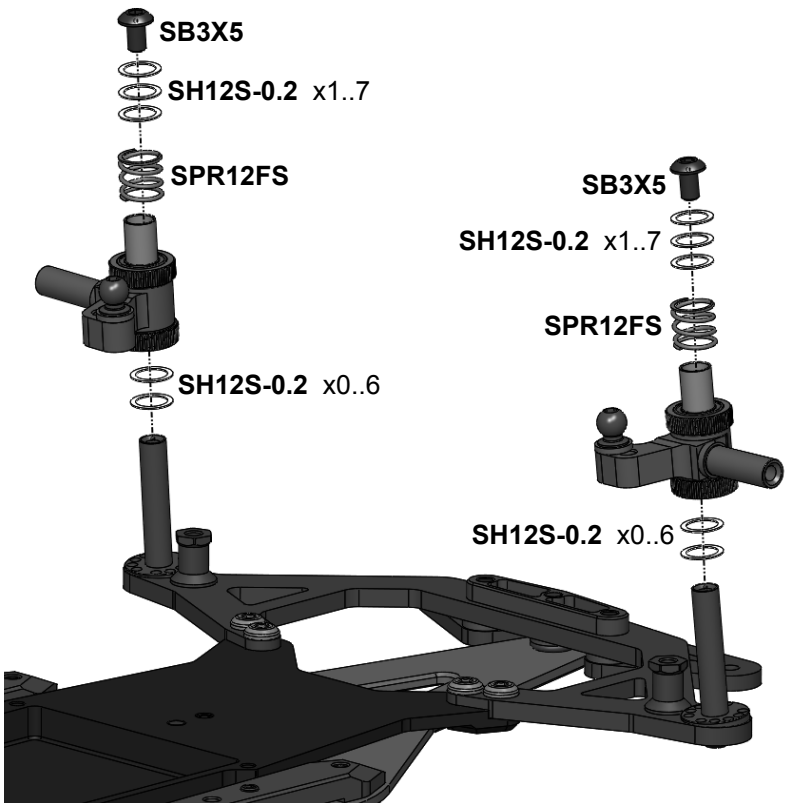




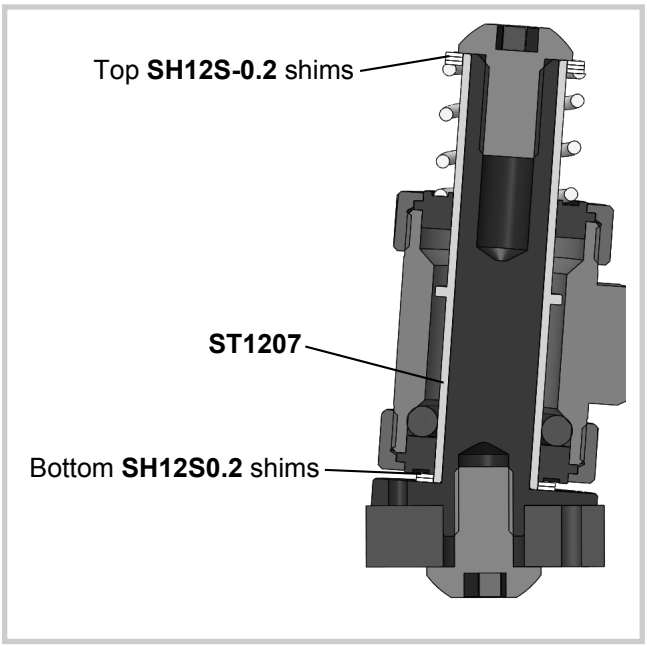
Oil filled steering blocks also need to a space for exessive oil to be removed, to bleed the steering block. Like the rear damper, use a needle to create a gap between the o-ring and the steering block to allow excess oil to be removed.

STEP 16

Note: **SPR12FS** Front Soft Springs (Silver) and **SPR12FM** Front Medium Springs (Gold) come in the **A12** kit**.**



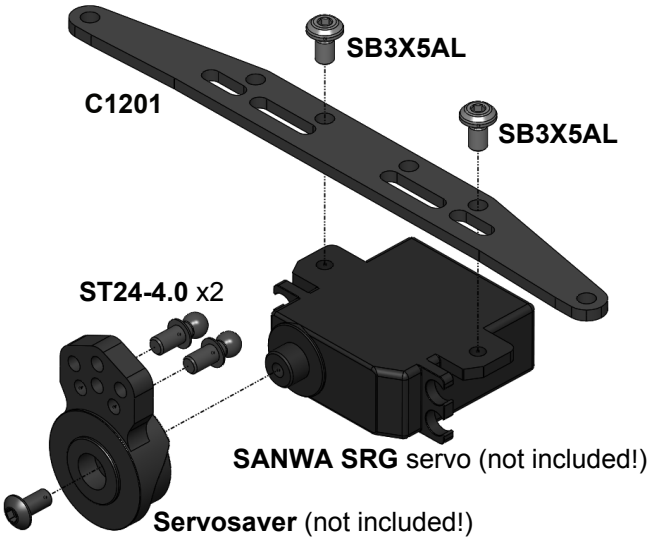
SH12S-0.2 0.2mm thickness shims are used to set the front spring preload and the front ride height.



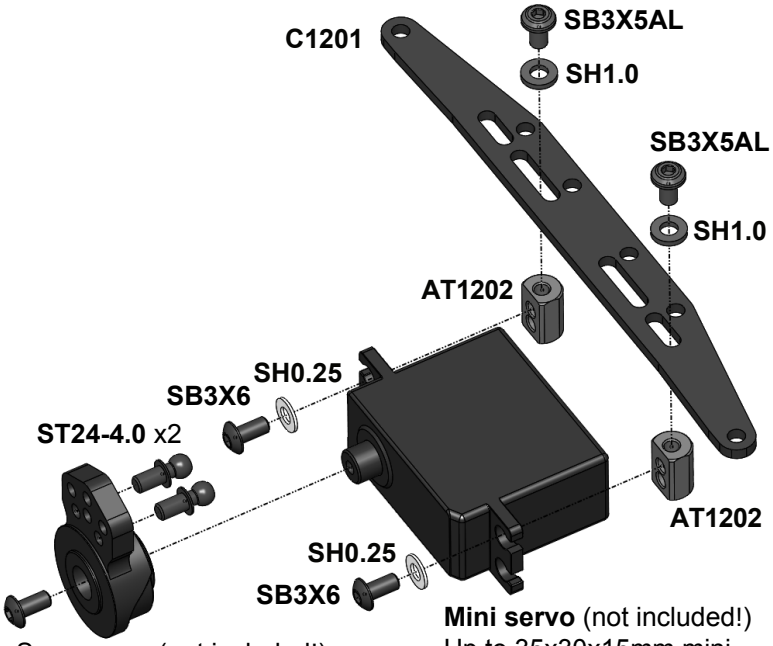
Attention! When installing **SH12S0.2** shims, make sure they surround the **ST1207** but not below or above the **ST1207** end faces.

STEP 17

Installation of the SANWA SRG servo.



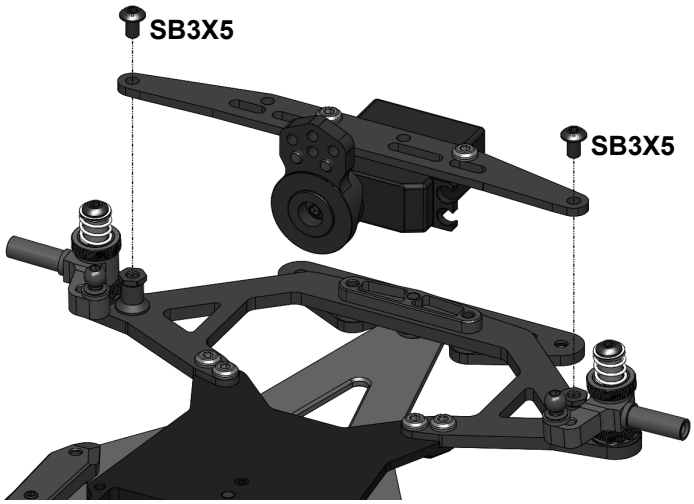
Installation of the standard mini servo.



