XB4 2WD

INSTRUCTION MANUAL

INTRODUCTION

The XRAY XB4 2WD is a modern, high-competition premium luxury racing 1/10 electric 2WD off-road buggy that is the epitome of high-performance and fine distinctive design. Your XB4 2WD offers highest performance, responsive handling, and traditionally exceptional XRAY quality, engineering, and design. The superb craftsmanship and attention to detail are clearly evident everywhere on the XRAY XB4 2WD.

XB4 2WD was designed around a no compromise platform; the attention to detail creates a low maintenance, extra long life nitro buggy. The ultra-low center of gravity (CG) and optimized weight balance makes set-up, driving, and maintenance easy and quick.

The XRAY XB4 2WD was created by blending highest-quality materials and excellent design. On high-speed flat tracks or bumpy tracks, whether driving for fun or racing to win, the XB4 2WD delivers outstanding performance, speed, and precision handling.

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.

CUSTOMER SUPPORT

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You can join thousands of XRAY fans and enthusiasts in our online community at:
www.teamxray.com

XRAY Europe
K Výstavisku 6992
91101 Trenčín
Slovakia, EUROPE
Phone: +421-32-7401100
Fax: +421-32-7401109
Email: info@teamxray.com

XRAY USA
RCAmerica, 2970 Blystone Lane, Suite 109
Dallas, Texas 75220
USA
Phone: (800) 519-7221 * (214) 744-2400
Fax: (214) 744-2401
Email: 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 R/C 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.

SYMBOLS USED

Part bags used

Assemble in the specified order

Assemble left and right sides the same way

Pay attention here

Assemble as many times as specified (here twice)

Apply thread lock

Apply CA glue

Apply oil

Apply grease

Apply cleaner

Ensure smooth non-binding movement

Tighten screw gently

CORRECT WRONG

Overtightened

The threads are stripped.

Follow Set-Up Book

FRONT & REAR AXLES

TOOLS REQUIRED

Scissors (HUDY #188990)

Special Tool for turnbuckles, nuts (HUDY #108090)

Combination Pliers (HUDY #189020)

Side Cutters (HUDY #189010)

Hobby Knife

Turnbuckle Wrench 3mm (HUDY #181030)

Reamer (HUDY #107600) or (HUDY #107601)

HUDY TOOLS:

Allen 1.5mm

Allen 2.0mm

Socket 5.5mm

Socket 7.0mm

Arm Reamer 3.0mm

NOT INCLUDED

To ensure that you always have access to the most up-to-date version of the Set-up Book you can download the HUDY Set-up Book from their web site at www.hudy.net. By offering this online version instead of including a hardcopy printed version in kits, you will always be assured of having the most current updated version.

SAMPLE OF OPTIONAL PARTS	
#36XXXX	OPTION 1
#36XXXX	OPTION 2
#36XXXX	OPTION 3

XRAY offers wide range of optional tuning parts which are listed in a table like this. Please reffer 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.

EQUIPMENT INCLUDED

XRAY Premium Silicone Oils

Graphite Grease (HUDY #106210)

EQUIPMENT REQUIRED

Transmitter

Receiver

Steering Servo

Pinion Gear and Setscrew

Electric Motor

Bearing Oil (HUDY #106230)

Speed Controller

LiPo Battery

Lexan Paint ™

Battery Charger

Double-sided Tape

Tires & Inserts

CONTENTS

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:

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

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

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

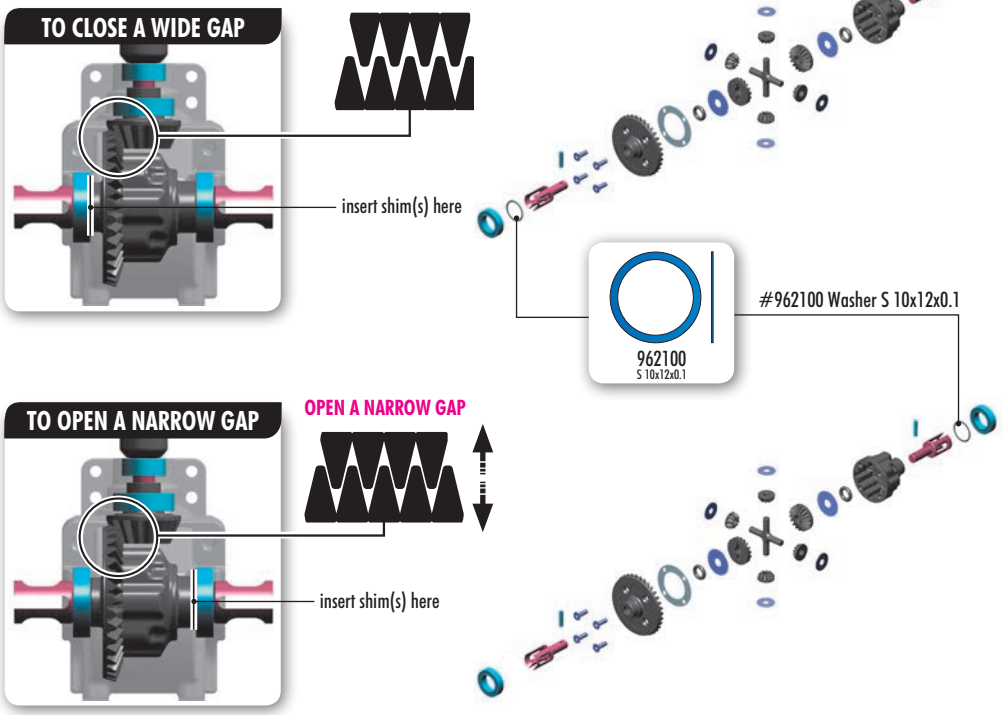
XB4 2WD TECH TIPS

TIP FRONT & REAR DIFF GEAR MESH ADJUSTMENT

We suggest that you first check gear mesh as below. If there is too much or too little diff side play, this may create non-optimal gear mesh between the diff gear and the pinion drive gear. This is easily resolved by inserting 1 or 2 of the included thin shims behind a diff outdrive ball-bearing, depending on how much play there is.

THE LOCATION OF THE SHIM(S) DEPENDS ON WHETHER YOU ARE TRYING TO CLOSE OR OPEN THE GAP:

INCLUDED SHIM

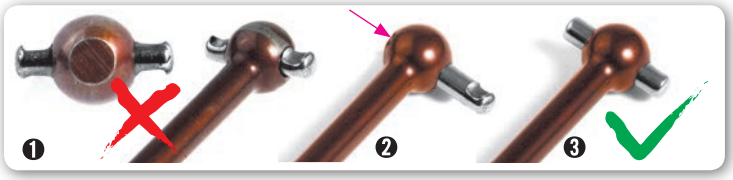


To CLOSE a wide gap:
add 1 or 2 shims against diff spur gear

To OPEN a narrow gap:
add 1 or 2 shims on the other side of the diff, away from spur gear

TIP DRIVE SHAFT PINS SERVICING

To enjoy the longest possible lifespan of the drive shafts and diff outdrives, it is extremely important to properly service the drive shaft pins.
Inspect the pins after every 3 hours of runtime. If the pins show any wear, replace them with new pins.



Do not use drive shafts when the pins are worn.

Press out the worn pins.

Press in new pins and regularly inspect for wear.

For easy and comfortable drive pin replacements use #106000 HUDY Drive Pin Replacement Tool.

To replace the worn pins use only the premium HUDY drive pins #106051.

TIP GRAPHITE PARTS PROTECTION

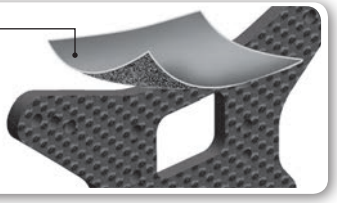
Follow this tech tip to protect the graphite parts.

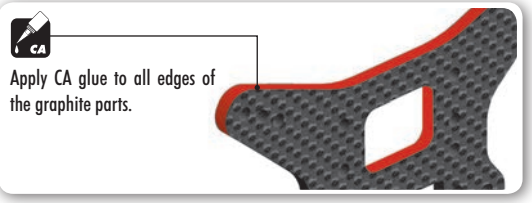
Protect all XB4 2WD Graphite Parts:

- Front shock tower
- Rear shock tower

Fine sandpaper

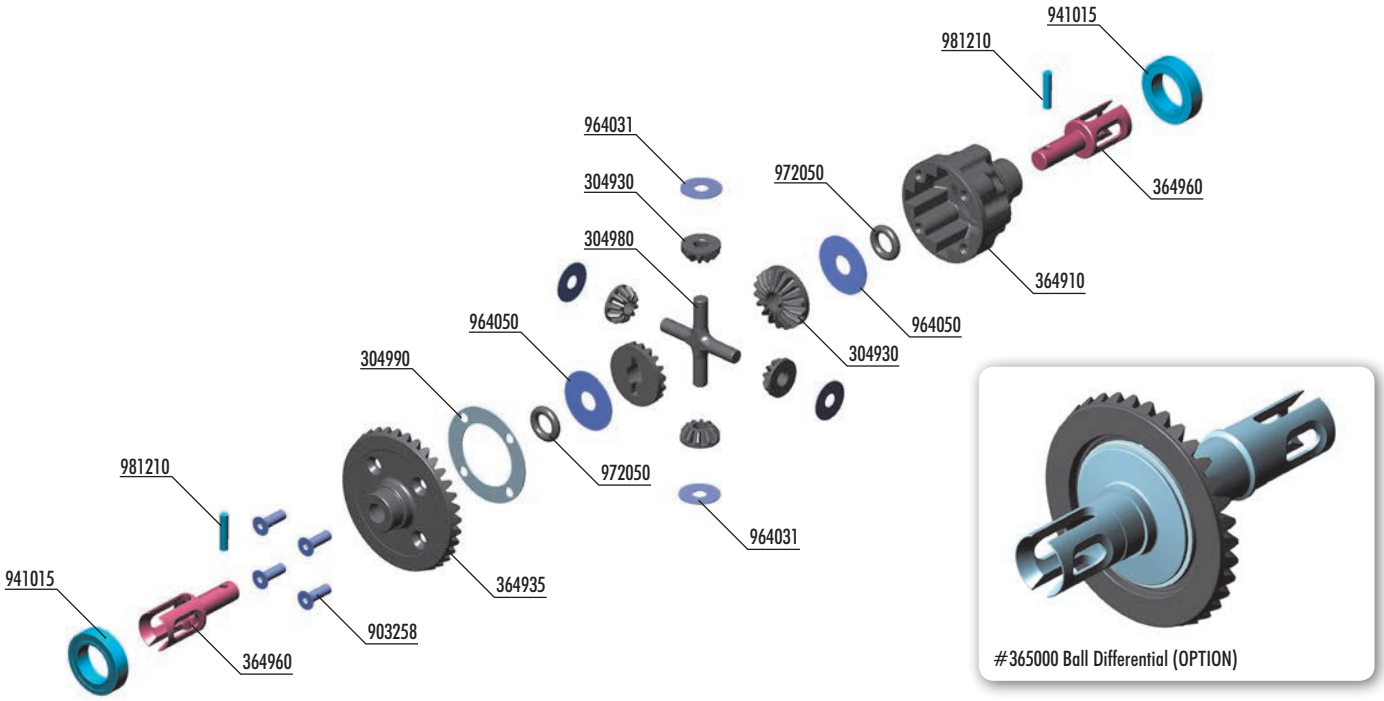
Use fine sandpaper to sand smooth the edges of all graphite parts.





Apply CA glue to all edges of the graphite parts.

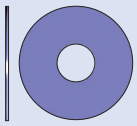
1. REAR DIFFERENTIAL



#365000 Ball Differential (OPTION)

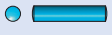
BAG 01

30 4930	COMPOSITE GEAR DIFF BEVEL & SATELLITE GEARS (2+4)	90 3258	HEX SCREW SFH M2.5x8 (10)
30 4980	COMPOSITE GEAR DIFF CROSS PIN	94 1015	HIGH-SPEED BALL-BEARING 10x15x4 RUBBER SEALED (2)
30 4990	DIFF GASKET (4)	96 4031	WASHER S 3.5x10x0.2 (10)
36 4900	GEAR DIFFERENTIAL - SET	96 4050	WASHER S 5x15x0.3 (10)
36 4910	COMPOSITE GEAR DIFFERENTIAL CASE	97 2050	SILICONE O-RING 5x2 (10)
36 4935	COMPOSITE DIFF. BEVEL GEAR 35T	98 1210	PIN 2x10 (10)
36 4960	GEAR DIFF OUTDRIVE ADAPTER - HUDY SPRING STEEL™ (2)		

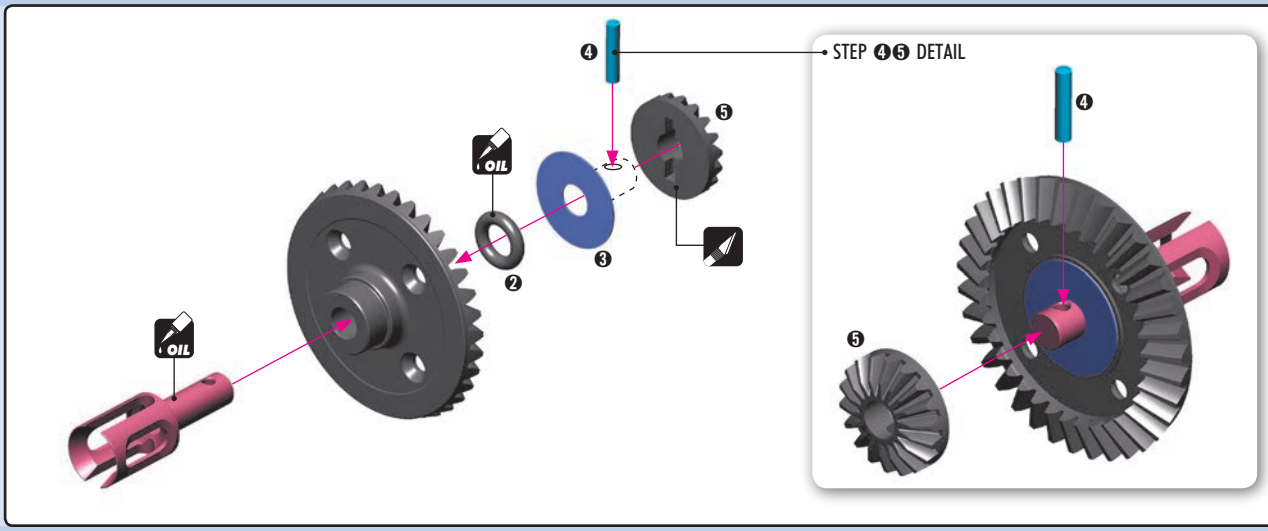


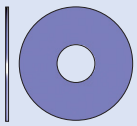
964050
S 5x15x0.3

972050
O 5x2



981210
P 2x10



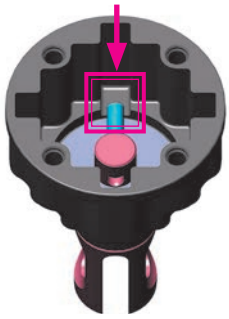


964050
S 5x15x0.3

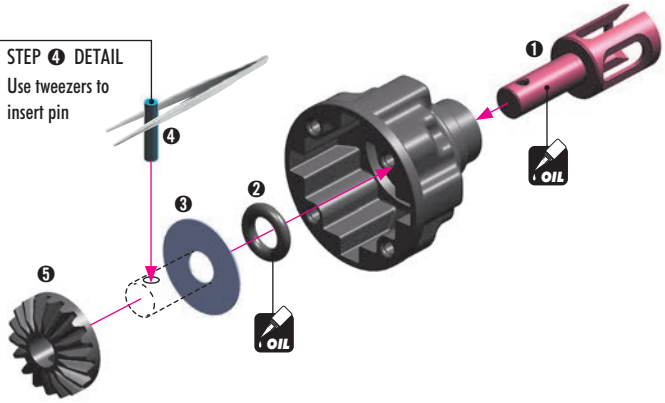
972050
O 5x2

981210
P 2x10

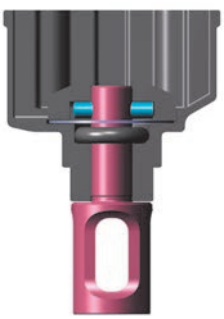
NOTE ORIENTATION



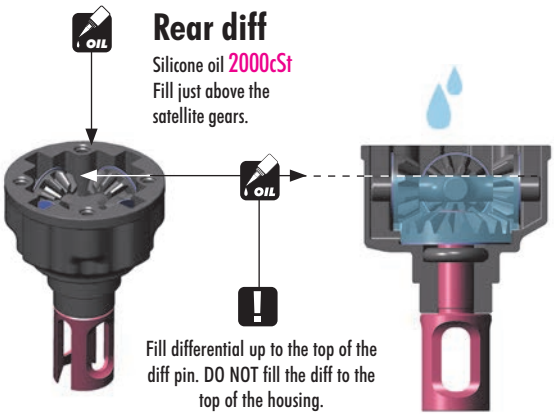
STEP 4 DETAIL
Use tweezers to insert pin



CUTAWAY VIEW



964031
S 3.5x10x0.2



Rear diff

Silicone oil 2000cSt
Fill just above the satellite gears.

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

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

❶ Put the diff (without oil) on the scale and check the weight (approximately 9.80g)

❷ Slowly pour oil into the diff and watch the weight. Add 1.32g of oil into the diff. The approximate weight of the diff including oil is 11.12g.

TIP **TIPS FOR REAR DIFERENTIAL** **TIP**

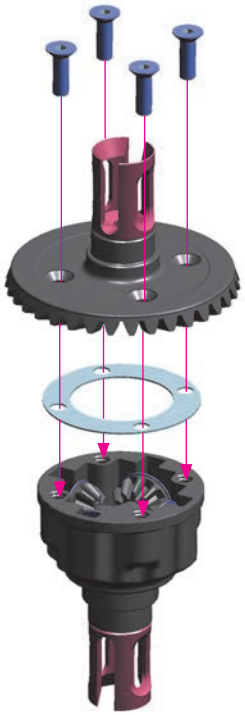
LOW TRACTION	700cSt (HUDY #106370)
MEDIUM-HIGH TRACTION	2000cSt (HUDY #106420)
SUPER-HIGH TRACTION	3000cSt (HUDY #106430)

NOTE:
Softer oil increases rear traction, harder oil increases on-power steering.

SET-UP BOOK
DIFFERENTIAL OIL

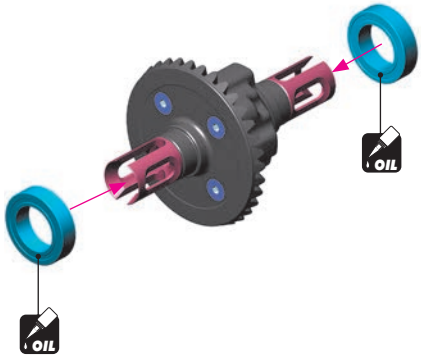
903258
SFH M2.5x8

941015
BB 10x15x4

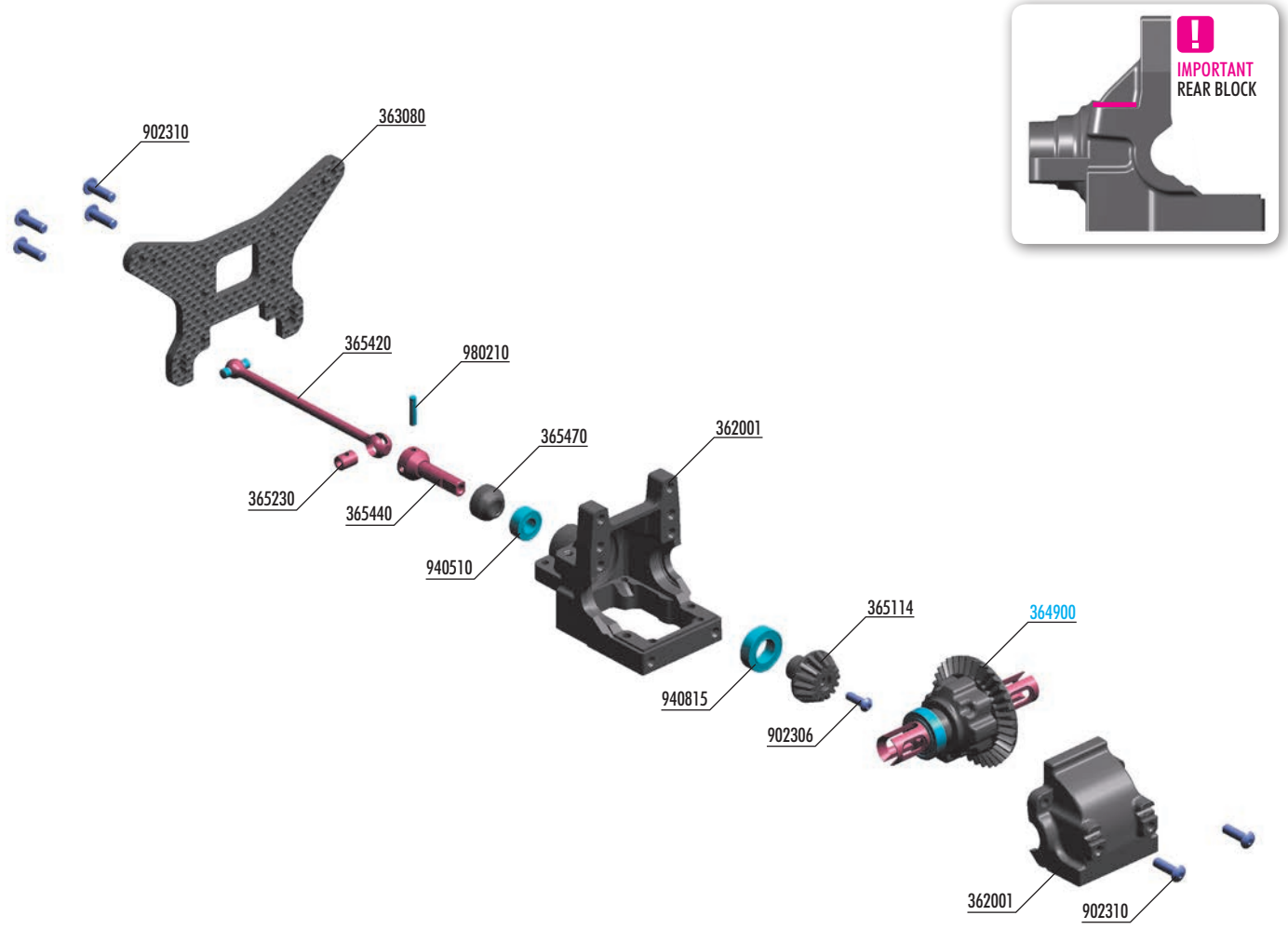


Tighten the screws equally but do NOT tighten them completely.

Finish tightening in this order.



2. REAR CENTRAL TRANSMISSION



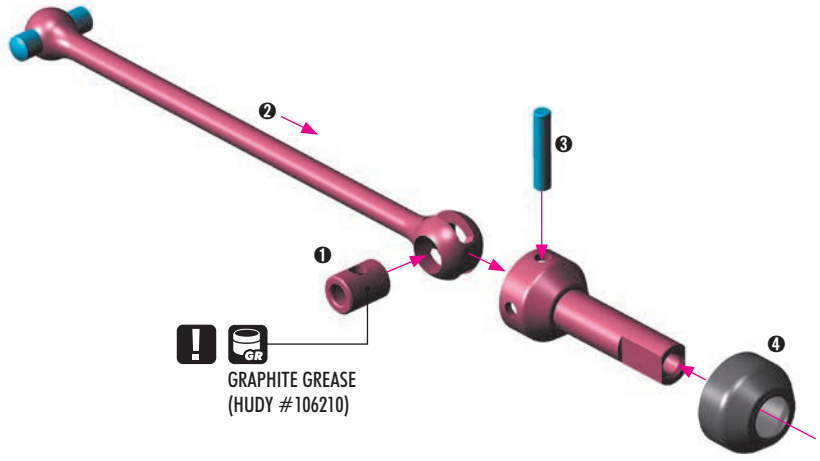
BAG

02

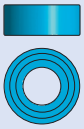
36 2001	DIFF BULKHEAD BLOCK SET REAR	90 2310	HEX SCREW SH M3x10 (10)
36 3080	GRAPHITE SHOCK TOWER REAR 3.0MM	94 0510	HIGH-SPEED BALL-BEARING 5x10x4 RUBBER SEALED (2)
36 5114	COMPOSITE BEVEL DRIVE GEAR 14T	94 0815	HIGH-SPEED BALL-BEARING 8x14x4 RUBBER SEALED (2)
36 5230	DRIVE SHAFT COUPLING - HUDY SPRING STEEL™	98 0210	PIN 2x10 (10)
36 5420	CENTRAL DRIVE SHAFT 88MM - HUDY SPRING STEEL™		
36 5440	CENTRAL SHAFT UNIVERSAL JOINT	36 4900	GEAR DIFFERENTIAL - SET
36 5470	COMPOSITE DRIVE SHAFT SAFETY COLLAR (3)		
90 2306	HEX SCREW SH M3x6 (10)		

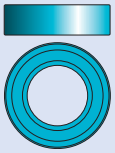
980210
P 2x10

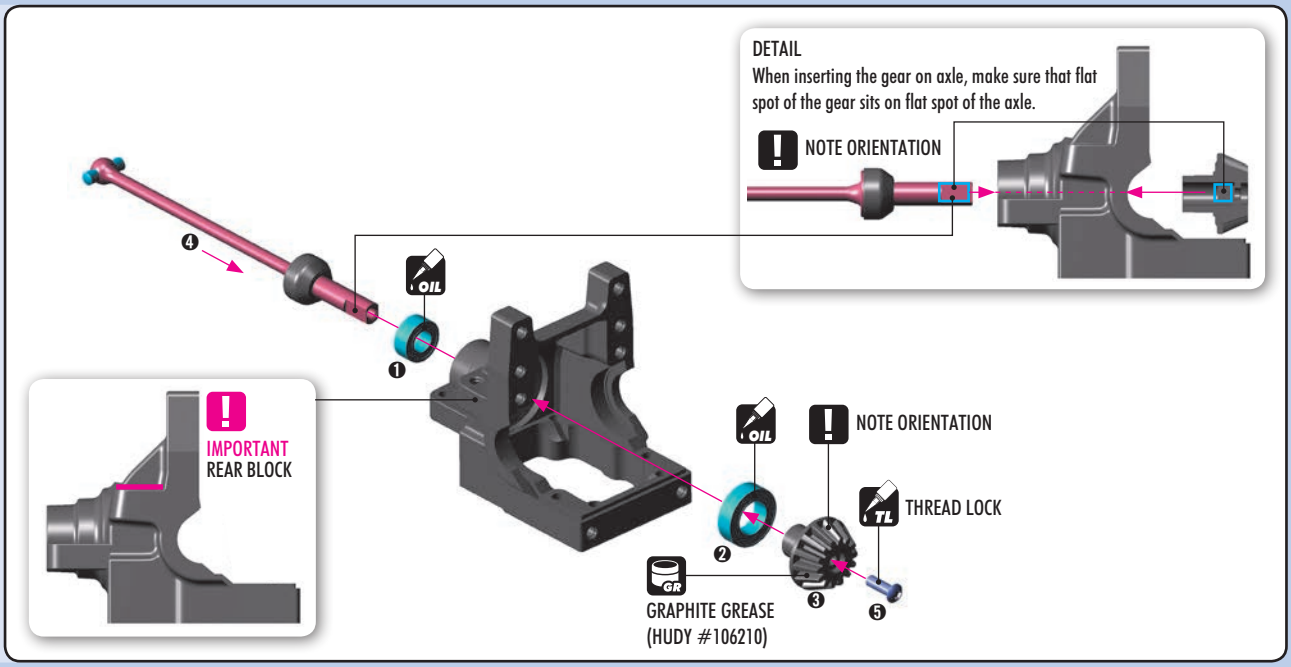
Lubricate the drive shaft connecting joint properly so the drive shaft truns freely. In the event that not enough grease is used, the connecting pin may lock and may even, in extreme situations, push through the drive shaft cover cap.



