

1/10 ELECTRIC TOURING CAR

# **XRAY X4**



**INSTRUCTION MANUAL**  
**FOR X4'25 EDITION**

## BEFORE YOU START

This is a high-competition, high-quality RC car intended for persons aged 16 years and older with previous experience building and operating RC model racing cars. This is NOT a toy; it is a precision racing model. This model racing car is NOT intended for use by beginners, inexperienced customers, or by children without direct supervision of a responsible, knowledgeable adult. If you DO NOT fulfill these requirements, please return the kit in unused and unassembled form back to the shop where you have purchased it.

Before building and operating your XRAY, **YOU MUST** read through all of the operating instructions and instruction manual and fully understand them to get the maximum enjoyment and prevent unnecessary damage.

## CUSTOMER SUPPORT

We have made every effort to make these instructions as easy to understand as possible. However, if you have any difficulties, problems, or questions, please DO NOT hesitate to contact the XRAY support team at [info@teamxray.com](mailto:info@teamxray.com). Also, please visit our Web site at [www.teamxray.com](http://www.teamxray.com) to find the latest updates, set-up information, option parts, and many other goodies. We pride ourselves on taking excellent care of our customers.

You can join thousands of XRAY fans and enthusiasts in our online community at:  
**[www.teamxray.com](http://www.teamxray.com)**

Read carefully and fully understand the instructions before beginning assembly.

Make sure you review this entire manual, download and use set-up book from the web, and examine all details carefully. If for some reason you decide this is NOT what you wanted or expected, **DO NOT continue any further**. Your hobby dealer can NOT accept your kit for return or exchange after it has been partially or fully assembled.

Contents of the box may differ from pictures. In line with our policy of continuous product development, the exact specifications of the kit may vary without prior notice.

### XRAY Europe

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### XRAY USA

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USA  
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Fax: (214) 744-2401  
E-mail: [xray@rcamerica.com](mailto:xray@rcamerica.com)

**FAILURE TO FOLLOW THESE INSTRUCTIONS WILL BE CONSIDERED AS ABUSE AND/OR NEGLECT.**

## SAFETY PRECAUTIONS

Contains:

LEAD (CAS 7439-92-1) ANTIMONY (CAS 7440-36-0)

WARNING: This product contains a chemical known to the state of California to cause cancer and birth defects or other reproductive harm.

CAUTION: CANCER HAZARD

Contains lead, a listed carcinogen. Lead is harmful if ingested. Wash thoroughly after using. DO NOT use product while eating, drinking or using tobacco products. May cause chronic effects to gastrointestinal tract, CNS, kidneys, and blood. **MAY CAUSE BIRTH DEFECTS.**

When building, using and/or operating this model always wear protective glasses and gloves.

Take appropriate safety precautions prior to operating this model. You are responsible for this model's assembly and safe operation! Please read the instruction manual before building and operating this model and follow all safety precautions. Always keep the instruction manual at hand for quick reference, even

after completing the assembly. Use only genuine and original authentic XRAY parts for maximum performance. Using any third party parts on this model will void warranty immediately.

Improper operation may cause personal and/or property damage. XRAY and its distributors have no control over damage resulting from shipping, improper construction, or improper usage. XRAY assumes and accepts no responsibility for personal and/or property damages resulting from the use of improper building materials, equipment and operations. By purchasing any item produced by XRAY, the buyer expressly warrants that he/she is in compliance with all applicable federal, state and local laws and regulation regarding the purchase, ownership and use of the item. The buyer expressly agrees to indemnify and hold harmless XRAY for all claims resulting directly or indirectly from the purchase, ownership or use of the product. By the act of assembling or operating this product, the user accepts all resulting liability. If the buyer is NOT prepared to accept this liability, then he/she should return this kit in new, unassembled, and unused condition to the place of purchase.

## IMPORTANT NOTES - GENERAL

- This product is NOT suitable for children under 16 years of age without the direct supervision of a responsible and knowledgeable adult.
- Carefully read all manufacturers warnings and cautions for any parts used in the construction and use of your model.
- Assemble this kit only in places away from the reach of very small children.
- First-time builders and users should seek advice from people who have building experience in order to assemble the model correctly and to allow the model to reach its performance potential.
- Exercise care when using tools and sharp instruments.
- Take care when building, as some parts may have sharp edges.
- Keep small parts out of reach of small children. Children must NOT be allowed to put any parts in their mouth, or pull vinyl bag over their head.
- Read and follow instructions supplied with paints and/or cement, if used (NOT included in kit).
- Immediately after using your model, DO NOT touch equipment on the model such as the motor and speed controller, because they generate high temperatures. You may seriously burn yourself seriously touching them.
- Follow the operating instructions for the radio equipment at all times.
- DO NOT put fingers or any objects inside rotating and moving parts, as this may cause damage or serious injury as your finger, hair, clothes, etc. may get caught.
- Be sure that your operating frequency is clear before turning on or running your model, and never share the same frequency with somebody else at the same time. Ensure that others are aware of the operating frequency you are using and when you are using it.
- Use a transmitter designed for ground use with RC cars. Make sure that no one else is using the same frequency as yours in your operating area. Using the same frequency at the same time, whether it is driving, flying or sailing, can cause loss of control of the RC model, resulting in a serious accident.
- Always turn on your transmitter before you turn on the receiver in the car. Always turn off the receiver before turning your transmitter off.
- Keep the wheels of the model off the ground when checking the operation of the radio equipment.

- Disconnect the battery pack before storing your model.
- When learning to operate your model, go to an area that has no obstacles that can damage your model if your model suffers a collision.
- Remove any sand, mud, dirt, grass or water before putting your model away.
- If the model behaves strangely, immediately stop the model, check and clear the problem.
- 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 public places and roads or areas where its operation can conflict with or disrupt pedestrian or vehicular traffic.
- Because the model car is controlled by radio, it is subject to radio interference from many sources that are beyond your control. Since radio interference can cause momentary loss of control, always allow a safety margin in all directions around the model in order to prevent collisions.
- DO NOT use your model:
  - Near real cars, animals, or people that are unaware that an RC car is being driven.
  - In places where children and people gather
  - In residential districts and parks
  - In limited indoor spaces
  - In wet conditions
  - In the street
  - In areas where loud noises can disturb others, such as hospitals and residential areas.
  - At night or anytime your line of sight to the model may be obstructed or impaired in any way.

To prevent any serious personal injury and/or damage to property, please be responsible when operating all remote controlled models.

## **IMPORTANT NOTES – ELECTRICAL**

- Insulate any exposed electrical wiring (using heat shrink tubing or electrical tape) 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 RC models with damaged wires. A damaged wire is extremely dangerous, and can cause short-circuits resulting in fire. Please have wires repaired at your local hobby shop.
- Low battery power will result in loss of control. Loss of control can occur due to a weak battery in either the transmitter or the receiver. Weak running battery may also result in an out of control car if your car's receiver power is supplied by the running battery. Stop operation immediately if the car starts to slow down.
- When NOT using RC model, always disconnect and remove battery.
- DO NOT disassemble battery or cut battery cables. If the running battery short-circuits, approximately 300W of electricity can be discharged, leading to fire or burns. Never disassemble battery or cut battery cables.
- Use a recommended charger for the receiver and transmitter batteries and follow the instructions correctly. Over-charging, incorrect charging, or using

inferior chargers can cause the batteries to become dangerously hot. Recharge battery when necessary. Continual recharging may damage battery and, in the worst case, could build up heat leading to fire. If battery becomes extremely hot during recharging, please ask your local hobby shop for check and/or repair and/or replacement.

- Regularly check the charger for potential hazards such as damage to the cable, plug, casing or other defects. Ensure that any damage is rectified before using the charger again. Modifying the charger may cause short-circuit or overcharging leading to a serious accident. Therefore DO NOT modify the charger.
- Always unplug charger when recharging is finished.
- DO NOT recharge battery while battery is still warm. After use, battery retains heat. Wait until it cools down before charging.
- DO NOT allow any metal part to short circuit the receiver batteries or other electrical/electronic device on the model.
- Immediately stop running if your RC model gets wet as may cause short circuit.
- Please dispose of batteries responsibly. Never put batteries into fire.

## **R/C & BUILDING TIPS**

- Make sure all fasteners are properly tightened. Check them periodically.
- Make sure that chassis screws DO NOT protrude from the chassis.
- For the best performance, it is very important that great care is taken to ensure the free movement of all parts.
- Clean all ball-bearings so they move very easily and freely.
- Tap or pre-thread the plastic parts when threading screws.
- Self-tapping screws cut threads into the parts when being tightened. DO NOT use excessive force when tightening the self-tapping screws because you may strip out the thread in the plastic. We recommended you stop tightening a screw when you feel some resistance.
- Ask your local hobby shop for any advice.

Please support your local hobby shop. We at XRAY Model Racing Cars support all local hobby dealers. Therefore we ask you, if at all possible, to purchase XRAY products at your hobby dealer and give them your support like we do. If you have difficulty finding XRAY products, please check out [www.teamxray.com](http://www.teamxray.com) to get advice, or contact us via email at [info@teamxray.com](mailto:info@teamxray.com), or contact the XRAY distributor in your country.

## **WARRANTY**

XRAY guarantees this model kit to be free from defects in both material and workmanship within 30 days of purchase. The total monetary value under warranty will in no case exceed the cost of the original kit purchased. This warranty does NOT cover any components damaged by use or modification or as a result of wear. Part or parts missing from this kit must be reported within 30 days of purchase. No part or parts will be sent under warranty without proof of purchase. Should you find a defective or missing part, contact the local distributor. Service and customer support will be provided through local hobby store where you have purchased the kit, therefore make sure to purchase any XRAY products at your local hobby store. This model racing car is considered to be a high-performance racing vehicle. As such this vehicle will be used in an extreme range of conditions and situations, all which may cause premature wear or failure of any component. XRAY has no control over usage of vehicles once they leave the dealer, therefore XRAY can only offer warranty against all manufacturer's defects in materials, workmanship, and assembly at point of sale and before use. No warranties are expressed or implied that cover damage caused by what is considered normal use, or cover or imply how long any model cars' components or electronic components will last before requiring replacement.

Due to the high performance level of this model car you will need to periodically maintain and replace consumable components. Any and all warranty coverage will NOT cover replacement of any part or component damaged by neglect, abuse, or improper or unreasonable use. This includes but is NOT limited to damage from crashing, chemical and/or water damage, excessive moisture,

improper or no maintenance, or user modifications which compromise the integrity of components. Warranty will NOT cover components that are considered consumable on RC vehicles. XRAY does NOT pay nor refund shipping on any component sent to XRAY or its distributors for warranty. XRAY reserves the right to make the final determination of the warranty status of any component or part.

### **Limitations of Liability**

XRAY makes no other warranties expressed or implied. XRAY shall NOT be liable for any loss, injury or damages, whether direct, indirect, special, incidental, or consequential, arising from the use, misuse, or abuse of this product and/or any product or accessory required to operate this product. In no case shall XRAY's liability exceed the monetary value of this product.

**Take adequate safety precautions prior to operating this model. You are responsible for this model's assembly and safe operation.**

**Disregard of the any of the above cautions may lead to accidents, personal injury, or property damage. XRAY MODEL RACING CARS assumes no responsibility for any injury, damage, or misuse of this product during assembly or operation, nor any addictions that may arise from the use of this product.**

**All rights reserved.**

## **QUALITY CERTIFICATE**

XRAY MODEL RACING CARS uses only the highest quality materials, the best compounds for molded parts and the most sophisticated manufacturing processes of TQM (Total Quality Management). We guarantee that all parts of a newly-purchased kit are manufactured with the highest regard to quality. However, due to the many factors inherent in model racecar competition, we cannot guarantee

any parts once you start racing the car. Products which have been worn out, abused, neglected or improperly operated will NOT be covered under warranty. We wish you enjoyment of this high-quality and high-performance RC car and wish you best success on the track!

**In line with our policy of continuous product development, the exact specifications of the kit may vary. In the unlikely event of any problems with your new kit, you should contact the model shop where you purchased it, quoting the part number.**

**We do reserve all rights to change any specification without prior notice. All rights reserved.**

# TOOLS REQUIRED



Combination Pliers (HUDY #189020)



Side Cutters (HUDY #189010)



Pocket Hobby Knife (HUDY #188981)



Special Tool for turnbuckles, nuts (HUDY #181090)



Turnbuckle Wrench 4mm (HUDY #181040)



Turnbuckle Wrench 3mm (HUDY #181030)



HUDY Tweezers Straight (HUDY #188970)



HUDY Tweezers Curved (HUDY #188971)



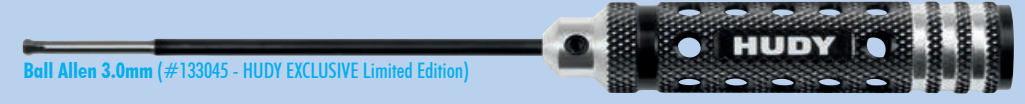
Allen 1.5mm (#111545 - HUDY EXCLUSIVE Limited Edition)



Allen 2.0mm (#112045 - HUDY EXCLUSIVE Limited Edition)



Allen 3.0mm (#113045 - HUDY EXCLUSIVE Limited Edition)



Ball Allen 3.0mm (#133045 - HUDY EXCLUSIVE Limited Edition)



Socket 5.5mm (#175535 - HUDY EXCLUSIVE Limited Edition)



Socket 7.0mm (#177035 - HUDY EXCLUSIVE Limited Edition)



Reamer (#107602 - HUDY EXCLUSIVE Limited Edition)



Scissors (HUDY #188990)

Professional Multi Tool (HUDY #183011)

## INCLUDED

350cSt (#106335)  
HUDY Premium Silicone Oils



SILICONE OIL

5.000cSt (#106450)  
HUDY Premium Silicone Oils



SILICONE OIL

(HUDY #106210)  
Premium Graphite Grease



GRAPHITE GEASE

## EQUIPMENT REQUIRED

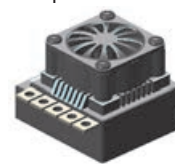
Transmitter



Receiver



Speed Controller



Steering Servo



Electric Motor



Pinion Gear with Setscrew



LiPo Battery



Battery Charger



Lexan™ Paint



Wheels & Tires & Inserts (HUDY #803053 C3-28) (HUDY #803062 A1-36)



190mm Bodyshell



Double-sided Tape (HUDY #107875)



Fibre Tape (HUDY #107870)



Bearing Oil (HUDY #106230)



Threadlock



CA glue



## BUILD TIPS & NOTES



Alexander Hagberg (Factory Driver)

When a QR CODE is found in the instruction manual, scan the code to be directed to an online video that explains that feature or adjustment in more detail. Make sure to watch all of the instructional videos to get the most performance out of your car.



### SAMPLE OF OPTIONAL PARTS

#30XXXX	TYPE1	OPTION 1
#30XXXX	TYPE2	OPTION 2
#30XXXX	TYPE	INCLUDED
#30XXXX	TYPE3	OPTION 3

XRAY offers wide range of optional tuning parts which are listed in a table like this. Please refer to the exploded view of each main section to verify which part is included in the kit while all other parts are available only as an optional part and must be purchased separately.

## COLOR INDICATIONS

At the beginning of each section is an exploded view of the parts to be assembled. There is also a list of all the parts and part numbers that are related to the assembly of that section.

The part descriptions are color-coded to make it easier for you to identify the source of a part. Here are what the different colors mean:

304911

**STYLE A** - indicates parts that are included in the bag marked for the section.

301018

**STYLE B** - indicates parts that are included in the box.

304902

**STYLE C** - indicates parts that are already assembled from previous steps.

301020

**STYLE D** - indicates parts that are optional.

## CHASSIS PREPARATION

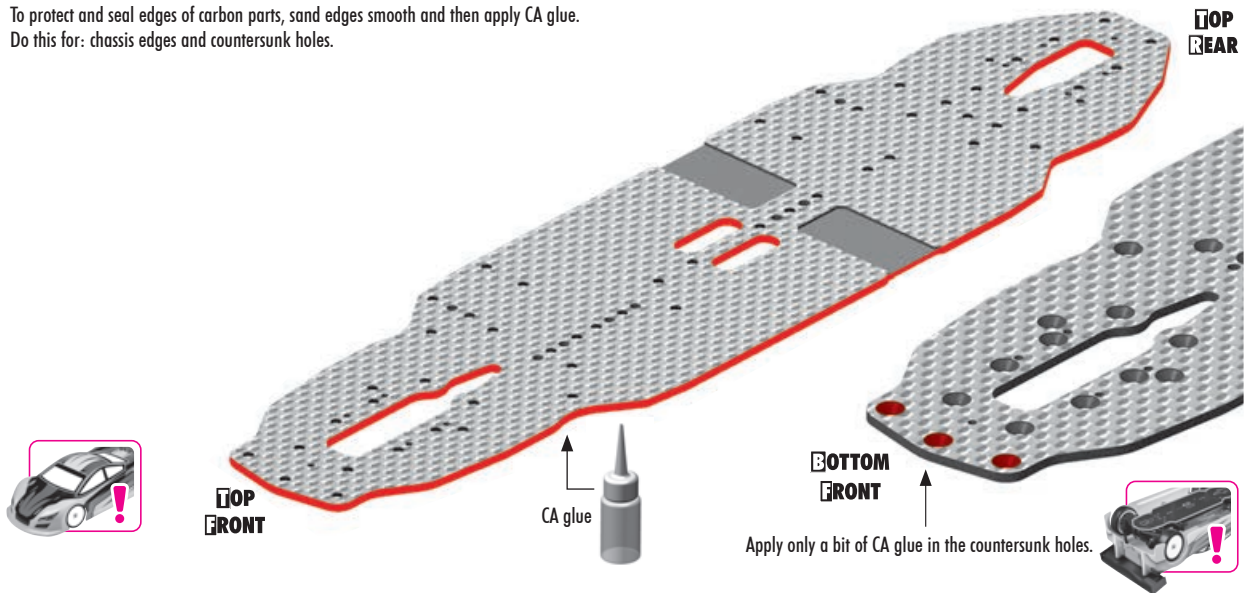


VIDEO TECH TIP



CHASSIS PREPARATION

To protect and seal edges of carbon parts, sand edges smooth and then apply CA glue. Do this for: chassis edges and countersunk holes.



XRAY uses the highest quality USA-made carbon fiber sheets available on the market. The carbon fiber sheets are pressed, and this production technique may result in slight variations in each sheet's thickness and flatness. The carbon manufacturer cannot and does not guarantee perfect uniformity as it is impossible to ensure each plate's perfect flatness with such thin material thicknesses.

These tolerances for thickness and flatness are taken into consideration when designing our XRAY cars and parts. Minor irregularities in the carbon fiber parts will not affect the performance of XRAY vehicles once assembled with the other components. While an individual carbon fiber part itself may not lay perfectly flat, rest assured that the assembled vehicle will still perform as designed and intended.



All ball-bearings are factory pre-oiled. Regularly service, clean and lubricate all ball-bearings with **HUDY Bearing Oil (#106230)**. Replace any bearings that develop a "gritty" feeling to prevent inefficiency and avoid rear axle bearing blowouts.

Make sure to use only original XRAY ball-bearings, which all have specific tolerances, axial and radial play, and are all individually selected. Using 3rd party ball-bearings may result in failures and damage to other parts.

# 1. GEAR DIFFERENTIAL & FRONT SOLID AXLE

**#304970**  
ALU GEAR DIFF OUTDRIVE ADAPTER (2)  
OPTION



Requires #305370 drive shafts and #305241 or #305242 drive shaft replacement caps 3.5mm.

**#304972**  
ALU GEAR DIFF CVD BB DRIVESHAFT ADAPTER - SWISS 7075 T6 (2)  
OPTION



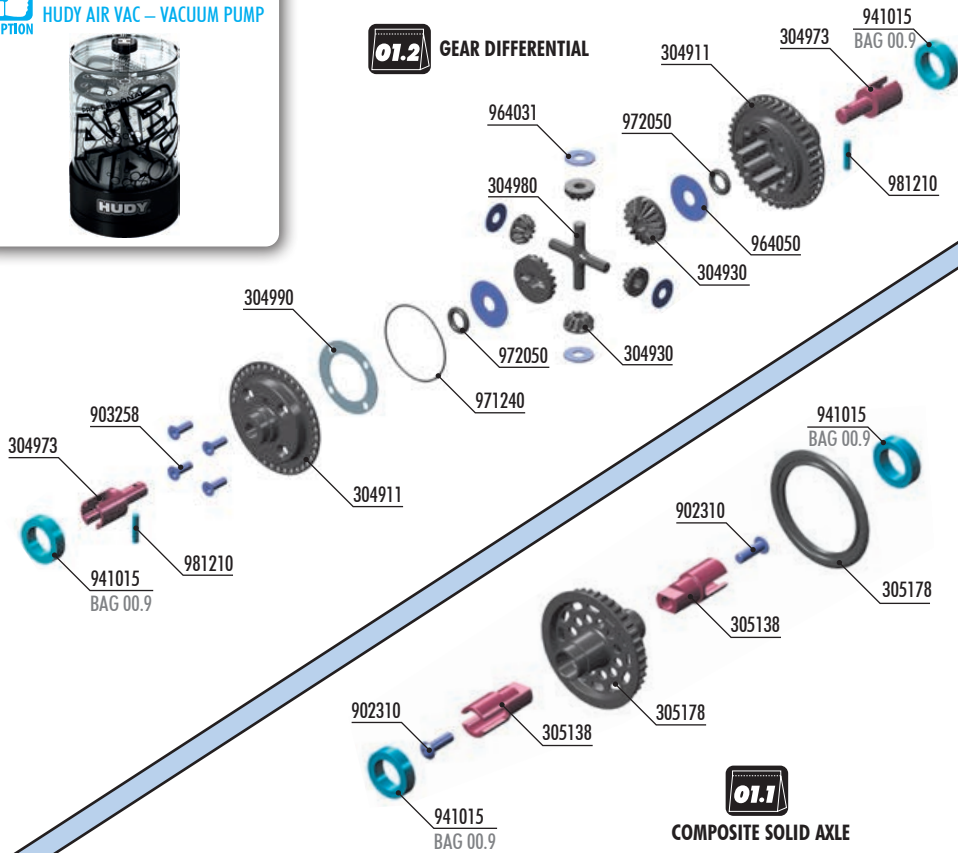
**#304932**  
GRAPHITE GEAR DIFF BEVEL & SATELLITE GEARS (2+4)  
OPTION



**#104002 or #104003**  
HUDY AIR VAC - VACUUM PUMP  
OPTION



## 01.2 GEAR DIFFERENTIAL



**#309003**  
SET OF CERAMIC BALL-BEARINGS (12)  
OPTION



**#305136**  
ALU SOLID DRIVESHAFT ADAPTERS (2)  
OPTION



**#305137**  
STEEL LIGHTWEIGHT SOLID AXLE DRIVESHAFT ADAPTERS HUDY SPRING STEEL™ (2)  
OPTION



Requires #305260 drive shafts and #305241 or #305242 drive shaft replacement caps 3.5mm.

## 01.1 COMPOSITE SOLID AXLE

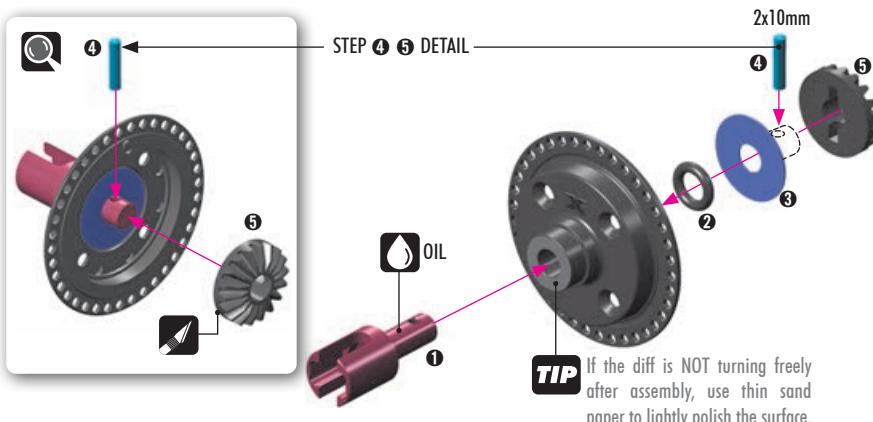
### BAG 01.1 01.2

- 304902 X4 BB GEAR DIFFERENTIAL - SET
- 304911 X4 COMPOSITE GEAR DIFF CASE WITH 38T PULLEY & COVER
- 304930 COMPOSITE GEAR DIFF BEVEL & SATELLITE GEARS (2+4)
- 304973 STEEL GEAR DIFF BB DRIVESHAFT ADAPTER - HUDY SPRING STEEL™ (2)
- 304980 COMPOSITE GEAR DIFF CROSS PIN
- 304990 DIFF GASKET (4)
- 305138 SOLID AXLE ECS BB DRIVESHAFT ADAPTER - HUDY SPRING STEEL™ (2)
- 305178 X4 COMPOSITE SOLID AXLE 38T

- 902310 HEX SCREW SH M3x10 (10)
- 903258 HEX SCREW SFH M2.5x8 (10)
- 941015 BALL-BEARING 10x15x4 RUBBER SEALED - OIL (2)
- 964031 WASHER S 3.5x10x0.2 (10)
- 964050 WASHER S 5x15x0.3 (10)
- 971240 SILICONE O-RING 24x0.7 (10)
- 972050 SILICONE O-RING 5x2 (10)
- 981210 PIN 2x10 (10)

## 01.2 GEAR DIFFERENTIAL

- 1x 964050 5x15x0.3
- 1x 972050 0.5x2
- 1x 981210 P 2x10



**#304932**  
GRAPHITE GEAR DIFF BEVEL & SATELLITE GEARS (2+4)  
OPTION



# 1. GEAR DIFFERENTIAL & FRONT SOLID AXLE

- 1x 964050 S 5x15x0.3
- 1x 972050 O 5x2
- 1x 981210 P 2x10

**NOTE ORIENTATION**

**STEP 4 DETAIL**  
Use tweezers to insert pin.

#188970 HUDY Tweezers Straight  
OPTION

4 2x10mm

**TIP**  
If the diff is NOT turning freely after assembly, use thin sand paper to lightly polish the surface.

**CUTAWAY VIEW**

- 4x 964031 S 3.5x10x0.2

#304932 GRAPHITE GEAR DIFF BEVEL & SATELLITE GEARS (2+4)  
OPTION

**TIP**  
If the cross does NOT enter into the diff freely, use fine sand paper to lightly polish the ends of the cross.

**INITIAL SETTING**  
5.000cSt

**TIP**  
Fill differential up to the top of the diff pin. DO NOT fill the diff to the top of the housing.

**TIP** TO ENSURE YOU HAVE THE SAME AMOUNT OF OIL FROM REBUILD TO REBUILD, DO THE FOLLOWING:

#107865 HUDY Ultimate Digital Pocket Scale 300g ± 0.01g  
OPTION

**1** Put the diff (without oil) on the scale and check the weight (approximately 12.10g).

**2** Slowly pour oil into the diff and watch the weight. Add 1.5g of oil into the diff. The approximate weight of the diff including oil is 13.60g.

$12.10g + 1.5g = 13.60g$

**TIP** **TIPS FOR DIFFERENTIALS** **TIP**

LOW TRACTION	MEDIUM TRACTION	HIGH TRACTION	VERY-HIGH TRACTION
1.000cSt (HUDY #106410)	2.000cSt (HUDY #106420)	8.000cSt (HUDY #106480)	11.000cSt (HUDY #106492)
2.000cSt (HUDY #106420)	3.000cSt (HUDY #106430)	9.000cSt (HUDY #106490)	12.000cSt (HUDY #106512)
3.000cSt (HUDY #106430)	4.000cSt (HUDY #106440)	10.000cSt (HUDY #106510)	15.000cSt (HUDY #106515)
4.000cSt (HUDY #106440)	5.000cSt (HUDY #106450)		20.000cSt (HUDY #106520)
	6.000cSt (HUDY #106460)		
	7.000cSt (HUDY #106470)		

**!** LIGHTER oil increases rear traction, HEAVIER oil increases on-power steering and stability. It is important NOT to use lighter oils in high-traction conditions as this would NOT increase traction, but would make the car loose as the car would become too twitchy.

However, if the oil is too light, it could generate the same effect like the car has no traction. Therefore it is very important to choose the correct oil very carefully. We recommend using lighter oil first, then try heavier oil to better understand the effect on the car's behavior at the track. Choose the oil accordingly.

**TIP** **TIPS FOR FRONT DIFFERENTIAL**  
To increase off-power steering and mid-corner steering, the gear diff can also be used in front.

**USE THESE OILS FOR FRONT DIFFERENTIAL**

- 500.000cSt (HUDY #106650)
- 1 000.000cSt (HUDY #106692)
- 2 000.000cSt (HUDY #106694)

To make the front differential thicker, you can use cleaning gum instead of oil.

**!** **IMPORTANT!**  
Using cleaning gum instead of oil in the gear differential can lead to gear breakage because the gears are working under dry conditions.

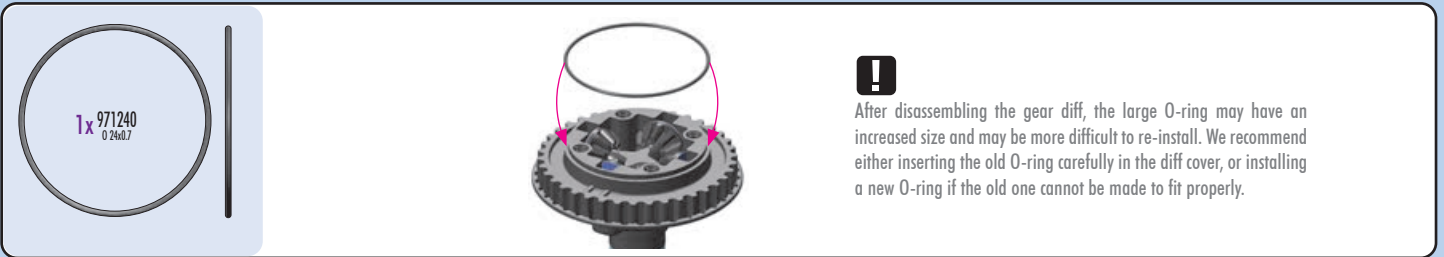
**VIDEO TECH TIP**

REAR DIFFERENTIAL

#104002 or #104003 HUDY AIR VAC – VACUUM PUMP  
OPTION

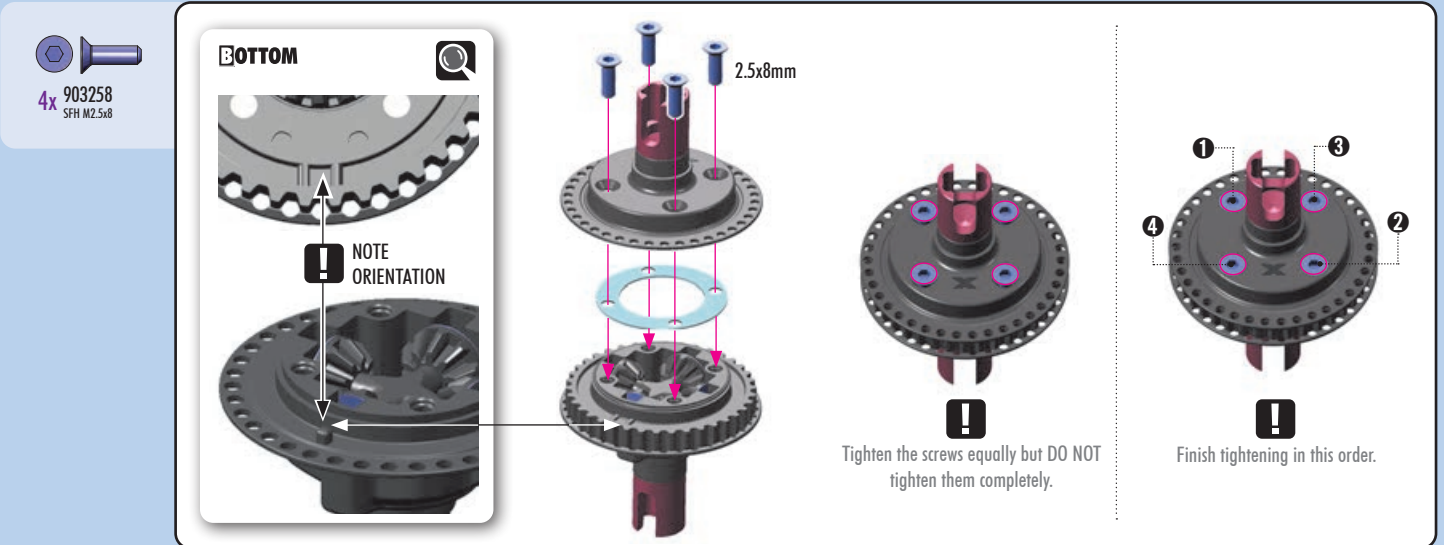
**TIP** To make sure that all the air is removed from the diff oil, we recommend using the HUDY Air Vac.

# 1. GEAR DIFFERENTIAL & FRONT SOLID AXLE



**1x 971240**  
O 24x07

**!**  
After disassembling the gear diff, the large O-ring may have an increased size and may be more difficult to re-install. We recommend either inserting the old O-ring carefully in the diff cover, or installing a new O-ring if the old one cannot be made to fit properly.



