A PART OF A B



INSTRUCTION MANUAL
GTXE'23

BEFORE YOU START

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

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

CUSTOMER SUPPORT

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

You can join thousands of XRAY fans and enthusiasts in our online community at:

www.teamxray.com

Read carefully and fully understand the instructions before beginning assembly.

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

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

XRAY Europe

K Vystavisku 6992 91101 Trenčín Slovakia, EUROPE Phone: 421-32-7401100 Fax: 421-32-7401109

E-mail: info@teamxray.com

XRAY USA

RC America, 2030 Century Center Blvd #15 Irving, TX 75062 USA

Phone: (214) 744-2400 Fax: (214) 744-2401 E-mail: xray@rcamerica.com

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

SAFETY PRECAUTIONS

Contains:

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

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

CAUTION: CANCER HAZARD

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

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

Take appropriate safety precautions prior to operating this model. You are responsible for this model's assembly and safe operation! Please read the instruction manual before building and operating this model and follow all safety precautions. Always keep the instruction manual at hand for quick reference, even after completing the assembly. Use only genuine and original authentic XRAY parts for maximum performance. Using any third party parts on this model will void 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
- If the model behaves strangely, immediately stop the model, check and clear the problem.
- To prevent any serious personal injury and/or damage to property, be responsible when operating all remote controlled models.
- The model car is not intended for use on public places and roads or areas where its operation can conflict with or disrupt pedestrian or vehicular traffic.
- · Because the model car is controlled by radio, it is subject to radio interference from many sources that are beyond your control. Since radio interference can cause momentary loss of control, always allow a safety margin in all directions around the model in order to prevent collisions.
- Do not use your model:
 - Near real cars, animals, or people that are unaware that an RC car is being driven.
 - In places where children and people gather
 - In residential districts and parks - In limited indoor spaces
 - In wet conditions
 - In the street

 - In areas where loud noises can disturb others, such as hospitals and residential areas.
 - At night or anytime your line of sight to the model may be obstructed or impaired in any way.

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

IMPORTANT NOTES - ELECTRICAL

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

- or using inferior chargers can cause the batteries to become dangerously hot. Recharge battery when necessary. Continual recharging may damage battery and, in the worst case, could build up heat leading to fire. If battery becomes extremely hot during recharging, please ask your local hobby shop for check and/or repair and/or replacement.
- Regularly check the charger for potential hazards such as damage to the cable, plug, casing or other defects. Ensure that any damage is rectified before using the charger again. Modifying the charger may cause shortcircuit 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.

All rights reserved.

OUALITY CERTIFICATE

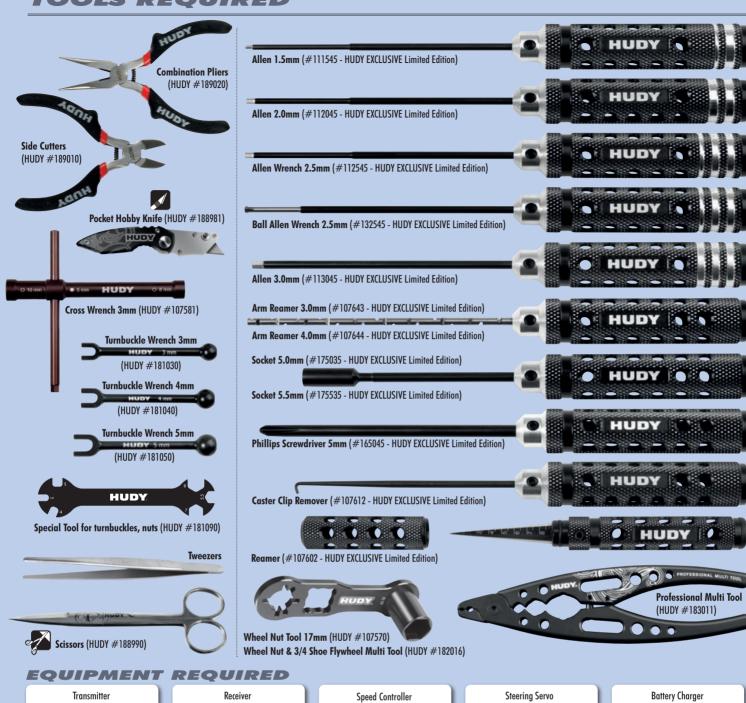
XRAY MODEL RACING CARS uses only the highest quality materials, the best compounds for molded parts and the most sophisticated manufacturing processes of TQM (Total Quality Management). We guarantee that all parts of a newly-purchased kit are manufactured with the highest regard to quality. However,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

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

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

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

TOOLS REQUIRED





LiPo Battery Pack



























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

800cSt (#106381) **HUDY Premium Silicone Oils**



50.000cSt (#106551) **HUDY Premium Silicone Oils**



300.000cSt (#106631) **HUDY Premium Silicone Oils**



(HUDY #106210) Premium Graphite Grease





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.

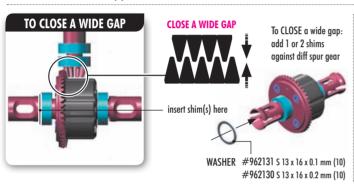
STYLE C - indicates parts that are already assembled from previous steps.

GTX TECH TIPS

TIP FRONT & REAR DIFF GEAR MESH ADJUSTMENT

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:





CHECK GEAR MESH AND DIFF PLAY ONLY AFTER THE ENTIRE GEARBOX IS MOUNTED TOGETHER WITH THE SUSPENSION HOLDERS ON THE CHASSIS. ALL PARTS ARE DESIGNED TO HAVE CERTAIN PLAY AND IT IS ALL DESIGNED BY PURPOSE.

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 3x14 (#106050).
- 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 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.

TIP DRIVE SHAFT PIN 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.

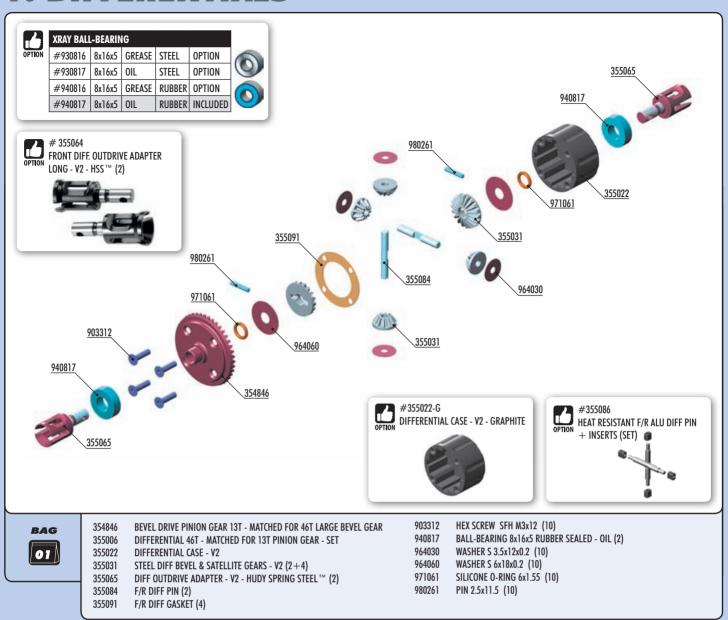


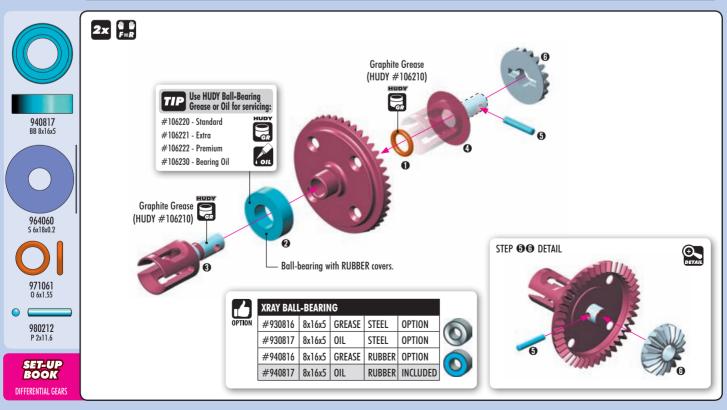
For easy drive pin replacements use #106000 **HUDY Drive Pin Replacement Tool.**

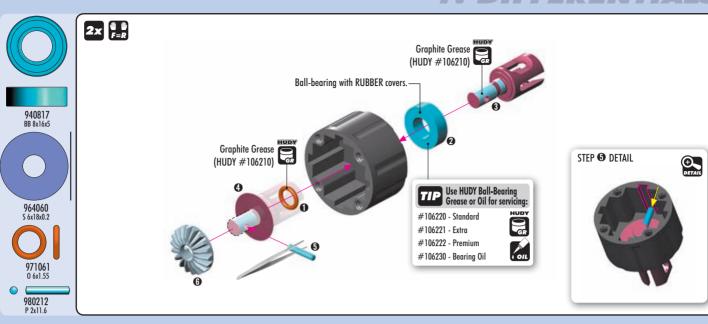


To replace the worn pins use only premium HUDY drive pins #106050.

1. DIFFERENTIALS





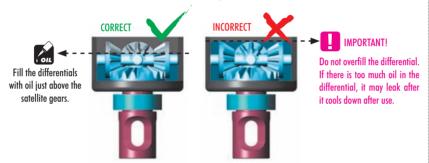






VERY IMPORTANT!

Use the following silicone oils included in the kit for initial settings: FRONT diff: 300.000cSt / REAR diff: 50.000cSt



To ensure you have the same amount of oil from rebuild to rebuild, do the following:



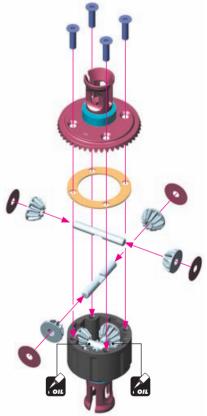
SET-UP BOOK DIFFERENTIAL OIL 1. Put the diff (without oil) on the scale and check the weight:

- FRONT DIFF approx. 39.10a - REAR DIFF approx. 39.10g

39.10g + 2.0g REAR DIFF

2. Slowly pour oil into the diff and watch the weight. The approximate weight of the diff+oil is REAR DIFF approx. 41.10g and FRONT DIFF approx.





Front diff:

Silicone oil 300.000cSt Fill just above the satellite gears.

Rear diff:

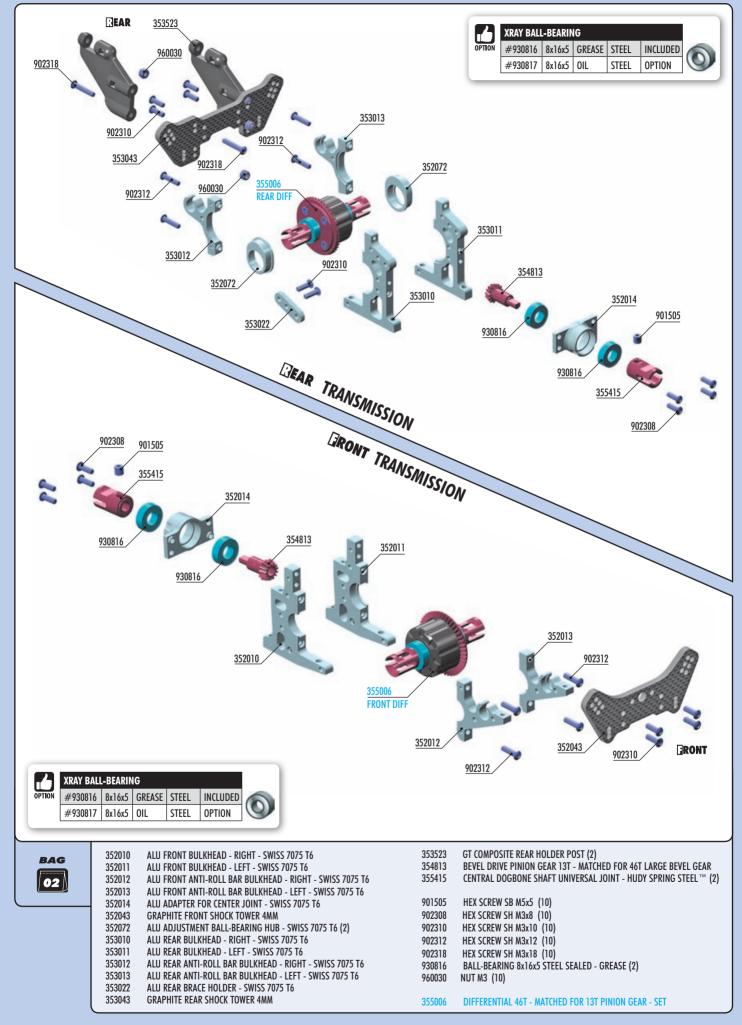
Silicone oil 50.000cSt Fill just above the satellite gears.