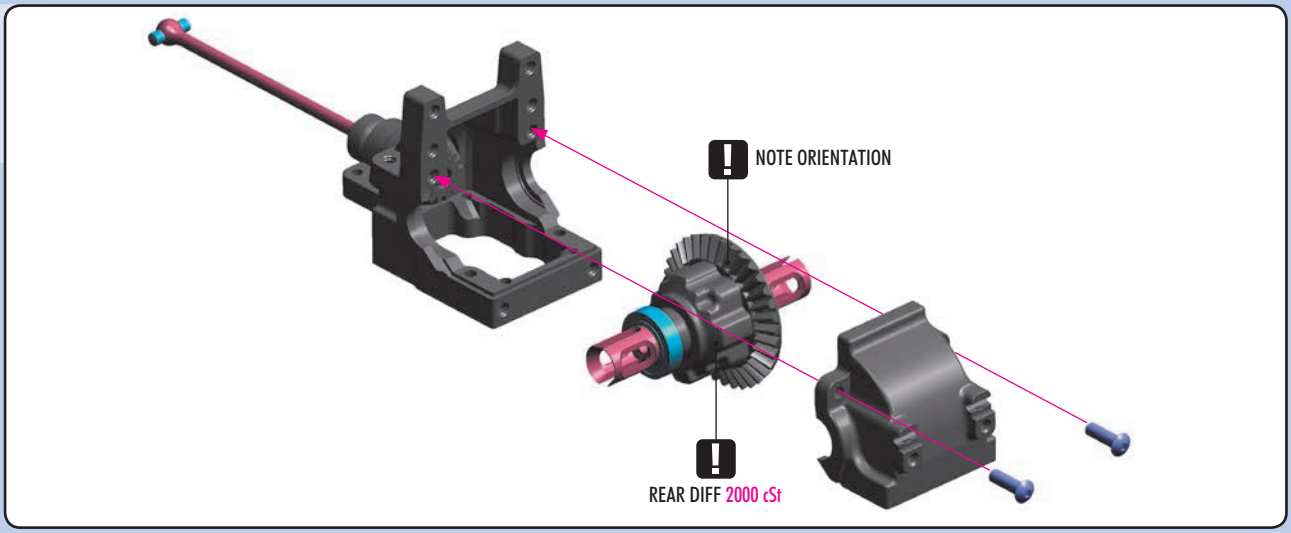

902306
SH M3x6


940510
BB 5x10x4


940815
BB 8x14x4




902310
SH M3x10



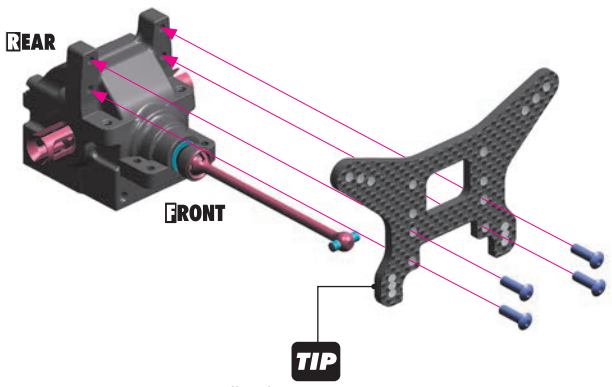

902310
SH M3x10

VARIABLE SHOCK TOWER MOUTING

Depending on the track traction conditions there are two alternatives how to mount the rear shocks. The shocks can be mounted either in front or behind the rear suspension. See page 31.

Alternative 1
LOW, MEDIUM & HIGH TRACTION TRACKS

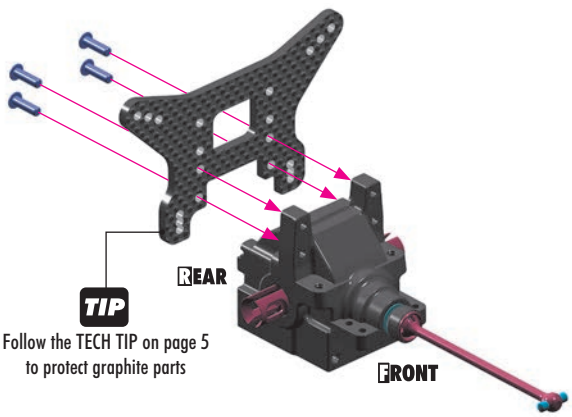
SHOCK TOWER IN FRONT OF THE DIFF HOUSING = SHOCKS IN FRONT OF REAR SUSPENSION



Follow the TECH TIP on page 5 to protect graphite parts

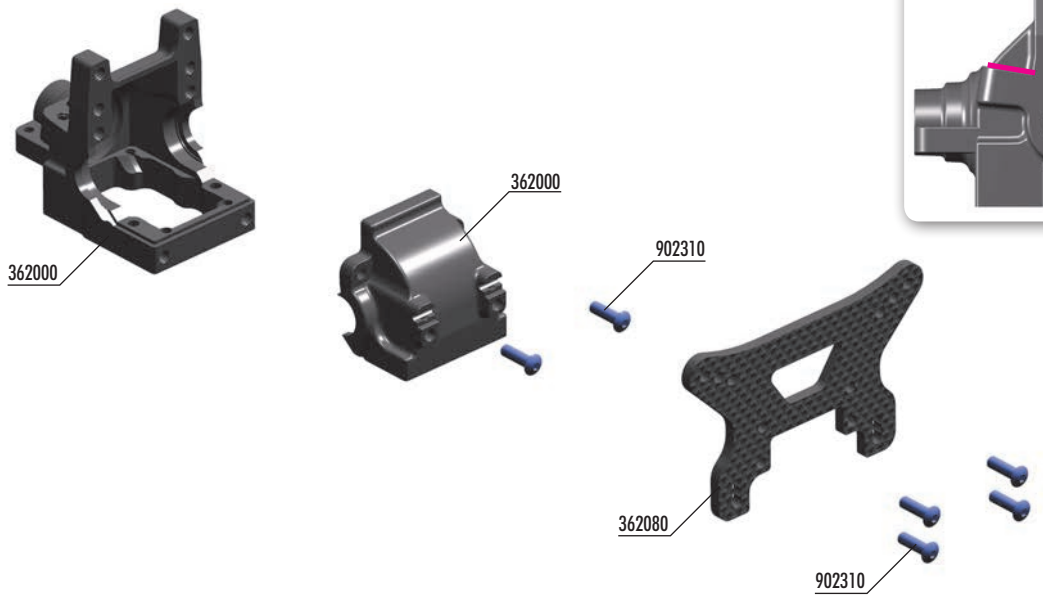
Alternative 2
HIGH TRACTION & ASTRO TRACKS

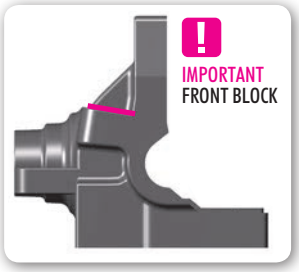
SHOCK TOWER BEHIND THE DIFF HOUSING = SHOCKS BEHIND REAR SUSPENSION



Follow the TECH TIP on page 5 to protect graphite parts

2. FRONT CENTRAL TRANSMISSION



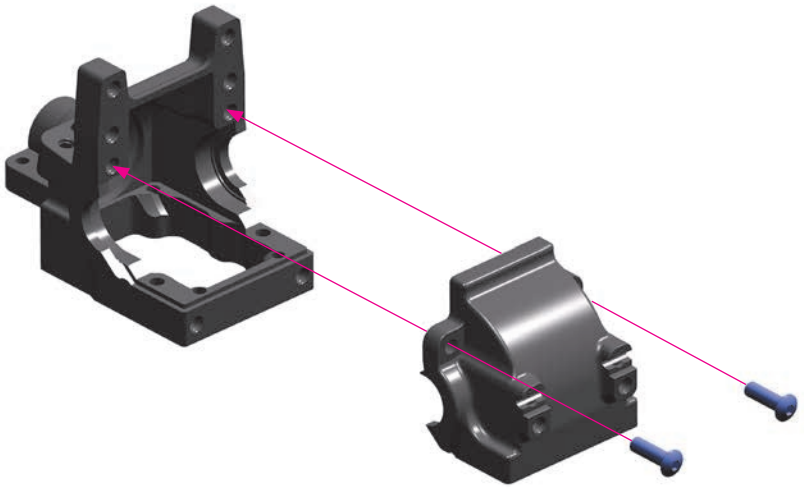


BAG 02

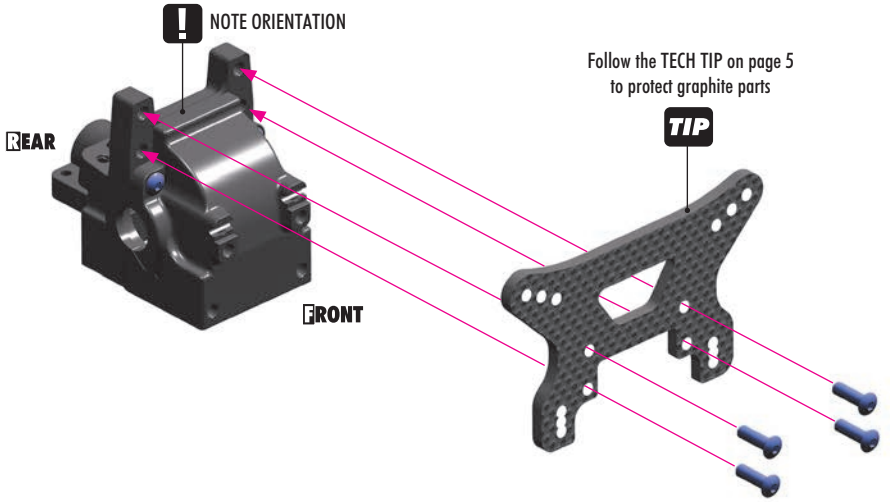
36 2000 DIFF BULKHEAD BLOCK SET FRONT
36 2080 GRAPHITE SHOCK TOWER FRONT 3.0MM

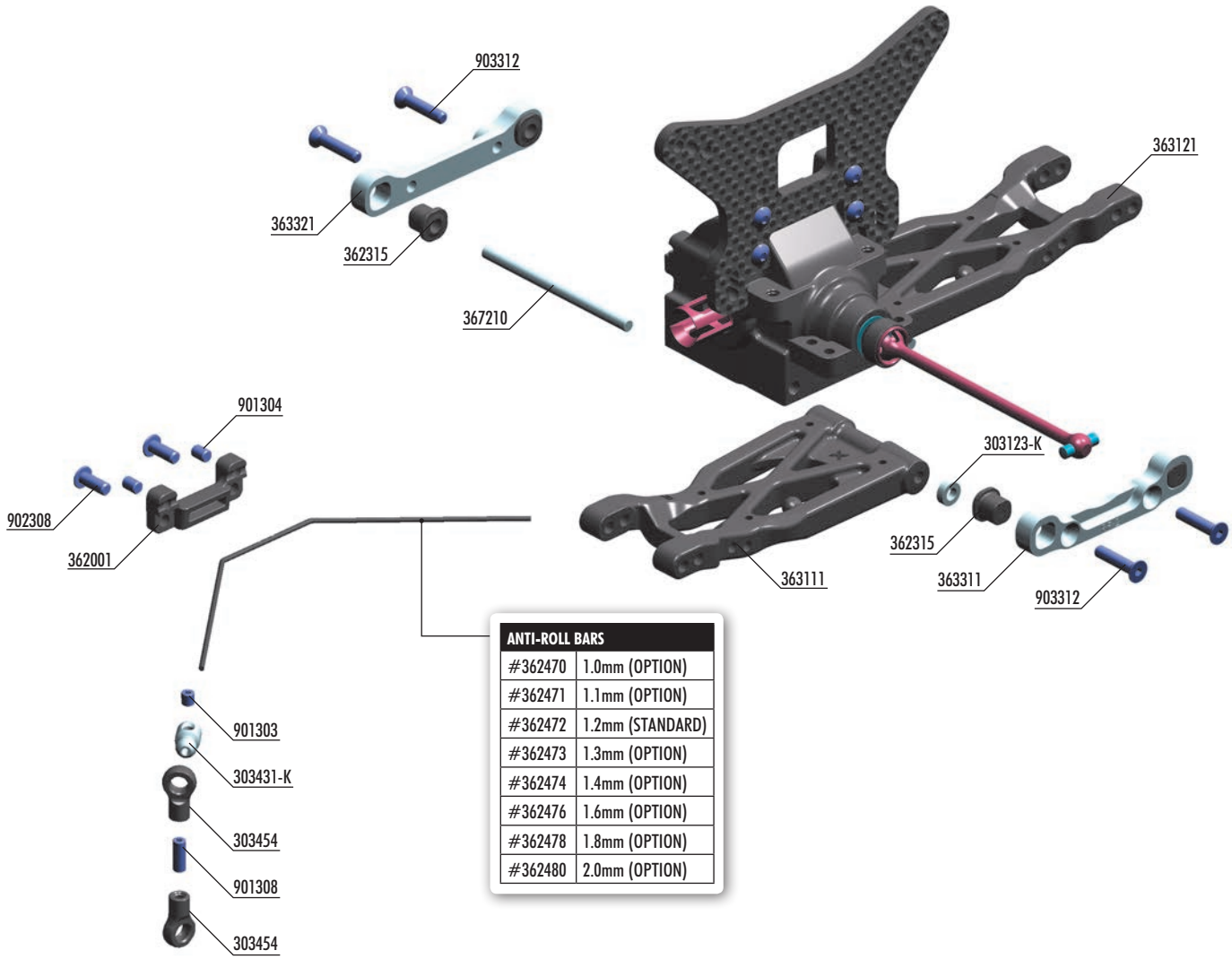
90 2310 HEX SCREW SH M3x10 (10)

902310
SH M3x10



902310
SH M3x10





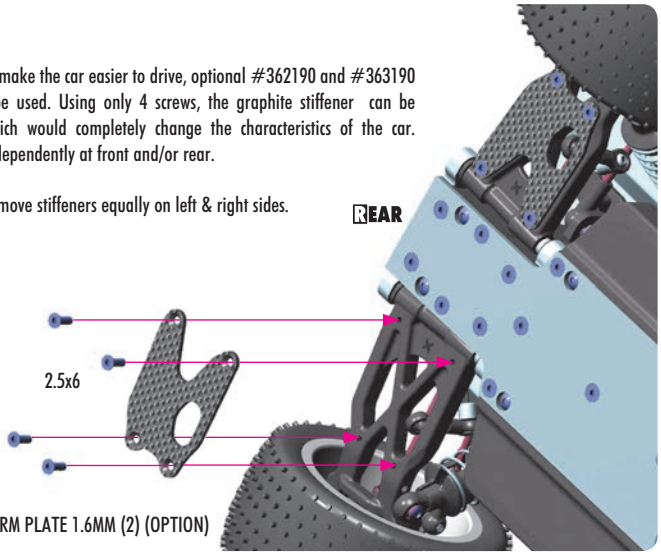
ANTI-ROLL BARS	
#362470	1.0mm (OPTION)
#362471	1.1mm (OPTION)
#362472	1.2mm (STANDARD)
#362473	1.3mm (OPTION)
#362474	1.4mm (OPTION)
#362476	1.6mm (OPTION)
#362478	1.8mm (OPTION)
#362480	2.0mm (OPTION)

TIP **OPTIONAL**

For better stability and to make the car easier to drive, optional #362190 and #363190 graphite stiffeners may be used. Using only 4 screws, the graphite stiffener can be installed or removed which would completely change the characteristics of the car. Stiffeners may be used independently at front and/or rear.

IMPORTANT! Install / remove stiffeners equally on left & right sides.

2x L=R



#363190
GRAPHITE REAR LOWER ARM PLATE 1.6MM (2) (OPTION)

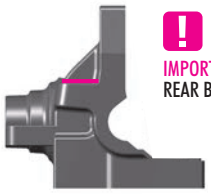
Remove the 3x6.5x2mm shim from each rear arm, this shim will be used in Rear Transmition section on page 18, step 1.

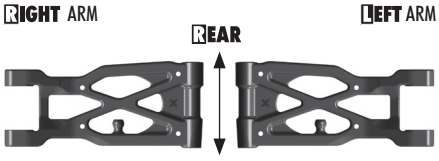
BAG 03

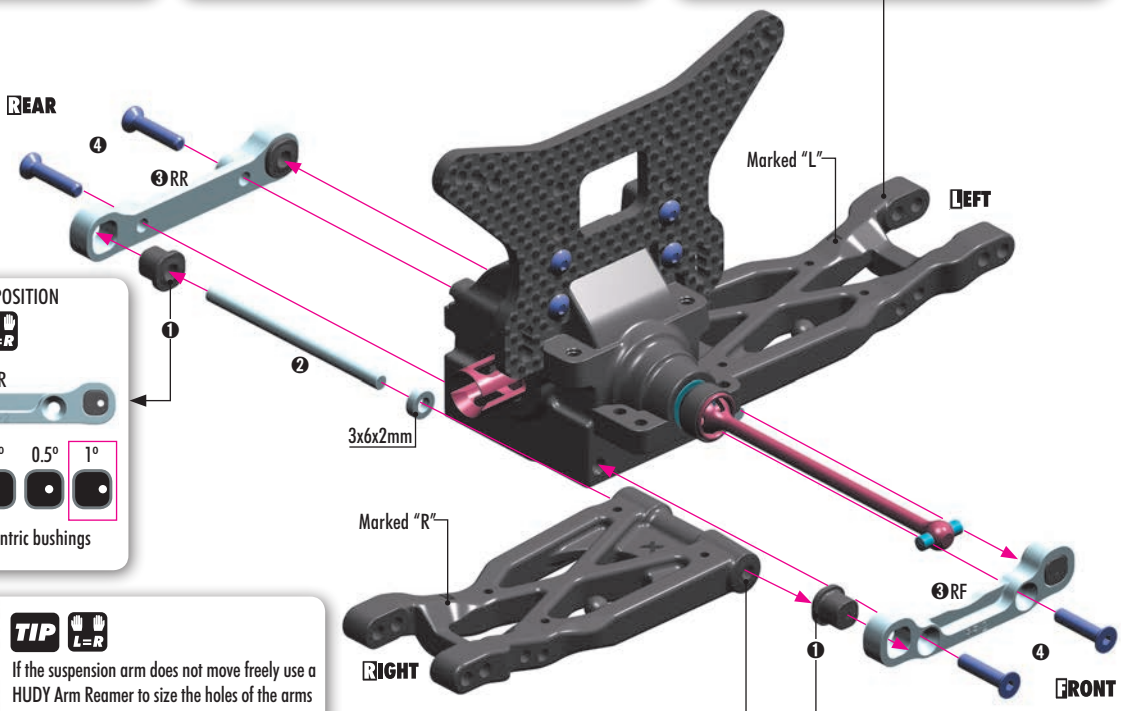
30 3123-K	ALU SHIM 3x6x2.0MM - BLACK (10)
30 3431-K	ALU 4.9MM BALL END - BLACK (2)
30 3454	BALL JOINT 4.9MM - OPEN (4)
36 2001	DIFF BULKHEAD BLOCK SET REAR
36 2315	ECCENTRIC BUSHING SET (2)
36 3111	COMPOSITE SUSPENSION ARM REAR LOWER RIGHT
36 3121	COMPOSITE SUSPENSION ARM REAR LOWER LEFT
36 3311	ALU REAR LOWER SUSP. HOLDER +2 - FRONT - 7075 T6 (5MM)
36 3321	ALU REAR LOWER SUSP. HOLDER +2 - REAR - 7075 T6 (5MM)
36 2470	ANTI-ROLL BAR 1.0 MM (OPTION)
36 2471	ANTI-ROLL BAR 1.1 MM (OPTION)
36 2472	ANTI-ROLL BAR 1.2 MM
36 2473	ANTI-ROLL BAR 1.3 MM (OPTION)
36 2474	ANTI-ROLL BAR 1.4 MM (OPTION)
36 2476	ANTI-ROLL BAR 1.6 MM (OPTION)
36 2478	ANTI-ROLL BAR 1.8 MM (OPTION)
36 2480	ANTI-ROLL BAR 2.0 MM (OPTION)
36 7210	SUSPENSION PIVOT PIN (2)
90 1303	HEX SCREW SB M3x3 (10)
90 1304	HEX SCREW SB M3x4 (10)
90 1308	HEX SCREW SB M3x8 (10)
90 2308	HEX SCREW SH M3x8 (10)
90 3312	HEX SCREW SFH M3x12 (10))

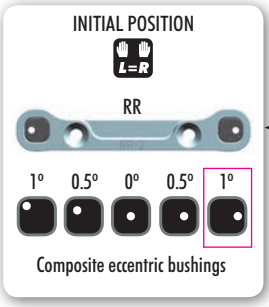

903312
SFH M3x12

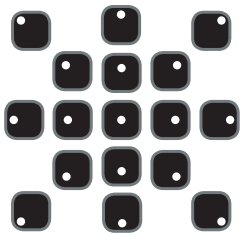

303123-K
SHIM 3x6x2

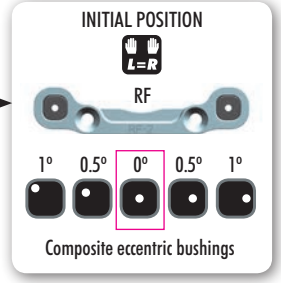









All possible mounting alternatives of eccentric bushings



SET-UP BOOK
TOE-IN
ANTI-SQUAT
ROLL CENTER
TRACK WIDTH
WHEELBASE

ECCENTRIC BUSHINGS HAVE TWO DIFFERENT OFFSETS FROM THE CENTER.


Middle position = 0.5° or 0.375mm from center.


Outer position = 1° or 0.75mm from center.

The XRAY rear alu lower suspension holders provide great range of adjustment for the rear suspension. Using different combinations of eccentric bushings, fine adjustment of rear anti-squat, rear toe-in, rear roll center, and rear track-width can be obtained. For more information about the influence of rear anti-squat, rear toe-in, rear roll center and rear track width on car handling, please refer to HUDY Set-up Book (#209100).

ANTI-SQUAT

RR	RF	(°)
		=2°
		=3°
		=1°
		=3°
		=2°
		=4°
		=1°
		=2°
		=0°

ROLL-CENTER

RR	RF	(mm)
		=+0.75mm
		=0mm
		=-0.75mm

TRACK WIDTH

RR	RF	(mm)
		=+1.5mm
		=0mm
		=-1.5mm

The track width is directly influenced by the size of the wheels and tires used.

TOE-IN

RR	RF	(°)
		=3°
		=4°
		=2°
		=2°
		=3°
		=1°
		=4°
		=5°
		=3°

The tables describe the amounts of adjustment using the center and outside positions of the eccentric bushings.

The middle position eccentric bushings allow for finer adjustment increments.

Example:

0(RR) - 0 (RF) = 2°  = 2°

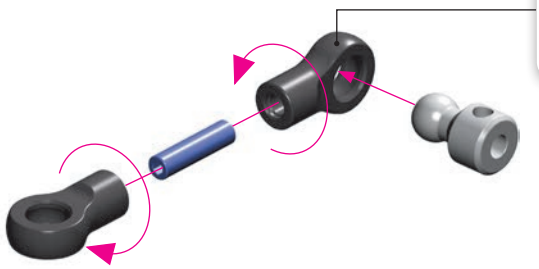
0(RR) - 0.5 (RF) = 2.5°  = 2.5°

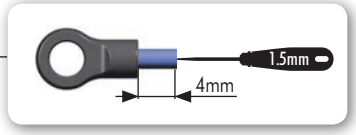
0(RR) - 1 (RF) = 3°  = 3°

IMPORTANT Do not use anti-roll bars for basic setting. The anti-roll bar is recommend to use only under super high track traction conditions or ASTRO surface!

901308
SB M3x8

2x L=R





ASSEMBLY VIEW

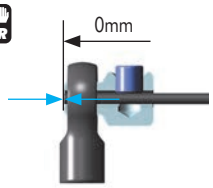
901303
SB M3x3

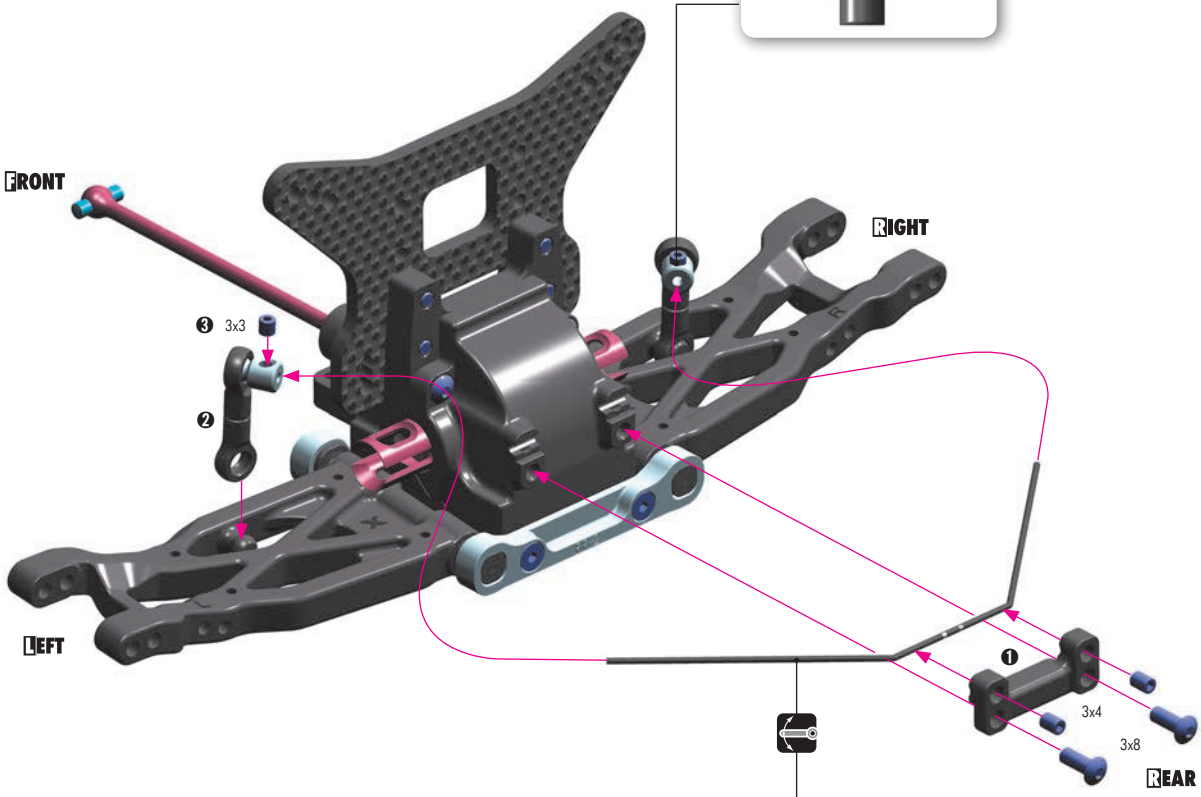
901304
SB M3x4

902308
SH M3x8

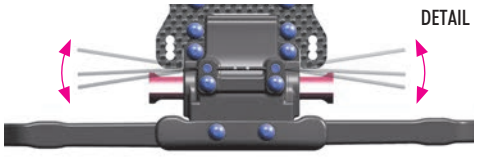
STEP ❸ DETAIL

L=R



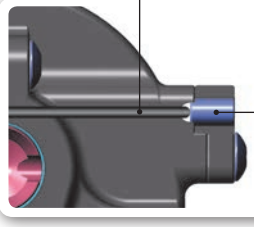


DETAIL



Step ❶ check for free movement

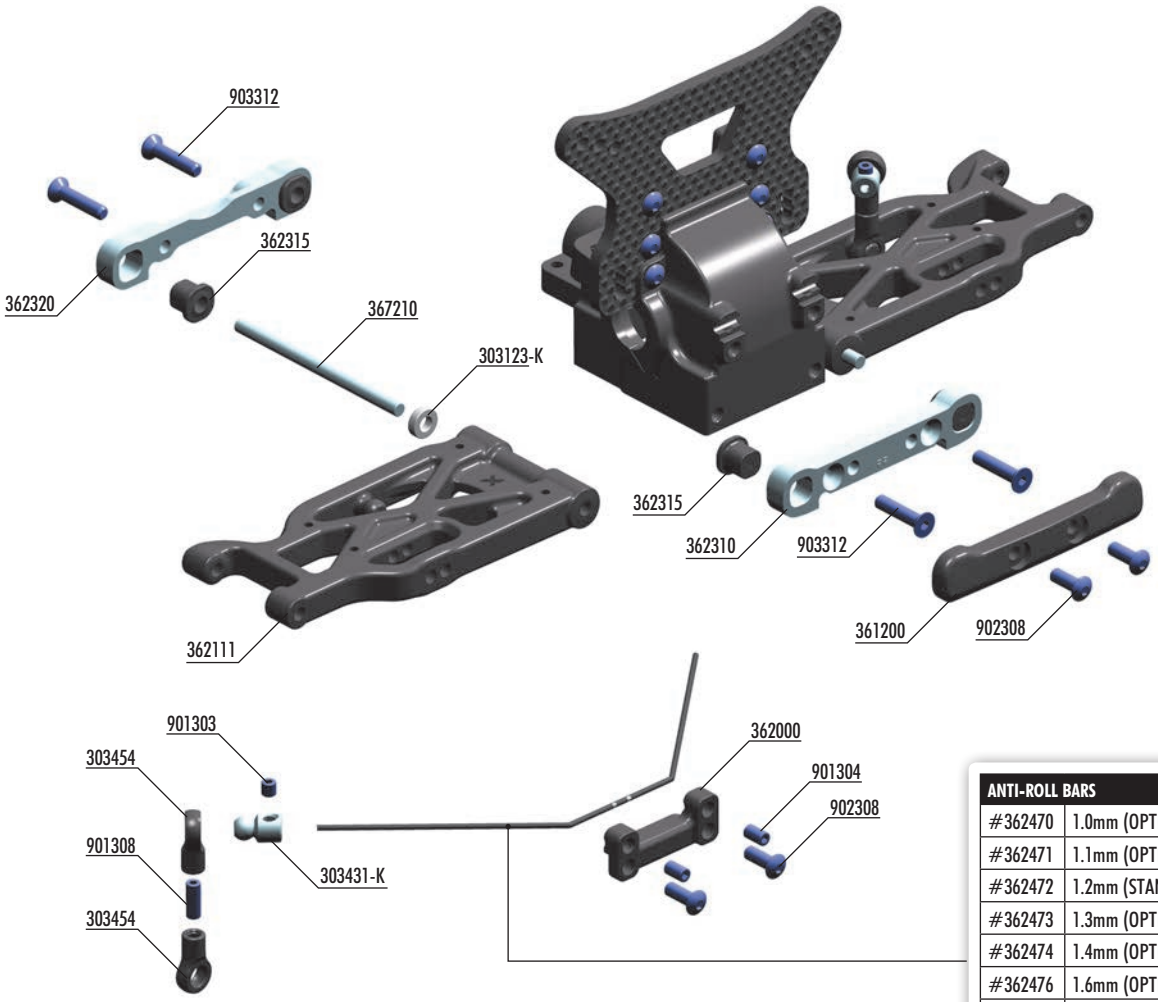
DETAIL



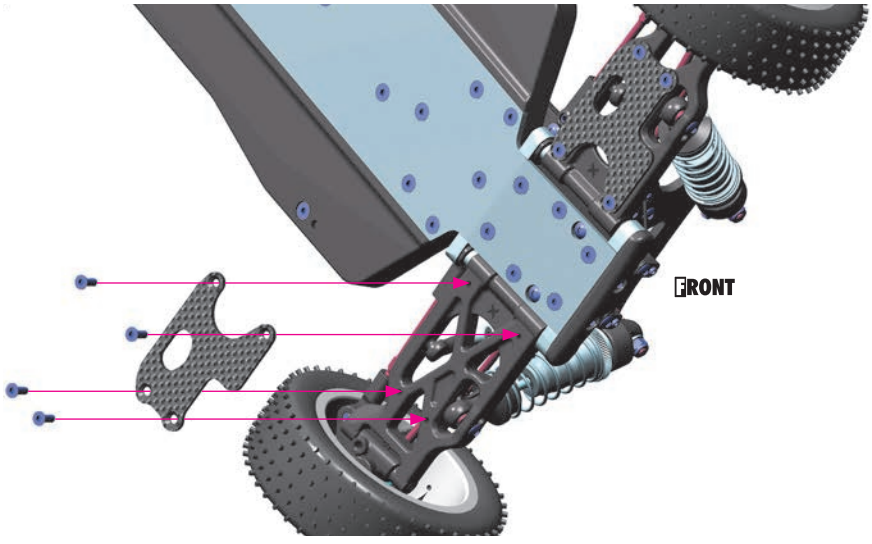
Step ❶
Loosen the 3x4 setscrew if the anti-roll bar does not turn freely

SET-UP BOOK
ANTI-ROLL BAR

3. FRONT SUSPENSION



ANTI-ROLL BARS	
#362470	1.0mm (OPTION)
#362471	1.1mm (OPTION)
#362472	1.2mm (STANDARD)
#362473	1.3mm (OPTION)
#362474	1.4mm (OPTION)
#362476	1.6mm (OPTION)
#362478	1.8mm (OPTION)
#362480	2.0mm (OPTION)



TIP **OPTIONAL**

For better stability and to make the car easier to drive, optional #362190 and #363190 graphite stiffeners may be used. Using only 4 screws, the graphite stiffener can be installed or removed which would completely change the characteristics of the car. Stiffeners may be used independently at front and/or rear.

