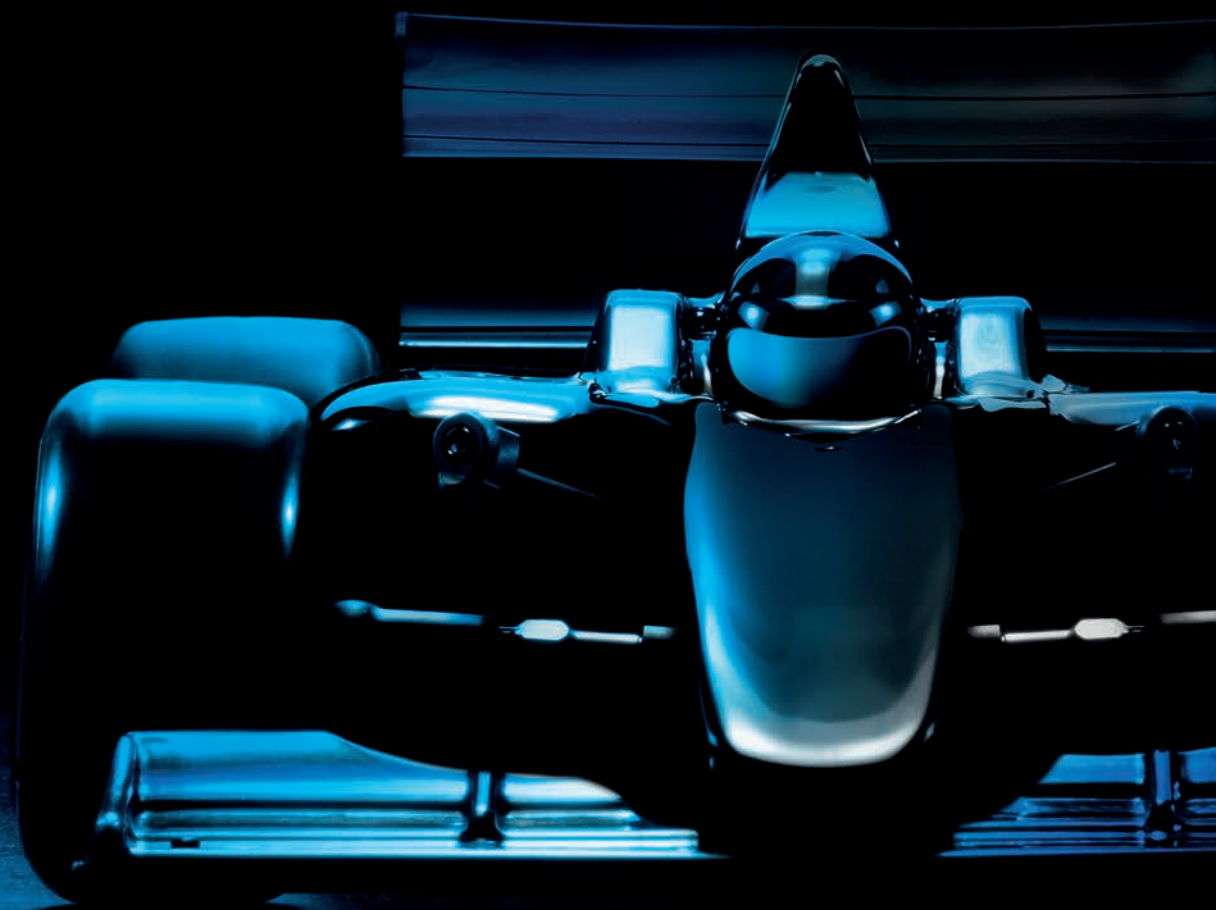


1/10 ELECTRIC FORMULA

XRAY X1



INSTRUCTION MANUAL
FOR X1'25 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. Also, please visit our Web site at 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

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

K Vystavisku 6992
91101 Trenčín
Slovakia, EUROPE
Phone: 421-32-7401100
Fax: 421-32-7401109
E-mail: info@teamxray.com

XRAY USA

RC America, 2030 Century Center Blvd #15 Irving,
TX 75062
USA
Phone: (214) 744-2400
Fax: (214) 744-2401
E-mail: 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 to get advice, or contact us via email at 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

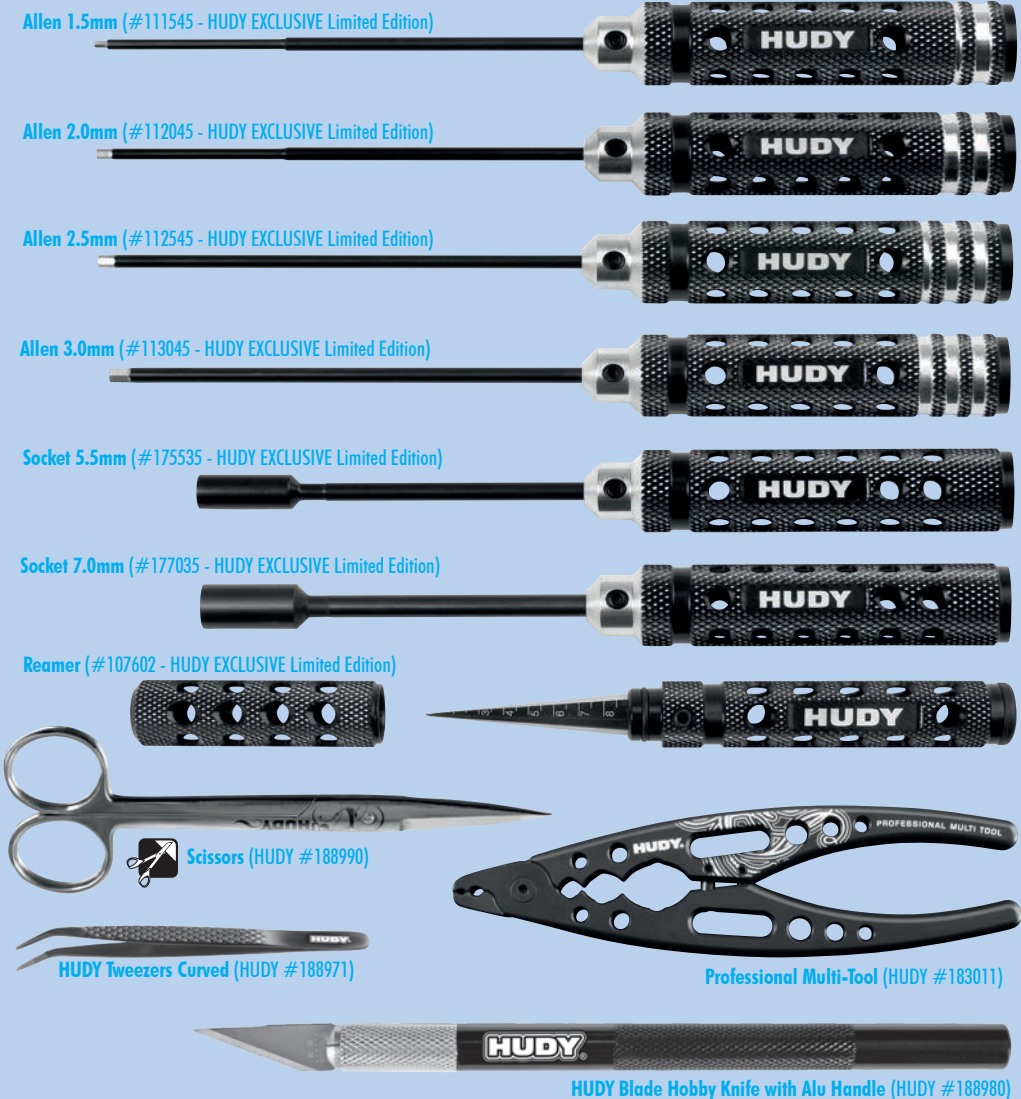
XRAY MODEL RACING CARS uses only the highest quality materials, the best compounds for molded parts and the most sophisticated manufacturing processes of TQM (Total Quality Management). We guarantee that all parts of a newly-purchased kit are manufactured with the highest regard to quality. However, 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!

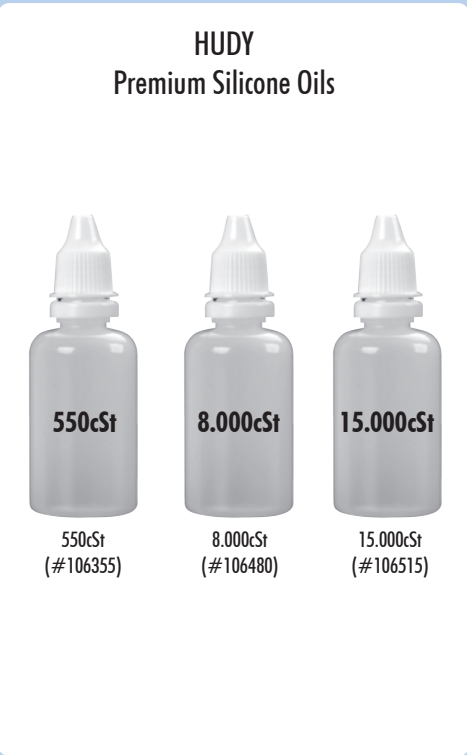
In line with our policy of continuous product development, the exact specifications of the kit may vary. In the unlikely event of any problems with your new kit, you should contact the model shop where you purchased it, quoting the part number.

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

TOOLS REQUIRED



INCLUDED



ALSO REQUIRED



TIP



TIP

Jan Ratheisky
(Factory Driver)

The European Champion and XRAY factory team driver Jan Ratheisky shares his pro tips and tricks.

OPTIONAL



SAMPLE OF OPTIONAL PARTS		
#37XXXX	TYPE1	OPTION 1
#37XXXX	TYPE1	OPTION 2
#37XXXX	TYPE1	INCLUDED
#37XXXX	TYPE1	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:

372213

371201

374901

379701

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

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

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

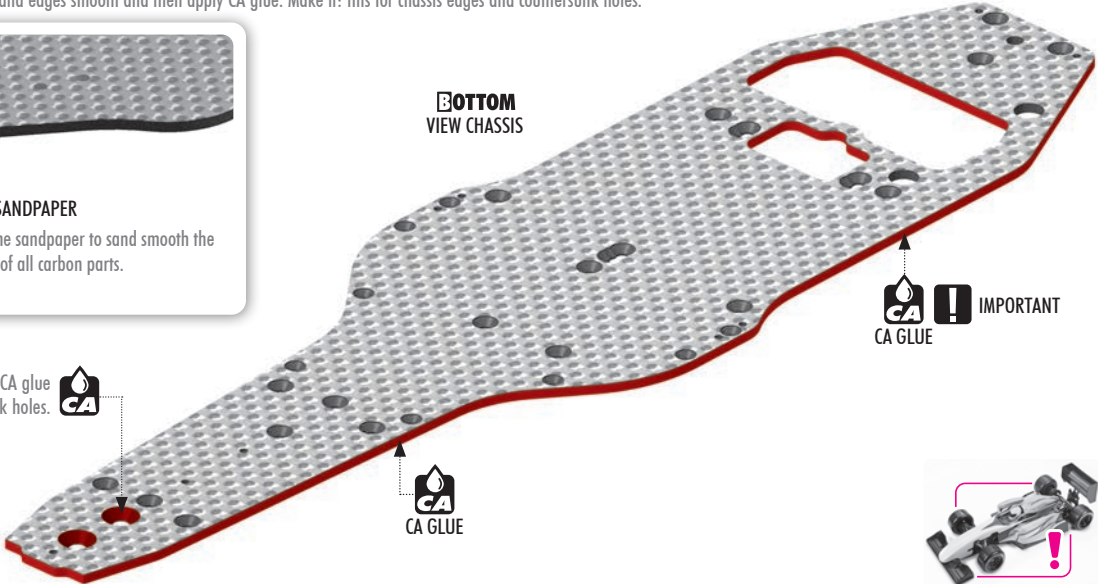
STYLE D - indicates parts that are optional.

CARBON PARTS PROTECTION

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



FINE SANDPAPER
Use fine sandpaper to sand smooth the edges of all carbon parts.



BOTTOM VIEW CHASSIS

Apply only a bit of CA glue in the countersunk holes.

CA GLUE

CA GLUE

CA GLUE **IMPORTANT**

Carbon Fiber Material Quality Assurance

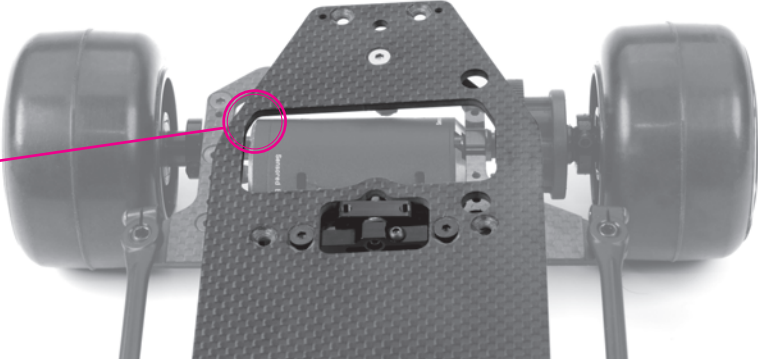
XRAY utilizes the highest quality carbon fiber sheets available on the market, made in the USA. These carbon fiber sheets are pressed, and this production technique may lead to slight variations in the thickness and flatness of each sheet. It is important to note that the carbon manufacturer cannot guarantee perfect uniformity, given the challenges associated with achieving flawless flatness in such thin materials.

When designing our XRAY cars and components, we account for these tolerances regarding thickness and flatness. Minor irregularities in the carbon fiber parts will not compromise the performance of XRAY vehicles once they are assembled with other components. While an individual carbon fiber part may not lay perfectly flat, you can be assured that the assembled vehicle will function as designed and intended.

Additionally, the carbon fiber sheets may exhibit minor irregularities such as small dots, cavities, or scratches, which can occur during the manufacturing process. These characteristics are standard for this type of material and do not detract from the overall quality and performance of XRAY products.

TIP

Some of the larger motors may make slight contact with the chassis. If this occurs, use a Dremel or hand file to gently grind the edge of the chassis where the motor comes into contact.



1. FRONT SUSPENSION



#302133-S X4 CFF™ Carbon-Fiber Fusion Upper Arm - Soft - FR/RL
#302143-S X4 CFF™ Carbon-Fiber Fusion Upper Arm - Soft - FL/RR

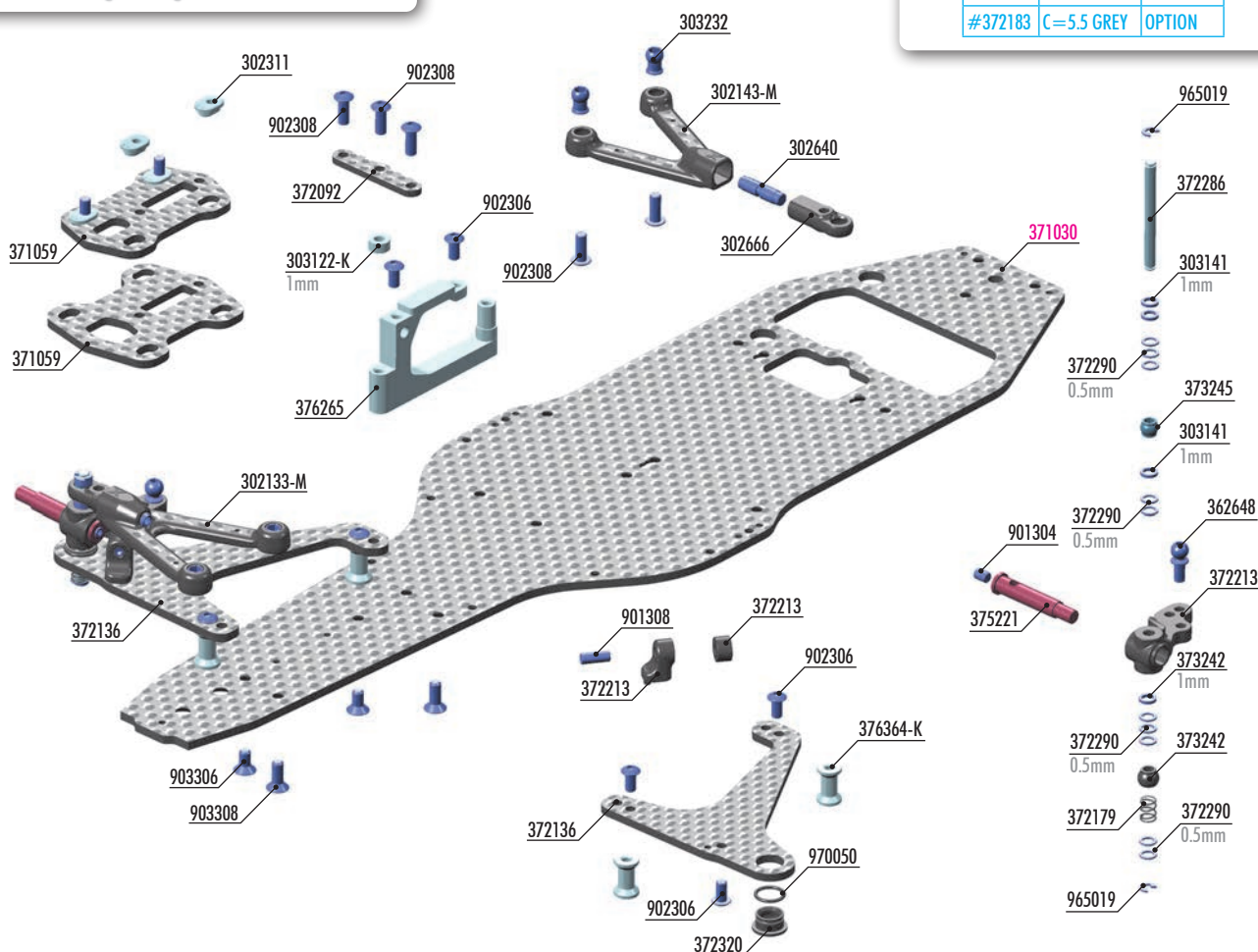


#302640-T
X4 ADJUSTABLE CAMBER SCREW 14mm M4 L/R - TITANIUM (2)



FRONT COIL SPRINGS

#372174	C=0.7 SILVER	OPTION
#372175	C=1.1 BLACK	OPTION
#372176	C=1.5 GOLD	OPTION
#372177	C=2.0 SILVER	OPTION
#372178	C=2.5 BLACK	OPTION
#372179	C=3.0 GREY	INCLUDED
#372180	C=3.5 GOLD	OPTION
#372181	C=4.0 SILVER	OPTION
#372182	C=5.0 BLACK	OPTION
#372183	C=5.5 GREY	OPTION



ALU CASTER BUSHINGS

#302310	3.0° / 10.5°	1 Dot	OPTION
#302311	4.5° / 9.0°	2 Dots	INCLUDED
#302312	6.0° / 7.5°	3 Dots	OPTION



#990101
HUDY Titanium Pivot Ball D=4.9 / S=5 / 3mm Hex (2)



BAG

01

302133-M CFF™ CARBON-FIBER FUSION UPPER ARM - MEDIUM - FR/RL
302143-M CFF™ CARBON-FIBER FUSION UPPER ARM - MEDIUM - FL/RR
302311 ALU CASTER BUSHING FRONT 4° / REAR 1.5°/4.5° - 2 DOTS (4)
302640 ADJUSTABLE CAMBER SCREW 14mm M4 L/R - HUDY SPRING STEEL™ (2)
302666 COMPOSITE BALL JOINT 4.9mm F+R - OPEN (2+2)
303122-K ALU SHIM 3x6x1.0mm (10)
303141 ALU SHIM 3x5x1.0mm (10)
303232 UPPER ARM BALL UNIVERSAL 4.9mm - HUDY SPRING STEEL™ (2)
362648 BALL END 4.9mm WITH THREAD 4mm (2)
371059 CARBON ARM MOUNT PLATE - NARROW TRACK-WIDTH
371069 CARBON ARM MOUNT PLATE - WIDE TRACK-WIDTH
372092 CARBON FRONT ARM BRACE
372136 CARBON LOWER SUSPENSION ARM
372179 FRONT COIL SPRING 3.6x6x0.5mm; C=3.0 - GREY (2)
372213 COMPOSITE STEERING BLOCK & BACKSTOPS
372286 KING PIN (2)
372290 ALU SHIM 3.2x4.8x0.5 (4)
372320 COMPOSITE ARM BUSHING (4)

373242 COMPOSITE PIVOTBALL UNIVERSAL 6.0mm - SHORT (2)
373245 X1 UPPER ARM BALL UNIVERSAL 4.9mm - HUDY SPRING STEEL™ (2)
375221 FRONT WHEEL AXLE - HUDY SPRING STEEL™ (2)
376265 ALU FRONT TOP DECK MOUNT - SWISS 7075 T6
376364-K ALU MOUNT 10.8mm - BLACK (2)

901304 HEX SCREW SB M3x4 (10)
901308 HEX SCREW SB M3x8 (10)
902306 HEX SCREW SH M3x6 (10)
902308 HEX SCREW SH M3x8 (10)
903306 HEX SCREW SFH M3x6 (10)
903308 HEX SCREW SFH M3x8 (10)
965019 E-CLIP 1.9 (10)
970050 O-RING 5x1 (10)

371030 X1 CARBON 1-PIECE CHASSIS

Numbers in parentheses () refer to quantities when purchased separately.

XRAY

1. FRONT SUSPENSION



2x 970050
0 5x1

2x LOWER ARMS

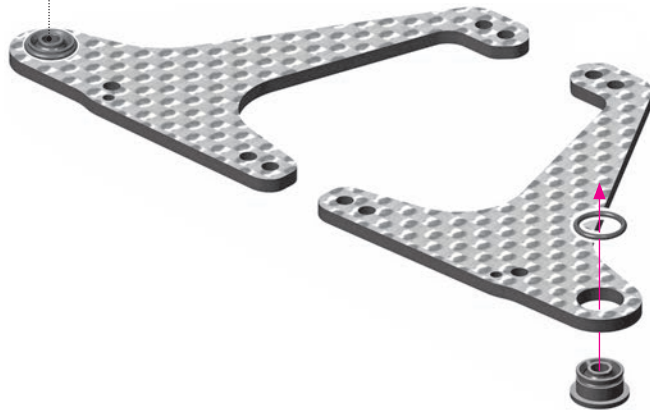


NOTE ORIENTATION !



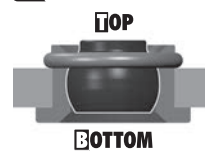
Short composite ball

ASSEMBLED VIEW



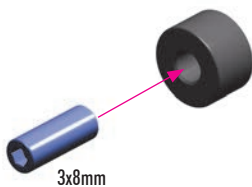
Remove excess material

CUTAWAY VIEW

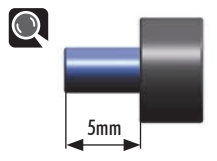


2x 901308
SB M3x8

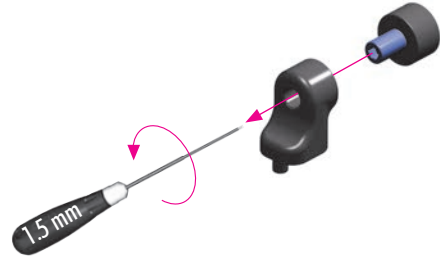
2x



3x8mm



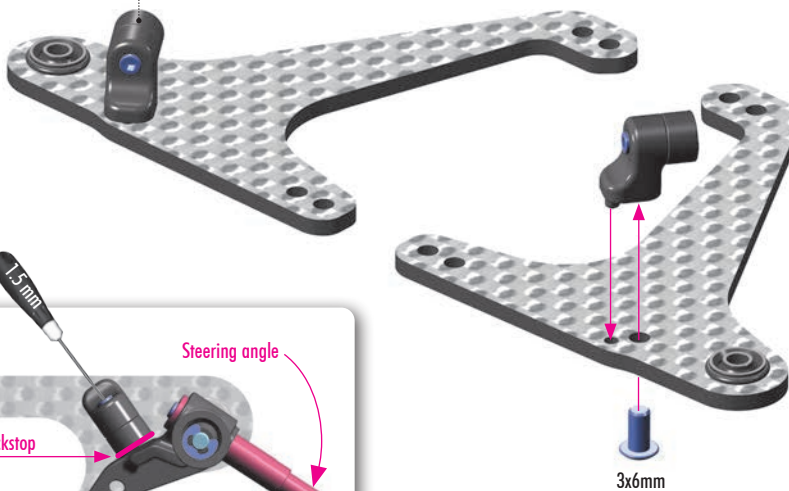
2x



2x 902306
SH M3x6

2x LOWER ARMS

ASSEMBLED VIEW



The adjustable backstops are used to limit the steering angle. Adjust the backstop with the set-screw to achieve the maximum steering angle needed. Adjust the steering angle on both L & R sides to the same amount.

TIP

Jan Ratheisky
(Factory Driver)

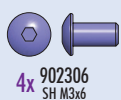


I recommend using 27° of steering angle for most conditions. If you use more, the car stops too much; only on very small & technical tracks does it make sense to use more.

PRO TIP to check the angle: Take a look from the top of the car on full steering. The tire angle should be parallel to the lower wishbone.



1. FRONT SUSPENSION



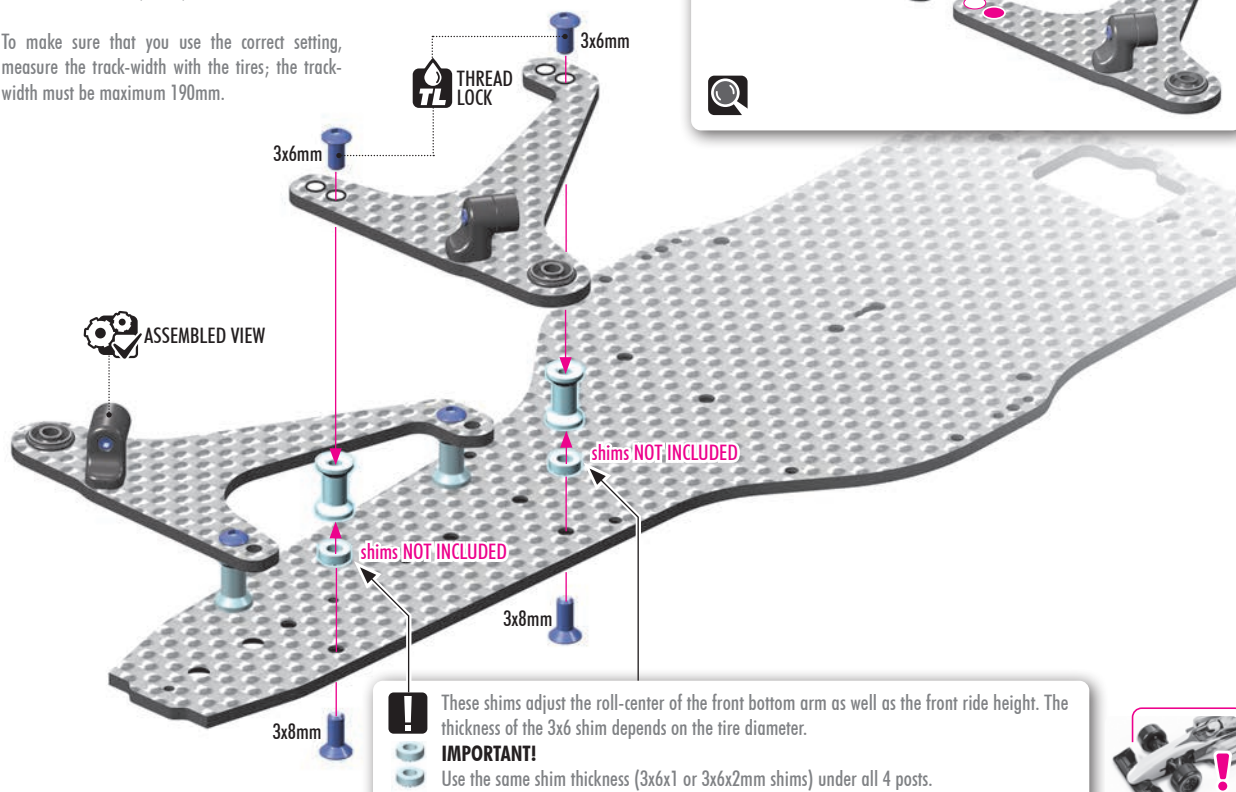
2x ALTERNATIVE 1

STANDARD TRACK-WIDTH



Standard track-width setting is used for standard F1 front tires such as HUDY, RIDE, HOT RACE.

To make sure that you use the correct setting, measure the track-width with the tires; the track-width must be maximum 190mm.

