1/10 LUXURY ELECTRIC FORMULA

XRAY X1

INSTRUCTION MANUAL

FOR X1'24 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.

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.

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

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Fax: 421-32-7401109
E-mail: info@teamxray.com

XRAY USA
RC America, 2030 Century Center Blvd #15
Irving, TX 75062
USA
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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 guaranty 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 excess 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.

QUALITY CERTIFICATE

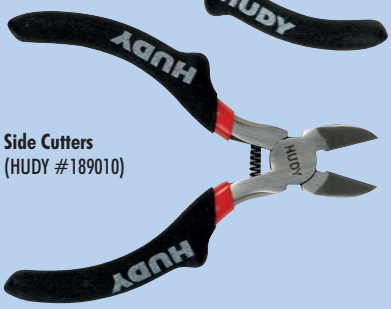
XRAY MODEL RACING CARS uses only the highest quality materials, the best compounds for molded parts and the most sophisticated manufacturing processes of TQM (Total Quality Management). We guarantee that all parts of a newly-purchased kit are manufactured with the highest regard to quality. However,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

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)

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

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

Allen 2.5mm (#112545 - HUDY EXCLUSIVE Limited Edition)

Allen 3.0mm (#113045 - 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)

HUDY Blade Hobby Knife with Alu Handle (HUDY #188980)

INCLUDED

* Kit includes smaller but sufficient amount of oil and grease to build the car.

HUDY
Premium Silicone Oils

600cSt (#106360) | 3.000cSt (#106430) | 30.000cSt (#106530)

ALSO REQUIRED

Transmitter	Receiver	Speed Controller	Steering Servo
Electric Motor	Pinion Gear with Setscrew (#305968~#294160)	LiPo Battery	Battery Charger
Bearing Oil (HUDY #106230)	Wheels & Tires & Inserts (HUDY #803072 & #803082)	Lexan™ Paint	Double-sided Tape (HUDY #107875)

TIP

TIP

Jan Ratheisky
(Factory Driver)

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

OPTIONAL

OPTION

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

371201 **STYLE B** - indicates parts that are included in the box.

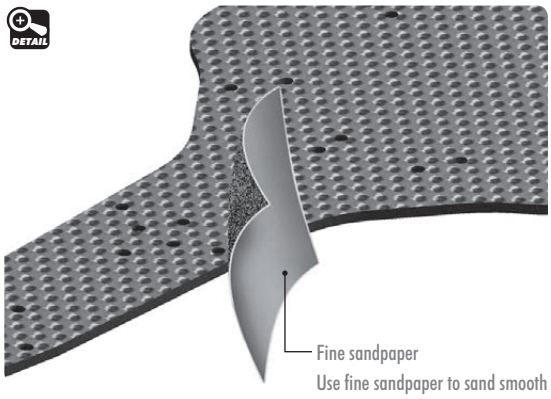
374901 **STYLE C** - indicates parts that are already assembled from previous steps.

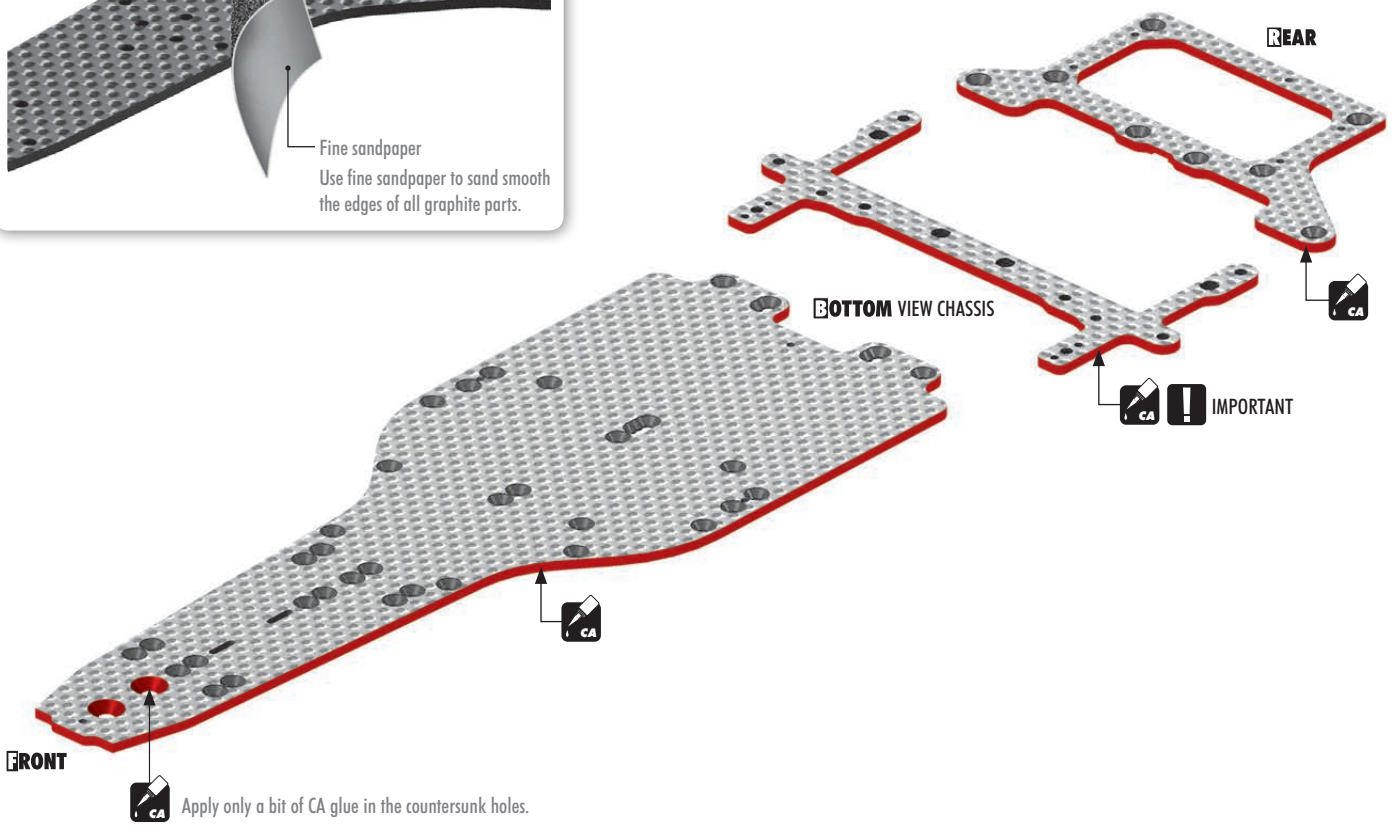
379701 **STYLE D** - indicates parts that are optional.

GRAPHITE PARTS PROTECTION

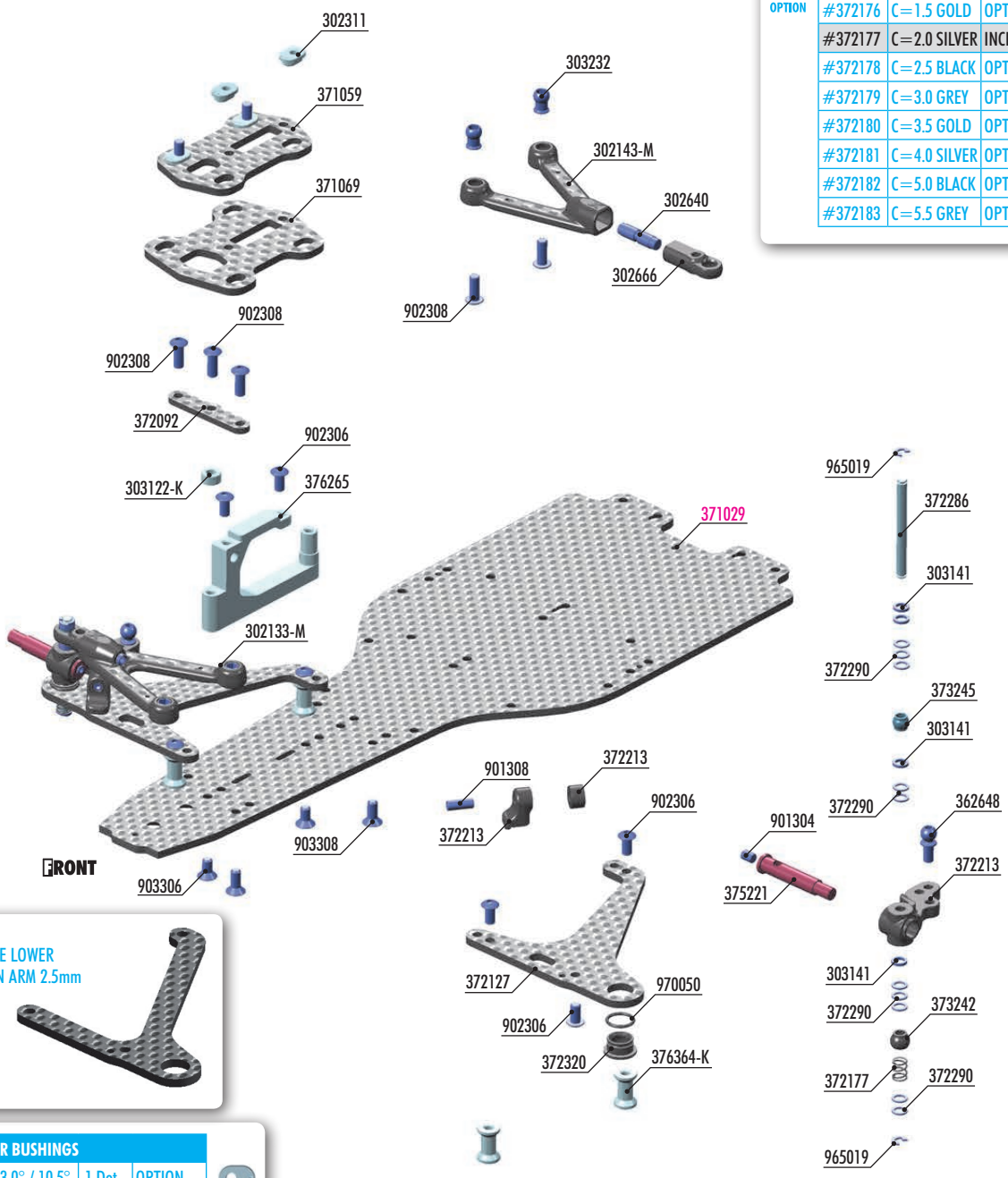
To protect and seal edges of graphite parts, sand edges smooth and then apply CA glue.

Make it: this for chassis edges and countersunk holes.





1. FRONT SUSPENSION



OPTION	FRONT COIL SPRINGS		
	#372176	C=1.5 GOLD	OPTION
	#372177	C=2.0 SILVER	INCLUDED
	#372178	C=2.5 BLACK	OPTION
	#372179	C=3.0 GREY	OPTION
	#372180	C=3.5 GOLD	OPTION
	#372181	C=4.0 SILVER	OPTION
	#372182	C=5.0 BLACK	OPTION
	#372183	C=5.5 GREY	OPTION

OPTION #372115
X1 GRAPHITE LOWER
SUSPENSION ARM 2.5mm

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

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	GRAPHITE ARM MOUNT PLATE - NARROW TRACK-WIDTH - 2.5mm
371069	GRAPHITE ARM MOUNT PLATE - WIDE TRACK-WIDTH - 2.5mm
372092	GRAPHITE FRONT ARM BRACE 2.2mm
372127	GRAPHITE LOWER SUSPENSION ARM 2.5mm
372177	FRONT COIL SPRING 3.6x6x0.5mm; C=3.5 - GOLD (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)
371029	X1'24 GRAPHITE CHASSIS 2.5mm

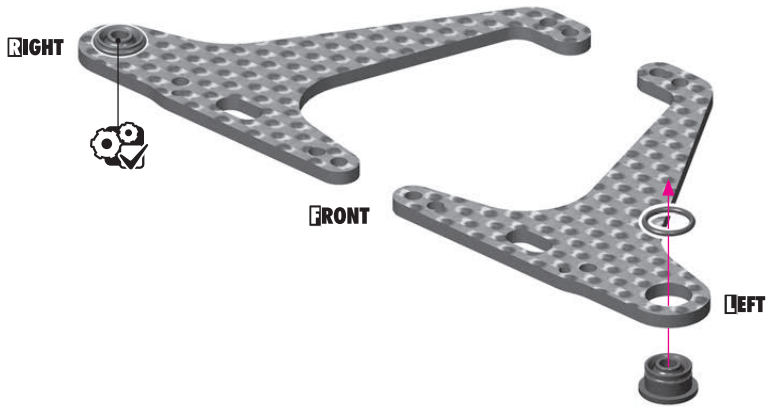
Numbers in parentheses ( ) refer to quantities when purchased separately.

2x 970050
O 5x1

2x L=R LOWER ARMS

NOTE ORIENTATION

2x Short composite ball



OPTION #372115
X1 GRAPHITE LOWER SUSPENSION ARM 2.5mm

To improve steering in low-traction conditions with standard F1 front tires.

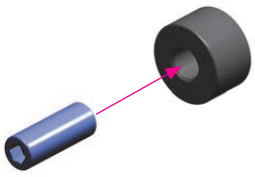
DETAIL

Remove excess material

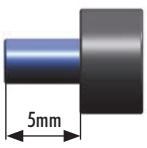
DETAIL CUTAWAY VIEW

2x 901308
SB M3x8

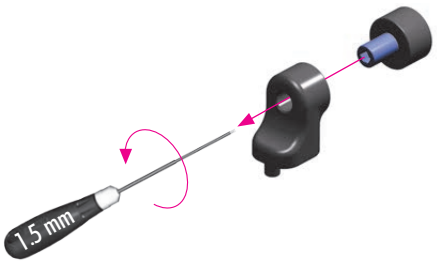
2x



DETAIL

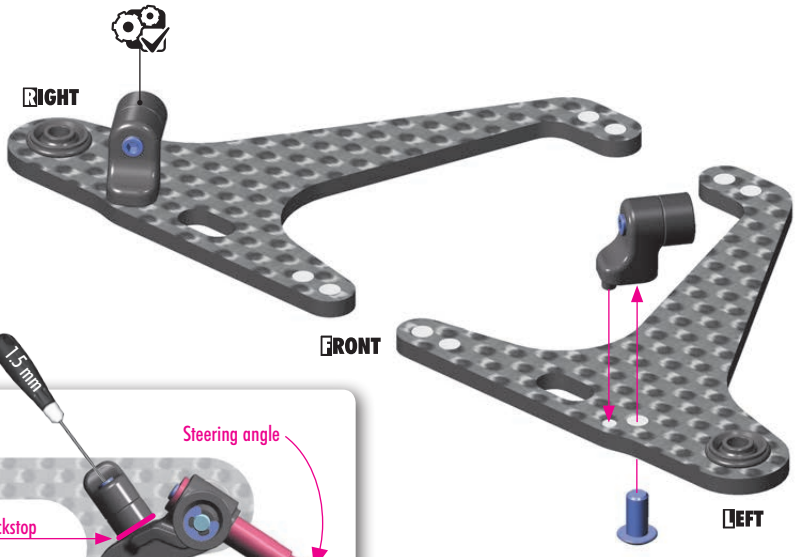


2x



2x 902306
SH M3x6

2x L=R LOWER ARMS



DETAIL

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.

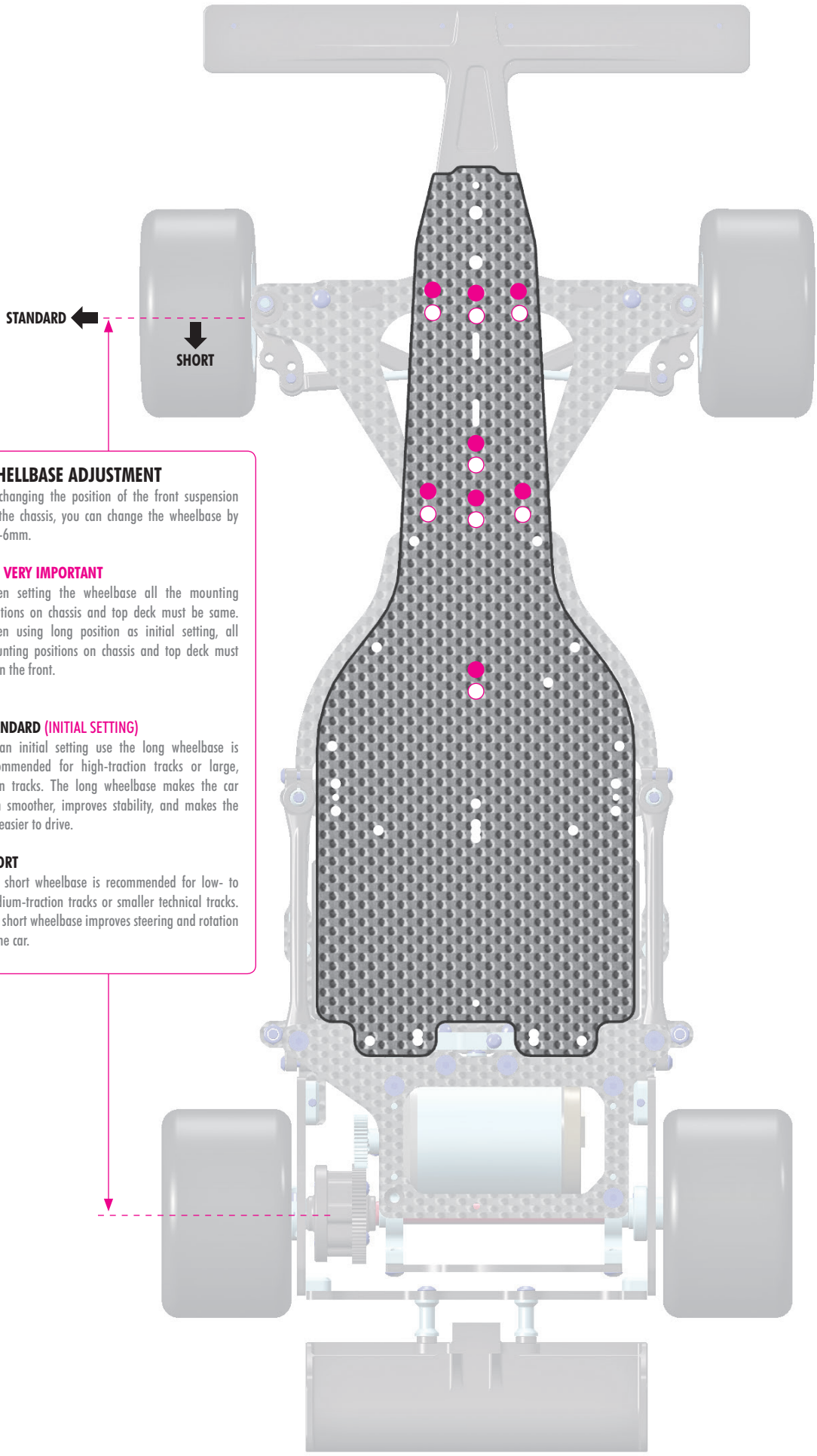
TIP

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



WHELLBASE ADJUSTMENT

By changing the position of the front suspension on the chassis, you can change the wheelbase by +/-6mm.

VERY IMPORTANT

When setting the wheelbase all the mounting positions on chassis and top deck must be same. When using long position as initial setting, all mounting positions on chassis and top deck must be in the front.

STANDARD (INITIAL SETTING)

As an initial setting use the long wheelbase is recommended for high-traction tracks or large, open tracks. The long wheelbase makes the car turn smoother, improves stability, and makes the car easier to drive.

SHORT

The short wheelbase is recommended for low- to medium-traction tracks or smaller technical tracks. The short wheelbase improves steering and rotation of the car.

4x 902306 SH M3x6

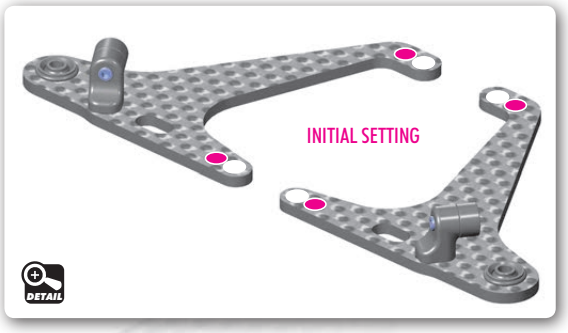
4x 903308 SFH M3x8

2x ALTERNATIVE 1

STANDARD TRACK-WIDTH
(INITIAL SETTING)

Standard track-width setting is used for standard F1 front tires such 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.



These shims adjust the roll-center of the front bottom arm as well as the front ride height. The thickness of the 3x6 shim depends on the tire diameter.
IMPORTANT!
Use the same shim thickness (3x6x1 or 3x6x2mm shims) under all 4 posts.

4x 902306 SH M3x6

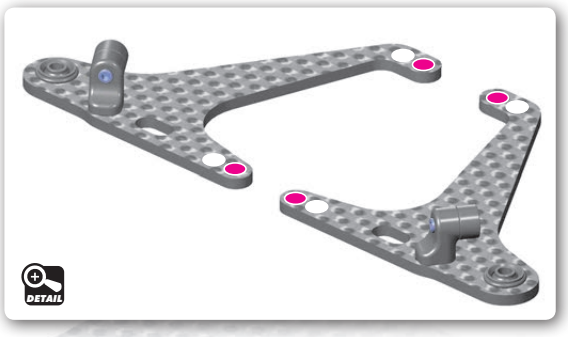
4x 903308 SFH M3x8

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.



These shims adjust the roll-center of the front bottom arm as well as the front ride height. The thickness of the 3x6 shim depends on the tire diameter.
IMPORTANT!
Use the same shim thickness (3x6x1 or 3x6x2mm shims) under all 4 posts.

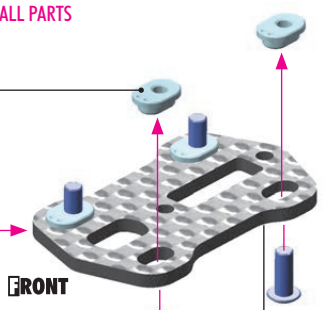
1. FRONT SUSPENSION

4x 902308 SH M3x8

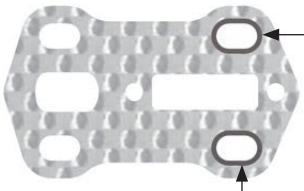
NOTE ORIENTATION FOR ALL PARTS

IMPORTANT
All 4 bushings MUST have same orienation.

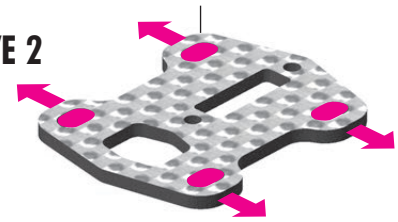
ALTERNATIVE 1
STANDARD TRACK-WIDTH
(INITIAL SETTING)



Never use alu or titanium screws for the eccentric bushings.

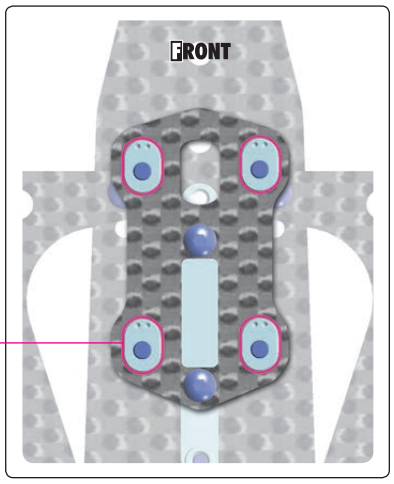


ALTERNATIVE 2
WIDE TRACK-WIDTH



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.

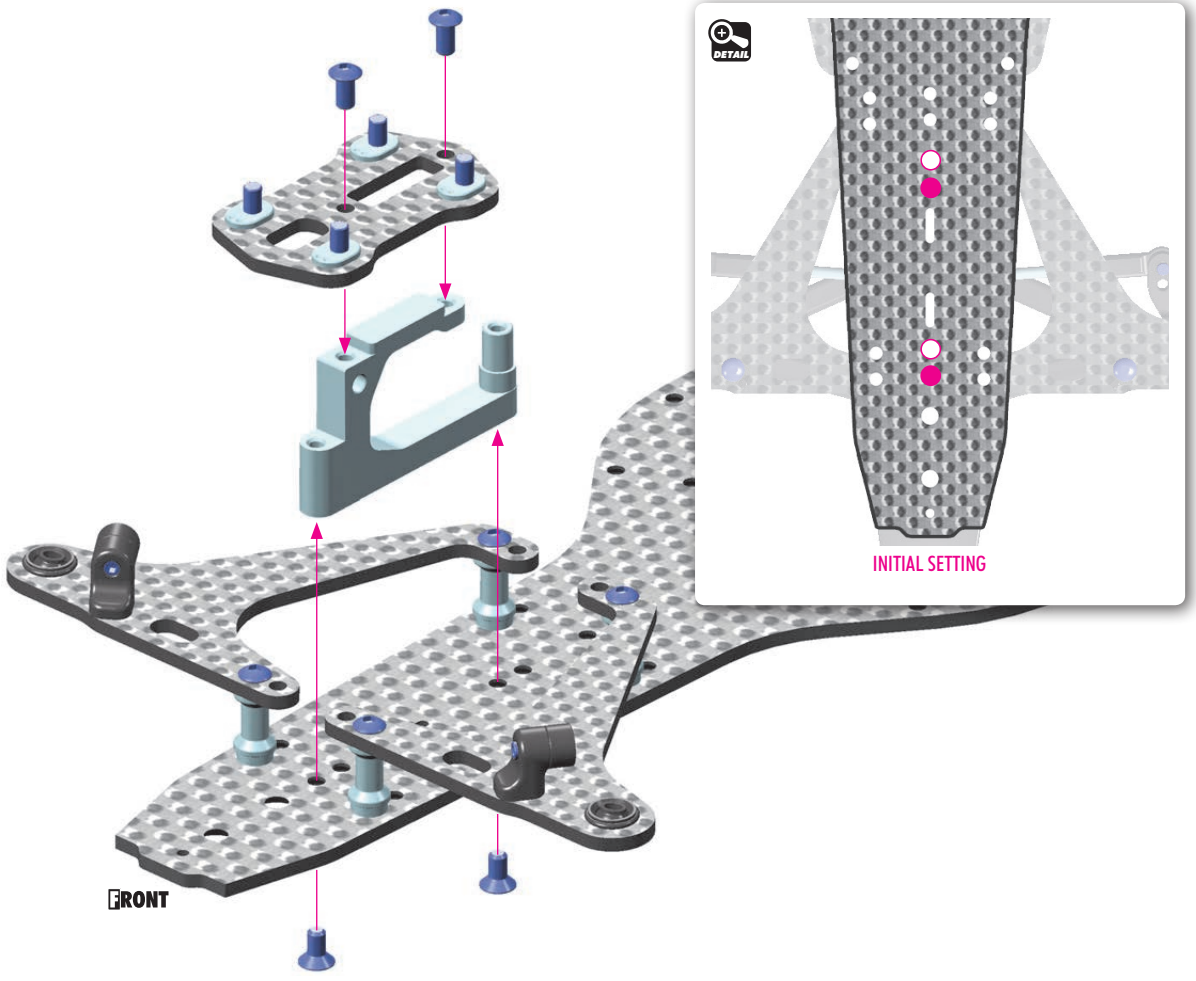
LESS caster angle = more reactive steering. Use on technical tracks where a lot of steering response is needed.