IMPORTANT!
Install / remove stiffeners equally on left & right sides.

2x L=R

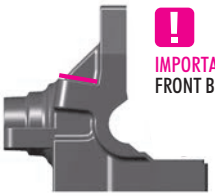
#36 2190
GRAPHITE FRONT LOWER ARM PLATE 1.6MM (2) (OPTION)

BAG 03

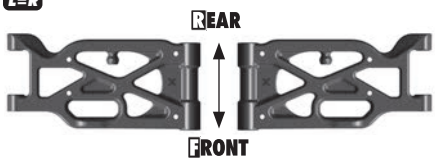
30 3123-K	ALU SHIM 3x6x2.0MM - BLACK (10)
30 3431-K	ALU 4.9MM BALL END - BLACK (2)
30 3454	BALL JOINT 4.9MM - OPEN (4)
36 1200	COMPOSITE BUMPER
36 2000	DIFF BULKHEAD BLOCK SET FRONT
36 2110	COMPOSITE SUSPENSION ARM FRONT LOWER
36 2310	ALU FRONT LOWER SUSP. HOLDER - FRONT - 7075 T6 (5MM)
36 2315	ECCENTRIC BUSHING SET (2)
36 2320	ALU FRONT LOWER SUSP. HOLDER - REAR - 7075 T6 (5MM)
36 2470	ANTI-ROLL BAR 1.0 MM (OPTION)
36 2471	ANTI-ROLL BAR 1.1 MM (OPTION)
36 2472	ANTI-ROLL BAR 1.2 MM
36 2473	ANTI-ROLL BAR 1.3 MM (OPTION)
36 2474	ANTI-ROLL BAR 1.4 MM (OPTION)
36 2476	ANTI-ROLL BAR 1.6 MM (OPTION)
36 2478	ANTI-ROLL BAR 1.8 MM (OPTION)
36 2480	ANTI-ROLL BAR 2.0 MM (OPTION)
36 7210	SUSPENSION PIVOT PIN (2)
90 1303	HEX SCREW SB M3x3 (10)
90 1304	HEX SCREW SB M3x4 (10)
90 1308	HEX SCREW SB M3x8 (10)
90 2308	HEX SCREW SH M3x8 (10)
90 3312	HEX SCREW SFH M3x12 (10))

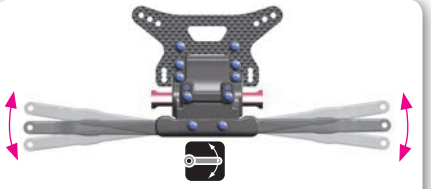

903312
SFH M3x12

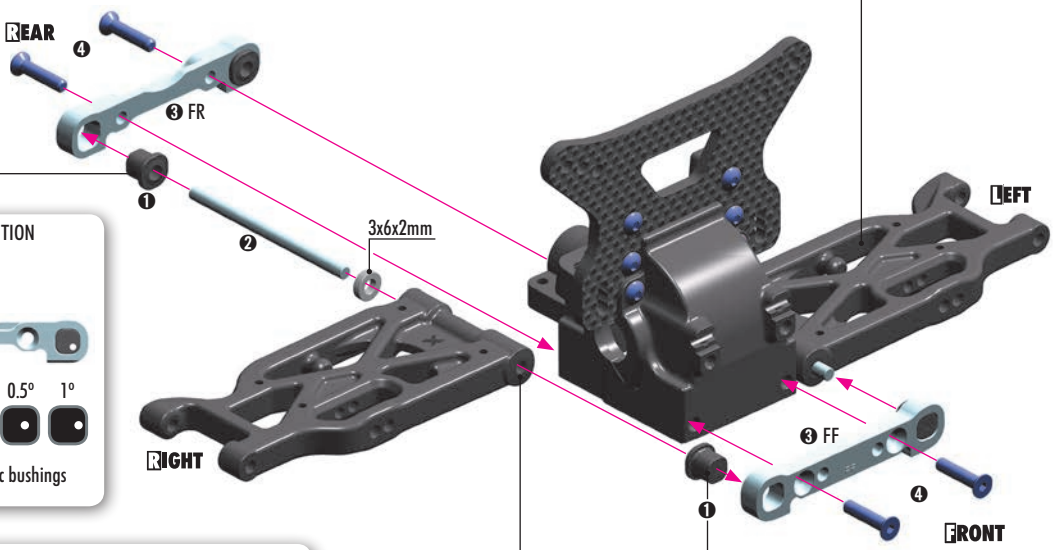

303123-K
SHIM 3x6x2


IMPORTANT
FRONT BLOCK

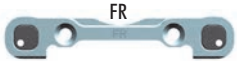
FRONT ARM

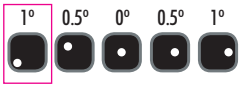



Check for free movement



INITIAL POSITION


FR



Composite eccentric bushings

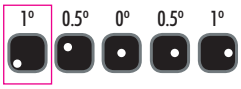
TIP

If the suspension arm does not move freely use a HUDY Arm Reamer to size the holes of the arms

Arm Reamer 3.0mm (HUDY #107633)

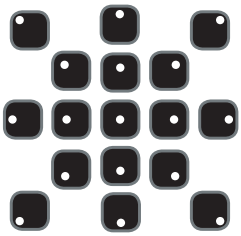
INITIAL POSITION


FF



Composite eccentric bushings

All possible mounting alternatives of eccentric bushings



ECCENTRIC BUSHINGS HAVE TWO DIFFERENT OFFSETS FROM THE CENTER.


Middle position = 0.5° or 0.375mm from center.

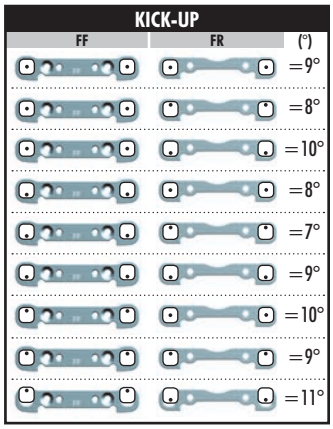

Outer position = 1° or 0.75mm from center.

SET-UP BOOK

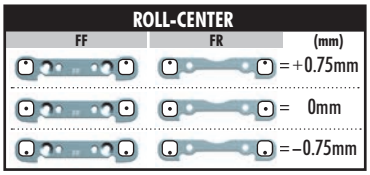
TOE-IN
ANTI-SQUAT
ROLL CENTER
TRACK WIDTH
WHEELBASE

The XRAY alu front lower suspension holders provide great range of adjustment for the front suspension. Using different combinations of eccentric bushings, fine adjustment of front kick-up, roll-center, and front track-width can be obtained. For more information about the influence of kick-up, front track-width, and roll centers on car handling, please refer to HUDY Set-up Book (#209100).

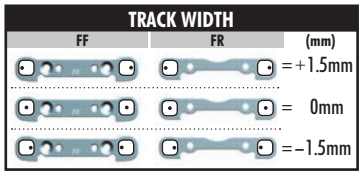
KICK-UP



ROLL-CENTER



TRACK WIDTH



The track width is directly influenced by the size of the wheels and tires used.

The tables describe the amounts of adjustment using the center and outside positions of the eccentric bushings.

The middle position eccentric bushings allow for finer adjustment increments.

Example:

0(FF) - 0(FR) = 9°


= 9°

0.5(FF) - 0(FR) = 9.5°


= 9.5°

1(FF) - 0(FR) = 10°

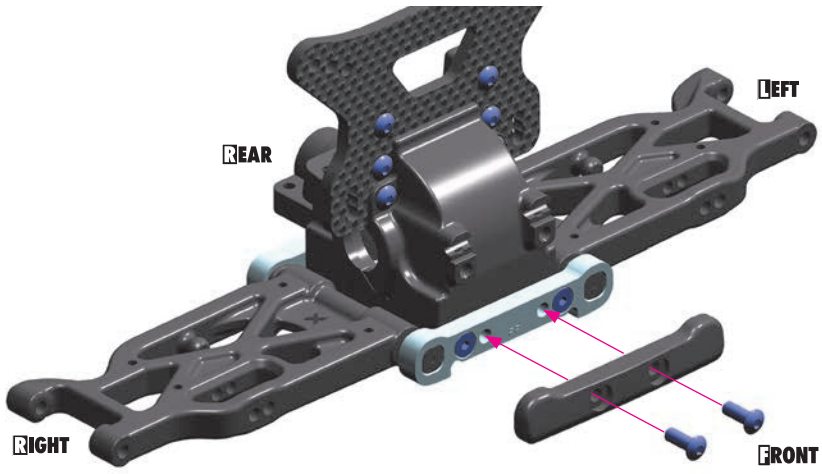

= 10°

TOTAL CASTER=C-HUB CASTER+KICK UP

	KICK-UP				
C-HUB CASTER	7°	8°	9°	10°	11°
6°	13°	14°	15°	16°	17°

Caster is the angle between the steering pivot axis and the vertical plane. Caster is affected not only by the C-Hub caster, but also by the front kick-up angle relative to the flat chassis bottom. The table indicates how kick up angle effects total caster.

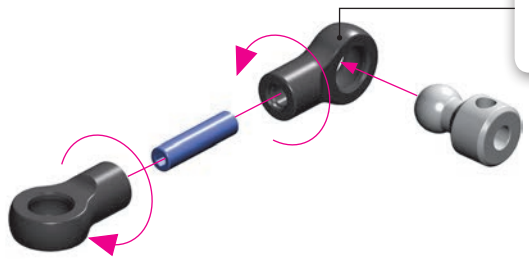
902308
SH M3x8

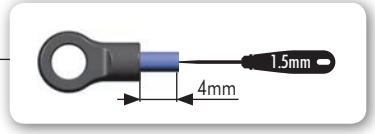


IMPORTANT Do not use anti-roll bars for basic setting. The anti-roll bar is recommend to use only under super high grip conditions or ASTRO surface!

901308
SB M3x8

2x L=R



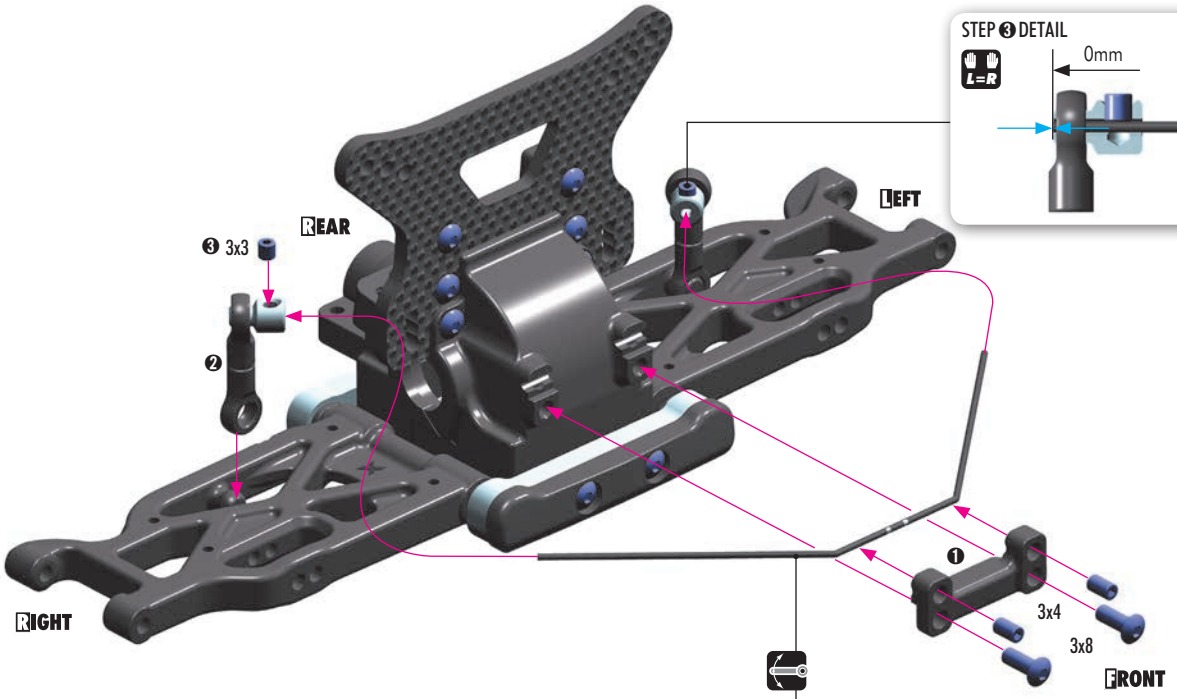


ASSEMBLY VIEW

901303
SB M3x3

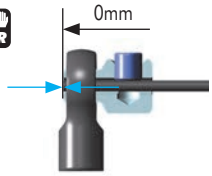
901304
SB M3x4

902308
SH M3x8

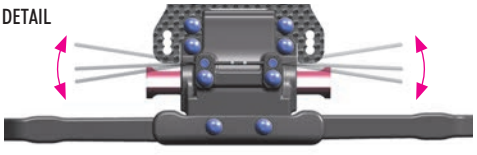


STEP ❸ DETAIL

L=R

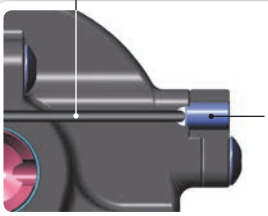


DETAIL



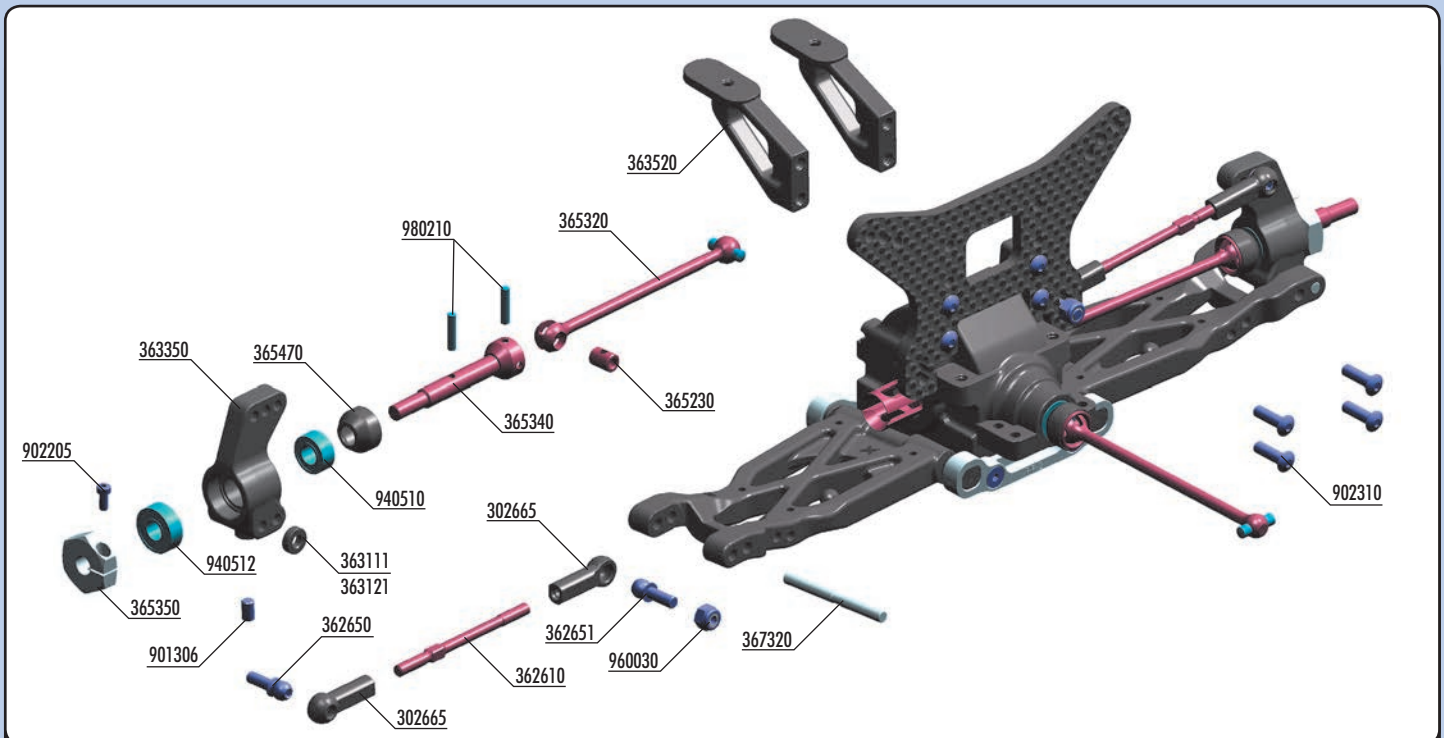
Step ❶ check for free movement

DETAIL



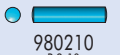
Step ❶
Loosen the 3x4 setscrew if the anti-roll bar does not turn freely

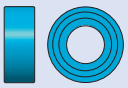
SET-UP BOOK
ANTI-ROLL BAR

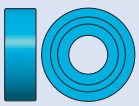


BAG 04

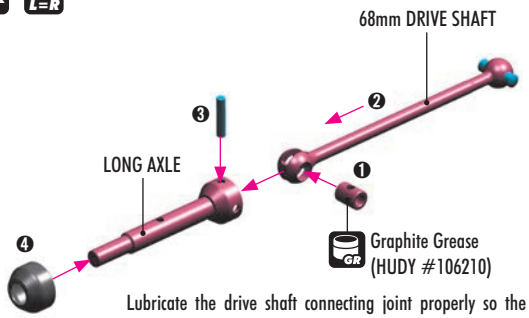
30 2665	COMPOSITE BALL JOINT 4.9MM - CLOSED WITH HOLE (4)
36 2610	ADJ. TURNBUCKLE M3 L/R 50 MM - SPRING STEEL (2)
36 2650	BALL END 4.9MM WITH THREAD 6MM (2)
36 2651	BALL END 4.9MM WITH THREAD 8MM (2)
36 3111	REAR SUSPENSION ARM - RIGHT
36 3121	REAR SUSPENSION ARM - LEFT
36 3350	COMPOSITE UPRIGHT REAR
36 3520	REAR WING POST (2)
36 5230	DRIVE SHAFT COUPLING - HUDY SPRING STEEL™
36 5320	REAR DRIVE SHAFT 68MM - HUDY SPRING STEEL™
36 5340	REAR DRIVE AXLE - HUDY SPRING STEEL™
36 5350	ALU WHEEL HUB 14MM (2)
36 5351	ALU WHEEL HUB 14MM - OFFSET "-0.75MM" (2) (OPTION)
36 5352	ALU WHEEL HUB 14MM - OFFSET "+0.75MM" (2) (OPTION)
36 5470	COMPOSITE DRIVE SHAFT SAFETY COLLAR (3)
36 7320	REAR ARM PIVOT PIN (2)
90 1306	HEX SCREW SB M3x6 (10)
90 2205	HEX SCREW SH M2x5 (10)
90 2310	HEX SCREW SH M3x10 (10)
94 0510	HIGH-SPEED BALL-BEARING 5x10x4 RUBBER SEALED (2)
94 0512	HIGH-SPEED BALL-BEARING 5x12x4 RUBBER SEALED (2)
96 0030	NUT M3 (10)
98 0210	PIN 2x10 (10)


980210
P 2x10


940510
BB 5x10x4

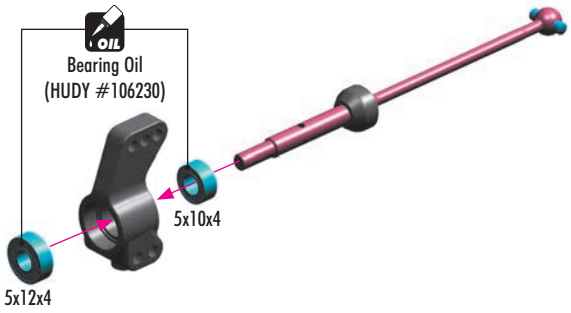

940512
BB 5x12x4

2x L=R



Lubricate the drive shaft connecting joint properly so the drive shaft truns freely. In the event that not enough grease is used, the connecting pin may lock and may even, in extreme situations, push through the drive shaft cover cap.

2x L=R




980210
P 2x10


902205
SH M2x5

2x L=R

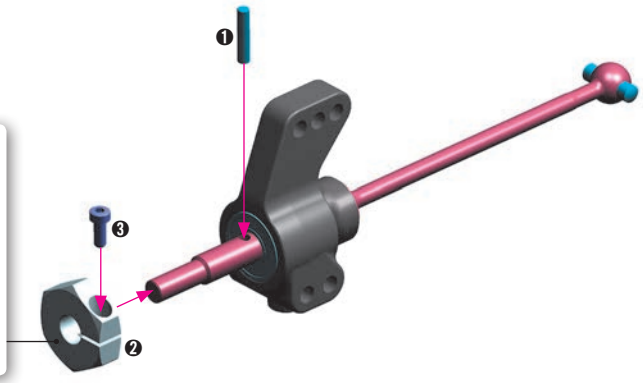
OPTIONAL HEX HUBS EFFECTS

Different off-set hex hubs are used in relation to the wheels. The track width can be adjusted easier.

LOWER OFF-SET
Rear - more traction
Front - more steering

HIGHER OFF-SET
Rear - less traction
Front - less steering

WHEEL HUBS 14MM	
#365352	+0.75mm (OPTION)
#365350	0mm (STANDARD)
#365351	-0.75mm (OPTION)



901306
SB M3x6

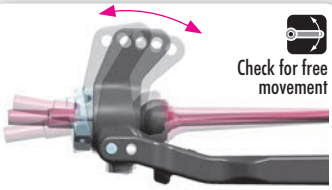
10
From Rear Arm
SHIM 3x6.5x2

SET-UP BOOK
WHEELBASE

IMPORTANT!

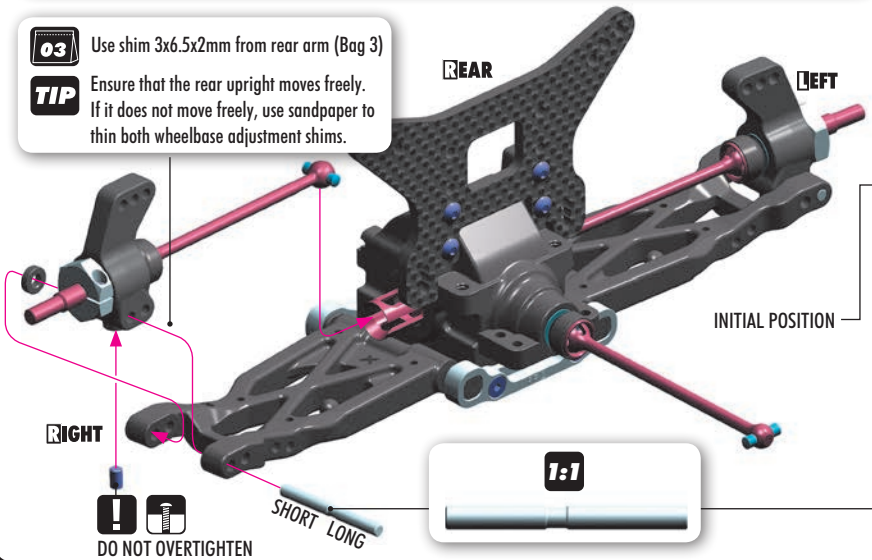
When using OUTSIDE position on the hub, use only outside position on the arm. — The outside hole offers great stability and is recommended for bumpy open tracks.

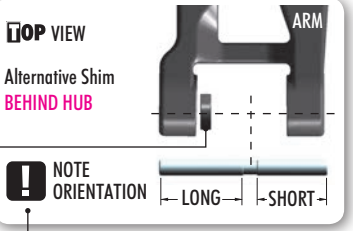
When using INSIDE position on the hub, use only inside position on the arm. — Inside hole offers great amount of steering and is recommended for flat, technical tracks.

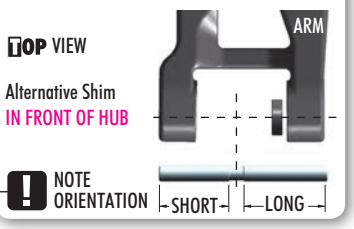


03 Use shim 3x6.5x2mm from rear arm (Bag 3)

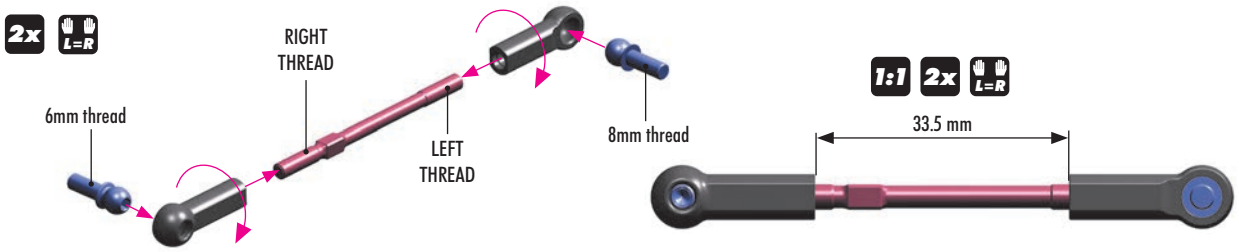
TIP Ensure that the rear upright moves freely. If it does not move freely, use sandpaper to thin both wheelbase adjustment shims.





