

## **INSTRUCTION MANUAL** FOR T4F'21 EDITION

#### **BEFORE YOU START**

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

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

#### **CUSTOMER SUPPORT**

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

You can join thousands of XRAY fans and enthusiasts in our online community at: www.teamxray.com Read carefully and fully understand the instructions before beginning assembly.

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

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

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

#### XRAY USA

RC America, 2030 Century Center Blvd #15 Irving, TX 75062 USA Phone: (214) 744-2400 Fax: (214) 744-2401 E-mail: xray@rcamerica.com

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

#### SAFETY PRECAUTIONS

#### Contains:

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

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

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

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

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

#### 🛆 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.

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.

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

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



🛆 IMPORTANT NOTES - ELECTRICAL

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

**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.

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 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.

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

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

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

Do not recharge battery while battery is still warm. After use, battery retains

Do not allow any metal part to short circuit the receiver batteries or other

Immediately stop running if your RC model gets wet as may cause short

Please dispose of batteries responsibly. Never put batteries into fire.

shop for check and/or repair and/or replacement.

Always unplug charger when recharging is finished.

heat. Wait until it cools down before charging.

electrical/electronic device on the model.

modify the charger.

circuit.

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. All rights reserved.

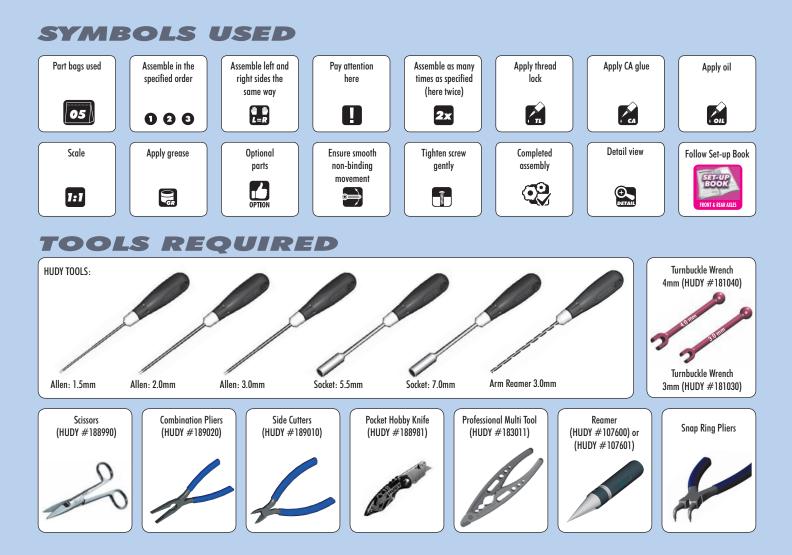
#### **QUALITY CERTIFICATE**

XRAY MODEL RACING CARS uses only the highest quality materials, the best compounds for molded parts and the most sophisticated manufacturing processes of TQM (Total Quality Management). We guarantee that all parts of a newly-purchased kit are manufactured with the highest regard to quality. However, due to the many factors inherent in model racecar competition, we cannot guarantee any parts once you start racing the car. Products which have been worn out, abused, neglected or improperly operated will not be covered under warranty.

We wish you enjoyment of this high-quality and high-performance RC car and wish you best success on the track!

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

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





# Premium Silicone Oil 450cSt (HUDY #106345)

**Graphite Grease** 

(HUDY #106210)

Premium Silicone Oil 500.000cSt (HUDY #106650)

# NOT INCLUDED



To ensure that you always have access to the most up-to-date version of the XRAY Set-up Book, XRAY will now be offering only the digital online version on our website www.teamxray.com. 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.



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

#### EQUIPMENT REQUIRED

Electric Motor & **Bearing Oil** Steering Servo Transmitter Receiver Speed Controller (HUDY #106230) Pinion Gear and Setscrew Lexan™ Paint LiPo Battery **Battery Charger** Fibre Tape Wheels & Tires & Inserts 190mm Bodyshell (HUDY #803040 SLICK PRECUT) (HUDY #107870) Double-sided Tape (HUDY #107875)

#### **COLOR INDICATIONS**

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

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

 $\ensuremath{\mathsf{STYLE}}\xspace \ensuremath{\mathsf{A}}\xspace$  - indicates parts that are included in the bag marked for the section.

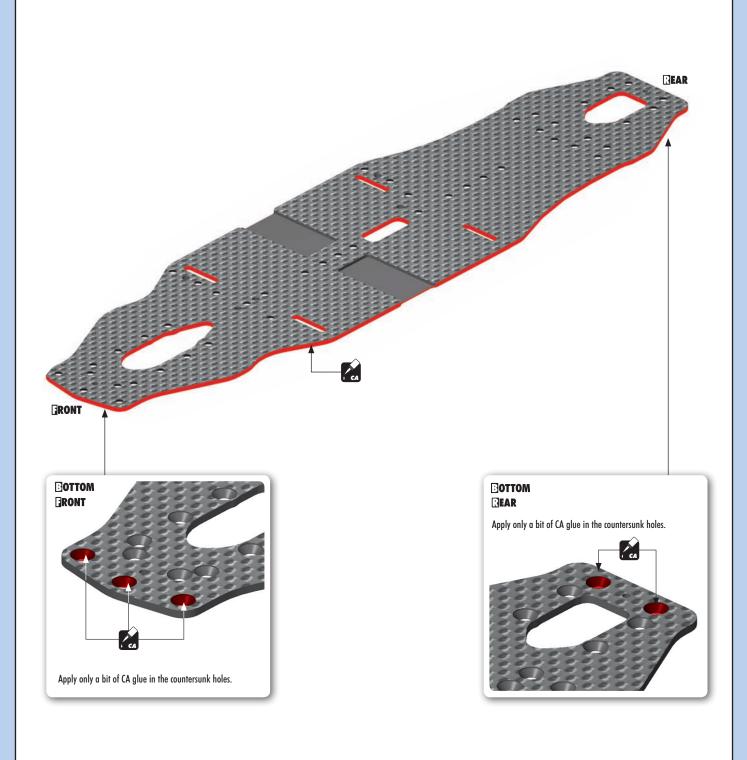
STYLE B - indicates parts that are included in the box.

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

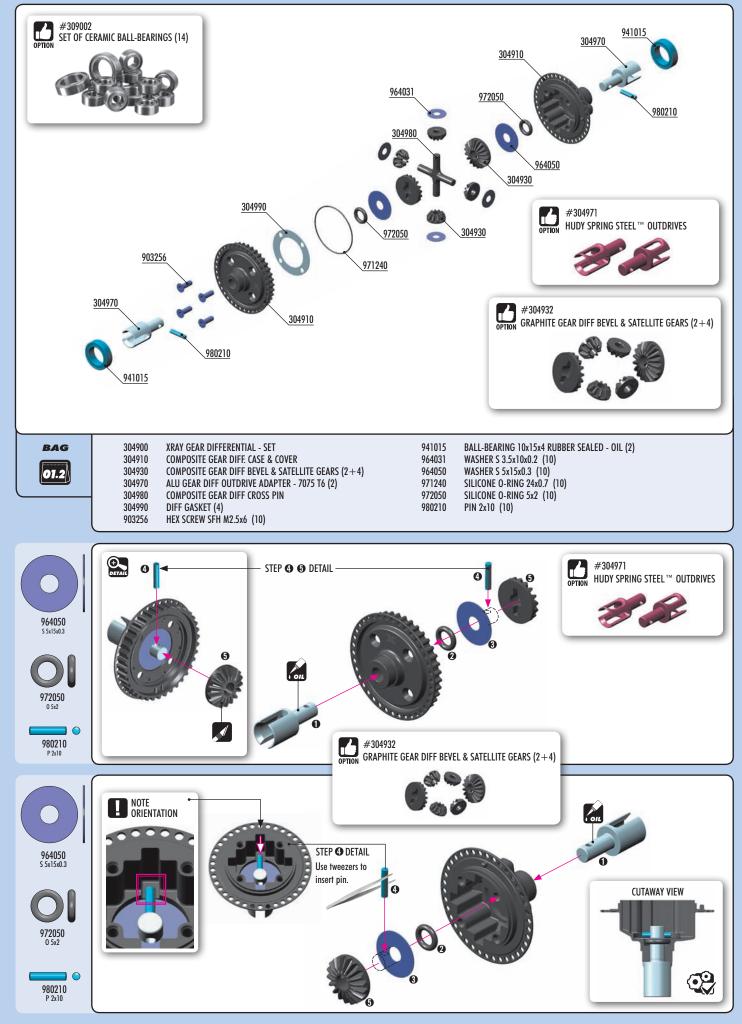
#### **CHASSIS PREPARATION**

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

Do this for: chassis edges, countersunk holes, and shock towers.