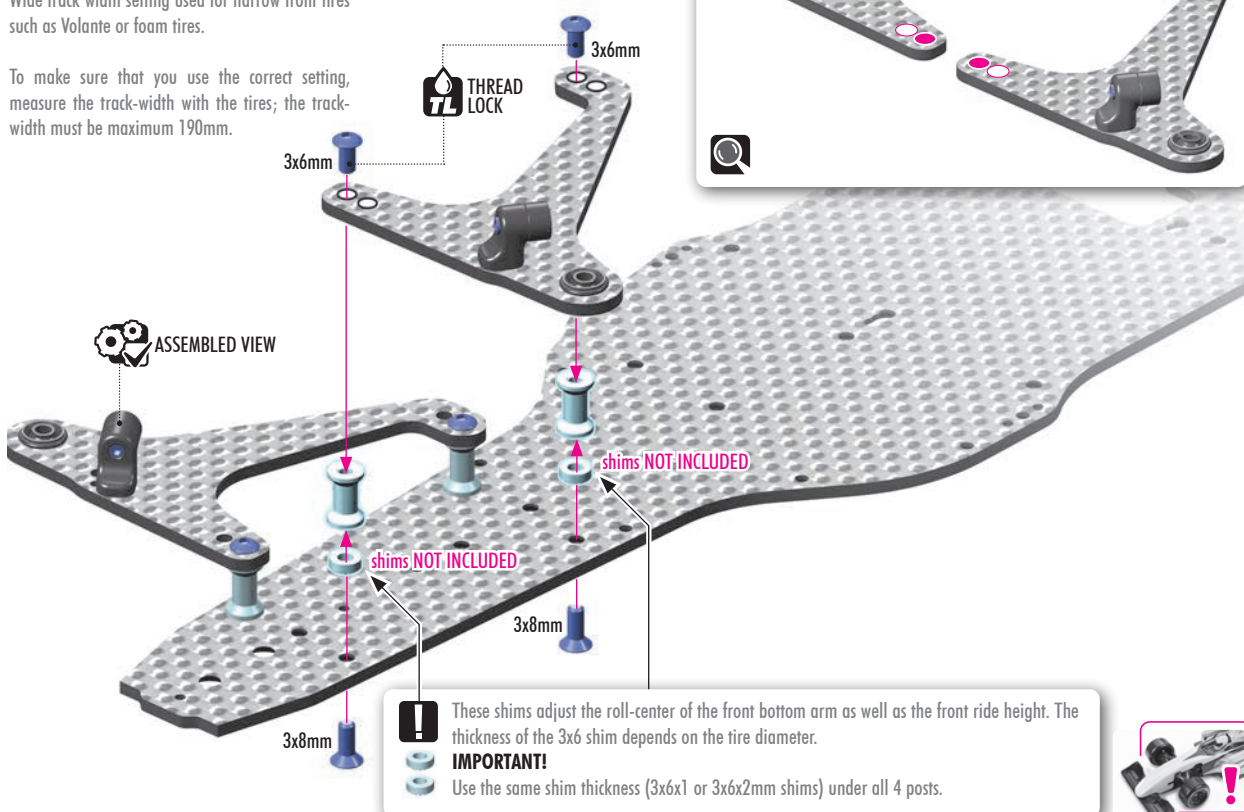


2x ALTERNATIVE 2

WIDE TRACK-WIDTH

Wide track width setting used for narrow front tires such as Volante or foam tires.

To make sure that you use the correct setting, measure the track-width with the tires; the track-width must be maximum 190mm.



1. FRONT SUSPENSION



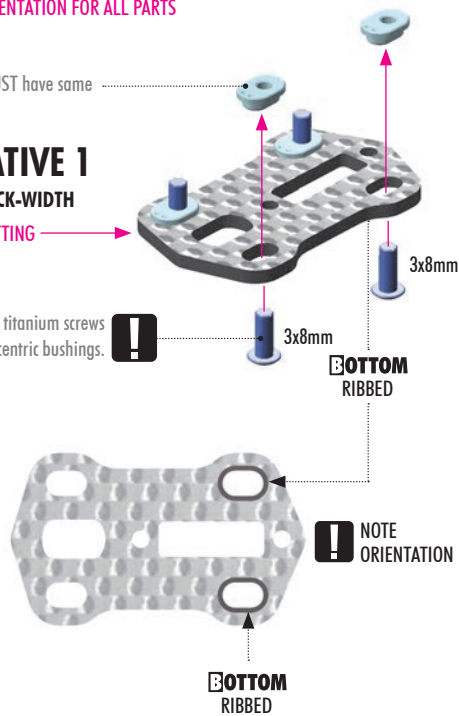
NOTE ORIENTATION FOR ALL PARTS

IMPORTANT
All 4 bushings **MUST** have same orientation.

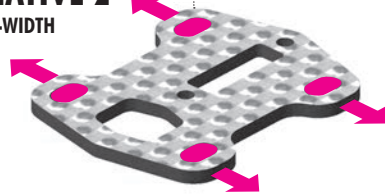
ALTERNATIVE 1 STANDARD TRACK-WIDTH

✓ **INITIAL SETTING**

Never use alu or titanium screws for the eccentric bushings.



ALTERNATIVE 2 WIDE TRACK-WIDTH

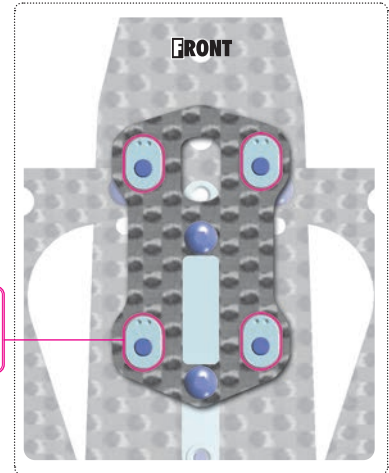


FRONT

- = 3° CASTER
- = 4.5° CASTER
- = 6° CASTER
- = 7.5° CASTER
- = 9° CASTER ✓ **INITIAL SETTING**
- = 10.5° CASTER

REAR

! All four bushings **MUST** have same orientation. These bushings adjust the front **CASTER**:



THESE ECCENTRIC BUSHINGS ADJUST THE FRONT **CASTER**.

MORE caster angle = better cornering speed, increased traction rolling. Use on large, open tracks where cornering speed is needed.

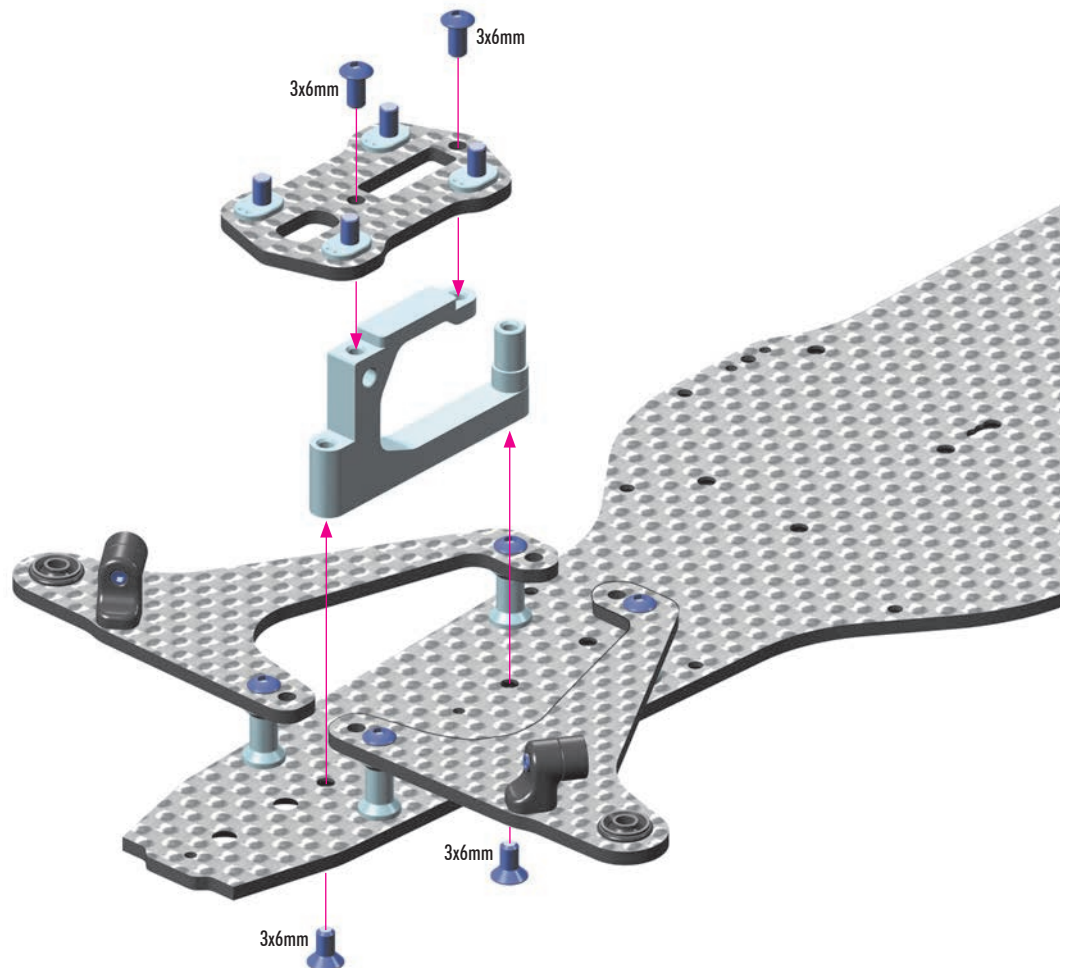
LESS caster angle = more reactive steering. Use on technical tracks where a lot of steering response is needed.



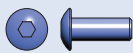
OPTION

ALU CASTER BUSHINGS

OPTION	#	ANGLE	DOTS	STATUS
OPTION	#302310	3.0° / 10.5°	1 Dot	OPTION
	#302311	4.5° / 9.0°	2 Dots	INCLUDED
	#302312	6.0° / 7.5°	3 Dots	OPTION



1. FRONT SUSPENSION



3x 902308
SH M3x8

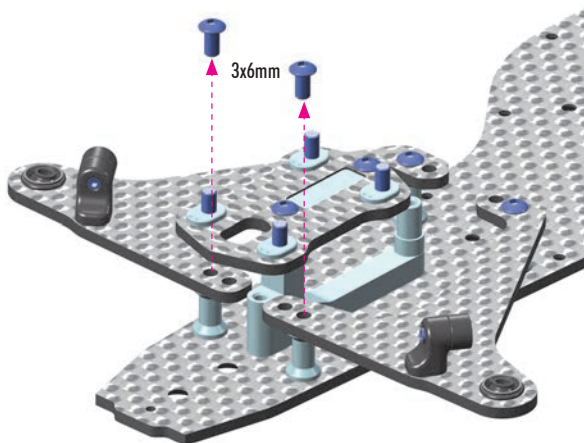


1x 303122-K
SHIM 3x6x1

YOU CAN INSTALL A LOWER ARM BRACE TO INCREASE STEERING RESPONSE.

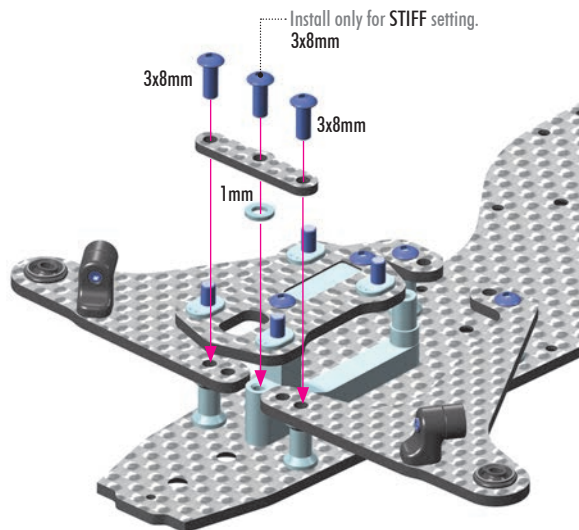
STEP 1:

To install the carbon brace remove the 3x6mm screws and carbon arm mount plate.



STEP 2:

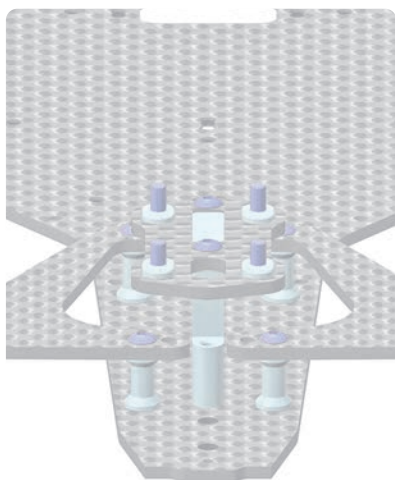
Install the carbon brace using 3x8mm screws. For stiff setting install also the 1mm shim.



SOFT - WITHOUT THE BRACE

✓ INITIAL SETTING

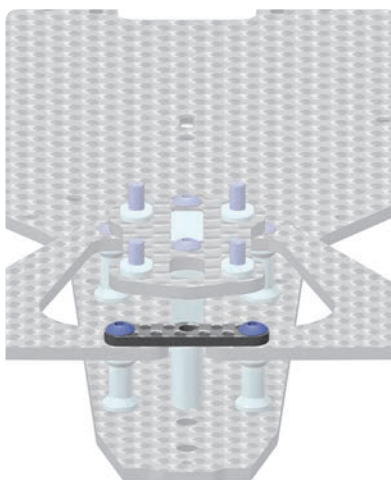
The car will have less initial steering. Recommended for high- and very-high-traction carpet tracks where the car needs to be easy to drive and less responsive.



- BRACE (NOT USED)
- SHIM (NOT USED)

MEDIUM - WITH BRACE

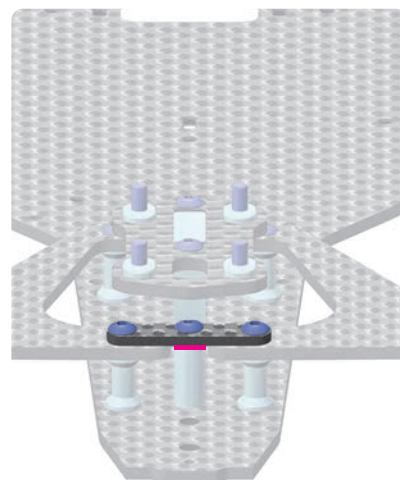
Improves in-corner steering but still keeps the car easy to drive. Recommended for medium-high traction carpet tracks and high-traction asphalt tracks.



- BRACE USED
- SHIM (NOT USED)

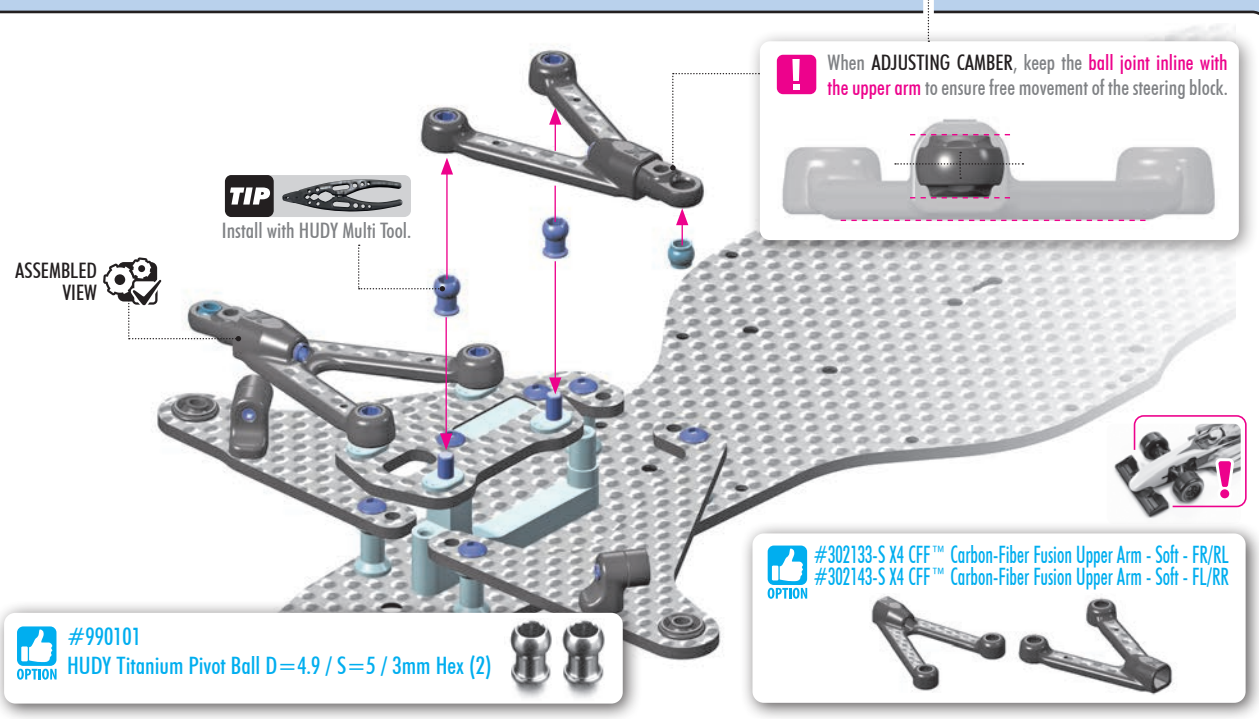
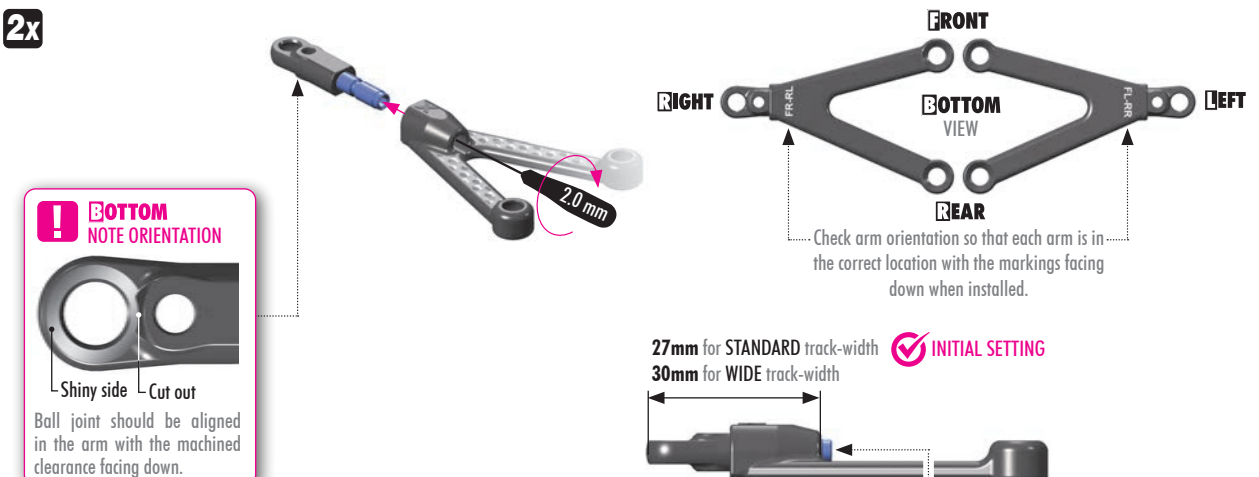
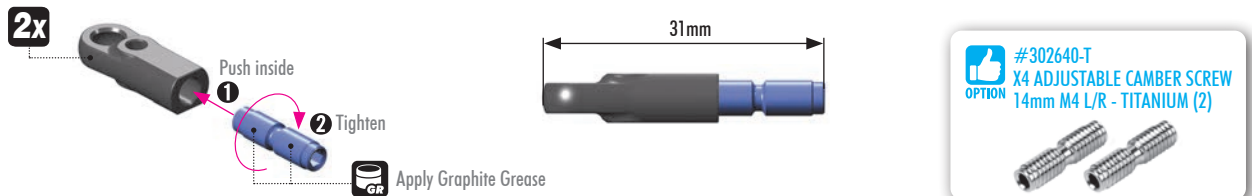
STIFF - WITH BRACE AND CONNECTED TO ALU FRONT STAND

Provides maximum steering response. Recommended for low-medium traction carpet tracks and for all different traction conditions on asphalt tracks.

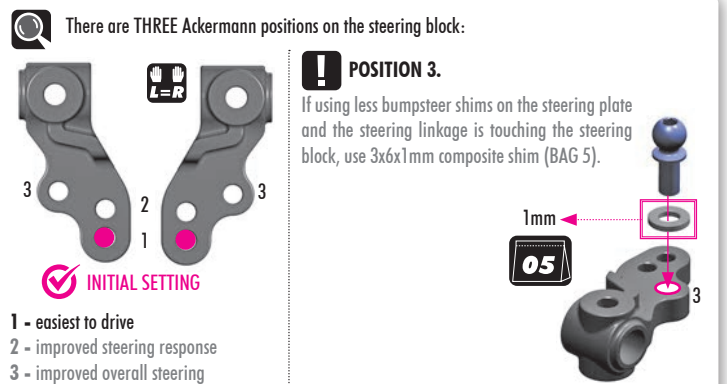
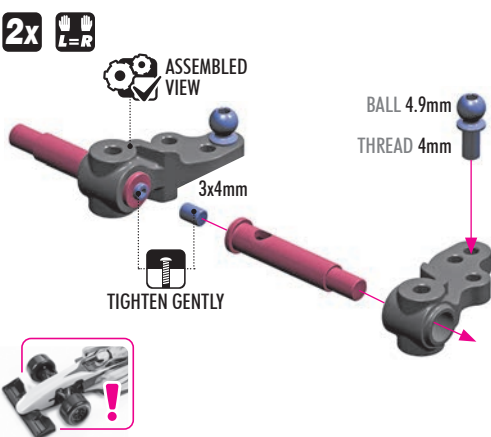


- BRACE USED
- 2mm - SHIM USED

1. FRONT SUSPENSION



2x 901304 SB M3x4



1. FRONT SUSPENSION



8x 303141
SHIM 3x5x1



20x 372290
SHIM 3.2x4.8x0.5



4x 965019
C1.9

2x L=R

FREE
MOVEMENT

ASSEMBLED
VIEW



FRONT COIL SPRINGS

OPTION			
#372174	C=0.7 SILVER	OPTION	
#372175	C=1.1 BLACK	OPTION	
#372176	C=1.5 GOLD	OPTION	
#372177	C=2.0 SILVER	OPTION	
#372178	C=2.5 BLACK	OPTION	
#372179	C=3.0 GREY	INCLUDED	
#372180	C=3.5 GOLD	OPTION	
#372181	C=4.0 SILVER	OPTION	
#372182	C=5.0 BLACK	OPTION	
#372183	C=5.5 GREY	OPTION	



SOFTER SPRINGS

Makes the car easier to drive over bumps and increases steering as it makes the car roll more, especially in the middle of a corner.

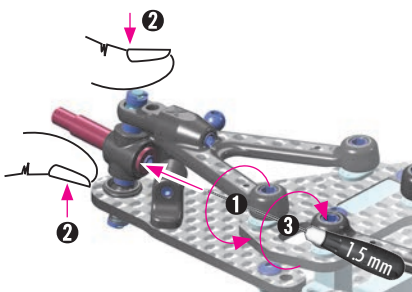
HARDER SPRINGS

Makes the car more responsive and increases initial steering. Recommended for high-traction and flat tracks.

2x L=R

After assembling the steering block, do the following:

1. Loosen the set-screw slightly.
2. Use your thumb to press down on the top of the kingpin, while using your other fingers to pull up the steering block.
3. Tighten the set-screw.



RECOMMENDED HUDY
SILICONE OIL

LOW traction & bumpy track:

10K cSt (#106510 HUDY)

HIGH traction & flat track:

30K cSt (#106530 HUDY)

DAMPING

Using thicker oil on the king pin axes makes the car less responsive but easier to drive. Thicker oil increases stability but decreases cornering speed.

SILICONE OIL

The number of the shims affects the front ride height. Determine the proper amount of shimming based on tire diameter.

0.5mm (2x) — 1.0mm

1mm (1x)
0.5mm (2x)

2.0mm

1mm (1x)
0.5mm (3x)

2.5mm



TIP

JAN RATHEISKY (factory driver)

We use different ride heights at indoor and outdoor tracks:

- INDOOR: Ride height is as low as the rules allow, usually 4mm.
- OUTDOOR: Always run at least 5mm ride height.

Rear ride height should always be 0.1-0.2mm higher than the front.

I recommend changing droop using the upper shims on the kingpin, but note that this also changes the ride height by the same amount. Adding +0.5mm shim means 0.5mm less droop because the spring gets more preload which results in a higher ride height. In that case, you should add the same amount (0.5mm) under the lower wishbone.

DROOP SETTING

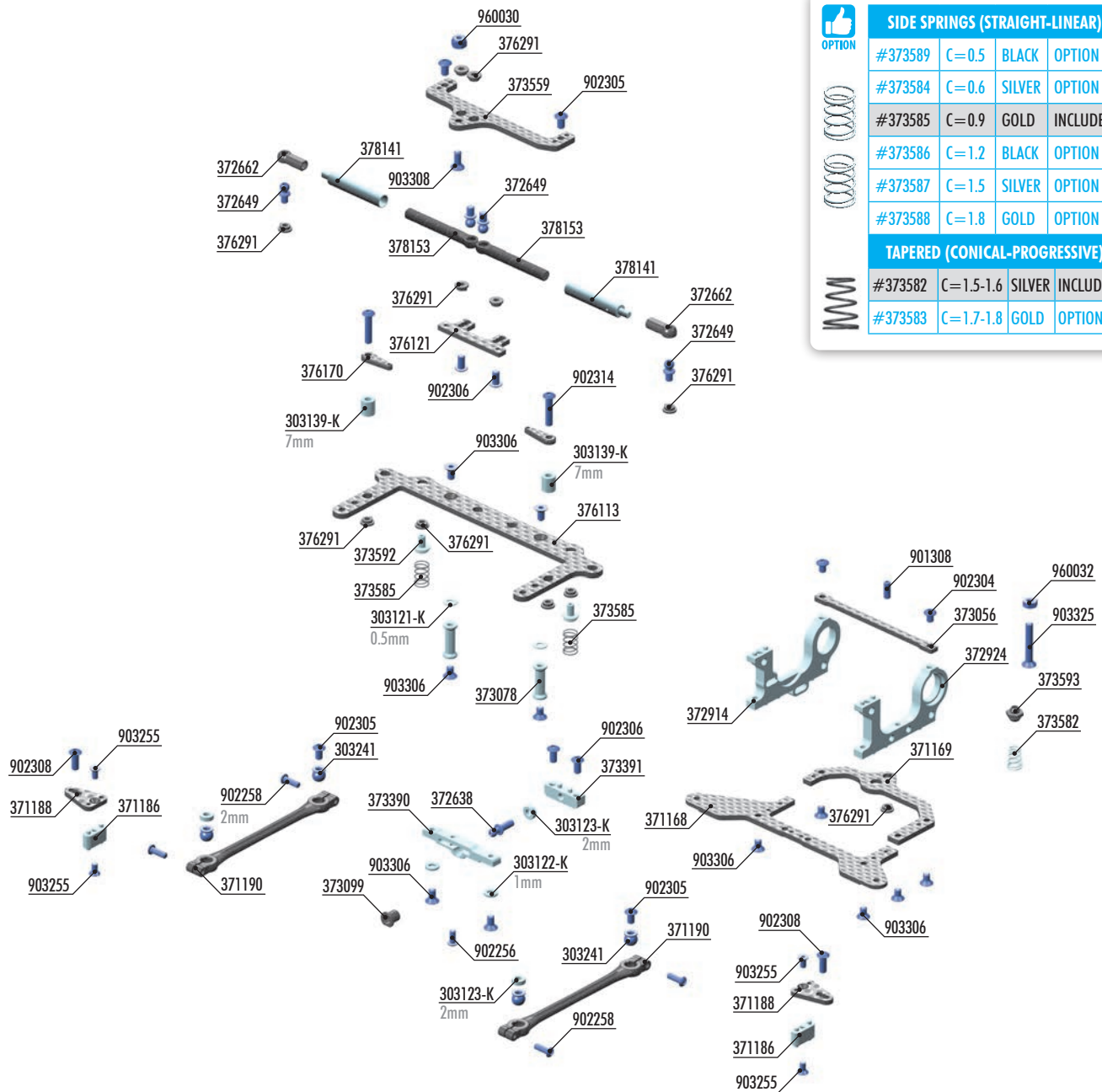
INDOOR:

I recommend using a small amount of droop for carpet tracks, somewhere between 0.5-1mm to get the most on-power steering in combination with solid reactive steering.

OUTDOOR:

You should use more droop for asphalt tracks. At least 1mm up to 2mm. The more droop, the more on-power rear traction you get because of weight transfer to the rear. It also helps to get a more smooth-to-drive car at corner entry.

2. REAR SUSPENSION



BAG

02

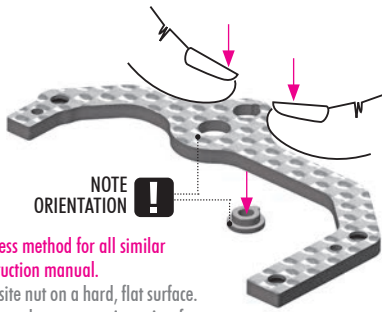
303121-K ALU SHIM 3x6x0.5mm - BLACK (10)
 303122-K ALU SHIM 3x6x1.0mm - BLACK (10)
 303123-K ALU SHIM 3x6x2.0mm - BLACK (10)
 303139-K ALU SHIM 3x6x7.0mm - BLACK (10)
 303241 PIVOT BALL UNIVERSAL 5.8mm WITH HEX (4)
 371168 CARBON REAR POD LOWER PLATE FOR 1-PIECE CHASSIS - FRONT
 371169 CARBON REAR POD LOWER PLATE FOR 1-PIECE CHASSIS - REAR
 371186 ALU HOLDER WITH 2 PINS FOR SIDE LINK CARBON PLATE - BLACK
 371188 CARBON PLATE FOR 2 PINS FOR SIDE LINK (2)
 371190 COMPOSITE POD LINK (2)
 372638 HARD STEEL BALL END 3.7mm WITH 8mm THREAD - NICKEL COATED (2)
 372649 BALL END 4.2mm WITH 4mm THREAD (2)
 372662 COMPOSITE BALL-JOINT 4.2mm (4)
 372914 ALU REAR BULKHEAD FOR 1-PIECE CHASSIS - MOTOR - RIGHT
 372924 ALU REAR BULKHEAD FOR 1-PIECE CHASSIS - LEFT
 373056 CARBON REAR BULKHEAD BRACE FOR 1-PIECE CHASSIS
 373078 ALU REAR BRACE MOUNT 15.5mm - BLACK (2)
 373099 COMPOSITE PIVOT BRACE BUSHING FOR 3.7MM BALL END
 373390 ALU CHASSIS PIVOT HOLDER FOR 1-PIECE CHASSIS - SWISS 7075 T6
 373391 ALU POD PLATE PIVOT HOLDER FOR 1-PIECE CHASSIS - SWISS 7075 T6
 373559 CARBON REAR POD UPPER PLATE FOR 1-PIECE CHASSIS
 373582 TAPERED SPRING C=1.5-1.6 - SILVER (2)
 373585 SIDE SPRING C=0.9 - GOLD (2)
 373592 STEEL SIDE SPRING RETAINER (2)

373593 COMPOSITE TAPERED/STRAIGHT SPRING HOLDER (2)
 376113 CARBON REAR BRACE FOR 1-PIECE CHASSIS
 376121 CARBON BATTERY BACKSTOP WITH 3 POSITIONS
 376170 CARBON BATTERY CLAMP (2)
 376291 COMPOSITE M3 SNAP LOCK BUSHING (8)
 378141 SIDE LINKAGE TUBE (2)
 378153 COMPOSITE LINKAGE SHAFT (2)
 901308 HEX SCREW SB M3x8 (10)
 902256 HEX SCREW SH M2.5x6 (10)
 902258 HEX SCREW SH M2.5x8 (10)
 902304 HEX SCREW SH M3x4 (10)
 902305 HEX SCREW SH M3x5 (10)
 902306 HEX SCREW SH M3x6 (10)
 902308 HEX SCREW SH M3x8 (10)
 902314 HEX SCREW SH M3x14 (10)
 903255 HEX SCREW SFH M2.5x5 (10)
 903306 HEX SCREW SFH M3x6 (10)
 903308 HEX SCREW SFH M3x8 (10)
 903325 HEX SCREW SFH M3x25 (10)
 960030 NUT M3 (10)
 960032 NUT M3 - BLACK (10)

Numbers in parentheses () refer to quantities when purchased separately.