OPTION

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

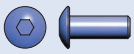
2x 902306 SH M3x6

2x 903306 SFH M3x6



DETAIL

INITIAL SETTING



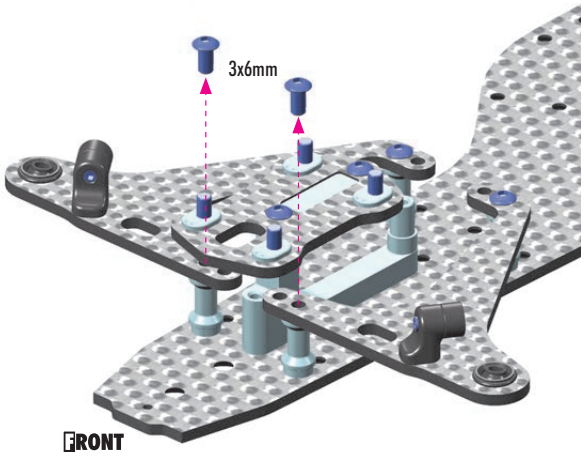
3x 902308
SH M3x8

1x 303122-K
SHIM 3x6x1

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

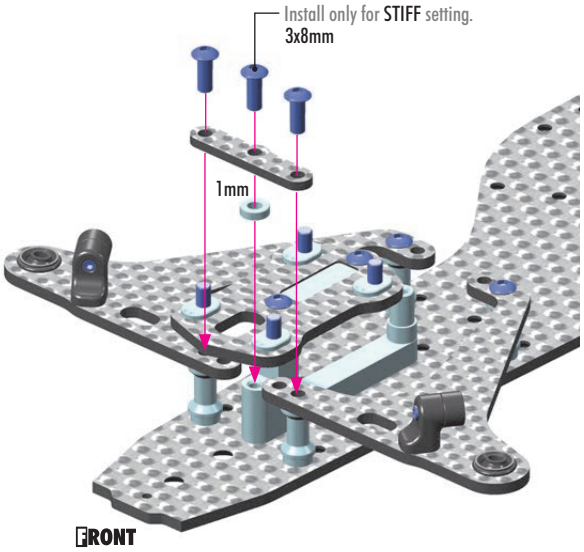
STEP 1:

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



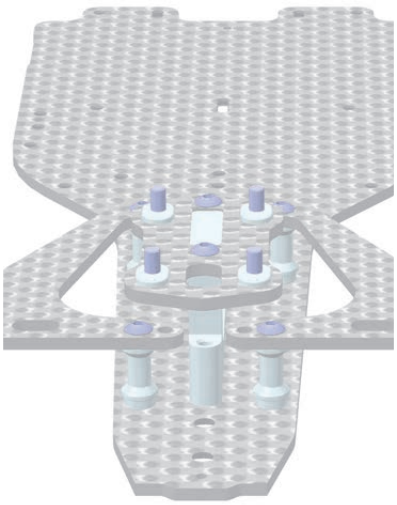
STEP 2:

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



SOFT - WITHOUT THE BRACE (INITIAL SETTING)

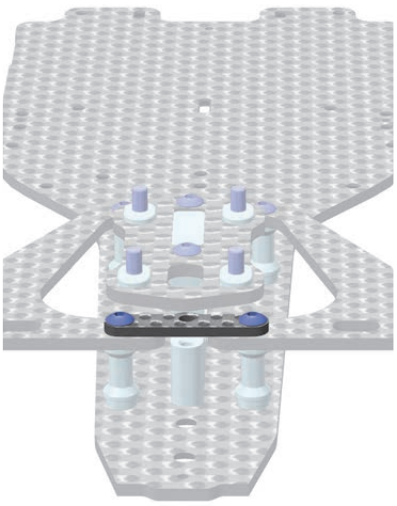
The car will have less initial steering. Recommended for high- and very-high-traction carpet tracks where the car needs to be easy to drive and less responsive.



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

MEDIUM - WITH BRACE

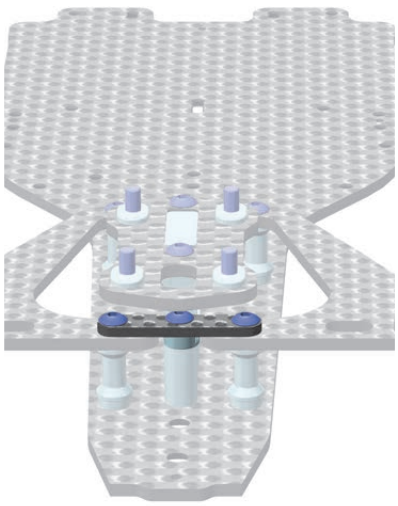
Improves in-corner steering but still keeps the car easy to drive. Recommended for medium-high traction carpet tracks and high-traction asphalt tracks.



- BRACE USED
- SHIM (NOT USED)

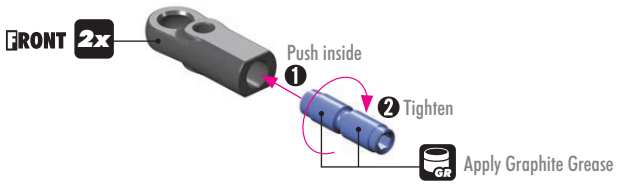
STIFF - WITH BRACE AND CONNECTED TO ALU FRONT STAND

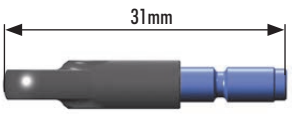
Provides maximum steering response. Recommended for low-medium traction carpet tracks and for all different traction conditions on asphalt tracks.



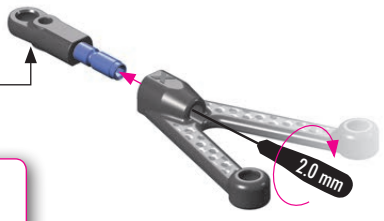
- BRACE USED
- SHIM USED

1. FRONT SUSPENSION



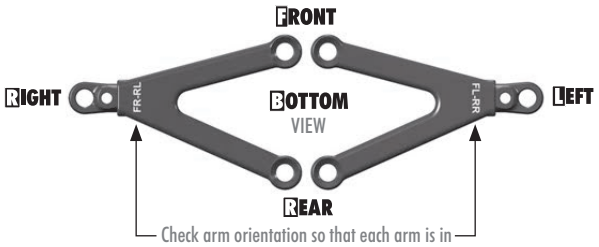


2x



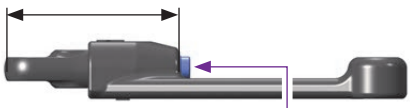
BOTTOM
NOTE ORIENTATION

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



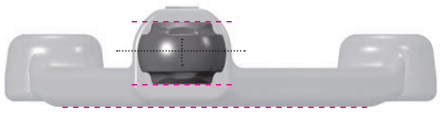
Check arm orientation so that each arm is in the correct location with the markings facing down when installed.

27mm for STANDARD track-width (INITIAL SETTING)
30mm for WIDE track-width



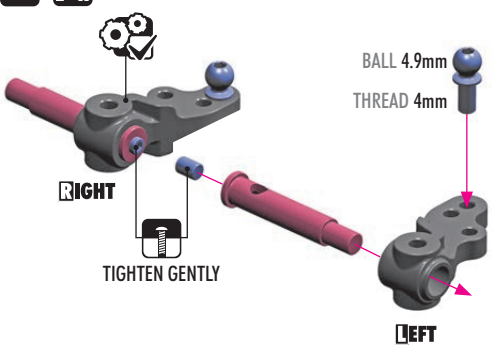
TIP Install the pivot balls with Professional Multi Tool (HUDY #183011).

When ADJUSTING CAMBER, keep the ball joint inline with the upper arm to insure free movement of the steering block.

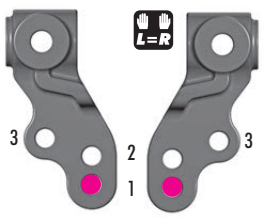


2x 901304 SB M3x4

2x L=R



DETAIL There are THREE Ackermann positions on the steering block:

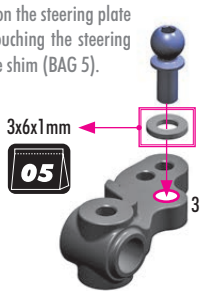


INITIAL SETTING

1 - easiest to drive
2 - improved steering response
3 - improved overall steering

POSITION 3.

If using less bumpsteer shims on the steering plate and the steering linkage is touching the steering block, use 3x6x1mm composite shim (BAG 5).



8x 303141 SHIM 3x5x1

20x 372290 SHIM 3.2x4.8x0.5

4x 965019 C 1.9

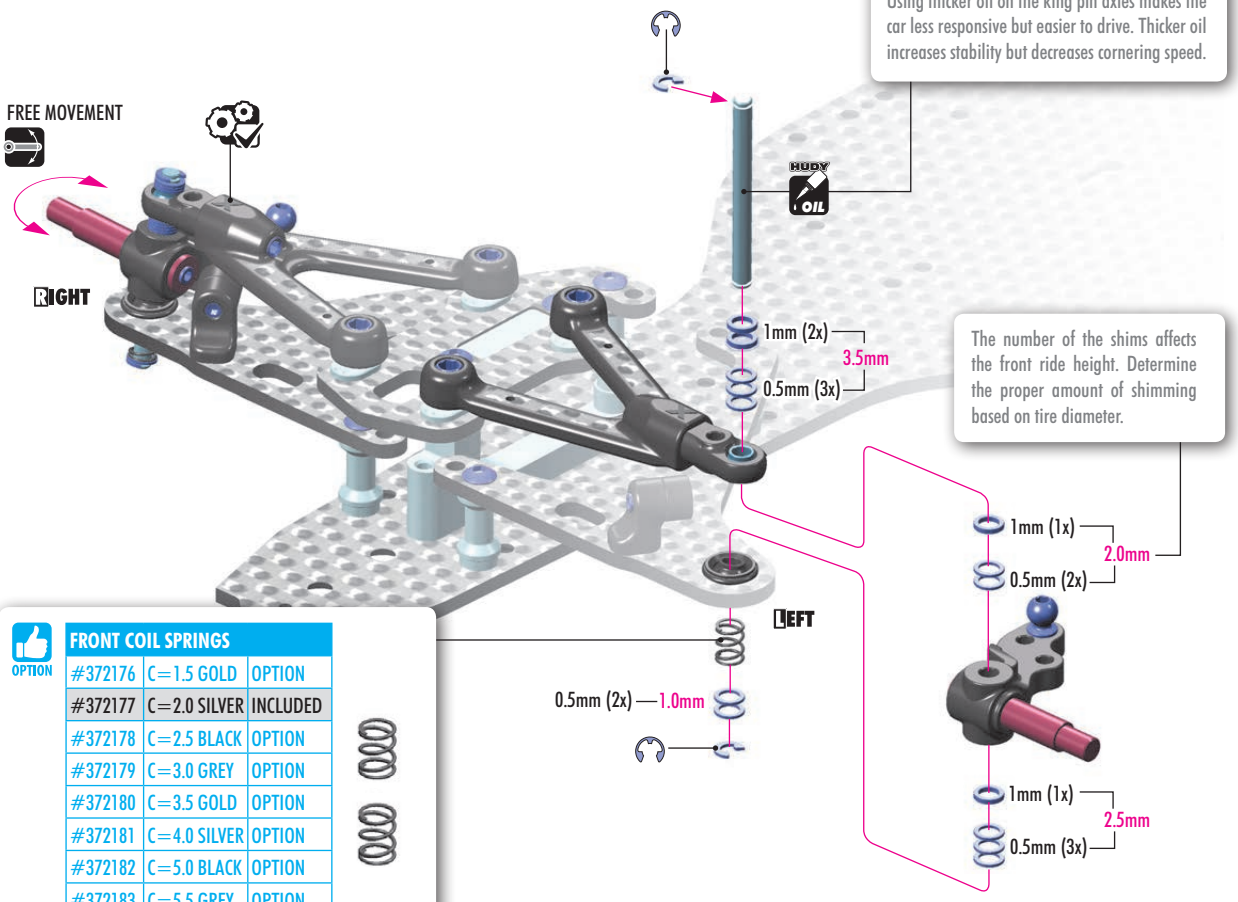
2x L=R

HUDY OIL 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 axles makes the car less responsive but easier to drive. Thicker oil increases stability but decreases cornering speed.



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

OPTION

FRONT COIL SPRINGS		
#372176	C=1.5 GOLD	OPTION
#372177	C=2.0 SILVER	INCLUDED
#372178	C=2.5 BLACK	OPTION
#372179	C=3.0 GREY	OPTION
#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.

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.

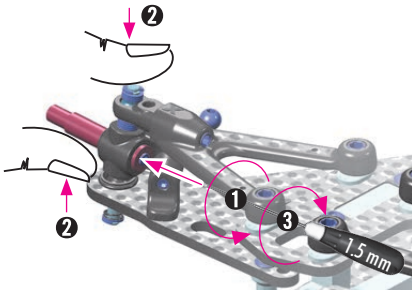
DROOP SETTING
INDOOR:
I recommend using a small amount of droop for carpet tracks, somewhere between 0.5-1mm to get the most on-power steering in combination with solid reactive steering.

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.

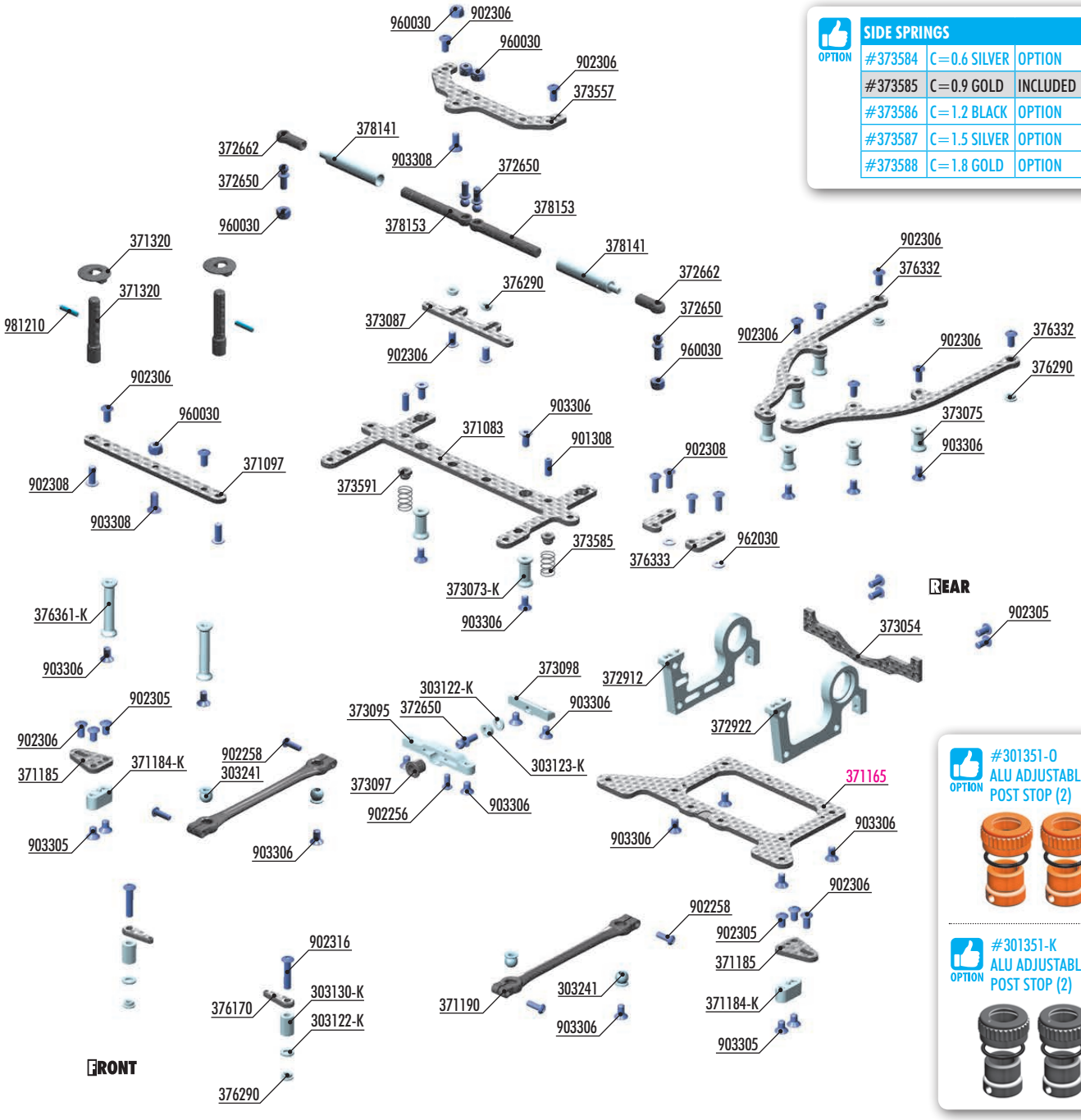
2x L=R

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.



2. REAR SUSPENSION



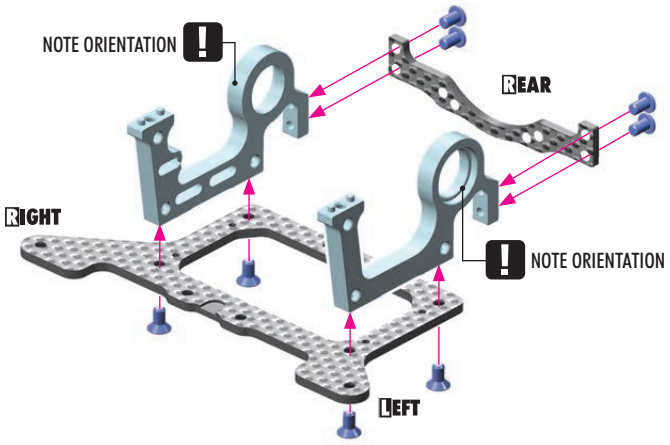
BAG 02

303122-K	ALU SHIM 3x6x1.0mm - BLACK (10)
303123-K	ALU SHIM 3x6x2.0mm - BLACK (10)
303130-K	ALU SHIM 3x6x9.0mm - BLACK (10)
303241	PIVOT BALL UNIVERSAL 5.8mm WITH HEX (4)
371083	GRAPHITE REAR BRACE 2.5mm
371097	GRAPHITE PLATE FOR MOUNTS 2.2mm
371184-K	ALU POD LINK GRAPHITE PLATE HOLDER - BLACK
371185	GRAPHITE POD LINK PLATE 2.2mm (2)
371190	COMPOSITE POD LINK (2)
371320	COMPOSITE BODY POST (2)
372650	BALL END 4.2mm WITH 6mm THREAD (2)
372662	COMPOSITE BALL-JOINT 4.2mm (4)
372912	ALU REAR BULKHEAD - MOTOR (RIGHT)
372922	ALU REAR BULKHEAD - LEFT
373054	GRAPHITE REAR BULKHEAD BRACE 2.5mm
373073-K	ALU REAR BRACE MOUNT 13mm - BLACK (2)
373075	ALU REAR BRACE MOUNT 10.5mm - BLACK (2)
373087	GRAPHITE BATTERY BACKSTOP 2.2mm - V2
373095	ALU CHASSIS PIVOT HOLDER - SWISS 7075 T6
373097	COMPOSITE PIVOT BRACE BUSHING
373098	ALU POD PLATE PIVOT HOLDER - SWISS 7075 T6
373557	GRAPHITE REAR POD UPPER PLATE 2.5mm
373585	SIDE SPRING C=0.9 - GOLD (2)
373591	COMPOSITE SIDE SPRING HOLDER (2)
376170	GRAPHITE BATTERY CLAMP 2.2mm (2)
376290	LOW PROFILE ALU SELF-LOCKING NUT (2)
376332	SIDE BRACE - GRAPHITE 2.5mm (2)
376333	ARM SIDE BRACE - GRAPHITE 2.5mm (2)
376361-K	ALU MOUNT 26.5mm - BLACK (2)
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)
902305	HEX SCREW SH M3x5 (10)
902306	HEX SCREW SH M3x6 (10)
902308	HEX SCREW SH M3x8 (10)
902316	HEX SCREW SH M3x16 (10)
903305	HEX SCREW SFH M3x5 (10)
903306	HEX SCREW SFH M3x6 (10)
903308	HEX SCREW SFH M3x8 (10)
960030	NUT M3 (10)
962030	WASHER S 3x6x0.3 (10)
981210	PIN 2x10 (10)
371165	GRAPHITE REAR POD LOWER PLATE 2.5mm

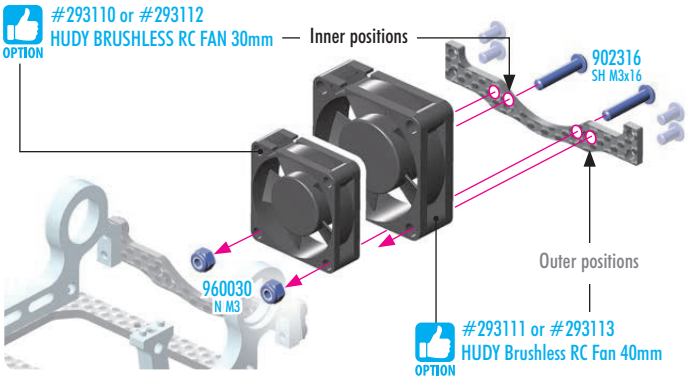
Numbers in parentheses ( ) refer to quantities when purchased separately.

4x 902305
SH M3x5

4x 903306
SFH M3x6



OPTION #293110 or #293112
HUDY BRUSHLESS RC FAN 30mm — Inner positions



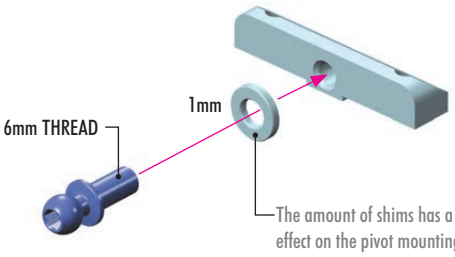
OPTION #293111 or #293113
HUDY Brushless RC Fan 40mm

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

OPTION #293102
HUDY ALU RC FAN 30mm
TOP/SIDE MOUNT 4 HOLE

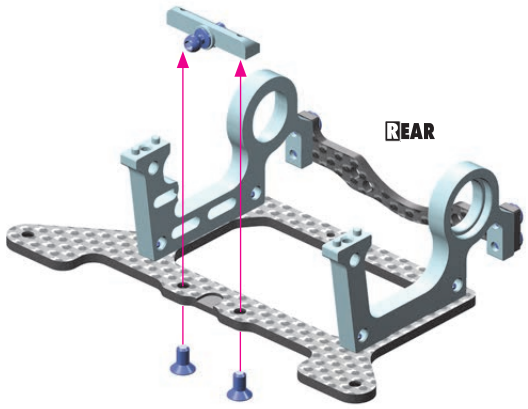
1x 303122-K
SHIM 3x6x1

2x 903306
SFH M3x6

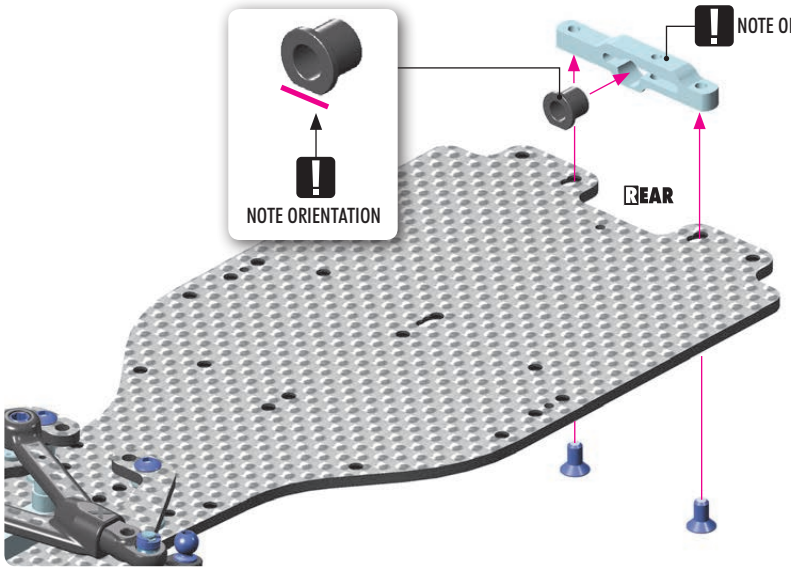


The amount of shims has a direct effect on the pivot mounting position.

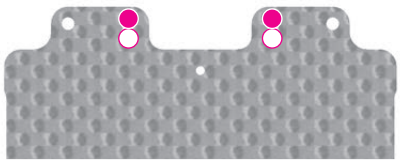
Please see: PAGE 16
INITIAL SETTING - rear pivot position
1mm shim



2x 903306
SFH M3x6

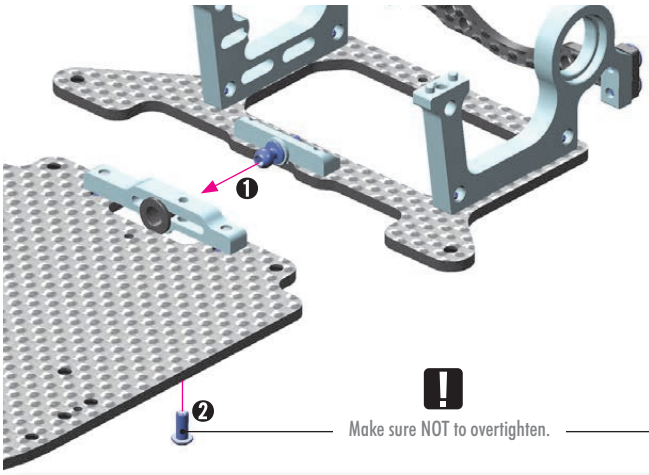


INITIAL SETTING

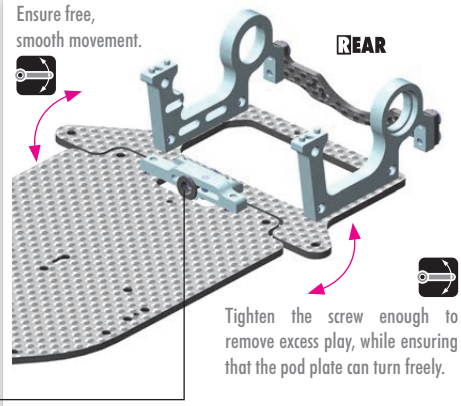


2. REAR SUSPENSION

1x 902256
SH M2.5x6

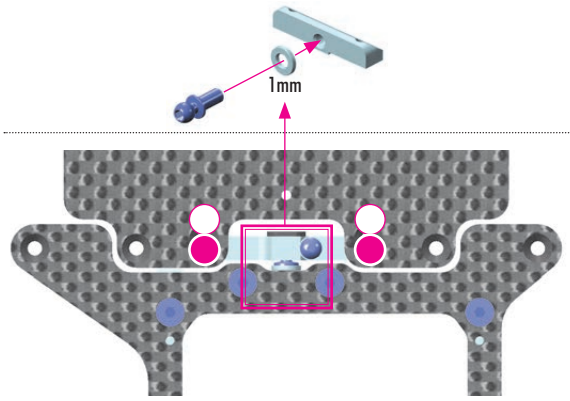


Make sure NOT to overtighten.