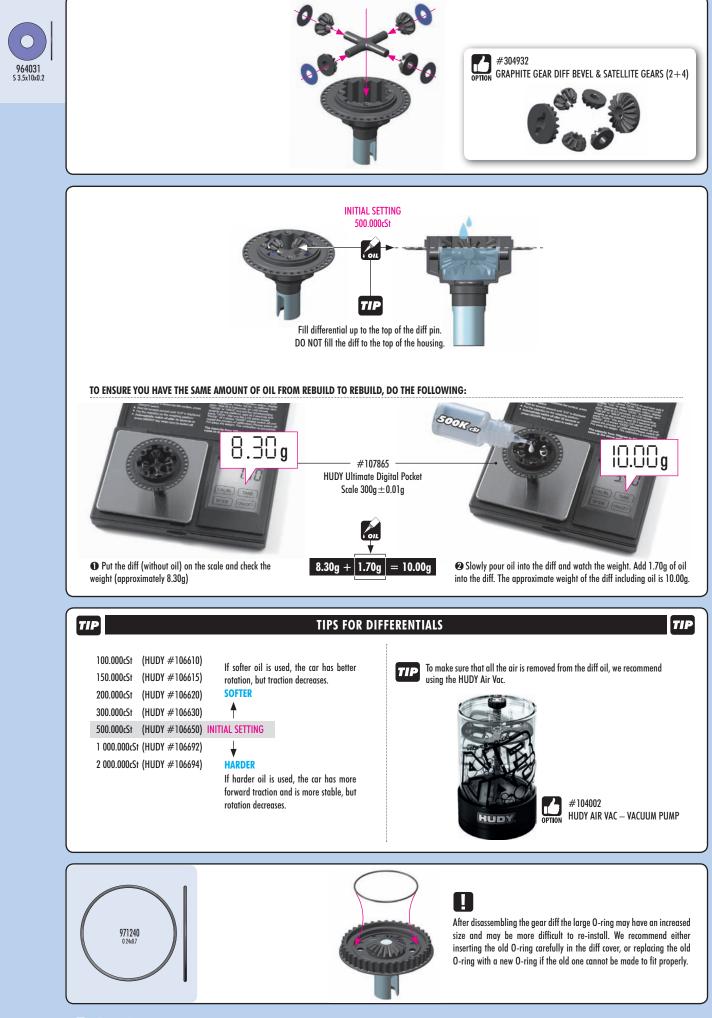


#### **1. GEAR DIFFERENTIAL**

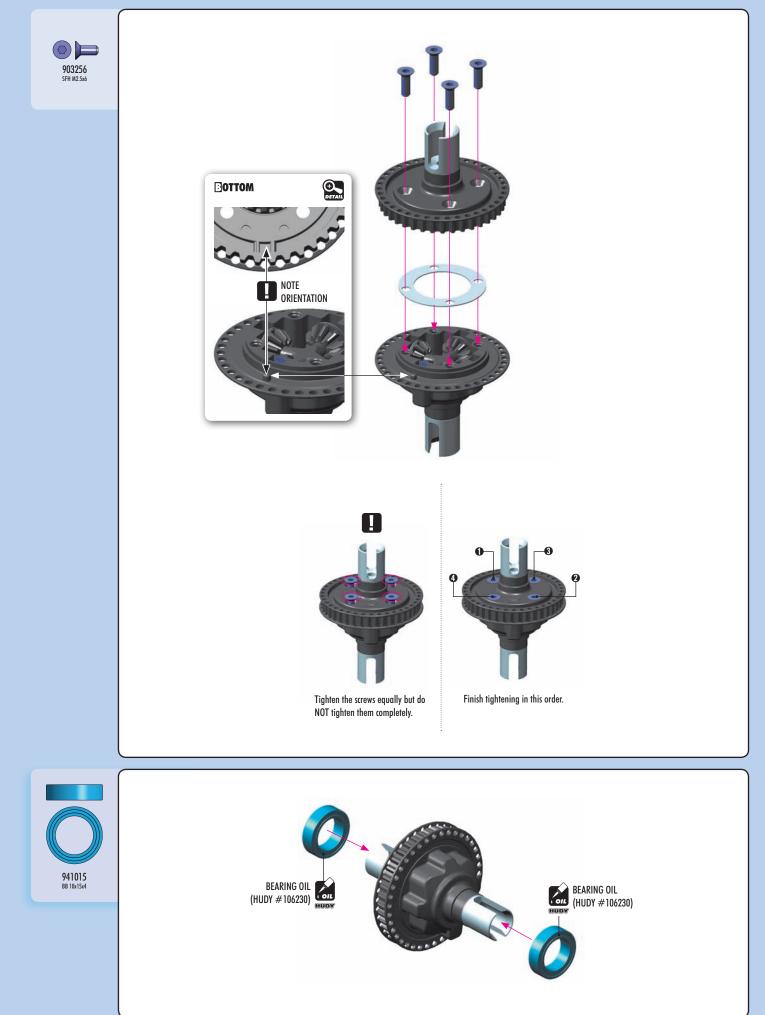


XARAY

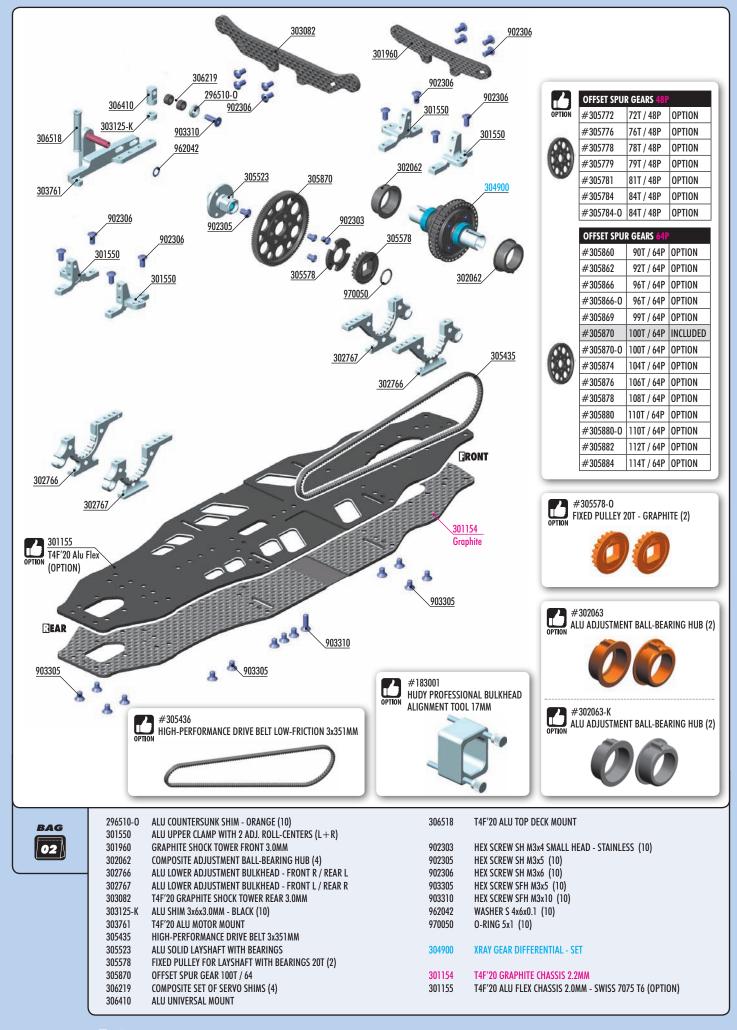
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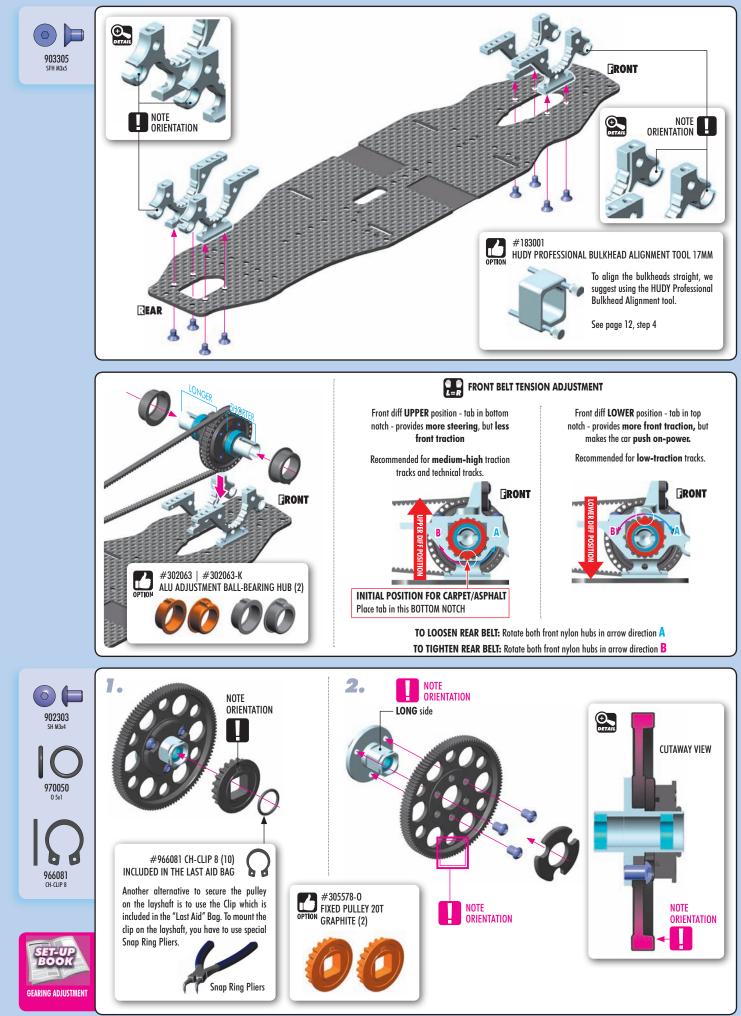