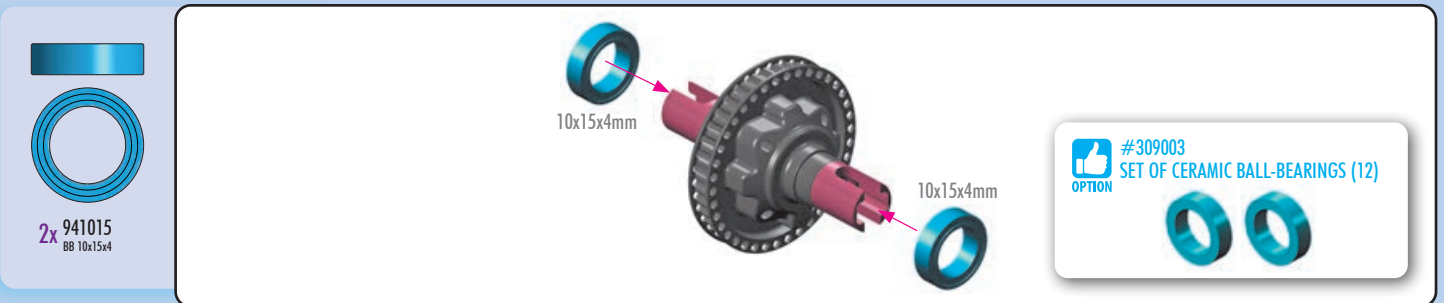
**4x 903258**  
SFH M2.5x8

**2.5x8mm**

**! NOTE ORIENTATION**

**!**  
Tighten the screws equally but **DO NOT** tighten them completely.

**!**  
Finish tightening in this order.



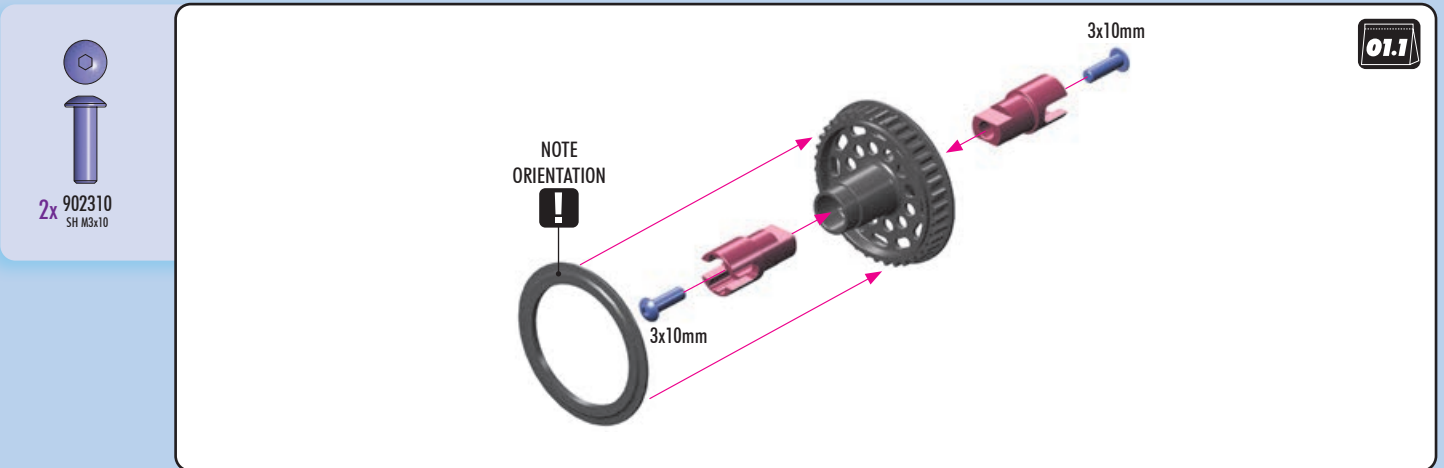
**2x 941015**  
BB 10x15x4

10x15x4mm

10x15x4mm

**#309003**  
OPTION SET OF CERAMIC BALL-BEARINGS (12)

## 01.1 FRONT SOLID AXLE



**2x 902310**  
SH M3x10

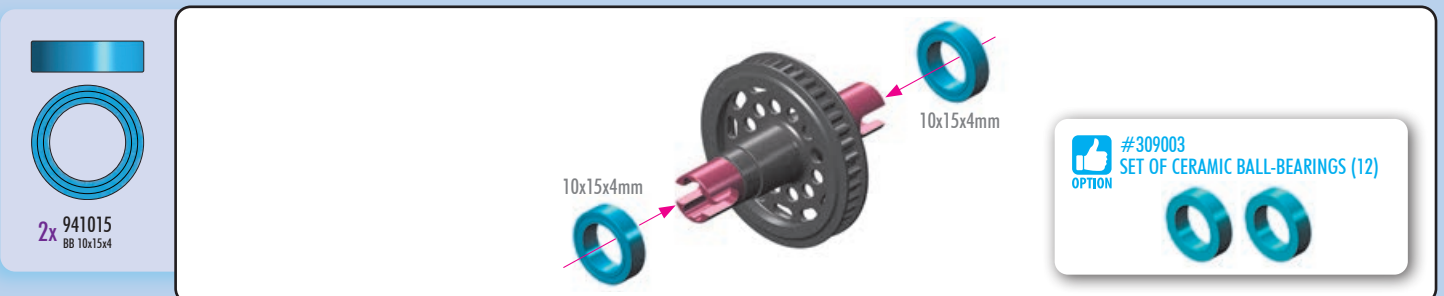
**NOTE ORIENTATION**

**!**

3x10mm

3x10mm

**01.1**



**2x 941015**  
BB 10x15x4

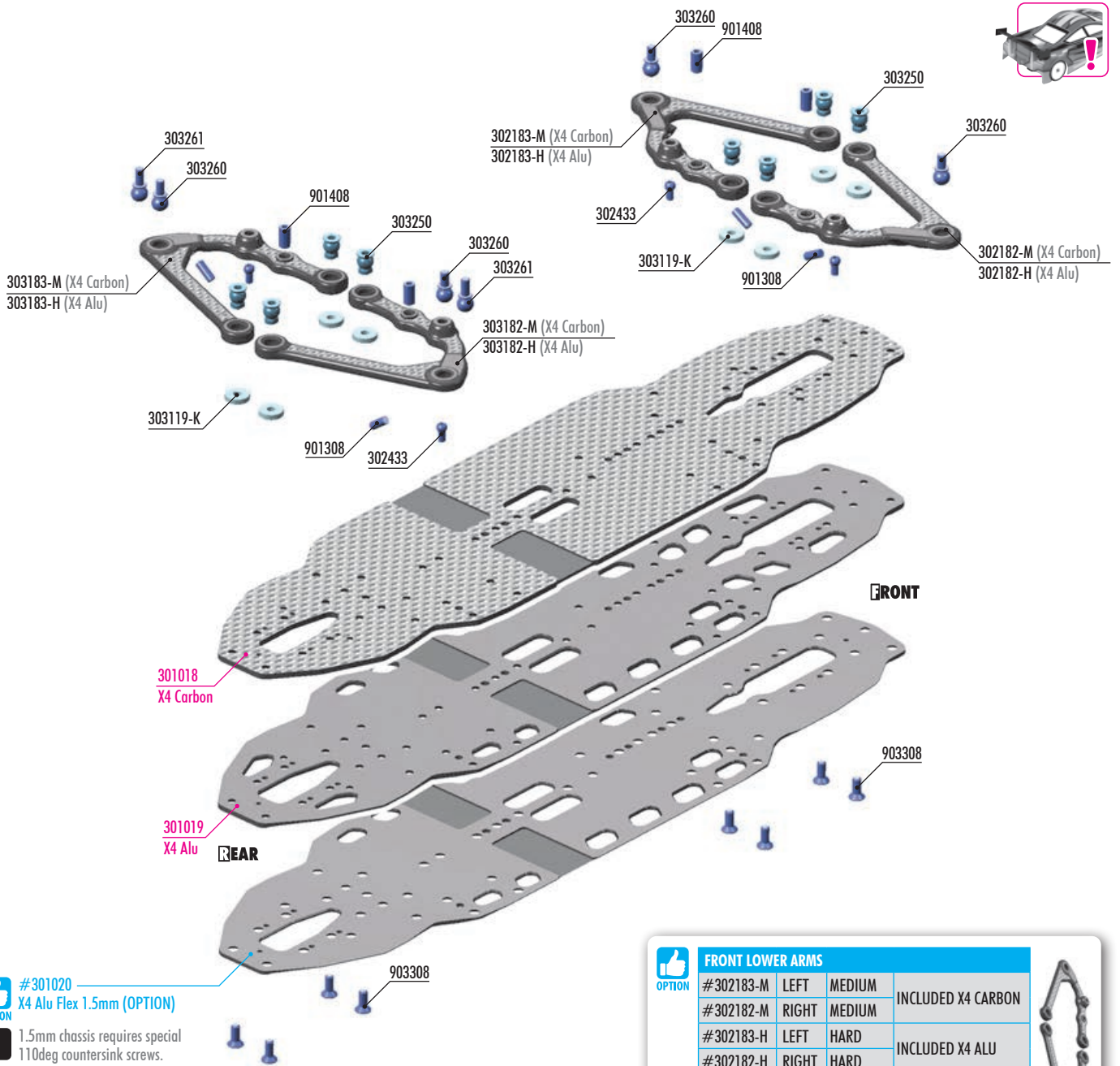
10x15x4mm

10x15x4mm

**#309003**  
OPTION SET OF CERAMIC BALL-BEARINGS (12)



## 2. FRONT & REAR SUSPENSION



**#301020**  
X4 Alu Flex 1.5mm (OPTION)

**!** 1.5mm chassis requires special 110deg countersink screws.

**#913300**  
HEX SCREW 110° FOR 301020 X4 CHASSIS - HUDY SPRING STEEL (33)

**#302121**  
FRONT ROLL-CENTER SPACER (2)

**#302122**  
REAR ROLL-CENTER SPACER (2)

FRONT LOWER ARMS			
#302183-M	LEFT	MEDIUM	INCLUDED X4 CARBON
#302182-M	RIGHT	MEDIUM	INCLUDED X4 CARBON
#302183-H	LEFT	HARD	INCLUDED X4 ALU
#302182-H	RIGHT	HARD	INCLUDED X4 ALU
#302183-G	LEFT	GRAPHITE	OPTION
#302182-G	RIGHT	GRAPHITE	OPTION

REAR LOWER ARMS			
#303183-M	LEFT	MEDIUM	INCLUDED X4 CARBON
#303182-M	RIGHT	MEDIUM	INCLUDED X4 CARBON
#303183-H	LEFT	HARD	INCLUDED X4 ALU
#303182-H	RIGHT	HARD	INCLUDED X4 ALU
#303183-G	LEFT	GRAPHITE	OPTION
#303182-G	RIGHT	GRAPHITE	OPTION

**BAG**

**02**

302182-M X4 CFF™ FRONT LOWER ARM - INNER SHOCK POSITION - MEDIUM - RIGHT  
 302182-H X4 CFF™ FRONT LOWER ARM - INNER SHOCK POSITION - HARD - RIGHT  
 302183-M X4 CFF™ FRONT LOWER ARM - INNER SHOCK POSITION - MEDIUM - LEFT  
 302183-H X4 CFF™ FRONT LOWER ARM - INNER SHOCK POSITION - HARD - LEFT  
 302433 ANTI-ROLL BAR STEEL BALL END 3.8mm WITH 4mm THREAD (2)  
 303119-K ALU SHIM 3x9x2.0mm - BLACK (10)  
 303182-M X4 CFF™ REAR LOWER ARM - INNER SHOCK POSITION - MEDIUM - RIGHT  
 303182-H X4 CFF™ REAR LOWER ARM - INNER SHOCK POSITION - HARD - RIGHT  
 303183-M X4 CFF™ REAR LOWER ARM - INNER SHOCK POSITION - MEDIUM - LEFT  
 303183-H X4 CFF™ REAR LOWER ARM - INNER SHOCK POSITION - HARD - LEFT  
 303250 X4 LOWER ARM BALL UNIVERSAL 6.0mm WITH HEX - HUDY SPRING STEEL™ (2)  
 303260 X4 PIVOT BALL 6.0mm WITH M3x5.5mm THREAD - HUDY SPRING STEEL™ (2)

303261 X4 PIVOT BALL 6.0mm WITH M3x6.5mm THREAD - HSS™ (2)

901308 HEX SCREW SB M3x8 (10)  
 901408 HEX SCREW SB M4x8 (10)  
 903308 HEX SCREW SFH M3x8 (10)

301018 X4 CARBON CHASSIS 2.2mm  
 301019 X4 ALU FLEX CHASSIS 2.0mm - SWISS 7075 T6

301020 X4 ALU FLEX CHASSIS 1.5mm - SWISS 7075 T6  
 913300 HEX SCREW 110° FOR 301020 X4 CHASSIS - HUDY SPRING STEEL (33)

## 2. FRONT & REAR SUSPENSION

### REAR SUSPENSION ARMS

**LEFT** **RIGHT**

NOTE ORIENTATION

NOTE ORIENTATION

NOTE ORIENTATION

NOTE ORIENTATION

5.5mm THREAD

6.5mm THREAD

LONG

ALTERNATIVE

SHORT

INITIAL SETTING

INITIAL SETTING

Press straight

Pivot ball with M3x6.5mm

Play

1.5mm shim.

When using more than 1mm shim under the hub, use the #303261 pivot ball with longer 6.5mm thread length to increase durability in serious crashes.

Make sure to check for clearance between the pivot ball threads and CVD pin.

Follow page 30/ step 1

Pivot ball with M3x5.5mm

INITIAL SETTING

Play

0.5mm shim.

Install the pivot balls with #183011 - HUDY Multi Tool

Remove #183013 pins.

PRESS POSITION

To make sure that the pivot ball is pressed into the arm correctly, remove the pins from the HUDY Multi Tool and use the exact press position like shown on the picture. This way the ball will never go through the arm and will NOT create any excessive play.

2x 901308 SB M3x8

2x 901408 SB M4x8

VIDEO TECH TIP

LOWER ARMS

### REAR SUSPENSION ARMS

**LEFT** **RIGHT**

4x8mm

3x8mm

Make sure to NOT OVERTIGHTEN

Make sure to NOT OVERTIGHTEN

2.6mm

4.0mm

LEFT = RIGHT

TIP Install the pivot balls with #183011 - HUDY Multi Tool

### FRONT SUSPENSION ARMS

**RIGHT** **LEFT**

NOTE ORIENTATION

NOTE ORIENTATION

NOTE ORIENTATION

NOTE ORIENTATION

NOTE ORIENTATION

NOTE ORIENTATION

NOTE ORIENTATION

NOTE ORIENTATION

Use only pivot ball with M3x5.5mm thread for front arms.

Press straight

Install the pivot balls with #183011 - HUDY Multi Tool.

Remove #183013 pins.

PRESS POSITION

To make sure that the pivot ball is pressed into the arm correctly, remove the pins from the HUDY Multi Tool and use the exact press position like shown on the picture. This way the ball will never go through the arm and will NOT create any excessive play.

## 2. FRONT & REAR SUSPENSION

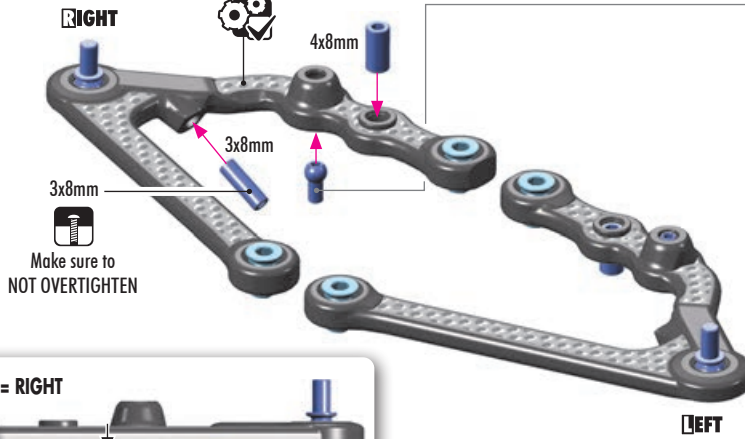


2x 901308  
SB M3x8

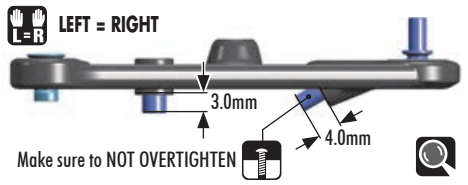
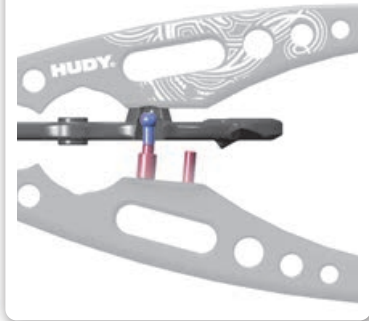


2x 901408  
SB M4x8

### FRONT SUSPENSION ARMS



**TIP** Install the pivot balls with #183011 - HUDY Multi Tool.



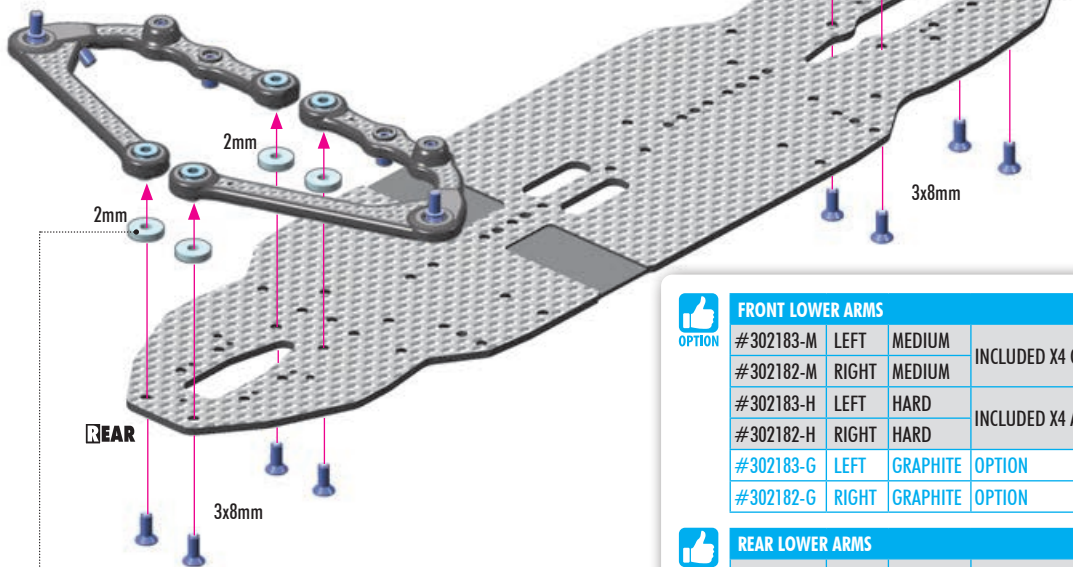
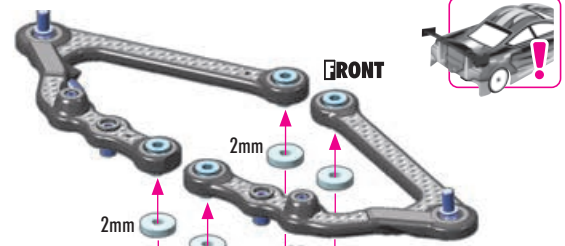
8x 303119-K  
SHIM 3x9.2



8x 903308  
SFH M3x8



To reinforce the chassis and protect against damage in serious crashes, we recommend using these roll-center spacers to prevent screws from pulling through the chassis plate. The spacers provide additional protection compared to standard shims but also reduce chassis flex.



FRONT LOWER ARMS			
#302183-M	LEFT	MEDIUM	INCLUDED X4 CARBON
#302182-M	RIGHT	MEDIUM	
#302183-H	LEFT	HARD	INCLUDED X4 ALU
#302182-H	RIGHT	HARD	
#302183-G	LEFT	GRAPHITE	OPTION
#302182-G	RIGHT	GRAPHITE	OPTION

REAR LOWER ARMS			
#303183-M	LEFT	MEDIUM	INCLUDED X4 CARBON
#303182-M	RIGHT	MEDIUM	
#303183-H	LEFT	HARD	INCLUDED X4 ALU
#303182-H	RIGHT	HARD	
#303183-G	LEFT	GRAPHITE	OPTION
#303182-G	RIGHT	GRAPHITE	OPTION

### ROLL-CENTER ADJUSTMENT

**RAISING THE LOWER ARMS** will raise the car's roll center. Raising the lower arms both front and rear will free up the car, and will make it initially more responsive. Side bite will be decreased. A higher roll center is typically recommended for asphalt racing.

**LOWERING THE LOWER ARMS** will lower the car's roll center. Lowering both the front and rear arms will lock in the car more, and will make it initially less responsive. Side bite will be increased. A lower roll center is typically recommended for carpet racing.

We recommend the **MEDIUM** hardness of the lower suspension arms for asphalt. These arms are more flexible than the H (hard) arms.

For carpet racing and even some high-traction asphalt conditions, we recommend the **HARD** suspension arms.

For very high traction conditions both carpet and asphalt, optional **GRAPHITE** arms will help to make the car more stable and easier to drive. Graphite arms should reduce chassis roll, resulting in improved cornering speed.



VIDEO TECH TIP

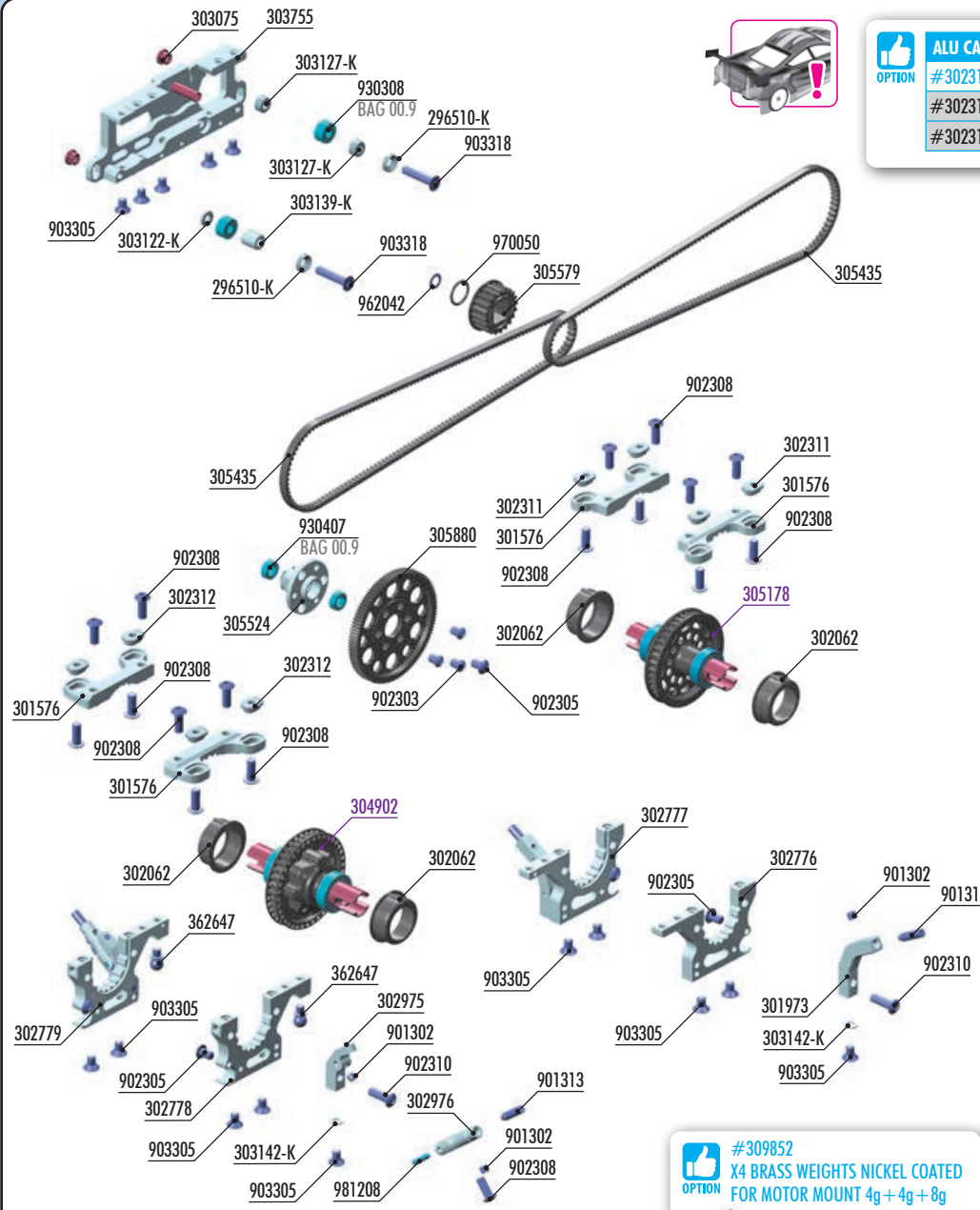


ROLL-CENTER



CHASSIS ALTERNATIVES

# 3. CENTRAL TRANSMISSION



ALU CASTER BUSHINGS			
#302310	FRONT 3° / REAR 5.5°	1 Dot	OPTION
#302311	FRONT 4° / REAR 4.5°	2 Dots	INCLUDED
#302312	FRONT 5° / REAR 3.5°	3 Dots	INCLUDED

**#305436**  
HIGH-PERFORMANCE DRIVE BELT LOW-FRICTION 3x351mm

**#303768**  
ALU CHASSIS T-BRACE - 7075 T6

**#303767**  
BRASS CHASSIS T-BRACE - 10g

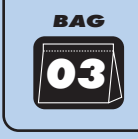
SPUR GEARS 48P		
#305772	72T / 48P	OPTION
#305776	76T / 48P	OPTION
#305778	78T / 48P	OPTION
#305779	79T / 48P	OPTION
#305781	81T / 48P	OPTION
#305784	84T / 48P	OPTION
#305784-0	84T / 48P	OPTION

OFFSET SPUR GEARS 64P		
#305860	90T / 64P	OPTION
#305862	92T / 64P	OPTION
#305866	96T / 64P	OPTION
#305866-0	96T / 64P	OPTION
#305869	99T / 64P	OPTION
#305870	100T / 64P	OPTION
#305870-0	100T / 64P	OPTION
#305874	104T / 64P	OPTION
#305876	106T / 64P	OPTION
#305878	108T / 64P	OPTION
#305880	110T / 64P	INCLUDED
#305880-0	110T / 64P	OPTION
#305882	112T / 64P	OPTION
#305884	114T / 64P	OPTION

**#302064-K**  
ALU ADJ. BALL-BEARING HUB + 1MM (2)

**#302063-K**  
ALU ADJUSTMENT BALL-BEARING HUB (2)

**#309852**  
X4 BRASS WEIGHTS NICKEL COATED FOR MOTOR MOUNT 4g + 4g + 8g



- 296510-K ALU COUNTERSUNK SHIM - BLACK (10)
- 301576 X4 ALU UPPER CLAMP - INNER SHOCK POSITION - SWISS 7075 T6 (L+R)
- 301973 X4 ALU SHOCK HOLDER FRONT FIXED - SWISS 7075 T6 (2)
- 302062 COMPOSITE ADJUSTMENT BALL-BEARING HUB (4)
- 302311 X4 ALU CASTER BUSHING FRONT 4° / REAR 1.5° - 2 DOTS (4)
- 302312 X4 ALU CASTER BUSHING FRONT 5° / REAR 2.5°/3.5° - 3 DOTS (4)
- 302776 X4 ALU LOWER ADJUSTMENT BULKHEAD - FRONT RIGHT
- 302777 X4 ALU LOWER ADJUSTMENT BULKHEAD - FRONT LEFT
- 302778 X4 ALU LOWER ADJUSTMENT BULKHEAD - REAR RIGHT
- 302779 X4 ALU LOWER ADJUSTMENT BULKHEAD - REAR LEFT
- 302975 X4 ALU SHOCK HOLDER REAR FIXED - SWISS 7075 T6 (2)
- 302976 X4 ALU SHOCK HOLDER REAR ACTIVE - SWISS 7075 T6 (2)
- 303075 STEEL NUT (2)
- 303122-K ALU SHIM 3x6x1.0mm - BLACK (10)
- 303127-K ALU SHIM 3x6x4.0mm - BLACK (10)
- 303139-K ALU SHIM 3x6x7.0mm - BLACK (10)
- 303142-K ALU SHIM 3x5x0.5mm - BLACK (10)
- 303755 X4 ALU MOTOR MOUNT WITH 3mm CENTERING PINS
- 305435 HIGH-PERFORMANCE DRIVE BELT 3x351mm
- 305524 X4 ALU SOLID LAYSHAFT & BEARINGS
- 305579 X4 COMPOSITE PULLEY FOR LAYSHAFT 20T

- 305880 OFFSET SPUR GEAR 110T / 64
- 362647 BALL END 4.9mm WITH THREAD 3mm (2)
- 901302 HEX SCREW SB M3x2.5 (10)
- 901313 HEX SCREW SB M3x12 (10)
- 902303 HEX SCREW SH M3x4 SMALL HEAD - STAINLESS (10)
- 902305 HEX SCREW SH M3x5 (10)
- 902308 HEX SCREW SH M3x8 (10)
- 902310 HEX SCREW SH M3x10 (10)
- 903305 HEX SCREW SFH M3x5 (10)
- 903318 HEX SCREW SFH M3x18 (10)
- 930308 BALL-BEARING 3x8x4 STEEL SEALED - OIL (2)
- 930407 BALL-BEARING 4x7x2.5 STEEL SEALED - OIL (2)
- 962042 WASHER S 4x6x0.1 (10)
- 970050 O-RING 5x1 (10)
- 981208 PIN 2x8 (10)

- 304902 X4 BB GEAR DIFFERENTIAL - SET
- 305178 X4 COMPOSITE SOLID AXLE 38T

# 3. CENTRAL TRANSMISSION



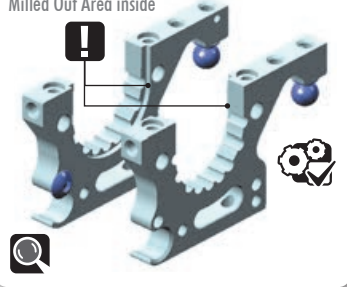
4x 902305 SH M3x5



8x 903305 SFH M3x5

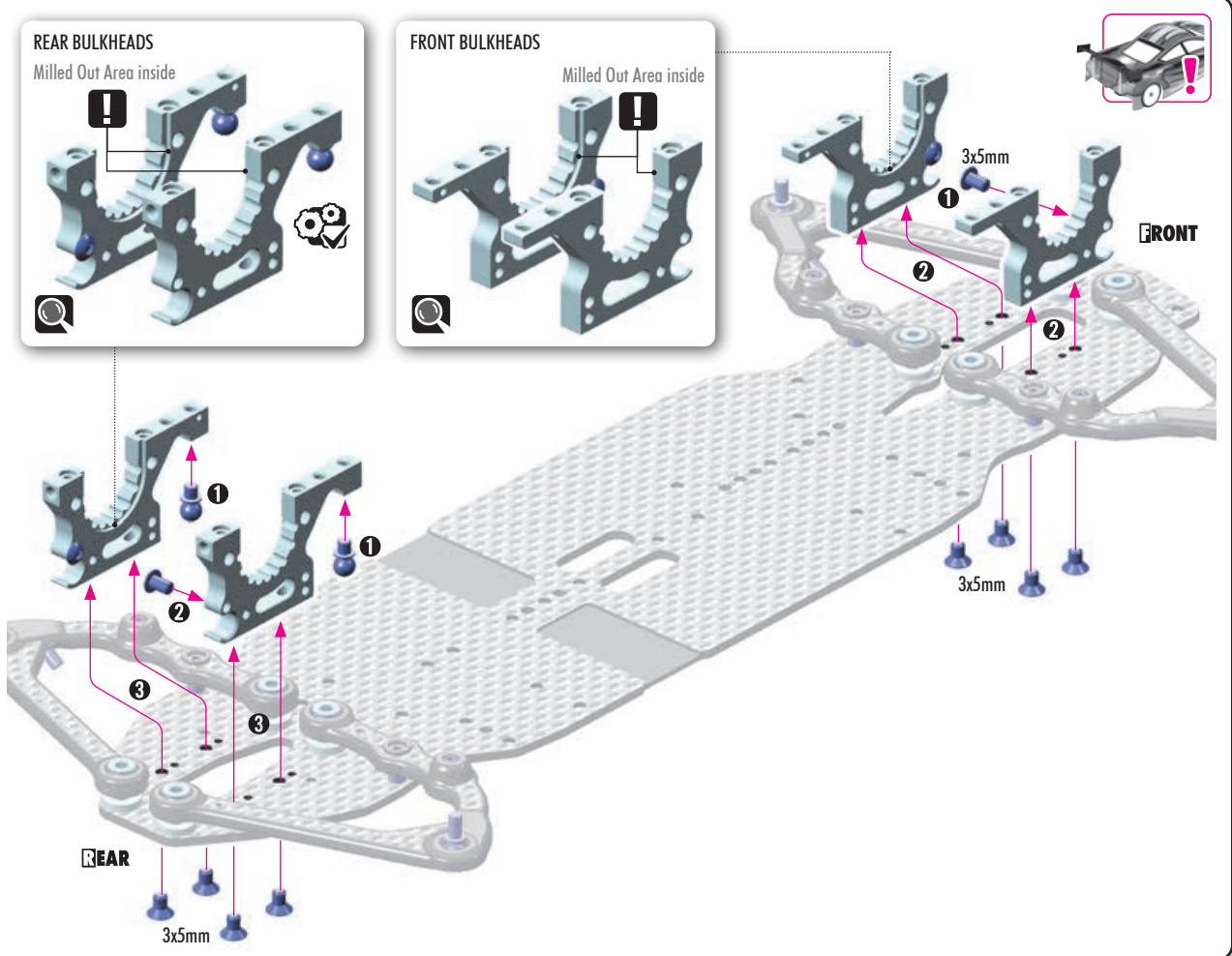
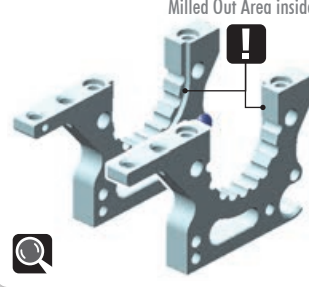
## REAR BULKHEADS

Milled Out Area inside



## FRONT BULKHEADS

Milled Out Area inside



VIDEO TECH TIP

BUILDING THE BULKHEADS

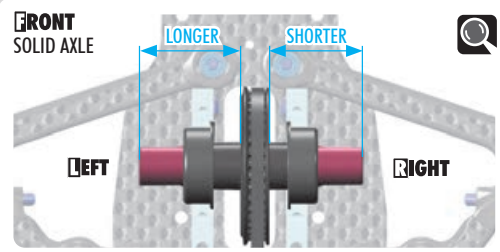
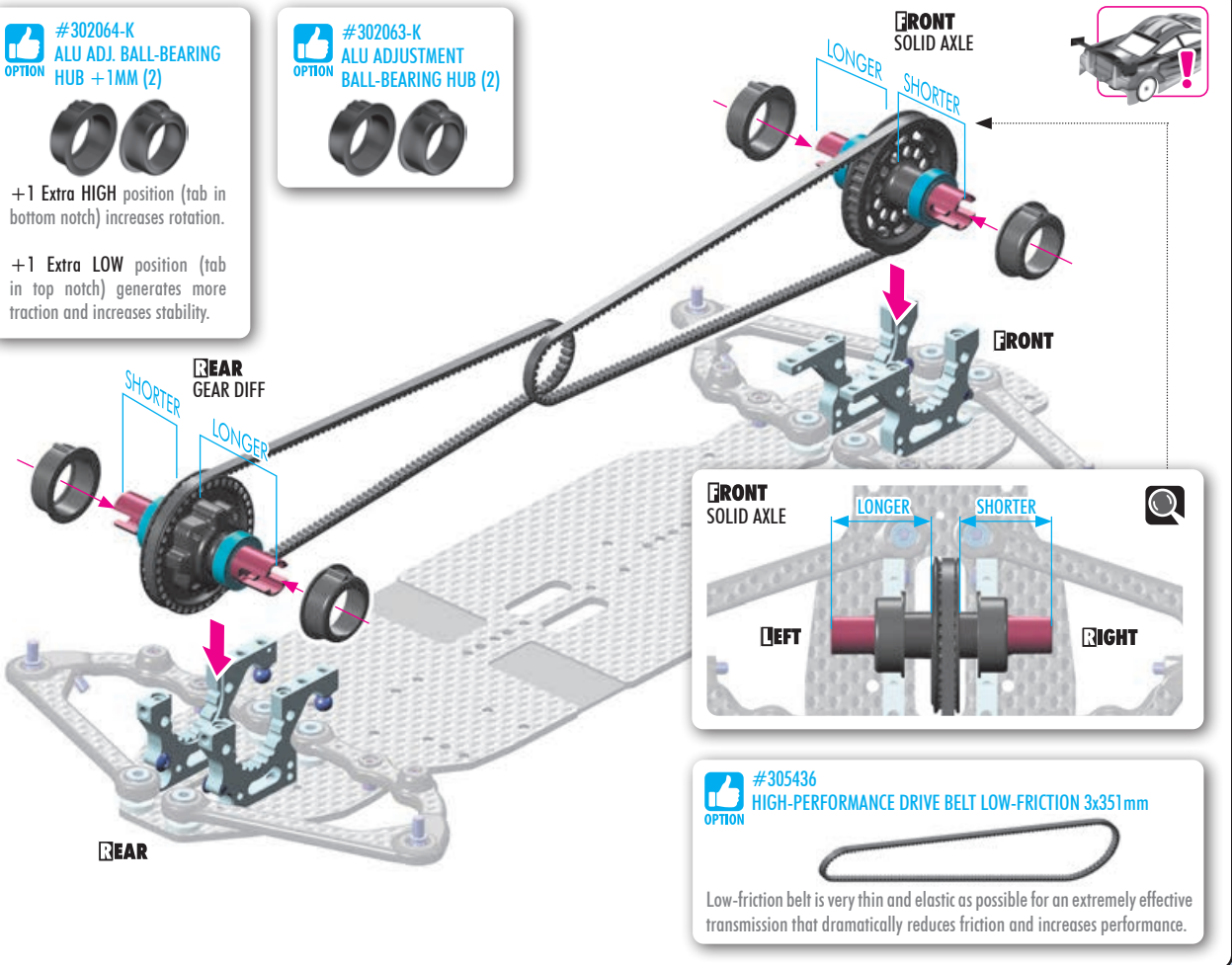
#302064-K ALU ADJ. BALL-BEARING HUB +1MM (2)



+1 Extra HIGH position (tab in bottom notch) increases rotation.

+1 Extra LOW position (tab in top notch) generates more traction and increases stability.

#302063-K ALU ADJUSTMENT BALL-BEARING HUB (2)



#305436 HIGH-PERFORMANCE DRIVE BELT LOW-FRICTION 3x351mm

Low-friction belt is very thin and elastic as possible for an extremely effective transmission that dramatically reduces friction and increases performance.

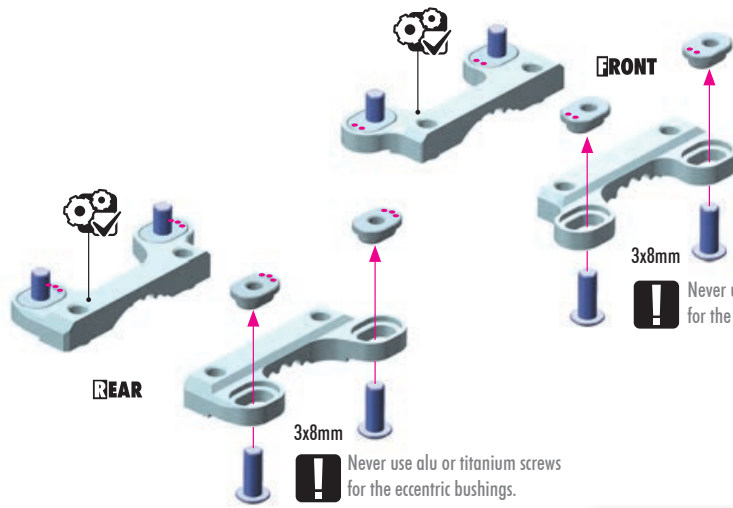
# 3. CENTRAL TRANSMISSION



**VIDEO TECH TIP**

CASTER

**NOTE ORIENTATION FOR ALL PARTS**



**IMPORTANT**  
All 4 bushings at one end of the car must be installed in the same orientation.

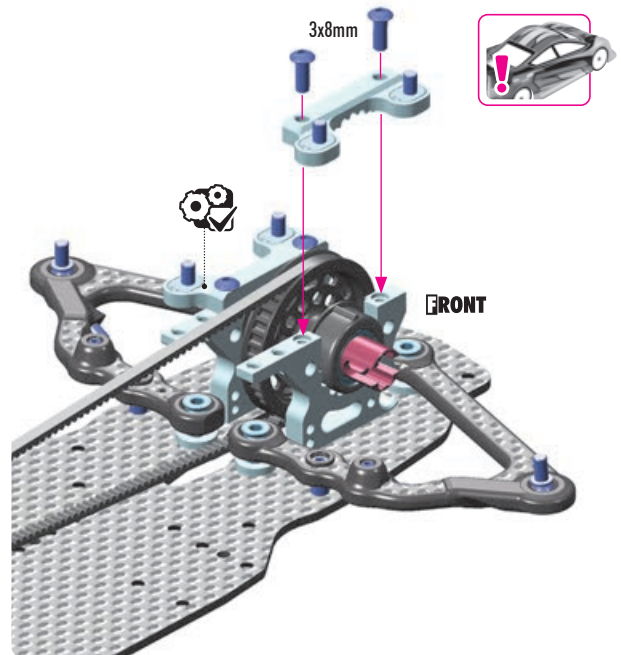
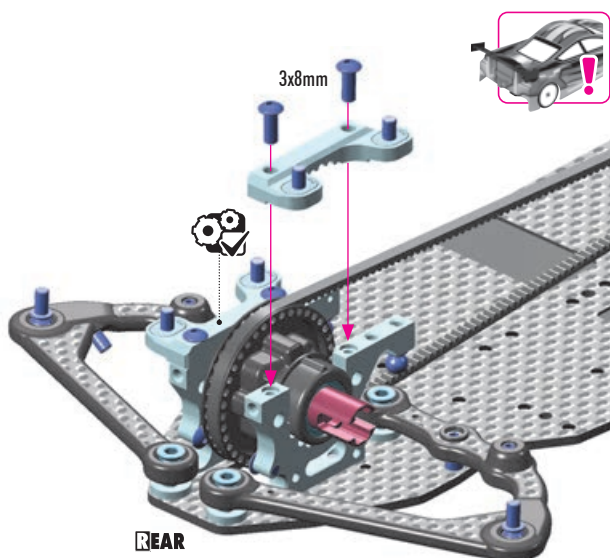
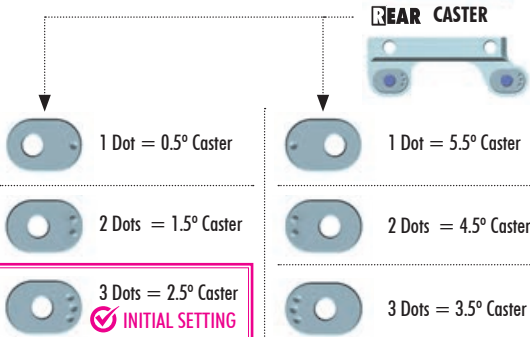
OPTION	ALU CASTER BUSHINGS		
#302310	FRONT 3° / REAR 5.5°	1 Dot	OPTION
#302311	FRONT 4° / REAR 4.5°	2 Dots	INCLUDED
#302312	FRONT 5° / REAR 3.5°	3 Dots	INCLUDED

## CASTER ADJUSTMENT

For most conditions, start with 4.0° front caster. Increasing front caster will increase steering (mainly on-power) but may also become more difficult to drive and more likely to traction roll.