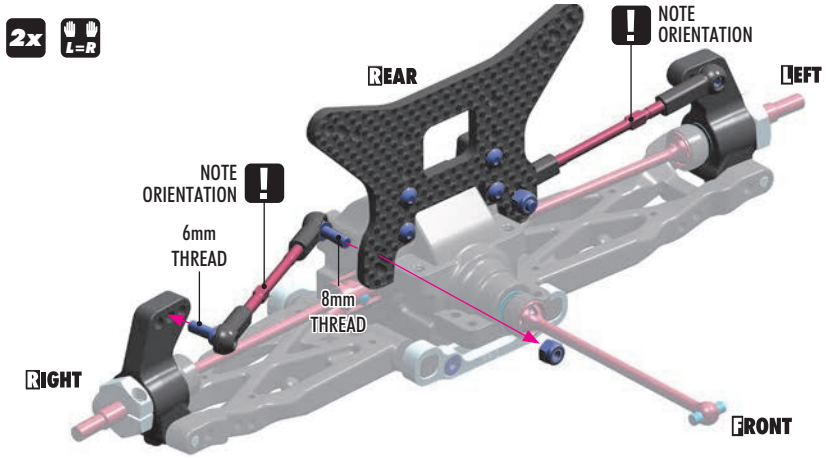


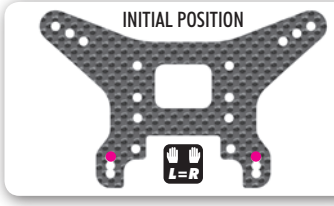
SET-UP BOOK
CAMBER

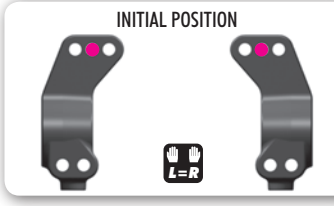


960030
N M3

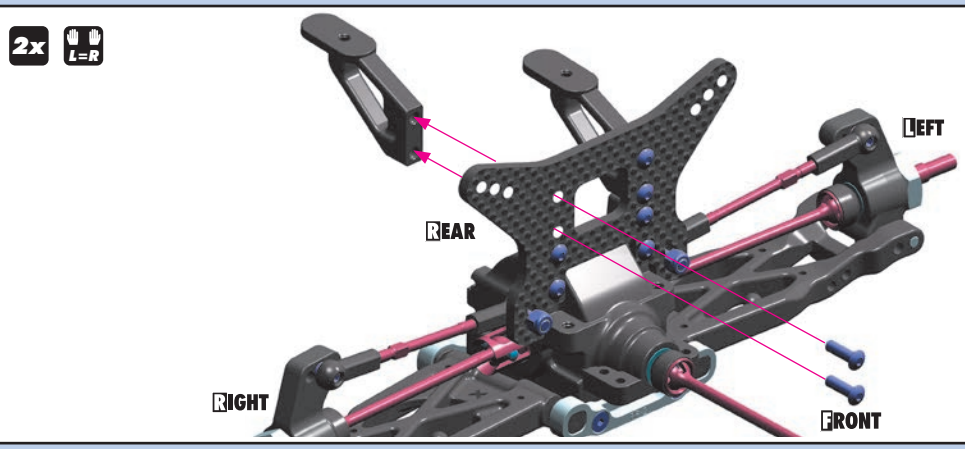
SET-UP BOOK
ROLL CENTER

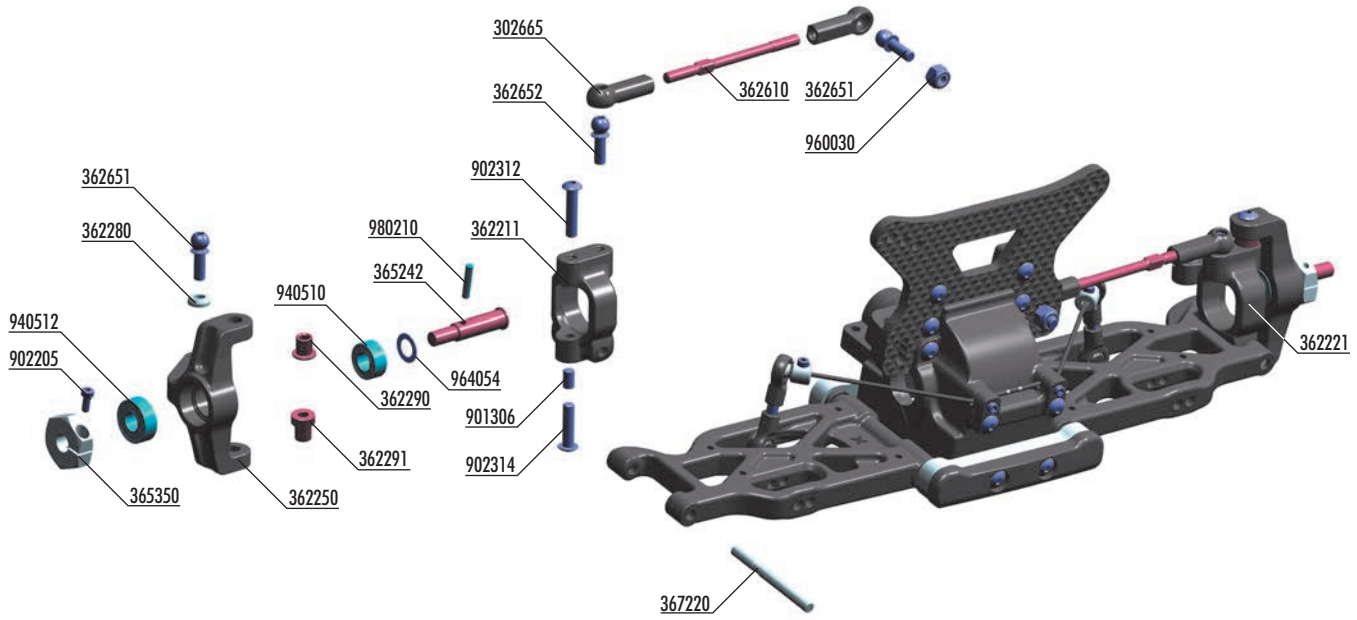






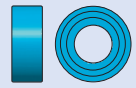
902310
SH M3x10

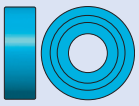




BAG 04

30 2665	COMPOSITE BALL JOINT 4.9MM - CLOSED WITH HOLE (4)	36 5352	ALU WHEEL HUB 14MM - OFFSET "+0.75MM" (2) (OPTION)
36 2211	COMPOSITE C-HUB 6° DEG. RIGHT	36 7220	FRONT ARM PIVOT PIN (2)
36 2221	COMPOSITE C-HUB 6° DEG. LEFT		
36 2250	COMPOSITE STEERING BLOCK	90 1306	HEX SCREW SB M3x6 (10)
36 2280	ALU CONICAL SHIM 3x6x2.0MM (10)	90 2205	HEX SCREW SH M2x5 (10)
36 2290	STEEL STEERING BUSHING - SHORT (2)	90 2312	HEX SCREW SH M3x12 (10)
36 2291	STEEL STEERING BUSHING - LONG (2)	90 2314	HEX SCREW SH M3x14 (10)
36 2610	ADJ. TURNBUCKLE M3 L/R 50 MM - SPRING STEEL (2)	94 0510	HIGH-SPEED BALL-BEARING 5x10x4 RUBBER SEALED (2)
36 2651	BALL END 4.9MM WITH THREAD 8MM (2)	94 0512	HIGH-SPEED BALL-BEARING 5x12x4 RUBBER SEALED (2)
36 2652	BALL END 4.9MM WITH THREAD 10MM (2)	96 0030	NUT M3 (10)
36 5242	FRONT DRIVE AXLE - HUDY SPRING STEEL™ - 2WD	98 0210	PIN 2x10 (10)
36 5350	ALU WHEEL HUB 14MM (2)	96 4054	WASHER S 5.3x7.8x0.5 (10)
36 5351	ALU WHEEL HUB 14MM - OFFSET "-0.75MM" (2) (OPTION)		

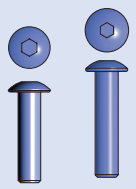

940510
BB 5x10x4


940512
BB 5x12x4


964054
SHIM 5.3x7.8x0.5

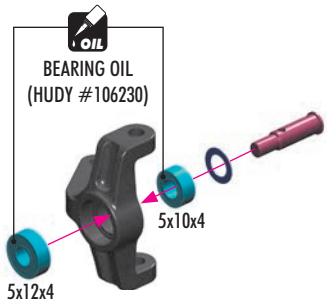

902205
SH M2x5

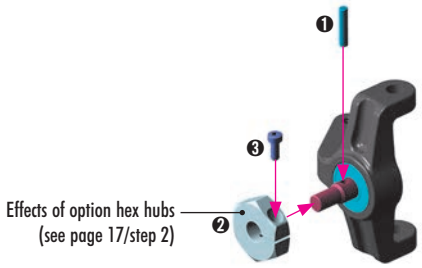

362280
CON. SHIM 3x6x2


902312
SH M3x12
902314
SH M3x14

SET-UP BOOK
CASTER
ROLL-CENTER

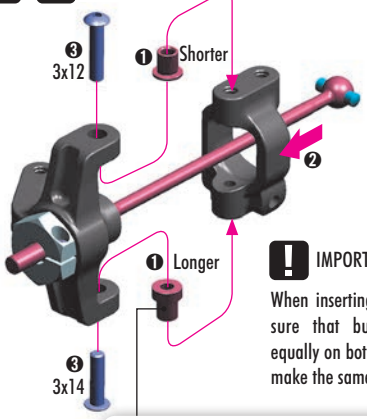
2x L=R





Effects of option hex hubs
(see page 17/step 2)

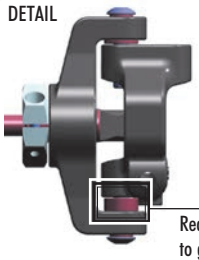
2x L=R



IMPORTANT
When inserting the bushings, make sure that bushings are inserted equally on both right and left hub to make the same roll center position.

Steel steering bushings allow to adjust the roll-center. For more details check ALTERNATIVE 1 and ALTERNATIVE 2.

DETAIL

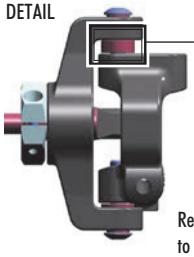


ALTERNATIVE 1

HIGHER ROLL-CENTER
When the longer bushing is used at the bottom, the roll-center is in higher position.

Recommended for smooth track to gain more steering.

DETAIL



ALTERNATIVE 2

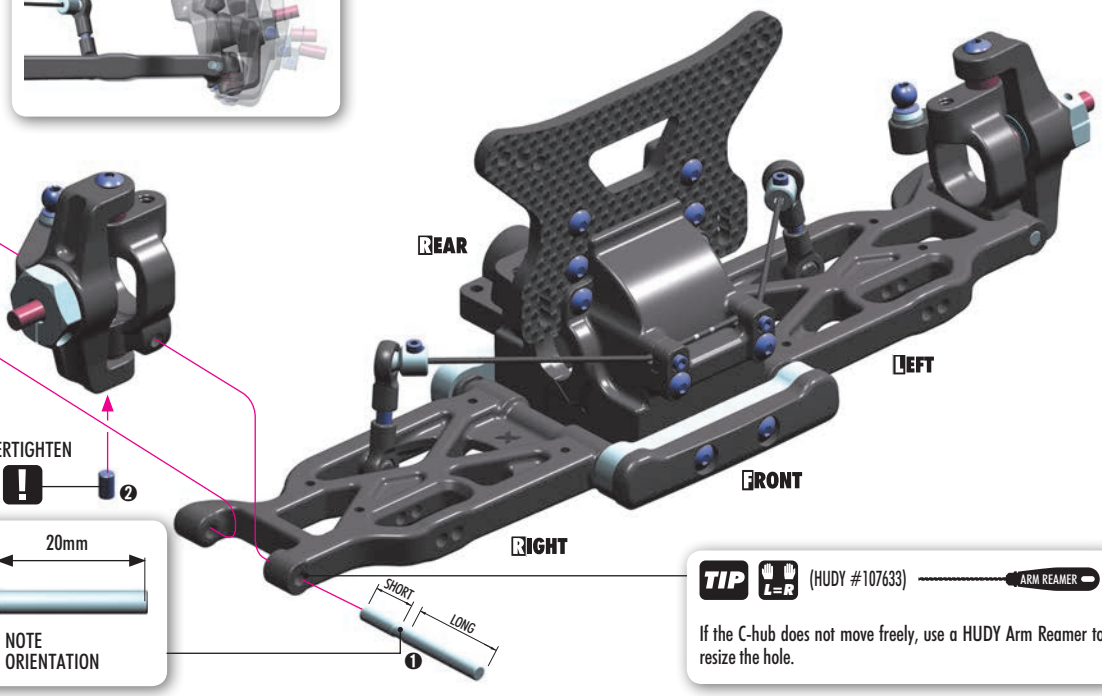
LOWER ROLL-CENTER
When the longer bushing is used at the top, the roll-center is in lower position.

Recommended for rough track to gain stability.

901306
SB M3x6

2x L=R

Check for free movement



9mm 20mm

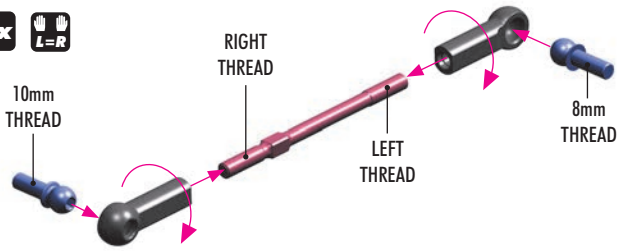
1:1 ! NOTE ORIENTATION

TIP L=R (HUDY #107633) ARM REAMER

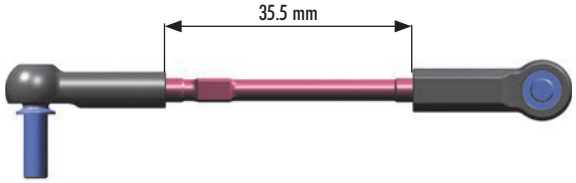
If the C-hub does not move freely, use a HUDY Arm Reamer to resize the hole.

SET-UP BOOK
CAMBER

2x L=R

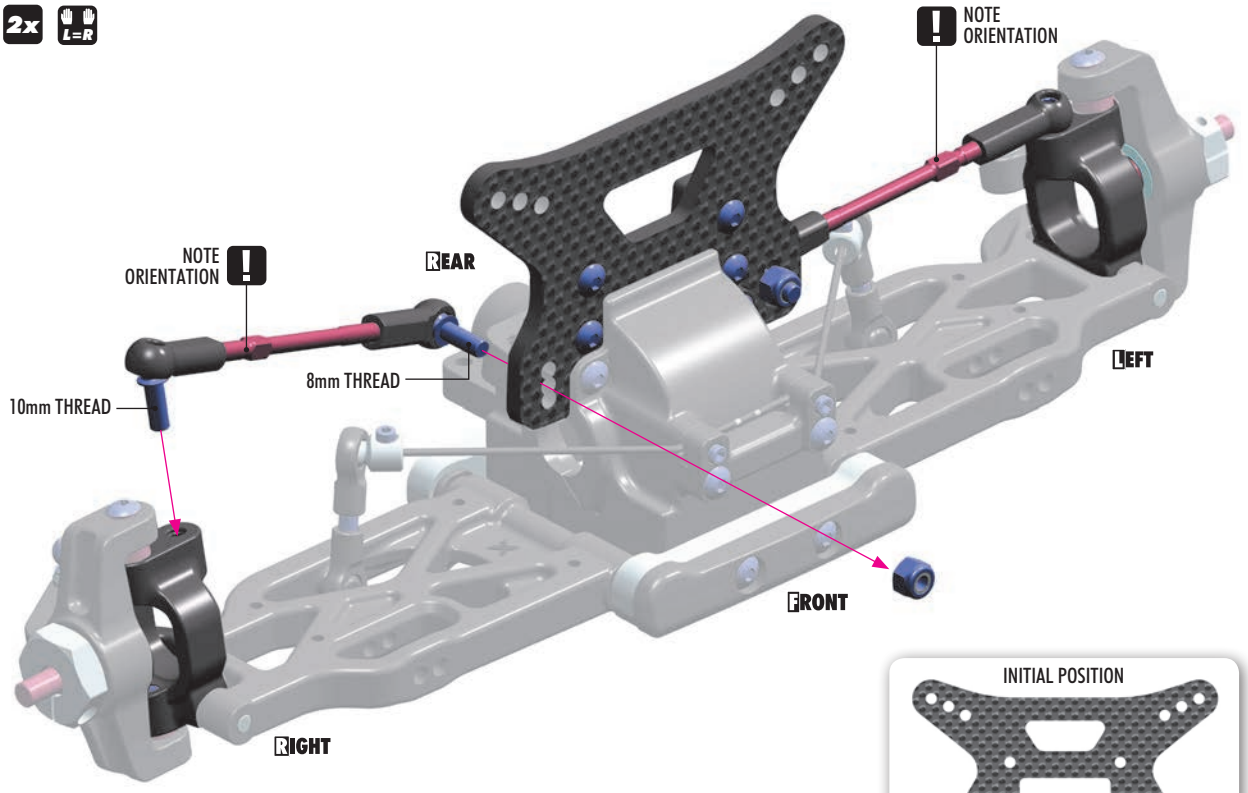


1:1 2x L=R

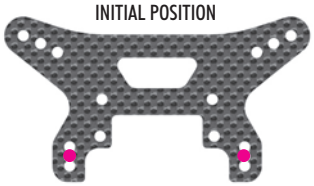


960030
N M3

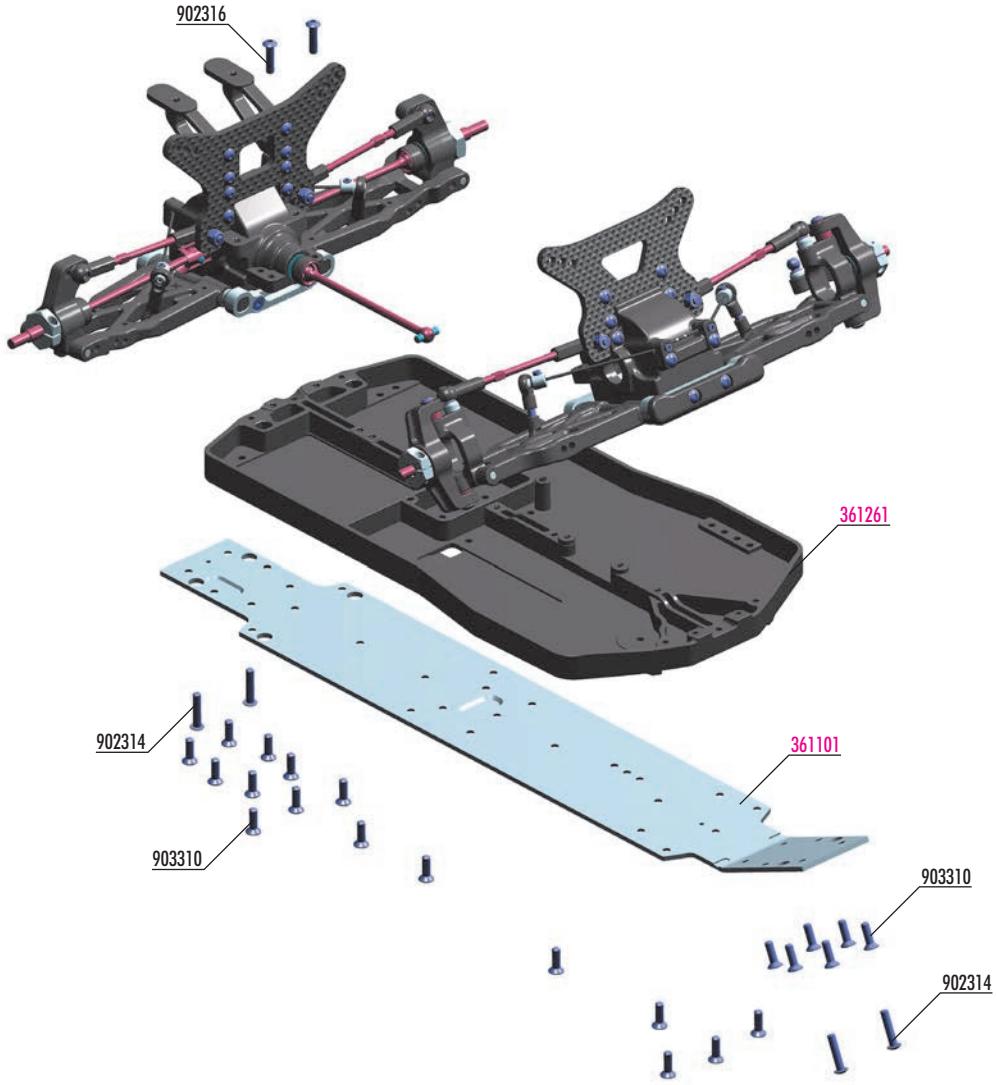
2x L=R



INITIAL POSITION

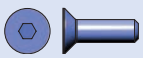


SET-UP BOOK
ROLL CENTER

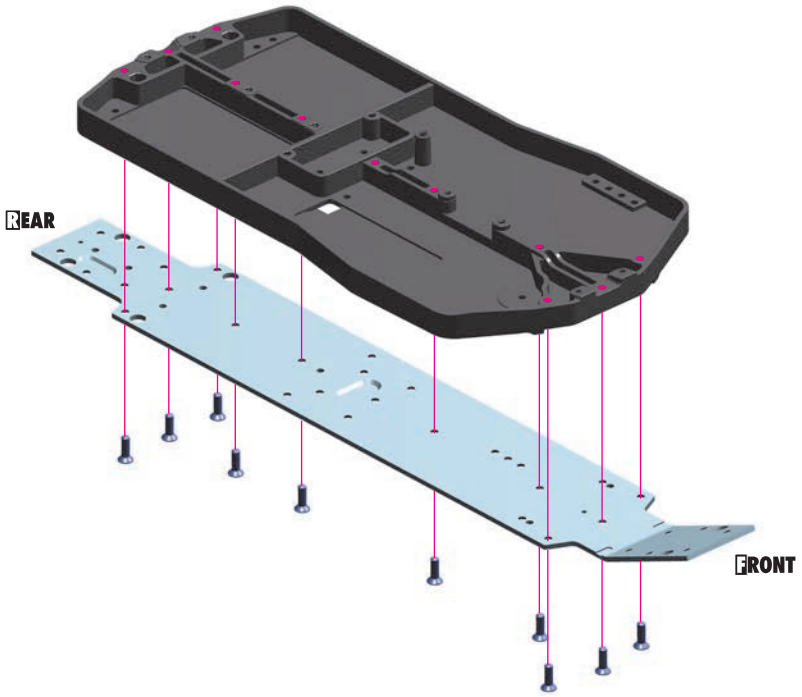


BAG 04

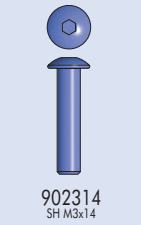
90 2314	HEX SCREW SH M3x14 (10)	36 1101	ALU CHASSIS - SWISS 7075 T6 (2MM) - 2WD
90 2316	HEX SCREW SH M3x16 (10)	36 1261	COMPOSITE CHASSIS FRAME SPLITED
90 3310	HEX SCREW SFH M3x10 (10)		