#### **1. GEAR DIFFERENTIAL**

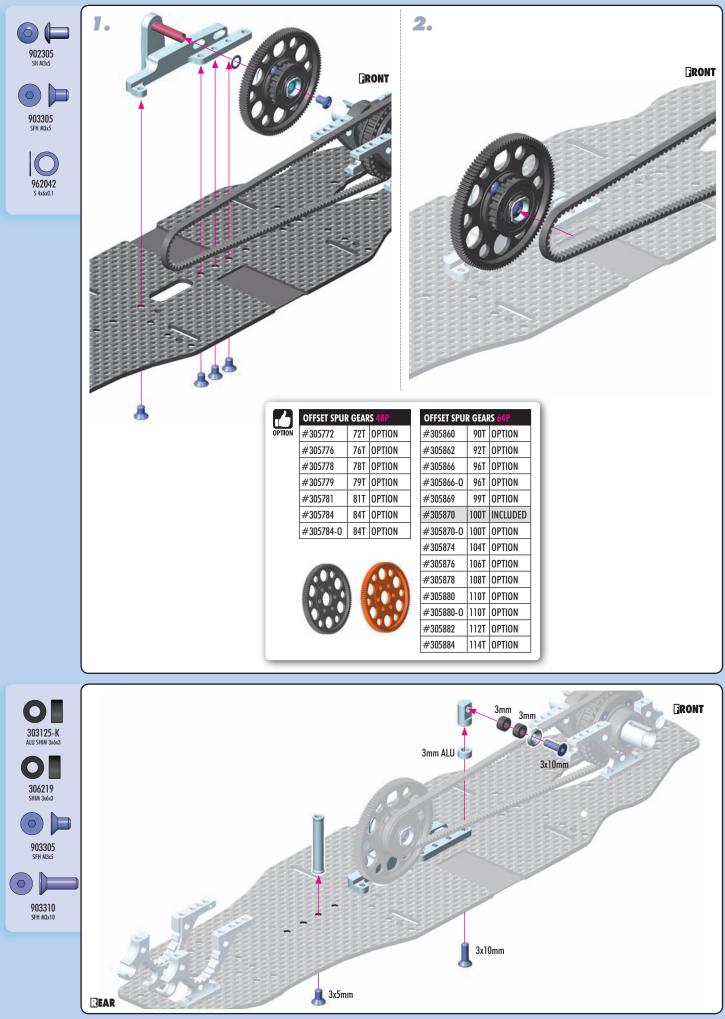


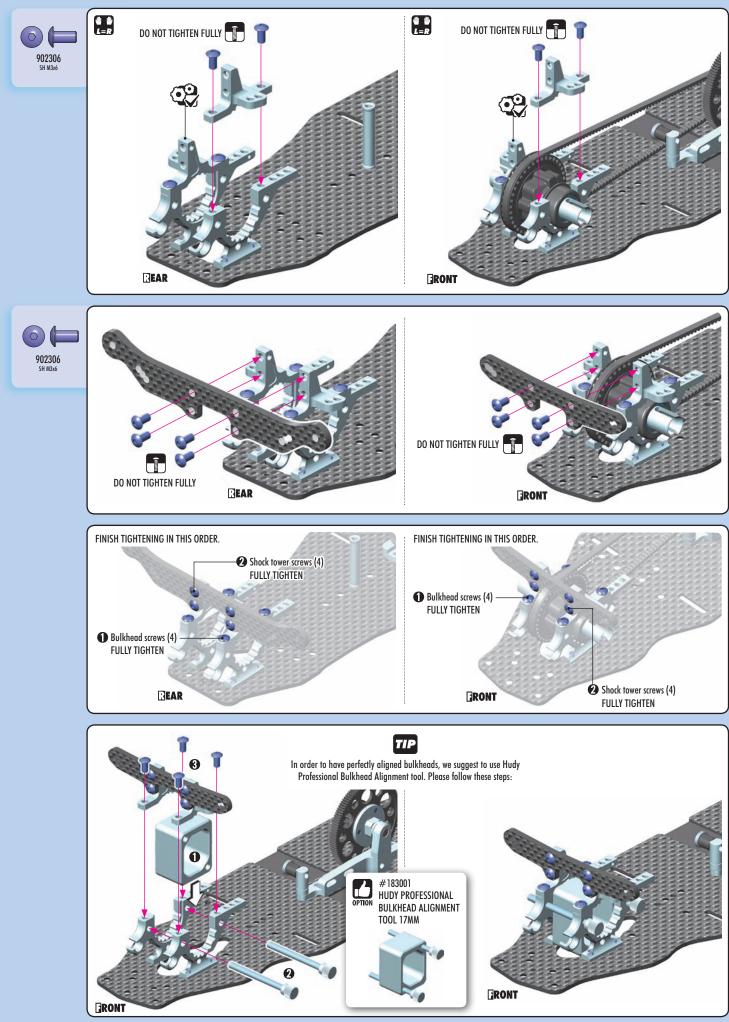




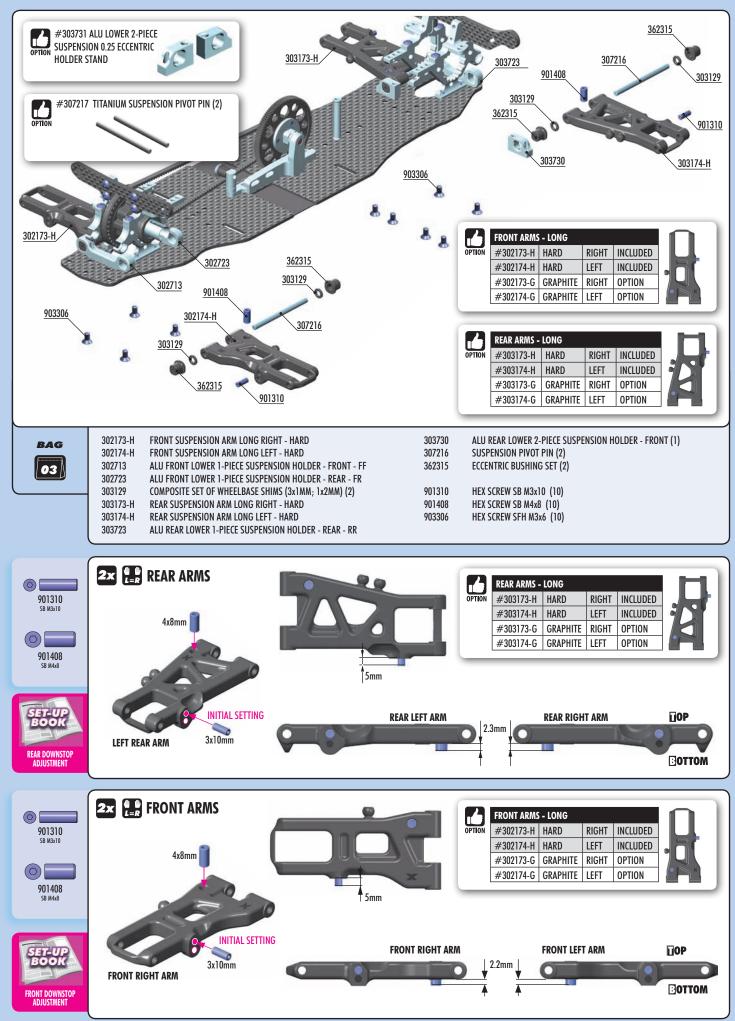






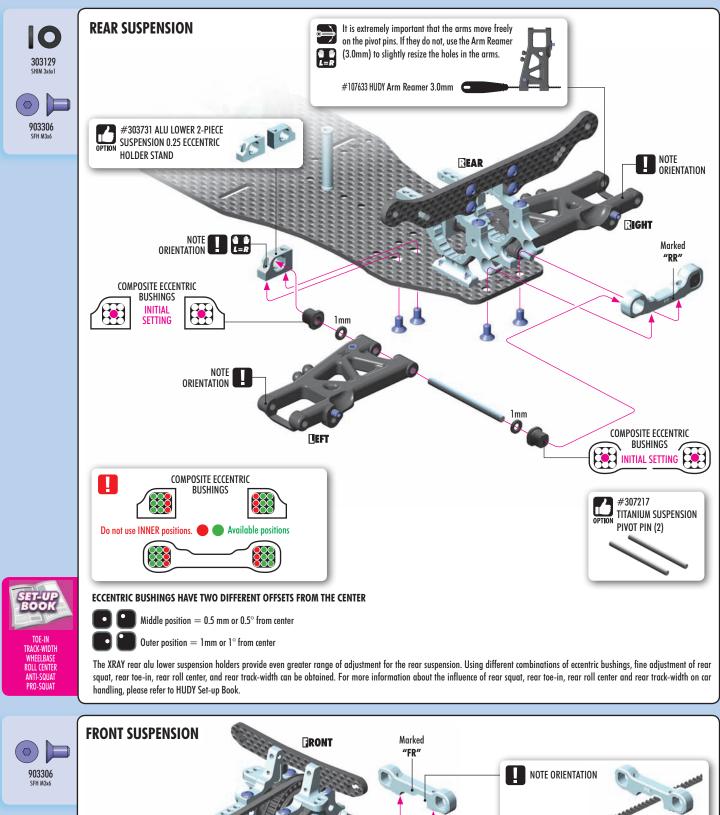






# 3. FRONT & REAR SUSPENSION

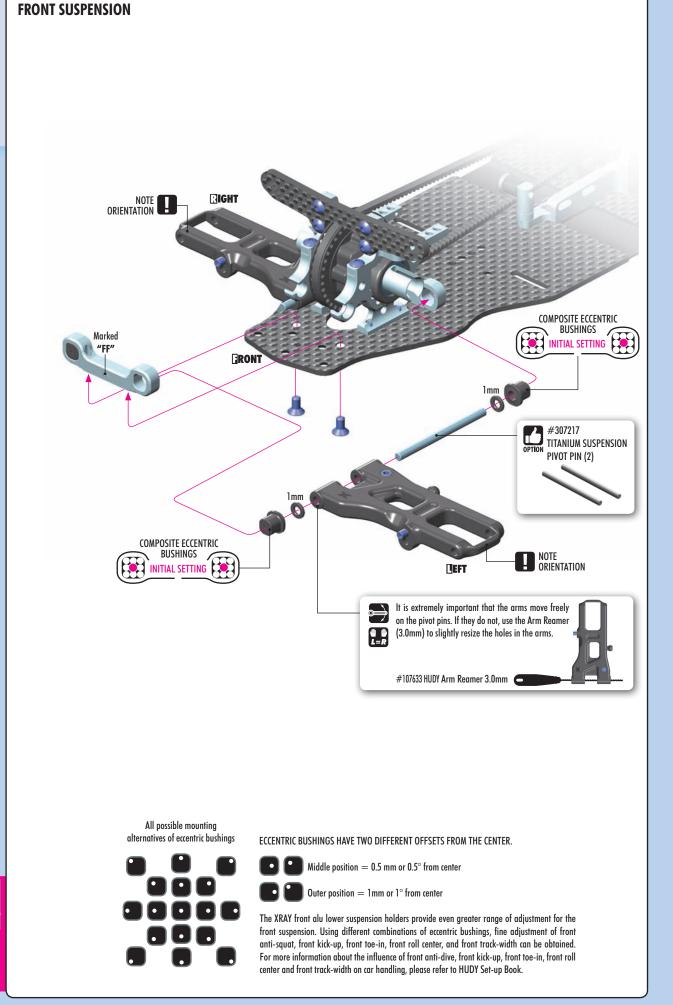
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#### 3. FRONT & REAR SUSPENSION