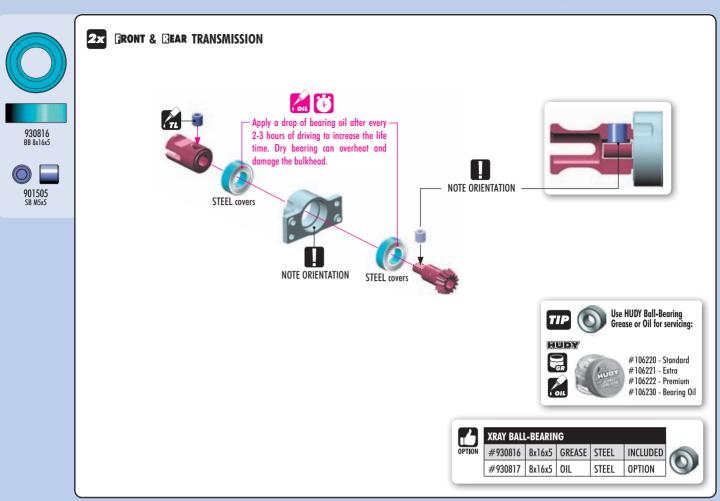


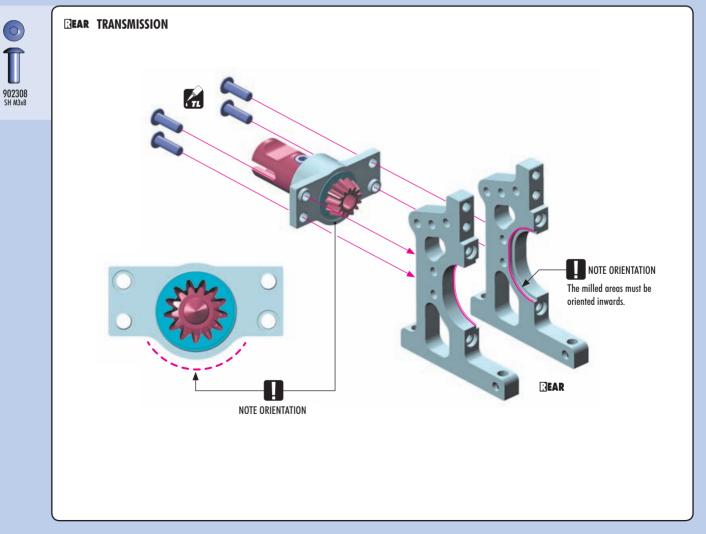
After assembly the differentials should have a length of 32.3~32.5 mm measured from the ends of the installed ball-bearings. If differentials are longer, retighten the 4 screws holding the crown gears.





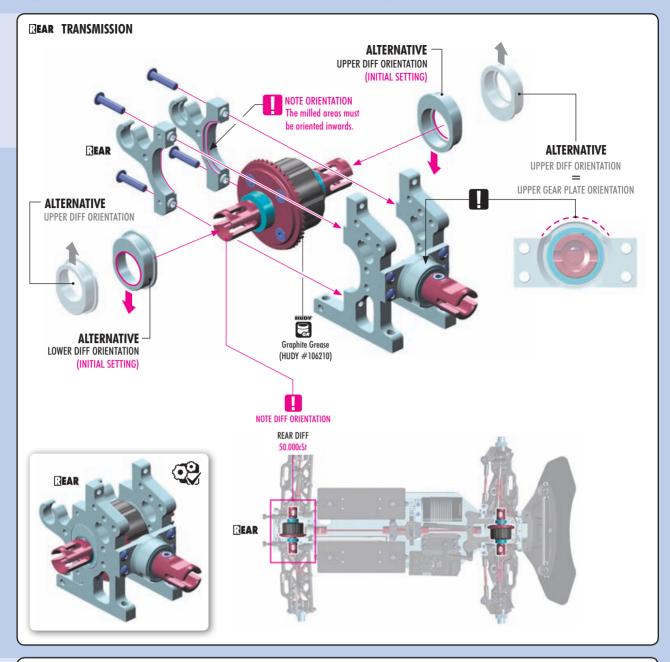
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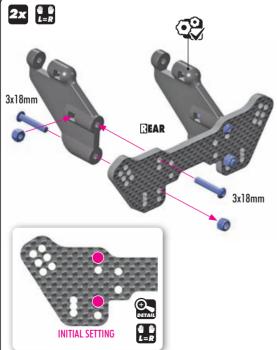


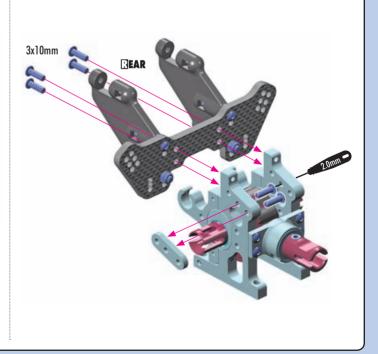
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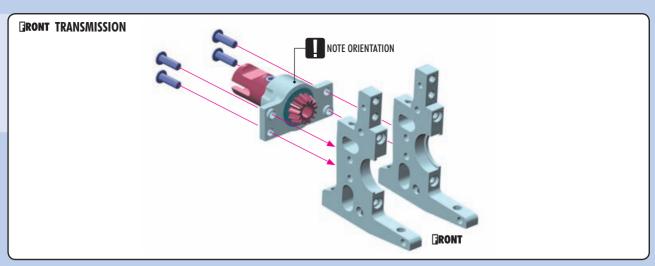




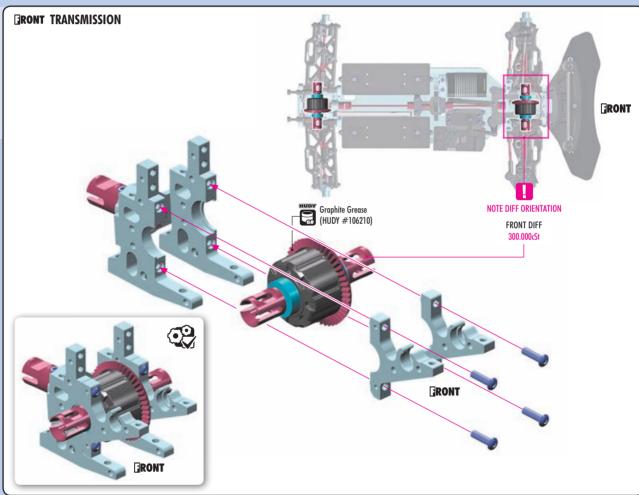




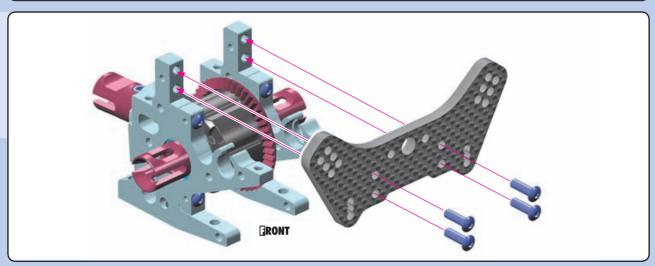


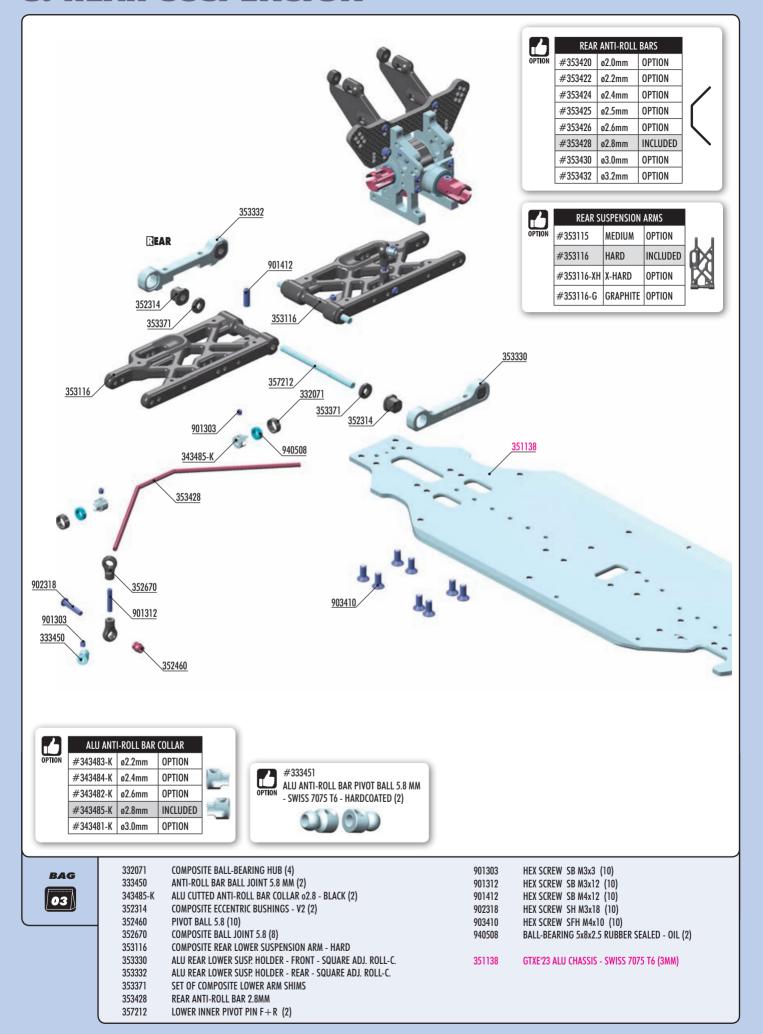




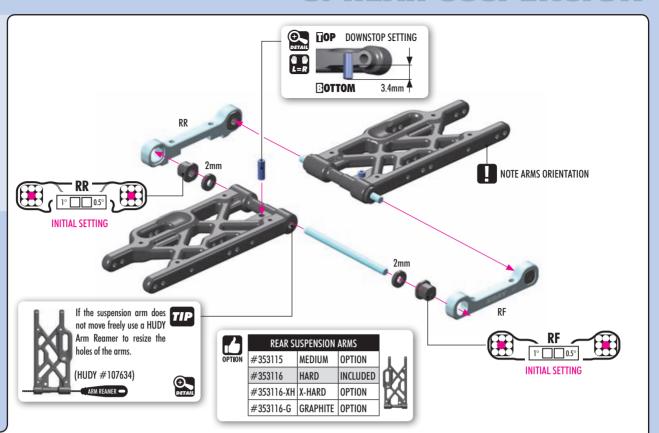


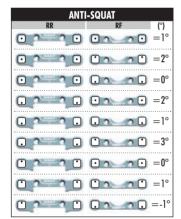










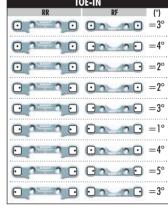


The new XRAY rear alu lower suspension holders provide even greater range of adjustment for the rear suspension. Using different combinations of eccentric bushings, fine adjustment of rear anti-squat, rear toe-in, rear roll center, and rear track-width can be obtained. For more information about the influence of rear anti-squat, rear toe-in, rear roll center and rear track width on car handling, please refer to HUDY Off-Road Set-up Book (#209099).

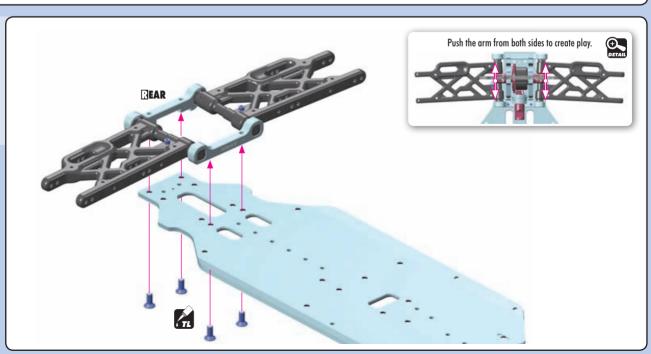
ROLL CENTER			
RR	RF (mm)		
0,00	• • • • • • • • • • • • • • • • • • •		
0,-10	• = 1mm		
0,000			

TRACK-WIDTH			
RR	RF	(mm)	
0 0 0	0000	=308	
	<u> </u>	=306	
	010	=310	

The tables describe the amounts of rear anti-squat, rear toe-in, rear track-width change depending on the combinations of eccentric bushings used with 0 and 1mm, 1° off set. The 0.5mm, 0.5° represent the half change.