The standard starting point for rear caster is 2.5°. More rear caster will increase initial steering but make the car more nervous to drive. It can increase rear traction in lower traction conditions. Less rear caster helps to increase cornering speed and rotation.

**IMPORTANT**  
All 4 bushings at one end of the car must be installed in the same orientation.



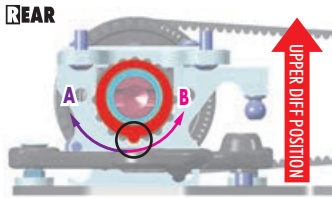
# 3. CENTRAL TRANSMISSION



## BELT TENSION ADJUSTMENT & DIFFERENTIAL POSITION

**REAR diff UPPER position** - tab in bottom notch - provides **more on-power steering**, but makes the rear less stable.

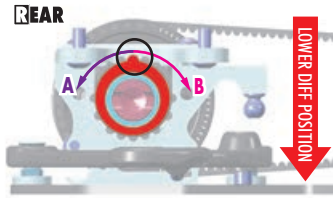
Recommended for **medium-high traction** tracks.



INITIAL POSITION for ASPHALT

**REAR diff LOWER position** - tab in top notch - provides **more rear traction** (mainly on-power), makes the car **more stable in chicanes**, but can cause a **push on corner exit**.

Recommended for **low-medium traction** tracks.



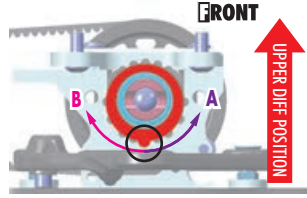
INITIAL POSITION for CARPET



## BELT TENSION ADJUSTMENT & DIFFERENTIAL POSITION

**FRONT solid axle UPPER position** - tab in bottom notch - provides **more steering**, but less forward traction.

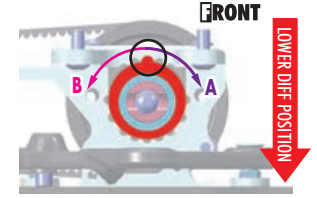
Recommended for **medium-high traction** tracks and technical tracks.



INITIAL POSITION for ASPHALT

**FRONT solid axle LOWER position** - tab in top notch - provides **more forward traction**, but makes the car **push on-power**.

Recommended for **low-traction** tracks.



INITIAL POSITION for CARPET

### TO LOOSEN REAR BELT:

Rotate both rear nylon hubs in arrow direction **A**

### TO TIGHTEN REAR BELT:

Rotate both rear nylon hubs in arrow direction **B**



VIDEO TECH TIP



DIFF HEIGHT



BELT TENSION ADJUSTMENT

### TO LOOSEN FRONT BELT:

Rotate both front nylon hubs in arrow direction **A**

### TO TIGHTEN FRONT BELT:

Rotate both front nylon hubs in arrow direction **B**



3x 902303 SH M3x4



2x 930407 BB 4x7x2.5

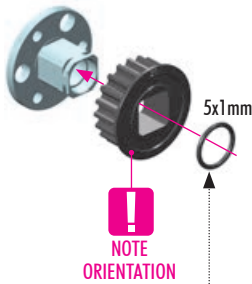


1x 970050 O 5x1



1x 966081 CH-CLIP 8

1



NOTE ORIENTATION

#966081 CH-CLIP 8 (10) INCLUDED IN THE LAST AID BAG

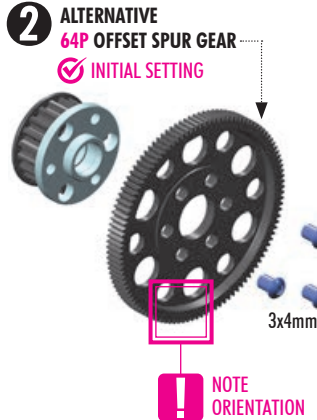
Another alternative to secure the pulley on the layshaft is to use the CH-clip which is included in the "Last Aid" Bag. To mount the clip on the layshaft, you have to use special Snap Ring Pliers.



OPTION

Snap Ring Pliers (HUDY #189040)

2



ALTERNATIVE 64P OFFSET SPUR GEAR

INITIAL SETTING

NOTE ORIENTATION

CUTAWAY VIEW

NOTE OFFSET ORIENTATION

### OPTION OFFSET SPUR GEARS 64P

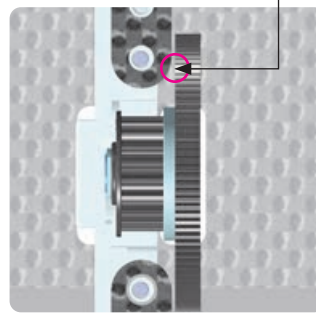
#305860	90T	OPTION
#305862	92T	OPTION
#305866	96T	OPTION
#305866-0	96T	OPTION
#305869	99T	OPTION
#305870	100T	OPTION
#305870-0	100T	OPTION
#305874	104T	OPTION
#305876	106T	OPTION
#305878	108T	OPTION
#305880	110T	INCLUDED
#305880-0	110T	OPTION
#305882	112T	OPTION
#305884	114T	OPTION

2



ALTERNATIVE 48P SPUR GEAR

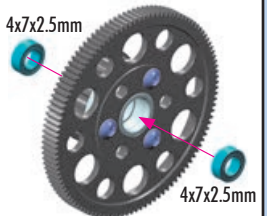
When using XRAY 48P spur gears or aftermarket spur gears without an offset, use the 3x5x1mm shims (#303141 NOT included) between the gear and layshaft to create the necessary clearance from the top deck.



### OPTION SPUR GEARS 48P

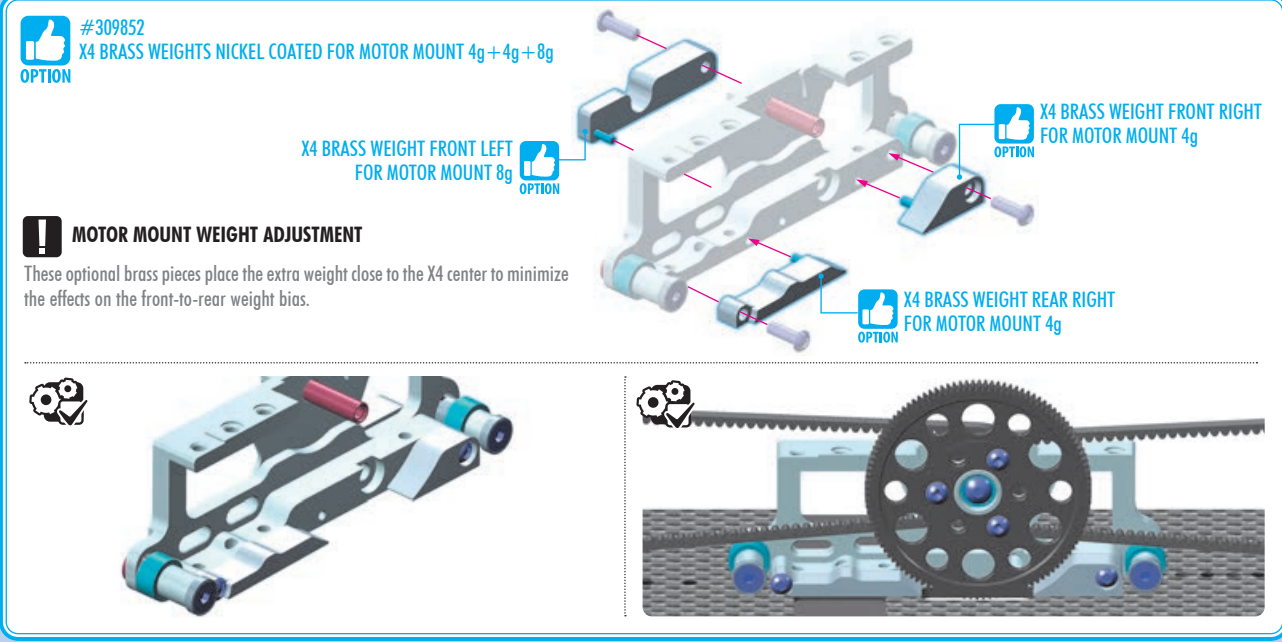
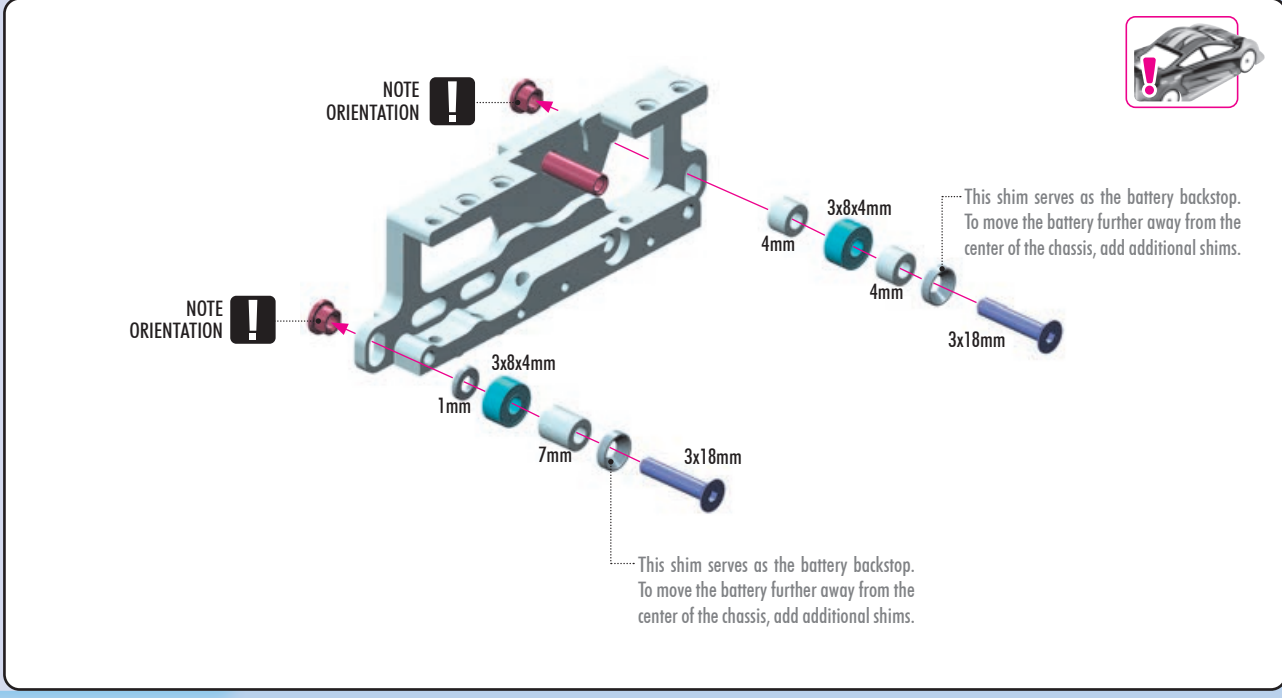
#305772	72T	OPTION
#305776	76T	OPTION
#305778	78T	OPTION
#305779	79T	OPTION
#305781	81T	OPTION
#305784	84T	OPTION
#305784-0	84T	OPTION

3



# 3. CENTRAL TRANSMISSION

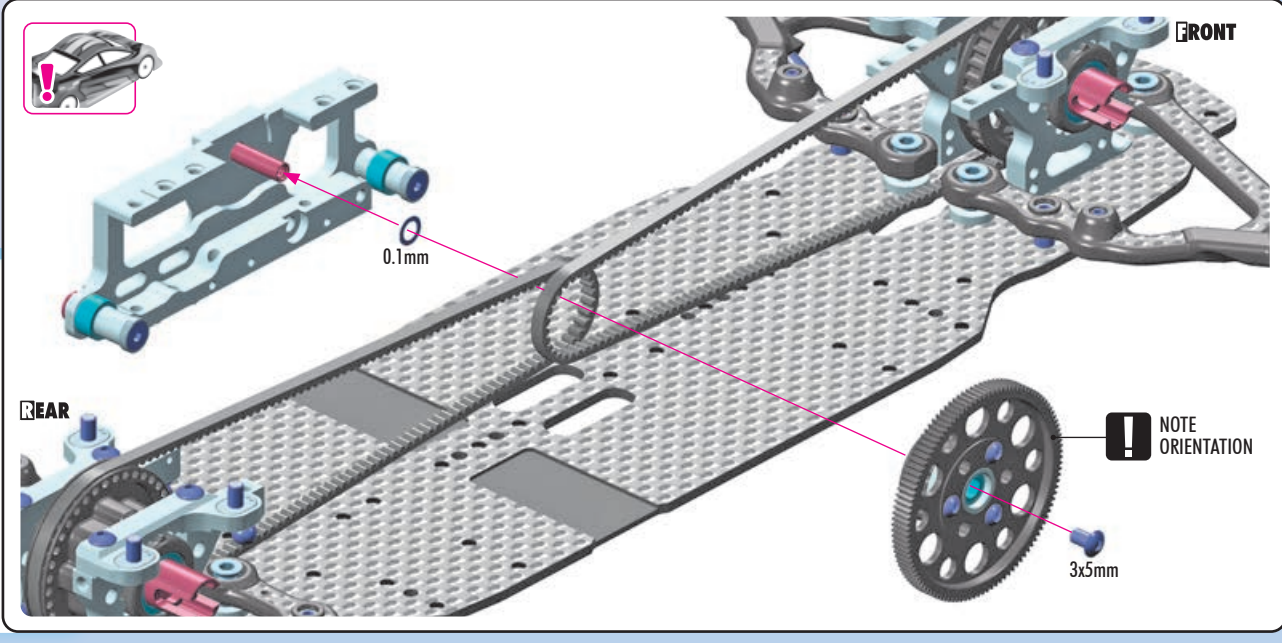
- 1x 303122-K SHIM 3x6x1
- 2x 303127-K SHIM 3x6x4
- 1x 303139-K SHIM 3x6x7
- 2x 903318 SFH M3x18
- 2x 930308 BB 3x8x4



- 1x 902305 SH M3x5
- 1x 962042 S 4x6x0.1

**VIDEO TECH TIP**

BELT TENSION ADJUSTMENT

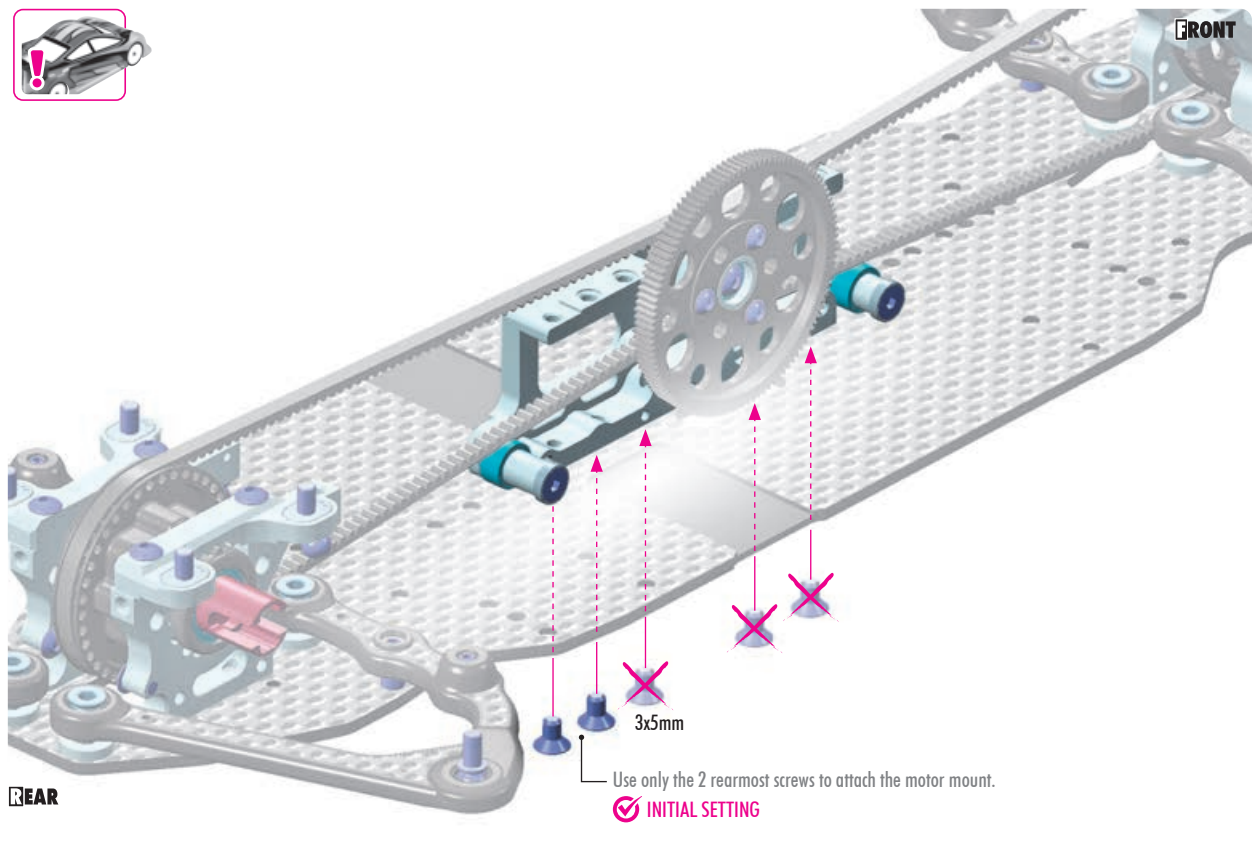




# 3. CENTRAL TRANSMISSION



2x 903305 SFH M3x5



2x 903305 SFH M3x5



## MOTOR MOUNT FLEX ADJUSTMENT

The motor mount is part of the chassis flex adjustment. Adding or removing screws from the mount will create different flex settings for different tracks and traction levels.

NOTE: When removing screws from the motor mount, the spur gear becomes more susceptible to breakage in crashes.



VIDEO TECH TIP



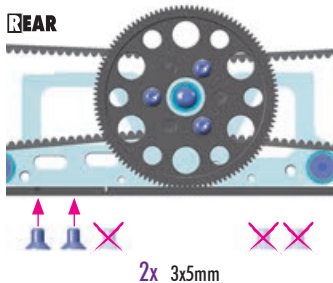
MOTOR MOUNT FLEX

### SOFT



LOW & MEDIUM traction conditions.

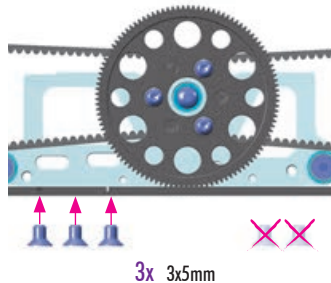
For use only the 2 rearmost screws to attach the motor mount (as shown). DO NOT install the 3 screws immediately in front of & behind the spur gear. This allows the chassis to flex more in the central area, and will improve traction (especially on-power). Rear traction will be improved through the entire corner, but initial reaction will decrease. This setting is recommended for low- to medium traction conditions, both on carpet and asphalt.



### MEDIUM

MEDIUM traction conditions.

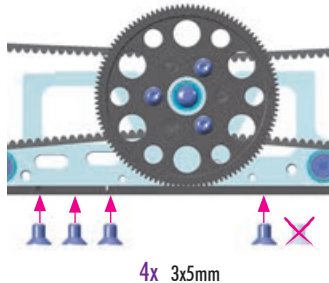
For use only the 3 rearmost screws to attach the motor mount (as shown); DO NOT install the screws in front of the spur gear. This provides a good compromise between stability and initial response. The car will have more rear traction than the full stiff setting, but will NOT be as stable as the soft setting.



### STIFF

HIGH-TRACTION carpet conditions.

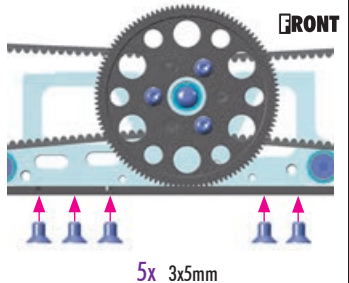
For use the 3 rearmost screws and one in front of the spur gear to attach the motor mount (as shown); DO NOT install the very front screw. Will give great steering response, but with reduced mechanical traction. The car will have more cornering speed, but will be more difficult to drive. Mainly recommended for high-traction carpet conditions.



### EXTRA STIFF

HIGH-TRACTION US BLACK carpet conditions.

For using all screws to attach the motor mount (as shown) will give the best feeling for US black carpet. This setting provides the best stability and traction for these specific conditions.



# 3. CENTRAL TRANSMISSION

- 2x 303121-K SHIM 3x6x0.5
- 3x 903305 SFH M3x5
- 2x 903306 SFH M3x6

## OPTION

#303768 ALU CHASSIS T-BRACE - 7075 T6

#303767 BRASS CHASSIS T-BRACE - 10g

Use only for STIFF setting

0.5mm

0.5mm

REAR

3x6mm

3x5mm

3x5mm

3x5mm

FRONT

**NOTE ORIENTATION**

CHANNEL

TOP

0.5mm SHIM

BOTTOM

0.5mm SHIM



### CHASSIS FLEX ADJUSTMENT

The brace provides chassis flex adjustment possibilities depending on which screws are connected.

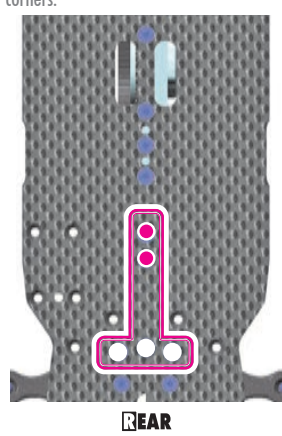
#### SOFT

When the brace is NOT installed, the car will have the most steering and rotation. However, the car will be more difficult to drive as it is less stable. Recommended for medium-high traction conditions and for small, technical tracks with many hairpin corners.



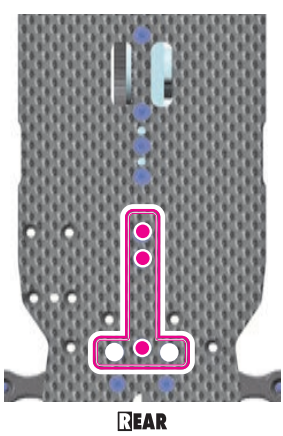
#### SOFT - MEDIUM

Install the brace using only the 2 forward bottom centerline screws (as shown). This provides improved on-power stability but still offers great off-power steering and rotation. Recommended for medium-high traction conditions and for small, technical tracks with many hairpin corners.



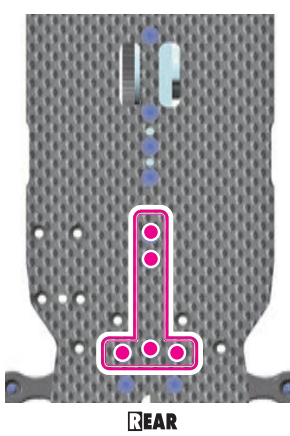
#### MEDIUM

Install the brace using all 3 bottom centerline screws (as shown). This provides improved on-power stability and traction, but makes the car push more off-power. Recommended for low- or high-traction conditions where stability and traction is needed.



#### STIFF

In addition to installing all 3 bottom centerline screws, also install the 2 rear side screws but with 0.5mm shims between the brace and the chassis. This setting provides maximum stability.



VIDEO TECH TIP

CHASSIS & TOP DECKS

- 2x 901302 SB M3x2.5
- 2x 901313 SB M3x12

2x

3x2.5mm

3x12mm

6mm

DO NOT overtighten.

**!** The screw presses against the notch.

ASSEMBLED VIEW

# 3. CENTRAL TRANSMISSION

- 2x 901302 SB M3x2.5
- 2x 981208 P 2x8

**2x REAR SHOCK HOLDERS**

**CHAMFERED EDGE UPPER ORIENTATION** !

**STEP 3**  
To avoid cross-threading and damaging the shock holders, make sure to insert the set screw slowly and at the **CORRECT ANGLE AS SHOWN**.

**CHECK FOR FREE MOVEMENT**

**NOTE ORIENTATION** !

- 2x 902308 SH M3x8

**ALTERNATIVE 1. FIXED REAR SHOCK HOLDERS**

**INITIAL SETTING**

Fixed rear shock holder setting provides traditional feel and suspension reaction and is the suggested starting point for most conditions.

**2x**

3x8mm

**ALTERNATIVE 2. ACTIVE REAR SHOCK HOLDERS**

Active rear shock holder setting increases speed of suspension reaction, improving off-power steering and rotation in high traction conditions.

**2x**

**DO NOT use.**

- 2x 303142-K SHIM 3x5x0.5
- 2x 902310 SH M3x10
- 2x 903305 SFH M3x5

**REAR SHOCK HOLDERS FLEX ADJUSTMENT**

The brace provides chassis flex adjustment possibilities depending on which screws are connected.

**FLEX ALTERNATIVE 1. INITIAL SETTING**

Attach the shock holder to both the chassis and bulkhead for free yet predictable handling for the easiest control. Recommended as a starting point for all traction levels.

**FLEX ALTERNATIVE 2.**

Attach the shock holder to only the chassis for maximum mechanical traction. Recommended for low to medium traction tracks.

**FLEX ALTERNATIVE 3.**

Attach the shock holder to only the bulkhead for more aggressive reaction, but reduced mechanical traction may be more difficult to drive. Recommended for medium to high traction conditions.

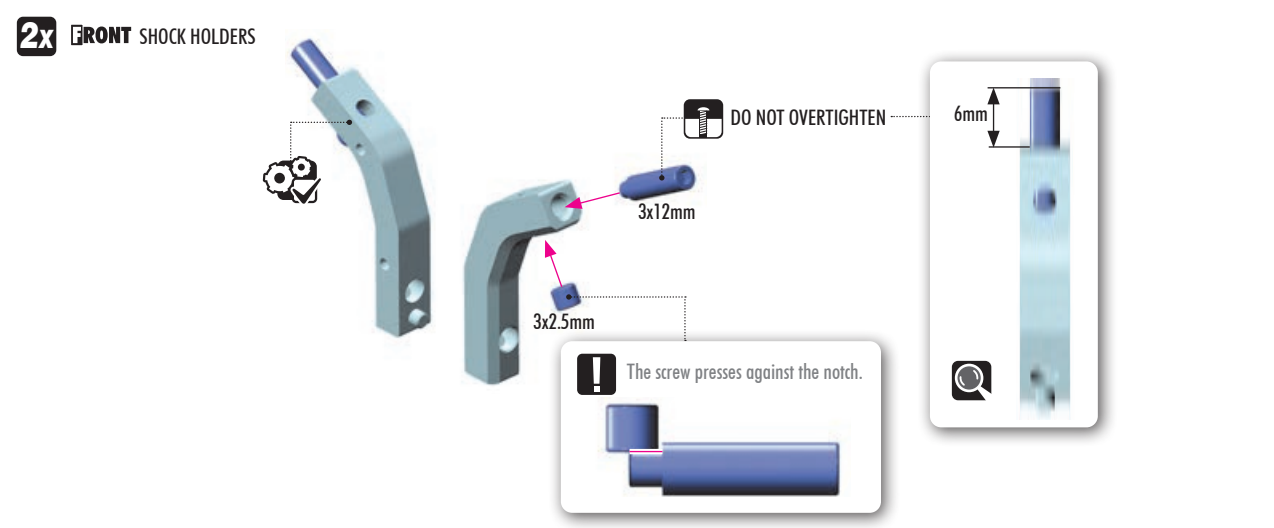
**1** » All screws **TIGHTEN GENTLY**

» Fully **TIGHTEN** in this order

# 3. CENTRAL TRANSMISSION

- 
**2x** 901302  
SB M3x2.5
- 
**2x** 901313  
SB M3x12

**2x** FRONT SHOCK HOLDERS





DO NOT OVERTIGHTEN 6mm

3x12mm


3x2.5mm

! The screw presses against the notch.

- 
**2x** 303142-K  
SHIM 3x5x0.5
- 
**2x** 902310  
SH M3x10
- 
**2x** 903305  
SFH M3x5

## FRONT SHOCK HOLDERS FLEX ADJUSTMENT

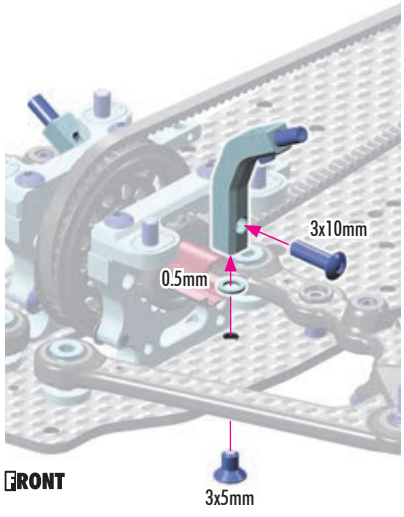
The brace provides chassis flex adjustment possibilities depending on which screws are connected.



**FLEX ALTERNATIVE 1.**

**✓ INITIAL SETTING**

Attach the shock holder to both the chassis and bulkhead for free yet predictable handling for the easiest control. Recommended as a starting point for all traction levels.



FRONT

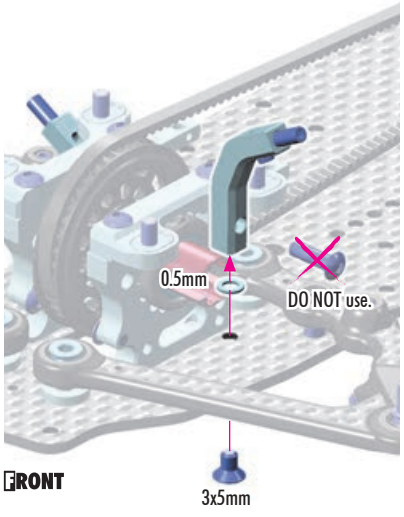
3x10mm

0.5mm

3x5mm

**FLEX ALTERNATIVE 2.**

Attach the shock holder to only the chassis for maximum mechanical traction. Recommended for low to medium traction tracks.



FRONT

3x10mm

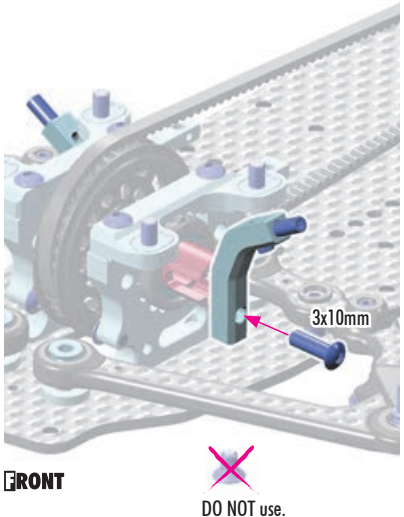
0.5mm

DO NOT use.

3x5mm

**FLEX ALTERNATIVE 3.**

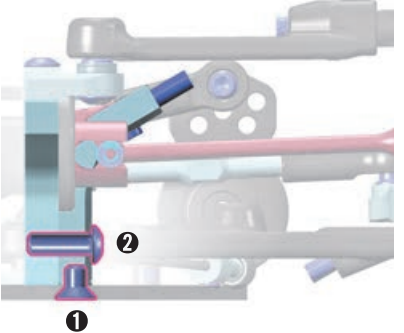
Attach the shock holder to only the bulkhead for more aggressive reaction, but reduced mechanical traction may be more difficult to drive. Recommended for medium to high traction conditions.



FRONT


3x10mm

DO NOT use.



1

2

» All screws **TIGHTEN GENTLY** 

» Fully **TIGHTEN** in this order

# 4. STEERING

(All X4 top decks fit also into X4'25 car)



#301072 X4 CARBON UPPER DECK - SPLIT FRONT - 2.0mm  
#301073 X4 CARBON UPPER DECK - SPLIT REAR - 2.0mm



#301079-L X4 CARBON UPPER DECK - SPLIT FRONT - 1.6mm  
#301078-L X4 CARBON UPPER DECK - SPLIT REAR - 1.6mm



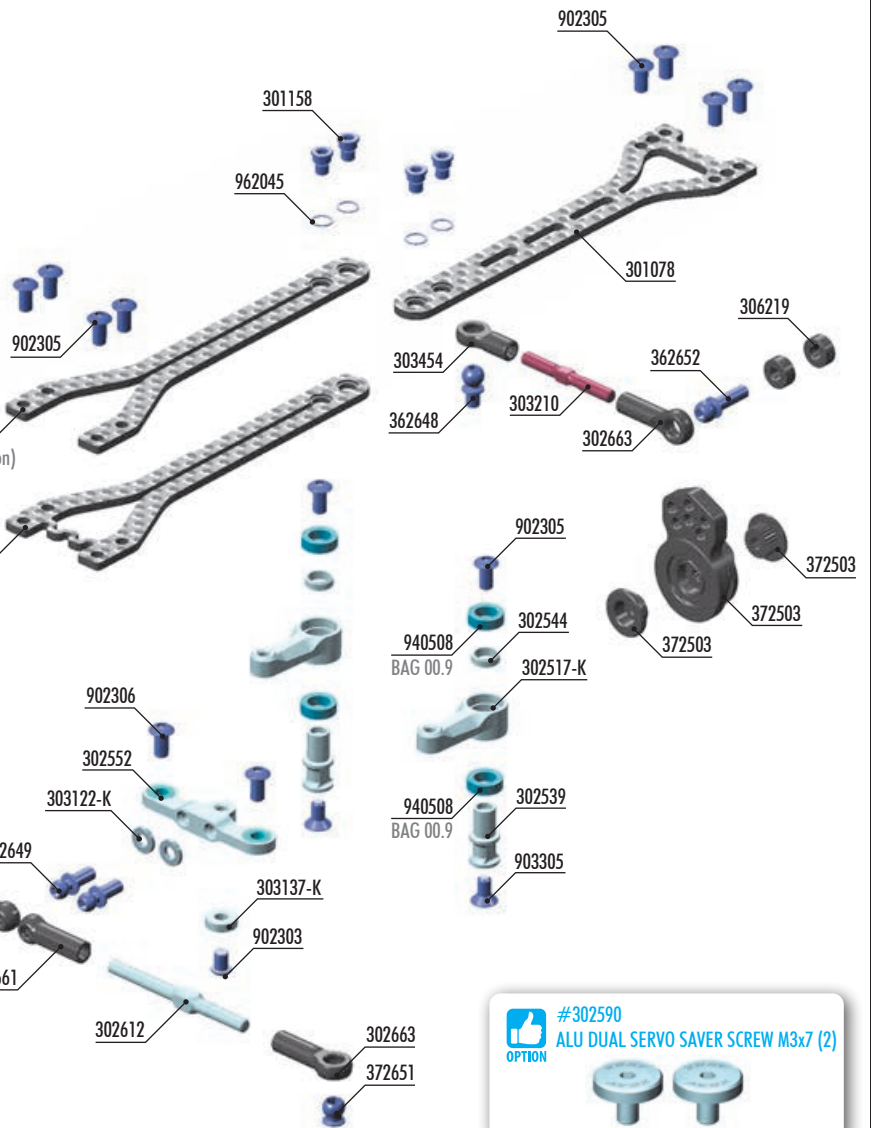
#301071 X4 CARBON UPPER DECK 1.6mm  
#301070 X4 CARBON UPPER DECK 2.0mm



#301079-K X4 GLASS FIBER UPPER DECK - SPLIT FRONT - 1.5mm  
#301078-K X4 GLASS FIBER UPPER DECK - SPLIT REAR - 1.5mm



#302553  
ALU STEERING PLATE 7.5mm FOR DUAL SERVO SAVER



**HUDY TITANIUM BALL STUD**

#990004 D=4.9 L=4 S=3.5 OPTION  
#990010 D=4.9 L=10 S=3.5 OPTION



**HUDY TITANIUM PIVOT BALL**

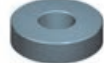
#990101 D=4.9 S=5 OPTION



#302571  
X4 CARBON STEERING PLATE SET



#303138-K or 303138-O  
ALU SHIM 3x7x2.0mm (10)



#302590  
ALU DUAL SERVO SAVER SCREW M3x7 (2)



#302610  
ADJ. TURNBUCKLE L/R 39mm  
HUDY SPRING STEEL™ (2)



#302612-0  
ALU ADJ. TURNBUCKLE M3 L/R 39mm  
ORANGE - SWISS 7075 T6 (2)

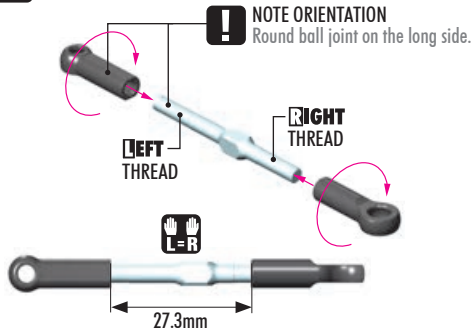


- 301077 X4 CARBON UPPER DECK - SPLIT FRONT OPEN - 2.0mm
- 301078 X4 CARBON UPPER DECK - SPLIT REAR - 2.0mm
- 301079 X4 CARBON UPPER DECK - SPLIT FRONT WAVE - 2.0mm
- 301158 TOP DECK HEX SCREW M3x5.5 - HUDY SPRING STEEL™ (2)
- 302517-K X4 ALU DUAL STEERING ARM - BLACK + BALL-BEARINGS (2)
- 302539 X4 ALU STEERING POST FOR DUAL SERVO SAVER (2)
- 302544 ALU SHIM FOR RADIAL PLAY ADJUSTMENT OF STEERING ARM (2)
- 302552 ALU STEERING PLATE 8.0mm FOR DUAL SERVO SAVER
- 302612 ALU ADJ. TURNBUCKLE M3 L/R 39mm - SWISS 7075 T6 (2)
- 302663 COMPOSITE BALL JOINT 5mm - OPEN - V2 (8)
- 303122-K ALU SHIM 3x6x1.0mm - BLACK (10)
- 303137-K ALU SHIM 3x7.5x2.0mm - BLACK (10)
- 303210 REAR TURNBUCKLE L/R 26mm - HUDY SPRING STEEL (2)
- 303454 BALL JOINT 4.9mm - OPEN (4)

- 306219 COMPOSITE SET OF SERVO SHIMS (4)
- 362648 BALL END 4.9mm WITH THREAD 4mm (2)
- 362652 BALL END 4.9mm WITH THREAD 10mm (2)
- 372503 COMPOSITE SERVO SAVER - X-STIFF - SET - V2
- 372649 BALL END 4.2mm WITH 4mm THREAD (2)
- 372651 PIVOT BALL UNIVERSAL 4.9mm - HUDY SPRING STEEL™ (2)
- 372661 COMPOSITE STEERING BALL-JOINT OPEN 4.2mm (4)
- 902303 HEX SCREW SH M3x4 SMALL HEAD - STAINLESS (10)
- 902305 HEX SCREW SH M3x5 (10)
- 902306 HEX SCREW SH M3x6 (10)
- 903305 HEX SCREW SFH M3x5 (10)
- 940508 BALL-BEARING 5x8x2.5 RUBBER-SEALED - OILED (2)
- 962045 WASHER S 4x5x0.2 (10)

# 4. STEERING

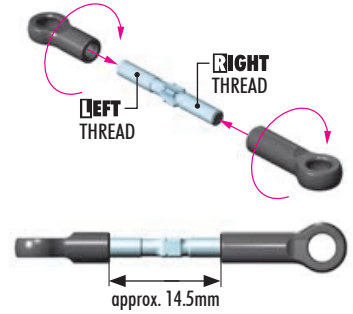
## 2x STEERING LINKS



- #302612-0  
ALU ADJ. TURNBUCKLE M3 L/R  
39mm ORANGE - SWISS 7075 T6 (2)
- #302610  
ADJ. TURNBUCKLE L/R 39mm  
HUDY SPRING STEEL (2)

## SERVO LINK

Adjust servo link to fit your servo.