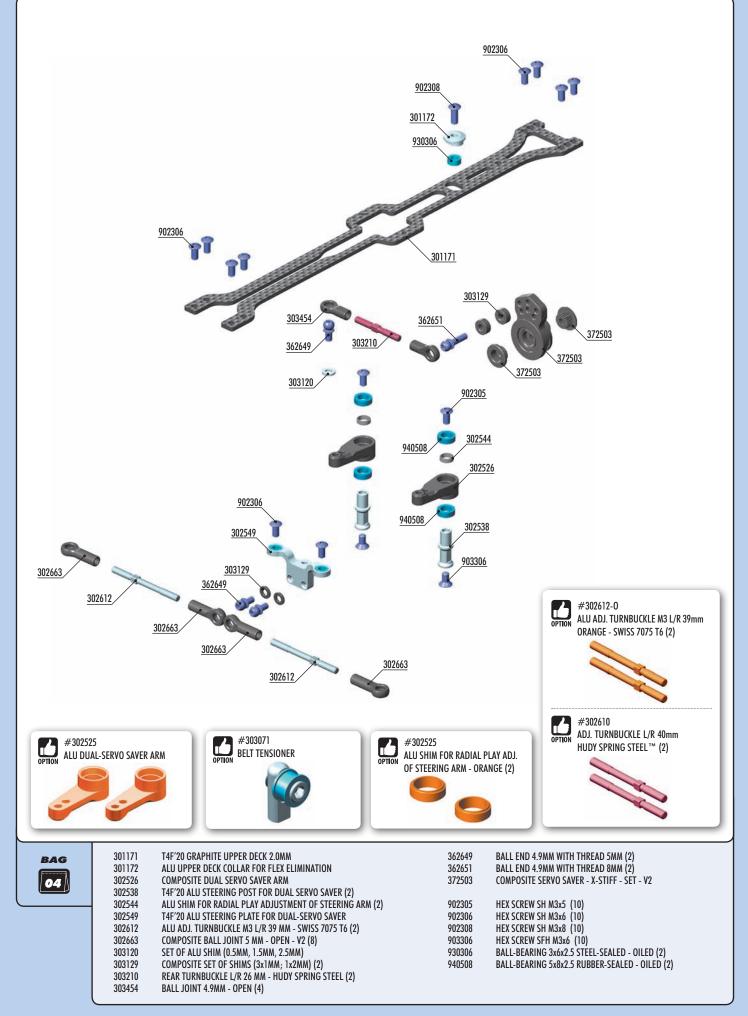




TRACK-WIDT

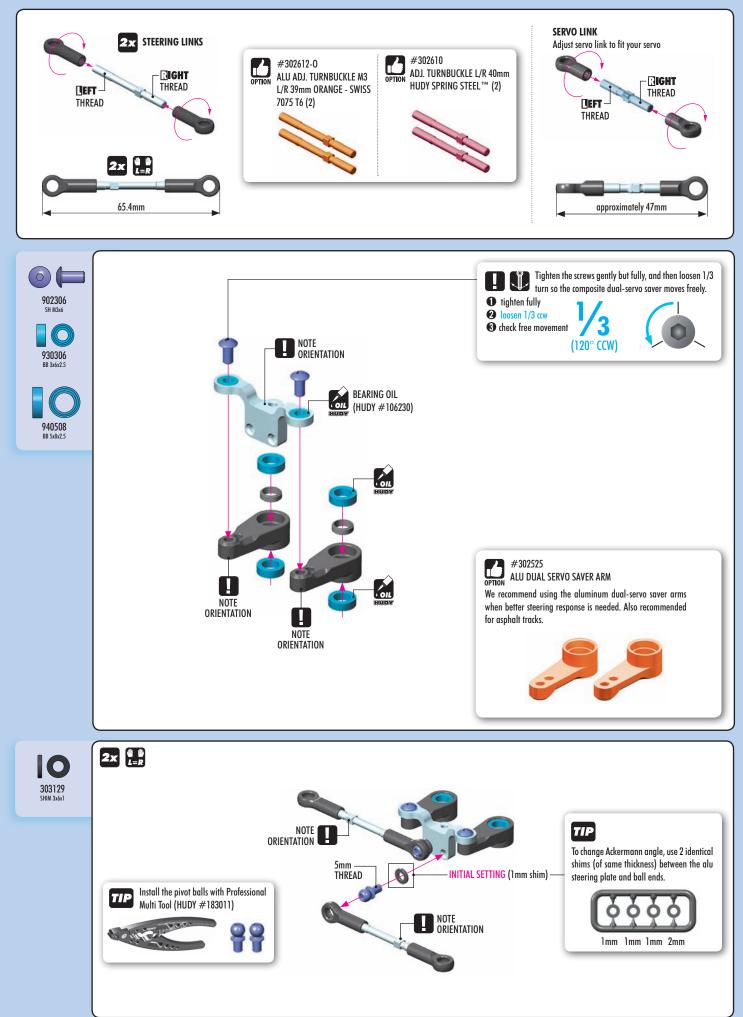
ROLL CENTER

ANTI-DIVI KICK-UP

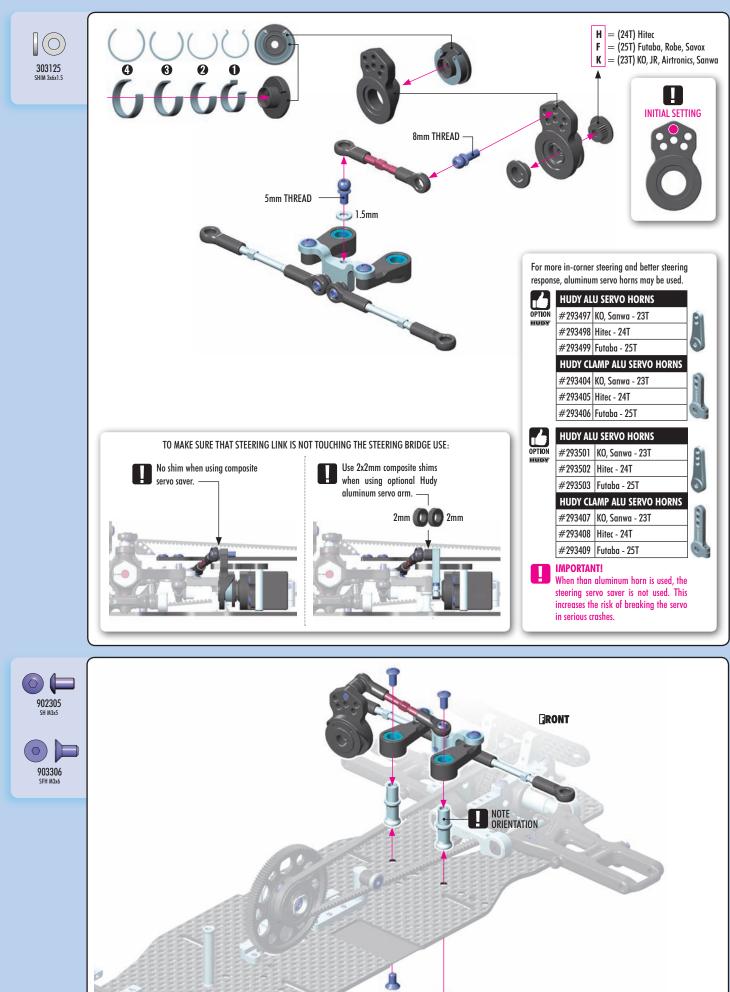




#### 4. STEERING



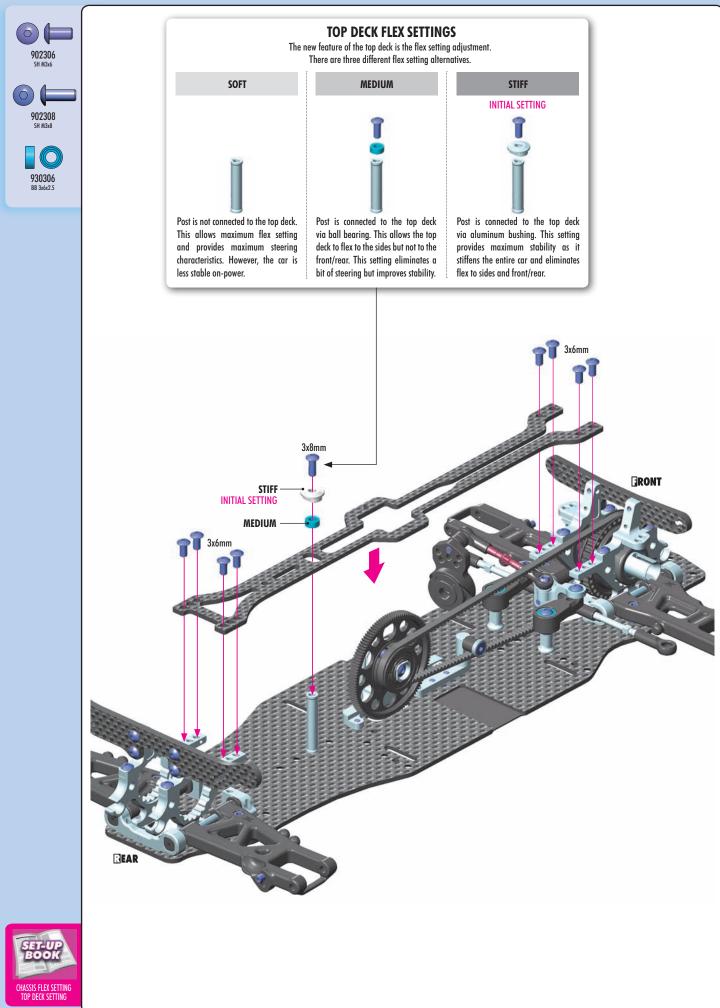
#### 4. STEERING

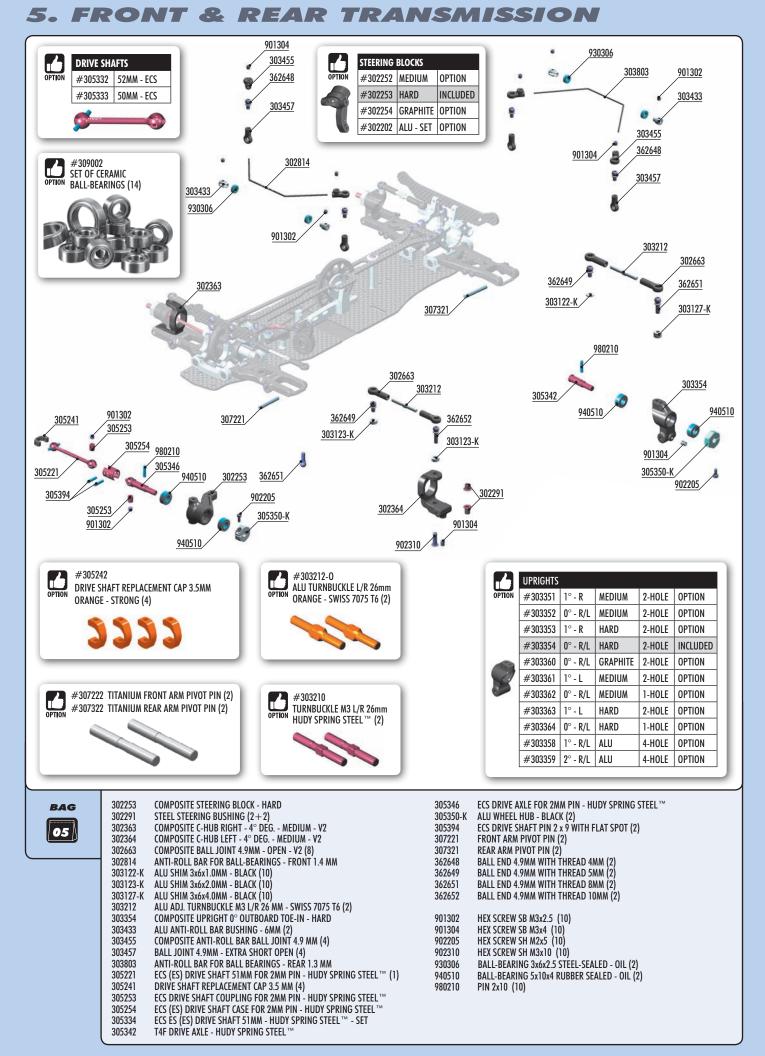


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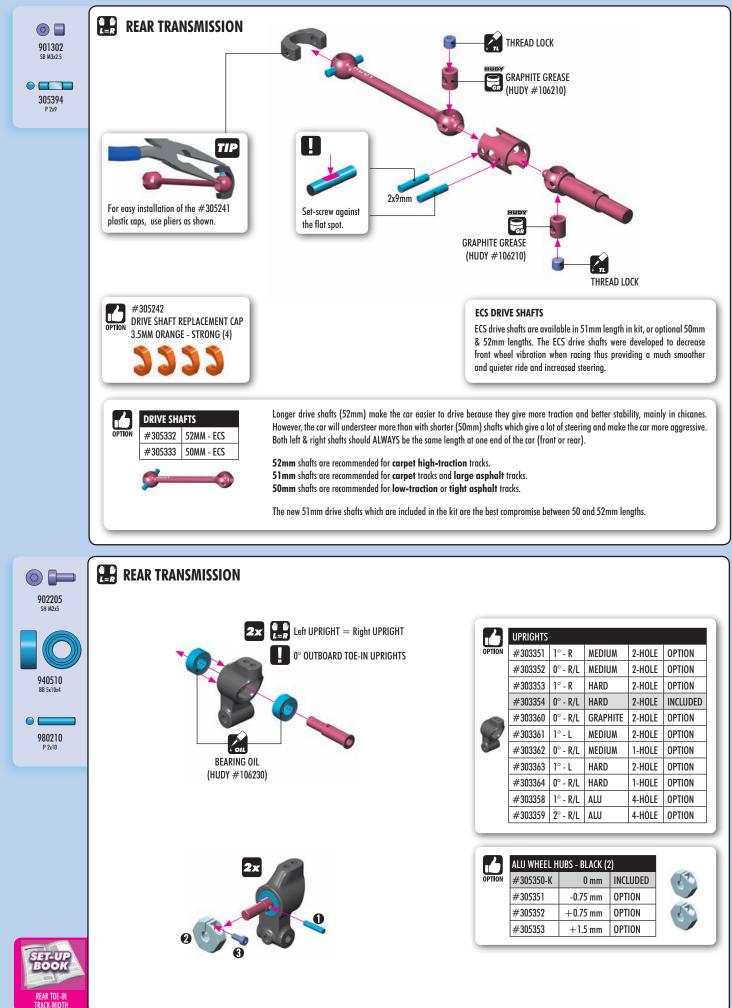








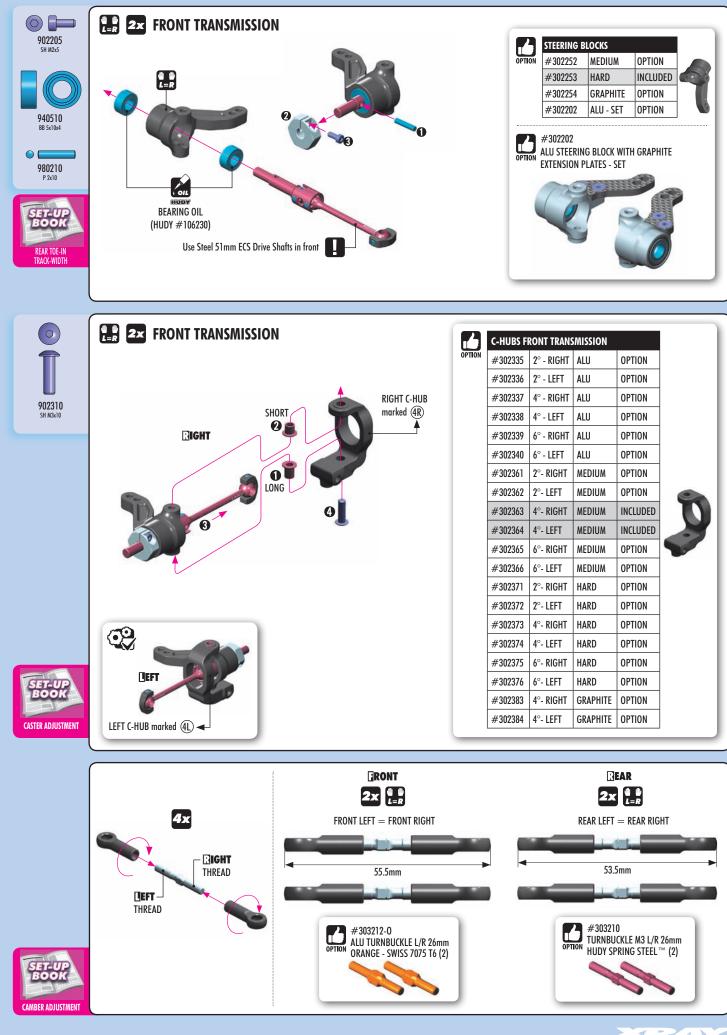
## 5. FRONT & REAR TRANSMISSION



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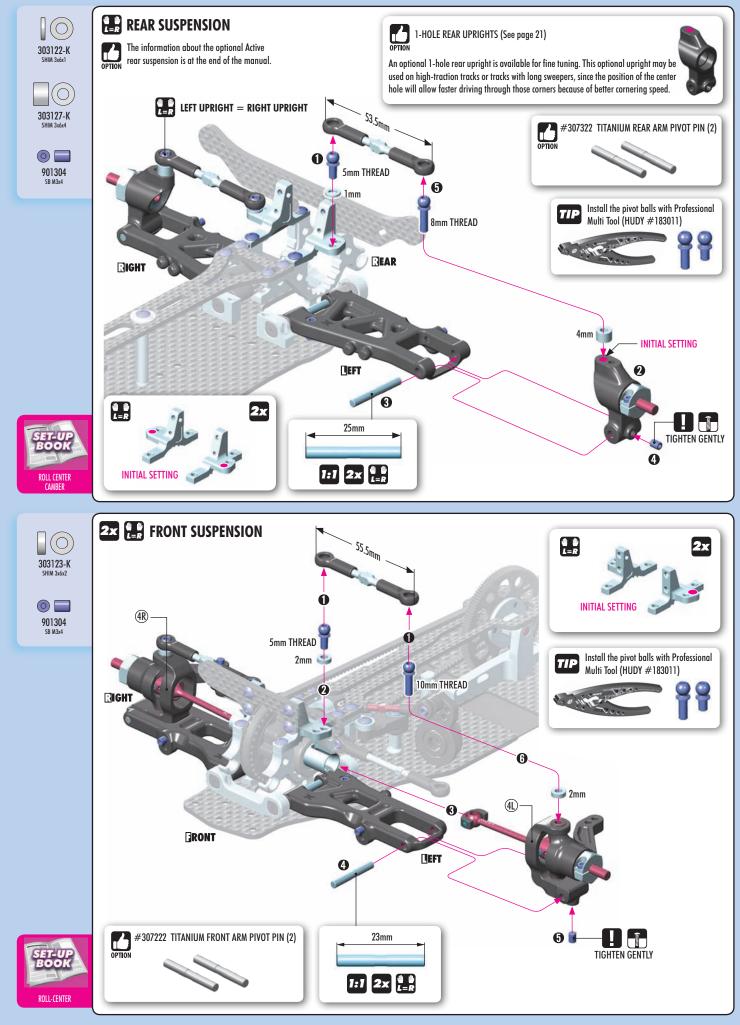
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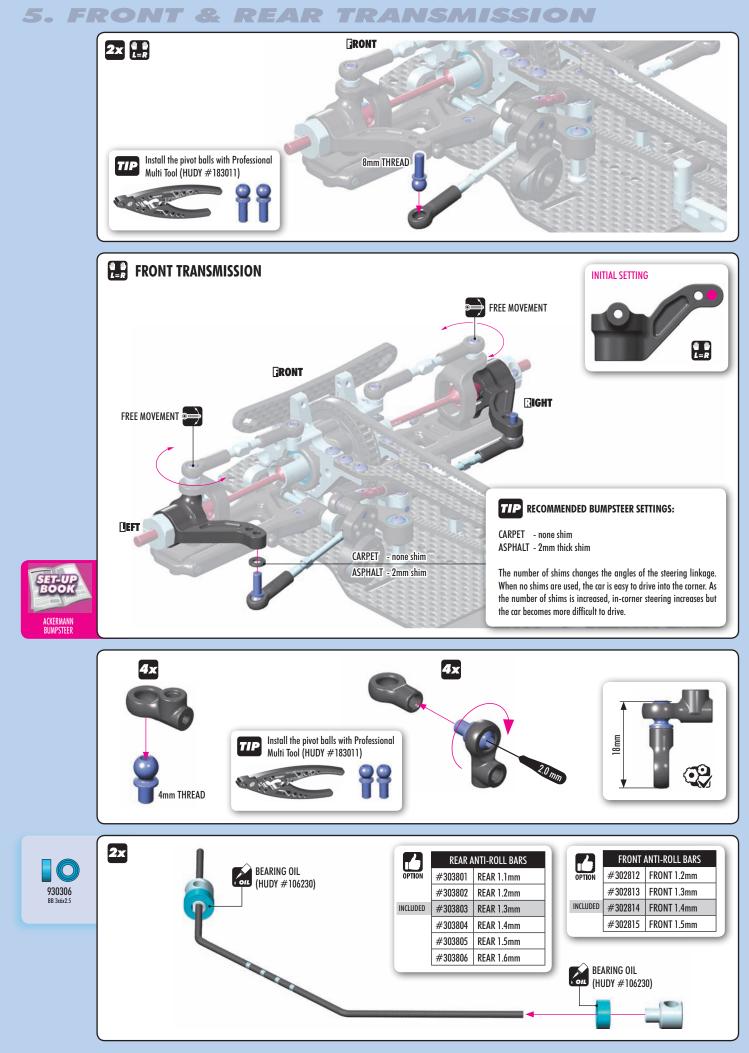
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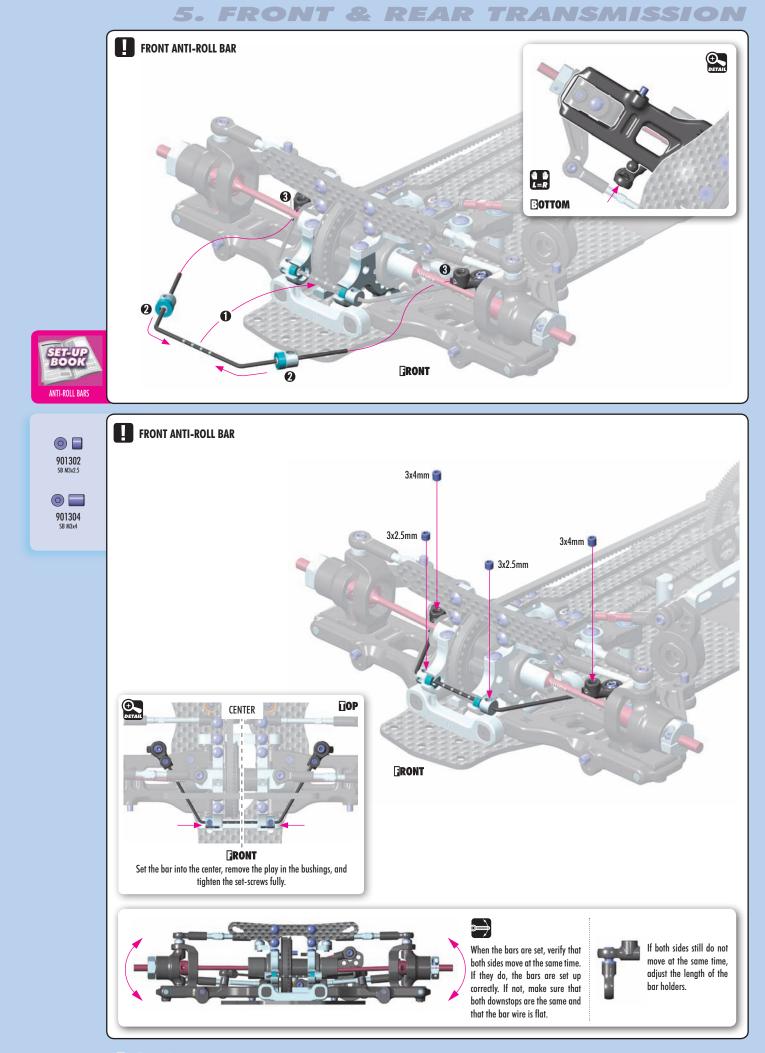