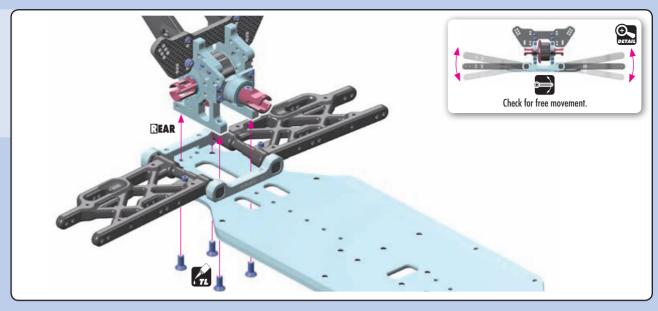






SIP (= P)

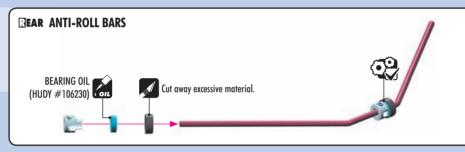






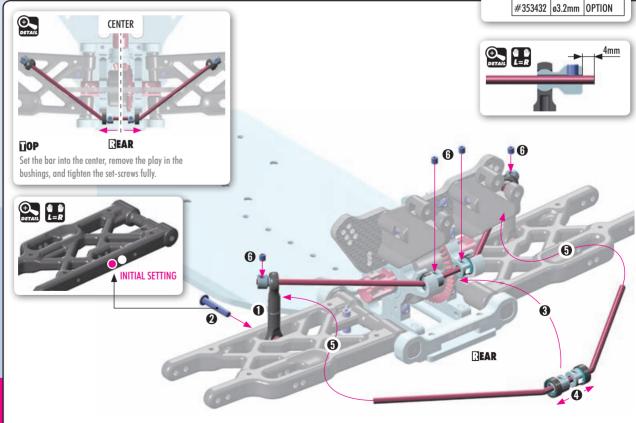






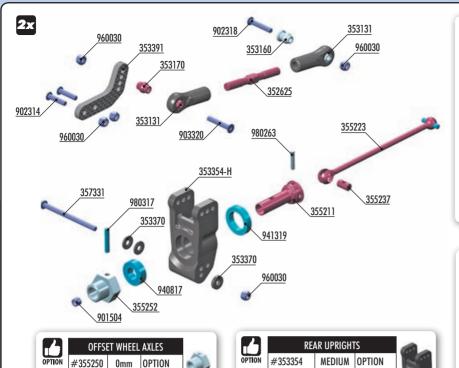
7	REAR ANTI-ROLL BARS			
PTION	#353420	ø2.0mm	OPTION	
	#353422	ø2.2mm	OPTION	
/	#353424	ø2.4mm	OPTION	
	#353425	ø2.5mm	OPTION	
	#353426	ø2.6mm	OPTION	
	#353428	ø2.8mm	INCLUDED	
	#353430	ø3.0mm	OPTION	
	#353432	ø3.2mm	OPTION	





SET-UP BOOK ANTI-ROLL BAR

7 5 4 7 7





Ш	XRAY BAL	L-BEARIN	G			
v [#930816	8x16x5	GREASE	STEEL	OPTION	
	#940816	8x16x5	GREASE	RUBBER	OPTION	
	#931318	13x19x4	GREASE	STEEL	OPTION	1
	#941318	13x19x4	GREASE	RUBBER	OPTION	
	#930817	8x16x5	OIL	STEEL	OPTION	
	#940817	8x16x5	OIL	RUBBER	INCLUDED	
L	#931319	13x19x4	OIL	STEEL	OPTION	
	#941319	13x19x4	OIL	RUBBER	INCLUDED	

BAG 04

#355251

#355252

ADJ. TURNBUCKLE M5 L/R 46MM - HUDY SPRING STEEL™ (2) 352625 REAR UPPER INNER CAMBER LINK BALL JOINT - V3 (2) 353131

HARD

#353354-G GRAPHITE OPTION

#353354-H

INCLUDED

MOUNTING BALL 6.8 (4) 353160

OPTION

+1mm +2mm INCLUDED

> PIVOT BALL 6.8 (4) 353170

353354-H COMPOSITE REAR UPRIGHT LB - HARD SET OF COMPOSITE REAR HUB CARRIER SHIMS

353370 GRAPHITE REAR ROLL CENTER UPRIGHT PLATE 4MM - V2 (2) 353391

CVD DRIVE AXLE - HUDY SPRING STEEL 355211

CVD UNIVERSAL DRIVE SHAFT 93MM - HUDY SPRING STEEL™ 355223

CVD DRIVE SHAFT COUPLING - HUDY SPRING STEEL* 355237 ALU WHEEL AXLE OFFSET $+2\mathrm{MM}$ - BLACK COATED (2) 355252

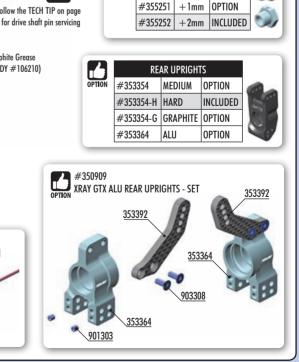
357331 REAR LOWER OUTER PIVOT PIN SCREW 3MM (2) 901504 HEX SCREW SB M5x4 (10) 902314 HEX SCREW SH M3x14 (10) HEX SCREW SH M3x18 (10) 902318

903320 HEX SCREW SFH M3x20 (10)

BALL-BEARING 8x16x5 RUBBER SEALED - OIL (2) 940817 941319 BALL-BEARING 13x19x4 RUBBER SEALED - OIL (2)

960030 NUT M3 (10) 980263 PIN 2.5x13 (10) 980317 PIN 3x17 (10)

941319 2.5x13mm TIP Follow the TECH TIP on page 5 for drive shaft pin servicing 3x19x4mn **Graphite Grease** 3x17mm (HUDY #106210) 8x16x5mm Use HUDY Ball-Bearing Grease or Oil for servici #106220 - Standard Ball-bearing with #106221 - Extra #106222 - Premium **RUBBER** covers 940817 #106230 - Bearing Oil To tighten the setscrew you can TIP also use the HUDY 17mm Wheel Nut Tool #107570. 980263 P 2.5x13 980317 P 3x17 901303 901504 SB M5x4



OFFSET WHEEL AXLES

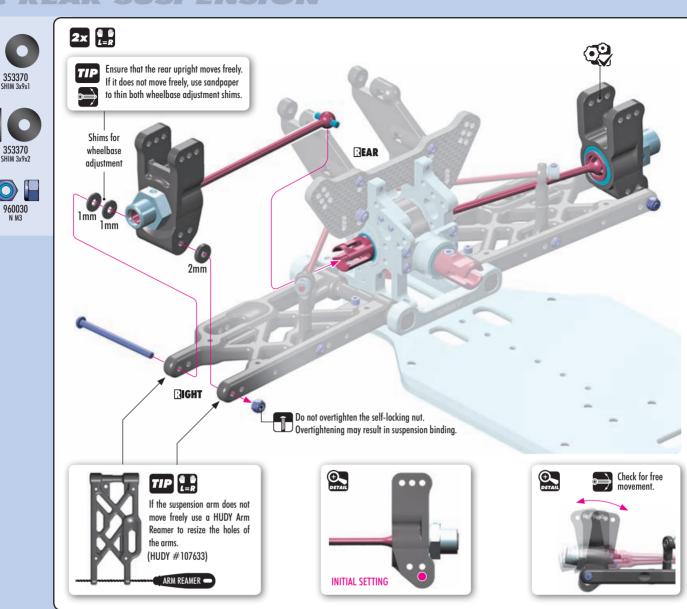
0 mm

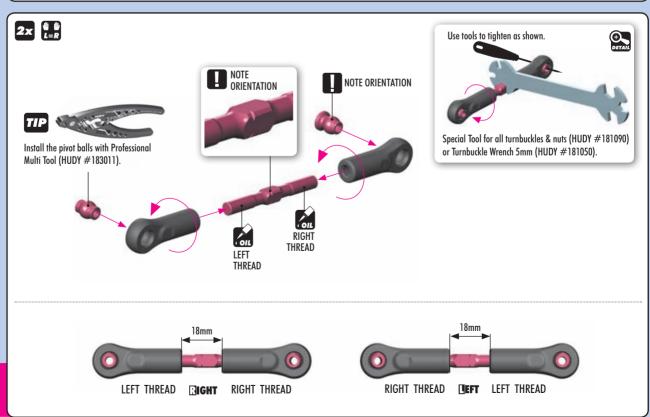
OPTION

CVI

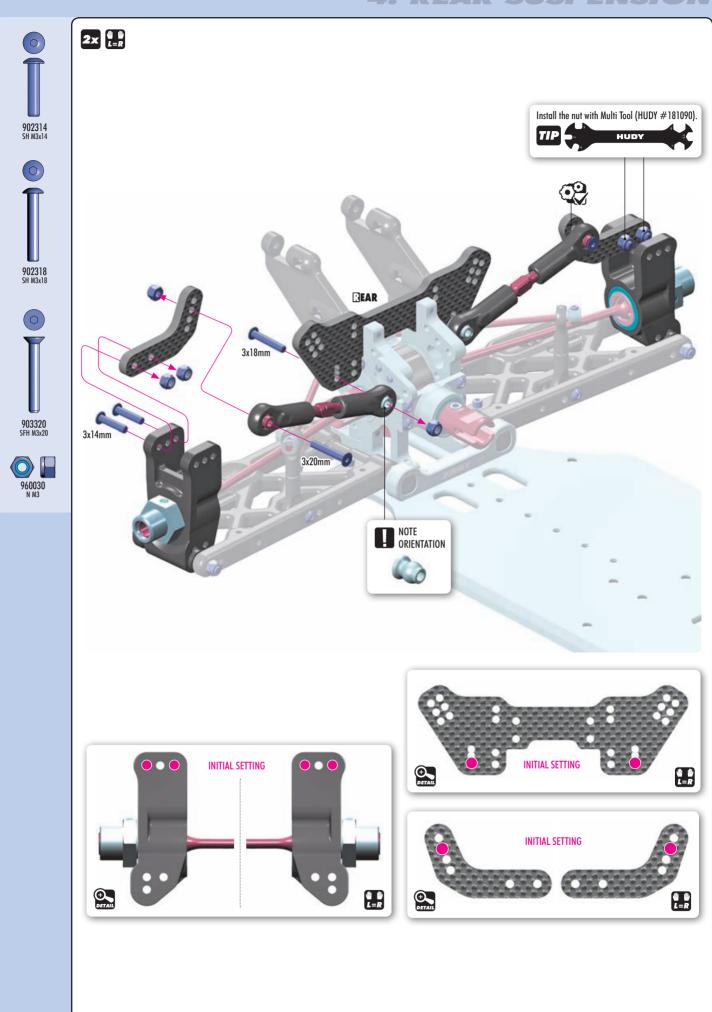
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353370 SHIM 3x9x