1x 303137-K  
SHIM 3x7.5x2



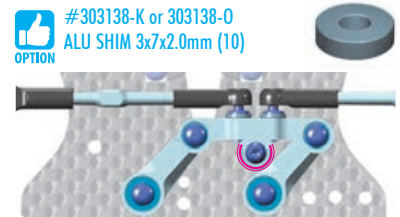
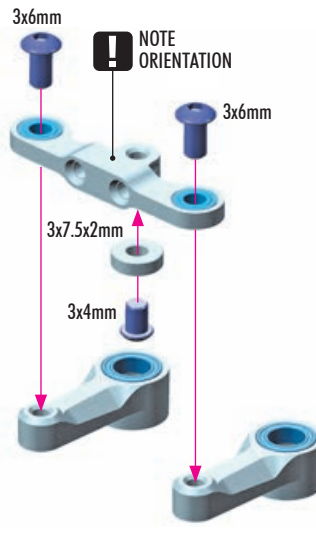
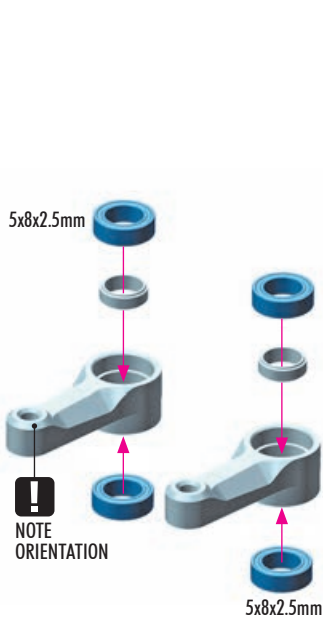
1x 902303  
SH M3x4



2x 902306  
SH M3x6



4x 940508  
BB 5x8x2.5



### STEERING LOCK ADJUSTMENT:

The steering lock is adjusted by changing the diameter of the shim attached to the steering plate. The kit includes a 7.5mm OD shim, limiting physical steering lock to approx. 26°.

An optional 7mm shim is available to achieve 28° of steering lock.

Running NO shim will allow up to 29° of steering lock. More steering lock will increase steering, especially in tight corners, but it will also reduce cornering speed and make the car more difficult to drive.

**IMPORTANT!** When using NO shim, make sure the steering plates are NOT touching the front shocks which can tweak the car.

### For VTA class:

Never use more than 25° steering lock otherwise the tire will touch the arm. We recommend to use 25° steering lock for asphalt. For high traction carpet conditions, we recommend to use steering lock between 21° to 23° to avoid traction rolling and to improve cornering speed.



VTA CLASS

### VIDEO TECH TIP



STEERING SYSTEM

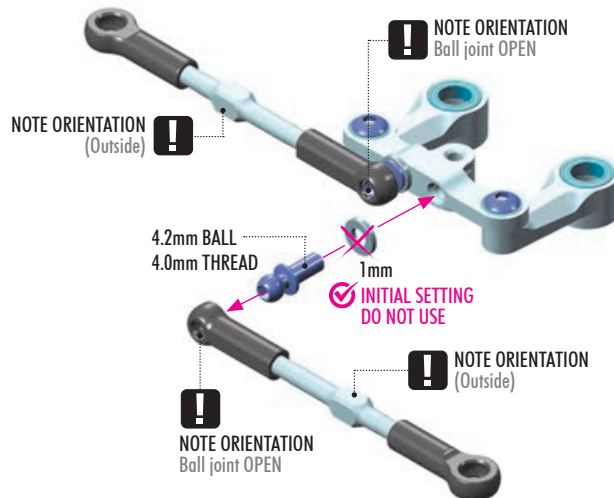


Optional 7.5mm steering plate improves in-corner steering and steering response. Recommended for lower traction tracks or technical tracks.



0x 303122-K  
SHIM 3x6x1

## 2x



**TIP** Install the pivot balls with Multi Tool.



# 4. STEERING

**IO**  
2x 306219  
SHIM 3x6x2



VIDEO TECH TIP



STEERING SYSTEM



SERVO HORN HEIGHT

**!** Use the adapter that matches the steering servo.  
F = 25T    H = 24T    K = 23T

4.9mm BALL 10mm THREAD  
4.9mm BALL 4mm THREAD  
2mm

**TIP** Install the pivot balls with Multi Tool.

**INITIAL SETTING**

OPTION	<b>HUDY TITANIUM BALL STUD</b>				
	#990004	D=4.9	L=4	S=3.5	
OPTION	<b>HUDY TITANIUM PIVOT BALL</b>				
	#990010	D=4.9	L=10	S=3.5	

2x 902305  
SH M3x5

2x 903305  
SFH M3x5

**FRONT**

3x5mm

**OPTION** #302590  
ALU DUAL SERVO SAVER SCREW M3x7 (2)

The optional screw removes excessive radial play from the steering.

**OPTION** #302571  
X4 CARBON STEERING PLATE SET

The optional carbon bridge stiffens the steering assembly and improves initial steering response. This option is mainly recommended for medium - to high-traction carpet racing.

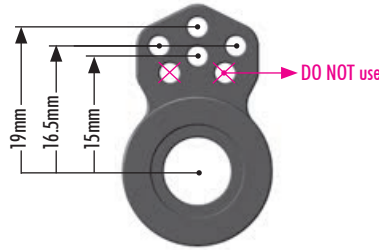
# 4. STEERING

The servo horn length has a significant impact on the reaction to steering input. The length can help tune the car for different conditions and driving styles. The length measurement is from center of the servo spline output to the center of the steering link mounting point.

The included XRAY servo saver offers 4 different length choices. The top hole is 19mm, the second row is 16.5mm, the third row is 15mm. The shortest row is NOT used for X4 cars.

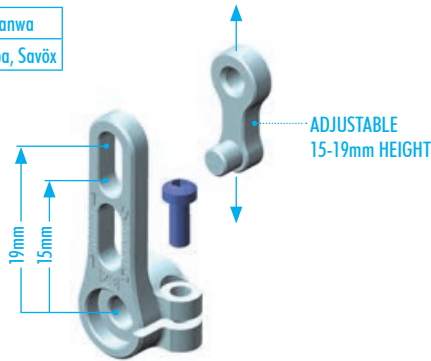
For more in-corner steering and improved steering input response, aluminum servo horns may be used.

The optional HUDY direct servo horns have several useful variations of offsets and lengths for X4 cars.



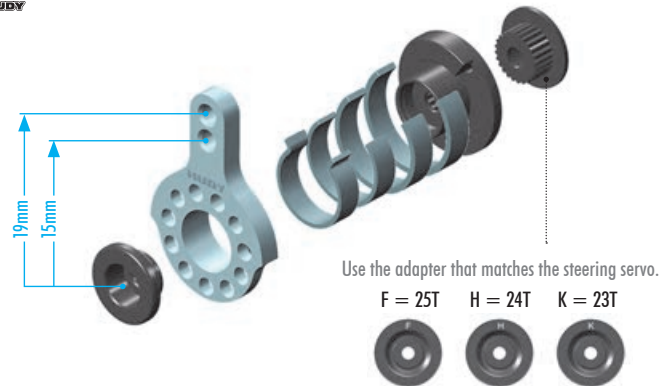
### HUDY ADJUSTABLE CLAMP SERVO HORNS

#293414	23T	KO, Sanwa
#293416	25T	Futaba, Savox



### HUDY ALU FIXED SERVO SAVER 1/10 TC & FWD - SET

#293352



### ALU SERVO HORNS - OFFSET

#293491	23T	KO, Sanwa
#293492	24T	Hitec
#293493	25T	Futaba



### CLAMP ALU SERVO HORNS - OFFSET

#293401	23T	KO, Sanwa
#293402	24T	Hitec
#293403	25T	Futaba



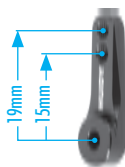
### CLAMP ALU SERVO HORNS - OFFSET

#293411	23T	KO, Sanwa
#293412	24T	Hitec
#293413	25T	Futaba



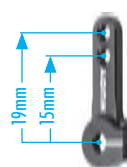
### HUDY ALU SERVO HORNS

#293497	23T	KO, Sanwa
#293498	24T	Hitec
#293499	25T	Futaba



### HUDY CLAMP ALU SERVO HORNS

#293404	23T	KO, Sanwa
#293405	24T	Hitec
#293406	25T	Futaba



**LONGER SERVO HORN LENGTH:** Less servo rotation needed to reach the full steering lock, resulting in more responsive and immediate reaction to driver input. A servo horn that is too long can make the car feel nervous to drive. Most XRAY drivers prefer the 19mm length (top row on kit servo saver or 2nd hole on optional 2-hole alum horn).

**SHORTER SERVO HORN LENGTH:** More servo rotation needed to reach full steering lock; providing improved control and consistency from the more precise feel and may help avoid traction rolling in high traction conditions. A shorter horn length requires an increased radio EPA to maintain the desired steering travel. Using a horn length that is too short can make the car feel lazy.



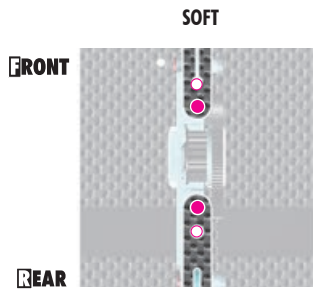
### IMPORTANT!

Using an aluminum servo horn DOES NOT provide any servo protection, increasing the risk of servo damage from crashes.

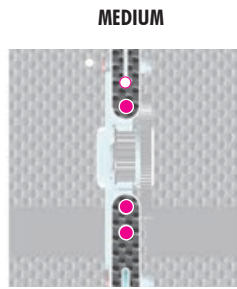


## TOP DECK (SPLIT) FLEX ADJUSTMENT

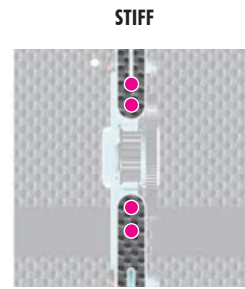
Split top deck provides 3 different flex setting alternatives.



This allows maximum flex and provides maximum steering. However, the car is less stable on-power.



This setting provides reduced rear flex which increases stability. Rotation is decreased.

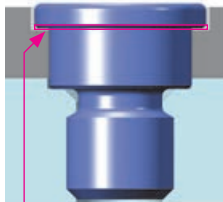


This setting provides reduced flex both in front and rear. Mid-corner steering is decreased, rotation is decreased. This setting provides maximum stability.

INITIAL SETTING

### ALTERNATIVE 1

INITIAL SETTING



With 0.2mm shims

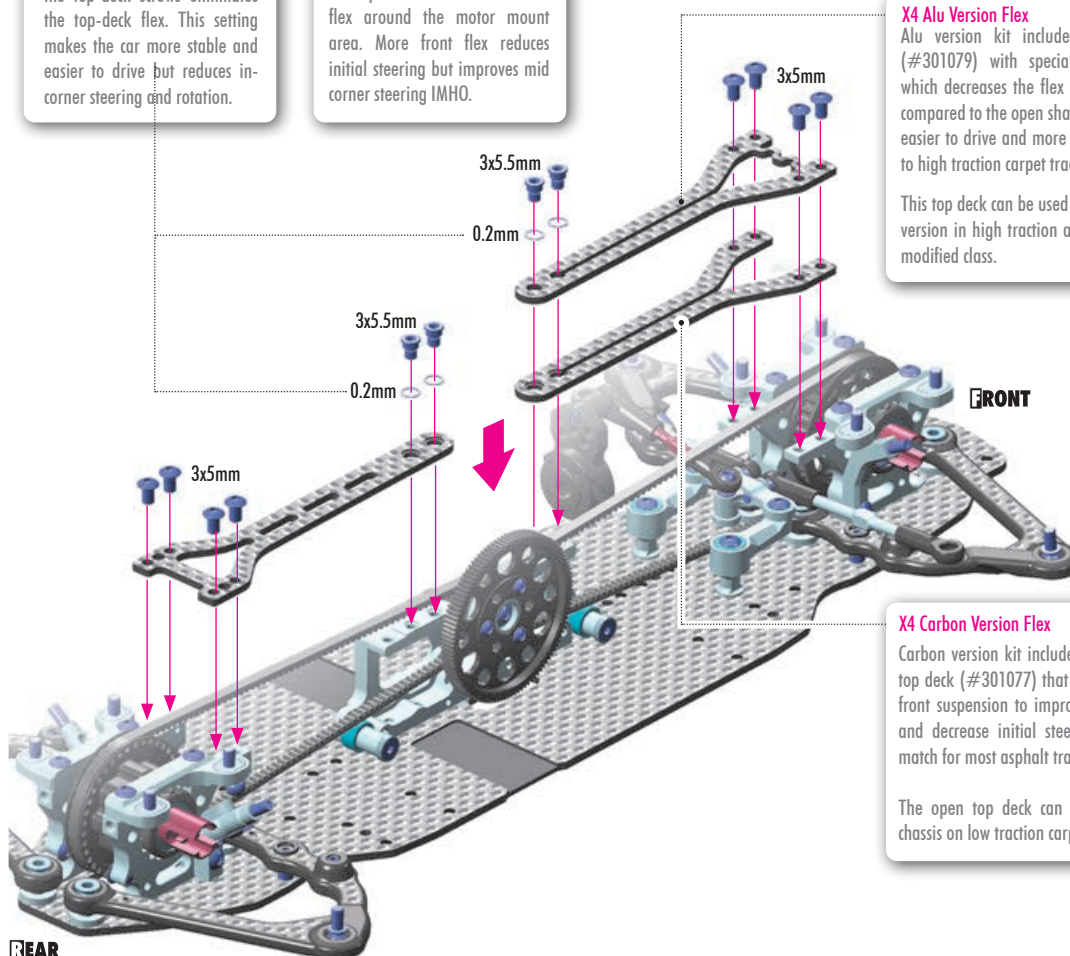
Using the special shims under the top-deck screws eliminates the top-deck flex. This setting makes the car more stable and easier to drive but reduces in-corner steering and rotation.

### ALTERNATIVE 2



Without Shims

Not using the special shims under the top-deck screws allows more flex around the motor mount area. More front flex reduces initial steering but improves mid corner steering IMHO.



### X4 Alu Version Flex

Alu version kit includes the front top deck (#301079) with special wave reinforcement, which decreases the flex of the front suspension compared to the open shape, which makes the car easier to drive and more predictable on medium to high traction carpet tracks.

This top deck can be used as an option for carbon version in high traction asphalt tracks or for the modified class.

### X4 Carbon Version Flex

Carbon version kit includes the open shape front top deck (#301077) that allows more flex in the front suspension to improve mid corner steering and decrease initial steering response, a good match for most asphalt tracks.

The open top deck can also be used with alu chassis on low traction carpet conditions.



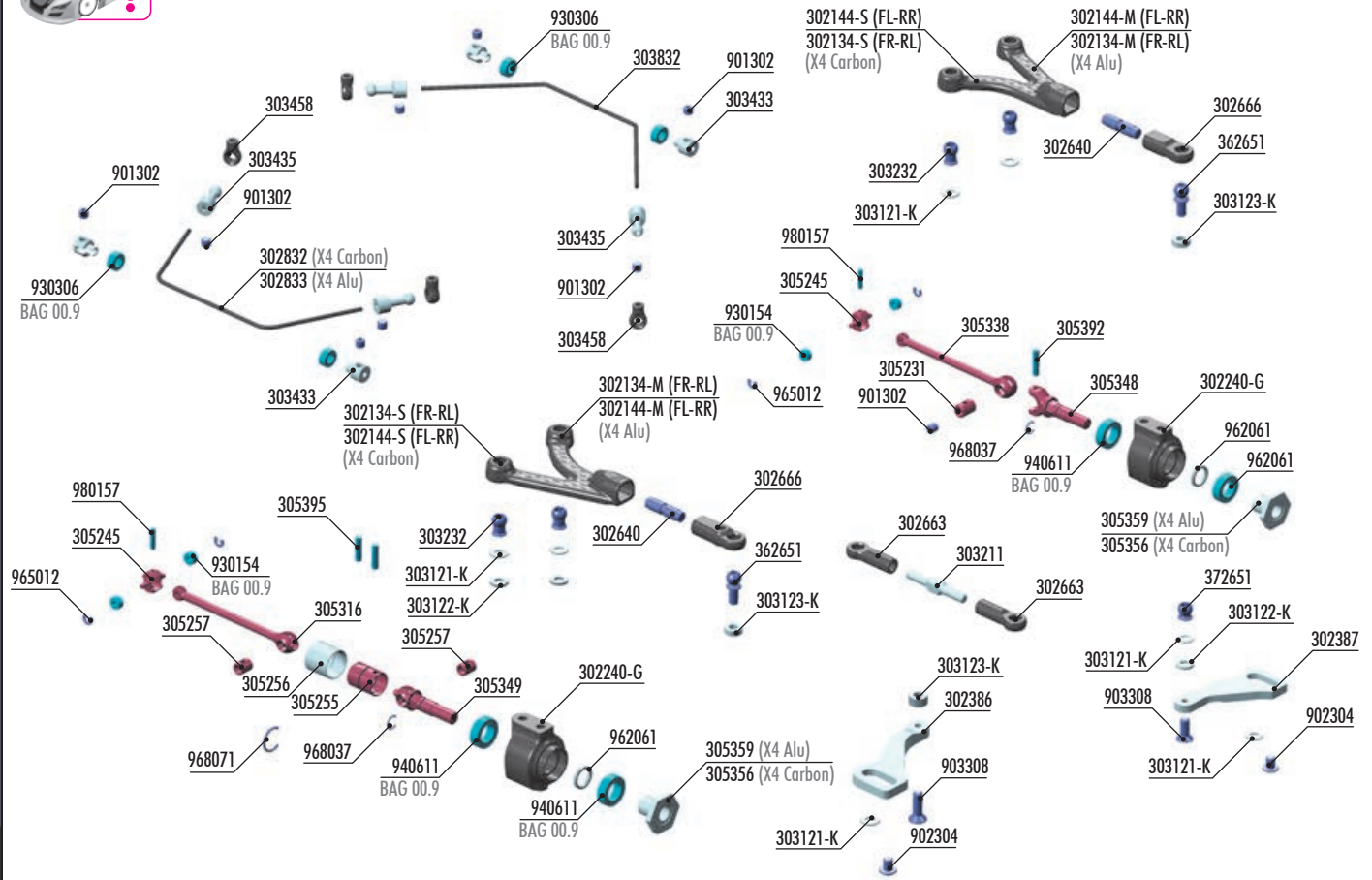
VIDEO TECH TIP



TOP DECK FLEX



# 5. FRONT & REAR SUSPENSION



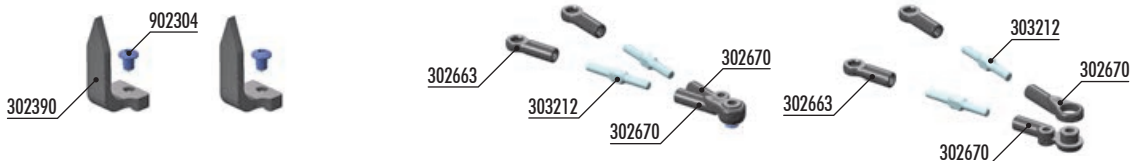
**BAG**

**05**

302134-S	X4 CFF™ UPPER ARM - INNER SHOCK POSITION - SOFT - FR/RL	305257	ECS BB SC DRIVE SHAFT COUPLING - HUDY SPRING STEEL™
302134-M	X4 CFF™ UPPER ARM - INNER SHOCK POSITION - MEDIUM - FR/RL	305306	X4 ECS BB DRIVE SHAFT 58mm - HUDY SPRING STEEL™ - SET
302144-S	X4 CFF™ UPPER ARM - INNER SHOCK POSITION - SOFT - FL/RR	305316	X4 ECS BB DRIVE SHAFT 58mm - HUDY SPRING STEEL™ (2)
302144-M	X4 CFF™ UPPER ARM - INNER SHOCK POSITION - MEDIUM - FL/RR	305335	X4 ECS BB SC DRIVE SHAFT 58mm - HUDY SPRING STEEL™ - COMPL. SET
302240-G	X4 COMPOSITE STEERING BLOCK - GRAPHITE	305338	X4 CVD BB DRIVE SHAFT 54mm - HUDY SPRING STEEL™ (2)
302386	X4 ALU FRONT STEERING PLATE - INNER SHOCK POSITION - 7075 T6 (L+R)	305348	X4 CVD DRIVE AXLE - SPRING CLIP - HUDY SPRING STEEL™
302387	X4 ALU REAR ARS PLATE - INNER SHOCK POSITION - SWISS 7075 T6 (L+R)	305349	X4 ECS DRIVE AXLE - SPRING CLIP - HUDY SPRING STEEL™
302640	ADJUSTABLE CAMBER SCREW 14mm M4 L/R - HUDY SPRING STEEL™ (2)	305356	X4 ALU WHEEL HUB - SPRING CLIP - SWISS 7075 T6 (2)
302663	COMPOSITE BALL JOINT 4.9mm - OPEN - V2 (8)	305359	X4 ALU WHEEL HUB - SPRING CLIP - OFFSET +0.5MM - SWISS 7075 T6 (2)
302666	COMPOSITE BALL JOINT 4.9mm F+R - OPEN (2+2)	305392	DRIVE SHAFT PIN 2 x 10 WITH FLAT SPOT (2)
302832	X4 ANTI-ROLL BAR UAM - UNDER ARM MOUNT - FRONT 1.2mm	305395	ECS BB SC DRIVE SHAFT CASE - HUDY SPRING STEEL™ (2)
302833	X4 ANTI-ROLL BAR UAM - UNDER ARM MOUNT - FRONT 1.3mm	305408	X4 CVD BB DRIVE SHAFT 54mm - HUDY SPRING STEEL™ - SET
303121-K	ALU SHIM 3x6x0.5mm - BLACK (10)	362651	BALL END 4.9mm WITH THREAD 8mm (2)
303122-K	ALU SHIM 3x6x1.0mm - BLACK (10)	372651	PIVOT BALL UNIVERSAL 4.9mm - HUDY SPRING STEEL™ (2)
303123-K	ALU SHIM 3x6x2.0mm - BLACK (10)		
303211	ALU ADJUSTABLE TURNBUCKLE L/R 30mm - SWISS 7075 T6 (2)	901302	HEX SCREW SB M3x2.5 (10)
303232	X4 UPPER ARM BALL UNIVERSAL 4.9mm - HUDY SPRING STEEL™ (2)	902304	HEX SCREW SH M3x4 - STAINLESS (10)
303433	ALU ANTI-ROLL BAR BUSHING ø1.7mm - 6mm (2)	903308	HEX SCREW SFH M3x8 (10)
303435	ALU ANTI-ROLL BAR BALL END 3.9mm - SWISS 7075 T6 (2)	930154	BALL-BEARING 1.5x4x2 STEEL SEALED - OIL (4)
303458	COMPOSITE ANTI-ROLL BAR BALL JOINT 3.9mm (4)	930306	BALL-BEARING 3x6x2.5 STEEL-SEALED - OILED (2)
303832	X4 ANTI-ROLL BAR UAM - UNDER ARM MOUNT - REAR 1.2mm	940611	BALL-BEARING 6x10x3 RUBBER SEALED - OIL (2)
305231	DRIVE SHAFT COUPLING - HUDY SPRING STEEL™	962061	WASHER S 6x7.5x1.0 (10)
305245	ECS BB DRIVE SHAFT ADAPTER - HUDY SPRING STEEL™ (2)	965012	E-CLIP 1.2 (10)
305255	ECS BB SC DRIVE SHAFT CASE - HUDY SPRING STEEL™	968037	C-CLIP 3.7 (10)
305256	ECS BB SC ALU DRIVE SHAFT SLEEVE - SWISS 7075 T6	968071	C-CLIP 7.1 (10)
		980157	PIN 1.5x7.3 (10)

**BAG**

**05.1**



302390	X4 COMPOSITE CASTER GAUGE (2)	303212	ALU ADJ. TURNBUCKLE L/R 26MM - SWISS 7075 T6 (2)
302663	COMPOSITE BALL JOINT 4.9MM - OPEN - V2 (8)	902304	HEX SCREW SH M3x4 - STAINLESS (10)
302670	COMPOSITE UPPER ARM LINKS (1+1+1+1)		

# 5. FRONT & REAR SUSPENSION



2x 901302  
SB M3x2.5



2x 305392  
P 2x10



4x 305395  
P 2x8.4



4x 968037  
C 3.7



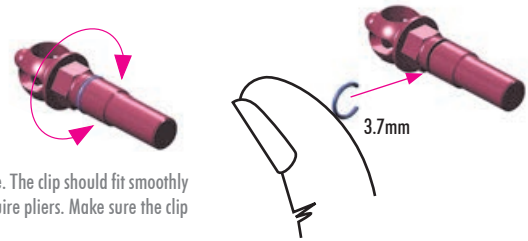
2x 968071  
C 7.1

## 2x REAR TRANSMISSION - CVD DRIVE SHAFT



Insert the clip into the groove on the axle. The clip should fit smoothly without extra force and should NOT require pliers. Make sure the clip will rotate after installation.

## 2x FRONT TRANSMISSION - ECS DRIVE SHAFT

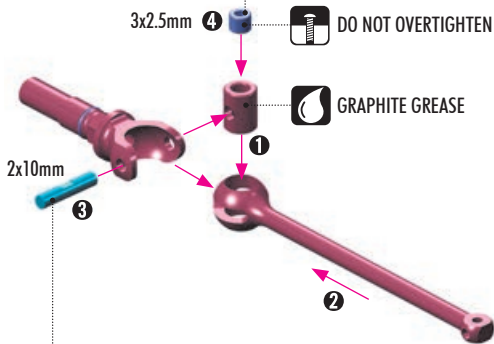


### THREAD LOCK

Apply a small amount of thread lock and confirm it does not leak onto other driveshaft parts. After assembly, wait until the thread lock dries and check if the drive shaft and axle can move freely in all directions.

### DO NOT OVERTIGHTEN

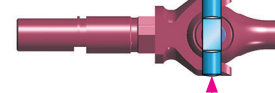
### GRAPHITE GREASE



### DETAIL STEP 3 4



Make sure the pin is centered in the driveshaft after assembly.



Set-screw against the flat spot.



### REAR CVD DRIVE SHAFTS

OPTION	Part Number	Length	Type	Status
	#305370	54mm	CVD	OPTION
	#305407	52mm	BB CVD	OPTION
	#305408	54mm	BB CVD	INCLUDED

### #305407

Shorter 52mm rear drive shafts improve rotation and off power steering but decreases rear traction.

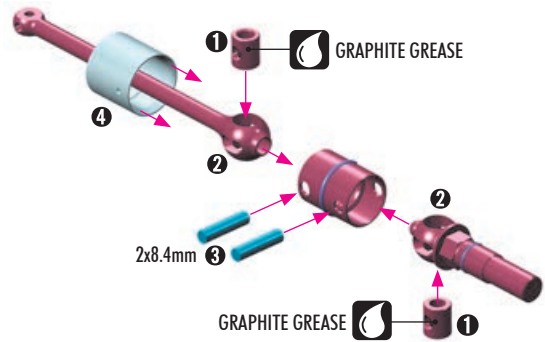
Recommended for small technical tracks and high traction conditions.

### #305370

54mm rear drive shafts using 305241 replacement caps generate more rear traction.

Recommended for very low traction conditions. Requires 304970/304971 driveshaft adapters.

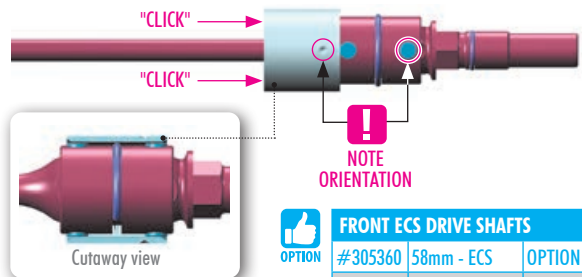
## 2x



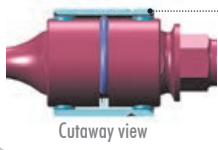
### GRAPHITE GREASE

### GRAPHITE GREASE

### GRAPHITE GREASE



### NOTE ORIENTATION



Cutaway view



### FRONT ECS DRIVE SHAFTS

OPTION	Part Number	Length	Type	Status
	#305360	58mm	ECS	OPTION
	#305306	58mm	BB ECS	INCLUDED
	#305307	59mm	BB ECS	OPTION

### #305307

Longer 59mm front drive shafts provide more stability but reduce steering.

Recommended for high traction carpet.

### #305360

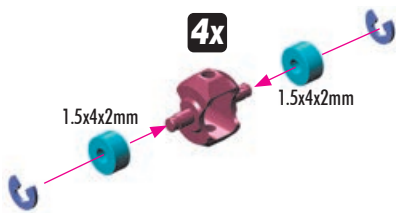
58mm front drive shafts must be used with 305241 replacement caps.



8x 930154  
BB 1.5x4x2



8x 965012  
E 1.2



4x 980157  
P 1.5x7.3

## 2x CVD DRIVE SHAFT

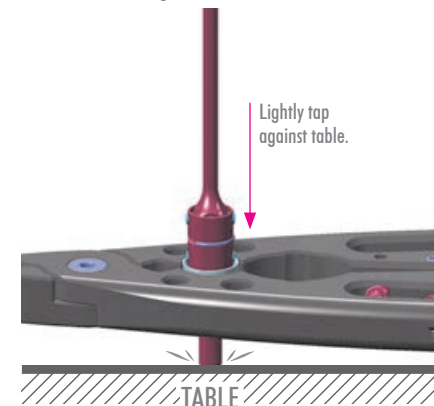


## 2x ECS DRIVE SHAFT



### TIP DISASSEMBLY OF ECS DRIVE SHAFT

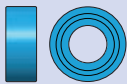
To disassemble the alu drive shaft sleeve from the drive shaft, hold the sleeve firmly with a HUDY Multi-Tool, and lightly push the drive shaft down against a flat surface.



Lightly tap against table.

TABLE

# 5. FRONT & REAR SUSPENSION



4x 940611  
BB 6x10x3



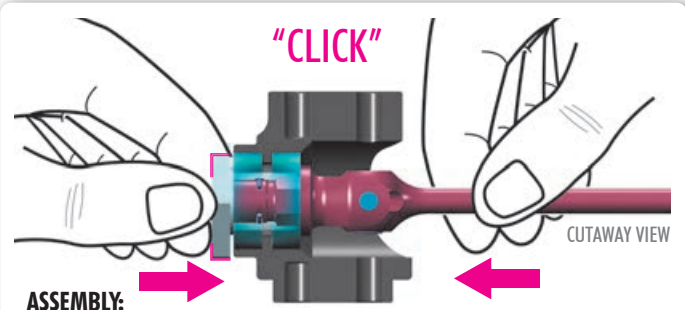
2x 962061  
S 6x7.5x1

## 2x REAR TRANSMISSION



OPTION	OFFSET WHEEL SHIMS	
#305380	0.75mm	OPTION
#305382	0.5mm	OPTION
#305381	1.0mm	OPTION

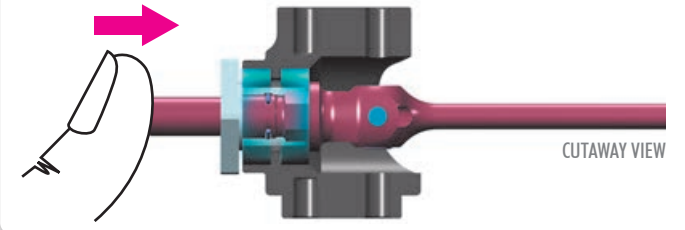
To adjust vehicle width, add or remove optional wheel shims.



**ASSEMBLY:**  
When installing the wheel hub on the drive axle, make sure the inside groove in the hub seats over the clip on the axle.

To confirm proper installation there should be a 'click' noise when the clip engages the inner groove in the wheel hub. There should be slight axial play once fully seated.

**DISSASSEMBLY:**  
To remove the wheel hub from the axle, push the end of the axle back through the wheel hub to separate the wheel hub from the inner clip.



VIDEO TECH TIP



FRONT & REAR UPRIGHTS

Kit includes two different alu wheel hubs in the carbon and alu version to provide the best performance out of the box.

#305356  
ALU WHEEL HUB  
(INCLUDED in Carbon Kit Version)

Standard wheel hubs are the best choice for asphalt tracks as they provide great balance between traction and steering in these conditions.

#305359  
ALU WHEEL HUB +0.5mm  
(INCLUDED in Alu Kit Version)

Wider hubs free up the car, making it more stable and easier to drive. The wide hubs are recommended for carpet tracks.

OPTION #305354  
ALU WHEEL HUB -0.5mm

For very low traction conditions, the narrower wheel hubs can generate more traction and steering but will make the car nervous and decrease cornering speed.

OPTION	STEERING BLOCKS	
#302240-M	MEDIUM	OPTION
#302240-H	HARD	OPTION
#302240-G	GRAPHITE	INCLUDED
#302241	ALU	OPTION

**MEDIUM**  
Medium hubs generate maximum side traction. Recommended for low traction asphalt conditions in the modified class.

**HARD**  
Hard hubs are recommended for low to medium traction conditions to help generate more traction.

**ALU**  
Alu hubs are recommended for high traction surfaces to improve rotation and free up the car, but they will decrease traction. Alu hubs also improve durability in serious crashes.



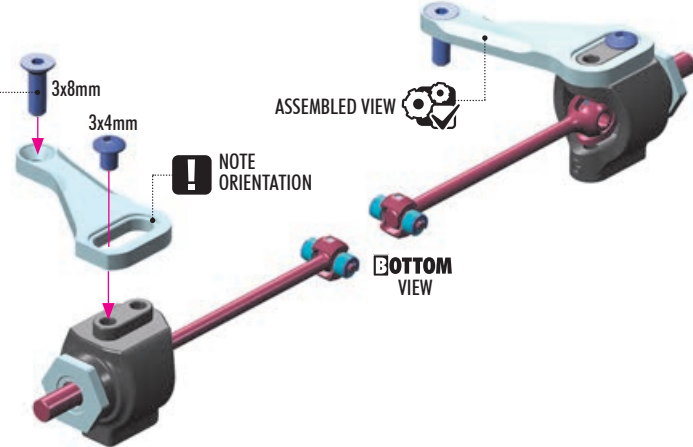
2x 902304  
SH M3x4



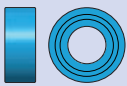
2x 903308  
SFH M3x8

## 2x REAR TRANSMISSION

**DO NOT OVERTIGHTEN**  
The thread in the rear ARS plate is very short; therefore, make sure to tighten the screw gently.



# 5. FRONT & REAR SUSPENSION

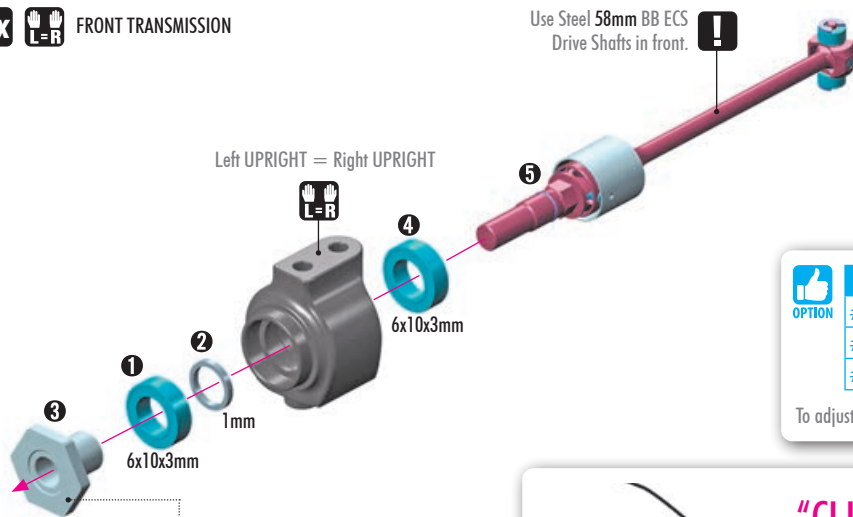


4x 940611  
BB 6x10x3



2x 962061  
S 6x7.5x1

## 2x FRONT TRANSMISSION



OPTION	OFFSET WHEEL SHIMS		
#305380	0.75mm	OPTION	
#305382	0.5mm	OPTION	
#305381	1.0mm	OPTION	

To adjust vehicle width, add or remove optional wheel shims.

X4'25 includes two different alu wheel hubs in the carbon and alu version to provide the best performance out of the box.