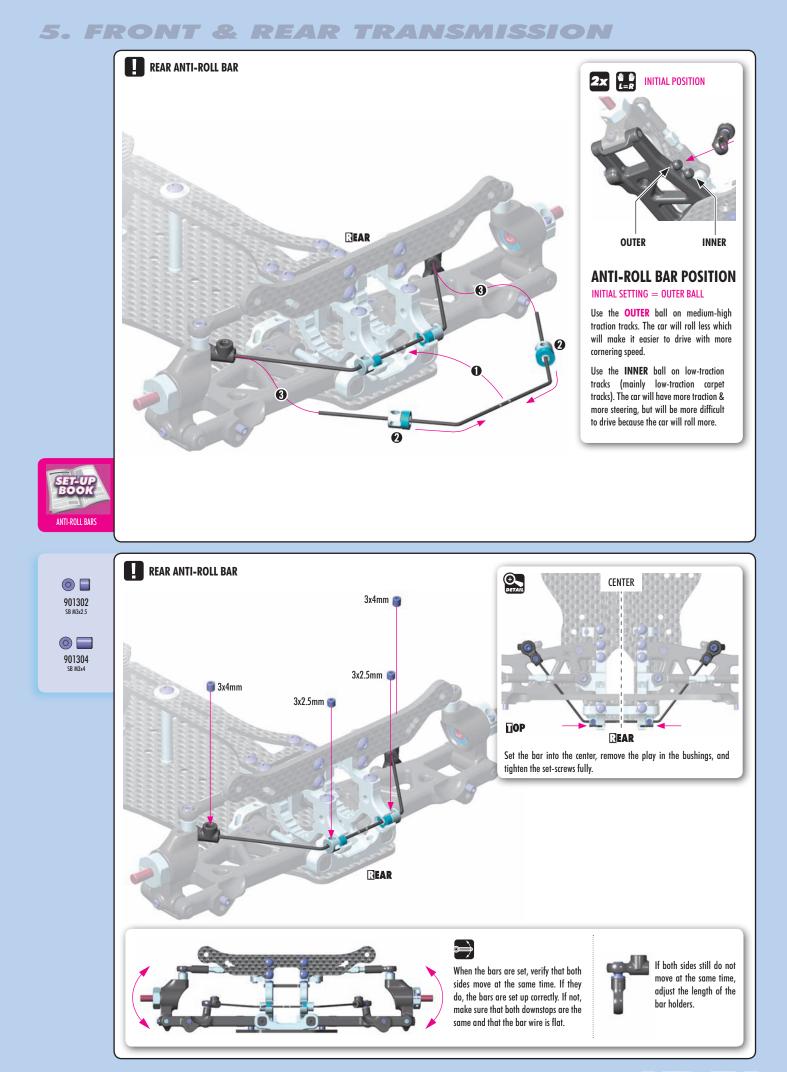
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## 5. FRONT & REAR TRANSMISSION

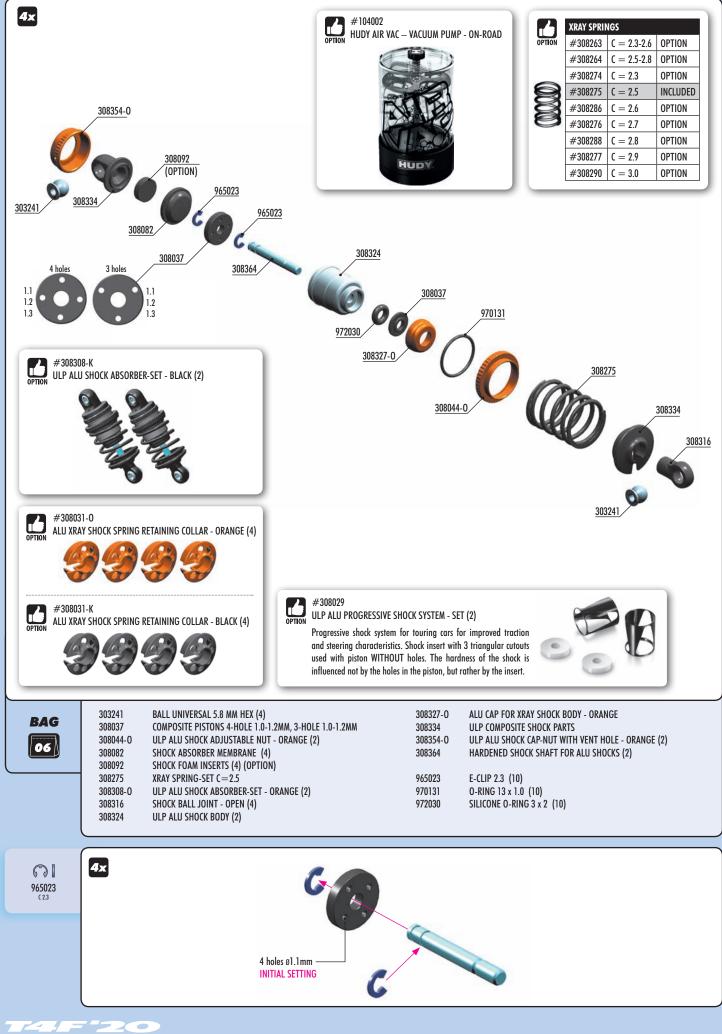




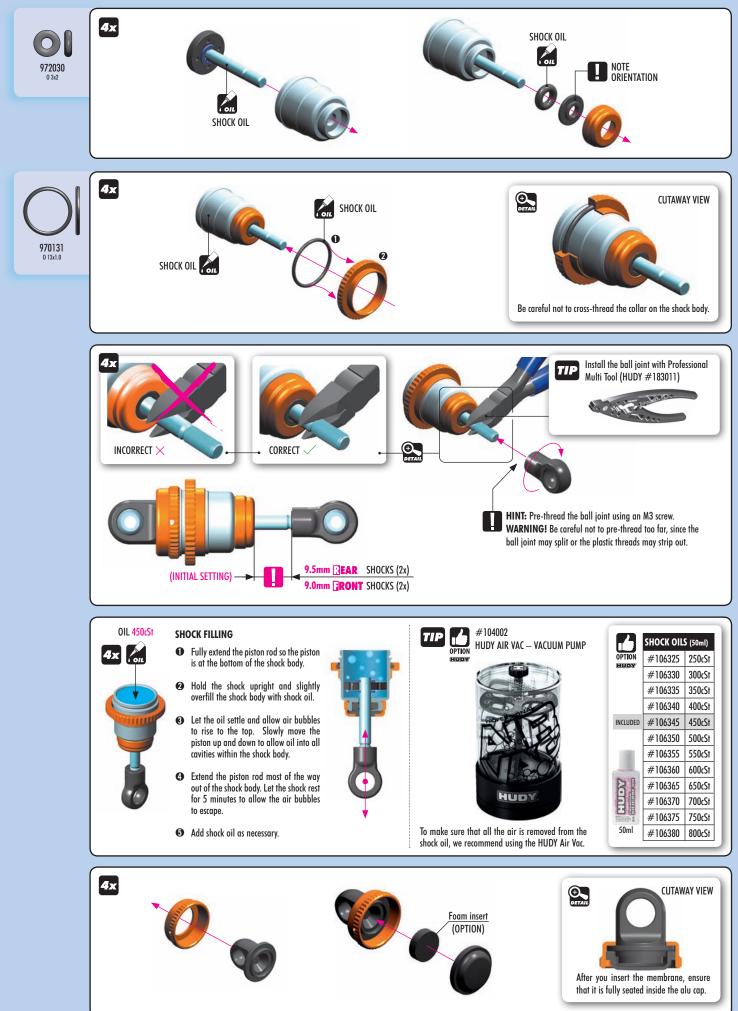




#### 6. SHOCK ABSORBERS



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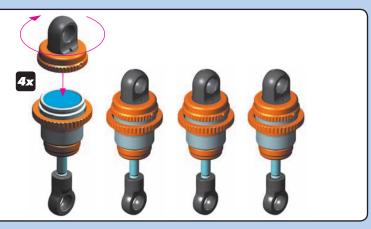


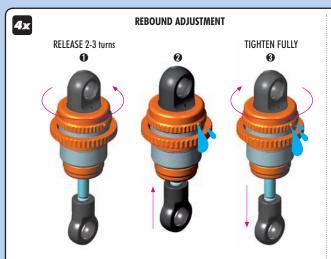
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# 6. SHOCK ABSORBERS

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





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

Release the shock cap by 2-3 turns.

SHOCK DAMPING

- 2 Push the shock shaft fully up. For the first time the extra oil will release through the hole in the alu cap-nut.
- Ighten the shock cup. When tightening the shock cap, extra oil will again release through the hole in the alu cap - nut. When tightening, the shock shaft will push out from the shock body.

**REBOUND CHECK** 50% 25% 100% **REBOUND CHECK:** 

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

100% rebound - do not do step 2 and 3

**4**x

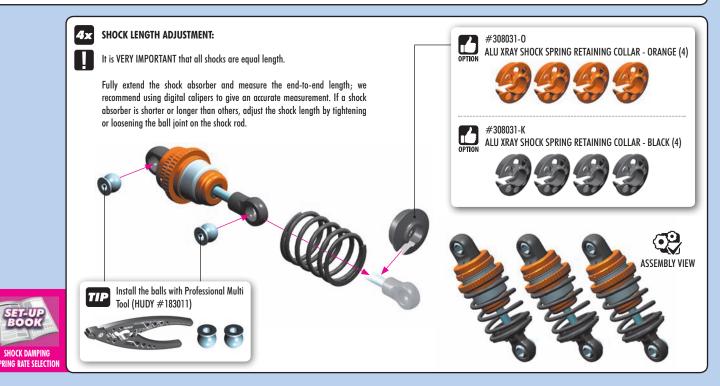
75% rebound - repeat steps 1 to 3 until the shock shaft will push out 75% of its length

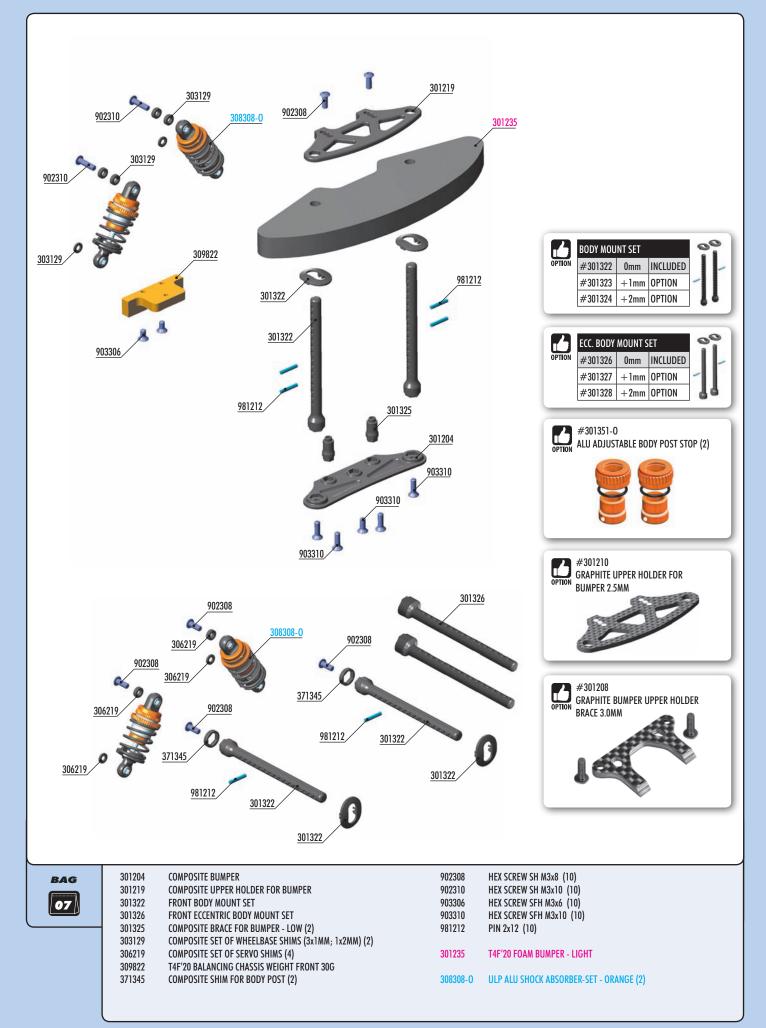
50% rebound - repeat steps 1 to 3 until the shock shaft will push out 50% of its length