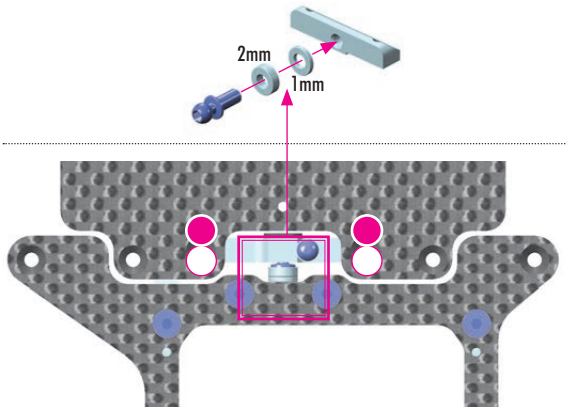


PIVOT MOUNTING ALTERNATIVE

REARWARD: (INITIAL SETTING)
Pivot mounted in rearward chassis holes, and 1mm shim used under the pivot ball. The rearward pivot mounting position gives the most steering and most free rear end. Recommended for high-traction conditions such as US black carpet.



FORWARD:
Pivot mounted in forward chassis holes, with 3mm shims under the pivot ball. The forward pivot mounting position gives a good balance between front and rear traction.



1x 303122-K
SHIM 3x6x1

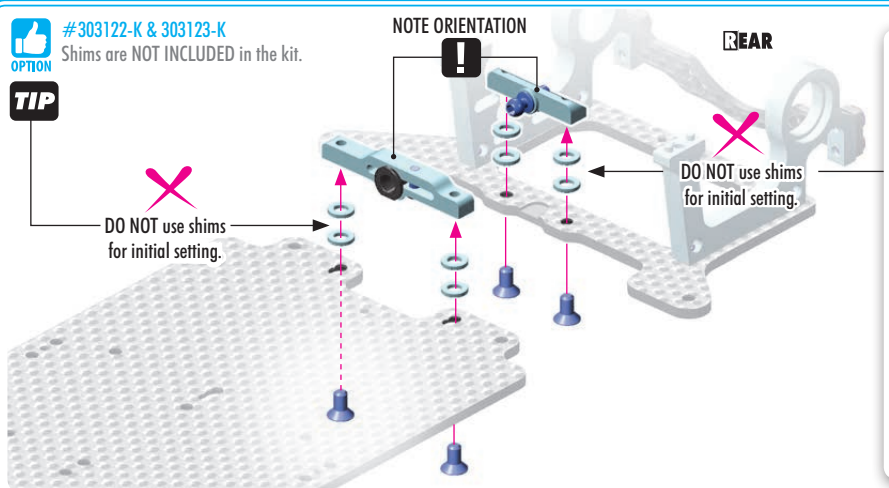
1x 303123-K
SHIM 3x6x2

NOT INCLUDED
4x 303122-K
SHIM 3x6x1

NOT INCLUDED
4x 303123-K
SHIM 3x6x2

OPTION #303122-K & 303123-K
Shims are NOT INCLUDED in the kit.

TIP



ROLL CENTER ADJUSTMENT

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

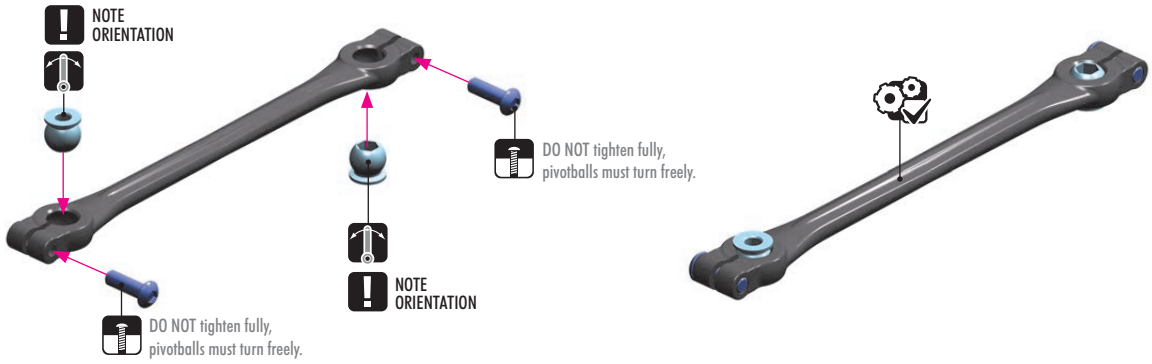
LOWER ROLL CENTER
(INITIAL SETTING - NO SHIMS) will give more traction and increased chassis roll.

HIGHER ROLL CENTER
(adding shims) will increase steering by making the car rotate more on- and off-power.

IMPORTANT! Always use same shim thickness on both sides of both aluminum holders.

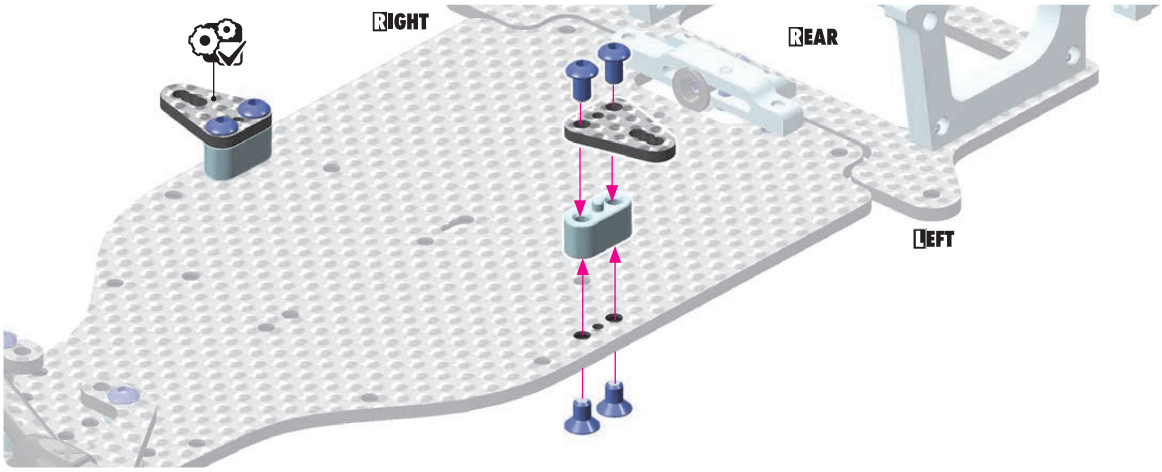
4x 902258
SH M2.5x8

2x



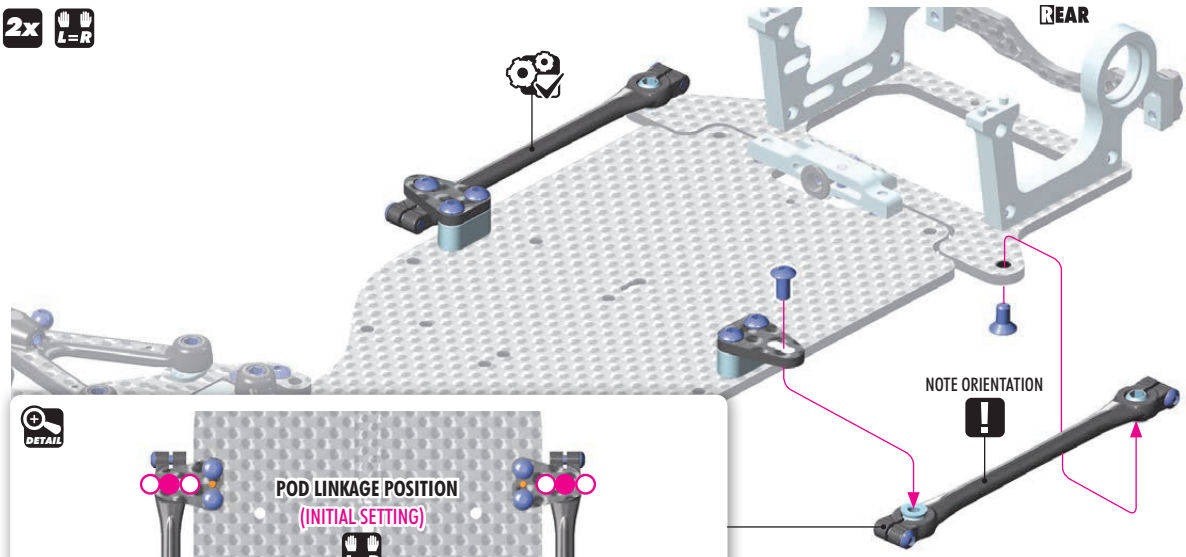
4x 902305 SH M3x5

4x 903305 SFH M3x5



2x 902306 SH M3x6

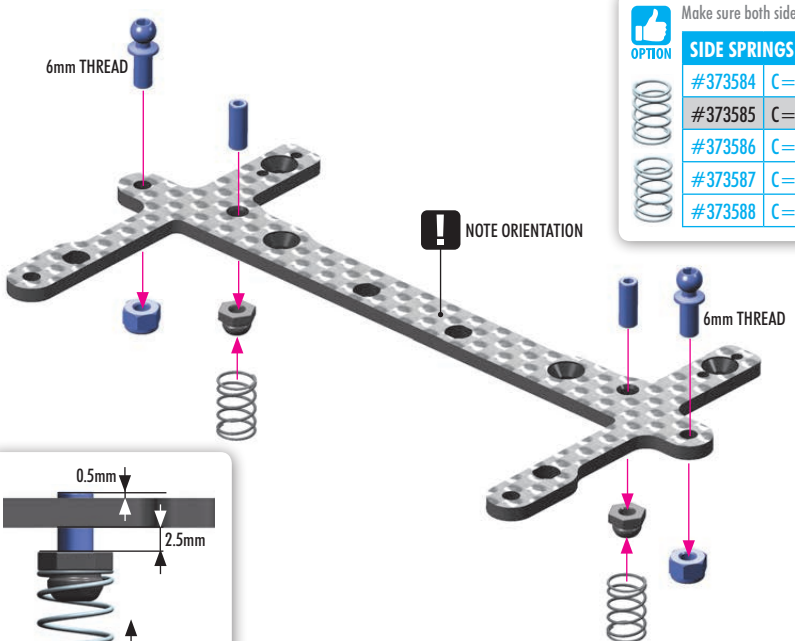
2x 903306 SFH M3x6

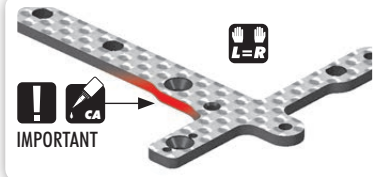


- **OUTER POSITION**
  Angled link.
  Reduces steering, increases stability.
- **CENTER POSITION**
  (INITIAL SETTING)
  Straight link - easier to drive.
- **INNER POSITION**
  Angled link.
  Increases in-corner steering.

2x 901308 SB M3x8

2x 960030 N M3





OPTION

Make sure both side springs are tightened equally, to avoid unwanted tweak.

SIDE SPRINGS		
#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

SOFTER SPRINGS:
Makes the car easier to drive on low-traction tracks but more difficult to drive on high-traction tracks.

HARDER SPRINGS:
Improves steering response, but also increases traction rolling.

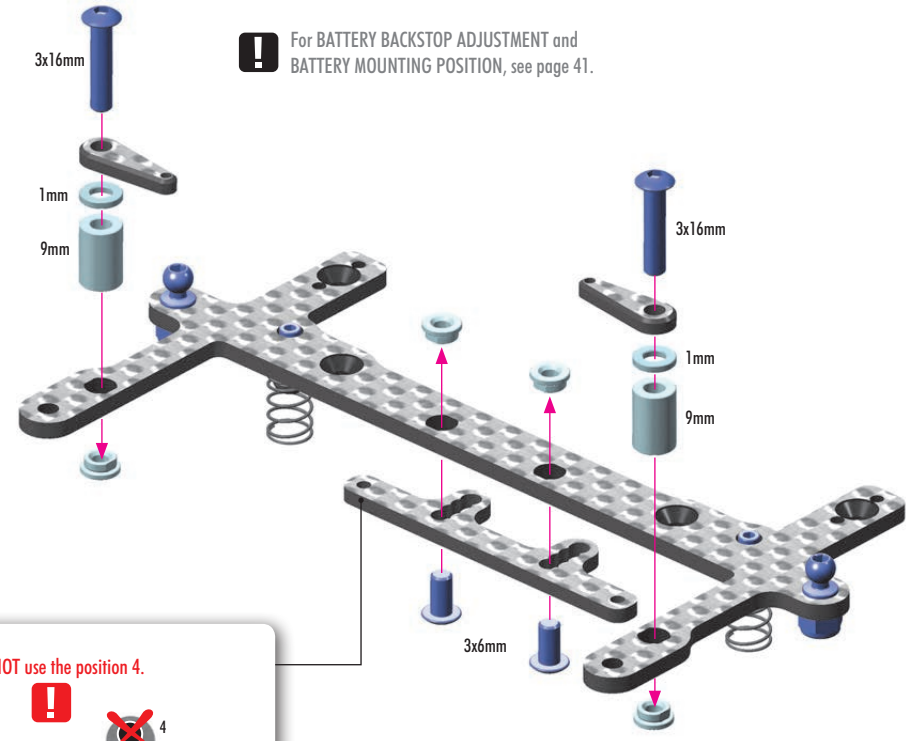
2. REAR SUSPENSION

2x 303122-K
SHIM 3x6x1

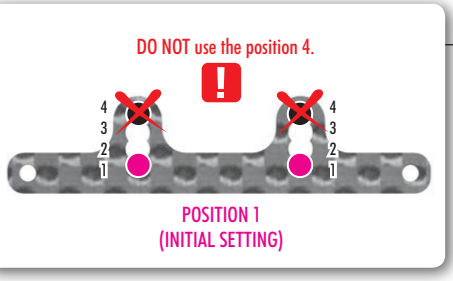
2x 303130-K
SHIM 3x6x9

2x 902306
SH M3x6

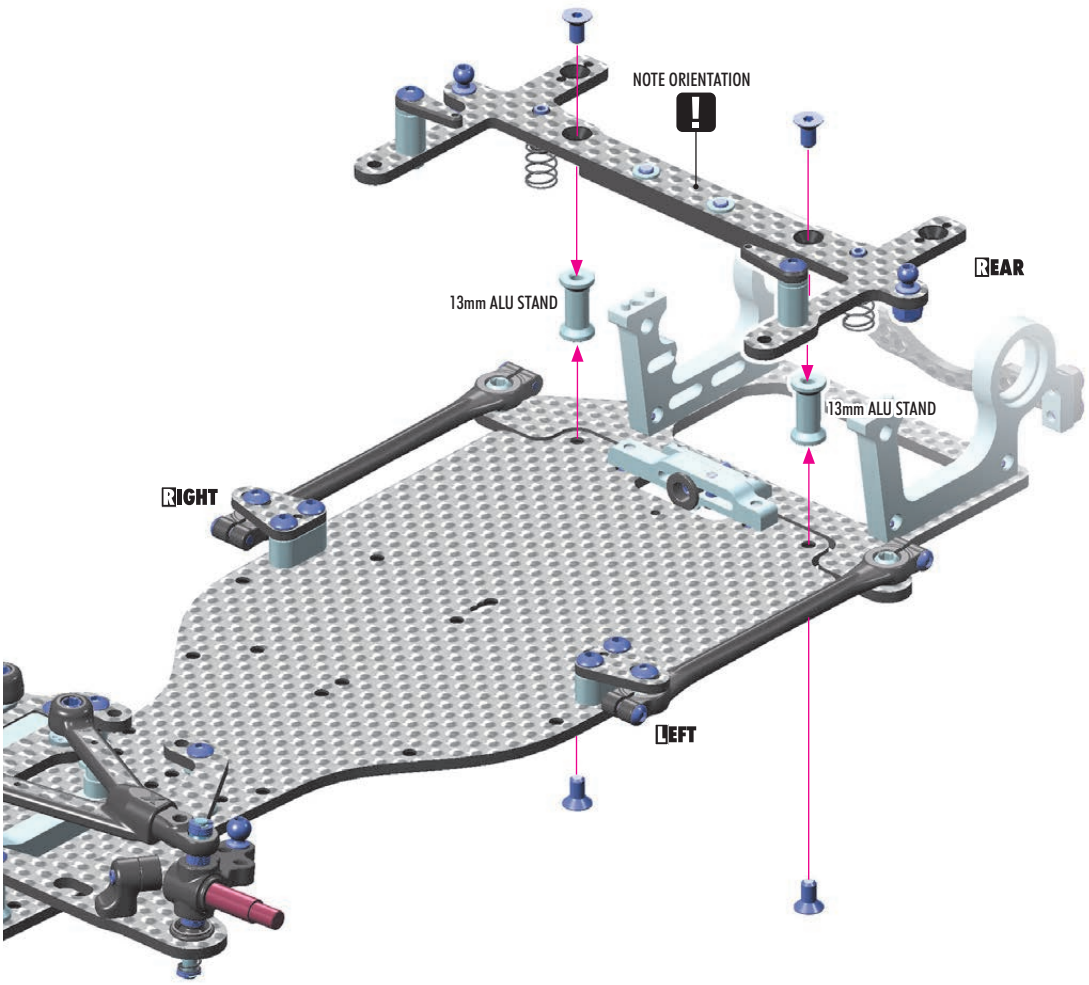
2x 902316
SH M3x16



For BATTERY BACKSTOP ADJUSTMENT and BATTERY MOUNTING POSITION, see page 41.



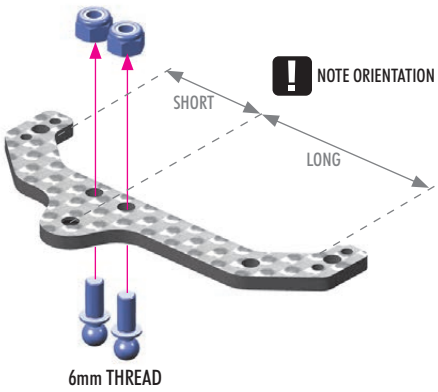
4x 903306
SFH M3x6

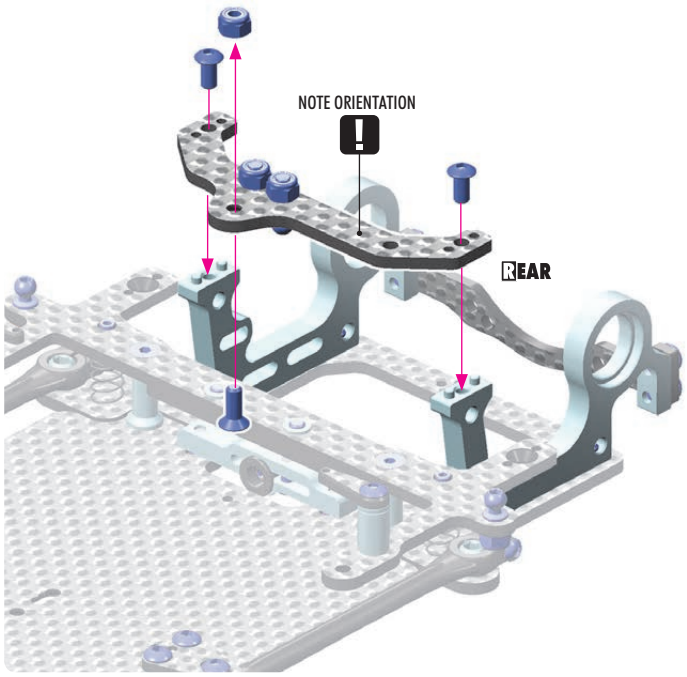


2x 902306 SH M3x6

1x 903308 SFH M3x8

3x 960030 N M3



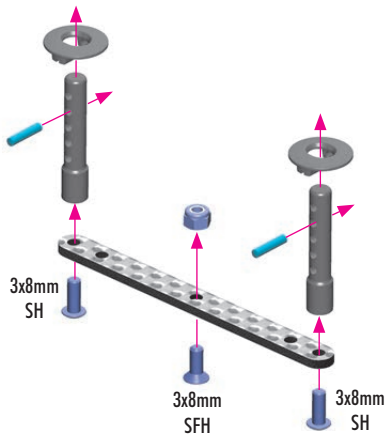


2x 902308 SH M3x8

1x 903308 SFH M3x8

1x 960030 N M3

2x 981210 P 2x10



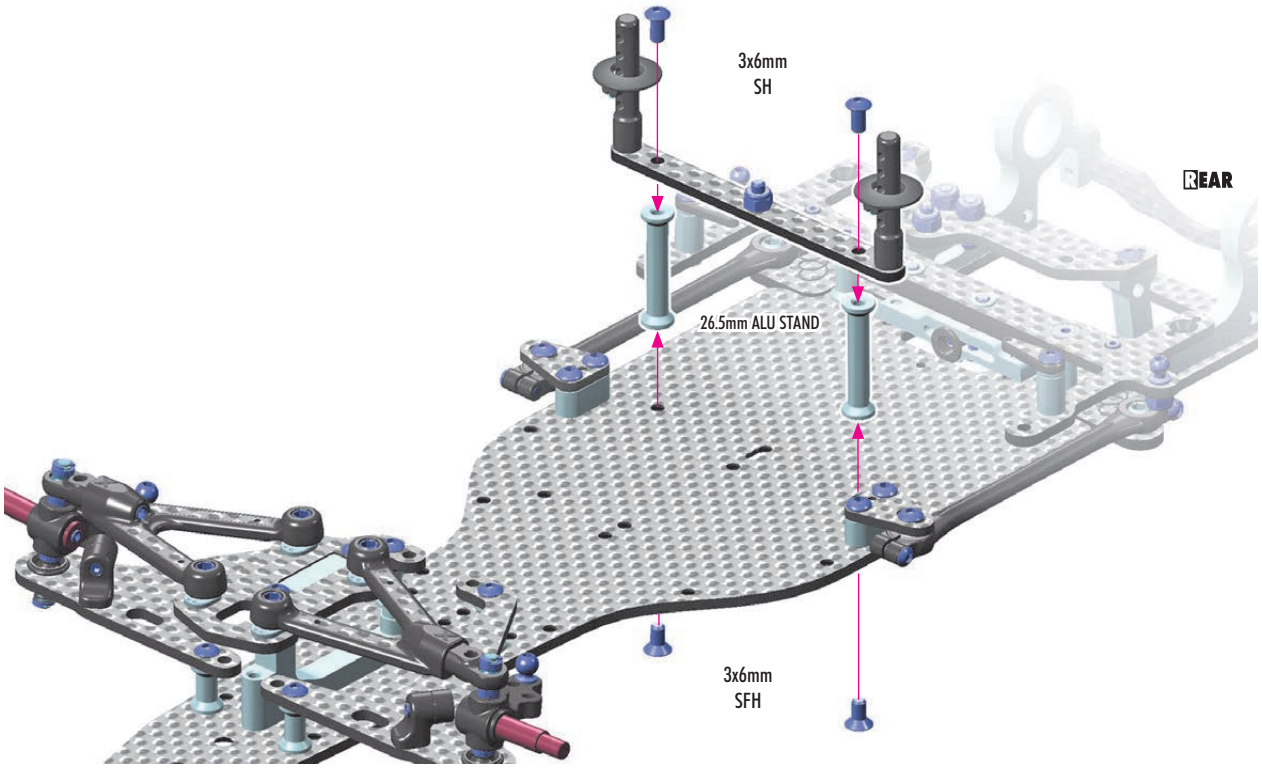
OPTION #301351-O ALU ADJUSTABLE BODY POST STOP (2)

OPTION #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.

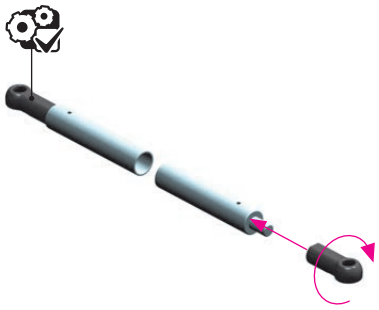
2x 902306 SH M3x6

2x 903306 SFH M3x6

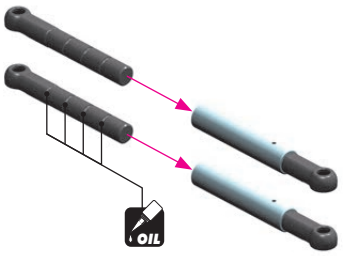


2. REAR SUSPENSION

2x



2x



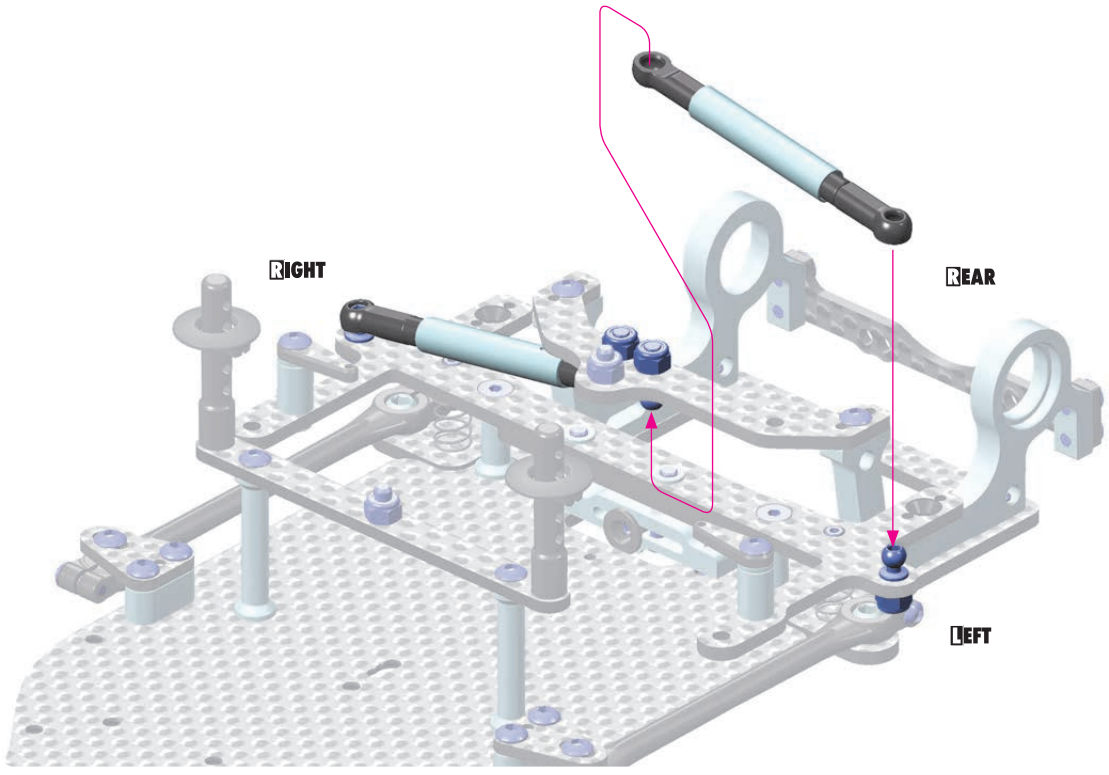
Add oil in each slot of the COMPOSITE side tubes.