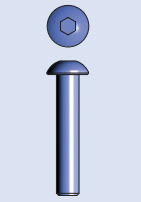
903310
SFH M3x10



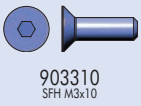
SET-UP BOOK
CHASSIS FLEX SETTING



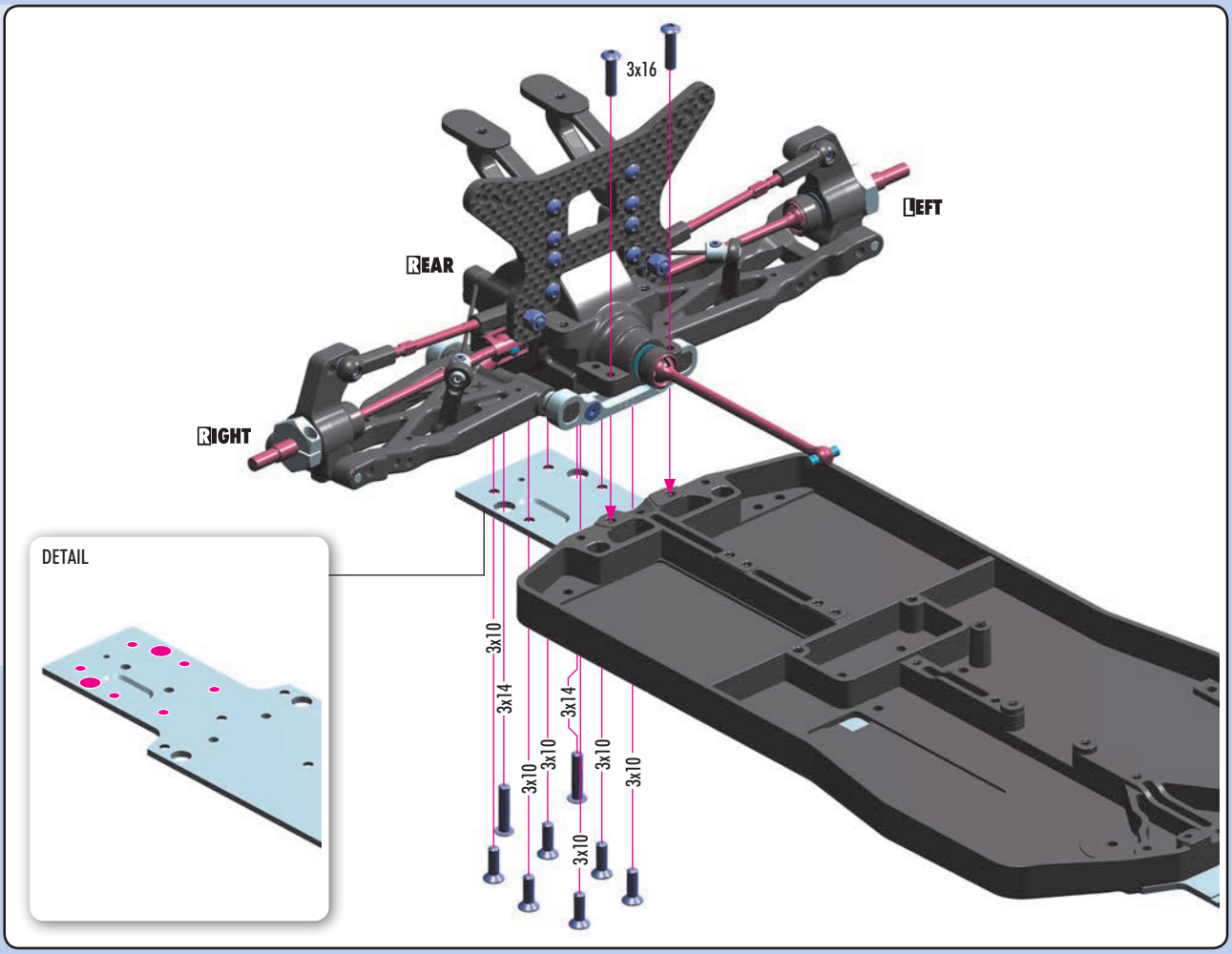
902314
SH M3x14

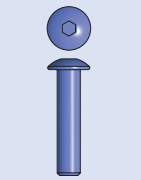


902316
SH M3x16



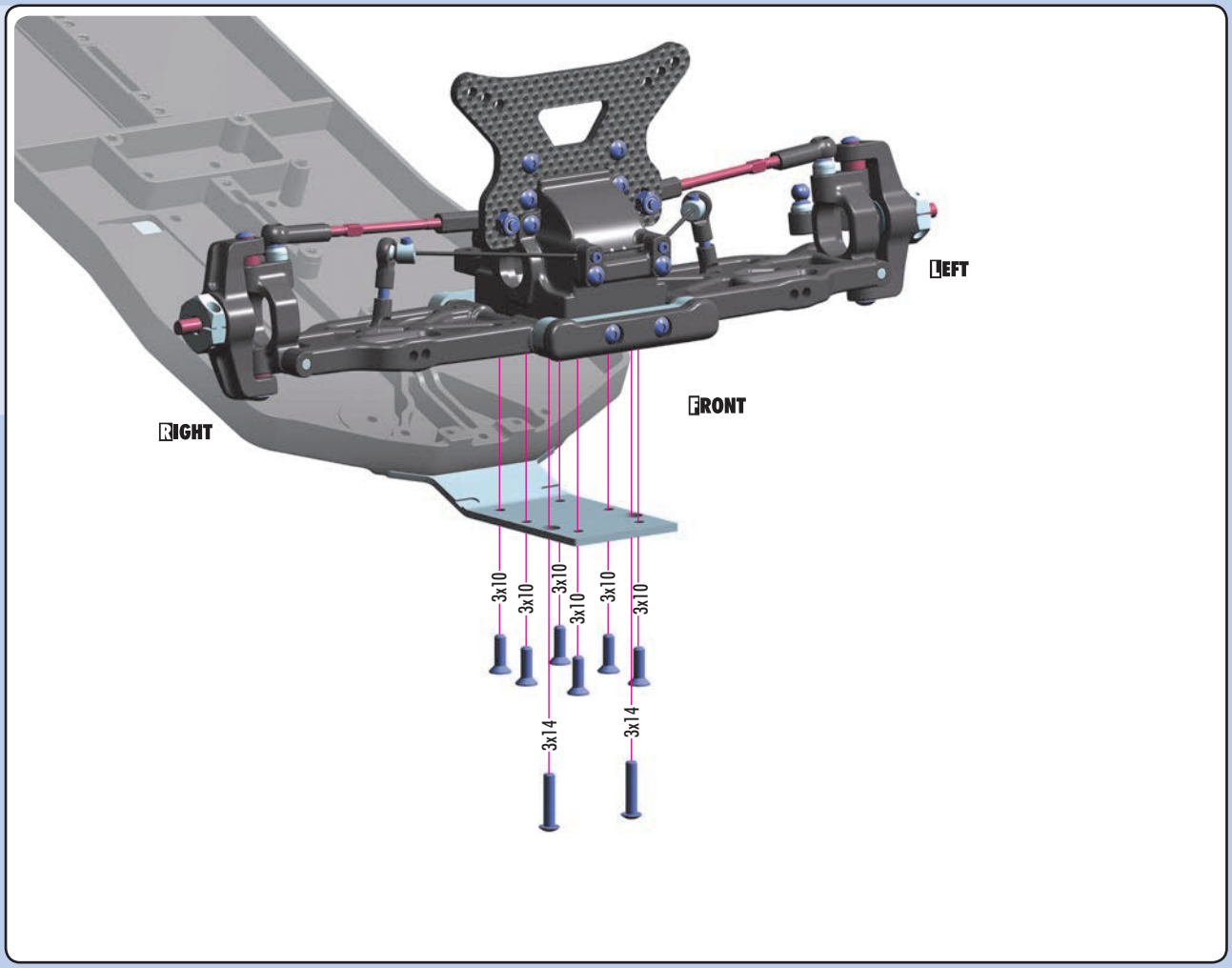
903310
SFH M3x10

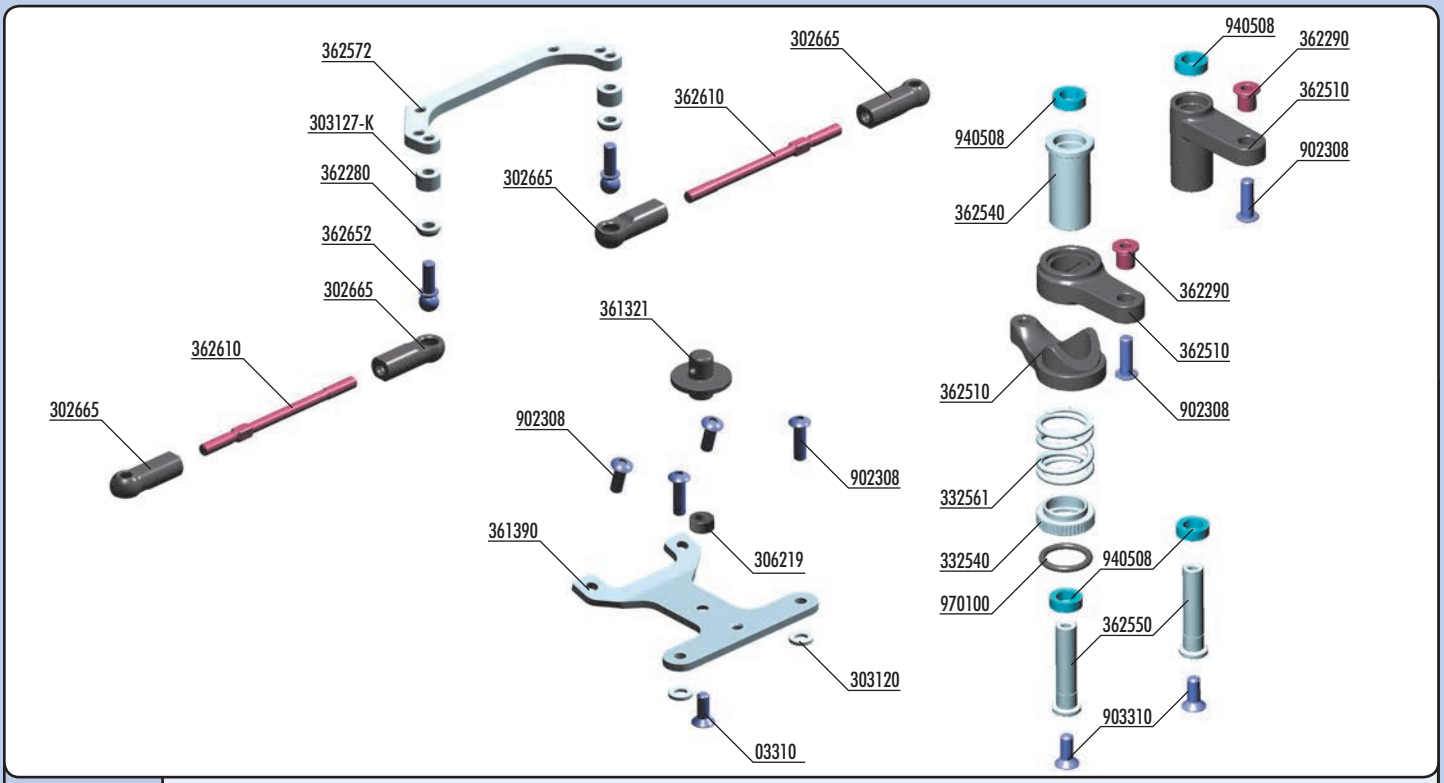




902314
SH M3x14

903310
SFH M3x10

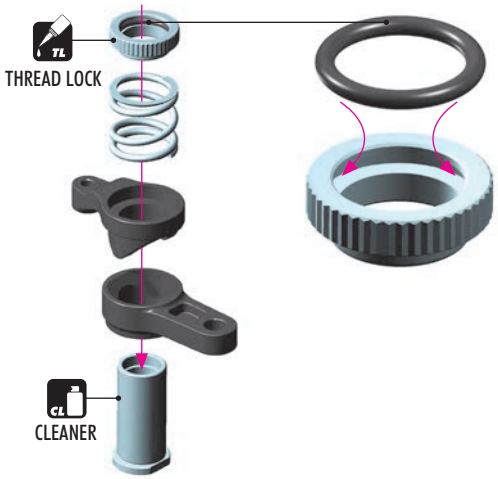


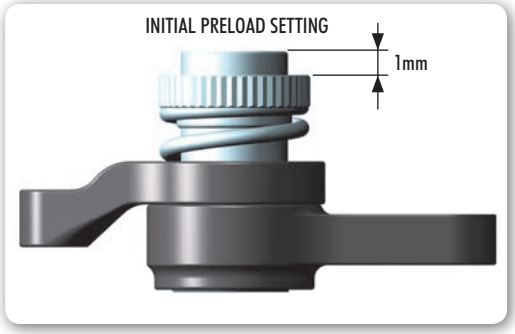


BAG 05

30 2665	COMPOSITE BALL JOINT 4.9MM - CLOSED WITH HOLE (4)	36 2540	ALU SERVO SAVER MAIN SHAFT
30 3120	SET OF ALU SHIM (0.5MM, 1.5MM, 2.5MM)	36 2550	SERVO SAVER PIVOT SHAFT (2)
30 3127-K	ALU SHIM 3x6x4.0MM - BLACK (10)	36 2572	ALU STEERING PLATE - 2WD
30 6219	COMPOSITE SET OF SERVO SHIMS (4)	36 2610	ADJ. TURNBUCKLE M3 L/R 50 MM - SPRING STEEL (2)
33 2540	ALU SERVO SAVER ADJUSTABLE NUT	36 2652	BALL END 4.9MM WITH THREAD 10MM (2)
33 2561	SERVO SAVER SPRING C=14		
36 1321	BODY MOUNT - SHORT + SHIMS - SET	90 2308	HEX SCREW SH M3x8 (10)
36 1390	ALU FRONT UPPER BRACE - 2WD	90 3310	HEX SCREW SFH M3x10 (10)
36 2280	ALU CONICAL SHIM 3x6x2.0MM (10)	94 0508	HIGH-SPEED BALL-BEARING 5x8x2.5 RUBBER SEALED (2)
36 2290	STEEL STEERING BUSHING - SHORT (2)	97 0100	O-RING 10 x 1.5 (10)
36 2510	COMPOSITE SERVO SAVER		

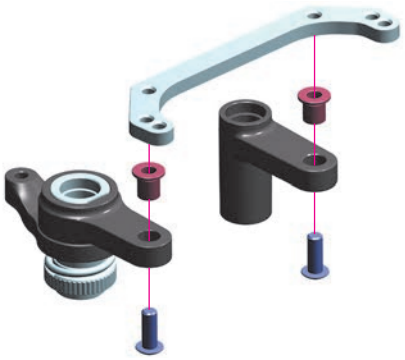
907100
O 10x1.5

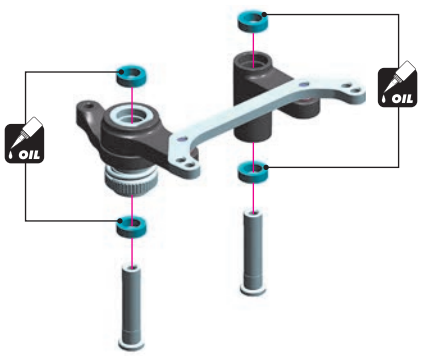




902308
SH M3x8

940508
BB 5x8x2.5





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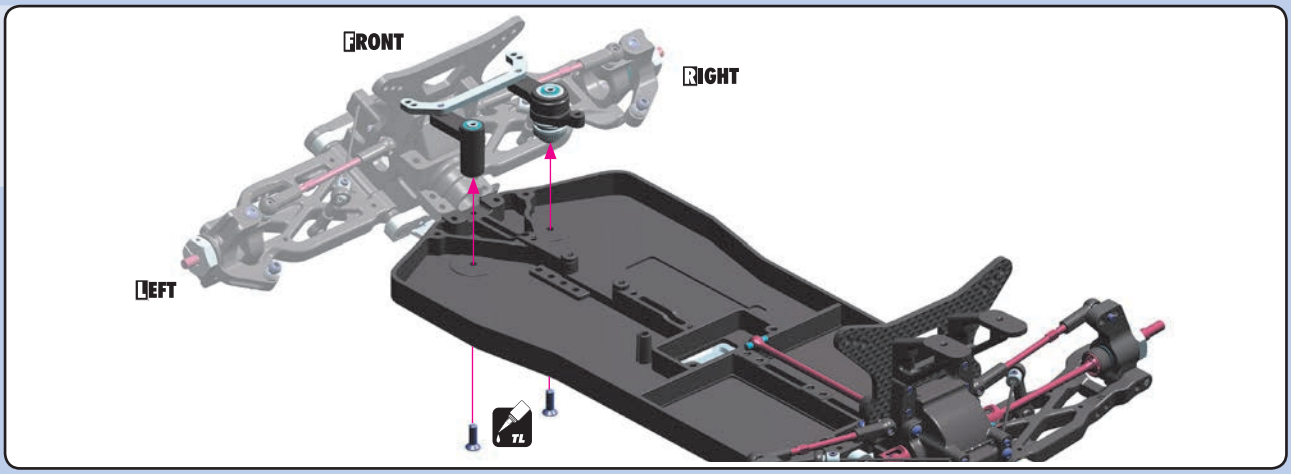
SFH M3x10

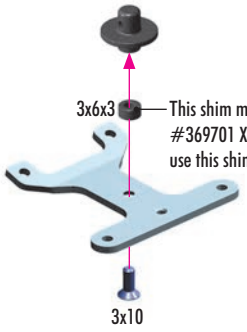


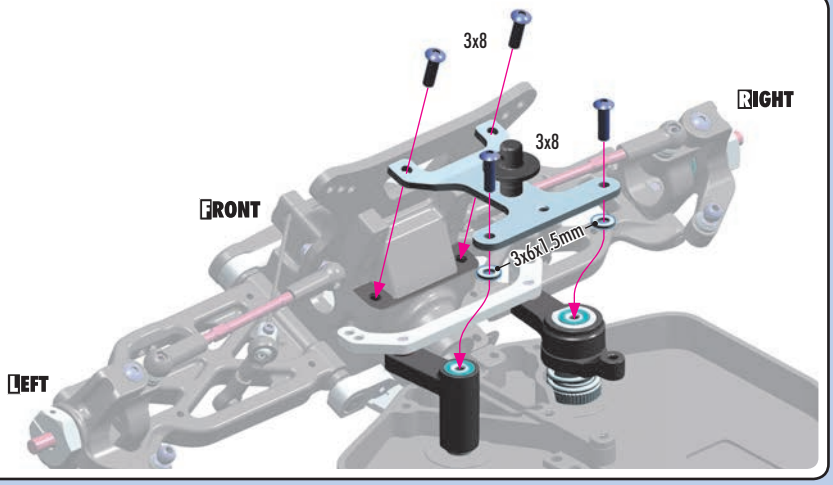
902308
SH M3x8

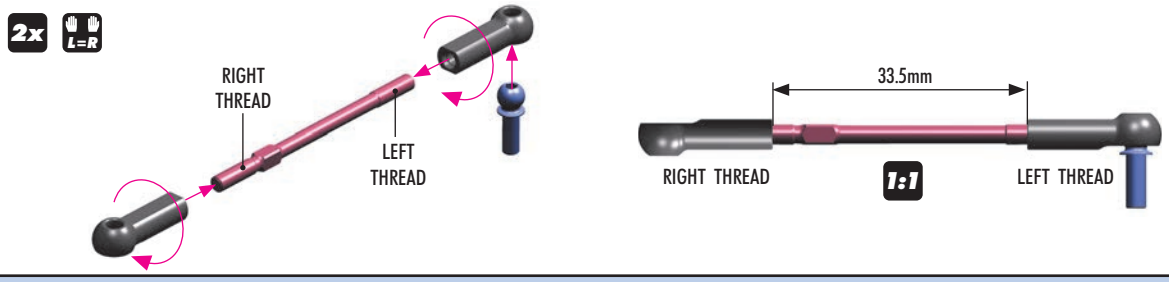
903310
SFH M3x10

303120
SHIM 3x6x1.5

306219
SHIM 3x6x3

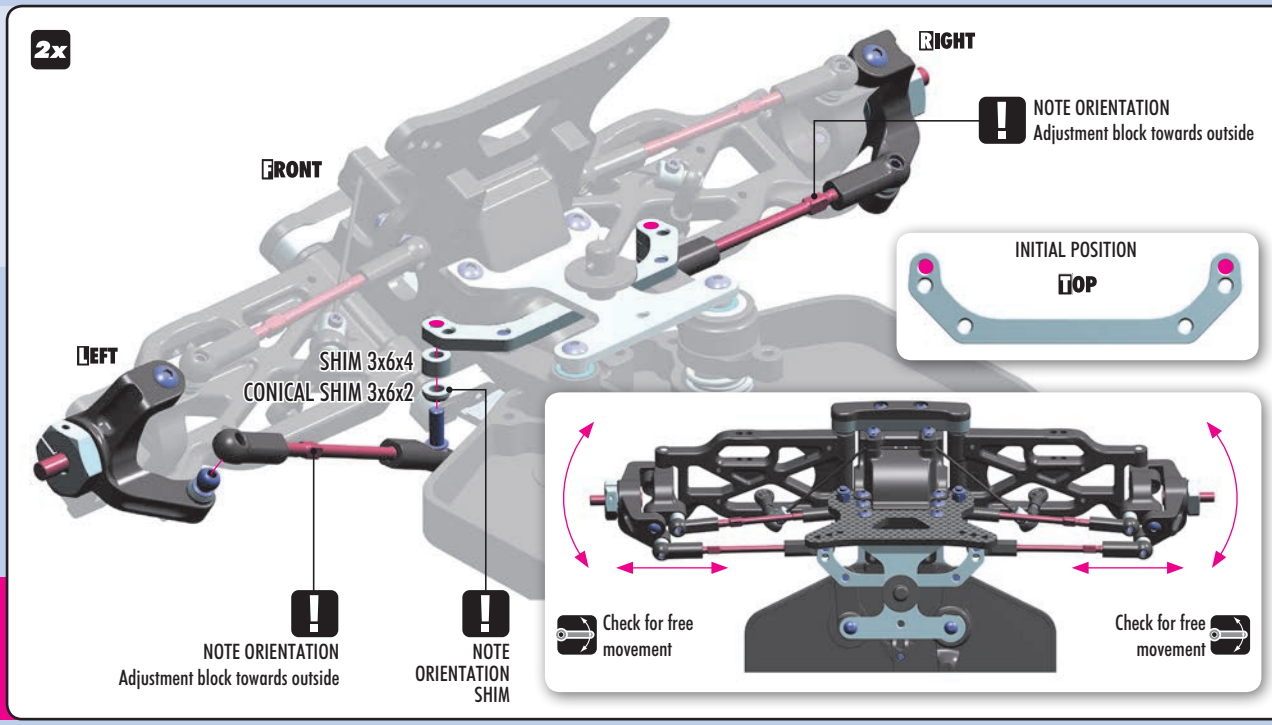






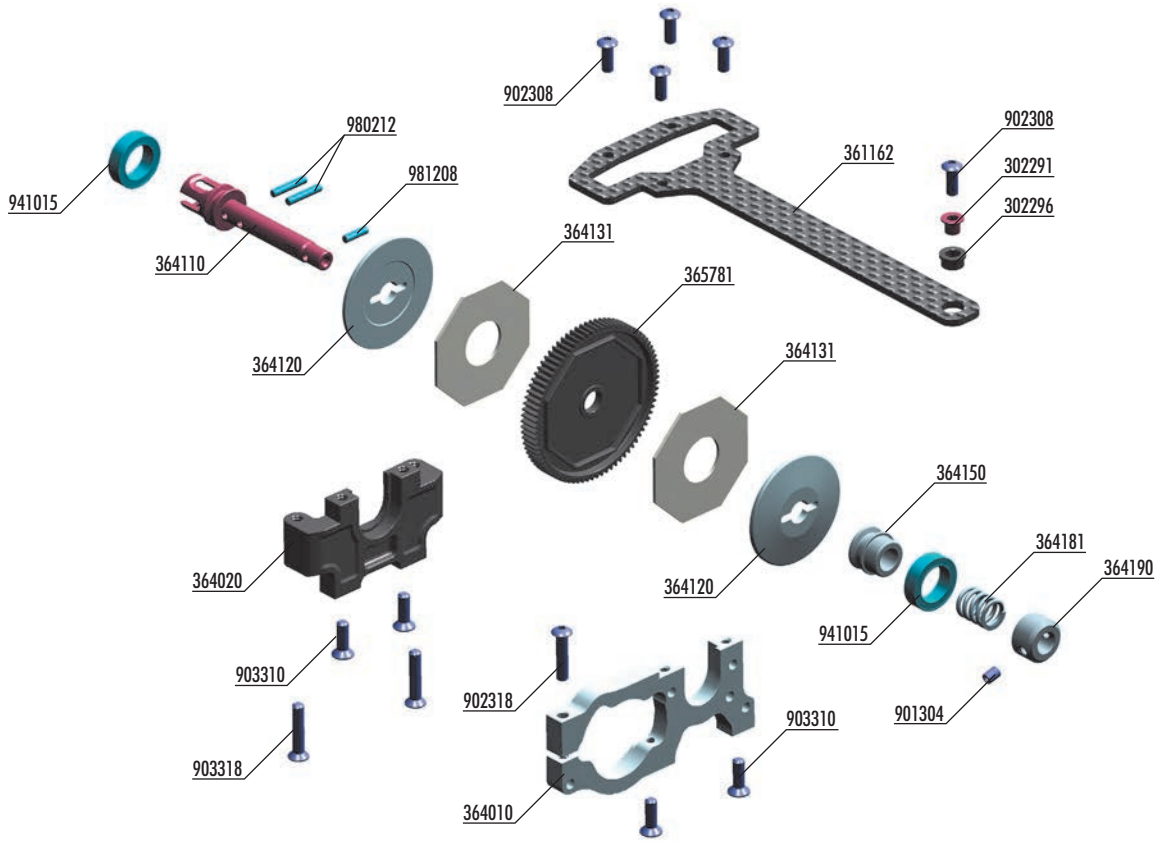
303127-K
SHIM 3x6x4

362280
CON. SHIM 3x6x2



SET-UP BOOK
ACKERMANN
BUMP STEER
TOE-IN

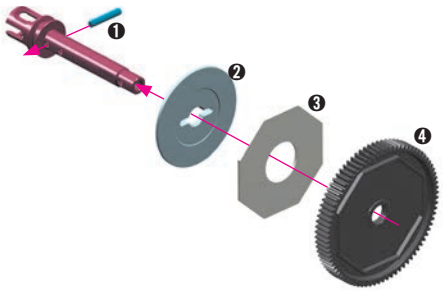
6. SLIPPER CLUTCH ASSEMBLY

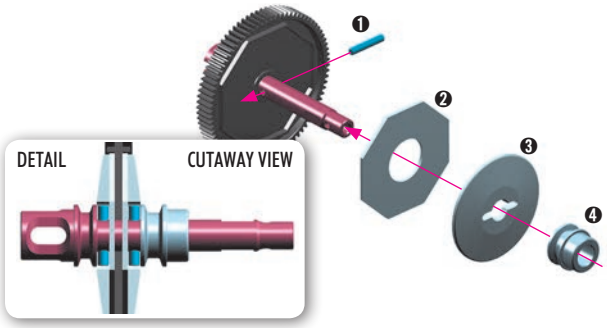


BAG 06

30 2291	STEEL STEERING BUSHING (2+2)	36 5781	COMPOSITE SLIPPER CLUTCH SPUR GEAR 81T / 48 - GRAPHITE
30 2296	COMPOSITE C-HUB BUSHING (2+2)	36 5784	COMPOSITE SLIPPER CLUTCH SPUR GEAR 84T / 48 - GRAPHITE (OPTION)
36 1162	GRAPHITE FRONT UPPER DECK 2.0MM - 2WD		
36 4010	ALU MOTOR BULKHEAD	90 1304	HEX SCREW SB M3x4 (10)
36 4020	COMPOSITE CLUTCH SHAFT HOLDER	90 2308	HEX SCREW SH M3x8 (10)
36 4110	SLIPPER CLUTCH SHAFT - HUDY SPRING STEEL™	90 2318	HEX SCREW SH M3x18 (10)
36 4120	ALU SLIPPER CLUTCH PLATE - 7075 T6 BLACK HARD COATED	90 3310	HEX SCREW SFH M3x10 (10)
36 4131	SLIPPER CLUTCH PAD "SLS" (2)	90 3318	HEX SCREW SFH M3x18 (10)
36 4150	ALU SLIPPER CLUTCH NUT RETAINER	94 1015	HIGH-SPEED BALL-BEARING 10x15x4 RUBBER SEALED (2)
36 4181	SLIPPER CLUTCH SPRING C=50 - BLACK	98 0212	PIN 2x11.6 (10)
36 4190	ALU SLIPPER CLUTCH NUT	98 1208	PIN 2x8 (10)

980212
P 2x11.6

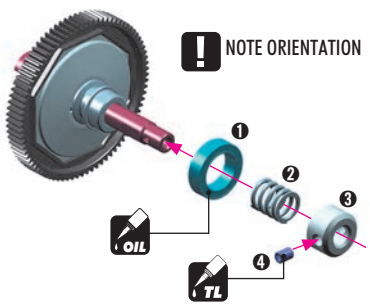




901304
SB M3x4

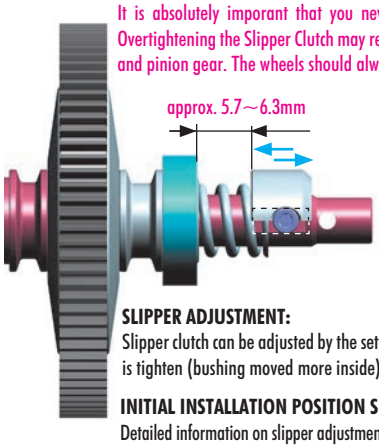
940815
BB 8x14x4

981208
P 2x8



VERY IMPORTANT!

It is absolutely imporant that you never fully tighten the Slipper Clutch. Overtightening the Slipper Clutch may result into breaking the diff crown gear and pinion gear. The wheels should always be able to slip.



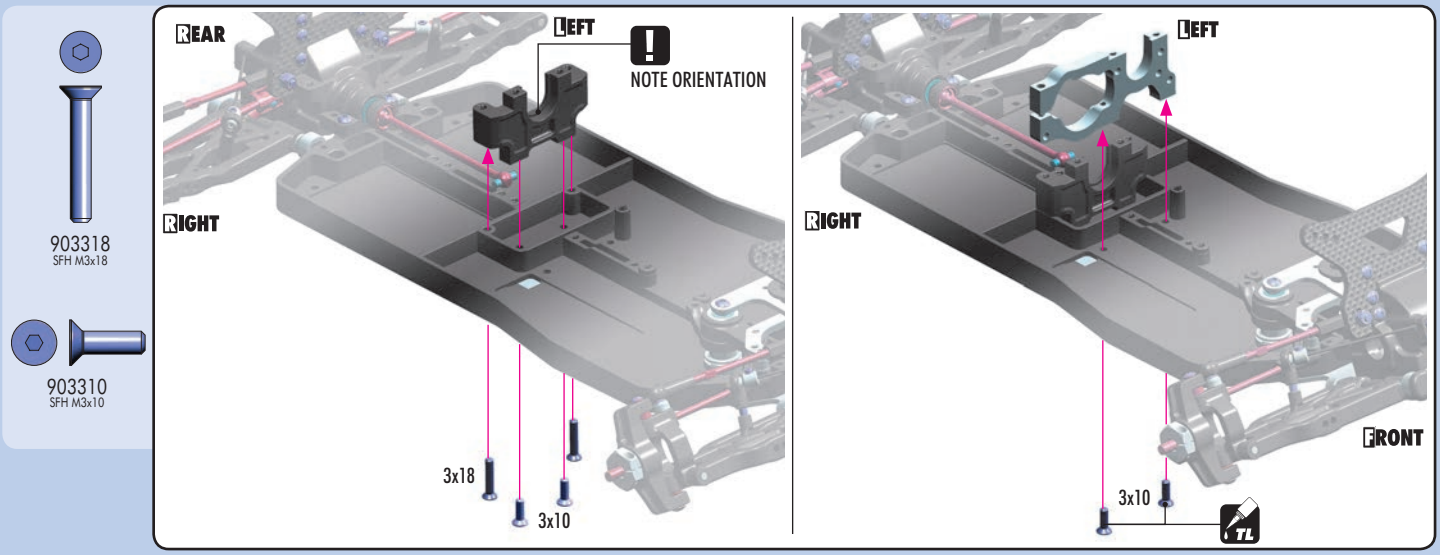
SLIPPER ADJUSTMENT:

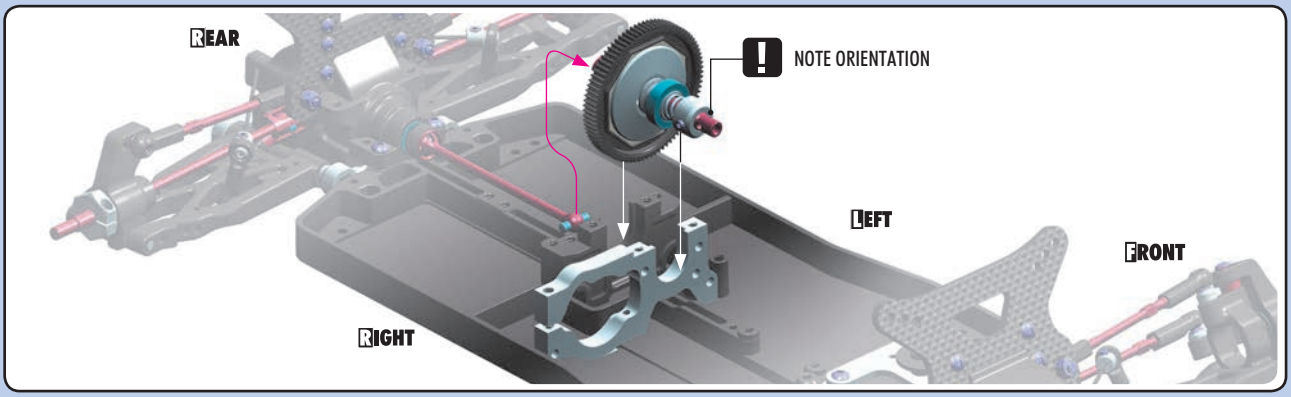
Slipper clutch can be adjusted by the set screw in the bushing. More the spring is tighten (bushing moved more inside), the slipper clutch is more tighten.