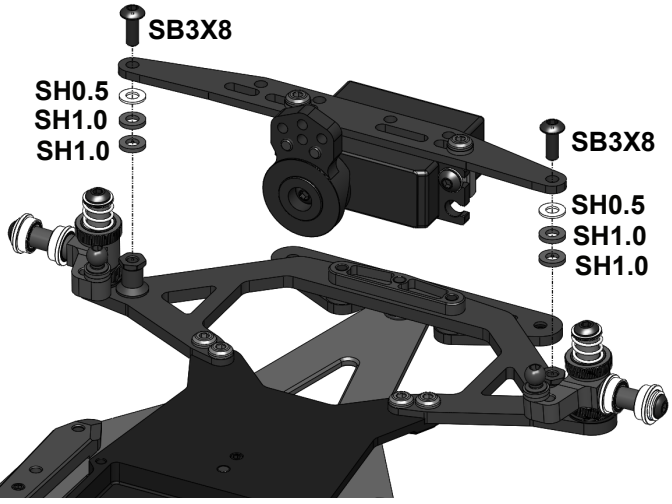
Note: **ST24-4.0** are 4.0mm ball studs. **ST24-4.0** fit **P1213** 4.0mm ball cups.

STEP 18

Installation of the SANWA SRG servo.



Installation of the 15mm thick mini servo.



STEP 19

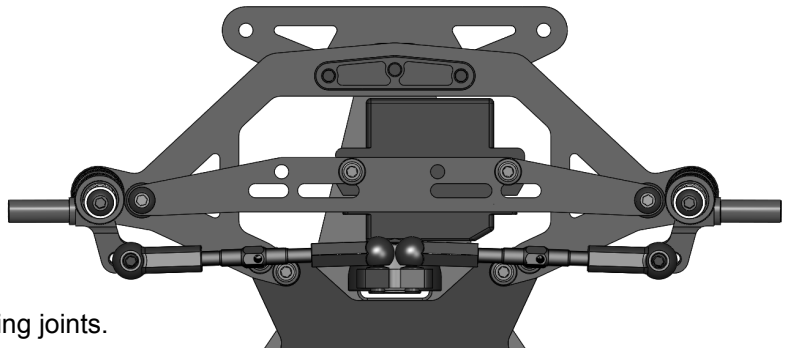
Left steering link



Right steering link



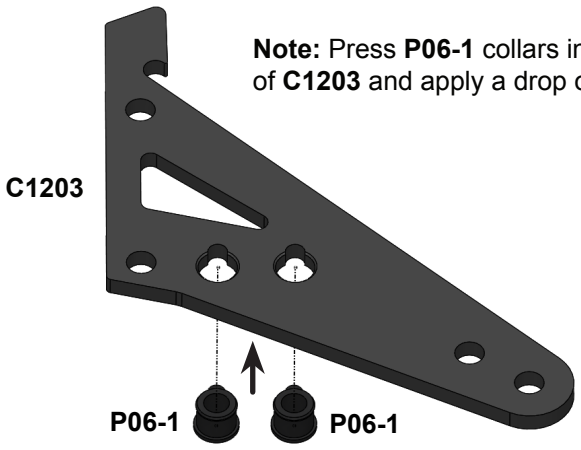
Install both steering links.

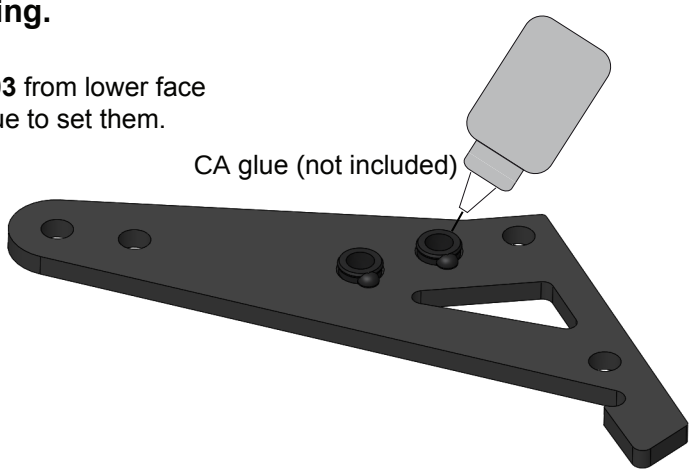


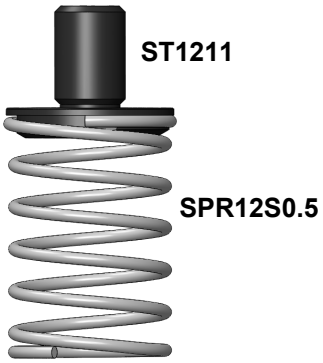
Note: **P1213** 4.0mm ball cups are used for the inner steering joints.

STEP 20 Rear body holders assembling.

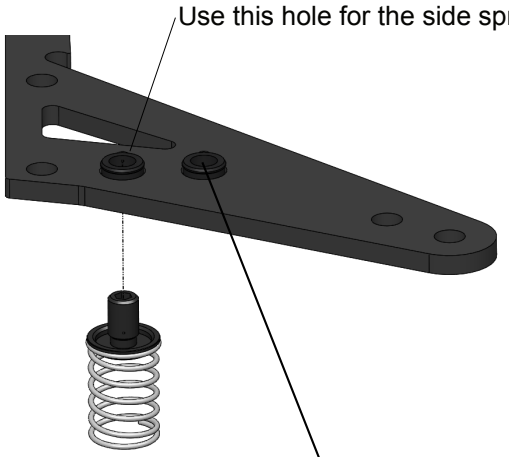
Note: Press **P06-1** collars into **C1203** from lower face of **C1203** and apply a drop of CA glue to set them.





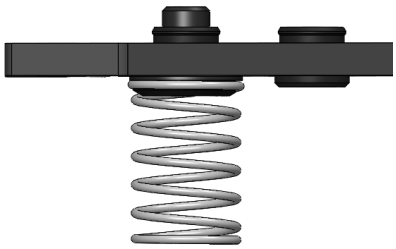


Snap the spring on the groove of **ST1211** retainer and rotate the spring to find the mutual angular position that provides a perfect alignment of the spring and retainer.