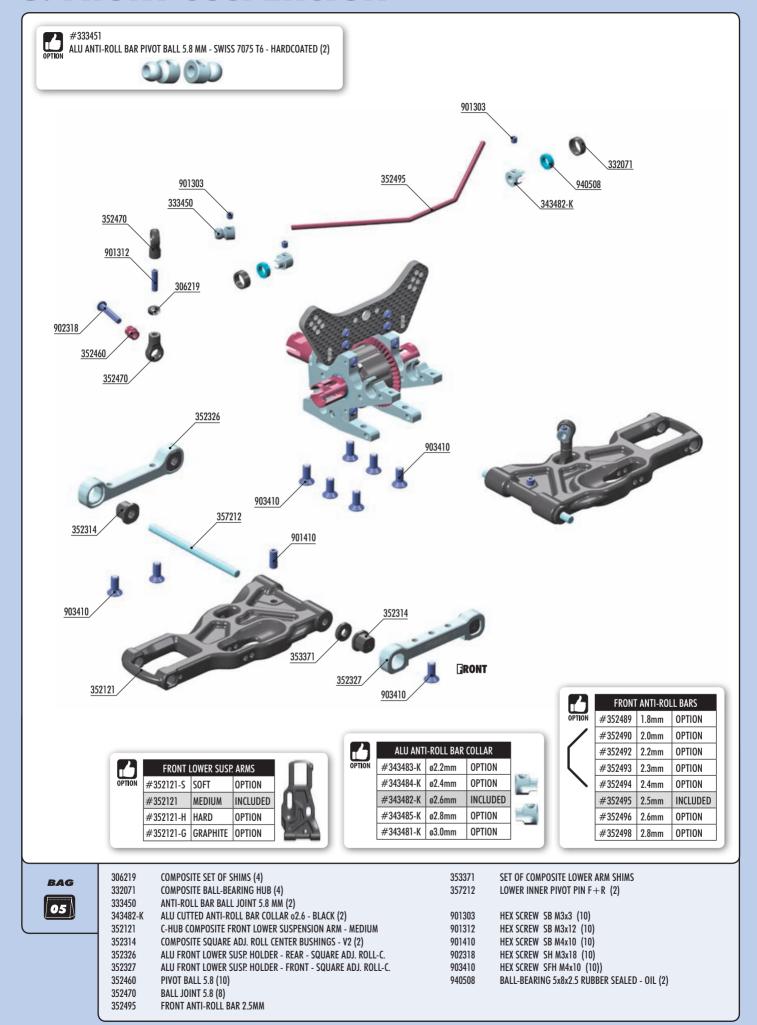


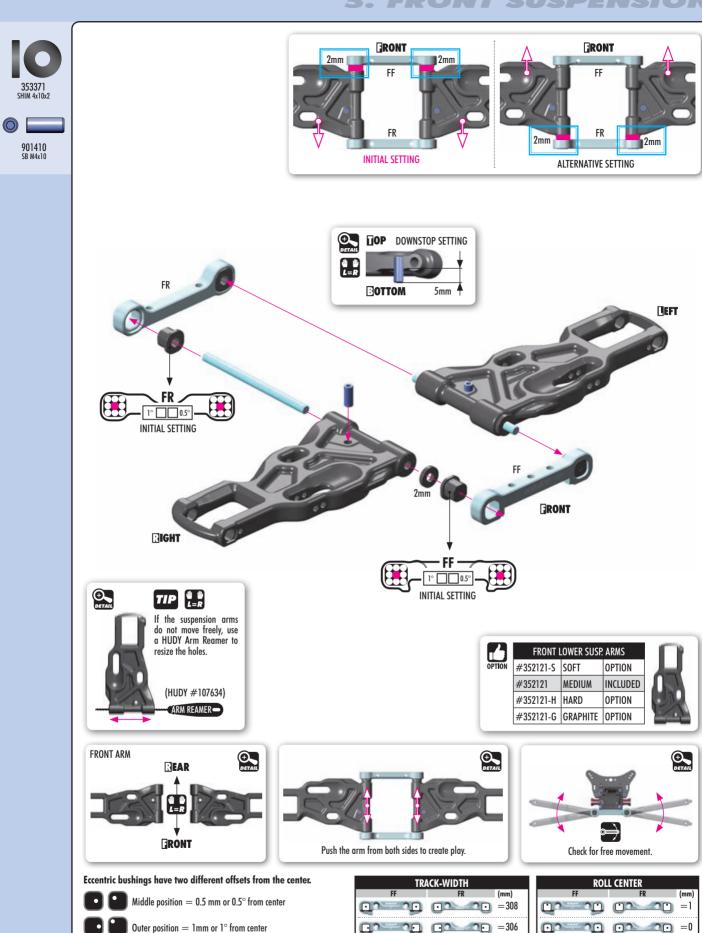


SET-UP BOOK



C7 P 1 = 5 E S





SET-UP BOOK KICK UP **ROLL CENTER DOWNSTOF** TRACK WIDTH

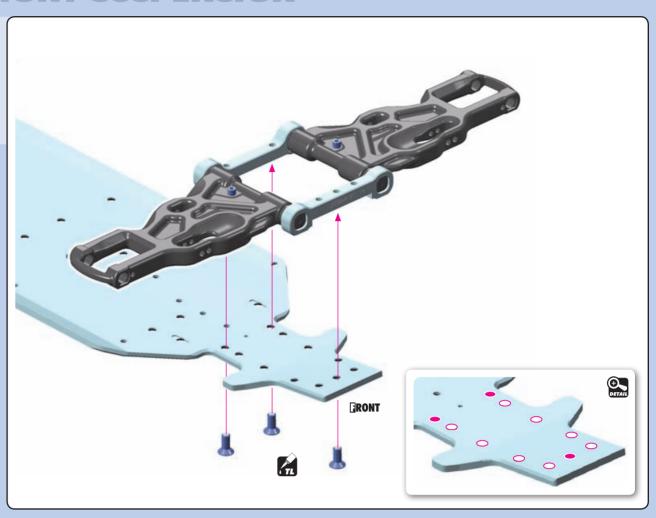
The XRAY alu front lower suspension holders provide even greater range of adjustment for the front suspension. Using different combinations of eccentric bushings, fine adjustment of front kick-up, roll center, and front track-width can be obtained. For more information about the influence of kick-up, front track-width, and roll centers on car handling, please refer to HUDY Off-Road Set-up Book (#209099).

TRACK-WIDTH			
FF	FR	(mm)	
⊕	0	=308	
<u> </u>	·	=306	
0,-0	0	=310	

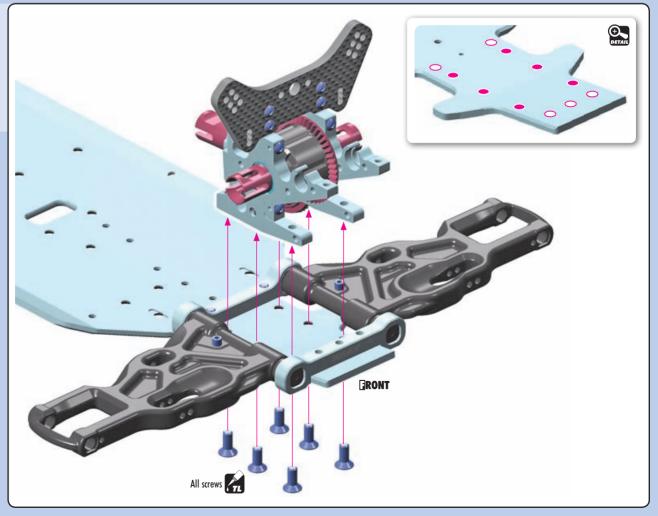
ROLL CENTER			
FF	FR	(mm)	
0, 10	0	=1	
0, 0	02	=0	
0,-0	0	=-1	

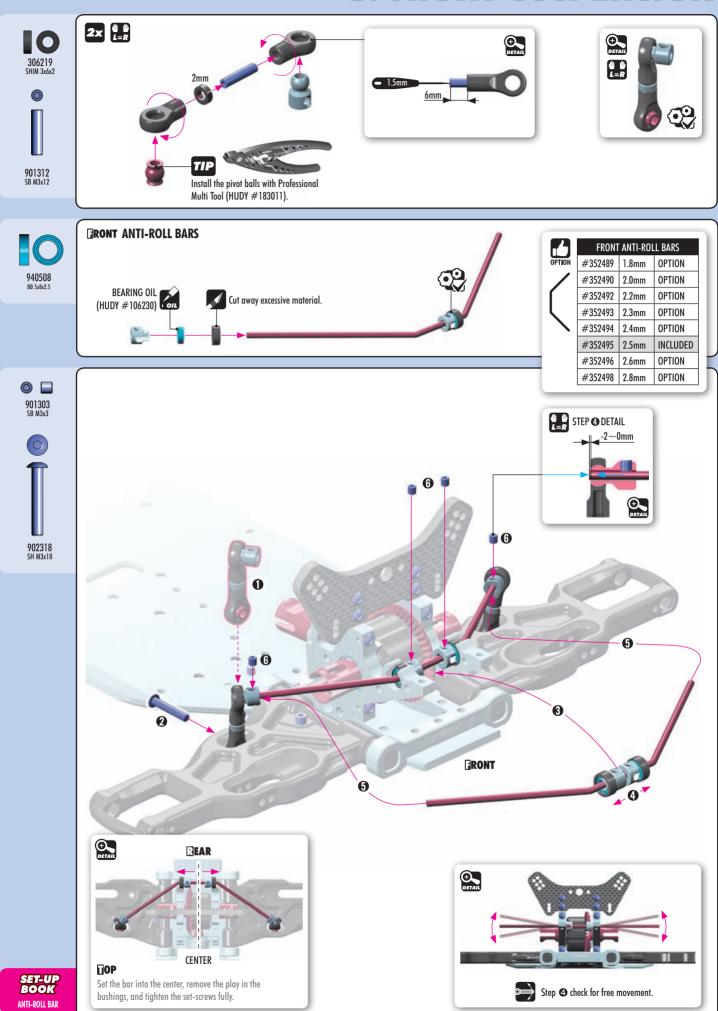
The tables below describe the amounts of kick-up, front track-width change depending on the combinations of eccentric bushings used with 0 and 1mm, 1° offset. The 0.5mm, 0.5° represents the half change.



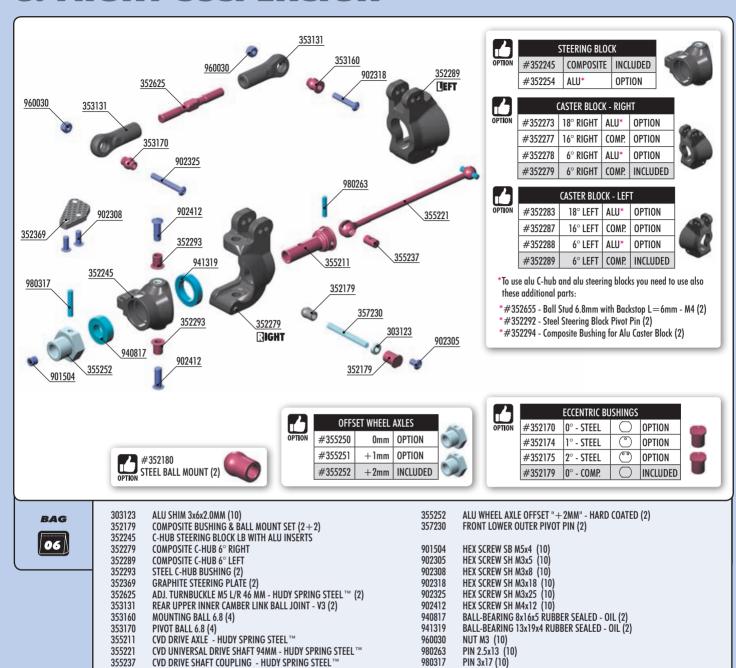


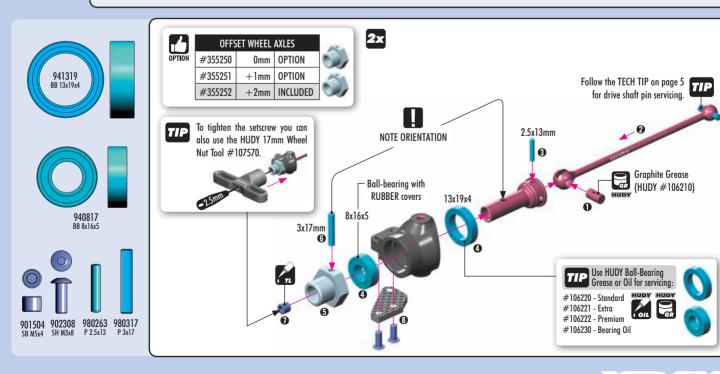




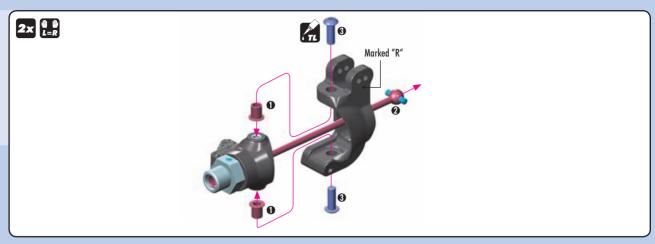


CT P 1 = 5 = 3

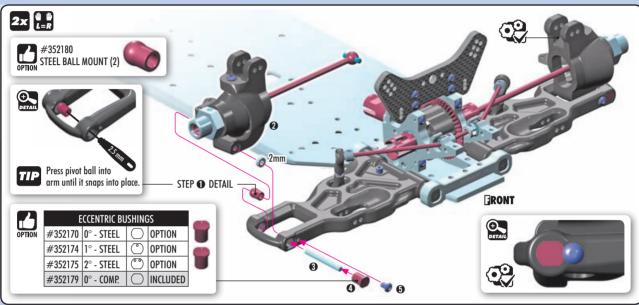








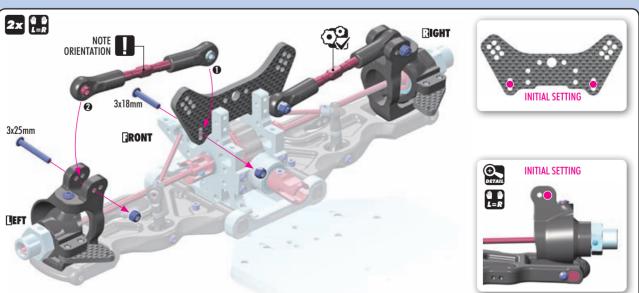




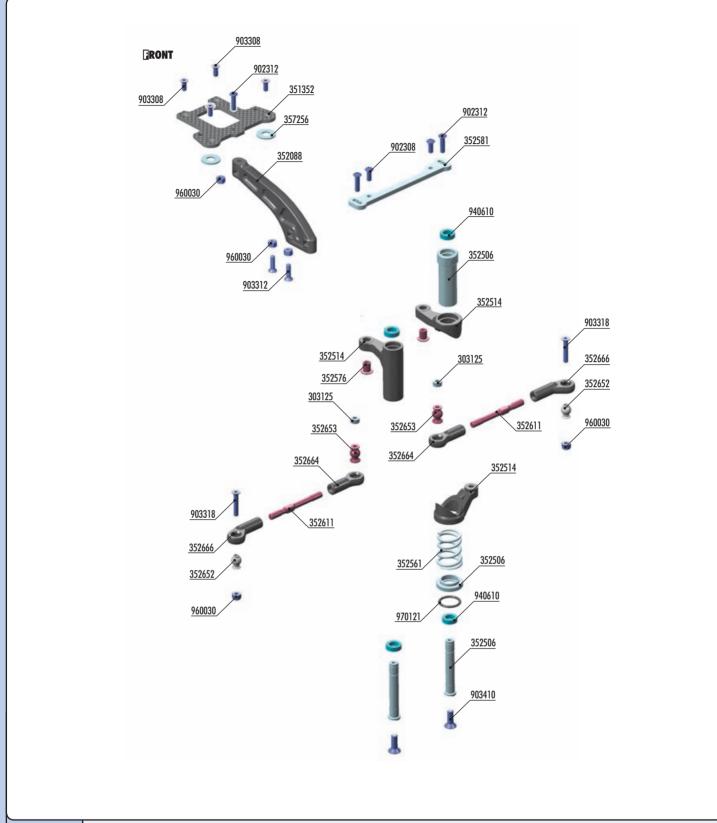




ROLL CENTER



7. STEERING



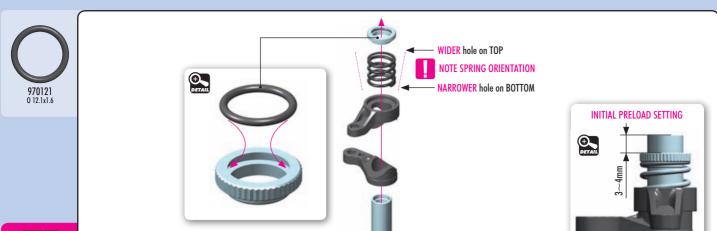


ALU SHIM 6x13x1MM (2)