#305356  
ALU WHEEL HUB

(INCLUDED in Carbon Kit Version)



Standard wheel hubs are the best choice for asphalt tracks as they provide great balance between traction and steering in these conditions.

#305359  
ALU WHEEL HUB +0.5mm  
(INCLUDED in Alu Kit Version)

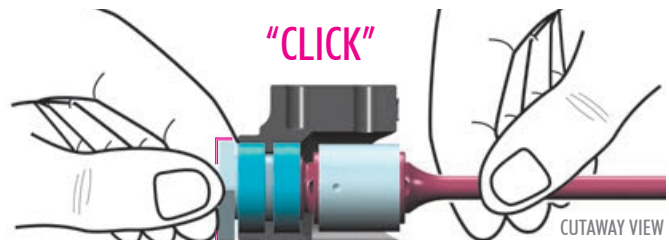


Wider hubs free up the car, making it more stable and easier to drive. The wide hubs are recommended for carpet tracks.

#305354  
ALU WHEEL HUB -0.5mm



For very low traction conditions, the narrower wheel hubs can generate more traction and steering but will make the car nervous and decrease cornering speed.



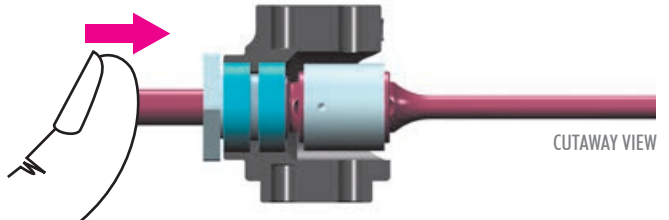
### ASSEMBLY:

When installing the wheel hub on the drive axle, make sure the inside groove in the hub seats over the clip on the axle.

To confirm proper installation there should be a 'click' noise when the clip engages the inner groove in the wheel hub. There should be slight axial play once fully seated.

### DISSASSEMBLY:

To remove the wheel hub from the axle, push the end of the axle back through the wheel hub to separate the wheel hub from the inner clip.



OPTION	STEERING BLOCKS		
#302240-M	MEDIUM	OPTION	
#302240-H	HARD	OPTION	
#302240-G	GRAPHITE	INCLUDED	
#302241	ALU	OPTION	

### MEDIUM

Medium hubs generate maximum side traction. Recommended for low traction asphalt conditions in the modified class.

### HARD

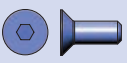
Hard hubs are recommended for low to medium traction conditions to help generate more traction.

### ALU

Alu hubs are recommended for high traction surfaces to improve rotation and free up the car, but they will decrease traction. Alu hubs also improve durability in serious crashes.



2x 902304  
SH M3x4



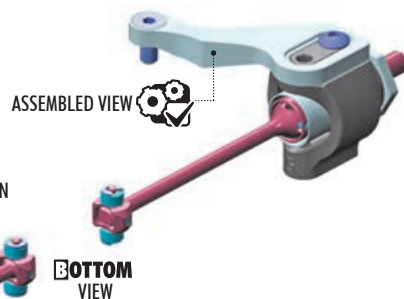
2x 903308  
SFH M3x8

## 2x FRONT TRANSMISSION

**DO NOT OVERTIGHTEN**  
The threads in the front steering plate are very short; take caution to tighten the screw gently.



NOTE ORIENTATION



# 5. FRONT & REAR SUSPENSION

2x 303121-K SHIM 3x6x0.5

VIDEO TECH TIP

ROLL-CENTER

**ASSEMBLED VIEW**

**GRAPHITE GREASE**  
Apply graphite grease to the bearings

**REAR**

0.5mm

When using more than 1mm shim under the hub, use the #303261 pivot ball with longer 6.5mm thread length to increase durability in serious crashes. Make sure to check for clearance between the pivot ball threads and CVD pin.

! Play

1.5mm shim.

Pivot ball with 6.5mm

! Play

0.5mm shim.

INITIAL SETTING

Pivot ball with 5.5mm

**0.5mm SHIMS**

**INITIAL SETTING**

Raising the rear axle height will improve rotation and off-power steering. Recommended for medium to high traction asphalt surfaces. Minimum shim thickness is 0.5mm; DO NOT use thinner.

2x 303121-K SHIM 3x6x0.5

**2x FRONT SUSPENSION**

**ASSEMBLED VIEW**

**GRAPHITE GREASE**  
Apply graphite grease to the bearings

**FRONT**

0.5mm

Raising the front axle height will free up the front, reduce front traction, and make the car more forgiving to drive. Minimum shim thickness is 0.5mm; DO NOT use thinner.

# 5. FRONT & REAR SUSPENSION

This kit includes two upper arm **ALTERNATIVES**. The traditional **CFF™ UPPER ARM** and **UPPER ARM LINKS**. Please read the full descriptions before selecting the best alternative.

## UPPER ARMS CFF™ ALTERNATIVE

CFF™ Upper Arms are suggested for most conditions as they provide neutral handling and require minimal set-up adjustments between runs.

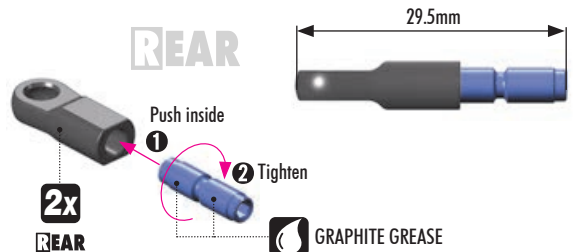
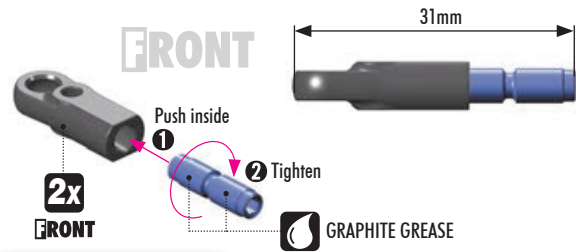
### INITIAL SETTING



VIDEO TECH TIP



CAMBER & UPPER ARMS



**! BOTTOM NOTE ORIENTATION**

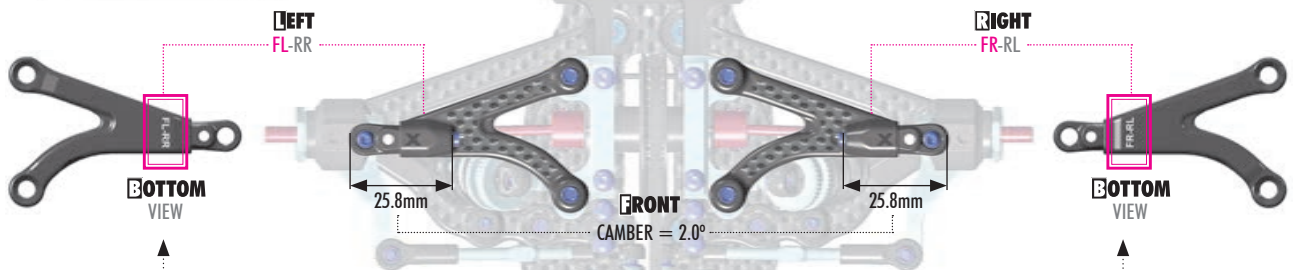
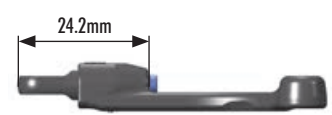
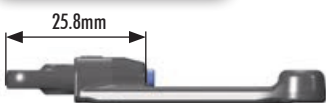
Shiny side Cut out

Ball joint should be aligned in the arm with the machined clearance facing down.

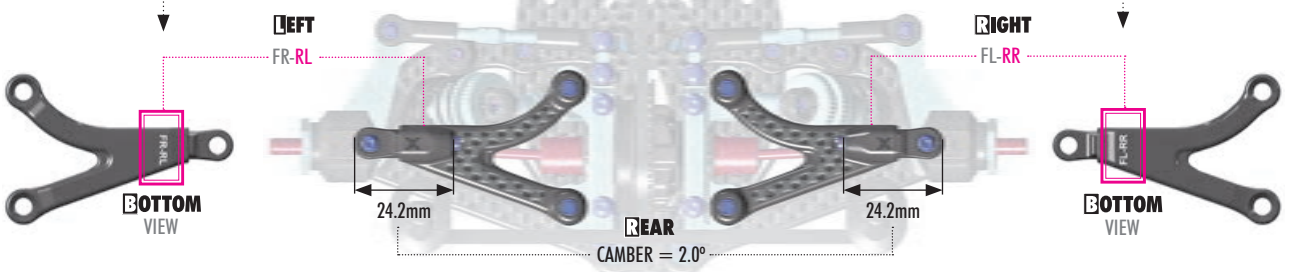
**! BOTTOM NOTE ORIENTATION**

Shiny side

Ball joint should be aligned in the arm with the shiny side facing down.



Check arm orientation so that each arm is in the correct location with the markings facing down when installed.



UPPER ARMS CFF™				UPPER ARMS CFF™			
#302144-M	MEDIUM	FL-RR	INCLUDED X4 Alu	#302144-XS	EXTRA-SOFT	FL-RR	OPTION
#302134-M	MEDIUM	FR-RL	INCLUDED X4 Alu	#302134-XS	EXTRA-SOFT	FR-RL	OPTION
#302144-S	SOFT	FL-RR	INCLUDED X4 Carbon	#302144-C	COMPOSITE	FL-RR	OPTION
#302134-S	SOFT	FR-RL	INCLUDED X4 Carbon	#302134-C	COMPOSITE	FR-RL	OPTION



**COMPOSITE** upper arms are recommended for modified and in very low traction conditions. They provide maximum traction and side-bite, but reduce cornering speed and initial steering.

**EXTRA SOFT** upper arms are recommended for both modified and stock in low to medium traction conditions on carpet or asphalt.

**SOFT** upper arms are recommended for medium traction conditions.

**MEDIUM** upper arms are recommended in medium to high traction conditions. They provide slightly less traction than soft arms, but generate more cornering speed and are the most durable.



#302640-T  
X4 ADJUSTABLE CAMBER SCREW 14mm  
M4 L/R - TITANIUM (2)



# 5. FRONT & REAR SUSPENSION

- 4x 303121-K SHIM 3x6x0.5
- 2x 303123-K SHIM 3x6x2

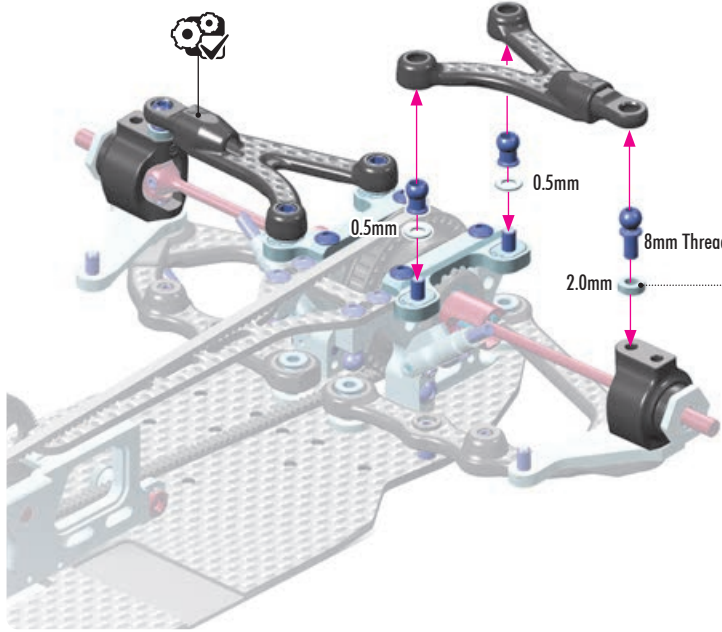
VIDEO TECH TIP




ROLL-CENTER





### UPPER ARMS CFF™ ALTERNATIVE REAR SUSPENSION


INITIAL SETTING



**TIP** Install the pivot balls with Multi Tool. 

**TIP** Rear upper arm location affects the rear roll-center and camber gain. Raising the arm with thicker shims on the upper clamps will lower the rear roll-center and decrease camber gain. Reducing the shim height on the upper clamps has the same effect as increasing the shim height on the outside.

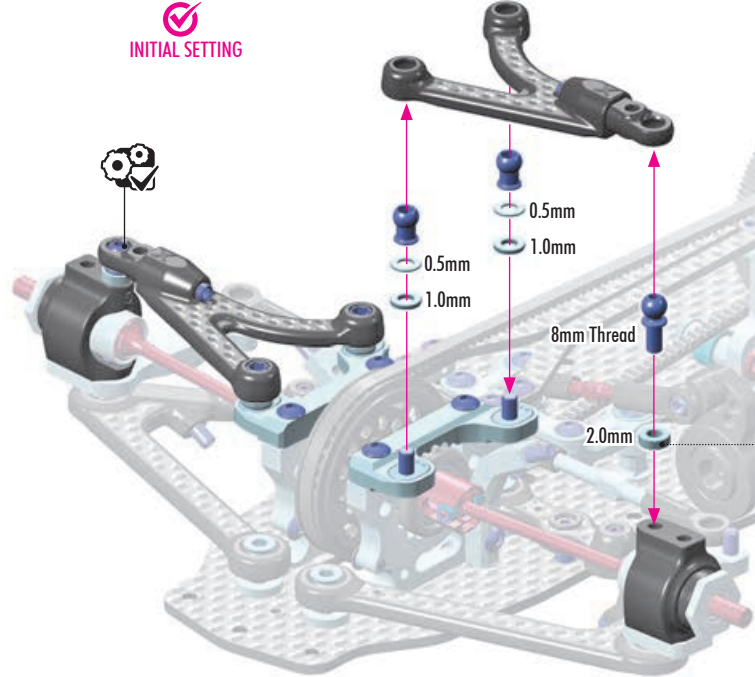
 OPTION	<b>HUDY TITANIUM BALL STUD</b>	#990008	D=4.9	L=8	S=3.5	OPTION	
 OPTION	<b>HUDY TITANIUM PIVOT BALL</b>	#990101	D=4.9	S=5	OPTION		




- 4x 303121-K SHIM 3x6x0.5
- 4x 303122-K SHIM 3x6x1
- 2x 303123-K SHIM 3x6x2





### UPPER ARMS CFF™ ALTERNATIVE FRONT SUSPENSION


INITIAL SETTING



**TIP** Install the pivot balls with Multi Tool. 

**TIP** Front upper arm location affects the front roll-center and camber gain. Raising the arms with thicker shims on the upper clamps will lower the front roll-center and decrease camber gain. Reducing the shim height on the upper clamps has the same effect as increasing the shim height on the outside.

 OPTION	<b>HUDY TITANIUM BALL STUD</b>	#990008	D=4.9	L=8	S=3.5	OPTION	
 OPTION	<b>HUDY TITANIUM PIVOT BALL</b>	#990101	D=4.9	S=5	OPTION		





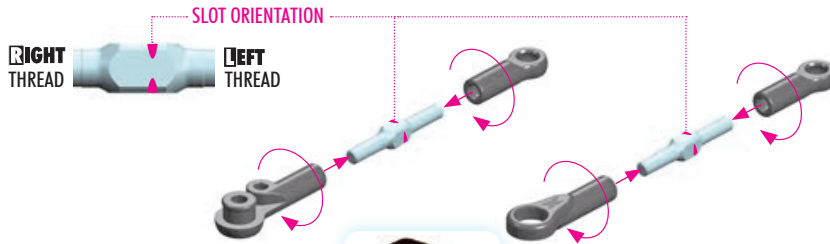
# 5. FRONT & REAR SUSPENSION

## ALTERNATIVE LINK STYLE UPPER ARMS

Replace the standard CFF upper arms. See full description below on when to use.

4x

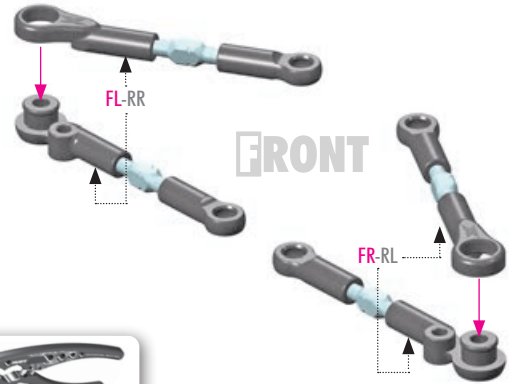
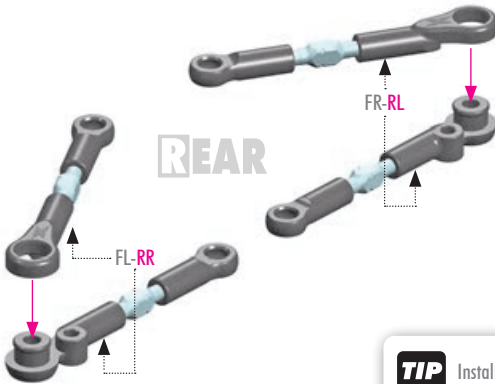
4x



VIDEO TECH TIP



UPPER LINKS ADJUSTMENT



**TIP** Install the ball joints with Multi Tool.



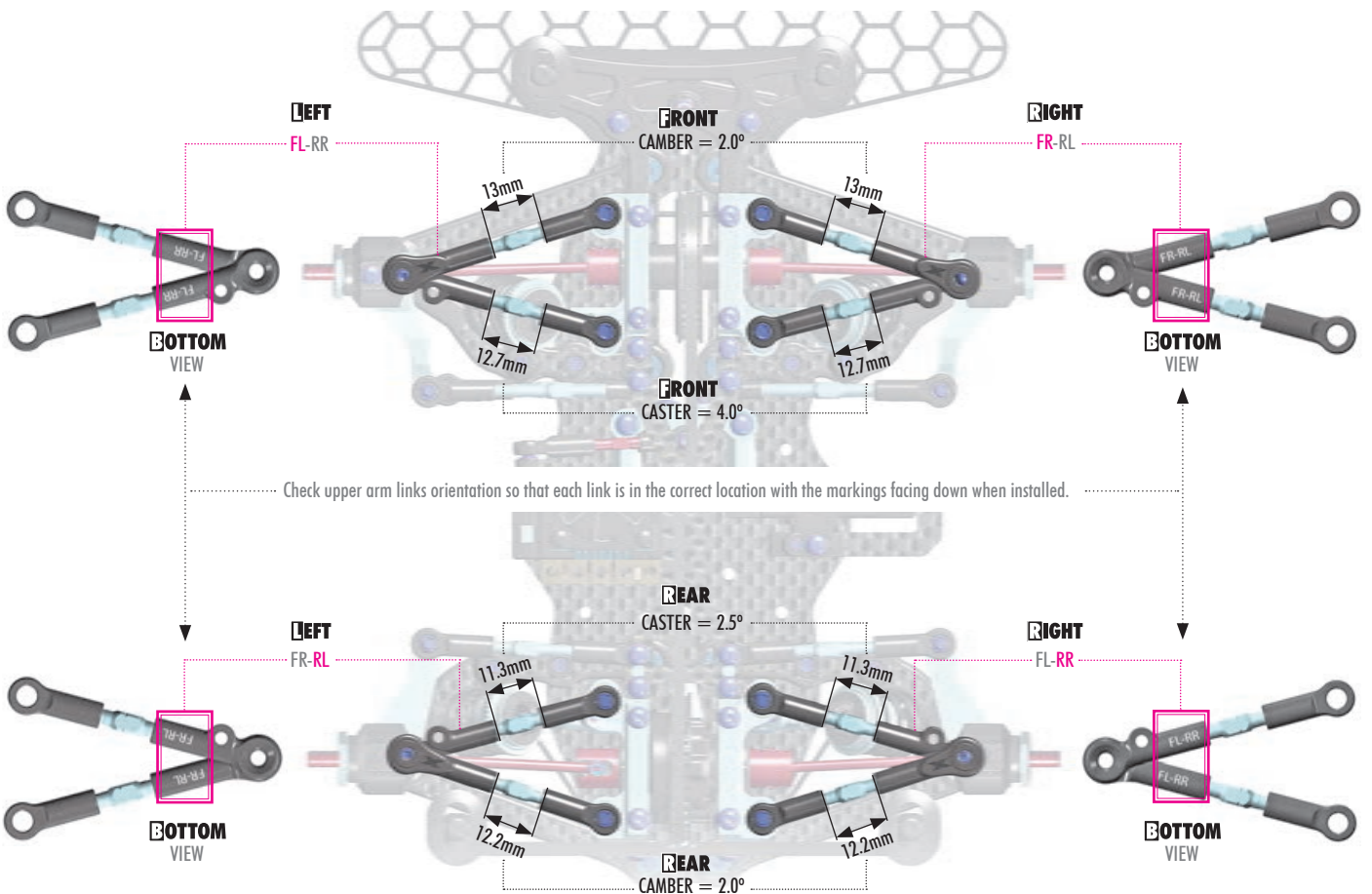
## LINK STYLE UPPER ARMS

The link style upper arms are also included in the kit as an alternative to the CFF arms, offering the freedom of choice to select the one with the preferred handling characteristics and adjustment capabilities.

Please see Page 52-54 for link adjustment instructions.

The added rigidity from the turnbuckles reduces flex of the suspension assembly, which has proven beneficial on certain track conditions such as medium to high traction asphalt and carpet. The car generates more initial reaction from the increased rigidity.

When switching from CFF to Upper Link arms, retain the same caster eccentric insert positions in the upper bulkheads as previously used.



# 5. FRONT & REAR SUSPENSION

- 4x 303121-K SHIM 3x6x0.5
- 2x 303123-K SHIM 3x6x2

### UPPER ARMS LINKS ALTERNATIVE REAR SUSPENSION

**TIP** Install the pivot balls with Multi Tool.

	<b>HUDY TITANIUM BALL STUD</b>	
OPTION	#990008 D=4.9 L=8 S=3.5 OPTION	
	<b>HUDY TITANIUM PIVOT BALL</b>	
OPTION	#990101 D=4.9 S=5 OPTION	

- 4x 303121-K SHIM 3x6x0.5
- 4x 303122-K SHIM 3x6x1
- 2x 303123-K SHIM 3x6x2

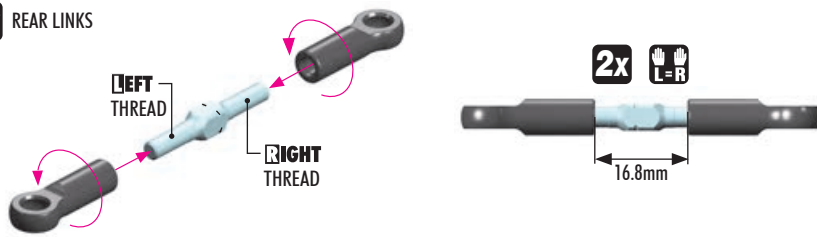
### UPPER ARMS LINKS ALTERNATIVE FRONT SUSPENSION

**TIP** Install the pivot balls with Multi Tool.

	<b>HUDY TITANIUM BALL STUD</b>	
OPTION	#990008 D=4.9 L=8 S=3.5 OPTION	
	<b>HUDY TITANIUM PIVOT BALL</b>	
OPTION	#990101 D=4.9 S=5 OPTION	

# 5. FRONT & REAR SUSPENSION

**2x** REAR LINKS



**OPTION** #303211-0 ALU TURNBUCKLE L/R 30mm ORANGE - SWISS 7075 T6 (2)



303121-K SHIM 3x6x0.5 **2x**

303122-K SHIM 3x6x1 **2x**

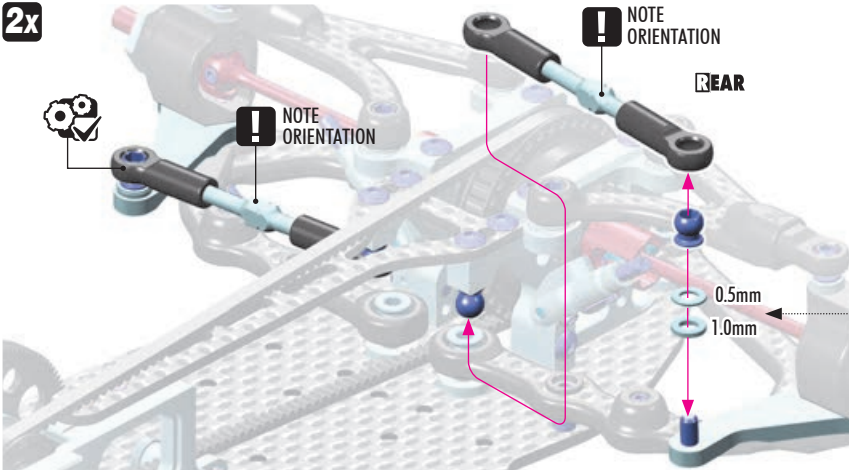


VIDEO TECH TIP



REAR TOE-GAIN

**2x**



**TIP**



**MORE SHIMS** provides more toe-gain on compression.

**LESS SHIMS** provides less toe-gain (or even toe loss), on suspension compression.

**MORE TOE-GAIN** improves rear traction and side bite. Mainly recommended for low- to medium-traction conditions.

**LESS TOE-GAIN** reduces rear traction and side bite. Recommended for higher- traction conditions or tracks that require more steering.

The X4'24/25 bulkheads lower the inner ARS link mounting point by 3.5mm compared to the X4 and X4'23. To duplicate previous ARS characteristics, use 3.5mm less shims on the hub's ARS mounting point.

X4'24/25 : 1.5mm Hub Shim = X4'23 5mm Hub Shim

**OPTION**

HUDY TITANIUM PIVOT BALL

#990101 D=4.9 S=5 **OPTION**



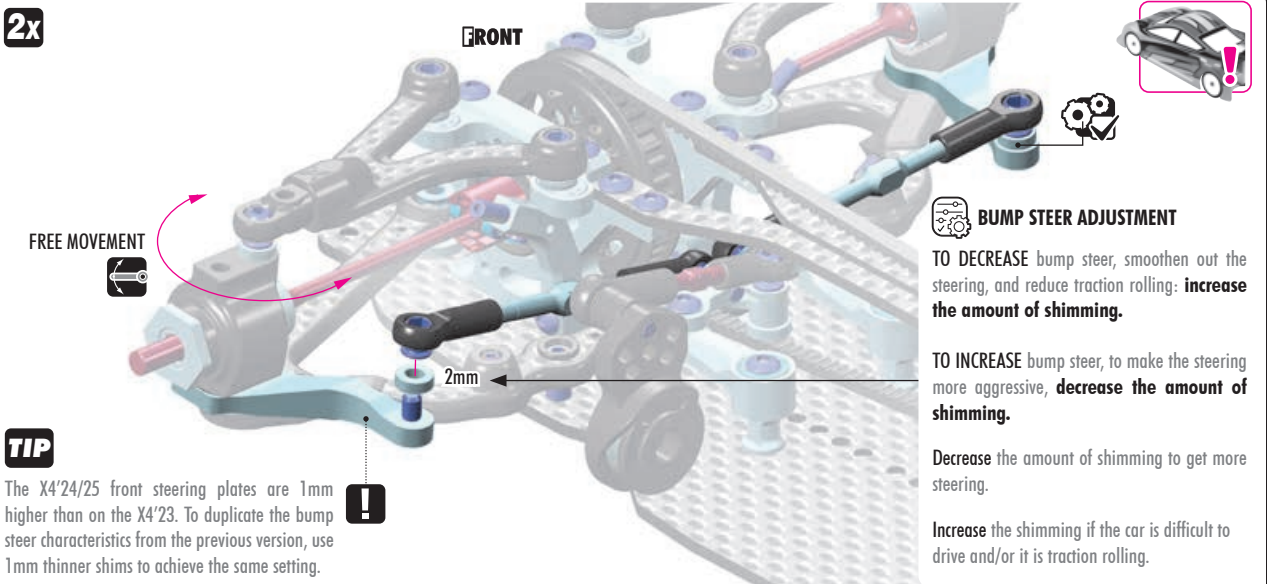
303123-K SHIM 3x6x2 **2x**

VIDEO TECH TIP



STEERING SYSTEM

**2x**

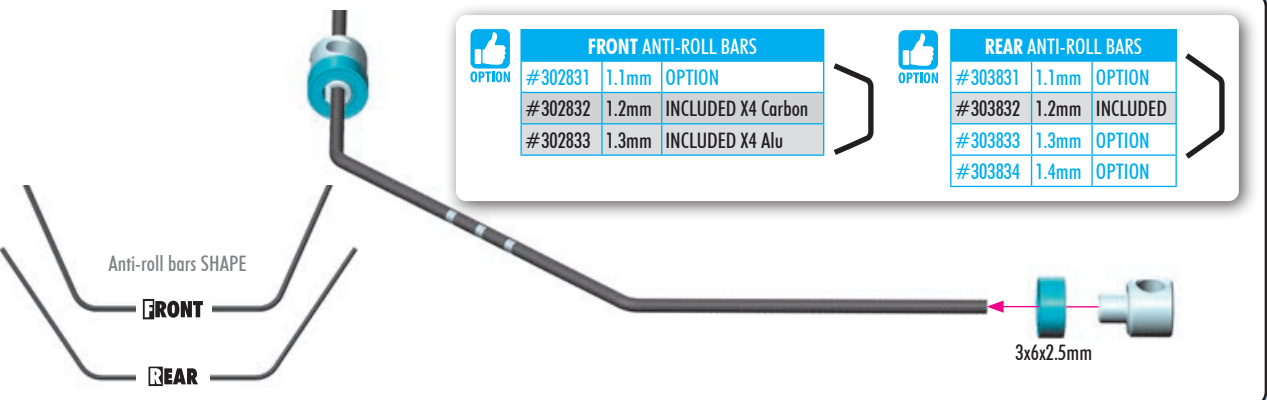


930306 BB 3x6x2.5 **4x**

VIDEO TECH TIP



ANTI-ROLL BARS



# 5. FRONT & REAR SUSPENSION

**4x**

**ASSEMBLED VIEW**

**TIP**

**BOTTOM VIEW**

**REAR**

**2x** 901302  
SB M3x2.5

**TOP VIEW**

**CENTER**

3x2.5mm

3x2.5mm

1, 2, 3

Set the bar into the **CENTER**, remove the play in the bushings, and tighten the set-screws fully.

**2x** 901302  
SB M3x2.5

**REAR ANTI-ROLL BARS**

OPTION	#303831	1.1mm	OPTION
	#303832	1.2mm	INCLUDED
	#303833	1.3mm	OPTION
	#303834	1.4mm	OPTION

**SOFTER rear anti-roll bar:**  
Generates more side traction. Mainly recommended for low-traction asphalt tracks.

**STIFFER rear anti-roll bar:**  
Helps the car stay flatter and reduces traction rolling on high-traction surfaces.

**BOTTOM VIEW**

3x2.5mm

3x2.5mm

1, 2

1.5mm

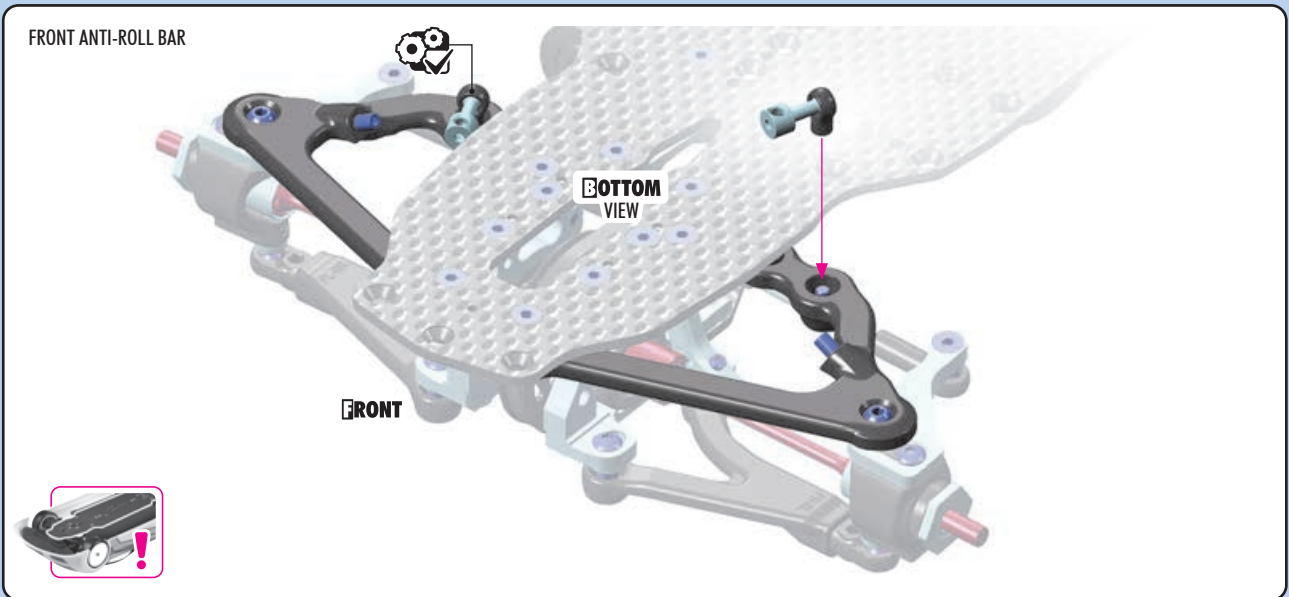
**VIDEO TECH TIP**

**ANTI-ROLL BARS**

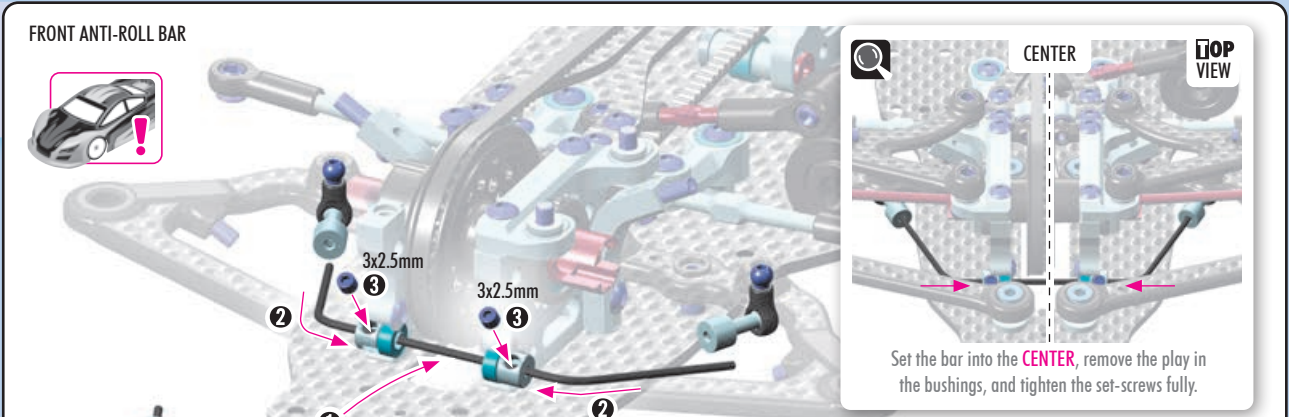
When the bars are set, verify that both sides move at the same time. If they do, the bars are set up correctly. If NOT, make sure that both downstops are the same and that the bar wire is flat.

If both sides still DO NOT move at the same time, adjust the length of the bar holders.

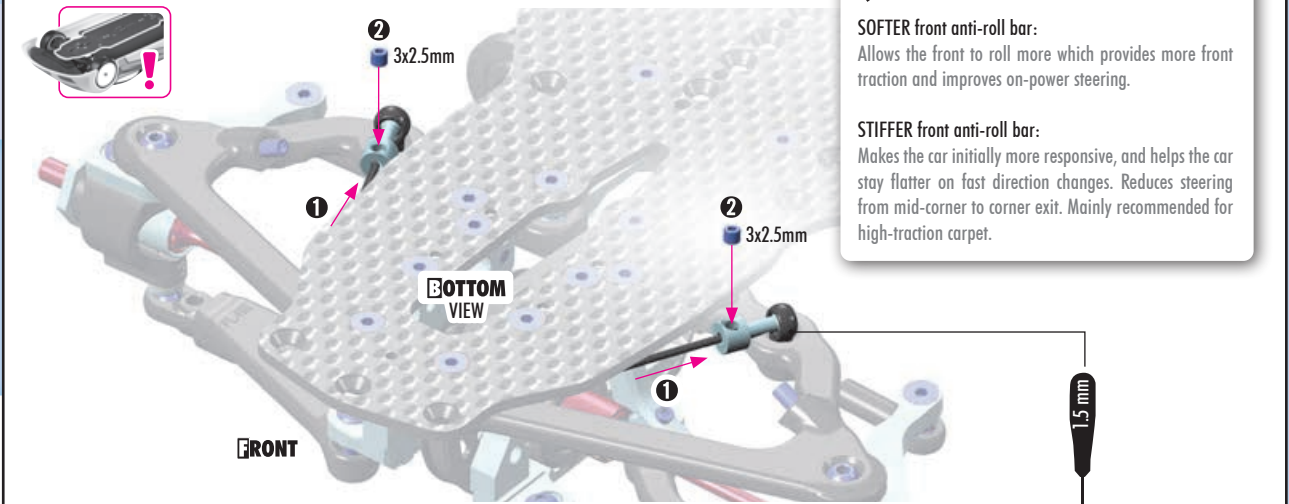
# 5. FRONT & REAR SUSPENSION



2x 901302  
SB M3x2.5



2x 901302  
SB M3x2.5



FRONT ANTI-ROLL BARS

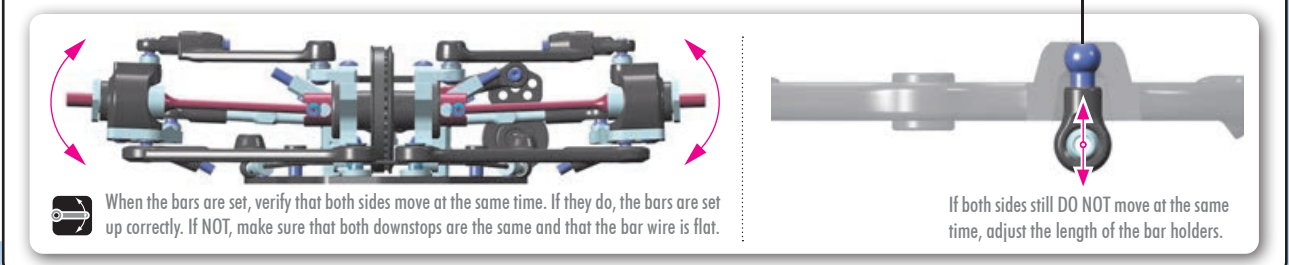
#302831	1.1mm	OPTION
#302832	1.2mm	INCLUDED X4 Carbon
#302833	1.3mm	INCLUDED X4 Alu

**SOFTER front anti-roll bar:**  
Allows the front to roll more which provides more front traction and improves on-power steering.