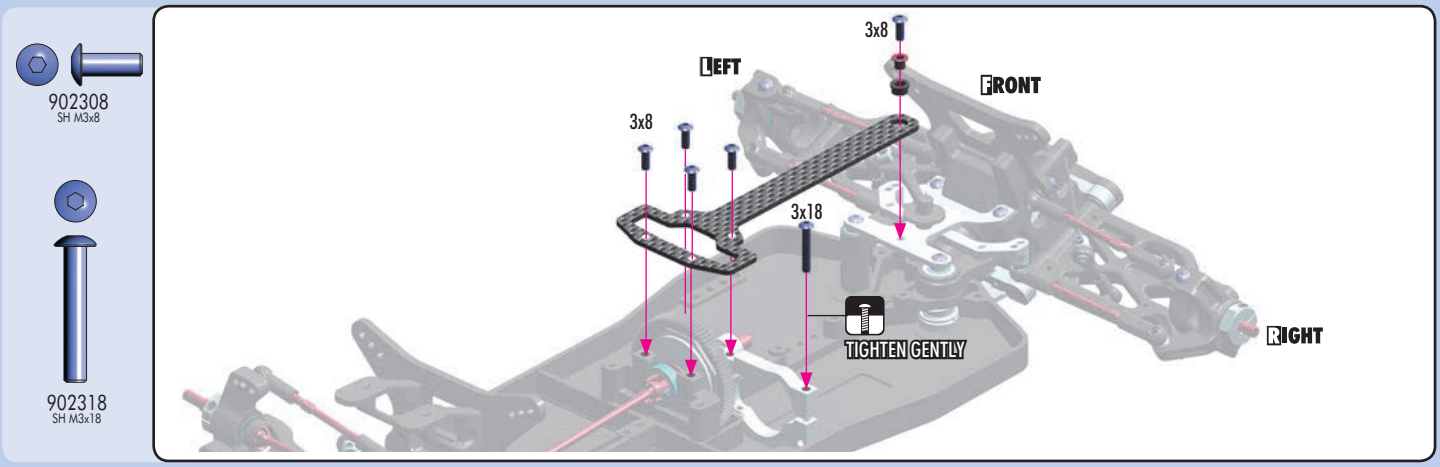
INITIAL INSTALLATION POSITION SHOWN

Detailed information on slipper adjustment can be found at the bottom of page 27.

SLIPPER CLUTCH ASSEMBLY





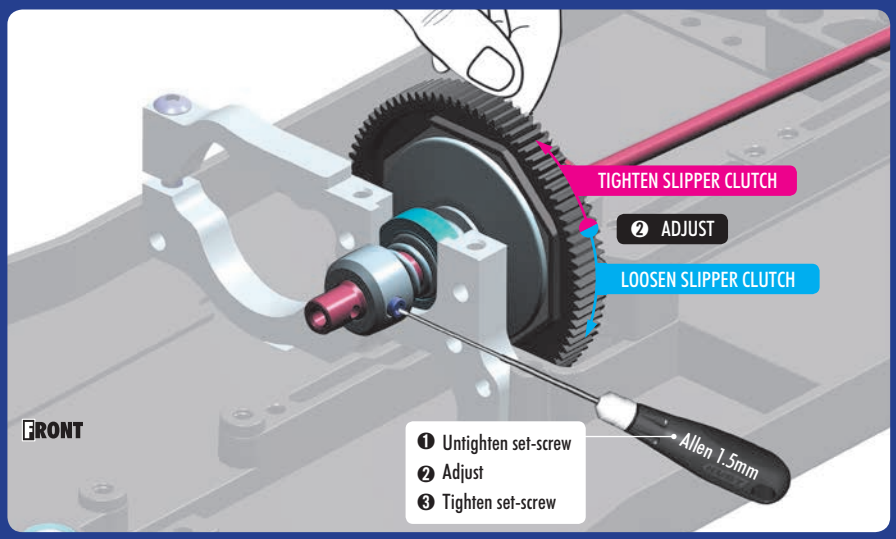


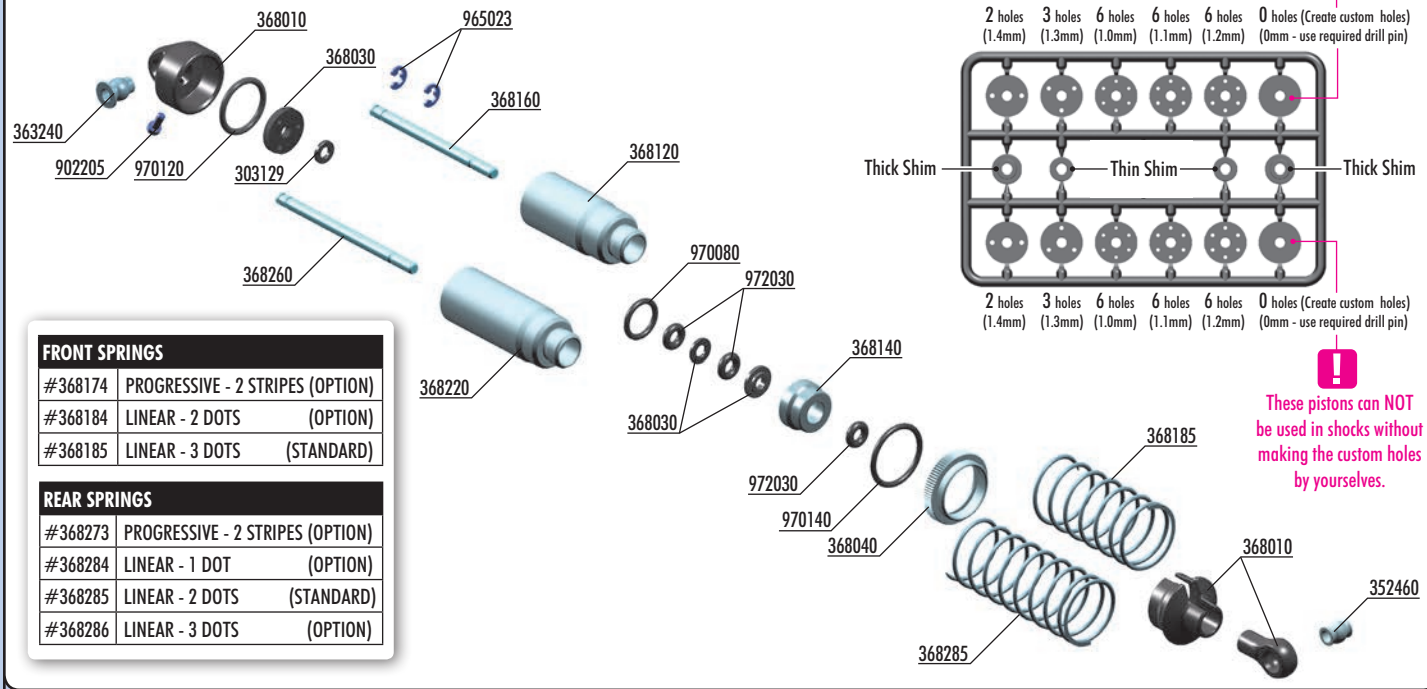
THE SLIPER CLUTCH ADJUSTMENT

The slipper clutch can be adjusted by loosening the set screw and then, while keeping the tool inside of the set screw, rotating the spur gear by hand as indicated in the drawing. If the slipper clutch needs to be tighter, rotate the spur gear in the counterclockwise direction. If the slipper clutch needs to be looser, rotate the spur gear in clockwise direction.

! IMPORTANT

When tightening the setscrew again, ensure that the set screw sits only on the flat spot of the shaft.

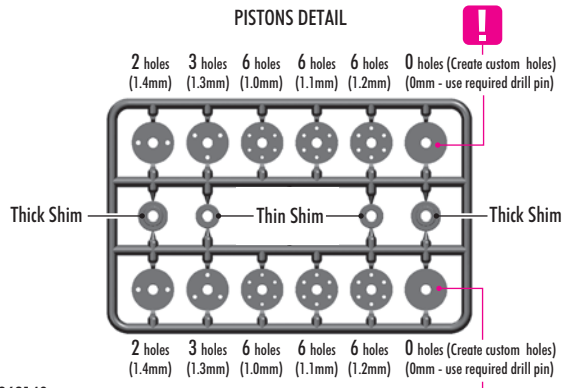




FRONT SPRINGS		
#368174	PROGRESSIVE - 2 STRIPES	(OPTION)
#368184	LINEAR - 2 DOTS	(OPTION)
#368185	LINEAR - 3 DOTS	(STANDARD)

REAR SPRINGS		
#368273	PROGRESSIVE - 2 STRIPES	(OPTION)
#368284	LINEAR - 1 DOT	(OPTION)
#368285	LINEAR - 2 DOTS	(STANDARD)
#368286	LINEAR - 3 DOTS	(OPTION)

PISTONS DETAIL



These pistons can NOT be used in shocks without making the custom holes by yourselves.

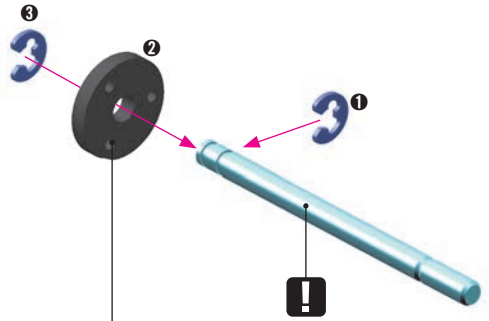
BAG 07

30 3129	COMPOSITE SET OF SHIMS 3x 3x6x1MM; 1x 3x6x2MM (2)
35 2460	PIVOT BALL 5.8 - V3 (10)
36 3240	BALL UNIVERSAL 5.8MM WITH BACKSTOP (2)
36 8010	COMPOSITE SHOCK PARTS
36 8030	SHOCK PISTONS - COMPLETE SET - DERLIN
36 8040	ALU SHOCK ADJUSTABLE NUT (2)
36 8100	FRONT SHOCK ABSORBERS COMPLETE SET (2)
36 8120	ALU FRONT SHOCK BODY - HARD COATED (2)
36 8140	ALU LOWER SHOCK BODY CAP (2)
36 8160	FRONT HARDENED SHOCK SHAFT (2)
36 8174	FRONT SPRING-SET PROGRESSIVE - 2 STRIPES (2) (OPTION)
36 8184	FRONT SPRING-SET LINEAR - 2 DOTS (2) (OPTION)
36 8185	FRONT SPRING-SET LINEAR - 3 DOTS (2)
36 8200	REAR SHOCK ABSORBERS COMPLETE SET (2)
36 8220	ALU REAR SHOCK BODY - HARD COATED (2)
36 8260	REAR HARDENED SHOCK SHAFT (2)
36 8273	REAR SPRING-SET PROGRESSIVE - 2 STRIPES (2) (OPTION)
36 8284	REAR SPRING-SET LINEAR - 1 DOT (2) (OPTION)
36 8285	REAR SPRING-SET LINEAR - 2 DOTS (2)
36 8286	REAR SPRING-SET LINEAR - 3 DOTS (2) (OPTION)
90 2205	HEX SCREW SH M2x5 (10)
96 5023	E-CLIP 2.3 (10)
97 0080	O-RING 8x1 (10)
97 0120	O-RING 12 x 1.0 (10)
97 0140	O-RING 14 x 1.5 (10)
97 2030	SILICONE O-RING 3x2 (10)

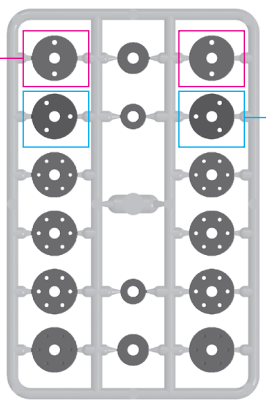
965023
C 2.3

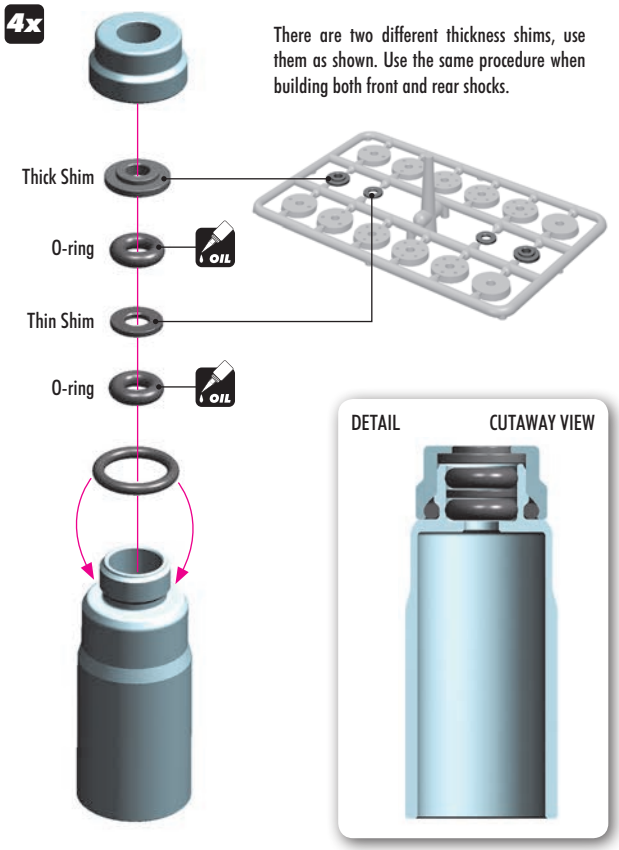
972030
O 3x2

970080
O 8x1



INITIAL PISTON SETTING





There are two different thickness shims, use them as shown. Use the same procedure when building both front and rear shocks.

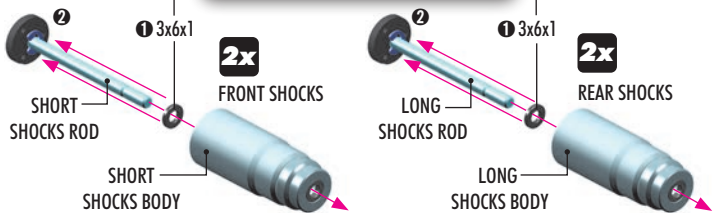
DETAIL CUTAWAY VIEW

SET-UP BOOK
SHOCK DAMPING
SHOCK PISTONS

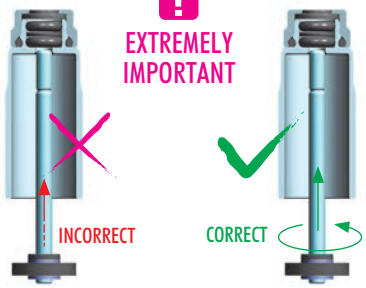
303129
SHIM 3x6x1

Downstop shim. Thicker shim used, greater downstop is achieved.

IMPORTANT
Always use same shim thickness on right and left side to achieve same downstop.



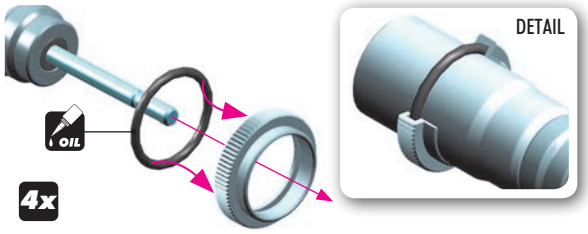
EXTREMELY IMPORTANT



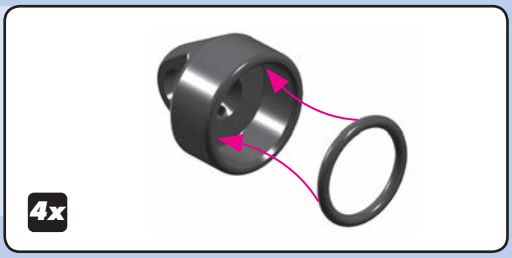
Do not push the shock rod straight through the lower shock body assembly; O-ring damage may result.

Twist the shock rod through the lower shock body assembly.

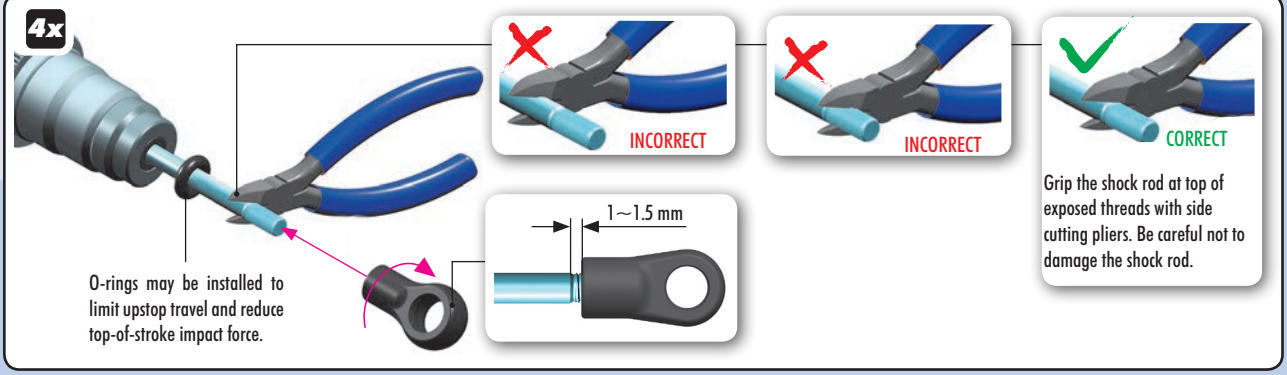
970140
O 14x1.5



970120
O 12x1



972030
O 3x2



O-rings may be installed to limit upstop travel and reduce top-of-stroke impact force.

Grip the shock rod at top of exposed threads with side cutting pliers. Be careful not to damage the shock rod.

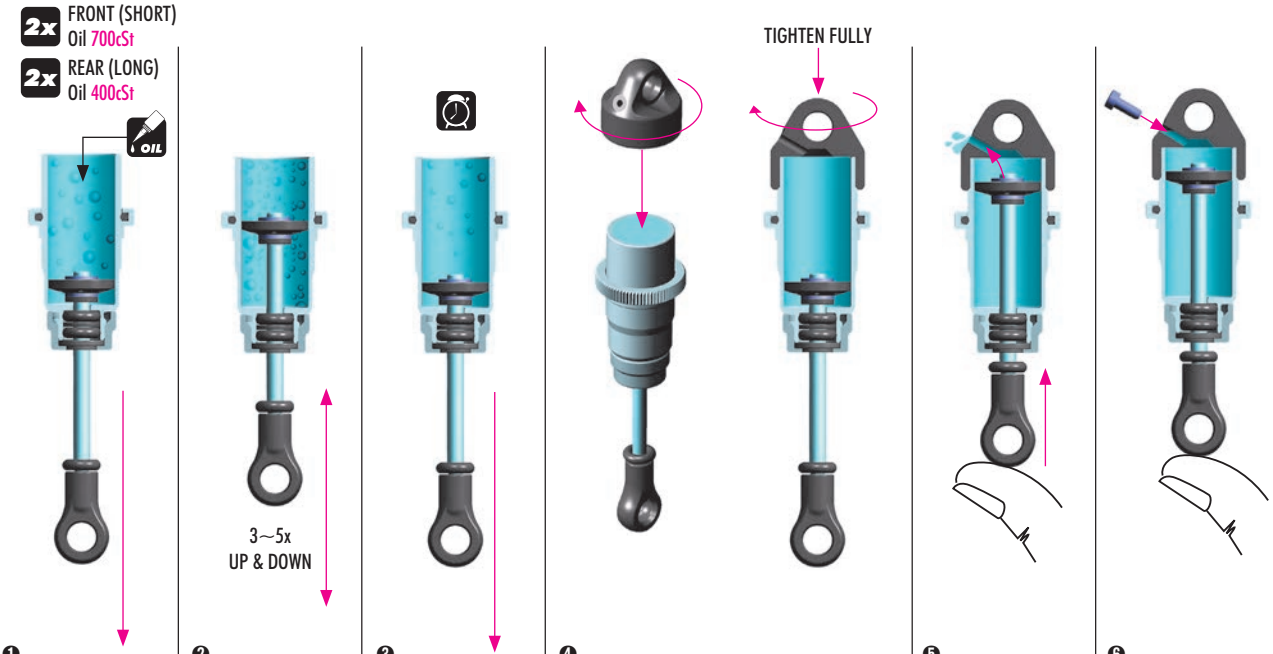
902205
SH M2x5

DEFAULT SHOCK REBOUND SETTING 0% (LOW REBOUND)

Follow the steps below to set the shock rebound to the default setting of 0%.

2x FRONT (SHORT)
Oil 700cSt

2x REAR (LONG)
Oil 400cSt



❶ Extend the shock shaft completely. Fill the shock body with the shock oil. For the FRONT shocks (short) use 700cSt oil. For the REAR shocks (long) use 400cSt oil.

❷ Move the shock shaft up and down a few times to release the air bubbles trapped beneath the piston.

❸ Orient the filled shock vertically for several minutes with the shock shaft fully extended. The remaining air bubbles will release.

❹ Gently place the shock cap onto the filled shock body and start to tighten the cup. Tighten the cap fully.

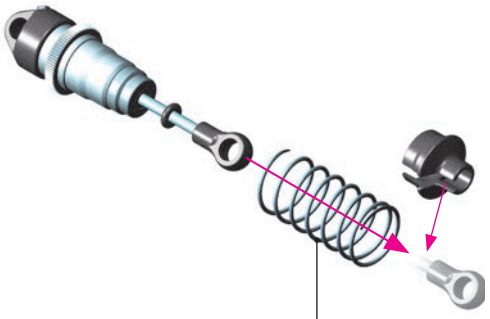
❺ Gently push the shock shaft completely into the shock body. Excess oil will flow through the hole in the shock cap.

❻ Keep the shock shaft pushed in the shock body and insert the screw into the shock cap. The rebound will be at approximately 0%

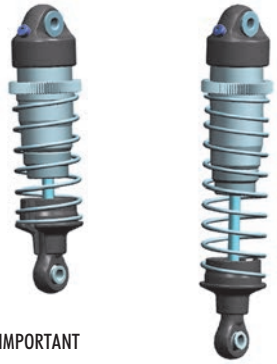
SET-UP BOOK
SHOCK OIL

2x FRONT SHOCKS (SHORT)

2x REAR SHOCKS (LONG)

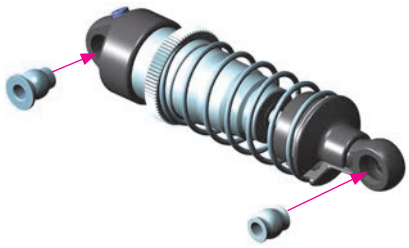


SHORT FRONT SHOCKS
Short Springs
2x 2x
LONG REAR SHOCKS
Long Springs



! IMPORTANT

Both FRONT SHOCKS must be the same overall length.
Both REAR SHOCKS must be the same overall length.



TIP ALTERNATE SHOCK REBOUND SETTING (50% AND 100%)

The default shock rebound setting is 0% (as described on page 34).
Alternatively, you may set the shock rebound setting to 50% or 100% as described below. Remove the shock springs before performing shock rebound adjustment.

SETTING THE SHOCK REBOUND TO 50% (MEDIUM REBOUND)

REMOVE SHOCK CAP AND THE SCREW FROM SHOCK CAP

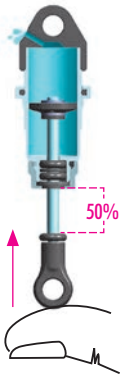
❶ Extend the shock shaft completely and remove the shock cap and remove screw from shock cap.

❷ Fill the shock body with shock oil up to the top. Make sure to use same viscosity shock oil as is in the shock.

❸ Orient the filled shock vertically for several minutes with the shock shaft fully extended. The remaining air bubbles will release.

TIGHTEN FULLY

❹ Gently place the shock cap assembly onto the filled shock body.



❺ Push the shock shaft 50% into the shock body. Excess oil will bleed thgrough the hole in the shock cap.

❻ Keep the shock shaft pushed 50% into the shock body and insert the screw into the shock cap. The rebound will be at approximately 50%.

SETTING THE SHOCK REBOUND TO 100% (HIGH REBOUND)

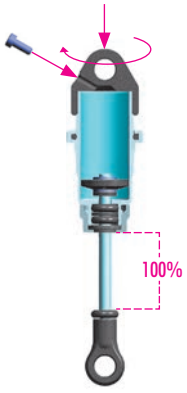
REMOVE SHOCK CAP

❶ Extend the shock shaft completely and remove the shock cap.

❷ Fill the shock body with shock oil up to the top. Make sure to use same viscosity shock oil as is in the shock.

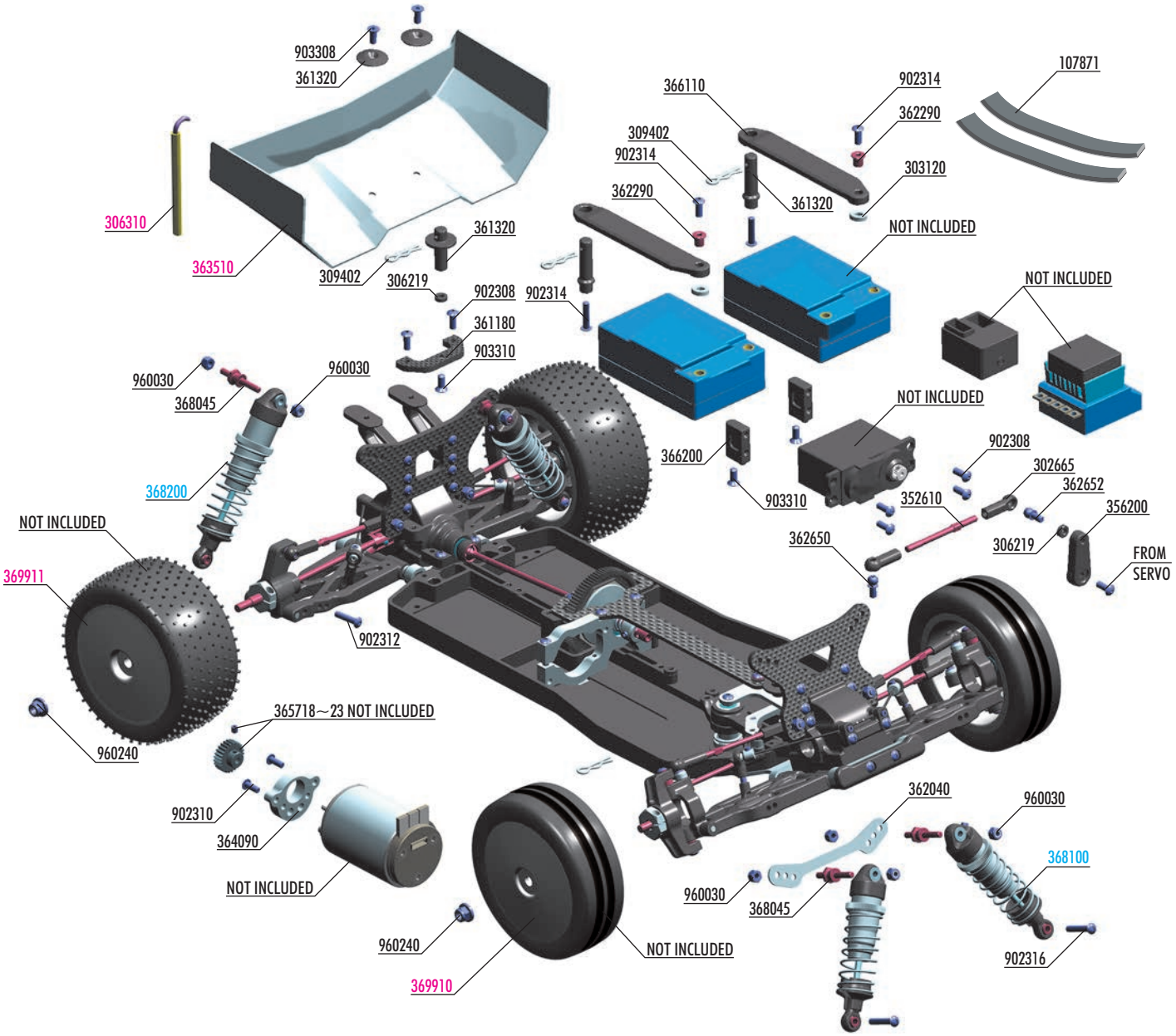
❸ Orient the filled shock vertically for several minutes with the shock shaft fully extended. The remaining air bubbles will release.