25% rebound - repeat steps 1 to 3 until the shock shaft will push out 25% of its length

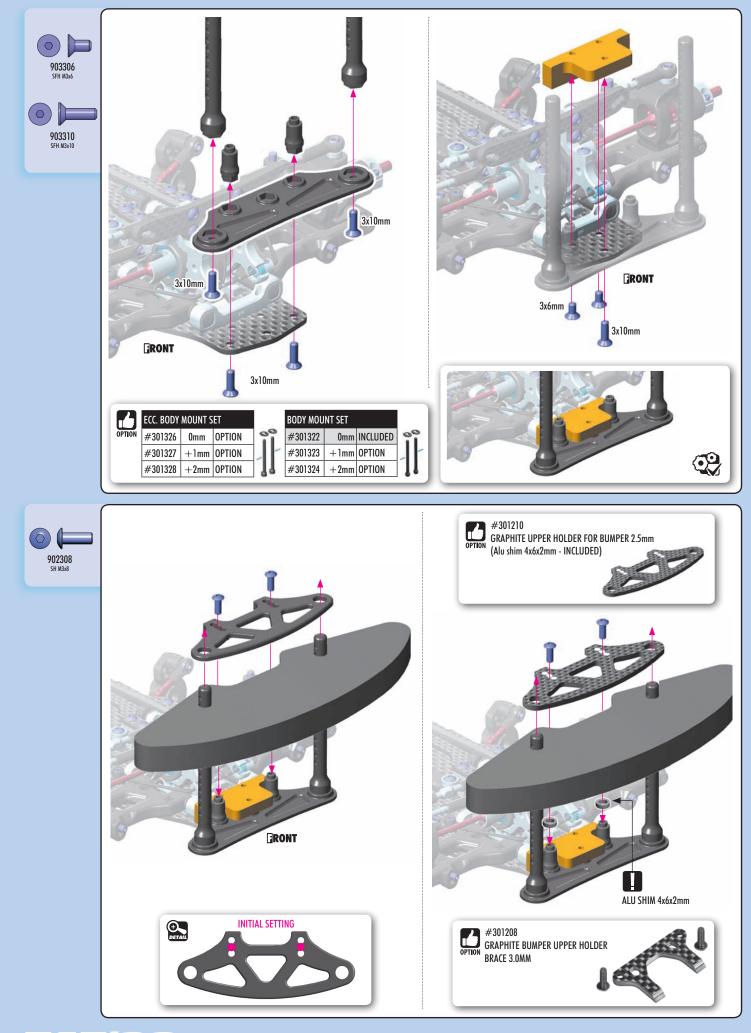
rebound - repeat steps 1 to 3 until the shock shaft will push out 0% of its length 0%

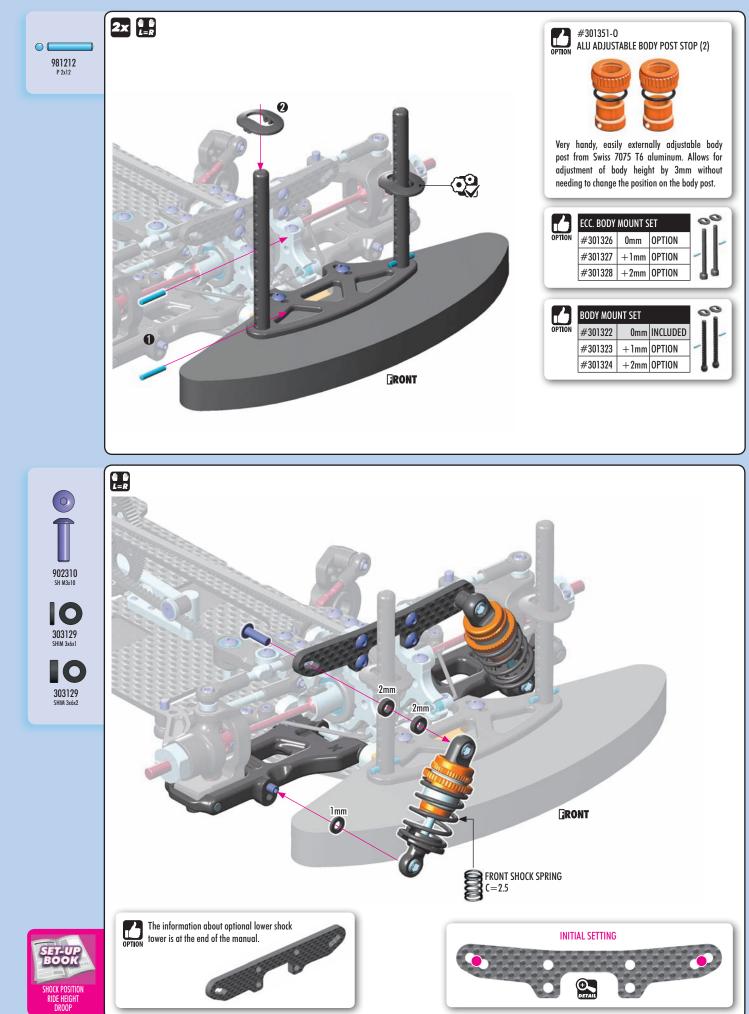
If the shock shaft does not rebound enough, you will have to refill the shock with shock oil, and then repeat the bleeding and rebound adjustment procedure.