2. REAR SUSPENSION

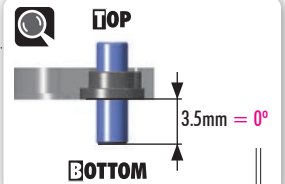
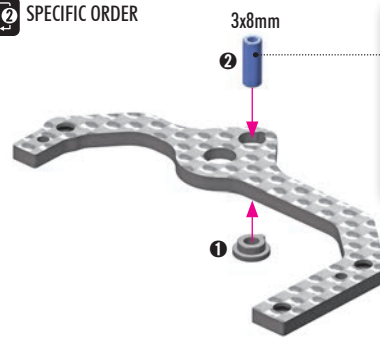
NOTE



Use the same press method for all similar parts in the instruction manual.
Place the composite nut on a hard, flat surface. Make sure to have the correct orientation for both parts. Press the carbon fiber part straight down onto the nut until seated.



SPECIFIC ORDER



VIDEO TECH TIP



POD ANGLE ADJUSTMENT



POD ANGLE SETTING

The rear pod angle is adjusted using the set screw at the rear of the chassis. A 3.5mm gap between the chassis plate and rear pod means the rear pod is sitting flat. Increasing this gap increases the pod angle, creating a pro-squat effect. Pro-squat decreases on-power steering and increases rear traction.

Reducing the gap below 3.5mm introduces an anti-squat effect, increasing on-power steering while decreasing rear traction.



POD Anti-squat

Anti-squat increases on-power steering and decreases rear traction.



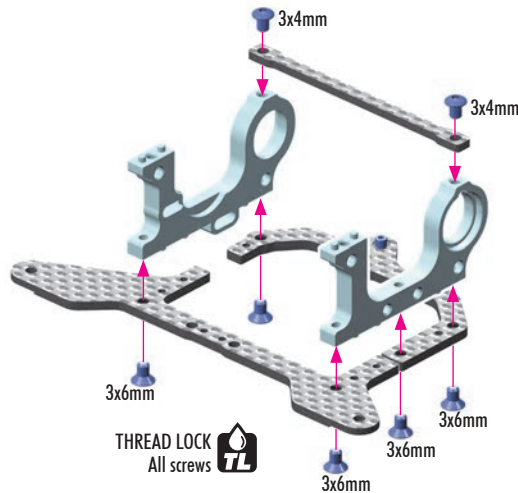
POD Straight

INITIAL SETTING

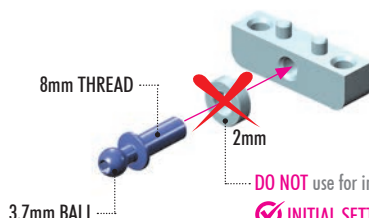


POD Pro-squat

Pro-squat decreases on-power steering and increases rear traction.

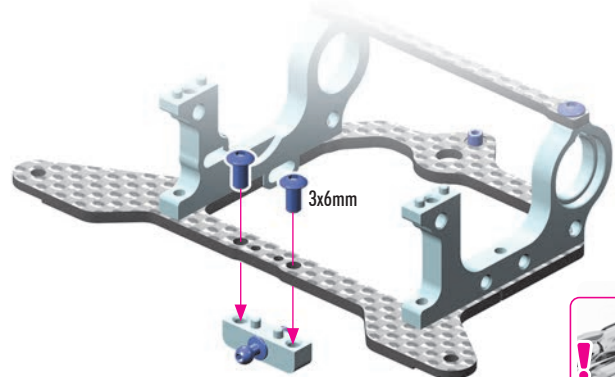


THREAD LOCK
All screws



DO NOT use for initial setting.
INITIAL SETTING (0mm shim)

The amount of shims has a direct effect on the pivot mounting position. Please see: PAGE 17



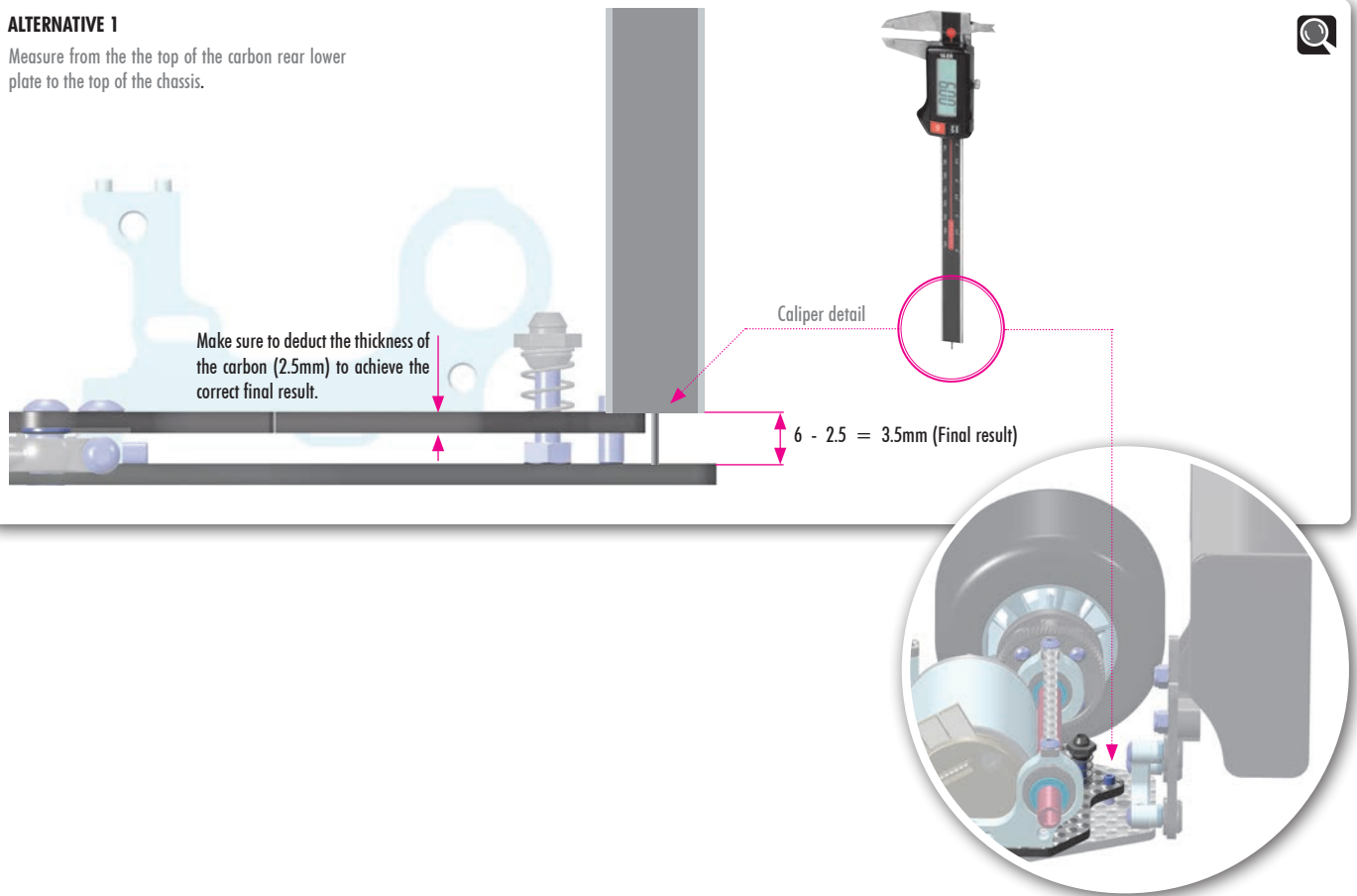
2. REAR SUSPENSION



THERE ARE 2 EASIEST WAY HOW TO MEASURE THE POD ANGLE.

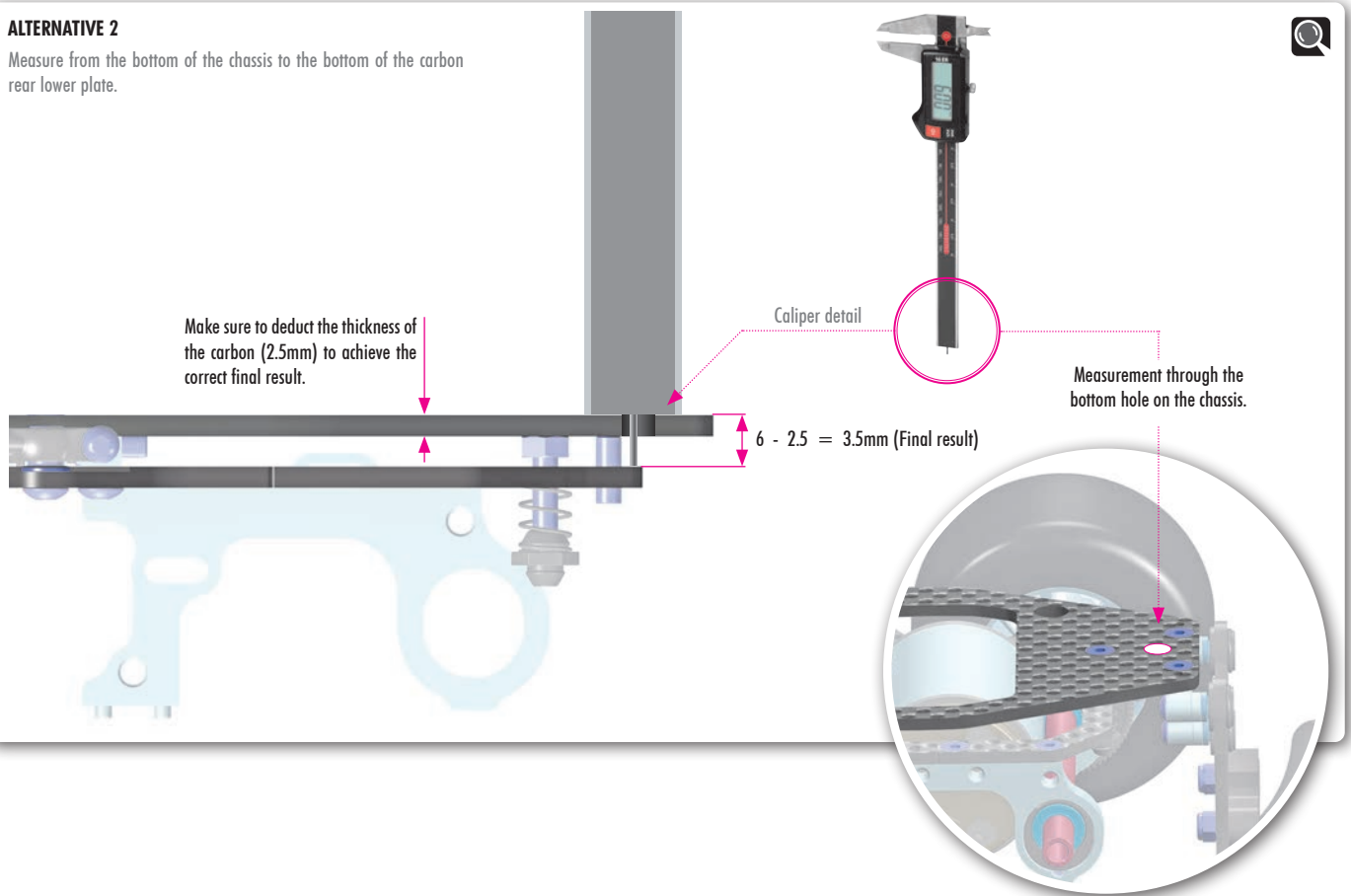
ALTERNATIVE 1

Measure from the the top of the carbon rear lower plate to the top of the chassis.



ALTERNATIVE 2

Measure from the bottom of the chassis to the bottom of the carbon rear lower plate.



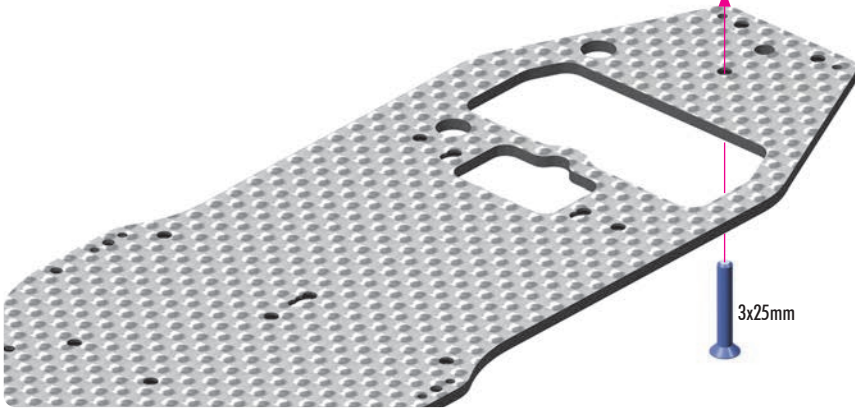
2. REAR SUSPENSION



1x 903325
SFH M3x25



1x 960032
N M3



BLACK Nut M3

3x25mm





2x 303122-K
SHIM 3x6x1



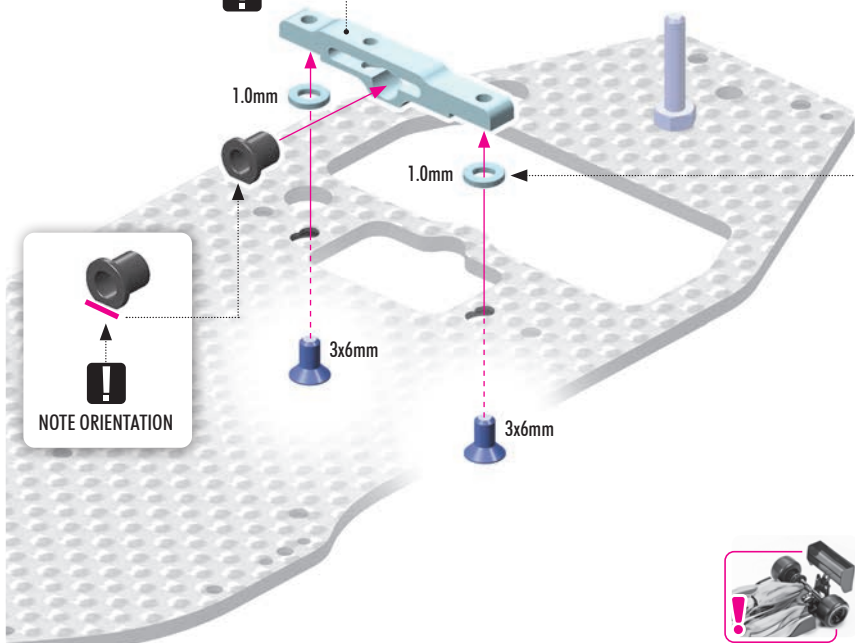
2x 903306
SFH M3x6



VIDEO TECH TIP



REAR POD & PIVOT BUILD



NOTE ORIENTATION

1.0mm

3x6mm

3x6mm

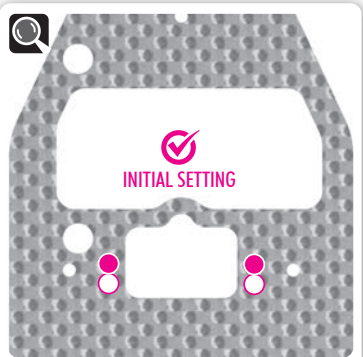
ROLL-CENTER

Use 1mm shim

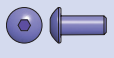
INITIAL SETTING

NOTE: Using no shims will cause the pivot holder to extend below the chassis plate.





INITIAL SETTING



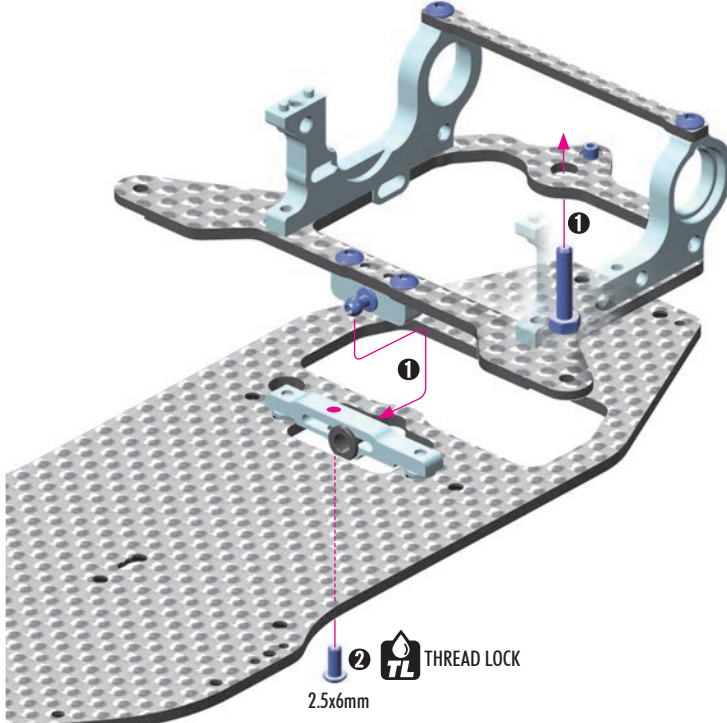
1x 902256
SH M2.5x6



VIDEO TECH TIP



REAR POD & PIVOT BUILD



1

2

2.5x6mm

THREAD LOCK

FREE MOVEMENT

Tighten the screw enough to remove excess play, while ensuring that the pod plate can turn freely.



2. REAR SUSPENSION



1x 303123-K
SHIM 3x6x2

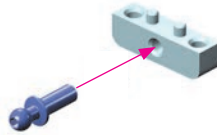


PIVOT MOUNTING ALTERNATIVE

REARWARD:

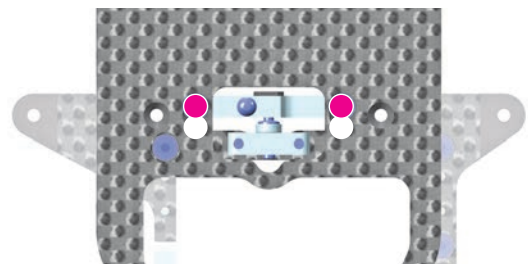
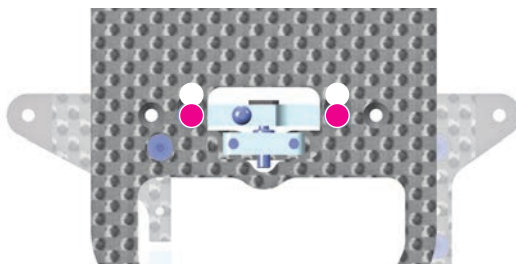
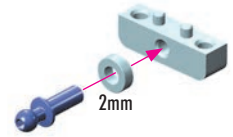
✓ INITIAL SETTING

Pivot mounted in rear chassis holes with no ball stud shims. Improved rotation from shorter rear pod geometry. Provides most initial steering and rotation; best suited for high traction carpet tracks.



FORWARD:

Pivot mounted in forward chassis holes with 2mm ball stud shims. Creates the most forgiving handling that allows more aggressive driving without fear of losing rear traction.



TIP 303123-K shims are NOT INCLUDED in the kit.



303122-K SHIM 3x6x1
303123-K SHIM 3x6x2



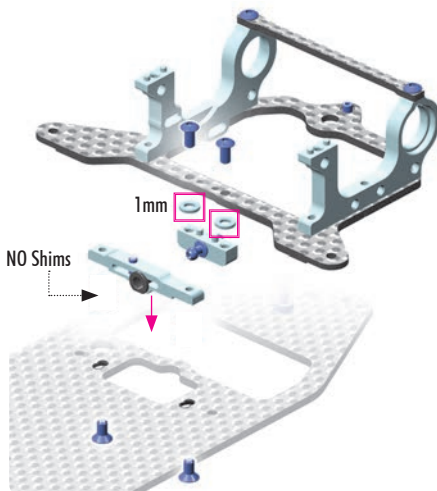
ROLL CENTER ADJUSTMENT

The roll center can be adjusted by adding or removing shims from beneath the aluminum pivot mounts.



IMPORTANT

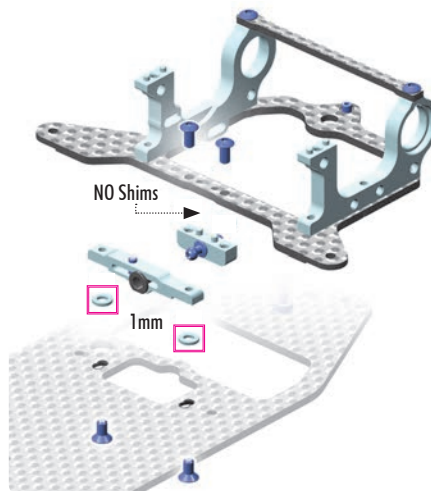
When changing the shims under the chassis pivot holder, the opposite adjustment of the same thickness must be made above the rear pivot holder to keep the pod in the same position.



LOWER ROLL CENTER

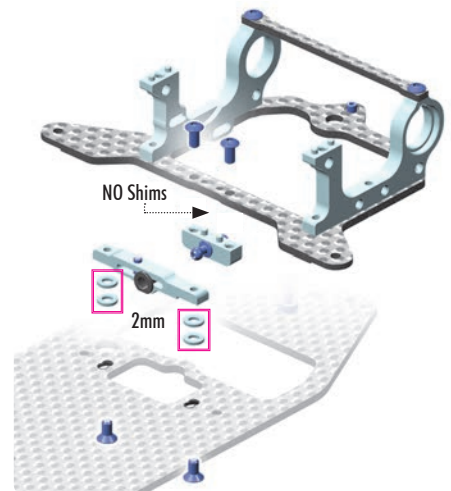
No shim under alu chassis pivot holder. Creates more traction and increases chassis roll.

Note: The pivot holder will extend below chassis plate in this position.



STANDARD ROLL CENTER ✓ INITIAL SETTING

The standard roll center is the best starting point for most conditions as it gives the most neutral handling. The chassis pivot holder sits in line with the lower chassis plate.



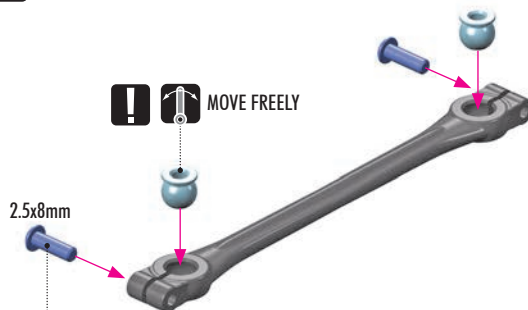
HIGHER ROLL CENTER

Adding shims below the chassis pivot holder increases rotation both on- and off-power.

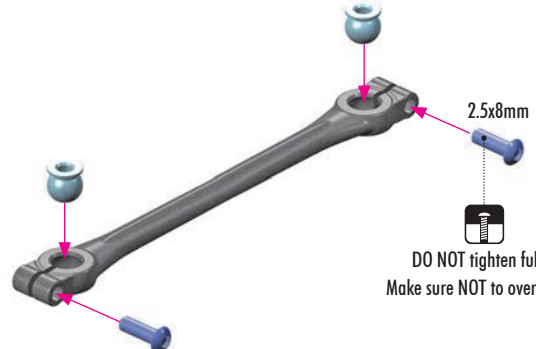


4x 902258
SH M2.5x8

2x L=R



DO NOT tighten fully. Make sure NOT to overtighten.



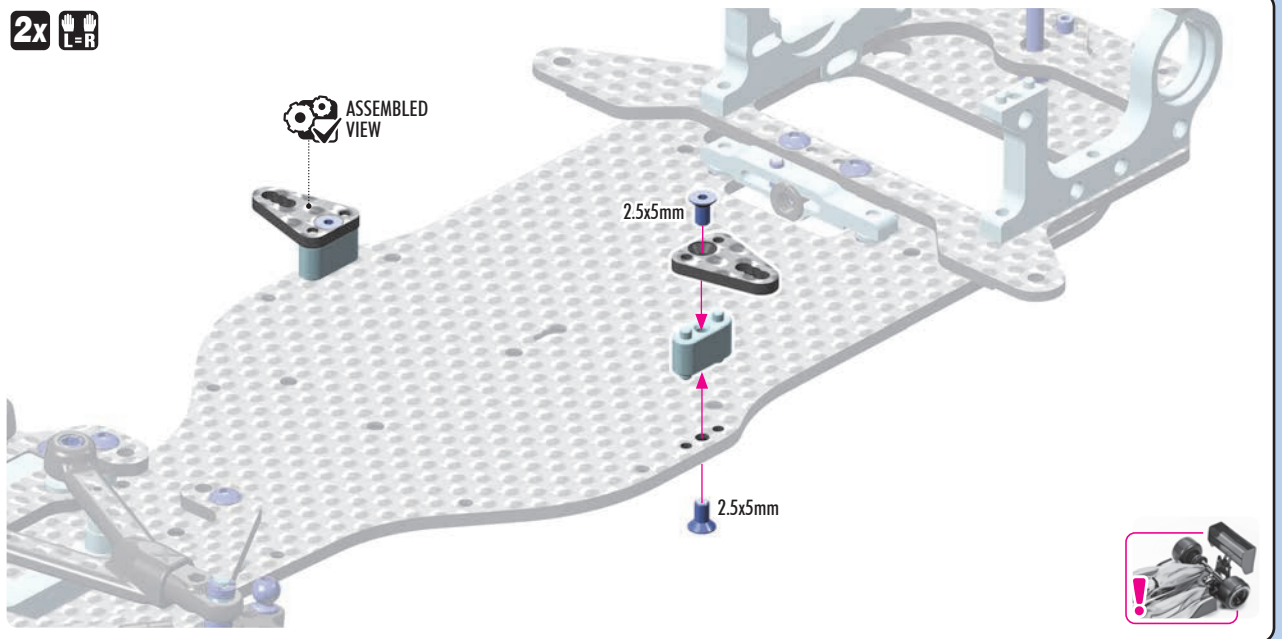
DO NOT tighten fully. Make sure NOT to overtighten.

2. REAR SUSPENSION



4x 903255
SFH M2.5x5

2x L-R



2x 303123-K
SHIM 3x6x2



2x 902305
SH M3x5



2x 902308
SH M3x8

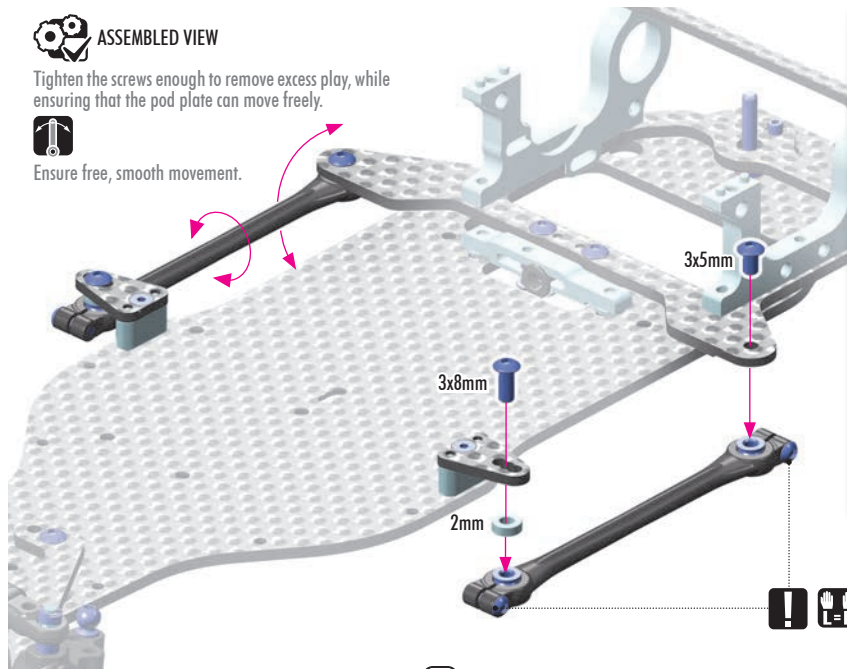


ASSEMBLED VIEW

Tighten the screws enough to remove excess play, while ensuring that the pod plate can move freely.



Ensure free, smooth movement.



POD LINKAGE POSITION

OUTER POSITION

ANGLED LINK reduces steering, increases stability.

CENTER POSITION

INITIAL SETTING

STRAIGHT LINK easier to drive.

INNER POSITION

ANGLED LINK increases in-corner steering.