357256

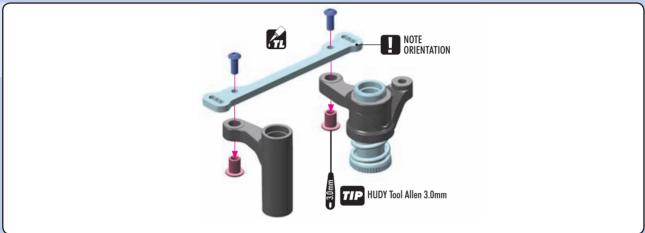
HEX SCREW SH M3x8 (10) 902308 ALU SHIM 3x6x3.0MM (10) 303125 HEX SCREW SH M3x12 (10)
HEX SCREW SFH M3x8 (10) 902312 GRAPHITE UPPER PLATE 2.5MM 351352 903308 352088 COMPOSITE FRONT BRACE 352506 SERVO SAVER WITH CHASSIS LOCK & HARD SPRING - G - SET 903312 HEX SCREW SFH M3x12 (10) COMPOSITE SERVO SAVER - GRAPHITE 903318 HEX SCREW SFH M3x18 (10) 352514 SERVO SAVER SPRING PROGRESSIVE STEERING PLATE BUSHING (2) 903410 HEX SCREW SFH M4x10 (10) 352561 940610 BALL-BEARING 6x10x3 RUBBER SEALED - OIL (2) 352576 NUT M3 (10) O-RING 12.1 x 1.6 (10) 960030 ALU STEERING PLATE - SWISS 7075 T6 352581 ADJ. TURNBUCKLE M4 L/R 53MM - HUDY SPRING STEEL™ (2) 970121 352611 352652 BALL STUD 6.8MM (4) 352653 BALL STUD 6.8MM WITH BACKSTOP - M3 (2) COMPOSITE STEERING BALL JOINT 6.8MM - V3 (2)
COMPOSITE RELIEF STEERING BALL JOINT 6.8MM (2) 352664 352666

7. STEERING



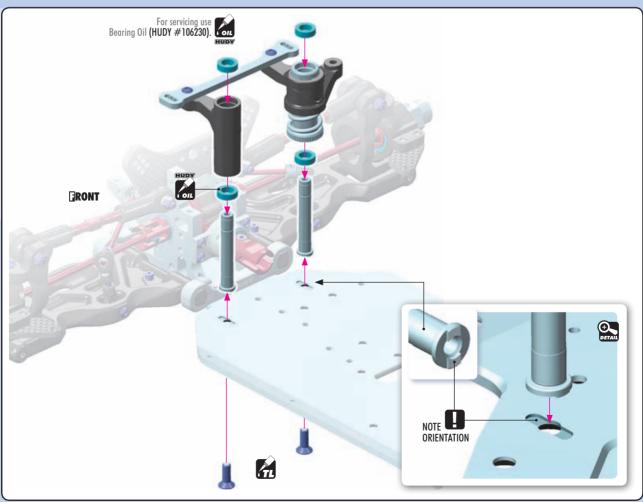
SET-UP BOOK SERVO SAVER





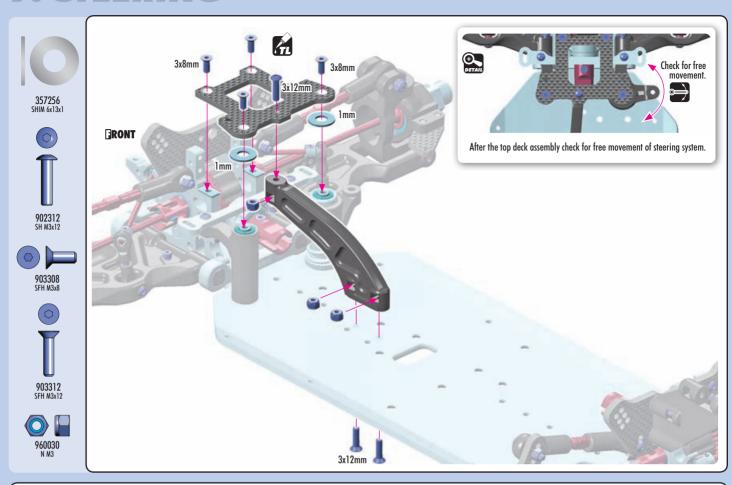


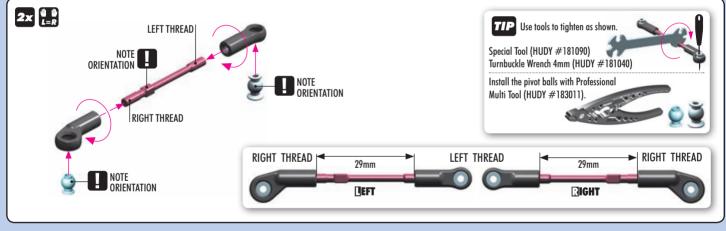


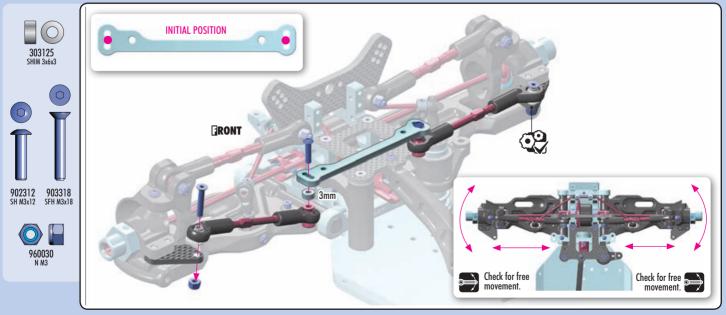


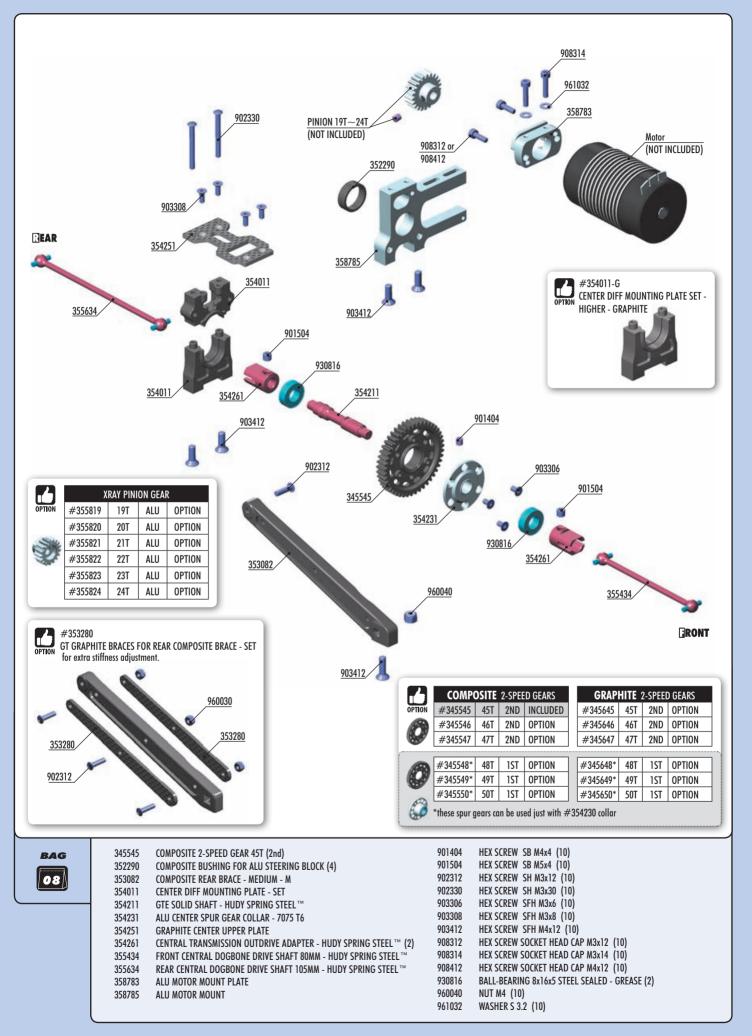
CT P. 1 = 12 = 3

7. STEERING

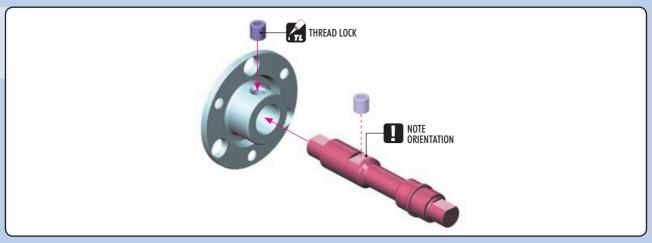


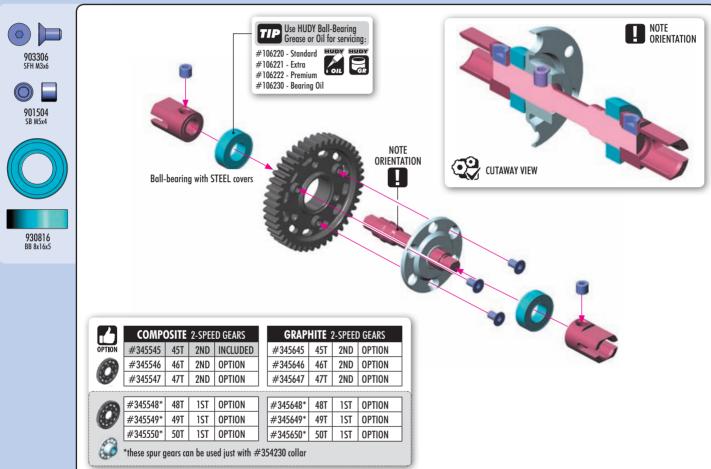


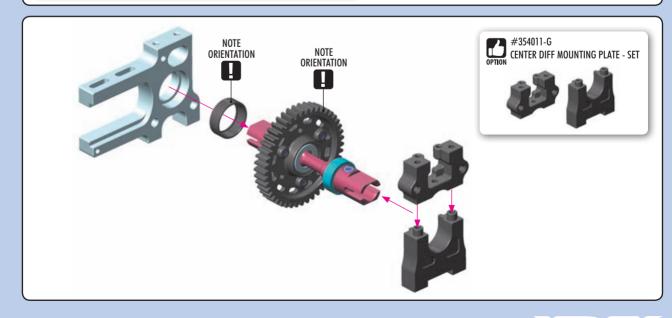




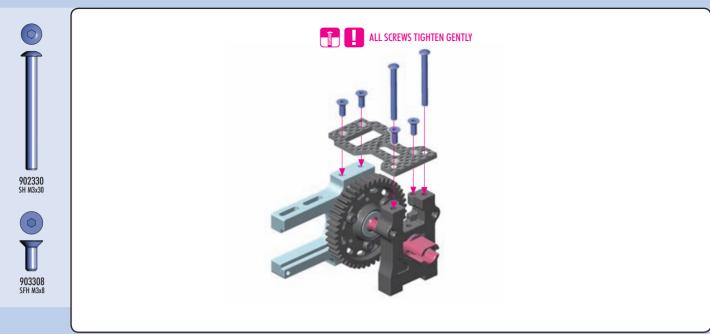


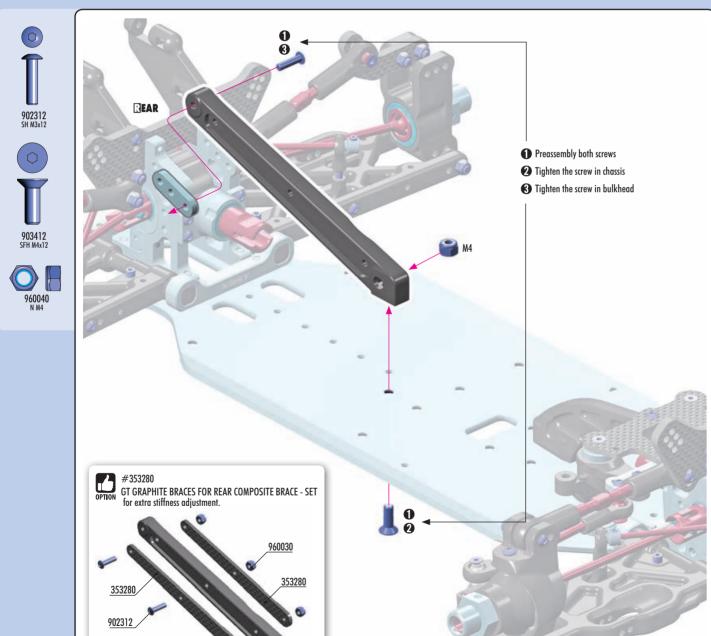






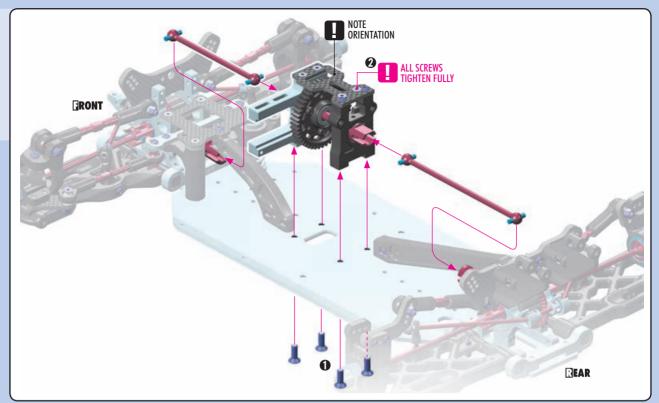
28



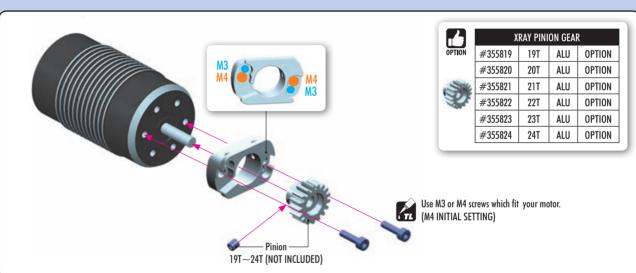


CT P (= 523)