NOTE:
Add oil only in the slots, not on the whole tube.
After assembling the side tubes, check for smooth operation.
It is very important to re-oil the side tubes, at least once per race day.
You may use different oil thicknesses depending on track conditions.

TIP	
For HIGH grip	use SOFTER oils
For LOW grip or ASPHALT	use HARDER oils

OPTION

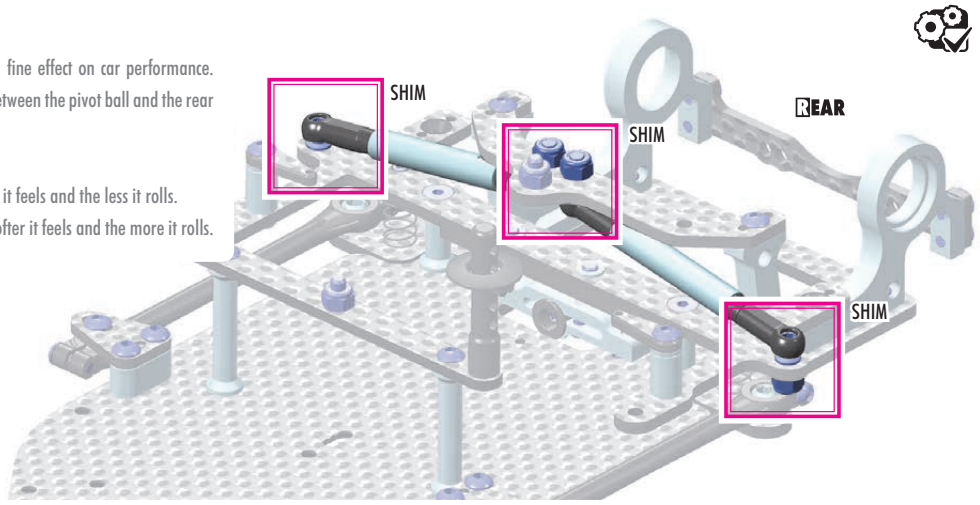
HUDY OILS		
#106510	10.000cSt	OPTION
#106492	11.000cSt	OPTION
#106512	12.000cSt	OPTION
#106515	15.000cSt	OPTION
#106520	20.000cSt	OPTION
#106530	30.000cSt	INCLUDED
#106540	40.000cSt	OPTION
#106550	50.000cSt	OPTION



TIP SIDE TUBE ANGLE

The angle of the side tubes has a fine effect on car performance. The angle is adjusted with shims between the pivot ball and the rear brace and/or upper plate.

The **HIGHER** the angle, the stiffer it feels and the less it rolls.
The **LESS** (flatter) the angle, the softer it feels and the more it rolls.



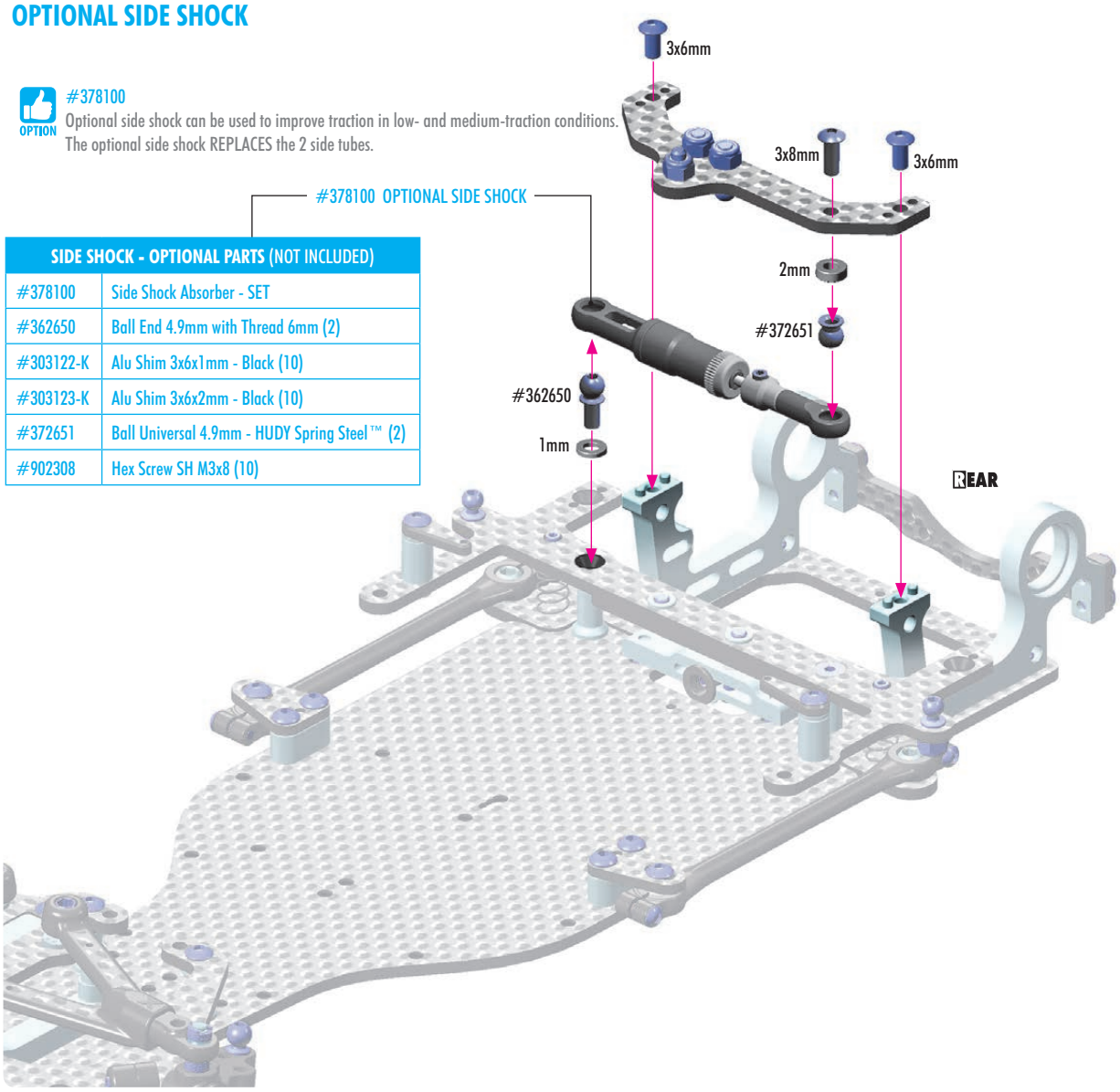
OPTIONAL SIDE SHOCK

OPTION

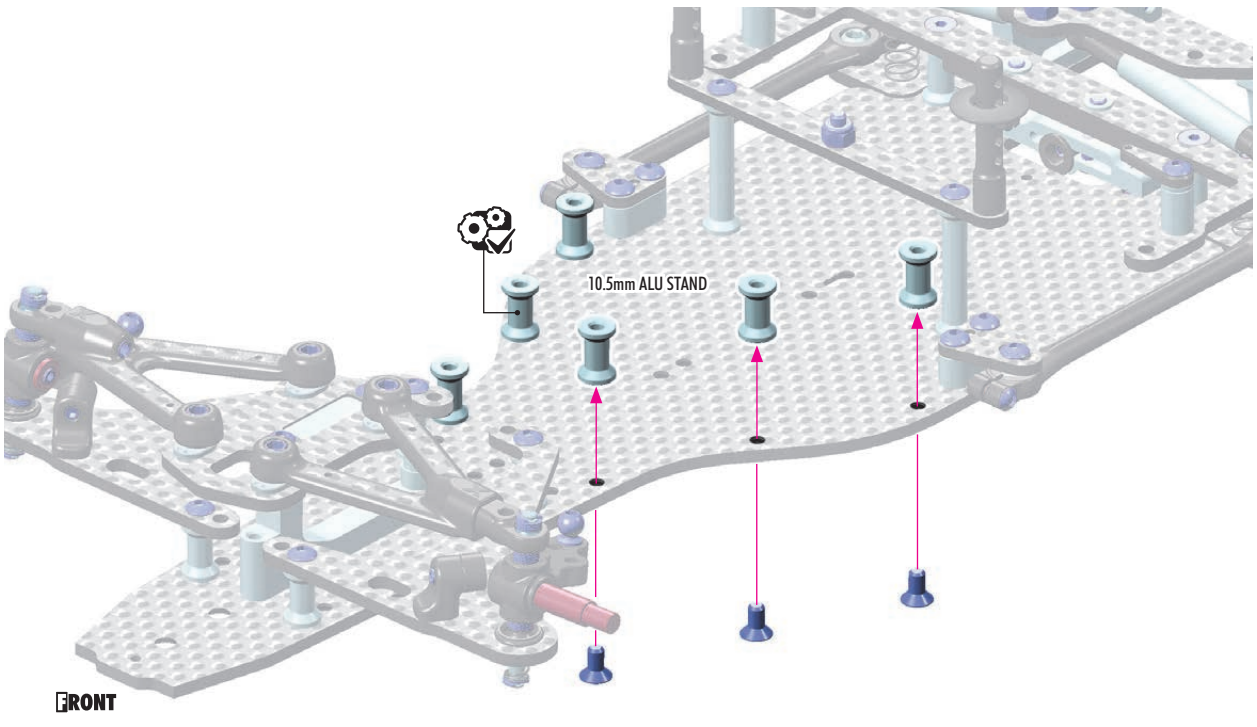
#378100
Optional side shock can be used to improve traction in low- and medium-traction conditions.
The optional side shock REPLACES the 2 side tubes.

#378100 OPTIONAL SIDE SHOCK

SIDE SHOCK - OPTIONAL PARTS (NOT INCLUDED)	
#378100	Side Shock Absorber - SET
#362650	Ball End 4.9mm with Thread 6mm (2)
#303122-K	Alu Shim 3x6x1mm - Black (10)
#303123-K	Alu Shim 3x6x2mm - Black (10)
#372651	Ball Universal 4.9mm - HUDY Spring Steel™ (2)
#902308	Hex Screw SH M3x8 (10)



6x 903306 SFH M3x6



2. REAR SUSPENSION

6x 902306 SH M3x6

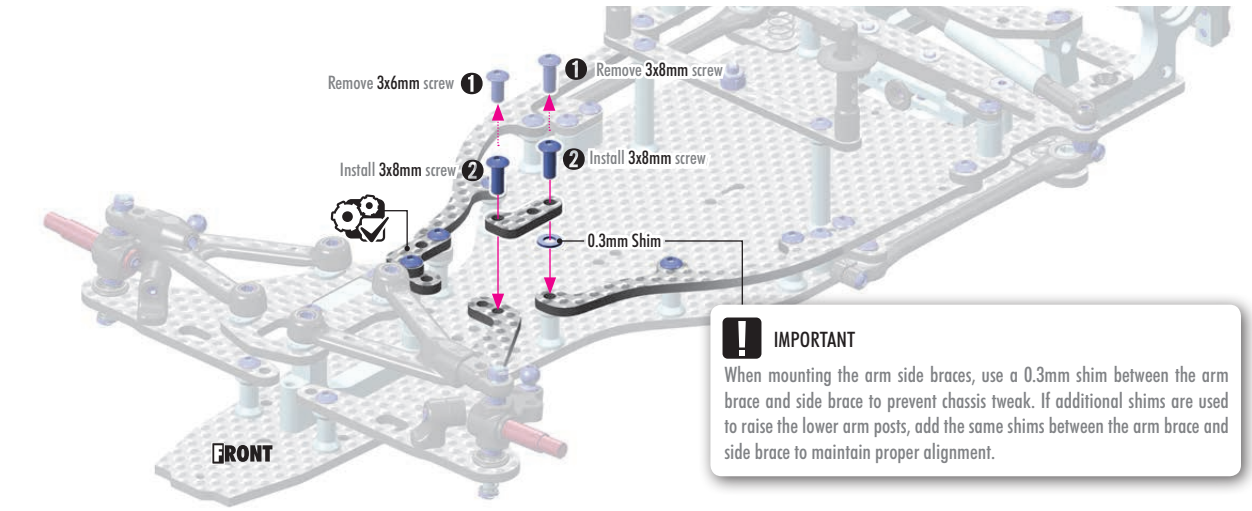
2x 902308 SH M3x8

IMPORTANT

Most popular formula bodies will clear the 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.

2x 902308 SH M3x8

2x 962030 SHIM 3x6x0.3



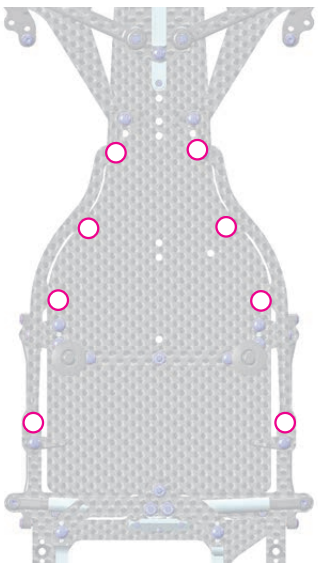
IMPORTANT

When mounting the arm side braces, use a 0.3mm shim between the arm brace and side brace to prevent chassis tweak. If additional shims are used to raise the lower arm posts, add the same shims between the arm brace and side brace to maintain proper alignment.

CHASSIS FLEX ADJUSTMENT

SOFT (NO BRACES)

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

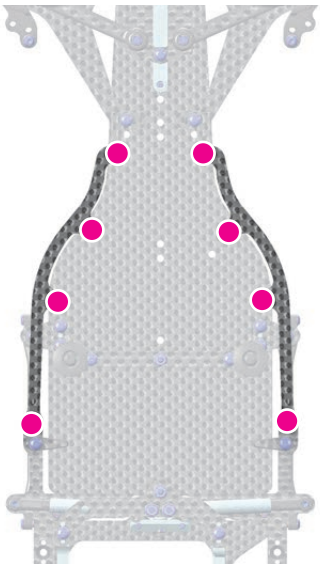


MEDIUM

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

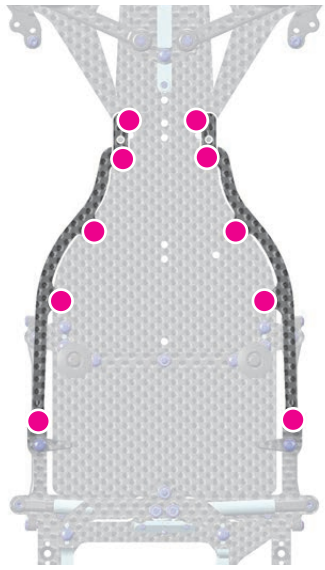
STIFF

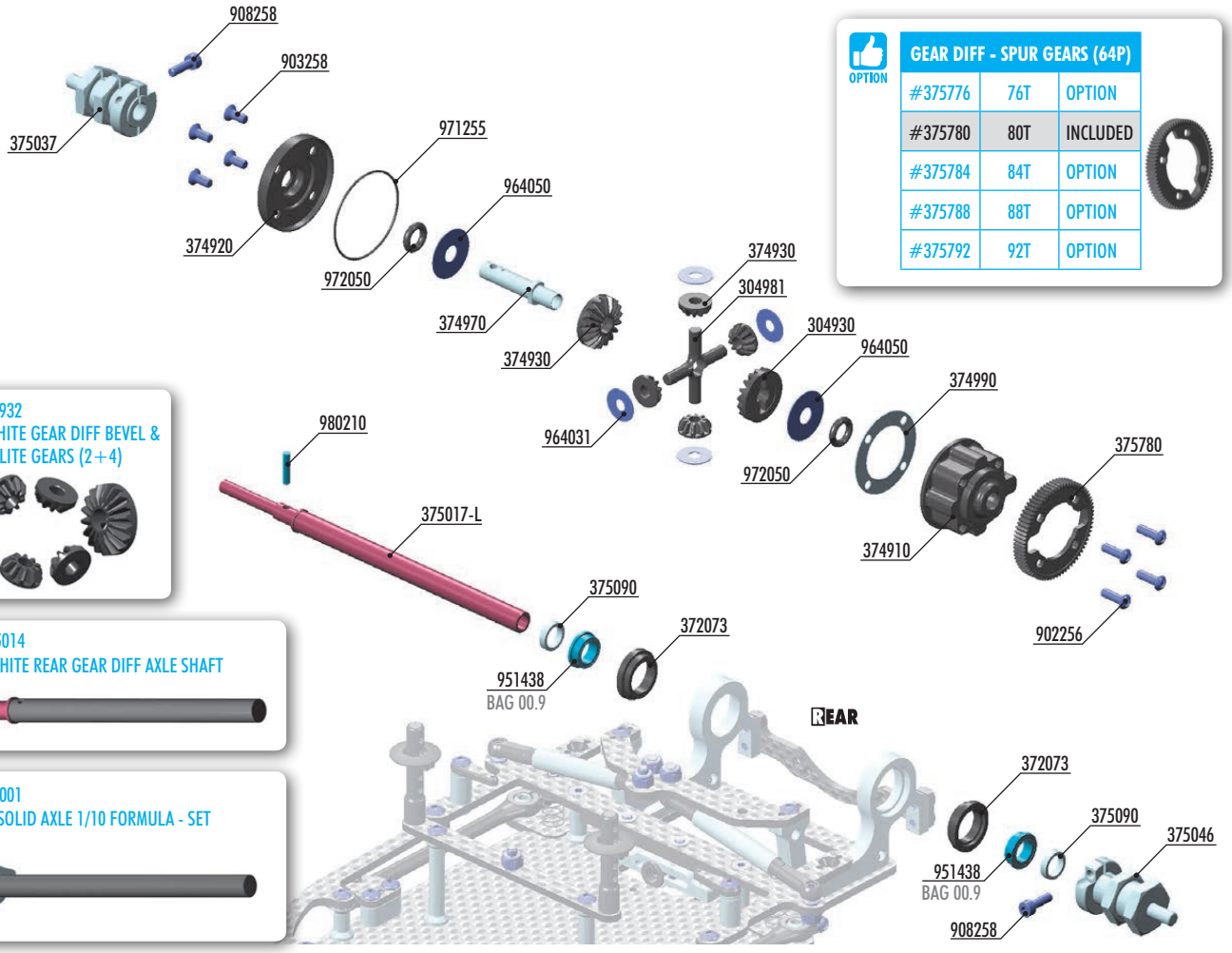
Side braces installed, attached using front, front-middle, middle, and rear screws. This setting provides additional stiffness and more stability. Recommended for high traction carpet (ex: US black carpet). Reduces chassis roll but also reduces overall grip. Recommended for foam tire racing.



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.





OPTION

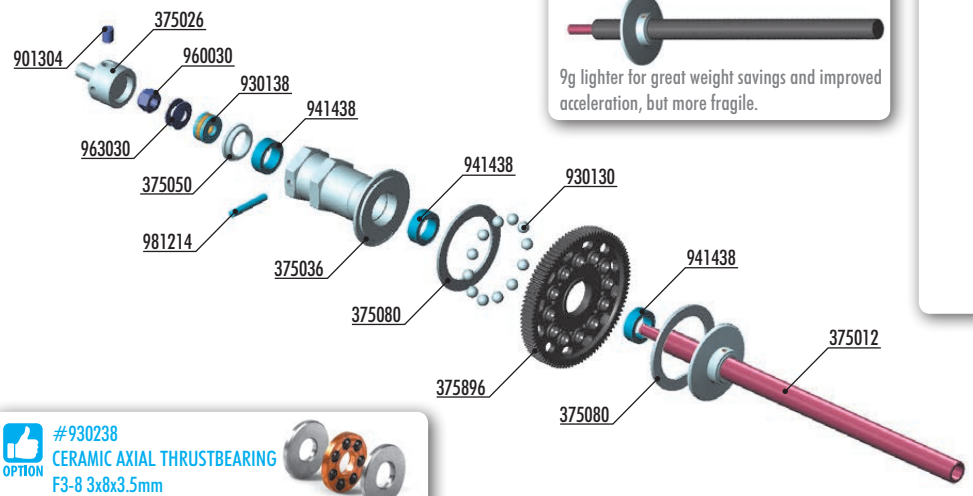
GEAR DIFF - SPUR GEARS (64P)		
#375776	76T	OPTION
#375780	80T	INCLUDED
#375784	84T	OPTION
#375788	88T	OPTION
#375792	92T	OPTION

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

OPTION #375014
GRAPHITE REAR GEAR DIFF AXLE SHAFT

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

OPTION BALL DIFFERENTIAL



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

OPTION #375010
GRAPHITE REAR AXLE SHAFT

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

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

OPTION #930230
CERAMIC BALL 3.175mm (12)

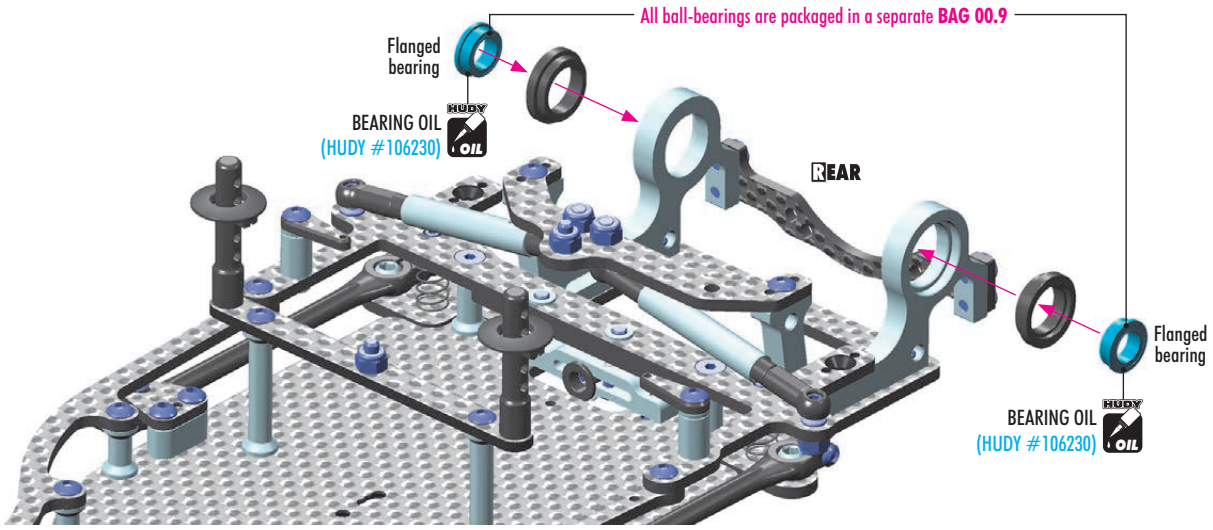
BAG 03

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)		
374901	XRAY GEAR DIFFERENTIAL 1/10 FORMULA - SET	902256	HEX SCREW SH M2.5x6 (10)
374910	COMPOSITE GEAR DIFFERENTIAL CASE - GRAPHITE	903258	HEX SCREW SFH M2.5x8 (10)
374920	COMPOSITE GEAR DIFFERENTIAL COVER - GRAPHITE	908258	HEX SCREW SOCKET HEAD CAP M2.5x8 (10)
374930	COMPOSITE GEAR DIFF BEVEL & SATELLITE GEARS (2+4)	964031	WASHER S 3.5x10x0.2 (10)
374970	ALU GEAR DIFF SHAFT - SWISS 7075 T6	964050	WASHER S 5x15x0.3 (10)
374990	DIFF GASKET (4)	951438	BALL-BEARING 1/4" x 3/8" x 1/8" FLANGED - STEEL SEALED - OIL (2)
375017-L	X1/X10 REAR GEAR DIFF AXLE SHAFT - LIGHTWEIGHT	971255	SILICONE O-RING 25.5x0.7 (10)
375037	ALU GEAR DIFF REAR WHEEL HUB - SWISS 7075 T6	972050	SILICONE O-RING 5x2 (10)
375046	ALU REAR WHEEL HUB - LEFT	980210	PIN 2x9.8 (10)

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

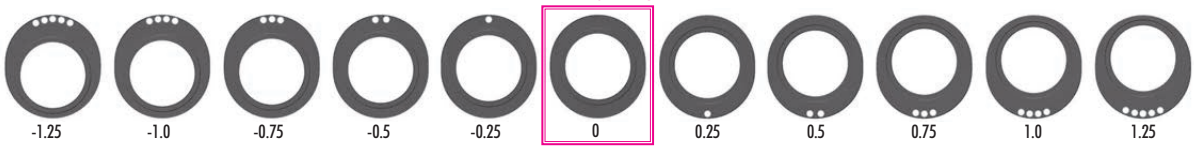
3. GEAR DIFFERENTIAL

2x 951438
BB 1/4"x3/8"x1/8"



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

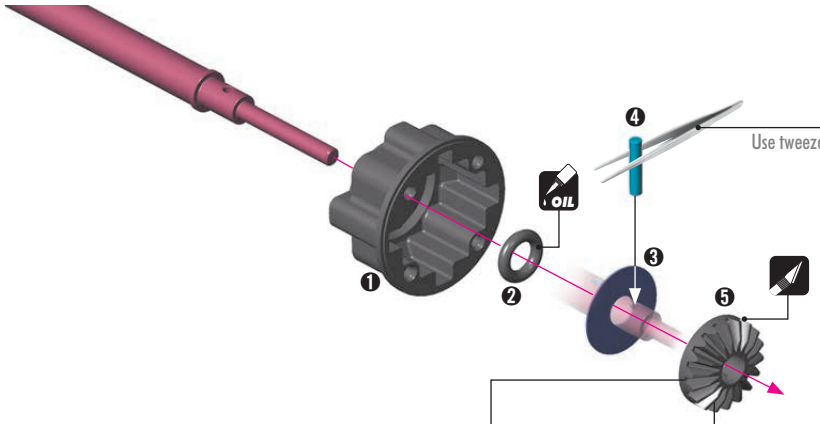
INITIAL SETTING

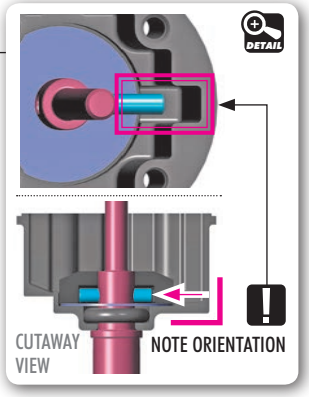


1x 964050
S 5x15x0.3

1x 972050
O 5x2

1x 980210
P 2x10





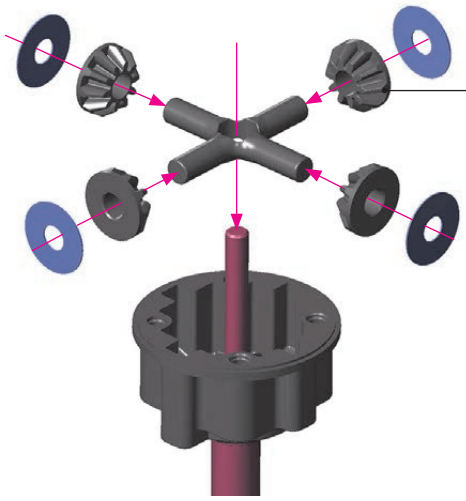
NOTE

Use this satelite gear (from #304930) here.