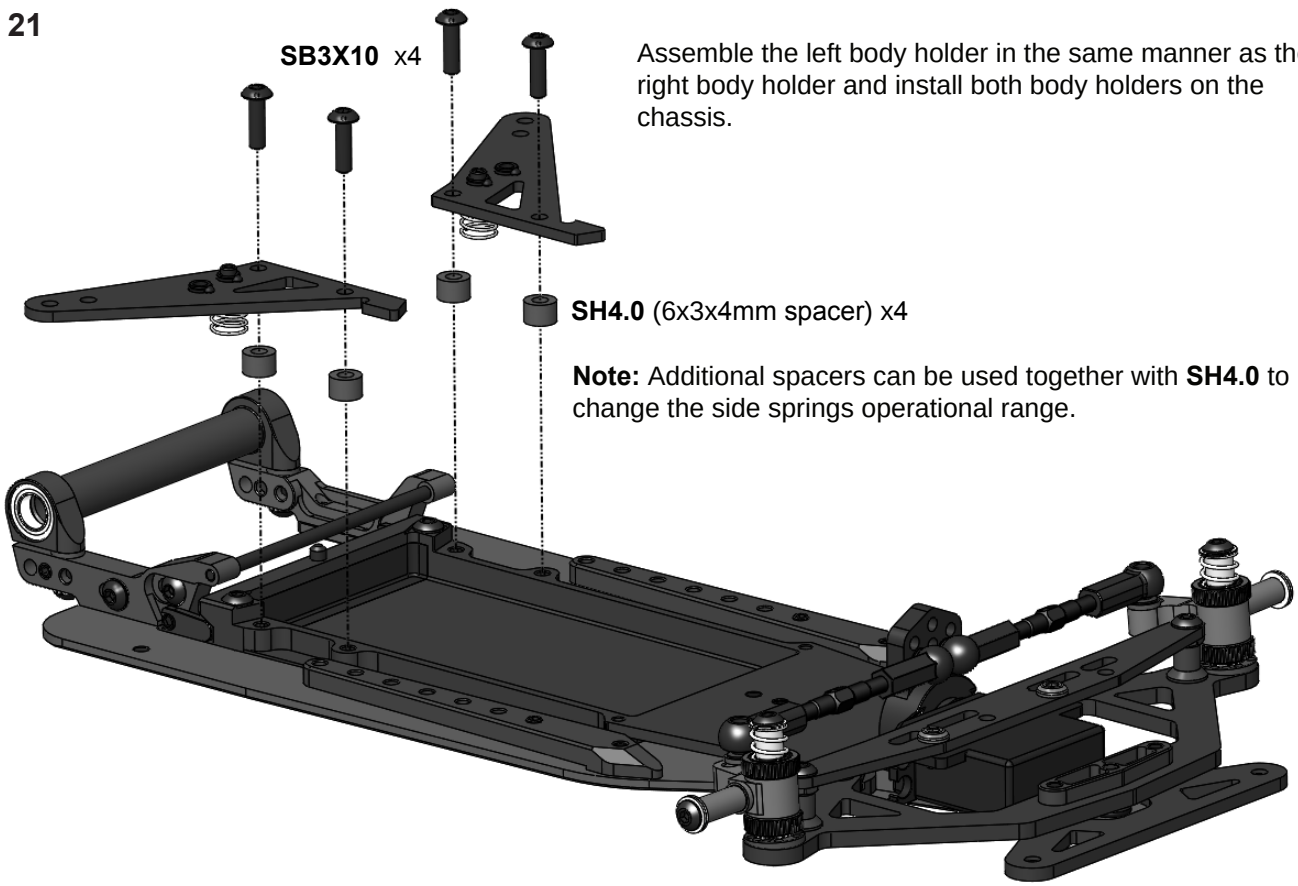


Using the outer hole for **ST1211** retainer provides about a 50% increase in the effective spring rate against side roll.

Initial position of the side spring. **ST1211** spring retainer should be screwed fully.



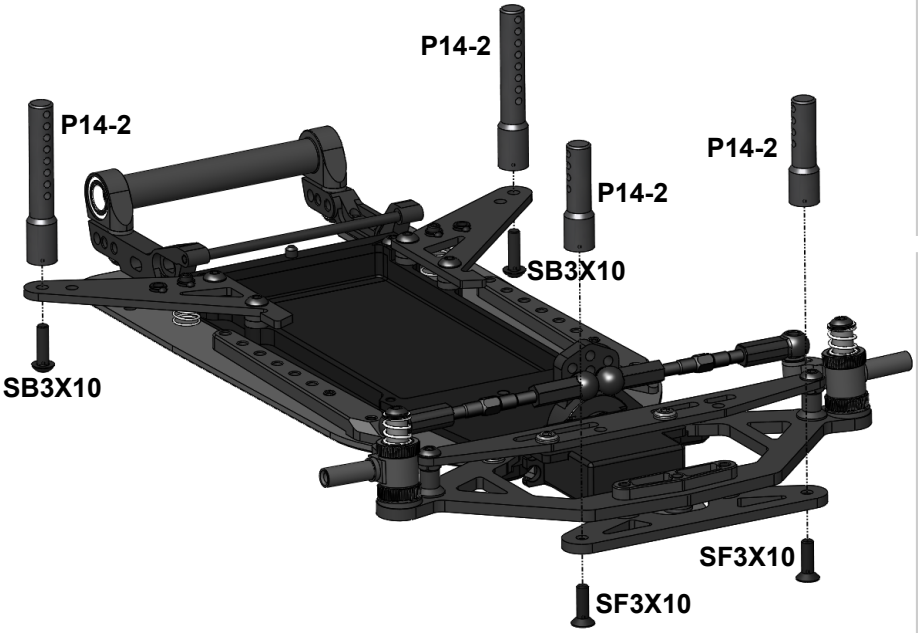
STEP 21



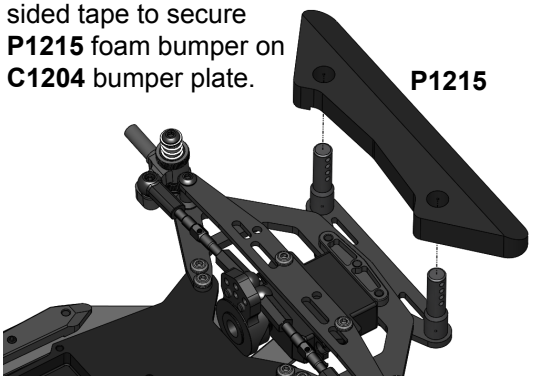
Assemble the left body holder in the same manner as the right body holder and install both body holders on the chassis.

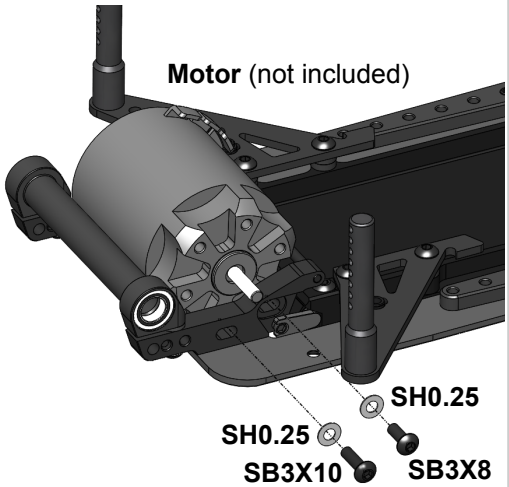
Note: Additional spacers can be used together with **SH4.0** to change the side springs operational range.

STEP 22

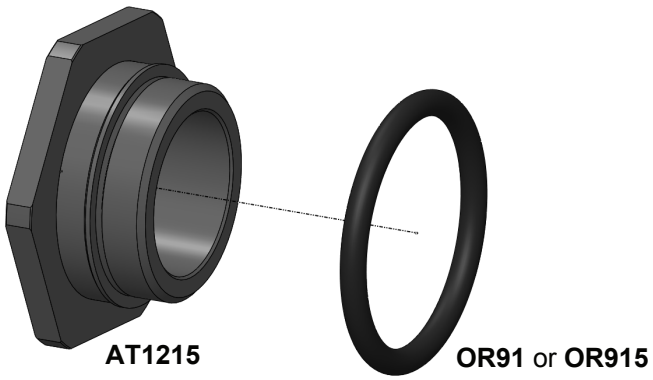


Note: Use thin double sided tape to secure **P1215** foam bumper on **C1204** bumper plate.