NOTE ORIENTATION



POD LINKAGE ANGLE ALTERNATIVE

LESS SHIMS

Raising the side links' **FRONT** pivot point (reducing shims) will further increase in-corner steering, but may be more difficult to drive since the rear inner wheel will lift up more during cornering. 0.5-2.0mm shims may be added for fine tuning.

STRAIGHT 2.0mm SHIMS

INITIAL SETTING

Straight link alignment makes the car easier to drive.

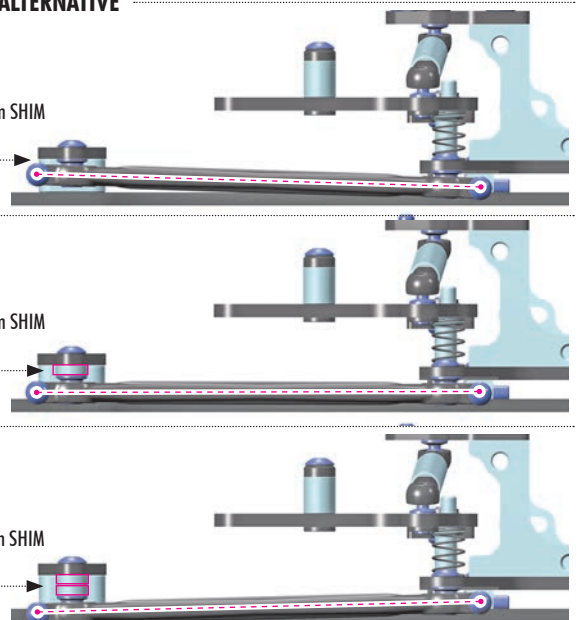
MORE SHIMS

Raising the side links' **REAR** pivot point (adding shims) reduces in-corner steering. This orientation is typically **NOT** used or recommended.

0mm SHIM

2mm SHIM

4mm SHIM



2. REAR SUSPENSION



REAR RIDE HEIGHT & DROOP SETTING

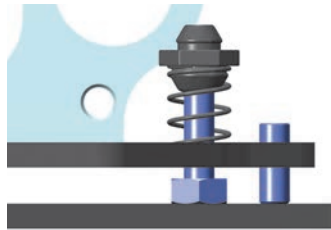
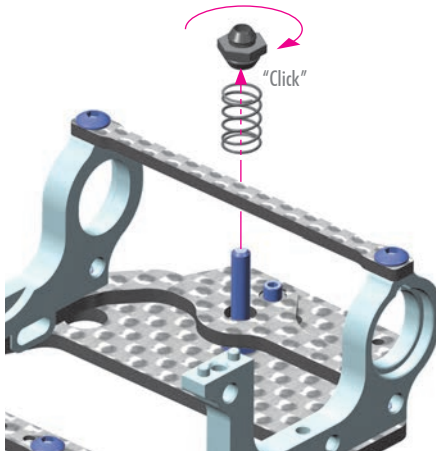
The rear ride height and rear droop settings are directly related to each other, making it important to use the correct rear axle eccentric holder when adjusting the rear bump spring preload to set the pod droop value.

STIFFER rear bump spring - will be more reactive and will improve on-power steering.

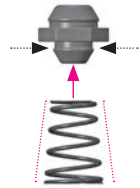
SOFTER rear bump spring - will be less reactive and will reduce on-power steering.

CONICAL-PROGRESSIVE rear bump spring - provides more aggressive handling than a straight-linear rear bump spring. Using a conical-progressive bump spring is usually the faster and most responsive setup.

STRAIGHT-LINEAR rear bump spring - provides more neutral handling to make the car easier to drive.



- **TIGHTENING** the rear bump spring increases ride height and reduces droop.
- **LOOSENING** the rear bump spring decreases ride height and increases droop.



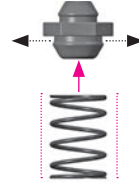
When using a **CONICAL-PROGRESSIVE SPRING**, press the spring onto the smaller diameter end of the spring retainer.



OPTION

TAPERED (CONICAL-PROGRESSIVE)

#373582	C=1.5-1.6	SILVER	INCLUDED
#373583	C=1.7-1.8	GOLD	OPTION



When using a **STRAIGHT-LINEAR SPRING**, press the spring onto the larger diameter end of the spring retainer.



OPTION

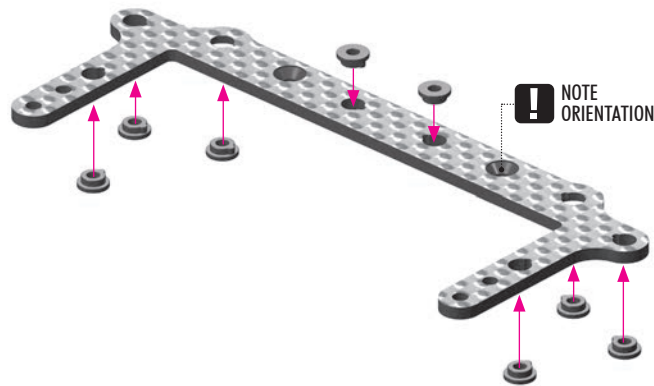
SIDE SPRINGS (STRAIGHT-LINEAR)

#373589	C=0.5	BLACK	OPTION
#373584	C=0.6	SILVER	OPTION
#373585	C=0.9	GOLD	OPTION
#373586	C=1.2	BLACK	OPTION
#373587	C=1.5	SILVER	OPTION
#373588	C=1.8	GOLD	OPTION



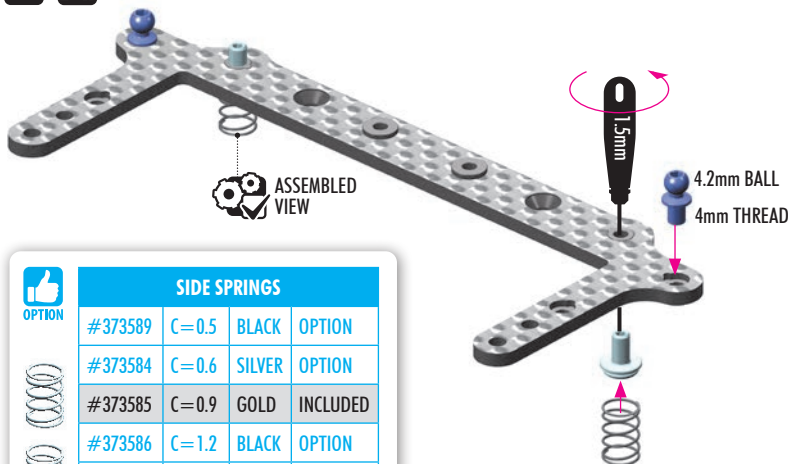
! Use the same pressing method for all parts in the instruction manual.

Follow PAGE 14 / Step 1



2x

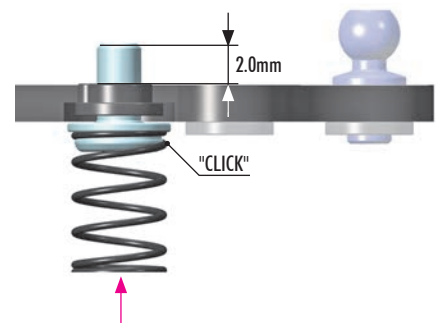
L=R



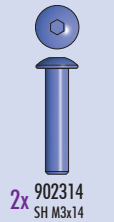
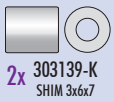
OPTION

SIDE SPRINGS

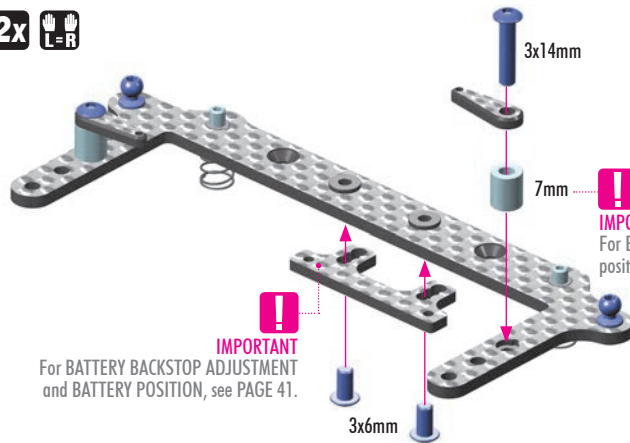
#373589	C=0.5	BLACK	OPTION
#373584	C=0.6	SILVER	OPTION
#373585	C=0.9	GOLD	INCLUDED
#373586	C=1.2	BLACK	OPTION
#373587	C=1.5	SILVER	OPTION
#373588	C=1.8	GOLD	OPTION



2. REAR SUSPENSION



2x L=R

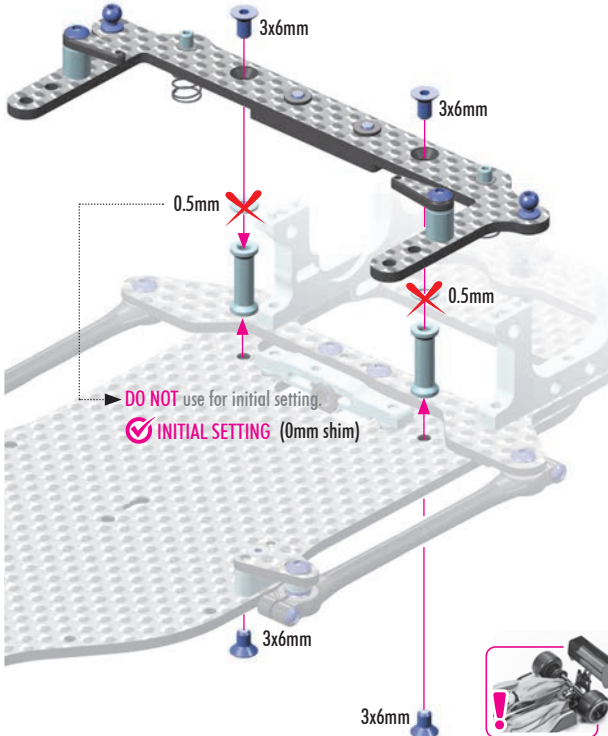


IMPORTANT
For BATTERY BACKSTOP ADJUSTMENT
and BATTERY POSITION, see PAGE 41.

IMPORTANT
For BATTERY BACKSTOP
position see PAGE 41.



! In case you are using body #379701, you would need to make a small hole on each side to avoid the touching the body with the body holder in case you are using high battery.

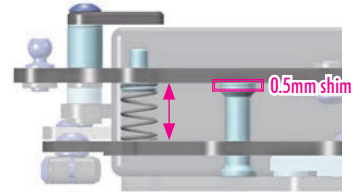


DO NOT use for initial setting.
INITIAL SETTING (0mm shim)

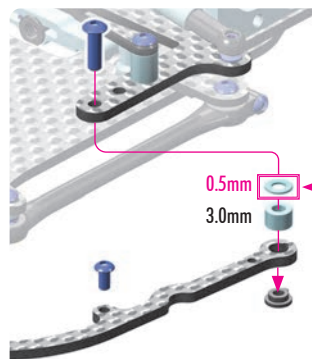


**EXTRA SIDE SPRING
PRELOAD ADJUSTMENT**

In case the side springs does have too much preload, you can add 0.5 shim under the posts to raise the carbon brace. As a result of raising the carbon plate, side spring preload will be decreases.



IMPORTANT
For BATTERY BACKSTOP
position see PAGE 41.



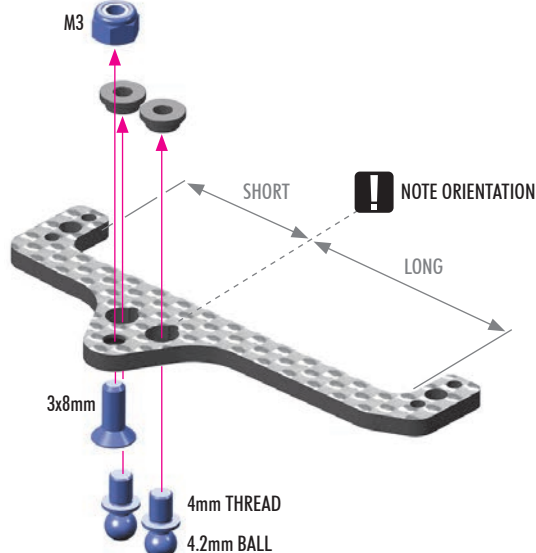
But this will have direct effect on the battery holder and side braces. Therefore in case you raise the carbon brace, you need to add also the same shimming on the battery holder and carbon side braces side braces.



VIDEO TECH TIP



BATTERY MOUNTING
SYSTEM



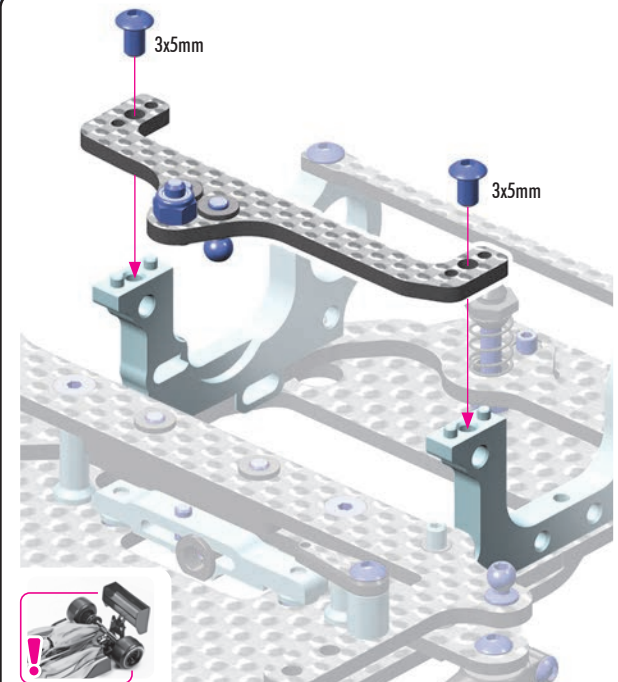
NOTE ORIENTATION

SHORT

LONG

3x8mm

4mm THREAD
4.2mm BALL



2. REAR SUSPENSION

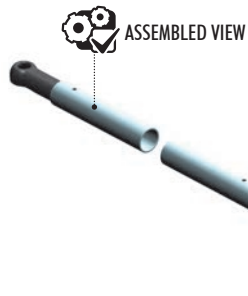


VIDEO TECH TIP

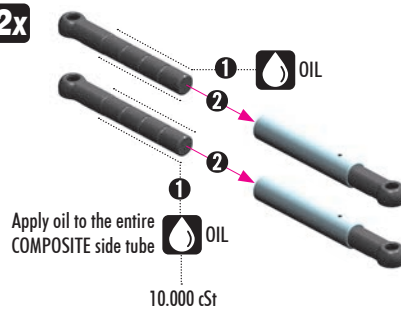


SIDE TUBES

2x



2x



Apply oil to the entire composite side tube before installing in the aluminum tube. After assembly, check for smooth operation. It is very important to check and re-oil the tubes at least once per race day. Oil thickness can be adjusted depending on the track conditions.



For HIGH traction

use HARDER oils

For LOW traction or ASPHALT

use SOFTER oils



HUDY OILS 50ml

OPTION	
#106450	5.000cSt
#106460	6.000cSt
#106470	7.000cSt
#106480	8.000cSt
#106490	9.000cSt
#106510	10.000cSt
#106492	11.000cSt
#106512	12.000cSt
#106515	15.000cSt
#106520	20.000cSt
#106530	30.000cSt

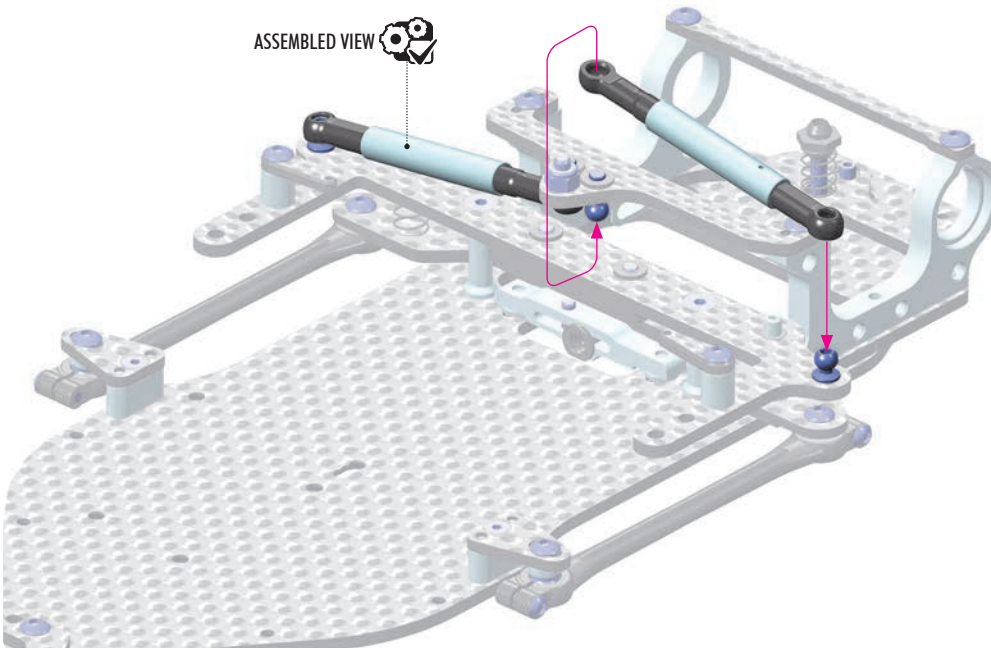
INCLUDED

HARDER OIL - improves stability and makes the car more round and easier to drive.

SOFTER OIL - improves steering.



ASSEMBLED VIEW



SIDE TUBE ANGLE

Shims of different thickness installed under ball studs are used for different side tube angle adjustment.

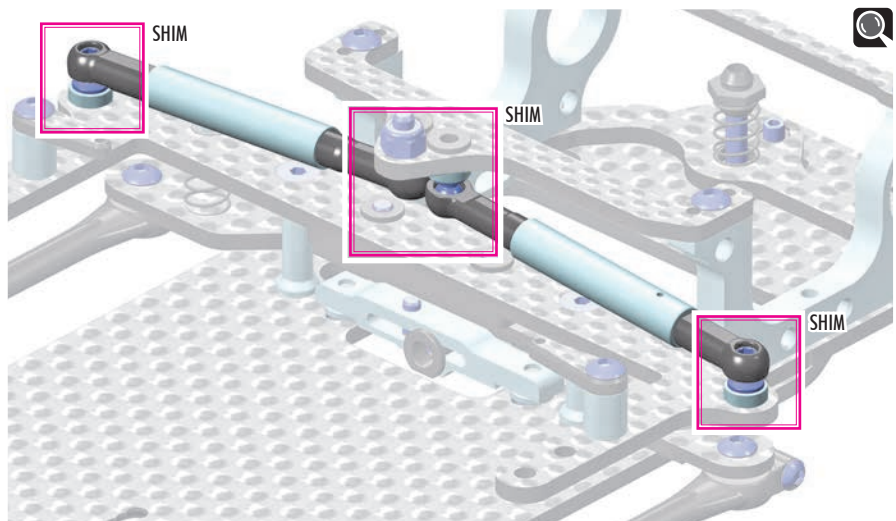
The angle of the side tubes has a minor effect on the car's performance.

HIGHER ANGLE:

Stiffer feeling, less roll.
More progressive damping action.

LOWER ANGLE (FLATTER):

Softer feeling, more roll.
More linear damping action.



3. GEAR DIFFERENTIAL

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

Use this satellite gear from #374930.

#375014
CARBON REAR GEAR DIFF AXLE SHAFT
OPTION

#375001
XRAY SOLID AXLE 1/10 FORMULA - SET
OPTION

GEAR DIFF - SPUR GEARS (64P)

#375776	76T	OPTION
#375780	80T	INCLUDED
#375784	84T	OPTION
#375788	88T	OPTION
#375792	92T	OPTION

#930238
CERAMIC AXIAL THRUSTBEARING F3-8 3x8x3.5mm
OPTION

#375010
CARBON REAR AXLE SHAFT
OPTION

9g lighter for great weight savings and improved acceleration, but more fragile.

#930230
CERAMIC BALL 3.175mm (12)
OPTION

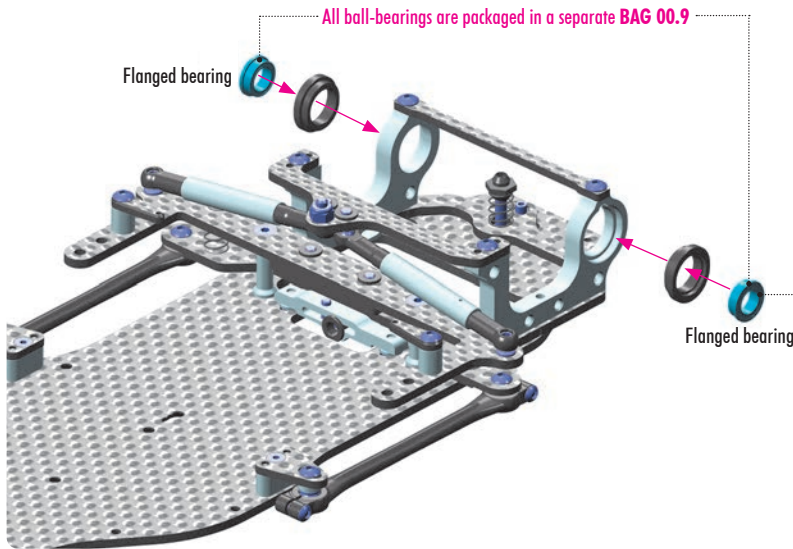
BALL DIFF - SPUR GEARS

#375872	72T / 64P	OPTION
#375875	75T / 64P	OPTION
#375876	76T / 64P	OPTION
#375878	78T / 64P	OPTION
#375880	80T / 64P	OPTION
#375884	84T / 64P	OPTION
#375888	88T / 64P	OPTION
#375892	92T / 64P	OPTION
#375896	96T / 64P	OPTION

BAG 03	304930	COMPOSITE GEAR DIFF BEVEL & SATELLITE GEARS (2+4)	375090	SET OF ALU SHIMS 6.37x8.4mm (0.5mm, 1.0mm, 2.0mm)
	304981	COMPOSITE GEAR DIFF CROSS PIN WITH HOLE	375780	COMPOSITE GEAR DIFF SPUR GEAR - 80T / 64P
	372073	COMPOSITE ECCENTRIC RIDE HEIGHT ADJUSTER SET (2)	902256	HEX SCREW SH M2.5x6 (10)
	374901	XRAY GEAR DIFFERENTIAL 1/10 FORMULA - SET	903258	HEX SCREW SFH M2.5x8 (10)
	374910	COMPOSITE GEAR DIFFERENTIAL CASE - GRAPHITE	908258	HEX SCREW SOCKET HEAD CAP M2.5x8 (10)
	374920	COMPOSITE GEAR DIFFERENTIAL COVER - GRAPHITE	964031	WASHER S 3.5x10x0.2 (10)
	374930	COMPOSITE GEAR DIFF BEVEL & SATELLITE GEARS (2+4)	964050	WASHER S 5x15x0.3 (10)
	374970	ALU GEAR DIFF SHAFT - SWISS 7075 T6	951438	BALL-BEARING 1/4" x 3/8" x 1/8" FLANGED - STEEL SEALED - OIL (2)
	374990	DIFF GASKET (4)	971255	SILICONE O-RING 25.5x0.7 (10)
	375017-L	X1/X10 REAR GEAR DIFF AXLE SHAFT - LIGHTWEIGHT	972050	SILICONE O-RING 5x2 (10)
	375037	ALU GEAR DIFF REAR WHEEL HUB - SWISS 7075 T6	980210	PIN 2x9.8 (10)
	375046	ALU REAR WHEEL HUB - LEFT		

Numbers in parentheses () refer to quantities when purchased separately.

2. REAR SUSPENSION



All ball-bearings are packaged in a separate **BAG 00.9**

Flanged bearing

Flanged bearing



Bearing Oil
(HUDY #106230)

All ball-bearings are factory pre-oiled. Regularly service, clean and lubricate all ball-bearings with HUDY Bearing Oil (#106230).

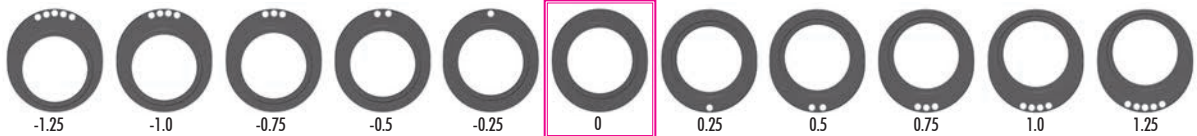


Replace the bearings as soon as they get a "gritty" feeling to prevent inefficiency and rear axle bearing blowouts.

Make sure to use only original XRAY ball-bearings which all have specific tolerances, axial and radial play and are all individually selected. Using any 3rd party ball-bearings may result into failures and break of the car.

These eccentric bushings adjust the **RIDE HEIGHT** of the rear pod. Make sure to use the **SAME** eccentric bushings on **BOTH** sides.

✓ **INITIAL SETTING**



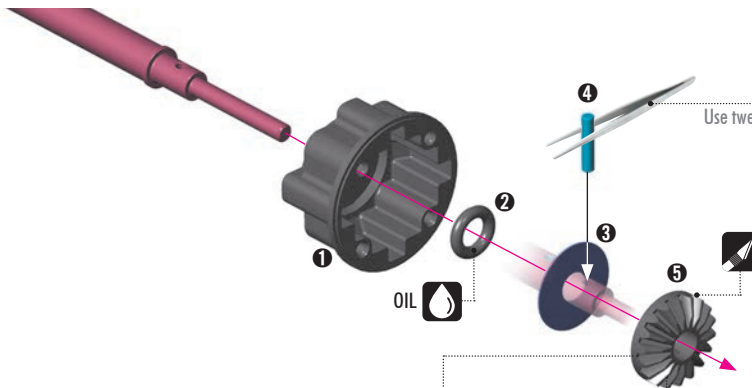
1x 964050
S 5x15x0.3



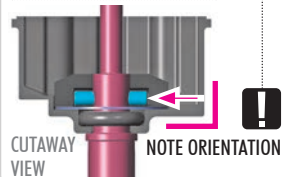
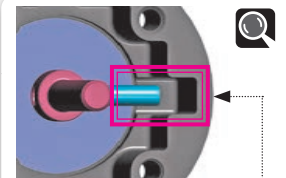
1x 972050
O 5x2



1x 980210
P 2x10



Use tweezers to insert pin.



CUTAWAY VIEW

NOTE ORIENTATION

NOTE



Use this satellite gear (from #304930) here.

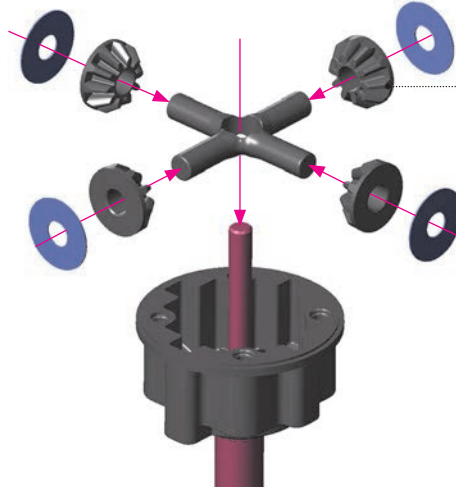
#304932
GRAPHITE GEAR DIFF BEVEL & SATELLITE GEARS (2+4)



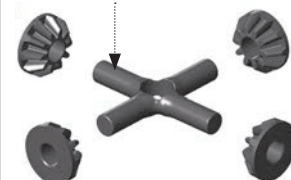
Use this satellite gear from kit (#374930).



4x 964031
S 3.5x10x0.2

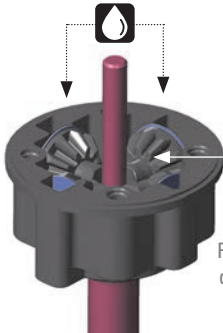


The cross pins should fit into the differential case smoothly. If not, use a hobby knife to carefully remove any excess material and recheck.



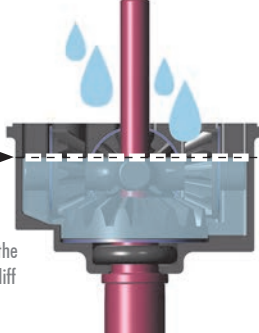
3. GEAR DIFFERENTIAL

Silicone oil
Fill just above the cross-pins.



OIL
8000 cSt

Fill differential up to the top of the diff cross-pins. DO NOT fill the diff to the top of the housing.



TIP

HUDY Premium Silicone Oil - GRIP LEVEL OF TRACK

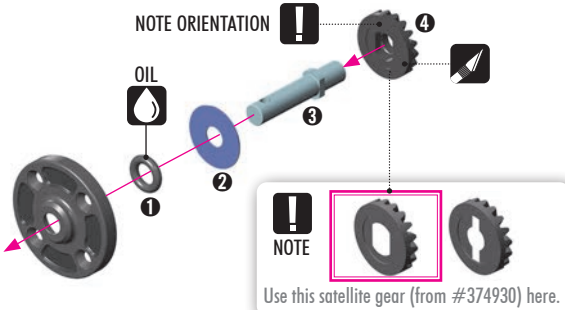
LOW		MEDIUM-HIGH	SUPER-HIGH		
500 cSt	#106350	750 cSt	#106375	4000 cSt	#106440
525 cSt	#106352	800 cSt	#106380	5000 cSt	#106450
550 cSt	#106355	900 cSt	#106390	6000 cSt	#106460
575 cSt	#106357	1000 cSt	#106410	7000 cSt	#106470
600 cSt	#106360	2000 cSt	#106420	8000 cSt	#106480
625 cSt	#106362	3000 cSt	#106430	10000 cSt	#106510
650 cSt	#106365				
675 cSt	#106367				
700 cSt	#106370				

NOTE: Softer oil increases steering and traction, harder oil increases stability and cornering speed of the car.