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

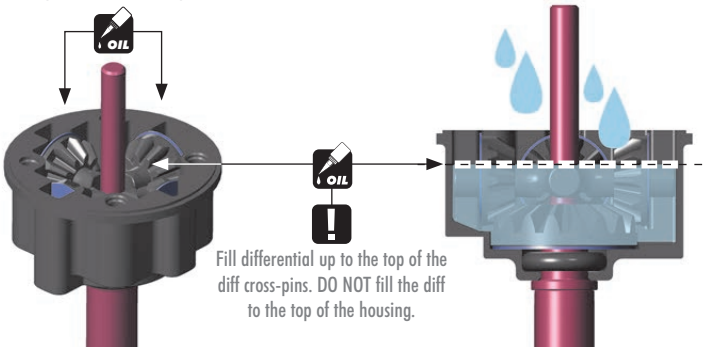
Use this satelite gear from kit (#374930).

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.

Silicone oil
Fill just above the cross-pins.



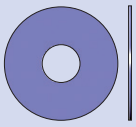
Fill differential up to the top of the diff cross-pins. DO NOT fill the diff to the top of the housing.

TIP

HUDY Premium Silicone Oil - TRACTION TRACK

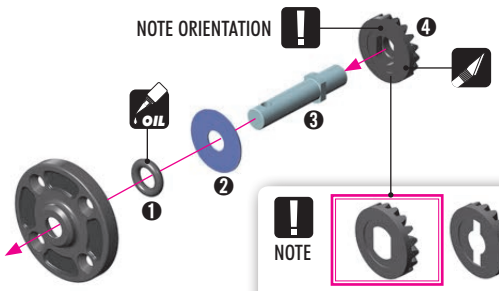
LOW		MEDIUM-HIGH		SUPER-HIGH	
500 cSt	#106350	750 cst	#106375	4000 cSt	#106440
525 cSt	#106352	800 cSt	#106380	5000 cSt	#106450
550 cSt	#106355	900 cSt	#106390	6000 cSt	#106460
575 cSt	#106357	1000 cSt	#106410	7000 cSt	#106470
600 cSt	#106360	2000 cSt	#106420	8000 cSt	#106480
625 cSt	#106362	3000 cSt	#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.

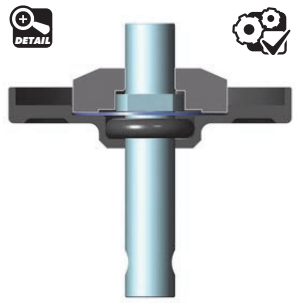


1x 964050
S 5x15x0.3

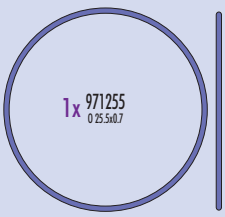
1x 972050
O 5x2



Use this satelite gear (from #374930) here.



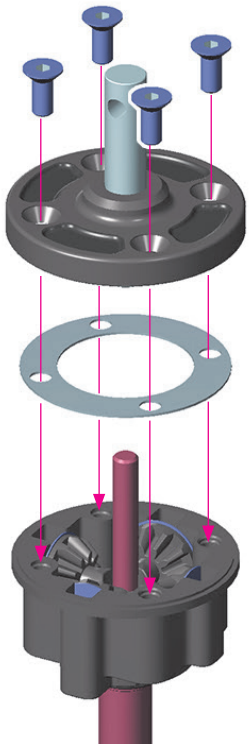
CUTAWAY VIEW



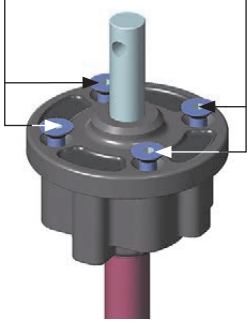
1x 971255
O 25.5x0.7

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.

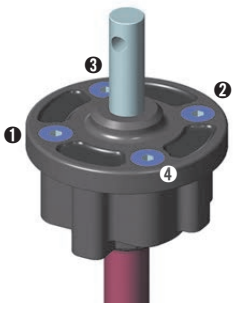
4x 903258
SFH M2.5x8



Tighten the screws equally but DO NOT tighten them completely.



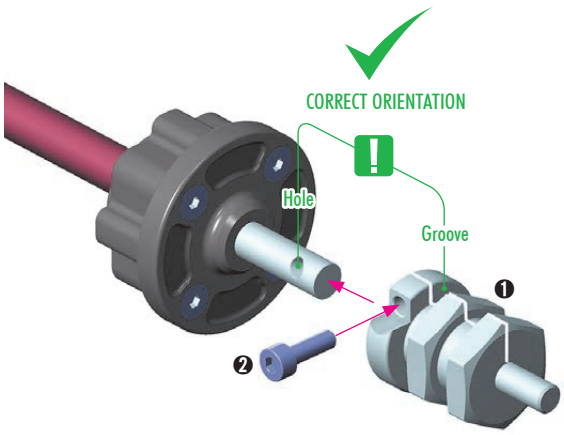
Finish tightening in this order.



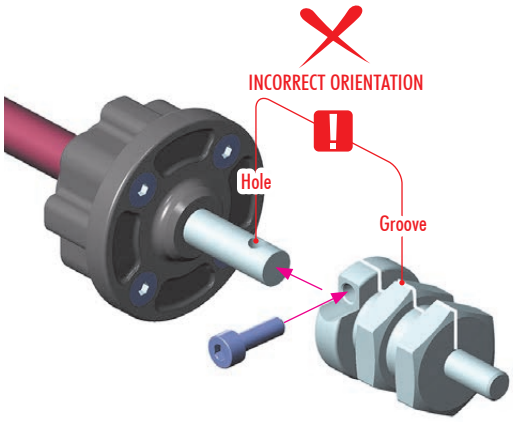
3. GEAR DIFFERENTIAL

1x 908258 SCH M2.5x8

Please note that the groove on the axle with a screw can not face the small hole on the axle.

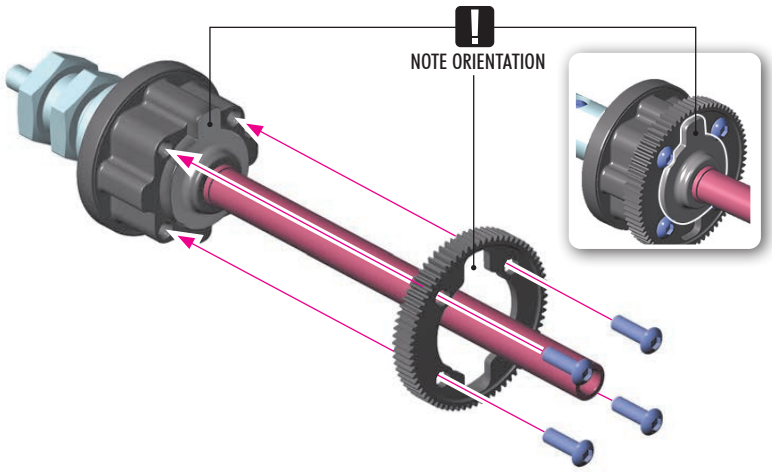


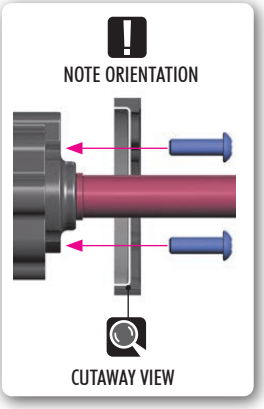
Groove out of line with hole – Correct



Groove inline with hole – Incorrect

4x 902256 SH M2.5x6



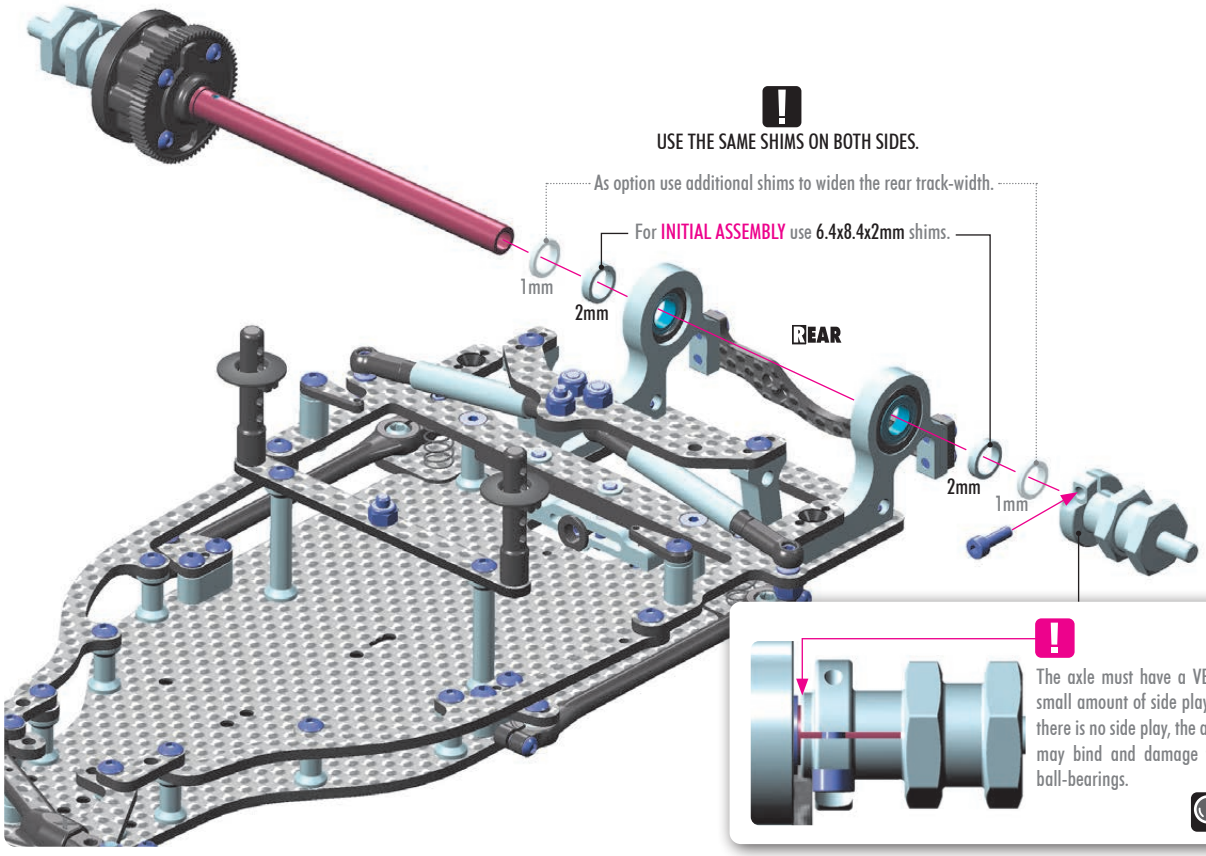


2x 375090 6.4x8.4x2.0

1x 908258 SCH M2.5x8

Optional

2x 375090 6.4x8.4x1.0



The axle must have a VERY small amount of side play. If there is no side play, the axle may bind and damage the ball-bearings.

BALL DIFFERENTIAL (NOT INCLUDED)

12x 930130 B 3.1

1x 930138 BA 3x8

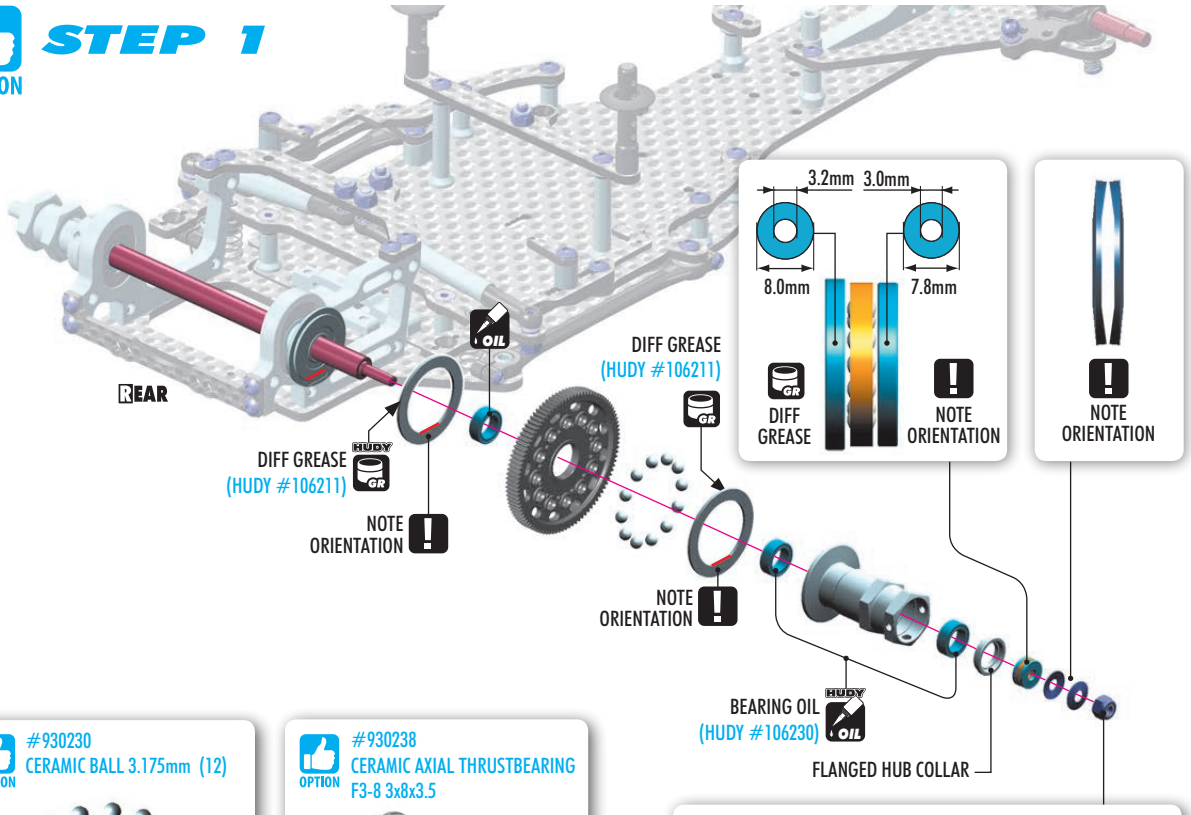
2x 941438 BB 1/4"x3/8"x1/8"

1x 960030 N M3

2x 963030 ST 3x8

STEP 1

OPTION



OPTION #930230
CERAMIC BALL 3.175mm (12)

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

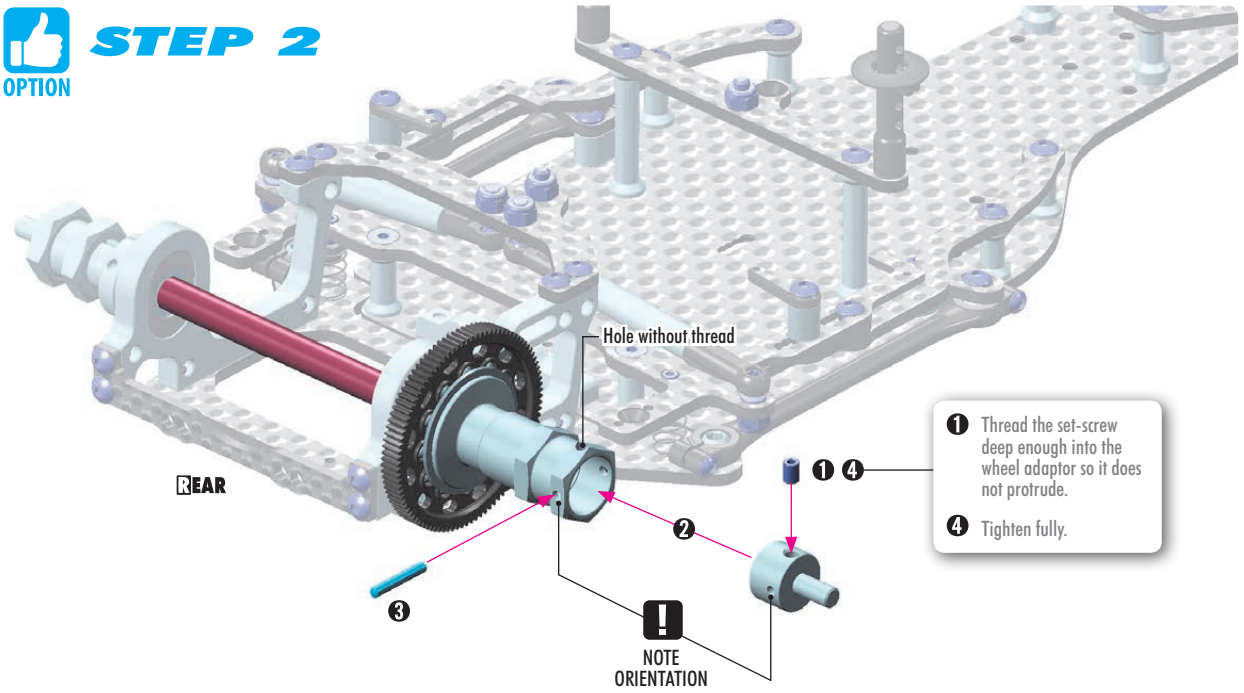
This nut affects the tightness and stiffness of the rear differential. Tighten the nut gently so the diff does not slip under power, but do not overtighten or the diff balls and/or plates may be damaged.

1x 901304 SB M3x4

1x 981214 P 2x14

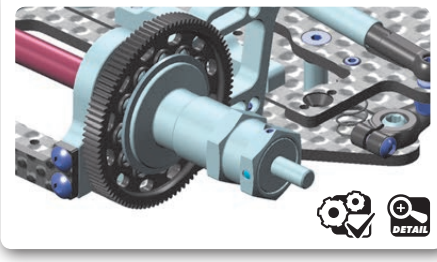
STEP 2

OPTION

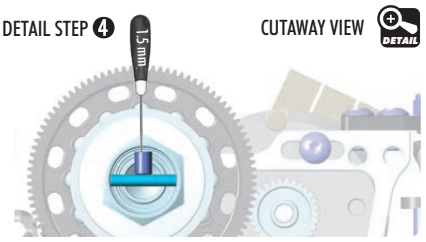


1 Thread the set-screw deep enough into the wheel adaptor so it does not protrude.

4 Tighten fully.



DETAIL STEP 4



CUTAWAY VIEW

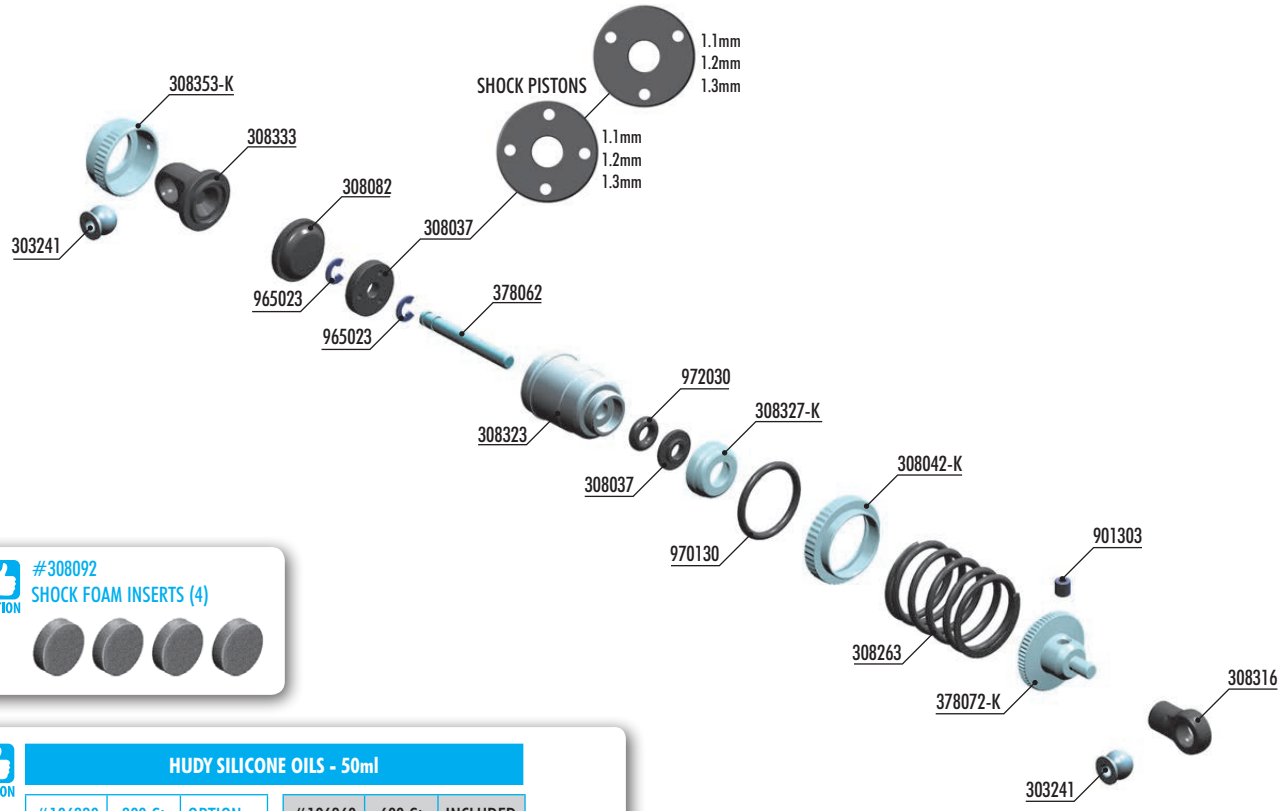
4. CENTER SHOCK

OPTION

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

OPTION

XRAY SPRINGS		
#308263	C = 2.3-2.6 (2)	INCLUDED
#308264	C = 2.5-2.8 (2)	OPTION
#308274	C = 2.3 (2)	OPTION
#308275	C = 2.5 (2)	OPTION
#308286	C = 2.6 (2)	OPTION
#308276	C = 2.7 (2)	OPTION
#308277	C = 2.9 (2)	OPTION
#308290	C = 3.0 (2)	OPTION



OPTION

#308092
SHOCK FOAM INSERTS (4)

OPTION

HUDY SILICONE OILS - 50ml

#106330	300cSt	OPTION	#106360	600cSt	INCLUDED
#106335	350cSt	OPTION	#106362	625cSt	OPTION
#106337	375cSt	OPTION	#106365	650cSt	OPTION
#106340	400cSt	OPTION	#106367	675cSt	OPTION
#106342	425cSt	OPTION	#106370	700cSt	OPTION
#106345	450cSt	OPTION	#106375	750cSt	OPTION
#106347	475cSt	OPTION	#106380	800cSt	OPTION
#106350	500cSt	OPTION	#106390	900cSt	OPTION
#106352	525cSt	OPTION	#106410	1000cSt	OPTION
#106355	550cSt	OPTION	#106420	2000cSt	OPTION
#106357	575cSt	OPTION			

OPTION

#308039
ALU PROGRESSIVE SHOCK SYSTEM - SET (2)

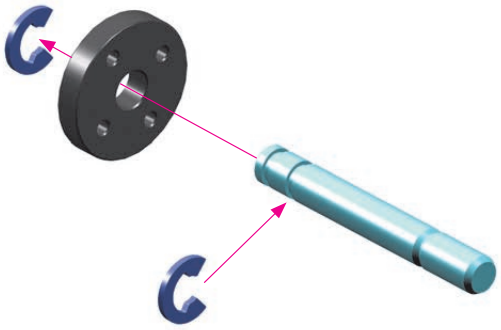
Progressive shock system for improved traction and steering characteristics. Shock insert has 3 triangle cuts and is used with piston WITHOUT holes. The hardness of the shock is influenced not by the holes in the piston, but rather by the insert.