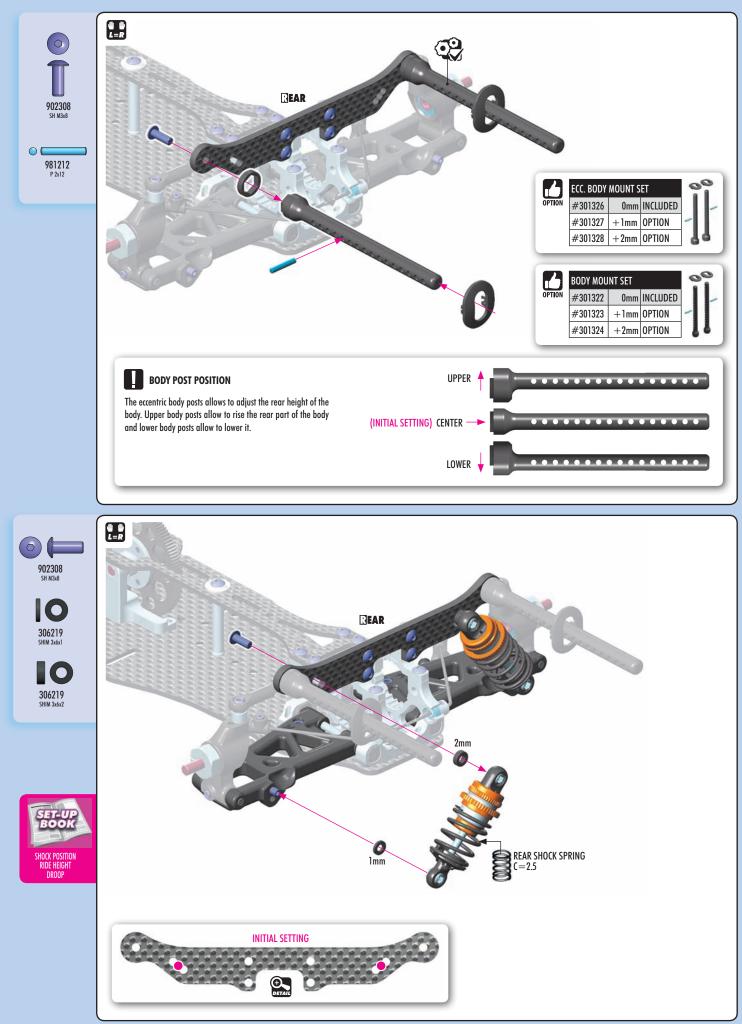


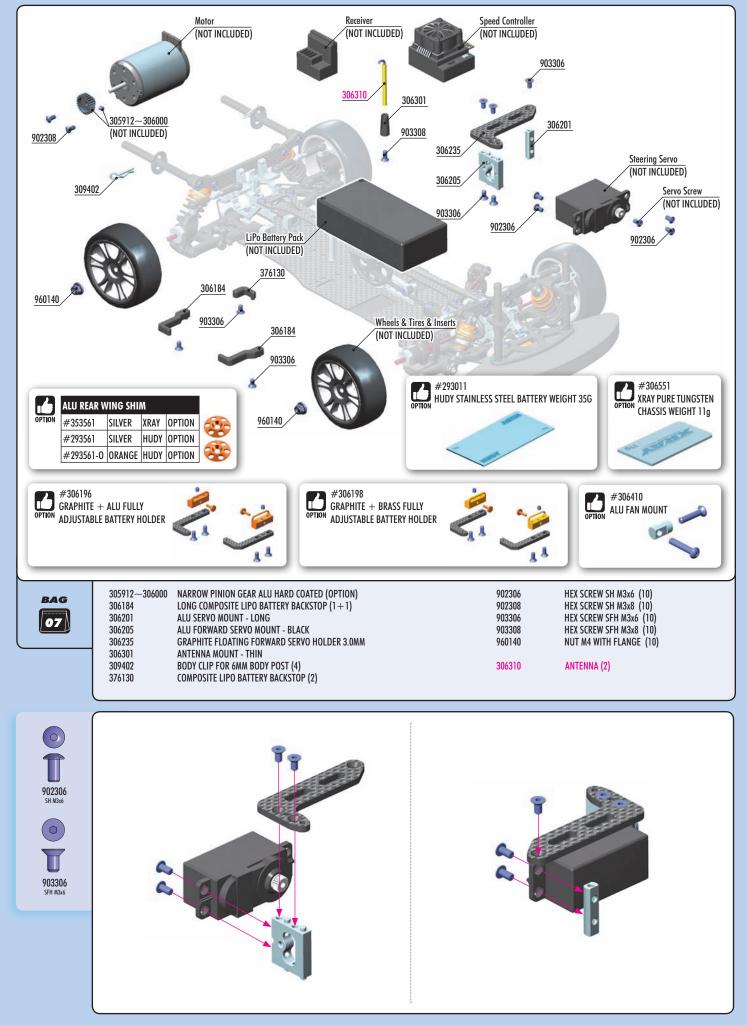




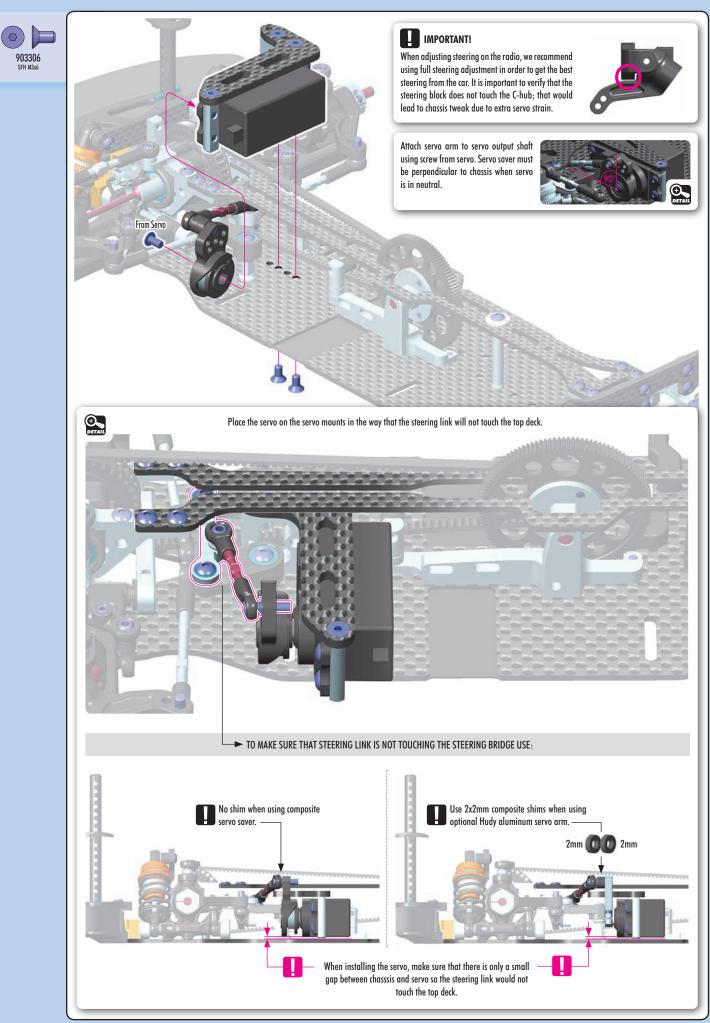


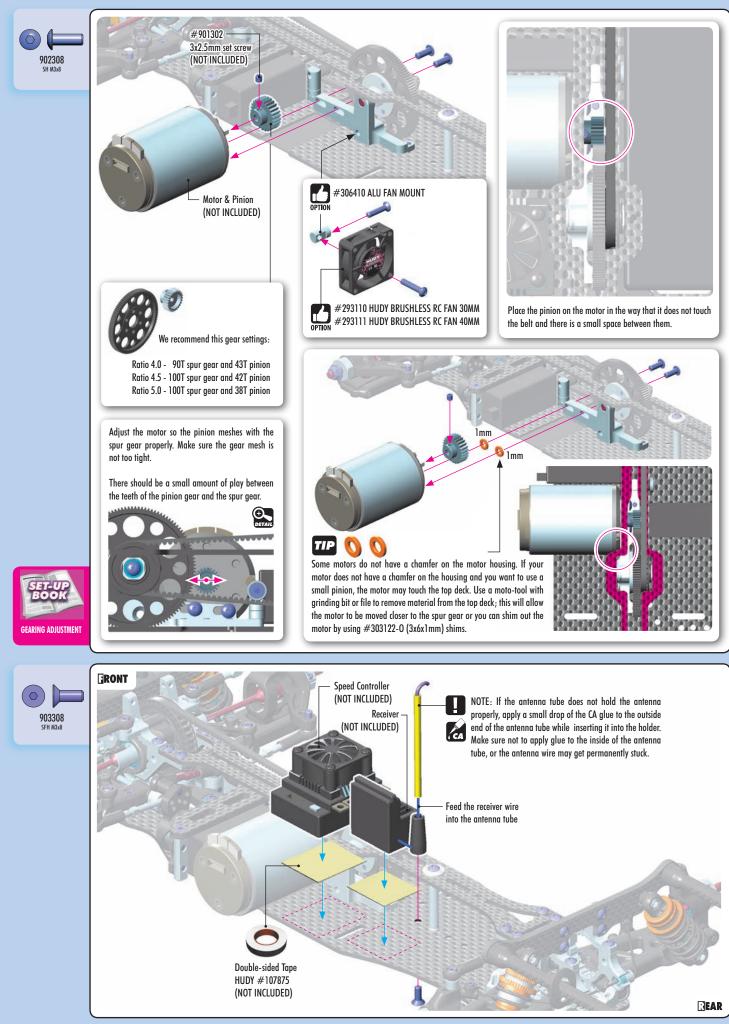


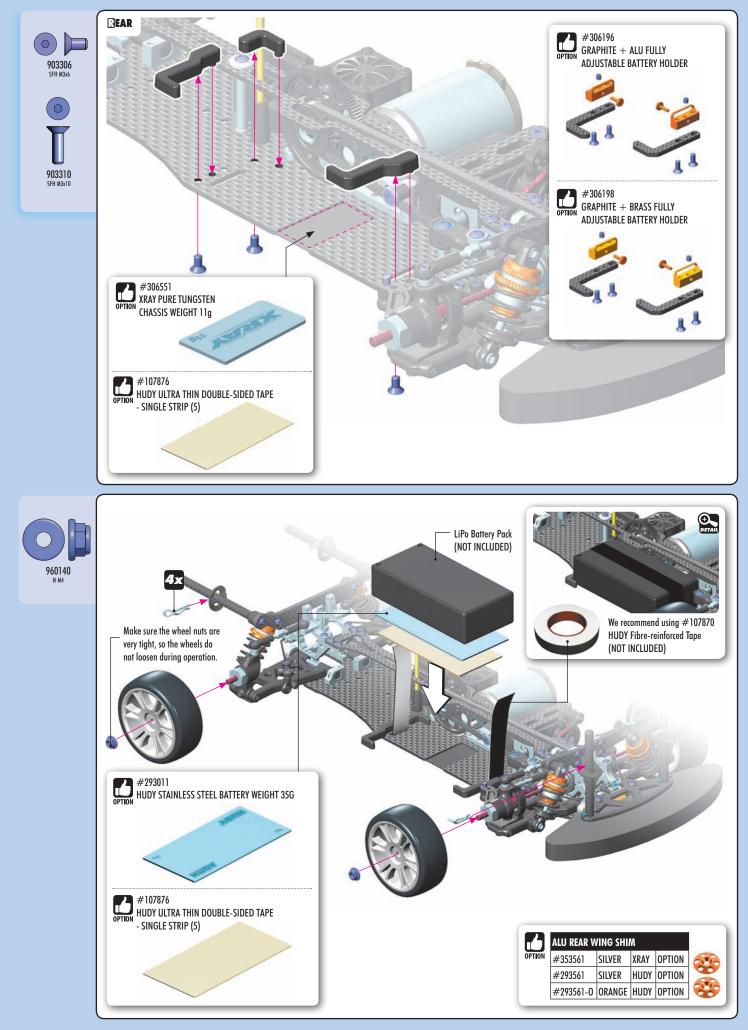










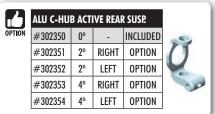


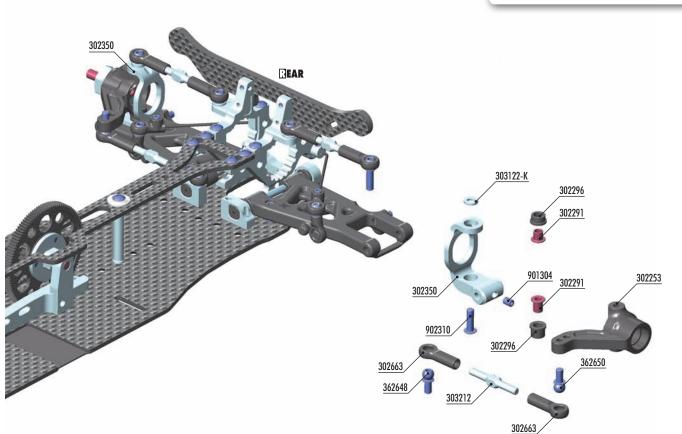
**T4F 20** 

#### **EXTRA INFORMATION ABOUT OPTIONAL PARTS FOR T4F'20** OPTION



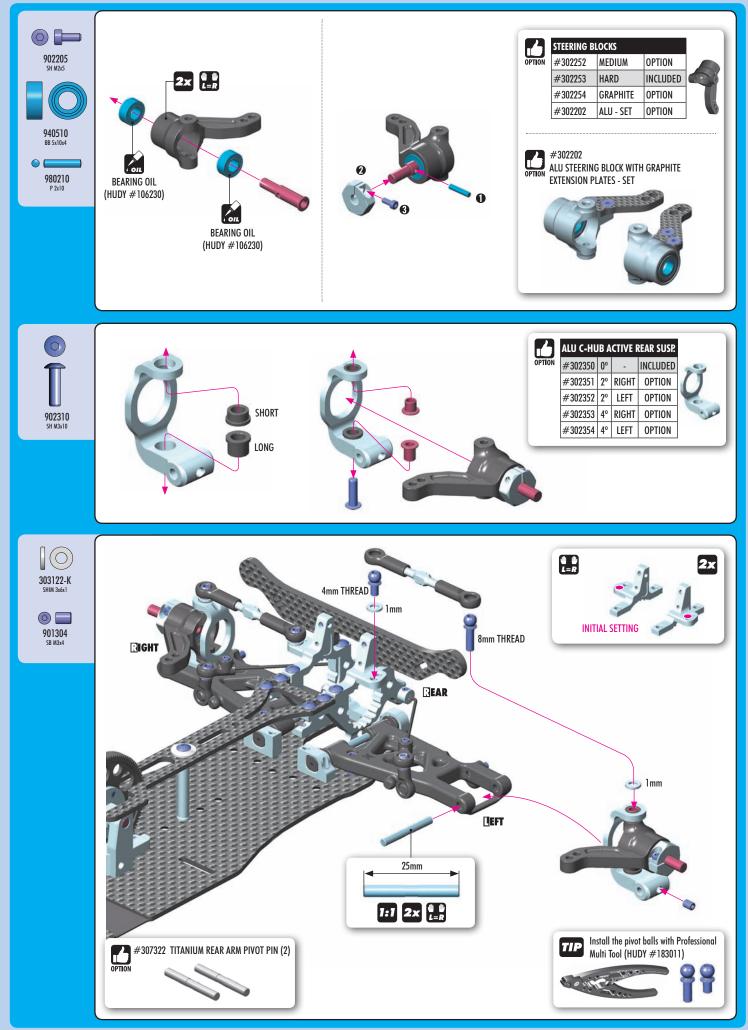
#300902 ACTIVE REAR SUSPENSION TH SET









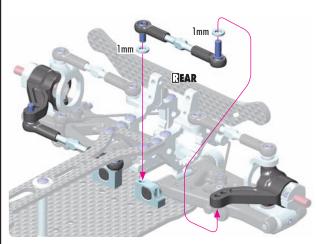


303122-K



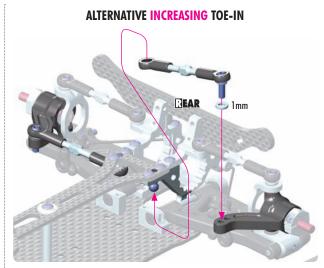
There are two alternatives how to mount ARS linkage. Depending if you want to have increased or decreased toe-in when the car is pressed

#### ALTERNATIVE DECREASING TOE-IN



The link is mounted from the bottom of the steering block to the RF suspension holder. With this setting, the toe-in decreases when the car is pressed. This means that if you set the toe-in to  $3^{\circ}$ , then when the car enters the corner, the toe-in decreases which increases cornering speed but decreases rear traction. Recommended for medium-high traction conditions.

By adding more shims under steering block, the toe-in is more decreasing under pressing the car.



The link is mounted from the top of the steering block to the bulkhead. With this setting, the toe-in increases when the car is pressed. This means that if you set the toe-in to 3°, then when the car enters the corner, the toe-in increases which increases rear traction and stability but generates more push. Recommended for low-medium traction conditions.

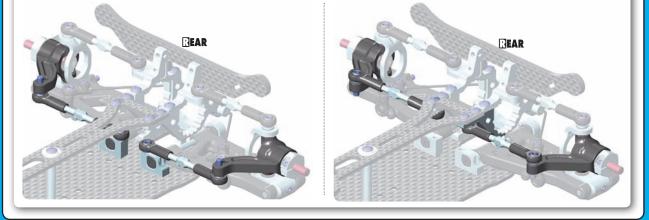
By adding more shims on the top of the steering block, the toe-in is more increasing under pressing the car.



The optional ARS aluminum C-hubs were redesigned to work with the new T4'20 rear suspension geometry and are available in 0° | 2° | 4° caster.

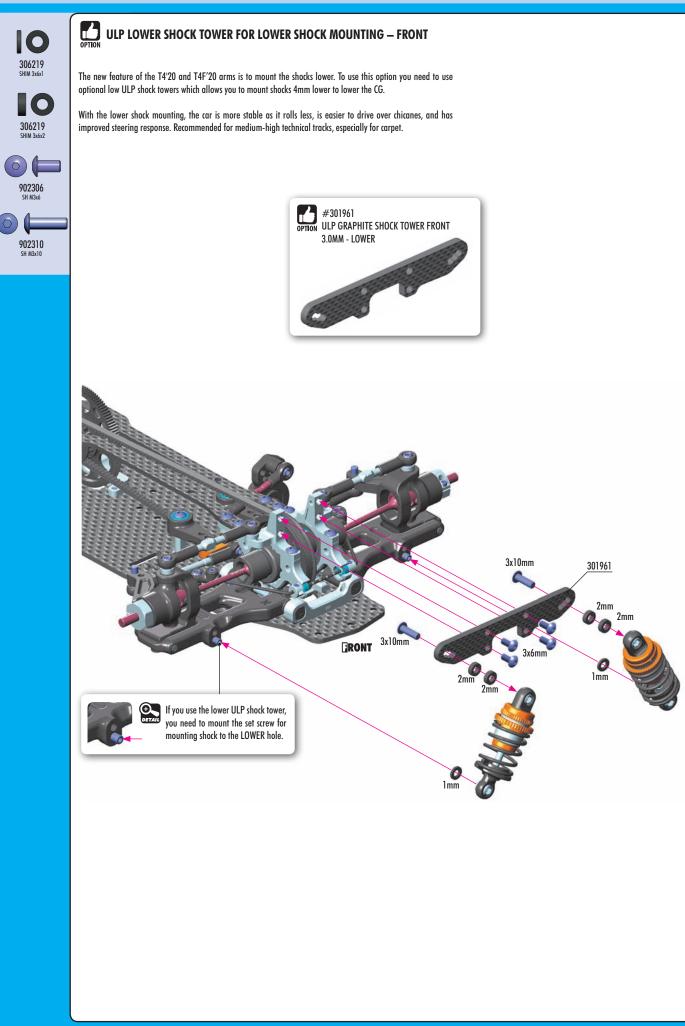
ALU C-HUB ACTIVE REAR SUSPENSION™		
<b>Ö</b> °	C-hub is recommended for high-tratcion conditions as it generates greater off-power steering, rotation and cornering speed.	
<b>2°</b>	C-hub angled toward the front of the car helps to generate more traction but in the same time generates more off-power steering and cornering speed compared to standard rear suspension. Recommended for medium-traction conditions.	
<b>4</b> °	C-hub angled toward the front of the car generates maximum traction. Recommended for very-low-traction conditions. As the wheelbase will be shortened a lot with this setting, it is recommended to lengthen the rear wheelbase by moving the rear arms fully back.	