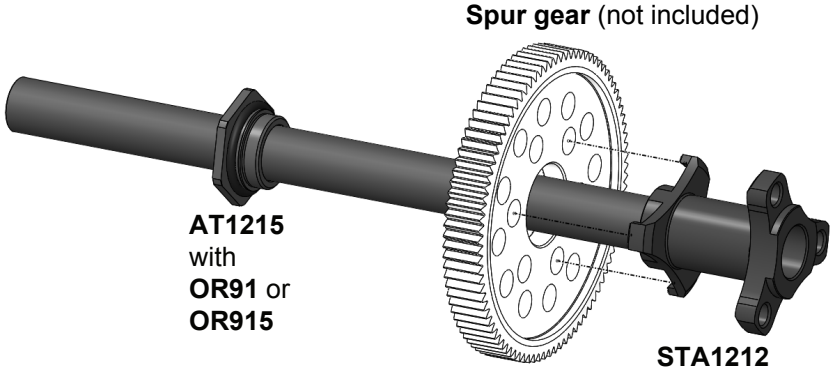


STEP 23

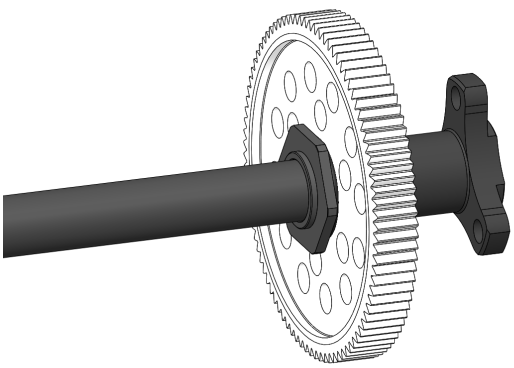


Note: Use **OR91** 9x1mm o-ring with the thick spur gears. Use **OR915** 9x1.5mm o-ring with the thinner spur gears (TC-style spur gears)**.**

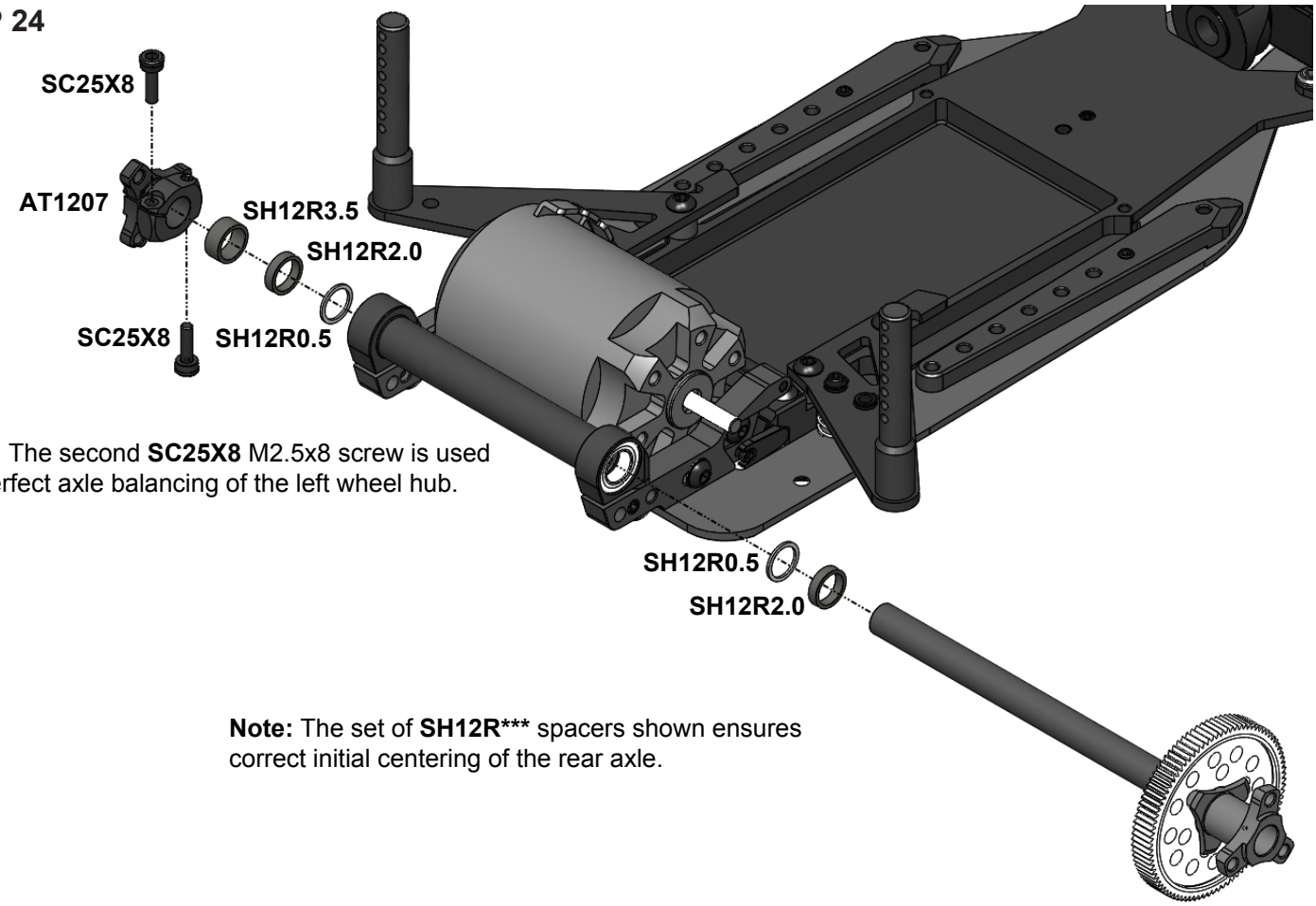




Note: Tighten **AT1215** nut via12mm wrench. Please don't overtighten **AT1215** nut!



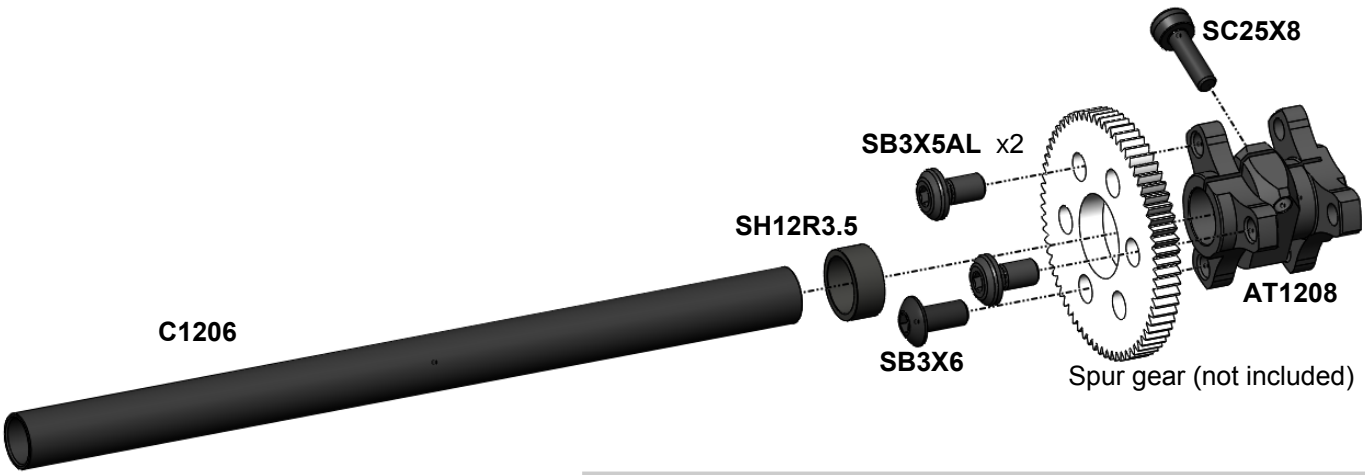
STEP 24



Note: The second **SC25X8** M2.5x8 screw is used for perfect axle balancing of the left wheel hub.

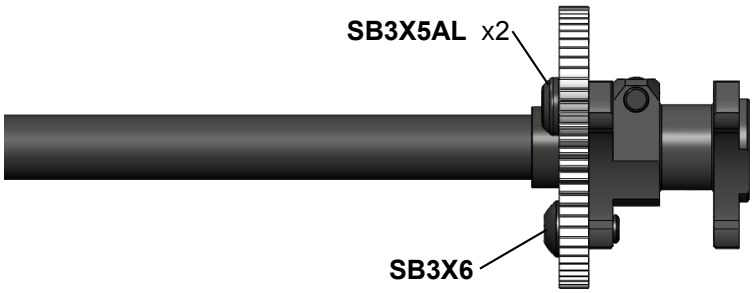
Note: The set of **SH12R***** spacers shown ensures correct initial centering of the rear axle.

Carbon Spool set **CS-1** (optional).