TIGHTEN FULLY



❹ Gently place the shock cap assembly onto the filled shock body. Keep the shock shaft extended 100% from the shock body and tighten the shock cap completely. The rebound will be at approximately 100%.

8. FINAL ASSEMBLY

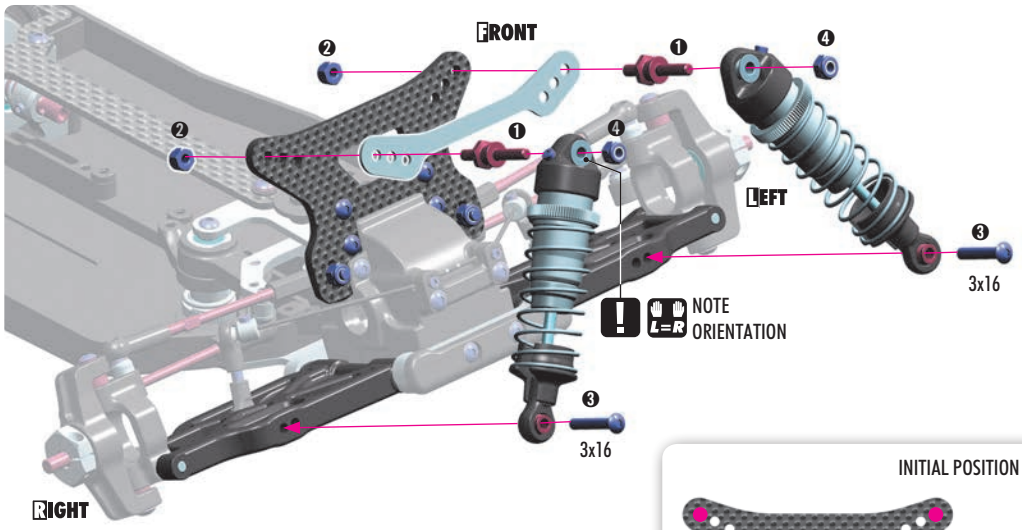


BAG 08

10 7871	HUDY SELF-ADHESIVE FOAM STRIP (2)
30 2665	COMPOSITE BALL JOINT 4.9MM - CLOSED WITH HOLE (4)
30 3120	SET OF ALU SHIM (0.5MM, 1.5MM, 2.5MM)
30 6219	COMPOSITE SET OF SERVO SHIMS (4)
30 9402	BODY CLIP FOR 6MM BODY POST (4)
35 2610	ADJ. TURNBUCKLE M3 L/R 45 MM - SPRING STEEL™ (2)
35 6200	BRAKE/THROTTLE ARMS & STEERING SERVO ARMS - SET
36 1180	GRAPHITE REAR UPPER BRACE 2.0MM
36 1320	BODY MOUNT, BATTERY MOUNT & WING SHIM (2)
36 2040	FRONT SHOCK TOWER PROTECTOR
36 2290	STEEL STEERING BUSHING - SHORT (2)
36 2650	BALL END 4.9MM WITH THREAD 6MM (2)
36 2652	BALL END 4.9MM WITH THREAD 10MM (2)
36 4090	ALU ECCENTRIC MOTOR BULKHEAD INSERT
36 5718~23	ALU PINION GEAR HARD COATED 18~23T/48 (OPTION)
36 6110	COMPOSITE BATTERY STRAP L+R
36 6200	COMPOSITE SERVO MOUNT (2)
36 8045	STEEL SCREW SHOCK PIVOT BALL WITH HEX (2)
90 2308	HEX SCREW SH M3x8 (10)
90 2310	HEX SCREW SH M3x10 (10)
90 2312	HEX SCREW SH M3x12 (10)
90 2314	HEX SCREW SH M3x14 (10)
90 2316	HEX SCREW SH M3x16 (10)
90 3308	HEX SCREW SFH M3x8 (10)
90 3310	HEX SCREW SFH M3x10 (10)
96 0030	NUT M3 (10)
96 0240	NUT M4 WITH SERRATED FLANGE (10)
36 8100	FRONT SHOCK ABSORBERS COMPLETE SET (2)
36 8200	REAR SHOCK ABSORBERS COMPLETE SET (2)
30 6310	ANTENNA (2)
36 3510	LEXAN REAR WING (2)
36 9701	XRAY XB4 BODY DMX
36 9910	FRONT WHEELS AERODISK - WHITE (2)
36 9911	REAR WHEELS AERODISK - WHITE (2)

960030
N M3

902316
SH M3x16



960030
N M3

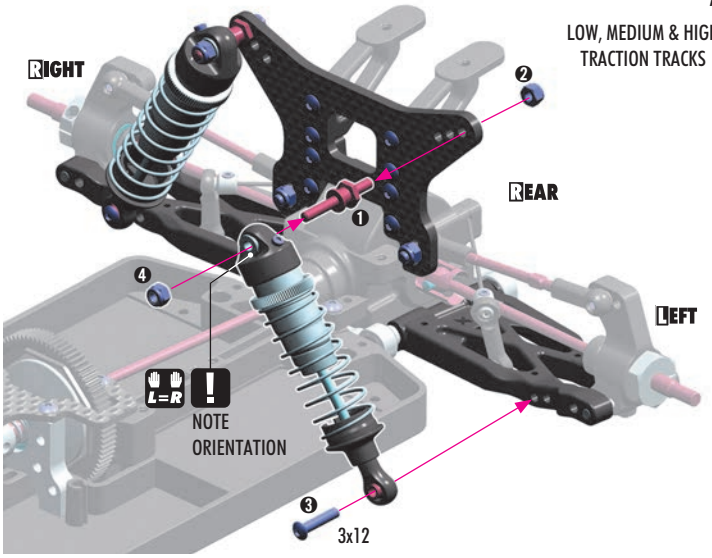
902312
SH M3x12

REAR SHOCKS MOUNTING ALTERNATIVES

Depending on the track traction conditions there are two alternatives how to mount the rear shocks. The shocks can be mounted either in front or behind the rear suspension.

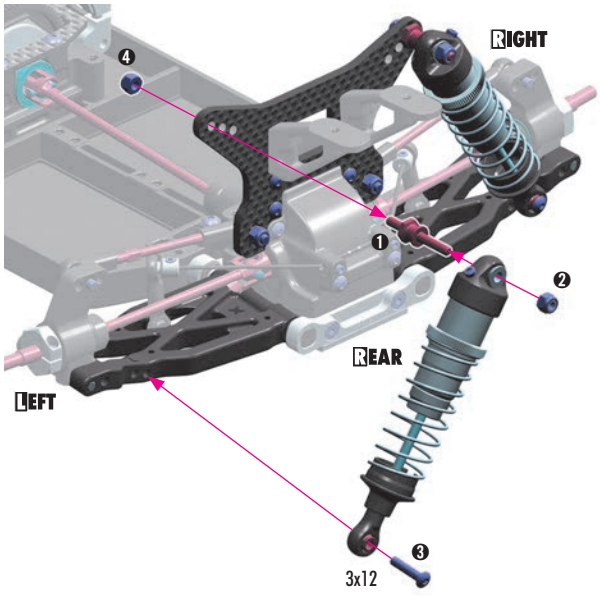
Alternative 1

LOW, MEDIUM & HIGH TRACTION TRACKS = SHOCKS IN FRONT OF SUSPENSION

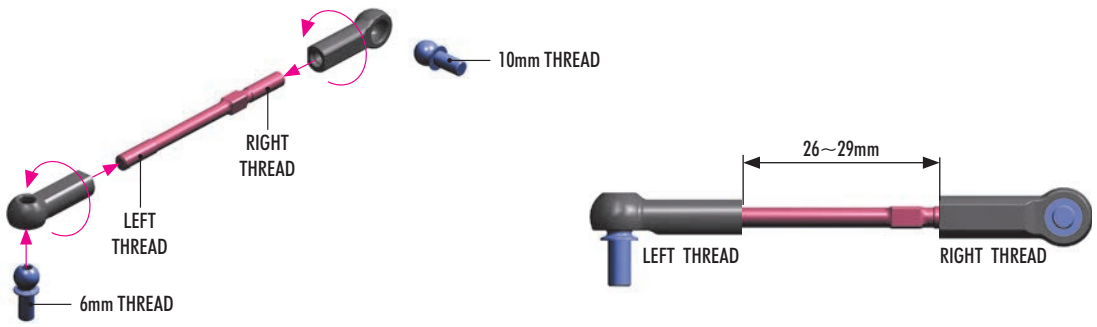


Alternative 2

HIGH TRACTION & ASTRO TRACKS = SHOCKS BEHIND THE SUSPENSION

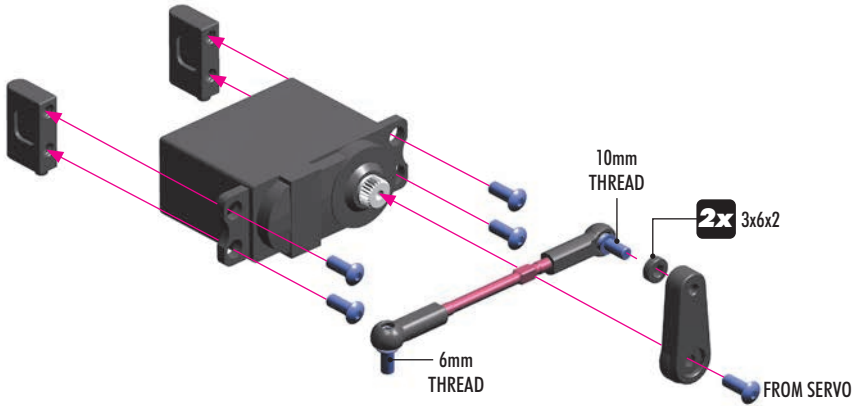


SERVO LINK
Adjust Servo link to fit your servo.

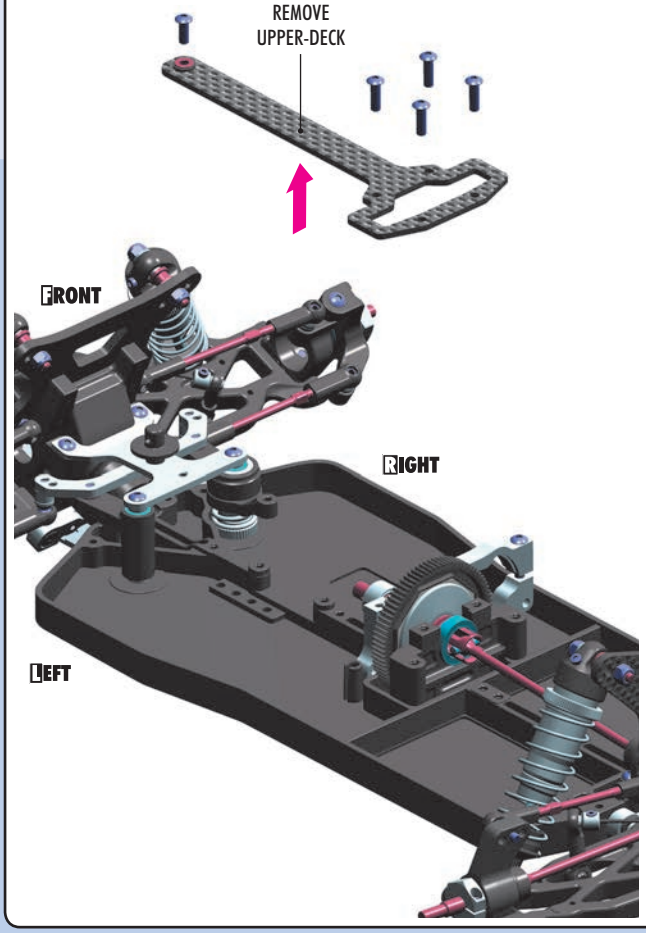


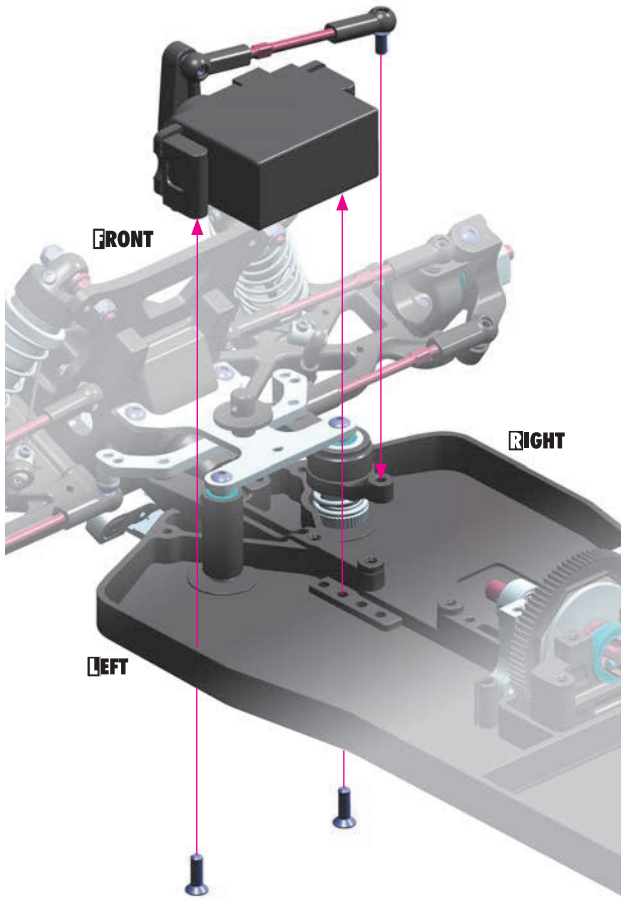
306219
SHIM 3x6x2

902308
SH M3x8

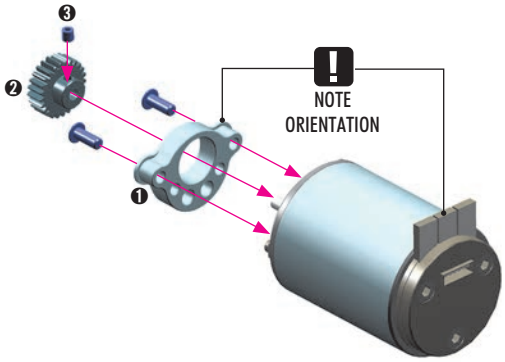


903310
SFH M3x10

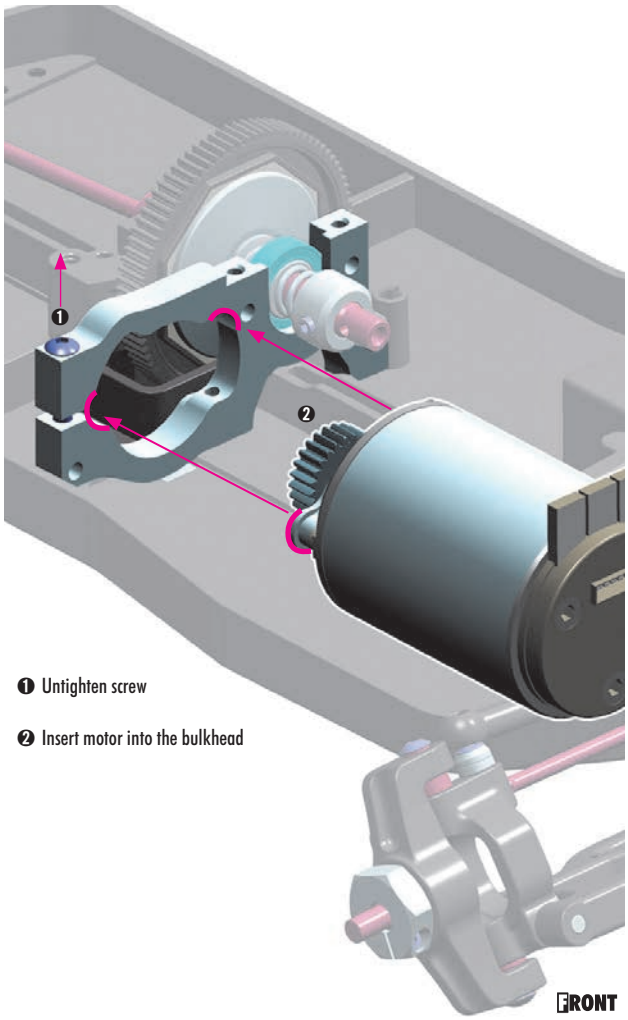




902310
SH M3x10



PINIONS (OPTION)	
#365718	18T / 48P (OPTION)
#365719	19T / 48P (OPTION)
#365720	20T / 48P (OPTION)
#365721	21T / 48P (OPTION)
#365722	22T / 48P (OPTION)
#365723	23T / 48P (OPTION)