1x 964050
S 5x15x0.3

1x 972050
O 5x2

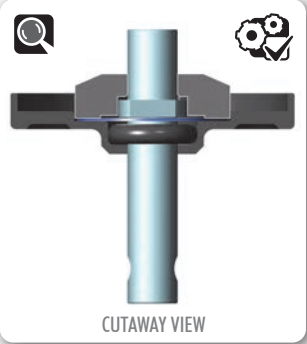
NOTE ORIENTATION



OIL

NOTE

Use this satellite gear (from #374930) here.



CUTAWAY VIEW

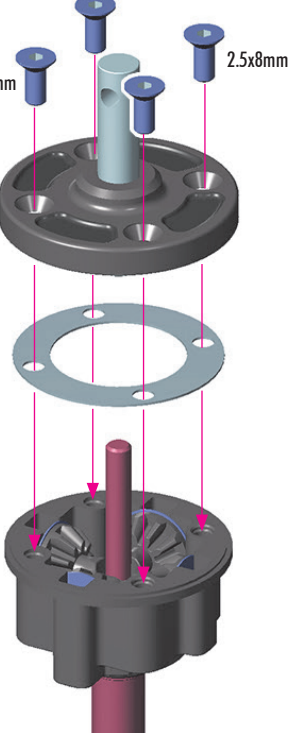
1x 971255
O 25.5x0.7



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 replacing the old O-ring with a new O-ring if the old one cannot be made to fit properly.

4x 903258
SFH M2.5x8

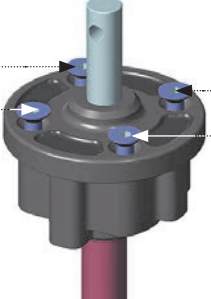
2.5x8mm



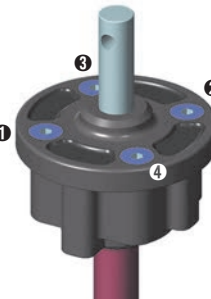
2.5x8mm

!

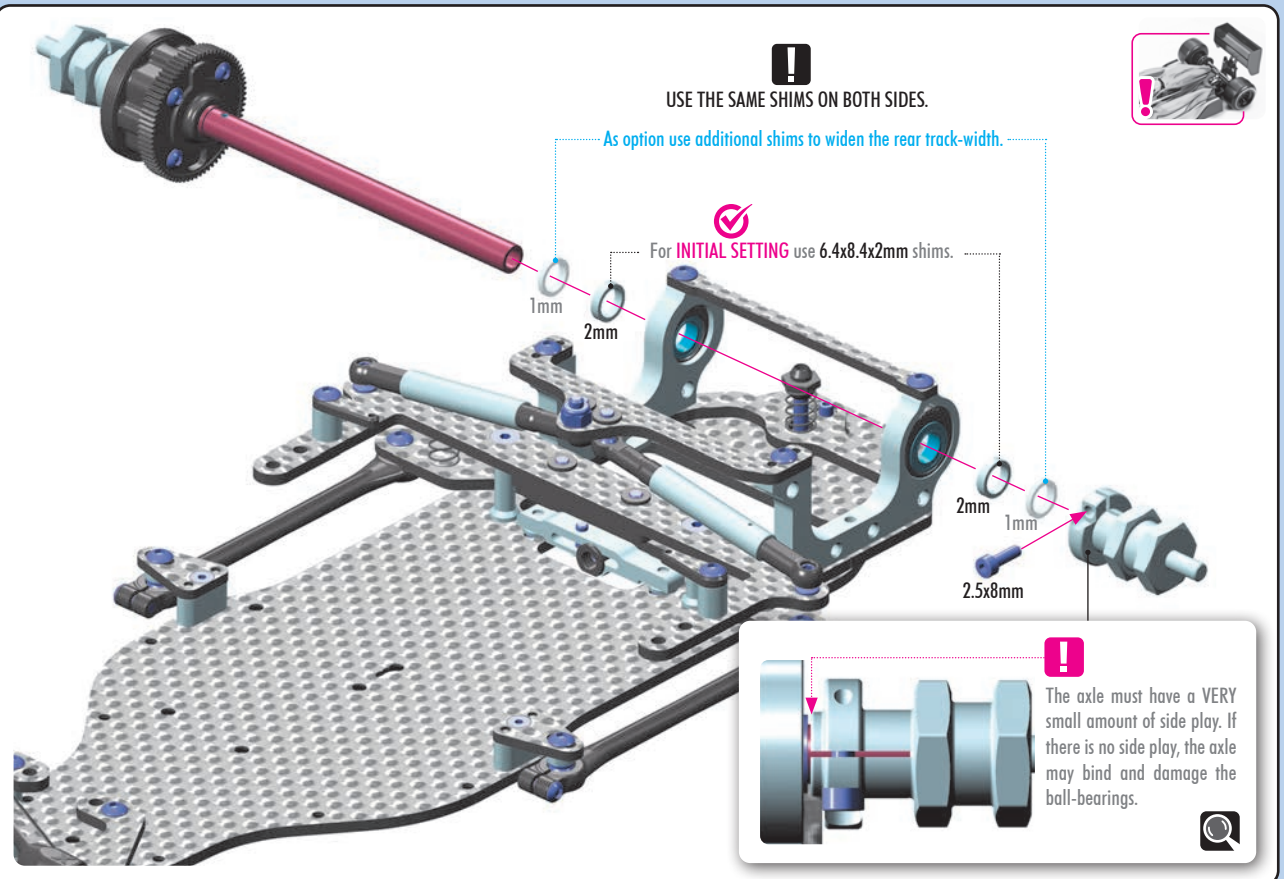
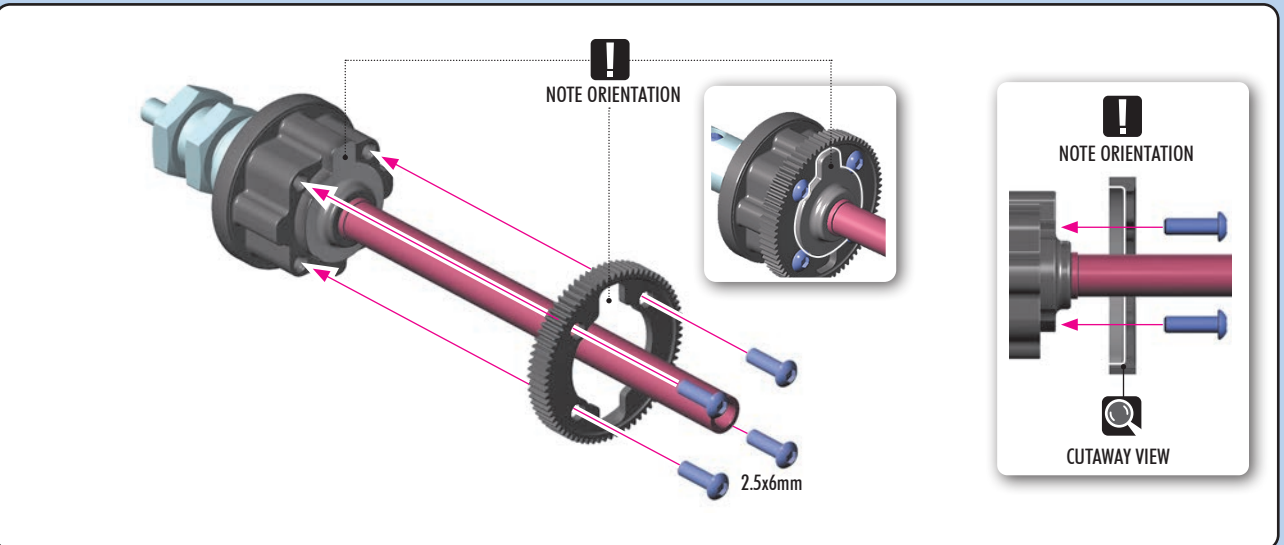
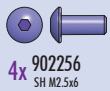
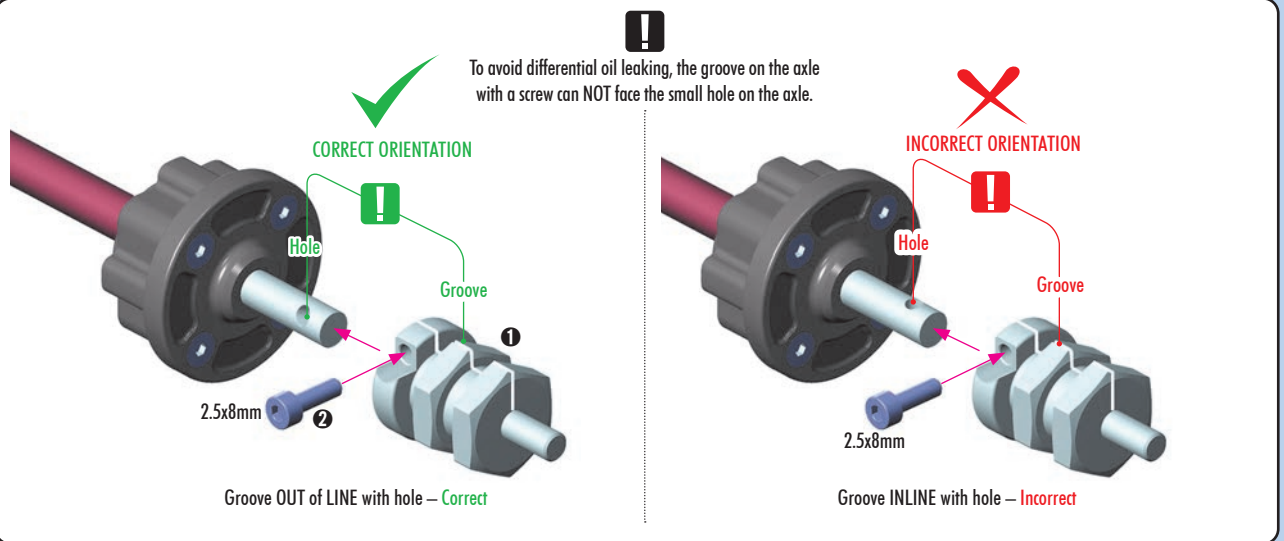
Tighten the screws equally but DO NOT tighten them completely.



Finish tightening in this order.



3. GEAR DIFFERENTIAL

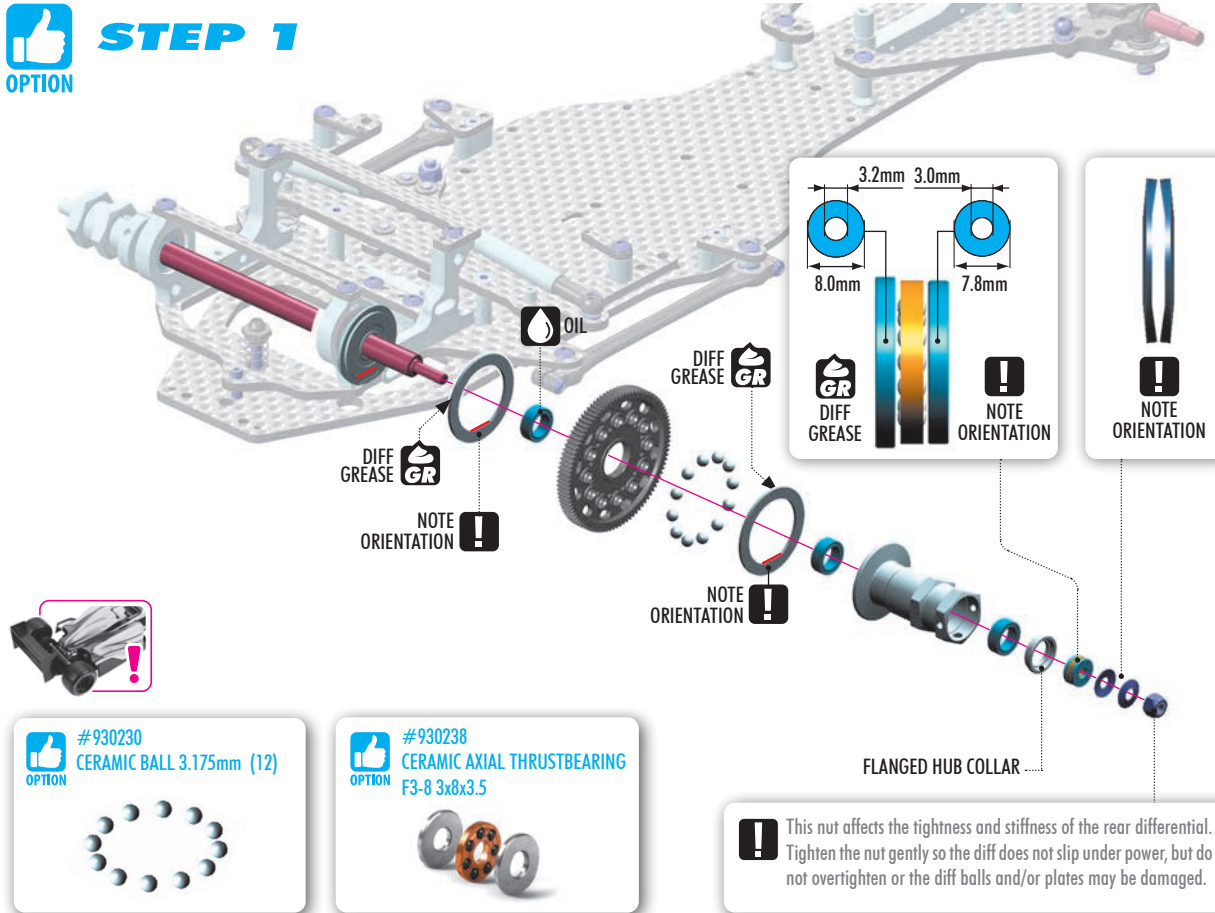


BALL DIFFERENTIAL (NOT INCLUDED)



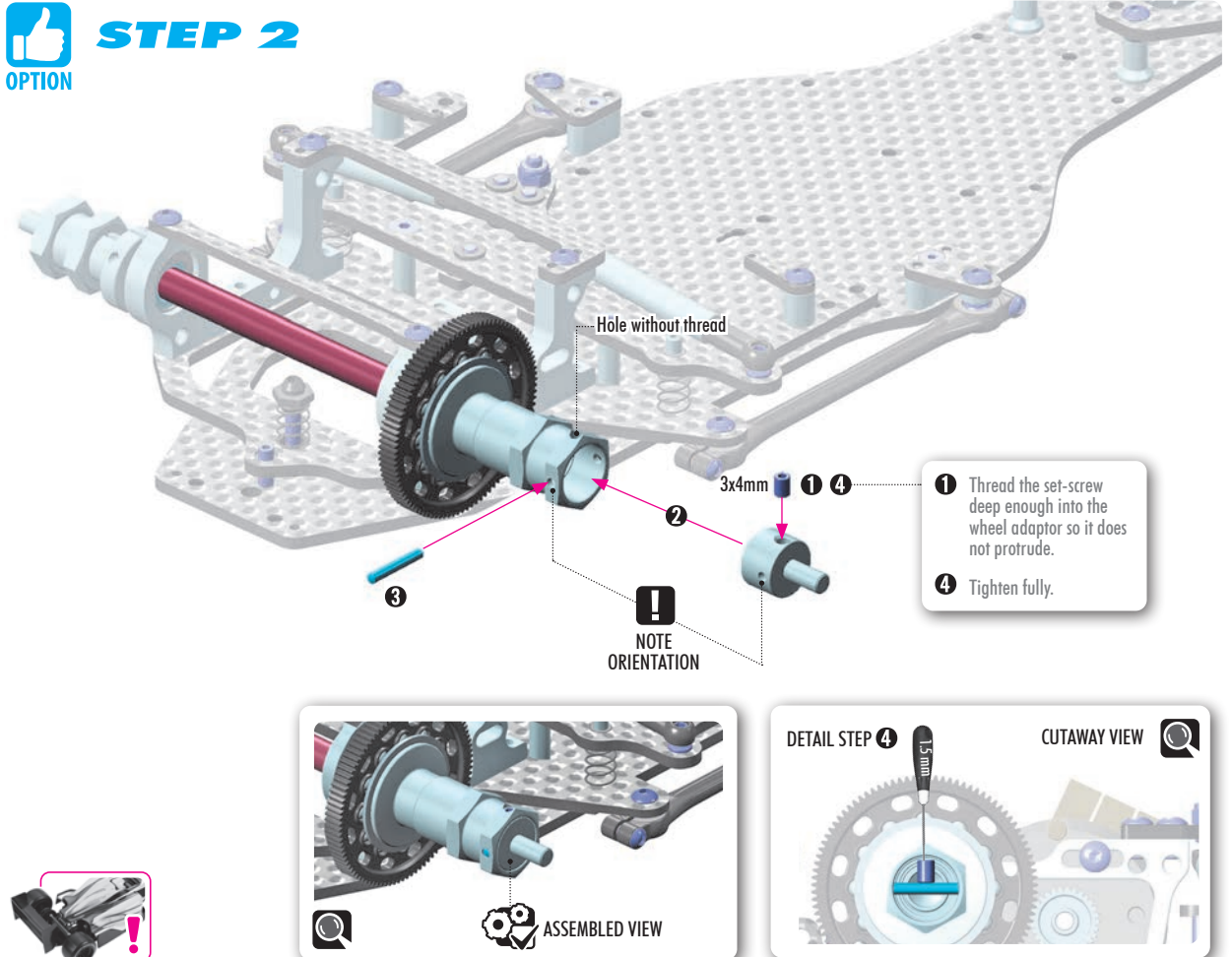
STEP 1

- 12x 930130 B 3.1
- 1x 930138 BA 3x8
- 2x 941438 BB 1/4"x3/8"x1/8"
- 1x 960030 N M3
- 2x 963030 ST 3x8

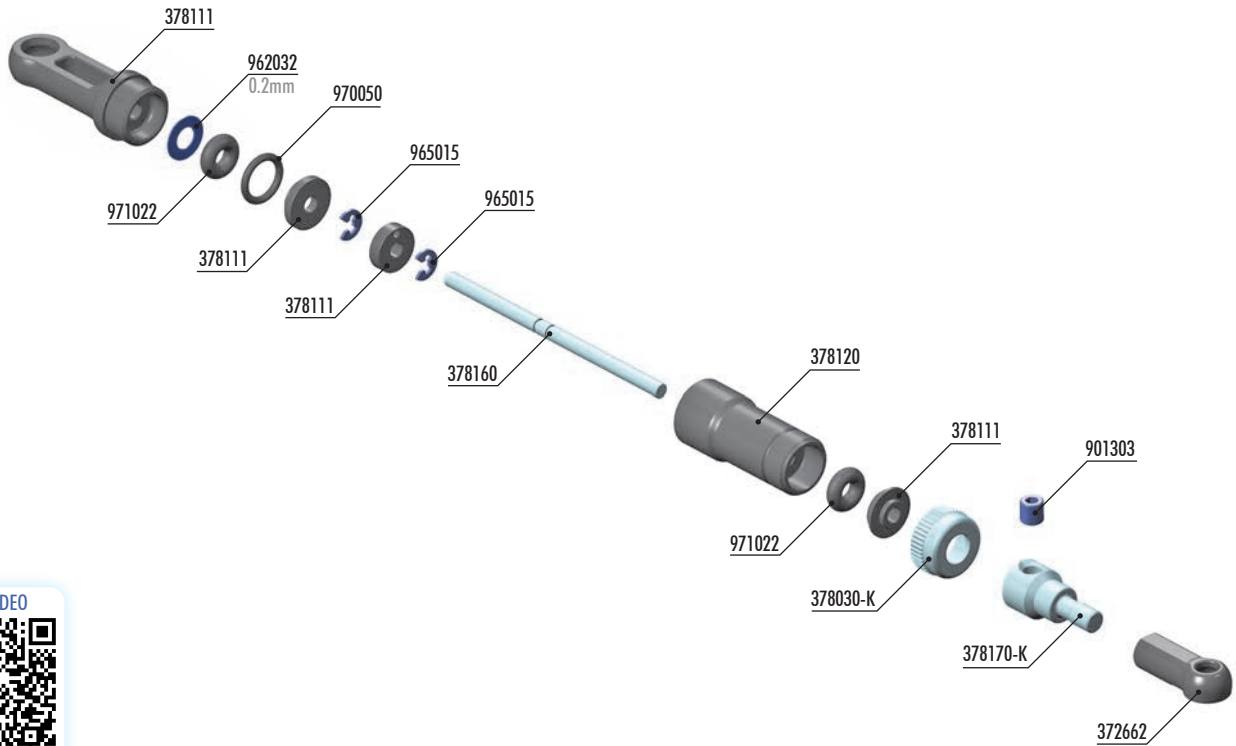


STEP 2

- 1x 901304 SB M3x4
- 1x 981214 P 2x14



4. SHOCK ABSORBER



BUILD VIDEO



CENTER SHOCK



HUDY SILICONE OILS - 50ml

#106310	100cSt	OPTION	#106342	425cSt	OPTION	#106365	650cSt	OPTION
#106315	150cSt	OPTION	#106345	450cSt	OPTION	#106367	675cSt	OPTION
#106320	200cSt	OPTION	#106347	475cSt	OPTION	#106370	700cSt	OPTION
#106325	250cSt	OPTION	#106350	500cSt	OPTION	#106375	750cSt	OPTION
#106330	300cSt	OPTION	#106355	550cSt	INCLUDED	#106380	800cSt	OPTION
#106335	350cSt	OPTION	#106357	575cSt	OPTION	#106390	900cSt	OPTION
#106337	375cSt	OPTION	#106360	600cSt	OPTION	#106410	1000cSt	OPTION
#106340	400cSt	OPTION	#106362	625cSt	OPTION	#106420	2000cSt	OPTION



#104002
HUDY AIR VAC
VACUUM PUMP



BAG

04

372662 COMPOSITE BALL JOINT 4.2mm (4)
378030-K ALU SHOCK BODY CAP - LOWER - BLACK
378102 CENTER DAMPENER SET
378111 COMPOSITE CENTER DAMPENER PARTS
378120 ALU SHOCK BODY
378160 STEEL SHOCK SHAFT
378170-K ALU SHOCK BALL JOINT SCREW - BLACK

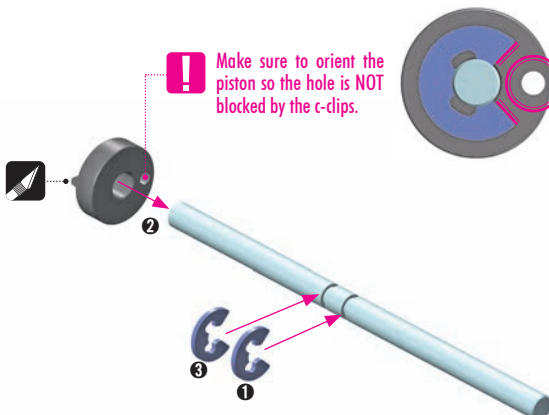
901303 HEX SCREW SB M3x3 (10)
962032 WASHER S 3x6x0.2 (10)
965015 E-CLIP 1.5 (10)
970050 O-RING 5x1 (10)
971022 SILICONE O-RING 2x2 (10)



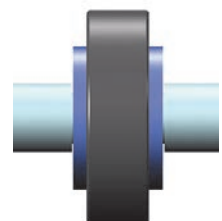
2x 965015
C1.5

SPECIFIC ORDER

Carefully remove the shock piston from the frame, and remove all excess plastic flash.



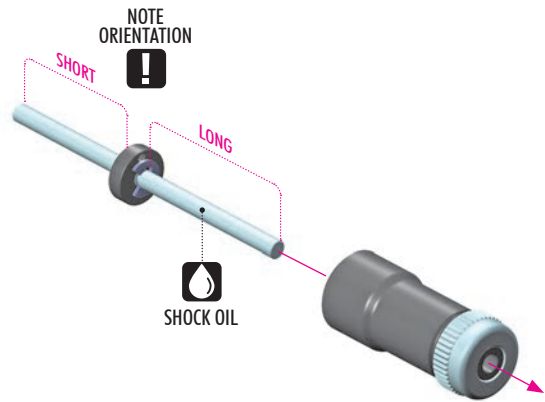
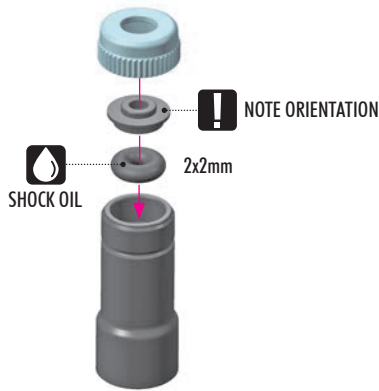
ASSEMBLED VIEW



4. SHOCK ABSORBER



1x 971022
0 2x2



1x 970050
0 5x1



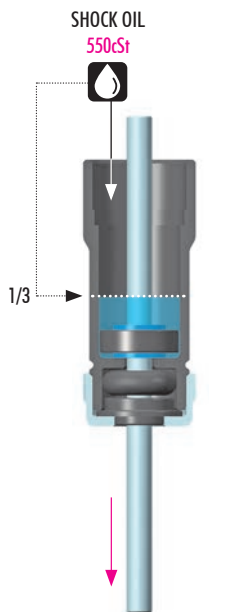
1x 971022
0 2x2



1x 962032
S 3x6x0.2

DEFAULT SHOCK SETTING FOR SHOCK ABSORBER

Follow the steps below to set the shock.



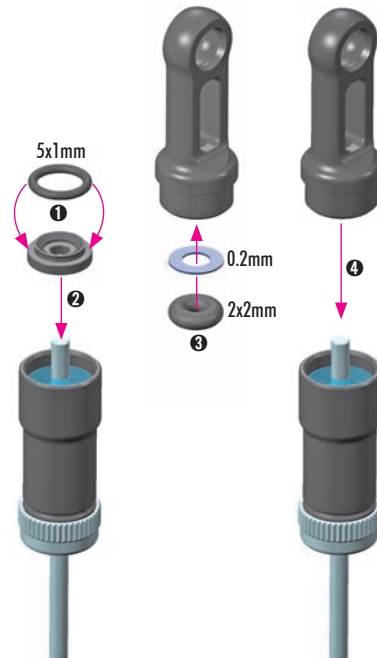
Extend the shock shaft completely. Fill the shock body with the shock oil but only 1/3.



- 1 Slowly move the shock shaft up so the shock oil will flow under the shock piston.
- 2 Extend the shock shaft.



Extend the shock shaft completely to release the air trapped beneath the shock piston. Fill the shock shaft body with the shock oil but NOT fully approx. 3mm from the top of the shock body.



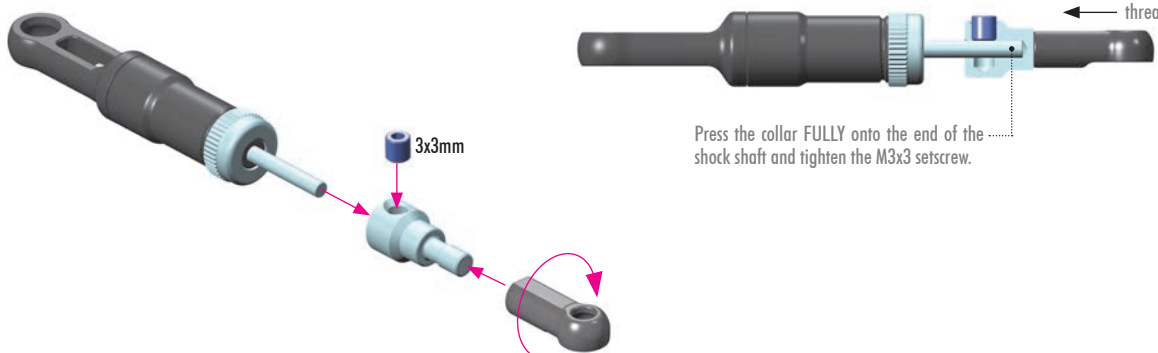
- 1 Install the 5x1 o-ring onto shock shim.
- 2 Place the shock shim with the o-ring into the shock body.
- 3 Install the shim 0.2mm & 2x2 o-ring into the shock cap.
- 4 Install the shock cap.



Screw fully the shock cap in the filled shock body. Excess oil will spill from the shock. Tighten completely.



1x 901303
SB M3x3



Press the collar FULLY onto the end of the shock shaft and tighten the M3x3 setscrew.