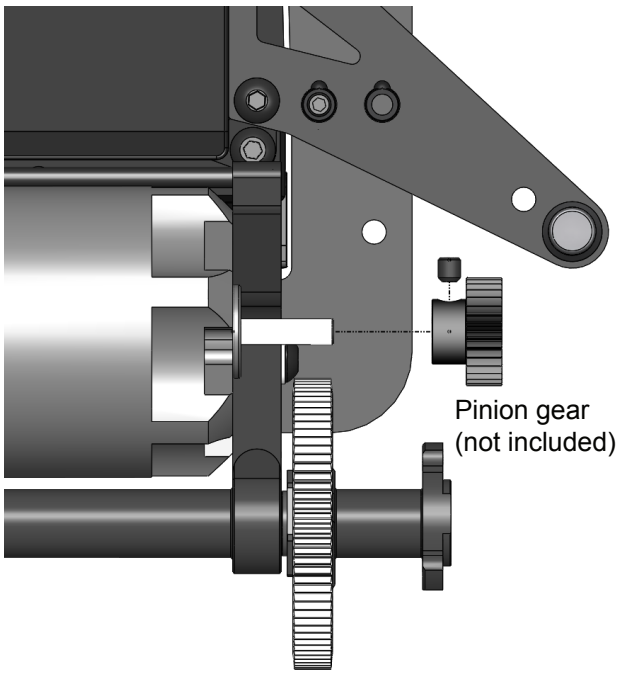


Note: Optional **ST1212** steel axle can be used instead of **C1206** carbon axle.

Note: Two **SB3X5AL** M3x5 alloy screw with one **SB3X6** M3x6 steel screw are used for perfect axial balancing of the right wheel hub.

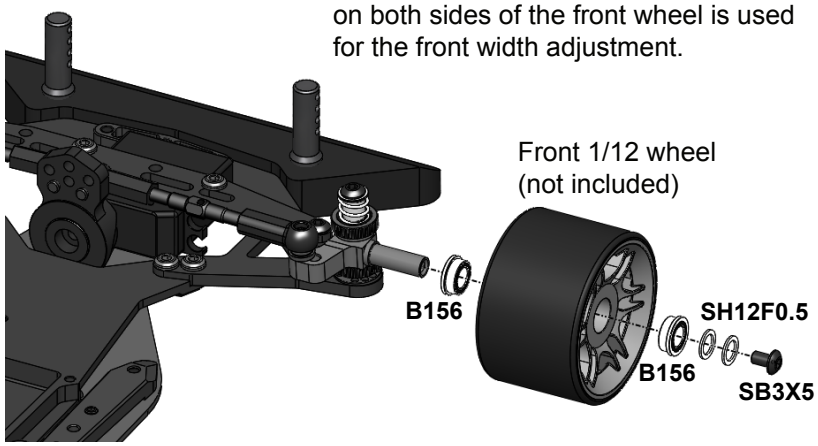


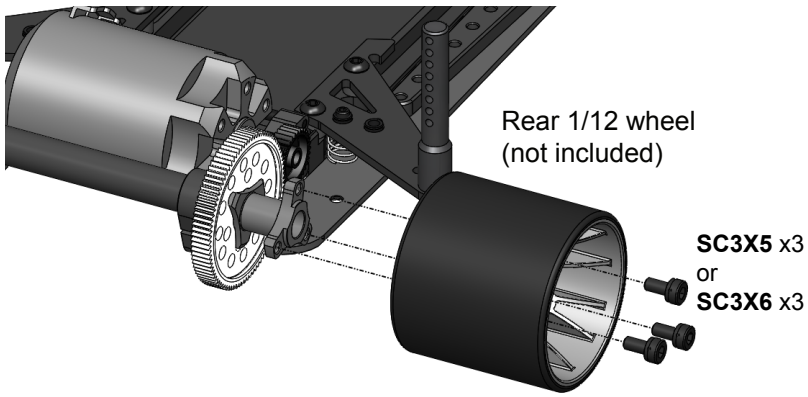
STEP 25



STEP 26

Note: Combination of **SH12F0.5** spacers on both sides of the front wheel is used for the front width adjustment.

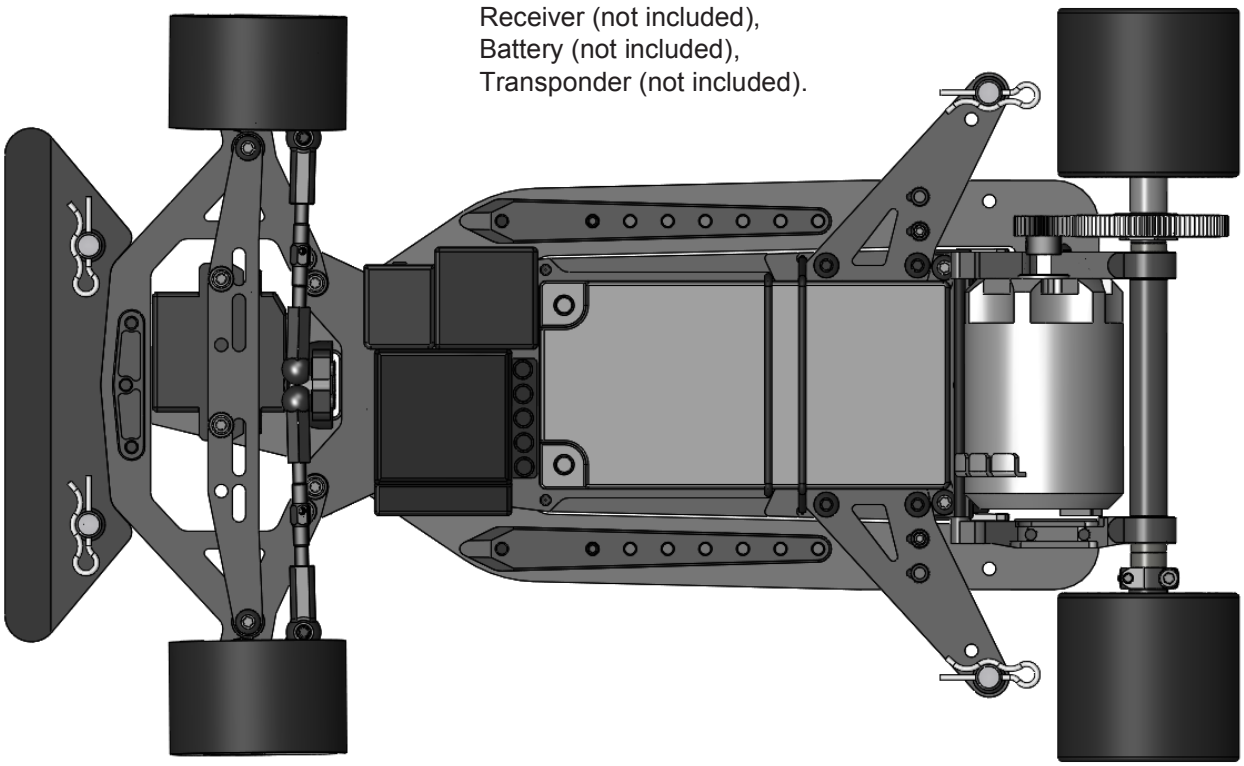




Note: Use **SC3X5** or **SC3X6** depending of the rear rims chosen. Some rims may need optional 3x8 mm screws (not included).

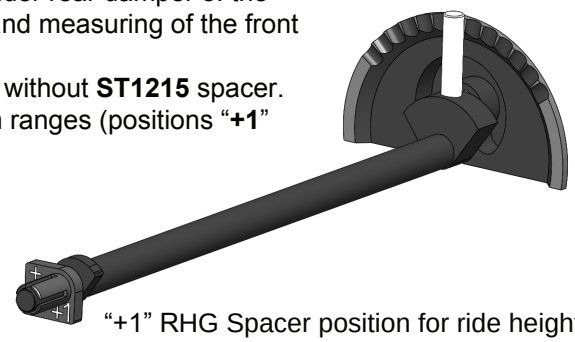
STEP 27

Install:
Speed controller (not included),
Receiver (not included),
Battery (not included),
Transponder (not included).