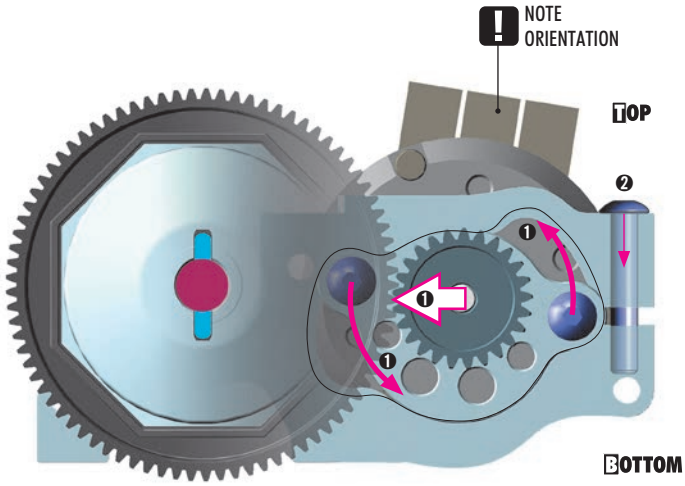


❶ Untighten screw

❷ Insert motor into the bulkhead

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

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

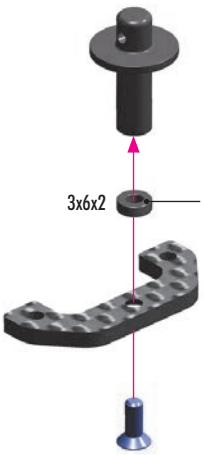


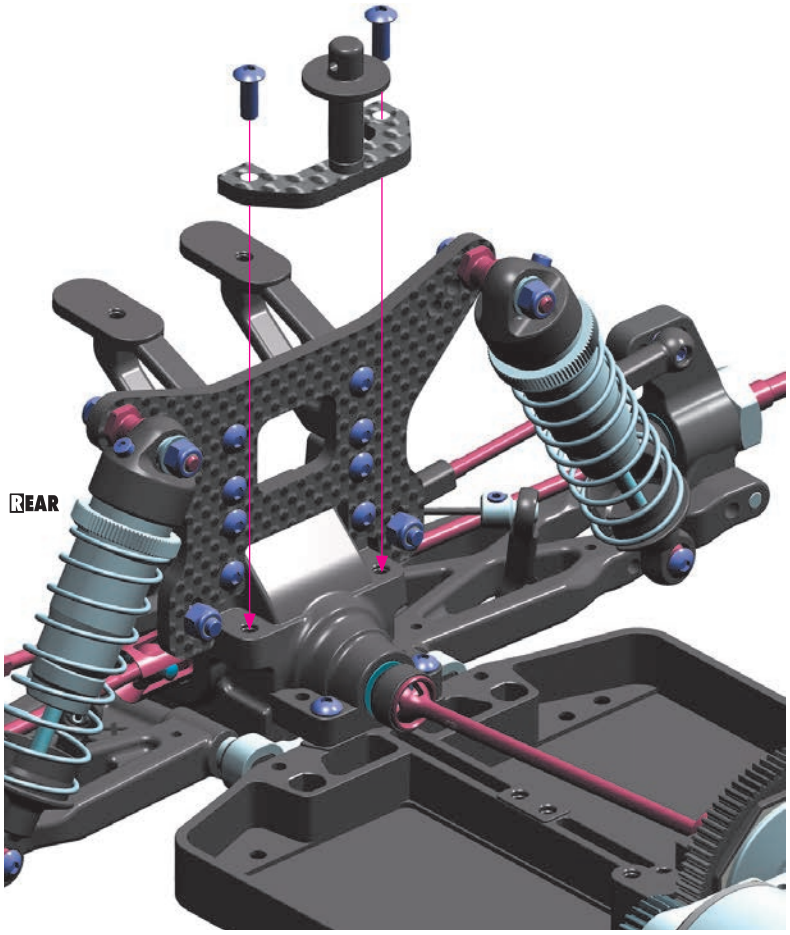
❶ Adjust gear mesh
❷ Tighten the screw

902308
SH M3x8

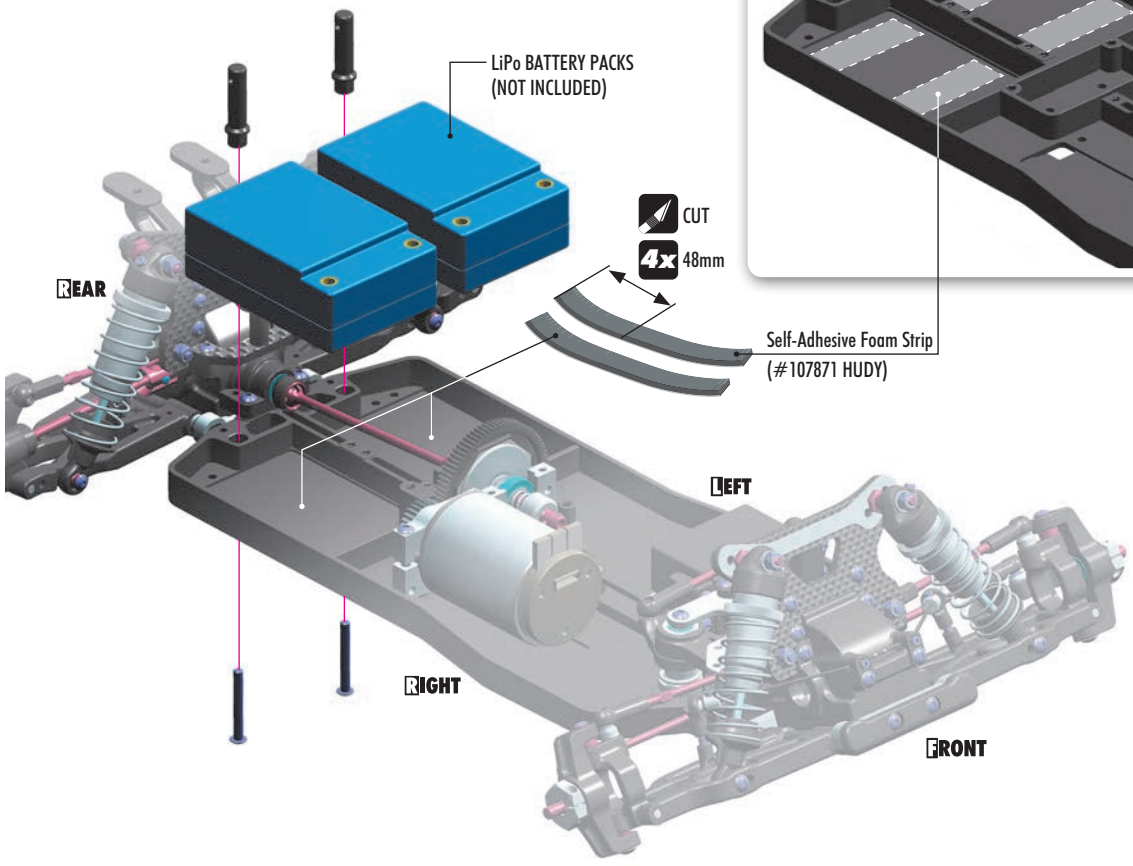
903310
SFH M3x10

306219
SHIM 3x6x2



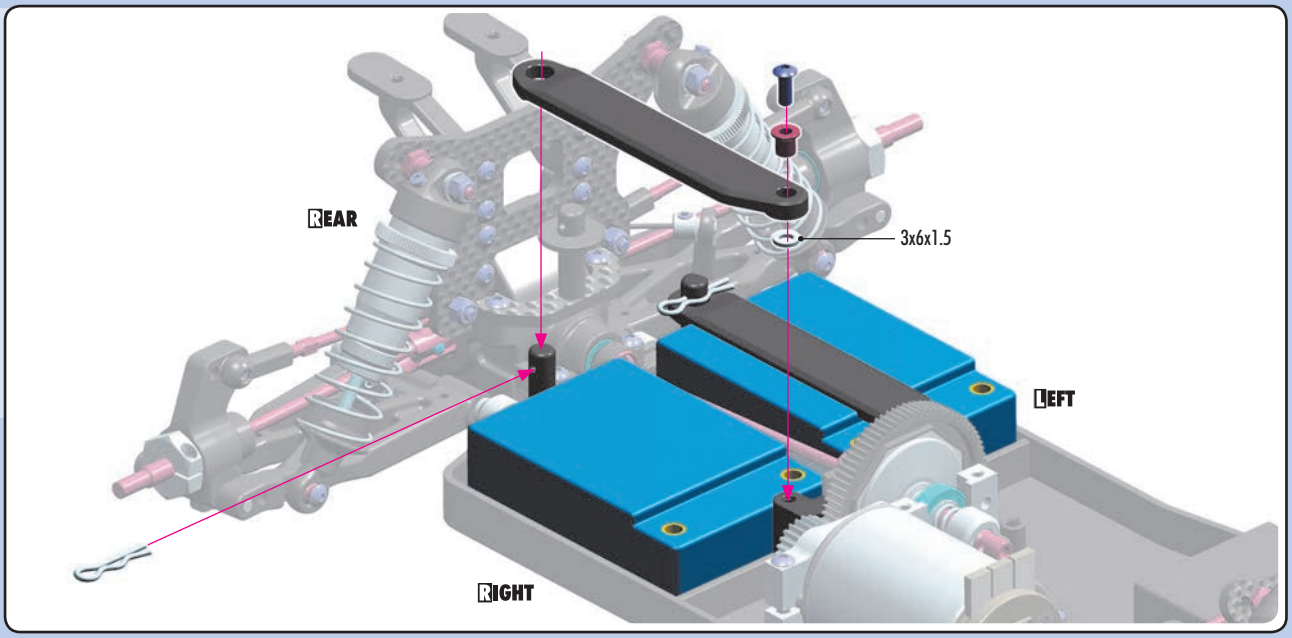


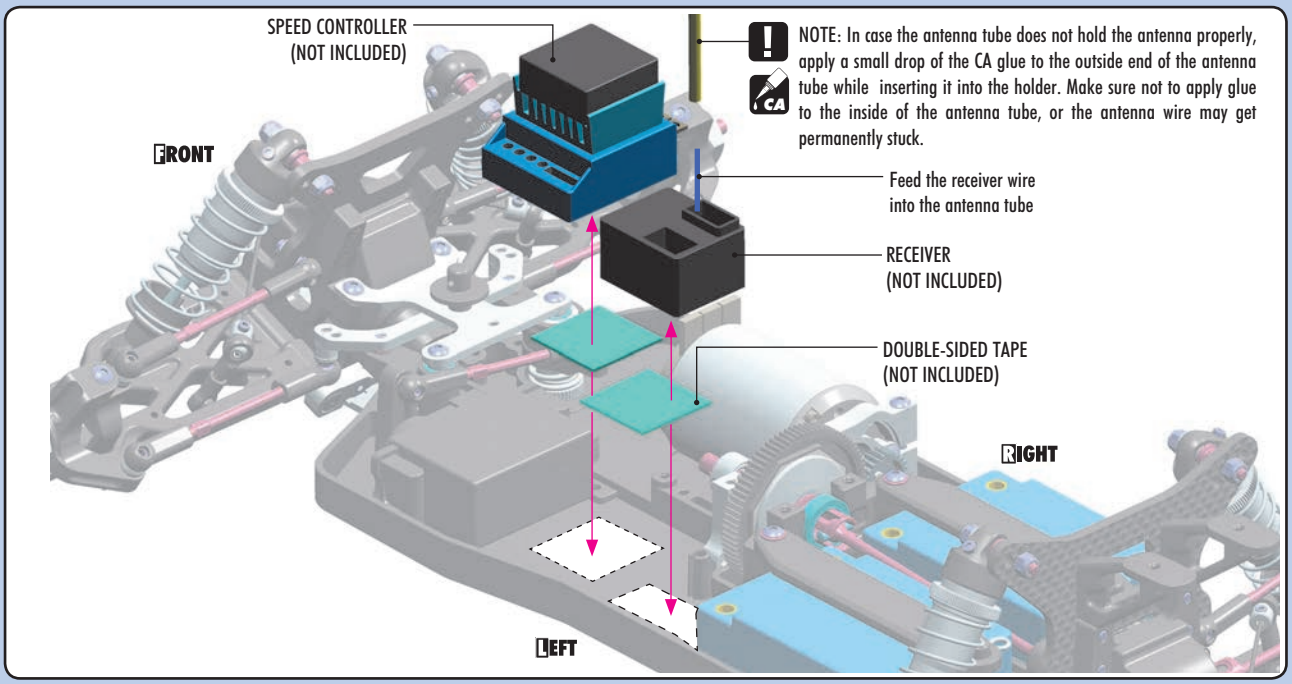
902314
SH M3x14

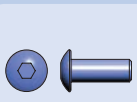


902314
SH M3x14

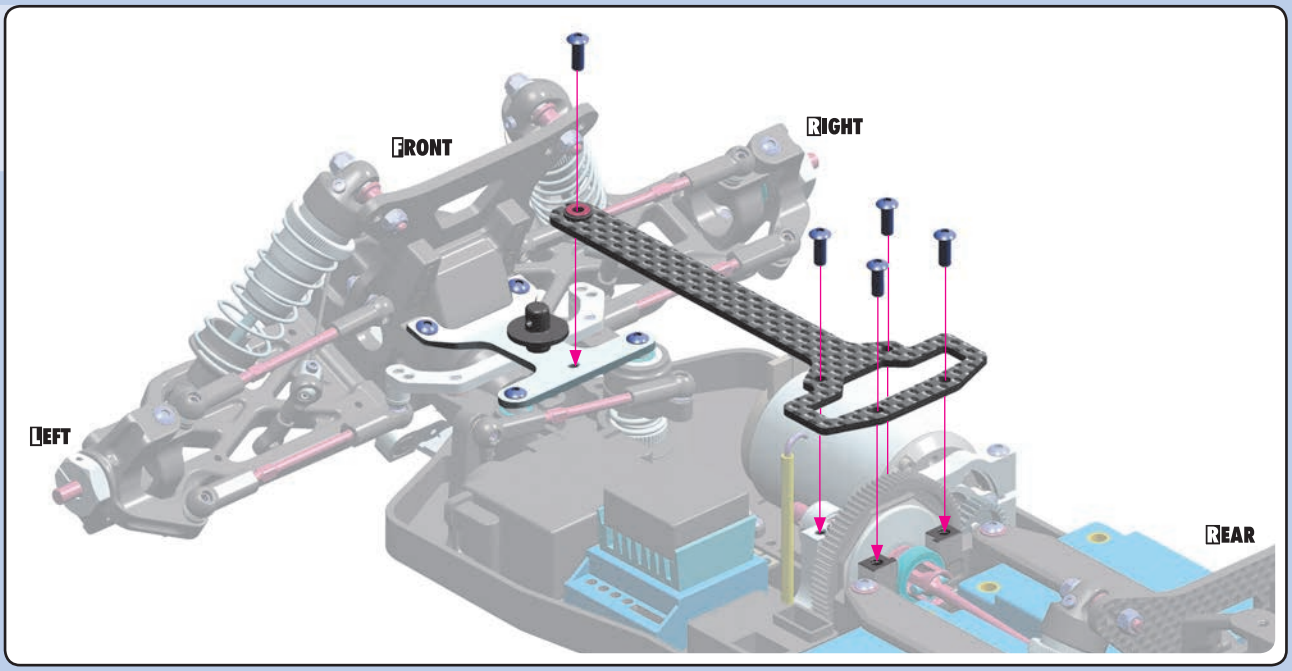
303120
SHIM 3x6x1.5

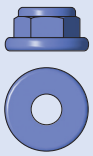




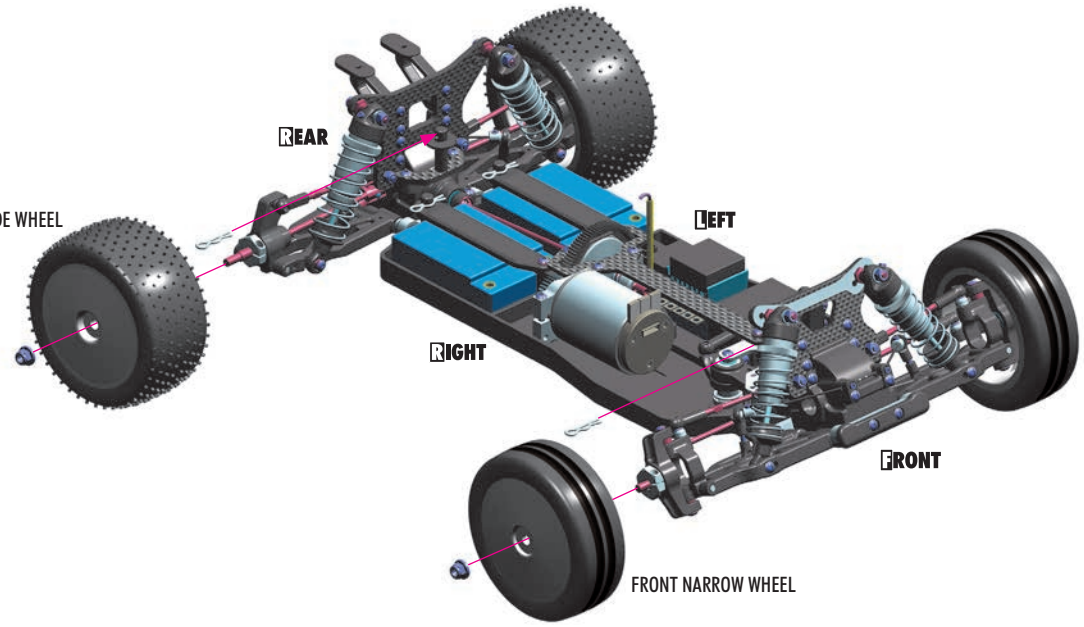


902308
SH M3x8





960240
N M4



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 WING, put the unpainted wing on the wing holders 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 all windows.

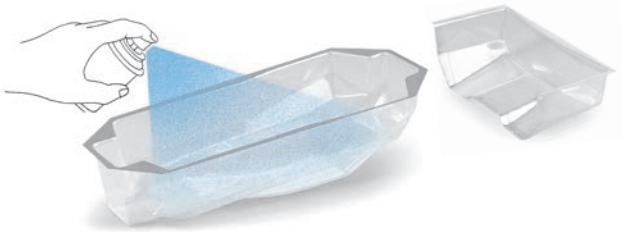
❹ Apply paint masks as appropriate.

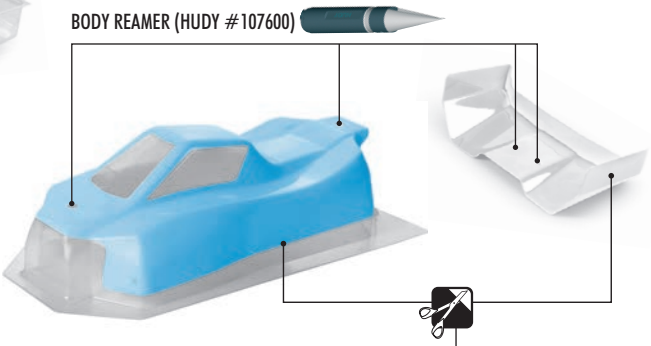
❺ Paint the body using paints formulated for polycarbonate bodies.

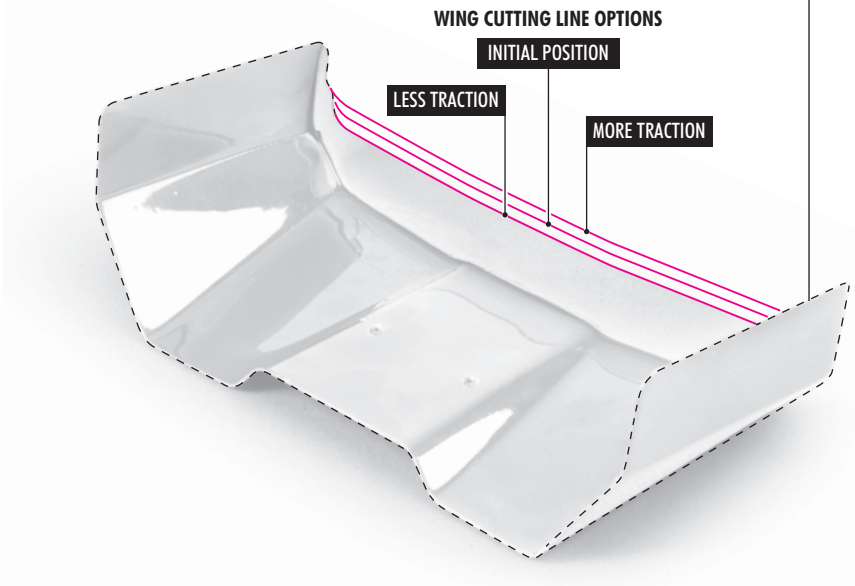
❻ When the paint is dry, remove the masking.

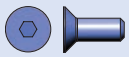
❼ Carefully cut out the body using appropriate scissors or cutting tools.

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

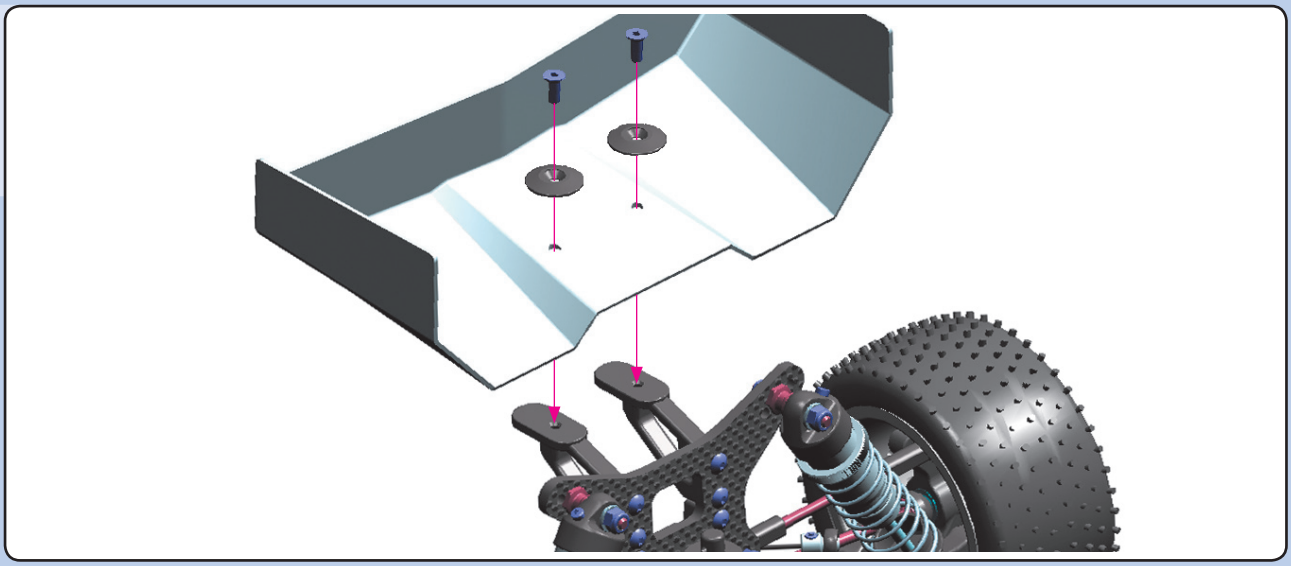








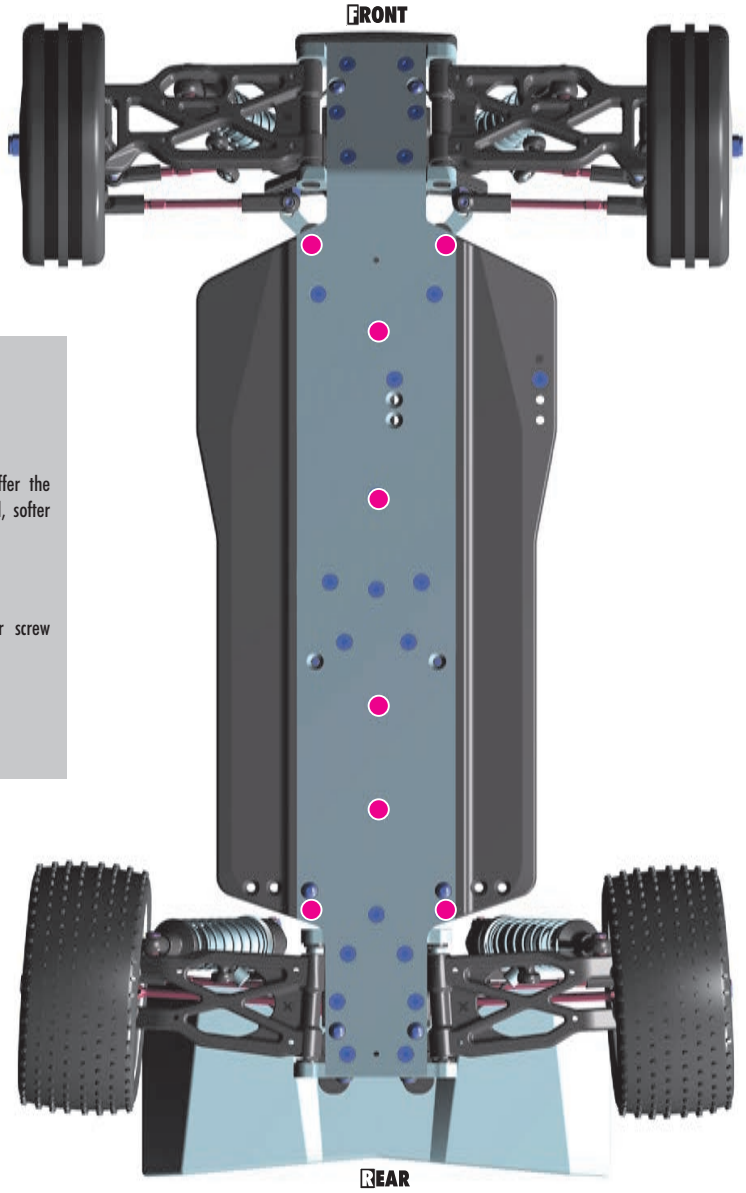
903308
SFH M3x8



MULTIFLEX™

XB4 2WD offers revolutionary flex setting possibilities. Depending on the traction, surface, track layout, you can change the flex setting as you need by adding or removing the screws which are shown bellow.

There are three standard flex settings: soft, medium, stiff. The more screws used, stiffer the car is and less screws used, softer the car is.



SOFT

Use soft setting for low-traction, dusty tracks. The car will create a lot of traction with this setting but will have less steering and response compared to stiffer setting.

MEDIUM

Use medium setting for medium-traction tracks. This setting offers good balance between steering responsiveness and traction.

STIFF

Use stiff setting for high-traction tracks where a lot of steering and car response is required.

The more screws used, stiffer the car is and less screws used, softer the car is.

IMPORTANT

Do not remove any other screw except those shown.

SHOCK MAINTENANCE

The most important maintenance task for keeping consistent shock performance is refilling and bleeding them correctly. If built correctly, it will not be necessary to re-build them often. Replacing warped/hard o-rings, scarred piston rods, or shaved/split/loose composite upper and lower ball joints are also important.

- For club racing, it is recommended to check the shocks for air inside before each race and only re-fill and bleed them if necessary. Before each race day, make sure you take the spring off of each shock, hold it up to your ear, and quickly compress the shock rod fully into the body while listening for any air making a "whistling" or "squishy" sound as it passes through the piston holes. If you hear any air, refill and bleed your shocks. For high-competition racing, it is recommended that the shocks be re-filled and bled before a large event.
- If building or pairing new shocks, always make sure they are the same length using a shock length measuring tool and adjust the lower ball joints as needed.
- During regular shock operation, oil naturally gets on the shock shaft and drop-by-drop slightly gets out of the shock body. Shocks should be inspected regularly after each race, and oil replaced as required.

BEARING MAINTENANCE

Ball-bearings in an off-road car must be properly maintained for smooth operation and long lifespan.

The XB4 ball-bearings are degreased and are lubricated with HUDY Bearing Oil. The following procedures are recommended to clean all of the bearings in your off-road car. For high-competition racing, we recommended doing this every 3-4 weeks, or before a major race.

❶ Remove the seals on both sides of the bearing (if present). If the seals bend a little and you can see a kink, carefully flatten the kink out by hand.

❷ Spray the seals with motor cleaner and blow dry with compressed air.

❸ Spray the bearing on both sides with motor cleaner.

❹ Spin the bearing while it is still wet to dislodge any particles with the cleaner.

❺ Spray the bearing on both sides again.

❻ Blow both sides of the bearing dry with compressed air to make sure particles come out.

❼ Hold the inner part of the bearing with my left thumb/forefinger and spin it to make sure it spins free without any abnormal vibrations or sounds.

❽ Place one drop of bearing oil into each side of the bearing.

❾ Replace both seals at the same time by lining them up on each side of the bearing and lightly pressing them in all the way around the bearings circumference with your thumb and forefinger. Do not press too hard or use any type of tool, such as a wrench tip, to push the blue seals in as they will push in too far, bend and cause drag.

If you spin test the bearing after you have re-oiled and sealed it, it will not spin freely for an extended period of time. The lightest of oils may allow it to spin for 1-2 seconds. This is normal and once you have mounted the bearings in the car again, the drive train will spin freely.

Make sure you use a motor cleaner that does not leave a residue after it dries as this may cause drag and wear in the bearings.

RECOMMENDED PRODUCTS

- Use #106230 HUDY Bearing Oil to lubricate the bearings.

HUDY #106230

SUSPENSION & DRIVETRAIN MAINTENANCE

- Check suspension for free movement during building and operation, and especially after running and if you have crashed the car. If the suspension does not move freely, use the appropriate HUDY Arm Reamer to clean and resize the holes of the suspension arms.
- Regularly check the drive shaft pins (both side and center) and if they show any wear must be immediately replaced by new pins. If the car is run with worn pins, excessive wear on the diff outdrives will result. The 106000 HUDY Drive Pin Replacement Tool (for 3mm Pins) is a compact, rugged multi-use tool set for replacing 3mm drive pins in drive shafts. Use the HUDY replacement drive shaft pins 3x12 (#106051).
- Regularly inspect and replace the connecting pins which connect the center drive shafts with the pinion gear, and also the pins that connect the wheel drive shafts with wheel axles. Use HUDY Graphite Grease to lubricate the drive shaft connecting joints and the diff gears.
- Pivot balls and ball-joints will naturally wear for some time and will generate play. If there is too much play the pivot balls and ball joints need to be replaced.
- If the car is run in wet conditions, apply WD-40® on all drivetrain parts before the run. After the run, clean and dry the parts again.

HUDY #106210

HUDY SPRING STEEL™

The HUDY Spring Steel™ used in the car is the strongest and most durable steel material on the RC market. While items made from HUDY Spring Steel™ are still subject to wear, the lifespan is considerably longer than any other material. As parts made from HUDY Spring Steel™ wear, the brown color will after some time "go down" but it will not affect the strength of the material. The brown color is only a surface treatment and if the brown color will wear the durability of the part will be still strong.

SET-UP SHEET

XRAY XB4 2WD

RACE	
TRACK	

NAME			
CITY		COUNTRY	
CONTACT		DATE	

TEMPERATURE	AIR °F or C°	TRACK °F or °C	

LAPS		BEST LAP TIME	sec
QUALIFING POSITION		FINAL POSITION	

TRACK SIZE	☐ OPEN	☐ MEDIUM	☐ TIGHT
TRACK TRACTION	☐ HIGH	☐ MEDIUM	☐ LOW
TRACK SURFACE	☐ SMOOTH	☐ MEDIUM	☐ BUMPY
TRACK TYPE	☐ HARD PACKED	☐ SOFT DIRT	☐ CLAY
☐ CARPET	☐ BLUE GROOVE	☐ ASTRO TURF	☐ GRASS
TRACK CONDITION	☐ DRY	☐ DUSTY	☐ WET ☐ MUD

FRONT	DIFFERRENTIAL	REAR
	TYPE	☐ GEAR DIFF ☐ BALL DIFF
	PINION	☐ COMPOSITE ☐ METALLIC
	CROWN GEAR	☐ COMPOSITE
	OIL	cSt

GEARING			
PINION	T	SPUR GEAR	T

FRONT	SHOCKS	REAR
	SPRINGS	
cSt	OIL	cSt
%	REBOUND	%
mm	DOWNSTOP SHIM	mm
YES ☐ ☐ NO	UPSTOP TRAVEL ORING	YES ☐ ☐ NO

PISTONS

FRONT	DIAMETER HOLES	REAR
☐ 2 HOLES	☐ ø1.0mm ☐	☐ 2 HOLES
☐ 3 HOLES	☐ ø1.1mm ☐	☐ 3 HOLES
☐ 6 HOLES	☐ ø1.2mm ☐	☐ 6 HOLES
	☐ ø1.3mm ☐	
	☐ ø1.4mm ☐	

CUSTOM PISTONS

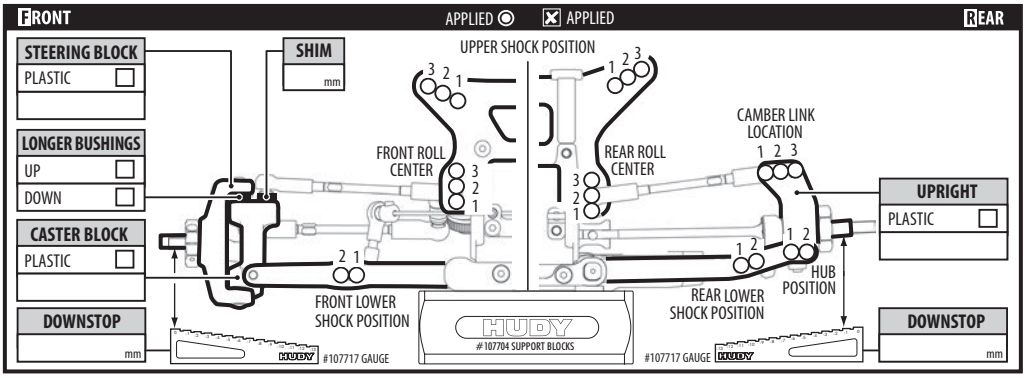
FRONT	DIAMETER HOLES	REAR
HOLES	ø mm ø mm	HOLES

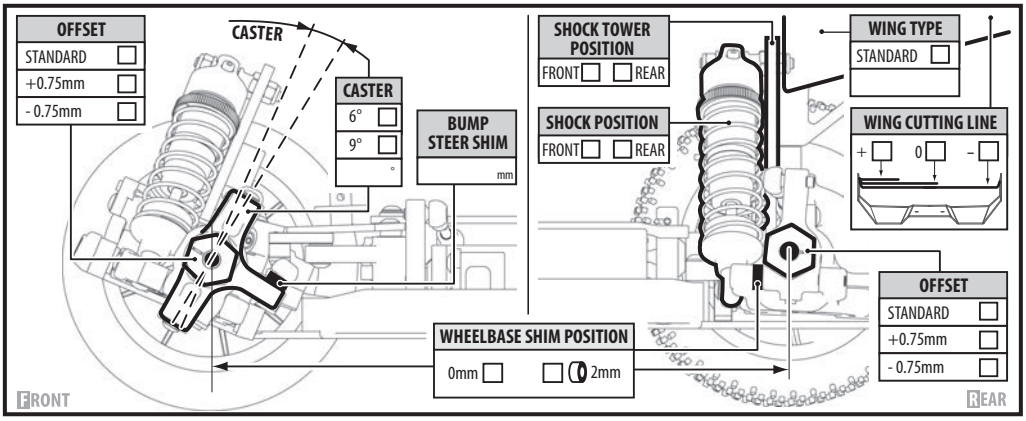
FRONT	ANTI ROLL BAR	REAR
mm	THICKNESS	mm

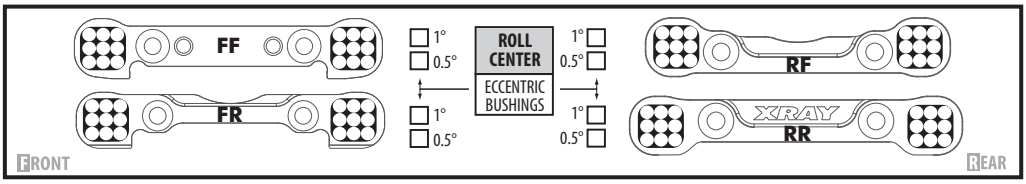
FRONT	TIRES	REAR
	TYPE	
	INSERTS	
	WHEELS	

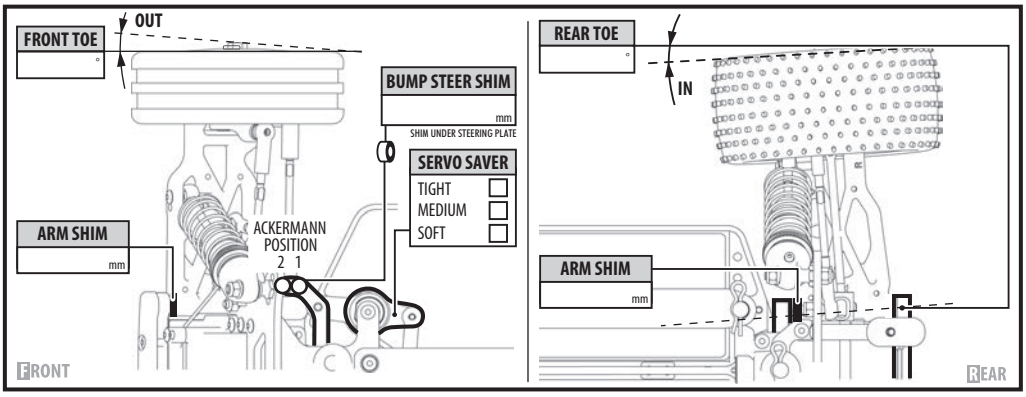
OTHER	
MOTOR	
ROTOR	
TIMING	
ESC	
BATTERIES	
BODY	

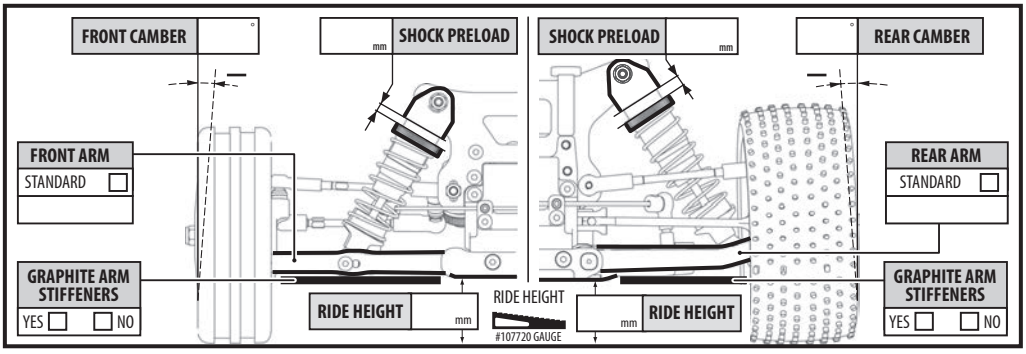
COMMENTS

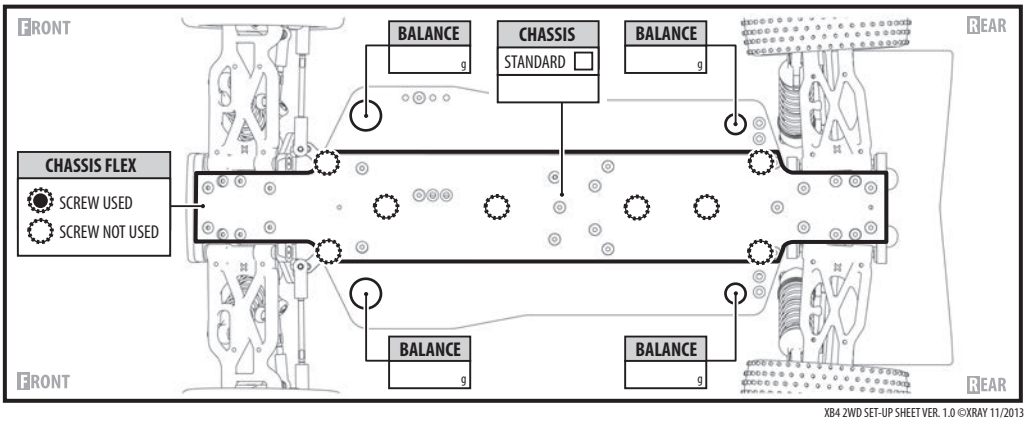












www.teamxray.com

XRAY EUROPE

XRAY, K VÝSTAVISKU 6992, 91101 TRENCIN, SLOVAKIA, EUROPE
PHONE: +421-32-740 11 00, FAX: +421-32-740 11 09, info@teamxray.com

XRAY USA

RC AMERICA, 2970 BLYSTONE LANE, SUITE 109, DALLAS, 75220 TEXAS, USA
PHONE: 214-744-2400, FAX: 214-744-2401, xray@rcamerica.com

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