**STIFFER front anti-roll bar:**  
Makes the car initially more responsive, and helps the car stay flatter on fast direction changes. Reduces steering from mid-corner to corner exit. Mainly recommended for high-traction carpet.

VIDEO TECH TIP

ANTI-ROLL BARS



# 6. SHOCK ABSORBERS

4x



#104002 or #104003  
HUDY AIR VAC – VACUUM PUMP - ON-ROAD



OPTION

XRAY SPRINGS		
#308164	C = 2.4-2.7	OPTION
#308165	C = 2.5-2.8	INCLUDED
#308166	C = 2.6-2.9	OPTION
#308175	C = 2.5	OPTION
#308176	C = 2.6	INCLUDED
#308177	C = 2.7	OPTION
#308178	C = 2.8	OPTION
#308179	C = 2.9	OPTION
#308180	C = 3.0	OPTION



#308129  
XLP2 ALU PROGRESSIVE SHOCK SYSTEM - SET (2)

The progressive shock inserts improve steering characteristics. The XLP2 PSS set fits the stock XLP2 shock bodies included in the kit. Must be used with: #308026 - XLP Progressive Pistons.



#308026  
XLP COMPOSITE 2-HOLE ø0.8mm PROGRESSIVE PISTON (4)



HUDY TITANIUM PIVOT BALL  
#990101 | D=4.9 | S=5 | OPTION



#308033-K  
ALU XLP SHOCK SPRING RETAINING COLLAR - BLACK (4)



VIDEO TECH TIP SHOCKS & SPRINGS

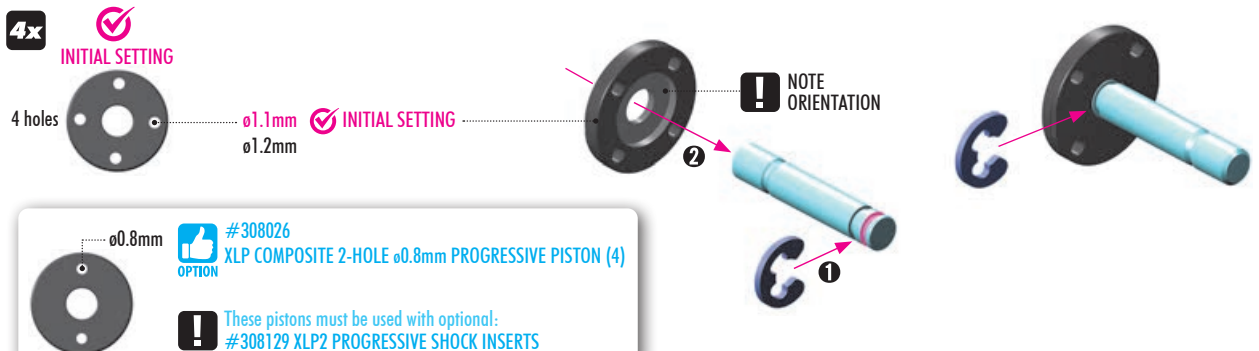
BAG

06

- 308027 XLP COMPOSITE 4-HOLE 1.1-1.2MM PISTON (2+2)
- 308047 XLP2 ALU SHOCK ADJUSTABLE NUT - BLACK (2)
- 308084 XLP2 SILICONE HYPER RESISTANT MEMBRANE (4)
- 308311 XLP2 ALU SHOCK ABSORBER-SET (2)
- 308329 XLP2 ALU SHOCK BODY (2)
- 308328-K XLP ALU CAP FOR SHOCK BODY - BLACK (2)
- 308337 XLP2 COMPOSITE SHOCK PARTS WITH 2 HOLES
- 308366 XLP2 HARDENED SHOCK SHAFT (2)
- 372651 PIVOT BALL UNIVERSAL 4.9 MM - HUDY SPRING STEEL™ (2)

- 965023 E-CLIP 2.3 (10)
- 970141 O-RING 14 x 1.0 (10)
- 972030 SILICONE O-RING 3 x 2 (10)
- 308165 XLP SPRING-SET PROGRESSIVE C=2.5-2.8 (2)
- 308176 XLP SPRING-SET C=2.6 (2)

8x 965023  
E 2.3



4x INITIAL SETTING

4 holes

ø1.1mm  
ø1.2mm

INITIAL SETTING

NOTE ORIENTATION

#308026  
XLP COMPOSITE 2-HOLE ø0.8mm PROGRESSIVE PISTON (4)



These pistons must be used with optional: #308129 XLP2 PROGRESSIVE SHOCK INSERTS

# 6. SHOCK ABSORBERS



4x 972030  
0.3x2

**4x**

SHOCK OIL

NOTE ORIENTATION

SHOCK OIL

**4x**

INCORRECT X

CORRECT ✓

Pre-thread the ball joint using an M3 screw. **TIP**

Be careful NOT to pre-thread too far, since the ball joint may split or the plastic threads may strip out. **!**

**4x** The necessary shock length depends on the downstop setting. When using minimum downstop, increase the shock length.

7~7.5mm **✓ INITIAL SETTING**

#183070 **HUDY ALU SHOCK PLIERS**  
OPTION

We recommend using HUDY shock pliers when adjusting shock length. These pliers allow super easy and comfortable shock length adjustment.

VIDEO TECH TIP

HUDY AIR-VAC SHOCK BUILD

**OIL 350cSt**

**4x** **OIL**

**SHOCK FILLING**

- Fully extend the piston rod so the piston is at the bottom of the shock body.
- Hold the shock upright and slightly overfill the shock body with shock oil.
- Let the oil settle and allow air bubbles to rise to the top. Slowly move the piston up and down to allow oil into all cavities within the shock body.
- Extend the piston rod most of the way out of the shock body. Let the shock rest for 5 minutes to allow the air bubbles to escape.
- Add shock oil as necessary.

**TIP** #104002 or #104003 **HUDY AIR VAC – VACUUM PUMP**  
OPTION

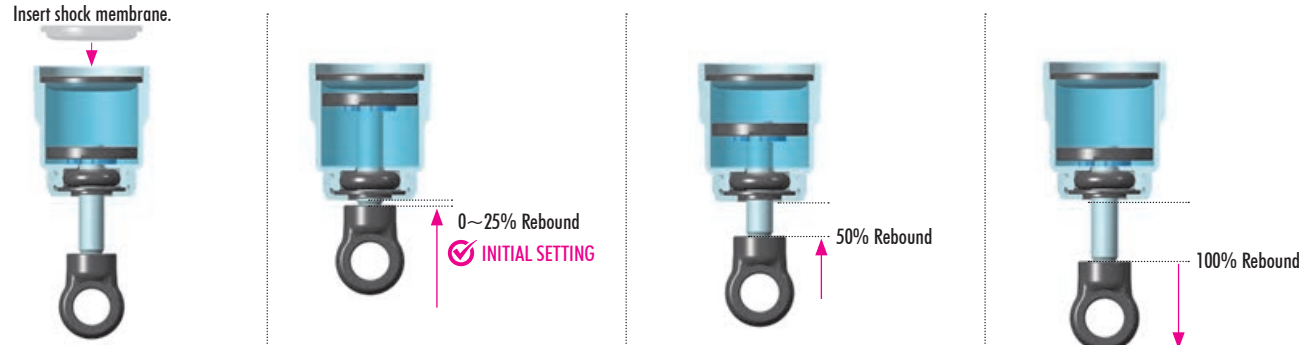
SHOCK OILS (50ml)			#106352	525cSt	OPTION
#106325	250cSt	OPTION	#106355	550cSt	OPTION
#106330	300cSt	OPTION	#106357	575cSt	OPTION
#106335	350cSt	INCLUDED	#106360	600cSt	OPTION
#106337	375cSt	OPTION	#106362	625cSt	OPTION
#106340	400cSt	OPTION	#106365	650cSt	OPTION
#106342	425cSt	OPTION	#106367	675cSt	OPTION
#106345	450cSt	OPTION	#106370	700cSt	OPTION
#106347	475cSt	OPTION	#106375	750cSt	OPTION
#106350	500cSt	OPTION	#106380	800cSt	OPTION

To make sure that all the air is removed from the shock oil, we recommend using the HUDY Air Vac.

## REBOUND ADJUSTMENT

**IMPORTANT**

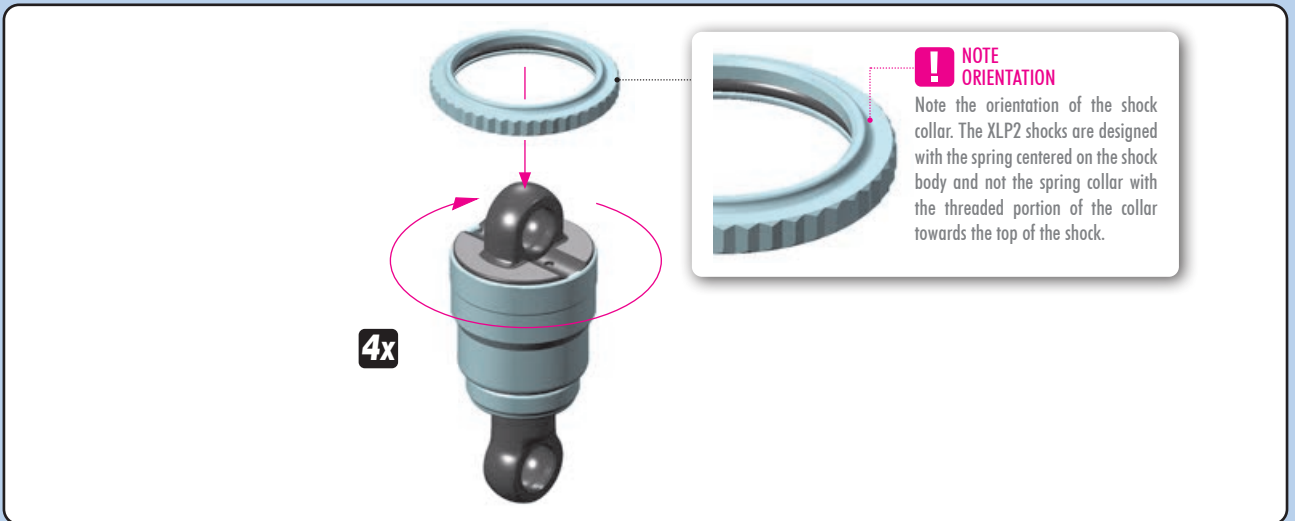
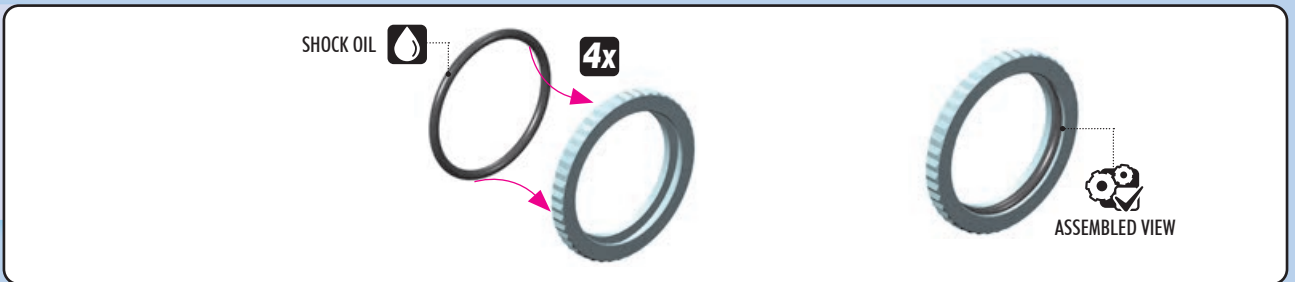
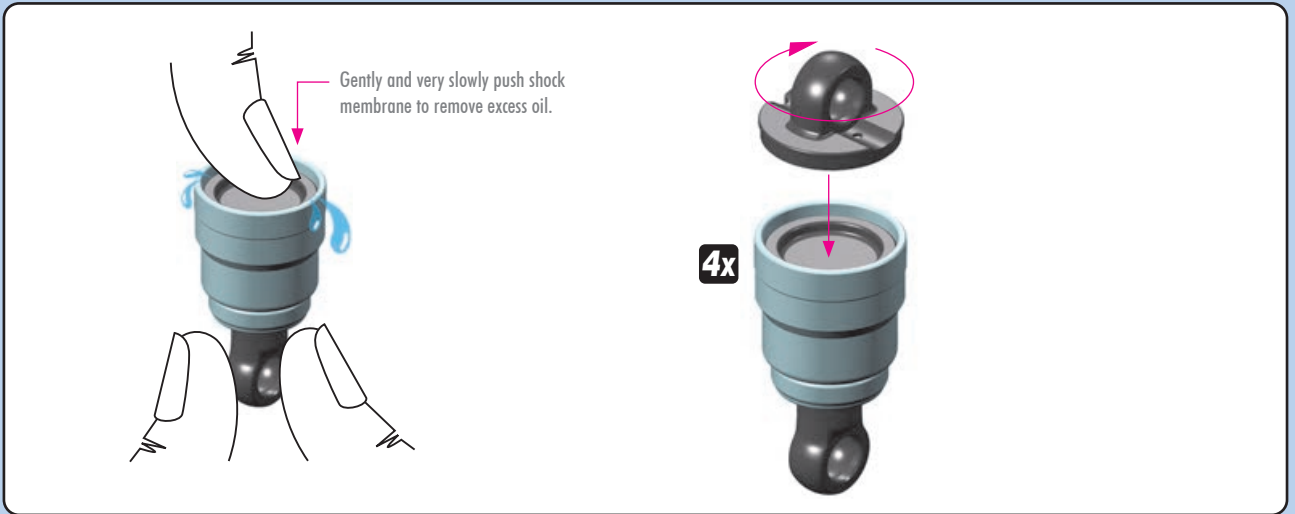
When building the shocks with brand new membranes, some rebound may occur. After a few runs, or letting the shock settle for 24 hours, the membrane will break-in and zero rebound will be possible.



For most conditions, 0-25% rebound is recommended. This is the most forgiving and best to absorb bumps. Cornering speed is generally the best with this setting.

For certain low traction conditions, adding additional rebound may improve initial reaction and side bite. Direction change will be faster and may feel like the car is creating more traction. Note that higher rebound settings will make the car less stable over bumps and may increase the tendency to traction roll.

# 6. SHOCK ABSORBERS



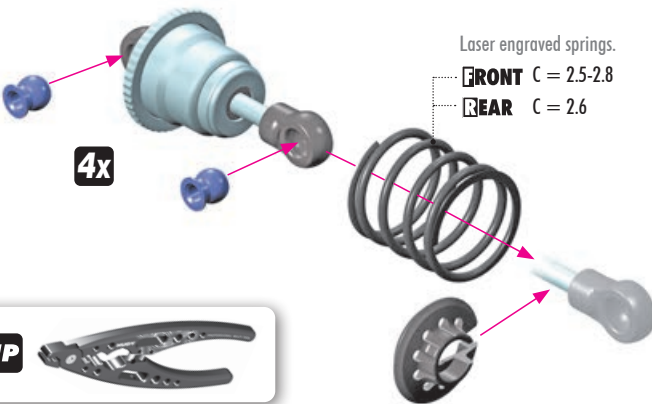
VIDEO TECH TIP

SHOCKS & SPRINGS

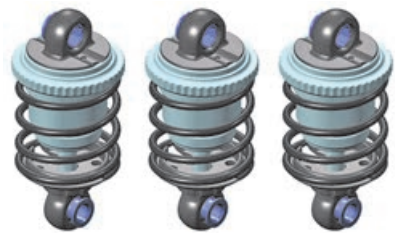
## SHOCK LENGTH ADJUSTMENT:

**!** It is VERY IMPORTANT that all shocks are equal length.

Fully extend the shock absorber and measure the end-to-end length; we recommend using digital calipers to give an accurate measurement. If a shock absorber is shorter or longer than others, adjust the shock length by tightening or loosening the ball joint on the shock rod.



## ASSEMBLED VIEW

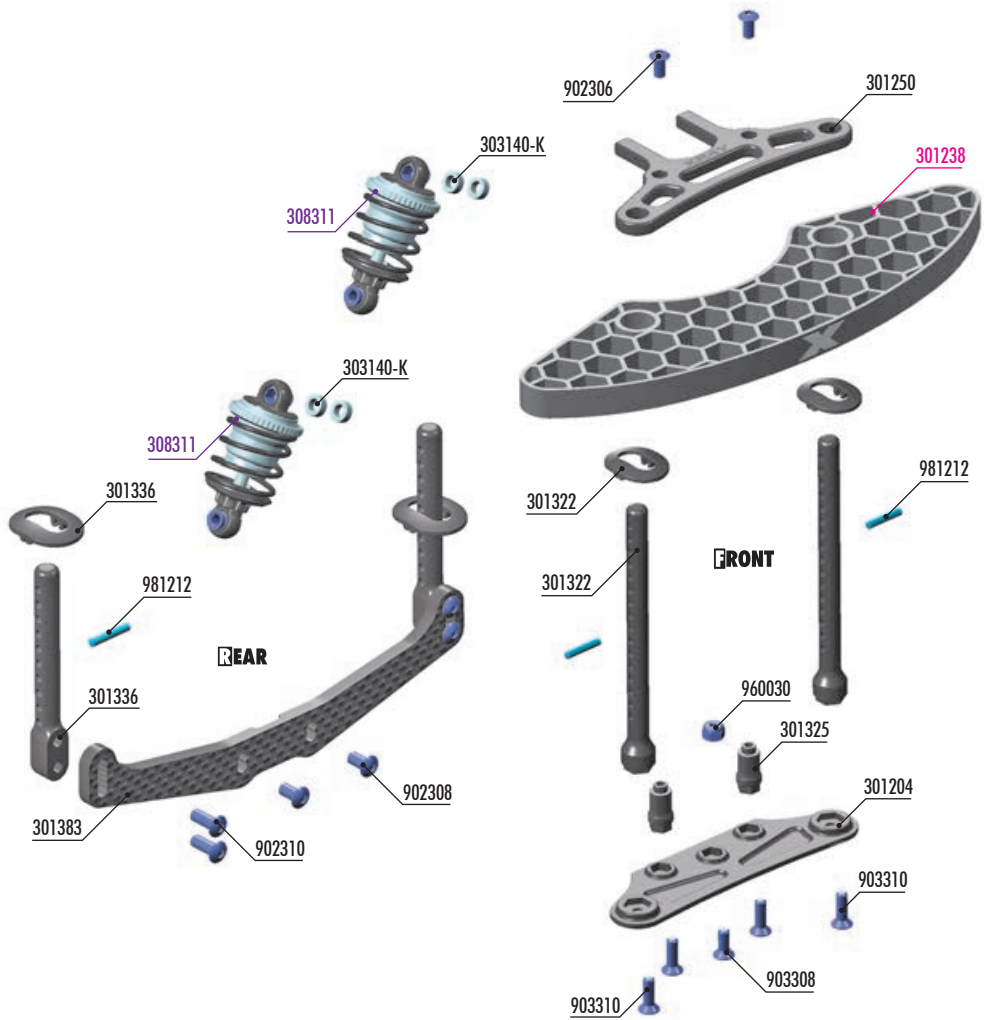


**OPTION** HUDY TITANIUM PIVOT BALL #990101 D=4.9 S=5 **OPTION**

**OPTION** #308033-K ALU XLP SHOCK SPRING RETAINING COLLAR - BLACK (4)



# 7. FRONT & REAR ASSEMBLY



**OPTION** **REAR BODY MOUNT SET**

#301336	0mm	INCLUDED
#301337	+1mm	OPTION
#301338	+2mm	OPTION

**OPTION** **FRONT BODY MOUNT SET**

#301322	0mm	INCLUDED
#301323	+1mm	OPTION
#301324	+2mm	OPTION

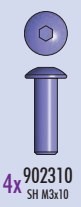
**OPTION** **#301322-H HARD COMPOSITE HORIZONTAL REAR BODY MOUNT POST - SET**

**OPTION** **#301351-O ALU ADJUSTABLE BODY POST STOP (2)**

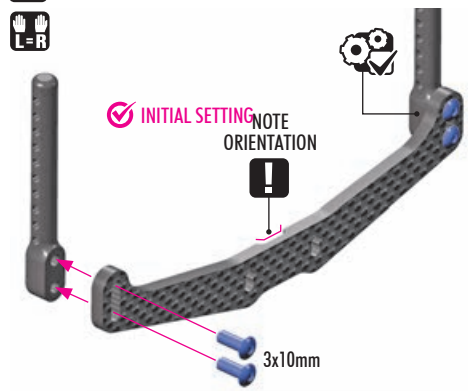
**OPTION** **#301351-K ALU ADJUSTABLE BODY POST STOP (2)**



- |          |  |               |  |
|----------|--|---------------|--|
| 301204   | COMPOSITE BUMPER                                     | 902310        | HEX SCREW SH M3x10 (10)                |
| 301250   | COMPOSITE UPPER HOLDER FOR BUMPER                    | 903308        | HEX SCREW SFH M3x8 (10)                |
| 301322   | FRONT BODY MOUNT SET                                 | 903310        | HEX SCREW SFH M3x10 (10)               |
| 301325   | COMPOSITE BRACE FOR BUMPER - LOW (2)                 | 960030        | NUT M3 (10)                            |
| 301336   | REAR BODY MOUNT SET                                  | 981212        | PIN 2x12 (10)                          |
| 301383   | X4 CARBON BODY POST & BODY POST HOLDER - 1pc - 4.0mm | <b>301238</b> | <b>RUBBER BUMPER 3D</b>                |
| 303140-K | ALU SHIM 3x5x2.0mm - BLACK (10)                      | <b>308311</b> | <b>XL2P ALU SHOCK ABSORBER-SET (2)</b> |
| 902306   | HEX SCREW SH M3x6 (10)                               |               |  |
| 902308   | HEX SCREW SH M3x8 (10)                               |               |  |



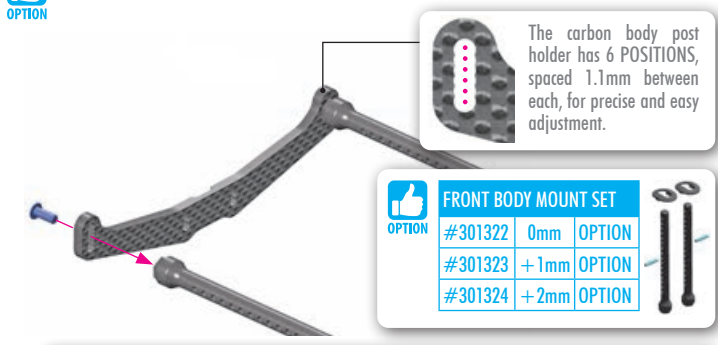
## 2x REAR VERTICAL BODY MOUNTING ALTERNATIVE



**OPTION** **REAR BODY MOUNT SET**

#301336	0mm	INCLUDED
#301337	+1mm	OPTION
#301338	+2mm	OPTION

## OPTION REAR HORIZONTAL BODY MOUNTING ALTERNATIVE



**OPTION** **FRONT BODY MOUNT SET**

#301322	0mm	OPTION
#301323	+1mm	OPTION
#301324	+2mm	OPTION

**OPTION** **#301322-H HARD COMPOSITE HORIZONTAL REAR BODY MOUNT POST - SET**

Optional HARD posts eliminates the flex of the horizontal mounting. Use these posts only for horizontal body mounting.

Optional horizontal rear body mounting has shown benefits on medium to high traction conditions, especially on technical tracks, by improving directional changes, steering response and rotation. Note that rear traction is also reduced, so may be useful in Stock or Super Stock spec class racing.

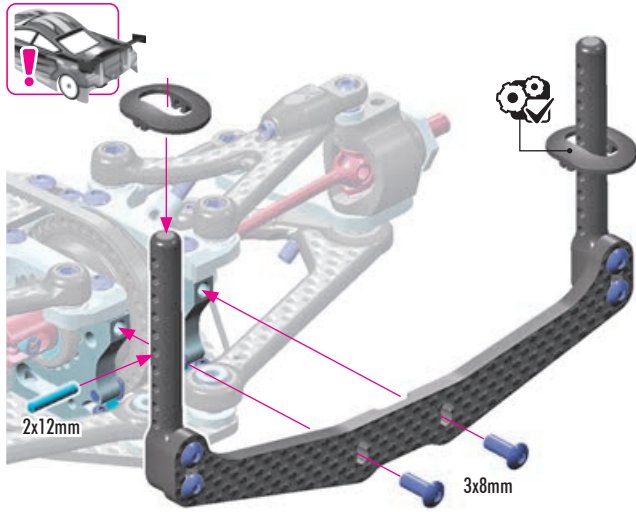


VIDEO TECH TIP



REAR BODY POST MOUNTING

# 7. FRONT & REAR ASSEMBLY



**#301351-0**  
ALU ADJUSTABLE BODY POST STOP (2)

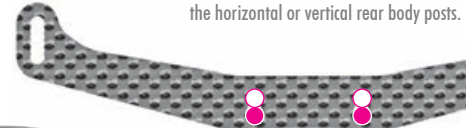


**#301351-K**  
ALU ADJUSTABLE BODY POST STOP (2)

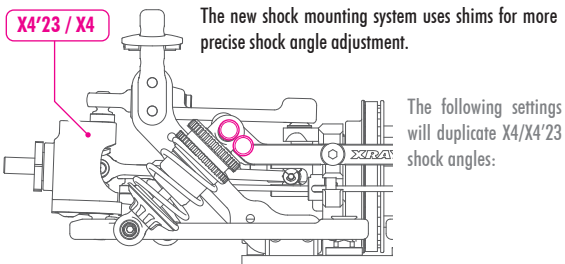


Very handy, easily externally adjustable body post made from Swiss 7075 T6 aluminum. Allows for adjustment of body height by 3mm without needing to change the position on the body post.

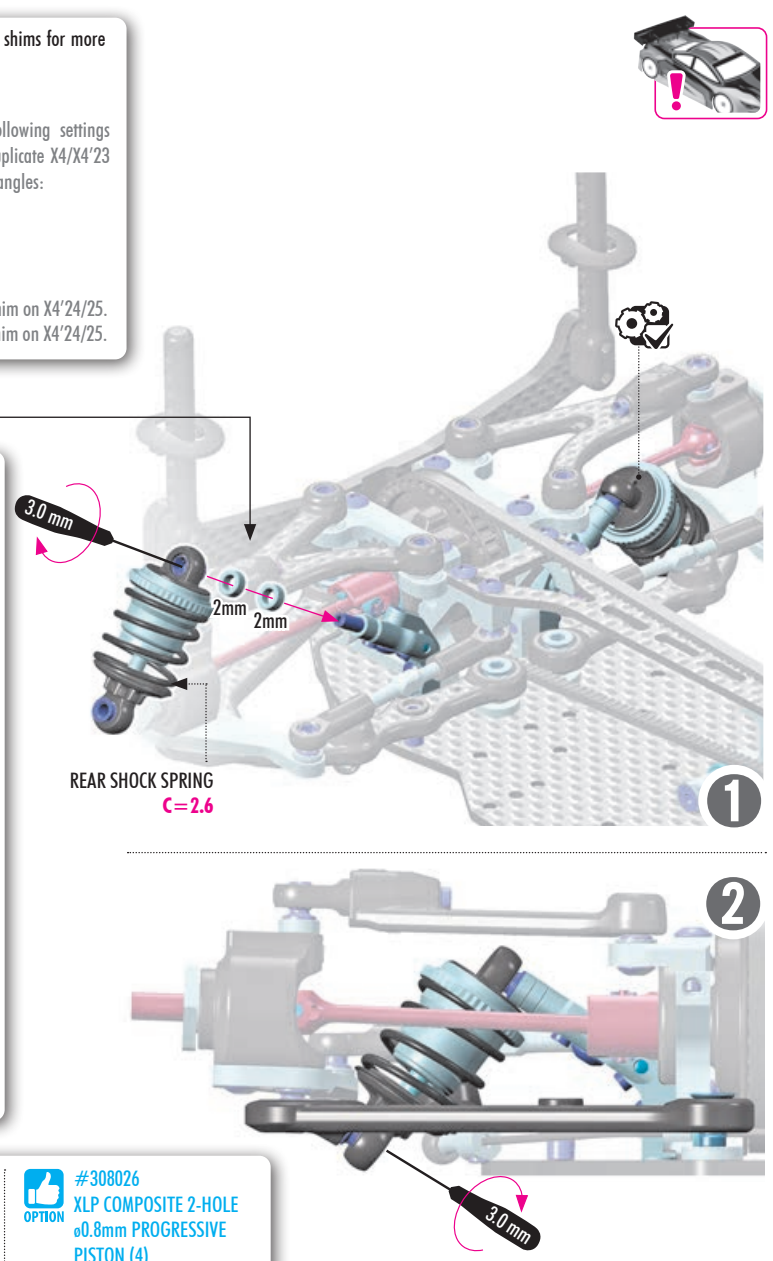
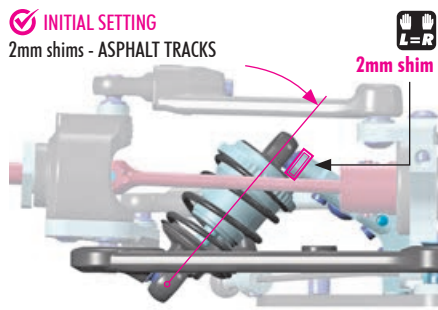
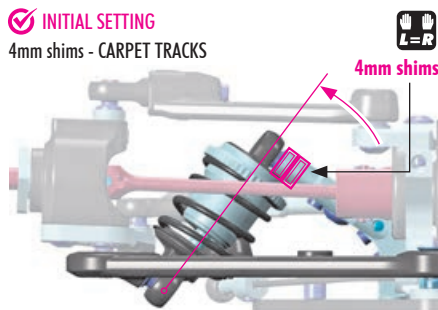
The second mounting position on the body post holder will shift the post locations in between the standard 1.1mm body post spacing, creating very precise adjustment of the horizontal or vertical rear body posts.



Using the lower position on the body post holder will raise the posts to the heights required for VTA bodies



Upper shock mounting position on shock tower on X4'23 = 4mm shim on X4'24/25.  
Lower shock mounting position on shock tower on X4'23 = 2mm shim on X4'24/25.



VIDEO TECH TIP



SHOCK SHIMMING TUTORIAL

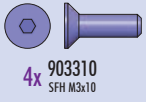
**#308129**  
XLP2 ALU PROGRESSIVE SHOCK SYSTEM - SET (2)

The progressive shock inserts improve steering characteristics. The XLP2 PSS set fits the stock XLP2 shock bodies included in the kit. Must be used with #308026 - XLP Progressive Pistons.

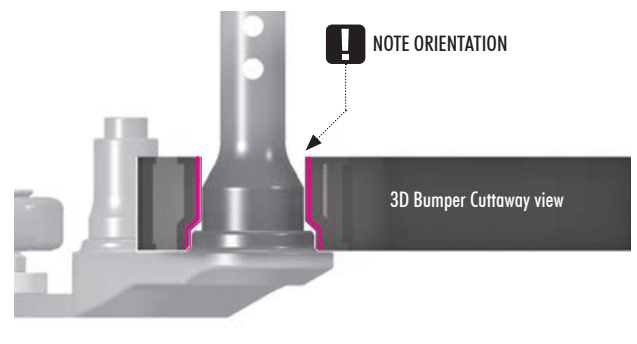
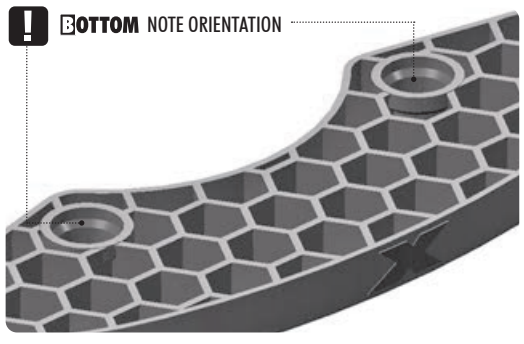
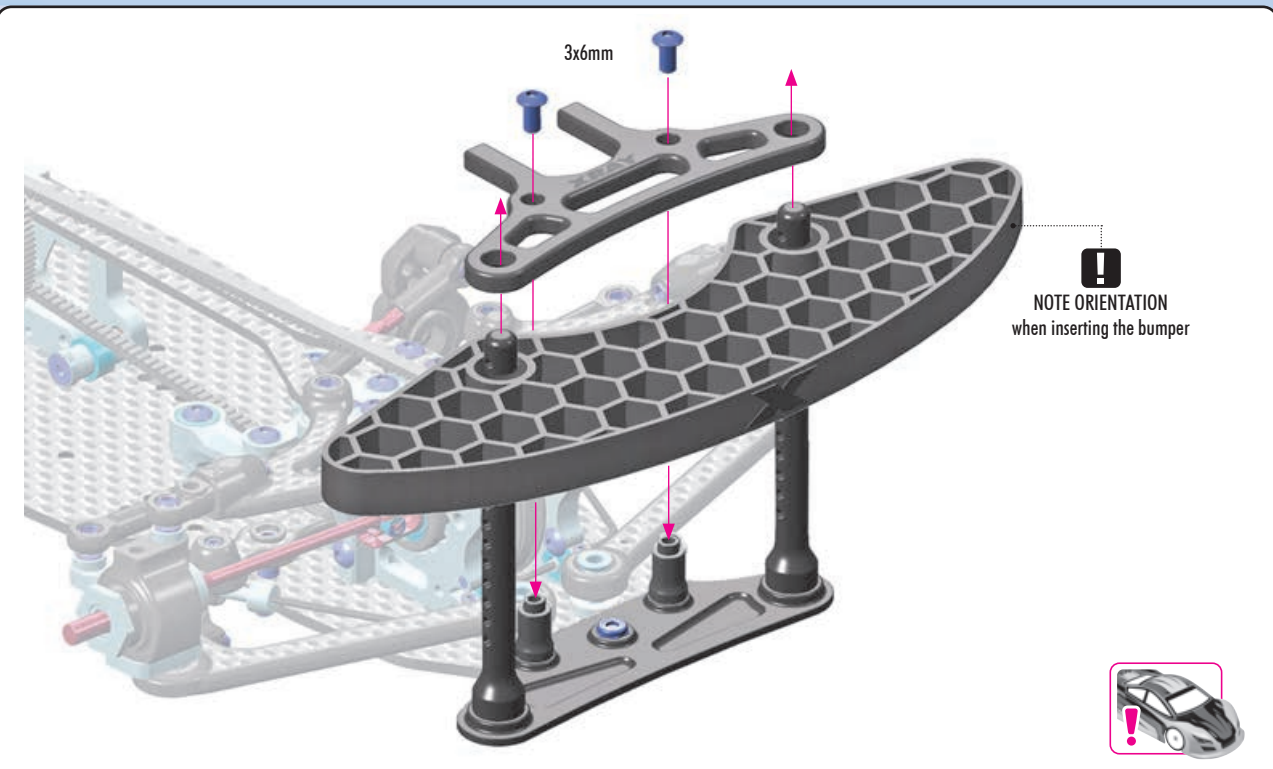
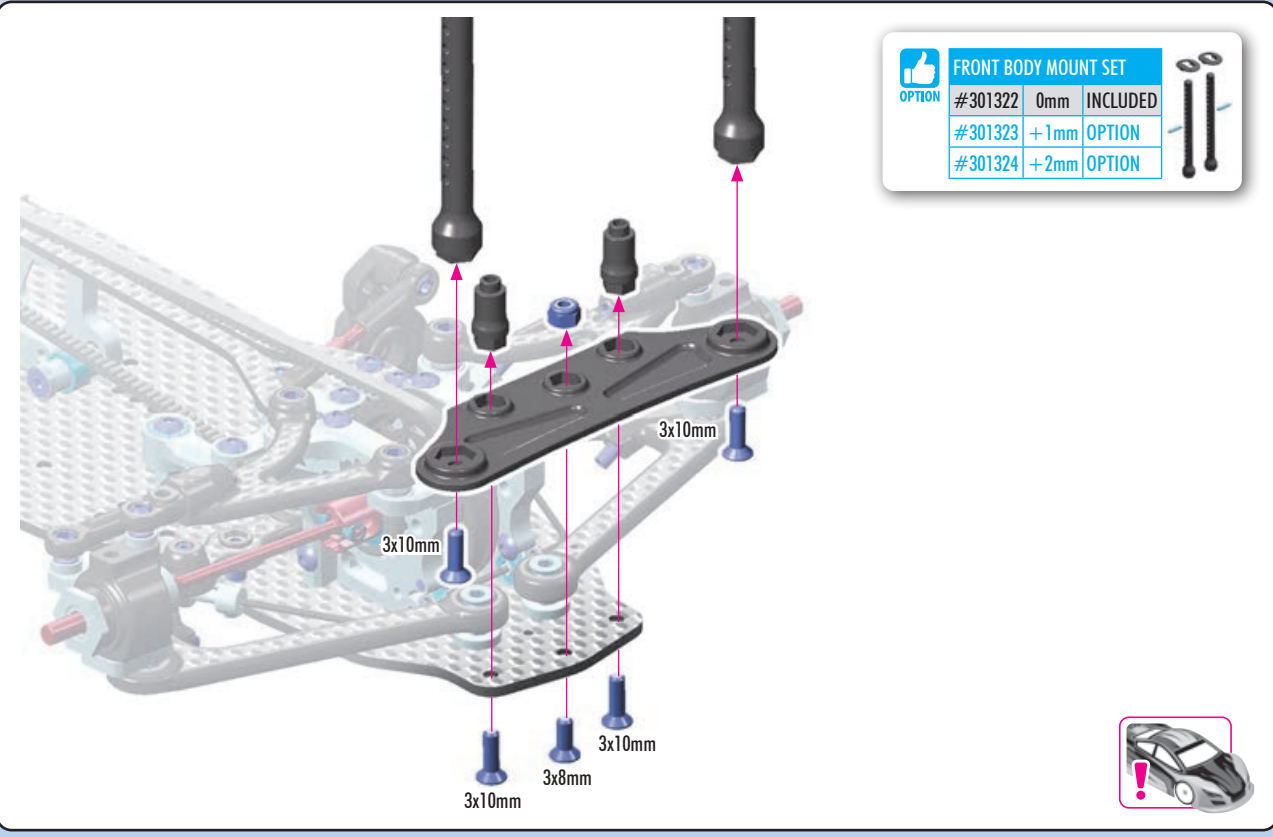
**#308026**  
XLP COMPOSITE 2-HOLE ø0.8mm PROGRESSIVE PISTON (4)



# 7. FRONT & REAR ASSEMBLY



FRONT BODY MOUNT SET		
OPTION	#301322	0mm INCLUDED
	#301323	+1mm OPTION
	#301324	+2mm OPTION



# 7. FRONT & REAR ASSEMBLY

2x 981212 P 2x12

VIDEO TECH TIP

FRONT BODY UPSTOP SYSTEM

2x L=R

ASSEMBLED VIEW

2x12mm

#301351-0 ALU ADJUSTABLE BODY POST STOP (2) **OPTION**

#301351-K ALU ADJUSTABLE BODY POST STOP (2) **OPTION**

Very handy, easily externally adjustable body post made from Swiss 7075 T6 aluminum. Allows for adjustment of body height by 3mm without needing to change the position on the body post.