RHG 4.2 Ride Height Gauge (optional)

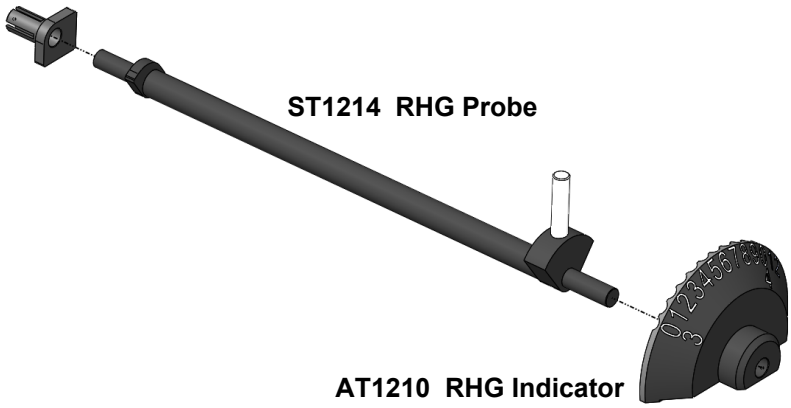
RHG 4.2 gauge is designed for setting and measuring the ride height under rear damper of the **A12** car (**DRH - D**amper **R**ide **H**eight) and can be also used for setting and measuring of the front ride height (**FRH**) and the rear ride height (**RRH**).
RHG 4.2 gauge provides a 3.0 - 4.2mm range for ride height measuring without **ST1215** spacer. With **ST1215** spacer the gauge provides a 4.0 - 5.2mm and 4.5 - 5.7mm ranges (positions "**+1**" and "**+1.5**" of **ST1215** spacer).



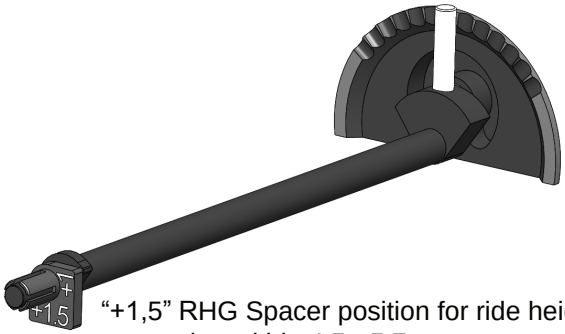
"+1" RHG Spacer position for ride height measuring within 4.0 - 5.2 mm range.

ST1215 RHG Spacer

ST1214 RHG Probe

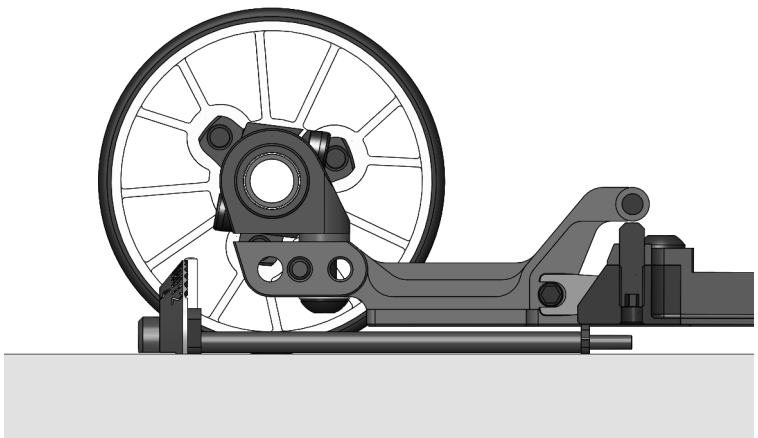


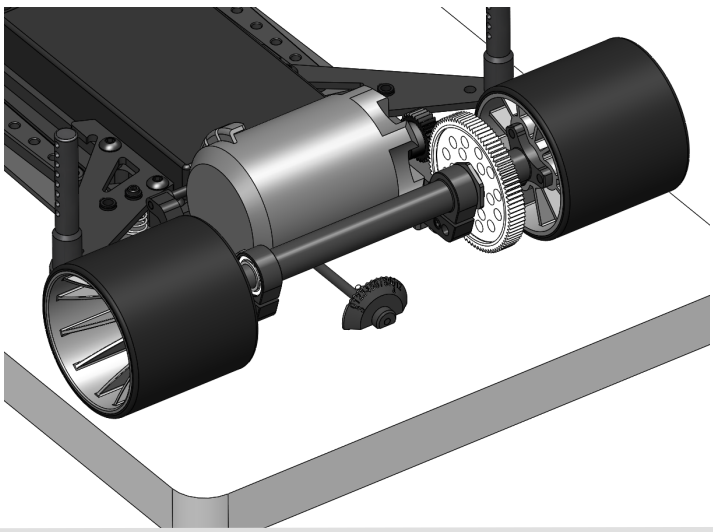
AT1210 RHG Indicator

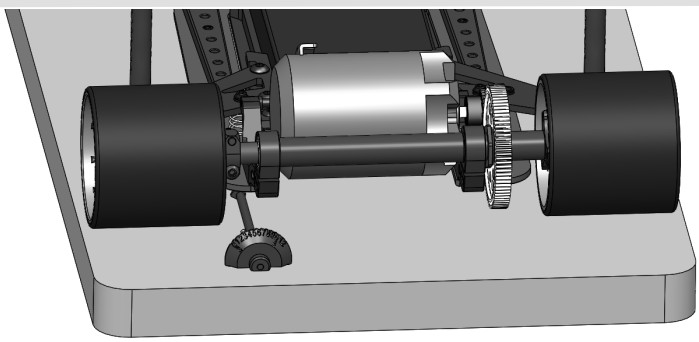


"+1,5" RHG Spacer position for ride height measuring within 4.5 - 5.7mm range.

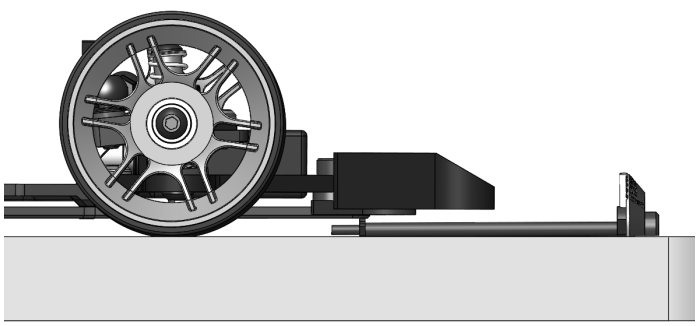
The **DRH** - ride height under rear damper measuring.