BAG 04

303241	BALL UNIVERSAL 5.8mm HEX (4)
308037	COMPOSITE PISTONS 4-HOLE 1.0-1.2mm, 3-HOLE 1.0-1.2mm
308042-K	ALU SHOCK ADJUSTABLE NUT - BLACK (2)
308082	SHOCK ABSORBER MEMBRANE (4)
308316	SHOCK BALL JOINT - OPEN (4)
308323	ALU XRAY SHOCK BODY (2)
308327-K	ALU CAP FOR XRAY SHOCK BODY - BLACK
308333	COMPOSITE SHOCK PARTS FOR ALU SHOCKS
308353-K	ALU SHOCK CAP-NUT WITH VENT HOLE - BLACK (2)
308263	XRAY 4S SPRING-SET PROGRESSIVE C=2.3-2.6 (2)
378062	SHOCK SHAFT
378072-K	ALU SHOCK SPRING COLLAR - BLACK
901303	HEX SCREW SB M3x3 (10)
965023	E-CLIP 2.3 (10)
970130	O-RING 13 x 1.5 (10)
972030	SILICONE O-RING 3 x 2 (10)

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

2x 965023
C 2.3



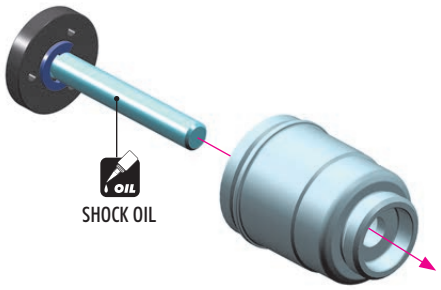
DETAIL SHOCK PISTON ADJUSTMENT

3 HOLES

1.1mm
1.2mm
1.3mm

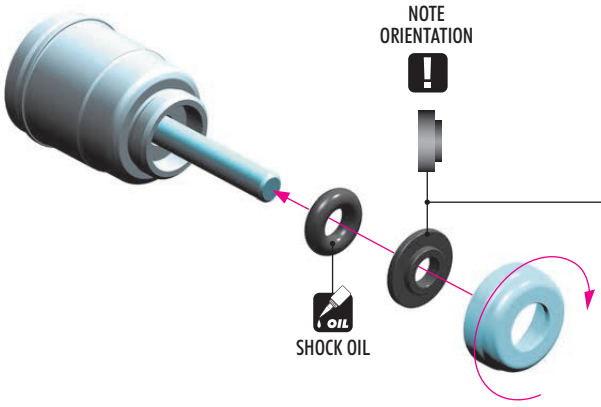
4 HOLES

1.1mm INITIAL SETTING
1.2mm
1.3mm



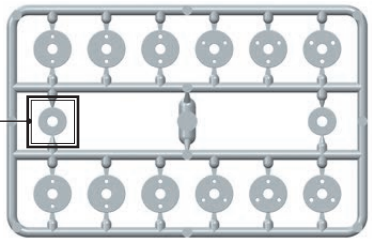
SHOCK OIL

1x 972030
O 3x2

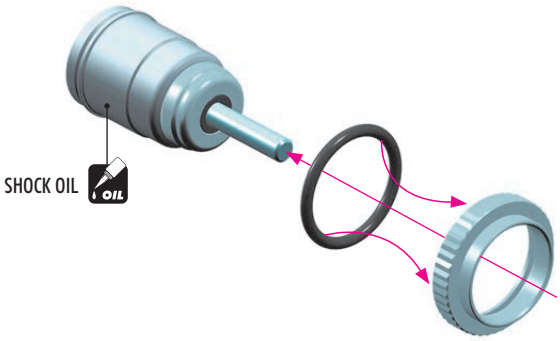


SHOCK OIL

DETAIL

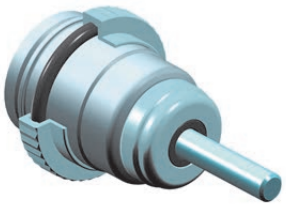


1x 970130
O 13x1.5



SHOCK OIL

DETAIL CUTAWAY VIEW



Be careful not to cross-thread the collar on the shock body.

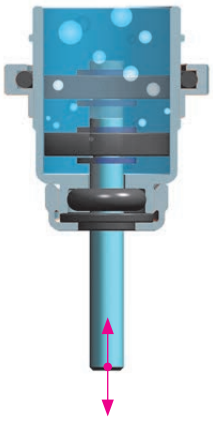
SHOCK FILLING

SOFTER OIL

Recommended for bumpy and low-traction tracks, generates more traction.

HARDER OIL

Recommend for flat and high-traction tracks, improves steering response.



1. Fully extend the piston rod so the piston is at the bottom of the shock body.
2. Hold the shock upright and slightly overfill the shock body with shock oil.
3. 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.
4. 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.
5. Add shock oil as necessary.

OPTION

#104002
HUDY AIR VAC – VACUUM PUMP

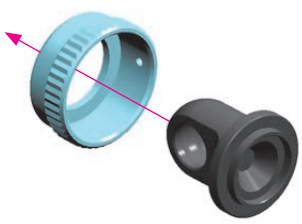
TIP

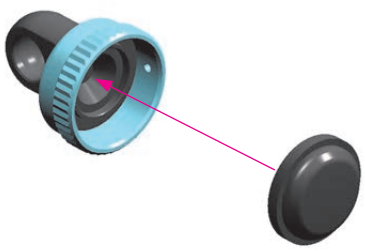
To make sure that all the air is removed from the shock oil, we recommend using the HUDY Air Vac.

OPTION

HUDY SILICONE OILS - 50ml

#106330	300cSt	OPTION
#106335	350cSt	OPTION
#106337	375cSt	OPTION
#106340	400cSt	OPTION
#106342	425cSt	OPTION
#106345	450cSt	OPTION
#106347	475cSt	OPTION
#106350	500cSt	OPTION
#106352	525cSt	OPTION
#106355	550cSt	OPTION
#106357	575cSt	OPTION
#106360	600cSt	INCLUDED
#106362	625cSt	OPTION
#106365	650cSt	OPTION
#106367	675cSt	OPTION
#106370	700cSt	OPTION
#106375	750cSt	OPTION
#106380	800cSt	OPTION
#106390	900cSt	OPTION
#106410	1000cSt	OPTION
#106420	2000cSt	OPTION

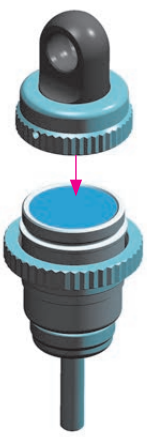




DETAIL

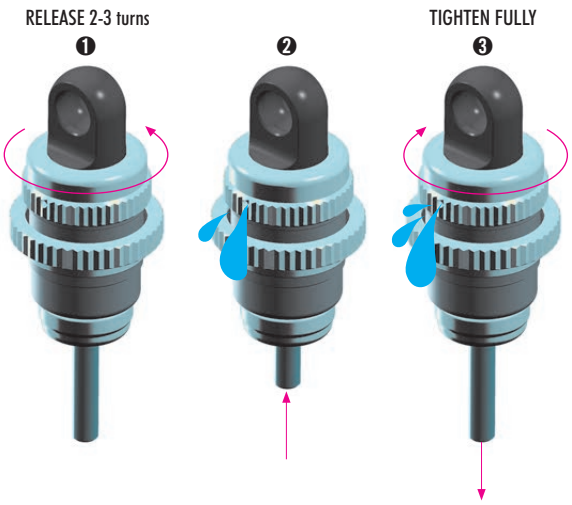
CUTAWAY VIEW

After you insert the membrane, ensure that it is fully seated inside the alu cap.



1. When installing the shock cap assembly on the shock body, some oil will leak out... this is normal.
2. Tighten the cap and clean off any excess oil.
3. After the shock is assembled, the shock rod will push itself out of the shock body fairly quickly.
4. Follow the next procedure to adjust the rebound.

REBOUND ADJUSTMENT



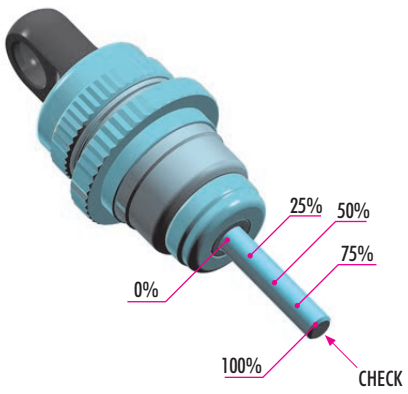
AFTER THE SHOCK IS ASSEMBLED YOU HAVE TO SET THE SHOCK REBOUND:

❶ Release the shock cap by 2-3 turns.

❷ Push the shock shaft fully up. For the first time the extra oil will release through the hole in the alu cap-nut.

❸ Tighten the shock cup. When tightening the shock cap, extra oil will again release through the hole in the alu cap - nut. When tightening, the shock shaft will push out from the shock body.

REBOUND CHECK



REBOUND CHECK:

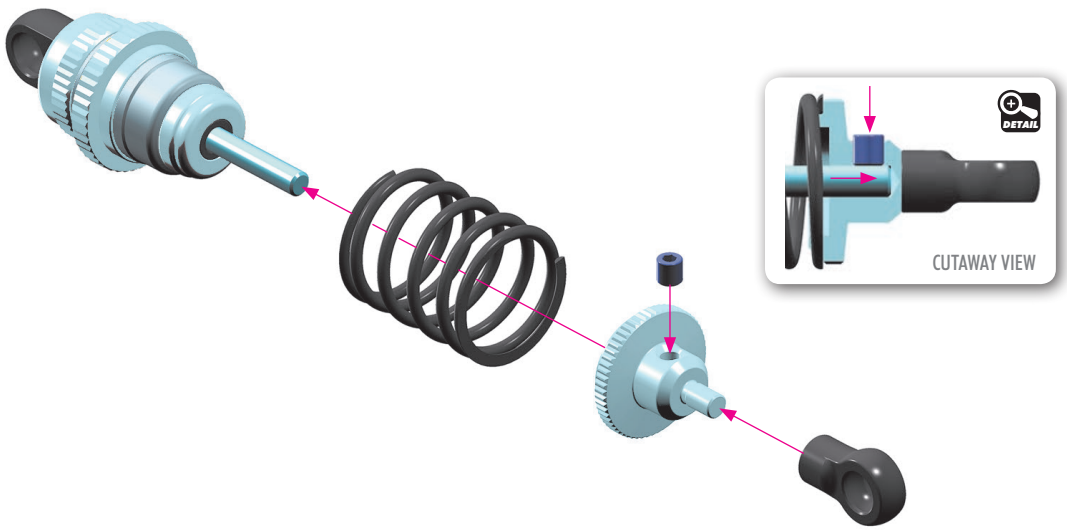
It is very important to push the shock shaft into the shock body slowly otherwise air can come into the shock body which would create bubles.

100%	rebound - DO NOT do step 2 and 3
75%	rebound - repeat steps 1 to 3 until the shock shaft will push out 75% of its length
50%	rebound - repeat steps 1 to 3 until the shock shaft will push out 50% of its length
25%	rebound - repeat steps 1 to 3 until the shock shaft will push out 25% of its length
0%	rebound - repeat steps 1 to 3 until the shock shaft will push out 0% of its length

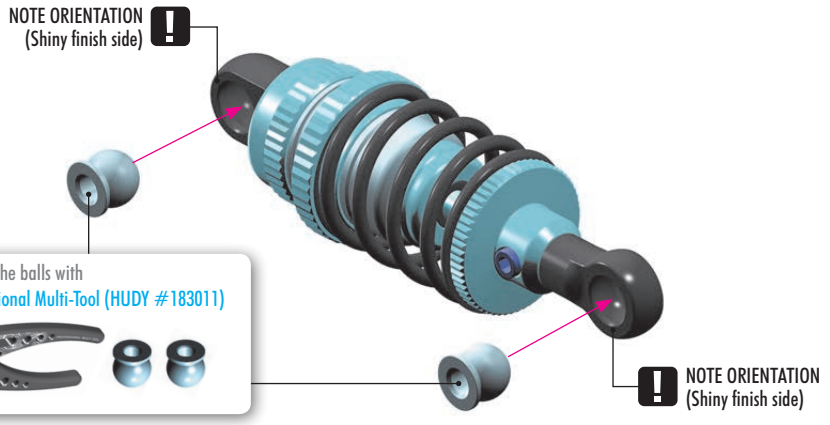
If the shock shaft does not rebound enough, you will have to refill the shock with shock oil, and then repeat the bleeding and rebound adjustment procedure.

1x 901303 SB M3x3

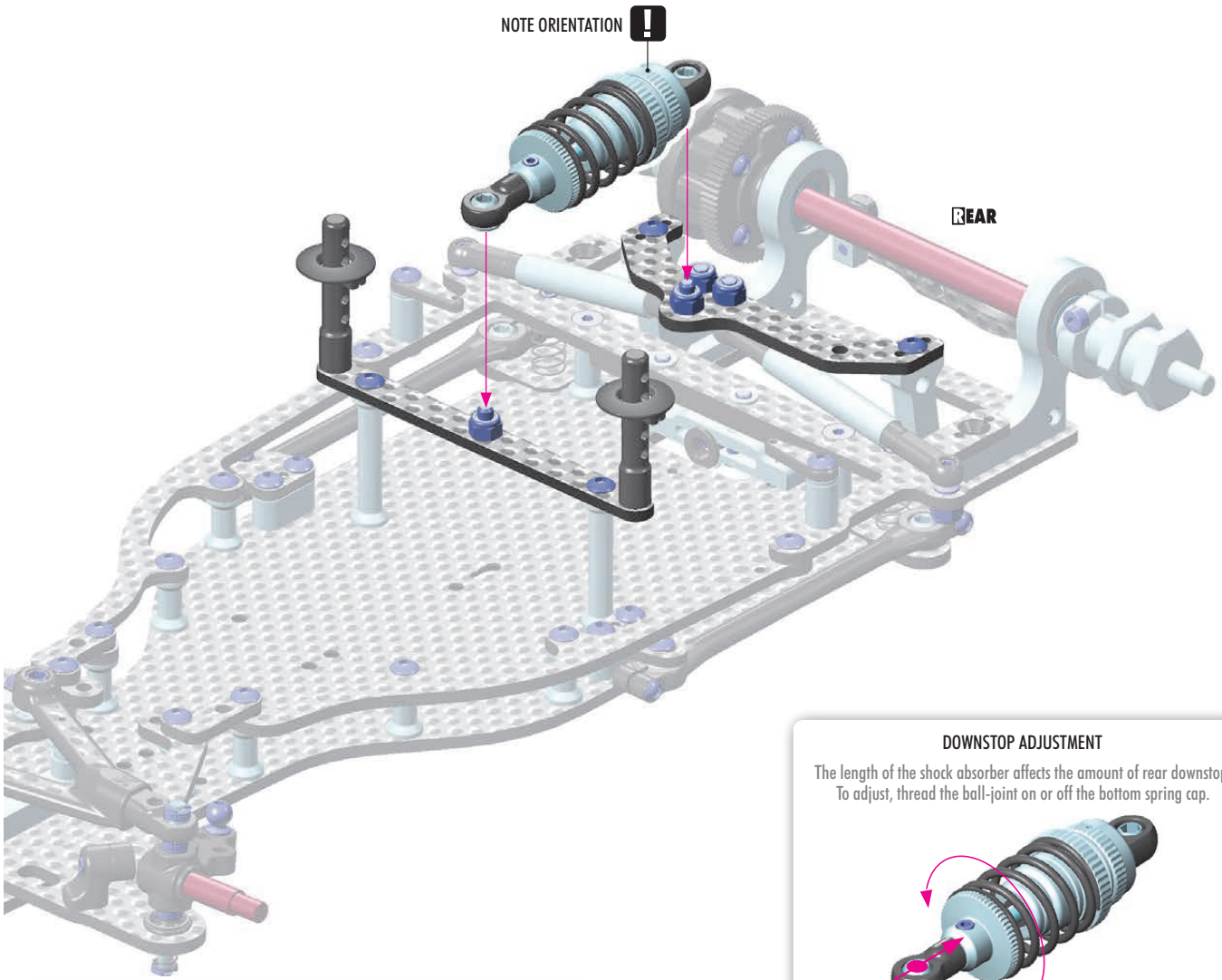
An innovative new feature is to change the center shock length (and front mounting position). By using longer or shorter shock, the damping and steering can be changed.



4. CENTER SHOCK



TIP Install the balls with Professional Multi-Tool (HUDY #183011)

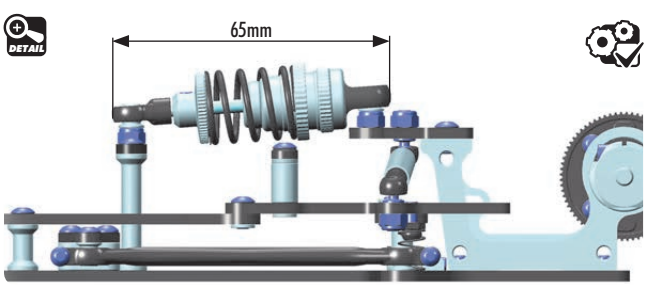


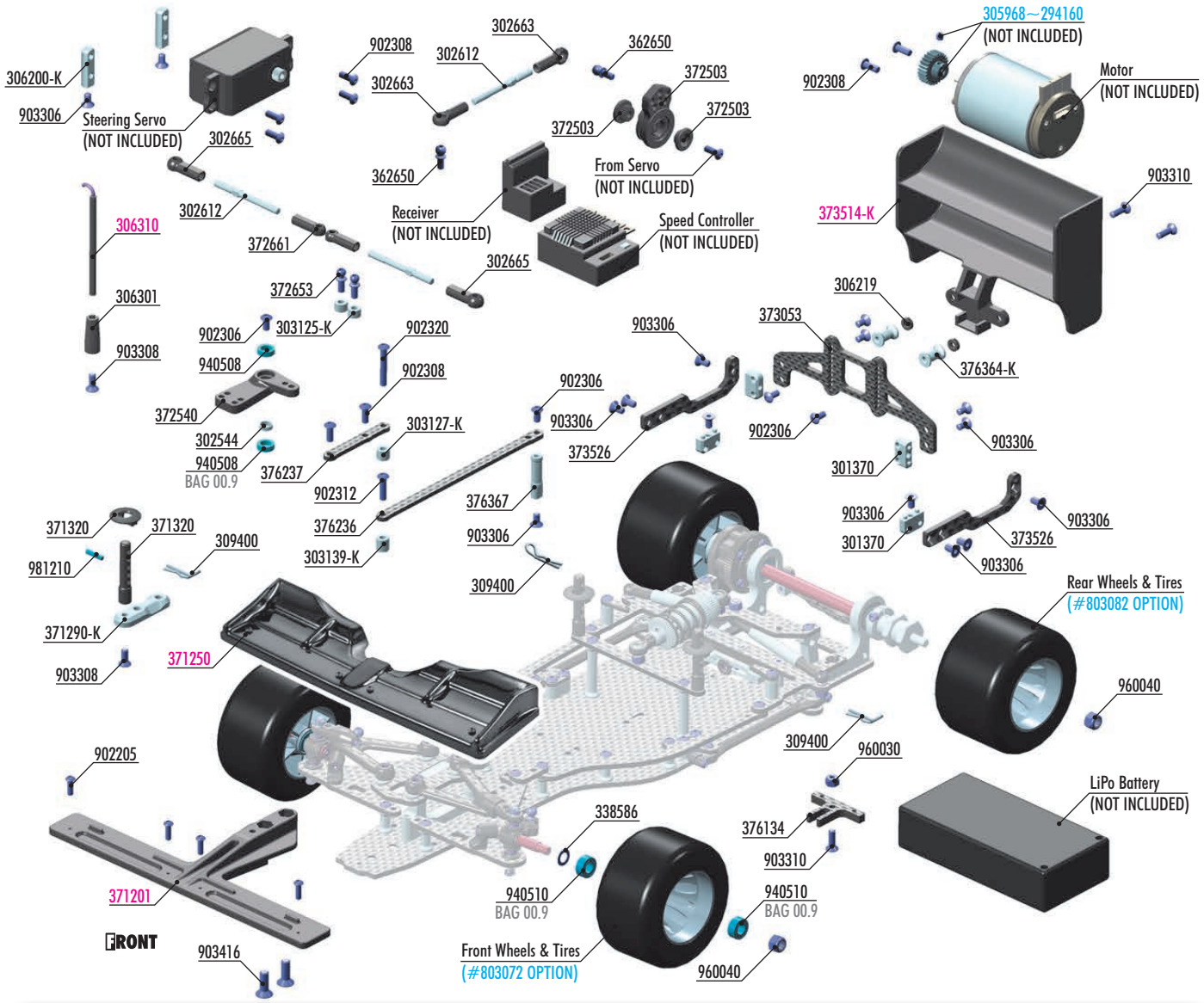
DOWNSTOP ADJUSTMENT

The length of the shock absorber affects the amount of rear downstop. To adjust, thread the ball-joint on or off the bottom spring cap.

TIP Jan Ratheisky (Factory Driver)

Set the ride height for your track and measure it at the link connection of the side pod. Lift the car on the rear part of the center shock. When you unload the shock fully, you can measure the height at the same spot again. The difference to the ride height is the droop amount. The set-up of the rear downstop is very important to find a good balance between traction and rotation. On both indoor and outdoor tracks, I recommend starting with 1mm droop. Less droop gives you more rear traction. Recommended for low-traction conditions. More droop frees up the rear and makes it looser, but results in more steering. You should not use more than 2.5mm rear droop at maximum.





OPTION

#305968~294160	PINION GEAR HARDCOATED 18~60T/64P
#372541-K	ALU ADJUSTABLE SERVO SAVER SET - BLACK
#371202	X1 COMPOSITE ADJUSTABLE FRONT AERO WING - ETS APPROVED
#371203-K	X1 COMPOSITE ADJUSTABLE FRONT WING - BLACK - ETS APPROVED
#371203	X1 COMPOSITE ADJUSTABLE FRONT WING - WHITE - ETS APPROVED
#371204-K	X1 COMPOSITE ADJUSTABLE FRONT WING - BLACK - FLAT DESIGN
#371204	X1 COMPOSITE ADJUSTABLE FRONT WING - WHITE - FLAT DESIGN
#373513-K	X1 COMPOSITE ADJUSTABLE REAR WING - BLACK - ETS APPROVED
#373514	X1 COMPOSITE REAR WING - LIGHTWEIGHT & WIDE - WHITE
#379701	XRAY X1 1/10 FORMULA BODY
#379702	XRAY X1 1/10 FORMULA BODY – WORLD CHAMPION EDITION
#803072	HUDY 1/10 FORMULA RUBBER TIRE - FRONT (2)
#803082	HUDY 1/10 FORMULA RUBBER TIRE - REAR (2)

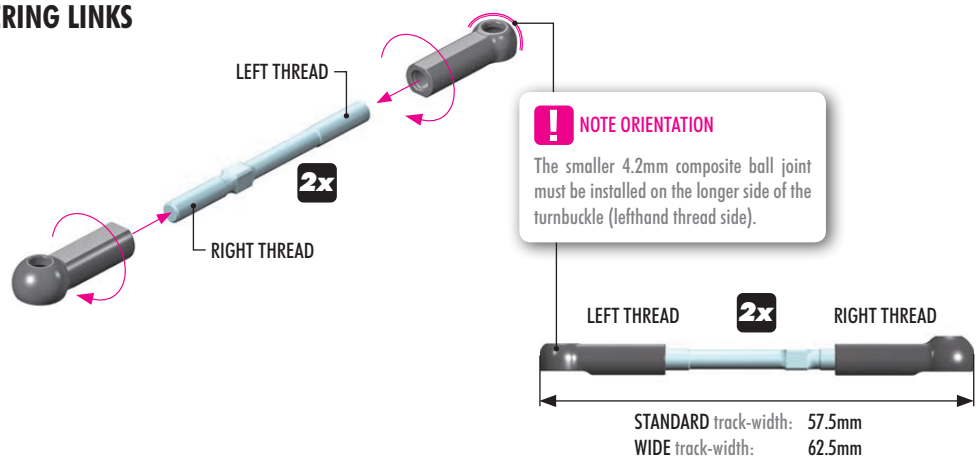
BAG 05

301370	ALU PLATE FOR REAR GRAPHITE BODY POST HOLDER
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)
303125-K	ALU SHIM 3x6x3.0mm (10)
303127-K	ALU SHIM 3x6x4.0mm (10)
303139-K	ALU SHIM 3x6x7.0mm (10)
306200-K	ALU SERVO MOUNT - BLACK (2)
306219	COMPOSITE SET OF SERVO SHIMS (4)
306301	ANTENNA MOUNT - THIN
309400	BODY CLIP (8)
362650	BALL END 4.9mm WITH THREAD 6mm (2)
371290-K	ALU BODY POST PLATE - BLACK
371320	COMPOSITE BODY POST (2)
372503	COMPOSITE SERVO SAVER - X-STIFF - SET - V2
372540	COMPOSITE STEERING ARM
372653	BALL END 4.2MM WITH 8mm THREAD (2)
372661	COMPOSITE STEERING BALL JOINT OPEN 4.2 MM (4)
373053	GRAPHITE REAR WING MOUNT 2.5mm
373526	GRAPHITE REAR WING HOLDER PLATE 2.5mm (L+R)
376134	GRAPHITE BATTERY BACKSTOP - MIDDLE
376236	GRAPHITE TOP DECK 2.2mm - LONG
376237	GRAPHITE TOP DECK 2.2mm - SHORT
376364-K	ALU MOUNT 10.8mm - BLACK (2)
376367	ALU MOUNT 22.5mm - BLACK
338586	SHIM 5x7x0.5 (10)
902205	HEX SCREW SH M2x5 (10)
902306	HEX SCREW SH M3x6 (10)
902308	HEX SCREW SH M3x8 (10)
902312	HEX SCREW SH M3x12 (10)
902320	HEX SCREW SH M3x20 (10)
903306	HEX SCREW SFH M3x6 (10)
903308	HEX SCREW SFH M3x8 (10)
903310	HEX SCREW SFH M3x10 (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)
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

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

5. FINAL ASSEMBLY

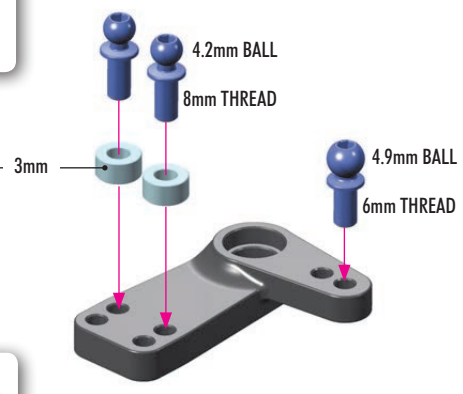
2x STEERING LINKS



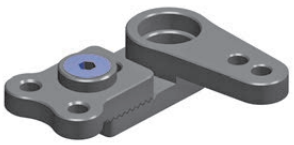
2x 303125-K
SHIM 3x6x3

These shims adjust the bumpsteer.

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



OPTION #372541-K
ALU ADJUSTABLE SERVO SAVER SET

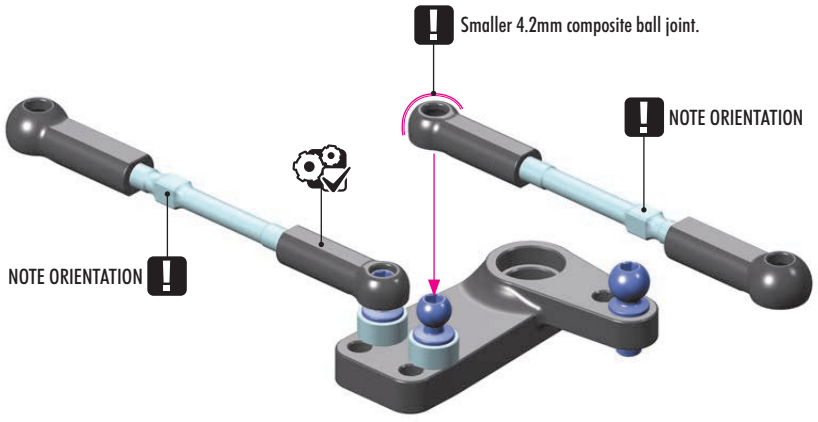


DETAIL The steering arm has two positions for servo linkage mounting.