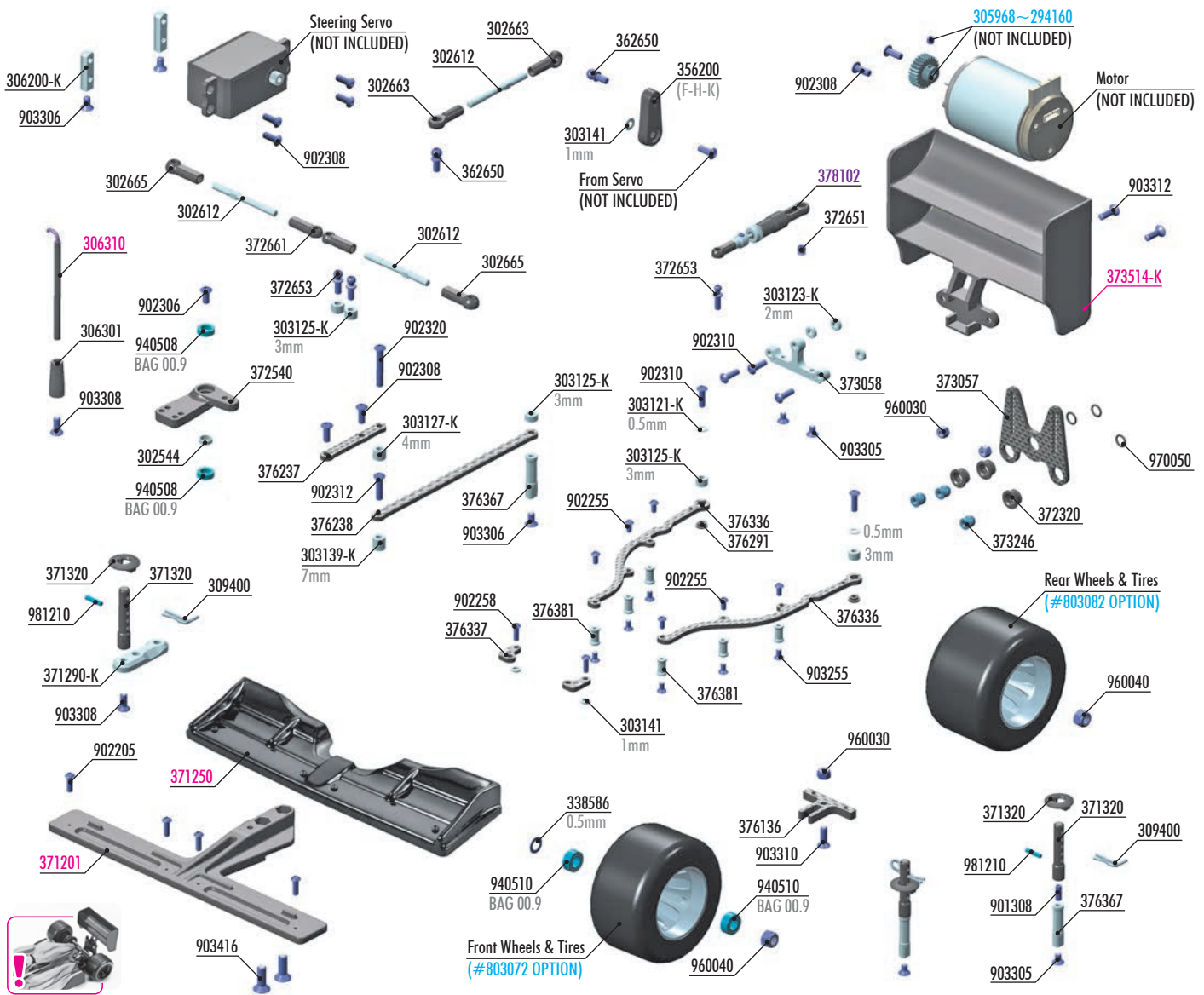
For initial setting, thread fully.

BUILD VIDEO



CENTER SHOCK

5. FINAL ASSEMBLY



BAG

05

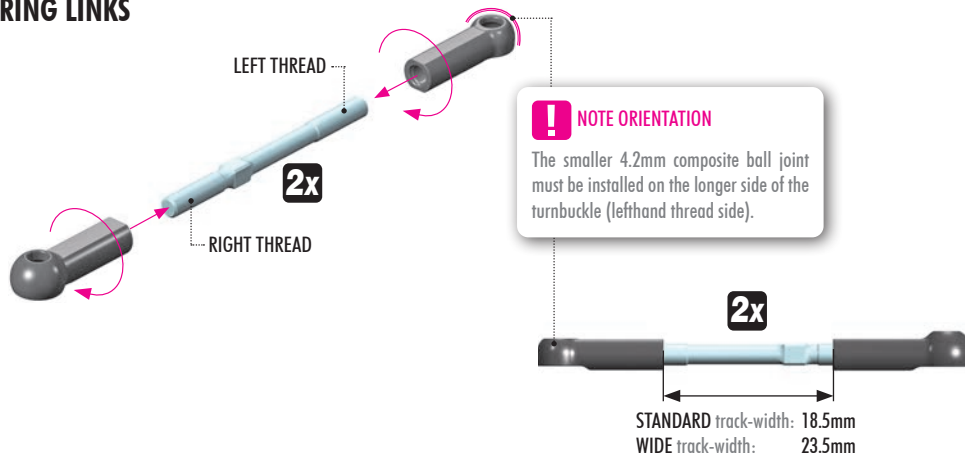
302544	ALU SHIM FOR RADIAL PLAY ADJUSTMENT OF STEERING ARM (2)
302612	ALU ADJ. TURNBUCKLE M3 L/R 39mm - SWISS 7075 T6 (2)
302663	COMPOSITE BALL JOINT 4.9mm - OPEN - V2 (8)
302665	COMPOSITE BALL JOINT 4.9mm - CLOSED WITH HOLE (4)
303121-K	ALU SHIM 3x6x0.5mm - BLACK (10)
303123-K	ALU SHIM 3x6x2.0mm - BLACK (10)
303125-K	ALU SHIM 3x6x3.0mm (10)
303127-K	ALU SHIM 3x6x4.0mm (10)
303139-K	ALU SHIM 3x6x7.0mm (10)
303141	ALU SHIM 3x5x1.0mm (10)
306200-K	ALU SERVO MOUNT - BLACK (2)
306301	ANTENNA MOUNT - THIN
309400	BODY CLIP (8)
356200	BRAKE/THROTTLE ARMS & STEERING SERVO ARMS - SET
362650	BALL END 4.9mm WITH THREAD 6mm (2)
371290-K	ALU BODY POST PLATE - BLACK
371320	COMPOSITE BODY POST (2)
372320	X1 COMPOSITE ARM BUSHING (4)
372540	COMPOSITE STEERING ARM
372651	PIVOT BALL UNIVERSAL 4.9mm - HUDY SPRING STEEL™ (2)
372653	BALL END 4.2MM WITH 8mm THREAD (2)
372661	COMPOSITE STEERING BALL JOINT OPEN 4.2 MM (4)
373057	CARBON REAR WING MOUNT
373058	ALU REAR WING HOLDER
373246	ALU BALL END 6.0mm WITH HEX - SWISS 7075 T6 (2)
376136	CARBON BATTERY BACKSTOP - MIDDLE
376237	CARBON TOP DECK - SHORT
376238	CARBON TOP DECK - LONG
376291	COMPOSITE M3 SNAP LOCK BUSHING (8)
376336	CARBON SIDE BRACE FOR 1-PIECE CHASSIS (2)
376337	CARBON SIDE BRACE ARM (2)
376367	ALU MOUNT 22.5mm - BLACK
376381	ALU MOUNT 10.0MM WITH M2.5 THREAD - BLACK (2)
338586	SHIM 5x7x0.5 (10)

901308	HEX SCREW SB M3x8 (10)
902205	HEX SCREW SH M2x5 (10)
902255	HEX SCREW SH M2.5x5 (10)
902258	HEX SCREW SH M2.5x8 (10)
902306	HEX SCREW SH M3x6 (10)
902308	HEX SCREW SH M3x8 (10)
902310	HEX SCREW SH M3x10 (10)
902312	HEX SCREW SH M3x12 (10)
902320	HEX SCREW SH M3x20 (10)
903255	HEX SCREW SFH M2.5x5 (10)
903305	HEX SCREW SFH M3x5 (10)
903306	HEX SCREW SFH M3x6 (10)
903308	HEX SCREW SFH M3x8 (10)
903310	HEX SCREW SFH M3x10 (10)
903312	HEX SCREW SFH M3x12 (10)
903416	HEX SCREW SFH M4x16 (10)
940508	BALL-BEARING 5x8x2.5 RUBBER SEALED - OIL (2)
940510	BALL-BEARING 5x10x4 RUBBER SEALED - OIL (2)
960030	NUT M3 (10)
960040	NUT M4 (10)
970050	O-RING 5x1 (10)
981210	PIN 2x10 (10)
306310	ANTENNA (2)
371201	X1 COMPOSITE FRONT BUMPER
371250	X1 LEXAN FRONT SPOILER (2)
373514-K	X1 COMPOSITE REAR WING - LIGHTWEIGHT & WIDE - BLACK
378102	CENTER DAMPENER FOR 1-PIECE CHASSIS - SET
305968~294160	ALU PINION GEAR - HARD COATED 18~64T/64P (OPTION)
803072	HUDY 1/10 FORMULA RUBBER TIRE - FRONT (2) (OPTION)
803082	HUDY 1/10 FORMULA RUBBER TIRE - REAR (2) (OPTION)

Numbers in parentheses () refer to quantities when purchased separately.

5. FINAL ASSEMBLY

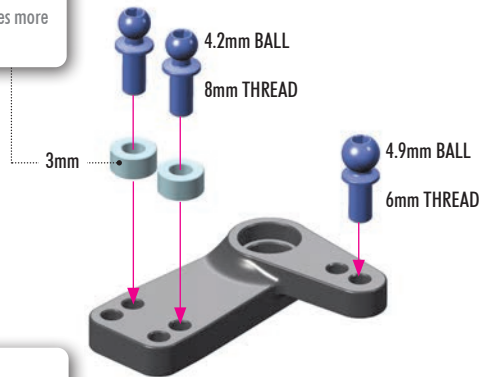
2x STEERING LINKS



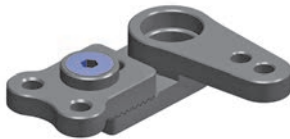
2x 303125-K
SHIM 3x6x3

These shims adjust the bumpsteer.

When thicker shims are used here, in-corner steering increases, but the car becomes more difficult to drive.



#372541-K
ALU ADJUSTABLE SERVO SAVER SET
OPTION



The steering arm has two positions for servo linkage mounting.

Always use this position

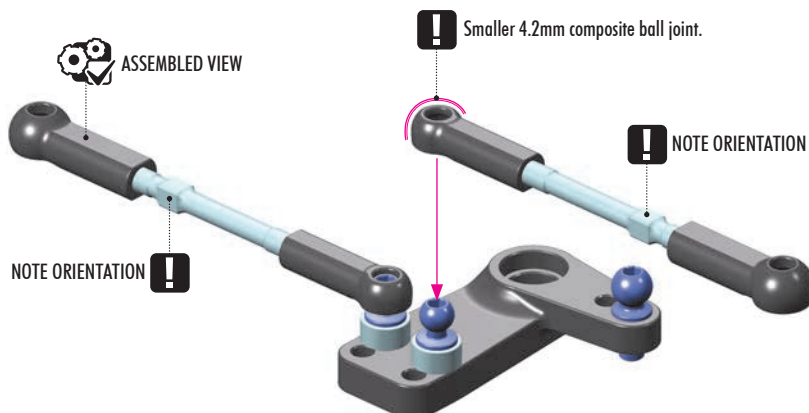


There are two Ackermann positions on the steering arm.

REARWARD position: More Ackermann, makes the car easier to drive, improves cornering speed. **INITIAL SETTING.**

FORWARD position: Less Ackermann, makes the car more responsive, improves in-corner steering.

2x L=R



5. FINAL ASSEMBLY



306219
SHIM 3x6x1



306219
SHIM 3x6x2



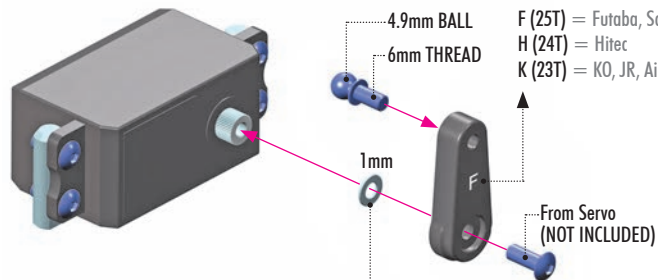
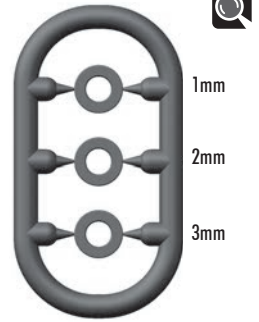
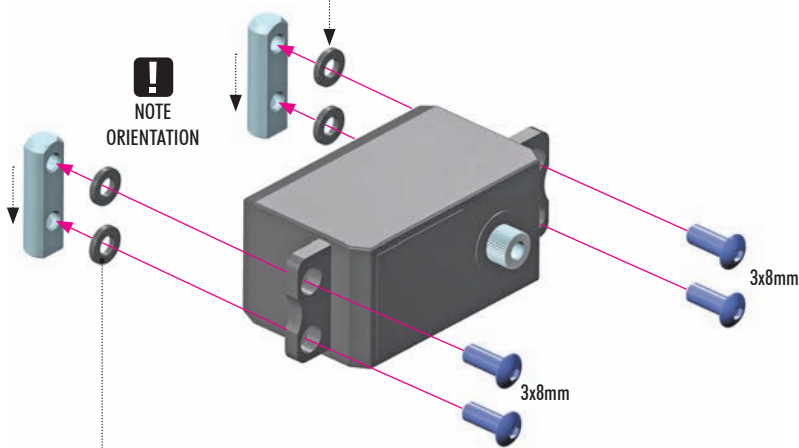
306219
SHIM 3x6x3



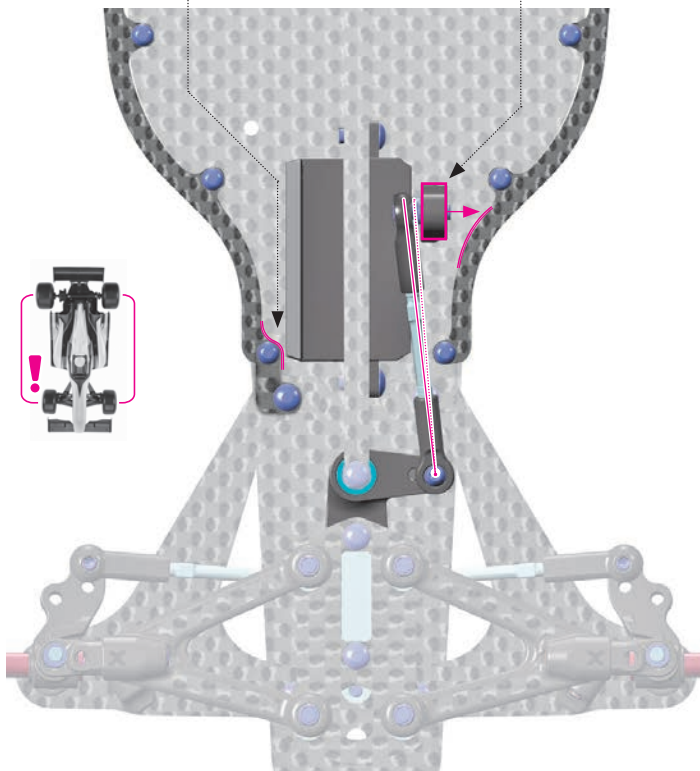
4x 902308
SH M3x8



1x 303141
SHIM 3x5x1



SERVO SHIM **SERVO HORN SHIM**
As the servos sizes differ, use shims to move the servo out in case the servo link is too angled. Use included shims to avoid touching of the servo with side braces.



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



HUDY ADJ. CLAMP SERVO HORNS

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



ALU SERVO HORNS - OFFSET

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



CLAMP ALU SERVO HORNS - OFFSET

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



HUDY ALU SERVO HORNS

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



HUDY CLAMP ALU SERVO HORNS

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



HUDY ALU SERVO HORNS

#293501 KO, Sanwa - 23T
#293502 Hitec - 24T
#293503 Futaba - 25T



HUDY CLAMP ALU SERVO HORNS

#293407 KO, Sanwa - 23T
#293408 Hitec - 24T
#293409 Futaba - 25T



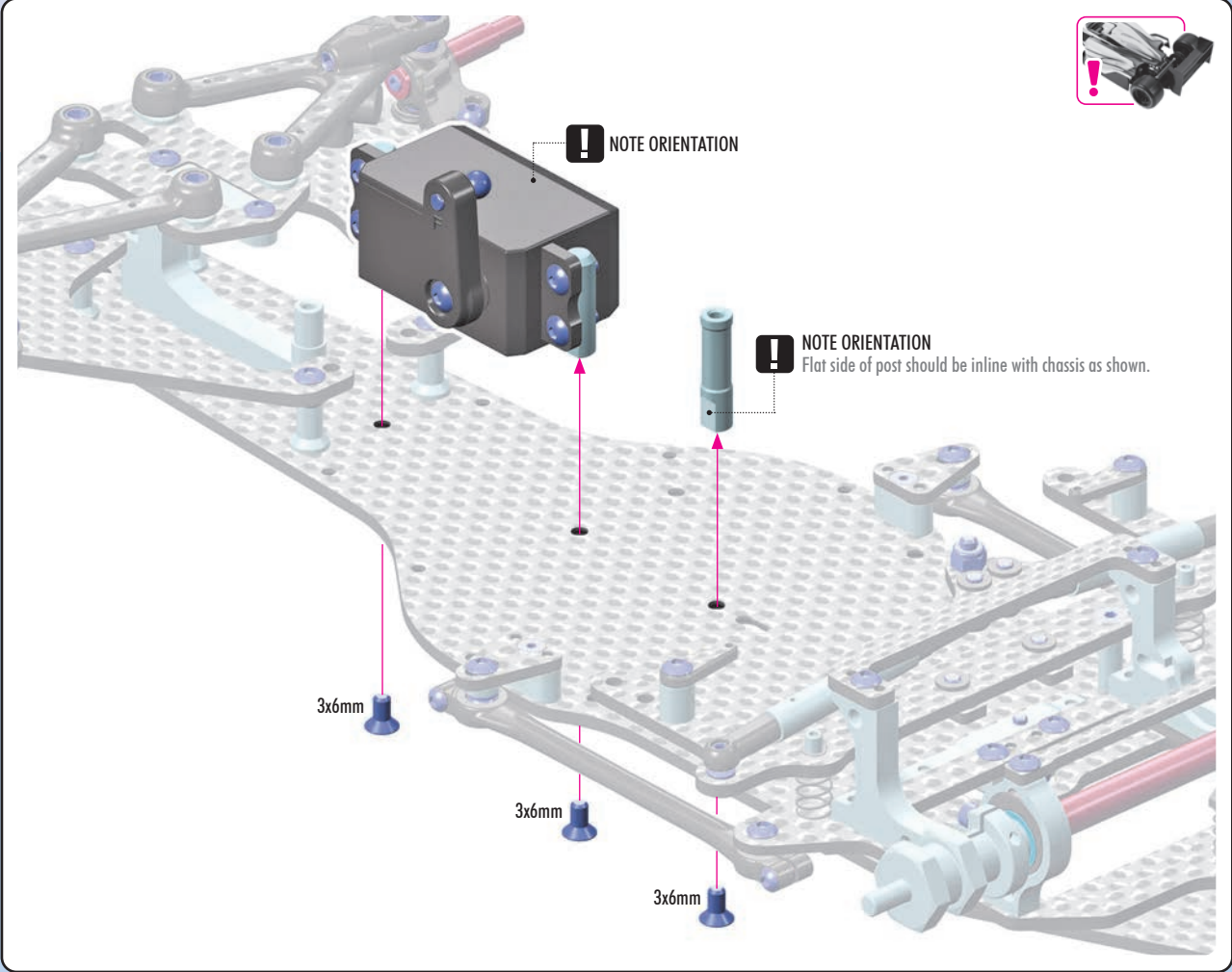
IMPORTANT!

When an aluminum horn is used, the steering servo saver is NOT used. This increases the risk of breaking the servo in serious crashes.

5. FINAL ASSEMBLY

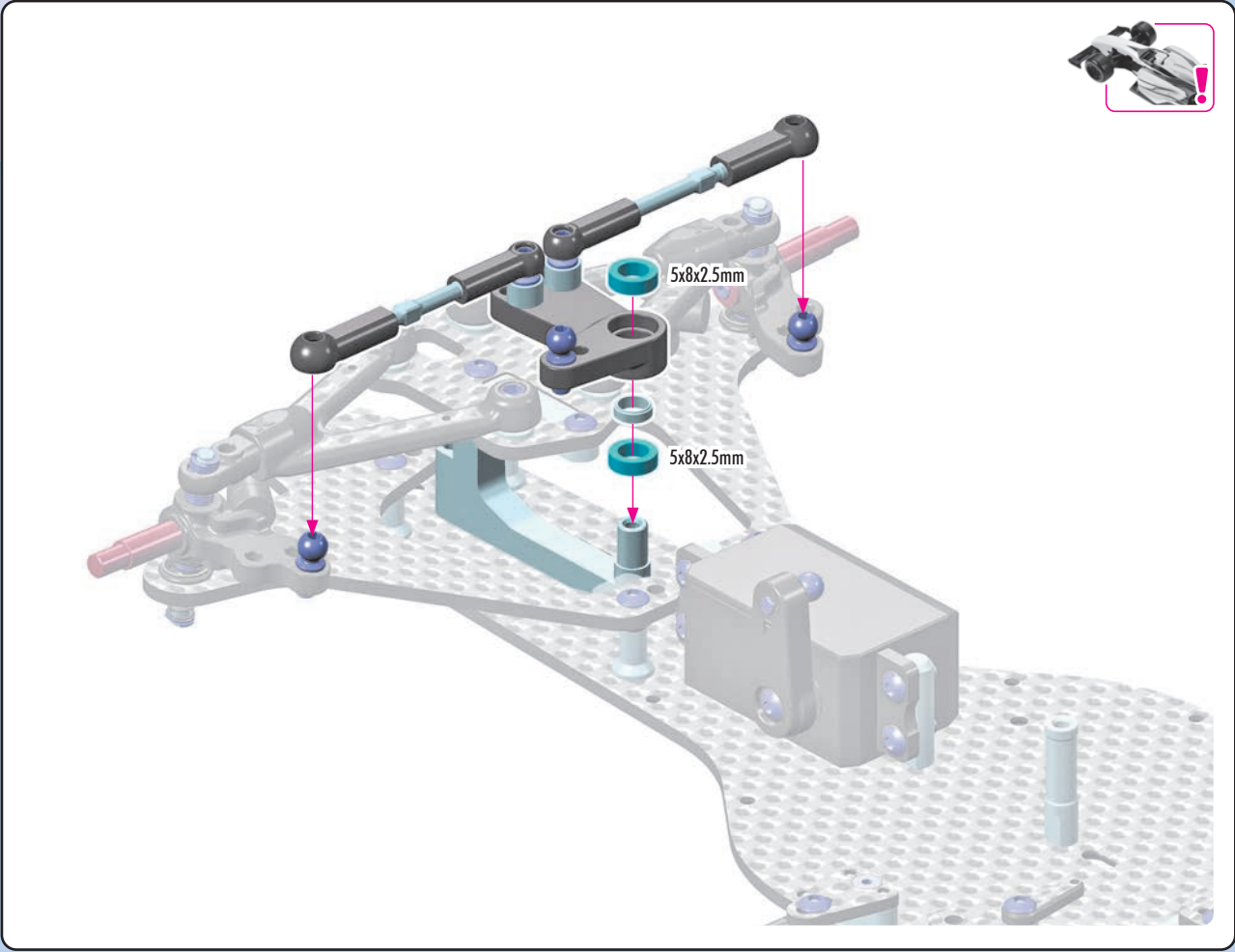


3x 903306
SFH M3x6

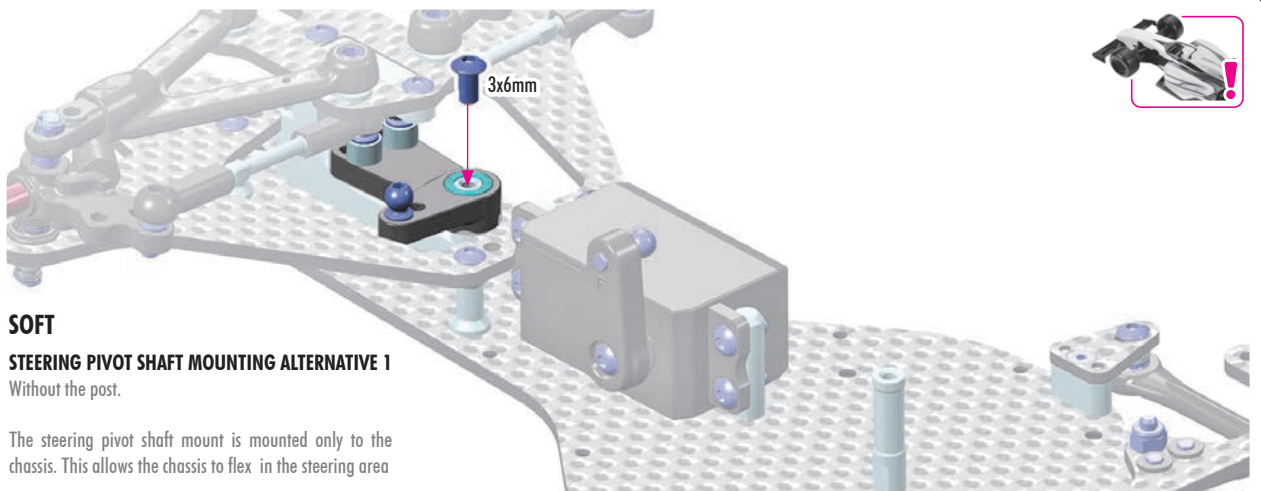




2x 940508
BB 5x8x2.5



5. FINAL ASSEMBLY

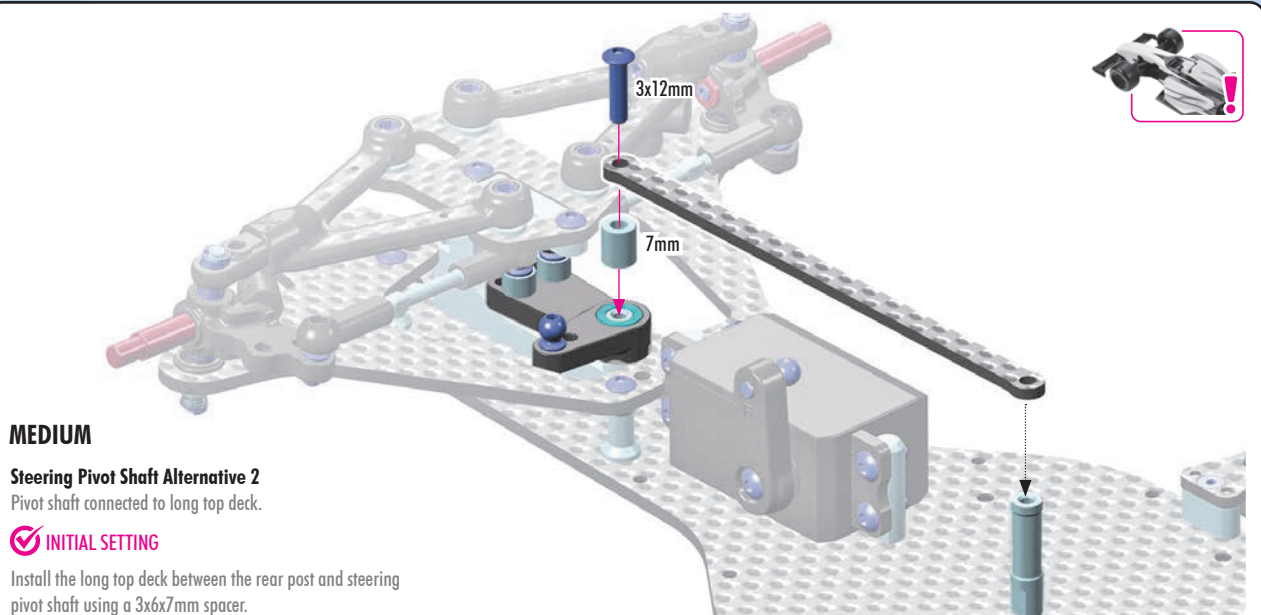
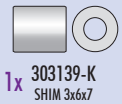


SOFT

STEERING PIVOT SHAFT MOUNTING ALTERNATIVE 1

Without the post.

The steering pivot shaft mount is mounted only to the chassis. This allows the chassis to flex in the steering area



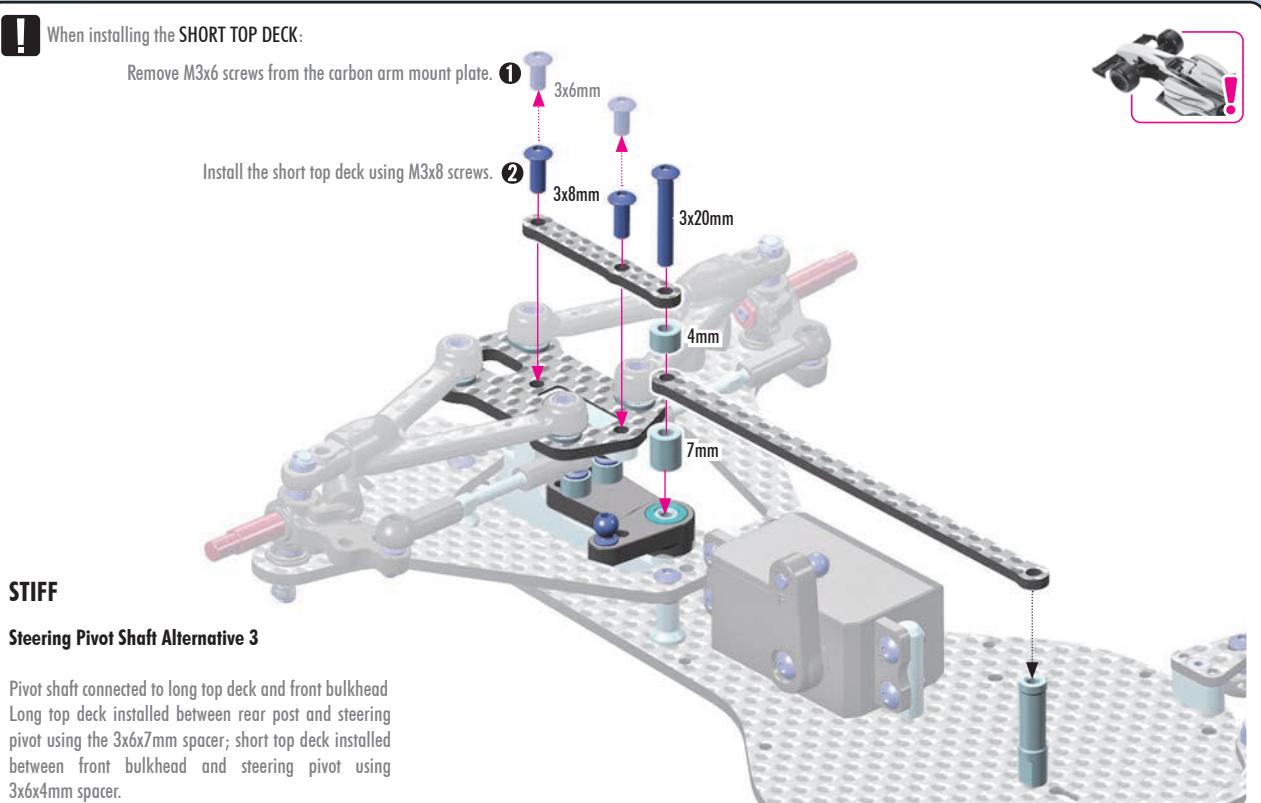
MEDIUM

Steering Pivot Shaft Alternative 2

Pivot shaft connected to long top deck.