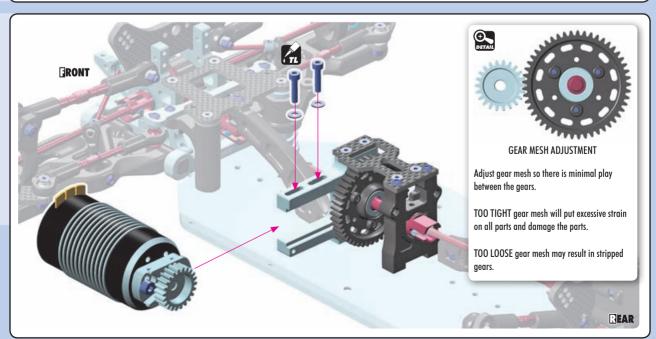


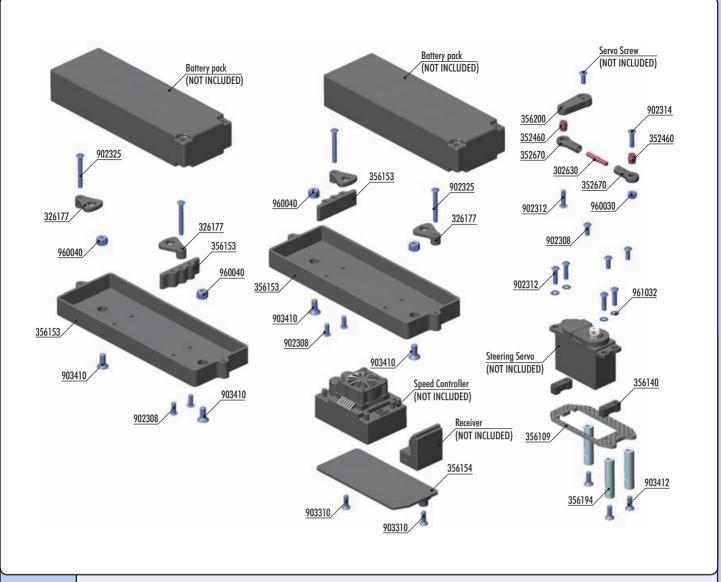








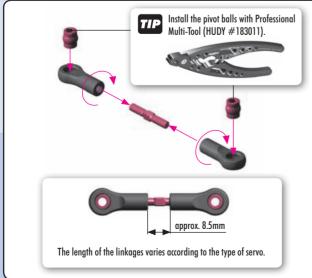


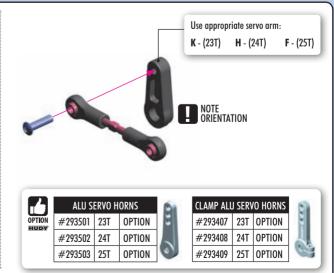


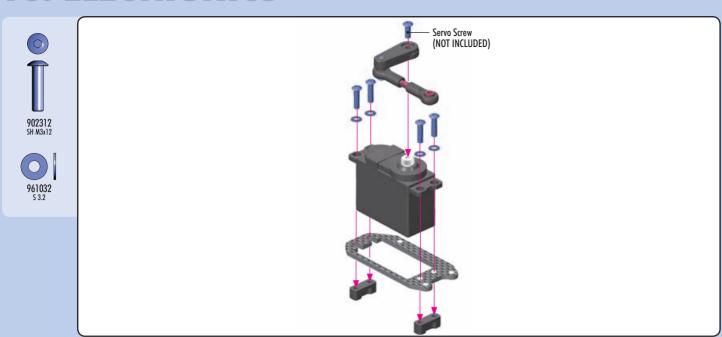


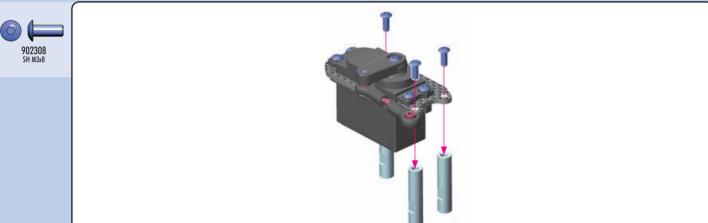
302630 326177 352460 352670 356109 356154 356154 356154	ADJ. TURNBUCKLE L/R 20MM - HUDY SPRING STEEL™ (2) COMPOSITE BATTERY CLAMP (2) PIVOT BALL 5.8 (10) SERVO BALL JOINT 5.8MM (4) XB8E/GTXE/XT8E SADDLE PACK GRAPHITE SERVO HOLDER COMPOSITE SERVO MOUNT - SMALL (2) XB8E/GTXE/XT8E BATTERY BOX FOR STANDARD & SHORT BATTERY PACK (2) COMPOSITE SPEEDO PLATE ALU MOUNT FOR RECEIVER BOX	902308 902312 902314 902325 903310 903410 903412 960030 960040	HEX SCREW SH M3x8 (10) HEX SCREW SH M3x12 (10) HEX SCREW SH M3x14 (10) HEX SCREW SH M3x25 (10) HEX SCREW SFH M3x20 (10) HEX SCREW SFH M4x10 (10) HEX SCREW SFH M4x12 (10) NUT M3 (10) NUT M4 (10) MACHER S 2 3 (10)
356194 356200	ALU MOUNT FOR RECEIVER BOX Brake/Throttle Arms & Steering Servo Arms - Set	960040 961032	NUT M4 (10) WASHER S 3.2 (10)