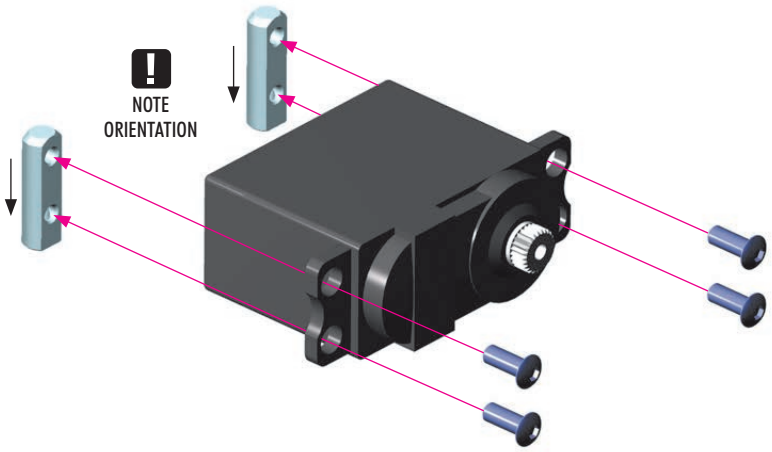
There are two Ackermann positions on the steering arm.

INNER position: More Ackermann, makes the car easier to drive, improves cornering speed (INITIAL SETTING).

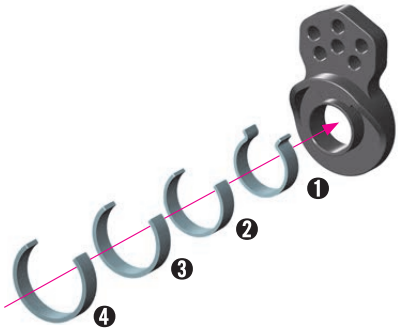
OUTER position: Less Ackermann, makes the car more responsive, improves in-corner steering.

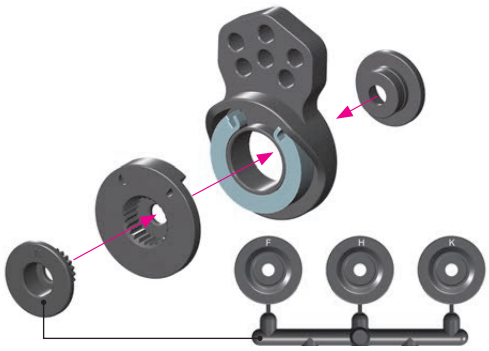


4x 902308
SH M3x8



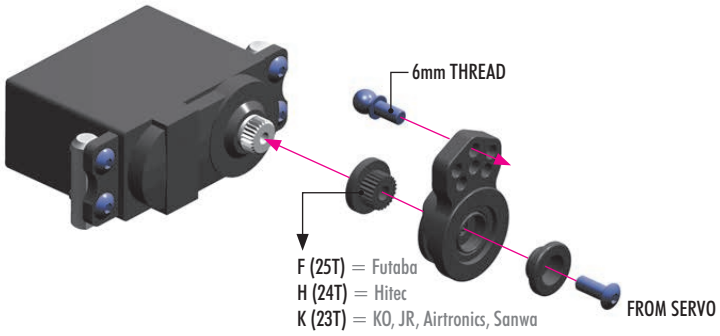
SERVO SAVER





F = 25T H = 24T K = 23T

Use the adapter that matches the steering servo.



DETAIL

INITIAL SETTING

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

OPTION HUDY

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

OPTION HUDY

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

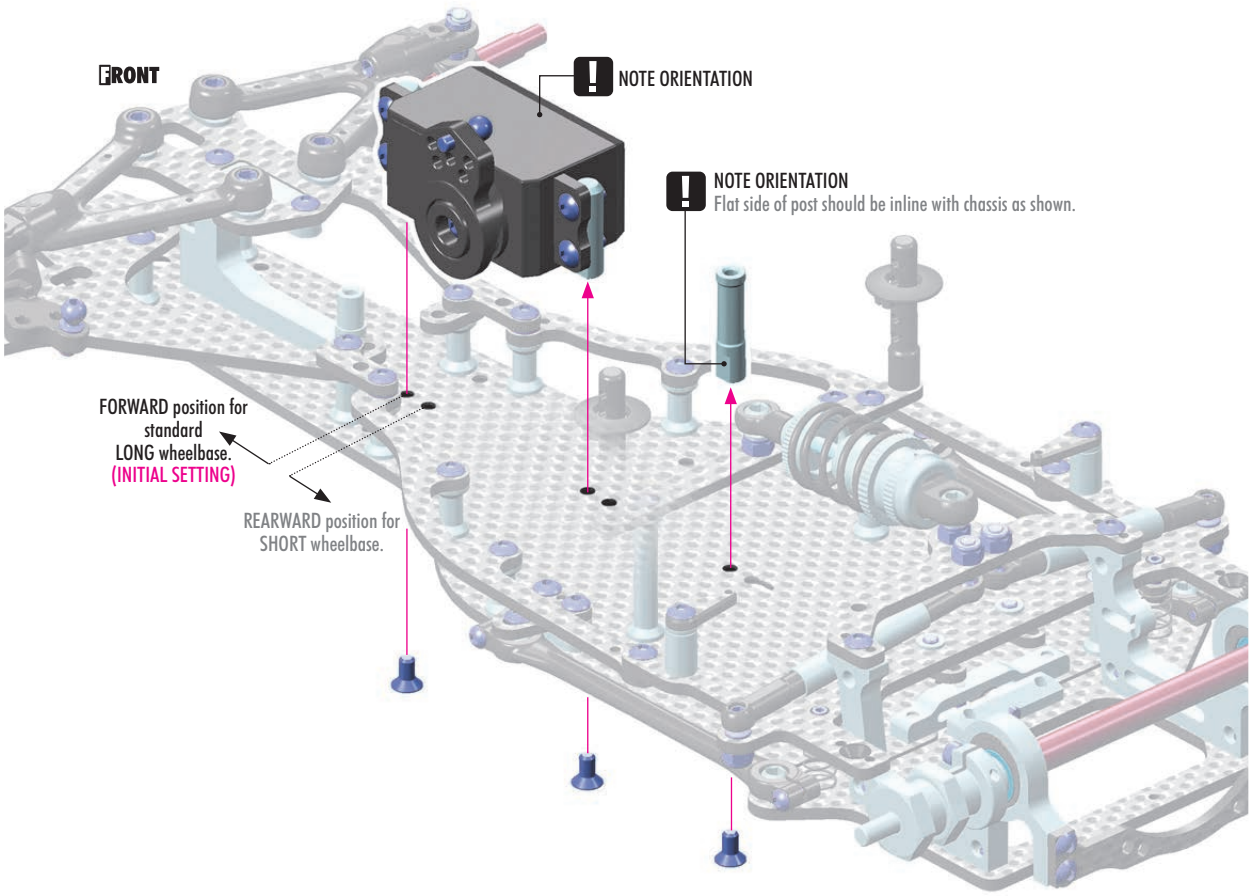
OPTION HUDY

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

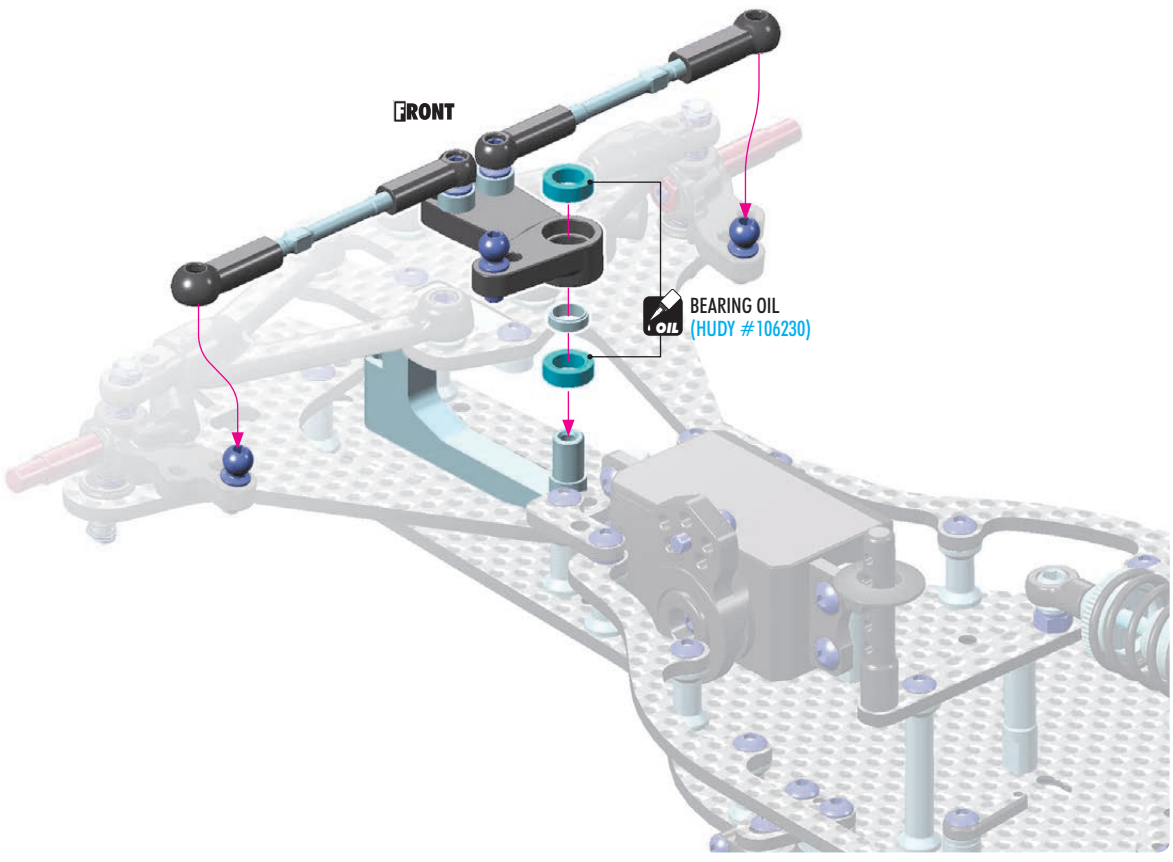
IMPORTANT!
When an aluminum horn is used, the steering servo saver is not used. This increases the risk of breaking the servo in serious crashes.

5. FINAL ASSEMBLY

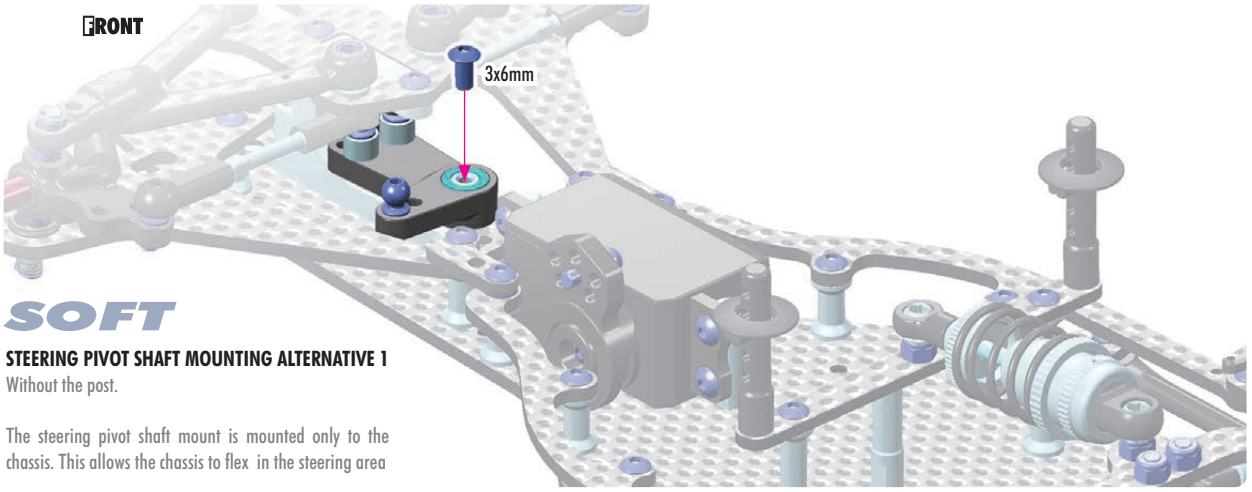
3x 903306
SFH M3x6



2x 940508
BB 5x8x2.5



1x 902306 SH M3x6



SOFT

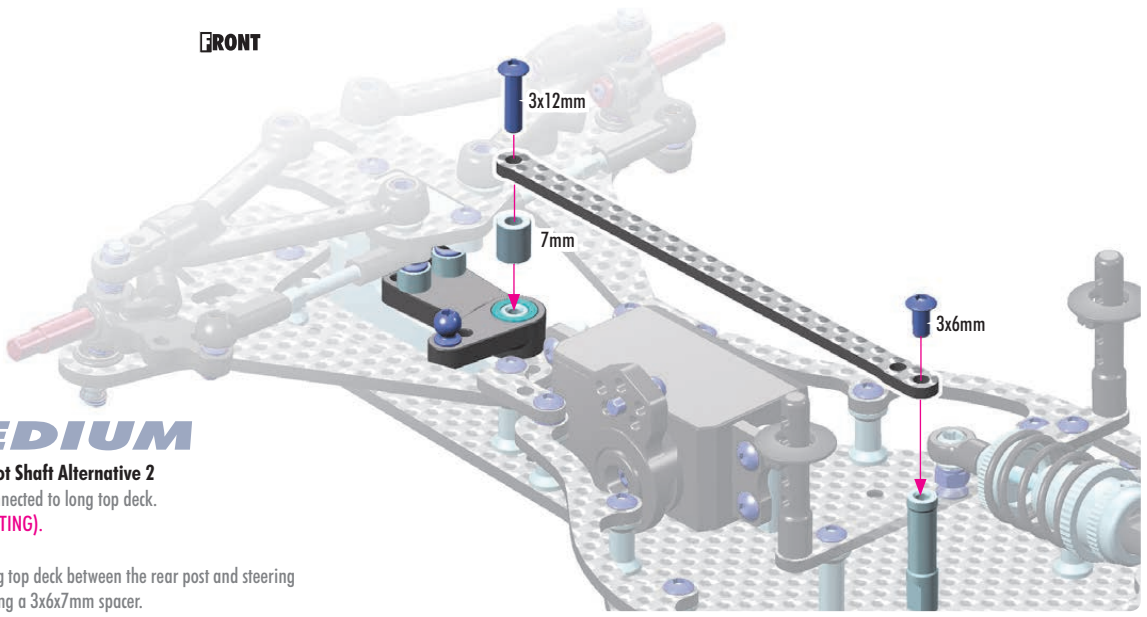
STEERING PIVOT SHAFT MOUNTING ALTERNATIVE 1
Without the post.

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

1x 303139-K SHIM 3x6x7

1x 902306 SH M3x6

1x 902312 SH M3x12



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.

1x 303127-K SHIM 3x6x4

1x 303139-K SHIM 3x6x7

1x 902306 SH M3x6

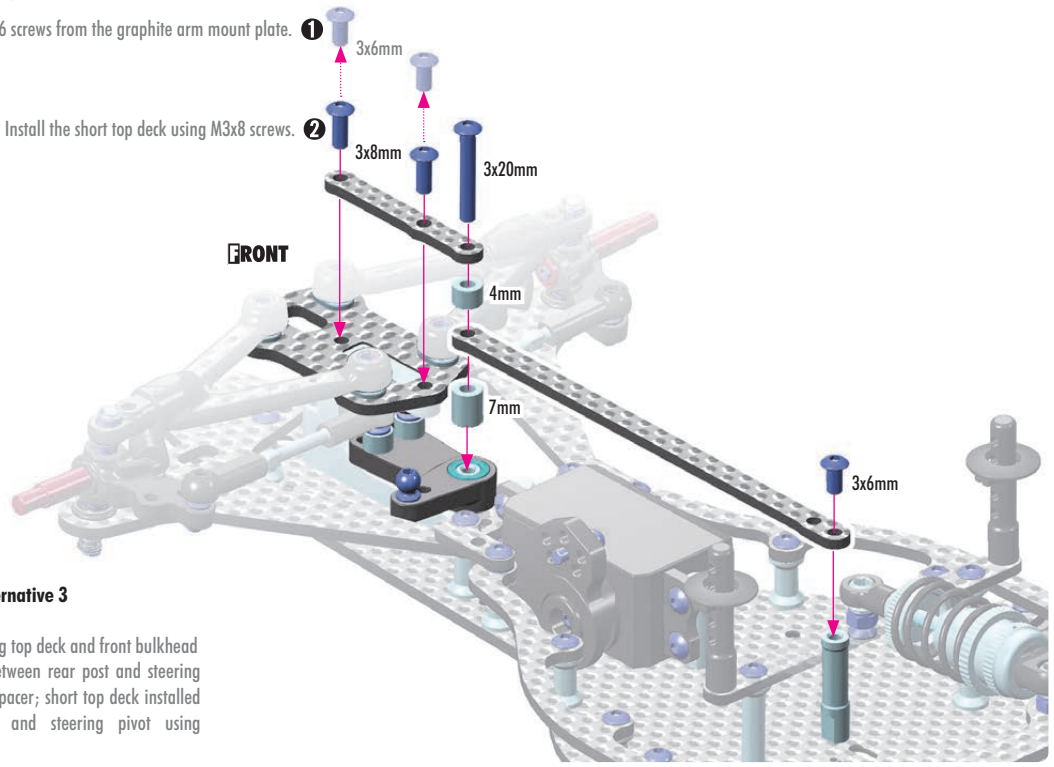
2x 902308 SH M3x8

1x 902320 SH M3x20

When installing the SHORT TOP DECK:

Remove M3x6 screws from the graphite arm mount plate. ❶

Install the short top deck using M3x8 screws. ❷



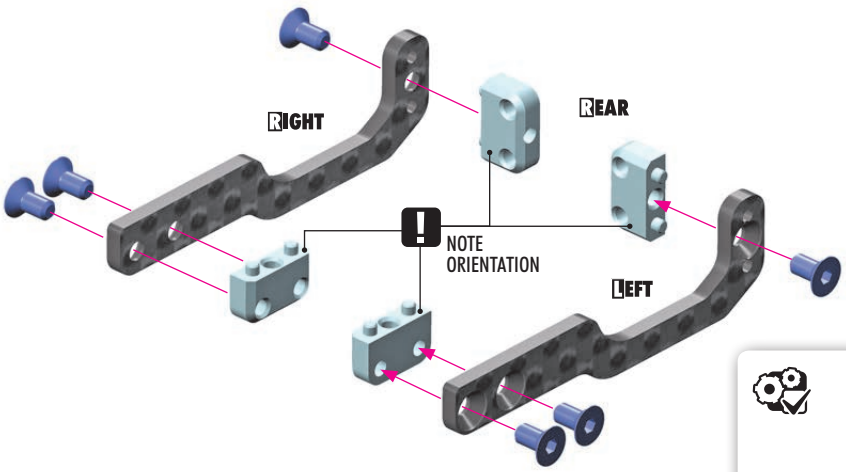
STIFF

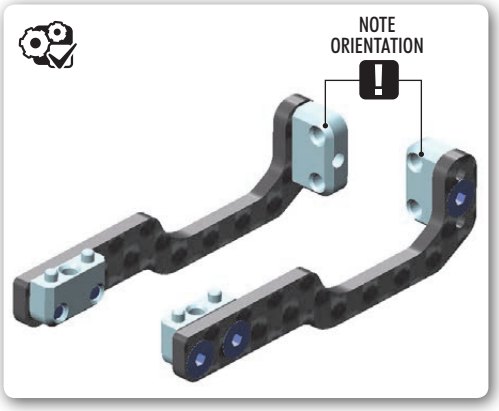
Steering Pivot Shaft Alternative 3

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.

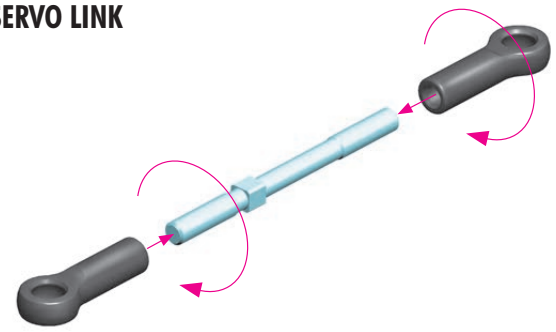
5. FINAL ASSEMBLY

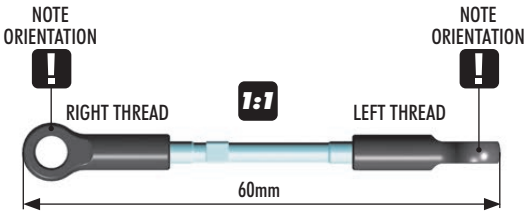
6x 903306 SFH M3x6



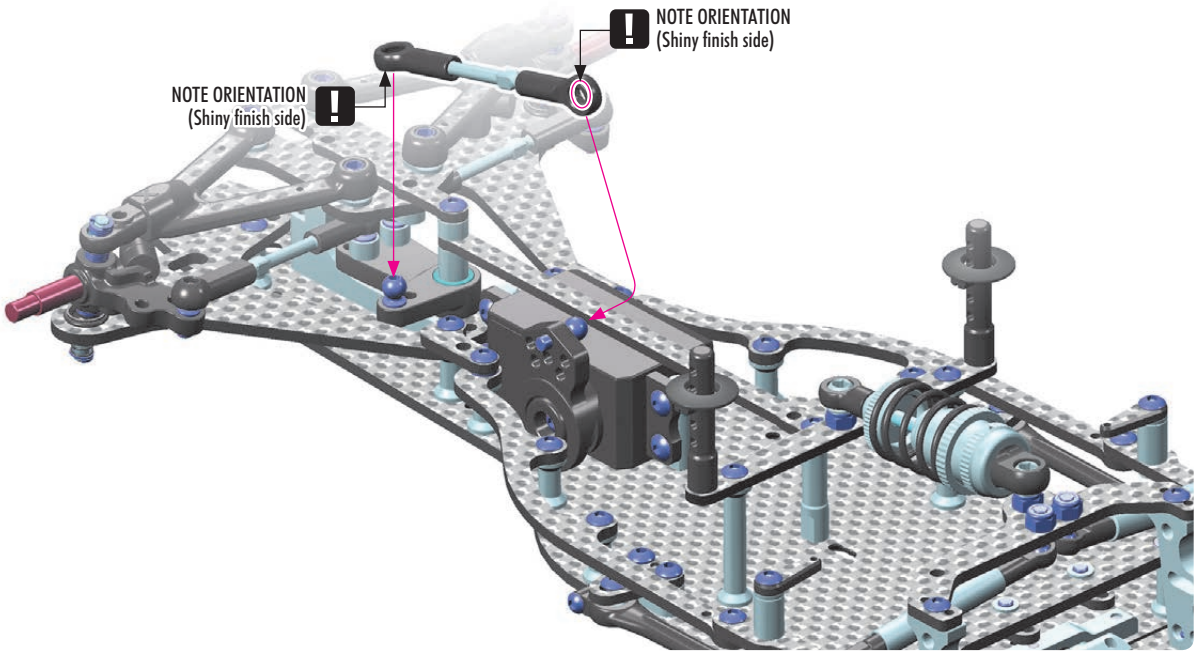


SERVO LINK



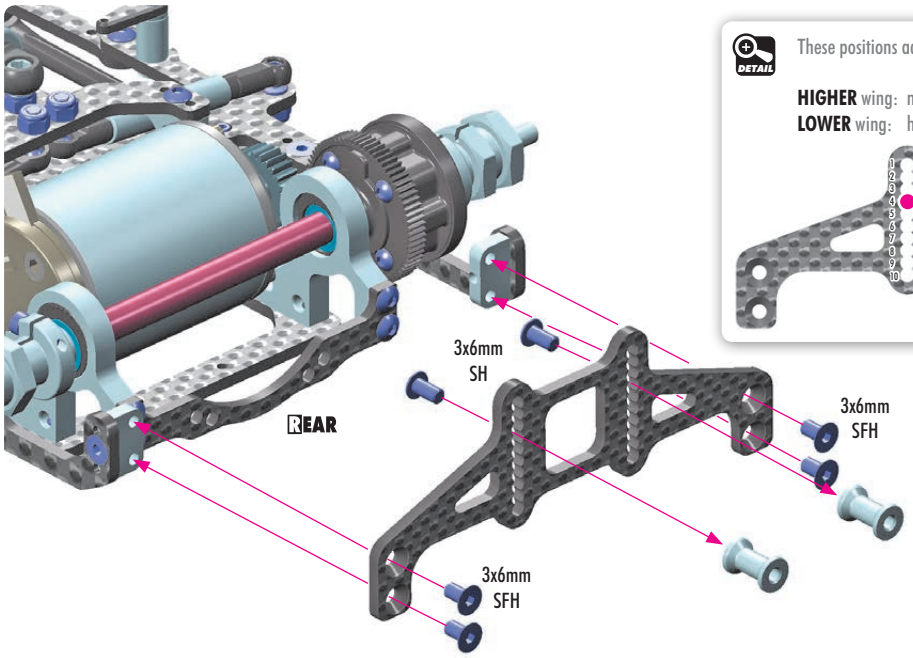


The length of the link depends on the wheelbase setting. The 63mm length is recommended for standard wheelbase setting.
(INITIAL SETTING)



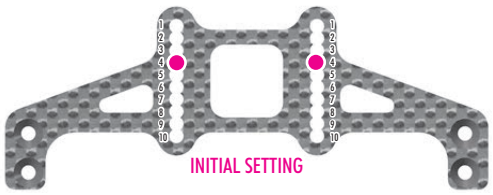
2x 902306 SH M3x6

4x 903306 SFH M3x6

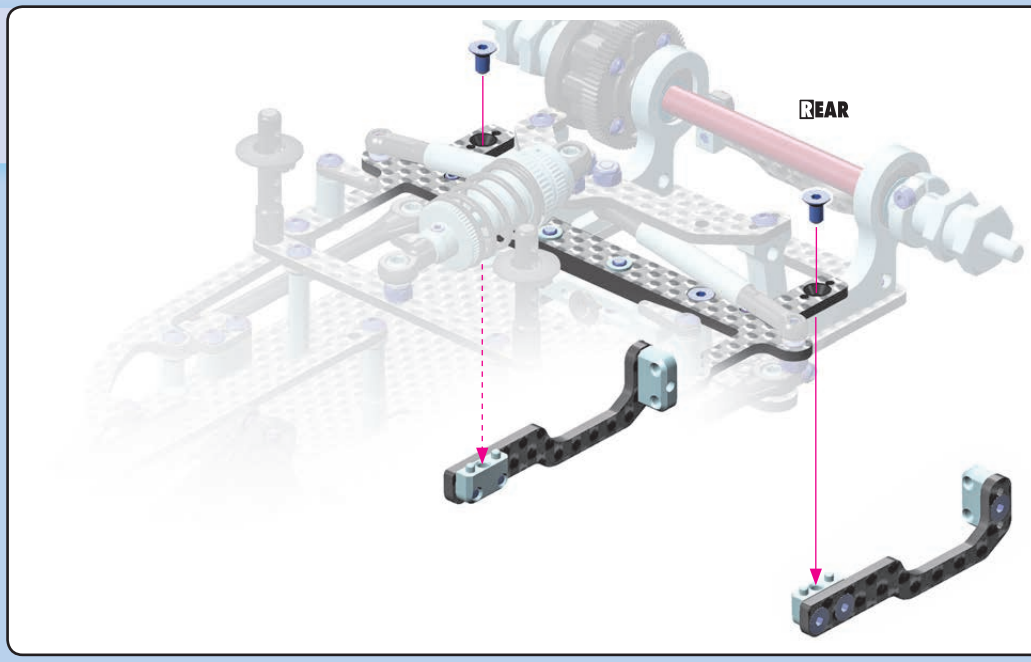


These positions adjust the **HEIGHT** of the rear wing.