FRONT BODY MOUNT SET **OPTION**

#301322	0mm	INCLUDED
#301323	+1mm	OPTION
#301324	+2mm	OPTION

4x 303140-K SHIM 3x5x2

VIDEO TECH TIP

SHOCKS & SPRINGS

ASSEMBLED VIEW

2mm 2mm

3.0 mm

FRONT SHOCK SPRING C=2.5-2.8

1

X4'23 / X4

The new shock mounting system uses shims for more precise shock angle adjustment.

The following settings will duplicate X4/X4'23 shock angles:

Upper shock mounting position on shock tower on X4'23 = 4mm shim on X4'24/25.  
Lower shock mounting position on shock tower on X4'23 = 2mm shim on X4'24/25.

2

FRONT

3.0 mm

INITIAL SETTING

4mm shims - CARPET TRACKS

4mm shims

L=R

INITIAL SETTING

2mm shim - ASPHALT TRACKS

2mm shim

L=R

#308129 XLP2 ALU PROGRESSIVE SHOCK SYSTEM - SET (2) **OPTION**

The progressive shock inserts improve steering characteristics. The XLP2 PSS set fits the stock XLP2 shock bodies included in the kit. Must be used with #308026 - XLP Progressive Pistons.

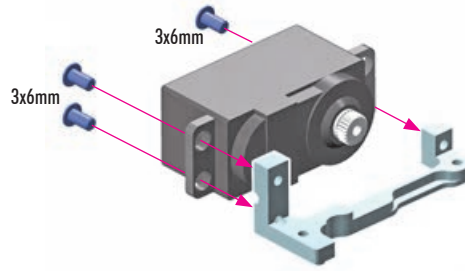
#308026 XLP COMPOSITE 2-HOLE Ø0.8mm PROGRESSIVE PISTON (4) **OPTION**



# 7. FINAL ASSEMBLY



STEERING SYSTEM

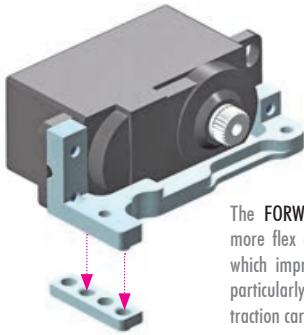


3x6mm

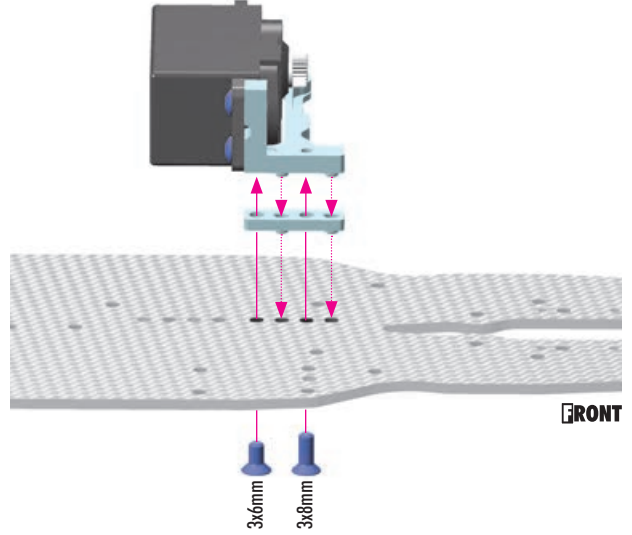
3x6mm

## ALTERNATIVE 1

SERVO MOUNT ASSEMBLY - FORWARD ALTERNATIVE



The FORWARD POSITION allows for more flex at the front of the chassis, which improves front traction. This is particularly useful on low to medium traction carpet as well as asphalt.



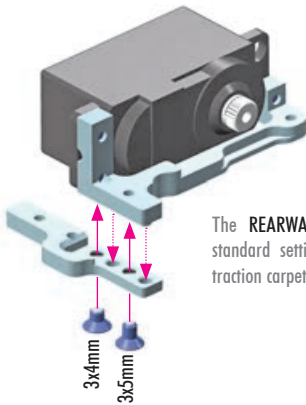
3x6mm

3x8mm

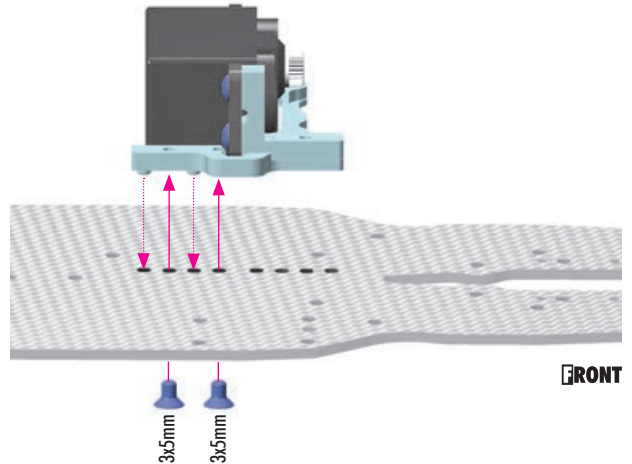
FRONT

## ALTERNATIVE 2

SERVO MOUNT ASSEMBLY - REARWARD ALTERNATIVE



The REARWARD POSITION is a good standard setting recommended for high traction carpet conditions.



3x4mm

3x5mm

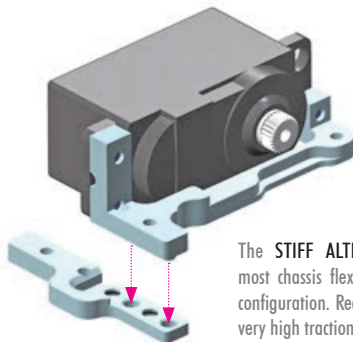
3x4mm

3x5mm

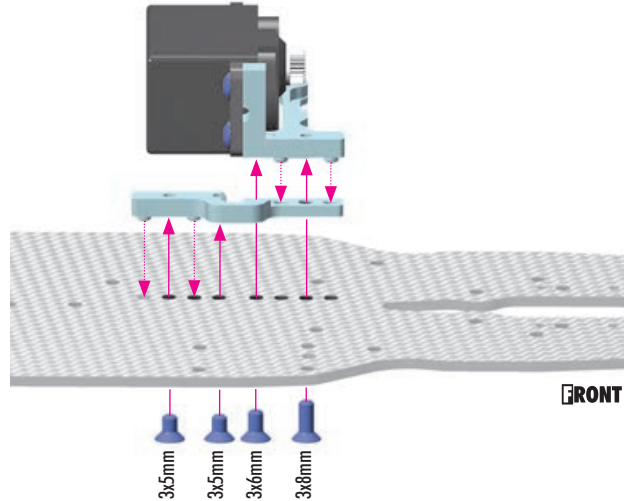
FRONT

## ALTERNATIVE 3

SERVO MOUNT ASSEMBLY - STIFF ALTERNATIVE



The STIFF ALTERNATIVE removes the most chassis flex and is the most stable configuration. Recommended for high and very high traction conditions.



3x5mm

3x5mm

3x6mm

3x8mm

FRONT

# 7. FINAL ASSEMBLY



Feed the receiver wire into the antenna tube.

Receiver (NOT INCLUDED)



NOTE: If the antenna tube does NOT hold the antenna properly, apply a small drop of the CA glue to the outside end of the antenna tube while inserting it into the holder. Make sure NOT to apply glue to the inside of the antenna tube, or the antenna wire will get permanently stuck.

Speed Controller (NOT INCLUDED)



OPTION Double-sided Tape HUDY #107875 (NOT INCLUDED)



VIDEO TECH TIP



WEIGHT BALANCE

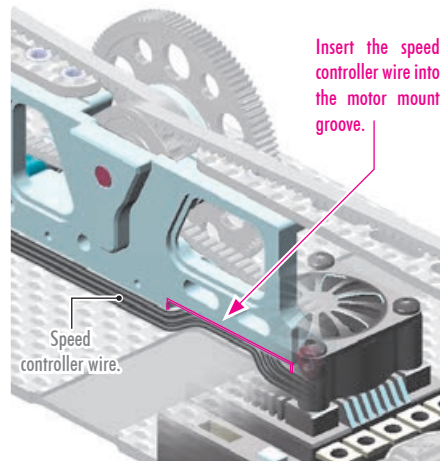


ELECTRONICS INSTALLATION



IMPORTANT!

When installing the motor, ensure the speed controller wire can move freely to avoid chassis tweak and potential damage to the speed controller wire.



OPTION #293086 HUDY PURE TUNGSTEN WEIGHT THIN 15g - (24.5x24.5mm)



OPTION #293087 HUDY PURE TUNGSTEN WEIGHT THIN 20g - (31x26mm)



For perfect left-to-right balance, we recommend using HUDY pure tungsten weights under your electronics.



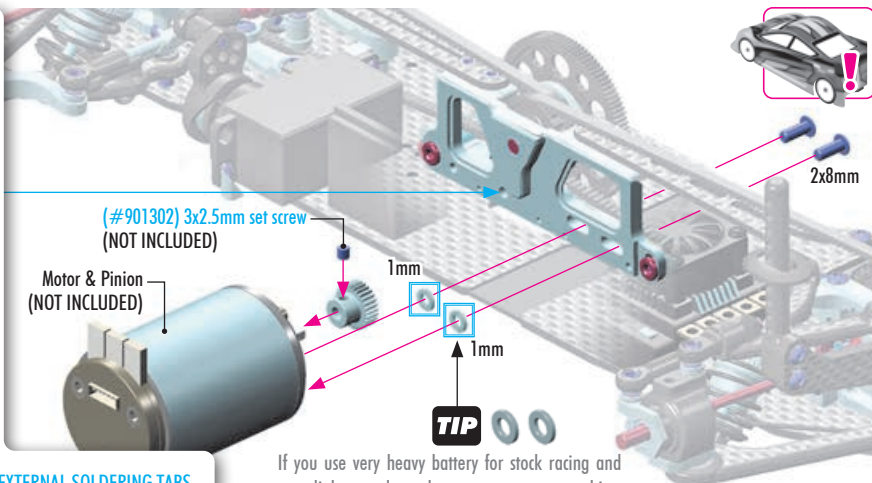
OPTION #293101 HUDY ALU RC FAN 30mm SIDE MOUNT 2 HOLE



OPTION #306410 ALU FAN MOUNT



OPTION #293110 HUDY BRUSHLESS RC FAN 30mm WITH EXTERNAL SOLDERING TABS  
 #293111 HUDY BRUSHLESS RC FAN 40mm WITH EXTERNAL SOLDERING TABS  
 #293112 HUDY BRUSHLESS RC FAN 30mm WITH INTERNAL SOLDERING TABS  
 #293113 HUDY BRUSHLESS RC FAN 40mm WITH INTERNAL SOLDERING TABS

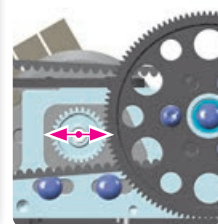


If you use very heavy battery for stock racing and very light speedo and motor, you can use shims between motor and motor mount to move the weight more outside on the motor side which can help to have same weight balance left and right. You can use shims #303122 (3x6x1mm) NOT INCLUDED in kit.

## GEAR MESH

Adjust the motor so the pinion meshes with the spur gear properly. Make sure the gear mesh is NOT too tight.

There should be a small amount of play between the teeth of the pinion gear and the spur gear.



### ALU PINION GEARS (48P)

#305912 12T / 48P	#294024 24T / 48P
#305913 13T / 48P	#305925 25T / 48P
#305914 14T / 48P	#305926 26T / 48P
#305915 15T / 48P	#305927 27T / 48P
#305916 16T / 48P	#305928 28T / 48P
#294017 17T / 48P	#305929 29T / 48P
#305918 18T / 48P	#294030 30T / 48P
#294019 19T / 48P	#305931 31T / 48P
#294020 20T / 48P	#305932 32T / 48P
#294021 21T / 48P	#294033 33T / 48P
#294022 22T / 48P	#305934 34T / 48P
#294023 23T / 48P	#294035 35T / 48P

### ALU PINION GEARS (64P)

#305968 18T / 64P	#294130 30T / 64P	#294142 42T / 64P	#294154 54T / 64P
#305969 19T / 64P	#294131 31T / 64P	#294143 43T / 64P	#294155 55T / 64P
#305970 20T / 64P	#294132 32T / 64P	#294144 44T / 64P	#294156 56T / 64P
#305971 21T / 64P	#294133 33T / 64P	#294145 45T / 64P	#294157 57T / 64P
#305972 22T / 64P	#305984 34T / 64P	#294146 46T / 64P	#294158 58T / 64P
#305973 23T / 64P	#305985 35T / 64P	#294147 47T / 64P	#294159 59T / 64P
#305974 24T / 64P	#294136 36T / 64P	#294148 48T / 64P	#294160 60T / 64P
#305975 25T / 64P	#294137 37T / 64P	#294149 49T / 64P	#294162 62T / 64P
#294126 26T / 64P	#294138 38T / 64P	#294150 50T / 64P	#294164 64T / 64P
#294127 27T / 64P	#294139 39T / 64P	#294151 51T / 64P	
#294128 28T / 64P	#294140 40T / 64P	#294152 52T / 64P	
#294129 29T / 64P	#294141 41T / 64P	#294153 53T / 64P	

# 7. FINAL ASSEMBLY



## US SPEC CLASS FINAL DRIVE RATIO - GEARING CHART

Spur : Pinion = 1.9 = FDR

		SPUR GEARS 64P																
		-	-	-	-	-	#305860	#305862	-	#305866	#305869	#305870	-	#305874	#305876	#305878	#305880	
		80T	82T	84T	86T	88T	90T	92T	94T	96T	99T	100T	102T	104T	106T	108T	110T	
PINION GEARS 64P	#305970	20T													10.07	10.26	10.45	
	#305971	21T													9.59	9.77	9.95	
	#305972	22T												8.98	9.15	9.33	9.50	
	#305973	23T												8.59	8.76	8.92	9.09	
	#305974	24T											8.08	8.23	8.39	8.55	8.71	
	#305975	25T											7.75	7.90	8.06	8.21	8.36	
	#294126	26T										7.31	7.45	7.60	7.75	7.89	8.04	
	#294127	27T										7.04	7.18	7.32	7.46	7.60	7.74	
	#294128	28T									6.72	6.79	6.92	7.06	7.19	7.33	7.46	
	#294129	29T									6.49	6.55	6.68	6.81	6.94	7.08	7.21	
	#294130	30T									6.08	6.27	6.33	6.46	6.59	6.71	6.84	6.97
	#294131	31T									5.88	6.07	6.13	6.25	6.37	6.50	6.62	6.74
	#294132	32T								5.58	5.70	5.88	5.94	6.06	6.18	6.29	6.41	6.53
	#294133	33T								5.41	5.53	5.70	5.76	5.87	5.99	6.10	6.22	6.33
	#305984	34T							5.14	5.25	5.36	5.53	5.59	5.70	5.81	5.92	6.04	6.15
	#305985	35T							4.99	5.10	5.21	5.37	5.43	5.54	5.65	5.75	5.86	5.97
	#294136	36T						4.75	4.86	4.96	5.07	5.23	5.28	5.38	5.49	5.59	5.70	5.81
	#294137	37T						4.62	4.72	4.83	4.93	5.08	5.14	5.24	5.34	5.44	5.55	5.65
	#294138	38T				4.40	4.50	4.60	4.70	4.80	4.95	5.00	5.10	5.20	5.30	5.40		
	#294139	39T				4.29	4.38	4.48	4.58	4.68	4.82	4.87	4.97	5.07	5.16	5.26		
	#294140	40T			4.09	4.18	4.28	4.37	4.47	4.56	4.70	4.75	4.85	4.94	5.04			
	#294141	41T			3.99	4.08	4.17	4.26	4.36	4.45	4.59	4.63	4.73	4.82	4.91			
	#294142	42T			3.80	3.89	3.98	4.07	4.16	4.25	4.34	4.48	4.52	4.61	4.70			
	#294143	43T			3.71	3.80	3.89	3.98	4.07	4.15	4.24	4.37	4.42	4.51	4.60			
	#294144	44T		3.54	3.63	3.71	3.80	3.89	3.97	4.06	4.15	4.28	4.32	4.40				
	#294145	45T		3.46	3.55	3.63	3.72	3.80	3.88	3.97	4.05	4.18	4.22	4.31				
	#294146	46T	3.30	3.39	3.47	3.55	3.63	3.72	3.80	3.88	3.97	4.09	4.13					
	#294147	47T	3.23	3.31	3.40	3.48	3.56	3.64	3.72	3.80	3.88	4.00	4.04					
#294148	48T	3.17	3.25	3.33	3.40	3.48	3.56	3.64	3.72	3.80	3.92							
#294149	49T	3.10	3.18	3.26	3.33	3.41	3.49	3.57	3.64	3.72	3.84							
#294150	50T	3.04	3.12	3.19	3.27	3.34	3.42	3.50	3.57	3.65								
#294151	51T	2.98	3.05	3.13	3.20	3.28	3.35	3.43	3.50	3.58								
#294152	52T	2.92	3.00	3.07	3.14	3.22	3.29	3.36	3.43									
#294153	53T	2.87	2.94	3.01	3.08	3.15	3.23	3.30	3.37									
#294154	54T	2.81	2.89	2.96	3.03	3.10	3.17	3.24										
#294155	55T	2.76	2.83	2.90	2.97	3.04	3.11	3.18										
#294156	56T	2.71	2.78	2.85	2.92	2.99	3.05											

### CLASS

21.5T  
TC

21.5T / 25.5T  
OVERLAP

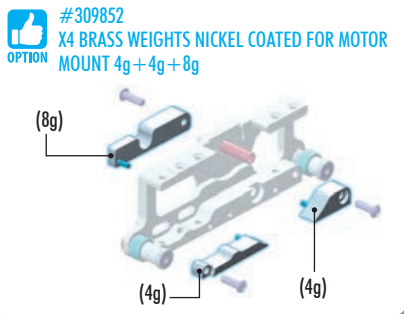
25.5T  
VTA

US-GT / VTA  
OVERLAP

US-GT

NOT  
USABLE

### OPTIONAL WEIGHTS



#306551  
OPTION XRAY PURE TUNGSTEN CHASSIS WEIGHT 12g



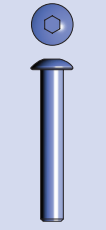
VIDEO TECH TIP



WEIGHT BALANCE



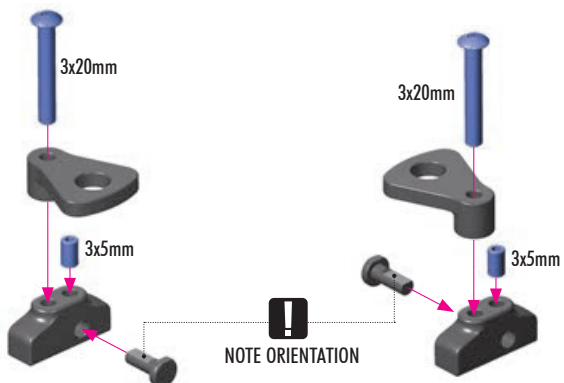
2x 901305  
SB M3x5



902320  
SH M3x20

VIDEO TECH TIP

BATTERY MOUNTING SYSTEM



To ensure correct functioning of the battery holder, DO NOT overtighten the screw; the holder must be able to move.

HEIGHT ADJUSTMENT  
1 turn = 0.5mm



# 7. FINAL ASSEMBLY



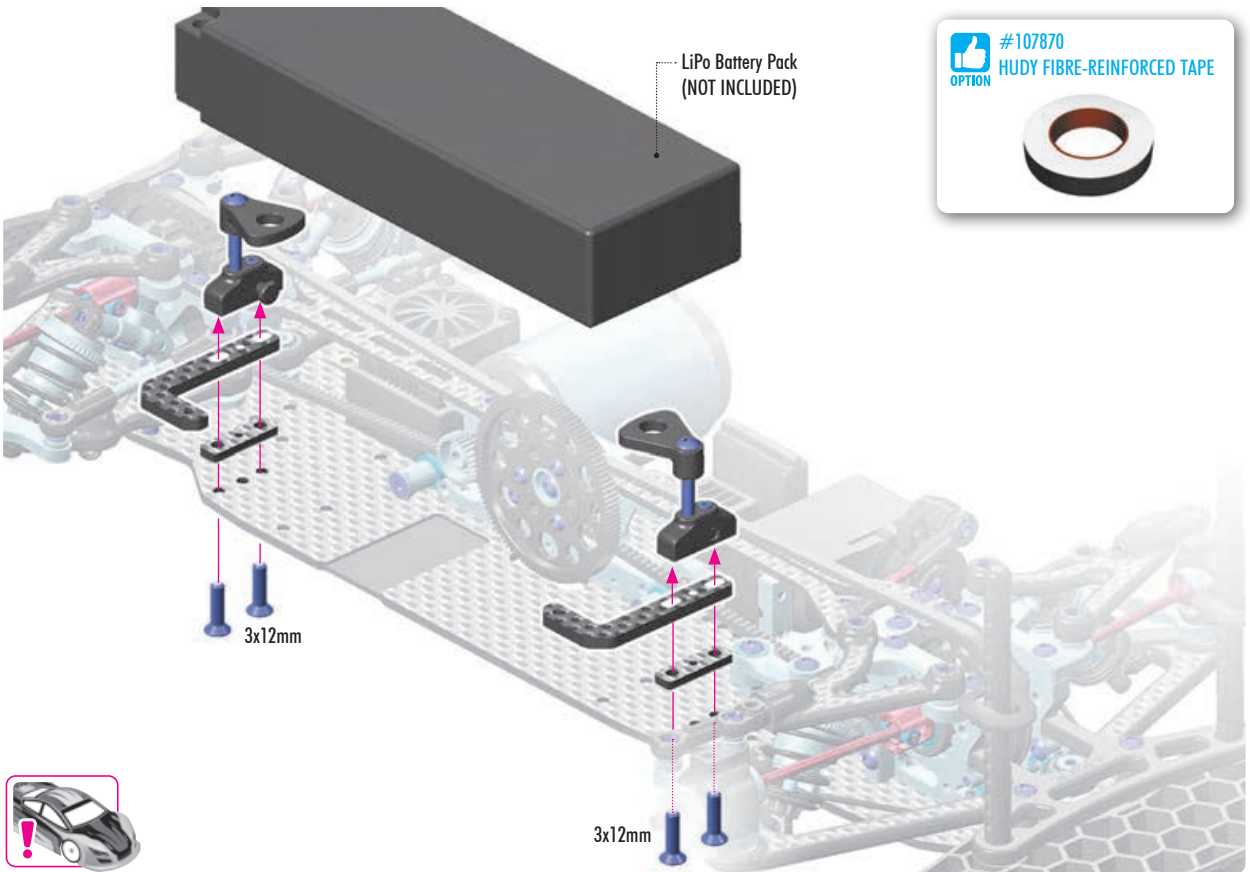
4x #903312  
SFH M3x12



VIDEO TECH TIP



WEIGHT BALANCE




LiPo Battery Pack  
(NOT INCLUDED)

#107870  
HUDY FIBRE-REINFORCED TAPE  
OPTION

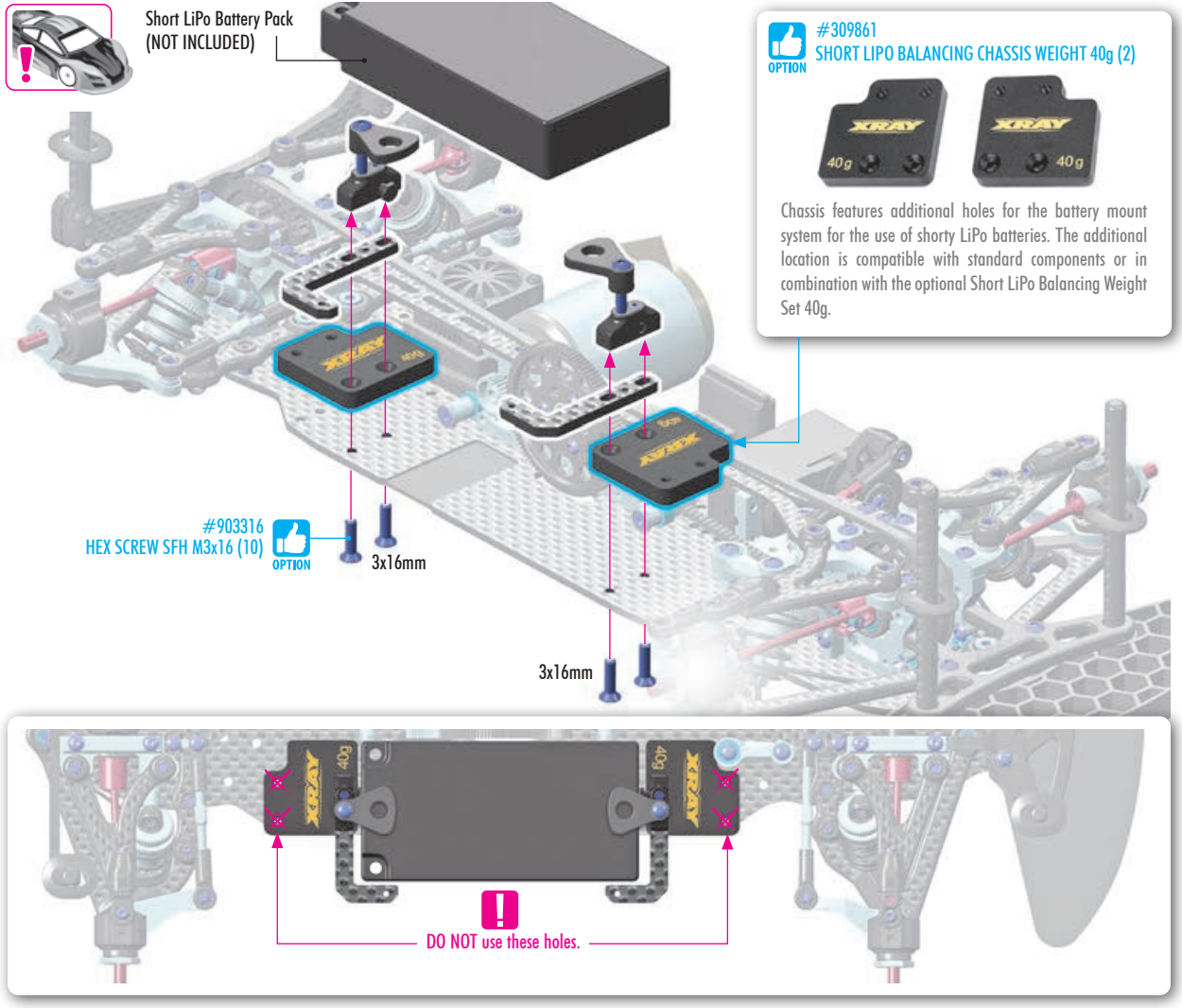
3x12mm

3x12mm




4x #903316  
SFH M3x16

OPTION



Short LiPo Battery Pack  
(NOT INCLUDED)

#309861  
SHORT LIPO BALANCING CHASSIS WEIGHT 40g (2)  
OPTION

#903316  
HEX SCREW SFH M3x16 (10)  
OPTION

3x16mm

3x16mm

DO NOT use these holes.

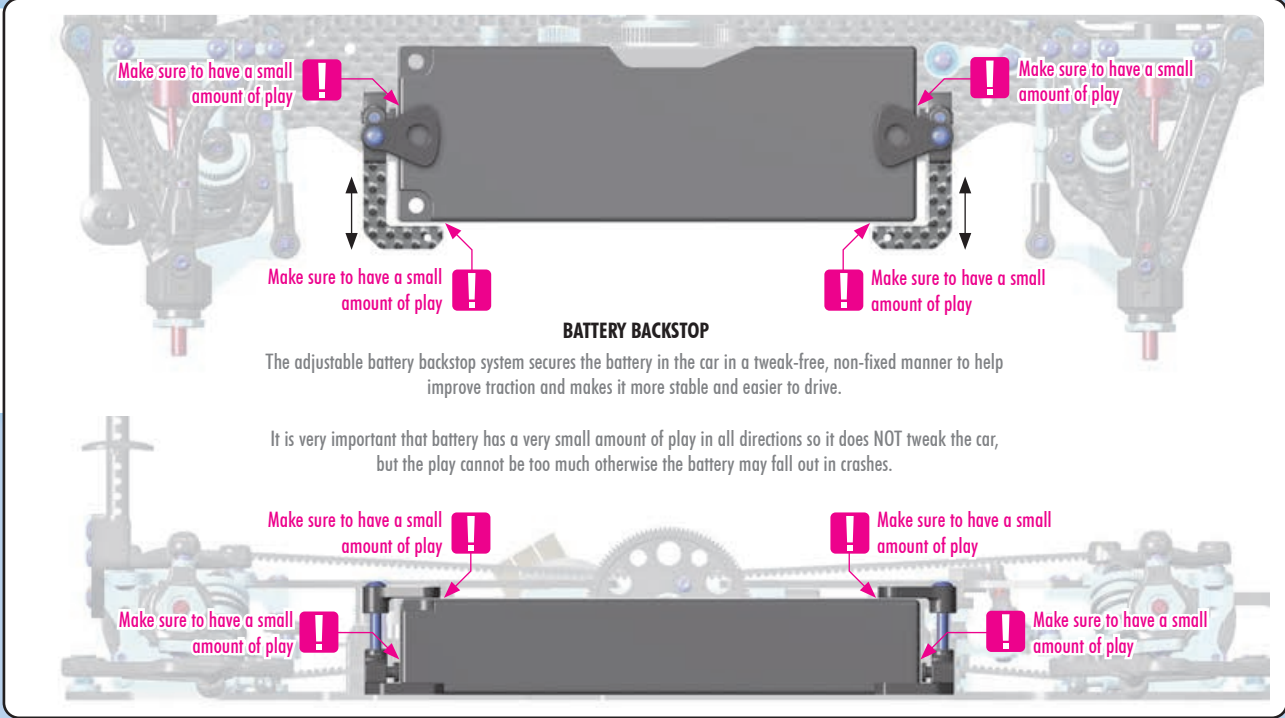
# 7. FINAL ASSEMBLY



VIDEO TECH TIP



BATTERY MOUNTING SYSTEM



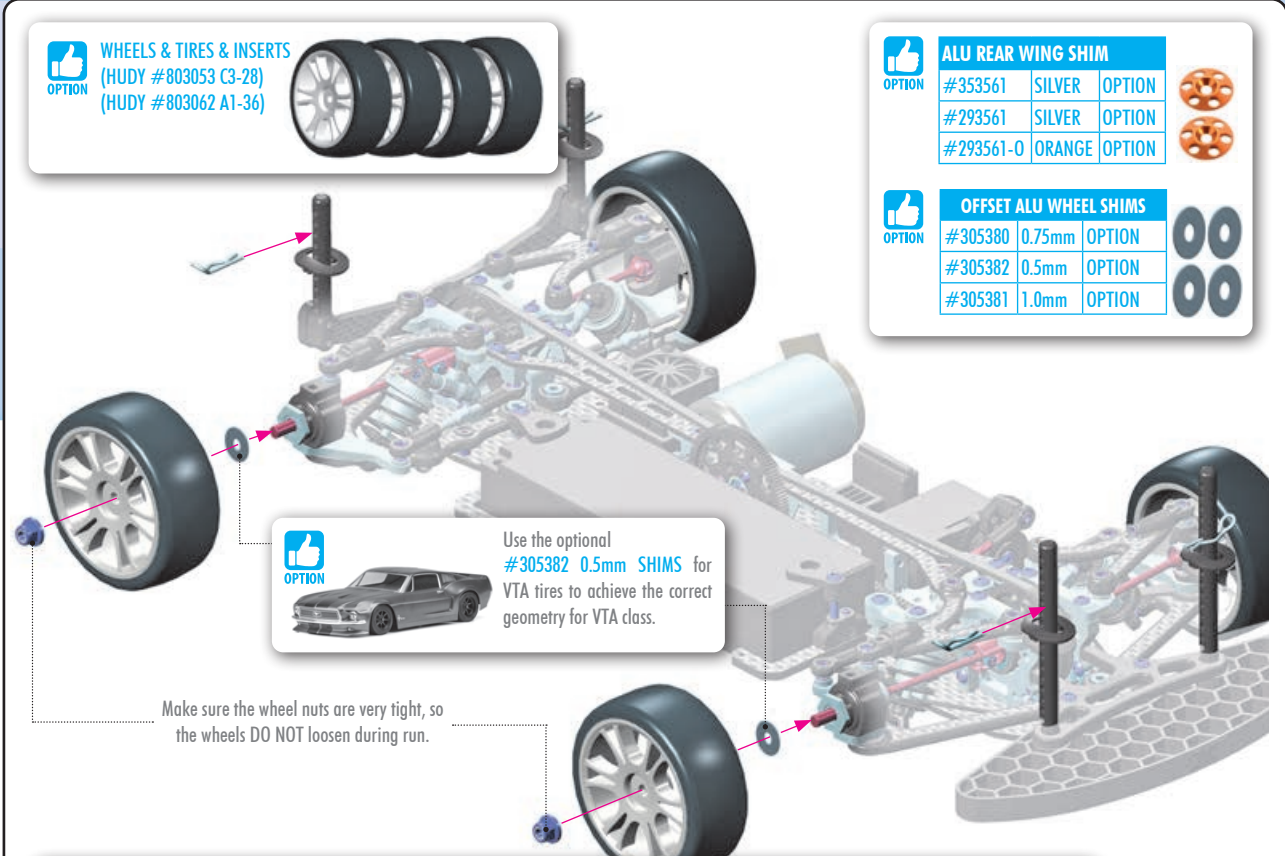
### BATTERY BACKSTOP

The adjustable battery backstop system secures the battery in the car in a tweak-free, non-fixed manner to help improve traction and makes it more stable and easier to drive.

It is very important that battery has a very small amount of play in all directions so it does NOT tweak the car, but the play cannot be too much otherwise the battery may fall out in crashes.



4x 960240 N M4



**WHEELS & TIRES & INSERTS**  
 (HUDY #803053 C3-28)  
 (HUDY #803062 A1-36)

ALU REAR WING SHIM			
#353561	SILVER	OPTION	
#293561	SILVER	OPTION	
#293561-0	ORANGE	OPTION	

OFFSET ALU WHEEL SHIMS			
#305380	0.75mm	OPTION	
#305382	0.5mm	OPTION	
#305381	1.0mm	OPTION	

Use the optional #305382 0.5mm SHIMS for VTA tires to achieve the correct geometry for VTA class.

Make sure the wheel nuts are very tight, so the wheels DO NOT loosen during run.



VIDEO TECH TIP









TRACK WIDTH (OFFSET)




DOWNSTOP & RIDE HEIGHT



CHASSIS TWEAK

<p><b>#293081</b> HUDY PURE TUNGSTEN WEIGHT 5g</p> 	<p><b>#293082</b> HUDY PURE TUNGSTEN WEIGHT 10g</p> 	<p><b>#309862</b> XRAY STAINLESS STEEL WEIGHT FOR NARROW BATTERY PACK 35g</p> 
<p><b>#326181</b> STAINLESS STEEL BATTERY WEIGHT 35g</p> 	<p><b>#293083</b> HUDY PURE TUNGSTEN WEIGHT 15g</p> 	<p><b>#293085</b> HUDY PURE TUNGSTEN WEIGHT THIN ROUND WITH M3 - 10g</p> 

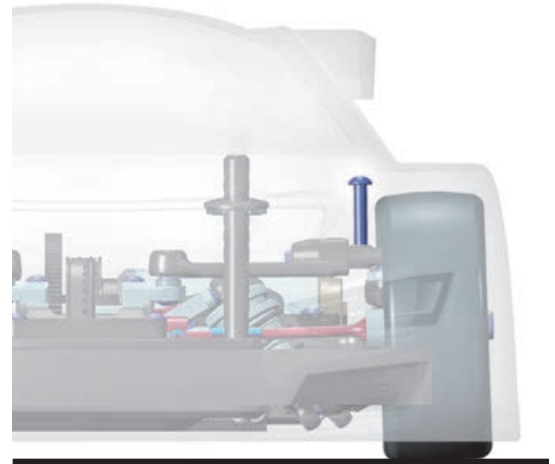
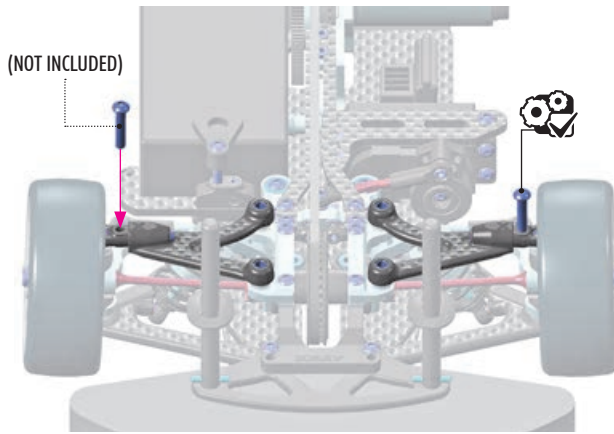


## BODY STOP SYSTEM

The X4 features an adjustable front body upstop system incorporated into the upper arm to prevent the body shell from bottoming out and hitting the ground during cornering. When the system is set correctly, it allows the body to be run lower without dragging on the ground to improve aerodynamic efficiency.