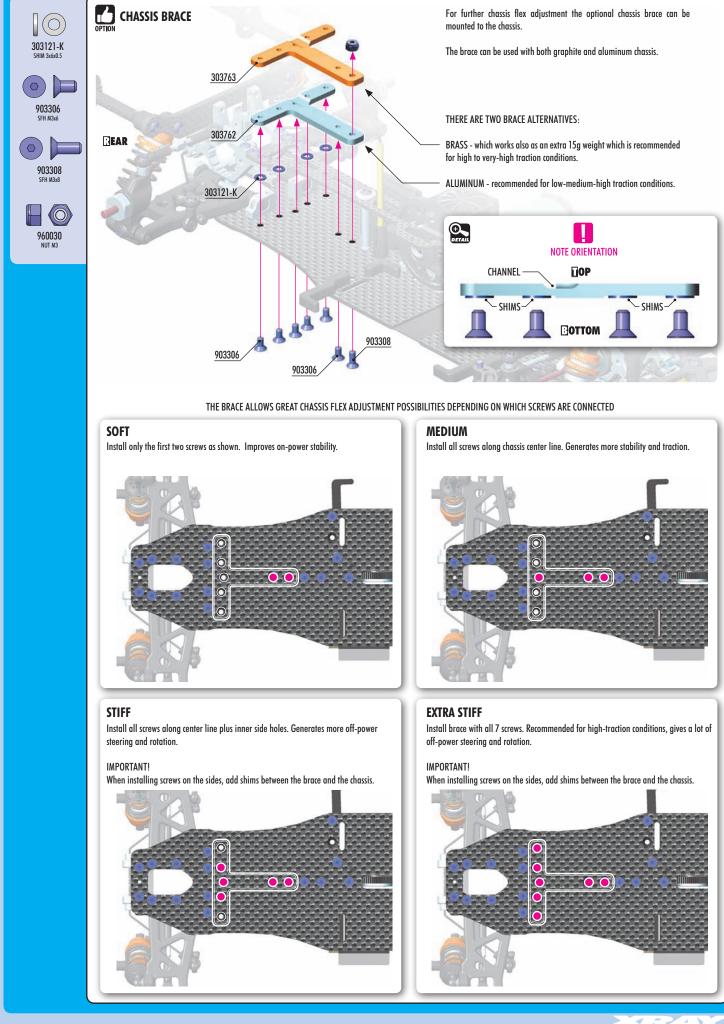
The effect of the toe-in change can be checked on a set-up station. Set the desired toe-in, than press the car to the ground and check how much the toe-in changes and in which direction.



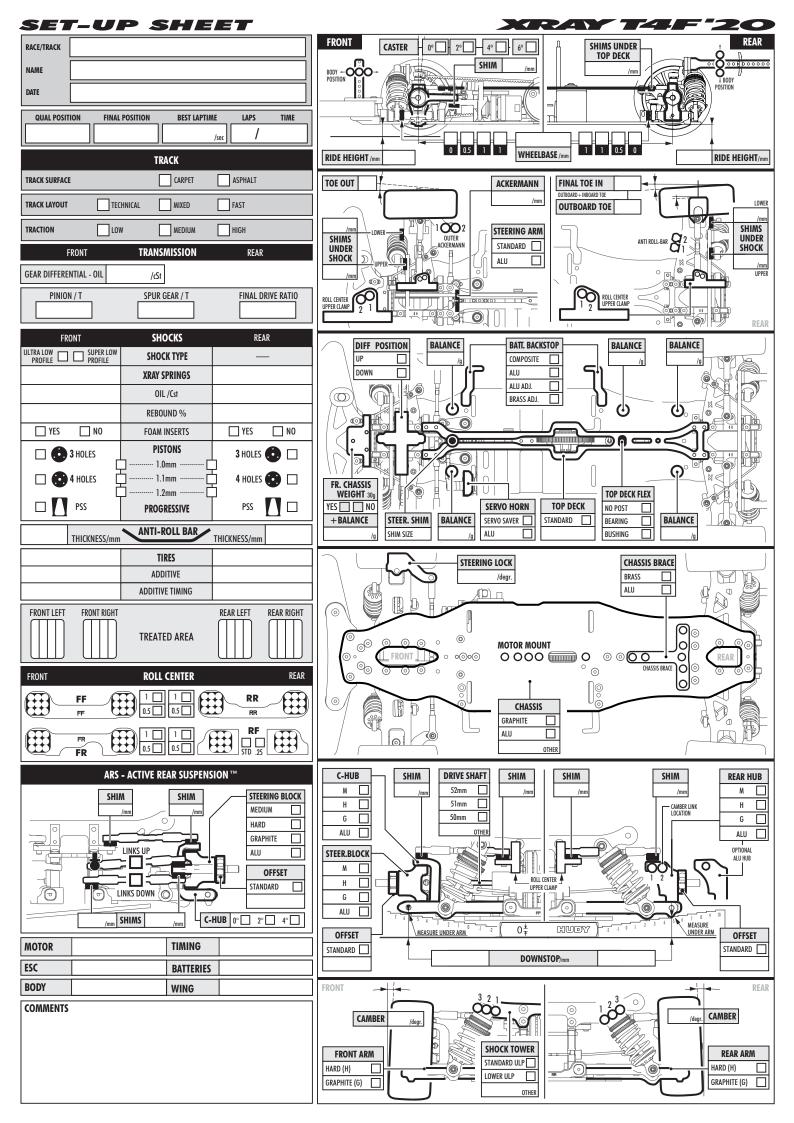


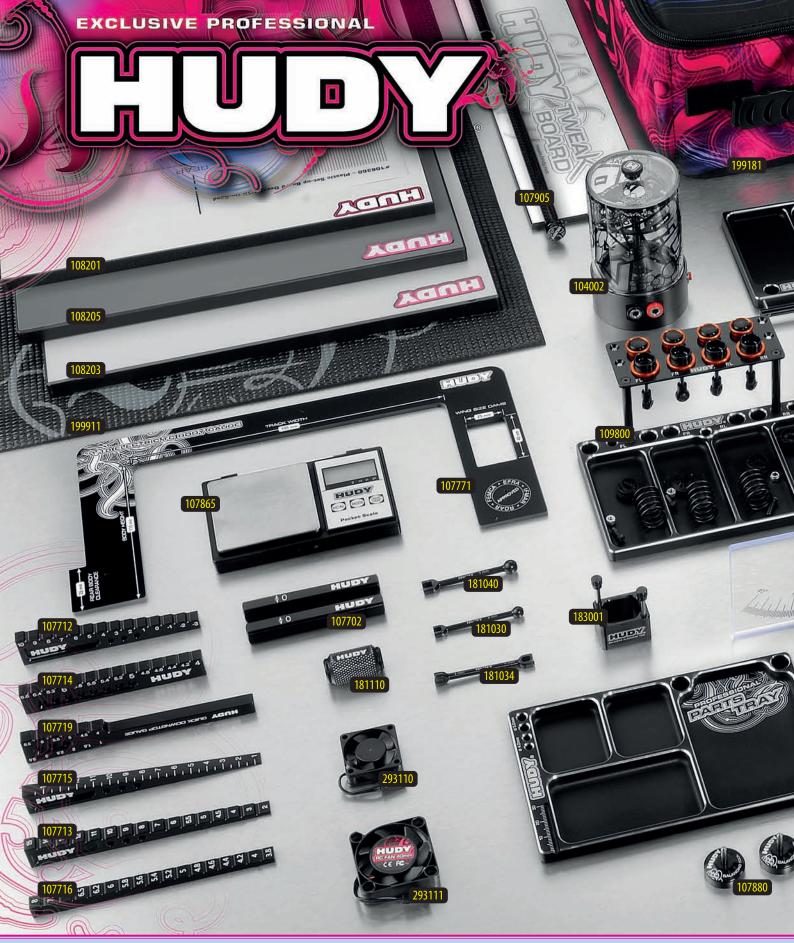






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HUDY AIR VAC - VACUUM PUMP - ON-ROAD 104002 HUDY TIRE ADDITIVE - TIRE GRIPPER - 50ML - V2 106260 HUDY BEARING CHECKING TOOL 107090 107601 LIMITED EDITION - REAMER FOR BODY 0-9MM + COVER - SMALL LIMITED EDITION - ARM REAMER # 3.0MM 107643 107702 CHASSIS DROOP GAUGE SUPPORT BLOCKS FOR 1/10 (2) CHASSIS DROOP GAUGE -3.0-10MM FOR 1/10 CARS (10MM) 107712 CHASSIS RIDE HEIGHT GAUGE STEPPED 2.0-15.0MM ULTRA-FINE CHASSIS DROOP GAUGE 4.0-6.6MM 107713 107714 107715 CHASSIS RIDE HEIGHT GAUGE 1.0-15.0MM (BEVELED) ULTRA-FINE CHASSIS RIDE HEIGHT GAUGE 3.8-8.0MM 107716 QUICK DOWNSTOP GAUGE TOOL 1.0-6.5MM 107719

107720	CHASSIS RIDE HEIGHT GAUGE 30-17MM FOR 1/8 & 1/10 OFF-ROAD
107750	HUDY GRAPHITE QUICK CAMBER GAUGE 1.5°, 2°, 2.5° FOR 1/10 TC
107771	HUDY BODY GAUGE 1/10 ELECTRIC TOURING CARS

- HUDY PIT LED 107855
- 107865 HUDY PROFESSIONAL DIGITAL POCKET SCALE 300G/0.01G
- HUDY FIBRE-REINFORCED TAPE BLACK 107870
- HUDY ULTRA DOUBLE-SIDED TAPE 107875
- 107880
- CHASSIS BALANCING TOOL (2) HUDY QUICK-TWEAK STATION 1/10 & 1/12 ON-ROAD 107904
- 107905 HUDY TWEAK BOARD SET
- HUDY 1/10 TOURING CAR STAND V3 108150
- 108190 HUDY ALU TRAY FOR PARTS

108201	FLAT SET-UP BOARD FOR
108203	FLAT SET-UP BOARD FOR
108205	FLAT SET-UP BOARD FOR
109305	UNIVERSAL EXCLUSIVE SE
109360	ALU NUT FOR 1/10 TOUR
109370	ALU SET-UP WHEEL FOR 1
109800	HUDY ALU TRAY FOR ON-
109840	HUDY ALU TRAY FOR 1/10
109860	HUDY ALU TRAY FOR SET-
109880	HUDY ALU TRAY FOR ACC
111545	LIMITED EDITION - ALLEN
112045	LIMITED EDITION - ALLEN



- 1/10 TOURING CARS 1/10 TOURING CARS - SILVER GREY 1/10 TOURING CARS - DARK GREY T-UP SYSTEM FOR 1/10 TOURING CARS NG SET-UP SYSTEM (4) /10 RUBBER TIRES (4) ROAD DIFF & SHOCKS OFF-ROAD DIFF ASSEMBLY UP SYSTEM SSORIES & PIT LED WRENCH # 1.5MM WRENCH # 2.0MM
- 113045 LIMITED EDITION - ALLEN WRENCH # 3.0MM LIMITED EDITION - ALLEN WRENCH + BALL REPL. TIP # 2.0MM 132045 LIMITED EDITION - SOCKET DRIVER # 5.5MM LIMITED EDITION - SOCKET DRIVER # 7.0MM 175535 177035 181030 HUDY SPRING STEEL TURNBUCKLE WRENCH 3 MM TURNBUCKLE WRENCH 3 & 4MM - HUDY SPRING STEEL™ TURNBUCKLE WRENCH 4MM - HUDY SPRING STEEL™ 181034 181040 HUDY BALL JOINT WRENCH HUDY PROFESSIONAL BULKHEAD ALIGNMENT TOOL 17MM 181110 18300 183011 HUDY PROFESSIONAL MULTI TOOL HUDY POCKET HOBBY KNIFE 188981 HUDY PROFESSIONAL BODY SCISSORS 188990
- 199060 HUDY ALU TOOL STAND 199181 HUDY CAR BAG - 1/10 ON-ROAD - TC - PAN CAR - CUSTOM NAME 199270 HUDY LIPO SAFETY BAG - CUSTOM NAME HUDY PIT MAT ROLL 750X1200MM WITH PRINTING 199911 293110
- HUDY BRUSHLESS RC FAN 30MM
- HUDY BRUSHLESS RC FAN 40MM 293111
- HUDY TIN ROUND BOX 80X30MM 298100

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







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