✓ INITIAL SETTING

Install the long top deck between the rear post and steering pivot shaft using a 3x6x7mm spacer.



STIFF

Steering Pivot Shaft Alternative 3

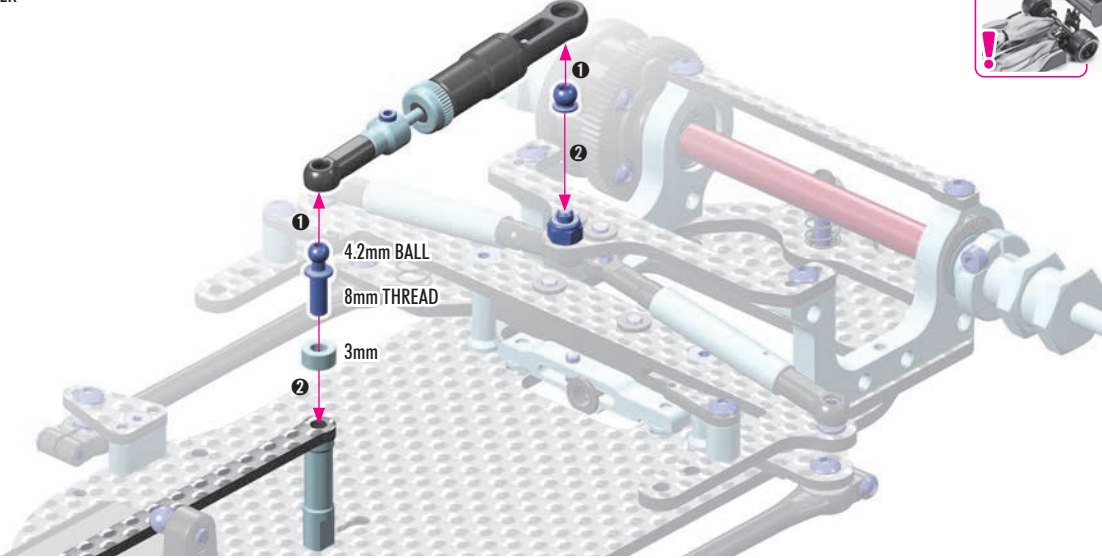
Pivot shaft connected to long top deck and front bulkhead
Long top deck installed between rear post and steering pivot using the 3x6x7mm spacer; short top deck installed between front bulkhead and steering pivot using 3x6x4mm spacer.

5. FINAL ASSEMBLY



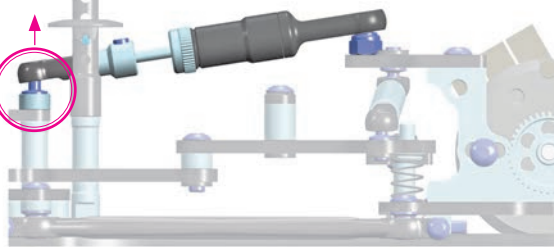
1x 303125-K
SHIM 3x6x3

 SPECIFIC ORDER

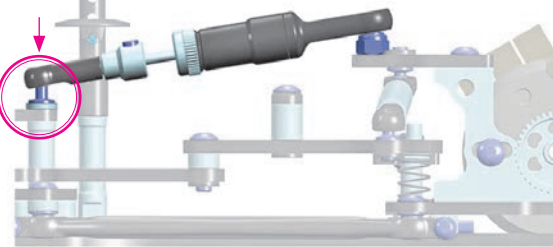


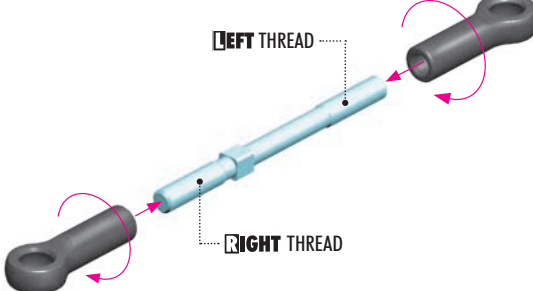
 SHOCK ANGLE & POSITION

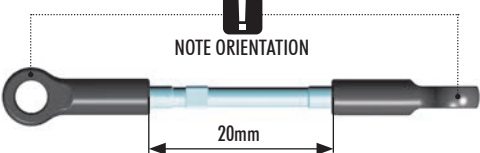
SHOCK ANGLE
More shim in front.
Makes the damping more linear. Increases stability, decreases on-power steering.
Recommended for low- to medium traction track conditions.

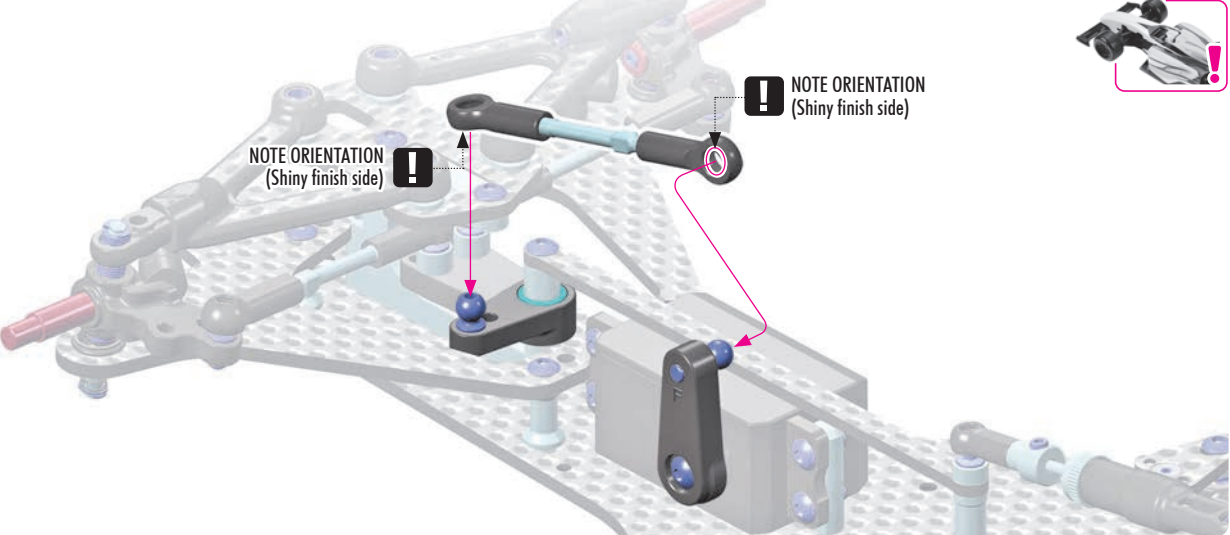


MORE SHOCK ANGLE
Less shim in front.
Makes the damping more progressive and increases on-power steering.
Recommended for high-traction track conditions when you need to free up the rear.





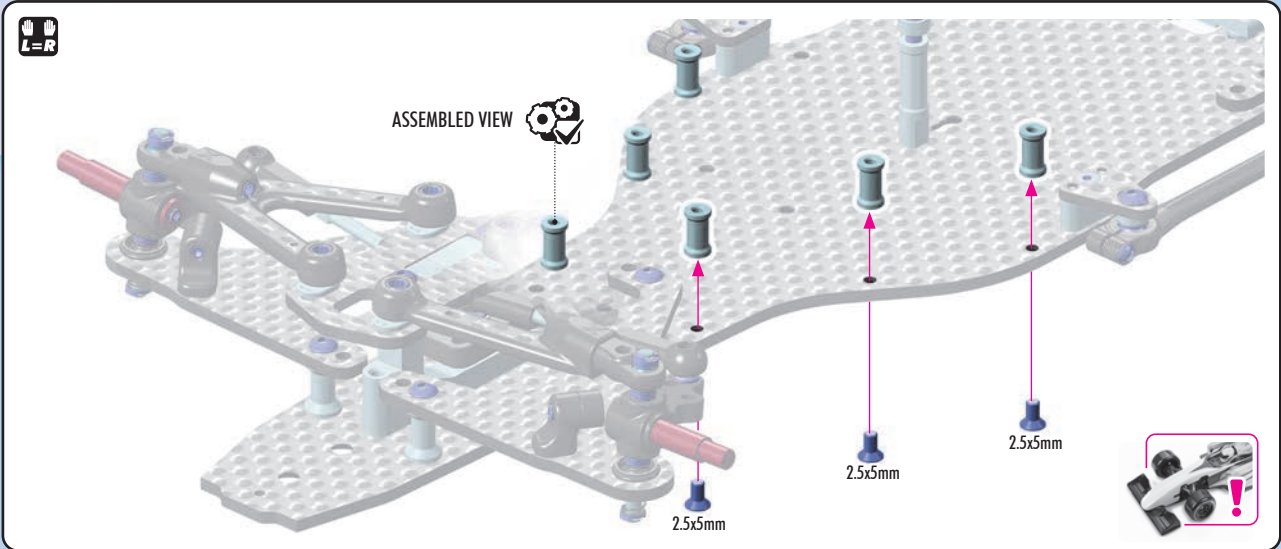




5. FINAL ASSEMBLY



6x 903255
SFH M2.5x5



0x 303121-K
SHIM 3x6x0.5

2x 303125-K
SHIM 3x6x3

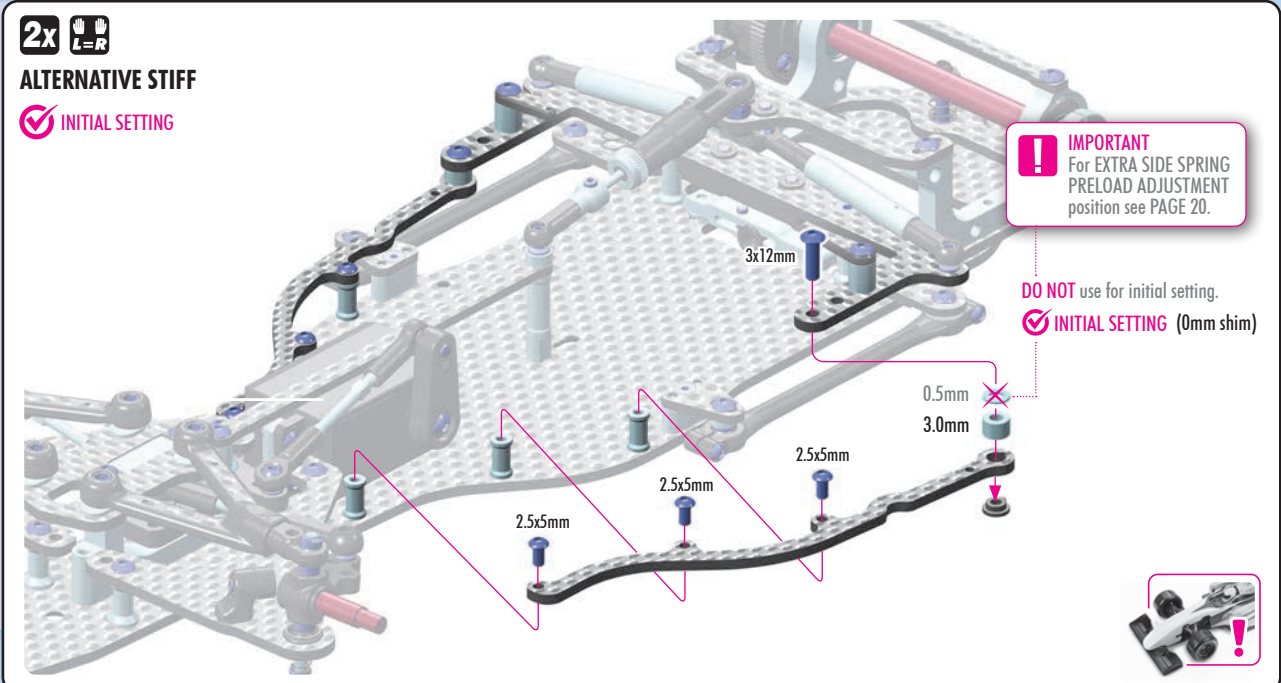
6x 902255
SH M2.5x5

2x 902312
SH M3x12



ALTERNATIVE STIFF

✓ INITIAL SETTING



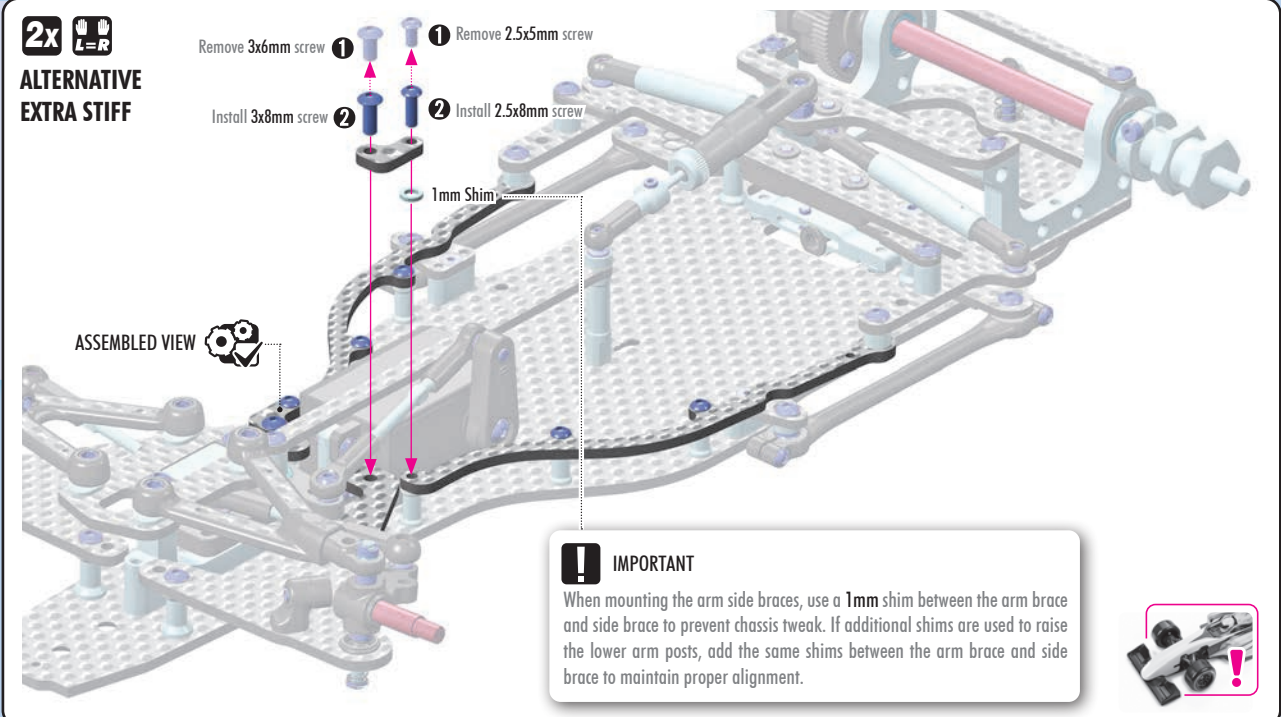
2x 303141
SHIM 3x5x1

2x 902258
SH M2.5x8

2x 902308
SH M3x8



ALTERNATIVE EXTRA STIFF



5. FINAL ASSEMBLY



CHASSIS FLEX ADJUSTMENT

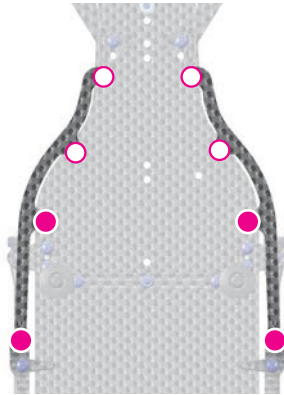
SOFT (NO BRACES)

Generates more mechanical grip. Recommended for low- to medium-traction carpet as well as asphalt.



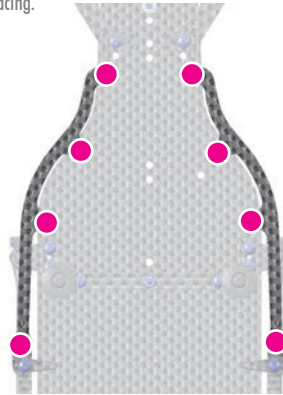
MEDIUM

Braces installed, attached at middle & rear only. This setting is a good compromise between mechanical grip and steering response. Ideal for most conditions.



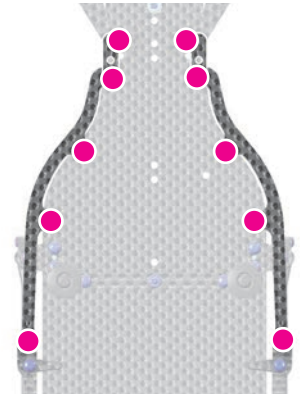
STIFF INITIAL SETTING

Side braces installed, attached using front, front-middle, middle, and rear screws. This setting provides additional stiffness and more stability. Recommended for high traction carpet (ex: US black carpet). Reduces chassis roll but also reduces overall grip. Recommended for foam tire racing.



EXTRA STIFF

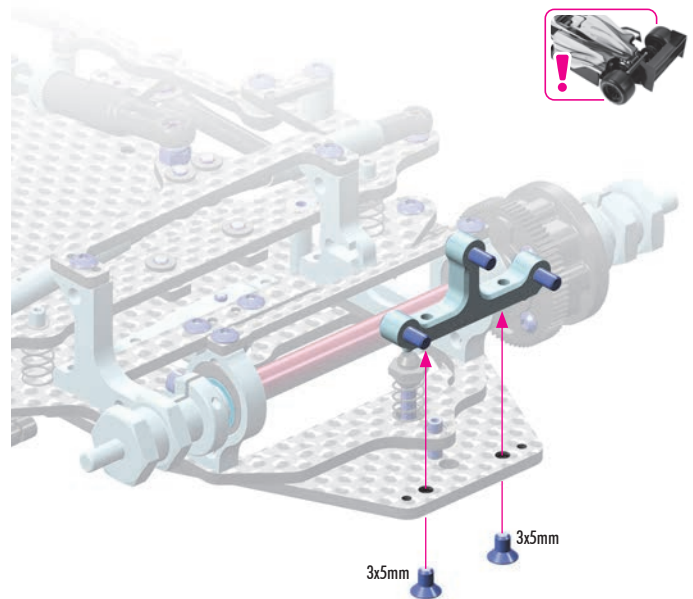
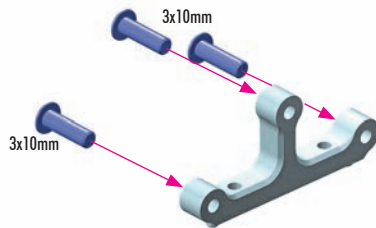
Side braces installed, attached using front, front-middle, middle, and rear screws. Front arm braces are installed between lower arms and side braces. This setting provides maximum chassis stiffness and stability. Recommended for foam tire racing.



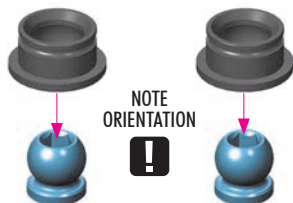
3x 902310
SFH M3x10



2x 903305
SFH M3x5



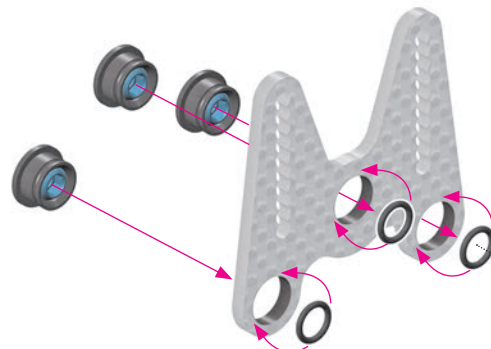
3x 970050
O 5x1



TIP



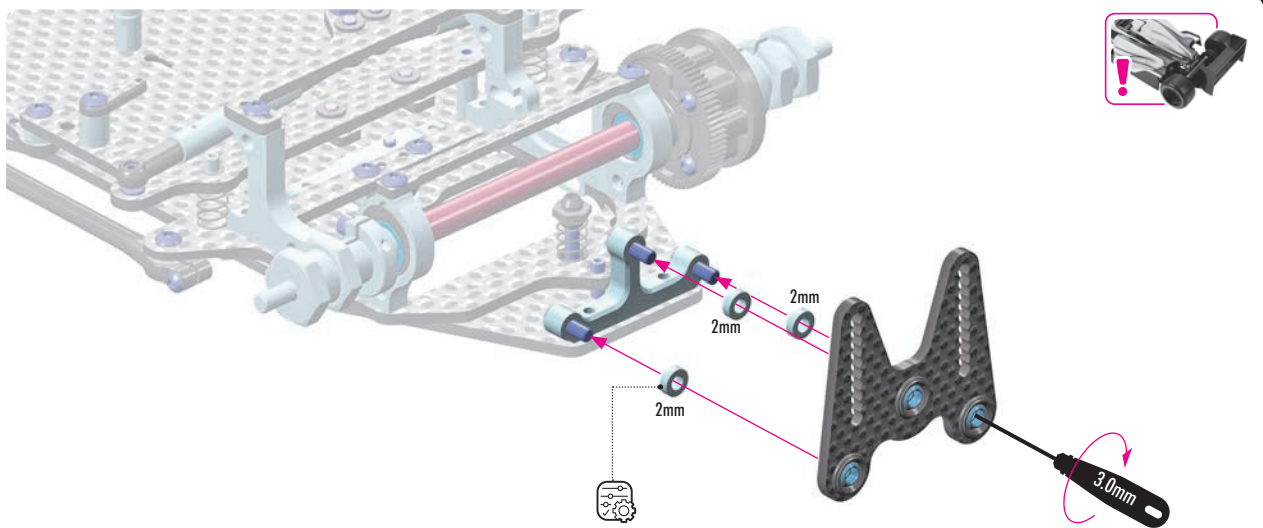
Install with HUDY Multi Tool.



CUTAWAY VIEW

5. FINAL ASSEMBLY

3x 303123-K
SHIM 3x6x2

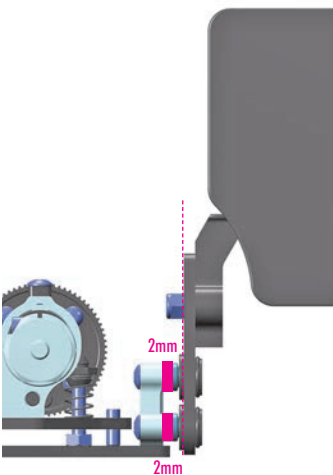


WING ANGLE ADJUSTMENT

STANDARD DOWNFORCE

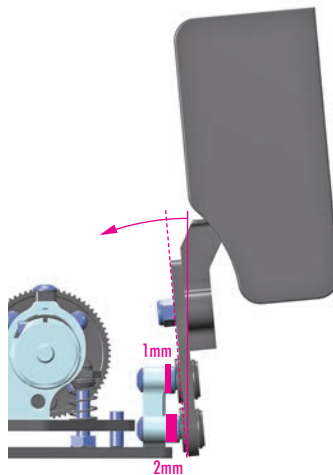
✓ INITIAL SETTING

Setting for best aerodynamic efficiency. This is the standard option for most tracks and most wings. It is a good compromise between downforce and drag as well as high speed stability and high speed rotation.



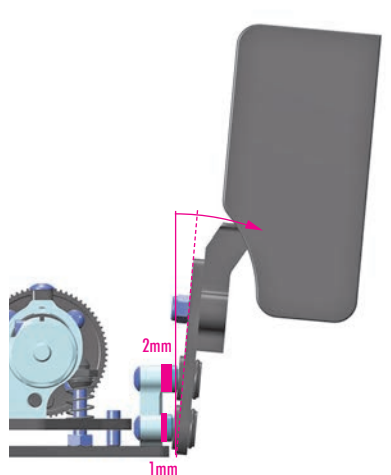
ANGLED FORWARD

This gives more rear downforce for many rear wings at the cost of increased drag. Use this for smaller tracks where drag is NOT a lot of concern, or when you struggle with rear stability in high speed sections of the track.



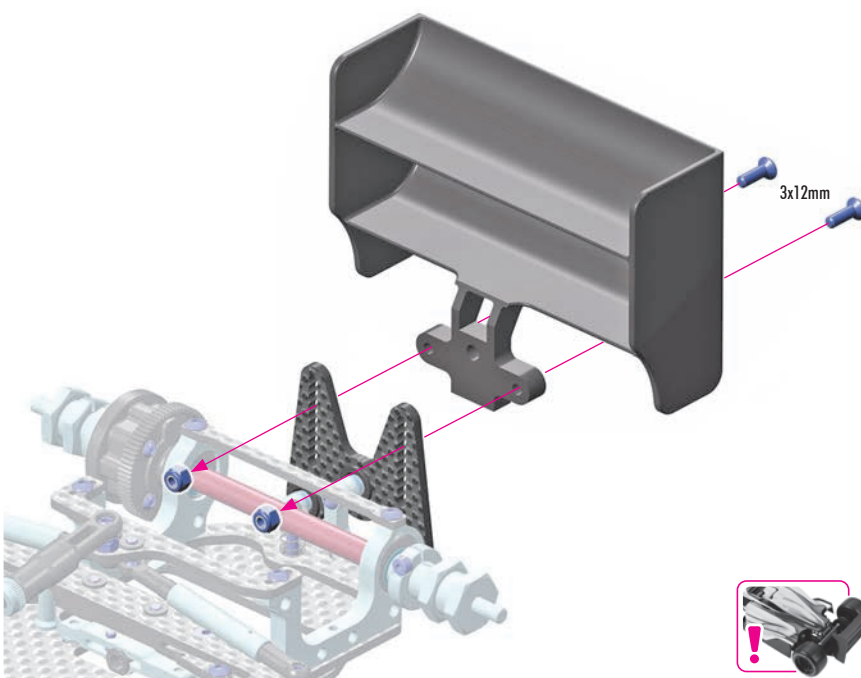
ANGLED BACKWARDS

This gives reduced drag at the cost of reduced downforce. Use this for large tracks, when you are NOT concerned of rear instability at high speed. Make sure NOT to use too large front wings in this combination.

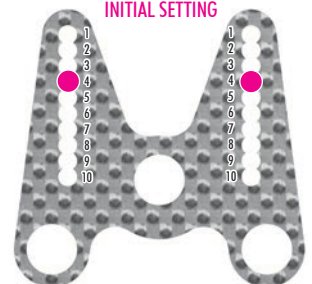


2x 903312
SFH M3x12

2x 960030
N M3



✓ INITIAL SETTING



These positions adjust the **HEIGHT** of the rear wing.

HIGHER wing: more rear traction, more stability

LOWER wing: higher top speed, improved steering response

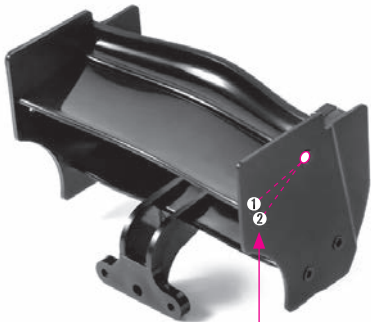
5. FINAL ASSEMBLY



8x 906206
SFP 2.2x6



#373513-K
X1 COMPOSITE ADJUSTABLE REAR WING - BLACK - ETS APPROVED



WING POSITION

- 1 LOW DOWNFORCE:**
Low downforce setting is recommended on tracks where top speed is more important over rear stability on-power/in high speed corners.
- 2 HIGH DOWNFORCE:**
High downforce setting recommended for most tracks.