**BODY STOP ALTERNATIVE**  
with screw  
(#902316 SH M3x16mm)



VIDEO TECH TIP



BODY UPSTOPS



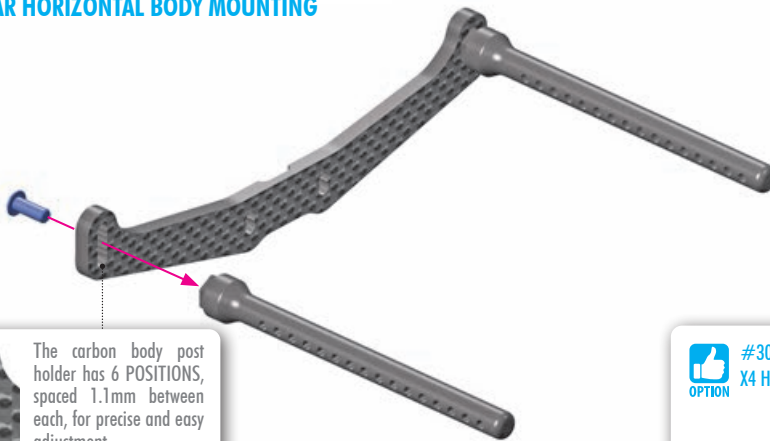
## REAR HORIZONTAL BODY MOUNTING



VIDEO TECH TIP



HORIZONTAL BODY MOUNTING



The carbon body post holder has 6 POSITIONS, spaced 1.1mm between each, for precise and easy adjustment.



#301322-H  
**HARD COMPOSITE HORIZONTAL REAR BODY MOUNT POST - SET**

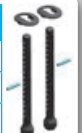
Optional HARD posts eliminate the flex of the horizontal mounting. Use these posts only for horizontal body mounting.

Optional horizontal rear body mounting has shown benefits on medium to high grip conditions, especially on technical tracks, by improving directional changes, steering response and rotation. Note that rear grip is also reduced, so may be useful in Stock or Super Stock spec class racing.



## FRONT BODY MOUNT SET

#301322	0mm	OPTION
#301323	+1mm	OPTION
#301324	+2mm	OPTION



#301349  
**X4 HORIZONTAL BODY POST MOUNTING GAUGE**



Horizontal Body Post Mounting Gauge is special tool designed for X4 that helps to mark the horizontal rear body mounts position on the body shell for a perfect fit on the car and featuring two special scales to check and adjust the proper position of the body. The first scale is used to adjust the rear part of the body and the second scale is used to check the body height around the car. Fits all popular body shells.



MISTAKES USERS MAKE



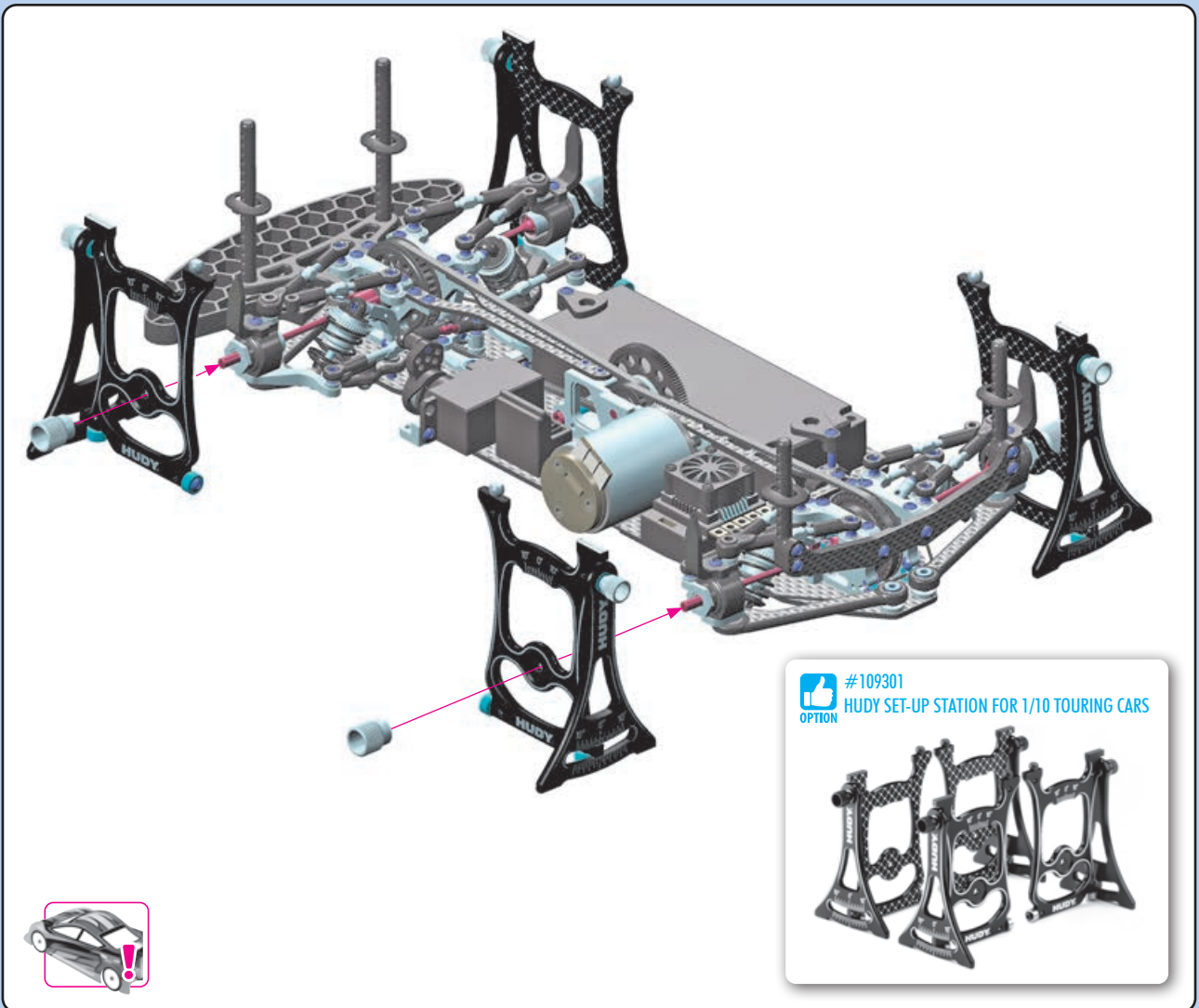
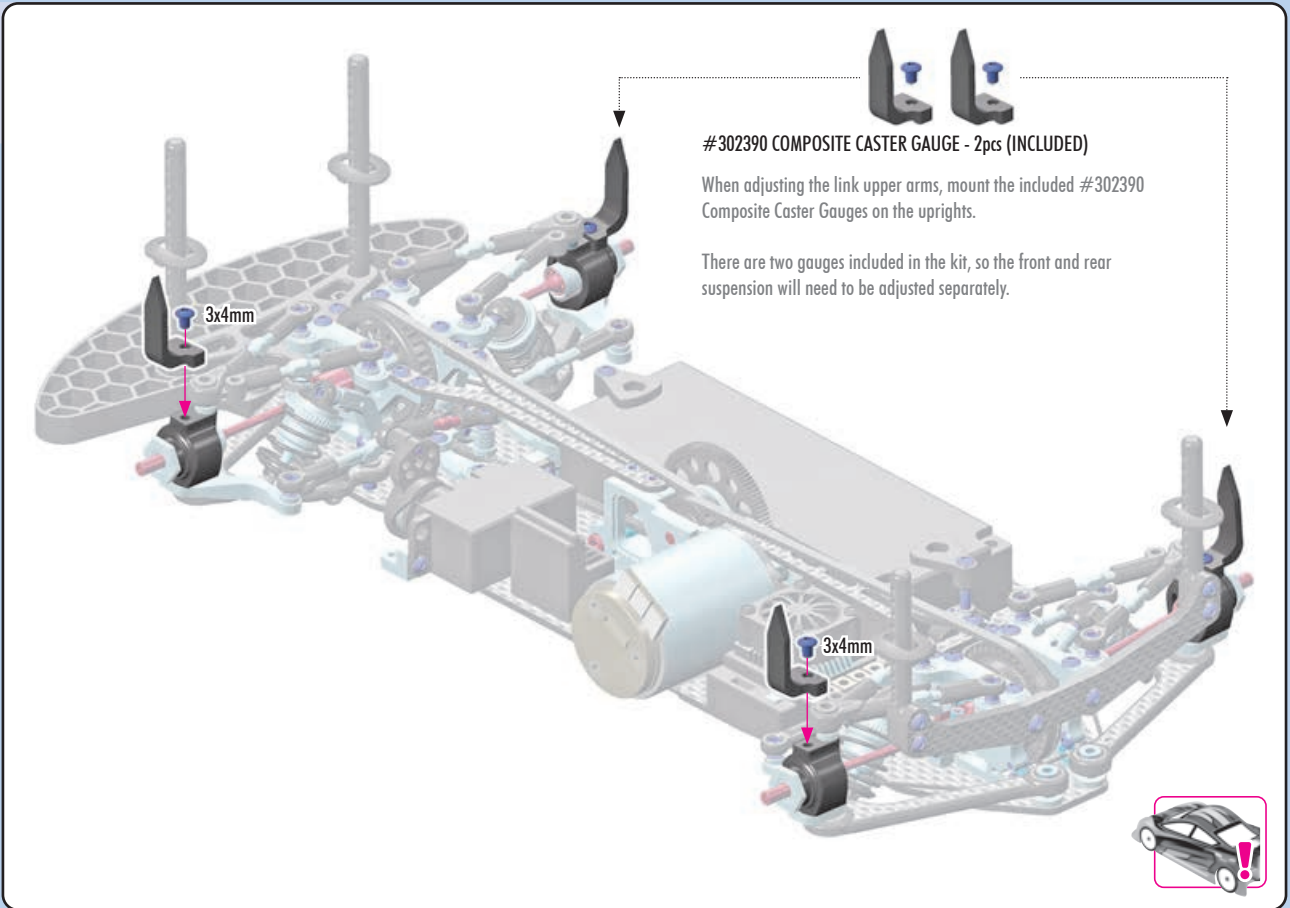
## COMMON MISTAKES THAT X4 USERS MAKE

**!** Make sure to watch the video of Alexander Hagberg explaining about common mistakes that even experienced drivers make and how to avoid them.

# UPPER ARM LINKS ADJUSTMENT



2x #902304  
SH M3x4



# UPPER ARM LINKS ADJUSTMENT



VIDEO TECH TIP



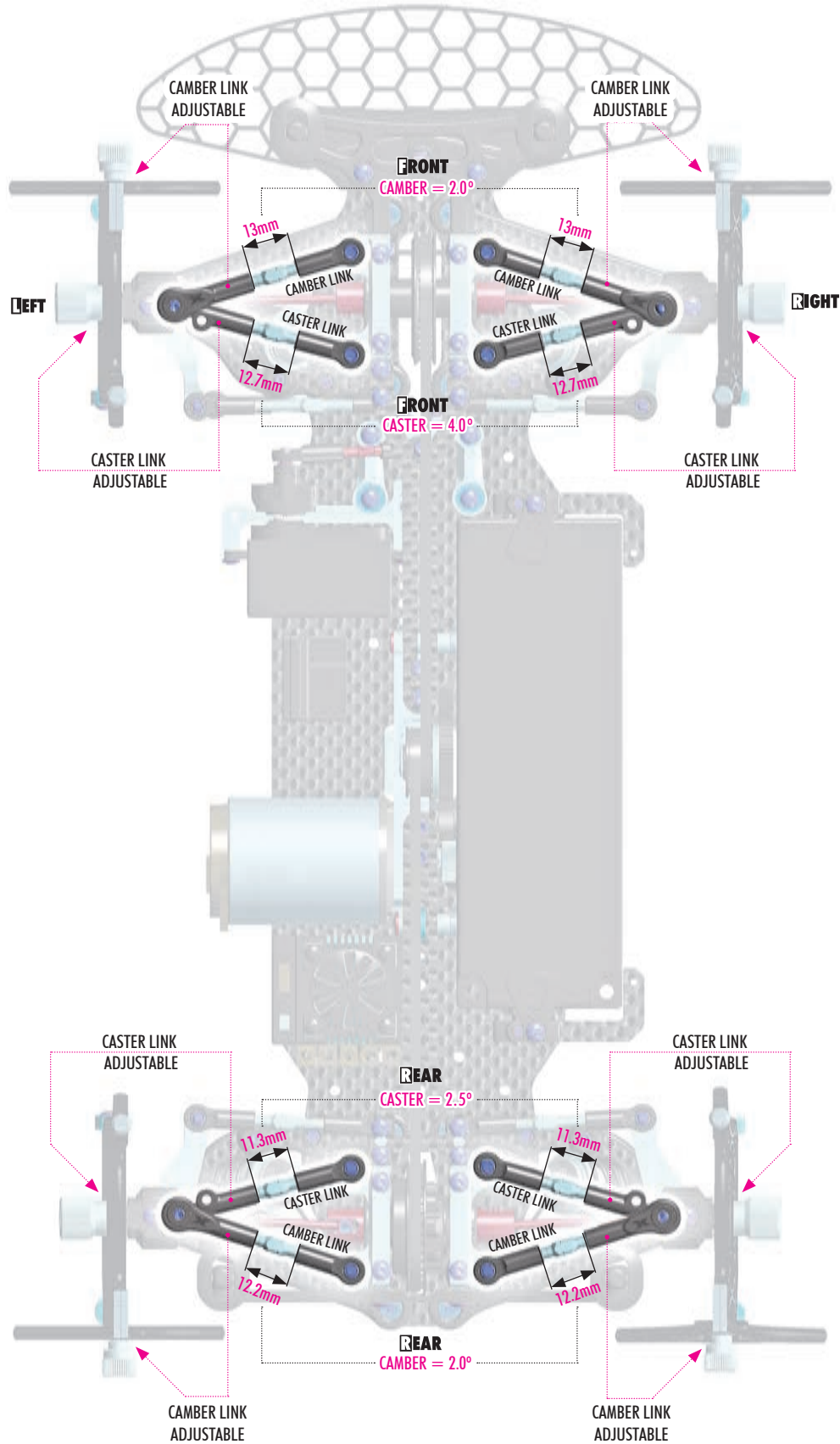
UPPER LINKS  
ADJUSTMENT

Setting the upper link system caster and camber requires extra attention. It is recommended to start with the kit upper arm lengths and then fine tune from that position.

To adjust caster while retaining the same camber setting, both camber and caster links will be adjusted by equal but opposite amounts. For example, to increase front suspension caster, the caster link is shortened and the camber link is lengthened by the same value.

Utilize the XRAY Composite Caster Gauges (#302390) to fine tune and verify any caster adjustments.

Make sure that all ball cups are straight and aligned over the ball studs after making adjustments to ensure free movement of the upper link arms, and prevent binding during suspension movement.



# UPPER ARM LINKS ADJUSTMENT

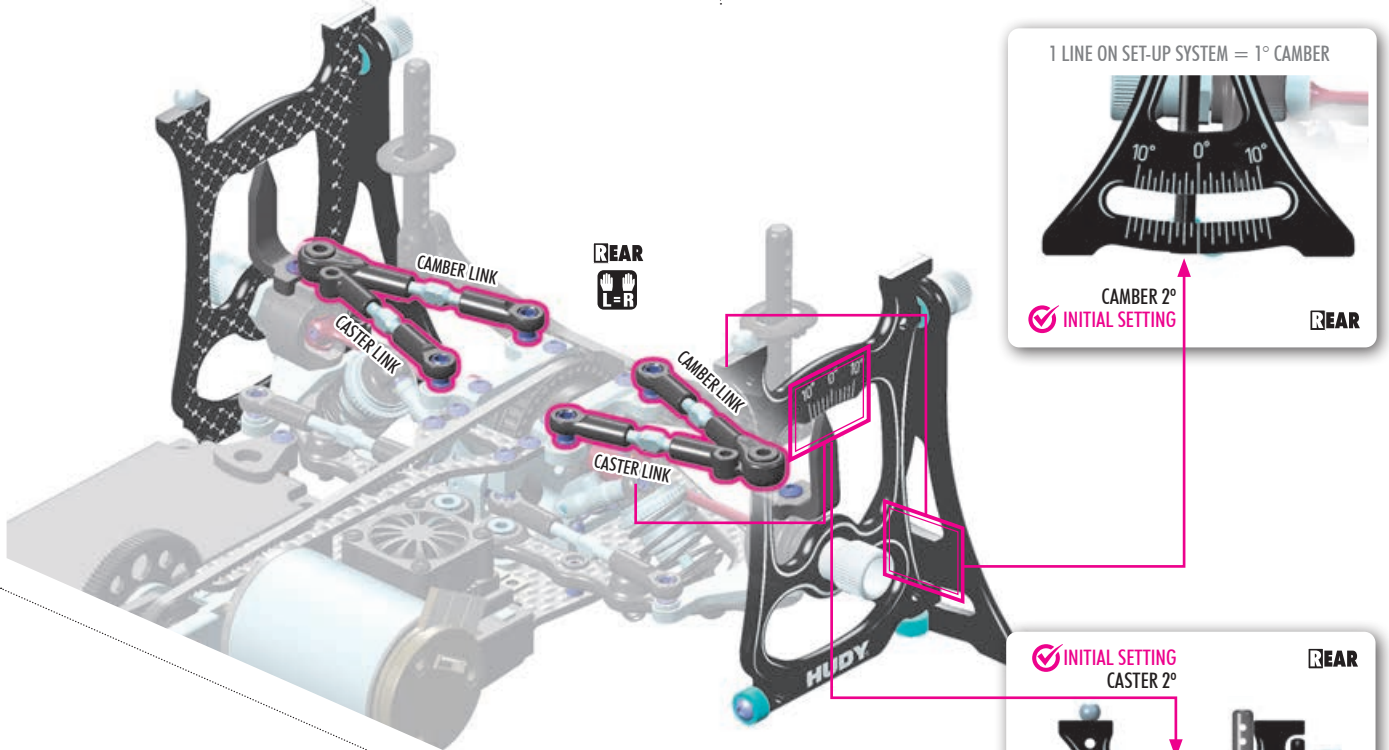


## CASTER ADJUSTMENT

When changing caster, it is necessary to check both caster and camber values each time the upper links are adjusted.

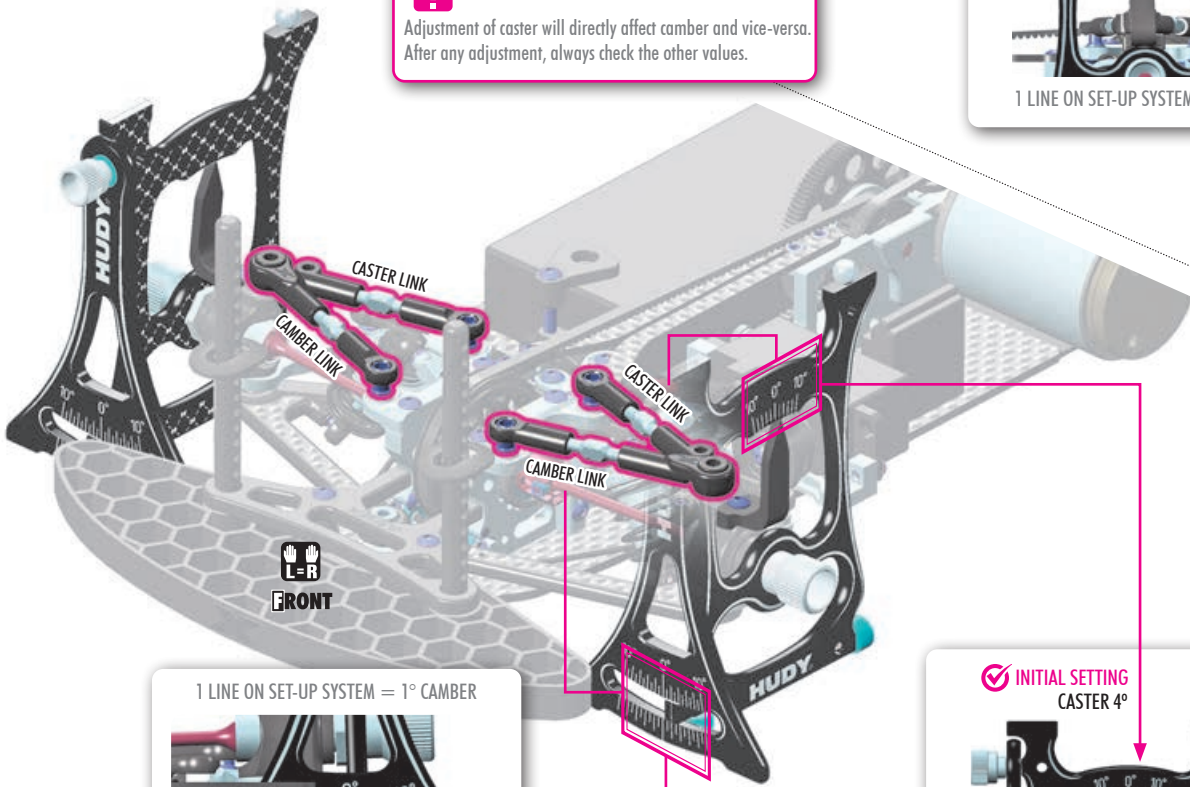
## CAMBER ADJUSTMENT

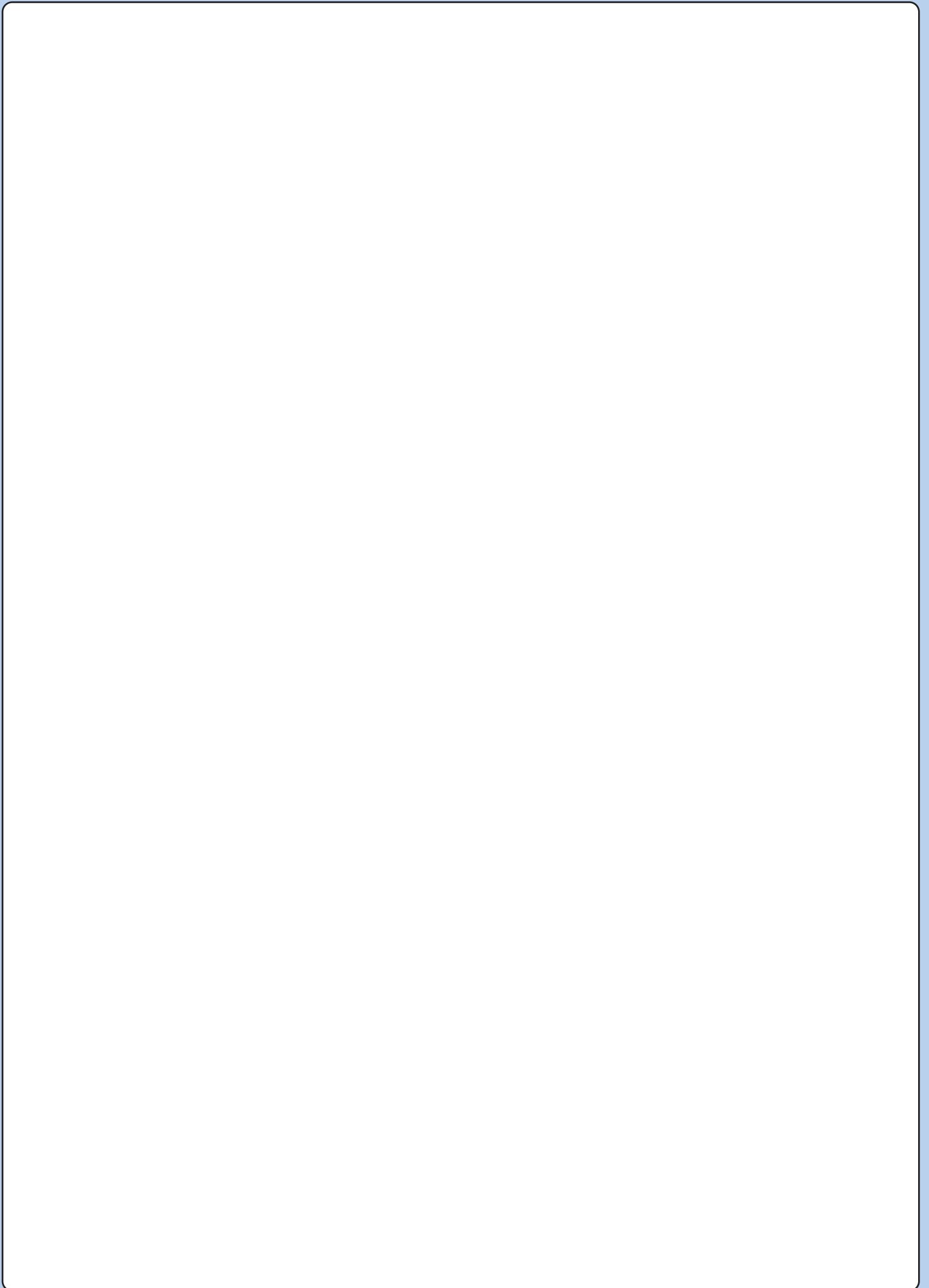
Adjustment of caster will directly affect camber and vice-versa. After any adjustment, always check the other values to ensure proper geometry.



### ! IMPORTANT

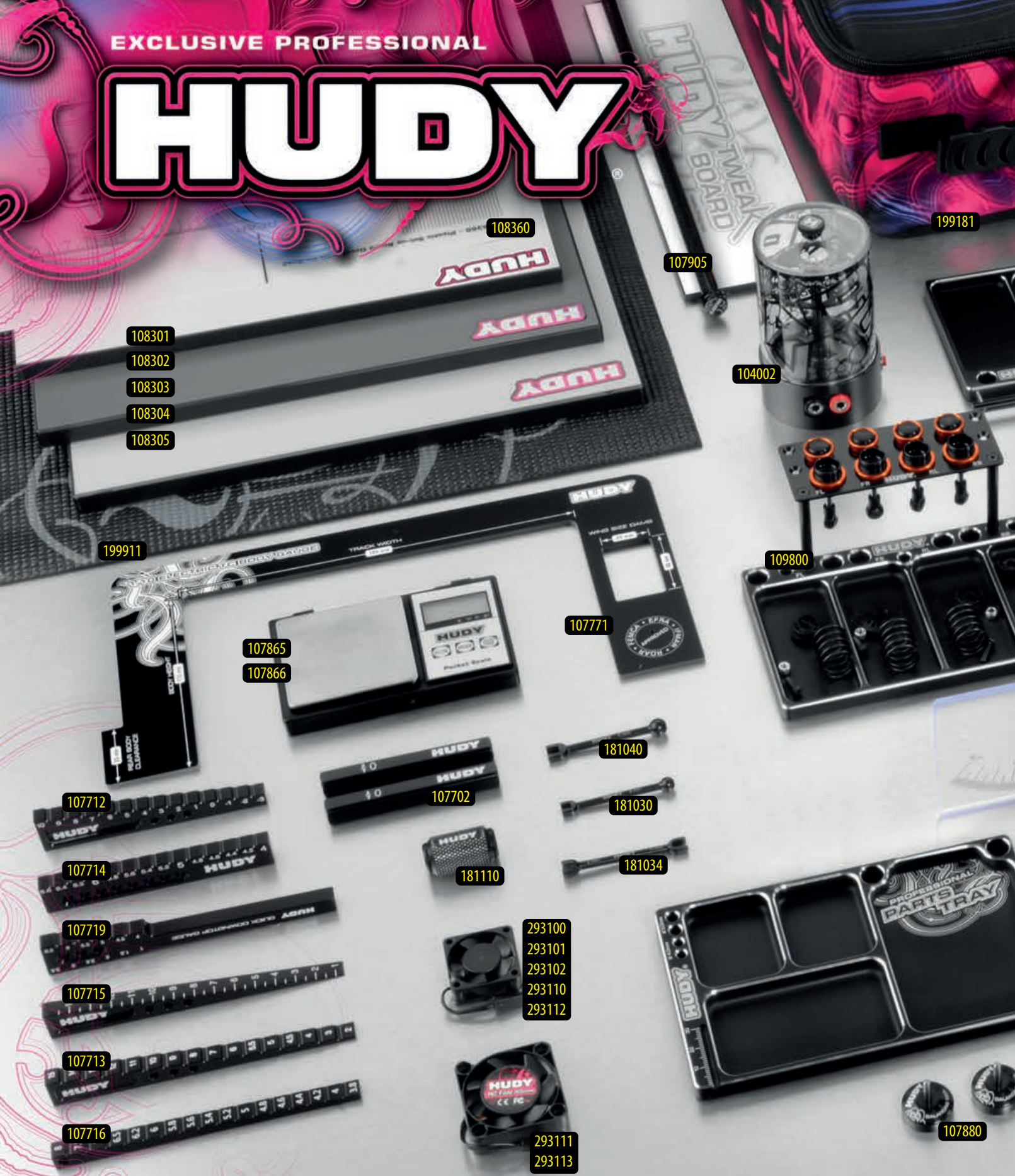
Adjustment of caster will directly affect camber and vice-versa. After any adjustment, always check the other values.





EXCLUSIVE PROFESSIONAL

# HUDY



- |        |   |        |   |        |                                |
|--------|---|--------|---|--------|--------------------------------|
| 104002 | HUDY AIR VAC - VACUUM PUMP - ON-ROAD                      | 107750 | HUDY CARBON QUICK CAMBER GAUGE 1.5°, 2°, 2.5° FOR 1/10 TC | 108303 | SET-UP BOARD 1/10 & 1/12 ON-R  |
| 106260 | HUDY TIRE ADDITIVE - TIRE GRIPPER - 50ML - V2             | 107771 | HUDY BODY GAUGE 1/10 ELECTRIC TOURING CARS                | 108304 | SET-UP BOARD 1/10 & 1/12 ON-R  |
| 107090 | HUDY BEARING CHECKING TOOL                                | 107855 | HUDY PIT LED  | 108305 | SET-UP BOARD 1/10 & 1/12 ON-R  |
| 107601 | LIMITED EDITION - REAMER FOR BODY 0-9MM + COVER - SMALL   | 107865 | HUDY PROFESSIONAL DIGITAL POCKET SCALE 300G/0.01G         | 108360 | PLASTIC SET-UP BOARD DECAL 28  |
| 107643 | LIMITED EDITION - ARM REAMER # 3.0MM                      | 107870 | HUDY FIBRE-REINFORCED TAPE - BLACK                        | 109301 | HUDY SET-UP STATION FOR 1/10 T |
| 107702 | CHASSIS DROOP GAUGE SUPPORT BLOCKS FOR 1/10 (2)           | 107875 | HUDY ULTRA DOUBLE-SIDED TAPE                              | 109351 | SET-UP STATION & SET-UP TOOLS  |
| 107712 | CHASSIS DROOP GAUGE -3.0-10MM FOR 1/10 CARS (10MM)        | 107880 | CHASSIS BALANCING TOOL (2)                                | 109360 | ALU NUT FOR 1/10 TOURING SET-  |
| 107713 | CHASSIS RIDE HEIGHT GAUGE STEPPED 2.0-15.0MM              | 107904 | HUDY QUICK-TWEAK STATION 1/10 & 1/12 ON-ROAD              | 109370 | ALU SET-UP WHEEL FOR 1/10 RUB  |
| 107714 | ULTRA-FINE CHASSIS DROOP GAUGE 4.0-6.6MM                  | 107905 | HUDY TWEAK BOARD SET                                      | 109800 | HUDY ALU TRAY FOR ON-ROAD DI   |
| 107715 | CHASSIS RIDE HEIGHT GAUGE 1.0-15.0MM (BEVELED)            | 108150 | HUDY 1/10 TOURING CAR STAND - V3                          | 109840 | HUDY ALU TRAY FOR 1/10 OFF-RO  |
| 107716 | ULTRA-FINE CHASSIS RIDE HEIGHT GAUGE 3.8-8.0MM            | 108190 | HUDY ALU TRAY FOR PARTS                                   | 109860 | HUDY ALU TRAY FOR SET-UP SYST  |
| 107719 | QUICK DOWNSTOP GAUGE TOOL 1.0-6.5MM                       | 108301 | SET-UP BOARD 1/10 & 1/12 ON-ROAD-LIGHTWEIGHT-GREY         | 109880 | HUDY ALU TRAY FOR ACCESSORIE   |
| 107720 | CHASSIS RIDE HEIGHT GAUGE 30-17MM FOR 1/8 & 1/10 OFF-ROAD | 108302 | SET-UP BOARD 1/10 & 1/12 ON-ROAD-LIGHTWEIGHT-SILVER GREY  | 111545 | LIMITED EDITION - ALLEN WRENCH |





107855  
 109880  
 109840  
 109301  
 109370  
 108190  
 188981  
 188990

112045 LIMITED EDITION - ALLEN WRENCH # 2.0MM  
 113045 LIMITED EDITION - ALLEN WRENCH # 3.0MM  
 132045 LIMITED EDITION - ALLEN WRENCH + BALL REPL. TIP # 2.0MM  
 175535 LIMITED EDITION - SOCKET DRIVER # 5.5MM  
 177035 LIMITED EDITION - SOCKET DRIVER # 7.0MM  
 181030 HUDY SPRING STEEL TURNBUCKLE WRENCH 3 MM  
 181034 TURNBUCKLE WRENCH 3 & 4MM - HUDY SPRING STEEL™  
 181040 TURNBUCKLE WRENCH 4MM - HUDY SPRING STEEL™  
 181110 HUDY BALL JOINT WRENCH  
 183011 HUDY PROFESSIONAL MULTI TOOL  
 188981 HUDY POCKET HOBBY KNIFE  
 188990 HUDY PROFESSIONAL BODY SCISSORS  
 199060 HUDY ALU TOOL STAND

107904  
 106260  
 199270  
 109060  
 298100  
 108150  
 107750  
 183011  
 107090  
 107601  
 107643  
 177035  
 175535  
 111545  
 132045  
 112045  
 113045

For more information about tools, set-up equipment & accessories suitable for your car please visit:

[www.hudy.net](http://www.hudy.net)



EXCLUSIVE PROFESSIONAL

# HUDY

# HUDY

199295-H

199290-H

106261

106200

803053

803062

107861

107840

107846

107761

105590

293080

106290

293012

293011

293083

293082

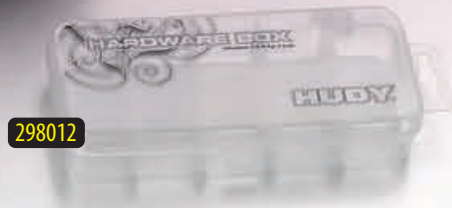
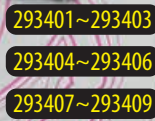
293081

293084

294017~294035

294126~294164

- |        |   |        |   |
|--------|---|--------|---|
| 107761 | HUDY ADJUSTABLE CAMBER GAUGE 80MM                                 | 105590 | HUDY WHEEL BALANCING PUTTY                                      |
| 107772 | HUDY PROFESSIONAL 1/10 TC WHEEL ARCH MARKER + WHEEL ADAPTER & NUT | 181090 | HUDY SPECIAL TOOL FOR TURNBUCKLES & NUTS                        |
| 106210 | HUDY GRAPHITE GREASE  | 181091 | HUDY TURNBUCKLE WRENCH 3 & 4MM - V2                             |
| 106230 | HUDY BEARING OIL  | 803053 | HUDY 1/10 TC CARPET TIRES C3-28 (4)                             |
| 106200 | HUDY MAGIC CLEANING GUM   | 803062 | HUDY 1/10 TC TIRES A1-36 - ASPHALT (4)                          |
| 106261 | HUDY TIRE ADDITIVE - TIRE GRIPPER RED - 50ML                      | 293011 | HUDY STAINLESS STEEL BATTERY WEIGHT 35G                         |
| 106350 | HUDY PREMIUM SILICONE OIL 500 CST - 50ML                          | 293012 | HUDY STAINLESS STEEL BATTERY WEIGHT FOR NARROW BATTERY PACK 35G |
| 107861 | HUDY PROFESSIONAL RACING STOPWATCH XL DISPLAY                     | 293080 | LEAD WEIGHTS 4x5G & 4x10G WITH 3M GLUE                          |
| 106290 | HUDY PROFESSIONAL SOLDER 3M LENGTH                                | 293081 | HUDY PURE TUNGSTEN WEIGHT 5G                                    |
| 107840 | CLEANING BRUSH LARGE - SOFT                                       | 293082 | HUDY PURE TUNGSTEN WEIGHT 10G                                   |
| 107846 | CLEANING BRUSH SMALL - SOFT                                       | 293083 | HUDY PURE TUNGSTEN WEIGHT 15G                                   |
| 105520 | WHEEL ADAPTER FOR 1/10 ON-ROAD & 1/10 OFF-ROAD - 12MM             | 293084 | PRECISION BALANCING CHASSIS WEIGHT 10G (4)                      |



293311 CARBON REAR WING SIDE PLATE 0.5MM - 1/10 ELECTRIC (2)  
 293403 ALU CLAMP SERVO HORN - FUTABA, SAVÖX - OFFSET 1-HOLE M3 - 25T  
 293493 ALU SERVO HORN - FUTABA, SAVÖX - OFFSET 1-HOLE M3 - 25T - V2  
 294017-35 HUDY ALU ULTRA-LIGHT PINION GEAR - HARD COATED - 23T / 48  
 294126-64 HUDY ALU ULTRA-LIGHT PINION GEAR - HARD COATED - 40T / 64  
 298012 HUDY PARTS BOX - 10-COMPARTMENTS  
 298013 HUDY SPRINGS BOX - 10-COMPARTMENTS  
 298014 HUDY PARTS BOX - 8-COMPARTMENTS  
 298015 HUDY PARTS CASE - 290 x 195MM  
 298016 HUDY TINY HARDWARE BOX - 4-COMPARTMENTS  
 298017 HUDY TINY ONE-PIECE HARDWARE BOX - 8-COMPARTMENTS  
 298018 HUDY TINY HARDWARE BOX - 8-COMPARTMENTS

298019 HUDY DIFF BOX - 8-COMPARTMENTS  
 199280M-H HUDY HARD CASE - 140x110x95MM - OIL BAG MEDIUM  
 199290-H HUDY HARD CASE - 235x190x75MM - ACCESSORIES / ENGINE BAG  
 199295-H HUDY HARD CASE - 280x150x85MM - ACCESSORIES BAG LARGE  
 199296-H HUDY HARD CASE - 120x85x46MM - ACCESSORIES / STOP WATCH

For more information about tools, set-up equipment & accessories suitable for your car please visit:

[www.hudy.net](http://www.hudy.net)



[www.teamxray.com](http://www.teamxray.com)

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