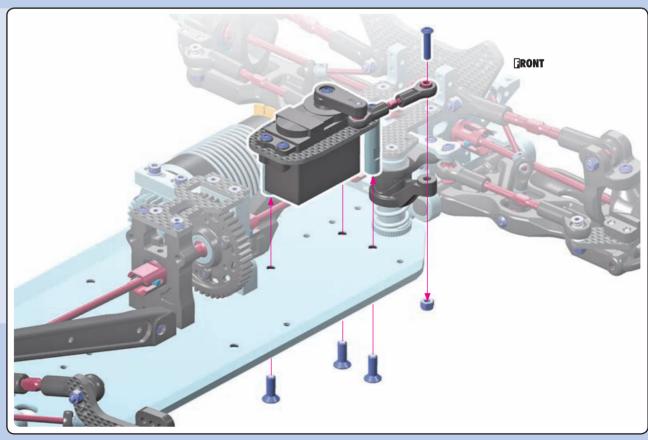






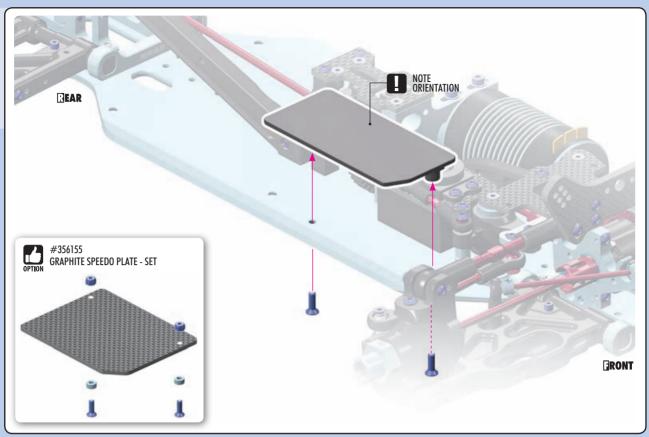


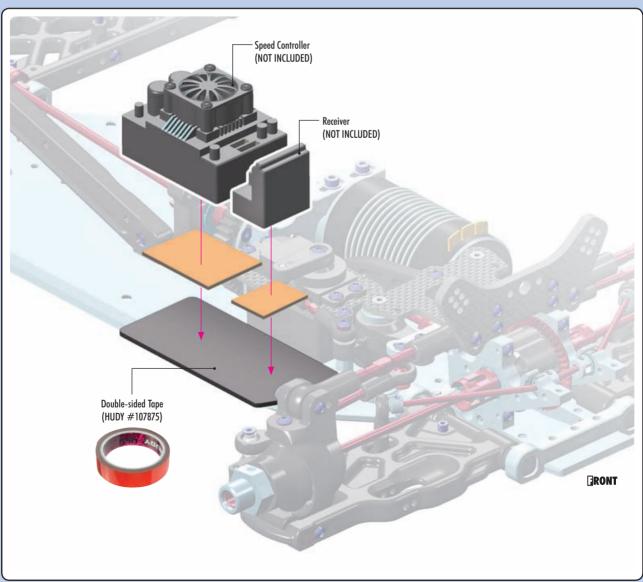


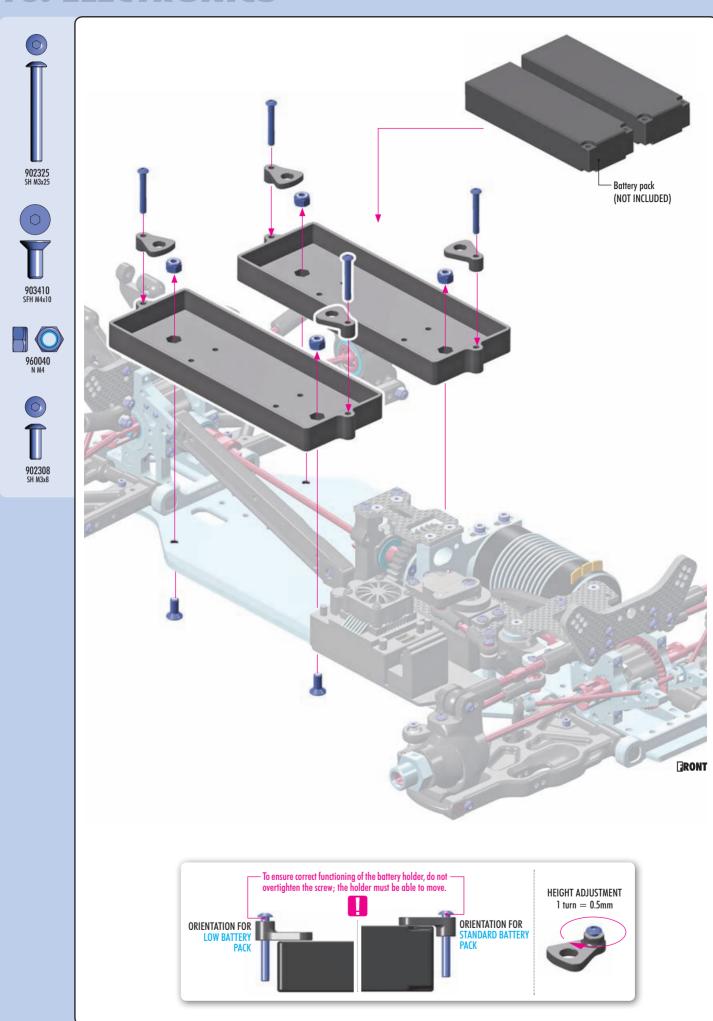




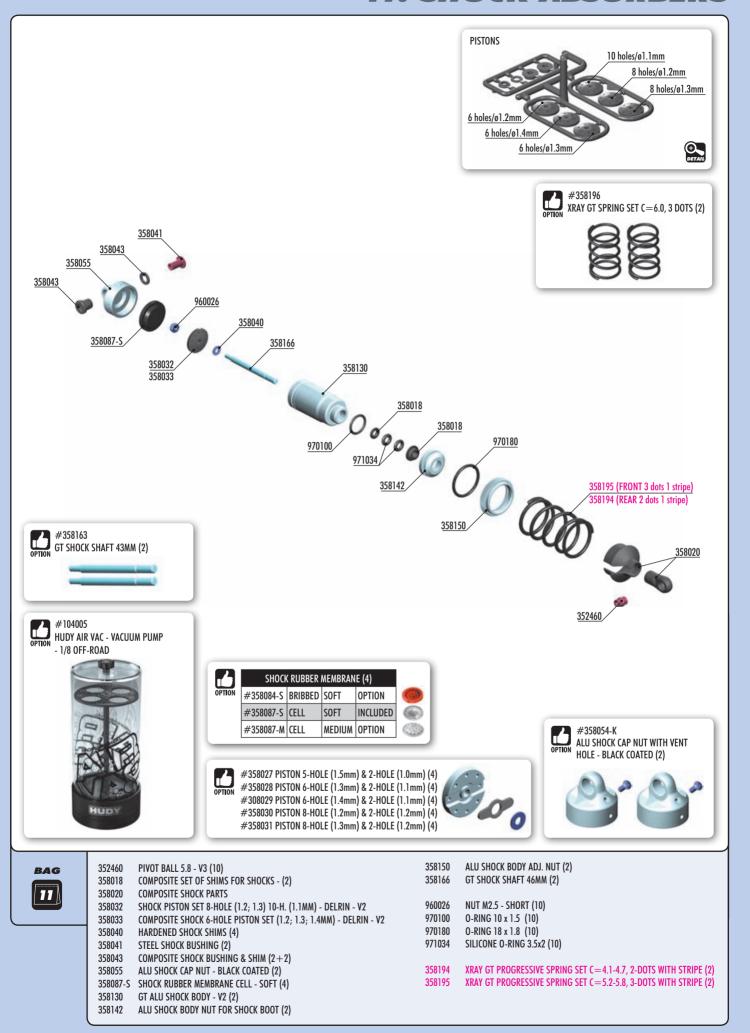




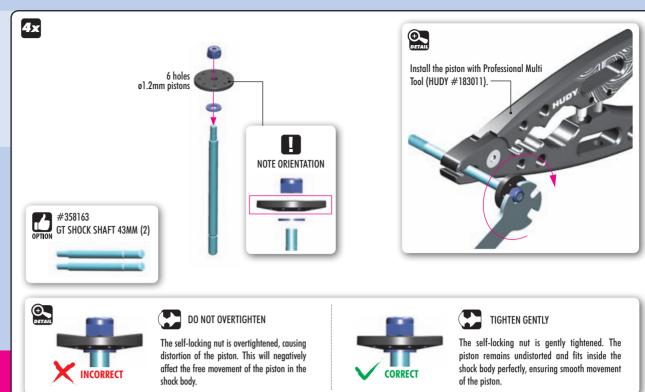




11. SHOCK ABSORBERS



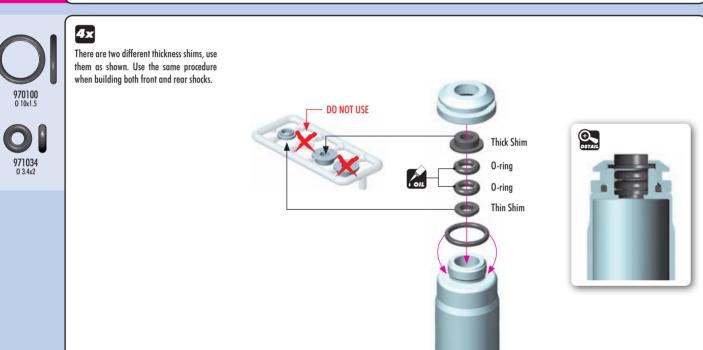
11. SHOCK ABSORBERS



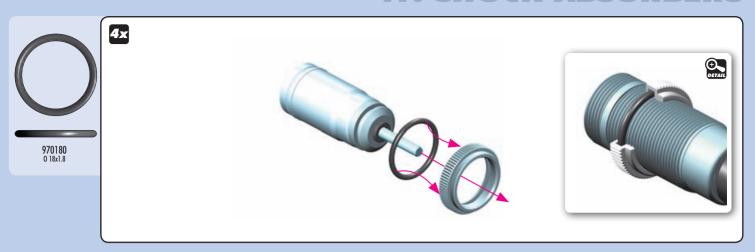
SET-UP BOOK SHOCK DAMPING SHOCK PISTONS

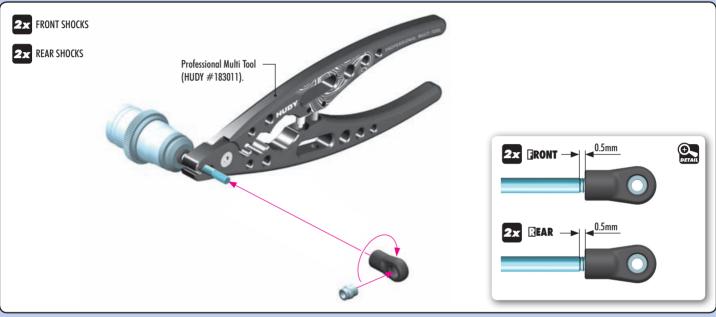
358040 S 2.5x6x0.5

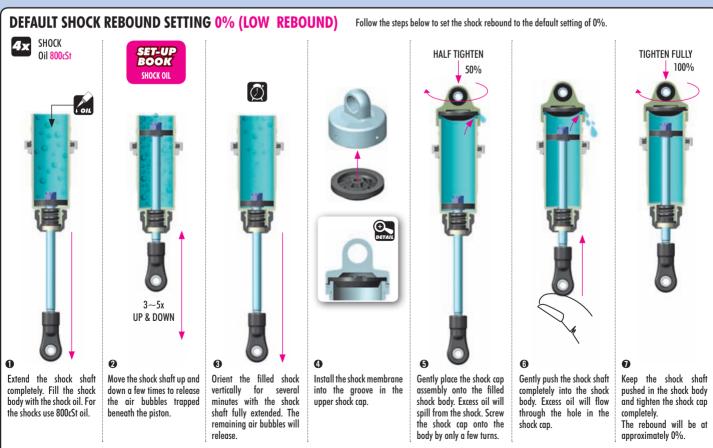
960026 N M2.5



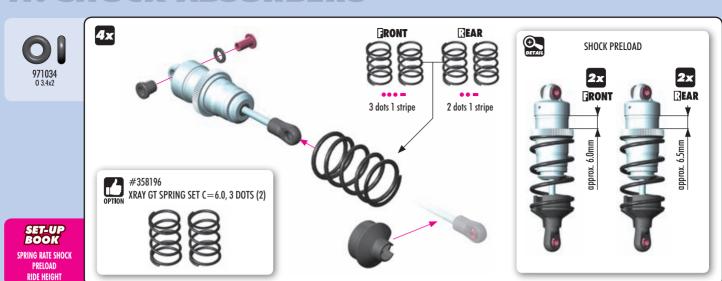








11. SHOCK ABSORBERS





The default shock rebound setting is 0% (as described on page 40).

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)



Extend the shock shaft completely and remove the shock cap.



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



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



Gently place the shock cap assembly onto the filled shock body. Excess oil will spill from the shock.



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



Keep the shock shaft pushed 50% into the shock body and tighten the shock cap completely.

The rebound will be at approximately 50%.

SETTING THE SHOCK REBOUND TO 100% (HIGH REBOUND)



Extend the shock shaft completely and remove the shock cap.



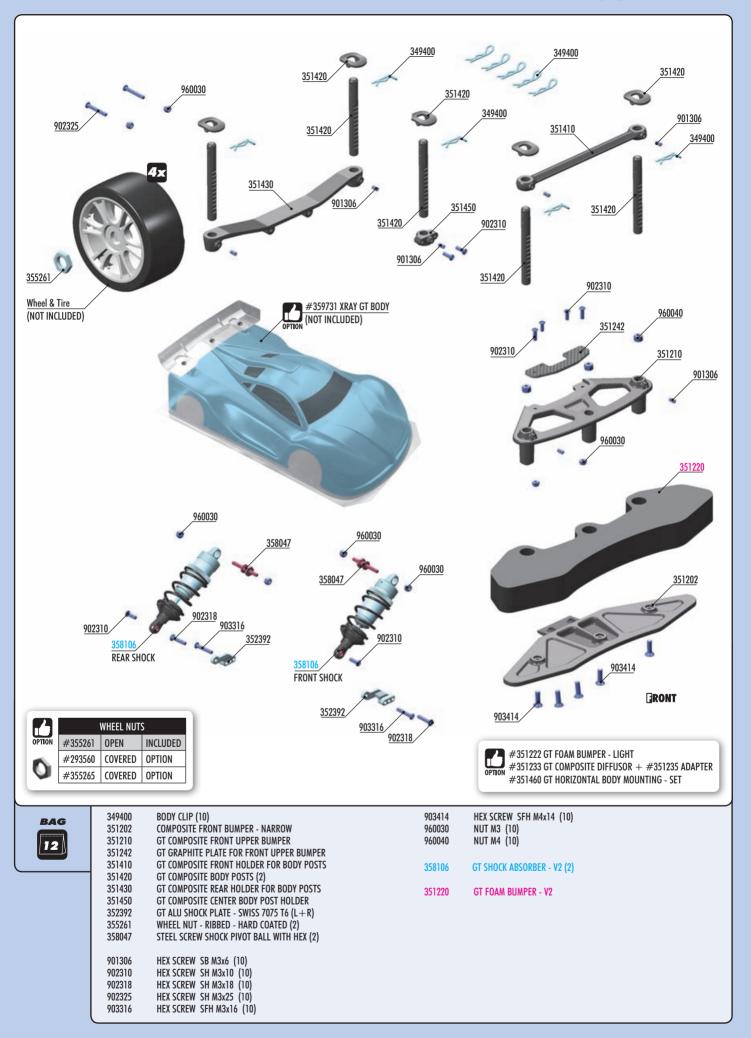
Fill the shock body with shock oil up to the top. Make sure to use same viscosity shock oil as is in the shock.

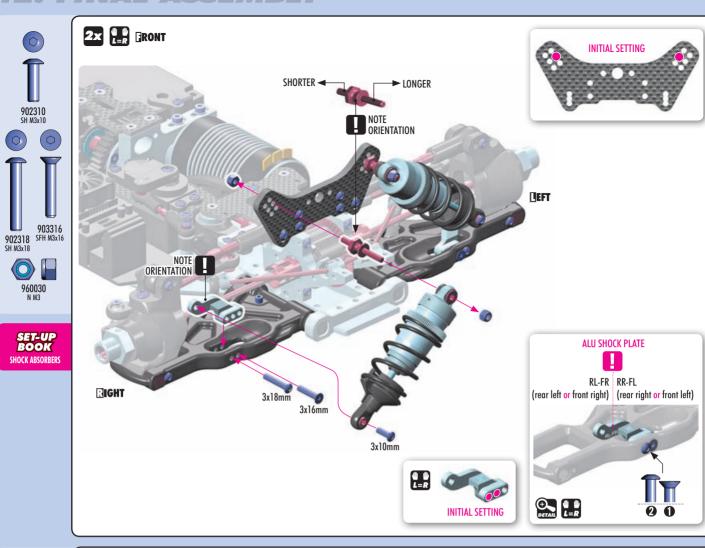


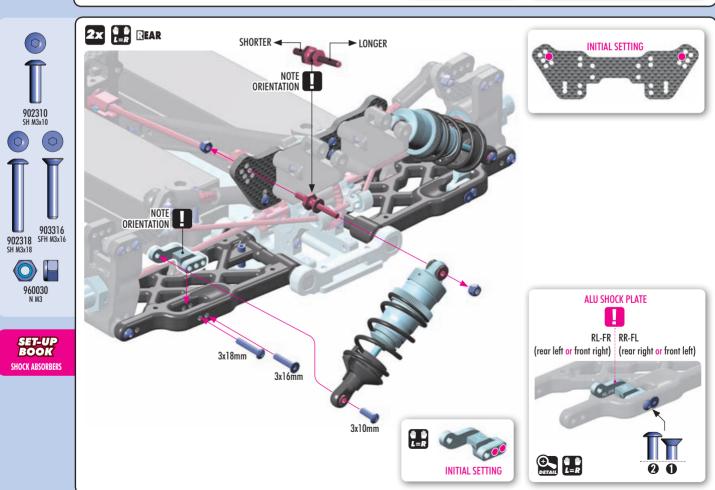
Orient the filled shock vertically for several minutes with the shock shaft fully extended. The remaining air bubbles will release.



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%.