#373514
X1 COMPOSITE REAR WING - LIGHTWEIGHT & WIDE - WHITE

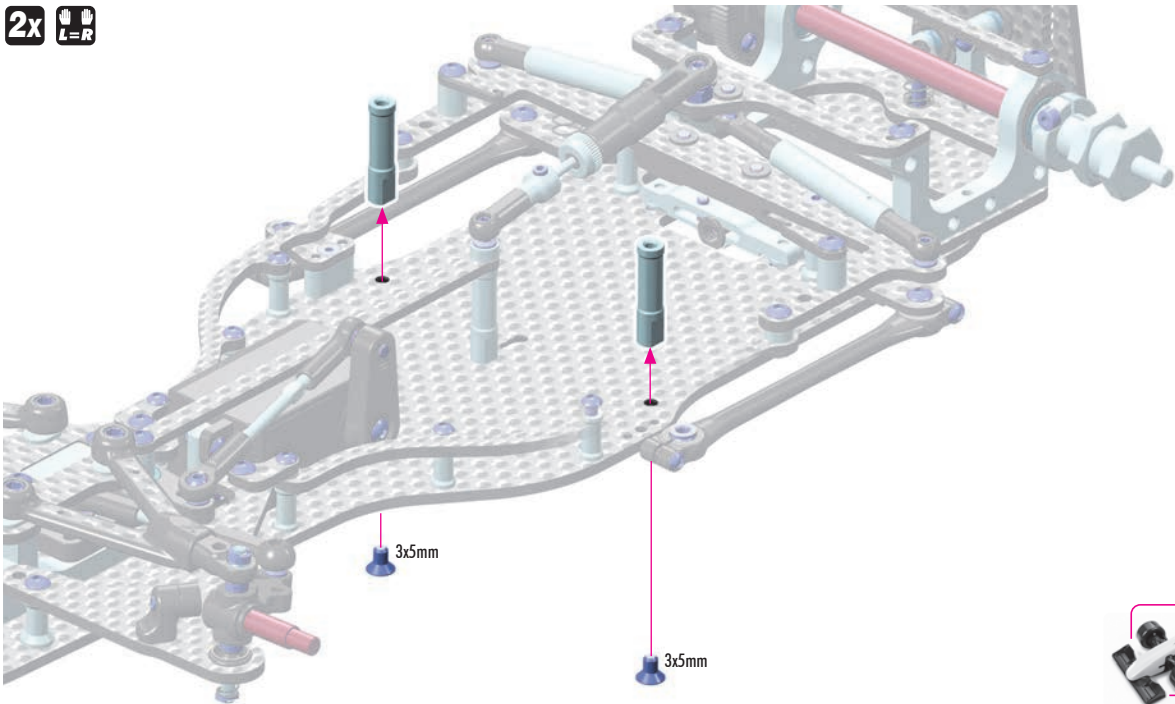




2x 903305
SFP M3x5

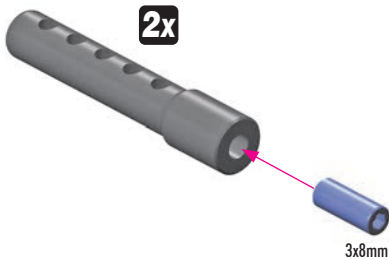
2x





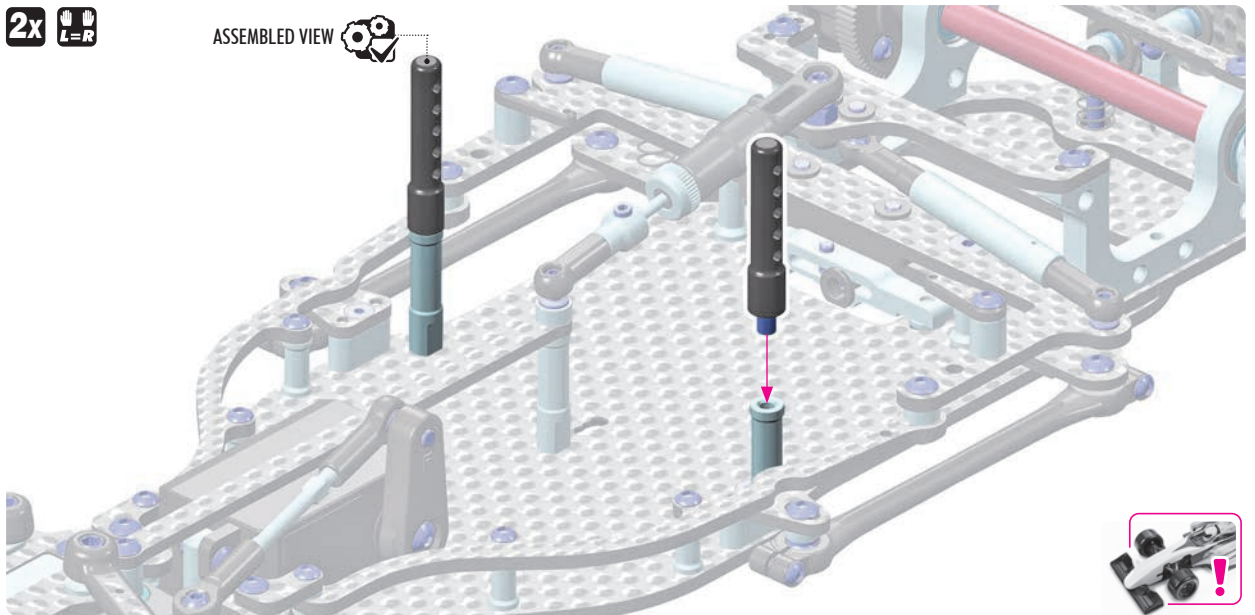


2x 901308
SB M3x8



2x 

ASSEMBLED VIEW 



2x 981210
P 2x10

2x 

REAR BODY POSTS MOUNTING ALTERNATIVES ALTERNATIVE 1

 INITIAL SETTING

In case you are using higher batteries, mount the body posts on the aluminum posts alternative.

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

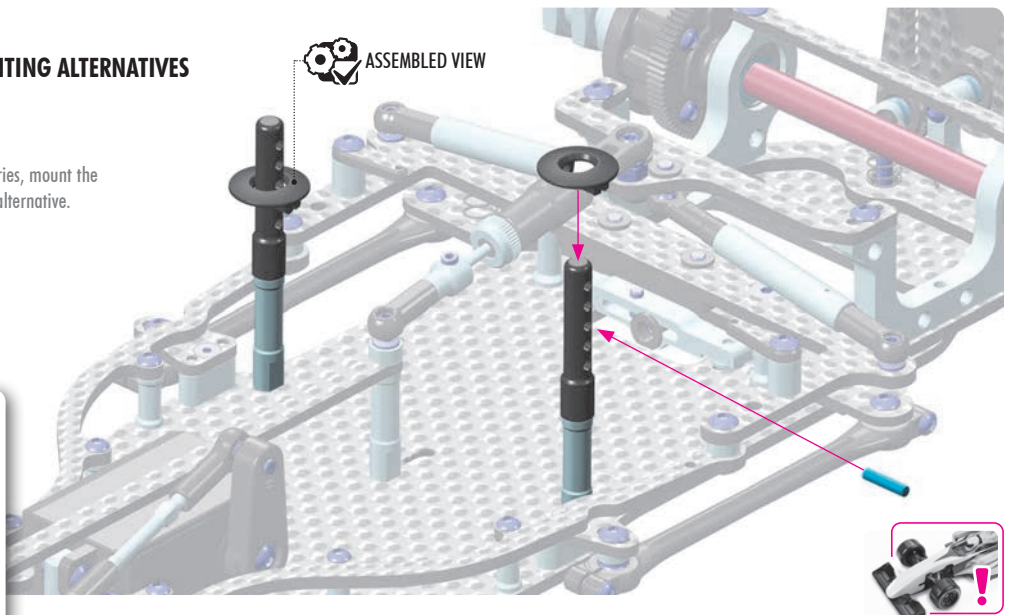


 #301351-K
ALU ADJUSTABLE BODY
POST STOP (2)



2x 902308
SH M3x8

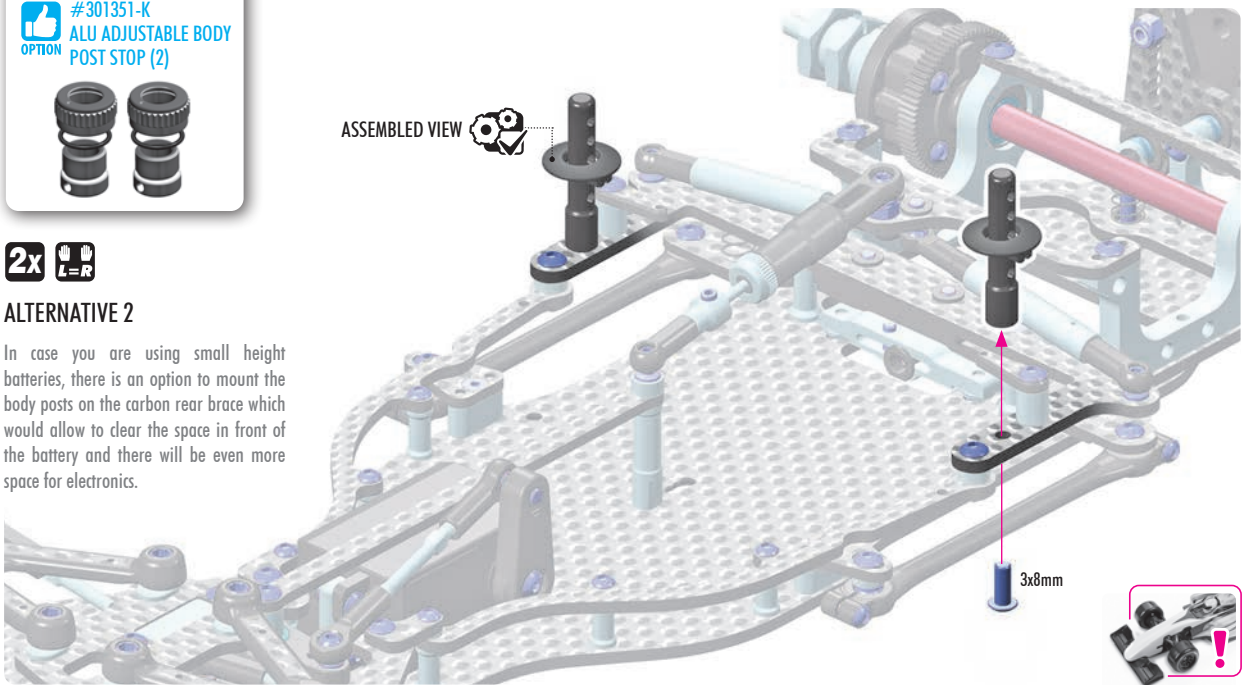
ASSEMBLED VIEW 



2x 

ALTERNATIVE 2

In case you are using small height batteries, there is an option to mount the body posts on the carbon rear brace which would allow to clear the space in front of the battery and there will be even more space for electronics.



5. FINAL ASSEMBLY



#901302 (SB M3x2.5)
(NOT INCLUDED)

Pinion
(NOT INCLUDED)

---Motor
(NOT INCLUDED)



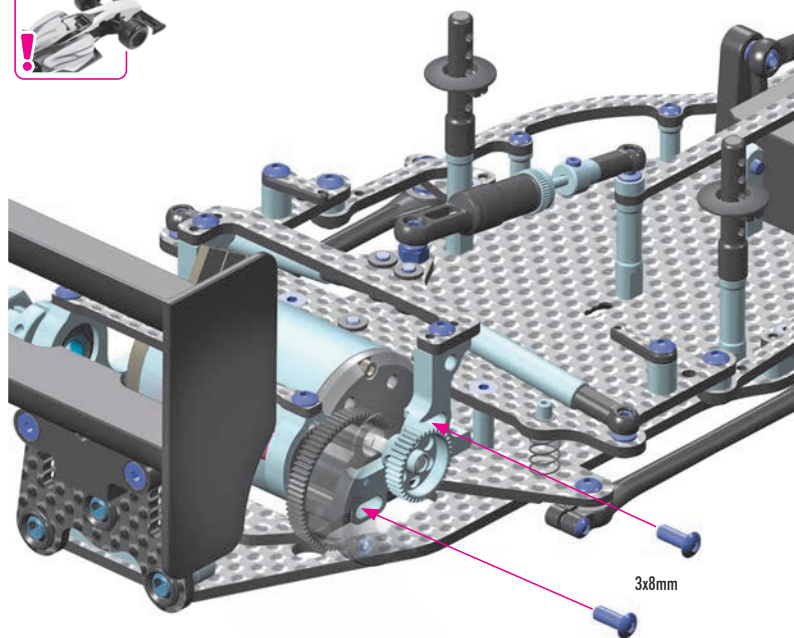
OPTION

ALU PINION GEARS HARDCOATED - 64P

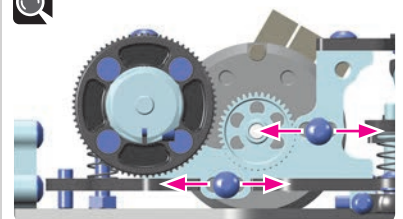
#305968	18T	OPTION	#294137	37T	OPTION
#305969	19T	OPTION	#294138	38T	OPTION
#305970	20T	OPTION	#294139	39T	OPTION
#305971	21T	OPTION	#294140	40T	OPTION
#305972	22T	OPTION	#294141	41T	OPTION
#305973	23T	OPTION	#294142	42T	OPTION
#305974	24T	OPTION	#294143	43T	OPTION
#305975	25T	OPTION	#294144	44T	OPTION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



2x 902308
SH M3x8



3x8mm



Adjust the gear mesh so there is appropriate space between the spur gear and pinion teeth. There should be a very small amount of freeplay.



1x 903308
SFH M3x8

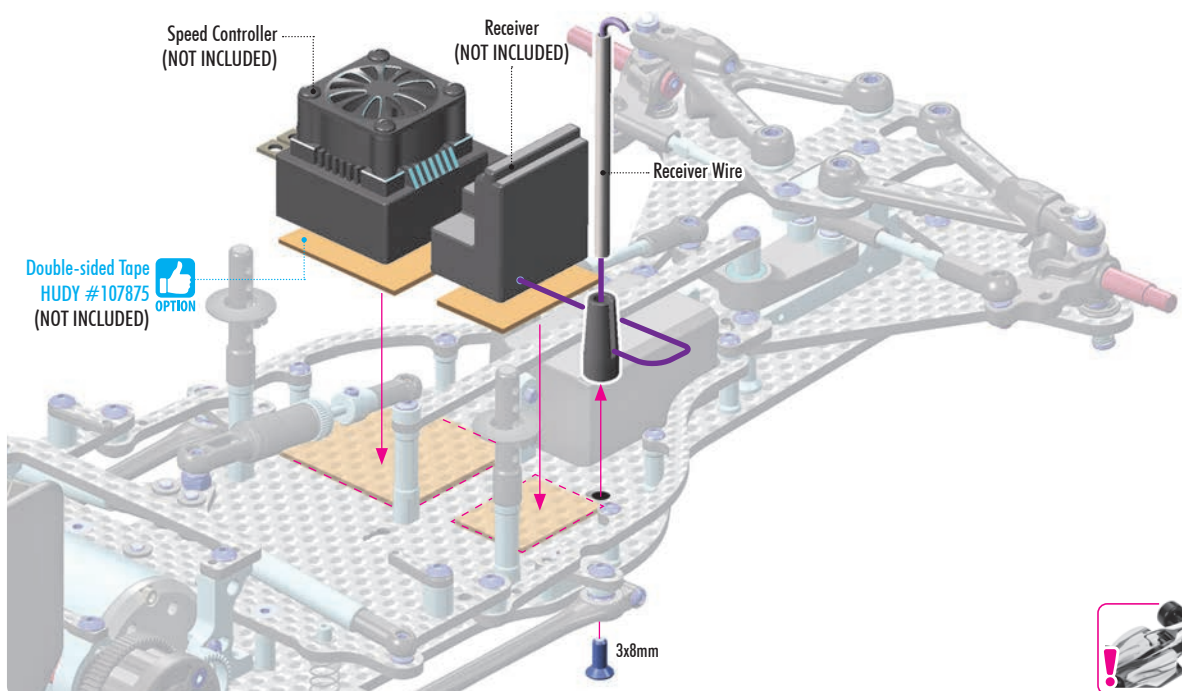
Speed Controller
(NOT INCLUDED)

Receiver
(NOT INCLUDED)

Receiver Wire

Double-sided Tape
 HUDY #107875
 (NOT INCLUDED)

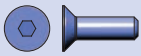
 OPTION



3x8mm



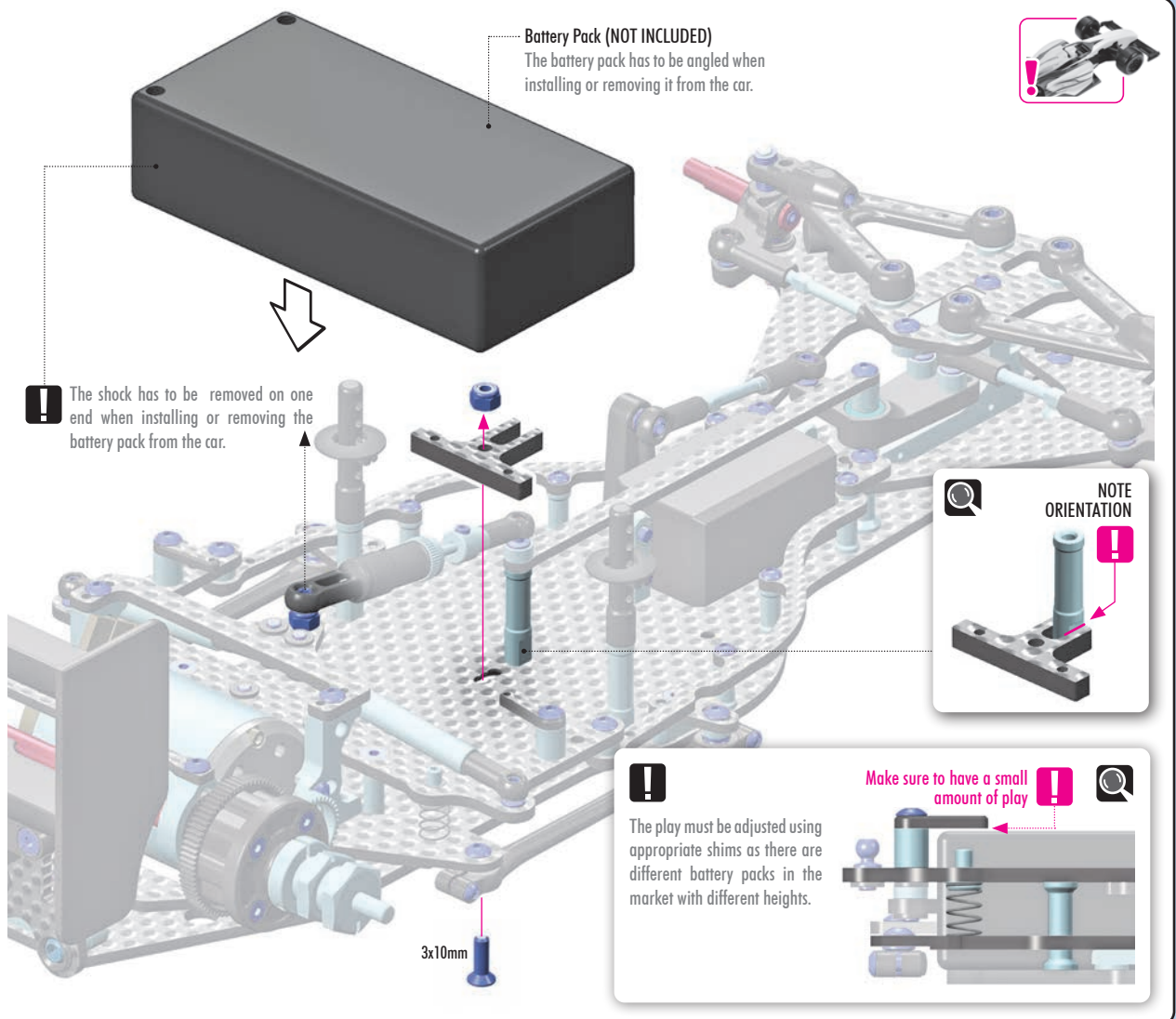
5. FINAL ASSEMBLY



1x 903310
SFH M3x10



1x 960030
N M3

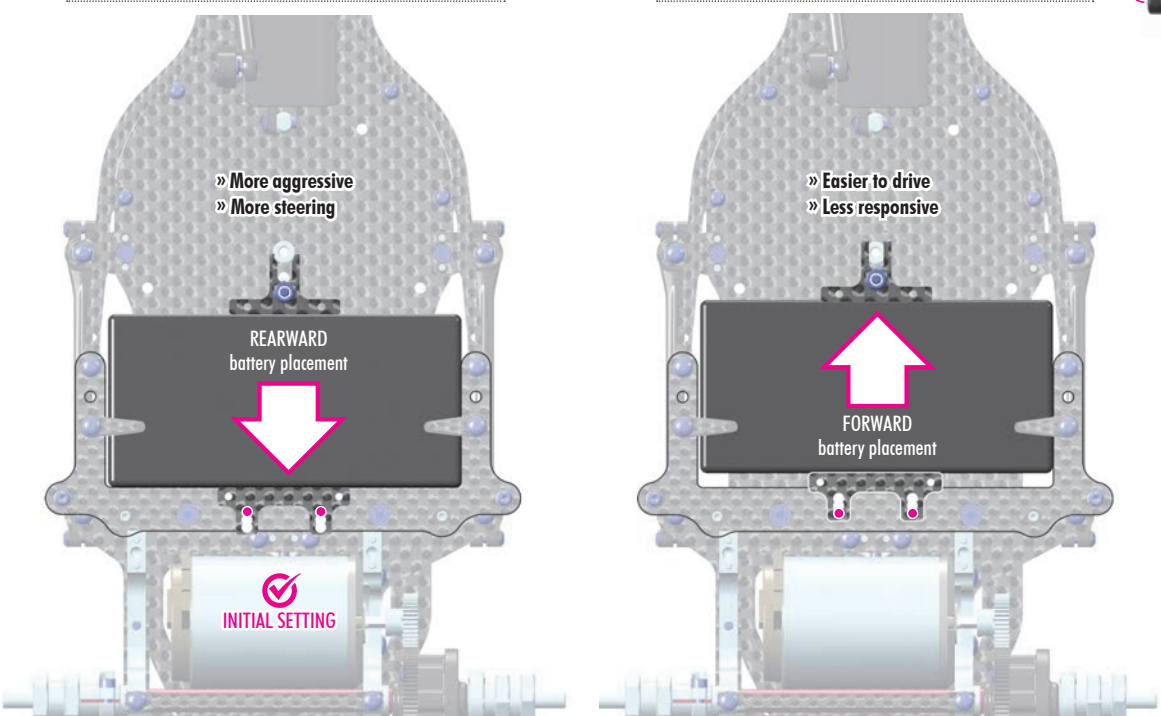


BATTERY MOUNTING POSITIONS

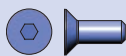
The X1 has 3 battery mounting positions.

The **MORE REARWARD** the battery is, the car will be more aggressive and have more steering.

The **MORE FORWARD** the battery is, the car will be easier to drive but it will be less responsive.



5. FINAL ASSEMBLY

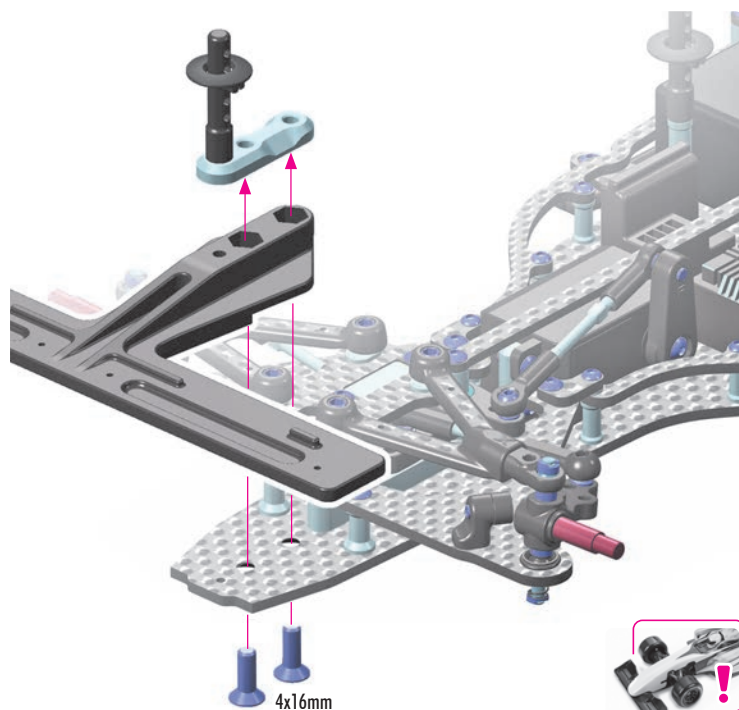
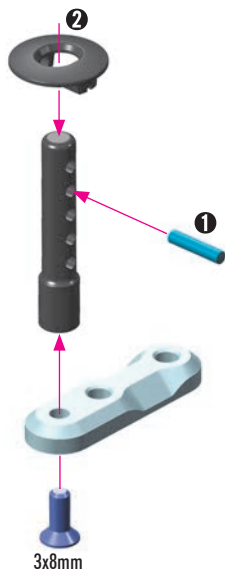


1x 903308
SFH M3x8

1x 981210
P 2x10



2x 903416
SFH M4x16



❶ Before cutting and making holes on the body, put the unpainted body on the chassis to confirm the mounting position and location for holes and cutouts.
Before cutting and making holes on the front wing, put the unpainted wing on the front bumper to confirm the mounting position and location for holes and cutouts.

❷ Before painting, wash the inside of the body with mild detergent, and then rinse and dry thoroughly.

❸ Mask the helmet shield if you wish.

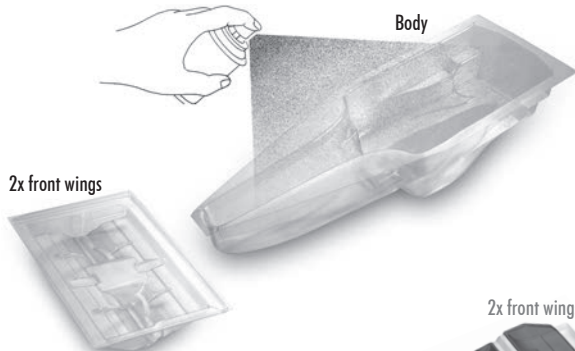
❹ Apply paint masks as appropriate.

❺ Paint the body using paints formulated for polycarbonate bodies.

❻ When the paint is dry, remove the masking.

❼ Carefully cut out the body using appropriate scissors or cutting tools.

❽ When you have finished cutting, peel off the external protective films.



OPTION BODY REAMER (HUDY #107602)



Adjust the cutting line depending on the front upper arm position.

Adjust the holes depending on the rear body posts position.

OPTION #106281
HUDY Body Fix 28g/1oz



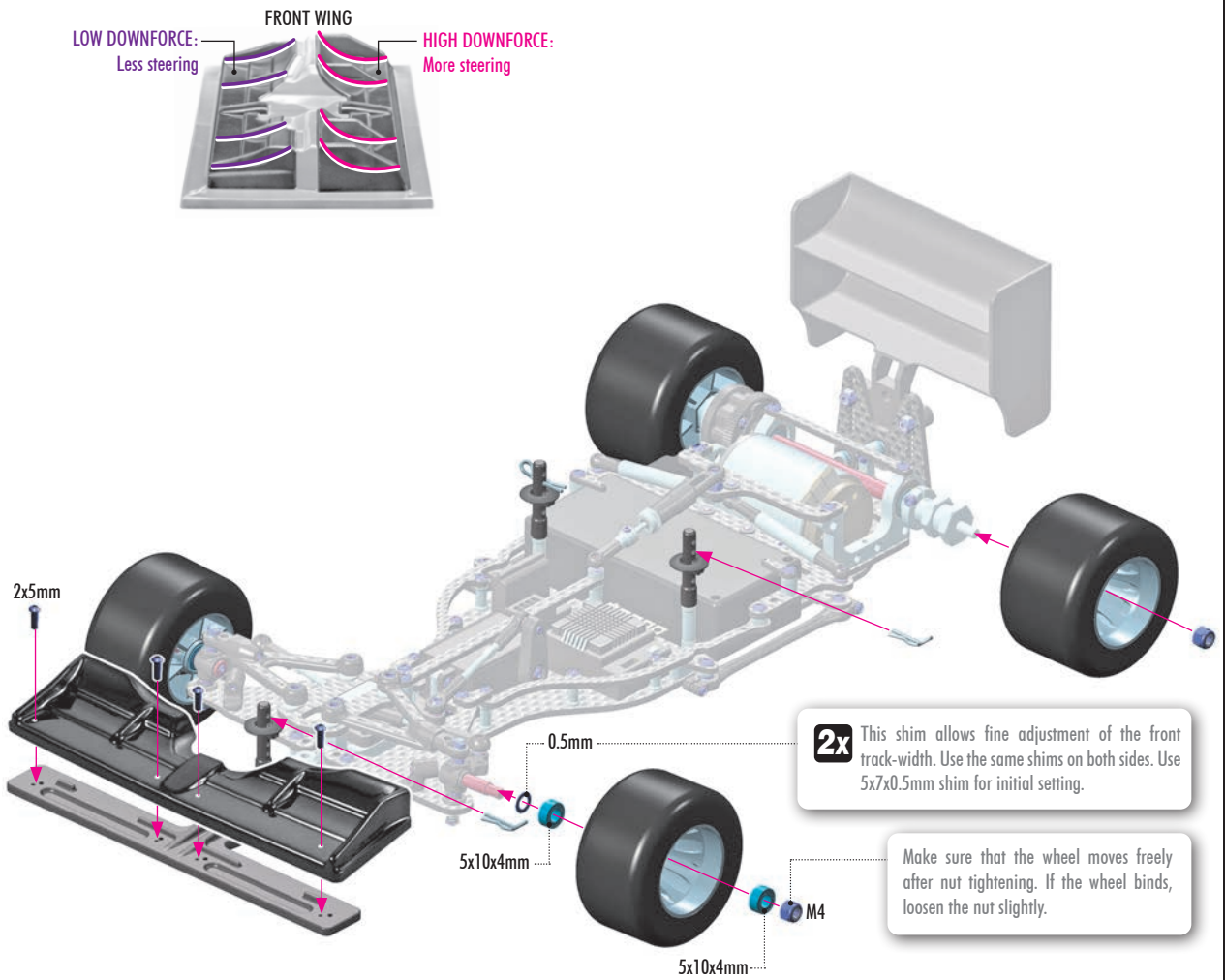
- Famous Body Fix glue with updated formula
- 50% less glue necessary to apply
- Repairs broken areas
- Fixes damaged/broken bodies
- Strengthens and reinforces weak areas on body
- Fulfills latest EU eco & health safety regulations
- Requires 24 hours to dry

IMPORTANT

Most popular formula bodies will clear the chassis side braces. If a body does not have adequate clearance in the front nose area, installation may require body modification or removal of the side braces.

OPTION	BODY	
	#379701	XRAY
OPTION	#379702	WORLD CHAMPION EDITION

5. FINAL ASSEMBLY



OPTION	TRACK-WIDTH ADJUSTMENT SHIMS			
	#338584	5x7x0.2mm	OPTION	0
	#338585	5x7x0.3mm	OPTION	
	#338586	5x7x0.5mm	INCLUDED	



www.teamxray.com

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