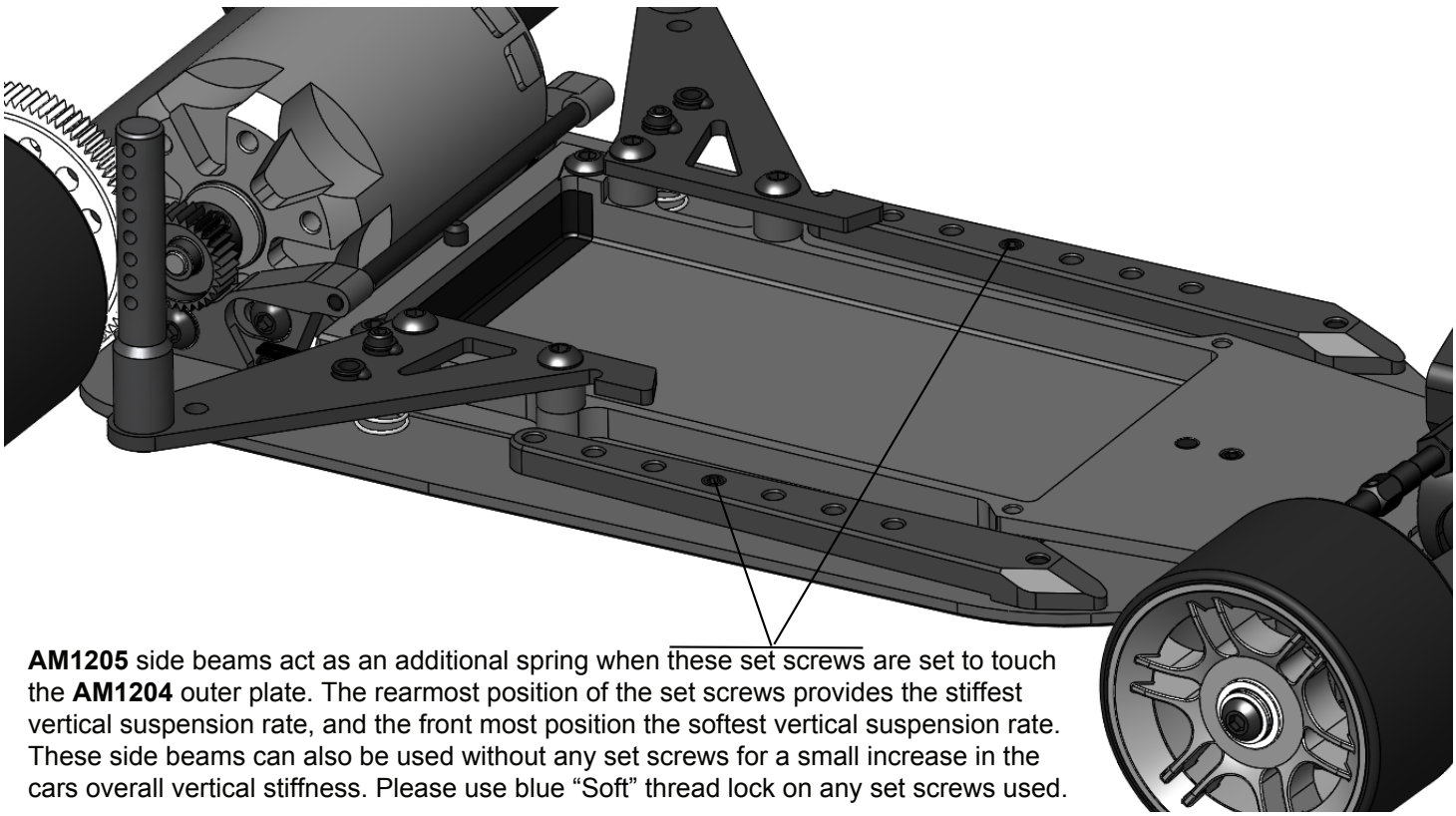
The **RRH** - rear ride height measuring.



The **FRH** - front ride height measuring.

Setting of the DRH - the ride height under rear damper.

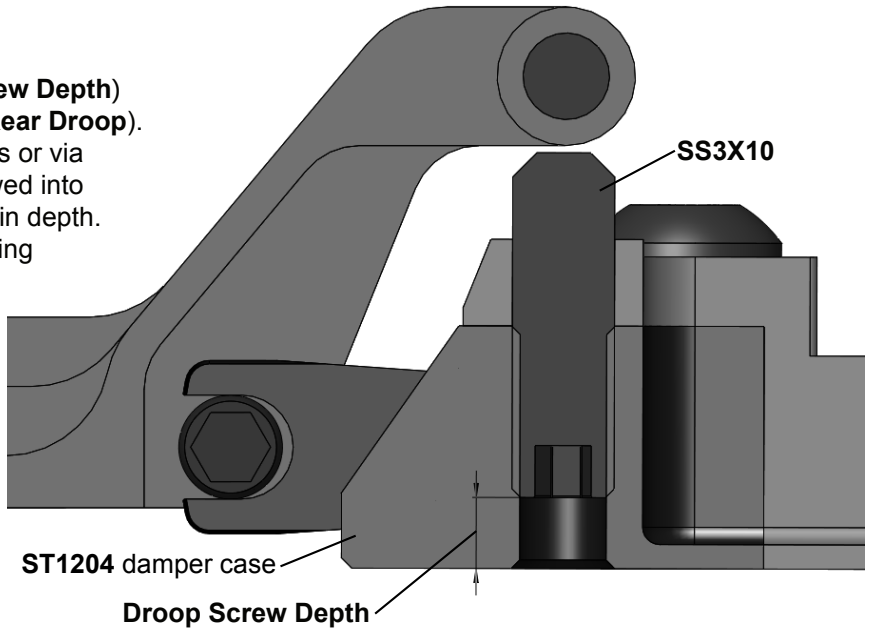
The ride height under rear damper (**DRH**) is set via preload of two side coil springs **SPR12S** in conjunction with the optional additional preload via set screws in the two side beams **AM1205**. These beams act as springs when the screws in them press on the **AM1204** chassis plate.
A12 setup sheet includes two values for the rear ride height. **DRH 1** shows the ride height resulting from side spring pressure only, without the use of **AM1205** side beams. **DRH** ride height is the final ride height of the car (which can be a combination of both side springs and side bars to reach this final desired height). For example, **DRH1** (damper ride height set with only side spring pressure) will equal **DRH** when side beams are not being used, as there is no additional side beam pressure.



AM1205 side beams act as an additional spring when these set screws are set to touch the **AM1204** outer plate. The rearmost position of the set screws provides the stiffest vertical suspension rate, and the front most position the softest vertical suspension rate. These side beams can also be used without any set screws for a small increase in the cars overall vertical stiffness. Please use blue “Soft” thread lock on any set screws used.

Setting of the Rear Droop.

Adjusting of **SS3X10** set screw depth (**Droop Screw Depth**) is used for setting of the rear suspension droop (**Rear Droop**). **Droop Screw Depth** can be measured via calipers or via counting of the number of turns the screw is screwed into damper’s case. Every turn of the thread is 0,5mm in depth. So for example, 4 full turns of **SS3X10** screw starting from position when the lower face of the screw coincides with the lower face of the damper corresponds to 2mm **Droop Screw Depth**. Enter **Droop Screw Depth** value into the **A12 editable setup sheet**. The rear droop value will be calculated automatically based on the **DRH** and **RRH** data.