HIGHER wing: more rear traction, more stability
LOWER wing: higher top speed, improved steering response

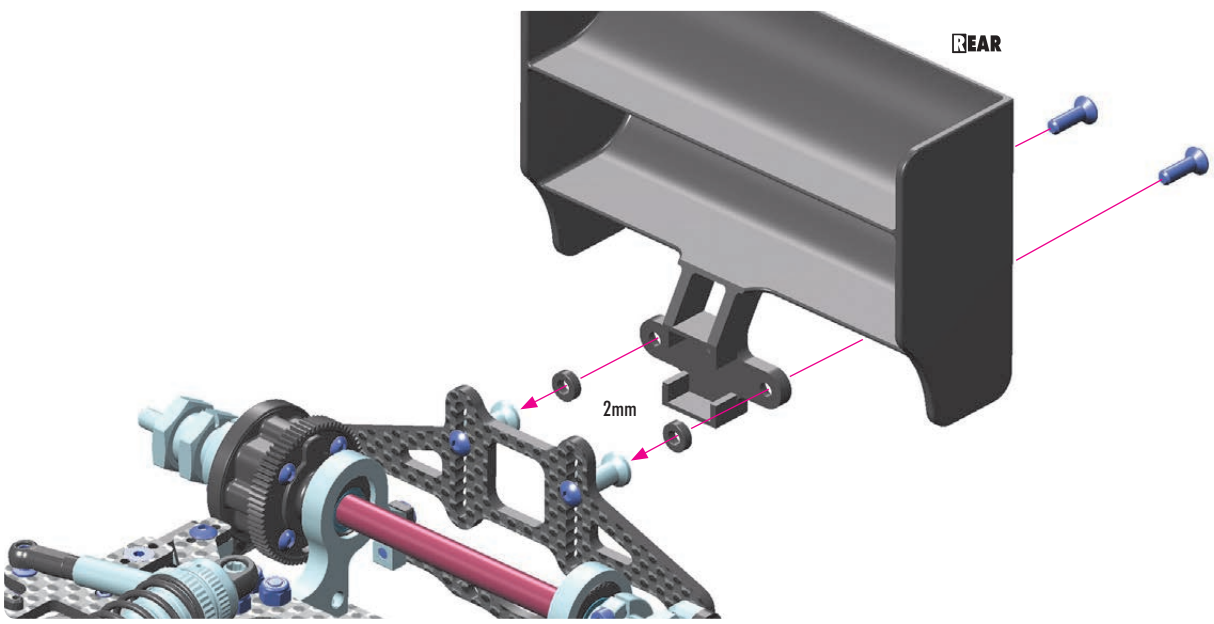


2x 903306 SFH M3x6



2x 306219 SHIM 3x6x2

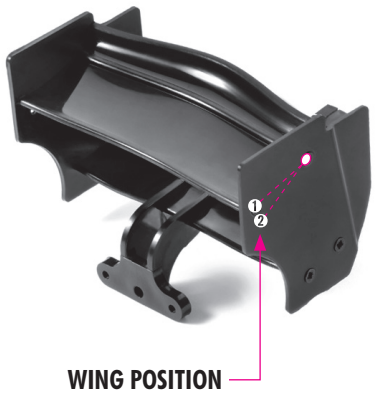
2x 903310 SFH M3x10



5. FINAL ASSEMBLY

8x 906206 SFP 2.2x6

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

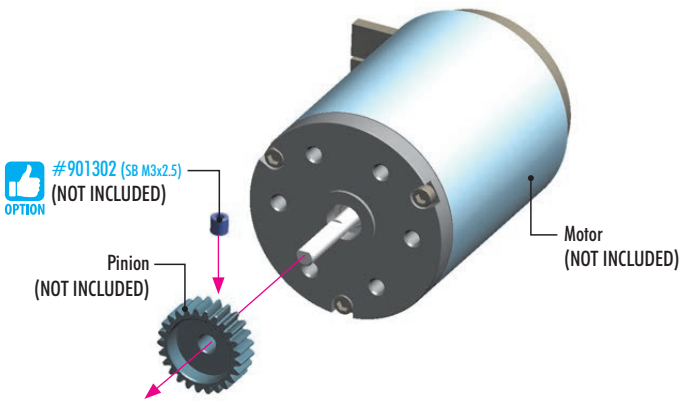


WING POSITION

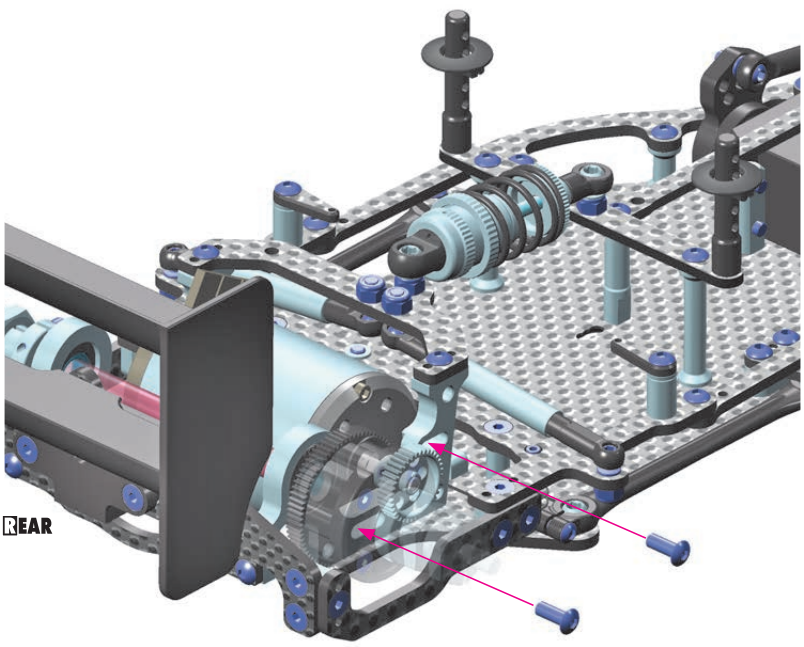
❶ LOW DOWNFORCE:
Low downforce setting is recommended on tracks where top speed is more important over rear stability on-power/in high speed corners.

❷ HIGH DOWNFORCE:
High downforce setting recommended for most tracks.

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



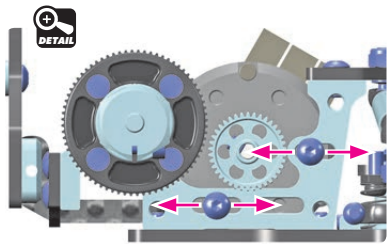
2x 902308 SH M3x8



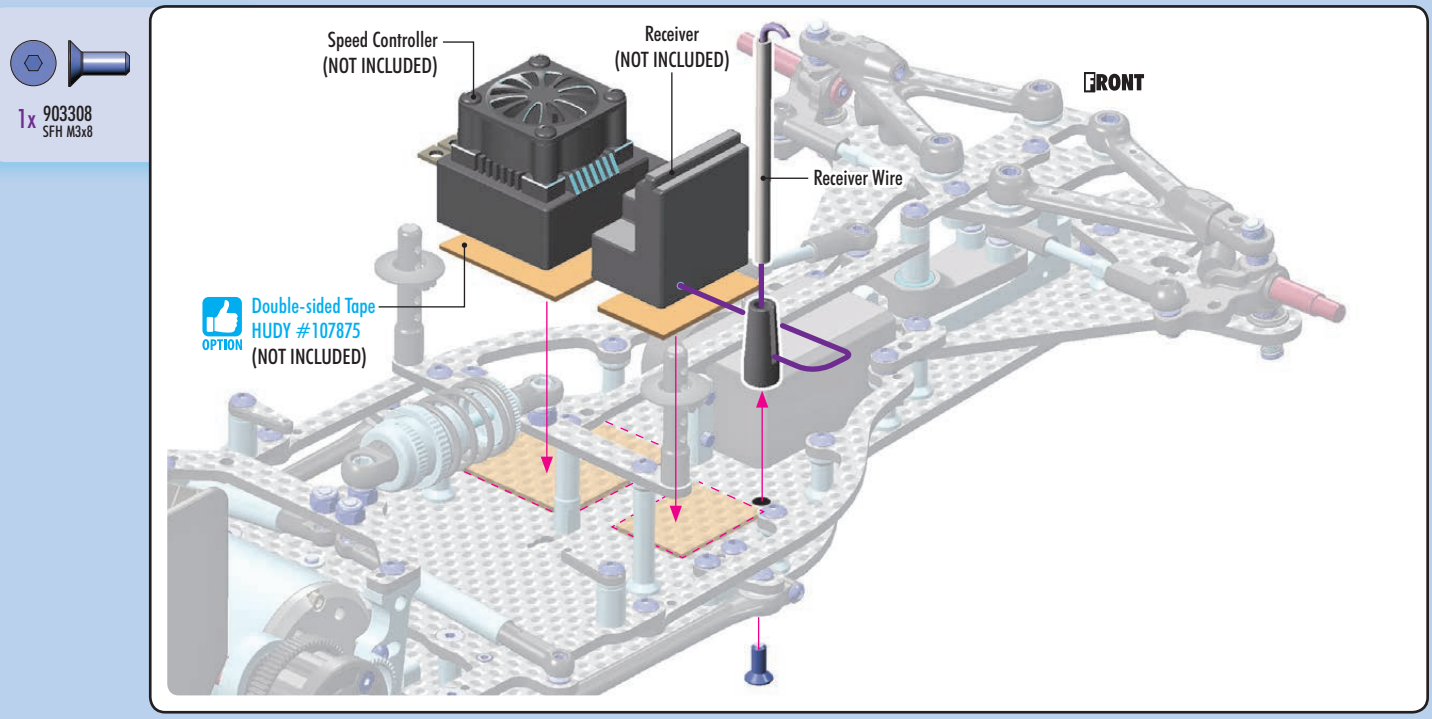
OPTION

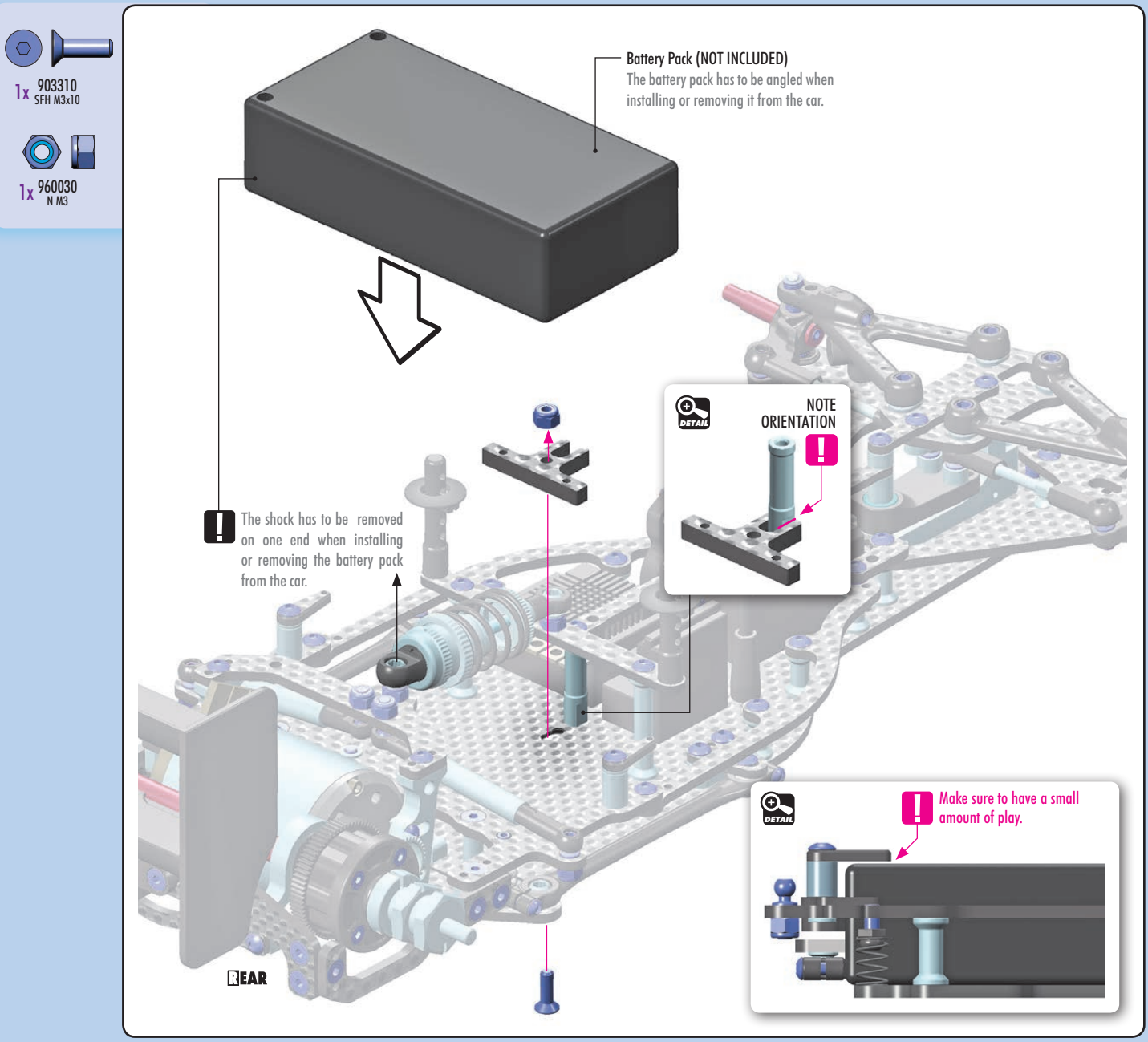
ALU PINION GEARS HARDCOATED - 64P

#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



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.

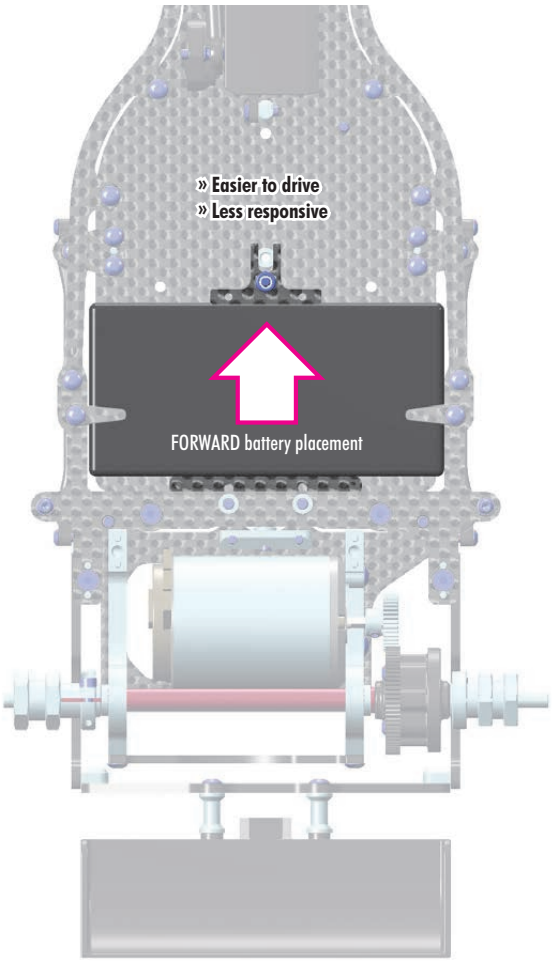

1x 903308
SFH M3x8
Speed Controller
(NOT INCLUDED)
Receiver
(NOT INCLUDED)
FRONT
Receiver Wire
OPTION
Double-sided Tape
HUDY #107875
(NOT INCLUDED)


1x 903310
SFH M3x10
1x 960030
N M3
Battery Pack (NOT INCLUDED)
The battery pack has to be angled when installing or removing it from the car.
The shock has to be removed on one end when installing or removing the battery pack from the car.
DETAIL
NOTE ORIENTATION
DETAIL
Make sure to have a small amount of play.
REAR

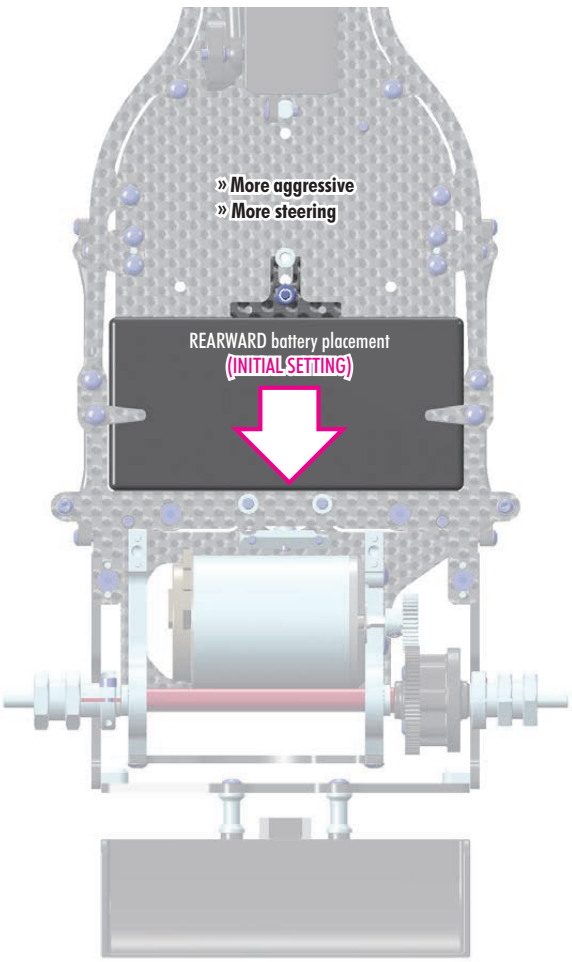
BATTERY MOUNTING POSITIONS

The X1 has 3 battery mounting positions.

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



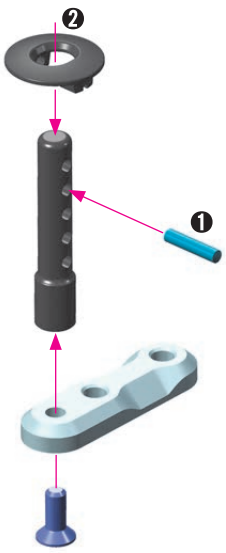
The **MORE REARWARD** the battery is, the car will be more aggressive and have more steering.

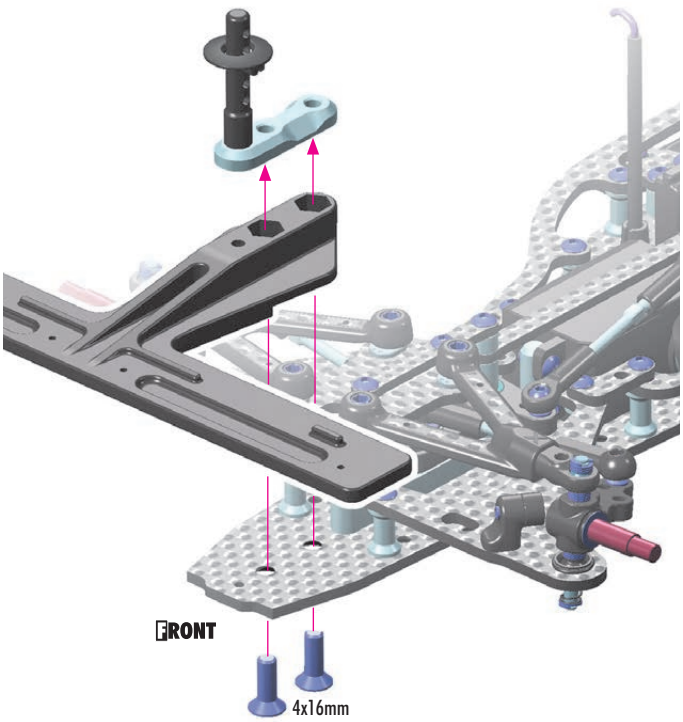


1x 903308
SFH M3x8

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.

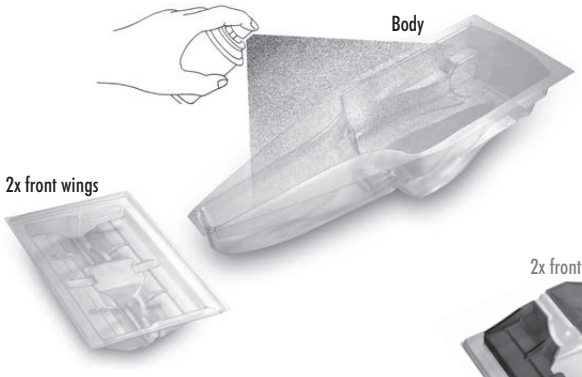
❹ Apply paint masks as appropriate.

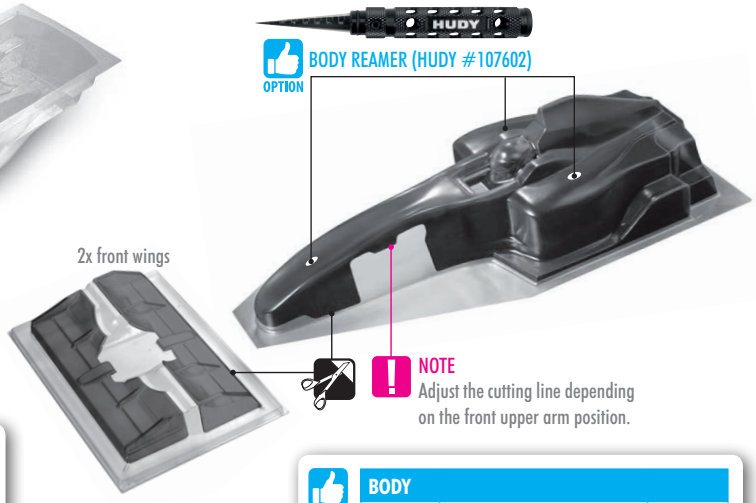
❺ Paint the body using paints formulated for polycarbonate bodies.

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.





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

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

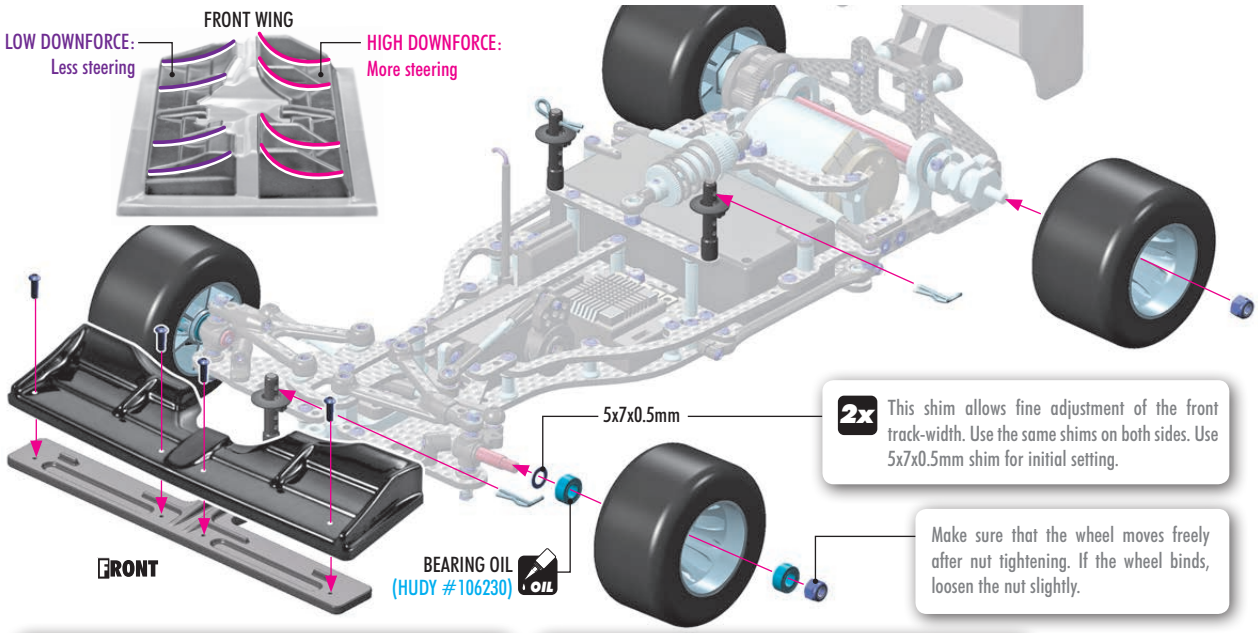
BODY		
#379701	XRAY	OPTION
#379702	WORLD CHAMPION EDITION	OPTION

2x 338586 SHIM 5x7x0.5

4x 902205 SH M2x5

4x 940510 BB 5x10x4

4x 960040 N M4



2x This shim allows fine adjustment of the front track-width. Use the same shims on both sides. Use 5x7x0.5mm shim for initial setting.

Make sure that the wheel moves freely after nut tightening. If the wheel binds, loosen the nut slightly.

OPTION
#803072 HUDY 1/10 FORMULA RUBBER TIRE - FRONT (2)
#803082 HUDY 1/10 FORMULA RUBBER TIRE - REAR (2)

OPTION

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

OPTION #371204
X1 Composite Adjustable Front Wing White - Flat Design

OPTION #371204-K
X1 Composite Adjustable Front Wing Black - Flat Design

OPTION #371203
X1 Composite Adjustable Front Wing White - ETS Approved

OPTION #371203-K
X1 Composite Adjustable Front Wing Black - ETS Approved

OPTION #371202
X1 Composite Front Wing Black - ETS Approved

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