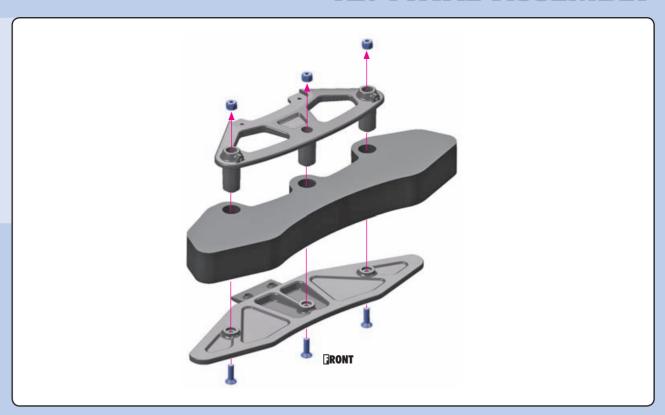






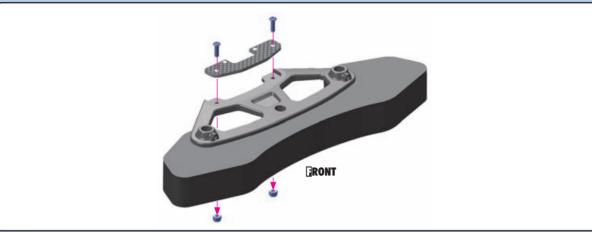




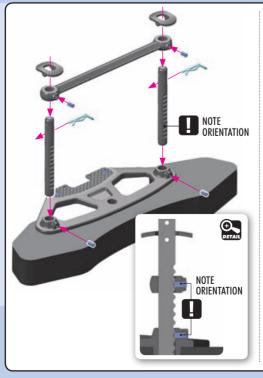


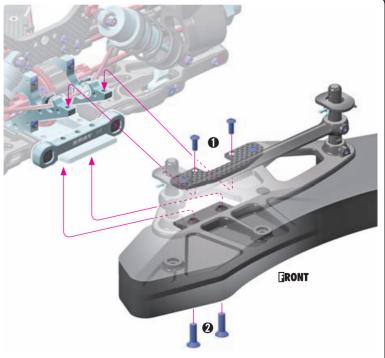




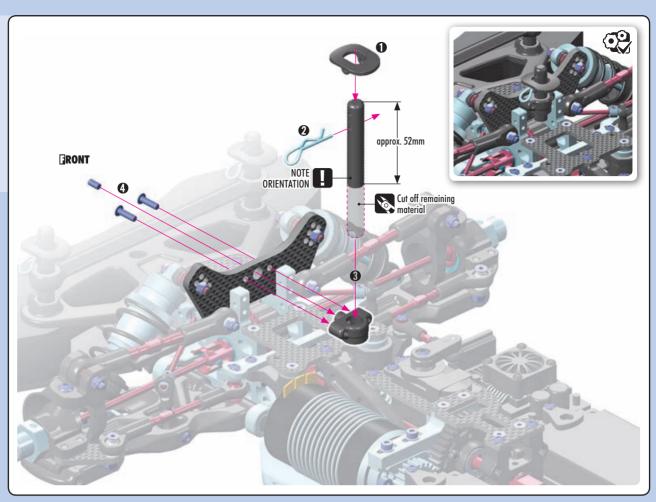




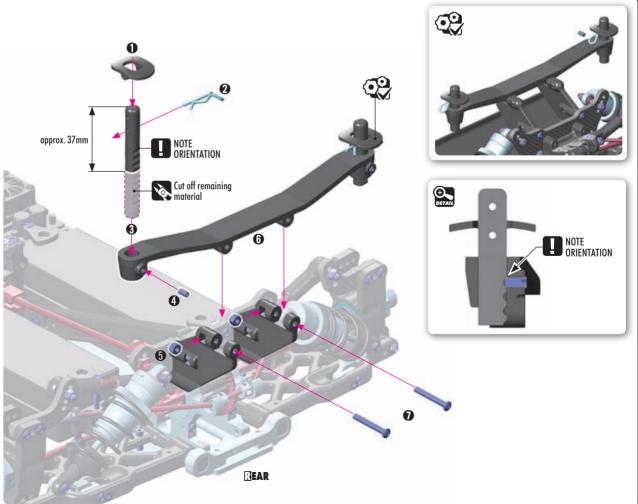


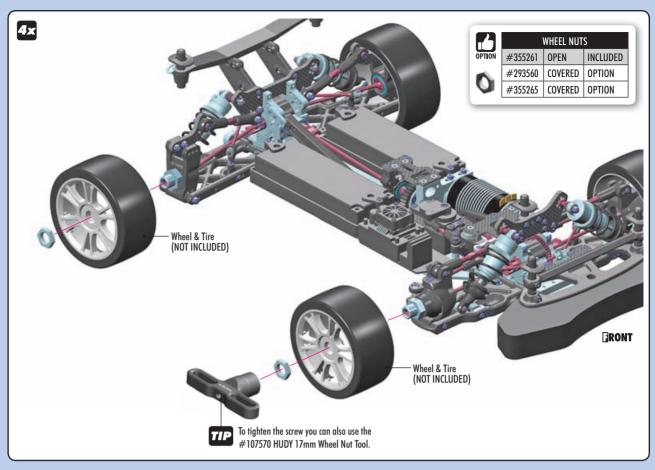


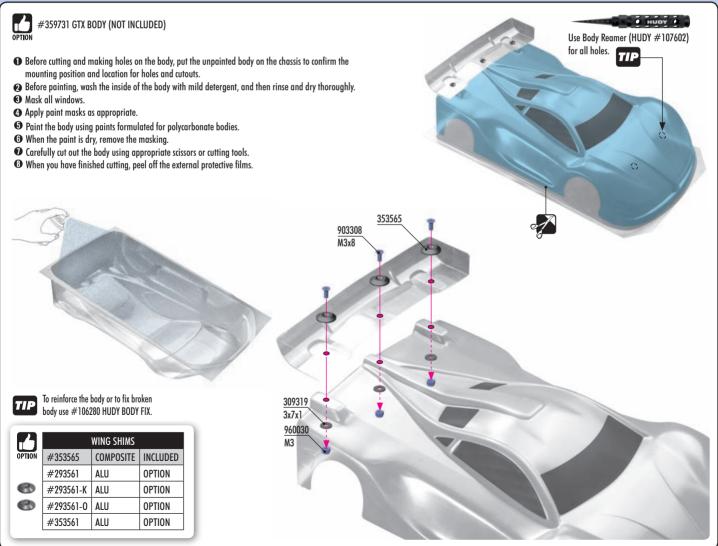




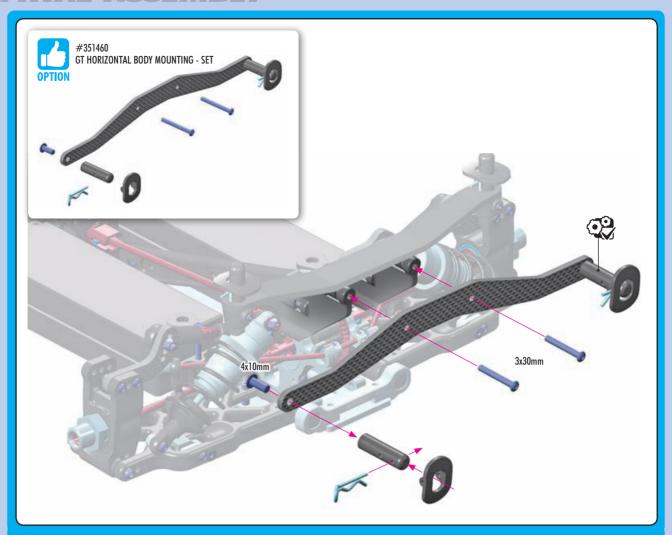




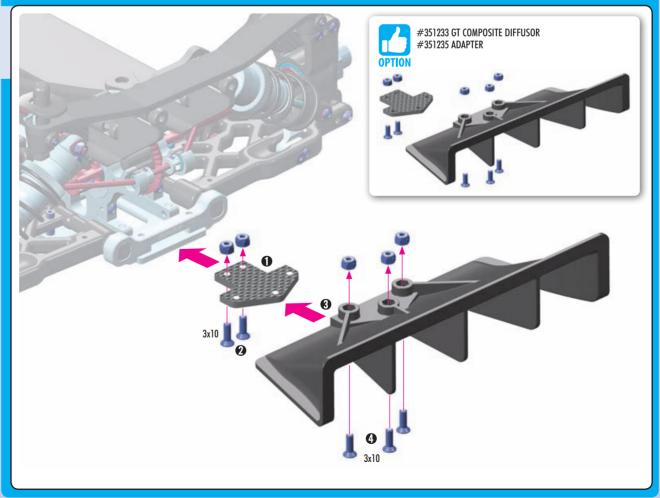




CT P 1 = 523







7 5 4 7 7



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 rubber bladders and 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.
- If installing new rubber bladders, carefully trim the thin excess rubber from the edges of their lips.
 Curved body scissors work the best.
- Regularly inspect the amount of dirt on the felt protector in the shocks (if present) and regularly
 replace with a new one.
- 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 or truggy must be properly maintained for smooth operation and long lifespan.

Typically, the ball-bearings included in new cars are greased for highest lifespan and as such the drivetrain may not seem to be as free as with lightly-oiled ball-bearings. However, when the car is run the ball-bearings will become more free and the drivetrain will become very efficient.

There are several types of bearings discussed here: bearings which already come greased from the factory, bearings which must be lubricated using the HUDY Bearing Grease, and then there are also bearings in the steering system which need to be lubricated with HUDY Bearing Oil.

The following procedures are recommended to clean all of the bearings in your off-road car or truggy. For high-competition racing, we recommended doing this every 3-4 weeks, or before a major race.

- 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.
- 2. Spray the seals with motor cleaner and blow dry with compressed air.
- 3. Spray the bearing on both sides with motor cleaner.
- 4. Spin the bearing while it is still wet to dislodge any particles with the cleaner.
- 5. Spray the bearing on both sides again.
- 6. Blow both sides of the bearing dry with compressed air to make sure particles come out.
- 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.
- 8. Place one drop of bearing oil into each side of the bearing.
- 9. 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 gagin, 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.

CLUTCH BEARINGS

To prolong the lifespan of the clutch bearings, they must be regularly cleaned and lubricated (preferably after each run) using a high-quality grease such as HUDY Bearing Grease. However, after some time the clutch bearings must be replaced with new ones.

- Use HUDY Bearing Grease to regularly lubricate grease-bearing ball-bearings.
- Use HUDY Bearing Oil to lubricate the bearings of the steering system.
- Use HUDY Bearing Grease to regularly lubricate the clutch bearings.

HUDY #106230

HUDY #106213 HUDY #106220 HUDY #106222





HUDY



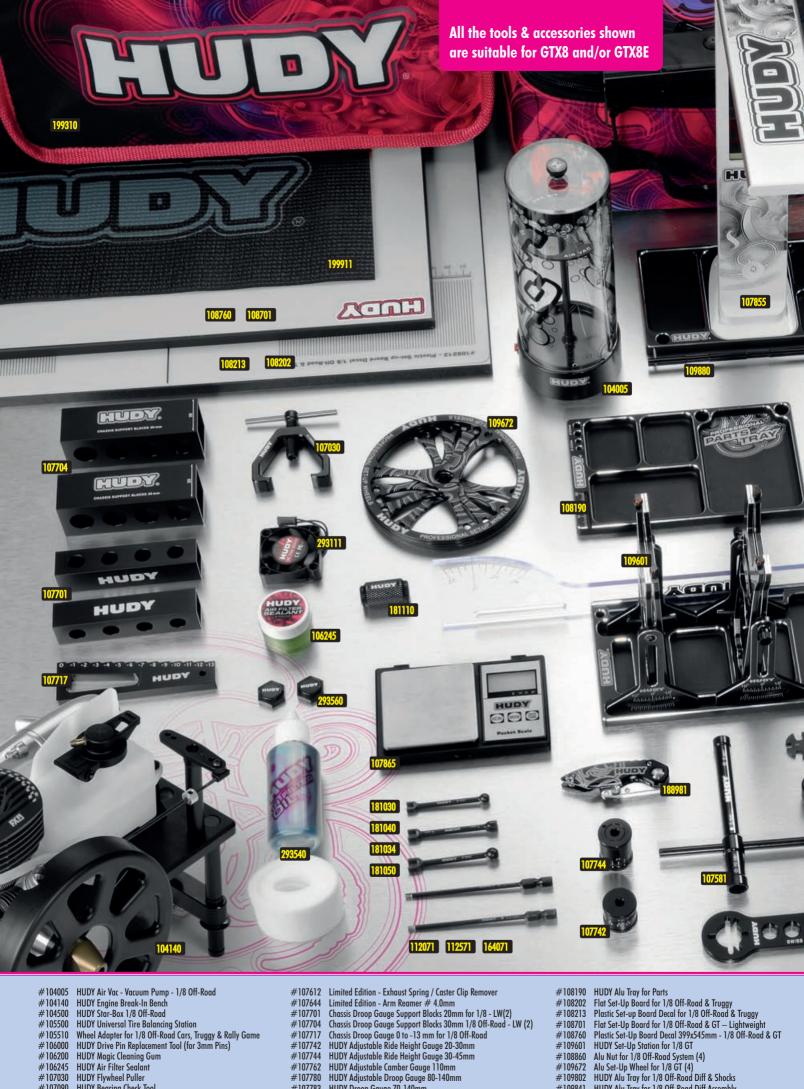
SUSPENSION & DRIVETRAIN MAINTENANCE

- 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 Regmer to clean and resize the bales of the suspension arms.
- 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 3x14 (#106050).
- 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 SPRING STEEL™

The HUDY Spring Steel we 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.



#105510

#106000 #106200

#106245 #107030 **HUDY Flywheel Puller**

#107090 **HUDY Bearing Check Tool**

#107570

HUDY 17mm Off-Road Wheel Nut Tool HUDY Cross Wrench Glowplug # 8mm / Clutchnut # 10mm Limited Edition - Reamer for Body 0-18mm + Cover - Large #107581 #107602

#107717

#107742 #107744

#107762

HUDY Adjustable Droop Gauge 80-140mm HUDY Droop Gauge 70-140mm #107780

#107783 #107855 HUDY Pit LÉD

#107865 HUDY Ultimate Digital Pocket Scale 300g/0.01g #108170 HUDY Off-Road & Truggy Car Stand

#108760

#109601

#108860 #109672

#109802

#109841 HUDY Alu Tray for 1/8 Off-Road Diff Assembly #09860 HUDY Alu Tray for Set-Up System #109880 HUDY Alu Tray for Accessories & Pit LED #111545 Limited Edition - Allen Wrench # 1.5mm



Power Tool Tip Allen 2.0 x 90 mm Limited Edition - Allen Wrench # 2.5mm

#112071 #112545

#112571 Power Tool Tip Allen 2.5 x 90 mm #113045

#132045 #132545

Power Tool Tip Allen 2.5 x 90 mm
Limited Edition - Allen Wrench # 3.0mm
Limited Edition - Allen Wrench + Ball Repl. Tip # 2.0mm
Limited Edition - Allen Wrench + Ball Repl. Tip # 2.5mm
Long Slotted Screwdriver 4.0 mm - for Engine Adjust. - SPC - V2
Limited Edition - Phillips Screwdriver # 4.0mm
Power Tool Tip Phillips 4.0 x 90 mm
Scales Paires 5.0 mm #154060

#164045

#164071

Socket Driver 5.0 mm
Limited Edition - Socket Driver # 5.5mm
HUDY Spring Steel Turnbuckle Wrench 3 mm #170050 #175535

#181040 #181050

#181090

#181110

#182016

#183011

#188981

#188990 HUDY Professional Body Scissors

#199060 **HUDY Alu Tool Stand** HUDY Car Bag - 1/8 On-Road GT HUDY LiPo Safety Bag #199186

#199270 #199310 HUDY Pit Bag - Compact

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



www.feamxray.com

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