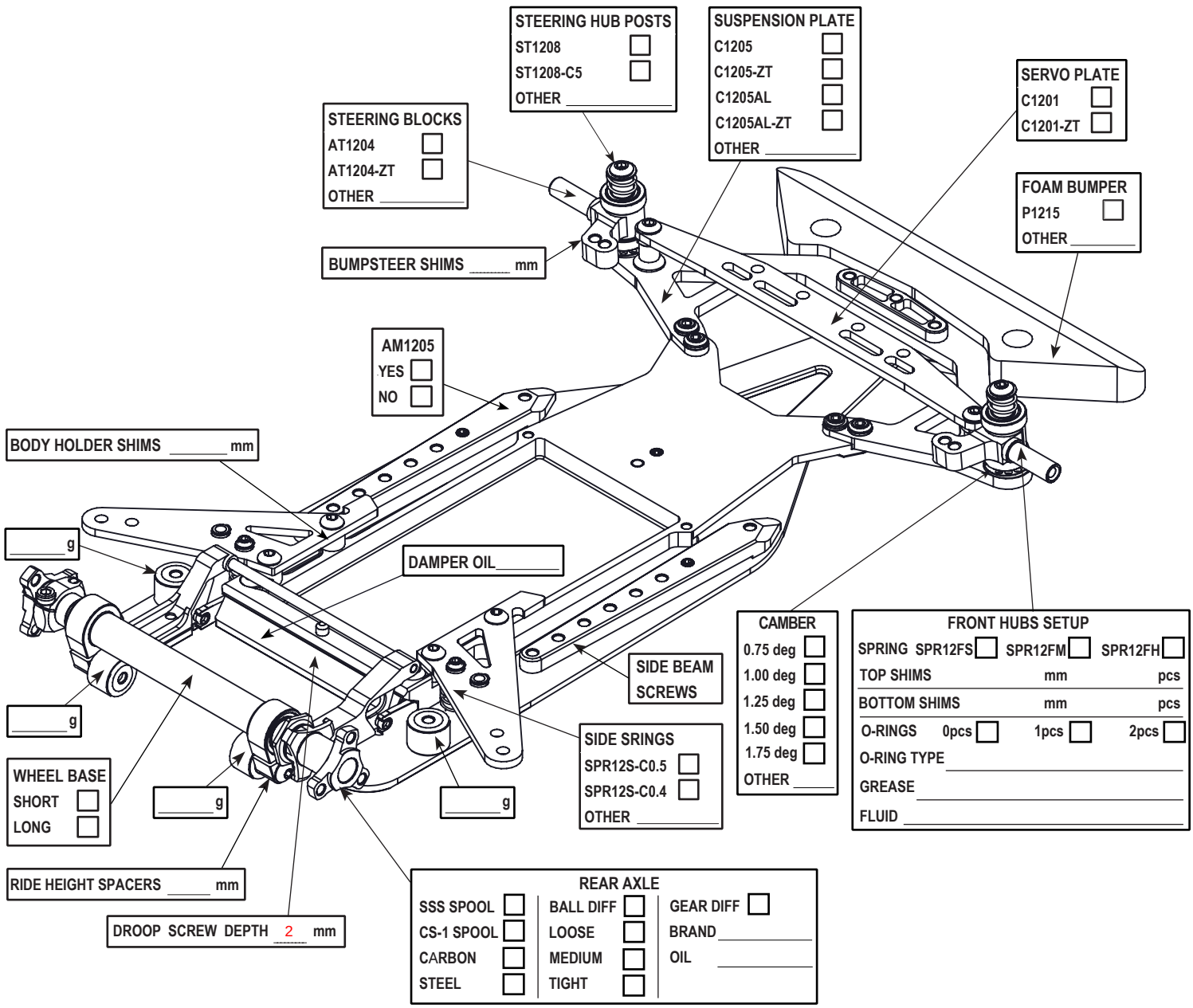


AWESOMATIX A12

SETUP SHEET
VERSION 1.0

NAME
COUNTRY
RACE
TRACK

DATE
TEMPERATURE AIR / TRACK °C / °C
ASPHALT ☐ OUTDOOR ☐ INDOOR ☐ CARPET ☐
TRACK CONDITION BUMPY ☐ FLAT ☐ TECHNICAL ☐ MIXED ☐ FAST ☐
TRACTION LOW ☐ MEDIUM ☐ HIGH ☐



RIDE HEIGHT

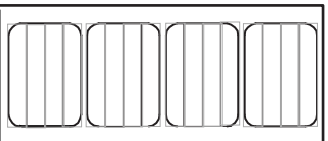
FRONT (FRH)	mm
UNDER DAMPER (DRH1)	mm
UNDER DAMPER (DRH)	3.6 mm
REAR (RRH)	3.6 mm

FRONT DROOP	mm
REAR DROOP	1.20 mm

TRACK WIDTH

FRONT	mm
REAR	mm

TIRES	FRONT	REAR
BRAND		
TYPE		
DIAMETER	mm	mm
ADDITIVE		



TIME	min
TIME	min

SERVO	
SERVOSAVER	
TOE OUT	°
STEER. TRAVEL	IN ° OUT °

BATTERY	
BATTERY PLUGS	FRONT ☐ BACK ☐
SERVO POSITION	LEFT ☐ RIGHT ☐
ESC POSITION	LEFT ☐ RIGHT ☐

MOTOR	
SPUR 1 PINION 1	ROLLOUT 0.00
BODY	
ESC	

TOTAL WEIGHT	g
F/R WEIGHT DISTRIBUTION	%
RECEIVER	
RADIO	

ESC SETTING
BEST LAPTIME QUALIF./ FINAL POSITION /

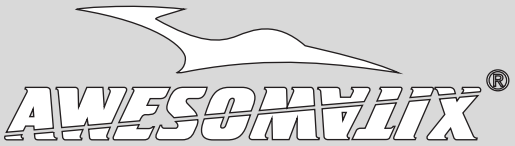
COMMENTS:

Spare parts

Parts #	Description	Parts #	Description
AM1202	Motor Mount	SPR12S0.5	Side Spring C0.5
AM1203	Battery Plate	SPR05	Body Clip
AM1204	Chassis Plate	B156	3/16x5/16x1/8 Flanged Bearing
AM1205	Side Beam	B168	1/4x3/8x1/8 Flanged Bearing
AM1206	Front Nut	SH12S-0.2	Spring Shim 0.2mm
AM1207	Left Bulkhead	SH12F0.5	Front Axle Spacer 0.5mm
AT1201	Steering Block Nut	SH12R0.5	Rear Axle Spacer 0.5mm
AT1202	Servo Post	SH1.5W	7.4x3x1.5mm Spacer
AT1203	Rear Beam	SH12R2.0	Rear Axle Spacer 2.0mm
AT1204	Steering Block	SH12R3.5	Rear Axle Spacer 3.5mm
AT1206	Servo Plate Post	SH0.1	6x8x0.1mm Shim
AT1207	Left Hub	SH0.25	6x3x0.25mm Spacer
AT1215	Spur Nut	SH0.5	6x3x0.5mm Spacer (Silver)
AT25-2	Turnbuckle 39mm x 2	SH1.0	6x3x1.0mm Spacer (Gray)
DT1202	Steering Washer	SH4.0	6x3x4.0mm Spacer
ST1201	3mm Ball Stud	OR155SI	1.5x5mm O-Ring Silicone
ST1202	Damper Rotor	OR230	2x30mm O-Ring
ST1203	Downstop Rod	OR15	1x5mm O-Ring
ST1204	Damper Case	OR125	1.2x5mm O-Ring
ST1205	Ball Cup	OR153V	1.5x3mm O-Ring Viton
ST1207	Steering BlockTube	OR91	9x1mm O-Ring
ST1208	Steering Block Post	OR915	9x1.5mm O-Ring
ST1209-M	Ball Stud	SC25X8	M2.5x8 Cap Head Screw
ST1209-L	Ball Stud Long	SS3X4	M3x4 Set Screw
ST1211	Spring Retainer	SS3X5	M3x5 Set Screw
ST24-4.0	4.0mm Ball Stud	SS3X10	M3x10 Set Screw
ST24	4.8x6mm Ball Stud	SC3X5	M3x5 Cap Head Screw
STA1212	Composite Axle	SC3X6	M3x6 Cap Head Screw
P1215	Foam Bumper	SB3X5	M3x5 Button Head Screw
P13-4	Ball Cup	SB3X6	M3x6 Button Head Screw
P1213	Ball Cup 4.0 mm	SB3X8	M3x8 Button Head Screw
P06-1	Insert	SB3X10	M3x10 Button Head Screw
P14-2	Body post	SB3X12	M3x12 Button Head Screw
C1201	Servo Plate	SF3X5	M3x5 Flat Head Screw
C1203	Body Holder	SF3X6	M3x6 Flat Head Screw
C1204	Bumper Plate	SF3X10	M3x10 Flat Head Screw
C1205	Suspension Plate	SB3X5AL	M3x5 Alloy Screw
SPR12FS	Front Spring Soft	STS-A12	A12 Stickers Sheet
SPR12FM	Front Spring Medium	SIO100K	100k silicone oil

Optional parts

Parts #	Description
RHG 4.2	Ride Height Gauge
CS-1	Carbon Spool set
AT1204-ZT	Steering Block Zero Trail
AT1208	Right Hub
ST1208-C5	Steering Hub Post 5 Deg
ST1208-C6	Steering Hub Post 6 Deg
ST1216	Balance Weight 5 g
ST1212	Spring Steel Axle
C1205-ZT	Suspension Plate Zero Trail
C1201-ZT	Servo Plate Zero Trail
C1206	Carbon Axle
C1205AL	Suspension Plate Alloy
OR155PU	1.5x3mm O-Ring PU
SPR12FH	Front Spring Hard
SPR12S0.4	Side Spring C0.4
SH12R5.5	Rear Axle Spacer 5.5mm
SC25X7AL	2.5x7 Cap Head Screw Alloy



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